

Fisher Body



**1971
SERVICE
MANUAL**

1971 FISHER BODY SERVICE MANUAL

**FOR ALL BODY STYLES
(Except "H" Body)**

This publication contains the essential removal, installation, adjustment and maintenance procedures for servicing all U.S. and Canadian built 1971 Fisher Body Styles. All information, illustrations, and specifications contained in this publication are based on the latest product information available at the time of publication approval. The right is reserved to make changes at any time without notice.

Arrangement of the material is shown by the table of contents on the right-hand side of this page. Black tabs on the first page of each section can be seen on the edge of the book below section title. A more detailed table of contents precedes each section, and an alphabetical index is included in the back of the manual.

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SECTION 1

GENERAL INFORMATION AND MAINTENANCE

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MANUAL DESCRIPTION

INTRODUCTION

This publication contains essential removal, installation, adjustment and maintenance procedures for servicing all 1971 Fisher Body Styles. This information is current as of time of publication approval.

INDEX

The preceding page contains a "Table of Contents" which lists the section number and subject title of each main body area section. The first page in each main body area section has an index to the subjects included in that section. An alphabetic index covering entire manual is located in section 17.

PAGE AND FIGURE NUMBERS

All page numbers and figure numbers consist of two sets of digits separated by a dash. The digits preceding dash identify main body area section. Digits following

dash represent consecutive page number or figure number within the particular body area section.

REFERENCE TABS

The first page of each section is marked with a ready-reference black tab corresponding with table of contents page.

TEXT

Unless otherwise specified, each service procedure covers all body styles. Procedures covering specific styles are identified by style number, body series number, body type letter or similar designation. A description of these designations is covered in this section under "Model Identification".

ILLUSTRATIONS

Where possible, illustrations are placed in close proximity to accompanying text and should be used as part of the text.

MODEL IDENTIFICATION CHART

Division	Sales Name	Body Type	Series	Styles	
Chevrolet	Chevelle Nomad	A	13200	36	
	Chevelle "300" Deluxe	A	13400	36-37-46-69-80	
	Chevelle Malibu	A	13600	36-37-39-46-67-69-80	
	Concours Estate	A	13800	36-46	
	Monte Carlo	A	13800	57	
	Biscayne	B	15400	35-69	
	Bel Air	B	15600	35-45-69	
	Impala	B	16400	35-39-45-47-67-69	
	Caprice	B	16600	35-39-45-47	
	Camaro	F	12400	87	
	Nova	X	11400	27-69	
	Pontiac	Tempest T-37	A	23300	27-37-69
		Tempest LeMans	A	23500	27-36-37-39-46-69
Tempest LeMans Sport		A	23700	37-39-67	
Tempest GTO		A	24200	37-67	
Grand Prix		A	27600	57	
Catalina		B	25200	35-39-45-57-67-69	
Brougham		B	25800	39-57-69	
Bonneville		B	26200	35-39-40-45-57-69	
Grand Ville		B	26800	47-49-67	
Firebird		F	22300	87	
Oldsmobile		F-85	A	33200	69-87
		Cutlass	A	33600	36-69-77-87
	Cutlass Supreme	A	34200	39-57-67	
	442	A	34400	67-87	
	Vista-Cruiser	A	34800	56-66	
	Delta 88	B	35400	39-57-69	
	Delta Custom 88	B	36400	39-57-69	
	Delta Royale 88	B	36600	47-67	
	Delta Cruiser 88	B	36800	35-45	
	Ninety Eight	C	38400	37-39	
	Ninety Eight Luxury	C	38600	37-39	
	Toronado	E	39600	57	
	Toronado Deluxe	E	39800	57	

MODEL IDENTIFICATION CHART (Cont'd.)

Division	Sales Name	Body Type	Series	Styles
Buick	Skylark	A	43300	27-37-69
	GS	A	43400	36-37-67 (36 Sport Wagon)
	Skylark Custom	A	44400	37-39-67-69
	Le Sabre	B	45200	39-57-69
	Le Sabre Custom	B	45400	39-57-67-69
	Estate Wagon	B	46000	35-45
	Centurion	B	46600	39-47-67
	Electra "225"	C	48200	37-39
	Electra "225" Custom	C	48400	37-39
	Riviera	E	49400	87
Cadillac	Fleetwood Brougham Sedan	C	68100	69
	Calais	C	68200	47-49
	DeVille	C	68300	47-49
	Fleetwood Seventy-Five	D	69700	23-33
	Eldorado	E	69300	47-67
GM of Canada Acadian	Acadian	X	71400	27-69
GM of Canada Pontiac	Laurentian Parisienne Brougham	B B	75600 76400	35-45-57-69 39-57-69

MODEL IDENTIFICATION**INTRODUCTION**

Due to variety of body styles available, certain body styles have been grouped in this publication as an aid to identification. These group designations may be used individually or in various combinations. In addition to model identification chart, an explanation of principal categories follows:

BODY SERIES NUMBER

The body series number may be used to indicate two possibilities:

1. Division - first digit and four zeros (ex. 10000 Chevrolet; 20000 Pontiac).

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2. Division, Car Line and Style Group - first three digits and two zeros (ex. 25200 Catalina; 25800 Brougham).

77 2-Door - Plain Back Pillar Coupe
 80 2-Door - Pick-Up Delivery
 87 2-Door - Plain Back - Hardtop Coupe.

BODY STYLE IDENTIFICATION

The last two digits of the body series number indicate body style type as follows:

STYLE	DESCRIPTION
23	4-Door - Limousine with Auxiliary Seat
27	2-Door - Notch Back - Pillar Coupe
33	4-Door - Limousine with Auxiliary Seat and Center Partition Window
35	4-Door - Station Wagon - 2 Seat
36	4-Door - Station Wagon - 2 Seat - Dual Acting Tail Gate
37	2-Door - Notch Back - Hardtop Coupe
39	4-Door - Notch Back - Hardtop (4 Window) Sedan
45	4-Door - Station Wagon - 3 Seat
46	4-Door - Station Wagon - 3 Seat - Dual Acting Tail Gate
47	2-Door - Notch Back - Hardtop Coupe
49	4-Door - Notch Back - Hardtop (4 Window) Sedan
56	4-Door - Station Wagon - 2 Seat - Dual Acting Tail Gate
57	2-Door - Notch Back - Hardtop Coupe
66	4-Door - Station Wagon - 3 Seat - Dual Acting Tail Gate
67	2-Door - Convertible Coupe
69	4-Door - Notch Back - Pillar (4 Window) Sedan

BODY STYLE NAME

Body style names are used for group classification as follows (style numbers suffix shown in brackets):

1. Closed Style
 - A. Two-door coupe (27,77)
 - B. Four-door sedan (69)
 - C. Limousine (23,33)
2. Hardtop
 - A. Sport coupe hardtop (37, 47, 57, 87)
 - B. Sedan hardtop (39, 49)
3. Station Wagon
 - A. Station wagon two seat (35-36, less skylight; 56 with skylight)
 - B. Station wagon three seat (45-46 less skylight; 66 with skylight)
4. Convertible Coupe (67)
5. Sedan Delivery (80)

BODY NUMBER PLATE

The body number plate identifies the model year, car division, series, style, body assembly plant, body number, trim combination, paint code and date build

code (Figs. 1-1 and 1-2). On all "B", "C", "D" and "E" bodies, plate is located on right upper portion of horizontal surface of shroud. On all other bodies, plate is located on left upper portion of horizontal surface of shroud.

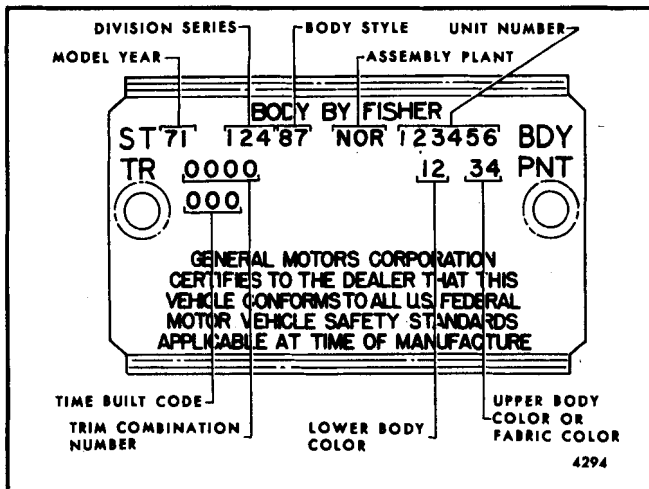


Fig. 1-1-Body Number Plate - U.S. Models

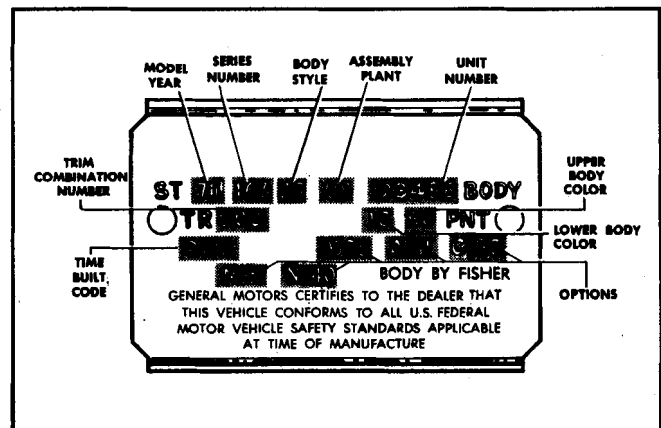


Fig. 1-2-Body Number Plate - Canadian Models

VEHICLE IDENTIFICATION NUMBER

The Vehicle Identification Number (serial number) is located on left horizontal surface of instrument panel which is visible from outside the car (Figure 1-3 shows a typical installation).



Fig. 1-3-Typical Vehicle Identification Number

LOCK CYLINDER CODING

FIVE BITTING LEVEL LOCK CYLINDER AND KEY

All 1971 style cars are equipped with new lock cylinders and keys. The keyway has been revised so

that prior model keys will not enter current model lock cylinders.

Two non-interchangeable keyways are used on 1971 model cars. One keyway, known as type "A", is used

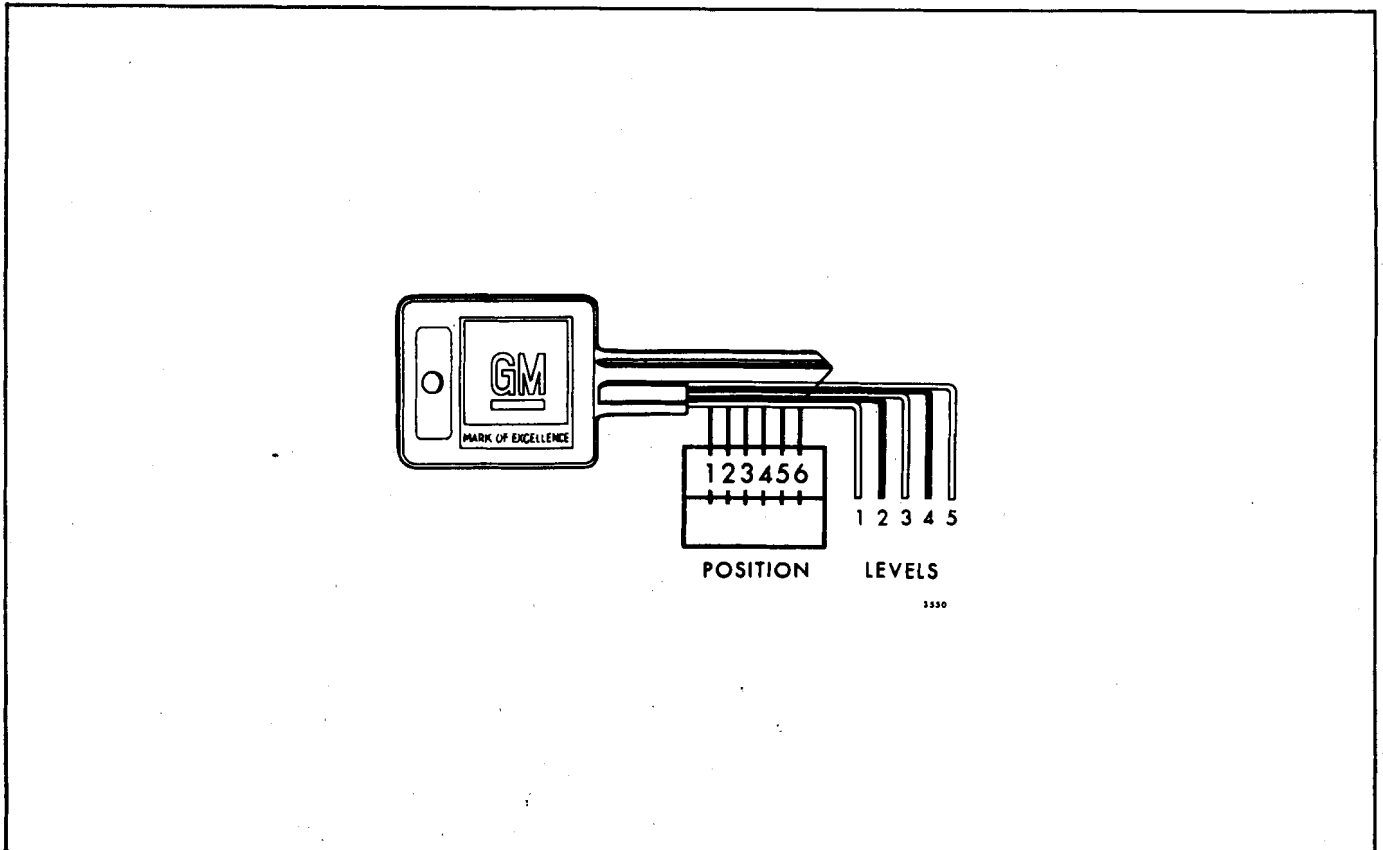


Fig. 1-4-Key Code Diagram

in all ignition, front door and station wagon tail gate lock cylinders. Type "A" keys will have a square head and be marked similar to keys used for 1970 styles, except that capital letter "A" will be located on shank just below coining on head, in place of capital letter "J". In addition, a code number within the series 0A00 to 9A99, or 0B00 to 9B99 will be stamped on knock-out portion on keyhead. This number identifies the lock combination and is used when ordering or making new keys.

The second keyway, known as type "B", is used in instrument panel compartment, console compartment, rear compartment and station wagon rear floor compartment lock cylinders. Type "B" keys will have oval heads and will be similar to keys used for 1970 styles, except that capital letter "B" will be stamped on shank just below coining on head, in place of capital letter "K". In addition, a code number within the series 0C00 to 9C99, or 0D00 to 9D99 will be stamped on knock-out portion of key head. This number identifies the lock combination and is used when ordering or making new keys.

Keycode numbers are stamped on "knockout" plug in key head (to facilitate replacement or duplication of key). After code number has been recorded by owner, plugs should be knocked out of key head. From these numbers, lock combination can be determined by use of a code list (available to owners of key cutting equipment from equipment suppliers). If key code numbers are not available from records or from "knock-out" plug, lock combination (tumbler numbers and position arrangement) can be determined by laying key on diagram in Figure 1-4.

CUTTING KEYS

After the special code has been determined, either from code list or Key Code Diagram (Figure 1-4) cut blank key to the proper level for each of six tumbler positions, and check key in lock cylinder. The new key should agree with combination opposite code number in code list.

REPLACEMENT LOCK CYLINDERS

New lock cylinders are available from Servicing Parts Warehouses with new lock cylinder locking bar staked in place. Tumblers are also available and must be assembled into cylinder according to procedure outlined below.

ASSEMBLY AND CODING LOCK CYLINDERS

All Lock Cylinders Except Glove And Console Compartments

Tumblers for all locks except glove and console compartments are shaped exactly alike, with the

exception of notch position on one side. As the key is inserted in lock cylinder, tumblers are raised to correct height so that notches on each tumbler are at same level. When the notches on all six tumblers line up, locking bar is pushed into the notches by two small springs, allowing cylinder to turn in its bore. Five types of tumblers are used to make all various lock tumbler combinations and each is coded according to a number, 1 through 5, stamped on its side.

1. Determine lock cylinder tumbler numbers and tumbler arrangement by use of numerical key code lock cylinder code list. Code lists are made available to owners of key cutting equipment by equipment suppliers.

NOTE: To determine which tumblers should be installed in what position for a given key, when a code list is not available, proceed as follows:

- a. Lay key on Key Code Diagram (Figure 1-4) with key outlined by diagram as accurately as possible.
 - b. Starting at head of key blade, determine and record lowest level (tumbler number) that is visible in position No. 1 and subsequent position numbers 2 through 6. After tumbler numbers and arrangement have been determined, assemble as outlined in following steps.
2. Starting at open end (head) of cylinder, insert tumblers in their proper slots in the order called for by the code, as shown in Figure 1-5.
 3. Pull out side bar with fingers so that tumblers will drop completely into place (Fig. 1-5). Insert one tumbler spring in space provided above each tumbler.

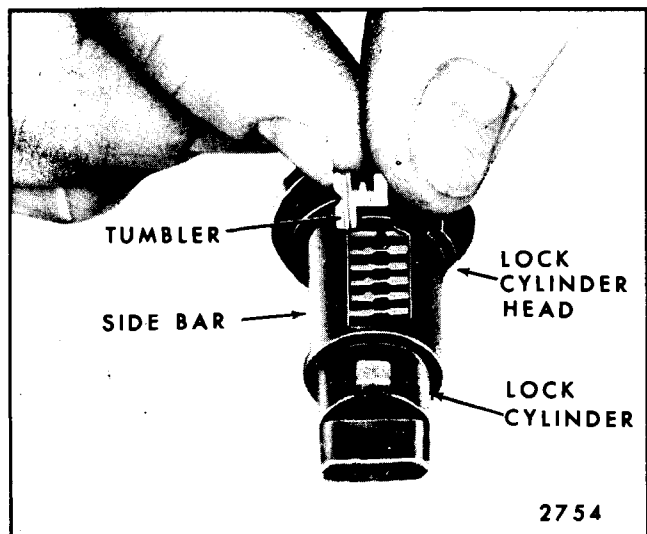


Fig. 1-5-Installing Tumblers

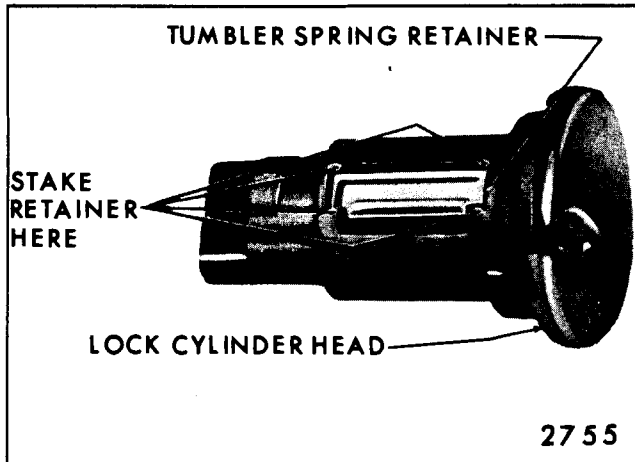


Fig. 1-6-Installing Spring Retainer

NOTE: IF THE SPRINGS BECOME TANGLED, DO NOT PULL THEM APART - UNSCREW THEM

4. Insert spring retainer so that two end prongs slide into the slots at either end of cylinder. Press retainer down (See Figure 1-6).
5. To determine if tumblers have been properly installed, insert key into lock cylinder. If tumblers are installed properly, side bar will drop down. If bar does not drop down, remove key, spring retainer, springs and tumblers and reassemble correctly.

NOTE: If tumblers have not been assembled correctly, they can be removed from cylinder by holding cylinder with tumbler slots down, pulling side bar out with fingers and jarring cylinder to shake tumblers out. This procedure is necessary because once tumblers have been pressed down into the cylinder they are held in their slots by side bar.

6. If, after checking, it is found that lock cylinder is assembled properly, remove key and secure cylinder in a vise with spring retainer exposed.

NOTE: Use leather or wood at each vise jaw to prevent damage to cylinder.

7. Using suitable staking tool, stake spring retainer securely in place by staking cylinder metal over retainer at each end. Refer to Figure 1-6.

ASSEMBLING AND CODING GLOVE AND CONSOLE COMPARTMENT LOCK CYLINDERS

Only one type of tumbler is used to make various lock

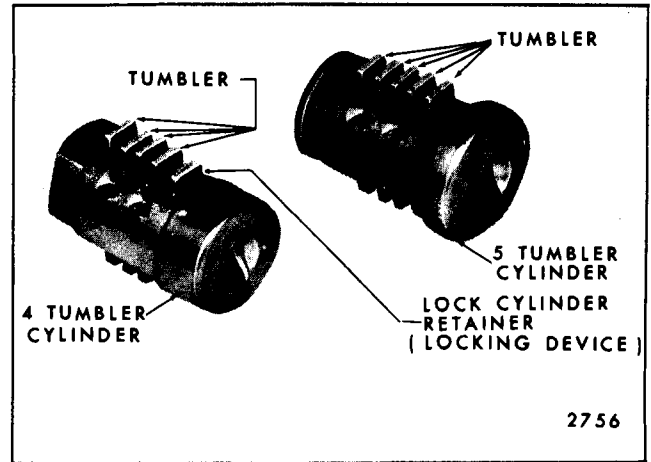


Fig. 1-7-Glove Compartment Lock Cylinder

tumbler combinations for glove and console compartment locks. Tumblers for these two lock cylinders are pre-assembled in service replacement lock cylinder and require that correctly coded key be inserted in cylinder before and during cylinder coding.

As key is inserted in coded lock cylinder, each tumbler is depressed so that no part of any tumbler is exposed above level of lock cylinder thereby allowing cylinder to turn in its bore.

NOTE: These two lock assemblies are equipped with four or five tumblers rather than six as used in other locks. Tumblers are used in positions 3-4-5-6 or 2-3-4-5-6 only. Tumblers which correspond to positions 1 and/or 2 on key are not used. The non-brass, black "tumbler" that is closest to head of four tumbler lock cylinder is a locking device and must NOT be removed or filed See Figure 1-7.

1. Insert properly coded key in cylinder.
2. Place cylinder in vise, bottom side up, using

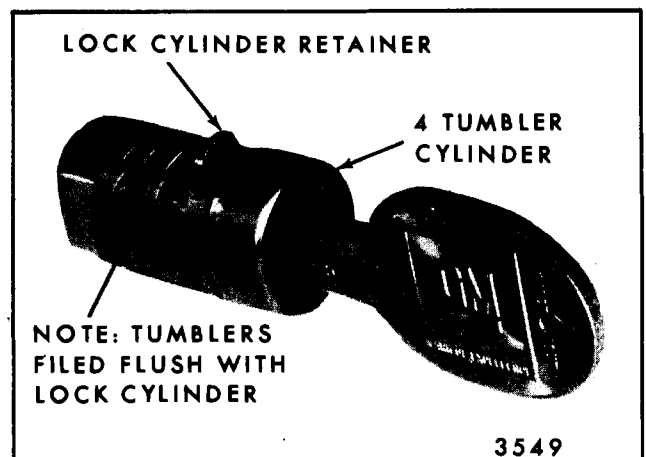


Fig. 1-8-Coded Glove Compartment Cylinder

leather or wood at each vise jaw to prevent damage to cylinder.

3. File tumblers down so that no part of any tumbler extends above lock cylinder.

NOTE: Do not file any part of the non-brass,

black "tumbler" (retainer) on four tumbler lock cylinders. This is a locking bar and should not be altered.

4. Reverse lock cylinder position in vise and repeat step No. 3 for top of tumblers See Figure 1-8.

GLASS POLISHING

REMOVAL OF MINOR SCRATCHES AND ABRASIONS

Description

Minor glass scratches and abrasions can be effectively removed or substantially reduced by utilizing procedure and precautions presented in this section. The phases of glass polishing discussed in this section include equipment required, recommended procedure and precautions necessary.

There are two basic types of automotive glass: (1) laminated safety plate (all windshield and skylight glass) and (2) solid tempered safety plate (all side windows and back glass, except skylight).

A major concern in glass polishing is preventing double vision from developing in areas that will distort driver's vision. For this reason, less polishing can be done on windshield in driver's line of vision than in other areas. Distortion is most likely to result when attempting to remove deep scratches.

Glass polishing is an operation that must be performed with reasonable care.

NOTE: This operation must not be performed on inside surface of rear window glass equipped with rear window electric grid defogger (heating elements in glass).

The equipment and procedures recommended here were developed using cerium oxide compound (Glass-Nu or equivalent). Follow manufacturer's directions if other materials are used.

The following equipment is recommended for glass polishing:

1. A low speed (600-1300 RPM) rotary polisher (Ski Model No. 570 or equivalent).
2. A wool felt rotary-type polishing pad, approximately three inches in diameter and two inches thick.
3. Powdered cerium oxide (Glass-Nu or equivalent) mixed with water as the abrasive compound.

4. A wide mouth container to hold the polish.

Glass Polishing Procedure

1. Mix at least three heaping tablespoons of cerium oxide (Glass-Nu or equivalent) with sufficient water to obtain a creamy consistency.

NOTE: If a larger proportion of cerium oxide (Glass-Nu or equivalent) is used, compound cakes on the felt pad faster. If a smaller proportion is used, polishing time required will increase.

2. Agitate mixture occasionally to maintain a creamy consistency. Powdered cerium oxide is insoluble in water and tends to separate.
3. Draw circle around scratches on opposite side of glass with marking crayon or equivalent. Draw other lines directly behind scratches to serve as guides in locating scratch during polishing (Fig. 1-9).
4. Use masking paper where needed to catch drippings or spattered polish.

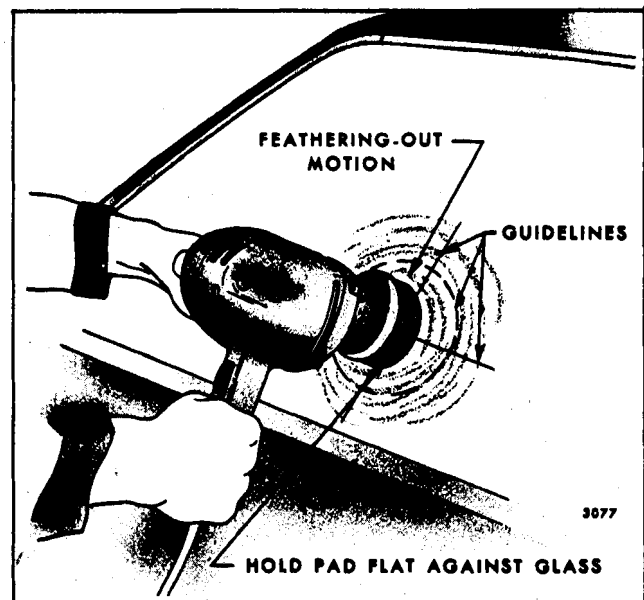


Fig. 1-9-Minor Glass Scratch Removal

5. Dip felt pad attached to polisher into mixture several times to insure that pad is well saturated.

NOTE: Never submerge or allow pad to stay in mixture as it may loosen bond between pad and metal plate.

6. Using moderate, but steady, pressure, hold pad flat against scratched area of glass, and with a feathering-out motion, polish affected area as shown in Figure 1-9.

NOTE: Avoid excessive pressure. It does not speed-up operation and may cause overheating of glass.

7. Cover sufficient area around scratch with a feathering-out motion as shown in Figure 1-9, to eliminate any possibility of a "bulls-eye".

NOTE: Never hold tool in one spot or operate tool on the glass any longer than 30 to 45 seconds at a time. If glass becomes hot to touch, let it air cool before proceeding further. Cooling with cold water may crack heated glass.

8. Dip pad into mixture about every fifteen seconds to insure that wheel and glass are always wet during polishing operation. A dry pad causes excessive heat to develop.

9. After removing scratch or abrasion, wipe body clean of any polish.

10. Clean polishing pad.

NOTE: Care should be taken during polishing and storage to keep pad free of foreign material such as dirt, metal filings, etc.

WOOD GRAIN TRANSFER (STATION WAGON STYLES)

DESCRIPTION AND GENERAL INFORMATION

Wood grain transfers of all-vinyl construction are used on 1971 model station wagons. The transfers incorporate a pressure sensitive adhesive. The transfers are designed with an appealing wood grain pattern and a 50 degree or semi-gloss finish.

For service replacement, transfers are available through parts warehouses. When placing orders for transfers, carefully indicate "Division", "Model Year" "Body Style" and applicable car panel to determine correct part.

The following general information and procedures apply to replacement of transfers in service.

For quality results, the temperature of transfer, panel surface and work room should be between 65 degrees fahrenheit and 90 degrees fahrenheit. Transfers should not be replaced in temperatures below 65 degrees fahrenheit.

Prepare a supply of wetting solution, as called out in the procedure, by adding 1/4 ounce of detergent ("Joy", "Vel", or equivalent) to one gallon of clean water.

Use of wetting solution, as specified, insures a better bond between transfer and painted surface. Deviating from specifications, such as using too much detergent or using a soap solution, is detrimental to bond of transfer.

Transfer replacement involving collision damage, or damage to underlying acrylic paint finish requires that metal repair and/or refinish operations be carried to completion before transfer is installed.

The purpose of a proper squeegee sequence is to drive out all water and air. With proper tool, use progressive, overlapping strokes and work from center outwardly. At the same time, firm squeegee strokes provide required pressure for proper bonding of transfer adhesive to painted surfaces.

Scuff-sanding an acrylic finish before transfer installation with No. 360 or No. 400 sandpaper promotes better adhesion, and removes dirt nibs and high spots.

The following equipment and materials are necessary in making a quality transfer installation. Equivalent products can be used.

1. Liquid detergent: "Joy", "Vel" or equivalent.
2. Wax and Silicone Remover: "Prep-Sol", "Pre-Kleano", "Acryli-Clean" or equivalent.
3. 3-M Vinyl Trim Adhesive or equivalent; brush or spray-can.
4. Squeegee: 4" to 5" wide; plastic or hard rubber.
5. Water bucket and sponge.
6. Sandpaper, No. 360 or No. 400, Wet-or-Dry Type.
7. Infra-red heat bulb and extension cord

1-10 GENERAL INFORMATION

8. Clean wiping rags or paper towels.
9. Sharp knife.
10. Scissors.
11. Fine pin or needle.

Removal

1. Wash and clean repair surfaces and adjacent panels and openings as required.
2. Remove transfer finishing moldings, handles, side marker lamps, and/or other transfer overlapping parts.
3. Remove affected transfer by starting at one edge and by peeling transfer as sheet from surface. Application of heat to affected transfer at point of removal aids removal operation.

IMPORTANT: Avoid using pointed or sharp instruments during transfer removal as they may damage paint finish.

Installation

1. Scuff-sand acrylic painted surface with No. 360 or No. 400 sandpaper by dry sanding. Freshly painted surfaces must be allowed to dry thoroughly. Residual solvents in fresh paint can lead to subsequent blistering problems.
2. Clean acrylic painted surface with wax and silicone remover, such as: Prep-Sol; Pre-Kleano; Acryli-Clean; or equivalent. Wipe surface with clean cloth, and allow to dry. Use compressed air to blow away loose dirt from area of repair.
3. Apply vinyl trim adhesive to door hem flanges and to rear body lock pillar facing that will be covered by transfer.
4. Peel paper backing from transfer and lay transfer, face down, on clean table.
5. Using clean sponge, apply ample wetting solution to transfer adhesive and to repair panel surface.
6. Align upper edge and ends of transfer with panel surface and press down lightly across top.
7. Squeegee outboard from middle to edges of transfer with firm strokes to remove all air bubbles and wetting solution and to assure bonding of film to painted surface. On large transfers, the following sequence of operations will simplify transfer installation:
 - a. Squeegee a short, 4 to 6 inch, horizontal section

of transfer at center of panel. Lift right or left side of transfer, position it straight and close to panel, and squeegee toward lifted edge. Avoid stretching transfer at lifted end. Squeegee progressively from middle with firm, overlapping strokes.

- b. Lift upper area of transfer (up to bonded area of step "a" above) and, working upward from bonded section at middle, squeegee transfer into place.
 - c. Lift lower area of transfer (up to bonded area) and, working downward from bonded section at middle, squeegee transfer into place.
- IMPORTANT:** If wrinkle is trapped during squeegee operations, stop immediately. Carefully lift affected transfer section. Align affected section to surface and progressively squeegee it into place. Do not lift transfer if only a few tiny bubbles are trapped.
- d. Secure opposite half of transfer to surface as described in steps "a", "b" and "c", above.

8. Notch out corner or curved edges of transfer where necessary. Where necessary, trim off excess material at edges.
9. With heat lamp, heat inboard side of door hem flanges (or body lock pillar facing, etc.) and edges of transfer film (to approximately 90 degrees fahrenheit).
10. Fold ends of transfer over door hem flanges (or over corners at panel ends) and press to secure edges of transfer to panel surfaces. Avoid undue pulling or stretching at ends as tearing could result.
11. Apply heat to transfer at door handle holes, side marker lamps and other depressions. Press transfer uniformly into depressions to obtain formed bond.
12. With sharp knife, carefully cut out excess transfer at side marker lamps, door handle holes, and other openings in panel.
13. Inspect transfer installation from critical angle using adequate light reflection to detect any irregularities that may have developed during installation. Remove all air or moisture bubbles by piercing each at an acute angle with a fine pin or needle and by pressing the bubble down.
14. Install previously removed parts and clean up car as required.

LUBRICATION

GENERAL MAINTENANCE

The mechanical parts of the body that have contacting surfaces which operate in relative motion with other body parts are lubricated during assembly. To maintain ease of operating effort, it is recommended that these parts be lubricated on a periodic basis with lubricants as follows:

1. All hinges (door, compartment lid and tail gate) are to be lubricated every six (6) months with Auto-Lube "A", Part No. 1050110, or Spray-Lube "A", Part No. 1050520 or equivalent.
2. All locks (door, compartment lid and tail gate) are

to be lubricated every six (6) months with Auto-Lube "A", Part No. 1050110, or Spray-Lube "A", Part No. 1050520 or equivalent.

3. Torque rods and hold-open supports (compartment lid and "B" style tail gate) are to be lubricated every six (6) months with Auto-Lube "A", Part No. 1050110, or Spray-Lube "A", Part No. 1050520 or equivalent.

The lubrication requirements for seat mechanism, door window hardware, convertible top mechanism, tail gate hardware, and windshield wipers are covered in the specific body area sections in this manual.

GAS TANK FUEL EMISSION SEPARATOR

DESCRIPTION

On all coupe and sedan style bodies, gas tank fuel emission separator extends upward through piercing in rear compartment pan and is attached by screws to both rear compartment pan and to forward side of rear seat back panel (cargo barrier). The compartment

pan attaching area requires a gasket to assure a positive seal against intrusion of fumes, dust, or water into body interior.

For information regarding removal, installation or general service procedures of fuel emission separator, refer to the applicable car division chassis service manual.

SPECIAL BODY TOOLS

Fig. 1-10 lists special body tools that are recommended as aids in servicing the various body components. It is to be noted that these tools may be substituted with equivalents.

NOTE: Tools 5, 6 and 7 shown in Fig. 1-10 and tools 1, 2, 15 and 16 shown in Fig. 1-11 are new type tools for 1971.

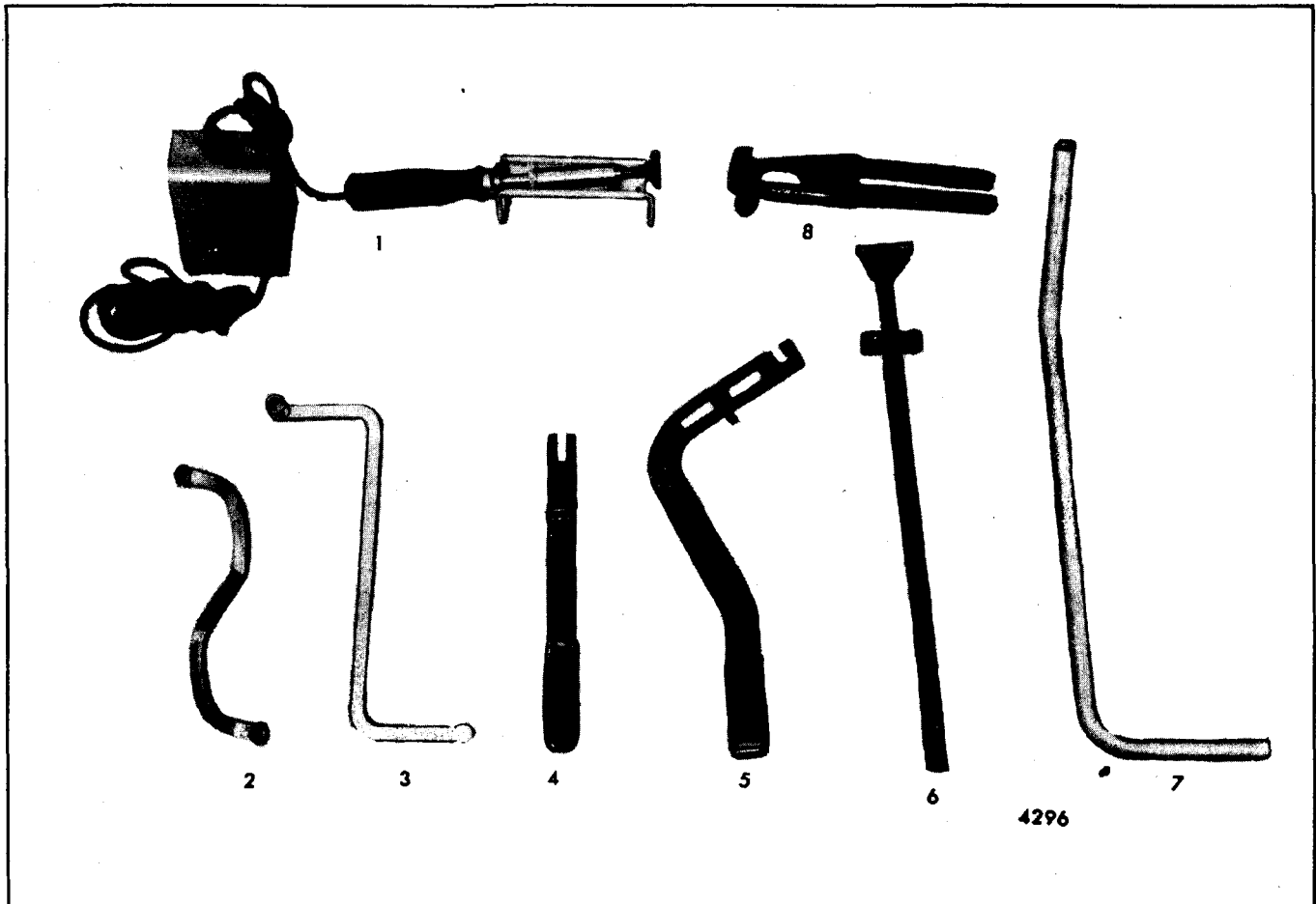


Fig. 1-10-Special Body Tools

1. J-23091 - Fabric Roof Cover Repair Tool-Chevrolet, Pontiac, Oldsmobile and Buick Styles
2. J-21550 - Door Hinge Wrench-"X" Styles (Bolt-On Service Replacement Hinges)

3. J-22810 - Door Hinge Wrench-"A, B, C, E and F" Styles
4. J-21412 - Rear Compartment Lid Torque Rod Removal and Adjusting Tool-"A and X" Styles

5. BT-7102 - Rear Compartment Lid Torque Rod Removal and Adjusting Tool-"A" and Oldsmobile "E" Styles
6. J-23722-Rear Compartment Lid Torque Rod Removal and Adjusting Tool -

- Cadillac "C and E" Styles
7. J-23719- Retractable Tail Gate Torque Rod Adjusting Tool - "B" Styles
8. J-23497 - Door Hinge Spring Compressing Tool - "X" Styles

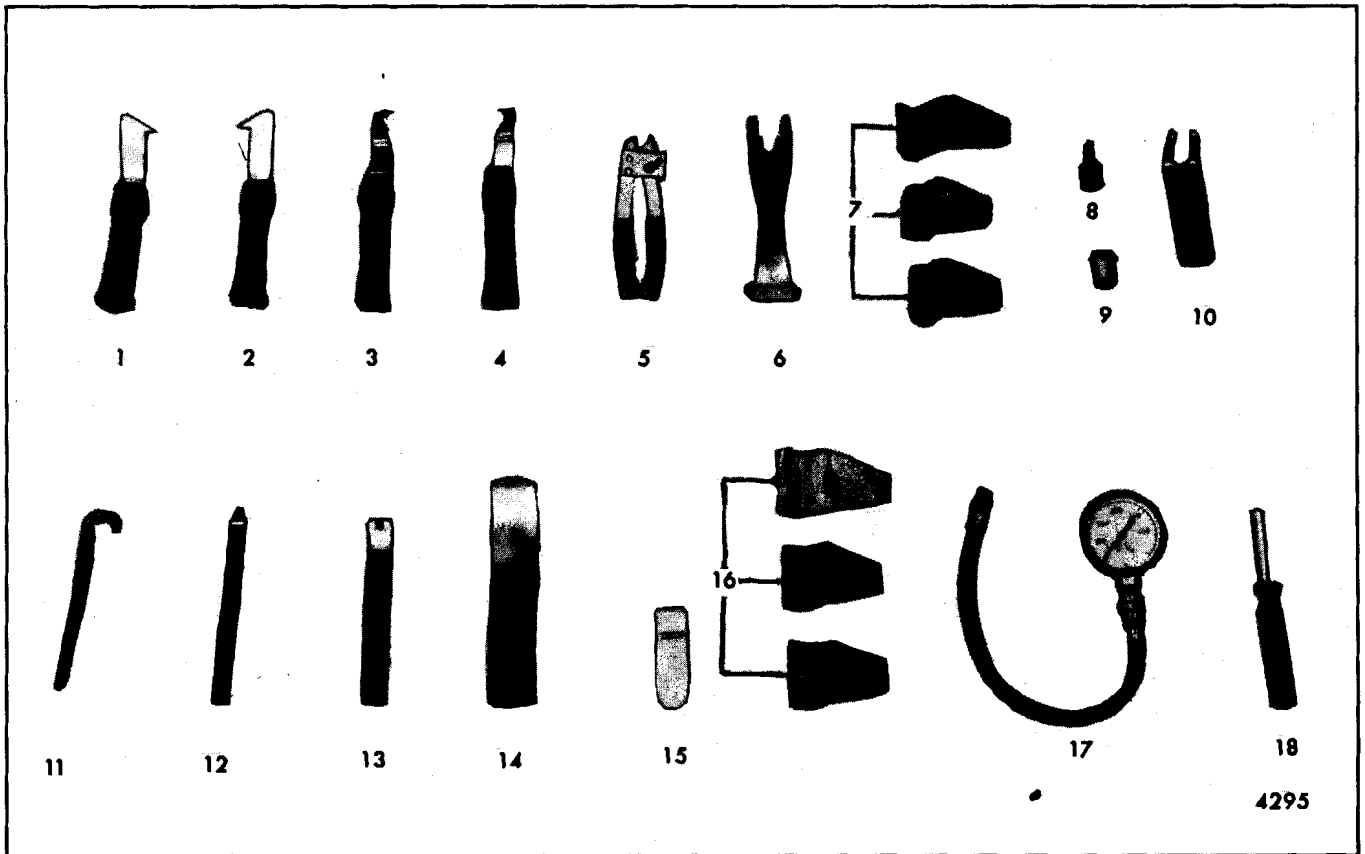


Fig. 1-11-Special Body Tools

- | | | | |
|---|---|--|---|
| <p>1. J-21549-10 - Reveal Molding Remover - "B, C, D, E and F" Styles (Left Hand Operation)</p> <p>2. J-21549-11-Reveal Molding Remover - "B, C, D, E and F" Styles (Right Hand Operation)</p> <p>3. J-21549-5 - Reveal Molding Remover (Left Hand Operations) - "A and X" Styles</p> <p>4. J-21549-6 - Reveal Molding Remover (Right Hand Operations) - "A and X" Styles</p> | <p>5. J-21214 - Molding Clip Pliers (Bath-Tub Type Clips)-All Styles</p> <p>6. J-9886-Door Handle Clip and Trim Pad Remover - All Styles</p> <p>7. J-23394 - Glass Alignment Gauge Block Set - "A and F" Styles, Except Convertibles</p> <p>8. J-23457 or BT-7107 - Door Lock Striker Remover and Adjusting Tool - All Styles</p> <p>9. J-22055 - Window Nut Remover-All Styles</p> | <p>10. J-22128-Windshield Wiper Arm Removing Tool - "A, F and X" Styles</p> <p>11. J-8966-Windshield Wiper Arm Removing Tool - "A, F and X" Styles</p> <p>12. J-21092 - Fabric Roof Cover Trim Knife-All Styles</p> <p>13. J-21104 - Weatherstrip Removing Tool-All Styles</p> <p>14. J-2772 - Headlining Installer-All Styles</p> | <p>15. J-23711-5-Glass Alignment Gauge Block - 68169 Style Rear Doors</p> <p>16. J-23711-Glass Alignment Gauge Block Set-"B, C and E" Styles</p> <p>17. J-8074 - Hydraulic Pressure Gauge (0-600 lbs.)-"A"</p> <p>18. J-23554-Door Trim Pad Applique Remover - All Styles</p> |
|---|---|--|---|

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SECTION 2

WINDSHIELD WIPER SYSTEM

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WINDSHIELD WIPER SYSTEM

DESCRIPTION

A two-speed wiper motor equipped with a windshield washer system is standard equipment on all models.

The non-depressed park system uses a rectangular shaped motor with wiper blades that are visible above the hood line when in the park position.

The depressed park system incorporates a round motor and wiper blades that park below the hood line.

Both systems use a tandem wipe pattern, however the depressed park system incorporates an articulated arm and blade on the left hand (drivers) side.

CONTROL SWITCHES

For service information on control switches, refer to Car Division Service Manuals.

TWO SPEED-RECTANGULAR MOTOR

DESCRIPTION

The system consists of a compound wound rectangular-shaped motor attached to a gear box containing a

parking switch in addition to the gear train. The gear train consists of a motor armature helical gearshaft which drives an intermediate gear and pinion assembly. The pinion gear of the intermediate gear

RECTANGULAR MOTOR APPLICATION			
CAR DIVISION	SERIES	GEAR RATIO	CRANKARM LETTER
CHEVROLET	A	36:1	AC
	F	36:1	AA
	X	36:1	B
PONTIAC	A	36:1	AC
	F	36:1	AA
OLDSMOBILE	A	36:1	AC
BUICK	A	36:1	AC

Fig. 2-1-Rectangular Motor Application Chart

and pinion drives an output gear and shaft assembly (Fig. 2-10). A rectangular motor application chart is shown in Fig. 2-1.

"LO" SPEED CIRCUIT

Turning the wiper switch to the "LO" speed position completes the circuits from the wiper terminals 1 and 3 to ground. Current then flows from the battery via wiper terminal No. 2 through the series field and divides; (1) part passes through the armature to ground via wiper terminal No. 1 to the wiper switch and (2) part passes through the shunt field to ground through wiper terminal No. 3 to the wiper switch (Fig. 2-2).

NOTE: The wiper switch must be securely grounded to body metal.

"HI" SPEED CIRCUIT

Moving the wiper switch to the "HI" speed position

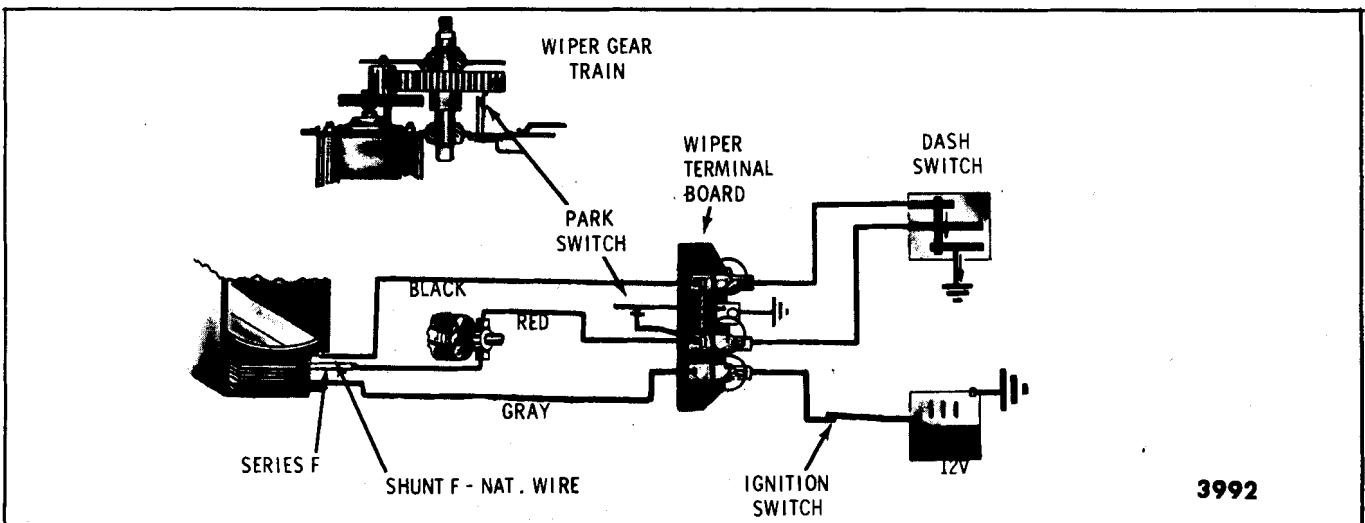


Fig. 2-2-"Lo" Speed Circuit

opens the shunt field circuit to ground at the switch. However, the shunt field is connected to a 20 ohm resistor which is connected across wiper terminals 1 and 3. The shunt field current then flows via terminal No. 3 through the resistor to terminal No. 1 to the switch, to ground (Fig. 2-3).

PARKING CIRCUIT

This circuit covers that portion of wiper operation when the wiper switch is turned "off" and the wiper blades have not reached the park position.

When the wiper blades are not in the normal park position, the parking switch contacts are still closed. The wiper will continue to operate until the wiper output gear is turned to a position where its cam opens the park switch. Referring to Fig. 2-4 it can be seen that the wiper motor circuits are completed to ground through the parking switch.

NOTE: The wiper motor must be securely grounded to body metal.

The shunt field circuit is completed from terminal No. 3 via the switch to terminal No. 1 through the parking switch to ground. The series field and armature circuit is also completed from terminal No. 1 through the parking switch to ground.

NOTE: The shunt field is connected direct to ground by-passing the resistor. This results in "LO" speed operation during the parking operation.

When the output gear cam opens the park switch contacts, the wiper is "OFF".

DIAGNOSIS-WIPER ON CAR

1. Inspect for the following items:

DIAGNOSIS CHART - WIPER ON CAR

IMPORTANT: Ignition switch must be "on" for all electrical tests.

NOTE: Wiper operated correctly independently of car wiring and switch.

CONDITION	APPARENT CAUSE	CORRECTION
1. Wiper Inoperative or intermittent	<p>A. Blown fuse.</p> <p>B. Open circuit in feed wire (No. 2 terminal on wiper motor)</p> <p>C. Loose mounting of wiper switch</p> <p>D. Defective wiper switch</p> <p>E. Open circuit in wire to wiper switch (No. 1 terminal on wiper motor)</p>	<p>A. Locate short circuit and repair. Replace fuse.</p> <p>B. Locate broken wire and repair.</p> <p>C. Tighten switch mounting</p> <p>D. Replace switch</p> <p>E. Locate broken wire and repair</p>
<p>2. Wiper will not shut off:</p> <p>A. Wiper has both "Lo" and "Hi" speeds</p> <p>B. Wiper has "Lo" speed only</p> <p>C. Wiper has "Hi" speed only</p>	<p>A. Grounded Wire (No. 1 terminal on wiper motor) to wiper switch</p> <p>A. Defective wiper switch</p> <p>B. Grounded wire (No. 3 terminal on wiper motor to wiper switch)</p> <p>A. Defective wiper switch</p> <p>B. Open circuit in wire (No. 3 terminal on wiper motor) to wiper switch.</p>	<p>A. Locate short circuit and repair</p> <p>A. Replace wiper switch</p> <p>B. Locate and repair short circuit</p> <p>A. Replace wiper switch.</p> <p>B. Locate and repair broken wire.</p>
3. Wiper has "Hi" speed only	A. Open circuit in wire (No. 3 terminal on wiper motor) to wiper switch	A. Locate broken wire and repair.
4. Wiper has "Lo" speed only	<p>A. Grounded wire (No. 3 terminal on wiper motor to wiper switch)</p> <p>B. Defective wiper switch</p>	<p>A. Locate short circuit and repair</p> <p>B. Replace wiper switch</p>
5. Blades do not return to full park position	A. Loose wiper ground strap connection	A. Tighten strap connection

Wiper Motor Removal and Installation

1. Raise hood and remove cowl screen or grille.
2. Reaching through cowl opening, loosen the transmission drive link attaching nuts to motor crankarm.
3. Disconnect transmission drive link from motor crankarm.
4. Disconnect wiring.
5. Disconnect washer hoses.
6. Remove three motor attaching screws.
7. Remove motor while guiding crankarm through hole.
8. To install, reverse the removal procedure.

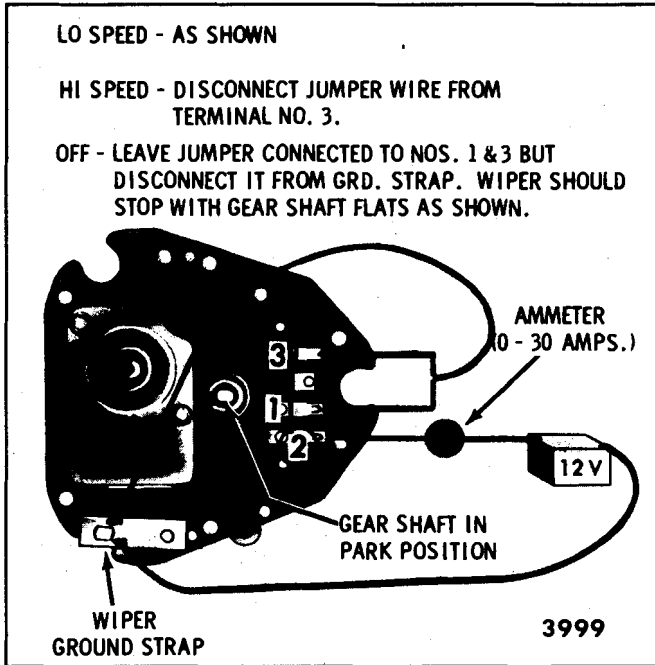


Fig. 2-5-Jumper Wire Connections

Wiper Arm Removal and Installation

1. To remove the wiper arm and blade assemblies use tool J-22128 or J-8966, or equivalent, to minimize the possibility of windshield or paint finish damage during removal operation.
2. To install the wiper arm and blade assemblies, with the wiper motor in the park position, install the wiper arm on the serrated transmission shaft in a position where the wiper blades will rest in the proper parked position.

The parked position for "F" styles is indicated in Figure 2-6. On "A-X" styles, the tip of the left blade should rest 1.50" above top edge of windshield lower reveal molding. The tip of the right blade should rest 1.95" for "A" styles and 1.25" for "X" styles above top edge of windshield lower reveal molding. The outwiper dimension shown in figure 2-6 is as follows:

- A. All "A" styles - 1.54" plus 1.10" or minus .5".
- B. All "F" styles - .5" minimum to 2.25" maximum.
- C. "X" styles - 7/8".

Wiper Arm Adjustment

The only adjustment of the wiper arm(s) is to remove

the arm(s) from the serrated transmission shaft, rotate the arm(s) the required distance and direction and reinstall to transmission shaft.

NOTE: Wiper motor must be in park position.

Wiper Blade Removal and Installation

Two methods are used to retain wiper blades to wiper arms (Fig. 2-7).

One method uses a press type button. When the button is depressed the blade assembly can be separated from the arm.

The other method uses a coil spring retainer. A screw driver must be inserted on top of the spring and the spring pushed downward (Fig. 2-7). The blade assembly can then be separated from the arm.

Two methods are also used to retain the blade element in the blade assembly (Fig. 2-7).

One method uses a press type button. When the button is depressed, the two-piece blade assembly can be slid off the blade element.

The other method uses a spring type retainer clip in the end of the blade element. When the retainer clip is squeezed together, the blade element can be slid out of the blade assembly.

When installing a blade element into a blade assembly, be certain to engage the metal insert of the element into all retaining tabs of the blade assembly.

IMPORTANT: When properly installed, the element release button, or the spring type element retaining clip should be at the end of the wiper blade assembly nearest the wiper transmission.

Wiper Transmission Removal and Installation

1. Remove wiper arms and blades as described under Wiper Arm Removal and Installation.
2. Raise hood and remove cowl vent screen or grille.
3. Loosen, do not remove, transmission drive link to motor crankarm attaching nuts (Fig. 2-6) and disconnect drive link from crankarm.

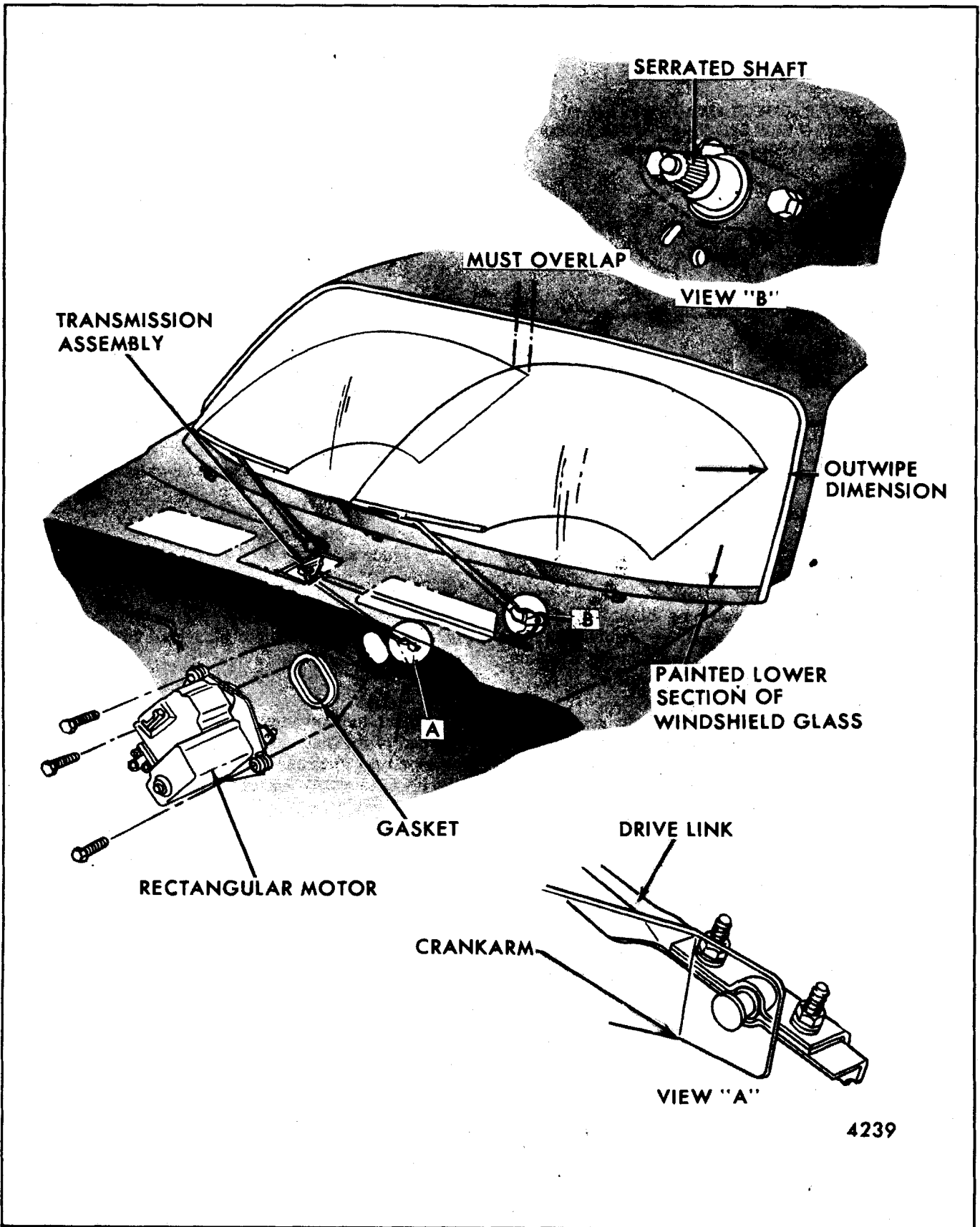


Fig. 2-6-Wiper Installation and Wipe Pattern - "F" Styles

4. Remove right and left transmission to body attaching screws and guide transmission and linkage assembly out through cowl plenum chamber opening.
5. To install, place transmission and linkage assembly in plenum chamber and install transmission to body attaching screws loosely.
6. Connect transmission drive link to motor crankarm and tighten attaching nuts (20-28 inch pounds torque).
NOTE: Wiper motor must be in park position.
7. Align transmission assemblies and tighten transmission to body attaching screws.
8. Install cowl vent screen or grille and close hood.
9. Install wiper arms and blades and check wiper operation, wipe pattern and park position of blades.

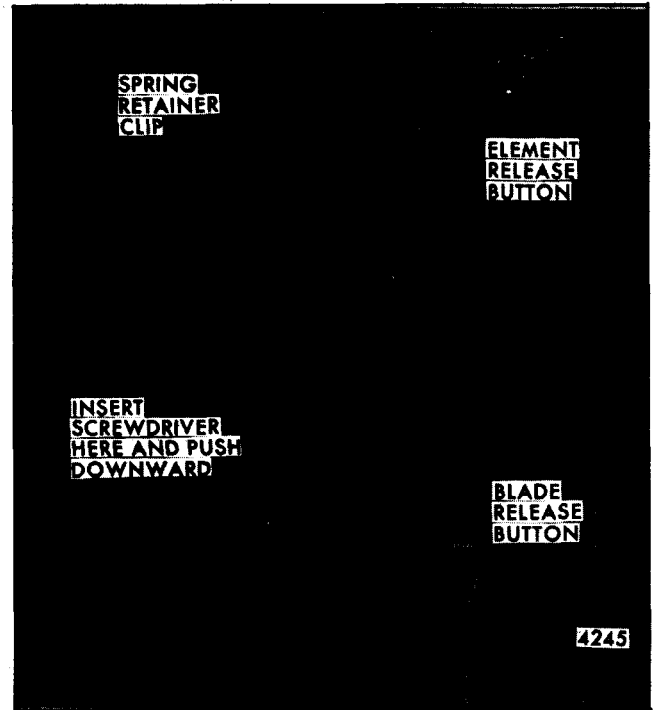


Fig. 2-7-Wiper Blade Assemblies

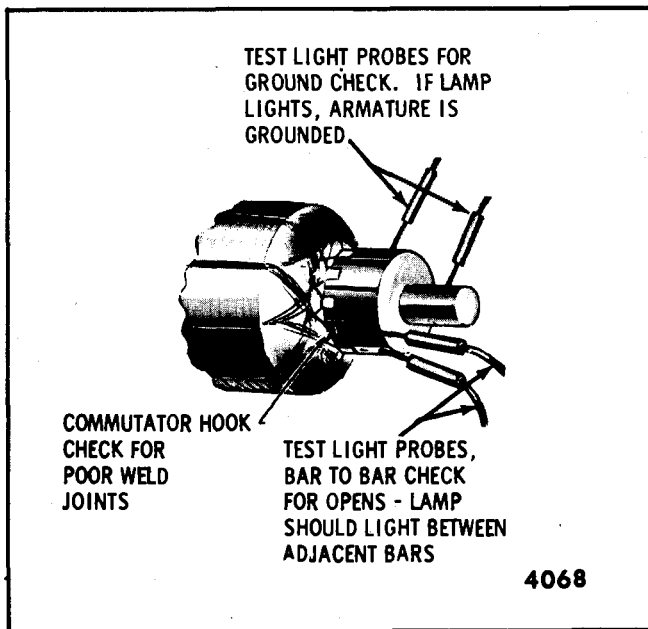


Fig. 2-8-Checking Armature

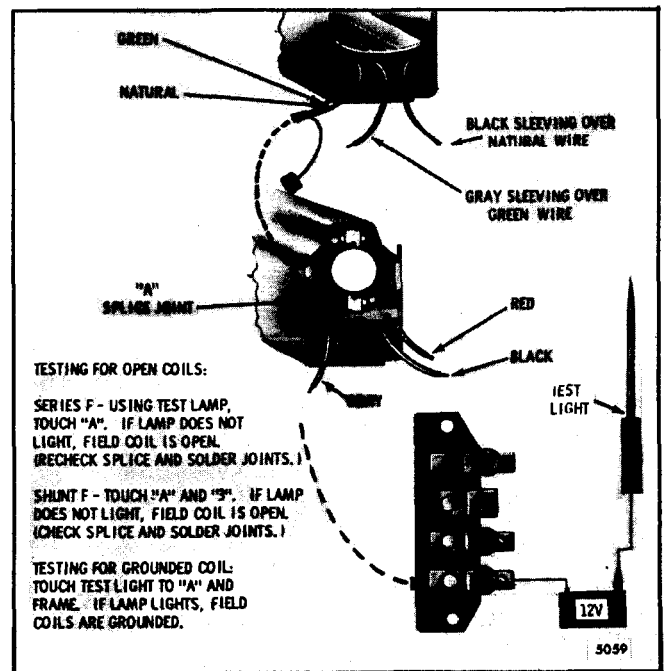


Fig. 2-9-Testing Field Coils

DIAGNOSIS CHART - WIPER OFF CAR
(SEE FIGURES 2-5, 2-8 and 2-9)

CONDITION	APPARENT CAUSE	CORRECTION
1. Wiper Inoperative or Intermittent	<p>A. Broken or damaged gear train (only if inoperative)</p> <p>B. Poor solder connections at terminal board</p> <p>C. Loose splice joints at brush plate</p> <p>D. Brushes binding in brush holder</p> <p>E. Open circuit in armature</p>	<p>A. Replace gears as required</p> <p>B. Resolder wires at terminals</p> <p>C. Recrimp or solder splice joints</p> <p>D. Clean holder or replace brush, Spring or brush plate assembly.</p> <p>E. Replace armature</p>
<p>2. Wiper will not shut-off:</p> <p>A. Wiper has normal "Hi" and "Lo" speed</p> <p>B. Wiper has "Lo" speed only</p> <p>C. Wiper has "Hi" speed only</p>	<p>A. Defective park switch</p> <p>B. Grounded red lead wire</p> <p>A. Grounded shunt field coil</p> <p>B. Grounded black wire</p> <p>A. Open circuit in shunt field coil</p> <p>B. Open circuit in black wire</p>	<p>A. Replace terminal board assembly</p> <p>B. Repair short circuit in red wire</p> <p>A. Replace frame and field assembly</p> <p>B. Repair short circuit in black wire</p> <p>A. Replace frame and field assembly</p> <p>B. Repair broken wire or poor solder connection</p>
3. Wiper shuts off - but not in park position	A. Park switch defective or contacts dirty	A. Replace terminal board assembly or clean contacts
4. "Hi" speed too fast	A. Resistor defective	A. Replace terminal board assembly

DISASSEMBLY-ASSEMBLY PROCEDURE

The disassembly-reassembly procedures for the wiper are broken down into two major areas: the motor section and gear box section.

Gear Box Disassembly

1. Remove washer pump as follows:

- a. Remove the two washer pump mounting screws and carefully lift the washer pump off the wiper motor.

- b. Remove the washer pump four lobe drive cam. The cam is a press fit on the wiper gearshaft and it may be necessary to pry off with a screw driver or similar tool.

- c. Remove the felt washer from the wiper gearshaft.

2. Clamp crankarm in a vise and remove crankarm retaining nut.

NOTE: Failure to clamp crankarm may result in stripping of wiper gears.

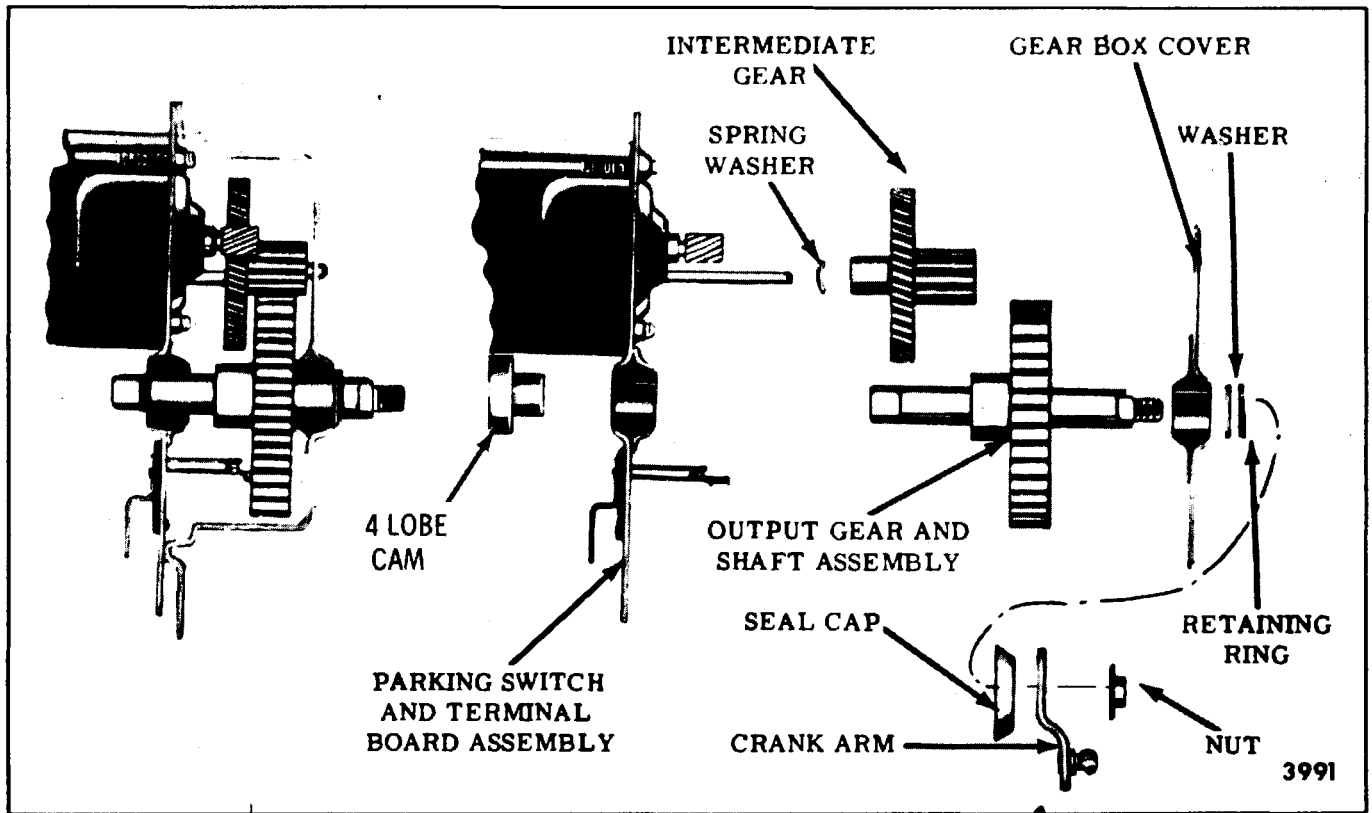


Fig. 2-10-Gear Box

3. Remove crankarm, seal cap, Tru-Arc retaining ring and end play washers (Fig. 2-10).

NOTE: Seal cap should be cleaned and repacked with a waterproof type grease before reassembly.

4. Drill out staking that secures gear box cover (Fig. 2-11). Use a 9/32" drill.

NOTE: Mark ground strap location and save ground strap for reassembly.

5. Remove output gear and shaft assembly; then, slide intermediate gear and pinion assembly off shaft.

6. If required, remove terminal board and park switch assembly as follows:

- a. Note position of motor leads on terminals, then unsolder.
- b. Drill out rivets that secure terminal board and park switch ground strap to plate. Use a 7/64" drill.

NOTE: Screws, nuts and washers for attaching a replacement terminal board park switch

assembly are included with a replacement assembly.

Gear Box Reassembly

NOTE: Lubricate all gear teeth with lubricant noted on specifications chart Fig. 2-17.

1. If park switch and terminal board were

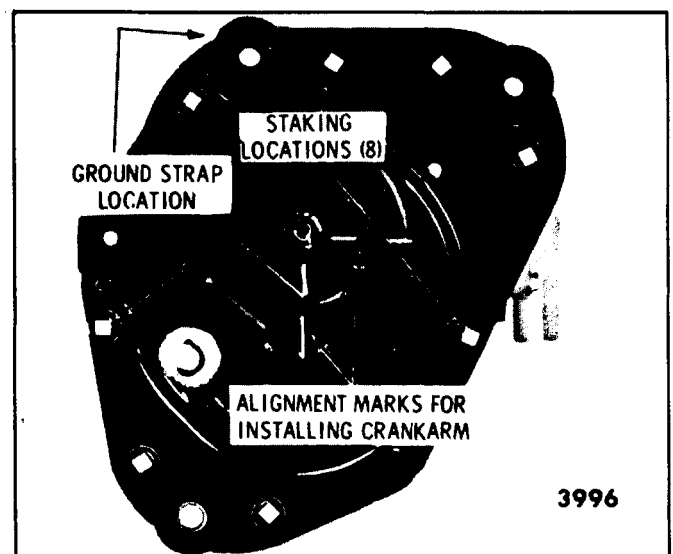


Fig. 2-11-Staking Locations

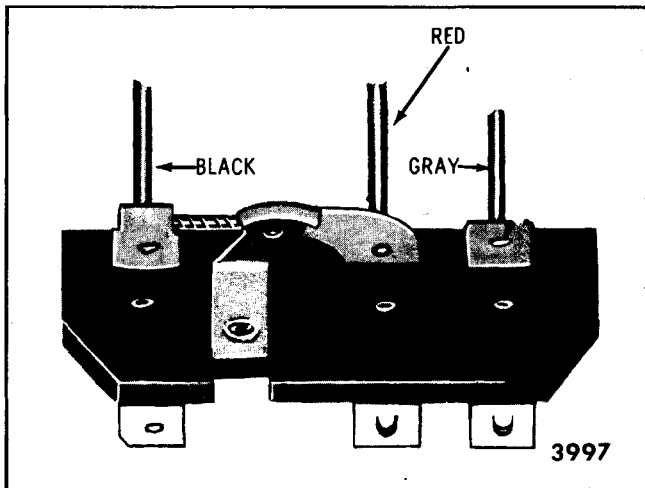


Fig. 2-12-Parking Switch and Terminal Board

removed, reinstall replacement assembly using the attaching screws and nuts included in the service package. Resolder leads to terminals (Fig. 2-12).

2. Install wave washer and intermediate gear on intermediate gearshaft.
3. Install output gear and shaft assembly with cam at least 90 degrees away from park switch (Fig. 2-13).
4. Assemble gear box cover to wiper. Be careful to locate cover over locating dowels and intermediate gearshaft.
5. Secure cover to gear mounting plate over dowels. Be sure to reinstall ground strap.

NOTE: Screws, nuts and lockwashers for reassembling cover to wiper are contained in a Service Repair Package.

6. Reassemble end play washers and retaining ring over output gearshaft (Fig. 2-10). Use end play washers as required to obtain .005" maximum end play.
7. Install seal cap.
8. To reassemble crankarm in proper position, operate wiper to park or "OFF" position (Fig. 2-5) and install crankarm so that index marks on crankarm line up with those on the gear box cover (Fig. 2-11).

NOTE: Clamp crankarm in vise before securing the retaining nut.

9. Operate wiper (Fig. 2-5) and check performance per data in specification chart (Fig. 2-17).

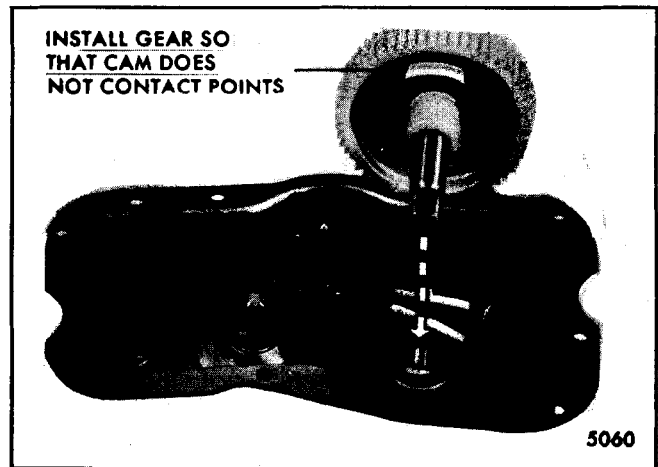


Fig. 2-13-Gear Installation

10. Reinstall washer pump to wiper.

Reinstall washer pump to wiper, reversing removal Steps 1 (a) through 1 (c). Observe precautions listed below.

1. Support crankarm end of wiper output shaft (threaded end) and using a suitable mallet, drive the four lobe cam on the wiper output shaft until it bottoms against the shoulders of the shaft flats (Fig. 2-10).
2. Position four lobe cam as shown in Fig. 2-14. It may be necessary to manually rotate crankarm.

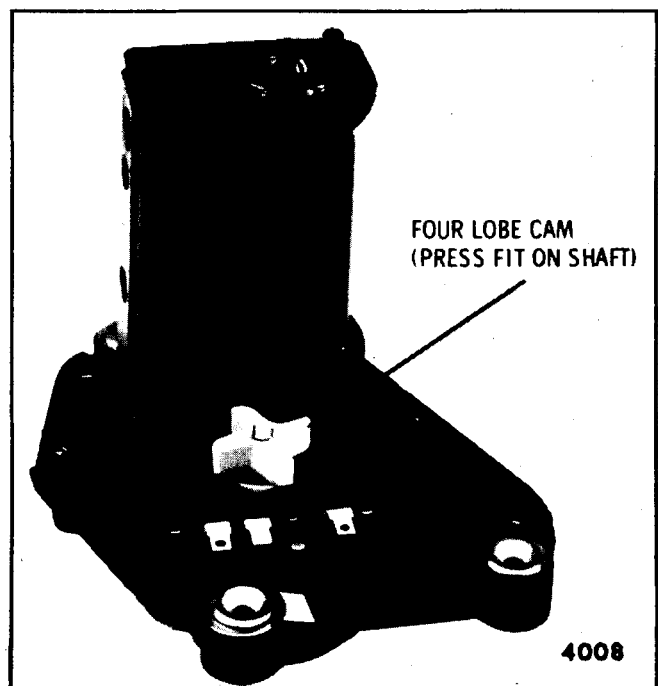


Fig. 2-14-Cam Positioning

Motor Disassembly

1. Disassemble gear box as required to gain access to internal solder connections at wiper terminal board and unsolder motor leads from terminals.

NOTE: Step 1 necessary for frame and field replacement only.

2. Remove motor tie bolts (Fig. 2-15).
3. Hold end cap against frame and field and disengage complete motor section from gear box.
4. Turn motor section as required to gain access to brush plate assembly and release brush spring pressure against brushes (Fig. 2-16).

5. Move brushes away from armature commutator and remove armature and end cap from frame and field assembly.

6. Remove end cap from end of armature shaft.

NOTE: Be careful not to lose the plastic thrust plug in end of armature.

7. Remove end play washers from commutator end of armature shaft. When reassembling armature in wiper, install washers as shown in Fig. 2-15.

8. To replace brushes, cut brush pigtail approximately 1/4" from splicing clip. Splice the new brush pigtail to the 1/4" of pigtail left from the original brush.

NOTE: Splicing clips are provided in the replacement brush packages.

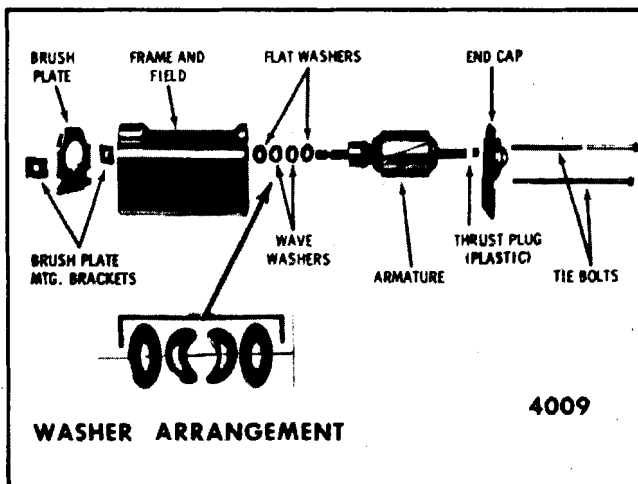


Fig. 2-15-Wiper Motor-Exploded View

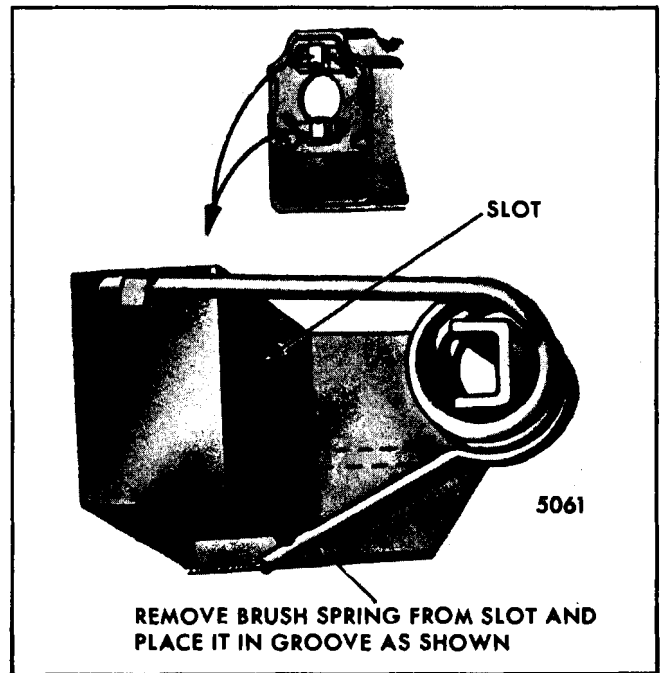


Fig. 2-16-Removing Brush Spring Tension

Motor Reassembly

Reverse disassembly Steps 1 through 7 and reassemble gear. Lubricate the motor assembly as indicated in Specification Chart, Figure 2-17.

NOTE: Insure brush plate mounting brackets are properly seated into housing.

SPECIFICATION CHART	
Operating Voltage	12 Volts D.C.
Current Draw (No Load)	
"Lo" Speed	4 AMPS MAX.
"Hi" Speed	3.5 AMPS MAX.
Stall (Cold Motor)	12 AMPS MAX.
Crankarm Speed (RPM's)	
"Lo" Speed	31 Min. 12 V
"Hi" Speed	55 Min. 12 V
Torque	Inch Pounds
Washer Pump Mounting Screws	18
Motor Tie Bolts	30
Motor Crankarm Attaching Nut	65
Motor Crankarm To Transmission Drive Link	20 - 28
Motor To Body Attaching Bolts	35
Transmission To Body Attaching Bolts	35
Lubrication	
Armature Shaft and Bearings	Multifak No. 2 or Prestige No. 42 or Equivalent
All Gear Teeth	5056

Fig. 2-17-Specification Chart-Rectangular Motor

TWO SPEED-ROUND MOTOR

DESCRIPTION

The round motor used on the "B", "C", "D" and "E"

styles is approximately 4 1/2" in length (Fig. 2-18). The motor uses a light gray colored drive gear with a gear ratio of 51:1.

The round motor used on "A" and "F" styles is

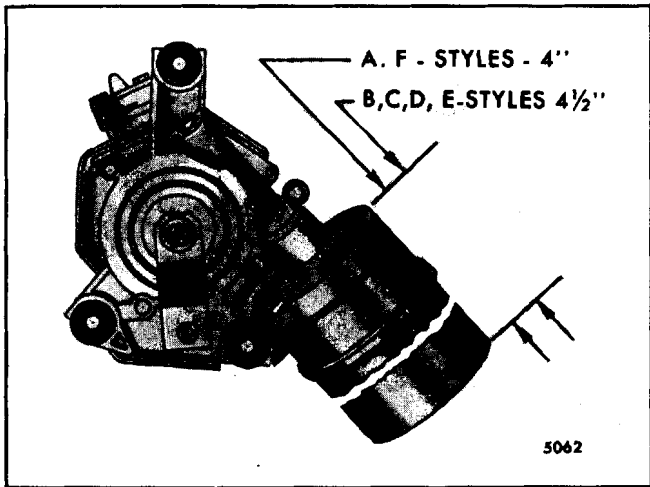


Fig. 2-18-Wiper Assembly

ROUND MOTOR APPLICATION					
CAR DIVISION	SERIES	MOTOR LENGTH	GEAR COLOR	GEAR RATIO	CRANKARM LETTER
CHEVROLET	A	4"	Green	45:1	AB
	B	4 1/2"	Lt. Gray	51:1	AF
	F	4"	Green	45:1	Y
PONTIAC	A	4"	Green	45:1	AB
	B	4 1/2"	Lt. Gray	51:1	AF
	F	4"	Green	45:1	Y
OLDSMOBILE	A	4"	Green	45:1	AB
	B-C-E	4 1/2"	Lt. Gray	51:1	AF
BUICK	A	4"	Green	45:1	AB
	B-C-E	4 1/2"	Lt. Gray	51:1	AF
CADILLAC	C-D-E	4 1/2"	Lt. Gray	51:1	AF

Fig. 2-19-Round Motor Application Chart

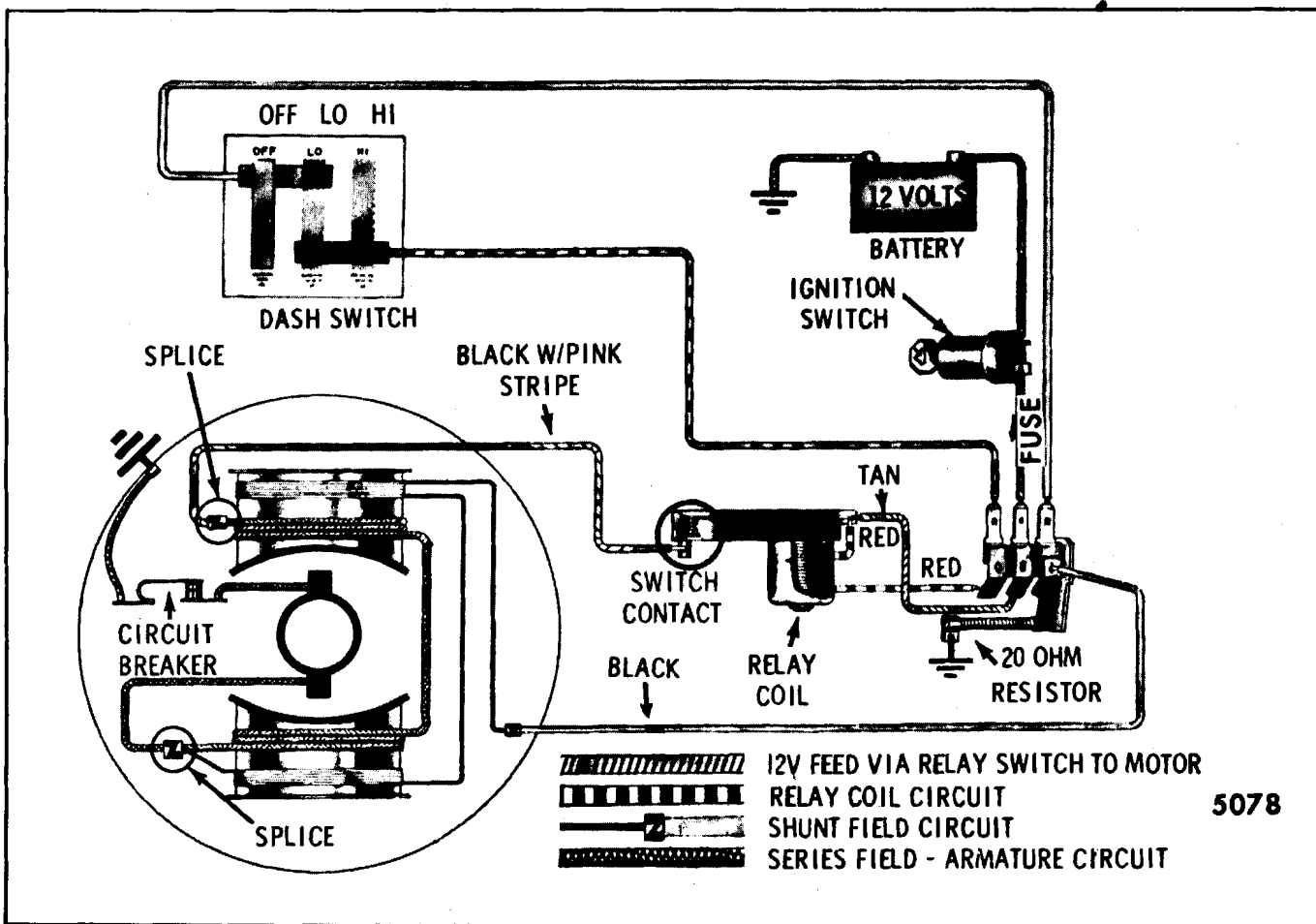


Fig. 2-20-'Off' Position

approximately 4" in length (Fig. 2-18). The motor uses a green colored drive gear with a gear ratio of 45:1.

The service procedures for both motors are the same.

A round motor application chart is shown in Fig. 2-19.

In the round two speed motor the brush plate and circuit breaker assembly is attached to a field assembly that is staked into the end cap. The end cap and field assembly will be serviced as a unit (Fig. 2-36). The brush plate and circuit breaker must be detached from the field assembly in order to replace the armature. The motor has only two external leads.

WIPER OFF CIRCUIT

Fig. 2-20 illustrates the internal wiring with wiper in the "OFF" position. The 12 volt circuit to the center terminal of the wiper terminal board is completed through the ignition switch and fuse.

"LO" SPEED CIRCUIT (Fig. 2-21)

Moving the wiper switch to the "LO" speed position

completes the relay coil circuit to ground at the wiper switch. With the relay coil energized, the relay contacts close completing the 12V circuit to the motor windings. Current then flows through the series field coil and divides, part passing through the shunt field coils, the other through the armature to ground via the internal circuit breaker. The shunt field circuit is completed to ground at the wiper switch.

"HI" SPEED CIRCUIT (Fig. 2-22)

Moving the wiper switch to the "HI" speed position maintains the relay coil circuit to ground at the wiper switch, but opens the shunt field circuit to ground at the switch. The shunt field current then flows through the resistor located on wiper terminal board to ground. With a weakened shunt field, the motor runs faster.

MEDIUM SPEED CIRCUIT - (Cadillac Only)

Moving the wiper switch to the "Med" speed position connects a 13 ohm resistor, located in the switch, in parallel with the 20 ohm resistor from the shunt field circuit. These two resistors, connected in parallel,

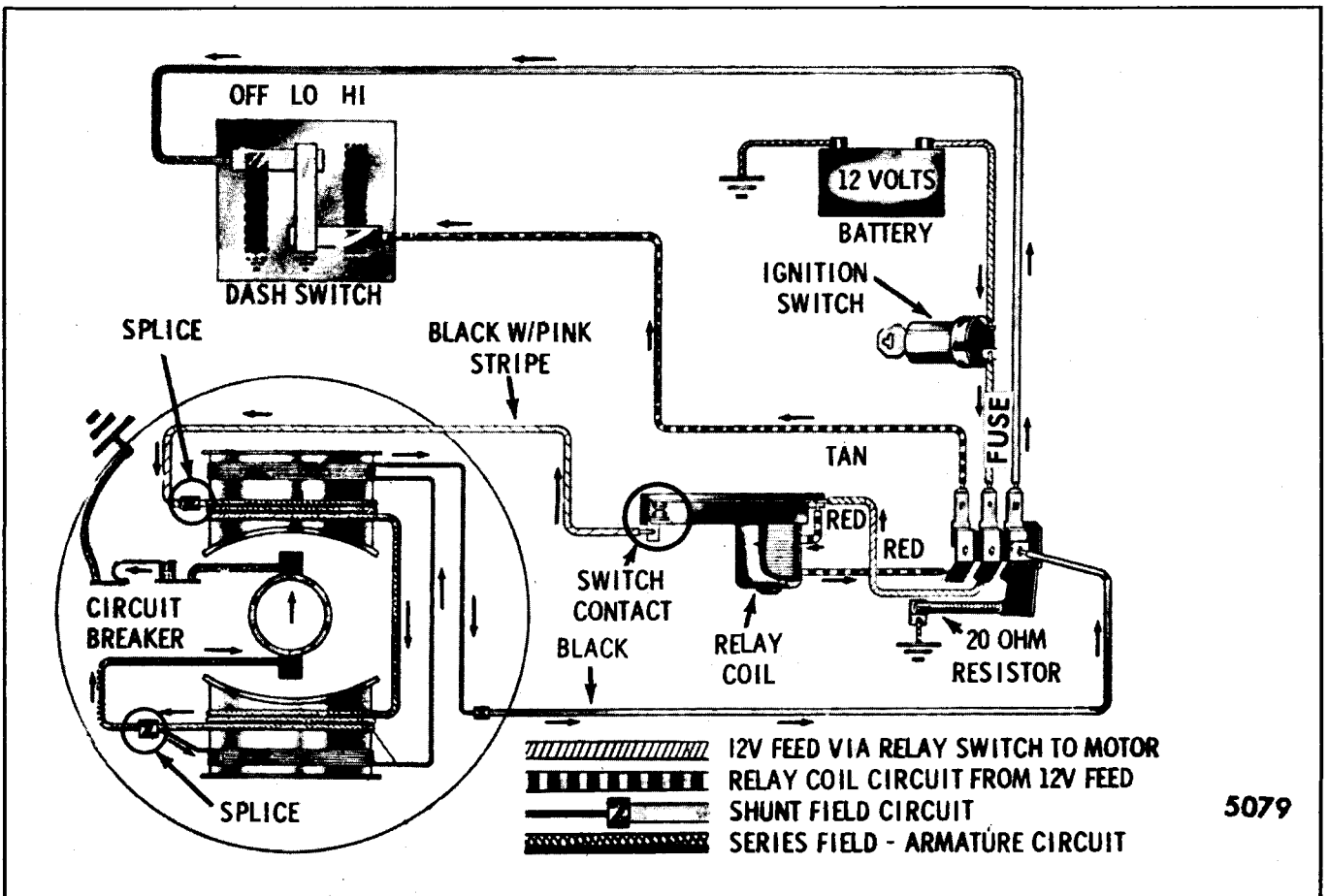


Fig. 2-21-"Lo" Speed Circuit

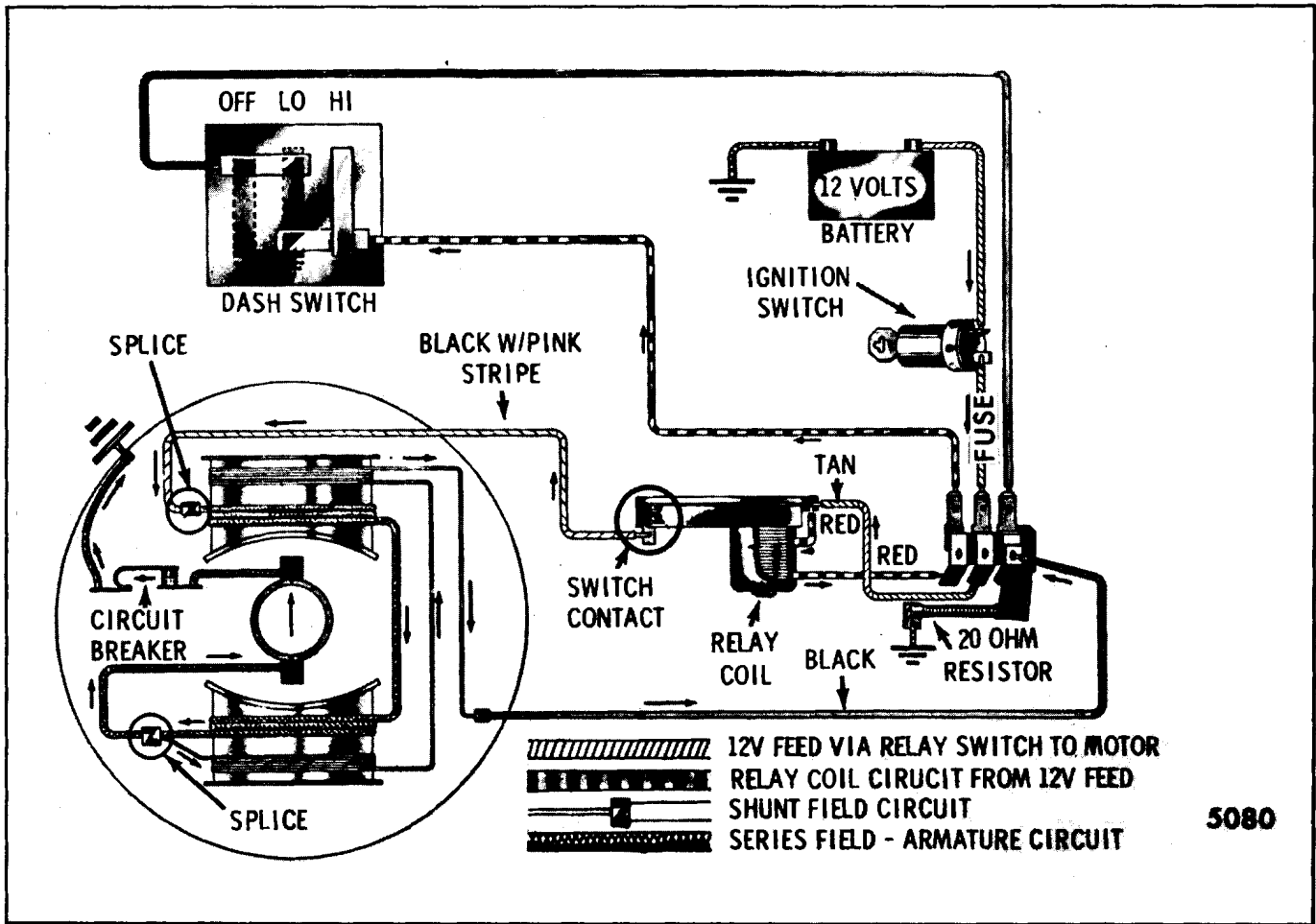


Fig. 2-22-"Hi" Speed Circuit

provide slightly less than 8 ohms resistance in the shunt field. The difference in resistance results in medium speed.

PARKING CIRCUIT (Fig. 2-23)

Turning the wiper switch off is merely the first step in shutting the wiper off. The wiper motor itself actually completes the shutting off operation. When the wiper switch is moved to the "OFF" position, two simultaneous functions are accomplished:

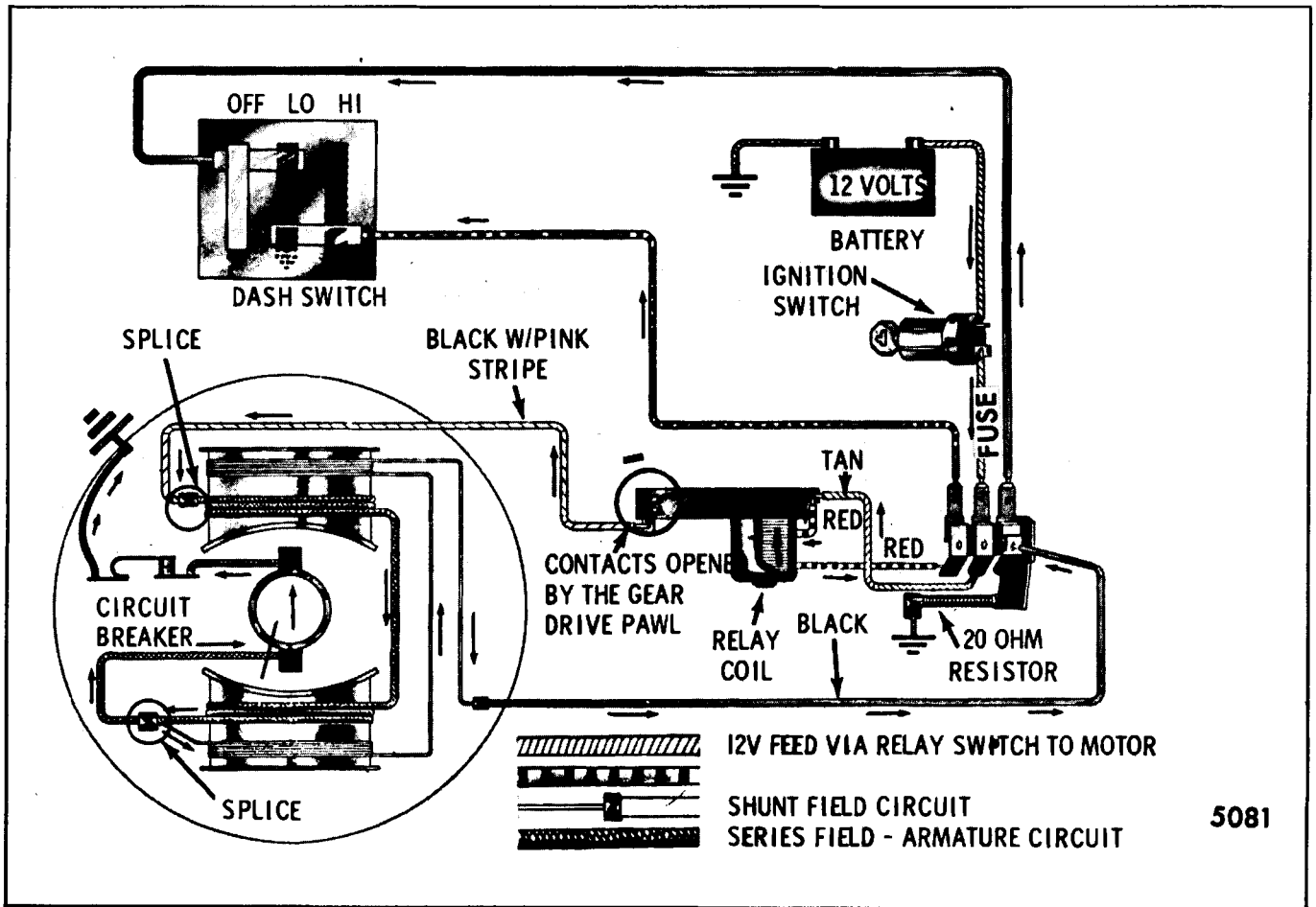
1. The relay coil circuit is opened and this allows the spring loaded relay latch arm to move out into the path of the gear drive pawl (Fig. 2-24). The relay-switch contacts, however, are still closed at this stage of operation and the wiper motor continues to run.
2. The shunt field circuit is connected to ground at the switch and the wiper operates in "LO" speed during this stage.

The wiper gear mechanism completes shutting off the wiper as follows:

Since the wiper motor continues to run when the switch is first turned off, the continuing rotation of the gear causes the drive pawl to engage the relay latch arm (Fig. 2-25). This action unlocks the gear from the drive pawl, lock pawl and the drive plate and output shaft assembly. With the drive plate and output shaft unlocked from the gear, and since the output shaft extends thru the gear shaft off center, the continuing rotation of the gear at this point causes a cam action between the output shaft and the gear shaft. This cam action causes the gear drive pawl to move into the relay switch slot. As the drive pawl moves into the switch slot, it pushes the relay latch arm against the relay-switch flexible contact. This action opens the relay-switch contacts which cuts the 12V feed to the motor windings (Fig. 2-26).

DIAGNOSIS - WIPER ON CAR

1. Make a preliminary check of the following items:
 - A. Body wiring properly connected to wiper terminal board and wiper switch.



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Fig. 2-23-Parking Circuit

- B. Wiper motor to dash mounting screws tight.
- C. Wiper switch securely mounted.

D. Fuse.

E. With ignition switch turned on, there is a 12-volt supply at center terminal of wiper terminal board.

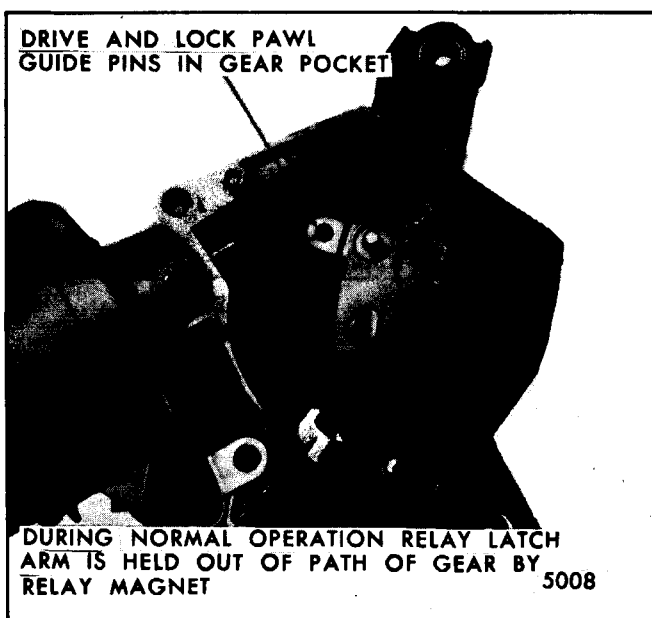
2. When checking wiper operation, operate wiper independently of the car wiring or wiper switch, as shown in Fig. 2-27. Check wiper operation in "OFF", "LO" and "HI" positions.

A. If wiper operates correctly, see DIAGNOSIS CHART-WIPER ON CAR.

B. If wiper still fails to operate correctly, disconnect wiper linkage from wiper motor and recheck for proper wiper motor operation.

1. If wiper motor operates correctly in Step 2, check linkage for severe binding condition or breakage.

2. If wiper fails to operate correctly in Step 2, remove wiper from car and check per instructions DIAGNOSIS WIPER OFF CAR.



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Fig. 2-24-Gear in Normal Run Position

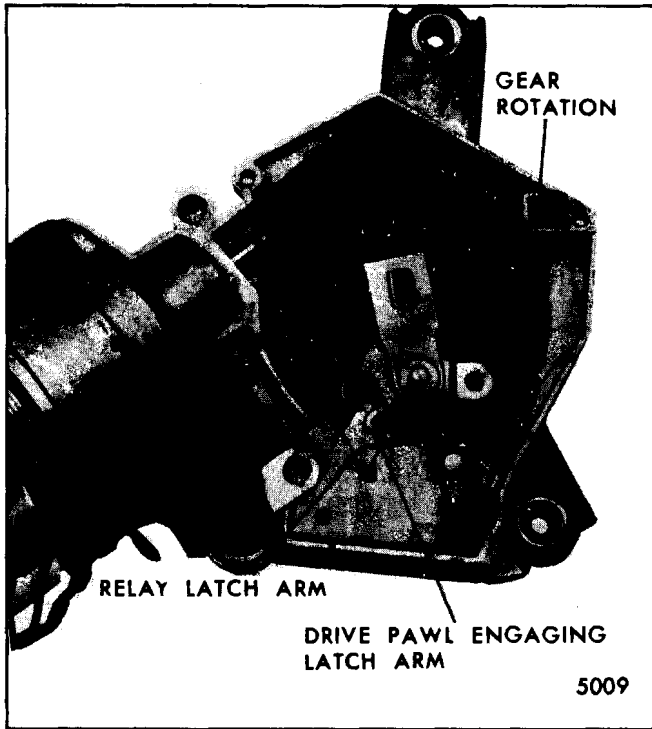


Fig. 2-25-Wiper Shutting "Off"

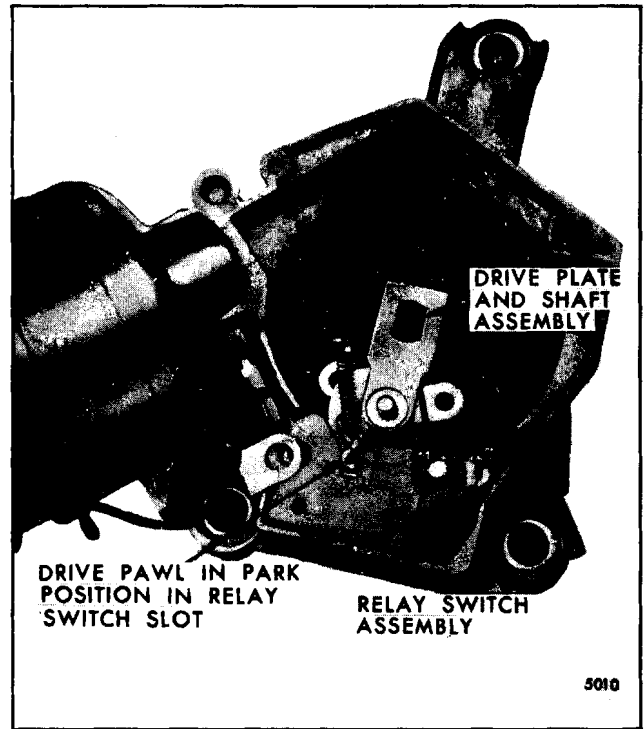


Fig. 2-26-Wiper Shut "Off" in Park Position

DIAGNOSIS CHART - WIPER ON CAR - LESS DEMAND WIPER SYSTEM

NOTE: For Demand Wiper System see diagnosis and diagnosis chart in the Programmed Washer System section.

NOTE: Wiper operated correctly independently of car wiring and switch.

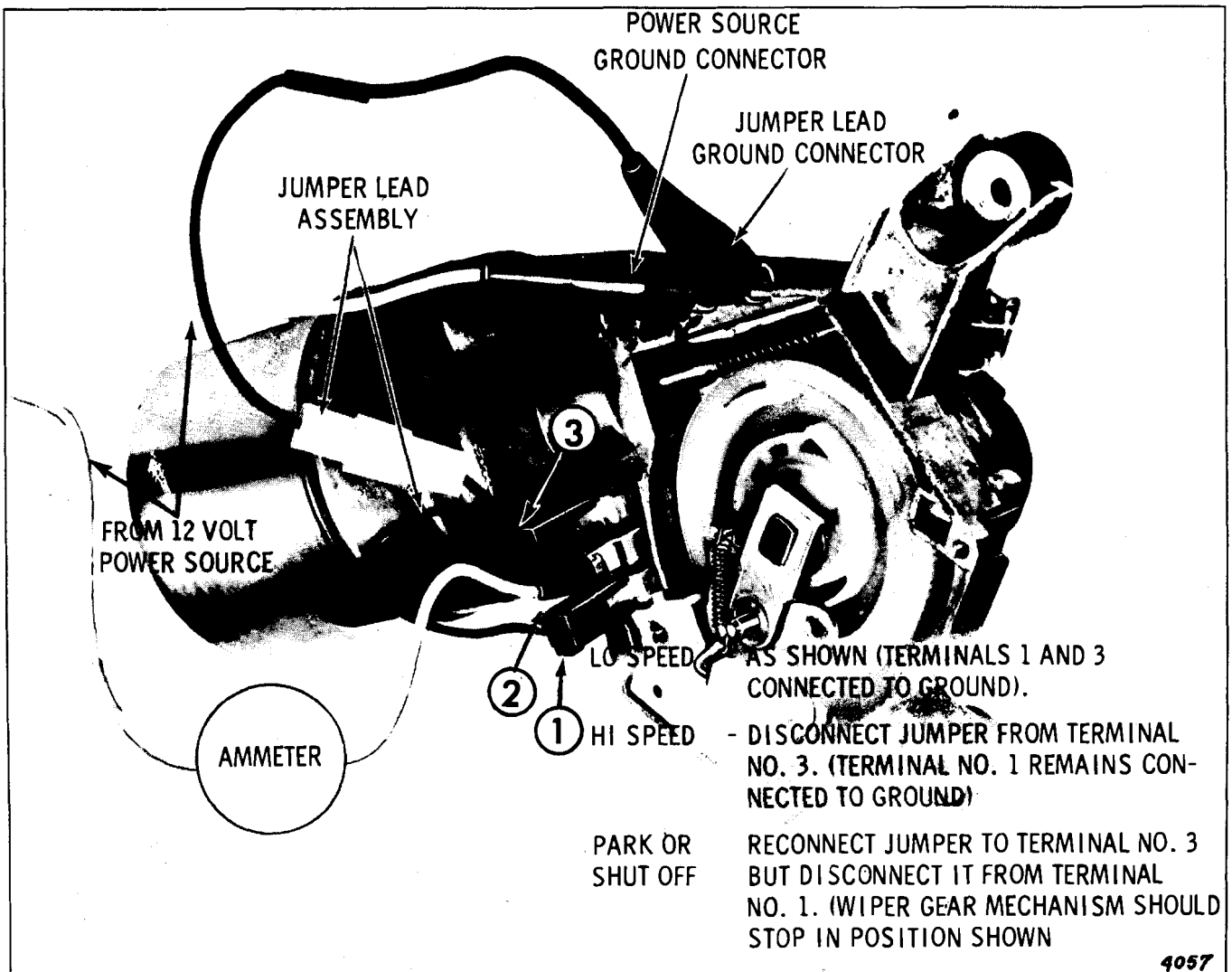
IMPORTANT: Ignition switch must be "on" for all electrical tests.

CONDITION	APPARENT CAUSE	CORRECTION
1. Wiper inoperative or intermittent	A. Open lead wire from wiper terminal No. 1 to wiper switch B. Wiper switch not securely mounted. C. Wiper switch defective.	A. Repair broken wire B. Tighten switch mounting C. Replace wiper switch
2. Will not shut off (Blades make full wipe stroke)	A. Grounded lead wire from wiper terminal No. 1 to wiper switch. B. Corroded wiper terminals. C. Defective wiper switch.	A. Tape uninsulated portion of wire B. Clean terminals. C. Replace wiper switch
3. Will not shut off (Blades move up and down about 15 degrees from park position).	A. Open in lead wire from wiper terminal No. 3 to wiper switch. B. Wiper switch mounting loose. C. Wiper switch defective.	A. Repair broken wire B. Tighten switch mounting. C. Replace wiper switch.

4. "Hi" speed only.	A. Open lead wire from wiper terminal No. 3 to wiper switch. B. Wiper switch defective.	A. Repair broken wire. B. Replace wiper switch.
5. "Lo" speed only	A. Grounded lead from wiper terminal No. 3 to wiper switch. B. Defective wiper switch.	A. Tape uninsulated portion of wire. B. Replace wiper switch.
6. "Hi" speed in "Med" position (Cadillac only)	A. Open medium speed resistor.	A. Replace wiper switch.

Wiper Motor Removal and Installation

1. Raise hood and remove cowl screen.
2. Reaching through opening, loosen the transmission drive link to crankarm attaching nuts (Fig. 2-28).
3. Remove transmission drive link(s) from motor crankarm.



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Fig. 2-27-Bench Checking Wiper Motor

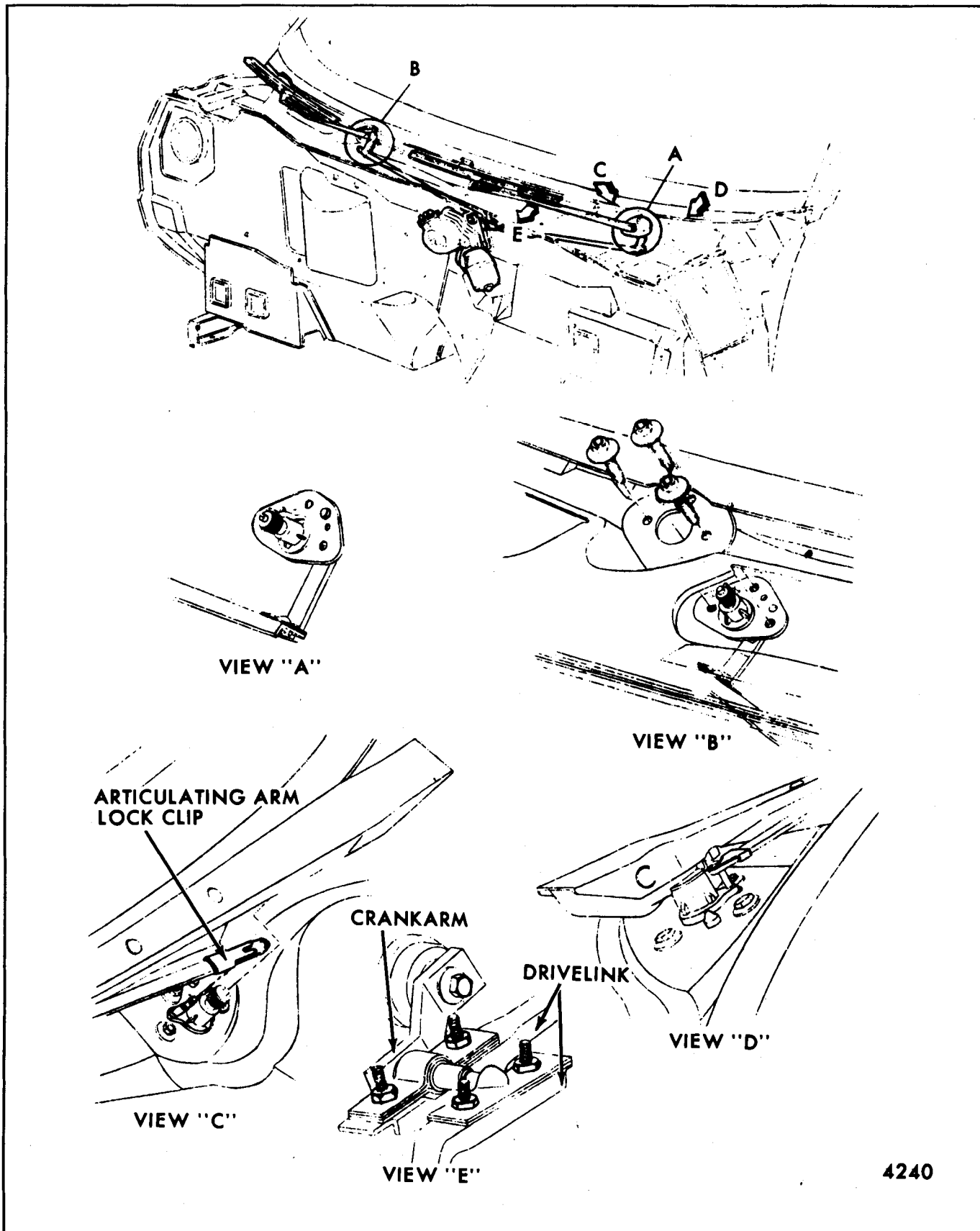


Fig. 2-28-Round Motor Installation - "B-C-D-E" Styles

4. Disconnect wiring and washer hoses.
5. Remove the three motor attaching screws.
6. Remove motor while guiding crankarm through hole.
7. To install, reverse the removal procedure. Motor must be in park position when assembling crankarm to transmission drive link(s).

Wiper Arm Removal and Installation (Fig. 2-29)

1. Raise hood to gain access to wiper arms.
2. On "A" and "F" styles, use tool J-22128 or J-8966, or equivalent, and lift arms off transmission shaft. On left arm slide articulating arm lock clip (Fig. 2-28) away from transmission pivot pin and lift arm off pin.
3. On "B", "C", "D" and "E" styles, lift wiper arm and slide latch clip (Fig. 2-29) out from under wiper arm.
4. Release wiper arm and lift wiper arm assembly off transmission shaft.
5. On left arm, slide articulating arm lock clip away from transmission pivot pin (Fig. 2-28) and lift arm off pin.
6. To install left wiper arm assembly, on all styles, position the articulating arm over the transmission pivot pin and slide the lock clip toward the pivot pin until it locks in place on the pin. Install the left wiper arm assembly to the transmission shaft aligning the keyway to the shaft.
7. On "A" and "F" styles align the right wiper arm



Fig. 2-29-Wiper Arm Latch Clips

assembly in the proper park position and install wiper arm to transmission shaft.

8. On "B", "C", "D" and "E" styles, align keyway in right wiper arm assembly to transmission shaft and install arm assembly to shaft.
9. On "B", "C", "D" and "E" styles, lift the wiper arm assemblies and slide latch clips (Fig. 2-29) under the arms. Release wiper arms and check wipe pattern and park position.

Wiper Arm Adjustment

If the wiper arms and blades were in correct adjustment prior to wiper arm removal, adjustment should not be required. However, if adjustment is required, it can be performed as follows:

1. Raise the hood and remove cowl vent screen.
2. On "A" and "F" styles, remove the right arm and blade assembly.
3. Loosen, do not remove, the transmission drive link to motor crankarm attaching nuts (Fig. 2-28). On "B", "C", "D" and "E" styles, if only one arm and blade assembly requires adjustment, loosen only the drive link to crankarm attaching nuts for the unit requiring adjustment.
4. Rotate the left arm assembly on "A" and "F" styles and both arm assemblies on "B", "C", "D" and "E" styles to a position 1" below the blade stops.

NOTE: On "B", "C", "D" and "E" styles, even if only one arm and blade assembly requires adjustment, the right and left assemblies must be rotated 1" below the stops.

5. Tighten the attaching nuts on the transmission drive link(s) to motor crankarm (20-28 inch pounds torque).
6. On "A" and "F" styles, position the right arm and blade assembly 1" below the blade stop and install arm assembly to transmission shaft.
7. Lift the right and left arm and blade assemblies over the stops.
8. Check wipe pattern (Fig. 2-30) and park position. Dimension "A" shown in Figure 2-30 for various body styles is as follows:
 - a. All "A" styles - 1.61" plus 1.10" or minus .5"
 - b. "B-35-45-49-69" and 26847 styles - 2.00" plus 1.50" or minus .00"

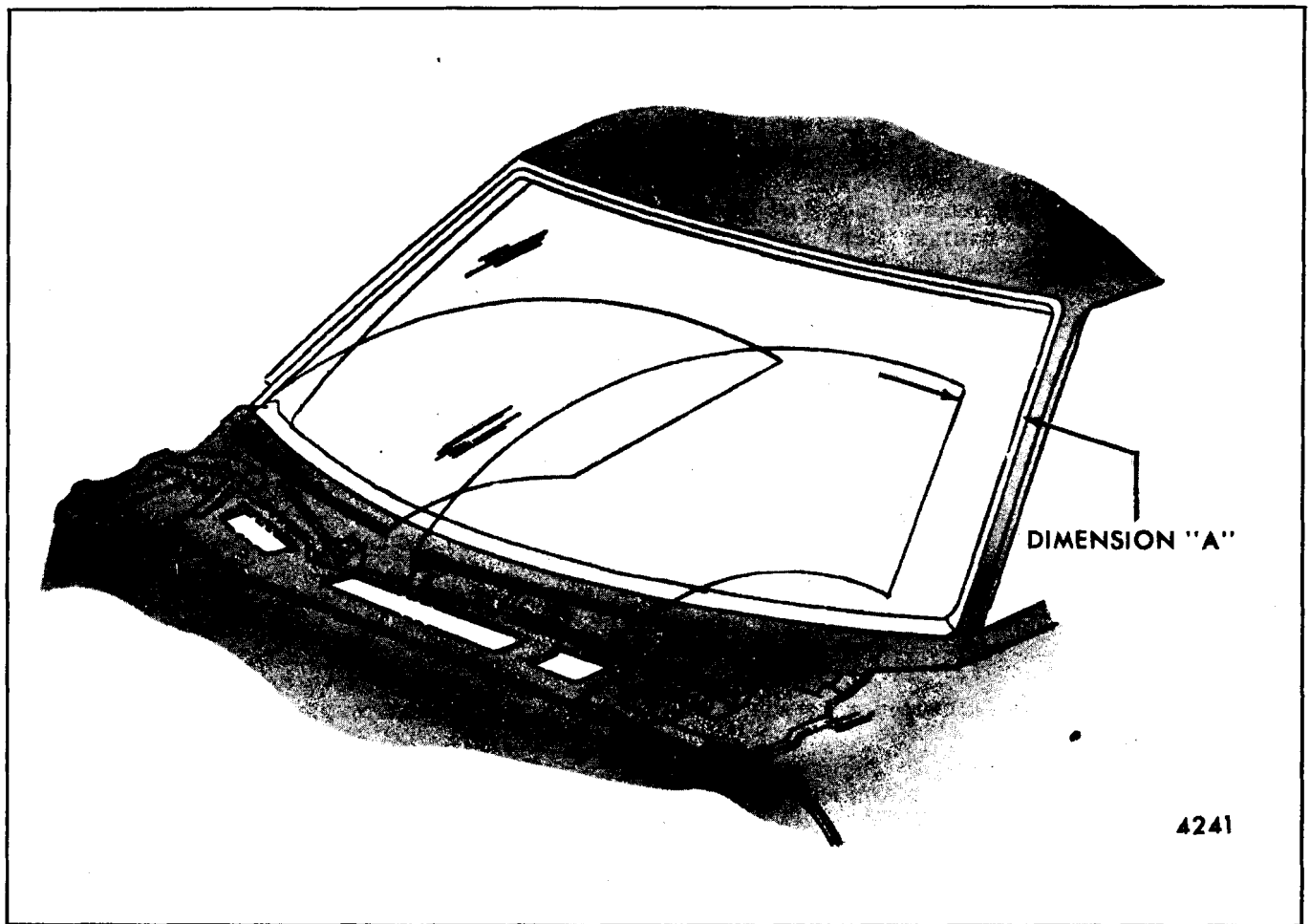


Fig. 2-30-Wipe Pattern

- c. "B-39-47-57-67" (less 26847) styles - 1.50" plus 1.50" or minus .00"
- d. "C-39-49-69-37-47" styles - 2.00" plus 1.50" or minus .00"
- e. "D-23-33" styles - 2.00" plus 1.50" or minus .00"
- f. "E-47-57-67-87" styles - 1.50" plus 1.50" or minus .00"
- g. All "F" styles - 1.25" plus 1.10" or minus .5"

9. Install cowl vent screen.

Wiper Blade Removal and Installation

Two methods are used to retain wiper blades to wiper arms (Fig. 2-31).

1. One method uses a press type button. When the button is depressed the blade assembly can be slid off the wiper arm pin.

2. The other method uses a coil spring retainer. A screw driver must be inserted on top of the spring and the spring pushed downward (Fig. 2-31). The blade assembly can then be slid off the wiper arm pin.

Two methods are also used to retain the blade element in the blade assembly (Fig. 2-31).

1. One method uses a press type button. When the button is depressed, the two-piece blade assembly can be slid off the blade element.
2. The other method uses a spring type retainer clip in the end of the blade element. When the retainer clip is squeezed together, the blade element can be slid out of the blade assembly.

When installing a blade element into a blade assembly, be certain to engage the metal insert of the element into all retaining tabs of the blade assembly.

IMPORTANT: When properly installed, the

element release button, or spring type element retaining clip should be at the end of the wiper blade assembly nearest the wiper transmission.

Wiper Transmission Removal and Installation

1. Raise hood and remove cowl vent screen.
2. On "A" and "F" styles, remove right and left wiper arm and blade assemblies. On "B", "C", "D", and "E" styles, remove arm and blade assembly only from the transmission to be removed.
3. Loosen (do not remove) attaching nuts securing transmission drive link(s) to motor crankarm (Fig. 2-28).

NOTE: On "B", "C", "D" and "E" styles, if only the left transmission is to be removed, it will not be necessary to loosen attaching nuts securing the right transmission drive link to motor crankarm.

4. Disconnect the transmission drive link(s) from the motor crankarm.
5. On "A" and "F" styles, remove the right and left transmission to body attaching screws. On "B", "C", "D" and "E" styles, remove the attaching screws securing the transmission(s), to be removed, to the body.
6. Remove transmission(s) and linkage assembly by guiding it through plenum chamber opening.
7. To install transmission(s) and linkage assemblies, position assembly in plenum chamber through the openings.
8. Loosely install transmission to body attaching screws.
9. Install transmission drive link(s) to motor crankarm and tighten attaching nuts to 20-28 inch pounds torque (Fig. 2-28).

NOTE: Wiper motor must be in park position.

10. Align transmission(s) and tighten attaching screws to body.
11. Install wiper arm and blade assemblies and adjust as described under WIPER ARM ADJUSTMENT.
12. Check wiper operation, wipe pattern and park position.
13. Install cowl vent screen.

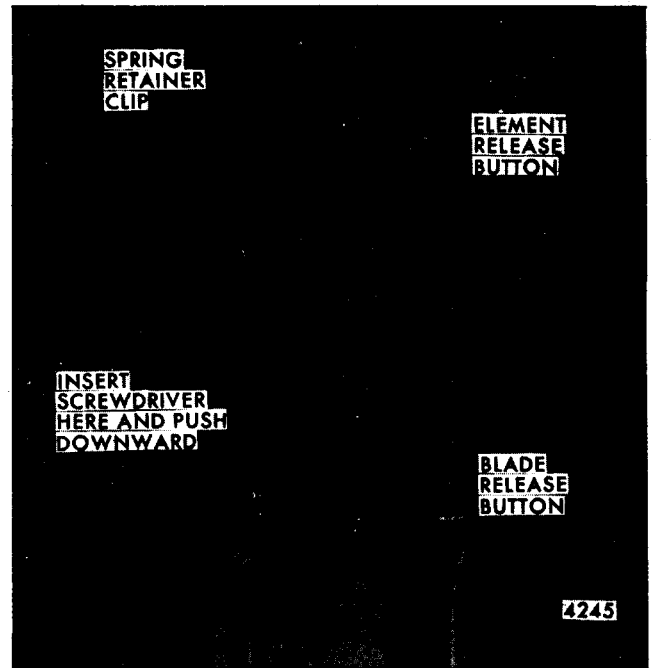


Fig. 2-31-Wiper Blade Assemblies

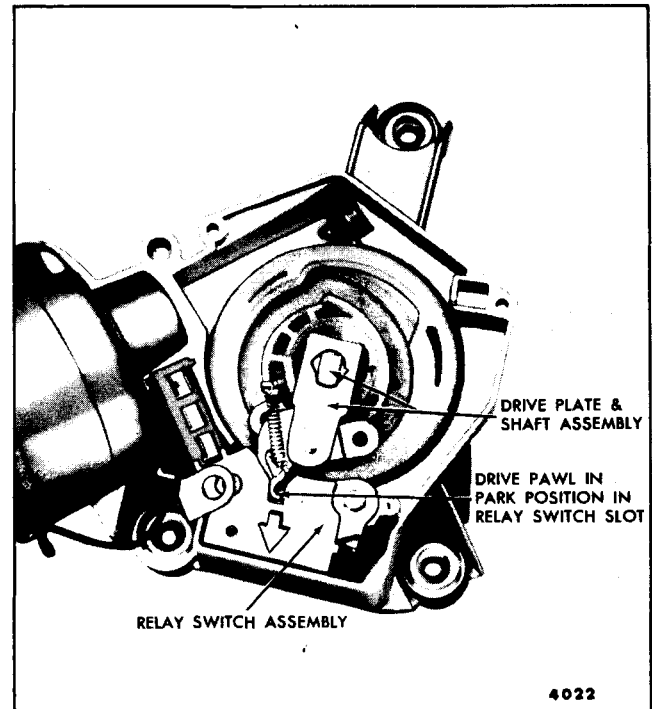


Fig. 2-32-Testing Relay Switch

DIAGNOSIS CHART - WIPER OFF CAR - LESS DEMAND WIPER SYSTEM

NOTE: (For Demand Wiper System see Diagnosis and Diagnosis Chart in the Programmed Washer System section.

NOTE: Before using chart, try operating wiper as

shown in Fig. 2-27. Check if wiper has "LO" and "HI" speeds and shuts off correctly. Match the trouble found with the trouble shown in the chart. Use checking procedure following this chart by letter as indicated to locate cause of trouble.

CONDITION	APPARENT CAUSE	CHECKING PROCEDURE
1. Wiper Inoperative (Motor doesn't run)	<ol style="list-style-type: none"> 1. Open relay coil 2. Circuit breaker open 3. Open armature 4. Motor series field open 5. Brushes sticking 6. Defective solder joints-relay switch 7. Binding condition-relay latch arm 	A
2. Wiper will not shut off (Crankarm rotates through 360 degrees)	<ol style="list-style-type: none"> 1. Relay coil grounded 2. Relay latch spring disconnected or broken 3. Latch arm binding 	B
3. Wiper will not shut off (Crankarm moves back and forth in a horizontal plane accompanied by a loud "knock")	<ol style="list-style-type: none"> 1. Relay switch contacts shorting together 2. Drive pawl spring disconnected 3. Wiper has one speed, "HI", caused by open shunt field 	C
4. Wiper has one speed, "HI"	<ol style="list-style-type: none"> 1. Shunt field open 2. Defective soldering at terminal No. 3 on wiper terminal board 	C
5. Wiper has one speed, "LO"	<ol style="list-style-type: none"> 1. Shunt field internally grounded 2. Shunt field lead to terminal board (black) grounded 3. Shorted armature 	D
6. Wiper has excessive speed in "Hi"; "Lo" speed normal	<ol style="list-style-type: none"> 1. Open speed resistor 2. Poor resistor ground connection 	E
7. Wiper stops at random (Crankarm stops rotating immediately and does not return to full park position.	<ol style="list-style-type: none"> 1. Relay switch contacts dirty or broken 	Clean or replace relay switch assembly as required
8. Intermittent Operation	<ol style="list-style-type: none"> 1. Defective circuit breaker (weak) 2. Circuit breaker tripping because of shorted armature and/or fields causing motor to draw excessive current 	F
9. No apparent trouble on bench test but fails occasionally on car.	<ol style="list-style-type: none"> 1. Armature end play tight 2. Gear assembly end play tight 3. Loose solder or weld joints 	See Adjustments

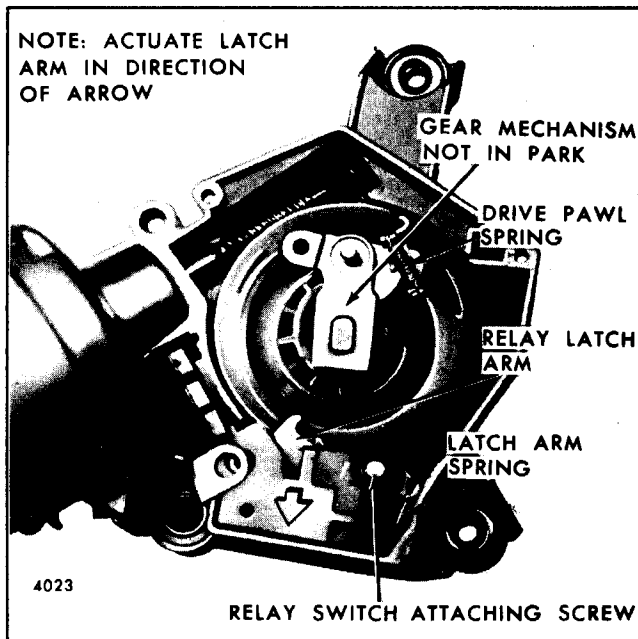


Fig. 2-33-Latch Mechanism

PROCEDURE "A" (WIPER INOPERATIVE)

1. Remove washer pump to gain access to relay switch assembly.
2. Connect 12-volt source to wiper, feed side to center terminal, ground side to gear housing (Fig. 2-27). Do not connect jumper to terminal 1 and 3.
3. To determine if relay coil is open, connect test lamp to wiper terminal No. 1. Test lamp should light.
4. Test relay switch as follows:

- a. If gear mechanism is in full park position, insert a small screwdriver into the switch slot (between the drive pawl and the relay latch arm) and push relay latch arm downward and toward the relay coil in direction of the arrow in Fig. 2-32. Next, remove a small amount of insulation from black lead with pink tracer and touch test lamp to exposed wire.
- b. If test lamp lights but motor doesn't run. Proceed to Step 5.
- c. If test lamp doesn't light, relay switch defective.

NOTE: Cover exposed wire with tape after the test.

5. Disassemble motor section and check the following:
 - a. Hung brush.

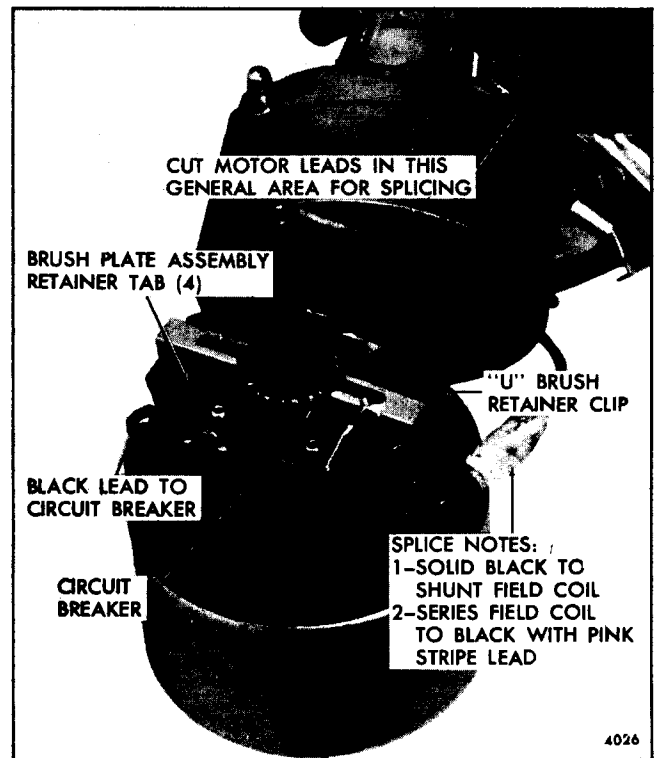


Fig. 2-34-Brush Plate Assembly

- b. Solder connections at brush holders.
- c. Splice joints at field coil connections to leads.
- d. Open armature.
- e. Circuit breaker ground connection on field lamination.
- f. To check the circuit breaker, disassemble motor section of wiper and visually inspect the circuit breaker for dirty or burned contacts or solder connections to circuit breaker terminals (Fig. 2-34).

PROCEDURE "B" (WIPER WILL NOT SHUT OFF-CRANKARM ROTATES 360 DEGREES)

1. Observe if relay latch arm spring is connected properly (Fig. 2-33).
2. Manually operate latch arm to check it for possible binding condition.
3. If items in 1 and 2 check out, connect power source to wiper and connect jumper wire from terminal No. 3 to wiper housing. DO NOT make any connections from terminal No. 1. Manually actuate latch arm in direction of arrow (Fig. 2-33) and observe if it remains in energized position (inside plastic switch housing out of path of gear drive pawl). If it remains in energized position, check for grounded red lead from coil to terminal

No. 1. If red lead is not grounded, coil is probably grounded internally and relay switch should be replaced.

PROCEDURE "C" (WIPER WILL NOT SHUT OFF-RECYCLES)

NOTE: Crankarm oscillates in a somewhat horizontal plane and is accompanied by a loud "knock" with each revolution of the gear.

1. Check that drive pawl and relay latch arm springs are properly connected (Fig. 2-33).
2. Check wiper for "LO" speed operation (Fig. 2-27). If wiper has "HI" speed only, check the following items:
 - a. Solder joint at No. 3 wiper terminal.
 - b. Splice joint - field coil cross-over splice - (Fig. 2-36).
 - c. Splice joint - black lead to field coil.
3. Check relay switch as follows:
 - a. Remove small amount of insulation from black lead with pink stripe and connect test light between exposed wire and wiper housing.
 - b. Connect positive side of power source to terminal No. 2 and negative side to motor case. Install jumper wire from terminal No. 1 to motor case. Observe if test light goes out once for each revolution of gear or if light glows steadily. If light glows steadily, relay switch contacts are not opening and switch is defective. If light goes out each time drive pawl moves into relay switch slot, relay switch is functioning correctly.

PROCEDURE "D" (WIPER HAS ONE SPEED, "LO")

1. Check for grounded condition in the internal black lead that connects to wiper terminal No. 3. Refer to Fig. 2-27 for terminal No. 3 location.
2. Disassemble motor section of wiper and check for grounded shunt field coil (Fig. 2-35).

PROCEDURE "E" (WIPER HAS EXCESSIVE SPEED IN "HI" BUT "LO" SPEED IS NORMAL)

1. Check for open 20 ohm resistor and the resistor ground connection (Fig. 2-39).

PROCEDURE "F" (INTERMITTENT OPERATION)

1. Check solder connections at wiper terminal board.

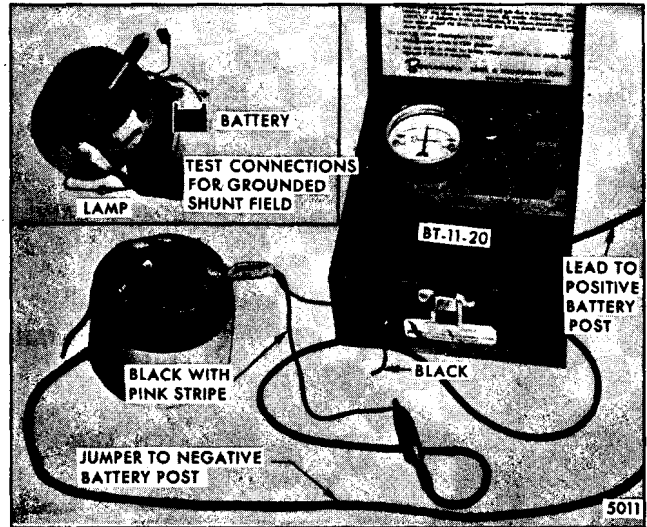


Fig. 2-35-Testing Field Coils

2. Connect wiper to operate in "LO" speed (Fig. 2-27). Connect ammeter (range 0-30 amps.) in feed wire circuit to wiper and observe current draw. Allow motor to run until it becomes hot (see Specification Chart Fig. 2-46).
 - a. If current draw is normal and wiper cycles on and off, a weak circuit breaker is indicated. Replace brush plate assembly.
 - b. If current draw exceeds specification, proceed to Steps 3, 4 and 5.
3. Adjust armature end play as required and recheck current draw.

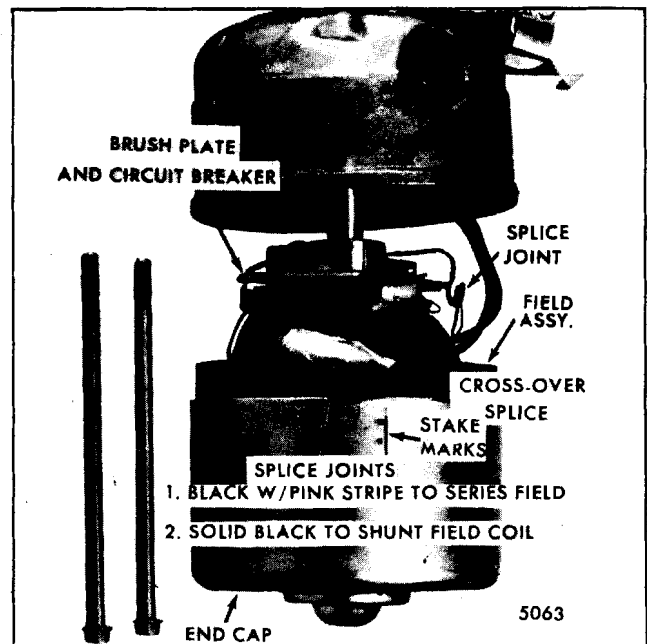


Fig. 2-36-Field and End Cap Assembly

- Adjust gear assembly end play as required and recheck current draw.
- If adjustments in Step 3 and 4 fail to correct excessive current draw condition, disassemble motor section of wiper and check armature on growler for shorted or grounded condition.

MOTOR DISASSEMBLY AND ASSEMBLY PROCEDURE

Brush Plate and Circuit Breaker Removal

- Scribe a reference line along the side of the casting and end cap to insure proper reassembly.
- Remove the two motor tie bolts.
- Feed exposed excess length of motor leads through the casting grommet and carefully back the case and field assembly plus the armature away from the casting (Fig. 2-36).

NOTE: It may be necessary to remove the armature end play adjusting screw and insert a rod through the opening in order to apply pressure against the end of the armature.

- Unsolder the black lead from circuit breaker.
- Straighten out the 4 tabs that secure the brush plate to the field coil retainers (Fig. 2-34).

NOTE: Be careful not to break any of the retainer tabs.

- Install "U" shaped brush retainer clip over brush holder that has brush lead attached to circuit breaker (Fig. 2-34).
- Holding the opposite brush from that retained in Step 6, carefully lift the brush holder off the mounting tabs far enough to clear the armature commutator.
- Allow the brush held in Step 7 to move out of its holder. Remove the brush spring and lift the brush holder off the armature shaft.

Armature Removal

- Follow Steps 1 thru 8 under brush plate removal.
- Lift armature out of case and field assembly.
- Remove thrust ball from end of armature shaft and save for reassembly.

NOTE: Thrust ball may be easily removed with a magnet.

Case and Field Assembly Removal

- Remove brush plate and armature.
- The end case and field assembly is serviced as a unit. To free the field and case assembly, cut the solid black and black with pink stripe leads in a location convenient for splicing preferably near the wiper terminal board (Fig. 2-34).
- Remove steel thrust plate and rubber disc from case bearing.

Motor Reassembly

- If new field and case assembly is being installed, splice the black and black with pink stripe leads of the new field with the corresponding leads of the wiper.
- Install the rubber thrust disc, steel thrust disc and felt lubricating washer in the case assembly bearing in the order indicated.
- Lubricate end of armature shaft that fits in case bearing with recommended type grease (Fig. 2-46). Next, install thrust ball in end of shaft.
- Assemble armature in the case and field assembly.
- Position the partially assembled brush plate, Fig. 2-37 over the armature shaft far enough to allow reassembly of the remaining brush in its brush

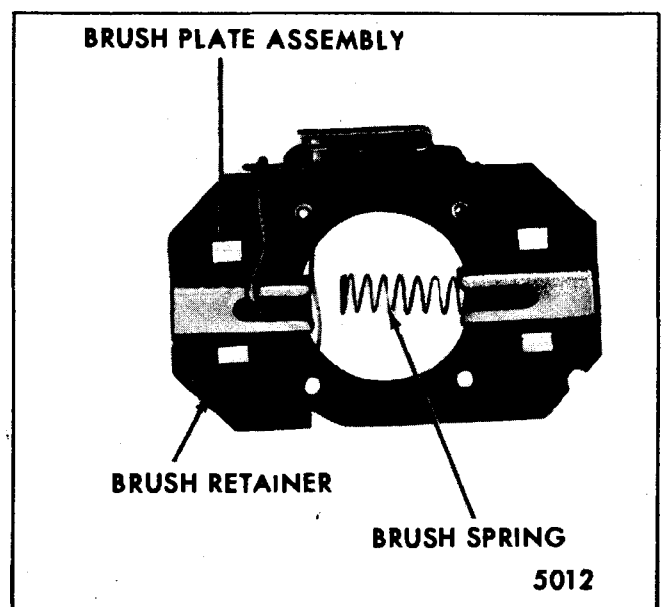


Fig. 2-37-Brush Plate Assembly - Removed

holder; then position the brush plate assembly on the mounting tabs in the position shown in Fig. 2-34.

NOTE: Circuit breaker ground lead will not reach circuit breaker terminal if brush plate is positioned wrong.

- Center the brush plate mounting holes over the mounting tabs and bend the tabs toward the brush holders as required to secure the brush plate in position.

NOTE: Be sure tabs are centered in brush plate mounting holes.

- Remove brush retainer clips and resolder circuit breaker ground lead to circuit breaker.
- If new case and field assembly is used, scribe a line on it in the same location as the one scribed on the old case. This will insure proper alignment of the new case with the scribed line made on the housing.

- Position armature worm shaft inside the housing and, using the scribed reference marks, line up as near as possible the case and field assembly with the housing.

- Maintaining the armature in its assembled position in the case, start the armature worm shaft through the field and housing bearing until it starts to mesh with the drive gear. At the same time carefully pull the excess black and black with pink stripe leads through the housing grommet.

NOTE: It may be necessary at this point to rotate armature slightly before the armature worm will engage with drive gear teeth.

- Rotate the case as required to align the bolt holes in the case with those in the housing.
- Secure the case to the housing with the two tie bolts.

GEAR BOX - DISASSEMBLY AND ASSEMBLY PROCEDURES

Relay Switch-Latch Assembly Terminal Board Removal

- Remove washer pump.
- If wiper gear drive pawl is in full park position (Fig. 2-32), remove gear assembly. (See drive gear disassembly).

If wiper gear mechanism is not in park position

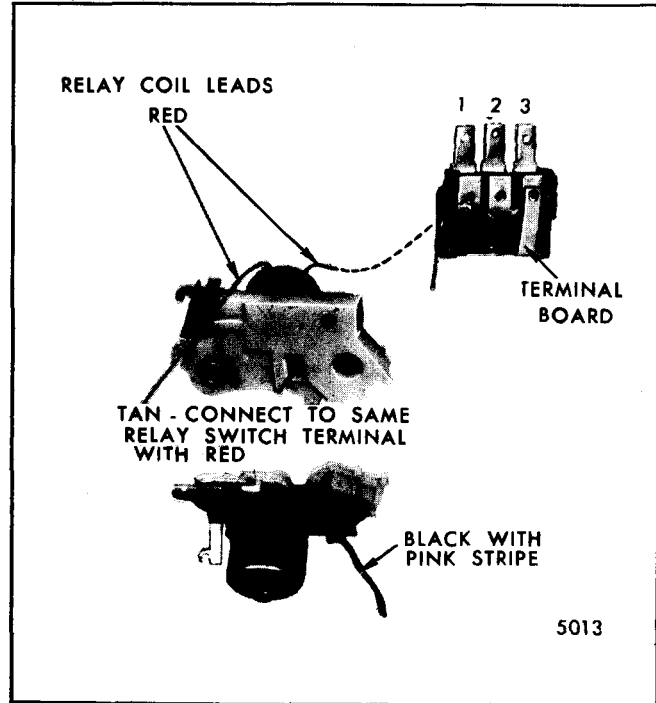


Fig. 2-38-Terminal Board and Latch Relay

(drive pawl away from latch arm Fig. 2-33, proceed to Step 3).

- Remove relay switch attaching screw and carefully lift the relay switch assembly out of the gear box. Unsolder leads from switch terminals as required. Refer to Fig. 2-38 when resoldering leads.

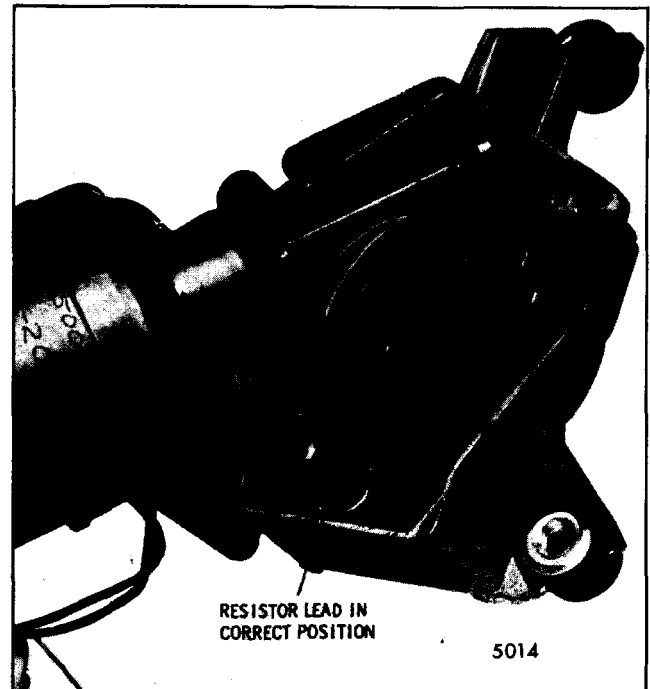


Fig. 2-39-Positioning Resistor Lead

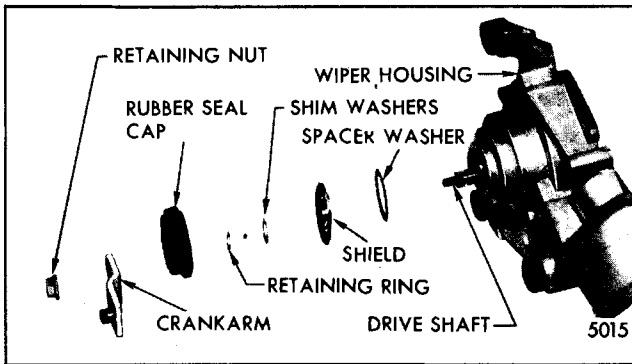


Fig. 2-40-Crank Arm Components-Exploded View

4. To remove terminal board assembly, simply slide it out of housing and unsolder leads as required.

NOTE: Tan wire to No. 2 terminal black wire to No. 3 terminal.

Reassembly of Relay Switch - Latch and Terminal Board

1. Resolder red coil lead to wiper terminal board as required (Fig. 2-38).
2. Slide terminal board into wiper housing being careful to position the terminal board resistor lead as shown in Fig. 2-39.

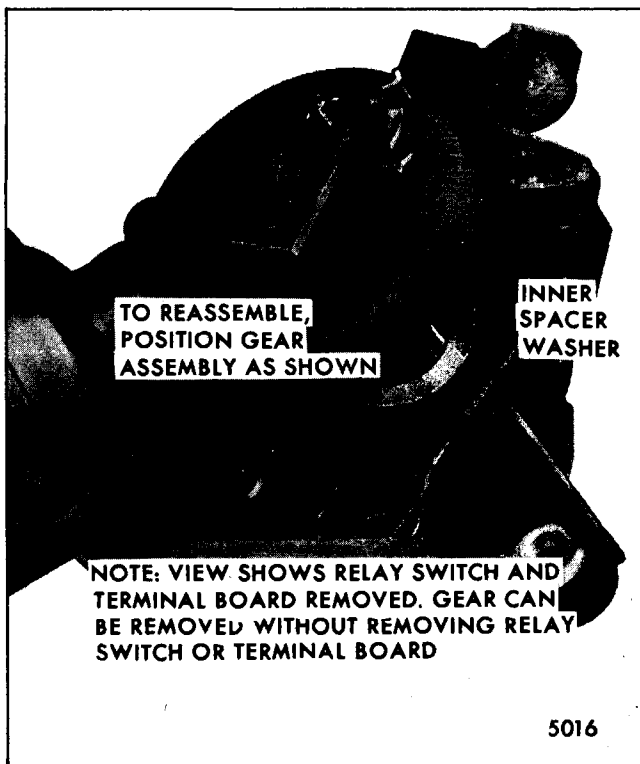


Fig. 2-41-Removing Gear

NOTE: With the relay switch assembly replaced in the housing and washer pump reinstalled, the relay switch plastic housing applies pressure against the resistor lead to form a positive ground connection to the wiper housing.

3. Resolder leads to relay switch assembly as required.
4. Position relay switch assembly in housing.

NOTE: Be very careful to route leads in such a manner as to avoid having them pinched between relay and wiper housing.

5. Install relay switch attaching screw.
6. Reassemble washer pump to gear (reassemble drive gear assembly if removed).

NOTE: Refer to "washer system" - round motor, assembly of washer pump to wiper motor.

Drive Gear Disassembly

1. Remove crankarm retaining nut, crankarm, rubber

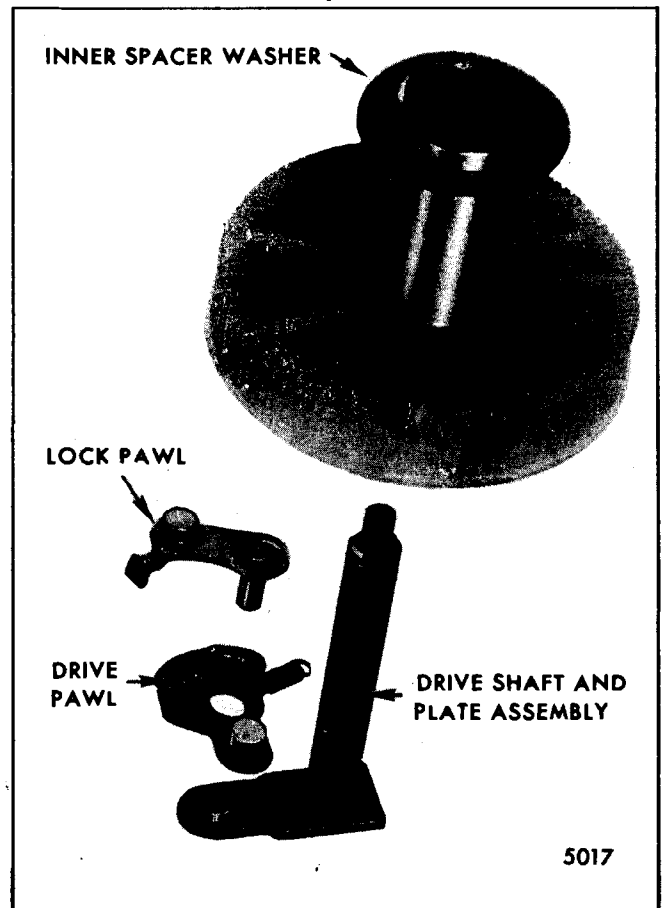


Fig. 2-42-Gear Removed

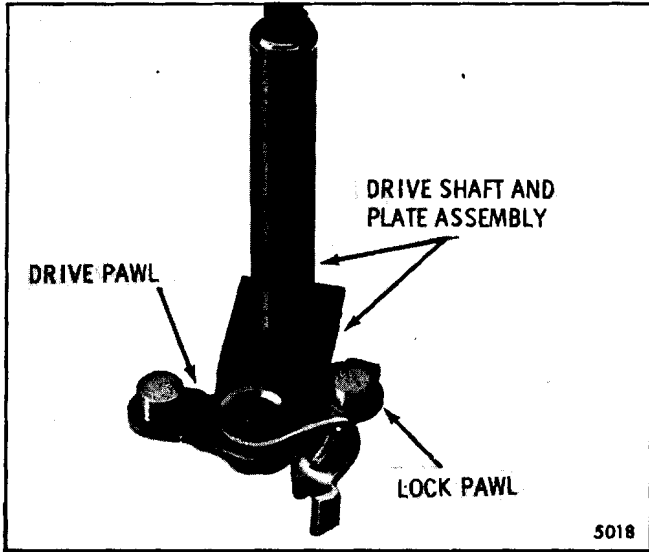


Fig. 2-43-Lock Pawl

seal cap, retaining ring, shim washers, shield and spacer washer in the order indicated (Fig. 2-40).

2. Slide gear assembly out of housing (Fig. 2-41).
3. Slide drive plate and shaft out of gear and remove

the drive pawl, lock pawl and coil spring as required (Fig. 2-42).

Drive Gear Reassembly

1. Position drive pawl on drive plate.
2. Assemble lock pawl over drive pawl as shown in Fig. 2-43.
3. Slide gear and tube over the drive shaft. (Move drive and lock pawls as required to allow their respective pins to fit in the gear guide channel.)
4. Holding the gear, manually rotate the drive plate in the direction of the arrow until the drive and lock pawl guide pins snap into their respective pockets in the gear (Fig. 2-44).
5. Reinstall coil spring between lock and drive pawls.

NOTE: Be very careful to maintain lock and drive pawl guide pins in their respective pockets during Step 6.

6. Assemble inner spacer washer over gearshaft and assemble gear mechanism in housing so that it is positioned with respect to the housing in the approximate location shown in Fig. 2-41.

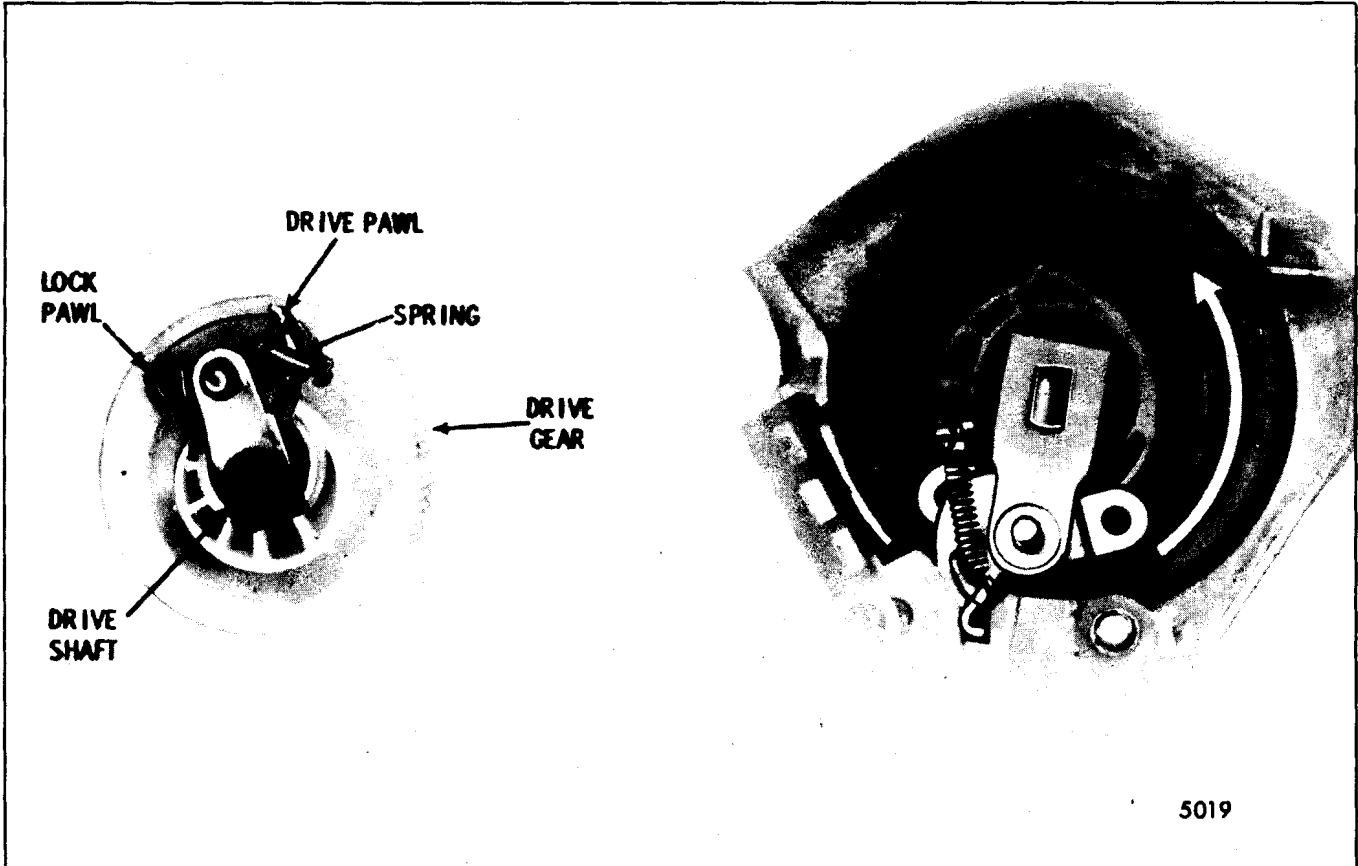


Fig. 2-44-Lock Pawl and Drive Pin Positioning

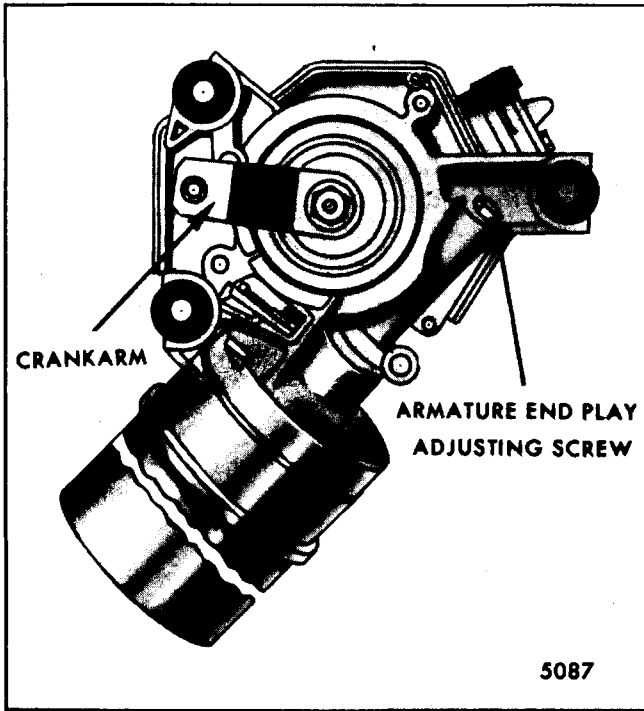


Fig. 2-45-Wiper Motor and Crank Arm in Park Position

SPECIFICATION CHART			
Operating Voltage	12 Volts D.C.		
Bench Check (No Load)	Current Draw (AMPS)		Crankarm Speed
	"A-F"	"B-C-D-E"	
"Lo" Speed	5.0 Max.	6.0 Max.	35 - 50
"Hi" Speed	4.0 Max.	4.5 Max.	70 - 90
Stall (Cold Motor)			
"Lo" Speed	18.0 Max.	29.0 Max.	0
Torque	Inch Pounds		
Washer Pump Mounting Screws	18		
Armature Adjusting Screw Jam Nut	50		
Motor Tie Bolts	30		
Gear Box Relay Attaching Screw	30		
Motor Crankarm Attaching Nut	65		
Motor Crankarm To Transmission Drive Link	20 - 28		
Motor To Body	35		
Transmission To Body	35		
Lubrication			
Gear Teeth	}	Multifak No. 2 or Prestige No. 42 or Equivalent	
Gear Shaft			
Gear Camtrack			
Seal Cap (Inside)			
Armature Shaft			
Armature Worm			

Fig. 2-46-Specification Chart-Round Motor

7. Reassemble the outer spacer washer, shield, shim washers, as required to obtain .004" (plus or minus .002") end play, snap ring and rubber seal cap in the order indicated. Refer to Fig. 2-40.
8. Operate wiper to "park" position and install crankarm in the approximate position shown in Fig. 2-45.
9. Reassemble washer pump to gear.

NOTE: Refer to "washer system" - round motor - assembly of washer pump to wiper motor.

WIPER MOTOR ADJUSTMENTS

Armature End Play

1. Loosen adjusting screw locknut (Fig. 2-45) and tighten or loosen the adjusting screw as required until end of screw barely touches end of armature.
2. Back off adjusting screw 1/4 turn and tighten locknut.

Gear Assembly End Play

1. Add or remove shim washers as required to obtain .004" (plus or minus .002) end play (Fig. 2-40).

DEMAND WIPER SYSTEM

Description

The wiper motor used with the demand wiper system is the same motor used for the depressed park system. However, this system requires the use of an extra relay (demand relay), a dual set of holding switches (Fig. 2-47) and an extra switch located in the end of the shift lever. The shift lever switch is a two-position, button-type plunger. Depressing the switch button to the first detent provides "Demand Wiper" operation.

Weather conditions such as light rain, mist, fog, etc.

that do not normally require continuous wiper operation cause the driver to continually reach down and turn the wiper control switch "on" and "off". With the demand wiper system the driver merely depresses the shift lever button to the first detent position and releases it. The wipers will then make one complete wiping stroke and automatically shut "off". If the button is held in the first detent position, the wiper will operate until the button is released.

Switch in First Detent Position

1. The coil circuits of the wiper gear box relay and

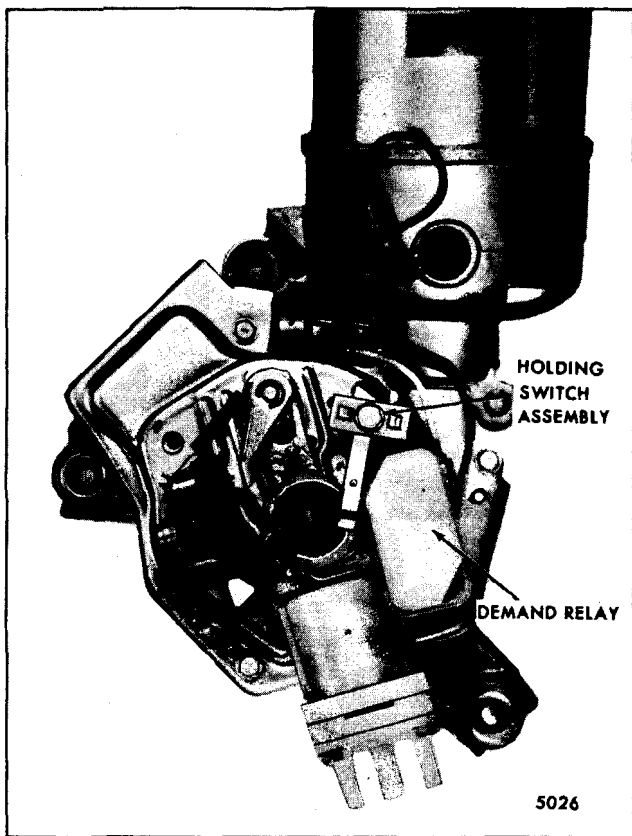


Fig. 2-47-Demand Wiper Assembly

the demand relay are completed to ground simultaneously at the shift lever switch. Fig. 2-48 shows wiper circuits in "off" position. Fig. 2-49 shows the shift lever switch in the first detent position and the completed relay coil circuits.

2. With both relay coils energized, the gear box relay contacts close completing the feed circuit to the wiper motor windings and at the same time the demand relay contacts close completing a holding circuit to ground through the normally closed holding switch contacts "A" (Fig. 2-50).

NOTE: Without the holding circuit, quick release of the shift lever switch would cause the wiper blades to return to "park" before making a complete wiping stroke.

3. When the gear box relay switch contacts close, the wiper motor starts to run. The gear box relay coil will remain energized until the holding circuit is interrupted.

NOTE: The wiper motor operates in "lo" speed during this type of operation. The wiper motor shunt field circuit is completed directly to ground at the wiper control switch even though the switch is in the "off" position.

4. As soon as the wiper motor has run long enough to move the blades out of the park position and started the normal wiping stroke, the following occurs:

- a. The washer pump 4-lobe cam has a fin which opens holding switch contacts "A" when the cam is rotated (Fig. 2-51).

NOTE: The 4-lobe cam is connected to the wiper gear and anytime the gear is rotating the cam will also rotate. The holding switch contacts will open once during each revolution of the 4-lobe cam.

- b. When the fin momentarily opens the holding switch contacts "A", the holding circuit for both the gear box relay coil and demand relay coil is interrupted to ground. The demand relay switch contacts then opens and the gear box relay latch arm is released and moves out into the path of the gear drive pawl (Fig. 2-52). At this stage of operation the gear box relay switch is still closed and the wiper motor continues to run.

- c. The continuing rotation of the wiper gear and 4-lobe cam moves the fin away from the holding switch contacts "A" allowing them to close. Since the holding switch is in series with the demand relay switch which is now open, the holding circuit will remain open until the shift lever switch is again actuated.

- d. Further rotation of the wiper gear causes the gear drive pawl to engage the relay latch arm (Fig. 2-53). This action unlocks the output shaft from the gear. The output shaft extends through the gear tube off center and as the gear continues to rotate, a cam action results. The cam action causes the gear drive pawl to push the latch arm into the relay housing where it pushes against and opens the relay switch (Fig. 2-54) shutting off the wiper.

Diagnosis Chart

Refer to trouble shooting procedure and diagnosis chart in Programmed Washer System Section.

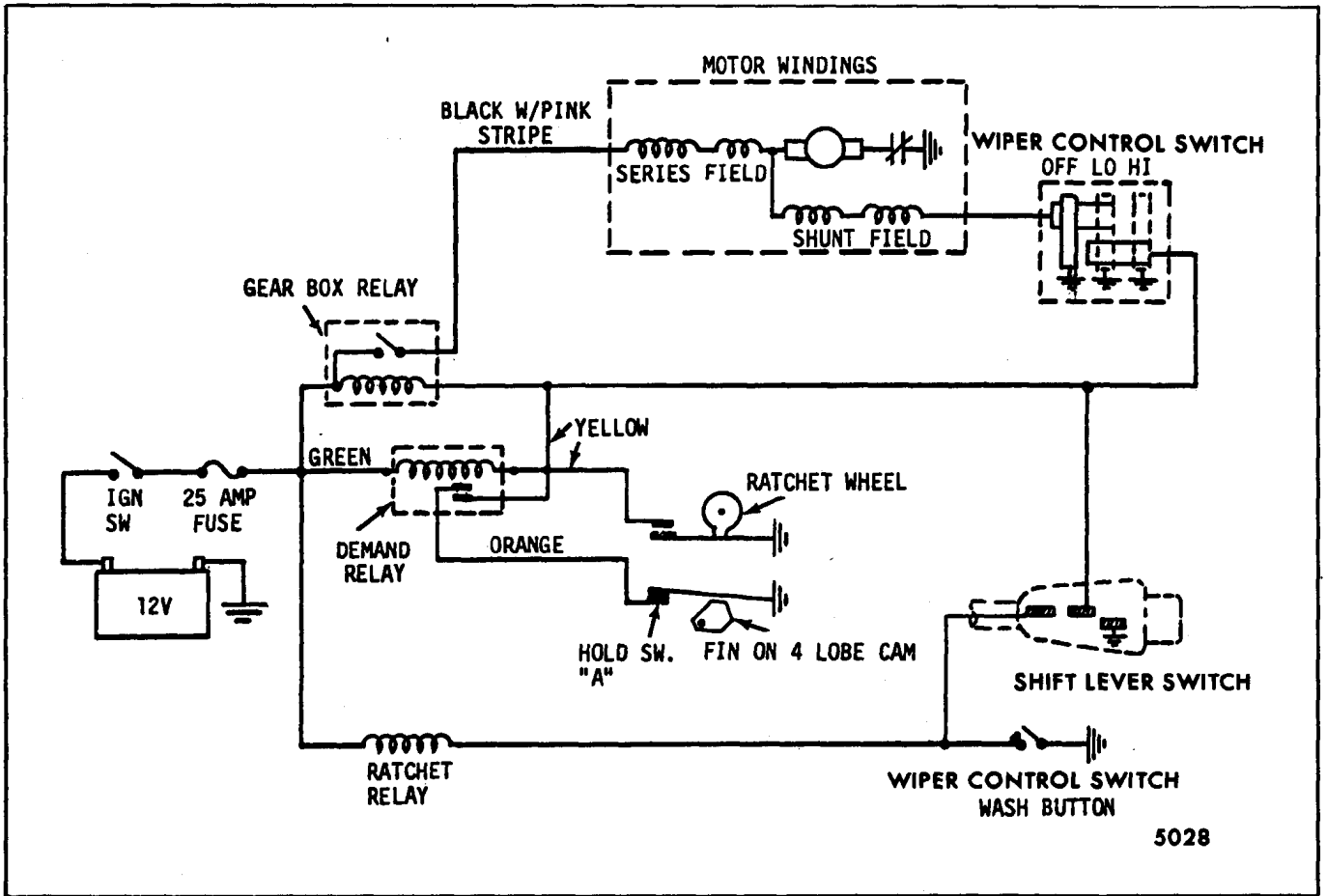


Fig. 2-48-Demand Wiper Circuits - Off Position

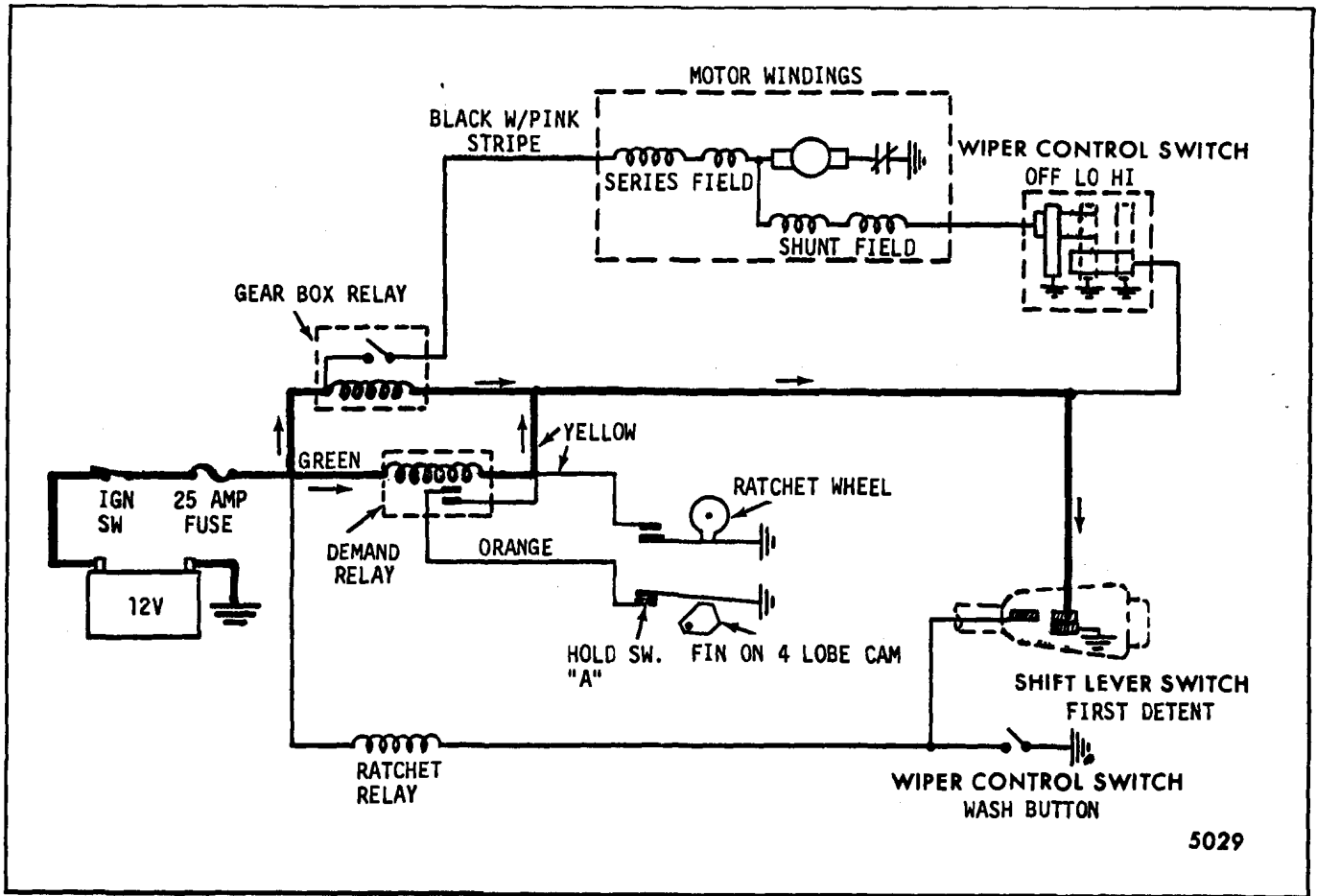
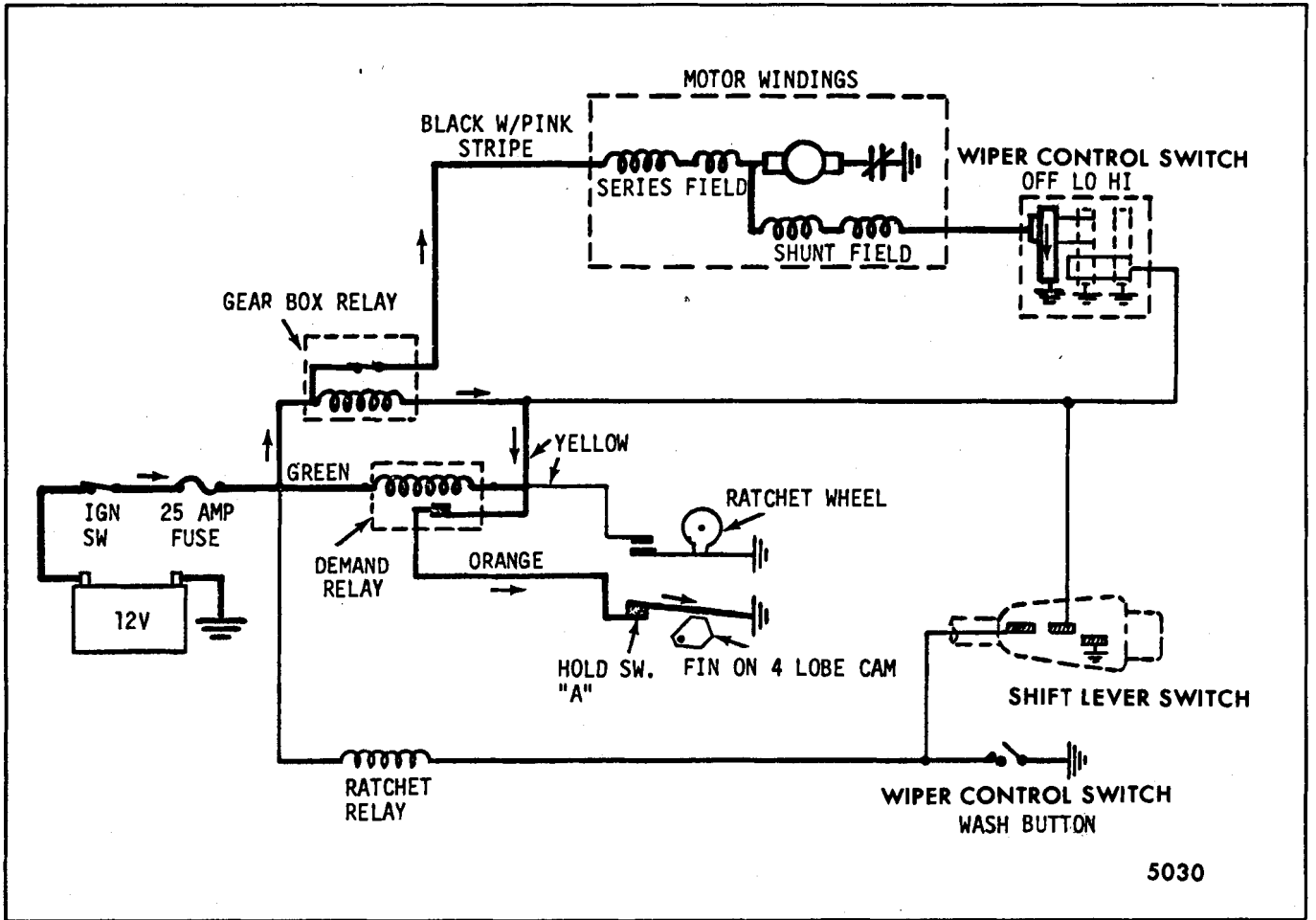


Fig. 2-49-Button in First Detent Position



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Fig. 2-50-Demand Wiper Circuits

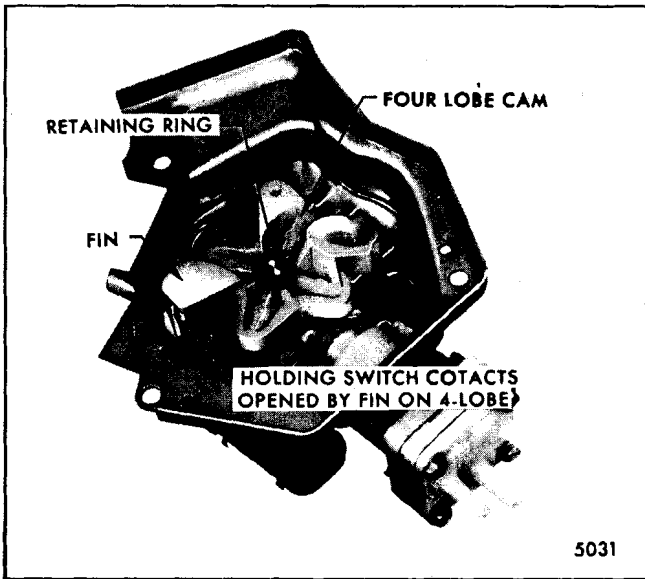


Fig. 2-51-Demand Washer 4-Lobe Cam

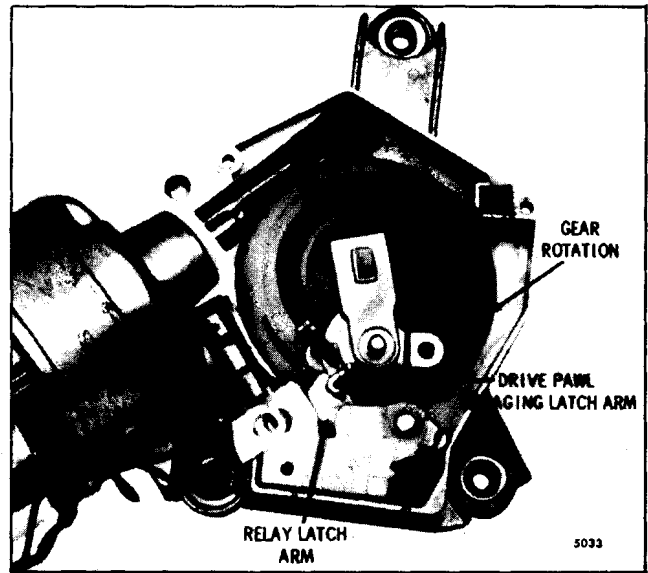


Fig. 2-53-Gear Drive Pawl Engaged

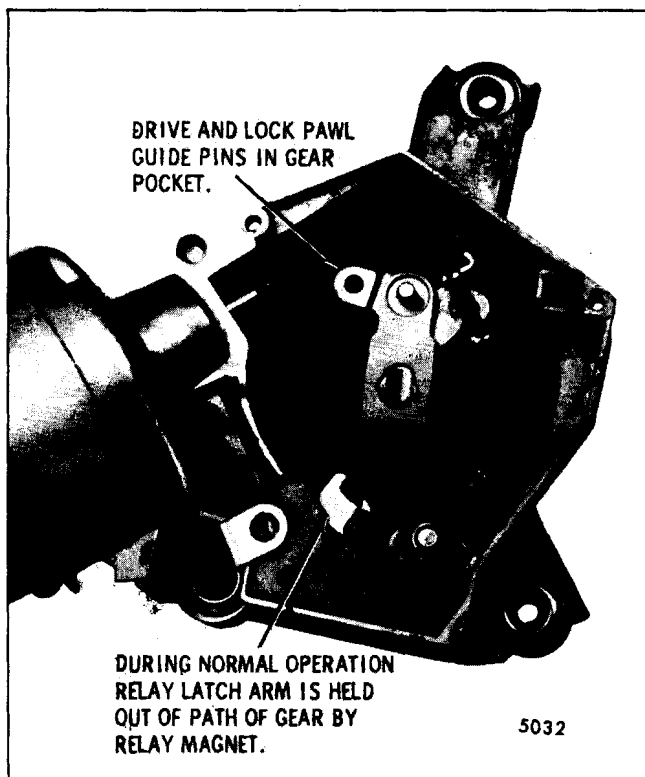


Fig. 2-52-Gear in Normal Run Position

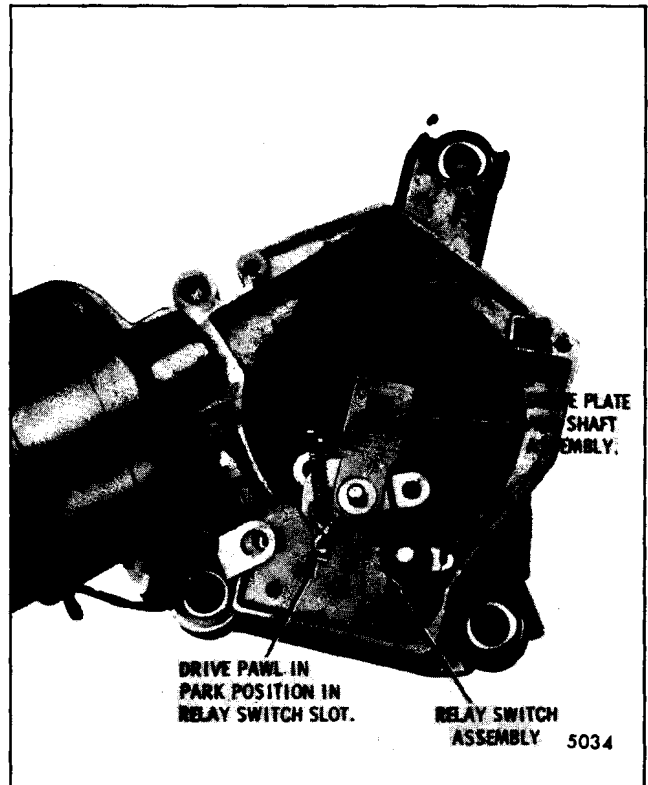


Fig. 2-54-Wiper Shut Off In Park Position

WASHER SYSTEM

DESCRIPTION

The washer pump used on both the rectangular and round motor is a positive displacement type pump employing a small piston, spring and valve arrange-

ment. The plastic valve assembly is identical for both, however the programming (starting and completion of wash cycle) which is accomplished electrically and mechanically by a relay assembly and ratchet wheel arrangement differs and will be explained separately.

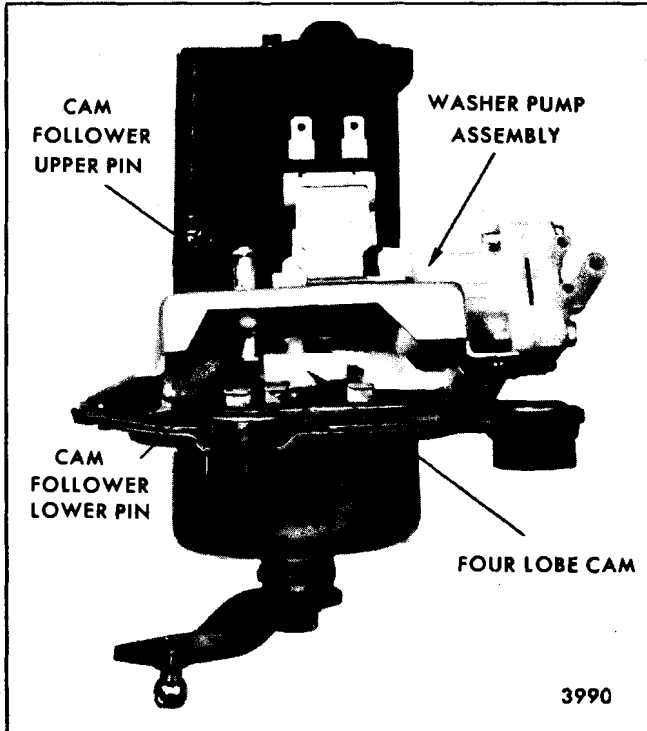


Fig. 2-55-Four Lobe Cam

RECTANGULAR MOTOR WASHER SYSTEM

The following outlines the principles of operation.

Washer Pump Off - Wiper Motor On

A four lobe nylon cam assembled on the output shaft of the wiper motor powers the washer pump mechanism. The cam rotates whenever the motor is running.

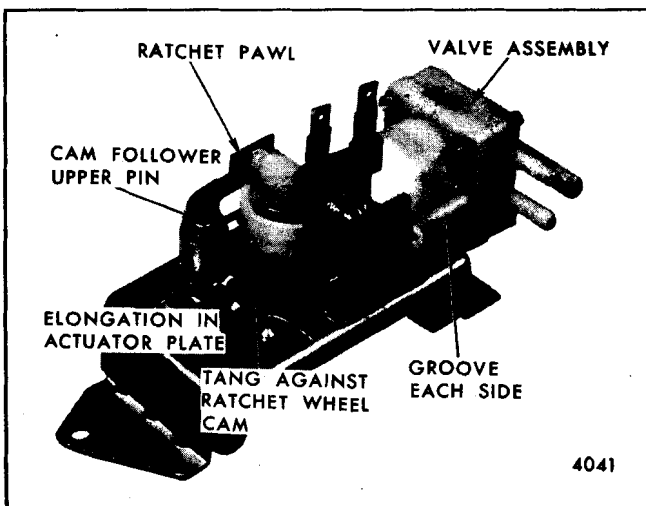


Fig. 2-56-Actuator Plate

When the pump is attached to the wiper motor, the four lobe cam actuates a spring loaded cam follower arm and pin assembly. Fig. 2-55 has the pump tilted back to show the relationship of cam follower lower pin to four lobe cam.

The cam follower actually has two pins - an upper and lower. The lower or bottom pin is actuated by the four lobe cam. The upper pin, which extends through an elongated opening in the piston actuator plate has a ratchet pawl assembled on it (Fig. 2-56). Thus, whenever the wiper motor is running, the four lobe cam is rotating and in turn actuates the cam follower assembly. However, no pumping action occurs because the washer pump pumping mechanism is held in a "lock-out" position.

Pumping Mechanism Lock-Out Position

Referring to Fig. 2-56, note that the piston actuator plate has a tang that is resting against a ramp on the lower surface of the ratchet wheel. This tang holds the spring loaded piston actuator plate in a retracted position. With the actuator plate held in a retracted position, the cam follower upper pin will merely move back and forth in the actuator plate elongated opening and no pumping action occurs. The ratchet pawl is held away from the ratchet wheel by a spring loaded solenoid plunger.

Starting the Wash Cycle

Depressing the control switch washer button completes the pump solenoid circuit to ground at the control switch and mechanically actuates the wiper switch to turn the wiper motor on (Fig. 2-57).

With the coil energized, the solenoid plunger is pulled toward the coil and this allows the ratchet pawl to engage the ratchet wheel teeth. (Keep in mind that the ratchet pawl moves back and forth when the wiper is

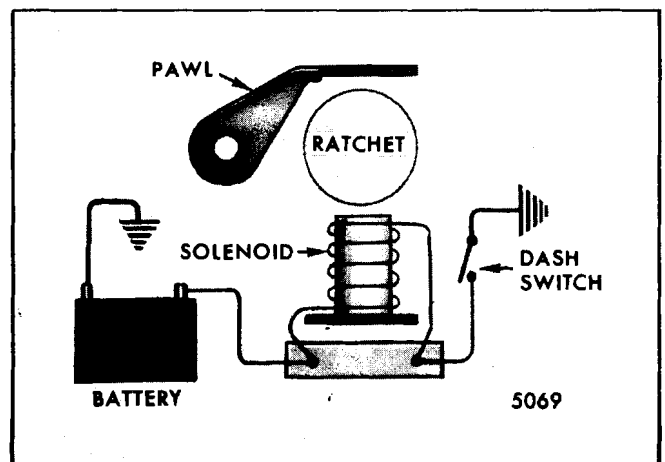


Fig. 2-57-Pump Wiring Circuit

on). Thus when the ratchet pawl engages the ratchet wheel teeth, it will start to rotate the ratchet wheel. Each stroke of the ratchet pawl rotates the wheel one tooth.

The first stroke of the ratchet pawl rotates the ratchet wheel one tooth and accomplishes the following functions:

1. The "lock-out" ramp on the lower surface of the ratchet wheel is moved away from the tang on the piston actuator plate releasing the pumping mechanism from the "lock-out" position.

When the piston actuator plate is released from the "lock-out" position the piston spring, which had been held in a compressed position, expands pushing the piston toward the valve assembly resulting in the first exhaust stroke (Fig. 2-58). The movement of the piston toward the valve assembly also pulls the piston actuator plate in the same direction causing the back edge of the elongated opening in the actuator plate to move up tight against the upper cam follower pin.

2. Rotating the ratchet wheel one tooth from the lock-out position also maintains the solenoid plunger in the coil energized position. The plunger will be held in this position until the ratchet wheel has been rotated 360 degrees or 12 teeth.

Wash Cycle Intake Strokes

The continuing rotation of the four lobe cam actuates the pumping mechanism as follows:

As each lobe actuates the follower, the cam follower in turn moves the piston actuator plate and piston away from the valve assembly compressing the piston spring. The movement of the piston away from the valve assembly creates a vacuum in the pump cylinder which draws the wash solution into the pump cylinder through the intake valve (Fig. 2-58).

Exhaust Stroke

As the high point of each lobe passes the cam follower lower pin, the piston spring is allowed to expand

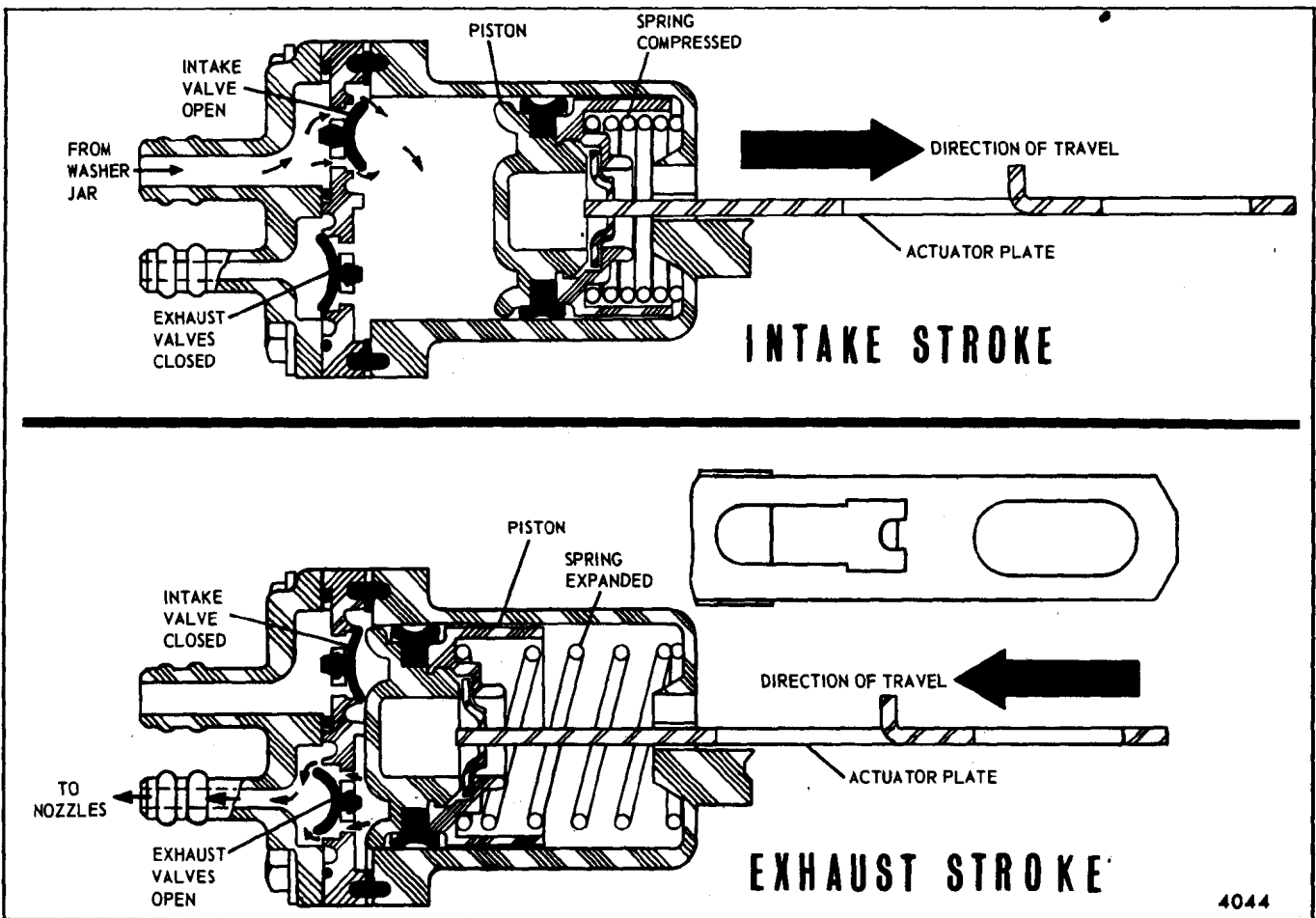


Fig. 2-58-Intake and Exhaust Stroke

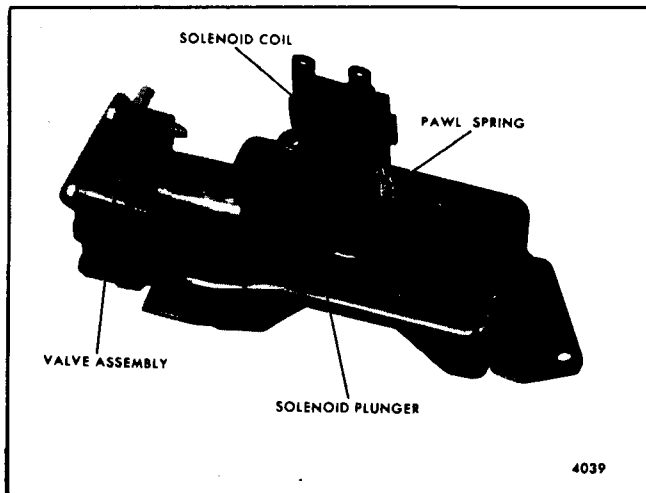


Fig. 2-59-Washer Assembly Internal Gear

forcing the piston toward the valves. The movement of the piston toward the valves forces the wash solution out the two exhaust valves to the spray nozzles.

The intake and exhaust strokes occur four times for each revolution of the wiper motor output gear. During each intake stroke, the ratchet wheel is rotated one tooth.

Completion of the Wash Cycle

The pumping operation is completed automatically when the ratchet wheel has been rotated through 360 degrees or 12 teeth.

After the ratchet wheel has been rotated through 12 teeth, two simultaneous functions are accomplished.

1. The spring loaded solenoid plunger pushes through an opening in the rim of the ratchet wheel. As the plunger moves through the opening, it pushes the ratchet pawl away from the ratchet teeth (Fig. 2-59).
2. The ramp on the lower surface of the ratchet wheel has moved to a position where it is holding the piston actuator plate in a lock-out position as shown (Fig. 2-56).

CHECKING PROCEDURES:

Washer Pump Inoperative (On the Car)

1. Check the following items:
 - a. Jar has adequate quantity of washer solution.
 - b. Hoses are not damaged and hose connections are tight.

NOTE: If a valve has been previously replaced

and the hose connections have been disturbed, it may be necessary to cut a short length off the end of each hose to insure an air tight connection.

- c. Screen at end of jar cover hose is not plugged.
 - d. Electrical connections to washer pump and wiper switch.
 - e. Nozzles are not plugged.
2. If items in step 1 check out, start wiper motor first, then push washer button and listen for "click" as washer solenoid pulls in. If no "click" is heard, check power supply (12 volt) at washer pump wiring connector. No voltage indicates open circuit in feed wiring.
 3. If correct voltage reading was obtained in step 2, start wiper first, then connect 12 volt supply to one washer terminal and ground other. If washer relay "click" is heard, an inoperative wiper switch is indicated.
 4. If washer relay "click" is not heard in step 3, a faulty washer pump relay coil is indicated.
 5. If relay "click" is heard in step 2, 3 or 4 listen for the "soft clicking" as the pump ratchet wheel is rotated. If "soft clicking" is not heard, the pump mechanism is faulty and should be removed from the wiper motor and checked. See "Washer Pump Detached".
 6. If "soft clicking" is heard but no pumping action occurs, replace the valve assembly and recheck pump.

WASHER PUMPS CONTINUOUSLY WHEN WIPER IS ON (ON THE CAR)

1. Disconnect wiring from washer pump. If pump shuts off, trouble is in wiring or switch.
2. If pump fails to shut off in step 1, remove pump assembly from car for further checking.

WASHER PUMP DETACHED

1. Manually actuate the solenoid plunger and check for binding condition.
2. Check relay coil as follows: Connect 12 volt supply to one washer terminal and ground the other. Observe if solenoid plunger pulls in. Failure of solenoid plunger to pull in indicates an open solenoid coil or poor solder connections.

3. If solenoid plunger pulls in correctly, manually actuate the cam follower lower pin and observe if pump operates as previously described. Binds and other types of malfunction can usually be located in this manner.

WASHER PUMP DISASSEMBLY PROCEDURES

Solenoid Assembly - Ratchet Dog

1. Remove the ratchet dog retaining screw. Hold the spring loaded solenoid plunger in position and carefully lift the solenoid assembly and ratchet dog off the frame of the pump.
2. Separate the ratchet dog from solenoid mounting plate as required (Fig. 2-61).

Ratchet Pawl

1. Disconnect ratchet pawl spring (see Fig. 2-60 for proper location of spring).
2. Remove ratchet pawl retaining ring and slide ratchet pawl off cam follower shaft.

Ratchet Wheel

1. Follow step 1 under solenoid - ratchet dog assembly.
2. Move ratchet wheel spring out of shaft groove and slide ratchet wheel off its shaft (Fig. 2-62).

Pump and Actuator Plate Assembly

1. Remove solenoid assembly - ratchet dog, ratchet pawl and ratchet wheel as outlined in their respective procedures.
2. To separate the pump and pump actuator plate from the frame, pull the pump housing in the direction toward the valve end until the grooves in the housing clear the frame. Then remove the actuator plate from the ratchet wheel and cam follower shafts.

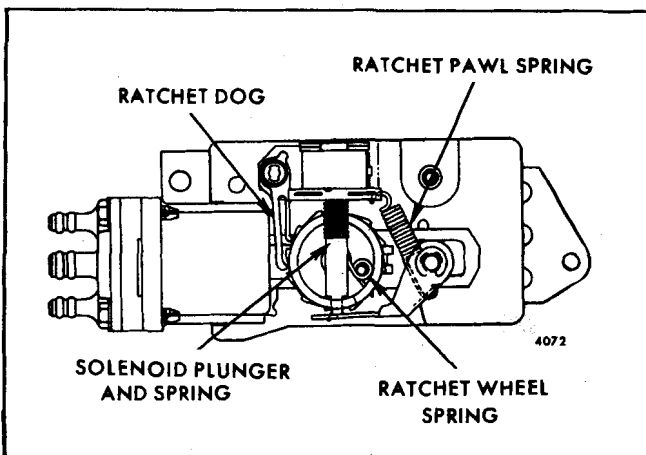


Fig. 2-60-Ratchet Pawl Spring Location

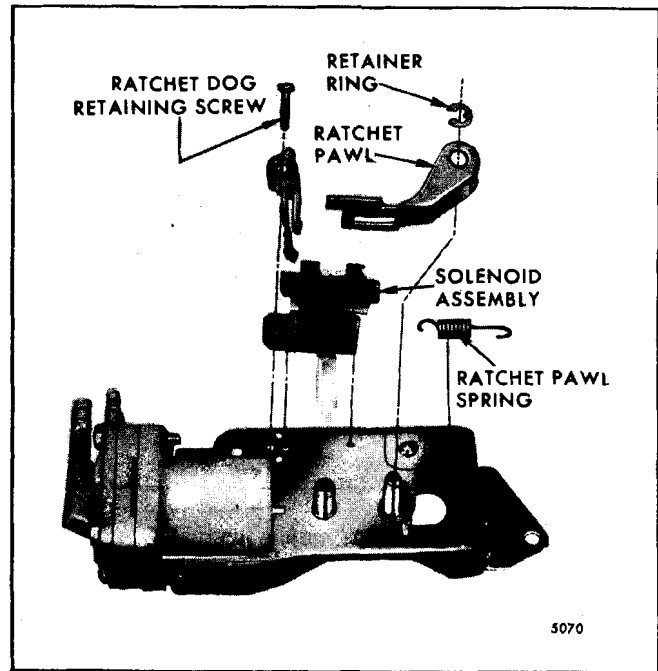


Fig. 2-61-Pump Assembly - Exploded View

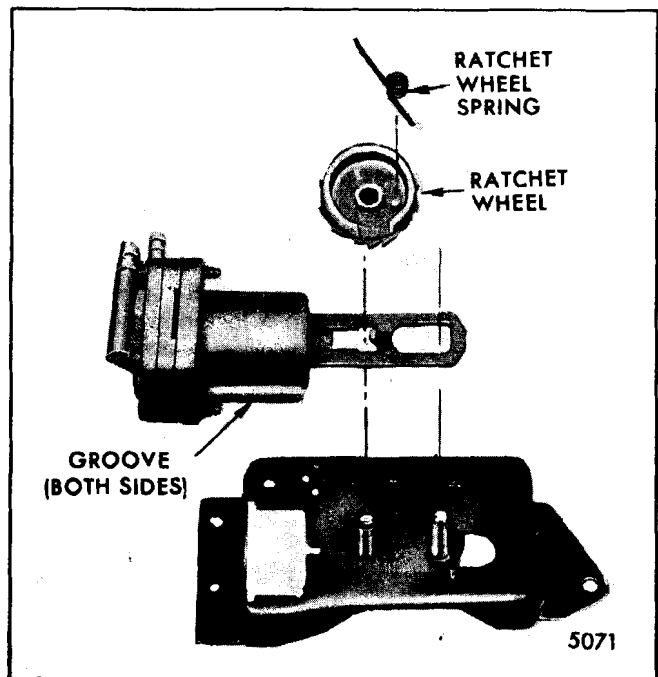


Fig. 2-62-Pump Ratchet Wheel

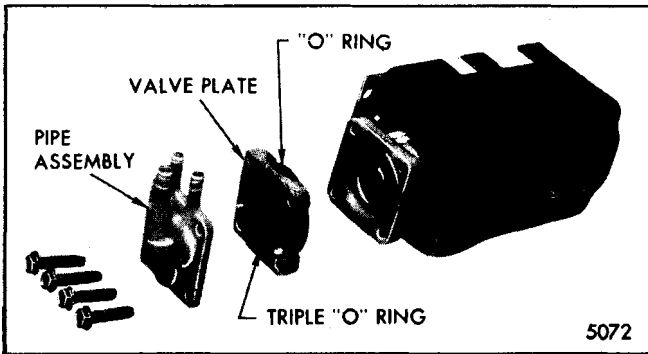


Fig. 2-63-Valve Assembly

Valve Assembly

1. Remove the four (4) screws that attach the valve assembly to the pump housing.

NOTE: During reassembly be sure gasket between housing and valve plate is properly positioned in the housing and valve plate grooves. Also be sure triple O ring (Fig. 2-63) is properly installed between valve body and pipe assembly.

ROUND MOTOR WASHER SYSTEM

The explanation of operation is divided into three general areas (1) Assembly of Washer Pump to Wiper Motor, (2) Pumping Action and (3) Programming (starting and stopping the pump action).

Assembly of Washer Pump to Wiper Motor

NOTE: Wiper Motor Gear must be in PARK position (Fig. 2-65) to assemble pump to wiper motor.

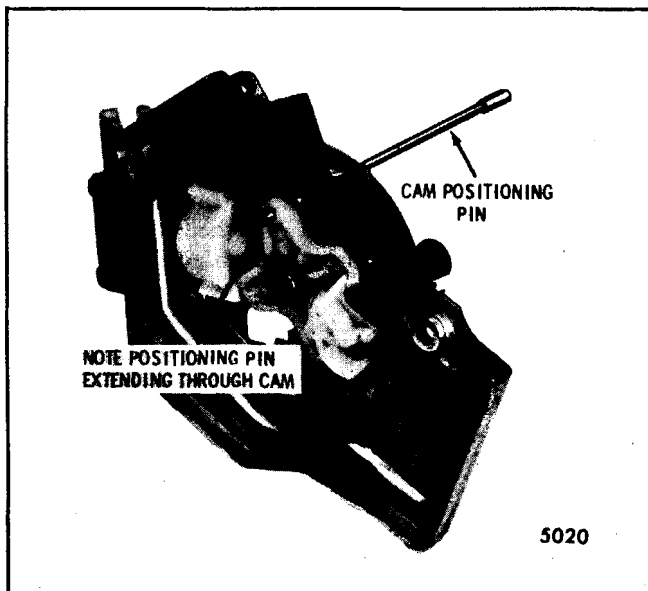


Fig. 2-64-Cam Alignment Pin Installation

1. Remove plastic pump cover.
2. Rotate the 4-lobe cam until index hole (.125" dia.) in the cam is aligned with the hole in the pump mounting plate. Insert a pin through both holes to maintain cam in position (Fig. 2-64).
3. Position pump on wiper so that slot in 4-lobe cam fits over the gear drive pin (Fig. 2-65). Secure pump to gear housing and remove locator pin, temporarily connect wiring connector.
4. Turn on wiper and washer pump to check pump operation.

NOTE: A loud knocking noise would indicate that the pump cam has not engaged the drive pin properly.

5. Install pump cover.

Basic Pump Action

NOTE: This explanation covers only that part of the washer assembly that actually does the pumping.

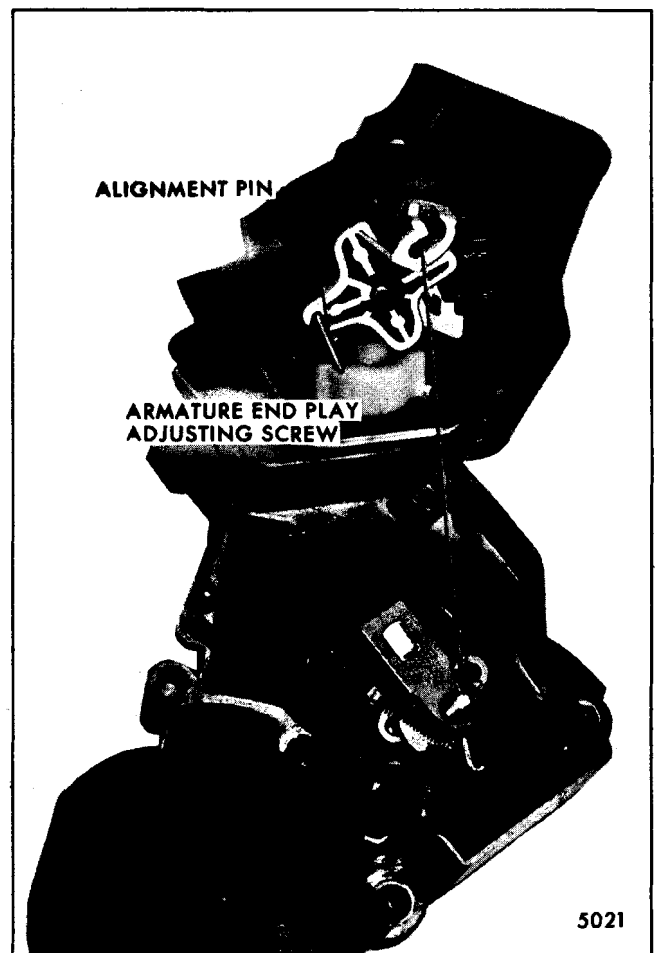


Fig. 2-65-Installing Washer to Pump

The basic pumping mechanism consists of a spring-loaded piston assembly enclosed in a plastic cylinder. Attached to the piston and extending out of the cylinder housing is an actuator plate. A valve assembly consisting of two exhaust valves and one intake valve is attached to the opposite end of the cylinder housing and controls the flow of washer solution.

Referring to Fig. 2-66, note that the elongated slot of the piston actuating plate fits over a pin. This pin is a part of a cam follower assembly which is actuated by the 4-lobe cam located on the underside of the pump mounting plate. When the wiper is running, the drive gear rotates the 4-lobe cam which in turn causes the cam-follower to move back and forth.

Intake Stroke

When the cam-follower moves in the direction indicated by the arrow in Fig. 2-66, the cam-follower pin, which extends thru the piston actuating plate, pulls the actuator plate away from the valve assembly compressing the piston spring. As the piston moves away from the valve assembly, a vacuum is created in the cylinder which opens the intake valve, drawing washer solution into the cylinder (Fig. 2-58).

Exhaust Stroke

As the 4-lobe cam continues to rotate, the cam-follower pin moves in the opposite direction described in the Intake Stroke. This permits the piston spring to expand which in turn pushes the piston toward the valve assembly creating pressure between the piston and valve assembly. This pressure "build-up" forces the washer solution out the two exhaust valves to the nozzles (Fig. 2-58).

NOTE: For purposes of explanation, only one exhaust valve opening is shown.

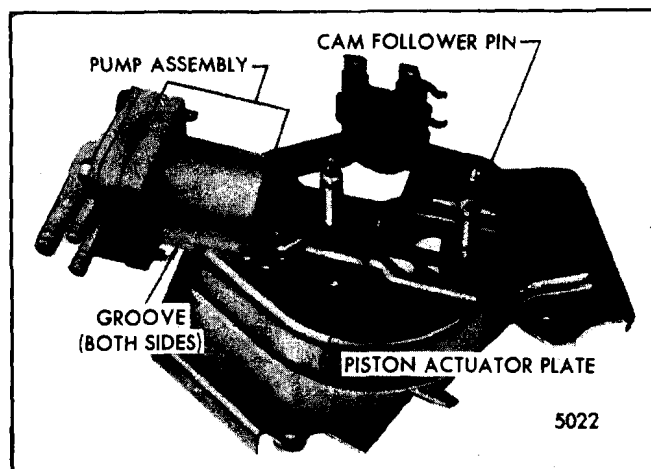


Fig. 2-66-Pump Intake Stroke

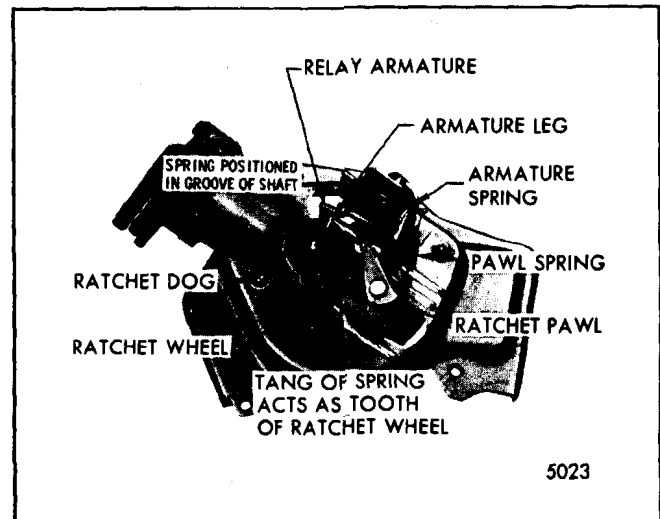


Fig. 2-67-Pump Mechanism

The intake and exhaust stroke cycle will occur four times for each revolution of the wiper drive gear while the washer pump is operating.

Programming (Starting and Stopping of Pumping Action)

The programming section of the pump mechanism consists of a relay, ratchet pawl, ratchet wheel, and ratchet wheel dog (Fig. 2-67).

Pump Idling (No Pumping Action)

Refer to Fig. 2-68 and note that a tang on the piston actuator plate is resting against a ramp on the lower surface of the ratchet wheel. This, in effect, holds the piston actuator plate in a lock-out position. With actuator plate in this position and the wiper running, the cam-follower pin merely moves back and forth in the elongated slot of the piston actuator plate and no pumping action can occur.

The ratchet wheel, which, if rotated, would move the ramp away from the tang of the actuator plate releasing the pump action, is prevented from rotating as follows:

The relay assembly, consisting of a coil and armature, is constructed in such a way that the ratchet wheel pawl extends through an opening in the relay armature; preventing it from engaging the ratchet wheel teeth.

Starting the Pump

Actuating the washer button to obtain windshield washer pump operation starts the wiper motor and energizes the pump relay. When relay is energized, the

relay armature is pulled suddenly toward the coil, allowing the ratchet wheel pawl to drop out of the relay armature opening and engage the teeth of the ratchet wheel.

The ratchet wheel pawl, which is actuated by the same cam-follower pin that moves the piston actuating plate, begins to rotate the ratchet wheel. Rotating the ratchet wheel one tooth moves the ratchet wheel ramp away from the tang of the piston actuating plate (Fig. 2-68), permitting the piston spring to expand which in turn forces the piston toward the valve assembly resulting in the first exhaust stroke. This sequence then repeats through the remaining cycles.

Stopping the Pump (Completion of the Wash Cycle)

The pumping operation is terminated automatically when the ratchet wheel has rotated a full 360 degrees and the 12th cycle is completed. This is accomplished as follows.

As the ratchet wheel approaches the completion of its 360 degrees travel, two functions occur simultaneously:

1. A leg on the relay armature rides up a ramp located on the outer surface of the ratchet wheel. When the leg reaches the top of the ramp, it moves over the top edge of the ratchet wheel. This action allows the ratchet wheel pawl to re-enter the armature opening preventing further rotation of the ratchet wheel until the next time the relay coil is energized from the washer button. (Refer to Fig. 2-67 for position of armature leg while pump is idling.)
2. The tang on the piston actuating plate is resting once more against the ramp on the lower side of the ratchet wheel (Fig. 2-68).

CHECKING PROCEDURES

Washer Pump Inoperative (On the Car)

1. Check the following items:
 - a. Jar has adequate quantity of washer solution.
 - b. Hoses are not damaged and hose connections are tight.

NOTE: If a valve has been previously replaced and the hose connections have been disturbed, it may be necessary to cut a short length off the end of each hose to insure an air tight connection.

- c. Screen at end of jar cover hose is not plugged.

- d. Electrical connections to washer pump and wiper switch.
- e. Nozzles are not plugged.

2. If items in step 1 check out, start wiper motor first, then push washer button and listen for "click" as washer relay pulls in. If no "click" is heard, check power supply (12 volt) at washer pump wiring connector. No voltage indicates shorted or inoperative car wiring.
3. If correct voltage reading was obtained in step 2, start wiper first, then connect 12 volt supply to one pump terminal and ground other. If washer relay "click" is heard, an inoperative wiper switch is indicated.
4. If washer relay "click" is not heard in step 3, a faulty washer pump relay coil is indicated.
5. If relay "click" is heard in step 2, 3 or 4 listen for the "soft clicking" as the pump ratchet wheel is rotated. If "soft clicking" is not heard, the pump mechanism is faulty and should be removed from the wiper motor and checked.
6. If "soft clicking" is heard but no pumping action occurs, replace the valve assembly and recheck pump.

Washer Pumps Continuously When Wiper is On

1. Disconnect wiring from washer pump. If pump shuts off, trouble is in wiring or switch.
2. If pump fails to shut off in step 1, remove pump assembly from car for further checking.

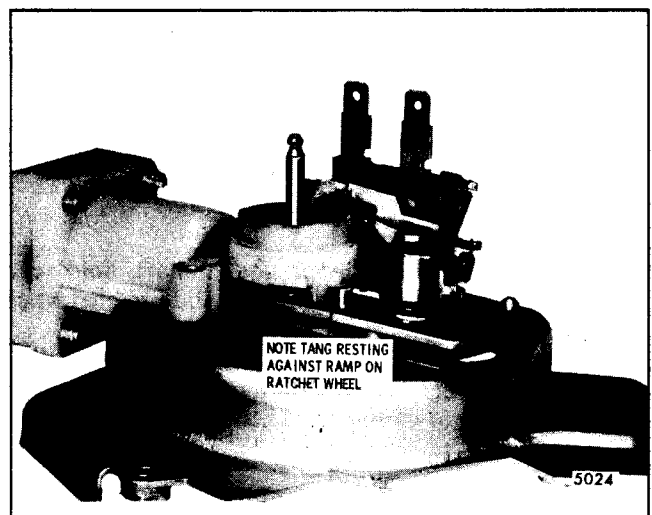


Fig. 2-68-Ratchet Wheel-Ramp

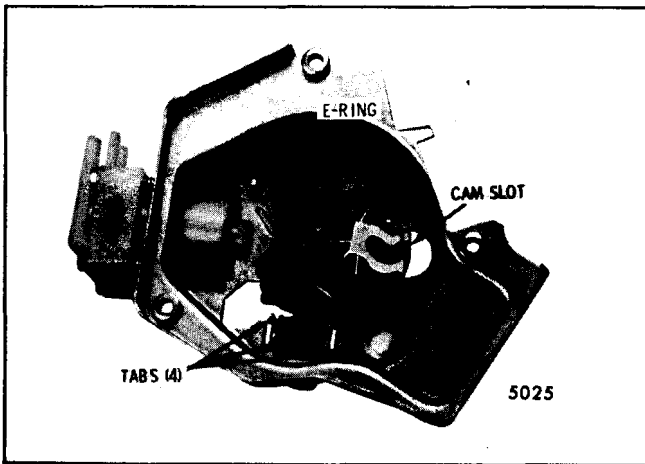


Fig. 2-69-Removing Four Lobe Cam

Washer Pump Detached

1. Connect 12 volt supply to one washer terminal and ground other. Manually rotate 4-lobe cam and observe if relay armature pulls in. Failure of relay to pull in indicates an open relay coil or poor solder connections.
2. If relay pulled in, in step 1, manually rotate 4-lobe cam (counterclockwise looking at cam) through complete cycle (ratchet wheel rotated through 360 degrees or 12 teeth), carefully observing if performance matches that as explained under washer operation. Binds or any other type of malfunction can usually be located in this manner.

WASHER PUMP DISASSEMBLY PROCEDURES

Four-Lobe Cam

1. Remove "E" retaining ring and slide cam off shaft (Fig. 2-69).

Ratchet Wheel

1. Remove plastic pump cover.
2. Pry ratchet spring out of slot in shaft, hold relay armature against relay coil and slide ratchet wheel off shaft.

NOTE: When reassembling ratchet wheel be careful not to damage ratchet dog.

Ratchet Pawl and Pawl Spring

1. Disengage pawl spring from pawl and slide pawl off cam-follower pin.

Ratchet Dog

1. Remove attaching screw and lift ratchet dog off mounting plate.

Relay-Terminal Board Assembly

1. Remove 4-lobe cam.
 2. Remove ratchet pawl and pawl spring.
 3. Remove relay armature and spring.
 4. Chisel off the four bent-over tabs that secure the coil mounting bracket to the base (Fig. 2-69). Remove relay coil and terminal board assembly. To mount a replacement relay assembly, hold it securely against the base mounting surface and bend locking tabs over.
- NOTE:** Be careful not to damage coil winding or terminals.
5. To check the pump programming mechanism, manually rotate the 4-lobe cam through complete 12-tooth cycle (360 degrees) and observe if pump is operating as previously explained.

Valve Assembly

1. Note position of valve assembly relative to the pump housing for reassembly then remove four screws that secure valve assembly to housing.
2. Remove housing-to-valve-body gasket and save for reassembly.

Pump Assembly

1. Remove ratchet wheel, ratchet wheel dog, ratchet pawl and spring.
2. To release the plastic pump housing from the sheet-metal base, pull it in the direction toward the valve end until the grooves in the housing clear the base. Next, detach the assembly from the cam-follower pin (Fig. 2-66).

NOTE: The piston and plastic housing is serviced as a complete assembly.

PROGRAMMED WASHER SYSTEM

DESCRIPTION

The programmed washer system (Fig. 2-70) is used in conjunction with the demand wiper system and provides a fully automatic windshield washer cycle of operation as follows:

1. The shift lever switch is depressed to the second detent position to start the cycle of operation and is immediately released.
2. Wiper motor and washer pump start to operate.
3. Washer pump operates through a pumping cycle and stops pumping, but the motor continues to operate.
4. The wiper motor provides two additional drying wipes and then automatically shuts off.

NOTE: If the wiper control switch washer button is used to provide a wash cycle, it is necessary to move the control switch to the "off" position to

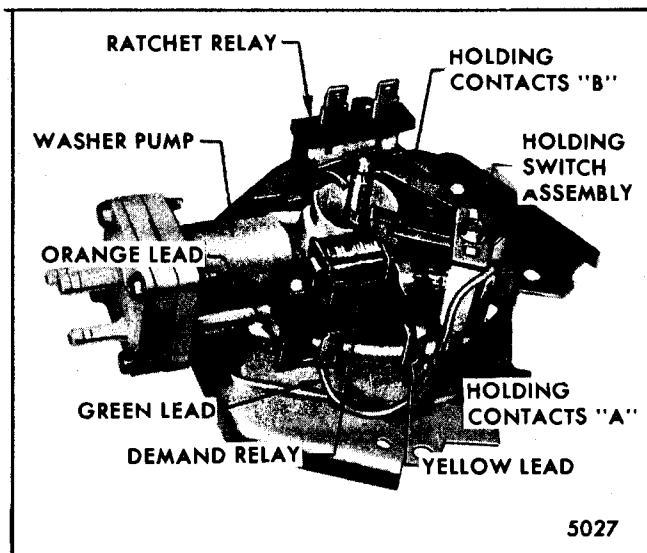


Fig. 2-70-Washer Assembly
shut off the wipers after the wash cycle is completed.

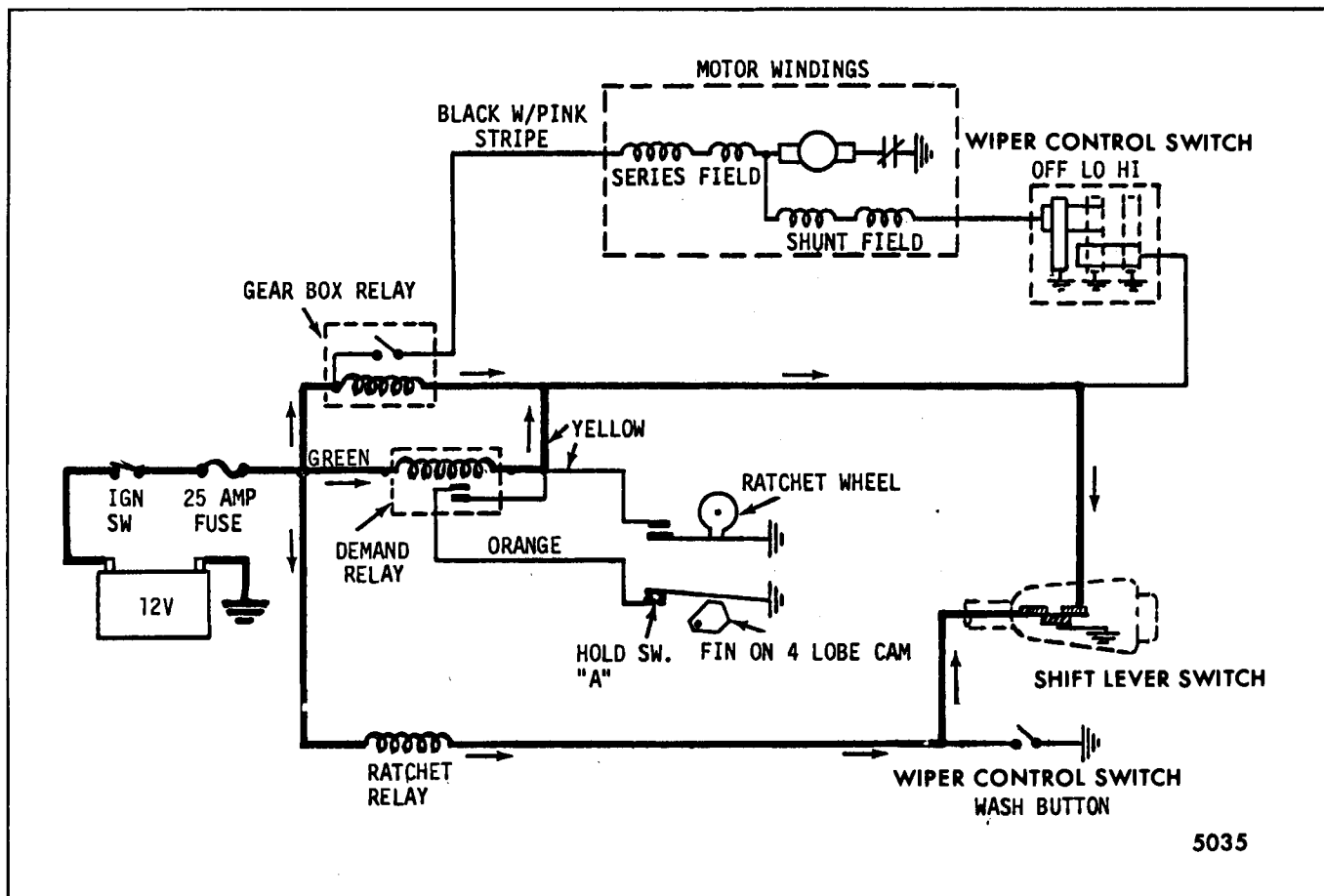


Fig. 2-71-Shift Lever Button in Second Detent Position

SWITCH IN SECOND DETENT POSITION

Pushing the shift lever switch to the second detent position and then releasing it immediately starts a cycle of operations as follows:

1. Three relay coil circuits (gear box relay, demand relay and pump ratchet relay) are completed to ground at the shift lever switch momentarily (Fig. 2-71).
2. With the three relay coils energized, the following completed circuits result almost simultaneously.
 - a. The gear box relay switch contacts close completing the feed circuit to the wiper motor windings and the motor starts operating.
 - b. The washer pump demand relay switch contacts close completing a holding circuit to ground through holding switch contacts "A". This holding circuit is required to maintain the ground circuit for both the gear box relay and the washer pump demand relay coils when the shift lever switch is released.

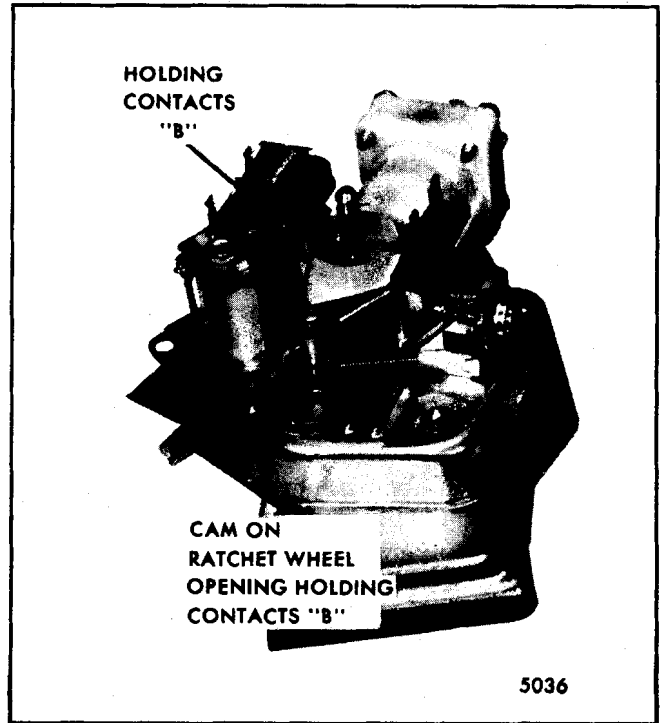


Fig. 2-72-Pump in Idling Position

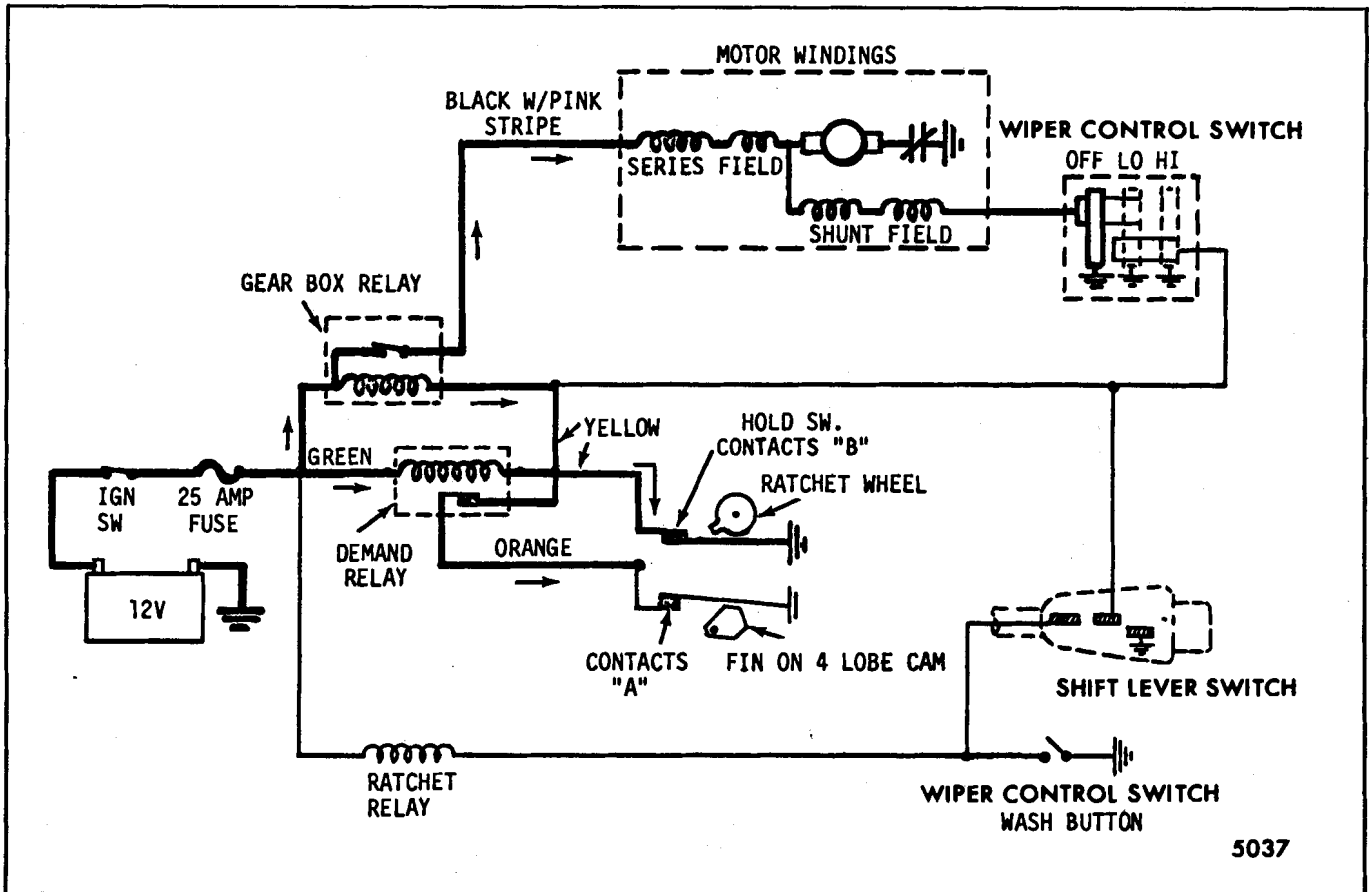


Fig. 2-73-Holding Circuit for Washer

- c. Momentarily energizing the washer pump ratchet relay coil releases the washer pump mechanism from its "lock-out" or idling position and the pump starts to operate. The holding circuit is not required for this relay.
3. When the washer pump is released from its "lock-out" or idling position, the pump ratchet wheel starts to rotate. With the pump in the idling position, a cam on the ratchet wheel keeps holding contacts "B" open (Fig. 2-72). However, when the pump starts and the ratchet wheel is rotated one tooth, holding switch contacts "B" closed providing an alternate ground for both the gear box relay coil and the washer pump demand relay coil (Fig. 2-73). The alternate ground circuit through switch contacts "B" is required because contacts "A" are opened once for every revolution of the washer pump 4-lobe cam (Fig. 2-76). Without the alternate circuit, the washer pump demand relay coil circuit would open when contacts "A" open causing the demand relay switch to open which in turn would open the gear box relay coil circuit to ground. This would cause the wiper motor to park the blades and automatically shut off after one wiping stroke.

NOTE: Holding contacts "B" will remain closed until the washer pump ratchet wheel has been rotated 360 degrees.

4. The washing cycle is completed when an extended ramp on the lower surface of the ratchet wheel moves into position where the tang on the piston actuating plate rests on the ramp stopping the movement of the actuating plate (Fig. 2-74). However, the wiper motor continues to run to provide two additional drying wipes.

The additional wipes are accomplished as follows: Although the pump has discontinued pumping,

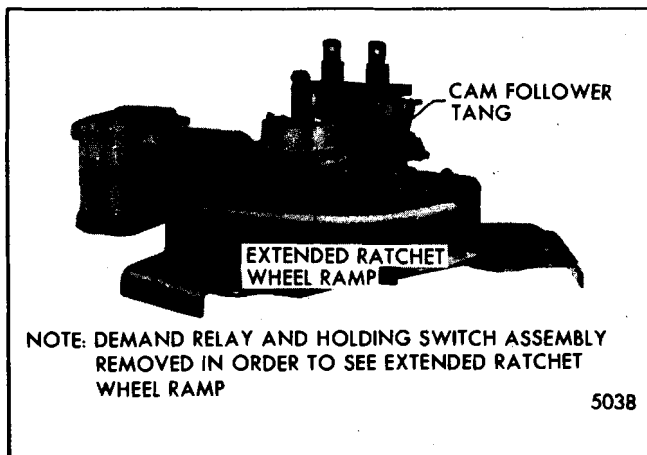


Fig. 2-74-Ratchet Wheel Ramp

the pump ratchet wheel has not completed its 360 degree rotation and holding contacts "B" are still closed maintaining the gear box and demand relay coil circuits to ground which in turn maintains the feed circuit to the wiper motor windings.

During the two wiping strokes, the ratchet wheel continues to rotate.

5. Automatic "shut off" of the wiper is completed when the washer pump ratchet wheel has been rotated 360 degrees and the "shut off" occurs as follows:

- The pump ratchet relay armature moves into a position that prevents the ratchet pawl from engaging the ratchet wheel teeth (pawl extends through window in the armature). This action prevents further ratchet wheel rotation.
- The cam on the edge of the ratchet wheel opens holding contacts "B" (Fig. 2-75). However, contacts "A" are still closed at this stage of operation. With contacts "A" still closed, the gear box relay coil is still energized completing the feed circuit to the motor windings, and the motor continues to run.

NOTE: The washer pump 4-lobe cam rotates in unison with the wiper gear.

- Next, the fin on the washer pump 4-lobe cam opens holding contacts "A". This interrupts the ground circuit for both the gear box and washer pump demand relay coils. The demand relay switch contacts then open and the relay coil circuits will remain open until the shift lever switch is again used. At this stage of operation the gear box relay latch arm moves out into the path of the gear drive pawl. However, the gear box relay switch contacts remain closed and the motor continues to run.
- The continuing operation of the wiper motor causes the gear drive pawl to engage the relay latch arm. When the pawl engages the latch arm, the clutch mechanism disengages the gear from the output shaft.
- The output shaft extends through the gear tube off center and the continuing rotation of the gear results in a cam action. This cam action causes the gear assembly drive pawl to push the relay latch arm into the relay housing. When the latch arm is pushed into the housing far enough it opens the switch contacts shutting off the wiper motor.

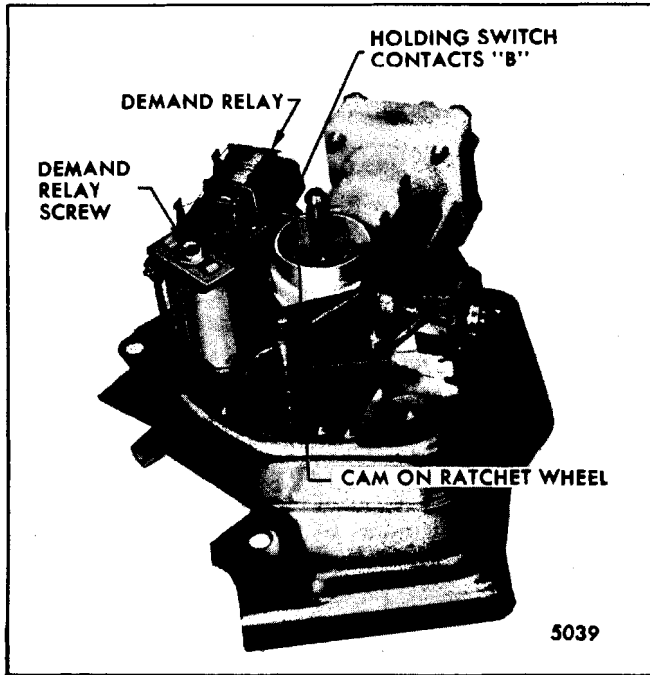


Fig. 2-75-Ratchet Wheel Cam

WASHER DISASSEMBLY

1. Remove retaining ring and slide 4-lobe cam off shaft (Fig. 2-76).
2. Remove holding switch retaining screw and lift the holding switch assembly and relay assembly off the pump mounting surface (Fig. 2-75). Separate relay assembly from holding switch.

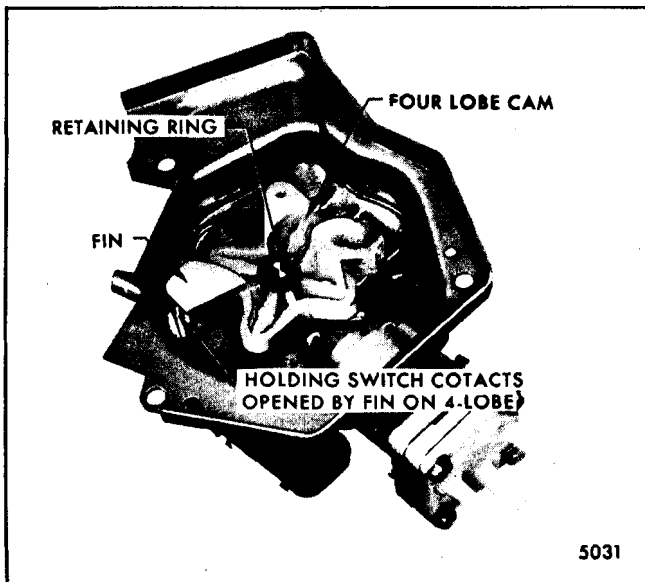


Fig. 2-76-Four Lobe Cam

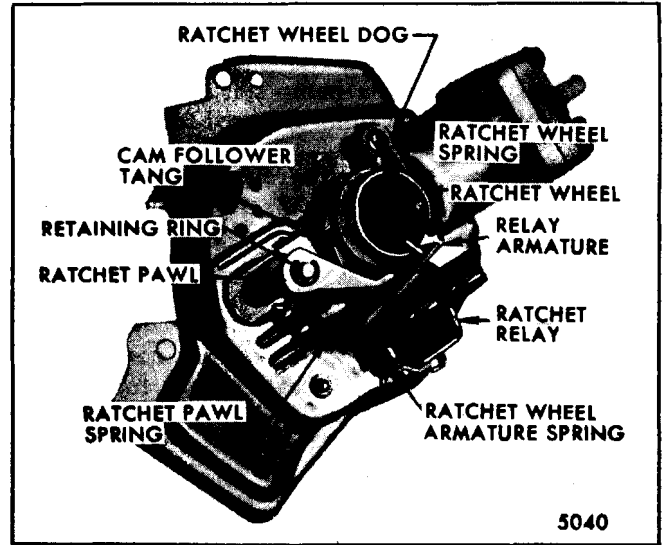


Fig. 2-77-Pump Assembly

3. Remove ratchet dog retaining screw and lift dog off the mounting surface.
4. Remove ratchet relay armature spring, ratchet pawl spring and remove ratchet relay armature (Fig. 2-77).
5. Move leg of ratchet wheel spring out of the groove in the shaft and slide ratchet wheel and spring off the shaft.
6. Remove retaining ring and slide ratchet pawl off the cam follower pin.
7. Pull pump housing out until housing grooves clear the mounting surfaces; then lift the pump off the ratchet wheel shaft and cam follower pin (Fig. 2-78).

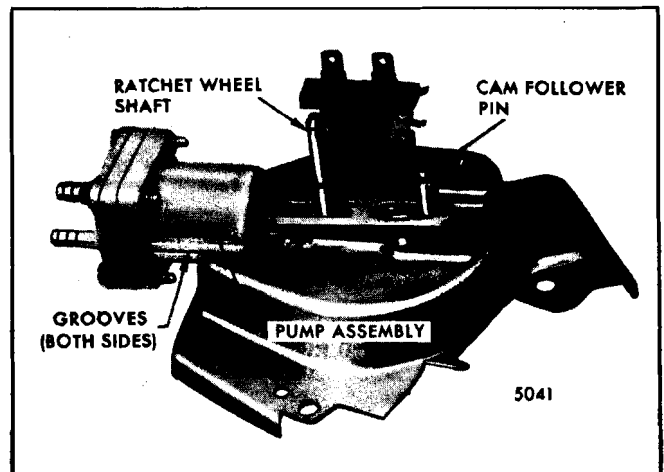


Fig. 2-78-Pump Assembly

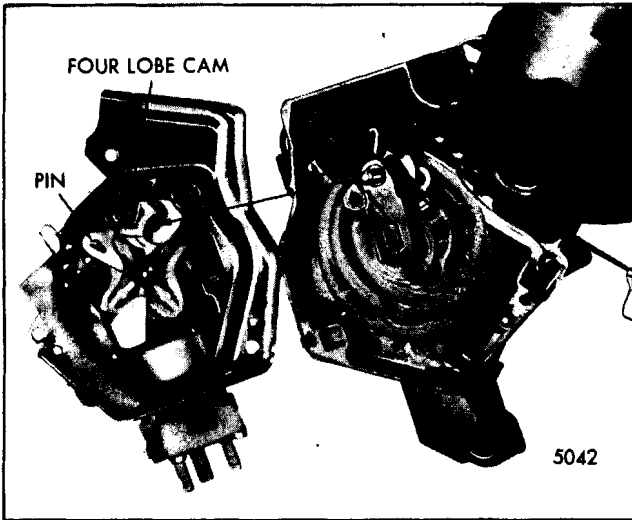


Fig. 2-79-Aligning Pump to Motor

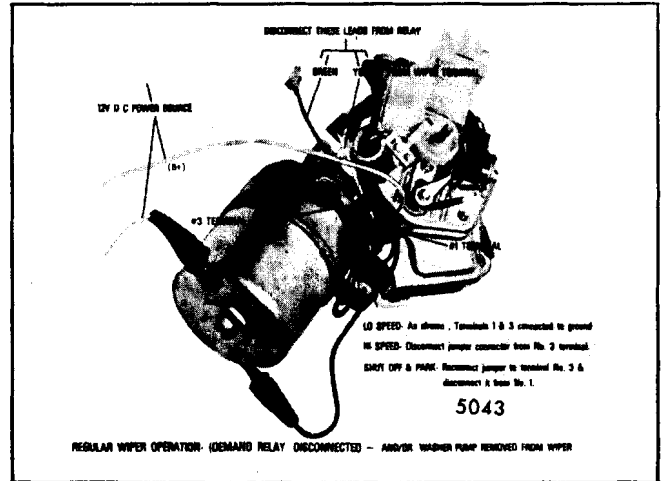


Fig. 2-80-Wiper Operation

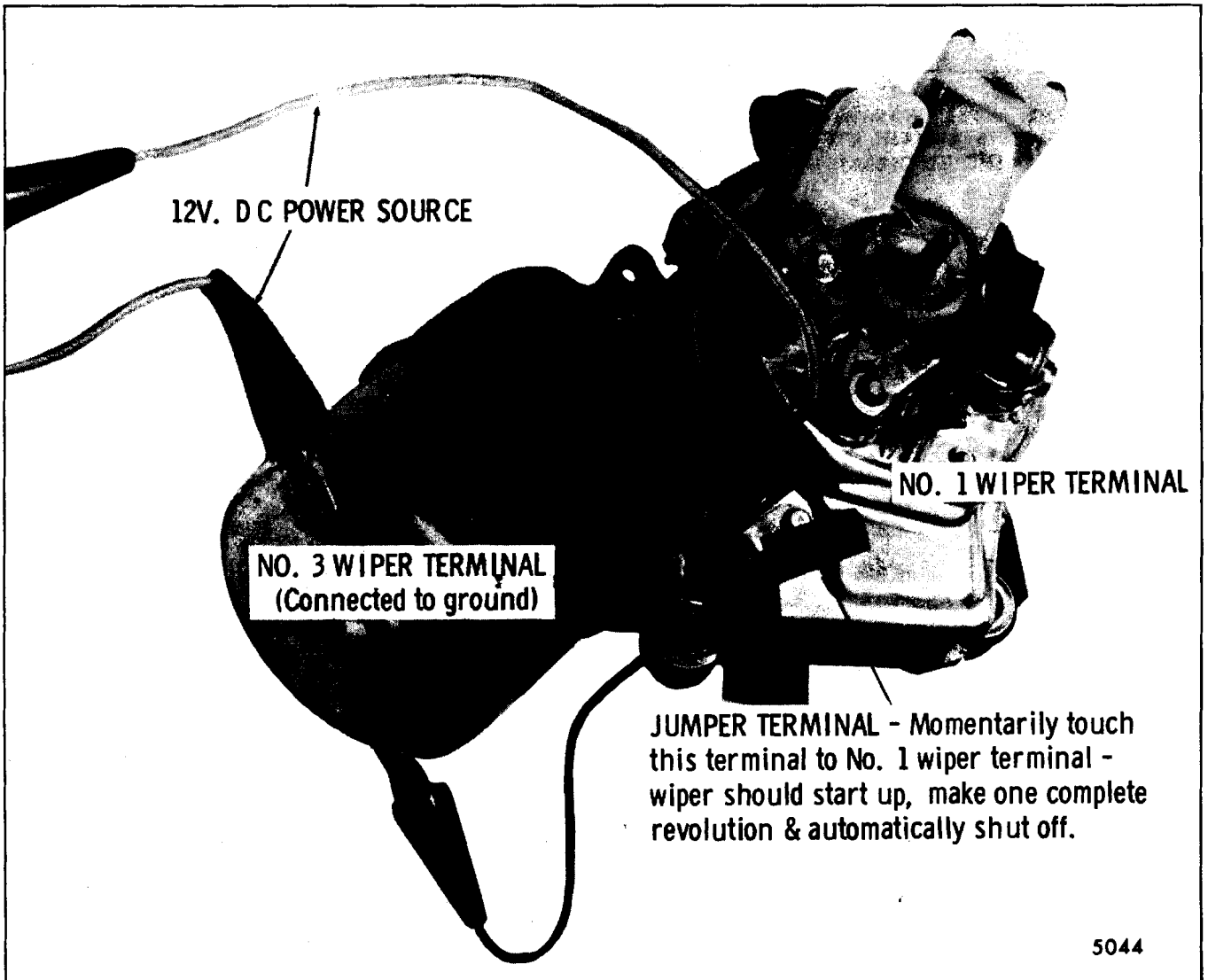


Fig. 2-81-Wiper Operational Check

8. Carefully chisel off the four bent over tabs that secure the coil mounting bracket to the base.
9. Remove the coil and terminal board assembly.

NOTE: To mount the replacement relay assembly, hold it securely against the mounting surface and bend the four tabs over.

10. Note position of valve assembly relative to the pump housing for reassembly purposes, then remove the 4 screws that secure the valve ports to the pump housing.

NOTE: Save housing to valve body gasket for reassembly.

2. Align grooves in pump housing with mounting surface then release pump housing.
3. Move leg of ratchet wheel spring and install ratchet wheel on shaft.
4. Move pump actuating plate tang away and push ratchet wheel down until spring locks in groove of the shaft.
5. Install ratchet pawl over pin and install retaining ring.
6. If washer relay coil was removed for replacement, install new washer relay coil on base and bend tabs to securely hold relay coil in position.
7. Install relay armature.
8. Install relay armature spring.
9. Install ratchet pawl spring.

WASHER ASSEMBLY

1. Install pump over ratchet wheel shaft and cam follower pin with the tang on pump actuating plate facing up.

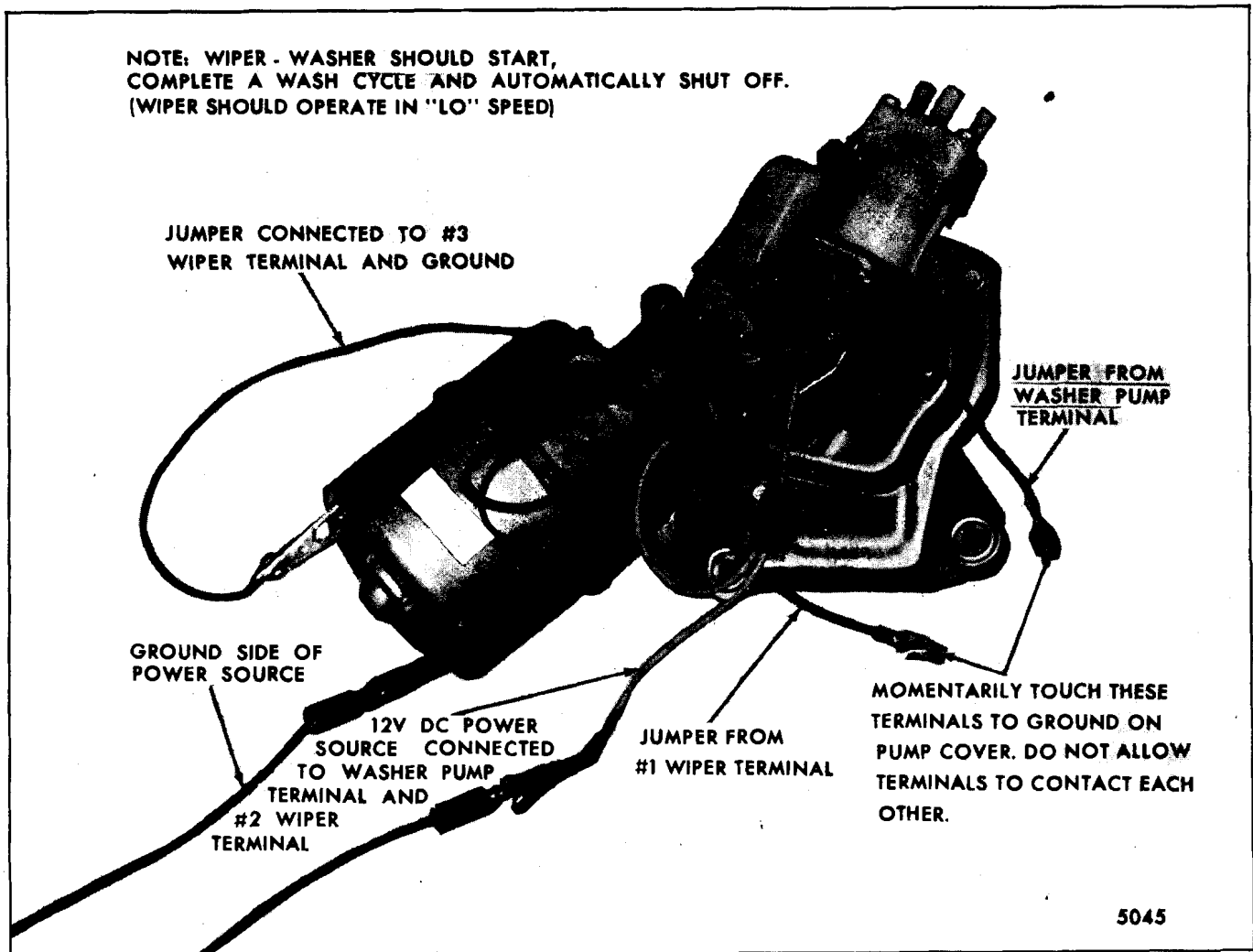


Fig. 2-82-Wiper - Washer Operational Check

10. Install ratchet wheel dog and screw.
11. Position holding switch on demand relay and install unit on pump base with retaining screw.

NOTE: Align the two plastic guide pins with holes in pump mounting plate.

12. Connect wire connector to outboard connector (one nearest to pump outlets).
13. Position 4-lobe cam over shaft and install retaining ring.

NOTE: Wiper motor must be in "PARK" position to assemble pump to wiper motor.

14. Rotate the 4-lobe cam so the index hole is aligned with the hole in the pump mounting plate. Insert a .120" to .125" diameter pin through both holes so the drive slot in the cam will be in the proper position for the drive pin (Fig. 2-79).

NOTE: Make sure the pump is in the free wheeling position before installing the pin.

15. Position pump on wiper so that the slot in the 4-lobe cam fits over the gear drive pin.
16. Install the three attaching screws and remove locator pin installed in step 14.
17. Connect wiring connectors to demand relay.
18. Install cover on washer pump.

DIAGNOSIS - WIPER MOTOR ON CAR

NOTE: To duplicate the various types of operation

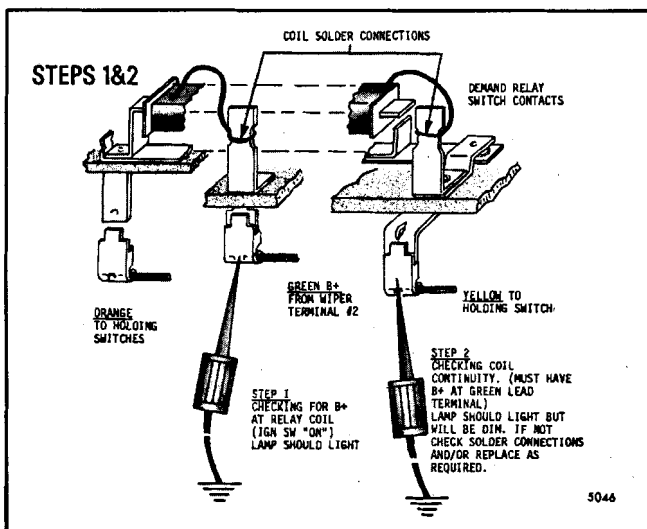


Fig. 2-83-Checking Procedure

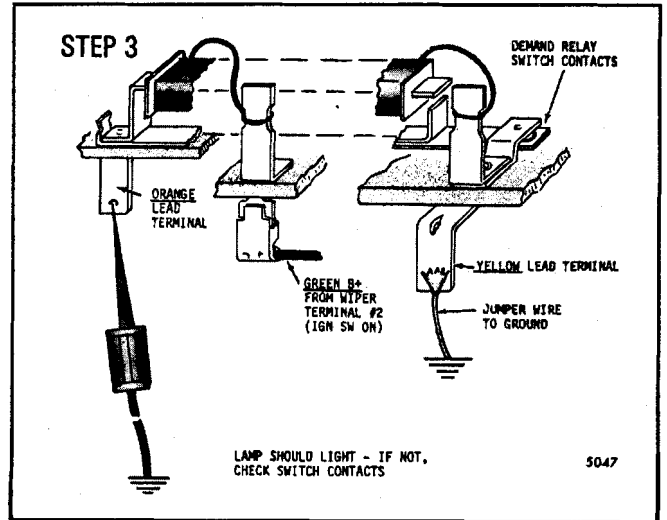


Fig. 2-84-Checking Procedure

independently of the car wiring and wiper control and shift lever switches refer to Figs. 2-80, 2-81 and 2-82.

Preliminary Inspection

1. Car wiring securely connected to wiper motor and/or switches.
2. Wiper motor securely grounded.
3. With ignition switch "on", there is 12 v at center terminal of wiper motor.
4. Wiper control and shift lever switches are securely grounded.

Preliminary Operational Checks to Determine Type of Trouble

1. Check regular operation of wipers using wiper

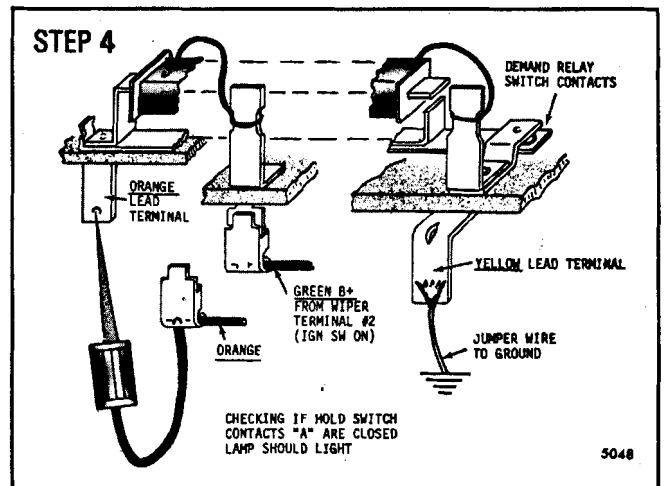


Fig. 2-85-Checking Procedure

control switch. Check operation in all speeds and determine if wipers shut off correctly.

If wipers operate correctly - proceed to step 2. If wipers do not operate correctly - proceed to step 4.

2. Demand Wiper Operation:

- a. To check Demand Wiper operation, momentarily depress the shift lever switch to the first detent position. The wiper should operate, making one complete wiping stroke and then automatically shut off.
- b. If the wipers operate correctly - proceed to step 3.
- c. If the wipers do not operate correctly - proceed to step 4.

3. Programmed Washer Operation:

- a. Momentarily depress shift lever switch to second detent position. The wipers and washer pump should operate with the pump delivering one cycle of pumping strokes and shutting off. The wipers should make two wiping strokes

after the pumping action stops, and then automatically shut off.

- b. If the wipers and washer pump still do not operate correctly, proceed to step 4.

4. Quick check to determine if trouble is in washer pump programming mechanism:

- a. Remove washer pump cover and disconnect green lead from demand relay terminal and yellow lead from holding switch terminal.

NOTE: Be sure lead terminals do not touch wiper metal.

- b. Connect wiring to washer pump and using the control switch re-check wiper operation as described in step 1.

If the wipers operate correctly, the trouble is located in the washer pump programming mechanism (demand relay and/or holding switches). See Figs. 2-83, 2-84 and 2-85.

If the wipers and/or washer pump do not operate correctly, refer to the Diagnosis Chart and select the condition that matches the existing trouble.

DIAGNOSIS CHART-DEMAND WIPER AND PROGRAMMED WASHER

Unless otherwise indicated, most of the following diagnosis procedures may be performed with the wipers installed on car.

CONDITION	APPARENT CAUSE	CORRECTION
1. Wiper motor operates correctly with wiper control switch but will not start when shift lever switch is used in either detent position.	<p>A. Shift lever switch ground connection loose.</p> <p>B. Light blue wire to shift lever switch open.</p> <p>C. Shift lever switch defective.</p>	<p>A. Check shift lever switch ground connection.</p> <p>B. Check harness connectors-Shift lever switch to wiper control switch.</p> <p>C. Disconnect lt. blue wire from shift lever switch and momentarily touch it to ground. If wiper operates correctly, trouble is in shift lever switch.</p>
2. Wiper inoperative when either the wiper control or shift lever switches are used.	A. Fuse blown.	A. Check for 12v at center terminal of wiper motor. If no voltage, check fuse or open circuit in feed wire.

	<p>B. Lt. blue wire from wiper terminal No. 1 open.</p> <p>C. Wiper Linkage locked or binding. Disconnect transmission drive link from wiper motor crank arm and check operation by observing motor crank arm.</p>	<p>B. Connect wiper terminal No. 1 to ground, and leave harness connector attached to wiper terminals. If wiper operates, check car wiring connectors, wiper control switch connections to locate open circuit in light blue wire.</p> <p>C. Operate wiper independently of car wiring and wiper control or shift lever switches. (Fig. 2-83).</p> <p>If wiper operates correctly, recheck fuse and lt. blue wire.</p> <p>If wiper motor is still inoperative, remove motor and refer to Diagnosis Chart - Wiper Off Car (round motor)</p>
<p>3. Wiper operates correctly with wiper control switch but when shift lever switch is depressed to the first detent and released quickly, the wiper blades start out of the park position but quickly return to park without making a complete wiping stroke.</p>	<p>A. Demand Relay Coil Open</p> <p>B. Demand Relay switch contacts dirty or not closing.</p> <p>C. Holding contacts "A" not closing.</p> <p>D. Yellow and/or orange leads not connected to demand relay or poor solder connections.</p>	<p>A. Refer to Fig. 2-83 for checking procedure.</p> <p>B. Refer to Fig. 2-83 for checking procedure.</p> <p>C. Refer to Fig. 2-84 for checking procedure.</p> <p>D. Refer to Fig. 2-85 for checking procedure.</p>
<p>4. Wipers will not shut off. Blades operate through normal wipe pattern.</p>	<p>A. Holding switch contacts "A" or "B" (Fig. 2-70) not opening.</p> <p>B. Wire between wiper terminal No. 1 and wiper control switch or shift lever switch grounded.</p>	<p>A. Turn ignition switch "off" then back "on". If wipers shut off, the trouble is in the holding switch contacts. Repair or adjust holding switch as required. If wipers don't shut off, proceed to following step.</p> <p>B. Remove washer pump cover and disconnect green lead from demand relay terminal and yellow lead from holding switch terminal. Be sure the lead terminals do not touch wiper metal. Re-connect car wiring to washer pump and using wiper control switch re-check wiper operation through all speeds and park.</p>

	<p>C. Defective wiper control or shift lever switch.</p> <p>D. Wiper gear box relay coil grounded.</p>	<p>If the wipers shut off recheck holding switches and/or a grounded yellow or orange demand relay lead.</p> <p>If the wipers do not shut off, proceed to step C below.</p> <p>C. Remove light blue wire from connector that plugs on wiper terminals and re-install connector on wiper terminals.</p> <p>If the wipers shut off, locate grounded condition in light blue wire.</p> <p>D. If the wipers did not shut off in step C, the wiper motor gear box relay coil is grounded or the red lead between the coil and wiper terminal No. 1 is grounded.</p>
<p>5. Wipers won't shut off. Blades move up and down approximately 15 degrees in and out of park position and wipers have "Hi" speed only.</p>	<p>A. Wiper motor defective. Shunt field open.</p> <p>B. Wire between wiper terminal No. 3 and wiper control switch open.</p> <p>C. Wiper control switch defective.</p>	<p>A. To eliminate wiper motor leave harness connector on wiper terminals and connect terminal No. 3 to ground.</p> <p>If the wiper motor then has "Lo" speed and shuts "off", the trouble is in the car wiring or wiper control switch. Proceed to steps B and C.</p> <p>If the wiper motor still has "Hi" speed only and will not shut off, remove the motor and refer to Diagnosis Chart - Wiper Off Car (round motor)</p> <p>B. Check for loose harness connectors and/or wiper control switch connections.</p> <p>C. Remove harness from wiper control switch. Ground the black and light blue wire terminals to start motor, then disconnect the light blue lead from ground.</p> <p>If the wiper motor runs in "Lo" speed and shuts off, the wiper control switch is defective.</p>

		If the wiper motor still has "Hi" speed only and recycles, there is an open in the black wire.
6. Washer pump pumps continually when wiper motor is "on". Wiper motor operates normally otherwise.	<p>A. Dark blue wire between washer pump and control switches grounded.</p> <p>B. Defective wiper control switch.</p> <p>C. Washer pump defective. Washer pump ratchet wheel not being rotated by ratchet pawl.</p>	<p>A. Disconnect harness connector from washer pump terminals. If the washer stops pumping, the trouble is in the wiring or wiper control switch.</p> <p>If the washer continues to pump, proceed to step C.</p> <p>B. Connect harness to pump and disconnect dark blue wire from wiper control switch. Turn motor "on".</p> <p>If washer pump shuts "off", trouble is in wiper control switch.</p> <p>If washer keeps pumping, proceed to step C.</p> <p>C. Remove washer pump cover and connect wiring to wiper control switch and pump. Observe if ratchet wheel is rotating while pump is operating.</p> <p>If ratchet wheel is not rotating, check for a sheared tooth on ratchet wheel. Check for broken ratchet wheel dog or dog not engaging ratchet wheel teeth. Repair or replace parts as required.</p>
7. Wipers have "Hi" speed only.	A. See item 5	A. See item 5
8. Wipers have "Lo" speed only and shut off correctly.	<p>A. Defective wiper control switch.</p> <p>B. Black wire from wiper terminal No. 3 to wiper control switch is grounded.</p>	<p>A. Remove solid black wire from connector that plugs on wiper terminals.</p> <p>B. If wipers have "Hi" speed after step A, locate ground in black wire or replace wiper control switch as required.</p>

	C. Wiper motor defective.	C. If wipers still have "Lo" speed only after step A, remove wiper motor and refer to Diagnosis Chart-Wiper Off Car. (round motor)
9. Intermittent operation with wiper control switch "on".	<p>A. Loose wiper ground strap.</p> <p>B. Wiper control switch loose</p> <p>C. Loose wiring connection</p> <p>D. Defective wiper motor.</p>	<p>A. Check ground strap for secure ground.</p> <p>B. Check switch mounting for looseness and secure ground.</p> <p>C. Check all wiring connections for proper engagement.</p> <p>D. Remove motor and refer to Diagnosis Chart-Wiper Off Car (round motor).</p>

SECTION 3

UNDERBODY

INDEX

SUBJECT	PAGE	SUBJECT	PAGE
Underbody Alignment	3-1	Horizontal Dimensions - "F" Bodies	3-2
General Body Construction	3-1	Vertical Dimensions - "F" Bodies	3-3
Alignment Checking	3-1	Horizontal Dimensions - "X" Bodies	3-3
Reference Point Dimensions	3-1	Vertical Dimensions - "X" Bodies	3-4

UNDERBODY ALIGNMENT - "F and X" Bodies

GENERAL BODY CONSTRUCTION

The "F and X" series bodies are of unitized construction. A stub frame supports the front end sheet metal, front suspension, engine and other mechanical components. Unitized construction demands that underbody components be properly aligned to assure correct suspension location. In the event of collision damage, it is important that the underbody be thoroughly checked and, if necessary, realigned in order to accurately establish proper dimensions.

Since each individual underbody component contributes directly to the over-all strength of the body, it is essential that proper welding, sealing and rust-proofing techniques be observed during service operations. Underbody components should be rust-proofed whenever body repair operations, which destroy or damage the original rust-proofing, are completed. When rust-proofing critical underbody components, it is essential that a good quality type of air dry primer be used (such as corrosion resistant zinc chromate). It is not advisable to use combination type primer-surfacers.

There are many classifications of tools that may be employed to correct the average collision damage situation including frame straightening machines, lighter external pulling equipment and standard body jacks.

ALIGNMENT CHECKING

An accurate method of determining the alignment of the underbody utilizes a measuring tram gage. The

tram gage required to perform all recommended measuring checks properly must be capable of extending to a length of 90 inches. At least one of the vertical pointers must be capable of a maximum reach of 18 inches.

Dimensional checks indicated in the upper portion of Figure 3-1 and 3-3 are calculated on a horizontal plane parallel to the plane of the underbody. Precision measurements can be made only if the tram gage is also parallel to the plane of the underbody. This can be controlled by setting the vertical pointers on the tram gage according to the dimensional checks shown in the lower portion of Figure 3-1 and 3-3. For actual dimensions, see applicable charts in text.

A proper tramming tool is essential for analyzing and determining the extent of collision misalignment present in underbody construction.

To assist in checking alignment of the underbody components, repairing minor underbody damage or locating replacement parts, the following underbody dimensions and alignment checking information is presented.

Reference Point Dimensions-(Fig. 3-1 and 3-3)

Dimensions to gage holes are measured to dead center of the holes and flush to adjacent surface metal unless otherwise specified. The master gage holes, adjacent to the No. 1 body mount and in the side rails near the rear spring front attachment, are key locations and should be used wherever possible as a basis for checking other reference points.

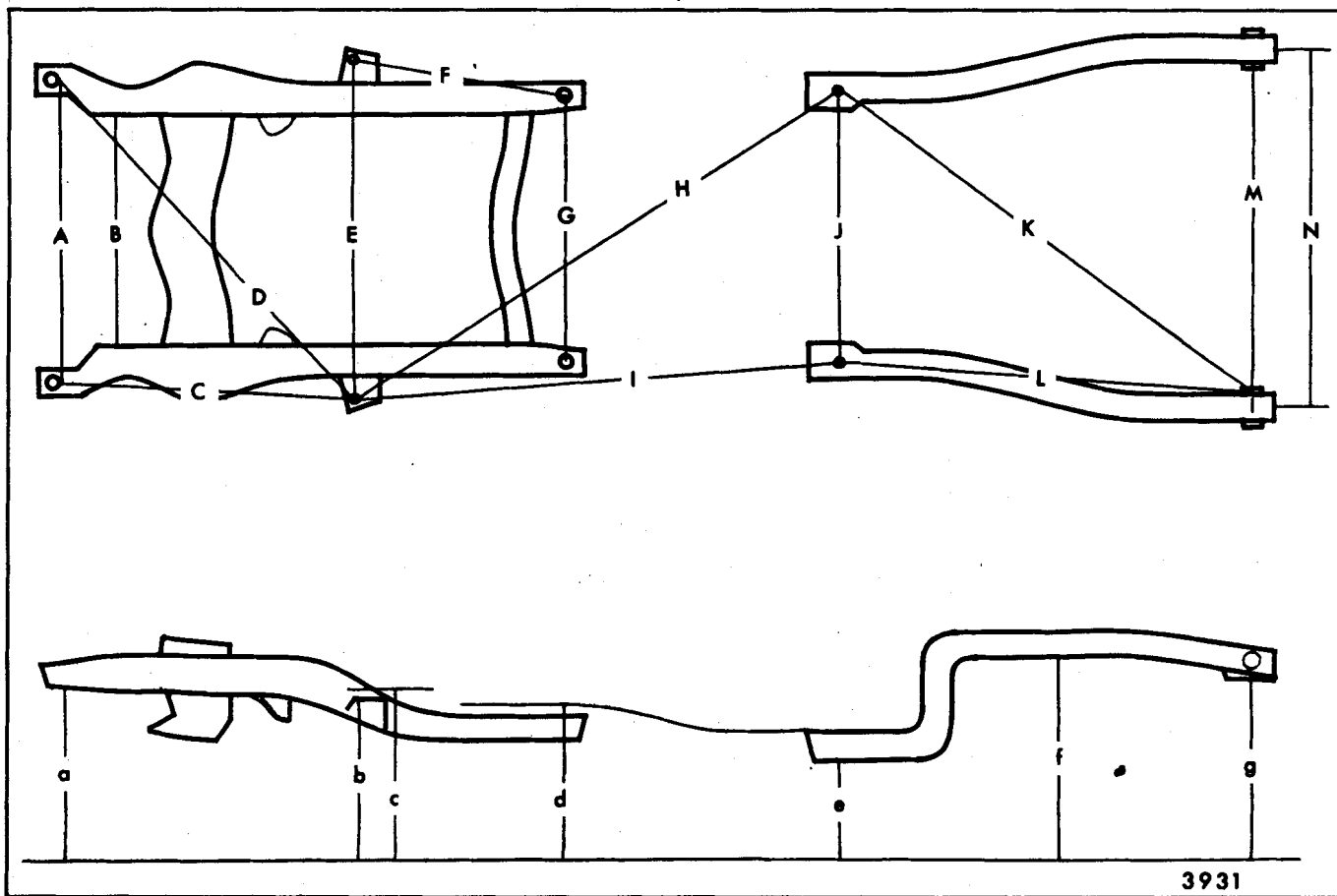


Fig. 3-1 Horizontal and Vertical Checking Dimensions - "F" Bodies

Horizontal Dimensions - "F" Bodies (Fig. 3-1)

Fig. Ref.	Dimension	Location	Fig. Ref.	Dimension	Location
A	37-11/16	Between rear edges at centerline of 1-5/16" holes in lower surface of rails directly below radiator support mounting location.	D	57-1/4	Rear edge at centerline of 1-5/16" hole in lower surface of rail directly below radiator support mounting location to center of 5/8" master gage hole adjacent to No. 1 body mount on opposite side of frame.
B	28-13/16	Between inboard surface of rails at steering gear lower front mounting location and steering idler arm lower mounting location. (These locations are not equally distant from frame centerline).	E	45-1/4	Between centers of 5/8" master gage holes adjacent to No. 1 body mount in frame or body.
C	39-5/8	Rear edge at centerline of 1-5/16" hole in lower surface of rail directly below radiator support mounting location to center of 5/8" master gage hole adjacent of No. 1 body mount on same side of frame.	F	32-7/8	Center of 5/8" master gage hole adjacent to No. 1 body mount to center of No. 2 body mount location on same side of frame or body.
			G	33-7/16	Between centers of No. 2 body mount bolt holes.

Fig. Ref.	Dimension	Location
H	84-11/16	Center of 5/8" master gage hole adjacent to No. 1 body mount to center of 11/16" master gage hole in compartment side rail on opposite side of body.
I	74-1/16	Center of 5/8" master gage hole adjacent to No. 1 body mount to center of 11/16" master gage hole in compartment side rail on same side of body.
J	37-1/16	Between centers of 11/16" master gage holes in compartment side rails.
K	60-13/16	Center of 11/16" master gage hole in compartment side rail to a point at inboard lower edge of opposite side rail on centerline of shackle bolt hole (see Fig.3-2).
L	45-7/16	Center of 11/16" master gage hole in compartment side rail to a point at inboard lower edge of same side rail on centerline of shackle bolt hole (see Fig. 3-2).
M	43-11/16	Between inboard lower edges of compartment side rails on centerline of shackle bolt hole (see Fig. 3-2).
N	45-3/8	Between centers of rear bumper lower attaching bolt holes.

Vertical Dimensions - "F" Bodies (Fig. 3-1)

a	9-11/16	Rear edge at centerline of 1-5/16" hole in lower surface of rail directly below radiator support mounting location.
b	9-1/16	5/8" master gage hole in frame adjacent to No. 1 body mount.
c	9-15/16	5/8" master gage hole in body adjacent to No. 1 body mount.
d	6-9/16	Floor pan adjacent to No. 2 body mount gage nut.
e	3-15/16"	Compartment side rail adjacent to 11/16" master gage hole.

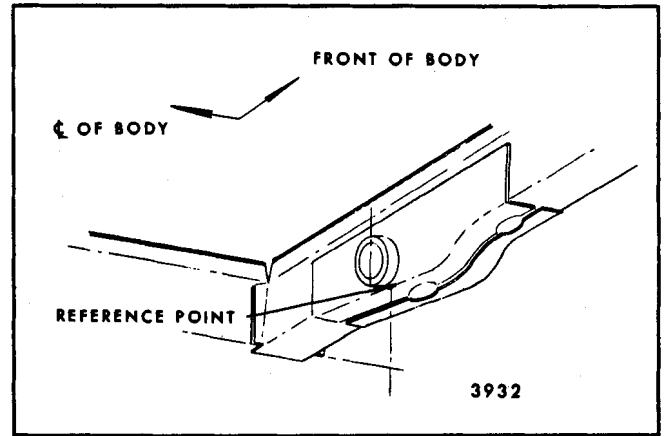


Fig. 3-2 Side Rail at Rear Spring Shackle Bushing - "F" Bodies

Fig. Ref.	Dimension	Location
f	17-1/16	Lower horizontal surface of compartment side rail above rear axle housing.
g	13-1/4	Lower surface of compartment side rail at centerline of shackle bolt hole (see Fig. 3-2).

Horizontal Dimensions - "X" Bodies (Fig. 3-3)

A	38-1/4	Rear edge at centerline of 7/8" hole in lower surface of rail approximately 2" rearward of lower front edge of rail.
B	35-1/4	Rear edge at centerline of 7/8" hole in lower surface of rail approximately 2" rearward of lower front edge of rail and center of master gage hole adjacent to No. 1 body mount on same side of body.
C	54-3/16	Rear edge at centerline of 7/8" hole in lower surface of rail approximately 2" rearward of lower front edge of rail and center of master gage hole adjacent to No. 1 body mount on opposite side of body.
D	44-9/16	Center of master gage hole adjacent to No. 1 body mount.

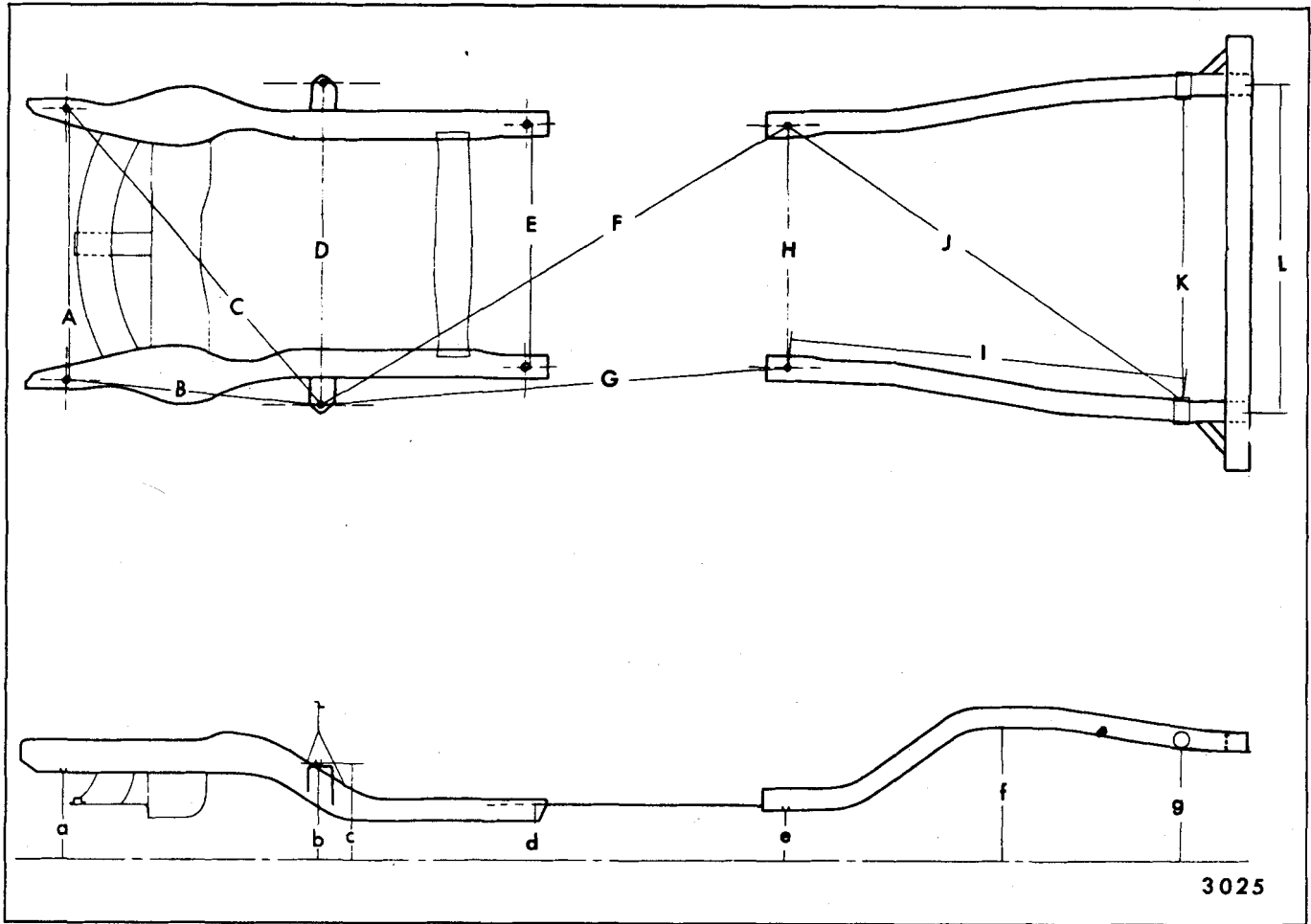


Fig. 3-3-Horizontal Vertical Checking Dimensions

Fig. Ref.	Dimension	Location
E	33-3/4	Rear edge at centerline of No. 2 body mount bolt hole.
F	79-1/16	Center of master gage hole adjacent to No. 1 body mount and center of master gage hole in side rail on opposite side of body.
G	69	Center of master gage hole adjacent to No. 1 body mount and center of master gage hole in side rail on same side of body.
H	33-3/16	Center of master gage hole in side rail.
I	54-11/16	Center of master gage hole in side rail and a point at inboard edge of same side rail at centerline of shackle bolt hole (See Fig. 3-4).

Fig. Ref.	Dimension	Location
J	66-3/8	Center of master gage hole in side rail and a point at inboard edge of opposite side rail at centerline of shackle bolt hole (See Fig. 3-4).
K	42-5/8	Inboard edge of side rail at centerline of shackle bolt hole (See Fig. 3-4).
L	41-15/16	Center of rear bumper lower attaching bolts.

**Vertical Dimensions-
"X" Bodies (Fig. 3-3)**

a	10-1/8	7/8" hole in lower surface of rail approximately 2" rearward of lower front edge of rail.
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Fig. Ref.	Dimension	Location
b	10-15/16	Master gage hole adjacent to No. 1 body mount in frame.
c	11-13/16	Master gage hole adjacent to No. 1 body mount on body.
d	6-21/32	Floor pan adjacent to No. 2 body mount bolt cage nut.
e	6-7/16	Master gage hole in side rail.
f	12-7/32	Lower surface of side rail at kick-up either side of rear axle housing.
g	10-5/16	Lower surface of side rail at centerline of shackle bolt hole.

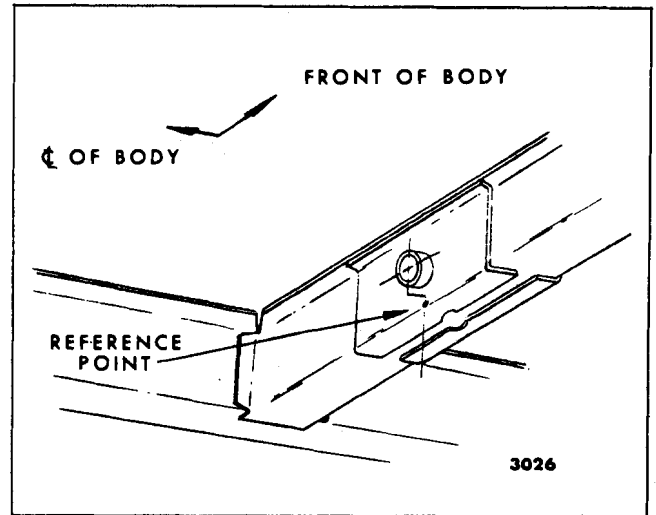


Fig. 3-4-Side Rail at Rear Spring Rear Shackle Bushing ("X" Bodies)

SECTION 4

STATONARY GLASS

INDEX

SUBJECT	PAGE	SUBJECT	PAGE
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ADHESIVE CAULKED GLASS

DESCRIPTION

The windshield and back window on all styles are bonded to body opening with a synthetic, self-curing, rubber adhesive caulking compound.

To replace a window installed with this material requires either partial or complete replacement of caulking compound. Partial replacement of material is referred to as "short method". Complete material replacement is known as "extended method".

The "short method" can be used in those situations where original adhesive caulk material remaining on window opening pinchweld flanges after glass removal can serve as a base for the new glass. This method would be applicable in cases of cracked windshields or removal of windows that are still intact. In these situations, the amount of adhesive that is left in window opening can be controlled during glass removal.

The "extended method" is required when the original adhesive caulking compound remaining in window opening after glass removal cannot serve as a base for replacement glass. Examples of this latter situation would be in cases requiring metal work or paint refinishing in the opening, or where there is a considerable loss of adhesion between original caulk and body metal. In these cases, original caulk is removed and replaced with fresh material during window installation.

Adhesive Caulking Kit No. 4226000 or equivalent contains some of the materials needed to remove and replace an adhesive caulked glass. This kit can be obtained through service parts systems. Other materials that may be required are available as service

parts or can be readily obtained through local supply shops.

The components of adhesive caulking kit No. 4226000 are as follows:

1. One tube of Adhesive Caulking material.
2. One dispensing nozzle (cut for "short method" but can be notched-out for "extended method").
3. Steel music wire (.020 diameter).
4. Adhesive Caulking Primer (for priming original adhesive material in window opening).

Additional material required:

1. Caulking gun - standard household cartridge type reworked as follows:
 - A. Widen end-slot to accept dispensing end of adhesive caulking tube.
 - B. Reduce diameter of plunger disc on rod so that disc can enter large end of adhesive caulking tube.
2. Two pieces of wood for wire handles.
3. Black weatherstrip adhesive.
4. Paint Finish Primer - available as service part No. 4226001 or equivalent - use only with "extended method".
5. Rubber glass spacers - for "extended method".

- Lower support spacers - for "short and extended methods".

NOTE: When glass is originally installed, a rubber sealing strip "dam" is used around edges of window to prevent excessive squeeze-out of adhesive caulk material. Service installations do not utilize this part. By applying masking tape around inner perimeter of glass prior to window installation, excess squeeze-out material is picked-up and removed with tape.

ADHESIVE CAULKED WINDOW REMOVAL

The window removal procedure is the same for both the "short" and "extended" installation methods with one exception. If the "short method" installation is to be used, more care must be used during removal to make certain that an even, uniform bead of adhesive caulk material remains on window opening to serve as a base for replacement glass. Also, make certain that glass lower support spacers are not disturbed.

- Place protective coverings around area where glass is being removed.
- Remove all trim and hardware immediately adjacent to glass being removed. Depending on the window involved, this could involve window reveal moldings, garnish moldings or finishing lace, and windshield wiper arms.

NOTE: Reveal molding removal is covered in Exterior Molding Section 16.

- On styles equipped with optional rear window electric grid defogger (heating elements in glass), disconnect wire harness connectors from glass. Refer to style usage and connector location chart in electrical Section 15 for style usage, location of feed and ground wire connectors, and if trim removal is required to service connectors. If glass is to be reinstalled, tape leads to inside surface of glass to protect them during handling.

NOTE: For quarter upper trim removal, refer to "Door and Quarter Trim", Section 13.

- On styles equipped with radio antenna built into windshield glass, disconnect antenna lead at lower center of windshield. If glass is to be reinstalled, fold and tape lead wire back onto outer surface of windshield to protect it during glass removal and installation.

- Secure one end of steel music wire to a piece of wood that can serve as a handle. Using long nose pliers, insert other end of wire through caulk

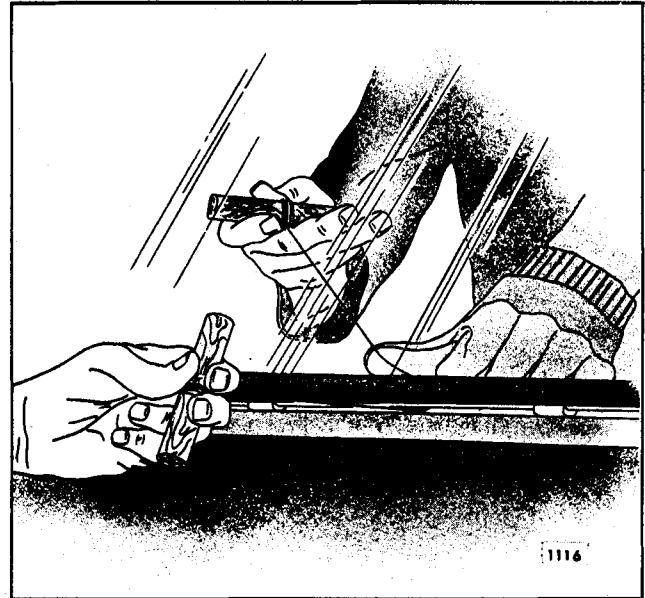


Fig. 4-1-Cutting Adhesive Caulk Material

material at edge of glass; then, secure that end of wire to another wood handle (Fig. 4-1).

- With aid of helper, carefully cut (pull wire) through caulk material around entire perimeter of window. If "short method" will be used to install new glass, hold wire close to inside plane of glass to prevent cutting an excessive amount of adhesive caulking from window opening. Keep tension on wire throughout cutting operation to prevent wire from kinking and breaking (Fig. 4-1).

NOTE: Optional methods of glass removal which requires only one man are: (1) electric hot-knife

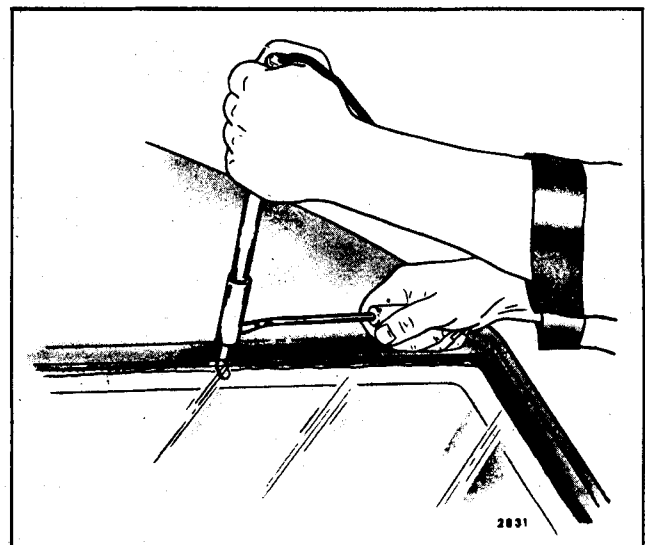


Fig. 4-2-Electric Hot-Knife Removal Method

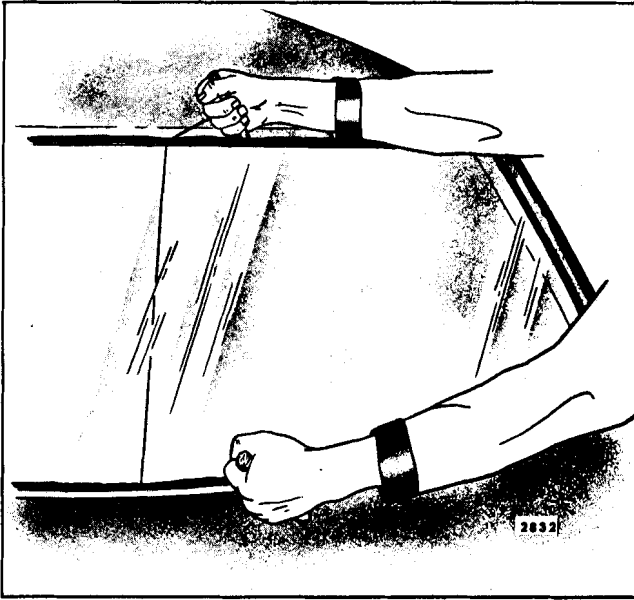


Fig. 4-3-One Man Wire Removal Method

(not recommended due to inaccessibility at lower corners of windshield glass), and (2) pulling cutting wire through upper and lower edges of glass simultaneously. For latter optional method, insert one end of wire through caulking material at inner upper edge of glass and other end of wire through caulking material at inner lower edge. Attach handles to both wire ends outside of body (Figs. 4-2 and 4-3).

7. If glass being removed is to be reinstalled, place it on a protected bench or holding fixture; remove old caulking material using a razor blade or sharp scraper. Any remaining traces of caulk can be removed with toluene or thinner dampened cloth.

IMPORTANT: When cleaning laminated glass, avoid contacting edge of plastic laminate material (on edge of glass) with volatile cleaner. Contact may cause discoloration and deterioration of plastic laminate by "wicking" action.

IMPORTANT: DO NOT use a petroleum base solvent such as kerosene or gasoline. The presence of oil will prevent adhesion of new caulking material.

ADHESIVE CAULKED GLASS INSTALLATION-"Short" Method

The "short" method of glass installation can be used if original adhesive caulk material remaining on window opening flanges after glass removal can serve as a base for replacement glass. If there is substantial loss of adhesion between adhesive caulk material and body metal, or window opening must be reworked or

refinished, "extended" method of replacement will be required.

Installation-"Short" Method

1. Inspect reveal molding retaining clips. Replace or re-shape clips which are bent away from body metal $1/32''$ or more.
2. Position glass in the window opening. If new glass is being installed, check relationship of glass to adhesive caulk material on pinchweld flange. Gaps in excess of $1/8''$ must be corrected by shimming or by applying more adhesive caulk material than specified in Step 7. For further alignment of glass refer to Step 8 of extended method.
3. When glass is in proper position in opening, apply piece of masking tape over each side edge of glass and adjacent body pillar. Slit tape vertically at edge of glass. During installation, tape on glass can be aligned with tape on body to guide window into desired position.
4. Using clean lint-free cloth liberally dampened with Adhesive Caulking Primer (furnished in Kit No. 4226000) or equivalent, briskly rub primer over original adhesive material remaining on pinchweld flange. Perform the following steps while allowing primer to dry for 5 to 10 minutes.

IMPORTANT: Use care so as not to spill or drip primer on painted or trimmed surfaces.
5. Apply 1" wide masking tape to inside of windshield glass $1/4''$ inboard from edge of glass, across top and down each side, to facilitate clean-up after installation.
6. Wipe surface of glass to which adhesive caulking material will be applied (around edge of inside surface) with a clean, water-dampened cloth. Dry glass with clean cloth.
7. Apply smooth continuous bead of adhesive caulking material around entire inside edge of glass. Material should be $1/8''$ to $3/16''$ in diameter (Fig. 4-4).

IMPORTANT: Due to fast curing characteristics of adhesive caulking material, glass installation should be completed within 15 minutes from start of application of material to glass.

8. With aid of helper, lift glass into window opening. On back window installations it will be necessary to use suction cups to position glass in opening. Windshield glass can be positioned without aid of carrying devices. As shown in Figure 4-5, carry

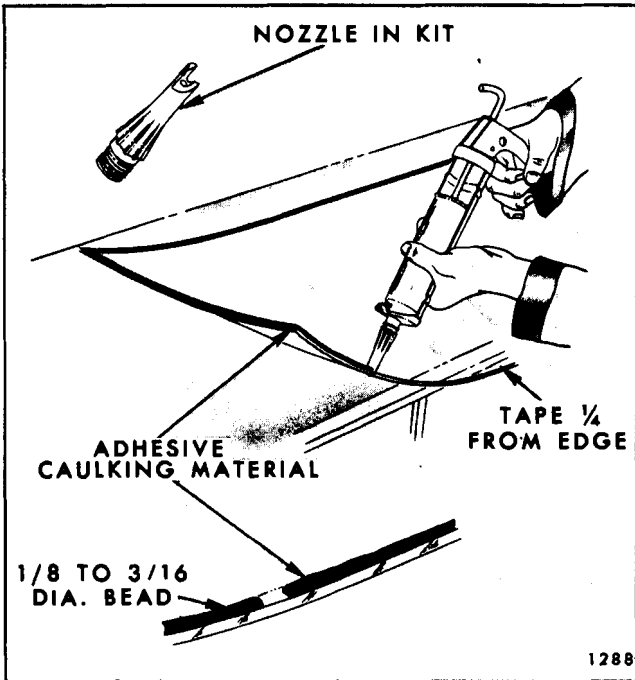


Fig. 4-4-Adhesive Material Application-Short Method

glass with one hand on inside of glass and one hand on outside. At window opening, put glass in horizontal position. While one man holds glass in this position, second man can reach one arm around body pillar and support glass while other man assumes same position. Quarter window glass can be installed in same manner.

9. Using tape guides applied in Step 3, carefully position glass in window opening. Guide outer lower surface of glass along rear edge of front fenders, making certain glass is properly centered and positioned on lower metal supports.
10. Press glass firmly to "wet-out" and "set" caulk material. Use care to avoid excessive squeeze-out which would cause an appearance problem.
11. Watertest car immediately using cold water spray. Do not direct hard stream of water at fresh

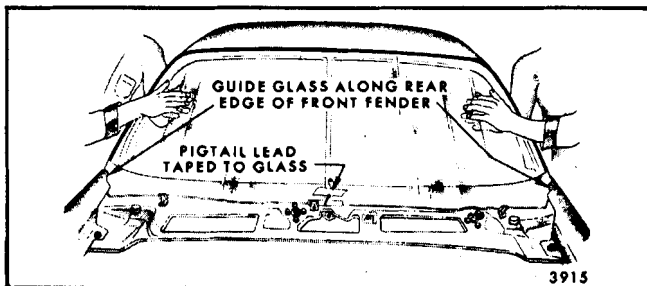


Fig. 4-5-Glass Installation

adhesive material. If any leaks are encountered, paddle-in extra adhesive material at leak point using a stick or flat-blade tool.

12. Install window reveal moldings. Remove clean-up masking tape from inner surface of glass and install remaining parts.

ADHESIVE CAULKED GLASS INSTALLATION-"Extended" Method

If adhesive caulk material remaining in window opening after window removal is damaged, or must be removed to permit refinishing of window opening, or has insufficient adhesion to body metal to serve as a base for replacement glass, it will be necessary to use "extended" installation method.

Installation-"Extended" Method

1. Remove screw-retained lower glass supports (windshield only).
2. Using sharp scraper or chisel, remove MAJOR portion of old caulk material from window opening flanges around entire opening. It is not necessary that all traces of material be removed, but there should not be any mounds or loose pieces left.
3. Inspect reveal molding retaining clips. If upper end of clip is bent away from body metal more than 1/32", replace or reform clip.
4. Using black weatherstrip adhesive or adhesive caulk material, cement flat rubber spacers No. 4459429 or equivalent to window opening pinchweld flanges. As shown in Figure 4-6,

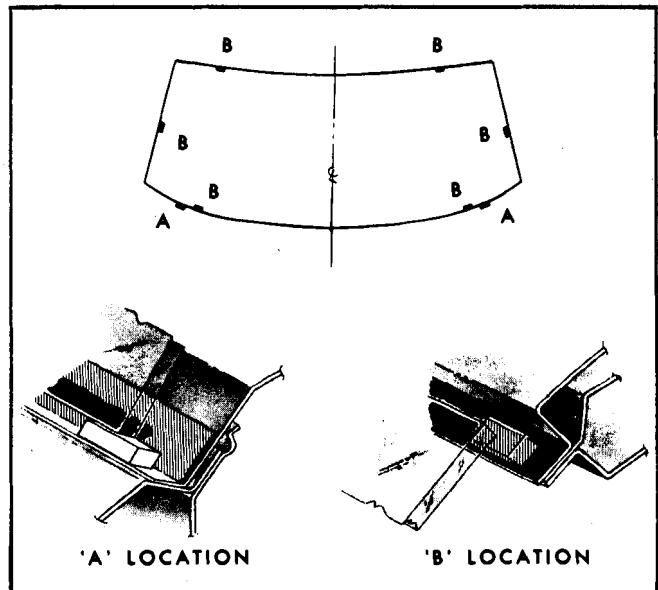


Fig. 4-6-Glass Spacer Installation

location "B", spacers should be positioned to provide equal support around entire perimeter of glass.

NOTE: If weatherstrip adhesive is used, apply sufficient material to obtain watertight seal beneath spacer, however, DO NOT allow excessive squeeze-out. Weatherstrip adhesive is not compatible with replacement adhesive caulking material and waterleaks may develop at locations where these two materials are used together to form seal.

5. Figure 4-6, location "A", illustrates rectangular spacers positioned in typical back window installation. Re-install metal supports at lower edge of windshield glass (in lieu of two lower "A" spacers indicated in back window installation).

6. With aid of helper, lift glass into window opening. On back window installations it will be necessary to use suction cups to position glass in opening. The windshield glass can be positioned without aid of carrying devices as described in Step 7 (Figure 4-5).

7. With one hand on each side of glass, put window in vertical position and support it on lower glass support spacers. While one man holds glass in this position, second man can reach one arm around body pillar and support glass while other man assumes the same position. Quarter window glass can be installed in same manner.

8. With glass positioned in opening, check relationship of glass to pinchweld flange around entire

SPACER REQUIREMENTS FOR ADHESIVE CAULKED GLASS

LOCATION & STYLES	SPACER PART NUMBERS AND SIZE				
	7694478 .34x.44x.75	9848544 .52x.44x.75	9842329 .75x.44x.75	9831753 .36x.44x.75	4459429 * .20x.63x1.0
WINDSHIELD ALL STYLES					7
QUARTER WINDOW A-36-46-56 & 66	2				4
B-35-45				2	4
BACK WINDOW A,B,C39-49-69, D,F,X	2				6
C37-47			2		6
OLDS & CAD "E"		2			6
BUICK "E"	3				6
SKYLIGHT FRONT A-56-66	5				6
SKYLIGHT SIDE A-56-66	2				6

* Spacer No. 4459429 is used only in extended method of glass installation and is installed between pinchweld flange and glass.

Fig. 4-7-Spacer Requirement Chart

- perimeter. Overlap of pinchweld flange should be equal with minimum overlap of 3/16". Overlap across top of windshield may be corrected by repositioning lower metal support spacers. Overlap across top of back window may be varied by shimming or shaving lower glass support spacers. For spacer requirements refer to chart (Figure 4-7). Spacers are available as service parts. Equivalent spacers may be used.
9. Check relationship of glass contour to body opening. Gap space between glass and pinchweld flange should be no less than 1/8" nor more than 1/4". If difficulty is encountered staying between these limits, correction can be made by any one of the following methods:
 - a. Reposition flat spacers.
 - b. Apply more caulking material than is specified at excessive gap areas. Material can be applied to pinchweld flange or by allowing bead on glass to exceed 3/8" height at gap areas.
 - c. Change glasses - another glass may fit opening better.
 - d. Rework pinchweld flange.
 10. After final adjustments have been made and glass is in proper position, apply pieces of masking tape over edges of glass and body, depending on window being installed. Tape on glass can be aligned with tape on body to guide glass into opening during installation.
 11. Remove glass from opening and apply one-inch masking tape around inner surface of glass 1/4" inboard from outer edge. On windshield installations, apply tape to top and sides only. Do not use tape across bottom. Removal of tape after glass installation will aid in clean-up and give a smooth, even edge to adhesive material (Fig. 4-8).
 12. Using clean lint-free cloth liberally dampened with Adhesive Caulking Primer or equivalent (supplied in Kit No. 4226000), briskly rub primer over original adhesive material remaining on pinchweld flange. Perform the following steps while allowing primer to dry for 5 to 10 minutes.

NOTE: If pinchweld flange has been repainted, prime pinchweld flange with Paint Finish Primer No. 4226001 or equivalent. Paint Finish Primer is available as a service part.
 13. Nozzle furnished in kit is designed for "short" method. For "extended" method, enlarge nozzle opening by removing material within score lines as indicated in Figure 4-8. Do not notch nozzle beyond score lines.
 14. Wipe surface of glass to which bead of adhesive caulking material will be applied (between masking tape and edge of glass) with clean water-dampened rag. Dry glass with clean cloth.
 15. With caulking gun and nozzle positioned as illustrated in Figure 4-8, carefully apply smooth continuous bead of caulking material 3/8" high by 3/16" wide at base completely around inside edge of glass.

NOTE: Adhesive caulk material begins to cure after fifteen minute exposure to air; therefore, install glass in opening as quickly as possible.
 16. Using tape guides applied in Step 10, carefully position glass in window opening. Guide lower outer surface of glass along rear edge of front fenders to avoid smearing fresh adhesive caulk material on instrument panel (Figure 4-5). Make certain glass is properly aligned so tape guides on pillars, and positioned on lower metal supports. Apply light hand pressure to "wet-out" adhesive material and obtain bond to body opening.
 17. Watertest immediately using cold water spray. Do not direct stream of water at fresh adhesive material. Allow water to spill over edges of glass.

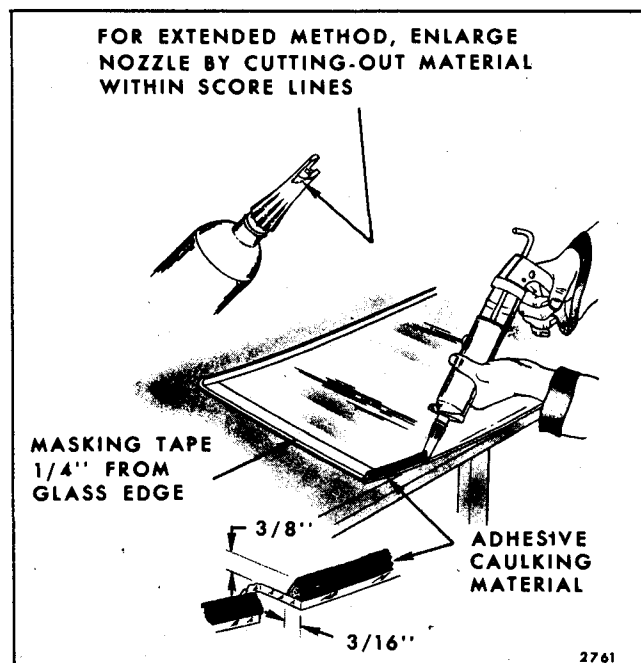


Fig. 4-8-Adhesive Material Application
Extended Method

If waterleak is encountered, use flat-bladed tool to work-in additional caulking material at leak point.

18. Install window reveal moldings. Then, carefully remove masking tape from around inner periphery of window. Pull tape toward center of glass to give a clean-cut edge to adhesive caulk, and to prevent excess squeeze-out material on tape from creating an additional clean-up problem.
19. Install all other previously removed parts and clean-up.

WATERLEAK CORRECTION OF ADHESIVE CAULKED GLASS

Adhesive caulked glass installation waterleaks can be corrected in the following manner without removing and reinstalling glass.

NOTE: The following procedure is applicable only with use of adhesive caulking material and primer furnished in Kit Part No. 4226000 or equivalent.

1. Remove reveal moldings in area of leak. In some

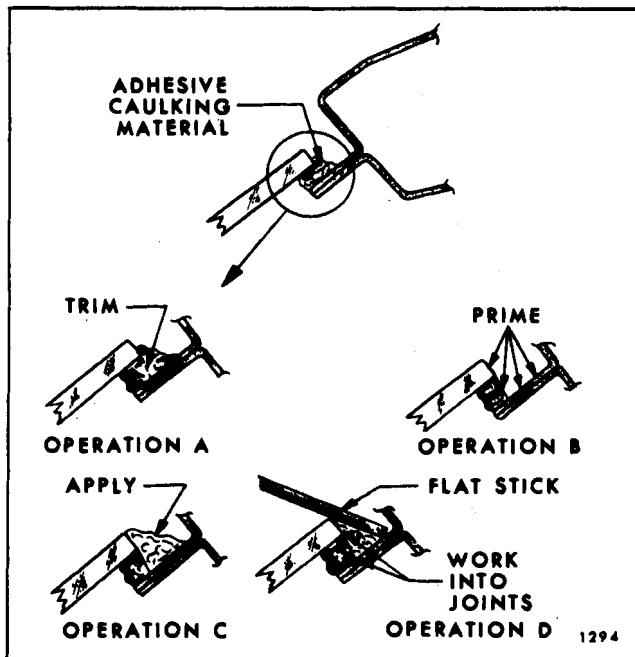


Fig. 4-9-Adhesive Caulked Glass Waterleak Correction

cases, it may become necessary to remove garnish moldings or finishing lace to locate source of leak.

2. Mark location of leak(s).

IMPORTANT: If leak is between adhesive caulking material and body or between material and glass, carefully push outward on glass in area of leak to determine extent of leak. This operation should be performed while water is being applied to leak area. Mark extent of leak area.

3. From outside body clean any dirt or foreign material from leak area with water; then dry area with air hose.
4. Using a sharp knife, trim off uneven edge of adhesive caulking material (see Operation "A" Fig. 4-9) at leak point and 3 to 4 inches on both sides of leak point or beyond limits of leak area.
5. Using small brush, apply adhesive caulking material primer over trimmed edge of adhesive caulking material and over adjacent painted surface (See Operation "B" Fig. 4-9).
6. Apply adhesive caulking material, as shown in Operation "C" (Fig. 4-9), at leak point and 3 to 4 inches on both sides of leak point or beyond limits of leak area.
7. Immediately after performing Step 6, use flat stick or other suitable flat-bladed tool to work adhesive caulking material well into leak point and into joint of original material and body to effect watertight seal along entire length of material application (See Operation "D" Fig. 4-9).
8. Spray watertest to assure that leak has been corrected. DO NOT run heavy stream of water directly on freshly applied adhesive caulking material.

The quarter window on the Cadillac "E-47" style is retained by a rubber channel and integral metal retainer fastened by attaching screws. Quarter inner upper trim must be removed to gain access (refer to Door and Quarter Trim, Section 13). For glass replacement use a light bodied sealer between rubber channel and glass and medium bodied sealer between rubber channel and outer panel to attain a water tight condition.

BONDED REAR VIEW MIRROR SUPPORT

DESCRIPTION

The rear view mirror support on "B, C, D, E and F" styles is bonded to windshield glass with a poly vinyl-

butyral patch, through heat induction process, at assembly plant.

Service replacement windshield glass may have rear view mirror support bonded to windshield glass as an

assembly. When glass replacement is required, simply transfer rear view mirror from one glass to another.

If rear view mirror support must be removed or installed on original windshield glass, or if rear view mirror support is not attached to a replacement windshield glass, installation may be performed with use of Loctite Minute-Bond Adhesive 312, Catalog No. 33-33, as available from all Loctite distributors, or an equivalent.

Depending upon operation to be performed some or all of the following materials will be required:

1. Loctite Minute-Bond Adhesive 312 two component pack, Catalog No. 33-33, or equivalent.
2. Replacement rear view mirror support, Service Part No. 9831062, (or equivalent) or original mirror support, prepared per Steps 4 and 5 of installation procedure.
3. Wax marking pencil, or crayon.
4. Heat Gun (air blower type), 250 to 350 degree range (required only if rear view mirror support must be removed).
5. Domestic scouring cleanser, glass cleaning solution, or glass polishing compound.
6. Rubbing alcohol.
7. Clean paper towels.
8. Fine grit emery cloth or sand paper (No. 320 or No. 360).
9. Clean toothpick.
10. Asbestos cloth or paste.

INSTALLATION

1. Determine rear view mirror support position on windshield. Support is located at center of glass at one of following dimensions from base of glass to base of support (dimension "A" Figure 4-10):
 - A. 20 1/4" - "B"-39-47-57 and 67 styles (less 26847) and "E"-47-57 and 67 styles.
 - B. 20 3/4" - "B"-35-45-49-69 and 26847 styles and "C"-37 and 47 styles.
 - C. 20 7/8" - "F" styles.
 - D. 21 1/4" - "C"-39-49 and 69 styles and "D" - 23 and 33 styles.

2. When location is determined, mark location on outside of glass with wax pencil or crayon. Also make larger diameter circle around the mirror support circle, on the outside glass surface (see Figure 4-10).
3. On inside glass surface, clean large circle with paper towel and domestic scouring cleanser, glass cleaning solution or polishing compound. Rub until area is completely clean and dry. When dry, thoroughly clean area with an alcohol saturated paper towel, to remove any traces of scouring powder or cleaning solution from this area.
4. With piece of fine grit (No. 320 or No. 360) emery cloth or sandpaper, completely sand bonding surface of new rear view mirror support, Part No. 9831062, (or equivalent) or factory installed support.

NOTE: If original rear view mirror support is to be reused, all traces of factory installed vinyl patch must be removed prior to re-installation.

5. Wipe sanded mirror support with clean paper towel saturated with alcohol, and allow to dry.
6. With spray can of accelerator material provided in Loctite Kit (or equivalent), lightly spray minute-bond accelerator to bonding surfaces of mirror support and windshield glass, and allow to dry completely.

NOTE: DUE TO RAPID BOND OF ADHESIVE THE FOLLOWING STEPS MUST BE PERFORMED WITHOUT HESITATION.

7. When both bonding surfaces have dried, apply two drops of adhesive to mirror support, and with toothpick quickly distribute adhesive evenly over entire bonding surface of mirror support.

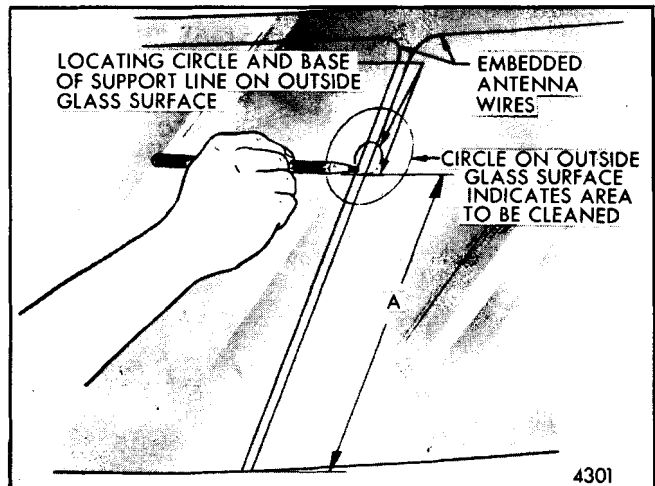


Figure 4-10-Locating Bonded Rear View Mirror Support on Glass

8. Properly position support to its pre-marked location, with rounded end pointed upward; press support against glass for 30 to 60 seconds, exerting steady pressure against glass. After five minutes, any excess adhesive may be removed with an alcohol moistened paper towel or glass cleaning solution.

REMOVAL

1. Remove rear view mirror from support.
2. Protect windshield glass adjacent to mirror support by placing water dampened asbestos cloth or powdered asbestos paste on inside of glass, around support.
3. From inside of glass, heat mirror support with an air blower type heat gun to 250 to 350 degrees; then, carefully exert gentle sideward pressure on support with pliers until it disengages from glass, as shown in Figure 4-11.

IMPORTANT: Care must be exercised during this operation because insufficient heat will not free mirror support, and pressure on support may result in damage to glass. If excessive heat is

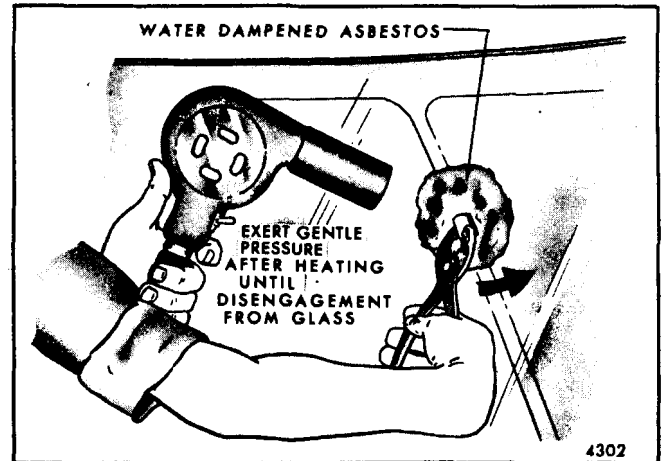


Figure 4-11-Removal of Bonded Rear View Mirror Support From Glass

applied, plastic laminate in windshield glass may become damaged.

4. After removal of rear view mirror support carefully scrape any remaining traces of adhesive or vinyl patch from glass surface. Both windshield glass and mirror support may now be prepared and installed per installation Steps 1 through 8.

SECTION 5

FRONT END

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BODY VENTILATION

VENTILATION SYSTEM COMPONENTS (Non-Air Conditioned Styles)

Body ventilation systems on non-air conditioned styles are comprised of only a low-level system; or a combination of a low-level and a high-level system depending upon body style.

All Body styles are furnished with a fresh air intake at the front plenum chamber. On "A-F-X" styles the low-level ventilation system consists of fresh air outlets in each shroud side panel and is standard equipment on all styles. On "B-C-E" styles, the low-level system air outlets are located in the lower wall of the right shroud vent side duct panel and the lower wall at left end of shroud vent duct center panel (Fig. 5-1).

The high-level ventilation system is standard equipment on all "B-C-E-F" styles; and on all "A" two door hard-top and convertible styles. The high-level system is optional on Buick "A-27, 39 and 69" styles.

High-level ventilation systems include the following components:

1. High-level air outlet(s) on the instrument panel.
2. Pressure relief valves (air exhaust outlets) on body lock pillars on all "A-F" styles with high-level ventilation, and air exhaust louvers in rear compartment lid or tail gate on all "B-C-E" styles.

3. High-level blower assemblies available as an option on Buick "A" styles.

The optional blowers provide high-level ventilation at low car speeds. For instructions on operation of the body ventilation system, refer to the "Owner's Manual".

DESCRIPTION (Non-Air Conditioned Styles)

Ventilating air enters the front plenum chamber through an air intake grille and/or screen. Air is

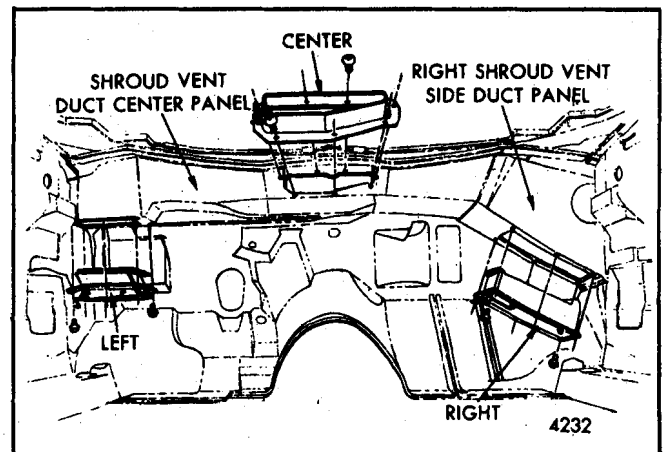


Fig. 5-1-Air Duct Outlet Locations

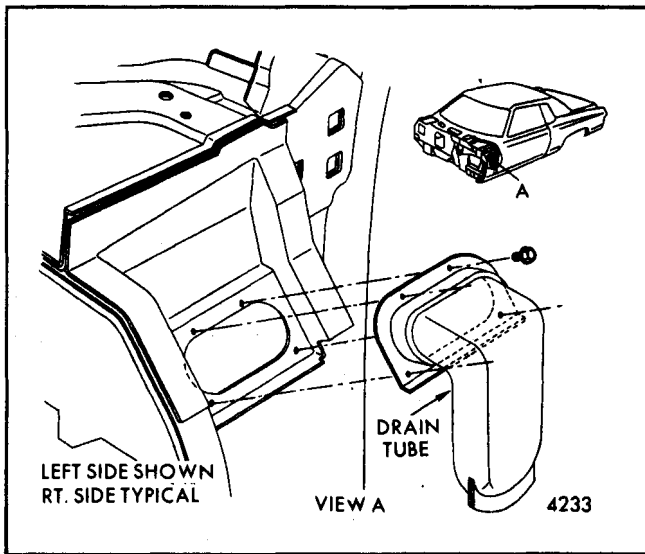


Fig. 5-2-Plenum Chamber Drain Tube

directed through the plenum chamber to the high-level air outlet door(s) and/or to the low-level air outlet doors. When ventilation controls are operated, air enters past the respective doors, and into the body.

On styles with high-level ventilation, air passes through the body, under the rear seat, and into the rear compartment. On "A-F" styles, the air then passes into the rear quarters and leaves the body passing through the pressure relief valves located on the rear body lock pillars (Fig. 5-14, 5-15). On "B-C-E" styles the air leaves the body passing through the air exhaust louvers in the rear compartment lid or tail gate.

Water entering the front plenum chamber on "A-F-X" styles is channeled to the base of the shroud side panels where it is drained through openings provided for that purpose. On "B-C-E" styles the water is channeled to the outboard ends of the plenum chamber where it is discharged through drain tubes (Fig. 5-2).

SHROUD CENTER DUCT HIGH-LEVEL AIR OUTLET AND DOOR - "B-C-E" Styles

The outlet and door are shown in Figures 5-3 and 5-1.

To remove door from air duct outlet, disengage control cable from door and slide crank end of door from snap-in slot in duct assembly and remove door.

The high-level air duct outlet is sealed with a gasket at the attaching flanges and is secured to the center duct panel with screws.

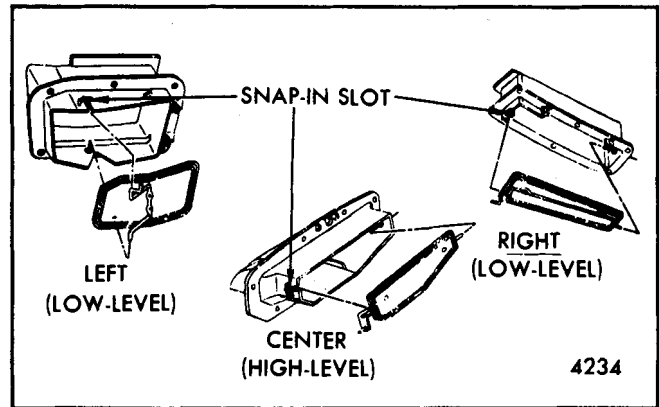


Fig. 5-3-High-Level and Low-Level Air Outlets and Doors - "B-C-E" Styles

NOTE: If the gasket becomes damaged, the duct outlet can be sealed to the center duct panel with medium bodied sealer.

LOW-LEVEL AIR DUCT OUTLET, DOOR AND GRILLE - "B-C-E" Styles

To remove grille from air duct outlet, remove grille to air outlet attaching screw(s). The left grille is retained by one screw and the right grille by two screws (Fig. 5-4). Disengage grille from retaining tabs on outlet and remove grille. To install, reverse removal procedure.

To remove air outlet door, remove grille as previously described, remove control cable to door crank retainer and disengage control cable from crank (Fig. 5-5). Disengage crank end of door from snap-in slot of air outlet and remove door. To install, reverse removal procedure.

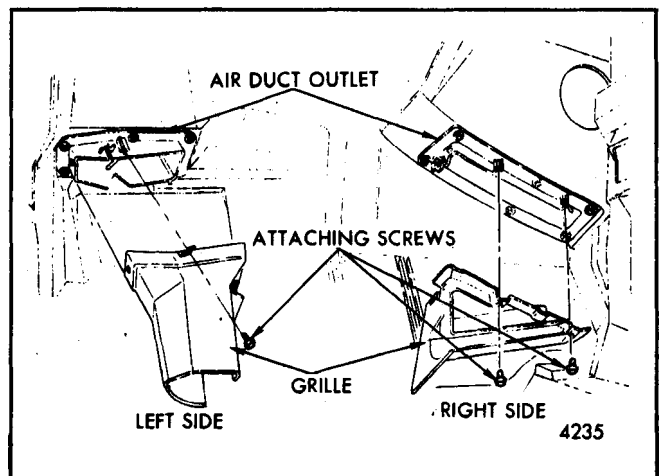


Fig. 5-4-Low-Level Air Outlet Grilles

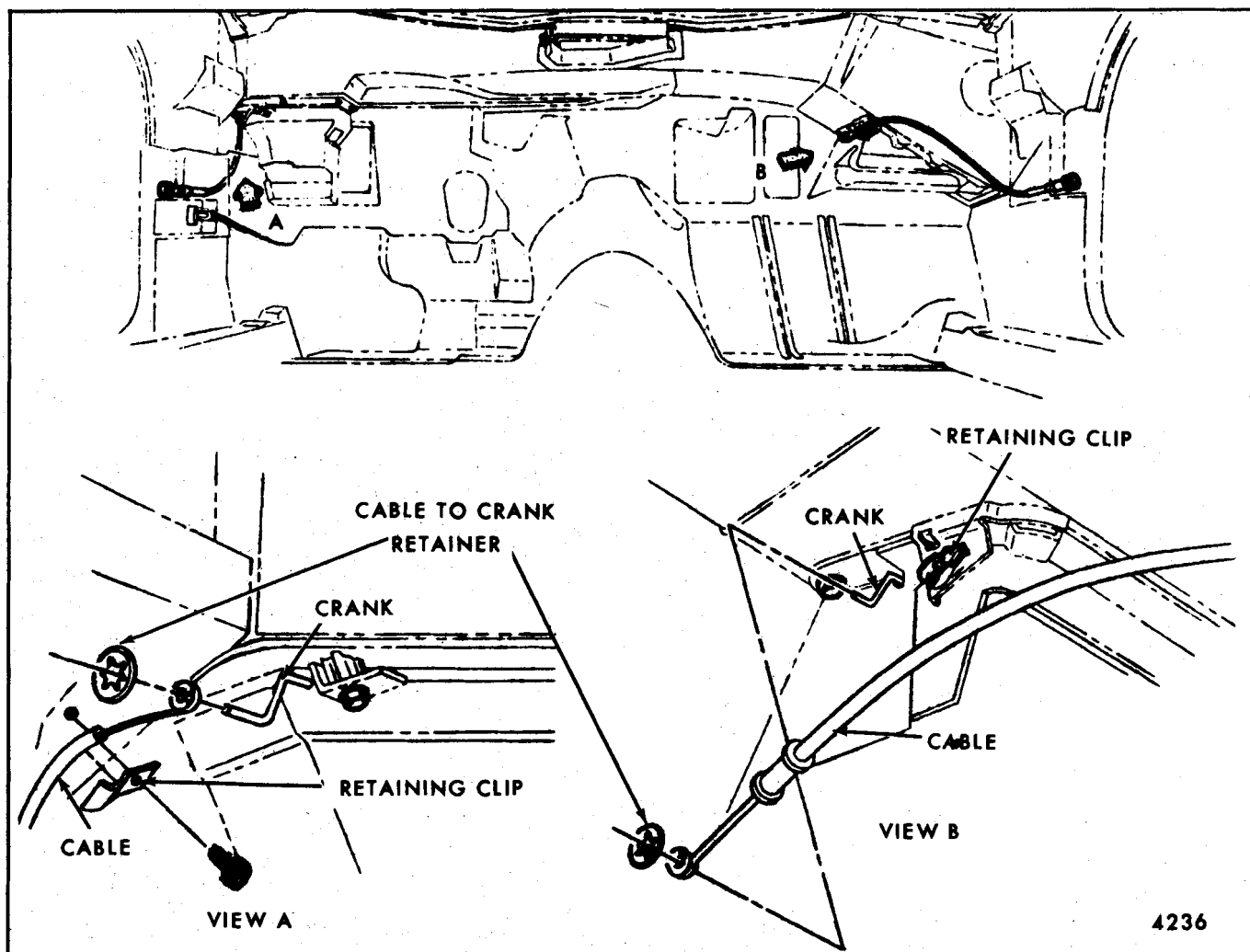


Fig. 5-5-Low-Level Air Outlet Control Cables

To remove air duct outlet, remove grille and disconnect control cable as previously described.

Remove air duct outlet attaching screws and remove duct outlet assembly.

NOTE: In case of gasket damage, seal the duct outlet to duct opening with medium bodied sealer.

SHROUD CENTER DUCT HIGH-LEVEL AIR OUTLET DOOR-"A" Styles

The door and control cable attachment is illustrated in Figure 5-6.

The air duct outlet is welded to the center duct panel. The door can be removed by loosening the control cable retaining clip and rotating end of control cable out of crank on door. Remove door retaining clip from duct assembly and slide door out of duct opening. To install reverse the removal procedure.

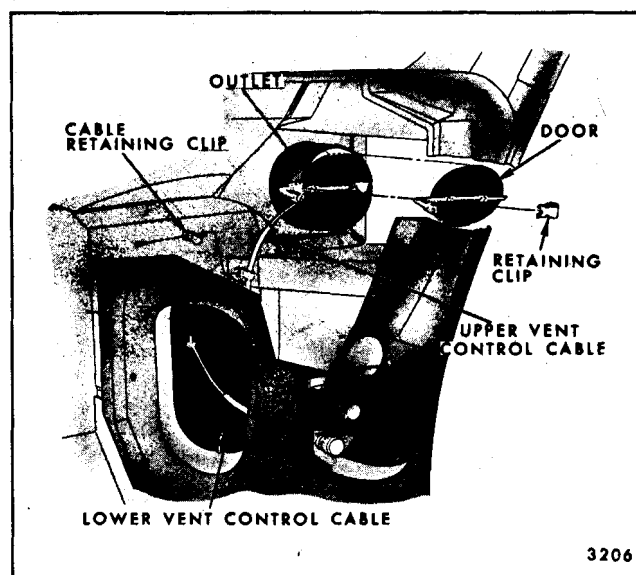


Fig. 5-6-Shroud Center Duct High-Level Air Outlet Door - "A" Styles

SHROUD CENTER DUCT HIGH-LEVEL AIR OUTLET AND DOOR - "F" Styles

The air duct outlet, door and control cable attachment is illustrated in Figure 5-7.

The door can be removed by removing retaining clip (Item 1, Fig. 5-7) removing control cable from retaining clip (Item 2, Fig. 5-7) and rotating control cable out of crank on door. Disengage snap-in type control rod from duct assembly and slide door out of duct opening.

To remove duct outlet, disengage control cable from door and remove duct outlet to center duct panel attaching screws. To install, reverse the removal procedure.

NOTE: In case of gasket damage, seal the duct outlet to center duct panel with medium bodied sealer.

HIGH-LEVEL VENTILATION BLOWERS Buick "A" Styles

The power ventilation option, available on some Buick "A" styles, consists of blower assemblies on each side of the body which provide upper-level ventilation at low car speeds. The blowers are located inside the plenum chamber on the right and left sides of the body. A motor ground wire is secured by a screw.

Removal and Installation

1. Remove shroud side finishing panel.
2. Unplug electrical wiring, disengage wiring grommet, and remove screw securing ground wire (Fig. 5-8).
3. Remove sheet metal screw securing lower support of blower housing.
4. Remove two attaching nuts from studs securing blower to shroud upper panel and remove blower through shroud duct outlet.
5. To install, reverse removal procedure.

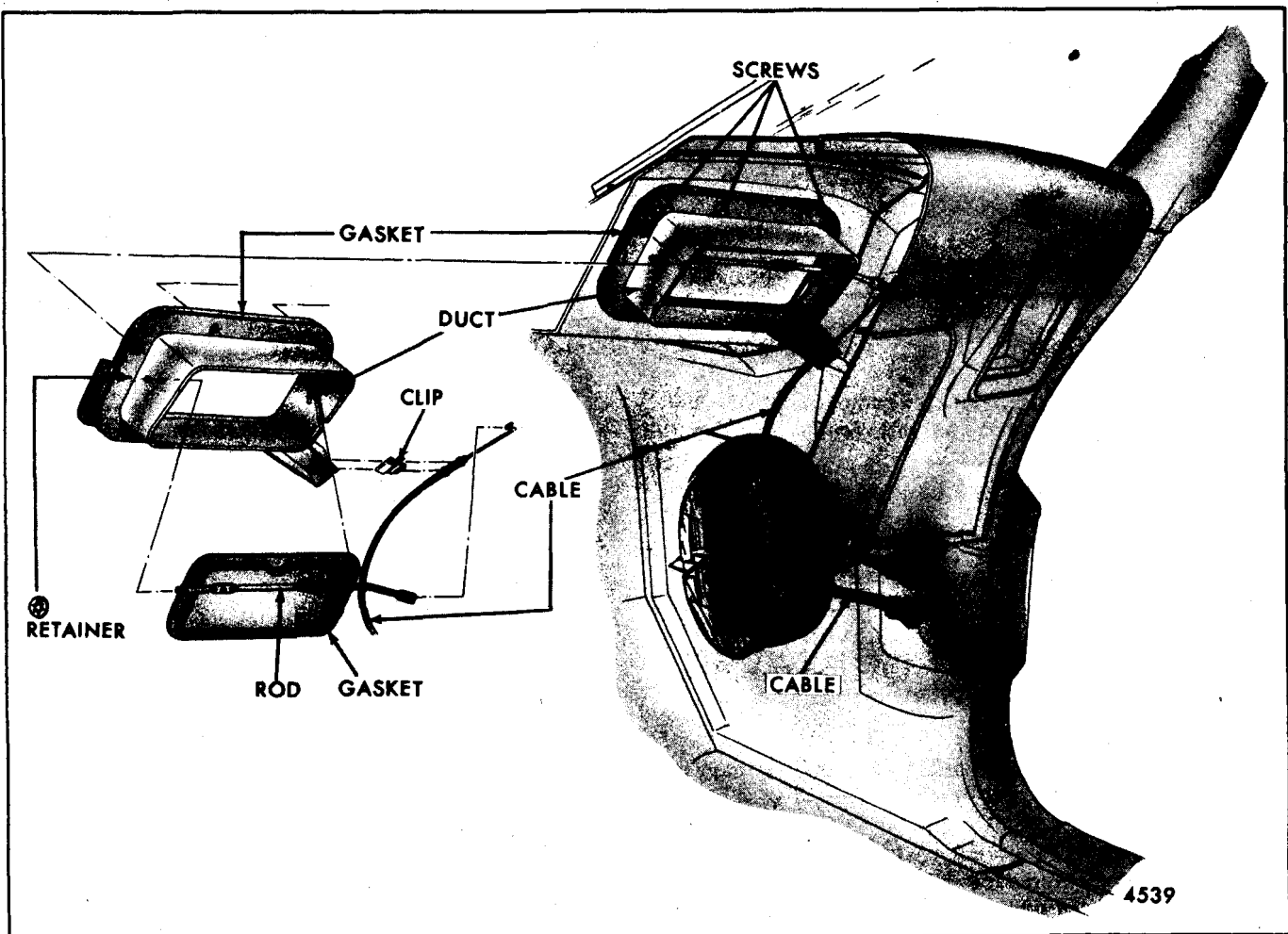


Fig. 5-7-Shroud Center Duct High-Level Air Outlet and Door - "F" Styles

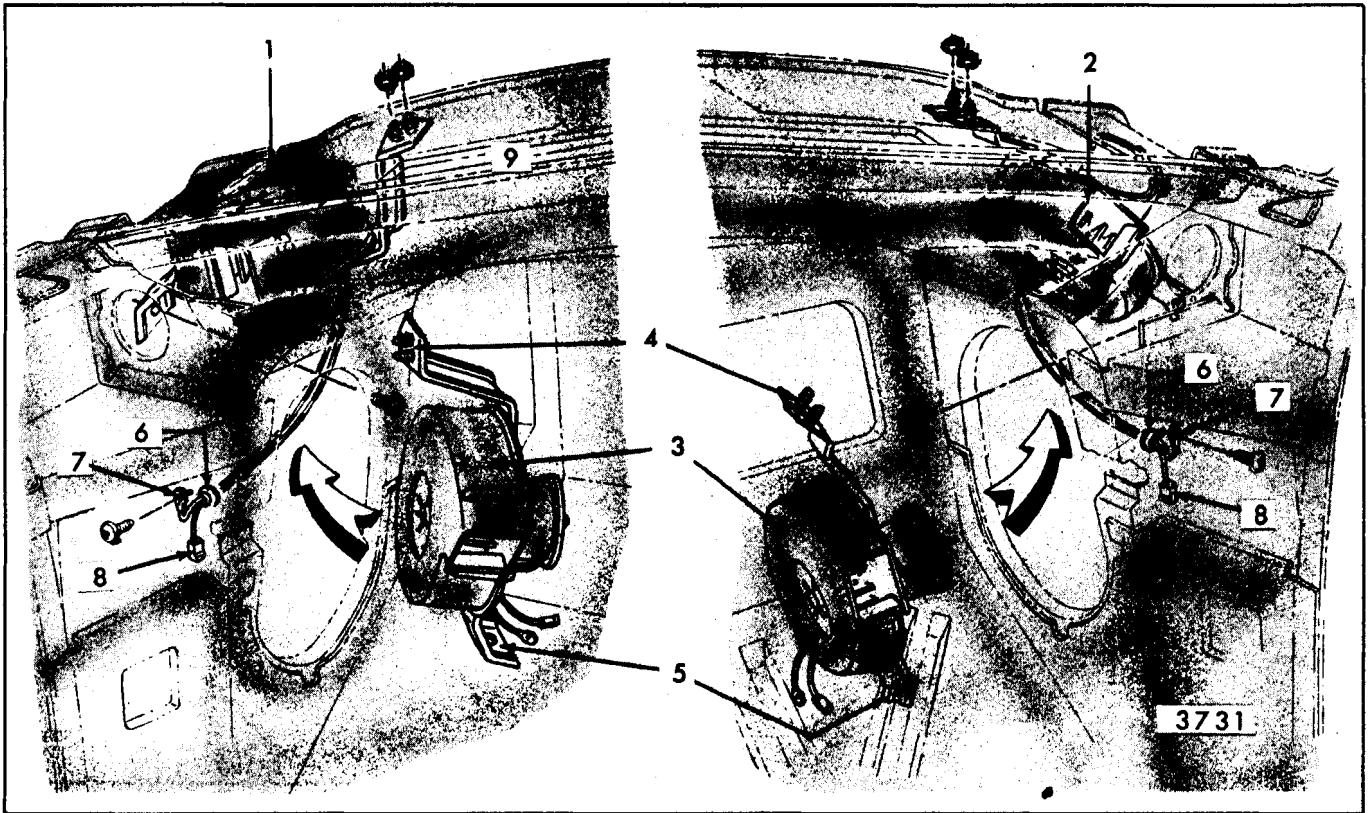


Fig. 5-8-High-Level Ventilation Blowers Buick "A" Styles

- | | | |
|--------------------------------|----------------------------------|-------------------------|
| 1. Left Blower Location | 4. Upper Support Attaching Studs | 7. Motor Ground |
| 2. Right Blower Location | 5. Lower Support | 8. Electrical Connector |
| 3. Blowers Before Installation | 6. Grommet | 9. Front Plenum Chamber |

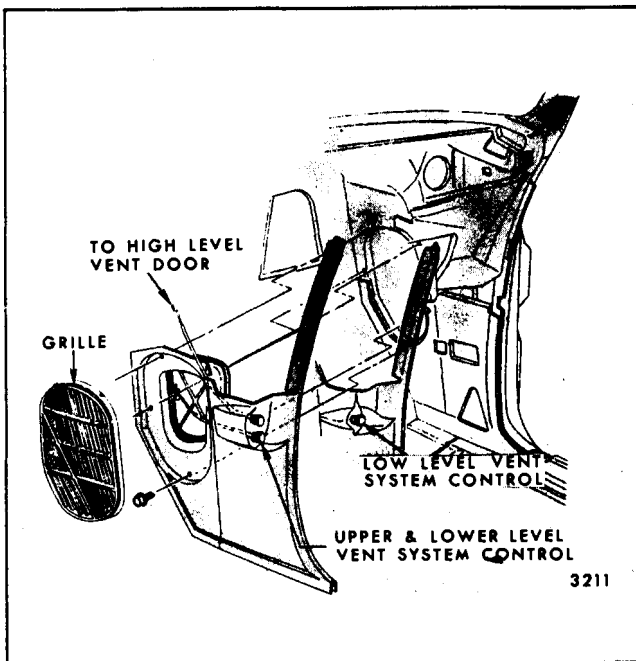


Fig. 5-9-Shroud Side Finishing Panel - "A" Styles

SHROUD SIDE FINISHING PANEL "A-F-B-C-E and X" Styles

On "A-F-X" styles, the shroud side finishing panel is designed with an integral air duct outlet and hinge pillar pinchweld finishing lace. The following are

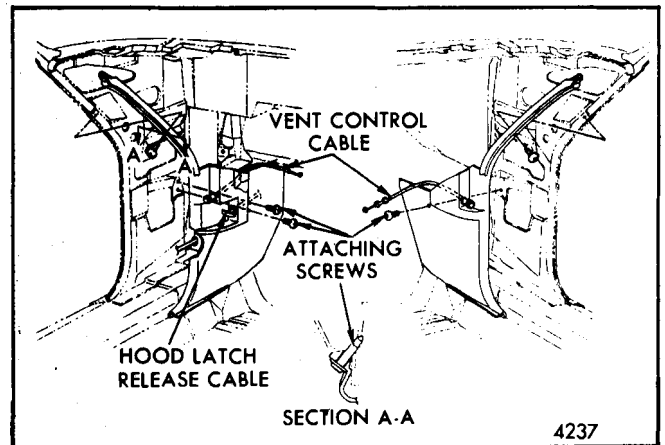


Fig. 5-10-Shroud Side Finishing Panel - "B-C-E" Styles

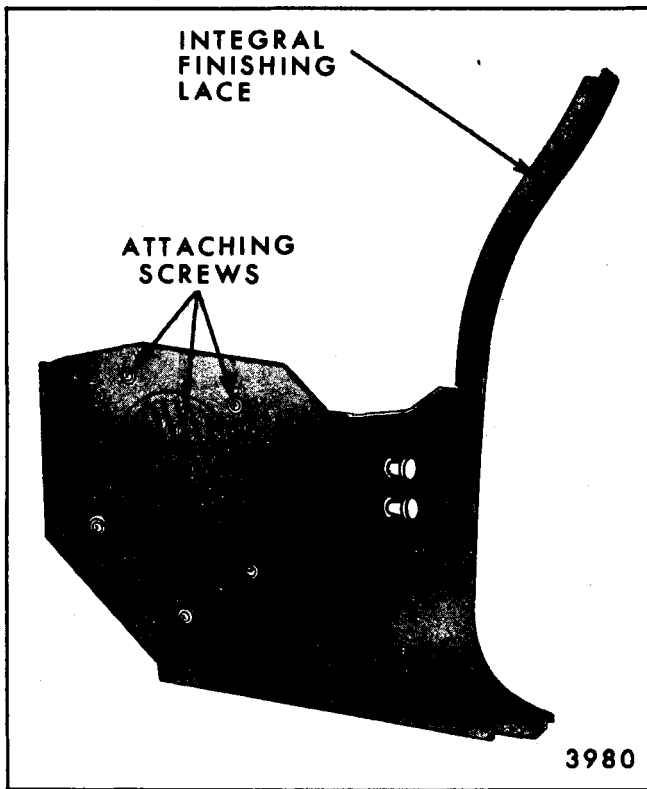


Fig. 5-11-Shroud Side Finishing Panel - "F" Styles

added to the finishing panel before installation; air outlet door; upper and/or lower vent control cables; and medium-bodied sealer on attaching flanges (Fig. 5-13). The finishing panel is secured by screws at the side panel. A snap-in type grille completes the installation on the "A-X" styles. The grille on the "F" style is an integral part of the finishing panel.

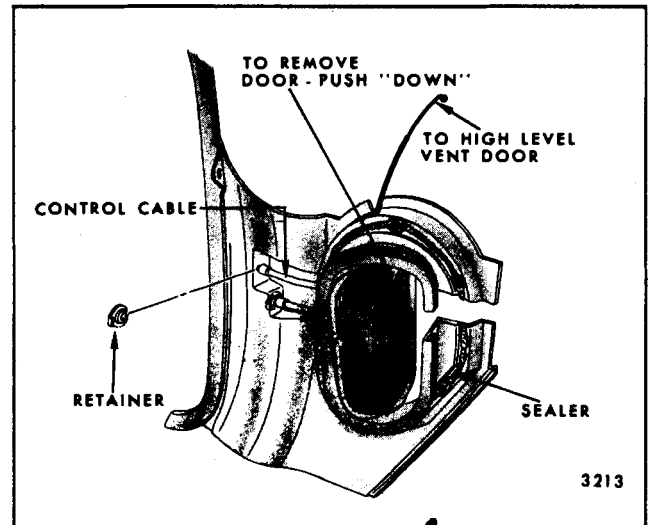


Fig. 5-13-Shroud Side Finishing Panel Sealing - "A-F-X" Styles

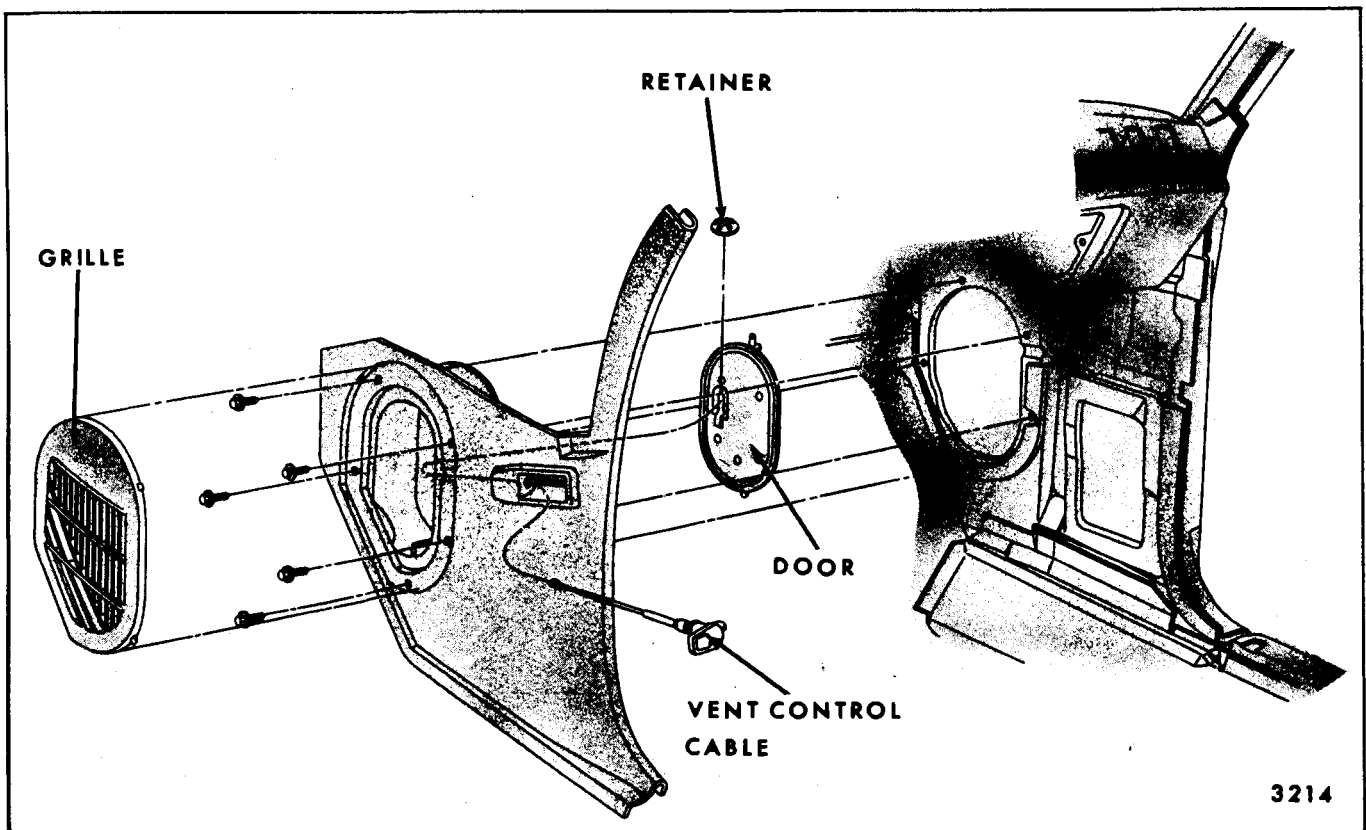


Fig. 5-12-Shroud Side Finishing Panel - "X" Styles

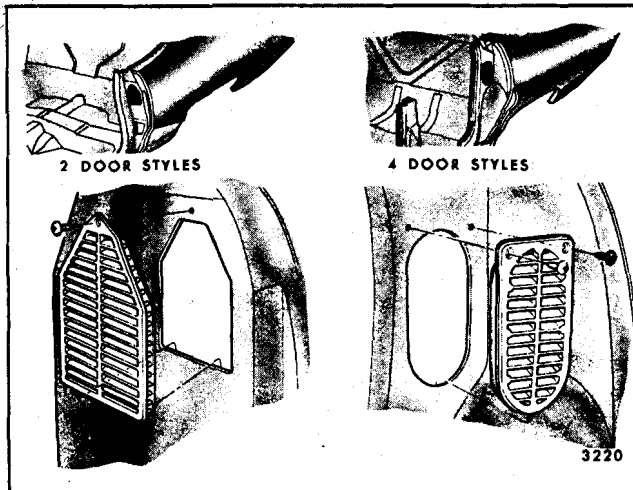


Fig. 5-14-Pressure Relief Valve - "A" Styles

Removal of the low-level air duct door and/or upper and lower vent control cable requires removal of the finishing panel. (Figures 5-9, 5-10, 5-11 and 5-12 depict types of finishing panels and their installation)

On "B-C-E" styles the shroud side finishing panel is designed with an integral hinge pillar pinchweld finishing lace. A lower vent control cable is added to each finishing panel and a hood latch release cable to the left panel before installation. The left finishing panel is secured by two screws, the right by one screw, at the shroud side panel, and one screw in each panel at the hinge pillar (Fig. 5-10).

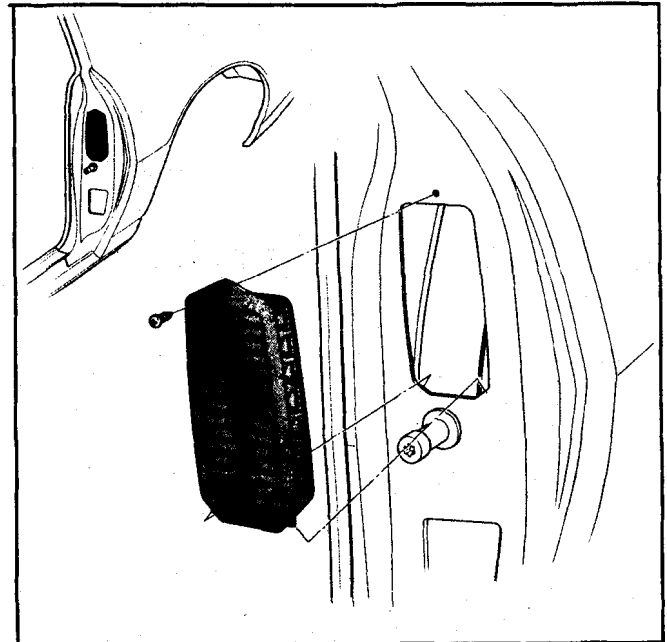


Fig. 5-15-Pressure Relief Valve - "F" Styles

PRESSURE RELIEF VALVE- "A-F" Styles

Used with high-level ventilation systems on "A-F" styles, pressure relief valves are attached to rear lock pillars with screws. Figure 5-14 shows the "A" style pressure relief valve installation. Figure 5-15 shows the "F" style pressure relief valve installation.

HOOD LATCH RELEASE CABLE (REAR SECTION) "B-C-E STYLES"

DESCRIPTION

The rear section of the hood latch release cable includes the pull handle, control cable and housing. The control cable is installed through the left shroud side finishing panel (Fig. 5-16). A sealing grommet at the dash panel completes the assembly.

Removal and Installation

1. Raise hood and disengage rear cable from connector.
2. Remove sealing grommet from dash panel and remove grommet from cable.
3. Remove left shroud side finishing panel, including

cable assembly, sliding control cable through hole in dash panel.

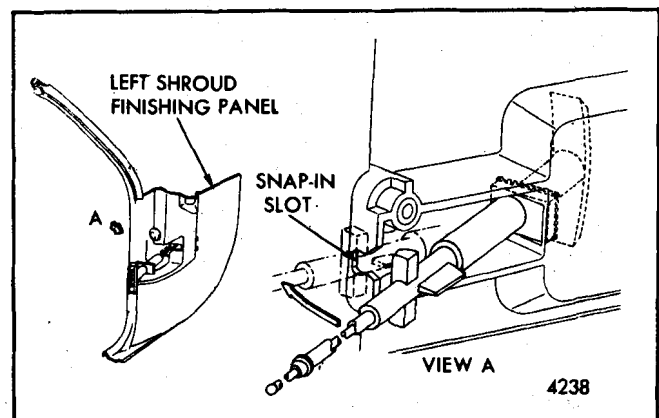


Fig. 5-16-Hood Latch Release Cable

- Disengage control assembly housing from snap-in slot of finishing panel (Fig. 5-16) and remove cable assembly from panel pulling toward pull handle end.

- To install, reverse the removal procedure. When installing grommet, hold the cable taut and force grommet into hole in dash panel.

INSTRUMENT PANEL

INSTRUMENT PANEL COMPARTMENT DOOR-Buick "A" Styles

The instrument panel compartment door is secured to the instrument panel by screws. A door stop holds the door in the open position.

Removal and Installation

To remove door, open door and remove attaching screws from door or from instrument panel. Rotate door stop counter-clockwise to disengage it from the instrument panel opening, and remove door. To install, reverse removal operations.

Adjustments

Provisions in door and instrument panel allow for adjustment of door. Adjustments can be made by loosening necessary hinge attaching screws. The lock striker is secured by screws. Adjustment of striker to desired position can be made by loosening attaching screws.

INSTRUMENT PANEL COMPARTMENT DOOR LOCK AND CYLINDER-All Styles

Removal

- With door open, set fork bolt in latched position. Cylinder retainer will come into view in lock case in 12 o'clock position (Figure 5-17). Alternate retainer position, 3 o'clock position, may be obtained by rotating lock cylinder (key inserted) to locked position (Figure 5-17).

NOTE: A "View Slot" is located on all instrument panel compartment door lock cases in the 12 o'clock and in the 3 o'clock position.

- With key removed from cylinder, depress retainer with paper clip or other suitably pointed tool. Reinsert key to hold retainer in retracted position.
- Squeeze latched fork bolt to relieve pressure from lock cylinder and remove cylinder, with key inserted, from lock case.
- Insert octagonal bar wrench, wide-blade screw-

driver or other suitable tool into lock escutcheon, unscrew and remove lock case assembly.

Installation

- Position lock case with locating tang aligned with notch in opening (Fig. 5-17).
- Slide plastic washer over escutcheon and screw escutcheon into lock case and tighten.
- To install lock cylinder, depress cylinder retainer and insert key.
- Push lock fork bolt to latched position. Align cylinder tumblers with lock case view slot. Push cylinder assembly, key installed, into lock case.

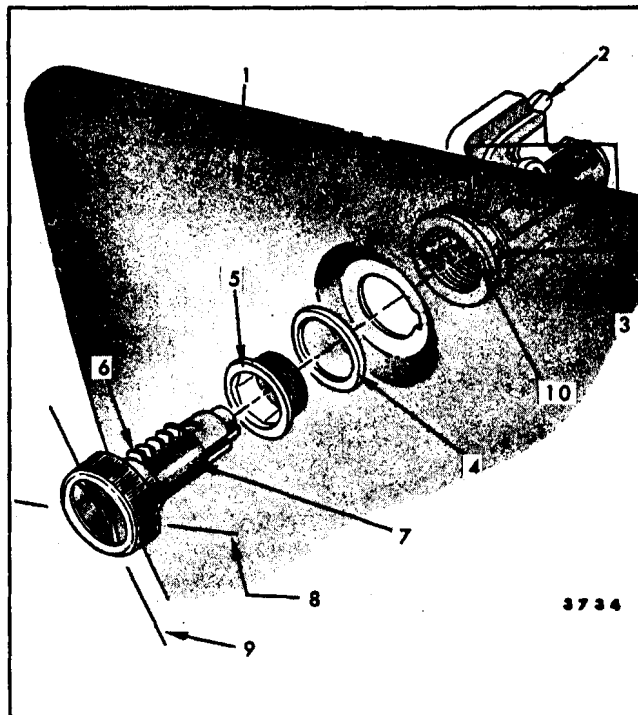


Fig. 5-17-Instrument Panel Compartment Door Lock and Cylinder-All Styles

- | | |
|-------------------------|----------------------|
| 1. Door | 6. Retainer |
| 2. Fork Bolt | 7. Lock Cylinder |
| 3. Lock Case View Slots | 8. Unlocked Position |
| 4. Washer | 9. Locked Position |
| 5. Escutcheon | 10. Locating Tang |

5. While holding lock cylinder firmly in lock case, remove key to engage retainer to lock case. (Removal of key at this time releases retainer to lock against lock case.)
6. Before closing door, reinsert key and turn full right to release latched fork bolt.

IMPORTANT: Failure to unlatch fork bolt could result in damage to striker and/or lock if door is closed.

INSTRUMENT PANEL COVERS- Chevrolet "X" Styles

The instrument panel cover is secured to the instrument panel by a combination of screws, stud and clip assemblies, clips, and stud and nut assemblies. The cover attachment locations are shown in Figure 5-18.

NOTE: For instrument panel covers on other series and body styles, refer to the chassis service manuals.

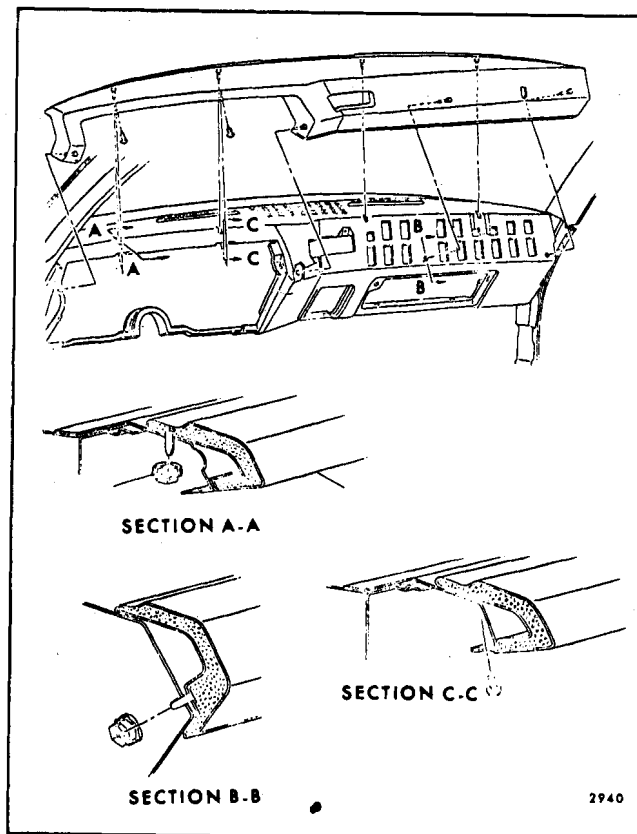


Fig. 5-18-Instrument Panel Cover - Chevrolet
"X" Styles

SECTION 6

DOORS

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FRONT AND REAR DOORS

INTRODUCTION

This section of the manual contains the service operations that are necessary for the removal, installation, adjustment and sealing of door assemblies and individual door hardware components. The procedures are arranged in the sequence that they would be performed when servicing a door. To locate specific procedures, refer to the "Door Index".

Hardware items are divided into three categories. Those which are common to all doors are found under "Front and Rear Doors", which also includes door and side roof rail weather strips. Items which are peculiar to front or rear doors are found under "Front Doors", or "Rear Doors" respectively.

Door trim service procedures are covered in Section 13 of this manual (See Index).

Body series or style references in the procedures are explained under "General Information" in Section 1 of this manual.

FRONT AND REAR DOOR WEATHERSTRIPS

Both the front and rear doors use nylon fasteners to retain the door weatherstrips. The fasteners are a component part of the weatherstrip and secure the weatherstrip to the door by engaging piercings in the door panels. The serrations on the fastener retain the fastener in the piercing and also seal the openings from water entry (Fig. 6-1).

On closed styles, nylon fasteners are used below the beltline only. Weatherstrip adhesive retains the weatherstrip around the door upper frame (Fig. 6-2).

On all styles, in addition to the fastener, use weatherstrip adhesive at the beltline and down the front door hinge pillar.

To disengage nylon fasteners from door panel piercings use tool J-21104 or equivalent (Fig. 6-1).

This tool permits removal of the weatherstrip without damaging the serrations on the fasteners so that the weatherstrip can be reinstalled if desired.

Although a replacement door weatherstrip will include nylon fasteners, individual fasteners are also available as service parts.

Removal

1. On all hardtop and convertible styles, remove door trim pad to gain access to weatherstrip fasteners hidden under trim assembly and remove fasteners (Fig. 6-3).
2. Use a flat-bladed tool to break cement bond between door and weatherstrip. A tool applicable to this usage can be fabricated from tool J-21104 or equivalent (Fig. 6-4). On all styles, weatherstrip adhesive is used for a distance of 9" on door lock pillar and the entire length of the front door hinge pillar (Fig. 6-2). In addition, on closed styles, weatherstrip is retained by weatherstrip

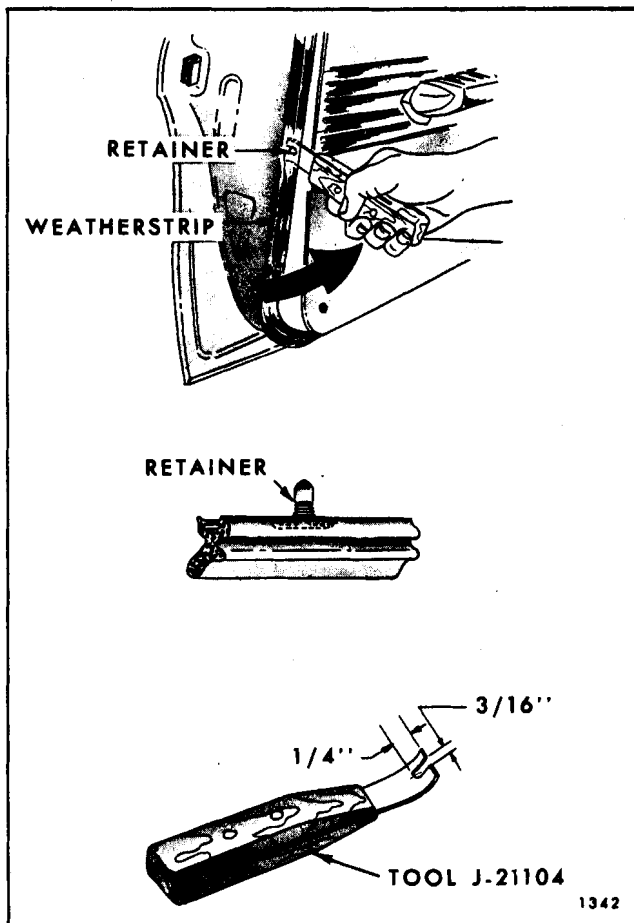


Fig. 6-1-Door Weatherstrip Removal

adhesive completely around door upper frame (Fig. 6-2).

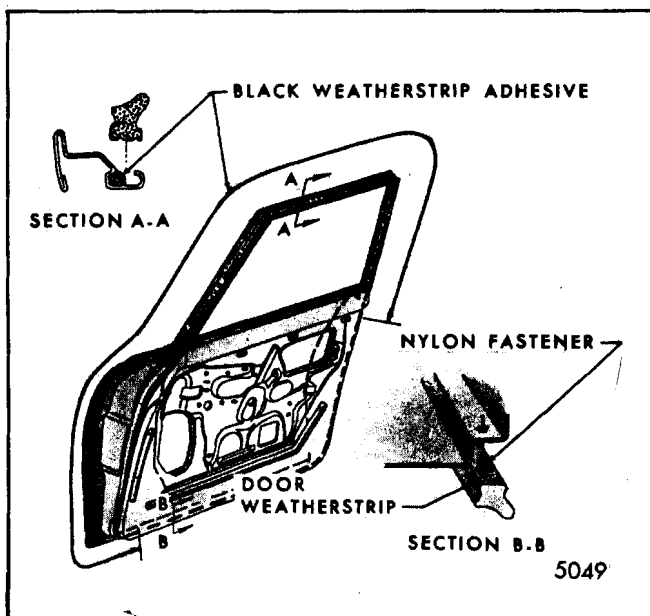


Fig. 6-2-Door Weatherstrip - All Styles

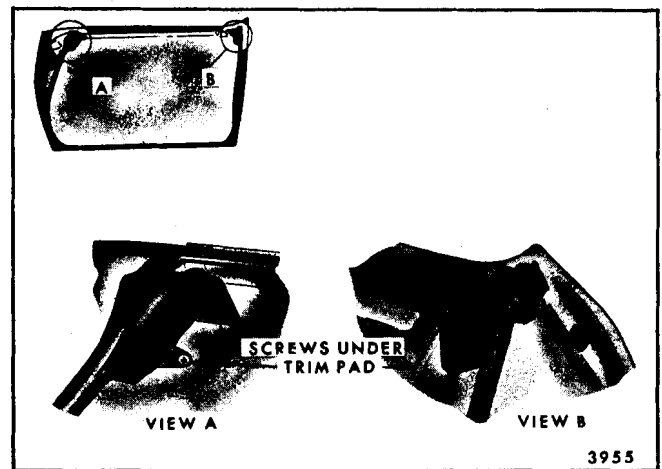


Fig. 6-3-Door Weatherstrip - Hardtop Styles

3. On all styles, use tool J-21104 or equivalent to disengage weatherstrip from door where weatherstrip is retained by nylon fasteners.

Installation

1. If previously removed weatherstrip is to be reinstalled, inspect nylon fasteners and replace those that are damaged.
2. Clean off old weatherstrip adhesive from door.
3. On closed styles, apply black weatherstrip adhesive around door upper frame (Fig. 6-2).
4. On styles without door upper frames, position weatherstrip to door and install plastic fasteners at front and rear ends of weatherstrip.
5. On styles with door upper frames, position weatherstrip to door as follows:

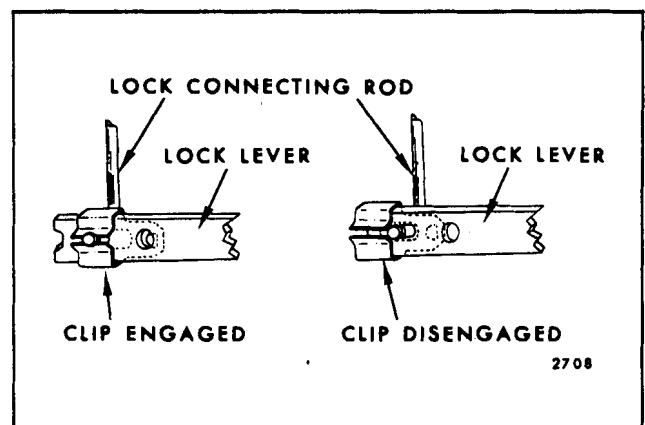


Fig. 6-4-Weatherstrip Removal Tool

- a. On front doors, locate weatherstrip from rear upper corner.
 - b. On rear doors, locate weatherstrip from molded front upper corner.
6. Tap nylon fasteners into door piercing using a hammer and blunt caulking tool.
 7. After all fasteners have been installed on sedan styles, apply weatherstrip adhesive between door and weatherstrip outboard surface at the following locations:
 - a. For 5" around rear upper corner of front door upper frame and/or 9" down door lock pillar starting at beltline and down entire hinge pillar facing.
 - b. On sedan rear doors, 9" down both door lock pillar and door hinge pillars starting at beltline.

NOTE: If weatherstrip becomes damaged at fastener location and will not retain fastener, remove fastener and secure weatherstrip to door with weatherstrip adhesive. If more than two consecutive fastener locations become damaged, replace weatherstrip.

Although weatherstrip adhesive is specified only at specific locations, it can be used at any point where additional retention or sealing is required.

DOOR BOTTOM DRAIN HOLE SEALING STRIPS

Door bottom drain slot sealing strips are attached to door inner panels over door bottom drain slots to prevent entry of road-noise, dust and cold air at these locations (Fig. 6-5).

To remove sealing strips, use a flat-bladed tool to pry retaining plugs from door inner panel piercings.

To install, insert a blunt pointed tool such as a dull ice pick or scratch awl into strip retaining plugs and push plugs into door panel piercings.

FRONT AND REAR DOOR INNER PANEL WATER DEFLECTOR

A waterproof deflector is used to seal the door inner panel and prevent entry of water into the body. The deflector is secured by a string-loaded sealing material along both front and rear edges and by the application of waterproof sealing tape at front and rear lower corners. Whenever work is performed on

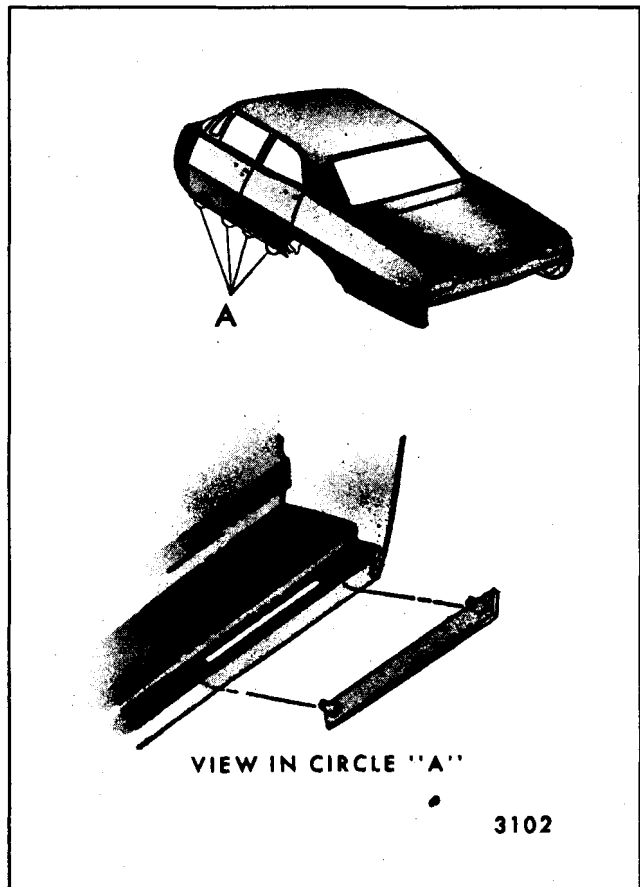


Fig. 6-5-Door Bottom Drain Hole Sealing Strips

front or rear doors where the water deflector has been disturbed, the deflector must be properly sealed and taped to the inner panel to prevent waterleaks (Fig. 6-6 for "A, F and X" styles and 6-7 for "B, C and E" Styles). For service sealing, body caulking compound

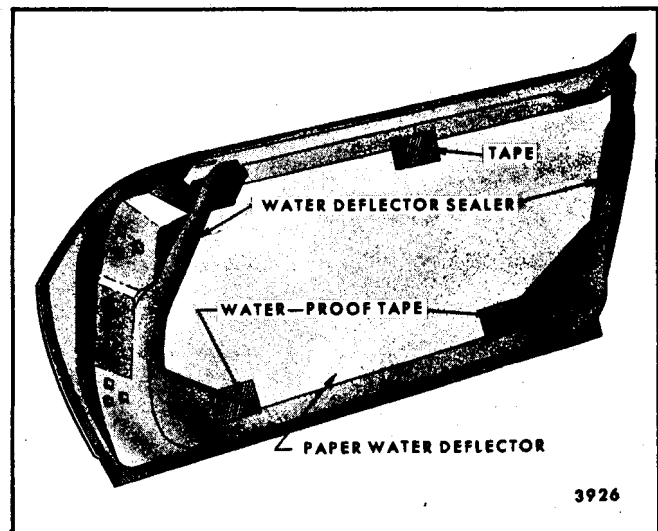


Fig. 6-6-Door Inner Panel Sealing ("A, F and X" Styles)

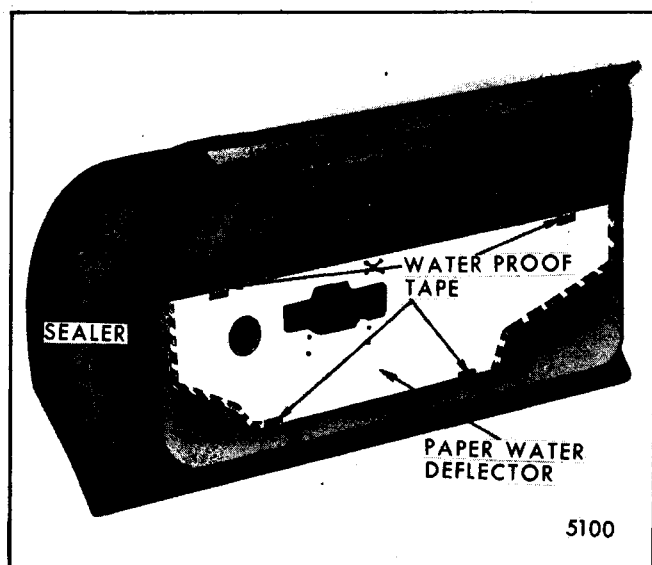


Fig. 6-7-Door Inner Panel Sealing ("B, C and E" Styles)

or strip caulking is recommended if additional sealing material is required.

When access to the inner panel is required to perform service operations, the deflector may be completely or partially detached from the inner panel. If the existing water deflector is damaged so that it will not properly seal the door, replacement of the deflector is required. Roll stock of water deflector paper is available as a service part.

The following procedure covers complete removal and installation of the water deflector. If only partial removal of the deflector is required, perform only those steps which are necessary to expose the required area of the door inner panel.

Removal (Refer to Figure 6-6 for "A, F and X" Styles and Figure 6-7 for "B, C and E" Styles)

1. Remove the door trim assembly.
2. Remove waterproof body tape securing top of water deflector to door inner panel.
3. Using a flat-bladed tool such as a putty knife, or side roof rail weatherstrip removal tool as described in Fig. 6-4, carefully break sealer bond between water deflector and door inner panel down both sides of deflector. Make certain tool blade is between inner panel and string that is embedded in sealer.
4. When seal has been broken down both sides of deflector, carefully remove tape from inner panel at lower corners of water deflector. Disengage

water deflector from inner panel drain slot and remove deflector.

Installation

1. Inspect water deflector and, where necessary, repair any tears or holes with waterproof body tape applied to both sides of deflector.
2. If a new deflector is to be installed, use old deflector as a template.
3. Position water deflector to door inner panel and insert lower edge of deflector in retaining slot. Then, firmly roll or press edges of deflector to obtain a good bond between deflector and door inner panel.

If old sealer does not effect a satisfactory seal, apply additional body caulking compound or strip caulking to inner panel at unsealed areas.

4. Seal lower corners of deflector by re-applying previously removed tape or new pieces of 2" or 2-1/2" waterproof body tape.
5. On styles with door inner panel hardware attachments that are outboard of water deflector, seal attaching bolt head and panel piercing with body caulking compound.

DOOR WINDOW BELT SEALING STRIPS

Door window belt sealing strips are used to form a seal between the door inner and outer panels and the window at the beltline. The construction and attachment of these strips vary with the body style involved.

On styles with a door window belt reveal molding, except Pontiac "F" styles, the outer strip assembly is clipped to the molding and, therefore, removed with the molding (See "Exterior Moldings"). The entire assembly is available as a service part, as is the strip assembly itself. On Pontiac "F" styles, the molding is installed over the outer belt sealing strip and must be removed prior to strip removal (moldings and belt sealing strips are serviced independently). Refer to Exterior Molding Section for removal instructions.

On styles without door window belt reveal moldings, the outer strip assembly is an independent part that is secured to the door outer panel return flange by clips, screws or rivets (rivets pertain to "F" styles only).

NOTE: To remove strip assemblies, glass must be low enough to gain access to the attachments. In many cases, this will require removal or adjustment of window lower stop bumpers to permit further lowering of window assembly.

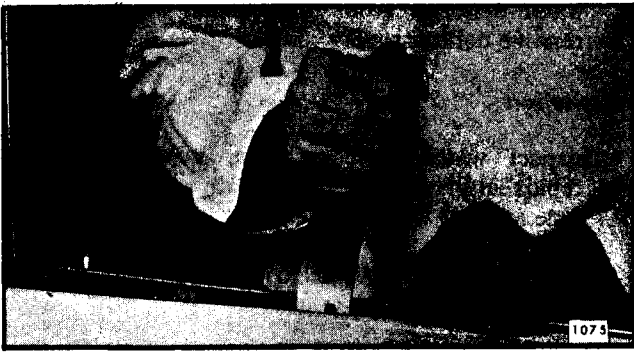


Fig. 6-8-Clip Retained Belt Sealing Strip Assembly Removal

- a. Apply cloth-backed tape as a protective cover over painted surface of door panel adjacent to strip assembly.
- b. Using a flat-bladed tool that is slotted to fit over tang of clip, disengage clips from slots in door panel return flange as shown in Figure 6-8.
- c. To install strip assembly, position strip so that the tangs of each clip starts into slot in door panel; then, engage clips by pressing downward. Prior to installation, re-form tangs on clip to assure positive retention when installed.

NOTE: To fabricate strip assembly removal tool, make a 1/4" wide by 3/8" deep slot in a flat-bladed headlining inserting tool (tool J-2772 or equivalent).

Removal and Installation

1. On styles with screw retained strip assemblies, remove strip assembly by removing attaching screws.
2. On styles with clip retained inner or outer strip assemblies, remove strip assembly as follows:
 3. On "F" styles equipped with rivet retained strip assemblies, drill-out rivets. When installing new

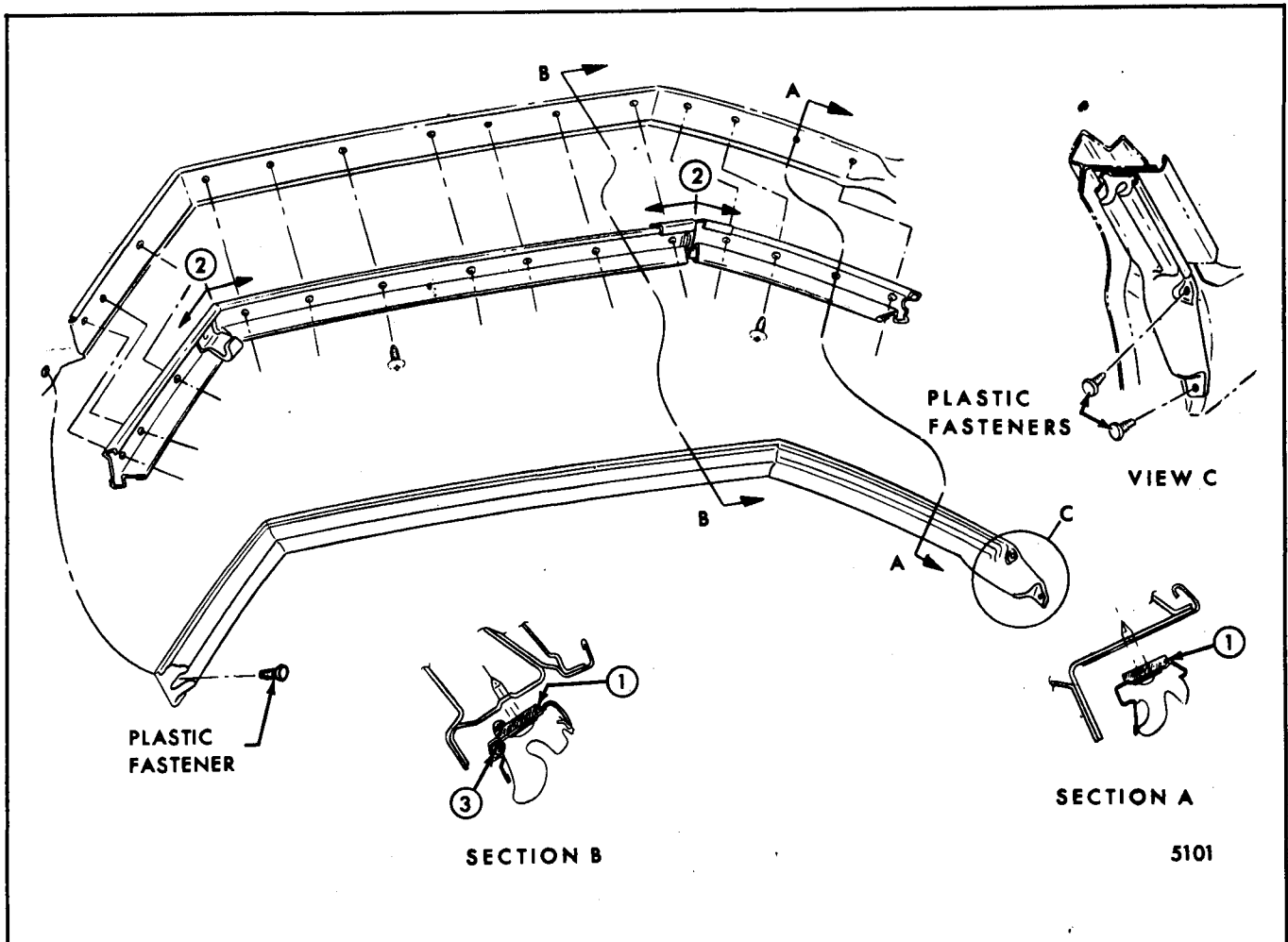


Fig. 6-9-Side Roof Rail Weatherstrip and Weatherstrip Retainer - Typical All Styles, Except "F" Styles ("A-39" Styles Shown, Other Styles Similar)

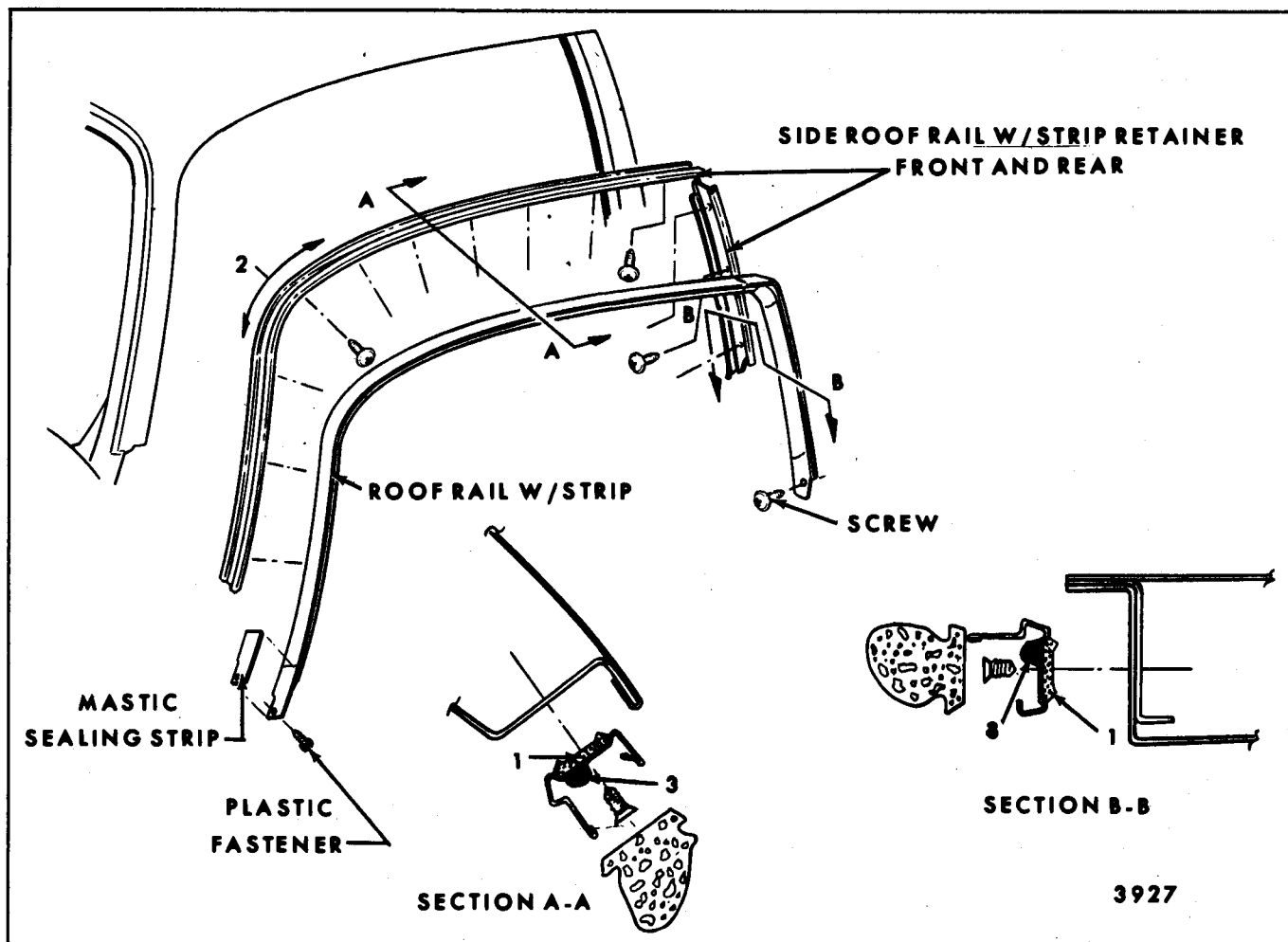


Fig. 6-10-Side Roof Rail Weatherstrip and Weatherstrip Retainer - "F" Styles

strip assemblies, use 1/8" diameter by 5/16" reach aluminum "pop" rivets or equivalent.

SIDE ROOF RAIL WEATHERSTRIP AND RETAINER

The side roof rail weatherstrip is sealed to a side roof rail weatherstrip retainer, (front and rear) which, in turn is secured with plastic fasteners at the front and rear edges, except "F" styles which are retained by screws at the rear edge. The sealer that retains the weatherstrip also protects against air noise and water entry between the retainer and weatherstrip. An integral section of closed cell nitrile foam material bonded to the weatherstrip retainers during retainer manufacture prevents water entry between the retainer and side roof rail or body lock pillar above belt. (Item 1, Figure 6-10).

Removal-All Styles

1. Remove plastic fasteners at front of side roof rail

weatherstrip (Fig. 6-9 is typical of all styles at front hinge pillar) with tool J-21104 or equivalent.

2. On all "39, 49 and 69" styles, open rear door and remove plastic fastener securing rear end of side roof rail weatherstrip to rear door lock pillar (Fig. 6-9). On "F" styles, remove screw retaining weatherstrip to rear body lock pillar (Fig. 6-10).
3. Beginning at the front body hinge pillar, carefully pull weatherstrip out of retainer while breaking sealer bond between weatherstrip and retainer with a flat-bladed tool. A tool for this use can be fabricated from tool J-21104 or equivalent by trimming 1/4" from the blade and 1-1/2" from the handle, then filing a sharp edge on the blade. Figure 6-11 illustrates fabrication of this tool.

IMPORTANT: This operation must be performed carefully to prevent damaging side roof rail weatherstrip.

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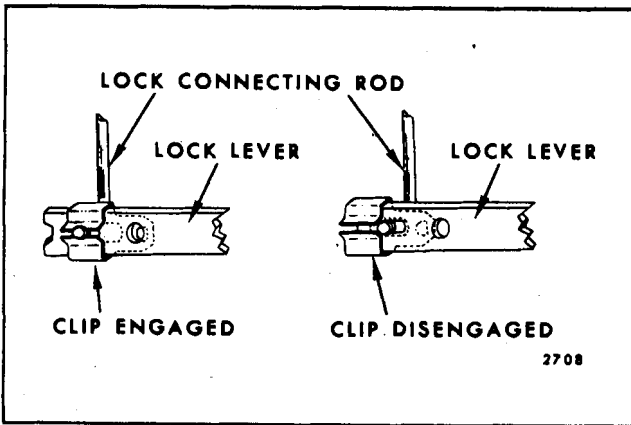


Fig. 6-11-Weatherstrip Removal Tool

4. With weatherstrip removed, screws securing weatherstrip retainer to side roof rail are exposed. Mark position of retainer on rail or pillar and remove screws from retainer (Figures 6-9 and 6-10).

Installation (All Styles)

1. Scrape off any excess sealer from weatherstrip retainer.
2. Apply a continuous bead of a "pumpable" type body caulking compound 4" rearward and 4" down from front upper corner of retainer that mates with side roof rail ("2", Figs. 6-9 and 6-10). Apply bead outboard of attaching screw holes.
3. Position retainer to body and install attaching screws.
4. Apply a continuous bead of "pumpable" sealer to inboard flange of weatherstrip retainer ("3", Figs. 6-9 and 6-10). Then, apply black weatherstrip adhesive or pre-cut mastic sealing strips (available as a service part) to the front and rear end details of the side roof rail weatherstrip.
5. Position front end of weatherstrip to body and install plastic fasteners. Then, using a flat-bladed tool, engage weatherstrip with retainer, inboard lip first, then, outboard lip (refer to Sections "A-A" and "B-B", Figures 6-9 and 6-10).

NOTE: Replacement plastic fasteners are available as service parts.

6. After weatherstrip has been installed along length of retainer, install screw at rear end of weatherstrip on styles so equipped.

Side Roof Rail Weatherstrip (Retainer) Adjustment

The side roof rail weatherstrip can be adjusted either inboard or outboard to obtain a better seal with the door or quarter window by repositioning the weatherstrip retainer:

1. Remove the weatherstrip from the retainer as previously described and loosen retainer attaching screws.
2. Adjust retainer inboard or outboard as required and replace screws. Reinstall weatherstrip and seal with a "pumpable" sealer.

For proper relationship of weatherstrip to door window, refer to "Front Door Window Adjustments".

NOTE: Major retainer adjustments will require resealing retainer to body at front upper corner of retainer as described in Step 2 of weatherstrip installation procedure ("2" of Figures 6-9 and 6-10).

If additional inboard or outboard adjustment of the retainer is required, it can be accomplished by either elongating the adjusting slots in the retainer or repositioning the retainer and drilling new attaching holes in the rail or pillar assembly.

SPECIFIED BODY OPENING CLEARANCE TOLERANCES-All Styles

Figures 6-12 through 6-16 show specified body opening gap spacing tolerances and deviations from flush alignment permissible between fender and front door and front to rear door on all 1971 body styles.

SPRING CLIPS

Spring clips are used to secure remote control connecting rods and inside locking rods to door lock levers and door outside handle push rods to door outside handle. A slot in the clip provides for disengagement of the clips, thereby facilitating detachment of linkage.

To disengage a spring clip, use a screwdriver, or other suitable thin bladed tool, to slide clip out of engagement (See Fig. 6-17).

FRONT AND REAR DOOR OUTSIDE HANDLE ASSEMBLY-All Styles

There are four basic types of door outside handles: push-button; lift-bar; "flush" pull-out; "bail" pull-out. However, the removal and installation procedure is similar.

SPECIFIED BODY OPENING CLEARANCES

"A" Body Styles

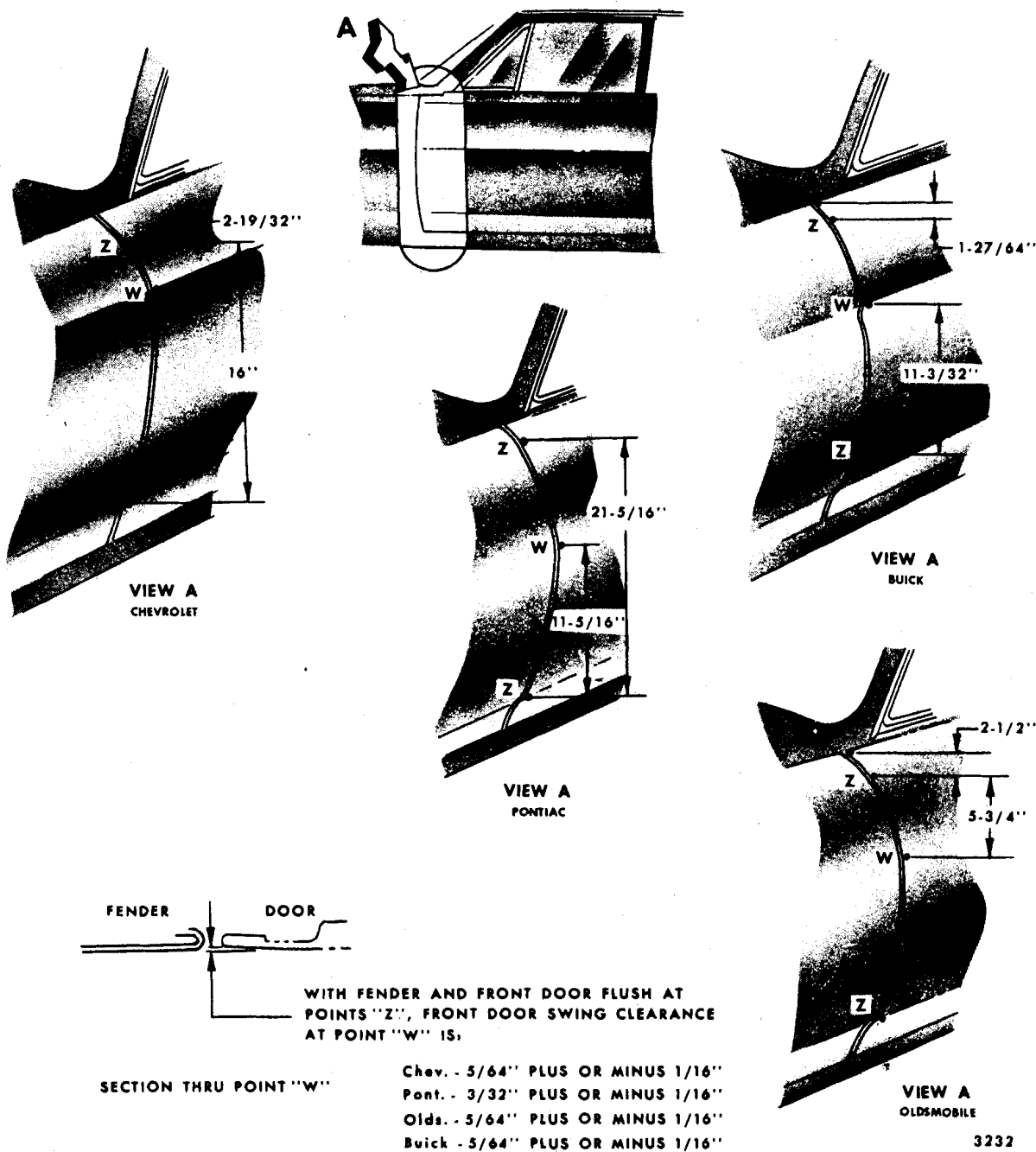
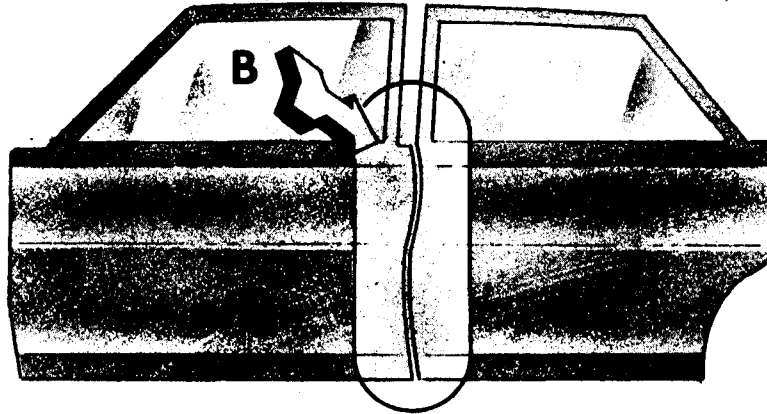


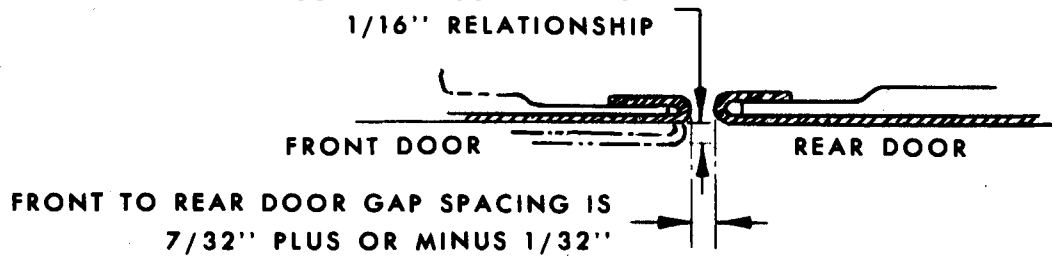
Fig. 6-12-Specified Body Opening Clearance Tolerances - "A" Styles

SPECIFIED BODY OPENING CLEARANCE TOLERANCES

"A, B and C" Body 4 Door Styles



**FLUSH TO PLUS OR MINUS
1/16" RELATIONSHIP**



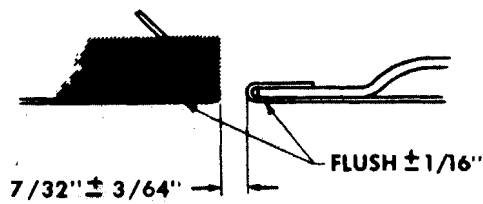
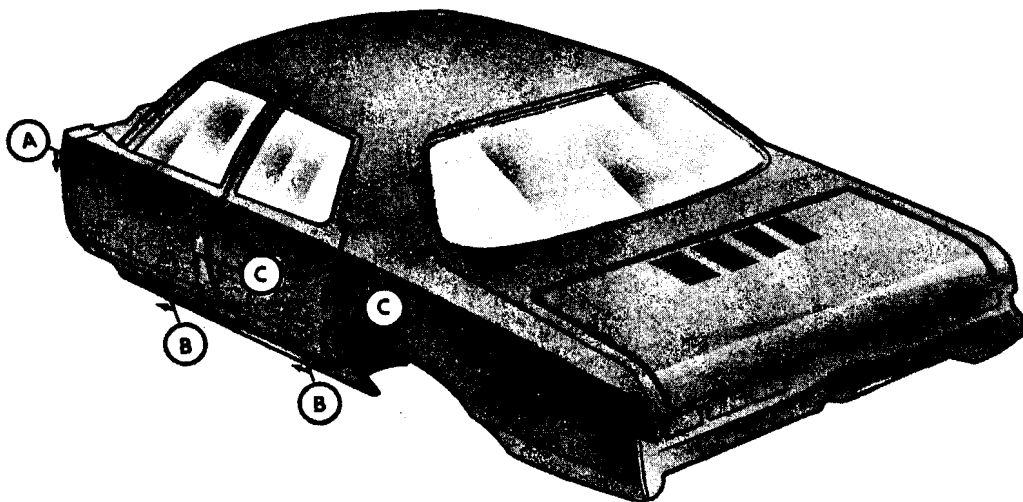
**FRONT TO REAR DOOR GAP SPACING IS
7/32" PLUS OR MINUS 1/32"**

VIEW B

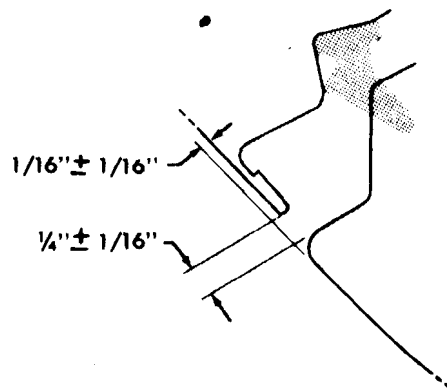
SECTION SHOWING CLEARANCE BETWEEN FRONT AND REAR DOOR

3157

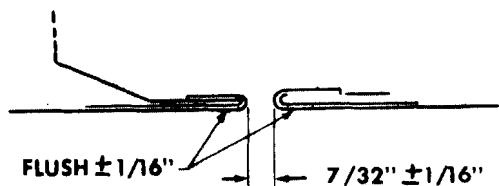
Fig. 6-13-Specified Body Opening Clearance Tolerances - "A" Body Four Door Styles



VIEW A



VIEW B

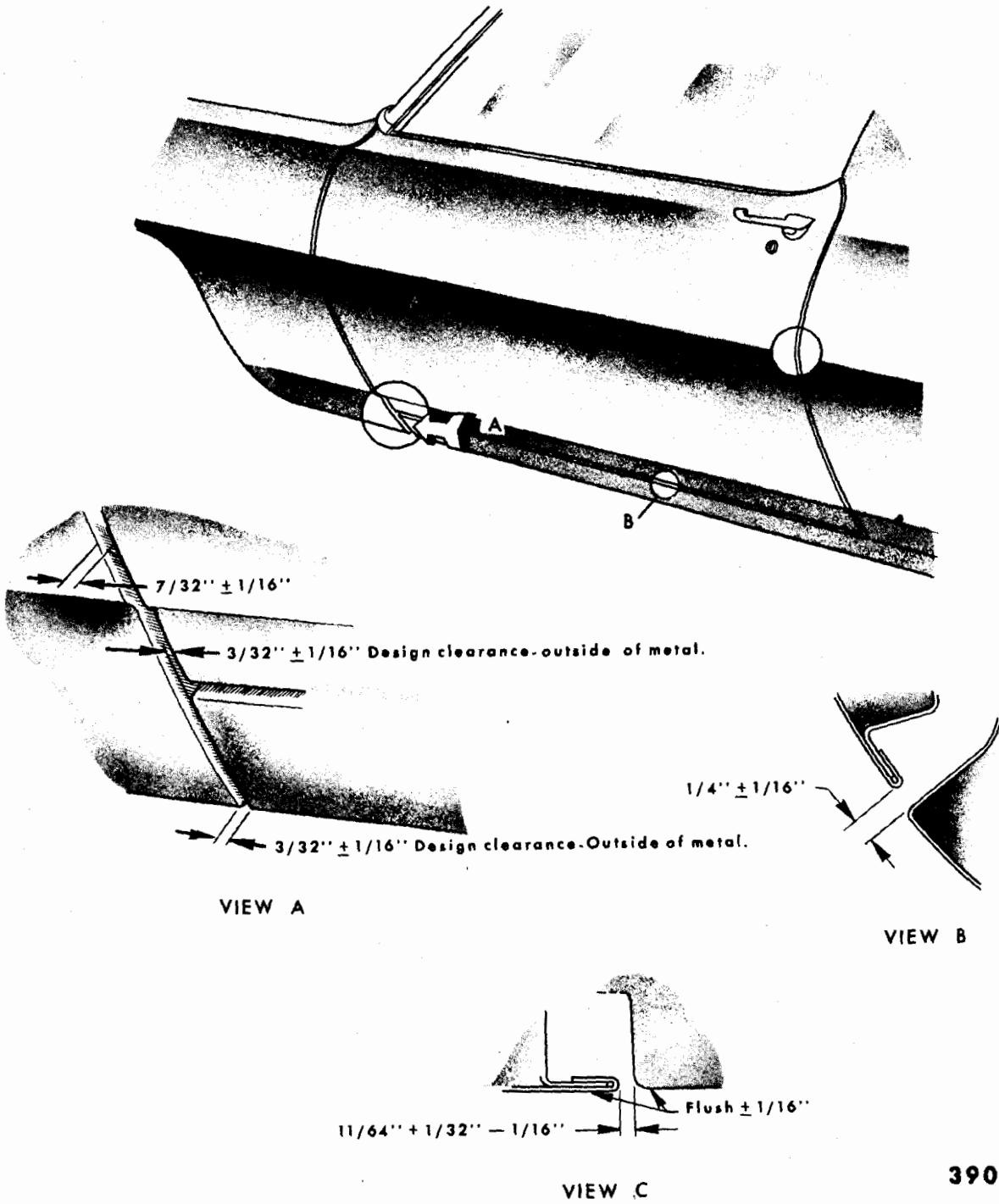


VIEW C

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Fig. 6-14-Specified Body Opening Clearance Tolerances - "B, C and E" Styles

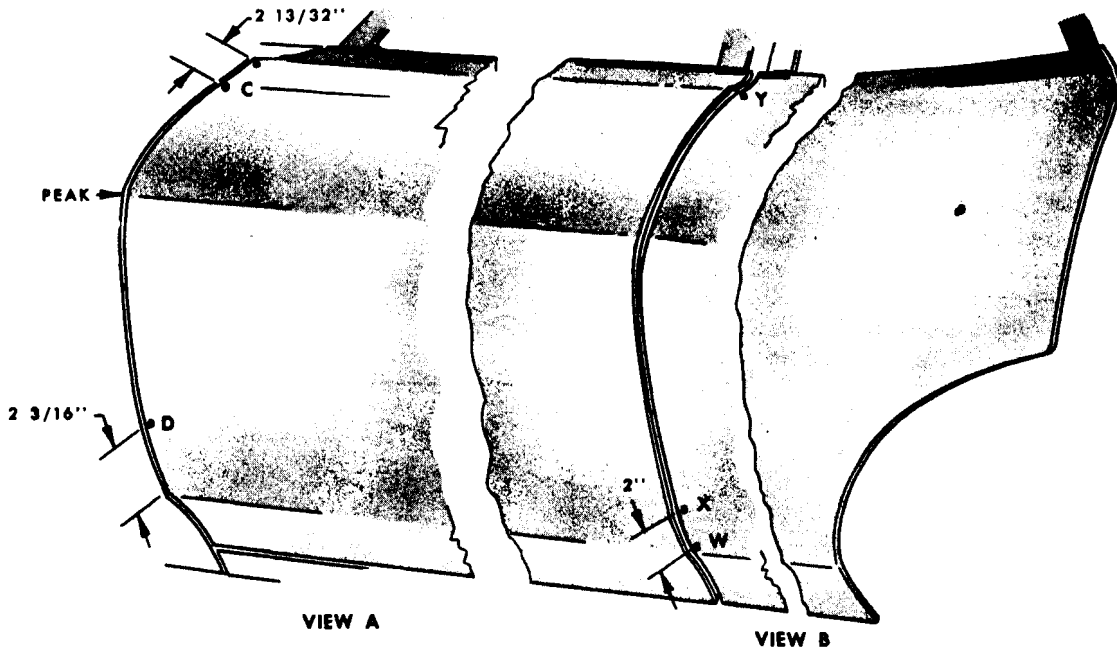
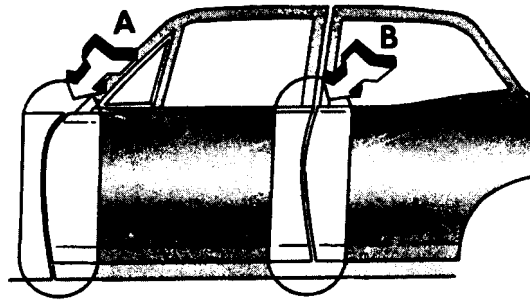
EXCEPTIONS TO NORMAL BODY OPENING CLEARANCES



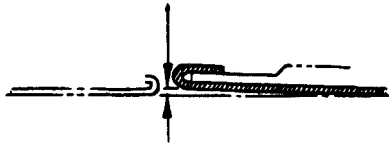
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Fig. 6-15-Specified Body Opening Clearance Tolerances - "F" Styles

SPECIFIED BODY OPENING CLEARANCE TOLERANCES
Chevy II Four-Door Styles

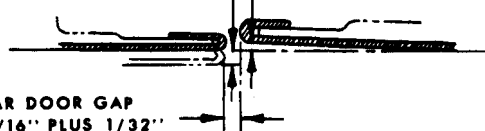


WITH FENDER AND FRONT DOOR
FLUSH AT POINTS "C & D" FRONT
DOOR SWING CLEARANCE
ALLOWANCE AT PEAK IS $\frac{3}{32}''$



SECTION SHOWING CLEARANCE
BETWEEN FENDER AND FRONT DOOR

FRONT DOOR FLUSH TO $\frac{1}{16}''$
OUTBOARD OF REAR DOOR AT
POINTS "Y & W"



FRONT TO REAR DOOR GAP
SPACING IS $\frac{3}{16}''$ PLUS $\frac{1}{32}''$
MINUS $\frac{1}{16}''$

SECTION SHOWING CLEARANCE
BETWEEN FRONT AND REAR DOOR

WITH FRONT AND REAR DOORS FLUSH
AT POINTS "Y & W", REAR DOOR SWING
CLEARANCE ALLOWANCE AT PEAK IS
 $\frac{3}{32}''$ AND $\frac{1}{16}''$ AT POINT "X"

Fig. 6-16-Specified Body Opening Clearance Tolerances - "X" Styles

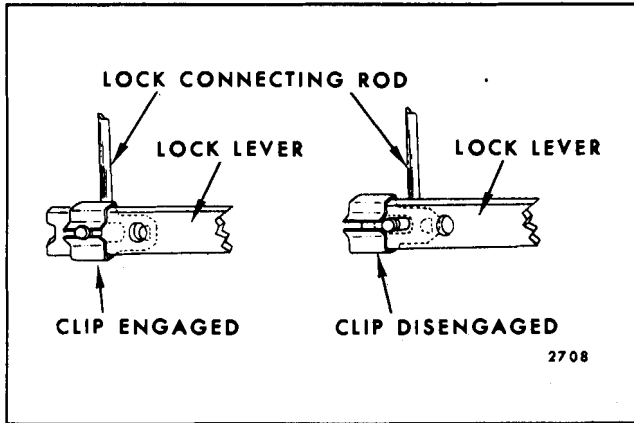


Fig. 6-17-Door Lock Spring Clip

Removal and Installation (Refer to Figures 6-18, 6-19 and 6-20)

1. Raise door window. Remove door trim assembly and detach upper rear corner of inner panel water deflector sufficiently to gain access to door outside handle attaching screws.

NOTE: On "F" styles remove rear guide upper bracket to inner panel and guide assembly attaching bolts ("6" and "7", Figure 6-44) and remove guide bracket from door. Then, working through access hole, disconnect door outside handle to lock push rod at handle assembly (Figure 6-19).

2. On all other styles, remove handle attaching

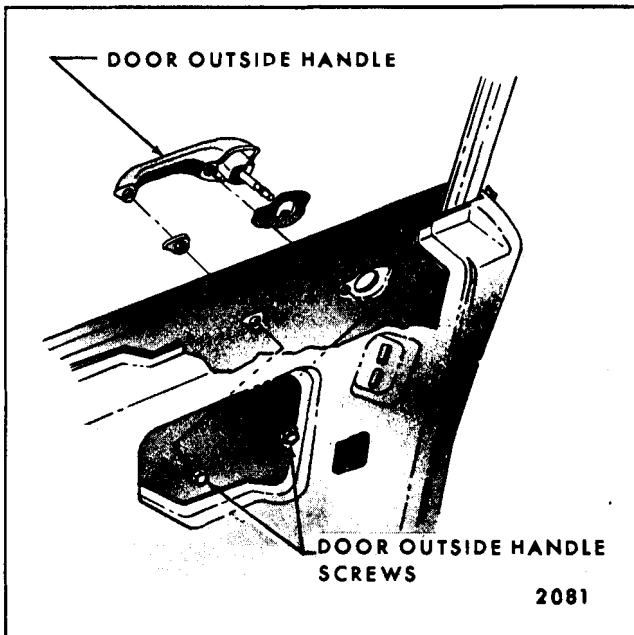


Fig. 6-18-Door Outside Handle Removal (Push-Button Type)

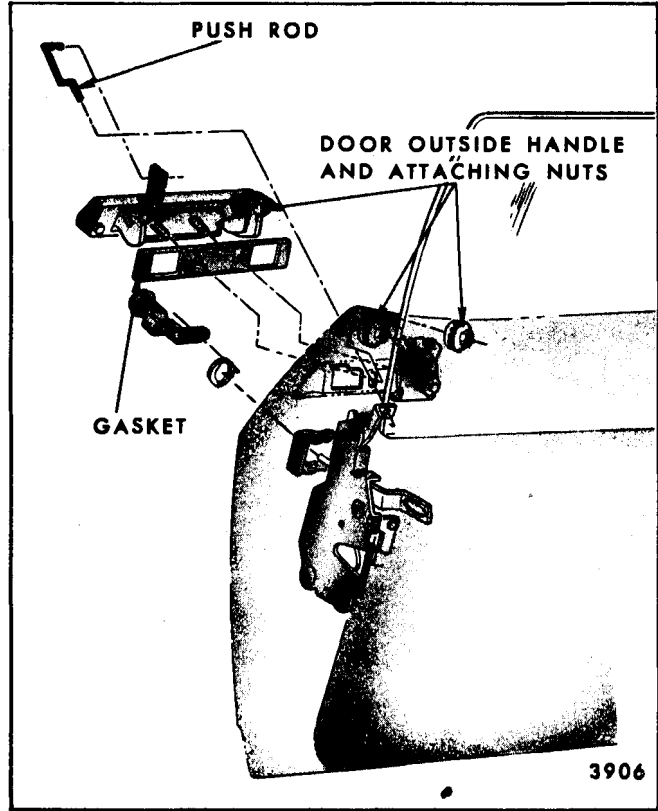


Fig. 6-19-Door Outside Handle Removal (Lift Bar Type)

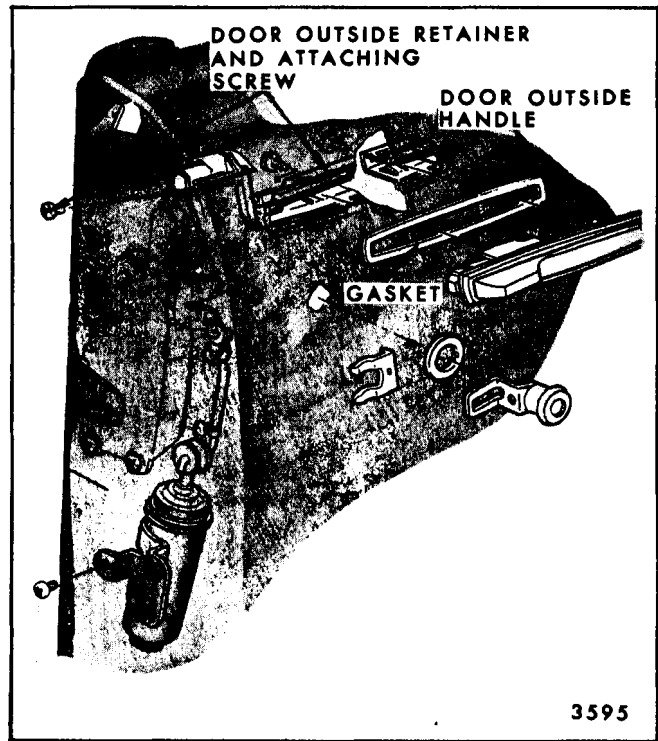


Fig. 6-20-Door Outside Handle Removal (Pull-Out Type)

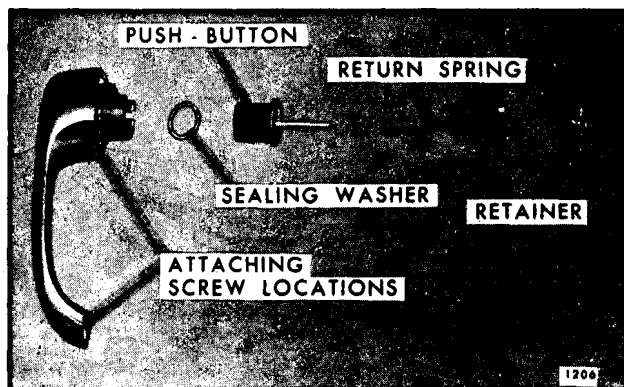


Fig. 6-21-Front Door Outside Handle - Push-Button Handles ("A and X" Styles Shown, Other Styles Similar)

screws through access hole and remove door handle and gaskets from outside of body.

3. To install, reverse removal procedure.

DOOR OUTSIDE HANDLE DISASSEMBLY - ALL PUSH BUTTON TYPE HANDLE ASSEMBLIES

1. Remove door outside handle as previously described.
2. Depress retainer slightly and rotate 1/4 turn in either direction. Remove retainer, spring, push button and shaft and sealing washer from handle (refer to Figure 6-21).

NOTE: "B and C" style rear door handle push buttons, springs and retainers are serviced as an assembly. The die cast handle is serviced separately. Front door handle components are serviced separately as shown in Figure 6-21. Lift-bar, "bail" pull-out and "flush" pull-out handles are serviced as an assembly.

3. To assemble, reverse disassembly procedure.

FRONT AND REAR DOOR LOCK STRIKERS-All Styles

The front and rear door lock striker consists of a single metal bolt and washer assembly that is threaded into a tapped, floating cage plate located in the body lock pillar. With this design, the door is secured in the closed position when the door lock fork-bolt snaps-over and engages the striker bolt.

Removal and Installation

1. Mark position of striker on body lock pillar using a pencil.

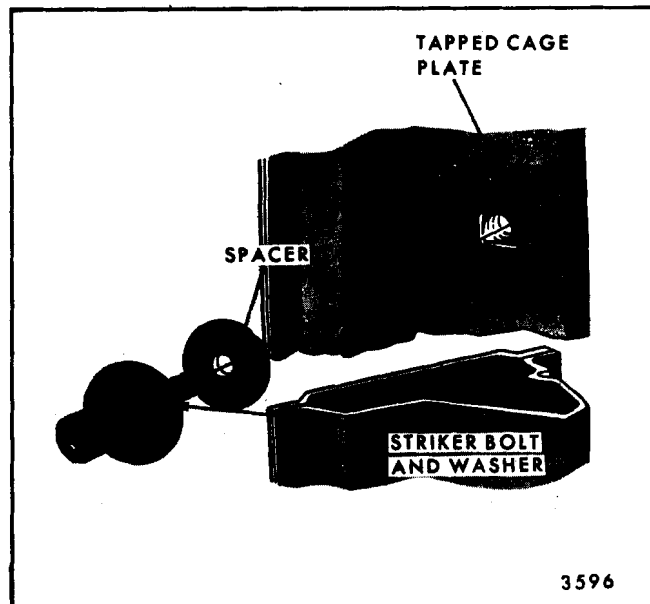


Fig. 6-22-Door Lock Striker Installation

2. Insert tool J-23457, BT-7107 or equivalent into the star shaped tool recess in the head of the striker bolt and remove striker (refer to Figure 6-22).
3. To install, reverse removal procedure. Make certain striker is positioned within pencil mark. If striker is positioned outside of pencil marks, touch-up any exposed unpainted surface on lock pillar adjacent to striker assembly. Torque striker bolt 34-46 foot pounds.

NOTE: THE DOOR LOCK STRIKER IS AN IMPORTANT ATTACHING PART IN THAT IT COULD AFFECT THE PERFORMANCE OF VITAL COMPONENTS AND SYSTEMS, AND/OR COULD RESULT IN MAJOR REPAIR EXPENSE. IT MUST BE REPLACED WITH ONE OF THE SAME PART NUMBER OR WITH AN EQUIVALENT PART IF REPLACEMENT BECOMES NECESSARY. DO NOT USE A REPLACEMENT PART OF LESSER QUALITY OR SUBSTITUTE DESIGN. TORQUE VALUES MUST BE USED AS SPECIFIED DURING REASSEMBLY TO ASSURE PROPER RETENTION OF THIS PART.

IMPORTANT: Whenever a door has been removed and reinstalled or realigned, the door should not be closed completely until a visual check is made to determine if lock fork-bolt will correctly engage with striker.

Adjustments

1. To adjust striker up or down, or in or out, loosen striker bolt and shift striker as required, then tighten striker.

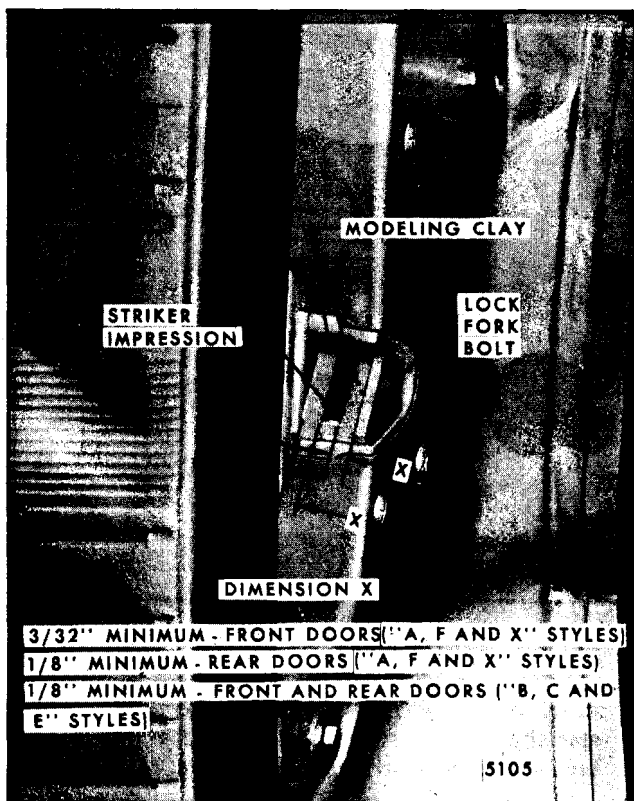


Fig. 6-23-Lock to Striker Engagement

2. To determine if striker fore or aft adjustment is required, proceed as follows:

- a. Make certain door is properly aligned.
- b. Apply modeling clay or body caulking compound to lock bolt opening as shown in Figure 6-23.
- c. Close door only as far as necessary for striker bolt to form an impression in clay or caulking compound as shown in Figure 6-23.

NOTE: Do not close door completely. Complete door closing will make clay removal very difficult.

d. Measure striker impressions as follows: Striker head should be centered fore and aft as shown, however, some tolerances are allowed. In any alignment, it is important that minimum dimensions, as outlined in Figure 6-23 be strictly maintained. The following spacers are available as service parts and can be used individually or in combination to achieve the desired alignment.

1. 5/64" spacer—Part No. 4469196 or equivalent ("A, F and X" styles)
2. 5/64" spacer—Part No. 9827154 or equivalent ("B, C and E" styles)

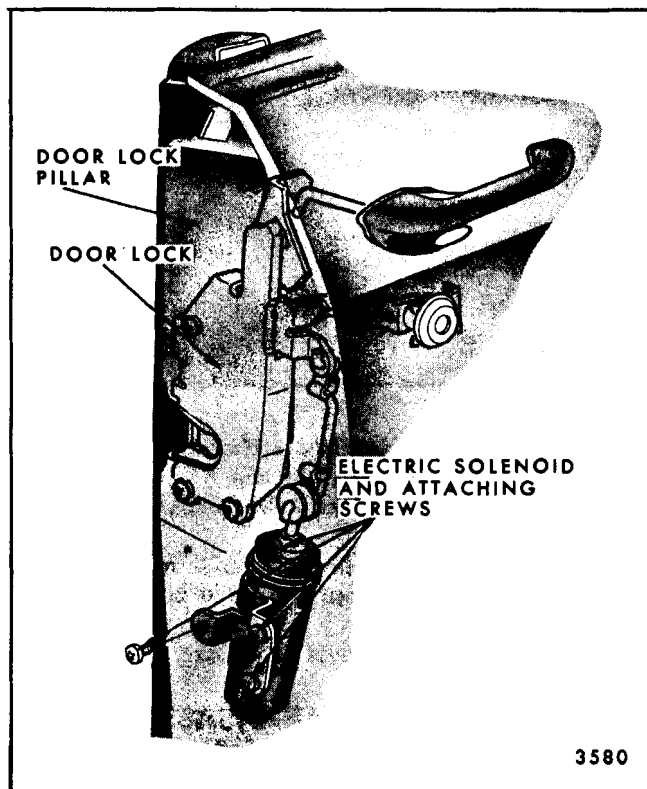


Fig. 6-24-Front Door Lock Electric Solenoid Installation

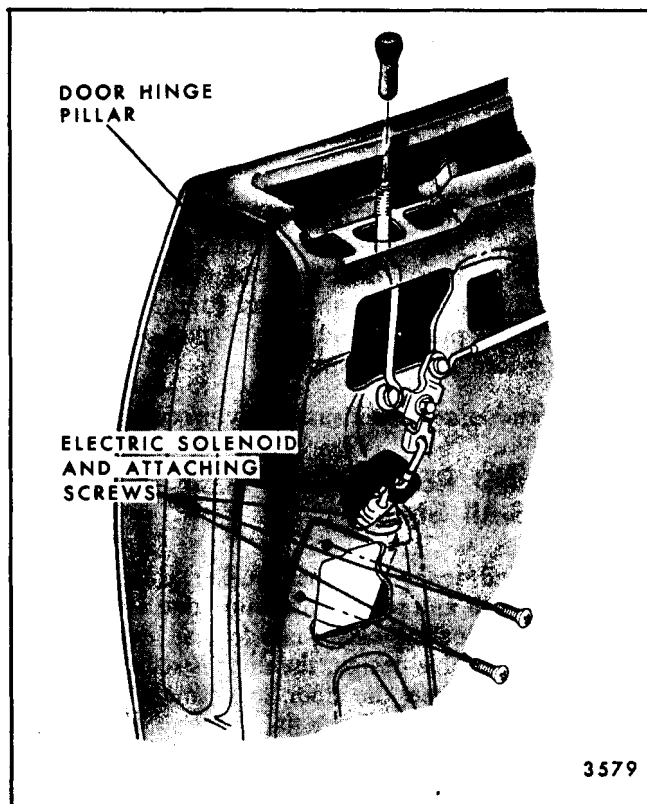


Fig. 6-25-Rear Door Lock Electric Solenoid Installation

3. 5/32" spacer—Part No. 4469197 or equivalent ("A, F and X" styles)
4. 5/32" spacer—Part No. 9827155 or equivalent ("B, C and E" styles)
5. 1/4" spacer—Part No. 4469194 or equivalent ("A, F and X" styles)
6. 5/16" spacer—Part No. 4469195 or equivalent ("A, F and X" styles)

ELECTRIC DOOR LOCK SOLENOID

Removal and Installation

1. Raise door window, remove trim pad and detach inner panel water deflector.
2. Disconnect wire harness from solenoid.
3. On front doors, remove lock pillar attaching screws, disconnect rod and remove through access hole (Fig. 6-24).
4. On rear doors, remove electric solenoid to door inner panel attaching screws and connecting rod to door inside locking rod connecting link attaching clip. Remove through access hole (Fig. 6-25).
5. To install, reverse removal procedure.

DOOR WINDOW REGULATOR ELECTRIC MOTOR

The electric motor assembly, which powers the electrically operated window regulators, is a twelve volt reversible direction motor with an internal circuit breaker and a self-locking gear drive. The motor is secured to the regulator assembly with bolts.

Removal and Installation-All Styles

1. Remove door trim assembly and inner panel water deflector. Disconnect harness connector at motor.

2. Refer to Figures 6-26, 6-27, 6-28, 6-29 and 6-30 and select the appropriate template for locating window motor to regulator attaching bolts by using window regulator to door inner panel attaching bolts as reference points.

3. Align regulator bolt locations specified on template with appropriate regulator attaching bolts on door. Secure template in place with a piece of tape.

4. Using a center punch, dimple the door inner panel at the center of each of the 3/4" holes to be drilled as indicated on the template.

5. Using a 3/4" hole saw, drill three 3/4" motor to regulator attaching bolt access holes as indicated.

6. Remove motor attaching bolts and remove motor through access hole.

NOTE: Although window regulator lift arm is under tension of counterbalance spring, weight of window assembly prevents lift arm from moving. If necessary, window can be moved manually to clear access holes.

7. After replacing motor and prior to trim installation, apply waterproof tape to seal any motor bolt access hole that is outside of the sealing area of the water deflector.

DOOR HARDWARE LUBRICATION

The Mechanical components of the door assembly are lubricated during assembly. If additional lubrication is required to any door hardware mechanism, lubricate with Fisk Bros. No. 777 Lo-Temp Lubriplate or equivalent.

FRONT DOORS

DESCRIPTION

All doors fall into two basic categories, closed styles (those with door upper frames) and hardtop or convertible styles (those without door upper frames). Although both types of front doors utilize similar hardware, the presence or lack of a door upper frame usually determines the removal or installation sequence of any particular part.

Any work performed on door hardware usually requires removal of trim pad and inner panel water

deflector. The procedures for water deflectors are covered in the preceding "Front and Rear Doors" section. Trim procedures are in Section 13 (see index).

Unless otherwise stated, the front door service procedures listed here pertain to all body styles.

Figures 6-31 through 6-46 are typical of front doors with the trim assembly and inner panel water deflector removed. These figures identify the component parts of the front door assembly (by style), their relationship and various attaching points.

ALIGN TEMPLATE WITH APPROPRIATE UPPER AND LOWER LEFT REGULATOR ATTACHING BOLTS ON DOOR

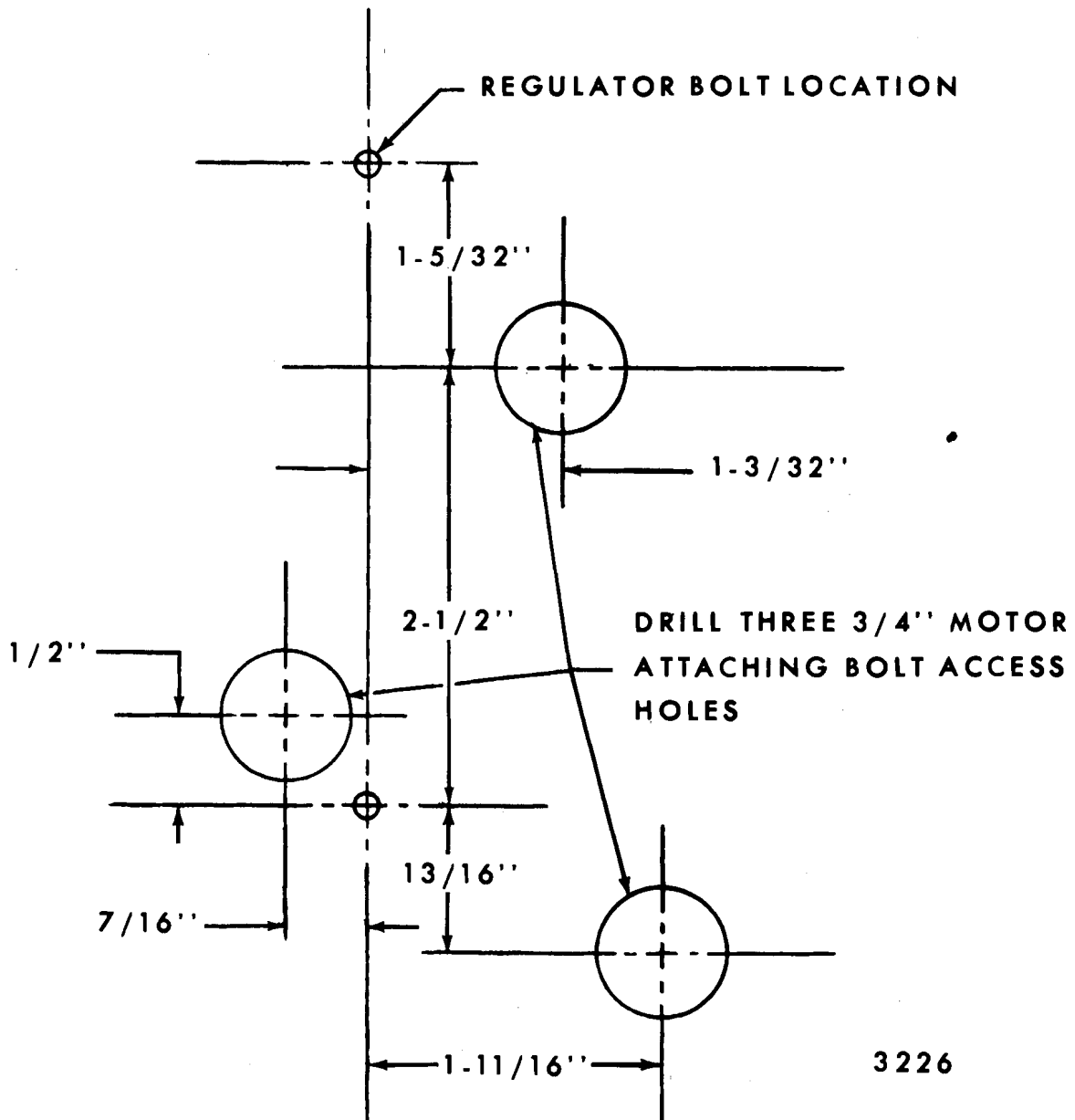


Fig. 6-26-Window Regulator Upper and Lower Left Attaching Bolt Reference Points for Locating Window Motor to Regulator Attaching Bolts - "A-27 and 77" Styles

ALIGN TEMPLATE WITH UPPER AND LOWER LEFT
REGULATOR ATTACHING BOLTS ON DOOR

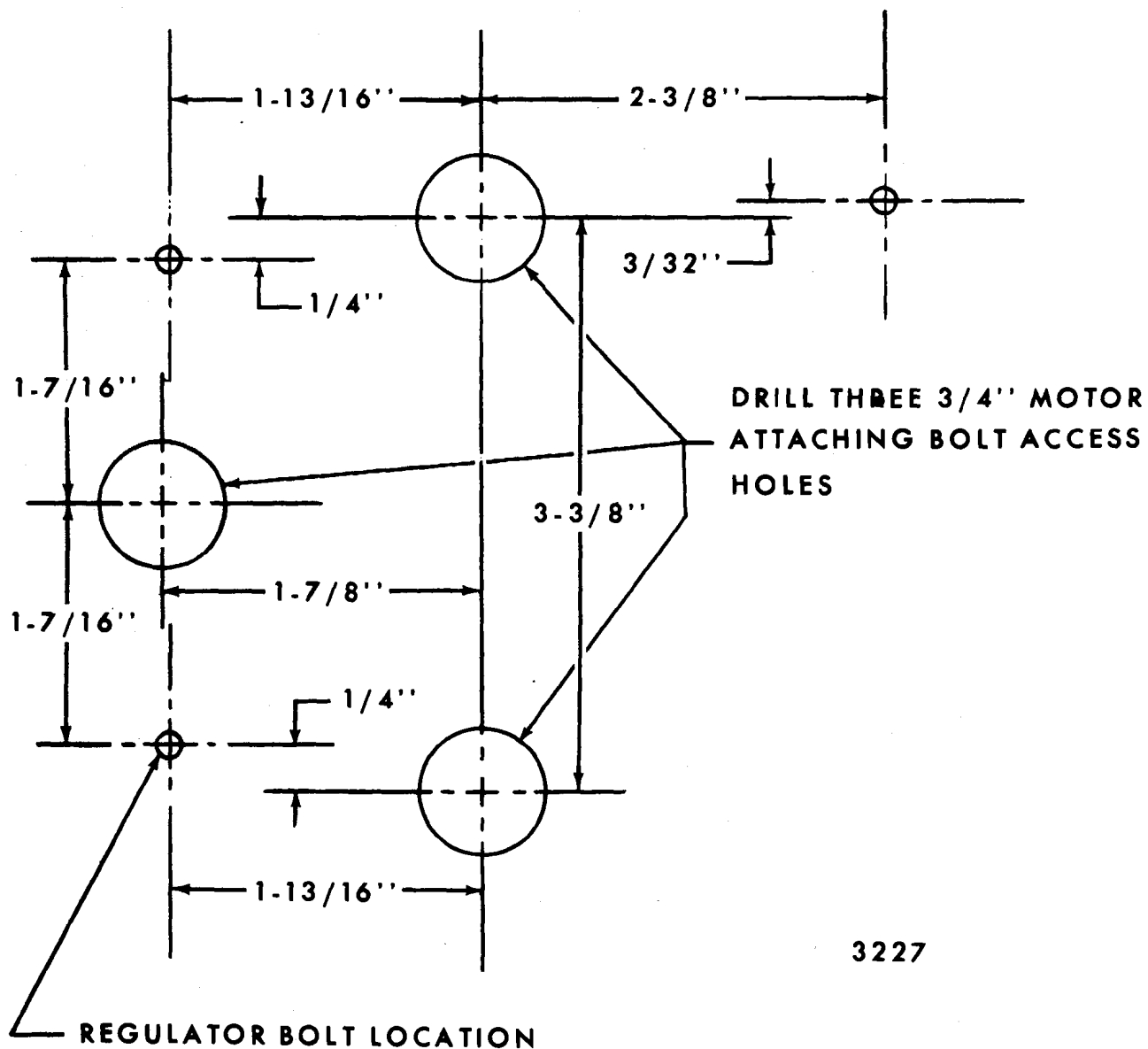


Fig. 6-27-Window Regulator Upper and Lower Left Attaching Bolt Reference Points for Locating Window Motor to Regulator Attaching Bolts - "A-35, 39, 45, 55, 69" Style Front Doors

ALIGN TEMPLATE USING REFERENCE POINTS "I OR II"

WITH APPROPRIATE REGULATOR LOWER ATTACHING BOLTS ON DOOR

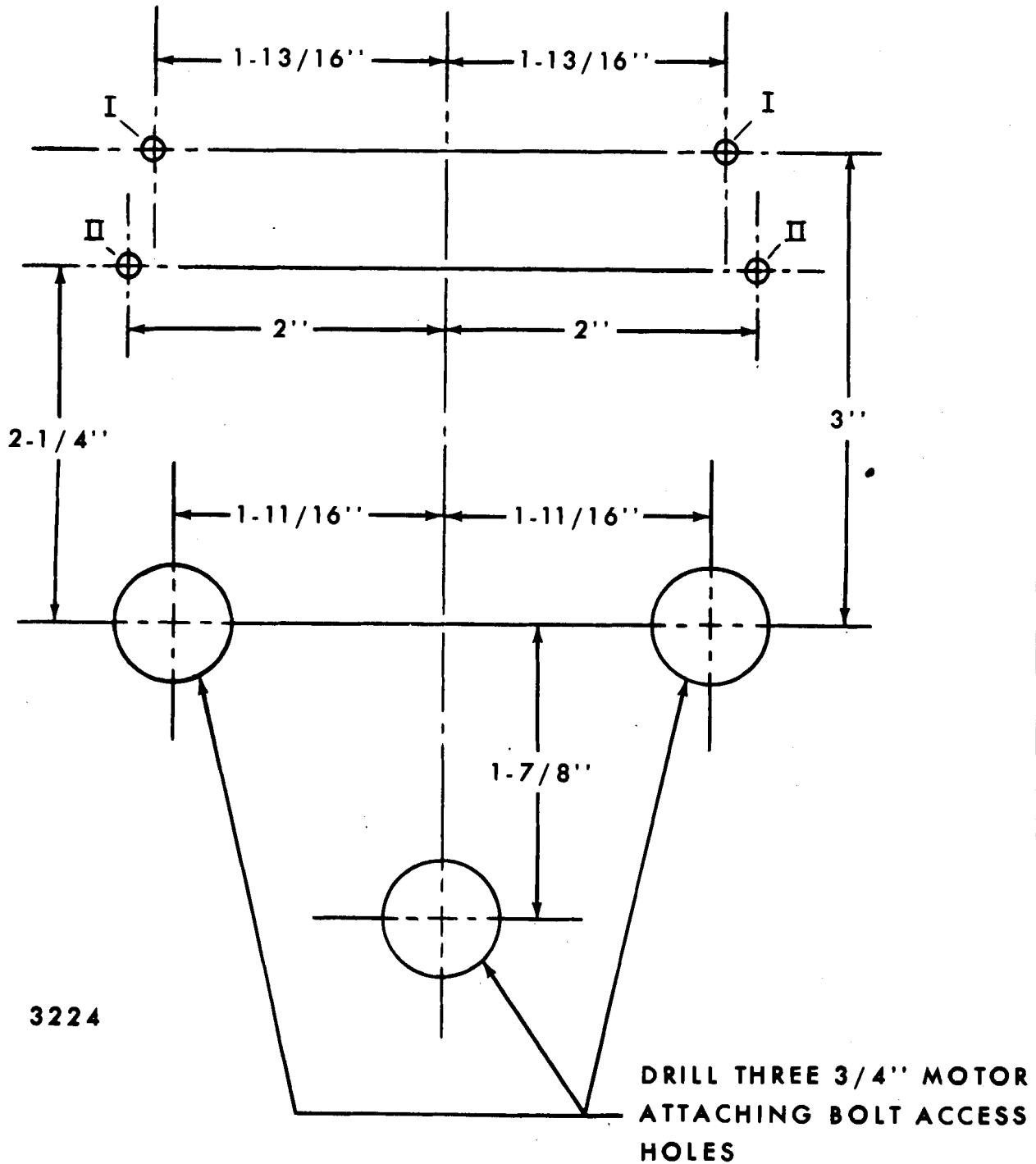


Fig. 6-28-Window Regulator Lower Attaching Bolt Reference Points for Locating Window Motor to Regulator Attaching Bolts: "I" for "A-35, 45, 39 and 69" Style Rear Doors; "II" for "A-37, 57, 67 and 87" Style Front Doors

ALIGN TEMPLATE USING REFERENCE POINTS 'I, II, OR III'
WITH REGULATOR LOWER ATTACHING BOLTS ON DOOR

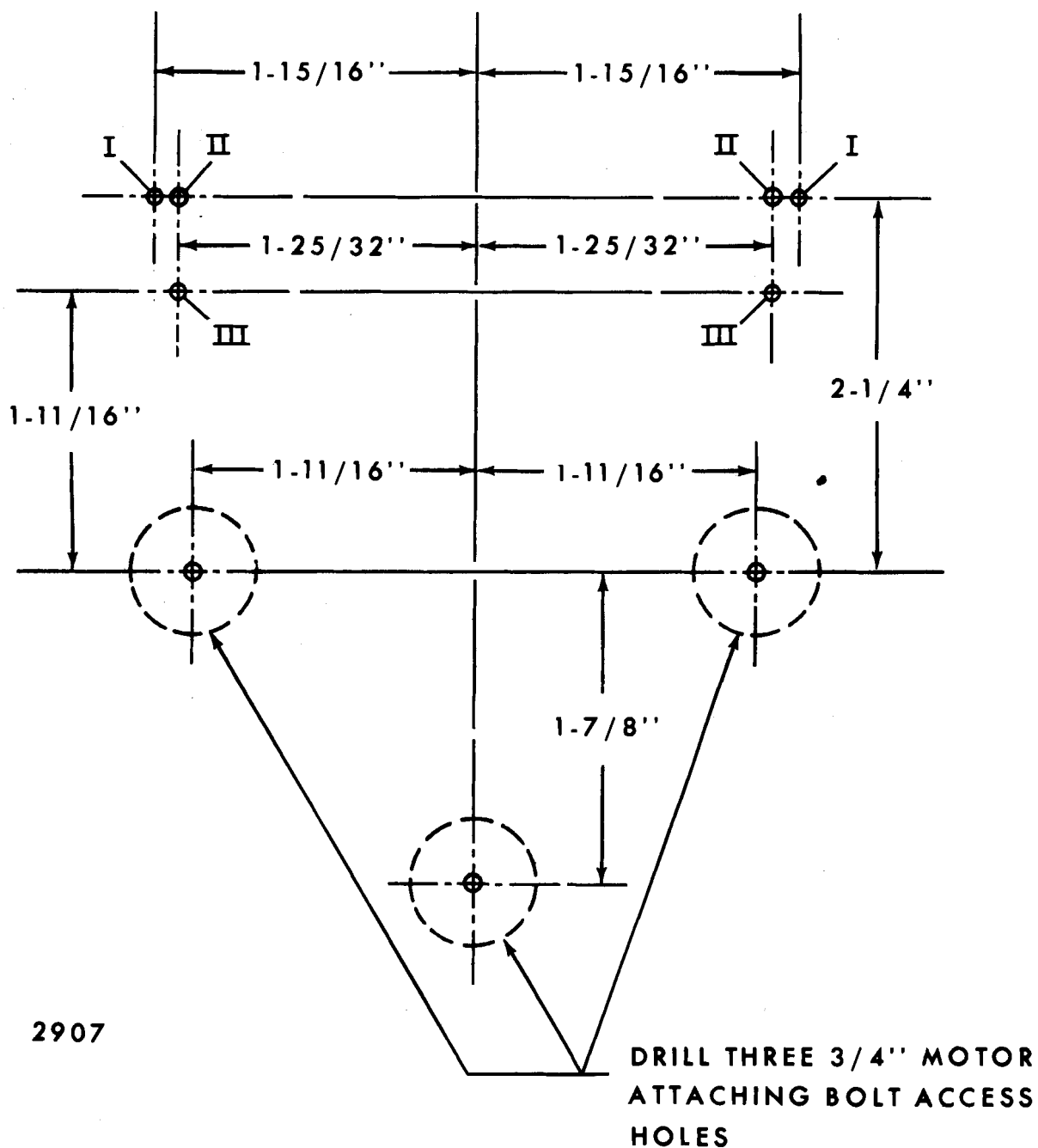


Fig. 6-29-Window Regulator Lower Attaching Bolts Reference Points for Locating Window Motor to Regulator Attaching Bolts: "I" for "B, C and E-11, 37, 47, 57 and 67" Style Front Doors; "II" for "C-69" Style Rear Doors
"III" for "B-36, 39, 46 and 69" and "C-49 and 69" Style Front and Rear Doors

ALIGN TEMPLATE WITH APPROPRIATE REGULATOR
LOWER ATTACHING BOLTS ON DOOR

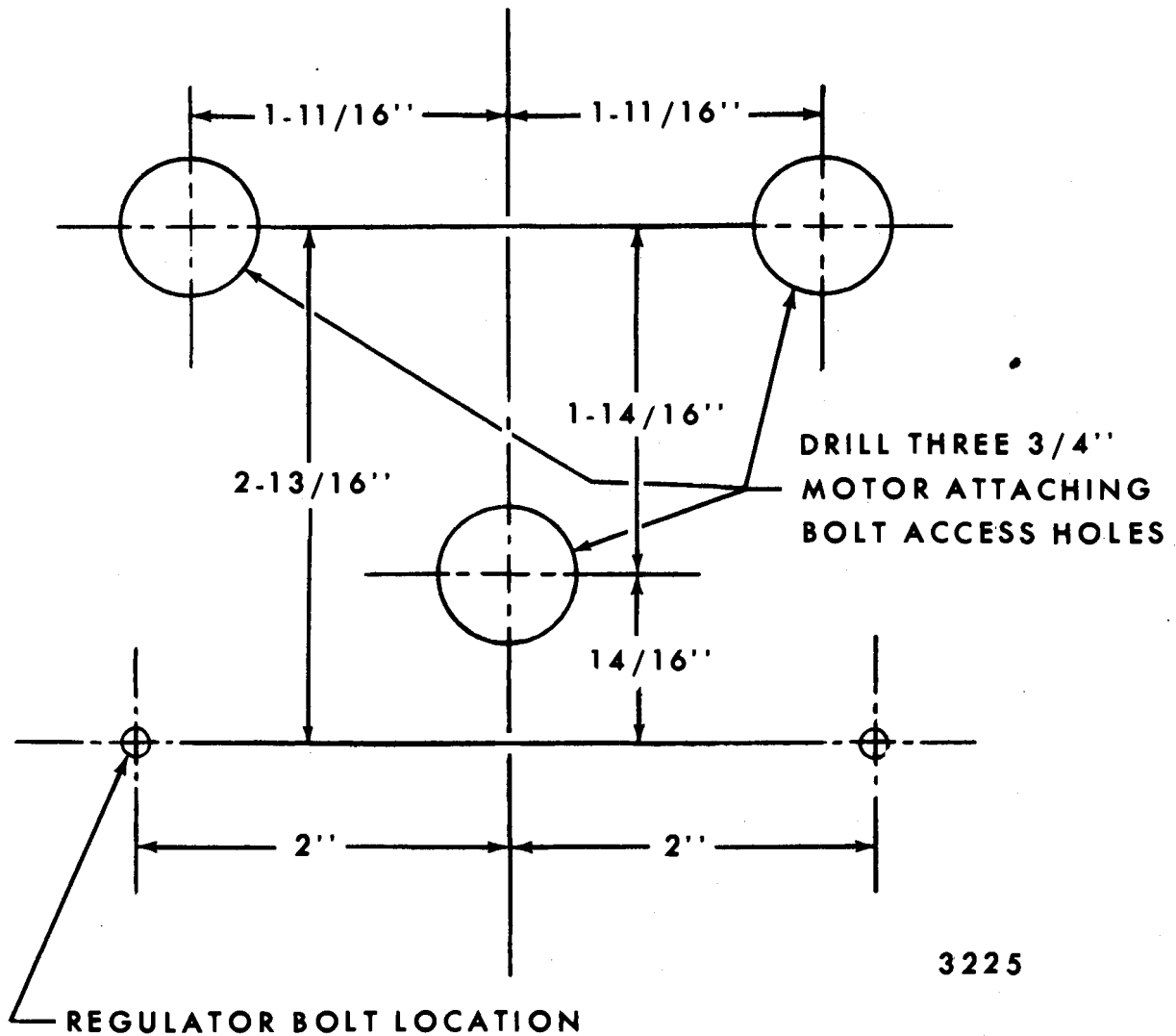


Fig. 6-30-Window Regulator Lower Attaching Bolt Reference Points for Locating Window Motor to Regulator Attaching Bolts - "F" Styles

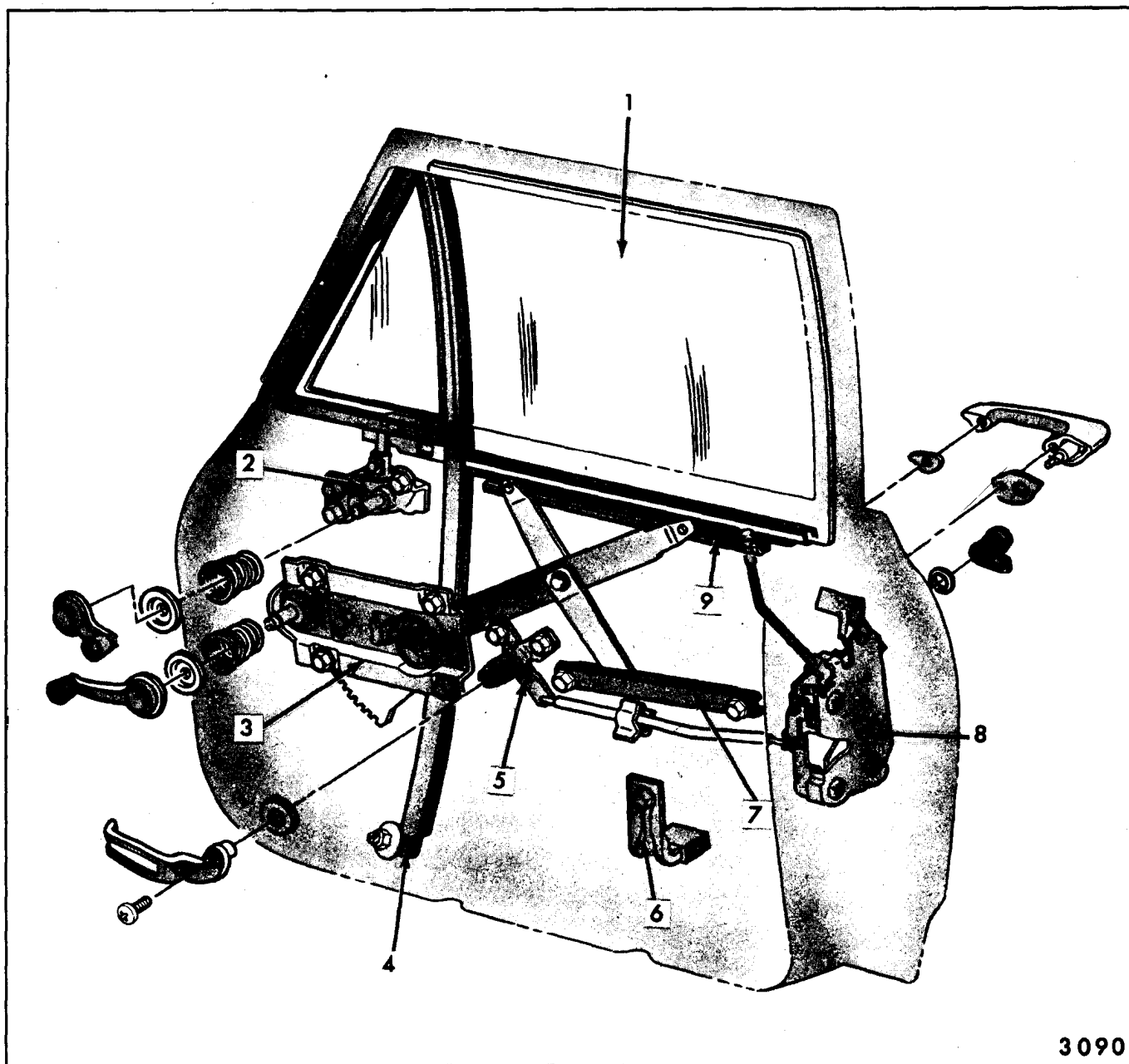


Fig. 6-31-Front Door Hardware - "A" Closed Styles

1. Front Door Window
Assembly

2. Ventilator Regulator

3. Window Regulator

4. Ventilator Division
Channel

5. Door Lock Remote
Control

6. Window Down Stop
Support

7. Inner Panel Cam

8. Door Lock

9. Lower Sash Channel
Cam

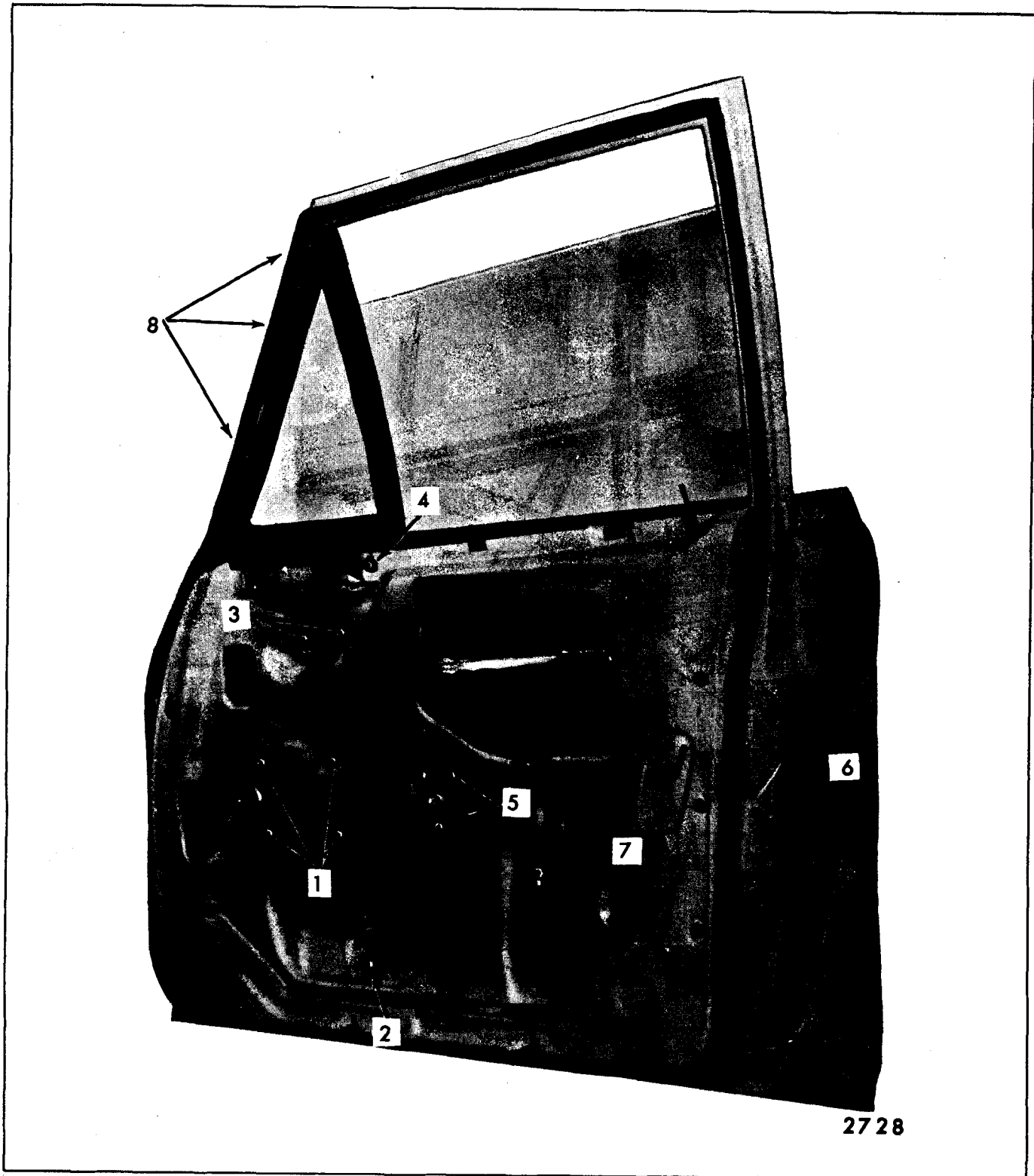
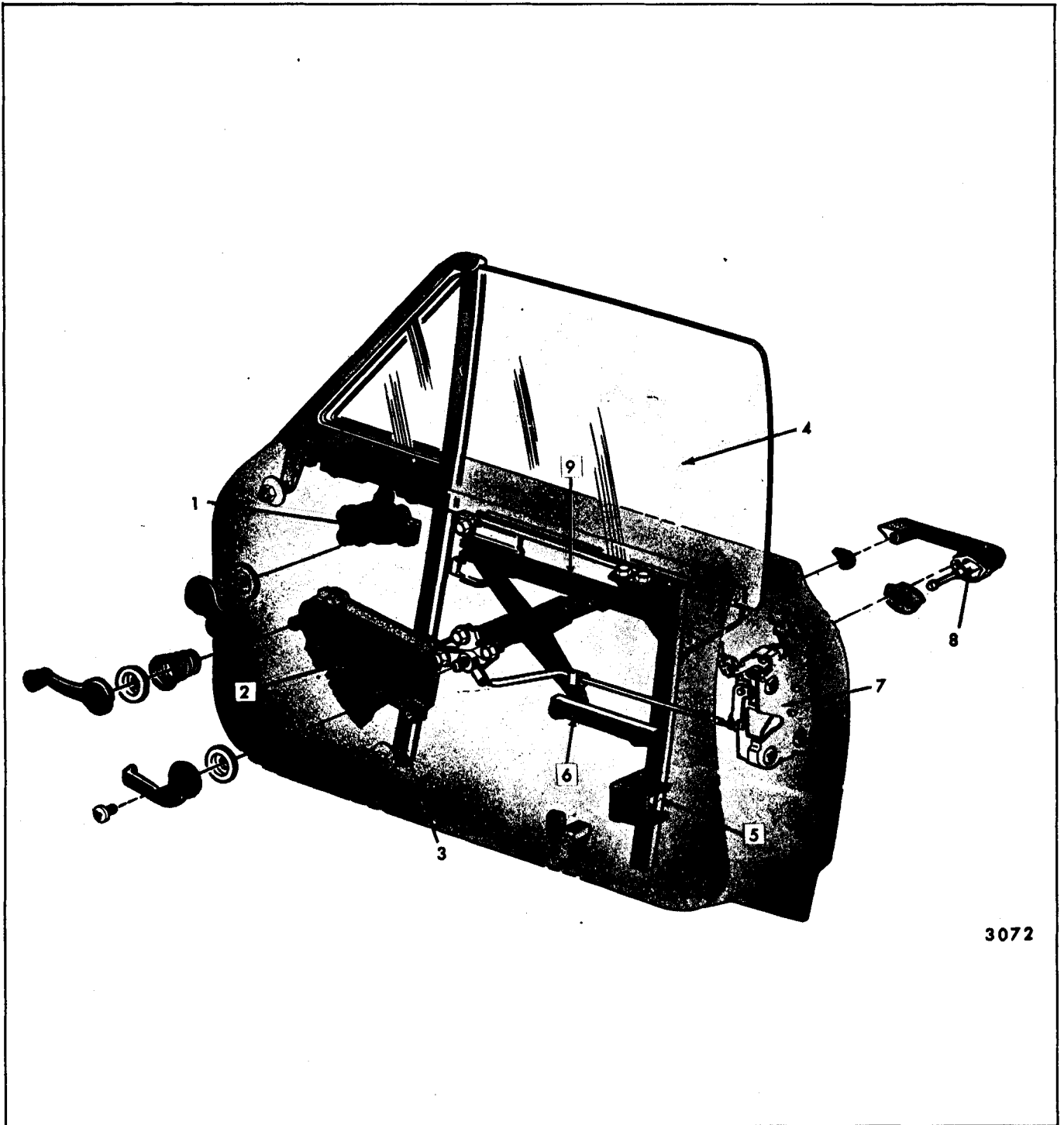


Fig. 6-32-Front Door Hardware-"A" Closed Styles

- | | | |
|---|---|--|
| 1. Window Regulator
Attaching Bolts | 4. Ventilator Frame to
Outer Panel
Attaching Bolt | 6. Door Lock Attaching
Screws |
| 2. Ventilator Division
Channel Lower
Adjusting Stud | 5. Door Lock Remote
Control Attaching
Bolts | 7. Down Stop Support
Attaching Bolt |
| 3. Ventilator Regulator
Attaching Bolts | | 8. Ventilator to Door
Upper Frame
Attaching Screws |



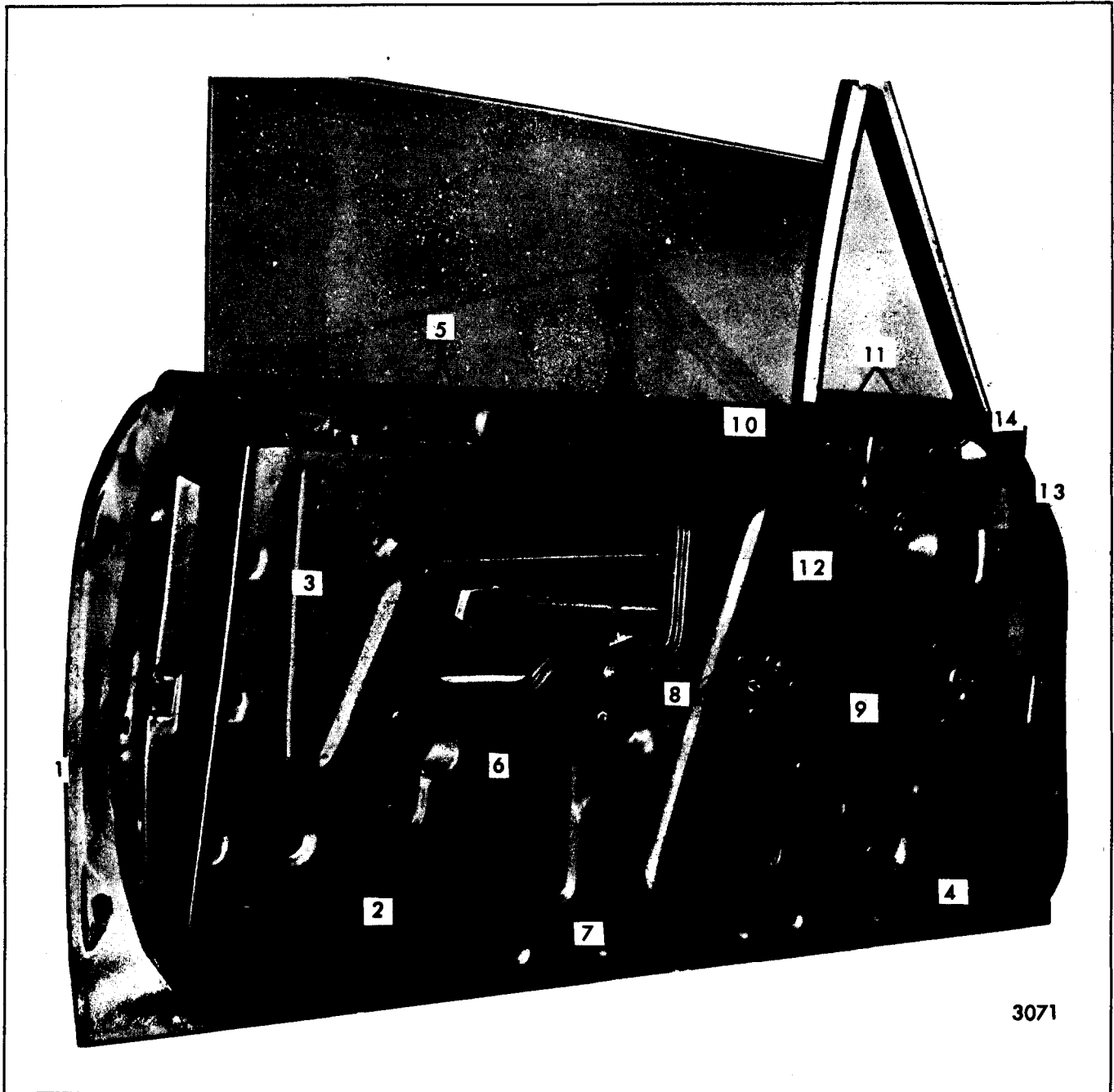
3072

Fig. 6-33-Front Door Hardware - "A-39" Styles

1. Ventilator Regulator
2. Window Regulator
3. Ventilator Division
Channel

4. Front Door Window
Assembly
5. Rear Guide
6. Inner Panel Cam

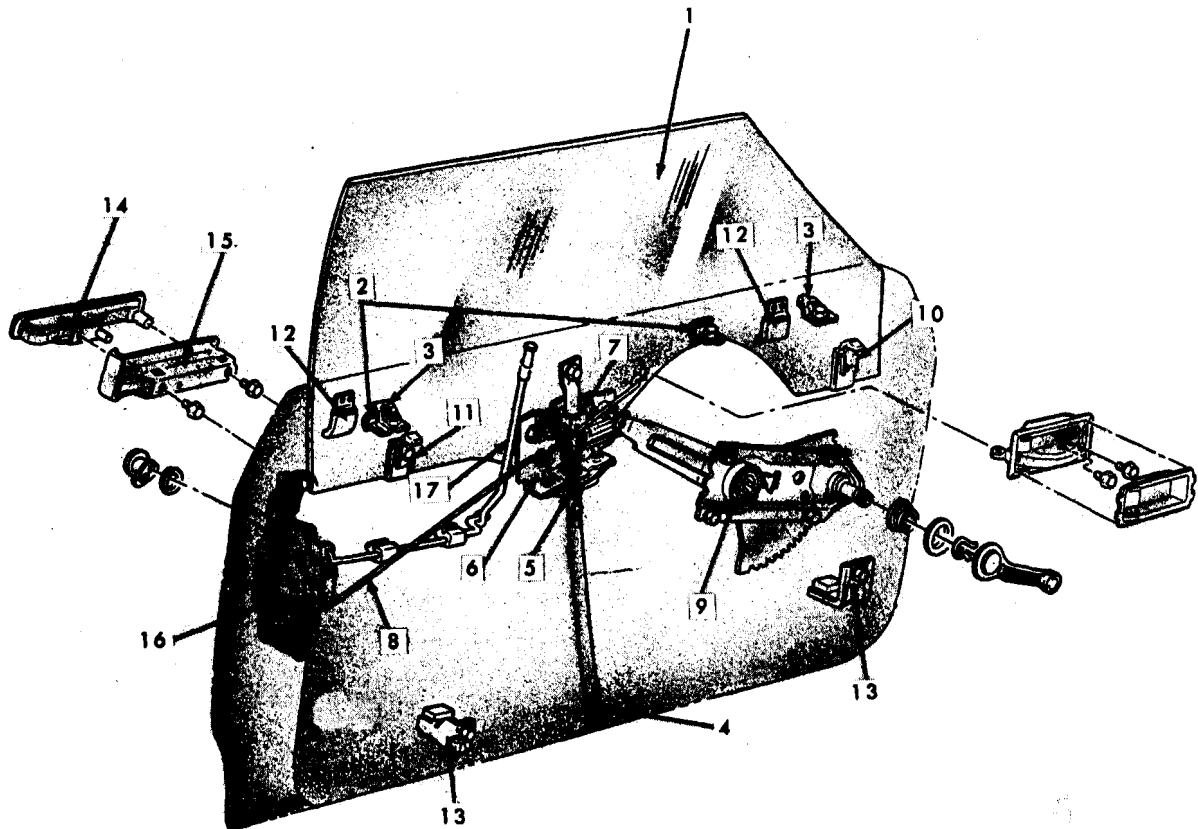
7. Door Lock
8. Door Outside Handle
9. Lower Sash Channel
Cam



3071

Fig. 6-34-Front Door Hardware - "A-39"

- | | | | |
|---|---|--|---|
| 1. Door Lock Attaching Screws | 5. Rear Guide Upper Attaching Bolts | 8. Door Lock Remote Control Attaching Bolts | 12. Ventilator Regulator Attaching Bolts |
| 2. Rear Guide Lower Attaching Bolt | 6. Inner Panel Cam Attaching Bolts | 9. Window Regulator Attaching Bolts | 13. Ventilator Lower Frame Adjusting Stud and Nut |
| 3. Window Rear Upper Stop Bolt | 7. Lower Sash Channel Cam Attaching Screws Access Holes | 10. Window Front Upper Stop Access Hole | 14. Ventilator "T" Shaft to Regulator Screw Access Hole |
| 4. Ventilator Division Channel Lower Adjusting Stud and Nut | | 11. Ventilator Frame to Door Outer Panel Attaching Bolts | |



4134

Fig. 6-35-Front Door Hardware - "A-37, 57, 67 and 87" Styles

- | | | | |
|-----------------------------------|--|--|---|
| 1. Window Assembly | 5. Guide Assembly,
Lower Sash Lower | 8. Rod, Inside Handle to
Lock | 13. Support, Window
Bumper |
| 2. Stabilizer Strips | 6. Plate Assembly,
Lower Sash Guide | 9. Regulator Assembly | 14. Handle, Door Outside
(Pull Type) |
| 3. Trim Pad Adjusting
Plates | 7. Guide Assembly,
Lower Sash Upper | 10. Stop, Front Up-Travel | 15. Retainer, Door
Outside Handle |
| 4. Tube Assembly,
Window Guide | | 11. Stop, Rear Up-Travel | 16. Door Lock |
| | | 12. Plate, Door Outer
Panel Bearing | 17. Rod, Inside Locking |

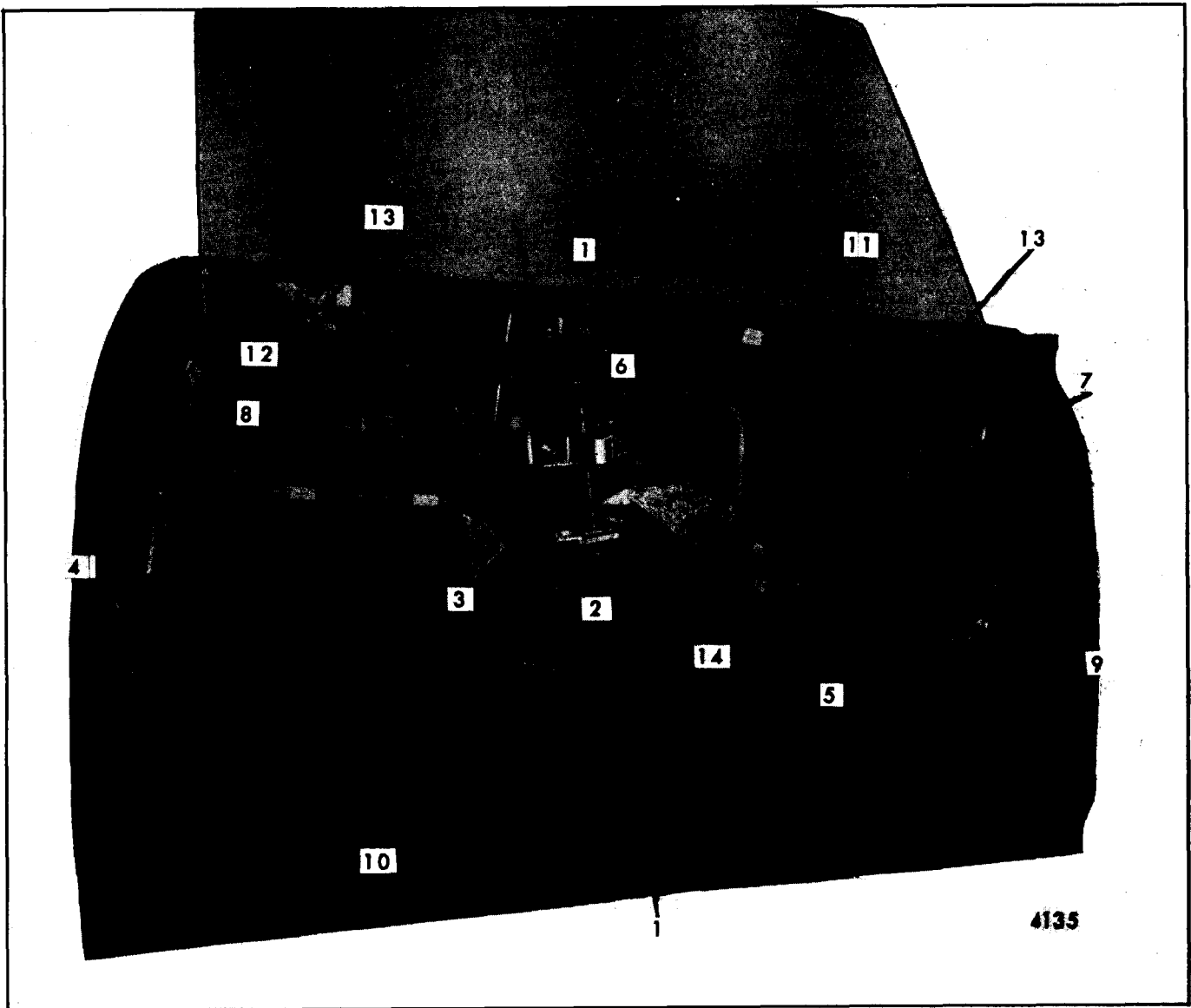
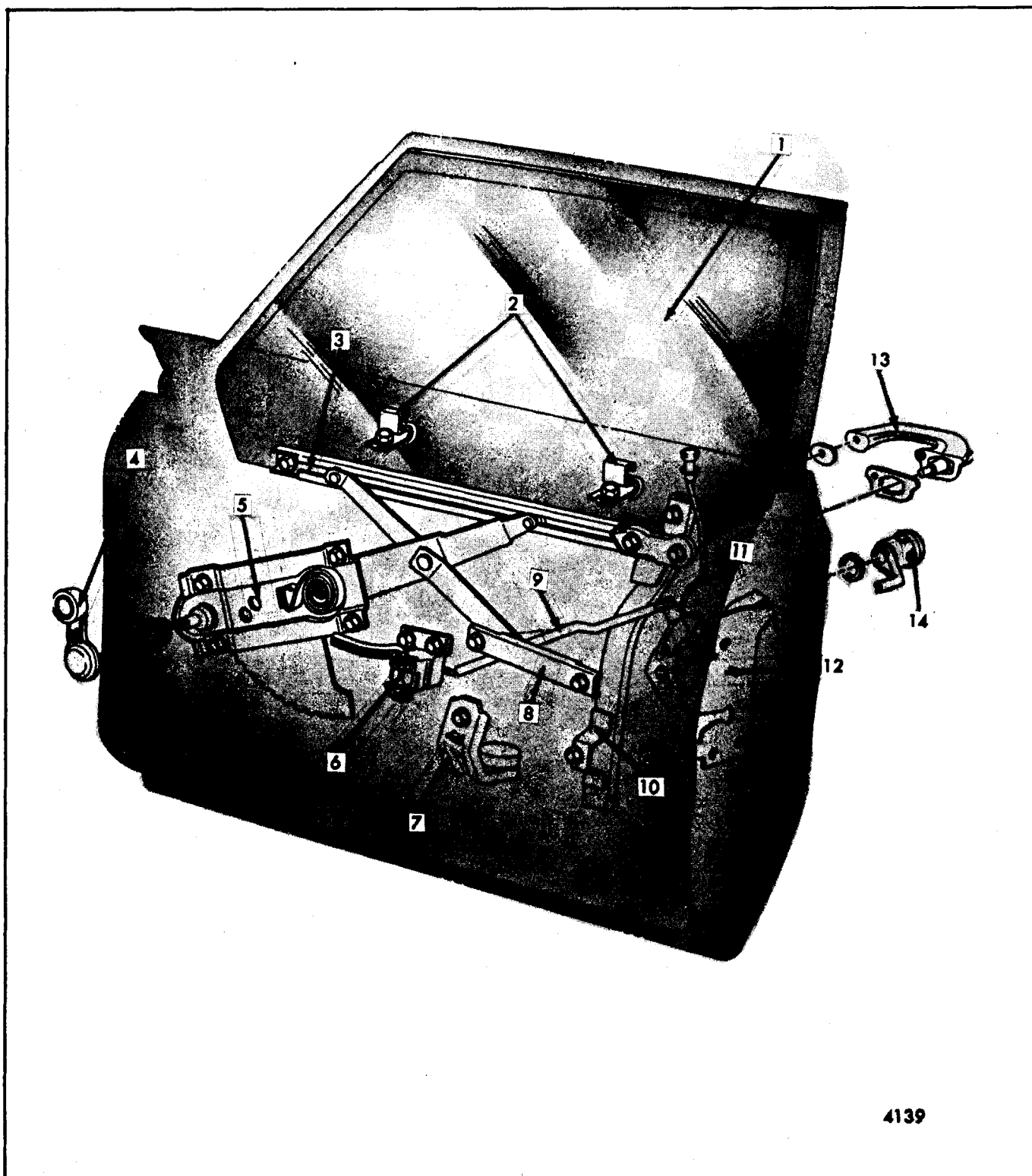


Fig. 6-36-Front Door Hardware - "A-37, 57, 67 and 87" Styles

- | | | | |
|---|---|--|--|
| 1. Tube Assembly,
Window Guide
Attaching Bolts | 4. Door Lock Attaching
Screws | 8. Stop, Rear Up-Travel
Attaching Bolt | 11. Strip, Anti-Rattle
Front Attaching Bolt |
| 2. Guide Assembly,
Lower Sash Lower
Attaching Bolts | 5. Regulator Assembly
Attaching Bolts | 9. Support, Front
Window Bumper
Attaching Bolt | 12. Strip, Anti-Rattle
Rear Attaching Bolt |
| 3. Plate Assembly,
Lower Sash Guide
Attaching Bolts | 6. Guide Assembly,
Lower Sash Upper
Attaching Bolts | 10. Support, Rear
Window Bumper
Attaching Bolt | 13. Plate, Trim Pad
Hanger Attaching
Bolts |
| | 7. Stop, Front Up-Travel
Attaching Bolt | | 14. Remote Control, Door
Lock Attaching Bolts |



4139

Fig. 6-37-Front Door Hardware - "B-69" Styles

- | | | | |
|-------------------------|-----------------------|-----------------------|-------------------------|
| 1. Window Assembly | 4. Window Regulator | 7. Window Down-Travel | 10. Rear Guide Assembly |
| 2. Trim Support Hangers | Handle | Support and Bumper | 11. Inside Locking Rod |
| and Stabilizer Strips | 5. Window Regulator | 8. Inner Panel Cam | 12. Lock Assembly |
| 3. Lower Sash Channel | 6. Remote Control and | 9. Remove Control to | 13. Outside Handle |
| Cam | Handle Assembly | Lock Connecting Rod | 14. Lock Cylinder |

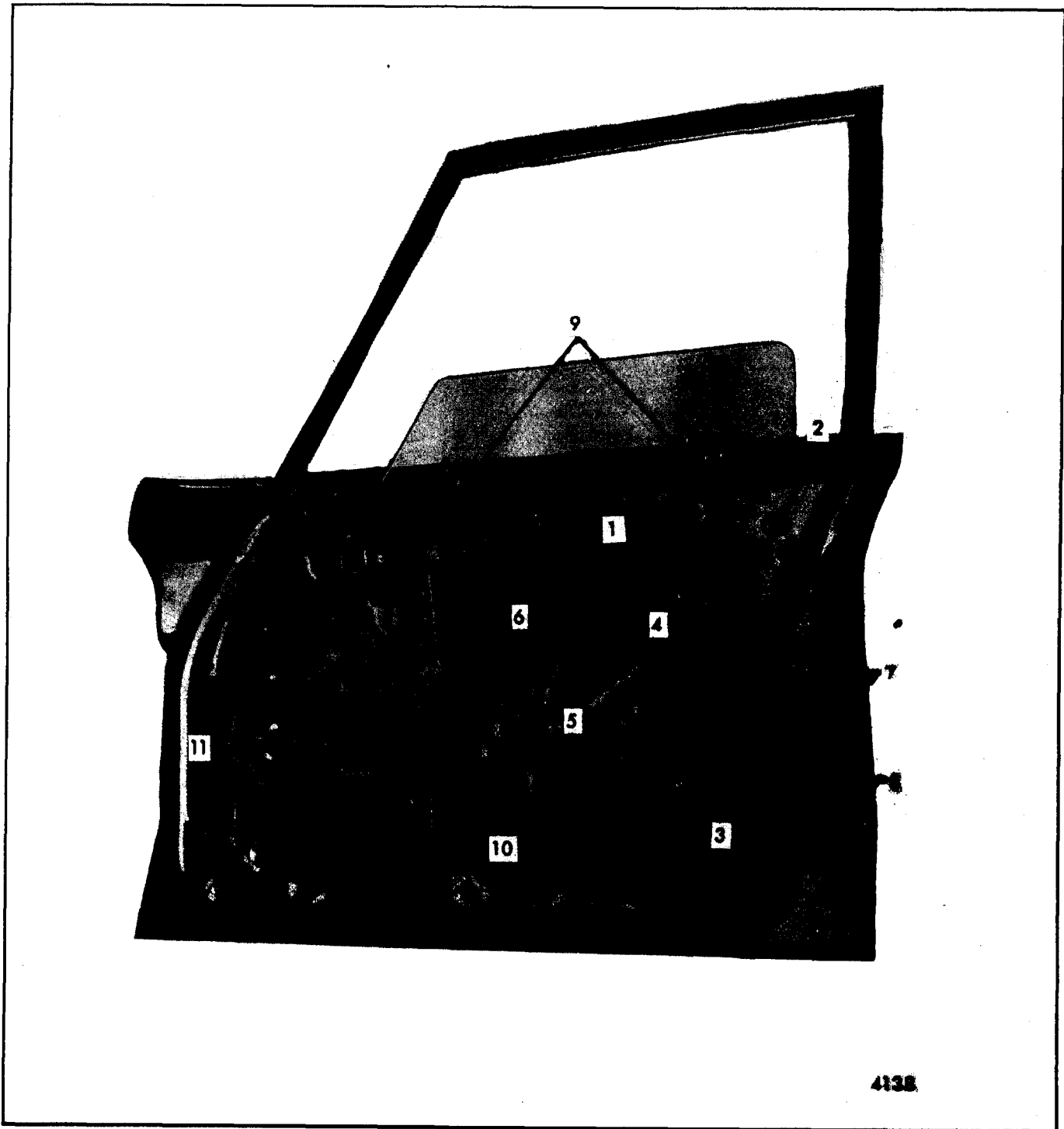
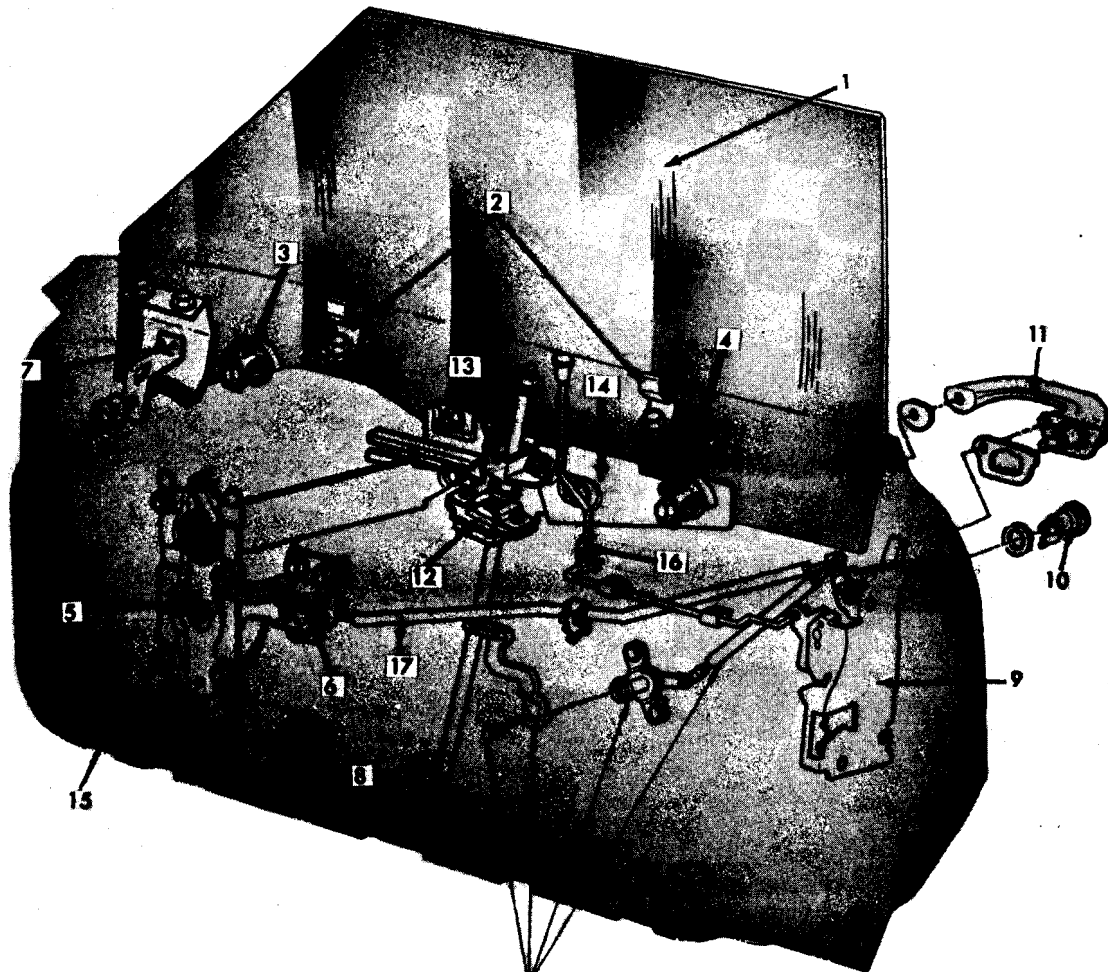


Fig. 6-38-Front Door Hardware - "B" Four Door Closed Styles

- | | | | |
|--|--|--|---|
| 1. Rear Guide to Guide Bracket Attaching Bolt | 4. Inner Panel Cam Attaching Bolts | 7. Door Lock Attaching Screws | 10. Lower Sash Channel Cam STUD Nuts Access Holes |
| 2. Rear Guide Bracket to Inner Panel Attaching Bolts | 5. Window Down-Travel Support Bracket Attaching Bolt | 8. Door Lock Electric Solenoid Attaching Screws | 11. Window Regulator Attaching Bolts |
| 3. Rear Guide Lower Attaching Bolt | 6. Door Lock Remote Control and Handle Assembly | 9. Trim Pad Hanger Plates and Stabilizer Strips Attaching Bolt | |



REMOTE CONTROL - REAR
(RIGHT SIDE "E" STYLES ONLY)

4149

Fig. 6-39-Front Door Hardware - "B, C and E" Two-Door" Hardtop and Convertible Styles

- | | | | |
|---|---|--------------------------------------|--------------------------------------|
| 1. Front Door Window Assembly | 4. Stop, Window Rear Upper | 8. Tube Assembly, Window Guide | 13. Guide Assembly, Lower Sash Upper |
| 2. Strip, Stabilizer and Support, Trim Hanger | 5. Window Regulator - Electric | 9. Door Lock | 14. Plate Assembly, Lower Sash Guide |
| 3. Stop, Window Front Upper | 6. Door Lock Remote Control and Handle Assembly | 10. Door Lock Cylinder | 15. Support, Window Bumper |
| | 7. Glass Bearing Plate | 11. Door Outside Handle | 16. Rod, Inside Locking |
| | | 12. Guide Assembly, Lower Sash Lower | 17. Rod, Remote Control to Lock |

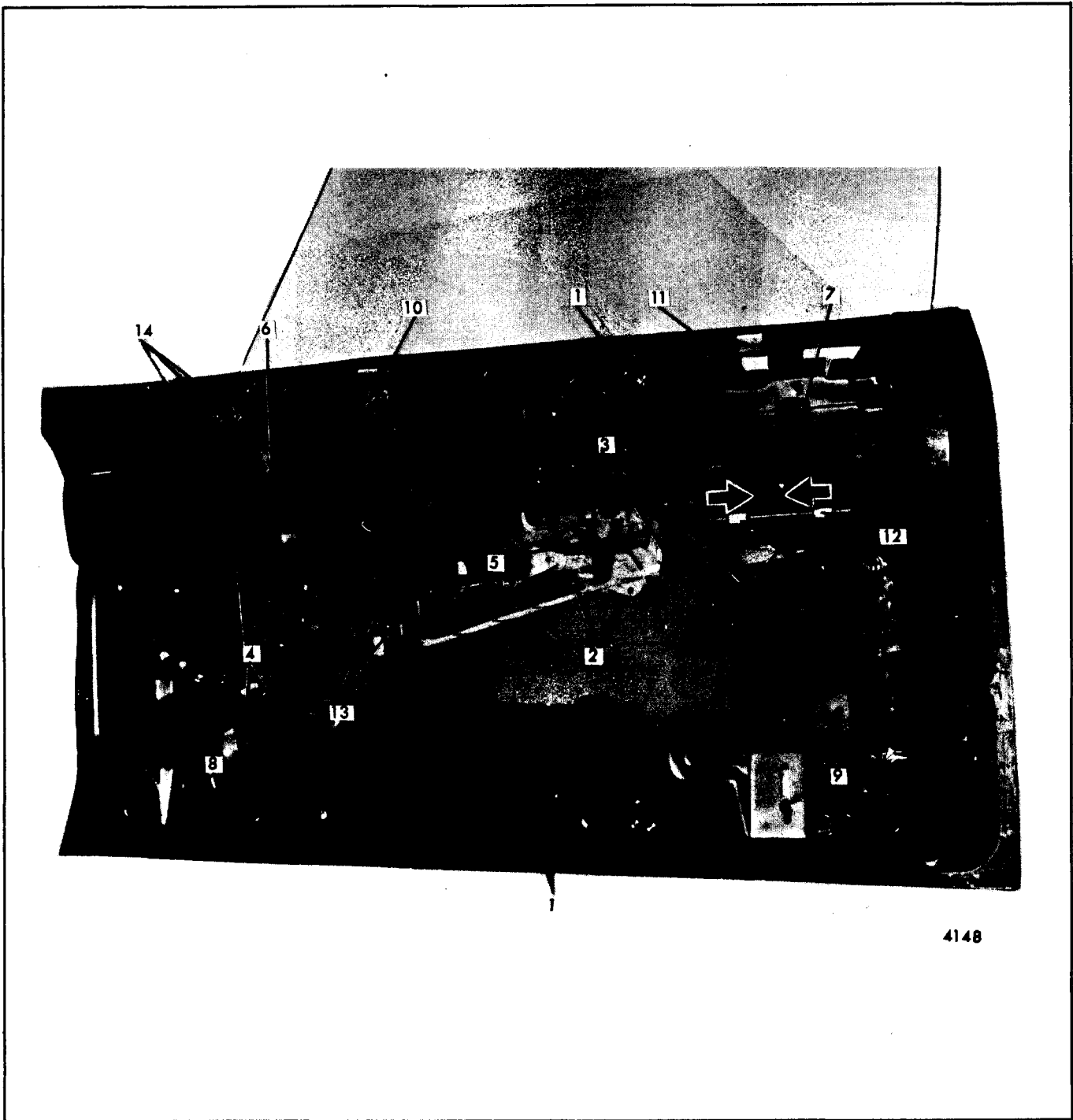
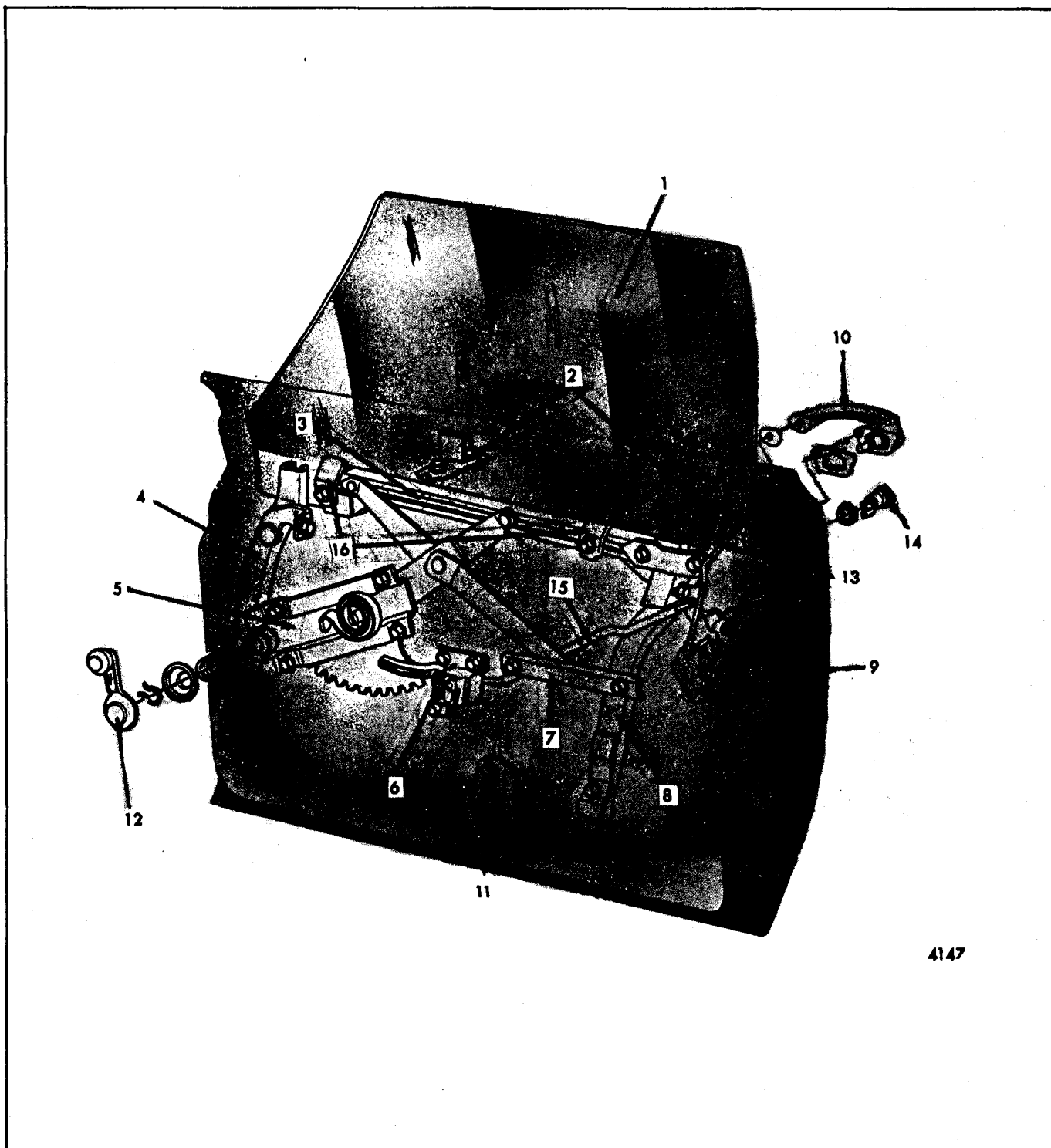


Fig. 6-40-Front Door Hardware - "B, C and E" Two-Door Hardtop and Convertible Styles

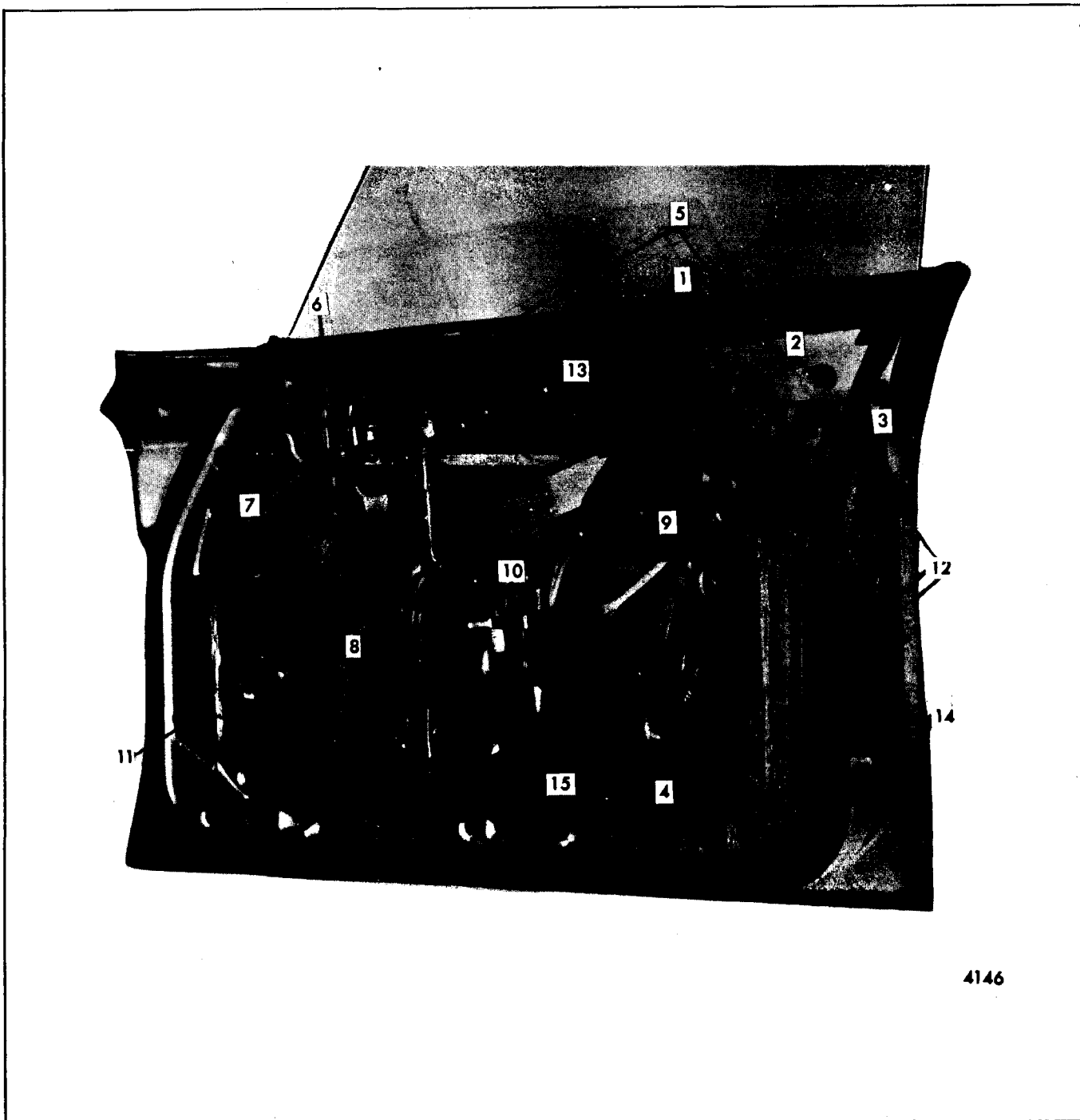
- | | | | |
|---|---|--|---|
| 1. Tube Assembly, Window Guide Attaching Bolts | 4. Regulator Assembly, Attaching Bolts | 8. Support, Front Window Bumper Attaching Bolt | 11. Strip, Stabilizer Rear and Trim Support Hanger Attaching Bolt |
| 2. Guide Assembly, Lower Sash Lower Attaching Bolts | 5. Guide Assembly, Lower Sash Upper Attaching Bolts | 9. Support, Rear Window Bumper Attaching Bolt | 12. Retainer, Inside Locking Rod |
| 3. Plate Assembly, Lower Sash Guide Attaching Bolts | 6. Stop, Front Up-Travel Attaching Bolt | 10. Strip, Stabilizer Front and Trim Support Hanger Attaching Bolt | 13. Remote Control, Door Lock Attaching Bolts |
| | 7. Stop, Rear Up-Travel Attaching Bolt | | 14. Glass Bearing Plate Attaching Bolts |



4147

Fig. 6-41-Front Door Hardware - "B and C-39 and 49" Styles and "C-69" Styles

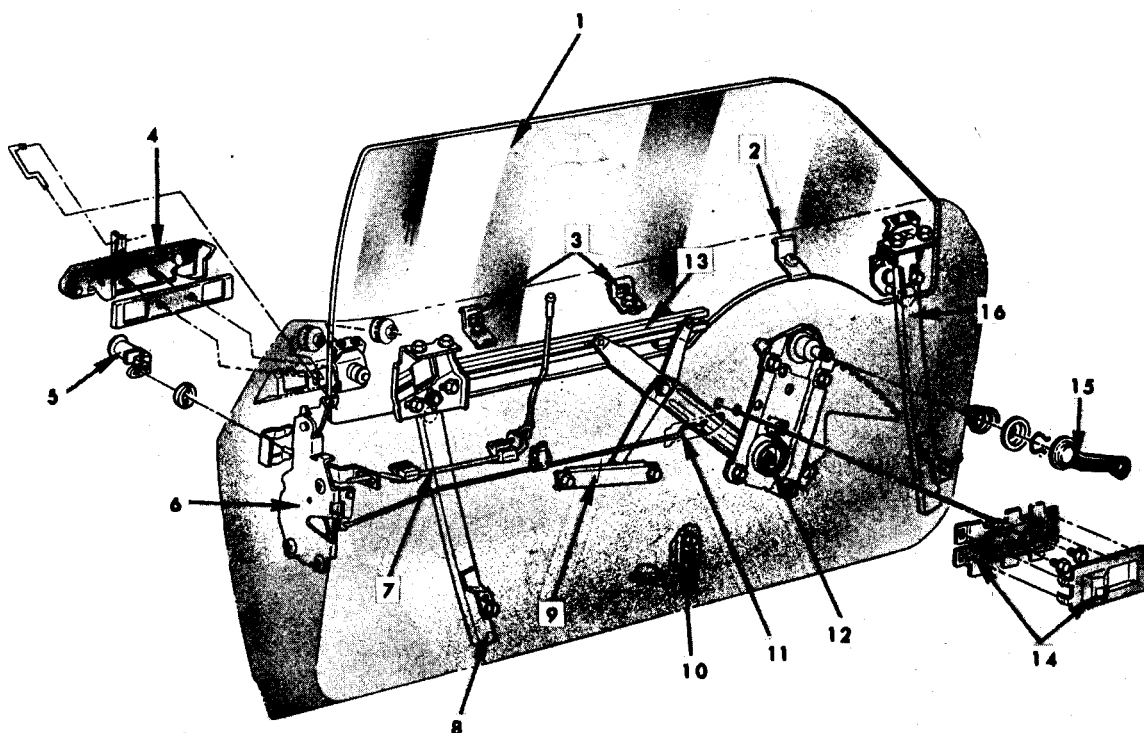
- | | | | |
|---|-----------------------------|---|---|
| 1. Window Assembly | 4. Front Guide | 9. Door Lock | 13. Inside Locking Rod |
| 2. Stabilizer Strips and Trim Support Hangers | 5. Window Regulator | 10. Door Outside Handle | 14. Lock Cylinder |
| 3. Lower Sash Channel Cam | 6. Door Lock Remote Control | 11. Window Down-Travel Support Bracket and Bumper | 15. Remote Control to Lock Connecting Rod |
| | 7. Inner Panel Cam | 12. Window Regulator Handle | 16. Window Up-Travel Stops |
| | 8. Rear Guide | | |



4146

Fig. 6-42-Front Door Hardware - "B and C-39 and 49" Styles and "C-69" Styles

- | | | | |
|---|--|--|--|
| 1. Window Rear Upper Stop Attaching Bolt | 4. Rear Guide Lower Attaching Bolt | 8. Window Regulator Attaching Bolts | 13. Window Lower Sash Channel Cam Stud Nuts Access Holes |
| 2. Rear Guide Upper Bracket Attaching Bolts | 5. Window Stabilizer Strip Attaching Bolts | 9. Inner Panel Cam Attaching Bolts | 14. Door Lock Solenoid Attaching Screws |
| 3. Rear Guide to Upper Bracket Attaching Bolt | 6. Window Front Upper Stop Attaching Bolt | 10. Door Lock Remote Control Attaching Bolts | 15. Window Down-Travel Bumper Support Attaching Bolt |
| | 7. Front Guide Upper Attaching Bolts | 11. Front Guide Lower Attaching Bolt | |
| | | 12. Door Lock Attaching Screws | |



5052

Fig. 6-43-Door Hardware - "F" Styles

- | | | | |
|---|---------------------------------------|--------------------------------|---|
| 1. Window Assembly | 5. Lock Cylinder | 11. Remote Control to Lock Rod | 14. Remote Control Handle Assembly and Escutcheon |
| 2. Trim Pad Hanger Plates | 6. Lock Assembly | 12. Window Regulator (Manual) | 15. Window Regulator Handle |
| 3. Trim Pad Hanger Plate and Stabilizer Strip | 7. Inside Locking Rod | 13. Lower Sash Channel Cam | 16. Front Guide |
| 4. Door Outside Handle | 8. Rear Guide | | |
| | 9. Inner Panel Cam | | |
| | 10. Window Down Travel Bumper Support | | |

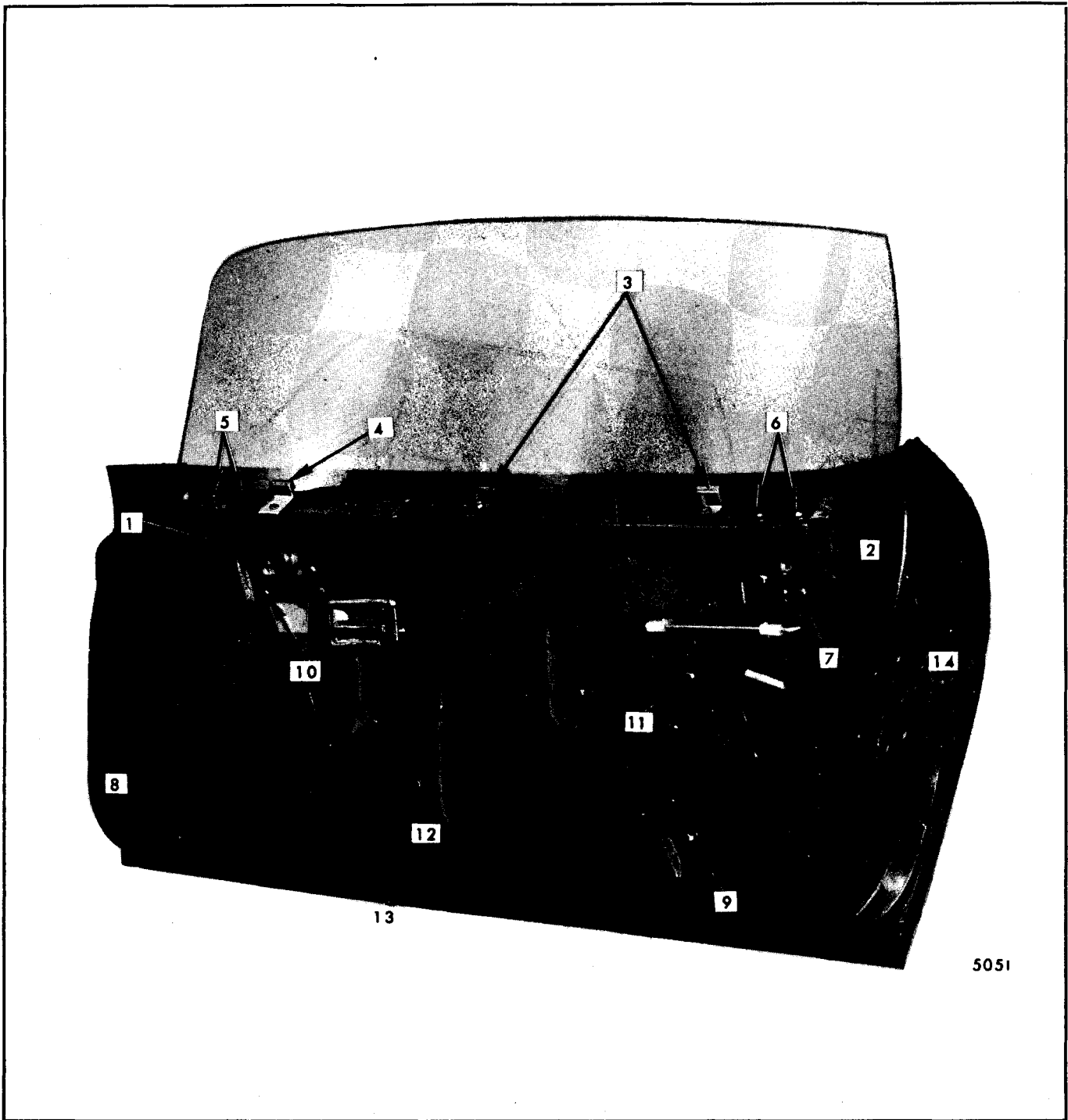
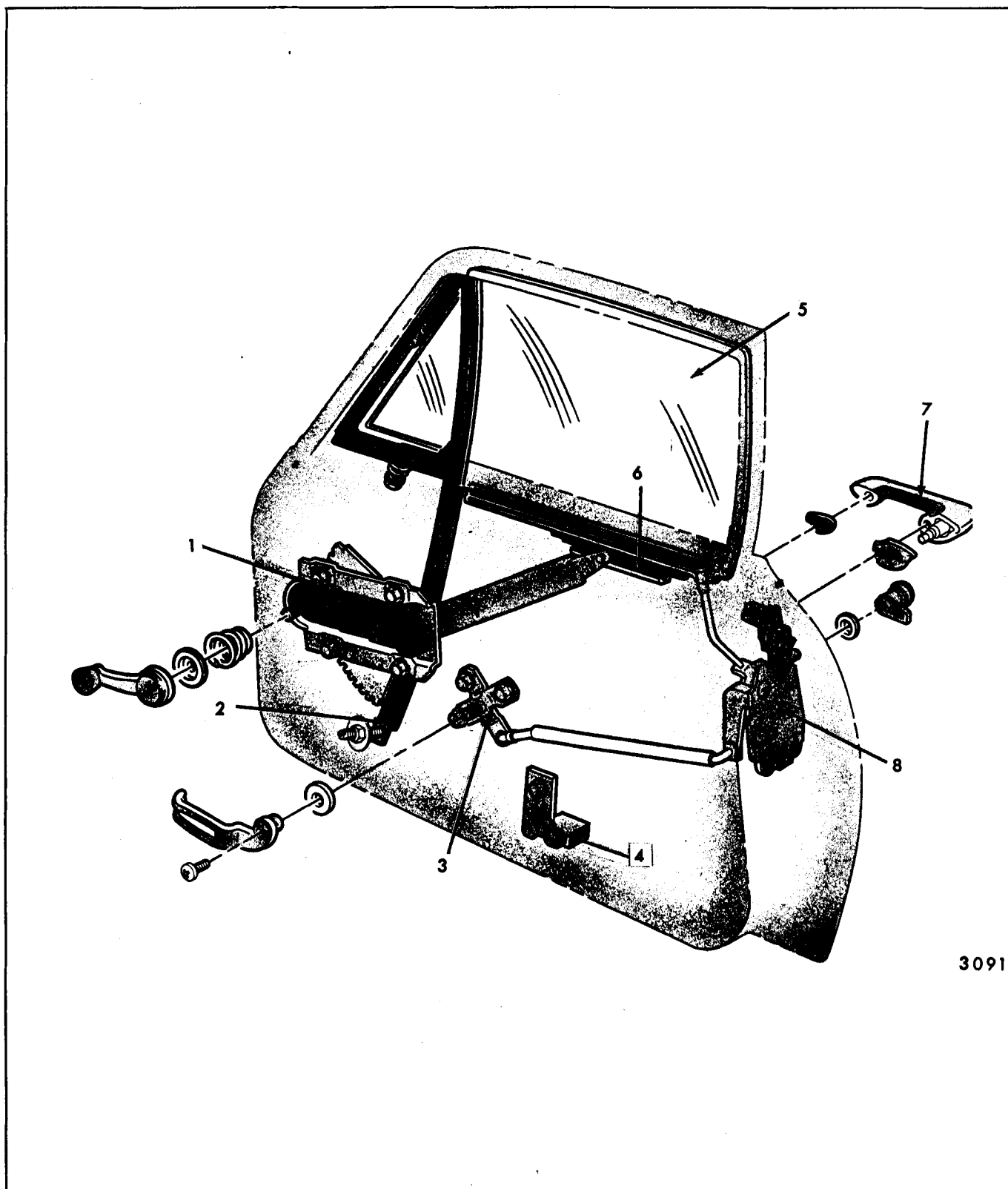


Fig. 6-44-Door Hardware - "F" Styles

- | | | | |
|--|---|--------------------------------------|---|
| 1. Window Front Up-Travel Stop Attaching Bolt | 4. Trim Support Hanger Attaching Screws | 8. Front Guide Lower Attaching Bolt | 12. Window Bumper Support Attaching Bolt |
| 2. Window Rear Up-Travel Stop Attaching Bolt | 5. Front Guide Upper Attaching Bolts | 9. Rear Guide Lower Attaching Bolt | 13. Window Lower Sash Channel Cam Nuts Access Holes |
| 3. Window Stabilizer Strip and Adjustable Trim Hanger Plate Attaching Bolt | 6. Rear Guide Upper Bracket Attaching Bolts | 10. Window Regulator Attaching Bolts | 14. Door Lock Attaching Screws |
| | 7. Rear Guide Upper Attaching Bolts | 11. Inner Panel Cam Attaching Bolts | |



3091

Fig. 6-45-Front Door Hardware - "X-27 and 69" Styles

1. Window Regulator
2. Ventilator Division
Channel

3. Door Lock Remote
Control
4. Window Down-Travel
Stop Support

5. Front Door Window
Assembly
6. Lower Sash Channel
Cam

7. Door Outside Handle
8. Door Lock

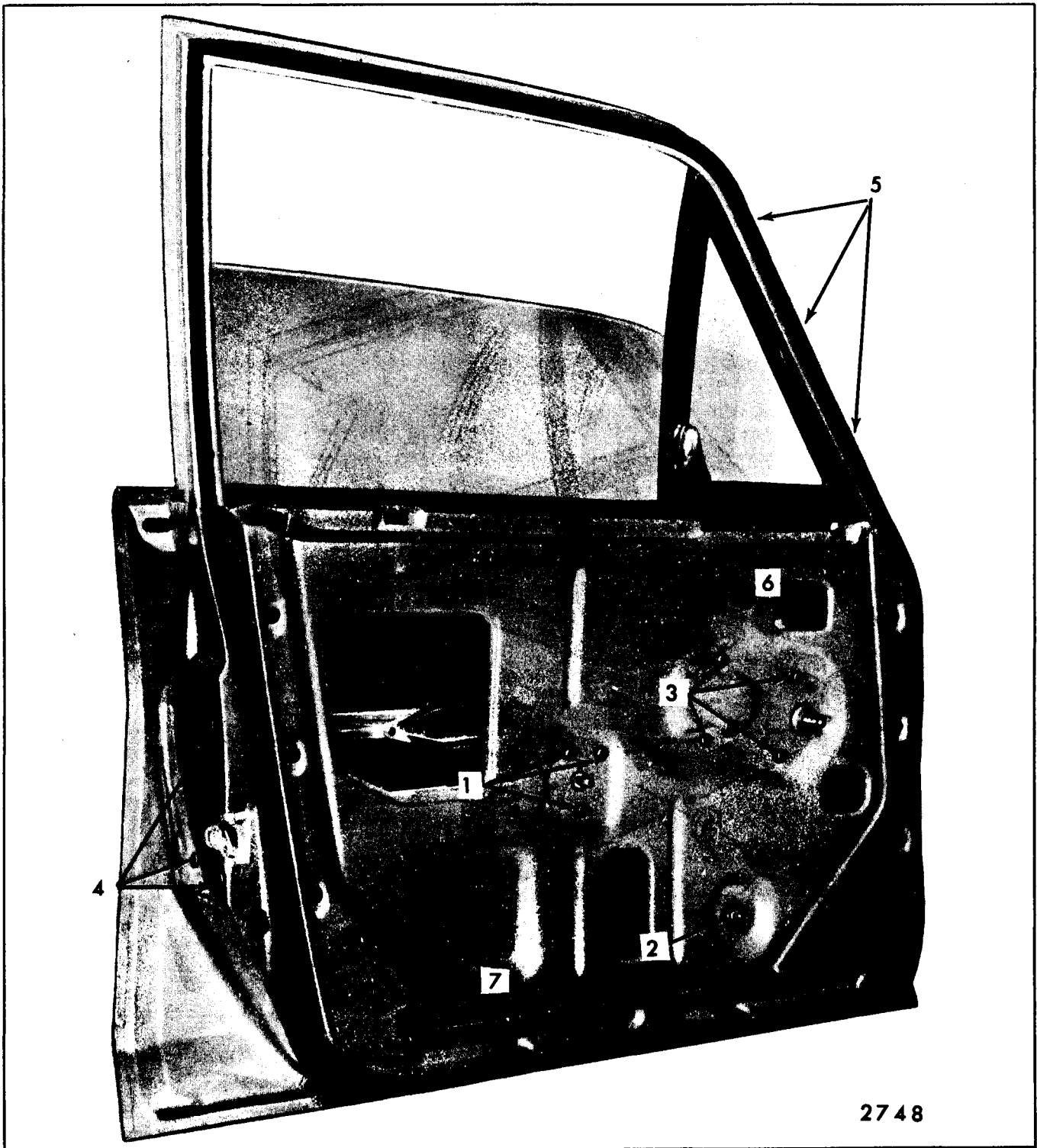


Fig. 6-46-Front Door Hardware - "X-27 and 69" Styles

1. Door Lock Remote Control Attaching Bolts
2. Ventilator Division Channel Lower Adjusting Stud

3. Window Regulator Attaching Bolts
4. Door Lock Attaching Screws
5. Door Upper Frame Attaching Screws to Ventilator Frame

6. Ventilator Frame to Door Outer Panel Attaching Bolt
7. Window Down Stop Support Attaching Bolt

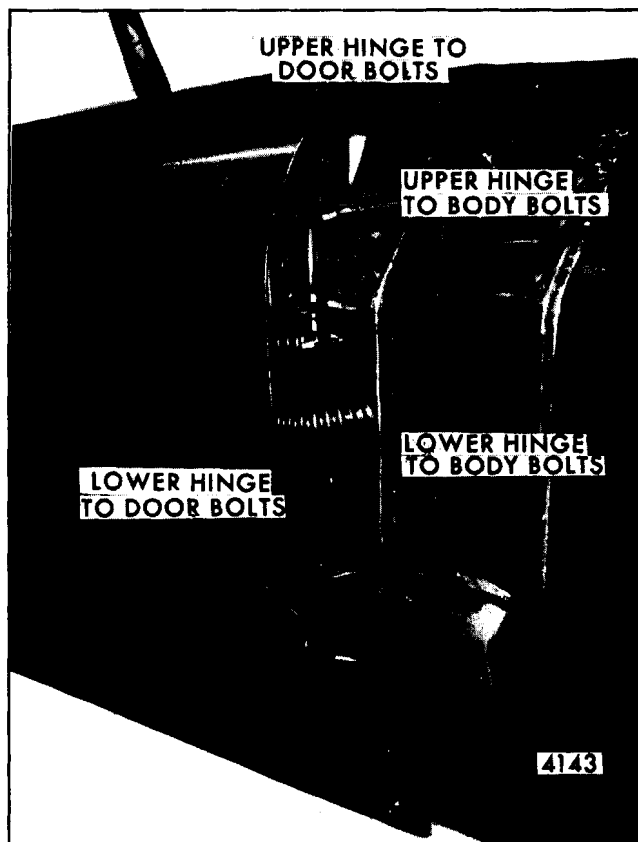


Fig. 6-47-Typical Front Door Hinge Attachment
- All Except "X" Styles

FRONT DOOR HINGES - All Except "X" Styles

All hinges are constructed of steel and incorporate a two stage hold-open feature in the lower hinge on "A and X" styles and upper hinge on "B, C, E and F" styles.

The front door is mounted to the front body hinge pillar with an upper and lower hinge. Figure 4143 illustrates typical front door bolt-on hinge installation, except for "X" styles. "X" style hinges are welded to door and body hinge pillars. All styles use a "swing-in" type hinges, which means the leading edge of the door swings inboard of the front fender when opened.

Door Removal and Installation - All Except "X" Styles

Although the door can be removed from the body with or without the hinges attached to the door, it is recommended that when removing the door only, remove the door from the hinges. Accessibility to the door side hinge bolts is better than to the body side bolts.

1. Prior to loosening any hinge bolts, mark position of hinge on door to facilitate adjustment when reinstalling door on hinge.
2. On doors equipped with power operated windows, power door locks, etc., remove trim pad and detach inner panel water deflector sufficiently to disconnect harness assembly(ies) and remove same from door.
3. With aid of a helper, support door in open position and remove upper and lower hinge to door hinge pillar attaching bolts (Figure 6-47).
4. To install, reverse removal procedure. Adjust door as outlined in subsequent adjustment procedure.

Hinge Removal - All Except "X" Bodies (Styles Not Equipped With Power Options In The Door)

1. Remove front door as previously described. Mark position of hinge on body hinge pillar and remove hinge to body hinge pillar attaching bolts (Figure 6-47).
2. To install door, reverse removal procedure. Prior to installation, apply a coat of heavy body sealer to surface of hinge that contacts door and front body hinge pillar for protection against corrosion. Adjust door hinge as subsequently described.

NOTE: On all styles, removal of upper and lower hinges from body hinge pillar can be accomplished with the door removed without loosening front fender.

Hinge Removal (Styles Equipped With Power Options In The Door)

1. Loosen front fender along the lower edge as outlined in Car Division Service Publications.
2. Support door in the full-open position and remove hinge to door and body hinge pillar attaching bolts (Figure 6-47). Then, remove hinge from body.
3. To install, reverse removal procedure. Prior to installation of hinge, apply a coat of heavy bodied sealer to surface of hinge that contacts door and body hinge pillar for protection against corrosion. Align door as subsequently described.

Front Door Hinge Adjustment - All Except "X" Styles

Door adjustments are provided through use of floating anchor plates in door and front body hinge pillars. When checking door for alignment, and prior to

making any adjustments, remove door lock striker from body to allow door to hang freely on its hinges. Loosen front fender where required.

NOTE: When making door adjustments, refer to door gap spacing and lock striker engagement specifications in the "Front and Rear Door" section of this manual.

1. Adjustments provided at body hinge pillars - up and down and fore and aft on all body styles.

NOTE: If REARWARD adjustment of either front door is made, replace the jamb switch. (Refer to Electrical section of this manual for door jamb switch replacement).

2. Adjustments provided at door hinge pillars - in and out on all body styles.
3. For removal or adjustment of all front door hinge to body attaching bolts, use tool J-22810 - 1/2" wrench (or equivalent) (Figure 6-48).

FRONT DOOR HINGES - "X" STYLES

Front door hinges on "X" body styles are welded to the door and body hinge pillars. Because of the positive attachment, all adjustment provisions have been eliminated. However, a removable hinge pin has been provided for removal of the door assembly from the body. Replacement hinges are serviced as an assembly and are pierced to permit bolt-on installation into tapped anchor plates. Tapped anchor plates must be used instead of nuts and washers to insure structural integrity when replacing a hinge assembly. Anchor plates are not furnished with the hinge assembly and must be ordered separately. In addition, hinge pins, bushings and "E" rings are available as separate service parts. Service replacement hinge assemblies

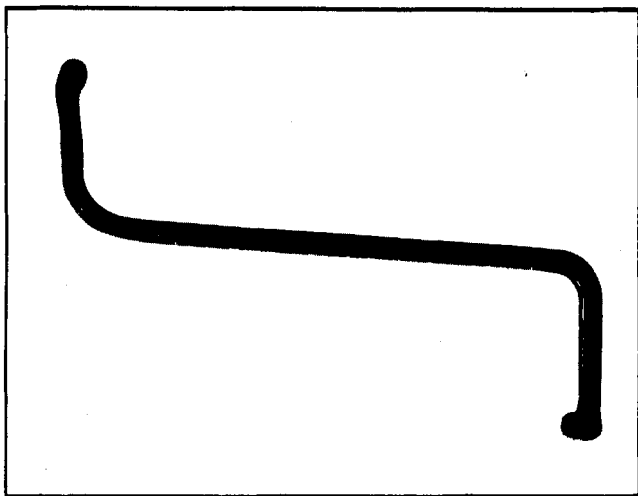


Fig. 6-48-Front Door Hinge Tool J-22810 - "A, B, C, E and F" Styles

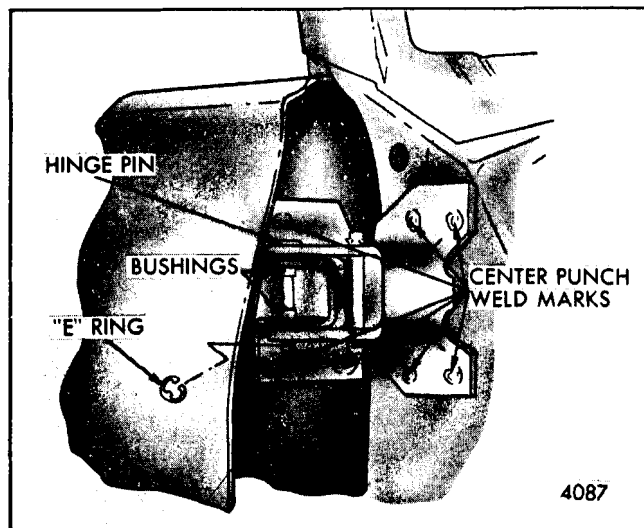


Fig. 6-49-Front Door Hinge "E" Ring Removal

will include a removable pin and "E" ring retainer so that the hinges can be separated for individual door side and/or body side strap replacement (refer to Figure 6-49).

DOOR REMOVAL - "X" Styles

1. Remove "E" ring (snap retainer) from lower end of both upper and lower hinge pins (Fig. 6-49).
 2. Disengage door hold-open spring from lower hinge assembly by prying upward against spring with a suitable prying tool (Fig. 6-50). Use care not to damage hold-open link.
- CAUTION:** Cover spring with shop towel to prevent spring from "flying" and possibly causing personal injury or damage.
3. Using tapered type tool, drive wedge between head of hinge pin and hinge. This will raise pin sufficiently to force serrated shoulder on the upper end of the hinge pin out of hinge.
 4. With aid of a helper to support door at rear edge, remove loosened hinge pins. Then, remove door assembly.

DOOR INSTALLATION - "X" Styles

1. With aid of a helper, place door into position and insert hinge pins and "E" rings.
2. Using spring compressing tool (J-23497 or equivalent), install hold-open spring in lower hinge (Figs. 6-51 and 6-52).

NOTE: When installing hold-open spring on tool J-23497 or equivalent, position spring so that the cut end of the spring is in line with the center of

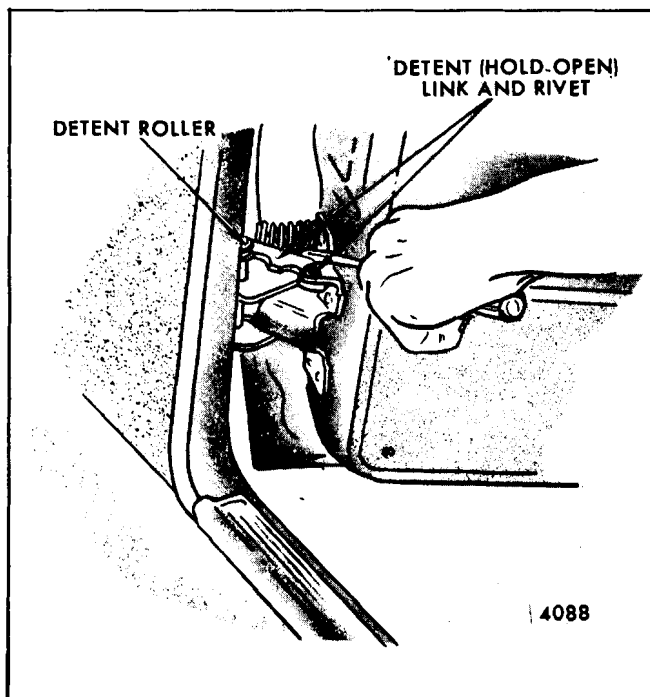


Fig. 6-50-Front Door Hinge "Hold-Open Spring" Removal

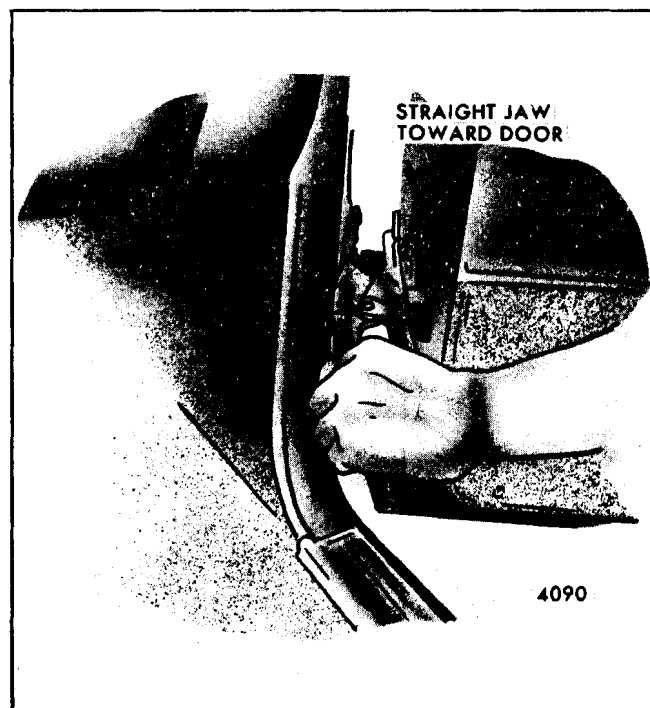


Fig. 6-52-Front Door Hinge Hold-Open Spring Installation Using Tool (J-23497 or equivalent)

the blade on the straight jaw. Figure 6-51 illustrates position of spring for right side installation (left side installation would utilize the other end of the blade). The other end of the spring should be seated over the hook on the opposite jaw of the tool.

CAUTION: Be sure spring is seated properly before compressing to prevent the spring from slipping out of the tool and possibly causing damage or personal injury.

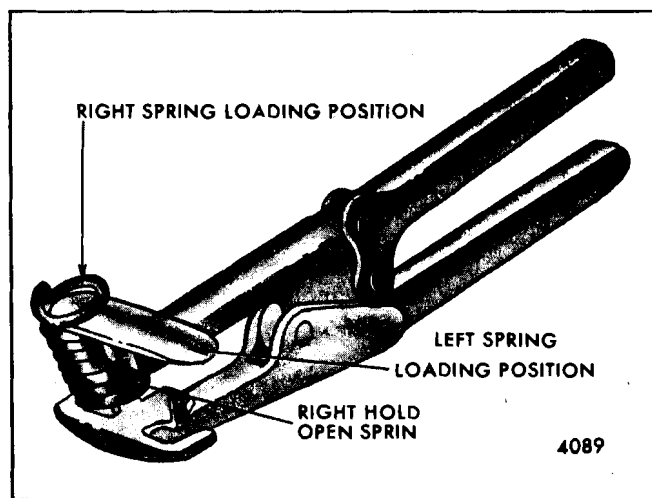


Fig. 6-51-Hold-Open Spring, Loading Positions Using Tool (J-23497 or equivalent)

DOOR SIDE AND/OR BODY SIDE HINGE STRAP - "X" Styles

Removal

1. When removing door side hinge straps, remove door trim assembly and inner panel water deflector. For body side lower hinge straps, remove front fender and shroud side trim panel. For upper hinge removal, anchor plate can be installed through the access opening in the body hinge pillar.
2. Remove door from body as previously described.
3. Scribe location of hinge on hinge pillar.
4. Center punch visible weld marks on hinge base as shown in Figure 6-49 and drill a 1/8" pilot hole completely through welds at center punch marks.
5. Using 1/8" hole as a guide, drill out welds with a 1/2" drill bit.

IMPORTANT: When drilling out welds, drill only deep enough to penetrate hinge base to release hinge from panel as shown in Fig. 6-53).

6. A slight amount of weld may still retain hinge base to panel. Drive a chisel between panel and hinge base to separate hinge from panel.

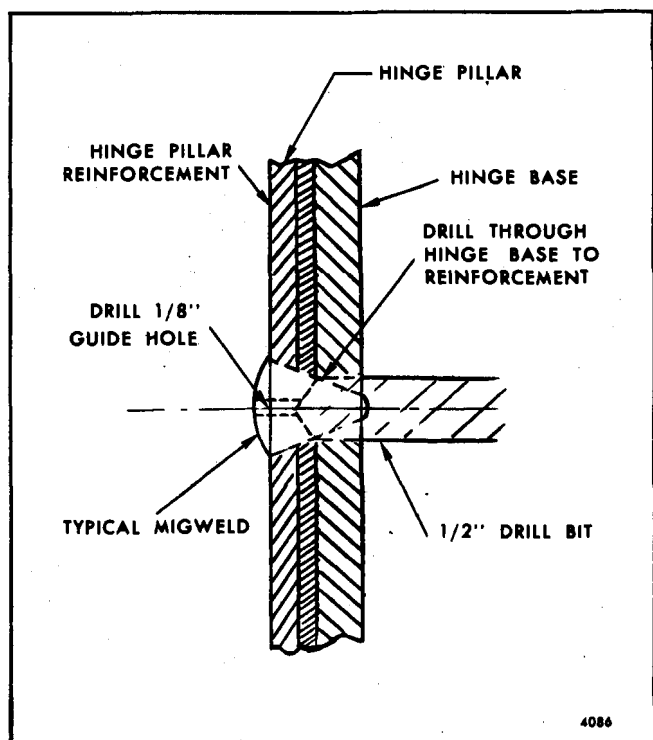


Fig. 6-53-Typical Weld

Installation

1. Position the replacement bolt-on hinge within scribe marks on the hinge pillar facing and center punch bolt hole locations.
2. Using a 1/2" drill bit, drill hinge attaching holes. The 1/2" holes in the hinge pillar will provide for some adjustment when reinstalling the door assembly.
3. Coat surface of hinge that mates with hinge pillar with medium bodied sealer and install hinge using specified 5/16" x 1-1/2" bolts and service hinge anchor plates previously described.
4. Install door to body as previously described.

Front Door Hinge Adjustments ("X" Style Service Replacement Hinges Only)

1. In and out adjustment provided on door side hinge strap.
2. Fore and aft adjustment provided on body side hinge strap. (use tool J-21550 or equivalent, Figure 6-54).

NOTE: Prior to making door adjustments, remove door lock striker from body and allow door to hang freely on its hinges. Also, refer to door gap spacing and lock striker engagement specifications

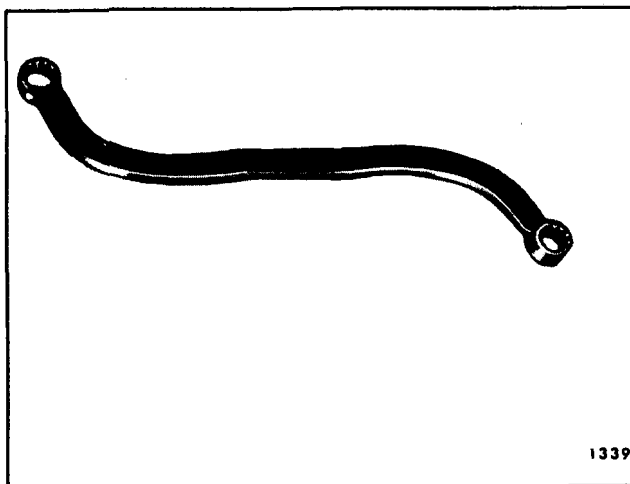


Fig. 6-54 Front Door Hinge Tool J-21550 (1/2" Box)-"X" Styles

in the "Front and Rear Door" section of this manual.

INSIDE LOCKING ROD - All Coupe Styles

Removal and Installation

1. On "A, F and X" styles, remove door trim assembly and peel inner panel water deflector back sufficiently to gain access to inside locking rod retainers (Fig. 6-40). On "B, C and E" styles, remove upper and lower portion of door trim assembly. It is not necessary to remove the water deflector.
2. Slide inside locking rod to door inner panel plastic retainers in direction of arrows shown in Figure 6-40.
3. Disengage rod from lock and lower locking rod through belt line to remove.
4. To install, reverse removal procedure.

FRONT DOOR LOCK REMOTE CONTROL AND CONNECTING ROD

There are two basic types of remote controls; spindle type and pull-in type remote control and handle assembly.

All spindle type and pull type remote control assemblies are secured to the door inner panel by attaching bolts. On some styles, the remote is attached to the inboard surface of the inner panel and on other styles to the outboard surface. The removal and installation is similar, however, for either method of attachment.

NOTE: Pontiac 27657 styles and 26200 series and "F" styles with standard trim utilize a pull-in type remote control and handle assemblies that can be removed from the door without trim removal. For removal, refer to door trim assembly removal in Section 13 of this manual.

Removal and Installation (All Styles Except Pontiac 27657 and 26200 series and "F" styles with standard trim).

1. Raise door window, remove door trim pad (on "B, C and E" styles, remove upper and lower portion of door trim assembly) and detach inner panel water deflector.

NOTE: Some "E" body styles are equipped with two remote controls, one front (pull-in type) and one rear (spindle type). Attachment of both is similar.

2. Remove bolts securing remote control to door inner panel (Refer to Figure 6-40 for pull-in type and Figure 6-34 for spindle type).
3. Pivot remote control to disengage lock connecting rod and remove remote control assembly.
4. If remote control to lock connecting rod is to be removed, refer to "Front and Rear Door" section for method of disengaging spring clip at lock end of rod.
5. To install, reverse removal procedure.

FRONT DOOR LOCK ASSEMBLY

All styles use the fork bolt lock design which includes an interlock feature. Where necessary, striker spacers should be used to insure satisfactory lock and striker engagement. Refer to "Front and Rear Door" section for spacer usage.

Removal and Installation

1. On "B, C and E" styles, raise door window and remove upper and lower portion of trim pad. On "A, F and X" styles, remove door trim assembly and peel back the inner panel water deflector sufficiently to gain access to lock assembly.
2. Working through large access hole, disengage remote control to lock connecting rod at lock as specified under "Door Lock Spring Clips" in preceding "Front and Rear Door" section.

NOTE: On coupe styles, it may be necessary to remove inside locking rod, on other styles, it may be necessary to remove the remote control assembly and then remove the lock and connecting rod as an assembly.

3. On styles equipped with electric door locks, remove electric solenoid as described in "Front and Rear Door" section.
4. Remove three screws securing lock to door lock pillar ("12", Figure 6-42) and remove lock assembly from door.

NOTE: On four-door styles, the design of the lock to inside locking attaching clip does not allow disengagement of rod from lock with lock in an installed position. This rod can be removed from lock in a bench operation after removal of lock assembly.

5. To install, reverse removal procedure.

FRONT DOOR LOCK CYLINDER ASSEMBLY

Removal and Installation

1. On "B, C and E" styles, remove upper and lower portion of door trim assembly, then raise door window. On "A, F and X" styles, remove door trim assembly and peel back inner panel water deflector.
2. With a screwdriver or other comparable tool, slide lock cylinder retaining clip (on door outer panel) out of engagement and remove lock cylinder from door (Figure 6-55).

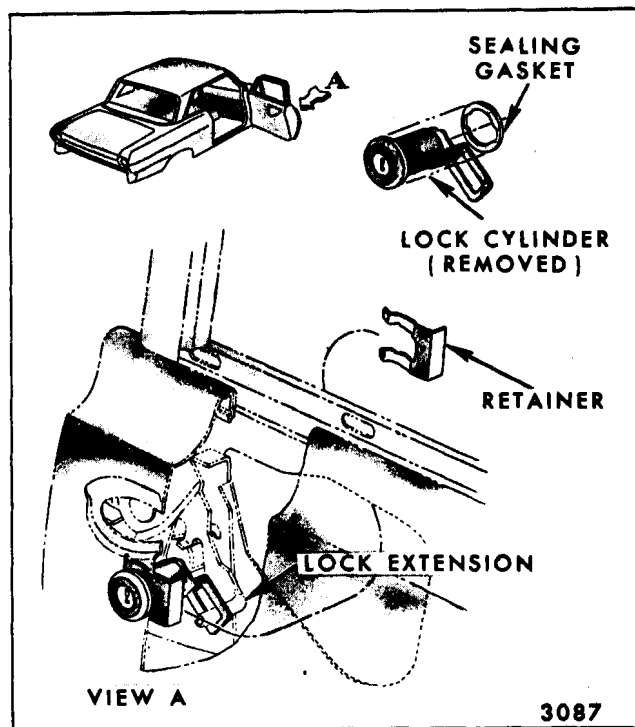


Fig. 6-55-Front Door Lock Cylinder Removal - All Styles

- To install, reverse removal procedure.

Disassembly and Assembly

- Remove lock cylinder from door as previously described.
- With a pointed tool, disengage pawl retaining clip and remove pawl (Figure 6-56).
- With a flat-bladed tool, straighten out crimped-over edges of lock cylinder housing scalp and remove scalp and lock cylinder from housing.

NOTE: Refer to General Information Index (Section 1 of this manual) for lock cylinder coding.

- To install, reverse removal procedure.

NOTE: Lock cylinder housing scalp is usually damaged in removal procedure and, therefore, must be replaced. Replacement scalps are available as service parts.

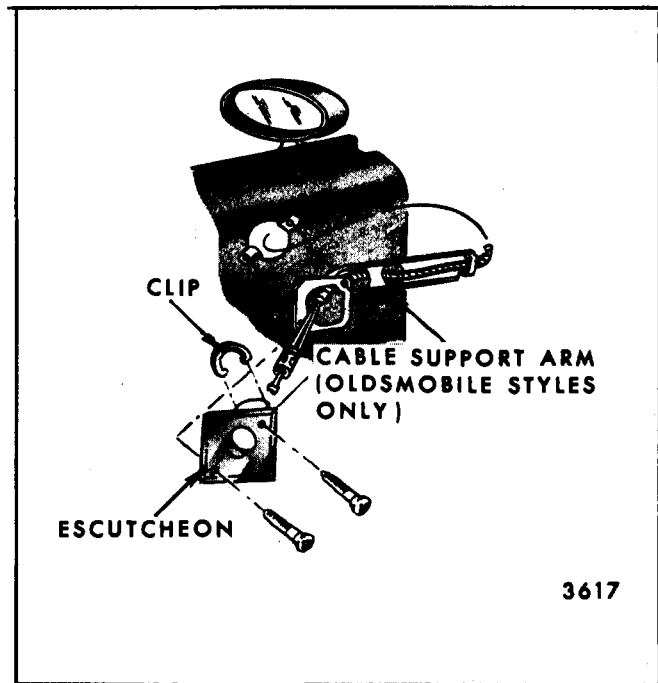


Fig. 6-57-Door Outside Remote Mirror Trim Pad Escutcheon Removal - Buick and Oldsmobile "A" Styles

DOOR OUTSIDE REMOTE CONTROL MIRROR

On all styles, except Cadillac styles, the mirror face is serviced separately. On Cadillac styles the mirror is serviced as an assembly. For mirror face replacement, refer below.

Removal and Installation - Buick and Oldsmobile "A" Styles

- Lower window to a full-down position. Remove remote cable escutcheon to door trim assembly attaching screws and disconnect cable to escutcheon attaching clip (Figure 6-57).
- On Oldsmobile ventless styles, remove cable support arm from end of cable (Figure 6-57). On Buick ventless styles working through the remote cable escutcheon access hole in door trim assembly and/or through the beltline, detach remote cable from retaining tab on door hinge pillar (Figure 6-58).

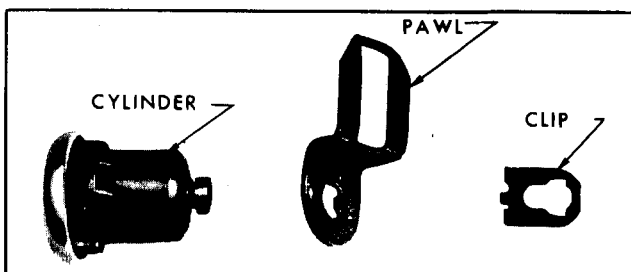


Fig. 6-56-Door Lock Cylinder Assembly

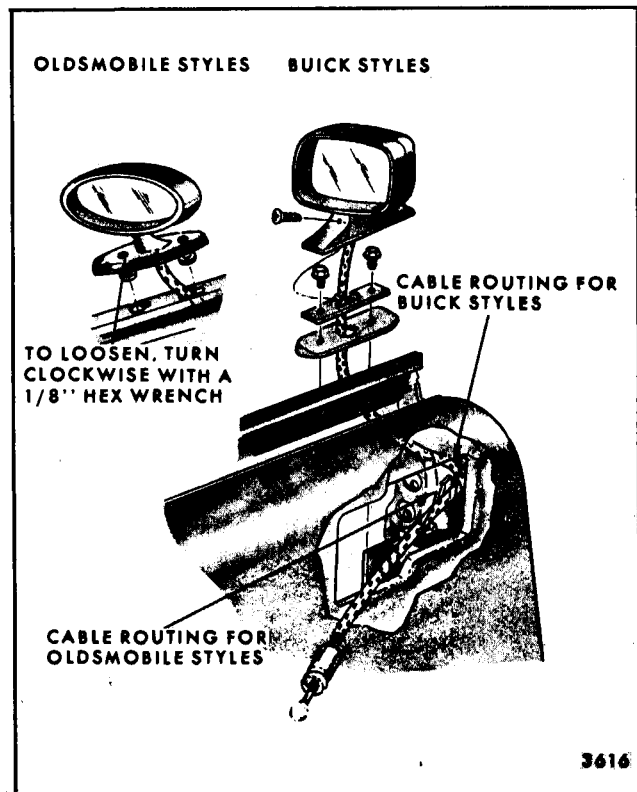


Fig. 6-58-Door Outside Remote Mirror Removal - Buick and Oldsmobile "A" Styles

3. On Buick styles, remove remote control mirror to mounting bracket attaching screw, in base of mirror, and mounting bracket to door outer panel attaching screws (Figure 6-58). Then remove mirror and cable assembly from door.
4. On Oldsmobile styles, using a 1/8" hex wrench, loosen mirror base to door outer panel attaching bolts by turning bolts clockwise (Figure 3616). Then slide mirror rearward, then upward to remove.
5. To install, reverse removal procedure.

Removal and Installation - Chevrolet and Pontiac "A and F" Styles

1. Remove door trim assembly and peel inner panel water deflector back sufficiently to gain access to remote mirror cable. Then, on ventless styles, detach remote cable from retaining tabs on inner panel reinforcements (Refer to Figure 6-59 for "A" styles and Figure 6-60 for "F" styles).
2. On Chevrolet and Pontiac "A" styles, remove mirror base to door outer panel stud nuts (Figure 6-59) and remove mirror and cable assembly from door.
3. On Chevrolet and Pontiac "F" styles, remove attaching screw in base of mirror and mounting bracket to door outer panel attaching screws

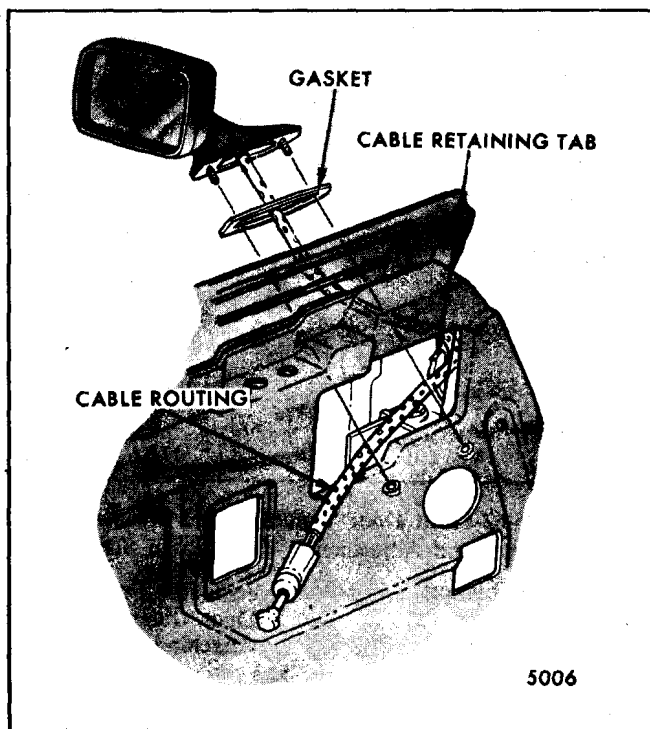


Fig. 6-59-Door Outside Remote Mirror Removal - Chevrolet and Pontiac "A" Styles

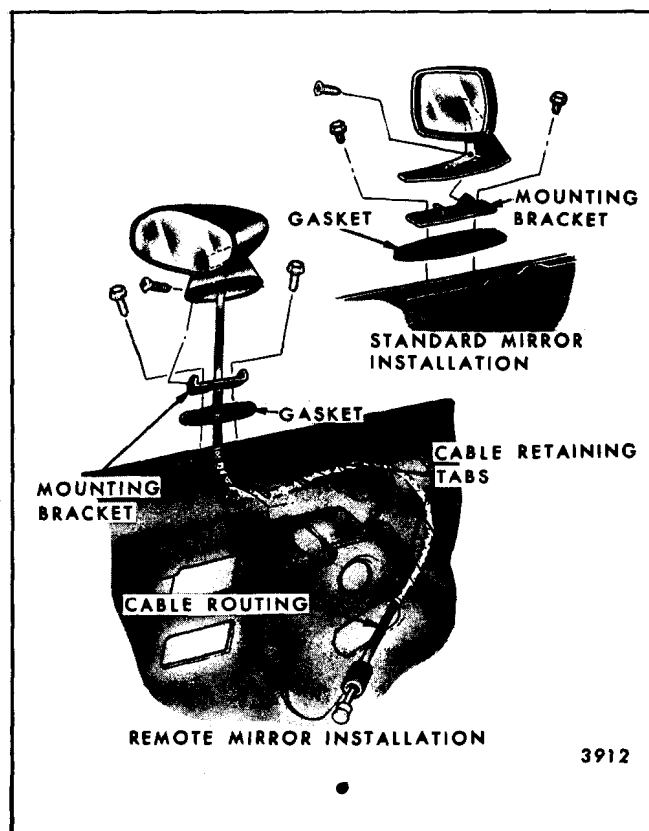


Fig. 6-60-Door Outside Remote Mirror Removal "B, C, E and F" Styles, Except Cadillac - "F" Styles Shown, "B, C and E" Similar

(Figure 6-60). Then, remove mirror and cable assembly from door.

4. To install, reverse removal procedure.

Removal and Installation - "B, C and E" Styles

1. Remove upper portion of door trim assembly as described in Section 13 of this manual. Then, detach remote cable from retaining tab on inner panel reinforcement (Figure 6-60).
2. Remove attaching screw in base of mirror and mounting bracket to door outer panel attaching screws (Figure 6-60). On all styles, except Cadillac. On Cadillac styles the mirror is retained to the outer panel by stud nuts similar to Chevrolet and Pontiac "A" styles (Figure 6-59). Remove mirror and cable assembly from door.
3. To, install reverse removal procedure.

Remote Mirror Face Replacement (All Styles, Except Cadillac)

1. To remove a scratched, broken, stained, etc. mirror face from the mirror frame, break the mirror

glass and remove the broken glass and fiber pad from the mirror frame.

NOTE: Protect painted surface on door assembly when breaking mirror face to remove from mirror frame.

2. Wipe inside of mirror frame clean.
3. On replacement mirror faces so equipped, remove paper backing from mirror face and install. Center mirror in mirror frame and press firmly.

DOOR OUTSIDE MIRROR - STANDARD MIRROR

Removal and Installation - All Styles

1. Remove attaching screw in base of mirror and remove mirror (Figure 6-61).
2. To install, reverse removal procedure.

FRONT DOOR INNER PANEL CAM - All Except "A and X-69" and "A, B, C, and E" Two Door Hardtop and Convertible Styles

Removal and Installation

1. On "A, F and X" styles, remove door trim assembly and detach inner panel water deflector sufficiently to gain access to the inner panel cam. On "B and C" styles remove upper and lower portion of door trim assembly.

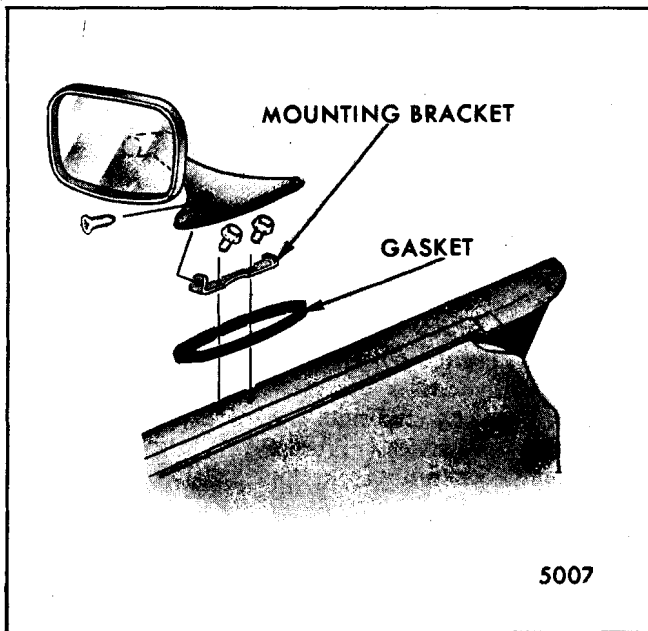


Fig. 6-61-Door Outside Mirror - Typical All Styles

2. With window in raised position, remove inner panel cam attaching bolts ("9", Figure 6-42) and slide cam off regulator balance arm roller.
3. To install, reverse removal procedure.

NOTE: The ends of the cam have provisions for up and down adjustment to correct a "cocked" window (not parallel with top of door upper frame or side roof rail weatherstrips).

FRONT DOOR VENTILATOR REGULATOR-"A" Styles

Removal and Installation

1. With front door window in full-up position, remove door trim assembly and partially detach inner panel water deflector.
2. Remove ventilator T-shaft bolt ("6", Figure 6-62) and ventilator regulator to inner panel attaching bolts ("4", Figure 6-62).

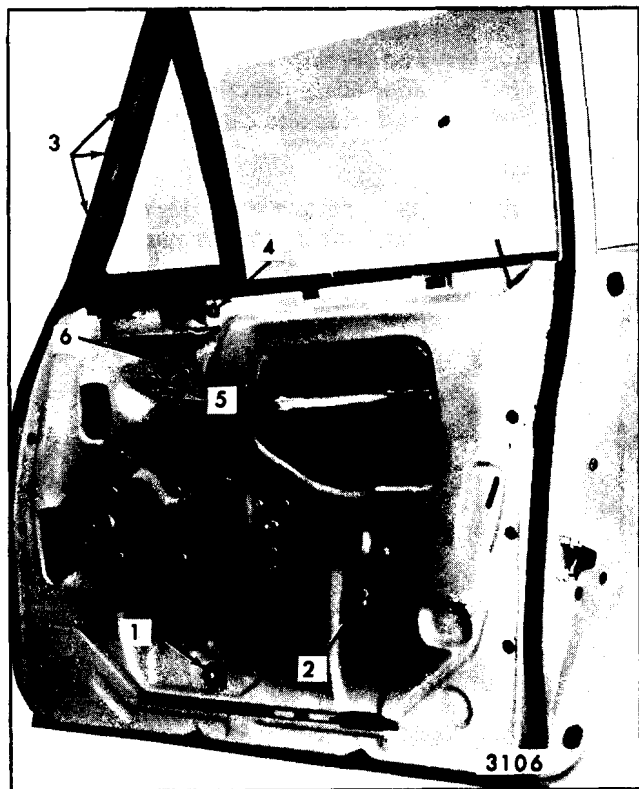


Fig. 6-62-Front Door Ventilator and Window Removal and Adjustments - "A" Closed Styles

- | | |
|---|---|
| 1. Ventilator Division Channel Lower Adjusting Stud | 4. Ventilator Frame to Door Outer Panel Attaching Bolt |
| 2. Window Down Stop Support Attaching Bolt | 5. Ventilator Regulator Attaching Bolts |
| 3. Ventilator to Door Upper Frame Attaching Screws | 6. Ventilator Regulator to "T-Shaft" Attaching Bolt Access Hole |

3. Pull regulator down to disengage from ventilator T-shaft and remove regulator through access hole.
4. To install, reverse removal procedure.

FRONT DOOR VENTILATOR ASSEMBLY - "A" Closed Styles

Removal and Installation

1. Remove door trim assembly and inner panel water deflector.
2. With window in up position, loosen down stop support attaching bolts and remove support ("2", Figure 6-62).
3. Remove ventilator regulator as previously described.
4. Lower window to full down position and remove bolt securing ventilator lower frame to door outer panel ("4", Figure 6-62).
5. Remove division channel lower adjusting stud nut ("1", Figure 6-62).
6. Remove ventilator to door upper frame attaching screws ("3", Figure 6-62). Disengage upper front end of glass run channel from door upper frame to permit rearward movement and removal of vent from door upper frame (refer to glass run channel removal procedure).
7. Tilt vent assembly rearward and remove vent inboard of door upper frame.
8. To install, reverse removal procedure.

Adjustments

Some in-and-out, or fore-and-aft adjustment of the ventilator division channel is available at the lower adjusting stud ("1", Figure 6-62). Adjustment at this location is required only to eliminate any misalignment between the ventilator division channel and window glass run channel.

VENTILATOR DISASSEMBLY AND ASSEMBLY-"A" Closed Styles

The ventilator front frame is attached to the division channel with rivets at the bottom and a screw at the top (Figure 6-63).

The parts that can be replaced are the division channel strip assembly, ventilator weatherstrip (on division channel) and the vent glass.

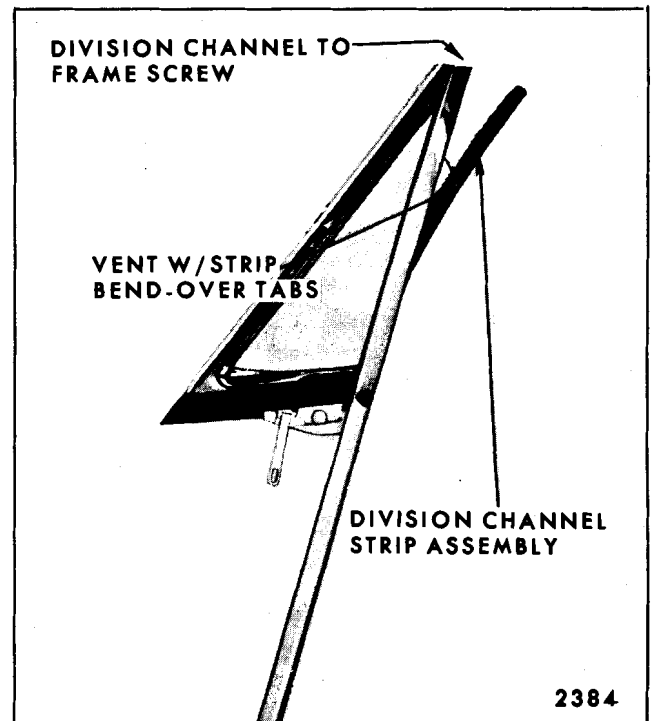


Fig. 6-63-Front Door Ventilator Assembly - "A" Closed Styles

FRONT DOOR VENTILATOR ASSEMBLY-"A-39" Styles

Removal and Installation

1. Remove door window and ventilator regulator (see index for removal procedures).

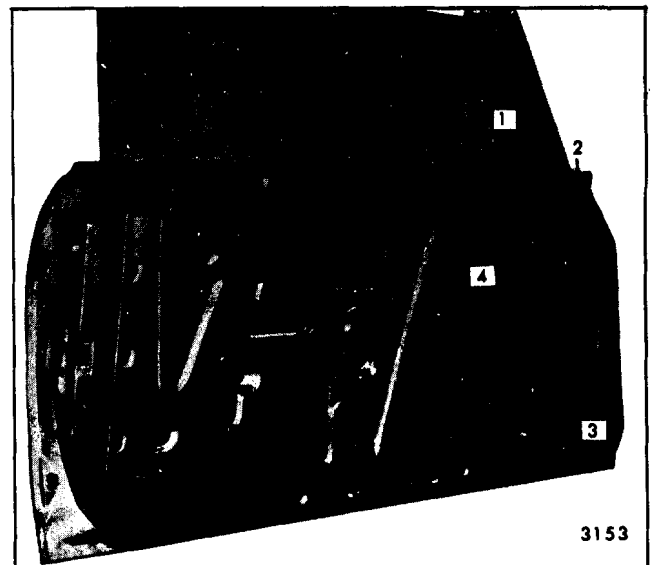


Fig. 6-64-Front Door Ventilator Assembly Removal and Adjustment "A-39" Styles

- | | |
|--|--|
| 1. Ventilator Frame to Door Panel Bolts | 3. Division Channel Lower Adjusting Stud |
| 2. Ventilator Lower Frame Adjusting Stud | 4. Ventilator Regulator Attaching Bolts |

2. Remove ventilator frame to door panel bolts ("1", Figure 6-64) and trim pad hanger plate retained by rear bolt.
3. Remove ventilator lower frame adjusting stud ("2", Figure 6-64).
4. Remove division channel lower adjusting stud ("3", Figure 6-64).
5. Lift the ventilator upward, then rotate it so that division channel lower attaching bracket can clear the beltline adjacent to rear guide.
6. To install, reverse removal procedure. Adjust ventilator for proper operation and alignment as described below.

Ventilator Adjustments

The ventilator assembly can be positioned up or down and fore or aft. In addition, the top of the vent can be adjusted in or out in relation to the side roof rail.

To reposition the ventilator assembly up or down or fore or aft, it is necessary to have the vent completely loose at all attaching locations, including the ventilator regulator attaching bolts ("4", Figure 6-64).

To adjust the top of the ventilator in or out, loosen only the adjusting stud nuts ("2" and "3", Figure 6-64) and adjust the studs in or out as required.

It is not necessary to loosen the vent to outer panel bolts ("3", Figure 6-64).

Ventilator Disassembly and Assembly - "A-39" Styles

The "hardtop" style ventilator permits more disassembly than does the "closed" style vent. The parts that can be removed and replaced are as follows: upper glass run channel; division channel and component lower glass run channel and vent lower frame; ventilator casting; ventilator window assembly; ventilator weatherstrip (on casting); ventilator rear weatherstrips (on division channel).

As shown in Figure 6-65, it is necessary to remove the vent from the door to gain access to the vent casting to vent frame screws.

The vent window and sash channel assembly can be removed without removing the vent from the door; however, the vent regulator must be removed (see preceding removal procedure). With the regulator out, open the vent window to align the bosses on the T-shaft with the slots in the vent lower frame. Then, press the vent window downward to disengage the vent upper pivot from the vent casting. Remove the vent window by lifting upward.

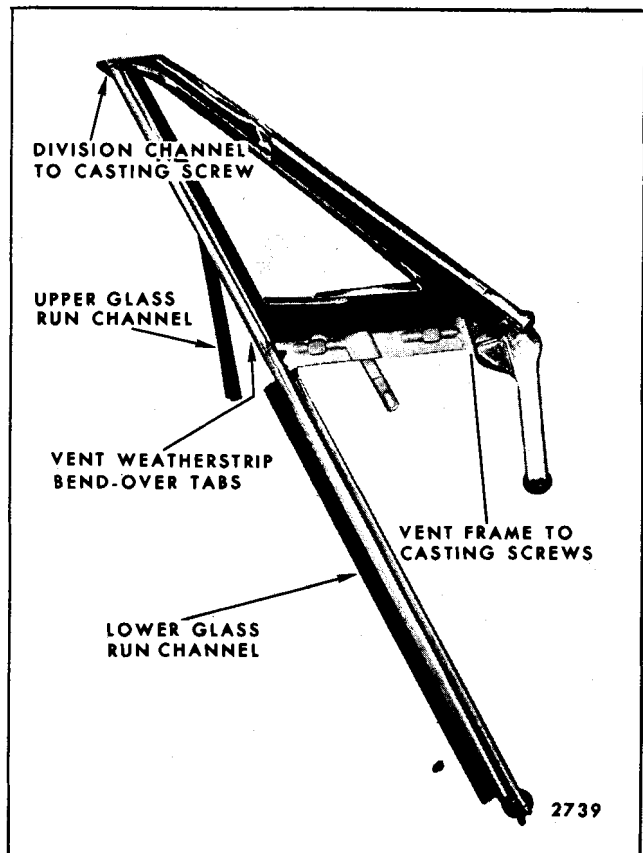


Fig. 6-65-Front Door Ventilator Assembly - "A-39" Styles

The division channel to casting screw (Figure 6-65), also retains the top of the division channel strip assembly. To remove the strip assembly, or to gain access to the vent weatherstrip bend-over tabs (weatherstrip on division channel), remove the screw and pull the strip assembly out of the division channel.

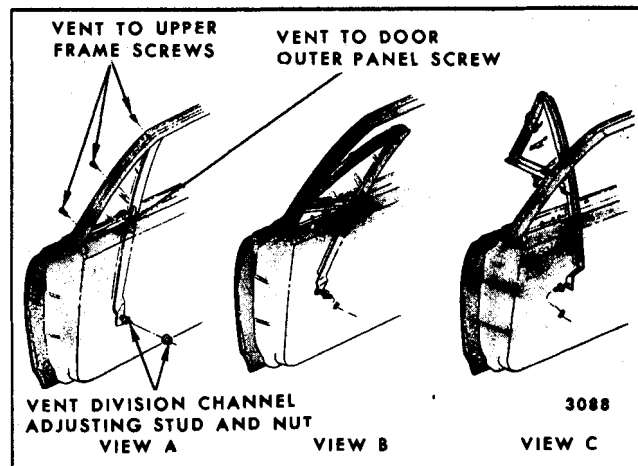


Fig. 6-66-Front Door Ventilator Removal

FRONT DOOR VENTILATOR ASSEMBLY - "X" Styles

The front door ventilator is a manually operated friction type unit on all styles.

Removal and Installation

1. Remove door trim assembly and inner panel water deflector.
2. With window in "full-up" position loosen down stop support attaching bolt and remove support ("7", Figure 6-46).
3. Lower door window and remove ventilator division channel lower adjusting stud nut and ventilator to door outer panel attaching screw (View "A" in Figure 6-66).
4. Remove ventilator to door upper frame attaching screws (View "A", in Figure 6-66).
5. Lift ventilator rearward and upward until lower forward corner of assembly is free of door upper frame (View "B" in Figure 6-66).
6. Rotate ventilator assembly in an outboard movement and remove unit outboard of door upper frame (View "C" in Figure 6-66).
7. To install, reverse removal procedure.

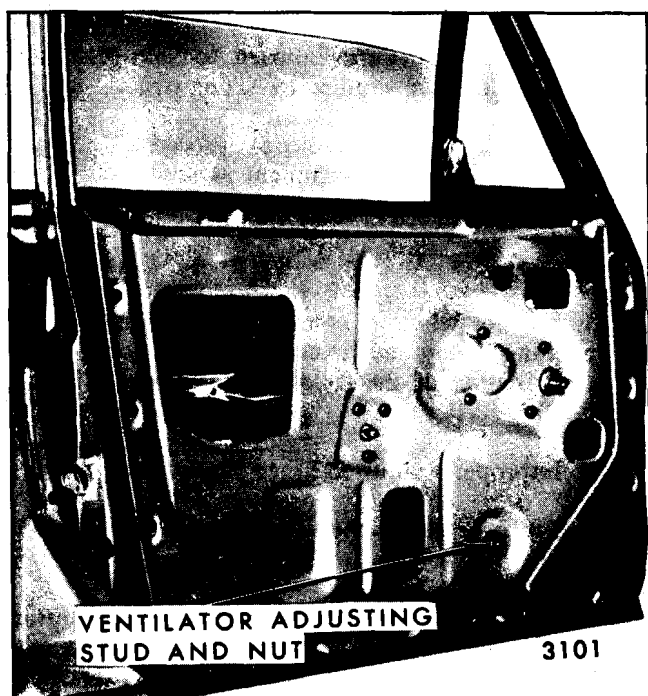


Fig. 6-67-Front Door Window Removal and Adjustment - "A and X" Closed Styles

Adjustment

A slight fore and aft adjustment of the ventilator division channel is available at the lower adjusting stud by loosening attaching nut and sliding stud in slot provided. The division channel can also be positioned in or out by loosening nut and turning stud in or out as required.

FRONT DOOR WINDOW ASSEMBLY - "A and X" Closed Styles

The front door window assembly consists of a frameless piece of solid tempered safety plate glass pressed into a thin section lower sash channel. When cycled, the glass operates within the ventilator division channel and window glass run channel.

Removal and Installation

1. Remove front door ventilator assembly as previously described.
2. Slide window lower sash channel cam off window regulator lift arm and balance arm rollers on two door styles and off lift arm roller on four door styles. Remove window inboard of door upper frame.
3. To install, reverse removal procedure. Adjust window for proper alignment as described in the following procedure.

Adjustments

1. To adjust lower portion of ventilator division channel for proper alignment with door window assembly, lower door window and loosen ventilator adjusting stud nut (Figure 6-67). Turn adjusting stud in or out or position lower end of channel fore or aft as required; then, tighten adjusting stud nut.
2. On two-door styles, the door window inner panel cam is adjustable at the front and can correct a rotated (cocked) front door window (Refer to index for inner panel cam adjustment).

FRONT DOOR WINDOW ASSEMBLY - "A-39" Styles

The front door window assembly consists of a solid tempered safety plate window and a combination pressed-on and bolt-on lower sash channel assembly which includes a screw-on lower sash channel cam. With this design, the door glass and sash channel are removed from the door as a unit and replacement glasses installed in bench operations.

Figure 6-68 is an exploded view of the front door

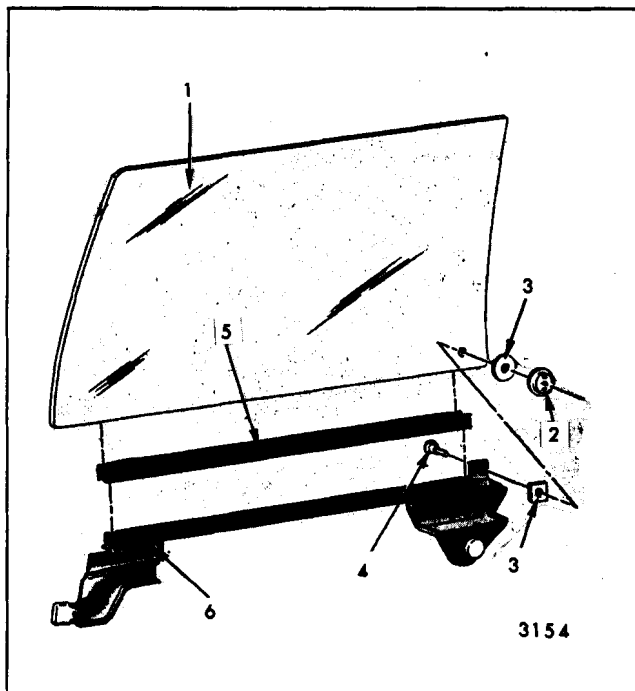


Fig. 6-68-Front Door Window Assembly - "A-39" Styles

- | | |
|---------------------------------------|---------------------------------|
| 1. Front Door Window | 4. Glass to Sash Channel Bolt |
| 2. Glass to Sash Channel Bolt Nut | 5. Glass to Sash Channel Filler |
| 3. Glass to Sash Channel Bolt Spacers | 6. Glass Lower Sash Channel |

window assembly and identifies the various components and their assembly sequence.

IMPORTANT: When installing the glass to sash channel bolts, torque nuts to 72 inch pounds (6 foot pounds). Also, when replacing door glass, replace glass spacers.

Removal and Installation

1. Remove door trim assembly and inner panel water deflector.
2. Operate window to a one-quarter down position; remove front up travel stop from lower sash channel and rear up stop from rear guide ("1" and "2", Figure 6-69).
3. Loosen rear guide to door inner panel attaching bolts ("3", Figure 6-69).
4. With window in a three quarter down position, remove screws securing lower sash channel cam to lower sash channel ("4", Figure 6-69).
5. Support window and disengage lower sash channel cam from regulator lift and balance arm rollers.

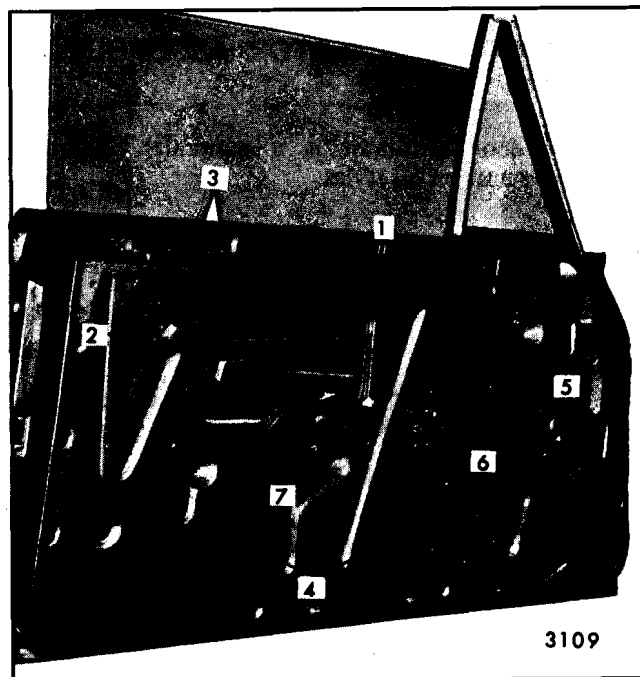


Fig. 6-69-Front Door Window Removal and Adjustments - "A-39" Styles

- | | |
|---|---|
| 1. Window Front Upper Stop Access Hole | 5. Ventilator Lower Frame Adjusting Stud and Nut |
| 2. Window Rear Upper Stop Bolt | 6. Ventilator Division Channel Lower Adjusting Stud and Nut |
| 3. Rear Guide Upper Attaching Bolts | 7. Inner Panel Cam Attaching Bolts |
| 4. Lower Sash Channel Cam Attaching Screws Access Holes | |
6. Push regulator lift arm inboard, to clear glass sash channel; remove window by lifting straight-up.
 7. To install, reverse removal procedure. Adjust window for proper alignment as described in the following procedure.

Adjustments

1. A rotated window condition (glass cocked in opening) may be caused by any one or a combination of the following (Reference: Figure 6-69).
 - a. Improperly adjusted inner panel cam ("7").
 - b. Front or rear upper stop improperly adjusted ("1 or 2").
2. To adjust upper rear corner of window in or out in relation to side roof rail weatherstrip, loosen rear guide upper attaching bolts ("3", Figure 6-69) and position guide further inboard or outboard.

Outboard adjustment at this location tends to

move the door window upper rear corner inboard. Conversely, inboard adjustment moves the top of the glass outboard.

If this adjustment proves inadequate, obtain additional adjustment at the ventilator front frame adjusting stud ("5", Figure 6-69).

3. To adjust window up-travel, loosen front and rear upper stops ("1 and 2", Figure 6-69), then operate window to desired up position and tighten stop bolts.
4. Adjustment has been provided to relieve a binding door glass due to a misaligned ventilator division channel ("6", Figure 6-69).

FRONT DOOR WINDOW ASSEMBLY - "A-37, 57, 67, 87" Styles

The front door window assembly consists of a solid tempered safety plate glass window, with a bolted-on lower sash guide plate assembly, which operates on a single vertical guide tube located in the center of the door.

Figure 6-70 is an exploded view of the window assembly and identifies the various components and their assembly sequence.

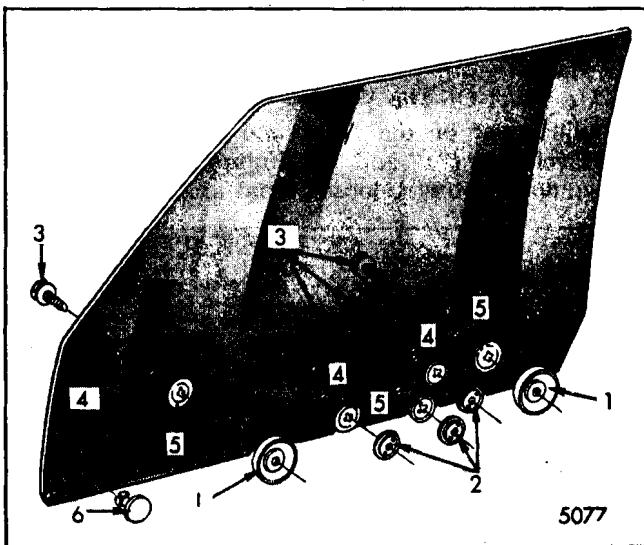


Fig. 6-70-Front Door Window Assembly "A-37, 57, 67 and 87" Styles ("B, C and E" Coupe Styles Shown, "A" styles Similar)

- | | |
|-------------------------------|---|
| 1. Stop, Up-Travel (On Glass) | 5. Washer |
| 2. Nut | 6. Fastener, Glass Bearing ("B, C and E" Styles Only) |
| 3. Bolt | |
| 4. Spacer | |

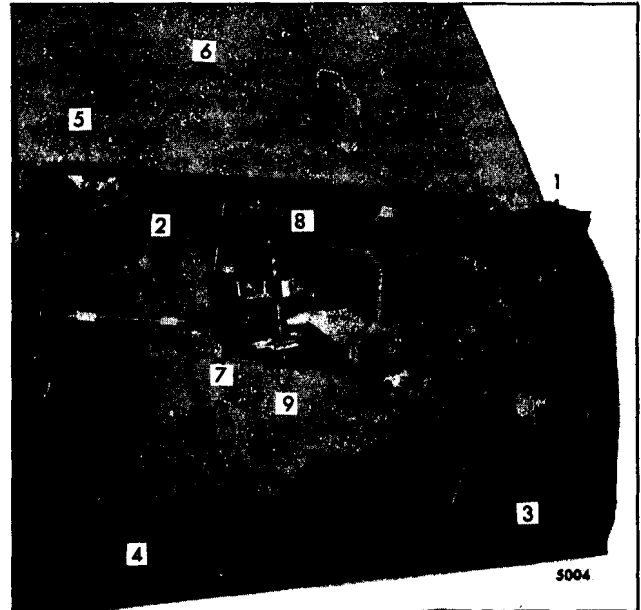


Fig. 6-71-Front Door Window Removal and Adjustment - "A-37, 57, 67 and 87" Styles

- | | |
|--------------------------------------|---|
| 1. Stop, Front Up-Travel Bolt | 6. Strip Stabilizer |
| 2. Stop, Rear Up-Travel Bolt | 7. Plate Assembly, Lower Sash Guide Bolts |
| 3. Support, Front Window Bumper Bolt | 8. Guide Assembly, Lower Sash Upper Bolts |
| 4. Support, Rear Window Bumper Bolt | 9. Guide Assembly, Lower Sash Lower Bolts |
| 5. Plate, Trim Pad Adjusting | |

Removal and Installation

1. Remove door trim assembly and inner panel water deflector.
2. Remove front and rear up-travel stops ("1 and 2", Figure 6-71) and front and rear stabilizer strips ("6", Figure 6-71).

NOTE: Removal of rear stabilizer strip necessitates removal of trim pad adjusting plate ("5", Figure 6-71).

3. Remove lower sash guide plate assembly to glass attaching bolts ("7", Figure 6-71). Tilt upper edge of glass inboard to disengage glass from guide plate, then remove the window from the door by lifting straight-up.

4. To install, reverse removal procedure. Adjust window for proper alignment and operation as described in the following adjustment procedure.

Adjustments

1. In And Out Adjustment of the glass is controlled by the in and out adjustment available at the front door window lower sash lower guide ("9", Figure 6-71) and the in and out position of the glass stabilizer strip assemblies ("6", Figure 6-71). The lower sash lower guide assembly and stabilizer strips are slotted to permit in and out adjustment of the glass. Outboard adjustment of the lower sash lower guide moves the top of the glass inboard. Conversely, inboard adjustment moves the top of the glass outboard.
2. Fore And Aft Adjustment of the window assembly is controlled by the position of the lower sash channel guide plate assembly ("7", Figure 6-71). The guide plate to glass attaching locations are slotted to permit fore and aft adjustment of the glass.
3. Ease Of Window Operation And Window Stability depend to a great extent on the adjustment of the window stabilizer strip assemblies at the beltline ("6", Figure 6-71). The stabilizing strips ("6") should contact the glass throughout the full cycle of the window. Due to slight variations in glass contour, however, in some cases the strip may lose contact with the glass halfway through the cycle. This is permissible provided it does not result in loose glass. Contact should be sufficient to stabilize glass, but not restrict ease of window operation.
4. A Window That Is Rotated (Cocked) In The

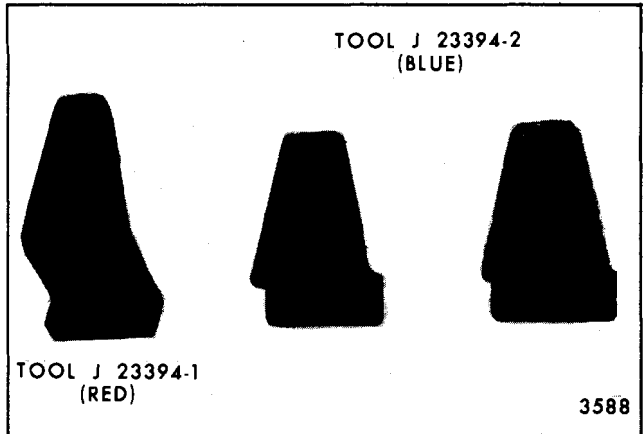


Figure 6-73-Glass Alignment Gauge Blocks - Tool J23394 (Consists of a Set of Three Blocks)

Window Opening may be the result of an improperly adjusted lower sash upper guide assembly ("8", Figure 6-71) or poorly adjusted up-travel stops ("1" and "2", Figure 6-71).

Control up-travel at front or rear of window through up or down adjustment of either front or rear up-travel stop.

Correct a poorly adjusted lower sash upper guide assembly by loosening upper guide assembly attaching bolts ("8", Figure 6-71) and rotating front edge of glass up or down in relation to rear edge of glass as necessary.

5. Up-travel Of The Window is determined by the adjustment of the front and rear window up-travel stops ("1" and "2", Figure 6-71). To adjust window up-travel, loosen front and rear up-stops

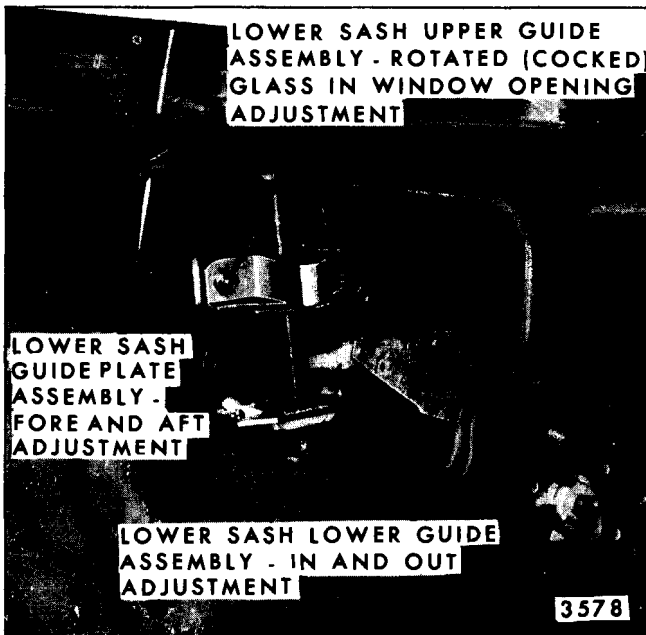


Figure 6-72-Front Door Window Adjustment Two-Door Hardtop Styles

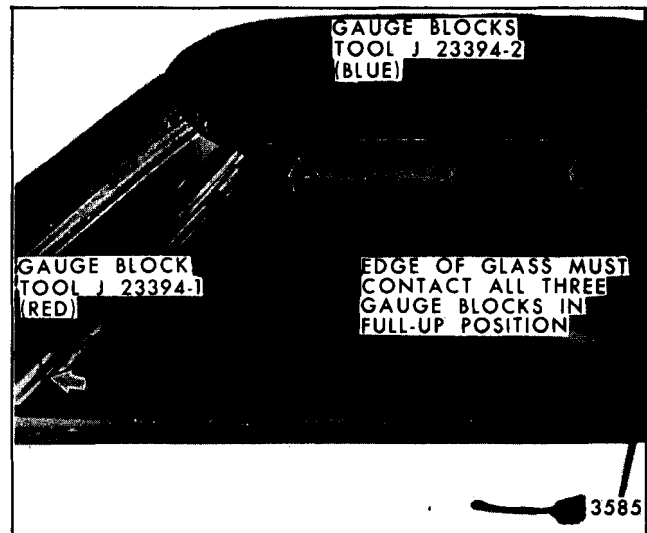


Figure 6-74-Front Door Window Alignment (Fore and Aft and Rotated "Cocked Glass" in Body Opening Adjustment)

and operate window to desired position to establish proper glass to side roof rail weatherstrip contact.

6. Down-travel of the window is determined by the position of the front and rear window down-travel bumper supports ("3" and "4", Figure 6-71). To adjust window down-travel, loosen front and rear window bumpers and lower window to desired glass height. Then, position front and rear bumper against lower edge of glass and tighten bumper attaching bolts.

GLASS ALIGNMENT GAUGE BLOCKS - "A-37, 57, and 87" Styles

With the elimination of front and rear guides and the incorporation of a single vertical guide tube in the center of the door, most window adjustments will be made from a guide plate attached to the lower edge of the glass (Figure 6-72). Fine adjustment of this glass will be more sensitive than conventional styles utilizing front and rear guides, as relatively small movements at adjusting locations will result in large movements at the upper edge of glass.

To facilitate adjustment of glass, use glass alignment gauge blocks Tool J-23394 or equivalent (Fig. 6-73). For proper use of gauge blocks refer to the following procedure:

Adjustment

1. Remove door trim assembly and inner panel water deflector.
2. Detach side roof rail weatherstrip at lower front corner and carefully remove from retainer over front door window as shown in Figure 6-74.
3. Lower front door and rear quarter windows and install gauge blocks, tool J-23394-2 (blue) or equivalent into side roof rail weatherstrip retainer above upper front and rear corners of glass as shown in Figure 6-74. Then, install gauge block, tool J-23394-1 (red) or equivalent into windshield pillar retainer slightly above beltline.

IMPORTANT: Grooves on sides of gauge blocks must be fully engaged with side roof rail weatherstrip retainer.

4. Working from inside body, with door in closed position, loosen front and rear up-travel stops ("1" and "2", Figure 6-71) and stabilizer strips ("6", Figure 6-71).
5. Raise door window assembly until contact is established between upper and/or forward edge of glass and one or more of three gauge blocks.

If upper and forward edge of glass contact all three gauge blocks simultaneously (as shown in Figure 6-74), proceed with step number six (6). If, however, upper and forward edge of glass does not contact all three blocks simultaneously, completely loosen lower sash channel guide plate ("7" Figure 6-71) and lower sash upper guide assembly ("8" Figure 6-71) and manipulate glass by hand until upper and forward edge of glass contacts all three gauge blocks in full-up position (as shown in Figure 6-71). Tighten guide plate and upper guide assembly attaching bolts.

6. Loosen lower sash lower guide assembly ("9", Figure 6-71). Apply firm outboard pressure against bottom of lower sash guide plate assembly to remove slack in system and to hold upper inner edge of glass inboard against outer edge of gauge blocks, as shown in Figure 6-75. Then, tighten lower guide assembly attaching bolts.

IMPORTANT: Inner surface of glass must contact outer surface of the upper gauge blocks during this adjustment. Excessive outboard pressure can tilt glass too far inboard at top, resulting in excessive glass to side roof rail weatherstrip contact.

7. With glass in full-up position against the upper gauge blocks as shown in Figure 6-75, tighten adjustable up-travel stops on glass (Figure 6-71) against inner panel. Adjust stabilizer strips ("6", Figure 6-71) for proper tension against glass.
8. Lower window and remove gauge blocks from weatherstrip retainer. Reinstall and reseal weatherstrip as previously described.

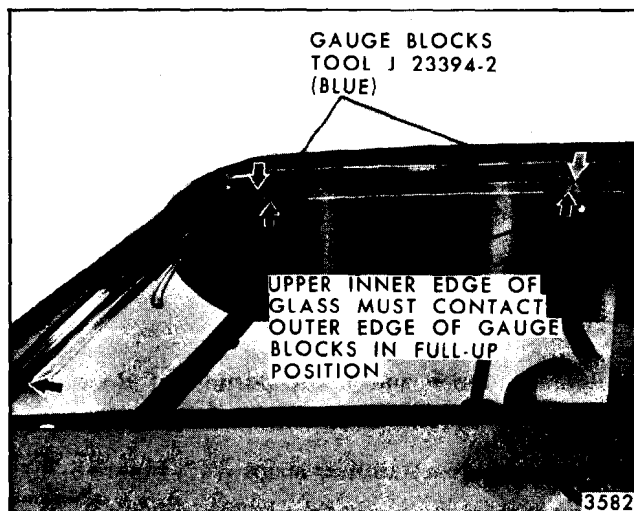


Figure 6-75-Front Door Window Alignment (In and Out and Up-Travel Adjustment)

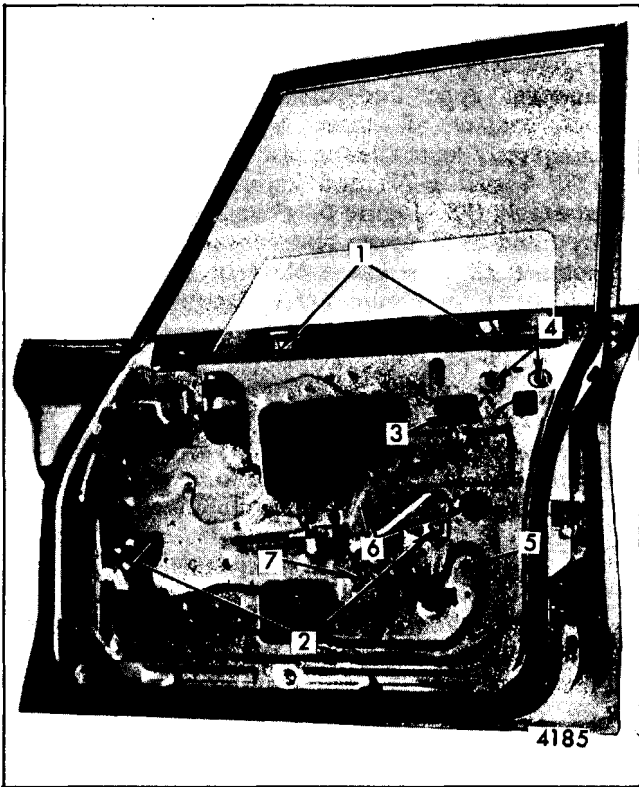


Fig. 6-76-Window Removal and Adjustment - "B" Closed Styles

- | | |
|--|---|
| 1. Window Trim Support Hanger and Stabilizer Strip Bolts | 4. Window Rear Guide Bracket to Inner Panel Bolts |
| 2. Window Lower Sash Channel Cam Attaching Stud Nut Access Holes | 5. Window Rear Guide Lower Bolt |
| 3. Window Rear Guide to Guide Bracket Bolt | 6. Inner Panel Cam Bolts |
| | 7. Window Down-Travel Support Bracket Bolt |

FRONT DOOR WINDOW ASSEMBLY - "B" Closed Styles

The front door window assembly consists of a solid tempered safety plate glass window and an individually bolted-on roller at the rear. The lower sash channel cam is bolted to the glass, but is removed in the process of removing the window.

Removal and Installation

1. Remove upper and lower portion of door trim assembly and inner panel water deflector.
2. Loosen window stabilizer strips ("1", Figure 6-76).
3. Operate window to a three-quarter-down position and remove window lower sash channel cam to glass attaching stud nuts ("2", Figure 6-76). Tilt

front edge of glass downward and remove window inboard of door upper frame.

4. To install, reverse removal procedure. Adjust glass for proper alignment and operation by performing the following procedure.

Adjustments

1. The rear guide is adjustable in and out ("3" Figure 6-76) and fore and aft ("4" Figure 6-76) to relieve a binding door glass.
2. The door window inner panel cam ("6", Figure 6-76) is adjustable at the front to correct a rotated (cocked) window.
3. The window down-travel is controlled by the position of the down-travel bumper support ("7" Figure 6-76).

FRONT DOOR WINDOW ASSEMBLY - "B, C and E" Two-Door Hardtop and Convertible Styles

The front door window assembly consists of a solid tempered safety plate glass window, with a bolted-on lower sash guide plate assembly, which operates on a single vertical guide tube located in the center of the door.

Figure 6-77 is an exploded view of the window assembly and identifies the various components and their assembly sequence.

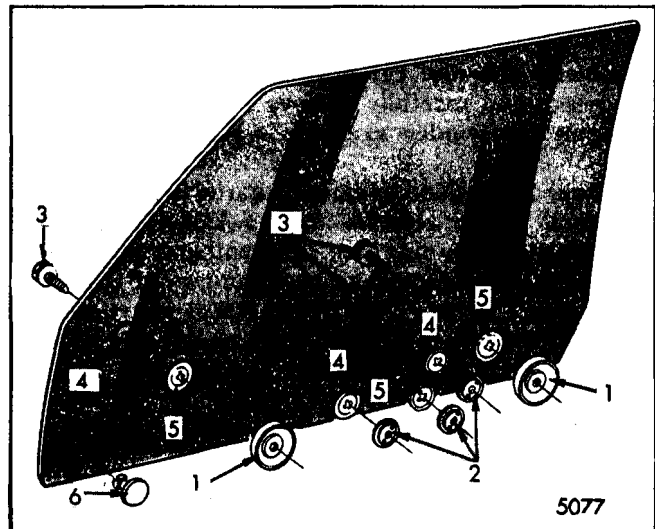


Fig. 6-77-Front Door Window Assembly - "B, C and E" Two-Door Hardtop and Convertible Styles

- | | |
|-------------------------------|----------------------------|
| 1. Stop, Up-Travel (On Glass) | 4. Spacer |
| 2. Nut | 5. Washer |
| 3. Bolt | 6. Fastener, Glass Bearing |

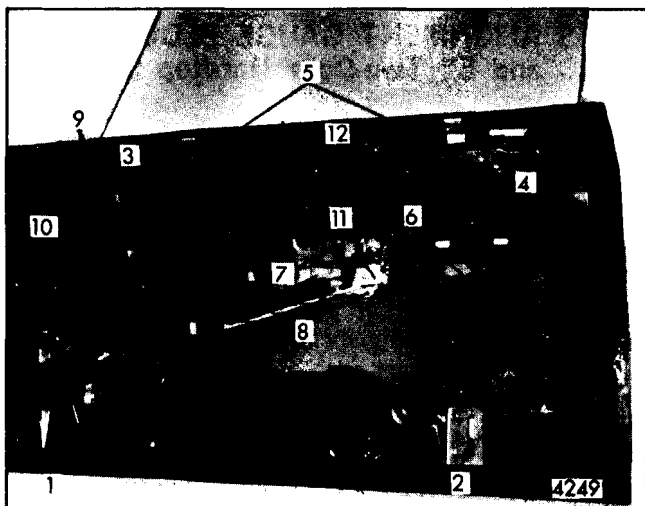


Fig. 6-78-Front Door Window Removal and Adjustment - "B, C and E" Two-Door Hardtop and Convertible Styles

- | | |
|--|---|
| 1. Support, Front Window Bumper Bolt | 8. Guide Assembly, Lower Sash Lower Bolts |
| 2. Support Rear Window Bumper Bolt | 9. Glass Bearing Plate to Inner Panel Bolts |
| 3. Stop, Front Up-Travel Bolt Location ("B, C and E" Styles) | 10. Glass Bearing Plate Adjusting Stud |
| 4. Stop, Rear Up-Travel Bolt Location ("B, C and E" Styles) | 11. Guide Assembly, Lower Sash Upper Adjustment Access Hole (Rotated "cocked" glass Adjustment) |
| 5. Trim Pad Adjusting Plates and Stabilizer Strips | 12. Plate Assembly, Lower Sash Guide Adjustment Access Hole (Fore and Aft Adjustment) |
| 6. Plate Assembly, Lower Sash Guide Bolts | |
| 7. Guide Assembly, Lower Sash Upper Bolts | |

Removal and Installation

1. Remove upper portion of door trim assembly.
2. Remove front and rear up-travel stops ("3 and 4", Figure 6-78) and stabilizer strips ("5", Figure 6-78).
3. Remove glass bearing plate adjusting stud nut ("10", Figure 6-78) and turn adjusting stud clockwise until bearing plate is out of contact with bearing button on glass.
4. Remove lower sash guide plate assembly to glass attaching bolts ("6", Figure 6-78). Tilt upper edge of glass inboard to disengage glass from guide plate, then remove the window from the door by lifting straight-up.
5. To install, reverse removal procedure. Adjust

window for proper alignment and operation as described in the following adjustment procedure.

Adjustments

1. In and out adjustment of the glass is controlled by the in and out adjustment available at the front door window lower sash lower guide ("8", Figure 6-78) and the in and out position of the glass stabilizer strip assemblies ("5", Figure 6-78). The lower sash lower guide assembly and stabilizer strips are slotted to permit in and out adjustment of the glass. Outboard adjustment of the lower sash lower guide moves the top of the glass inboard. Conversely, inboard adjustment moves the top of the glass outboard.
2. Fore and aft adjustment of the window assembly is controlled by the position of the lower sash channel guide plate assembly ("6", Figure 6-78). The guide plate to glass attaching locations are slotted to permit fore and aft adjustment of the glass.
3. Ease of window operation and window stability depend to a great extent on the adjustment of the window stabilizer strip assemblies at the beltline ("5", Figure 6-78) and glass bearing plate ("9 and 10", Figure 6-78). The stabilizing strips ("5") should contact the glass throughout the full cycle of the window. Due to slight variations in glass contour, however, in some cases the strip may lose contact with the glass halfway through the cycle. This is permissible provided it does not result in loose glass. Contact should be sufficient to stabilize glass, but not restrict ease of window operation. The glass bearing plate is adjustable in and out and should contact a glass bearing button (on glass) when glass is in a full-up position.
4. A window that is roated (cocked) in the window opening may be the result of an improperly adjusted lower sash upper guide assembly ("7", Figure 6-78) or poorly adjusted up-travel stops ("3" or "4", Figure 6-78).
Control up-travel at front or rear of window through up or down adjustment of either front or rear up-travel stop.
Correct a poorly adjusted lower sash upper guide assembly by loosening upper guide assembly attaching bolts ("7", Figure 6-78) and rotating front edge of glass up or down in relation to rear edge of glass as necessary.
5. Up-travel of the window is determined by the adjustment of the front and rear window up-travel stops ("3" and "4", Figure 6-78). To adjust window up-travel, loosen front and rear up-stops

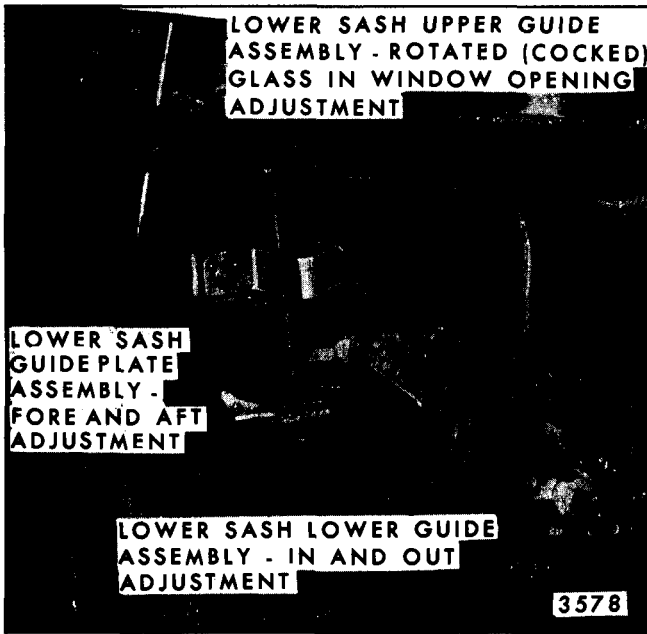


Fig. 6-79-Front Door Window Adjustment ("A" Styles Shown, "B, C and E" Styles Similar)

and operate window to desired position to establish proper glass to side roof rail weatherstrip contact.

6. Down-travel of the window is determined by the position of the front and rear window down-travel bumper supports ("1" and "2", Figure 6-78). To adjust window down-travel, loosen front and rear window bumpers and lower window to desired glass height. Then, position front and rear bumper against lower edge of glass and tighten bumper attaching bolts.

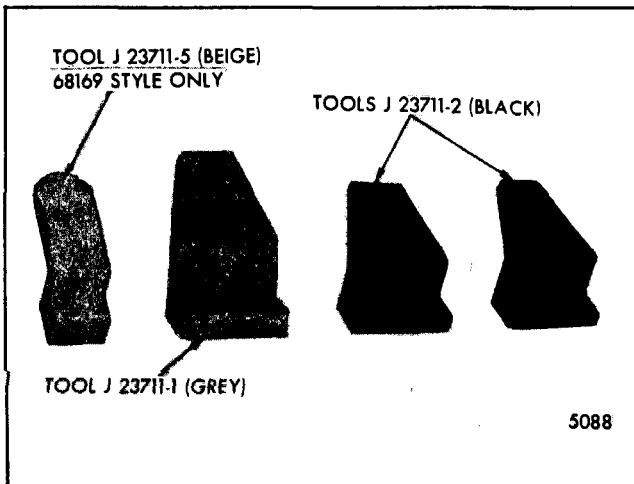


Figure 6-80 - Glass Alignment Gauge Blocks - Tool J-23394 (Consists of a set of four blocks)

GLASS ALIGNMENT GAUGE BLOCKS - ("B, C and E" Two-Door Hardtop Styles)

With the elimination of front and rear guides and the incorporation of a single vertical guide tube in the center of the door most window adjustments will be made from a guide plate attached to the lower edge of the glass (Figure 6-79). Fine adjustment of this glass will be more sensitive than conventional styles utilizing front and rear guides, as relatively small movements at adjusting locations will result in large movements at the upper edge of glass.

To facilitate adjustment of this glass, use glass alignment gauge blocks tool J-23711 or equivalent (Fig. 6-80). For proper use of gauge blocks, refer to the following procedure:

1. Remove upper portion of door trim assembly. (Refer to the index for door trim assembly removal).
2. Detach side roof rail weatherstrip at lower front corner and carefully remove from retainer over the door window, as shown in Figure 6-82.
3. Lower front and rear quarter windows and install gauge blocks, tool J-23711-2 (black) or equivalent into side roof rail weatherstrip retainer above upper front and rear corners of the glass as shown in Figure 6-82. Then, install gauge block, tool J-23711-1 (grey), or equivalent into windshield pillar retainer slightly above beltline.

IMPORTANT: The grooves on sides of the gauge blocks must be fully engaged with side roof rail weatherstrip retainer.

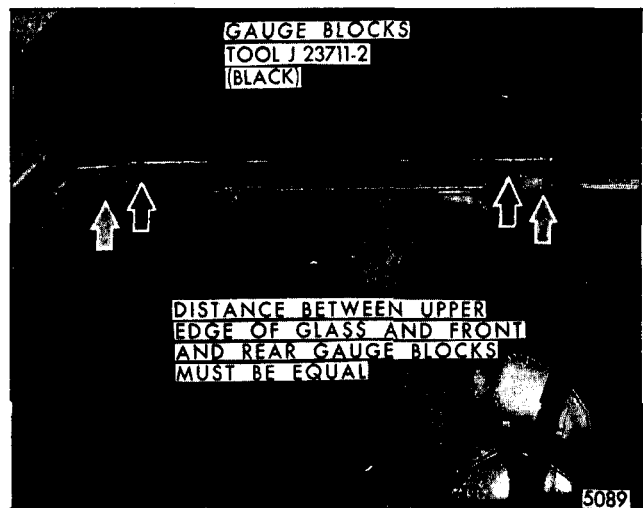


Figure 6-81 - Front Door Window Alignment (Rotated "Cocked" Glass in Body Opening Adjustment)

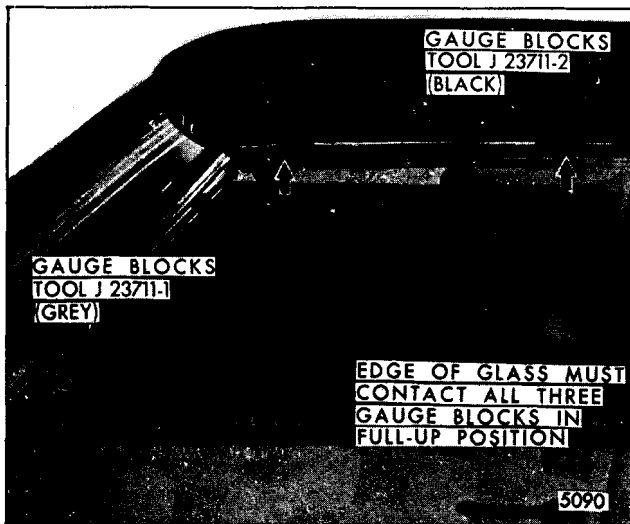


Figure 6-82-Front Door Window Alignment
(Fore and Aft Adjustment)

4. Working from inside body, with door in the closed position, loosen front and rear up-travel stops ("3" and "4", Figure 6-78), stabilizer strips ("5", Figure 6-78) and glass bearing plate ("10", Figure 6-78). To loosen bearing plate, remove stud nut and turn adjusting stud "10" clockwise until bearing plate is out of contact with bearing button on glass.
5. With glass in partially-down position loosen rear stationary up-travel stop on glass ("1", Figure 6-77). Then, raise door window assembly to approximately 1" from the full-up position, as illustrated in Figure 6-81. If distance (space) between the upper edge of glass and the front and rear gauge blocks is equal (as shown in Figure

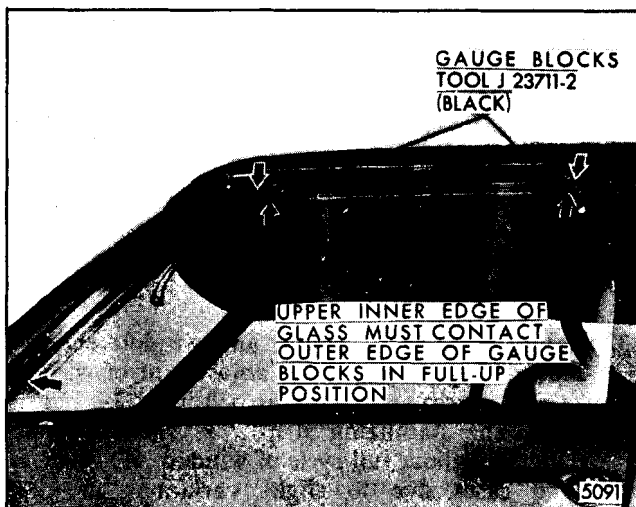


Figure 6-83-Front Door Window Alignment (In Adjustment) and Out and Up-Travel

6-81), proceed with step number six (6). If distance (space) between the upper edge of the glass and both upper gauge blocks is not equal, loosen lower sash lower guide attaching bolts ("7", Figure 6-78) through access holes ("11", Figure 6-78) and adjust glass as necessary.

6. Raise front door window assembly until contact is established between the upper and forward edge of glass and one or more of the three gauge blocks.

If upper and forward edge of glass contacts all three gauge blocks simultaneously (as shown in Figure 6-88), proceed with step number (7). If upper and forward edge of glass does not contact all three gauge blocks simultaneously, loosen fore and aft adjustment on lower sash guide plate ("6", Figure 6-78) through access holes ("12", Figure 6-78) and move glass forward or rearward until the edge of glass contacts all three gauge blocks in the full-up position.

7. Completely loosen lower sash lower guide assembly "7", Figure 6-78). Apply firm outboard pressure against upper end of front guide to remove slack in system and to hold upper inner edge of glass inboard against the outer edge of the gauge blocks, as shown in Figure 6-89. Then, tighten lower sash lower guide assembly attaching bolts.

IMPORTANT: Inner surface of glass must contact outer surface of two upper blocks during this adjustment.

8. With glass in full-up position against upper gauge blocks, tighten up-travel stops ("3" and "4", Figure 6-78) and adjust stabilizer strips ("5", Figure 6-78) for proper tension against glass. Then turn glass bearing plate adjusting stud counterclockwise until the plate assembly contacts the bearing button on glass.
9. Lower window and remove gauge blocks from weatherstrip retainer. Then, tighten rear stationary up-travel stop on glass ("1", Figure 6-77) and reinstall and seal weatherstrip as previously described.

FRONT DOOR WINDOW ASSEMBLY - "B and C-39 and 49" and "C-69" Styles

The front door window assembly consists of a solid tempered safety plate glass window and an individually bolted-on roller at the rear and a roller assembly (bell-crank) at the front. The lower sash channel cam is bolted to the glass, but is removed in the process of removing the window.

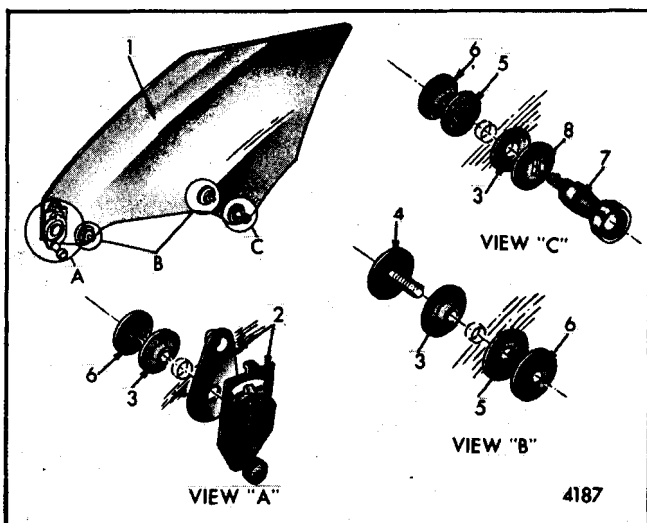


Fig. 6-84-Front Door Window Assembly - "B" and C-39-49" and "C-69" Styles

- | | |
|---------------------------------|--------------------------|
| 1. Window Assembly | 4. Bolt, Inner Panel Cam |
| 2. Window Assembly (Bell Crank) | 5. Washer (Plastic) |
| 3. Bushing | 6. Nut |
| | 7. Window Roller |
| | 8. Washer (Metal) |

Figure 6-84 is an exploded view of the window assembly and identifies the various components and their assembly sequence.

Removal and Installation

1. Remove upper and lower portion of door trim assembly and inner panel water deflector.
2. Remove front and rear window up-travel stops ("1" and "2", Figure 6-85).
3. Loosen front and rear window stabilizer strips ("3", Figure 6-85).
4. With window in three-quarter-down position, remove lower sash channel cam to glass attaching nuts ("4", Figure 6-85). Remove window by lifting straight up and aligning rollers with notches provided in the door inner panel. Remove rear end of window first, then front end.
5. To install, reverse removal procedure. Adjust window for proper alignment and operation as described in the following adjustment procedure.

Adjustments

NOTE: All adjustments can be accomplished without removal of lower portion of door trim assembly, except inner panel cam and window down travel.

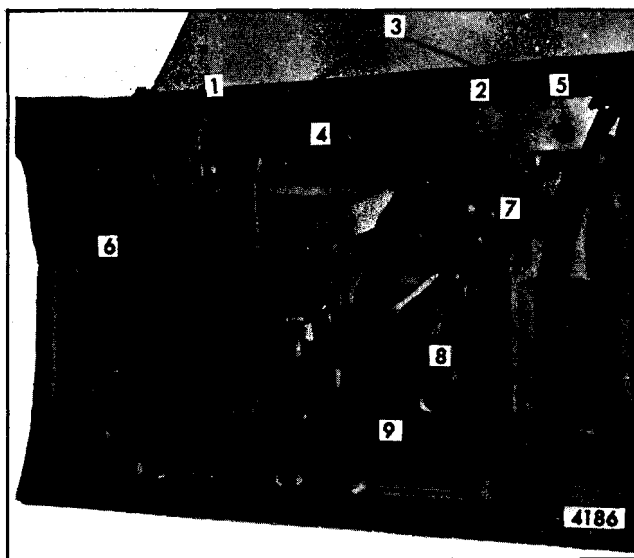


Fig. 6-85-Window Removal and Adjustment - "B and C-39-49" and "C-69" Styles

- | | |
|--|--|
| 1. Window Front Up-Travel Stop Bolt | 5. Rear Guide Upper Bracket Bolts |
| 2. Window Rear Up-Travel Stop Bolt | 6. Front Guide Upper Bolt |
| 3. Window Trim Support Hanger and Stabilizer Strip Bolts | 7. Rear Guide to Guide Upper Bracket Bolt |
| 4. Window Lower Sash Channel Cam Nuts Access Holes | 8. Inner Panel Cam Bolts |
| | 9. Window Down-Travel Support Bracket Bolt |

1. In and out adjustment of glass is controlled by in and out adjustment available at the top of the front and rear guides ("6" and "7", Figure 6-85) and in and out position of the glass stabilizer strip assemblies ("3", Figure 6-85). Outboard adjustment of guides moves top of the glass inboard. Conversely, inboard adjustment moves top of the glass outboard.
2. Fore and aft adjustment of window assembly is controlled by position of rear guide. Upper attaching locations in the inner panel ("5", Figure 6-85) are slotted to permit fore and aft adjustment of guide. Because the roller assembly (bell-crank) which attaches to the glass at the front pivots, the front guide does not have to be adjusted during fore or aft window alignment.
3. Ease of window operation and window stability depends a great extent on adjustment of window stabilizer strip assemblies at beltline ("3", Figure 6-85). The stabilizing strips "3" should contact glass throughout full cycle of window. However, in some cases due to slight variations in glass contour, the strip may lose contact with glass halfway through the cycle. This is permissible provided it does not result in loose glass or restrict ease of window operation.

4. A window that is rotated (cocked) in window opening may be the result of an improperly adjusted inner panel cam ("8", Figure 6-85) or poorly adjusted up-travel stops ("1" or "2", Figure 6-85).

Correct a poorly adjusted inner panel cam by loosening cam attaching bolts ("8", Figure 6-85) and adjusting front end of cam up or down as required. Adjustment of cam repositions front edge of glass up or down in relation to rear edge of glass.

5. Up-travel of window is determined by adjustment of front and rear up-stop ("1" and "2", Figure 6-85). To adjust window up-travel, loosen front and rear up-stops and operate window to desired position to establish proper glass to side roof rail weatherstrip contact.

GLASS ALIGNMENT GAUGE BLOCKS ("B and C" Four-Door Hardtop Ventless Styles)

To facilitate adjustment of this glass, use glass alignment gauge blocks tool J-23711 or equivalent (Fig. 6-86). For proper use of gauge blocks, refer to the following procedure:

1. Remove upper and lower portion of door trim assembly and peel back water deflector sufficiently to gain access to the inner panel cam. (Refer to the index for door trim assembly removal).
2. Detach side roof rail weatherstrip at lower front corner and carefully remove from retainer over door window, as shown in Figure 6-88.
3. Lower front and rear door or quarter windows and install gauge blocks, tool J-23711-2 (black) or

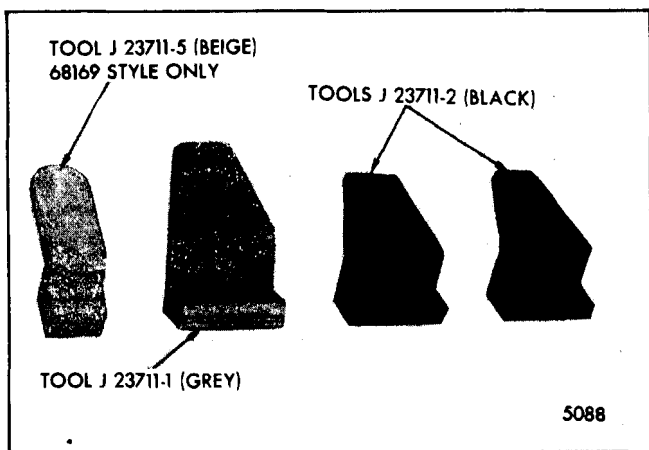


Figure 6-86 - Glass Alignment Gauge Blocks - Tool J-23711 or equivalent for "B and C" styles (Consists of a set of four blocks)

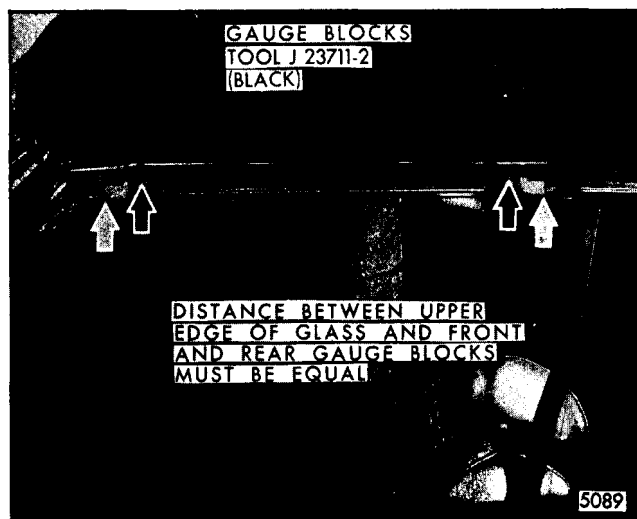


Figure 6-87 - Front Door Window Alignment (Rotated "Cocked" Glass in Body Opening Adjustment)

equivalent into side roof rail weatherstrip retainer above upper front and rear corners of glass as shown in Figure 6-88. Then, install gauge block, tool J-23394-1 (Red), or equivalent into the windshield pillar retainer slightly above beltline.

IMPORTANT: Grooves on sides of gauge blocks must be fully engaged with side roof rail weatherstrip retainer.

4. Working from inside body, with door in the closed position, loosen front and rear up-travel stops ("1" and "2", Figure 6-85) and stabilizer strips ("3", Figure 6-85).

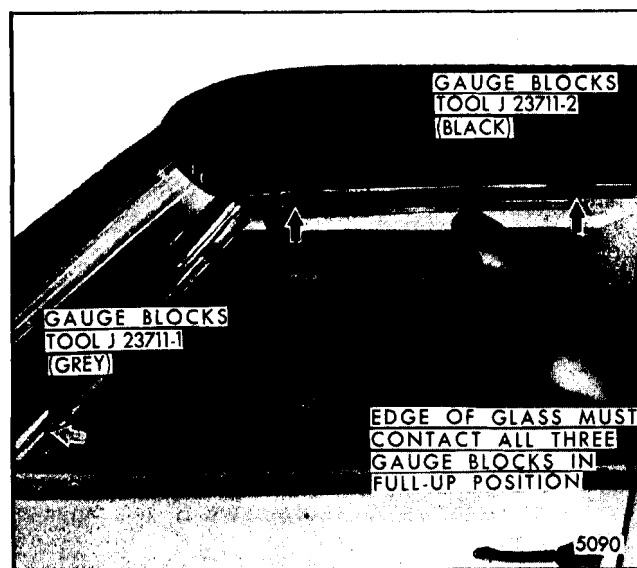


Figure 6-88 - Front Door Window Alignment (Fore and Aft Adjustment)

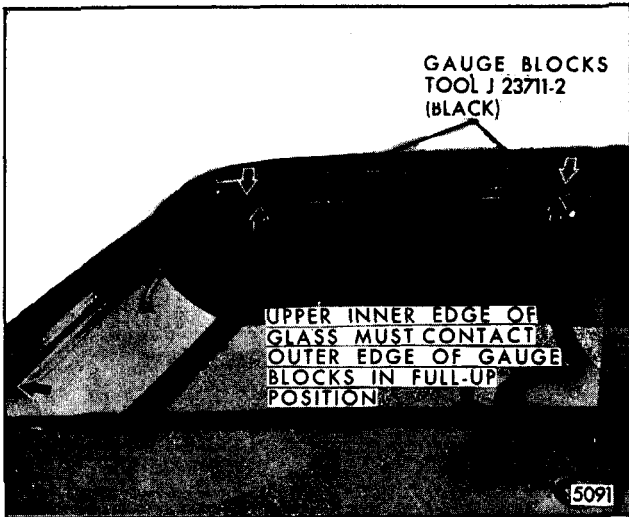


Figure 6-89 - Front Door Window Alignment (In and Out and Up-Travel Adjustment)

5. Raise front door window assembly to approximately 1" from full-up position, as illustrated in Figure 6-87. If distance (space) between upper edge of glass and front and rear gauge blocks is equal (as shown in Figure 6-87), proceed with step number six (6). If distance (space) between upper edge of glass and both upper gauge blocks is not equal, loosen inner panel cam attaching bolts ("8", Figure 6-85) and adjust glass as necessary.
6. Raise front door window assembly until contact is established between upper and forward edge of glass and one or more of the three gauge blocks.

If upper and forward edge of glass contacts all three gauge blocks simultaneously (as shown in Figure 6-88), proceed with step number (7). If upper and forward edge of glass does not contact all three gauge blocks simultaneously, loosen fore and aft adjustment on rear guide ("5" Figure 4186) and move glass forward or rearward until the edge of glass contacts all three gauge blocks in full-up position.

7. Completely loosen upper ends of front and rear guides. Apply firm outboard pressure against upper end of the front guide to remove slack in the system and to hold upper inner edge of glass inboard against outer edge of gauge blocks, as shown in Figure 6-89. Then, tighten upper guide attaching bolts. Repeat operation with rear guide. Guides will now be coordinated to the plane of the glass.

IMPORTANT: Inner surface of glass must contact outer surface of both upper blocks during this adjustment.

8. With glass in full-up position against upper gauge blocks, tighten up-travel stops ("1" and "2", Figure 6-85) and adjust stabilizer strips ("3", Figure 6-85) for proper tension against glass.
9. Lower window and remove gauge blocks from weatherstrip retainer. Reinstall and seal weatherstrip as previously described.

DOOR WINDOW ASSEMBLY - "F" Styles

The door window assembly consists of a solid tempered safety plate glass window and an individually bolted-on roller at the rear and a roller assembly (bell-crank) at the front. The lower sash channel cam is bolted to the glass, but is removed in the process of removing the window.

Figure 6-90 is an exploded view of the window assembly and identifies the various components and their assembly sequence.

Removal and Installation

1. Remove door trim assembly and inner panel water deflector.
2. Remove window front and rear up-travel stops ("1" and "2", Figure 6-91).
3. Loosen window front and rear stabilizer strip ("3", Figure 6-91).

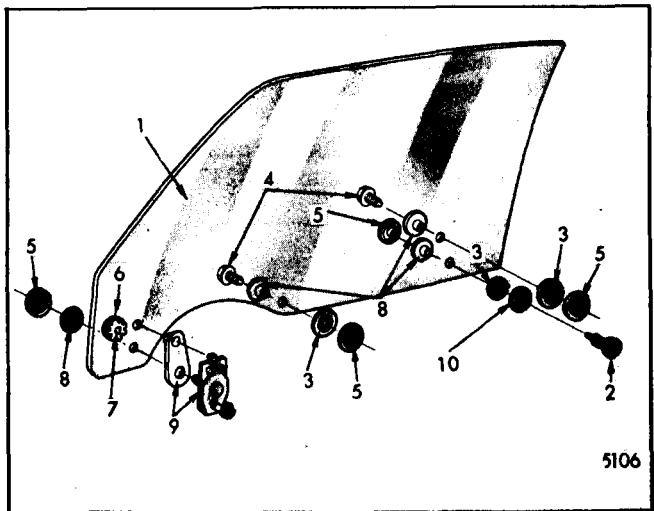


Fig. 6-90 Door Window Assembly

- | | |
|-------------------------|---------------------------------|
| 1. Window Assembly | 7. Glass Bearing |
| 2. Window Roller | Fastener Cap |
| 3. Washer (Plastic) | 8. Bushing |
| 4. Bolt Inner Panel Cam | 9. Roller Assembly (Bell Crank) |
| 5. Nut | 10. Washer (Metal) |
| 6. Glass Bearing | |
| Fastener | |

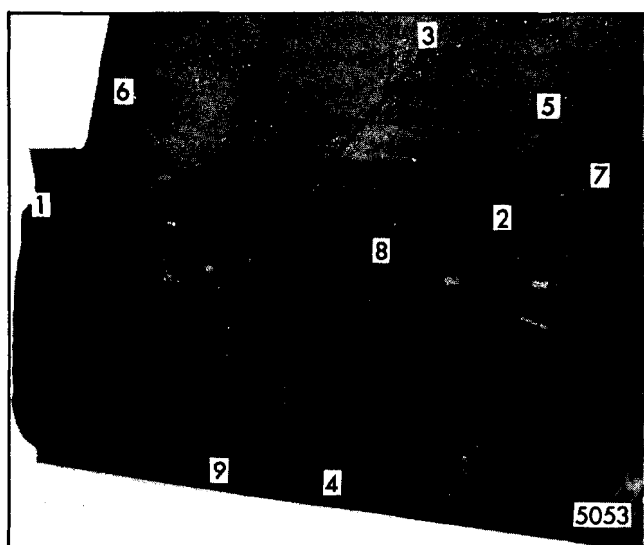


Fig. 6-91-Window Removal and Adjustment

- | | |
|--|--|
| 1. Window Front Up-Travel Stop Bolt | 5. Rear Guide Upper Bracket Bolts |
| 2. Window Rear Up-Travel Stop Bolt | 6. Front Guide Upper Bolts |
| 3. Window Stabilizer Strip Bolt | 7. Rear Guide to Guide Upper Bracket Bolts |
| 4. Window Lower Sash Channel Cam Nuts Access Holes | 8. Inner Panel Cam Bolts |
| | 9. Window Down Travel Bumper Support |
4. With window in three-quarter-down position, remove lower sash channel cam to glass attaching nuts ("4", Figure 6-91). Remove window by lifting straight up and aligning rollers with notches provided in the door inner panel.
5. To install, reverse removal procedure. Adjust window for proper alignment and operation as described in the following adjustment procedure.

Adjustments

- In and out adjustment of the glass is controlled by the in and out adjustment available at the top of the front and rear guides ("5" and "6", Figure 6-91) and the in and out position of the glass stabilizer strip ("3", Figure 6-91). Outboard adjustment of the guides moves the top of the glass inboard. Conversely, inboard adjustment moves the top of the glass outboard.
- Fore and aft adjustment of the window assembly is controlled by the position of the rear guide. The upper end of the guide to guide bracket attaching locations ("7", Figure 6-91) are slotted to permit fore and aft adjustment of the guide. Because the roller assembly (bell-crank) which attaches to the glass at the front pivots, the front guide does not have to be adjusted during fore and aft window alignment.

- Ease of window operation and window stability depends a great extent on the adjustment of the window stabilizer strip assembly at the beltline ("3", Figure 6-91). The stabilizing strip should contact the glass throughout the full cycle of the window. However, in some cases due to the slight variations in glass contour, the strip may loose contact with the glass halfway through the cycle. This is permissible provided it does not result in loose glass or restrict ease of window operation.
- A window that is rotated (cocked) in the window opening may be the result of an improperly adjusted inner panel cam ("8", Figure 6-91) or poorly adjusted up-travel stops ("1" or "2", Figure 6-91).

Correct a poorly adjusted inner panel cam by loosening cam attaching bolts ("8", Figure 6-91) and adjusting front end of cam up or down as required. Adjustment of cam repositions front edge of glass up or down in relation to rear edge of glass.

- The up-travel of the window is determined by the adjustment of the front and rear up-stop ("1" and "2", Figure 6-91). To adjust window up-travel, loosen front and rear up-stops and operate window to desired position to establish proper glass to side roof rail weatherstrip contact. Then, tighten stops.
- The down-travel of the window is determined by the position of the window support bumper ("9", Fig. 6-91). To adjust window down-travel, loosen bumper support and operate window to desired position. Then, raise bumper against lower edge of glass. Tighten bumper attaching bolt.

GLASS ALIGNMENT GAUGE BLOCKS ("F" STYLES)

To facilitate adjustment of this glass, use glass alignment gauge block tool J-23394 (or equivalent) (Fig. 6-92). For proper use of gauge blocks, refer to the following procedure.

- Remove door trim assembly and inner panel water deflector as described in Section 13 of this manual.
- Detach side roof rail weatherstrip at lower front and rear corners and carefully remove from retainer.
- With glass in a partially down position, install gauge blocks, tool J-23394-2 (blue) or equivalent, into side roof rail weatherstrip retainer above upper front and rear corners of the glass as shown

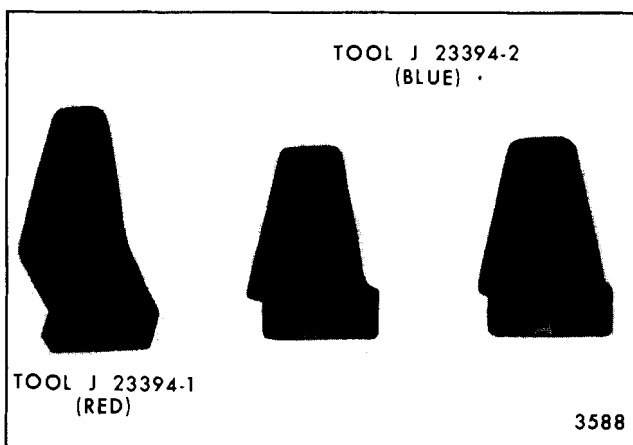


Fig. 6-92-Glass Alignment Gauge Blocks - Tool J-23394 or Equivalent
(Consists of a Set of Three Blocks)

in Figure 6-93. Then, install glass suction cups on interior surface of glass (Figure 6-93) to enable adjuster to shift glass when making adjustments with door in a closed position.

IMPORTANT: When installing gauge blocks (blue) or equivalent into upper retainer on "F" styles, handle portion of blocks must protrude outboard (Figure 6-93). Also, grooves on sides of blocks must be fully engaged with side roof rail weatherstrip retainer.

4. Working from inside body, with door in a closed position, loosen front and rear up-travel stops ("1" and "2", Figure 6-91) and stabilizer strips ("3", Figure 6-91).
5. Raise door window to approximately 1" from full-up position as illustrated in Figure 6-93. If distance (space) between upper edge of glass and front and rear gauge blocks is equal (as shown in

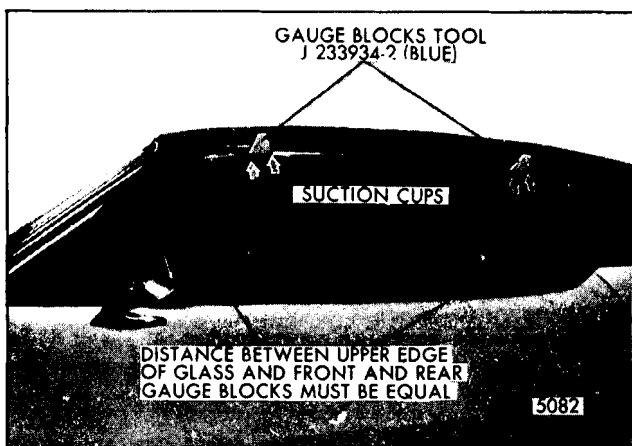


Fig. 6-93-"F" Style Door Window Alignment
(Roated "Cocked")
Glass in Body Opening Adjustment

Figure 6-93), proceed with step number six. If distance (space) between upper edge of glass and both upper gauge blocks is not equal loosen inner pannel cam attaching bolts ("8", Figure 6-91) and adjust as necessary.

6. Lower glass and install gauge block, tool J-23394-1 (red), or equivalent into the windshield pillar retainer slightly above the bellline (Figure 6-94).

IMPORTANT: When installing gauge block (red) or equivalent into windshield pillar retainer, handle portion of block must protrude inboard. Also grooves on side of block must be fully engaged with retainer.

Raise door window assembly until contact is established between upper and forward edge of glass and one or more of the three gauge blocks.

If upper and forward edge of glass contacts all three gauge blocks simultaneously (as shown in Figure 6-94), proceed with step number seven. If upper and forward edge does not contact all three gauge blocks simultaneously, loosen fore and aft adjustment on rear guide ("7", Figure 6-91) and move glass forward or rearward until edge of glass contacts all three gauge blocks in full-up position.

7. Completely loosen upper and lower ends of front and rear guides ("5" and "6", Figure 6-91). Apply firm outboard pressure against upper end of front guide to remove slack in system and to hold upper inner edge of the glass inboard against outer edge of tab on gauge block. Then, tighten front guide upper, then lower attaching bolts. Repeat operation with rear guide. Guides will now be coordinated to plane of glass.
8. With glass in full-up position against gauge blocks, tighten up-travel stops ("1" and "2",

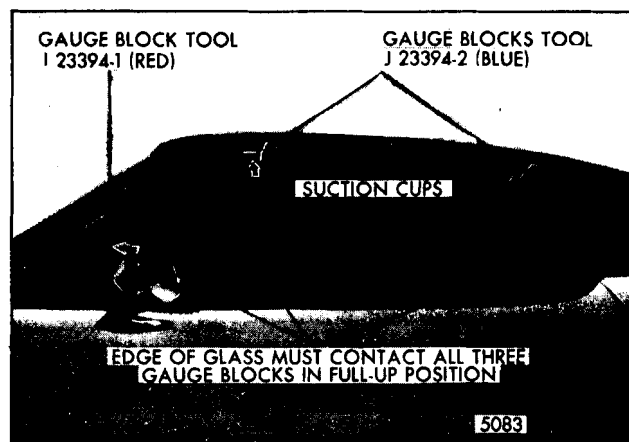


Fig. 6-94-"F" Style Door Window Alignment
(Fore and Aft Adjustment)

Figure 6-91) and adjust stabilizer strips ("3", Figure 6-91) for proper tension against glass.

- Lower window and remove gauge blocks from weatherstrip retainer. Reinstall and seal weatherstrip with a pumpable sealer.

FRONT DOOR WINDOW REGULATOR - Manual "A and X" Closed Styles

Removal and Installation

- Remove front door trim assembly and inner panel water deflector.
- Operate window to "full-up" position and secure in place with pieces of cloth-backed body tape applied over door frame.
- On two door styles, remove inner panel cam as previously described.
- Remove ventilator division channel lower adjusting stud and nut and window regulator attaching bolts (Figure 6-95).
- Press ventilator division channel outboard to permit disengagement of regulator spindle from

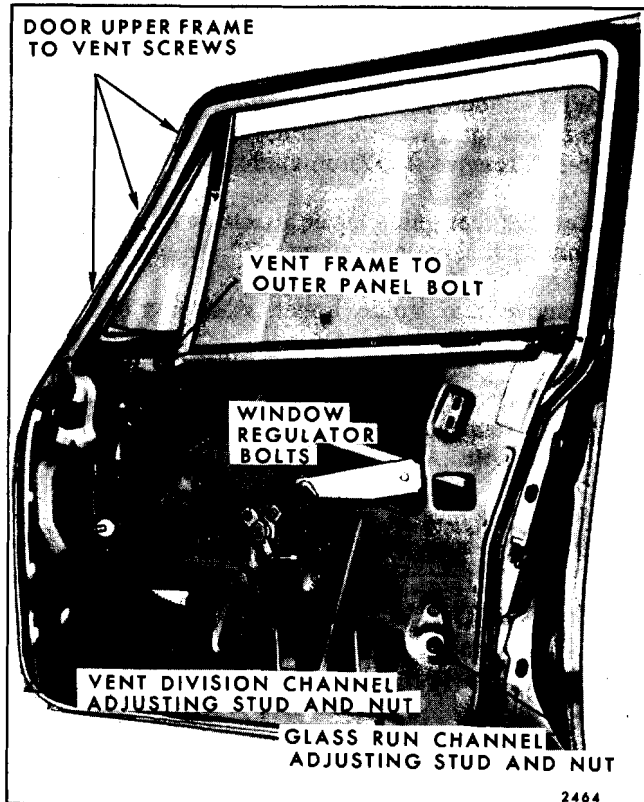


Fig. 6-95-Door Ventilator and Regulator Attachment - "A" Styles

inner panel then slide regulator balance arm roller and lift arm roller out of lower sash channel cam at front. Remove regulator through large access hole.

- To install, reverse removal procedure.

FRONT DOOR WINDOW REGULATOR-Electric-"A" Closed Styles

Removal and Installation

- Remove front door trim assembly, inner panel water deflector, window and ventilator as previously described.
- Disconnect wire harness connector at window regulator motor.
- Remove window regulator attaching bolts ("1", Figure 6-32) and remove regulator through access hole.
- To install, reverse removal procedure.

FRONT DOOR WINDOW REGULATOR-Manual and Electric-"A-39" Styles

Removal and Installation

- Remove door trim assembly and detach inner panel water deflector.
- On manually operated regulators, prop window in full-up position and remove inner panel cam attaching bolts ("6", Figure 6-34). Remove regulator attaching bolts ("9", Figure 6-34) and remove regulator through large access hole.
- On electrically operated regulators, remove door window as previously described and disconnect wire harness connector at window regulator motor. Remove the regulator attaching bolts ("9", Figure 6-34). Raise the regulator lift arm up through the beltline and rotate the regulator clockwise so that the regulator can be removed through the large access hole, motor coming out first.
- To install, reverse removal procedure.

FRONT DOOR WINDOW REGULATOR - Manual and Electric - "A, B, C and E" Two-Door Hardtop and Convertible Styles

Removal and Installation

- Remove door trim assembly (on "B, C and E" styles, remove upper and lower portion of door

trim assembly) and detach inner panel water deflector.

2. Remove inside locking rod as previously described.
3. Lower window to half-down position and remove regulator attaching bolts ("4", Figure 6-40). Disengage regulator lift arm roller from lower sash channel cam and prop window in full-up position. On manual styles, remove regulator assembly through large access hole. On electric styles, rotate regulator assembly clockwise so that motor portion of regulator assembly comes out access hole first.
4. To install, reverse removal procedure.

FRONT DOOR WINDOW REGULATOR - Manual - All "B and C" Four Door Styles

Removal and Installation (Refer to Figure 6-42)

1. Remove upper and lower portion of door trim assembly and inner panel water deflector.
2. Lower window and remove lower sash channel cam attaching stud nuts, except on "B" closed styles. On "B" closed styles, the regulator lift and balance arms can be disengaged from lower sash channel cam without removal of cam from glass.

NOTE: On "B" closed styles, raise window to full-up position and secure in place with pieces of cloth-backed body tape applied over door upper frame. On Hardtop and Convertible Styles, prop the window in the full-up position.

3. Remove inner panel cam attaching bolts.
4. Remove window regulator attaching bolts, then remove regulator through large access hole.
5. To install, reverse removal procedure.

FRONT DOOR WINDOW REGULATOR - Electric - All "B and C" Four Door Styles

Removal and Installation (Refer to Figure 6-42)

1. Remove upper and lower portion of door trim assembly and detach inner panel water deflector.
2. Remove door window and inner panel cam as previously described.
3. Disconnect wire harness connector at regulator motor.
4. Remove window regulator attaching bolts ("8",

Figure 6-42), remove regulator through large access hole.

5. To install, reverse removal procedure.

DOOR WINDOW REGULATOR (MANUAL AND ELECTRIC) - "F" Styles

Removal and Installation (Refer to Figure 6-44)

1. Remove door trim assembly and detach inner panel water deflector.
2. Remove door window and inner panel cam as previously described.
3. On electric styles, disconnect wire harness connector at regulator motor.
4. Remove window regulator attaching bolts (Figure 6-44), remove regulator through large access hole.
5. To install, reverse removal procedure.

FRONT DOOR WINDOW REAR GUIDE - "A-39" Styles

Removal and Installation

1. Remove front door trim assembly and inner panel water deflector.
2. With window in full-up position, loosen rear guide window up-travel stop attaching bolt ("3", Figure 6-34), remove stop from guide.
3. Remove rear guide lower attaching bracket to door inner panel attaching bolt ("2", Figure 6-34).
4. Remove rear guide upper attaching bolts ("5", Figure 6-34).
5. Work lower edge of guide past bumper bracket and disengage from roller. Remove guide through access hole.
6. To install reverse removal procedure. For adjustment, refer to door window adjustments.

FRONT DOOR WINDOW GUIDE TUBE - "A, B, C and E" Two-Door Hardtop and Convertible Styles

Removal and Installation

1. Remove door trim assembly and inner panel water deflector as previously described.
2. With window in a full down position, remove

guide tube upper and lower attaching bolts ("1", Figure 6-36 for "A" styles and "1", Figure 6-40 for "B, C and E" styles).

3. On "A" styles, remove guide by lifting straight-up through the beltline. On "B, C and E" styles, remove upper and lower sash guide assembly as subsequently described and remove tube assembly through access hole.
4. To install, reverse removal procedure.

FRONT DOOR WINDOW FRONT GUIDE - "B and C" Four-door Hardtop Styles

Removal and Installation (Refer to Figure 6-42)

1. Remove upper and lower portion of door trim assembly and inner panel water deflector.
2. With window in a full-up position, remove front guide upper and lower attaching bolts.
3. Pull guide downward and rearward to disengage from window front roller. Remove guide through large access hole.
4. To install, reverse removal procedure. For adjustment, refer to door window adjustments.

FRONT DOOR WINDOW REAR GUIDE - "B and C" Four-Door Hardtop Styles

Removal and Installation (Refer to Figure 6-42)

1. Remove upper and lower portion of door trim assembly and inner panel water deflector.
2. With window in a full-up position, remove rear guide upper and lower attaching bolts.
3. Pull guide down and forward to disengage from window rear roller. Remove guide through large access hole.
4. To install, reverse removal procedure. For adjustment, refer to door window adjustments.

FRONT DOOR WINDOW REAR GUIDE - "B" Closed Styles

Removal and Installation

1. Remove upper and lower portion of door trim assembly and inner panel water deflector.
2. With window in full-up position, remove rear guide upper and lower attaching bolts ("2" and "3" Figure 6-38).

3. Pull guide down and forward to disengage from window roller and remove from door through large access hole.

4. To install, reverse removal procedure. For adjustment, refer to door window adjustments.

FRONT DOOR WINDOW UPPER AND LOWER SASH GUIDE ASSEMBLY - "A, B, C and E" Two-Door Hardtop and Convertible Styles

Removal and Installation

1. Remove upper portion of door trim assembly.
2. Remove window guide tube as previously described.
3. Remove lower sash upper or lower guide assembly attaching bolts ("5" and "2", Figure 6-40). Then, remove guide tube assembly as previously described.
4. To install, reverse removal procedure. For adjustment, refer to door window adjustments.

DOOR WINDOW FRONT GUIDE - "F" Styles

Removal and Installation (Refer to Figure 6-44)

1. Remove front door trim assembly and inner panel water deflector.
2. With window in full-up position, remove front up-stop from guide.
3. Remove front guide upper and lower attaching bolts.
4. Pull guide down and rearward to disengage from window front roller. Remove guide through large access hole.
5. To install, reverse removal procedure. For adjustment, refer to door window adjustments.

DOOR WINDOW REAR GUIDE - "F" Styles

Removal and Installation (Refer to Figure 6-44)

1. Remove door trim assembly and inner panel water deflector.
2. Remove rear guide upper and lower attaching bolts.

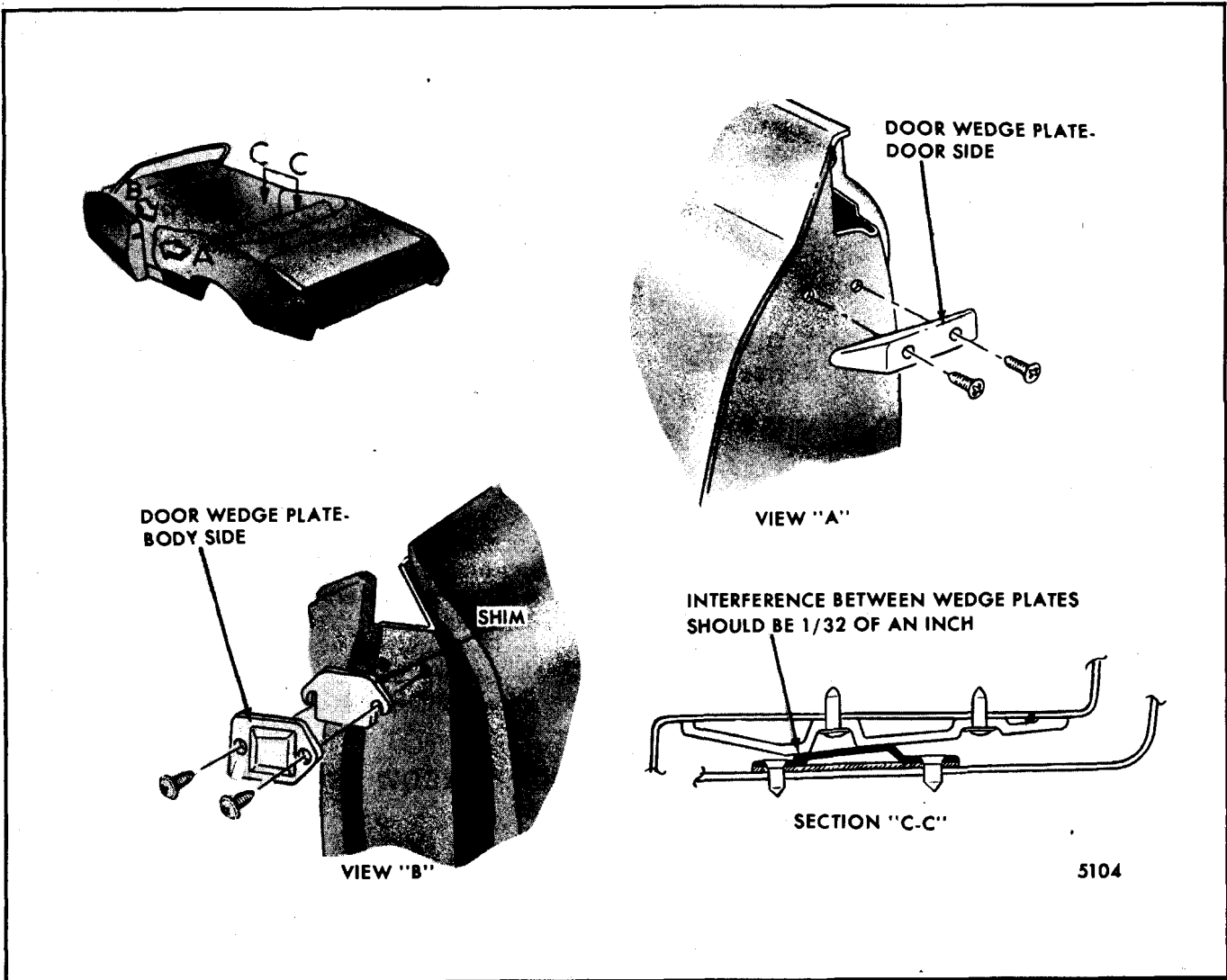


Fig. 6-96-Door Wedge Plates "67" Styles

3. Pull guide down and forward to disengage from window rear roller. Remove guide through large access hole.
4. To install, reverse removal procedure. For adjustment, refer to door window adjustments.

2. Starting at the upper front corner of the door upper frame, press (finger pressure) sides of run channel together and pull channel from frame.
3. To install, reverse removal procedure.

FRONT DOOR WINDOW GLASS RUN CHANNEL - "A, B and X" Closed Styles

Removal and Installation

1. On "A and X" styles, remove front door window as previously described. On "B" styles, lower glass to a full-down position.

DOOR WEDGE PLATES-"67" Styles

Door wedge plates are used on convertible styles to give additional support to the door when it is in the closed position. One plate is installed to the body lock pillar and the other to the door lock pillar (Figure 6-96). The plates should contact each other to the extent of a $1/32$ " interference when the door is closed. Body side wedge plate shims are available as a service part so that this interference can be obtained.

REAR DOORS

DESCRIPTION

Information in this section concerns operations applicable to rear doors only. Procedures for removal of water deflectors, door handles and weatherstrips are outlined in the "Front and Rear Door" section of this manual - see index. Door trim assemblies are covered in Section 13 - see index.

Illustrations 6-97 through 6-108 are typical of rear doors with the trim assembly and inner panel water deflector removed. These figures identify the component parts of the rear door assembly (by style), their relationship and various attaching points.

REAR DOOR HINGES-All Styles

All rear door hinges are constructed of steel or a combination of steel and malleable iron. A two stage hold-open feature is incorporated in all lower hinges, except on "X" styles which do not have a hold-open feature.

Door Removal and Installation

Doors can be removed by either removing the door from the hinges or by removing the door and hinges as an assembly from the center pillar.

1. Prior to loosening any hinge bolts, mark location of hinges on door or center pillar, depending on removal method being used.
2. On styles equipped with electric window regulators or power operated locks, proceed as follows:
 - a. Remove door trim assembly and inner panel water deflector.
 - b. Disconnect wire harness connector from regulator motor and/or wire harness connector from electric lock solenoid.
 - c. Remove electric conduit from door, then remove wire harness from door through conduit access hole.
3. With door properly supported, loosen upper and lower hinge attaching screws or bolts from door or center pillar and remove door from body. Figure 6-109 is typical of rear door hinge attachment.
4. Prior to reinstalling the door to the body, clean off old sealer at hinge attaching areas and apply a

coat of heavy-bodied sealer to surface of hinge that mates with center pillar or door hinge pillar to prevent corrosion.

5. With aid of a helper, lift door into position and loosely install hinge screws. Align hinges within pencil marks previously made and tighten hinge screws.
6. Install all previously removed parts and check door for proper alignment.

NOTE: When replacing or adjusting door hinges, torque bolts to 14 to 22 foot pounds.

Hinge Removal and Installation

1. If both hinges are to be removed, remove rear door as previously described. Mark position of hinge on door or center pillar depending on which door removal method was used and remove hinge attaching bolts.
2. With door properly supported, remove upper or lower hinge to door and center pillar attaching bolts and remove hinge from door.
3. To install, reverse removal procedure. Apply a coat of heavy-bodied sealer to surface of hinge that mates with the center pillar and door hinge pillar to prevent corrosion. Adjust door as outlined below.

NOTE: When replacing or adjusting door hinges, torque bolts to 14 to 22 foot pounds.

Rear Door Hinge Adjustments

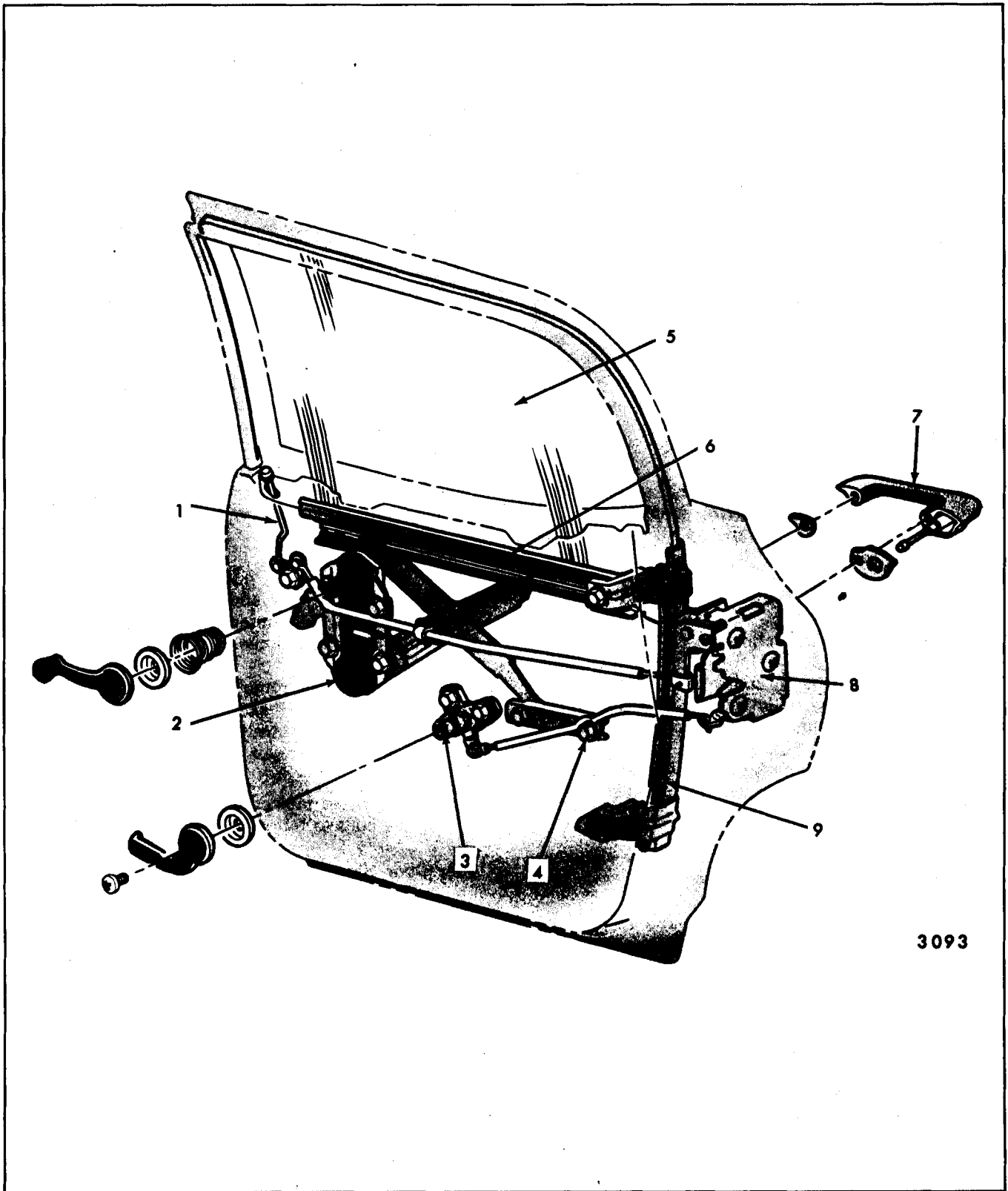
In-or-out and up-or-down adjustment is available at the door side hinge attaching screws. Fore-or-aft and a slight up-or-down adjustment is available at the body side (center pillar) hinge attaching screws.

REAR DOOR LOCK REMOTE CONTROL

There are two basic types of door lock remote controls; the "spindle" type (Figure 6-98) which rotates upward when actuated and the "pull-in" type (Figure 6-104) which rotates inboard when actuated. Remote controls are secured to the door inner panel by three attaching bolts. On some styles, it is mounted on the inboard surface of the door inner panel, and on others, on the outboard surface.

Removal and Installation

1. Remove rear door trim assembly (upper and lower



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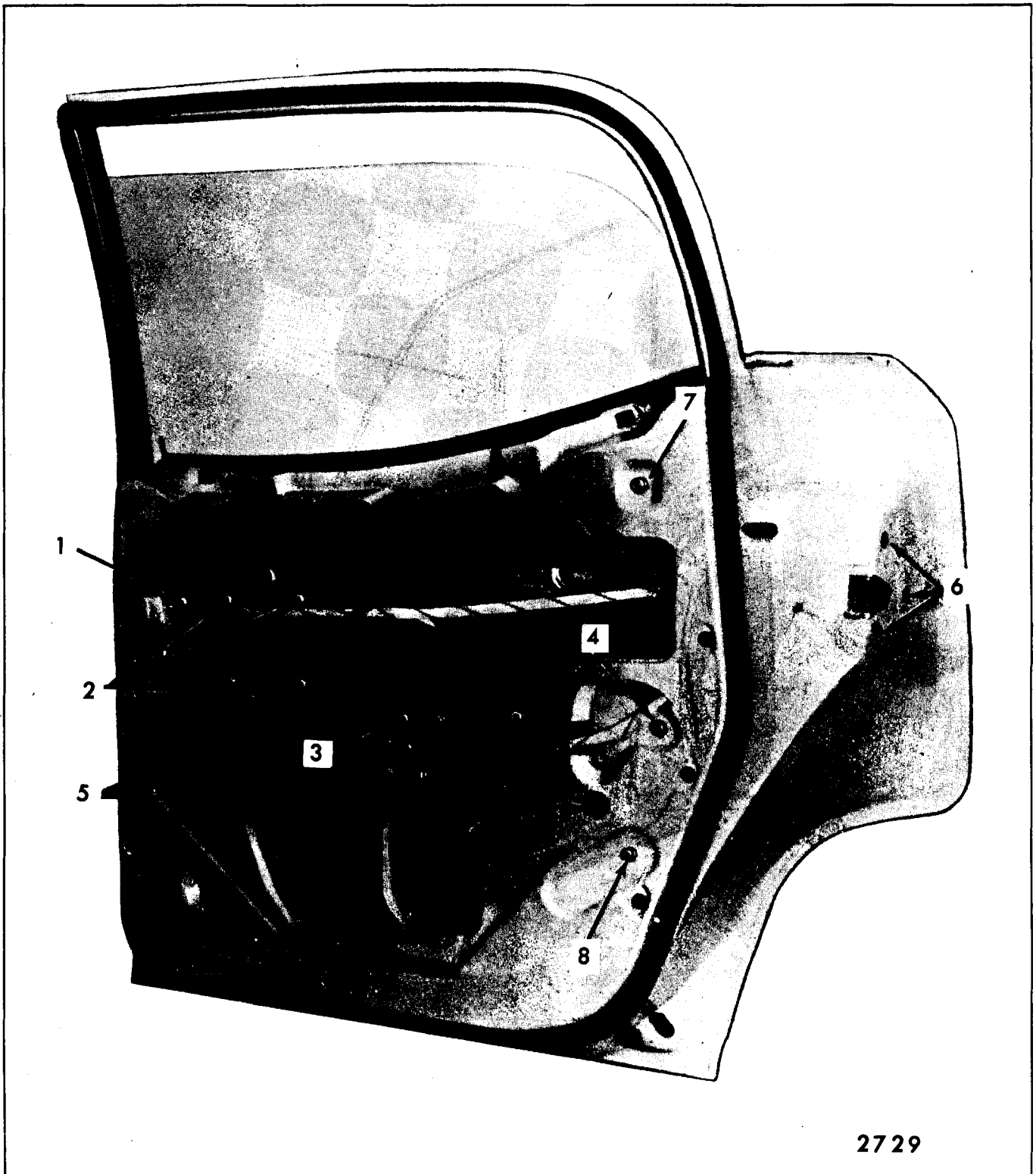
Fig. 6-97-Rear Door Hardware - "A" Closed Styles

1. Inside Locking Rod
2. Window Regulator - Manual

3. Door Lock Remote Control
4. Inner Panel Cam

5. Rear Door Window Control
6. Lower Sash Channel Cam

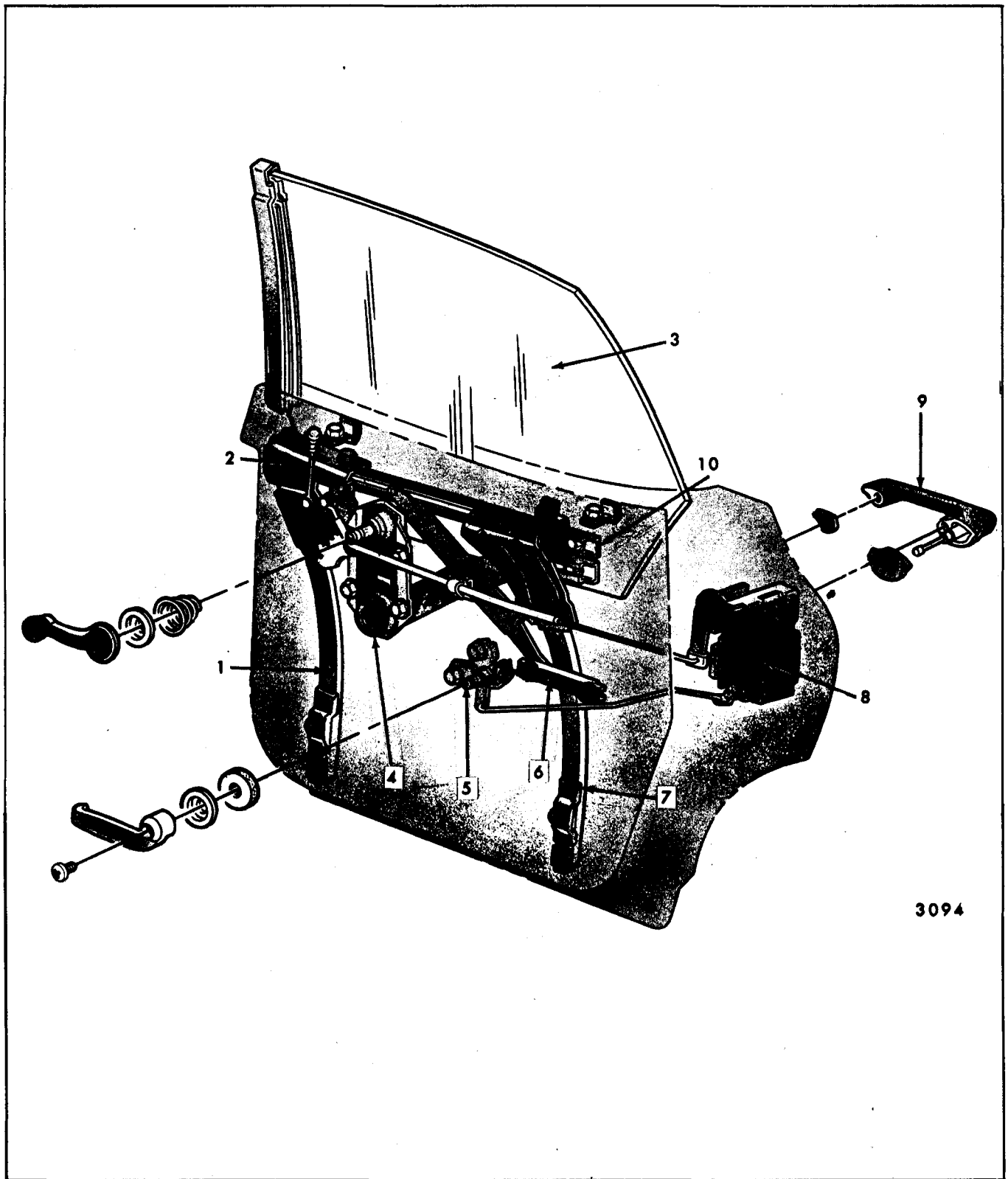
7. Door Outside Handle
8. Door Lock
9. Glass Run Channel



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Fig. 6-98-Rear Door Hardware - "A" Closed Styles

- | | | | |
|---|---|---|---|
| 1. Inside Locking Rod to Lock Connecting Link Attaching Bolts | 3. Door Lock Remote Control Attaching Bolts | 5. Lower Sash Channel Cam Attaching Screws Access Holes | 7. Glass Run Channel Upper Attaching Bolt |
| 2. Window Regulator Attaching Bolts | 4. Inner Panel Cam Attaching Bolts | 6. Door Lock Attaching Screws | 8. Glass Run Channel Lower Attaching Bolt |



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Fig. 6-99-Rear Door Hardware - "A-39" Styles

- | | | | |
|-----------------------|------------------------------|--------------------|----------------------------|
| 1. Front Guide | 4. Window Regulator - Manual | 6. Inner Panel Cam | 9. Door Outside Handle |
| 2. Inside Locking Rod | 5. Door Lock Remote Control | 7. Rear Guide | 10. Lower Sash Channel Cam |
| 3. Rear Door Window | | 8. Door Lock | |

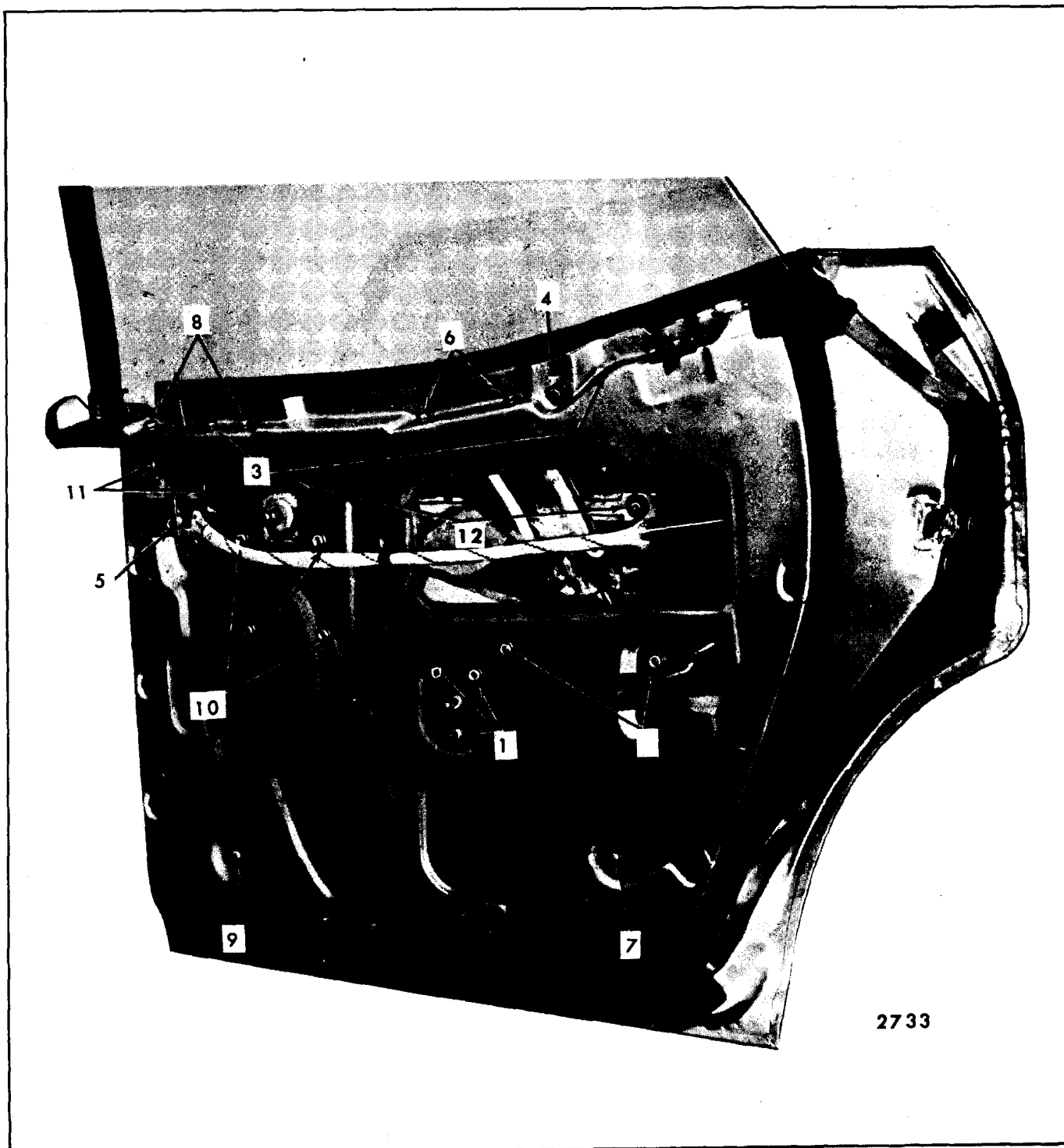
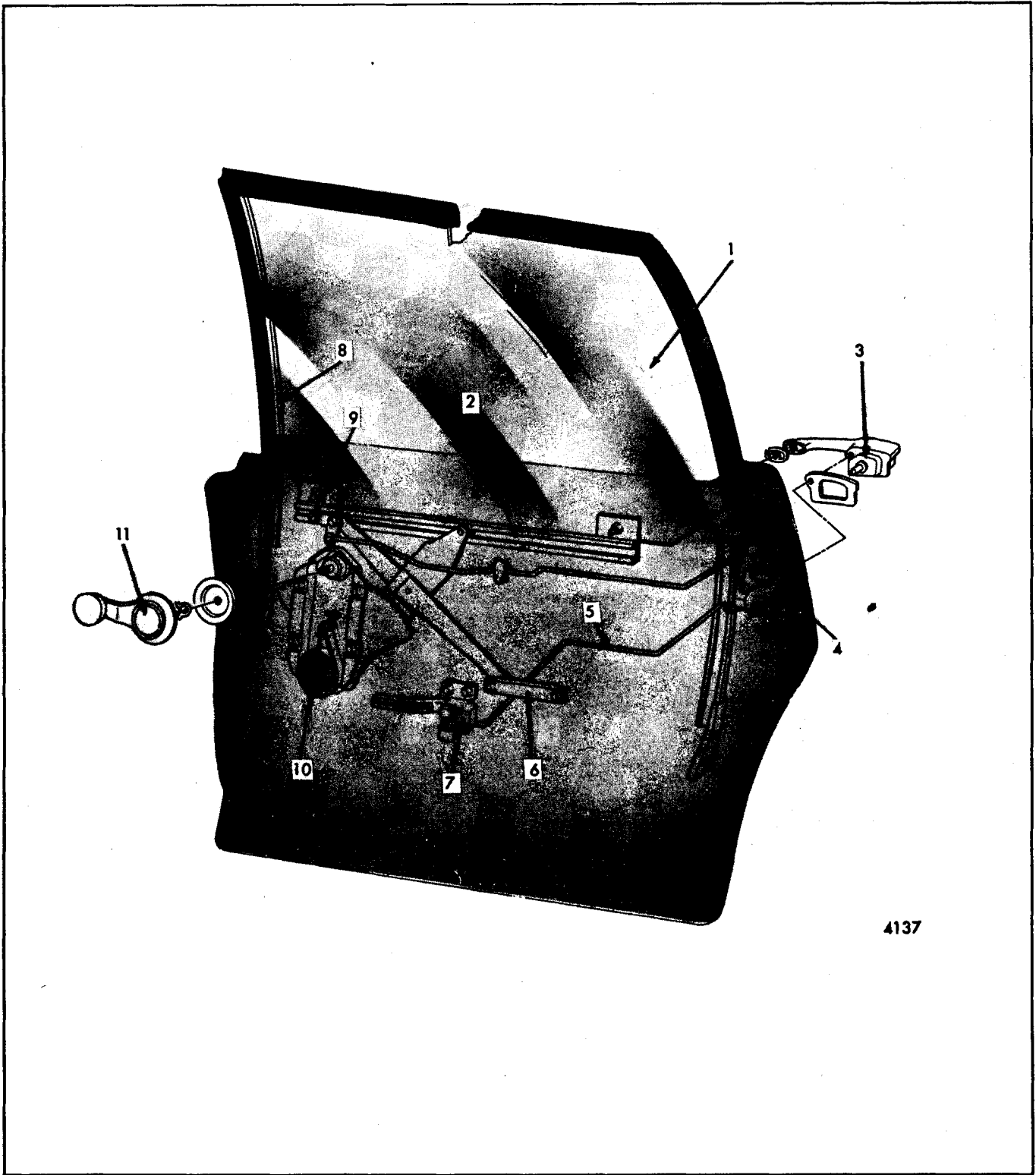


Fig. 6-100-Rear Door Hardware - "A-39" Styles

- | | | | |
|---|-------------------------------------|---|--|
| 1. Door Lock Remote Control Attaching Bolts | 4. Window Rear Up-Travel Stop | 8. Front Guide Upper Support Attaching Bolt | 11. Front Guide to Upper Support Attaching Bolts |
| 2. Inner Panel Cam Attaching Bolts | 5. Window Front Up-Travel Stop | 9. Front Guide Lower Attaching Bolt | 12. Window Lower Sash Channel Cam Stud Nuts |
| 3. Window Stabilizer Strip | 6. Rear Guide Upper Attaching Bolts | 10. Window Regulator Attaching Bolts | |
| | 7. Rear Guide Lower Attaching Bolts | | |



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Fig. 6-101-Rear Door Hardware - "B" Closed Styles

- 1. Window Assembly
- 2. Lower Sash Channel Cam
- 3. Outside Handle and Sealing Gaskets

- 4. Door Lock
- 5. Remote Control Connecting Rod
- 6. Inner Panel Cam
- 7. Remote Control

- 8. Glass Run Channel
- 9. Inside Locking Rod
- 10. Window Regulator
- 11. Window Regulator Handle

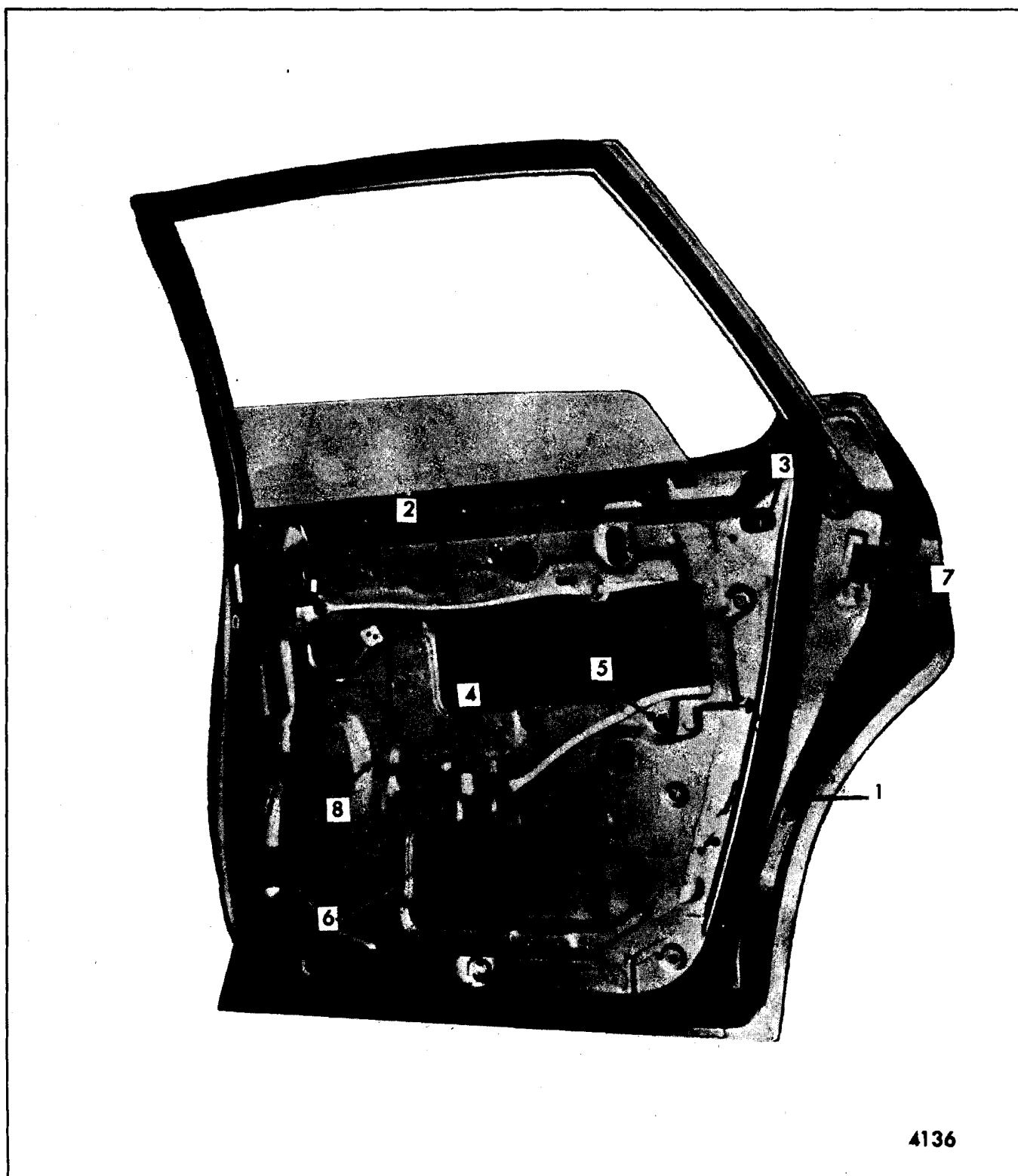
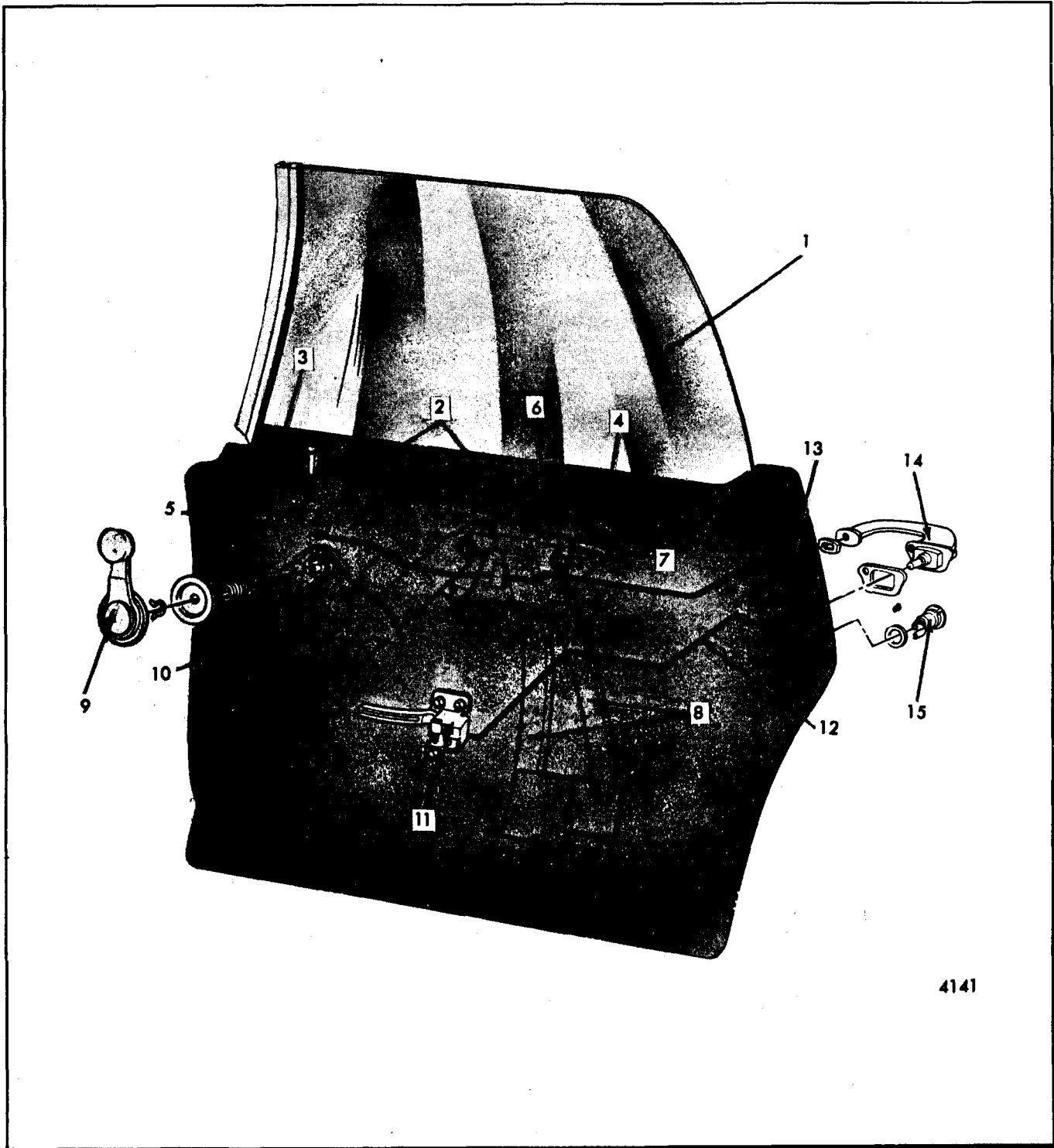


Fig. 6-102-Rear Door Hardware - "B" Closed Styles

- | | | | |
|--|--|--|--|
| 1. Lower Rear Glass
Run Channel Lower
Attaching Bolt | 3. Lower Rear Glass
Run Channel Upper
Attaching Bolt | 5. Inner Panel Cam
Attaching Bolts | 7. Door Lock Attaching
Screws |
| 2. Inside Locking Rod
Connecting Link Bolt | 4. Door Lock Remote
Control Attaching
Bolts | 6. Window Lower Sash
Channel Cam Stud
Nuts Access Hole | 8. Window Regulator
Attaching Bolts |



4141

Fig. 6-103-Rear Door Hardware - "B and C-39 and 49" and "C-69" Styles, Except 68169 Styles

- | | | | |
|---|-------------------------------|--|---|
| 1. Window Assembly | 4. Window Rear Up-Travel Stop | 8. Guide Cam | 12. Remote Control to Lock Connecting Rod |
| 2. Trim Support Hangers and Stabilizer Strips | 5. Inside Locking Rod | 9. Window Regulator Handle | 13. Lock Assembly |
| 3. Window Front Up-Travel Stop | 6. Lower Sash Guide Plate | 10. Window Regulator | 14. Door Outside Handle |
| | 7. Guide Cam Support | 11. Door Lock Remote Control and Handle Assembly | 15. Lock Cylinder |

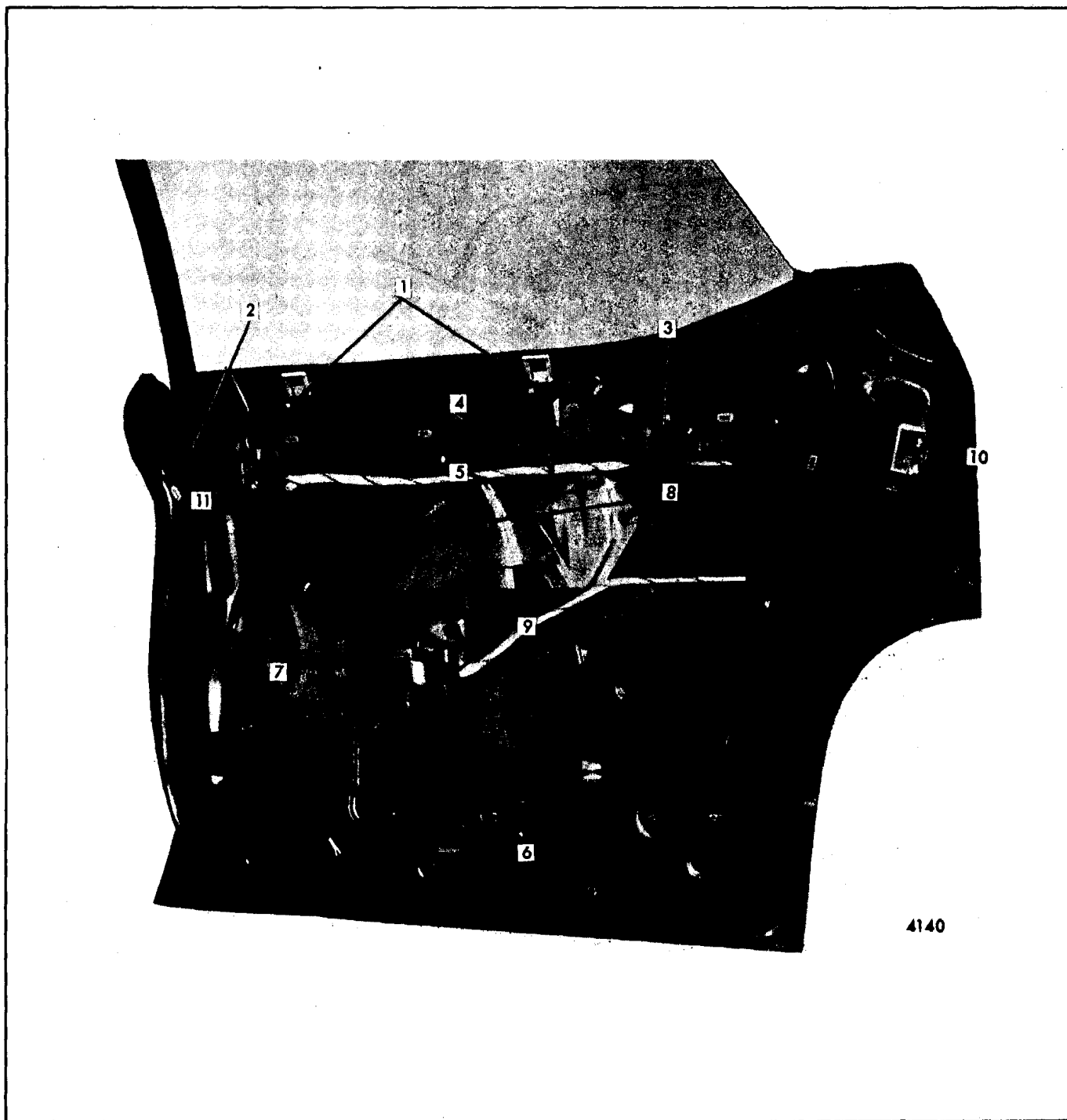
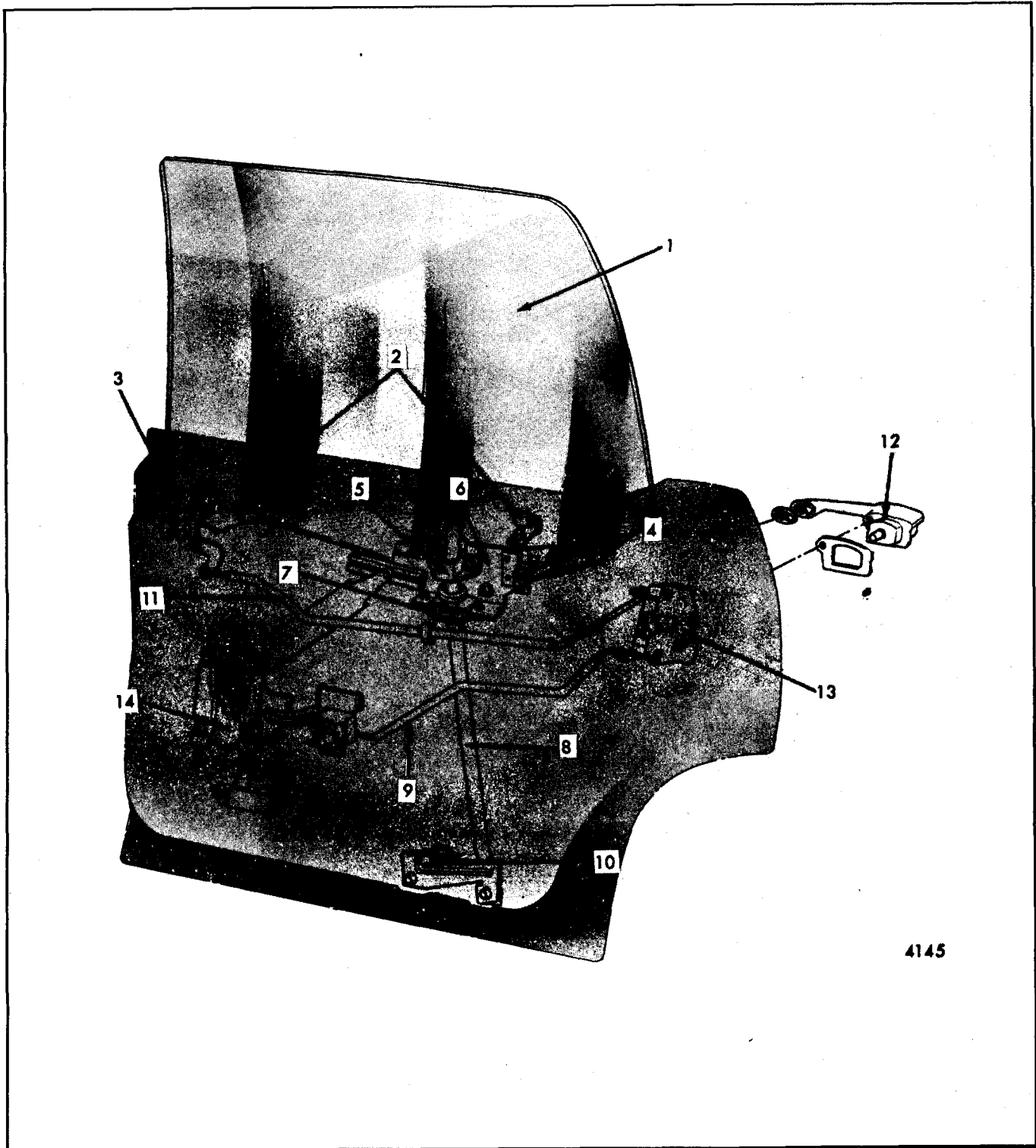


Fig. 6-104-Rear Door Hardware - "B and C-39 and 49" and "C-69" Styles, Except 68169 Style

- | | | | |
|---|---|---|---|
| 1. Trim Support Hanger and Stabilizer Strip Attaching Bolts | 4. Guide Cam Support to Inner Panel Bolts | 8. Lower Sash Guide Plate Attaching Bolts | 11. Inside Locking Rod to Lock Connecting Link Attaching Bolt |
| 2. Window Front Up-Travel Stop Bolt | 5. Guide Cam to Guide Cam Support Bolts | 9. Door Lock Remote Control Attaching Bolts | |
| 3. Window Rear Up-Travel Stop Attaching Bolt | 6. Guide Cam Lower Bolt | 10. Door Lock Attaching Screws | |
| | 7. Window Regulator Attaching Bolts | | |



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Fig. 6-105-Rear Door Hardware - 68169 Styles

- | | | | |
|---|------------------------------------|--|---|
| 1. Window Assembly | 4. Window Rear Up-Travel Stop | 7. Lower Sash Lower Guide Assembly | 10. Window Down-Travel Support and Bumper |
| 2. Trim Support Hangers and Stabilizer Strips | 5. Lower Sash Upper Guide Assembly | 8. Window Guide Tube | 11. Inside Locking Rod |
| 3. Window Front Up-Travel Stop | 6. Lower Sash Guide Plate Assembly | 9. Remote Control to Lock Connecting Rod | 12. Door Outside Handle |
| | | | 13. Door Lock |
| | | | 14. Window Regulator |

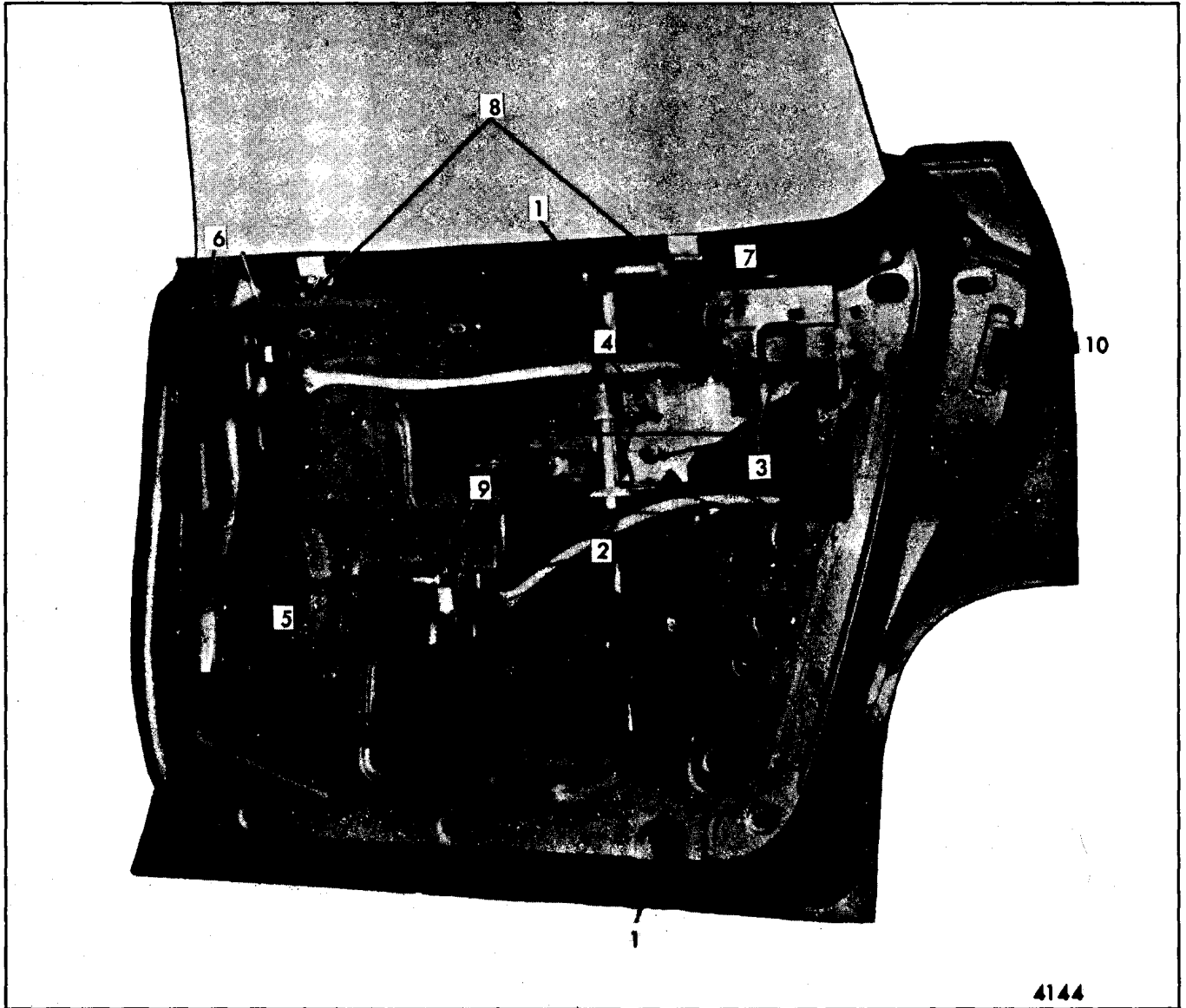


Fig. 6-106-Rear Door Hardware - 68169 Styles

- | | | |
|---|---|---|
| 1. Tube Assembly,
Window Guide Tube
Attaching Bolts | 4. Guide Assembly,
Lower Sash Upper
Attaching Bolts | 8. Hangers, Trim
Support and Strip
Assembly, Anti-Rattle
Bolts |
| 2. Guide Assembly,
Lower Sash Lower
Attaching Bolts | 5. Regulator Assembly
Attaching Bolts | 9. Remove Control,
Door Lock Attaching
Bolts |
| 3. Plate Assembly,
Lower Sash Guide
Attaching Bolts | 6. Stop, Front Up-Travel
Bolt | 10. Door Lock Attaching
Screws |
| | 7. Stop, Rear Up-Travel
Bolt | |

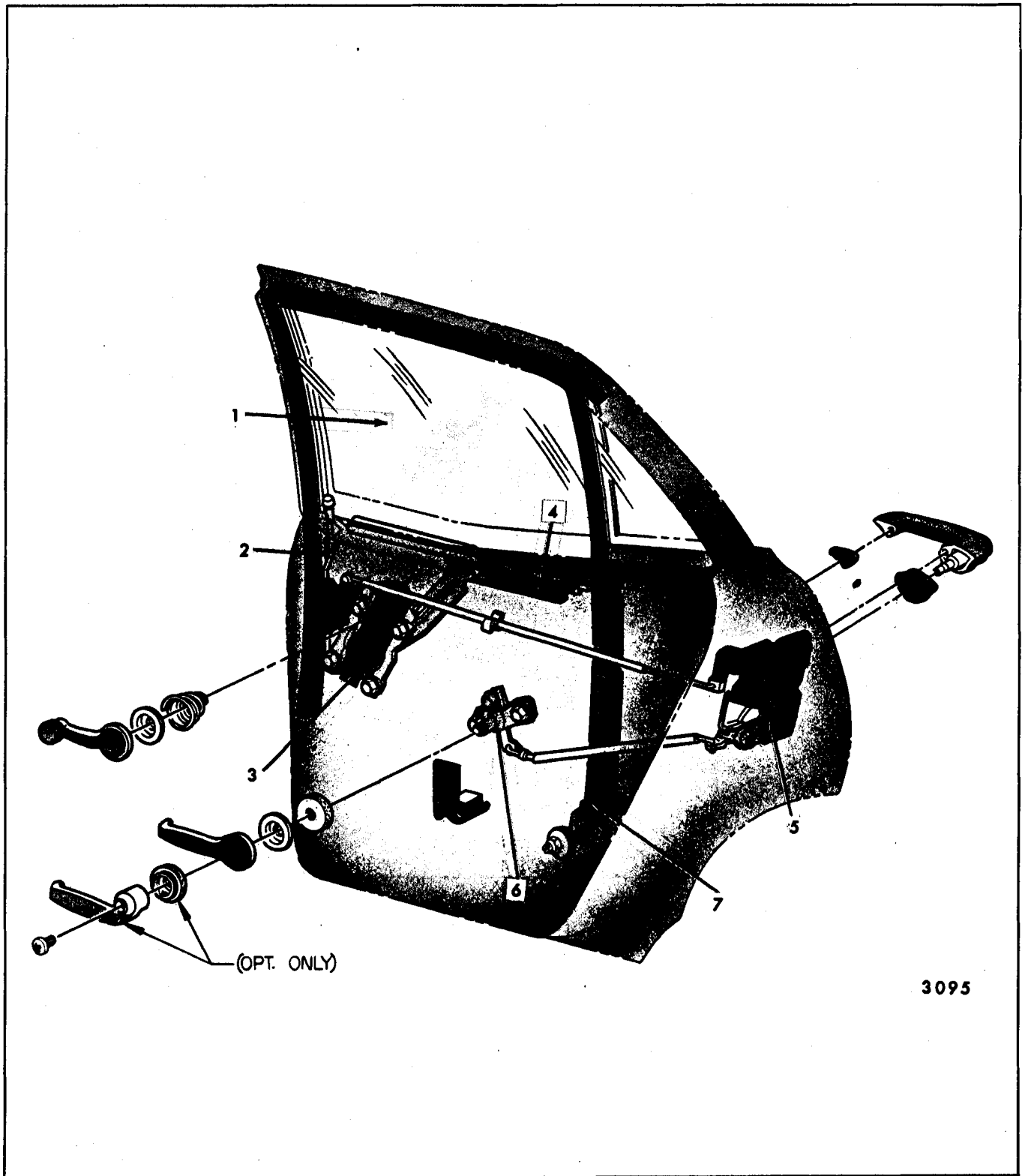


Fig. 6-107-Rear Door Hardware - "X" Style

1. Rear Door Window
2. Inside Locking Rod
3. Window Regulator

4. Lower Sash Channel
Cam
5. Door Lock

6. Door Lock Remote
Control
7. Ventilator Division
Channel

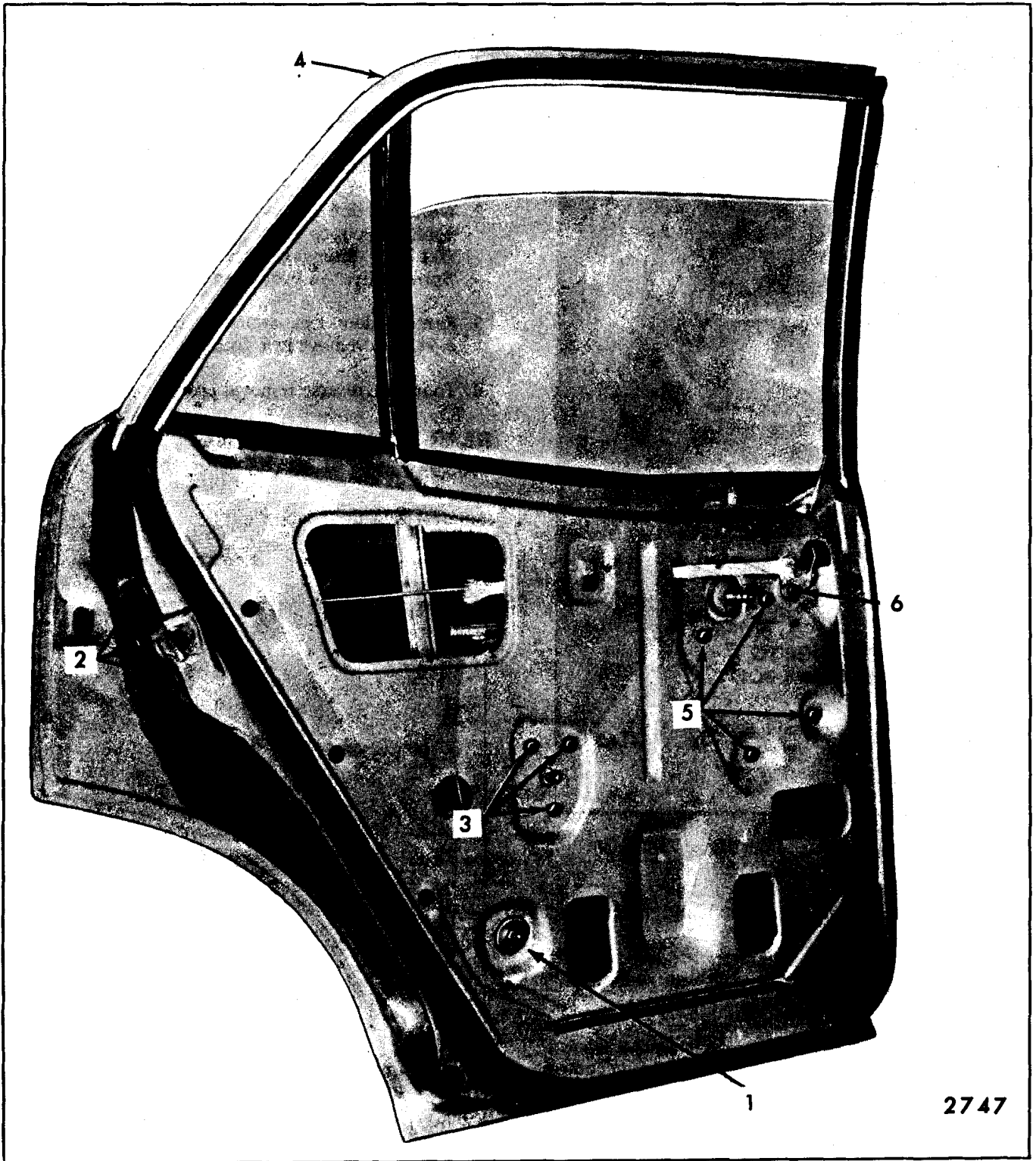


Fig. 6-108-Rear Door Hardware - "X" Style

1. Ventilator Division
Channel Lower
Adjusting Stud
2. Door Lock Attaching
Screws

3. Door Lock Remote
Control Attaching
Bolts
4. Ventilator Division
Channel Upper
Attaching Screw

5. Window Regulator
Attaching Bolts
6. Inside Locking Rod
to Lock Connecting
Link Attaching Bolt

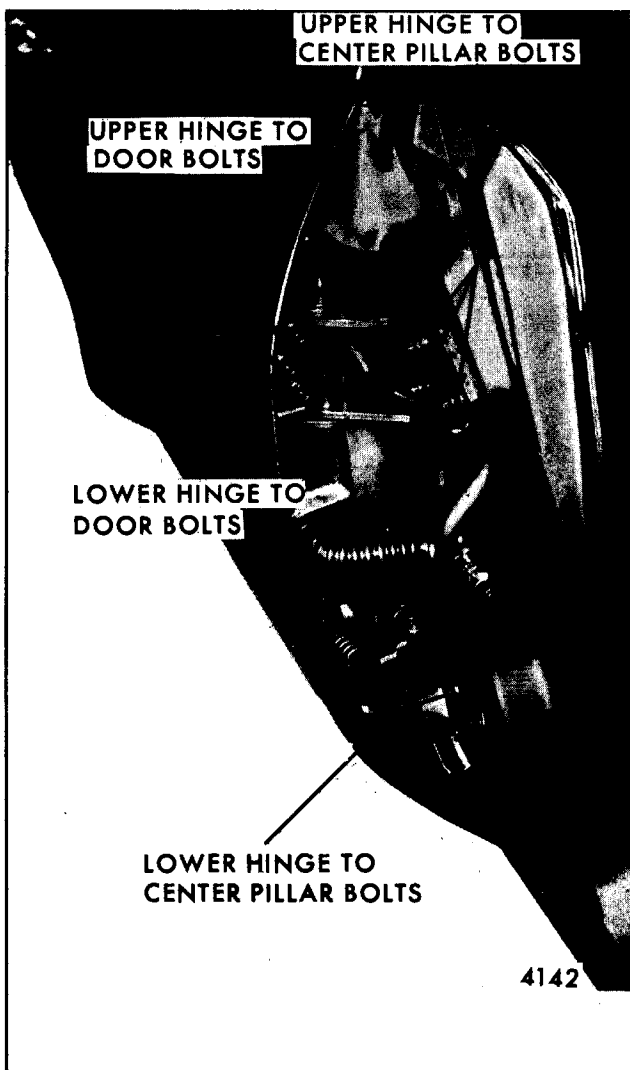


Fig. 6-109-Typical Rear Door Hinge Installation

portion on "B and C" styles) and inner panel water deflector.

2. Remove remote control attaching bolts ("3", Figure 6-98).
3. Pivot remote to disengage it from remote control to lock connecting rod and remove remote control from door.
4. To install, reverse removal procedure. Make certain anti-rattle clip on lock connecting rod is properly positioned.

REAR DOOR LOCK ASSEMBLY - All Styles

All styles use the fork bolt lock design which includes an interlock feature. Where necessary, striker spacers should be used to insure satisfactory lock striker engage-

ment. Refer to "Front and Rear Door" section for spacer usage.

Removal and Installation

1. Remove upper portion of door trim assembly as described in Section 13 and operate glass to full-up position.
2. Working through access hole, disengage lock connecting rods from spring clips on door lock (for clip disengagement refer to "Door Lock Spring Clips" in Front and Rear Door Section).
3. Remove door lock attaching screws ("6", Figure 6-98) and remove lock from door.
4. To install, reverse removal procedure.

REAR DOOR INNER PANEL CAM- "A-39" and "B-35, 45 and 69" Styles

Removal and Installation

1. Remove door trim assembly (on "B" and "C"

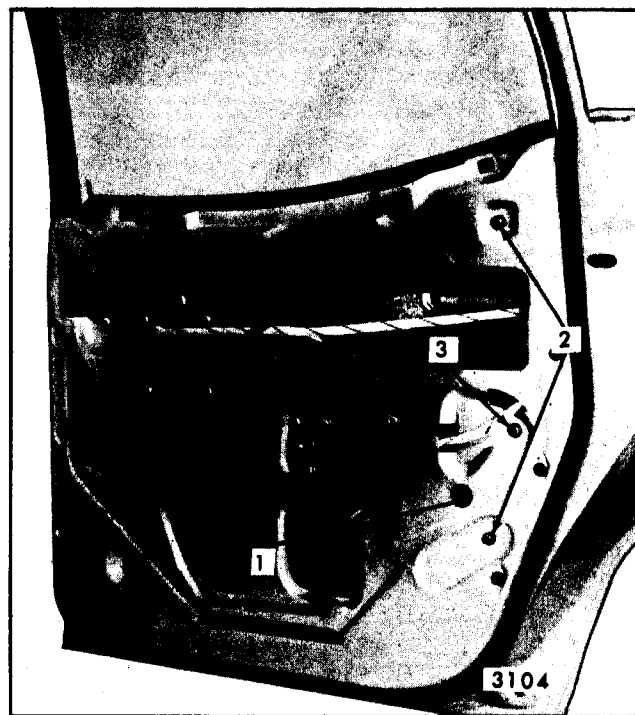


Fig. 6-110-Rear Door Window Removal and Adjustments - "A" Closed Styles

- | | |
|--|------------------------------------|
| 1. Lower Sash Channel Cam Attaching Screw Access Holes | Lower Attaching Bolts |
| 2. Rear Glass Run Channel Upper and | 3. Inner Panel Cam Attaching Bolts |

styles, remove upper and lower trim assembly inner panel cam attaching bolts ("4", Figure 6-98). Then disengage cam from regulator balance arm roller and remove cam from door through access hole.

2. To install, reverse removal procedure. Adjust front end of cam for proper window operation. Correct adjustment of cam will prevent a rotated (cocked) door window.

REAR DOOR WINDOW ASSEMBLY - "A" Closed Styles

The rear door window assembly consists of a frameless solid tempered safety plate glass window and a pressed-on lower sash channel assembly. When handling window make certain glass does not develop edge chips or deep scratches which could cause glass to shatter.

Removal and Installation

1. Remove door trim assembly and inner panel water deflector.
2. With window in a three-quarter lowered position, remove window lower sash channel cam attaching screws ("1", Figure 6-110).
3. Loosen rear glass run channel upper and lower attaching screws ("2", Figure 6-110).
4. Rotate rear edge of glass downward and remove window by lifting front edge of glass upward outboard of door upper frame.
5. To install, reverse removal procedure. Adjust window for proper operation and alignment as described in the following adjustment procedure.

Adjustments

Adjustments have been provided to relieve a binding door glass due to misalignment of the glass run channel ("2", Figure 6-110). In addition, the door window inner panel cam ("3", Figure 6-110) is adjustable which can correct a rotated (cocked) rear door window.

REAR DOOR WINDOW ASSEMBLY - "A-39"

The rear door window assembly consists of a solid tempered safety plate glass window and an individually bolted-on roller at the front and window roller cam assembly at the rear. The lower sash channel cam is bolted to the glass, but is removed in the process of removing the window.

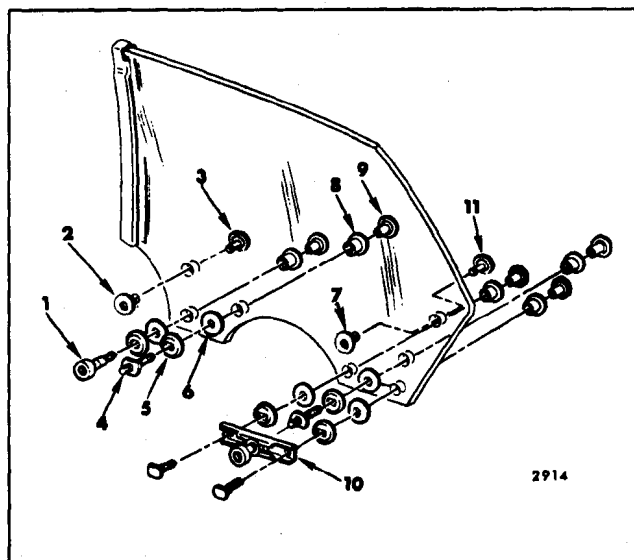


Fig. 6-111-Rear Door Window Assembly - "A-39" Styles

- | | |
|-------------------------------|-----------------------------|
| 1. Roller Assembly | 7. Glass Bearing |
| 2. Glass Bearing Fastener Cap | 8. Bushing |
| 3. Glass Bearing Fastener | 9. Nut |
| 4. Stud Inner Panel Cam | 10. Rear Guide Cam Assembly |
| 5. Washer (Metal) | 11. Glass Bearing Fastener |
| 6. Washer | |

Figure 6-111 is an exploded view of the window assembly and identifies the various components and their assembly sequence.

Removal and Installation

1. Remove door trim pad and inner panel water deflector.
2. Remove window front up-stop from guide ("1", Figure 6-112) and rear up-stop from door inner panel ("2", Figure 6-112).
3. Loosen front and rear window stabilizer strip assembly bolts ("3", Figure 6-112) and remove stabilizer strips.
4. With window in full-up position, remove lower sash channel cam to glass attaching stud nuts ("4", Figure 6-112).
5. Disengage front roller from front guide, then rear roller from rear guide.
6. Remove window from door by aligning rollers with notches provided in inner panel. Remove rear end of window first, then front end.

- To install, reverse removal procedure. Adjust window for proper alignment and operation as described in the following adjustment procedure.

Adjustments

- In-and-out adjustment of the glass is controlled by the in-and-out adjustment available at the top of the front and rear guides ("5" and "6", Figure 6-112) and the in-and-out position of the glass stabilizer strip assemblies ("3", Figure 6-112). Outboard adjustment of the guides moves the top of the glass inboard. Conversely, inboard adjustment moves the top of the glass outboard.
- Fore-and-aft adjustment of the window assembly is controlled by the position of the front guide. The upper attaching locations in the front guide upper support ("7", Figure 6-112) are slotted to permit fore-and-aft adjustment of the guide. Because of the free floating roller in the window rear sash channel cam (Figure 6-111), the rear guide does not have to be adjusted during fore-and-aft window alignment

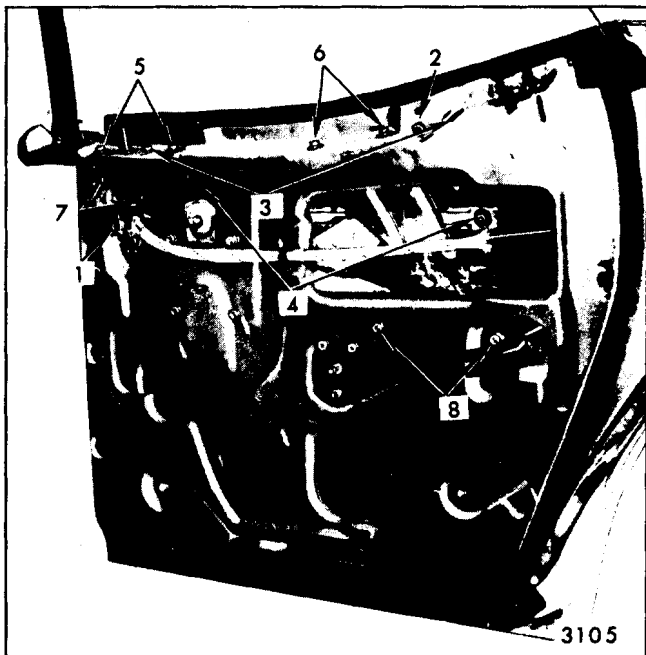


Fig. 6-112-Rear Door Window Removal and Adjustments - "A-39" Styles

- | | |
|--|---|
| 1. Window Front Up-Travel Stop | 5. Front Guide Upper Support Attaching Bolts |
| 2. Window Rear Up-Travel Stop | 6. Rear Guide Upper Attaching Bolts |
| 3. Window Front and Rear Stabilizer Strips | 7. Front Guide to Upper Support Bracket Attaching Bolts |
| 4. Window Lower Sash Channel Cam Stud Nuts | 8. Inner Panel Cam Attaching Bolts |

- Ease of window operation and window stability depend to a great extent on the adjustment of the window stabilizer strip assemblies at the beltline ("3", Figure 6-112).

The stabilizing strips should contact the glass throughout the full cycle of the window. Due to slight variations in glass contour, however, in some cases the strip may lose contact with the glass half-way through the cycle. This is permissible provided it does not result in loose glass. Contact should be sufficient to stabilize glass, but not restrict ease of window operation.

- A window that is rotated (cocked) in the window opening may be the result of an improperly adjusted inner panel cam ("8", Figure 6-112) or poorly adjusted up-travel stops ("1" or "2", Figure 6-112).
- The up-travel of the window is determined by the adjustment of the front and rear up-stop ("1" or "2", Figure 6-112). To adjust window up-travel, loosen front and rear up-stops and operate window to desired position to establish proper glass to side roof rail weatherstrip contact (Figure 6-113). Tighten up-stop attaching bolts.

GLASS ALIGNMENT GAUGE BLOCKS ("A" Body Four-Door Hardtop Styles)

To facilitate adjustment of glass, use glass alignment gauge blocks Tool J-23394 or equivalent (Figure 6-114). For proper use of gauge blocks, refer to the following procedure:

- Remove door trim assembly and inner panel water deflector.
- Detach the side roof rail weatherstrip at the lower rear corner (screw retained at rear edge) and remove from the retainer over the door window, as shown in Figure 6-115.

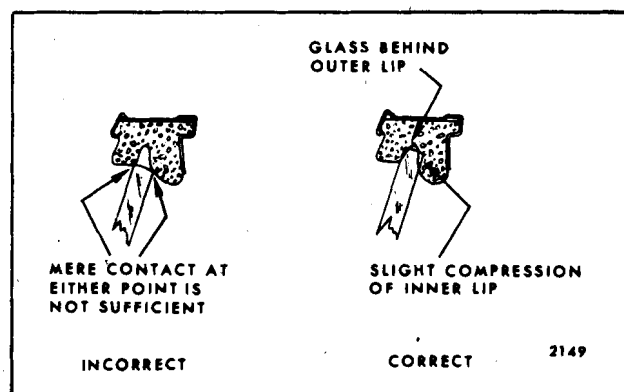


Fig. 6-113-Window to Side Roof Rail Weatherstrip Alignment

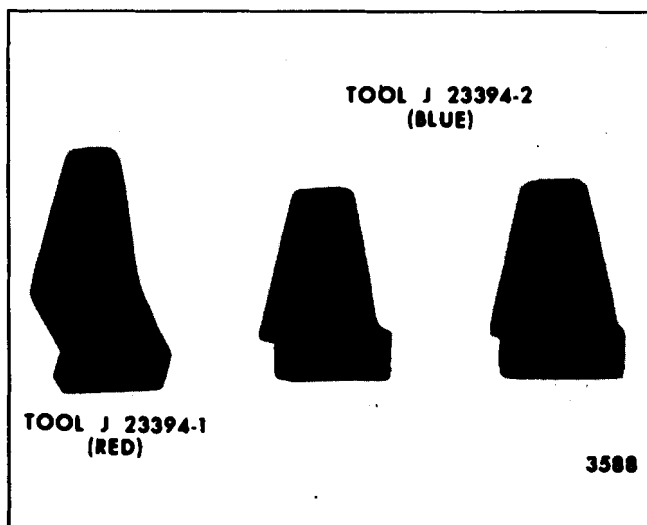


Figure 6-114 - Glass Alignment Gauge Blocks - Tool J-23394 or equivalent (Consists of a set of Three Blocks)

IMPORTANT: To prevent damaging weatherstrip when removing from the retainer, insert a flat bladed tool between the weatherstrip and the retainer and carefully break the bond between the weatherstrip and the retainer. A tool applicable to this usage may be fabricated from tool J-21104 or equivalent (Figure 6-118).

- Lower front and rear door windows and install gauge blocks, tool J-23394-2 or equivalent (Blue), into the side roof rail weatherstrip retainer above the upper front and rear corners of the glass, as shown in Figure 6-115.

IMPORTANT: The grooves on the sides of the

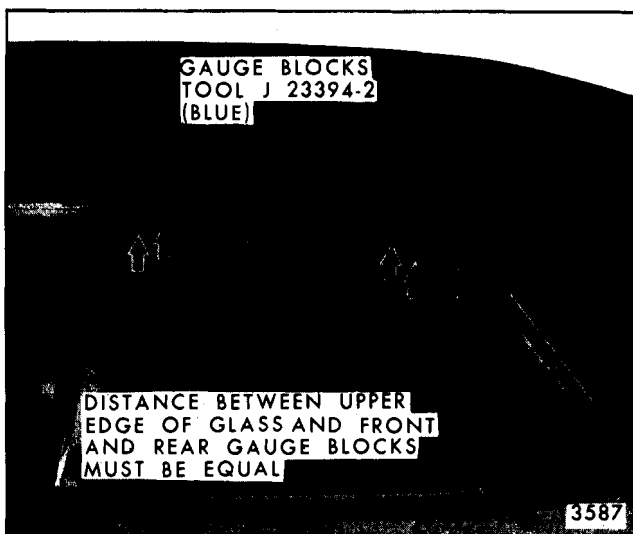


Figure 6-115 - Rear Door Window Alignment (Rotated "Cocked" Glass in Body Opening)

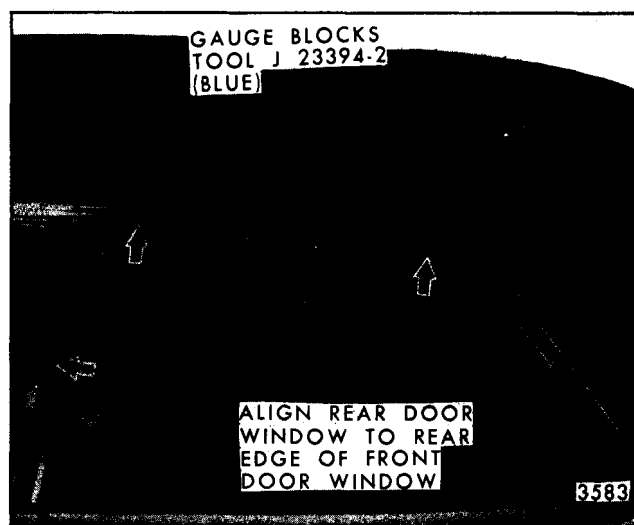


Figure 6-116 - Rear Door Window Alignment (Fore and Aft Adjustment)

gauge blocks must be fully engaged with the side roof rail weatherstrip retainer.

- Working from inside the body, with the door in the closed position, loosen front and rear up-travel stops ("1" and "2" Figure 6-112) and stabilizer strips ("3", Figure 6-112).
- Raise the rear door window assembly to approximately 1" from the full-up position, as illustrated in Figure 6-115. If the distance (space) between the upper edge of the glass and the front and rear gauge blocks is equal (as shown in Figure 6-115), proceed with step number six (6). If the distance (space) between the upper edge of the glass and both upper gauge blocks is not equal, loosen inner

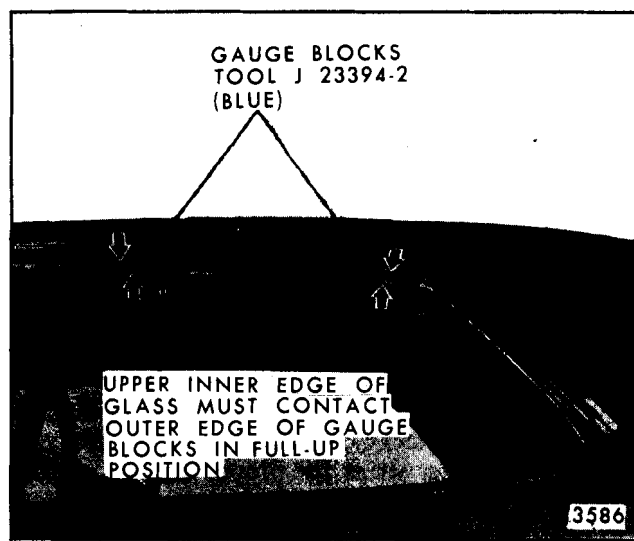


Figure 6-117 - Rear Door Window Alignment (In and Out and Up-Travel Adjustment)



Fig. 6-118-Weatherstrip Removing Tool

panel cam attaching bolts ("8", Figure 6-112) and adjust glass as necessary.

6. Raise rear door window assembly until contact is established between upper edge of glass and both upper gauge blocks. Then raise front door window assembly. If the front edge of the rear door window assembly is properly positioned in relation to rear edge of front door window assembly, as shown in Figure 6-116, proceed with step number seven (7). If rear door window assembly is not properly positioned in relation to front door window assembly, loosen fore and aft adjustment on front guide ("7", Figure 6-112) and move glass forward or rearward as necessary.
7. Completely loosen upper ends of front and rear guides ("5" and "6", Figure 6-112). Apply firm outboard pressure against the upper end of the front guide to remove slack in the system and to hold the upper inner edge of the glass inboard against the outer edge of the gauge blocks, as shown in Figure 6-115. Then, tighten upper guide attaching bolts. Repeat operation with rear guide. The guides will now be coordinated to the plane of the glass.

IMPORTANT: Inner surface of glass must contact outer surface of the upper blocks during this adjustment.

8. With the glass in the full-up position against the upper gauge blocks, tighten up-travel stops and adjust stabilizer strips for proper tension against glass.
9. Lower window and remove gauge blocks from weatherstrip retainer. Reinstall and seal weatherstrip as previously described.

REAR DOOR WINDOW ASSEMBLY - "B" Closed Styles

The rear door window assembly consists of a frameless solid tempered safety plate glass window and a bolt-on lower sash channel cam. When handling window, make certain glass does not develop edge chips or deep scratches which could cause glass to shatter.

Removal and Installation

1. Remove upper and lower portion of door trim assembly and inner panel water deflector.
2. Remove rear glass run channel upper and lower attaching bolts ("1" and "2", Figure 6-119) and remove run channel from door.
3. Partially lower rear door window, remove lower sash channel cam to glass attaching stud nuts ("3", Figure 6-119). Press lower sash channel cam inboard to disengage from attaching studs and lower window regulator to full-down position.

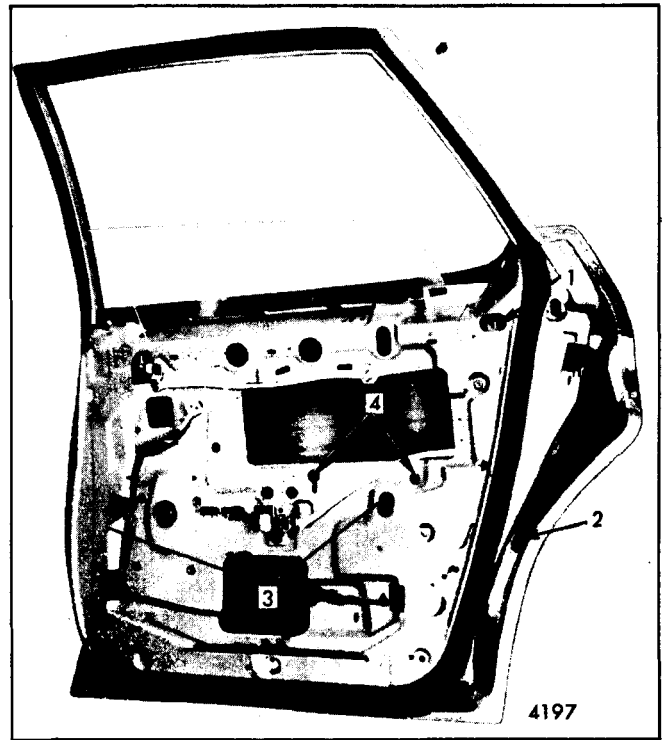


Fig. 6-119-Rear Door Window Removal and Adjustments - "B" Closed Styles

- | | |
|--|---|
| 1. Rear Glass Run Channel Upper Attaching Bolt | 3. Window Lower Sash Channel Cam Stud Nuts Access Holes |
| 2. Rear Glass Run Channel Lower Attaching Bolt | 4. Inner Panel Cam Bolts |

4. Tilt front edge of glass downward and remove inboard of door upper frame, rear edge first, then front edge.
5. To install, reverse removal procedure. Adjust window for proper operation as described in the following procedure.

Adjustments

Adjustments have been provided to relieve a binding door glass due to misalignment of the glass run channel ("1" and "2", Figure 6-119). In addition, the door window inner panel cam is adjustable which can correct a rotated (cocked) front door window ("4", Figure 6-119).

REAR DOOR WINDOW ASSEMBLY - "B and C" Four-Door Hardtop Styles, Except 68169 Style

The rear door window assembly consists of a solid tempered safety plate glass window and a bolted-on lower sash guide plate roller assembly that operates in a double vertical guide assembly located in the center of the door.

Figure 6-120 is an exploded view of the window assembly and identifies the various components and their assembly sequence.

Removal and Installation

1. Remove upper portion of door trim assembly as subsequently described.

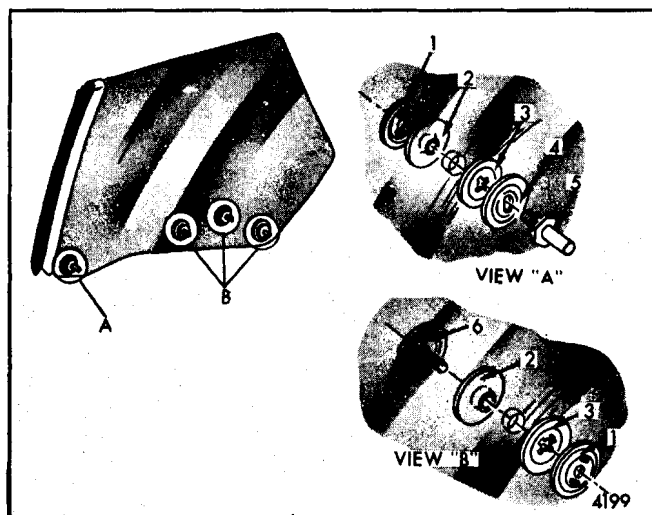


Fig. 6-120-Rear Door Window Assembly - "B and C" Four Door Hardtop Styles, Except 68169 Styles

- | | |
|---------------------|--------------------|
| 1. Tee-Nut | 4. Washer (Metal) |
| 2. Bushing | 5. Stop, Up-Travel |
| 3. Washer (Plastic) | 6. Bolt |

2. With glass in a partially down position, loosen front and rear window stabilizer strips ("1", Figure 6-121) and up-travel stops ("2" and "3", Figure 6-121). Then rotate the stops sufficiently to allow glass to bypass stops when removing.
3. With window in a partial-down position, remove lower sash guide plate to glass attaching stud nuts ("7", Figure 6-121), then tilt upper edge of glass inboard to disengage guide plate from studs from glass. Remove glass from door by lifting rear edge of glass upward, then slide glass rearward to align guide plate studs with notch provided at rear of door inner panel.
4. To install, reverse removal procedure. Adjust for proper window alignment and operation as described below.

Adjustments

1. In-and-out adjustment of the glass is controlled by the position of the upper end of the center guide and the position of the glass stabilizer strips. The upper attaching locations in the center guide support ("5", Figure 6-121) and door inner panel

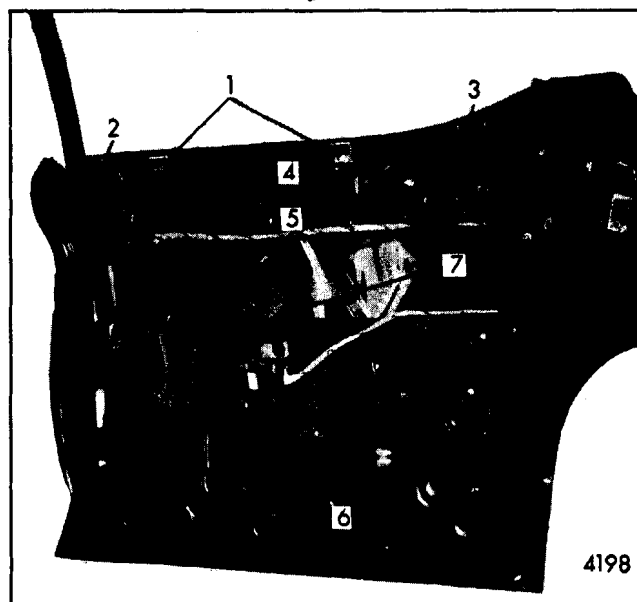


Fig. 6-121-Rear Door Window Removal and Adjustments - "B and C-39-49" and "C-69", Except 68169 Styles

- | | |
|---|--|
| 1. Trim Support Hangers and Window Stabilizer Strip Bolts | 5. Center Guide Cam to Upper Cam Support Bolts |
| 2. Window Front Up-Travel Stop Bolt | 6. Center Guide Cam Lower Bolt |
| 3. Window Rear Up-Travel Stop Bolt | 7. Lower Sash Guide Plate Stud Nuts |
| 4. Center Guide Cam Support Bolts | |

("1", Figure 6-121) are slotted to permit in-and-out adjustment of the guide and stabilizer strips, respectively.

2. Fore-and-aft adjustment of the window assembly is controlled by the position of the upper center guide support. The upper attaching locations in the upper center guide support ("4", Figure 6-121) are slotted to permit fore-and-aft adjustment of the guide.
3. Ease of window operation and window stability depends to a great extent on the adjustment of the window stabilizer strip assemblies ("1", Figure 6-121).

The stabilizer strips should contact the glass throughout the full cycle of the window. Due to slight variations in glass contour, however, in some cases the strip may lose contact with the glass half-way through the cycle. This is permissible provided it does not result in loose glass. Contact should be sufficient to stabilize glass, but not restrict ease of window operation.

4. A window that is rotated (cocked) in the window opening may be the result of an improperly adjusted lower sash guide plate ("7", Figure 6-121) or poorly adjusted up-travel stops ("2" or "3", Figure 6-121).
5. The up-travel of the window is determined by the adjustment of the front and rear up-stops ("2" and "3", Figure 6-121). To adjust window up-travel, loosen front and rear up-stops and operate window to desired position to establish proper glass to side roof rail weatherstrip contact. Tighten up-stop attaching bolts.

GLASS ALIGNMENT GAUGE BLOCKS ("B-C" Four-Door Hardtop Styles, Except 68169 Styles)

To facilitate adjustment of this glass, use glass alignment gauge blocks Tool J-23711 or equivalent (Figure 6-122). For proper use of gauge blocks, refer to the following procedure:

1. Remove upper portion of door trim assembly as described in Section 13 of this manual.
2. Detach the side roof rail weatherstrip at the lower rear corner (screw retained at rear edge) and carefully remove from the retainer over the door window, as shown in Figure 6-123.
3. Lower front and rear door windows and install gauge blocks, tool J-23711-2 (Black), or equivalent

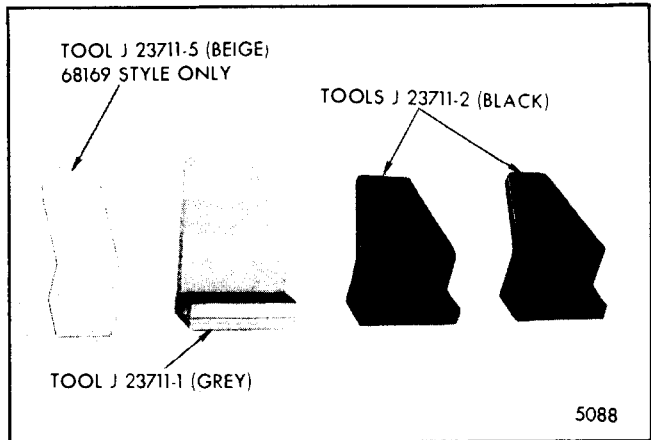


Figure 6-122 - Glass Alignment Gauge Blocks, Tool J-23711 or equivalent

into the side roof rail weatherstrip retainer above the upper front and rear corners of the glass, as shown in Figure 6-123.

IMPORTANT: The grooves on the sides of the gauge blocks must be fully engaged with the side roof rail weatherstrip retainer. •

4. Working from inside the body, with the door in the closed position, loosen front and rear up-travel stops ("2" and "3" Figure 6-121) and stabilizer strips ("1", Figure 6-121).
5. Raise the rear door window until contact is established between upper edge of glass and one or more of the two gauge blocks.

If upper edge of glass contacts both gauge blocks simultaneously (refer to Figure 6-123), proceed with step number six (6).

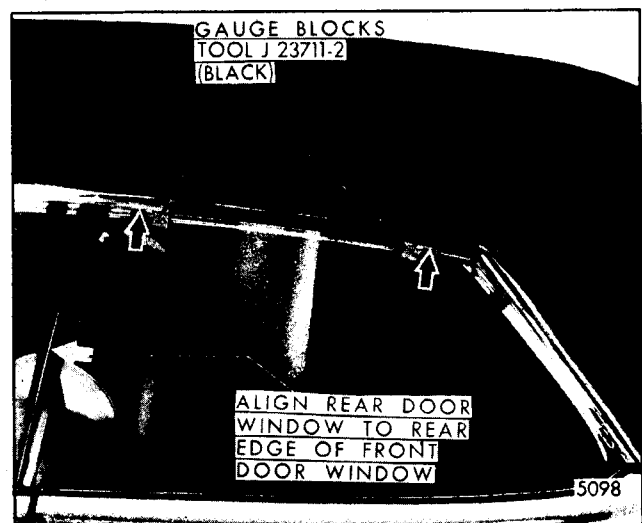


Figure 6-123 - Rear Door Window Alignment

If upper edge of glass does not contact both blocks simultaneously, completely loosen lower sash guide plate stud nuts ("7", Figure 6-121) and manipulate the glass until the upper edge of glass contacts both blocks in the full-up position. Tighten guide plate stud nuts.

6. Raise rear door window assembly until contact is established between upper edge of glass and both upper gauge blocks. Then, raise front door window assembly. If the front edge of the rear door window assembly is properly positioned in relation to rear edge of front door window assembly, as shown in Figure 6-123, proceed with step number seven (7). If rear door window assembly is not properly positioned in relation to front door window assembly, loosen fore and aft adjustment on guide cam support "4", Figure 6-121) and move glass forward or rearward as necessary.

7. Completely loosen upper end of (center) guide cam support ("5", Figure 6-121). Apply firm outboard pressure against the upper end of the guide cam to remove slack in the system and to hold the upper inner edge of the glass inboard against the outer edge of the gauge blocks, as shown in Figure 6-123. Then, tighten (center) guide cam support attaching bolts.

IMPORTANT: Inner surface of glass must contact outer surface of the upper blocks during this adjustment.

8. With the glass in the full-up position against the upper gauge blocks, tighten up-travel stops and adjust stabilizer strips for proper tension against glass.
9. Lower window and remove gauge blocks from weatherstrip retainer. Reinstall and seal weatherstrip with a pumpable sealer.

REAR DOOR WINDOW ASSEMBLY - 68169 Style

The rear door window assembly consists of a solid tempered safety plate glass window with a bolted-on lower sash guide plate assembly, which operates on a single vertical guide tube located in the center of the door.

Figure 6-124 is an exploded view of the window assembly and identifies the various components and their assembly sequence.

Removal and Installation

1. Remove upper portion of door trim assembly as subsequently described.

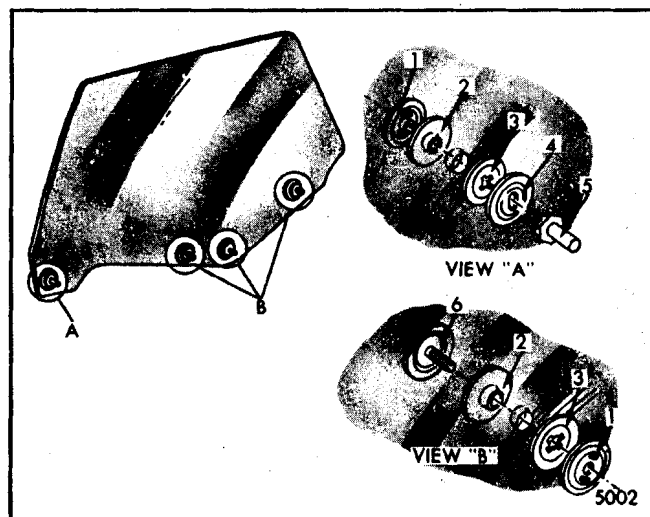


Figure 6-124-Rear Door Window Assembly-
68169 Styles

- | | |
|---------------------|--------------------|
| 1. Tee-Nut | 4. Washer (Metal) |
| 2. Bushing | 5. Stop, Up-Travel |
| 3. Washer (Plastic) | 6. Bolt |

2. Loosen stabilizer strip bolts ("1", Figure 6-125) and remove front and rear up-travel stops ("2" and "3", Figure 6-125).
3. Remove lower sash guide plate assembly to glass attaching stud nuts ("4", Figure 6-125). Tilt upper edge of glass inboard to disengage glass from guide plate, then remove the window from the door by lifting straight-up.
4. To install, reverse removal procedure. Adjust window for proper alignment as described in the following adjustment procedure.

Adjustments

1. In and out adjustment of the glass is controlled by the in and out adjustment available at the front door window lower sash lower guide assembly ("6", Figure 6-125) and the in and out position of the glass stabilizer strip assemblies ("1", Figure 6-125). The lower sash lower guide assembly are slotted to permit in and out adjustment of the glass. Outboard adjustment of the lower sash lower guide moves the top of the glass inboard. Conversely, inboard adjustment moves the top of the glass outboard.
2. Fore and aft adjustment of the window assembly is controlled by the position of the lower sash channel guide plate assembly ("4", Figure 6-125). The guide plate to glass attaching locations are slotted to permit fore and aft adjustment of the glass.

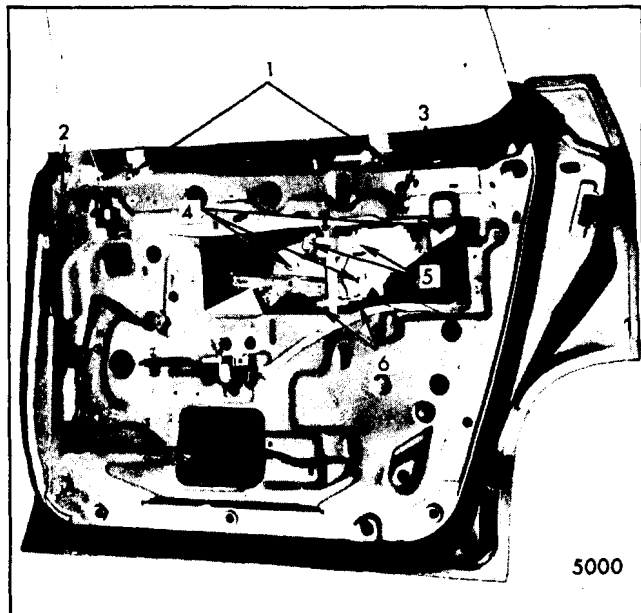


Figure 6-125-Rear Door Window Removal and Adjustment - 68169 Styles

- | | |
|--|--|
| 1. Trim Support Hangers and Stabilizer Strip Bolts | 4. Lower Sash Guide Plate Assembly Bolts |
| 2. Front Up-Travel Stop Bolt | 5. Lower Sash Upper Guide Assembly Bolts |
| 3. Rear Up-Travel Stop Bolt | 6. Lower Sash Lower Guide Assembly Bolts |

3. Ease of window operation and window stability depend to a great extent on the adjustment of the window stabilizer strip assemblies at the beltline ("1", Figure 6-125). The stabilizing strips should contact the glass throughout the full cycle of the window. Due to slight variations in glass contour, however, in some cases the strip may loose contact with the glass halfway through the cycle. This is permissible provided it does not result in loose glass. Contact should be sufficient to stabilize glass, but not restrict ease of window operation.

4. A window that is rotated (cocked) in the window opening may be the result of an improperly adjusted lower sash upper guide assembly ("5", Figure 6-125) or poorly adjusted up-travel stops ("2" and "3", Figure 6-125).

Control up-travel at front or rear of window through up or down adjustment of either front or rear up-travel stop.

Correct a poorly adjusted lower sash upper guide assembly by loosening upper guide assembly attaching bolts ("5", Figure 6-125) and rotating front edge of glass up or down in relation to rear edge of glass as necessary.

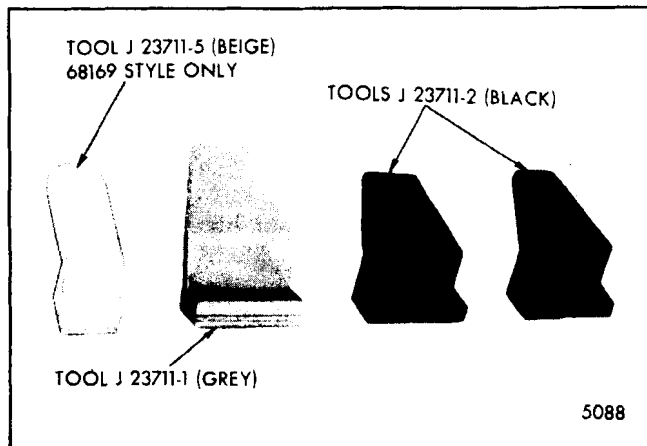


Fig. 6-126-Glass Alignment Gauge Blocks

5. Up-travel of the window is determined by the adjustment of the front and rear window up-travel stops ("2" and "3", Figure 6-125). To adjust window up-travel loosen front and rear up-travel stops and operate window to desired position to establish proper glass to side roof rail weatherstrip contact. Tighten stop.

GLASS ALIGNMENT GAUGE BLOCKS (68169 Styles)

With the elimination of front and rear guides and the incorporation of a single vertical guide tube in the center of the door, most window adjustments will be made from a guide plate attached to the lower edge of the glass. Fine adjustment of this glass will be more sensitive than conventional styles utilizing front and rear guides, as relatively small movements at adjusting locations will result in large movements at the upper edge of glass.

To facilitate adjustment of this glass, use glass alignment gauge blocks tools J-23711-2 and 5 or equivalent (Fig. 6-126). For proper use of gauge blocks refer to the following procedure:

Adjustment

1. Remove upper portion of door trim assembly and inner panel water deflector.
2. Detach side roof rail weatherstrip at lower front and rear corners and remove from retainer.
3. Lower front door window and install gauge blocks, tool J-23711-2 (black), or equivalent into the side roof rail weatherstrip retainer above the upper front and rear corners of the glass as shown in Figure 6-127. Then, install gauge block, tool J-23711-5 (Beige), or equivalent into the center pillar retainer above the beltline.

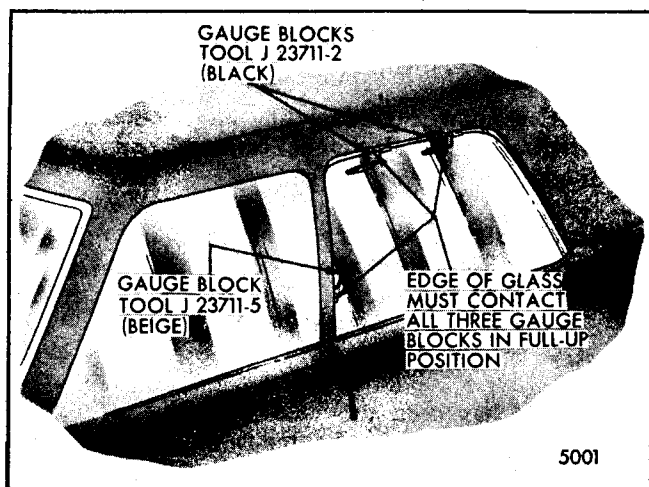


Fig. 6-127-Rear Door Window Alignment (Fore and Aft and Rotated "Cocked" Glass in Body Opening Adjustment

IMPORTANT: The grooves on the sides of the gauge blocks must be fully engaged with the weatherstrip retainer.

- Working from inside the body, with the door in the closed position, loosen front and rear up-travel stops ("2" and "3", Figure 6-125) and stabilizer strips ("1", Figure 6-125).
- Raise door window assembly until contact is established between the upper and/or forward edge of glass and one or more of the three gauge blocks.

If upper and forward edge of glass contact all three gauge blocks simultaneously (as shown in Figure 6-127), proceed with step number six (6). If, however, upper and forward edge of glass does not contact all three blocks simultaneously, completely loosen lower sash channel guide plate ("4" Figure 6-125) and lower sash upper guide assembly "5" Figure 6-125) and manipulate the glass by hand until upper and forward edge of glass contacts all three gauge blocks in the full-up position (as shown in Figure 6-127). Tighten guide plate and upper guide assembly attaching bolts.

- Loosen lower sash lower guide assembly "6", Figure 6-125). Apply firm outboard pressure against the bottom of the lower sash guide plate assembly to remove slack in the system and to hold the upper inner edge of glass inboard against outer edge of gauge blocks. Then, tighten lower guide assembly attaching bolts.

IMPORTANT: Inner surface of glass must contact outer surface of the upper gauge blocks during this adjustment. Excessive outboard pressure can

tilt the glass too far inboard at the top resulting in excessive glass to side roof rail weatherstrip contact.

- With the glass in the full-up position against the upper gauge blocks as shown in Figure 6-127, tighten adjustable up-travel stops. Adjust stabilizer strips for proper tension against glass.
- Lower window and remove gauge blocks from weatherstrip retainer. Reinstall and reseal weatherstrip with a pumpable sealer.

REAR DOOR WINDOW STATIONARY VENTILATOR DIVISION CHANNEL - "X-69" Style

The stationary ventilator division channel is held into place by one division channel to door upper frame attaching screw and one lower adjusting stud and nut.

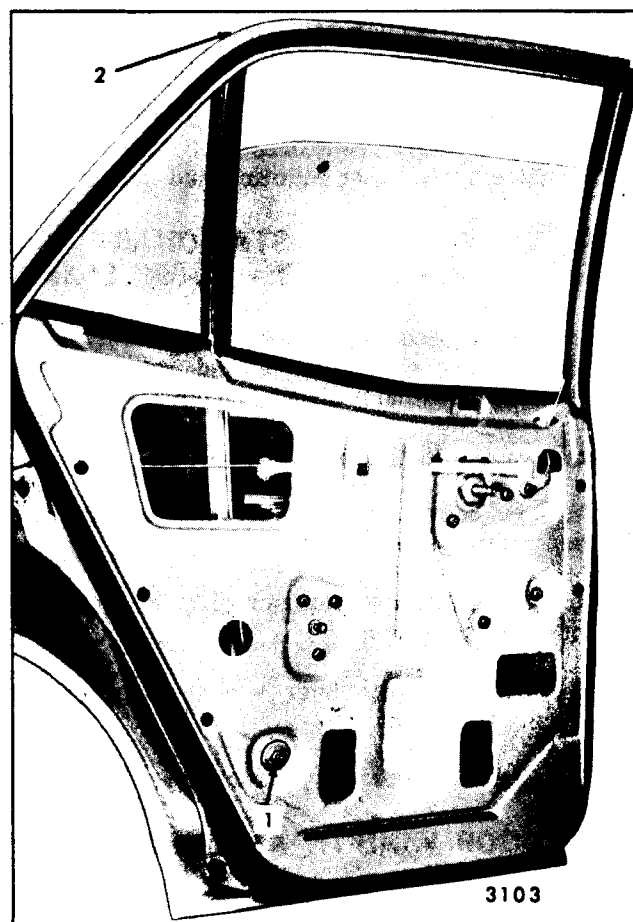


Fig. 6-128-Rear Door Window Removal and Adjustments - "X-69" Styles

- | | |
|---|--|
| 1. Ventilator Division Channel Lower Adjusting Stud | 2. Ventilator Division Channel Upper Attaching Screw |
|---|--|

This assembly acts as a rear door window rear glass run channel and also holds the stationary ventilator window in proper position.

Removal and Installation

1. Remove door trim assembly and detach inner panel water deflector sufficiently to gain access to the lower adjusting stud and nut ("1", Figure 6-128).
2. Remove door window lower stop (rubber bumper) from down stop support bracket on door inner panel.
3. Remove ventilator division channel lower adjusting stud and nut. ("1", Figure 6-128).
4. Carefully lower door window and remove division channel to door upper frame attaching screw. ("2", Figure 6-128).
5. Rotate upper section of division channel forward and inboard and remove assembly from door.
6. To install, reverse removal procedure. In-or-out and fore-or-aft adjustment of this part is available at the lower adjusting stud and nut only.

REAR DOOR WINDOW STATIONARY VENTILATOR ASSEMBLY - "X-69" Style

The rear door stationary ventilator assembly is set within a rubber channel and held into place by pressure of the ventilator division channel.

Removal and Installation

1. Remove door trim assembly and detach inner panel water deflector.
2. Remove stationary ventilator division channel as previously described.
3. Pull stationary ventilator window forward and remove from door.
4. To install, reverse removal procedure.

REAR DOOR WINDOW ASSEMBLY - "X-69" Style

The rear door window assembly consists of a frameless solid tempered safety plate glass window and a pressed-on lower sash channel assembly.

Removal and Installation

1. Remove door trim assembly and inner panel water deflector.

2. Remove rear door window stationary ventilator assembly as previously described.
3. Slide window regulator lift arm roller out of window lower sash channel cam and remove glass inboard of door upper frame.
4. To install, reverse removal procedure. Adjust window for proper operation as described in the following procedure.

Adjustments

Adjustment has been provided to relieve a binding door glass due to misalignment of the ventilator division channel. ("1", Figure 6-128).

REAR DOOR WINDOW REGULATOR- Manual-All "A" Styles

Removal and Installation-Refer to Figure 6-98 for "Closed" Styles and Figure 6-100 for "A-39" Styles

1. Remove door trim assembly and inner panel water deflector.
2. Lower window and remove lower glass sash channel cam attaching screws. While supporting glass, disengage cam from rollers on regulator lift and balance arms and remove cam.

NOTE: On closed styles, raise window to a full-up position and secure in place with pieces of cloth-backed body tape applied over door frame. On hardtop styles, prop the window in a full-up position.

3. Remove inner panel cam attaching bolts.
4. Loosen window regulator attaching bolts and remove window regulator through large access hole.
5. To install, reverse removal procedure.

REAR DOOR WINDOW REGULATOR - Electric - All "A" Styles

Removal and Installation-Refer to Fig. 6-100

1. Remove door window as previously described.
2. Remove inner panel cam attaching bolts.
3. Disconnect body wire harness from window regulator at regulator motor.
4. On "A-39" styles, remove the window rear guide as subsequently described.

5. Remove window regulator attaching bolts and remove regulator through large access hole.
6. To install, reverse removal procedure.

REAR DOOR WINDOW REGULATOR - Manual and Electric-"B" Closed Styles

Removal and Installation-Refer to Figure 6-102

1. Remove upper and lower portion of door trim assembly and inner panel water deflector.
2. Lower window to a three-quarter-down position, remove lower sash channel cam to glass attaching stud nuts. While supporting glass, disengage cam from rollers on regulator lift and balance arms and remove cam.

NOTE: Raise window to full-up position and secure in place with pieces of cloth-backed body tape applied over door upper frame. On hardtop styles, prop the window in a full-up position.

3. Remove inner panel cam attaching bolts.
4. Loosen window regulator attaching bolts and remove window regulator through access hole.
5. To install, reverse removal procedure.

REAR DOOR WINDOW REGULATOR- Manual and Electric-"B and C" Four-Door Hardtop Styles, Except 68169 Styles

Removal and Installation (Refer to Figure 6-104)

1. Remove upper and lower portion of door trim assembly and inner panel water deflector (refer to Index for door trim assembly and inner panel water deflector removal).
2. Remove center guide cam as subsequently described and prop glass in a full-up position.
3. Remove window regulator attaching bolts ("7", Figure 6-104), then slide regulator lift arm roller out of lower sash channel cam and remove regulator through large access hole.
4. To install, reverse removal procedure.

REAR DOOR WINDOW REGULATOR - 68169 Styles

Removal and Installation - Refer to Figure 6-106

1. Remove upper and lower portion of door trim assembly and inner panel water deflector.

2. Remove window regulator attaching bolts. Disengage regulator lift arm roller from lower sash channel cam and prop window in a full-up position. On manual styles, remove regulator through large access hole. On electric styles, rotate regulator assembly clockwise so that motor portion of regulator assembly comes out first.

3. To install, reverse removal procedure.

REAR DOOR WINDOW REGULATOR ELECTRIC MOTOR - All Styles

Removal and Installation

If it is necessary to remove the electric motor from the regulator, refer to "Front Rear Door" section for the proper procedure. The tension on the lift arm assist spring can cause serious injury if the motor is removed without use of the cautionary measures described in the procedure.

REAR DOOR WINDOW REGULATOR - "X-69" Style

Removal and Installation *

1. Remove door trim assembly and inner panel water deflector.
2. Remove inside locking rod to lock connecting link bolt ("6", Figure 6-108) and disconnect locking rod at lock.
3. Operate window to full-up position and secure in place with pieces of cloth-backed body tape applied over door frame.
4. Remove regulator attaching bolts ("5", Figure 6-108). Slide regulator lift arm roller out of lower sash channel cam and remove regulator through large access hole.
5. To install, reverse removal procedure.

REAR DOOR WINDOW FRONT GUIDE AND BRACKET ASSEMBLY-"A-39" Styles

Removal and Installation

1. Remove door trim assembly and inner panel water deflector.
2. Remove window front up-travel stop from guide ("5", Figure 6-100).
3. Remove inside locking rod to lock connecting link bolt. Pull Locking rod assembly downward through guide bracket.

4. With window in full-up position, loosen front guide upper and lower attaching bolts ("8" and "9", Figure 6-100) and remove guide through access hole.
5. To install, reverse removal procedure. Adjust guide for proper window operation as described in door window adjustment procedure.

REAR DOOR WINDOW REAR GUIDE - "A-39" Styles

Removal and Installation

1. Remove door trim assembly and inner panel water deflector.
2. With window in full-up position, remove rear guide upper and lower attaching bolts ("6" and "7", Figure 6-100). Remove guide through access hole.
3. To install, reverse removal procedure. Adjust guide for proper window operation as described in door window adjustment procedure.

REAR DOOR WINDOW CENTER GUIDE CAM - "B and C" Four-Door Hardtop Styles, Except 68169 Style

Removal and Installation

1. Remove upper and lower portion of door trim assembly and inner panel water deflector.
2. With window in full-up position, remove center guide cam upper and lower attaching bolts ("4 and 6", Figure 6-104).
3. Pull guide downward to disengage from window lower sash guide plate roller assembly. Remove guide through access hole.
4. To install, reverse removal procedure. Adjust guide

for proper window operation as described in door window adjustment procedure.

REAR DOOR WINDOW GUIDE TUBE - 68169 Style

Removal and Installation

1. Remove upper and lower portion of door trim assembly and inner panel water deflector.
2. Remove upper and lower sash guide assembly as subsequently described, then remove tube assembly through access hole.
3. To install, reverse removal procedure.

REAR DOOR WINDOW LOWER SASH UPPER AND/OR LOWER GUIDE ASSEMBLY - 68169 STYLE

Removal and Installation

1. Remove upper portion of door trim assembly (refer to Index for door trim assembly removal).
2. For removal of lower sash upper and/or lower guide assembly, remove attaching bolts "2" and/or "4", Figure 6-106. Then remove guide tube assembly, as previously described, to completely remove lower sash assembly.
3. To install, reverse removal procedure.

REAR DOOR WINDOW GLASS RUN CHANNEL-"A, B and X" Closed Styles

Removal and Installation

1. Remove door window as previously described.
2. With finger pressure, squeeze run channel together and gently pull run channel out of rear door upper frame.
3. To install, reverse removal procedure.

SECTION 7

REAR QUARTERS

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Rear Quarter Rear Vertical Inner Sealing Strip-A-57 Styles.....	7-2	"X-27" Styles.....	7-15
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DESCRIPTION

Closed style rear quarter windows operate within glass run channels. Hardtop and convertible styles employ nylon rollers that are component parts of the lower sash or bolt directly to the glass. These rollers operate within a center guide.

All quarter glass is constructed of solid tempered safety plate. Caution must be applied when handling glass, as glass may shatter if it is chipped or scratched. **DO NOT** attempt to grind or drill glass.

When performing any service operations to the rear quarter window hardware, it is usually necessary to remove the rear quarter trim assembly.

REAR QUARTER INNER PANEL SEALING

All rear quarter inner panels are sealed with one or a combination of water deflectors, access hole covers, sealing plugs (or grommets) and body sealer. Service procedures for inner panel water deflectors are outlined in the "Front and Rear Door" section of this manual (see index). Figure 7-1 is typical of a water deflector installation.

Inner panel access hole covers are retained by screws and sealed with a non-hardening body sealer. Usually,

removal of either the water deflector or access hole cover will provide the clearance required for service procedures of rear quarter hardware. Whenever any seal has been disturbed, however, the area must be

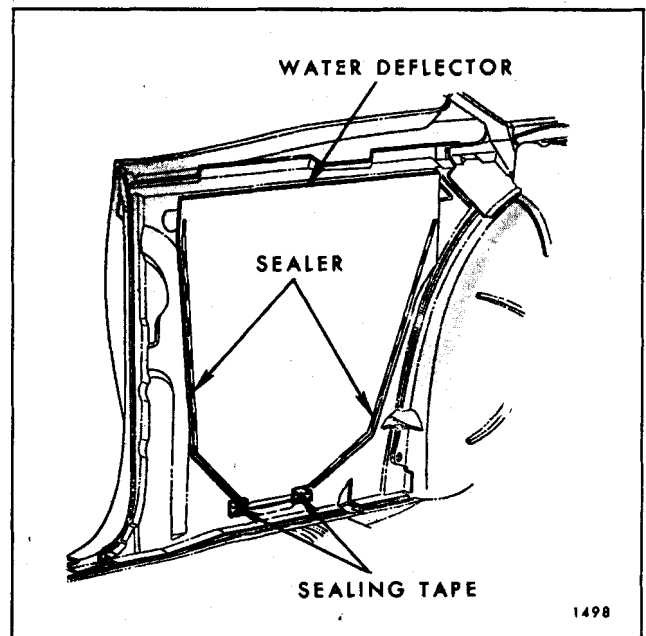


Fig. 7-1-Rear Quarter Inner Panel Sealing - Typical of Water Deflector Installation

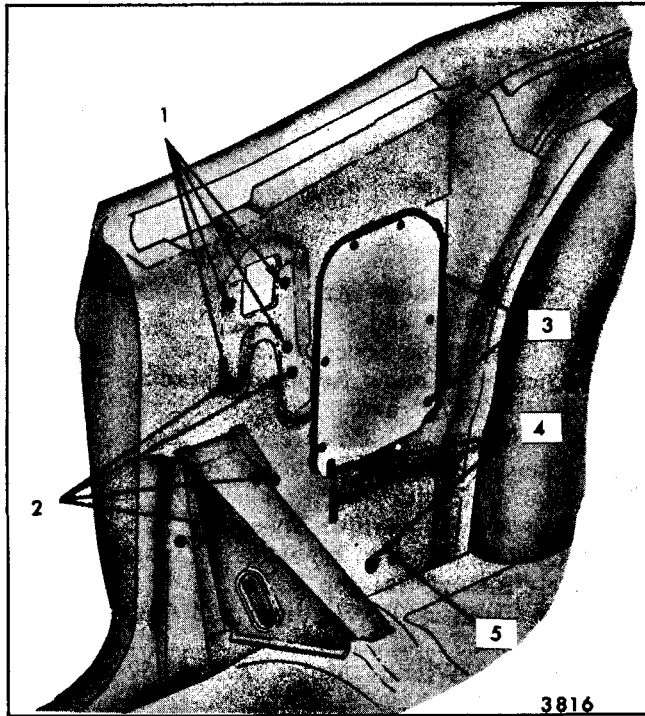


Fig. 7-2-Typical Rear Quarter Inner Panel Sealing - "67" Styles

- | | |
|---|---|
| 1. Manual Regulator
Attaching Bolt Slots | 4. Window Guide and
Lower Stop Adjusting
Stud Slots |
| 2. Electric Regulator
Attaching Bolt Slots | 5. Electrical Harness
Grommet |
| 3. Access Hole Covers | |

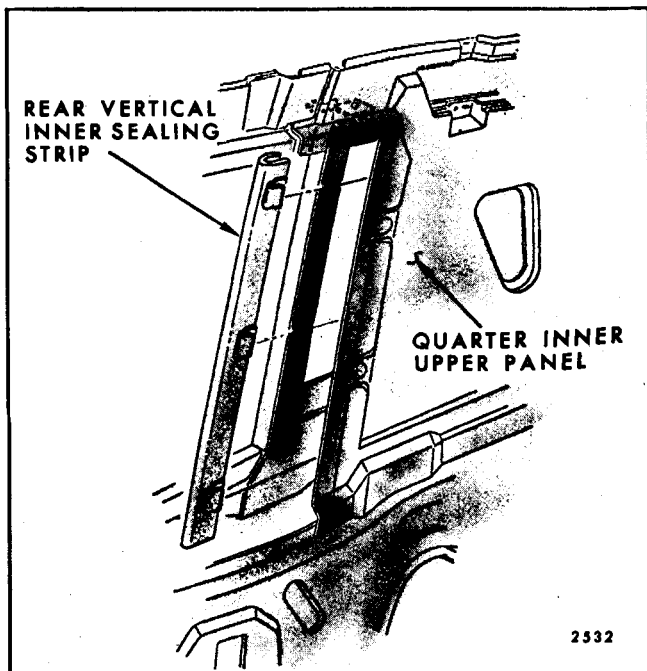


Fig. 7-3-Rear Quarter Window Rear Vertical Inner Sealing Strip Assembly

carefully resealed to prevent waterleaks. Body caulking compound is recommended for service sealing. Figure 7-2 illustrates quarter inner panel sealing on styles which use individual seals at all hardware attaching locations.

REAR QUARTER WINDOW REAR VERTICAL INNER SEALING STRIP - "A-57" Styles

The rear vertical inner sealing strip is attached to the quarter inner upper panel with clips that are an integral part of the sealing strip (Figure 7-3).

To remove the strip assembly, lower quarter window and disengage side roof rail finishing molding adjacent to sealing strip. Slide strip assembly forward to disengage clips and remove sealing strip from window opening.

REAR QUARTER WINDOW REAR VERTICAL OUTER SEALING STRIP - Chevrolet, Pontiac and Oldsmobile "A-57"

On the remaining "A" styles, the sealing strip is an independent part, and is retained with screws.

To remove either type of installation, remove the quarter upper trim assembly (above belt) and quarter window rear vertical inner strip assembly to gain access to the attaching screws (Figure 7-4).

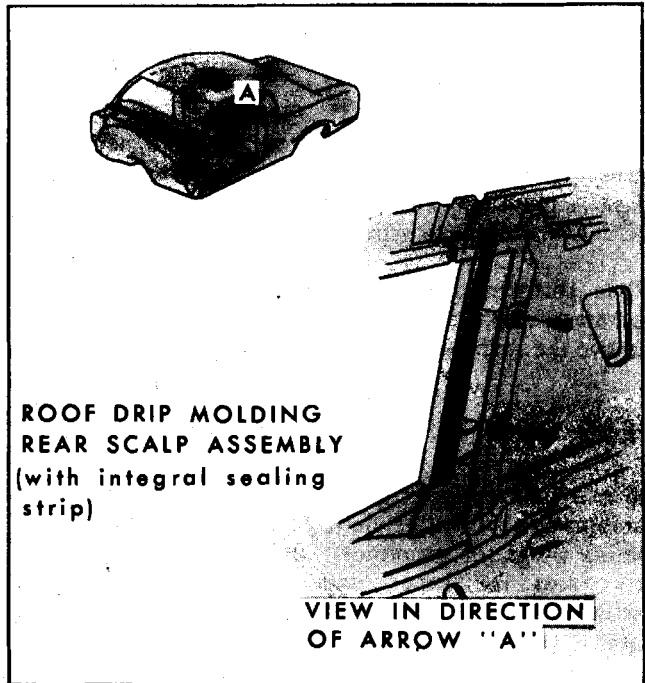


Fig. 7-4-Quarter Window Rear Vertical Outer Sealing Strip - Typical of "A-57" Styles

REAR QUARTER WINDOW - "A-27-77" and "X-27" Styles

Removal and Installation

1. Remove rear quarter trim assembly and inner panel water deflector.
2. Operate quarter window to the position illustrated in Figure 7-5.

NOTE: Figures 7-5 and 7-6 are typical of rear quarters with the inner panels removed. These figures identify the component parts of the rear quarter hardware (by style), their relationship and various attaching points.

3. While supporting glass, disengage clip retainer securing regulator lift arm to glass.
4. Manually lower glass until both front and rear bottom edges are sufficiently free of their respective run channels to rotate front edge of window down between rear quarter inner and outer panels. Remove window, rear edge up, inboard of side roof rail.
5. To install, reverse removal procedure.

Adjustments

All window assembly adjustments are provided at the window regulator attaching screws.

1. To obtain proper seating of the glass in the upper glass run channels, or proper contact between belt sealing strips and lower sash channel, loosen regulator attaching screws and adjust window as required.
2. To eliminate a fore and aft bind between the glass run channels (hard operating window), or a condition where window will not stay in rear run channel, loosen rear run channel attaching bolt and adjust run channel fore or aft as required.

REAR QUARTER WINDOW REAR RUN CHANNEL-All Closed Styles

Removal and Installation

1. Remove rear quarter window as previously described.
2. Remove run channel to inner panel attaching bolt (Fig. 7-7).
3. Remove screws securing run channel to side roof rail along length of run channel.

4. Using a flat-bladed tool, carefully pry run channel retaining clips (rosebud fasteners) from piercings in side roof rail.

NOTE: If difficulty is encountered disengaging run channel, inspect inside of channel for the presence of screws.

5. Prior to installation, inspect foam sealing material for any damage that would result in waterleaks, and replace as necessary.
6. To install, reverse removal procedure.

REAR QUARTER WINDOW FRONT RUN CHANNEL-All Closed Styles

Removal and Installation

1. Remove rear quarter window as previously described.
2. Remove screws along length of run channel securing channel to body (Fig. 7-8).
3. On all styles, using a flat-bladed tool, pry run channel from body pillar and remove run channel.
4. To install, reverse removal procedure. Prior to installation inspect sealing material on body pillar or run channel and replace or add to as required.

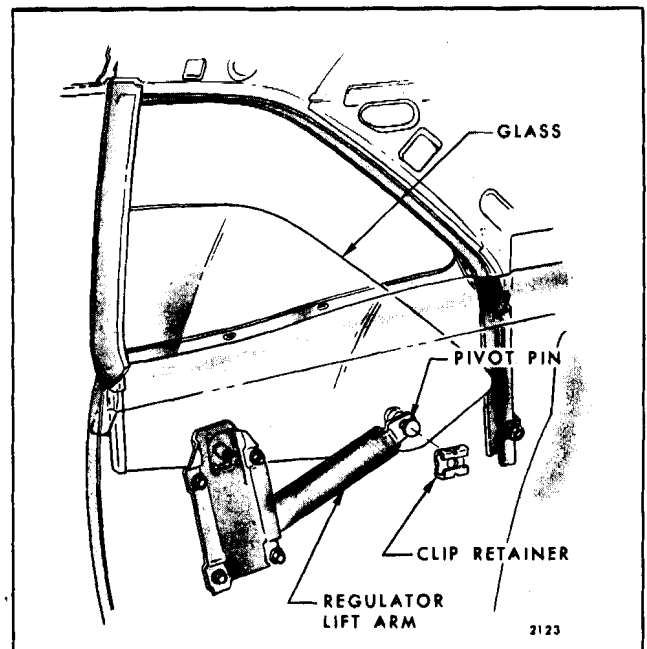


Fig. 7-5-Rear Quarter Window Attachment - Typical "A" Closed Styles

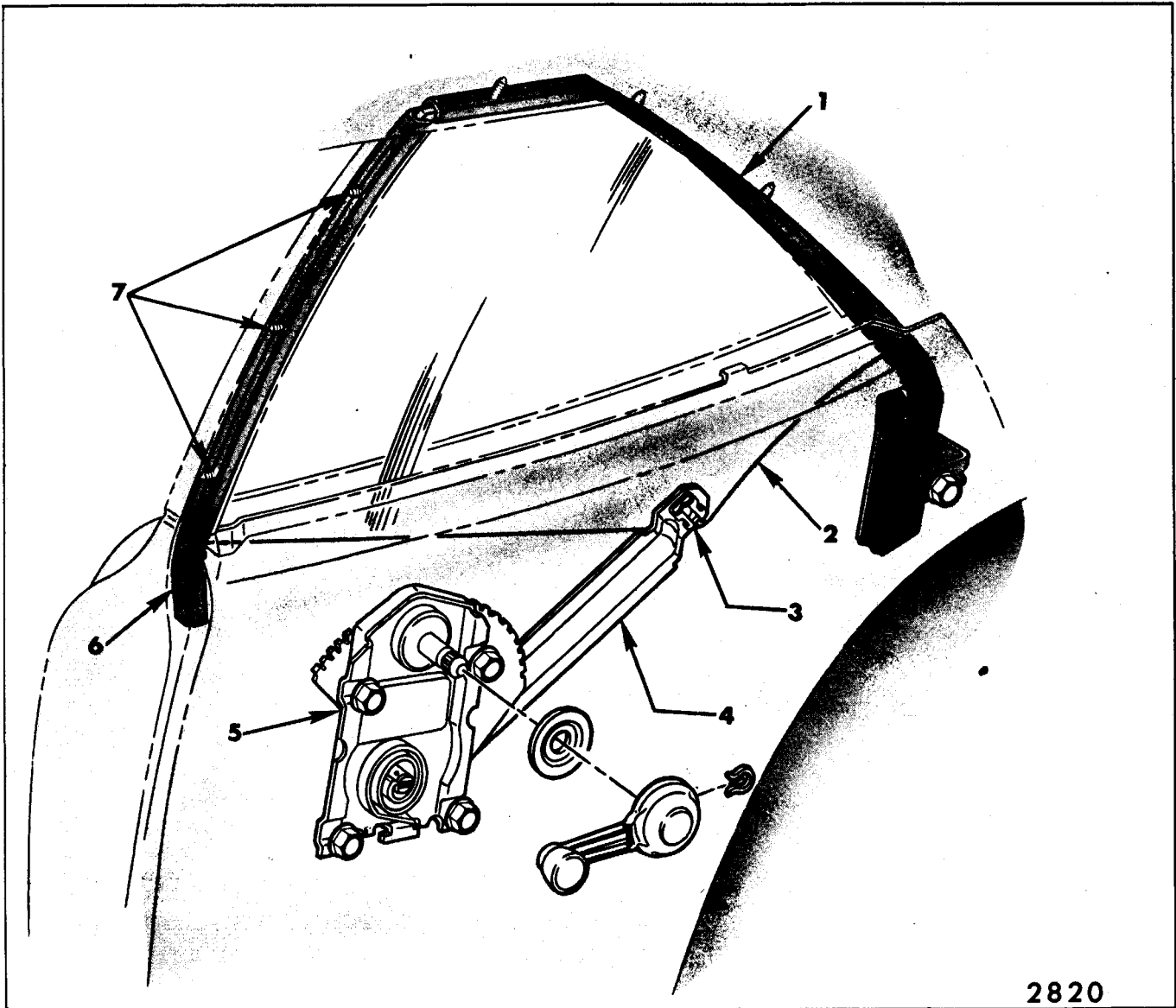


Fig. 7-6-Rear Quarter Hardware - "X-27" Styles

- | | | | |
|---------------------------|---------------------------|----------------------------|---------------------------------------|
| 1. Rear Glass Run Channel | 3. Retainer and Pivot Pin | 5. Regulator Assembly | 7. Front Run Channel Retaining Screws |
| 2. Rear Window Glass | 4. Regulator Lift Arm | 6. Front Glass Run Channel | |

REAR QUARTER WINDOW INNER AND OUTER STRIP ASSEMBLIES-All "B-C-E" Coupe and Convertible Styles

The rear quarter glass outer sealing strip on "B-C and E" hardtops and convertibles is retained by rivets. In some cases it may be necessary to lower the glass and guide assembly down into the quarter to gain access to the attaching rivets.

All "B-C-E" inner sealing strips are attached to a support. The support and strip assembly may be removed by removing the bolt at the front of the window guide upper support, and, depending on style, two or three screws at the rear.

Removal and Installation (Outer Sealing Strip)

1. Remove rear seat, quarter trim panel and quarter water deflector.

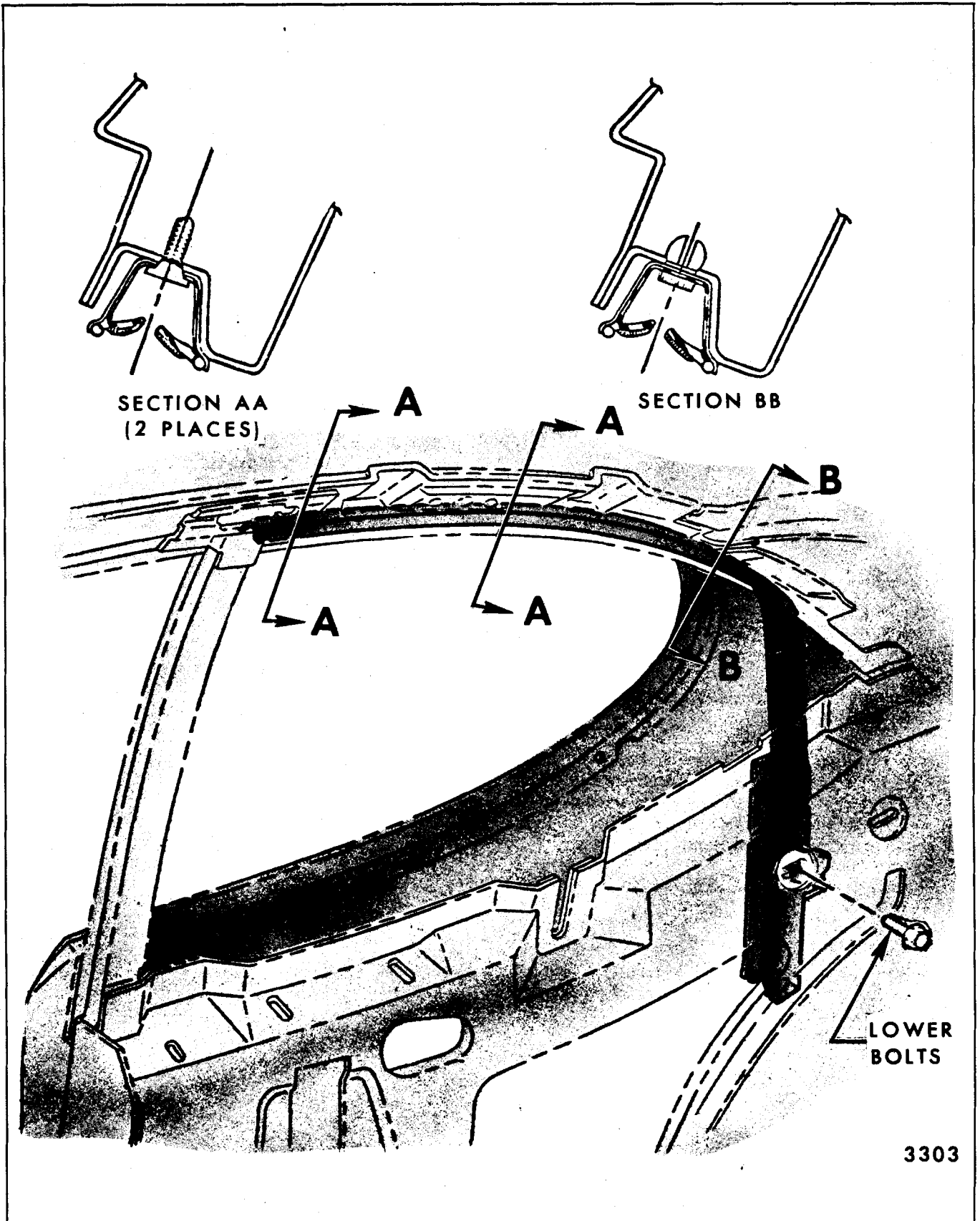


Fig. 7-7-Rear Quarter Window Glass Run Channels - Typical of All Closed Styles

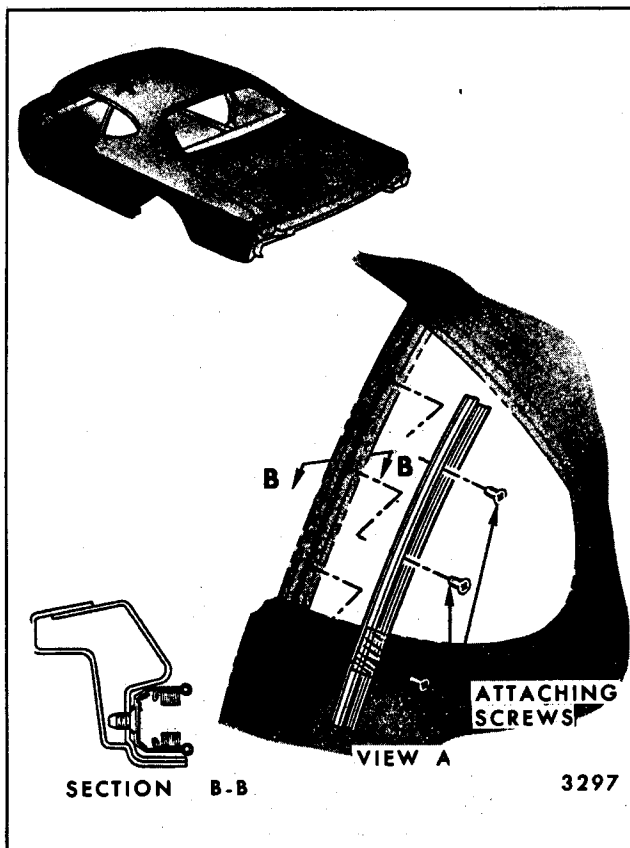


Fig. 7-8-Rear Quarter Window Front Glass Run Channel - Typical of All Closed Styles

2. Scribe bolt locations at upper and lower support to guide bolts.
3. Remove upper support to guide bolts ("1" Fig. 7-18 and 7-19). Remove lower support guide bolt ("6" Fig. 7-18 and 7-19) and lower window glass and guide assembly into quarter panel to gain access to outer sealing strip attaching rivets.

4. Attaching rivets can be removed by drilling out the rivet with a 1/8 inch drill bit.

IMPORTANT: Using larger than 1/8 inch drill bit, would enlarge the hole and prevent the use of rivets for installation. Substitution of screws for rivets could result in scratched glass.

5. To install, align holes in outer panel and sealing strip and attach with "pop" rivets or equivalent (Fig. 7-9).

REAR QUARTER WINDOW ASSEMBLY - "A-37-57-87-67" Styles

Description

All "A" body rear quarter hardware is similar in

design, as shown in Figures 7-10, 7-11 and 7-12. These illustrations identify the component parts of the rear quarter hardware (by style), their relationship and various attaching points.

Removal and Installation

1. Remove rear seat cushion, seat back, rear quarter trim and inner panel water deflector and/or loading hole cover. On "67" Styles, lower folding top.
2. Remove all stops.
3. Loosen and remove window guide attaching bolts, and remove guide through access hole.
4. Lower window and tilt glass to enable disengagement of lift arm roller from sash channel cam.
5. On All "A" styles except Pontiac "A-57" lift glass straight up and remove inboard of side roof rail.
6. On Pontiac "A-57" styles lower glass into quarter section and rotate 180 degrees rearward. Remove glass, bottom side first, through the belt line opening out board of side roof rail.
7. To install, reverse removal procedure.

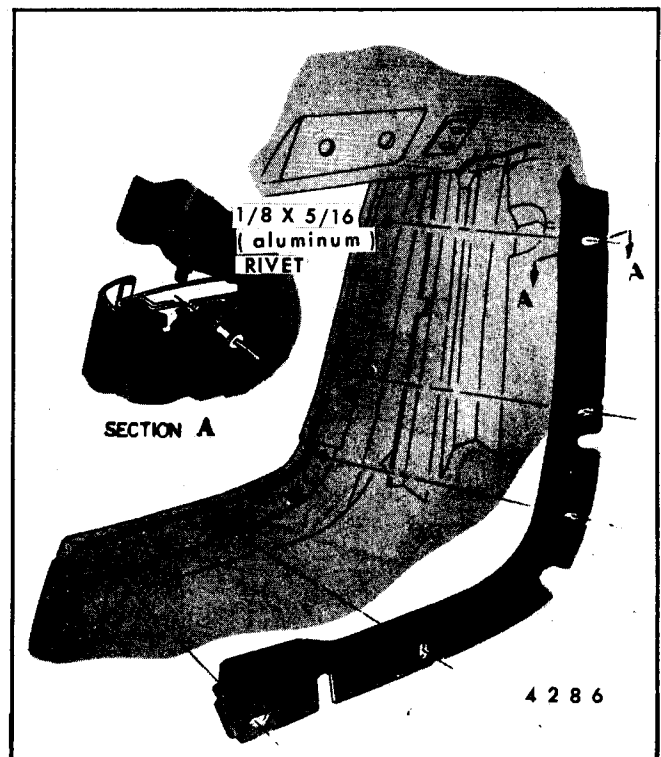
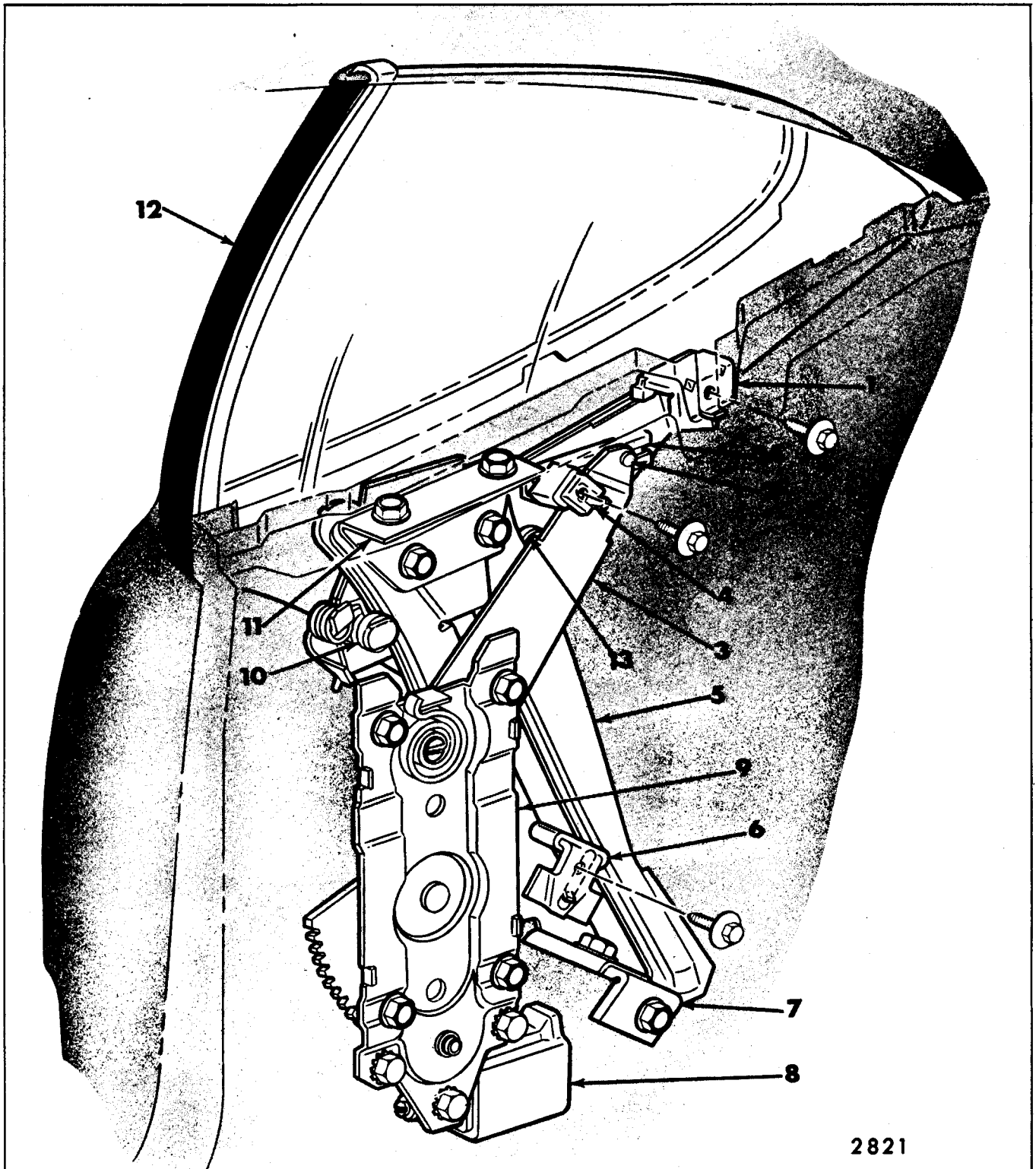


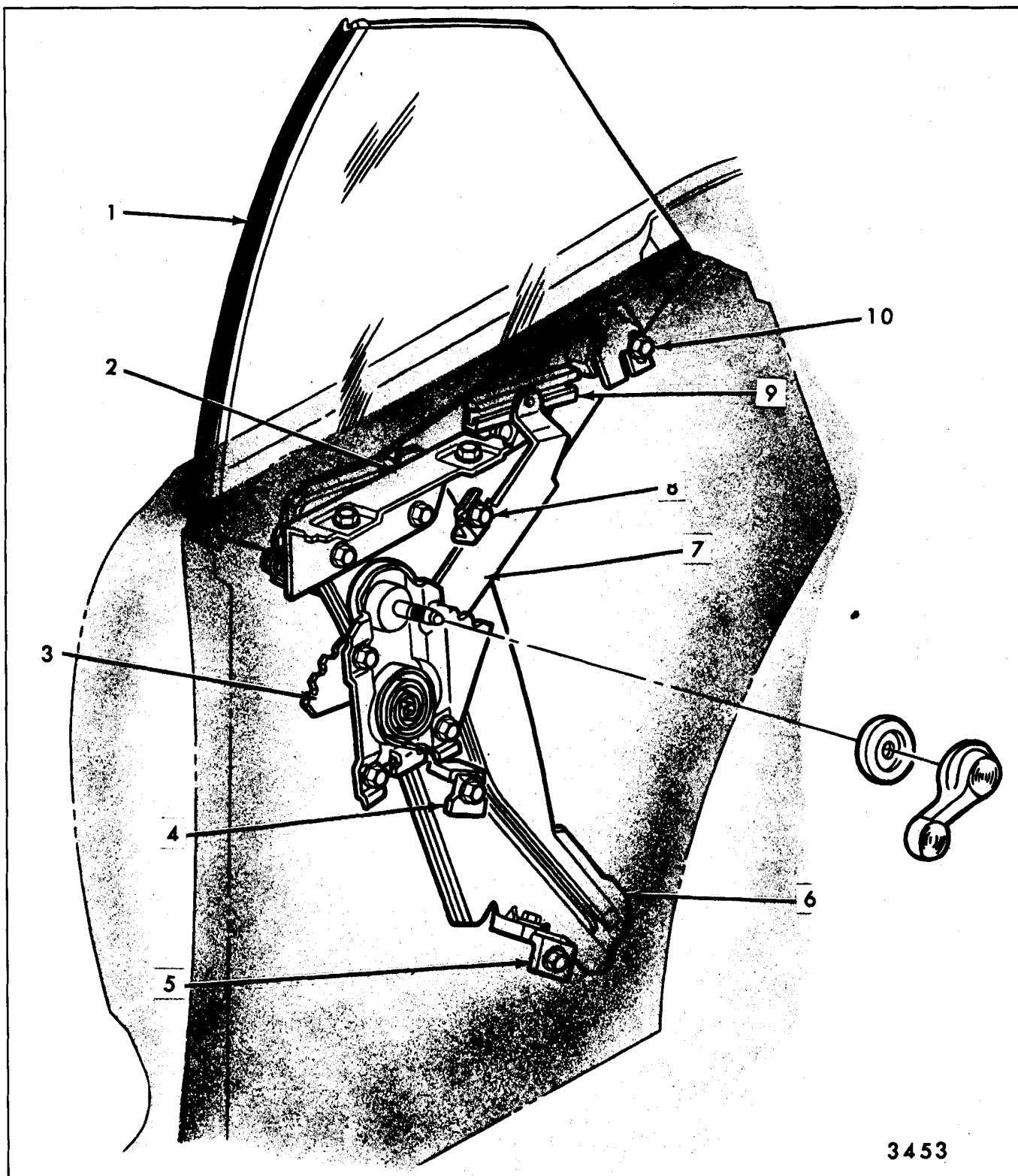
Fig. 7-9-Quarter Window Outer Sealing Strip Rivet Installation ("E-57" Style Shown - All "B-C-E" Similar)



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Fig. 7-10-Rear Quarter Hardware - "A-37 and 87" Styles

- | | | | |
|------------------------------|--------------------------------|---------------------------------|---------------------------------|
| 1. Rear Up-Stop | 4. Front Up-Stop | 8. Electric Motor | 12. Front Vertical Weatherstrip |
| 2. Regulator Lift Arm Roller | 5. Window Guide | 9. Regulator Assembly | 13. Rear Roller |
| 3. Regulator Lift Arm | 6. Down Stop | 10. Front Roller | 14. Sash Channel Cam |
| | 7. Lower Guide Support Bracket | 11. Upper Guide Support Bracket | |



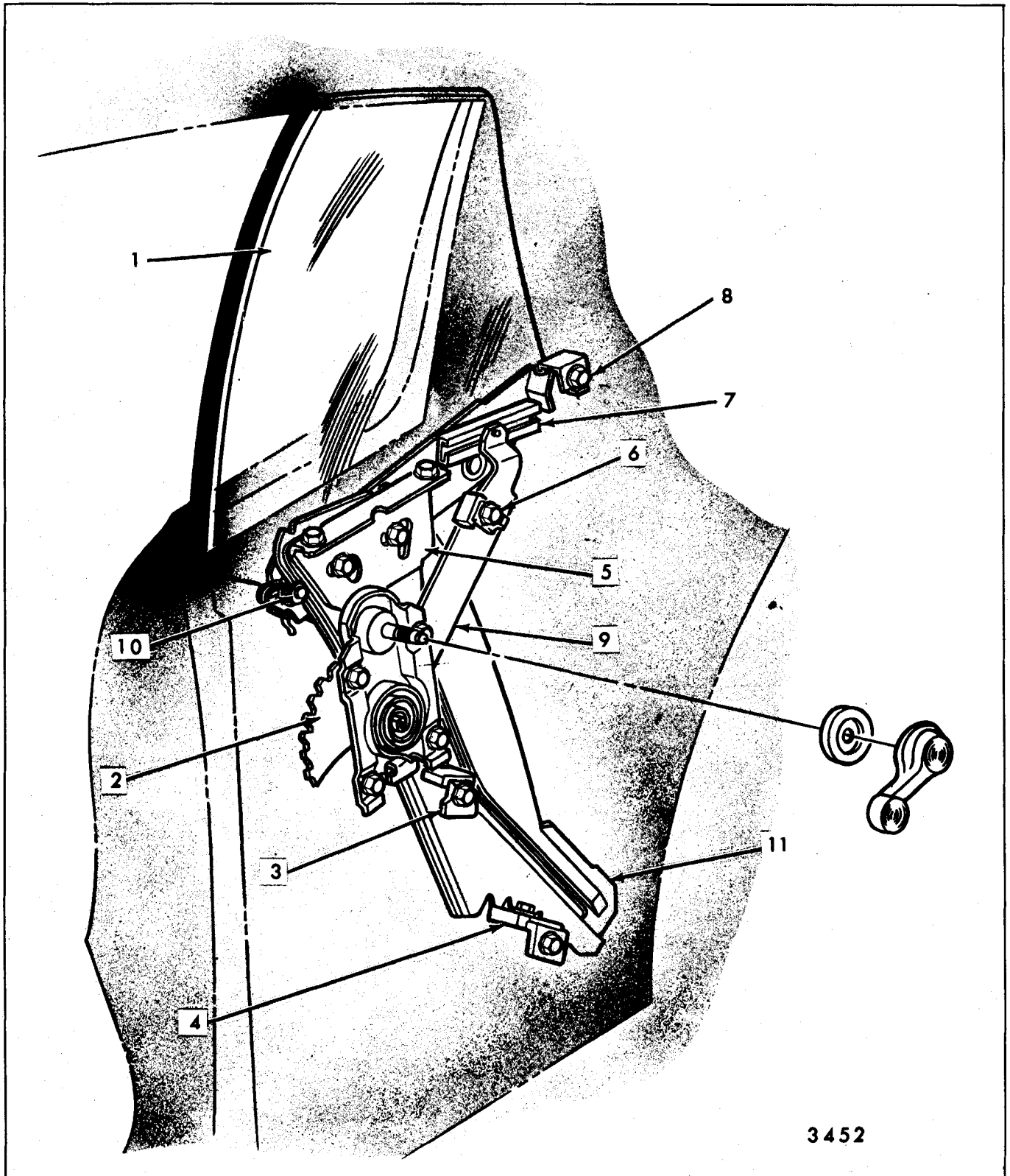
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Fig. 7-11-Quarter Hardware - "A-67"

1. Front Vertical
Weatherstrip
2. Upper Guide Support
Bracket

3. Regulator
4. Lower Stop
5. Lower Guide Support
6. Guide

7. Regulator Lift Arm
8. Stop Assembly
9. Sash Channel Cam
10. Rear Up-Stop



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Fig. 7-12-Quarter Hardware - "A-57"

1. Window Glass
2. Regulator
3. Lower Stop

4. Support Guide Lower
5. Support Guide Upper
6. Front Upper Stop

7. Sash Channel Cam
8. Rear Upper Stop
9. Regulator Lift Arm

10. Front Roller
11. Guide

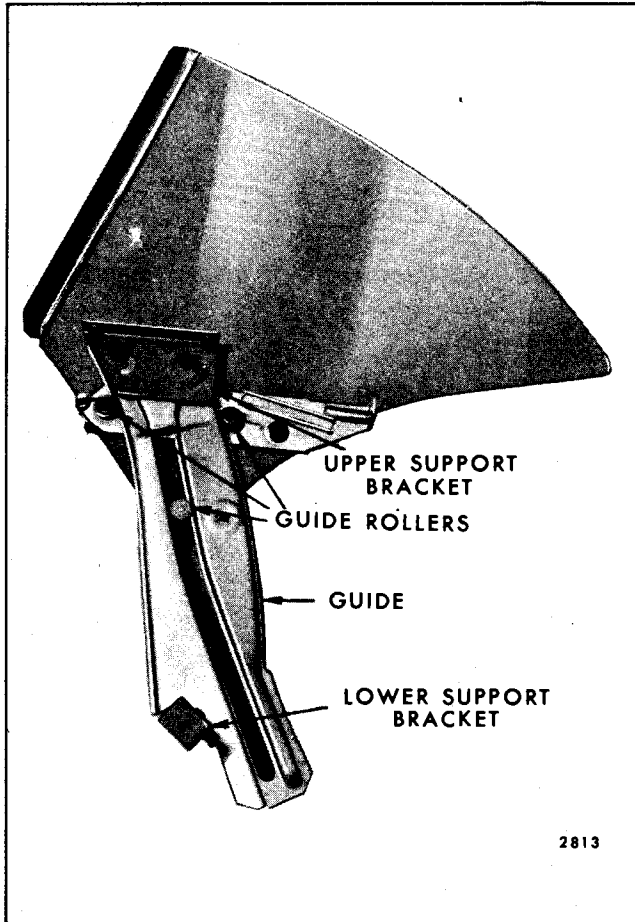


Fig. 7-13-Rear Quarter Window and Guide Assembly - "A-37, 67, 87" Styles

Adjustments

The rear quarter window guide is secured to the quarter inner panel at the bottom and top with support brackets. These support brackets provide both in and out and fore or aft adjustment of the glass. One down-stop and two up-stops are provided for alignment operations.

Figure 7-13 is typical of most hardtop or convertible styles utilizing a single window guide.

Fig. 7-15-Rear Quarter Window Assembly - "A-37, 87" Styles Shown, "A-57" Style Typical

- | | |
|------------------------------|---------------------------------|
| 1. Glass | 8. Guide Lower Roller |
| 2. Lower Sash Channel Filler | 9. Guide Roller Washer Rubber |
| 3. Lower Sash Channel | 10. Washer - Rubber |
| 4. Lower Sash Channel Cam | 11. Glass to Sash Bushing |
| 5. Glass to Sash Bolt | 12. Glass to Sash Nut |
| 6. Guide Front Roller | 13. Front Vertical Weatherstrip |
| 7. Guide Roller Spring | |

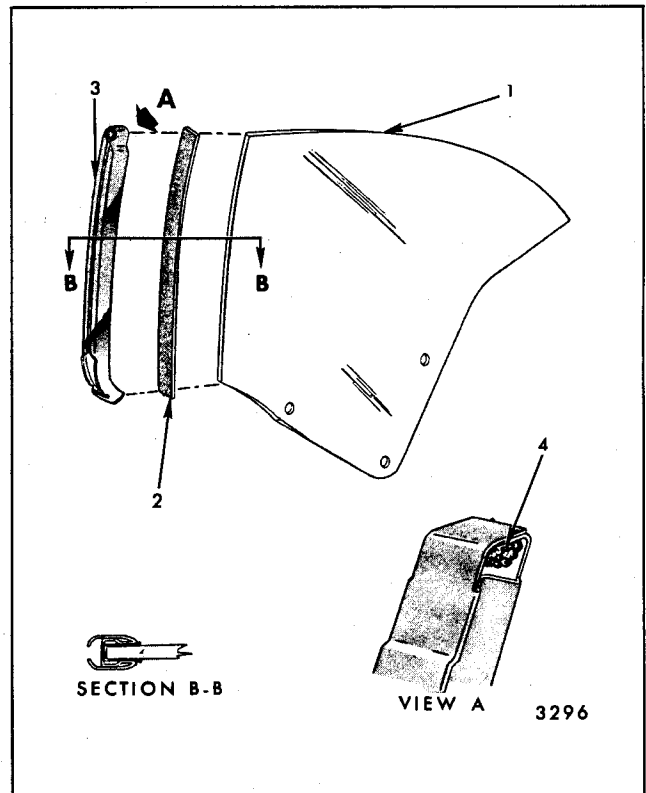
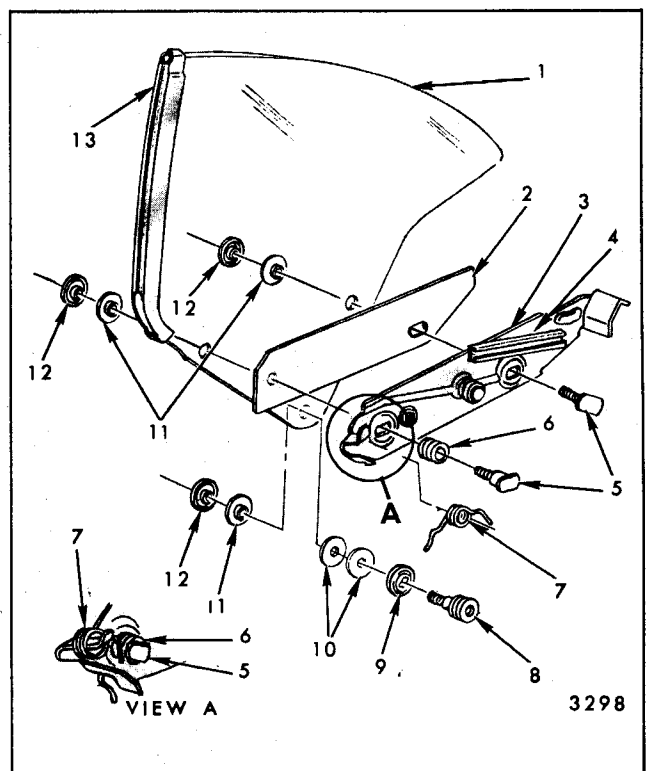
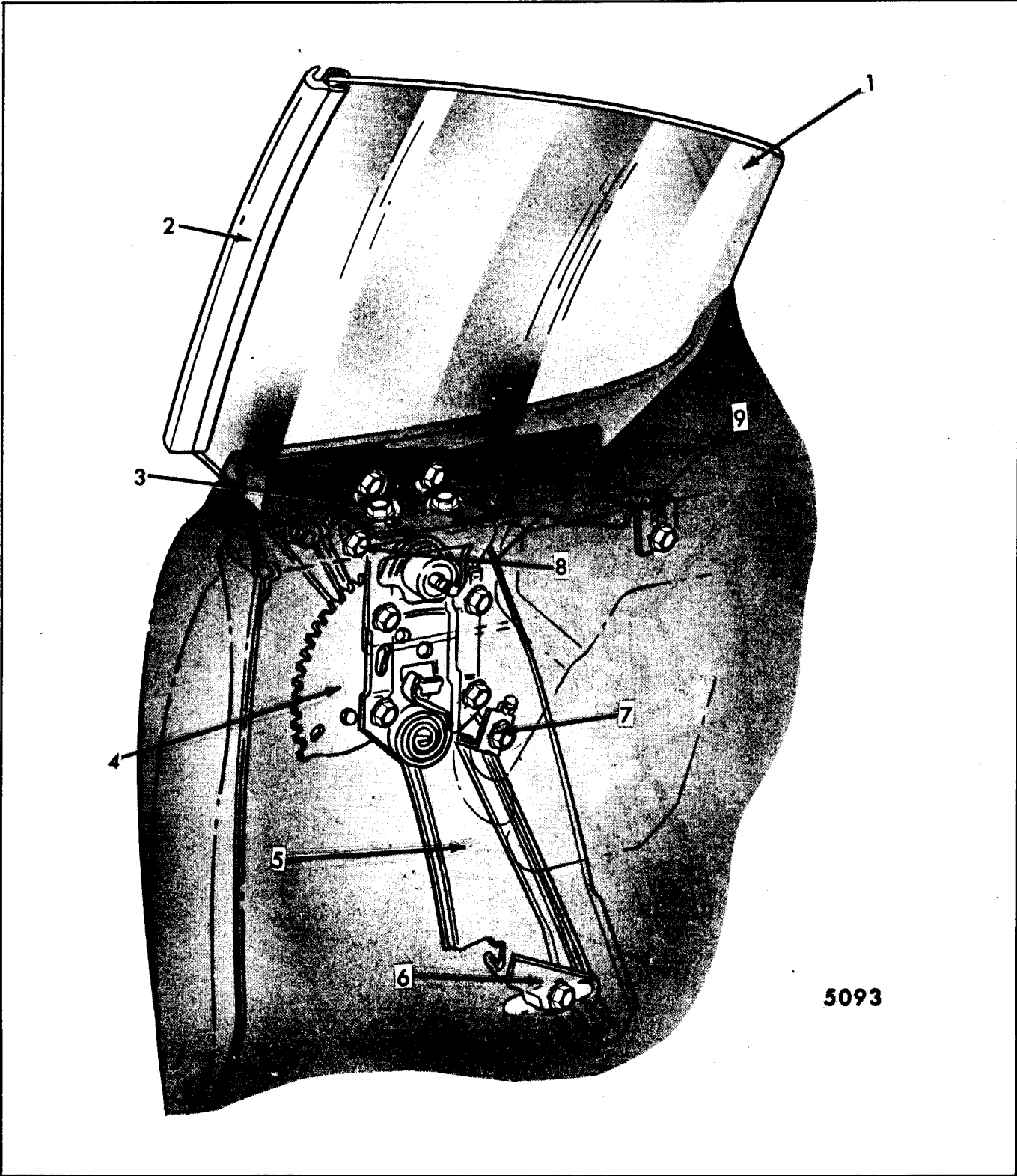


Fig. 7-14-Rear Quarter Window - "A-37, 57, 87" Styles,

- | | |
|-------------------------|------------|
| 1. Quarter Window Glass | 3. Channel |
| 2. Filler | 4. Sealer |





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Fig. 7-16-Quarter Window Hardware - "B, C and E" Hardtop - "B and E" Convertible Styles

- | | | | |
|---|---------------------------|---------------------------------|------------------------------|
| 1. Quarter Window Glass | 3. Upper Support Assembly | 6. Lower Guide Support Assembly | 8. Upper Front Stop Assembly |
| 2. Vertical Sash Channel and Weatherstrip | 4. Regulator Assembly | 7. Lower Down Stop Assembly | 9. Upper Rear Stop Assembly |
| | 5. Guide | | |

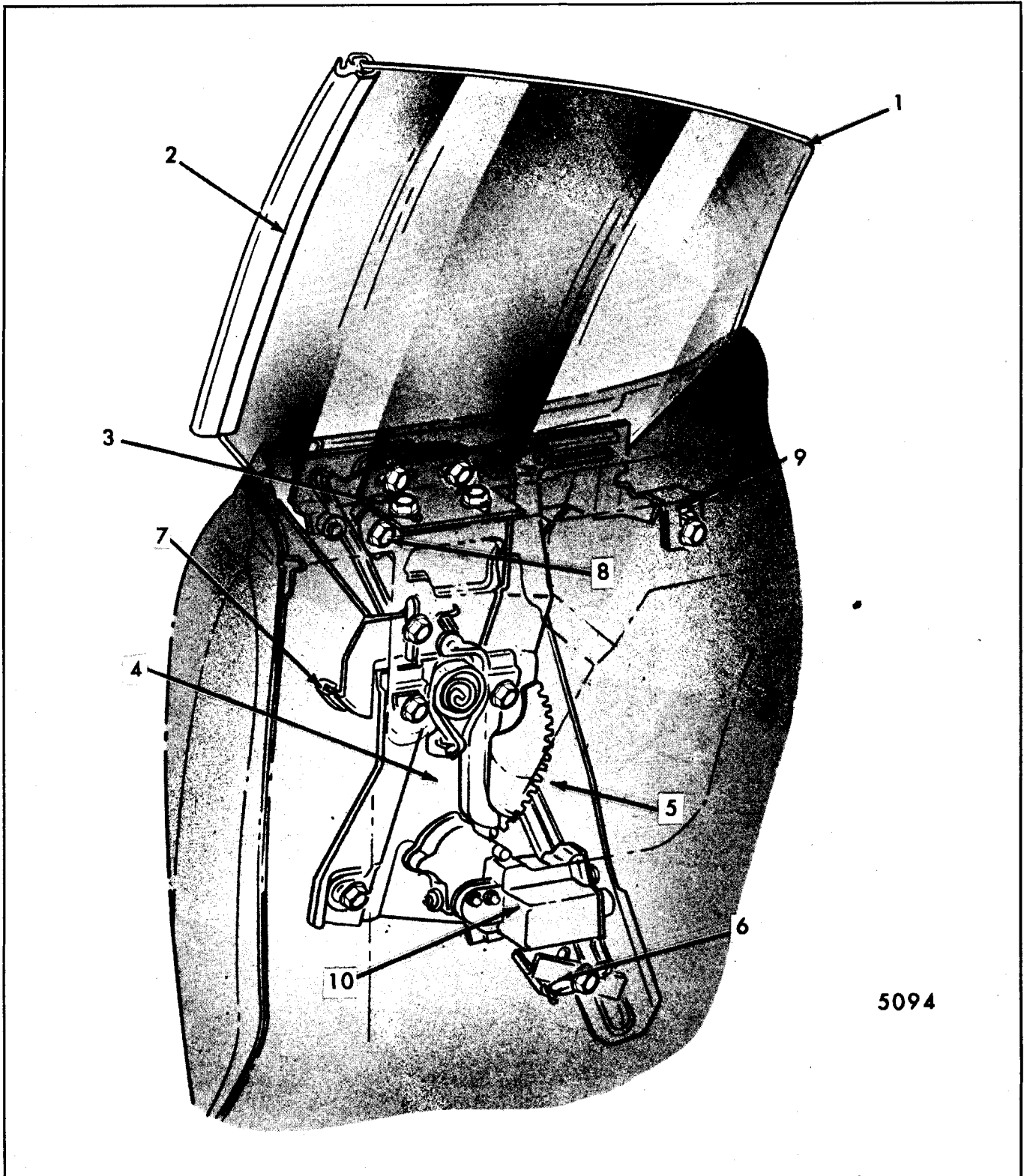


Fig. 7-17-Quarter Window Hardware - "B-C and E" Styles (Power Window)

- | | | | |
|---|---------------------------|---------------------------------|------------------------------|
| 1. Quarter Window Glass | 3. Upper Support Assembly | 6. Support Assembly Guide Lower | 9. Rear Up-Travel Stop |
| 2. Vertical Sash Channel and Weatherstrip | 4. Regulator Assembly | 7. Down Stop | 10. Motor and Drive Assembly |
| | 5. Guide Assembly | 8. Front Up-Travel Stop | |

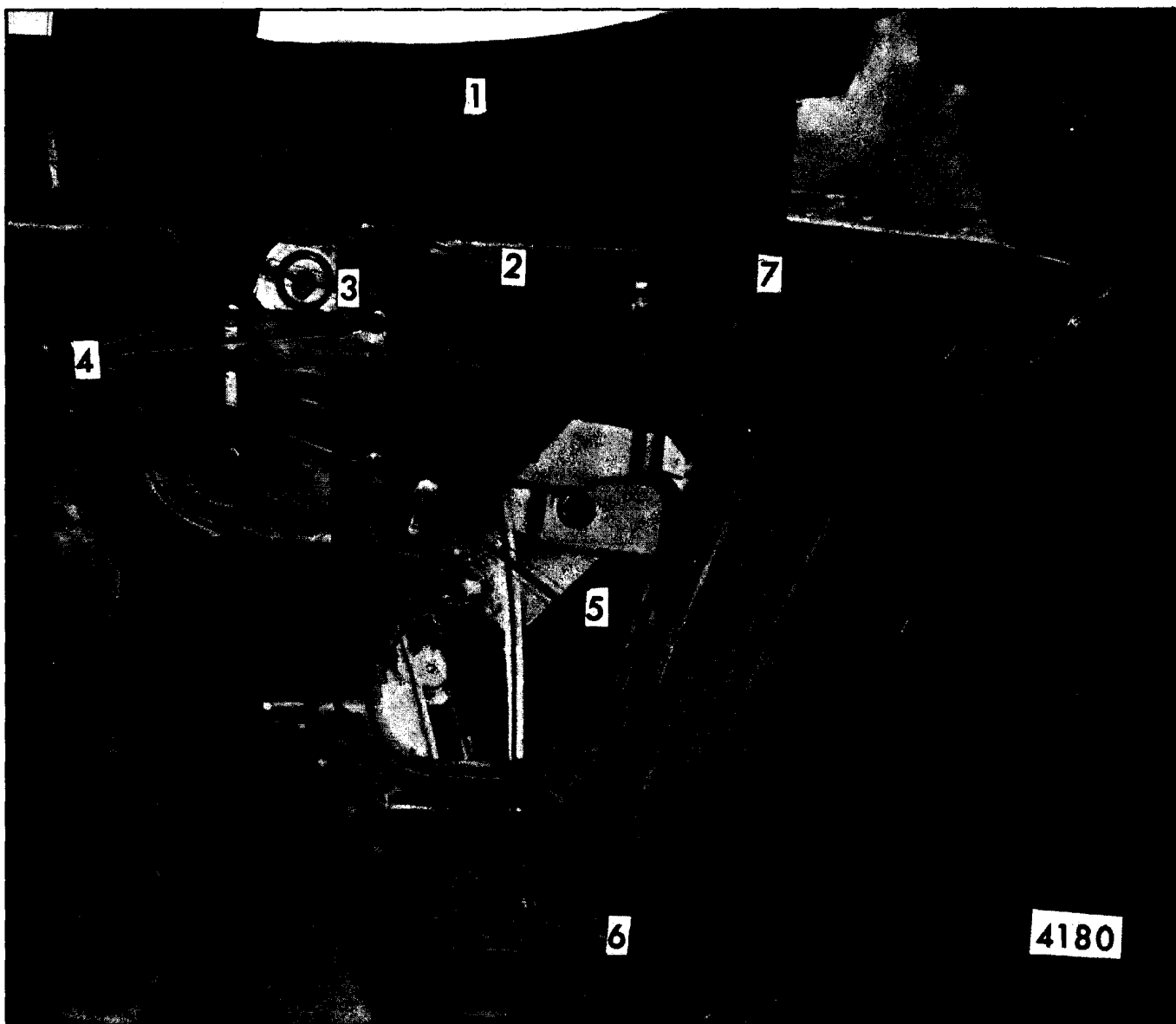


Fig. 7-18-Rear Quarter Hardware - "B-C-47, 57" Styles (All "E" Body Styles Similar)

- | | | |
|--|--|--|
| <p>1. Upper Support to Window Guide Attaching Bolts</p> <p>2. Upper Support to Inner Panel Attaching Bolts</p> | <p>3. Front Up-Travel Stop</p> <p>4. Window Regulator Attaching Bolts</p> <p>5. Down-Travel Stop</p> | <p>6. Window Guide Lower Support to Inner Panel Attaching Bolt</p> <p>7. Rear Up-Travel Stop</p> |
|--|--|--|

NOTE: When reinstalling glass to sash channel bolts, or nylon roller nuts, torque to 72 inch pounds (6 foot pounds). The rear quarter window is constructed of solid tempered safety plate glass and cannot be drilled or ground.

REAR QUARTER WINDOW ASSEMBLY - "B-C-E" (Except Cadillac) Hardtop and "B and E" Convertible Styles

Description

All "B-C-E" (except Cadillac hardtop) body rear quarter hardware is similar in design, as shown in

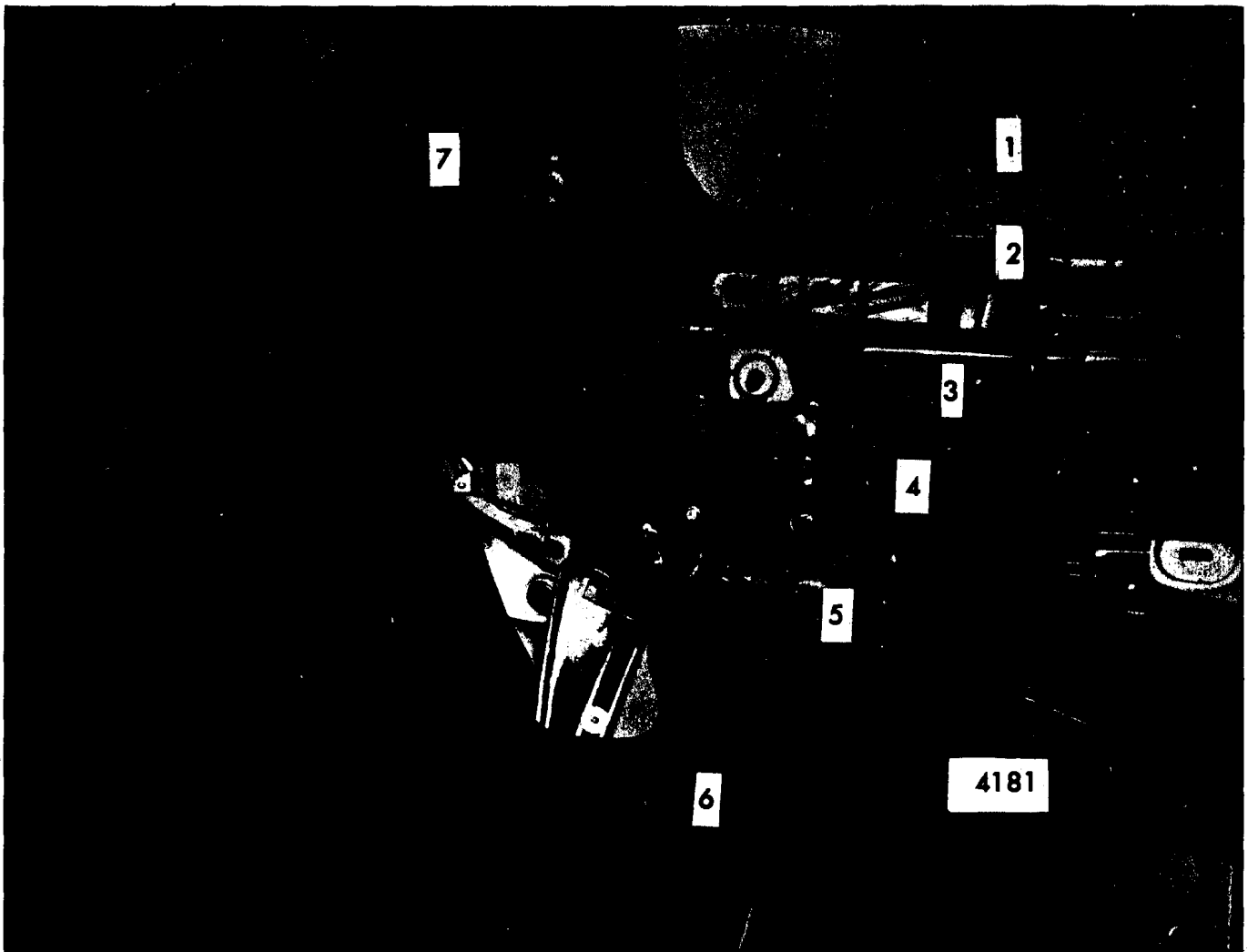


Fig. 7-19-Rear Quarter Hardware - "E-47-57" (Buick "E-87" Style Similar)

- | | | |
|--|-------------------------------------|---|
| 1. Upper Support to Window Guide Attaching Bolts | 3. Front Up-Travel Stop | 6. Window Guide Lower Support to Inner Panel Attaching Bolt |
| 2. Upper Support to Inner Panel Attaching Bolts | 4. Window Regulator Attaching Bolts | 7. Rear Up-Travel Stop |
| | 5. Down-Travel Stop | |

Figures 7-16 and 7-17. These illustrations identify the component parts of the rear quarter hardware their relationship and various attaching points. "E" Cadillac hardtop quarter glass is stationary and therefore has no operating hardware.

Figures 7-14 and 7-15 illustrate "A" body rear quarter window glass and hardware components that make up the window assembly.

Removal and Installation

1. Remove rear seat cushion, seat back, rear quarter trim and inner panel water deflector or loading hole cover. On "67" styles, lower folding top.
2. Lower glass to half down position.
3. Remove rear up-travel stop bolt ("7" Figure 7-18 and 7-19) and remove stop from inner panel.
4. Remove lower down-travel stop bolt ("5" Figure 7-18 and 7-19) and remove stop from inner panel.
5. Remove attaching bolts from upper support assembly to inner panel ("2" Figure 7-18 and 7-19).
6. Remove attaching bolts from lower guide support ("6" Figure 7-18 and 7-19).

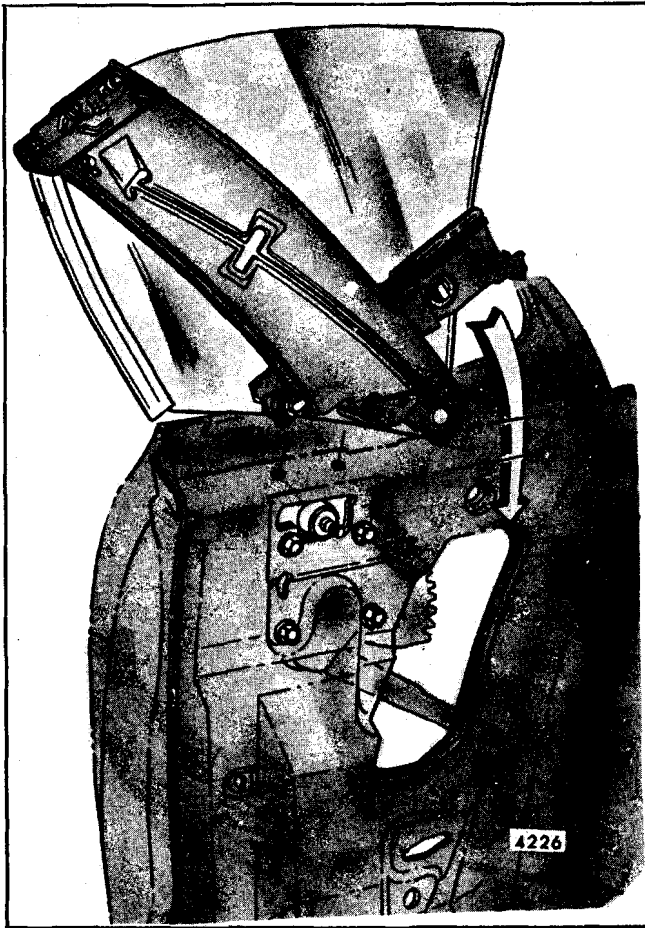


Fig. 7-20-Quarter Glass and Guide Assembly

7. On "B and E-67" styles lower folding top.
8. Disengage regulator lift arm from sash channel cam and remove glass and guide as an assembly.
9. To install reverse removal procedure.

Adjustments

The rear quarter window guide is secured to the quarter inner panel at top and bottom by supports. These supports provide in or out, fore or aft and up or down adjustment. One down-stop and two up-stops are provided for alignment operations.

Figure 7-21 illustrates typical "B-C and E" body style rear quarter window glass and hardware components that make up the window assembly.

NOTE: When reinstalling glass to sash channel bolts, or nylon roller nuts, torque to 72 inch pounds (6 foot pounds). The rear quarter window is constructed of solid tempered safety plate glass and cannot be drilled or ground.

Figure 7-22 illustrates usage of tool J-22055 for removal of quarter window glass roller nuts (equivalent tool may be used).

REAR QUARTER WINDOW REGULATOR (Manual or Electric) - "A-27-77" and "X-27" Styles

Removal and Installation

1. Remove necessary trim and water deflector or access hole cover.
2. On all electric styles, disconnect wire harness at motor.
3. While supporting window, disengage clip retainer securing regulator lift arm to glass and prop window in a full up position.
4. Remove regulator attaching bolts. Figure 7-23 is typical of closed style regulator attachment.
5. Remove regulator through large access hole.
6. To install, reverse removal procedure.

REAR QUARTER WINDOW REGULATOR ASSEMBLY (Manual or Electric)- "A" Hardtop and Convertible Styles

Removal and Installation

1. Remove rear quarter trim assembly and inner panel access hole cover (or water deflector). On electric styles, disconnect feed wire at motor.
2. On "A" styles prop window up. Loosen and remove all window guide assembly attaching bolts.
3. Remove regulator to quarter inner panel attaching bolts, disengage lift arm roller from sash channel cam and remove through access hole.

NOTE: If necessary, loosen upper attaching points of front guide to gain additional clearance.

4. To install, reverse removal procedure.

REAR QUARTER WINDOW REGULATOR (Manual or Electric)- "B-C and E" Hardtop (except Cadillac "E" Hardtop) and Convertible Styles

Removal and Installation

1. Remove glass and guide assembly as outlined under Rear Quarter Window Assembly.

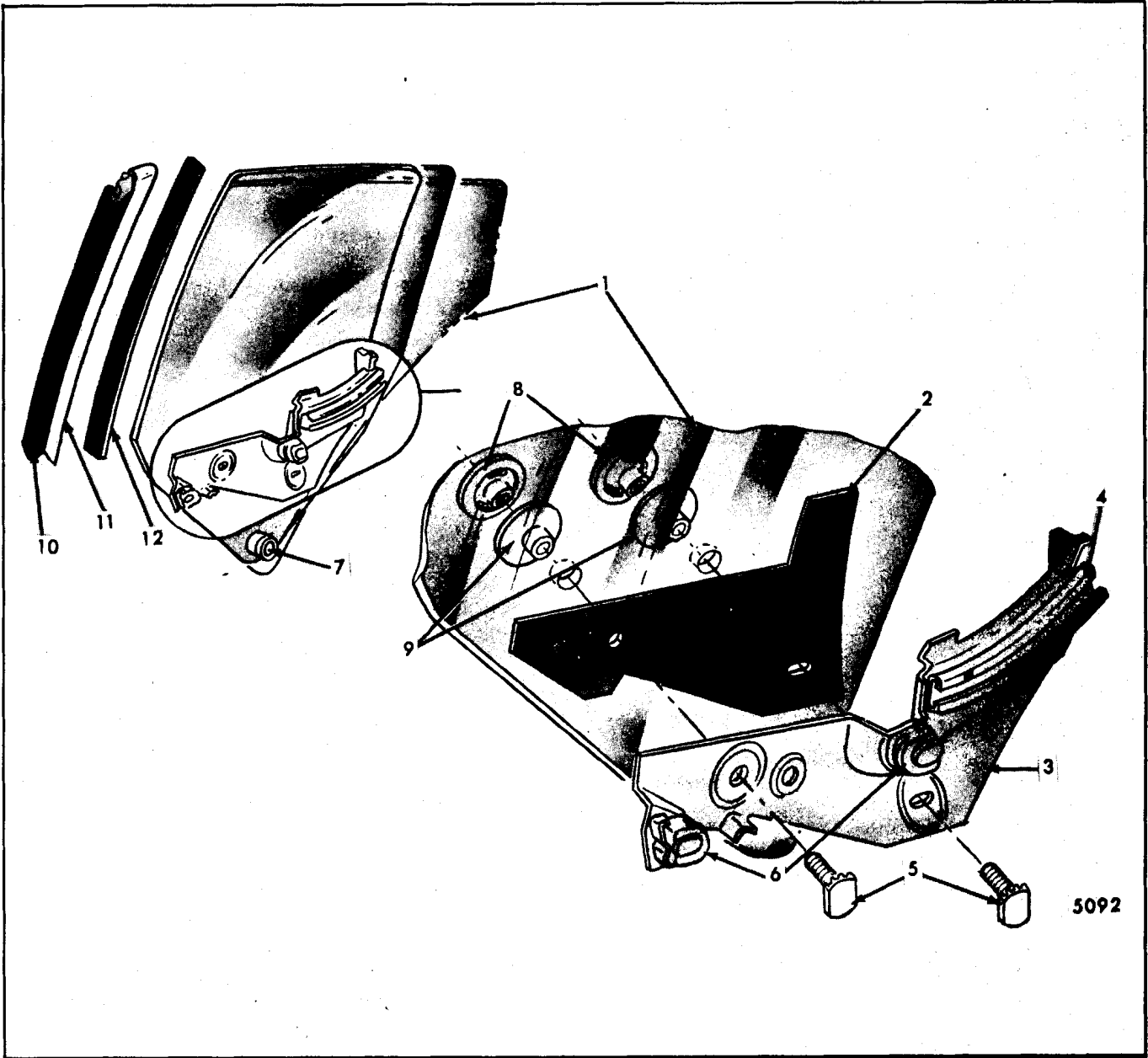


Fig. 7-21-Rear Quarter Window Assembly - "B-C and E" Styles

- | | | | |
|------------------------------|----------------------------------|----------------------------------|---------------------------------|
| 1. Glass | 5. Sash Channel to Glass Bolts | 8. Sash Channel to Glass Nut | 10. Front Vertical Weatherstrip |
| 2. Lower Sash Channel Filler | 6. Front and Rear Guide Bearings | 9. Sash Channel to Glass Bushing | 11. Front Vertical Channel |
| 3. Lower Sash Channel | 7. Center Guide Roller | | 12. Front Vertical Filler |
| 4. Lower Sash Channel Cam | | | |

2. On styles with electric operated windows disconnect wire at motor.

3. Remove quarter window rear up-stop.

NOTE: On styles with electric operated windows it may be necessary to remove quarter window down-stop.

4. Remove regulator attaching bolts. Remove regulator through access hole (see Figs. 7-18 and 7-19).

5. To install, reverse removal procedure.

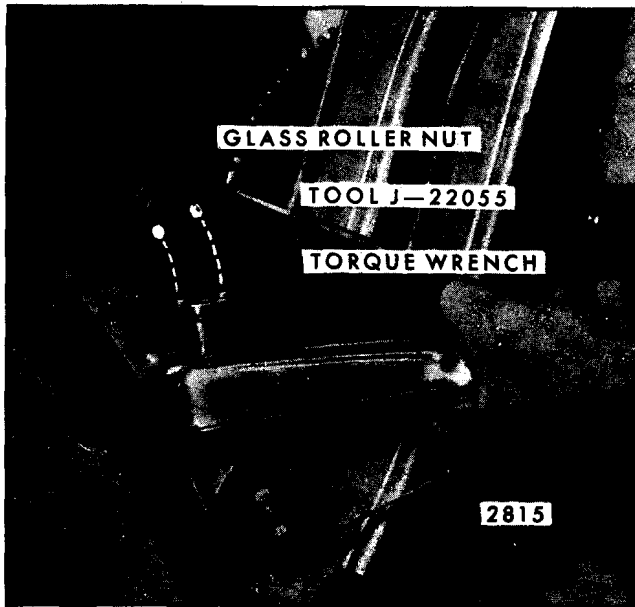


Fig. 7-22-Quarter Window Roller

REAR QUARTER WINDOW GUIDE ASSEMBLY - "A" Hardtop and Convertible Styles

Removal and Installation

1. Remove rear seat cushion, seat back, rear quarter trim and inner panel water deflector or loading hole cover.
2. Remove rear up-travel stop bolt ("1" Figure 7-10) remove stop from inner panel.
3. Remove lower down-travel stop bolt ("6" Figure 7-10) and remove stop from inner panel.

REAR QUARTER WINDOW MOTOR - "A-27-37-57-77-87" Styles

Removal and Installation

1. Remove rear seat cushion, seat back, rear quarter trim, and inner panel water deflector or loading hole cover. Window should be in a full up position.
2. Remove wiring harness clips.

NOTE: Wiring harness and switch assembly should be placed in an out of the way area to prevent damage.

3. Referring to Fig. 7-26 for "A" body styles, make a template for locating window motor to regulator attaching bolts.

4. Align regulator bolt locations on template with regulator lower attaching bolts on quarter panel. Secure template in place with a piece of tape.

IMPORTANT: DO NOT loosen regulator attaching bolts.

5. Using a center punch, dimple the quarter inner panel at the center of the 3/4" holes to be drilled as indicated on the template.
6. Using a 3/4" hole saw, drill three motor to regulator attaching bolt access holes as indicated. These holes will align with motor to regulator attaching bolts, allowing access for removal of bolts ("F" Fig. 7-25).
7. Remove motor attaching bolts and remove motor through access hole.

NOTE: Although window regulator lift arm is under tension of counterbalance spring, weight of window assembly prevents lift arm from moving.

8. After replacing motor and prior to trim installation, apply waterproof tape to seal any motor bolt access hole that is outside of the sealing area of the water deflector.

NOTE: The procedure for removing the electric motor from the regulator as a bench operation is described in the "Door" section of this manual -

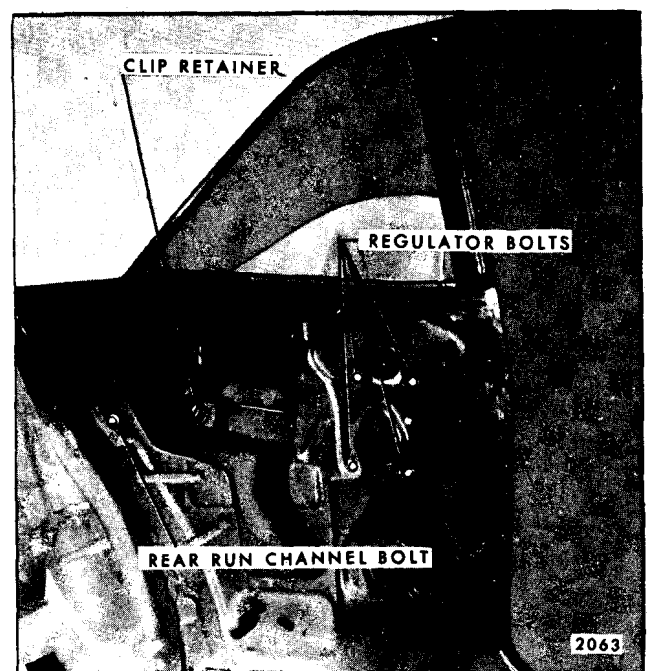
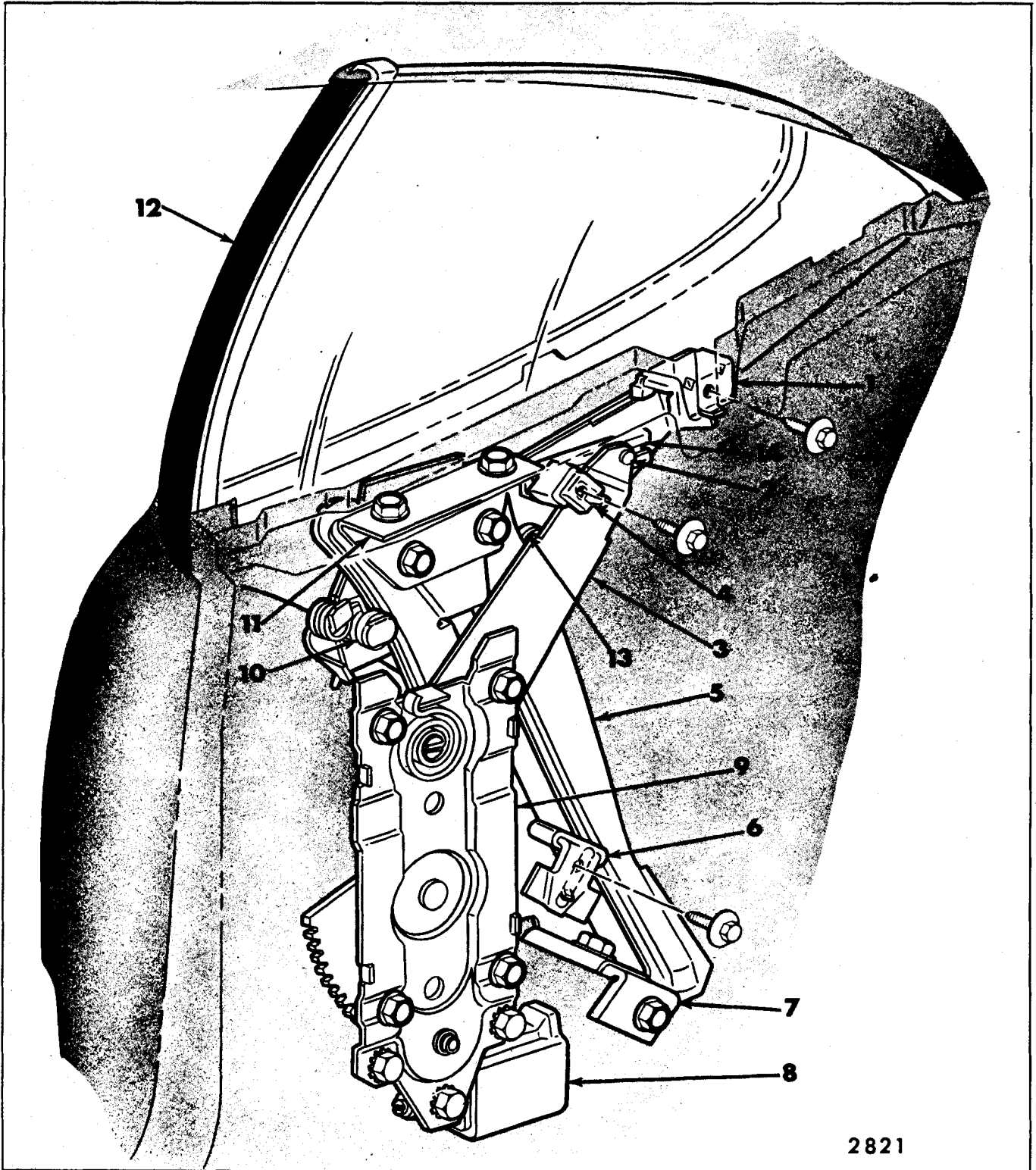


Fig. 7-23-Rear Quarter Hardware Attachment - "A and X" Closed Styles



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Figure 7-24-"A" Rear Quarter Window Assembly

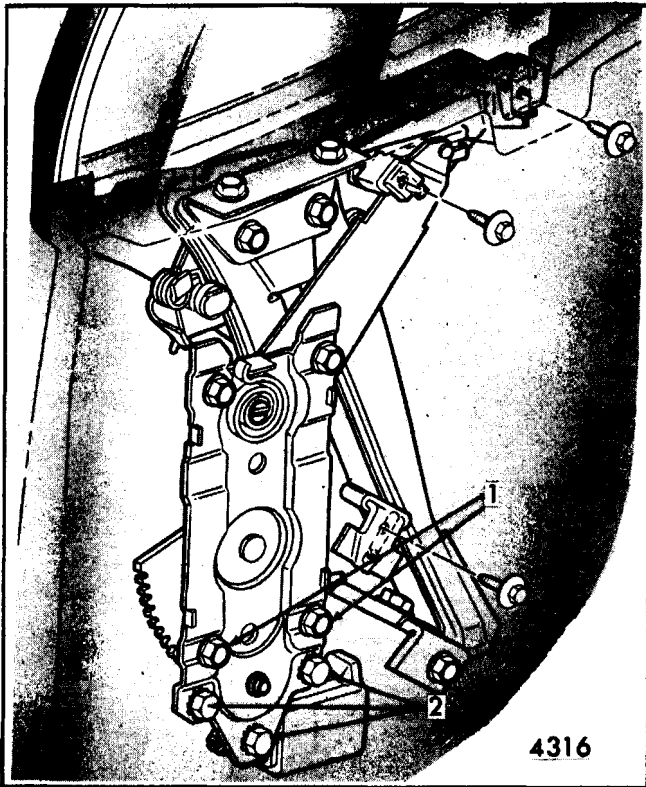


Fig. 7-25-Quarter Window Hardware "A" Styles
(Electric)

see index. On styles indicated, removal of motor can be accomplished without removal of regulator, as outlined in the preceding procedure.

4. Remove window guide lower attaching bolt.
5. Lower glass and remove guide through access hole.
6. To install, reverse removal procedure.

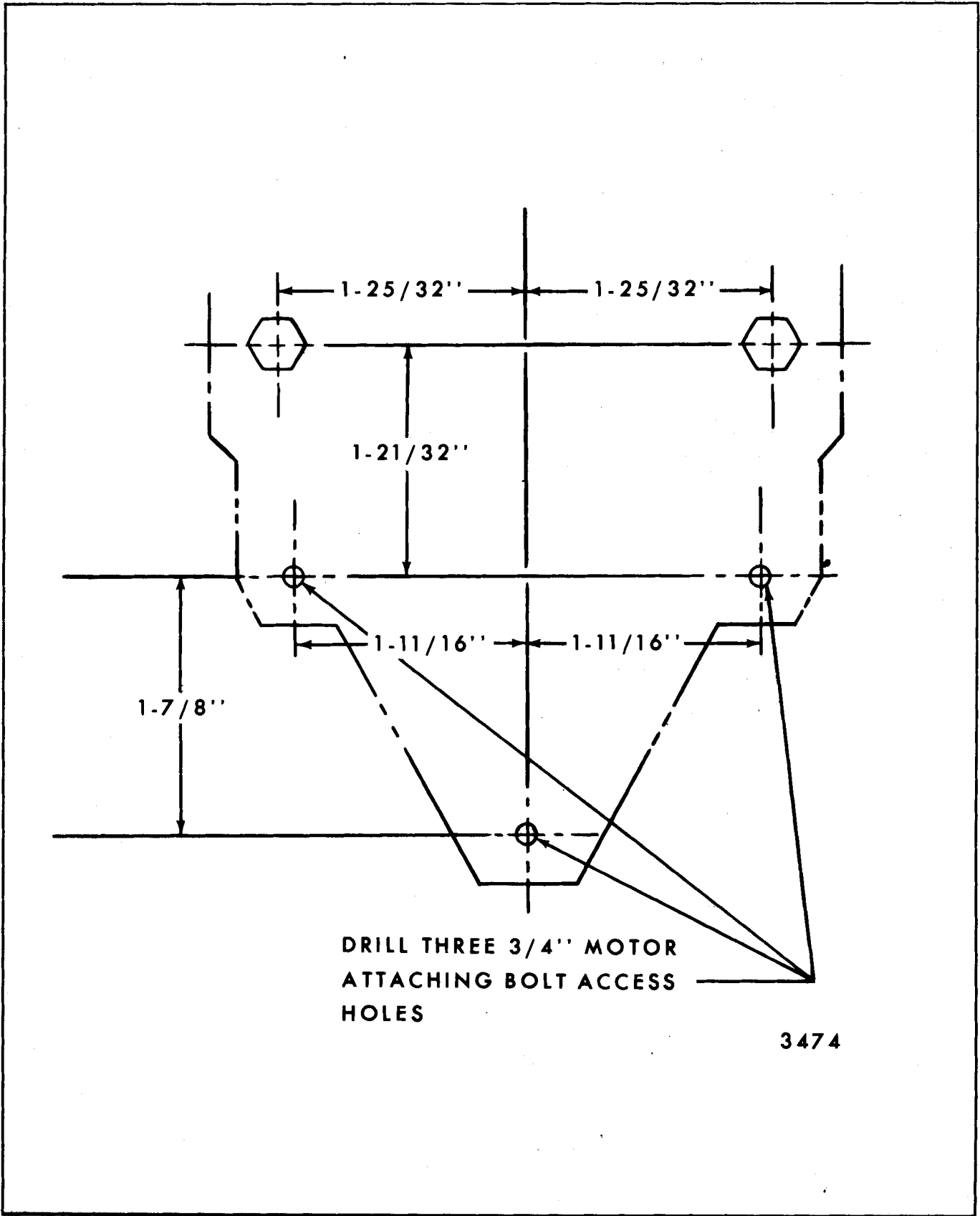


Fig. 7-26-Window Regulator Lower Attaching Bolts (Reference Points for Locating Window Motor to Regulator Attaching Bolts) - "A-27, 37, 57, 67, 77 87" Styles

SECTION 8 REAR COMPARTMENT LID

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REAR COMPARTMENT LID

INTRODUCTION

This section of the manual contains the service operations that are necessary for the removal, installation, adjustment and sealing of the rear compartment lid assembly and individual compartment lid hardware components.

REAR COMPARTMENT LOCK CYLINDER EMBLEM

Rear compartment lock cylinder emblems are applied over the lock cylinder and retained by stud nuts or rivets. This type of installation necessitates removal of the emblem prior to lock cylinder removal.

Removal and Installation (Refer to Figure 8-1 for Oldsmobile "A" Styles, Figure 8-2 for Oldsmobile "B and C" Styles, Figure 8-3 for Buick "E" Styles and Figure 8-4 For All Other Styles)

1. On styles equipped with emblems retained by stud nuts, open rear compartment lid and remove attaching nuts and carefully remove (pry) emblem from lid assembly.
2. On styles equipped with emblems retained by rivets, drill out rivets with 5/32" diameter drill bit and remove emblem.
3. To install, align emblem and gasket with attaching holes in lid assembly and install stud nuts or new 1/8" "pop" rivets or equivalent. Seal base of attaching studs or rivet holes with suitable sealer.

REAR COMPARTMENT LID LOCK CYLINDER - All Styles

On most styles, the rear compartment lid lock cylinder

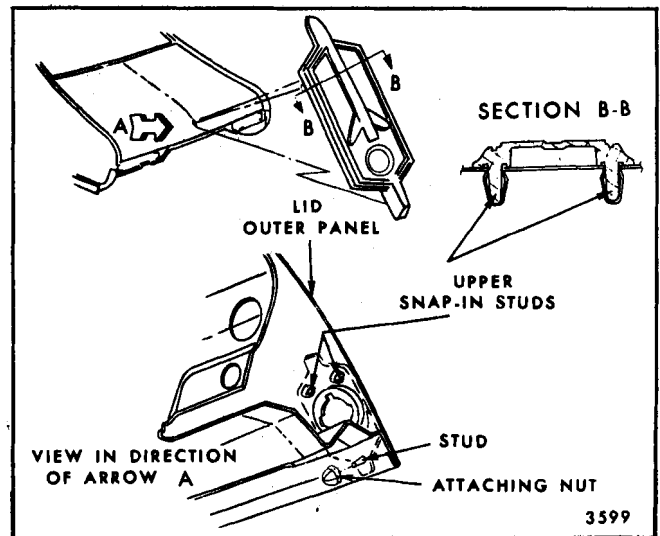


Fig. 8-1-Rear Compartment Lock Cylinder Emblem Oldsmobile "A" Styles

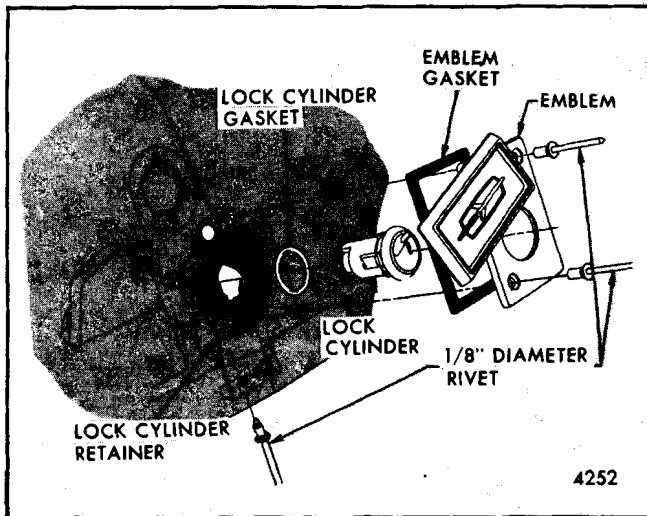


Fig. 8-2-Rear Compartment Lock Cylinder Emblem-Oldsmobile "B and C" Styles

is located on the lid assembly. On remaining styles, the cylinder is located on the rear end panel. The basic method of cylinder attachment is by means of a retainer which, in turn, is secured by a screw, rivet or stud nuts. On styles equipped with lock cylinder emblems, it is necessary to remove the emblem, as previously described, prior to cylinder removal.

Removal and Installation (Refer to Figures 8-5, 8-3, 8-6, 8-7 and 8-8)

1. Open rear compartment lid.
2. On styles so equipped, remove lock cylinder emblem as previously described.

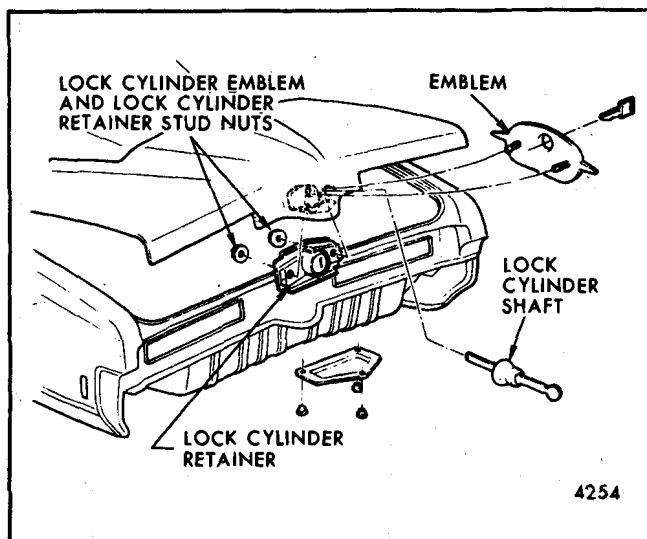


Fig. 8-3-Rear Compartment Lock Cylinder Emblem - Buick "E" Styles

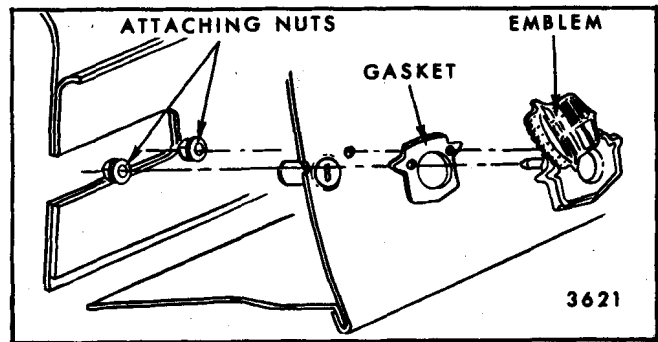


Fig. 8-4-Rear Compartment Lock Cylinder Emblem - Typical Buick and Cadillac "C" Styles and Cadillac "E" Styles

3. Remove lock cylinder retainer attaching screw, stud nuts or, using a 5/32" drill bit, carefully drill out rivet securing lock cylinder retainer to lid or rear end panel. Use care to avoid enlarging rivet hole.
4. Pull retainer down or away from opening to release lock cylinder and remove cylinder from body.
5. To install, reverse removal procedure. Insure that lock cylinder shaft engages with lock and that gasket mates properly with outer panel to form a watertight seal. Check for proper operation of lock cylinder with key. Then, install retainer attaching screw, stud nuts or new 1/8" diameter "pop"-rivet or equivalent where rivet is specified.

REAR COMPARTMENT LID LOCK - All Styles

Two types of rear compartment lid locks are used on 1971 styles. Manual locks are standard equipment and electric release locks are optional. The electric lid release unit is designed to open a rear compartment lid from inside the car. Refer to Owner's Manual for operating instructions.

Removal and Installation

1. Open rear compartment lid and remove lock cylinder and shaft as previously described.
2. Remove attaching bolts securing lock (Figs. 8-9 and 8-10) to rear compartment lid or rear end panel.
3. On all styles equipped with electric lid release units, disconnect electric feed wire at solenoid connector and remove lock.
4. To install, reverse removal operations. Close lid

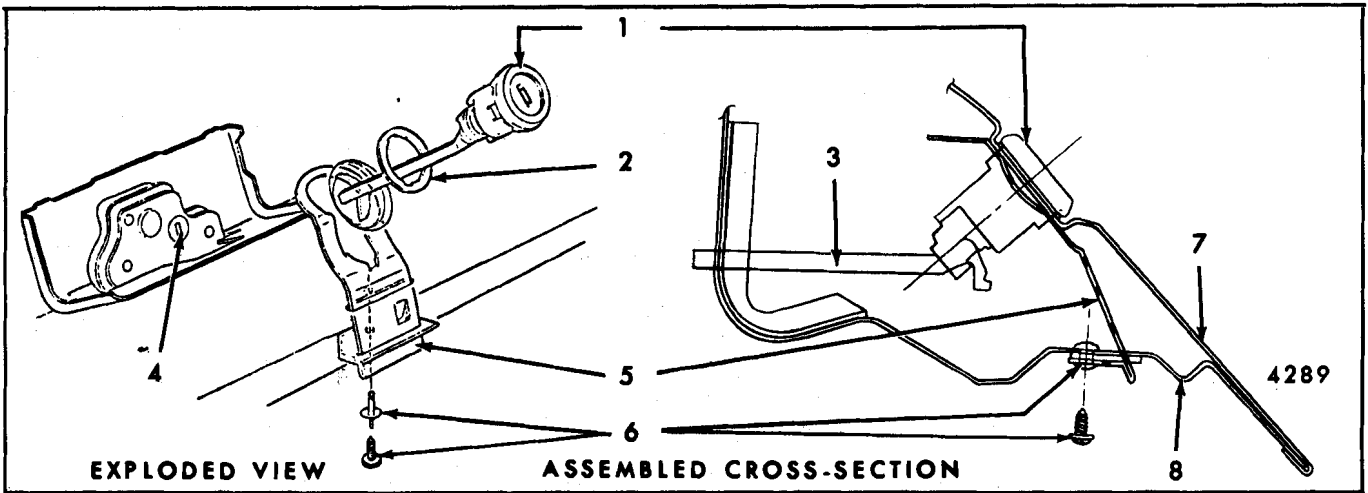


Figure 8-5 Rear Compartment Lid Lock Cylinder - Typical
All Styles with Cylinder Located in Lid Assembly, Except Buick "E" Styles

- | | | | |
|------------------|----------|----------------------|--------------------|
| 1. Lock Cylinder | 3. Shaft | 5. Cylinder Retainer | 7. Lid Outer Panel |
| 2. Gasket | 4. Lock | 6. Rivet or Screw | 8. Lid Inner Panel |

and check lock engagement with striker. Make necessary adjustments as outlined under adjustments.

Adjustments

Rear compartment lid locks are adjustable laterally, regardless of location, to provide for proper lid operation and lock to striker engagement.

To determine if lock or striker adjustment is required, proceed as follows:

1. Make certain rear compartment lid is properly aligned.
2. With lid in an open position, apply a small quantity of modeling clay on lock frame at both sides of lock bolt (Figs. 8-9 and 8-10). Then, close lid with moderate force.
3. Open lid and check amount of engagement of striker with lock frame as indicated by indentations in clay. Striker bar indentations in clay should be uniform on both sides of lock frame. Where required, loosen striker or lock attaching screws and adjust lock to obtain proper engagement. Close lid and check for proper lid and key operation.

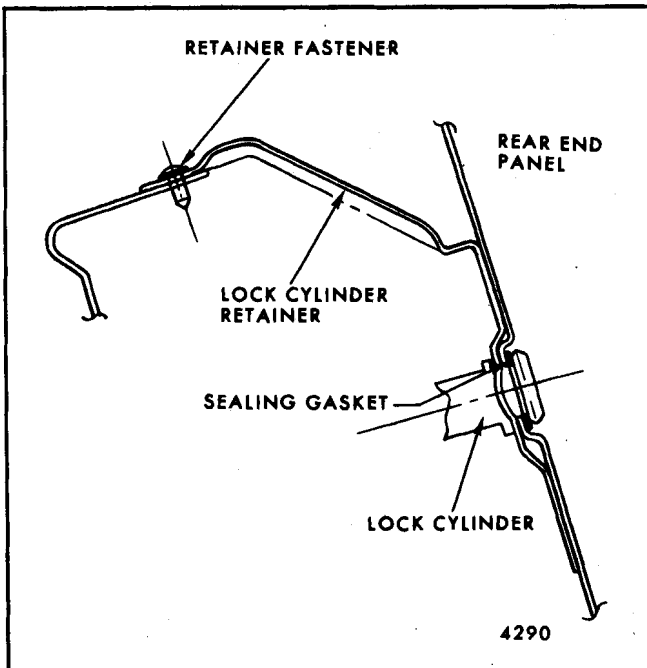
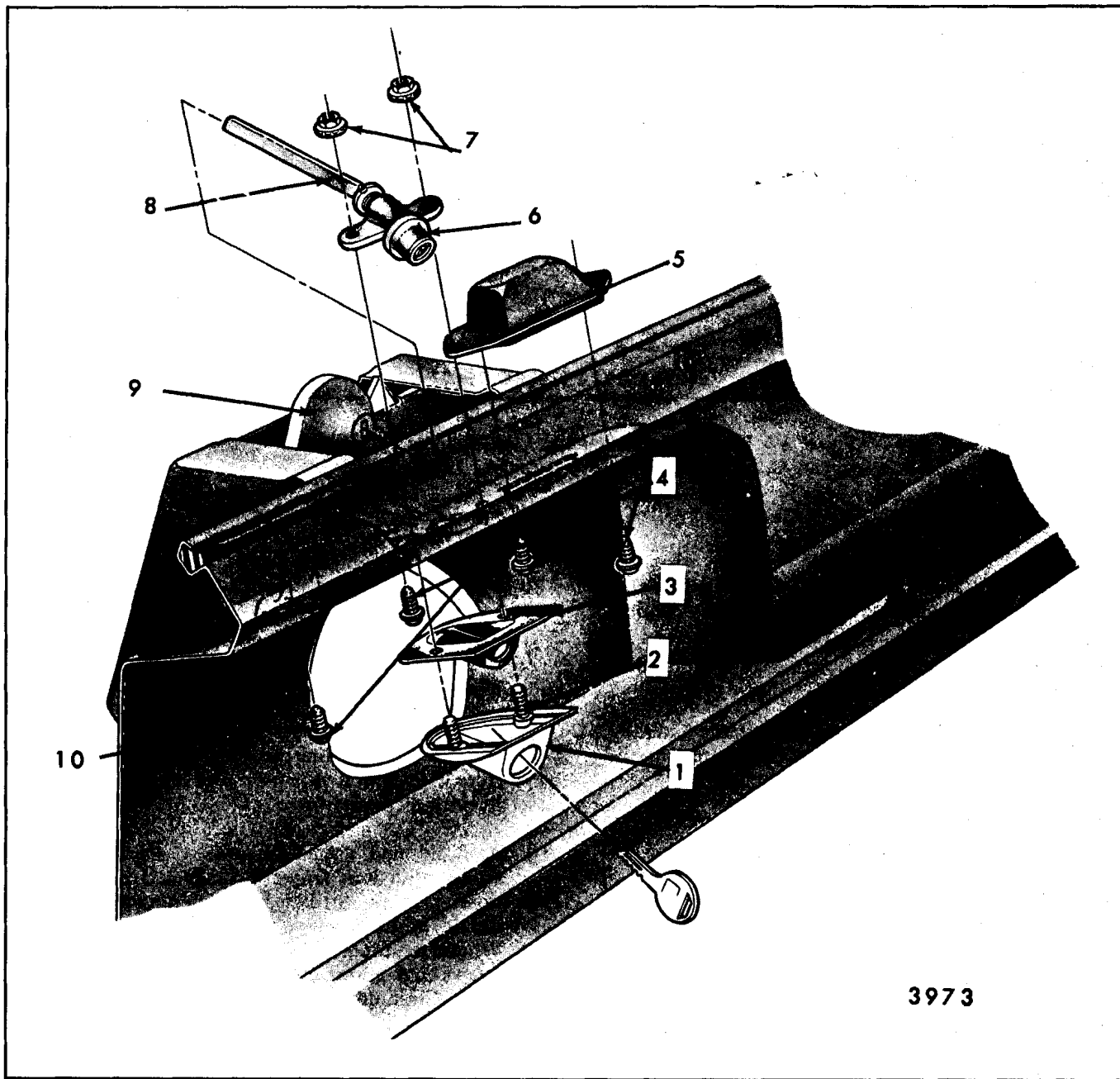


Fig. 8-6-Rear Compartment Lid Lock Cylinder - Typical
All Styles with Cylinder Located in Rear End Panel, Except "F" Styles

REAR COMPARTMENT LID LOCK STRIKER
All Styles, Except Cadillac Styles Equipped with Mechanical Pull-Down Unit

Removal and Installation

1. Open rear compartment lid. Mark vertical position of striker by scribing a line at top of striker support or at base of lid or rear end panel.
2. Remove striker attaching screws and remove striker (Figs. 8-9 and 8-10).
3. To install, reverse removal procedure. Close lid



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Fig. 8-7-Rear Compartment Lid Lock Cylinder - Chevrolet "F" Styles

- | | |
|--|--|
| 1. Lock Cylinder Housing | 6. Lock Cylinder Assembly |
| 2. Lock Cylinder Housing Attaching Bolts | 7. Lock Cylinder Assembly Housing Attaching Nuts |
| 3. Lock Cylinder Housing Gasket | 8. Lock Cylinder Shaft |
| 4. Lamp Assembly Attaching Bolts | 9. Rear Compartment Lock Assembly |
| 5. Lamp Assembly Rear License | 10. Rear End Panel |

and check lock to striker engagement. Make any necessary adjustments as outlined below.

Adjustments

Rear compartment lid lock strikers are adjustable

vertically, regardless of location, to provide for proper lid operation and lock to striker engagement.

To determine if lock or striker adjustment are required, refer to rear compartment lock adjustments.

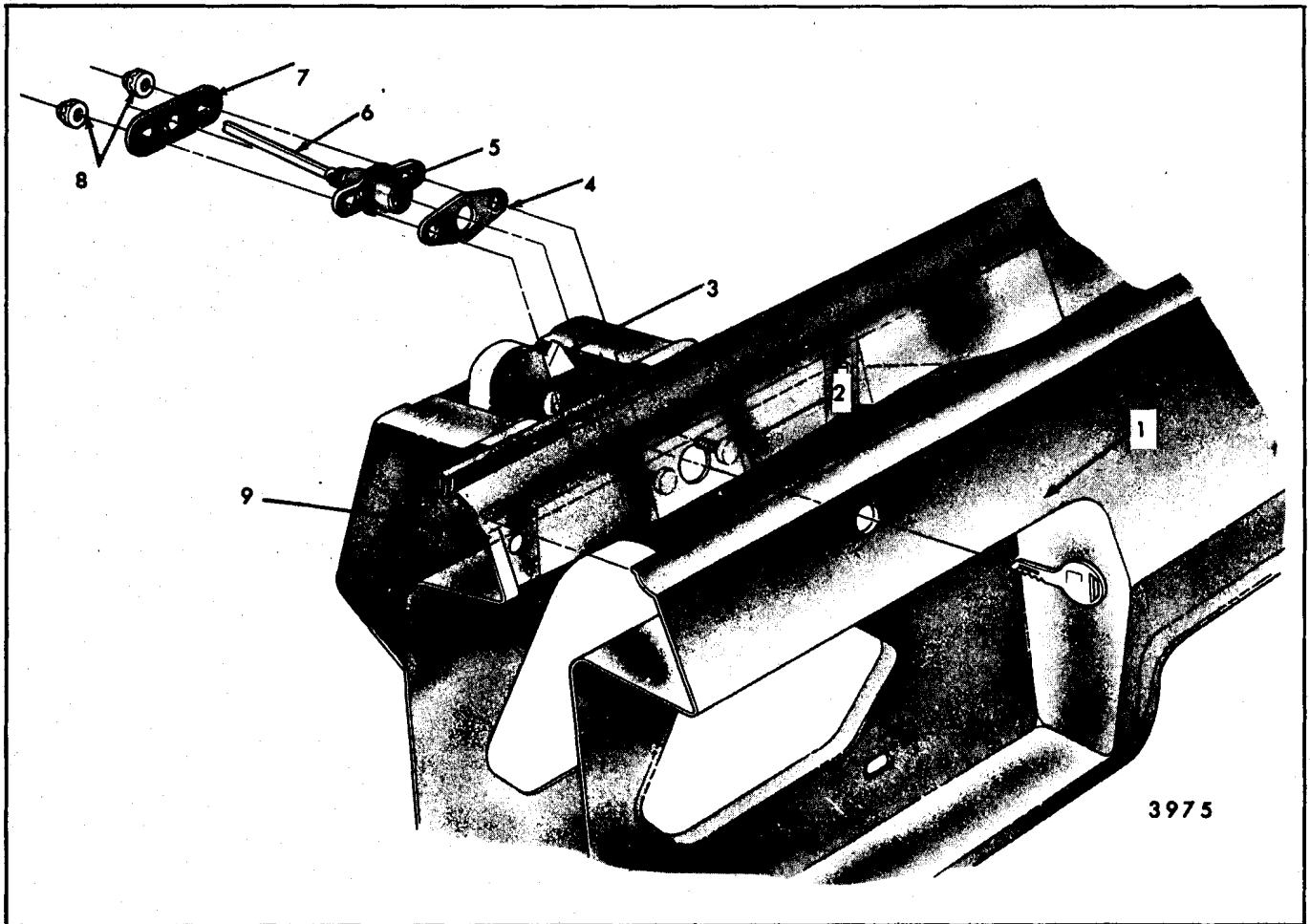


Fig. 8-8-Rear Compartment Lock Cylinder - Pontiac "F" Styles

- | | | |
|---|-----------------------------------|---------------------------------|
| 1. Rear End Finishing Panel | 3. Rear Compartment Lock Assembly | 6. Lock Cylinder Shaft |
| 2. Rear Compartment Lock Cylinder Attaching Studs | 4. Lock Cylinder Gasket | 7. Lock Cylinder Guard |
| | 5. Lock Cylinder Assembly | 8. Lock Cylinder Attaching Nuts |
| | | 9. Rear End Panel |

REAR COMPARTMENT MECHANICAL PULL-DOWN UNIT and ELECTRIC LID RELEASE ASSEMBLY - Cadillac Styles

The rear compartment lid mechanical pull-down unit is used in conjunction with the electric lid release (8-11).

A hydraulic cylinder (Fig. 8-12) is incorporated in the mechanism to achieve a slow, uniform closing action. The cylinder is attached to a bell crank at the right rear compartment lid hinge and to the closing unit by a cable (Figs. 8-13 and 8-11). When the rear compartment lid is lowered to a point where the lock engages with the striker (approximately 7/8" from a fully closed position), a piston forces the fluid through

an orifice retarding the closing action of the spring in the hydraulic cylinder. Then, a mechanical closing unit pulls the lid the remaining distance (7/8") to a fully closed position.

Removal and Installation

1. Open rear compartment lid and remove mechanical pull-down unit cover panel. Depress striker slightly to relieve tension from cable and disengage clip securing cable to pull-down control arm (Fig. 8-11).
2. Disengage clip securing cable conduit to cable adjusting bracket and remove cable and cable conduit from pull-down unit.

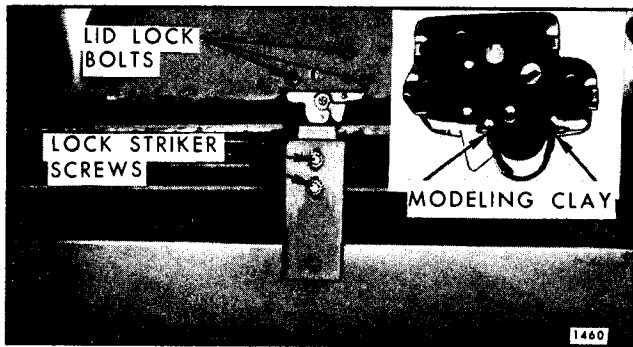


Fig. 8-9-Typical Rear Compartment Lock Mounted in Lid

3. Scribe position of pull-down unit on rear end panel to facilitate installation. Remove pull-down unit attaching bolts and disconnect electric feed wire (Figure 8-11). Remove unit from body.
4. To install, reverse removal procedure.

MECHANICAL PULL-DOWN UNIT HYDRAULIC CYLINDER CABLES

Removal and Installation

1. Disengage cable and cable conduit retaining clips at both ends of cable (Figs. 8-11, 8-12 and 8-13). Then, remove cable assemblies.

NOTE: To disengage cable from bell crank (Fig. 8-13), remove cable conduit support attaching bolts and rotate cable assembly to disengage eye on end of cable from bell crank.

2. To install, reverse removal procedure.

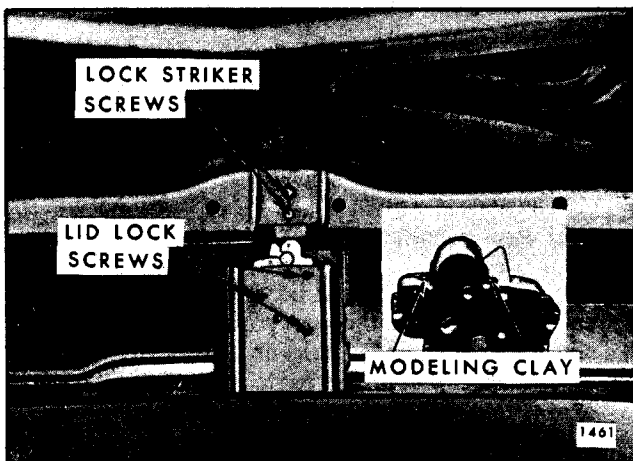


Fig. 8-10-Typical Rear Compartment Lock Mounted in Rear End Panel

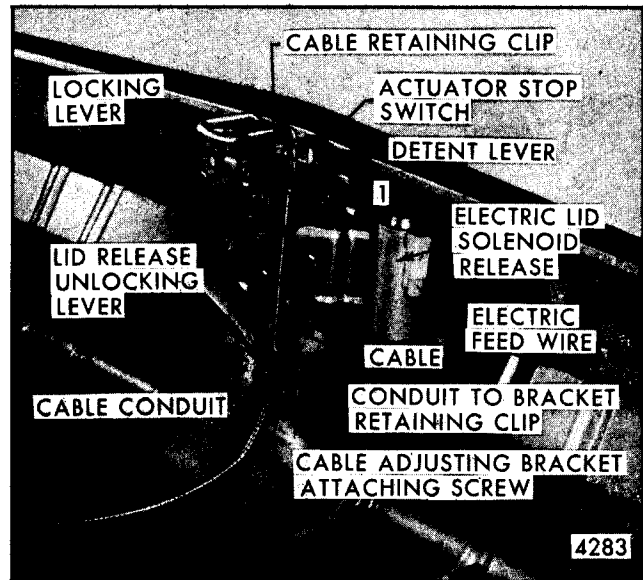


Fig. 8-11-Rear Compartment Mechanical Pull-Down Unit and Electric Lid Release - Cadillac Styles

MECHANICAL PULL-DOWN UNIT HYDRAULIC CYLINDER

Removal and Installation

1. Disengage cable to hydraulic cylinder retaining clips at both ends of cylinder (Figure 8-12) and remove cylinder.
2. To install, reverse removal procedure.

Adjustments

To actuate the mechanical pull-down unit, the rear

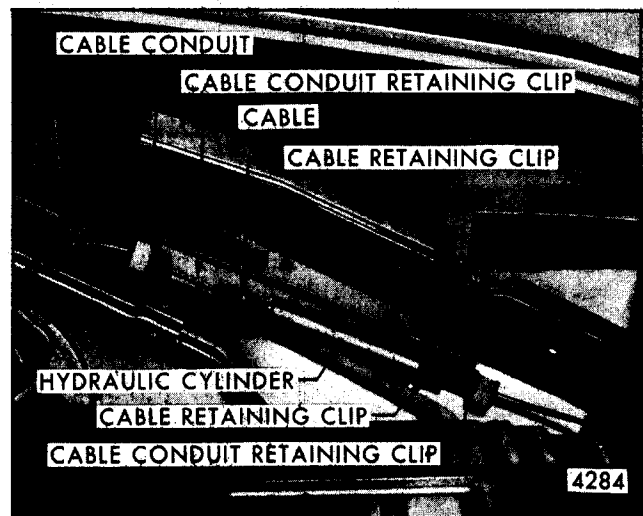


Fig. 8-12-Mechanical Pull-Down Unit Hydraulic Cylinder - Cadillac Styles

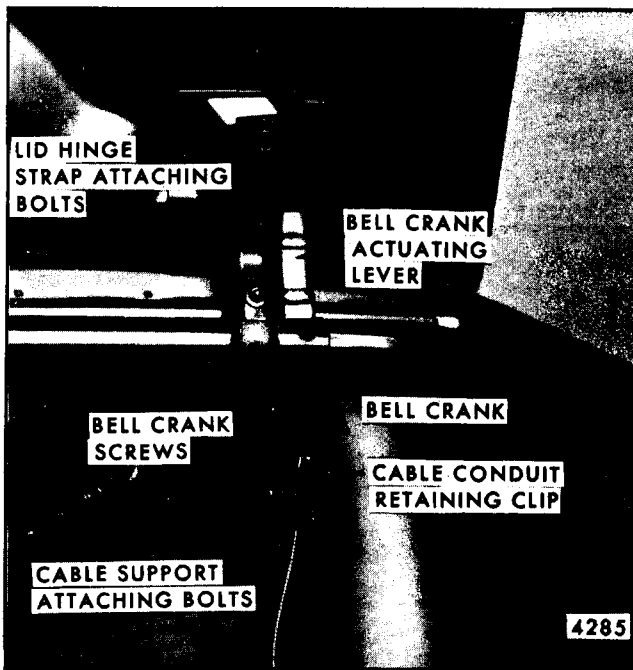


Fig. 8-13-Mechanical Pull-Down Unit
Hydraulic Cylinder Cable Attachment - Cadillac
Styles

compartment lid lock must properly engage the striker arm and the detent lever on the mechanical pull-down unit (Fig. 8-11) fully depressed. Engagement can be checked by lowering the lid and visually checking lock and striker alignment. If adjustment is necessary, obtain "lateral" adjustment at lock attaching screw locations and "up or down" adjustments at pull-down unit attaching screw locations.

For proper operation of the pull-down unit, the pull-down unit cable must be adjusted to the proper tension. If the cable has too much tension it will not allow the pull-down unit to return to its full-up position and "cock". This is apparent when, as the lid begins to lower, so does the pull-down unit.

Too little tension in the cable results in a lessening of pull-down effort in the unit and consequently, a misaligned (high) rear compartment lid.

To increase cable tension or if finer adjustment is required, loosen cable adjusting bracket attaching screw (Fig. 8-11) and adjust bracket downward (to increase cable travel), then, tighten attaching screw.

IMPORTANT: A lack of lubrication between the toggle and the detent lever ("1", Figure 8-11) can greatly increase the effort required to trip (unlock) the pull-down unit. Therefore, make certain point of contact between these two levers is lubricated with 630 AAW Lubriplate or equivalent.

REAR COMPARTMENT LID - All Styles

Removal and Installation

1. Open lid and place protective covering along edges of rear compartment compartment opening to prevent damage to painted surfaces.
2. Where necessary, disconnect wire harness from rear compartment lid.
3. Mark location of hinge straps on lid inner panel.
4. With aid of helper, remove attaching bolts securing hinges to lid and remove lid (Fig. 8-13 depicts hinges for all styles).
5. To install, reverse removal operations.

Adjustments

1. Fore And Aft and Lateral Adjustment of the lid assembly is controlled by the hinge strap to lid attaching bolts. To adjust lid, loosen hinge strap to lid attaching bolts (Figure 8-13) and shift lid to desired position. Then, tighten bolts.
2. Up And Down Adjustment of the lid assembly is accomplished by placing shims between the hinge strap and the lid assembly and by raising or lowering the rear compartment lid lock striker (for adjustment of striker, refer to lid lock striker adjustment).

To raise the right and/or left sides of the lid assembly, mark location of hinge on lid and install suitable shim between hinge strap and lid at forward bolt location. To lower lid, install shims at rear bolt locations.

REAR COMPARTMENT TORQUE RODS - All Styles

Torque rods are used to control the amount of effort needed to operate the rear compartment lid and can be adjusted to increase or decrease operating effort.

Removal and Installation

1. For removal and/or adjustment of rear compartment lid torque rods, use tools outlined below:
 - a. On "A" styles, use tool J-21412 or equivalent (Figure 8-14).
 - b. On Cadillac "C and E" styles, use tool J-23722 or equivalent (Figure 8-15).
 - c. On "X" styles and Oldsmobile "E" styles, use tool BT-7102 or equivalent (Figure 8-16).

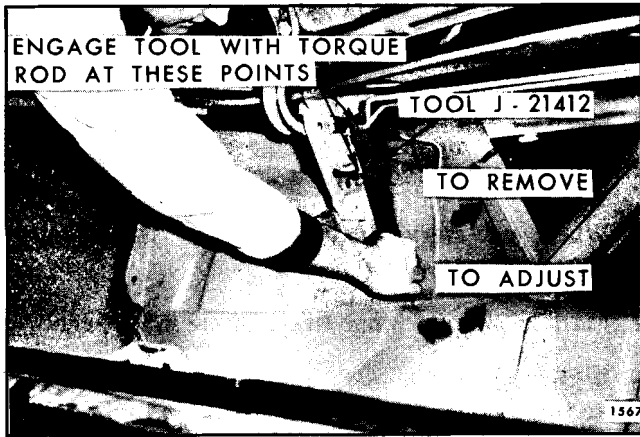


Fig. 8-14-Rear Compartment Torque Rod Adjustment—"A" Styles

- d. On "F" styles, use a length of 1/4" inside diameter pipe (Figure 8-17).
- e. On "B, C, E" styles, except Cadillac "C and E"

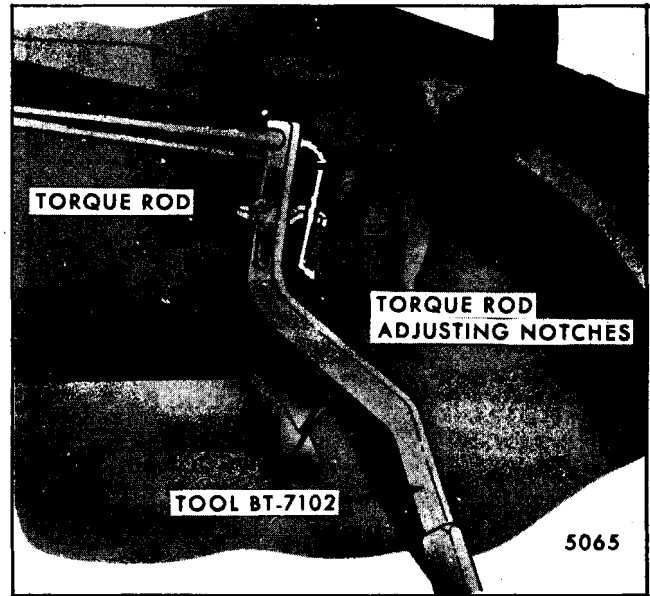


Fig. 8-16-Rear Compartment Torque Rod Adjustment—"X" Styles and Oldsmobile "E" Styles

and Oldsmobile "E" styles, use a length of 3/8" inside diameter pipe.

2. To remove torque rods, disengage end of torque rod from adjusting notches on hinge strap, as shown in Figures 8-14, 8-18 and 8-19. Then, allow handle of removal tool to rotate forward to relieve tension on rod. In some cases, it may be necessary to install a pair of vise-grip pliers on rod, as shown in Figures 8-18 and 8-19, and lift upward on pliers to disengage removal tool from end of rod.
3. Disengage opposite end of torque rod from hinge strap and remove rod from body.
4. To install, reverse removal procedure.

Adjustments

Rear compartment torque rods are adjustable to increase or decrease operating effort.

1. To increase the amount of effort required to raise the rear compartment lid or to decrease the amount of effort required to close the lid, reposition the end of the rod to a lower torque rod adjusting notch (Figures 8-14, 8-15, 8-16 and 8-17).
2. To decrease the amount of effort required to raise the rear compartment lid or increase the amount of effort required to close the lid, reposition the end of the rod to a higher torque rod adjusting notch (Figures 8-14, 8-15, 8-16 and 8-17).

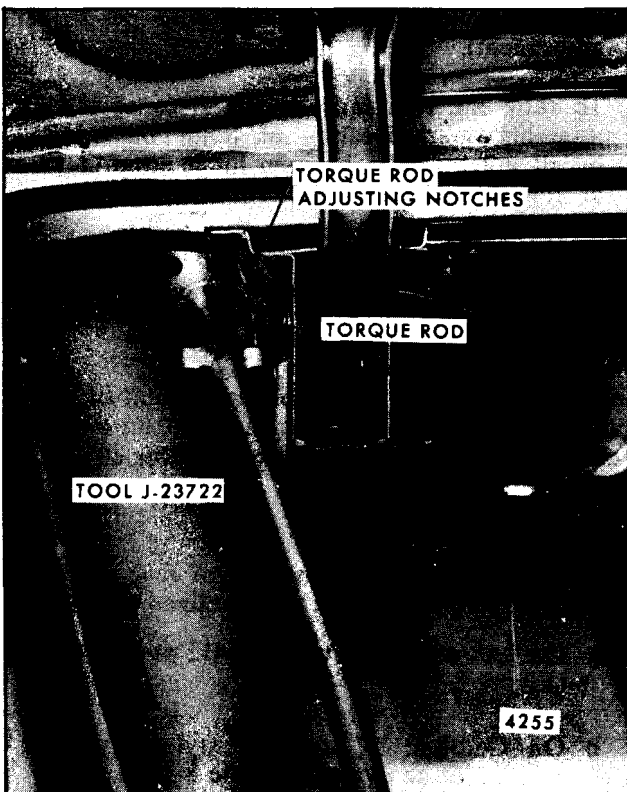


Fig. 8-15-Rear Compartment Torque Rod Adjustment - Cadillac "C and E" Styles

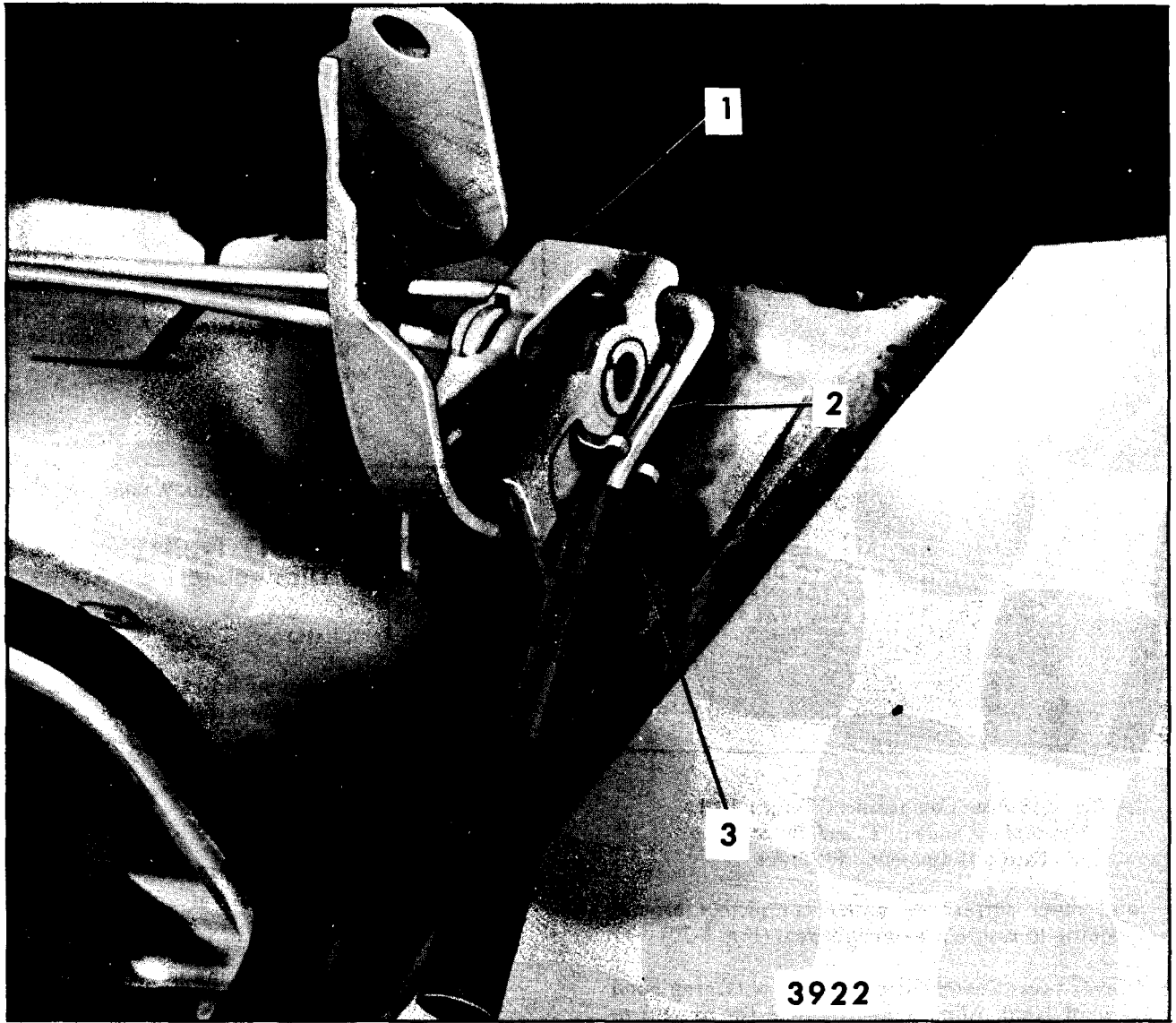


Fig. 8-17-Rear Compartment Torque Rod Adjustment - "F" Styles

REAR COMPARTMENT WEATHERSTRIP - All Styles

Removal and Installation

1. Separate "butt" ends of weatherstrip at bottom rear of opening ("B" Fig. 8-20).
2. Using flat bladed tool, such as sharp bladed putty knife, carefully cut cemented bond of weatherstrip from outer surface of gutter (Fig. 8-20). Then, with a narrower sharp tool, such as a wood chisel, cut cemented bond of weatherstrip from bottom of gutter around opening and remove weatherstrip.
3. To install, clean out gutter around opening to provide clean cementing surface.
4. Apply generous bead of black weatherstrip cement to bottom surface of gutter around opening (Fig. 8-20). With suitable brush, gently level applied cement.
5. Starting at rear center of opening with one end of weatherstrip, insert weatherstrip into gutter while cement is still wet. Use flat bladed tool to aid installing weatherstrip. Avoid stretching weatherstrip during installation.
6. If weatherstrip is new, cut end to form butt joint at rear center of opening. Apply cement to both ends of weatherstrip to form a neat joint. Secure weatherstrip uniformly in gutter.
7. Using a pressure type applicator, apply weatherstrip cement (neoprene type) between weatherstrip

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Fig. 8-18-Rear Compartment Torque Rod Removal - Cadillac "C and E" Styles Except Oldsmobile "E" Styles

and outer surface of gutter completely around opening to assure a watertight seal (Fig. 8-20).

8. Roll or press weatherstrip to aid in obtaining good cement bond. Allow sufficient time for cement to set before closing rear compartment lid.

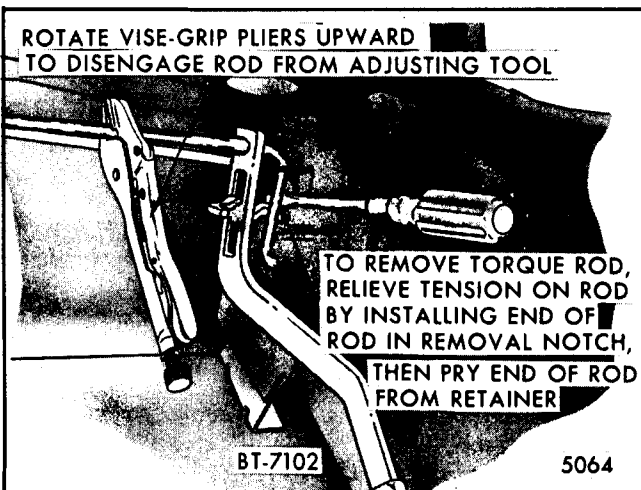


Fig. 8-19-Rear Compartment Torque Rod Removal—"X" Styles and Oldsmobile "E" Styles

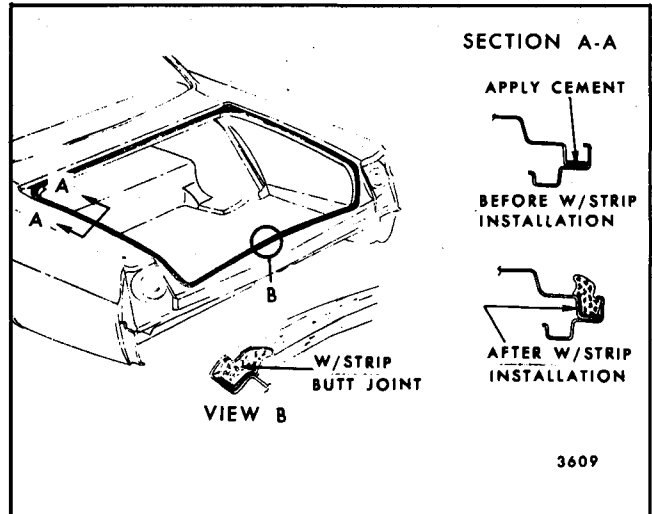


Fig. 8-20-Rear Compartment Weatherstrip

REAR COMPARTMENT FRONT PANEL - "F" Styles and Oldsmobile "E" Styles

Removal and Installation

1. With rear compartment lid raised, remove screws from lower edge of panel (refer to Figure 8-21 for "F" styles and Figure 8-22 for Olds "E" styles).
2. Remove back window lower reveal molding. (See "Exterior Moldings" Section)
3. Remove screws from upper edge of panel and remove panel.

NOTE: It may be necessary to cut away a small amount of adhesive caulking material used to seal back glass in order to locate and remove screws. Do not break adhesive caulk bond to rear window.

4. To install, reverse removal procedure.

REAR END FINISHING PANEL - Pontiac "F" Styles

The rear end finishing panel is made of molded glass fiber plastic and retained by four attaching studs and nuts (Fig. 8-23).

Removal and Installation

1. Remove tail lamp assemblies, license plate bracket, and rear bumper.
2. Remove four rear end finishing panel retainer nuts, and remove panel from body (Fig. 8-23).
3. To install reverse removal procedure. Tighten finishing panel attaching nuts to a torque of 26-38 inch pounds.

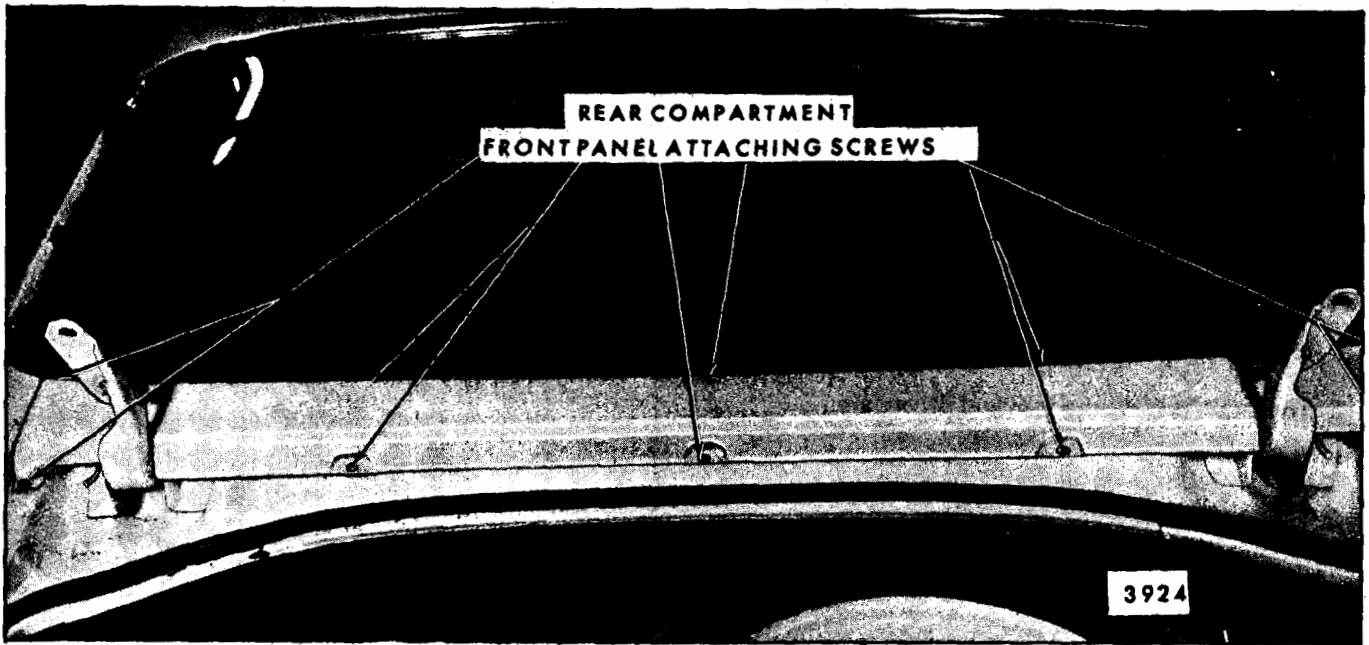


Fig. 8-21-Rear Compartment Front Panel - "F" Styles

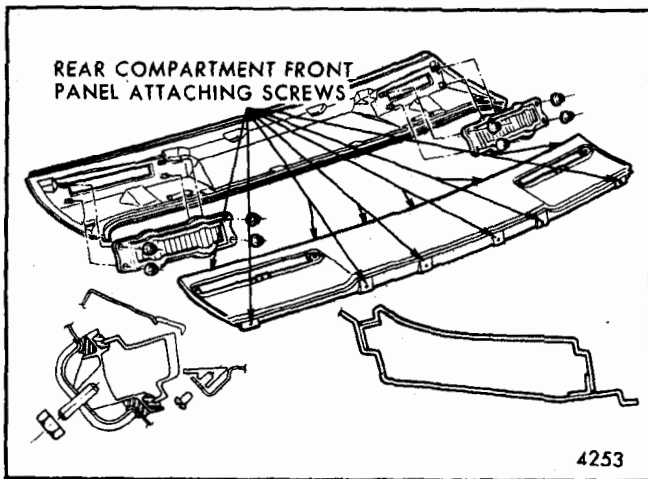


Fig. 8-22-Rear Compartment Front Panel - Buick "E" Styles

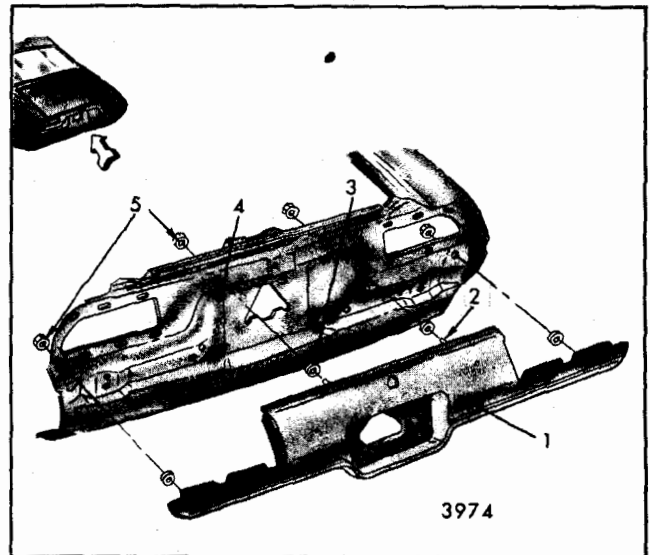


Fig. 8-23-Rear End Finishing - Pontiac "F" Styles

- | | |
|-----------------------------|-------------------|
| 1. Rear End Finishing Panel | 4. Rear End Panel |
| 2. Finishing Panel Studs | 5. Attaching Nuts |
| 3. Washer | |

Rear Compartment Lid Drain Valves

Description

Deck lids on all "B-C-D-E" styles are louvered to accommodate the flo-thru ventilation system. Water

entering these louvers is channeled rearward between the deck lid inner and outer panels and drains outside of the body through holes provided at the lower edge of the lid assembly. These holes are equipped with drain valves (Fig. 8-24).

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These drain valves must form a complete and flat peripheral seal around the drain holes. If for any reason a drain valve is removed or missing, it must be reinstalled properly or replaced. Torn, mutilated or deformed valves must be replaced before the vehicle is returned to service.

Removal and Installation

1. With the deck lid in a raised position, remove the two screws securing the valve to the lid inner panel.
2. To install, reverse the removal procedure.

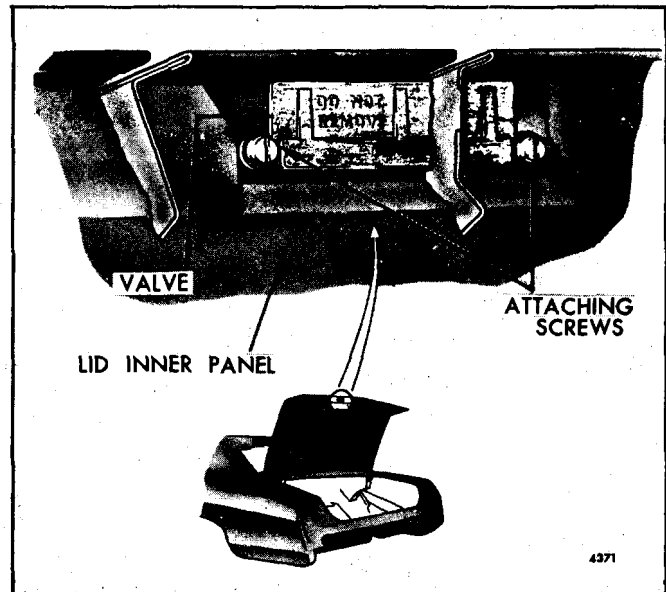


Fig. 8-24-Rear Compartment Lid Drain Valves

SECTION 9

TAIL GATE

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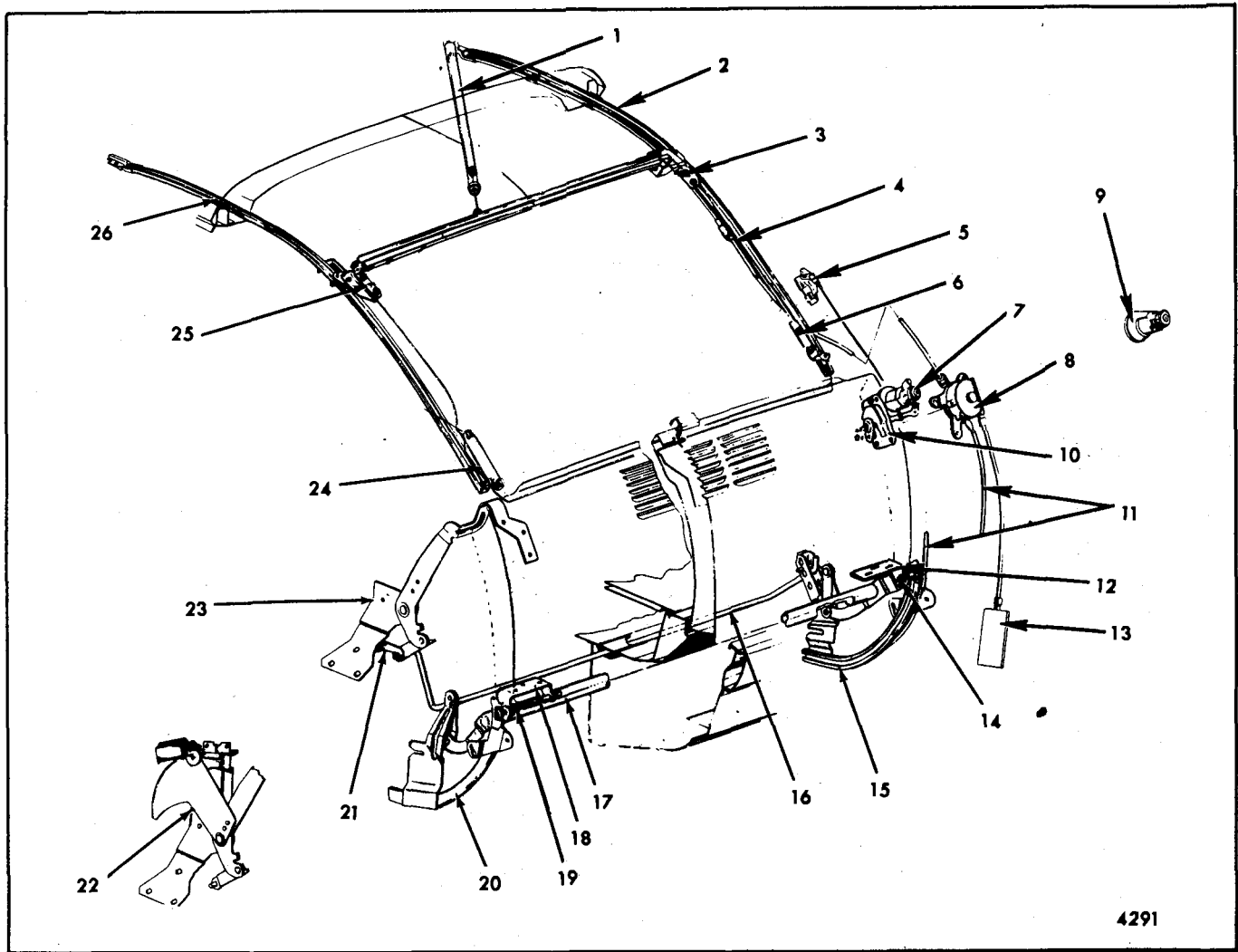
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RETRACTABLE TAIL GATES

DESCRIPTION

The retractable tail gate is designed to lower into the underbody and in general follows the body contour

during the opening and closing cycles. Similarly, the back window, which is separate of the gate, raises upward and into the space between the roof inner and outer panels.



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Fig. 9-1-Retractable Tail Gate and Window Hardware

- | | | | |
|--|---|--|--|
| 1. Window Lift Spring and Silencer | 8. Window Regulator Assembly | 15. Tail Gate Guide Channel Assembly - Right | 21. Torque Rod Block-Out |
| 2. Window Guide Cam Assembly - Right | 9. Window and Gate Switch Assembly (Power Gate) | 16. Tail Gate Hinge Torque Rod | 22. Lift Arm Hinge and Regulator Assembly - (Electric) |
| 3. Window Guide Roller Assembly - Upper Right | 10. Tail Gate Lock Assembly | 17. Tail Gate Synchronizing Torque Tube Assembly | 23. Lift Arm Hinge Assembly - (Manual) |
| 4. Window Drive Cable Assembly | 11. Window Regulator Storage Conduit | 18. Tail Gate Roller Support - Left | 24. Window Guide Roller Assembly - Lower Left |
| 5. Window Stop Cable and Clip Assembly - (Manual Gate) | 12. Tail Gate Roller Support - Right | 19. Torque Roller and Shaft Assembly - Left | 25. Window Guide Roller Assembly - Upper Left |
| 6. Window Guide Roller Assembly - Lower Right | 13. Window Motor Assembly | 20. Tail Gate Guide Channel Assembly - Left | 26. Window Guide Cam Assembly - Left |
| 7. Lock and Release Switch Assembly - (Manual Gate) | 14. Torque Roller and Shaft Assembly - Right | | |

The power operated window (standard equipment) can be operated by either of two control switches; one on the instrument panel and one (key operated) on the

rear of the right hand quarter outer panel, adjacent to the gate. Both the manual and power operated tail gate may be operated only by the rear switch on the

body exterior. The control switches actuate opening cycles when rotated clockwise and closing cycles when rotated counterclockwise.

For manual gate requirements the exterior control switch includes two positions right and left of center (vertical) position. Movement of the key to the first position (clockwise) raises the tail gate window; further movement in the same direction mechanically releases the tail gate for manual lowering. For power operated tail gates, the exterior control switch incorporates detents for operation of window only, gate only and simultaneous operation of window and gate (in that order), depending upon the distance the switch is rotated. The front control switch on the instrument panel operates the window only.

The tail gate inner cover panel doubles as a finishing and a sealing panel. The panel is sealed around its periphery and is attached by screws. Vertical louvers in the inner cover serve to exhaust a ram air ventilation system.

Fig. 9-1 identifies the component parts of the retractable tail gate and window and their relationship.

For the purpose of clarity, the following retractable tail gate information is divided into four major groups:

1. Weatherseal
2. Window system
3. Tail gate system
4. Window and tail gate control system

BACK BODY OPENING WEATHERSTRIP

The back body opening weatherstrip is of one-piece design with a butt joint located at the bottom of the opening (Fig. 9-2). The weatherstrip is cemented to the body opening below the beltline. The weatherstrip

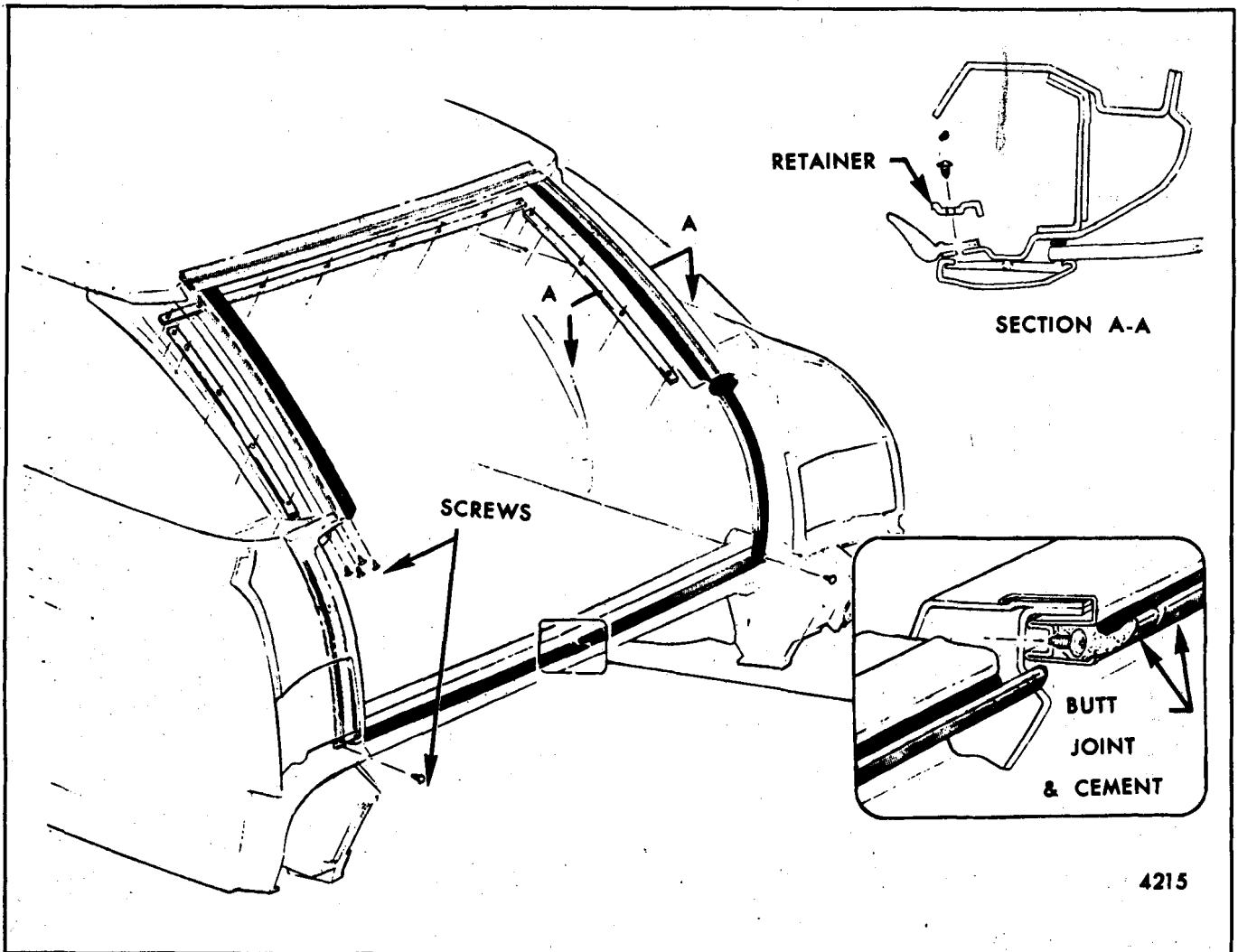


Fig. 9-2-Back Body Opening Weatherstrip Retention

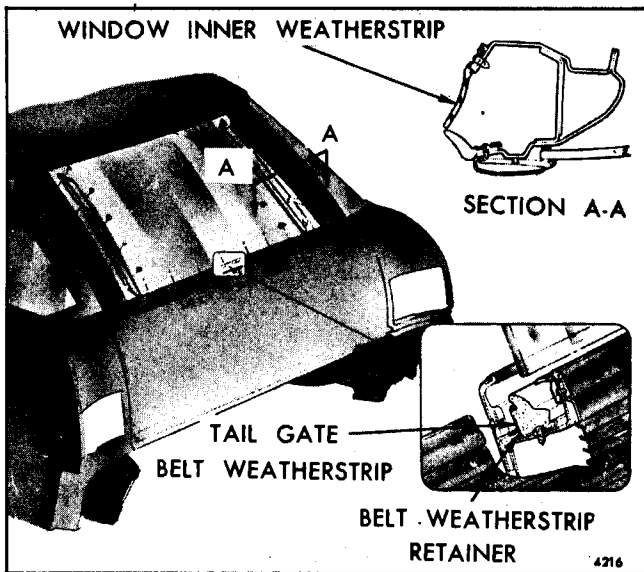


Fig. 9-3-Tail Gate Belt Weatherstrip and Window Inner Weatherstrip

retainer at the bottom of the opening is retained by screws. The weatherstrip includes sculptured detail areas at the beltline to seal the body opening off-set. At this area, the weatherstrip is retained by cement and screws. Above the beltline, the weatherstrip is retained by cement and screw-attached retainers.

Removal and Installation

1. Raise tail gate window. Remove down travel bumper on tail gate hinge lift arm and lower tail gate.
2. Remove screws securing weatherstrip retainers above the beltline at the detail areas at beltline off-set and at lower corners of back body opening (Fig. 9-2). Remove locating buttons at upper corners, if present.
3. With a flat-bladed tool, carefully remove weatherstrip around entire back body opening. Separate the weatherstrip at the butt joint to facilitate removal between hinge lift arm and tail gate.
4. To install original part, apply a bead of black weatherstrip cement to entire body opening and starting at the beltline details on both sides, reverse the removal procedure. When installing a new weatherstrip, begin the installation at the belt detail area, continue with the upper body installation and complete the operation at the bottom of the opening. Cut off excess weatherstrip to form a butt joint.

TAIL GATE BELT WEATHERSTRIP

Removal and Installation

1. Remove screws securing end of weatherstrip to tail

gate and with a flat bladed tool, carefully remove the weatherstrip from its retainer (Fig. 9-3).

2. To install, reverse the removal procedure.

NOTE: The tail gate belt outer sealing strip is integral with the belt reveal molding and is removed as a unit.

TAIL GATE WINDOW INNER WEATHERSTRIP

Removal and Installation

1. Remove back body pillar and/or upper body opening finishing molding (Fig. 9-4).
2. Remove screws securing inner weatherstrip section and remove weatherstrip.
3. To install reverse the removal procedure.

TAIL GATE BOTTOM DRAIN HOLE SEALING STRIPS

Removal and Installation

1. With the tail gate in the closed position, remove back body lower housing access hole covers (Fig. 9-5).

CAUTION: When conducting tail gate service operations through the access openings in the body rear lower housing (Fig. 9-5) place body tape over the tail gate opening key cylinder to prevent inadvertent operation of the tail gate.

2. Working through the lower housing access holes, detach the fastener at each end of the strip and remove the sealing strip.

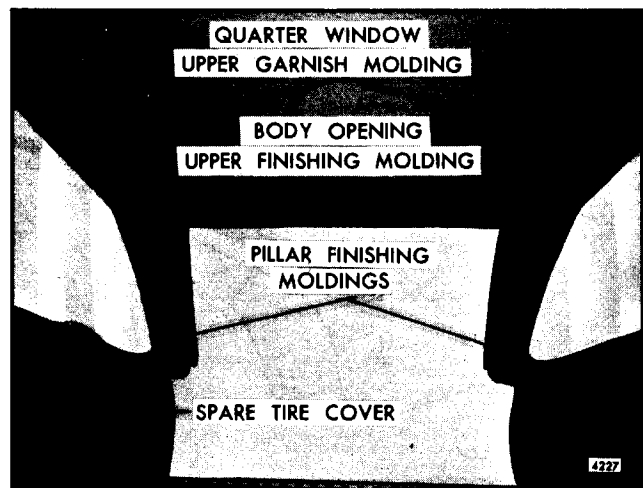


Fig. 9-4-Body Rear Finishing Moldings

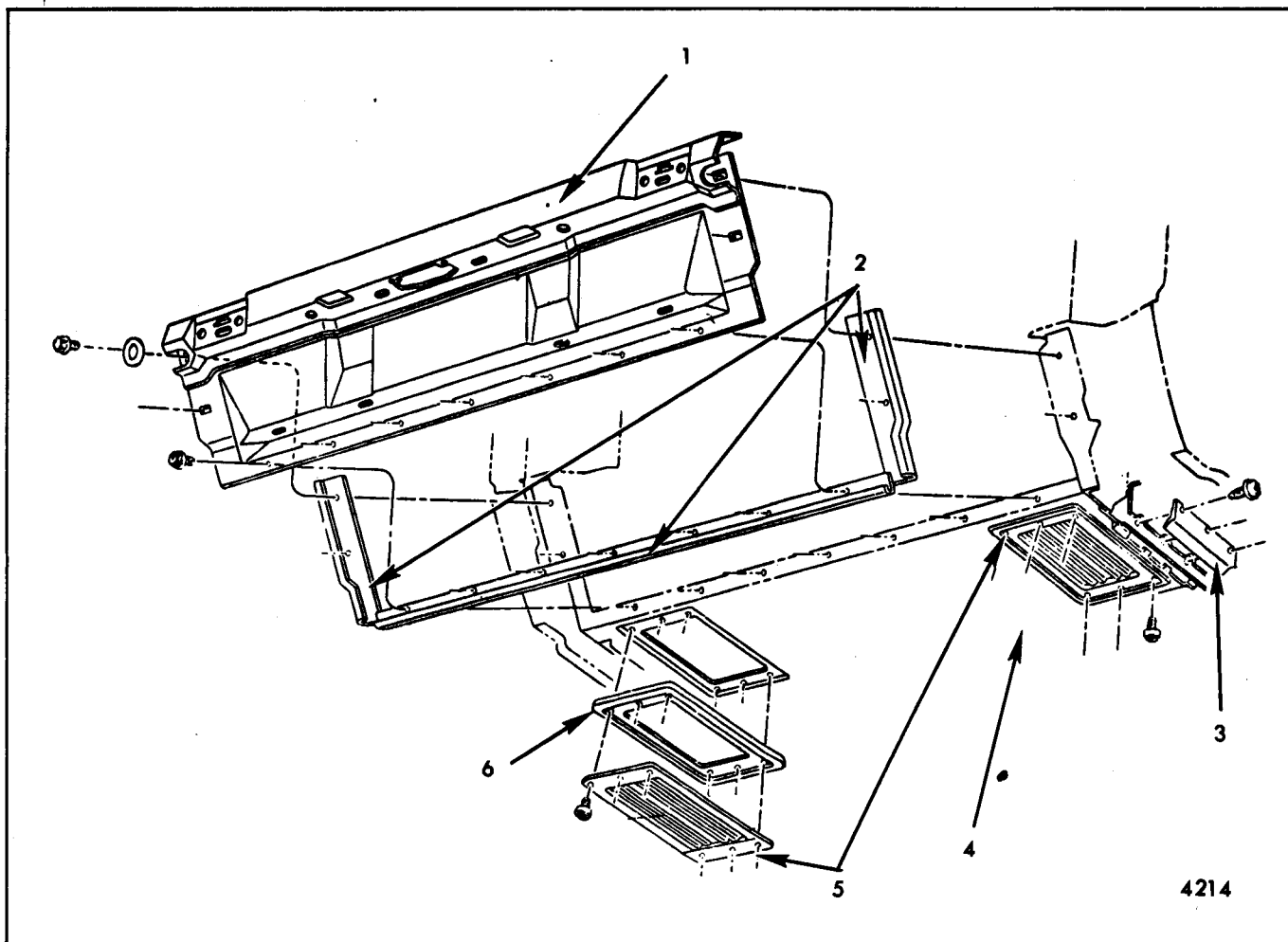


Fig. 9-5-Tail Gate Rear Upper Housing Installation

- | | |
|--|--|
| 1. Back Body Upper Housing | 4. Back Body Lower Housing |
| 2. Back Body Upper Housing Seals | 5. Back Body Lower Housing Access Covers |
| 3. Back Body Lower Housing Drain Sealing Strip (Right Side Only) | 6. Back Body Lower Housing Access Cover Seal |

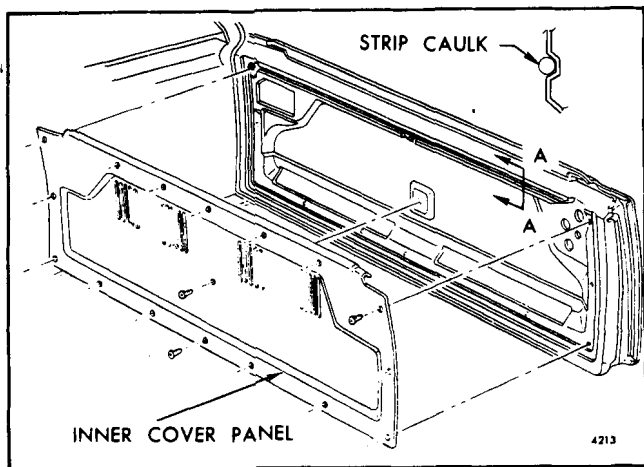


Fig. 9-6-Tail Gate Inner Cover Panel Retention

3. To install, reverse the removal procedure. See illustration under (Front and Rear Door Bottom Drain Hole Sealing Strips).

LOWER HOUSING DRAIN SEALING STRIP

Removal and Installation

1. On exterior of lower housing, (right side) remove screws securing housing sealing strip and remove strip.
2. To install, reverse the removal procedure.

TAIL GATE INNER FINISHING PANEL

The tail gate inner finishing panel is sealed and attached to the tail gate by screws; thus a separate paper water deflector is not required.

Removal

1. Remove screws securing inner panel to tail gate (Fig. 9-6).
2. With a flat-bladed tool carefully break the bond sealing the inner panel to the tail gate and remove the panel.

Installation

1. Inspect sealer deposit in the depression of the tail gate. If required, apply a bead of body caulking compound in sufficient quantity to effect an adequate seal (Fig. 9-6).
2. Install tail gate inner panel to tail gate and press firmly around the periphery.
3. Apply body caulking to panel attaching screw threads and install screws.

TAIL GATE WINDOW

Description

The tail gate window is physically independent of the tail gate in the sense that all glass support and operating components are mounted in the body shell rather than in the tail gate.

The window motor, mounted to the rear of the spare tire well in the right quarter area, delivers torque to the window regulator assembly through a drive cable. The window regulator, in turn drives another cable that is attached to the right upper glass roller support, thus moving the glass along the its cam guides (Fig. 9-1).

TAIL GATE WINDOW ASSEMBLY - (ALL)

The tail gate window assembly consists of a solid tempered safety plate glass of compound curvature with a pressed-on upper sash channel. Attached to the upper sash channel is a window lift spring and silencer. A roller support is bolted to each corner of the glass. With this design, the tail gate glass, upper sash channel with spring and roller supports are removed from the body opening as a unit and a replacement glass and roller supports are assembled as a bench operation.

Removal and Installation

1. Raise tail gate window and lower tail gate. On manual gates snap tail gate lock to closed position.
2. Remove back body opening weatherstrip across top and down sides to include belt detail areas (previously described).
3. Remove right quarter window upper garnish molding and retainer, right rear body pillar finishing molding and back body opening upper finishing molding (Fig. 9-4).

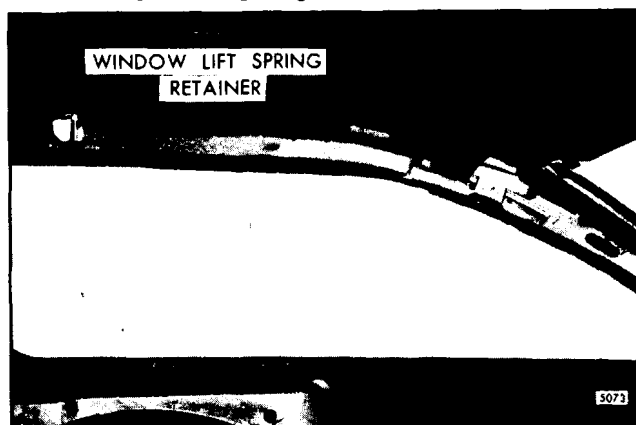


Fig. 9-7-Window Right Cam Guide Access - Front

4. Detach headlining over right quarter glass sufficiently to reveal access hole at forward attaching location of window right cam guide (Fig. 9-7).
5. Through access hole described in Step No. 4, transfer window assist spring from retainer on window cam guide to hook on window right upper roller support (Fig. 9-8).
6. Through same access hole, loosen drive cable flag retainer bolt and move retainer inboard out of engagement with flag. Secure flag in full forward position with a metal screw.
7. Remove window down-travel stop from lower end of right and left window cam guides (Fig. 9-9).

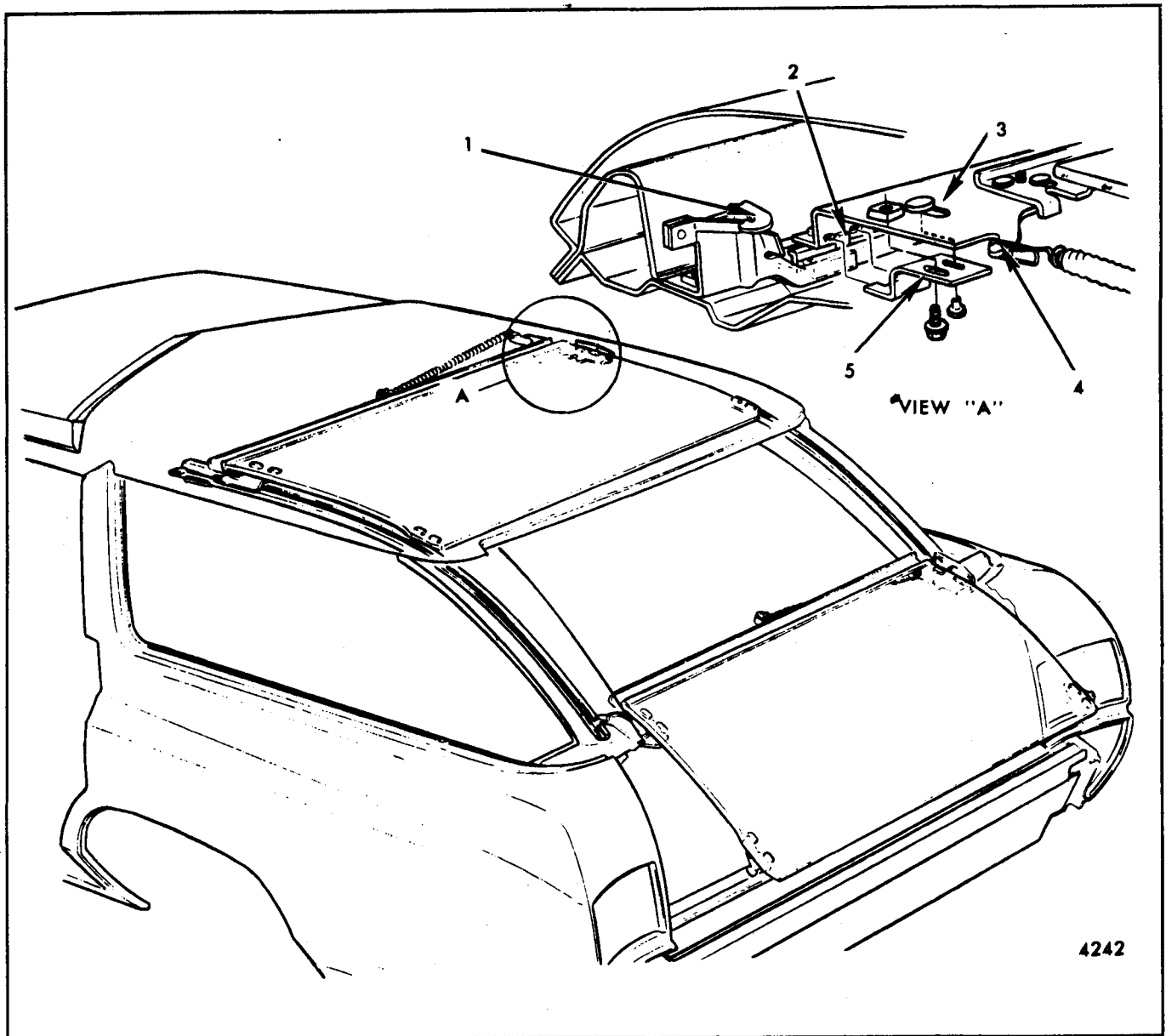


Fig. 9-8-Drive Cable Flag Retainer and Window Lift Spring Details

- | | | | |
|---|------------------------------------|---|---------------------------------|
| 1. Window Lift Spring
(Operating Position) | 2. Drive Cable Flag | 4. Window Lift Spring
(Position for Window
Removal) | 5. Drive Cable Flag
Retainer |
| | 3. Window Guide Roller
Assembly | | |

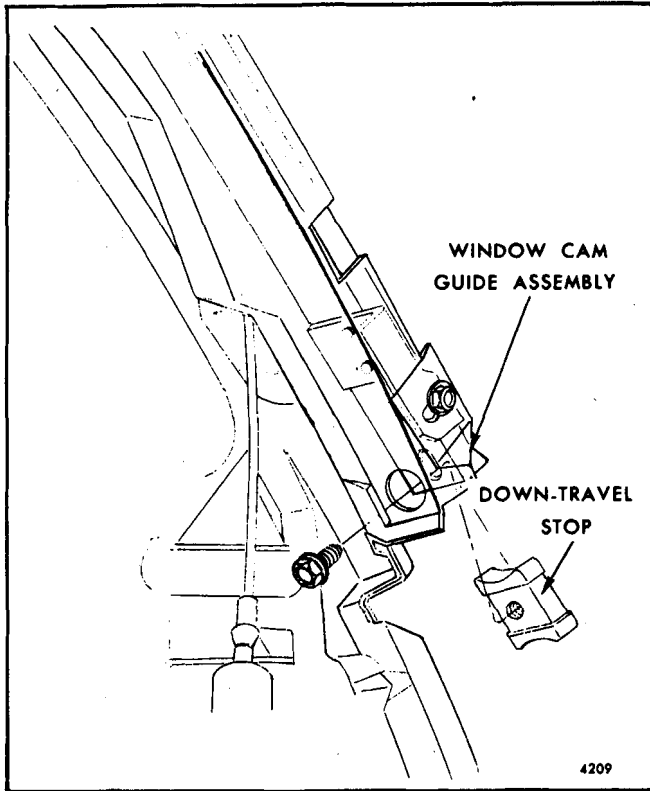


Fig. 9-9-Tail Gate Window Down-Travel Stop

8. Manually lower glass down and out of engagement with window guide cams.

NOTE: On styles equipped with tail gate window defogger, disengage defogger lead wire at clip on left upper roller assembly and from terminal on glass with window in down position. Secure defogger lead wire to body opening to prevent recoil of wire into body cavity.

9. To install, reverse the removal procedure.

Tail gate window components are illustrated in Fig. 9-10. Specified torque for the roller support-to-glass bolts is 72 inch lbs.

Tail Gate Window Adjustment

Up and down adjustment of the window for proper weatherstrip contact is made by adjusting both right and left window guide cams vertically at the rear and midway attaching locations.

A cocked window adjustment is controlled by loosening and rotating the right upper roller support in the desired direction (Fig. 9-11).

Window down-travel is controlled by an adjustable stop in the lower end of the window right and left cam guides (Fig. 9-9).

TAIL GATE WINDOW REGULATOR ASSEMBLY

Removal and Installation

1. Remove spare tire cover and spare tire.
2. Disengage motor drive cable at window regulator assembly (Fig. 9-12).
3. Disengage window drive cable clip at upper end of regulator and remove cable storage conduit at lower end of regulator.
4. Remove regulator attaching screws and rotate regulator off lower end of drive cable.
5. To install, reverse the removal procedure.

TAIL GATE WINDOW MOTOR ASSEMBLY

Removal and Installation

1. Remove spare tire cover and spare tire.
2. Disconnect motor electrical lead and disengage drive cable at upper end of motor (Fig. 9-12).
3. Remove motor attaching screws and remove motor.
4. To install, reverse the removal procedure.

TAIL GATE WINDOW MOTOR CABLE ASSEMBLY

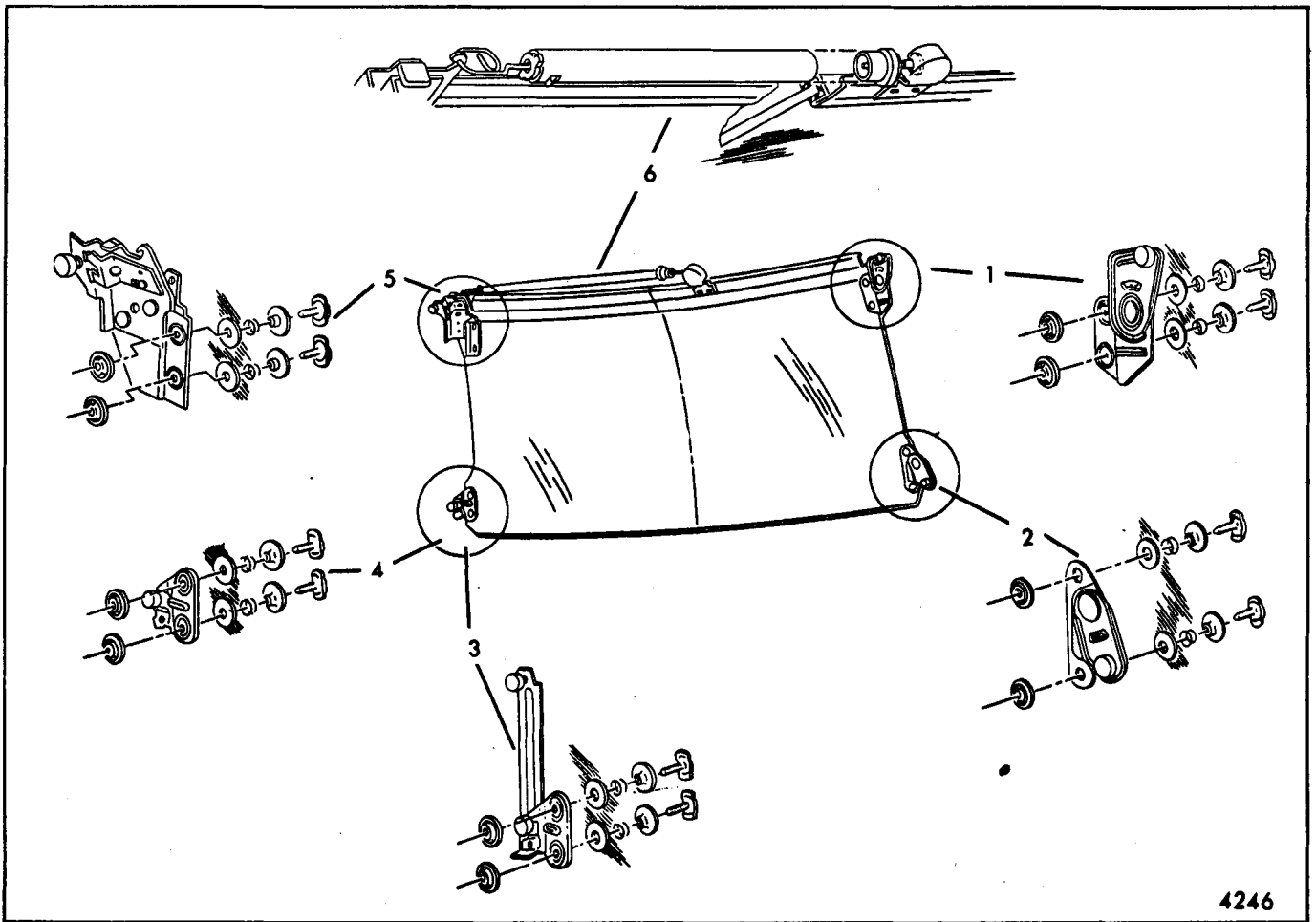
Removal and Installation

1. Remove spare tire cover and spare tire.
2. Disengage cable at motor and window regulator assembly.
3. To install, reverse the removal procedure.

TAIL GATE WINDOW CAM GUIDE - RIGHT SIDE

Removal and Installation

1. Remove tail gate window as previously described.
2. Remove spare tire cover, spare tire and right pillar inner weatherstrip.



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Fig. 9-10-Tail Gate Window Components - Exploded

- | | | |
|--|---|---|
| 1. Window Guide Roller Assembly - Upper Left | 3. Window Guide Roller Assembly - Lower Right (Manual Gate) | 5. Window Guide Roller Assembly - Upper Right |
| 2. Window Guide Roller Assembly - Lower Left | 4. Window Guide Roller Assembly - Lower Right (Power Gate) | 6. Window Lift Spring and Silencer |

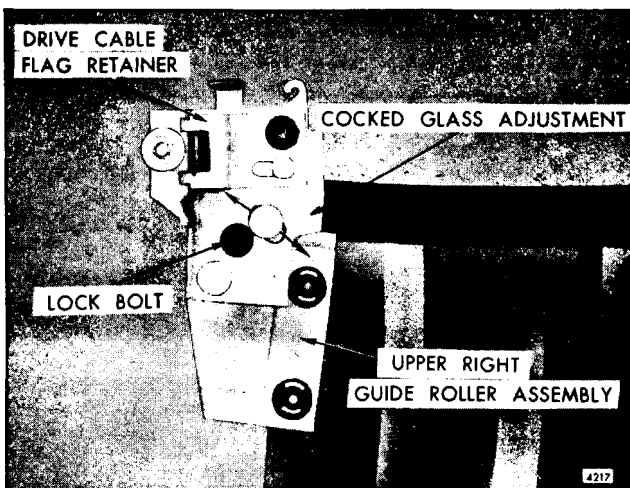


Fig. 9-11-Window Guide Roller Assembly - Upper Right

3. Detach motor drive cable at bottom of window gear box and remove gear box attaching screws (Fig. 9-12).

4. Remove gear box as previously described.

NOTE: On styles equipped with manual tail gate, disengage upper end of tail gate window stop cable and clip assembly (Fig. 9-13).

5. Remove cam guide attaching bolts, move guide forward to clear pillar access hole with drive cable and withdraw guide from body (Fig. 9-14).

6. To install reverse the removal procedure.

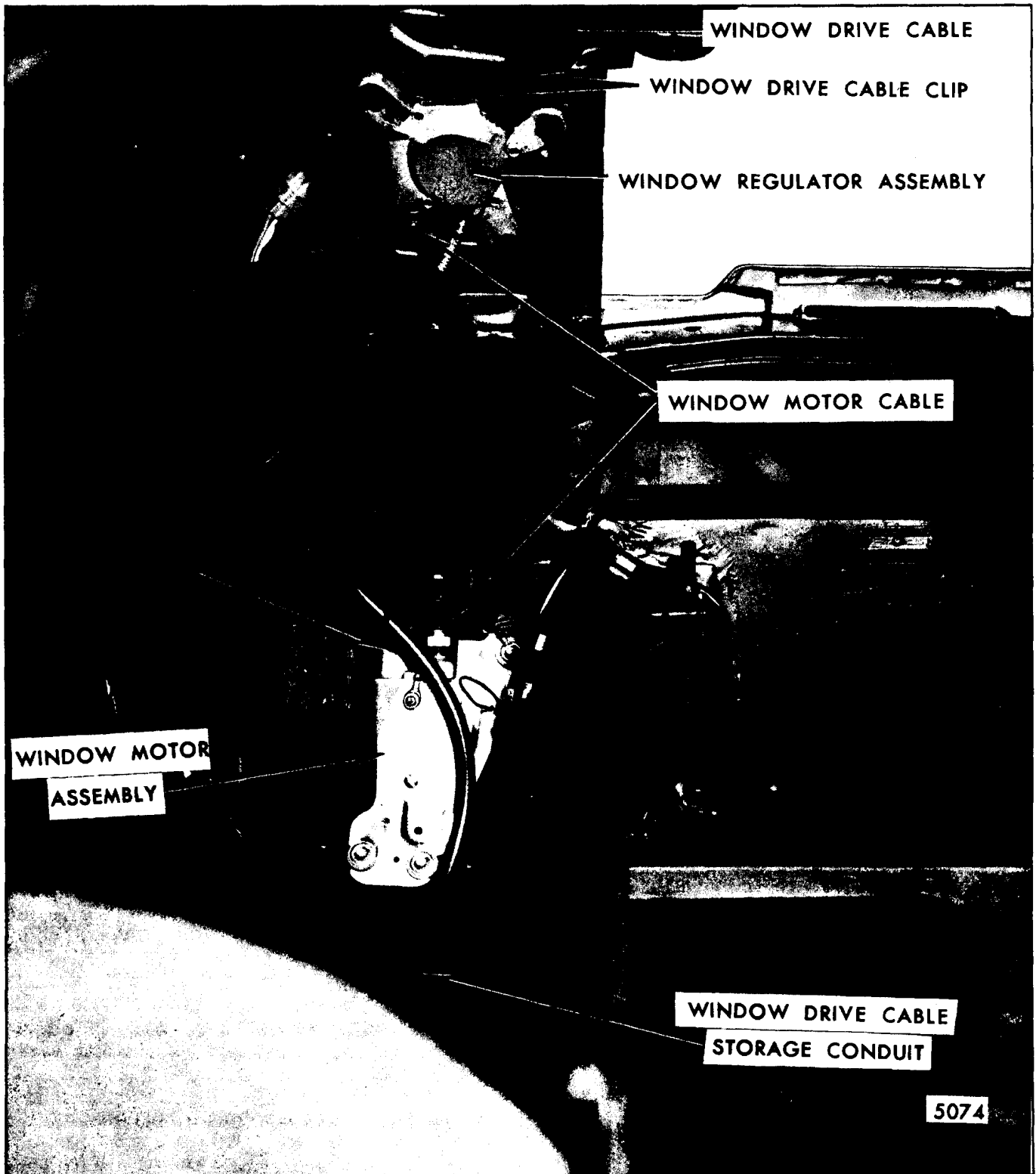


Fig. 9-12-Tail Gate Window Motor and Regulator Installation

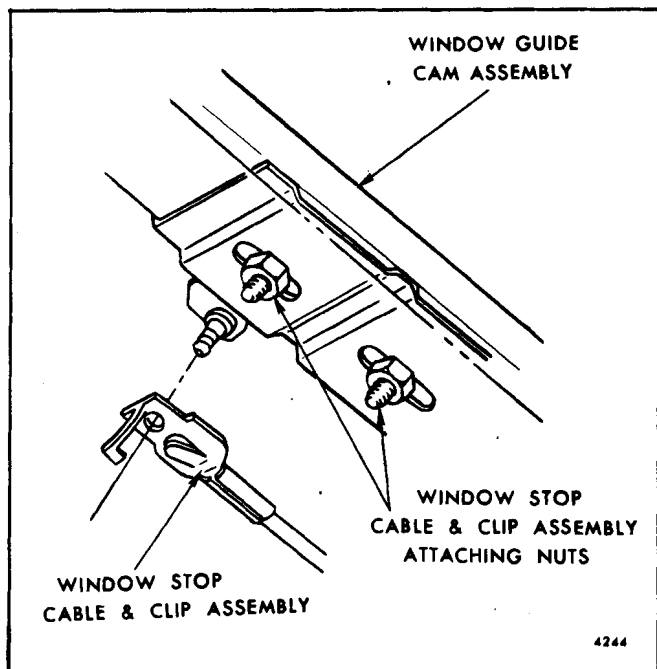


Fig. 9-13-Window Stop Cable and Clip Assembly Attachment

TAIL GATE WINDOW CAM GUIDE - LEFT SIDE

Removal and Installation

1. Remove tail gate window as previously described.
2. Remove left quarter window upper garnish molding and retainer and left rear body pillar finishing molding.

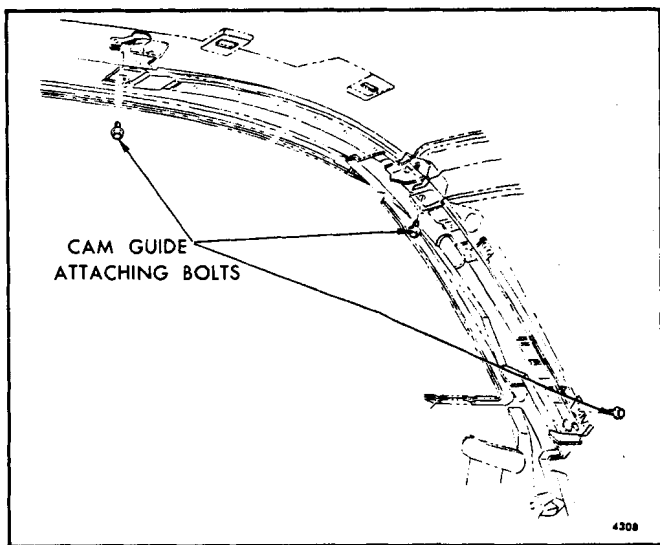


Fig. 9-14-Tail Gate Window Right Cam Guide Attachment

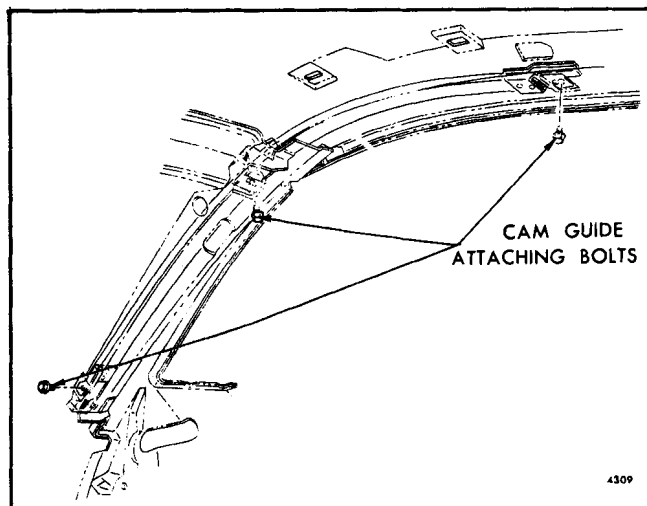


Fig. 9-15-Tail Gate Window Left Cam Guide Attachment

3. Remove cam guide attaching bolts and withdraw guide from body (Fig. 9-15).
4. To install, reverse the removal procedure.

TAIL GATE WINDOW DRIVE CABLE ASSEMBLY

Removal and Installation

1. Remove spare tire cover and spare tire.
2. Remove right quarter window upper garnish molding and retainer, back body opening upper finishing molding right rear body pillar finishing molding and inner weatherstrip (Fig. 9-4).
3. Detach headlining over right quarter glass sufficiently to reveal access hole at forward attaching location of window right guide cam guide (Fig. 9-7).
4. Remove window gear box as previously described.
5. Loosen drive cable flag retainer and move retainer inboard out of engagement with flag.
6. Disengage drive cable at attaching bracket on cam guide (Fig. 9-16).
7. Withdraw drive cable through access hole in pillar.
8. To install, reverse the removal procedure.

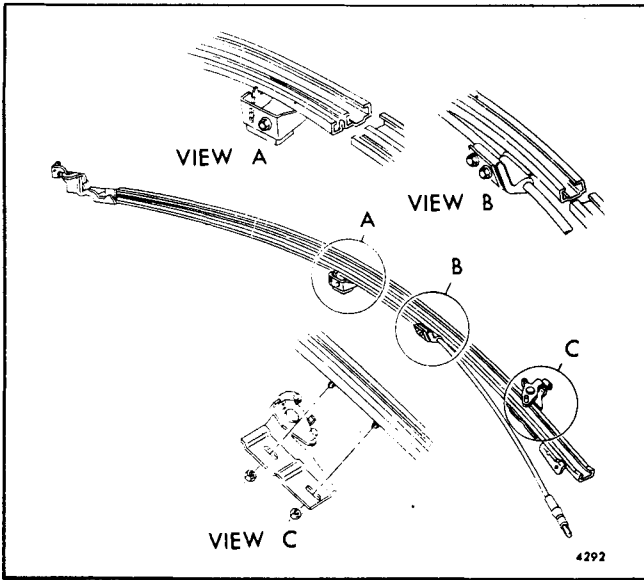


Fig. 9-16-Window Right Cam Guide and Drive Cable Details

- | | |
|---|--|
| A. Right Cam Guide
Center Attachment | C. Window Stop Cable
and Clip Assembly-
to-Cam Guide
Attachment |
| B. Window Drive Cable-
to-Cam Guide
Attaching Bracket | |

WINDOW STOP CABLE AND CLIP ASSEMBLY

Removal and Installation

1. Remove window as previously described.
2. Disengage upper end of tail gate window stop cable and clip assembly (Fig. 9-13).
3. Remove right cam guide as previously described.
4. Remove stop assembly as a bench operation.
5. Through access hole at gear box mounting area disengage window stop cable at lock lever and withdraw cable. (See Fig. 9-25 window and gate control section).

NOTE: Tie a suitable length of cord to lower end of cable to facilitate installation.

6. To replace cable and stop assembly, reverse the removal procedure.

Adjustment

1. Operate tail gate lock to unlatched position.
2. With window stop cable and clip assembly loosely assembled to cam guide, move stop assembly

upward to remove slack from cable and position bell crank. Tighten stop attaching nuts (View "C" Fig. 9-16).

3. Operate glass with tail gate lock in both locked and unlocked positions to check operation of stop cable and clip assembly.

ROLLER ASSEMBLY - TAIL GATE WINDOW - LOWER RIGHT OR LEFT

Removal and Installation

1. Raise window to full up position.
2. Remove back body opening upper finishing molding and inner weatherstrip (Fig. 9-3 and Fig. 9-4).
3. Remove rear pillar finishing molding and inner weatherstrip on affected side.
4. When right lower roller assembly is involved, remove glass down-travel stop in right cam guide.
5. Remove window roller assembly-to-glass nuts, disengage roller assembly from attaching bolts and pull roller assembly out of engagement with cam guide.
6. To install, reverse the removal procedure.

ROLLER ASSEMBLY - TAIL GATE WINDOW - UPPER RIGHT

Removal and Installation

1. Remove tail gate window as previously described.
2. Remove upper right roller assembly as a bench operation (Fig. 9-10).
3. To install, reverse the removal procedure.

NOTE: Adjust right upper roller assembly, if necessary, to correct a cocked glass condition (Fig. 9-11).

ROLLER ASSEMBLY - TAIL GATE WINDOW - UPPER LEFT

Removal and Installation

1. With window and gate in the open position, remove back body opening upper finishing molding and inner weatherstrip (Figs. 9-3 and 9-4).
2. Remove left rear pillar finishing molding and inner weatherstrip.

- Lower tail gate window to full down position.

NOTE: On manual gates, snap the gate lock to closed position to allow full closing of the window.

- Support window vertically at the top edge between the roof inner and outer panels with a wood wedge or equivalent.
- Remove window lower left roller assembly as previously explained.
- Remove attaching bolts securing window upper left roller assembly and slide assembly down and out of left cam guide.
- To install reverse the removal procedure.

TAIL GATE WINDOW DOWN-TRAVEL STOPS

Removal and Installation

- Remove rear pillar finishing molding (Fig. 9-4).
- Remove down-travel stop attaching screw in lower end of window cam guide and remove stop.
- To install, reverse the removal procedure. Adjust stop as subsequently explained.

Adjustment

- Loosen down-travel stop attaching screw and lower tail gate window for desired contact with tail gate belt weatherstrip.
- From body interior, adjust down-travel stop upward for firm contact against glass lower roller and tighten stop attaching screw. Make minor adjustments if required (Fig. 9-9).

TAIL GATE WINDOW ASSIST SPRING AND SILENCER

Removal and Installation

- Remove tail gate window as previously explained.
- Remove window assist spring and silencer as a bench operation (Fig. 9-10).
- To install, reverse the removal procedure.

HEATED TAIL GATE WINDOW REAR WIRE HARNESS ASSEMBLY

Removal and Installation

- Remove back body opening upper trim finishing molding and inner weatherstrip (Fig. 9-4).

- Remove left rear pillar finishing molding and inner weatherstrip.

- Remove left quarter window upper garnish molding and retainer.

- Detach headlining over left quarter glass sufficiently to reveal access hole at forward end of tail gate window left cam guide.

- Disengage heated window rear harness at front junction and secure a 4 ft. cord to harness to facilitate installation (Fig. 9-17).

- Lower tail gate window to full down position for access to harness terminal on glass.

NOTE: On manual gates, snap tail gate lock to closed position in order to lower window fully.

- Withdraw harness from body leaving installing cord in body cavity.

- To install, reverse the removal procedure.

TAIL GATE ASSEMBLY

The tail gate lowers into a storage area beneath the load floor and is guided through the path of its travel by right and left lower guide channel assemblies and a regulator lift arm and hinge at the upper left corner. Simultaneous movement of right and left sides is assured by a synchronizing torque tube assembly. Operating effort is reduced by a torque rod assembly that acts upon the regulator lift arm and hinge (Fig. 9-1).

Refer to Fig. 9-18 and prepare a 1/4" 20 x 1" fixture bolt with two nuts to serve as a roller stop for the subsequent removal steps. In addition, prepare a prop of suitable length to support the tail gate in a horizontal position.

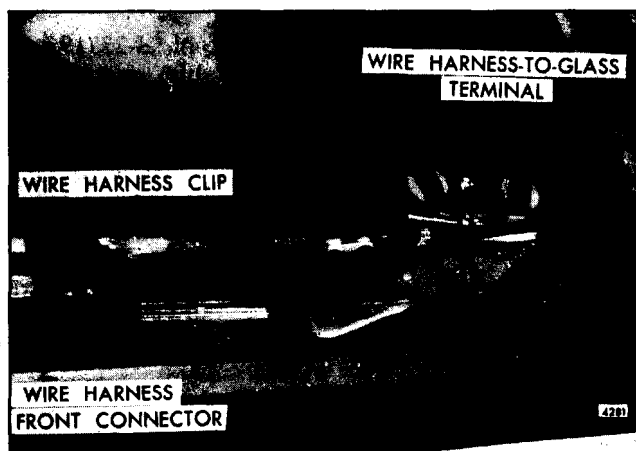


Fig. 9-17-Heated Window Rear Wire Harness - Window Up (Roof Outer Panel Removed for Illustrative Purposes)

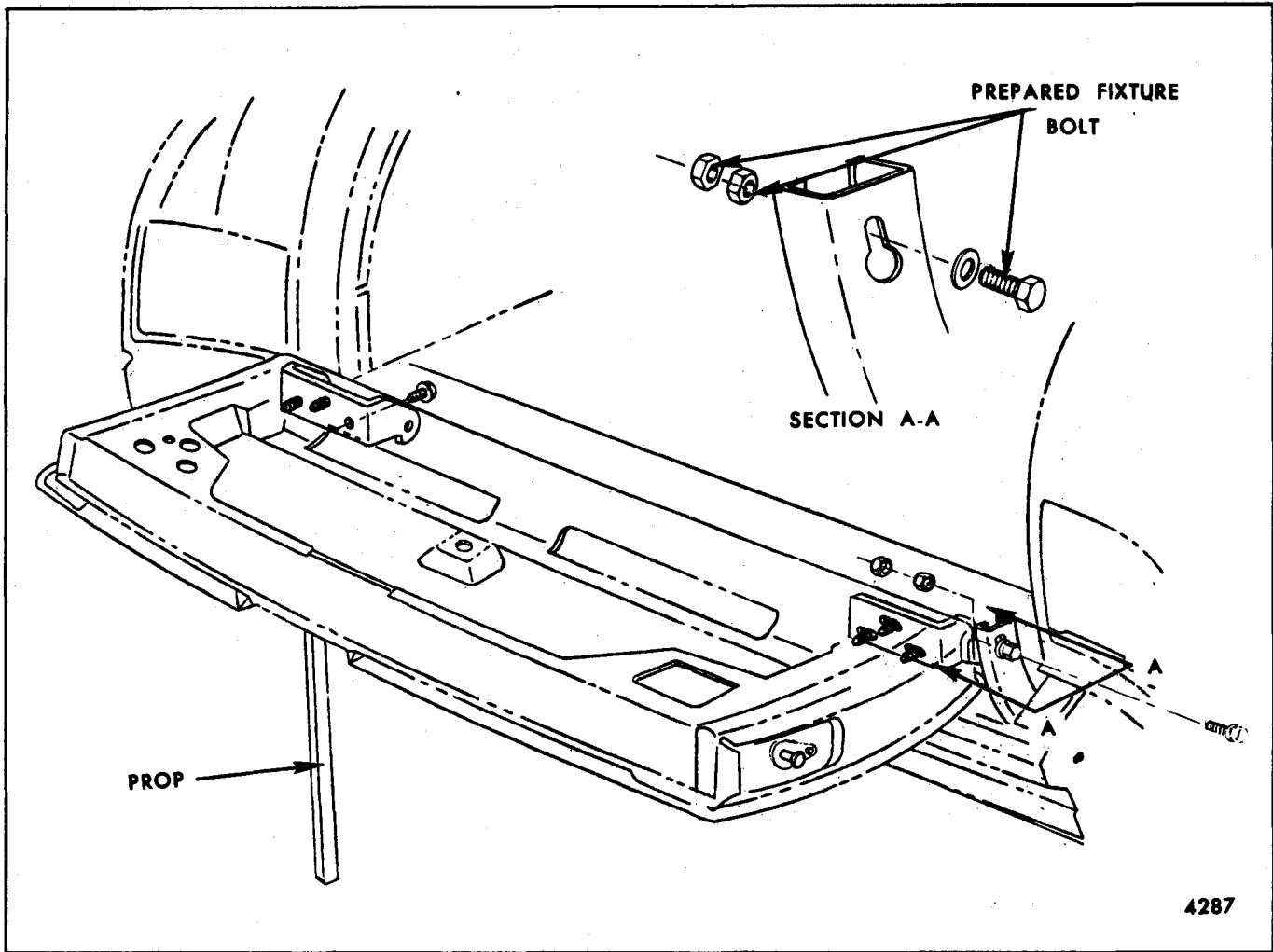


Fig. 9-18-Tail Gate Position For Removal

Removal and Installation

1. Remove rear bumper and body rear upper housing (Fig. 9-5).
2. Lower tail gate and with Tool J-23719 or equivalent, relieve right (adjustable) end of tail gate torque rod. Allow torque rod to rotate forward to fully relaxed position. (Refer to torque rod removal and installation - step No. 2).
3. Raise tail gate to latched position and remove tail gate inner cover panel (Fig. 9-6).
4. Remove regulator hinge arm-to-tail gate attaching screws. On manual tail gates, secure lift arm hinge in raised position with wire or cord.
5. Insert fixture bolt and nut assembly into key slot at upper end of right channel guide assembly below roller to hold synchronizing tube assembly in position during tail gate removal.
6. Carefully lower the gate to a horizontal position and support with above mentioned prop.
7. Scribe location of right lower roller support on tail gate and with the aid of a helper, remove bolts attaching right and left lower roller supports to tail gate. Remove tail gate.
8. To install, reverse the removal procedure.

NOTE: Remove fixture bolt from right channel assembly before raising tail gate to body position.

CAUTION: When conducting tail gate service operations through the access openings in the body rear lower housing (Fig. 9-5), place body tape over the tail gate operating key cylinder to prevent inadvertent lowering of the tail gate.

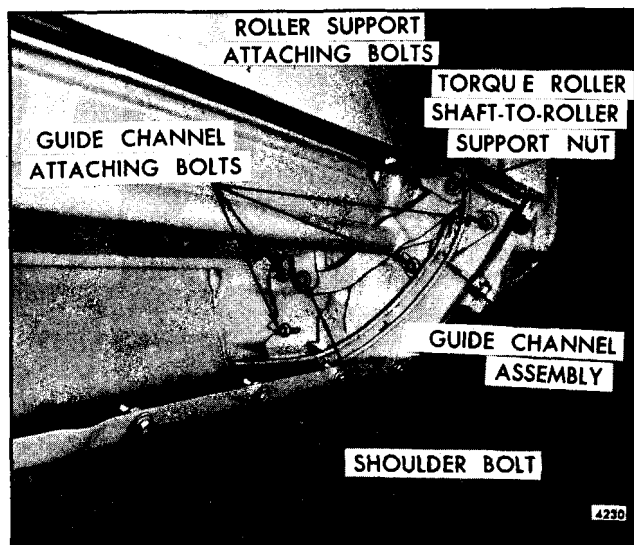


Fig. 9-19-Tail Gate Guide Channel Assembly - Right

TAIL GATE GUIDE CHANNEL ASSEMBLY RIGHT OR LEFT

Removal and Installation

1. With tail gate in a fully closed position, remove right or left access hole cover in body rear lower housing (Fig. 9-5).
2. Working through access hole in lower housing, remove synchronizing tube-to-guide channel link shoulder bolt (Fig. 9-19 or 9-20).
3. Remove guide channel-to-body attaching bolts (Fig. 9-19 or 9-20).
4. Disengage guide channel from tail gate lower roller and withdraw guide channel through access hole in body rear lower housing.
5. To install, reverse the removal procedure. Adjust guide channel fore or aft as required.

TAIL GATE ROLLER SUPPORT - RIGHT OR LEFT

Removal and Installation

1. With tail gate in a fully closed position, remove right or left access hole cover in body rear lower housing (Fig. 9-5).
2. Working through access hole in lower housing, remove (right side) roller support-to-tail gate

attaching bolts and roller shaft-to-support attaching nut (Fig. 9-19) (left side) - remove roller support-to-tail gate attaching bolts.

3. On either side disengage roller support from roller shaft and withdraw roller support through access hole.
4. To install, reverse the removal procedure. Right side roller only is adjustable laterally on tail gate and up-down on roller shaft.

TAIL GATE SYNCHRONIZING TORQUE TUBE ASSEMBLY

Removal and Installation

1. Remove tail gate as previously explained.
2. Remove right and left roller supports as previously explained.
3. Remove right and left synchronizing torque tube-to-guide channel link shoulder bolts.
4. Scribe location of guide channels on body and remove rearward attaching bolts and loosen forward attaching bolts (Fig. 9-19 and 9-20).
5. Rotate guide channels downward for clearance to allow disengagement of right and left torque rollers from upper end of guide channels (Fig. 9-21).
6. Remove synchronizing torque tube with torque rollers and shafts.
7. If necessary, torque rollers and shafts may now be removed as a bench operation.

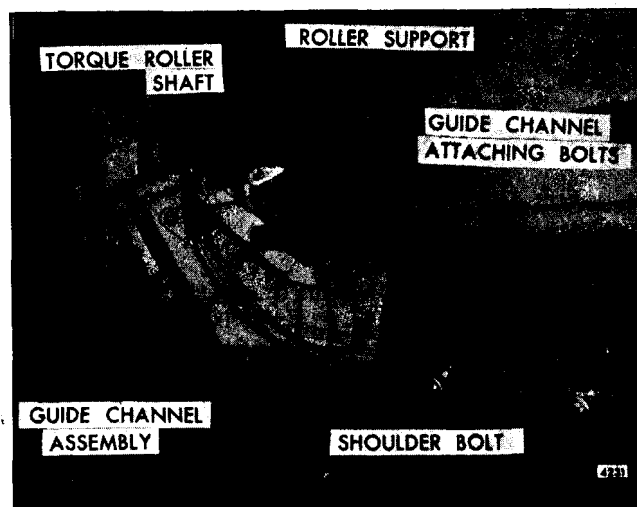


Fig. 9-20-Tail Gate Guide Channel Assembly - Left

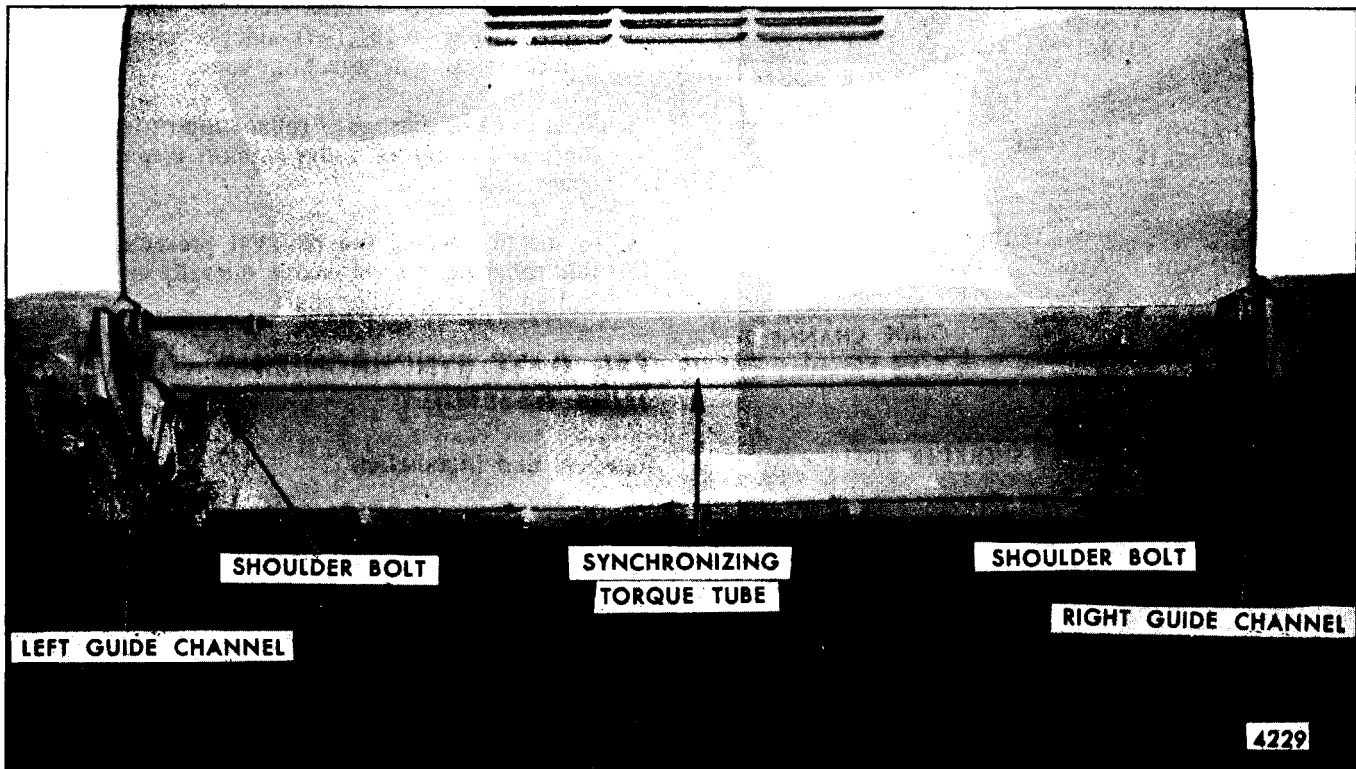


Fig. 9-21-Tail Gate Synchronizing Torque Tube and Guide Channels

8. To install, reverse the removal procedure.

TAIL GATE TORQUE ROD

The retractable tail gate torque rod provides a counterbalance force for the operating cycles of the gate resulting in decreased opening and closing effort. The adjustable end of the torque rod is located on the right side of the body under the rear load floor and is secured in one of three adjusting locations by a pin inserted above the rod and through a key slot in the torque rod retainer (Fig. 9-22).

Removal and Installation

1. Lower tail gate and prop rear load floor in full open position.
2. Gain access to torque rod retainer (Fig. 9-23) and with tool J-23719 or equivalent, apply downward pressure on torque rod. Carefully remove torque rod pin and allow torque rod to rotate forward to a fully relaxed position (Fig. 9-23).

CAUTION: Do not remove torque rod cover plate until torque rod is fully relieved.

3. Remove torque rod cover plate screws and remove cover plate (Fig. 9-22).

4. Withdraw torque rod from lift arm link and remove torque rod from body.

5. To install reverse the removal procedure.

Adjustment

1. Engage end of torque rod with tool J-23719 or equivalent, apply downward pressure against rod and remove retaining pin (Fig. 9-23).
 2. Place torque rod in desired location in torque rod retainer and insert retaining pin in key slot above torque rod.
- NOTE:** Torque rod should be adjusted to achieve tail gate cycling action that requires only minimal manual assist.
3. On manual tail gates adjust torque rod block-out fore or aft (Fig. 9-22) if necessary, so that tail gate drops 3 to 6 inches after being released by the control switch.

TAIL GATE LIFT ARM HINGE ASSEMBLY - MANUAL AND ELECTRIC

Removal and Installation

1. Remove left quarter rear trim panel Fig. 9-4.

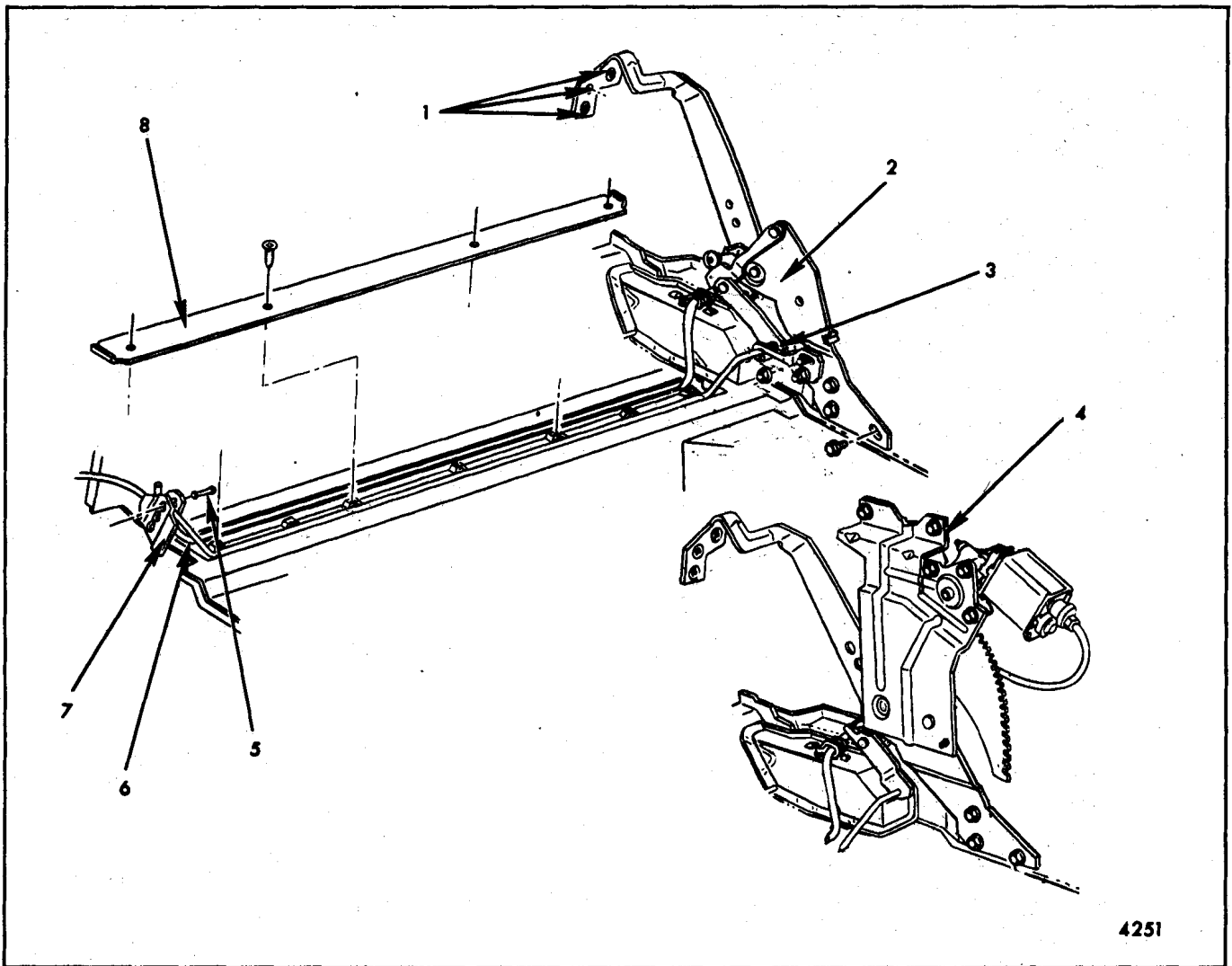


Fig. 9-22-Tail Gate Torque Rod and Hinge Arm Relationship

1. Lift Arm Hinge-to-Tail Gate Attaching Screws

2. Lift Arm Hinge Assembly - Manual
3. Torque Rod Block-Out

4. Lift Arm Hinge and Regulator Assembly - Electric
5. Torque Rod Retaining Pin

6. Torque Rod
7. Torque Rod Retainer
8. Torque Rod Cover Plate

2. Remove tail gate inner cover panel.
3. Lower tail gate and remove tail gate torque rod as previously explained.
4. Raise tail gate sufficiently to remove regulator lift arm hinge-to-tail gate attaching screws (Fig. 9-22).
5. Carefully lower tail gate and regulator lift arm to full down position. On power-operated units, disconnect wire harness at motor terminal.
6. Mark location of lift arm hinge assembly on body and remove attaching screws (Fig. 9-22). Remove regulator and lift arm hinge assembly from body.

7. To install, reverse the removal procedure.

Adjustments

The regulator and lift arm hinge assembly may be adjusted down-forward, aft-upward and rotated within the limitations of two over-size attaching holes to the body.

NOTE: Make adjustments with torque rod disengaged at retainer on right side of body.

Assuming that all attaching bolts to body and tail gate are loose, proceed as follows:

1. Tighten regulator lift arm-to-tail gate attaching screws securely (Fig. 9-22).

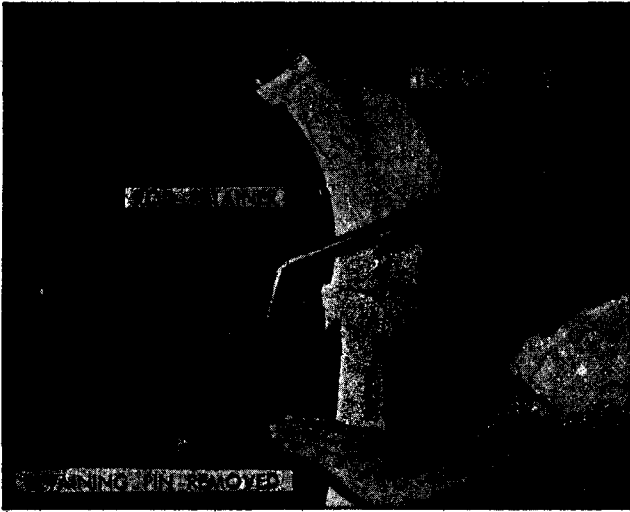


Fig. 9-23-Torque Rod Tool - Torque Rod Release or Adjustment

2. With tail gate in full closed position, apply sufficient forward pressure on tail gate to achieve flush tail gate to body opening alignment. Secure regulator attaching bolts.
3. Secure torque rod in retainer, using tool J-23719 or equivalent and operate gate through several up-down cycles. Rotate regulator and hinge arm assembly at attaching location to body, if necessary, to maintain proper tail gate up-travel.

NOTE: On manual tail gates, if original location of regulator and hinge assembly is changed, the torque rod block-out should be readjusted. (Refer tail gate torque rod-adjustment).

TAIL GATE LIFT ARM HINGE AND REGULATOR ASSEMBLY MOTOR

Removal and Installation

1. With tail gate fully lowered, remove left quarter rear trim panel.
2. Relieve tail gate torque rod at torque rod retainer with tool J-23719 or equivalent (Fig. 9-23).
3. Detach wire harness at motor terminal and remove motor-to-regulator attaching bolts. Remove motor (Fig. 9-22).
4. To install, reverse the removal procedure.

TAIL GATE STRIKER ASSEMBLY

Removal and Installation

1. Remove tail gate inner cover panel as previously described.

2. Lower tail gate as far as possible without obscuring tail gate inner panel access hole.
3. Secure striker assembly on tail gate exterior with an extension magnet or looped cord.
4. Through access hole in tail gate inner panel, remove striker assembly bolt and striker pin jamb nut and washer (Fig. 9-24).
5. Withdraw striker assembly through gap between tail gate and body opening.
6. To install, reverse the removal procedure.

Adjustments

The tail gate striker is adjustable up-down and fore-aft. The striker pin is threaded into the striker plate and is adjustable cross-body. All striker adjustments are made through the access hole in the tail gate inner panel.

To adjust the striker cross-body for proper engagement with tail gate lock, proceed as follows:

1. Engage hex end of striker with a suitable wrench and loosen striker pin jamb nut (Fig. 9-24).
2. Rotate striker pin for desired relationship with lock.

NOTE: Striker pin head-to-lock bolt clearance should be 1/16" minimum.

3. While holding hex end of striker in desired position, tighten striker pin jamb nut.

To adjust striker fore-aft or up-down, proceed as follows:

1. With tail gate fully closed loosen striker pin jamb nut as previously explained (Fig. 9-24).
2. Loosen striker assembly bolt.
3. Move tail gate fore-aft to position striker and/or move striker assembly up-down for proper influence on lock bolt.
4. Tighten striker pin jamb nut and striker assembly bolt.

TAIL GATE LOCK ASSEMBLY

Removal and Installation

1. Raise tail gate window and lower tail gate.
2. Remove spare tire cover and spare tire.

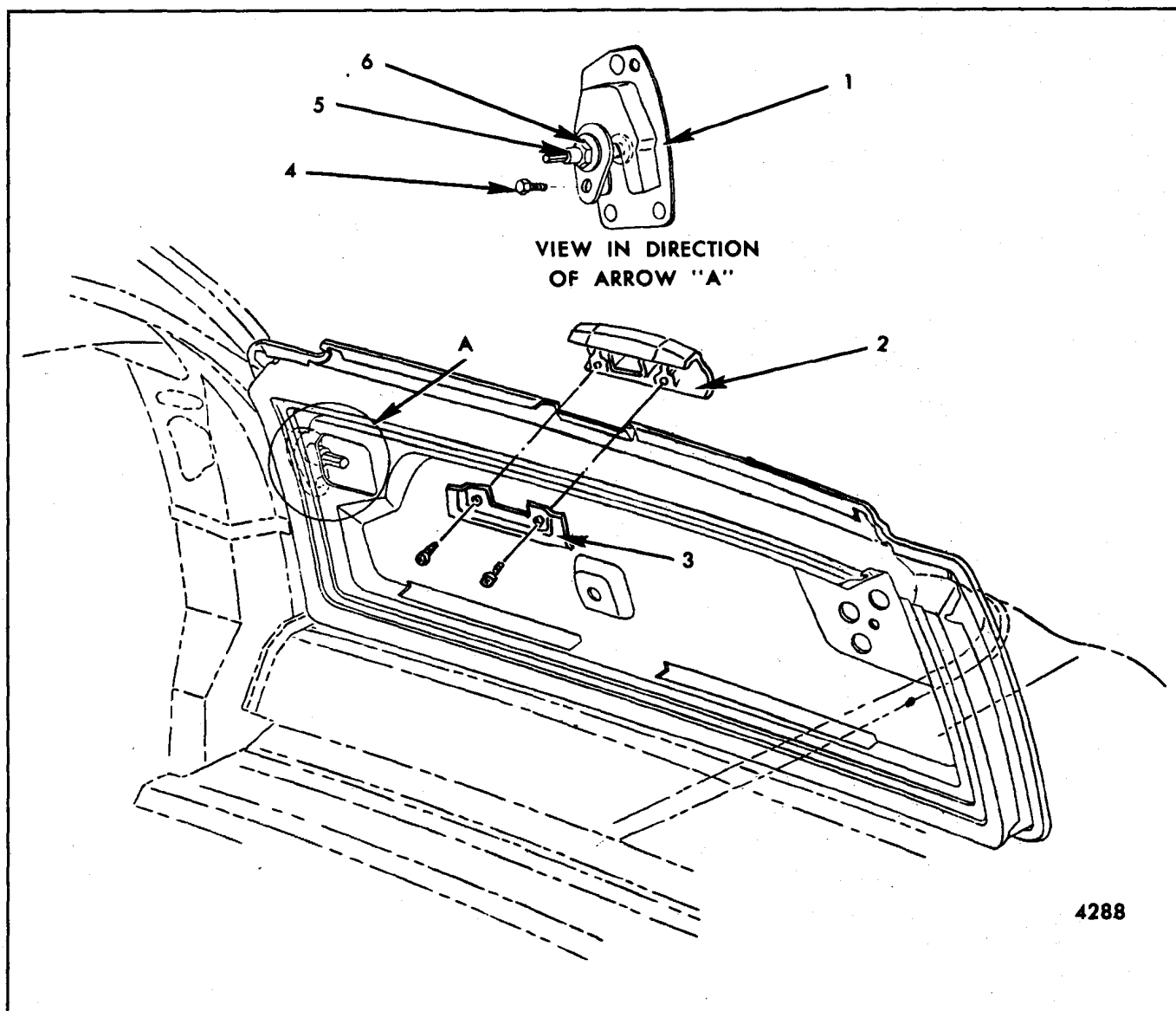


Fig. 9-24-Tail Gate Lock Striker and Grip Handle Assemblies

- | | |
|----------------------|--------------------------|
| 1. Lock Assembly | 4. Striker Assembly Bolt |
| 2. Grip Handle | 5. Striker Pin |
| 3. Grip Handle Cover | 6. Striker Pin Jamb Nut |

3. Working around right pillar inner panel, disengage tail gate window stop cable and switch assembly link at lock lever (Fig. 9-25).

4. Remove lock attaching bolts at pillar facing, disengage lock lever from switch assembly link and remove lock (Fig. 9-26).

5. To install, reverse the removal procedure.

TAIL GATE OUTER PANEL GRIP HANDLE - (MANUAL TAIL GATE ONLY)

Removal and Installation

1. Remove screws securing tail gate outer panel grip handle and cover. Remove handle (Fig. 9-24).

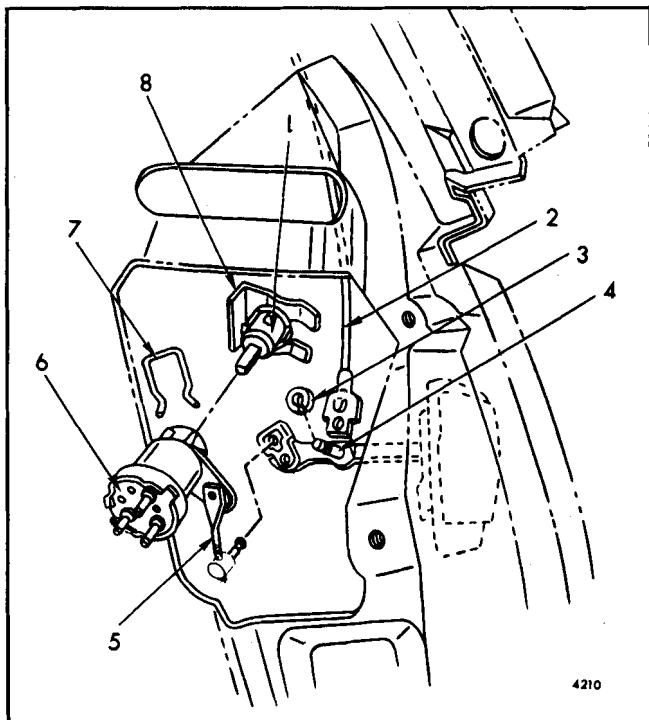


Fig. 9-25-Lock and Release Switch Assembly

- | | |
|---|--------------------------------------|
| 1. Lock Cylinder | 6. Lock and Release Switch Assembly |
| 2. Window Stop Cable | 7. Switch-to-Cylinder Retaining Clip |
| 3. Window Stop Cable Retaining Clip | 8. Lock Cylinder Retaining Clip |
| 4. Lock Lever | |
| 5. Switch-to-Lock Lever Link and Swivel | |

TAIL GATE ADJUSTMENTS

The retractable tail gate is adjustable up-down, fore-aft and laterally within its body opening (Fig. 9-27). All tail gate adjustments may be completed without removal of the rear bumper face bar and body rear upper housing. The covered openings in the body rear lower housing on each side (Fig. 9-5) provide access for adjustment provisions confined within the tail gate storage area.

CAUTION: When conducting tail gate service operations through the access openings in the body rear lower housing (Fig. 9-5), place body tape over the tail gate operating key cylinder to prevent inadvertent lowering of the tail gate.

Up-down adjustment of the tail gate is controlled chiefly by the positioning of the tail gate striker assembly. To complete the up-down adjustment, proceed as follows:

1. With tail gate fully closed remove inner cover panel for access to striker attaching provisions (Fig. 9-24).

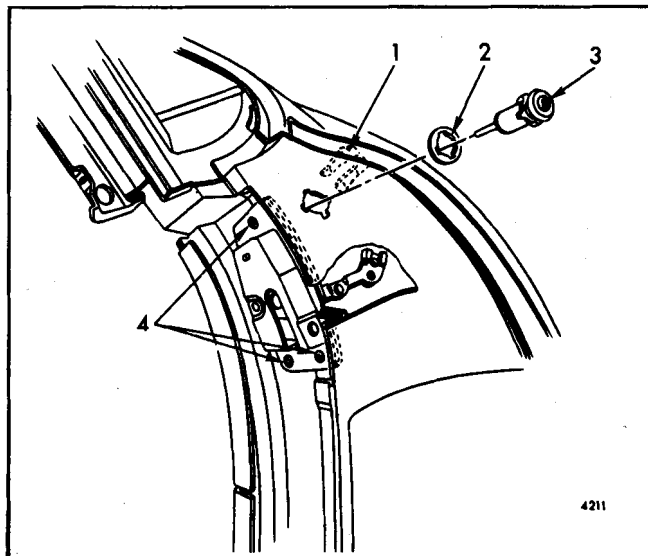


Fig. 9-26-Lock and Lock Cylinder Attachment

- | | |
|-------------------------|-----------------------------------|
| 1. Lock Cylinder | 3. Lock Cylinder Retainer |
| 2. Lock Cylinder Gasket | 4. Lock Assembly Attaching Screws |

2. Hold striker pin hex end and loosen striker jamb nut. Loosen striker assembly attaching bolt.
3. Position tail gate to desired height, move striker assembly to full engagement with lock bolt and tighten striker assembly.

To correct a cocked tail gate condition, close tail gate and loosen striker assembly. Through access hole in body rear lower housing, loosen the right hand roller support-to-roller shaft nut (Fig. 9-19). Position tail gate and tighten subject nut. Complete striker assembly adjustment.

Fore-aft adjustment of the tail gate is attained by positioning the tail gate guide channel assemblies for correcting the bottom of the tail gate and/or positioning the striker assembly and regulator lift arm and hinge assembly for correcting the top of the tail gate.

To correct bottom of tail gate fore-aft proceed as follows:

1. With tail gate fully closed remove rear body lower housing access cover on affected side (Fig. 9-5).
2. Loosen tail gate guide channel attaching screws.
3. Reposition tail gate fore-aft and tighten guide channel attaching screws.

To correct top of tail gate fore-aft, proceed as follows:

1. Right side

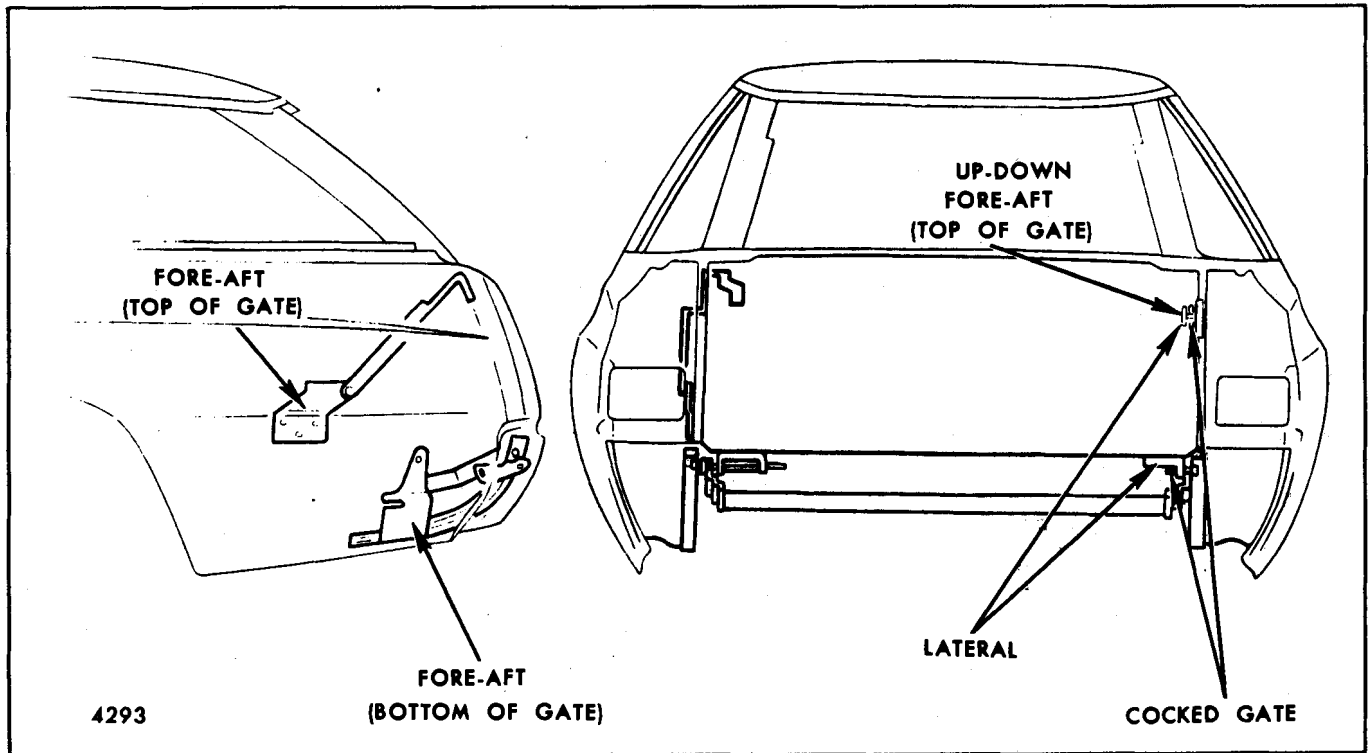


Fig. 9-27-Location of Tail Gate Adjustment Provisions

- A. Gain access to striker assembly and loosen striker pin jamb nut and striker assembly bolt (Fig. 9-24).
 - B. Position tail gate fore-aft and tighten striker assembly.
2. Left side
 - A. Gain access to lift arm and hinge assembly and loosen assembly attaching bolts (Fig. 9-22).
 - B. Position tail gate fore-aft and tighten lift arm and hinge assembly attaching bolts.

Lateral adjustment of the tail gate is allowed by the elongated attaching bolt holes in the lower right roller support (Fig. 9-18). A corresponding lateral adjustment of the striker assembly is required.

1. With tail gate fully closed remove body rear lower housing access cover (right side) (Fig. 9-5).
2. Loosen lower right roller support attaching screws (Fig. 9-19).
3. Position tail gate laterally and tighten roller support attaching screws.
4. Gain access to striker assembly and adjust striker pin to 1/16" striker head-to-lock bolt clearance.

TAIL GATE AND WINDOW CONTROL SWITCH

The tail gate and window control switch mounted on the rear of the right quarter outer panel adjacent to the tail gate is a combination of lock cylinder and control switch. Two control switches are used; one for the manual tail gate which includes a link to the lock lever, and one for the power operated tail gate (without link). Figure 9-25 is typical of the clip method by which both manual and power operated tail gate switches are retained to the lock cylinder.

Removal and Installation (Control Switch Only)

1. Remove spare tire cover and spare tire.
2. Remove tail gate window regulator as previously explained.
3. Disengage wire harness terminal block off control switch - manual or power (Fig. 9-25).
4. On manual tail gate control switches, disengage control switch-to-lock lever link. On all switches remove wire clip securing control switch to lock cylinder and remove control switch (Fig. 9-25).
5. To install reverse the removal procedure.

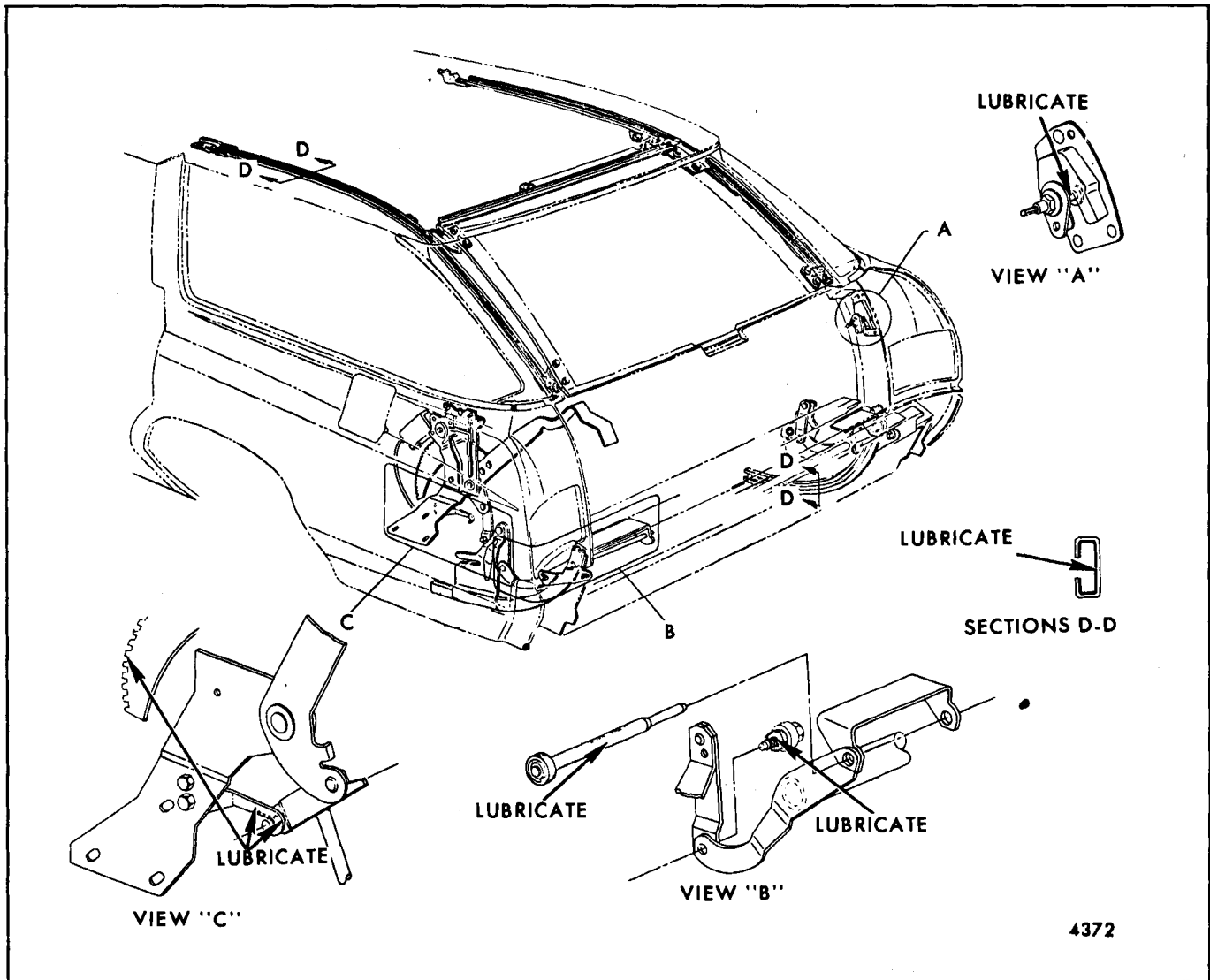


Fig. 9-28-Retractable Tail Gate Lubrication

Adjustment (Control Switch-to-Lock Lever Link) - (Manual Gates Only)

1. With key cylinder in centered (vertical) position, withdraw key sufficiently to render cylinder inoperative.
2. Assure that tail gate lock is in unlatched position (lock lever down).
3. Move switch-to-lock lever link to full down position (against stop).
4. Adjust swivel on switch-to-lock lever link to align with clip hole on lock lever and engage swivel (Fig. 9-25).
5. Reinsert key and check operation of lock release.

NOTE: Check operation of window stop cable and clip assembly. (Refer to "Adjustment" - window stop cable and clip assembly).

TAIL GATE WINDOW CONTROL SWITCH LOCK CYLINDER

Removal and Installation

1. Remove control switch as previously explained.
2. Remove key cylinder retaining clip and remove cylinder (Fig. 9-26).
3. To install, reverse the removal procedure.

RETRACTABLE TAIL GATE LUBRICATION

Description

All mechanical components that have relative motion with other parts are lubricated during assembly. If additional lubrication is required the specified materials or their equivalents as stated here should be used.

The following tail gate and window components should be lubricated when required with a thin coat of white lithium soap grease (Fiske Bros. Lo-Temp

Lubriplate No. 777 or equivalent) as shown in Fig. 9-28.

1. Tail gate lock fork bolt (View "A").
2. Torque roller shaft and synchronizing torque shaft-to-link shoulder bolt (View "B").
3. Torque rod and torque rod block-out (View "C").
4. Window guide cams and tail gate guide channels (Section D-D).

DUAL ACTING TAIL GATES

DESCRIPTION

The dual-acting tail gate incorporates a unique hinge and locking arrangement that allows the tail gate to be operated in the conventional manner and, additionally, as a door. All wagons so equipped utilize either a manually or electrically operated window that can be lowered into the gate or raised into the back body opening. The manual window is operated by a regulator control handle located in the tail gate outer panel. The power window can be operated by any one of three control switches; one on the instrument panel, one at the lock cylinder on tail gate outer panel (key operated) and one on the wheelhouse cover panel (optional - down only). All styles using a power tail gate window are equipped with an electrical switch that prevents movement of the window with gate in any position other than fully closed.

The tail gate is unlocked to "gate position" by means of a remote control inside handle located in the top center of gate inner panel. Unlocking to "door position" is accomplished with an inside handle located at top right side of inner panel. The tail gate cannot be opened in either direction, however, until the window has been fully lowered. All tail gates are counter-balanced by a torque rod that assists in reducing the effort required to open or close the tail gate.

IMPORTANT: FOLLOWING ANY REPLACEMENT OR REALIGNMENT OF THE TAIL GATE, OR COMPONENT HARDWARE, ALL LOCKS MUST BE CHECKED FOR SYNCHRONIZATION (REFER TO LOCK SYNCHRONIZATION CHECKS AND PROCEDURE).

All dual-acting tail gates employ a "hang-on" type inner panel cover that attaches over the top of the tail gate inner panel and is further secured by a series of screws. This cover can be readily removed with gate in either the open or closed position.

Figure 9-29 identifies the component parts of a typical dual-acting tail gate and their relationship.

TAIL GATE INNER PANEL WATER DEFLECTOR

A waterproof paper deflector is sealed against the tail gate inner panel to deflect water toward the bottom of the gate and out the drain holes.

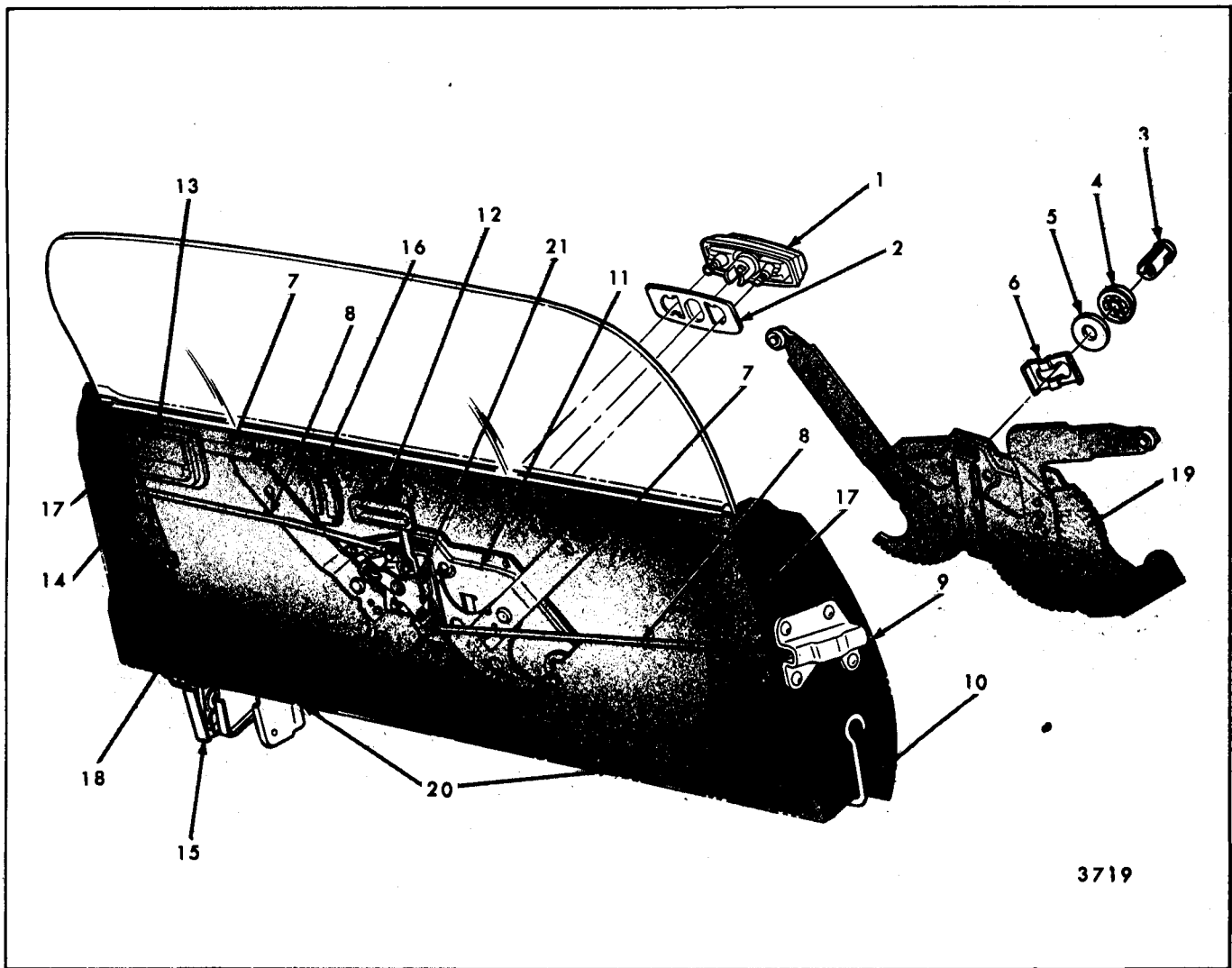
IMPORTANT: When work is performed on the tail gate that requires any detachment of the water deflector, it must be properly resealed to the inner panel.

Removal

1. Remove tail gate inner panel cover.
2. Using a flat-bladed tool, carefully break bond securing water deflector to inner panel. Make sure string, located within sealer, is against water deflector and carefully slide tool between sealer and inner panel along both sides, top and bottom to disengage deflector from inner panel. If the entire deflector need not be removed, detach only that portion necessary.

Installation

1. Inspect deflector and repair any damage noted with waterproof body tape applied to both sides.
2. If a new deflector is to be installed, use old deflector as a template.
3. If needed, apply a bead of body caulking compound (approximately 3/16" diameter) to tail gate inner panel (See Fig. 9-30). The inner panel cover attaching screw holes should also be sealed with body caulking compound.



3719

Fig. 9-29-Dual Acting Tail Gate Hardware (Typical)

- | | | | |
|----------------------------|---------------------------------------|---|--|
| 1. Outside Handle (Manual) | 7. Sash Channel Cam | 12. Inside Remote Gate Handle | 17. Lower Glass Run Channels |
| 2. Gasket | 8. Remote Control Connecting Rod | 13. Inside Door Handle and Cable Assembly | 18. Glass Block-Out Rod |
| 3. Lock Cylinder | 9. Left Upper Lock and Hinge Assembly | 14. Right Upper Lock | 19. Regulator Electrical |
| 4. Electrical Feed Block | 10. Torque Rod | 15. Right Lower Lock and Cover Assembly | 20. Sealing Strip |
| 5. Gasket | 11. Regulator - Manual | 16. Glass Stabilizer | 21. Remote Control Assembly (Gate Operation) |
| 6. Lock Cylinder Retainer | | | |

4. Position water deflector to tail gate with polyethylene coated side (black) against inner panel. Firmly press sealed areas to obtain a good bond between deflector and inner panel.

TAIL GATE INNER PANEL ACCESS HOLE COVERS

Removal and Installation

1. Remove tail gate inner panel cover and water deflector.

2. Remove upper screws securing right and left access hole covers to tail gate inner panel and remove covers by sliding upward (See Fig. 9-31).

TAIL GATE BOTTOM DRAIN HOLE SEALING STRIPS

Removal and Installation

1. With a flat-bladed tool carefully pry out snap-on fastener at each end of strip and remove sealing strip from tail gate.

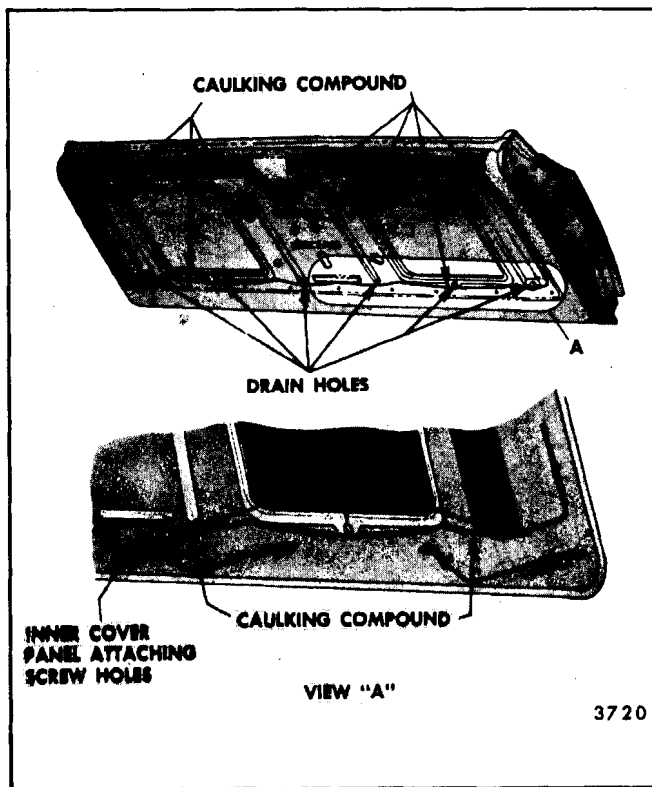


Fig. 9-30-Tail Gate Sealing

2. To install sealing strips, reverse removal procedure. To prevent strip from adhering to the tail gate panel and blocking the drain holes, apply a sparing amount of silicone rubber lubricant on the center section of the sealing strip (See Illustration under "Front and Rear Door Bottom Drain Hole Sealing Strips").

TAIL GATE OPENING WEATHERSTRIP

Removal and Installation

1. Open tail gate and remove fasteners and/or screws securing upper corners of weatherstrip to right and left body pillars (Fig. 9-32).
2. With a flat-bladed tool, carefully remove weatherstrip along entire tail gate opening.
3. To install original part, apply a bead of black weatherstrip cement into retainer along entire opening and reverse removal procedure. Replacement parts are serviced in two separate pieces, right and left. When installing a new weatherstrip, begin at beltline (on both side) and work to bottom center. Cut off excess weatherstrip and form a butt joint.

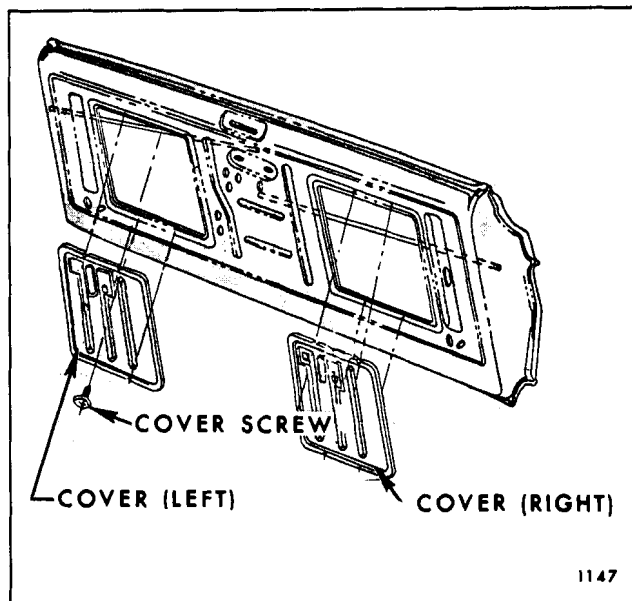


Fig. 9-31-Tail Gate Inner Panel Access Hole Cover

TAIL GATE WINDOW UPPER GLASS RUN CHANNEL

Removal and Installation

1. Open tail gate and disengage clip at bottom of run channel on side to be removed. With finger pressure only, squeeze run channel at one end and pull channel out of retainer.
2. Once run channel has been removed, the retainer attaching screws are exposed (See Fig. 9-33). The retainer can be adjusted by loosening attaching screws, shifting retainer to desired position and tightening screws. If retainer is removed, seal retainer with medium bodied sealer prior to installation.
3. To install, reverse removal procedure.

TAIL GATE WINDOW LOWER GLASS RUN CHANNELS

Removal and Installation

1. Remove tail gate window assembly as subsequently described.
2. Remove upper attaching bolt - accessible at lock pillar outer panel.
3. Remove lower attaching bolt - accessible through inner panel access hole (Fig. 9-34).

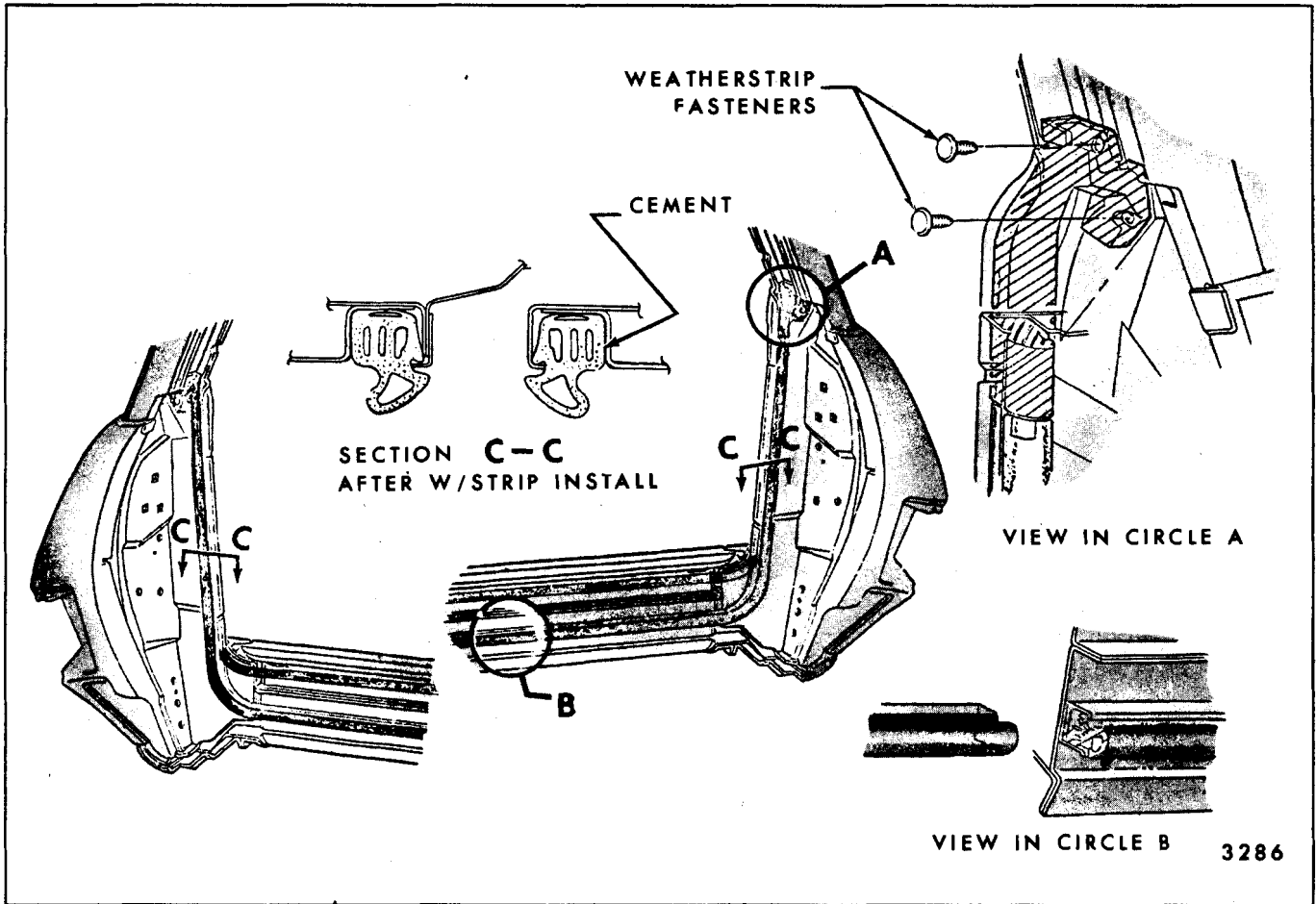


Fig. 9-32-Tail Gate Weatherstrip Installation

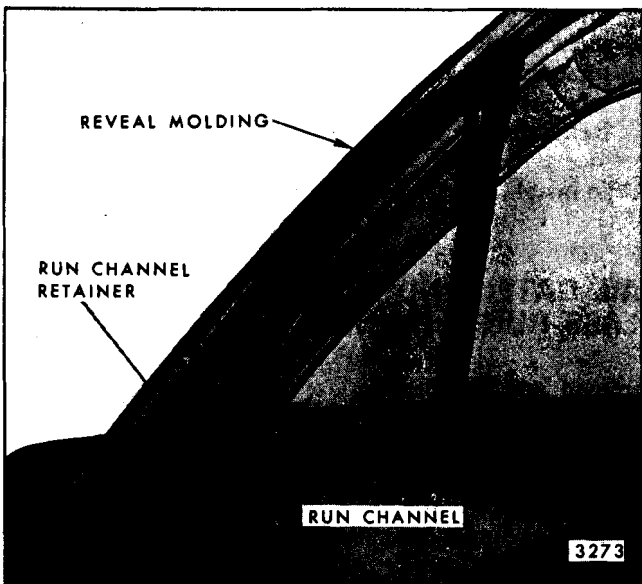


Fig. 9-33-Tail Gate Upper Glass Run Channel Retention

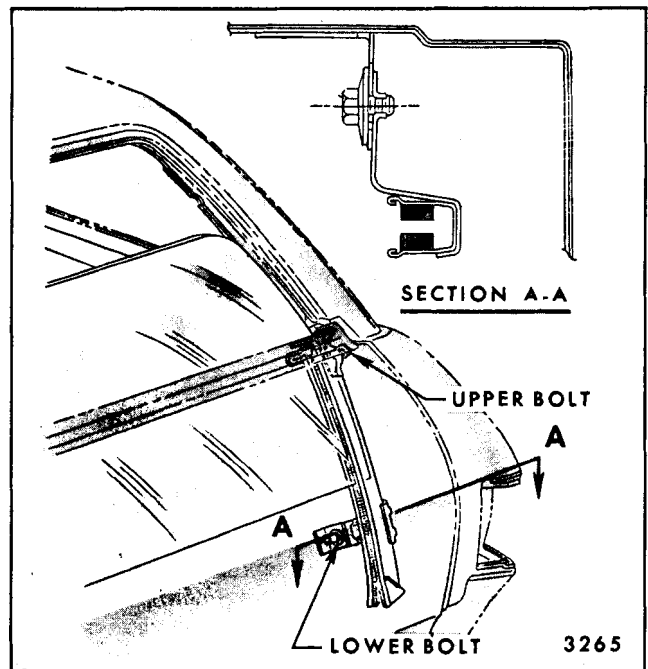


Fig. 9-34-Tail Gate Lower Glass Run Channel Attachment

- Turn run channel 90 degrees and pull run channel(s) down into tail gate and remove through glass opening.
- To install, reverse removal procedure.

TAIL GATE WINDOW REGULATOR - Manual and Electric

Removal and Installation

- Remove tail gate window assembly as subsequently described.
- On styles equipped with a power operated tail gate window assembly, disconnect electric harness at regulator motor connector.
- Remove bolts securing regulator to support and remove regulator, with motor attached, from tail gate (Refer to Fig. 9-29).
- To install, reverse removal procedure.

Adjustment

The regulator attaching holes in the tail gate inner panel are oversize to permit movement of the regulator assembly to correct a "cocked" window (not parallel with the tail gate window upper run channel).

TAIL GATE WINDOW ELECTRIC REGULATOR MOTOR ASSEMBLY

Removal

- Open tail gate and remove tail gate inner cover panel. If necessary, cover can be removed with gate in the closed position.
- Detach inner panel water deflector and remove left access hole cover.
- Disconnect wire harness connector from motor.

NOTE: In the event a power operated window motor fails with tail gate closed and glass in the closed (up) position, remove window sash channel cams and manually lower glass to bottom of gate.

CAUTION: Step 4 **MUST** be performed if the window is removed or disengaged from the regulator lift arms. The regulator lift arms, are under tension from the counter-balance spring, and can cause serious injury if the motor is removed without locking the sector gears in position.

- Drill a 1/8" hole through regulator sector gear and back plate (Fig. 9-35). Do NOT drill hole closer than 1/2" to edge of sector gear or back plate. Install a pan head sheet metal tapping screw (No. 10-12 x 5/8) in drilled hole to lock sector gears in position.
- Remove regulator motor attaching screws and remove motor assembly from regulator and tail gate.

Installation

- Lubricate the motor drive gear and regulator sector teeth.

NOTE: The lubrication used must be cold weather approved to a minimum of minus 20 degrees fahrenheit.

- With tail gate in an open position, install regulator motor to regulator. Make sure the motor pinion gear teeth mesh properly with the sector gear teeth before installing the three motor attaching screws.
- Remove screw locking sector gears in a fixed position.
- Connect wire harness to motor and cycle tail gate window prior to installation of inner panel access hole cover, water deflector and cover panel.

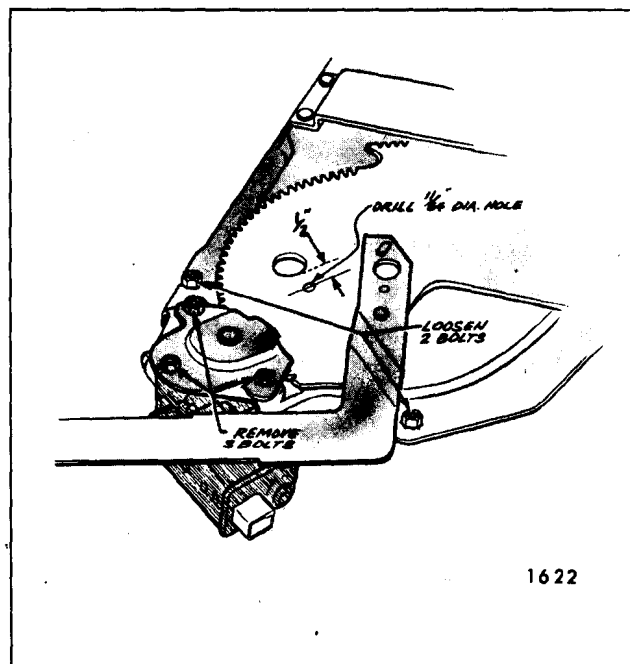


Fig. 9-35-Tail Gate Regulator Motor Assembly

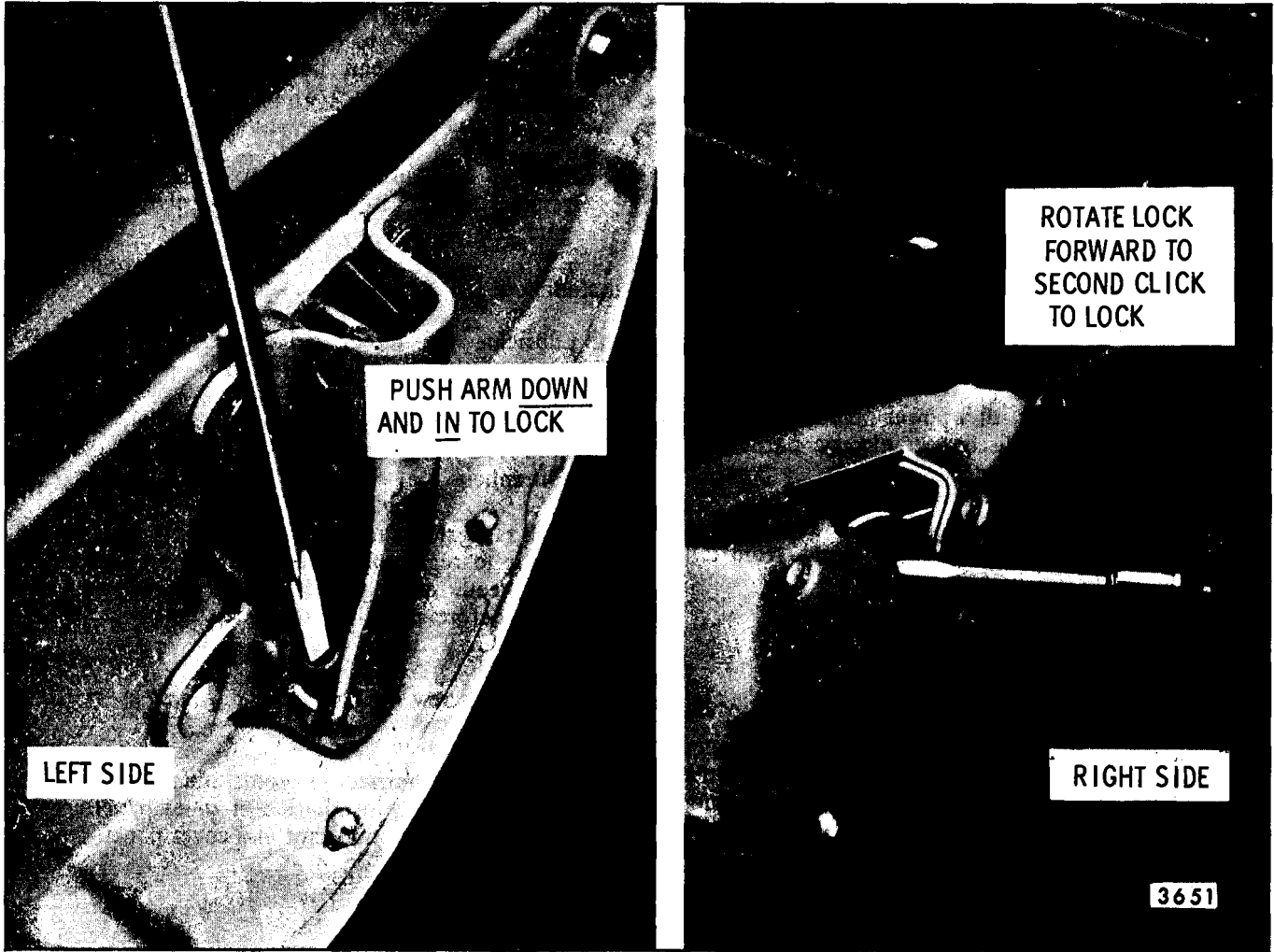


Fig. 9-36-Dual Acting Tail Gate Right and Left Upper Lock Manual Locking

TAIL GATE CUT-OUT SWITCH

Description

All dual acting tail gates equipped with a power operated window utilize an electrical cut-out switch which prevents upward movement of the glass with tail gate in any position other than fully closed.

NOTE: In the event the tail gate cut-out switch fails with gate closed and glass in the fully lowered (open) position, refer to Dual Acting Tail Gate Diagnosis Chart for procedures to raise glass.

Removal

1. With the tail gate open in a gate position, remove tail gate inner panel cover, water deflector and right access hole cover as previously described.
2. With glass supported in a full-up position, manually lock right upper lock as shown in Figure 9-36.

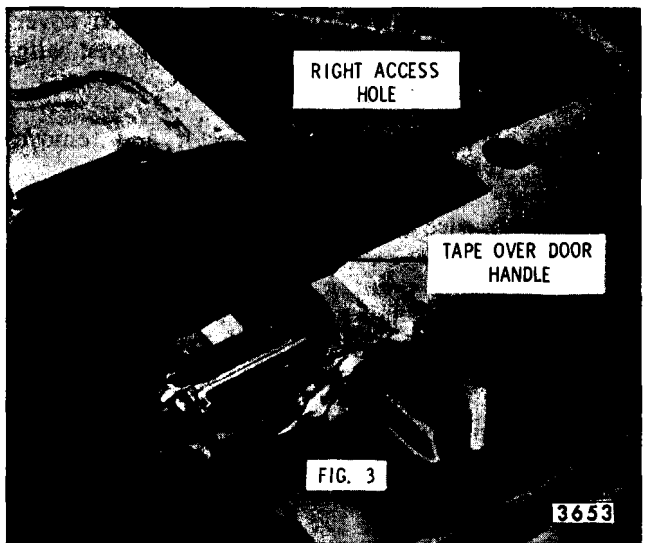


Fig. 9-37-Inside Handle (Door Operation) Taped

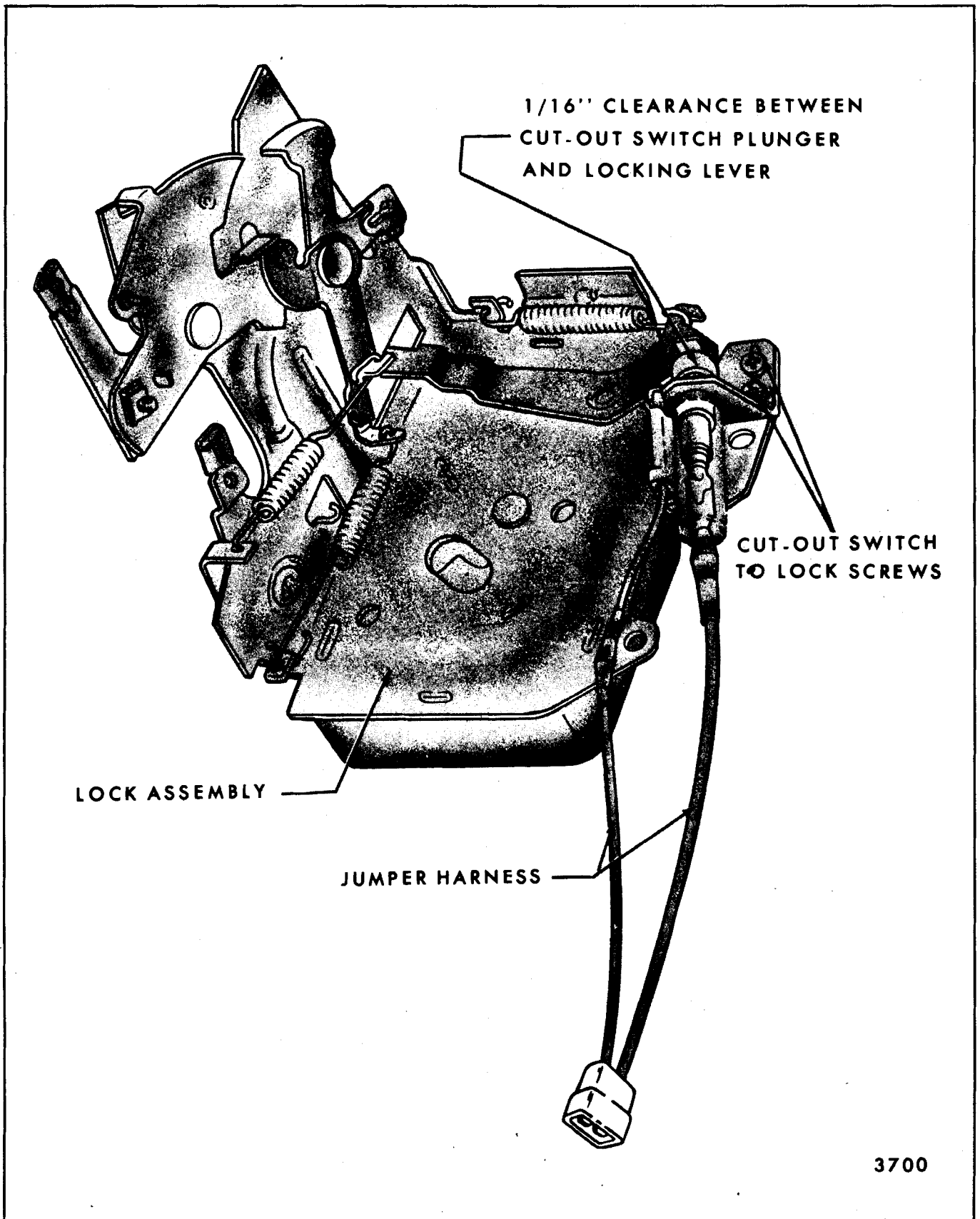


Fig. 9-38-Tail Gate Electrical Cut-Out Switch

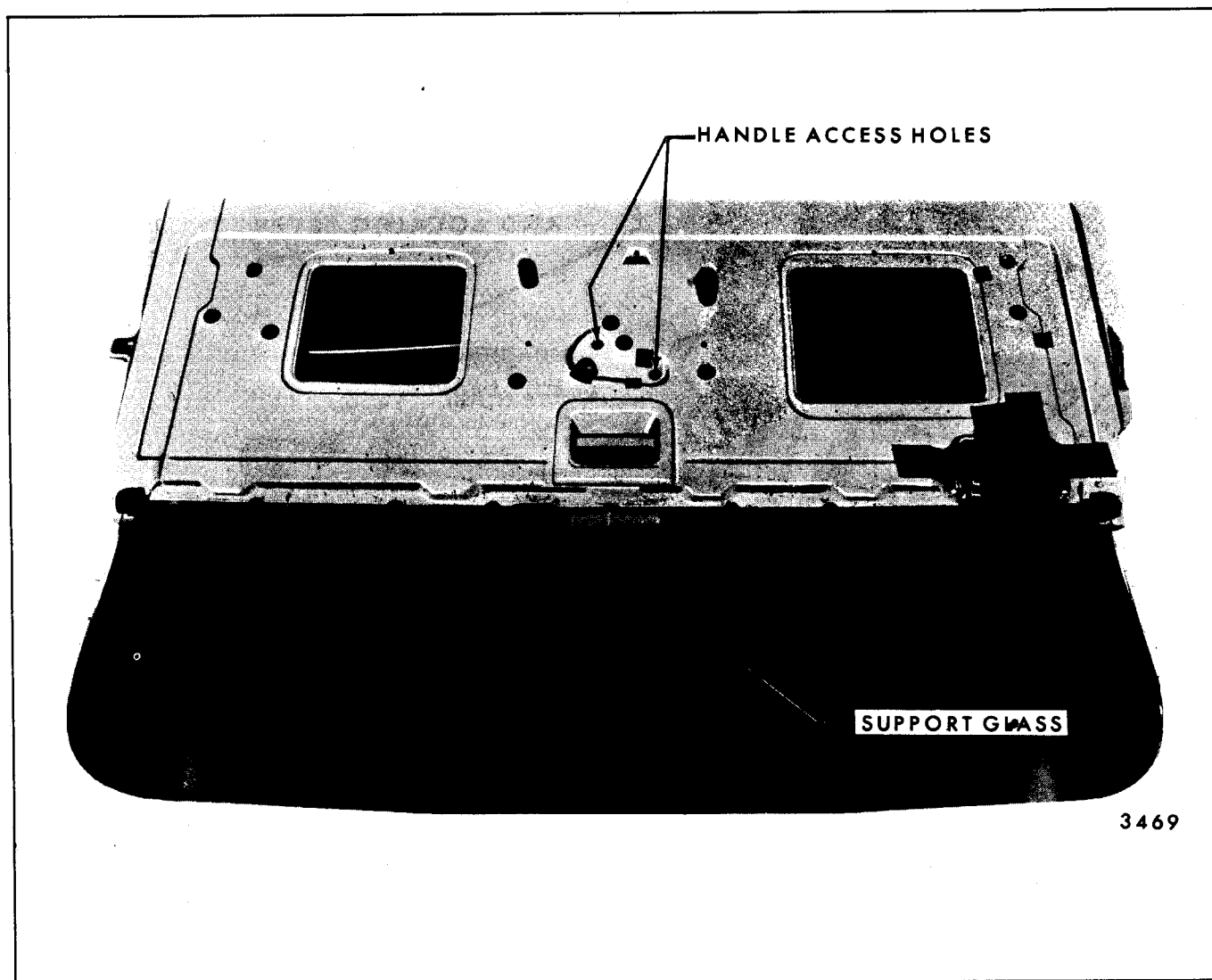


Fig. 9-39-Tail Gate Window Outside Handle Removal

CAUTION: With tail gate open and right upper lock engaged, the tail gate has been placed in a vulnerable position and could drop from the right lower lock if inside door remote handle were actuated which could result in personal injury or damage to the tail gate assembly. As a safety precaution, prior to manually locking either right or left upper locks, apply body tape over inside door remote handle to render same inoperable (Fig. 9-37).

3. Remove screws securing switch to right upper lock as shown in Figure 9-38. Disconnect electrical connector and remove switch through access hole.

Installation

1. Connect electrical connector and loosely attach switch to lock assembly.
2. With right upper lock in a locked position, adjust

switch to achieve a 1/16" clearance between the cut-out switch plunger and the locking lever (See Figure 9-38).

IMPORTANT: The adjustment specified in Step No. 2 is absolutely necessary to insure proper operation of switch.

3. Following proper adjustment of cut-out switch, secure attaching screws and cycle tail gate window and gate to insure proper operation prior to installation of cover panel and water deflector.

TAIL GATE WINDOW REGULATOR MANUAL OUTSIDE HANDLE

Removal and Installation

1. Open tail gate in door position.
2. Remove inner panel cover, water deflector and one access hole cover.

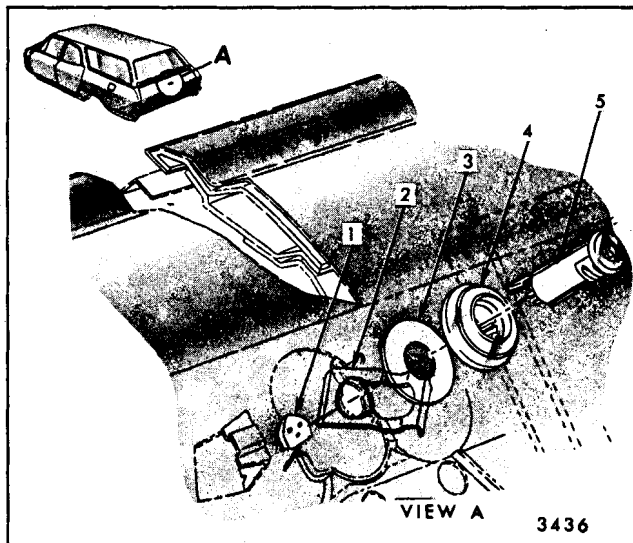


Fig. 9-40-Dual Gate Electric Key Switch and Cylinder Removal

- | | |
|---------------|--|
| 1. Feed Block | 4. Escutcheon |
| 2. Retainer | 5. Key Switch and
Cylinder Assembly |
| 3. Gasket | |

3. Position tail gate window so that outside handle (manual) attaching nuts are accessible through gate inner panel and window regulator access holes (Fig. 9-39).
4. Remove nuts securing handle to tail gate and remove handle and sealing gasket.
5. To install, reverse removal procedure.

TAIL GATE WINDOW REGULATOR OUTSIDE ELECTRIC KEY SWITCH

Removal and Installation

1. Open tail gate in door position.
2. Remove inner panel cover, water deflector and access hole covers.
3. Remove tail gate window assembly and loosen tail gate window regulator so that key switch retainer is accessible through tail gate inner panel.

NOTE: To remove a power operated tail gate window, refer to "Tail Gate Window" in this section. Carefully read the CAUTION note.

4. Slide retainer free of key switch and remove switch (Fig. 9-40).
5. To install, reverse removal procedure.

TAIL GATE WINDOW ASSEMBLY-MANUAL OR ELECTRIC

The tail gate window assembly consists of a solid tempered safety plate window and a pressed-on lower sash channel which includes bolt-on lower sash channel cams at the right and left side. With this design, the tail gate glass and sash channel are removed from the gate as a unit and replacement glasses installed as a bench operation.

Removal and Installation

1. Open tail gate to gate position.
2. Remove tail gate inner panel cover, water deflector and both access hole covers as previously described.
3. Operate tail gate window to a point that sash channel cam attaching bolts are accessible through inner panel (Fig. 9-41).

NOTE: On manually operated tail gate windows, the glass can be raised by simply operating the outside handle. On electrically operated units, however, a switch mounted on the upper right lock assembly prevents window operation with ANY lock in an open position. To operate window, with the gate in an open position, it is first necessary to manually lock both upper locks as follows:

- A. The RIGHT upper lock is engaged by pivoting fork bolt to its full clockwise limits (Fig. 9-36).
- B. The LEFT upper lock is engaged by depressing (with a screwdriver, or other suitable tool) the locking lever to full-engagement (Fig. 9-36).

CAUTION: With tail gate open and locks engaged (as explained in preceding note), the tail gate has been placed in a vulnerable position and could drop from the right lower lock if inside door remote handle were actuated. As a safety precaution, prior to manually locking either right or left upper locks, firmly apply body tape over inside door remote handle to render same inoperable (Fig. 9-37).

4. Remove right and left cam attaching bolts (Fig. 9-41). Slide cams free of regulator lift arm rollers and remove cams from tail gate.
5. Pull window straight out to remove from tail gate.
6. To install, reverse removal procedure.
7. Right and left upper locks can be unlocked by actuating tail gate inside remote handle.

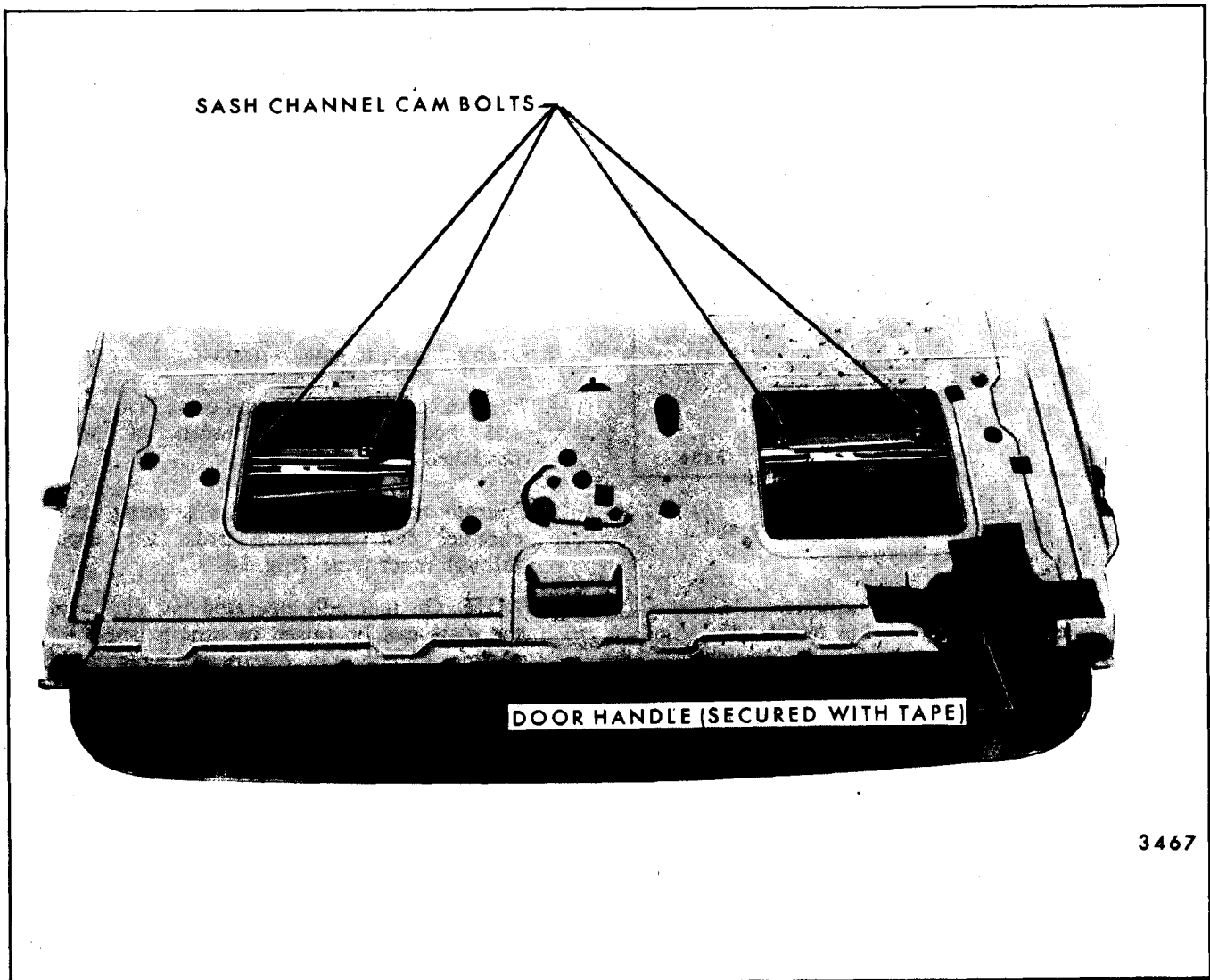


Fig. 9-41-Dual Acting Tail Gate Window Removal

Adjustments

The tail gate glass run channels can be adjusted to relieve a binding glass. To correct a rotated glass condition, loosen window regulator attaching screws and rotate regulator clockwise or counter clockwise as required.

TAIL GATE REMOTE CONTROL INSIDE HANDLE-GATE OPERATION (CENTER)

Removal and Installation

1. Open tail gate to a gate position.
2. Raise inside handle and disengage remote push rod from spring clip (See Fig. 9-42).

3. Remove screws securing handle to inner panel and remove handle (Fig. 9-42).
4. To install, reverse removal procedure.

TAIL GATE INSIDE HANDLE AND CABLE ASSEMBLY-DOOR OPERATION (Right Side)

Removal and Installation

1. Open tail gate in door position.
2. Remove inner panel cover, water deflector and left access hole cover.
3. Disengage handle cable at upper lock clip (Fig. 9-43).

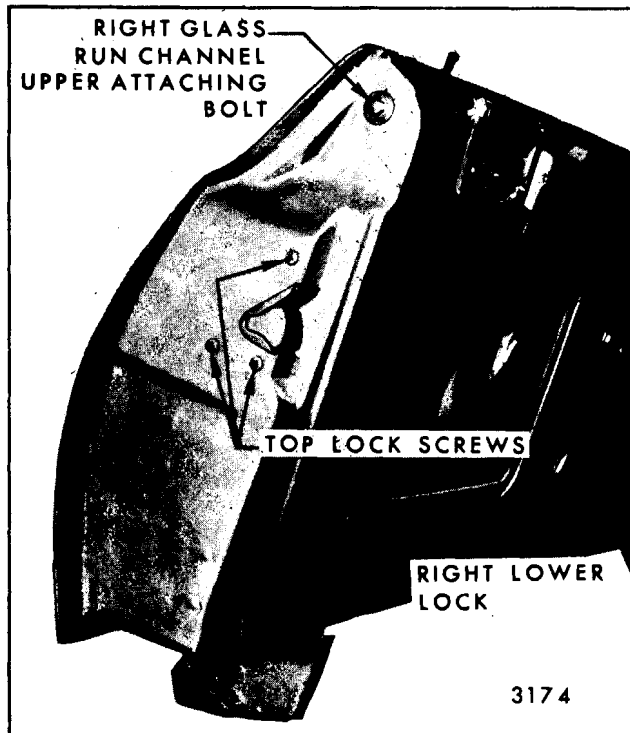


Fig. 9-42-Tail Gate Inside Handle Attachment-Gate Operation

4. Raise inside handle and remove screws securing handle to inner panel and remove handle.
5. To install, reverse removal procedure.

NOTE: Prior to reinstalling inner panel cover, water deflector and access hole cover perform dual acting tail gate lock synchronization checks, as subsequently described.

TAIL GATE LOCK REMOTE CONTROL ASSEMBLY-GATE OPERATION (CENTER)

Removal

1. Open tail gate to gate position.
2. Remove inner panel cover, water deflector and access hole covers.
3. Disconnect remote control to lock connecting rods at remote control assembly by sliding clips out of engagement (Fig. 9-44).
4. Remove remote control to tail gate inner panel attaching bolts (Fig. 9-45).
5. Disengage remote control center handle from push rod and remove remote control and rod assembly (Fig. 9-44).

Installation

1. With tail gate open in a gate position, manually lock upper right and left locks as shown in Figure 9-36.

CAUTION: With tail gate open in a gate position and upper locks engaged, the tail gate has been placed in a vulnerable position and could drop from the right lower lock if the inside DOOR remote handle was actuated. As a safety precaution, prior to manually locking either right or left upper locks, apply body tape over inside door remote handle to render same inoperable (See Fig. 9-37).

2. Loosen gate remote control synchronization (adjusting) screw (left hand thread, refer to Figure 9-46). The adjusting screw is used to insure that right and left locks and gate control push rod are synchronized.
3. Install a small nail or cotter pin in gate remote control synchronization (alignment) holes (Figure 9-46). This pin holds all levers in position until final adjustment has been achieved.

NOTE: Service replacement remote control assemblies are supplied with the cotter pin installed in the alignment hole.

4. Engage remote control with remote control inside handle push rod and install remote control (two bolts) to inner panel.
5. Connect all remote rods and tighten remote synchronization (adjusting) bolt (See Figure 9-49).
6. Remove pin from remote control synchronization (alignment) hole (See Figure 9-49) and actuate tail gate inside remote control handle (gate operation) to unlock upper right and left locks that were manually locked.
7. Remove tape applied over tail gate inside handle (door operation) and perform dual acting tail gate lock synchronization checks, as subsequently described.
8. Reinstall access hole covers, water deflector and inner panel cover.

TAIL GATE RIGHT UPPER LOCK ASSEMBLY-

Removal

1. Remove tail gate window and right lower glass run channels as previously described.

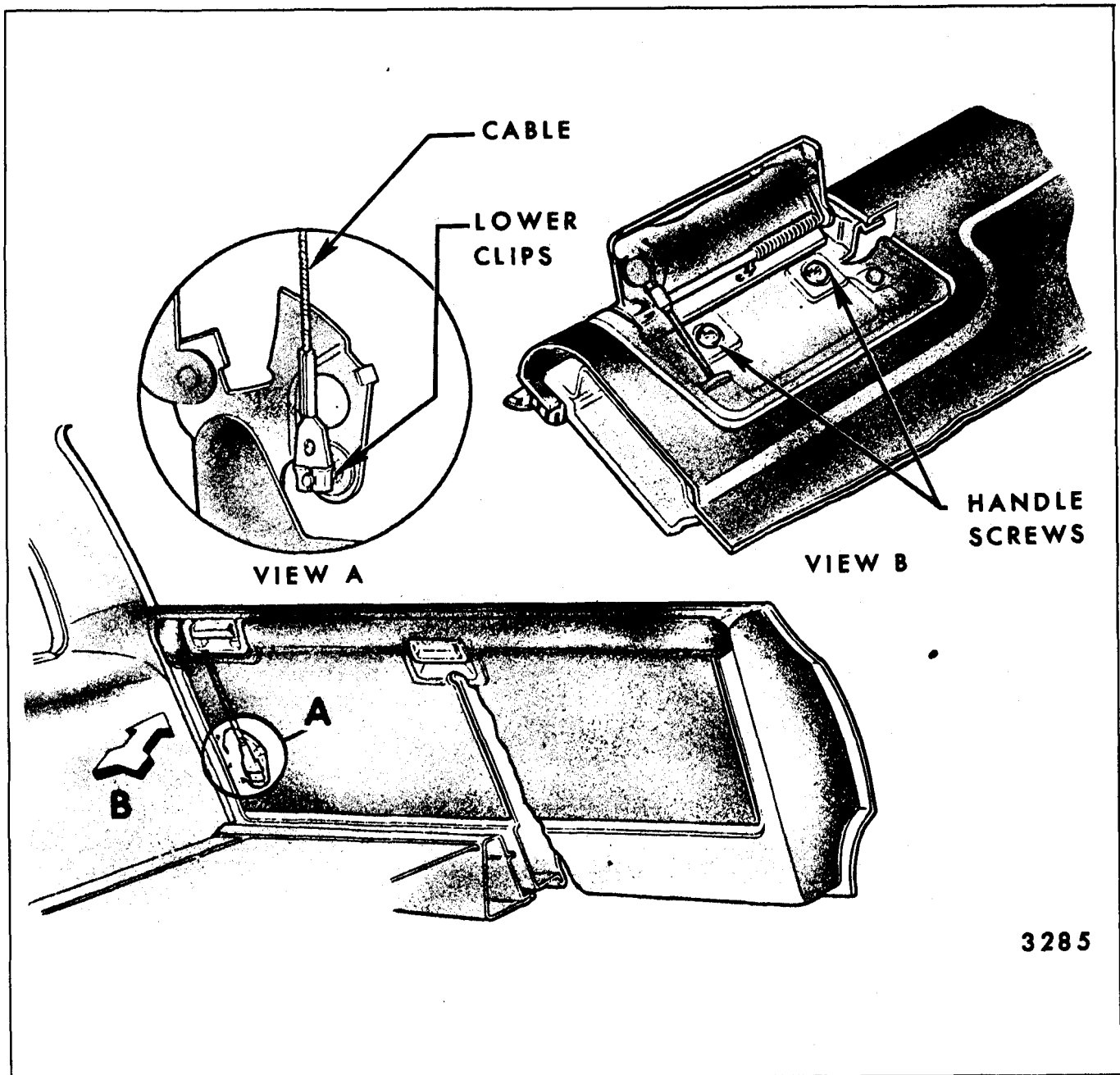


Fig. 9-43-Tail Gate Inside Handle and Cable Assembly-Door Operation

2. With tail gate open in a gate position, remove three screws securing lock to tail gate lock pillar panel (Figure 9-47).
3. Disengage tail gate inside handle cable assembly (door operation) from lock (refer to View "A", Figure 9-43).
4. Disengage clips securing right upper lock to lower lock connecting rod, remote control to upper lock connecting rod and tail gate window "block-out" rod (Figure 9-48).

CAUTION: DO NOT pull rearward on the right upper lock to lower lock connecting rod ("8", Figure 9-48) when disengaging right upper lock from end of rod. Excessive movement of this rod could cause the gate to drop from the right lower lock which could result in personal injury or damage to the tail gate assembly.

5. On electric styles, disconnect tail gate cut-out switch (Figure 9-38) and remove lock assembly through access hole.

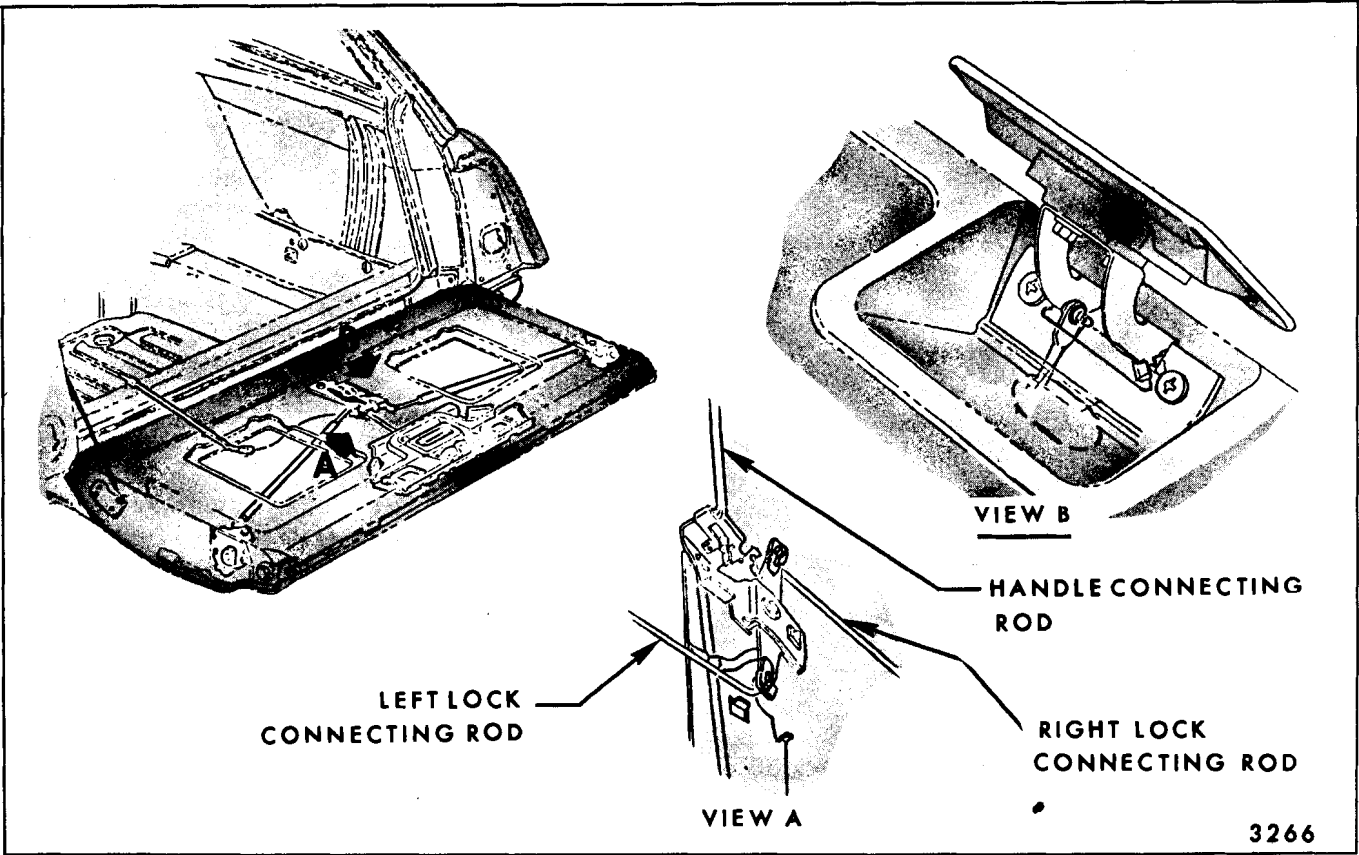


Fig. 9-44-Dual Acting Tail Gate Lock Remote Control Assembly-Gate Operation (center)

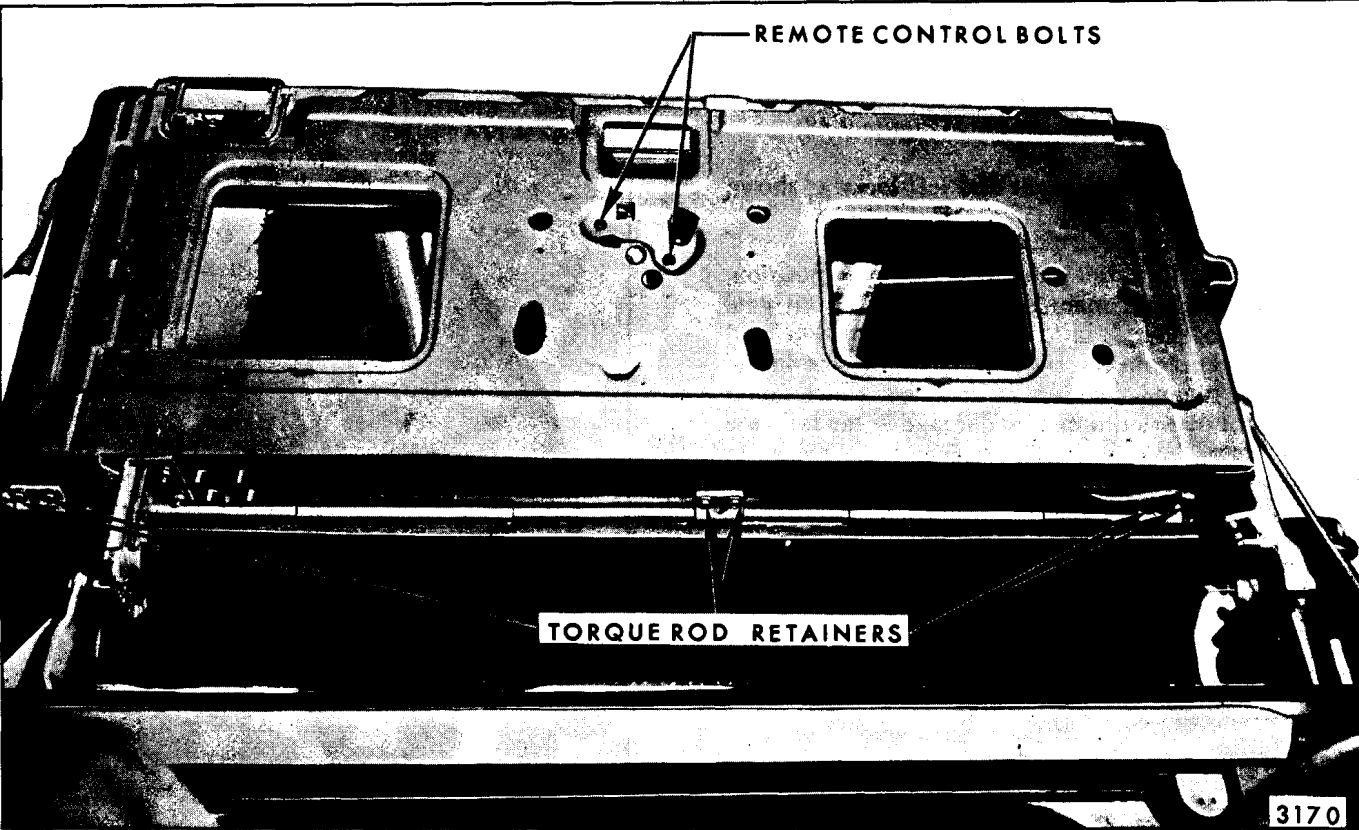


Fig. 9-45-Dual Acting Tail Gate Torque Rod Retention

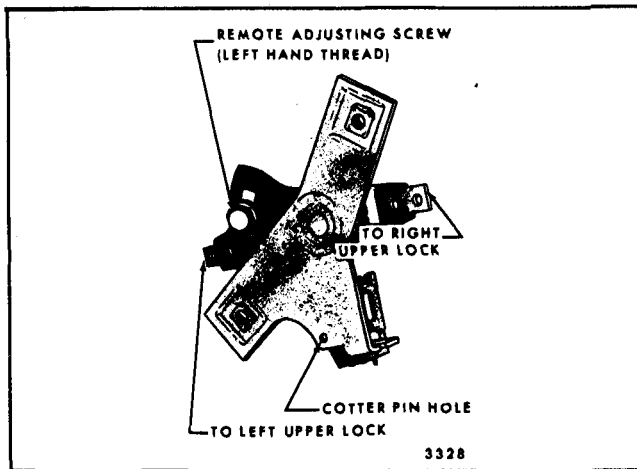


Fig. 9-46-Tail Gate Lock Remote Control-Gate Operation

Installation

1. With tail gate open in a gate position, install screws (three) securing lock to tail gate lock pillar panel (Fig. 9-47).
2. Loosen lower lock to upper lock connecting rod synchronization (adjusting) bolt located on upper lock (Figure 9-49).
3. Engage inside handle and cable assembly, lower lock to upper lock connecting rod, remote control to upper lock connecting rod and block-out rod with right upper lock assembly (Figure 9-48).
4. Manually lock upper right and left locks as shown in Figure 9-36.

CAUTION: With tail gate open, in a gate position, and upper locks manually engaged, the tail gate has been placed in a vulnerable position and could drop from the right lower lock if the inside DOOR remote handle was actuated, which could result in personal injury or damage to the tail gate assembly. As a safety precaution, prior to manually locking either right or left upper locks, apply body tape over inside door remote handle to render same inoperative (See Figure 9-37).

5. With the right lower lock fully engaged with the striker, reach through the access hole and hold the lower to upper lock connecting rod forward (Figure 9-49), then tighten door lock, synchronization bolt (Figure 9-49).

NOTE: This adjustment is self seeking and should automatically synchronize the right upper and lower locks when the synchronizing (adjusting) bolt is loosened. However, to assure that the levers

have automatically assumed their position, it is essential that the upper to lower lock connecting rod be held forward while tightening the synchronizing (adjusting) bolt.

CAUTION: DO NOT pull rearward on the right upper to lower connecting rod during this adjustment. Rearward movement of this rod could cause the tail gate to drop from the right lower lock, which could result in personal injury or damage to the tail gate assembly.

6. With right and left upper locks in a locked position, visually check gate remote synchronization holes in gate remote control levers (center of gate as shown in Figure 9-49). IF THE HOLES DO NOT LINE UP, loosen gate remote synchronization bolt (Figure 9-49) by turning to the right (left hand thread), approximately three turns.
7. With gate synchronization bolt loose, check to make certain there is no bind in remote levers. Align gate remote synchronization holes in remote assembly by inserting a cotter pin through alignment hole in both levers (Figure 9-49). Then, tighten synchronization bolt to 57-87 inch pounds and REMOVE COTTER PIN.

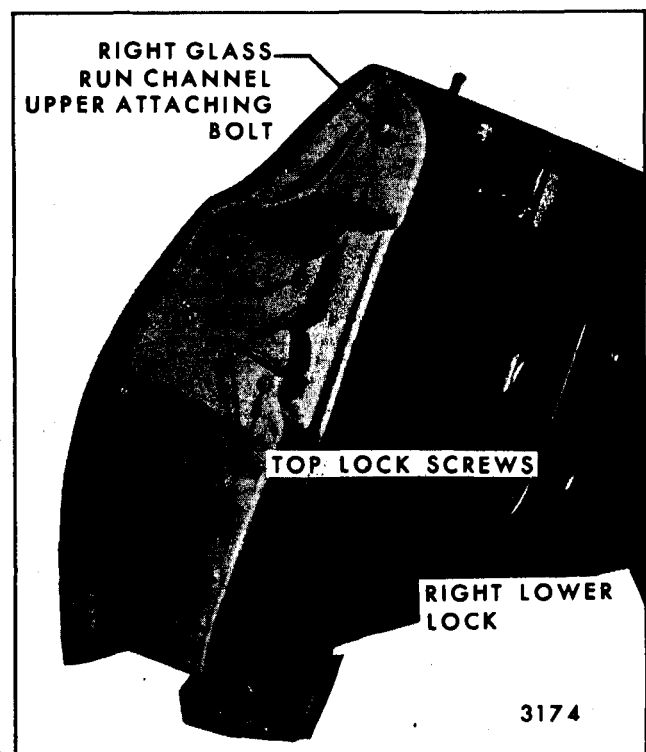
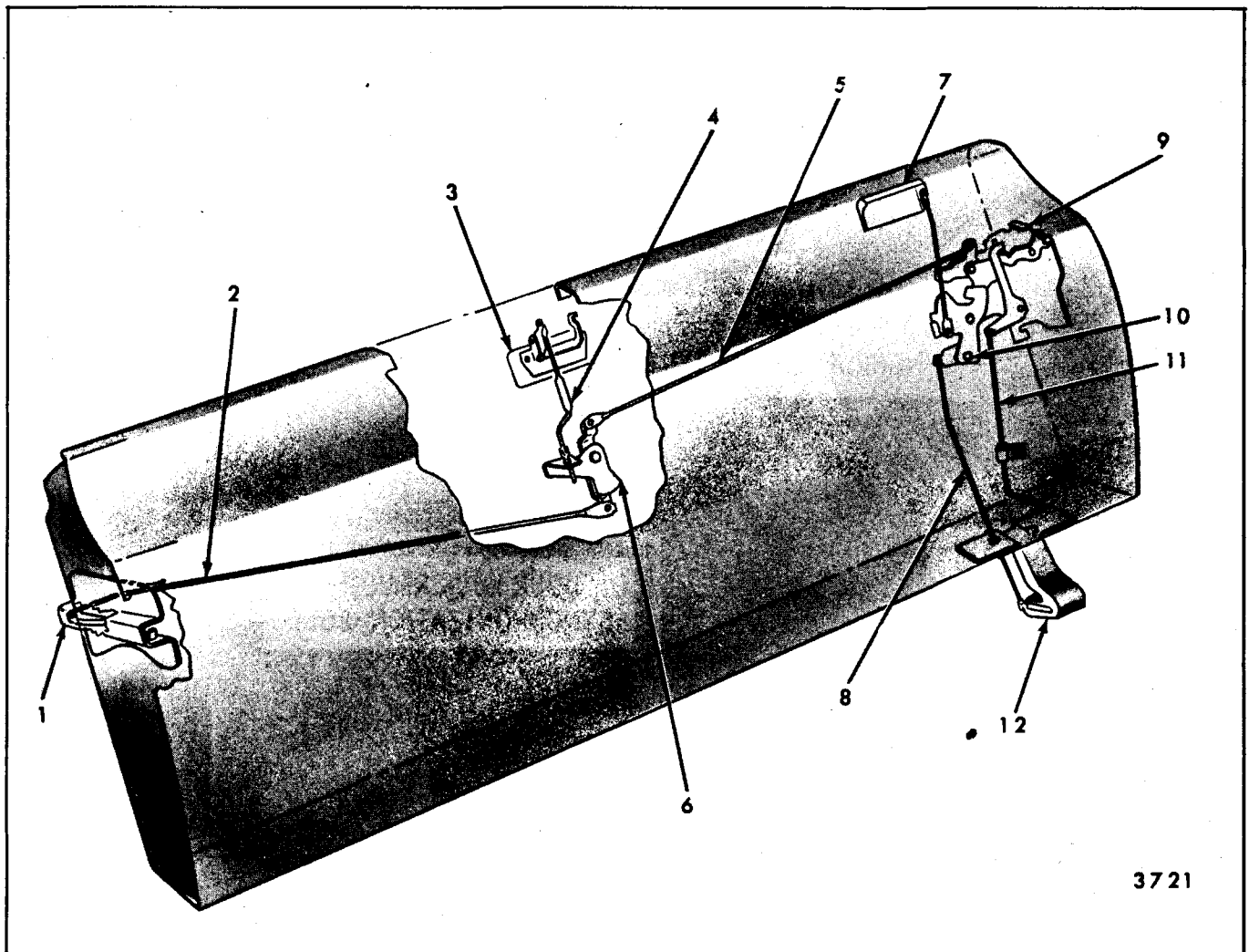


Fig. 9-47-Dual Acting Tail Gate Right Upper and Lower Lock Attachment



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Fig. 9-48-Dual Acting Tail Gate Lock and Remote Control Linkage

- | | | | |
|---|--|--|--|
| 1. Left Upper Hinge and Lock Assembly | 4. Remote to Inside Handle Push Rod | 7. Inside Handle and Cable Assembly (Door Operation) | 10. Right Upper and Lower Lock Synchronizing (Adjusting) Screw |
| 2. Tail Gate Remote to Left Upper Lock Connecting Rod | 5. Tail Gate Remote to Right Upper Lock Connecting Rod | 8. Right Upper to Lower Lock Connecting Rod | 11. Tail Gate Window "Block-Out" Rod |
| 3. Inside Handle (Gate Operation) | 6. Remote Control Assembly (Gate Operation) | 9. Right Upper Lock Assembly | 12. Right Lower Lock |

8. Actuate tail gate inside remote handle (gate operation) to unlock upper right and left locks that were manually locked and remove tape applied over tail gate inside handle (door operation). Perform Dual Acting Tail Gate Lock Synchronization Checks as subsequently described.

9. Reinstall all previously removed components.

NOTE: Service shims are available for tail gate striker assemblies. These shims are the same parts

used in body side doors. If installing new lock, rubber dust seal must be transferred from removed lock.

TAIL GATE RIGHT LOWER LOCK ASSEMBLY

Removal and Installation

1. Open tail gate to a door position.
2. Remove inner panel cover, water deflector and access hole cover as previously described.

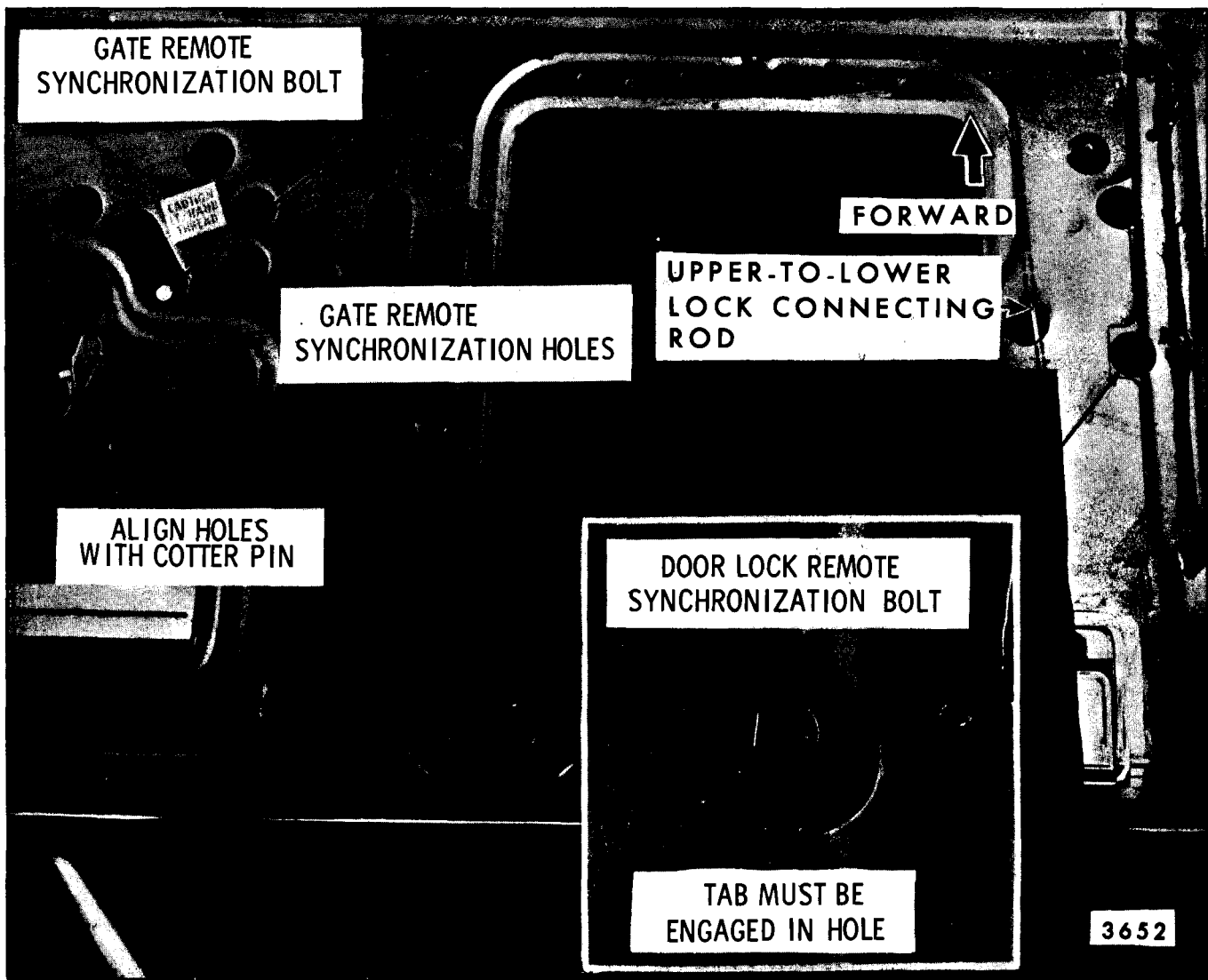


Fig. 9-49-Dual Acting Tail Gate Lock Synchronization Check

3. Loosen door lock synchronization (adjusting) bolt (Figure 9-49).
4. Remove lower lock cover and disengage upper to lower lock connecting rod (Fig. 9-48).
5. Scribe (mark) position of lower lock position on tail gate. From underside of tail gate, remove lower lock attaching nuts and screws and remove assembly from tail gate (Fig. 9-47).
6. To install, engage lock with upper to lower lock connecting rod. Align lock to scribe marks on gate and install lock attaching nuts and bolts.
7. Close tail gate and open to a gate position.
8. Manually lock right and left upper locks as shown in Figure 9-36.

CAUTION: With tail gate open and upper locks manually engaged, the tail gate has been placed in a vulnerable position and could drop from the right lower lock if the inside DOOR remote handle was activated, which could result in personal injury or damage the tail gate assembly. As a safety precaution, prior to manually locking either right or left upper locks, apply body tape over inside door remote handle to render same inoperative (See Figure 9-37).

9. With the right lower lock fully engaged with the striker, reach through the access hole and hold the lower to upper lock connecting rod forward (Figure 9-49), then tighten door lock synchronization (adjusting) bolt (Figure 9-49).

NOTE: This adjustment is self seeking and should automatically synchronize the right upper and

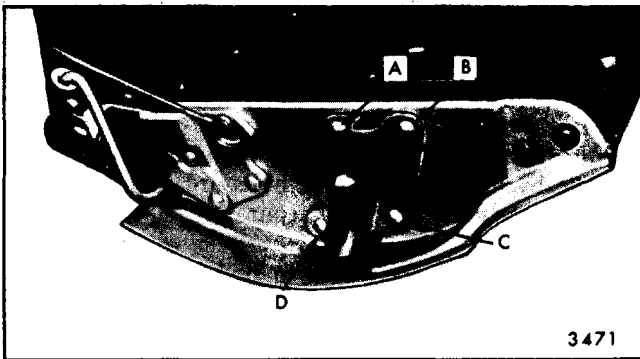


Fig. 9-50-Dual Acting Tail Gate Left Upper Hinge and Lock Assembly (Typical)

lower locks when the synchronizing (adjusting) bolt is loosened. However, to assure that the levers have automatically assumed their position, it is essential that the upper to lower lock connecting rod be held forward while tightening the synchronizing (adjusting) bolt.

CAUTION: DO NOT pull rearward on the right upper to lower connecting rod during this adjustment. Rearward movement of this rod could cause the tail gate to drop from the right lower lock, which could result in personal injury or damage to the tail gate assembly.

10. Actuate tail gate inside remote handle (gate operation) to unlock upper right and left locks that were manually locked and remove tape applied over tail gate inside handle (door operation). Perform dual acting tail gate lock synchronization checks, as subsequently described.
11. Reinstall all previously removed components.

TAIL GATE LEFT UPPER HINGE AND LOCK ASSEMBLY-GATE SIDE

Removal and Installation

1. Open tail gate to a gate position and remove tail gate window as previously described. Scribe (mark) a line around the outer perimeter of the hinge and lock assembly on the tail gate lock pillar.
2. Bolts "A" and "B" fit into a tapping plate and bolts "C" and "D" are retained by nuts. All bolts are pressed into the lock assembly and removed as a unit - not separately.
3. Disengage clip securing remote control assembly rod and remove lock assembly (Fig. 9-48).
4. To install, align lock assembly within scribe marks and install attaching bolts and nuts.

NOTE: Torque all nuts to a minimum of forty foot pounds.

5. With tail gate open in a gate position, manually lock right and left upper locks as shown in Figure 9-36.

CAUTION: As a safety precaution, prior to manually locking either right or left upper locks, apply body tape over inside door remote handle to render same inoperative (See Figure 9-37). With tail gate open and upper locks manually engaged, the tail gate has been placed in a vulnerable position and could drop from the right lower lock if the inside DOOR remote handle was actuated. A tail gate dropping from the right lower lock, when opened in a gate position, could result in personal injury or damage the tail gate assembly.

6. With right and left upper locks in a locked position, visually check gate remote synchronization holes in gate remote control levers (center of gate as shown in Figure 9-49). If the holes do not line up, loosen gate remote synchronization bolt (Figure 9-49) by turning to the right (left hand thread) approximately three turns.
7. With gate synchronization bolt loose, check to make certain there is no bind in remote levers. Align gate remote synchronization holes in remote assembly by inserting a cotter pin through alignment hole in both levers (Figure 9-49). Then, tighten synchronization bolt to 57-87 inch pounds and REMOVE COTTER PIN.
8. Actuate tail gate inside remote handle (gate operation) to unlock upper right and left locks that were manually locked and remove tape applied over tail gate inside handle (door operation). Perform Dual Acting Tail Gate Lock Synchronization Checks, as subsequently described.

9. Reinstall all previously removed components.

Adjustments

The tail gate left upper hinge and lock assembly (gate side) is adjustable up or down and fore or aft.

TAIL GATE LEFT LOWER HINGE ASSEMBLY

Removal and Installation

1. Open tail gate assembly to a gate position and remove tail gate window as previously described.

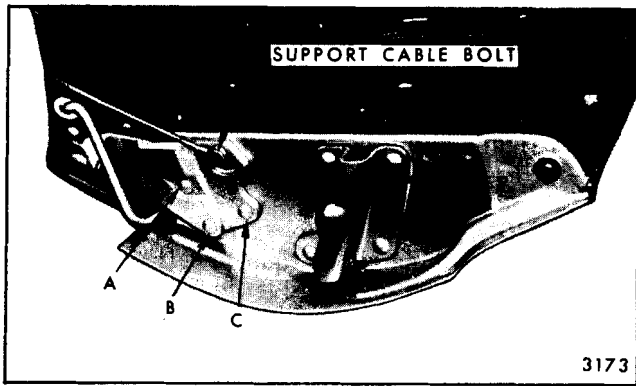


Fig. 9-51-Dual Acting Tail Gate Left Lower Hinge-Removal (Typical)

2. Raise tail gate assembly to a partially closed position to achieve a neutral torque rod position or until tension on torque rod has been relieved. Then, with torque rod in a neutral position, remove torque rod assist link retainer to body attaching bolts (Figure 9-47).
3. Lower tail gate and support in a full-open position. Remove support cable to left lower hinge to gate nut (Figure 9-51).

4. WITH THE AID OF A HELPER, remove left lower hinge to gate attaching bolts.

NOTE: Bolt "A", Figure 9-51, fits into a tapping plate. Bolts "B" and "C", Figure 9-51 are pressed into the hinge assembly and retained to the tail gate by nuts. The pressed bolts are removed with the hinge assembly - not separately.

5. Remove left lower hinge to body attaching bolts (Figure 9-52), then, remove hinge from body.
6. To install, reverse removal procedure.

TAIL GATE LEFT UPPER HINGE AND STRIKER ASSEMBLY-BODY SIDE

Removal and Installation

1. With the tail gate properly supported in an open (gate position) position, remove hinge and striker attaching screws (Figure 9-52) and remove assembly from left body pillar.

NOTE: The support cable spring, shown in Figure 9-52, must be reinstalled in depicted position to insure proper movement of cable during gate operation.

2. To install, reverse removal procedure.

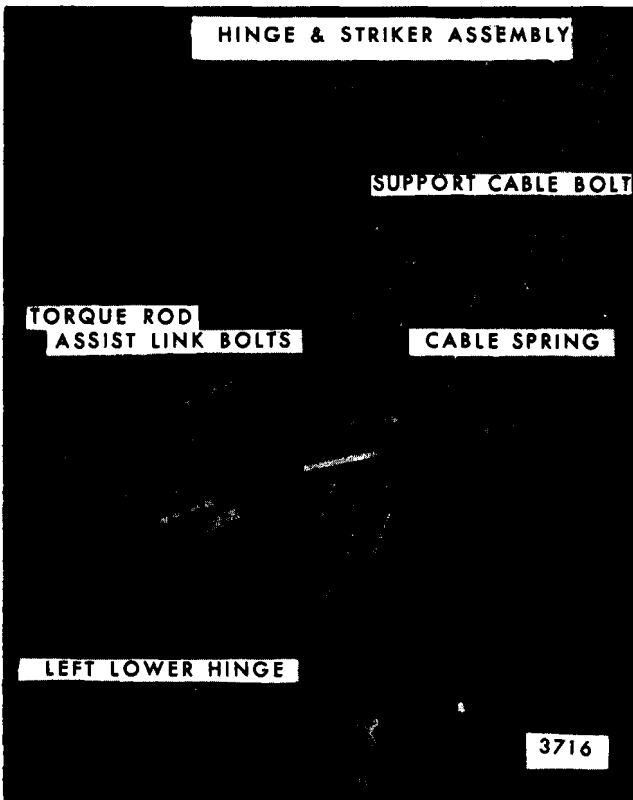


Fig. 9-52-Dual Acting Tail Gate Left Upper and Lower Hinge and Support Cable Attachment

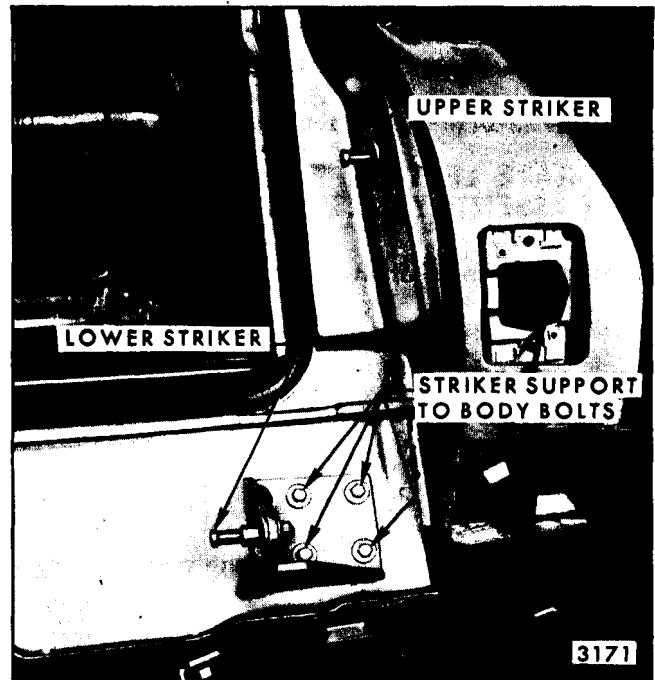


Fig. 9-53-Dual Acting Tail Gate Right Upper and Lower Striker Assemblies

NOTE: Shims of 1/4" and 5/16" are available as service parts.

NOTE: THIS LOCK STRIKER IS AN IMPORTANT ATTACHING PART IN THAT IT COULD AFFECT THE PERFORMANCE OF VITAL COMPONENTS AND SYSTEMS, AND/OR COULD RESULT IN MAJOR REPAIR EXPENSE. IT MUST BE REPLACED WITH ONE OF THE SAME PART NUMBER OR WITH AN EQUIVALENT PART IF REPLACEMENT BECOMES NECESSARY. DO NOT USE A REPLACEMENT PART OF LESSER QUALITY OR SUBSTITUTE DESIGN. TORQUE VALUES MUST BE USED AS SPECIFIED DURING REASSEMBLY TO ASSURE PROPER RETENTION OF THIS PART.

TAIL GATE RIGHT UPPER STRIKER ASSEMBLY

The right upper striker assembly consists of a single metal bolt and washer assembly that is threaded into a tapped floating cage plate located in the back body lock pillar. With this design, the tail gate is secured in the closed position when the right upper tail gate lock fork bolt snaps-over and engages with the striker bolt.

Removal and Installation

1. Mark position of striker on back body pillar (Figure 9-53).
2. Insert Tool J-23457 or equivalent into the star shaped tool recess in the head of the striker bolt and remove striker.
3. To install, reverse removal procedure. Torque lock striker to 36-45 foot pounds.

NOTE: THIS LOCK STRIKER IS AN IMPORTANT ATTACHING PART IN THAT IT COULD AFFECT THE PERFORMANCE OF VITAL COMPONENTS AND SYSTEMS, AND/OR COULD RESULT IN MAJOR REPAIR EXPENSE. IT MUST BE REPLACED WITH ONE OF THE SAME PART NUMBER OR WITH AN EQUIVALENT PART IF REPLACEMENT BECOMES NECESSARY. DO NOT USE A REPLACEMENT PART OF LESSER QUALITY OR SUBSTITUTE DESIGN. TORQUE VALUES MUST BE USED AS SPECIFIED DURING REASSEMBLY TO ASSURE PROPER RETENTION OF THIS PART.

Adjustments

Right upper striker assemblies are adjustable up or down, fore or aft and outboard by installing spacers beneath the striker washer. Spacers are available as service parts as follows:

- A. 5/64" spacer - Part No. 4469196 or equivalent
- B. 5/32" spacer - Part No. 4469197 or equivalent
- C. 1/4" spacer - Part No. 4469194 or equivalent
- D. 5/16" spacer - Part No. 4469195 or equivalent

TAIL GATE RIGHT LOWER STRIKER AND SUPPORT ASSEMBLY

Removal and Installation

1. With tail gate open in a door position, remove step plate and filler panel to gain access to the striker and support assembly.
2. Scribe (mark) position of striker support on body and remove support (Figure 9-53).
3. To install, reverse removal procedure.

NOTE: THIS LOCK STRIKER IS AN IMPORTANT ATTACHING PART IN THAT IT COULD AFFECT THE PERFORMANCE OF VITAL COMPONENTS AND SYSTEMS, AND/OR COULD RESULT IN MAJOR REPAIR EXPENSE. IT MUST BE REPLACED WITH ONE OF THE SAME PART NUMBER OR WITH AN EQUIVALENT PART IF REPLACEMENT BECOMES NECESSARY. DO NOT USE A REPLACEMENT PART OF LESSER QUALITY OR SUBSTITUTE DESIGN. TORQUE VALUES MUST BE USED AS SPECIFIED DURING REASSEMBLY TO ASSURE PROPER RETENTION OF THIS PART.

Adjustments

The striker support is adjustable up or down and laterally. In addition the striker bolt is adjustable laterally through the use of service shims.

TAIL GATE TORQUE ROD AND ASSIST LINK

Removal and Installation

1. Remove tail gate inner panel, water deflector and access hole cover as previously described.
2. With tail gate open in a door position, remove right lower lock cover, bumperette and step plate.
3. Remove rear bumper as follows.
 - A. Remove the two rearward bumper to frame attaching bolts and loosen the forward two bolts (Figure 9-54).

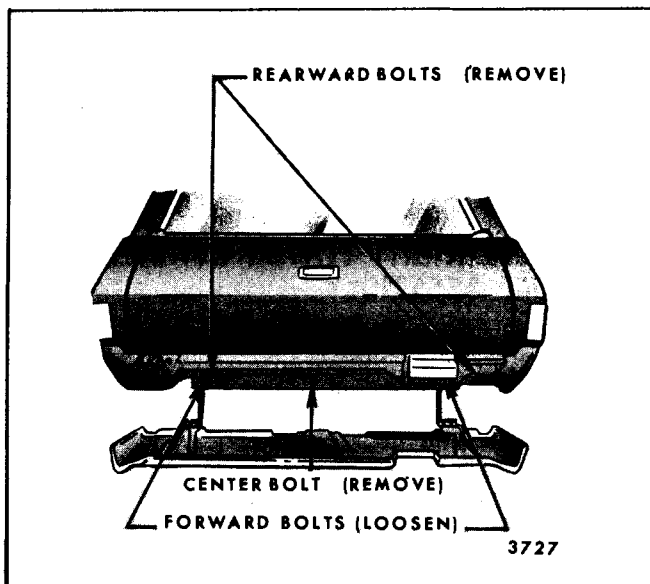


Fig. 9-54-Bumper Removal (Typical)

- B. Remove the center bumper to frame bolt and lower bumper (Figure 9-54).
4. Close the tail gate and open sufficiently as a gate to achieve a neutral torque rod position or until tension on torque rod has been relieved. With torque rod in a neutral position, remove torque rod assist link retainer attaching bolts (Figure 9-55) and disengage assist link from end of torque rod.
5. Lower tail gate to a full-open position and remove torque rod retainers along bottom of tail gate assembly (Figure 9-45).
6. Raise tail gate window sufficiently to gain access to the torque rod retainers located inside the tail gate on the right lock pillar. Using a suitable tool, pry the torque rod from the retainers and remove the rod.

NOTE: To raise electrically operated tail gate windows, with the gate open to the gate position, it is first necessary to manually lock both upper locks as shown in Figure 9-36.

CAUTION: As a safety precaution, prior to manually locking either right or left upper locks, apply body tape over inside door remote handle to render same inoperative (See Figure 9-37). A tail gate open, in a gate position, and upper locks manually engaged, the tail gate has been placed in a vulnerable position and could drop from the right lower lock if the inside DOOR remote handle was actuated. A tail gate dropping from the right lower lock could result in personal injury or damage to the tail gate assembly.

7. To install, reverse removal procedure.

TAIL GATE ASSEMBLY

Removal and Installation

1. Open tail gate sufficiently (partially open) as a gate to achieve a neutral torque rod position or until tension on torque rod has been relieved. With torque rod in a neutral position, remove torque rod assist link retainer to body attaching bolts (Figure 9-52).
2. Support tail gate in a full-open gate position and remove support cable to left upper hinge and striker assembly attaching bolt (Figure 9-52)
3. On styles equipped with electric options in the tail gate assembly, remove the tail gate inner panel water deflector and access hole cover. Then, disconnect wire harness at connectors and pull from tail gate.
4. WITH THE AID OF A HELPER, remove left lower hinge to body attaching bolts (Figure 9-52).
5. Manually lock right and left upper locks as shown in Figure 9-36. Then with the aid of a helper to support the tail gate, actuate the INSIDE DOOR REMOTE HANDLE (right side) to unlock and free the right lower lock from the striker assembly. Remove gate assembly by lifting upward, then rearward.
6. To install, reverse removal procedure.

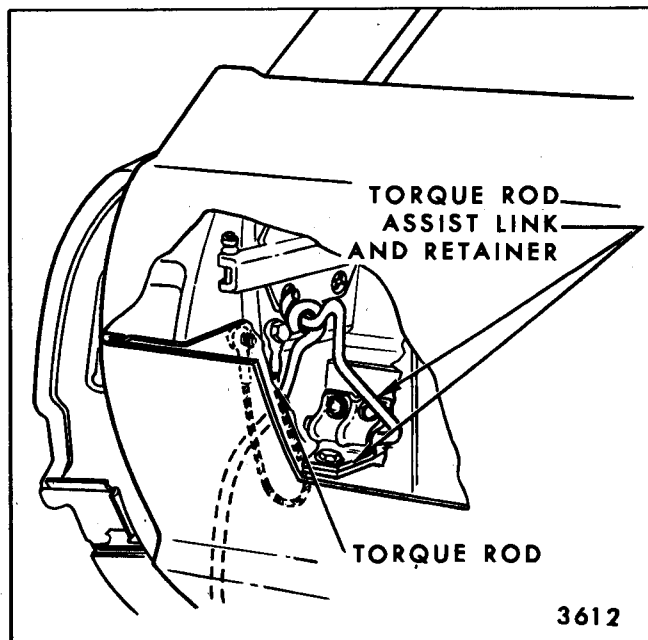


Fig. 9-55-Dual Acting Tail Gate Assist Link

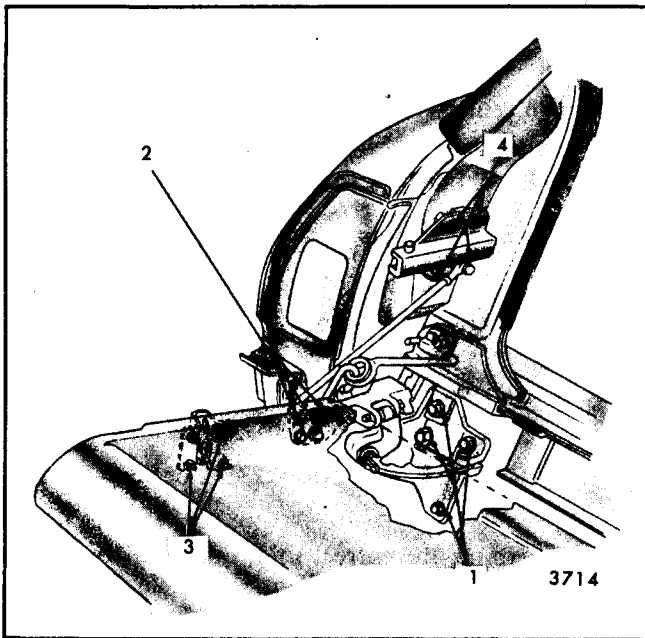


Fig. 9-56-Dual Acting Tail Gate Left Upper and Lower Hinge, Lock, and Torque Rod Attachments

Adjustments

Proper evaluation of a misaligned condition can eliminate performing unnecessary adjustments. To properly evaluate a misaligned tail gate condition, the upper right lock striker should be removed. If the gate, when operated as a door, rides "up" or is pulled "down" by the lower right lock striker the lower right lock striker and striker support should be loosened completely or the lower striker removed.

NOTE: Prior to performing any adjustments, the position of the hinge, lock or striker to be adjusted should be marked to facilitate realignment from original position.

The lower left hinge-to-body adjustment is the key adjustment for properly positioning the tail gate in the body opening. All other hinge and lock adjustments are for the purpose of providing flush alignment of the tail gate outer panel with adjacent panels and to provide proper operation of the locks.

NOTE: The upper left lock and striker adjustments and the right upper and lower lock striker adjustment are not provided for up or down adjustment of either side of the gate assembly. However, some adjustment at one or more of these locations is usually required when the left lower hinge is adjusted to raise, lower or move the gate sideways in the opening.

1. Lower Left Hinge Assembly at Body Attachment - Adjustable "up" or "down" and "laterally" ("1", Figure 9-56).

To gain access to lower left hinge-to-body attaching bolts, remove rubber hinge cover at left end of step pad. Loosen the four hinge-to-body attaching bolts and adjust hinge "up", "down", "laterally" or rotate as required.

Rotating the hinge slightly will raise or lower the right side of the gate. This can be accomplished by loosening the three lower hinge-to-body attaching bolts. Then with the gate open as a door, support the right side of the gate in the desired raised or lowered position and tighten the attaching screws. If this adjustment is performed or if the gate is moved sideways, it may be necessary to also adjust the upper left hinge and lock striker, as described under adjustment "4".

If the lower left hinge is adjusted, "upward" or "downward", clearance between the upper left lock frame on tail gate and the hinge and lock striker on body pillar should be checked (specified clearance $1/8'' - 7/32''$; see Figure 9-57), and, where required, the upper left lock should be adjusted as described under adjustment "3".

2. Lower Left Hinge Assembly - At gate attachment - adjustable "forward" or "rearward" ("2", Figure 9-56).

"Forward" or "rearward" adjustment of lower left hinge at the gate attachment is primarily for flush alignment of tail gate outer panel with adjacent panels in the area of the lower left hinge.

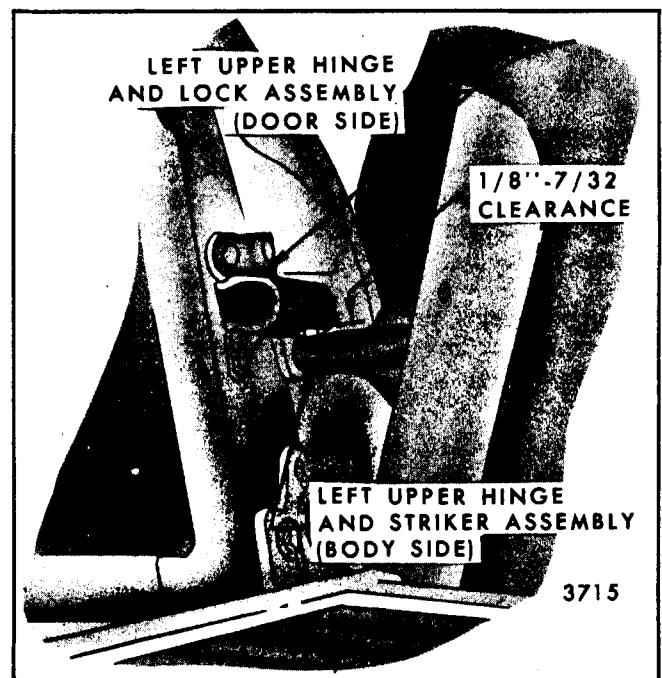


Fig. 9-57-Dual Acting Tail Gate Upper Left Lock Striker Clearance

The lower left hinge-to-tail gate attaching nuts are located inside the tail gate. To loosen nuts for adjustment of tail gate on hinge, remove tail gate inner cover panel and carefully peel back inner panel water deflector sufficiently to gain access to hinge-to-gate attaching nuts. Adjust gate on hinge as required, then, tighten attaching nuts and reseal water deflector.

3. Upper Left Hinge and Lock Assembly - Adjustable "up", "down", "forward" and "rearward" ("3", Figure 9-56).

The "up" or "down" adjustment of the upper left lock is available to provide adequate clearance (1/8" to 7/32") between the bottom of the lock frame and top of the hinge pin and striker plate. (See Figure 9-57). To check clearance, open gate as a door and measure distance between the upper surface of the upper left hinge pin and striker plate and the lower surface of the upper left lock frame.

The "forward" and "rearward" adjustment of the upper left lock is available to provide a flush alignment of the tail gate outer panel with adjacent body panels in the area of the upper left lock.

Prior to adjusting upper left lock, mark position of lock on tail gate. The lock attaching nuts, are located inside the tail gate. To loosen nuts, remove tail gate inner cover panel and carefully peel back inner panel water deflector sufficiently to gain access to the inner panel left access hole cover. Then, remove cover and loosen hinge-to-gate attaching nuts. Adjust lock, as required, then replace all previously removed parts.

IMPORTANT: After any adjustment of the upper left lock, synchronization of the lock system should be checked and, where required, the lock system should be synchronized as subsequently described.

4. Upper Left Hinge and Striker Assembly - Adjustable "in" or "out" from body pillar ("4", Figure 9-56).

The upper left hinge and lock striker is not adjustable up, down, forward or rearward, however it is adjustable laterally from the body pillar by means of installing different thickness shims under the assembly.

This adjustment is available to provide proper engagement of the hinge pin and lock striker with the lock. This adjustment is not intended as a means of raising or lowering the left or right side of the gate.

The different thickness shims are available as service parts as follows:

- A. 1/8" shims - Part No. 8776037 or equivalent
- B. 3/16" shims - Part No. 8723094 or equivalent
- C. 7/32" shims - Part No. 8723093 or equivalent
- D. 1/4" shims - Part No. 8723090 or equivalent
- E. 9/32" shims - Part No. 8723091 or equivalent
- F. 5/16" shims - Part No. 8723092 or equivalent

To determine the correct shim thickness required, open gate as a gate, then, while closing gate, carefully observe how the hinge pin and striker engages in the slot in the bottom surface of the lock. The pin should enter into the slot without any appreciable side pressure.

5. Right Upper Lock Striker Assembly ("5", Figure 9-58) - Adjustable "forward" or "rearward", "up" or "down" and "laterally" by using spacers.

IMPORTANT: The upper right lock striker should be removed prior to performing any other hinge or lock adjustments.

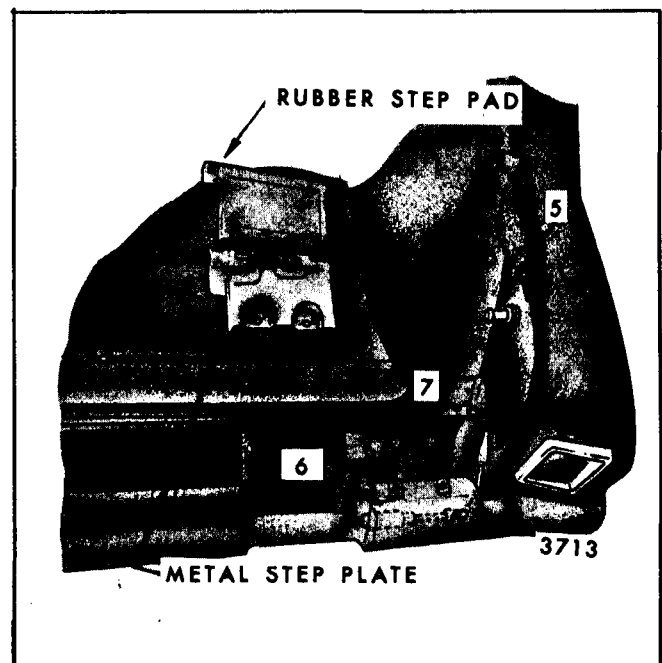


Fig. 9-58-Dual Acting Tail Gate Right Upper and Lower Lock Striker

To properly adjust the upper right lock striker, first open tail gate as a door and remove striker with tool J-23457 or equivalent. Check alignment of gate in body opening. **THE GATE SHOULD BE PROPERLY ALIGNED IN BODY OPENING PRIOR TO ADJUSTMENT OF STRIKER.** Install striker slightly more than finger tight. Then, carefully close gate to allow striker to self align. Then, carefully open gate and tighten striker. Operate gate both as a door and a gate and check flush alignment of outer panels in area of striker. If any further minor adjustment is required, mark position of striker on body pillar, loosen striker, make required adjustment from marked position and tighten striker.

6. Right Lower Lock Striker and Support Assembly

- a. Lower Right Lock Striker - Adjustable "Forward" and "Rearward" ("6", Figure 9-58).
- b. Lower Right Lock Striker Support - Adjustable "Up", "Down" and "Sideways" ("7", Figure 9-58).

To gain access to lower right lock striker or striker support attaching bolts, open tail gate as a door and remove right step pad and step plate (Figure 9-58). To loosen lock striker attaching nut, use a 3/8" ratchet drive with a universal, 3" extension and 9/16" deep socket, as shown in Figure 9-58. To loosen striker support, loosen attaching bolts and move support up and down to make sure it is free.

To adjust lower right lock striker or striker support, loosen striker nut or support bolts. Then, tighten nut or bolts finger tight and carefully close gate as a door allowing striker or support to self align. Carefully open tail gate as a door and tighten striker nut or support bolts.

Operate gate both as a door and a gate and check both ease of operation and flush alignment of outer panels. If any further minor adjustment is required, mark position of striker on support or support on body cross bars and make required adjustment from marked position as required.

IMPORTANT: Do not use upper right lock striker and/or lower lock striker support adjustments to align right side of gate "up" or "down" in the body opening.

7. Bumperette - Adjustable "up" or "down", "forward" or "rearward" and "laterally".

To adjust bumperette for proper alignment in the bumper opening, open tail gate as a door and remove bumperette support cover. To adjust bumperette "forward", "rearward" or "sideways" loosen nuts securing bumperette support to bottom of door. To adjust bumperette "up", "down" or sideways loosen nuts securing bumperette to bumperette support. Adjust bumperette for proper alignment in bumper opening and tighten attaching nuts.

DUAL ACTING TAIL GATE LOCK SYNCHRONIZATION CHECK AND PROCEDURE

The lock system on the dual acting tail gate is designed to perform the following two "block-out" functions.

1. Allow the tail gate to be opened as a door and at the same time prevent accidental operation of the upper left lock (which allows the gate to be opened as a gate).
2. Allow the gate to be opened and closed as a tail gate and at the same time prevent accidental operation of the lower right lock (which allows gate to be opened as a door).

The above "block-out" functions are accomplished by levers in the upper right lock. Figure 9-59 shows the upper right lock (in closed door position) and identifies the levers which perform block-out functions.

To assure that the upper right lock levers perform the block-out functions properly, the upper right lock and gate remote control must be synchronized with the rest of the tail gate lock system (lower right lock and upper left lock). This synchronization is required to prevent accidental operation of the upper left lock when the gate is opened as a door and to prevent accidental operation of the lower right lock when the gate is opened as a gate.

IMPORTANT: Whenever any of the locking system components inside the tail gate are serviced, the locking system **MUST BE** synchronized as described under "Lock Synchronization Procedure".

Lock Synchronization Checks

1. Synchronization check for lower right lock.
 - A. Open tail gate as a gate (horizontal position). Take precautions to prevent damage if tail gate should become disengaged from lower right lock by placing a protective support

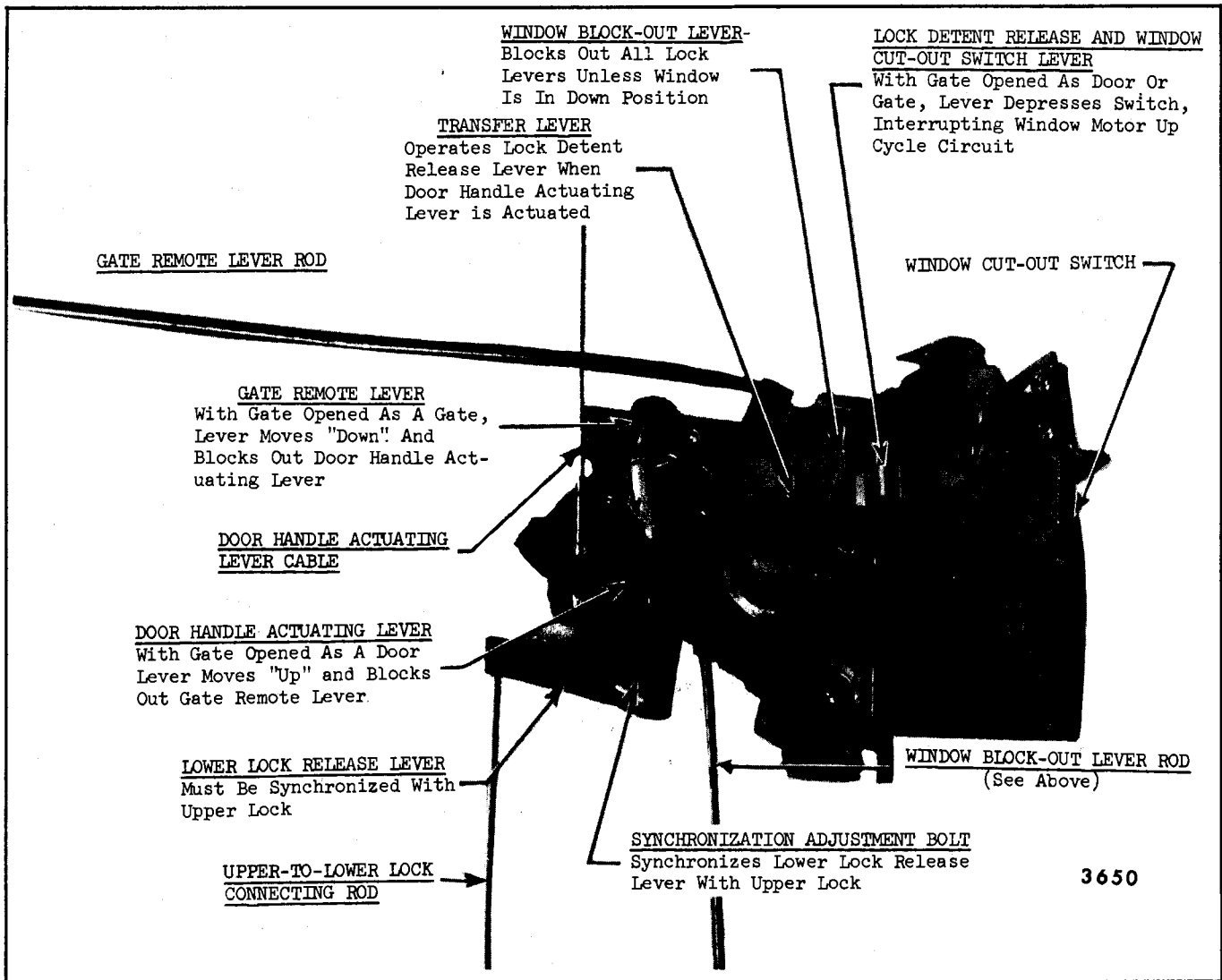


Fig. 9-59-Dual Acting Tail Gate Lock Synchronization Check

beneath the gate. Then grasp right inside lock release handle and pull upward until gate is in a vertical position and close gate. Open gate as a door and close gate.

B. Repeat above procedure (Step 1-A) five times. If tail gate lower right lock does not become disengaged, synchronization of the lower right lock is correct. If tail gate becomes disengaged at lower right lock, reinstall gate on lower right lock and proceed with "Synchronization Procedure" as described and illustrated.

2. Synchronization check for upper right and left locks

A. Open tail gate as a door.

IMPORTANT: Place a protective support under

right side of gate in the event gate becomes disengaged from upper left lock.

B. Operate center remote control handle (gate operation) with moderately heavy pressure, then operate the right inside lock release lever (door operation) in the same manner. Operate both handles at the same time.

C. Close tail gate and repeat above operation (Step 2-A and B) five times. If tail gate upper left lock does not become disengaged, the upper locks are in synchronization.

If tail gate becomes disengaged at the upper left lock, reinstall gate on upper left lock and proceed with "Synchronization Procedure" as described and illustrated.

Lock Synchronization Procedure

1. Open gate as a door then close gate securely. Open tail gate to "gate" (horizontal) position.
2. Remove tail gate inner cover panel; carefully remove inner panel water deflector or detach water deflector sufficiently to gain access to gate remote control and door lock synchronization bolts. Remove right inner panel access hole cover.
3. Place tape over door lock handle, as shown in Figure 9-37, to prevent accidental operation of lower right lock after upper locks have been manually locked as outlined below.
4. Manually lock both upper right and upper left locks as shown in Figure 9-36.
5. With all locks in locked position, visually check gate remote synchronization holes in gate remote control levers (center of gate as shown in Figure 9-49). If holes line up, proceed with step 7. If holes do not line up, loosen (turn to right approximately three turns) gate remote control synchronization bolt (this bolt has left hand threads). With synchronization bolt loose, check that there is no bind in remote levers. Align holes by inserting cotter pin through alignment hole in both levers (Figure 9-49). Then, tighten synchronization bolt to 57-87 INCH lbs. REMOVE COTTER PIN.
6. With all locks in locked position and with the right lower lock securely engaged with the striker, loosen approximately three turns the door lock remote synchronization bolt at the right upper lock (See Fig. 9-49).

This adjustment is "self-seeking" and should automatically synchronize the right upper and lower locks when the synchronizing bolt is loosened. However, to assure that the levers automatically assumed their proper position, reach in through access hole and hold lower-to-upper lock connecting rod FORWARD (Figure 9-49) while tightening door lock synchronization bolt to 76-116 inch lbs. Make sure tab on door lock remote synchronization lever is properly engaged in hole (See Figure 9-49).

NOTE: The action of loosening the lock synchronization bolt can readily unlock the right lower lock causing the right side of the gate to disengage from the lock striker. To help prevent this from occurring, reach through access hole and hold the upper-to-lower lock connecting rod (See Fig. 9-49) FORWARD while loosening synchronization bolts.

If lower right lock should unlock and become disengaged from striker, lift right side of tail gate up and forward to re-engage lock with striker.

7. Unlock upper locks by actuating tail gate handle (at center of gate).
8. Remove tape from door handle and close gate.
9. Perform lock synchronization checks, check window operation.
10. Reseal tail gate inner panel water deflector and install tail gate inner cover panel.

DUAL ACTING TAIL GATE DIAGNOSIS AND SERVICING PROCEDURES CHART

CONDITION	APPARENT CAUSE	CORRECTION
<p>1. Gate does not open as a gate.</p>	<p>1. Glass blockout lever of upper right hand lock not actuated. NOTE: This condition prevents tail gate from operating either way.</p> <p>2. Lower right hand lock not locked.</p> <p>3. Synchronization (adjusting) screw of the remote control loose (located at center of tail gate).</p>	<p>(A) Check to see if the glass blockout rod is installed and attached to the lever of the upper right hand lock.</p> <p>(B) Check if the glass is in the full down position.</p> <p>(A) Check if the lower right hand lock is locked by visually inspecting the fork bolt of the lower lock. If the fork is visible and approximately flush with the rear of the lock housing, the lock is locked. If the fork bolt is considerably forward or not visible, the lock is unlocked. (This check can be performed with bumper removed).</p> <p>(B) Open as a door and slam it to lock.</p> <p>(C) If the lock still is unlocked, the lower striker should be adjusted aft.</p> <p>NOTE: This condition can be determined by trying to unlock the upper locks. Only the upper left hand hinge lock will unlock.</p> <p>(A) With gate fully closed, remove the tail gate inner panel cover, water deflector and right hand access hole cover.</p> <p>(B) After removing these parts, reach through the access hole and carefully, so as not to bend, pull the upper right horizontal lock rod towards the centerline of the body while simultaneously pulling gate handle. Open to gate position.</p> <p>(C) Synchronize locks as outlined in lock synchronization procedure.</p> <p>(D) Make lock synchronization check.</p>

DUAL ACTING TAIL GATE DIAGNOSIS AND SERVICING PROCEDURE CHART

CONDITION	APPARENT CAUSE	CORRECTION
	<p>4. Horizontal lock rods and/or vertical rod from center handle to remote control not installed and/or attached.</p>	<p>(A) This condition is characterized by the failure of the upper right hand lock and/or left hand lock to unlock. Check for unattached or missing rods. If either of the upper horizontal lock rods is unattached or missing, attach or replace and then follow the upper lock synchronization procedure as previously described.</p> <p>NOTE: Rod attachment must be made with gate fully closed.</p>
<p>2. Gate does not open as a door.</p>	<p>1. Glass blackout lever of upper right hand lock not actuated, NOTE: This condition prevents tail gate from operating either way.</p> <p>2. Upper right hand striker too far rearward. (Gate out-of-flush and/or chucks at right upper corner).</p> <p>3. Upper left hand hinge lock not locked.</p> <p>4. Cable from door handle to upper right hand lock detached.</p>	<p>(A) Follow procedure outlined in Condition 1, Solution "A and "B".</p> <p>(A) This condition can prevent the upper left hand hinge lock from locking. Readjustment of the right hand upper striker forward is necessary to allow both upper locks to lock.</p> <p>(A) Check for unlocked upper left hand lock by pulling on corner of gate (gate will chuck if unlocked).</p> <p>(B) Open gate and slam hard to lock.</p> <p>(C) If the lock is still unlocked, the gate side upper left hinge and lock assembly will have to be adjusted forward as outlined under adjustment of left upper hinge and lock assembly.</p> <p>(A) Check for loose cable by opening the gate and pulling on door handle. If the handle opens easily to approximately 90 degrees to the inner panel surface and by pulling on the cable it readily pulls out, the cable is loose and must be attached to the stud of the upper right hand lock. (Refer to inside handle and cable assembly-door operation).</p>

DUAL ACTING TAIL GATE DIAGNOSIS AND SERVICING PROCEDURE CHART

CONDITION	APPARENT CAUSE	CORRECTION
	<p>5. Rod from upper right hand lock to lower right hand lock detached.</p>	<p>(A) Determine if rod is detached by visual inspection. If unattached:</p> <ol style="list-style-type: none"> 1. Open tail gate as a gate. 2. If rod is disconnected at upper lock, attach rod by moving the lever of the upper lock to the position of the rod. <p>NOTE: DO NOT PULL UP ON THE LOCK ROD AS THIS WILL UNLOCK THE LOWER LOCK.</p> <ol style="list-style-type: none"> 3. If rod is disconnected at lower lock, push rod forward to engage lock lever. Hold lock lever forward while engaging rod. <p>NOTE: DO NOT MOVE LOWER LOCK LEVER REARWARD AS THIS WILL UNLOCK LOWER LOCK AND DROP GATE ON BUMPER.</p> <ol style="list-style-type: none"> 4. Be sure the lower lock is fully locked by pulling it against the striker. 5. Tighten the set screw in the upper lock (right hand thread). 6. Make lock synchronization check.
<p>3. With door open and center handle is pulled, gate unlocks (upper left hand hinge and lock assembly).</p>	<ol style="list-style-type: none"> 1. Right hand lock synchronization screw loose. 2. Improper synchronization of upper locks. 3. Bent upper horizontal lock rods (caused by using rods to unlock gate). 	<ol style="list-style-type: none"> 1. Synchronize both right hand locks as specified in lock synchronization procedure. 2. If loose, follow procedure outlined above in 2-5 (A). <p>(A) Refer to lock synchronization procedure.</p> <p>(A) Replace rod and re-synchronize locks as outlined in lock synchronization procedure.</p>

DUAL ACTING TAIL GATE DIAGNOSIS AND SERVICING PROCEDURE CHART

<p>4. With gate open and door handle is pulled, lower right lock unlocks.</p>	<ol style="list-style-type: none"> 1. Improper synchronization of upper locks (loose set screw). 2. Bent vertical lock rod (caused by using rod to unlock door). 3. Improper synchronization of right hand locks. 	<p>(A) Synchronize locks by following procedure outlined in lock synchronization procedure.</p> <p>(A) Replace rod and re-synchronize locks by following lock synchronization procedure.</p> <p>(A) Synchronize locks as outlined in lock synchronization procedure.</p>
<p>5. Tail gate window will not raise.</p>	<ol style="list-style-type: none"> 1. Tail gate window cut-out switch inoperative. 2. Window regulator motor inoperative. 	<ol style="list-style-type: none"> 1. Open tail gate as a gate. Remove inner cover panel and water deflector. 2. Insert bare end of a tape insulated welding rod through belt glass opening into BLUE WIRE connector on regulator motor. 3. Ground negative pole of 12V battery to tail gate. 4. Raise glass by connecting other end of welding rod to positive pole of battery. 5. Replace cut-out switch as previously described. <p>1. Refer to "Tail Gate Window Electric Regulator Motor Assembly Removal.</p>

SECTION 10

HEADLINING

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HEADLINING-CLOTH AND VINYL COATED (SOFT)-All Styles Except 56-66 Vista Cruiser Station Wagons

DESCRIPTION

The headlining assembly is contoured to the inner surface of the roof panel by listing wires. The listing wires are attached to the headlining by concealed listing wire pockets which are part of the headlining. The ends of the listing wires are secured in holes at the side roof rail or by use of clips which are attached to the side rail with screws.

On certain styles, the listing wires are further attached to the roof panel by snap-in type clips which are secured to the longitudinal roof bow (Fig. 10-1, View "C").

When finishing lace is used at the windshield and back window or back body opening, the headlining is attached at those areas with non-staining adhesive.

Where garnish moldings are utilized the headlining is tacked or stapled in addition to being cemented at the windshield and back window or back body openings (See Fig. 10-1, View "A").

The headlining is retained along the side roof rails by cement or the use of a pronged retainer. Depending upon style, garnish moldings or finishing lace is also used to assist in retaining the headlining. The side roof rail garnish moldings are secured to the headlining retainer by clips which are located in the molding (See Fig. 10-3).

At the roof extension area, the headlining is secured either by cement to a metal retainer or by tacks or staples to a trim stick.

Quarter upper trim is covered in "Door and Quarter Trim" section.

Removal

1. Place protective coverings over seat cushions and backs.
2. Prior to removing headlining, remove following hardware and trim assemblies if installed over headlining.
 - a. Windshield side and upper garnish moldings or finishing lace.
 - b. Rear view mirror support.
 - c. Sun shade supports.
 - d. Dome or rear quarter courtesy lamps.
 - e. Coat hooks.
 - f. Side roof rail moldings or finishing lace.
 - g. Back window garnish moldings or finishing lace.
 - h. Center pillar upper trim assembly.
 - i. Rear quarter trim, where necessary.
 - j. Quarter upper trim finishing panel.

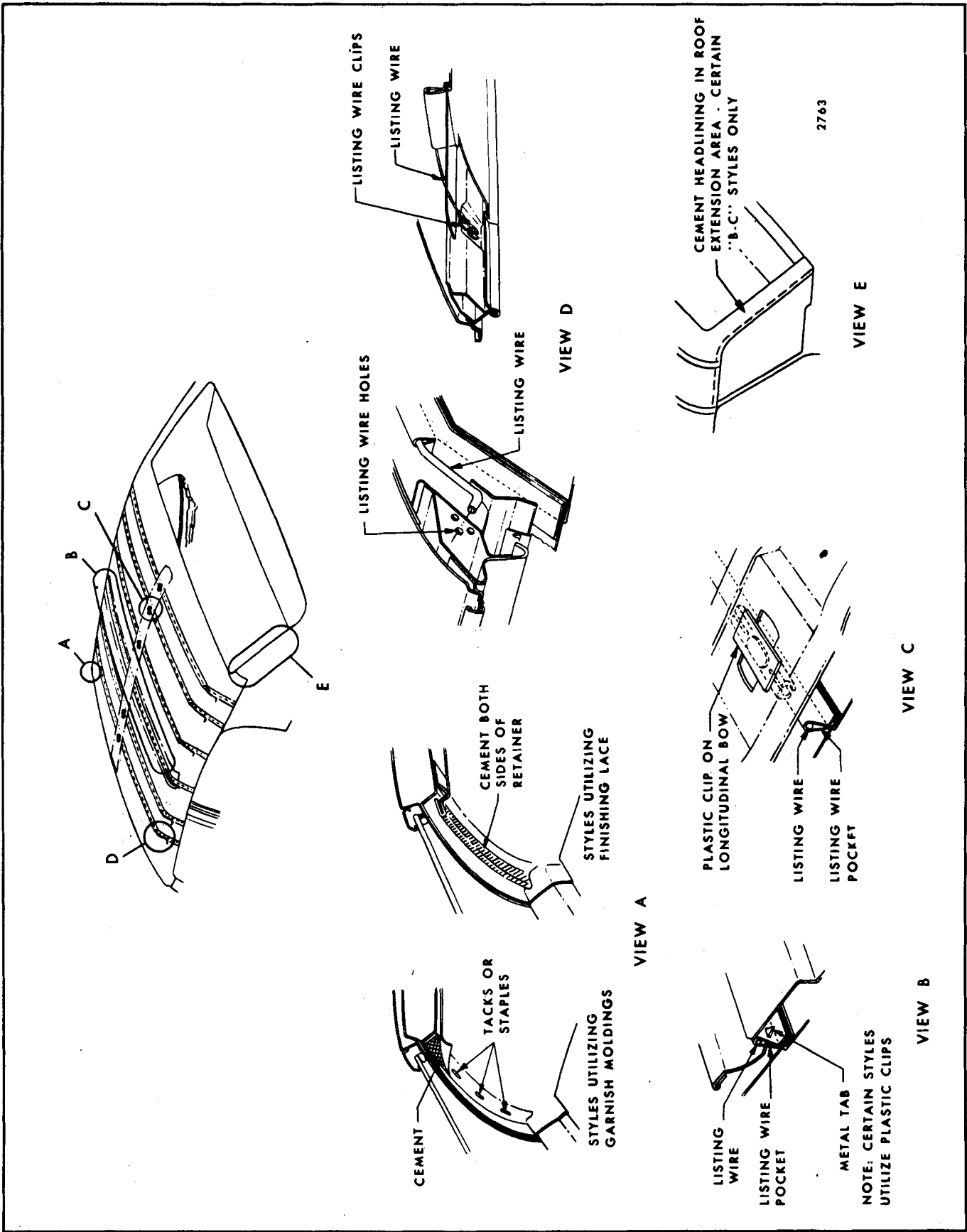


Fig. 10-1-Typical Cloth or Vinyl Headlining Installation - "A and X" Body Styles

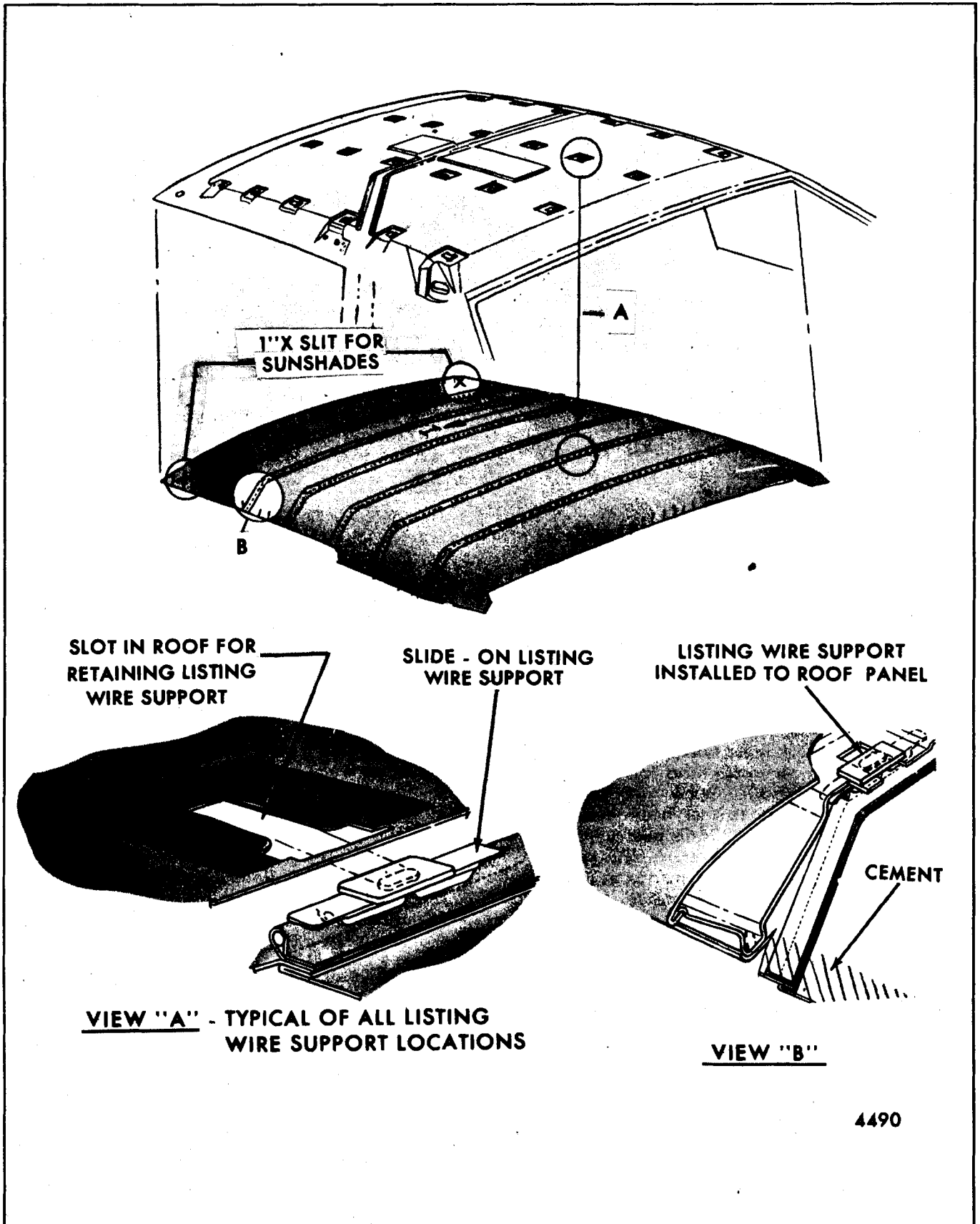


Fig. 10-2-Typical Cloth or Vinyl Headlining Installation - "B, C, F and E" Body Styles

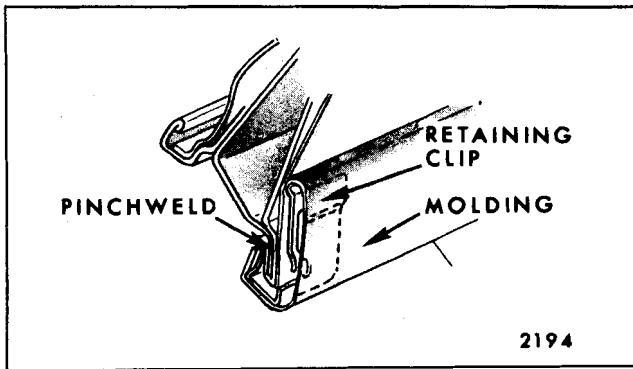


Fig. 10-3-Side Roof Rail Garnish Moldings

- k. Back body opening garnish moldings or finishing lace.
- l. Shoulder strap anchor plate and escutcheon.
3. Carefully remove tacks or staples securing headlining at windshield and back window opening or back body opening.
4. On styles using pronged retainer, use headlining inserting tool, J-2272 or similar wide-bladed tool and carefully disengage headlining from pronged retainers where present.
5. Carefully detach cemented edge of headlining around entire perimeter.
6. On "A, X and D" Styles - starting at front of body, carefully disengage No. 1 and No. 2 listing wires from side roof inner rails and from plastic supporting clips on roof bows on styles so equipped (See Fig. 10-1, View "C"). In like manner, working from rear of body, disengage listing wires from side roof rails and supporting clips on longitudinal bow. Exercise care to keep headlining material clean by gathering or folding headlining with listing wires on outside.

On "B, C, E and F" Styles - starting at front of body, carefully detach headlining and plastic supports from retaining slots in roof panel. (See Fig. 10-2, View "A"). Exercise care to keep headlining material clean by gathering or folding headlining with listing wires on outside.

7. Depending on style, bend down tabs securing No. 3 listing wire or disengage No. 3 listing wire from plastic clips on structural bow and remove headlining assembly from body.

IMPORTANT: On "A, X and D" body styles note in which holes listing wires are installed in side roof rails. Listing wires should be placed in same hole when replacing headlining.

8. If replacing headlining, remove listing wires from pockets of old headlining.

IMPORTANT: Listing wires removed from old headlining must be installed in corresponding pockets of new headlining.

Installation

1. If previously removed, install listing wires into corresponding pockets of new headlining assembly. On "A, X and D" body styles check that plastic clips are installed in roof bow slots. On "B, C, E and F" body styles install (slide on) plastic supports on headlining pockets after listing wires have been installed in pockets.
2. Apply an approved non-staining trim cement to headlining surface at windshield, side roof rail and back window or back body opening. On styles that utilize finishing lace be certain cement is applied to both sides of retainers (See Fig. 10-1, View "A").
3. On "A, X and D" body styles proceed as follows:
 - A. Lift headlining assembly into body and install No. 3 listing wire and listing wire pocket over metal tabs at roof bow and bend up tabs to secure wire to bow. On styles that incorporate plastic clips in place of metal tab, snap No. 3 listing wire into clips (See Fig. 10-1, View "B" and "C").
 - B. Working rearward from No. 3 listing wire, install listing wires in side roof rails and snap listing wires into plastic clips on roof bows. In like manner, working forward, install remaining listing wires (See Fig. 10-1, View "C").

NOTE: Listing wires may be adjusted up or down by utilizing appropriate holes in side roof rails. Listing wires should rest tight against roof panel after installation (See Fig. 10-1, View "D").

4. On "B, C, E and F" body styles proceed as follows:
 - A. Lift headlining assembly into body; then, starting at rear listing wire and working forward install plastic supports with headlining attached into retaining slots in roof panel (Fig. 10-2, View "A" and "B").
5. Stretch and secure headlining at windshield first; then, back window or back body opening. Stretch and secure headlining at rear quarters and side roof rails. Permanently attach material removing draws and wrinkles and replace all previously removed inside hardware and trim assemblies.

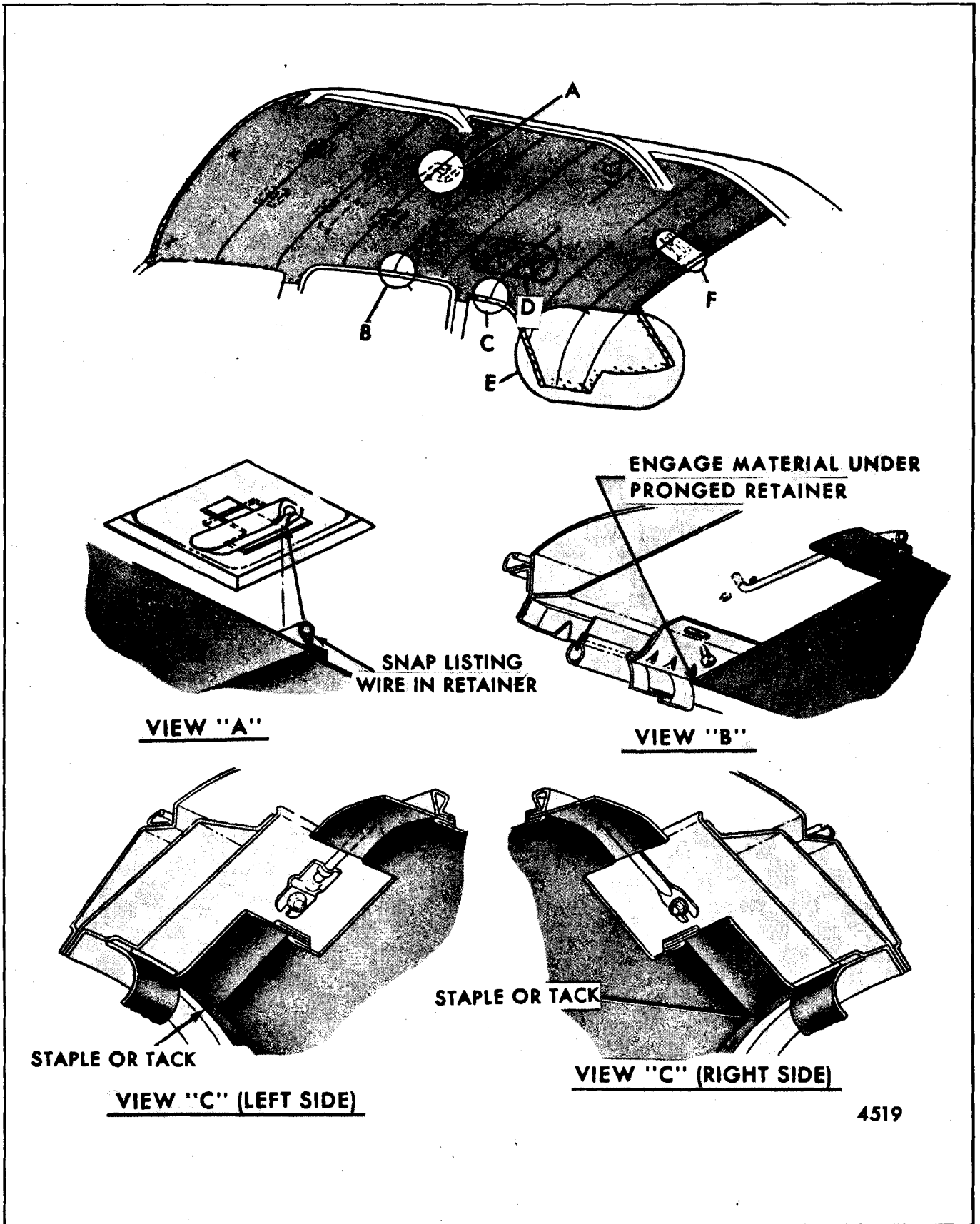


Fig. 10-4-Headlining Installation - "D" Body Styles

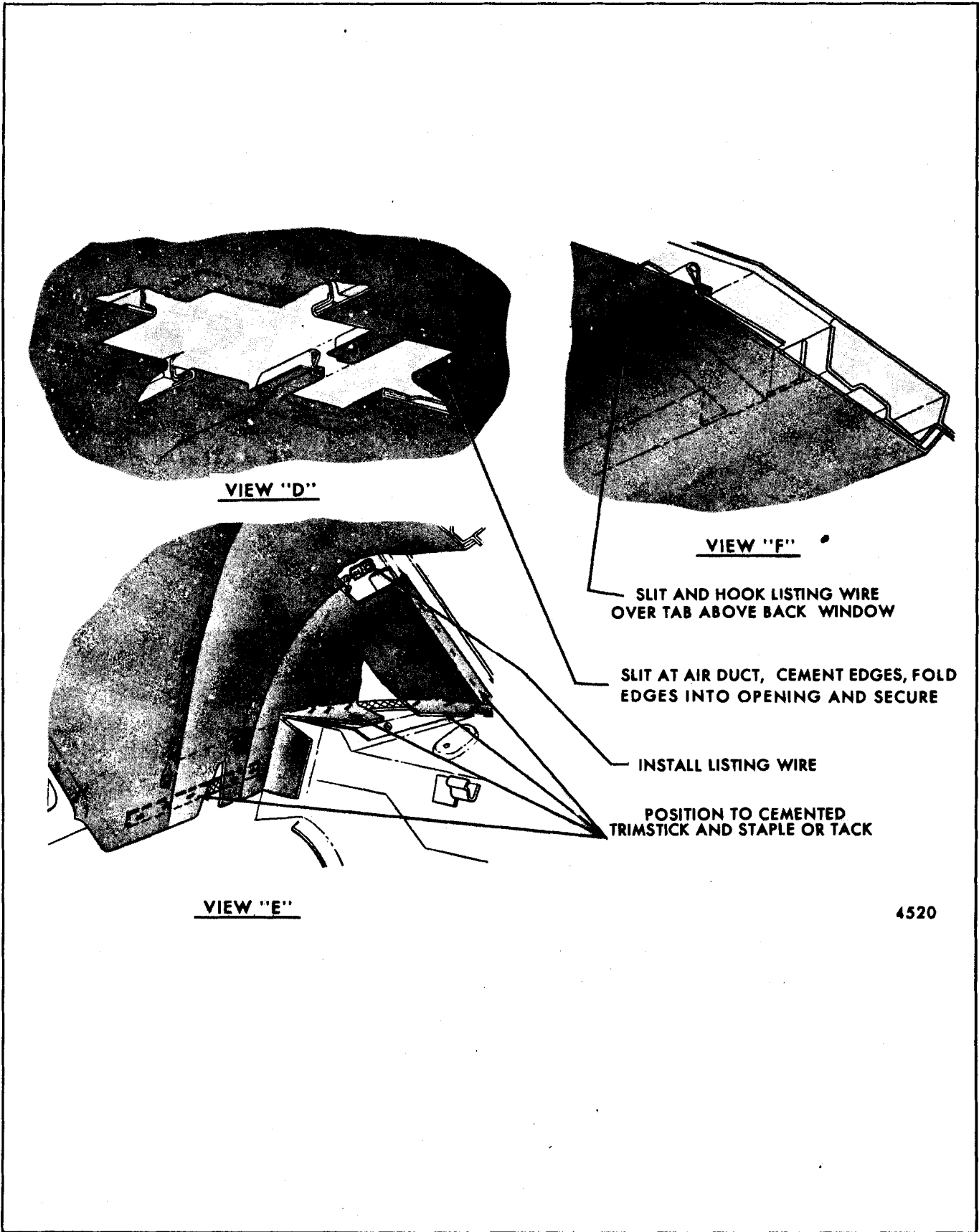


Fig. 10-5-Headlining Installation - "D" Body Styles

HEADLININGS-56-66 Station Wagon Styles

DESCRIPTION

The "56-66" station wagon styles use two separate headlining assemblies which may be removed and replaced separately. The front headlining is formed to the contour of the roof panel by concealed listing wires. The ends of the listing wires are installed into holes in the side roof inner rails, and may be adjusted up and down or fore and aft (View "B", Fig. 10-6).

The headlining material is cemented to metal retainers and side roof rail pinchweld flanges (View "A", Fig. 10-6). Escutcheons, moldings and finishing lace cover the edges and assist in holding the material in place.

The rear headlining is formed to the contour of the roof panel by concealed listing wires. The ends of the listing wires are installed into clips which are secured to the side roof inner rails by screws (View "E", Fig. 10-6). The edges of the material are cemented to the retainer flanges. Finishing lace and moldings cover the edges and assist in holding the material in place.

IMPORTANT: Clean hands are essential when working with headlining material.

FRONT HEADLINING ASSEMBLY

Removal

1. Place protective covers over front seat cushion and back.
2. Prior to removal of the front headlining, remove the following items:
 - a. Sunshade supports.
 - b. Rear view mirror support.
 - c. Windshield upper corner escutcheons.
 - d. Center lock pillar upper finishing plates.
 - e. Side skylight front upper garnish molding.
 - f. Courtesy lamps.
 - g. Front headlining finishing lace.
 - h. Rear of headlining finishing lace.
 - i. Finishing lace over front and rear doors.
 - j. Shoulder strap anchor plate and escutcheon.

3. Starting at front, carefully detach all cemented edges of headlining material from retainers and flanges.
4. Disengage No. 2 listing wire from plastic clips on structural bow and remove No. 1 and 2 listing wires from inner rails. Gather or roll headlining with listing wires on outside to keep headlining clean and remove old headlining assembly (See Fig. 10-6, View "C").

IMPORTANT: Note into which holes ends of listing wires are installed in side roof rails. Listing wires should be placed in same holes when replacing headlining. If replacing headlining remove listing wires from pockets of old headlining.

Installation

1. If previously removed, install listing wires into pockets of headlining.

IMPORTANT: Listing wires removed from old headlining must be installed in corresponding pockets of replacement headlining.

2. Apply approved trim cement to headlining attaching surfaces.
3. Apply approved trim cement to metal retainers and flanges.
4. Lift headlining into body, install No. 1 and 2 listing wires into holes in side roof rails and snap No. 2 listing wire into plastic clips on structural bow (See Fig. 10-6, View "B" and "C").

NOTE: Listing wires should rest tight against roof panel. Working from front to rear, attach headlining to retainers and flanges while stretching and removing wrinkles. Reinstall all previously removed parts.

REAR HEADLINING ASSEMBLY

Removal

1. Place protective covering over seats and floor.
2. Prior to removing headlining, remove the following items:
 - a. Sunshade supports located at the front skylight.
 - b. Side skylight front upper garnish molding.

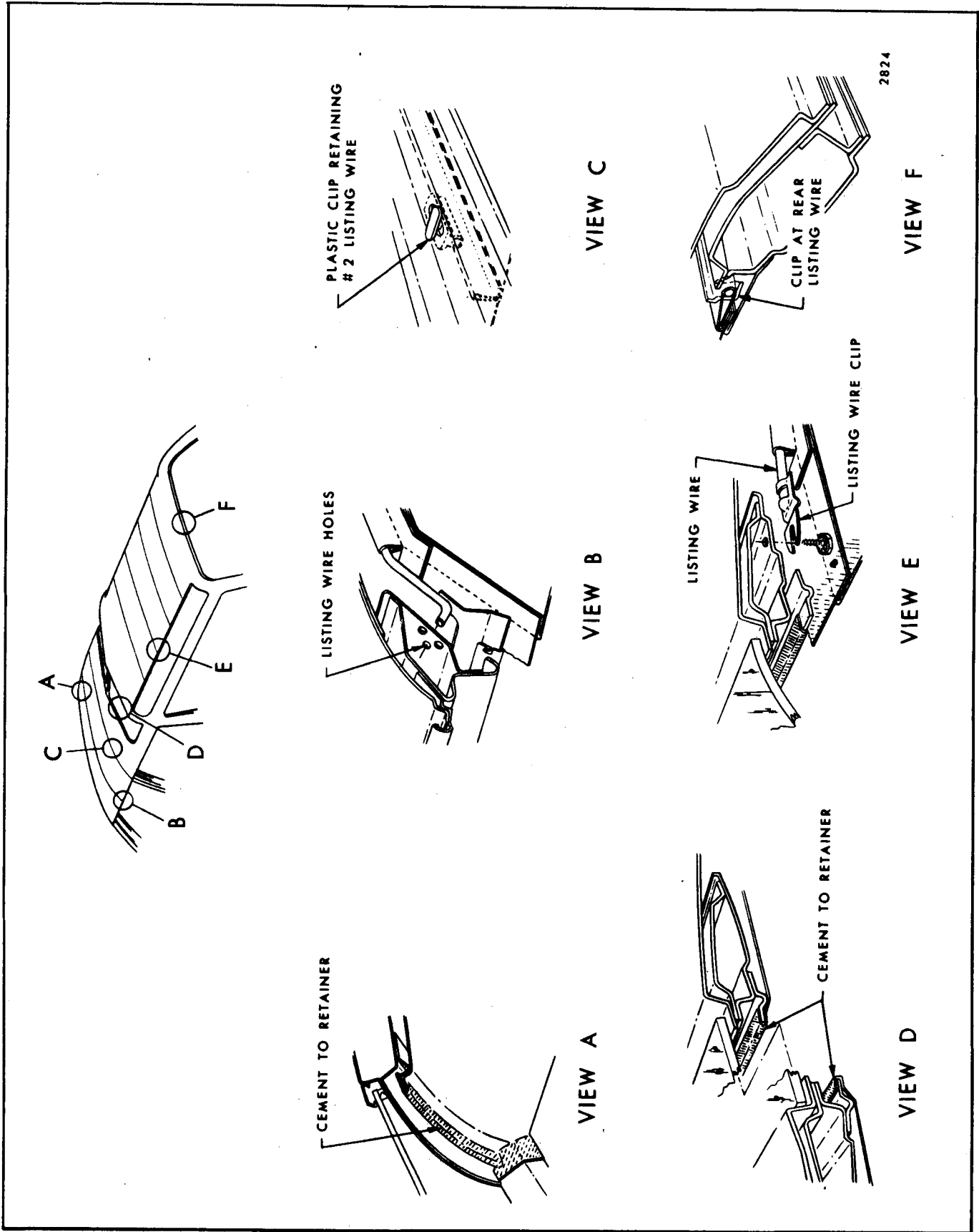


Fig. 10-6-Headlining Installation "56 and 66" Styles

- c. Rear roof headlining trim finishing molding.
 - d. All finishing lace around perimeter of headlining.
 - e. Coat hooks.
3. Carefully detach headlining at cemented edges.
 4. Starting at front remove listing wires from roof inner rails (See Fig. 10-6, View "E").
 5. At rear listing wire, bend down tabs securing wire to bow (See Fig. 10-6, View "F").
 6. Gather or roll headlining with listing wires on outside to keep headlining clean and remove headlining assembly from car.

Installation

1. If previously removed, install listing wires into pockets of new headlining assembly.

IMPORTANT: Listing wires removed from old

headlining must be installed in corresponding pockets of new headlining.

2. Apply an approved trim cement to attaching surfaces of headlining material.
3. Apply an approved trim cement to retaining flanges of roof panel.
4. Lift headlining into body, install center of rear listing wire over metal tabs at rear bow and bend down tabs (See Fig. 10-6, View "F").
5. Working forward install remainder of listing wires into clips and secure clips to roof (See Fig. 10-6, View "E").
6. Listing wires must rest tight against the roof. If necessary adjust listing wires by moving clips at attaching screws.
7. Attach entire perimeter of headlining to retaining flanges, removing wrinkles by stretching the material as required.
8. Replace previously removed parts.

ONE-PIECE FORMED HEADLINING

DESCRIPTION

The one piece formed headliner consists of molded fiber glass covered with foam and nylon facing. The headliner is held in place by two (2) snap fasteners located on the longitudinal roof bow, and two (2) screws located in the quarter inner upper panel area.

The one piece construction requires the headliner be serviced as a complete assembly in all cases.

Removal

1. Remove the following items:
 - a. Courtesy lamps.
 - b. Rear view mirror support.
 - c. Coat hooks.
 - d. Upper quarter trim finishing panels.
 - e. Side roof rail moldings.
 - f. Windshield and back window garnish moldings.
 - g. Shoulder strap anchor plate and escutcheon.
 - h. Windshield side garnish molding.

- i. Sunshade support brackets.

2. Remove the screws located in the upper rear corner of the headlining (See Fig. 10-7, View "D").

NOTE: These screws are exposed after upper quarter trim finishing panel is removed (see "Door and Quarter" section).

3. Disengage the snap fasteners and carefully lower headliner from roof panel (See Fig. 10-7, View "E" and "B").
4. Lower all windows on both sides of car to the full down position and remove headlining through window openings.

Installation

1. Load headliner into car through side window openings.
2. Raise one side of headliner to side roof rail, and then the other side.

NOTE: Headlining must be loaded from the side and positioned to rest on side roof rails.

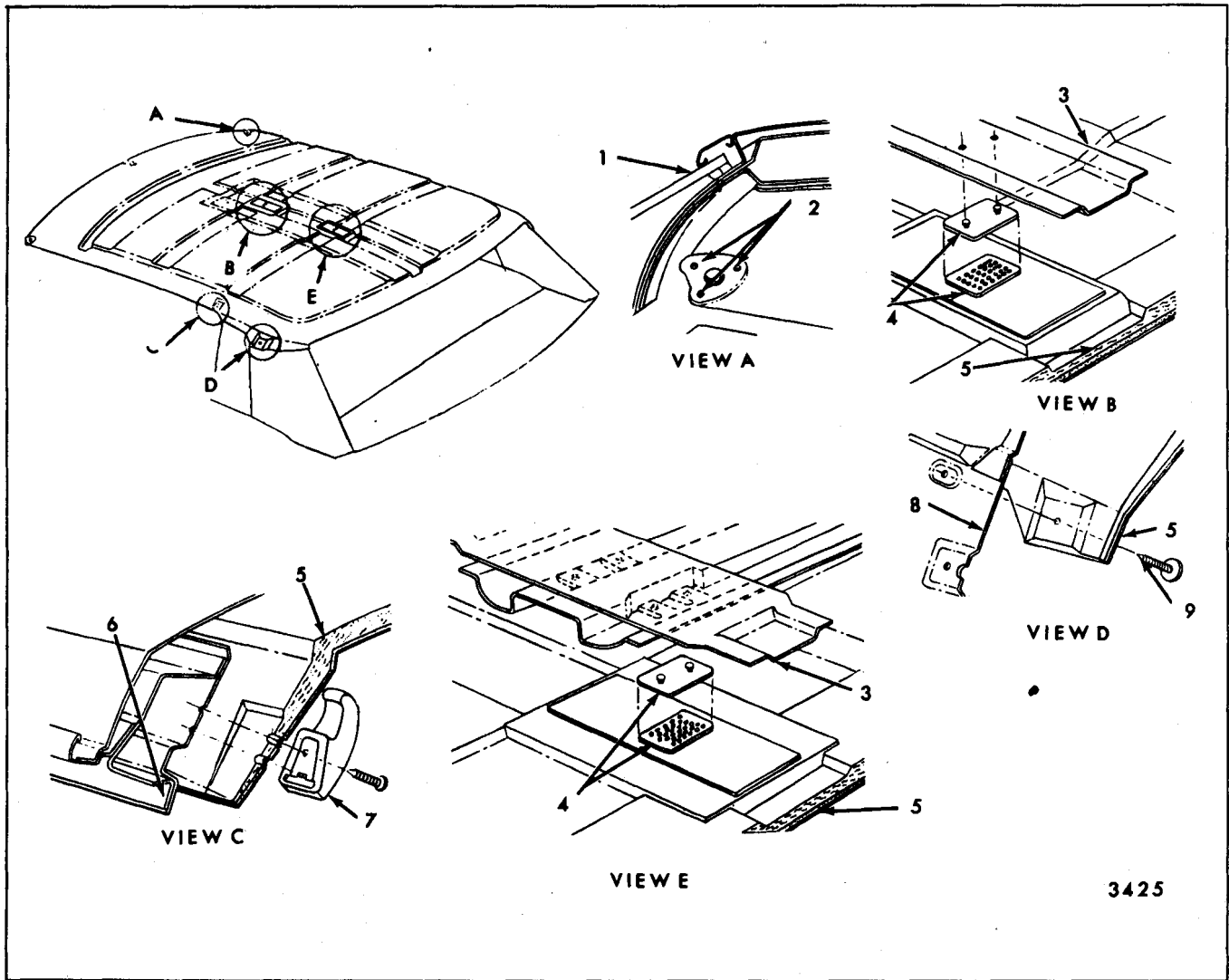


Fig. 10-7-One Piece Headlining

- | | | | |
|---------------------------|------------------|-------------------|------------------------------|
| 1. Windshield | 3. Roof Bow | 6. Side Roof Rail | 8. Quarter Inner Upper Panel |
| 2. Sunshade Bracket Holes | 4. Snap Fastener | 7. Coat Hook | 9. Retaining Screw |
| | 5. Headliner | | |

- Align holes in rear of headlining with piercings in rear quarter, and cut-outs for sunshade brackets at attaching location.
- Install screws in the sail area and sunshade brackets (See Fig. 10-7, Views "A" and "D").
- Install all previously removed hardware.

- Engage snap fasteners (see Fig. 10-7, View "B" and "E") by placing flat of hand on back side of snap fastener and press upward until it engages.

IMPORTANT: TO AVOID DAMAGE OF CLIPS, DO NOT ENGAGE BY EXERTING HARD STRIKING WITH ANY TYPE OF TOOL OR HAND.

SECTION 11

ROOF

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FABRIC ROOF COVER

DESCRIPTION

The roof panel cover is a vinyl coated fabric made in sections and is either dielectrically bonded or stitched together to form an assembly. The cover assembly is then applied to the roof panel with a non-staining vinyl trim adhesive. On all styles, except Cadillac 68169 and Cadillac and Oldsmobile "E" styles, the cover assembly is cemented directly to the roof panel. On Cadillac 68169 and 69347 and Oldsmobile "E" styles, a three piece pad is cemented to the roof panel and then the cover is applied over the pad and cemented along the outer perimeter only (Refer to Figure 11-1).

The type of molding treatment determines whether the cover extends into the windshield opening and drip molding. All covers regardless of molding treatment extend into the back window openings.

On styles where the cover extends into the windshield and back window opening, the cover is retained in the opening by cement, clips installed over weld-on studs and drive nails. When the cover extends into the drip molding or folds around the roof panel flange, it is retained by drip scalp moldings, weatherstrip retainers or finishing moldings.

On styles equipped with roof panel ("halo") moldings, the cover is retained under the moldings by cement and clips installed over weld-on studs. On styles utilizing a pad, a metal retaining strip is installed onto weld-on studs and held in place with slide-on retaining washers.

Removal

1. The following parts must be removed prior to removing the fabric roof cover.
 - a. Upper and both side windshield and back window reveal moldings (except on styles where the cover does not extend into the windshield opening).
 - b. Roof drip molding scalps, weatherstrip retainers or finishing moldings (when cover extends into drip molding or folds around the roof panel flange).
 - c. Rear quarter belt reveal moldings and rear end belt reveal moldings.

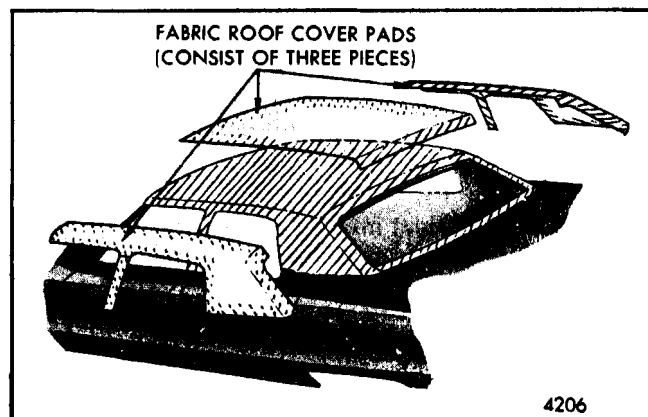


Fig. 11-1-Typical Fabric Roof Cover Pads

- d. Roof cover retainer to rear body lock pillar (on styles so equipped).
- e. Roof extension panel emblem or nameplate assembly (if present).
- f. All roof panel moldings and molding retainers (on styles so equipped).
- g. Quarter window lower belt reveal molding (on styles where fabric cover extends under molding).
- h. On "B" body station wagon styles, remove back body opening and quarter window reveal moldings.

2. Remove reveal molding clips across top and sides of windshield, quarter or back glass openings. On styles where fabric cover extends below back window remove reveal molding clips along bottom of back window opening. Clean off any excess adhesive caulking material adjacent to fabric roof cover material.

NOTE: In the event a repair type clip has been installed and retaining screw is not accessible, carefully trim roof cover around clip.

3. Remove all drive nails that are present in windshield and back window opening and at roof extension area.

IMPORTANT: When removing drive nails, the edge of glass must be protected. Two to three layers of cloth body tape should provide the necessary protection.

NOTE: Drive nails can best be removed by first driving a screwdriver or suitable tool under the nail heads to loosen them. Diagonal cutters or similar tool can then be used to grasp nails and twist them out. Unnecessary enlargement of holes in roof panel should be avoided.

4. Prior to removing fabric cover, application of heat to cemented areas will permit easier loosening of cemented edges.

IMPORTANT: Heat may be applied by lamps held 18" (minimum) from fabric only until fabric is warm. If lamps are held too close or fabric cover is heated over 200 degrees fahrenheit, the fabric may lose its grain, blister, or become very shiny.

5. Loosen all cemented edges of fabric roof cover, then, carefully remove fabric cover from remaining cemented area of roof panel.

IMPORTANT: On styles where a pad is present, exercise care when removing fabric cover to avoid damage to the pad.

6. On styles equipped with pad, inspect padding and replace any damaged area. Padding may be removed by applying xylol solvent such as 3M Adhesive Cleaner, or equivalent, to affected area. Allow solvent to dissolve adhesive and remove padding. Exercise care to avoid softening of roof panel paint finish.
7. Replace pad by cementing pad to roof panel with nitrile vinyl trim adhesive.

Installation-Styles with Pad and/or Pad and Roof Panel Moldings

1. Completely mask off area of roof panel which is not covered by fabric cover. On Oldsmobile and Cadillac "E" styles, extend tape over windshield upper reveal molding so cement will not contact paint or adhesive caulking material.

2. Where possible, install new cover at room temperature (approximately 72 degrees), to permit easier fitting and removing of wrinkles from new cover assembly.

NOTE: Where new cover is installed at temperatures below 72 degrees, fabricated pliers will aid in removing wrinkles (See Fig. 11-2).

3. Determine center line of roof panel by marking center points on windshield and back window opening with tape or equivalent.
4. Lay cover on roof panel and fold cover lengthwise, precisely at center location. Mark center location at front and rear of cover. In addition, on 68169 styles, mark center location of right and left body center pillar.
5. Remove cover from roof panel and lay cover with lining side upward on a clean flat surface.
6. Apply nitrile type vinyl trim adhesive to that part of lining side of cover that will contact the metal portion of the roof panel. On styles with pads, cement should be applied so it will overlap the pad approximately 1" (Figure 11-3).

NOTE: It is recommended that the vinyl trim adhesive be applied with a spray gun. As an alternate method, a brush or roller may be used. If spraying method is utilized, a spray gun with a pressure cup and specific Fluid Tip and air cap should be used as shown on chart below (or equivalent).

	Devilbiss		Binks	
Gun Model. . .	MBC-510	JGA-502	62	18
1 Qt. Pressure.	KB-519	KB-519	80-256	80-210
Air Cap.	24	24	66PG	66PG
Fluid Tip.	E	E	66	66
Fluid Needle. .	E	E	365	65

The recommended air pressures are as follows:

- A. Air Line Pressure - 50 lbs.
- B. Cup Pressure - 2 to 4 lbs.

Permalastic, 3M Vinyl Trim Adhesive or equivalent purchased in the field is of spraying consistency. If rolling method is used, a mohair type roller should be utilized. Make certain cement is applied evenly and there are no highlights from excess cement build-up.

7. Allow cement on fabric roof cover to dry thoroughly.
8. Lay cover on roof panel and align to correspond with centerline(s) of roof panel. Determine proper material overhang at back window openings (approximately 2" overhang at seam area at back window) and at center pillars on 68169 styles.
9. Cut relief notches in cover at all weld-on studs and angle cuts as required in corners of window openings (Figure 11-4). Apply cement to window openings and cement cover in opening. In the event a reveal molding clip could not be removed, trim cover around clip and cement cover down behind clip (See Fig. 11-3).
10. protect the edge of back glass and install drive nails at seam locations, as low in opening as possible.
11. Apply cement to one side of exposed roof panel where cover is attached (on padded styles, make certain cement overlaps pad approximately 1") and cement cover to cemented areas. Relief notches must be cut in cover at weld-on studs on roof panel (View "A", Fig. 11-3).

12. Repeat step 11 on opposite half of roof panel.

13. Install drive nails, approximately 3" apart and two in each upper corners, across top and down sides of back window opening on Cadillac 68169 and Oldsmobile and Cadillac "E" styles. In addition, install drive nails across top of windshield opening on 68169 styles (refer to View "D" Figure 11-3 for Oldsmobile and Cadillac "E" styles and View "A" and "G", Figure 11-4 for 68169 styles).

14. Carefully install drive nails as low as possible above each reveal molding clip that could not be removed.

NOTE: When installing drive nails it is best to first use an awl or similar tool to initiate a hole in metal. Strike drive nails only hard enough to seat them. Installation of drive nails should also be as low as possible in back window opening.

15. Apply cement to roof extension areas overlapping pad by 1" and below back window opening.

16. Cement cover below back window opening, and then in roof extension area (right and left side).

NOTE: Cement cover at roof extension areas by pulling cover down and rearward. When operation is completed, fabric cover should be free of all wrinkles and draws in this area.

17. On styles equipped with roof panel moldings, position roof panel molding retainers over weld-on studs and install retain clips.

18. Trim fabric cover in a line along retainers. **DO NOT DAMAGE PAINT FINISH.** At front

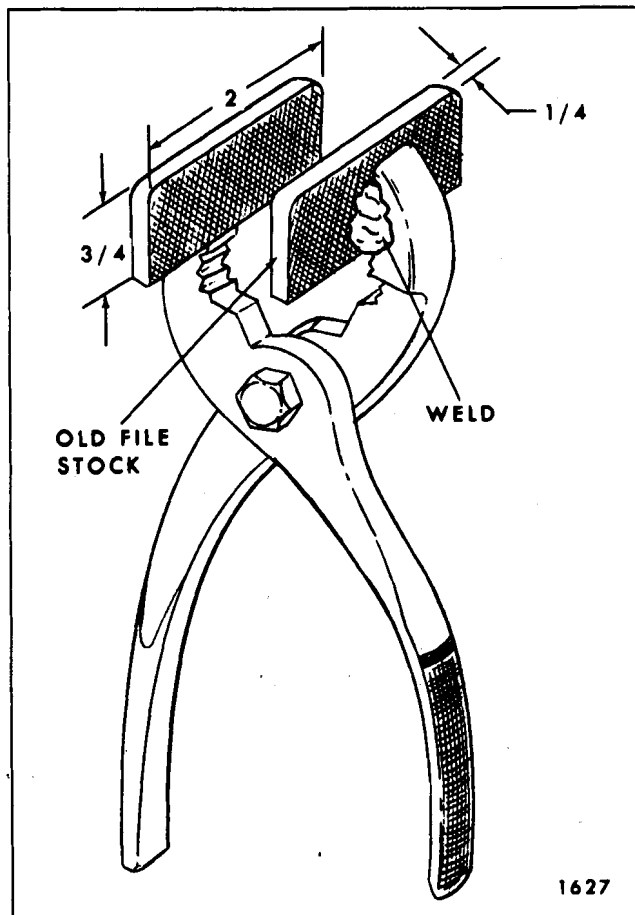


Fig. 11-2-Fabric Roof cover Pliers

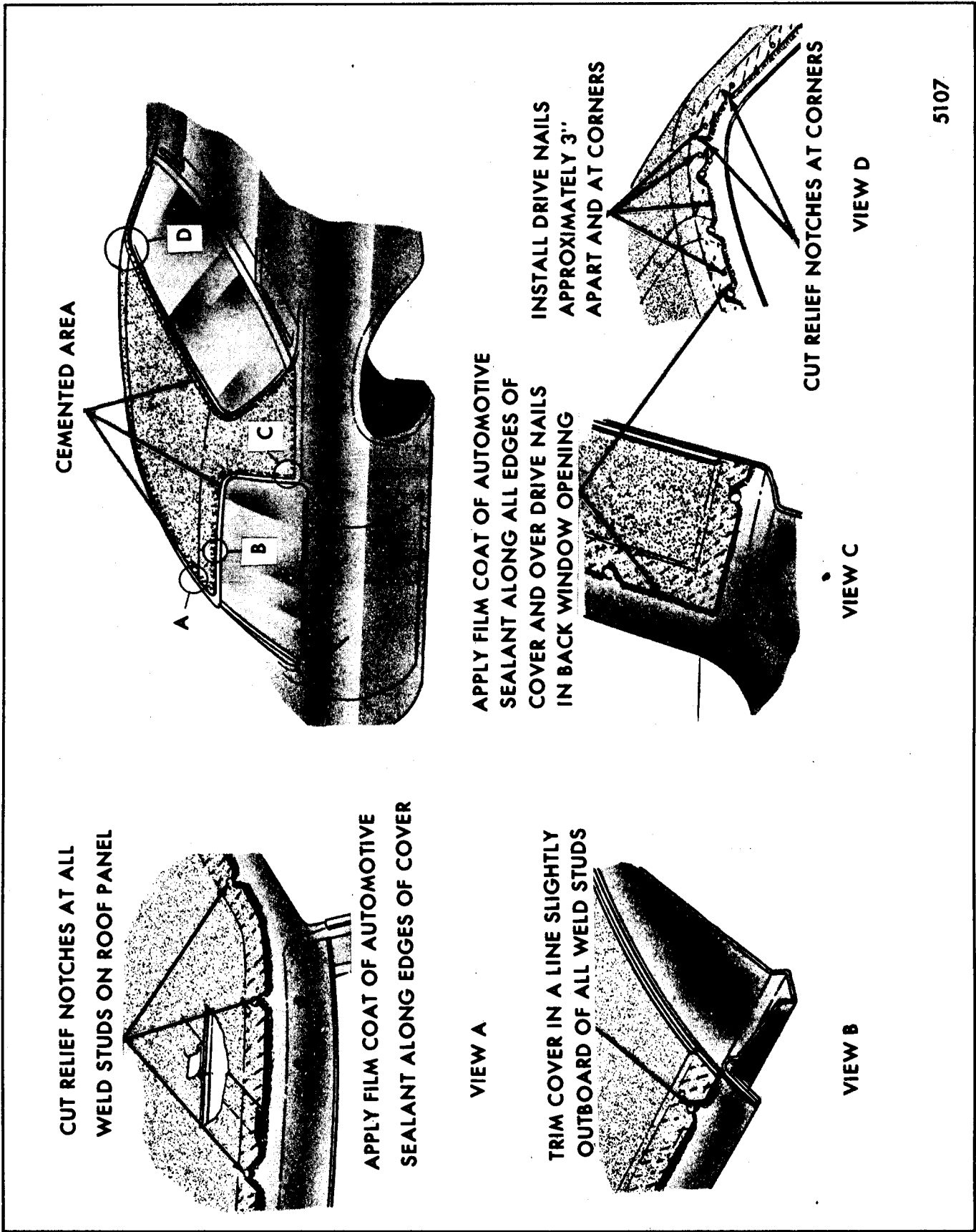


Fig. 11-3-Typical Fabric Roof Cover Installation with Pad and Roof Panel Moldings

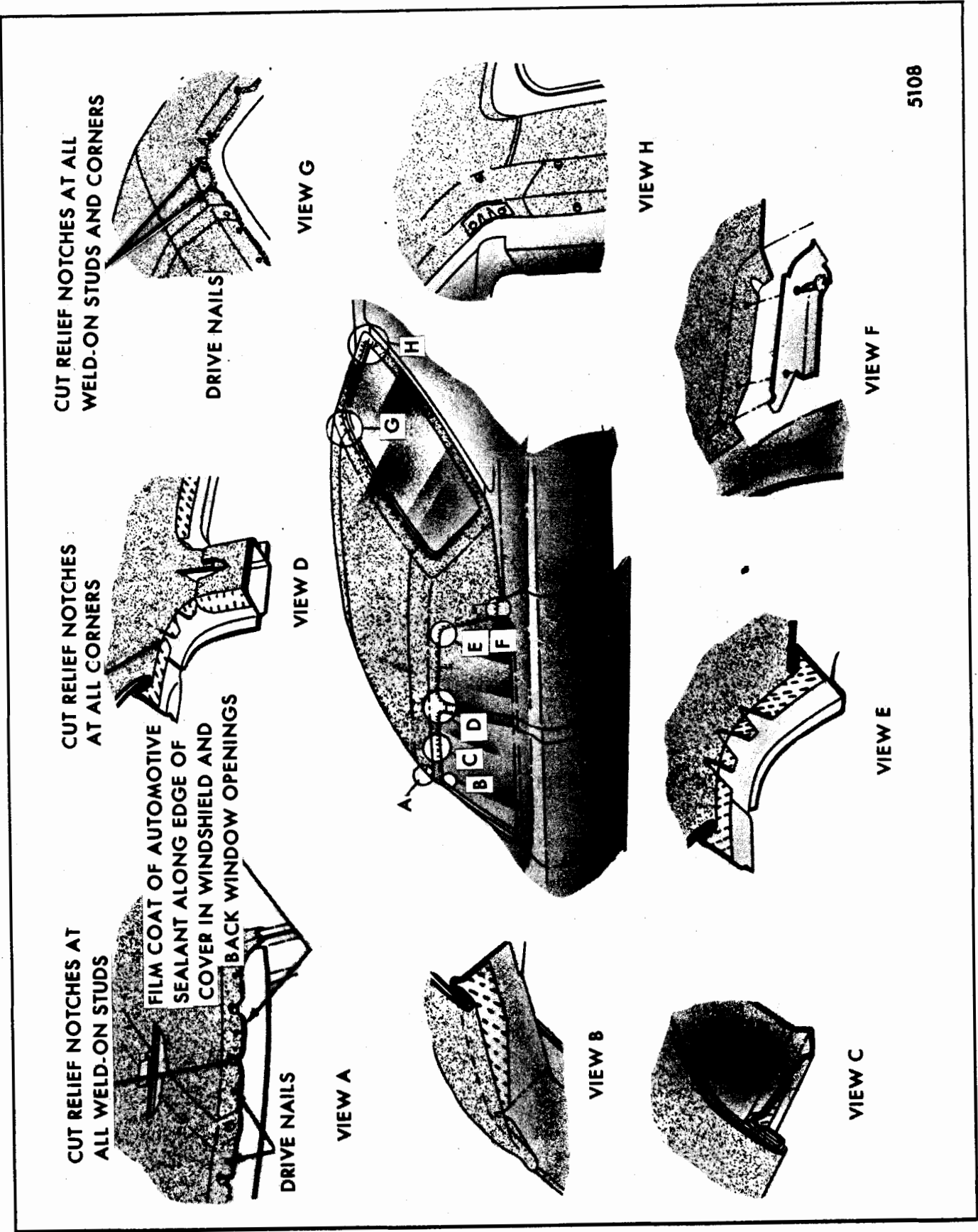


Fig. 11-4-Fabric Roof Cover Installation with Pad - 68169 Styles

corners, raise cemented edge of cover and using scissors or sharp knife cut radius so roof panel moldings cover cut edge. Recement fabric cover to roof panel. Remove masking tape from roof panel (View "A", Fig. 11-3).

19. On 68169 styles, apply cement to the body center pillars and around the edge of the roof panel flange at the side rails and cement the cover into position.
20. Trim material along belt line at roof extension area and below back window, along rear end belt molding area. If it is necessary to trim material from outer edge of fabric cover around back window openings, raise cemented edge and cut as required.
21. Apply a "film" coat of silicone sealant such as Dow Corning Automotive Sealant, General Electric RVP Sealant, or equivalent over drive nails and to edges of cover in windshield and back window openings, at belt area and at edges under roof panel moldings. Make certain edge of material around all reveal molding clips that were not removed, is also sealed (Fig. 11-3).
22. Remove all previously installed protective covering from glass and body.
23. Install all previously removed moldings and assemblies.

NOTE: Normally, minor creases or fold marks will gradually disappear after cover assembly has been in service.

Installation - Styles Without Pad (With or Without Roof Panel Moldings)

1. Completely mask off areas of roof panel which are not covered by fabric cover. Mask upper windshield or reveal moldings, windshield glass, back window, all doors and flat painted surfaces (hood, rear compartment lid, etc.).
2. Check all cementing surfaces on body to insure a smooth surface. Cementing surface must be smooth to prevent "highlighting" of excess cement through fabric cover after new cover has been installed. Clean off old cement as required. In the event any metal finishing is performed on roof panel, repaired area must be painted.

NOTE: A xylol solvent such as 3M Adhesive Cleaner or equivalent should be used to remove or smooth out excess old cement. Apply solvent and allow to soak before rubbing.

IMPORTANT: Be certain to follow manufacturer's directions when using cleaner.

3. Where possible, install new cover at room temperature (approximately 72 degrees), to permit easier fitting and removing of wrinkles from new cover assembly.

NOTE: Where new cover is installed at temperatures below 72 degrees, fabricated pliers will aid in removing wrinkles (See Fig. 11-2).

4. Determine centerline of roof panel by marking center points on windshield and back window opening with tape or equivalent.
5. Lay cover on roof panel and fold cover lengthwise, precisely at center location. Mark center location at front and rear of cover. On station wagon styles, mark center location on right and left rear body lock pillar.
6. Remove cover from roof panel and lay cover with lining side upward on a clean flat surface.
7. Apply an even application of nitrile non-staining vinyl trim adhesive (such as 3M Vinyl Trim Adhesive, Permalastic Vinyl Trim Adhesive or equivalent) over entire lining side of fabric cover.

NOTE: It is recommended that the vinyl trim adhesive be applied with a spray gun. As an alternate method, a brush or roller may be used. If spraying method is utilized, a spray gun with a pressure cup and specific Fluid Tip and air cap should be used as shown on chart listed and previously described.

Permalastic, 3M Vinyl Trim Adhesive or equivalent purchased in the field is of spraying consistency. If rolling method is used, a mohair type roller should be utilized. Make certain cement is applied evenly and there are no highlights from excess cement build-up.

8. Allow cement on fabric roof cover to dry thoroughly.
9. Lay cover on roof panel and align to correspond with centerline of roof panel. Determine proper material overhang to windshield and back window openings (approximately 2" overhang at seam area at back window and windshield opening).
10. Fold one half of cover back at centerline and apply nitrile type vinyl trim adhesive to exposed half of roof panel (Do not include drip molding or roof extension area). Starting in center at centerline and working toward drip molding, cement cover to area while cement is wet. As cover is being "unfolded" and cemented, it should be thoroughly "slicked" down to avoid wrinkles or air bubbles.

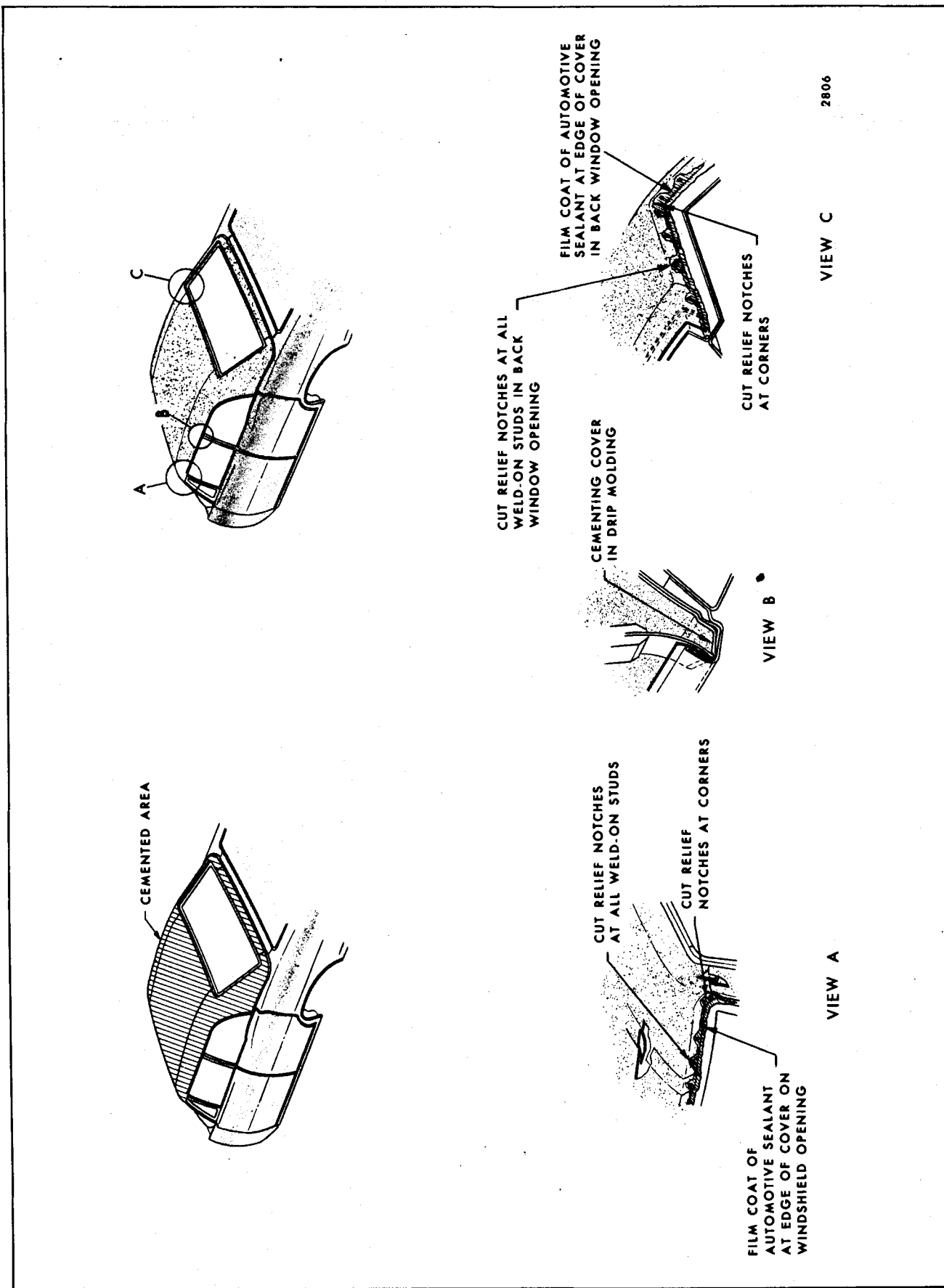


Fig. 11-5 Typical Fabric Roof Cover Installation without Pad or Roof Panel Moldings - "A and X" Styles

11. Repeat Step 10 on opposite side of roof panel.

NOTE: Make certain that cover is free of wrinkles and seams are straight. Fabric cover pliers may be used in aiding removal of wrinkles.

12. On styles where the cover extends into window openings, perform the following (Fig. 11-5):

- a. Cut relief notches in cover at weld-on studs across top of back window or back body opening. Also, angle cut in corners as required.
- b. Apply cement across the top back window or back body opening and cement cover. In the event any reveal molding clips could not be removed, trim cover around clip and cement cover down behind clip.

NOTE: Make certain a continuous and positive bond exists when cementing cover in the back window back body opening.

13. Apply cement to roof extension areas and below back window opening on styles where cover extends below back window.

14. On styles where cover extends below back window opening, cement cover in that area prior to performing Step 15.

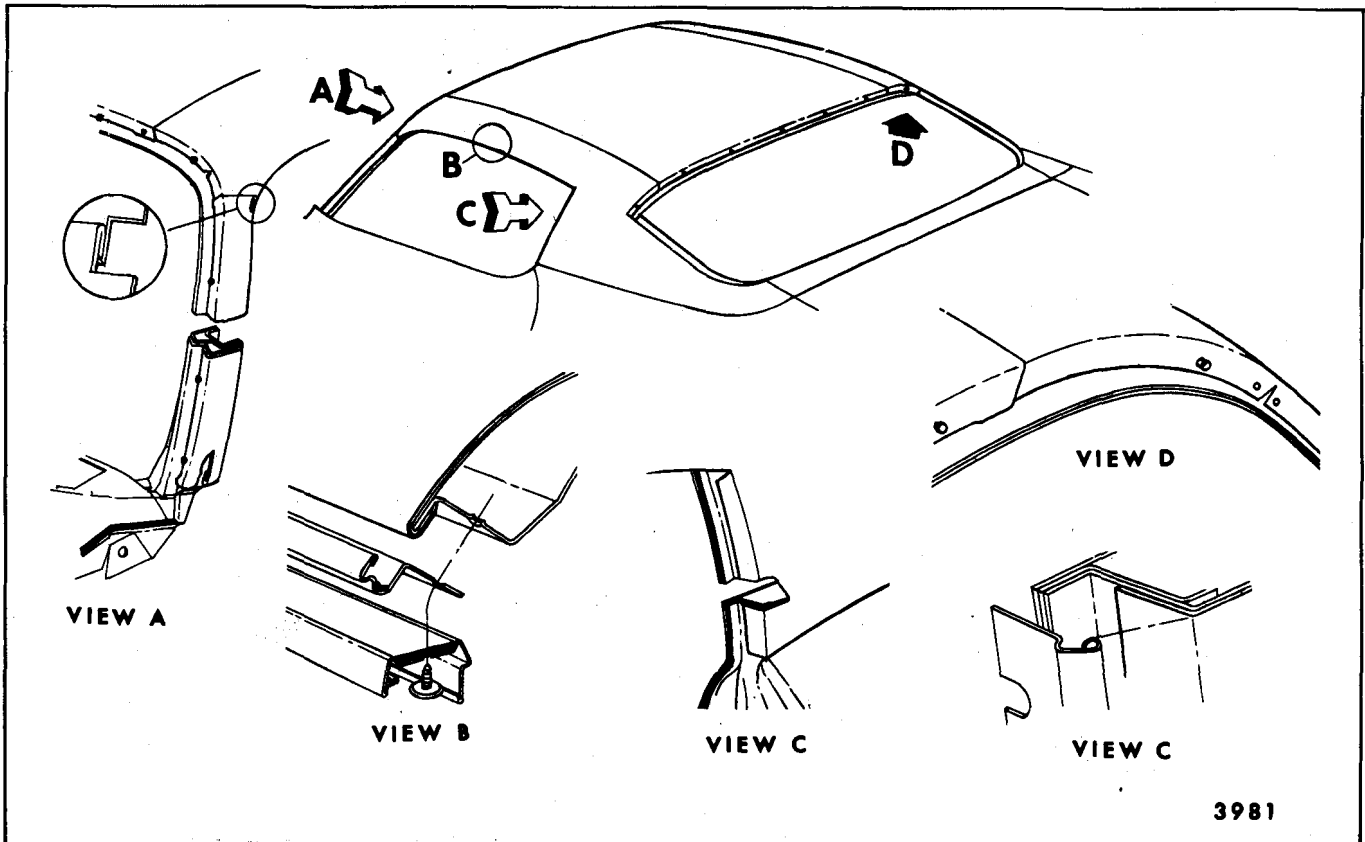
15. Cement cover at roof extension areas by pulling cover down and rearward. When operation is completed, fabric cover should be free of all wrinkles and draws in this area.

16. Cement cover into side of back window opening. If weld-on studs are present, cut relief notches in cover.

17. On styles where roof panel cover extends down windshield pillar, cement fabric roof cover to windshield pillar.

18. On styles equipped with roof panel moldings, trim fabric cover in a line slightly outboard of weld-on studs on roof panel. **DO NOT DAMAGE PAINT FINISH.** At front corners, raise cemented edge of cover and using scissors or sharp knife cut radius so roof panel moldings cover cut edge. Recement fabric cover to roof panel. Remove masking tape from roof panel (Fig. 11-8).

19. On all styles, trim material along belt line at roof extension area. On styles where fabric cover extends below back window, trim cover along rear end belt molding area. If it is necessary to trim material from outer edge of fabric cover around windshield or back window opening, raise cemented edge and cut as required.



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Fig. 11-6-Typical Fabric Roof Cover Installation Without Pad or Roof Panel Moldings - "A, B, C and F" Styles

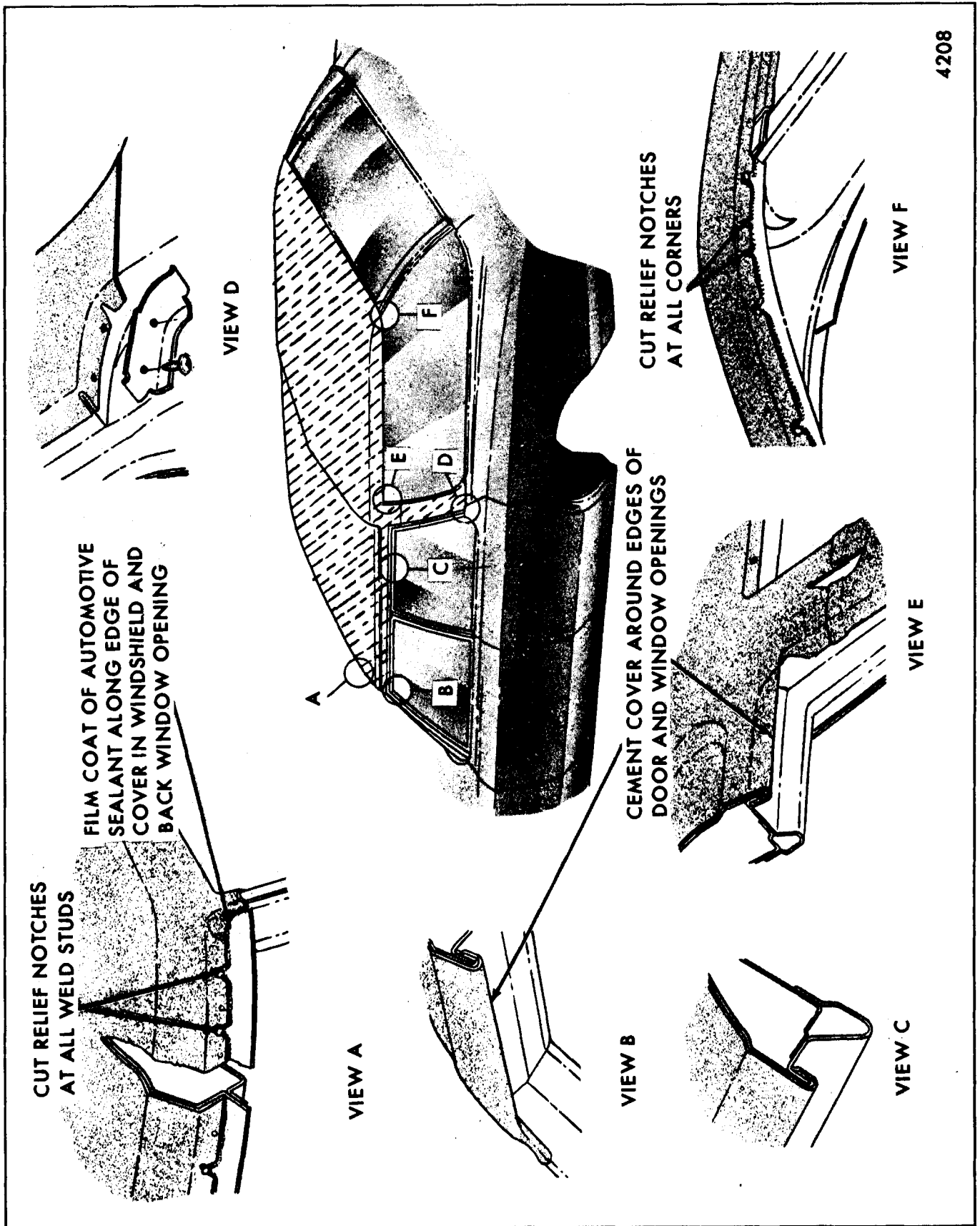


Fig. 11-7-Typical Fabric Roof Cover Installation - Station Wagon Styles

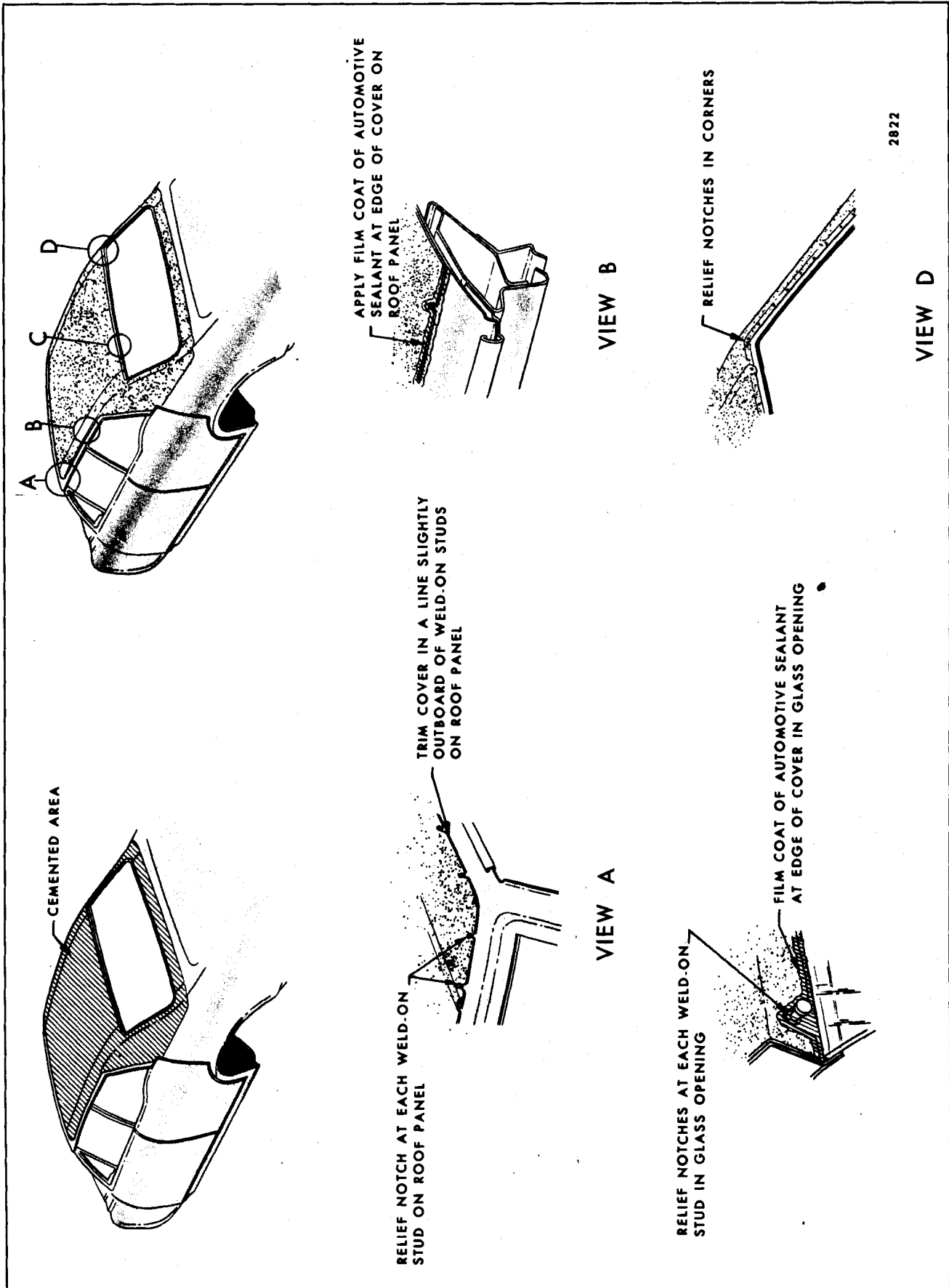


Fig. 11-8-Typical Fabric Roof Cover Installation with Roof Panel Moldings and without pad - "A, B and C" Styles

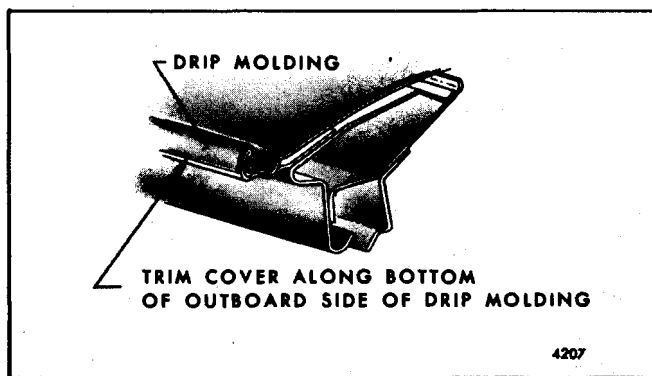


Fig. 11-9-Trimming Fabric Roof Cover at Drip Molding Area

20. On styles where roof cover extends into drip moldings or fold around roof panel pinchweld flange, at side rail, perform the following:
 - a. On "A and X" styles, cement cover into and around outboard side of drip molding and trim cover along outside bottom edge of molding (Fig. 11-9).
 - b. On "B, C, E and F" styles, cement cover around and into pinchweld flange at side rail and trim cover as shown in Figure 11-6.
- NOTE:** When trimming cover, tool J-21092 or equivalent may be used (Fig. 11-10).
21. On station wagon styles where the cover assembly extends down the rear body lock pillar, cement cover into the door and quarter window openings (Figure 11-7).
 22. Apply a "film" coat of silicone sealant such as Dow Corning Automotive Sealant, General Electric RVP Sealant, or equivalent, to the edge of cover in windshield and back window opening, quarter window, back body opening and at belt area; also, at edges on roof panel when roof panel moldings are used. Make certain edge of material around all reveal molding clips that were not removed is also sealed (Figs. 11-5, 11-6 and 11-8).
 23. On styles outlined in Steps 20A or B, install drip scalp moldings or weatherstrip retainer and finishing moldings. These moldings aid in retaining the fabric roof cover.

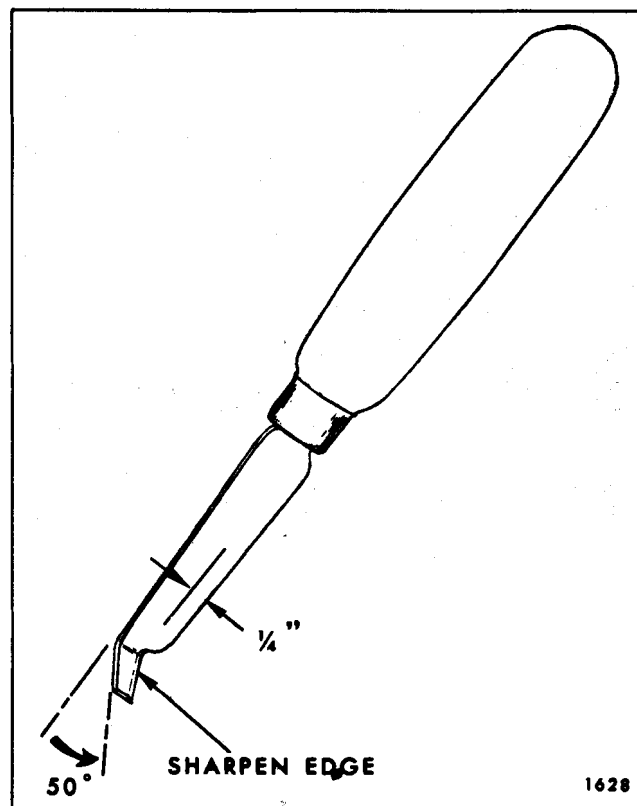


Fig. 11-10-Fabric Cover Trimming Tool

24. Remove all previously installed protective covering from windshield, back glass and body.
25. Install all previously removed moldings and assemblies.

NOTE: Normally, minor creases or fold marks will gradually disappear after cover assembly has been in service. In the event slight bubbles or wrinkles exist in fabric cover, they can be repaired as follows:

- a. Pierce bubble with small needle.
- b. Apply a dampened shop towel over area.
- c. Using a low heat home-type flat iron, apply iron to dampened towel using back and forth strokes until wrinkle or bubble disappears. Be certain shop towel does not become dry as excess heat will permanently damage fabric roof cover.

FABRIC ROOF COVER DISCREPANCY REPAIR

DESCRIPTION

The fabric roof cover material is a vinyl coated fabric which exhibits a grain pattern in the exterior vinyl

surface. In the event the vinyl surface becomes damaged, (cut, scuffed, gouged or torn) it is possible in most cases to make repairs without removing the cover assembly from the roof panel (See Figs. 11-11 and 11-12).

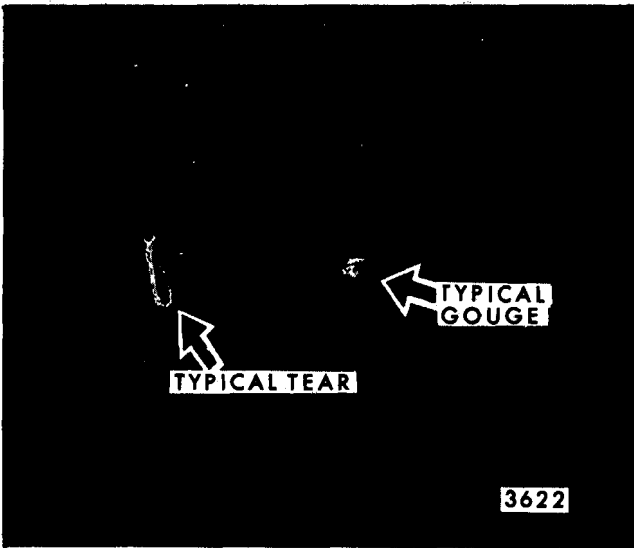


Fig. 11-11-Typical Fabric Roof Cover Discrepancy

The repair procedures which follow describe two separate methods.

1. Repair utilizing a teflon coated metal graining tool, heating iron, and a variable heat control unit, Fig. 11-13.

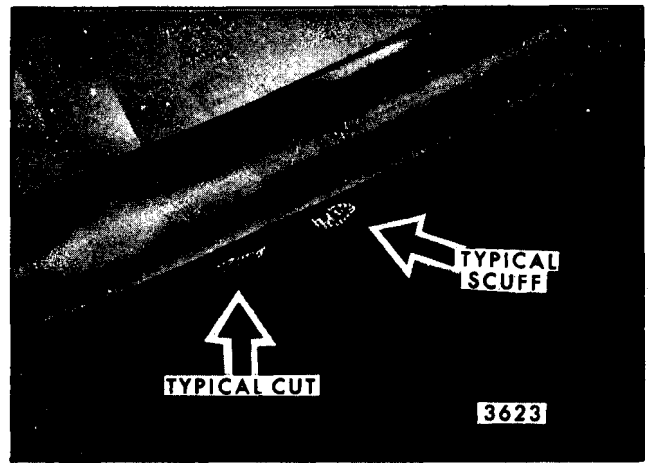


Fig. 11-12-Typical Fabric Roof Cover Discrepancy

2. Repair utilizing a fabricated plastic body filler graining die and a heat gun, Fig. 11-14.

**REPAIR PROCEDURE UTILIZING
TEFLON COATED GRAINING TOOL -
All Styles Except Cadillac**

Equipment and Material Requirements

1. Repair tool kits for graining and curing vinyl

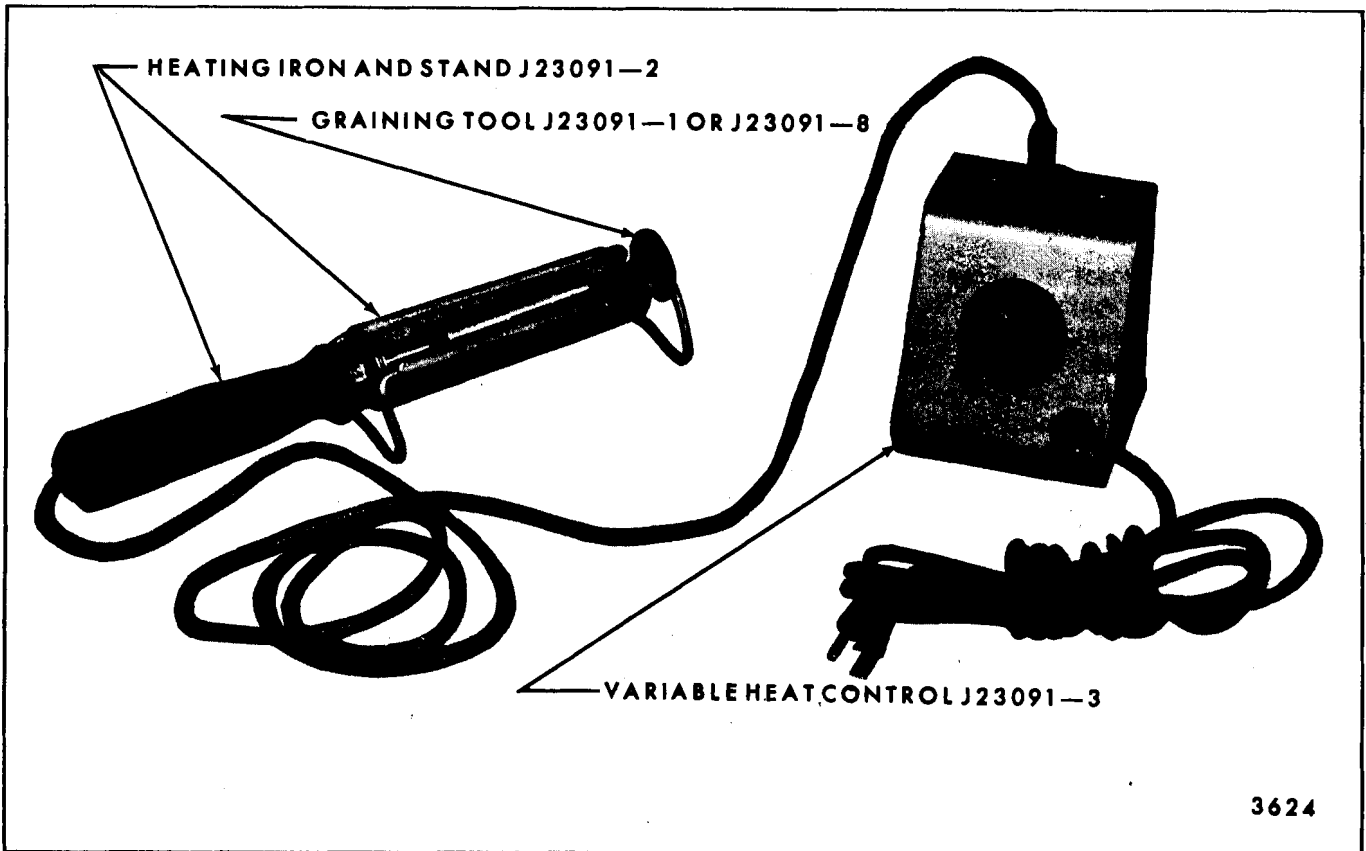


Fig. 11-13-Fabric Roof Cover Repair Tool

repair patching compound are available as follows:

- a. Kit J-23091 (or equivalent) includes graining tool J-23091-1 (or equivalent), heating iron and stand tool J-23091-2 (or equivalent) and variable heat control tool J-23091-3 (or equivalent) and is applicable for 1971 and prior model year fabric roof cover material (Fig. 11-13).

NOTE: Each component part of Kit J-23091 or equivalent is serviced individually.

2. Pallet knife - A small trowel used for applying vinyl repair patching compound (Fig. 11-15).
3. Razor or sharp knife - To be used for removing frayed edges from damaged area prior to application of vinyl patching compound (Fig. 11-15).

4. Vinyl cleaner (detergent type) - All purpose cleaner for removal of surface dirt, grease dust, etc. from extremely dirty roof covers.
5. Vinyl cleaner (solvent type) - For removal of wax, silicone, oil, etc. from repair area prior to paint application (Fig. 11-15).
6. Vinyl repair patching compound - A heat curing milky colored heavy bodied plastisol for repairing cut, torn, scuffed or gouged vinyl roof cover material (Fig. 11-15).
7. Vinyl repair paint - an approved, durable, waterprof, weather resistant and pliable vinyl coating for refinishing vinyl coated fabrics.

Repair Procedure

1. Pre-heat graining tool at 60 setting, plus or minus 2, on variable heat control (J-23091-3 or

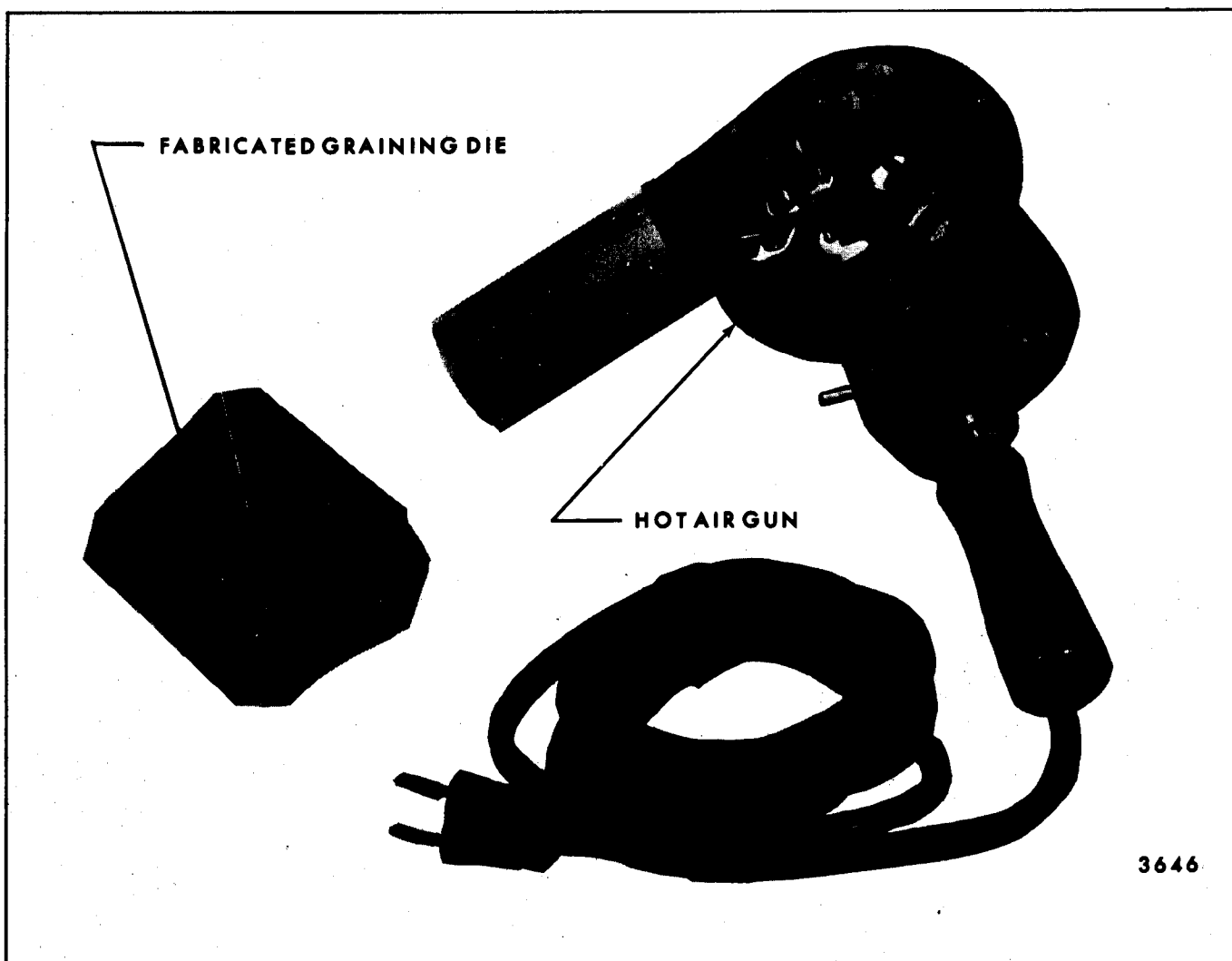


Fig. 11-14-Fabric Roof Cover Repair Die and Hot Air Gun

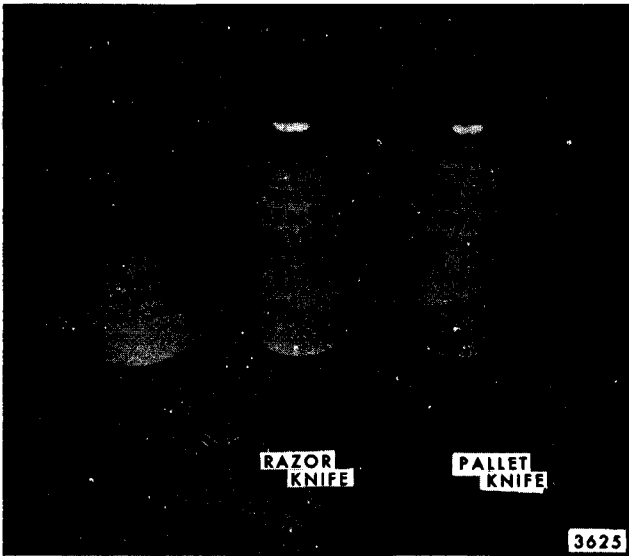


Fig. 11-15-Fabric Roof Cover Repair Materials and Tools

equivalent) for a minimum of 15 minutes or until the temperature has reached 300 degrees.

2. Prepare surface as follows:

- a. If cover has an over-all soilage, clean repair area with detergent type all purpose vinyl cleaner.
- b. Mask-off areas adjacent to repair area (body panels, moldings, glass etc.).
- c. Using a razor knife, trim the damaged area to remove all frayed or damaged edges (Fig. 11-16).

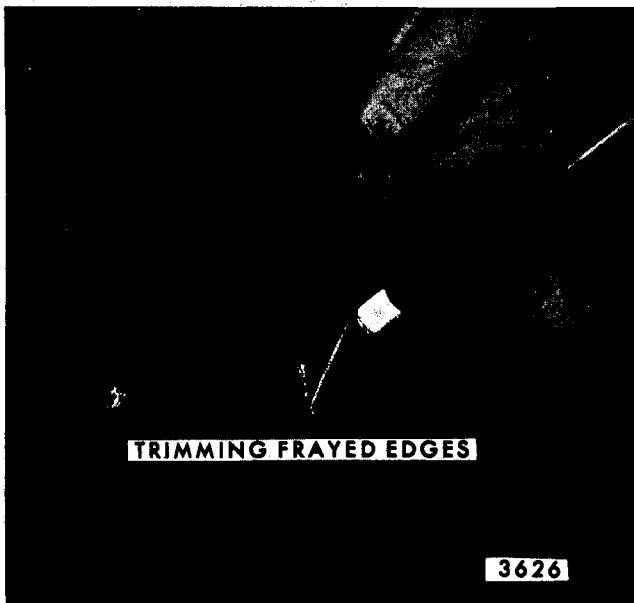


Fig. 11-16-Fabric Roof Cover Repair Trimming

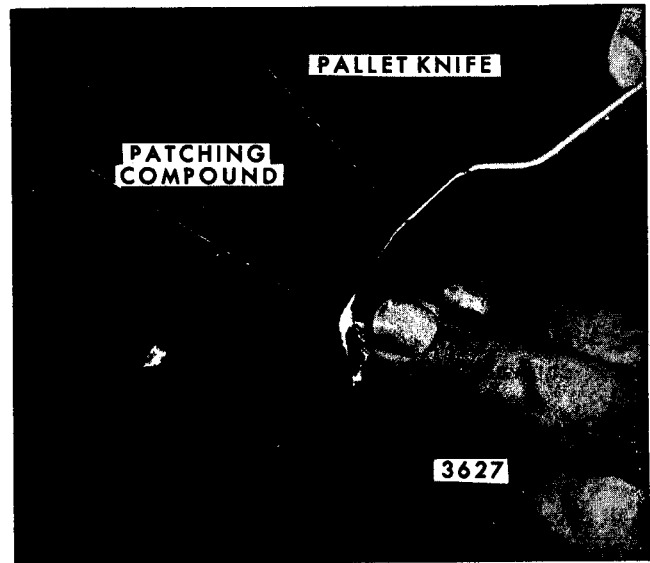


Fig. 11-17-Vinyl Repair Patching Compound Application

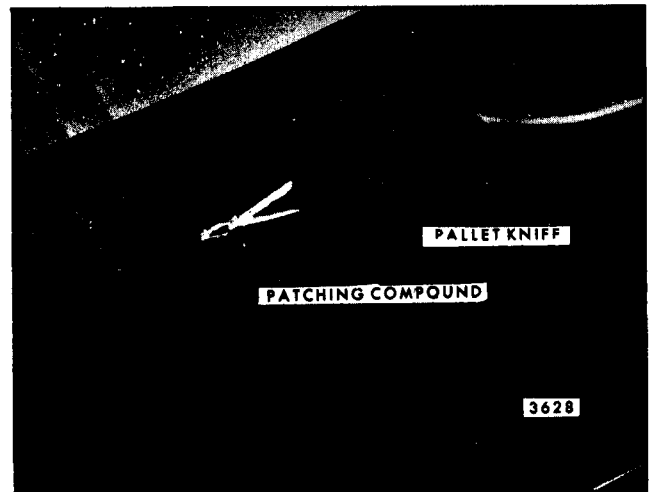


Fig. 11-18-Vinyl Repair Patching Compound Application

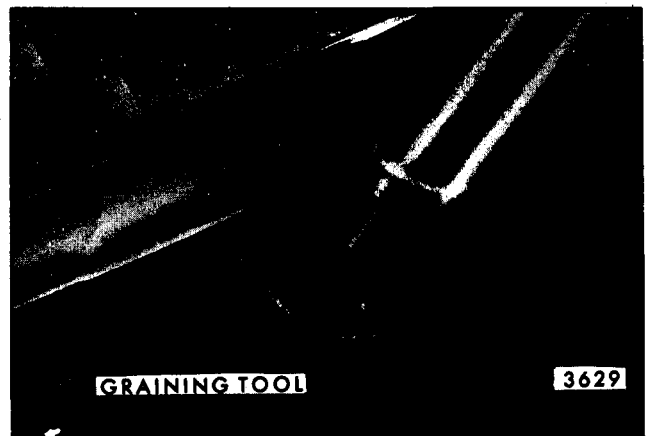


Fig. 11-19-Vinyl Patching Compound Curing and Graining

IMPORTANT: Trimming of vinyl at damaged area should be kept to a minimum. On cuts, scuffs or gouges with clean unfrayed edges, no trimming is necessary.

3. On damaged areas where no trimming was necessary, apply vinyl patching compound to edges of area as shown in Fig. 11-17). Where trimming was required, apply compound to area being repaired and trowel flush with adjacent surface as shown in Fig. 11-18. Remove any excess material (compound) with clean cloth.
4. Graining operation is performed by exerting light hand pressure and applying preheated graining iron over damaged compound filled area for approximately one and one half minutes (see Figs. 11-19 and 11-20).

NOTE: Curing and graining time can be increased slightly depending on size of repair.

IMPORTANT: During graining operation, it is important that the iron be held in a stable, perpendicular position. The use of the tool must be compatible to the repair area surface (round edge in drip rail areas; tapered edge adjacent to reveal moldings; crown surface for flat areas). For large repairs, repeat curing and graining using an over-lapping technique.

NOTE: After graining operation is completed, clean the graining tool with solvent type vinyl cleaner and apply a small amount of silicone to prevent adhesion of vinyl paint during future usage of tool.

5. Apply vinyl paint (solid colors) as follows:

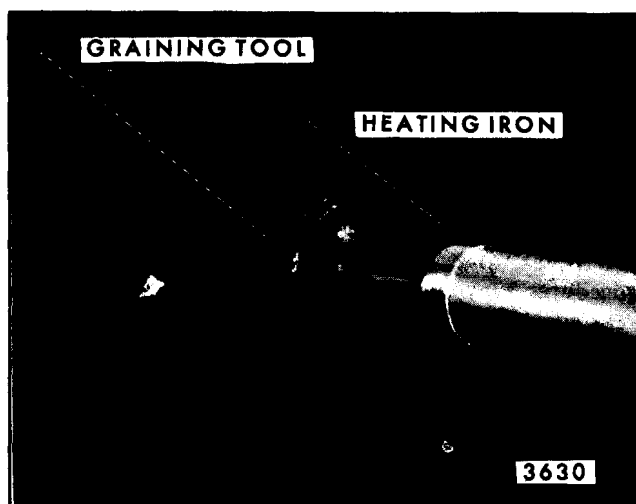


Fig. 11-20-Vinyl Patching Compound Curing and Graining

- a. Using a soft lint-free cloth, wipe the repair area with solvent type vinyl cleaner to remove any wax, silicone, oil, etc. that may be present.
- b. Thoroughly mix the vinyl color according to instructions on the container. If an aerosol type container is used, pre-test spray pattern on a piece of paper; then apply vinyl color to repair with two or three light passes. Use a "fanning" motion to create a feathering condition around the perimeter of the spot repair.

IMPORTANT: Heavy wet coats of paint must be avoided.

REPAIR PROCEDURE UTILIZING FABRICATED PLASTIC GRAINING DIE

Equipment and Material Requirements

The following describes the materials and equipment required to repair minor cuts, scuffs, gouges or tears on vinyl coated fabric roof covers:

1. Plastic body filler and hardener - a two-part material for fabricating a graining die with an impression of the grain present in the vinyl surface of the fabric roof cover (see Fig. 11-14).
2. Liquid Detergent Cleaner - all-purpose cleaner for removal of surface dirt, grease, dust, etc.
3. Vinyl Cleaner (Solvent Type) - for removal of wax, silicone, oil, etc. from repair area (see Fig. 11-15).
4. Vinyl Repair Patching Compound - a heat curing milky colored heavy-bodied plastisol for repairing damaged area (see Fig. 11-15).
5. Vinyl Repair Paint - An approved, durable, water proof, weather resistant, pliable vinyl paint for final color refinishing (see Fig. 11-15).
6. Pallet Knife - a small trowel for applying patching compound to repair area (see Fig. 11-15).
7. Heat Gun - used to cure vinyl patching compound, preferably 500 degrees to 700 degrees heat range (Fig. 11-14).

Repair Procedure

1. To fabricate a graining die, select a scrap piece of roof cover fabric of the same grain design as area being repaired. Clean grain surface using a detergent type cleaner and allow the surface to dry completely while molding compound is being mixed.

2. Using a non-porous mixing surface, mix the plastic body filler as instructed on container label as follows:

NOTE: A porous mixing surface, such as cardboard, will absorb the hardening agent. This will cause improper curing of hardener.

- a. With a thin-bladed tool, spread the mold compound on previously prepared grain surface. Maintain a 1/8 inch thick application, approximately 2 inches wide and 6 inches long. Spread material from the center toward outer edges. Immediately after application of mold material, place a scrap piece of vinyl material, cloth side down over mold and apply light finger pressure. The mold will cure in 10 to 15 minutes. Heat may be applied to accelerate curing process.
 - b. After curing, the entire mold can be removed from vinyl cover. Trim excess vinyl backing and any area that is unsatisfactory in grain pattern (outer edges of mold etc).
3. Prepare surface as follows:

- a. Using a soft lint-free cloth, wipe the repair area with solvent type vinyl cleaner. Allow area to dry completely.

IMPORTANT: Protect adjacent painted surfaces.

- b. Utilizing a razor knife, scalpel or other suitable tool, trim any frayed edges from damaged area. The damaged area should be trimmed to a minimum of 1/8 inch in width. This will permit easier filling process. A slight tapering angle of the repair surface walls provides greater surface for filler adhesion.
4. The vinyl patching compound is applied (using a pallet knife) in a succession of thin layers to the repair area. Cure material thoroughly after each layer with heat gun. Continue to apply patching compound until the top layer is flat to the surrounding surface level.
 5. Thorough curing of patching compound is necessary for proper adhesion of each layer and can be accomplished with use of a heat gun. The filler is a milky substance which becomes almost transparent when properly cured. Heat should be directed to the repair area until the compound becomes transparent.

IMPORTANT: Too much heat can result in loss of grain texture. To avoid overheating, attention should be given to the vinyl being exposed to

heat. As heat is applied, the adjacent vinyl areas will begin to show a glossy appearance. When this occurs, the vinyl has reached working temperature. Further heating will result in loss of grain.

6. Perform graining operation as follows:
 - a. After the last layer of filler material has been cured, the graining operation is performed. This operation must be performed prior to cooling of filler material. Using heat gun, apply heat directly on repair area. Continue heat application until vinyl begins to become glossy. At this temperature, successful graining can be achieved.
 - b. After heat was been applied, press the graining die into the soft vinyl. If possible, graining should be accomplished on the first attempt. To minimize loss of pattern uniformity. Apply steady, even pressure to the back of graining die to provide an even impression.
7. When graining has been completed, the repair area is ready for application of vinyl paint (solid colors) as follows:
 - a. Using a soft lint-free cloth, wipe the repair area with solvent type vinyl cleaner to remove any wax, silicone, oil, etc. which may be present.
 - b. Thoroughly mix the vinyl color according to instructions on the container. If an aerosol type container is used, pre-test spray pattern on a piece of paper; then apply vinyl color to repair with two or three light passes. Use a "fanning" motion to create a feathering condition around the perimeter of the spot repair.

IMPORTANT: Heavy wet coats of paint must be avoided.

REPAIR OF CUTS ON PADDED ROOF COVERS

On certain styles which incorporate a pad between the roof cover and the roof panel, the basic repair procedures previously outlined are applicable at those areas where the fabric cover has direct contact to the roof panel; however, in the areas where padding is present, some modification is required.

Repair

When repairing covers equipped with a pad, patching compound applied to the damage area must not be allowed to contact the pad. To prevent this condition, either of the following methods can be used.

1. Without detaching the cover from the roof panel, working through the point of damage, insert a piece of waterproof tape under the cut with the adhesive side out. The tape should be large enough to cover the opening, plus sufficient surface to adhere to the back side of the cover. Press the cover against the tape to form a backing for the repair operation and prevent the filler from contacting the pad.
2. The method of pulling the cover loose and backing the repair area with a temporary metal panel can also be used. This method may be used when the damaged area is adjacent to moldings or edge of fabric material. When using this method, the damage is prepared, filled, and grained as previously described, however, two additional steps must be observed:
 - a. Because the cover is not in contact with metal, heat build-up is much quicker.
 - b. The Cadillac cover has a high gloss finish; therefore, the glossy appearance which is normally used as an extreme heat indicator will react differently. The gloss appearance develops at a lower temperature than observed on covers having a dull finish. Closer attention is required to insure against excessive heat application of the roof cover assembly.

LUGGAGE CARRIER

DESCRIPTION

The luggage carrier is available as a factory or dealer installed option for "B" style station wagons. On factory option, skid strips and support mounting nuts are installed at the factory. During pre-delivery operations the dealer will complete installation as follows:

1. Assemble supports and top rails with ten 3/8 inch long screws (Figure 11-21).
 2. Remove ten screws and washers from rubber support mounting nuts on roof (View "A", Figure 11-21). Leave rubber nuts in place. Keep screws, discard washers.
 3. Place five gaskets over rubber well nuts (Gaskets are not required if vehicle is equipped with vinyl roof cover option).
 4. Position luggage carrier on roof and install ten screws through supports into rubber nuts. Use light pressure on screws until threads engage in the nut to avoid pushing nut through roof panel (Figure 11-21).
 5. Tighten all screws securely.
- On dealer installed option, procedure is as follows:
1. Locate patterns as illustrated (Figure 11-22) and tape in place.
 2. Center the skid strip in slots of front and rear patterns, five places each pattern.

NOTE: Close back window before drilling holes in roof. Do not let drill penetrate more than necessary.
 3. Drill five 1/8 inch diameter holes in roof using skid strip holes as drill guide and fasten rear end of skid strips and gaskets to roof with 3/4 inch long screws (Gaskets are not required for vinyl covered roofs). Repeat this step for front of skid strips.
 4. Assemble supports and top rails as shown (Figure 11-22) with ten 3/8 inch long screws and locate on roof as per pattern instructions at locations marked "S".
 5. Drill two 3/16 inch diameter holes for left rear support using holes in support as drill guide and fasten this support and its gasket to roof with two one inch screws.
 6. Repeat above step for remaining supports in the following order: right rear; front center; and front sides. Installation of supports in this sequence and screwing each support in place before holes are drilled for next support will result in the best installation.

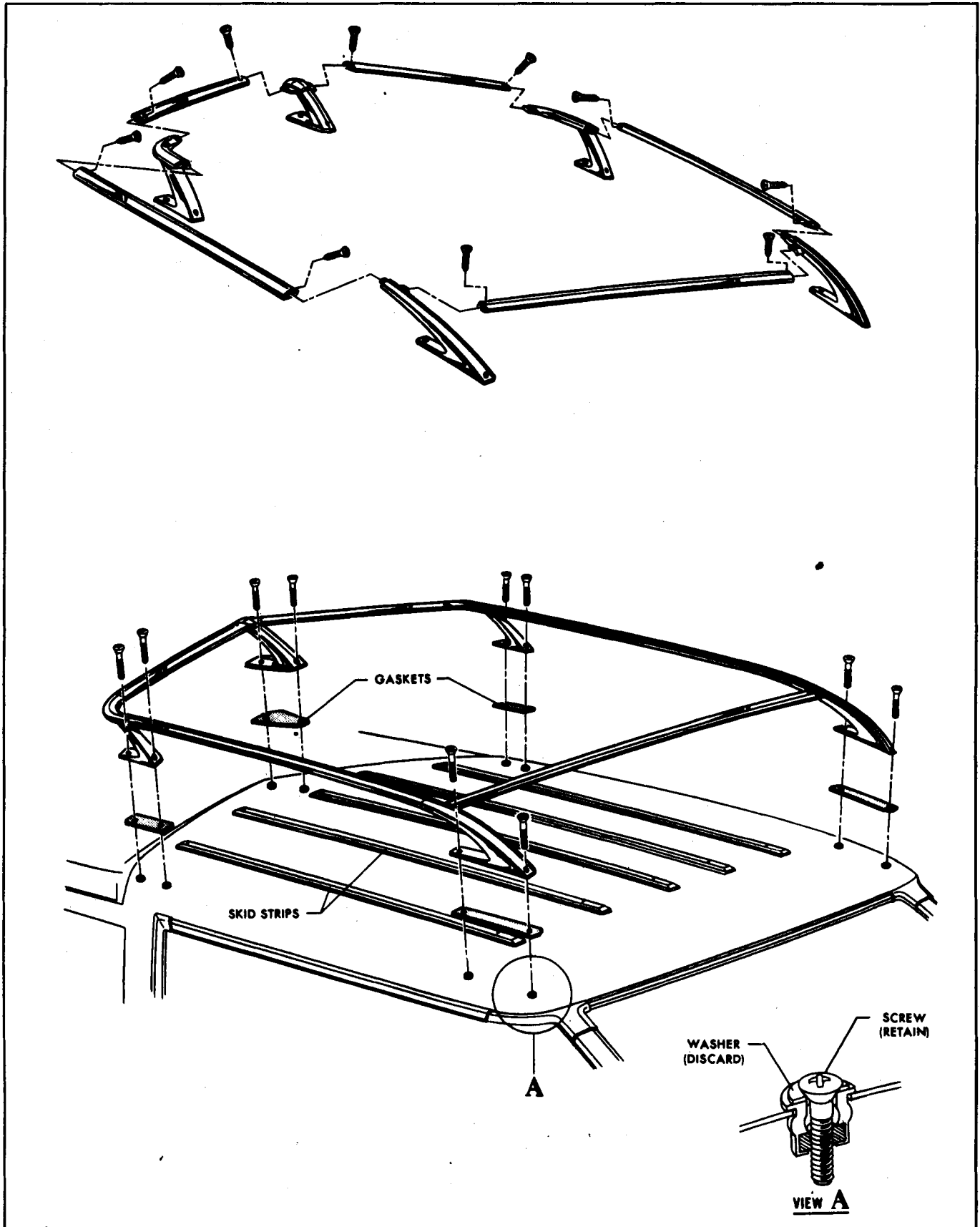


Fig. 11-21-Luggage Carrier Installation - Factory Installed Option

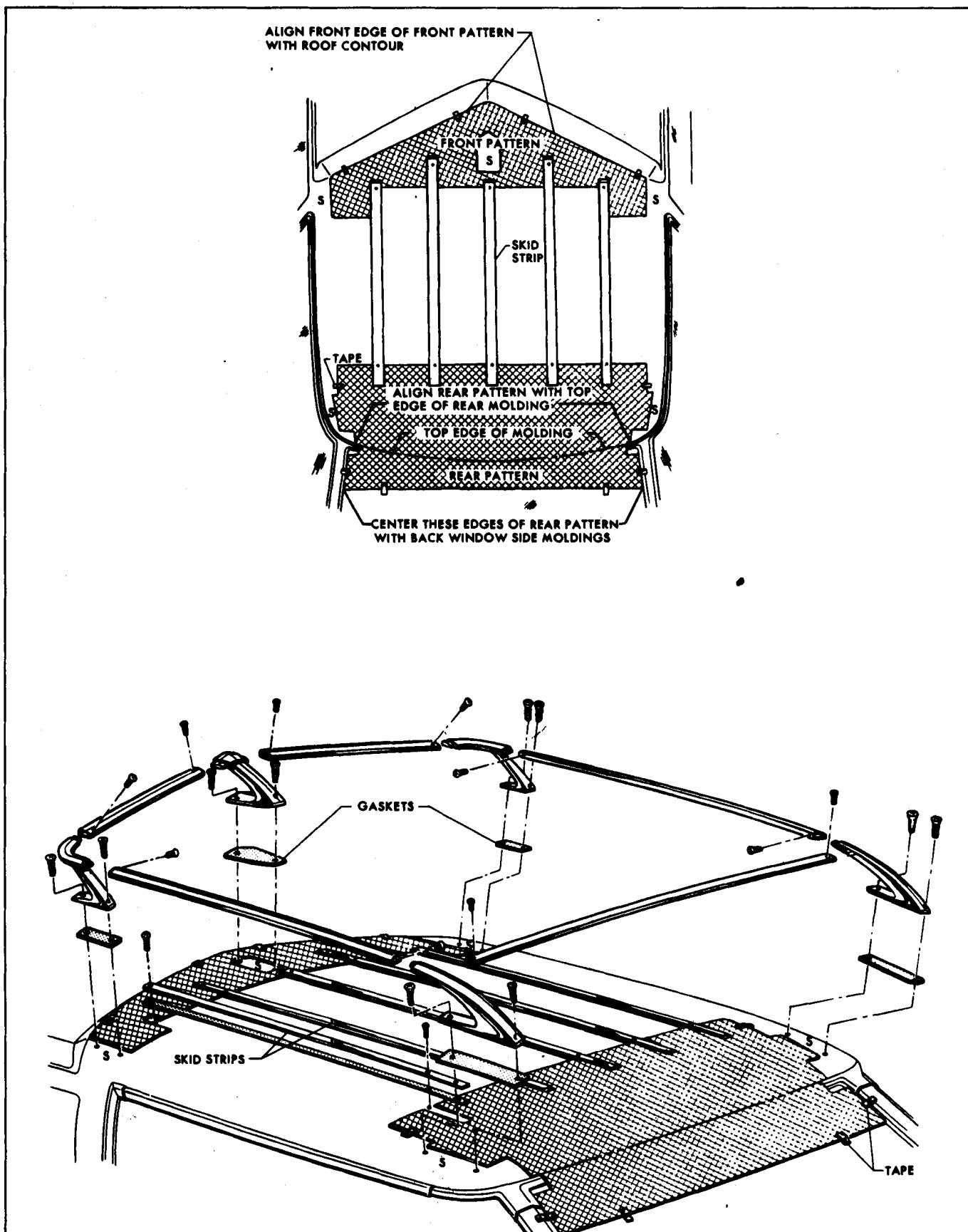


Fig. 11-22-Luggage Carrier Installation - Dealer Installed Option

SECTION 12

FOLDING TOP

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FOLDING TOP TRIM ASSEMBLY - A BODIES

DESCRIPTION

"A" body style convertible tops incorporate a one-piece rear belt rail trimstick assembly which mounts directly to the folding top male hinges. For trim repair and replacement purposes, the one-piece trimstick can be disconnected from the male hinges and raised above the rear belt rail. The trimstick, with due care in handling and removal, maintains its full shape and retains its stiffness for retacking or stapling operations.

Convertible top cover assemblies incorporate a spring loaded hold-down cable along the sides. The cables are retained in a pocket sewn to the top cover and are secured at the front and rear ends by screws. Under tension, the cables are designed to form a tight fit of the top cover to the side rails to minimize air leakage along the side roof rails.

Convertible style back curtains utilize an integral solid - tempered back window glass.

FOLDING TOP COVER AND BACK CURTAIN ASSEMBLY

Removal

1. Apply masking tape to rear quarter pinchweld

finishing moldings, and apply cover protection on rear deck and other adjacent painted surfaces.

2. Mark position of top cover vertical edges on back curtain valance at rear belt line. Use sharpened grease pencil (Item "C", Fig. 12-1).
3. Remove rear seat cushion. Disconnect rear seat speaker if present, and remove rear seat back.
4. Remove right and left folding top compartment side trim panels.
5. Lower top part-way, and remove side roof rail rear and center weatherstrips. Then, lower top to stacked position and remove weatherstrips from front roof rail and side roof front rails.
6. Detach top cover from front roof rail. Then raise top and detach top cover flaps from side roof rear rails. Remove escutcheons and wire-on binding from rear bow. Also, detach top cover at rear bow. Note location and spacing of staples before removal.
7. With front roof rail raised several inches off windshield header, remove attaching screws from front and rear of each hold-down cable and remove cables (Views "A" and "B" in Fig. 12-2).

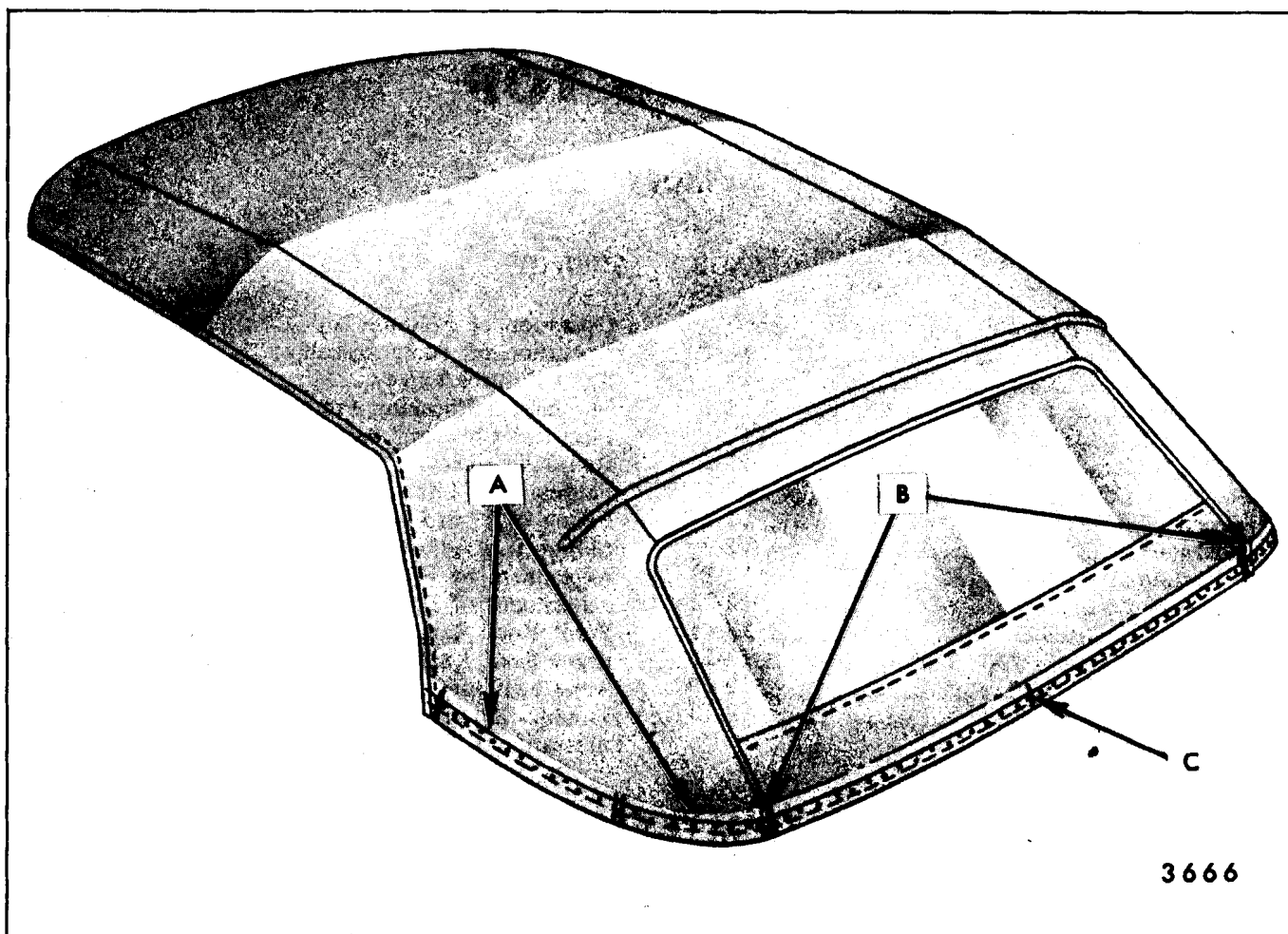


Fig. 12-1-Reference Marks on Top Cover and Back Curtain

A. One Piece Trimstick

B. Top Cover Vertical
Edge Reference

C. Back Curtain Center
Reference

8. At underside of front bow, remove screws securing listing pocket retainer to front bow. Disengage retainer from bow and remove retainer from listing pocket. Note location of screws before removal (See Fig. 12-3).
9. Detach folding top compartment bag from rear seat back panel.
10. Lock top to windshield header and install spacer stick along inboard edge of each side stay pad (Fig. 12-4).

Spacer sticks can be fabricated as shown in Figure 12-5. Fit spacer sticks snugly between center bow and rear bow, then tighten wing nuts. Spacer sticks are adjustable. Fasten rear bow securely to side roof rear rails.

NOTE: The purpose of spacer sticks is to hold the rear bow in a stationary (car installed) position

during back curtain and/or side stay pad removal and installation.

MATERIAL PER STICK

- A. Wood - 1/2 x 1 x 14-1/2
- B. Steel - 1/32 x 1/2 x 2-1/2
- C. Steel - 1/32 x 1-1/2 x 7
- D. 2 Screw No. 6 x 1/2"
- E. Bolt 1/4 - 20 UNC. - 2A x 1"
- F. Wingnut 1/4 x 20 UNC - 2B
- G. 2 Washers 1/4" I.D

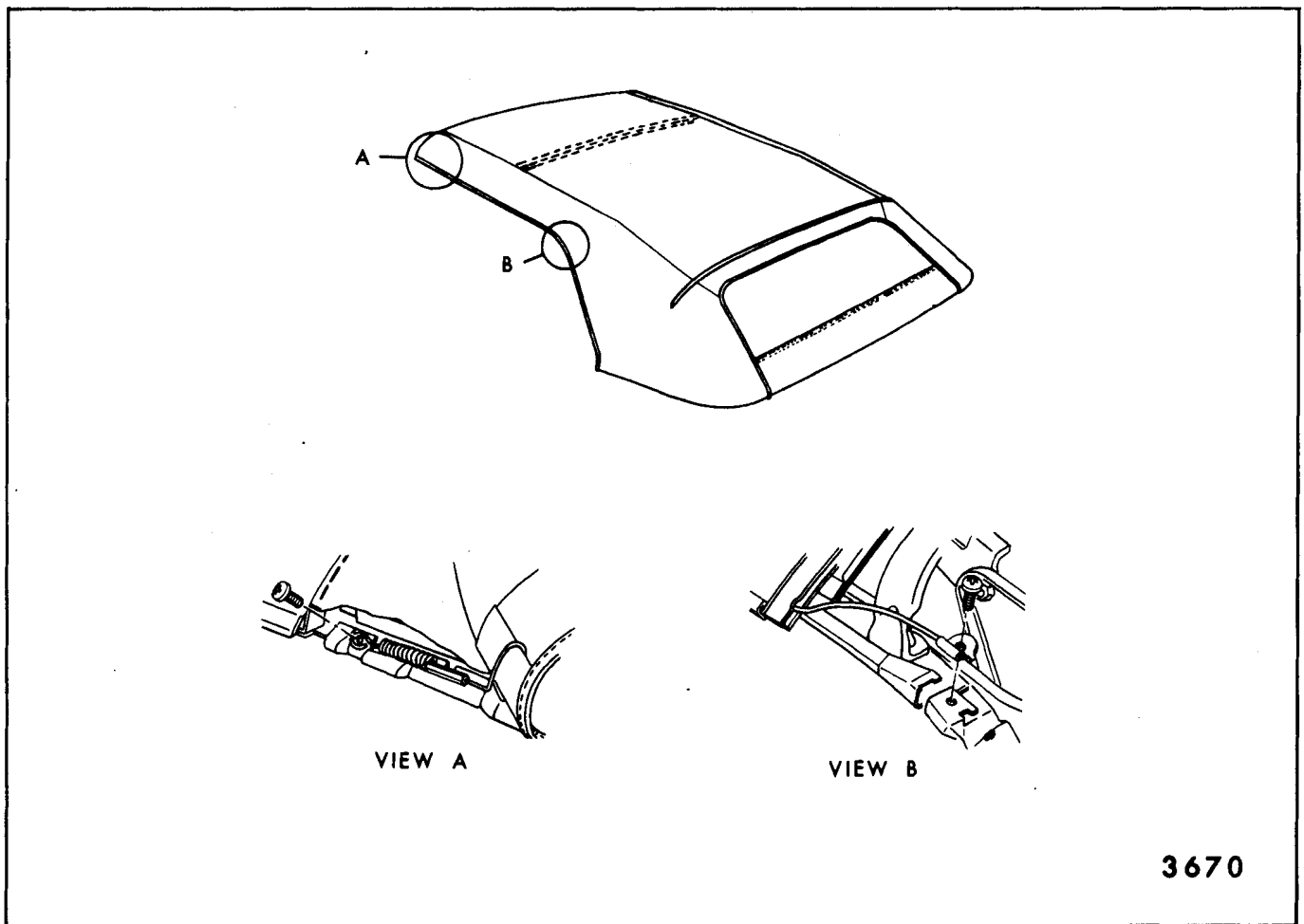


Fig. 12-2-Hold Down Cable Attachment

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11. Raise front roof rail several inches off windshield header and disconnect rear trimstick removing attaching bolts using a suitable box-socket type wrench to remove each bolt from "outside" surface of male hinge (Fig. 12-6 and 12-7).
12. Remove rear trimstick from body and position above quarter pinchweld finishing moldings.

With top two to four inches off header, move one end of trimstick inward for clearance. Then pry it upward between hinge and body to clear rear side roof rail. Raise removed end of trimstick upward and forward. Then continue by removing remaining part of trimstick above body belt line (Figs. 12-8, 12-9 and 12-10).

IMPORTANT: Avoid contact with or damage to top lift cylinder piston rod.
13. Perform the following operation on car, or later on bench:
 - A. Using a suitably sharp pencil, ACCURATELY mark location of complete rear trimstick (UPPER AND LOWER edges and ends) on outer surface of top cover and on back curtain. Re-check, and mark right and left inner vertical edge of top cover on back curtain at trimstick. Make center mark on curtain at "V" notch on trimstick (See Fig. 12-1).
14. Detach and remove top cover from rear trimstick. Accurately mark location of balance of trimstick on back curtain. Note spacing of staples before removal.
15. Detach back curtain from rear bow and, with the aid of a helper, remove rear trimstick with attached back curtain and top compartment bag from body. Place on clean, protected surface. Note location and spacing of staples before removal.
16. Re-check accuracy of trimstick location markings on back curtain, and remove curtain from

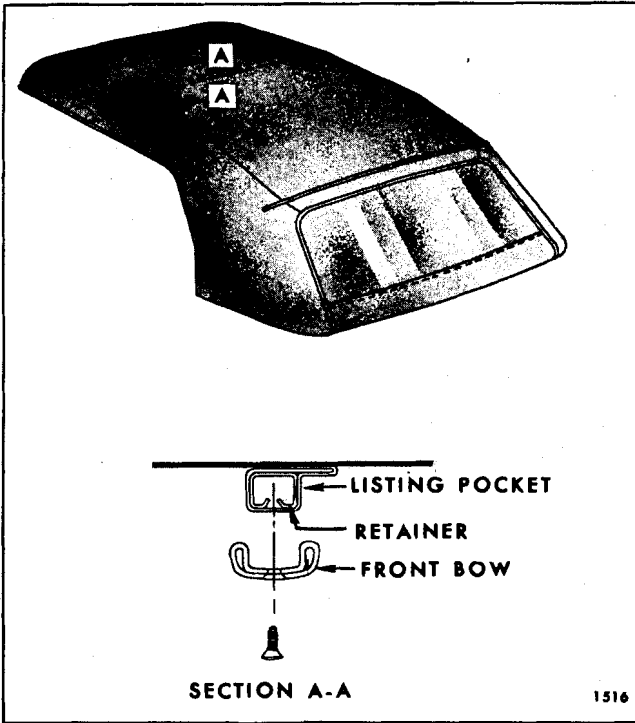


Fig. 12-3-Listing Pocket Retainer

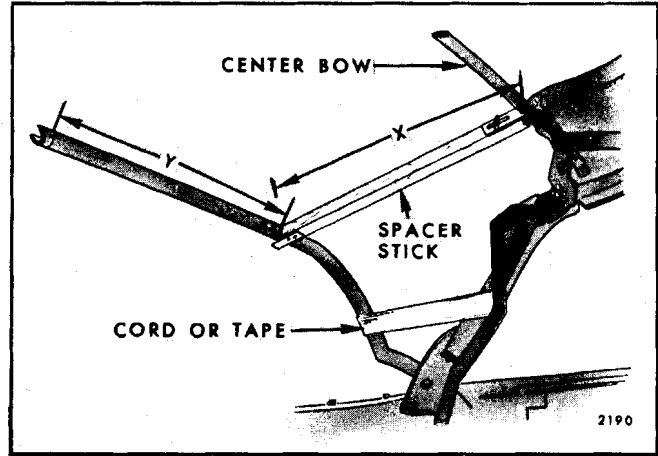


Fig. 12-4-Spacer Stick Installation

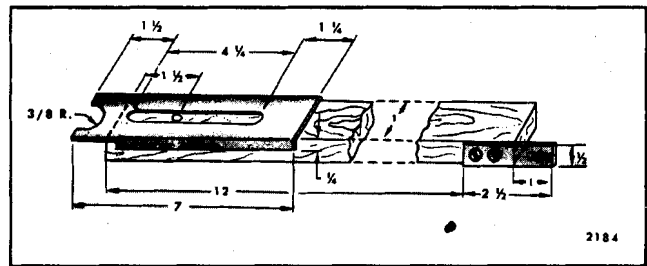


Fig. 12-5-Spacer Stick Fabrication

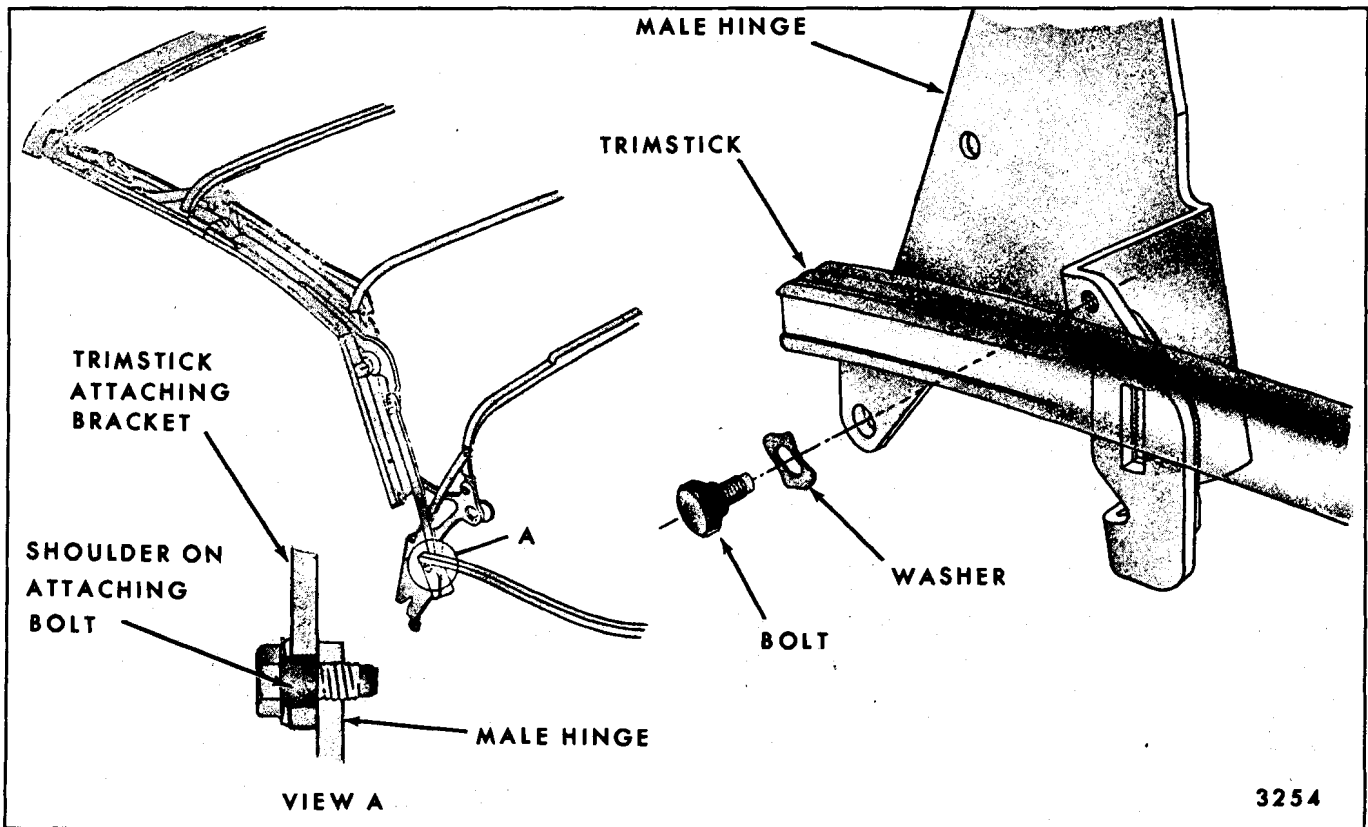


Fig. 12-6-Trimstick Attachment "A" Styles

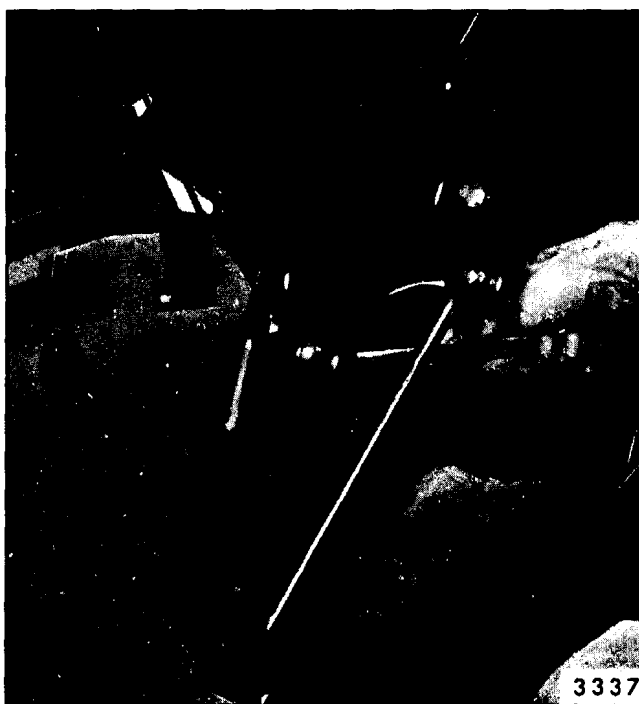


Fig. 12-7-Trimstick Removal "A" Styles



Fig. 12-8-Raising End of Trimstick trimstick. Note location and spacing of staples before removal.

17. Remove polyurethane and side stay pads. Stay pads are secured with tacks or staples to front roof rail, front roof bow and rear roof bow, and with screws to center bow (Fig. 12-11).

FOLDING TOP COVER AND BACK CURTAIN ASSEMBLY - "A" BODIES

Installation

1. With front roof rail locked at windshield header,

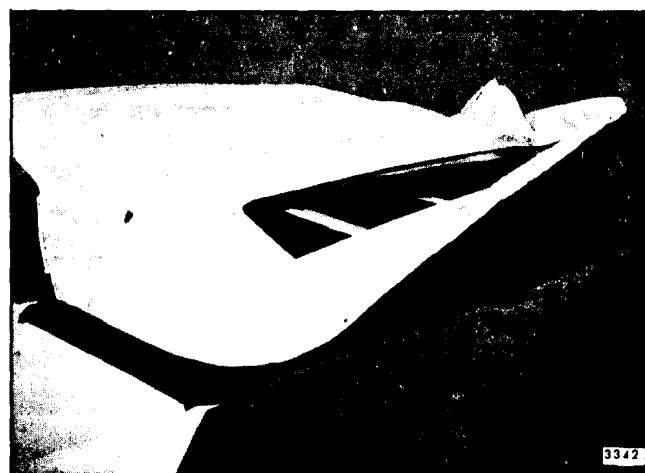


Fig. 12-9-Raising Balance of Trimstick

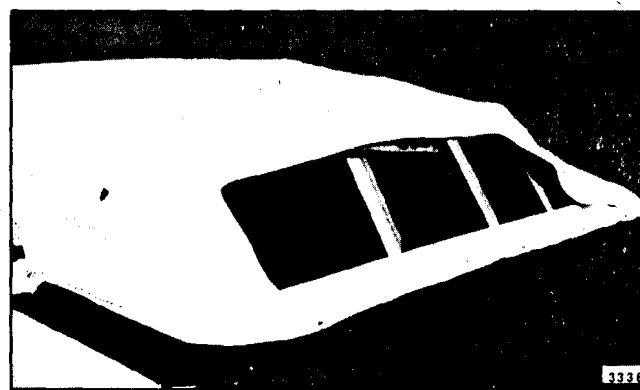


Fig. 12-10-Trimstick Removed

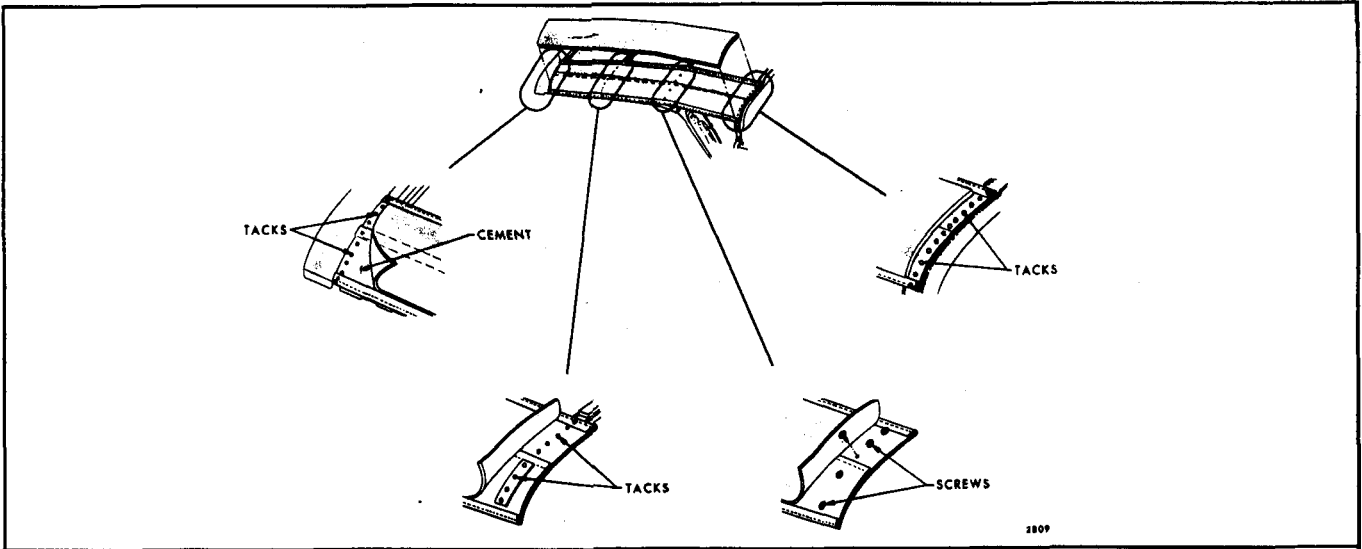


Fig. 12-11-Side Stay Pad Attachment

and with rear bow spacer sticks firmly in place, install side stay pads. Align stay pads with depression in rear bow and tack to secure. Pull stay pads forward for snug fit and tack to front roof rail. Tack stay pads to front bow. Secure stay pads to center bow with screws. Check alignment of polyurethane padding on stay pads to determine cementing area, and remove. Apply an approved trim cement to stay pads uniformly and install polyurethane padding. Trim off selvage end (excess material) of stay pads just forward of rear rolled edge of rear bow. Also, trim at front roof rail as required (Fig. 12-11).

2. Transfer reference marks from removed back curtain to new one as follows: Place new back curtain on clean covered bench with inner surface down. Position removed back curtain correspondingly over new one. Carefully align upper window over lower one. While holding both windows together securely, carefully lay out trim material of both curtains and transfer reference marks along bottom location of trimstick (UPPER AND LOWER edges, as well as the ends), and the inner vertical edges of top cover.

Then reverse back curtains by positioning new curtain over removed one as described above. Re-check location of reference marks.

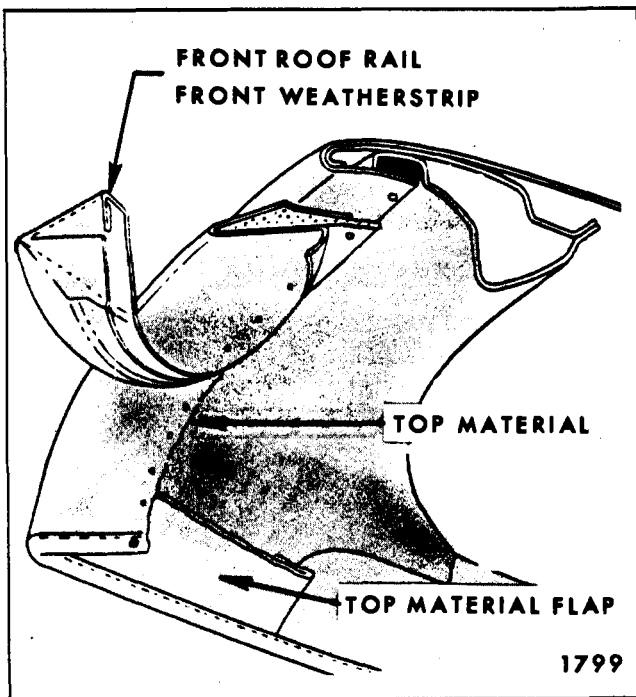


Fig. 12-12-Top Cover at Front Roof Rail

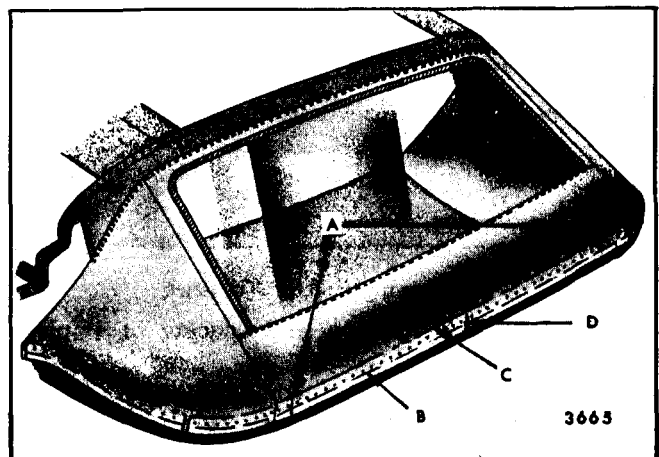


Fig. 12-13-Back Curtain Installation

- | | |
|--|-----------------------------------|
| A. Top Cover Rear Vertical Edge References | C. Trimstick Upper Edge Reference |
| B. Trimstick Lower Edge Reference | D. Back Curtain Center Reference |

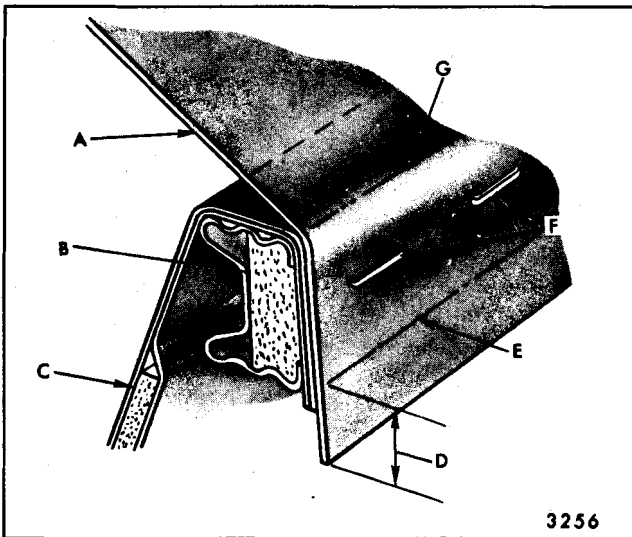


Fig. 12-14-Cross Section at Rear Trimstick

- | | |
|--------------------------------------|------------------------------|
| A. Back Curtain | E. Lower Edge Reference Mark |
| B. Rear Belt Rail Trimstick Assembly | F. Staples |
| C. Folding Top Compartment Bag | G. Upper Edge Reference Mark |
| D. 1/2 inch over-hang | |

NOTE: If any difference is noted, the average between the two is the correct reference to use. Mark corrected references clearly. Trim off excess material beyond the 1/2 inch allowance along the bottom and transfer center mark from bottom center of removed curtain to new one.

IMPORTANT: Transfer of reference marks must be done in a highly exacting manner for best results and minimum rework.

3. As a bench operation, position and center new back curtain to trimstick according to reference marks and tack curtain to trimstick. Tack from center to ends. Avoid stretching, but keep material flat during tacking operations.
4. Transfer reference marks from removed top cover to new one as follows: Place new top cover on a suitable clean surface, such as on clean roof of a car to provide proper contour and fullness, with inner surface of cover down. Position removed top cover over new one. Carefully align back window opening upper corners and rear quarter upper corners of both covers. Secure both covers together at these locations. Carefully lay out trim material of sail area of both covers and proceed as follows:
 - A. Transfer location marks for trimstick (UPPER AND LOWER trimstick edges, as well as ends, Fig. 12-1).

- B. Then reverse position of covers by positioning new cover over removed one, as described above. Re-check location of reference marks.

NOTE: If any difference is noted, the average between the two is the correct reference to use. Mark corrected references clearly.

IMPORTANT: Transfer of reference marks must be done in a highly exacting manner for best results and minimum rework.

5. As a bench operation, position and locate top cover to trimstick according to reference marks and tack top cover to trimstick. Tack from top cover inner vertical edge reference on back curtain toward front (Item "B", Fig. 12-1). Avoid excessive stretching, but keep material flat during tacking operations.
6. With aid of a helper, position rear trimstick with attached bag, cover and back curtain, on rear deck of body. Use care in protecting trim material and back window during this operation. With front roof rail slightly off header, position bag in folding top well and stay-tack edge of back curtain to rear bow to protect back window during trimstick installation. Also, lay top cover on folding top framework.
7. Position rear trimstick into body in reverse of removal operations (See Step 12 of Removal of Folding Top and Back Curtain Trim Assembly, Fig. 12-6).
8. Secure rear trimstick to body assembled position and install attaching bolts (Fig. 12-6).
9. With front roof rail locked to windshield header, and with top cover laying on rear deck, tack back curtain to rear bow as follows: Remove all stay tacks except two at outer ends supporting back curtain. Then pull curtain forward to remove all fullness and tack curtain to rear bow. Tack from center toward each end of curtain. Remove stay tacks. Apply forward tension to curtain at each point of tack installation (Fig. 12-15).

IMPORTANT: Make certain trimstick is flush to quarter pinchweld finishing molding during all tacking operations. This will require assistance of a helper or a support.
10. Insert hold-down cables into top cover listing pockets and secure as follows:
 - A. Position front roof rail slightly above windshield header. A length of welding rod or equivalent wire can be used to facilitate cable insertion by pulling cable through listing

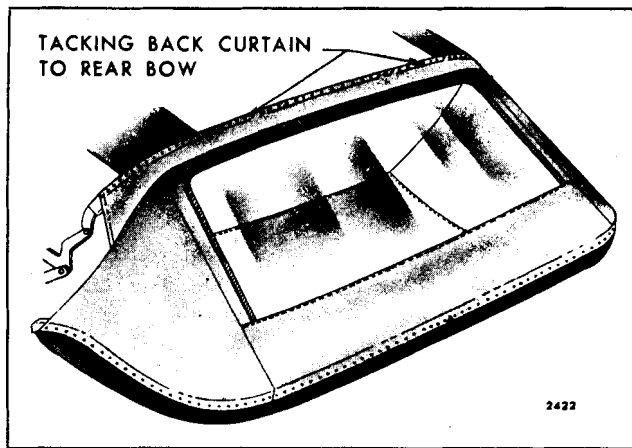


Fig. 12-15-Tacking Back Curtain

pocket. Install attaching screw at rear of cable. Then, apply forward pull on cable and install front attaching screw (Fig. 12-2).

11. Insert and center retainer in top cover listing pocket at front roof bow. Position retainer on front bow and install attaching screws (Fig. 12-3).
12. Apply nitrile cement or neoprene type weatherstrip adhesive to cementing surfaces of side roof rear rails and to quarter flaps. Center top cover over rear bow and align quarter flap seams with edges of side roof rear rails to remove all fullness from rear of top cover. A forward draw on cover outer sides will aid this operation. With quarter flap seams aligned with each rear rail, cement quarter flaps securely in place.

NOTE: Top cover may require some lateral stretching along rear bow to achieve proper fit of quarter flaps to rear rails, and to remove fullness from top cover valance over rear window.

13. Using an awl or equivalent tool, pierce flaps for side roof rear rail weatherstrip attaching screws. Install weatherstrips to help maintain position of quarter flaps while adhesive is drying.
14. While pulling top cover rearward slightly to straighten material over rear window, install tacks to secure cover to rear bow.

IMPORTANT: Tacks must be installed in a straight line in center of rear bow. Tacks outboard of deck seams should not exceed 6 inches. Also, tacking distance outboard of deck seams on each side should be uniform. Pierce hole into top material and tacking strip at each outboard end of rear bow for wire-on binding clip escutcheons.

15. Lock front roof rail to windshield header. Pull top

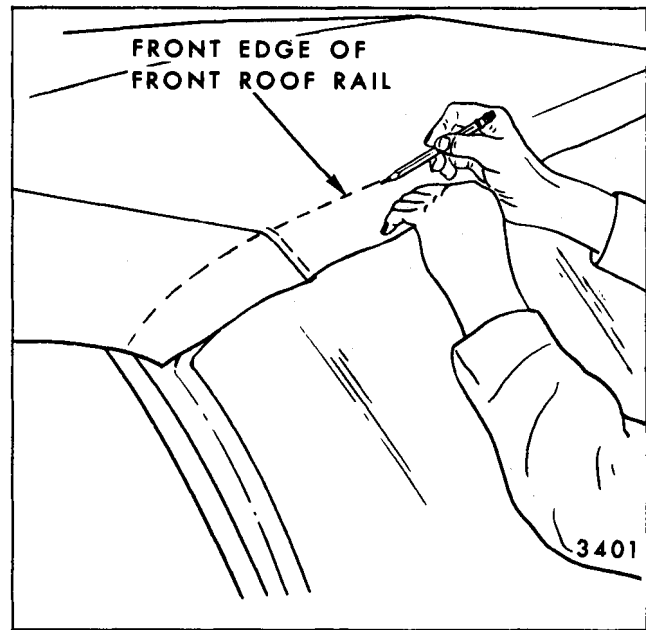


Fig. 12-16-Marking Top Cover at Front Roof Rail

cover straight forward at seams to desired top fullness. While maintaining tension on cover over front roof rail, make pencil mark on cover outer surface along forward edge of front roof rail (Fig. 12-16).

16. Lower top to stacked position. Carefully, apply nitrile cement or neoprene weatherstrip adhesive to cementing area of front roof rail, to corresponding surface of top cover, and to front corner flaps.
17. Raise top within four inches of windshield header and support roof rail on header with suitable wood block. Secure cover to front roof rail by pulling top cover reference marks slightly beyond target so that pencil marks will be slightly under front edge of roof rail. With doors open, align sides of top cover with forward pull, and secure corner flaps to cemented surfaces. Remove wood block and complete cementing top cover to front roof rail. Lower top and install several stay tacks.
18. Raise top and lock to windshield header. Check appearance of top trim, top operation and locking action of top. If additional tension is needed in top cover, repeat Step 17 and pull top cover further forward. Stay tack and re-check top for proper appearance and operation.
19. Lower top and complete tacking of top cover to front roof rail. Trim off excess material (Fig. 12-12).
20. Carefully align, seal and install front roof rail and side roof rail weatherstrips.

21. Raise top, and using due caution, apply a bead of neoprene-type weatherstrip adhesive around each rear bow tack head and into two holes pierced into top material for wire-on binding clip escutcheon screws. Applied adhesive must be within area covered by wire-on binding.
 22. Install rear bow wire-on binding and escutcheons. Tack from center outward to maintain a snug and straight fit. Length of binding outside of deck seams should not exceed 6 inches and should be of uniform length on each side.
 23. When completed, folding top should be free from wrinkles and draws. Install all previously removed trim and hardware. Clean up top material and car as required.
9. Detach folding top compartment bag from rear seat back panel.
 10. With front roof rail several inches off windshield header, disconnect rear trimstick as required by removing attaching bolts using a suitable box-socket type wrench to remove each bolt from "outside" surface of male hinge (Fig. 12-6 and 12-7).
 11. Raise rear trimstick from body and position above quarter pinchweld finishing moldings.

With top two to four inches off header, move one end of trimstick inward for clearance. Then pry it upward between hinge and body to clear rear roof rail. Raise removed end of trimstick upward and forward. Then continue by removing balance of trimstick above body belt line (Fig. 12-8, 12-9 and 12-10).

FOLDING TOP COVER LESS BACK CURTAIN - "A" BODIES

Removal

1. Apply masking tape to rear quarter pinchweld finishing moldings, and apply cover protection on rear deck and other adjacent painted surfaces.
2. Mark position of top cover vertical edges on back curtain valance at rear belt line. Use sharpened grease pencil (Fig. 12-1).
3. Remove rear seat cushion. Disconnect rear seat speaker, if present, and remove rear seat back.
4. Remove right and left folding top compartment side trim panels.
5. Lower top part-way, and remove side roof rail rear and center weatherstrips. Then lower top to stacked position and remove weatherstrips from front roof rail, and side roof front rails.
6. Detach top cover from front roof rail. Then raise top and detach top cover flaps from side roof rear rails. Remove escutcheons and wire-on binding from rear bow. Also, detach top cover at rear bow. Note location and spacing of staples before removal.
7. With front roof rail several inches off windshield header, remove attaching screws from front and rear of each hold-down cable and remove cables (Views "A" and "B" in Fig. 12-2).
8. At underside of front bow, remove screws securing listing pocket retainer to front bow. Disengage retainer from bow and remove retainer from listing pocket. Note location of screws before removal (Fig. 12-3).

IMPORTANT: Avoid contact with or damage to top lift cylinder piston rod.

12. Using a suitably sharp pencil, accurately mark location of complete rear trimstick (UPPER and LOWER edges, and ends) on outer surface of top cover. Re-check, and mark right and left inner vertical edge of top cover on back curtain at trim stick (Fig. 12-1).
13. Detach top cover from rear trimstick and remove. Note spacing of staples before removal.

Installation

1. Transfer reference marks from removed top cover to new one as follows:
 - A. Place new top cover on a suitable clean surface, such as on clean roof of a car to provide proper contour and fullness, with inner surface of cover down.
 - B. Position removed top cover over new one. Carefully align back window opening upper corners and rear quarter upper corners of both covers. Secure both covers together at these locations. Carefully lay out trim material of sail area of both covers.
 - C. Transfer location marks for trimstick (upper and lower trimstick edges, as well as ends) as shown in Fig. 12-1.
 - D. Then reverse position of covers by positioning new cover over removed one, as described above. Re-check location of reference marks.

NOTE: If any difference is noted, the average between the two is the correct reference to use. Mark corrected references clearly.

IMPORTANT: Transfer of reference marks must be done in a highly exacting manner for best results and minimum rework.

2. Place folding top cover on folding top framework. Then, position and locate top cover to trimstick according to reference marks, and tack top cover to trimstick. Tack from top cover inner vertical edge reference on back curtain toward front. Avoid excessive stretching, but keep material flat during tacking operations (Fig. 12-1).
3. Position rear trimstick into body in reverse of removal operation (See Steps 10 11 of Removal of Folding Top Cover Less Back Curtain) as shown in Fig. 12-9).
4. Secure rear trimstick to body assembled position and tighten attaching bolts (Fig. 12-6).
5. Insert hold-down cables into top cover listing pockets and secure as follows:
 - A. Raise front roof rail slightly above windshield header. A length of welding rod or equivalent wire can be used to facilitate cable insertion by pulling cable through listing pocket. Install attaching screw at rear of cable. Then, apply forward pull on cable and install front attaching screw (Fig. 12-2).
6. Insert and center retainer in top cover listing pocket at front roof bow. Position retainer on front bow and install attaching screws (Fig. 12-3).
7. Apply nitrile cement or neoprene-type weatherstrip adhesive to cementing surfaces of side roof rear rails and to quarter flaps. Center top cover over rear bow and align quarter flap seams with edges of side roof rear rails to remove all fullness from top cover. A forward draw on cover outer sides will aid this operation. With quarter flap seams aligned with each rear rail, cement quarter flaps securely in place.

NOTE: Top cover may require some lateral stretching along rear bow to achieve proper fit of quarter flaps to rear rails, and to remove fullness from top cover valance over rear window.

8. Using an awl or equivalent tool, pierce flaps for side roof rail rear weatherstrip attaching screws. Install weatherstrips to help maintain position of quarter flaps while adhesive is drying.
9. While pulling top cover rearward slightly to straighten material over rear window, install tacks to secure cover to rear bow.

IMPORTANT: Tacks must be installed in a

straight line in center of rear bow. Tacks outboard of deck seams should not exceed 6 inches. Also, tacking distance outboard of deck seams on each side should be uniform. Pierce hole into top material and tacking strip at each outboard end of rear bow for wire-on binding clip escutcheons (Fig. 12-1).

10. Lock front roof rail to windshield header. Pull top cover straight forward at seams to desired top fullness. While maintaining tension on cover over front roof rail, make pencil mark on cover outer surface along forward edge of front roof rail (Fig. 12-16).
11. Lower top to stacked position. Carefully, apply nitrile cement or neoprene weatherstrip adhesive to cementing area of front rail, to corresponding surface of top cover, and to front corner flaps.
12. Raise top within four inches of windshield header and support roof rail on header with suitable wood block. Secure cover to front roof rail by pulling top cover reference mark slightly beyond target so that pencil marks will be slightly under front edge of roof rail. With doors open, align sides of top cover with forward pull, and secure corner flaps to cemented surfaces. Remove wood block and complete cementing top cover to front roof rail. Lower top and install several stay tacks.
13. Raise top and lock to windshield header. Check appearance of top trim, top operation and locking action of top. If additional tension is needed in top cover, repeat Step 12 and pull top cover further forward. Stay tack and re-check top for proper appearance and operation.
14. Lower top and complete tacking of top cover to front roof rail. Trim off excess material (Fig. 12-12).
15. Carefully align, seal and install front roof rail and side roof rail weatherstrips.
16. Raise top and carefully, apply a bead of neoprene-type weatherstrip adhesive around each rear bow tack head and into two holes pierced into top material for wire-on binding clip escutcheons screws. Applied adhesive must be within area covered by wire-on binding.
17. Install rear bow wire-on binding and escutcheons. Tack from center outward to maintain a snug and straight fit. Length of binding outside of deck seams should not exceed 6 inches and should be of uniform length on each side.
18. When completed, folding top should be free from wrinkles and draws. Install all previously removed

trim and hardware. Clean up top material and car as required.

BACK CURTAIN ASSEMBLY - "A" BODIES

Removal

1. Apply masking tape to rear quarter pinchweld finishing moldings, and apply cover protection on rear deck and other adjacent painted surfaces.
2. Mark position of top cover vertical edges on back curtain valance at rear belt line. Use sharpened grease pencil (Fig. 12-1).
3. Remove rear seat cushion. Disconnect rear seat speaker, if present, and remove rear seat back.
4. Remove right and left folding top compartment side trim panels.
5. Lower top part-way, and remove side roof rail rear weatherstrips.
6. Raise and lock top. Mark exact location of following: rear roof bow (front and rear edges); wire-on binding escutcheons; and quarter flaps. Note location and spacing of staples before removal. Then, remove escutcheons and wire-on binding. Detach quarter flaps and remove staples from top cover at rear roof bow.
7. With top several inches off header, remove rear attaching screw from hold-down cables (View "B" Fig. 12-2).
8. Detach folding top compartment bag from rear seat back panel.
9. Lock top to windshield header and install spacer stick along inboard edge of each side stay pad (Fig. 12-4). Spacer sticks can be fabricated as shown in Figure 12-5. Fit spacer sticks snugly between center bow and rear bow, then tighten wing nuts. Spacer sticks are adjustable. Fasten rear bow securely to side roof rear rails.

IMPORTANT: The purpose of spacer sticks is to hold the rear bow in a stationary (car installed) position curing back curtain and/or side stay pad removal and installation.

Material Per Stick

- A. Wood - 1/2 x 1 x 14-1/2
- B. Steel - 1/32 x 1/2 x 2-1/2
- C. Steel - 1/32 x 1-1/2 x 7

D. 2 Screw No. 6 x 1/2"

E. Bolt 1/4 - 20 UNC - 2A x 1"

F. Wingnut 1/4 x 20 UNC - 2B

G. 2 Washers 1/4" I.D.

10. Raise front roof rail several inches off windshield header and disconnect rear trimstick by removing attaching bolts using a suitable box-socket type wrench to remove each bolt from "outside" surface of male hinge (Fig. 12-6 and 12-7).
11. Remove rear trimstick from body and position above quarter pinchweld finishing moldings as follows:
 - A. With top two to four inches off header, move one end of trimstick inward for clearance. Then pry it upward between hinge and body to clear rear roof rail (Fig. 12-8).
 - B. Raise removed end of trimstick upward and forward. Then continue by removing balance of trimstick above body beltline (Fig. 12-9 and 12-10).

IMPORTANT: Avoid contact with or damage to top lift cylinder piston rod.
12. Using a sharp pencil, accurately mark location of complete rear trimstick UPPER and LOWER edges and ends on outer surface of top cover and on back curtain. Re-check, and mark right and left inner vertical edge of top cover on back curtain at trim stick. (Fig. 12-1). Make center mark on curtain at "V" notch on trimstick.
13. Detach top cover from rear trimstick and raise cover for access to back curtain. Accurately mark location of balance of trimstick on back curtain.
14. Detach back curtain from rear bow. With aid of a helper, remove rear trimstick with attached back curtain and top compartment bag from body. Place on clean, protected surface. Note location and spacing of staples before removal.
15. Re-check accuracy of trimstick location markings on back curtain, and remove curtain from trimstick. Note location and spacing of staples before removal.

Installation

1. With front roof rail locked at windshield header, and with rear bow spacer sticks firmly in place (Fig. 12-4), check side stay pads. If necessary, align and secure side stay pads. See Step 1 of

"Folding Top Cover and Back Curtain Assembly Installation" (Fig. 12-11).

2. Transfer reference marks from removed back curtain to new one as follows:
 - A. Place new back curtain on clean covered bench with inner surface down and position removed back curtain correspondingly over new one.
 - B. Carefully align upper window over lower one. While holding both windows together securely, carefully lay out trim material of both curtains and transfer following reference marks along bottom location of trimstick (upper and lower edges), as well as ends, and the inner vertical edges of top cover. Allow 1/2 inch of back curtain material to extend below trimstick (Fig. 12-13 and 12-14).
 - C. Then reverse back curtains by positioning new curtain over removed one, as described above. Re-check location of reference marks.

NOTE: If any difference is noted, the average between the two is the correct reference to use. Mark corrected references clearly.
 - D. Along bottom, trim off excess material beyond the 1/2 inch allowance. Transfer center mark from bottom center of removed curtain to new one.

IMPORTANT: Transfer of reference marks must be done in a highly exacting manner for best results and minimum rework.
3. As a bench operation, position and center new back curtain to trimstick according to reference marks and tack from center to ends. Avoid stretching, but keep material flat during tacking operations.
4. With aid of a helper, position rear trimstick, with attached bag and back curtain, on rear deck of body. Use care in protecting trim material and back window during this operation. Position bag in folding top well. Stay tack edge of back curtain to rear bow to protect back window during following operations.
5. Position rear trimstick into body in reverse of removal operations. (See Step 10 11 of Back Curtain Removal (Fig. 12-9).
6. Secure rear trimstick to body assembled position and tighten all attaching bolts (Fig. 12-6).
7. With front roof rail locked to windshield header and with spacer sticks firmly in place, tack back

curtain to rear bow by removing all stay tacks except two at outer ends supporting back curtain. Then pull curtain forward to remove ALL FULLNESS and tack curtain to rear bow. Tack from center toward each end of curtain. Remove stay tacks. Apply forward tension to curtain at each point of tack installation (Fig. 12-15).

IMPORTANT: Make certain one-piece trimstick is flush to quarter pinchweld finishing molding during tacking operations. This will require assistance of a helper or a support. Trim excess back curtain material at rear bow. Also remove spacer sticks (Fig. 12-4).

8. Disconnect rear trimstick as described in Step 10 of "Removal of Back Curtain" Procedure.
9. Remove rear trimstick from body and position above quarter pinchweld finishing moldings as described in Step 11 of "Removal of Back Curtain" Procedure.
10. Position and locate top cover to trimstick according to reference marks and tack top cover to trimstick. Tack from top cover inner vertical edge reference on back curtain toward front. Avoid excessive stretching, but keep material flat during tacking operations (Fig. 12-1).
11. Position rear trimstick into body in reverse of removal operations as described in Step 11 of "Removal of Back Curtain" Procedure.
12. With front roof rail several inches off windshield header, secure rear trimstick to body assembled position and tighten all attaching bolts. This is the reverse of Step 10 of "Removal of Back Curtain" Procedure.
13. Align and secure hold down cables at rear with attaching screw (Fig. 12-2).
14. Position front roof rail several inches off windshield header and proceed as follows:
 - A. Apply nitrile cement or neoprene-type weatherstrip adhesive to cementing surfaces of side roof rear rails and to quarter flaps.
 - B. Position and center top cover reference marks over rear bow. Align quarter flaps and seams with previously scribed marks and edges of side roof rear rails to remove all fullness from top cover. A forward draw on the cover outer sides will aid in this operation.
 - C. With quarter flap seams aligned with each rear rail, cement quarter flaps securely in place.

NOTE: Top cover may require some lateral stretching along rear bow to achieve proper fit of quarter flaps to rear rails, and to remove fullness from top cover valance over rear window.

15. Using an awl or equivalent tool, pierce flaps for side roof rail rear weather-strip attaching screws. Install weatherstrips to help maintain position of quarter flaps while adhesive is drying.
16. With front roof rail resting on windshield header, and with top cover reference marks aligned with rear bow, tack top cover securely to rear bow. Location and spacing of tacks should be similar to that of removed staples.
17. Carefully, apply a bead of neoprene-type weather-strip adhesive around each rear bow tack head, over unused staple holes, and over screw holes for escutcheons.
18. Install rear bow wire-on binding and escutcheons. Tack from center outward to maintain a snug and straight fit. Length of binding outside of deck seams should not exceed 6 inches and must be uniform length on each side.
19. When completed, folding top should be free from wrinkles and draws. Install all previously removed trim and hardware. Clean up top material and car as required.

HYDRO-LECTRIC SYSTEM - A BODIES

DESCRIPTION

The high pressure hydro-lectric unit used in the convertible bodies, consists of a 12 volt reversible type motor, a rotor-type pump, two hydraulic lift cylinders, and an upper and lower hydraulic hose assembly. The unit is installed in the body directly behind rear seat back support (Fig. 12-17).

Figure 12-18 illustrates and identifies the individual parts of the motor and pump assembly.

NOTE: When servicing the motor assembly or pump end plate assembly, it is extremely important that the small motor shaft "O" ring seal is properly installed over the motor armature shaft and into the pump end plate assembly prior to installing the pump rotors or the motor shaft drive ball.

MOTOR AND PUMP ASSEMBLY

Removal

1. Operate folding top to full "up" position.
2. Disconnect positive battery cable.
3. Place protective covering over rear seat cushion and back.
4. Working inside body, detach front edge of folding top compartment bag from rear seat back panel.
5. Remove clips securing wire harness and hydraulic hose to rear seat back panel and support.
6. Disconnect motor leads from wire harness and ground attaching screws.

7. To facilitate removal, apply a rubber lubricant to pump attaching grommets; then carefully disengage grommets from rear seat back support (Fig. 12-17).
 8. Place absorbent rags below hose connections and end of reservoir.
 9. Vent reservoir by removing filler plug; then install plug.
- NOTE:** Venting reservoir is necessary in this "sealed-in" unit to equalize air pressure in reservoir to that of the atmosphere. This operation prevents the possibility of hydraulic fluid being forced under pressure from disconnected lines and causing damage to trim or body finish.
10. Disconnect hydraulic lines and cap open fittings to prevent leakage of fluid. Use a cloth to absorb

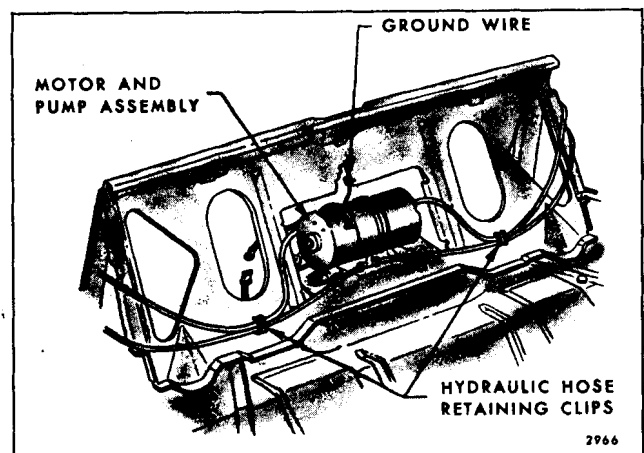


Fig. 12-17-Motor and Pump Installation

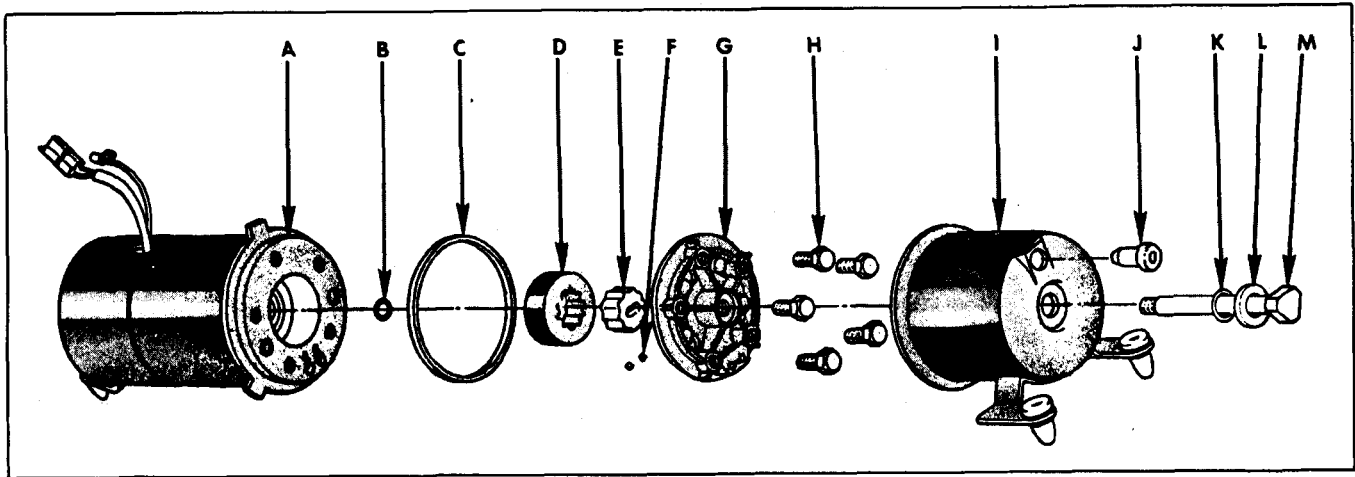


Fig. 12-18-Motor and Pump Components

- | | | | | | | | |
|------------------------------|------------------------------|--------------------------------|--|--------------------------|------------------------|---------------------------------------|---|
| A. Motor Assembly | F. Fluid Control Valve Balls | H. Pump Cover Attaching Screws | I. Reservoir Tube and Bracket Assembly | J. Reservoir Filler Plug | K. Reservoir End Plate | L. Reservoir End Plate Attaching Bolt | M. Reservoir End Plate Attaching Washer |
| B. Motor Shaft "O" Ring Seal | G. Pump Cover Plate Assembly | | | | | | |
| C. Reservoir Seal | | | | | | | |
| D. Outer Pump Rotor | | | | | | | |
| E. Inner Pump Rotor | | | | | | | |

any leaking fluid, then remove unit from rear compartment (Fig. 12-17).

Installation

1. If a replacement unit is being installed, fill reservoir unit with Type "A" transmission fluid, Dextron or equivalent. See "Filling of Hydro-Lectric Reservoir".
2. Connect hydraulic hoses, engage attaching grommets in panel and connect wiring.
3. Connect battery and operate top through its up and down cycles until all air has been "bled"

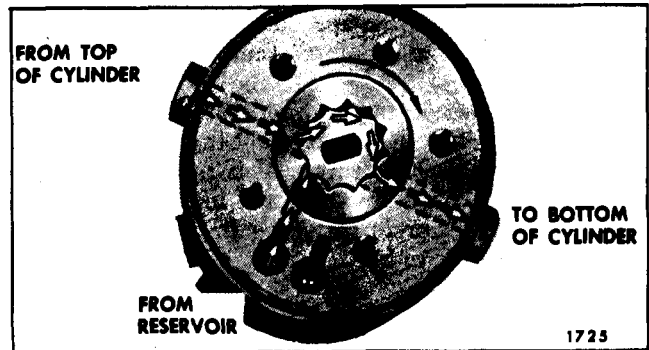


Fig. 12-20-Operation of Pump to Raise Top

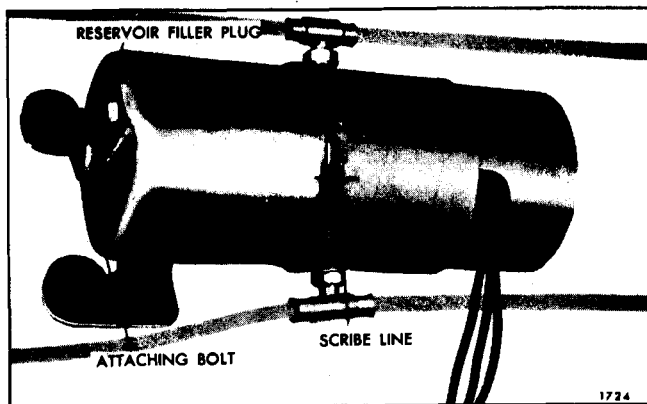


Fig. 12-19-Motor and Pump Assembly

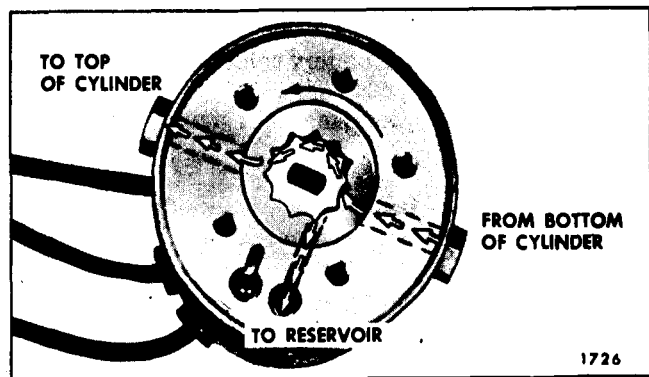


Fig. 12-21-Operation of Pump to Lower Top

from hydraulic circuit. See "Filling of Hydro-Lectric Reservoir".

4. Check connections for leaks and recheck fluid level in reservoir.
5. Install all previously removed parts.

RESERVOIR TUBE

Disassembly From Motor and Pump Assembly

1. Remove motor and pump assembly from body.
2. Scribe a line across pump end plate and reservoir tube to insure a correct assembly of parts. See Figure 12-19.
3. Using needle nose pliers, remove reservoir filler plug.
4. Drain fluid from reservoir into a clean container.
5. With suitable tool, remove bolt from end of assembly and remove reservoir tube. Note sealing rings around bolt and between end of reservoir tube and pump cover plate assembly.

Assembly To Motor and Pump Assembly

1. Position sealing ring on pump and assemble reservoir tube to pump according to scribe marks.
2. Install and tighten attaching bolt.
3. Place unit in horizontal position and fill with fluid until fluid level is within 1/4" of lower edge of filler plug hole.

OPERATION OF FOLDING TOP

When the control switch is actuated to the "up" position, the battery feed wire is connected to the red motor lead and the motor and pump assembly operate to force the hydraulic fluid through the hoses to the lower end of the double-acting cylinders. The fluid forces the piston rods in the cylinders upward, thus raising the top. The fluid in the top of the cylinders returns to the pump for recirculation to the bottom of the cylinders. When the control switch knob is actuated to the "down" position, the feed wire is connected to the dark green motor lead and the motor and pump assembly operate in a reversed direction to force the hydraulic fluid through the hoses to the top of the cylinders. The fluid forces the piston rods in the cylinders downward, thus lowering the top. The fluid in the bottom of the cylinders returns to the pump for recirculation to the top of the cylinders.

OPERATION OF PUMP ASSEMBLY

The rotor type pump assembly is designed to deliver a maximum pressure in the range of 340 psi to 380 psi. The operation of the pump assembly when raising the top is as follows:

1. Raising the top. When the red motor lead is energized the motor drive shaft turns the rotors clockwise as indicated by the large arrow in Figure 12-20. The action of the pump rotors forces the fluid under pressure to the bottom of each cylinder forcing the piston upward. This action causes the fluid above the piston in each cylinder to be forced into the pump, which recirculates the fluid to the bottom of the cylinders. The additional fluid required to fill the cylinder due to piston rod displacement is drawn from the reservoir.
2. Lowering the Top. When the green motor lead is energized the motor drive shaft turns the rotors counterclockwise as indicated by the large arrow in Figure 12-21. The action of the pump rotors forces the fluid under pressure to the top of each cylinder. This action causes the fluid below the piston in each cylinder to be forced into the pump which recirculates the fluid to the top of each cylinder. The surplus hydraulic fluid due to piston rod displacement flows into the reservoir.

FLUID CONTROL VALVE

The fluid control valve consists of a rocker arm installed in the pump cover plate, and two steel balls. Figure 12-22 shows the top surface of the pump cover plate. The dotted lines indicate the cavities on the bottom side of the cover plate. The cavities are designed to permit fluid flow between pump rotors and the reservoir. Figures 12-23 and 12-24 illustrate the operation of the fluid control valve.

MECHANICAL CHECKING PROCEDURE

If there is a failure in the hydro-lectric system and the cause is not evident, the mechanical operation of the top should first be checked. If the folding top assembly appears to have a binding action, disconnect the top lift cylinder piston rods from the top linkage and then manually raise and lower the top. The top should travel through its up and down cycle without any evidence of binding action. If a binding action is noted when the top is being locked at the header, check the alignment of the door windows and rear quarter windows with relation to the side roof rail weatherstrips. Make all necessary adjustments for correct top alignment. See "Folding Top Adjustments". If a failure continues to exist after a check for

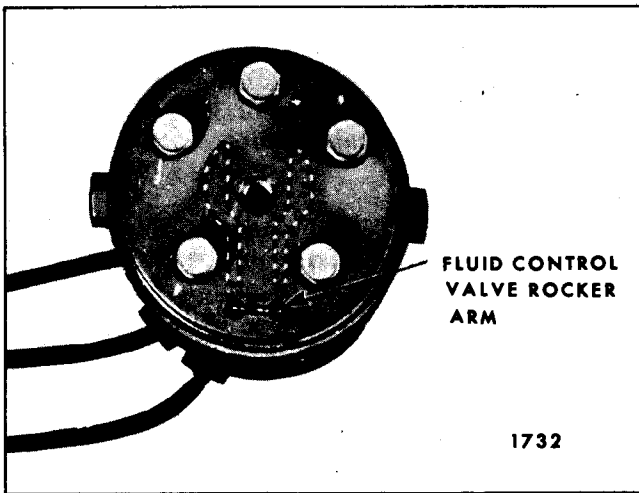


Fig. 12-22-Pump Cover Plate

mechanical failure has been completed, the hydro-lectric system should then be checked for electrical or hydraulic failures.

ELECTRICAL CHECKING PROCEDURE

If a failure in the hydro-lectric system continues to exist after the mechanical operation has been checked, the electrical system should then be checked. A failure in the electrical system may be caused by a low battery, breaks in wiring, faulty connections, mechanical failure of an electrical component, or wires or components shorting to one another or to body metal. Before beginning checking procedures, check battery according to recommended procedure.

Check for Current at Folding Top Control Switch

1. Disconnect green motor lead wire from switch to motor feed wire in rear compartment.

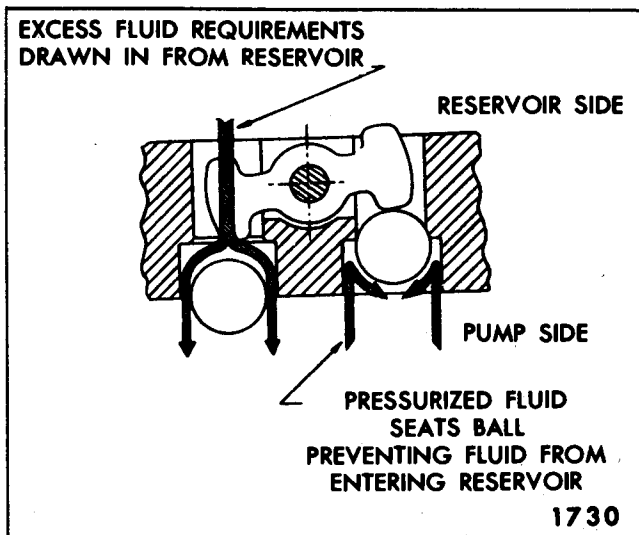


Fig. 12-23-Fluid Control Valve

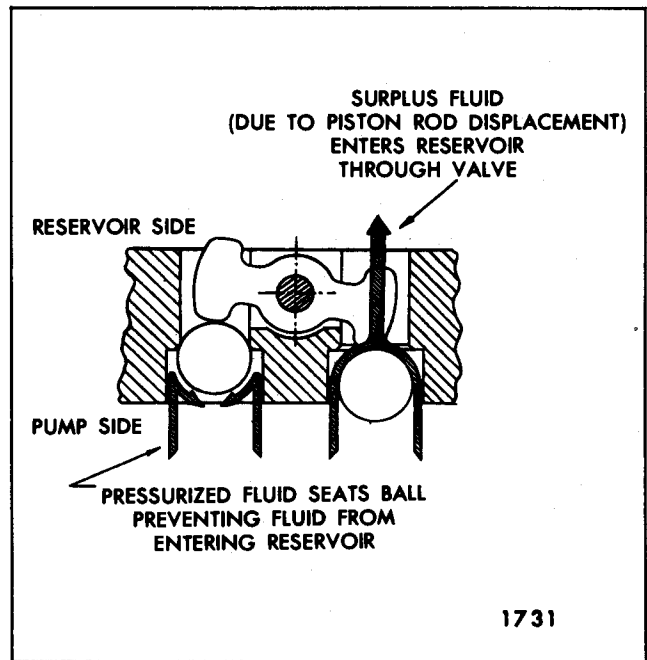


Fig. 12-24-Fluid Control Valve

2. Connect light tester to central feed terminal of switch terminal block.
3. Ground light tester ground lead to body metal.
4. If light tester does not light, there is an open or short circuit between power source and switch.

NOTE: Check light tester to insure proper operation prior to electrical checking.

Checking the Folding Top Control Switch

If there is current at the feed wire terminal of the

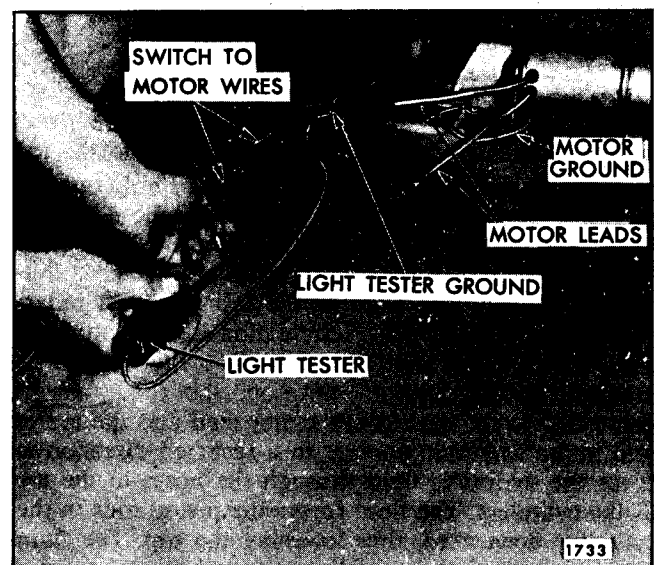


Fig. 12-25-Checking Wire Leads to Motor

terminal block, operation of switch can be checked as follows:

1. Place a 12 gauge jumper wire on switch terminal block between center terminal (feed) and one motor wire terminal. If motor operates with jumper wire, but did not operate with switch, switch is defective.
2. Connect jumper wire between center terminal and other motor wire terminal on switch terminal block. If motor operates with jumper wire, but did not operate with switch, switch is defective.

Checking Switch to Motor Lead Wires

If switch is found to be operating properly, the switch to motor lead wires can be checked as follows (See Figure 12-25).

1. Disconnect green motor lead switch-to-motor wire from motor in rear compartment.
2. Connect a light tester to switch-to-motor wire terminal.
3. Ground light tester ground lead to body metal.
4. Actuate switch to "down" position. If tester does not light, there is an open or short circuit in wire.
5. Disconnect red switch-to-motor wire from motor lead.
6. Connect light tester to switch-to-motor wire feed terminal.
7. Actuate switch to "up" position. If tester does not light, there is an open or short circuit in wire.

Checking the Motor Unit

If a light tester indicates current at the motor lead terminals of the switch-to-motor wires, but motor unit does not operate from switch, a final check of the motor unit can be made as follows:

1. Check connection of motor ground wire to body metal (See Fig. 12-17).
2. Connect a 12 gauge jumper wire from battery positive pole to motor lead terminal that connects to green motor lead wire. The motor should operate to lower top.
3. Connect jumper wire to motor lead terminal that connects to red motor lead wire. The motor should operate to raise top.
4. If motor fails to operate on either or both of these checks, it should be repaired or replaced.

5. If motor operates with jumper wire but will not operate from switch-to-motor wires, the trouble may be caused by reduced current resulting from damaged wiring or poor connections.

HYDRAULIC CHECKING PROCEDURE

Failures in the hydraulic system can be caused by lack of hydraulic fluid, leaks in hydraulic system, obstructions or kinks in hydraulic hoses or faulty operation of a cylinder or pump.

Checking Hydraulic Fluid Level in Reservoir

1. Operate top to raised position.
2. Perform the following operations:
 - a. Detach front edge of folding top compartment bag from rear seat back panel.
 - b. Remove clips securing hydraulic hose to rear seat back panel.
 - c. Disengage pump attaching grommets from compartment pan brace.
3. Place absorbent rags below reservoir at filler plug.
4. With needle nose pliers, remove filler plug. Fluid level should be within 1/4 inch of lower edge of filler plug hole.
5. If fluid is low, add Type A transmission fluid, Dexron or equivalent to bring to specified level. See "Filling of Hydro-Lectric Reservoir".
6. Install filler plug.

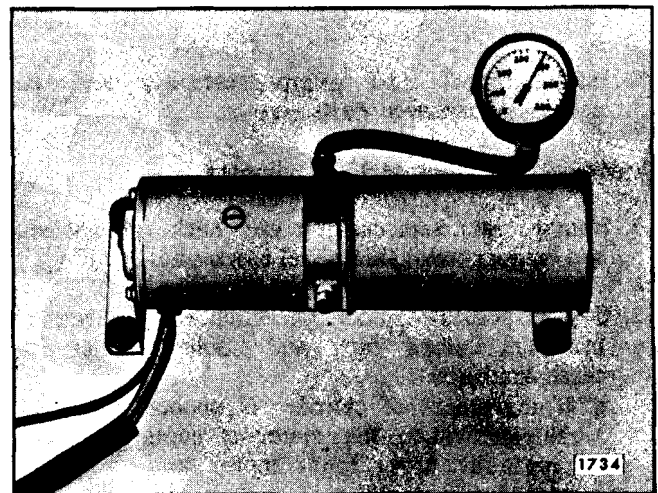


Fig. 12-26-Checking Pump Pressure

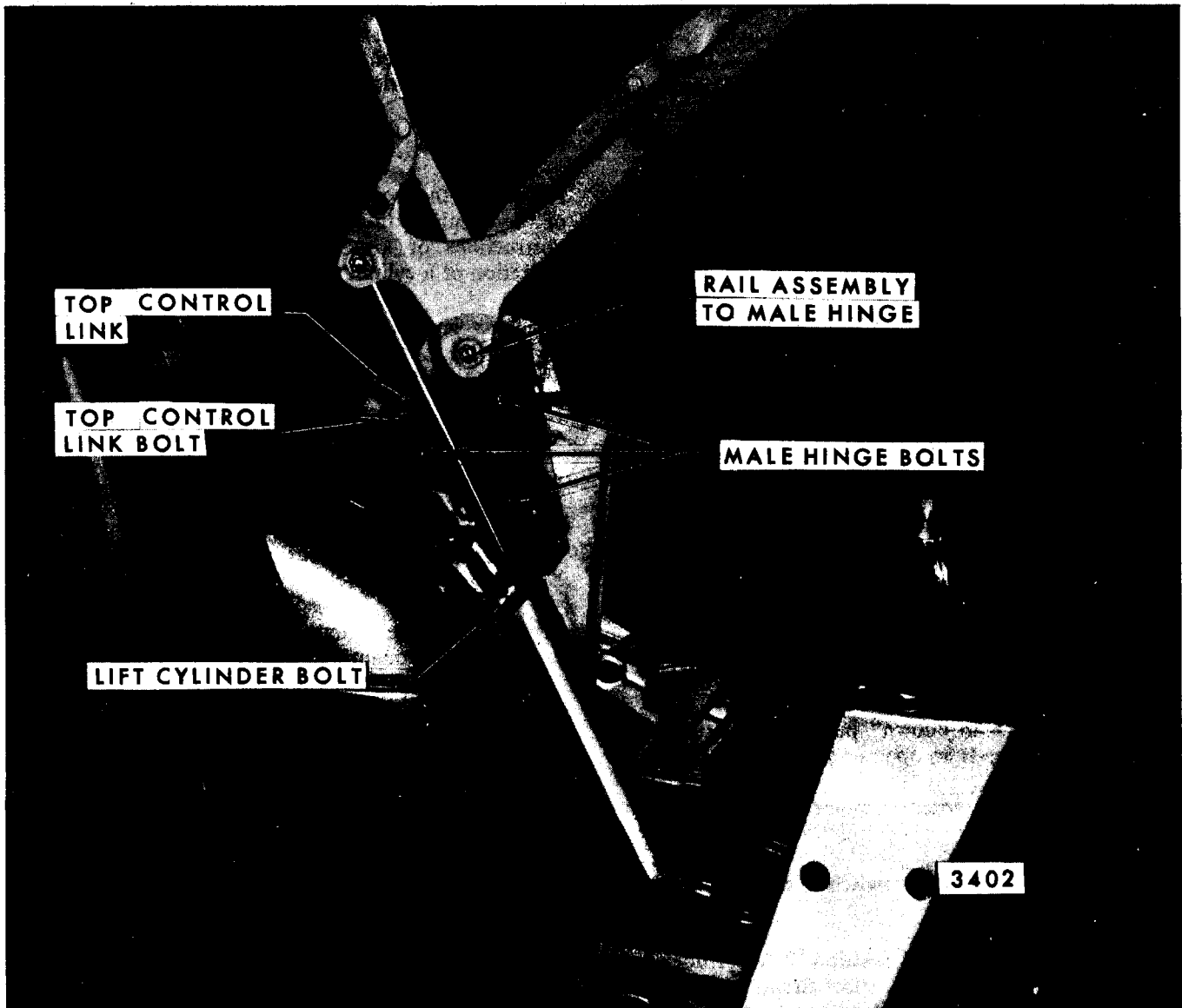


Fig. 12-27-Folding Top Linkage Attachment

7. Install motor and pump assembly and all previously removed parts.

Checking Operation of Lift Cylinders

1. Remove rear seat cushion and back and folding top compartment side panel assemblies.
2. Operate folding top control switch and observe lift cylinders during "up" and "down" cycles for these conditions:
 - a. If movement of cylinder is uncoordinated or sluggish when the motor is actuated, check hydraulic hoses from motor and pump to cylinder for kinks.
 - b. If one cylinder rod moves slower than the

other, cylinder having slower moving rod is defective and should be replaced.

- c. If both cylinder rods move slowly or do not move at all, check the pressure of the pump. See "Checking the Pressure of the Pump".

NOTE: To insure proper operation of the lift cylinders, the top lift cylinder rods should be cleaned and lubricated at least twice a year. To perform these operations, raise top to "up" position and wipe exposed portion of each top lift cylinder piston rod with a cloth dampened with Type A transmission fluid or equivalent to remove any oxidation and/or accumulated grime.

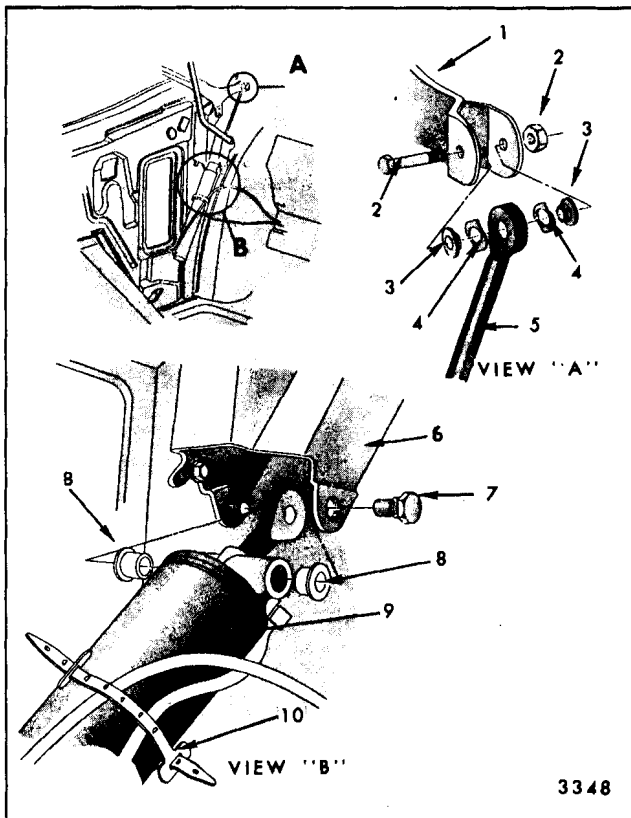


Fig. 12-28-Folding Top Lift Cylinder Attachment

IMPORTANT: Exercise care so that transmission fluid does not come in contact with any painted or trimmed parts of the body.

Checking Pressure at the Pump

1. Remove motor and pump assembly from rear compartment.
2. Install plug in one port, and pressure gauge in port to be checked (Figure 12-26).
3. Actuate motor with applied terminal voltage within range of 9.5 volts to 11.0 volts. Pressure gauge should show a pressure between 340 psi and 380 psi.
4. Check pressure in other port.

NOTE: A difference in pressure readings may exist between the pressure port for top of cylinders and pressure port for bottom of cylinders. This condition is acceptable if both readings are within the limit of 340 psi and 380 psi.

5. If the pressure is not within specified limits, unit is defective and should be repaired or replaced, as required.

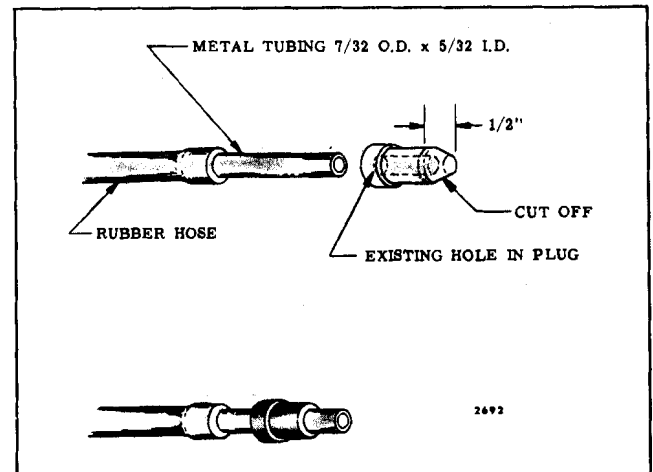


Fig. 12-29-Reservoir Filler Plug Adapter

FOLDING TOP LIFT CYLINDER

Removal and Installation

1. Lock top to windshield header.
2. Disconnect positive battery cable to prevent accidental operation of motor and pump, particularly when hydraulic hoses are disconnected from cylinder.
3. Remove rear seat cushion and seat back.
4. Remove folding top compartment side trim panel assembly on side affected.
5. Remove clips securing hydraulic hose to rear seat back panel.
6. Remove attaching nut, bolt, bushing and washer from upper end of cylinder rod (Figures 12-27 and 12-28).
7. Remove inner and outer bolt securing cylinder to male hinge (Fig. 12-28).
8. Carefully move cylinder to inboard side of top compartment brace, exposing upper and lower hydraulic hose to cylinder connections.
9. Prior to disconnecting hydraulic connections, place suitable wiping rags under connections to absorb any drippage of hydraulic fluid.
10. Disconnect hydraulic connections from old cylinder and transfer to new cylinder assembly, if replacement is required.
11. Install cylinder to male hinge.
12. Connect positive battery cable to battery terminal.

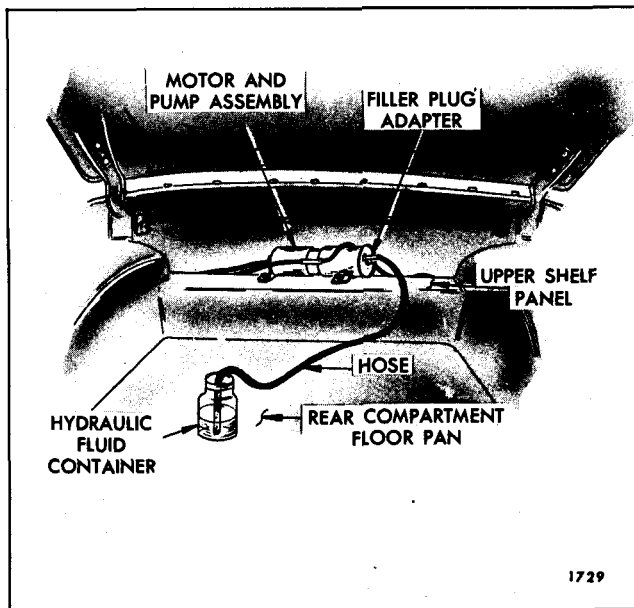


Fig. 12-30-Filling Reservoir with Hydraulic Fluid

13. Using power, raise cylinder piston rod to extended position.
14. Attach upper end of cylinder rod to folding top linkage using previously removed nut, bolt, bushing and washer.
15. Operate folding top assembly down and up several times; then check and correct level of hydraulic fluid in reservoir. See "Filling of Hydro-Lectric Reservoir".
16. Install hydraulic hose to rear seat back panel with clips and install all previously removed trim and hardware.

FILLING OF HYDRO-LECTRIC RESERVOIR

This procedure virtually eliminates discharge or spillage of hydraulic fluid and possible trim damage while filling and bleeding system.

FABRICATION OF RUBBER FILLER PLUG ADAPTER

1. Obtain a spare rubber filler plug, Part No. 7596442 or equivalent.
2. Cut approximately 1/2" off male end of plug (end inserted into reservoir) to permit insertion of tubing as shown in sketch.
3. Obtain a 2" length of metal tubing 7/32 O.D. x 5/32 I.D.

4. Insert reworked plug into filler hole in reservoir.
5. Insert metal tubing through hole in reworked filler plug.

NOTE: Figure 12-29 illustrates fabricated filler plug adapter.

FILLING AND BLEEDING RESERVOIR

1. With top in raised position, remove folding top compartment bag material from rear seat back panel.
2. Place absorbent rags below reservoir at filler plug. Using pliers, slowly pull filler plug from reservoir.

IMPORTANT: When installing new or overhauled motor and pump assembly as a bench operation, fill reservoir with proper fluid.

This priming operation is necessary prior to performing the following steps in order to avoid drawing excessive amount of air into hydraulic system.

3. Install filler plug adapter to reservoir and attach four or five foot length 5/32 inch I.D. rubber tubing or hose to filler plug tubing.
4. Install opposite end of hose into a container of proper fluid

NOTE: Container should be placed in rear compartment area below level of fluid in the reservoir. In addition, sufficient fluid must be available in container to avoid drawing air into hydraulic system (Fig. 12-30).

5. Operate top to down or stacked position. After top is fully lowered continue motor and pump assembly (approximately 15 to 20 seconds), or until noise level of pump is noticeably reduced. Reduction in pump noise level indicates that hydraulic system is filled with fluid.
6. Operate top up and down several times or until operation of top is consistently smooth in both up and down cycles and no further air bubbles are exhausted in container or fluid.
7. **WITH TOP IN DOWN POSITION**, remove filler plug tubing and remove filler plug adapter from reservoir.

NOTE: Fluid level should be within 1/4 inch of lower edge of filler plug with top in down position.

IMPORTANT: DO NOT OVER-FILL

FOLDING TOP ADJUSTMENTS "A" BODIES

Description

The folding top linkage consists of three sections of side roof rails, a front roof rail, hinges, connecting links and bows. The top linkage is attached to the body at the rear quarter area by a stationary, side-mounted male hinge. The front roof rail locks at the windshield header by hook type locks which are integral with the locking handles.

The following information outlines and illustrates procedures which may be used to correct misaligned folding top linkage. To correct some top variations, only a single adjustment is required; other top variations require a combination of adjustments. In conjunction with adjustments of the folding top, it may be necessary to adjust the door, door glass, rear quarter glass, or side roof rail weatherstrips.

ADJUSTMENT OF FRONT ROOF RAIL GUIDE

If the front roof rail guide does not properly engage with the striker when the top is raised, the guide may be adjusted laterally as follows:

1. Unlatch top and raise it above windshield header.
2. Loosen guide and adjust to desired position; then tighten guide (Fig. 12-31).

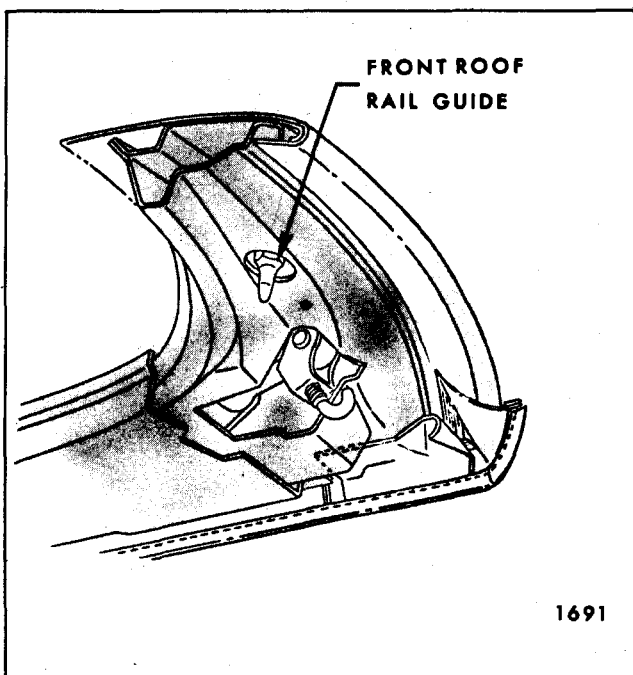


Fig. 12-31-Front Roof Rail Guide and Lock Hook

NOTE: The sunshade support and striker assembly is not adjustable. If additional fore and aft adjustment is required, it must be obtained by adjusting the front roof rail.

ADJUSTMENT OF FRONT ROOF RAIL

If the top, when raised, is too far forward or does not move forward enough to allow the guide pin to enter the striker, proceed as follows:

1. Unlatch top and raise it above windshield header. Remove side roof rail weatherstrip front attaching screws.
2. Loosen side roof rail lock attaching screws and adjust front roof rail fore or aft as required (Fig. 12-32).
3. Tighten lock attaching screws and install weatherstrip screws.

FRONT ROOF RAIL LOCK ASSEMBLY

Removal and Installation

1. Lower top to half-lowered position, remove lock attaching screws; and remove lock assembly from front roof rail (Fig. 12-32).
2. To install, reverse removal procedure and adjust front roof rail as required.

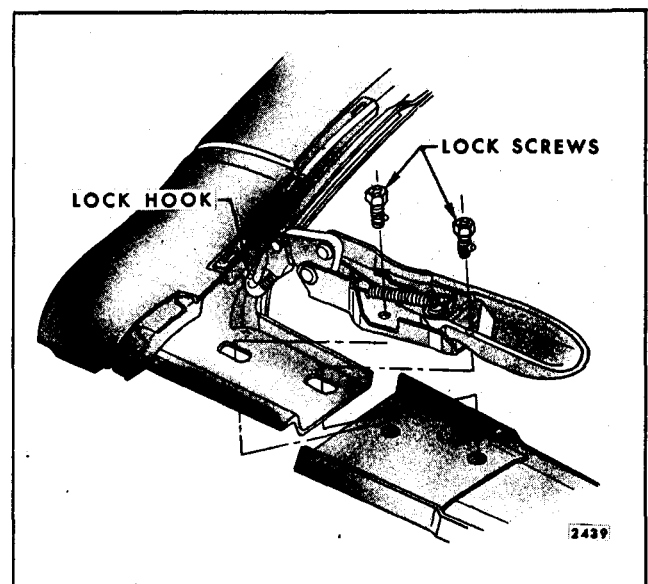
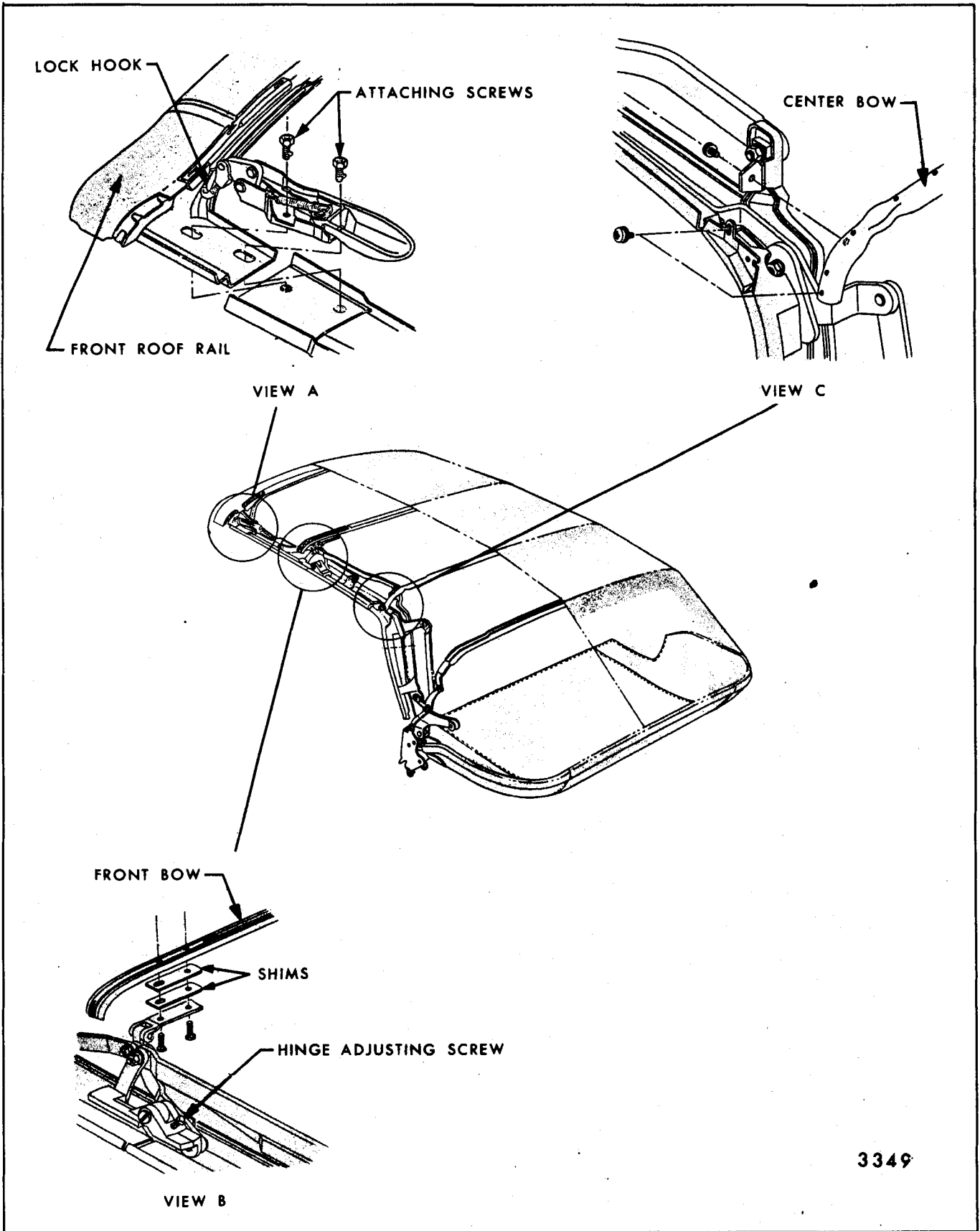


Fig. 12-32-Front Roof Rail and Lock Attachment



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Fig. 12-33-Folding Top Adjustments

FRONT ROOF RAIL LOCK ADJUSTMENT

If locking action of top is unsatisfactory, the hook on the lock assembly may be adjusted as follows:

1. To tighten or increase locking action, turn lock hook clockwise.
2. To reduce or decrease locking action, turn lock hook counterclockwise (Fig. 12-32).

ADJUSTMENT OF TOP CONTROL LINK

If side roof rails are too high or too low over side windows, proceed as follows:

IMPORTANT: When making top control link adjustments, be sure side roof rail hinge adjusting screw (Fig. 12-33 View "B") is backed off.

1. Operate top to half-lowered position.
2. Loosen bolt securing control link sufficiently to permit adjustment (Fig. 12-27).
3. Adjust top control link as required and tighten bolt.
4. Raise and lock top. Check alignment.

TROUBLE SHOOTING CHART "A" STYLES

CONDITION	APPARENT CAUSE	CORRECTION
A. Difficult locking action at front	<ol style="list-style-type: none"> 1. Lock hook too short. 2. Misaligned front roof rail front weatherstrip. 3. Front roof rail misaligned. 	<p>Adjust lock hook counterclockwise</p> <p>Loosen, realign and retack front roof rail front weatherstrip.</p> <p>Adjust front roof rail.</p>
B. Top does not lock tight enough to windshield header.	<ol style="list-style-type: none"> 1. Lock hook too long. 2. Misaligned front roof rail weatherstrips. 3. Front roof rail misaligned. 	<p>Adjust lock hook clockwise.</p> <p>Loosen and realign front roof rail weatherstrips.</p> <p>Adjust front roof rail.</p>
C. Top travels too far forward.	<ol style="list-style-type: none"> 1. Front roof rail misaligned. 	Adjust front roof rail rearward.
D. Top does not travel forward far enough.	<ol style="list-style-type: none"> 1. Front roof rail misaligned. 	Adjust front roof rail forward.
E. Side roof rails low.	<ol style="list-style-type: none"> 1. Center side roof rail hinge adjusting screw protrudes. 2. Control link misaligned. 	<p>Back off adjusting screw (View "B" Fig. 12-33).</p> <p>Adjust control link downward.</p>
F. Side roof rails high.	<ol style="list-style-type: none"> 1. Control link misaligned. 	Adjust control link upward.

CONDITION	APPARENT CAUSE	CORRECTION
G. Top material is too low over windows or side roof rails.	1. Front roof bow insufficiently shimmed. 2. Excessive width in top material.	Install one or two 1/8" shims between front roof bow and slat iron (See View "B" in Fig. 12-33). If top is too large, detach binding along affected area; trim off excessive material along side binding as required; then hand sew binding to top material.
H. Top material is too high over windows or side roof rails.	1. Front roof bow shimmed too high.	Remove one or two 1/8" shims between front roof bow and slat iron (See View "B" in Fig. 12-33).
I. Top material has wrinkles or draws.	1. Top material improperly installed.	Reposition and retack top material as required.
J. Top material binds at side quarters.	1. Insufficient clearance.	Install shim of necessary thickness between hinge and body.
K. One side staggers upon raising top from folding top compartment.	1. Bind condition in folding top linkage.	With top lowered, remove trim on affected side. Loosen male hinge attaching bolts. Do not loosen top control link. Raise top 3 to 4 feet. Tighten bolts and recheck operation of top. Reinstall trim.

When no shims are required or when installing only one shim, use attaching screw part No. 4412844 (1/4 - 20 x 5/8" oval head with external tooth lock washer, type "T-T" tapping screw, chrome finish or equivalent).

When two shims are required, use attaching screw part No. 4412619 (1/4 - 20 x 3/4" oval head with external tooth lock washer, type "T-T" tapping screw, chrome finish or equivalent).

LUBRICATION

1. On annual basis apply a limited amount of low temperature lubricant (a good grade machine oil or equivalent) to all friction surfaces.
2. The friction surfaces lubricated should include all washers, bushings and other contact surfaces.
3. To prevent soiling trim, wipe off excess lubricant.

SECTION 13

DOOR AND QUARTER TRIM

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INTRODUCTION

This section of the manual contains the service operations that are necessary for the removal and installation of door and rear quarter trim assemblies.

Body series or styles references in the procedures are explained under "General Information", Section I of this manual.

DOOR PULL HANDLES

Door pull handles are secured to the trim pad with screws or stud nuts on the outboard (reverse) side of the trim assembly prior to trim installation. In addition, on some styles, the handles are secured to the door inner panel with screws installed from the inboard side after trim installation. With this method of installation, the pull handle and trim pad are removed from the door as an assembly (Figs. 13-1 and 13-2).

NOTE: To remove the door trim assembly on any style equipped with a door pull handle requires removal of the screws inserted through the handle hinges or handle base into the door inner panel. On styles with

snap-on escutcheons covering the handle screws, carefully disengage the escutcheons from the retainers using a flat-bladed tool (Figs. 13-1 and 13-2). On styles with stud retained escutcheons (Figure 13-2), pry alternately from both ends of the escutcheon to prevent stud breakage during removal operation.

DOOR ARM RESTS

There are three basic types of door arm rests: those applied after door trim installation, those assembled to the door trim prior to trim installation and arm rests which are an integral part of the door trim assembly. For removal of the first or second type arm rests, refer to Figures 13-3 and 13-4.

DOOR OUTSIDE MIRROR REMOTE CONTROLS AND ESCUTCHEON

On styles with remote control door outside mirrors, the remote control mirror cable must be disengaged from the door trim assembly or arm rest (Cadillac styles only) to permit trim assembly removal. To disengage the remote cable from the door trim assembly, refer to Figures 13-5 and 13-6.

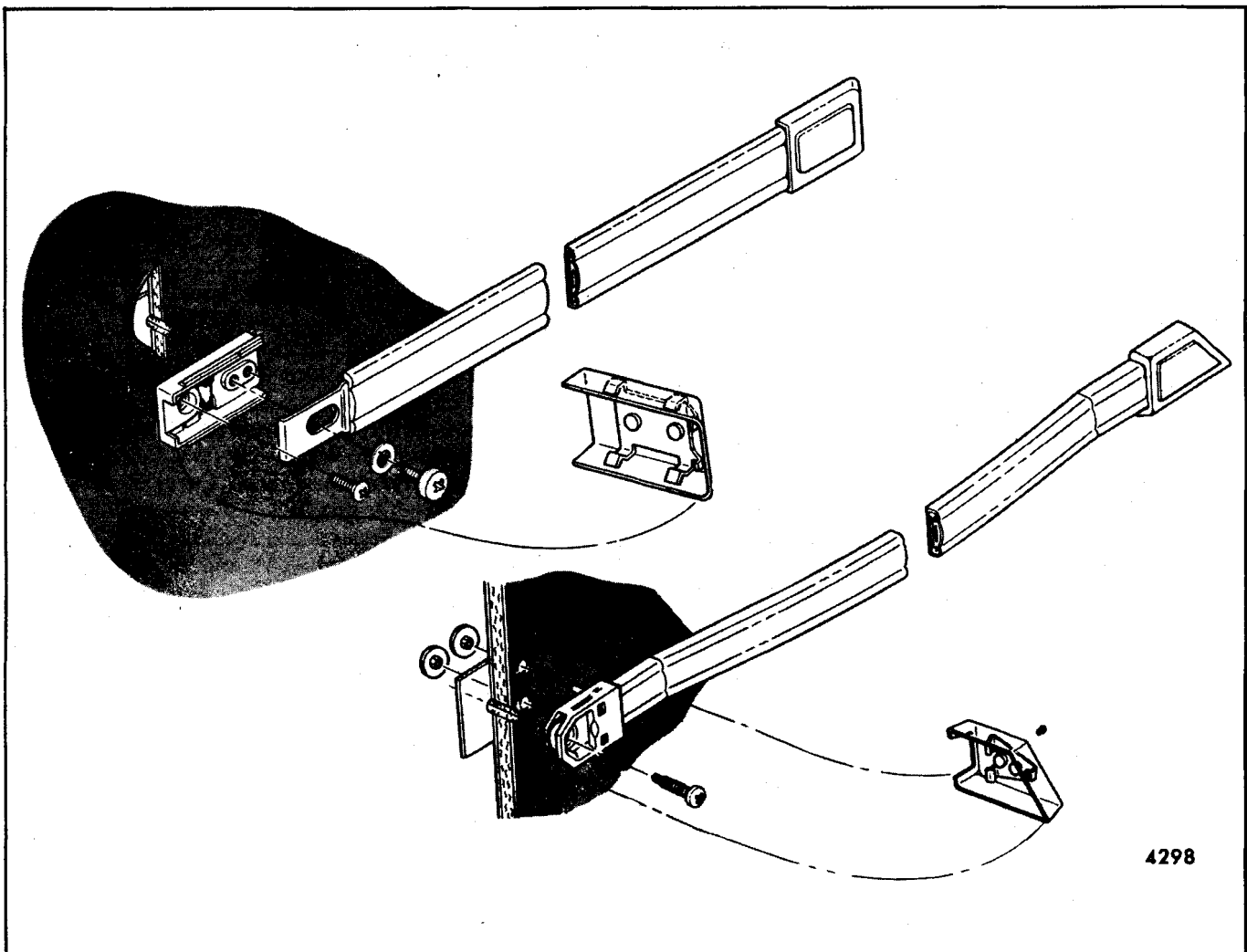


Fig. 13-1-Typical Door Pull Handle Attachment

DOOR AND QUARTER INSIDE HANDLES

Door and quarter inside handles are retained by either screws or spring clips (Figures 13-7, 13-8 and 13-9). On styles equipped with screw retained handles, the screws are either exposed or covered by a remote control cover plate that can be removed as shown in Figures 13-8 and 13-10).

Removal and Installation

1. On styles with clip retained handles, clip is either exposed when arm rest is removed, or else is hidden by handle (Figs. 13-7 and 13-9). Exposed clips can be disengaged from remote control spindle with a screwdriver.

Clips hidden by window regulator or remote control handles can be disengaged by depressing door trim assembly sufficiently to permit inserting tool J-9886 or equivalent between handle and

plastic bearing plate (Figure 13-11). Then, with tool in same plane as inside handle, push tool as indicated to disengage clip. Pull handle inboard to remove from spindle.

2. To install ventilator and window regulator handles, engage retaining clip on handle. Position handle at same angle as opposite side handle and press handle outboard until clip engages regulator spindle. On remote control spindles, install handle in a horizontal position.

DOOR TRIM ASSEMBLIES

There are two basic types of door trim assemblies, a one piece trim assembly that is used on all "A, F and X" styles and a two piece trim that is used on "B, C and E" styles.

On all "A, F and X" styles, except 12487 styles, the one piece trim hangs over the door inner panel across the top and is secured by clips or nails down the sides,

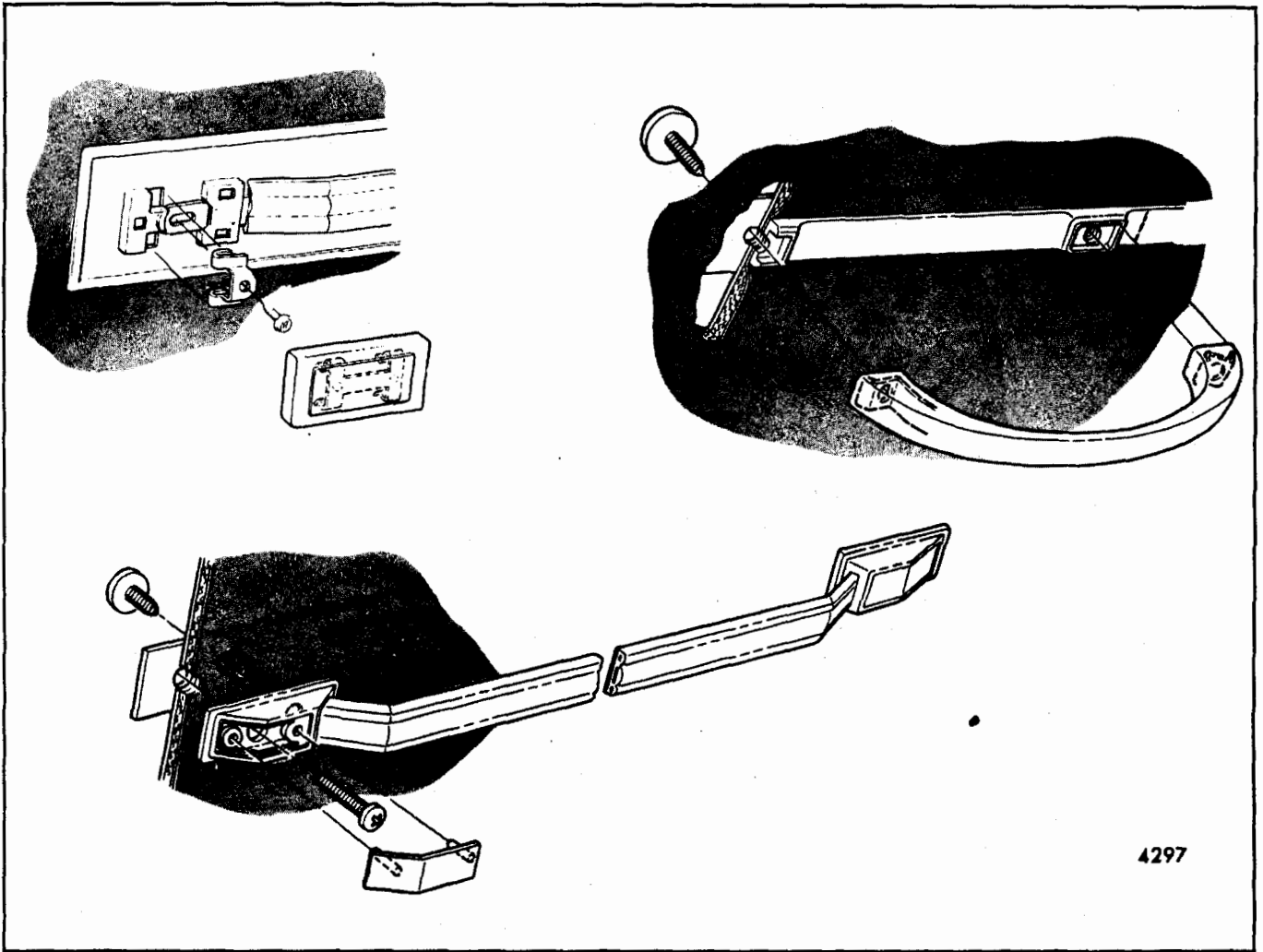


Fig. 13-2-Typical Door Pull Handle Attachment

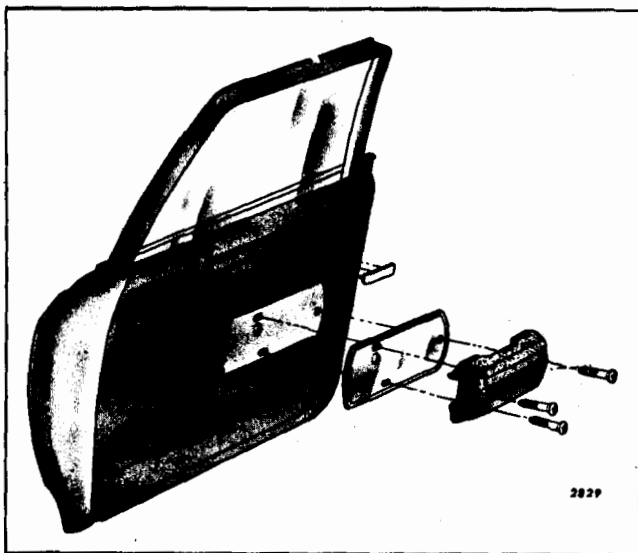


Fig. 13-3-Typical Door Arm Rest Applied After Trim Installation

and by screws across the bottom (Fig. 13-12 is a composite illustration of the various types of door trim panel fasteners). 12487 styles with standard trim utilize a belt finishing molding across the top of the trim assembly (Figure 13-4). For removal of this molding refer to "Door Belt Finishing Molding (12487 Style with Standard Trim)".

On "B, C and E" styles with the two piece trim, the upper portion hangs over the door inner panel across the top and is secured by trim nails and screws across the bottom. The lower portion is retained by screws across the top and by clips down the sides and across the bottom.

Removal and Installation

1. Remove all door inside handles as previously described.
2. Remove door inside locking rod knob.

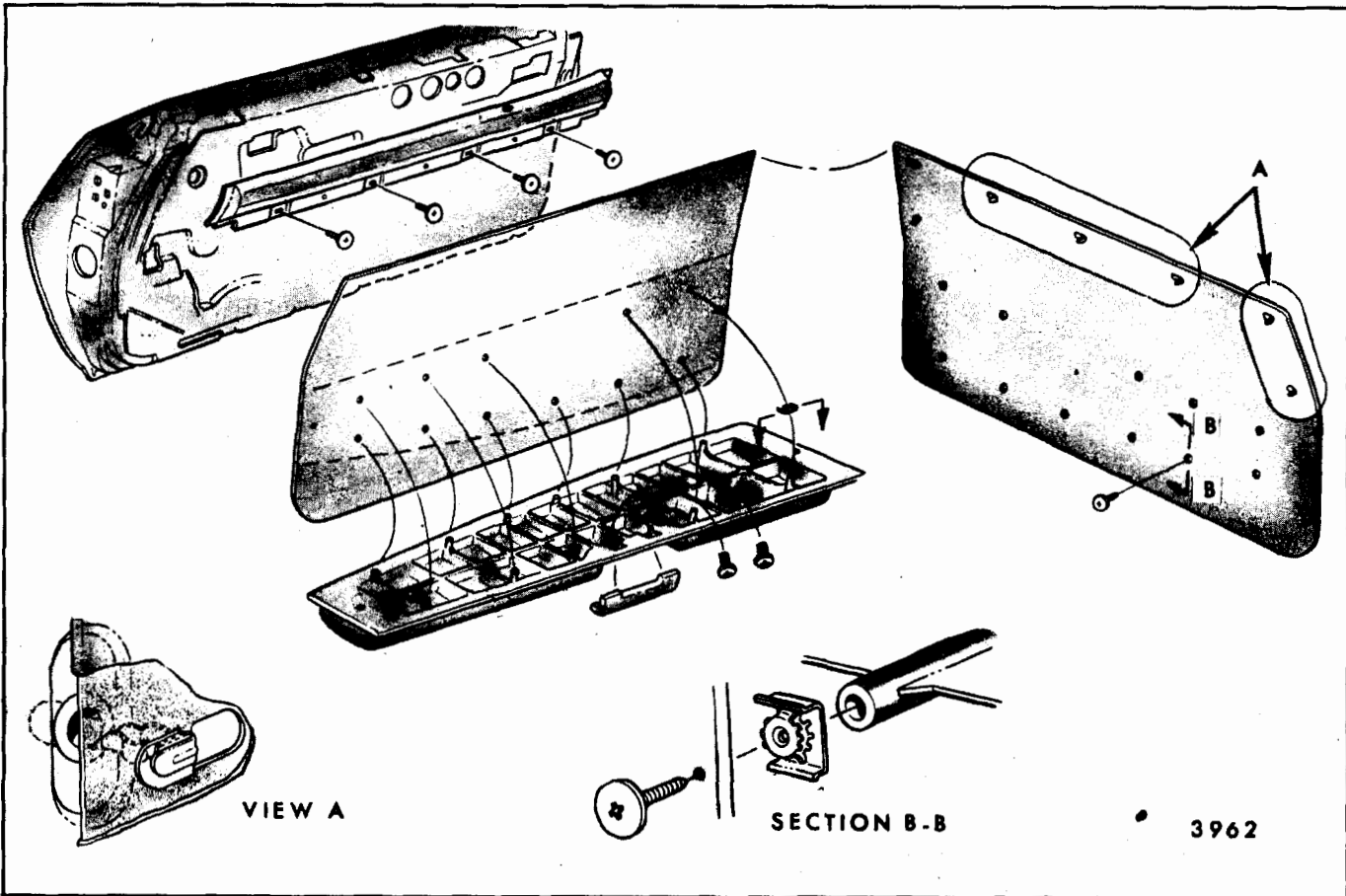


Fig. 13-4-Typical Door Arm Rest Assembled to Door Trim Assembly Prior to Trim Installation

3. On styles equipped with door pull handles, remove screws inserted through handle into door inner panel (For location of screws, refer to Figures 13-1 and 13-2).
4. On styles with remote control mirror assemblies, remove remote mirror escutcheon and disengage end of mirror control cable from escutcheon as previously described (Figures 13-5 and 13-6).
5. On styles equipped with switch cover plate in door arm rest, remove screws securing cover plate and disconnect switches and cigar lighter (if equipped) from wire harness connectors (Fig. 13-6).
6. On styles with remote control cover plates (Figures 13-8 and 13-10), remove exposed screws securing cover plate to door inner panel.
7. On styles with arm rest applied to door trim assembly prior to trim installation (Figure 13-4) or styles with integral arm rest, remove screws inserted through pull cup into arm rest hanger support. On styles with arm rest applied after door trim installation (Figure 13-3), remove arm rest to door inner panel attaching screws.
8. On Cadillac styles, remove windshield wiper control switch to "pod" attaching screw (Figure

13-13) and disconnect wire harness at switch assembly.

9. On "B, C and E" styles, with two piece trim assemblies, remove attaching screws located at outer lower corners of upper trim assembly. Then, using tool J-9886 or equivalent disengage retaining nails from plastic cups inserted in door inner panel along lower edge of upper trim. Remove upper trim from door by lifting upward and sliding it slightly rearward to disengage it from door inner panel at beltline.

NOTE: On styles with electric switches located in door trim assembly, disconnect wire harness at switch assembly.

To remove lower trim, on "B, C and E" styles remove attaching screws along upper edge of lower trim assembly. Then, starting at a lower corner, insert tool J-9886 or equivalent between door inner panel and trim assembly and disengage retaining clips from plastic cups down both sides and across the bottom.

NOTE: On styles with courtesy lamps located in lower trim assembly, disconnect wire harness at lamp assembly (Figure 13-14).

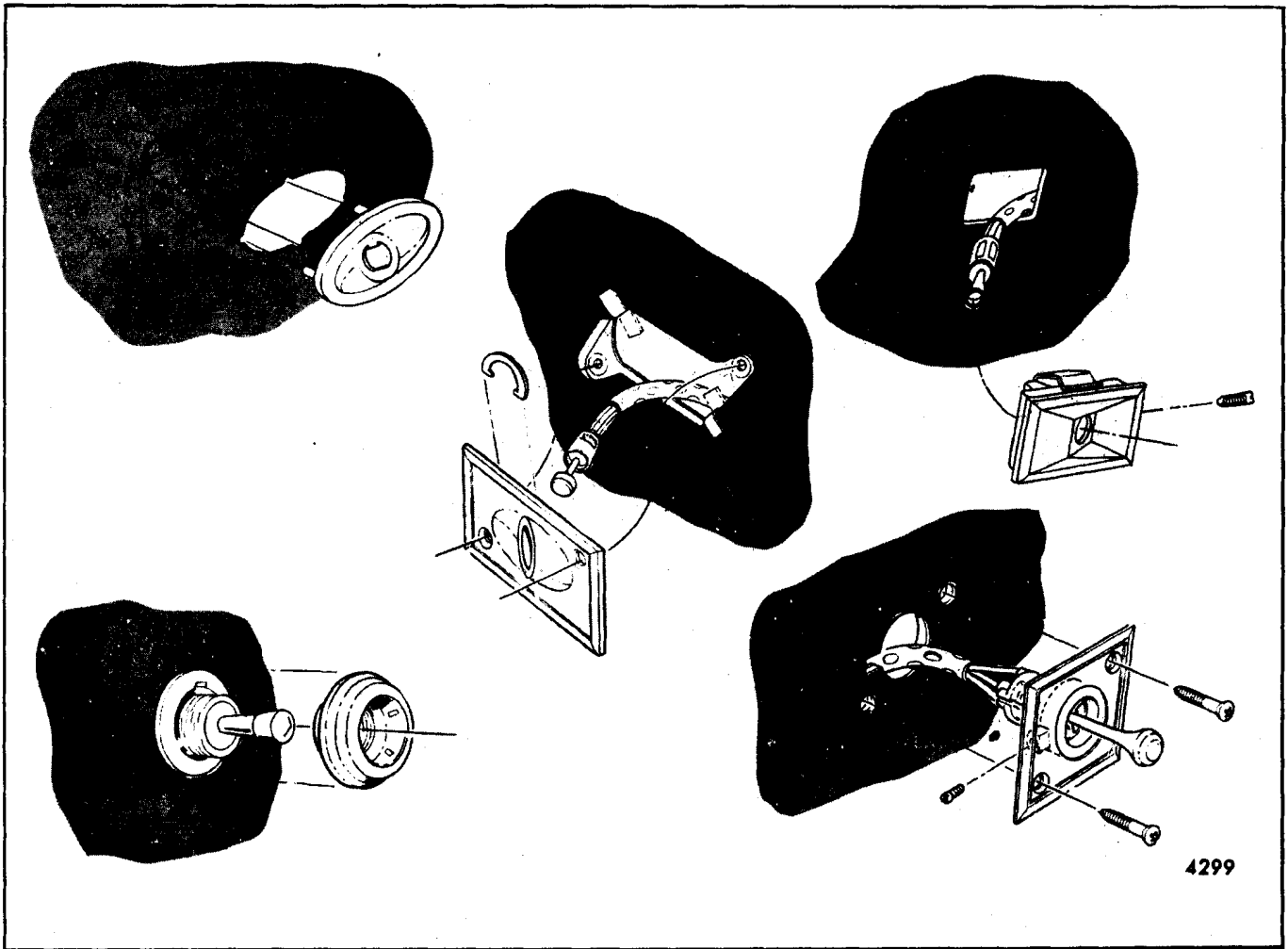


Fig. 13-5-Typical Remote Mirror Cable and Escutcheon Attachment, All Except Cadillac Styles

10. On "A, F and X" styles remove all screws down both sides and across bottom of door trim pad. Then, starting at a lower corner, insert tool J-9886 or equivalent between door inner panel and trim assembly and, carefully disengage retaining nails

or clips from plastic cups inserted in door inner panel (Fig. 13-12).

To remove trim assembly, lift trim assembly upward and slide it slightly rearward to disengage it from door inner panel at the belt line. On styles with electric switches located in the door trim assembly, disconnect wire harness and remove trim assembly from door.

11. To install door trim assemblies, reverse removal procedure.

NOTE: On styles with adjustable trim supports at belt line, the door trim assembly can be adjusted in or out so as not to restrict door window operation.

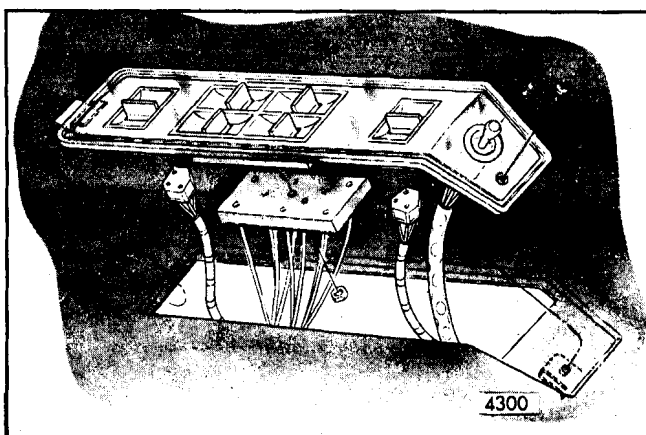


Fig. 13-6-Door Armrest Switch Cover Plate and Remote Mirror Cable Attachment (Cadillac Styles)

**DOOR BELT FINISHING MOLDING -
(12487 STYLE WITH STANDARD TRIM)**

The door belt trim molding is retained by trim supports at top of the door inner panel, and by screws

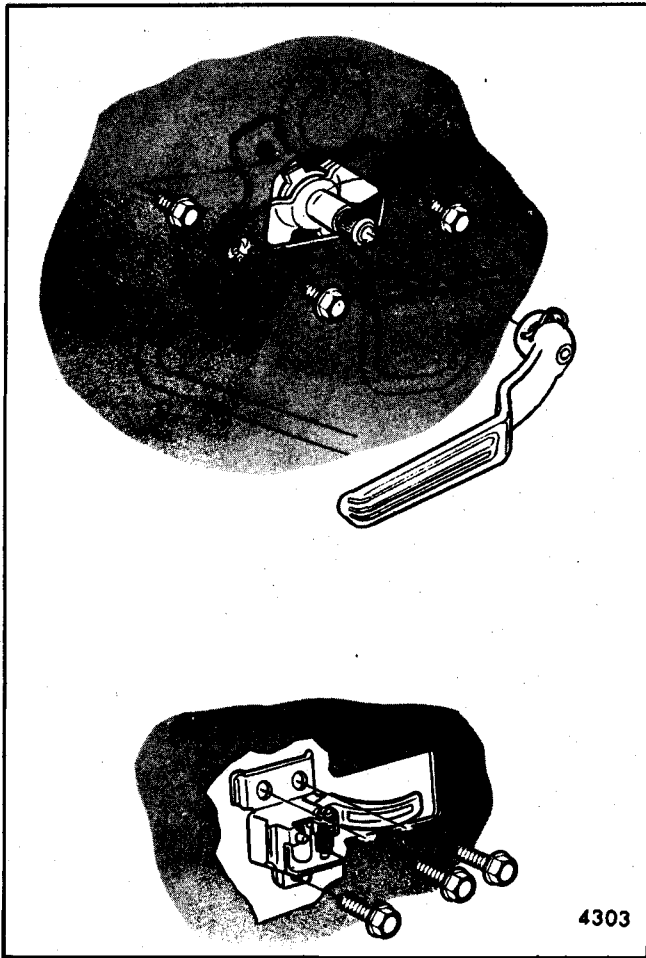


Fig. 13-7-Typical Door Lock Remote Control Handle Installations

into door inner panel along lower edge of molding (Figure 13-4).

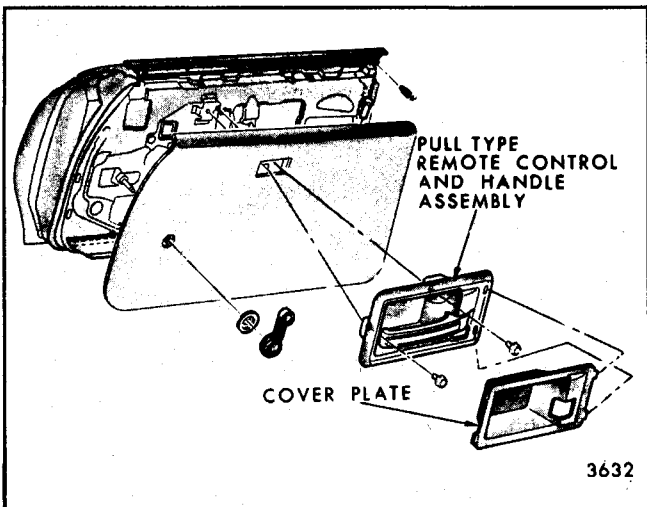


Fig. 13-8-Typical Door Lock Remote Control and Handle Assembly Installation

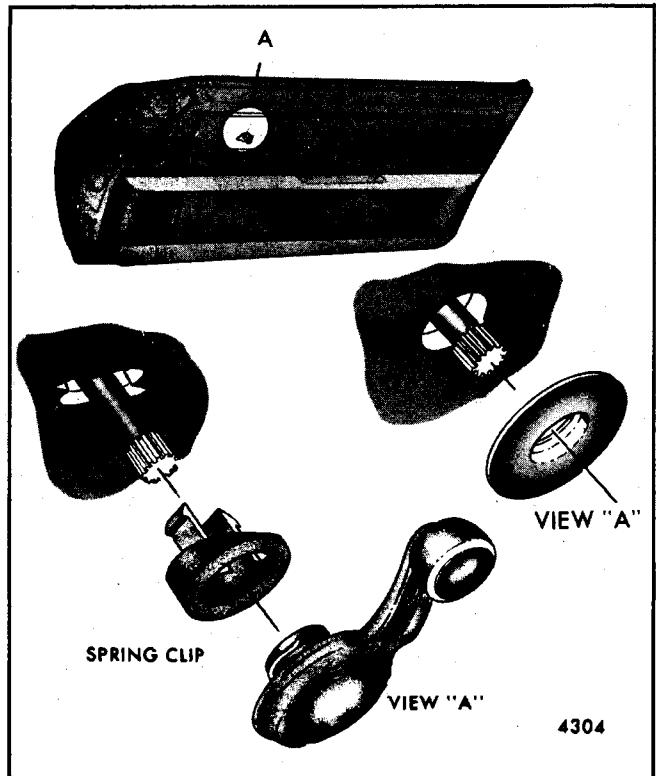


Fig. 13-9-Typical Window Regulator Handle Assembly Installation

Removal and Installation

1. Remove door inside locking rod knob.
2. Loosen upper portion of door trim panel sufficiently, as previously described, to gain access to and remove molding attaching screws.

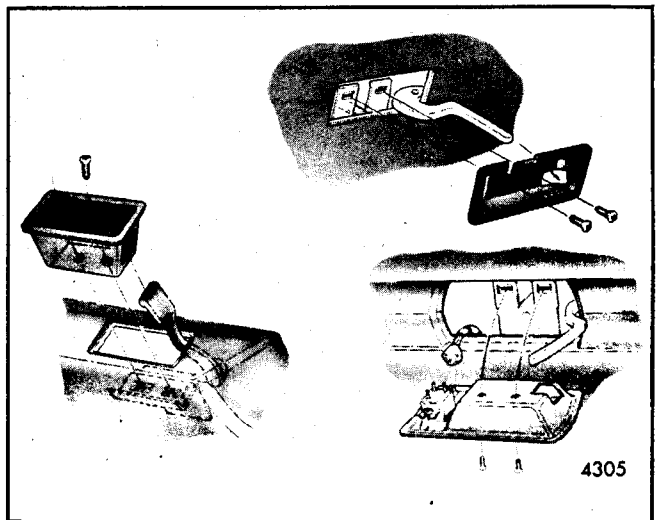


Fig. 13-10-Typical Remote Control Cover Plate Installations

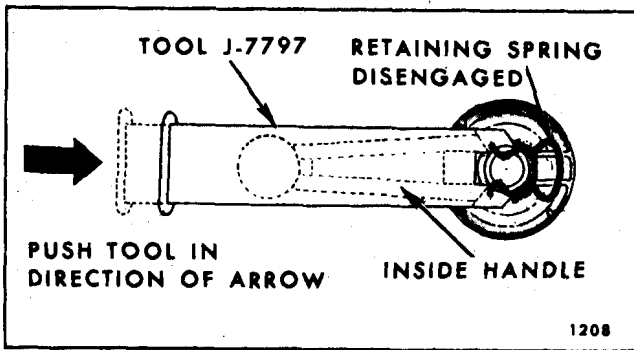


Fig. 13-11-Clip Retained Door Inside Handle Removal

3. Lift molding upward to disengage from trim supports on top of door inner panel.
4. To install, reverse removal procedure.

DOOR TRIM PANEL MOLDINGS AND APPLIQUES

Door trim moldings and appliques are secured from

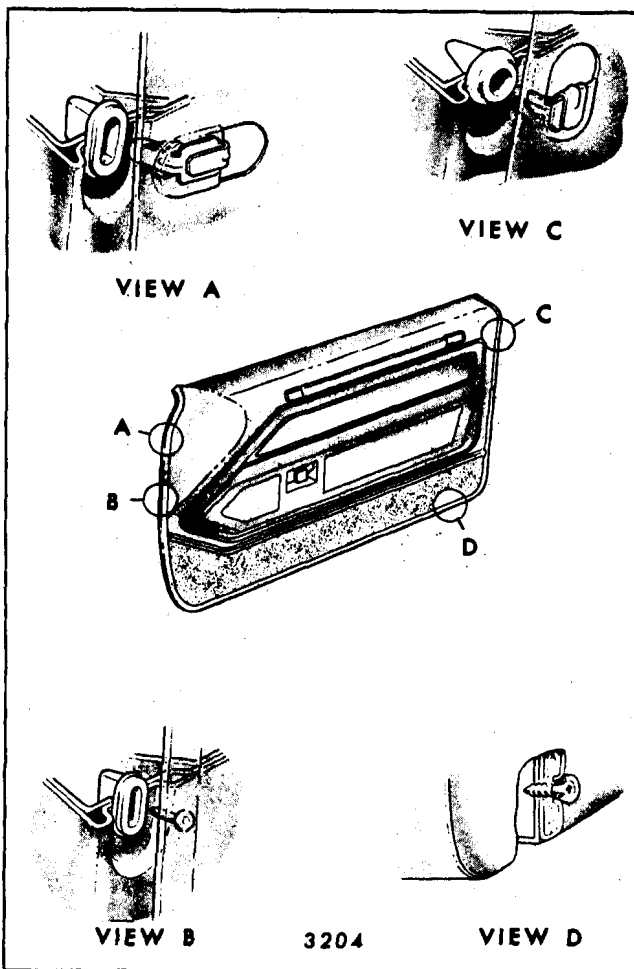


Fig. 13-12-Typical Types of Door Trim Retention

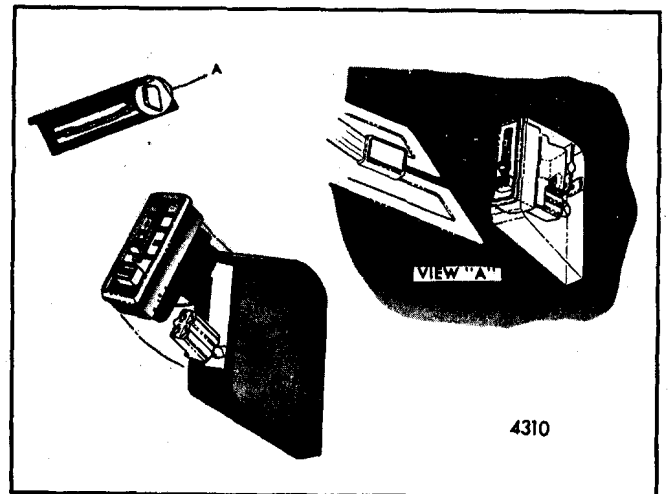


Fig. 13-13-Windshield Wiper Control Switch Removal and Installation (Cadillac Styles)

the outboard side of the door trim panel with several types of metal fasteners (Figure 13-15) or bend-over tabs.

Removal and Installation

1. Remove door trim assembly as previously described.
2. For removal of type "A" fasteners, Figure 13-15, use tool J-23554 or equivalent.
3. To remove type "B" fasteners, Figure 13-15, carefully pry-up on fastener until there is sufficient working space to insert wire cutter; then, cut fastener and discard.
4. For removal of type "C" fasteners, Figure 13-15, use a cross head type screwdriver.
5. To install, reverse removal procedure.

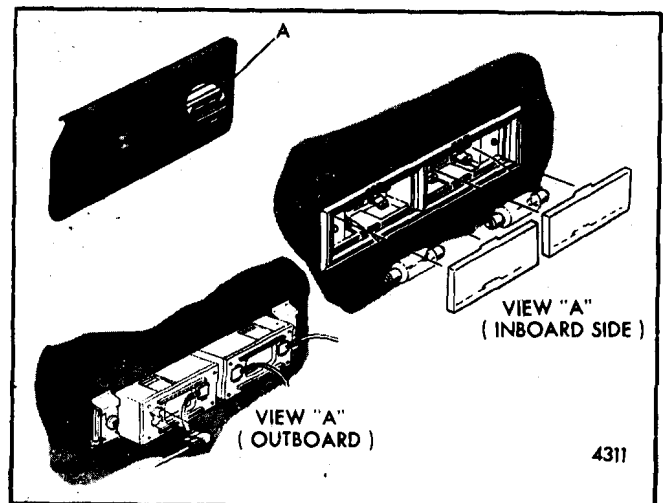


Fig. 13-14-Courtesy Lamp Removal and Installation

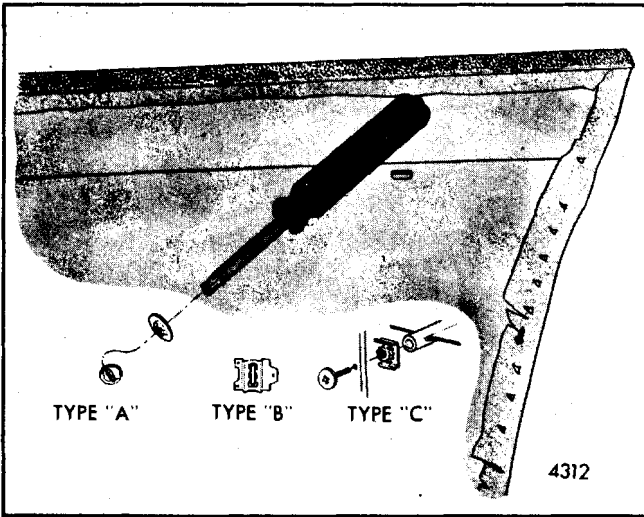


Fig. 13-15-Door Trim Pad Molding and Applique Removal

REAR QUARTER ARM REST - "A and X" Two-Door Closed Styles

Removal and Installation

Certain two door closed styles are equipped with "applied-type" arm rests. Each arm rest is secured to quarter inner panel by two attaching screws. Removal is simply a matter of removing two attaching screws (Fig. 13-16). To install, reverse the removal operations.

REAR QUARTER ARM REST - "A, B, C and E" Two-Door Hardtop Styles and "B and E" Convertible Styles

Certain two-door hardtop and convertible styles are equipped with "Floor-Mounted Type" arm rests. The arm rests extend from the arm position to the floor, and from the body lock pillar to the rear seat back panel (Fig. 13-17).

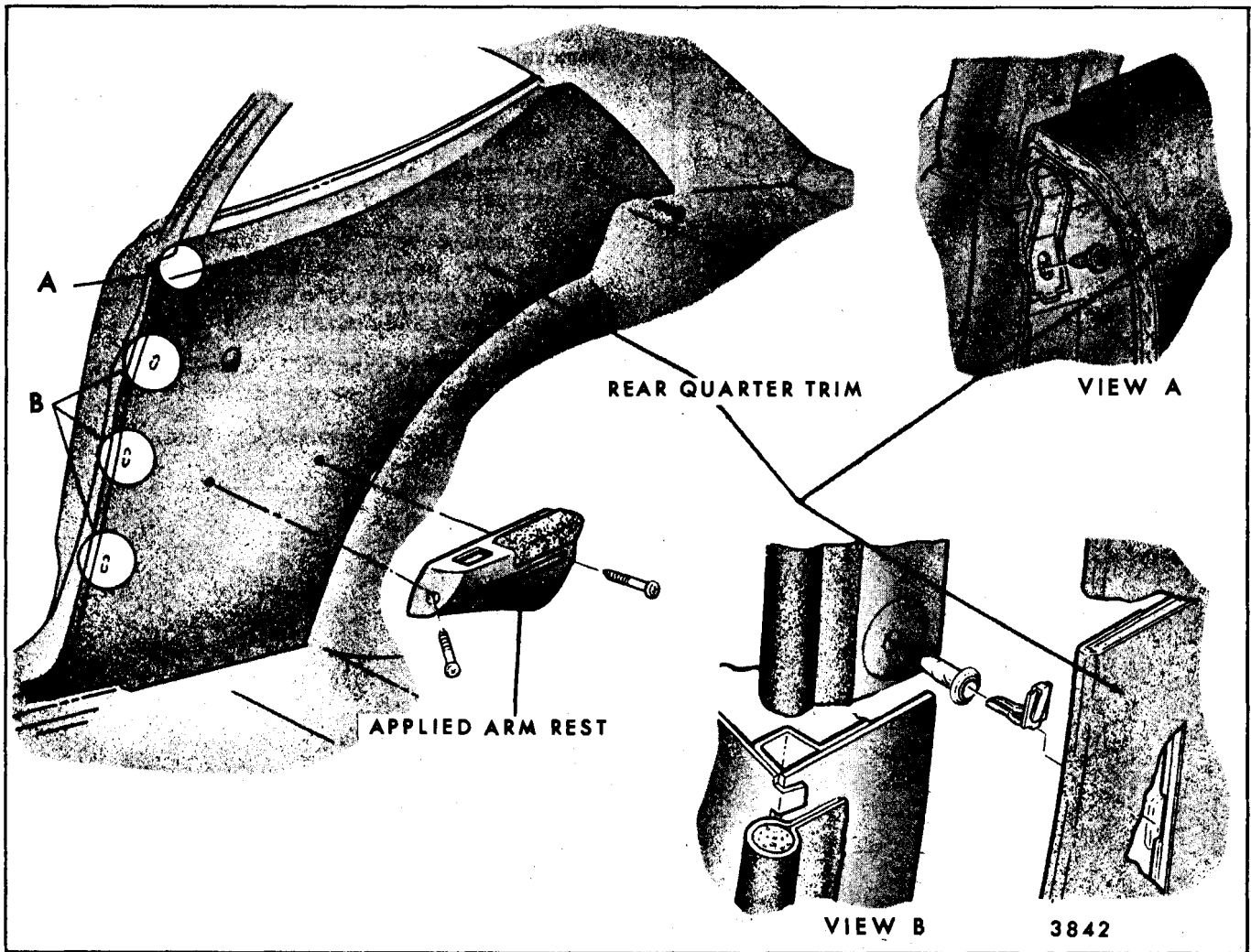


Fig. 13-16-Quarter Trim Assembly Attachment Two-Door Sedan Styles

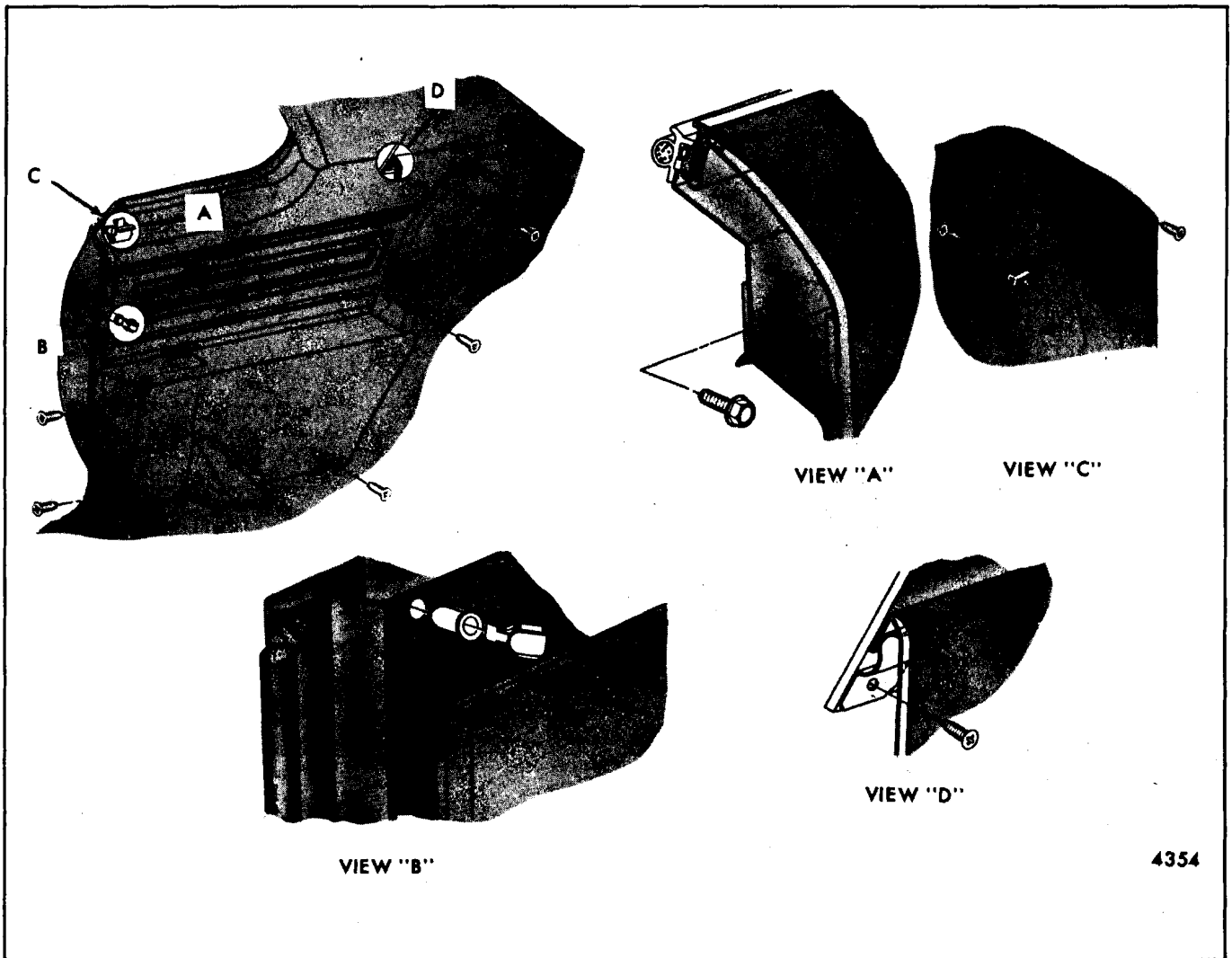


Fig. 13-17-Quarter Trim Assembly Attachment Two-Door Hardtop Styles ("B" Style Shown)

Removal and Installation

1. Remove rear seat cushion and back assemblies.
2. Remove arm rest front and lower attaching screws.
3. On "B", "C" and "E" styles, remove attaching screw at upper rear of arm rest (Fig. 13-17).

On "A" styles, remove attaching screws from side filler panel (Fig. 13-18). Quarter arm rest and filler panel are connected together and are removed as assembly at this time.

4. Where present, detach electrical wiring and remove arm rest (View "B" Fig. 13-19).
5. To install, connect electrical wiring and reverse removal operations.

REAR QUARTER ARM REST - "A" Convertible Styles

Arm rests on convertible styles are a "Floor-Mounted Type" and include an integral folding top compartment side trim panel (Fig. 13-20).

Removal and Installation

1. Remove rear seat cushion and back assemblies.
2. Remove attaching screws at front of arm rest.
3. Remove attaching screws from folding top compartment side trim panel as shown (Fig. 13-20).
4. Where present, detach electrical wiring and remove arm rest (View "A" Fig. 13-21).
5. To install, connect electrical wiring and reverse removal operations.

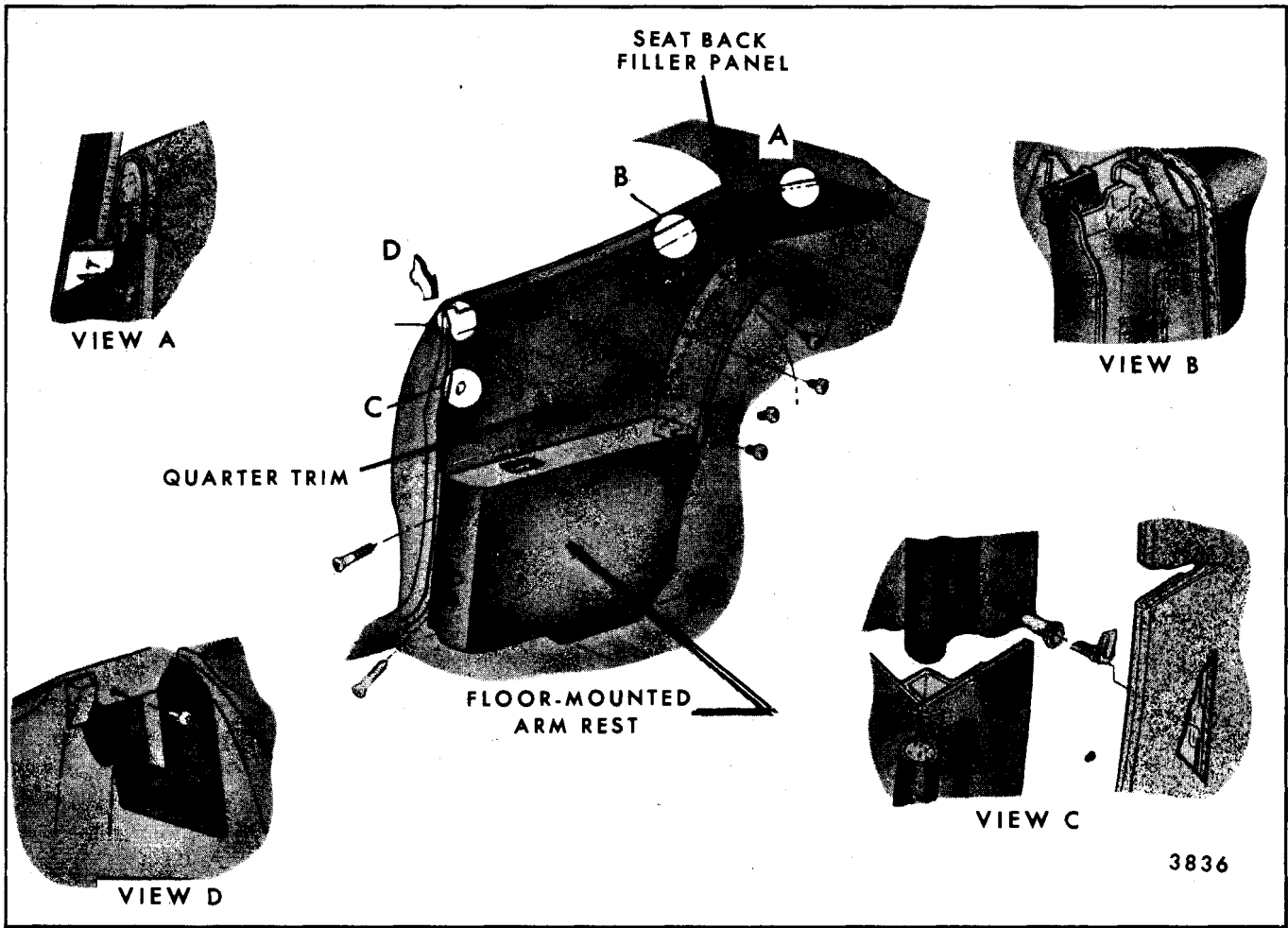


Fig. 13-18-Quarter Trim Assembly Attachment Two-Door Hardtop Styles ("A" Style Shown)

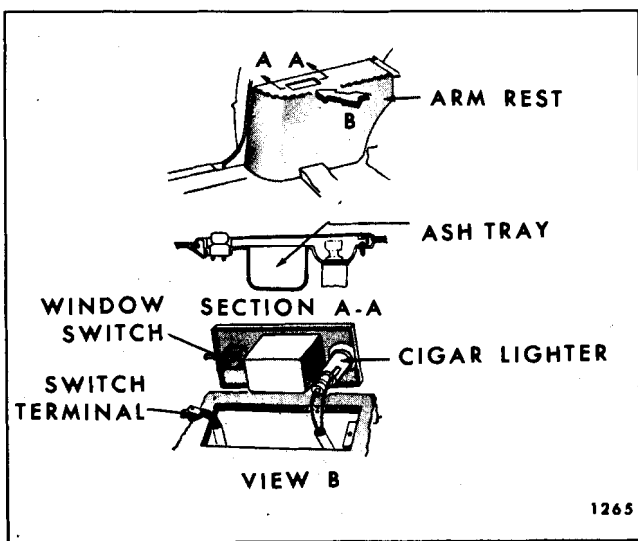


Fig. 13-19-Quarter Arm Rest Ash Tray and Electric Switch Plate (Hardtop Styles)

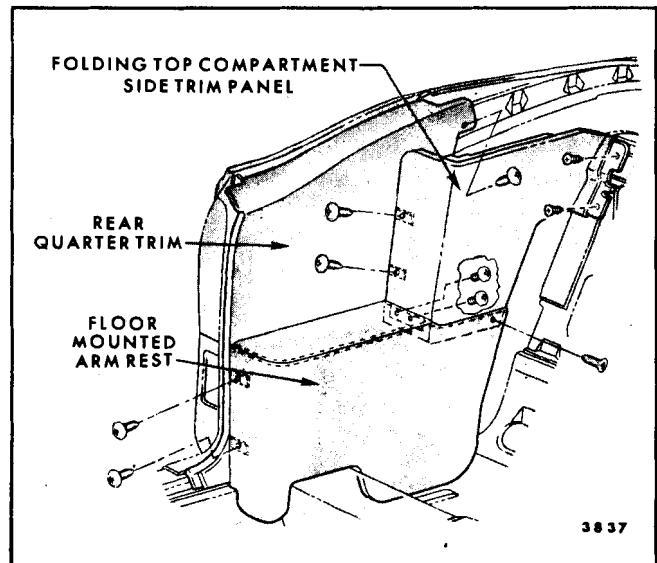


Fig. 13-20-Quarter Trim Assembly Attachment Convertible Styles

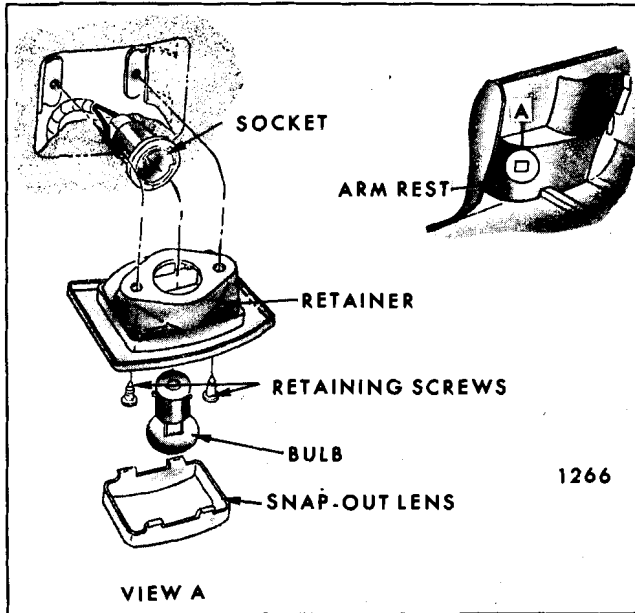


Fig. 13-21-Quarter Arm Rest Courtesy Lamp
Convertible Styles

REAR QUARTER TRIM ASSEMBLY - All Two-Door Styles, Except "F" Styles

Removal and Installation

1. Remove rear seat cushion and back assemblies.
2. Where present, remove quarter window regulator handle.
3. Remove quarter arm rest and, where present, quarter filler panel.
4. Where present, remove attaching screw(s) from front and/or rear of quarter trim assembly (Fig. 13-16 and View "C" Fig. 13-17).
5. Where present, detach fasteners securing quarter trim along body lock pillar (View "B" Fig. 13-16) with tool J-9886 or equivalent.
6. Detach quarter trim by lifting assembly off hangar retention.
7. Where present, detach electrical wiring and remove trim assembly.
8. To install, connect electrical wiring and reverse removal operations.

REAR QUARTER TRIM PANEL - "F" Styles

The rear quarter trim panel consist of a one-piece plastic panel with an integral arm rest (Fig. 13-22).

Removal and Installation

1. Remove rear seat back and applicable rear seat cushion.
2. Remove rear quarter upper trim.
3. Remove attaching screws from lower front (View "C", Figure 13-22) and upper rear (View "D", Figure 13-22) of trim panel.
4. Remove door opening sill plate. Then, slide trim panel forward and remove quarter trim panel.
5. To install, reverse removal operations.

REAR QUARTER TRIM FINISHING PANEL

All Four-Door and "A-80" Styles

Removal and Installation

1. Remove rear seat cushion and back assemblies.
2. On "A, B and X" styles, remove attaching screws from trim panel (Fig. 13-23) and remove trim panel.
3. On "C" styles, insert tool J-9886 or equivalent at each clip location and pry retaining clip from plastic retaining plugs (View "B" Fig. 13-24) and remove trim panel.
4. To install, reverse removal operations.

REAR QUARTER UPPER TRIM (Above Belt) - All Styles

Removal and Installation

1. On styles so equipped, detach molding or finishing lace from side of back window opening and along side roof rail adjacent to quarter upper trim assembly.
2. Remove attaching screw(s) or, if cemented, carefully break cement bond between upper trim and retainer along back window (Figs. 13-25 and 13-26).
3. On styles equipped with optional rear seat shoulder harness, remove anchor bolts securing harness at quarter upper trim. On styles equipped with courtesy lamps in quarter upper trim, disconnect and remove lamp before proceeding with next removal operation.
4. With long flat bladed tool, carefully locate and unfasten quarter upper trim two-part multiple-peg

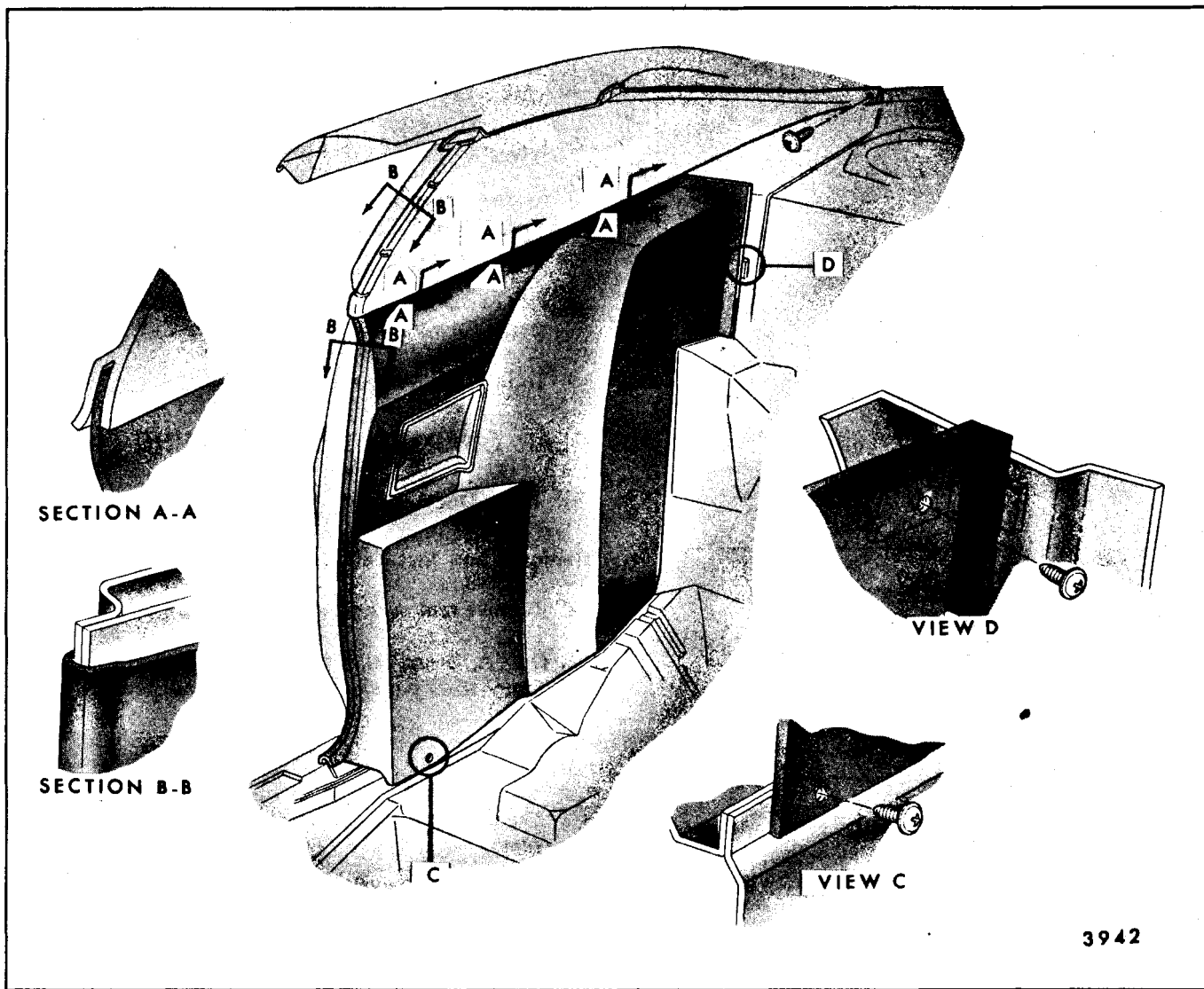


Fig. 13-22-Rear Quarter Trim Attachment - "F" Styles

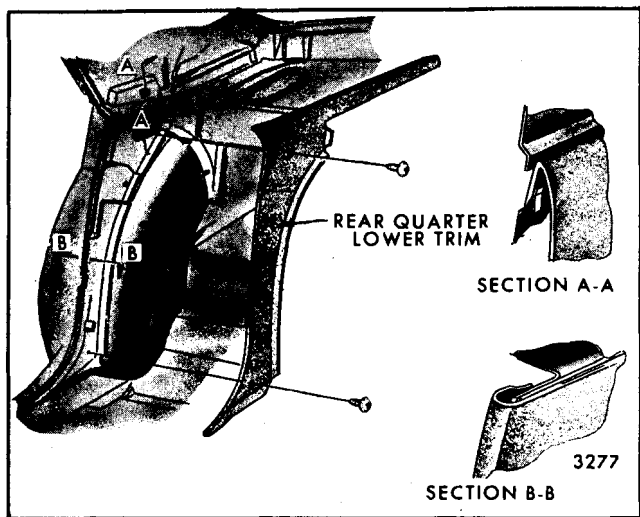


Fig. 13-23-Quarter Trim Assembly Attachment
"A, B and X" Four-Door and "A-80" Styles

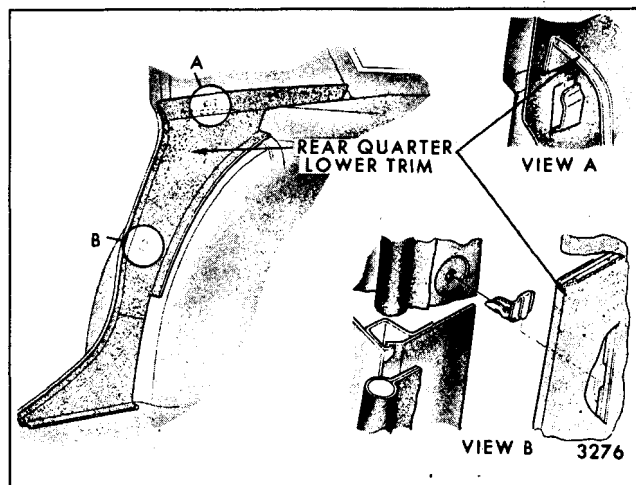


Fig. 13-24-Quarter Trim Assembly Attachment
"C" Four-Door Styles

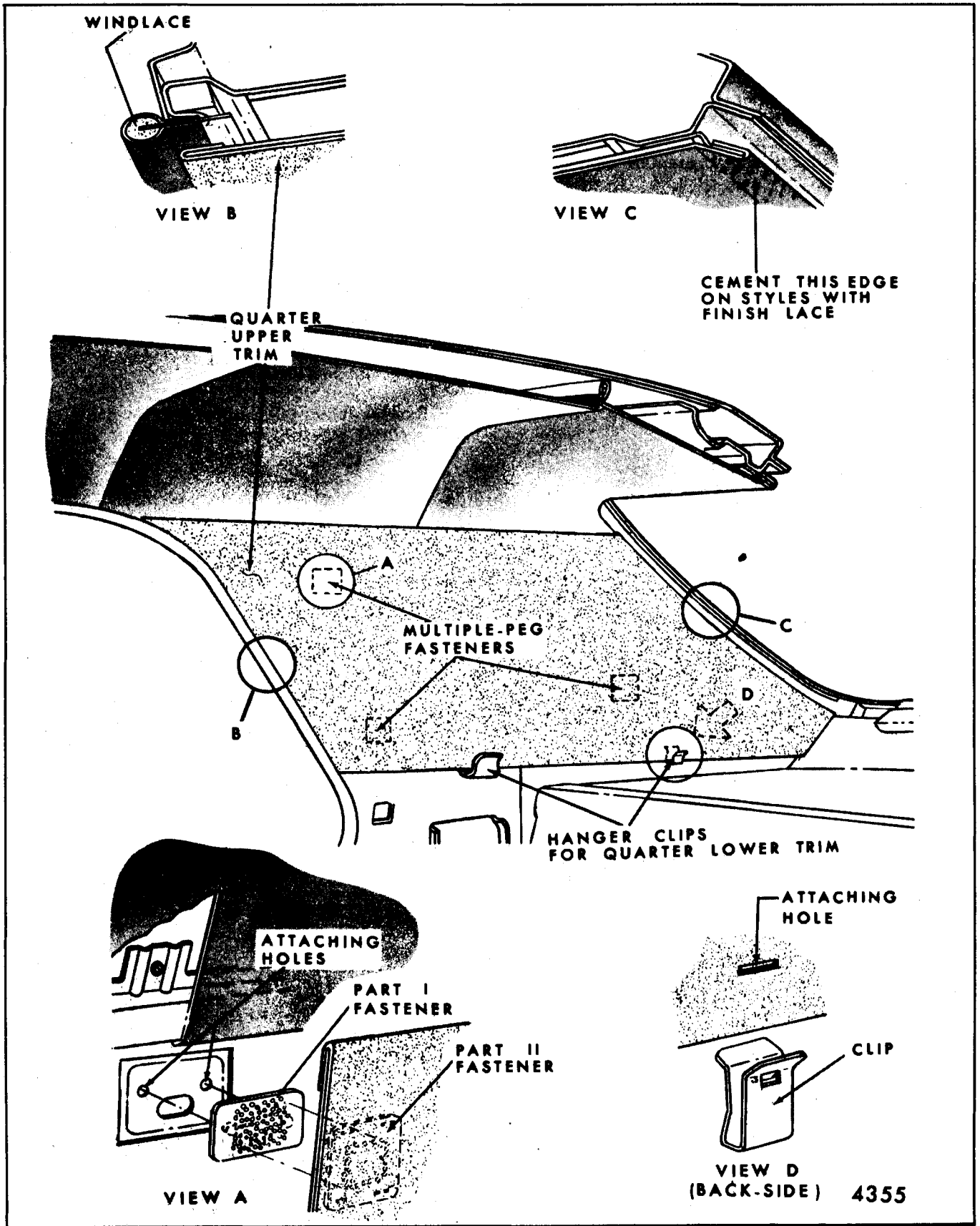


Fig. 13-25-Quarter Upper Trim Attachment - Typical Installation

fasteners (View "A" Fig. 13-25). Then remove trim.

NOTE: Part 1 of fastener, as shown in Figure 13-25, secures to quarter inner panel. Part 2 of fastener (Figure 13-25) is stapled to foundation of quarter upper trim. For best results during removal, confine prying operations between the fasteners.

- To install trim assembly, feed courtesy lamp wire through trim panel. Also, position trim assembly at lower retaining clip ("D" Fig. 13-25) and along front and rear edges. Then, secure fasteners with a moderate hand pressure. Reverse balance of removal operations. When necessary, use non-staining vinyl trim adhesive to cement trim at back window retainer.

CENTER PILLAR TRIM - All Styles, Except 68169 Style

Removal and Installation

- Remove front and rear door sill plates.

- On hardtop styles, remove attaching screws securing trim finishing cap (Fig. 13-27). Then, remove trim from pillar by lifting straight-up to clear retaining flanges.
- On closed styles, remove attaching screws securing upper trim to center pillar. To remove lower trim after upper trim has been removed, lift trim straight-up to clear retaining flanges on center pillar.
- To install reverse removal operations.

CENTER PILLAR UPPER AND LOWER TRIM - 68169 Style

Removal and Installation

- Remove center pillar upper trim by gently prying serrated attaching nails from center pillar (Fig. 13-28).
- Remove front and rear door sill plates.

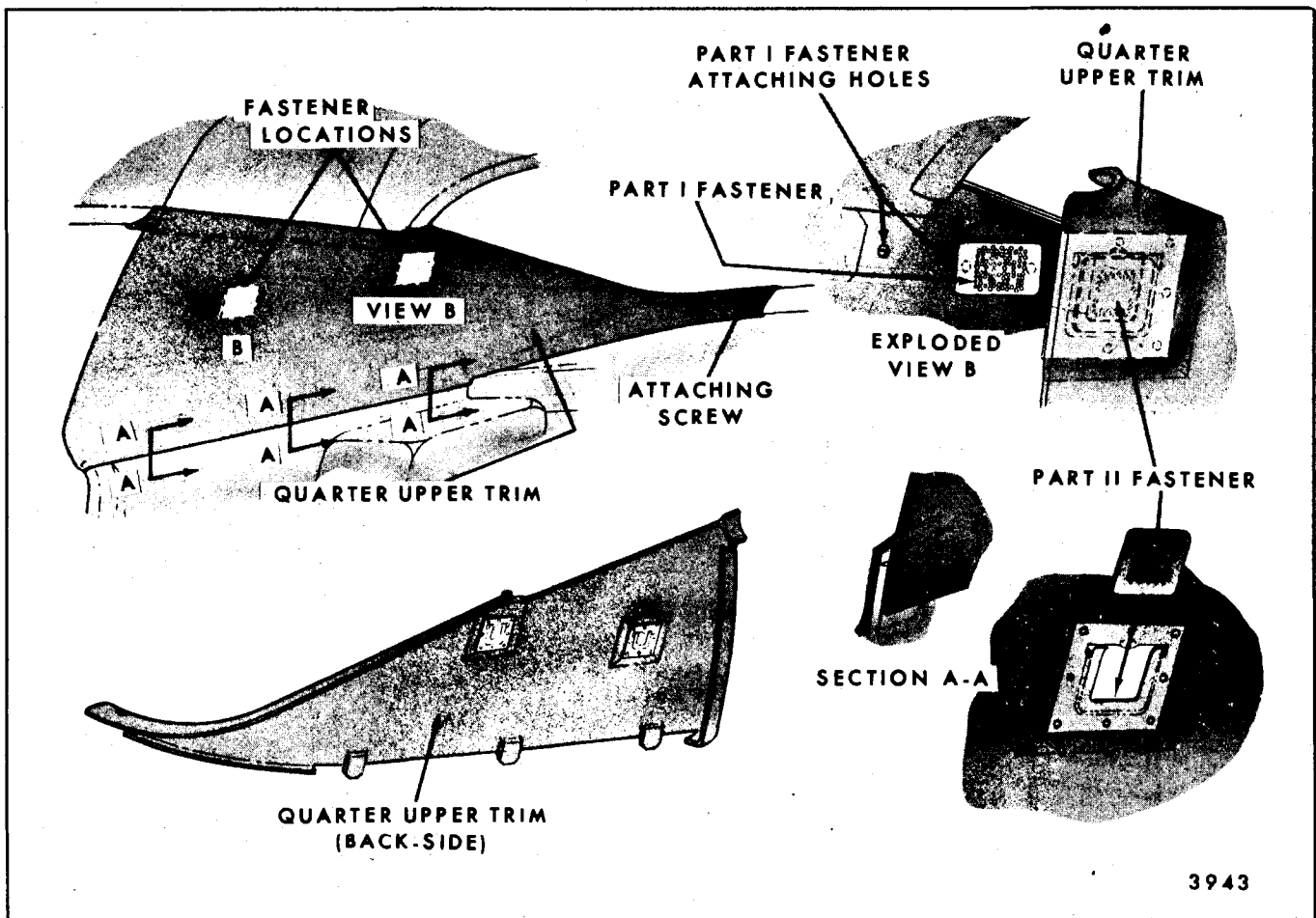


Fig. 13-26-Quarter Upper Trim Attachment - Typical Installation

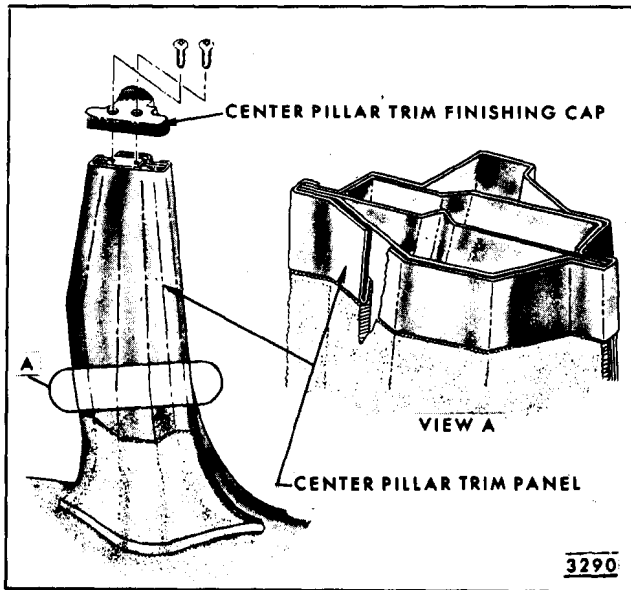


Fig. 13-27-Center Pillar Trim Attachment "A, B and C" Hardtop Styles

3. Remove attaching screws from center pillar lower trim.
4. With flat bladed tool, such as J-9886 or equivalent, carefully pry attaching clips from center pillar and remove lower trim.
5. To install, reverse removal procedure.

BODY LOCK PILLAR WINDLACE ASSEMBLY - "A, B and C" Coupe Styles

Removal and Installation

1. Remove rear quarter trim assembly and detach door sill plate.

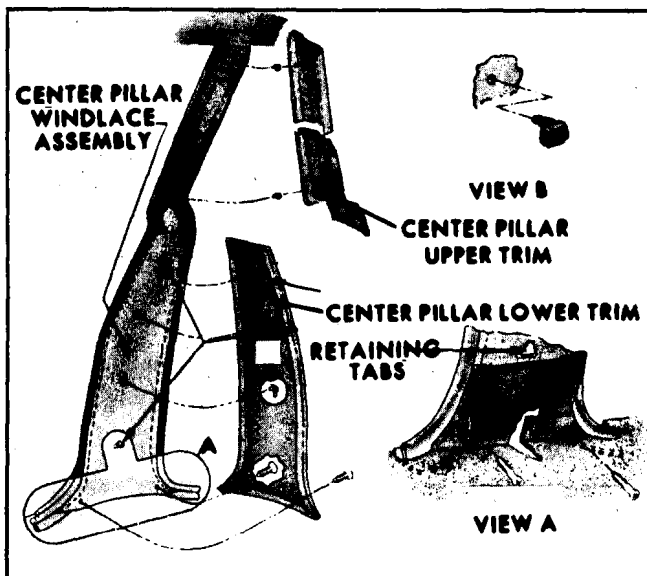


Fig. 13-28-Center Pillar Trim Attachment Typical Installation

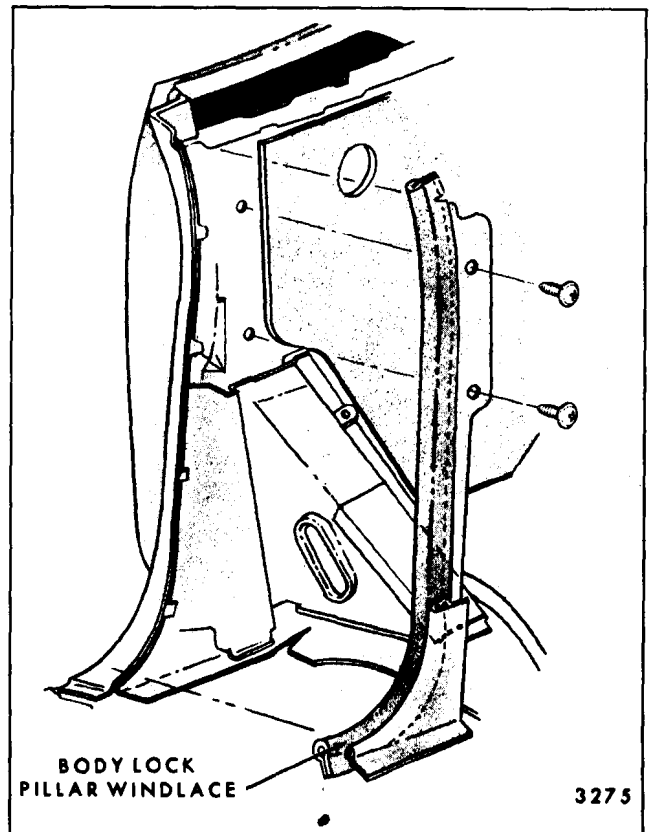


Fig. 13-29-Body Lock Pillar Windlace - "A" Styles

2. On "A" styles, remove windlace attaching screws (Fig. 13-29) and remove windlace. The windlace is sewn to a foundation board and is installed as a separate assembly.
3. On "B and C" styles, pull inboard on the windlace to disengage from the lock pillar (Figure 13-30).
4. To install, reverse removal operations.

REAR QUARTER TRIM FRONT FINISHING PANEL - "A and B" Station Wagon Styles

Removal and Installation

1. Detach quarter window lower garnish molding.
2. Detach side roof rail finishing molding and remove rear body lock pillar upper finishing panel.
3. Detach door sill plate.
4. On all "B" styles with split second seat, remove seat back lock striker and bumper assembly from wheelhouse.
5. Remove attaching screws from finishing panel and remove panel (Fig. 13-31).

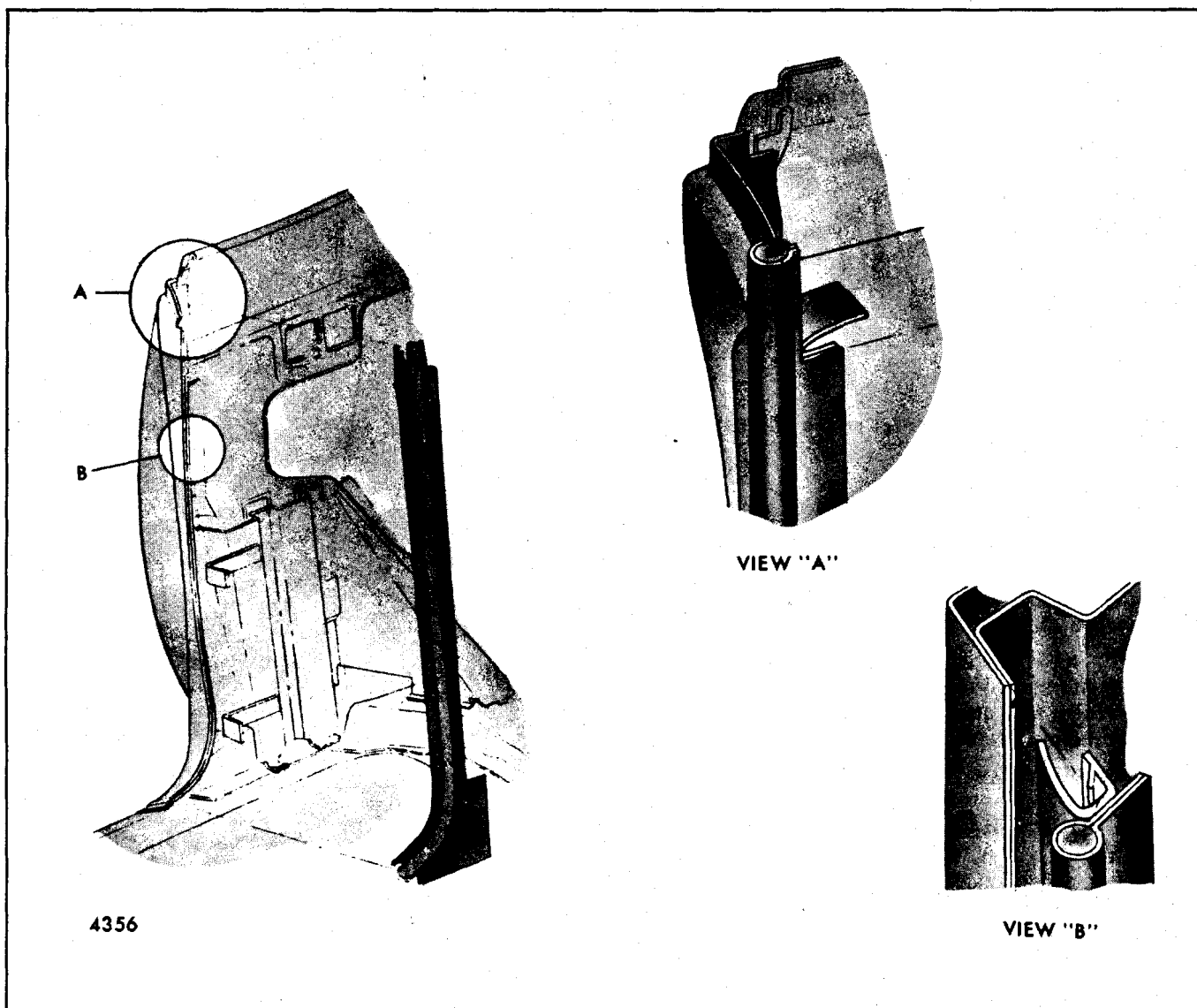


Fig. 13-30-Body Lock Pillar Windlace - "B and C" Styles

6. To install, position finishing panel to rear lock pillar and reverse removal operations.

REAR QUARTER WHEELHOUSE TRIM COVER PANEL - (Right Side) - "A and B" Station Wagon Styles

Removal and Installation

1. Remove quarter window lower and front garnish moldings.
2. Remove rear quarter trim front finishing panel.
3. Remove spare tire cover panel.
4. Remove second folding seat back lock striker and bumper assembly from wheelhouse (Fig. 13-32).

5. Remove attaching screws from perimeter of trim cover panel and remove panel.

6. To install, reverse removal operations.

SPARE TIRE COVER PANEL - "A and B" Station Wagon Styles

Removal and Installation

The spare tire cover panel is retained at the beltline by an overlapping quarter window garnish molding. The cover panel is secured at the bottom by a striker and folding (catch-type) lock handle (Fig. 13-32). To remove cover, open lock handle, swing bottom of cover outward to release at belt line and remove. To install, reverse removal procedure.

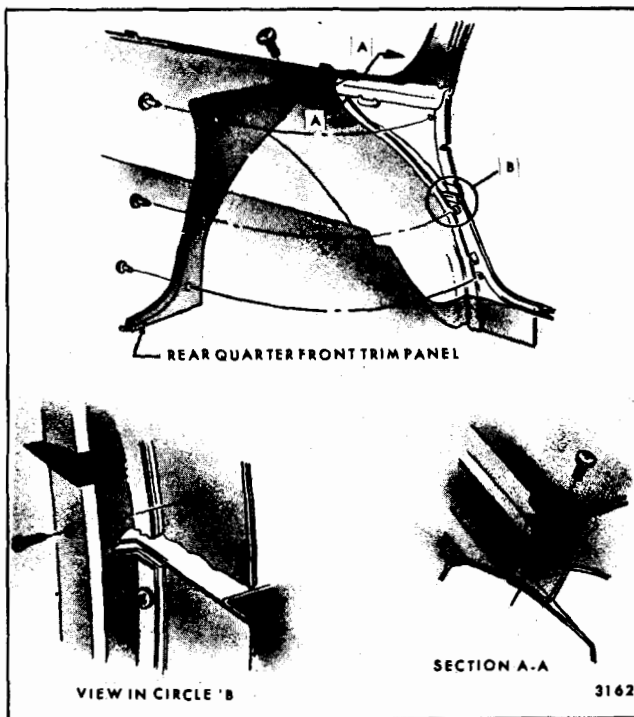


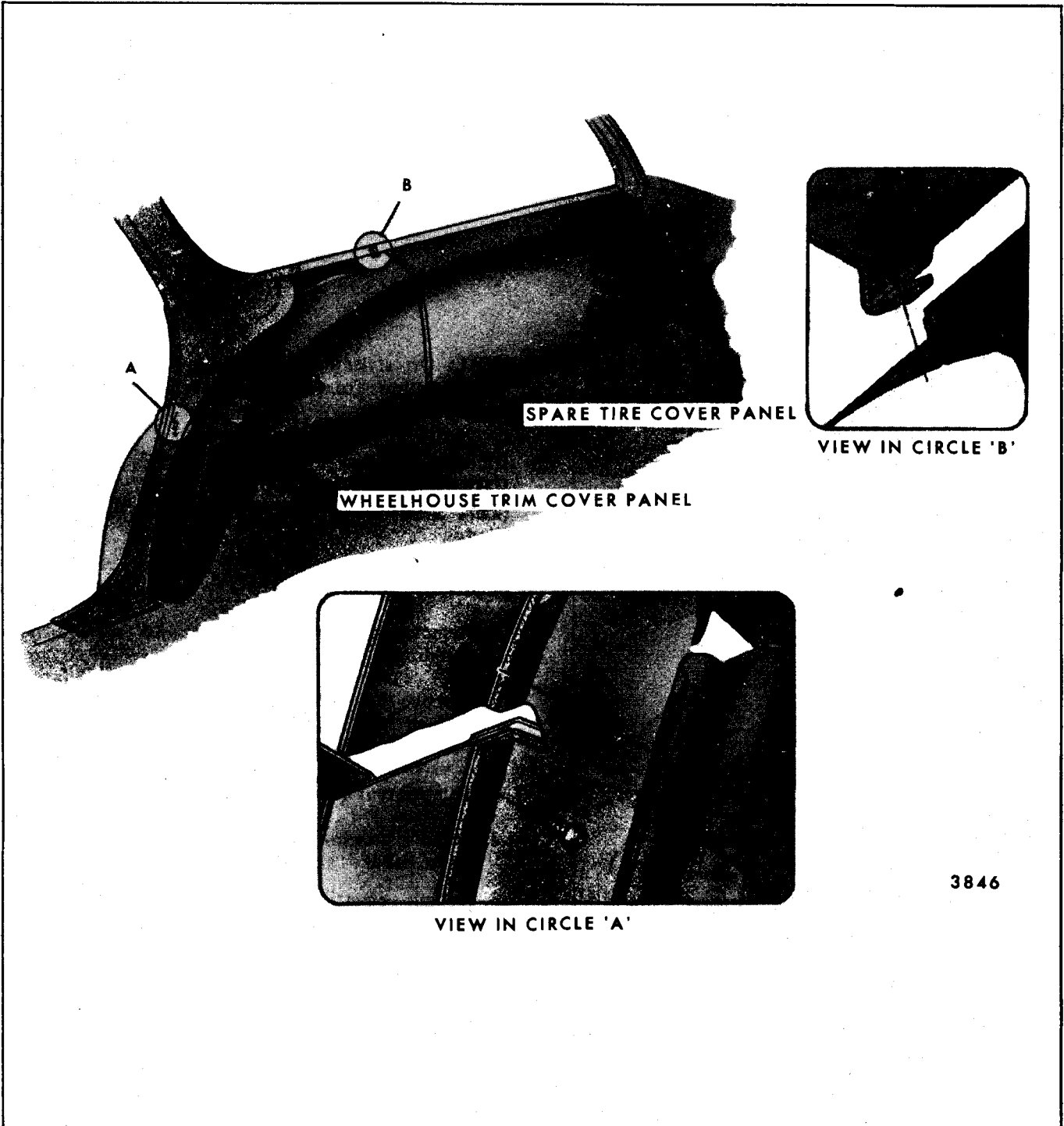
Fig. 13-31-Quarter Front Trim Finishing Panel
"A and B" Station Wagon Styles

NOTE: On styles with tail gate window defogger, disconnect hose from defogger outlet grille to complete removal.

REAR QUARTER WHEELHOUSE TRIM COVER PANEL - (Left Side) - "A and B" Station Wagon Styles

Removal and Installation

1. Remove quarter window lower and front garnish molding.
2. Remove seat back bumper or seat back lock striker (on all "B" styles and "A" styles with optional split seat) Fig. 13-33.
3. Remove rear quarter trim front finishing panel.
4. Remove attaching screws from perimeter of trim cover panel as shown in Figure 13-33.
5. Detach electrical wiring from cover panel components and remove cover panel.
6. To install, connect electrical wiring and reverse removal operations.



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Fig. 13-32-Wheelhouse Trim Cover Panels (Right Side) "A and B" Station Wagon Styles

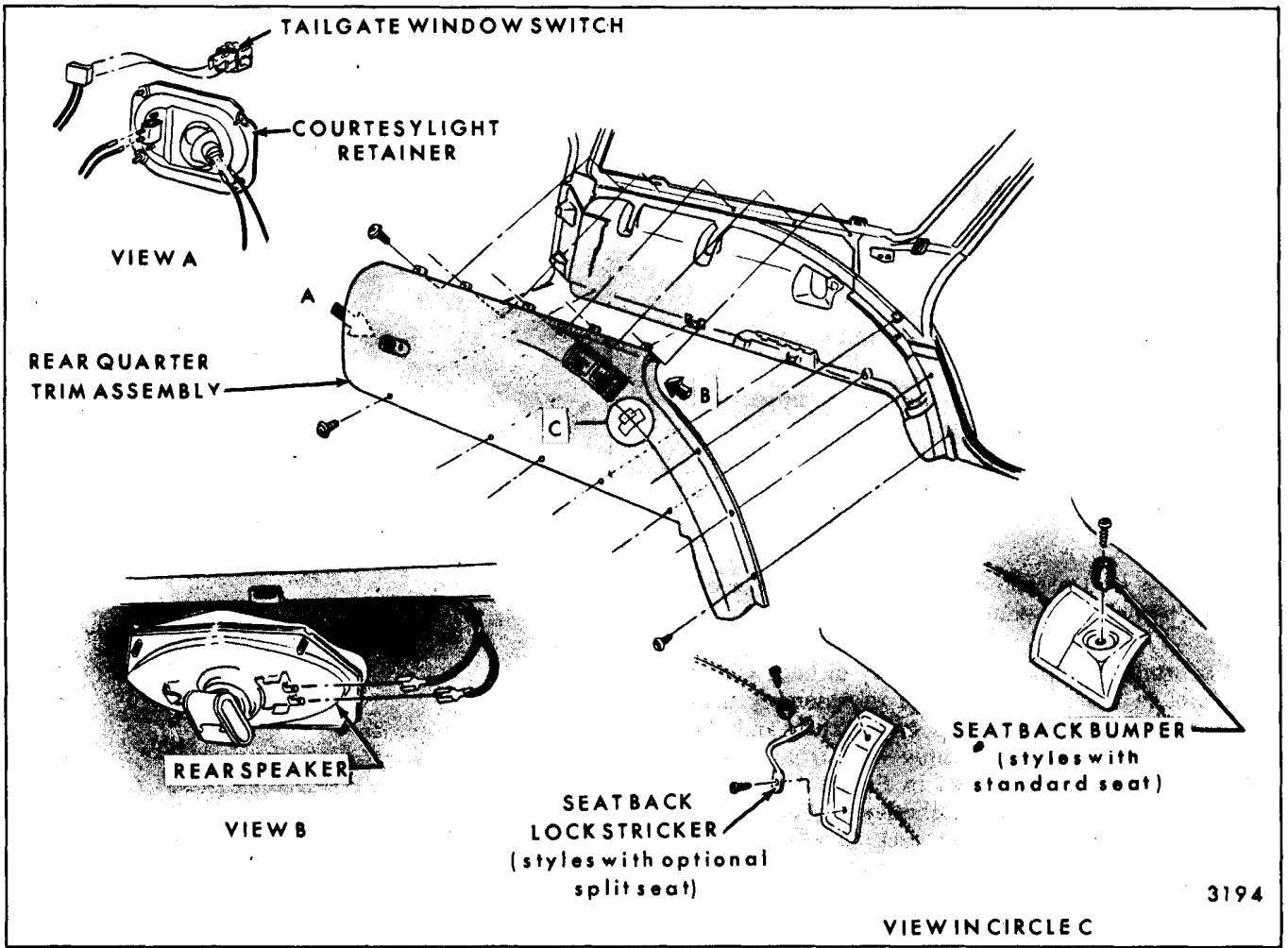


Fig. 13-33-Wheelhouse Trim Cover Panel (Left Side) "A and B" Station Wagon Styles

BACK WINDOW PANEL TRIM

REAR SEAT TO BACK WINDOW PANEL TRIM ASSEMBLY - All Styles

Removal and Installation

1. Remove rear seat cushion and back assemblies.
2. Detach shoulder straps if so equipped. Also, where present, detach optional equipment grilles.
3. Remove rear quarter lower and upper trim assemblies.
4. Carefully break cement bond securing trim assembly at seat back panel (Fig. 13-34).
5. Remove trim assembly by lifting up front edge and by pulling assembly forward.
6. To install, position trim assembly to back window panel by inserting rear edge of assembly under garnish molding or feature strip. Center and align front edge of trim assembly with front edge of seat back panel as shown in Figure 13-34. With non-staining vinyl trim adhesive, cement valance of trim assembly to seat back panel as shown. Then reverse balance of removal procedure.

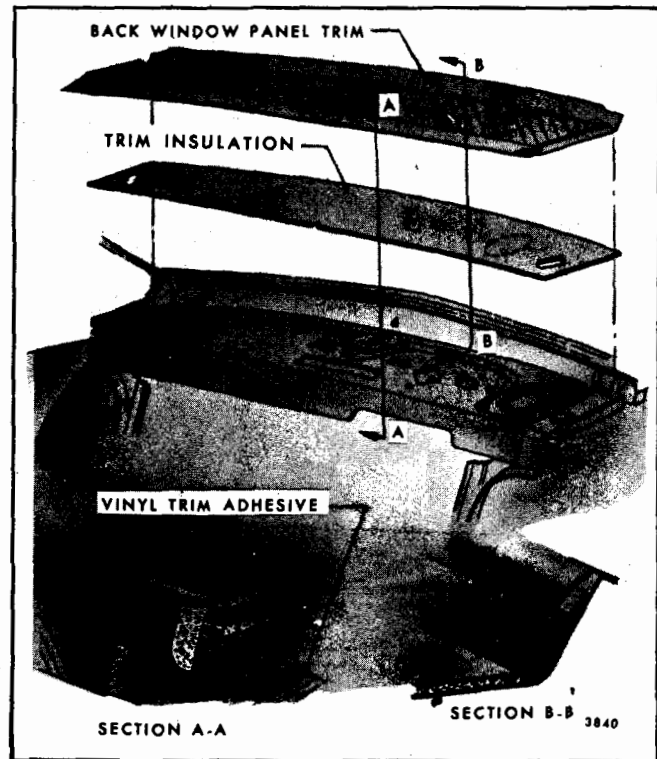


Fig. 13-34-Back Window Panel Trim Attachment
All Styles

SECTION 14

SEATS

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FRONT AND REAR SEATS

INTRODUCTION

All front seats incorporate a front seat back head restraint on the drivers and passengers seat back. On the "B, C and E" body styles as an anti-theft feature the head restraints are designed so they cannot be removed from the seat back without first removing the bar escutcheon and depressing a lock clip. However, the head restraints can be raised or lowered for proper positioning.

All two-door style front seats and station wagon folding second and third seats are equipped with positive acting seat back locks. On all two-door front seats (except strato seats and "F" body seats) the seat back lock is actuated by a control lever at the outboard side of the seat back. On two-door styles with strato seats the seat back lock is actuated by a control button located at the upper center of the seat back. On "F" body bucket seats the seat back lock is actuated by a control lever located at the lower, rear outboard corner of the seat back.

Some Pontiac, Oldsmobile, Buick and Cadillac styles feature 60/40 seats consisting of an individually controlled drivers seat (40 percent of front seat width) and an individually controlled passenger seat (60 percent of front seat width).

All front and rear seat backs have formed polyurethane foam pads in place of springs and cotton padding. The formed foam seat back pads are formed to fit the contours of the full panel seat back frame assembly and also to the designed contour of the seat.

FRONT SEAT DEALER RELOCATION PROVISIONS

All front seat adjusters except Buick "E" Body Style do not have dealer relocation provision. The "B, C, E and D" body seat adjusters have increased horizontal travel (5 1/2 inches or 1 inch more than previous models). The Buick "E" style full width seats can be relocated approximately one inch forward by removing the adjuster-to-floor pan bolts moving the seat assembly forward sufficiently to reinstall bolts through adjuster rear set of attaching holes.

SEAT ADJUSTER SPACER USAGE

Seat adjuster-to-floor pan spacers (1/2 inch thick) are used on only the Buick "E" Body Style full width front seat between both the adjuster front and rear pedestals and the floor pan.

SEAT TORQUE SPECIFICATIONS

The following torque specifications should be used when servicing seat assemblies:

BOLT OR NUT LOCATION AND TORQUE - FT. LBS.

1. Seat Adjuster and Folding Seat Back-to-Floor Pan Bolts or Nuts 12-18 ft. lbs.
2. Seat Adjuster-to-Seat Frame Bolts 12-18 ft. lbs.
3. Seat Back to Cushion Frame Bolts 7-11 ft. lbs.
4. Seat Back Hinge Bolts 7-11 ft. lbs.
5. Seat Back Lock Attaching Screws 7-11 ft. lbs.
6. Seat Back Lock Striker and Inner Side Bar Stop 12-18 ft. lbs.

IMPORTANT: SEAT ATTACHING PARTS SUCH AS SEAT ADJUSTER-TO-FLOOR PAN BOLTS OR NUTS, SEAT ADJUSTER-TO SEAT FRAME BOLTS, SEAT CUSHION FRAME-TO-SEAT BACK FRAME BOLTS, SEAT BACK LOCK BOLTS, SEAT BACK LOCK STRIKER, ETC. ARE IMPORTANT ATTACHING PARTS IN THAT THEY COULD AFFECT THE PERFORMANCE OF VITAL COMPONENTS AND SYSTEMS. THEY MUST BE REPLACED WITH ONE OF THE SAME PART NUMBER OR WITH AN EQUIVALENT PART IF REPLACEMENT BECOMES NECESSARY. DO NOT USE A REPLACEMENT PART OF LESSER QUALITY OR SUBSTITUTE DESIGN. TORQUE VALUES MUST BE USED AS SPECIFIED DURING REASSEMBLY TO ASSURE PROPER RETENTION OF THESE PARTS.

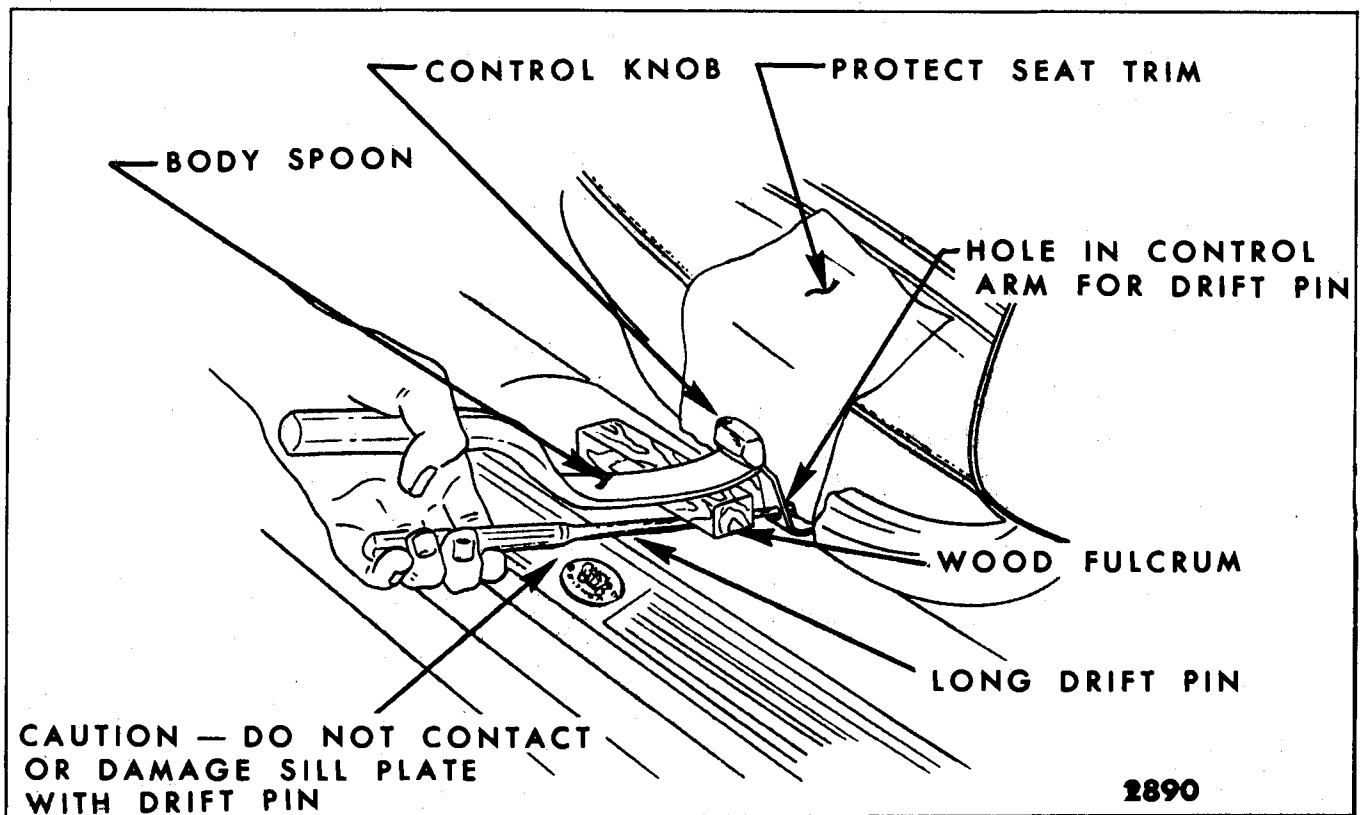


Fig. 14-1-Front Seat Adjuster Control Knob - Removal - Side Control Knob Shown - Front Control Knob Typical

MANUALLY OPERATED SEAT ADJUSTER CONTROL ARM KNOB- All Styles with Manually Operated Seat Adjusters

Manually operated seat adjuster control arm knobs are a press fit on the adjuster control arm. When replacing a manually operated seat adjuster with the control arm knob it will be necessary to remove the knob from the old adjuster and install it on the new adjuster or install a new knob.

NOTE: Control arm knobs can generally be removed and reinstalled several times without losing adequate retention. If removing or installing a control knob on a trimmed seat assembly, place a protective cover over trim material in area of knob (see Figs. 14-1 and 14-2).

Removal

Using a heavy body spoon, a long drift pin and a piece of wood as a fulcrum, as shown in Figure 14-1, carefully remove knob from adjuster control arm.

NOTE: On seats with the control arm at the side of the seat, use caution not to push drift pin down onto rocker panel sill plate. On seats with the control arm at

the front of the seat, place a support under control arm to prevent bending arm.

Installation Equipment

The following equipment is required to install seat adjuster control knob.

1. One four inch "C" clamp.

NOTE: Swivel pad of "C" clamp should rotate freely. Where necessary add a drop or two of oil in swivel pad.

2. One round rubber plug (Part No. 4802102 or equivalent) to fit over "C" clamp swivel pad to help prevent swivel pad from slipping off control knob or damaging control knob.
3. One 1/8 inch diameter sheet metal screw approximately one inch long.

NOTE: Round off sharp point of screw to prevent possible damage to seat trim.

Installation Procedure

1. Place pencil mark on seat adjuster control arm,

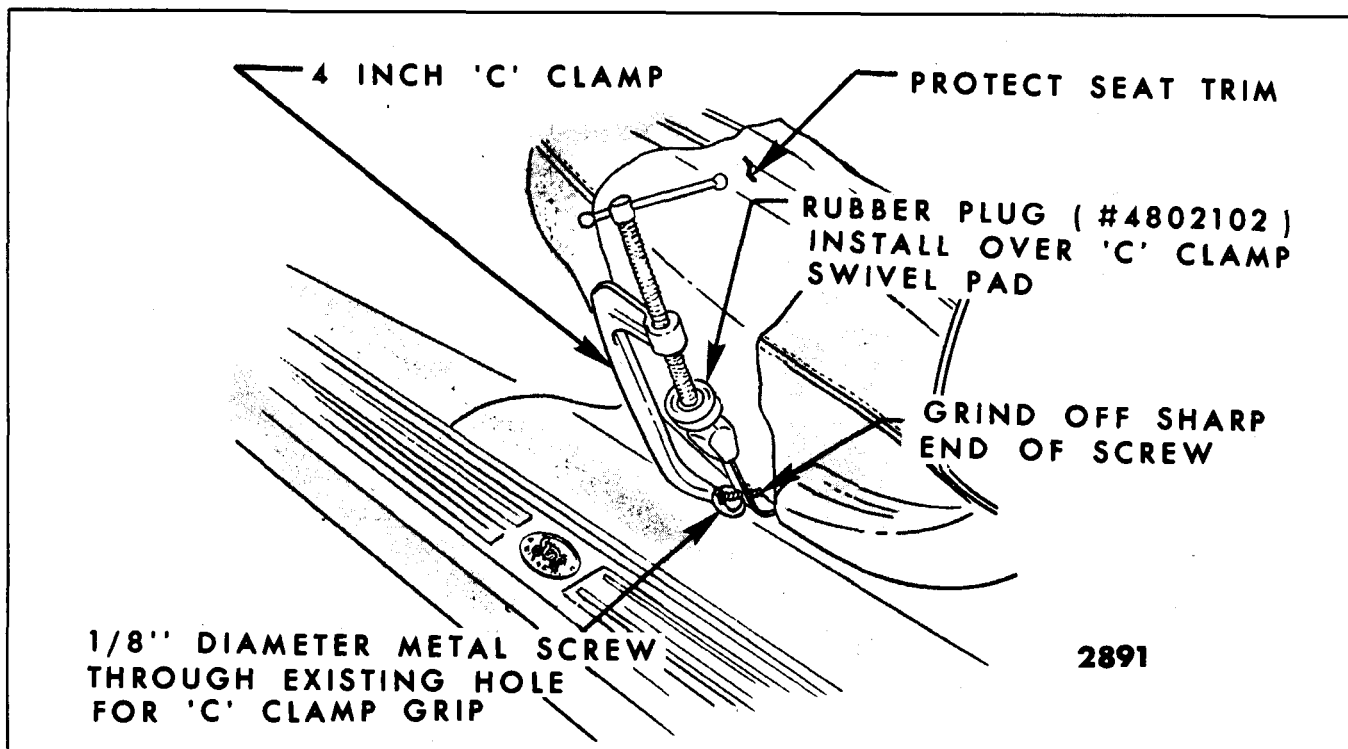


Fig. 14-2-Front Seat Adjuster Control Knob - Installation
Side Control Knob Shown - Front Control Knob Typical

one inch from top edge of arm as a guide for determining when knob is fully installed.

- Place seat adjuster control knob in position on control arm and start knob on by hand pressure making certain knob is started on straight.

NOTE: Install knob so that "gate" mark (on one face of knob) is facing seat and is not visible.

- Insert sheet metal screw in hole provided in adjuster control arm and place "C" clamp in position as shown in Figure 14-2. Use round rubber plug (Part No. 4802102 or equivalent) over swivel pad of "C" clamp to prevent damage to knob and to prevent "C" clamp swivel pad from slipping off knob.
- Carefully press knob on control arm with "C" clamp until bottom edge of knob is down to mark (one inch below edge of arm).

FULL WIDTH CONVENTIONAL AND STRATO SEATS AND 60-40 SEATS

Description

All seat assemblies are secured to the floor pan by either nuts installed on floor pan anchor plate studs or bolts installed into anchor nuts in the floor pan.

NOTE: All electrically operated seats and seats equipped with cigarette lighter, courtesy lamps etc. have a ground wire secured to the seat frame and under the seat adjuster rear attaching bolt or nut.

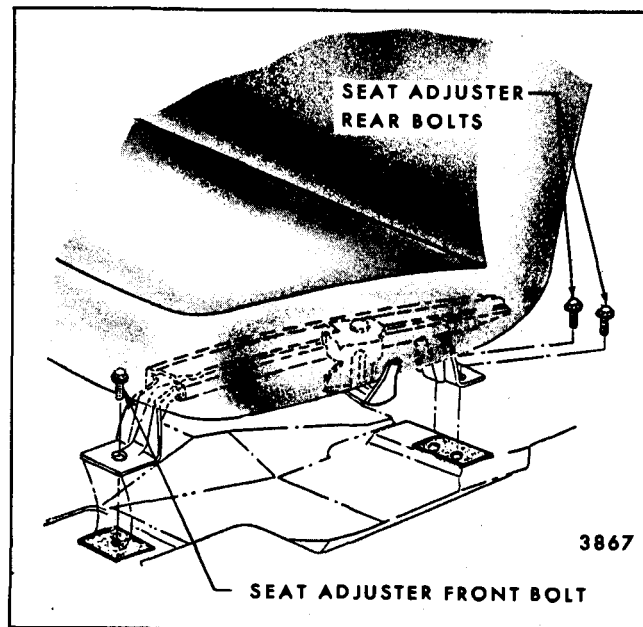


Fig. 14-3-Front Seat Adjuster-to-Floor Pan
Attachment - Manually Operated
"A and X" Body Full Width Seats

The 60-40 seat, available on Pontiac, Buick, Oldsmobile and Cadillac styles, consists of an individual passenger seat (60 percent of front seat width) and an individual driver seat (40 percent of front seat width).

NOTE: Power operated two-way seat adjusters are standard equipment on the drivers seat on most styles and manual seat adjusters are standard on the passengers side. Six-way power operated seat adjusters are available as optional equipment.

FRONT SEAT ASSEMBLY- Manually Operated-Full Width and 60-40 Seats

The full width manually operated seat assembly and 60-40 seat incorporate manually operated seat adjusters to provide fore and aft movement of the seat. When the control lever is moved forward the seat adjusters unlock, permitting horizontal travel of the seat. When the seat is in the desired position and the locking lever is released the seat is locked.

SEAT ASSEMBLY- Manually Operated Full Width and 60-40 Seats

Removal and Installation

1. Where the front inner seat belts go through the seat assembly, remove seat belt floor pan inner anchor plate attaching bolt.
2. Remove door sill plates and turn back floor mat or carpeting, where necessary, to expose seat adjuster-to-floor pan attaching nuts or bolts.
3. Operate seat to full forward position.
4. At rear of adjusters, remove adjuster-to-floor pan rear attaching nuts or bolts. (Fig. 14-4, 14-6 or 14-5).
5. Operate seat to full rearward position. Remove adjuster-to-floor pan front attaching bolts. On seats incorporating any electrical equipment, tilt

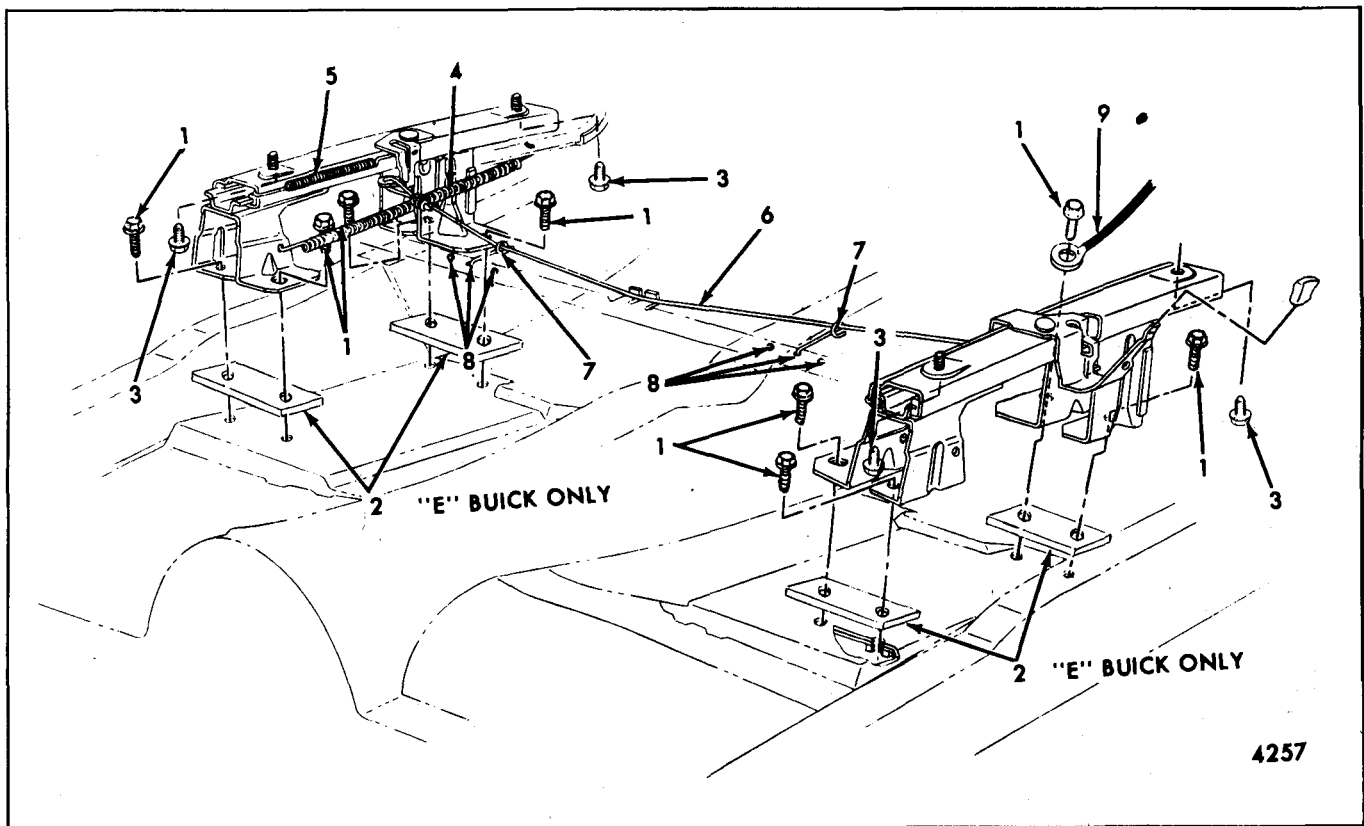


Fig. 14-4-Front Seat Adjuster - Manually Operated Full Width Conventional Seats - "B, C and E" Body

- | | | | |
|--|---|-------------------------------|---|
| 1. Adjuster-to-Floor Pan Attaching Bolts | 3. Adjuster-to-Seat Frame Attaching Bolts | 6. Adjuster Locking Wire | 8. Tension Hook Adjusting Holes In Seat Frame |
| 2. Adjuster-to-Floor Pan Spacer ("E" Buick Only) | 4. Adjuster Assist Spring | 7. Locking Wire Tension Hooks | 9. Seat Frame-to-Adjuster Ground Strap |
| | 5. Adjuster Lock Bar Spring | | |

seat assembly rearward sufficiently to disconnect feed wires at connectors under seat. With aid of a helper, remove seat assembly from body.

6. To install seat assembly, reverse removal procedure. Where seat adjuster-to-floor pan spacers were present, reinstall spacers in same position. On seats with electrical equipment, connect feed wire connectors under seat, also make sure ground wire is secured under seat adjuster rear attaching bolt or nut.

NOTE: Tighten seat adjuster to floor pan attaching bolts or nuts 12 to 18 ft. lbs. Check

operation of seat assembly to full limits of travel. On two-door styles equipped with electric seat back locks check operation of both seat back locks.

FRONT SEAT ADJUSTER ASSEMBLY- Manually Operated Full Width and 60-40 Seats

Removal and Installation

1. Remove front seat assembly with adjusters attached, as previously described, and place upside-down on a clean protected surface.

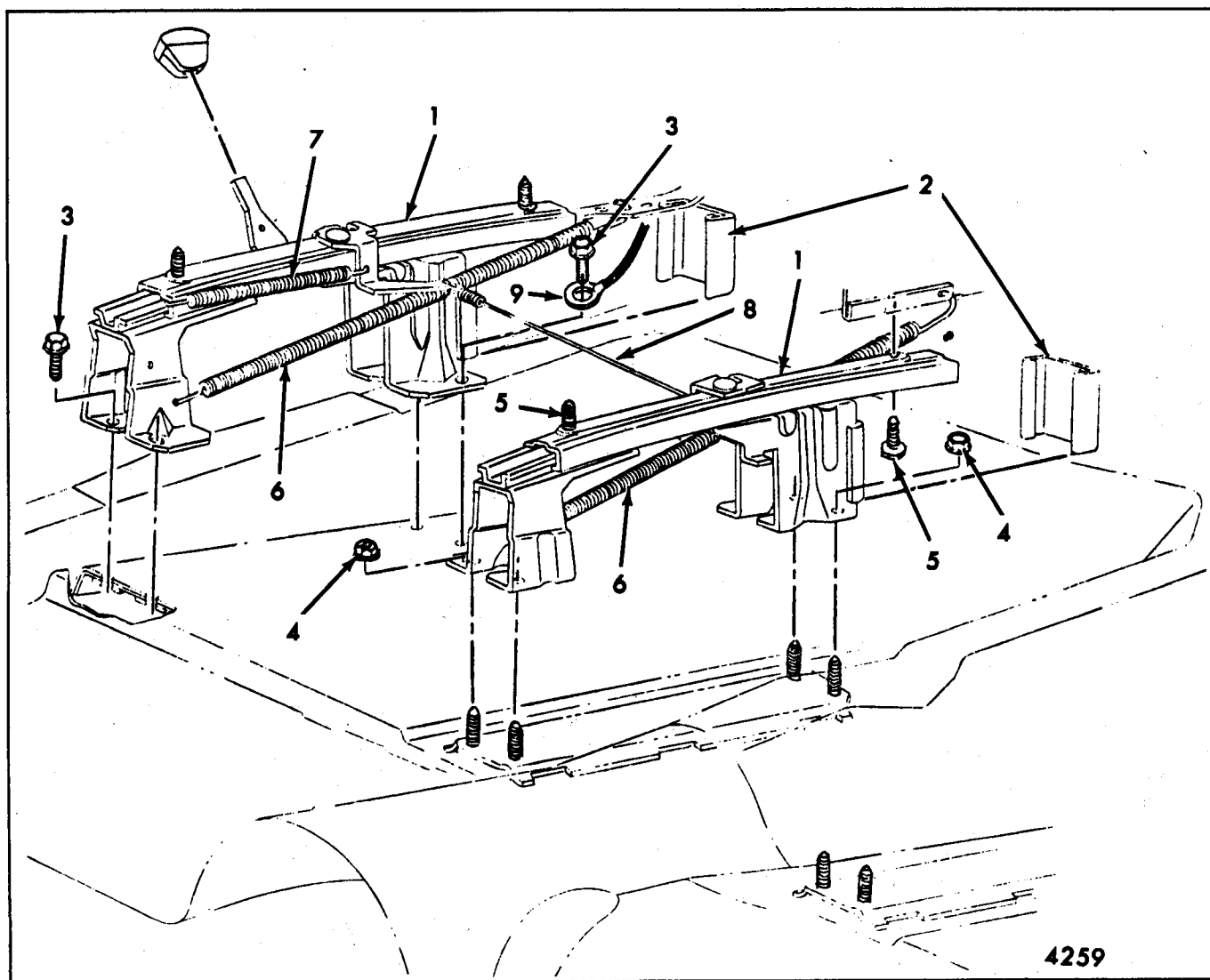


Fig. 14-5-Front Seat and Adjuster - Manually Operated 60/40 Seats
(Passenger Side Shown - Driver Side Typical)

- | | | | |
|--------------------------------------|-------------------------------------|-----------------------------|--------------------------|
| 1. Adjuster Assembly | 4. Inner Adjuster-to-Floor Pan Nuts | 6. Adjuster Assist Spring | 8. Adjuster Locking Wire |
| 2. Adjuster Rear Pedestal Covers | 5. Adjuster-to-Seat Frame Bolts | 7. Adjuster Lock Bar Spring | 9. Ground Strap |
| 3. Outer Adjuster-to-Floor Pan Bolts | | | |

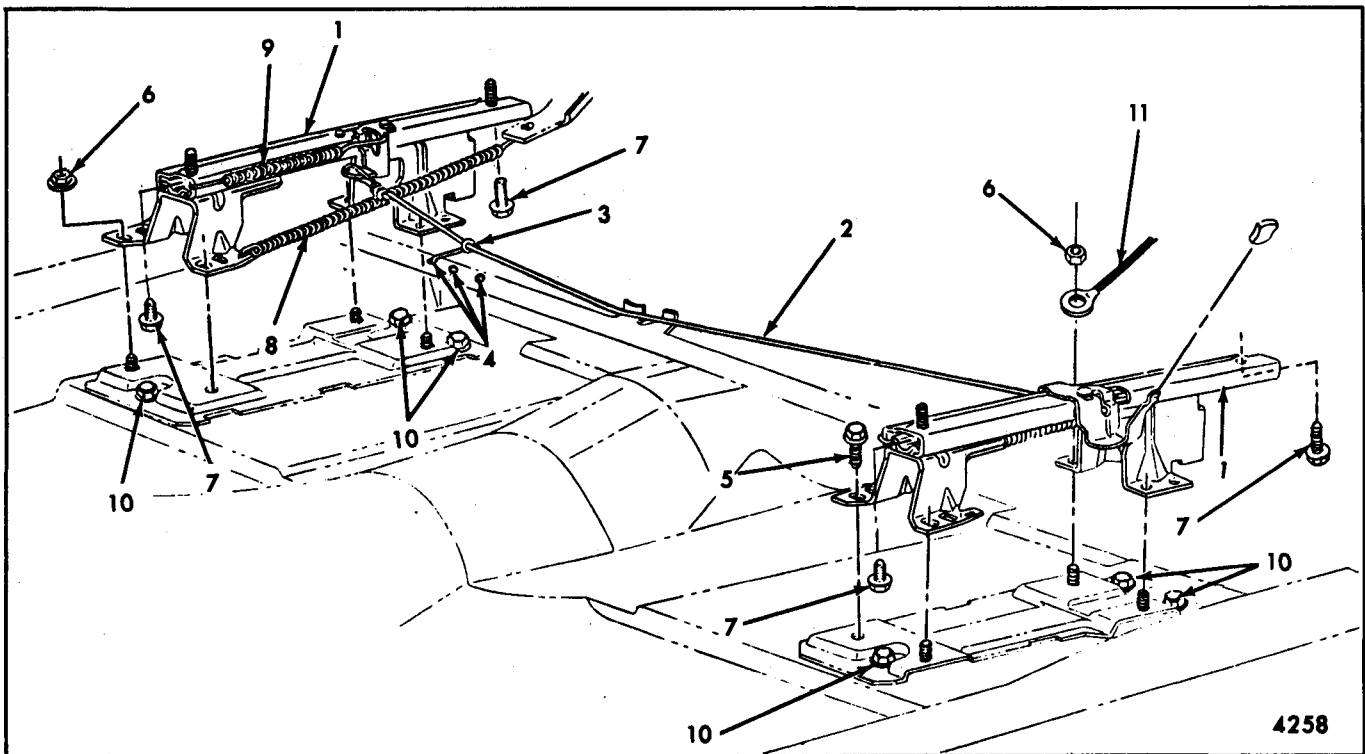


Fig. 14-6-Front Seat Adjusters - Manual Operated Full Width Strato Seat - Buick "E" Body

- | | | | |
|------------------------------|--|---|--|
| 1. Adjuster Assembly | 4. Locking Wire Tension Adjustment Holes In Seat Frame | 6. Adjuster-to-Floor Pan Attaching Nuts | 9. Adjuster Lock Bar Spring |
| 2. Adjuster Locking Wire | 5. Adjuster-to-Floor Pan Attaching Bolts | 7. Adjuster-to-Seat Frame Attaching Bolts | 10. Adjuster Anchor Plate-to-Floor Pan Attaching Bolts |
| 3. Locking Wire Tension Hook | | 8. Adjuster Assist Spring | 11. Ground Strap |

2. Remove seat adjuster assist spring from adjuster to be removed (See Fig. 14-4, 14-6 or 14-5).
3. Squeeze hooked end of seat adjuster locking wire together and slide retaining spring back over hump in locking wire and remove locking wire from adjuster.
4. Remove adjuster-to-seat bottom frame front and rear attaching bolts and remove seat adjuster from seat (Figs. 14-4 and 14-6).
5. To install, reverse removal procedure. If adjuster with control arm is being replaced, install new adjuster control knob as described under "Manually Operated Seat Adjuster Control Arm Knob".

NOTE: The right and left seat adjuster sliding mechanism should be in same relative position when attaching adjuster to seat bottom frame tighten seat adjuster-to-seat frame attaching bolts 12 to 18 ft. lbs.

After installing adjuster to seat frame, check operation of adjusters. If on full width seats the adjusters do not lock or unlock satisfactorily when control handle is operated, disengage locking wire retainer from hole in seat bottom frame and engage retainer in one of adjacent holes to obtain proper tension in wire (Fig. 14-4, Item "8", Fig. 14-6, Item "4").

FRONT SEAT ASSEMBLY- Power Operated Two, Four or Six-Way Full Width and 60-40 Two or Six-Way Seats

Description

The seat adjusters are actuated by a 12 volt, reversible, shunt wound motor with a built-in circuit breaker. The motor is energized by a toggle-type control switch installed in the left seat side panel or in the left door arm rest.

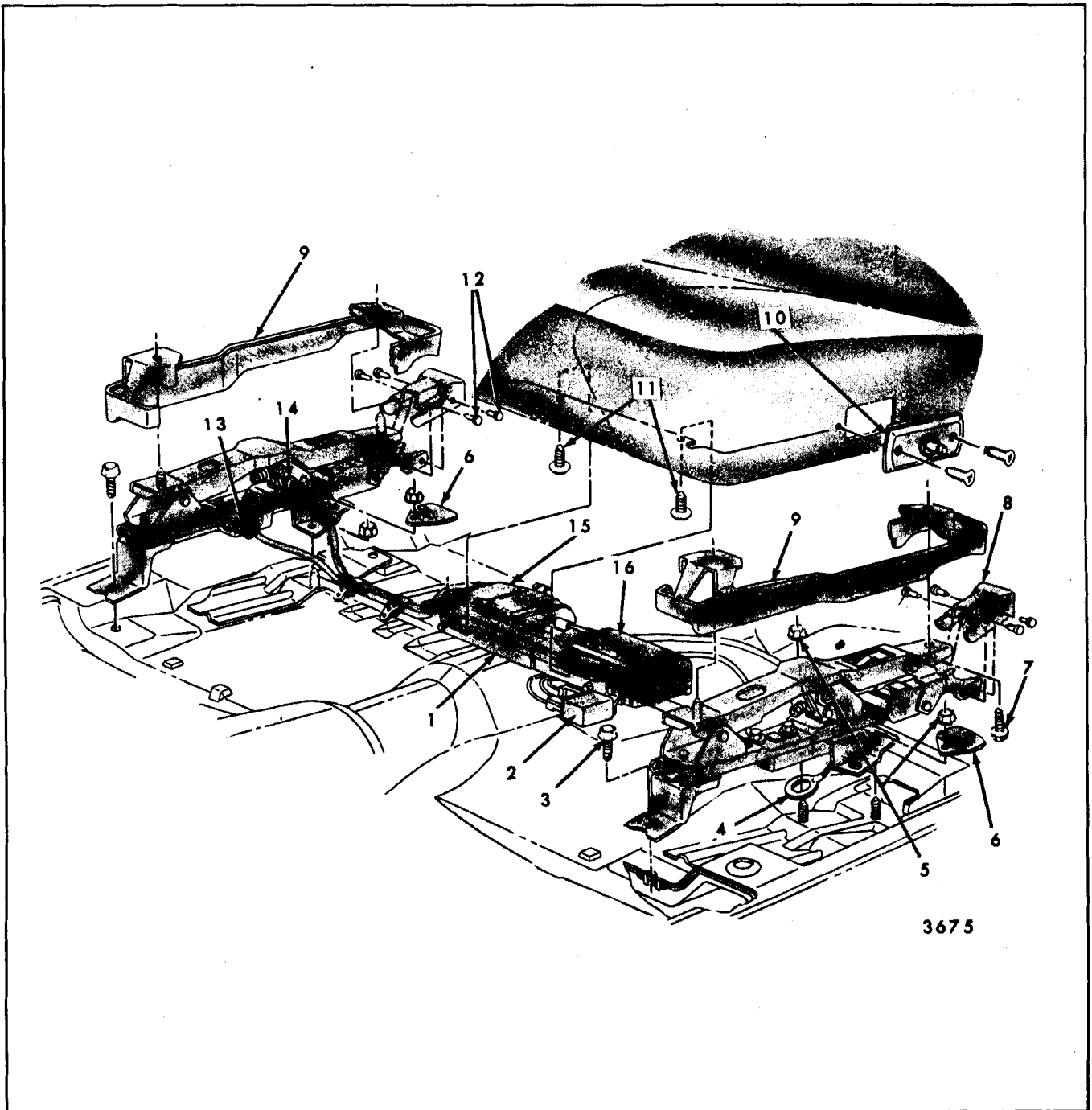


Fig. 14-7-Four-Way Power Operated Full Width Seat, Seat Adjusters, Motor and Transmission "A" Body Styles

- | | | | |
|---|--|---|------------------------------------|
| 1. Motor and Transmission Support | 6. Adjuster Rear Carpet Retainer | 10. Four-Way Switch Assembly | 14. Vertical Drive Cable-Blue |
| 2. Motor Control Relay | 7. Adjuster-to-Seat Frame Attaching Bolt | 11. Motor and Transmission Support Attaching Screws | 15. Transmission Assembly |
| 3. Adjuster-to-Floor Pan Front Attaching Bolt | 8. Adjuster Track Rear Lower Cover | 12. Adjuster Track Cover Retainers | 16. Motor-to-Transmission Coupling |
| 4. Ground Strap | 9. Adjuster Track Upper Cover | 13. Horizontal Drive Cable-Black | 17. Motor Assembly |
| 5. Adjuster-to-Floor Pan Rear Attaching Nuts | | | |

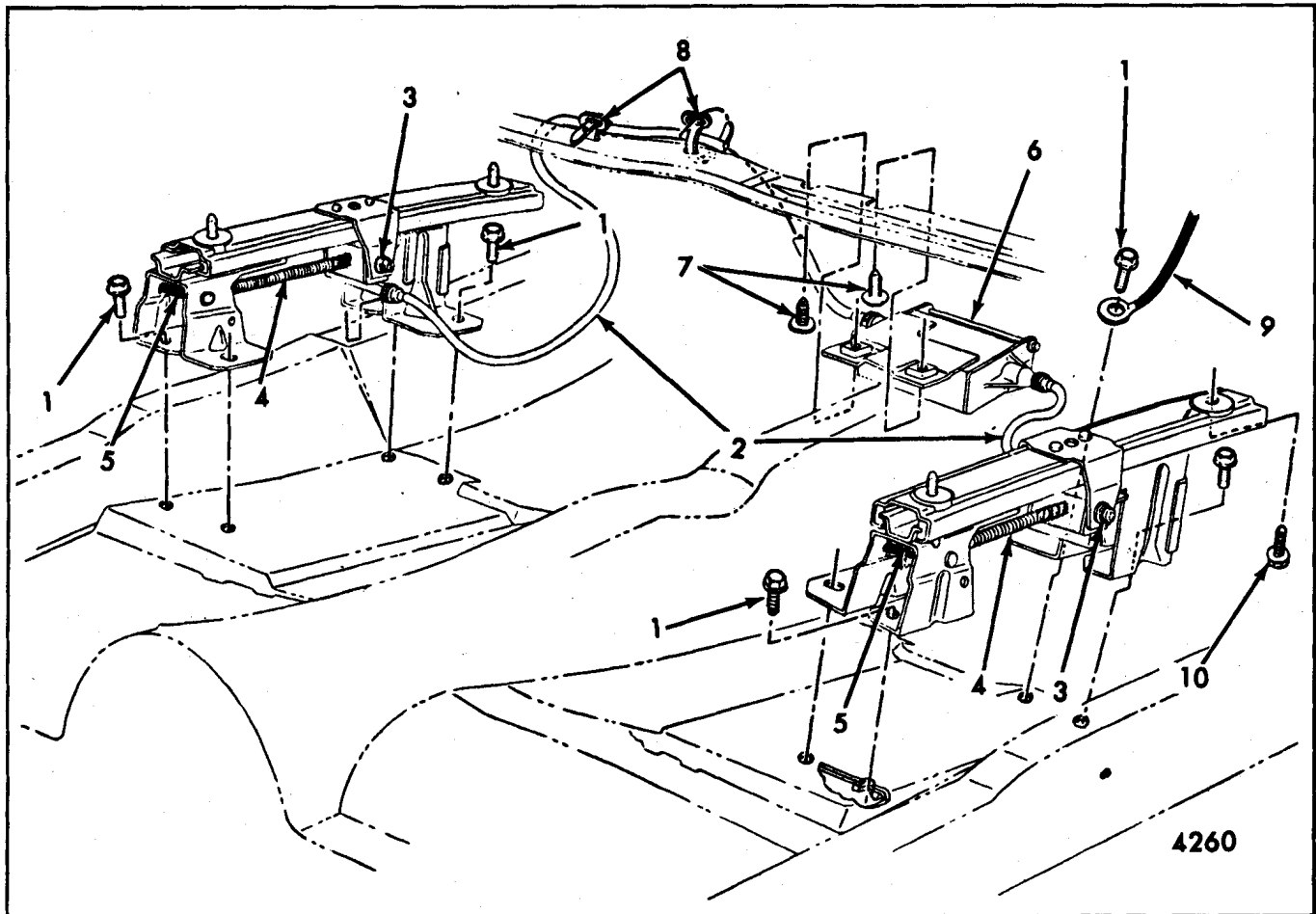


Fig. 14-8-Front Seat Adjusters - Power Operated Horizontal - Oldsmobile and Cadillac

- | | | | |
|---|---|---|--|
| 1. Seat Adjuster-to-Floor Pan Attaching Bolts | 3. Adjuster Horizontal Gear Nut and Shoulder Screws | 6. Electric Motor | 9. Seat Frame-to-Adjuster Ground Strap |
| 2. Horizontal Drive Cables | 4. Adjuster Jack Screw | 7. Motor-to-Seat Frame Attaching Screws | 10. Adjuster-to-Seat Frame Attaching Bolts |
| | 5. Jack Screw Support Pin | 8. Horizontal Drive Cable Straps | |

On four-way and six-way power operated seats the seat operating mechanism has a transmission assembly which incorporates solenoids and drive cable to the seat adjusters. On the four-way seat one solenoid controls the horizontal movement of the seat while the second solenoid controls the vertical movement of the seat. On the six-way seat one solenoid controls the vertical movement of the front of the seat, the second solenoid controls the horizontal movement of the seat and the third solenoid controls the vertical movement of the rear of the seat. When the control switch is actuated, the motor and one of the solenoids are energized simultaneously. Then the solenoid plunger engages with the driving gear dog. The driving gear rotates the drive cables and operates both adjusters. When the adjusters reach their limit of travel, the drive cables stop their rotating action and torque is absorbed by the rubber coupler connecting the motor

and transmission. When the control switch is released, a return spring returns the solenoid plunger to its original position disengaging it from the driving gear dog.

Removal and Installation

1. Operate seat to full forward position. On four-way or six-way power seats, operate seats to full up position.
2. Where front inner seat belts go through the seat assembly, remove seat belt floor pan inner anchor plate attaching bolt.
3. Where necessary, remove sill plates and turn back floor mat or carpeting to expose seat adjuster-to-floor pan attaching nuts or bolts.

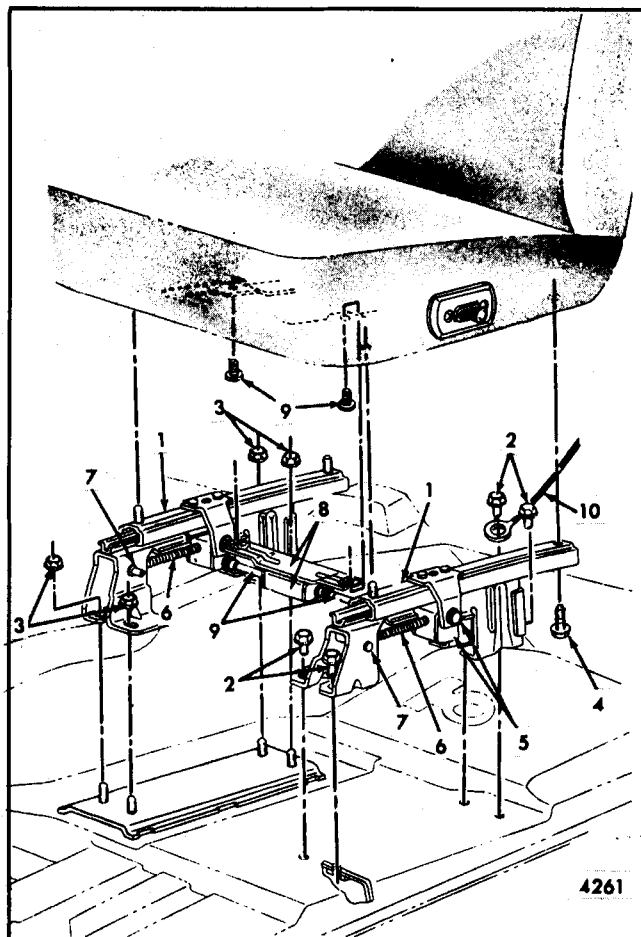


Fig. 14-9 Power Operated Horizontal Seat Adjusters - 60/40 Drivers Seat

- | | |
|---|---|
| 1. Adjuster Assembly | 6. Adjuster Jack Screw |
| 2. Adjuster-to-Floor Pan Attaching Bolts | 7. Jack Screw Support Pin |
| 3. Adjuster-to-Floor Pan Attaching Nuts | 8. Electric Motor and Support |
| 4. Adjuster-to-Seat Frame Attaching Bolts | 9. Motor Support-to-Seat Frame Attaching Screws |
| 5. Adjuster Horizontal Gear Nut and Attaching Screw | 10. Seat Frame-to-Adjuster Ground Strap |

4. Remove seat adjuster-to-floor pan rear attaching bolts (Figs. 14-8 through 14-14).

5. Operate seat to full rearward position. Remove adjuster-to-floor pan front attaching bolts. Tilt seat assembly rearward sufficiently to disconnect seat harness feed connector and detach harness from clip on floor pan; on two-door styles with electric seat back locks, disconnect both right and left seat back lock actuator feed wires at connectors under seat. On styles with seat back cigar lighter, seat back courtesy lamps or seat back vanity lamp, disconnect electrical feed wire

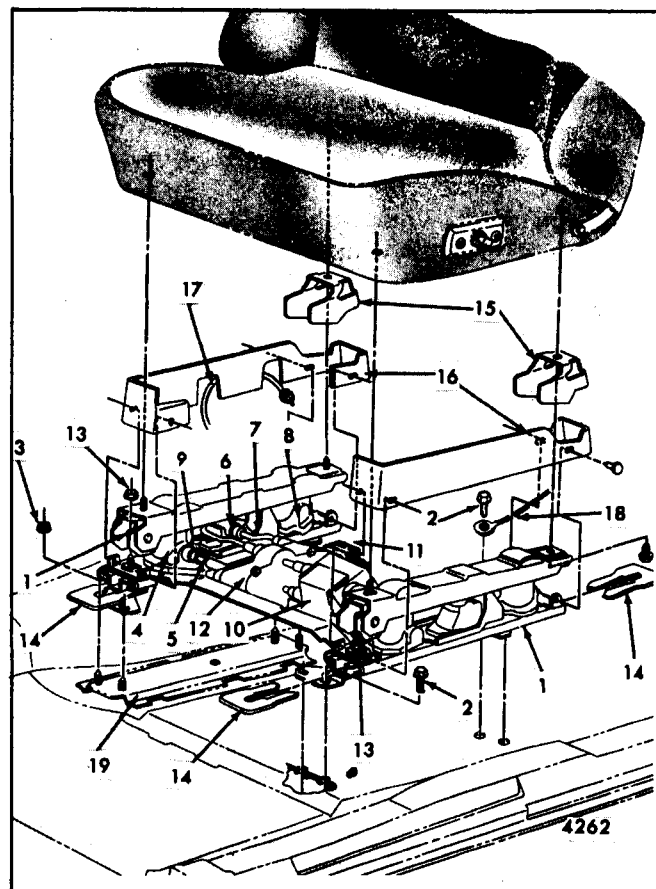


Fig. 14-10-Front Seat Adjusters - Power 6-Way 60/40 Drivers Seat

- | | |
|--|---|
| 1. Seat Adjuster Assembly | 11. Motor Control Relay |
| 2. Adjuster-to-Floor Pan Attaching Bolts | 12. Transmission Assembly |
| 3. Adjuster-to-Floor Pan Attaching Nuts | 13. Motor and Transmission Support Attaching Nuts |
| 4. Front Vertical Actuator | 14. Carpet Retainers |
| 5. Front Vertical Actuator Drive Cable-Yellow | 15. Adjuster Track Upper Rear Cover |
| 6. Horizontal Actuator | 16. Adjuster Track Lower Cover |
| 7. Horizontal Actuator Drive Cable-Black | 17. Rear Vertical Cable Route When Cover is Installed |
| 8. Rear Vertical Actuator | 18. Seat Frame-to-Adjuster Ground Strap |
| 9. Rear Vertical Actuator Drive Cable (Inboard-Green, Outboard-Blue) | 19. Inner Adjuster Floor Pan Anchor Plate and Studs |
| 10. Electric Motor Assembly | |

or wires. With aid of a helper remove seat assembly from body.

6. To install seat assembly, reverse removal procedure. Where seat adjuster-to-floor pan spacers were present reinstall spacers in same position.

Make sure ground wire is securely attached under seat adjuster-to-floor pan rear attaching bolt. Check for proper operation of seat adjusters to limits of travel. On two-door styles equipped with electric seat back locks, check operation of both seat back locks (see Figs. 14-8 through 14-14).

IMPORTANT: When installing seat assembly in body, seat adjusters should be parallel and "in phase" with each other. In the event the adjusters are "out of phase" (this is, one adjuster reaches its maximum horizontal or vertical travel in a given direction before the other adjuster), proceed as follows:

- a. Horizontal Travel - Operate seat control switch until one adjuster reaches full forward position. Detach horizontal drive cable from adjuster which has reached full forward position. Operate seat forward until other adjuster reaches full forward position; then, connect horizontal drive cable and check horizontal travel of seat.
- b. Front or Rear Vertical Travel - Operate seat control switch until one adjuster has reached fully raised position at both front and rear vertical travel limits. Disconnect both front and rear vertical drive cables from adjuster which has reached the fully raised position. Operate seat control switch until other adjuster reaches the fully raised position at both front and rear vertical travel limits; then, connect previously removed front and rear vertical drive cables. Check vertical travel by operating adjusters through one or two complete cycles. The above operation may be repeated on an "as required" basis if adjusters do not appear to be "in phase" after test cycle.

ADJUSTER ASSEMBLY- Power Operated Two, Four or Six-Way Full Width Seat And 60-40 Drivers Seat

Removal and Installation

1. Operate seat to a midway horizontal position; on four-way and six-way seats also operate seat to fully raised position.
2. Remove front seat assembly with adjusters attached, as previously described, and place upside-down on a clean protected surface.
3. Detach power drive cables from gear nuts of adjuster to be removed (Figs. 14-5 through 14-14).
4. Remove adjuster-to-seat bottom frame front and rear attaching bolts and remove adjuster from seat assembly (Figs. 14-5 through 14-14).

5. To install seat adjuster assembly, reverse removal procedure. On seats with adjuster upper track covers, make sure track cover supports are installed between adjuster and seat frame. (Figs. 14-5 through 14-14). Check operation of seat adjusters and make sure adjusters are "in phase" before installing assembly into body. (See Step 6 under "Front Seat Assembly - Removal and Installation").

IMPORTANT: THE SEAT ADJUSTER-TO-SEAT FRAME ATTACHING BOLTS ARE IMPORTANT ATTACHING PARTS IN THAT IT/THEY COULD AFFECT THE PERFORMANCE OF VITAL COMPONENTS AND SYSTEMS. THEY MUST BE REPLACED WITH ONE OF THE SAME PART NUMBER OR WITH AN EQUIVALENT PART IF REPLACEMENT BECOMES NECESSARY. DO NOT USE A REPLACEMENT PART OF LESSER QUALITY OR SUBSTITUTE DESIGN. TORQUE VALUES MUST BE USED AS SPECIFIED DURING REASSEMBLY TO ASSURE PROPER RETENTION OF THIS PART.

TWO-WAY SEAT ADJUSTER MAJOR COMPONENTS- "C" Body Full Width Seat And 60-40 Drivers Seat

The following service procedures cover replacement of the major component parts of the power operated two-way seat adjusters used on "C" body full width seats or the drivers 60-40 seat.

ELECTRIC MOTOR- Power Two-Way Full Width Seat And 60-40 Drivers Seat

Removal and Installation

1. Remove front seat assembly as previously described and place upside-down on a clean, protected surface. On 60-40 drivers seat remove one seat adjuster (see Fig. 14-9).
2. Disconnect both power drive cables from motor (Fig. 14-8).
3. Disconnect feed wire harness from actuator motor.
4. Remove screws that secure actuator motor support bracket to seat bottom frame and remove actuator motor with attached support bracket from seat assembly (Figs. 14-8 and 14-9).
5. Remove screws securing motor to motor support bracket and remove motor assembly.
6. To install, reverse removal procedure. Check for proper seat operation to extreme limits of travel.

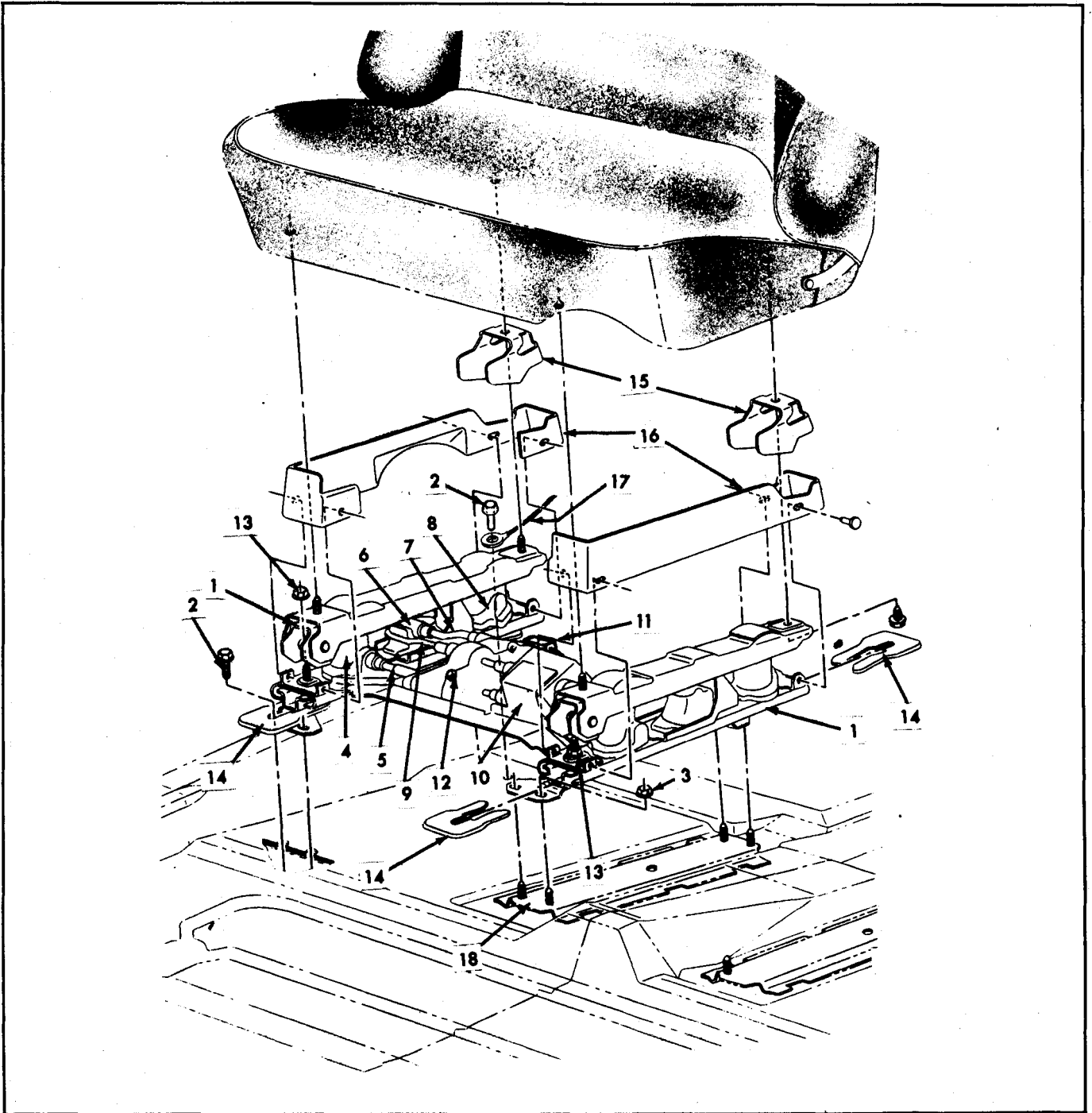


Fig. 14-11-Front Seat Adjusters - Power 6-Way 60/40 Passenger Seat

- | | | | |
|---|--|---|---|
| 1. Seat Adjuster Assembly | 6. Horizontal Actuator | 10. Electric Motor Assembly | 15. Adjuster Track Upper Rear Cover |
| 2. Adjuster-to-Floor Pan Attaching Bolts | 7. Horizontal Actuator Drive Cable-Blue | 11. Motor Control Relay | 16. Adjuster Track Lower Cover |
| 3. Adjuster-to-Floor Pan Attaching Nuts | 8. Rear Vertical Actuator | 12. Transmission Assembly | 17. Seat Frame-to-Adjuster Ground Strap |
| 4. Front Vertical Actuator | 9. Rear Vertical Actuator Drive Cable (Inboard-Green, Outboard-Blue) | 13. Motor and Transmission Support Attaching Nuts | 18. Inner Adjuster Floor Pan Anchor Plate and Studs |
| 5. Front Vertical Actuator Drive Cable-Yellow | | 14. Carpet Retainers | |

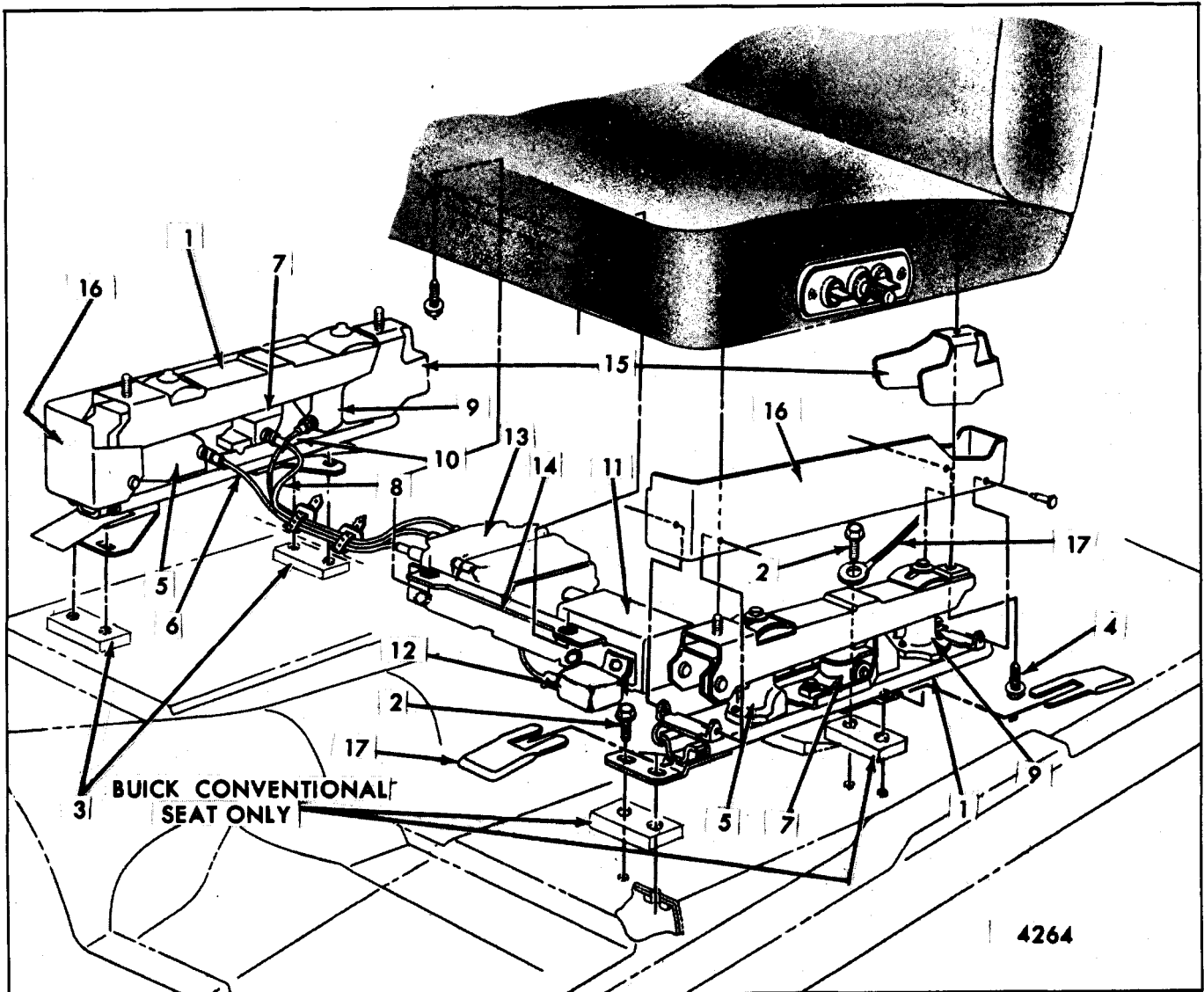


Fig. 14-12-Front Seat Adjusters - Power 6-Way - Conventional and Strato Full Width Seats

- | | | | |
|--|--|---|---|
| 1. Seat Assembly | 6. Front Vertical Drive Cable - Conventional Seat-Red - Strato Seat-Yellow | 10. Rear Vertical Drive Cable - Conventional Seat-Blue - Strato Seat-Orange | 14. Motor and Transmission Support |
| 2. Seat Adjuster-to-Floor Pan Bolts | 7. Horizontal Actuator | 11. Electric Motor | 15. Adjuster Track Upper Rear Cover |
| 3. Seat Adjuster-to-Floor Pan Spacers-Buick Conventional Seat Only | 8. Horizontal Drive Cable-Black | 12. Motor Control Relay | 16. Adjuster Track Lower Cover |
| 4. Seat Adjuster-to-Seat Frame Bolts | 9. Rear Vertical Actuator | 13. Transmission Assembly | 17. Carpet Retainers |
| 5. Front Vertical Actuator | | | 18. Seat Frame-to-Adjuster Ground Strap |

**HORIZONTAL GEARNUIT ASSEMBLY-
Power Two-Way Full Width Seat
And 60-40 Drivers Seat**

Removal and Installation

1. Remove front seat assembly with adjusters

attached and place upside-down on a clean, protected surface.

2. Detach power drive cable from gearnut to be removed.

3. Using a "clutch" type screwdriver or others suitable tool, remove two shoulder bolts securing

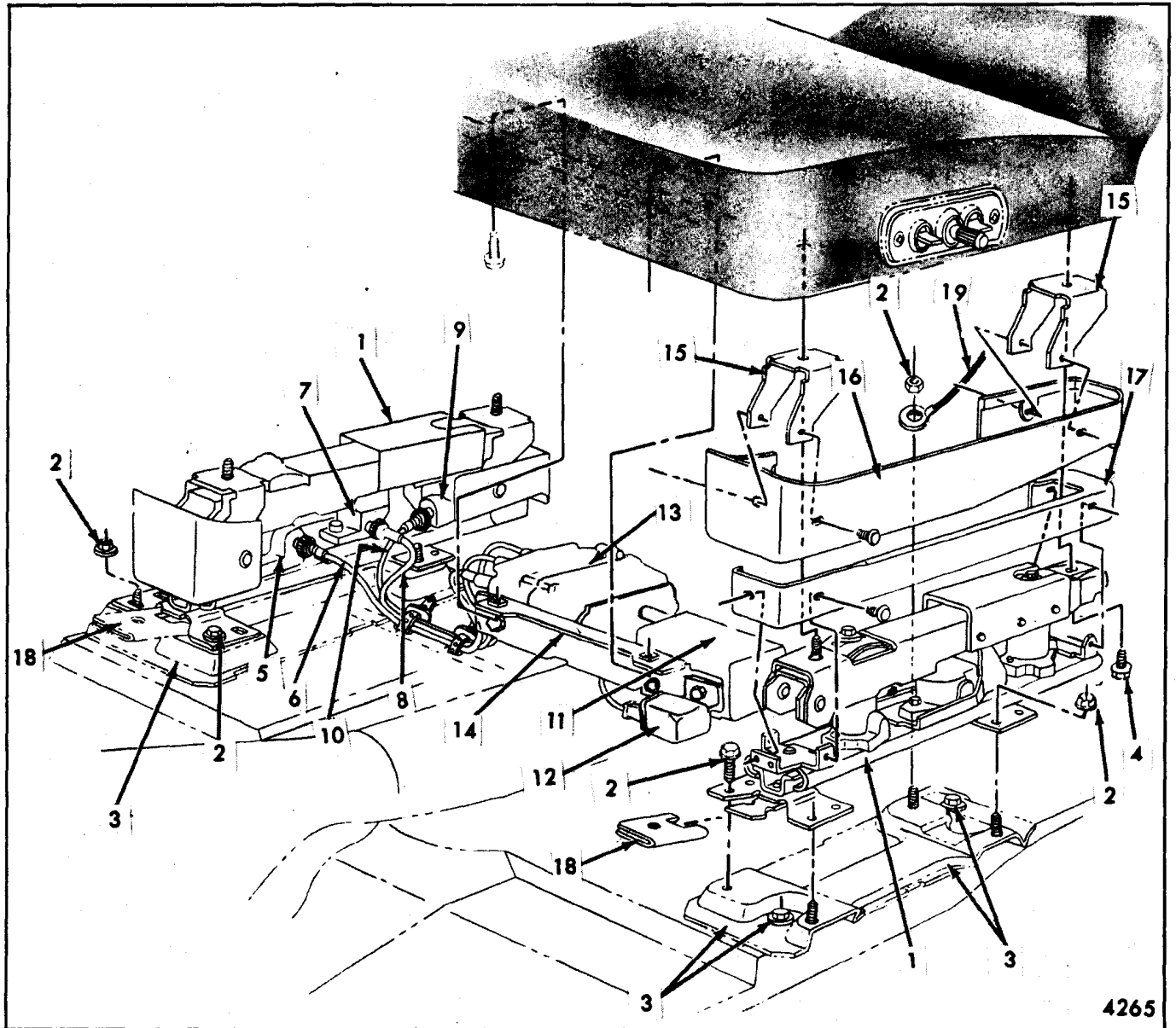


Fig. 14-13-Front Seat Adjusters - Power 6-Way - Buick "E" Body Strato Full Width Seat

- | | | | |
|---|--------------------------------------|--------------------------------------|---|
| 1. Seat Adjuster Assembly | 5. Front Vertical Actuator | 10. Rear Vertical Drive Cable-Orange | 15. Adjuster Track Upper Cover Supports |
| 2. Seat Adjuster-to-Floor Pan Bolts and Nuts | 6. Front Vertical Drive Cable-Yellow | 11. Electric Motor Assembly | 16. Adjuster Track Upper Cover |
| 3. Seat Adjuster-to-Floor Pan Anchor Plates and Attaching Bolts | 7. Horizontal Actuator | 12. Motor Control Relay | 17. Adjuster Track Lower Cover |
| 4. Seat Adjuster-to-Seat Frame Bolts | 8. Horizontal Drive Cable-Black | 13. Transmission Assembly | 18. Carpet Retainers |
| | 9. Rear Vertical Actuator | 14. Motor and Transmission | 19. Seat Frame-to-Adjuster Ground Strap |

gearnut to upper slide portion of seat adjusters (Figs. 14-8 and 14-9).

4. Rotate jackscrew assembly upward sufficiently to gain access to cotter pin at rear of jackscrew assembly.
5. Remove cotter pin, washer and rubber bumper

from rear end of jackscrew; then, remove gearnut from jackscrew.

6. To install, reverse removal procedure. Prior to installing seat assembly in body, be sure adjusters are "in phase". See Step 6 under "Front Seat Assembly - Removal and Installation".

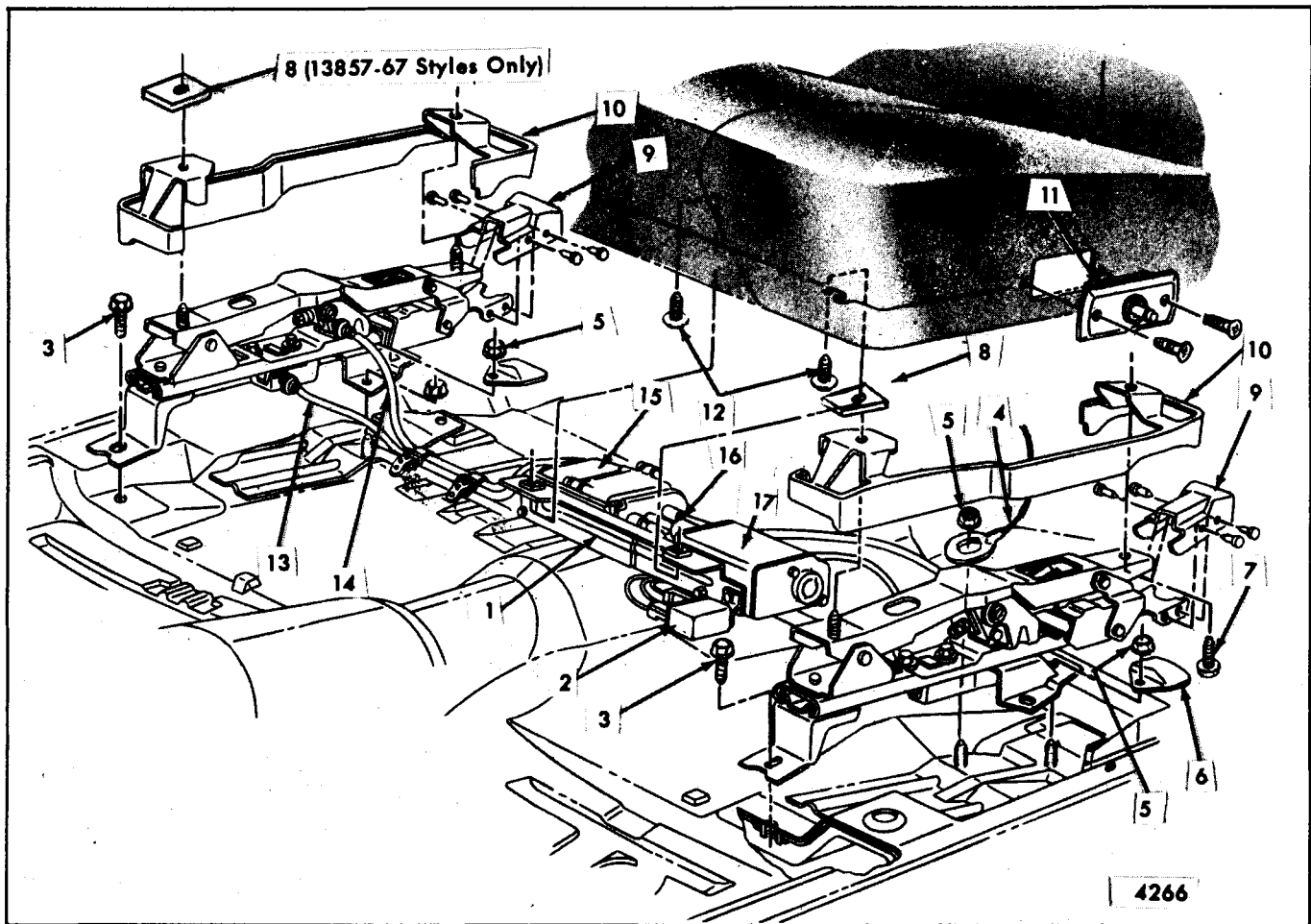


Fig. 14-14-Front Seat Adjuster - Power 4-Way - "A" Body Full Width Seat

- | | | | |
|---|--|---|------------------------------------|
| 1. Motor and Transmission Support | 5. Adjuster-to-Floor Pan Rear Attaching Nuts | 9. Adjuster Track Rear Lower Cover | 13. Horizontal Drive Cable-Black |
| 2. Motor Control Relay | 6. Adjuster Rear Carpet Retainer | 10. Adjuster Track Upper Cover | 14. Vertical Drive Cable-Yellow |
| 3. Adjuster-to-Floor Pan Front Attaching Bolt | 7. Adjuster-to-Seat Frame Attaching Bolt | 11. Four-Way Switch Assembly | 15. Transmission Assembly |
| 4. Seat Frame-to-Adjuster Ground Strap | 8. Adjuster-to-Seat Frame Spacers (13857-67 Styles Only) | 12. Motor and Transmission Support Attaching Screws | 16. Motor-to-Transmission Coupling |
| | | | 17. Motor Assembly |

HORIZONTAL JACKSCREW- Power Two-Way Full Width Seat And 60-40 Drivers Seat

Removal and Installation

1. Remove from seat assembly with adjusters attached and place upside-down on a clean, protected surface.
2. Detach power drive cable from gearnut and jackscrew assembly to be removed.
3. Using a suitable tool (preferably a "clutch" type screwdriver or equivalent), remove two shoulder

bolts securing gearnut to upper slide portion of seat adjuster assembly (Figs. 14-8 and 14-9).

4. Remove retainer that secures stop bracket crosspin to adjuster front pedestal and remove crosspin (Figs. 14-8 and 14-9).
5. Remove jackscrew assembly from seat adjuster.
6. To install, reverse removal procedure.

NOTE: When replacing jackscrew assembly with new part, remove nut, washers, rubber bumper and stop bracket with inserted rubber grommet from front end of jackscrew, as well as gearnut

and washers, rubber bumper and cotter pin from rear end of jackscrew and transfer to new jackscrew assembly.

PLASTIC SLIDES- Power Two-Way Full Width Seat And 60-40 Drivers Seat

Removal and Installation

1. Remove front seat adjuster to be serviced from front seat assembly. (See "Front Seat Adjuster - Two-Way Electric - Removal and Installation" procedures).
2. Using a suitable tool (preferably a "clutch" type screwdriver or equivalent), remove two shoulder bolts securing gearnut to upper channel to seat adjuster assembly (Figs. 14-8 and 14-9).
3. Slide lower track and support base portion of seat adjuster, with attached jackscrew and gearnut, forward until it disengages from upper channel assembly. The four plastic slides may now be disengaged from positioning slots on lower track.
4. To install, reverse removal procedure making sure that groove in plastic slide slips onto lower track with thinner section of slide protruding above surface of track.

FOUR-WAY SEAT ADJUSTER MAJOR COMPONENTS- "A" Body Full Width Seats

The following service procedures cover replacement of the major component parts of the power operated four-way seat adjusters used on the "A" body full width seats.

ELECTRIC MOTOR- "A" Body Four-Way Full Width Seat

Removal and Installation

1. Remove front seat assembly as previously described and place upside-down on a clean, protected surface.
2. Disconnect wire harness from motor relay assembly.
3. Remove screws securing motor and transmission support to seat bottom (see Fig. 14-14).
4. Remove motor-to-motor support attaching screws and remove motor assembly from support.
5. To install, reverse removal procedure making sure rubber coupler is properly engaged at both motor

and transmission ends. Check operation of seat to full limits of travel.

VERTICAL GEARNUT- "A" Body Four-Way Full Width Seat

Removal and Installation

1. Operate seat assembly to fully raised and midway horizontal position.
2. Remove front seat assembly from body as previously described and place upside-down on a clean, protected surface.
3. Detach vertical gearnut drive cable from other adjuster.
4. Using a clutch type screwdriver or other suitable tool, remove shoulder screws securing linkage to vertical gearnut being replaced (Fig. 14-15).
5. If right adjuster gearnut is being replaced, at front of jack-screw, remove double nut that acts as a jackscrew "down" stop.
6. Using a portable power source to energize the motor, actuate vertical gearnut until gearnut is disengaged from jackscrew.
7. Disconnect drive cable from gearnut.
8. To install, reverse removal procedure.

NOTE: It may be necessary to manually raise or lower upper rear portion of adjuster to gain clearance for removal of gearnut.

NOTE: Check operation of seat adjusters and make sure adjusters are "in phase". See Step 6 under "Front Seat Assembly - Removal and Installation".

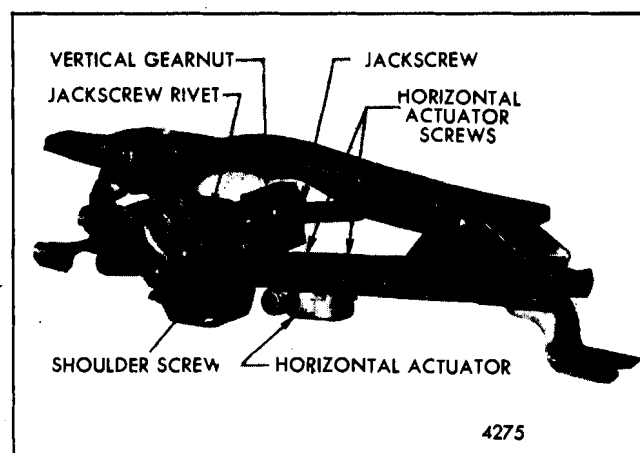


Fig. 14-15-Four-Way Seat Adjuster - "A" Styles

HORIZONTAL ACTUATOR- "A" Body Four-Way Full Width Seat

Removal and Installation

1. Remove adjuster vertical gearnut as previously described.
2. Disconnect drive cable from horizontal actuator.
3. Remove screws securing horizontal actuator assembly to adjuster lower track; then remove actuator from adjuster assembly (Fig. 14-15).
4. To install, reverse removal procedure.

NOTE: When installing horizontal actuator, adjust actuator so that drive gear is fully engaged with teeth on lower channel. When horizontal actuator attaching screws are tightened, there should be no free motion between upper and lower channels. Re-adjust actuator "as required" until all free motion between channels has been removed. Check operation of seat adjusters and make sure adjusters are "in phase". See Step 6 under "Front Seat Assembly - Removal and Installation".

JACKSCREW- "A" Body Four-Way Full Width Seat

Removal and Installation

1. Remove adjuster vertical gearnut as previously described.
2. Remove seat adjuster-to-seat bottom frame front and rear attaching bolts on side affected (Fig. 14-14).
3. As a bench operation, remove jackscrew-to-adjuster linkage attaching rivet and remove jackscrew from adjuster assembly (Fig. 14-15).
4. To install, reverse removal procedure. Check operation of seat adjusters and make sure adjusters are "in phase". See Step 6 under "Front Seat Assembly - Removal and Installation".

HORIZONTAL AND VERTICAL DRIVE CABLES- "A" Body Four-Way Full Width Seat

Removal and Installation

1. Remove front seat assembly from body with attached adjusters, motor and transmission and place upside-down on a clean, protected surface.
2. Detach both horizontal and vertical cables from seat adjuster.

3. Remove screws securing horizontal and vertical cable end plate on side of transmission from which cables are being removed and remove cables from seat assembly (Fig. 14-14).
4. Disengage cable to be replaced from end plate.
5. To install cables, reverse removal procedure. Black cable attaches from front of transmission to horizontal actuator; blue cable attaches from rear of transmission to rear vertical gearnut. Check operation of seat to full limits of travel.

TRANSMISSION- "A" Body Four-Way Full Width Seat

Removal and Installation

1. Remove front seat assembly from body with attached adjusters, motor and transmission and place upside-down on a clean, protected surface.
2. Disconnect wire harness connector from transmission.
3. Remove screws securing horizontal and vertical cable end plate on both sides of transmission and detach cables from transmission.
4. Remove transmission-to-support attaching bolts; then, disengage transmission from rubber coupler and remove transmission from seat assembly.
5. To install, reverse removal procedure. Black cable attaches from front of transmission to horizontal actuator; blue cable attaches from rear of transmission to rear vertical gearnut.

DISASSEMBLY AND ASSEMBLY OF TRANSMISSION

1. Remove front seat adjuster transmission from seat assembly.
2. Remove screws securing gear and solenoid housings together; then, carefully separate housings and remove component parts of transmission assembly (Fig. 14-16).
3. To assemble transmission, reverse removal procedure.

IMPORTANT: Prior to or during installation, lubricate frictional surfaces of driving gear thrust washer, gears, dog washers, shaft and solenoid plungers with "Lubriplate" (630AAW) or equivalent.

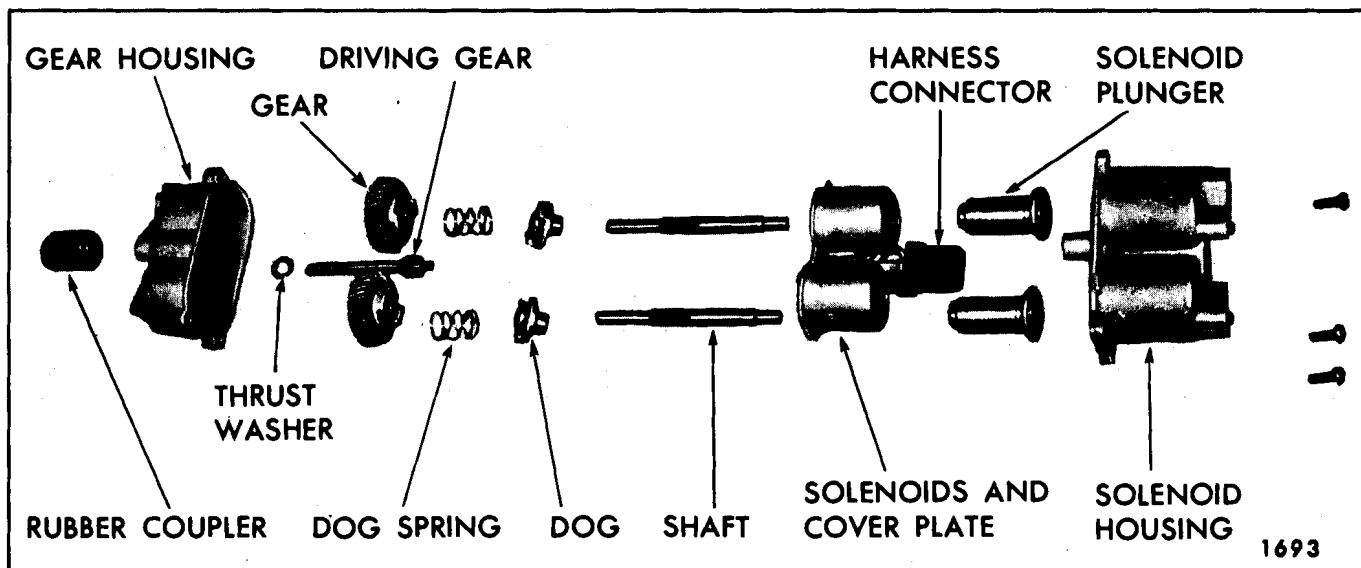


Fig. 14-16-Four-Way Seat Adjuster Transmission

SIX-WAY SEAT ADJUSTER MAJOR COMPONENTS- "B-C and E" Body Full Width Seats

The following service procedures cover replacement of the major component parts of the power operated six-way seat adjusters used on the "B, C and E" body full width seats.

ELECTRIC MOTOR- "B-C and E" Body Six-Way Full Width Seats

Removal and Installation

1. Remove front seat assembly, as previously described, and place upside-down on a clean, protected surface.
2. Disconnect motor feed wires from motor control relay (Figs. 14-12 and 14-13).
3. Remove motor and transmission support-to-seat frame attaching bolts (Figs. 14-12 and 14-13).
4. Remove motor-to-support attaching bolts; then, move motor assembly outboard (away from transmission) sufficiently to disengage motor from rubber coupling.
5. To install, reverse removal procedure making sure rubber coupling is properly engaged at both motor and transmission. Check that seat harness is properly secured to seat. Check operation of seat to full limits of travel.

HORIZONTAL ACTUATOR- "B-C and E" Body Six-Way Full Width Seats

Removal and Installation

1. Remove seat assembly from body, as previously described and place upside-down on a clean, protected surface.
2. Detach three power drive cables from adjuster to be removed (Figs. 14-12 and 14-13).
3. Remove screws securing seat adjuster to seat bottom frame (Figs. 14-12 and 14-13) and remove adjuster from seat assembly.

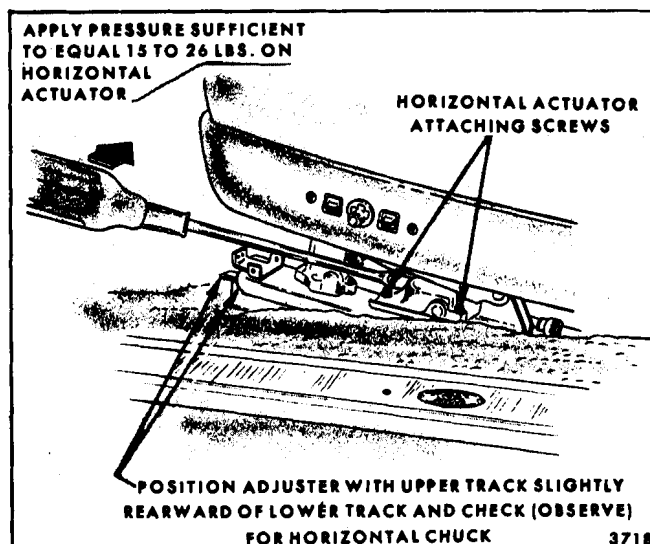


Fig. 14-17-Horizontal Actuator Adjustment-"B and C" Power Operated Six-way Seat Adjusters

4. At top of adjuster remove front and rear vertical gearnut attaching nuts and tension springs (Figs. 14-18 and 14-19).
5. Lift front of adjuster upper channel upward; then remove screws securing horizontal actuator to adjuster upper channel assembly and remove actuator from adjuster (Figs. 14-18 and 14-19).
6. To install, reverse removal procedure. When installing horizontal actuator, be sure actuator drive gear is fully engaged with teeth on lower channel. With actuator attaching screws tight, there should be no free motion between upper and lower adjusting channels. Re-adjust actuator "as required" until all free motion between channels has been removed. Be sure seat adjusters are "in phase", before installing seat assembly into body. See Step 6 under "Front Seat Assembly - Removal and Installation".

**HORIZONTAL ACTUATOR ADJUSTMENT-
With Adjusters on Seat or With Seat In
Body**

With seat adjuster assembly installed on seat or seat assembly installed in body horizontal movement (checking) can be corrected by adjusting the horizontal actuator and pinion gear in tight to the adjuster lower track rack gear as follows:

1. Operate seat to full "up" position and approximately 3/4 full forward position.
2. Loosen horizontal actuator attaching screws (see Fig. 14-17). Using a large screw driver, inserted as shown in Figure 14-17 apply outward pressure on horizontal actuator (sufficient to equal 15 to 25 lbs. on horizontal actuator) and at the same time

energize horizontal switch to move seat fore and aft slightly; this helps seat the horizontal actuator pinion gear teeth tight to the lower track rack gear teeth and eliminate any free play between gear teeth. While maintaining outward pressure against horizontal actuator, tighten actuator attaching screws.

**FRONT AND REAR VERTICAL GEARNUT-
"B-C and E" Body Six-Way Full Width
Seat**

Removal and Installation

1. Operate seat to full forward position.
2. Remove front seat assembly from body as previously described and place upside-down on a clean, protected surface.
3. Detach three power drive cables from adjuster to be removed.
4. Remove screws securing seat adjuster to seat bottom frame and remove adjuster from seat assembly.

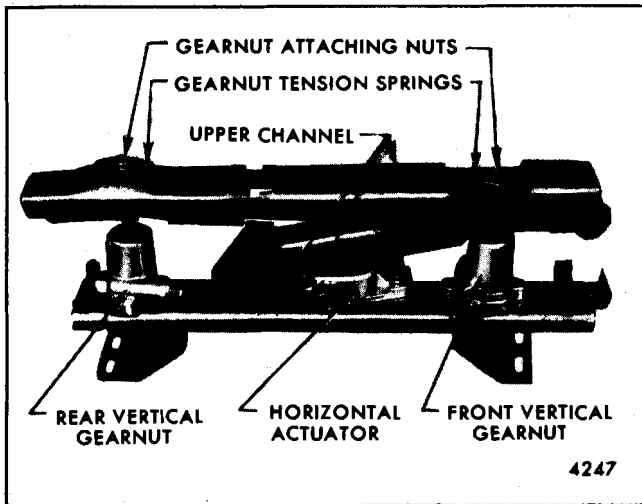


Fig. 14-18-Six-Way Seat Adjuster - "B, C and E" Styles

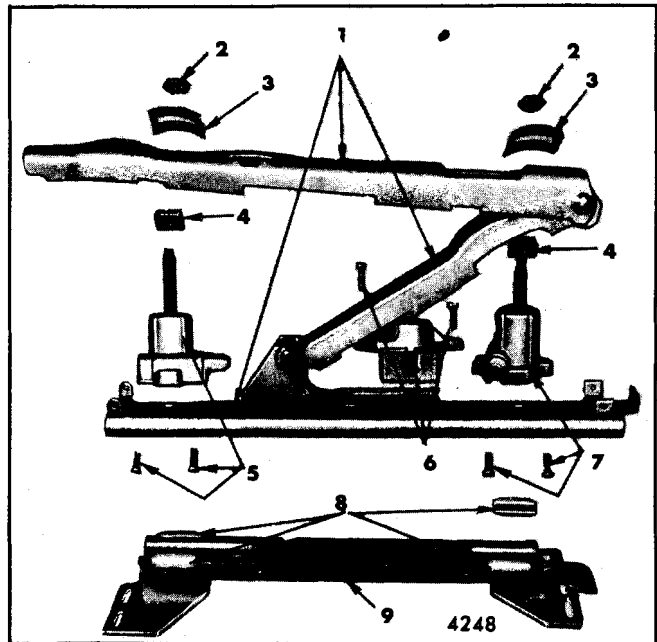


Fig. 14-19-Six-Way Seat Adjuster Components - "B, C and E" Styles

- | | |
|---|--|
| 1. Upper Channel Assembly | 5. Rear Vertical Gearnut and Attaching Screws |
| 2. Upper Channel to Gearnut Attaching Bolts | 6. Horizontal Actuator and Attaching Screws |
| 3. Gearnut Tension Springs | 7. Front Vertical Gearnut and Attaching Screws |
| 4. Gearnut Shoulder Nuts | 8. Plastic Shoes |
| | 9. Lower Channel |

5. At top of adjuster, remove both vertical gearnut attaching nuts and tension springs (Figs. 14-18 and 14-19).

6. Lay adjuster on its side and remove front vertical gearnut attaching screws; then, remove gearnut from adjuster (Fig. 14-19).

NOTE: If seat was not in forward position when removed from car, it may be necessary to manually operate the horizontal actuator to gain access to vertical gearnut attaching screws on bottom of lower channel.

7. If front vertical gearnut is being replaced with a new part, transfer gearnut shoulder nut and tension spring to new gearnut assembly (Fig. 14-19).

8. To install, reverse removal procedure. Be sure adjusters are "in phase" before installing seat assembly into body. See Step 6 under "Front Seat Assembly - Removal and Installation".

LOWER OR UPPER CHANNEL AND PLASTIC SLIDES- "B-C and E" Body Six-Way Full Width Seats

Removal and Installation

1. Remove seat assembly from body and place upside-down on a clean, protected surface.

2. Detach three power drive cables from adjuster to be removed.

3. Remove screws securing seat adjuster to seat bottom frame and remove adjuster from seat assembly.

4. At top of adjuster, remove both vertical gearnut attaching nuts and tension springs (Figs. 14-18 and 14-19). Lift front of adjuster upper channel upward; then, remove horizontal actuator attaching screws and remove horizontal actuator from adjuster (Fig. 14-19).

5. Slide lower channel until it is completely disengaged from upper channel. Plastic slides may be removed from lower channel.

6. To install upper and lower channel, reverse removal procedure.

a. If replacing lower channel, transfer vertical slides to new lower channel.

b. If replacing upper channel, transfer vertical gearnuts to new upper channel.

NOTE: Make sure horizontal gear of lower channel and sliding surface of upper channel are properly lubricated with "Lubriplate" (630AAW) or equivalent.

Make sure adjusters are "in phase" prior to installing seat assembly into body. See Step 6 under "Front Seat Assembly - Removal and Installation".

Check operation of seat to limits of both horizontal and vertical travel.

HORIZONTAL AND VERTICAL DRIVE CABLES- "B-C and E" Body Six-Way Full Width Seats

Removal and Installation

1. Remove front seat assembly from body with attached adjusters, motor and transmission and place upside-down on a clean, protected surface.

2. Detach both horizontal and vertical cables from seat adjuster.

3. Remove screws securing horizontal and vertical cable end plate on side of transmission from which cables are being removed and remove cables from seat assembly; then, disengage cables from end plate.

4. To install horizontal and vertical cables, reverse removal procedure. Install colored drive cables as shown in Figure 14-12 for conventional and strato full width seats (except Buick "E" strato seat) and Figure 14-13 for Buick "E" body full width strato seat.

TRANSMISSION- "B-C and E" Body Six-Way Full Width Seats

Removal and Installation

1. Remove front seat assembly from body with attached adjusters, motor and transmission and place upside-down on a clean, protected surface.

2. Disconnect wire harness connector from transmission.

3. Remove screws securing horizontal and vertical cable end plate on both sides of transmission and detach cables from transmission.

4. Remove transmission to support attaching bolts; then, disengage transmission from motor drive coupling and remove transmission from seat assembly (Figs. 14-12 and 14-13).

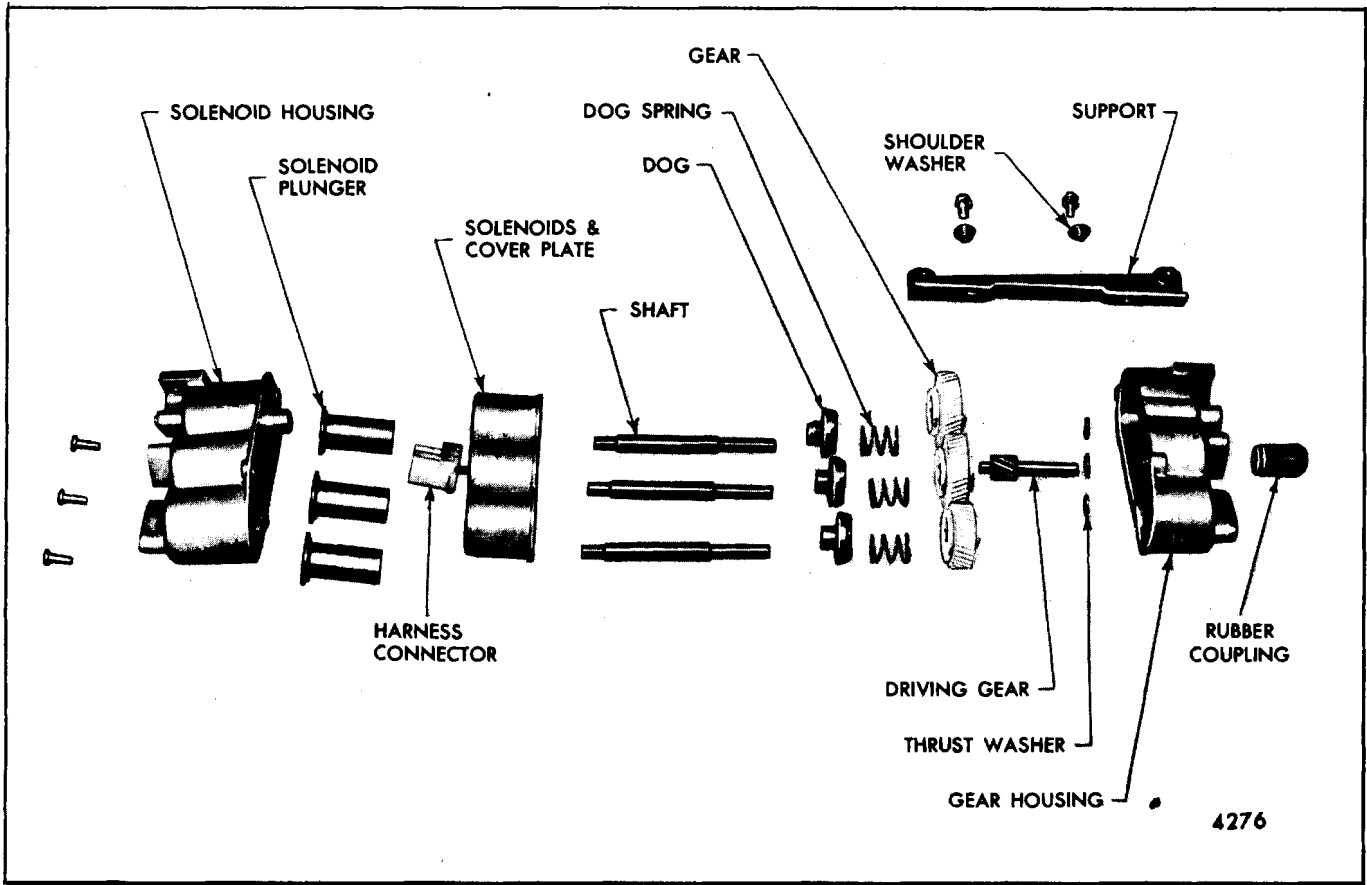


Fig. 14-20-Six-Way Seat Adjuster Transmission - "B and C" Full Width Seat

- To install, reverse removal procedure. "Horizontal and Vertical Drive Cables" or as shown in Figure 14-12 or 14-13. Make sure seat wiring harness is properly secured to seat.

DISASSEMBLY AND ASSEMBLY OF TRANSMISSION

- Remove front seat adjuster transmission from seat assembly.
- Remove screws securing rear gear housing to the solenoid housing; then, carefully separate housings and remove component parts of transmission assembly (Fig. 14-20).
- To assemble transmission, reverse removal procedure.

IMPORTANT: Prior to or during installation, lubricate frictional surfaces of driving gear; thrust washer, large gears, dog washers, gear shafts and solenoid plungers with "Lubriplate" (630AAW) or equivalent.

SIX-WAY SEAT ADJUSTER MAJOR COMPONENTS- Pontiac, Buick, Oldsmobile and Cadillac 60-40 Seats

The following service procedures cover replacement of the major component parts of the power operated six-way seat adjusters used on the 60-40 seats.

SIX-WAY ADJUSTER MOTOR- Pontiac, Buick, Oldsmobile and Cadillac 60-40 Seats

Removal and Installation

- If seat is operable, raise seat assembly to the full "up" position.
- Detach motor wire harness connectors from motor relay.
- From underside of motor and transmission support, remove two motor attaching screws; then, disengage motor from drive coupling and remove motor. If seat is inoperative in "down" position remove motor from under rear of seat.

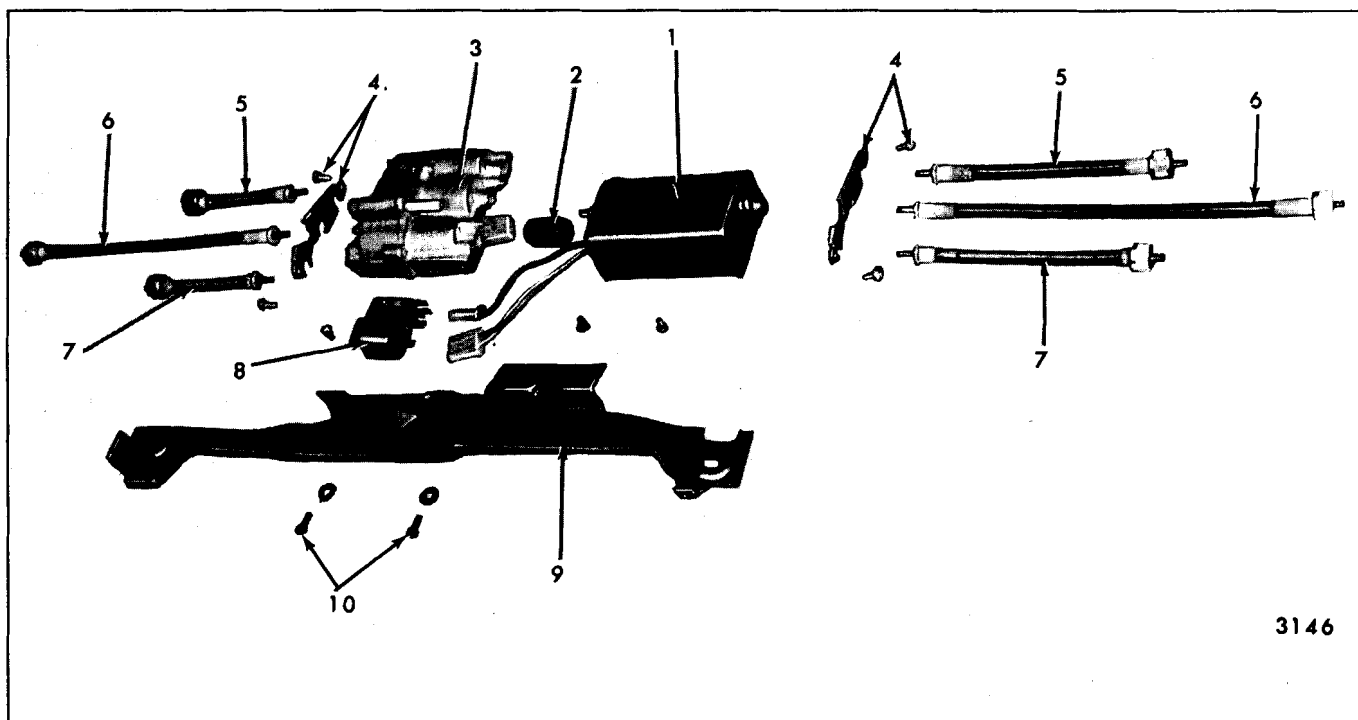


Fig. 14-21-Six-Way Seat Adjuster Motor, Transmission, Cable and Support - Disassembled
- Pontiac, Buick,
Oldsmobile and Cadillac 60-40 Seats

- | | | | |
|-----------------------------------|--|---|------------------------------------|
| 1. Electric Motor | 4. Transmission End Plate and Attaching Screws | 6. Rear Vertical Drive Cable - Inboard - Green; Outboard - Blue | 8. Motor Relay and Attaching Screw |
| 2. Motor-to-Transmission Coupling | 5. Front Vertical Drive Cable - Yellow | 7. Horizontal Drive Cable - Black | 9. Motor and Transmission Support |
| 3. Transmission Assembly | | | 10. Transmission Attaching Screws |

4. To install, reverse removal procedure. Check operation of seat assembly to limits of horizontal and vertical travel.

SIX-WAY SEAT ADJUSTER REAR VERTICAL DRIVE CABLE- Pontiac, Buick, Oldsmobile and Cadillac 60-40 Seats

Removal and Installation

1. If seat is operable, raise seat assembly to the full "up" position.
2. Detach rear vertical cable from rear vertical garnut at rear of adjuster.
3. From under front of seat, remove transmission cable end plate attaching screws; then, slide end plate up cables sufficiently to disengage rear vertical cable from end plate (Fig. 14-21).
4. To install rear vertical cable(s), reverse removal procedure. Check operation of seat assembly to limits of horizontal and vertical travel.

SIX-WAY SEAT ADJUSTER ASSEMBLY AND HORIZONTAL OR FRONT VERTICAL DRIVE CABLES- Pontiac, Buick, Oldsmobile and Cadillac 60-40 Seats

Removal and Installation

1. Remove seat assembly from body, as described under "Front Seat Assembly - Power Operated Two, Four or Six-Way Full Width and 60-40 Six-Way Seats - Removal and Installation". Place seat assembly upside-down on a clean, protected surface.
2. Detach drive cables from adjuster being removed.
3. At adjuster being removed, remove nut securing motor and transmission support at front of adjuster (Figs. 14-10, 14-11). Remove seat adjuster to seat frame front and rear attaching bolts; then, remove adjuster from seat assembly.
4. To remove horizontal and/or front vertical cable(s), remove seat adjuster on side from which

cable(s) is being removed. Remove transmission end plate attaching screws (Fig. 14-21); then, slide end plate up cables sufficiently to disengage cable(s) from end plate.

- To install seat adjuster assembly or horizontal and/or front vertical drive cable(s) reverse removal procedure. Make sure cables are properly engaged with transmission and adjuster before installing transmission end plate and seat adjuster. Orange cable attaches from front of transmission to adjuster front vertical gear nut. Blue cable attaches from center of transmission to adjuster rear vertical gear nut. Black cable attaches from rear of transmission to adjuster horizontal actuator.

Check operation of seat assembly to limits of horizontal and vertical travel.

SIX-WAY SEAT ADJUSTER TRANSMISSION ASSEMBLY- Pontiac, Buick, Oldsmobile and Cadillac 60-40 Seats

Removal and Installation

- Remove seat assembly from car, place upside-down on a clean, protected surface and remove one seat adjuster assembly; as previously described.

- At opposite adjuster, detach drive cables from adjuster and remove nut securing motor and transmission support at front of adjuster (Fig. 14-21).
- Disengage and remove motor and transmission support from adjuster. As a bench operation, remove screws securing transmission assembly to support; then, disengage transmission from motor drive coupling and remove transmission. Where required, remove transmission end plates and drive cables.
- To install transmission assembly, reverse removal procedure. Install drive cables (color coded) as shown in Figure 14-21. Check operation of seat assembly to limits of horizontal and vertical travel.

SIX-WAY SEAT ADJUSTER TRANSMISSION ASSEMBLY- Pontiac, Buick, Oldsmobile and Cadillac 60-40 Seats

Disassembly and Assembly

- Remove seat adjuster transmission assembly, as previously described.
- Remove screws securing solenoid housing to gear housing; then, carefully separate housings and remove component parts of transmission assembly (Fig. 14-22).

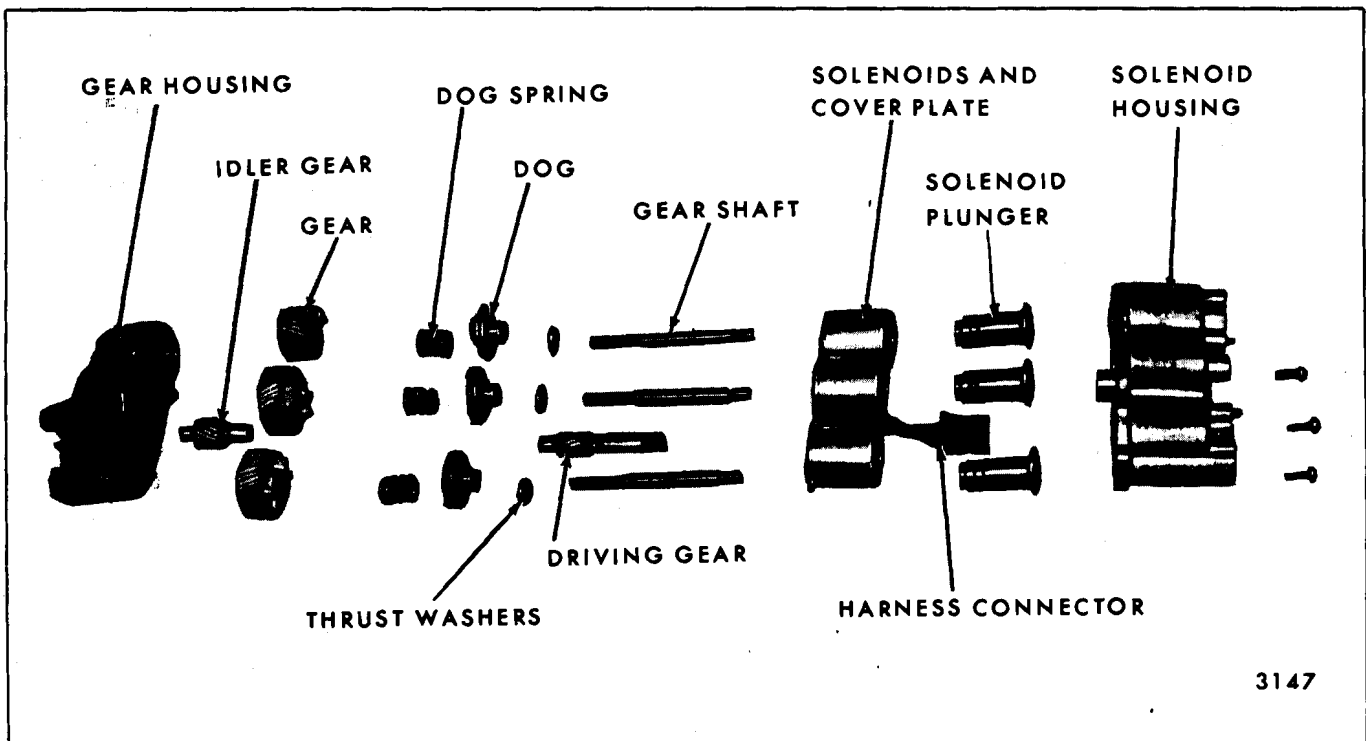


Fig. 14-22-Six-Way Seat Adjuster Transmission - Disassembled - Pontiac, Buick, Oldsmobile and Cadillac 60-40 Seats

- To assembly transmission, reverse removal procedure.

IMPORTANT: Prior to or during installation, lubricate frictional surfaces of driving gear thrust washer, gears, dog washers, shaft and solenoid plungers with "Lubriplate" (630AAW) or equivalent.

FRONT SEAT BACK ASSEMBLY- "A", "X" and "B" Body Four Door Styles with Conventional Full Width Seat

Removal and Installation

- Remove front seat assembly from body and place it upside-down on a clean, protected surface. Remove seat side panels, where present.
- Remove hog rings securing lower edge of seat back trim to seat cushion springs (see Fig. 14-23).
- Raise lower edge of seat back trim, detach fiberboard breakover foundation and bend out tabs on seat back frame securing seat cushion springs. Disengage springs from tabs (Fig. 14-23).
- At each end of seat, remove hog rings securing lower edge of seat back trim to seat bottom

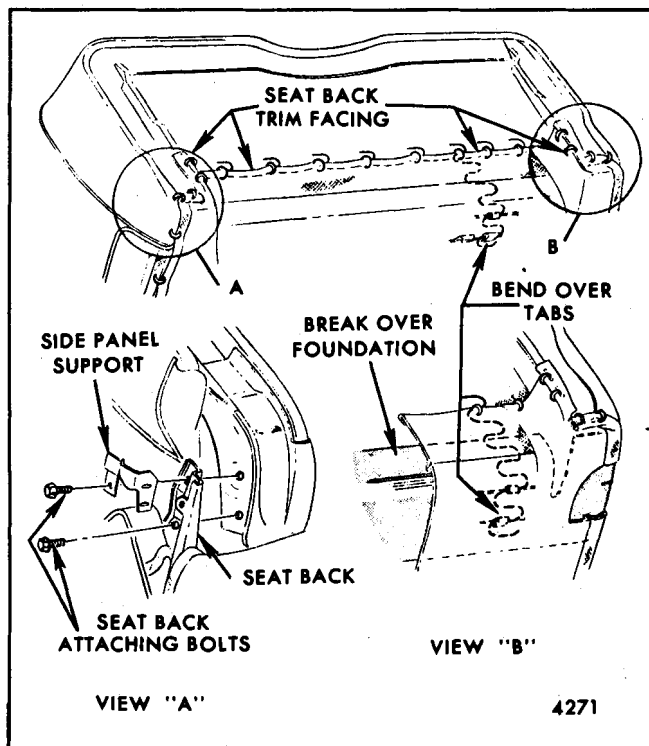


Fig. 14-23-Front Seat Back Attachment - Typical Four Door Attachment-"A" Style Full Width Conventional Seat

frame. Raise or turn back seat back trim to expose bolts securing seat back frame to seat cushion frame (Fig. 14-23). Where seat back lighter or courtesy light is present, disconnect wire from seat cushion frame.

- Place seat assembly in upright position. Then with a helper holding seat back assembly, remove seat back attaching bolts on each side of seat and remove seat back assembly.
- To install seat back assembly, reverse removal procedure.

FRONT SEAT BACK ASSEMBLY (Right or Left)- Four-Door Style Full Width Conventional Seat with Notch-Down Center Arm Rest or 60-40 Seats

Removal and Installation

- Remove front seat assembly from body and place upside-down on a clean, protected surface. Remove seat cushion side panels. On 60-40 seats remove seat cushion and seat back side panels.
- Remove hog rings securing lower edge of seat cushion trim bottom facing to seat cushion springs and frame (Fig. 14-24 or 14-25).
- Remove seat side panel where present or outer hinge arm cover (Fig. 14-24 or 14-25); then, using a flat-bladed tool carefully remove retainer securing seat back outer arm to hinge pin (Fig. 14-24 or 14-25).
- On notch back seats detach trim sufficiently to expose seat back attaching bolt access holes (Fig. 14-24); then, through access holes remove seat back lock-up screws (Fig. 14-24). On 60-40 seats detach trim at outer hinge arm sufficiently to remove outer hinge arm lock-up screw (Fig. 14-25).
- Turn seat assembly right side up. Carefully disengage seat back outer arm from hinge pin; then, tilt seat back forward and upward to disengage seat back inner arm from hinge pin and remove seat back from body (Fig. 14-24 or 14-25).
- To install seat back assembly, reverse removal procedure. If seat back outer arm retainer is damaged, install new retainer.

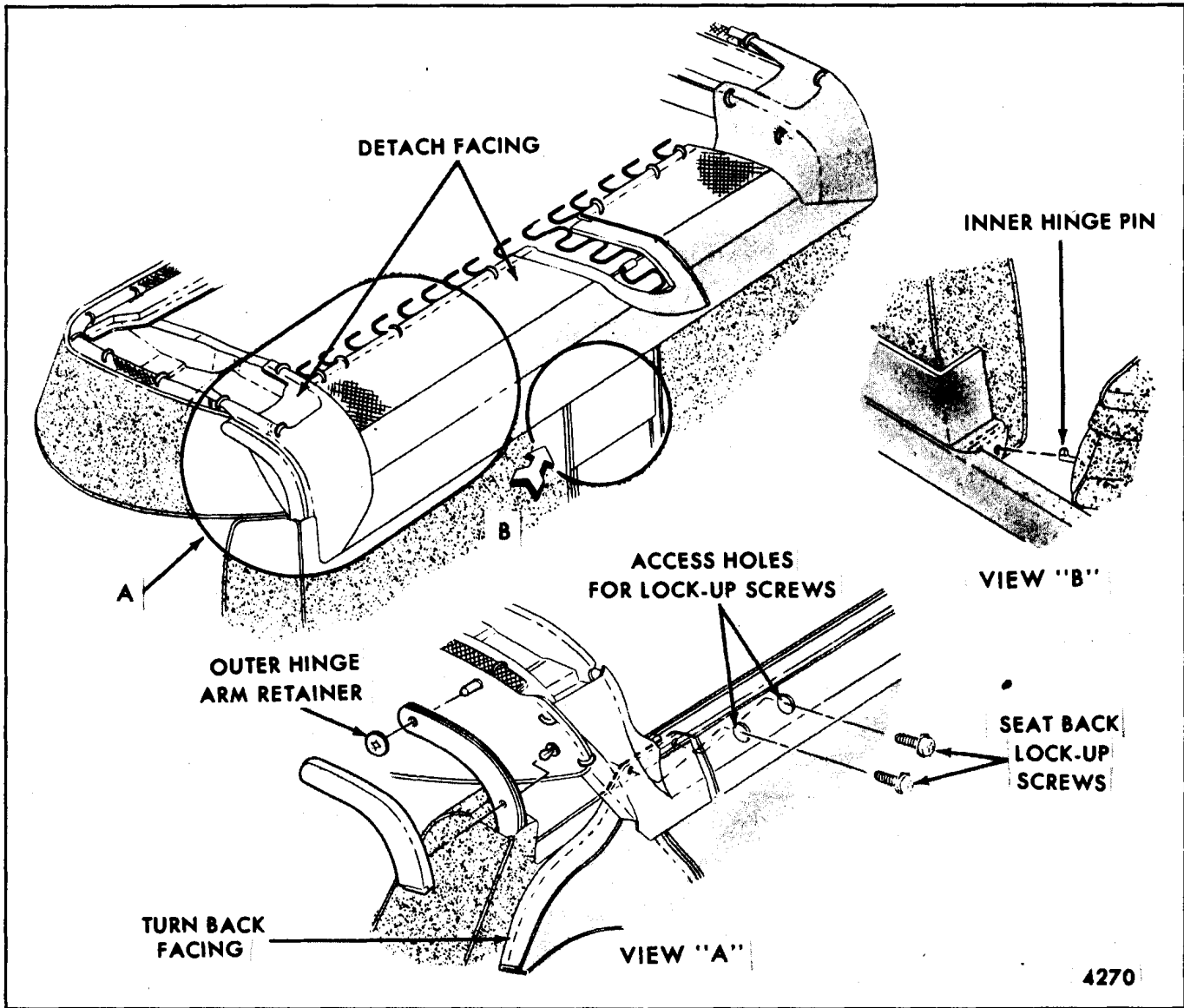


Fig. 14-24-Front Seat Back Attachment (Right or Left) - Four-Door Style Notch Back Seat

FRONT SEAT BACK ASSEMBLY (Right or Left)- Two-Door Style Conventional Full Width Seat, Seat with Notch Down Center Arm Rest and 60/40 Seat, Seat

Removal and Installation

1. On seat with seat cushion side panel, remove side panel and detach seat cushion trim sufficiently to expose outer hinge pin and retainer (Fig. 14-26 or 14-27).

On seats where seat back side panel covers outer hinge pin and retainer, remove seat back side panel.

2. On seats with outer hinge arm cover or inner hinge pin cover, remove screw or detach fastener securing cover and remove cover (Fig. 14-26 or 14-27).
3. Using a flat-bladed tool carefully remove retainer, securing seat back outer arm to hinge pin (Fig. 14-26 or 14-27).
3. Carefully disengage seat back outer arm from hinge pin; then, tilt seat back forward and upward to disengage seat back inner arm from hinge pin and detach seat back from seat cushion. On seats with manually operated seat back locks the seat back can be removed from the body.

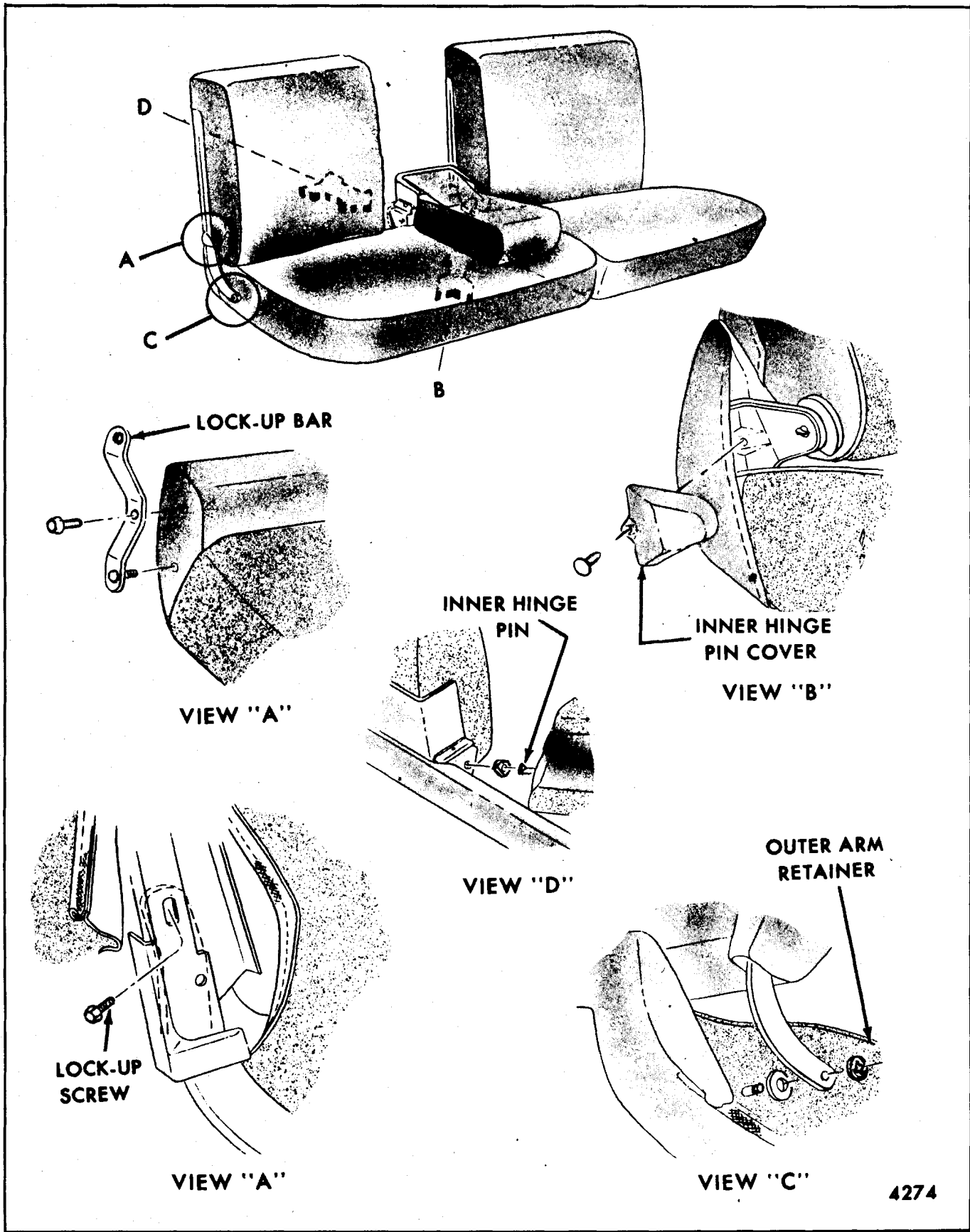


Fig. 14-25-Front Seat Back Attachment (Right or Left) - Four-Door Style 60-40 Seat

NOTE: On seats equipped with electric seat back locks, lay seat back on seat cushion and carefully disengage seat belt webbing plastic protector (see Fig. 14-26 or 14-28) from seat cushion. From under front of seat, disconnect lock actuator feed wire from relay jumper wire; from under rear of seat detach feed wire clip from strap securing wire to seat spring (see Fig. 14-28); then, carefully pull feed wire up through seat cushion and remove seat back from body.

4. To install seat back assembly, reverse removal procedure making sure washers are installed over hinge pins prior to installing seat back. If outer retainer is damaged, install new retainer.

IMPORTANT: Check operation of seat back locks. On seats equipped with manually operated locks the seat back should lock with no more than 10 lbs. rearward effort applied at the top outboard corner of the seat back. On seats equipped with electric seat back locks both seat back locks should lock in the upright position when the doors are closed. If either seat back does not lock refer to "Electric Seat Back Lock".

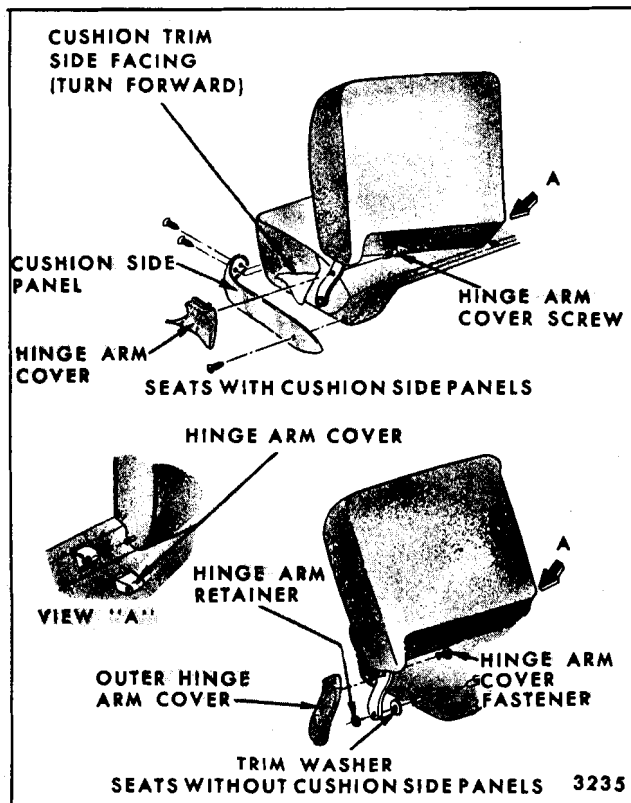


Fig. 14-26-Seat Back Attachment - Two-Door Style Conventional Seat

FRONT SEAT BACK MANUALLY OR ELECTRICALLY OPERATED LOCK- (Right or Left) All Two-Door Styles with Conventional Full Width Seats

Removal and Installation

1. On seats with full seat back panel or detachable seat back trim panel, remove hog rings securing trim along bottom and sides of trim. On seats with one piece (envelope type) trim cover.
 2. Remove front seat back assembly from front seat cushion assembly, as previously described.
 3. Remove front seat back outer side panel and side panel lower support, where present.
 4. On seats with electrically operated locks, remove manual override handle and escutcheon.
 5. Remove hog rings securing seat back front and rear trim facings and foam pad facing along bottom of seat back; then, turn up trim and carefully pull out foam pad sufficiently to gain access to lock attaching bolts (Fig. 14-29 or 14-30).
 6. On manually operated seat back lock, disengage lock connecting rod clip (Fig. 14-29) and detach rod from lock. On electrically operated seat back lock, disconnect feed connector from lock solenoid.
- NOTE:** To disengage clip it is usually necessary to damage or break clip.
7. Remove seat back lock attaching bolts (Fig. 14-29 for manual lock, Fig. 14-30 for electric lock); then, remove lock assembly from seat back.
 8. To install, reverse removal procedure. If rod to lock retaining clip is damaged, install new clip. Check for proper operation of seat back lock.

FRONT SEAT BACK MANUALLY OPERATED LOCK CONTROL AND LOCK ROD- Two-Door Styles With Conventional Full Width Seats or 60-40 Seats With Manually Operated Seat Back Locks

Removal and Installation

1. On styles with one piece (envelope type) seat back trim cover remove front seat back assembly, as previously described. Remove seat back side panel where present. Remove hog rings securing trim

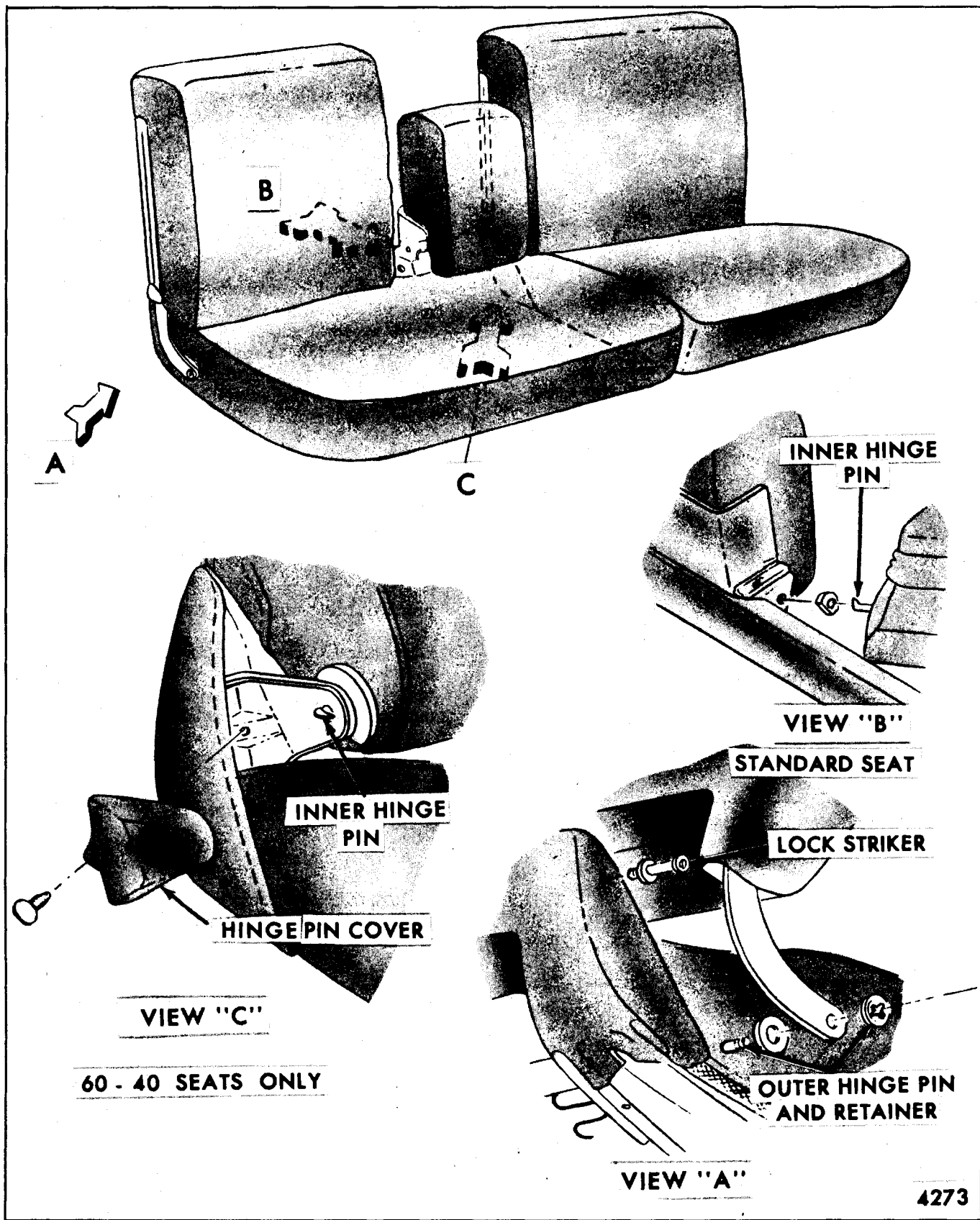


Fig. 14-27-Seat Back Attachment - Two-Door Style Notch Down Center Arm Rest Seat and 60-40 Seat

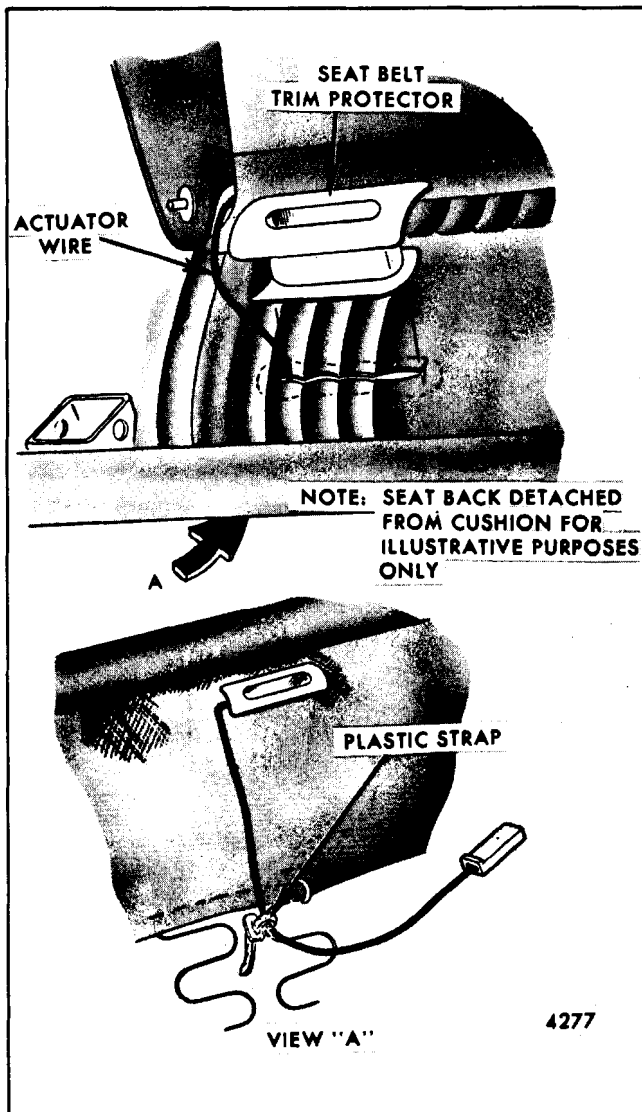


Fig. 14-28-Electric Seat Back Lock Wire Route Through Seat Cushion-Two-Door Style Full Width Conventional Seat

cover at bottom of seat back and pull trim up sufficiently to gain access to lock and lock control.

2. On styles with full seat back panel, remove lock control handle; then, remove seat back panel.
3. On styles with seat back panel or detachable rear trim facing, remove hog rings securing seat back panel or trim facing along bottom and sides of seat. If removing lock, control-to-lock rod on any style or lock control on Cadillac styles turn back seat trim sufficiently to gain access to lock control. If removing lock control on any style except Cadillac remove seat back trim cover and foam pad assemblies.
4. To remove seat back lock rod from lock control carefully squeeze prongs of clip (Fig. 14-29, View

"C") sufficiently to disengage clip and detach rod from lock. Remove lock attaching bolts and rod from control (Fig. 14-29).

5. To remove seat back lock control on Cadillac styles, remove control attaching screws and remove control. To remove lock control on all styles except Cadillac, scribe position of control assembly on seat back side bar. Using a spot weld cutter tool J- 8943-01 or equivalent, drill out three spot welds securing lock control and remove control.
6. To install lock control on Cadillac styles, reverse removal procedure. To install lock control on all styles except Cadillac, position and clamp new control assembly to seat back frame side bar in SAME position as original control assembly. Braze new control assembly to seat back frame side bar at the three original weld locations.
7. To install control-to-lock rod position rod (with attached clip) up through seat back frame bar; then, carefully install clip into slot in control lever making sure both prongs of clip are engaged through slot.

NOTE: If clip is damaged or does not retain properly, break off old clip and install new clip.

8. After assembly, check for proper operation of seat back lock, the seat backs should lock with no more than 10 lbs. of rearward effort applied at the top outboard corner of the seat back.

SEAT BACK ELECTRIC LOCK SOLENOID AND SUPPORT ASSEMBLY- Two-Door Styles with Conventional Full Width Seat

Removal and Installation

1. Remove front seat back electric lock assembly with attached solenoid and support from seat, as previously described.
2. Remove small position lock screw and two solenoid support-to- lock attaching screws; then, disengage solenoid plunger bar from lock link (Fig. 14-31) and remove assembly from lock.
3. To install solenoid and support assembly, engage solenoid plunger bar to lock link; then, install loosely two solenoid support-to-lock attaching screws (Fig. 14-31). With lock hook tight against stop tab (see Fig. 14-31) extend solenoid plunger bar all the way out of solenoid; then, adjust solenoid support until the lock link rivet just contacts bottom of slot in solenoid plunger bar (see Fig. 14-31) and tighten securely solenoid support attaching screws.

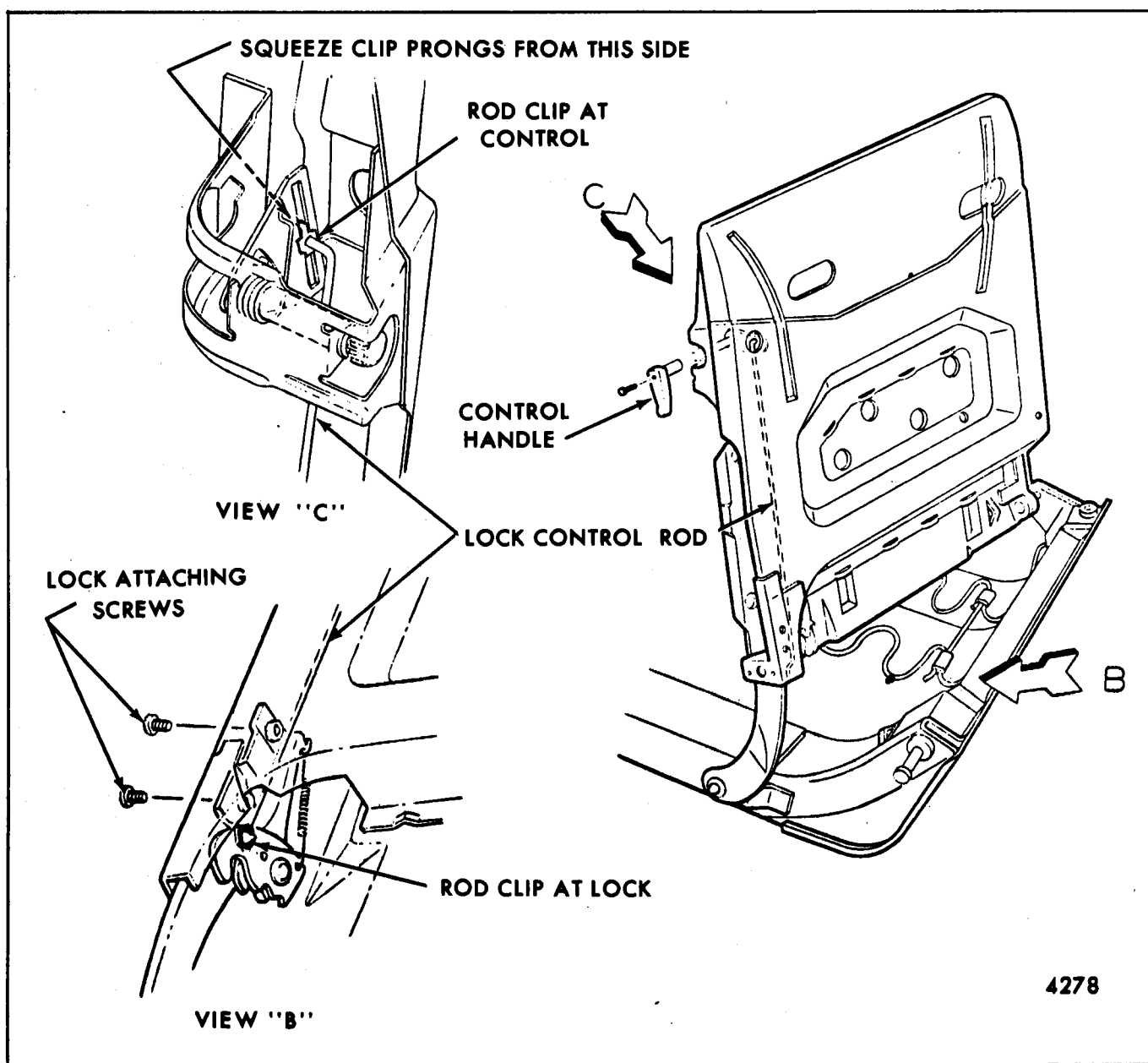


Fig. 14-29-Front Seat Back Manually Operated
Lock - "A, B, C and X" Two-Door Styles,
Standard Full Width Seat
Styles, Standard Full Width Seat

IMPORTANT: Carefully drill a new position lock screw hole (9/64") through both solenoid support and lock frame in area where previous lock screw was located and install securely position lock up screw.

IMPORTANT: Check operation of both electric actuated seat back locks. If either lock does not

lock or unlock properly refer to "Electric Seat Back Lock Trouble Diagnosis Chart-Conventional Seats".

NOTE: When seat back is returned to locked position with both doors closed the locking effort, applied rearward at upper outboard corner of seat back, must not exceed 10 lbs.

**ELECTRIC SEAT BACK LOCK TROUBLE DIAGNOSIS CHART - TWO-DOOR
STYLE CONVENTIONAL SEATS**

CONDITION	APPARENT CAUSE	CORRECTION
1. Seat back lock does not lock when doors are closed.	1. Current at actuator solenoid does not cut off - jamb switch remains open. 2. Seat back relay contacts sticking. 3. Seat back does not return to upright position far enough to trip lock into locked position. Check for excessive trim build-up; also check inboard bumper clearance.	1. Refer to Electrical Checking Procedure - where required, install new jamb switch. 2. Refer to Electrical Checking Procedure - where required, install new relay. 3. Specified inboard bumper clearance 1/16" - where required install thinner bumper. Locking effort applied rearward at upper outboard corner of seat back is 0-10 lbs. maximum.
2. Seat back lock will not unlock when door(s) are open.	1. No current at actuator solenoid - blown fuse, defective jamb switch or seat back realy, or short in wiring. 2. Bind in lock or lock linkage.	1. Refer to Electrical Checking Procedure. 2. Locate and eliminate bind or, where required, install new lock assembly.
3. Seat back lock unlocks but solenoid flutters or solenoid circuit breaker cuts in and out.	1. Bind in lock or linkage which does not allow solenoid plunger to completely deactivate pull in coil. 2. Actuator solenoid plunger is not completely deactivating pull in coil with no bind present in lock or linkage. Lock operates okay manually.	1. Locate bind or interference and eliminate, or where required install new lock. 2. Check solenoid as described under "Electrical Checking Procedure" - Check if solenoid is adjusted properly on lock - see "Seat Back Electric Lock Solenoid and Support Assembly" - Step 3 and 4. Where required replace solenoid assembly.

**FRONT SEAT BACK HEAD RESTRAINT-
Conventional Full Width or 60-40 Seat
(Drivers or Passengers Side)**

Head restraints for the standard full width or 60-40 seat are single post type, which can be adjusted to two

positions (low or high). On "A and X" body styles the head restraint can be removed from the seat back by actuating (push in) the lock lever located at the head restraint post escutcheon and lifting the head restraint out of the seat back. To remove head restraints on "B and C" body styles it is necessary to follow the procedure described below:

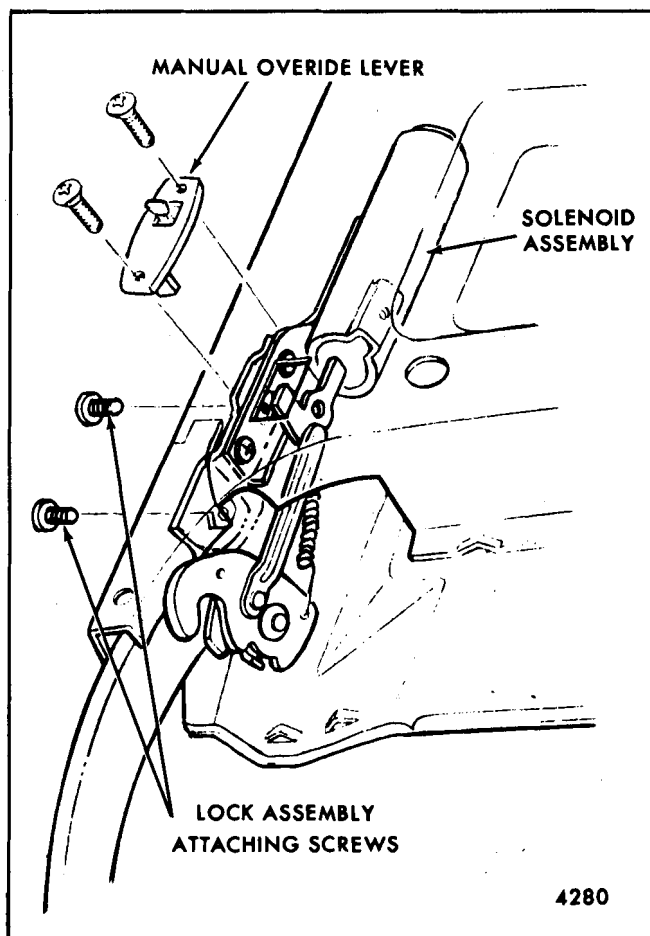


Fig. 14-30-Front Seat Back Electrically Operated Lock - "A, B and C" Two-Door Styles, Standard Full Width Seat

FRONT SEAT BACK HEAD RESTRAINT- All "B and C" Body Conventional Full Width or 60-40 Seats

Removal and Installation

1. Raise head restraint to full "up" position.
2. Remove head restraint post escutcheon attaching screws.
3. Lift escutcheon upward; then insert a narrow screwdriver down the left side of head restraint post sufficiently to depress lock spring and remove head restraint.
4. To install head restraint, insert post into guide and push down to full down position. Check that lock spring engages and prevents head restraint from being removed.

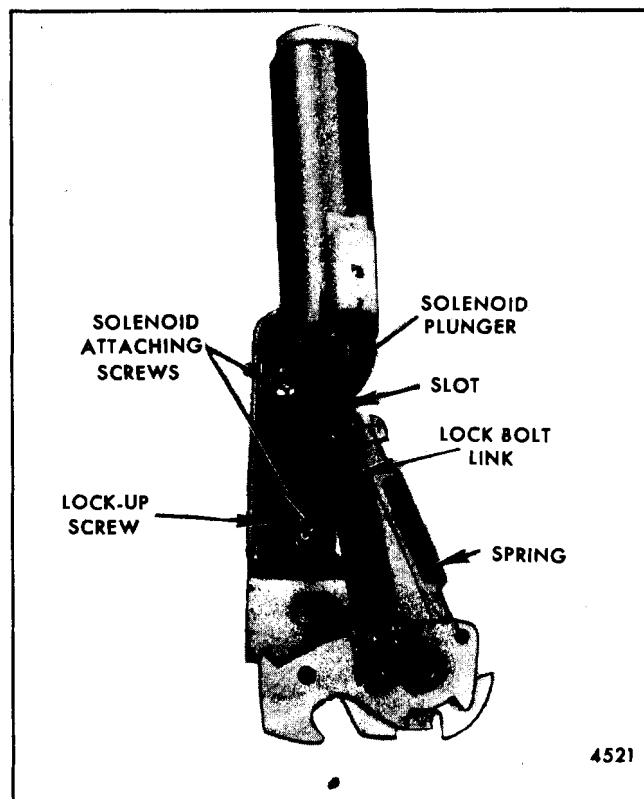


Fig. 14-31-Front Seat Back Electric Lock Solenoid and Support Assembly - "A, B and C" Two-Door Styles with Standard Full Width or 60/40 Seats

FRONT SEAT BACK HEAD RESTRAINT LOCK AND ESCUTCHEON ASSEMBLY- Conventional and 60-40 Seats

Removal and Installation

1. On "B and C" bodies remove head restraint, as previously described. On "A and X" bodies remove head restraint by actuating (push in) the lock lever at the post escutcheon and lifting the head restraint out of the seat back.
2. Remove lock and escutcheon assembly attaching screws and remove lock and escutcheon (Fig. 14-32).
3. To install, reverse removal procedure. Check operation of head restraint.

FRONT SEAT BACK HEAD RESTRAINT GUIDE TUBE- Conventional and 60-40 Seats

The front seat back head restraint guide tube is a plastic tube inserted through slots in a guide tube support assembly. The guide tube support assembly,

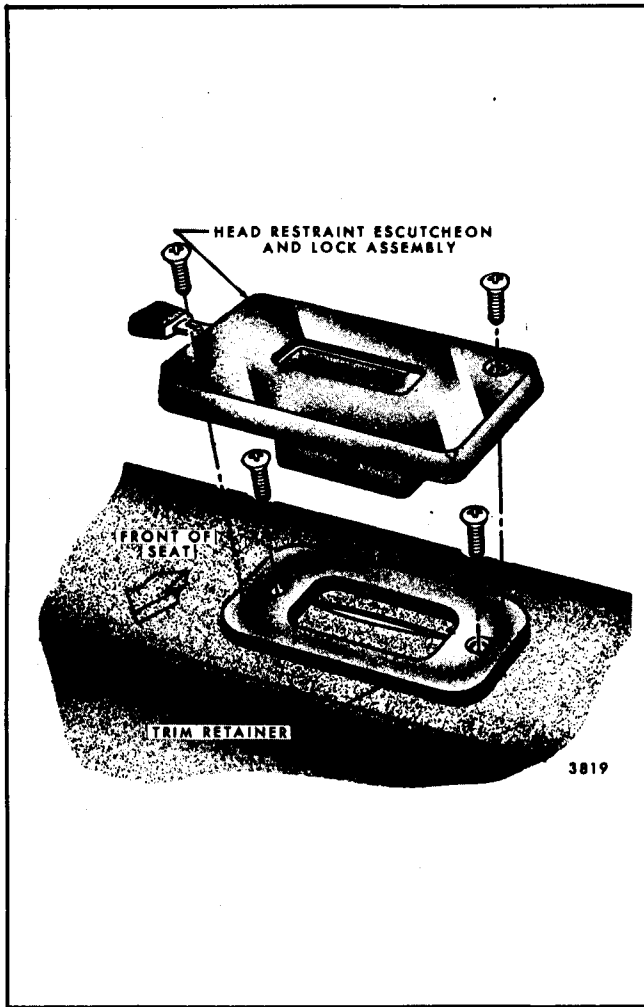


Fig. 14-32-Front Seat Back Head Restraint Retainer, Lock and Escutcheon - Conventional and 60-40 Seats

which incorporates a riveted-on tension spring, is welded to the seat back frame.

Removal and Installation

1. Remove front seat back and head restraint lock and escutcheon assembly, as previously described. Remove trim retainer (see Fig. 14-32).
2. On seat backs with one piece (envelope type) seat back trim assembly, remove seat back assembly, as previously described; then, as a bench operation remove hog rings securing trim at bottom of seat back and pull up trim sufficiently to gain access to head restraint support or guide tube. On seat backs with seat back panel or detachable rear trim facing, remove seat back panel and detach back trim sufficiently to gain access to head restraint support or guide tube.
3. Remove screw securing guide tube and slide guide tube out of support (Fig. 14-33).

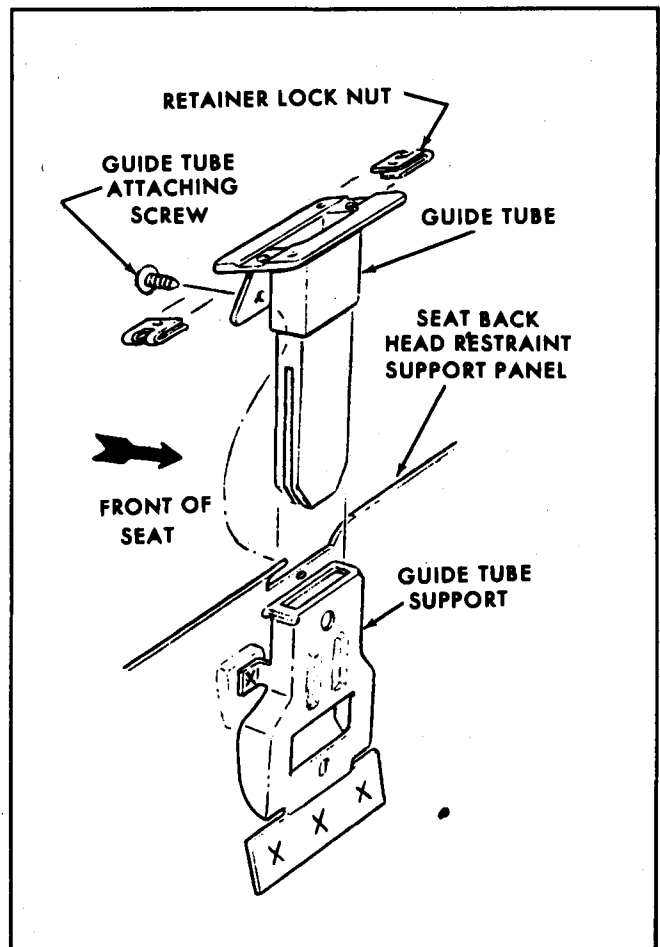


Fig. 14-33-Head Restraint Guide Tube Typical of All Conventional Seats

4. To install head restraining, guide tube reverse removal procedure.

FRONT SEAT CENTER ARM REST AND CURTAIN ASSEMBLY- Front Seat with Standard Full Width Seat Back

Removal and Installation

1. Place center arm rest in down position.
2. At top of arm rest curtain, remove hog rings securing curtain to flange of support plate and pull curtain forward to expose screws securing arm rest to support linkage (Fig. 14-34).
3. Remove arm rest-to-support linkage screws and remove arm rest and curtain from seat (Fig. 14-34).
4. To install, reverse removal procedure.

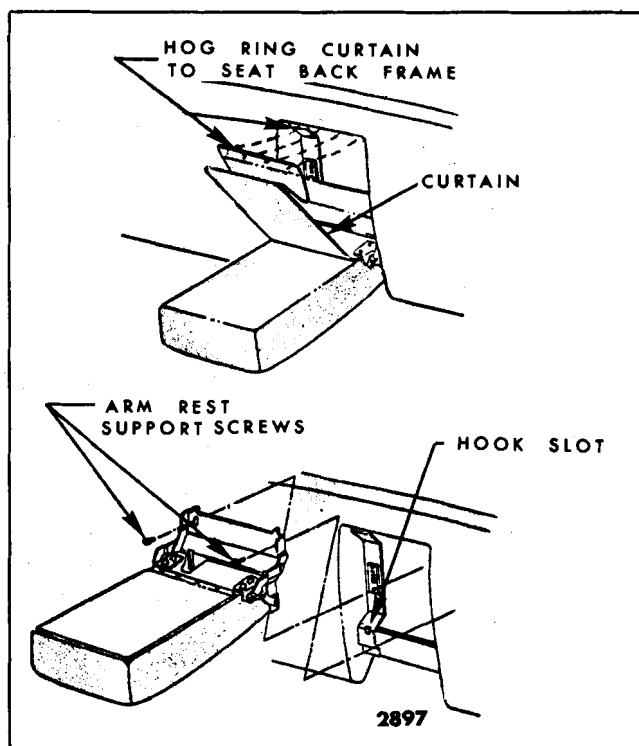


Fig. 14-34-Front Seat Back Center Arm Rest

CENTER ARM REST AND SUPPORT ASSEMBLY- Front Seat with Standard Full Width Seat Back

Removal and Installation

1. Place center arm rest in down position.
2. At top of arm rest curtain, remove hog rings securing curtain to flange of support plate (Fig. 14-34).
3. Remove two screws security arm rest to supports on seat back (Fig. 14-34); then, carefully lift arm rest and linkage upward to disengage hooks of arm rest from slots in supports and remove assembly from seat.
4. To install, reverse removal procedure. Prior to installing curtain screws check alignment and operation of arm rest.

FRONT SEAT CENTER ARM REST AND CURTAIN ASSEMBLY- Front Seat with Notch Down Seat Back and Strato Front Seat

Removal and Installation

1. Lower arm rest to within approximately 2 inches of full down position.

2. Carefully pull curtain back sufficiently to remove screws securing center arm rest to linkage and loosen outer screws securing curtain lower retainer to arm rest (Fig. 14-35).
3. Disengage arm rest from support linkage and turn arm rest upside-side down on trim panel finishing cover. Remove arm rest curtain upper retainer screws (Fig. 14-35); then, remove arm rest and curtain from seat.
4. To install, reverse removal procedure.

FRONT SEAT CENTER ARM REST ASSEMBLY- Front Seat with Notch Down Seat Back and Strato Front Seat

Removal and Installation

1. Place arm rest in up position.
2. Working between arm rest and seat back, remove fastener at both sides of arm rest securing front end of screw finishing covers (Fig. 14-35).
3. On two-door styles, push one seat back to full forward position. Carefully pull up front of screw finishing cover sufficiently to expose arm rest linkage and linkage cover attaching screws; then, remove screws (Fig. 14-35). Repeat this operation on opposite side of arm rest; then, carefully remove arm rest linkage cover and linkage assembly from seat.

NOTE: If washers are present between arm rest linkage and linkage supports on seat (Fig. 14-35), note location and number of washers used to

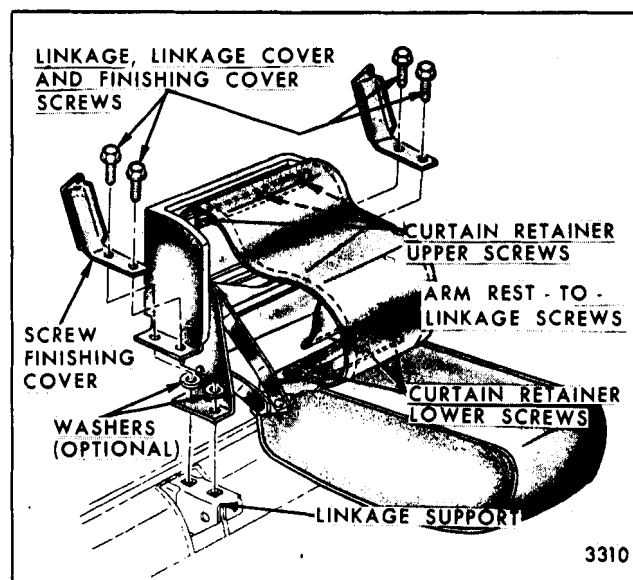


Fig. 14-35-Front Seat Center Arm Rest (Full Width Seat with Notch Down Seat Back)

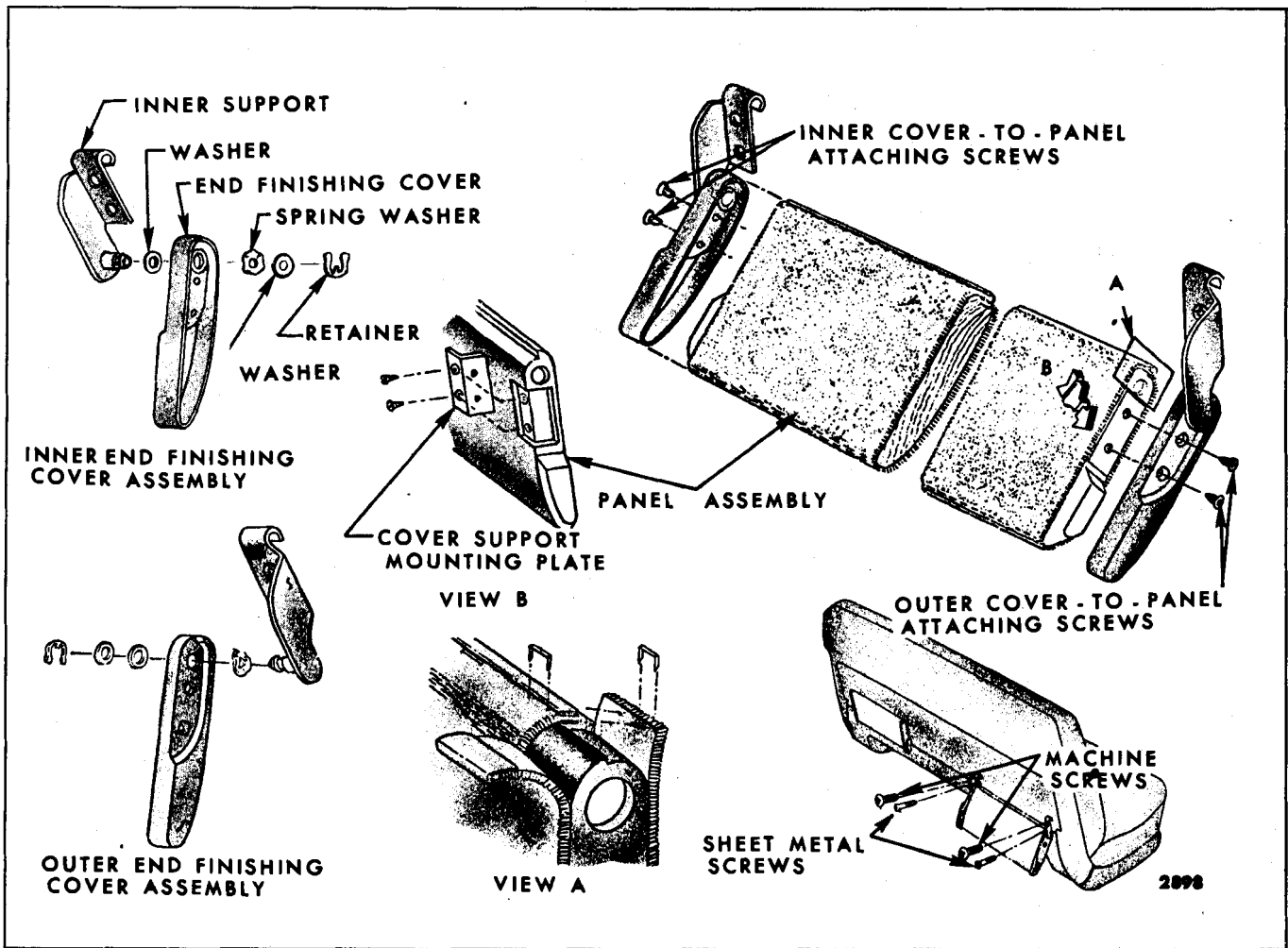


Fig. 14-36-Foot Rest Assembly - Cadillac 68169 Styles

facilitate installation in same position. Washer(s) are used to align arm rest to front seat back(s).

4. To install, reverse removal procedure. Prior to bending down screw finishing covers, check alignment and operation of arm rest. Where necessary to align arm rest with seat back(s) install washer(s), as required, between arm rest support and support on seat (Fig. 14-35).

**FOOT REST ASSEMBLY-
Cadillac 68169 Styles**

The folding foot rest assemblies shown in Figure 14-

36, are secured to the seat back by hinges. To remove foot rest assembly, remove hinge-to-seat back attaching screws from both sides of foot rest (Fig. 14-36) and remove foot rest assembly from seat back. To remove trimmed foot rest board remove hinge-to-board attaching screws (Fig. 14-36) and remove hinges from foot rest board. To install, reverse removal procedure. When installing foot rest hinge-to-seat back attaching screws, install machine thread screws in upper attaching hole at each hinge.

STRATO FRONT SEATS

BUCKET SEATS

Description

The Chevrolet and Pontiac "F" body styles are equipped with high back bucket seats which do not

require head restraints. Strato bucket seats are available on Chevrolet, Pontiac, Oldsmobile and Buick "A" body styles and Buick "E" body styles. All two-door style bucket seats incorporate seat back locks on both the driver's and passenger's seat back. The strato seat (two -door styles) seat back lock is actuated by a

control button located at the rear upper center center of the seat back. The "F" body style seat back lock is actuated by a control lever located on the lower portion of the seat back outer hinge arm.

Head restraints for the strato seats are a dual post type, which can be adjusted to two positions (low or high) or removed from the seat back by actuating (push in) the lock levers located at the head restraint post escutcheons and lifting the head restraint from the seat back.

IMPORTANT: SEAT ATTACHING PARTS SUCH AS SEAT ADJUSTER-TO-FLOOR PAN BOLTS OR NUTS, SEAT ADJUSTER-TO-SEAT FRAME BOLTS, SEAT BACK LOCK BOLTS, SEAT BACK LOCK STRIKER, ETC. ARE IMPORTANT ATTACHING PARTS IN THAT THEY COULD AFFECT THE PERFORMANCE OF VITAL COMPONENTS AND SYSTEMS. THEY MUST BE REPLACED WITH ONE OF THE SAME PART NUMBER OR WITH AN EQUIVALENT PART IF REPLACEMENT BECOMES NECESSARY. DO NOT USE A REPLACEMENT PART OF LESSER QUALITY OR SUBSTITUTE DESIGN. TORQUE VALUES MUST BE USED AS SPECIFIED DURING REASSEMBLY TO ASSURE PROPER RETENTION OF THESE PARTS.

STRATO FULL-WIDTH FRONT SEAT ASSEMBLY

Removal and Installation

The removal and installation procedures for the strato

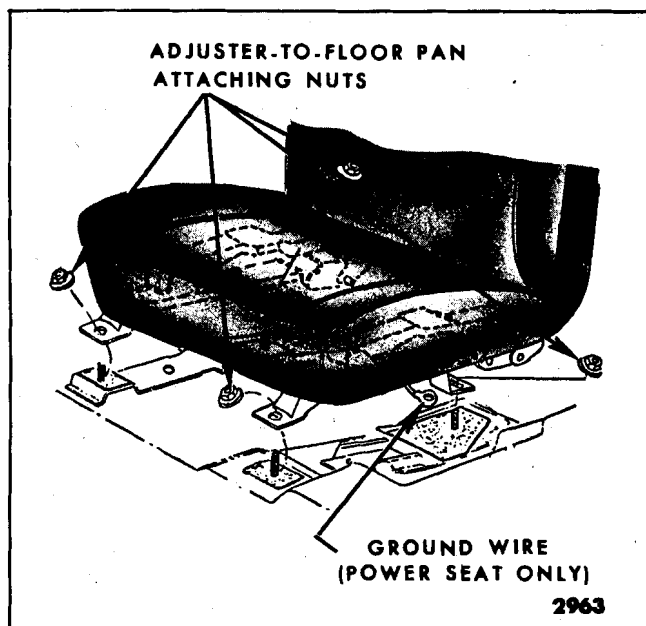


Fig. 14-37-Bucket Seat Floor Pan Attachment - "A and X" Styles

full width seat assembly, seat adjuster and seat adjuster components are the same as for the conventional full width front seat assembly - Refer to the appropriate section under "Front Seat Assembly - Full Width".

MANUALLY OPERATED BUCKET SEAT ASSEMBLY

Removal and Installation

1. Operate seat to full rearward position.
2. Turn back floor carpeting sufficiently to expose seat adjuster -to-floor pan attaching nuts or bolts (Figs. 14-37 and 14-14).
3. Operate seat to full rearward position. Remove adjuster-to-floor pan front attaching bolts or nuts (Figs. 14-37, 14-38 and 14-39). Operate seat to full forward position. Remove adjuster-to-floor pan rear attaching bolts or nuts. On seats with electric seat back locks disconnect lock solenoid wire from feed wire connector under rear of seat. Remove seat assembly from body.
4. To install, reverse removal procedure. Check operation of seat adjusters to full limits of travel. On seats with electric seat back locks, check operation of both seat back locks. If either seat back does not lock or unlock properly see "Trouble Diagnosis Chart - Strato Seats".

POWER OPERATED FOUR-WAY BUCKET SEAT ASSEMBLY

The four-way seat adjusters are actuated by a 12 volt,

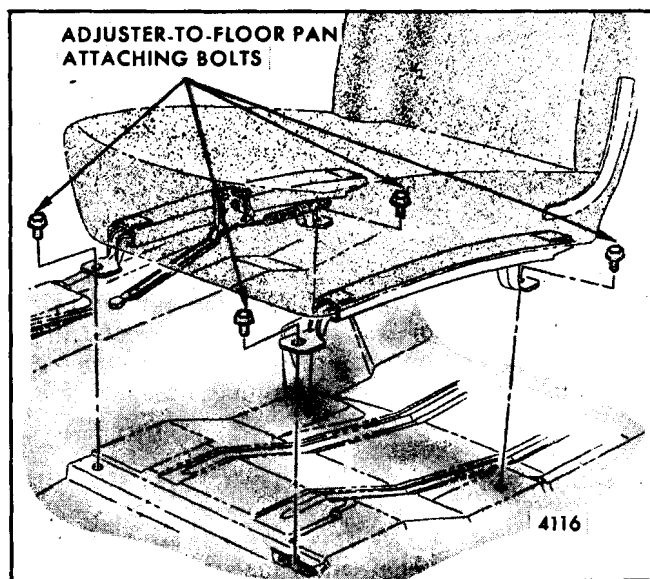


Fig. 14-38-Bucket Seat Floor Pan Attachment - "F" Styles

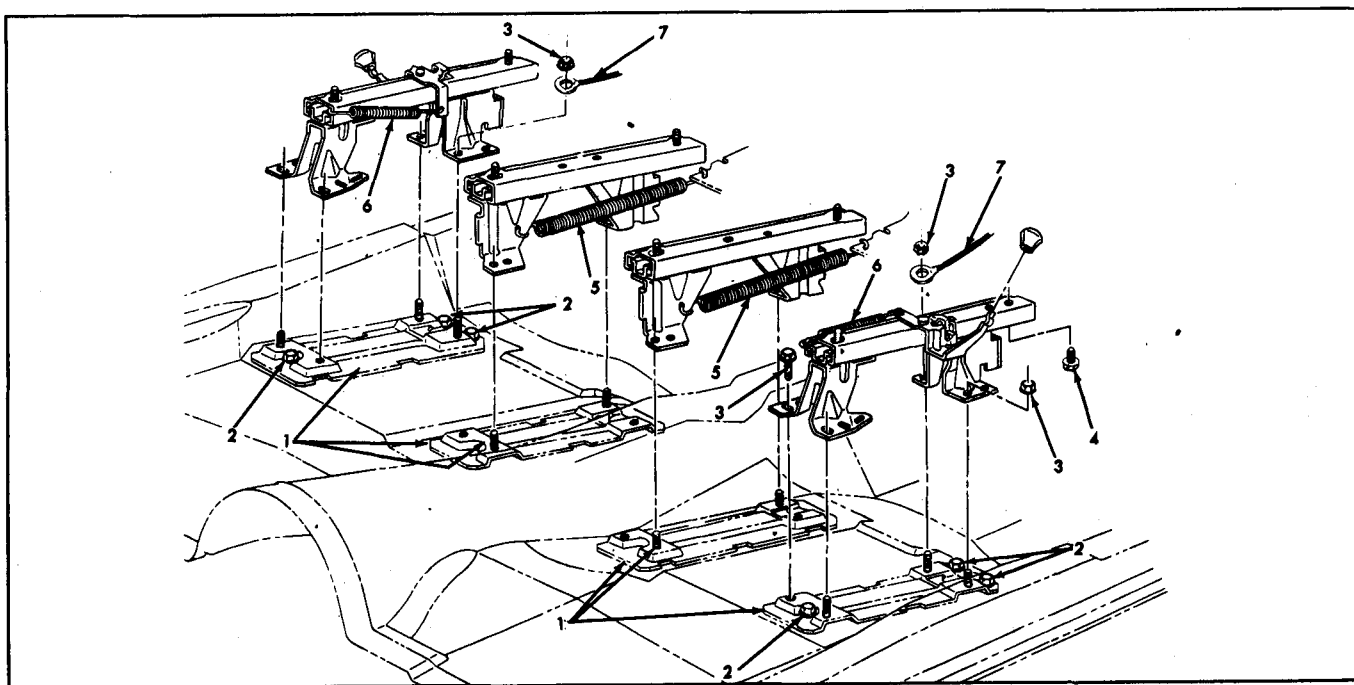


Fig. 14-39-Front Seat Adjusters - Manually Operated Strato Bucket - Buick "E" Body

- | | | | |
|--|---|-----------------------------|--|
| 1. Adjuster Floor Pan Anchor Plates and Studs | 3. Adjuster-to-Anchor Plate Attaching Bolts | 5. Adjuster Assist Spring | 7. Seat Frame-to-Adjuster Ground Wire With Electric Locks) |
| 2. Adjuster-to-Anchor Plate Attaching Bolts and Nuts | 4. Adjuster-to-Seat Frame Attaching Bolts | 6. Adjuster Lock Bar Spring | |

reversible shunt wound motor with a built-in circuit breaker.

The four-way seat adjuster operating mechanism incorporates a transmission assembly which includes two solenoids and two drive cables leading to the seat adjusters. One solenoid controls the vertical movement of the seat while the other solenoid controls the horizontal movement of the seat. When the control switch is actuated, the motor drives the transmission by means of a belt and one of the transmission solenoids is energized simultaneously. The solenoid plunger then engages with the drive cables and operates both adjusters. When the adjusters reach their limit of travel, the drive cables stop their rotating action and torque is absorbed by the rubber belt connecting the motor and transmission. When the switch contacts are opened, a return spring returns the solenoid plunger to its original position disengaging it from the driver gear dog.

Removal and Installation

- Operate seat to full forward and up position. Remove seat cushion side panels, where present. Where seat adjuster track covers are present, carefully pry out track cover snap-on retainers with a flat-bladed tool and remove track covers.
- Where necessary, remove sill plates and turn back floor carpeting to expose seat adjuster-to-floor pan attaching nuts and bolts.
- Remove seat adjuster-to-floor pan rear attaching bolts (Figs. 14-40 and 14-41).
- Operate seat to full rearward position. Remove seat adjuster-to-floor attaching bolts (Figs. 14-40 and 14-41). Tilt seat rearward sufficiently to disconnect seat harness feed connector and detach harness from clip on floor pan. On seats with electric seat back locks disconnect lock solenoid wire from feed wire connector. Remove seat assembly from body.
- To install, reverse removal procedure. Make sure ground wire is secured under adjuster inboard rear attaching nut or bolt. Check operation of seat adjusters to full limits of travel. On "A" Body Styles make sure floor carpet is properly positioned around rear supports of adjuster prior to installing carpet retainer on adjuster stud and adjuster rear attaching nuts. On seats with electric seat back locks check operation of both seat back locks. If either seat back does not lock or unlock properly see "Trouble Diagnosis Chart - Strato Seats".

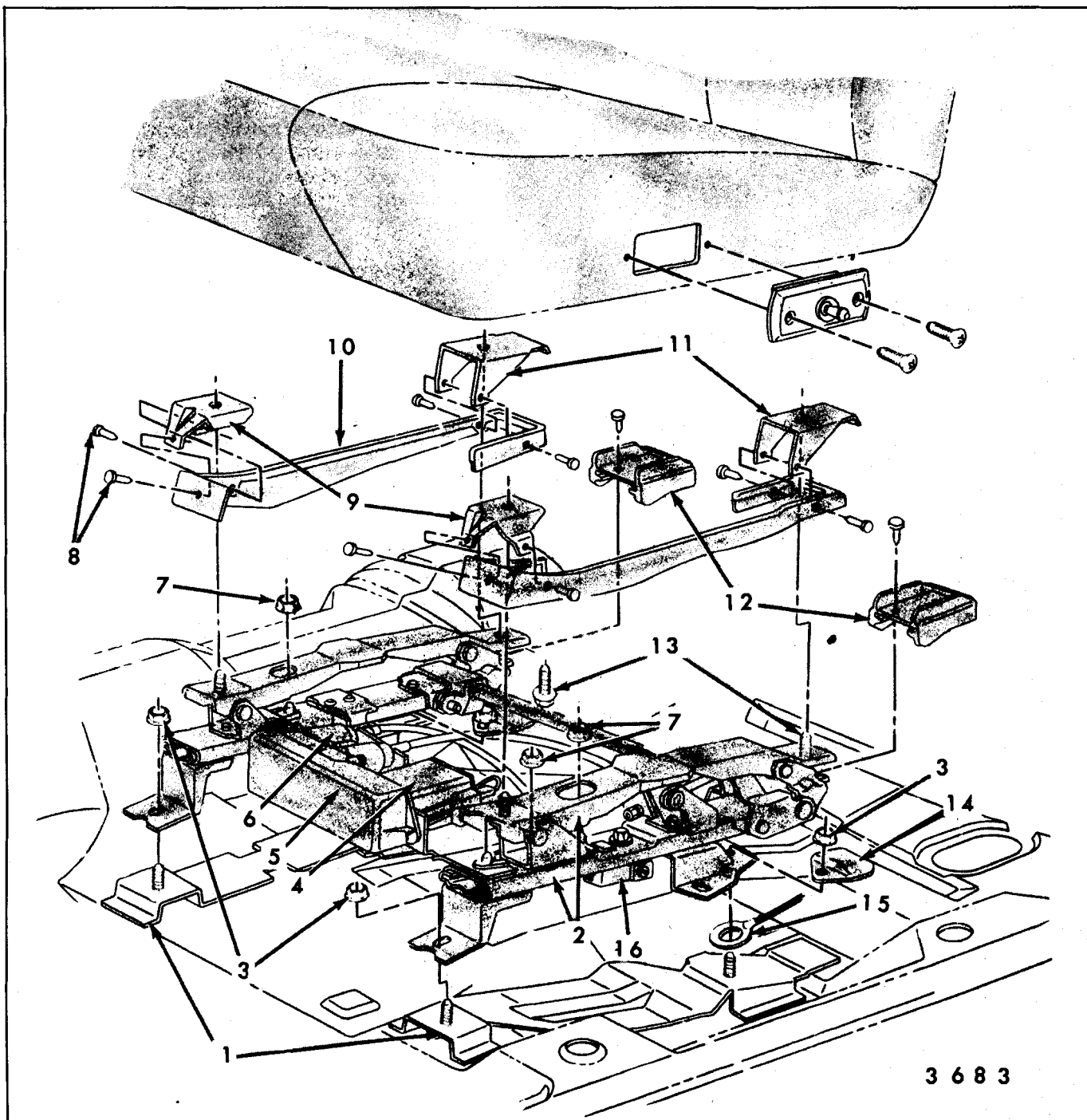


Fig. 14-40-Power Operated Four-Way Bucket Seat Adjusters - "A" Body Styles

- | | | | |
|--|--|---|--|
| 1. Adjuster Floor Pan Anchor Plates and Studs | 5. Motor and Transmission Drive Belt Cover | 8. Adjuster Track Cover Retainers | 12. Adjuster Track Lower Rear Cover |
| 2. Adjuster Assembly | 6. Transmission Assembly | 9. Adjuster Track Upper Cover Front Support | 13. Adjuster-to-Seat Frame Attaching Bolts |
| 3. Adjuster-to-Floor Pan Anchor Plate Attaching Nuts | 7. Motor and Transmission Support Attaching Nuts | 10. Adjuster Track Upper Cover | 14. Adjuster Rear Carpet Retainer |
| 4. Motor Assembly | | 11. Adjuster Track Upper Cover Rear Support | 15. Ground Strap |
| | | | 16. Adjuster Horizontal Actuator |

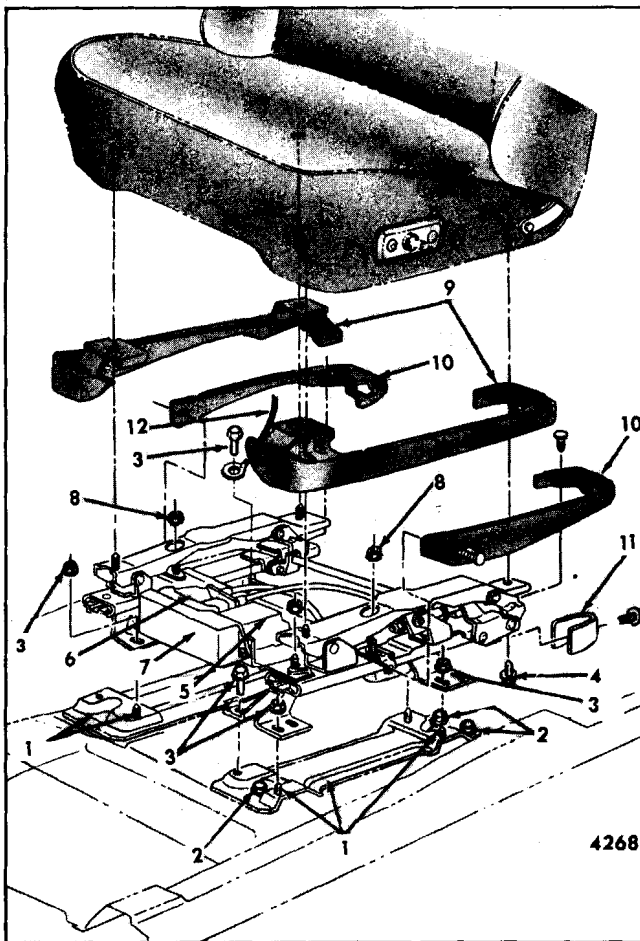


Fig. 14-41-Four-Way Power Operated Bucket Seat Adjusters - Buick "E" Body

- | | |
|--|--|
| 1. Adjuster Floor Pan Anchor Plates and Studs | 7. Motor and Transmission Drive Belt Cover |
| 2. Adjuster Floor Pan Outer Anchor Plate Attaching Bolts | 8. Motor and Transmission Support Attaching Nuts |
| 3. Adjuster-to-Anchorage Plate Attaching Bolts and Nuts | 9. Adjuster Upper Track Cover |
| 4. Adjuster-to-Seat Frame Attaching Bolts | 10. Adjuster Lower Track Cover |
| 5. Motor Assembly | 11. Adjuster Lower Rear Track Cover |
| 6. Transmission Assembly | 12. Seat Frame-to-Adjuster Ground Wire |

MANUALLY OPERATED BUCKET SEAT ADJUSTER

Removal and Installation

1. Remove bucket seat assembly, as previously described, and place seat upside-down on a clean, protected surface.
2. If replacing inboard adjuster, remove assist spring.

3. Operate adjuster so that both front and rear adjuster-to-seat frame attaching bolts are accessible; then, remove attaching bolts and remove adjuster from seat assembly.
4. To install, reverse removal procedure. If adjuster with control arm and knob is being replaced, install new adjuster control knob. Refer to "Manually Operated Seat Adjuster Control Arm Knob".

POWER OPERATED FOUR-WAY BUCKET SEAT ADJUSTER

Removal and Installation

1. Operate seat assembly to fully raised and midway horizontal positions.
2. Remove front seat assembly from body with attached adjusters, motor and transmission, as previously described, and place upside-down on a clean, protected surface.
3. If outboard adjuster is being removed, disconnect both, horizontal and vertical, drive cables from vertical gearnut and horizontal actuator (Figs. 14-40, 14-41 and 14-42).
4. Remove nuts securing motor and transmission support to adjuster being removed (Figs. 14-40, 14-41 and 14-42).
5. Remove adjuster-to-seat bottom frame front and rear attaching bolts securing adjuster to be removed (Figs. 14-40, 14-39 and 14-42).
6. Carefully disengage adjuster from support, and torque tube; then, remove adjuster from seat.
7. To install power operated four-way bucket seat adjuster assembly, reverse removal procedure. Check for proper operation of seat adjusters to limits of travel.

POWER OPERATED FOUR-WAY BUCKET SEAT ADJUSTER MAJOR COMPONENTS

The following service procedures cover replacement of the major component parts of the power operated four-way seat adjuster used on bucket seats.

MOTOR AND TRANSMISSION DRIVE BELT AND PULLEYS

Removal and Installation

1. At front of seat remove motor and transmission

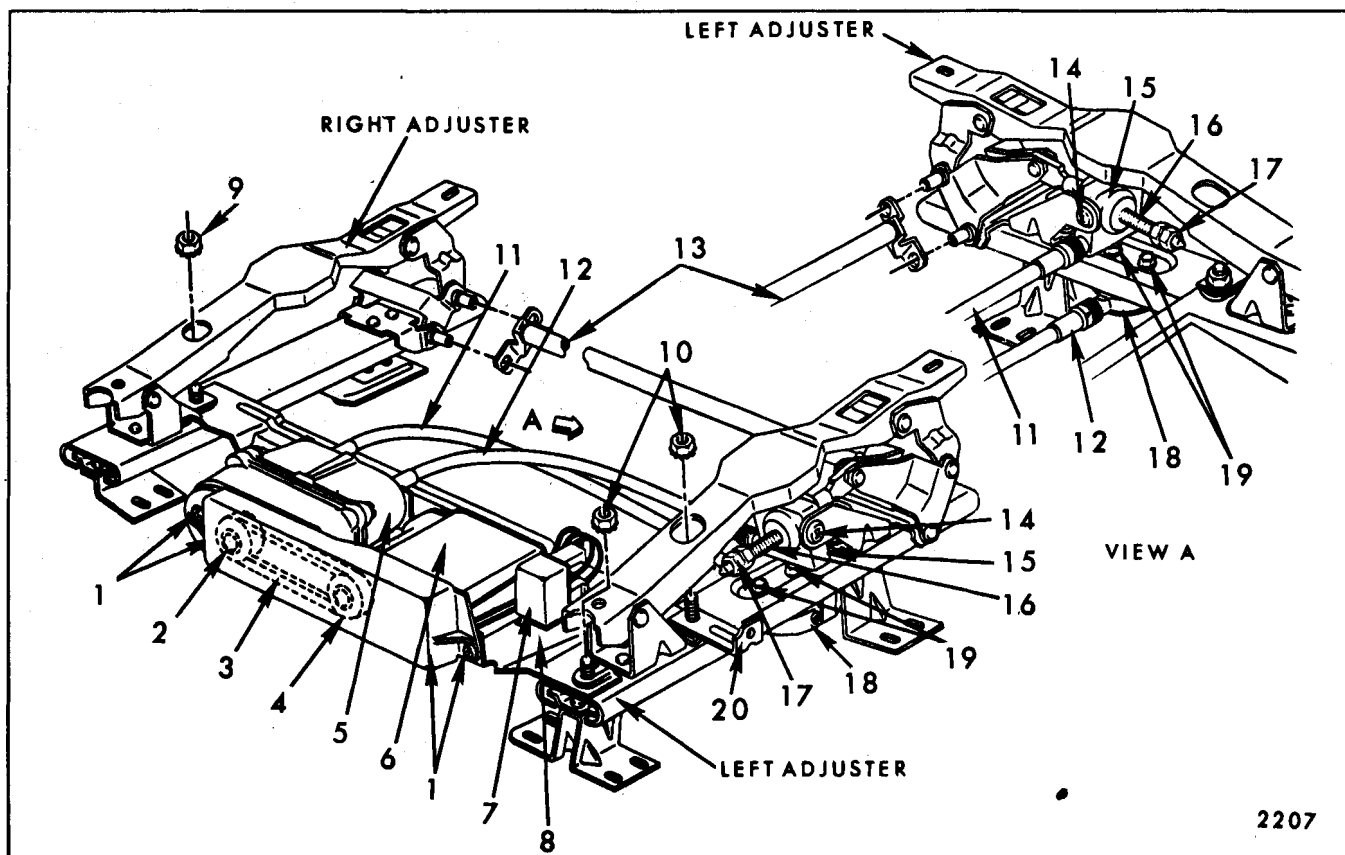


Fig. 14-42-Power Operated Four-Way Bucket Seat Adjusters

- | | | | |
|---|---|--|---|
| 1. Motor and Transmission Drive Belt Cover and Attaching Screws | 6. Electric Motor Assembly | 11. Adjuster Horizontal Drive Cable | 16. Adjuster Vertical Jackscrew |
| 2. Transmission Drive Pulley | 7. Electric Motor Relay | 12. Adjuster Vertical Drive Cable | 17. Adjuster Vertical Jackscrew Stop Nuts |
| 3. Transmission and Motor Drive Belt | 8. Motor and Transmission Support | 13. Adjuster Torque Tube | 18. Adjuster Horizontal Actuator Assembly |
| 4. Motor Drive Pulley | 9. Motor and Transmission Support-to-Right Adjuster Attaching Nut | 14. Adjuster Vertical Gearnut Shoulder Screw | 19. Adjuster Horizontal Actuator Attaching Screws |
| 5. Transmission Assembly | 10. Motor and Transmission Support-to-Left Adjuster Attaching Nut | 15. Adjuster Vertical Gearnut Assembly | 20. Seat Side Panel Support |

drive belt cover attaching screws and remove cover (Fig. 14-42).

- Remove drive belt from both motor and transmission drive pulleys. Pulleys may be removed from either motor or transmission by pulling off their respective shafts (Fig. 14-42).
- To install drive belt, reverse removal procedure. Check for proper operation of seats to full limits of travel.

MOTOR ASSEMBLY

Removal and Installation

- If motor can be operated, operate seat assembly to

full "up" position. Disconnect wire harness connector from motor relay.

- Remove motor-to-transmission drive belt cover and drive belt, as previously described.
- From under motor and transmission support remove two cap screws securing motor to motor-and-transmission support and remove motor assembly from under seat.
- To install, reverse removal procedure. Check for proper operation of seat to full limits of travel.

TRANSMISSION ASSEMBLY AND HORIZONTAL AND VERTICAL DRIVE CABLES

Removal and Installation

1. Remove front seat assembly from body with attached adjusters, motor and transmission, as previously described, and place upside-down on a clean, protected surface.
2. Disconnect wire harness connector from transmission.
3. Remove motor and transmission drive belt cover and remove drive belt (Fig. 14-42).
4. Remove two screws securing transmission assembly to motor and transmission support; then, move transmission forward to disengage from drive cables and remove transmission from seat.

NOTE: To remove horizontal or vertical drive cables, detach drive cable from adjuster and remove cable.

Disassembly and Assembly of Transmission

1. Remove front seat adjuster transmission from seat assembly.
2. Remove screws securing rear and solenoid housings together; then, carefully separate housings and remove component parts of transmission assembly.
3. To assemble transmission, reverse removal procedure.

IMPORTANT: Prior to or during installation, lubricate frictional surfaces of driving gear thrust washer, gears, dog washers, shaft and solenoid plungers with "Lubriplate" (630AAW) or equivalent.

4. To install transmission assembly, reverse removal procedure. Make certain drive cables are properly engaged in transmission and properly retained in cut out notches of motor and transmission support prior to installing transmission attaching screws.
5. Check for proper operation of seat to full limits of travel.

ADJUSTER VERTICAL GEARNUIT

Removal and Installation

1. Operate seat assembly to full raised and midway horizontal position.

2. Remove front seat assembly from body and place upside-down on a clean, protected surface.
3. Using a clutch type screwdriver or other suitable tool, remove shoulder screws securing linkage to vertical gearnut (Fig. 14-42).
4. Remove jackscrew "down" stop from jackscrew (Fig. 14-42).
5. Using a portable power source to energize the motor, actuate vertical gearnut until gearnut is disengaged from jackscrew.

NOTE: It may be necessary to manually raise or lower upper rear portion of adjuster to gain clearance for removal of gearnut.
6. Disconnect drive cable from gearnut.
7. To install, reverse removal procedure. Check seat adjusters for proper operation.

ADJUSTER JACKSCREW

Removal and Installation

1. Remove adjuster gearnut as previously described.
2. Remove seat adjuster-to-seat bottom frame front and rear attaching bolts.
3. As a bench operation, remove jackscrew-to-adjuster linkage attaching rivet and remove jackscrew from adjuster assembly (Fig. 14-42).

NOTE: It may be necessary to manually raise or lower upper rear portion of adjuster to gain access to jackscrew attaching rivet.

4. To install, reverse removal procedure. Use new rivet to attach jackscrew-to-adjuster linkage. Check seat adjusters for proper operation.

ADJUSTER HORIZONTAL ACTUATOR ASSEMBLY

Removal and Installation

1. Remove front seat assembly from body as previously described and place upside-down on a clean, protected surface.
2. Using a clutch type screwdriver or other suitable tool, remove shoulder screws securing linkage to vertical gearnut (Fig. 14-42).
3. Using a portable power source, actuate vertical gearnut until gearnut is against "down" stop on jackscrew assembly.

4. Disconnect drive cable from horizontal actuator assembly.
5. Remove screws securing horizontal actuator assembly to adjuster lower track; then, remove actuator from adjuster assembly (Fig. 14-42).
6. To install, reverse removal procedure.

NOTE: When installing horizontal actuator, adjust actuator so that drive gear is fully engaged with teeth on lower channel. When horizontal actuator attaching screws are tightened, there should be no free motion between upper and lower channels. Re-adjust actuator "as required" until all free motion between channels has been removed. Check seat adjusters for proper operation.

TORQUE TUBE ASSEMBLY

Removal and Installation

1. Remove inboard seat adjuster assembly, as previously described.
2. Disengage torque tube from outboard adjuster and remove torque tube assembly (Fig. 14-42).
3. To install torque tube assembly, reverse removal procedure. Check for proper operation of seat to full limits of travel.

ADJUSTABLE FRONT SEAT BACK ASSEMBLY (Drivers Side Only)-Chevrolet "F" Body Style

Description

The optional adjustable front seat back (drivers side) can be adjusted to three positions by means of a control handle located at the right rear of the drivers seat cushion. With the control handle in the full rearward position the seat back is adjusted to the full rearward position; when the control handle is actuated (rotated) forward the seat back is adjusted forward to a normal or full position.

Removal and Installation-Handle, Cams, Cam Rod, Detent Plate and Spring

The handle, outer cam, cam rod, detent plate, inner cam and spring are removed in the order stated.

1. At inner side of seat remove handle screws (see Figs. 14-43 and 14-45) and remove handle.
2. At left side of seat, remove nut securing outer cam to cam rod (see Figs. 14-44 and 14-45) and remove cam from rod.

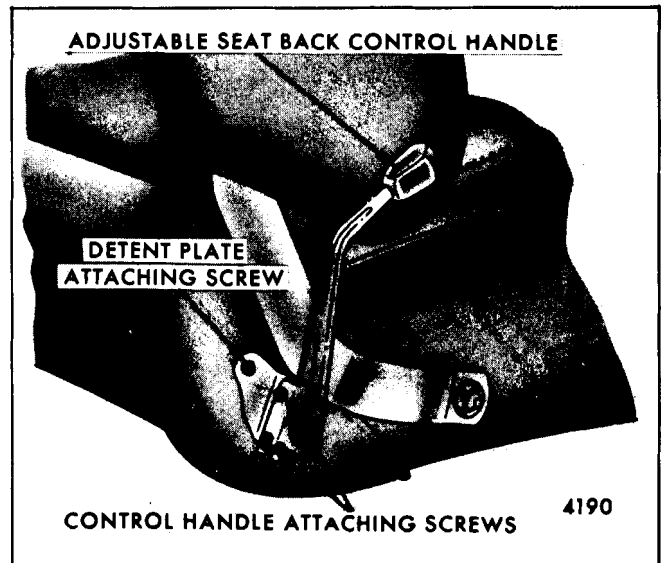


Fig. 14-43-Adjustable Drivers Seat Back - Inner Side - Chevrolet "F" Styles

3. At outer side of seat remove nut securing outer cam to cam rod (Fig. 14-44) and remove handle and cam (see Figs. 14-44 and 14-45).
4. To remove cam rod, pull rod out of seat cushion from inner side of seat (see Fig. 14-45).

NOTE: It may be necessary to turn cam rod until keyed end of rod can be pulled through key way in hole of seat frame. Where required, remove inner cam and spring from cam rod.

5. Remove screw securing inner detent plate and remove detent plate (see Figs. 14-43 and 14-45).

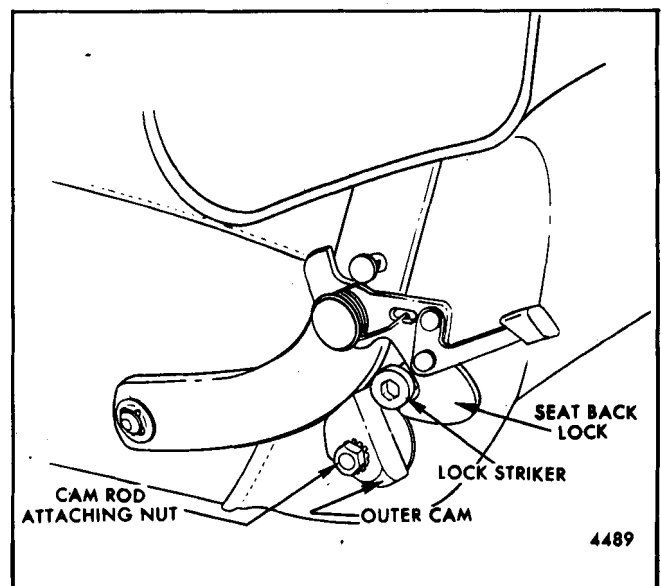


Fig. 14-44-Adjustable Drivers Seat Back - Outer Side - Chevrolet "F" Styles

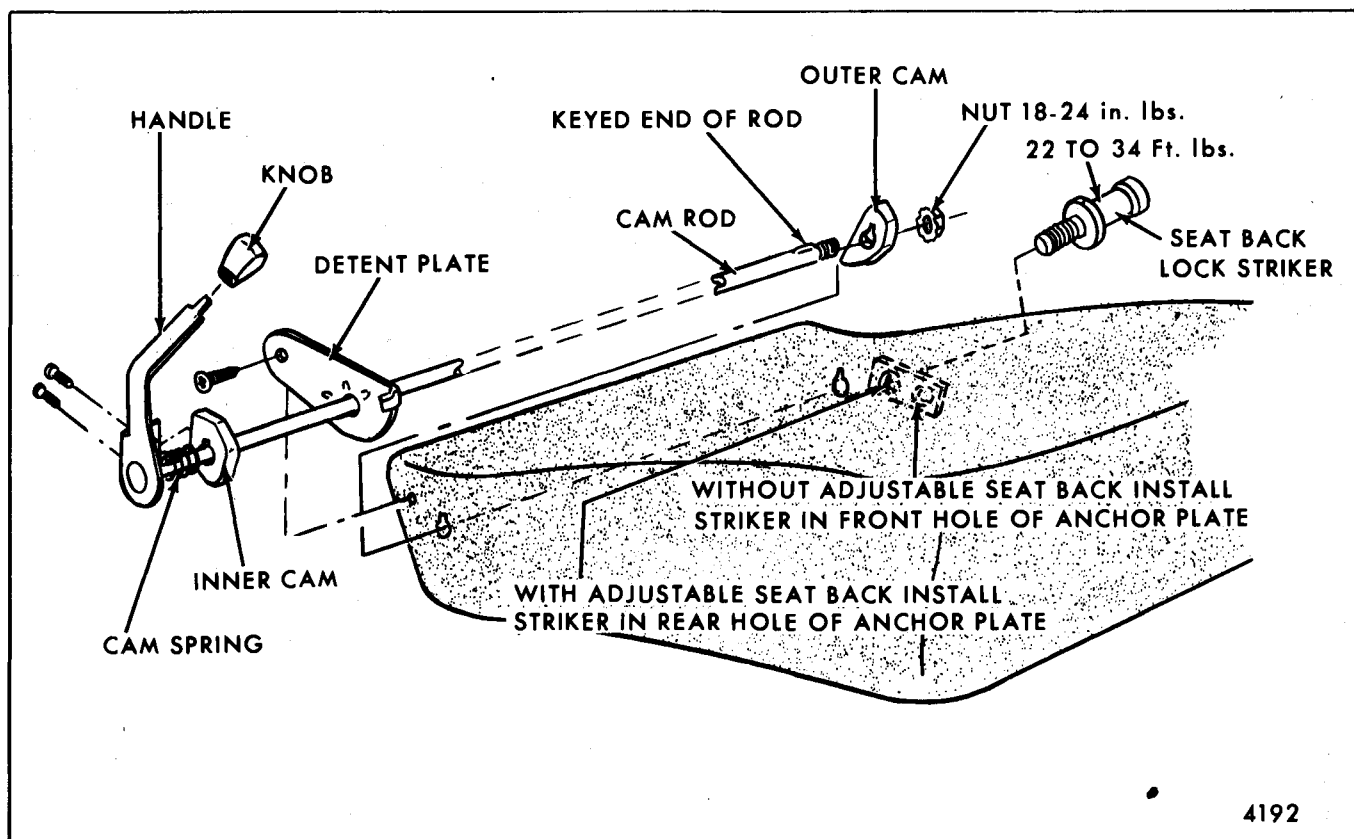


Fig. 14-45-Adjustable Drivers Seat Back Handle, Cams, Cam Rod, Detent Plate and Spring Removal and Installation from Seat Cushion - Chevrolet "F" Styles

6. To install adjustable seat back cam rod, detent plate, cams, spring and handle reverse removal procedure. Check adjustable seat back for proper operation. Tighten cam rod nut 18-24 in. lbs.

SEAT BACK LOCK STRIKER AND SEAT BACK SIDE INNER BAR STOP-"F" Body Styles

Description

Both the seat back lock striker located on the outboard side of the seat cushion and seat back side inner bar stop located on the inboard side of the seat cushion of a single metal bolt and washer assembly threaded into a tapped plate located in the seat cushion frame assembly.

Removal and Installation

1. Using door and tail gate striker removal tool J-23457 or equivalent remove striker or stop from seat back side arm.
2. To install striker or stop, start thread engagement

by hand to assure that bolts is threaded straight then tighten striker or stop 22 to 34 ft. lbs.

IMPORTANT: On the DRIVERS seat ONLY two threaded holes are provided in the outboard anchor plate for installation of the seat back lock striker. The striker must be installed in the FRONT threaded hole on a drivers seat WITHOUT adjustable seat back. On a drivers seat WITH adjustable seat back the striker must be installed in the REAR threaded hole (see Fig. 14-45).

IMPORTANT: THE SEAT BACK LOCK STRIKER AND SEAT BACK SIDE INNER BAR STOP ARE IMPORTANT ATTACHING PARTS IN THAT THEY COULD AFFECT THE PERFORMANCE OF VITAL COMPONENTS AND SYSTEMS. THEY MUST BE REPLACED WITH ONE OF THE SAME PART NUMBER OR WITH AN EQUIVALENT PART IF REPLACEMENT BECOMES NECESSARY. DO NOT USE A REPLACEMENT PART OF LESSER QUALITY OR SUBSTITUTE DESIGN. TORQUE VALUES MUST BE USED AS SPECIFIED DURING REASSEMBLY TO ASSURE PROPER RETENTION OF THIS PART.

STRATO FRONT SEAT BACK PANEL

Removal and Installation

1. Remove head restraint from seat back.
2. Using a flat-bladed tool, carefully snap off seat back lock push button and escutcheon assembly and remove two screws securing seat back panel to lock assembly (Fig. 14-46).
3. Tilt seat back forward and remove three screws securing bottom of seat back panel to seat back frame (Fig. 14-46).
4. Pull bottom of seat back panel outward and lift panel upward to disengage panel from upper retainers; then, remove panel from seat back.
5. To install seat back panel, reverse removal procedure. When snapping on seat back lock push button and escutcheon assembly, make sure assembly is installed right side up with contour of side flanges matching contour of seat back panel.

STRATO FRONT SEAT BACK HEAD RESTRAINTS

Operation and Removal

Front seat back head restraints are standard factory installed equipment for the driver and right front

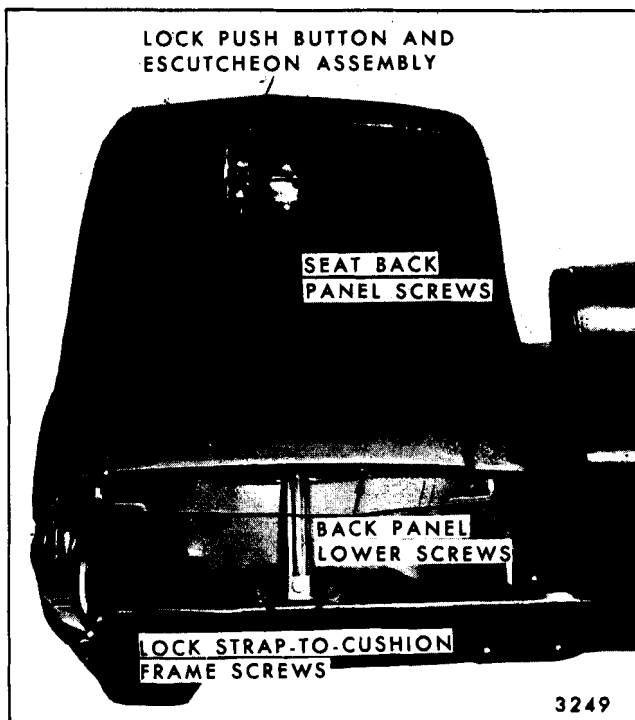


Fig. 14-46-Strato Back Panel Removal

passenger. They can be adjusted to two heights (low or high) or removed by pushing the locking lever "in" at the head restraint post escutcheons, forward and adjusting the head restraint "up" or "down" or removing the head restraint from the seat.

STRATO SEAT BACK HEAD RESTRAINT RETAINER AND GUIDE TUBE

Removal and Installation

1. Remove head restraint from seat back. Remove escutcheon and lock assembly attaching screws and remove assembly (Fig. 14-47).
2. Remove two screws securing retainer to seat back (Fig. 14-47).
3. Remove seat back panel, as previously described.
4. Detach seat back trim cover sufficiently to expose upper end of guide tube.
5. Remove screw securing upper flange of guide tube to seat back frame; then, pull tube out of supports (Fig. 14-47).
6. To install guide tube and retainer, reverse removal procedure.

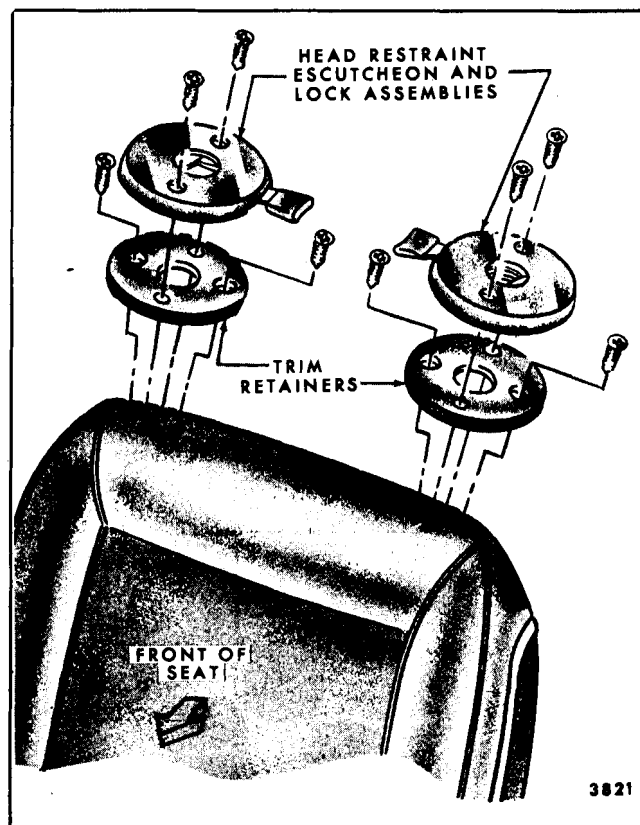


Fig. 14-47-Head Restraint - Strato Seats

STRATO FRONT SEAT BACK MANUALLY OPERATED LOCK ASSEMBLY AND ELECTRICALLY OPERATED ACTUATOR ASSEMBLY

Removal and Installation

1. Remove front seat back panel, as previously described. On seats with electric seat back locks, disconnect solenoid feed wire at connector (Fig. 14-49).

IMPORTANT: If removing and reinstalling same lock or actuator assembly, install lock-up screw (8-32 x 1/2" screw) at location shown in Figure 14-48.

2. Remove lock strap-to-cushion frame attaching screws (Fig. 14-48).
3. Remove lock or actuator assembly attaching screws and remove assembly from seat back (Fig. 14-48).

4. To install seat back lock or actuator assembly, reverse removal procedure.

IMPORTANT: After all lock or actuator assembly attaching screws, including lock strap-to-cushion frame screws, have been tightened, REMOVE lock-up screw at location shown in Figure 14-48.

NOTE: If any service operations have been performed on the seat back where the lock solenoid wire has been disturbed, make certain solenoid wire is routed and secured to the seat back frame, as shown in Figure 14-49.

Check for proper operation of seat back lock. When seat back is returned to upright (normal) position the locking effort applied rearward at upper outboard corner of seat back is 0-10 lbs. maximum. If seat back does not lock or unlock properly refer to "Electric Seat Back Lock Trouble Diagnosis Chart - Strato Seats".

ELECTRIC SEAT BACK LOCK TROUBLE DIAGNOSIS CHART - TWO-DOOR STYLE STRATO SEATS

CONDITION	APPARENT CAUSE	CORRECTION
1. Seat back lock does not lock when doors are closed.	1. Current at actuator solenoid does not cut off - jamb switch remains open. 2. Seat back relay contacts sticking. 3. Seat back does not return to upright position far enough to allow lock to engage into locked position. Check for excessive trim build-up; also check bumper thickness (specified bumper is 1/2" thick).	1. Refer to Electrical Checking Procedure - where required, install new jamb switch. 2. Refer to Electrical Checking Procedure - where required, install new relay. 3. Check thickness of both seat back bumpers - where required, install correct thickness bumpers or, if necessary, slightly thinner bumpers. Locking effort applied rearward at upper outboard corner of seat back is 0-10 lbs. maximum.
2. Seat back lock will not unlock when door(s) are open.	1. No current at actuator solenoid - blown fuse, defective jamb switch or seat back relay, or short in wiring. 2. Bind in lock or lock linkage.	1. Refer to Electrical Checking Procedure. 2. Locate and eliminate bind or where required, install new lock and solenoid assembly (actuator assembly).

**ELECTRIC SEAT BACK LOCK TROUBLE DIAGNOSIS
CHART - TWO-DOOR STYLE STRATO SEATS**

CONDITION	APPARENT CAUSE	CORRECTION
3. Seat back lock unlocks but solenoid flutters or solenoid circuit breaker cuts in and out.	<p>1. Bind in lock or linkage which does not allow solenoid to completely deactivate pull in coil.</p> <p>2. Actuator solenoid plunger is not completely deactivating pull in coil with no bind present in lock or linkage - lock operates okay manually.</p>	<p>1. Locate bind or interference and eliminate or, where required, install new lock and solenoid assembly (actuator assembly).</p> <p>2. Check solenoid as described under "Electrical Checking Procedure" - where required, install new lock and solenoid assembly (actuator assembly).</p>

STRATO BUCKET SEAT BACK ASSEMBLY

Removal and Installation

1. Remove seat assembly from body, as previously described, and place on a clean, protected surface.
2. On styles with electric actuated seat back locks remove hog rings securing seat cushion trim rear bar facing under seat (see Fig. 14-50) turn back cushion trim rear bar facing sufficiently to feed the seat back lock wire up through the grommet

in the top of the cushion trim rear bar facing (see Fig. 14-50).

3. With seat side panels removed, remove hog rings securing seat cushion trim side trim at rear and bottom of seat and turn back trim sufficiently to expose seat back hinge-to-seat cushion frame attaching bolts (Fig. 14-51).
4. Remove seat back hinge-to-seat cushion frame attaching bolts from both sides of seat and remove seat back assembly from seat cushion (Fig. 14-51).
5. To install seat back assembly, reverse removal procedure. Check for proper operation of seat back locks.

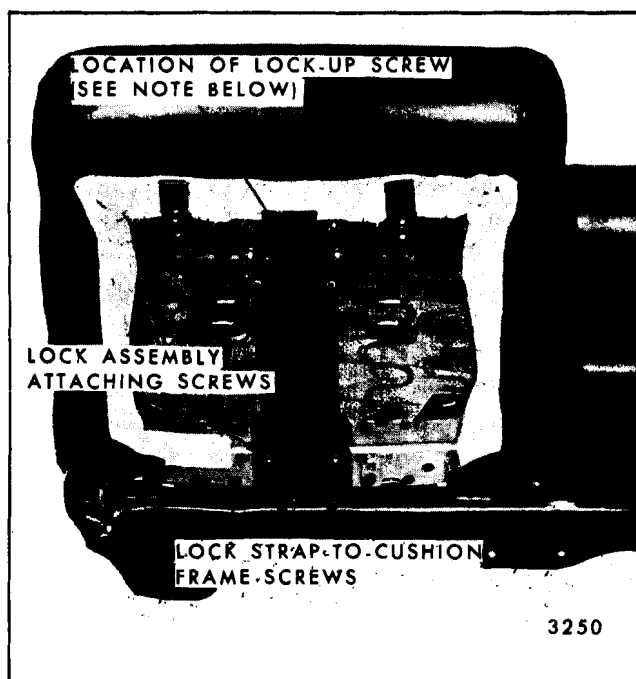


Fig. 14-48-Strato Seat Back Lock Assembly

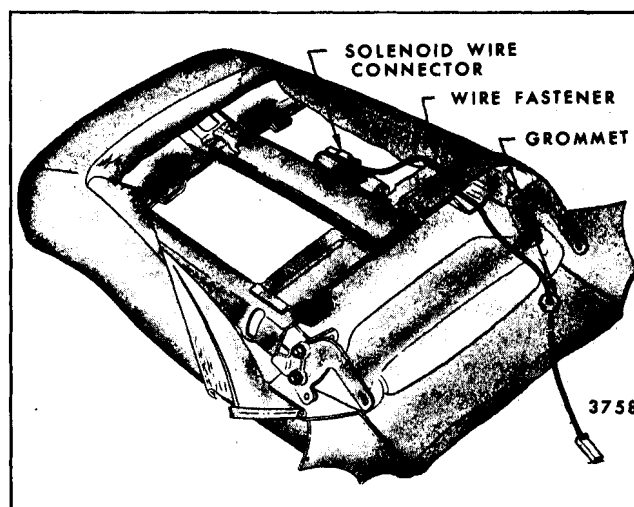


Fig. 14-49-Electric Seat Back Wire Routing through Seat Back-Strato Seats

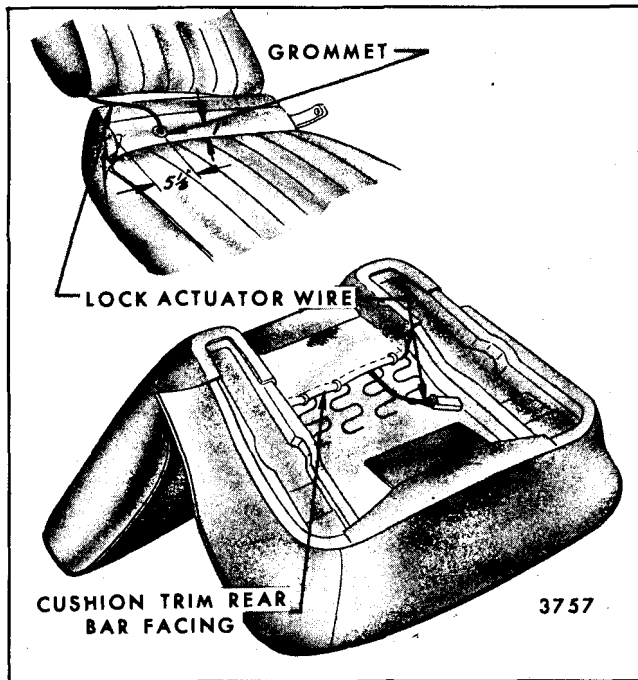


Fig. 14-50-Electric Seat Back Wire Routing through Seat Cushion-Strato Seats

NOTE: If any service operations have been performed on the seat back where the lock solenoid wire has been disturbed, make certain

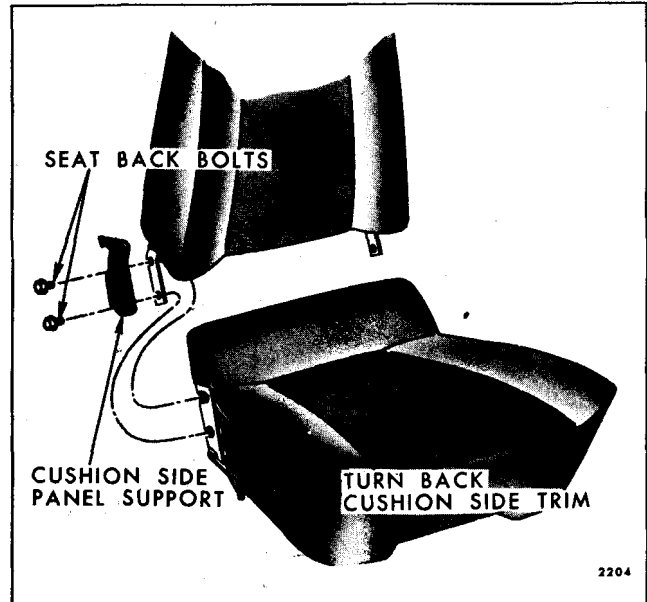


Fig. 14-51-Bucket Seat Back Removal

solenoid wire is routed and secured to the seat back frame, as shown in Figure 14-49.

- To install, reverse removal procedure. Prior to installing seat assembly in body, check for proper operation of seat back lock.

REAR SEATS

REAR SEAT CUSHION- All Styles

Removal

- Push lower forward edge of seat cushion rearward; then, lift upward and pull forward on seat cushion frame to disengage cushion frame wires from retainers on rear seat pan (Figs. 14-53, 14-52 and 14-54).

NOTE: If difficulty is experienced in disengaging the front edge of the rear seat cushion from retainers on rear seat pan it may be necessary to kneel (on four-door styles) or stoop (on two-door styles) on the rear floor pan. Grasp lower edge of seat cushion at location of retainer on one side of seat; then, lean forward (towards seat cushion) using leg pressure against hands or arms, exert sufficient rearward pressure to disengage seat from retainers.

Installation

- Carefully lift cushion into body using caution not to damage adjacent trim.

- Position rear edge of cushion under rear seat back assembly. On "A" Body four-door styles make certain rear portion of seat cushion frame is engaged with retainer on rear seat pan.
- Align wire protrusions on front of seat cushion frame with retainers on floor pan. Push seat cushion assembly rearward until protrusions engage in retainers; then, press down and pull cushion forward to fully engage in retainers.

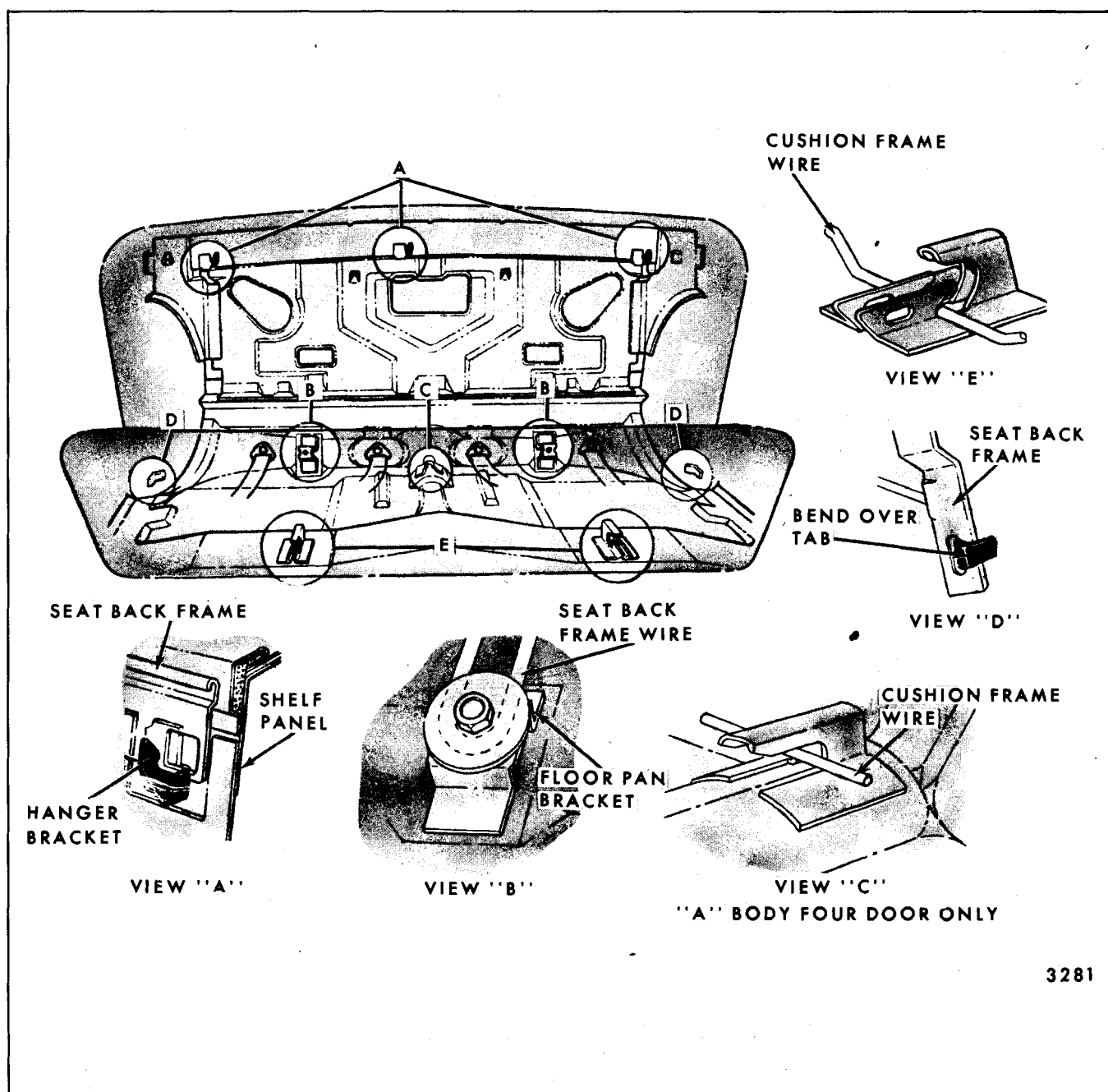
NOTE: If difficulty is experienced in engaging front of cushion in retainers, use the same method described under step 1 of "Removal", to engage cushion in retainers.

IMPORTANT: If seat cushion frame protrusions are not properly centered in relation to retainers on seat pan, proper engagement and placement of cushion will be extremely difficult.

REAR SEAT BACK ASSEMBLY- All Styles Except Station Wagons

Removal and Installation

- Remove rear seat cushion assembly.



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Fig. 14-52-Rear Seat Cushion and Back Installation - "A" Body Styles Except Three Seat Station Wagons

2. At bottom of seat back bend out tabs and where present, remove screws securing the lower portion of the seat back to floor panel. On convertible styles, remove screw from rear side of seat back panel support securing upper corners of seat back to panel (see Figs. 14-53, 14-52 and 14-54).
- NOTE: If screws are used to secure center of rear side to seat back panel it will be necessary to work from inside rear compartment to remove screws.
3. Pull seat back assembly out at the bottom until seat back clears body tabs; then, on all styles except "E" styles, raise seat back upward until disengaged from hangers on the seat back panel support. On "E" styles push seat back downward until wire protrusions at top of seat back are disengaged from slots in seat back panel support.
4. Remove seat back assembly from body.

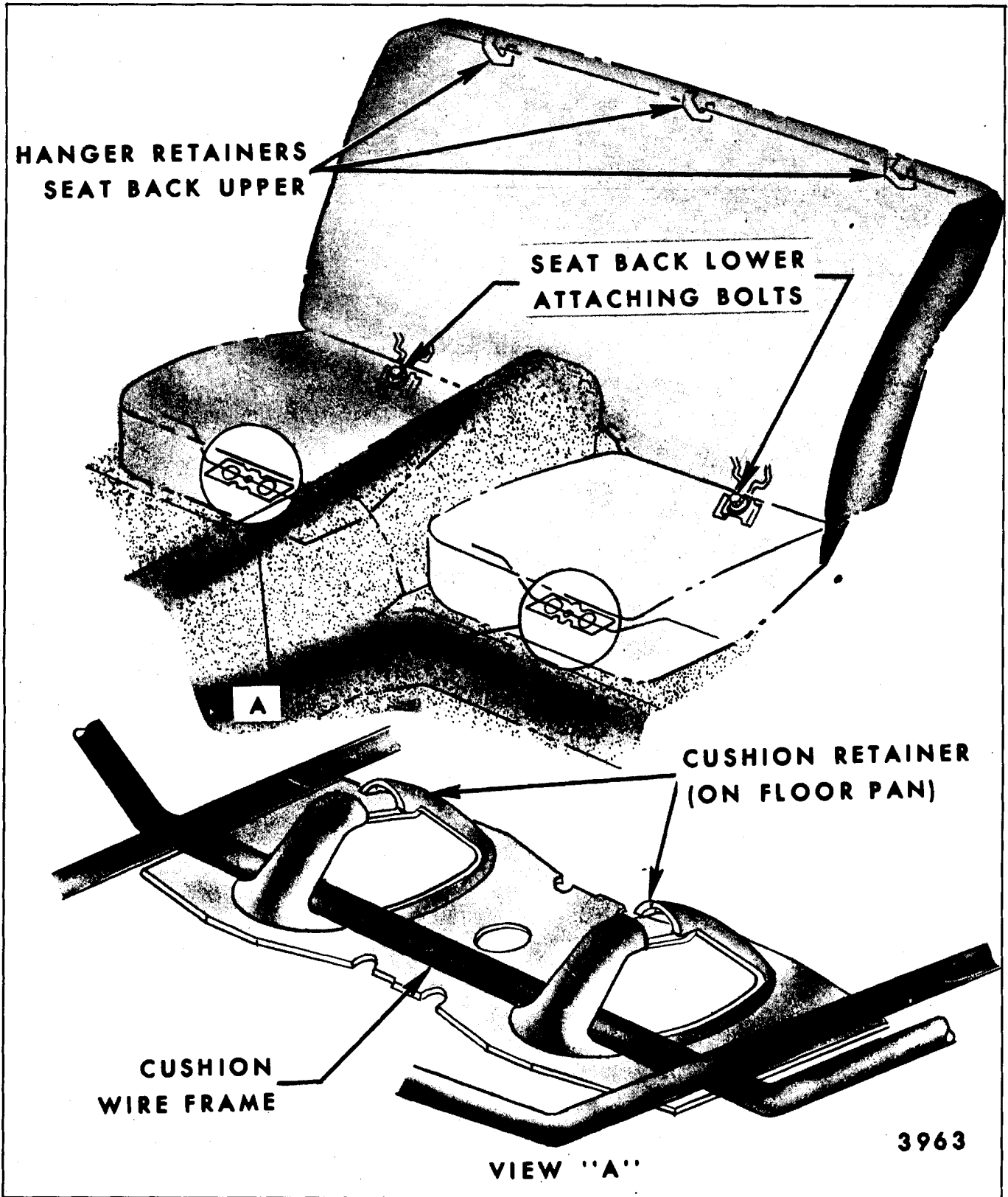


Fig. 14-53-Rear Seat Cushion and Back Installation - "F" Body Styles

5. To install, reverse removal procedure, making certain that all attaching body tabs and hangers

have industrial body tape applied to them to act as an anti-squeak.

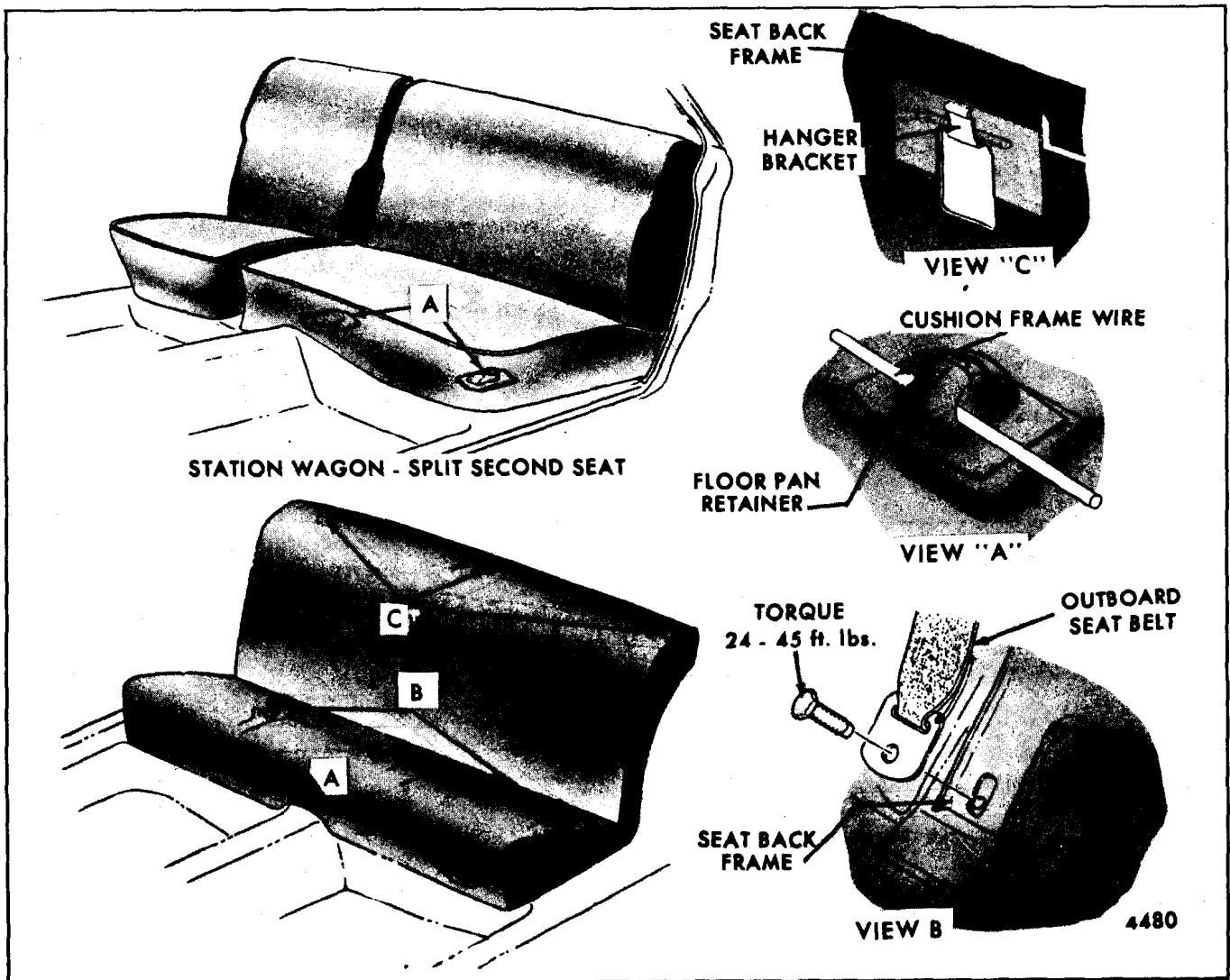


Fig. 14-54-Rear Seat Cushion and Back Installation - "B-C" Body Styles

IMPORTANT: On "B" and "C" body styles make sure rear seat outer lap straps are properly secured under seat back lower attaching bolts (see Fig. 14-54) - tighten bolts 24 to 45 ft. lbs.

REAR SEAT BACK CENTER ARM REST AND CURTAIN

Removal and Installation

1. Lower rear seat back arm rest. On all styles except 68169 carefully pull upper portion of arm rest curtain out of slot in hanger plate and fold curtain forward. On 68169 styles, fold arm rest flipper forward.
2. Remove four screws securing arm rest to hanger plate linkage then, remove arm rest from seat back.
3. To install, reverse removal procedure.

REAR SEAT BACK CENTER ARM REST HANGER PLATE AND LINKAGE

Removal and Installation

1. Remove rear seat back center arm rest; then, remove two screws securing arm rest hanger plate to body seat back support brace. Remove rear seat back.
2. On back side of rear seat back, remove four screws securing arm rest hanger plate to seat back supports; then, carefully remove arm rest and hanger plate assembly from seat back (Fig. 14-55).
3. To install, reverse removal procedure. Prior to tightening hanger plate screws move arm rest assembly upward until top is snug against top of opening in seat back.

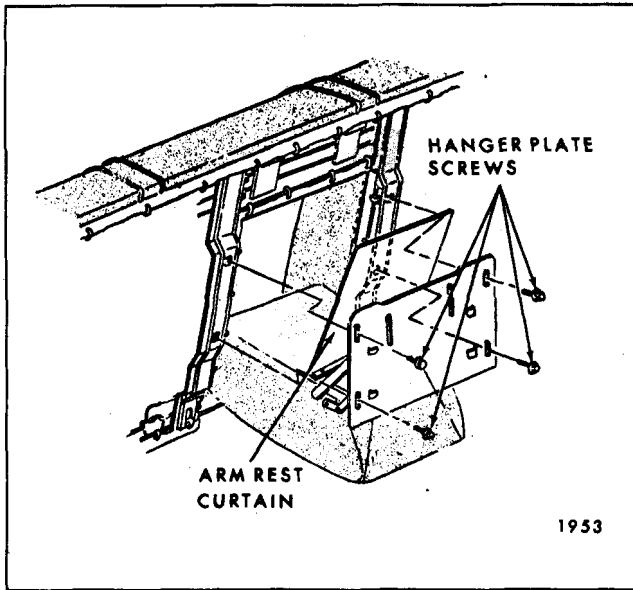


Fig. 14-55-Rear Seat Back Arm Rest and Hanger Plate

AUXILIARY SEAT ASSEMBLY- Cadillac Limousine Styles

Removal and Installation

1. Place auxiliary seat in the folded forward position.
2. Move rear seat foot rest rearward; then, unsnap

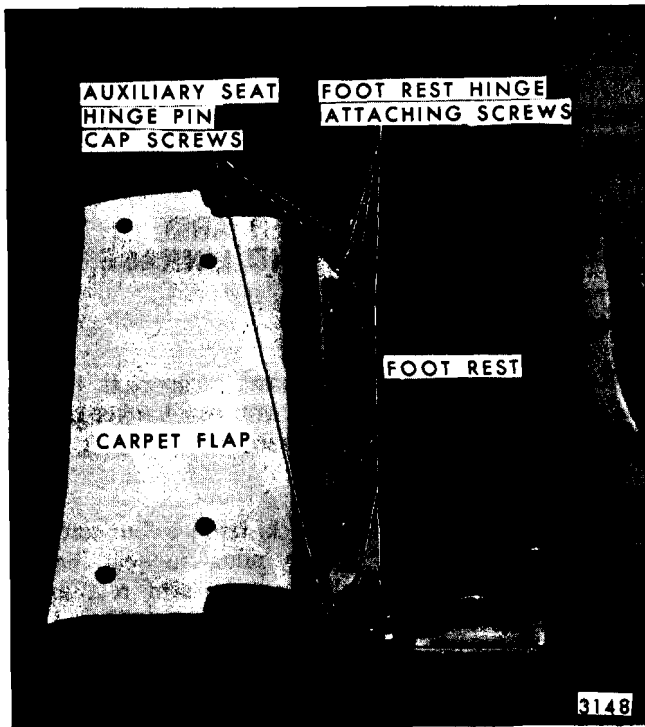


Fig. 14-56-Auxiliary Seat Assembly - Removal and Installation - Cadillac Limousine Styles

carpet flap. Move foot rest forward and carefully pull carpet flap from under foot rest, as shown in Figure 14-56.

3. Remove foot rest hinge attaching screws and remove foot rest assembly (Fig. 14-56).
4. Remove auxiliary seat hinge pin cap screws; then, remove cap and auxiliary seat assembly (Fig. 14-56).
5. To install auxiliary seat assembly, reverse removal procedure.

AUXILIARY SEAT ADJUSTMENT- Cadillac Limousine Styles

The auxiliary seats in Cadillac Limousine Styles can be adjusted to provide additional leg room for auxiliary seat passengers.

The following procedure describes and illustrates how to adjust the auxiliary seat.

1. Place auxiliary seat in the upright, sitting position.

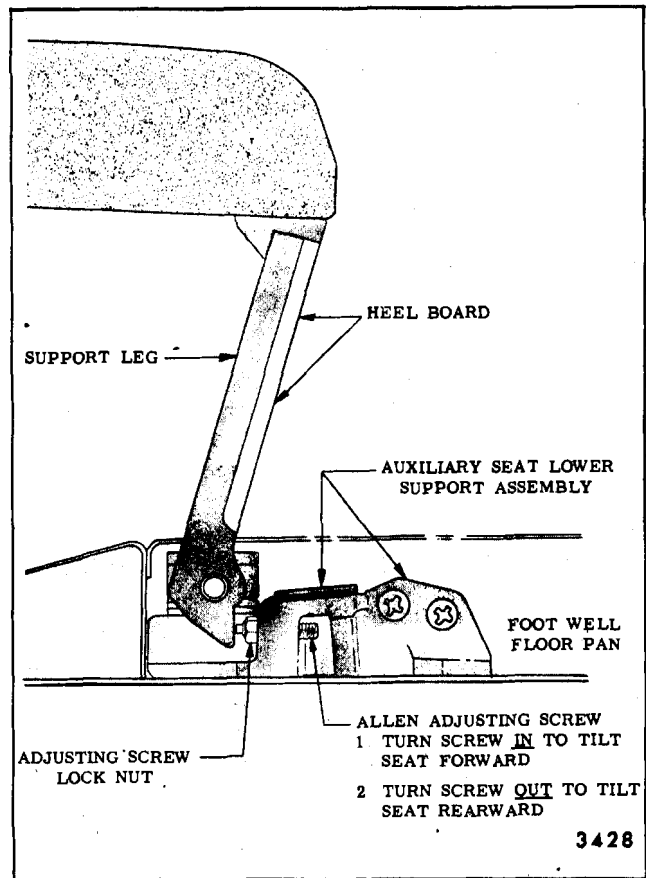


Fig. 14-57-Auxiliary Seat Adjustment - Cadillac Limousine Styles

2. On the front side of the auxiliary seat heel board, turn back foot well carpet flap to expose the auxiliary seat lower outboard and inboard support assemblies (Fig. 14-57).
3. Loosen the allen adjusting screw lock nut at both inboard and outboard support (see Fig. 14-57).
4. Carefully turn the adjusting screw (see Fig. 14-57) at both supports the **SAME AMOUNT** to allow the seat to pivot rearward further; thereby, providing additional leg room for the auxiliary seat passenger. Tighten the adjusting screw lock nut at both supports.

When making this adjustment maintain a minimum distance of at least 6 1/4 inches from rear seat cushion to auxiliary seat.

AUXILIARY SEAT LOWER SUPPORT ASSEMBLY- Cadillac Limousine Styles

Removal and Installation

1. Remove auxiliary seat assembly, as previously described.
2. Remove lower support assembly attaching screws, shown in Figure 14-58, and remove support assembly.

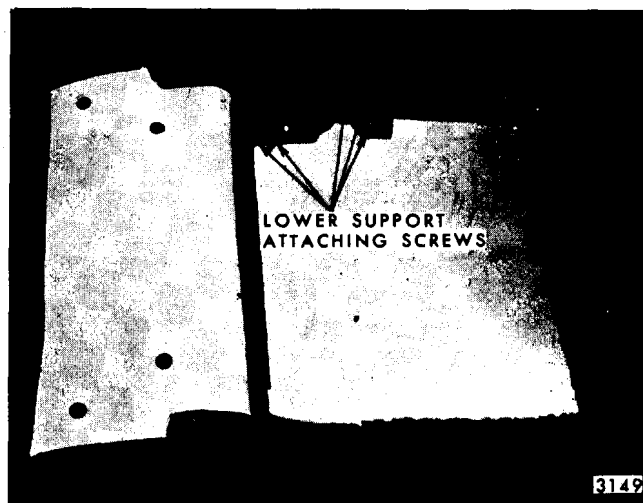


Fig. 14-58-Auxiliary Seat Lower Support - Cadillac Limousine Styles

3. To install auxiliary seat lower support assembly, reverse removal procedure.

SEAT TRIM BUTTONS

Figure 14-59 illustrates the basic types of seat trim buttons used on 1971 styles and their method of retention.

STATION WAGON FOLDING REAR SEATS AND FLOOR PANELS

All Station Wagon Styles Except Oldsmobile 34856 and 34866 Styles

All station wagon second seat backs incorporate seat back locks located on the upper right side of the seat backs. On split second seats, a seat back lock is located at the upper outer side of each seat back.

On "B" body three seat station wagons, the third seat back incorporates a lock located at the right lower side of the third seat back.

IMPORTANT: STATION WAGON SECOND AND THIRD SEAT ATTACHING PARTS SUCH AS SEAT LINKAGE-TO-FLOOR PAN AND SEAT LINKAGE-TO-SEAT CUSHION OR BACK BOLTS ON NUTS, SEAT BACK LOCK BOLTS ETC. ARE IMPORTANT ATTACHING PARTS IN THAT THEY COULD AFFECT THE PERFORMANCE OF VITAL COMPONENTS AND SYSTEMS. THEY MUST BE REPLACED WITH ONE OF THE SAME PART NUMBER OR WITH AN EQUIVALENT PART IF REPLACEMENT BECOMES NECESSARY. DO

NOT USE A REPLACEMENT PART OF LESSER QUALITY OR SUBSTITUTE DESIGN. TORQUE VALUES MUST BE USED AS SPECIFIED DURING REASSEMBLY TO ASSURE PROPER RETENTION OF THESE PARTS.

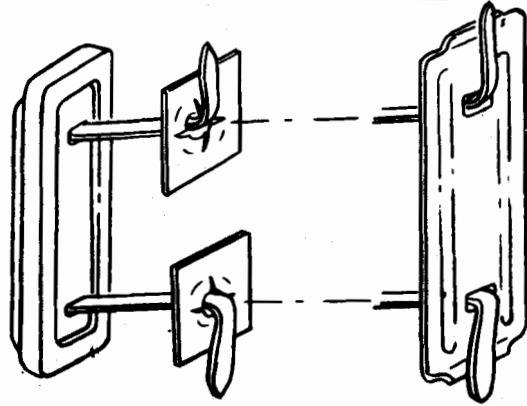
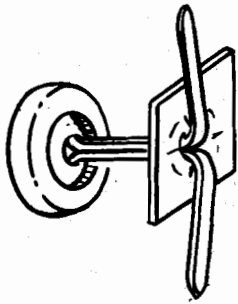
The following views are typical of the station wagon folding seats and rear compartment floor panels.

These illustrations identify the component panels of the rear compartment area and their relationship to adjacent panels.

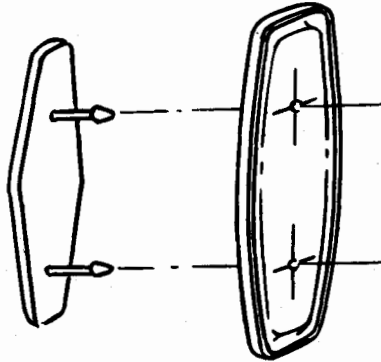
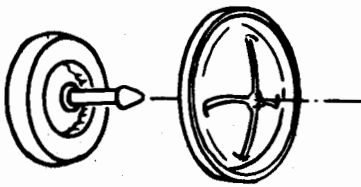
Figure 14-60 is typical of the "A" Body Series Two-Seat Station Wagons.

Figure 14-61 is typical of Chevrolet "A" Body Series Three-Seat.

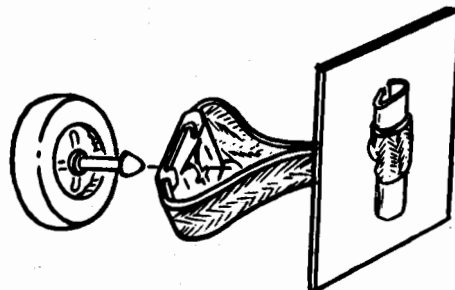
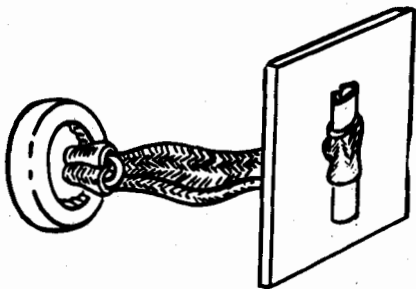
Figure 14-62 is typical of Chevrolet, Pontiac, Buick



SINGLE AND DOUBLE LONG PRONG BUTTONS WITH SPRING RETAINERS OR FULL DOUBLE RETAINER



SINGLE AND DOUBLE STUD BUTTONS WITH SHELL RETAINER



EYELET JIFFY LOOP BUTTON WITH BOARD RETAINER

STUD JIFFY LOOP BUTTON WITH BOARD RETAINER

Fig. 14-59-Typical Seat Trim Buttons and Retainers

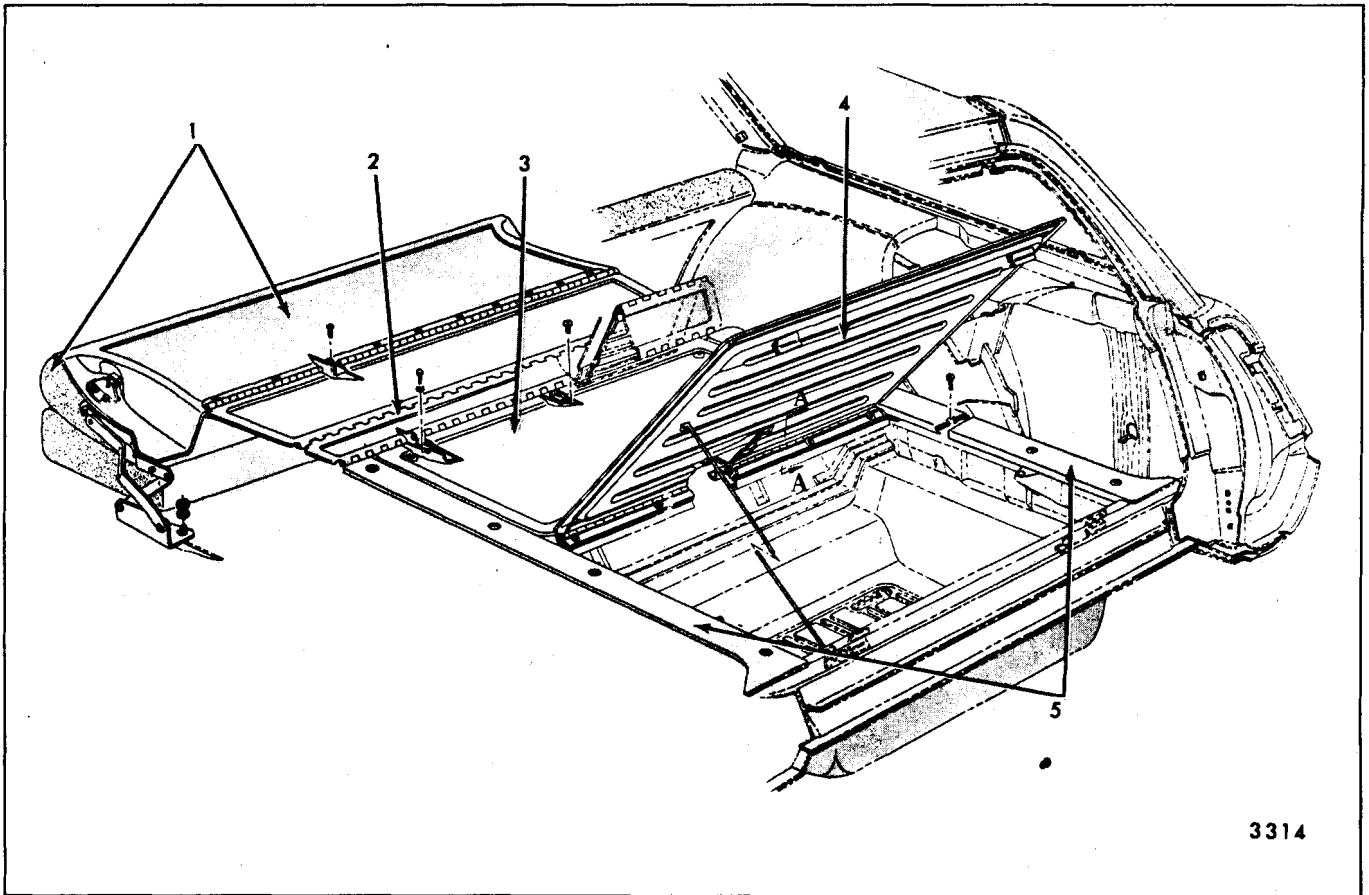


Fig. 14-60-Folding Seats and Load Floor Panels - "A" Body Two-Seat Styles

- | | | | |
|---|--|------------------------------------|---|
| 1. Folding Second Seat Back and Seat Back Panel | 3. Rear Compartment Floor Panel (At Kick-Up) | 4. Luggage Compartment Cover Panel | 5. Rear Floor Side Filler Panels - Left and Right |
| 2. Second Seat Back Filler Panel | | | |

and Oldsmobile "B" Body Series Two-Seat Station Wagons.

Figure 14-63 is typical of Chevrolet, Pontiac, Oldsmobile and Buick "B" Body Series Three-Seat Station Wagon.

REAR FLOOR SIDE FILLER PANEL (Right or Left Side)- "B" Body Two-Seat and Three-Seat Styles

Removal and Installation

1. Remove attaching screws from top of panel. If removing right side filler panel, remove spare tire cover panel and remove two screws securing filler panel, then remove panel.
2. To install filler panel, reverse removal procedure. If installing a new filler panel, apply cloth body

tape over screw attaching holes prior to installation.

LUGGAGE COMPARTMENT PANEL(S) AND PANEL HINGE ASSEMBLY- Two and Three-Seat Styles

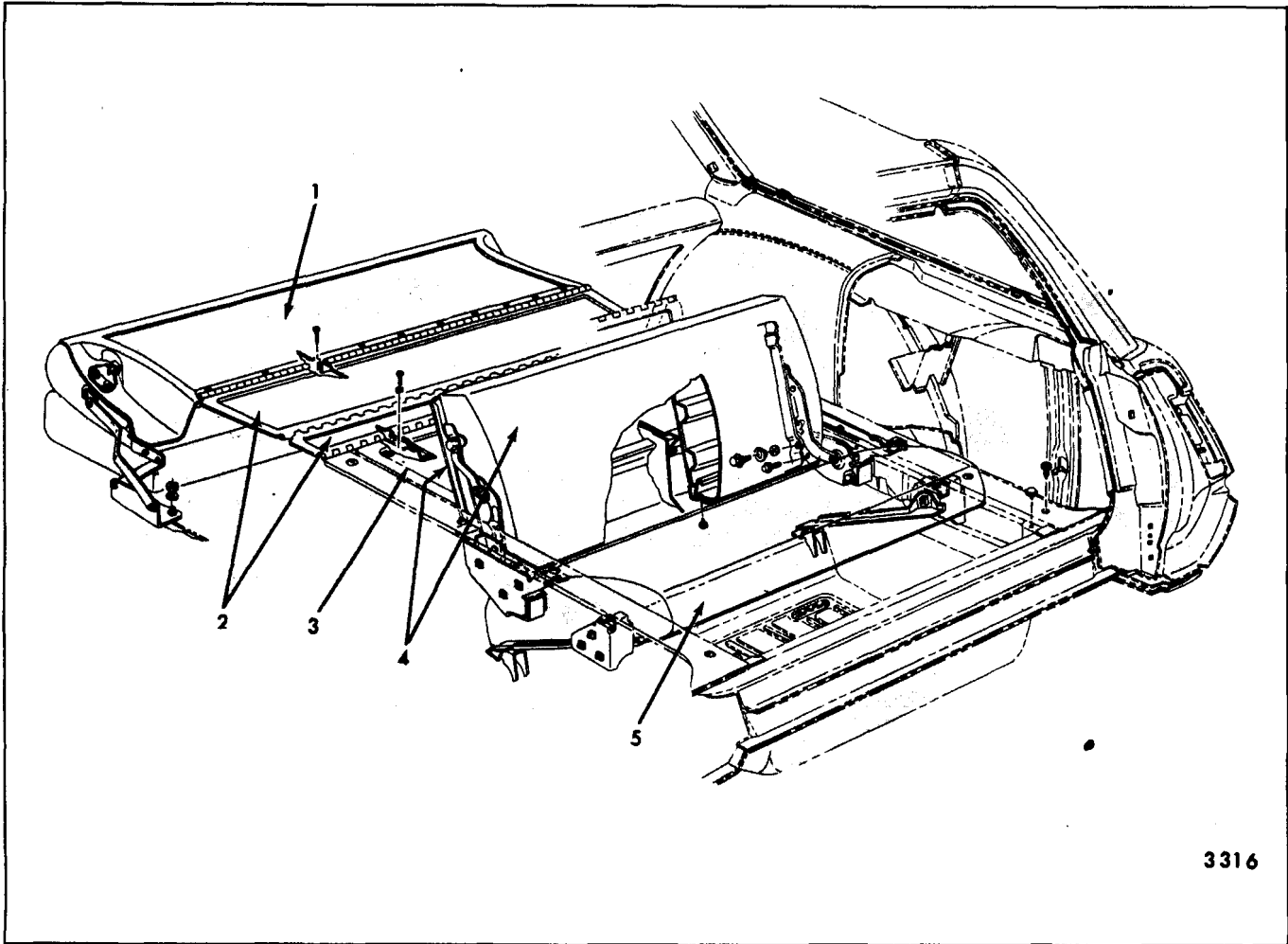
Removal and Installation

1. Raise luggage compartment panel (both rear and front on "B" body styles) sufficiently to gain access to panel piano hinge attaching screws; then, support panel(s) in this position.

FOLDING THIRD SEAT CUSHION- "A" Body Three-Seat Styles

Removal and Installation

1. Lift third seat cushion to half raised position or approximately vertical to floor pan (Fig. 14-64).



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Fig. 14-61-Folding Seats and Load Floor Panels - "A" Body Three-Seat Styles

- | | | |
|--|---|--|
| <p>1. Folding Second Seat Back and Back Panel</p> <p>2. Second Seat Back Filler Panels</p> | <p>3. Rear Compartment Floor Panel (At Kick-Up)</p> | <p>4. Folding Third Seat Back and Panel</p> <p>5. Folding Third Seat Cushion and Panel</p> |
|--|---|--|

FOLDING THIRD SEAT CUSHION PANEL ASSEMBLY AND SUPPORT. "A" Body Three-Seat Styles

Removal and Installation

2. Remove four seat cushion screws from rearward edge of cushion (Fig. 14-64).
3. Pull rear edge of cushion away from flange of cushion panel then lift cushion upward to disengage cushion border wire from four tabs on panel. Remove cushion from body and place on a clean, protected surface.
4. To install, reverse removal procedure. Make sure cushion border wire is engaged with all four panel tabs prior to installing cushion attaching screws.

1. Lift third seat cushion to a half raised position or approximately vertical to floor pan (Fig. 14-64).

2. Remove two bolts at each side of seat securing supports to body, then, remove seat cushion, panel assembly and supports from body and place on a clean, protected surface (Fig. 14-64).

To remove support, remove cushion from panel assembly; then, remove bolt securing support to cushion (Fig. 14-65).

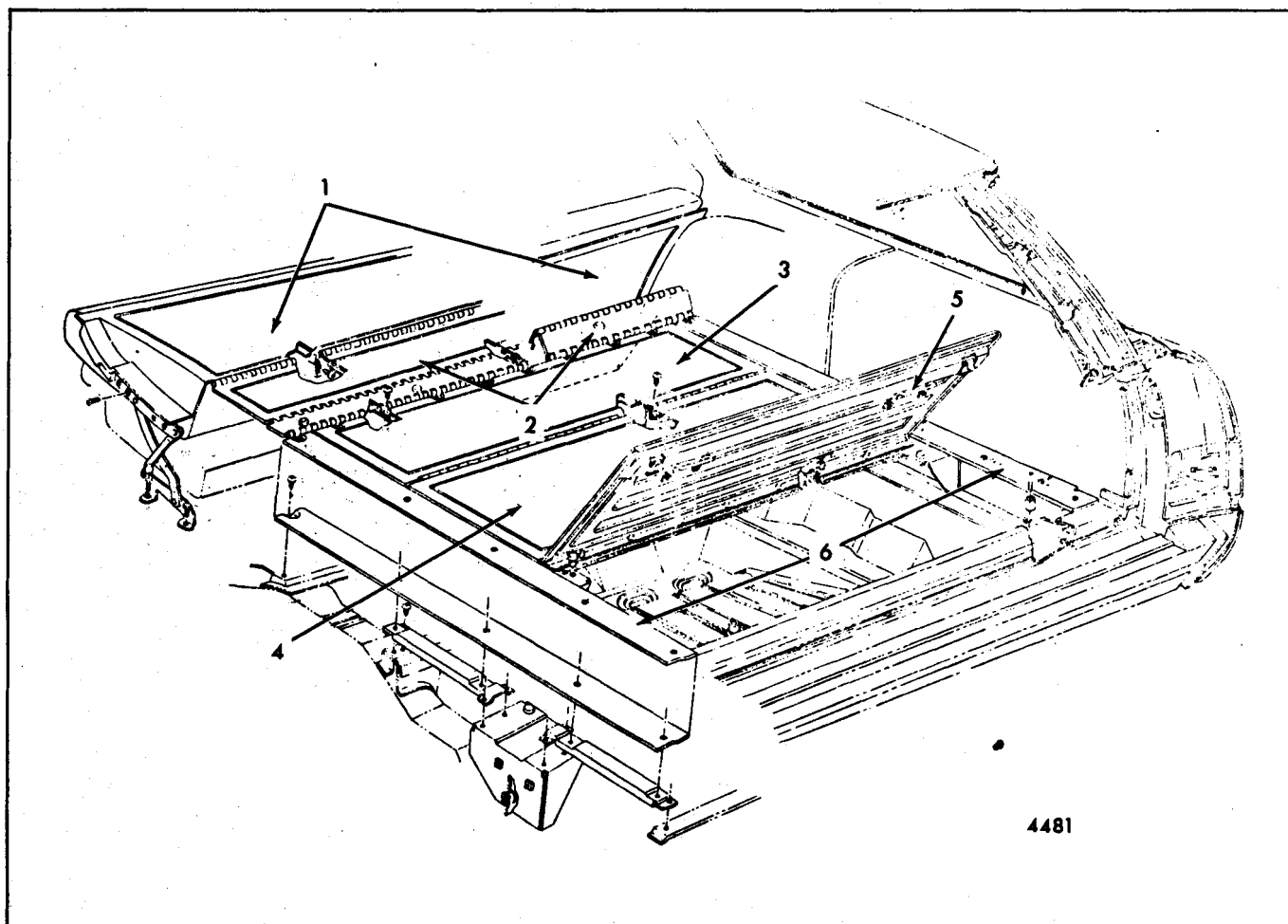


Fig. 14-62-Folding Seats and Load Floor Panels - "B" Body Two-Seat Styles

1. Folding Second Seat Back
2. Folding Second Seat Back Filler Panel

3. Rear Compartment Floor Panel (At Kick-Up)

4. Luggage Compartment Front Panel

5. Luggage Compartment Rear Panel
6. Rear Floor Side Filler Panels

3. To install, reverse removal procedure. If support was removed from seat cushion panel, make sure bushing and spring washer are properly installed (see Fig. 14-65).

FOLDING THIRD SEAT BACK TRIM ASSEMBLY- "A" Body Three-Seat Styles

Removal and Installation

1. Raise third seat back assembly - leave cushion assembly in down position.
2. Remove four screws securing lower edge of seat back trim to seat back panel (see Fig. 14-66).
3. Pull lower edge of seat back trim slightly rearward; then, lift trim assembly upward to disengage trim border wire from four tabs on

upper portion of panel. Remove trim assembly from body and place on a clean, protected surface.

4. To install, reverse removal procedure. Make sure seat back trim border wire is engaged with all four panel tabs at upper portion of panel prior to installing seat back trim attaching screws.

FOLDING THIRD SEAT BACK PANEL ASSEMBLY- "A" Body Three-Seat Styles

Removal and Installation

1. Remove third seat back trim assembly.
2. At both sides of third seat back panel remove seat back linkage bolt and bolt securing seat back

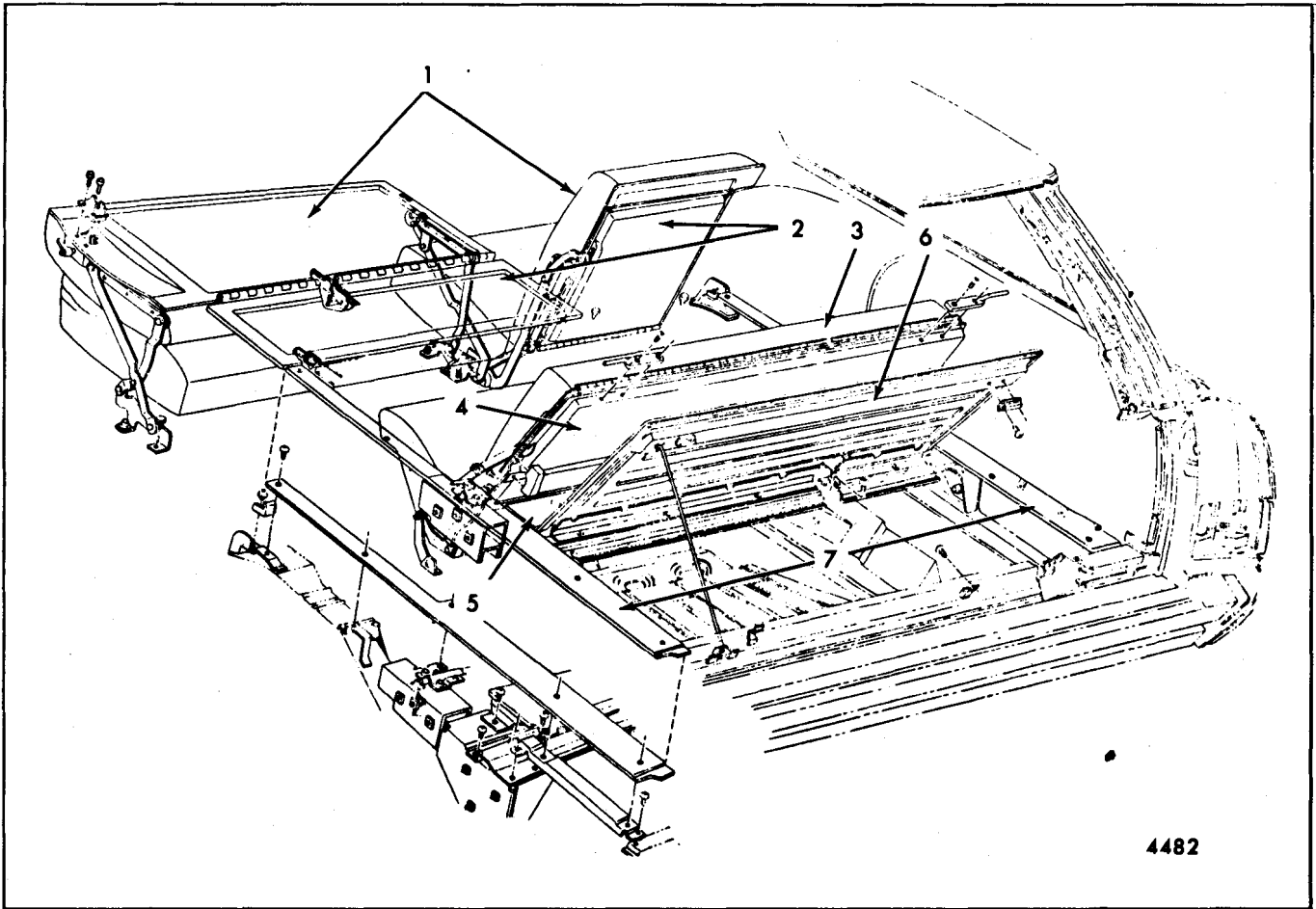


Fig. 14-63-Folding Seats and Load Floor Panels - "B" Body Three-Seat Styles

- | | | | |
|--|---|-------------------------------------|----------------------------------|
| 1. Folding Second Seat Backs (1/3 and 2/3 Seats) | 2. Second Seat Back Filler Panels (1/3 and 2/3 Seats) | 4. Third Seat Back Filler Panel | 6. Luggage Compartment Panel |
| | 3. Folding Third Seat Back | 5. Luggage Compartment Filler Panel | 7. Rear Floor Side Filler Panels |

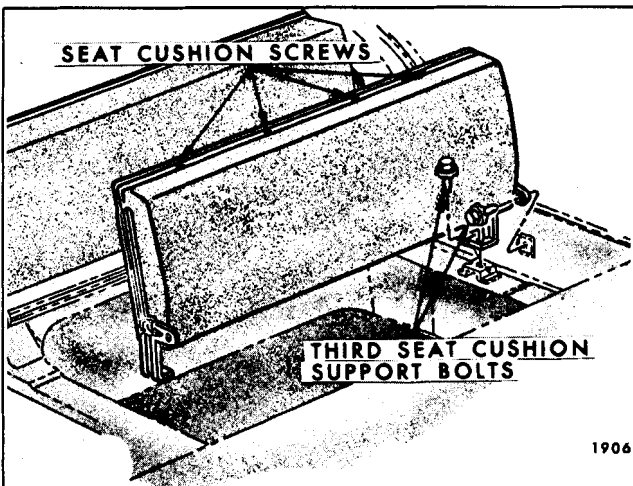


Fig. 14-64-Folding Third Seat Cushion - "A" Body Three-Seat Styles

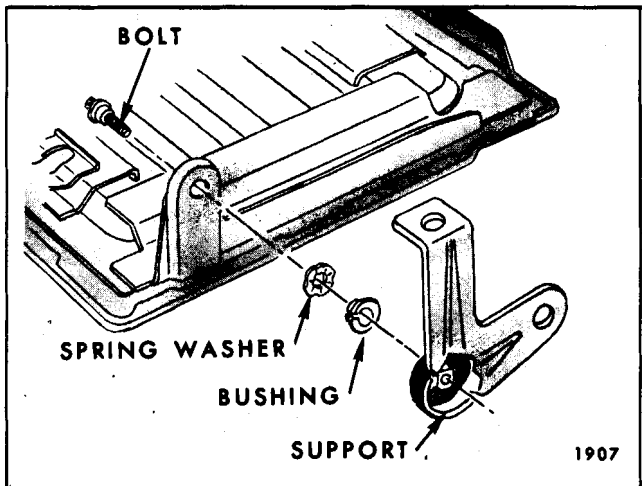


Fig. 14-65-Third Seat Cushion Panel and Support - "A" Body Three-Seat Styles

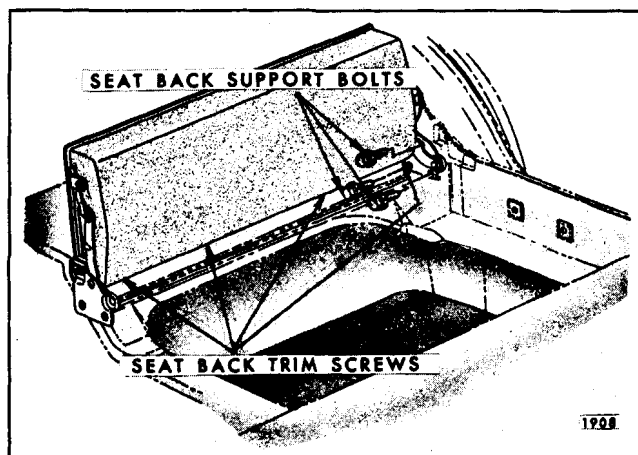


Fig. 14-66-Folding Third Seat Back - "A" Body Three-Seat Styles

panel to support, then, remove seat back panel assembly from body (Fig. 14-67).

3. To install, reverse removal procedure.

FOLDING THIRD SEAT BACK LOCK - "A" Body Three-Seat Styles

Removal and Installation

1. Raise third seat back. At seat back right linkage carefully snap off lock bolt plastic cover.
2. Remove shoulder bolt securing lock latch and spring to seat back frame and remove latch, spring and washer (Fig. 14-68).
3. To install seat back lock, reverse removal procedure. Check operation of third seat back to assure proper operation of lock.

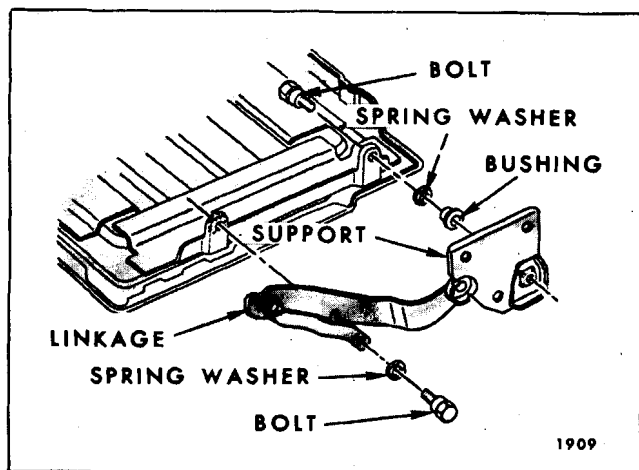


Fig. 14-67-Third Seat Back Panel and Linkage - "A" Body Three-Seat Styles

COMPARTMENT FLOOR PANEL ASSEMBLY (At Kick-Up)-All Styles (See Figs. 14-60, 14-61, 14-62 and 14-63)

Removal and Installation

1. On three-seat styles, remove folding 3rd seat back assembly as previously described.
2. On two-seat styles, remove luggage compartment front and rear panel assemblies (complete) as previously described.
3. Directly under rear edge of compartment floor panel remove four screws securing panel to floor pan.
4. At front of compartment floor panel remove five screws securing panel to floor pan; then, remove compartment floor panel from body.
5. To install, reverse removal procedure.

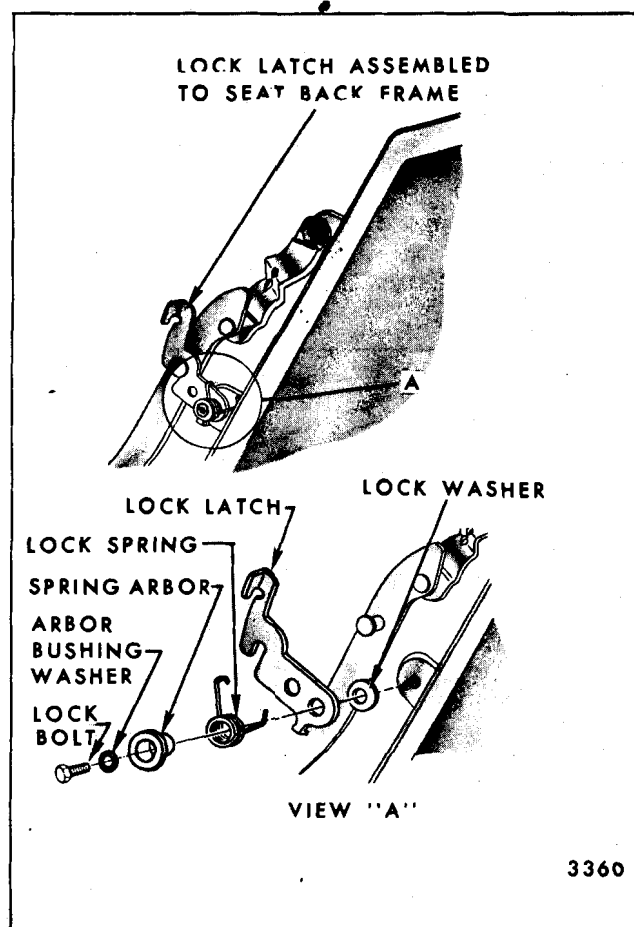


Fig. 14-68-Third Seat Back Lock - "A" Body Two-Seat and Three-Seat Station Wagons

SECOND SEAT BACK FILLER PANEL-All Styles (See Figs. 14-60, 14-61, 14-62 and 14-63)

Removal and Installation

1. Remove compartment floor panel assembly (at kick-up) as previously described.
2. Along rear edge of filler panel, remove screws which secure panel to floor pan.
3. Fold filler panel forward sufficiently to remove screws which secure panel to folding 2nd seat back assembly and remove filler panel from body.
4. To install, reverse removal procedure.

SECOND SEAT CUSHION - "A" Body Two-Seat and Three-Seat Styles

Removal and Installation

1. Push lower forward edge of seat cushion rearward; then, lift upward and pull forward on seat cushion to disengage cushion frame wires from retainers on floor pan. (See Figs. 14-52 and 14-54 under "Rear Seats - Removal and Installation", which are typical of station wagon two-seat styles).
2. To install, reverse removal procedure. Make certain wires on seat bottom frame are fully engaged in retainers on floor pan.

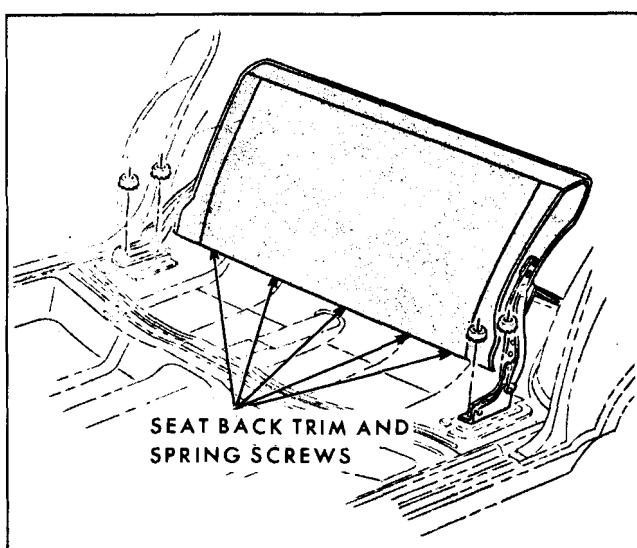


Fig. 14-69-Second Seat Back Trim and Spring Assembly - "A" Body Two-Seat and Three-Seat Styles

FOLDING SECOND SEAT BACK TRIM AND SPRING ASSEMBLY - "A" Body Two-Seat and Three Seat Styles

Removal and Installation

1. Raise folding second seat back and remove second seat cushion.
2. On underside of second seat back panel, remove screws securing seat back trim assembly to seat back panel (see Fig. 14-69).

NOTE: Do not remove screws securing rear floor filler panel hinge to second seat back panel.

3. Pull lower edge of seat back trim slightly forward; then, lift trim assembly upward to disengage trim border wire from tabs on upper portion of panel. Remove trim assembly from body and place on a clean, protected surface.
4. To install, reverse removal procedure. Make sure seat back trim border wire is engaged with panel tabs at upper portion of seat back panel prior to installing seat back trim attaching screws.

FOLDING SECOND SEAT BACK TRIM PANEL AND LINKAGE ASSEMBLY- "A" Body Two-Seat and Three-Seat Styles

Removal and Installation

1. Raise folding second seat back and remove second seat cushion.
2. On underside of folding second seat back remove screws securing rear floor filler panel hinge to seat back panel.

NOTE: Do not remove screws securing seat back trim assembly to seat back panel.

3. Mark position of folding second seat back linkage supports on floor pan. Remove nuts from both sides of seat back securing linkage supports to floor pan. See Figure 14-70 for full width seat, Figure 14-71 for split seat.

Lift seat back assembly with attached linkage from body and place on a clean, protected surface.

4. To remove linkage from folding second seat back remove linkage-to-seat back panel attaching bolts and remove linkage - see Figure 14-70 for full width seat, Figure 14-71 for split seat.
5. To install, reverse removal procedure.

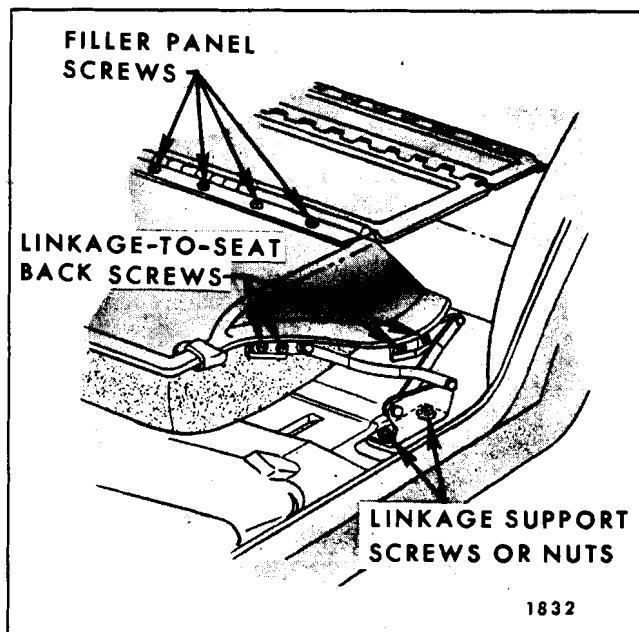


Fig. 14-70-Folding Second Seat Back Linkage and Filler Panel - "A" Body Two-Seat and Three-Seat Styles

FOLDING SECOND SEAT BACK LINKAGE ASSEMBLY-(Right or Left Side) - "A" Body Two-Seat and Three-Seat Styles

If both right and left linkage assemblies are to be removed on full width second seat, remove second seat back trim, back panel and linkage assembly and remove linkage from seat back panel as described under "Folding Second Seat Back Trim, Panel and Linkage Assembly - Removal and Installation".

If one linkage assembly (right or left side) is to be removed proceed as follows:

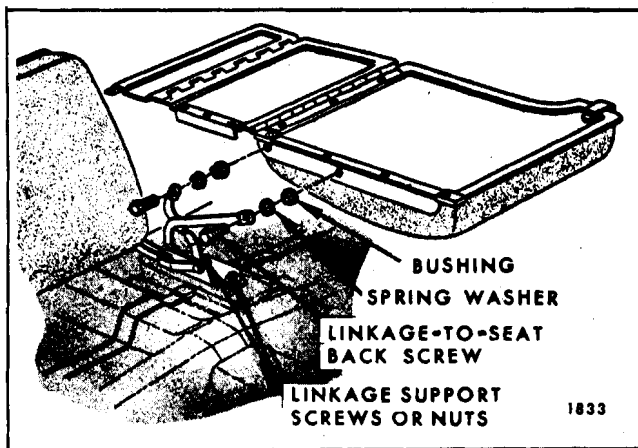


Fig. 14-71-Split Second Seat Inner Linkage - "A" Body Styles

Removal and Installation

1. Remove second seat cushion.
2. Move folding second seat back forward just sufficiently to remove two lower linkage-to-seat back panel attaching screws (see Fig. 14-70).
3. Carefully return seat back to full up position; then, place a support under seat back assembly to support seat back in this position.
4. Remove two upper linkage-to-seat back panel attaching screws (see Fig. 14-70).
5. Remove nuts securing linkage support to floor pan, then, carefully remove linkage assembly from seat back and floor pan (see Fig. 14-70).
6. To install, reverse removal procedure.

LUGGAGE COMPARTMENT LOCK CYLINDER-Two-Seat Styles

Removal and Installation

1. Open luggage compartment rear panel.
2. On underside of luggage compartment rear panel remove catch retainer and catch from lock cylinder case, then, turn lock cylinder with key

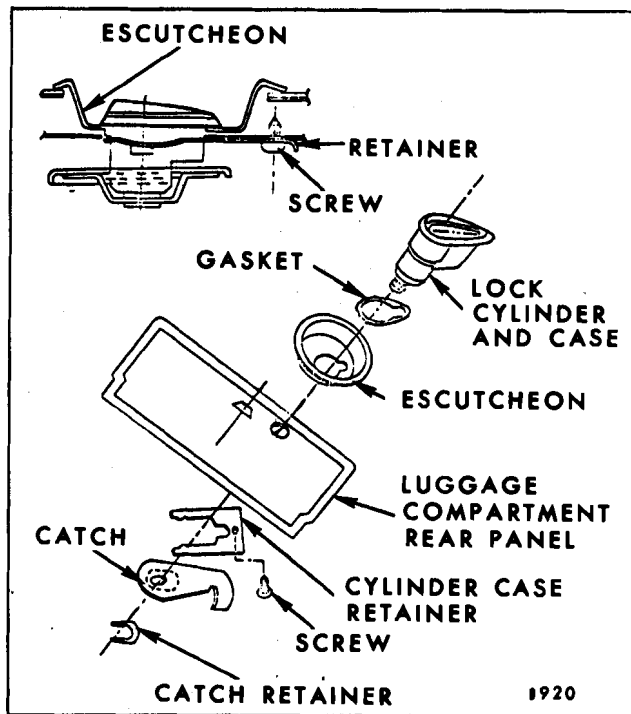


Fig. 14-72-Luggage Compartment Lock - "A" Body Styles

until cylinder can be removed from case (Fig. 14-72).

3. To install, reverse removal procedure.

LUGGAGE COMPARTMENT LOCK

Removal and Installation

1. Open luggage compartment rear panel.
2. On underside of luggage compartment rear panel, remove catch retainer and catch (Fig. 14-72).
3. Remove lock cylinder case retainer screw and retainer; then, remove lock cylinder and case, gasket and escutcheon from panel (Fig. 14-72).
4. To install, reverse removal procedure.

FOLDING SECOND SEAT BACK LOCK (Full Width or Split Seat)-All "A and B" Styles (Except "A-56 and 66" Styles)

Description

The station wagon full width folding second seat incorporates a seat back lock located on the upper right side of the seat back. On styles with split second seat a seat back lock is located at the upper outer side of each seat back. The folding second seats can be folded down by actuating the lock handle forward and pulling the seat back down.

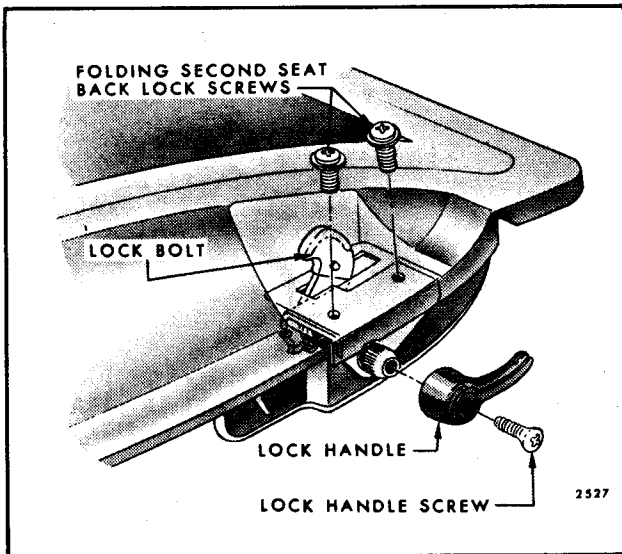


Fig. 14-73-Folding Second Seat Back Lock Installation - All "A and B" Station Wagons (Except Vista Cruiser and Sport Wagon Styles)

FOLDING SECOND SEAT BACK LOCK (Full Width or Split Seat)-All "A and B" Styles (Except "A-56 and 66" Styles)

Removal and Installation

1. Remove folding second seat back trim and spring assembly, as previously described.
2. Remove seat back lock handle attaching screw and remove lock handle (Fig. 14-73).
3. Remove seat back lock retainer attaching screws (Fig. 14-89) and remove seat back lock retainer and lock from seat back panel (Fig. 14-73).
4. To install seat back lock assembly, reverse removal procedure. A small amount of lock adjustment is available to obtain proper engagement of lock bolt with lock striker on wheelhouse as shown in Figure 14-74.

STATION WAGON FOLDING SEATS AND FLOOR PANELS Vista Cruiser "56-66" Styles

Description

The Vista Cruiser "56" style Skylight station wagon has a full width folding second seat on which the seat back folds flush with the floor panels. A luggage

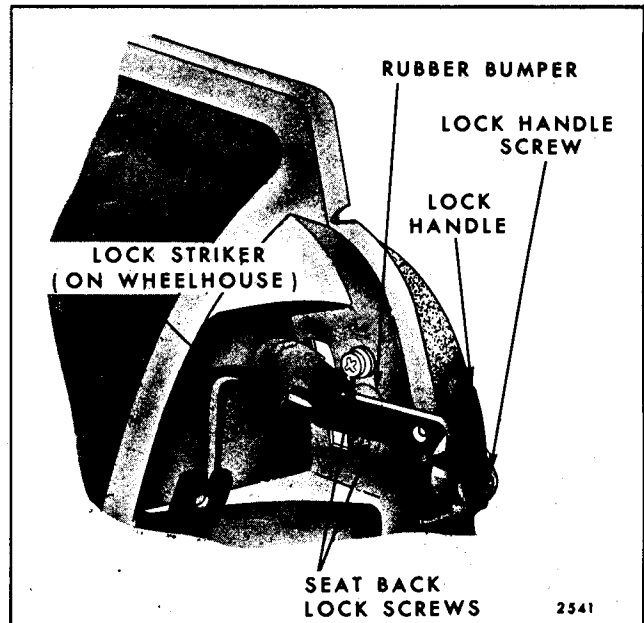
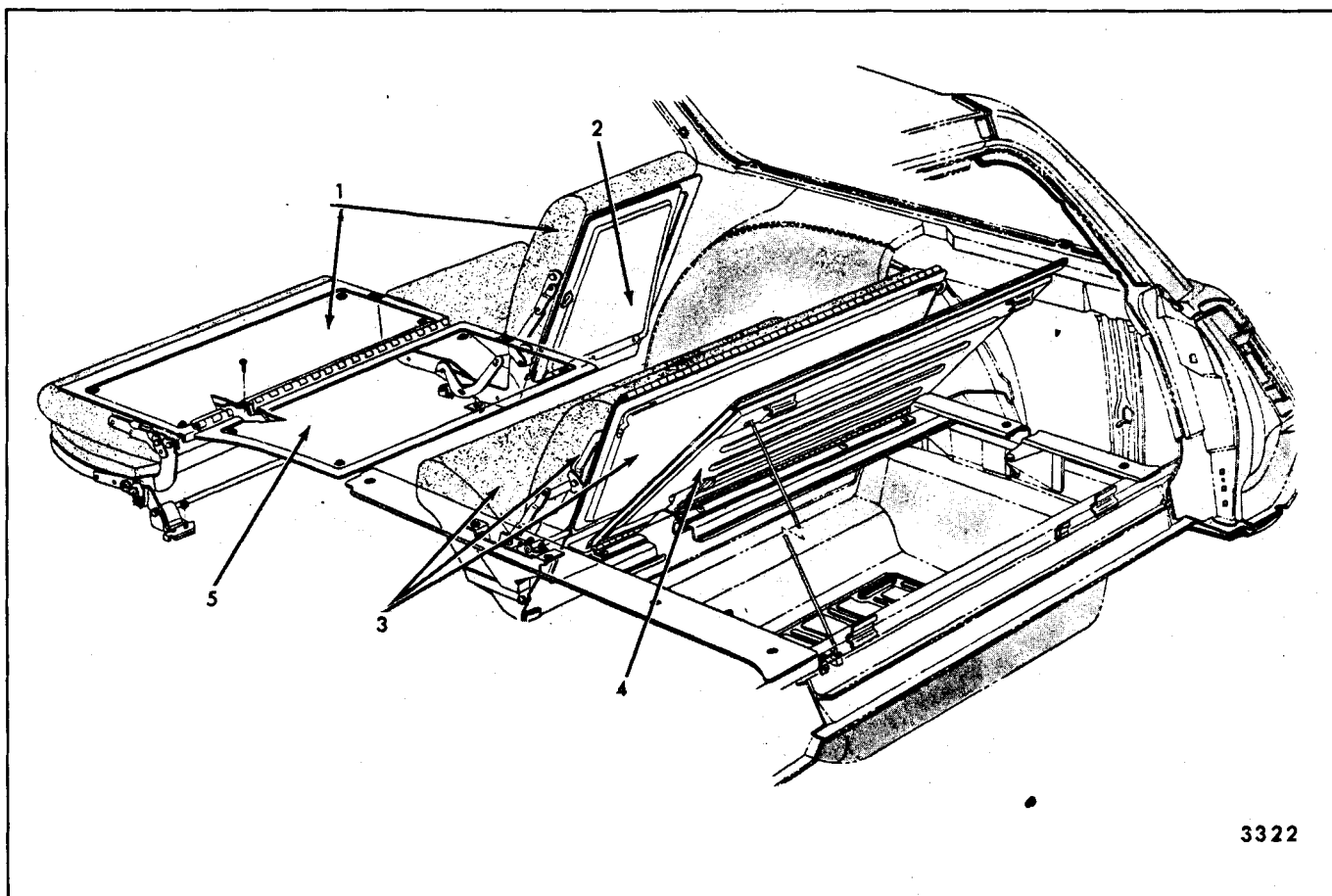


Fig. 14-74-Folding Second Seat Back Lock and Striker - All "A and B" Station Wagons (Except Vista Cruiser and Sport Wagon Styles)



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Fig. 14-75-Folding Seats and Load Floor Panels - "A" Body Vista Cruiser and Sport Wagon Three-Seat Styles

- | | | | |
|--|---|--|--|
| 1. Folding Second Seat
Back and Panel -
Left and Right | 2. Rear Floor Filler
Panel - Right and
Left | 3. Folding Third Seat
Cushion, Back and
Back Panel | 4. Luggage
Compartment Cover
Panel |
| | | | 5. Rear Floor Filler
Panel |

compartment is provided under the luggage compartment floor panel. Refer to Figure 14-60 for identification of folding seat and load floor panels.

The service procedures for the "56" style station wagon full width folding second seat are the same as for the "A-36" style station wagon folding second seat.

The "66" style station wagon has a folding split second seat - 1/3 (right side), 2/3 (left side).

Both sections of the folding second seat are hinged to the floor pan and can be folded forward to provide entrance room into the third seat area. Also both sections of the folding second seat back can be folded flush with the floor panels. A seat back lock located at the outer linkage of both right and left folding second seat backs, locks the seat backs in the up position and must be released to fold the seats.

The full 3/4 width folding third seat is provided with a positive acting lock at the right side linkage.

The lock handle is depressed to lock the seat in the up position and pulled upward to release the lock and allow the seat to be folded.

Figure 14-75 identifies the major folding seats and load floor panels on the "56 and 66" style Skylight station wagon.

FOLDING SECOND SEAT ASSEMBLY- Right or Left Seat-"66" Styles

Removal and Installation

1. Remove rear door sill plate and turn back floor carpeting sufficiently to gain access to nuts securing folding seat front and rear linkage to floor pan (Figs. 14-76 and 14-77).
2. Mark position of seat front and rear linkage

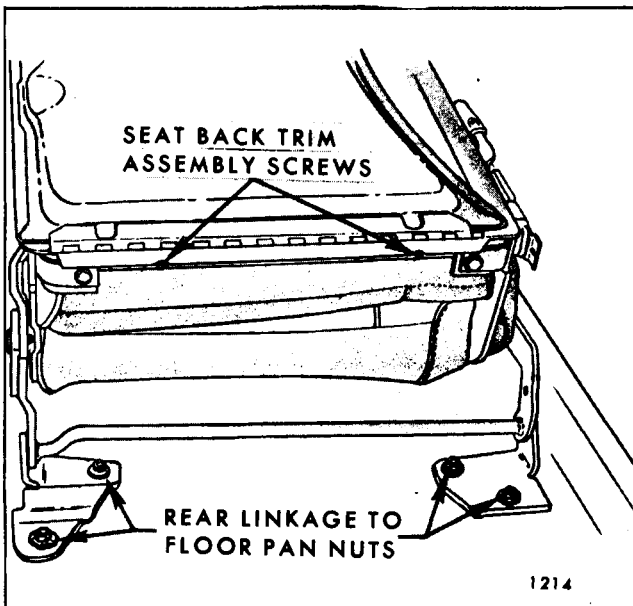


Fig. 14-76-Folding Second Seat Rear Linkage
(Vista Cruiser "66" Style)

supports on floor pan to facilitate installation of seat in same position.

3. Remove nut and washer assemblies securing front and rear linkage to floor pan; then, remove seat assembly from body (Figs. 14-76 and 14-77).
4. To install seat assembly, reverse removal procedure. Align linkage floor pan supports with previously made marks prior to tightening nuts.

FOLDING SECOND SEAT CUSHION ASSEMBLY (Right or Left Seat)-Vista Cruiser "66" Style

Removal and Installation

1. Remove folding second seat assembly from car, as previously described and place on a clean surface.
2. Remove hog rings and detach outboard rear portion of trim sufficiently to remove three screws securing seat outer link to cushion frame (Fig. 14-78).
3. Remove three screws securing inner link to cushion frame; then, remove seat cushion and frame assembly from linkage (Fig. 14-79). If required, remove cushion front and rear floor pan linkage.
4. To install, reverse removal procedure.

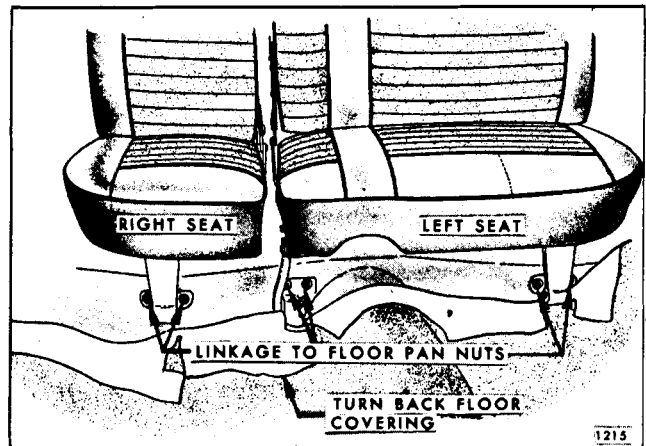


Fig. 14-77-Folding Second Seat Front Linkage
(Vista Cruiser "66" Style)

FOLDING SECOND SEAT BACK TRIM AND SPRING ASSEMBLY (Right or Left Seat)-Vista Cruiser "66" Style

Removal and Installation

1. Fold second seat back forward.
2. Remove seat back trim assembly attaching screws (see Fig. 14-76).
3. Raise seat back; then, pull seat back trim assembly upward to disengage wire loops at top of seat back trim from slots in seat back panel.

NOTE: If seat back trim does not readily disengage from seat back panel, fold rear floor filler panel down and remove upper inboard screw securing automat or carpet (Fig. 14-78). Then remove seat back trim assembly.

4. To install seat back trim assembly, reverse removal procedure.

FOLDING SECOND SEAT FRONT FLOOR PAN LINKAGE (Right or Left Seat)-Vista Cruiser "66" Style

Removal and Installation

1. Place seat in an up position. Turn back floor carpet sufficiently to gain access to front linkage floor pan attaching nuts.
2. Mark location of front linkage support on floor pan to facilitate installation in same position. Support front of seat. Remove bolts securing linkage to seat and nuts securing linkage to floor pan studs; then, remove front linkage (See Fig. 14-77).

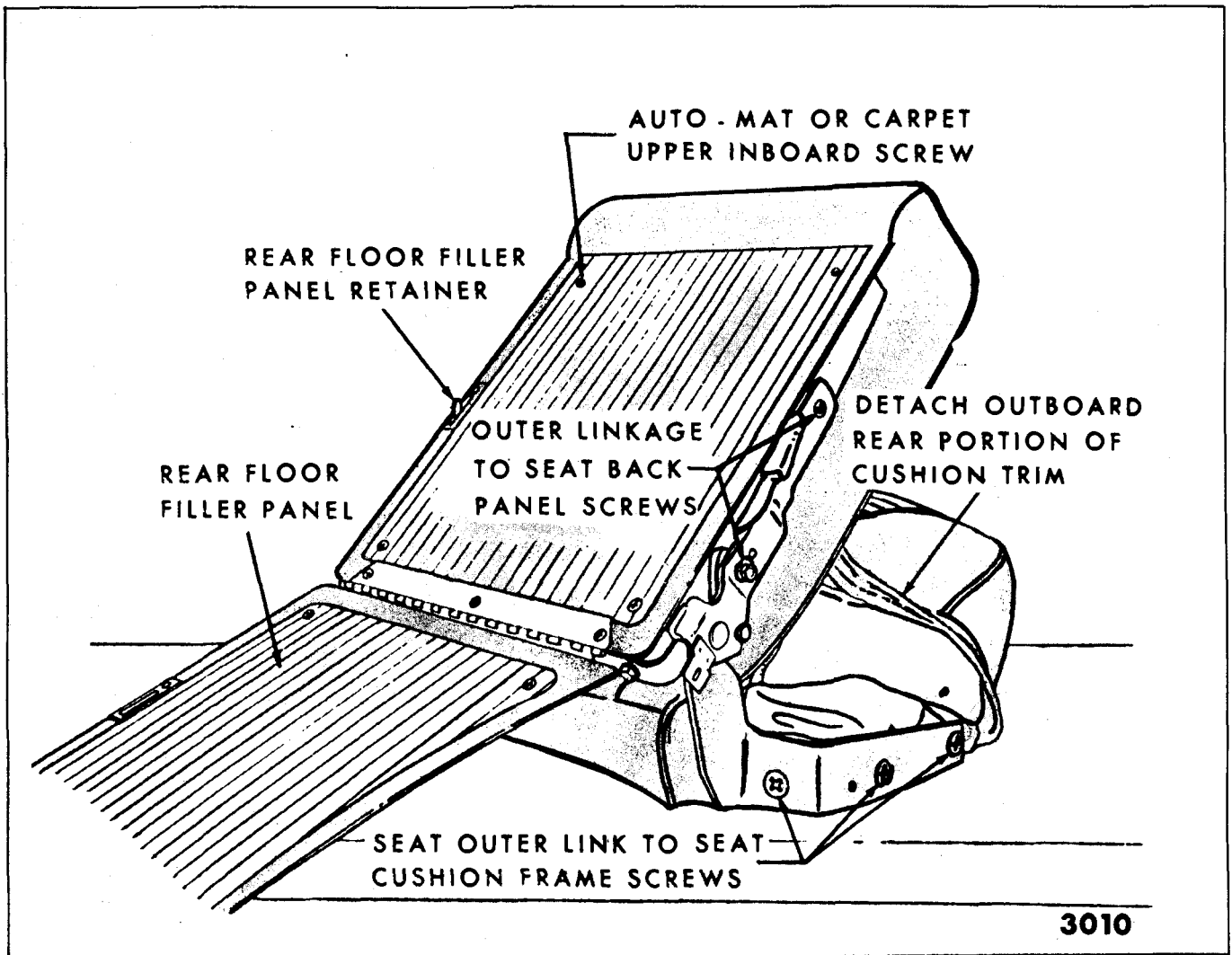


Fig. 14-78-Folding Second Seat Cushion Assembly (Right or Left Side) - Vista Cruiser "66" Style

3. To install, reverse removal procedure making sure linkage support on floor pan is aligned with previously made alignment mark.

FOLDING SECOND SEAT REAR FLOOR PAN LINKAGE (Right or Left Seat)- Vista Cruiser "66" Style

Removal and Installation

1. Remove folding second seat assembly from car as previously described and place on a clean surface.
2. Remove screws securing rear floor pan linkage to each side of seat cushion frame; then, remove linkage assembly from seat (Fig. 14-80).
3. To install, reverse removal procedure. Inserts in Figure 14-80 show relationship of linkage, bushings and attaching screws.

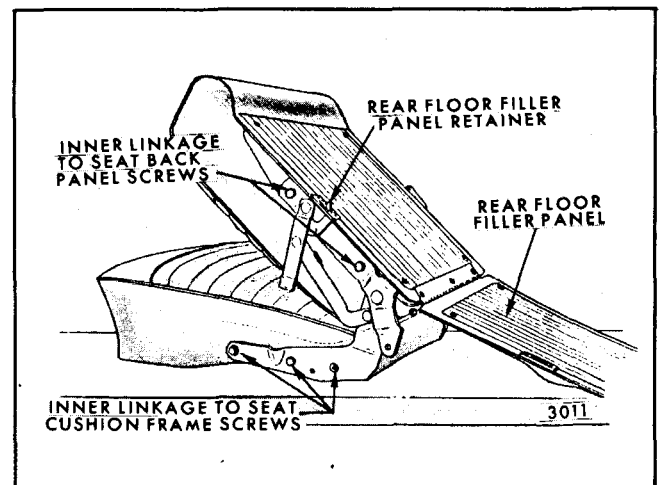


Fig. 14-79-Folding Second Seat Cushion Assembly (Right or Left Side) - Vista Cruiser "66" Style

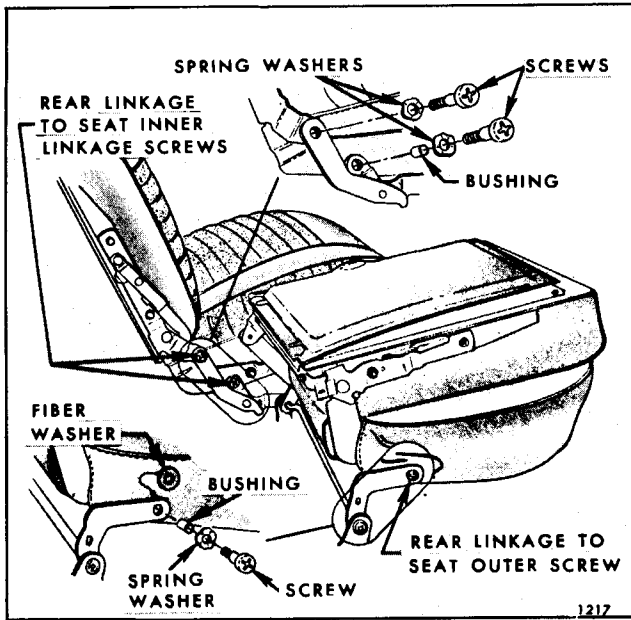


Fig. 14-80-Floor Pan Rear Linkage (Vista Cruiser "66" Style)

FOLDING SECOND SEAT SIDE INNER LINKAGE (Right or Left Seat)- Vista Cruiser "66" Style

Removal and Installation

1. Remove folding second seat assembly from car as previously described and place on a clean surface.
2. Remove floor pan rear linkage-to-seat inner linkage attaching screws (Fig. 14-80).
3. Remove seat inner linkage-to-seat back panel and seat cushion frame attaching screws; then, disengage and remove side linkage from seat (see Fig. 14-79).
4. To install, reverse removal procedure. Make sure rear floor filler panel retainer is inserted through slot in seat back panel prior to installing inner linkage-to-seat back panel attaching screws.

FOLDING SECOND SEAT SIDE OUTER LINKAGE (Right and Left Seat)- Vista Cruiser "66" STYLE

Removal and Installation

1. Remove folding second seat assembly from car as previously described and place on a clean surface.
2. Remove outer linkage cover. Remove rear floor pan linkage to seat outer attaching screw (Fig. 14-80).

3. Remove hog rings and detach rear portion of trim sufficiently to remove three screws securing outer linkage to seat cushion frame (see Fig. 14-78).
4. Remove outer linkage-to-seat back panel attaching screws; then, remove linkage and seat back catch from seat (see Fig. 14-78).
5. To install, reverse removal procedure. Install seat back lock and spring as described under "Folding Second Seat Back Lock - Removal and Installation".

FOLDING SECOND SEAT BACK LOCK- (Right or Left Seat)- Vista Cruiser "66" Style

Removal

1. Remove seat back trim assembly, as previously described. Remove outer linkage cover.
2. Remove outer linkage-to-seat back panel attaching screws (see Fig. 14-78).
3. Remove lock handle, spring and bushing from linkage.

Installation

1. Position bushing and spring on lock handle.
2. Install lock handle, bushing and spring into position between seat back panel and outer linkage making sure end of spring is engaged in hole in outer link (Fig. 14-81).
3. Install lock handle attaching screw; then, install outer linkage to seat back panel attaching screws (Fig. 14-78).

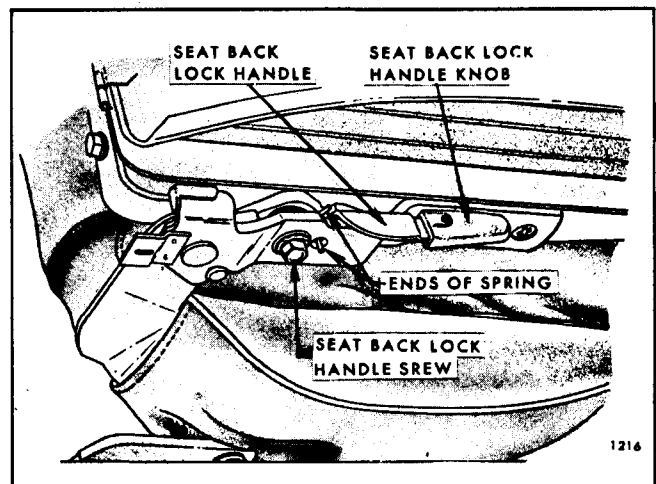


Fig. 14-81-Seat Back Lock (Vista Cruiser "66" Style)

4. Install seat back trim assembly and outer linkage cover.

FOLDING SECOND SEAT BACK PANEL AND FILLER PANEL (Right or Left Seat)-Vista Cruiser "66" Style

Removal and Installation

1. Remove seat back trim assembly, as previously described. Remove outer linkage cover.
2. Remove outer and inner linkage to seat back attaching screws. Remove seat back lock handle, spring and bushing from between outer linkage and seat back panel; then, remove seat back panel and rear floor filler panel from linkage.
3. To install, reverse removal procedure. To install seat back lock refer to "Folding Second Seat Back Lock - Installation".

FOLDING THIRD SEAT AND FLOOR PANEL ASSEMBLY-Vista Cruiser "66" Style

Removal and Installation

1. Raise folding third seat. Remove rear compartment left side panel (see Fig. 14-75).
2. Remove seat back linkage-to-compartment side pan attaching bolt at both right and left sides of seat (Fig. 14-83).
3. At left side of seat remove seat back hinge pin retainer (Fig. 14-83).
4. Carefully move seat back assembly to the left sufficiently to disengage right seat back hinge pin from hinge pin retainer; then, remove folding third seat assembly from body and place on a clean surface.
5. To install folding third seat and floor panel assembly, reverse removal procedure. Make sure a seat back hinge pin bushing is installed over both hinge pins. Also install flat washer between seat back linkage and compartment side pan and spring washer between linkage and bolt head (Fig. 14-83).

FOLDING THIRD SEAT CUSHION TRIM ASSEMBLY-Vista Cruiser "66" Style

Removal and Installation

1. Raise folding third seat. Raise front of third seat cushion and prop in up position.

2. Remove hog rings securing seat back trim flap to bottom of seat cushion (Fig. 14-84).
3. Remove seat cushion frame-to-seat back panel attaching bolt from both sides of seat; then, remove seat cushion assembly and place on a clean surface (Fig. 14-83).
4. As a bench operation remove hex-head screws securing seat cushion trim to seat cushion frame and three screws securing rear edge of seat cushion trim to seat cushion frame; then, remove cushion trim assembly from cushion frame (Fig. 14-84).
5. To install, reverse removal procedures. When installing seat cushion frame-to-seat back frame attaching bolts install bolt bushing and spring washer, as shown in insert on Figure 14-83.

FOLDING THIRD SEAT BACK TRIM ASSEMBLY OR SEAT BACK PANEL ASSEMBLY-Vista Cruiser "66" Style

Removal and Installation

1. Remove folding third seat and floor panel assembly, as previously described, and place on a clean surface.
2. Remove hog rings securing seat back trim flap to bottom of seat cushion (Fig. 14-84).
3. To remove seat back trim assembly remove seat back trim-to-seat back panel attaching screws; then, lift trim assembly upward to disengage wire

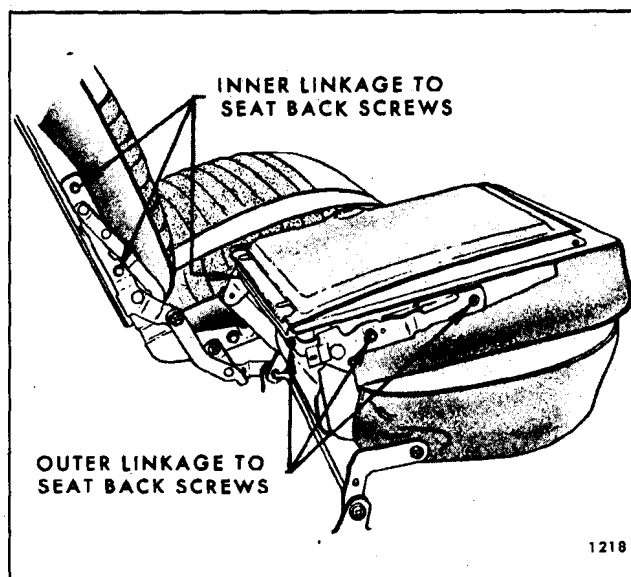


Fig. 14-82-Seat Inner and Outer Linkage - Vista Cruiser "66" Style

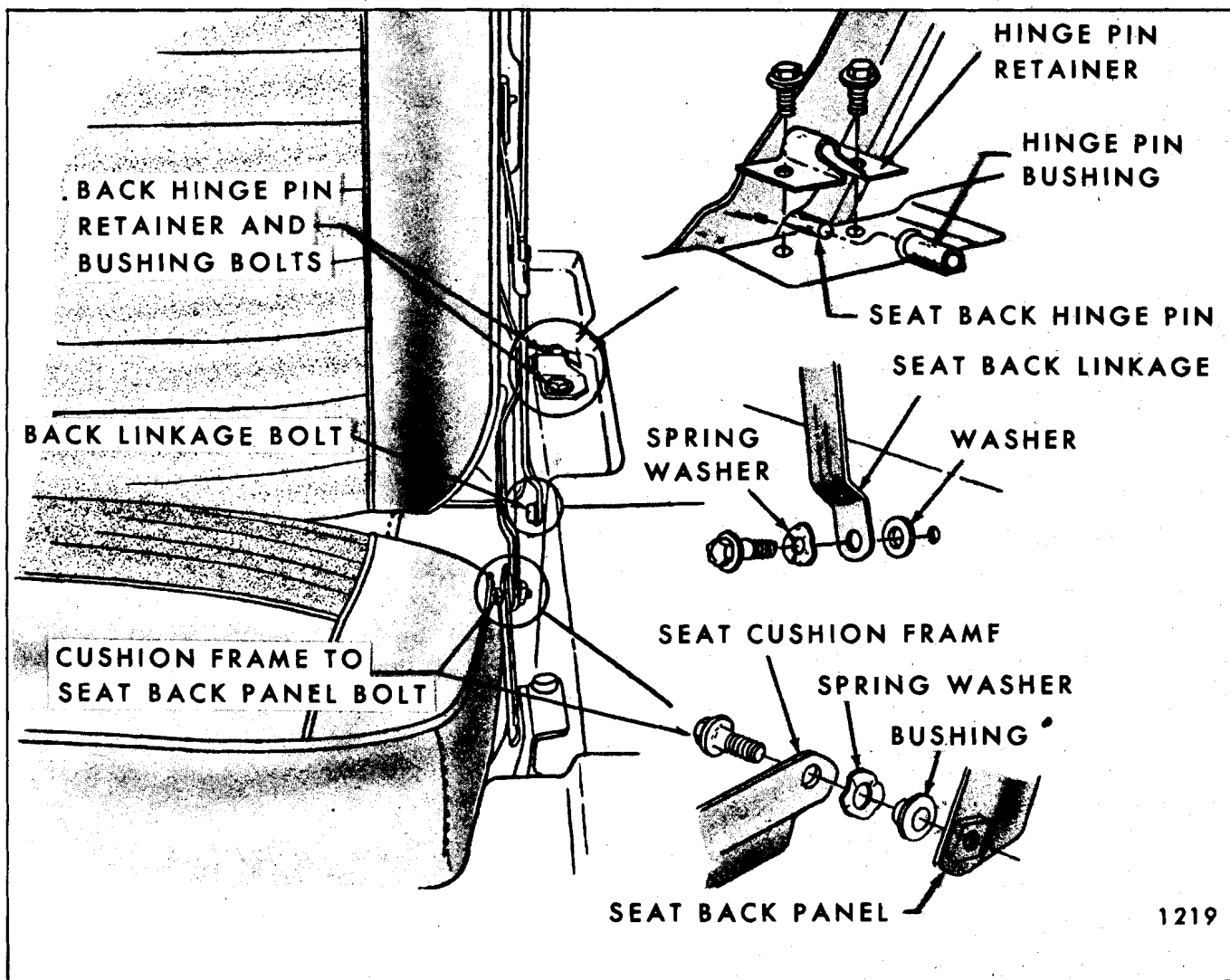


Fig. 14-83-Folding Third Seat - Vista Cruiser "66" Style

- loops on seat back trim from slots in seat back panel and remove trim assembly (Fig. 14-84).
- To remove seat back panel assembly, remove seat cushion frame-to-seat back panel attaching bolt; then, remove seat back panel with attached rear floor filler (at kick-up) panel from seat cushion (Fig. 14-83).
 - To install, reverse removal procedure. Refer to inserts in Figure 14-83 for correct installation of linkage bolts, bushings and spring washers.

FOLDING THIRD SEAT BACK LOCK- Vista Cruiser "66" Style

Removal and Installation

- Raise folding third seat back sufficiently to gain access to seat back lock at right side of seat.

- Remove lock attaching bolt finishing cap.
- Remove shoulder bolt securing lock to rear seat compartment side panel and remove lock latch, spring and washer.
- To install seat back lock latch, spring and washer, reverse removal procedure. Check operation of third seat back to assure proper operation of lock.

LUGGAGE COMPARTMENT COVER PANEL AND FILLER PANEL- Vista Cruiser "66" Style

Removal and Installation

- Raise luggage compartment cover panel and support cover panel in up position.
- Remove five hex-head screws securing cover panel

to cross bar; then, remove luggage compartment cover panel and filler panel.

3. To install, reverse removal procedure.

FOLDING SEATS AND LOAD FLOOR PANELS -

Chevrolet, Pontiac, Oldsmobile and Buick "B" Body Two-Seat and Three-Seat Station Wagons

The "B" body "35" style two-seat station wagon second seat and load floor panels are very similar to the past model (see Fig. 14-62). The "B" body "45" style three-seat station wagon incorporates new folding second and third seats and load floor panels (see Fig. 14-86).

The three-seat station wagon has a split second seat (2/3 left side and 1/3 right side). The 1/3 right side second seat has a dual action linkage which allows the seat to be moved either forward for access or entrance into the third seat area or allows the seat back to be lowered into load floor position. The dual action linkage incorporates two separate locks which lock the seat and the seat back when the seat is in the up (sitting) position and also locks out either action of the linkage while the other linkage action is in operation.

The 2/3 left side second seat linkage allows the seat back to be placed in load floor position only. The seat back incorporates a positive acting seat back lock which locks the seat back in the up (sitting) position.

The forward facing third seat can also be folded into load floor position and incorporates a lock at the lower right side of the seat which locks the seat in the up (sitting) position.

FOLDING THIRD SEAT CUSHION AND BACK ASSEMBLIES -

"B" Body Three-Seat Styles

Removal and Installation

1. Lift third seat to raised (sitting) position.
2. To remove third seat cushion assembly, remove linkage to cushion attaching bolt (Fig. 14-87) at both sides of seat cushion and remove cushion assembly from body.
3. To remove third seat back assembly perform step 2; then, remove both right and left rear floor side filler panels and remove seat back hinge pin retainer (Fig. 14-87) from both sides of seat back. Remove seat back assembly including filler panel from body.

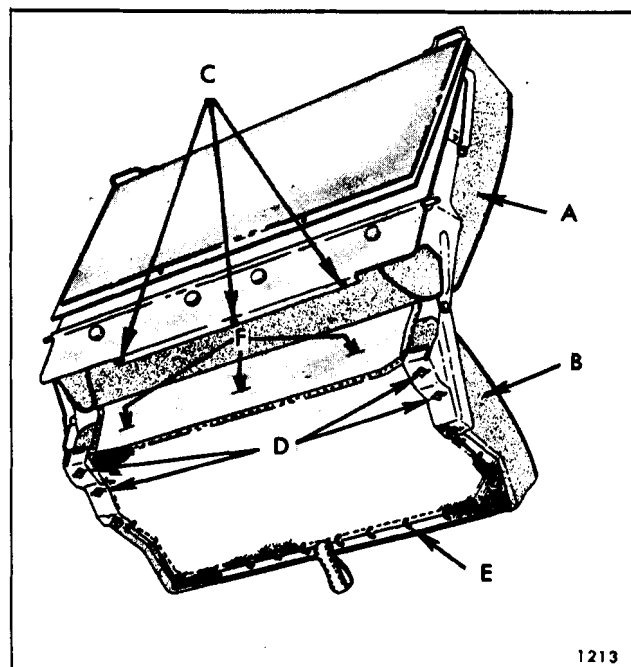


Fig. 14-84-Folding Third Seat Assembly - Vista Cruiser "66" Style

- | | |
|---|---|
| A. Third Seat Back | E. Hog Rings Securing Seat Back Trim Flap |
| B. Third Seat Cushion | F. Location of Cushion Trim to Cushion Frame Attaching Screws (Under Trim Flap) |
| C. Seat Back Trim to Seat Back Panel Attaching | |
| D. Cushion Trim to Cushion Frame Attaching Screws | |
4. To remove third seat cushion and back as an assembly, remove cushion linkage-to-floor pan support attaching bolt (Fig. 14-87); then, perform step 3 and with aid of a helper lift seat cushion and back assembly, including linkage and back filler panel, from body.
 5. To install seat cushion, seat back or seat cushion and back assembly, reverse removal procedure. Make sure hinge pin bushing (see Fig. 14-87) is installed over hinge pin at both sides of seat back prior to installing retainers.

FOLDING THIRD SEAT BACK LOCK AND LOCK STRIKER- "B" Body Three-Seat Station Wagons

Removal and Installation

1. Partially lower seat back to a point where seat back lock is accessible for removal.
2. Using an internal drive hex-head wrench, remove

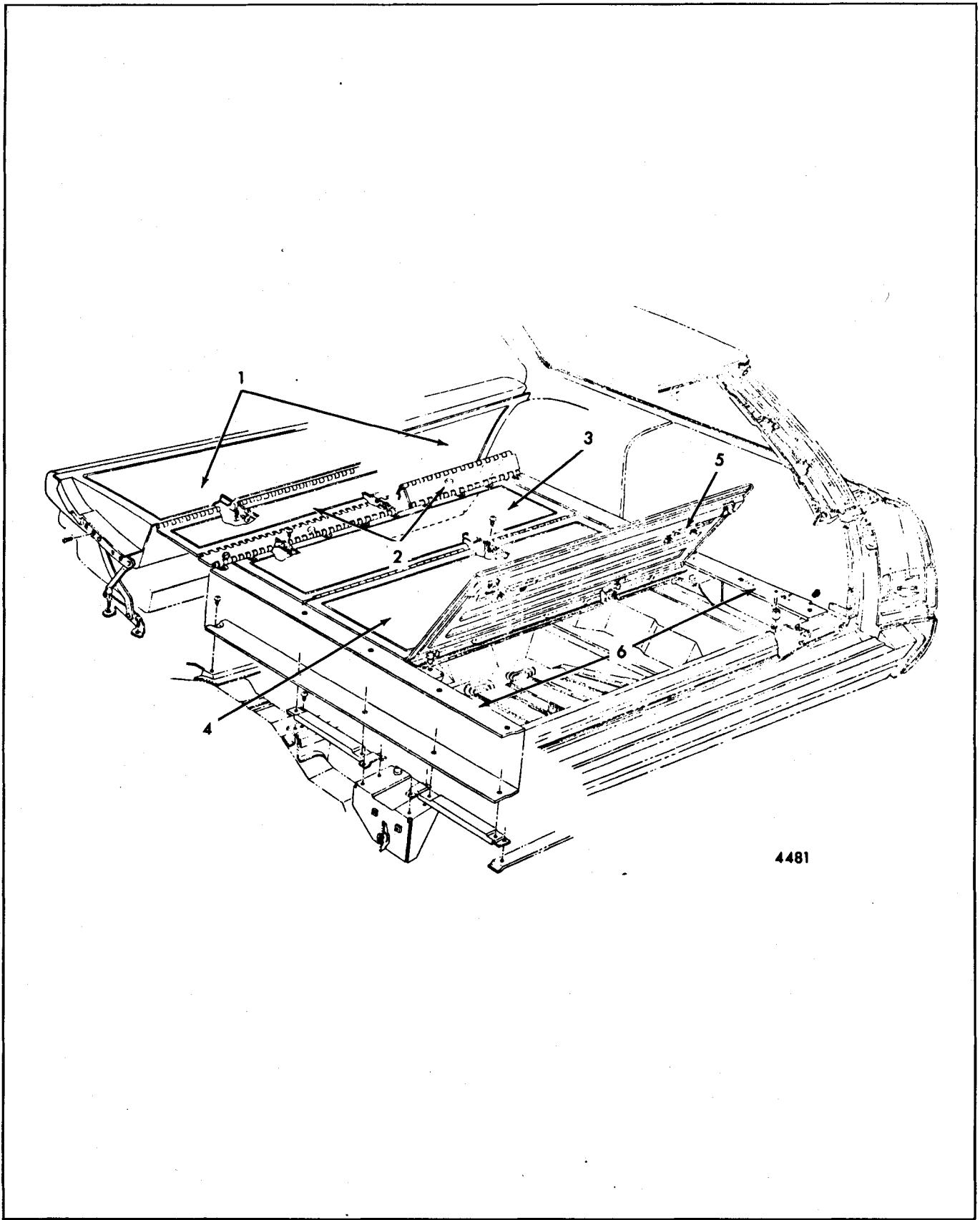
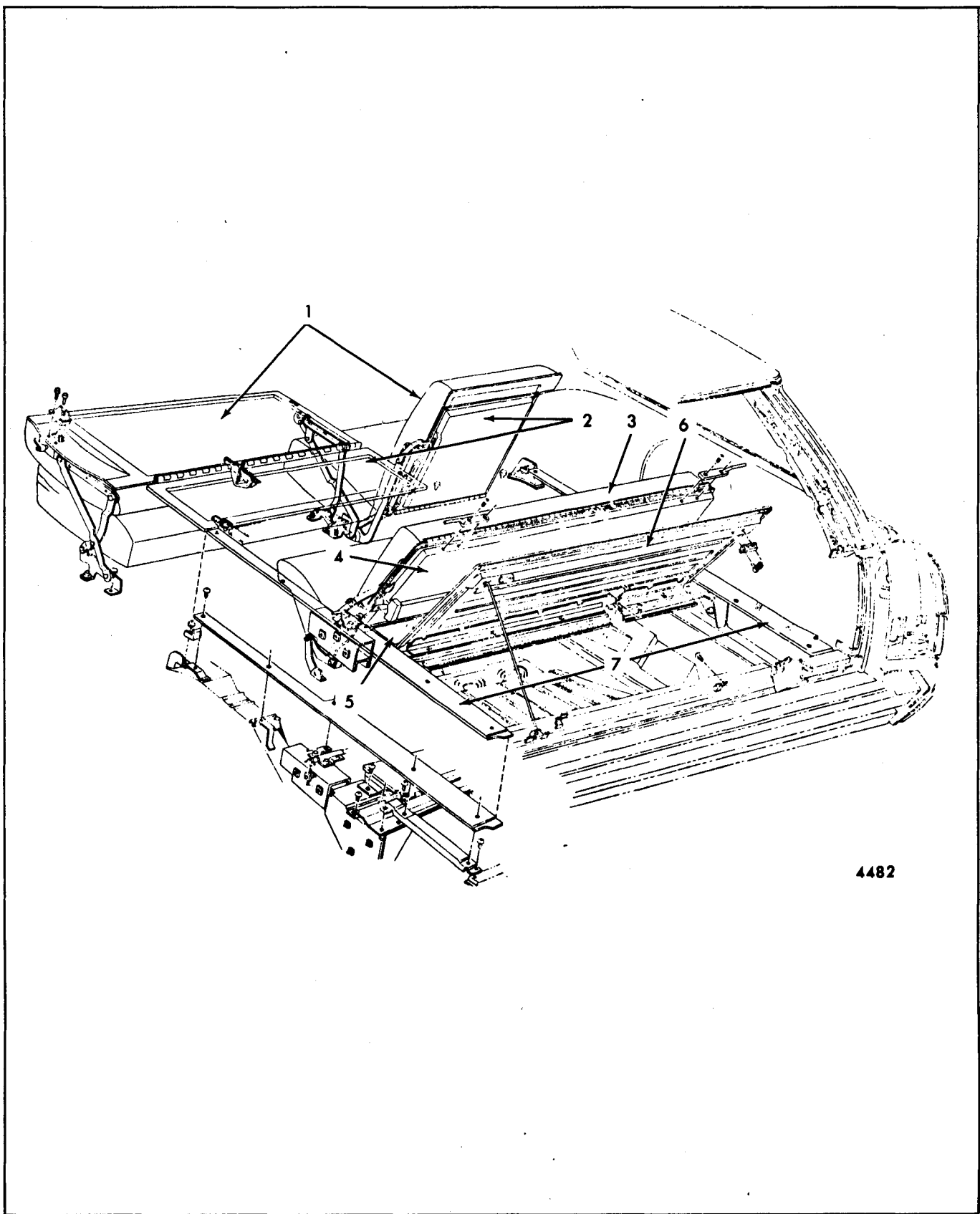


Fig. 14-85-Folding Second Seat and Load Floor Panels - "B" Body Two-Seat Station Wagon



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Fig. 14-86-Folding Second and Third Seat and Load Floor Panels - "B" Body Three-Seat Station Wagons

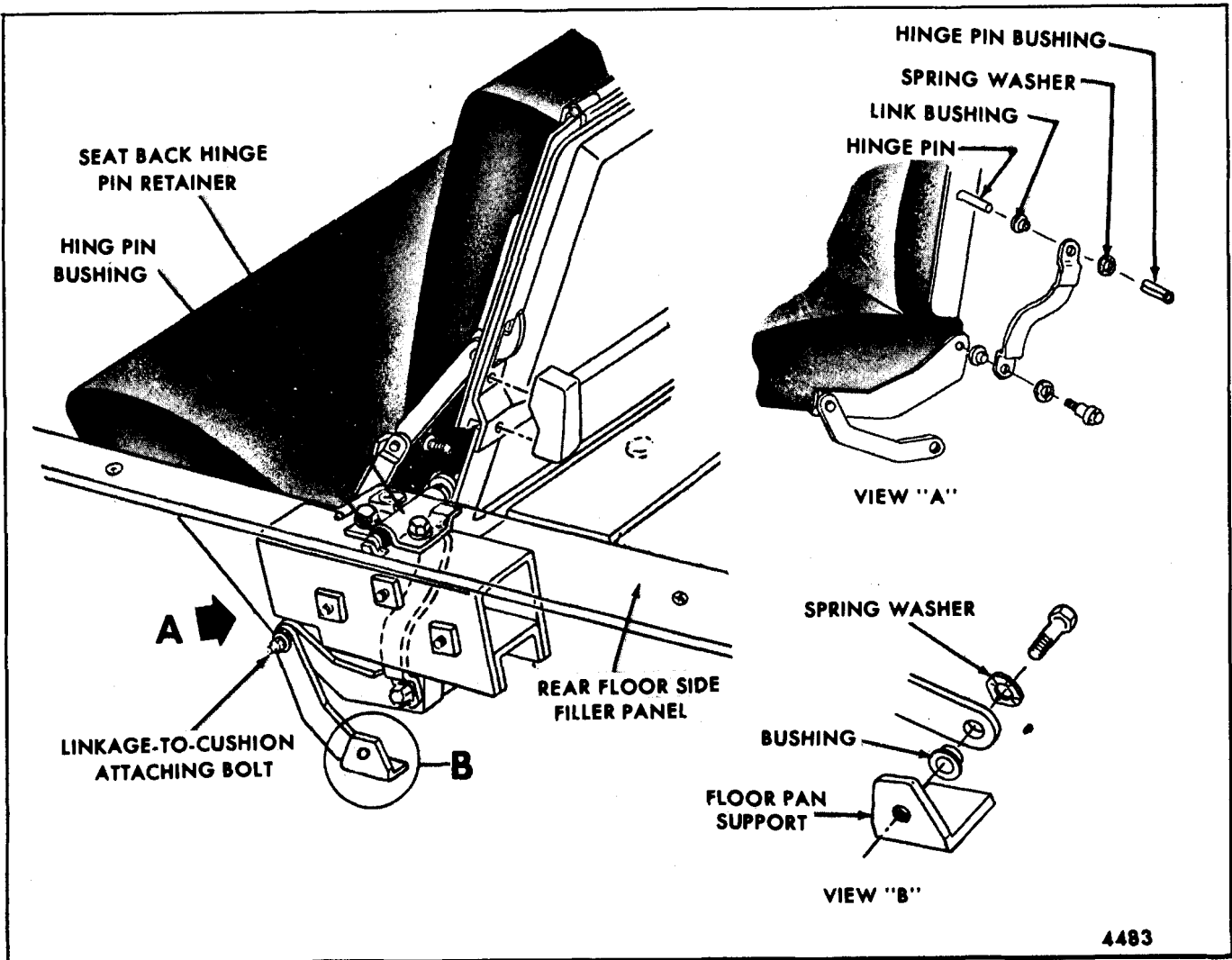


Fig. 14-87-Third Seat Cushion, Back and Linkage - "B" Body Three-Seat Station Wagon

seat back lock assembly from lower right corner of seat back panel.

3. To remove lock striker use an internal star-drive wrench.
4. To install seat back lock or lock striker reverse removal procedure, engage lock spring under tab on seat back panel. Tighten lock assembly 14-22 ft. lbs. Tighten lock striker 22-34 ft. lbs.

FOLDING THIRD SEAT BACK TRIM, FOAM PAD AND FOUNDATION BOARD ASSEMBLY- "B" Body Three-Seat Station Wagons

Removal and Installation

1. Raise luggage compartment panel and prop in "up" position. Lower third seat back sufficiently to

gain access (through luggage compartment) to attaching screws along bottom of seat back.

2. Working through luggage compartment remove three screws along bottom of seat back panel securing foundation board to seat back panel.
3. Raise third seat back sufficiently to pull lower edge of trim, foam pad and foundation board forward; then, lift assembly upward to disengage upper edge of assembly from hanger tabs on seat back panel and remove assembly.
4. To install assembly, reverse removal procedure.

SECOND SEAT CUSHION- "B" Body Two-Seat and Three Seat-Station Wagons

The second seat cushion on the two-seat station wagons and the second seat left side cushion (2/3 side) on the three-seat station wagons are removed and

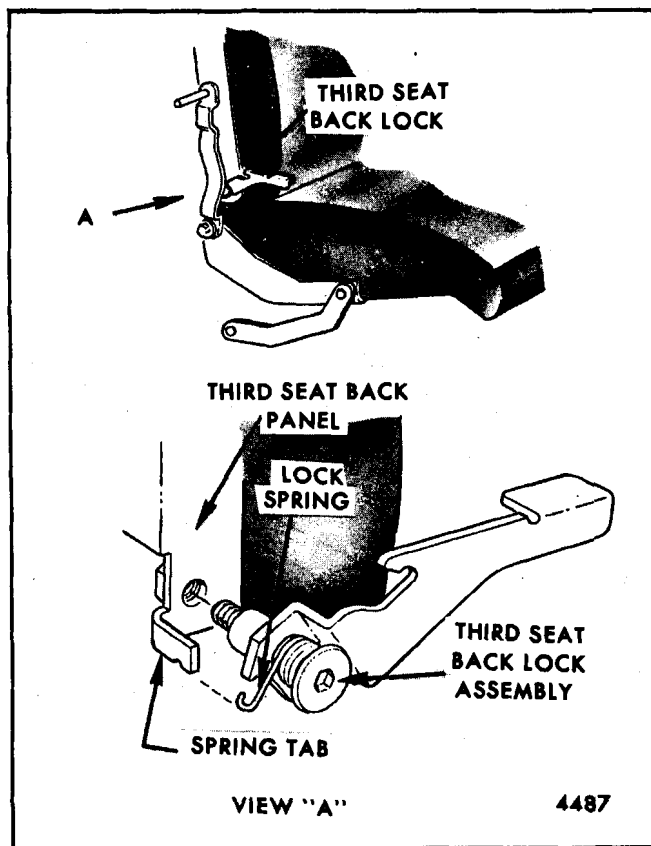


Fig. 14-88-Folding Third Seat Back Lock - "B" Body Three-Seat Station Wagon

installed in the same manner as the regular sedan styles - refer to "Rear Seat Cushion - Removal and Installation".

To remove the right side second seat cushion (1/3 seat) on three-seat station wagon styles, place the seat assembly in the forward position. From under both rear and front of seat cushion remove bolts securing cushion assembly to inner and outer rear linkage (see Fig. 14-90) and to front linkage; then, remove cushion assembly.

FOLDING SECOND SEAT BACK TRIM, FOAM PAD AND WIRE MAT ASSEMBLY- "B" Body Two-Seat and Three-Seat Station Wagons

Removal and Installation

1. Lower folding second seat back to load floor position, leave filler panel against seat back.
2. At bottom of seat back and at cut-outs in filler panel piano hinge, remove trim and foam pad wire mat attaching screws.
3. Raise seat back sufficiently to pull lower edge of

trim, foam pad and wire mat forward; then, lift assembly upward to disengage upper edge of assembly from hanger tabs on seat back panel and remove assembly.

4. To install, reverse removal procedure - use awl or suitable tool to locate wire mat attaching holes through bottom of seat back panel.

FOLDING SECOND SEAT BACK AND FILLER PANEL ASSEMBLY (Less Linkage)- "B" Body Two-Seat and Three-Seat Station Wagons

Removal and Installation

1. Lower seat back to load floor position, leave filler panel against seat back.
2. At both right and left side of seat back, remove linkage to seat back panel attaching screws (Figs. 14-91, 14-89 and 14-90) and remove seat back assembly with filler panel from linkage.
3. To install second seat back and filler panel assembly, reverse removal procedure.

FULL WIDTH FOLDING SECOND SEAT BACK LINKAGE ASSEMBLY AND FOLDING SECOND (2/3) SEAT BACK OUTER LINKAGE ASSEMBLY- "B" Body Two-Seat and Three-Seat Station Wagon

Removal and Installation

1. Lower folding second seat back to load floor position, leave filler panel against seat back.
2. Remove linkage-to-seat back panel attaching screws (Fig. 14-89); then, remove linkage-to-floor pan attaching screws (Fig. 14-89) and remove linkage assembly.
3. To install linkage assembly, reverse removal procedure.

FOLDING SECOND (2/3) SEAT BACK ASSEMBLY AND/OR (2/3) SEAT BACK INNER LINKAGE ASSEMBLY- "B" Body Three-Seat Station Wagon

Removal and Installation

1. Remove 2/3 seat cushion assembly.
2. Loosen 1/3 seat torque rod-to-floor pan attaching nut (see Fig. 14-90). Move 1/3 seat forward to a

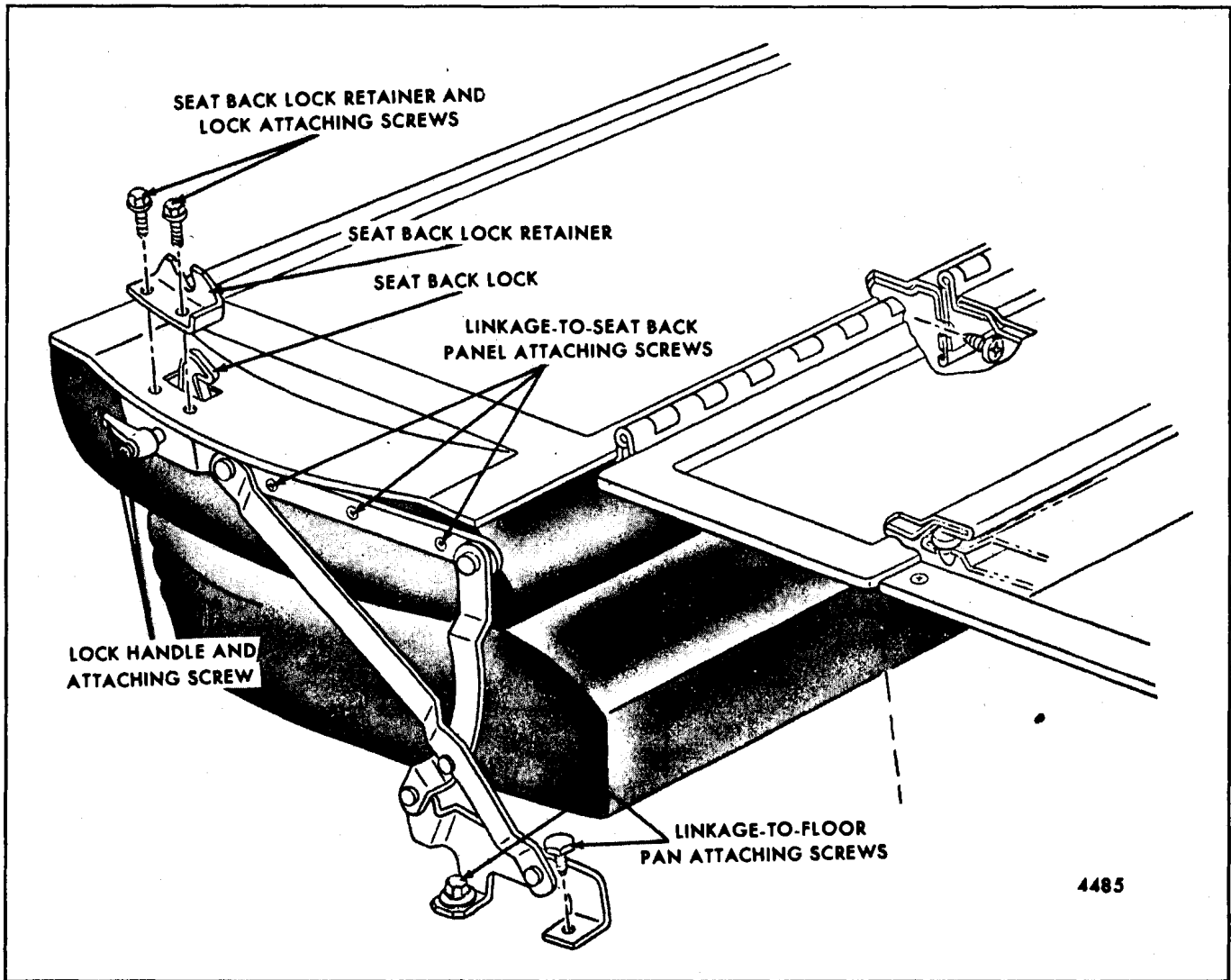


Fig. 14-89-Folding Second 2/3 Seat Back and Linkage - "B" Body Three-Seat Station Wagon

position where torque is relieved from rod; then, remove torque rod nut.

3. Remove 1/3 seat back inner link-to-2/3 seat back inner link attaching bolt (Fig. 14-91).
4. Remove 2/3 seat back inner linkage-to-floor pan attaching nuts (Fig. 14-91).
5. Remove 2/3 seat back outer linkage-to-floor pan attaching bolts (Fig. 14-89); then, remove second 2/3 seat assembly, including linkages from body.
6. If removing inner linkage assembly, remove inner linkage to seat back panel attaching screws as a bench operation and remove linkage assembly from seat back.
7. To install second 2/3 seat back or inner linkage assembly, reverse removal procedure. Make sure

bushing and spring washer are installed at 1/3 seat back inner link-to-2/3 seat back inner linkage attachment (Fig. 14-91).

FOLDING SECOND (1/3) SEAT ASSEMBLY (Including Inner, Outer and Front Linkage Assemblies)- "B" Body Three-Seat Station Wagon

Removal and Installation

1. Loosen torque rod-to-floor pan attaching nut (Fig. 14-90). Move 1/3 seat forward to a position where torque is relieved from rod; then, remove torque rod nut.
2. Move 1/3 seat to full forward position, and remove bolt securing 1/3 seat back inner link to 2/3 seat back inner link (See Fig. 14-90).

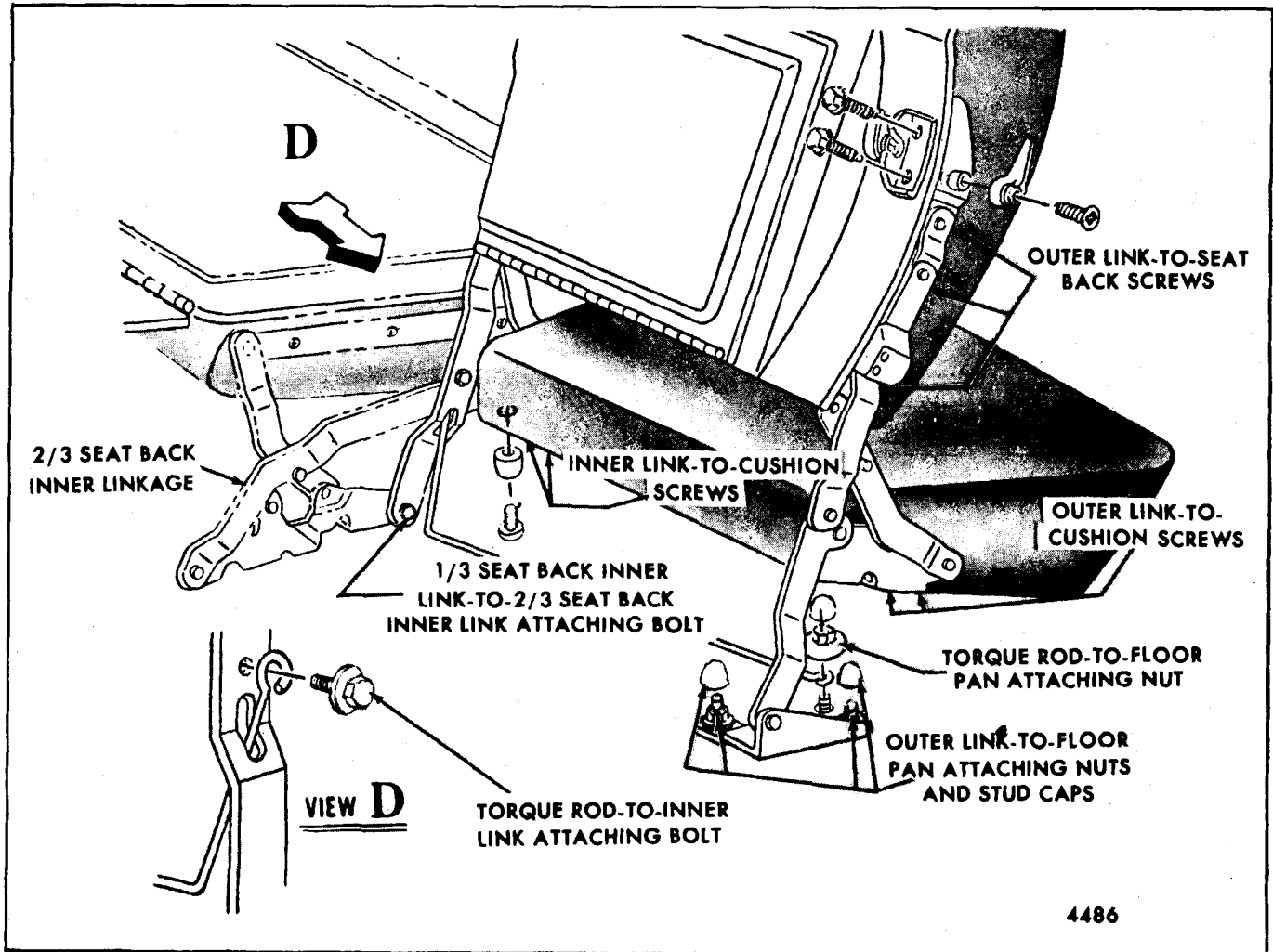


Fig. 14-90-Folding Second 2/3 Seat Back Inner Linkage and 1/3 Seat Back Outer Linkage - "B" Body Three-Seat Station Wagon

3. Remove 1/3 seat cushion front linkage-to-floor stud caps and attaching nuts.
4. Remove 1/3 seat back outer linkage-to-floor pan stud caps and attaching nuts (Fig. 14-90); then, remove seat assembly, including all attached linkages, from body.

Linkage assemblies may be removed from 1/3 seat, as required. Refer to Figure 14-90 and 14-91 for 1/3 seat linkage attachments.

5. To install 1/3 seat assembly, reverse removal procedure. Make sure that bushing and spring washer is installed at 1/3 seat back inner link-to-2/3 seat back inner link base plate attachment.

FOLDING SECOND (1/3) SEAT BACK OUTER LINKAGE ASSEMBLY- "B" Body Three-Seat Station Wagon

Removal and Installation

1. Fold right 1/3 seat back to a position where seat back outer linkage-to-seat back screws, indicated in Figure 14-90, are accessible; then, remove screws.
2. Remove seat back outer linkage-to-seat cushion screws (Fig. 14-90).
3. Remove seat back outer linkage-to-floor pan attaching stud caps and nuts at locations indicated in Figure 4486; then, remove outer linkage from seat.
4. To install 1/3 seat back outer linkage assembly, reverse removal procedure.

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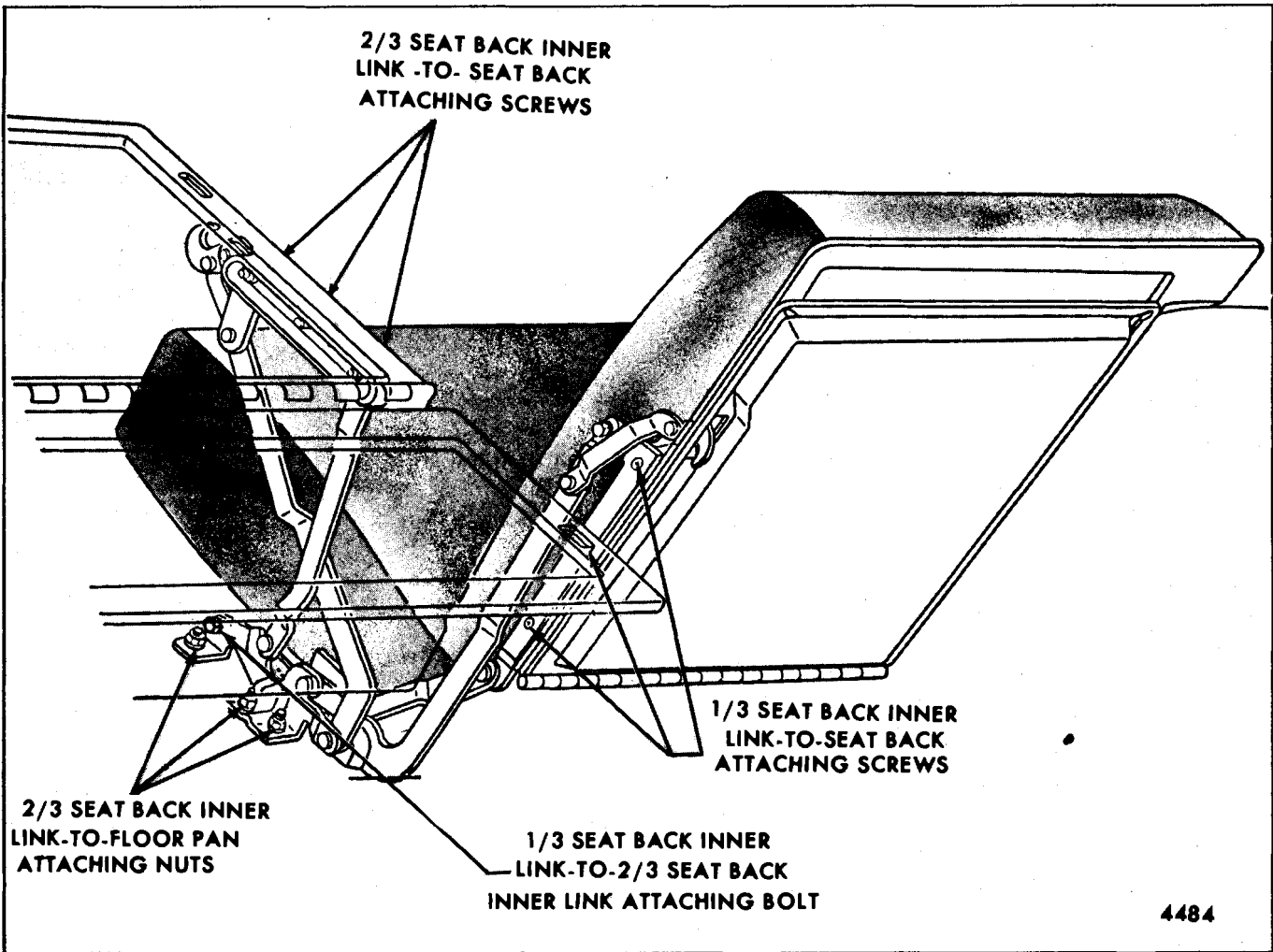


Fig. 14-91-Folding Second 2/3 Seat Back Inner Linkage and 1/3 Seat Back Inner Link - "B" Body Three-Seat Station Wagon

LAP BELTS AND SHOULDER BELTS - General Information-All Styles

Front and rear lap belts and front seat shoulder belts, except convertible shoulder belts, are installed on all cars as standard equipment. Convertible style front seat shoulder belts and rear seat shoulder belts on all styles are available as factory optional equipment or as a dealer installed accessory.

Before servicing or replacing lap belts and shoulder belts, refer to the following precautionary items:

1. Lap belts must be serviced in matched sets.
 - a. DO NOT replace one-half of lap belt or shoulder belt set.
 - b. DO NOT intermix standard and deluxe lap belts or shoulder belts on front or rear seats.
2. Keep sharp edges and damaging objects away from lap belts or shoulder belts.
3. Exercise caution to avoid bending or damaging any portion of the belt buckle or latch.
4. Do not bleach or re-dye belt or strap webbing (clean with a mild soap solution and water).
5. When installing lap belt or shoulder belt anchor bolt, start bolt by hand to assure that bolt is threaded straight.
6. DO NOT attempt repairs on lap belt retractor mechanisms. Replace defective part with NEW service replacement parts.

IMPORTANT: LAP BELT TO FLOOR PAN ANCHOR FASTENERS AND SHOULDER BELT TO ROOF RAIL, REAR QUARTER, OR REAR SEAT TO BACK WINDOW PANEL FASTENERS ARE IMPORTANT ATTACHING PARTS IN THAT THEY COULD AFFECT THE PERFORMANCE OF VITAL COMPONENTS AND SYSTEMS, AND/OR COULD RESULT IN MAJOR REPAIR EXPENSE. THEY MUST BE REPLACED WITH ONE OF THE SAME PART NUMBER OR WITH AN EQUIVALENT PART IF REPLACEMENT BECOMES NECESSARY. DO NOT USE A REPLACEMENT PART OF LESSER QUALITY OR SUBSTITUTE DESIGN. TORQUE VALUES MUST BE USED AS SPECIFIED DURING REASSEMBLY TO ASSURE PROPER RETENTION OF THESE PARTS.

7. Tighten lap belt or shoulder belt floor pan anchor bolts to specified torque - 24 to 45 ft. lbs. Tighten shoulder belt roof rail, quarter panel or rear seat-to-back window panel anchor bolts - 12 to 18 ft. lbs.

IMPORTANT: Specified 1/2 inch - 13 UNC - 2A bolts must be used for all lap belt and shoulder belt floor pan anchorages. Shoulder belt roof rail, quarter panel or rear seat-to-back window panel anchorages use specified 5/16 inch - 18 UNC - 2A bolts.

STANDARD FRONT LAP BELT RETRACTOR- (Belts With Plastic Buckle Cover) RETRACTOR-(BELTS WITH PLASTIC BUCKLE COVER)

To disengage standard lap belt retractor cover, carefully exert pressure in direction of arrows, Figure 14-92, to disengage the cover from tabs on the

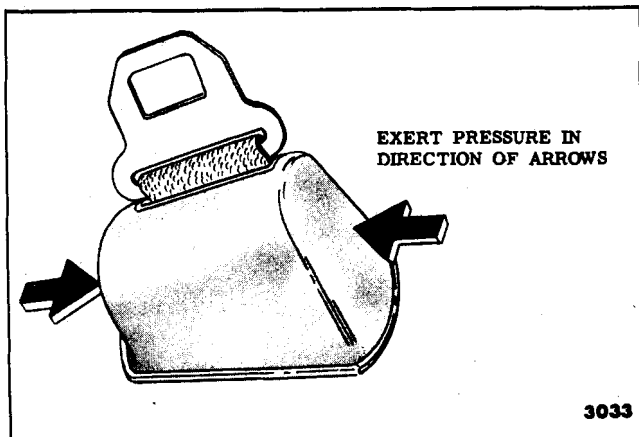


Fig. 14-92-Standard Front Lap Belt Retractor
(Belts with Plastic Buckle Cover)

retractor. Lift cover to expose seat belt retractor anchor bolt and remove bolt.

FRONT LAP BELT RETRACTOR (Swivel and Non-Swivel Type)- "X" Body Coupes

To disengage lap belt retractor cover, place finger under outboard rear corner of cover and pull outward while pulling cover "up" with other hand. Lift up cover to expose retractor anchor bolt and remove bolt.

STANDARD FRONT LAP BELT RETRACTOR- (Belts With Vinyl Covered Metal Buckle)

With belt fully extended, insert screwdriver through belt opening in cover, as shown in Figure 14-93, apply just enough outward pressure to inside of cover adjacent to metal tabs to disengage cover from tabs. Lift up cover to expose seat belt retractor anchor bolt.

DELUXE SELF LOCKING FRONT LAP BELT RETRACTORS •

Removal

1. Position front seat assembly to full forward and up positions.
2. Insert the blade of a 2-1/2" or 4" flat-bladed screw driver up under the retractor cover and engage blade of screw driver over top of retaining spring, as shown in Figure 14-94. Press retaining spring downward; then, pull retractor and cover assembly rearward and upward to disengage retractor and cover from anchor plate assembly.

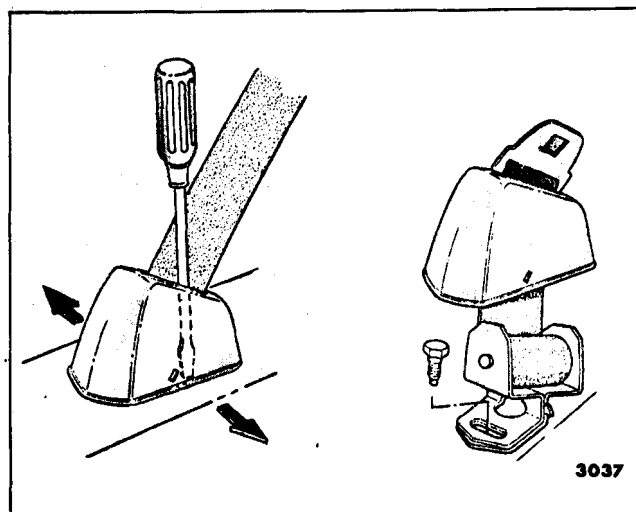


Fig. 14-93-Standard Front Lap Belt Retractor
(Belts with Vinyl Covered Metal Buckle)

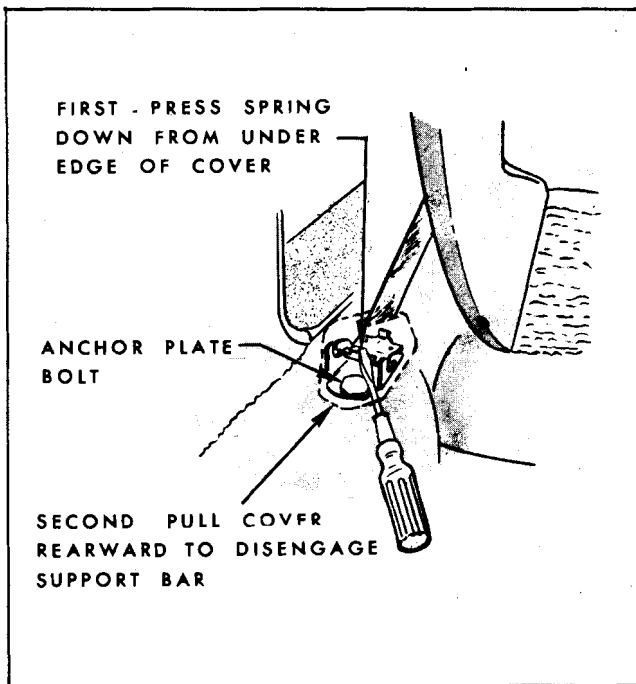


Fig. 14-94-Deluxe Front Lap Belt Self-Locking Retractor - Removal

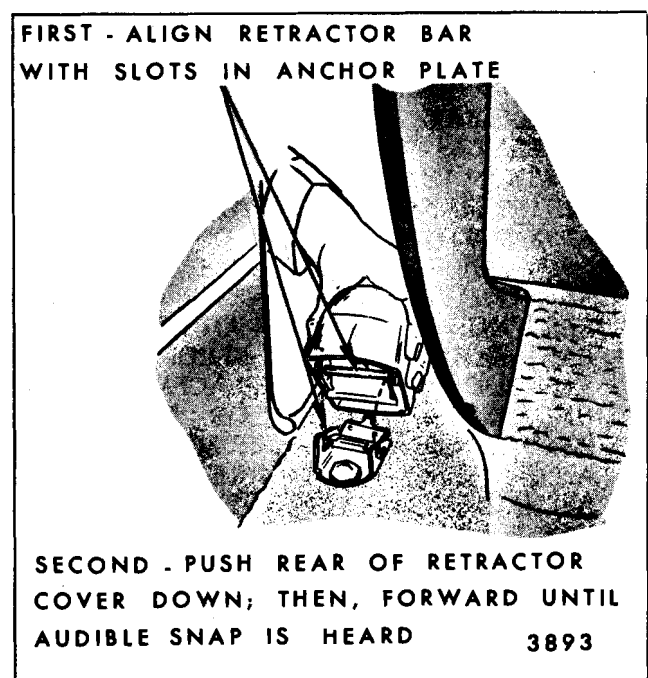


Fig. 14-95-Deluxe Front Lap Belt Self-Locking Retractor - Installation

3. Remove anchor plate attaching bolt and remove anchor plate assembly.

Installation

1. Properly position anchor plate assembly on floor pan and start attaching bolt by hand. Tighten anchor plate attaching bolt to specified torque (24 to 45 ft. lbs.).
2. Position retractor and cover assembly over anchor plate assembly so that bar in retractor is aligned with slots in anchor plate. Push rear of retractor assembly down and then forward to lock retractor to anchor plate (see Fig. 14-95).

NOTE: An AUDIBLE SNAP will be heard when retaining spring on anchor plate locks retractor bar into position.

3. Check operation of lap belt retractor several times to assure proper operation.

IMPORTANT: DO NOT attempt any repairs on either the retractor and cover mechanism or the anchor plate assembly. In addition lap belts MUST BE serviced in matched sets (retractor and cover assembly, anchor plate assembly and buckle end of belt). DO NOT replace only one part of lap belt set.

REAR SEAT BAIL TYPE RETRACTOR

As an option, rear lap belts are available with bail type seat belt retractors on the outboard rear lap belt only.

Removal

1. Extend outboard lap belt to full length.
2. Insert a piece of stiff wire such as a paper clip in slot in roller drum to maintain spring tension of retractor (see Fig. 14-96).

IMPORTANT: Keep wire in slot until retractor is reinstalled. In the event that spring tension is lost, drum on retractor can be turned 8 revolutions by hand to regain spring tension.

3. Using a flat-bladed tool pry open tabs that secure belt webbing on drum and remove retractor from belt (see Fig. 14-96).

Installation

1. With lap belt fully extended, insert belt under tabs on retractor (tabs of retractor should be on inboard side of belt webbing and bail pointing forward) and position retractor at center of belt webbing.
2. Using pliers, bend down tabs to secure retractor in correct position on belt webbing.

3. Remove wire from slot in drum (when installing a new retractor, remove retaining clip on retractor drum to release spring tension) and allow belt to roll up on retractor.

LAP BELTS AND SHOULDER BELTS

Removal and Installation

Refer to illustrations on following pages and select the appropriate illustration for removing and installing seat belts and shoulder belts.

IMPORTANT: LAP BELT TO FLOOR PAN ANCHOR FASTENERS AND SHOULDER BELT TO ROOF RAIL, REAR QUARTER, OR REAR SEAT TO BACK WINDOW PANEL FASTENERS ARE IMPORTANT ATTACHING PARTS IN THAT THEY COULD AFFECT THE PERFORMANCE OF VITAL COMPONENTS AND SYSTEMS, AND/OR COULD RESULT IN MAJOR REPAIR EXPENSE. THEY MUST BE REPLACED WITH ONE OF THE SAME PART NUMBER OR WITH AN EQUIVALENT PART IF REPLACEMENT BECOMES NECESSARY. DO NOT USE A REPLACEMENT PART OF LESSER QUALITY OR SUBSTITUTE DESIGN. TORQUE VALUES MUST BE USED AS SPECIFIED DURING REASSEMBLY TO ASSURE PROPER RETENTION OF THESE PARTS.

Check position of factory installed lap belt and shoulder belt anchors and reinstall anchor plates in same position. Care must be exercised when making

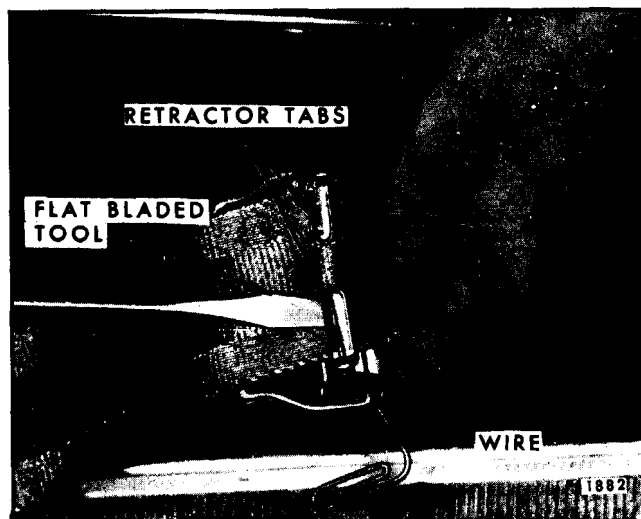


Fig. 14-96-Removal of Bail Type Retractor From Lap Belt

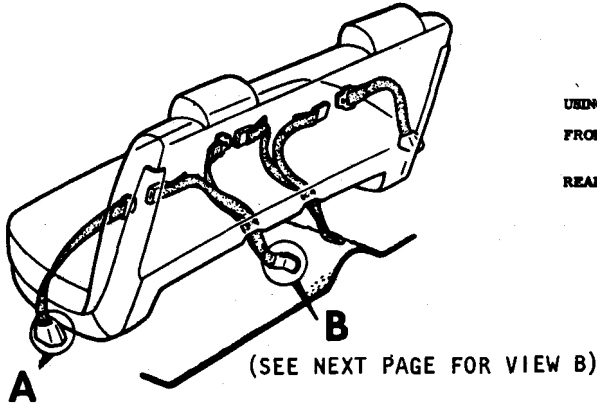
installation that all anchor plates inter-lock, as shown in illustrations.

To remove full width seat igner lap belt(s) from seat, remove anchor bolts at floor pan and carefully pull floor anchor end of belt through lap belt protector.

When installing belts **TIGHTEN ANCHOR BOLTS 24 TO 45 LBS.** On two-door styles, it is important that seat belt webbing is routed over seat back outer hinge arm and **NOT** under arm.

INSTRUCTIONS

USING SEAT VIEWS LOCATE PROPER SEAT FOR SPECIFIC LAP BELT REPLACEMENT
FRONT SEAT MOVE TO FULL FORWARD POSITION AND REFER TO ANCHORAGE VIEWS FOR REMOVAL AND INSTALLATION OF BELTS.
REAR SEAT GAIN ACCESS TO FLOOR ANCHORAGE AS INDICATED AND REFER TO ANCHORAGE VIEWS FOR REMOVAL AND INSTALLATION OF BELTS.

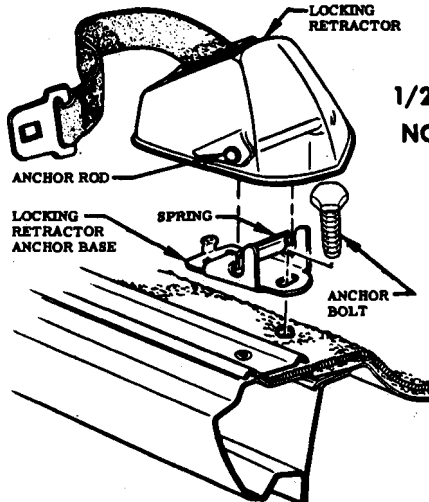
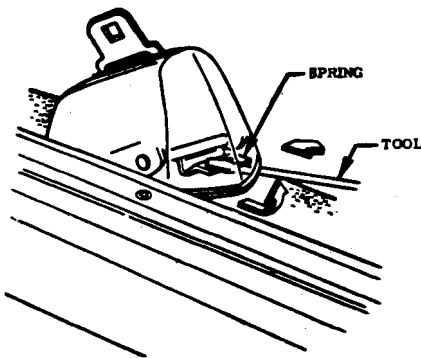


CAUTION

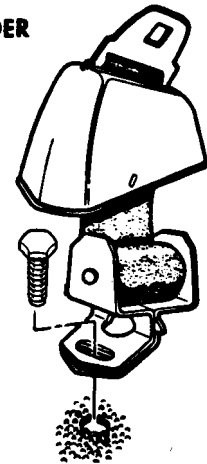
CHECK POSITION OF FACTORY INSTALLED BELT ANCHORAGE AND INSTALL REPLACEMENT BELT AND ANCHOR PLATE IN SAME POSITION.

LOCKING RETRACTOR

NON-LOCKING RETRACTOR



1/2" 13 THREAD
NO SHOULDER



REMOVAL

- 1 INSERT TOOL UNDER COVER AT REAR OF SEAT SIDE AND DEPRESS SPRING.
- 2 HOLDING SPRING DEPRESSED MOVE RETRACTOR REARWARD AND LIFT FROM RETRACTOR ANCHOR BASE.
- 3 REMOVE EXISTING ANCHOR BOLT (SEE CAUTION NOTE) IF RETRACTOR ANCHOR BASE IS TO BE REPLACED.

INSTALLATION

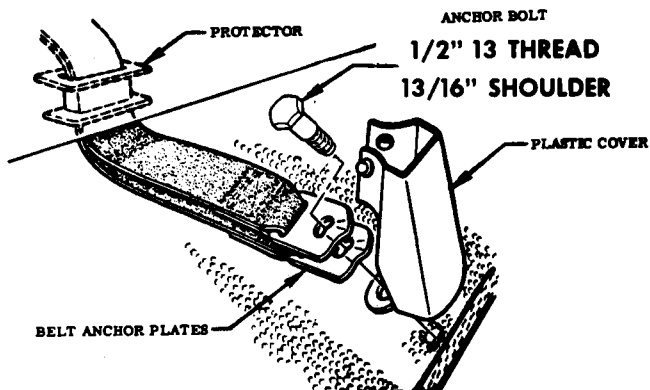
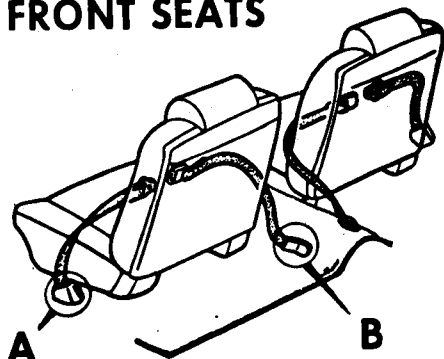
- 1 IF RETRACTOR ANCHOR BASE IS REPLACED SECURE TO FLOOR ANCHORAGE WITH ANCHOR BOLT (SEE CAUTION NOTE)
- 2 INSERT ANCHOR ROD INTO SLOTS OF ANCHOR BASE UNTIL AN AUDIBLE SNAP IS HEARD.

VIEW A

FRONT SEATS - ALL EXCEPT NOVA, CAMARO AND FIREBIRD

Fig. 14-97-Front Seat Lap Belts - All Styles Except Nova, Camaro and Firebird

FRONT SEATS

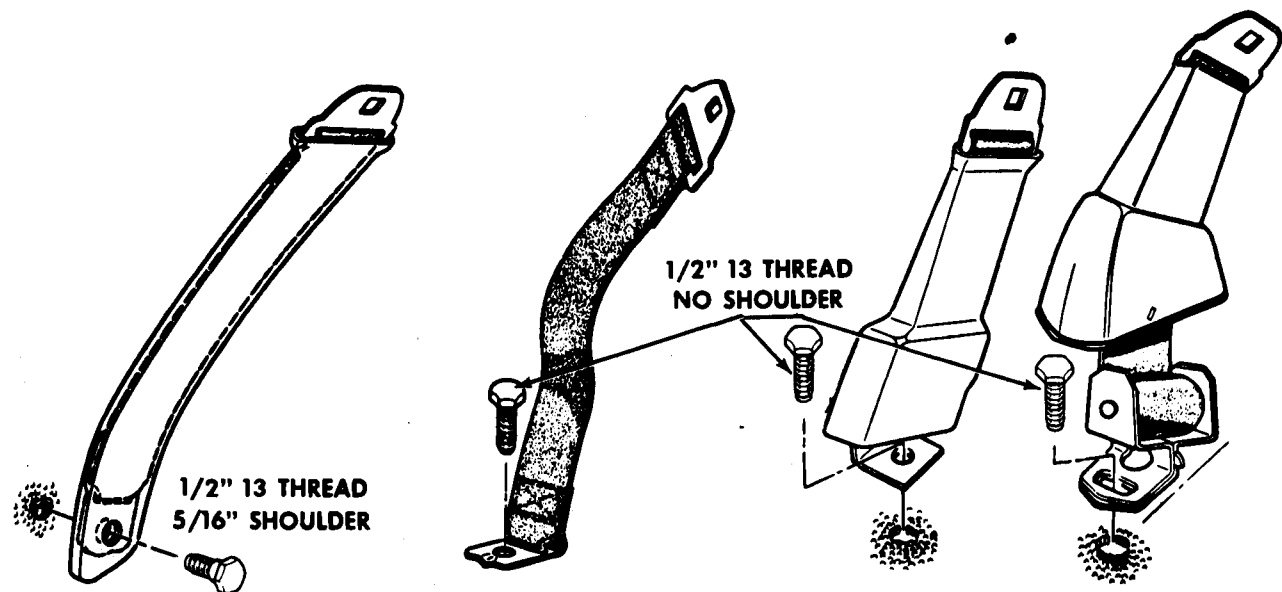


- ① LIFT PLASTIC COVER, REMOVE ANCHOR BOLT AND OLD BELT (SEE CAUTION NOTE)
- ② ADD NEW BELT AND INSERT ANCHOR BOLT (PROPER ANCHOR BOLT IS SHOWN AT RIGHT) THROUGH BELT ANCHOR PLATES AND PLASTIC COVER, SECURE TO FLOOR ANCHORAGE (SEE CAUTION NOTE)

CAUTION

CHECK POSITION OF FACTORY INSTALLED BELT ANCHORAGE AND INSTALL REPLACEMENT BELT AND ANCHOR PLATE IN SAME POSITION. CARE MUST BE EXERCISED WHEN MAKING REPLACEMENT THAT ALL BELT ANCHOR PLATES INTER-LOCK AS SHOWN.

VIEW B.



CAMARO AND FIREBIRD

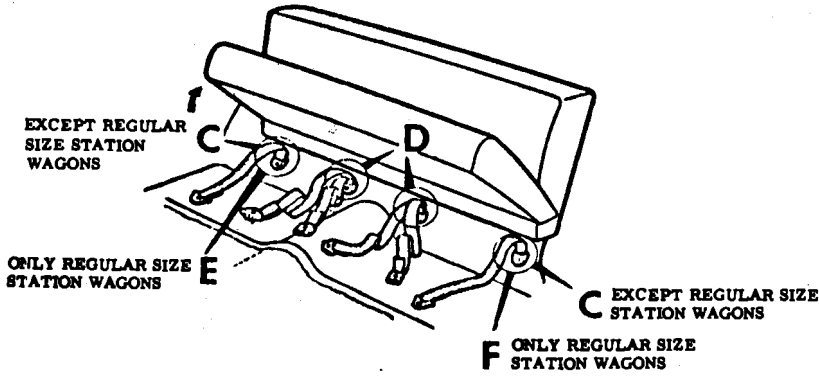
ALL STYLES NOVA STANDARD

2 DOOR STYLES 4 DOOR STYLES NOVA DELUXE

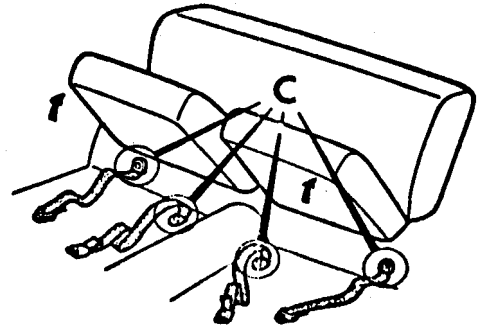
VIEW A

Fig. 14-98-Front Seat Lap Belts - Nova, Camaro and Firebird

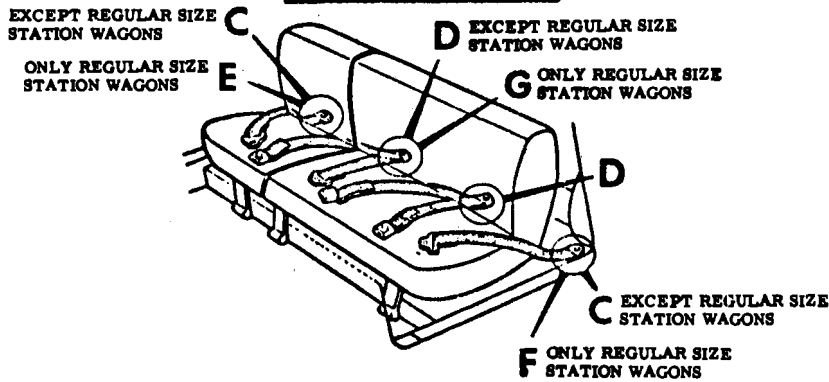
SECOND OR REAR SEAT



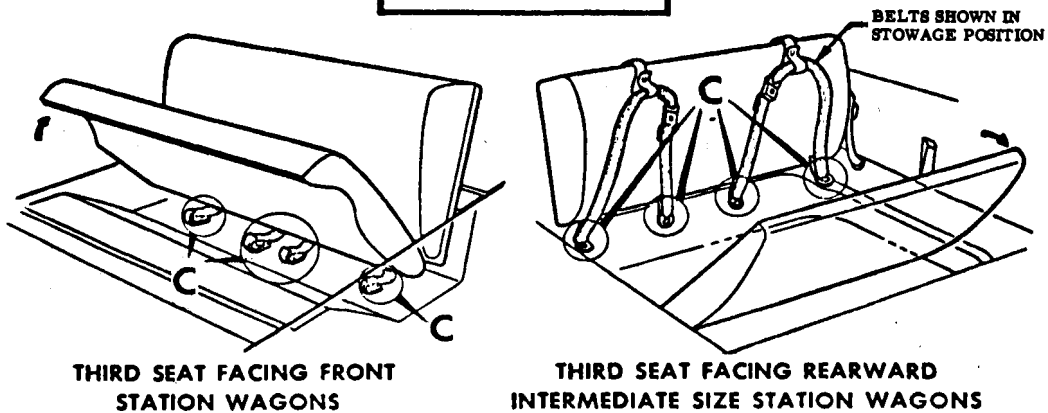
**REAR SEAT
CAMARO & FIREBIRD**



1/3-2/3 SEAT



THIRD SEATS



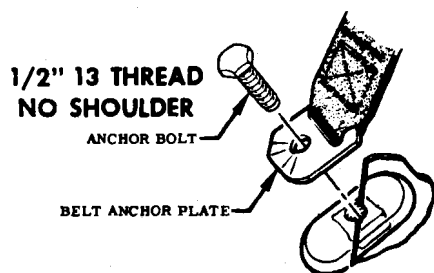
CAUTION

CHECK POSITION OF FACTORY INSTALLED BELT ANCHORAGE AND INSTALL REPLACEMENT BELT AND ANCHOR PLATE IN SAME POSITION. CARE MUST BE EXERCISED WHEN MAKING REPLACEMENT THAT ALL BELT ANCHOR PLATES INTER-LOCK AS SHOWN.

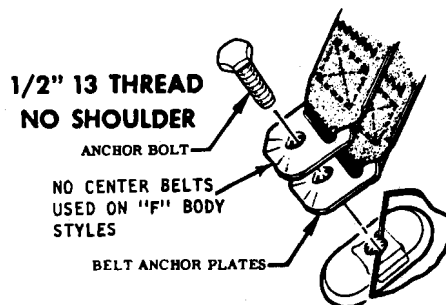
NOTE - SEE NEXT PAGE FOR VIEWS

Fig. 14-99-Rear, Second and Third Seat Lap Belts - All Styles

(SEE PREVIOUS PAGE FOR VIEW LOCATIONS)



VIEW C



VIEW D

- ① REMOVE ANCHOR BOLT AND OLD BELT (SEE CAUTION NOTE)
 - ② PROTECTOR MUST BE REMOVED FROM FACTORY INSTALLED BELT WHERE USED AND ASSEMBLED TO REPLACEMENT BELT PRIOR TO INSTALLATION (SEE CAUTION NOTE)
 - ③ INSERT ANCHOR BOLT (PROPER ANCHOR BOLT IS SHOWN IN UPPER LEFT CORNER) THROUGH ANCHOR PLATE OR PLATES AND PROTECTOR WHERE USED. SECURE TO FLOOR ANCHORAGE (SEE CAUTION NOTE)
- NOTE: IN VIEW F ANCHOR BOLT MUST PASS THROUGH SEAT SUPPORT PRIOR TO BELT ANCHOR PLATE.

CAUTION

CHECK POSITION OF FACTORY INSTALLED BELT ANCHORAGE AND INSTALL REPLACEMENT BELT AND ANCHOR PLATE IN SAME POSITION. CARE MUST BE EXERCISED WHEN MAKING REPLACEMENT THAT ALL BELT ANCHOR PLATES INTER-LOCK AS SHOWN.

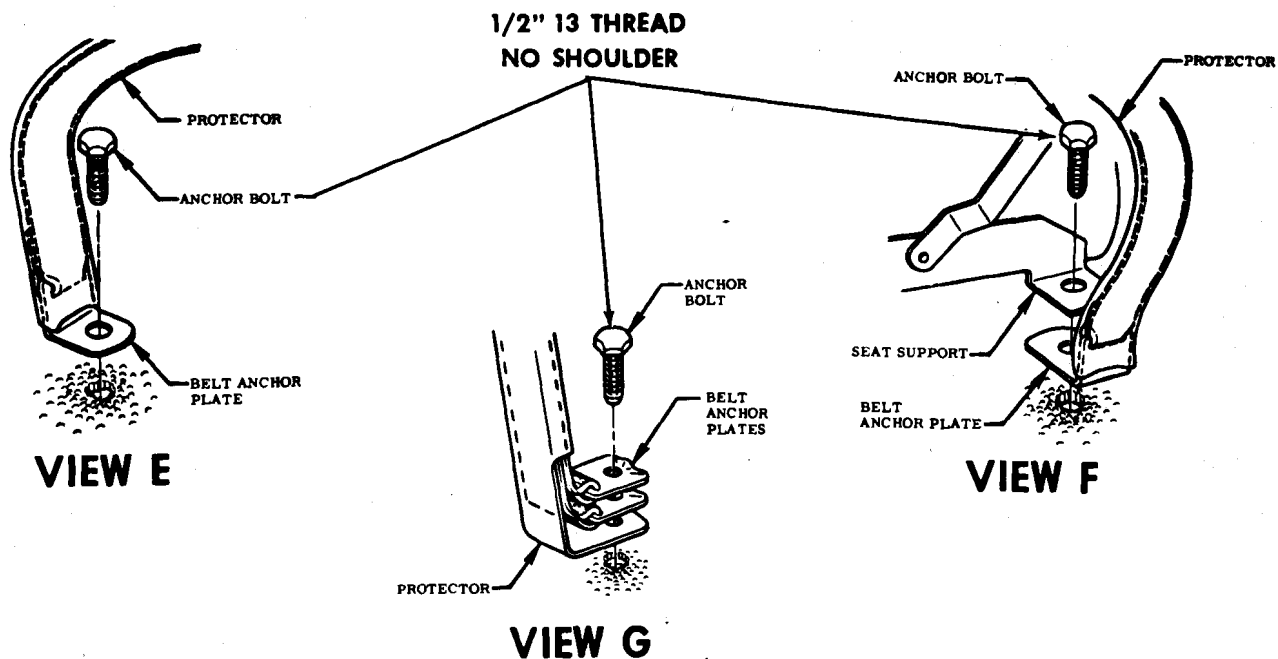
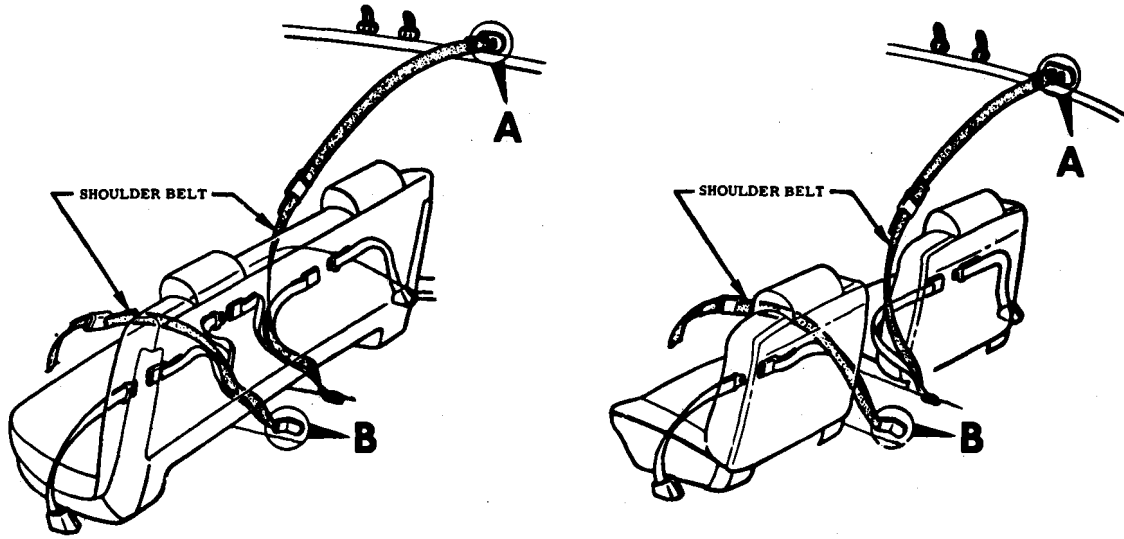
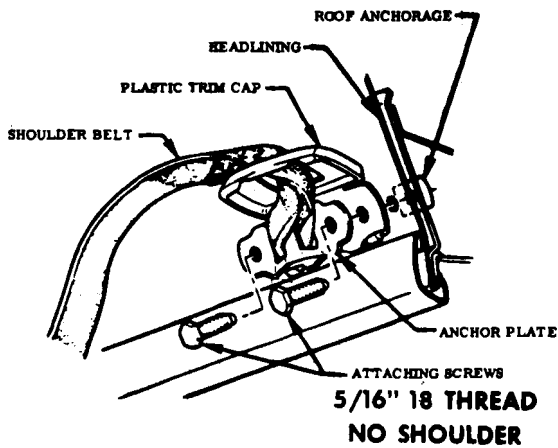


Fig. 14-100-Rear, Second and Third Seat Lap Belt Views (Refer to Fig. 14-99) - All Styles



CAUTION

CHECK POSITION OF FACTORY INSTALLED
BELT ANCHORAGE AND INSTALL
REPLACEMENT BELT AND ANCHOR PLATE
IN SAME POSITION.

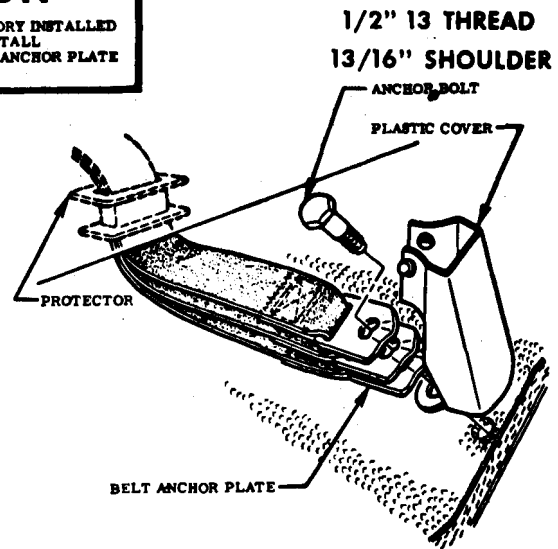


VIEW A

LIFT PLASTIC TRIM CAP, REMOVE ANCHOR SCREWS AND OLD BELT (SEE CAUTION NOTE).

ASSEMBLE NEW BELT TO PLASTIC TRIM CAP AND INSERT ANCHOR SCREWS (PROPER ANCHOR SCREW IS SHOWN) THROUGH ANCHOR PLATE AND PLASTIC TRIM CAP (SEE CAUTION NOTE).

SECURE TO ANCHORAGE AND SNAP PLASTIC TRIM CAP IN PLACE.

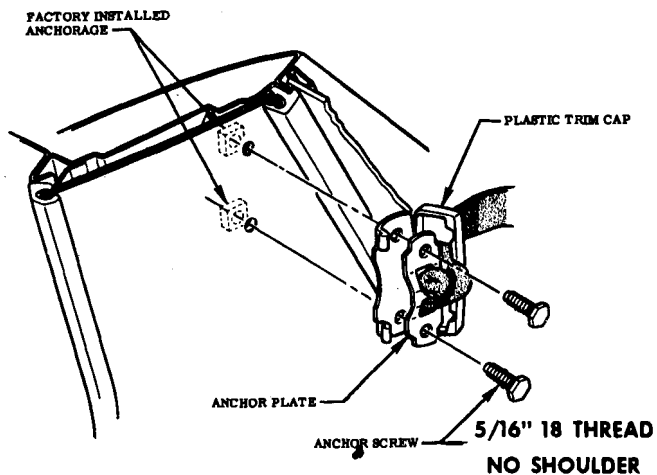
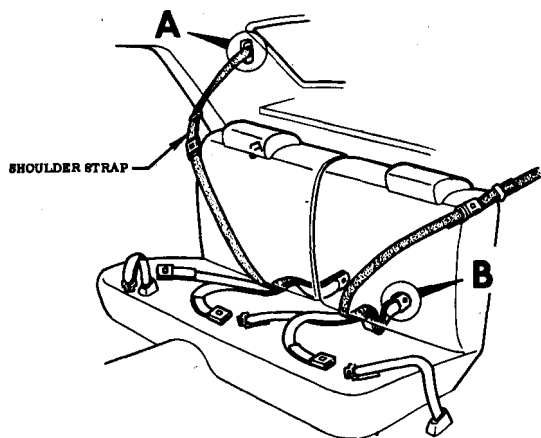


VIEW B

LIFT PLASTIC COVER, REMOVE ANCHOR BOLT AND OLD BELT (SEE CAUTION NOTE).

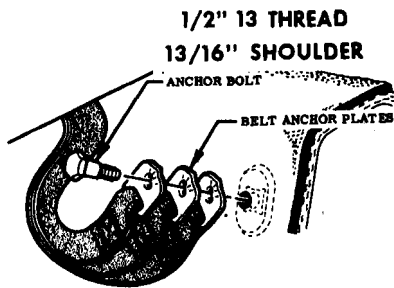
ADD NEW BELT AND INSERT ANCHOR BOLT (PROPER ANCHOR BOLT IS SHOWN AT RIGHT) THROUGH ANCHOR PLATES AND PLASTIC COVER. SECURE TO FLOOR ANCHORAGE (SEE CAUTION NOTE), AND SNAP PLASTIC COVER CLOSED.

Fig. 14-101-Front Seat Shoulder Belts-All Styles Except Convertibles, Limousines And El Camino



VIEW A

- ① LEFT PLASTIC TRIM CAP, REMOVE ANCHOR SCREWS AND OLD BELT (SEE CAUTION NOTE).
- ② ASSEMBLE NEW BELT TO PLASTIC TRIM CAP AND INSERT ANCHOR SCREWS (PROPER ANCHOR SCREW IS SHOWN) THROUGH ANCHOR PLATE AND PLASTIC TRIM CAP (SEE CAUTION NOTE).
- ③ SECURE TO ANCHORAGE AND SNAP PLASTIC TRIM CAP IN PLACE.



VIEW B

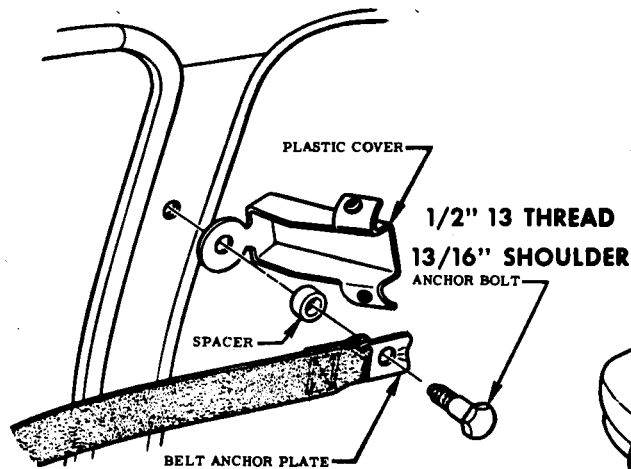
- ① MOVE SEAT TO FULL FORWARD POSITION.
- ② REMOVE ANCHOR BOLT AND OLD BELT (SEE CAUTION NOTE).
- ③ ADD NEW BELT AND INSERT ANCHOR BOLT (PROPER ANCHOR BOLT IS SHOWN) THROUGH BELT ANCHOR PLATES. SECURE TO FLOOR ANCHORAGE (SEE CAUTION NOTE).

CAUTION

CHECK POSITION OF FACTORY INSTALLED BELT ANCHORAGE AND INSTALL REPLACEMENT BELT AND ANCHOR PLATE IN SAME POSITION.

3887

Fig. 14-102-Front Seat Shoulder Belts-Chevrolet El Camino Styles

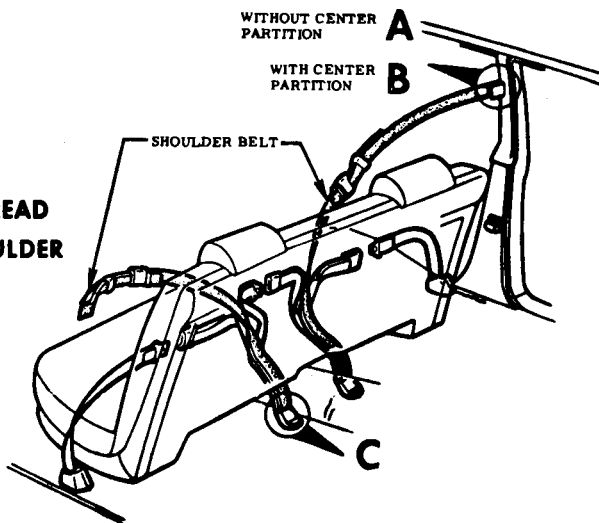


VIEW A

WITHOUT CENTER PARTITION

LIFT PLASTIC COVER. REMOVE ANCHOR BOLT, SPACER AND OLD BELT (SEE CAUTION NOTE).

ADD NEW BELT AND INSERT ANCHOR BOLT (PROPER ANCHOR BOLT IS SHOWN) THROUGH BELT ANCHOR PLATE. SPACER AND PLASTIC COVER AS SHOWN. SECURE TO PILLAR ANCHORAGE.



WITHOUT CENTER PARTITION **A**

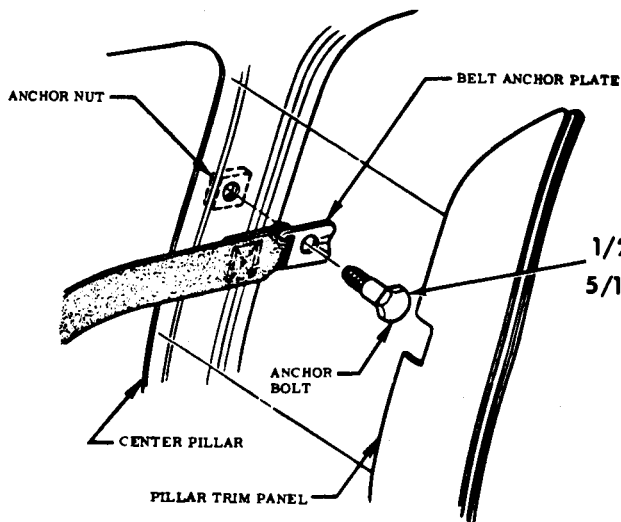
WITH CENTER PARTITION **B**

SHOULDER BELT

C

CAUTION

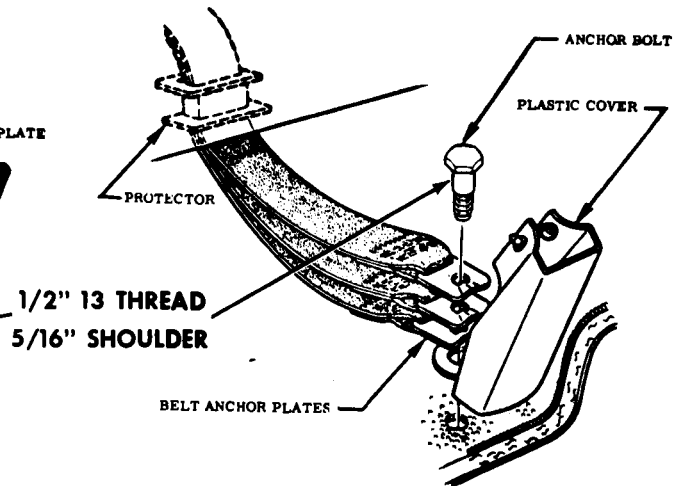
CHECK POSITION OF FACTORY INSTALLED BELT ANCHORAGE AND INSTALL REPLACEMENT BELT AND ANCHOR PLATE IN SAME POSITION.



VIEW B

WITH CENTER PARTITION

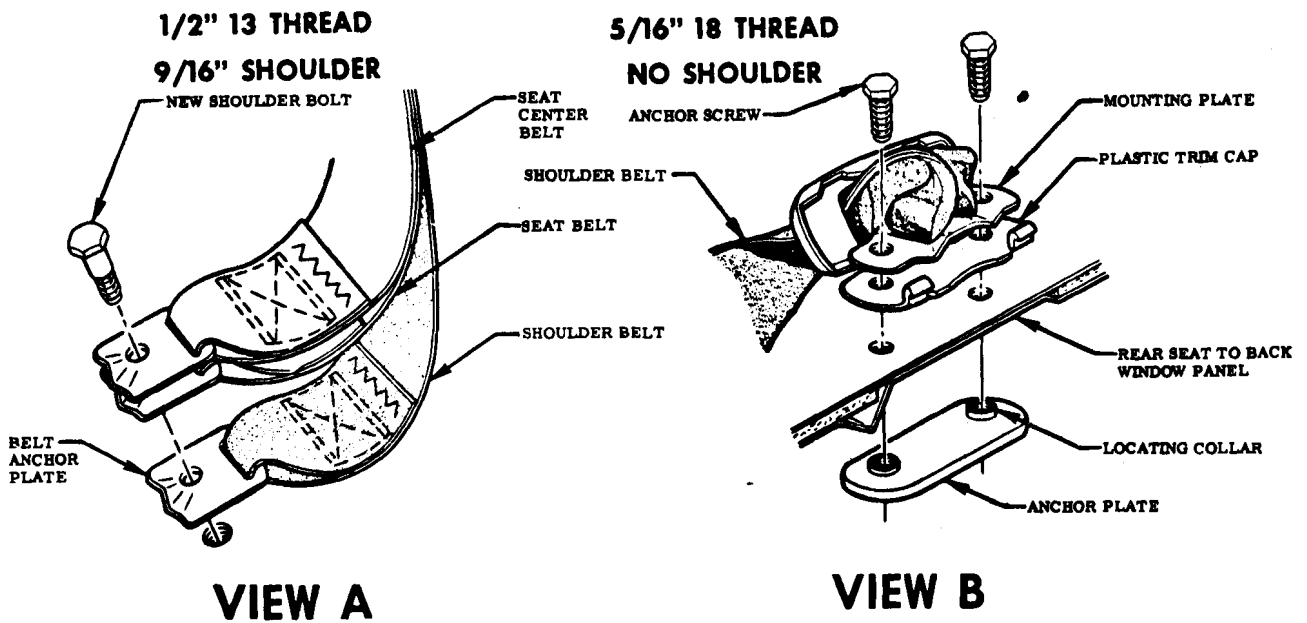
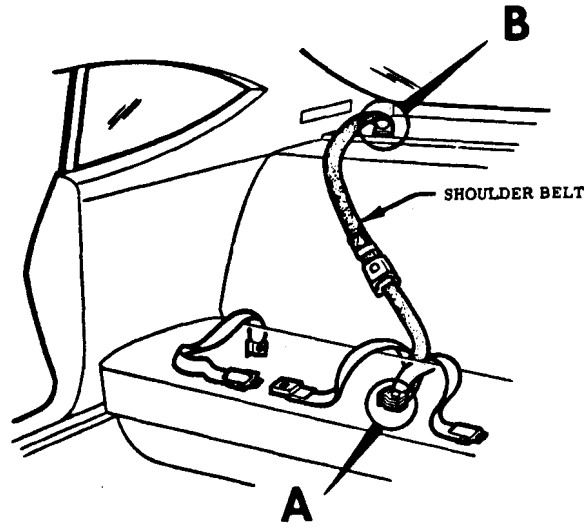
- ① REMOVE PILLAR TRIM, ANCHOR BOLT AND OLD BELT (SEE CAUTION NOTE).
- ② INSERT ANCHOR BOLT (PROPER ANCHOR BOLT IS SHOWN) THROUGH ANCHOR PLATE AND SECURE TO ANCHORAGE (SEE CAUTION NOTE).



VIEW C

- ① MOVE FRONT SEAT TO FULL FORWARD POSITION
- ② LIFT PLASTIC COVER, REMOVE ANCHOR BOLT AND OLD BELT (SEE CAUTION NOTE).
- ③ ADD NEW BELT AND INSERT ANCHOR BOLT (PROPER ANCHOR BOLT IS SHOWN AT RIGHT) THROUGH BELT ANCHOR PLATES AND PLASTIC COVER. SECURE TO FLOOR ANCHORAGE (SEE CAUTION NOTE).

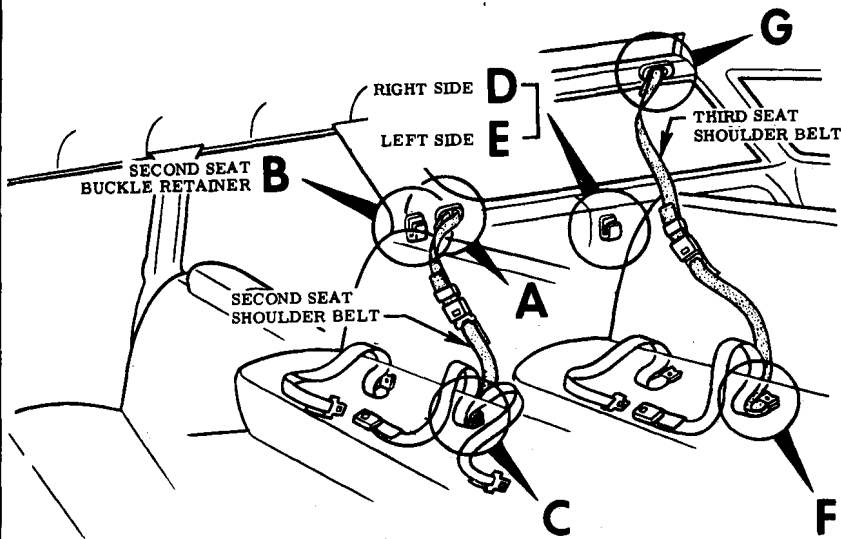
Fig. 14-103-Front Seat Shoulder Belts-Cadillac Limousine Styles



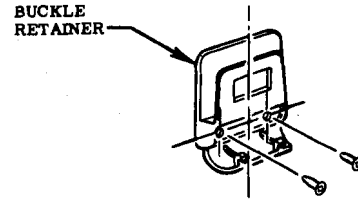
CAUTION CHECK POSITION OF FACTORY INSTALLED BELT ANCHORS AND INSTALL NEW BELT AND ANCHOR PLATES IN SAME POSITION. CARE MUST BE EXERCISED WHEN MAKING INSTALLATION THAT ALL BELT ANCHOR PLATES INTER-LOCK AS SHOWN.

Fig. 14-104-Rear Seat Shoulder Belts-All Styles Except Convertibles And Station Wagons

(SEE NEXT PAGE FOR VIEWS D, E, F & G)



ALL DIMENSIONS ARE TO ϕ OF PART AND ATTACHING HOLES.

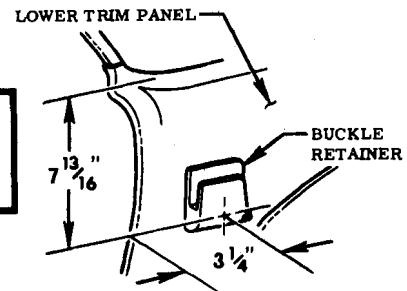


BUCKLE RETAINER

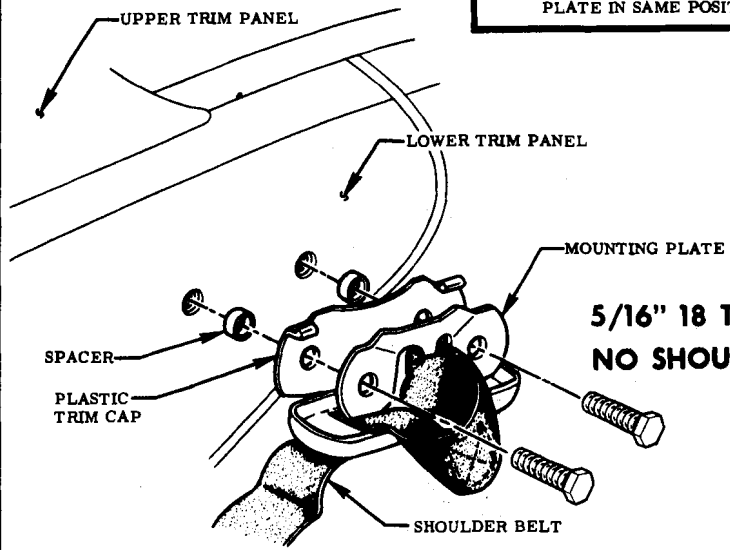
- ① LOCATE POSITION OF RETAINER USING DIMENSIONS SHOWN IN VIEW B
- ② DRILL TWO 1/8" DIA. HOLES AND SECURE RETAINER TO PANEL.

CAUTION

CHECK POSITION OF FACTORY INSTALLED BELT ANCHORAGE AND INSTALL NEW BELT AND ANCHOR PLATE IN SAME POSITION.



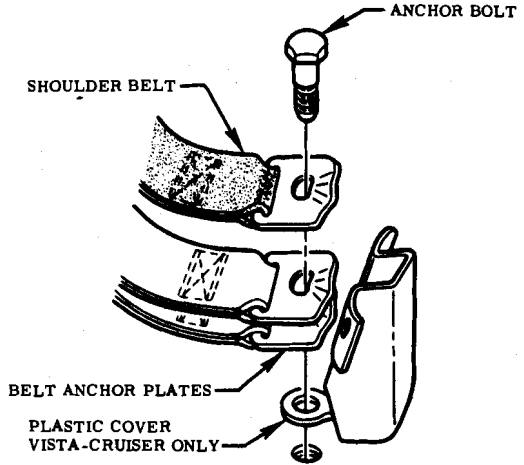
VIEW B



VIEW A

**5/16" 18 THREAD
NO SHOULDER**

**1/2" 13 THREAD
9/16" SHOULDER**

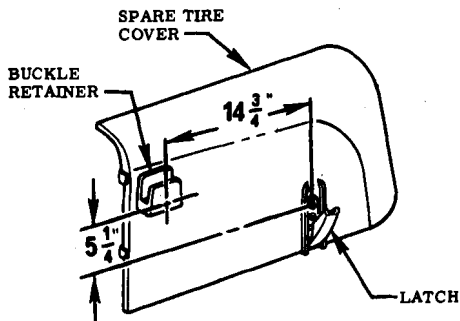


VIEW C SECOND SEAT

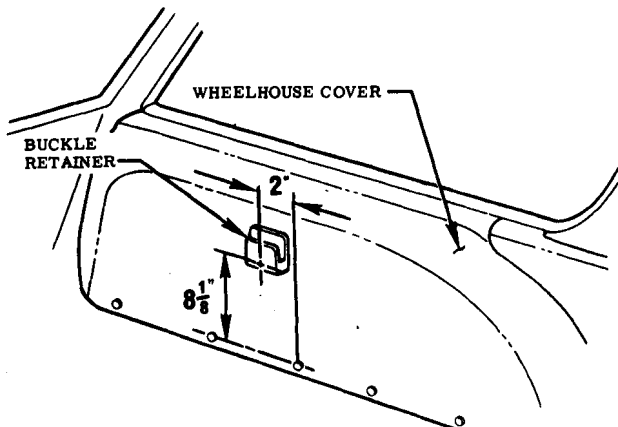
NOTE: FOR INSTRUCTIONS ON REMOVAL AND INSTALLATION OF ALL SEAT CUSHIONS, SEAT BACKS AND TRIM PANELS NECESSARY TO PERFORM OPERATIONS DESCRIBED ON THIS SHEET, REFER TO 1971 COPY OF THE FISHER BODY SERVICE MANUAL AVAILABLE AT YOUR G. M. DEALER.

Fig. 14-105-Second And Third Seat Shoulder Belts-"A" Body Station Wagon Styles

(SEE PREVIOUS PAGE FOR VIEW LOCATIONS)



VIEW D RIGHT SIDE



VIEW E LEFT SIDE

NOTE: FOR INSTRUCTIONS ON REMOVAL AND INSTALLATION OF ALL SEAT CUSHIONS, SEAT BACKS AND TRIM PANELS NECESSARY TO PERFORM OPERATIONS DESCRIBED ON THIS SHEET, REFER TO 1971 COPY OF THE FISHER BODY SERVICE MANUAL AVAILABLE AT YOUR G. M. DEALER.

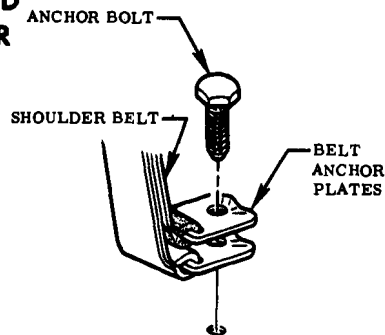
CAUTION

ON LEFT SIDE OF BODY, WHEN MAKING HOLES FOR RETAINER, DRILL OR PUNCH NO DEEPER THAN 1/2 INCH TO AVOID PIERCING GAS TANK (FIRE OR EXPLOSION MAY RESULT WHEN GASOLINE FUMES CONTACT SPARKS FROM DRILLING OR PUNCHING, LIGHTED CIGARETTES, ETC., IN PASSENGER COMPARTMENT).

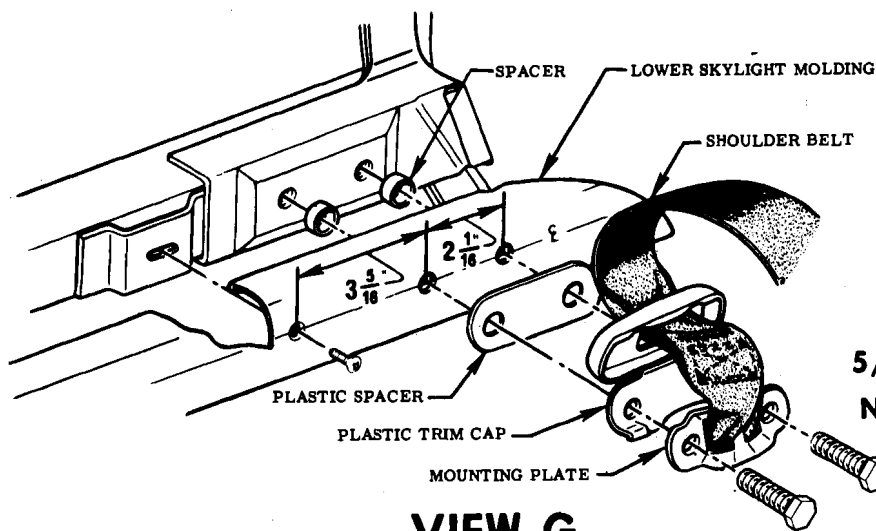
CAUTION

CHECK POSITION OF FACTORY INSTALLED BELT ANCHORAGE AND INSTALL NEW BELT AND ANCHOR PLATE IN SAME POSITION.

1/2" 13 THREAD
NO SHOULDER



**VIEW F
THIRD SEAT**

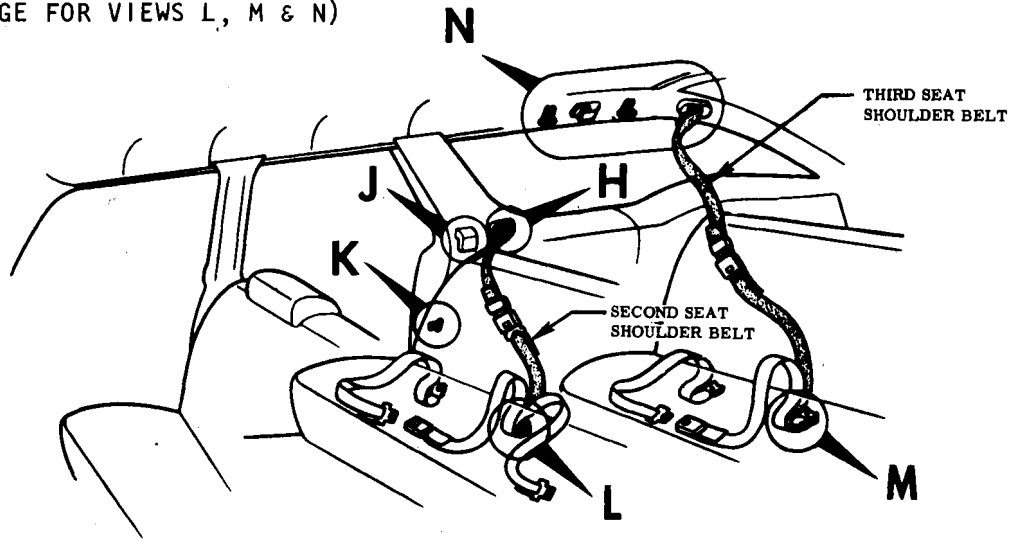


VIEW G

5/16" 18 THREAD
NO SHOULDER

Fig. 14-106-Second And Third Seat Shoulder Belt Views (Refer To Figs. 14-105)-"A" Body Station Wagon Styles

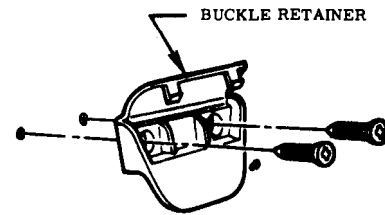
(SEE NEXT PAGE FOR VIEWS L, M & N)



CAUTION

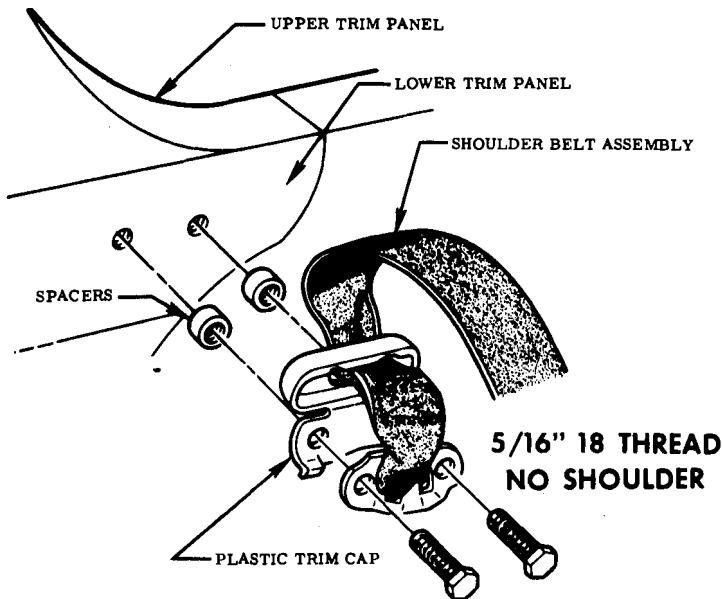
CHECK POSITION OF FACTORY INSTALLED BELT ANCHORAGE AND INSTALL NEW BELT AND ANCHOR PLATE IN SAME POSITION.

NOTE: FOR INSTRUCTIONS ON REMOVAL AND INSTALLATION OF ALL SEAT CUSHIONS, SEAT BACKS AND TRIM PANELS NECESSARY TO PERFORM OPERATIONS DESCRIBED ON THIS SHEET, REFER TO 1971 COPY OF THE FISHER BODY SERVICE MANUAL AVAILABLE AT YOUR G. M. DEALER.

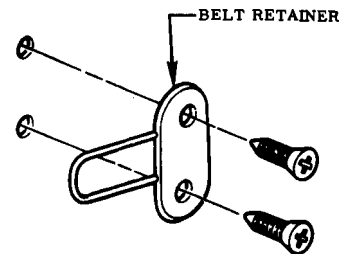


VIEW J

- 5 POSITION BUCKLE RETAINER ON THE LOWER LOCK PILLAR TRIM PANEL OVER PREVIOUSLY DRILLED 1/4" HOLES AS SHOWN IN VIEW.
- 6 DRILL TWO 1/8" DIAMETER HOLES INTO BODY METAL USING PROPERLY POSITIONED BUCKLE RETAINER AS A TEMPLATE. SECURE BUCKLE RETAINER TO BODY.



VIEW H



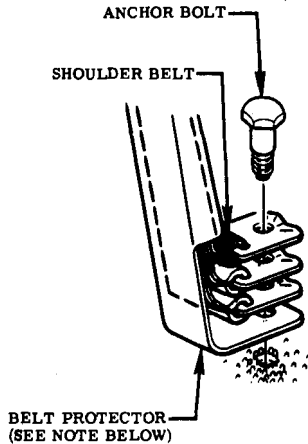
VIEW K

- 7 POSITION BELT RETAINER ON THE LOWER LOCK PILLAR TRIM PANEL OVER PREVIOUSLY DRILLED 1/4" HOLES AS SHOWN IN VIEW.
- 8 DRILL TWO 1/8" DIAMETER HOLES INTO BODY METAL USING PROPERLY POSITIONED BELT RETAINER AS A TEMPLATE. SECURE BELT RETAINER TO BODY.

Fig. 14-107-Second And Third Seat Shoulder Belts-"B"
Body Station Wagon Styles

(SEE PREVIOUS PAGE FOR VIEW LOCATIONS)

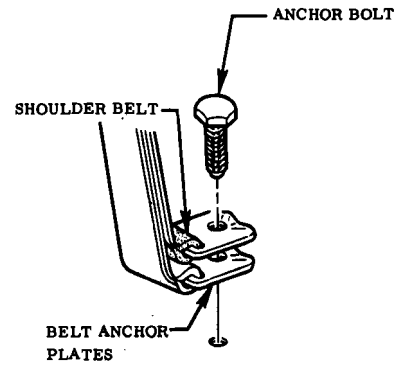
**1/2" 13 THREAD
9/16" SHOULDER**



CAUTION
CHECK POSITION OF FACTORY INSTALLED BELT ANCHORAGE AND INSTALL REPLACEMENT BELT AND ANCHOR PLATE IN SAME POSITION.

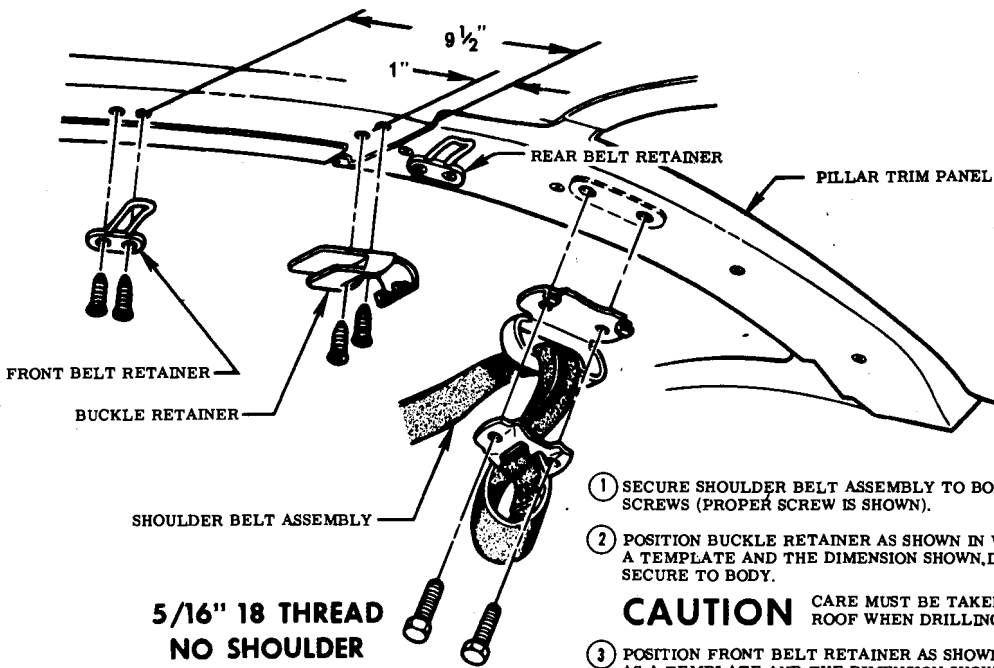
- ① MAKE FLOOR ANCHORAGE ACCESSIBLE AND REMOVE ANCHOR BOLT (SEE CAUTION NOTE).
- ② INSTALL SHOULDER BELT AS SHOWN IN VIEW. NOTE: ON THREE SEAT WAGONS A BELT PROTECTOR EXISTS AT THE INBOARD RIGHT HAND LOCATION OF SECOND SEAT AND MUST NOT BE REMOVED.
- ③ INSERT ANCHOR BOLT (PROPER ANCHOR BOLT IS SHOWN AT RIGHT OF VIEW) THROUGH ANCHOR PLATES (AND BELT PROTECTOR WHERE USED). SECURE TO FLOOR ANCHORAGE.

**1/2" 13 THREAD
NO SHOULDER**



**SECOND SEAT FLOOR ANCHORAGE
VIEW L**

**THIRD SEAT FLOOR ANCHORAGE
VIEW M**



**5/16" 18 THREAD
NO SHOULDER**

VIEW N

- ① SECURE SHOULDER BELT ASSEMBLY TO BODY AS SHOWN IN VIEW WITH ANCHOR SCREWS (PROPER SCREW IS SHOWN).
- ② POSITION BUCKLE RETAINER AS SHOWN IN VIEW. USING THE BUCKLE RETAINER AS A TEMPLATE AND THE DIMENSION SHOWN, DRILL TWO 1/8" DIAMETER HOLES AND SECURE TO BODY.

CAUTION CARE MUST BE TAKEN TO AVOID PIERCING ROOF WHEN DRILLING

- ③ POSITION FRONT BELT RETAINER AS SHOWN IN VIEW. USING THE BELT RETAINER AS A TEMPLATE AND THE DIMENSION SHOWN, DRILL TWO 1/8" DIAMETER HOLES AND SECURE TO BODY.

CAUTION CARE MUST BE TAKEN TO AVOID PIERCING ROOF WHEN DRILLING

Fig. 14-108-Second And Third Seat Shoulder Belt Views
(Refer To Fig. 14-107)-"B" Body Station Wagon Styles

SECTION 15

ELECTRICAL

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INTRODUCTION

The body electrical equipment for all body styles is covered in the following sections:

- A. Power Windows
- B. Power Tail Gate Window and Tail Gate
- C. Power Seats
- D. Exterior and Interior Lamps
- E. Electric Door Locks
- F. Electric Seat Back Lock Release
- G. Electric Back Window Grid Defogger
- H. Back Window Defogger (Blower Type)

Each section combines all styles and series together which incorporates the power equipment unless stated otherwise in the procedure.

Typical body wiring and routing diagrams are located at the end of this section. The Wire Identification Chart (Fig. 15-4) is applicable for all wiring diagrams unless otherwise specified.

It is important that inspection for mechanical binds and alignments be completed before electrical diagnosis is attempted.

Circuit wiring for power equipment is protected by a 40 ampere circuit breaker which is a fuse panel mounted, "plug-in" type for all divisions except Chevrolet. A "bolt-on" circuit breaker is used by Chevrolet and is located in the engine compartment on the dash panel.

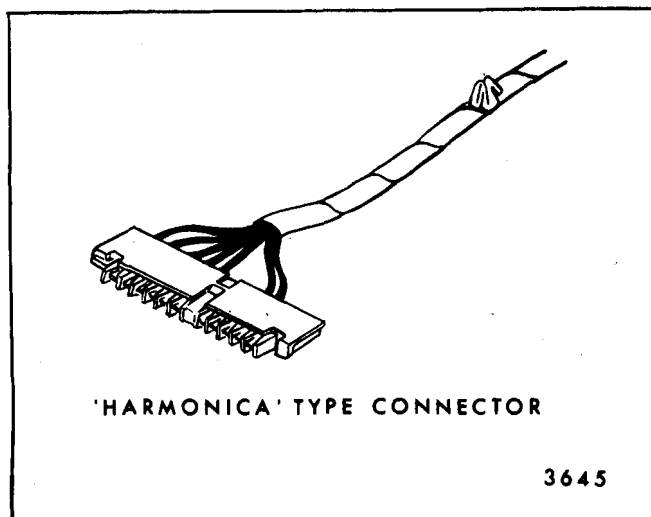


Fig. 15-1-Front Body Harness - Forward Connector

Body Wiring - "A and X" Styles

Round wire is used for all body wiring and for all options.

The forward end of the main body harness utilizes a "harmonica" type connector (Fig. 15-1) and the aft end uses the conventional "block" type connector.

Body Wiring - "B-C-E and F" Styles

Round, multi-strand wire is used for all body wiring except the front body harness and the dome lamp harness which utilize solid core wire. The front body harness incorporates "harmonica" type connectors, both fore and aft (Figs. 15-1 and 15-2).

All wires crossing the body beneath the instrument panel are enclosed in a sturdy, one piece plastic cross body harness conduit, which is secured to the center duct panel with clips. (Fig. 15-3).

GENERAL CHECKING PROCEDURES

Generally most common failures are "open" and "short" circuits. An "open" circuit is one in which the circuit cannot be completed due to a broken wire, poor terminal contact or improper ground. A "short" circuit is one in which the current is grounding before it reaches the operating unit. This creates an overload and actuates the circuit breaker or "blows" the fuse.

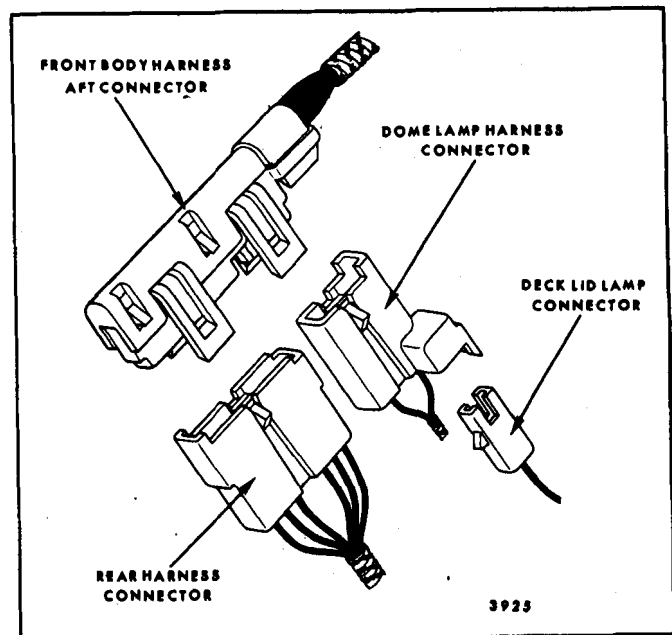


Fig. 15-2-Front Body Harness - Aft Connector - "F" Style Shown

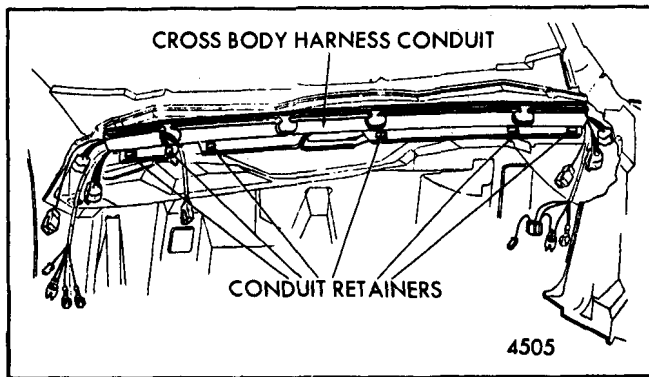


Fig. 15-3-Cross Body Harness Conduit

Defective Components

Occasionally an "open" or "short" circuit exists within a component of the circuit, such as a motor, switch, relay, etc. These units may be checked as covered in the following example:

1. Checking an inoperative switch
 - A. Place a No.12 jumper wire on the switch terminal block between the center terminal (feed) and one of the two motor wire terminals. If the motor operates, the switch is defective. The principle involved here is to bypass the suspected defective component and this procedure can be applied to check almost all component parts.

Open Circuits

To check for a broken wire:

1. Visually inspect the area of suspected damage.
2. If no wire damage is apparent, check the wire on the battery side of the suspected area by grounding one end of a light tester and inserting the pointed end of the light tester through the insulation. If the tester lights, current is present.

NOTE: To check for current between a switch and an operating unit, the switch must be actuated to insure current in the wire. Also, be sure that light tester is operating properly before checking a circuit. Touch one end of tester to negative terminal of battery and the other end to positive terminal. If the battery is not discharged and the tester is working properly, the tester will light.

3. Perform the same operation on the opposite end of the wire. If the tester does not light, the break is between the two points checked.
4. Using the light tester, check for current in the wire midway between the points where current exists

and where it does not exist. If the tester does not light, check the wire at intervals in the direction of the power source. If the tester does light, proceed with the tester in the opposite direction until the break is located.

5. Repair the break and tape any exposed wire.

NOTE: A broken wire can be repaired using a suitable mechanical type connector or by soldering with rosin-core solder.

Improper Ground

Many times perfectly sound operating units, such as motors, are considered defective and are replaced because an effective ground is not established.

To check for proper ground:

1. Attach one end of a No.12 gauge jumper wire to the body of the inoperative unit.
2. Connect the other end to a good ground, such as a bare metal panel.

NOTE: Due to various hinge bearing construction, and the possibility of heavy lubrication on the door hinges, it may be advisable to ground door inner panel to the body proper when checking circuits in an open door.

3. Energize the unit. If the unit operates, the original ground is defective.
4. Re-establish the ground.

"Short" Circuits

When a "short" exists in a given circuit, the circuit breaker will be actuated or a fuse will be blown. However, if the "short" is located between a switch and an operating unit, the circuit breaker will actuate or the fuse will blow only when the switch is actuated. If the "short" occurs between the circuit breaker (or fuse) and the switch, the circuit will be inoperative all the time. This will continue until the "short" is repaired or the battery runs down.

Locating a short circuit depends largely on the symptoms in any given case.

As an aid in locating a "short" in any given circuit, an instrument known as a "short tester" (J-8681 or similar type) may be employed. Its advantage lies in the fact that it is a labor saving device, since trim removal is NOT required prior to testing operations. All short testers have the following parts in common:

1. Two leads with alligator clips (for by-passing an existing circuit breaker or fuse).

CIRCUIT #	COLOR	CODE	DESCRIPTION	CIRCUIT #	COLOR	CODE	DESCRIPTION
9	Brown	BRN	Tail, License and Marker Lamp	165	Brown	BRN	Window Control - L.F. - Down
18	Yellow	YEL	Stop and Direction Lamp or Direction Lamp Only - Rear L.H.	166	Dark Blue-White	DRK BLU/WHT	Window Control - R.F. - Up
19	Dark Green	DRK GRN	Stop and Direction Lamp or Direction Lamp Only - Rear R.H.	167	Brown-White	BRN/WHT	Window Control - R.F. - Down
20	Red	RED	Stop R.H. Drive Canadian	168	Dark Green	DRK GRN	Window Control - L.R. - Up
24	Light Green	LGT GRN	Back-Up Lamp	169	Purple	PPL	Window Control - L.R. - Down
30	Tan	TAN	Fuel Gauge to Tank Unit	170	Dark Green-White	DRK GRN/WHT	Window Control - R.R. - Up
31	Dark Blue	DRK BLU	Electric Fuel Pump	171	Purple-White	PPL/WHT	Window Control - R.R. - Down
32	Yellow	YEL	Feed, Mirror Lamp	176	Dark Green	DRK GRN	Power Seat - Fore
39	Pink	PNK	Feed, Ignition Switch Controlled - Fuse Protected	177	Yellow	YEL	Power Seat - Aft
40	Orange	ORN	Feed, Battery - Fuse Protected	178	Dark Green	DRK GRN	Power Seat - 6 - W - Fore and Up
41	Orange	ORN	Feed, Indicator Light - Fuse Protected	179	Tan	TAN	Power Seat - 6 - W - Solenoid - Rear - Up and Down
46	Dark Blue	DRK BLU	Rear Seat Speaker Feed From Radio	180	Light Green	LGT GRN	Power Seat - 6 - W - Solenoid - Front - Up and Down
60	Orange-Black	ORN/BLK	Feed, Battery - Circuit Breaker Protected	181	Light Blue	LGT BLU	Power Seat - Solenoid - Fore and Aft
70	Red-White	RED/WHT	Feed, Relay Controlled Circuit - Circuit Breaker Protected	182	Yellow	YEL	Power Seat - 6 - W - Aft and Down
90	Pink-Black	PNK/BLK	Feed - Cutout Switch Controlled - Circuit Breaker Protected	183	Light Blue	LGT BLU	Tailgate or Center Partition Window - Up
91	Black	BLK	Circuit Breaker Protected	184	Tan-White	TAN/WHT	Tailgate or Center Partition Window - Down
92	Light Blue	LGT BLU	Windsfield Wiper - Low	189	Dark Green	DRK GRN	Power Seat - 4 - W - Fore and Down
93	Yellow	YEL	Windsfield Wiper - High	190	Yellow	YEL	Power Seat - 4 - W - Aft and Up
94	Dark Blue	DRK BLU	Windsfield Wiper Motor - Feed	191	Light Green	LGT GRN	Power Seat - 4 - W - Solenoid - Up and Down
125	Yellow	YEL	Windsfield Washer Switch to	192	Purple	PPL	Defogger - High or Single Speed
126	Black	BLK	Windsfield-Washer	193	White-Orange & Purple	WHT/ORN/PPL	Defogger - Low Speed - .38 OHM/FT.
142	Black	BLK	Door Jamb Switch	194	Black	BLK	Electric Door Lock - Unlock
150	Black	BLK	Seat Back Lock Solenoid	195	Dark Green	DRK GRN	Electric Door Lock - Lock
151	Black	BLK	Rear Compartment Lid Release - Feed	201	Yellow	YEL	Comfort Control - Feed
152	Black	BLK	Ground Circuit - Direct	202	Black-White	BLK/WHT	Compressor - Feed
153	Black	BLK	Ground Circuit - Direct	203	Red-White	RED/WHT	Potentiometer - Feed
154	Black	BLK	Ground Circuit - Direct	303	Red-White	RED/WHT	Feed - Electric Rear Seat Heater
155	Black	BLK	Ground Circuit - Direct	309	Light Green-Black	LGT GRN/BLK	Sensor - Feed or Sensor - Ground
156	White	WHT	Ground Circuit - Switch Controlled - Body Interior Lamps	322	Brown	BRN	Rear Speaker - L.H. (Stereo)
159	White-Dark Green	WHT/DRK GRN	Ground - Ignition Key Warning Buzzer	333	Black	BLK	Heated Back Glass - Left
162	Grey	GRA	Power Top - Down	395	White	WHT	Heated Back Glass - Right
163	Purple	PPL	Window Control - L.F. - Up	590	Black	BLK	Ground Circuit
164	Dark Blue	DRK BLU		577	Black	BLK	Speaker Ground
				578	Dark Blue	DRK BLU	Rear Speaker - R.H. (Stereo)

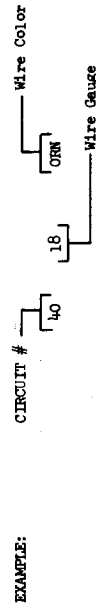


Fig. 15-4-Wire Identification Chart

2. A 10-15 amp circuit breaker (to replace the existing circuit breaker or fuse).
3. A meter for detecting intermittent electrical current.

The tester meter is designed to react to the magnetic lines of force that surround an energized wire or conductor. However, the current and magnetic lines of force must be interrupted, by means of the testing device circuit breaker, at intervals in order to cause the meter needle to deflect.

The use of a "short" tester should include the following steps:

1. Reference should be made to service manual electrical diagrams and particularly wire routing diagrams in order to establish the location of wiring and wire harness accurately.
2. Disconnect the affected circuit breaker (both wires) or remove blown fuse and substitute either of these items with the circuit breaker of the tester. This is accomplished by connecting the tester leads to the input and output side of the fuse clip or wires, previously removed from the existing circuit breaker.
3. The tester may respond immediately by making a snapping noise. (This sound may be accompanied by a warning light on some testers.) This response is an indication that the "short" is located in a FEED line, between the power source and a switch. If the tester does not respond, proceed as follows:
 - a. Turn on or actuate all switches in the inoperative circuit.

- b. Observe all lights or units affected by actuating all switches. The light or unit that DOES NOT operate intermittently, but causes the tester to react, is in the "shorted" circuit, and indicates the side of the car that is affected.

NOTE: When the affected circuit has been positively identified, reference should again be made to the proper wire routing diagram as an aid in the steps that follow. In addition, the switch in the circuit being checked must be held in the closed position.

4. Beginning at the power source for the inoperative circuit, place the tester meter directly over the wire (or harness) with the meter arrows parallel to the wire(s) being checked. The meter needle will deflect noticeably each time the tester completes the circuit.

NOTE: Since this test will most often be made over intervening layers of trim material (cloth, rubber, plastic, metal), it may be necessary to move the meter laterally over the circuit at each check point to achieve the strongest signal on the meter.

5. Check progressively with the meter along the circuit from the power source to the inoperative unit. A sharp DECREASE in the AMOUNT of meter needle deflection will indicate the location (within 4-5 inches) of the "short". It must be remembered, however, that the above meter reaction would also occur if the wrong circuit was followed or the meter was not held directly above the circuit (reference "NOTE", in Step 4).
6. Once the location of the "short" is accurately established, necessary trim parts may be removed to perform repairs.

POWER WINDOWS

Description

The wiring harness for the electrically operated windows consists of the following major sections:

1. Cross-over or center harness.
2. Front door window harness.
3. Front door window control rear harness-("F" styles only).
4. Feed harness to rear doors or quarter windows
5. Rear door or quarter window harness.

CROSS-OVER HARNESS

This harness is installed beneath the instrument panel and completes the circuit from the left door and power source to the right door windows on all styles.

FRONT DOOR WINDOW HARNESS

The impact bar and reinforcements incorporated into some door construction reduces accessibility for power window wiring harness. Therefore, if replacement of door harness should become necessary, attach a leader to the end of the harness before removal from the door. On "B-C-E and F" styles the harness is routed

directly from the door hinge pillar entrance to the inboard side of the door inner panel and routed in the depressions provided.

FRONT DOOR WINDOW CONTROL REAR HARNESS - "F" STYLES ONLY

This harness is routed from the left shroud side panel along a recess in the left rocker inner panel. At a point opposite the drivers seat, the harness exits from the rocker and is routed below the seat to the center console at which point the single window switch is located. A front door opening carpet support covers the recess in the rocker panel while protecting and concealing the harness.

FEED HARNESS FOR REAR DOORS OR QUARTER WINDOWS

"A" Styles Only

This harness connects to the front cross-over harness on the left side of the shroud (fire wall) and extends rearward in the main body harness conduit under the driver's seat.

On 4-door styles, the harness exits from the conduit slightly rearward of the front seat and routes to each center pillar. On 2-door styles, the harness continues in the conduit to the rear seat back panel and routes along the lower edge of that panel to each quarter.

"B-C-E" Styles

This harness is routed from the cross-over harness at the shroud side panel (right and left side similar) into the conduit that is secured to the inboard side of the rocker panel and exits at the center pillar or at the quarter panel. This harness terminates at the window motor and window switch.

REAR DOOR WINDOW HARNESS - "A" STYLES ONLY

The left and right door harness connects to the feed harness in the base of the center pillar. To disengage the connector, pull harness inboard at base of center pillar for accessibility.

MOTOR DESCRIPTION

Power windows are operated by a rectangular shaped 12 volt series-wound motor with an internal circuit breaker and a self-locking rubber coupled gear drive. The harness to the door window motor connector is designed with a locking embossment to insure a positive connection. When disengaging the harness connector from the door motor, it is necessary to depress the thumb release. When installing the

harness, the thumb release must be held depressed until the embossment on the female connector is locked in the hole of the motor connector.

IGNITION RELAY

All styles except Cadillac use a relay in the window circuit to prevent window operation until the ignition is turned on. The feed circuit for Cadillac is through the ignition switch.

The relay is located on the left shroud side panel for all styles except the "F" style which is located on the steering column lower support.

Accessory Junction Block

A junction block (Fig. 15-5) located on the reinforcement at the left shroud is used to supply current to power operated equipment circuits. Current is supplied to the junction block from the circuit breaker, and the power window harness plugs into the junction block.

MASTER WINDOW CONTROL SWITCH - FOUR BUTTON

All four button window control switches incorporate an elongated, positive locking, non-conductive stud. The switch is secured to the harness connector by a "Tinnerman" type nut (Fig. 15-6).

WINDOW BLOCKOUT SWITCH-Cadillac Styles Only

A two position ("Lock-Normal") window blockout (cutout) switch is installed on the left front door arm

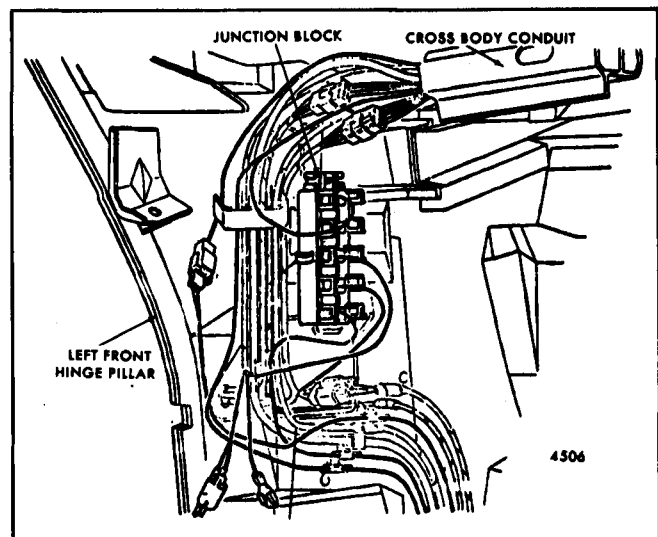


Fig. 15-5-Accessory Junction Block

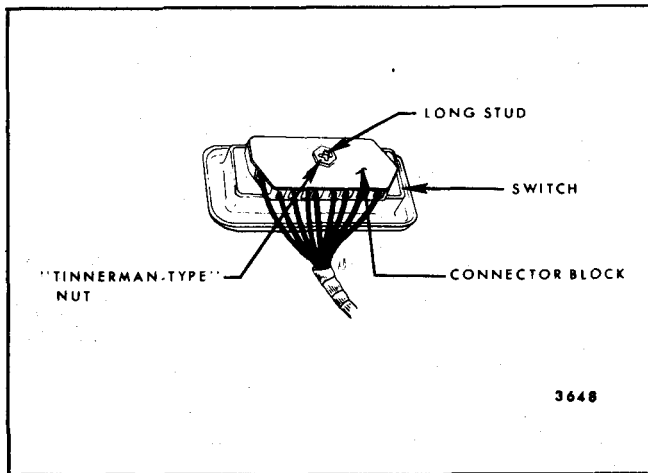


Fig. 15-6-Four Button-Trim Pad Switch-Arm Rest Switch similar

rest. This switch incorporates an elongated pin which protrudes through a hole provided in the harness connector back plate and a plastic coated, push on "Tinnerman" type nut is snapped over the pin.

The window blockout switch button should be left in the "NORMAL" position when ignition switch is "ON" to permit normal operation of power windows from all switch locations. If the control button is in the "LOCK" position with the ignition switch on, the windows will operate only from the master control switch.

POWER WINDOW CIRCUIT CHECKING PROCEDURES

It may be necessary to use only one or all of the procedures outlined to locate an electrical failure in the circuit. If the location of the failure is evident, follow only the steps required to check the affected wire or component. If the location of the failure is not evident, follow the procedure as outlined. Be sure to check the harness connectors for proper engagement and become familiar with the typical circuit diagrams (Figs. 15-10, 15-11 and 15-12).

Checking Feed Circuit Continuity at Circuit Breaker

1. Connect one test light lead to battery side of circuit breaker and ground other lead. If tester does not light, there is an open or short circuit in feed circuit to breaker.
2. To check circuit breaker, disconnect the output feed wire (the wire opposite the power source feed to the breaker) from the breaker and with test light, check terminal from which wire was disconnected. If tester does not light, circuit breaker is inoperative.

Checking Ignition Relay Assembly

1. With test light, check relay feed (orange/black wire). If tester does not light, there is an open or short circuit between relay and circuit breaker.
2. Turn ignition switch on and with test light check output terminal of relay (red/white wire). If tester does not light;
 - a. Put test light on ignition relay coil terminal (pink or tan wire).
 - b. If tester lights, replace ignition relay.
 - c. If tester does not light, locate short or open circuit along pink or tan wire (check fuse at dash panel).

Checking for Current at Master Window Control Switch

1. With ignition switch on, connect one test light lead to the master window control switch feed terminal (red-white stripe) of the switch block and ground other test lead.
2. If tester does not light, there is an open or short circuit between the relay and master control switch.
3. If tester does not light on Cadillac styles, check window blockout switch.

Checking Window Blockout Switch-Cadillac Styles Only

1. With the ignition switch on, insert one end of a No. 12 gauge jumper wire into the terminal with the red-white stripe wire and the other end into the terminal with the pink-black stripe wire.

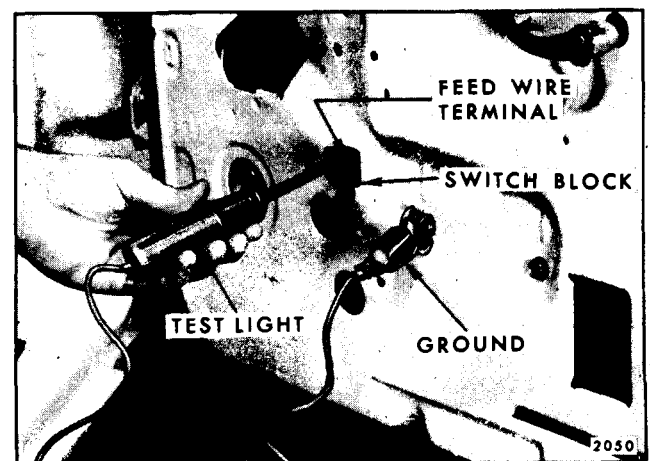


Fig. 15-7-Checking Feed Circuit

2. Operate control switches. If any of the windows operate with the jumper but not with the blockout switch, the switch is defective.

Checking Feed Circuit Continuity at Window Control Switch

1. Connect one test light lead to feed terminal of switch block and ground other tester lead to body metal (Fig. 15-7).
2. If tester does not light, there is an open or short circuit between switch and power source.

Checking Window Control Switch

1. Insert one end of a No.12 gauge jumper wire to the switch feed terminal and the other end to one of the motor lead terminals in the switch block. Repeat this check on the remaining motor lead terminal (Fig. 15-8).
2. If the window operates with the jumper wire, but does not operate with the switch, the switch is defective.

Checking Wires Between Door Window Switch and Door Window Motor

1. Disengage harness connector from window motor. The thumb release on the harness connector must be depressed before it can be disengaged from the motor.
2. Insert one end of a No. 12 gauge jumper wire to the switch feed terminal and the other end to one of the motor lead terminals in the switch block (Fig. 15-8).

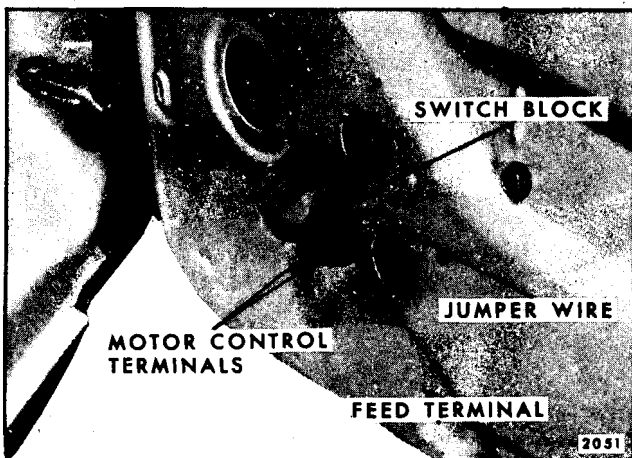


Fig. 15-8-Checking Window Control Switch

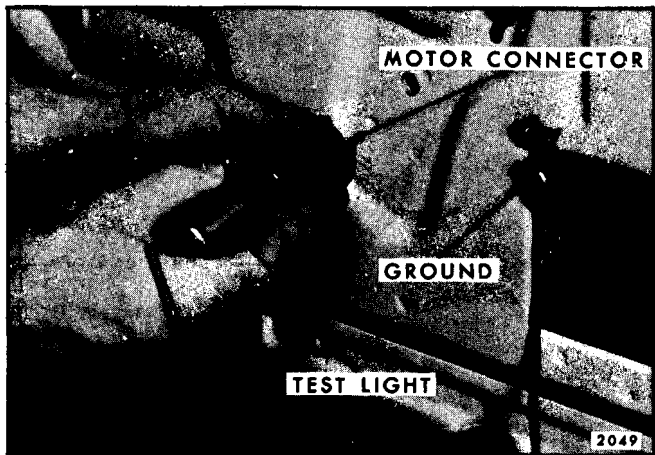


Fig. 15-9-Checking Circuit Between Switch and Motor

3. With test light, check for current at motor harness connector terminal being tested. If tester does not light, there is an open or short circuit in the harness between the control switch and motor connector (Fig. 15-9).
4. Check other terminal.

Checking Wires Between Quarter Window Switch and Quarter Window Motor

1. Insert one end of a No. 12 gauge jumper wire in the switch feed terminal and the other end in one of the motor lead terminals of the switch block (Fig. 15-8).
2. With a test light, check for current at the corresponding terminal at the motor harness connector. If tester does not light, there is an open or short circuit between control switch and motor connector (Fig. 15-9).
3. Check other terminal.

Checking Window Motor

1. Check window regulator and channels for possible mechanical bind of window.
2. Check attachment of window motor to insure an effective ground.
3. Connect one end of a No. 12 gauge jumper wire to the power source and the other end to one of the terminals on the window motor.
4. Check the other motor terminal in the same manner. If the motor fails to operate with a jumper wire, the motor is defective and should be replaced.

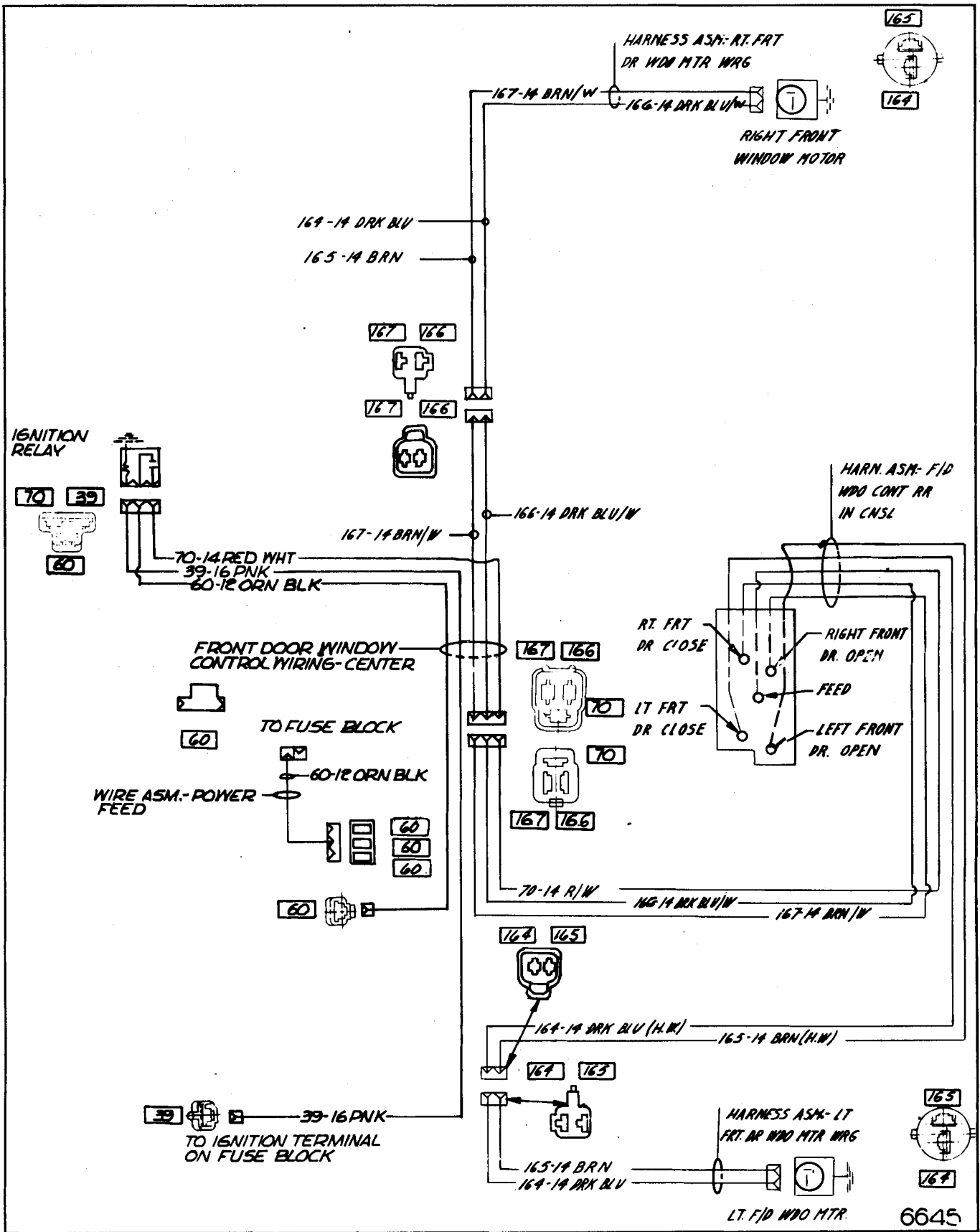


Fig. 15-11-Power Window Circuit Diagram - Pontiac "F" Style

Trouble Shooting of Power Windows

The following typical failures and corrections have been listed as an aid for eliminating electrical failures

in the power window electrical circuit. It should be noted that multiple failures in the circuit may lead to a combination of conditions, each of which must be checked separately.

CONDITION	APPARENT CAUSE	CORRECTION
1. None of the windows will operate with ignition switch on.	<p>A. Short or open circuit in power feed circuit</p> <p>B. Defective window control switch ("F" style only)</p>	<p>A. Check circuit breaker operation.</p> <p>B. Check ignition relay operation</p> <p>C. Check feed connection to power harness beneath instrument panel.</p> <p>D. Check feed circuit wires for possible short or open circuit.</p> <p>E. Check window blackout switch (Cadillac styles only)</p> <p>A. Check window control console switch ("F" style only).</p>
2. Right rear door window does not operate from master control switch on left door or from control switch on right rear door. Left door window operates.	<p>A. Short or Open circuit between right rear door harness and power window front harness.</p> <p>B. Short or open circuit in affected window control switch or window motor circuit.</p> <p>C. Possible mechanical failure or bind in window channels.</p> <p>D. Defective window motor.</p>	<p>A. Check harness connectors beneath outer end of instrument panel for proper installation.</p> <p>B. Check wires in power window front harness for possible short or open circuit.</p> <p>C. Check operation of rear door window control switch.</p> <p>D. Check circuit from window control switch to window motor for short or open circuit.</p> <p>E. Check window regulator and channels for possible mechanical failure or bind.</p> <p>F. Check operation of motor.</p>
3. Right door windows will operate from left door master control switch but will not operate from right door control switch. Left door windows operate.	<p>A. Open or short circuit in front harness feed wire circuit.</p>	<p>A. Follow up feed wire in front harness for possible short or open circuit.</p>

POWER OPERATED STATION WAGON TAIL GATE WINDOW AND TAIL GATE

ELECTRICAL TAIL GATE WINDOW CIRCUIT

On all "A" style station wagons, the power operated tail gate window is controlled by a window regulator assembly, equipped with a rectangular shaped, 12 volt D.C., reversible direction motor with an internal circuit breaker and a self-locking gear drive.

On all "B" style station wagons, a power operated tail gate window is standard equipment. The window is controlled by a gear box-type regulator, a rectangular shaped 12 volt D.C., reversible motor with an internal circuit breaker, guide cams and rollers, drive cable and lift spring.

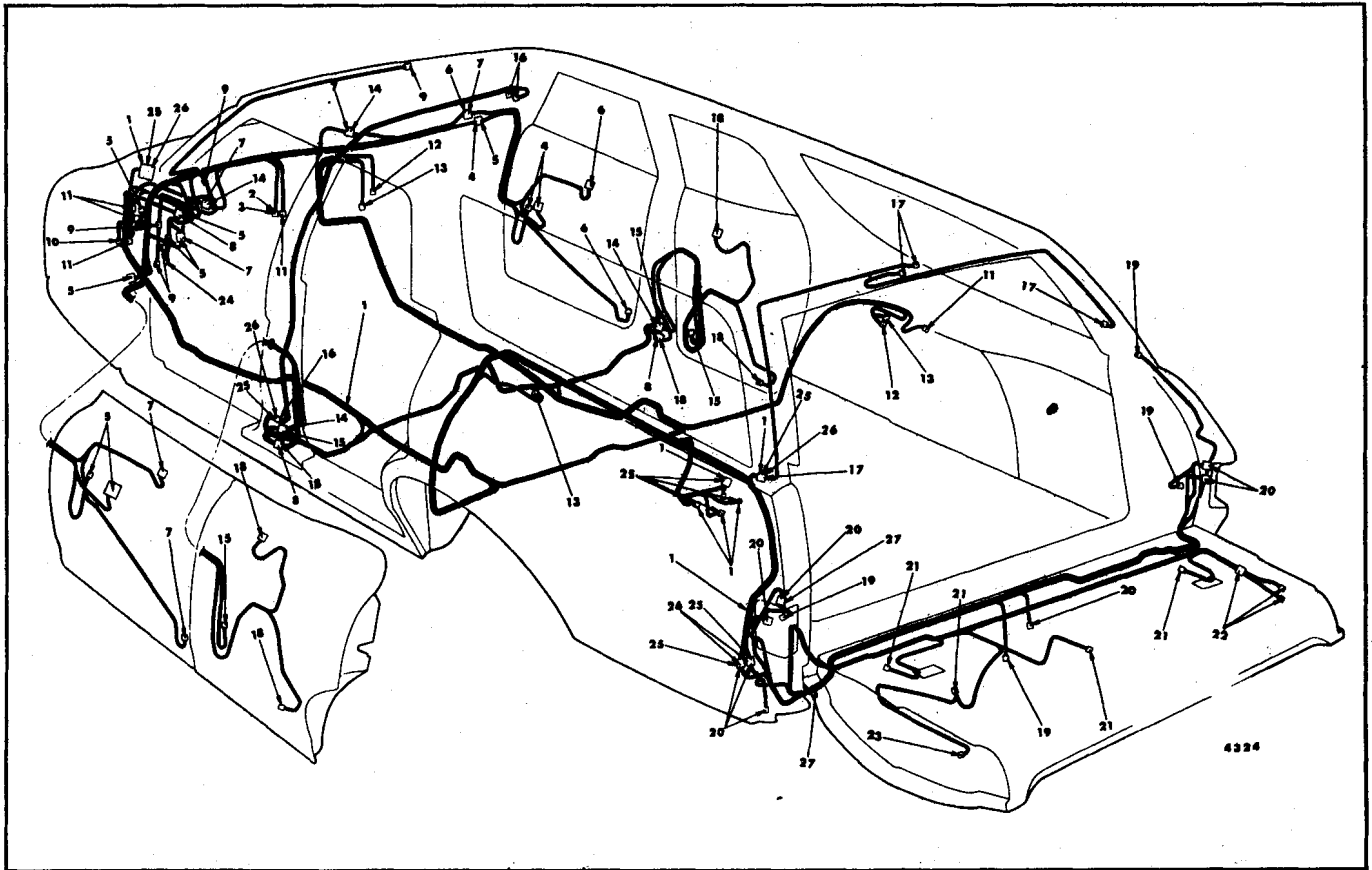


Fig. 15-13-Body Wire Routing - Chevrolet "A-36-46" Styles

- | | | | |
|--|---|--|---|
| 1. Tailgate Window Control Harness (Front) | 6. Right Front Door Lock Control Harness | 14. Rear Door Lock Control Harness (Front) | 20. Tailgate Window Control Harness |
| 2. Tailgate and Side Window Control Harness (Instrument Panel) | 7. Left Front Door Lock Control Harness | 15. Rear Door Lock Control Harness (Rear) | 21. Tailgate Window Control Harness (Rear) |
| 3. Tailgate Window Control Harness (Instrument Panel) | 8. Rear Door Window Control Harness (Front) | 16. Dome Lamp Harness | 22. Tailgate Window Cut-Out Switch Harness |
| 4. Right Front Door Window Control Harness | 9. Rear View Mirror Map Lamp Feed Wire | 17. Rear Header Courtesy Lamp Harness | 23. Tailgate Window Control Harness (Rear) |
| 5. Left Front Door Window Control Harness | 10. Power Option Feed | 18. Rear Door Window Control Harness (Rear) | 24. Ignition Feed |
| | 11. Rear Window Defogger Harness | 19. Tail Stop, License and Fiber Optic Harness | 25. Tailgate Window Control Harness (Front) |
| | 12. Rear Speaker Harness | | 26. Front Body Harness |
| | 13. Rear Stereo Speaker Harness | | 27. Rear Body Harness |

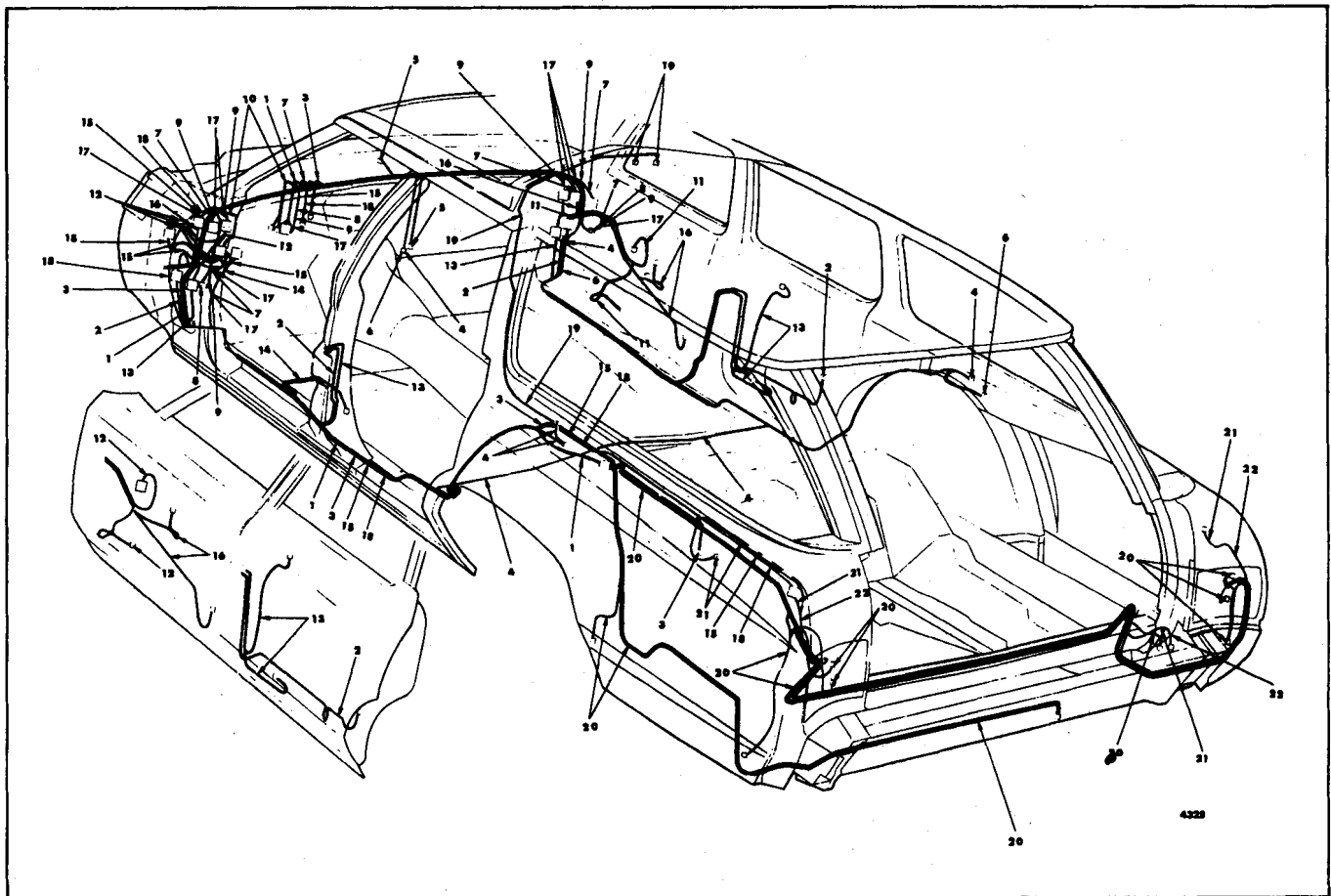


Fig. 15-14-Body Wire Routing - Chevrolet "B-35" Style

- | | | | |
|-------------------------------------|---|---|---|
| 1. Front Body Harness | 8. Door Jamb Switch Harness | 13. Rear Door Window Control Harness | 18. Tailgate Window Control Harness (Front-With Side Windows) |
| 2. Rear Door Lock Control Harness | 9. Door Window Control Harness (Center) | 14. Seat Adjuster Harness | 19. Dome Lamp Harness |
| 3. Rear Window Defogger Harness | 10. Power Option Feed | 15. Tailgate Window Control Harness (Front) | 20. Rear Body Harness |
| 4. Rear Stereo Speaker Harness | 11. Right Front Door Window Control Harness | 16. Front Door Lock Control Harness | 21. Tailgate and Tailgate Window Control Harness (Rear) |
| 5. Windshield Antenna Lead-In Cable | 12. Left Front Door Window Control Harness | 17. Door Lock and Window Control Harness (Center) | 22. Tailgate Window Control Harness (Rear) |

All styles - In addition to the internal circuit breaker in the motors, the wiring circuit is protected by a 40 amp. circuit breaker (refer to Electrical Introduction for locations).

An ignition relay prevents operation of the tail gate window from the instrument panel switch, until the ignition switch is turned "on".

On some "A" style three seat station wagons, a tail gate window control switch is located at the rear of the left rear quarter inner trim panel.

On "A" styles, a cut-out switch is located on the right upper lock assembly which opens the "up" cycle circuit

to the window motor, making the motor inoperative when the gate is open in either a gate or door position.

On "B" style station wagons, the external tail gate window control switch is mounted on the rear of the right quarter outer panel adjacent to the tail gate. On styles equipped with a power operated tail gate, the switch controls both the gate and glass.

On styles equipped with a manually operated tail gate, the switch includes a link to the gate lock lever. Turning the key clockwise will open the tail gate window. After the window is open approximately eight inches, the key can be turned farther to unlock the tail

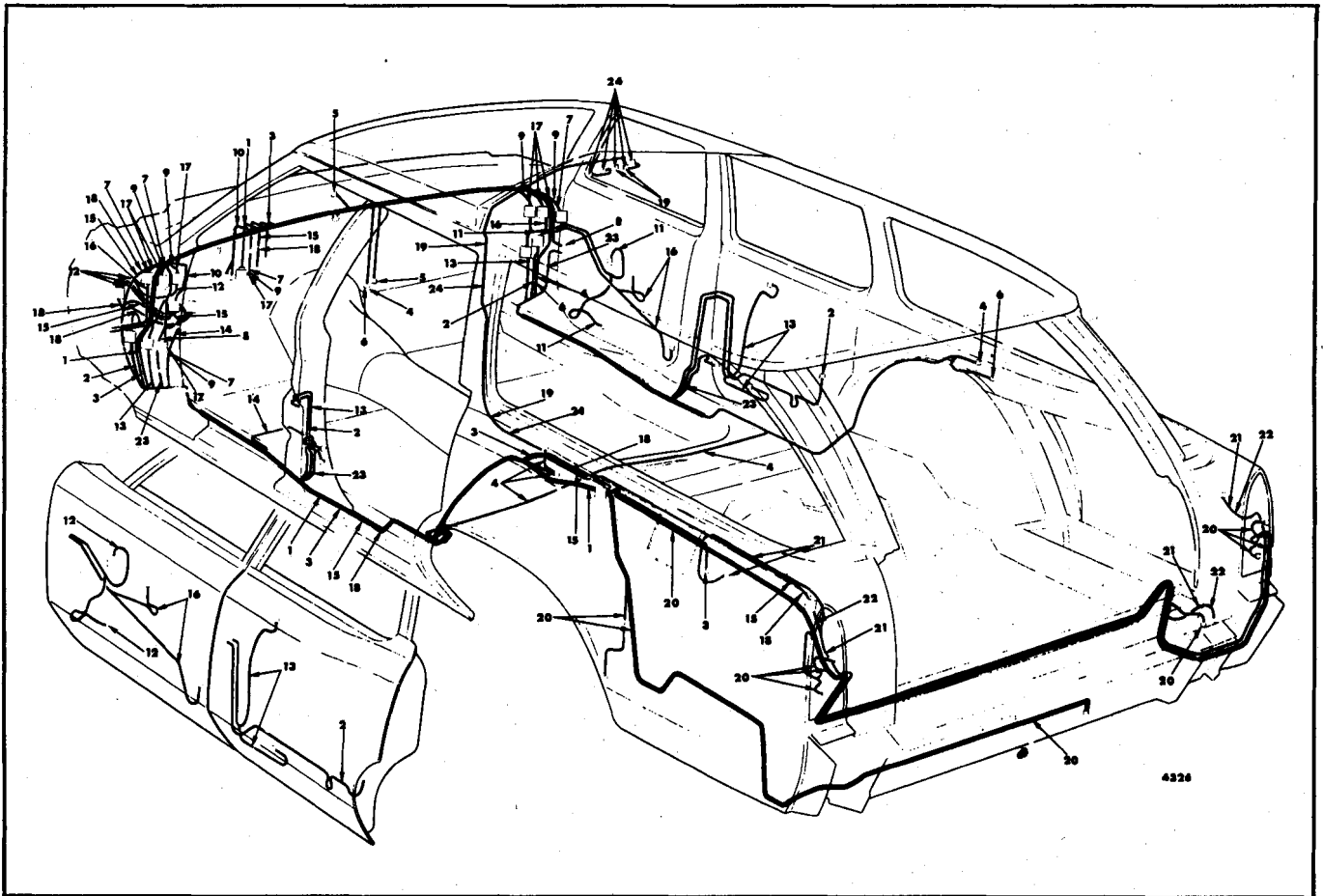


Fig. 15-15-Body Wire Routing - Pontiac "B-45" Style

- | | | | |
|---------------------------------------|---|---|--|
| 1. Front Body Harness | 9. Door Window Control Harness (Center) | 14. Seat Adjuster Harness | 19. Dome Lamp Harness |
| 2. Rear Door Lock Control Harness | 10. Ignition Feed | 15. Tailgate Window Control Harness (Front-Less Side Windows) | 20. Rear Body Harness |
| 3. Back Window Defogger Harness | 11. Right Front Door Window Control Harness | 16. Door Lock Control Harness (Front) | 21. Tailgate and Tailgate Window Control Harness |
| 4. Rear Stereo Speaker Harness | 12. Left Front Door Window Control Harness | 17. Door Lock and Window Control Harness (Center) | 22. Tailgate Window Control Harness (Rear) |
| 5. Windshield Antenna Lead-In Cable | 13. Rear Door Window Control Harness | 18. Tailgate Window Control Harness (Front-With Side Windows) | 23. Rear Door Jamb Switch Harness |
| 6. Rear Speaker Harness | | | 24. Dome and Reading Lamp Harness |
| 7. Door Lock Control Harness (Center) | | | |
| 8. Door Jamb Switch Harness (Center) | | | |

gate. The window can not be fully closed until the tail gate is fully closed.

On styles equipped with a power operated tail gate, the switch includes three detent positions in each of the clockwise and counter clockwise directions. Turning the key clockwise to the first detent position will open the tail gate window. The second detent position will open the tail gate, and the third detent position will provide simultaneous opening of the tail gate and tail gate window. Turning the key counter

clockwise to the first detent position will close the tail gate window, the second detent position will close the tail gate and the third detent will close both simultaneously.

ELECTRICAL TAIL GATE CIRCUIT - "B" STYLES ONLY

The power operated tail gate on "B" styles is controlled by a lift arm hinge and regulator assembly, equipped with a rectangular shaped, 12 volt D.C.,

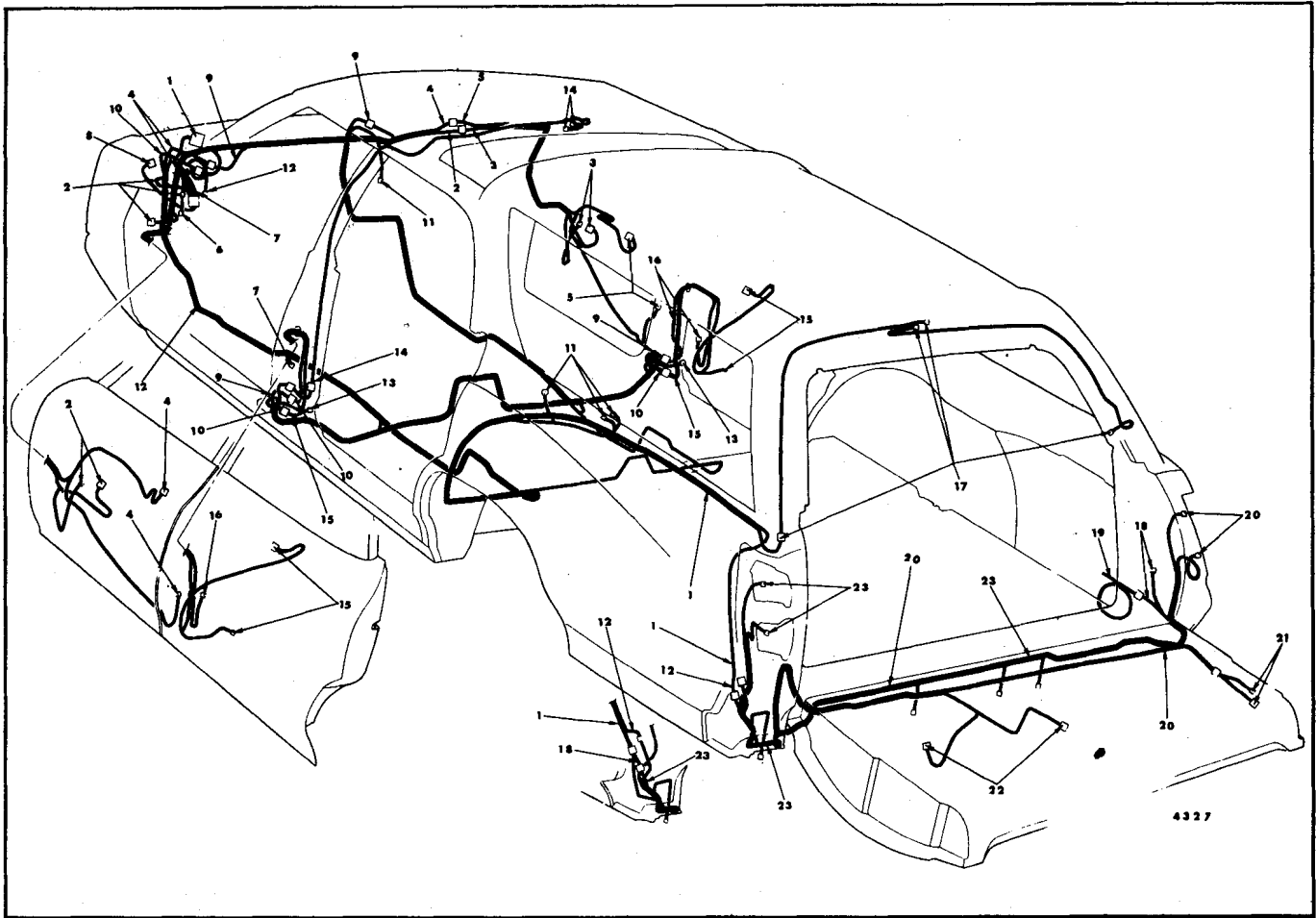


Fig. 15-16-Body Wire Routing - Oldsmobile "A-56-66" Styles

- | | | | |
|--|--|---|---|
| 1. Front Body Harness | 7. Seat Adjuster Harness | 13. Rear Door Jamb Switch Harness | 19. Trailer Adapter Harness |
| 2. Left Front Door Window Control Harness | 8. Power Option Feed | 14. Dome Lamp Harness | 20. Tailgate Window Control Harness (Rear) |
| 3. Right Front Door Window Control Harness | 9. Rear Door Lock Control Harness (Front) | 15. Rear Door Window Control Harness (Rear) | 21. Tailgate Window Cut-Out Switch Jumper Harness |
| 4. Left Front Door Lock Control Harness | 10. Rear Door Window Control Harness (Front) | 16. Rear Door Lock Control Harness (Rear) | 22. Tailgate Window Control Harness (Rear) |
| 5. Right Front Door Lock Control Harness | 11. Rear Speaker Harness | 17. Rear Header Courtesy Lamp Harness | 23. Rear Body Harness |
| 6. Ignition Feed | 12. Tailgate Window Control Harness (Front) | 18. Trailer Adapter Jumper Harness | |

reversible direction motor with an internal circuit breaker.

In addition to the circuit breaker in the motor, the wiring circuit is protected by a 40 amp. circuit breaker (refer to Electrical Introduction for locations).

The power operated tail gate is controlled from one switch located at the rear of the right quarter outer panel adjacent to the tail gate. The same switch controls both the tail gate and tail gate window.

Operation of the switch is described under Electrical Tail Gate Window Circuit.

The tail gate window and tail gate harness is enclosed in the body wire harness conduit and consists of two sections. The front section extends to the rear of the left wheelhouse just below the left quarter window ("B" body rear harness connectors are located here) and down the inside of the left back body opening lock pillar ("A" body rear harness connectors are located here). On "A" styles, the harness enters the

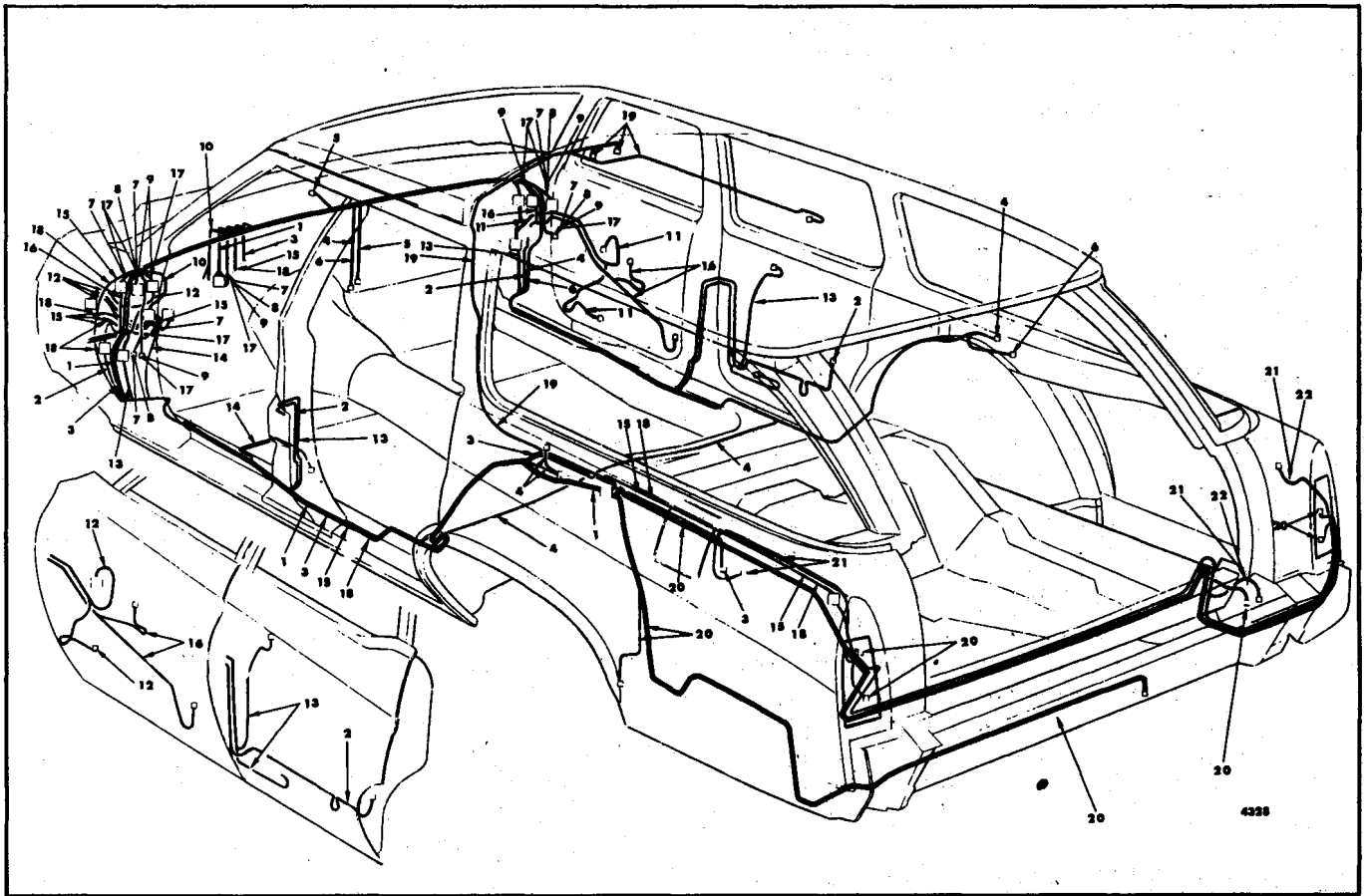


Fig. 15-17-Body Wire Routing - Buick "B-35-45" Styles

- | | | | |
|-------------------------------------|--|---|---|
| 1. Front Body Harness | 8. Jamb Switch, Lighter, Courtesy and Warning Lamp Harness | 13. Rear Door Window Control Harness | 18. Tailgate Window Control Harness (Front-With Side Windows) |
| 2. Rear Door Lock Control Harness | 9. Door Window Control Harness (Center) | 14. Seat Adjuster Harness | 19. Dome Lamp Harness |
| 3. Back Window Defogger Harness | 10. Ignition Feed | 15. Tailgate Window Control Harness (Front-Less Side Windows) | 20. Rear Body Harness |
| 4. Rear Stereo Speaker Harness | 11. Right Front Door Window Control Harness | 16. Front Door Lock Control Harness | 21. Tailgate Window Control Harness (Rear-With Power Gate) |
| 5. Windshield Antenna Lead-In Cable | 12. Left Front Door Window Control Harness | 17. Door Lock and Window Control Harness (Center) | 22. Tailgate Window Control Harness (Rear-Less Power Gate) |

bottom of the tail gate inboard of the lower left hinge assembly (Figs. 15-13 and 15-16).

On "B" styles, the harness is routed along the rear cross bar panel to the tail gate window motor and switch at the right back body opening lock pillar, and to the tail gate motor mounted on the rear of the left quarter inner panel (Figs. 15-14, 15-15 and 15-17).

Checking Feed Circuit Continuity at Circuit Breaker

1. Connect one test light lead to battery side of circuit breaker and ground other lead. If tester does not light, there is an open or short circuit in feed circuit to breaker.

NOTE: Should replacement of front harness become necessary, access to front and rear harness connector may be gained by removing sealing grommet in the lower portion of the quarter panel extension on "A" styles only. On "B" styles, the left rear quarter trim pad must be removed. A leader should be secured to the end of the harness to aid in installation of replacement harness.

CHECKING PROCEDURE

Before performing an intensive checking procedure to determine any failure of the circuit, check all the connectors for proper installation. The checking

procedures may be used to check the operation of a switch or motor after the cause of the electrical failure has been isolated to a particular part of the circuit. Refer to the circuit diagrams of this section (see Figs. 15-18 thru 15-33).

Checking Feed Circuit Continuity at Circuit Breaker

1. Connect one test light lead to battery side of circuit breaker and ground other lead. If tester does not light, there is an open or short circuit in feed circuit to breaker.
2. To check circuit breaker, connect one test light lead to the output terminal and ground other lead. If tester does not light, circuit breaker is inoperative.

Checking Relay Assembly

1. With test light check relay feed (orange/black wire). If tester does not light, there is an open or short circuit between relay and circuit breaker.
2. Turn ignition switch on and with test light check output terminal of relay (red/white wire). If tester does not light, put test light on relay coil feed (tan or pink wire) and if lamp lights, replace relay. If tester does not light locate open or short in pink or tan wire (check fuse if shorted).

Checking Feed Circuit Continuity at Control Switch on Instrument Panel

1. Turn ignition switch "on" and disengage harness connector from switch. Connect one test light lead to feed terminal of switch connector and ground other test lead to body metal. If tester does not light, there is an open or short circuit between switch and power source.

Checking Control Switch at Instrument Panel

1. Turn ignition switch "on" and disengage harness connector from switch.
2. Use a No. 12 gauge jumper wire and insert one end into the feed terminal and the other end into one of the other terminals. Tail gate window motor should operate.
3. Repeat procedure for the other terminal. If the tail gate window motor operates with the jumper wire but does not operate with the control switch, the switch is defective.

Checking Key Operated Window Control Switch at Tail Gate

1. Remove key switch assembly as indicated in Tail Gate Section of this manual.
2. Disengage connector block from key switch assembly (Fig. 15-34).

3. Use a test light to determine if current is present at feed terminal.
4. Apply procedure outlined in checking instrument panel switch to determine if switch is defective.

Checking Key Operated Window and Tail Gate Control Switch on Right Quarter Panel

To check switch on styles equipped with a manually operated tail gate, follow procedure outlined for switch in tail gate.

Check switch on styles equipped with power operated tail gate as follows:

1. Remove key switch assembly as indicated in Tail Gate Section of this manual.
2. Disengage connector block from switch assembly.
3. Use a test light to determine if current is present at feed terminal.
4. Use a No. 12 gauge jumper wire and insert one end into the feed terminal of the connector and the other end into one of the terminals to the tail gate window motor. The tail gate window motor should operate.
5. Repeat the procedure for the other tail gate window terminal. If the tail gate window motor operates with the jumper wire but does not operate with the control switch, the switch is defective.
6. Repeat Steps 4 and 5 inserting the jumper wire into the feed terminal and the terminals to the tail gate motor. If the tail gate motor operates with the jumper wire but does not operate with the control switch, the switch is defective.

If the tail gate window and tail gate motors operated in Steps 4, 5 and 6 but will not operate simultaneously with the switch, the switch is defective.

Checking the Tail Gate Window and Tail Gate Motor

1. Disconnect harness connector from motor.
2. On the retractable tail gate motor, connect the positive side of power source to one of the motor terminals and the negative side to body metal. Motor should operate. To check the reverse operation of the motor, connect the power source to the other motor terminal. If motor does not operate in both directions, replace motor.
3. On the retractable tail gate window motor use the same checking procedure explained for the tail gate motor.

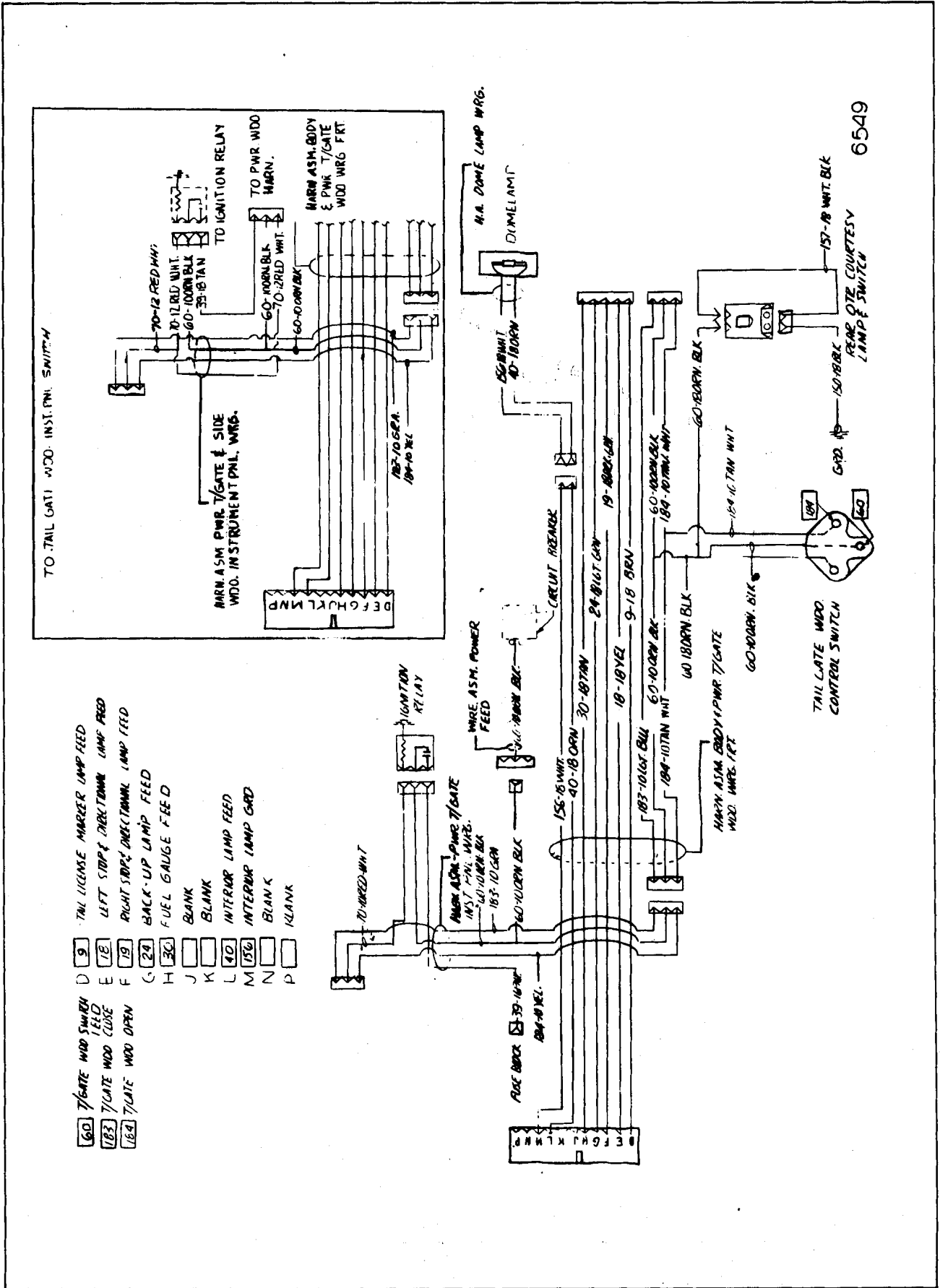
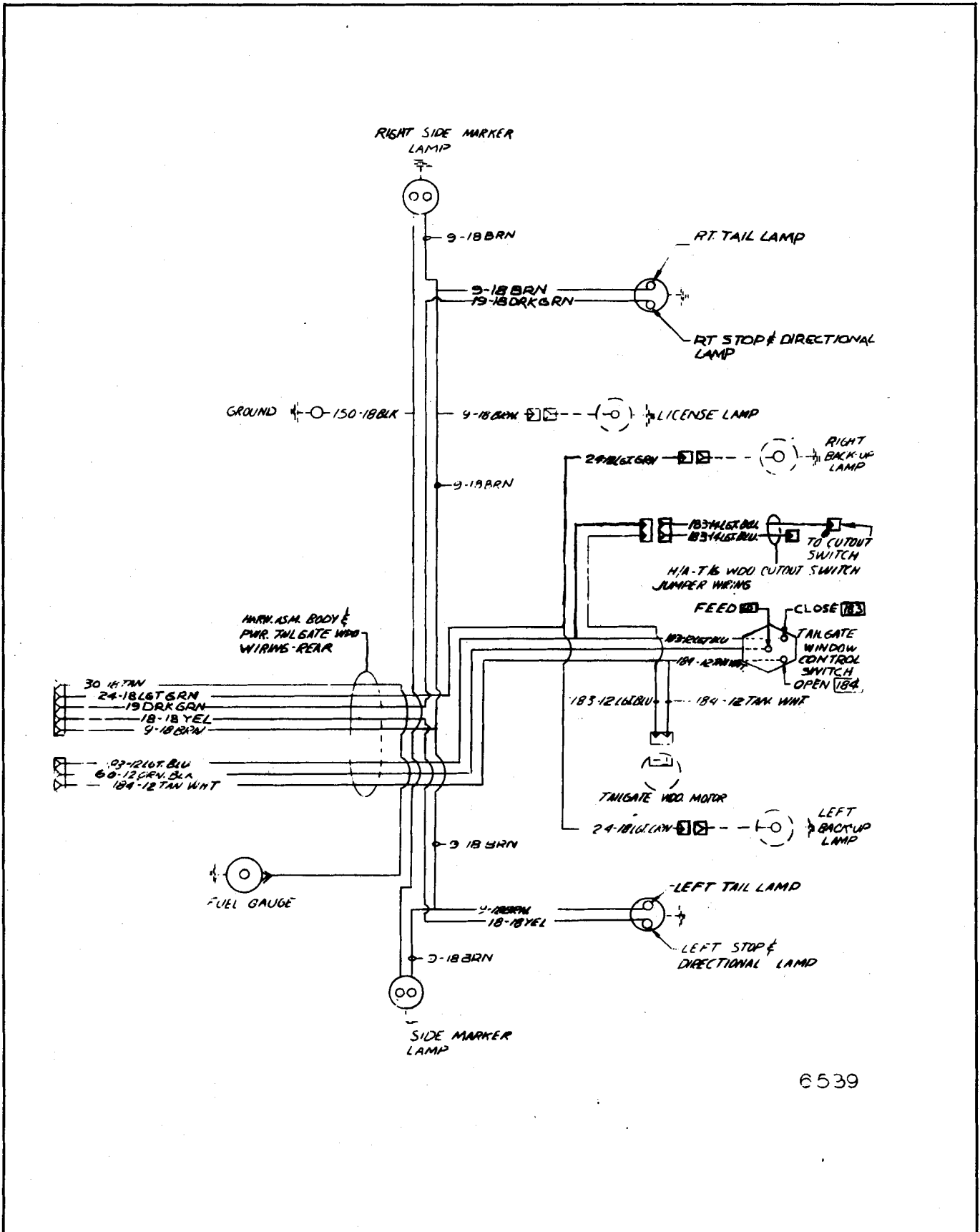


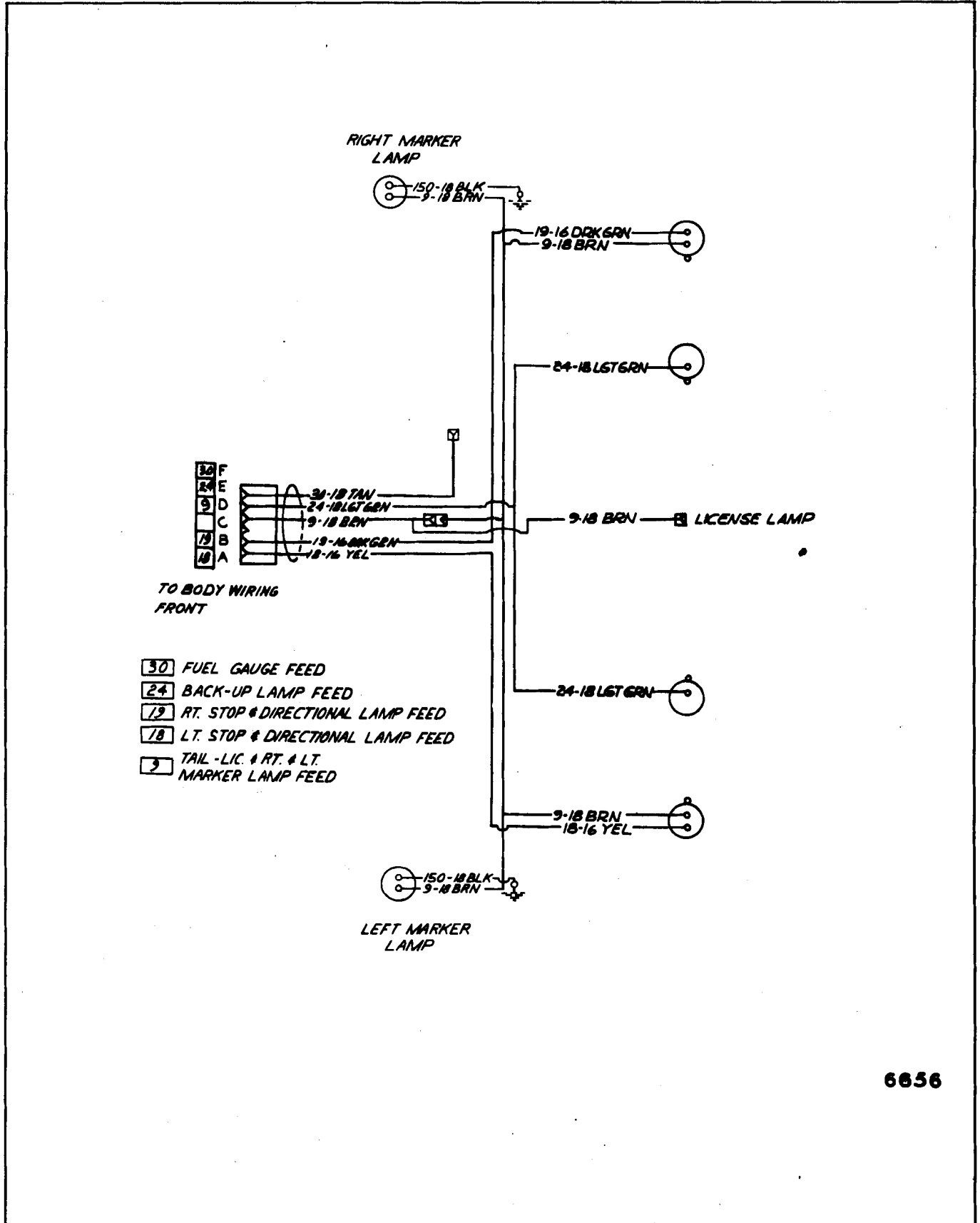
Fig. 15-18-Front Harness Circuit Diagram - Chevrolet "A-36-46" Styles

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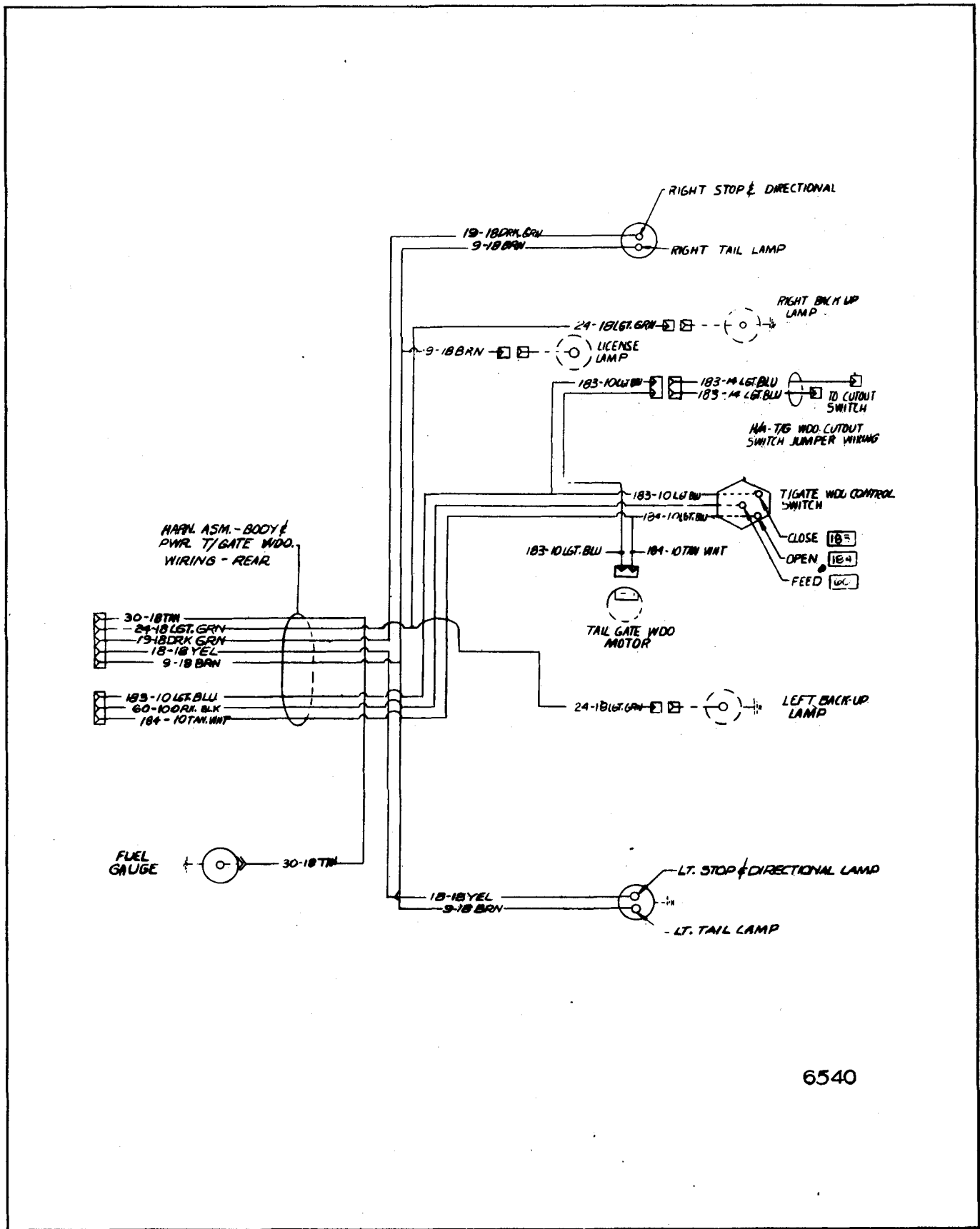
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Fig. 15-19-Rear Harness Circuit Diagram - Chevrolet "A-36-46" Styles



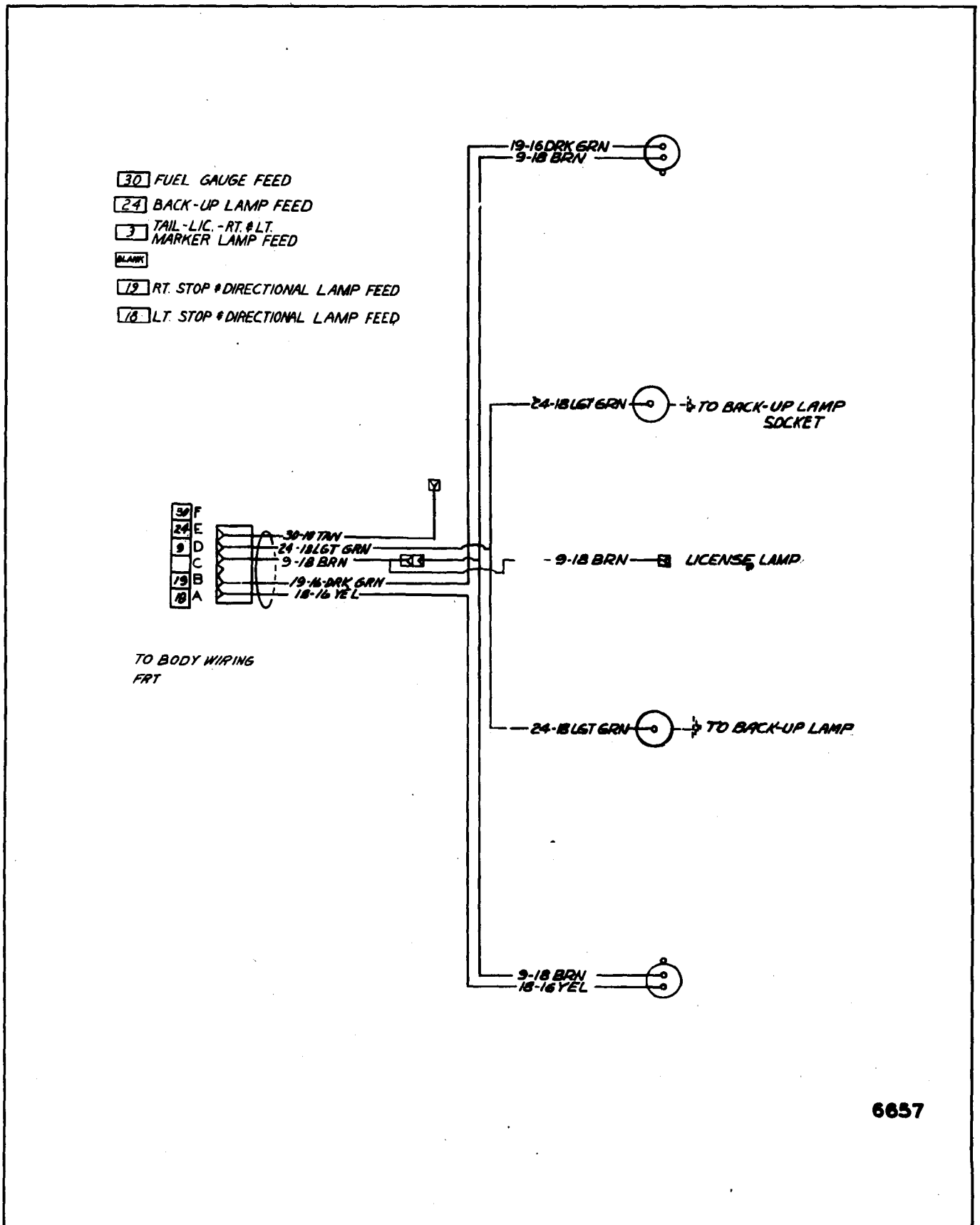
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Fig. 15-21-Rear Harness Circuit Diagram - Chevrolet "B-35-45" Styles



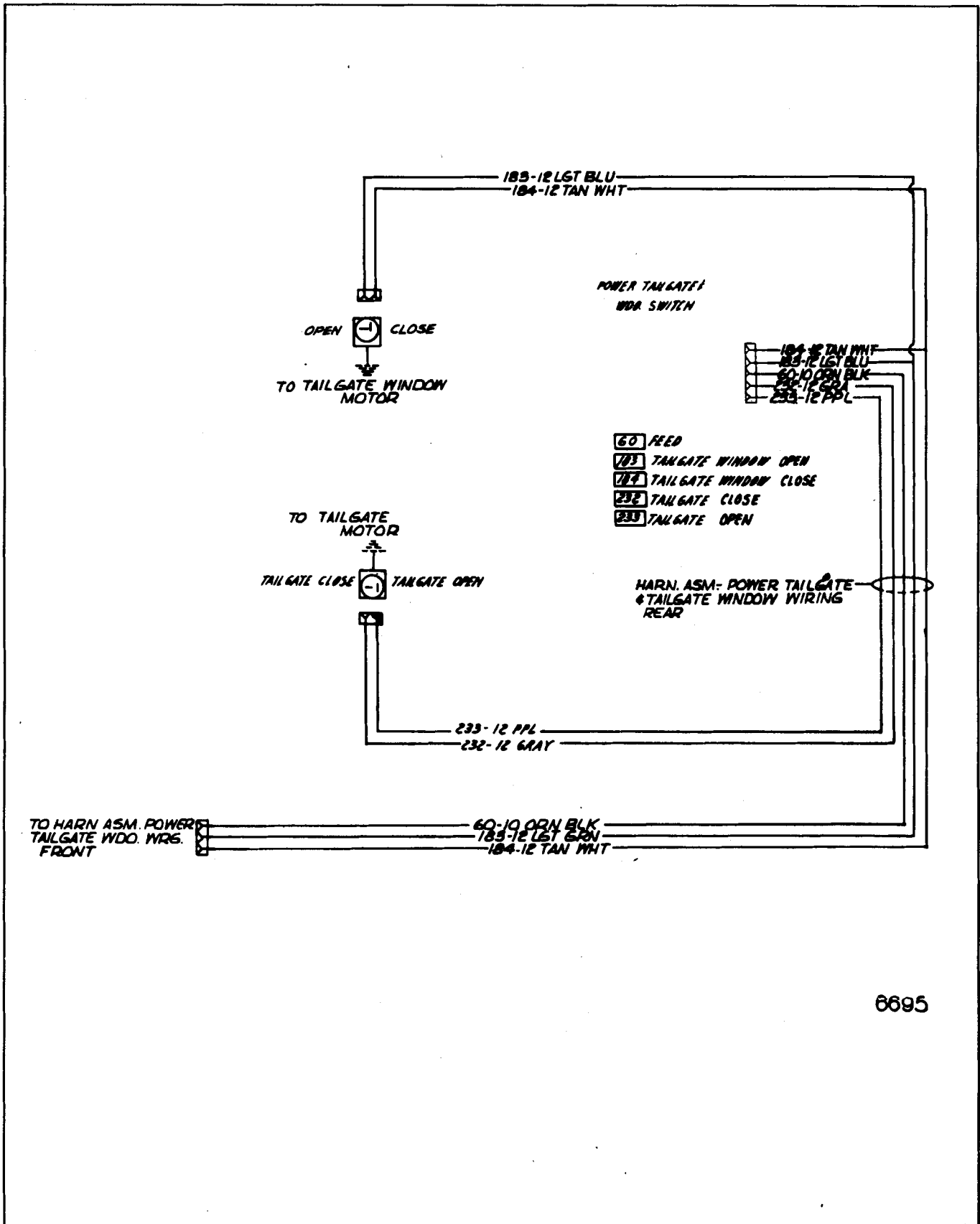
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Fig. 15-23-Rear Harness Circuit Diagram - Pontiac "A-36-46" Styles



6657

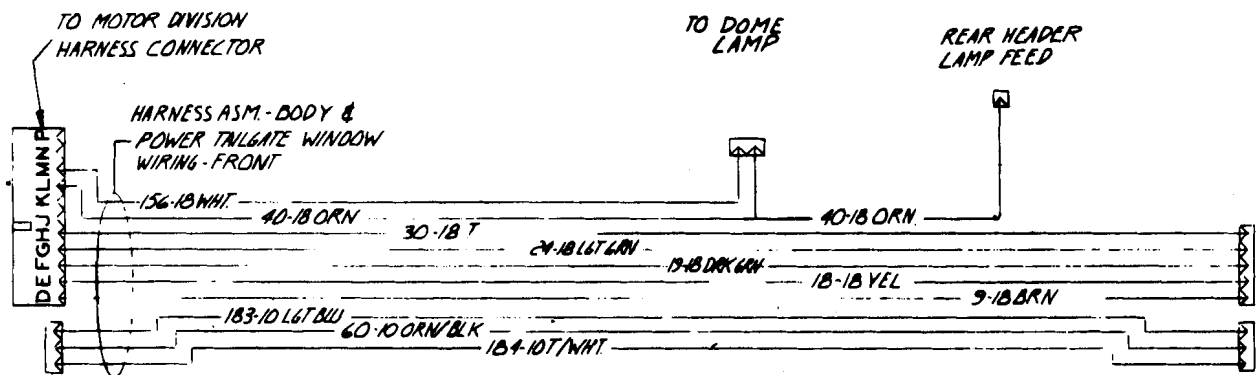
Fig. 15-24-Rear Harness Circuit Diagram - Pontiac "B-35-45" Styles



6695

Fig. 15-25-Rear Tail Gate and Tail Gate Window Circuit Diagram - All "B-35-45" Styles Except Oldsmobile

- D 9 TAIL, LICENSE & MARKER LAMP FEED
- E 18 LEFT STOP & DIRECTIONAL LAMP FEED
- F 19 RIGHT STOP & DIRECTIONAL LAMP FEED
- G 27 BACK-UP LAMP FEED
- H 30 FUEL GAUGE FEED
- J BLANK
- K BLANK
- L 40 INTERIOR LAMP FEED
- M 56 INTERIOR LAMP GROUND
- N BLANK
- P BLANK



6558

Fig. 15-26-Front Harness Circuit Diagram - Oldsmobile and Buick "A-36-56-66" Styles

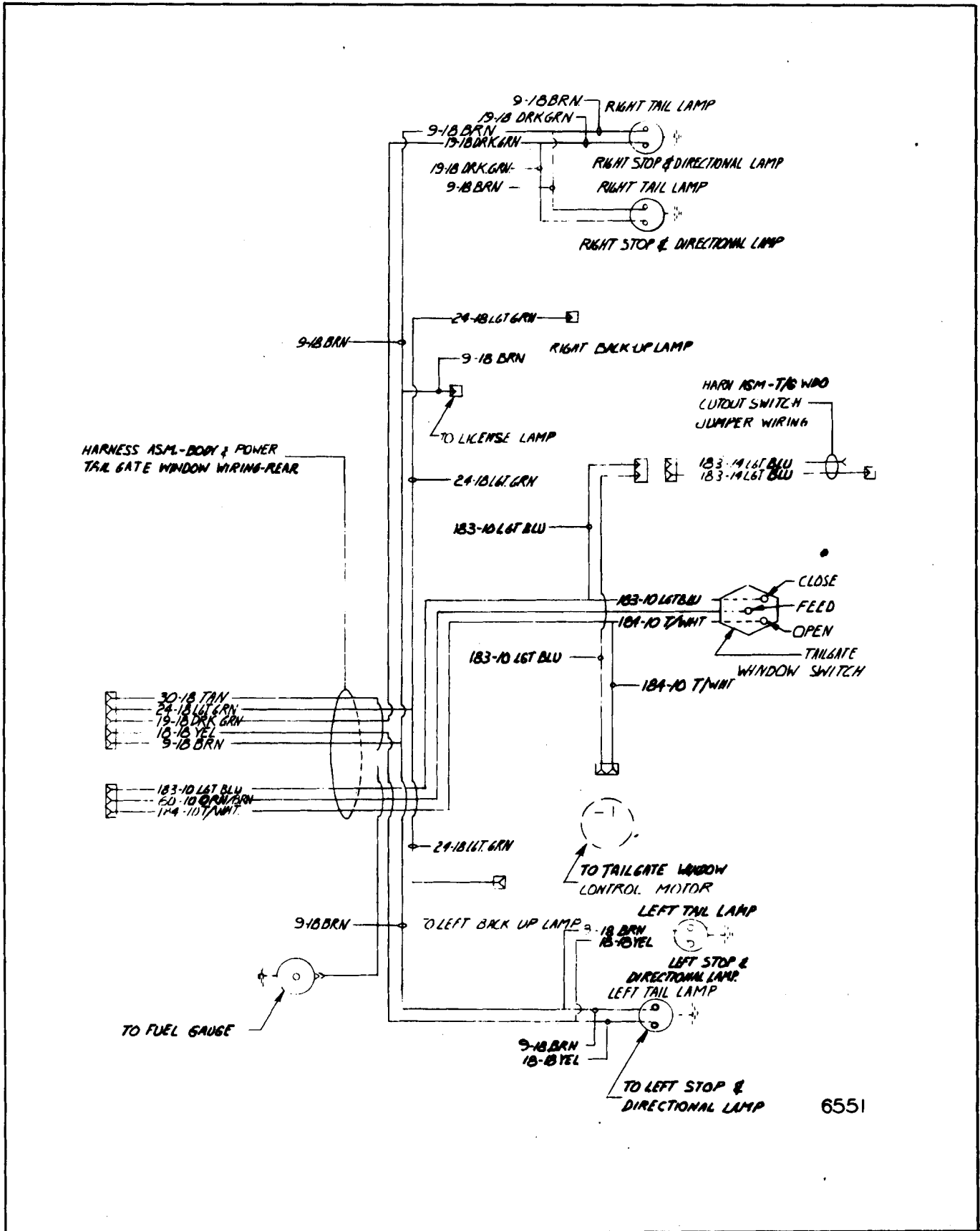
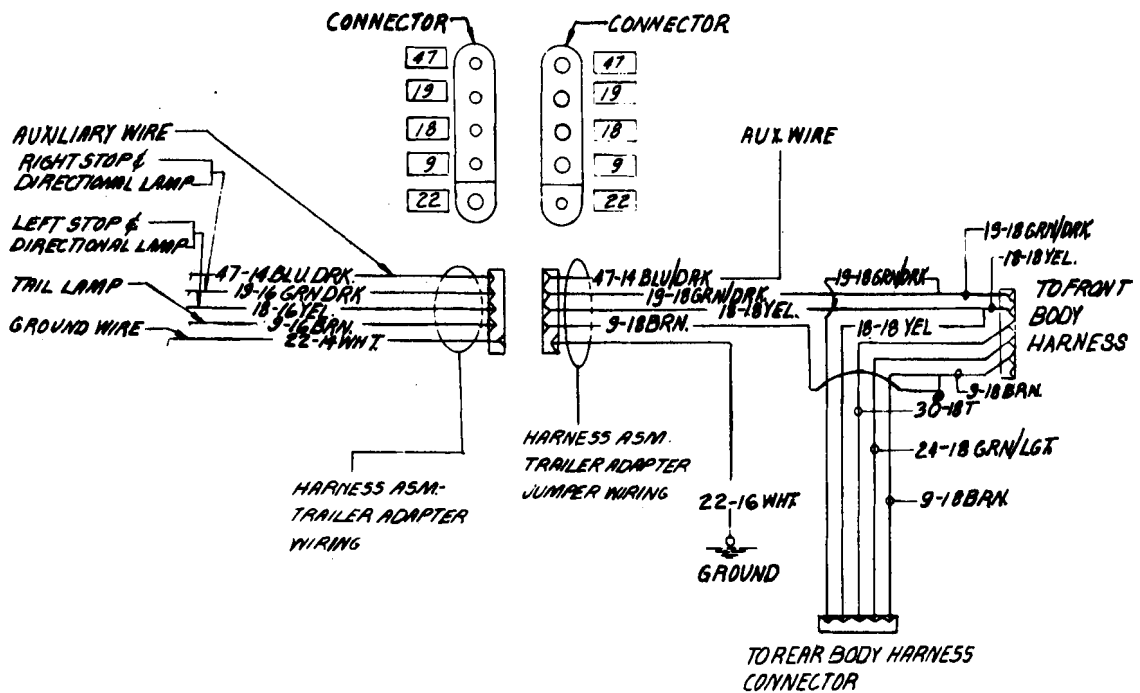
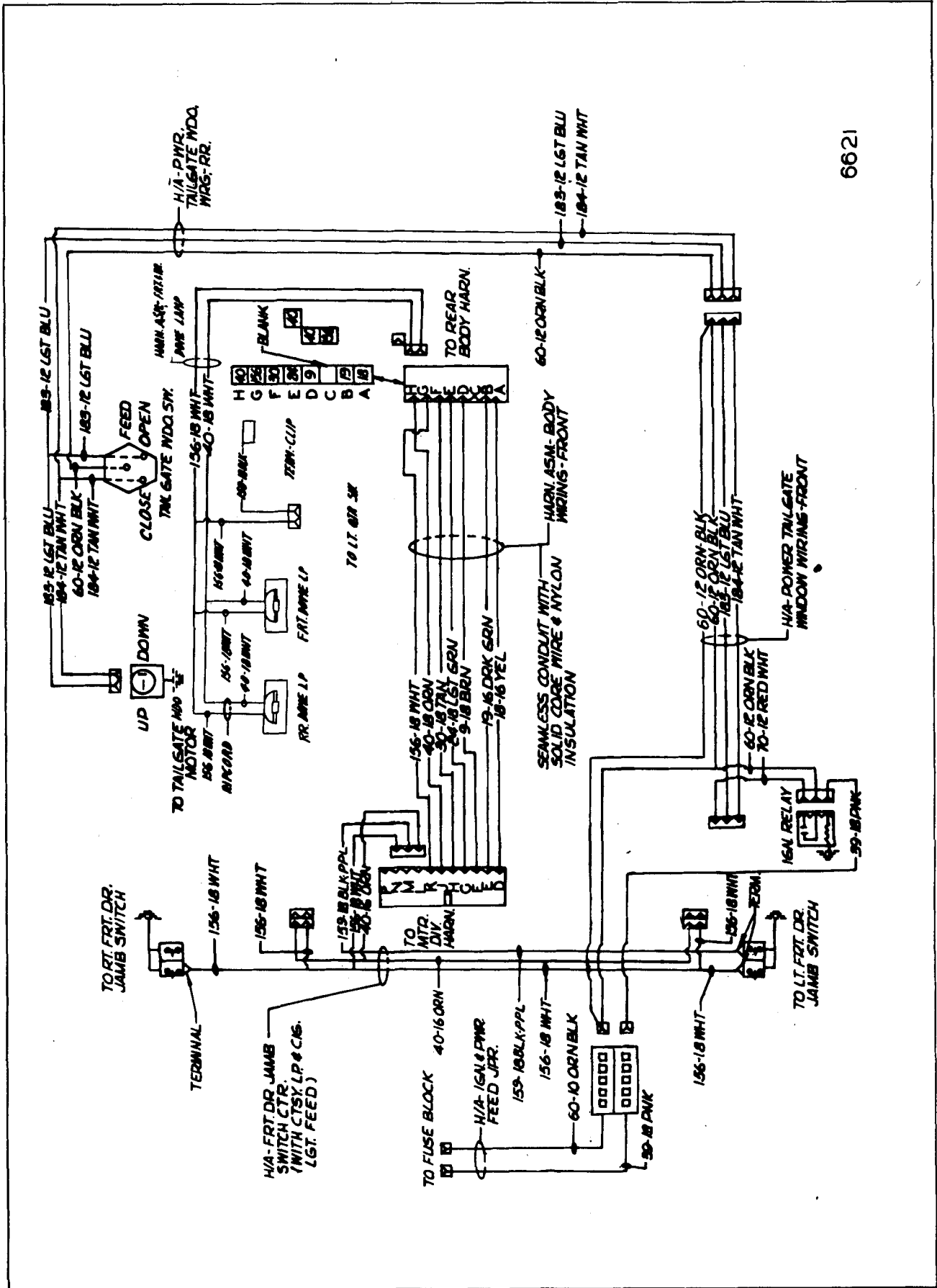


Fig. 15-27-Rear Harness Circuit Diagram - Oldsmobile "A-36-56-66" Styles



6576

Fig. 15-28-Trailer Adapter Harness Circuit Diagram - Oldsmobile "A" Styles



6621

Fig. 15-29-Front Harness Circuit Diagram - Oldsmobile and Buick "B-35-45" Styles

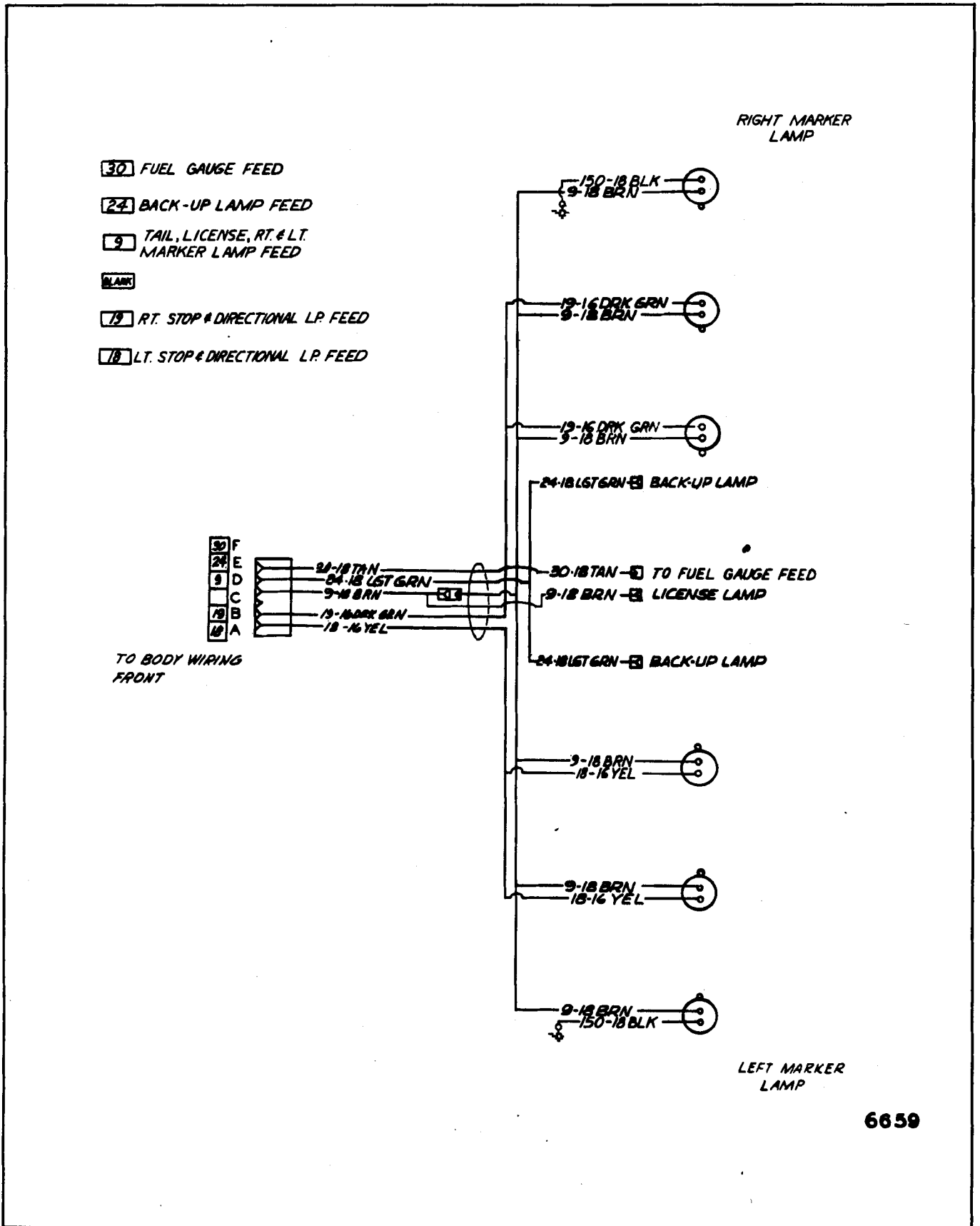
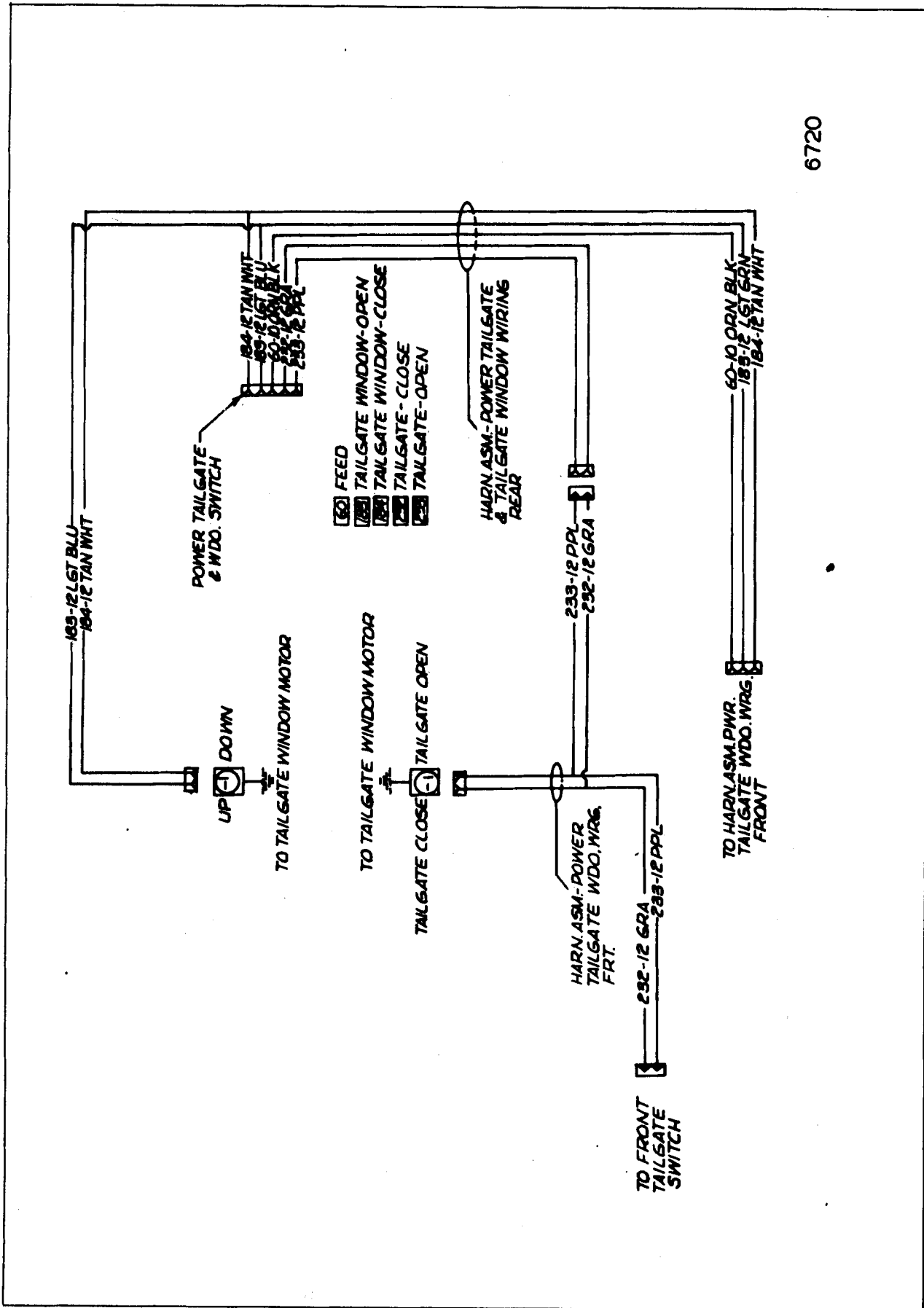
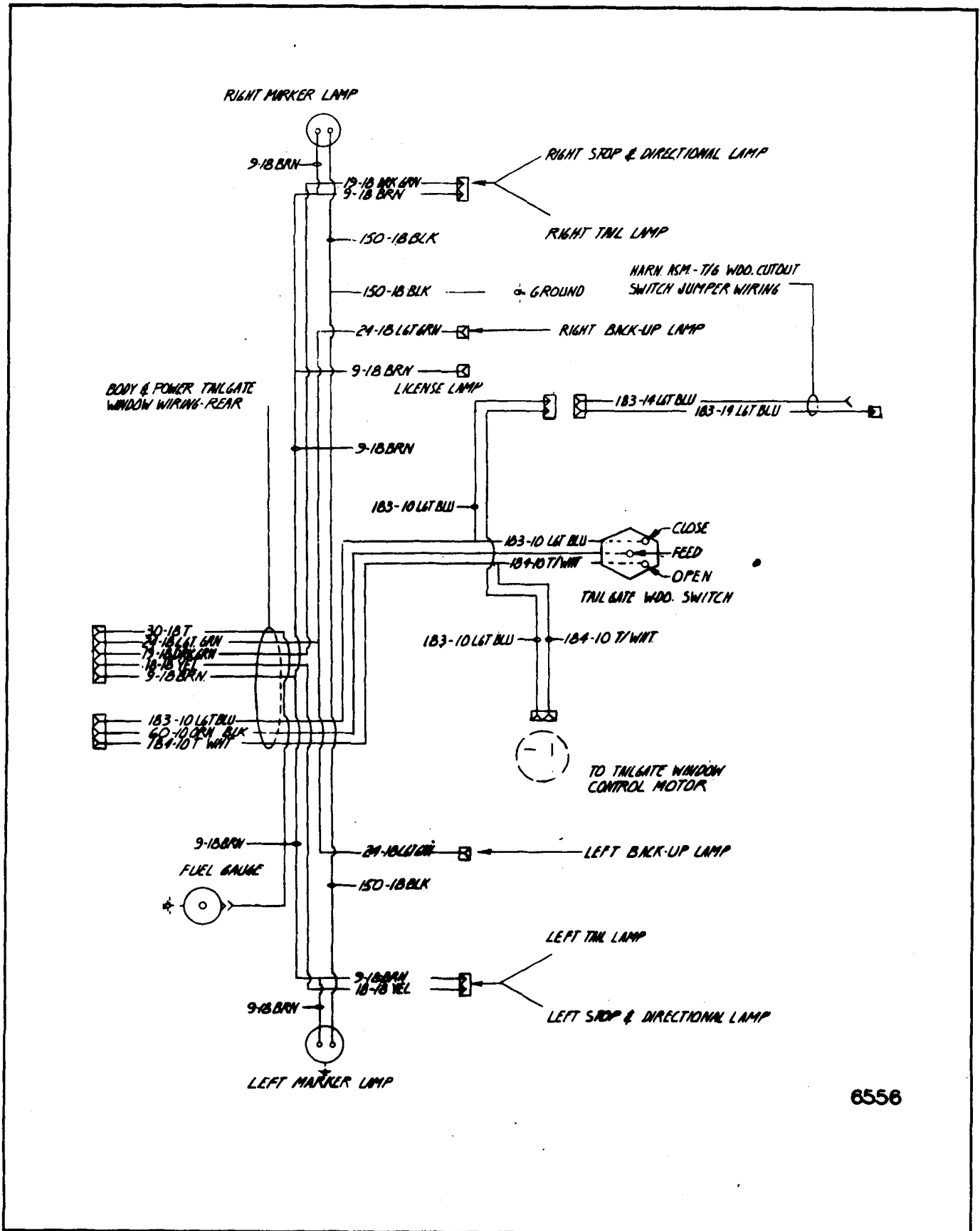


Fig. 15-30-Rear Harness Circuit Diagram - Oldsmobile "B-35-45" Styles



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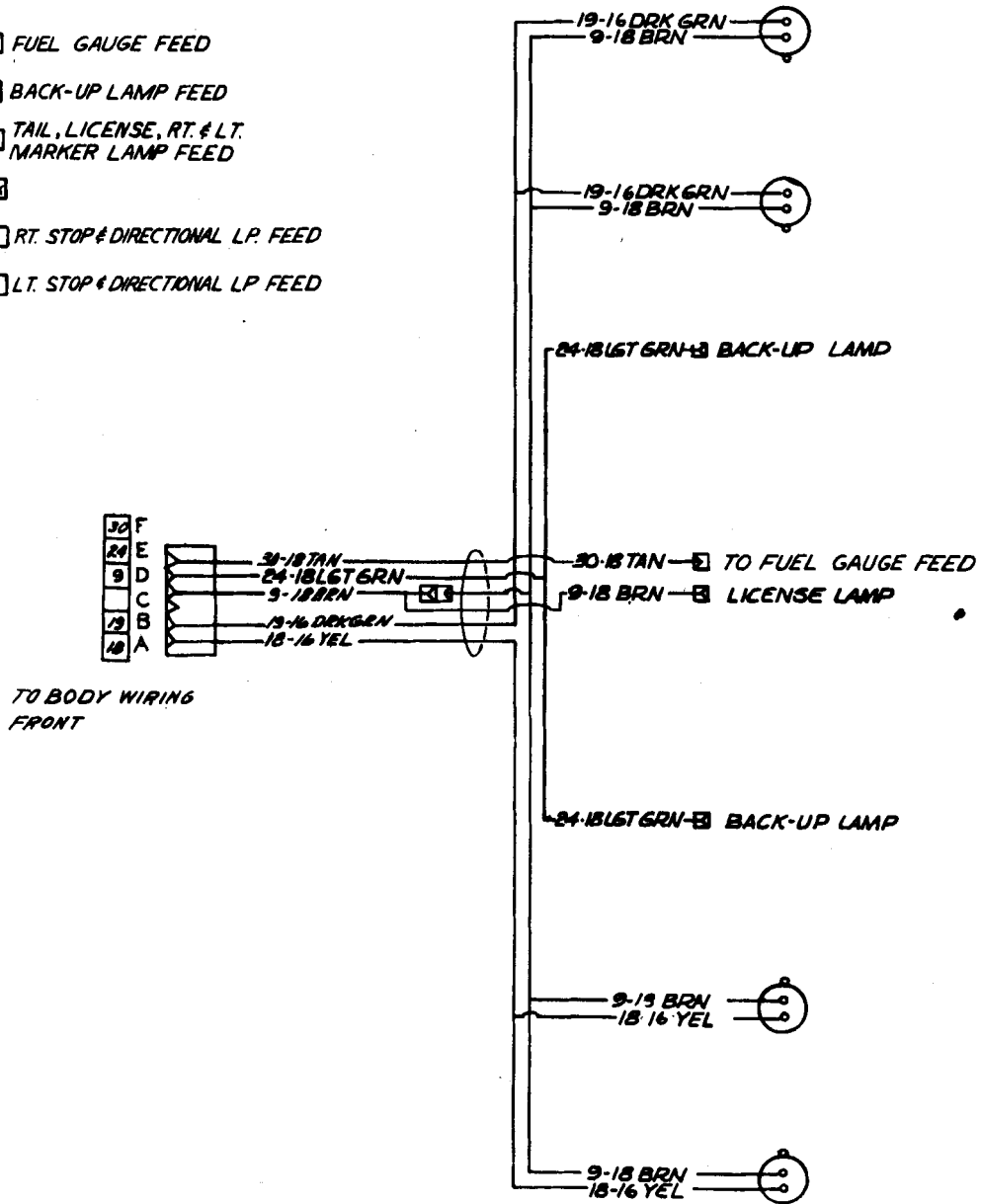
Fig. 15-31-Rear Tail Gate and Tail Gate Window Circuit Diagram - Oldsmobile "B-35-45" Styles



6556

Fig. 15-32-Rear Harness Circuit Diagram - Buick "A-36" Style

- 30** FUEL GAUGE FEED
- 24** BACK-UP LAMP FEED
- 9** TAIL, LICENSE, RT. & LT. MARKER LAMP FEED
- BLANK**
- 19** RT. STOP & DIRECTIONAL LP. FEED
- 18** LT. STOP & DIRECTIONAL LP. FEED



6658

Fig. 15-33-Rear Harness Circuit Diagram - Buick "B-35-45" Styles

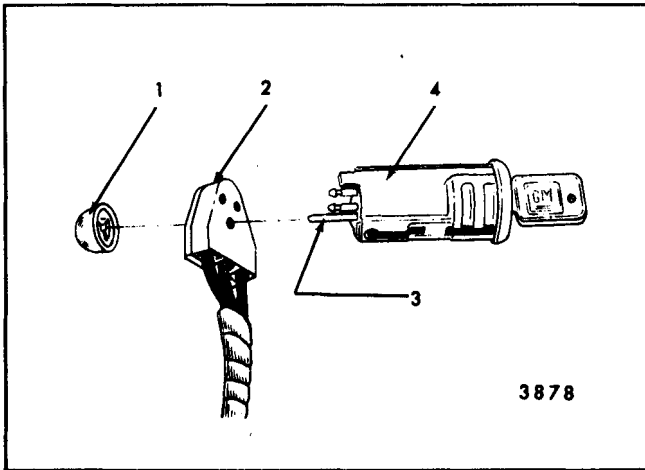


Fig. 15-34-Dual-Acting Tail Gate Key Switch

- | | |
|---------------------------------------|------------------------|
| 1. "Tinnerman" Nut-
Plastic Coated | 3. Feed Prong |
| 2. Connector Block | 4. Key Switch Assembly |

4. On dual acting tail gates - connect the positive side of a power source to one terminal on the motor and the negative side to body metal. Test other terminal on motor in same manner. If motor does not operate in both directions replace motor.

Checking Operation of Cut-Out Switch (Dual-Acting Tail Gate)

1. With the dual acting tail gate open as a tail gate, manually trip upper right and left lock assemblies to lock position to simulate tail gate being closed (refer to cut-out switch Removal and Installation in Section 9).

IMPORTANT: Prior to actuating cut-out switch on dual acting tail gate place tape over "door" remote control handle.

2. To check for defective cut-out switch, connect one test light lead to ground and the other to the input

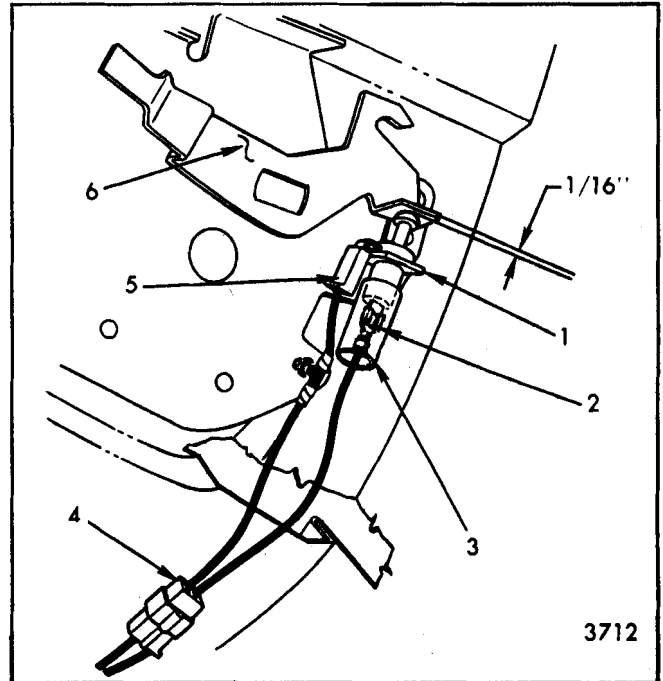


Fig. 15-35-Dual Acting Tail Gate Cut-Out Switch

- | | |
|-------------------------------|---------------------------------|
| 1. Cut-Out Switch
Assembly | 4. Jumper Harness
Connector |
| 2. Input Connector | 5. Output Connector |
| 3. Protective Rubber
Tube | 6. Lock Detent Release
Lever |

connector (Fig. 15-35). If The lamp does not light inspect wire for open or short circuit.

3. Connect test light to output connector. If lamp does not light, and switch is properly adjusted - replace switch. (refer to Section 9 for cut-out switch adjustment).
4. Prior to closing tail gate, actuate the "gate" remote control handle to unlock upper locks and remove tape from "door" remote control handle.

TROUBLE SHOOTING

CONDITION	APPARENT CAUSE	CORRECTION
1. The tail gate window opens and closes from the tail gate, or quarter outer panel, switch but does not operate from the switch at the instrument panel.	A. Open or short circuit from power source to control switch at instrument panel.	A. Check affected wiring and/or ignition relay.
	B. Defective or inoperative control switch.	B. Check operation of switch.

TROUBLE SHOOTING (Cont'd.)

CONDITION	APPARENT CAUSE	CORRECTION
2. On dual-acting tail gates, with the tail gate closed, the window operates downward but does not operate upward when the switch at the instrument panel or tail gate is actuated.	<p>A. Open or short circuit in "up" cycle feed wire.</p> <p>B. Defective motor.</p> <p>C. Improperly adjusted or defective cut-out switch.</p>	<p>A. Check affected wiring for open or short circuit.</p> <p>B. Check operation of motor.</p> <p>C. Adjust or replace cut-out switch.</p>
3. The tail gate window, or tail gate, will not operate up or down from any of the control switches.	<p>A. Open or short circuit from power source to switches or motor.</p> <p>B. Motor not connected or poorly grounded.</p> <p>C. Mechanical bind or failure in tail gate window, or tail gate, regulator mechanism.</p> <p>D. Defective tail gate window, or tail gate, regulator motor.</p>	<p>A. Check operation of circuit breaker; check affected circuit for open or short circuit.</p> <p>B. Check connectors to motor for proper engagement.</p> <p>C. Check mechanical parts for bind or failure.</p> <p>D. Check operation of motor.</p>

POWER SEATS

HORIZONTAL SEATS

Description

The seat adjusters are actuated by a 12 volt series-wound motor located near the front left side of the seat bottom frame, and are energized through a control switch installed in the seat side panel or in the door arm rest.

For circuit diagram see Figure 15-36.

The horizontal seat circuit is protected by a circuit breaker (refer to Electrical Introduction for specific location).

A junction block (Fig. 15-37) located on the reinforcement at the left shroud is used to supply current to the power operated seat circuit. Current is supplied to the junction block from the circuit breaker, and the power seat harness feed wire plugs into the junction block.

The trouble diagnosis chart will help locate typical problems which may occur.

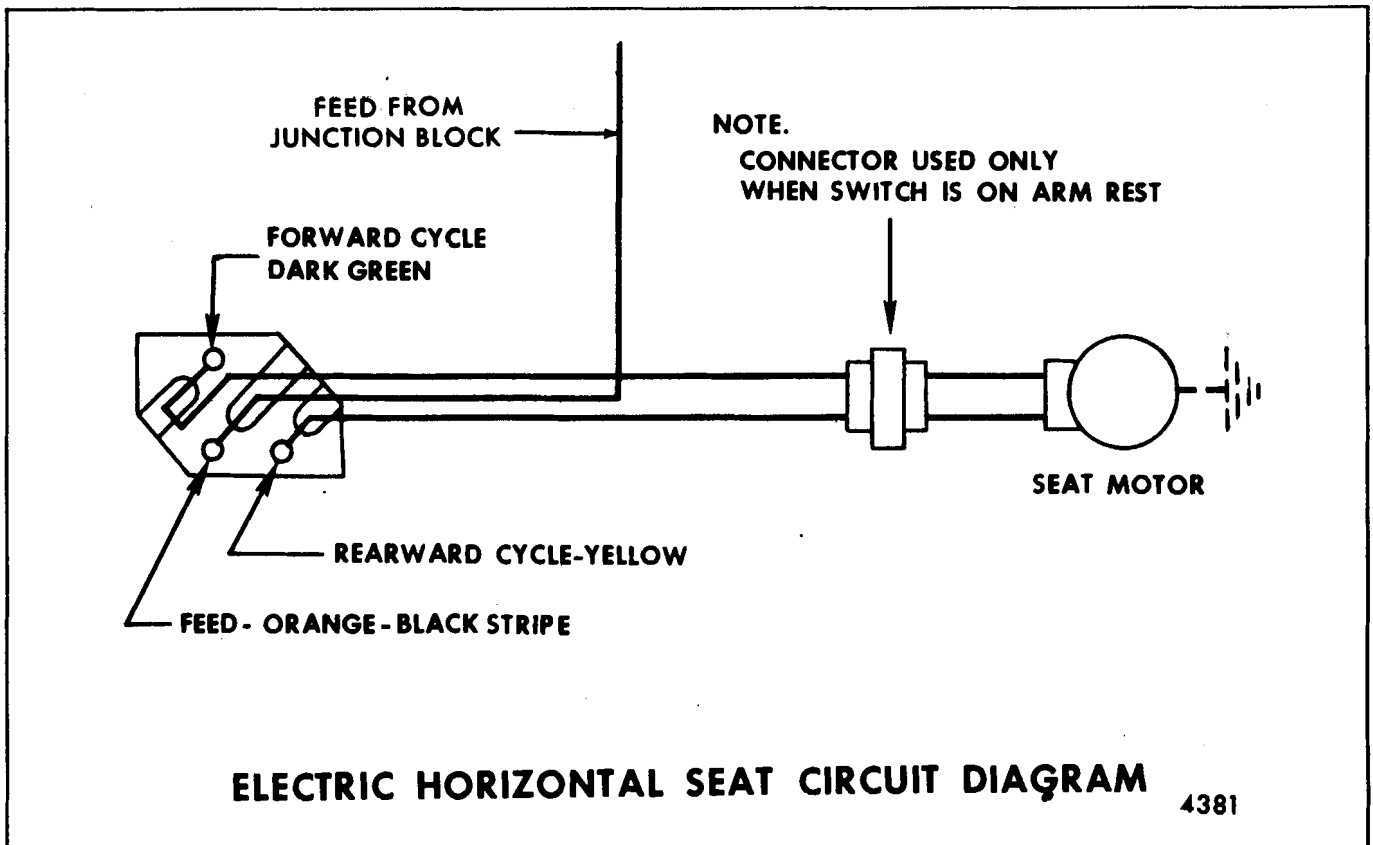


Fig. 15-36-Horizontal Seat Circuit

TROUBLE SHOOTING OF HORIZONTAL SEAT CIRCUIT

CONDITION	APPARENT CAUSE	CORRECTION
1. The seat motor does not operate in either the forward or rearward direction.	<p>A. Open or short circuit in feed harness.</p> <p>B. Inoperative motor.</p>	<p>A. Connect one test light lead to feed terminal of switch block (orange-black wire) and ground other tester lead to body metal. If tester does not light, there is an open or short circuit between switch and power source.</p> <p>B. Check operation of seat control switch with jumper wire. See "Checking Door Window Control Switch" for similar operation.</p> <p>C. Check circuit from control switch to motor for short or open circuit and check ground wire attachment of adjuster</p>

TROUBLE SHOOTING (Cont'd.)

CONDITION	APPARENT CAUSE	CORRECTION
		<p>D. Check operation of motor with No. 12 gauge jumper wire. Connect one end of jumper wire to power source and the other end to one of the seat motor terminals. Motor should operate.</p> <p>Perform same check at the other motor terminal. If motor does not operate, repair or replace motor as required.</p>
<p>2. The seat motor operates in only one direction.</p>	<p>A. Defective switch.</p> <p>B. Open or short circuit in motor feed wires.</p> <p>C. Defective Seat motor.</p>	<p>A. Check operation of seat control switch with jumper wire.</p> <p>B. Check circuit from control switch to motor for short or open circuit.</p> <p>C. Check operation of motor with No. 12 gauge jumper wire. Connect one end of jumper wire to power source and the other end to one of the seat motor terminals. Perform same check at the other motor terminal. If motor does not operate, repair or replace motor as required.</p>

FOUR-WAY TILT SEAT

Description

The seat adjusters are actuated by a 12 volt, reversible, shunt-wound motor with a built-in circuit breaker.

The seat motor is energized by a toggle-type control switch installed in the left seat side panel or in the left front door arm rest.

The four way seat circuit is protected by a circuit breaker (refer to Electrical Introduction for specific location).

A junction block (Fig. 15-37) located on the reinforcement at the left shroud is used to supply current to the power operated seat circuit on the Buick "E" styles. Current is supplied to the junction block

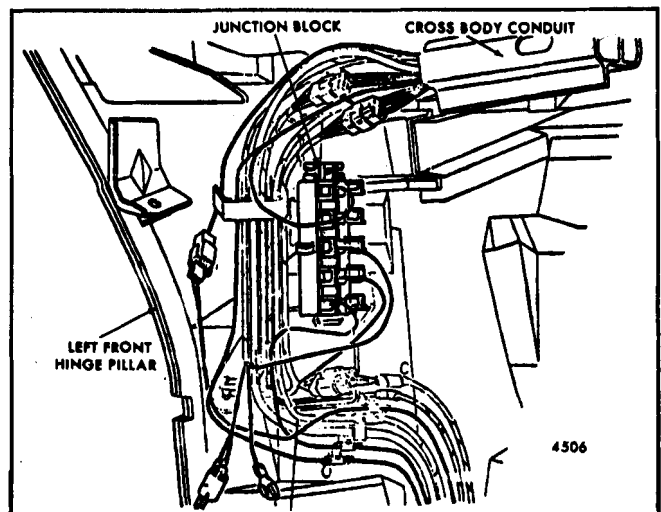


Fig. 15-37-Accessory Junction Block

from the circuit breaker, and the power seat harness feed wire plugs into the junction block. On "A" styles current is supplied from the circuit breaker.

The seat adjuster operating mechanism incorporates a transmission assembly which includes two solenoids and four drive cables on bench-type seats and two drive cables on bucket seats, leading to the seat adjusters. One solenoid controls the rear vertical movement of the seat while the other solenoid controls the horizontal movement of the seat. When the control switch is actuated, the motor and one of the solenoids are energized simultaneously. Then the solenoid plunger causes the shaft dog to engage with the large gear dog.

Power is then transmitted through the transmission shaft on bench seats and through the pulleys on bucket seats, which in turn drives the actuator cables. When the adjusters reach their limit of travel, the drive cables stop their rotating action and torque is absorbed by the rubber coupler connecting the motor and transmission on bench seats. On bucket seats torque is absorbed through the belt on the pulley. When the control switch lever is released the switch

contacts open, a spring returns the shaft dog and solenoid plunger to their original position disengaging the shaft dog from the large gear dog. See "Seat Section" for exploded view of transmission.

CHECKING PROCEDURE

It may be necessary to use only one or all of the procedures outlined to locate an electrical failure in the circuit. If the location of the failure is evident, follow only the steps required to check the affected wire or component. If the location of the failure is not evident, follow the procedures as outlined. Before performing any extensive check procedures, check the seat adjuster drive cables for proper attachment. In addition, study the seat circuit diagram to become familiar with the seat circuit (Fig. 15-38).

Checking for Current at Circuit Breaker

1. Connect one test light lead to input side of circuit breaker and connect other lead to ground. If tester does not light, there is no current at input side of circuit breaker.

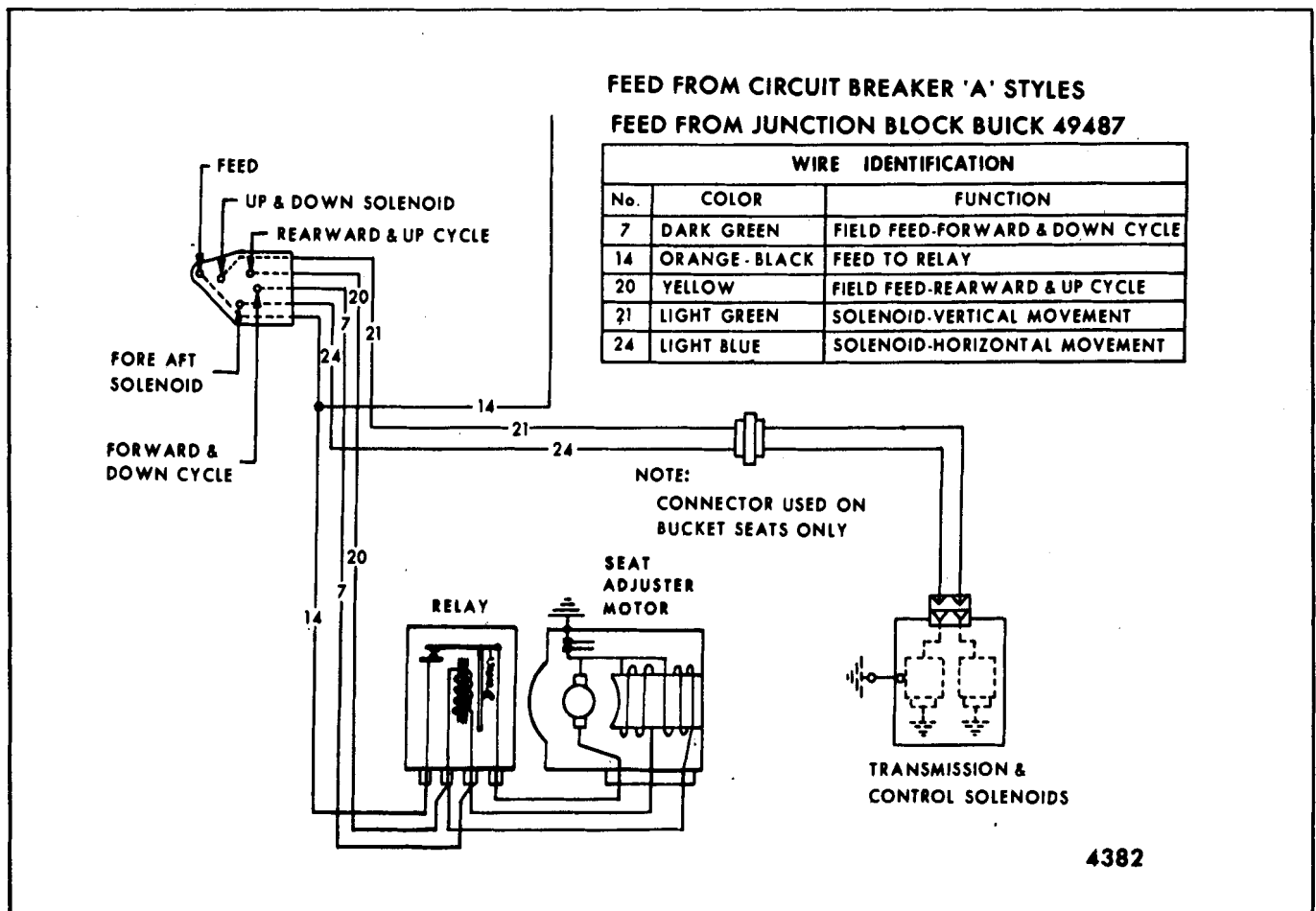


Fig. 15-38-Four-Way Seat Circuit

- To check circuit breaker, disconnect output wire from breaker, and with a test light check for current at output side of circuit breaker. If tester does not light, the circuit breaker is inoperative.

Checking Feed Circuit Continuity at Relay on Seat Motor

- Disengage triple connector from the seat motor relay.
- Insert one test light lead into the relay power feed connector slot on the harness, (orange-black wire) and ground other tester lead.
- If tester does not light, there is no current at end of feed wire. Failure is caused by an open or short circuit in feed circuit.

Checking for Current at Seat Control Switch

- Connect one test light lead to feed terminal of switch block and ground other test light lead to body metal.
- If tester does not light, there is no current at switch block. Failure is caused by an open or short circuit between switch block and power source.

Checking the Seat Control Switch

In the following operations which specify the seat control switch to be actuated, a switch that has been checked for proper operation may be connected to the switch block. If a switch is not available, a three-way jumper wire can be made to perform the switch function. The method of making the jumper wire and the switch locations to be connected to obtain a specific movement of the seat are shown in Figures 15-39 and

15-40. If a jumper wire is used, letter the locations on the switch block as indicated in the illustration.

NOTE: To make jumper wire, obtain two pieces of No. 12 gauge wire, each 4-1/2" long. Join one end of each wire as shown in diagram. The joined end can be inserted in the feed location in the switch block; one of the remaining ends can be inserted into one of the solenoid locations and the other end into one of the field locations.

- Obtain switch or jumper wire and connect to switch block.
- Operate switch if used. If adjusters operate with switch or jumper wire, but did not operate with original switch, the original switch is defective or connector block was not sufficiently engaged.

IMPORTANT: To obtain a seat movement using a three-way jumper wire at the switch block, the switch feed location, one of the motor field wire locations and one of the solenoid locations have to be connected simultaneously.

The switch locations to be connected to obtain a specific seat movement are outlined as follows:

- To raise seat, place jumper wire in locations A, B and E.
- To lower seat, place jumper wire in locations A, D and E.
- To operate seat forward, place jumper wire in locations A, C and D.
- To operate seat rearward, place jumper wire in locations A, B and C.

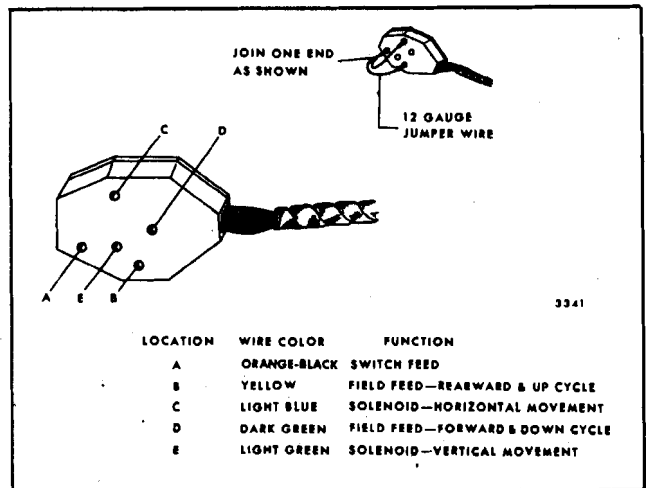
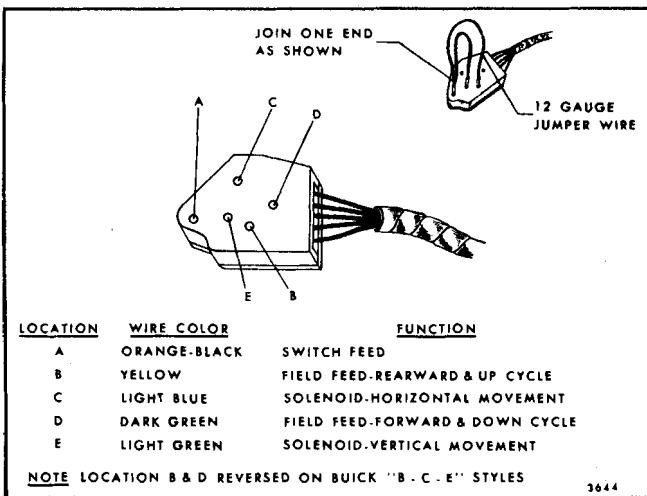


Fig. 15-39-Four-Way Seat Switch Block in Trim Panel

Fig. 15-40-Four-Way Seat Switch Block in Arm Rest

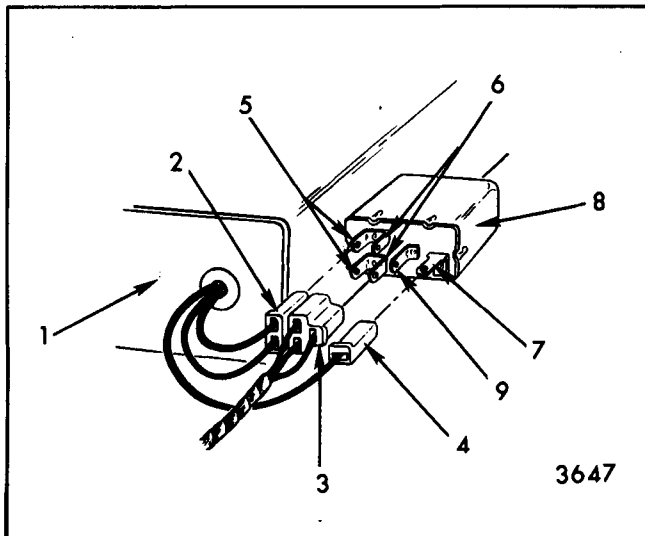


Fig. 15-41-Seat Adjuster Motor Control Relay

- | | |
|--------------------------------------|------------------------|
| 1. Seat Adjuster Motor | 5. Motor Field Feed |
| 2. Motor Field Connector | 6. Relay Coil Studs |
| 3. Control Switch to Relay Connector | 7. Armature Feed Stud |
| 4. Motor Armature Connector | 8. Motor Control Relay |
| | 9. Relay Input Stud |

Checking Wires Between Control Switch and Motor Relay

1. Disengage triple-wire harness connector from relay at motor (Fig. 15-41).
2. Insert one test light lead into the motor field (dark green or yellow wire) connector slot on harness and ground other lead.
3. Actuate seat switch to energize field wire being tested.
4. If tester does not light, there is no current at end of wire. Failure is caused by an open or short circuit between end of wire and switch. Check other motor field wire in the same manner.

Checking the Relay Assembly

1. Disconnect three leads (double and single connector) from relay assembly. These are the wires leading from the motor to the relay (Fig. 15-41).
2. Connect one end of a jumper wire to one of the motor field feed studs on the relay and ground the other end of the jumper wire.
3. Connect one test light lead to motor armature feed stud on relay and ground other tester lead.
4. With jumper wire, energize the field stud which is not grounded.

IMPORTANT: Do not energize grounded side. If tester does not light, the relay is defective.

Checking the Motor Assembly

1. Check seat ground wire attachment for proper ground.
2. Disconnect the motor armature feed and the motor field feeds from the relay assembly.
3. Connect one end of a No. 12 gauge jumper wire to battery positive pole and other end to the armature wire and one of the motor field wires.
4. If motor does not operate, motor is defective. Check the remaining motor field wire in the same manner.

Checking Wires Between Switch and Solenoids

1. Disconnect harness connector from transmission assembly.
2. Connect one test light lead to one terminal of connector and ground other test light lead to body metal.
3. Operate switch to wire being tested. If tester does not light there is no current at the end of harness wire. Failure is caused by an open or short circuit between end of wire and switch, or a defective switch.
4. Check other wire in same manner.

NOTE: One wire in connector is a blank. Check wiring diagram for colors of wires actually used.

Checking the Solenoid

1. Check seat ground wire attachment for proper ground.
2. Connect one end of a No. 12 gauge jumper wire to the battery positive pole and the other end to the lead of the solenoid being checked.

IMPORTANT: To prevent damaging the solenoid, do not energize solenoid for more than one minute.

3. Operate switch to actuate adjuster motor and solenoid being checked.
4. If adjusters do not operate and there is no mechanical failure of the adjusters, the solenoid is defective.
5. To check the other solenoid, repeat the procedure using the other solenoid terminal.

NOTE: If solenoid is functioning properly, "click" may be heard when solenoid plunger operates.

TROUBLE SHOOTING

CONDITION	APPARENT CAUSE	CORRECTION
1. Seat adjuster motor does not operate.	<p>A. Short or open circuit between power source or switch and motor.</p> <p>B. Defective motor relay.</p> <p>C. Defective motor.</p> <p>D. Defective switch.</p> <p>E. Defective circuit breaker</p>	<p>A. Check circuit from power source and switch to motor to locate failure.</p> <p>B. Replace relay.</p> <p>C. Check motor. If defective, repair or replace as required.</p> <p>D. Replace switch.</p> <p>E. Replace circuit breaker.</p>
2. Seat adjuster motor operates in both directions but seat adjusters are not actuated.	<p>A. Short or open circuit between switch and affected solenoid.</p> <p>B. Defective solenoid.</p> <p>C. Defective switch.</p>	<p>A. Check circuit from switch to solenoid to locate failure.</p> <p>B. Check solenoid. If defective, repair or replace as required.</p> <p>C. Replace switch.</p>
3. Seat adjuster motor operates in one direction only, seat moves down and forward, but does not move up and rearward.	<p>A. Short or open circuit in one of the motor field wires from the seat control switch to the motor.</p> <p>B. Defective field coil in motor.</p> <p>C. Defective switch.</p>	<p>A. Check circuit between affected motor field coil and seat switch.</p> <p>B. Check motor. If defective, repair or replace as required.</p> <p>C. Replace switch.</p>

SIX-WAY SEATS

Description

The seat adjuster for the standard and "STRATO" type 6-way seats are actuated by a 12-volt motor installed at the left side of the seat assembly.

The motor is energized by a three button-type control switch located in the left seat side panel or in the left front door arm rest.

The power seat circuit is protected by a circuit breaker (refer to Electrical Introduction for location).

A junction block (Fig. 15-37) located on the reinforcement at the left shroud is used to supply current to the power operated seat circuit. Current is supplied to the junction block from the circuit breaker,

and the power seat harness feed wire plugs into the junction block.

The electrical portion of the six-way seat operates as follows:

When the control switch is actuated, current flows to the transmission solenoid which controls the desired seat movement. The energizing of the solenoid coil results in the solenoid plunger dog engaging the gear mechanism to rotate the control cable. The same switch action which energized the solenoid completes the circuit to one of the motor field coils. The current flows through the relay coil, closes the contacts between the relay power source and the motor armature feed wire, and results in the operation of the seat motor. When the control switch lever is released, the switch contacts open, a spring returns the shaft dog and solenoid plunger to their original position disengaging them from the gear dog.

CIRCUIT CHECKING PROCEDURES

It may be necessary to use only one or all of the procedures outlined to locate an electrical failure in the circuit. If the location of the failure is evident, follow only the steps required to check the affected wire or component. If the location of the failure is not evident, follow the procedure as outlined. Before performing any extensive check procedures, check the seat adjuster drive cables for proper attachment. In addition, study the seat circuit diagrams to become familiar with the seat circuit (Fig. 15-42).

Checking Feed Circuit Continuity at Circuit Breaker

1. Connect one test light lead to input side of circuit breaker and ground other lead. If tester does not light, there is an open or short circuit in feed circuit to breaker.

2. To check circuit breaker, connect the test light lead to the output side of the breaker and ground other lead. If tester does not light, circuit breaker is inoperative.

Check Feed Circuit Continuity at Seat Control Switch

1. Connect one test light lead to feed terminal of switch block and ground other test lead to body metal.
2. If tester does not light, there is an open or short circuit between switch and power source.

Checking the Seat Control Switch

NOTE: In the following operations which specify the seat control switch to be actuated, a switch that has been checked for proper operation may be connected

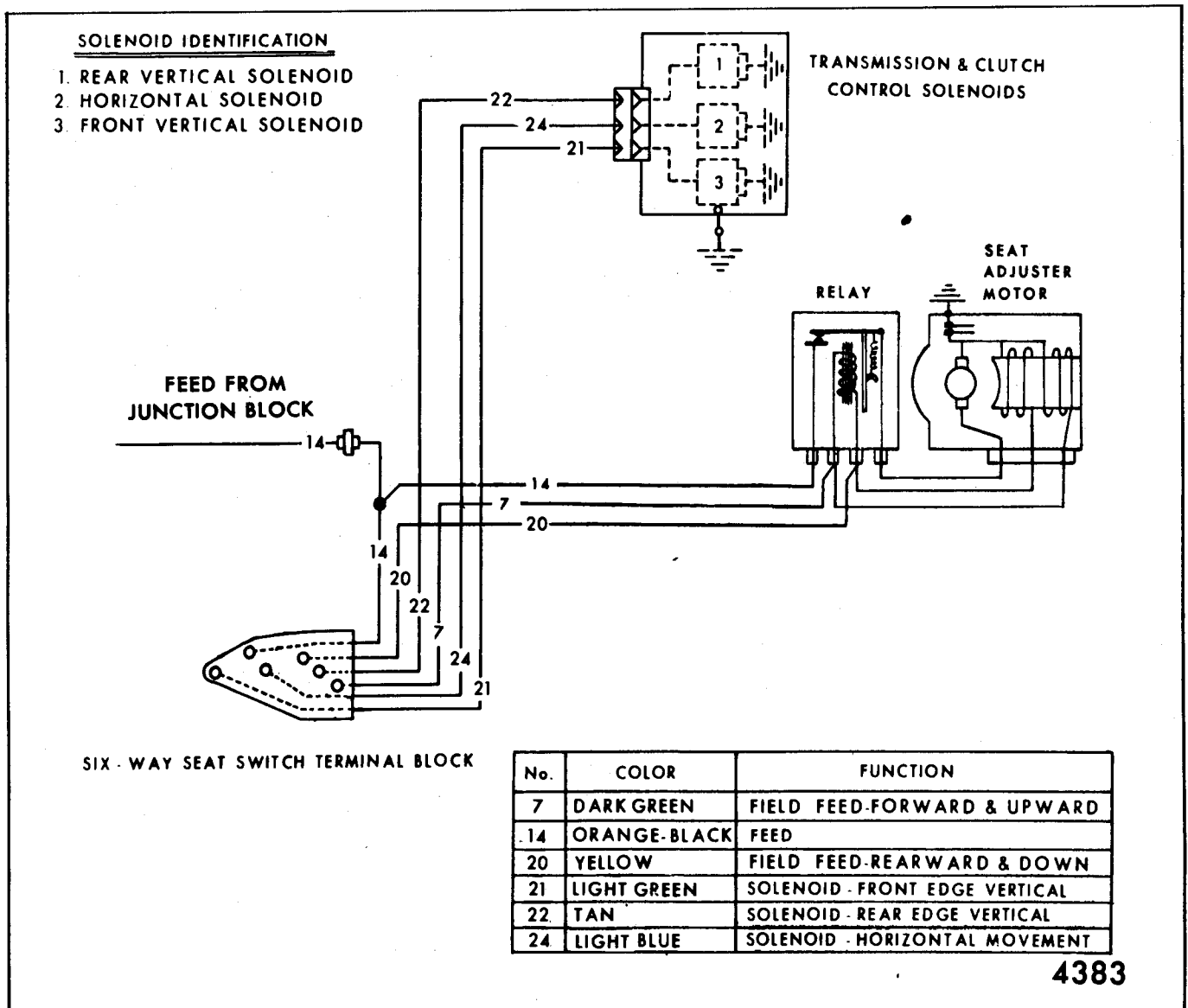


Fig. 15-42-Six-Way Seat Circuit

to the switch block. If a switch is not available, a three-way jumper wire can be made to perform the switch function. The jumper wire and the switch locations to be connected to obtain a specific movement of the seat are shown in Figures 15-44 and 15-45. If a jumper wire is used, letter the locations on the switch block as indicated in the illustration. Details outlining the making and use of the jumper wire follow the checking procedure.

1. Obtain switch or jumper wire and connect to switch block.
2. Operate switch. If adjusters operate with new switch or jumper wire, but did not operate with original switch, the original switch is defective.
3. Check all six movements of seat adjuster.

Checking Feed Circuit Continuity at Relay on Seat Motor

1. Disengage triple connector body from the seat motor relay terminal (Fig. 15-43).
2. Insert one test lead into the relay power feed (orange-black wire) connector slot on the harness, and ground the other test light lead.
3. If tester does not light, there is no current at end of feed wire. Failure is caused by an open or short in feed circuit.

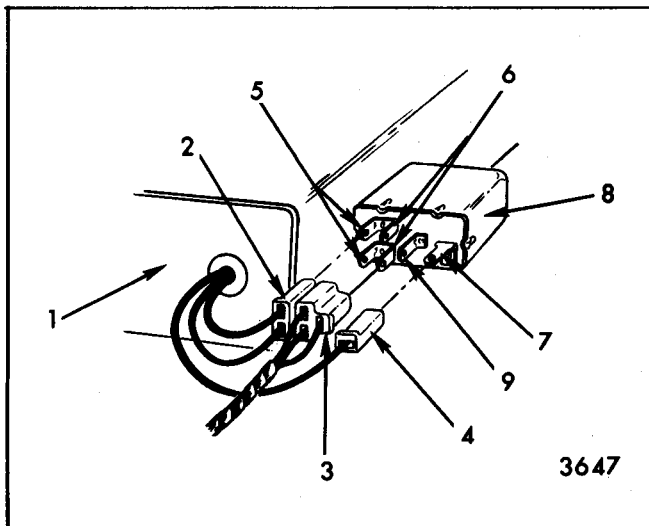


Fig. 15-43-Seat Adjuster Motor Control Relay

- | | |
|--------------------------------------|---------------------------|
| 1. Seat Adjuster Motor | 5. Motor Field Feed Studs |
| 2. Motor Field Connector | 6. Relay Coil Studs |
| 3. Control Switch to Relay Connector | 7. Armature Feed Stud |
| 4. Motor Armature Connector | 8. Motor Control Relay |
| | 9. Relay Input Stud |

Checking Wire between Control Switch and Motor Relay

1. Disengage triple harness connector from relay at motor.
2. Insert one test light lead into the motor field (yellow or dark green wire) connector slot on harness and ground the other lead.
3. Actuate seat switch to energize field wire being tested.
4. If tester does not light, there is no current at end of wire. Failure is caused by an open or short circuit between end of wire and switch. Check other motor field wire in the same manner.

Checking the Relay Assembly

1. Disconnect three motor leads (double and single connector) from relay assembly. These are the wires leading from the motor to the relay (Fig. 15-43).
2. Connect one end of a jumper wire to one of the motor field feed studs on the relay and ground the other end of the jumper wire.
3. Connect one end of test light to motor armature feed stud on relay and ground other tester lead.
4. With a jumper wire, energize the field stud which is not grounded. If tester does not light, the relay is defective.

Checking the Motor Assembly

1. Check seat ground wire attachment for proper ground.
2. Disconnect the motor armature feed wire and the motor field feeds from the relay assembly.
3. With a jumper wire, energize the armature feed and one of the field feeds.
4. If motor does not operate, it is defective. Check the other motor field wire in the same manner.

Checking the Wire between the Solenoid and Switch

1. Disengage harness connector from transmission.
2. Connect one test light lead to end of harness wire being tested and ground other lead.
3. Operate switch to energize wire being tested. If tester does not light, there is no current at end of wire. Failure is caused by an open or short circuit between end of wire and switch.

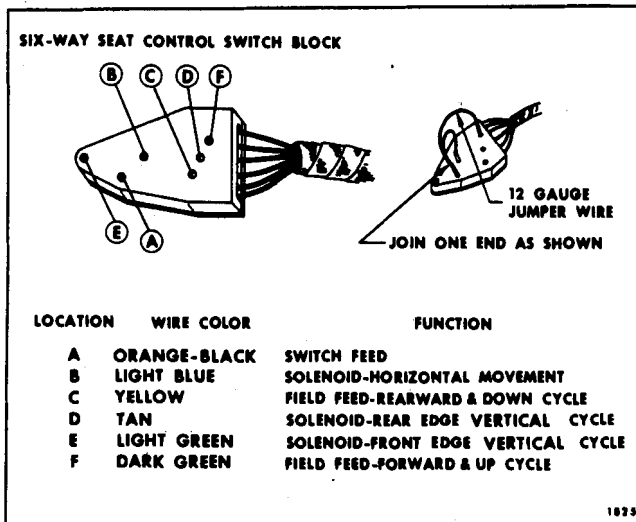


Fig. 15-44-Six-Way Seat Switch Block in Seat Side Panel

4. Check the other wires between the solenoid and switch in the same manner.

Checking the Solenoid

1. Check seat ground wire attachment for proper ground.
2. Energize solenoid being checked with jumper wire.

NOTE: If solenoid is functioning, a "click" should be heard when solenoid is energized.

IMPORTANT: To prevent damaging the solenoid, do not energize solenoid for more than one minute.

3. With solenoid energized, actuate seat control switch to energize adjuster motor.
4. If adjusters do not operate, and there is no mechanical failure in the seat unit, the solenoid is defective.

Three-Way Jumper Wire for Checking Seat Switch

To make jumper wire, obtain two pieces of No. 12 gauge wire, each 4-1/2" long, join one end of each wire as shown in Figure 15-44. The joined end can be inserted in the feed location in the switch block; one of the remaining ends can be inserted into one of the field locations in the switch block; the other end can be inserted into one of the solenoid locations.

IMPORTANT: To obtain a seat movement using a 3-way jumper wire at the switch block, the switch feed location, one of the motor field wire locations and one of the solenoid locations must be connected simultaneously.

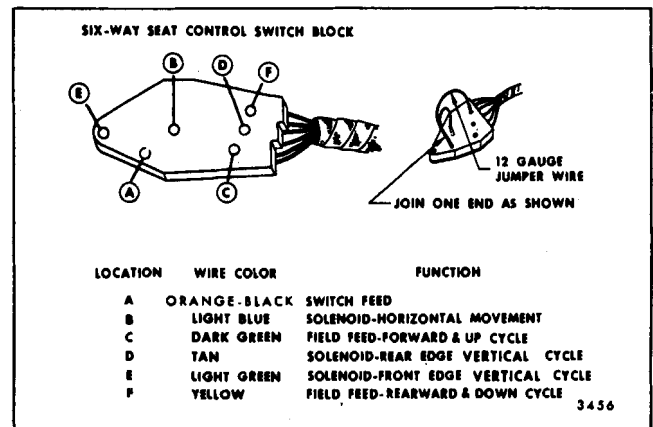


Fig. 15-45-Six-Way Seat Switch Block in Arm Rest

1. On bodies with switch in seat side panel (Fig. 15-44) proceed as follows:
 - a. To raise front end of seat, place jumper in locations A, F and E.
 - b. To lower front edge of seat, place jumper in locations A, C and E.
 - c. To raise rear edge of seat, place jumper in locations A, F and D.
 - d. To lower rear edge of seat, place jumper in locations A, C and D.
 - e. To move seat forward, place jumper in locations A, B and F.
 - f. To move seat rearward, place jumper in locations A, C and B.
2. On bodies with switch in arm rest (See Fig. 15-45) proceed as follows:
 - a. To raise front edge of seat, place jumper in locations A, C and E.
 - b. To lower front edge of seat, place jumper in locations A, F and E.
 - c. To raise rear edge of seat, place jumper in locations A, C and D.
 - d. To lower rear edge of seat, place jumper in locations A, F and D.
 - e. To move seat forward, place jumper in locations A, C and B.
 - f. To move seat rearward, place jumper in locations A, F and B.

TROUBLE SHOOTING

CONDITION	APPARENT CAUSE	CORRECTION
1. Seat adjuster motor does not operate	A. Short or open circuit between power source or switch and motor. B. Defective motor.	A. Check circuit from power source and switch to motor to locate failure. B. Check motor. If defective, repair or replace as required.
2. Seat adjuster motor operates, but seat adjusters are not actuated or seat adjuster motor operates, front edge of seat moves up and down and seat moves forward and rearward. The rear edge of seat cannot be operated.	A. Short or open circuit between switch and affected solenoid. B. Defective solenoid.	A. Check circuit from switch to solenoid to locate failure. B. Check solenoid. If defective, repair or replace as required.
3. Seat adjuster motor operates and seat adjusters move front and rear edge of seat up and forward but will not move the seat down and rearward or seat adjuster motor operates and seat adjusters move front and rear of seat down and rearward, but will not move the seat up and forward.	A. Short or open circuit between one of the motor field wires and seat control switch. B. Defective field coil in motor.	A. Check circuit between affected motor field wire and seat switch. B. Check motor. If defective repair or replace as required.

EXTERIOR AND INTERIOR LAMPS

TAIL LAMPS

Various methods are employed to remove and install the components of tail lamp assemblies. The following charts and illustrations Figures 15-48 thru 15-55 will provide a quick reference for performing the three basic service operations for each Car Division (Bulb Replacement, Lens Replacement and Housing Replacement) on styles where the tail lamp assembly is installed on the body. If the tail lamp assembly is installed in the bumper refer to the chassis manual for service operations.

IMPORTANT: Do not rework or alter the reflective surface of tail lamps or side marker lamps.

EXTERIOR LAMP SEALING

Care should be exercised to prevent waterleaks at the

Trade No.	Candle Power	Use
1156	32	Back-Up Lamps and Compartment Front Panel Lamps
1157	32 and 4	Combination Tail, Stop and Directional Lamp
194	2	Side Marker Lamp
756	0.31	Opera Lamp

4503

Fig. 15-46-Exterior Bulb Usage Chart

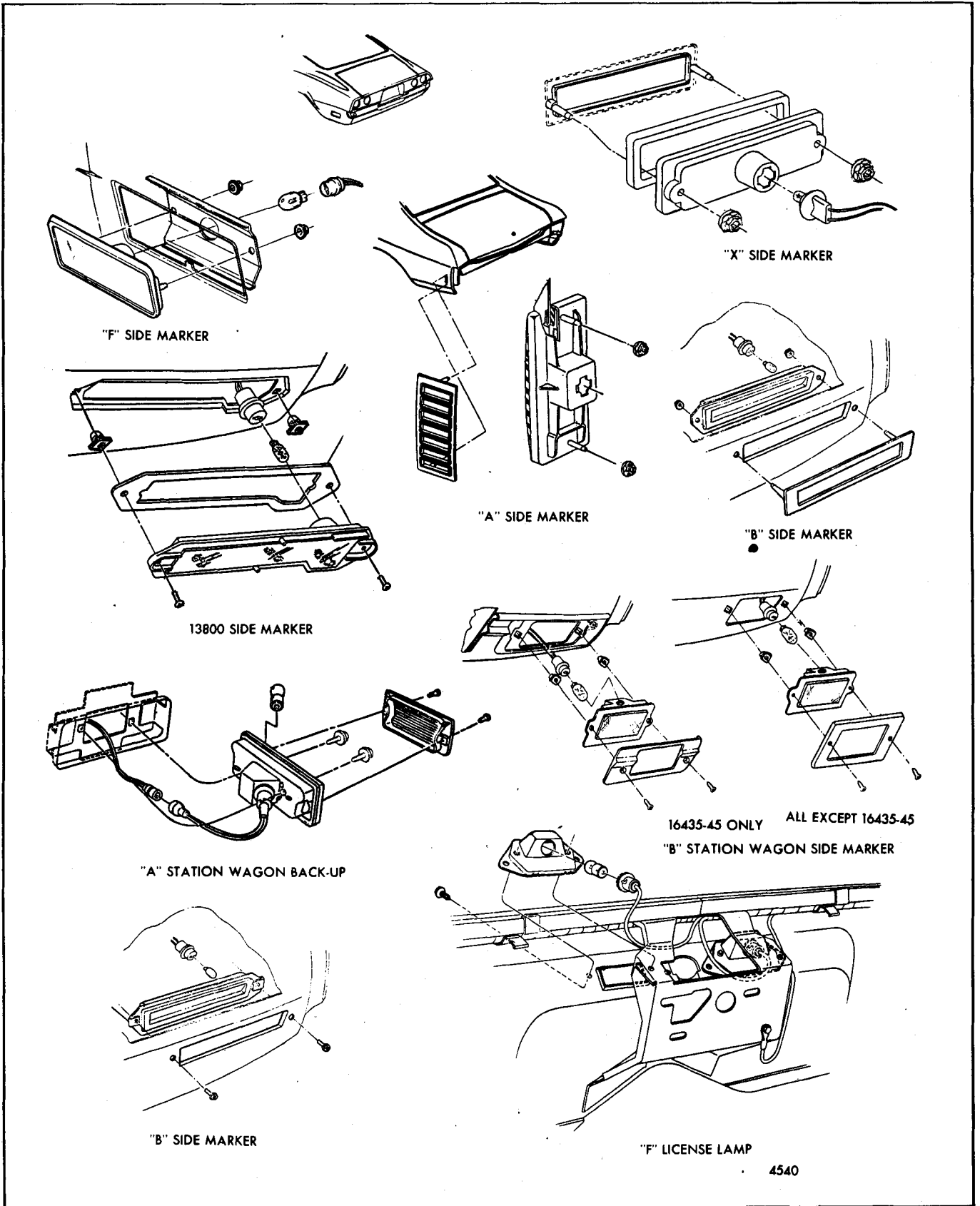


Fig. 15-47-Side Marker, Back-Up and License Lamp Installation - Chevrolet and Acadian Styles

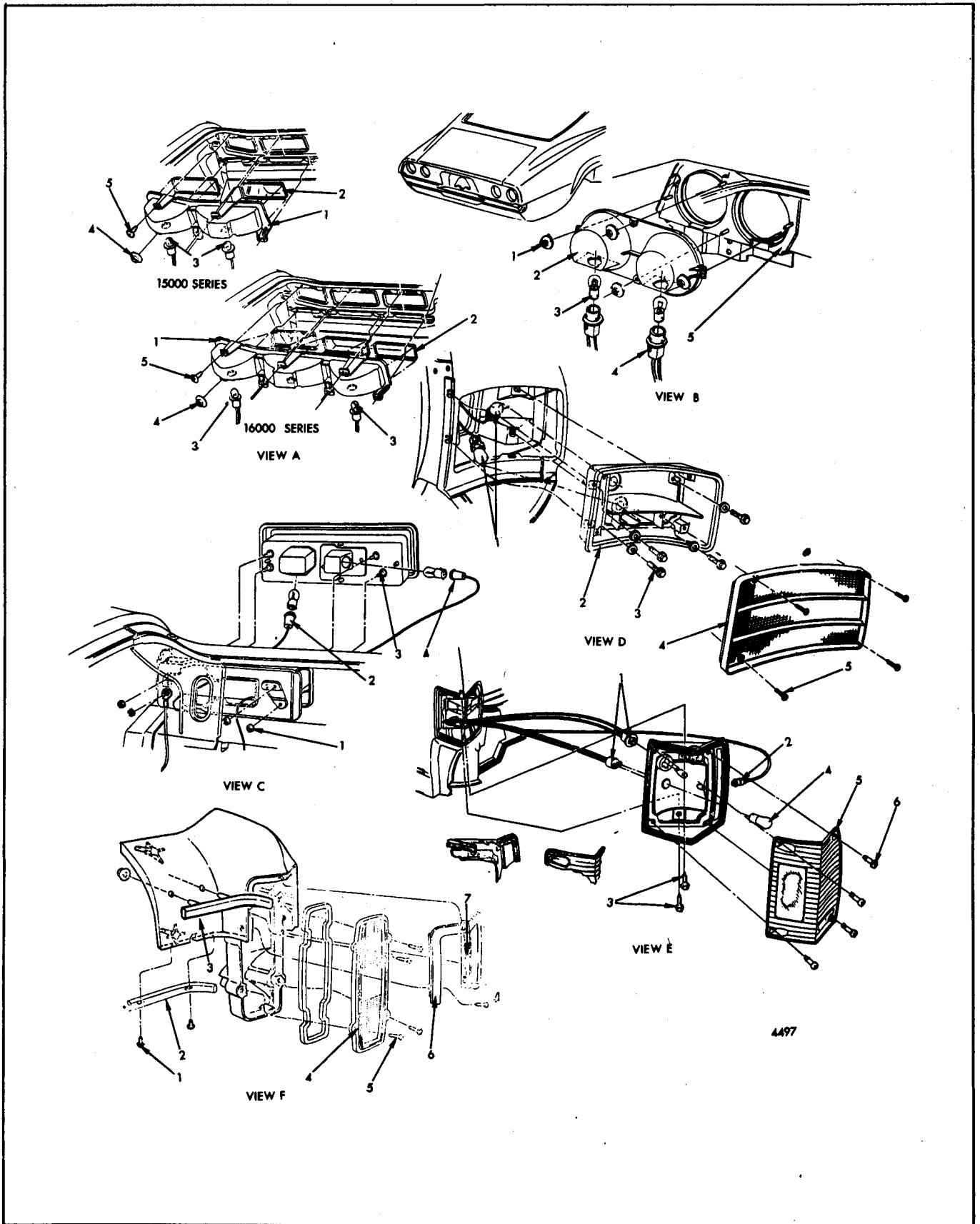


Fig. 15-48-Tail Lamp Installation - Chevrolet and Acadian Styles

OPERATION	METHOD	BODY TYPE				
		A & B Sta. Wgn.	B	F	X	13857
Bulb Replacement	Remove Lens Outside	X				X
	Remove Socket (Inside Rear Compartment)		X	X	X	
Lens Replacement	Remove Retaining Screws (Outside)	X				X
	Remove Housing and Disassemble		X	X	X	
Housing Replacement	Remove From Outside (Retaining Nuts in Rear Compartment)				View C	View F
	Remove From Inside Rear Compartment		View A	View B		
	Remove From Outside (Retaining Bolts Under Lens)	View D & E				
	Lower Rear Bumper					X

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Fig. 15-49-Tail Lamp Operation Chart - Chevrolet and Acadian Styles

View A - "B" Style Tail Lamp (Less Station Wagon)

1. Lamp Housing
2. Gasket
3. Bulb
4. Retaining Nut
5. Retaining Screw

View B - "F" Style Tail Lamp

1. Retaining Nut
2. Lamp Housing
3. Bulb
4. Bulb Socket
5. Rear End Panel

View C - "X" Style Tail Lamp

1. Retaining Nut
2. Bulb Socket
3. Lamp Housing
4. Back-Up Lamp Socket

View D - "B-35-45" Style Tail Lamp

1. Bulb
2. Lamp Housing
3. Housing Retaining Bolt
4. Lens
5. Lens Retaining Screw

View E - "A-36-46" Tail Lamp

1. Bulb Socket
2. Fiber Optic Sender
3. Housing Retaining Bolt
4. Bulb
5. Lens
6. Lens Retaining Screw

View F - 13800 Series Tail Lamp

1. Molding Screw
2. Molding
3. Quarter Extension and Lamp Housing
4. Lens
5. Lens Retaining Screw
6. Bezel
7. Bezel Retaining Screw

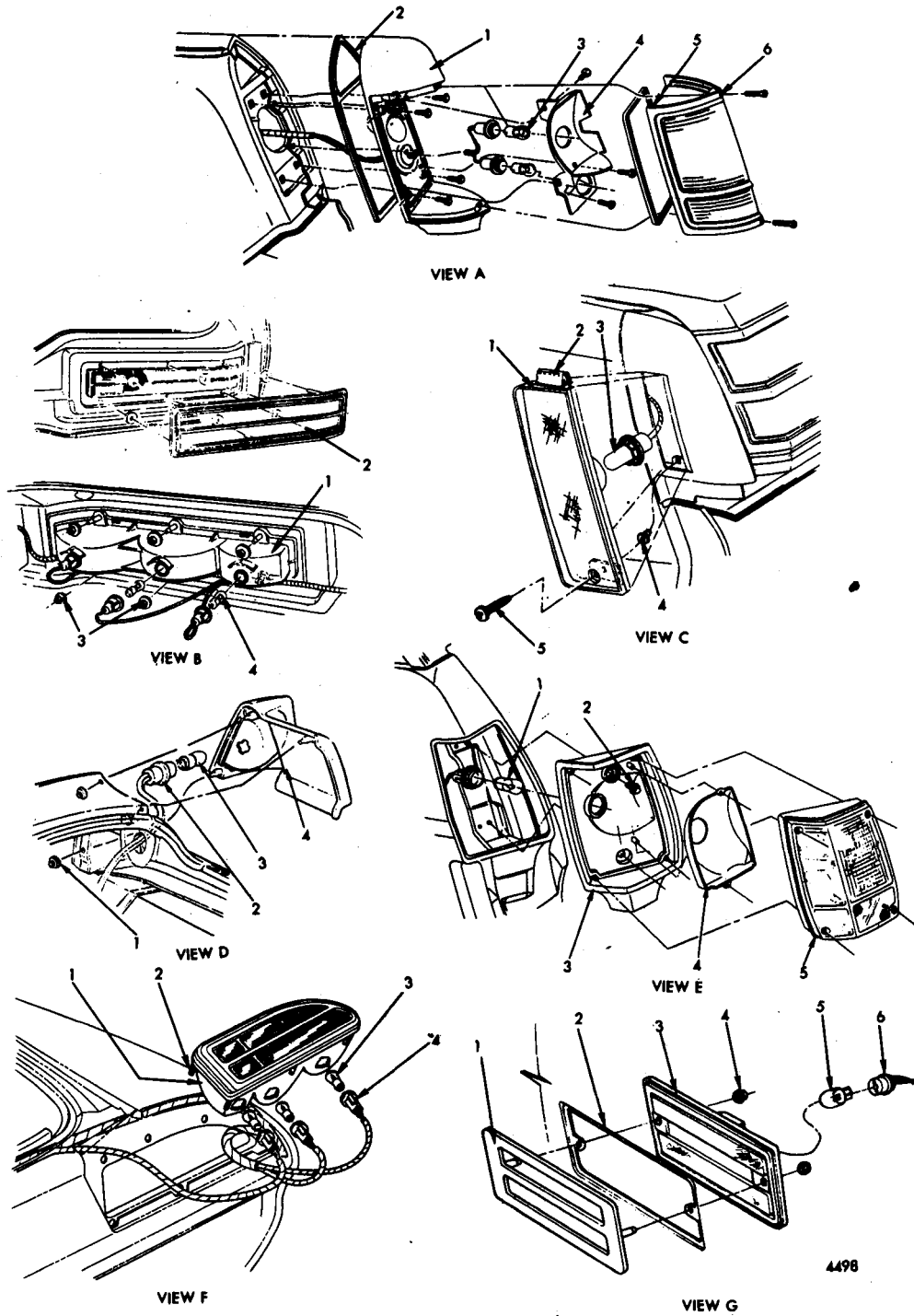


Fig. 15-50-Exterior Lamp Installation - Pontiac (U.S. and Canadian) Styles

OPERATION	METHOD	BODY TYPE			
		A & B Sta. Wgn.	B	26800 Series	F
Bulb Replacement	Remove Lens Outside	X			
	Remove Socket (Inside Rear Compartment)		X	X	X
Lens Replacement	Remove Retaining Screws (Outside)	X			
	Remove Housing and Disassemble		X	X	X
Housing Replacement	Remove From Outside (Retaining Nuts in Rear Compartment)				
	Remove From Inside Rear Compartment		View B	View B	View F
	Remove From Outside (Retaining Bolts Under Lens)	View A & E			

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Fig. 15-51-Tail Lamp Operation Chart - Pontiac (U.S. and Canadian) Styles

View A - "B-35-45" Style Tail Lamp

1. Quarter Extension
2. Gasket
3. Bulb
4. Reflector
5. Lens Gasket
6. Lens

View B - 252-258-26200 Series - Less "35-45" Styles - 26800 Series Typical - Tail Lamp

1. Lamp Housing
2. Bezel
3. Housing Retaining Nut
4. Bulb

View C - "B" Style Side Marker - Less "35-45" Styles

1. Lamp Housing
2. Lamp Retainer
3. Bulb
4. Retainer Nut
5. Retaining Screw

View D - 27657 Style Side Marker

1. Retaining Nut
2. Lamp Socket
3. Bulb
4. Lamp Housing and Quarter Extension

View E - "A-36" Style Tail Lamp

1. Bulb
2. Housing Bolt
3. Lamp Housing
4. Housing Reflector
5. Lens

View F - "F" Style Tail Lamp

1. Lamp Housing
2. Housing Studs (Part of Assembly)
3. Bulb
4. Bulb Socket

View G - "F" Style Side Marker

1. Bezel
2. Quarter Panel Opening
3. Lamp Housing
4. Retaining Nut
5. Bulb
6. Bulb Socket

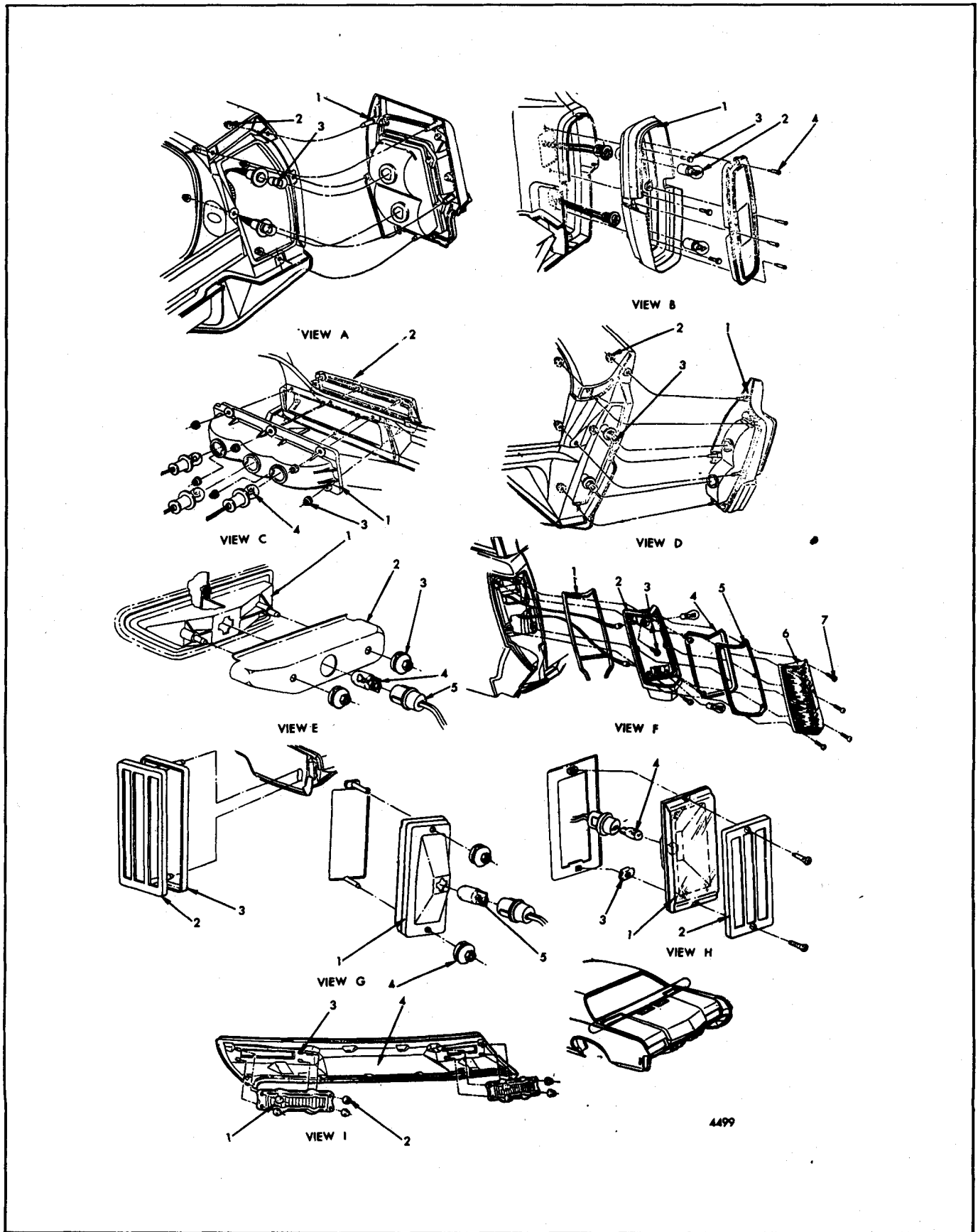


Fig. 15-52-Exterior Lamp Installation - Oldsmobile Styles

OPERATION	METHOD	BODY TYPE		
		A & B Sta. Wgn.	B - C	E
Bulb Replacement	Remove Lens Outside	X		
	Remove Socket (Inside Rear Compartment)		X	X
Lens Replacement	Remove Retaining Screws (Outside)	X		
	Remove Housing and Disassemble		X	X
Housing Replacement	Remove From Outside (Retaining Nuts in Rear Compartment)		View A & D	
	Remove From Inside Rear Compartment			View C
	Remove From Outside (Retaining Bolts Under Lens)	View B & F		
	Lower Rear Bumper	"B"	X	

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Fig. 15-53-Tail Lamp Operation Chart - Oldsmobile Styles

View A - "B" Style (Except "B-35-45") Tail Lamp

1. Lamp Housing and Quarter Extension
2. Retaining Nut
3. Bulb

View B - "B-35-45" Style Tail Lamp

1. Lamp Housing
2. Bulb
3. Lamp Housing Retaining Screw
4. Lens Retaining Screw

View C - "E" Style Tail Lamp

1. Lamp Housing
2. Bezel
3. Retaining Nut
4. Bulb

View D - "C" Style Tail Lamp

1. Lamp Housing and Quarter Extension
2. Retaining Nut
3. Bulb

View E - "A" Style Side Marker

1. Lamp Housing
2. Bracket
3. Retaining Nut
4. Bulb
5. Bulb Socket

View F - "A-36-66" Style Tail Lamp

1. Housing Gasket
2. Lamp Housing
3. Housing Bolt
4. Gasket
5. Lens Bezel
6. Lens
7. Lens Screw

View G - "B-C-E" Style Side Marker - Less "B-35-45" Styles

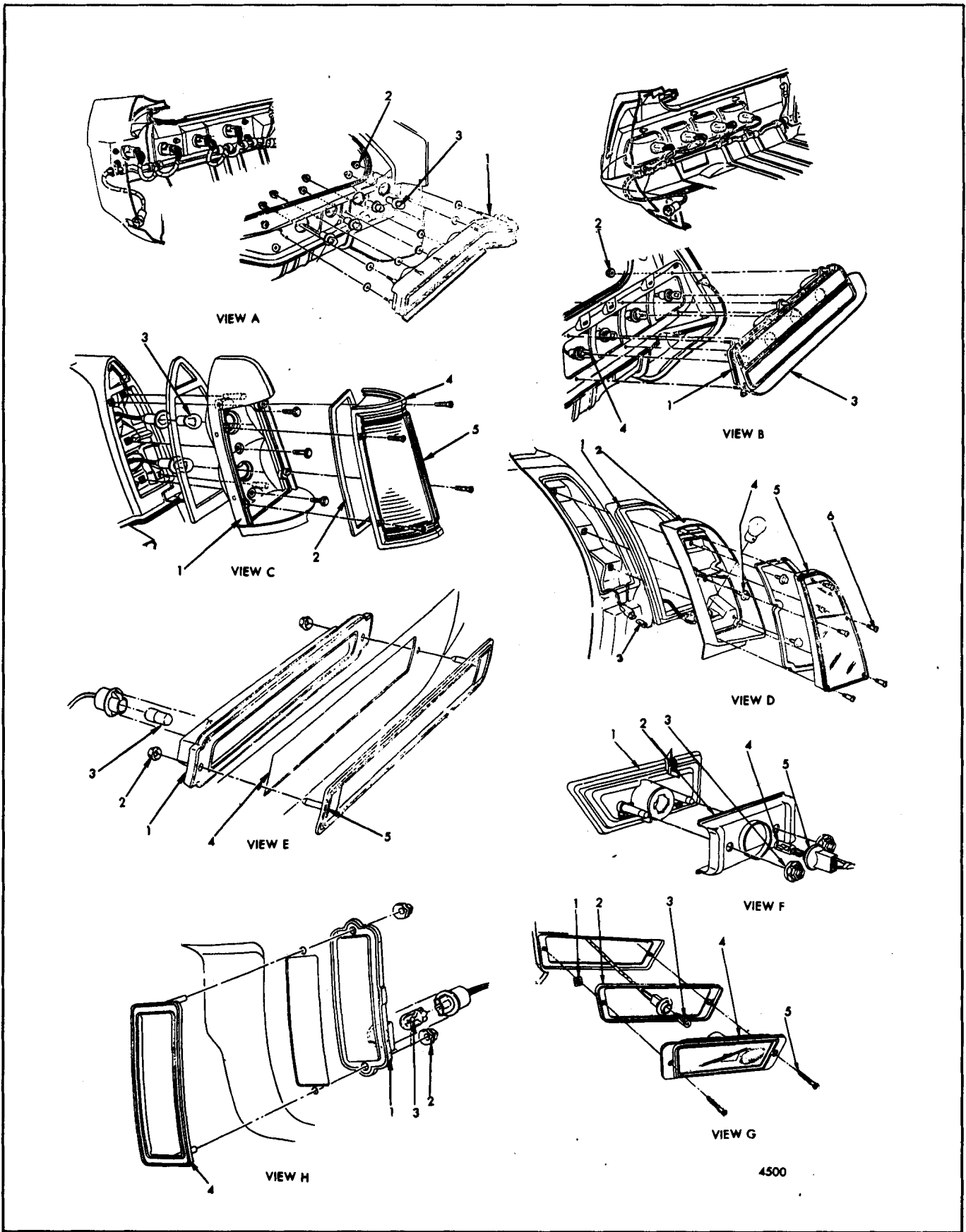
1. Lamp Housing
2. Bezel
3. Gasket
4. Retaining Nut
5. Bulb

View H - "B-35-45" Style Side Marker

1. Lamp Housing
2. Bezel
3. Retaining Nut
4. Bulb
5. Retaining Screw

View I - "E" Style Rear Compartment Front Panel Lamp

1. Lamp Assembly
2. Retaining Nut
3. Studs on Panel
4. Body Panel



4500

Fig. 15-54-Exterior Lamp Installation - Buick Styles

OPERATION	METHOD	BODY TYPE		
		A & B Sta. Wgn.	B - C	E
Bulb Replacement	Remove Lens Outside	X		
	Remove Socket (Inside Rear Compartment)		X	X
Lens Replacement	Remove Retaining Screws (Outside)	X		
	Remove Housing and Disassemble		X	X
Housing Replacement	Remove From Outside (Retaining Nuts in Rear Compartment)		View A & B	
	Remove From Inside Rear Compartment			X
	Remove From Outside (Retaining Bolts Under Lens)	View C & D		

4495

Fig. 15-55 Tail Lamp Operation Chart - Buick Styles

View A - "C" Style Tail Lamp

- | | |
|------------------|---------|
| 1. Lamp Assembly | 3. Bulb |
| 2. Retaining Nut | |

View B - "B" Style (Except "B-35-45") Tail Lamp

- | | |
|------------------|---------------------------------------|
| 1. Lamp Assembly | 3. Filler Rear End Panel
to Bumper |
| 2. Retaining Nut | 4. Bulb |

View C - "B-35-45" Style Tail Lamp

- | | |
|-----------------|----------|
| 1. Lamp Housing | 4. Bezel |
| 2. Gasket | 5. Lens |
| 3. Bulb | |

View D - "A-36" Style Tail Lamp

- | | |
|------------------------------|-------------------|
| 1. Gasket | 4. Retaining Bolt |
| 2. Lamp Housing | 5. Lens |
| 3. Lamp Harness
Connector | 6. Lens Screw |

View E - "B-C" Style Side Marker - Less "B-35-45" Styles

- | | |
|------------------|------------------------|
| 1. Lamp Housing | 4. Quarter Outer Panel |
| 2. Retaining Nut | 5. Bezel |
| 3. Bulb | |

View F - "A" Style Side Marker

- | | |
|------------------|----------------|
| 1. Lamp Housing | 4. Bulb |
| 2. Bracket | 5. Bulb Socket |
| 3. Retaining Nut | |

View G - "A-36" Style Side Marker

- | | |
|------------------|-----------------|
| 1. Retaining Nut | 4. Lamp Housing |
| 2. Gasket | 5. Screw |
| 3. Bulb | |

View H - "E" Style Side Marker

- | | |
|------------------|----------|
| 1. Lamp Housing | 3. Bulb |
| 2. Retaining Nut | 4. Bezel |

NOTE: The 49487 style tail lamp installation is not illustrated, but is similar to the Oldsmobile "E" style shown in View C of the Oldsmobile illustrations.

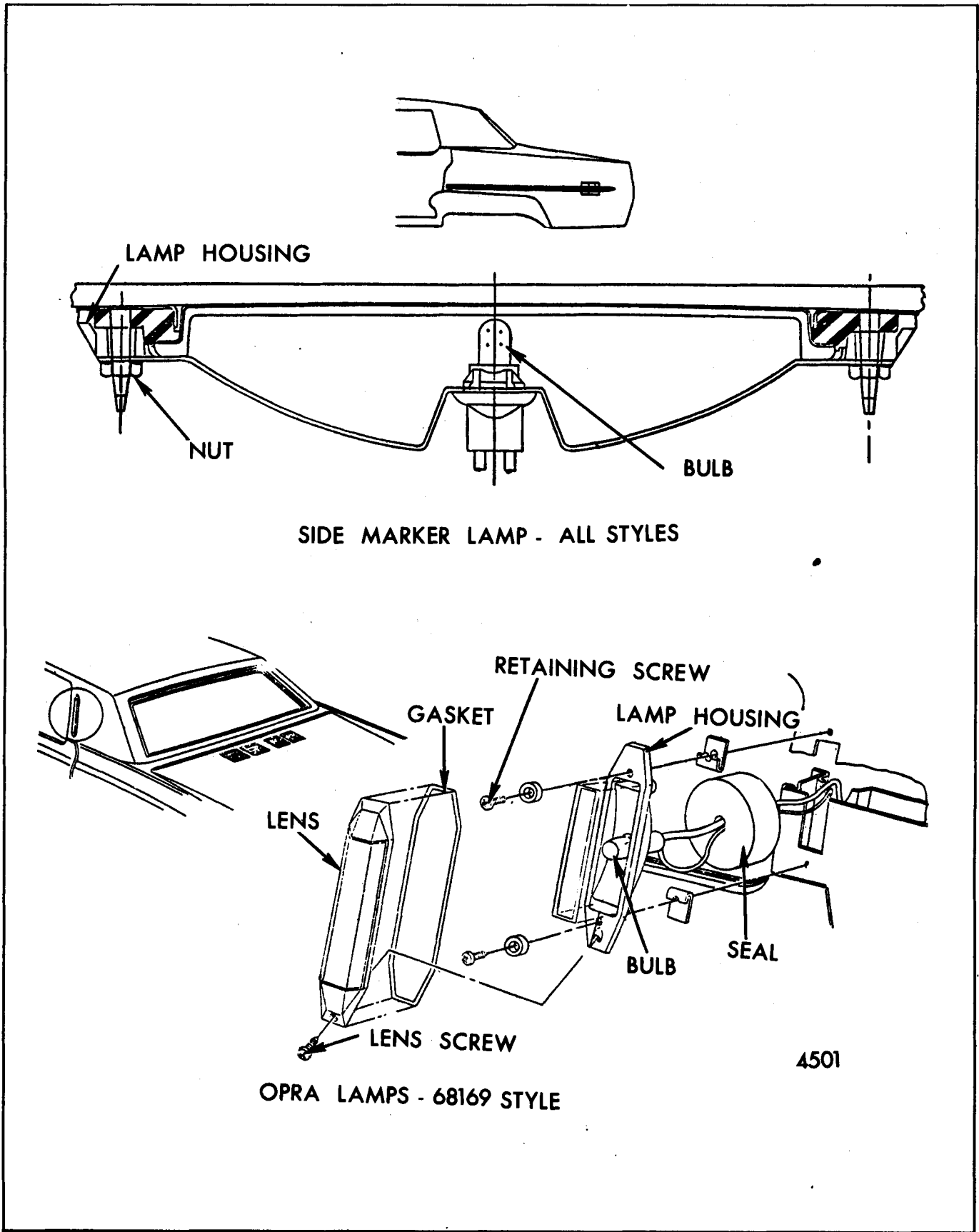


Fig. 15-56-Exterior Lamp Installation - Cadillac Styles

tail lamp area when sealing surfaces are disturbed. Damaged gaskets should be replaced.

If new gaskets are not installed, the use of sealer (body caulking compound or equivalent) is recommended at critical areas and where the old gaskets have taken a set.

The recommended torque for attaching nuts to zinc die cast studs on tail lamp housings and rear fender extensions is 46 to 72 inch pounds. If additional tightening of casting to panel is required, a maximum of 90 inch pounds of torque may be used without stripping the nut.

SIDE MARKER LAMPS

All styles incorporate a rear quarter side marker lamp which operates in conjunction with the tail lamp circuit. All station wagon styles except Chevrolet and Oldsmobile "B" and Buick "A" use a "wrap around" tail lamp assembly which doubles as a side marker lamp.

There are two basic methods of retention for these lamp housings:

1. Studs with nuts accessible from the rear compartment.
2. External screws - used on all station wagons.

Views depicting lamp installations are shown with the respective exterior lamp installation drawings for Pontiac, Oldsmobile and Buick. Views for Chevrolet are shown in Figure 15-47, and Cadillac in Figure 15-56.

LICENSE PLATE LAMP (CHEVROLET ONLY)

Chevrolet styles incorporate two small license lamp assemblies which are mounted to the rear end panel from inside the rear compartment and are secured by external screws.

COMPARTMENT FRONT PANEL LAMP (OLDSMOBILE "E" STYLES)

The lamp assemblies are mounted to integral studs on

the back window drain panel and attached with nuts prior to installation of the applied rear compartment front panel.

OPERA LAMP (CADILLAC 68169 STYLE)

The lamp assembly mounted on the quarter panel sail area is attached with screws accessible under the screw attached lens.

See Figure 15-46 for Exterior Bulb Usage Chart.

DOMES AND SAIL LAMPS

The dome lamp operates in conjunction with the door jamb switch and/or the headlamp switch. Feed current is present at the dome lamp at all times and a ground is established through one of the switches. The "grounding" type door jamb switches are located in the front body hinge pillars and on some styles in the center pillar (Figure 15-57). The dome lamp harness, which contains two solid core wires both color coded white, is connected to the front body harness aft connector. The jamb switch wiring and jamb switch on "A-F-X" styles, as well as the headlamp switch on all styles, are installed by the Motor Divisions. The portion of the dome lamp circuit contained in the main body harness is color coded (orange-feed wire and white-ground wire). The circuit diagrams and harness routing illustrations are at the end of the Electrical Section.

DOOR JAMB SWITCH ADJUSTMENT

When a new jamb switch is installed and properly tightened (57-87 inch pounds), the switch is automatically adjusted by SLOWLY closing the door. The switch incorporates an adjusting sleeve with formed ridges that are designed to collapse as the sleeve is pressed into the retaining nut. After the switch is initially adjusted, the sleeve still has further inward adjustment available but no outward adjustment due to the collapsing feature of the ridges on the sleeve. If outward adjustment is necessary because of door adjustment, the switch must be replaced.

NOTE: Electric seat back lock release system incorporates a separate, unique jamb switch.

ELECTRIC DOOR LOCK

DESCRIPTION

The optional electric door lock system incorporates a solenoid for each door and a control for each FRONT

door except "F" style which has one instrument panel switch. All doors lock and unlock electrically from the

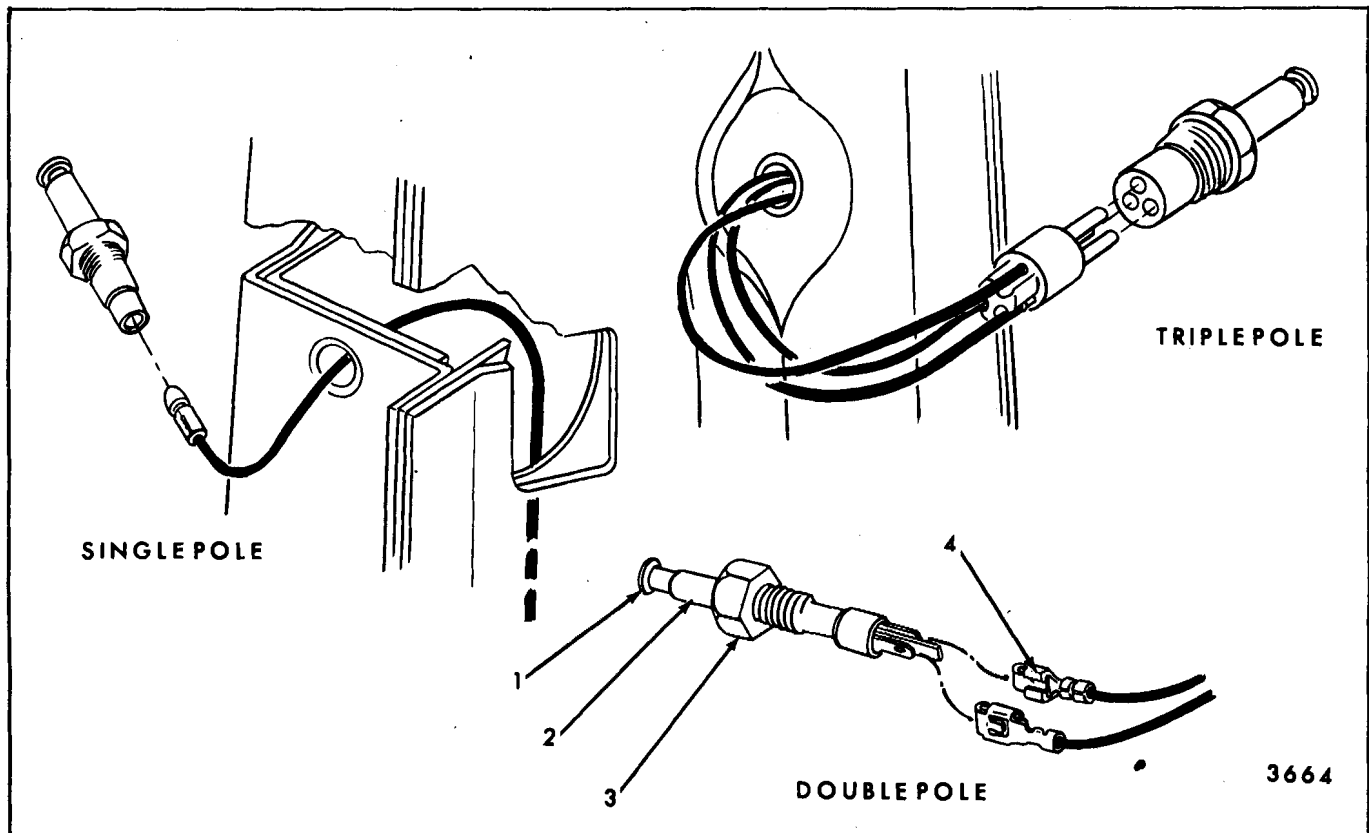


Fig. 15-57-"Grounding" Type Door Jamb Switches

1. Plunger
2. Adjusting Sleeve

3. Retaining Nut
4. Harness Terminal

control switch or manually from each door in the conventional manner. Each solenoid has an internal circuit breaker which (under extreme conditions) may require up to three minutes to reset.

The door lock harness is routed in the power window harness conduit.

CHECKING PROCEDURE - All Except "F" Styles

Before beginning electrical checks, be sure system is free of mechanical binds. Refer to Figures 15-58 and 15-59 for circuit diagrams. The following checks are performed with a test lamp.

Circuit Breaker Output - "A" Styles

1. Insert test prod into circuit breaker output terminal.
 - a. If lamp does not light - replace circuit breaker (if no current at breaker input, refer to chassis manual).
 - b. If lamp lights - check feed wiring for open or disconnect in circuit.

- c. If lamp blinks (breaker clicking "on and off") - locate and repair short circuit in feed wiring.

Junction Block Output - "B-C-E" Styles

1. Insert test prod into junction block output terminal.
 - a. If lamp does not light - check power feed jumper to junction block.
 - b. If lamp lights - check feed wiring for open or disconnect in circuit.
 - c. If lamp blinks (circuit breaker clicking on and off) - locate and repair short circuit in feed wiring.

NOTE: Disconnect other options to isolate shorted circuit, if applicable.

2. Disconnect feed connector (orange/black, dark green and black wires) and insert test lamp prod into feed (orange/black) terminal.
 - a. If no light - locate and repair short or open in feed circuit.

Door Lock Control Switch

1. Remove door trim panel.
2. Insert test lamp prod into feed terminal of switch block.
 - a. If lamp does not light - locate and repair open or short circuit in orange/black wire.
3. Insert jumper between feed and lock (unlock) terminals. If locks operate in both cycles, replace switch.

Front Door Lock Solenoid

1. Disconnect solenoid connector.
2. Insert test lamp prod into connector.
 - a. If lamp lights at both terminals when switch is activated and solenoid is properly grounded - replace solenoid.
 - b. If lamp does not light at both terminals - locate and repair open or short circuit in black or dark green wire.

Rear Door Lock Solenoid

While control switch is being operated, perform the following:

On "A" Styles only - remove center pillar trim and insert test lamp prod into center pillar connector (black and dark green wires). If lamp does not light, check for open or short circuit in black or dark green wires.

If lamp does light proceed to rear door lock solenoid connector.

On All Styles - remove rear door trim panel and check solenoid in same manner described for front door solenoid.

CHECKING PROCEDURE - "F" STYLES ONLY

Prior to beginning electrical checks, insure that no mechanical binds exist. The electric door lock circuit diagram is shown in Figure 15-60. The following electrical checks are performed with the test lamp.

Door Lock Control Switch

1. Insert test prod into feed wire insulation at switch base.
 - a. If lamp does not light, locate and repair open in feed wire from circuit breaker.

2. Disengage door lock switch jumper harness connector (black and dark green wires) from door lock center harness connector.
3. Insert test lamp prod into each terminal of switch jumper harness connector (black wire-unlock and dark green wire-lock) and activate switch accordingly.
 - a. If lamp does not light at both terminals locate and repair open wire or replace switch.

Door Lock Center Harness

1. Remove left shroud side finishing panel and disengage door lock center harness from door lock solenoid harness.
2. Connect a jumper wire from the circuit breaker output at fuse block to door lock center harness feed connector.
3. Insert test lamp into corresponding terminal at left shroud side connector.
 - a. If lamp does not light - locate and repair open or short circuit.

NOTE: Circuit breaker will "click" open and closed if short circuit exists.

- b. If lamp lights repeat step 2 and 3 for other terminals.
4. If lamp lights at both terminals at left shroud, repeat steps 1, 2 and 3 at right shroud side panel.

Door Lock Solenoid and Solenoid Harness

1. Remove door trim pad and disengage solenoid harness from solenoid.
2. Connect a jumper wire from the circuit breaker output at fuse block to one terminal of solenoid - repeat at other terminal.
 - a. If solenoid operates in both functions - locate and repair open or short circuit in door lock solenoid harness.
 - b. If solenoid does not operate in both functions and no mechanical binds exist, replace solenoid.

NOTE: Prior to solenoid replacement, insure that solenoid body is properly grounded.

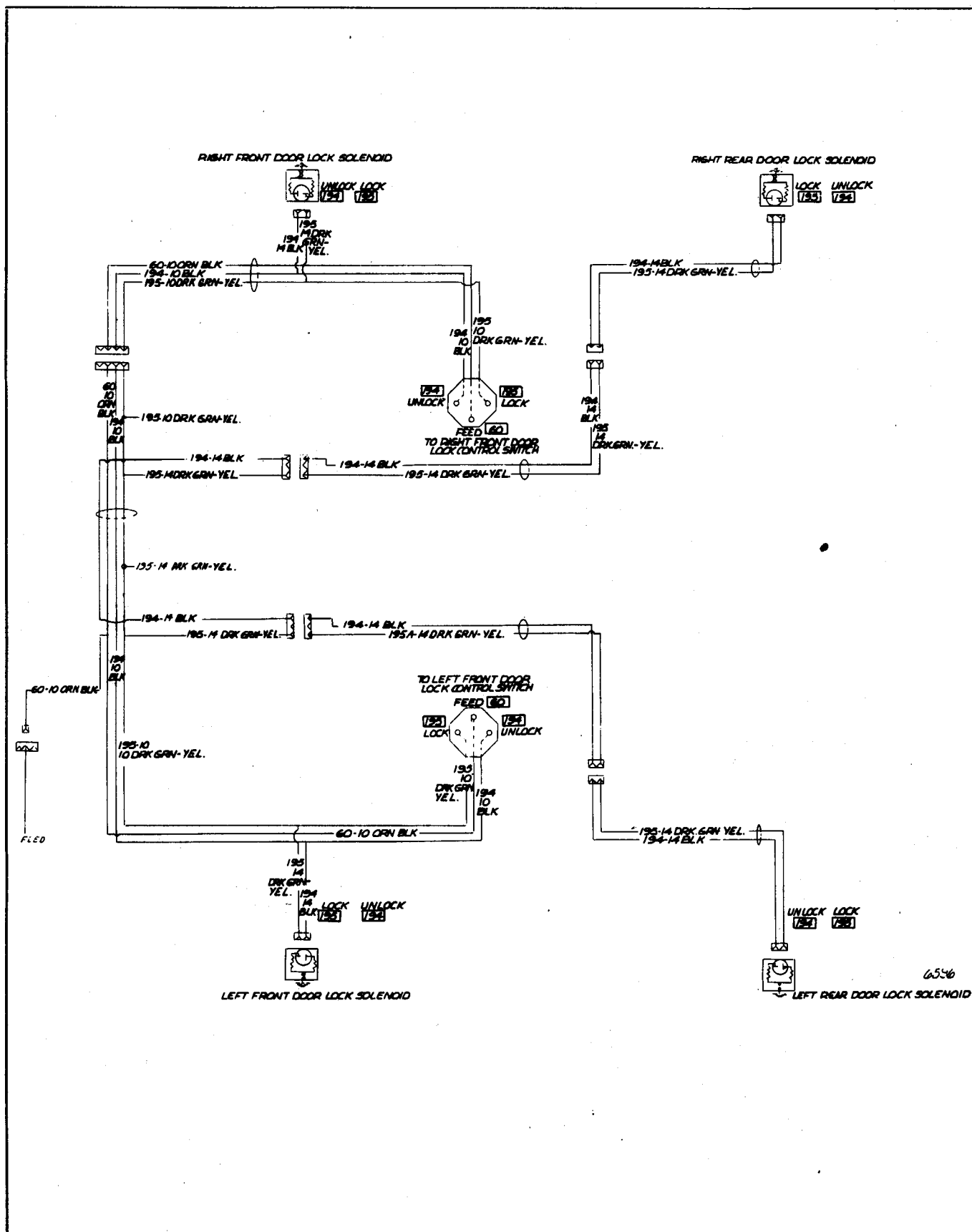
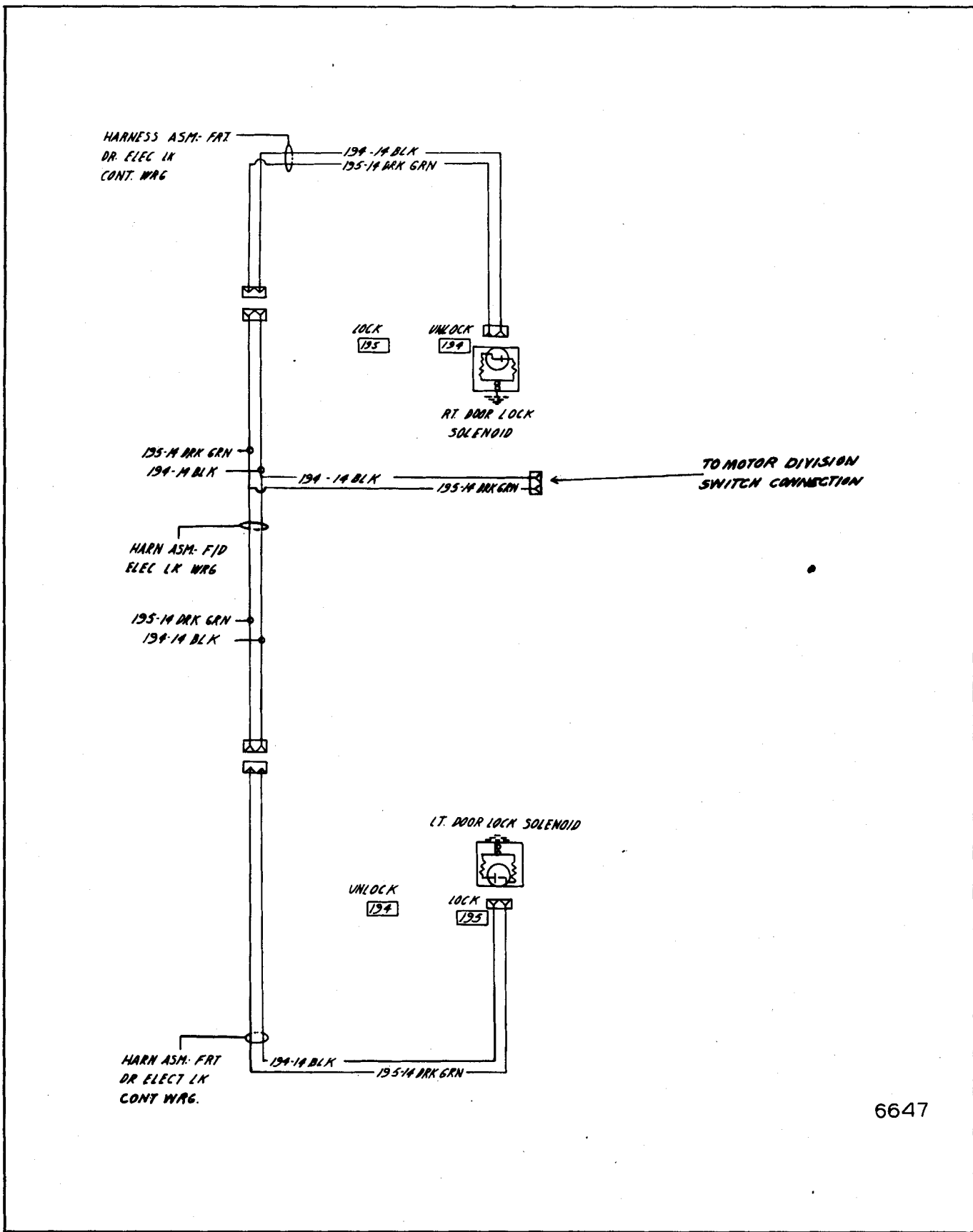


Fig. 15-58-"A" Four Door Style Electric Door Lock Circuit Diagram



6647

Fig. 15-60-"F" Style Electric Door Lock Wiring Diagram

ELECTRIC SEAT BACK LOCK RELEASE

DESCRIPTION

Electric seat back lock release is optional on all 2-door styles equipped with electric door locks. The system utilizes a relay and two solenoids, one each for the driver and passengers seat backs and works in conjunction with insulated door jamb switches (Fig. 15-61), when either door is opened.

The insulated "flow through" type jamb switch completes the circuit from the power source to the seat back relay coil which is grounded through the case. A 4 amp fuse is included in the circuit on all "A" styles. When the seat back relay contacts close, the current flows from the power source to both the internally grounded driver and passenger seat back lock solenoids, releasing the seat back locks.

Each solenoid incorporates both an "unlock" and a "hold-in" coil. These coils are stacked in tandem around a single plunger and are energized simultaneously. The "unlock" coil draws approximately 18 amps of current and the "hold-in" coil approximately 0.6 amps. When the solenoid plunger reaches its full travel (approximately 1/4 inch), it trips an internal limit switch and opens the ground circuit for the "unlock" coil, leaving the "hold-in" coil energized.

When the door(s) is closed the relay contacts open, the solenoid de-energizes and allows the seat back locks to return to the lock position. The seat backs also incorporate a manual over-ride release.

"FLOW-THROUGH" TYPE JAMB SWITCH

The jamb switch used in conjunction with this system is attached to the front body hinge pillar by a threaded retainer (Fig. 15-61). It has a two prong female connector and is installed adjacent to the conventional jamb switch. Initial adjustment is made automatically by SLOWLY closing the door which positions the collar properly in the retainer. Further inward adjustment is accomplished in the same manner; however, after initial adjustment NO OUTWARD adjustment of jamb switch is possible.

NOTE: If REARWARD adjustment of either front door is made, replace the jamb switch and close the door to adjust as stated in the preceding paragraph. Confirm correct operation by opening the door and slowly close it to the secondary lock position (first click). The seat back lock must then be locked (solenoid de-energized).

CIRCUIT CHECKING PROCEDURES

All of the checks are performed with a test lamp and one door open unless otherwise specified. Refer to Figures 15-62 and 15-63 for circuit diagrams.

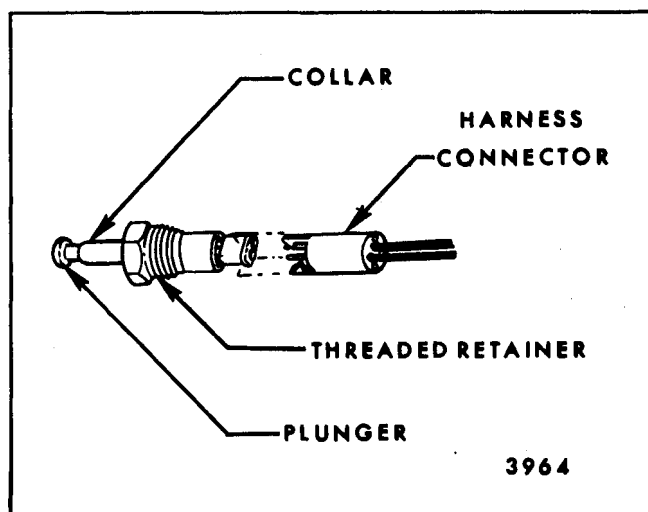


Fig. 15-61—"Flow Through" Type Jamb Switch

Seat Back Lock Relay

The relay is located on the floor pan below the driver's seat on "A" styles and at the right shroud side panel on "B-C-E" styles.

1. Check output current at single connector (black wire) - if lamp lights, relay is operative.

NOTE: If relay contacts stick, current will be present at the relay output (black wire to solenoid) and input (orange/black wire) but not at the relay coil input (yellow wire). Replace relay under these circumstances.

2. Check input current at the orange/black wire in relay connector.
 - a. If no light - locate and repair open or short circuit from circuit breaker.
3. Check relay coil current at yellow wire in relay connector.
 - a. If lamp lights and relay is properly grounded to body - replace relay.
 - b. If no light - check "in line" fuse under instrument panel near fuse block on "A" styles only, or jamb switch and jamb switch wiring.

Seat Back Lock Solenoid

1. Check feed current at solenoid jumper (black wire) at solenoid.
 - a. If no light - locate and repair short between solenoid and relay.

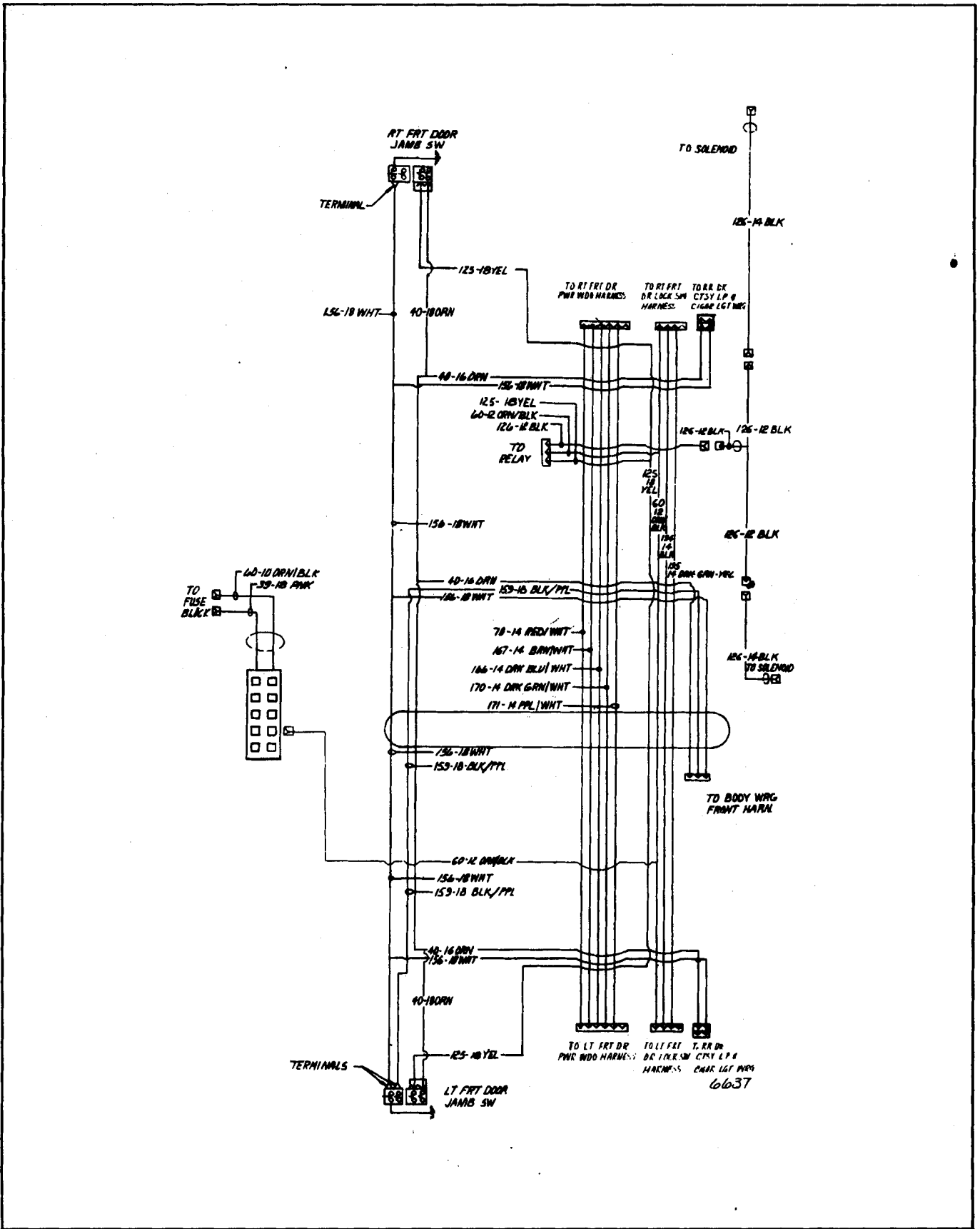


Fig. 15-63-"B-C-E" Style Electric Door and Seat Back Lock Circuit Diagram

- b. If lamp lights - provide an external solenoid ground. If solenoid still fails to operate and no mechanical binds exist - replace solenoid.

NOTE: On strato-seats the solenoid is replaced as part of the lock assembly for either a mechanical bind or solenoid failure.

In Line Fuse - "A" Styles Only

1. If fuse has blown, connect "short finder" in place of the fuse and close both doors.
 - a. If "short finder" lamp blinks on and off, locate and repair short in orange wire to jamb switches.

- b. If "short finder" lamp does not blink, open one door and then the other to determine which jamb switch is affected (yellow wire).

Jamb Switch

Remove the jamb switch from the pillar and touch test lamp prod to the orange wire terminal.

1. If no light at orange wire, locate and repair open circuit.
2. Place jumper from orange to yellow wire - if system operates replace jamb switch.

NOTE: Refer to "flow-through" jamb switch description for adjustment.

ELECTRIC BACK WINDOW GRID DEFOGGER

DESCRIPTION

The optional back window grid defogger system consists of a tinted glass that has a number of horizontal ceramic silver compound element lines and two vertical bus bars baked into the inside surface during the glass forming operation. Braided wire is soldered to the bus bars on each side of the glass except "B" style station wagon tail gate glass. The feed wire terminal on the tail gate glass is soldered to the bus bar at the left upper corner. The lead wires (stranded, round wire) are spliced to the braided wire and covered with an extruded plastic sleeve to insulate them from body metal.

The system operates on 12 volts with a current draw of 20 amps (plus or minus 2 amps) when glass is at 75 degrees F. Under some conditions, heat from the glass may not be detected by finger touch. The length of time required to remove interior fog from the back glass will vary with such conditions as vehicle speed, outside glass temperature, atmospheric pressure, number of passengers, etc.

This system utilizes an instrument panel mounted switch with an integral indicator lamp. Once the switch has been activated, the system will operate continuously until that switch or ignition is turned "off". A

STYLE	GROUND WIRE LOCATION	FEED WIRE LOCATION	CONNECTOR LOCATION	TRIM REMOVAL REQUIRED TO DISCONNECT WIRES FOR GLASS R & I
"A" STYLES	Right Side	Left Side	Rear Compartment at Rear Seat Back Panel	Disconnect in Rear Compartment - Lift Rear Corners of Rear Seat to Back Window Trim Panel to Pull Wire Through
"F" STYLES	Right Side	Left Side	Rear Compartment	Rear Seat Cushion and Back, Shelf Trim and Right Quarter Upper Trim Panel
"B-C-E" STYLES Except Station Wagons & Convertibles	Right Side to Rear Compartment Lid Hinge Box	Left Side	Rear Compartment Under Shelf	Rear Seat Cushion and Back and Shelf Trim
STATION WAGONS	Right Side	Left Side	Left Upper Corner on Glass	Standard Glass Removal Operation
CONVERTIBLES	Right Side	Left Side	Exposed - Below Right and Left Lower Corners of Glass	None

Fig. 15-64-Connector Location - Optional Rear Window Electric Grid Defogger

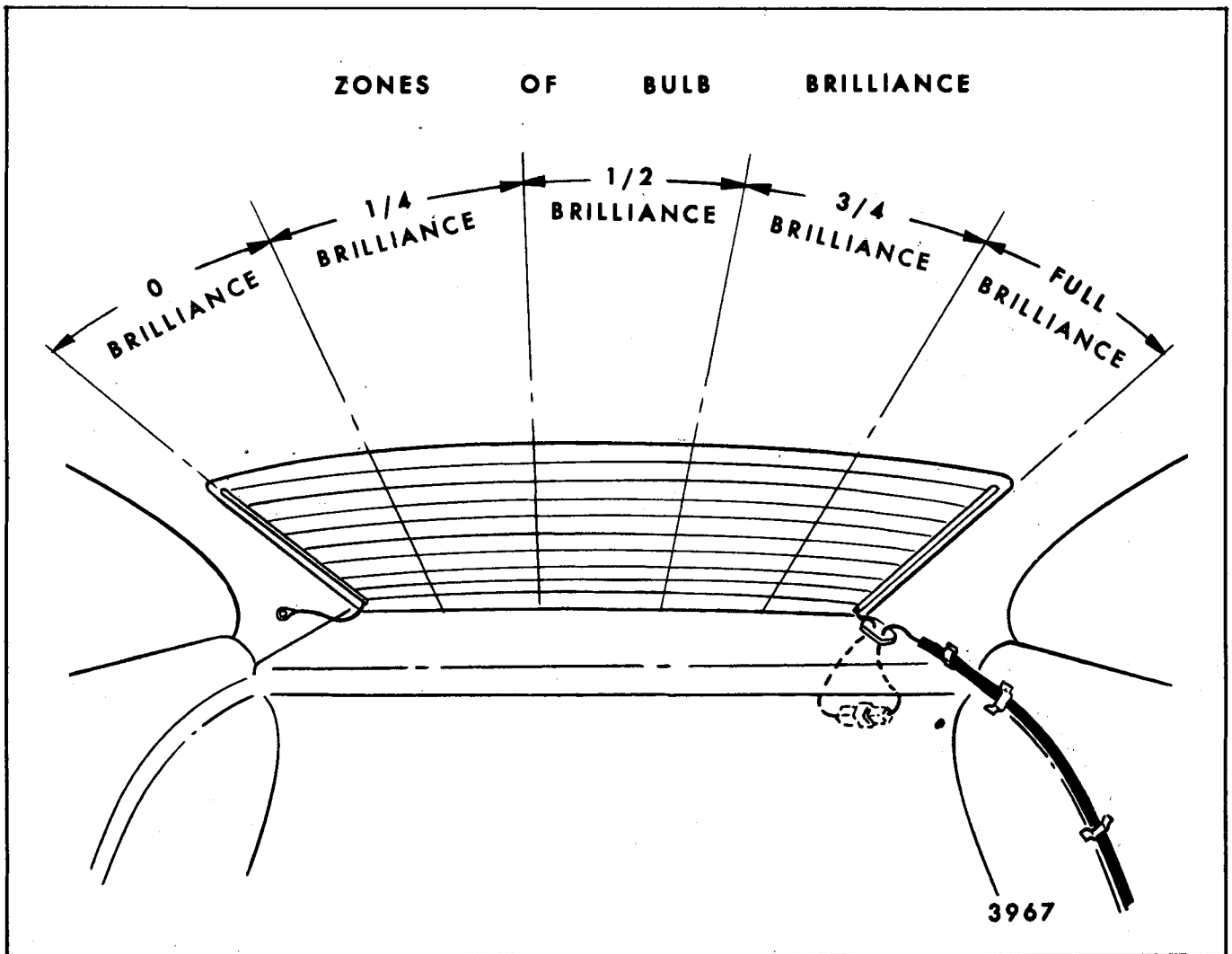


Fig. 15-65-Test Lamp Bulb Brilliance Zones - Normal Operating Electric Grid Defogger

relay is used in conjunction with the air conditioning system to regulate the blower motor speed when the heated back glass is in operation.

Connector Location

The location of feed wire connectors differ on various styles. Figure 15-64 indicates location of lead wires and connectors.

NOTE: The ground wire screw on the rear seat back panel may in some cases, be inaccessible from the rear compartment. If this condition is encountered, cut the lead as close as possible to the attaching point. To reinstall, use a new "ring terminal" and secure the terminal with a sheet metal screw to a convenient location on the seat back panel.

Testing Grid Lines

To locate inoperative grid lines, start engine and turn

on the electric grid defogger system. Ground one test lamp lead and LIGHTLY touch the other prod to each grid line. Figure 15-65 illustrates the pattern of test lamp brilliance to be expected with a properly functioning grid.

NOTE: The range of zones in Figure 15-65 may vary slightly from one glass to another, however, the bulb brilliance will decrease proportionally to the increased resistance in the grid line as the prod is moved from the left bus bar to the right.

All grid lines must be tested in at least two places to eliminate the possibility of bridging a break. For best results contact each grid line a few inches either side of the glass centerline. If an abnormal light reading is apparent on a specific grid line - place test lamp prod on that grid at the left bus bar and move prod toward the right bus bar until light extinguishes. This will indicate a break in the continuity of the grid line (Fig. 15-66).

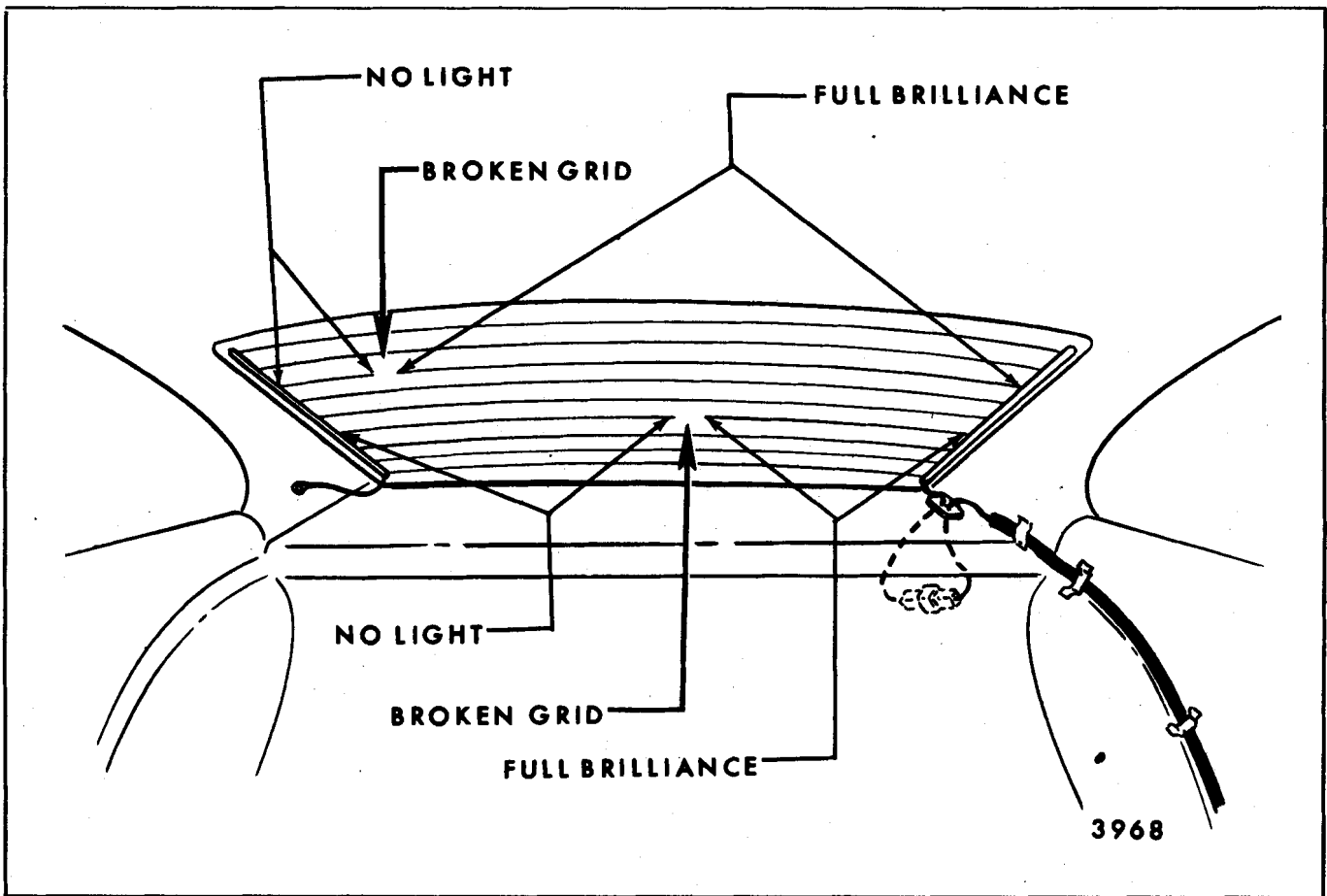


Fig. 15-66-Test Lamp Bulb Brilliance with Broken Grid Lines

Grid Line Repair

A durable repair may be accomplished using the Rear Window Electric Grid Defogger Repair Kit (Part No. 1051223 or equivalent) which consists of:

1. Plastic rectangular shaped mixing plate
2. Decal
3. Syringe of silver plastic
4. Syringe of hardener
5. Mixing stick
6. Instruction sheet

Repair Procedure

1. After the broken grid line has been located and marked (indicate break with a grease pencil on the outside surface of the glass), the system must be shut off.

2. Lightly buff grid line in area to be repaired with fine steel wool buffing approximately 1/4" on both sides of break. Thoroughly wipe with a clean cloth dampened in alcohol. It is necessary that all contaminants be removed from the repair area.
3. Use the decal supplied in the kit or apply two strips of electrician's plastic tape above and below the damaged grid line in order to control the width of repair material. Proper tape positioning may be checked from outside the vehicle.

NOTE: If the decal is used, be sure that the die-cut metering slot is the same width as the grid line to be repaired. If the slot is too narrow or too wide, use tape as described in step 3.

4. Lay the plastic rectangular shaped mixing plate on a flat surface and dispense the silver color material in a circular ring on the mixing plate by pushing syringe plunger to the bottom.
5. Dispense dark hardener in the center of the circle by pushing dispenser plunger to the bottom.

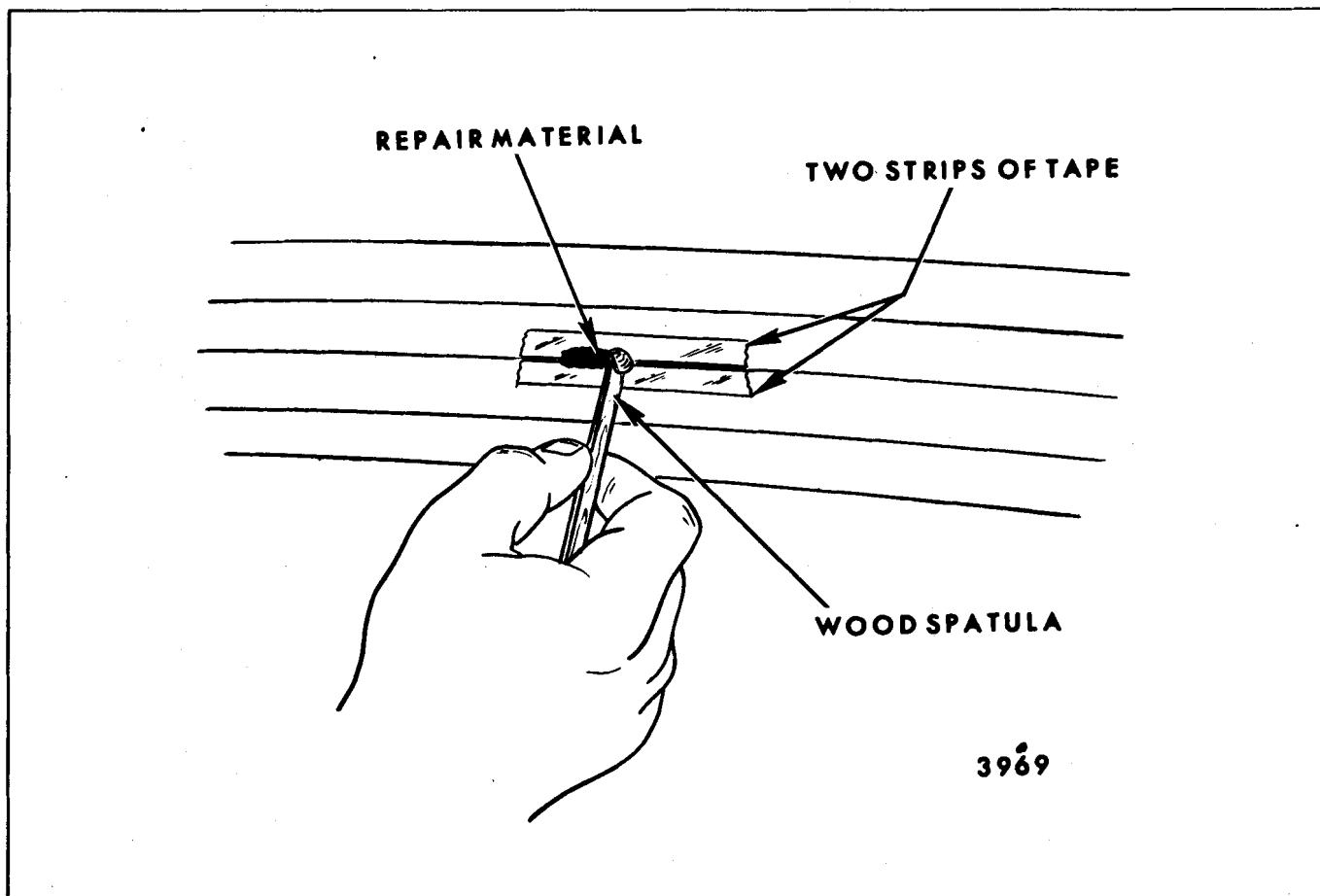


Fig. 15-67-Applying Repair Material to Broken Grid

NOTE: If hardener has crystallized, heat container at 108 degrees F until hardener is liquified.

6. Mix the dark hardener into the silver plastic by blending the material with the mixing stick.
7. With the glass at room temperature, apply the repair material with the small wooden mixing spatula, slightly over-lapping the existing grid line either side of the break (Fig. 15-67).
8. Carefully remove the decal or tape.
9. Apply a constant stream of hot air directly to the repaired area with a heat gun (preferably 500 degrees F. to 700 degrees F. range) for 1 to 2 minutes. Heat gun nozzle should be held approximately 1 inch from repair (minimum of 300 degrees F. is essential for establishing conductivity) see Figure 15-68.

NOTE: In order for the repaired area to reach the desired level of electrical conductivity, the repair material must be cured with heat. When working close to interior trim, it may be necessary to

protect the trim that is immediately adjacent to the stream of heat.

10. Re-test grid lines to insure proper operation.

NOTE: Although grid defogger is operational, additional air dry time is required to effect a complete cure, therefore the area of repair must not be physically disturbed for 24 hours.

Braided Lead Wire Repair

Repair of bus bar braided lead wire may be accomplished by resoldering with 3 per cent silver solder and rosin flux paste in the following manner:

1. Lightly buff the bus bar in the area to be repaired with fine steel wool to remove oxide coating formed during glass firing.
2. Brush a small amount of flux paste on bus bar.
3. Coat the tip of a small soldering iron with 3 per cent silver solder and draw across the bus bar depositing a thin coating of solder.

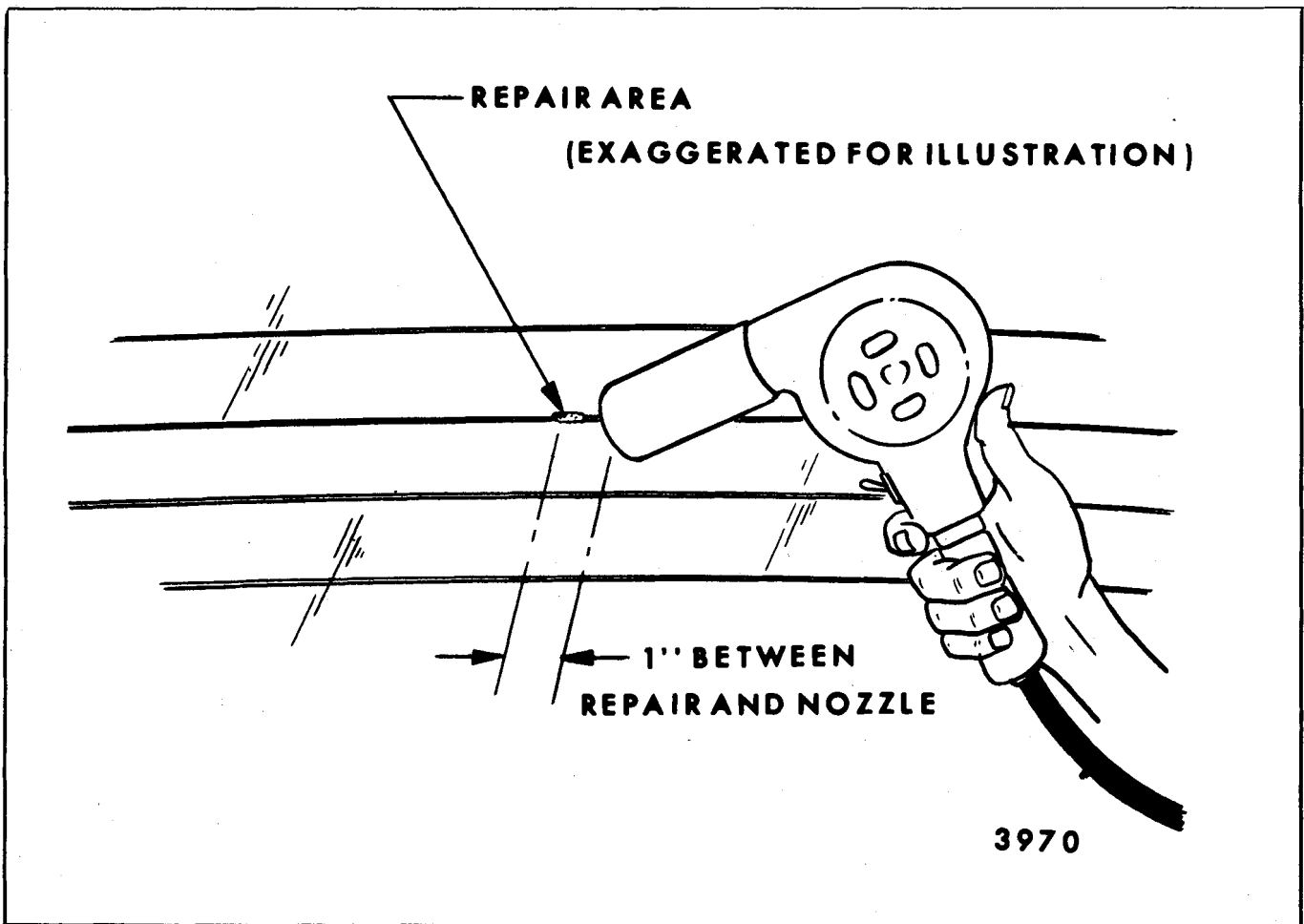


Fig. 15-68—Applying Heat to Grid Line Repair

NOTE: Only enough heat to melt solder (to start flowing) is recommended. Contact bus bar for as short a time as possible.

4. Repeat the procedure for the braided lead.
5. Position the braided lead on the bus bar and apply heat to complete soldering operation.

BACK WINDOW DEFOGGER (BLOWER TYPE)

Description

The defogger is designed to operate at either high or low speed. Air is drawn into the defogger blower and directed against the rear window through a blower outlet.

Circuit Checking Procedures

It may be necessary to use only one or all of the procedures outlined to locate an electrical failure in the circuit. If the location of the failure is evident, follow only the steps required to check the affected wire or component. If the location of the failure is not evident, follow the procedure as outlined. For circuit diagram, refer to Figure 15-69.

Checking Blower Control Switch

(Refer to Car Division Service Manual)

Checking Blower Motor

1. Check blower motor ground wire for proper ground.
2. Disconnect blower motor feed wire.

NOTE: A resistor is used in the circuit to provide the difference between high and low speeds. If there is only one output feed wire at the switch connector, the resistor is located in the switch. If two output feed wires are found at the switch

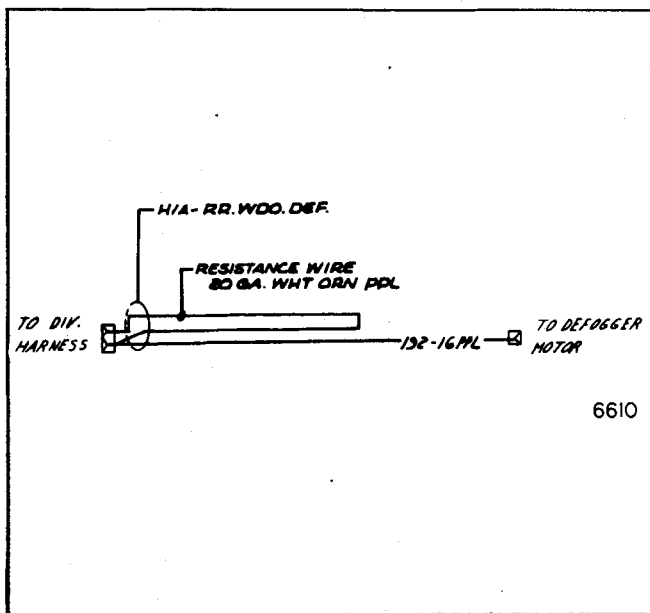


Fig. 15-69-Defogger Circuit Diagram - "B-C-E" Styles

connector, the resistance is included in the low speed wire harness.

- Using a 12-volt power source, connect the negative lead to the blower motor ground wire and the positive lead to the motor feed wire. If the blower does not operate, replace the blower as an assembly.

NOTE: If blower operates but air does not come out of outlet grille, check for obstructions at air inlet and outlet.

- If the blower motor and switch operate satisfactorily when checked, but the blower will not operate, or will not give both high and low speeds, locate and repair open or short circuit in feed wire(s) between switch connector and motor.

For blower installations refer to Figures 15-70, 15-71, 15-72 and 15-73.

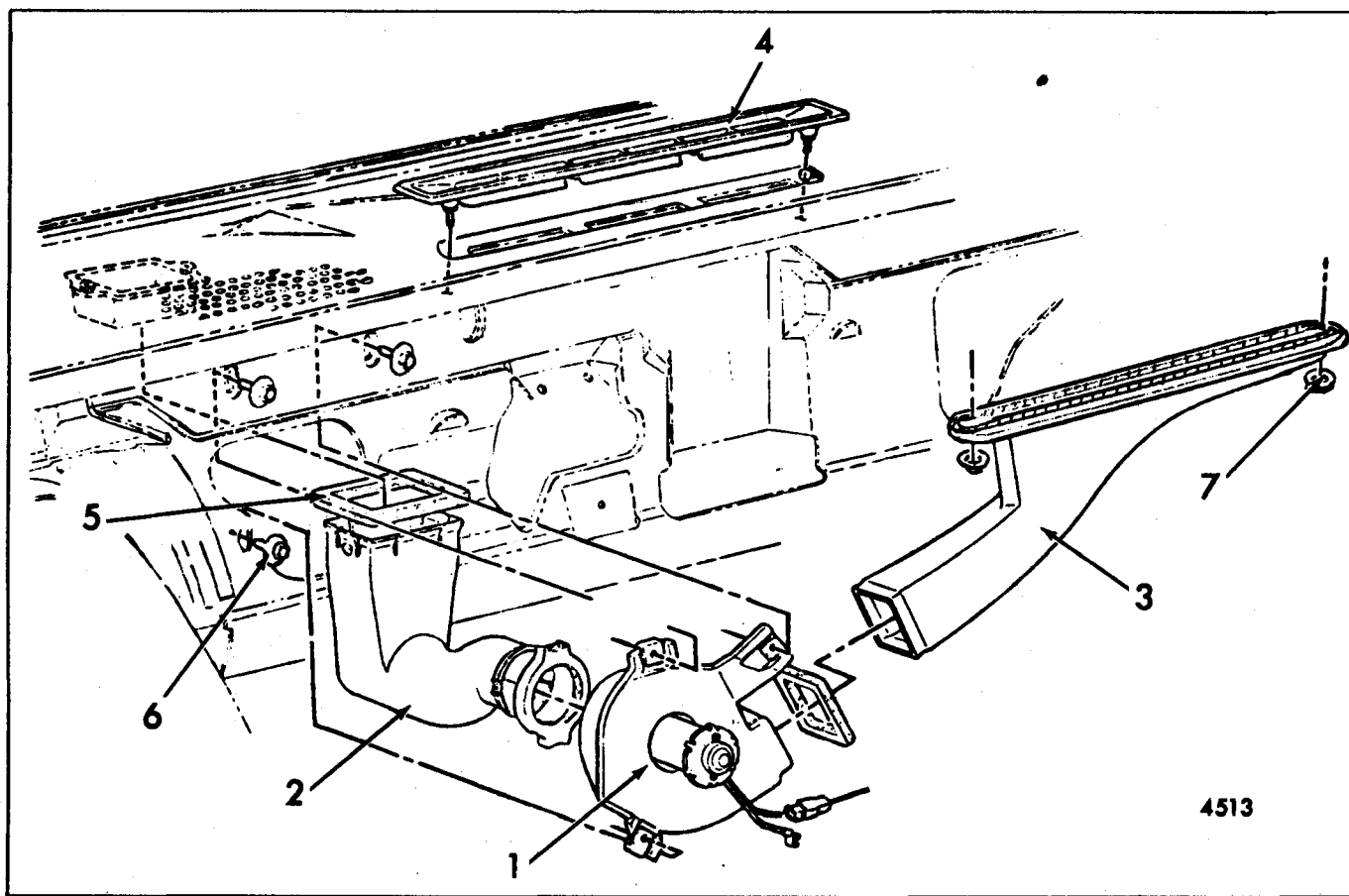


Fig. 15-70-Blower Installation - Chevrolet "B-47" Style

- | | | |
|--------------------|-----------|---------------------------|
| 1. Blower Assembly | 4. Grille | 6. Blower Attaching Screw |
| 2. Inlet Duct | 5. Gasket | 7. Grille Attaching Nut |
| 3. Nozzle | | |

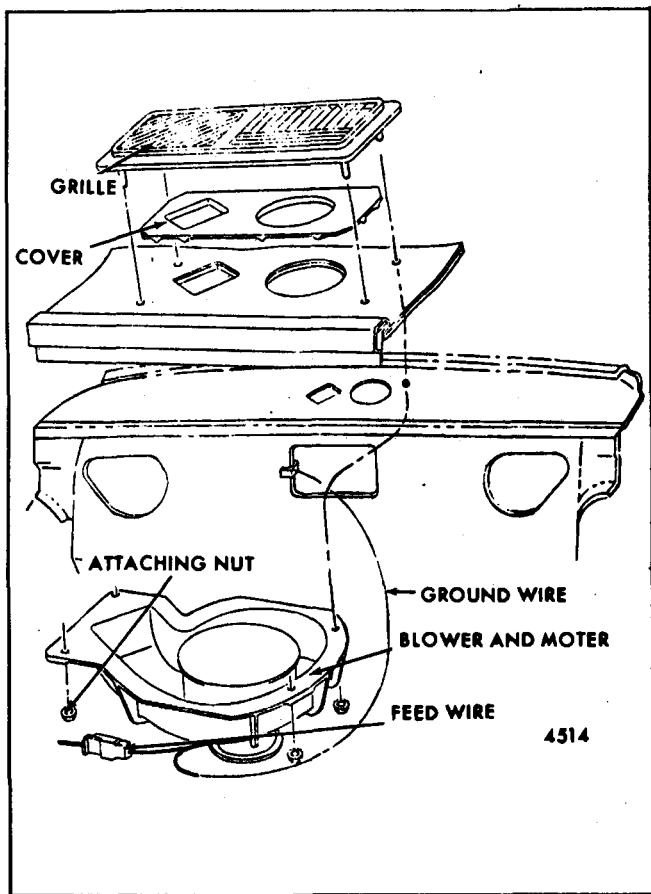


Fig. 15-71-Blower Installation - Chevrolet,
Pontiac and Buick "B-C" Styles except
Chevrolet "B-47"

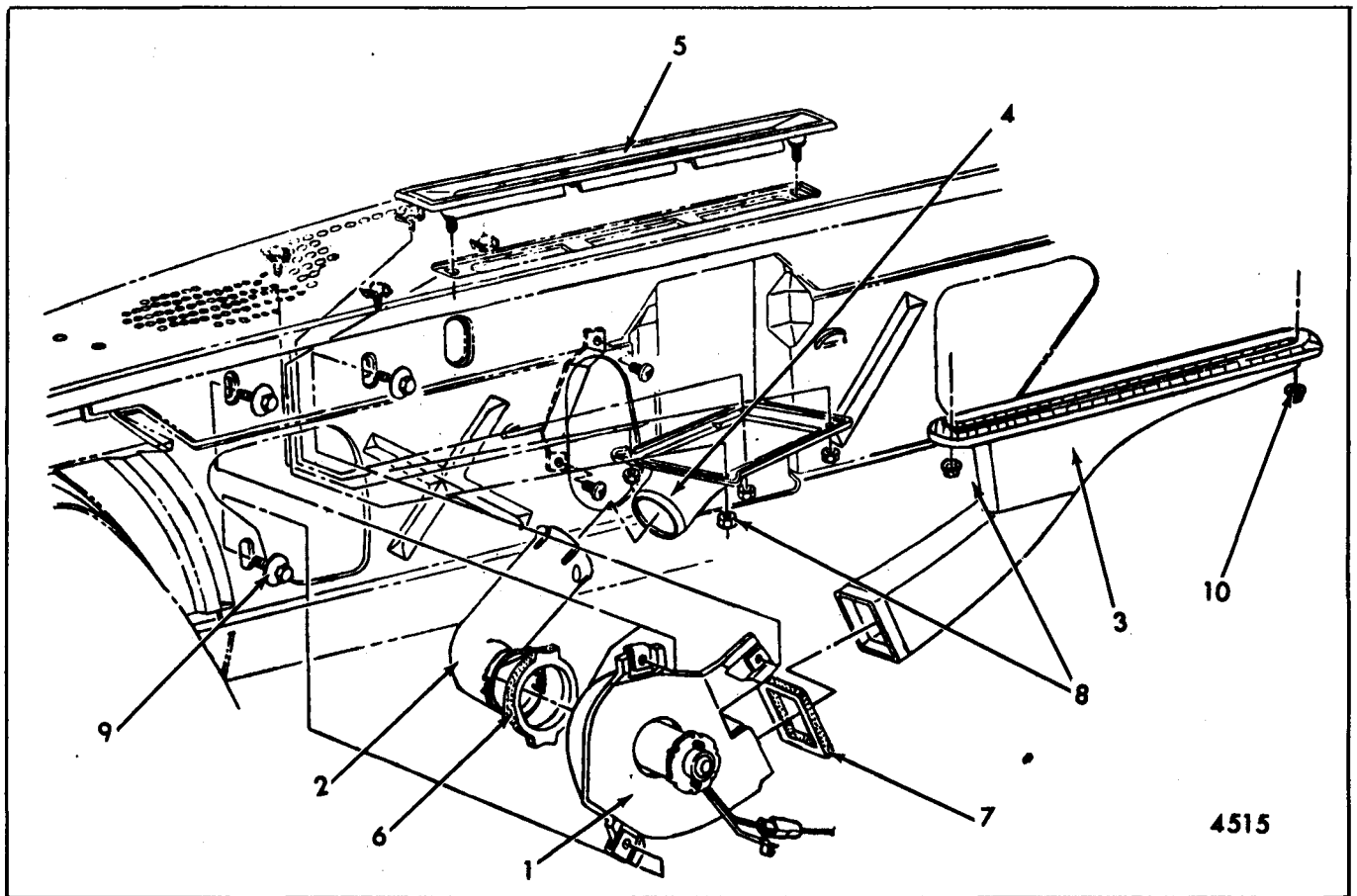


Fig. 15-72-Blower Installation - Cadillac "C and E" Styles

- | | |
|--------------------|----------------------------|
| 1. Blower Assembly | 6. Inlet Duct Gasket |
| 2. Inlet Duct | 7. Nozzle Gasket |
| 3. Outlet Nozzle | 8. Adapter Attaching Nut |
| 4. Adapter | 9. Blower Attaching Screw |
| 5. Grille | 10. Nozzle Attaching Screw |

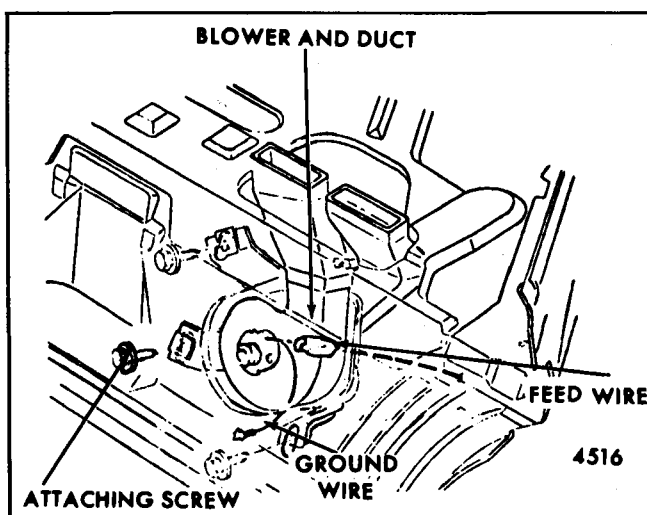
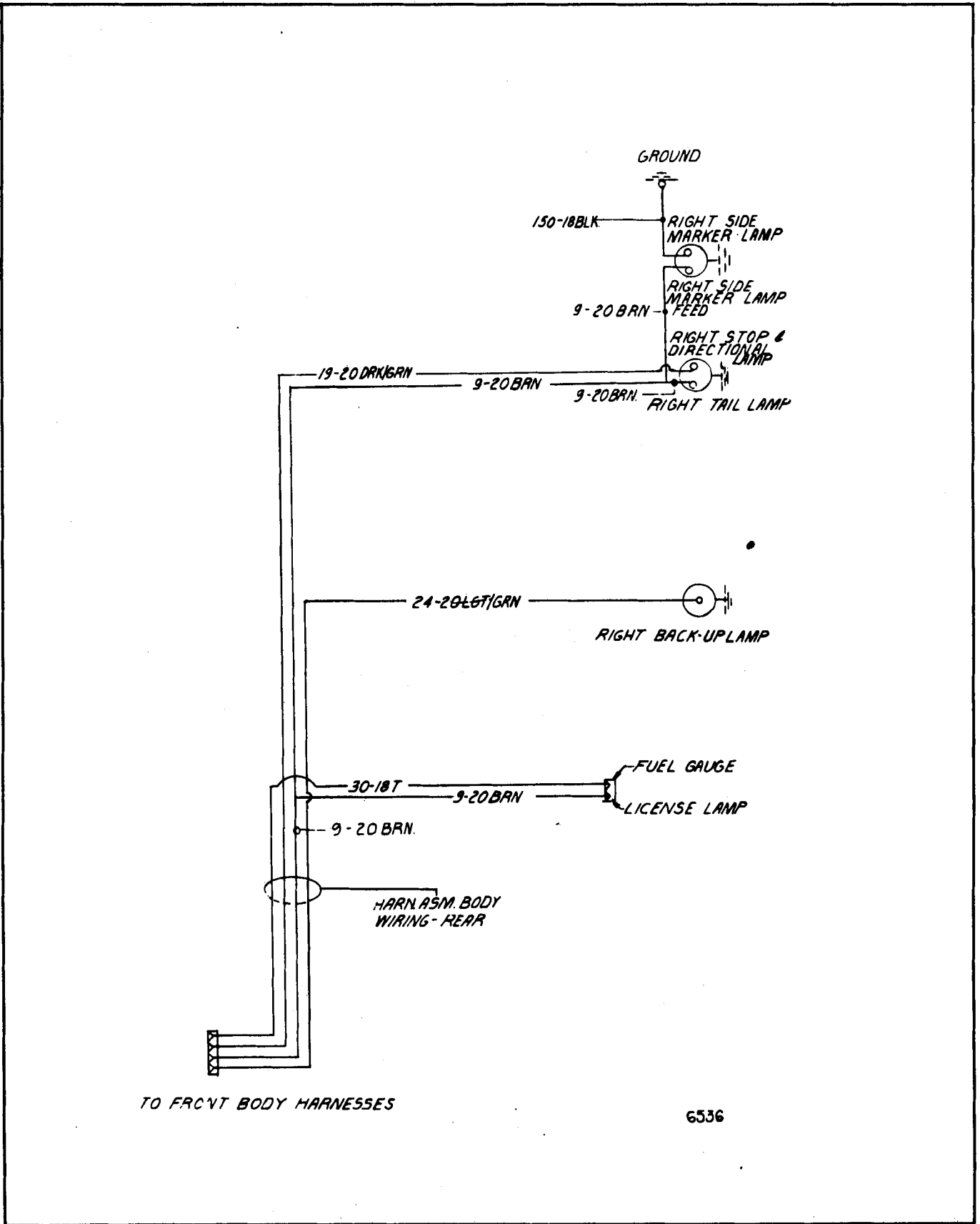


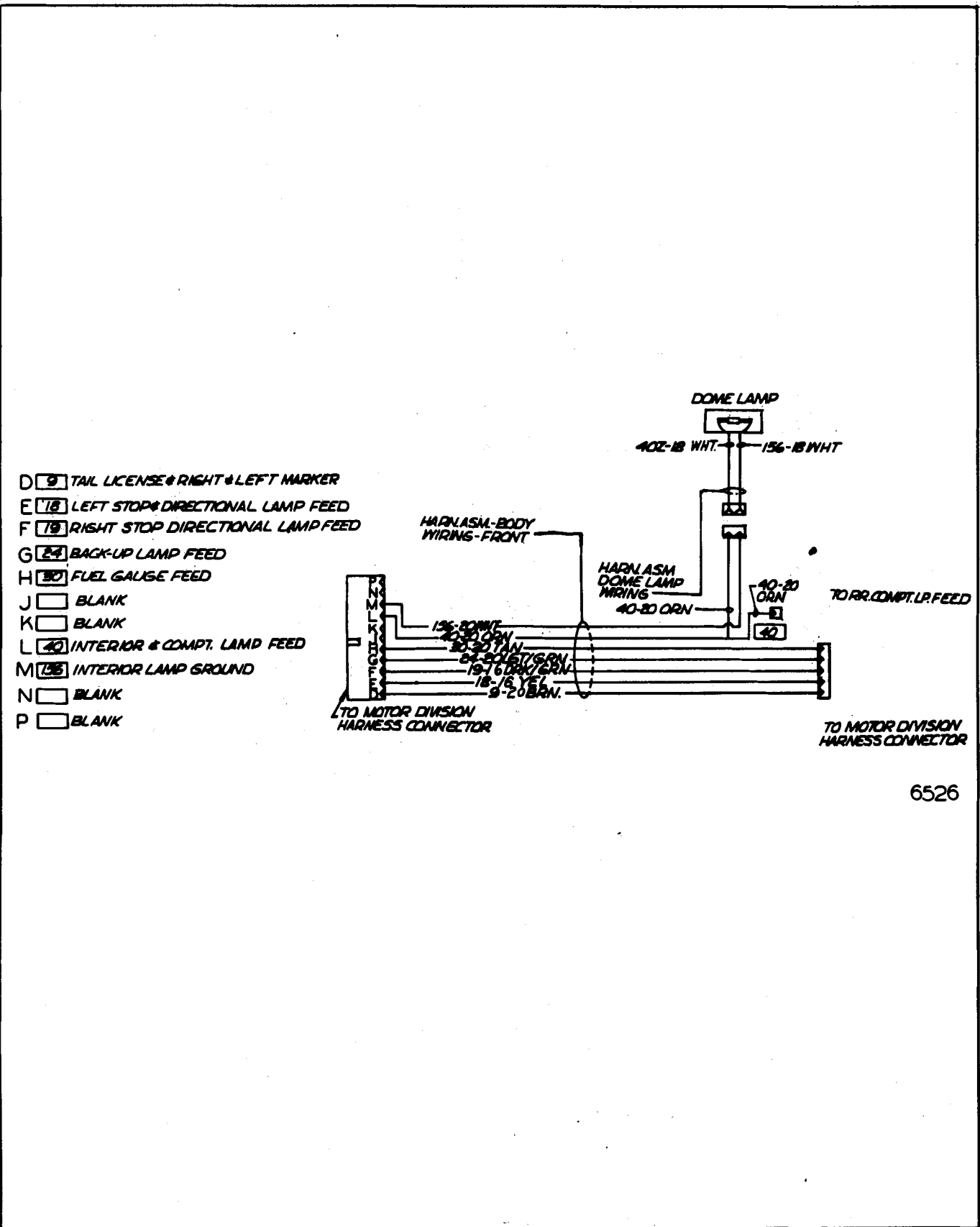
Fig. 15-73-Blower Installation - Buick 49487
Style



TO FRNT BODY HARNESSSES

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Fig. 15-75-Rear Harness Circuit Diagram - Chevrolet "X" Styles



6526

Fig. 15-76-Front Harness Circuit Diagram - Chevrolet "A-37-39-57-69" Styles

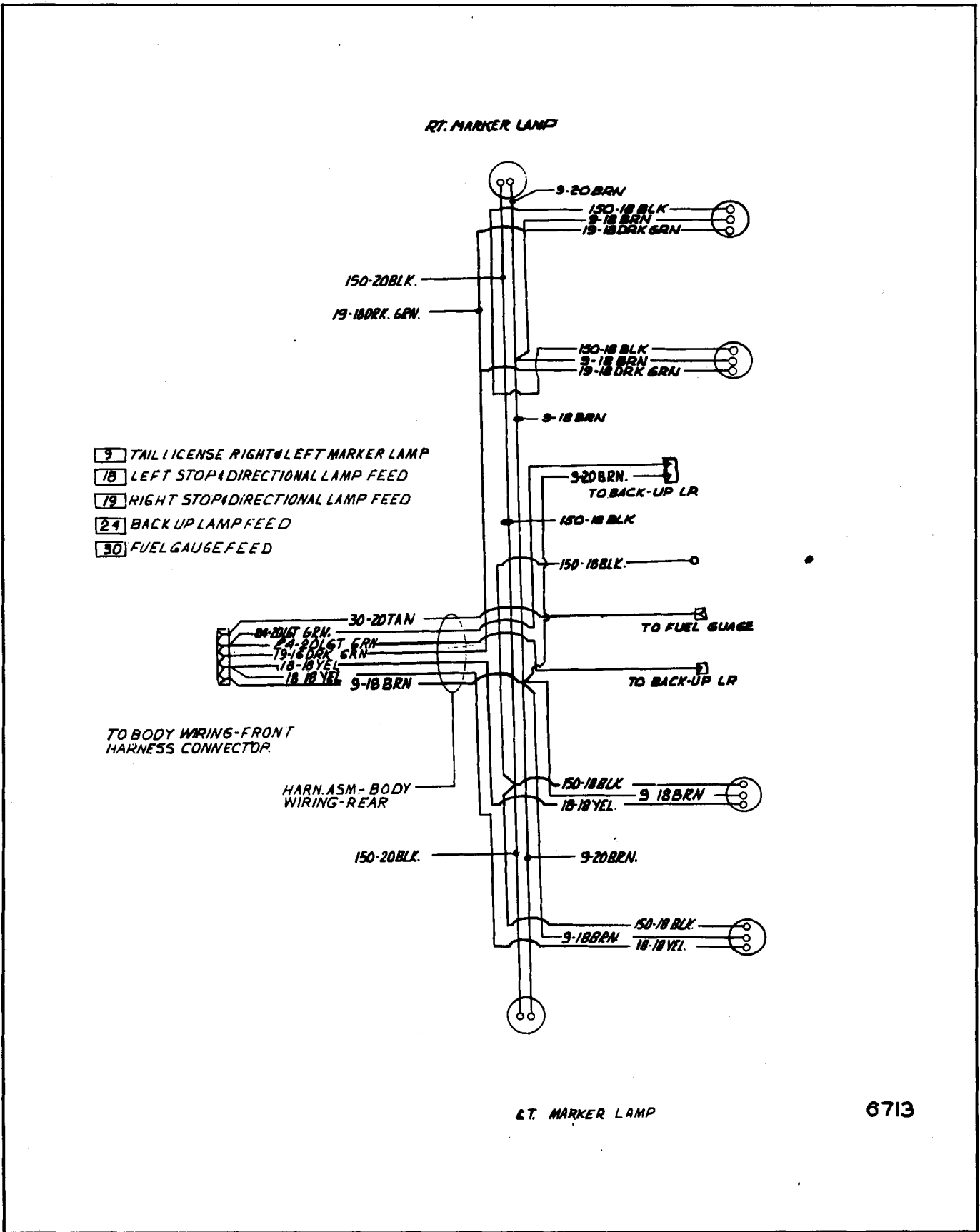
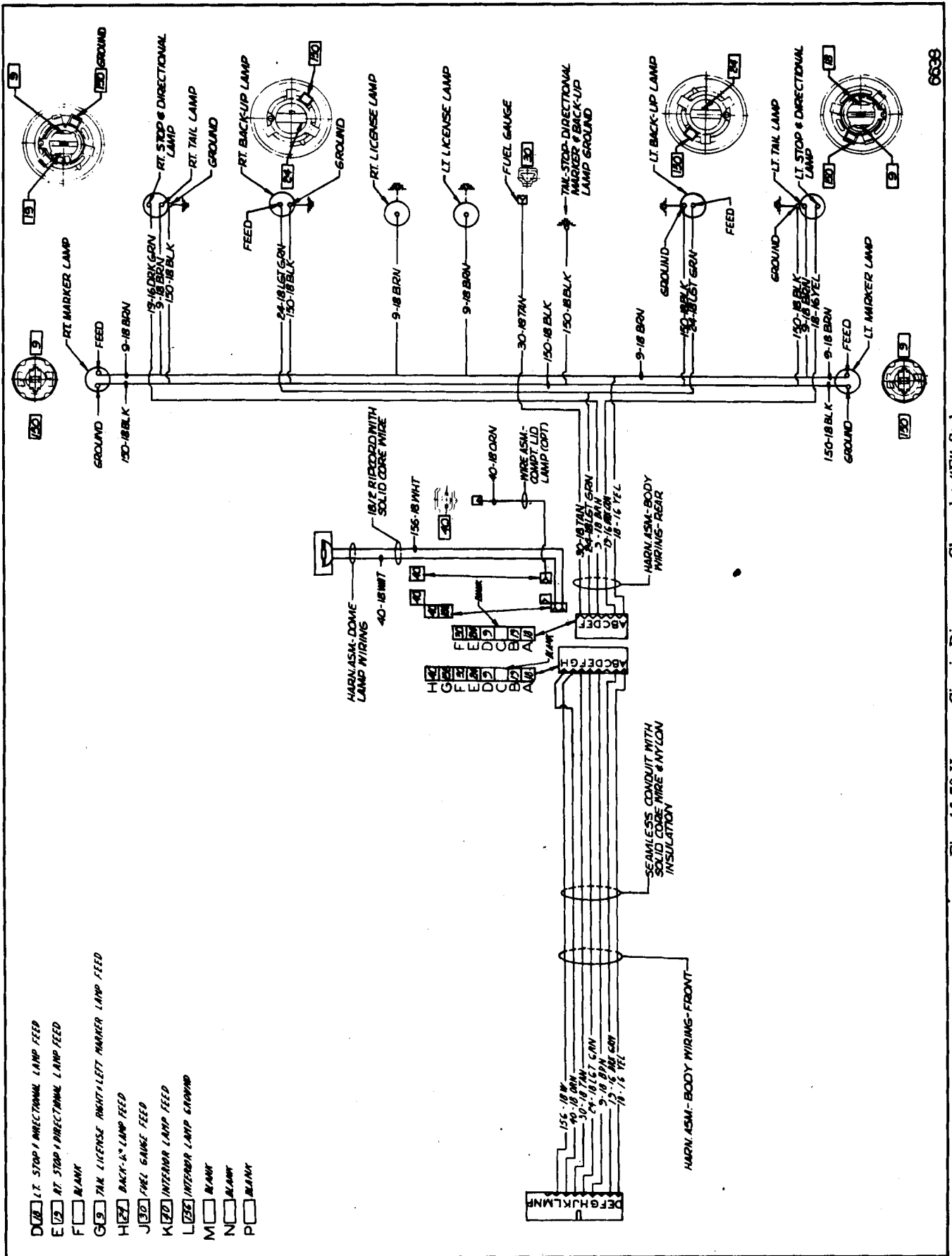
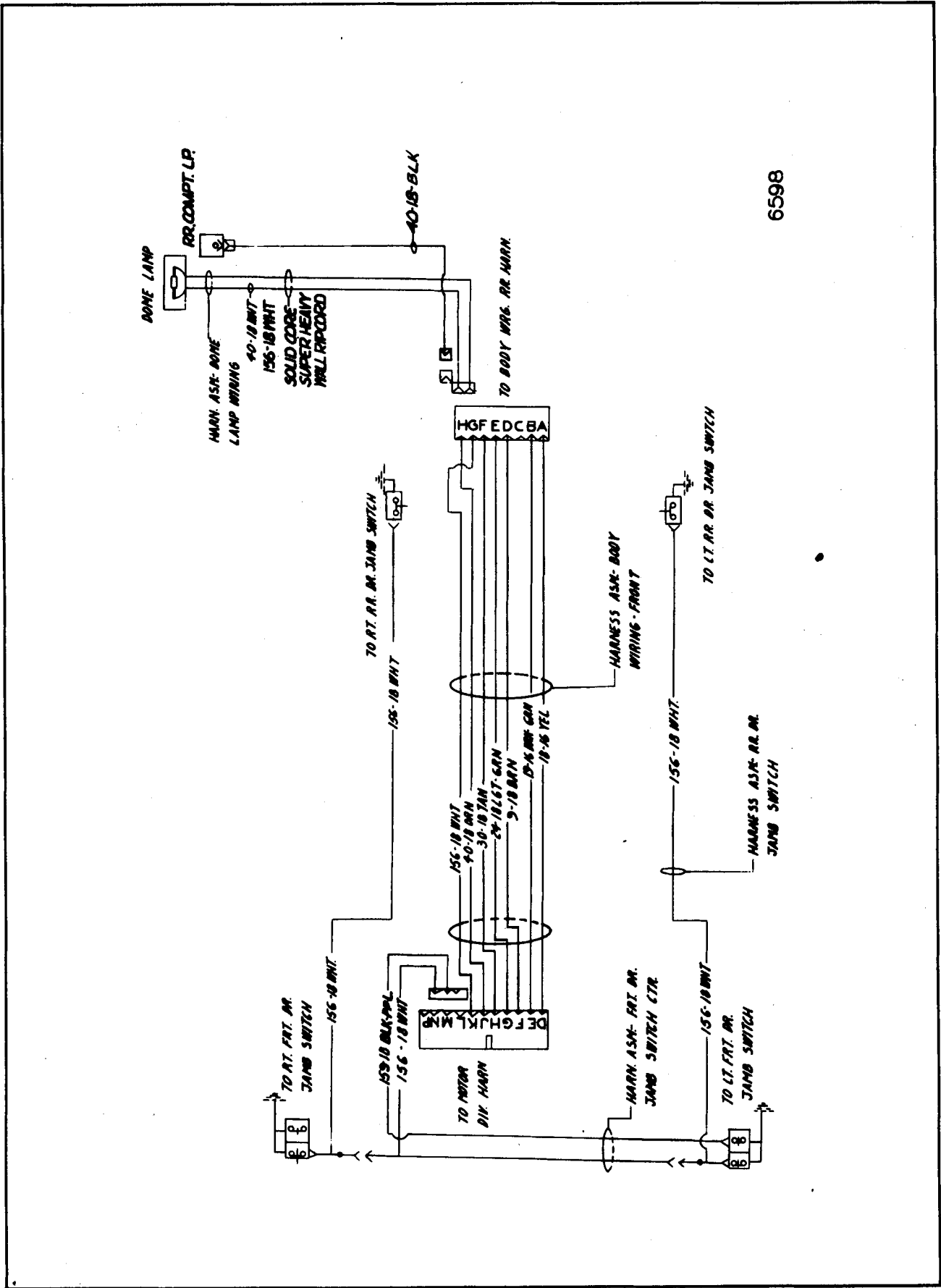


Fig. 15-78-Rear Harness Circuit Diagram - Chevrolet "A-57-67" Styles



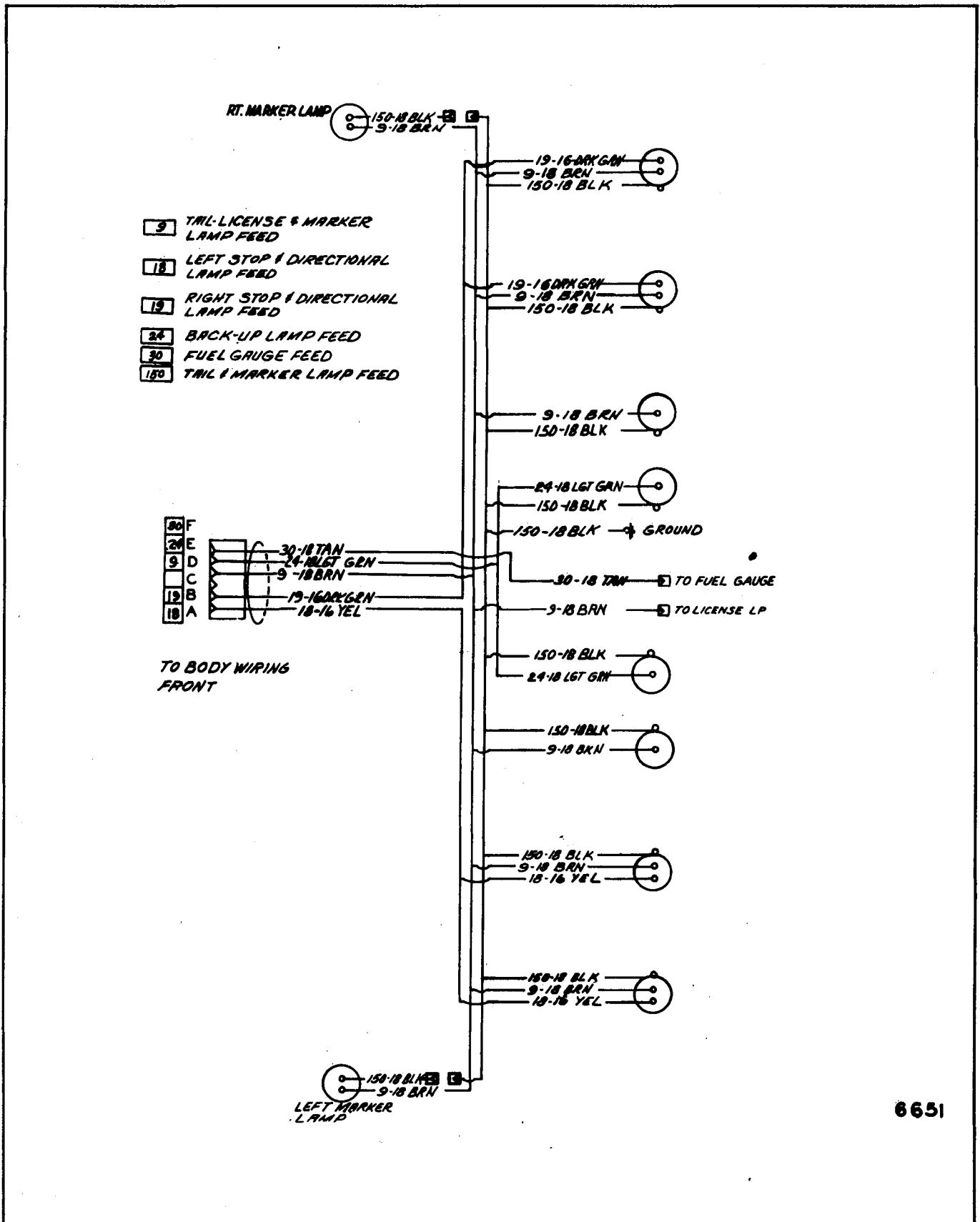
6638

Fig. 15-79-Harness Circuit Diagram - Chevrolet "F" Styles



6598

Fig. 15-80-Front Harness Circuit Diagram - Chevrolet, Pontiac "B" Styles



6651

Fig. 15-81-Rear Harness Circuit Diagram - Pontiac "B" Styles

6 694

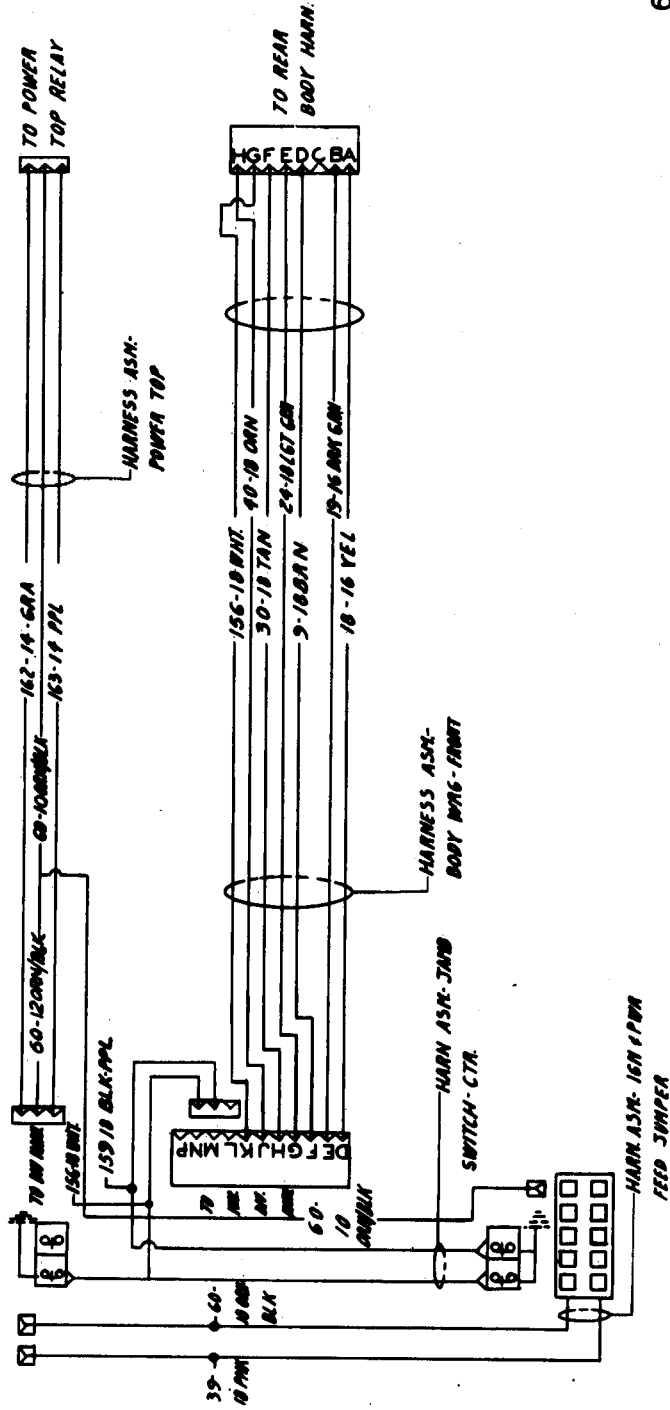


Fig. 15-82-Front Harness Circuit Diagram - Chevrolet "B-67" Styles

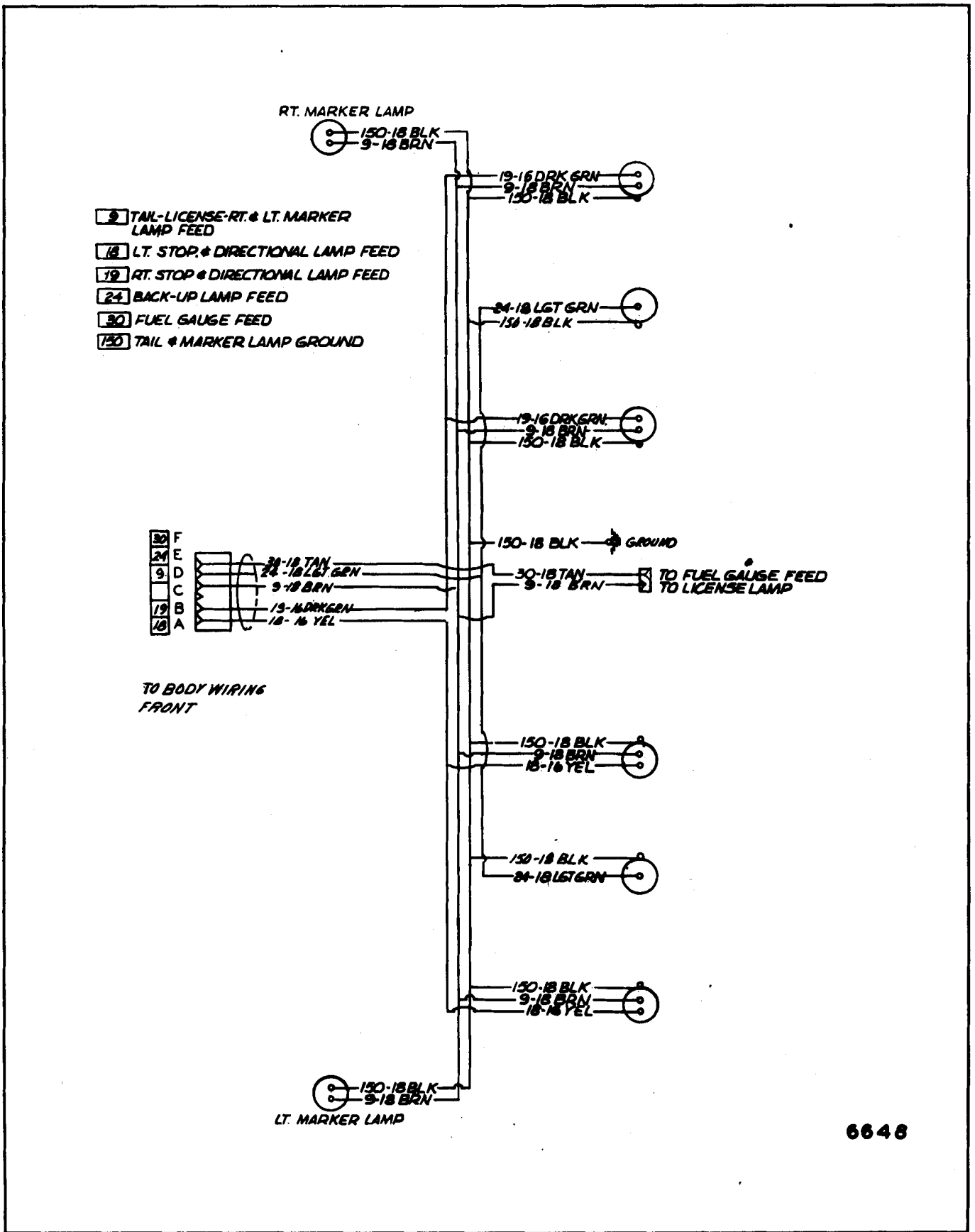
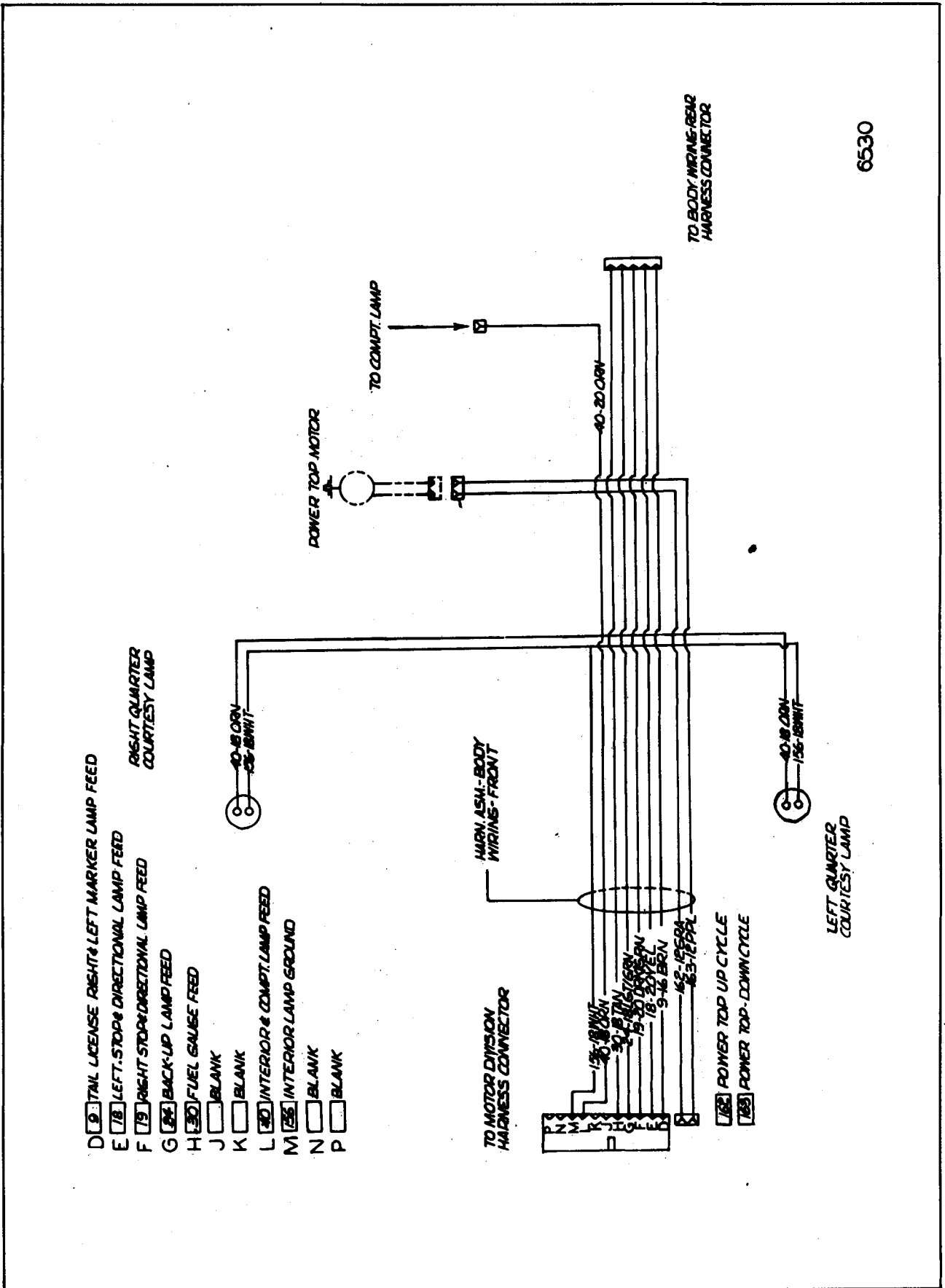
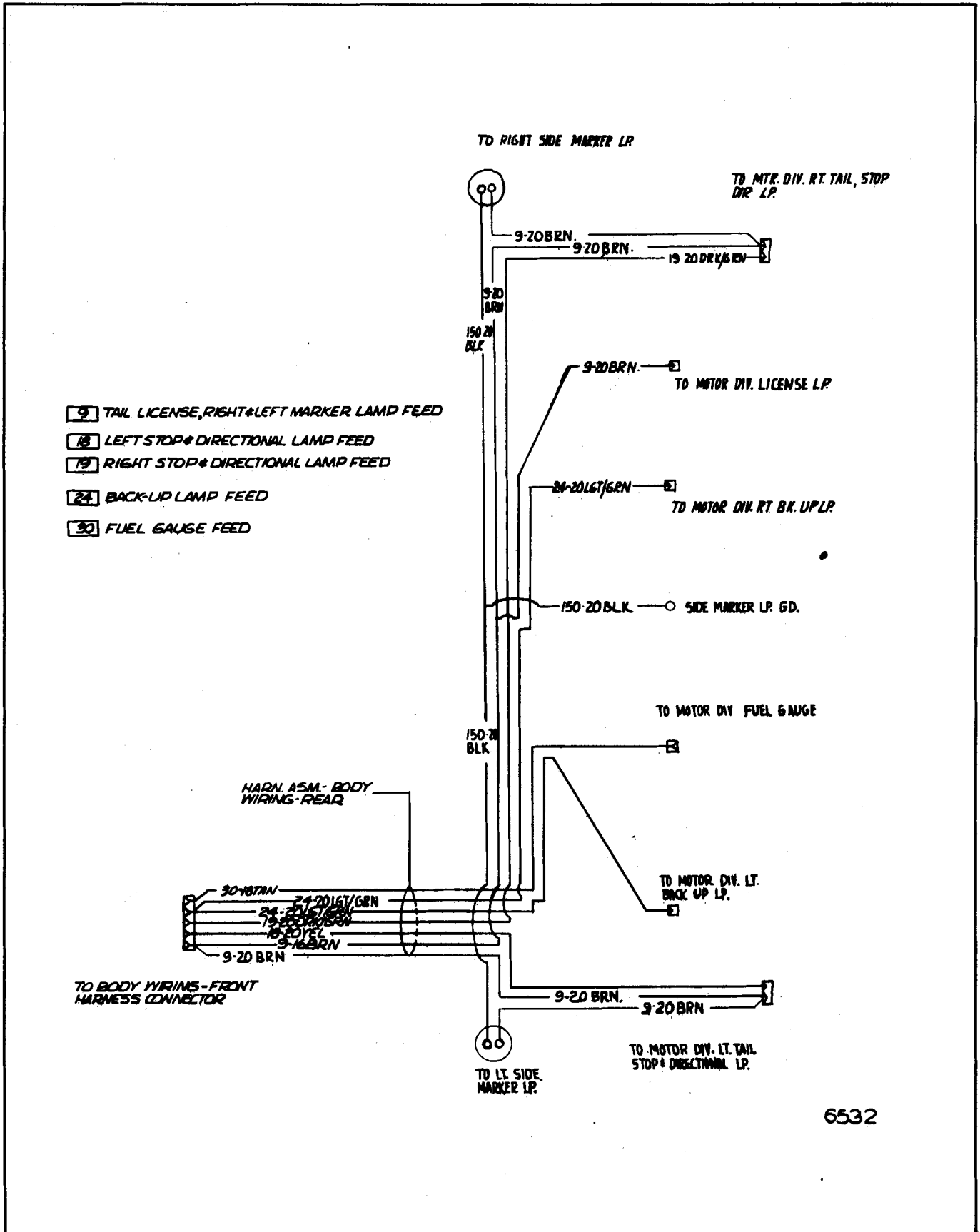


Fig. 15-83-Rear Harness Circuit Diagram - Chevrolet "B" Styles



6530

Fig. 15-89-Front Harness Circuit Diagram - Oldsmobile "A-67" Styles



6532

Fig. 15-90-Rear Harness Circuit Diagram - Oldsmobile "A" Styles - Less Station Wagon

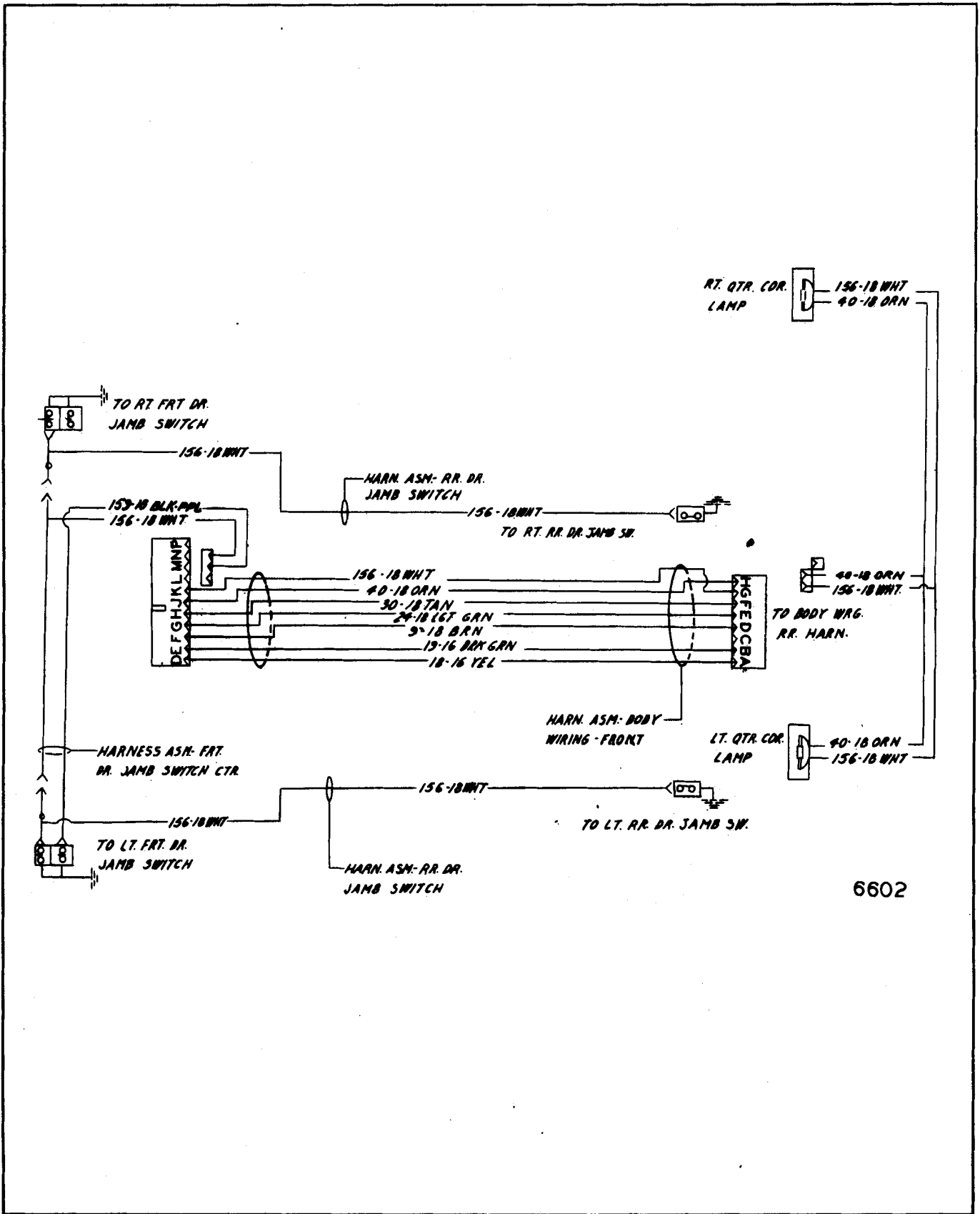
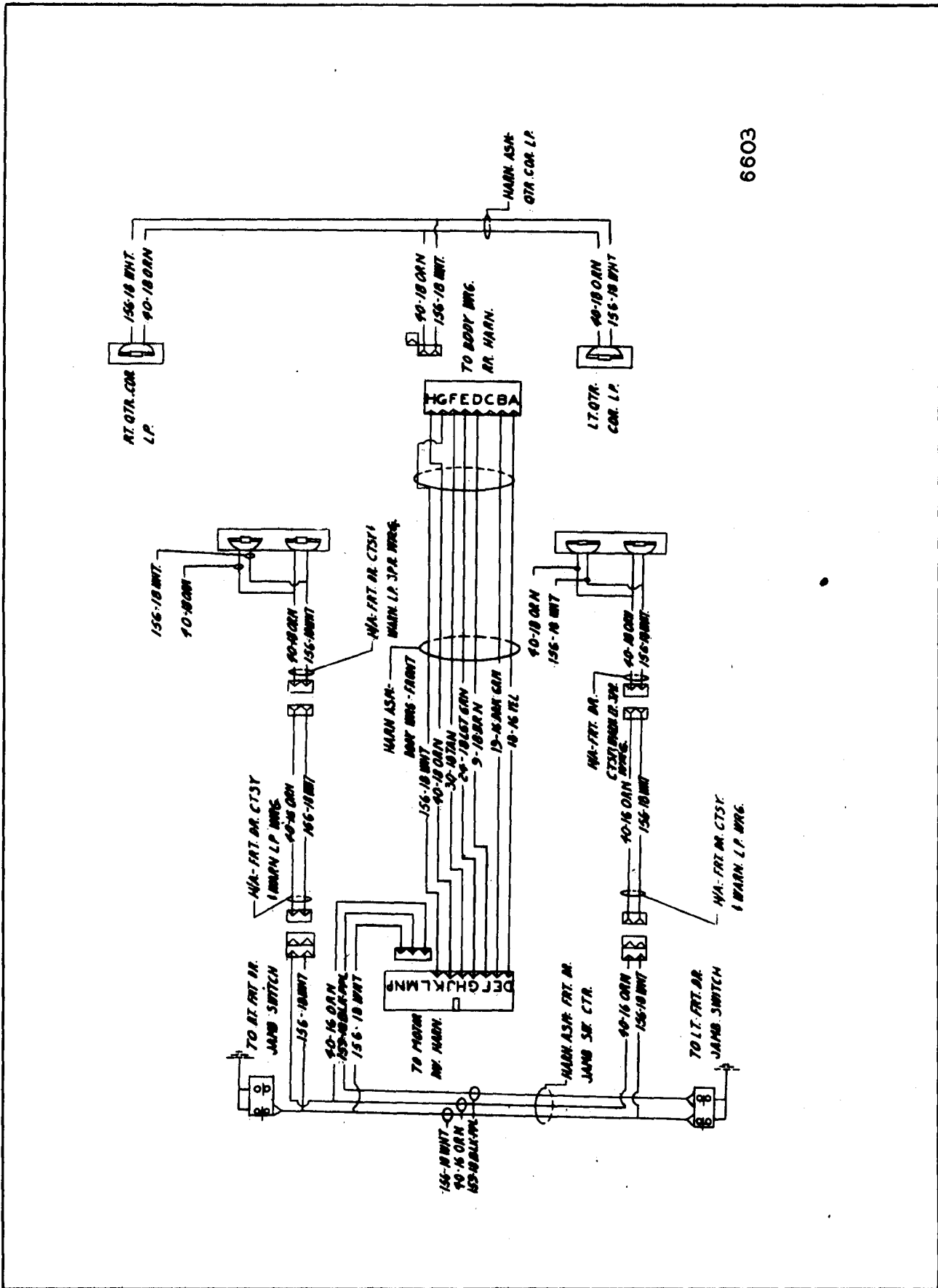
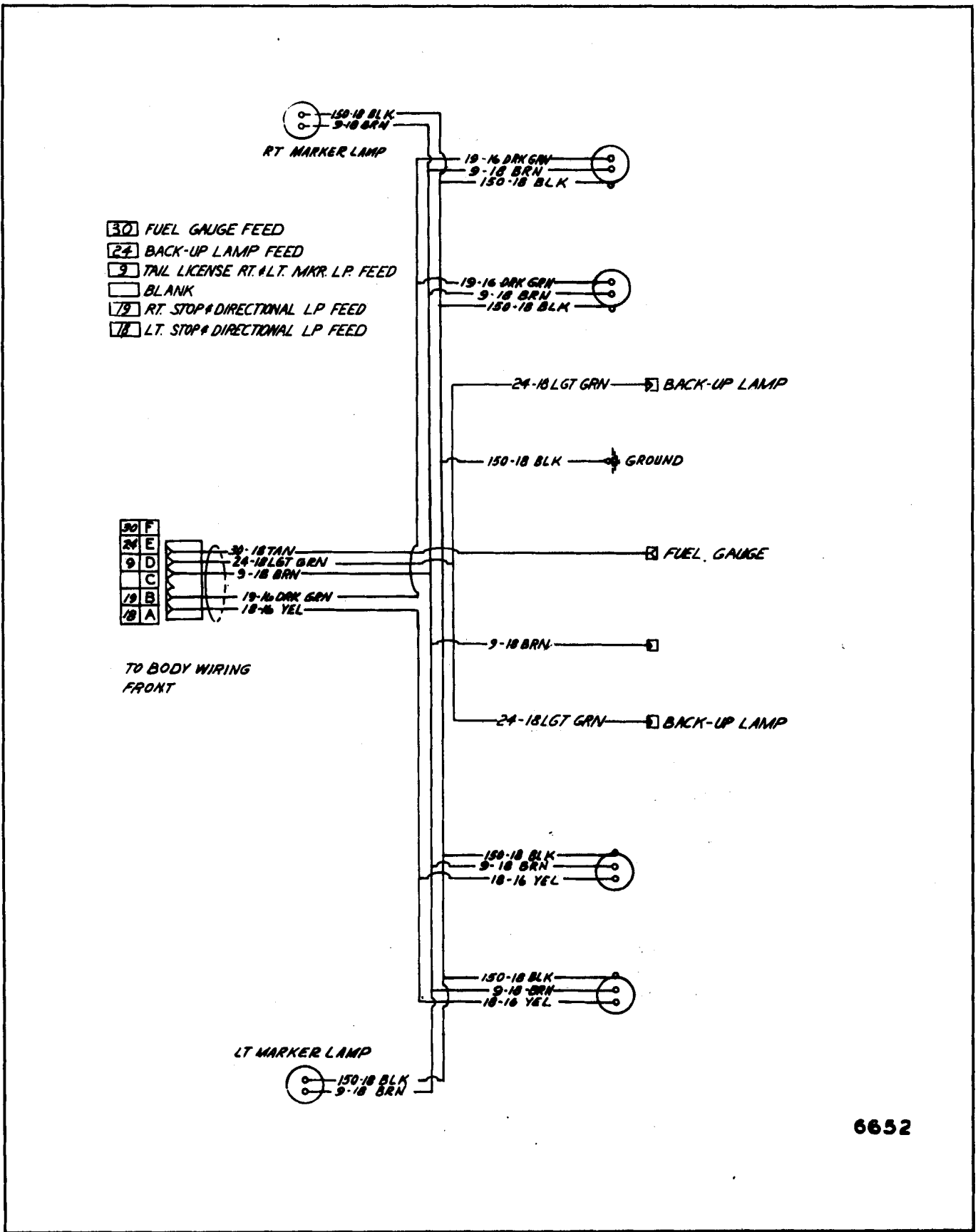


Fig. 15-91-Front Harness Circuit Diagram - Oldsmobile "B-39-57", "C-37-39" and "E-57" Styles



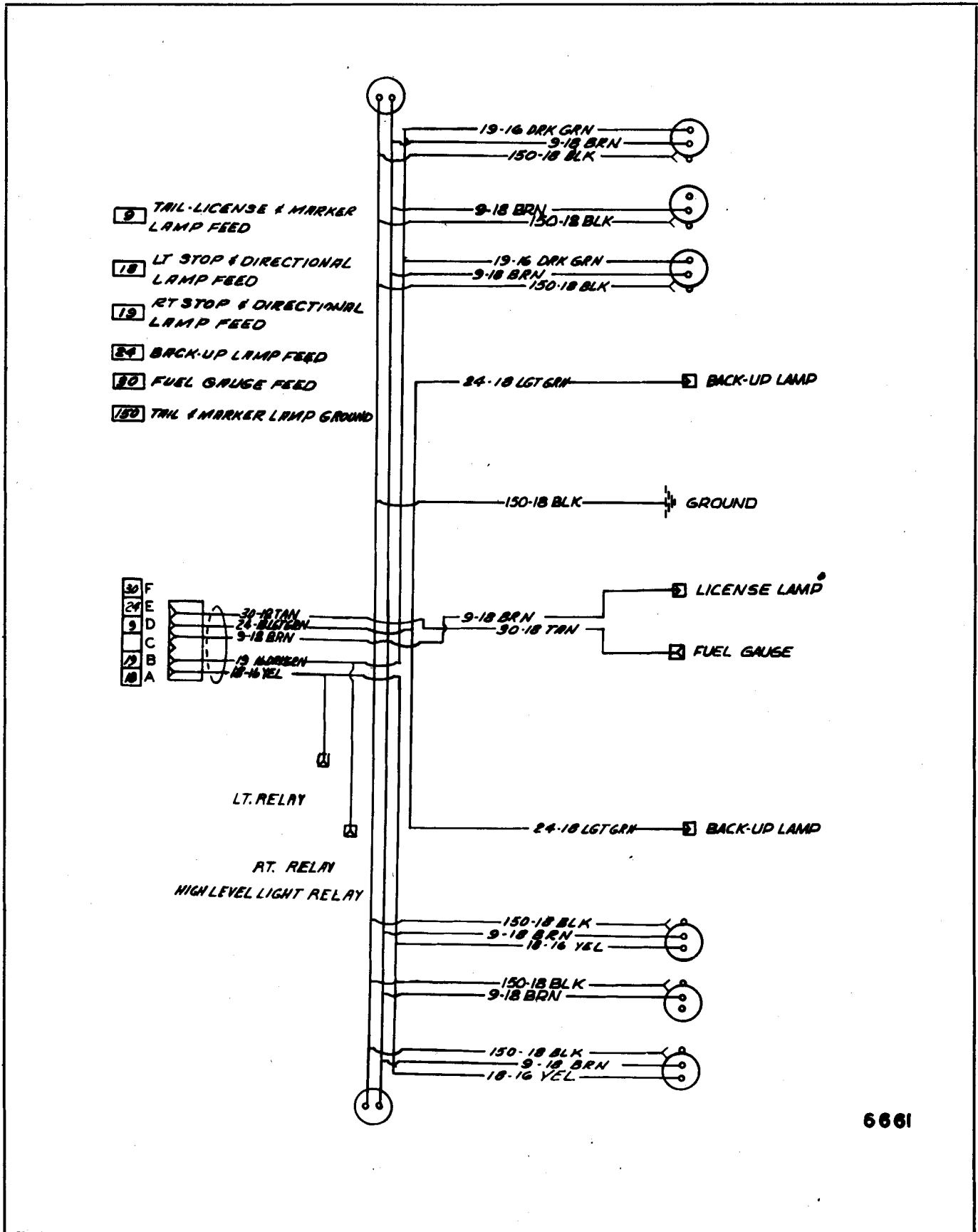
6603

Fig. 15-92-Front Harness Circuit Diagram - Oldsmobile "B-47" Styles



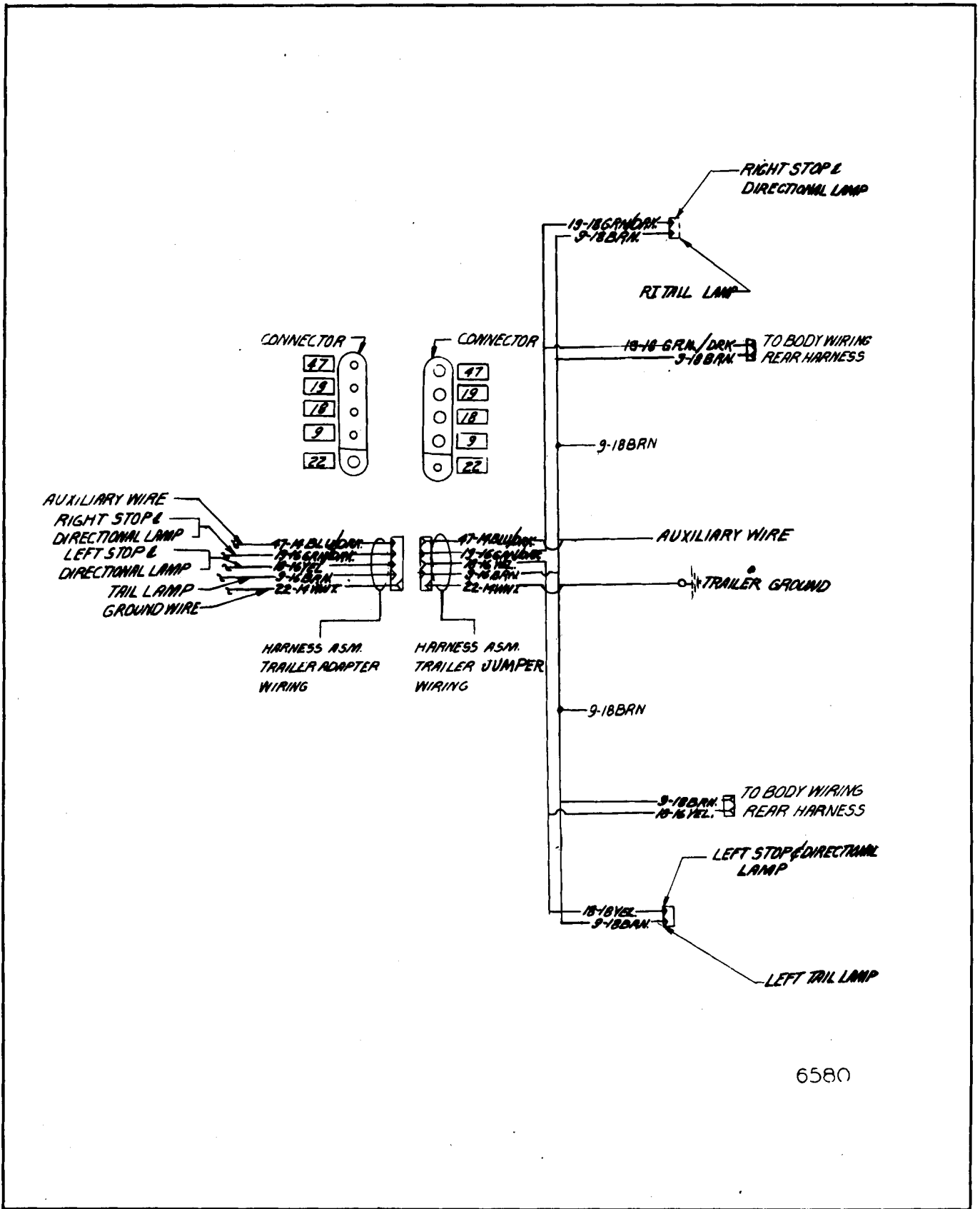
6652

Fig. 15-93-Rear Harness Circuit Diagram - Oldsmobile "B-C" Styles



6661

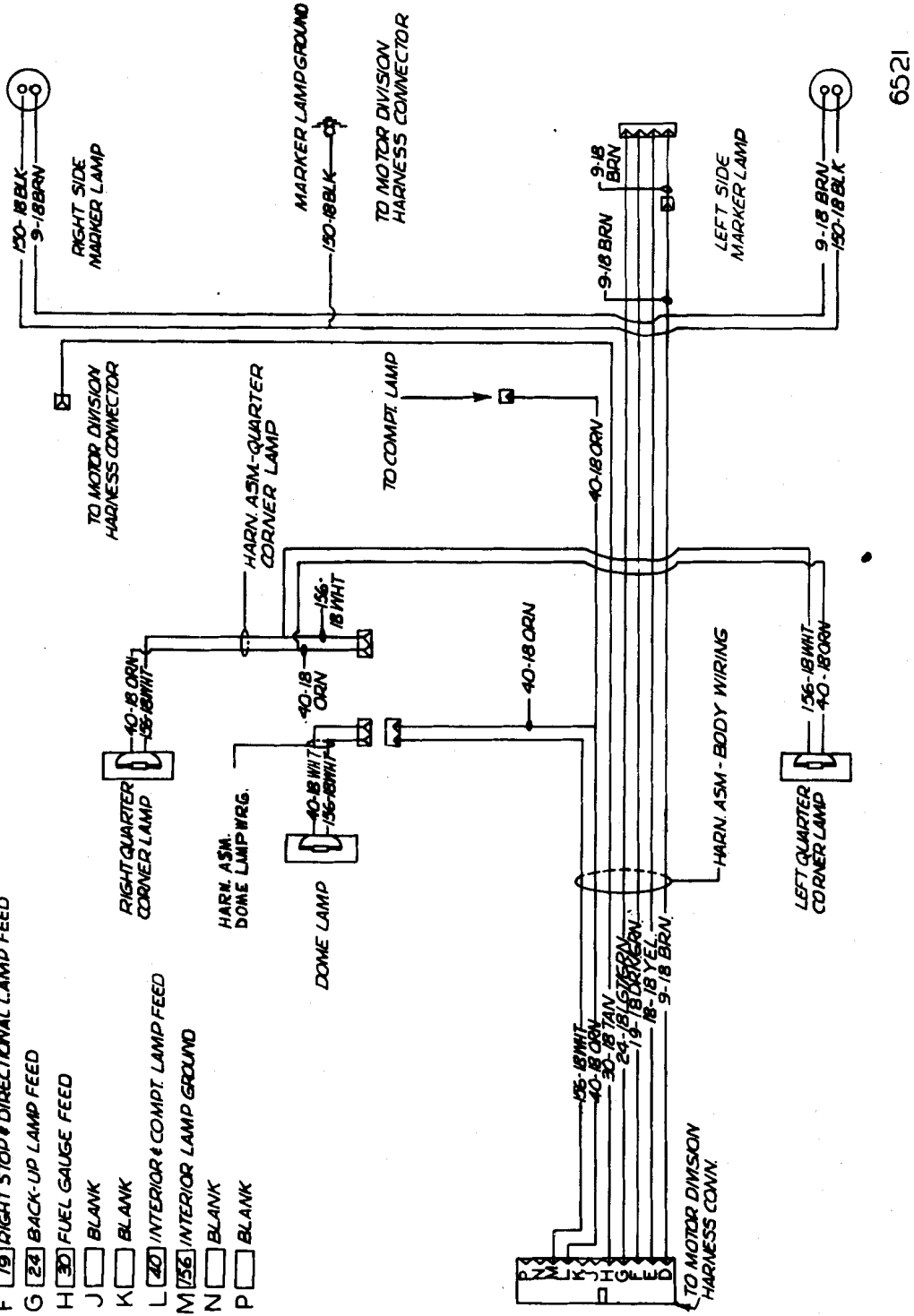
Fig. 15-94-Rear Harness Circuit Diagram - Oldsmobile "E" Styles



6580

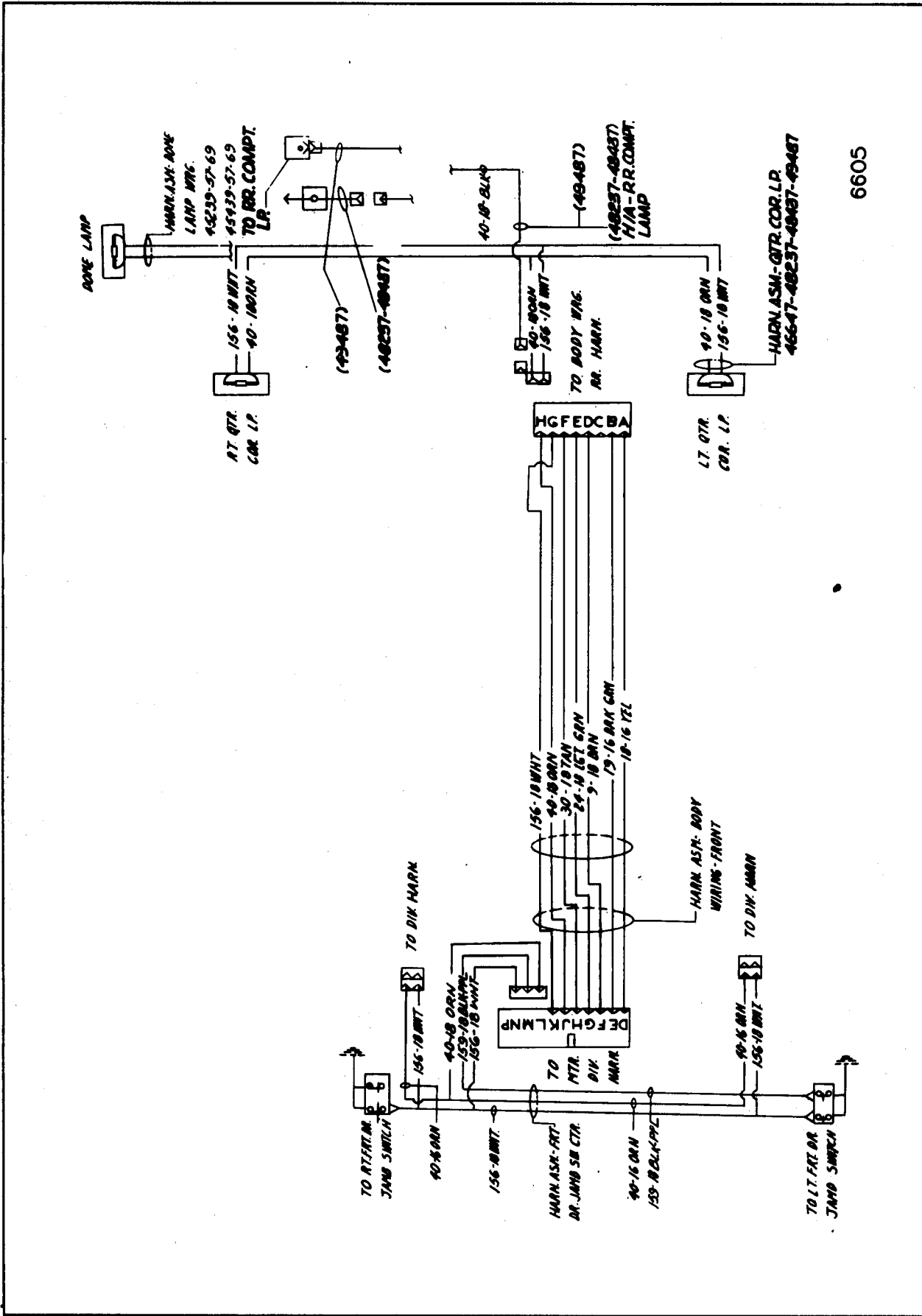
Fig. 15-95-Trailer Adapter Harness Circuit Diagram - Oldsmobile "A" Styles - Less Station Wagon

- D 9 TAIL, LICENSE, RIGHT & LEFT MARKER LAMP FEED
- E 18 LEFT STOP & DIRECTIONAL LAMP FEED
- F 19 RIGHT STOP & DIRECTIONAL LAMP FEED
- G 24 BACK-UP LAMP FEED
- H 30 FUEL GAUGE FEED
- J BLANK
- K BLANK
- L 20 INTERIOR & COMPT. LAMP FEED
- M 156 INTERIOR LAMP GROUND
- N BLANK
- P BLANK



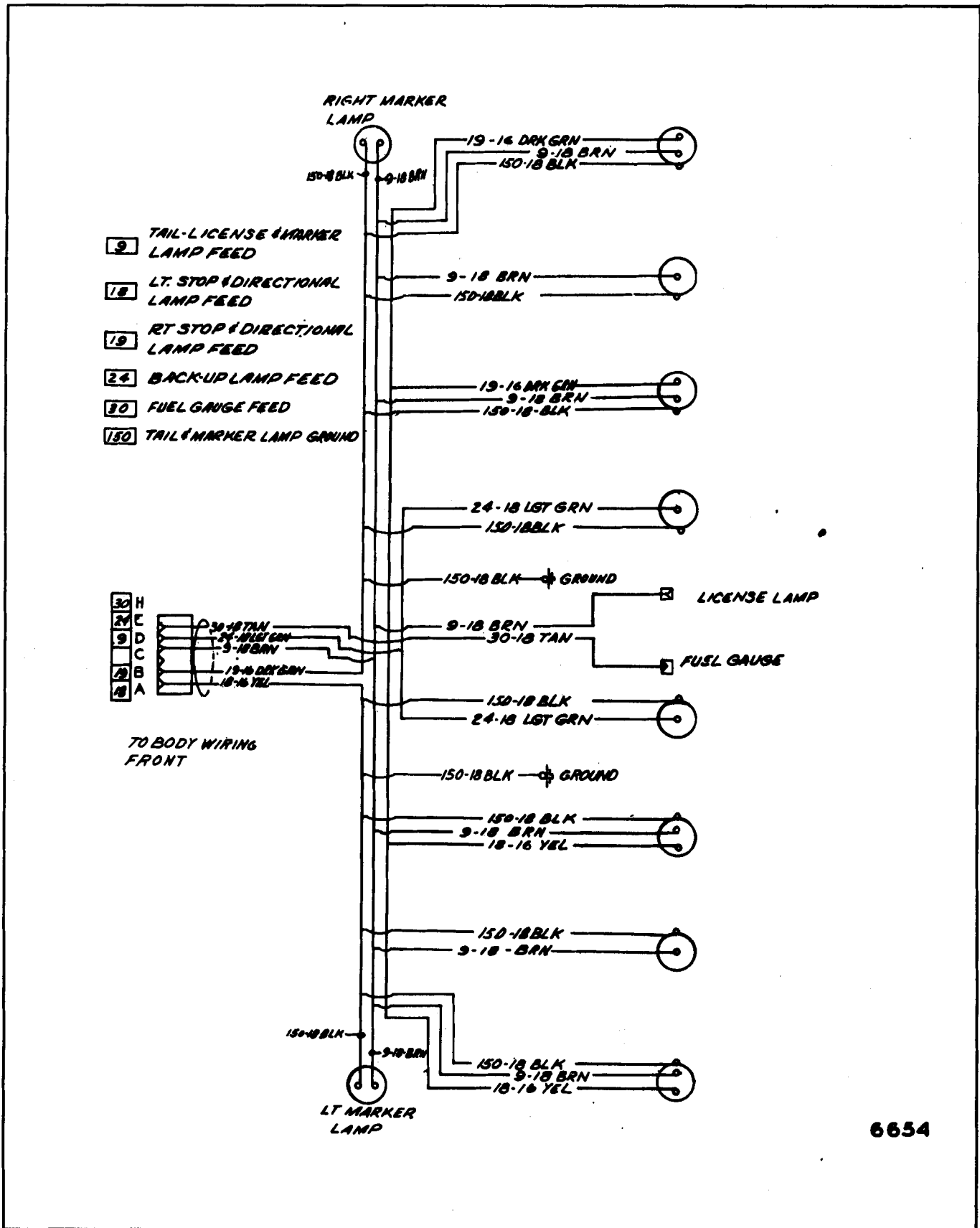
6521

Fig. 15-96-Front Harness Circuit Diagram - Buick "A" Styles - Less Station Wagon and Convertible



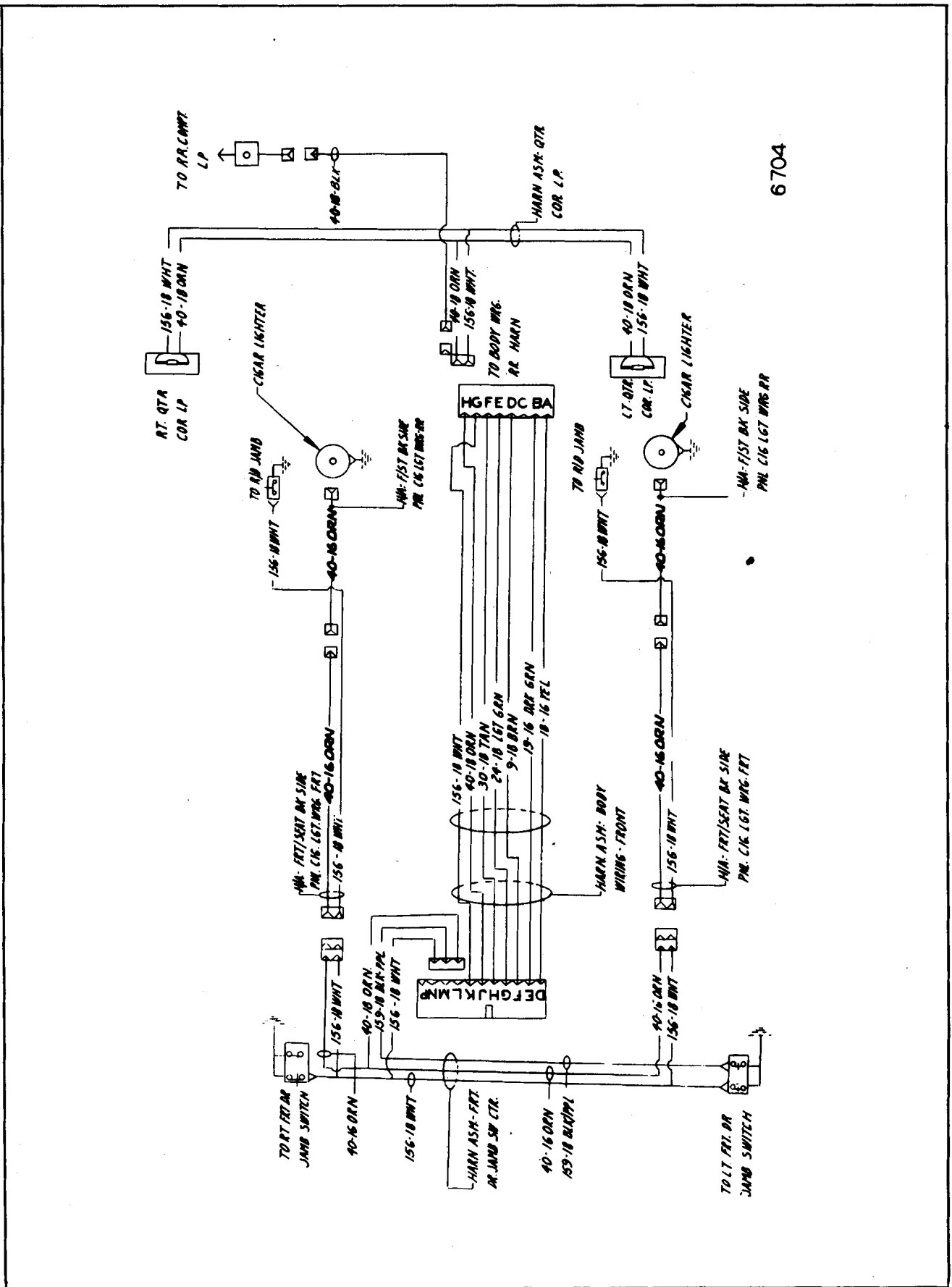
6605

Fig. 15-98-Front Harness Circuit Diagram - Buick "B-C-E" Styles - Less Station Wagon and Convertible



6654

Fig. 15-100-Rear Harness Circuit Diagram - Buick "B" Styles - Less Station Wagon



6704

Fig. 15-101-Front Harness Circuit Diagram - Buick 48439 Styles

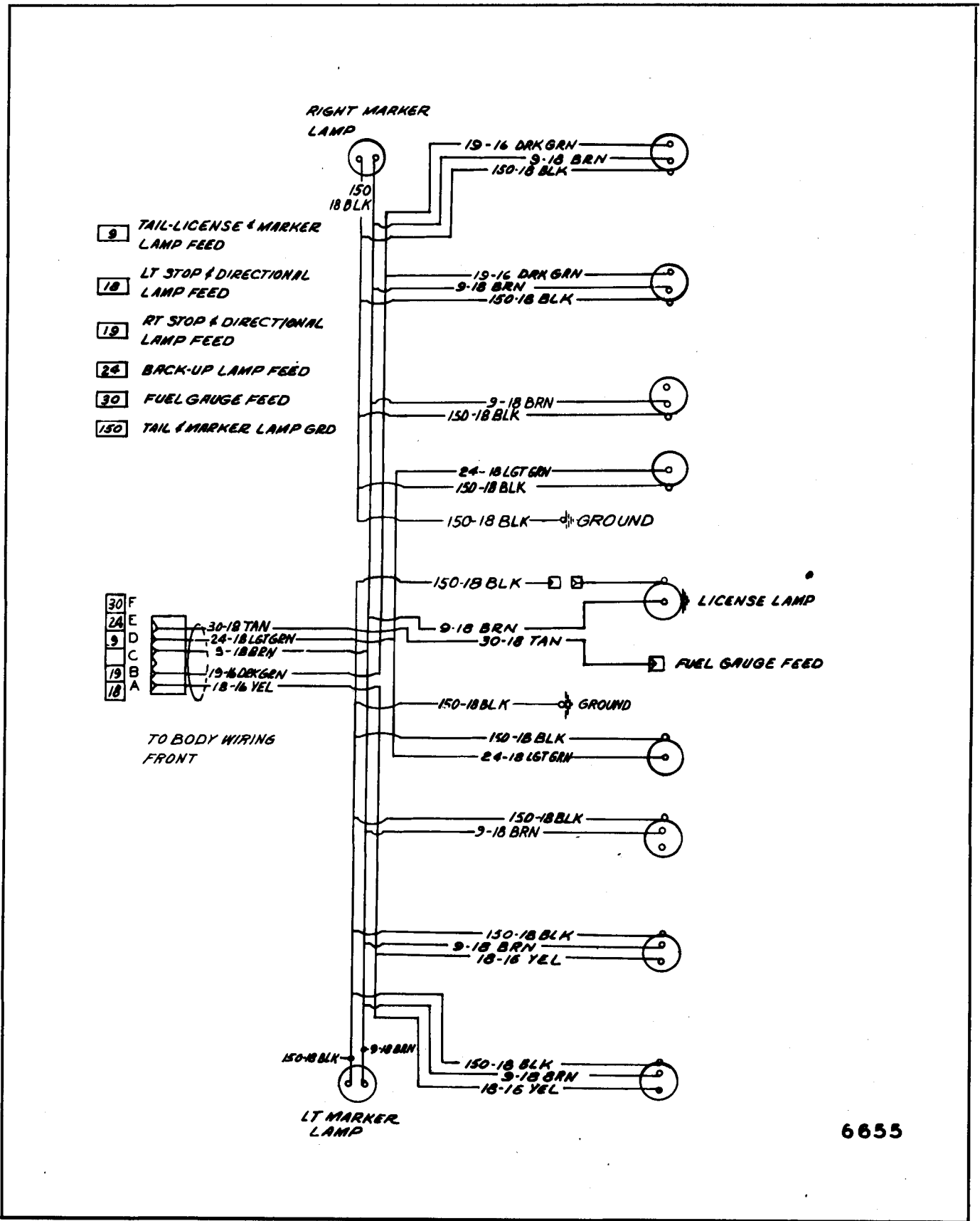


Fig. 15-102-Rear Harness Circuit Diagram - Buick "C" Styles

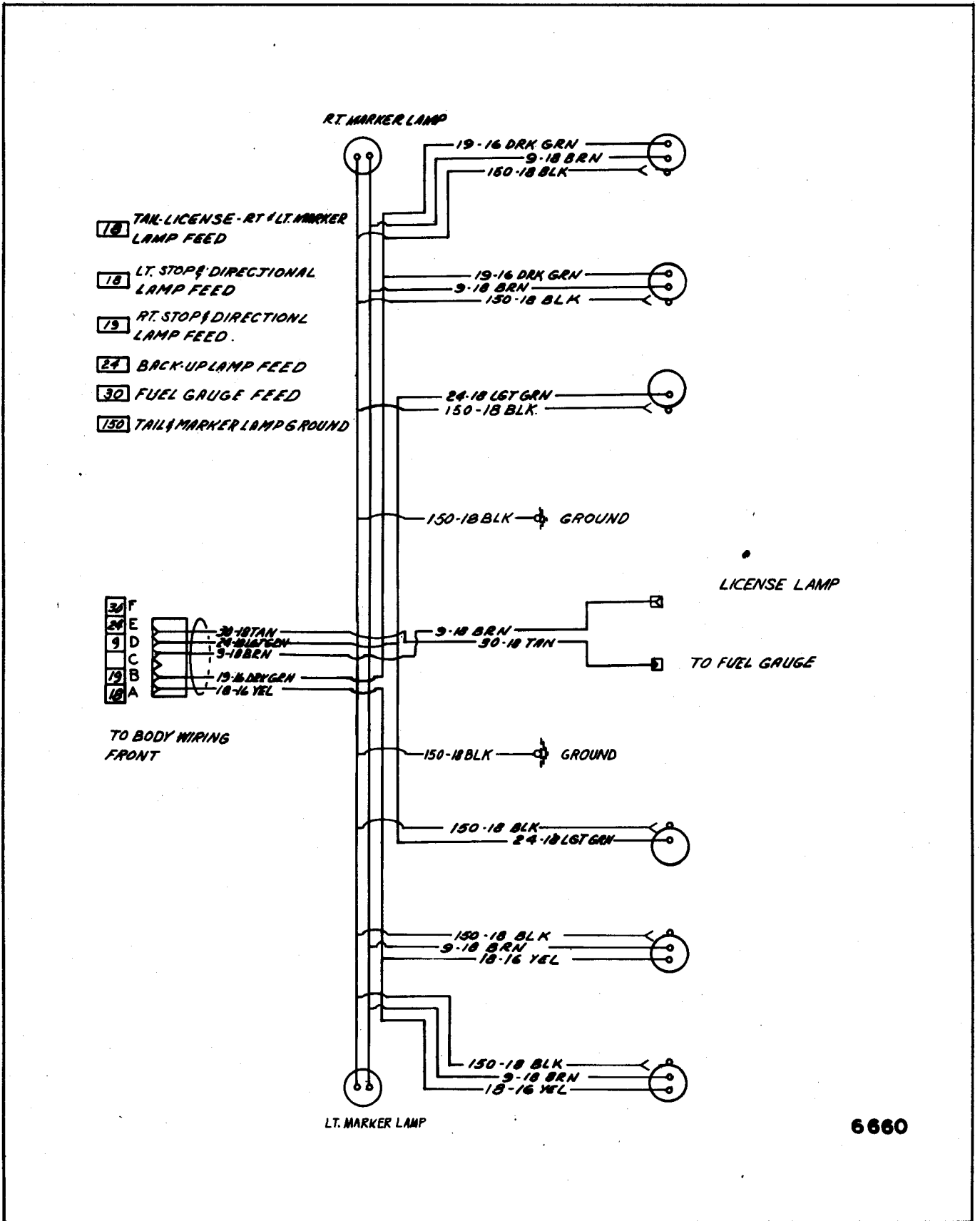


Fig. 15-103-Rear Harness Circuit Diagram - Buick "E" Styles

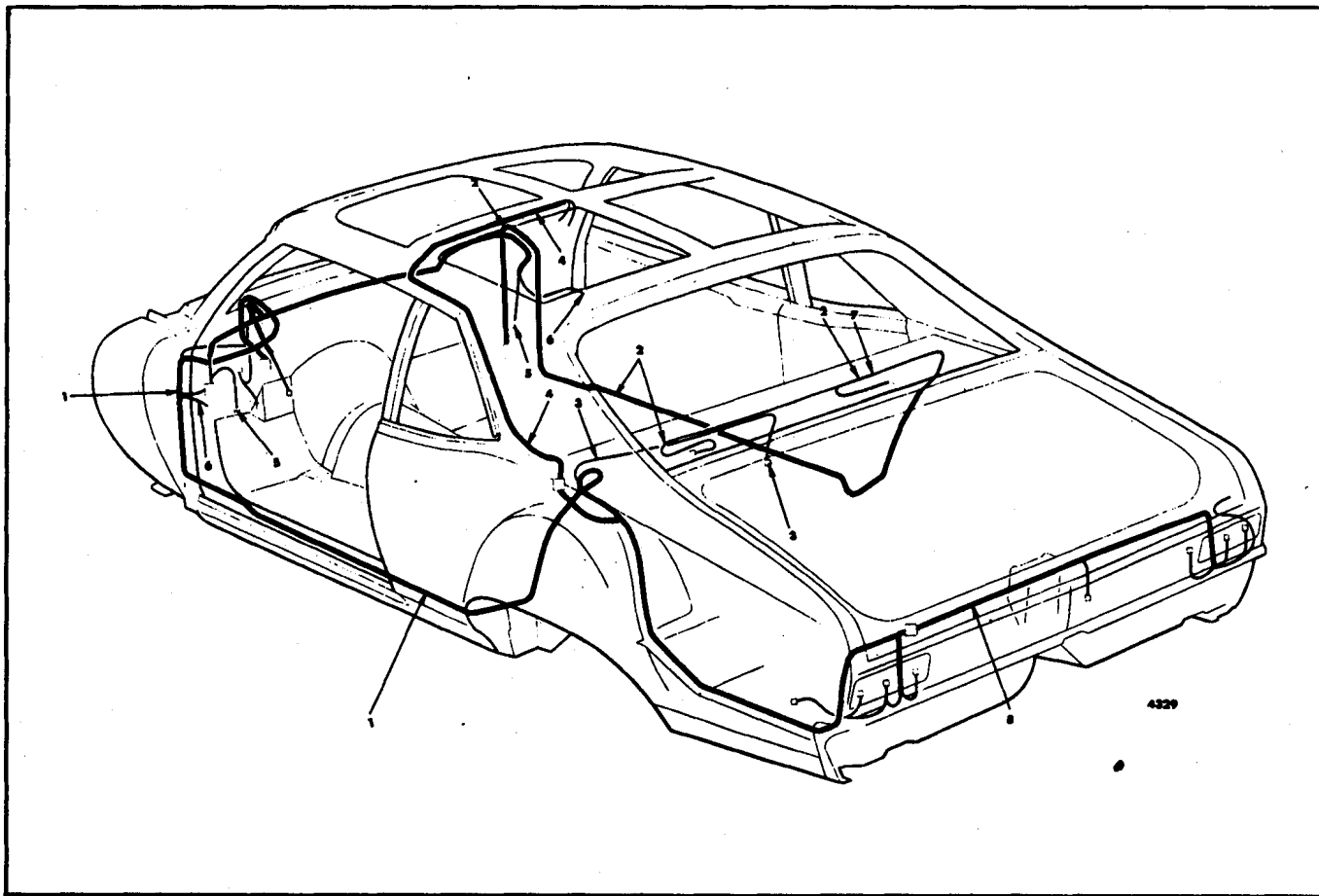


Fig. 15-116-Body Wire Routing - Chevrolet "X-27" Style

1. Front Body Harness
2. Rear Stereo Speaker
Harness

3. Rear Window
Defogger Harness
4. Dome Lamp Harness

5. Courtesy Lamp
Harness
6. Door Jamb Switch
Harness

7. Rear Speaker Harness
8. Rear Body Harness

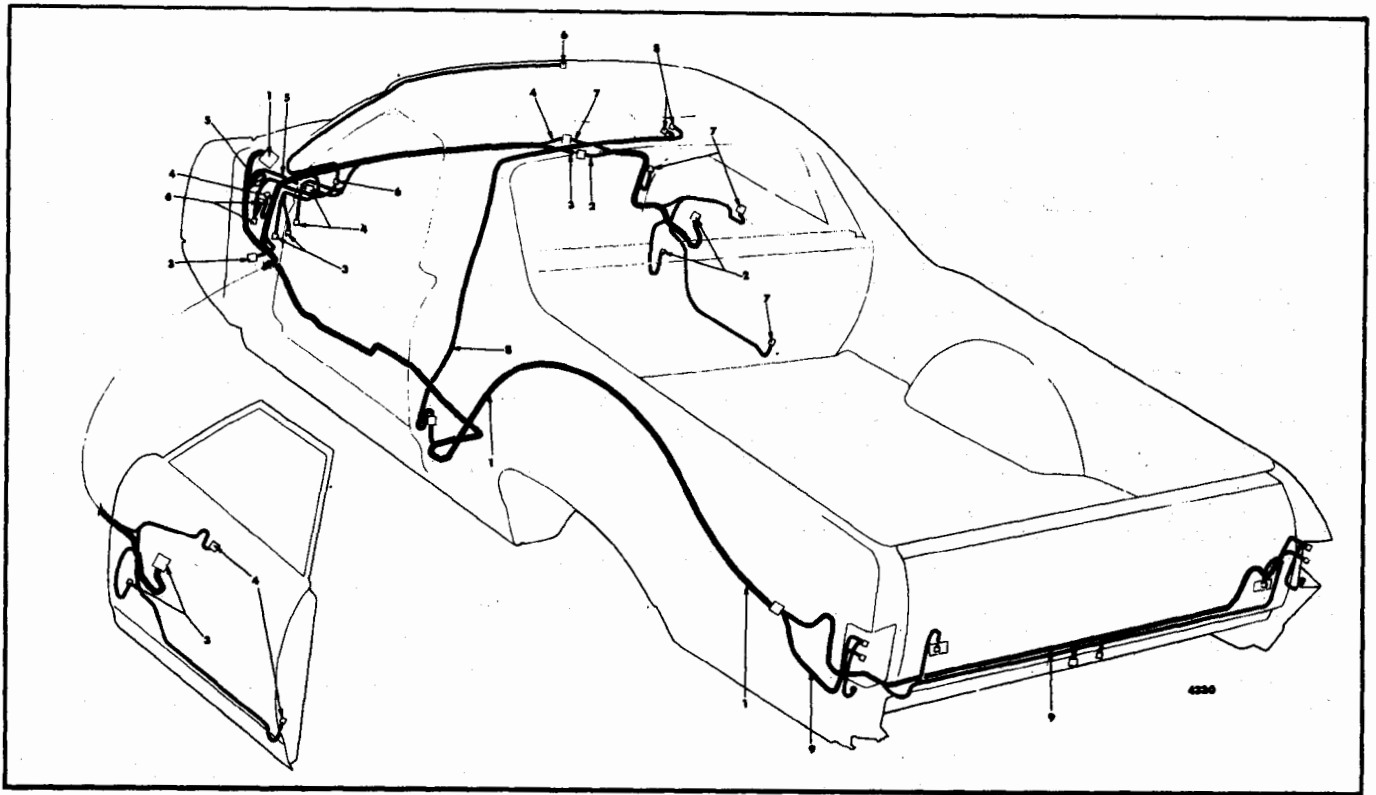


Fig. 15-117-Body Wire Routing - Chevrolet "A-80" Style

- | | | | |
|--|--|--|---|
| 1. Front Body Harness | 3. Left Front Door Window Control Harness | 5. Seat Back Lock Harness | 7. Right Front Door Lock and Seat Back Lock Harness |
| 2. Right Front Door Window Control Harness | 4. Left Front Door Lock and Seat Back Lock Harness | 6. Rear View Mirror Map Lamp Feed Wire | 8. Dome Lamp Harness |
| | | | 9. Rear Body Harness |

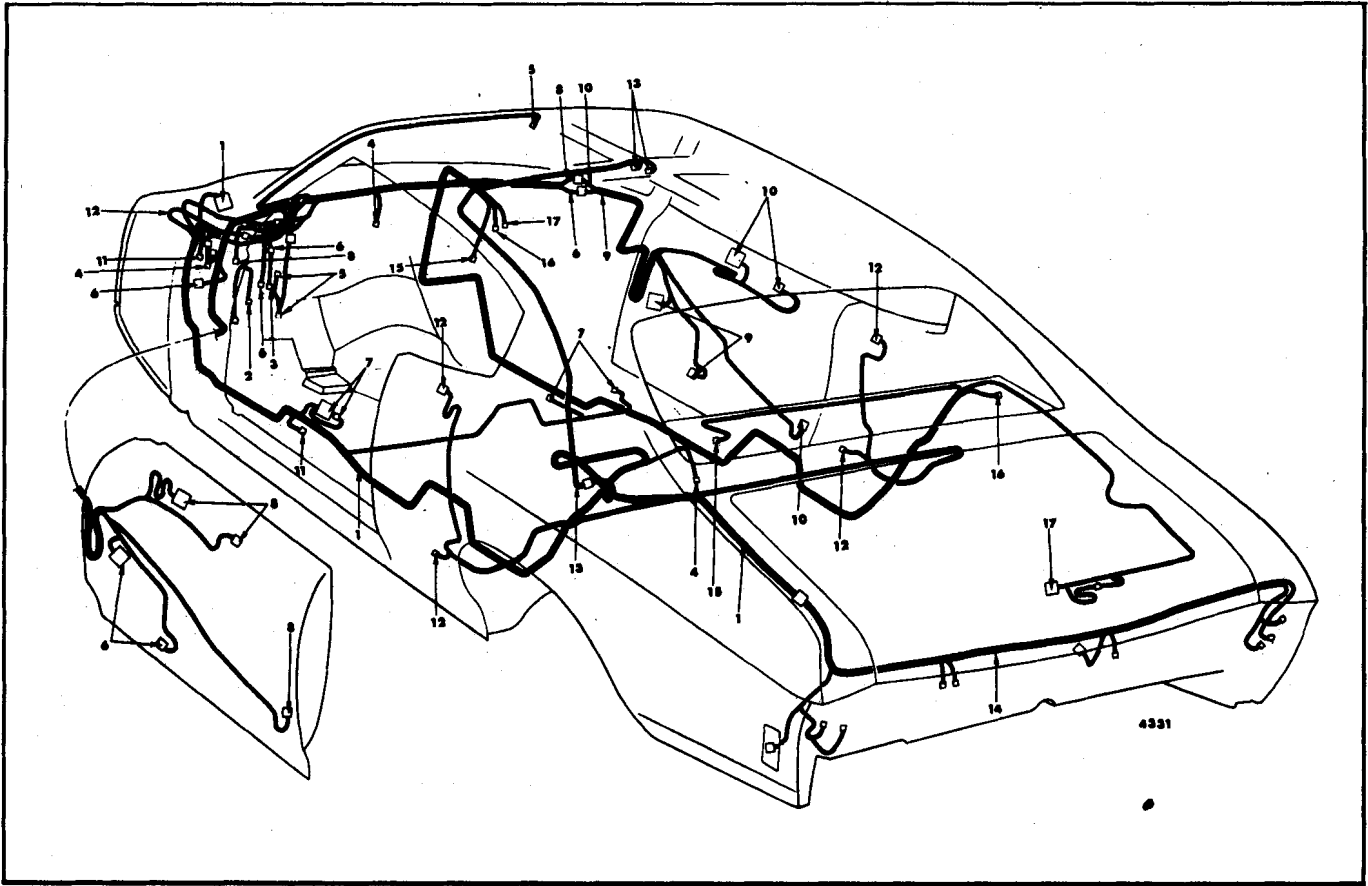


Fig. 15-118-Body Wire Routing - Chevrolet "A-37-57" Styles

- | | | | |
|--|--|--|--|
| 1. Front Body Harness | 6. Left Front Door Window Control Harness | 9. Right Front Door Window Control Harness | 12. Quarter Window Control Harness |
| 2. Power Option Feed | 7. Seat Back Lock Harness | 10. Right Front Door Lock and Seat Back Lock Harness | 13. Dome Lamp Harness |
| 3. Ignition Feed | 8. Left Front Door Lock and Seat Back Lock Harness | 11. Seat Adjuster Harness | 14. Rear Body Harness |
| 4. Rear Window Defogger Harness | | | 15. Rear Stereo Speaker Harness |
| 5. Rear View Mirror Map Lamp Feed Wire | | | 16. Rear Speaker Harness |
| | | | 17. Rear Compartment Lid Release Harness |

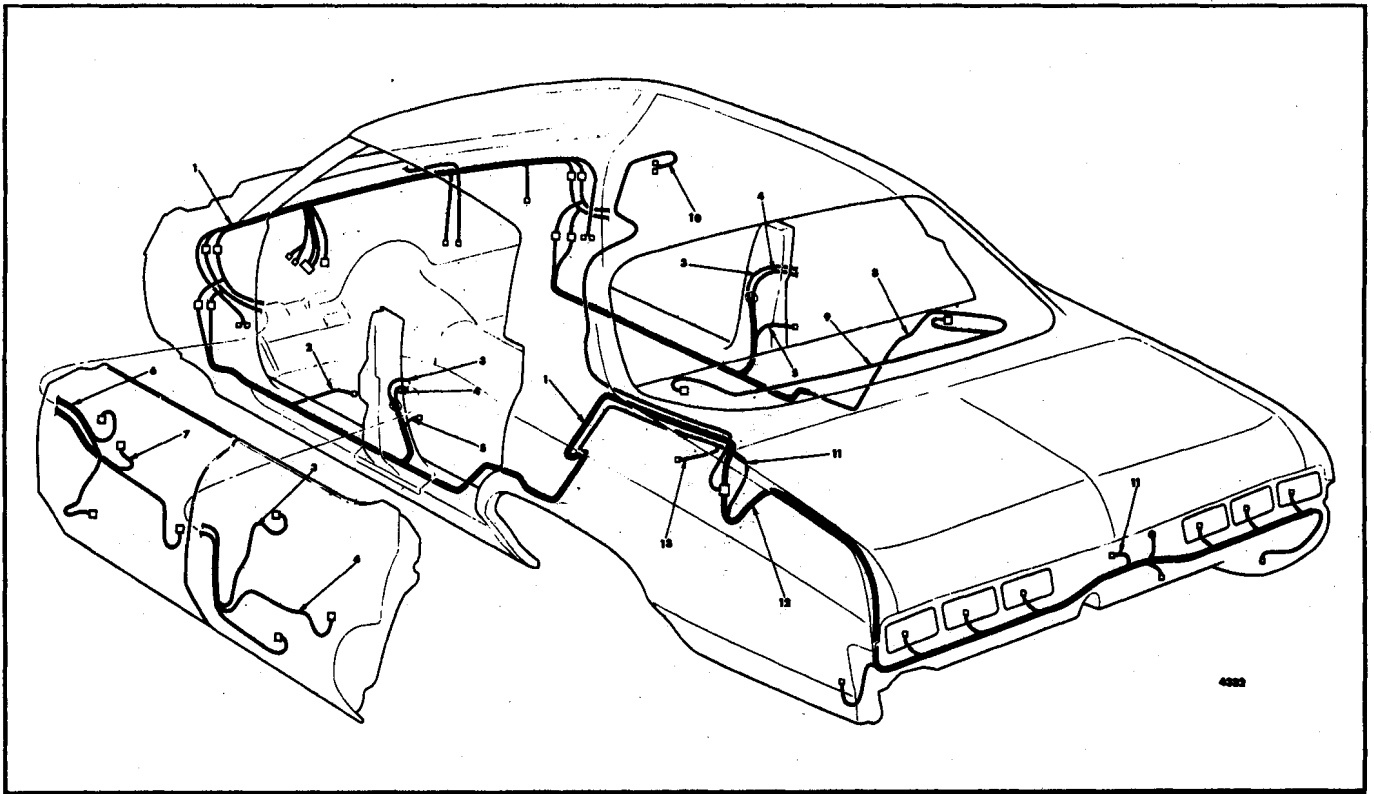


Fig. 15-119-Body Wire Routing - Chevrolet "B-39" Style

- | | | | |
|--|---|-----------------------------------|---|
| 1. Front Body Harness | 5. Rear Door Jamb
Switch Harness | 7. Front Door Lock
Harness | 10. Dome Lamp Harness |
| 2. Seat Adjuster Harness | 6. Left Front Door
Window Control
Harness | 8. Rear Speaker Harness | 11. Rear Compartment
Lid Release Harness |
| 3. Rear Door Window
Control Harness | | 9. Rear Stereo Speaker
Harness | 12. Rear Body Harness |
| 4. Rear Door Lock
Harness | | | 13. Rear Window
Defogger Harness |

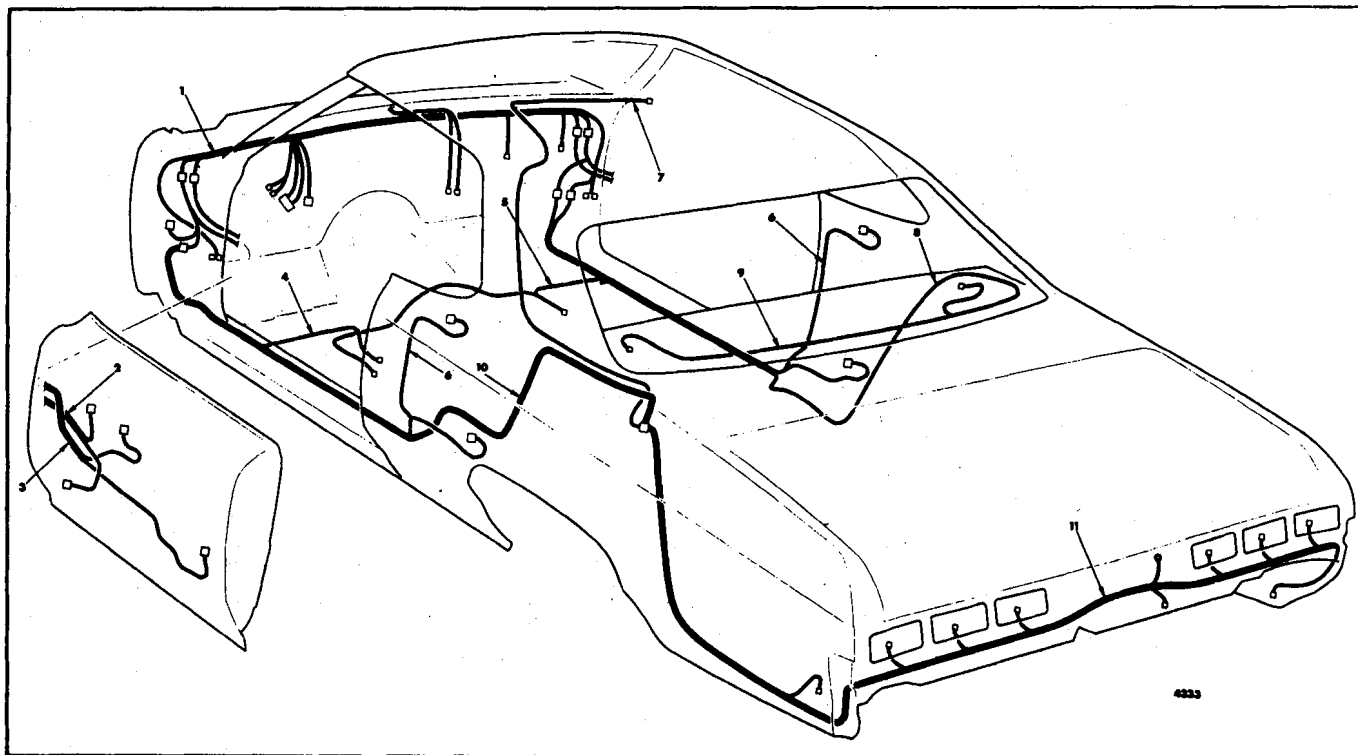


Fig. 15-120-Body Wire Routing - Chevrolet "B-47-57" Styles

- | | | | |
|---|---------------------------|-----------------------------------|--------------------------------|
| 1. Front Body Harness | 3. Door Lock Harness | 6. Quarter Window Control Harness | 9. Rear Stereo Speaker Harness |
| 2. Left Front Door Window Control Harness | 4. Seat Adjuster Harness | 7. Dome Lamp Harness | 10. Front Body Harness |
| | 5. Seat Back Lock Harness | 8. Rear Speaker Harness | 11. Rear Body Harness |

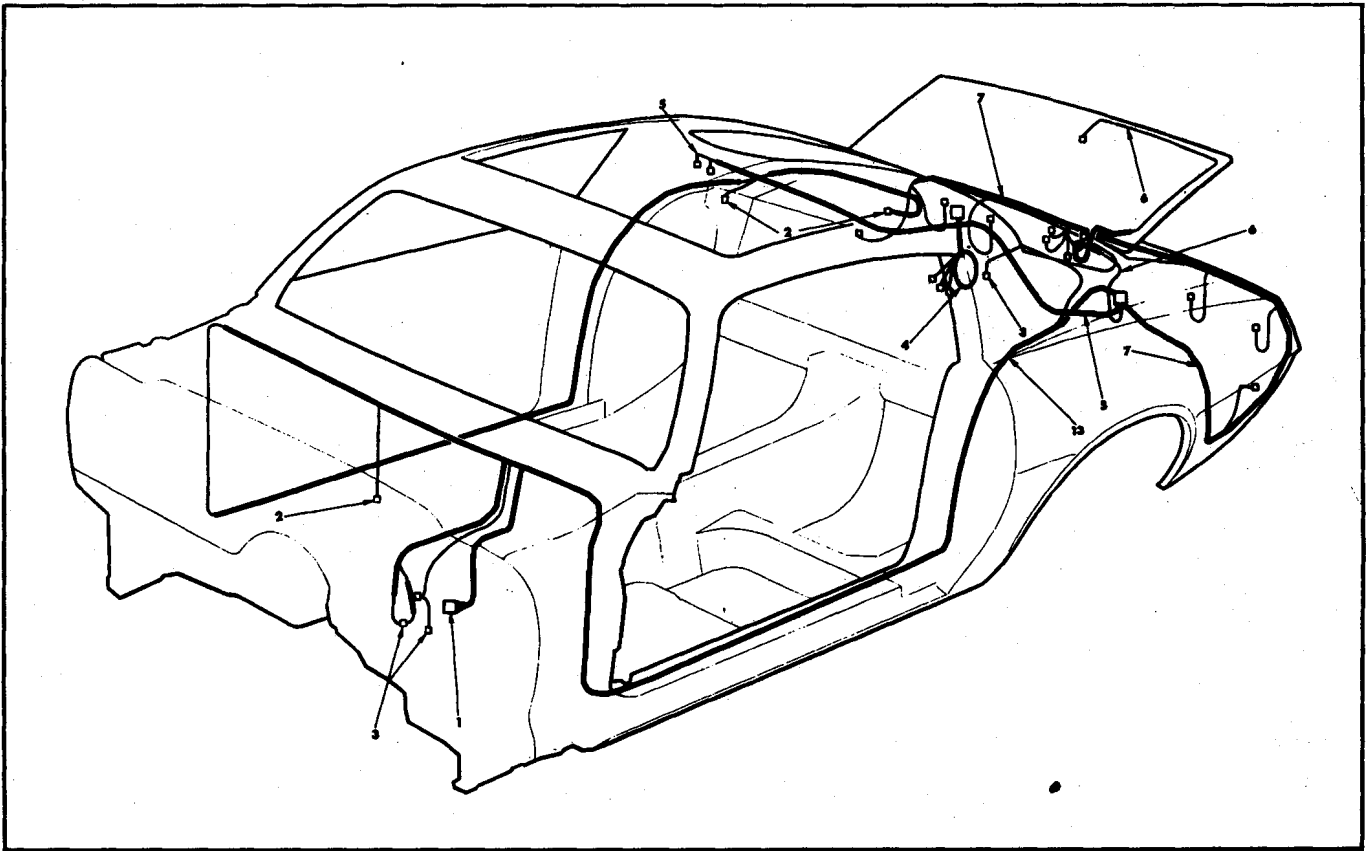


Fig. 15-121-Body Wire Routing - Chevrolet "F" Style

- | | | | |
|-------------------------|---------------------------------|---------------------------|--------------------------------------|
| 1. Front Body Harness | 3. Rear Window Defogger Harness | 4. Fiber Optics Conductor | 6. Rear Compartment Lid Lamp Harness |
| 2. Rear Speaker Harness | | 5. Dome Lamp Harness | 7. Rear Body Harness |

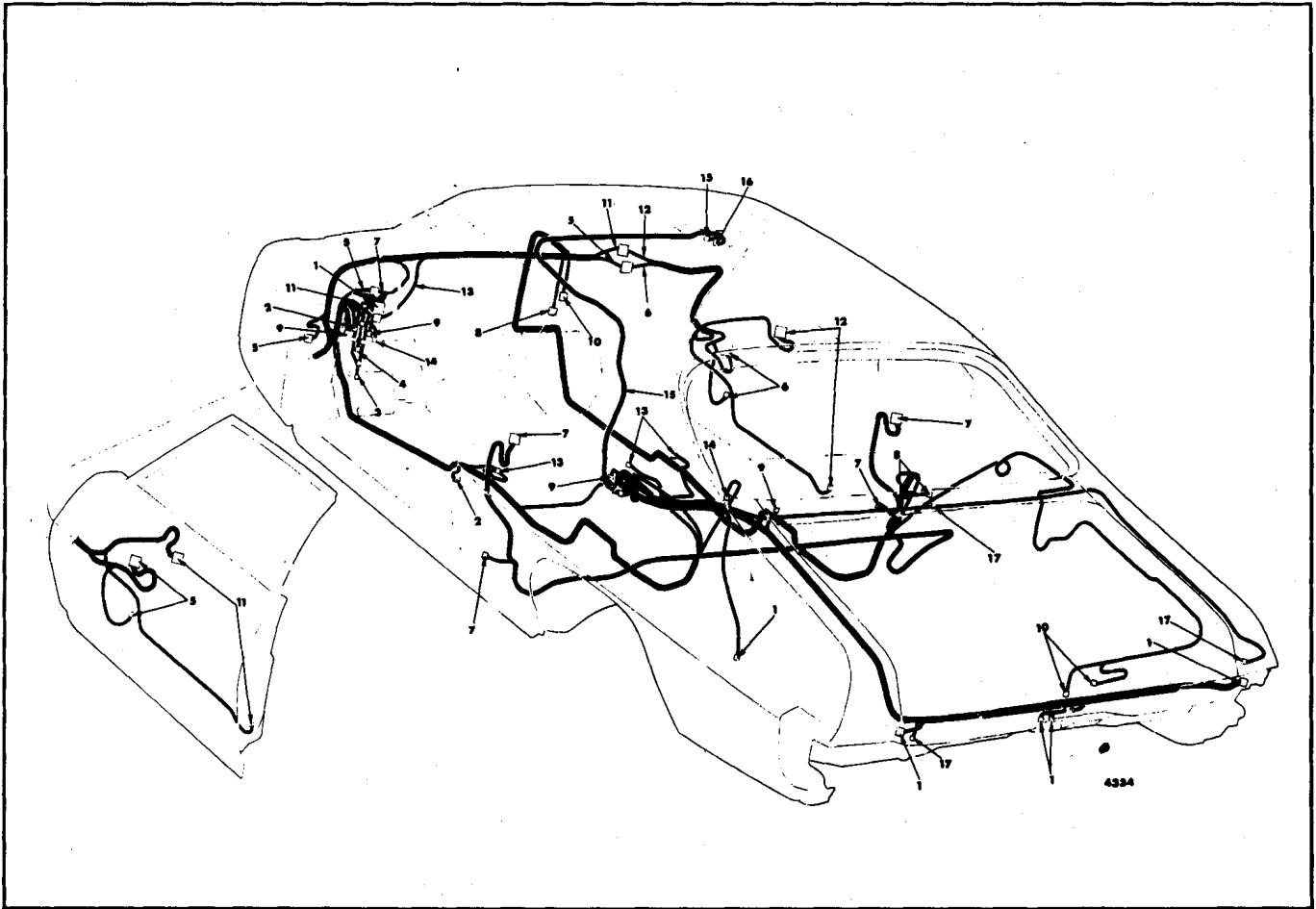


Fig. 15-122-Body Wire Routing - Pontiac "A-27" Style

- | | | | |
|---|--|--|-------------------------------------|
| 1. Body Wire Harness | 6. Right Front Door Window Control Harness | 10. Rear Compartment Lid Release Harness | 13. Seat Back Lock Front Harness |
| 2. Seat Adjuster Harness | 7. Quarter Window Control Harness | 11. Left Front Door Lock and Seat Back Lock Harness | 14. Rear Window Defogger Harness |
| 3. Power Option Feed | 8. Rear Speaker Harness | 12. Right Front Door Lock and Seat Back Lock Harness | 15. Dome Lamp Harness |
| 4. Ignition Feed | 9. Heated Back Window Harness | | 16. Dome and Leading Lamp Harness |
| 5. Left Front Door Window Control Harness | | | 17. Fiber Optic Rear Lamp Conductor |

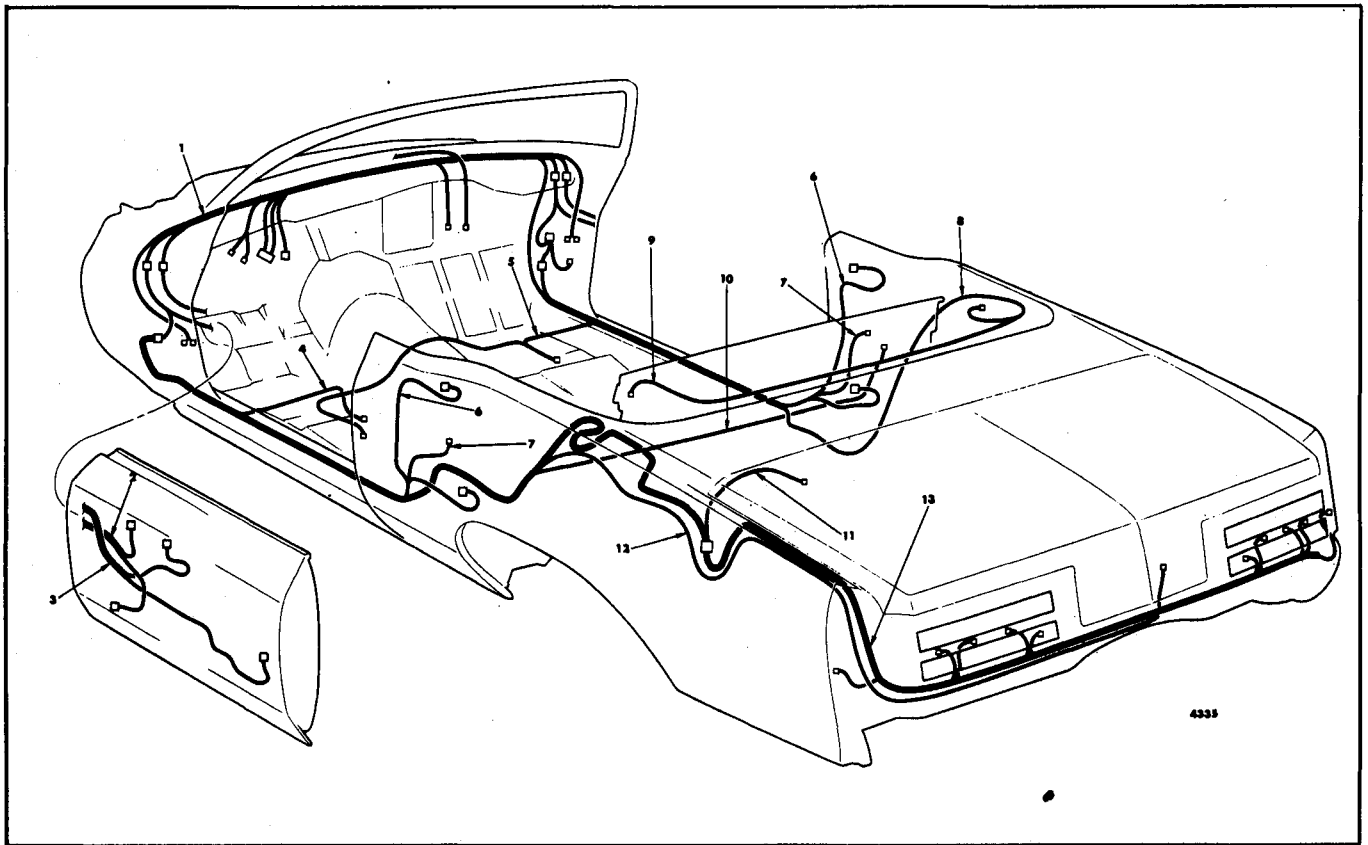


Fig. 15-123-Body Wire Routing - Pontiac "B-67" Style

- | | | | |
|---|--------------------------------------|-------------------------------------|---|
| 1. Front Body Harness | 4. Seat Adjuster Harness | 7. Quarter Courtesy
Lamp Harness | 11. Rear Compartment
Lamp Harness |
| 2. Left Front Door
Window Control
Harness | 5. Seat Back Lock
Harness | 8. Rear Speaker Harness | 12. Rear Compartment
Lid Release Harness |
| 3. Door Lock Wire
Harness | 6. Quarter Window
Control Harness | 9. Rear Stereo Speaker
Harness | 13. Rear Body Harness |
| | | 10. Folding Top Harness | |

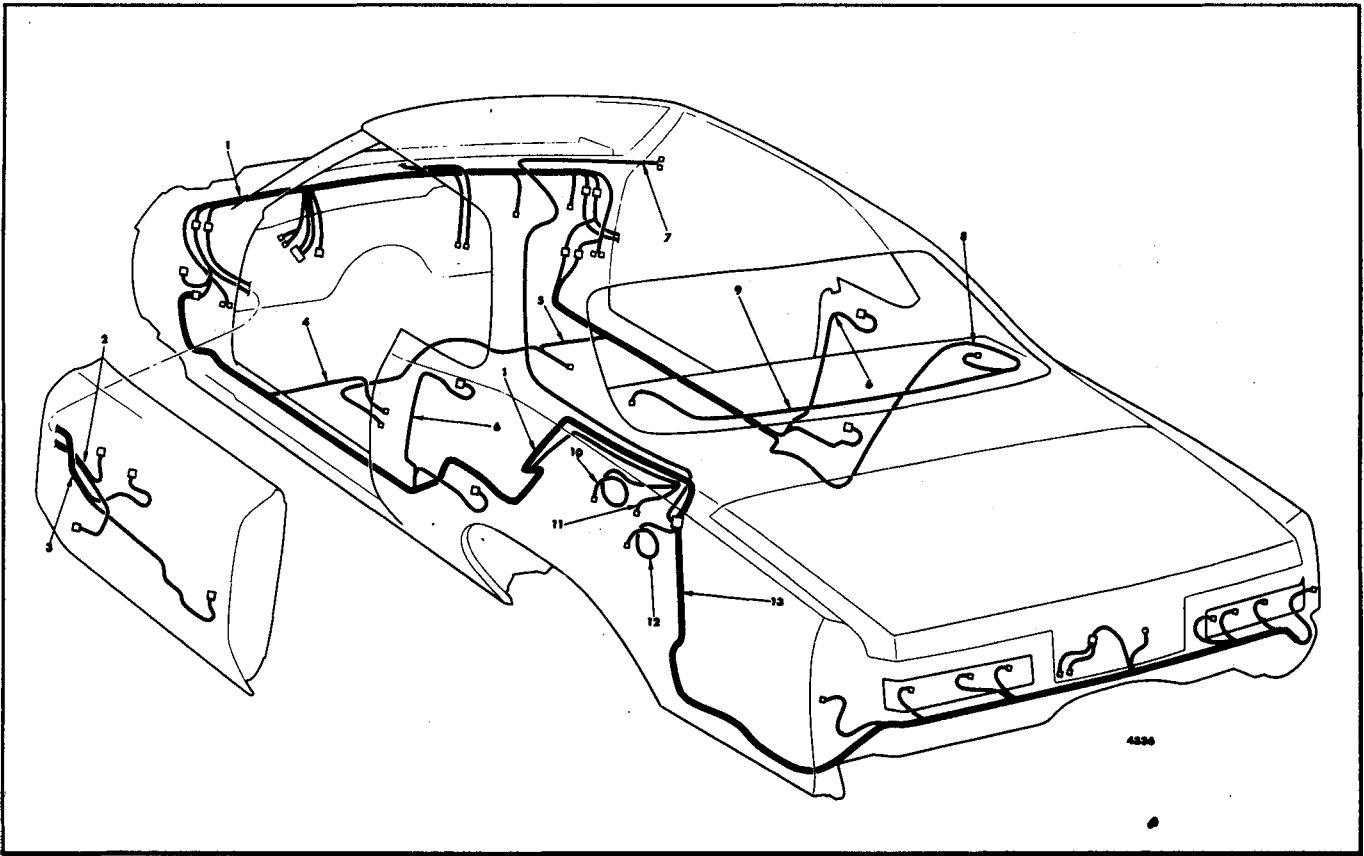


Fig. 15-124-Body Wire Routing - Pontiac "B-47" Style

- | | | | |
|---|-----------------------------------|--|---------------------------------------|
| 1. Front Body Harness | 5. Seat Back Lock Harness | 8. Rear Speaker Harness | 11. Heated Back Window Harness |
| 2. Left Front Door Window Control Harness | 6. Quarter Window Control Harness | 9. Rear Stereo Speaker Harness | 12. Rear Compartment Lid Lamp Harness |
| 3. Door Lock Harness | 7. Dome and Reading Lamp Harness | 10. Rear Compartment Lid Release Harness | 13. Rear Body Harness |
| 4. Seat Adjuster Harness | | | |

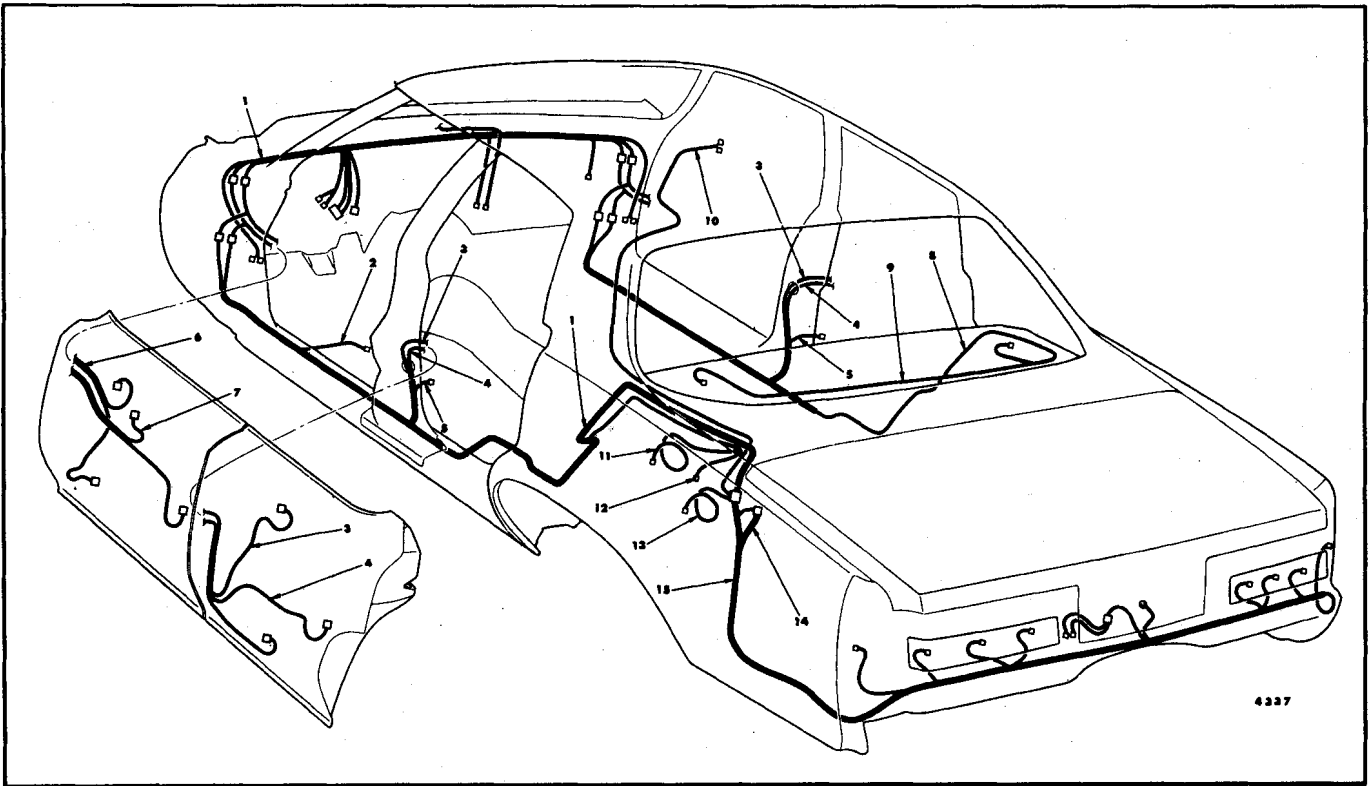


Fig. 15-125-Body Wire Routing - Pontiac "B-69" Style

- | | | | |
|-------------------------------------|---|--|-----------------------------------|
| 1. Front Body Harness | 5. Rear Door Jamb Switch Harness | 8. Rear Speaker Harness | 12. Heated Back Window Harness |
| 2. Seat Adjuster Harness | 6. Left Front Door Window Control Harness | 9. Rear Stereo Speaker Harness | 13. Rear Compartment Lamp Harness |
| 3. Rear Door Window Control Harness | 7. Front Door Lock Control Harness | 10. Dome and Reading Lamp Harness | 14. Trailer Adapter Harness |
| 4. Rear Door Lock Control Harness | | 11. Rear Compartment Lid Release Harness | 15. Rear Body Harness |

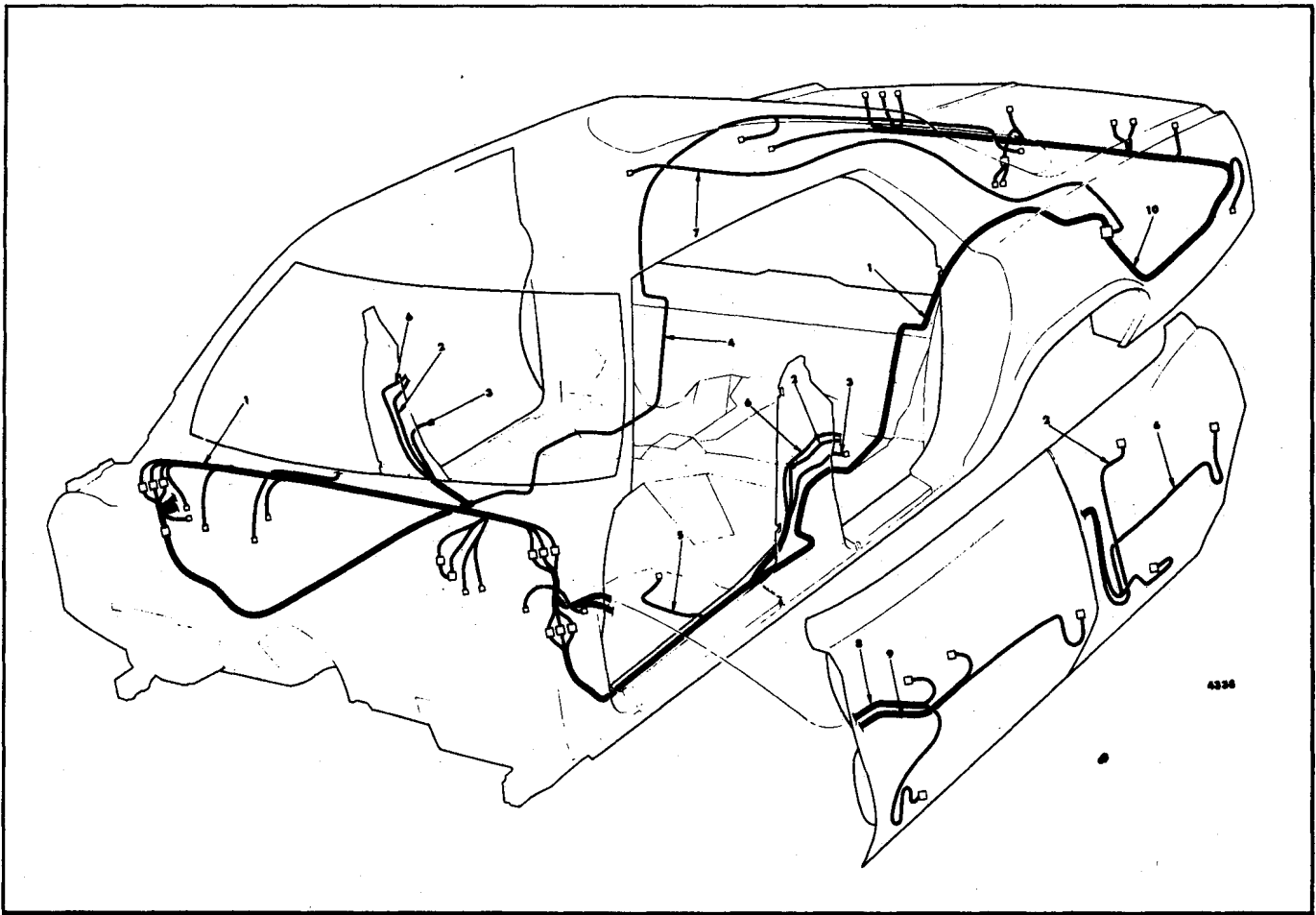


Fig. 15-126-Body Wire Routing - Pontiac "B-39" Style

- | | | | |
|-------------------------------------|---------------------------|--|----------------------------|
| 1. Front Body Harness | 4. Rear Speaker Harness | 7. Dome and Leading Lamp Harness | 9. Front Door Lock Harness |
| 2. Rear Door Window Control Harness | 5. Seat Adjuster Harness | 8. Left Front Door Window Control Harness. | 10. Rear Body Harness |
| 3. Rear Door Jamb Switch Harness | 6. Rear Door Lock Harness | | |

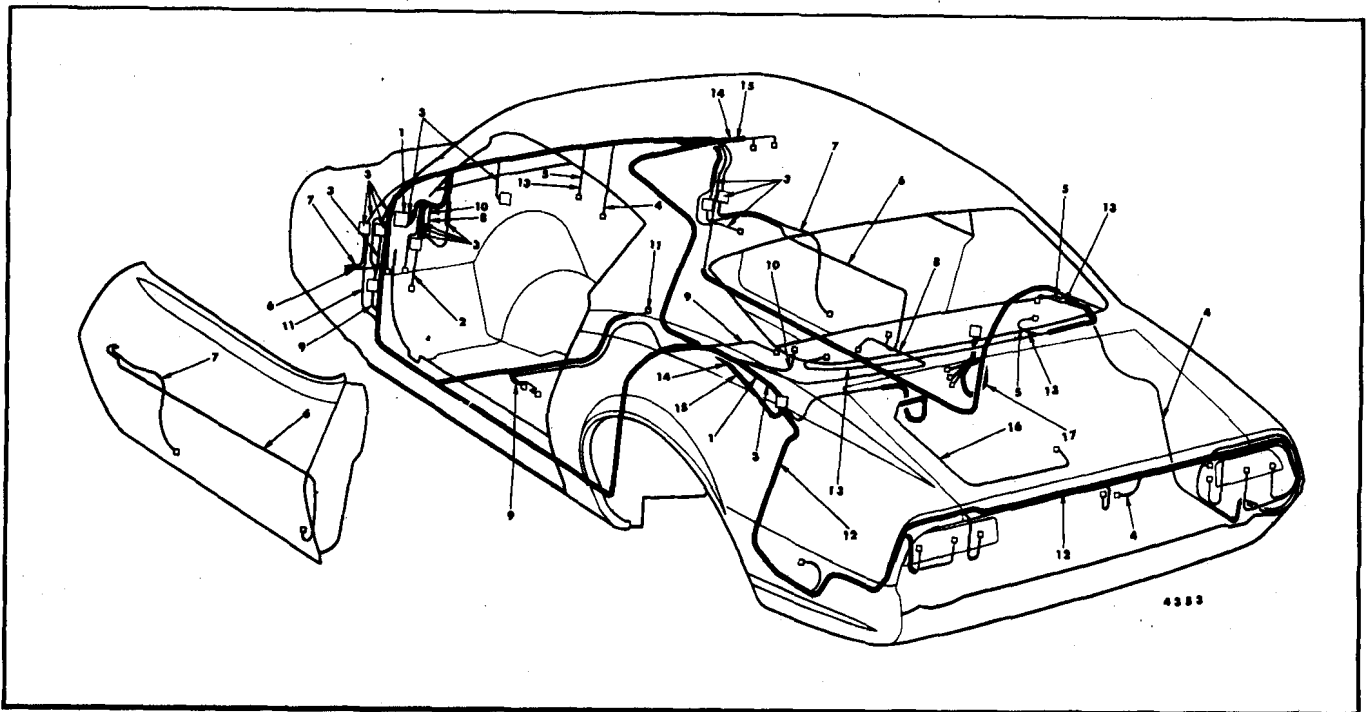


Fig. 15-127-Body Wire Routing - Pontiac "F" Style

- | | | | |
|---|---|--|-----------------------------------|
| 1. Front Body Harness | 6. Right and Left Door Lock Control Harness | 10. Heated Back Window Harness | 14. Dome Lamp Harness |
| 2. Power Option Feed | 7. Front Door Window Control Harness | 11. Door Window Control Harness (In Console) | 15. Dome and Reading Lamp Harness |
| 3. Door Window and Lock Control Harness | 8. Rear Window Defogger Harness | 12. Rear Body Harness | 16. Rear Compartment Lamp Harness |
| 4. Rear Compartment Lid Release Harness | 9. Seat Back Lock Harness | 13. Rear Stereo Speaker Harness | 17. Fiber Optic Conductor |
| 5. Rear Speaker Harness | | | |

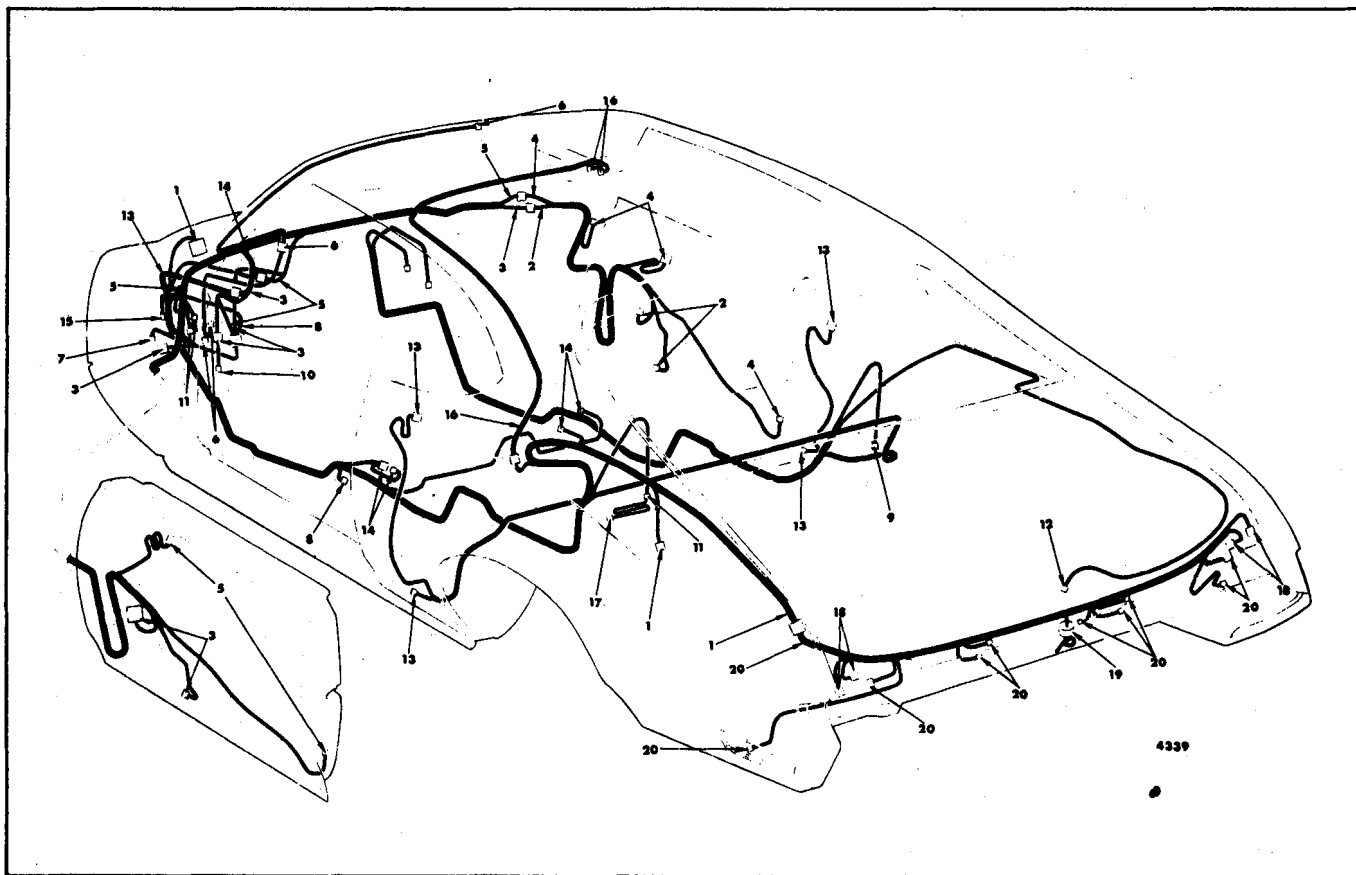


Fig. 15-128-Body Wire Routing - Oldsmobile "A-87" Style

- | | | | |
|---|--|---|--|
| 1. Front Body Harness | 5. Left Front Door
Lock and Seat Back
Lock Harness | 11. Rear Window
Defogger Harness | 16. Dome Lamp Harness |
| 2. Right Front Door
Window Control
Harness | 6. Rear View Mirror
Map Lamp Feed
Wire | 12. Rear Compartment
Lid Release Harness | 17. Rear Window
Defogger Resistance
Wire |
| 3. Left Front Door
Window Control
Harness | 7. Power Option Feed | 13. Quarter Window
Control Harness | 18. Trailer Adapter
Harness |
| 4. Right Front Door
Lock and Seat Back
Lock Harness | 8. Seat Adjuster Harness | 14. Seat Back Lock
Harness | 19. Trailer Adapter
Harness |
| | 9. Rear Speaker Harness | 15. Heated Back Window
Harness | 20. Rear Body Harness |
| | 10. Ignition Feed | | |

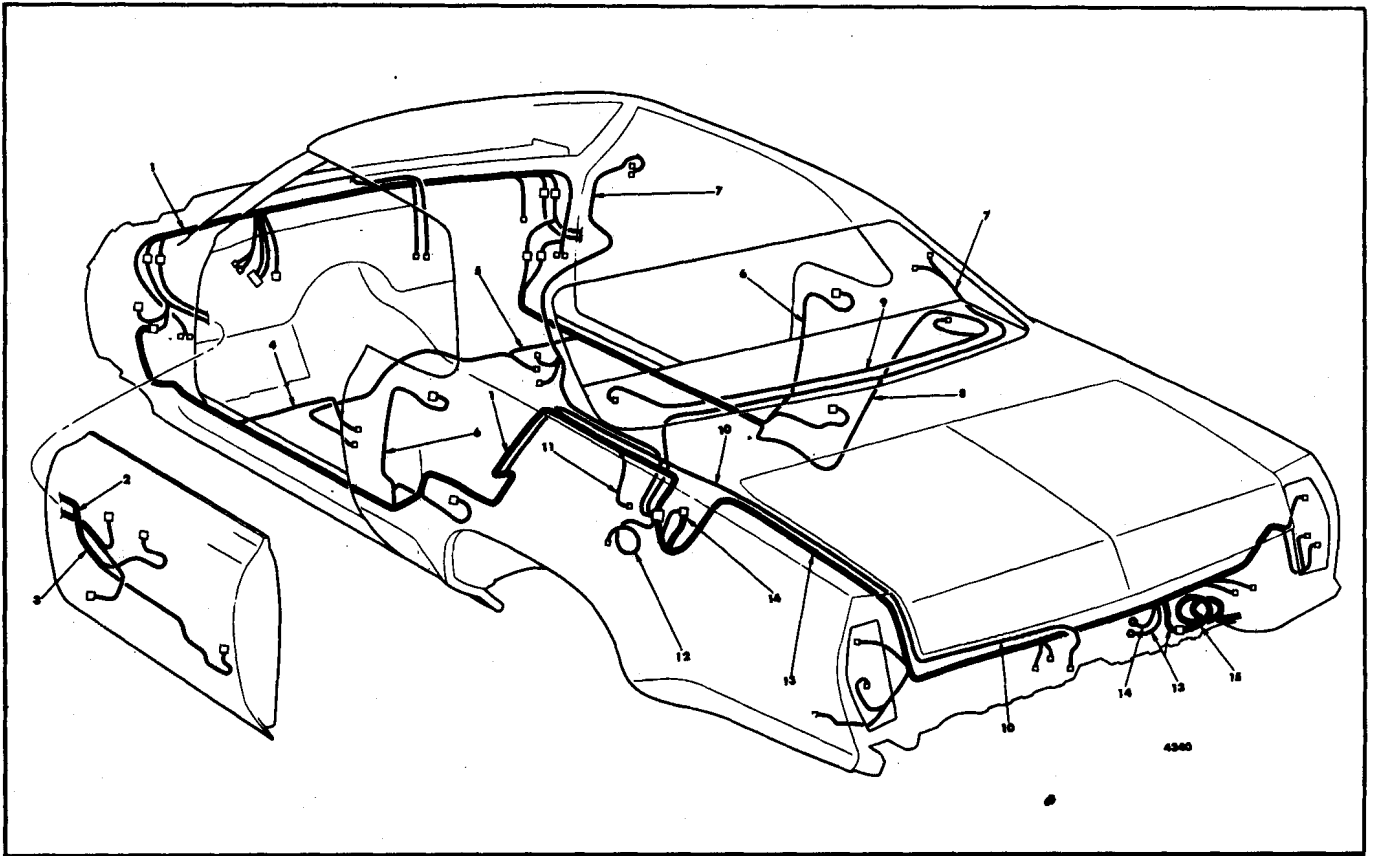


Fig. 15-129-Body Wire Routing - Oldsmobile "B-47-57" Styles

- | | | | |
|---|---|--|---------------------------------------|
| 1. Front Body Harness | 6. Quarter Window Control Harness | 9. Rear Stereo Speaker Harness | 12. Rear Compartment Lid Lamp Harness |
| 2. Left Front Door Window Control Harness | 7. Dome and Quarter Courtesy Lamp Harness | 10. Rear Compartment Lid Release Harness | 13. Trailer to Body Adapter Harness |
| 3. Door Lock Harness | 8. Rear Speaker Harness | 11. Heated Back Window Harness | 14. Rear Body Harness |
| 4. Seat Adjuster Harness | | | 15. Trailer Adapter Harness |
| 5. Seat Back Lock Harness | | | |

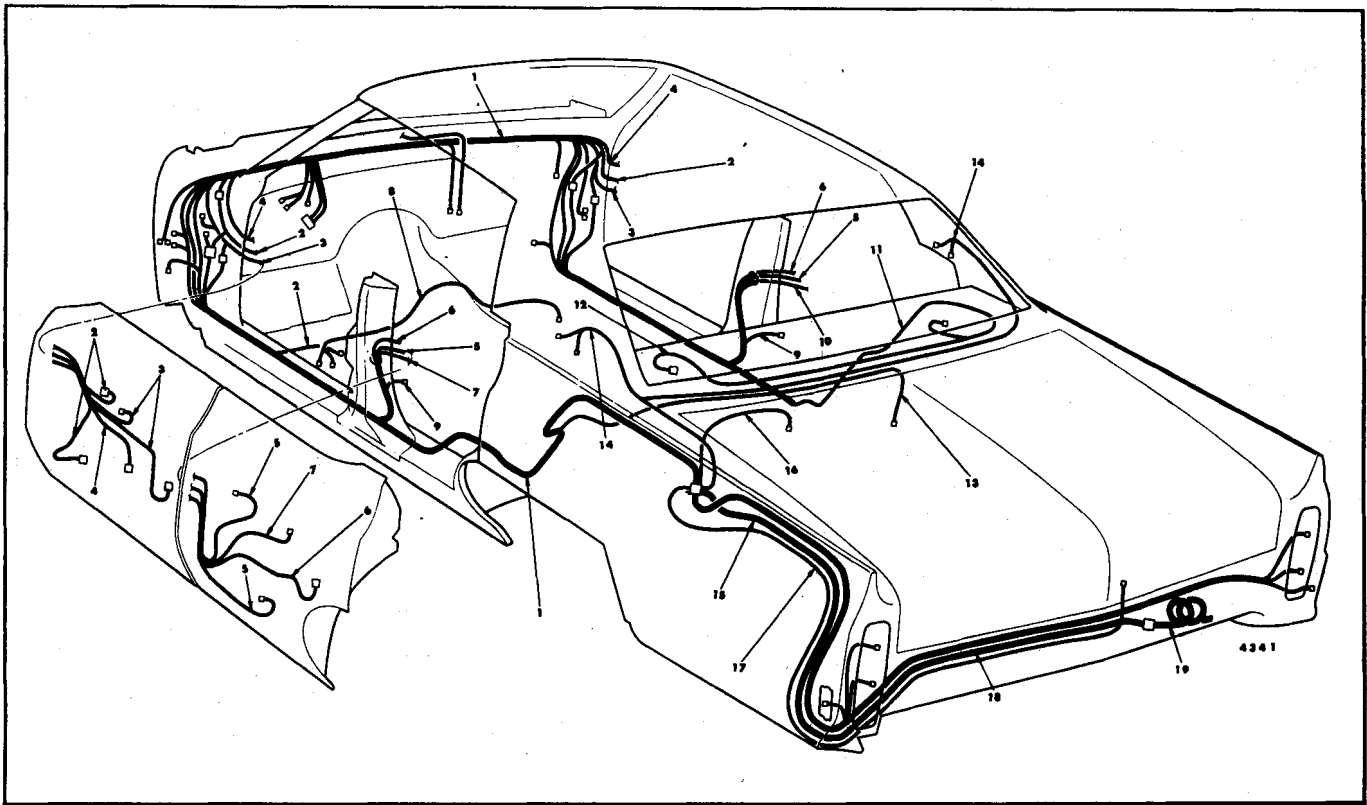


Fig. 15-130-Body Wire Routing - Oldsmobile "C-39" Style

- | | | | |
|--|---|---|--|
| 1. Front Body Harness | 6. Rear Door Lock Control Harness | 10. Rear Door Courtesy, Warning Lamp, Lighter and Jamb Switch Harness | 14. Quarter Courtesy Lamp Harness |
| 2. Left Front Door Window and Seat Control Harness | 7. Rear Door Courtesy, Warning Lamp, Lighter, Jamb Switch and Clock Harness | 11. Rear Speaker Harness | 15. Rear Body Harness |
| 3. Front Door Lock Control Harness | 8. Seat Adjuster Harness (Driver and Passenger) | 12. Rear Stereo Speaker Harness | 16. Rear Compartment Lamp Harness |
| 4. Front Door Lighter, Courtesy and Warning Lamp Harness | 9. Rear Door Jamb Switch Harness (Rear) | 13. Heated Back Window Harness | 17. Rear Compartment Lid Release Harness |
| 5. Rear Door Window Control Harness | | | 18. Body to Trailer Adapter Harness |
| | | | 19. Trailer Adapter Harness |

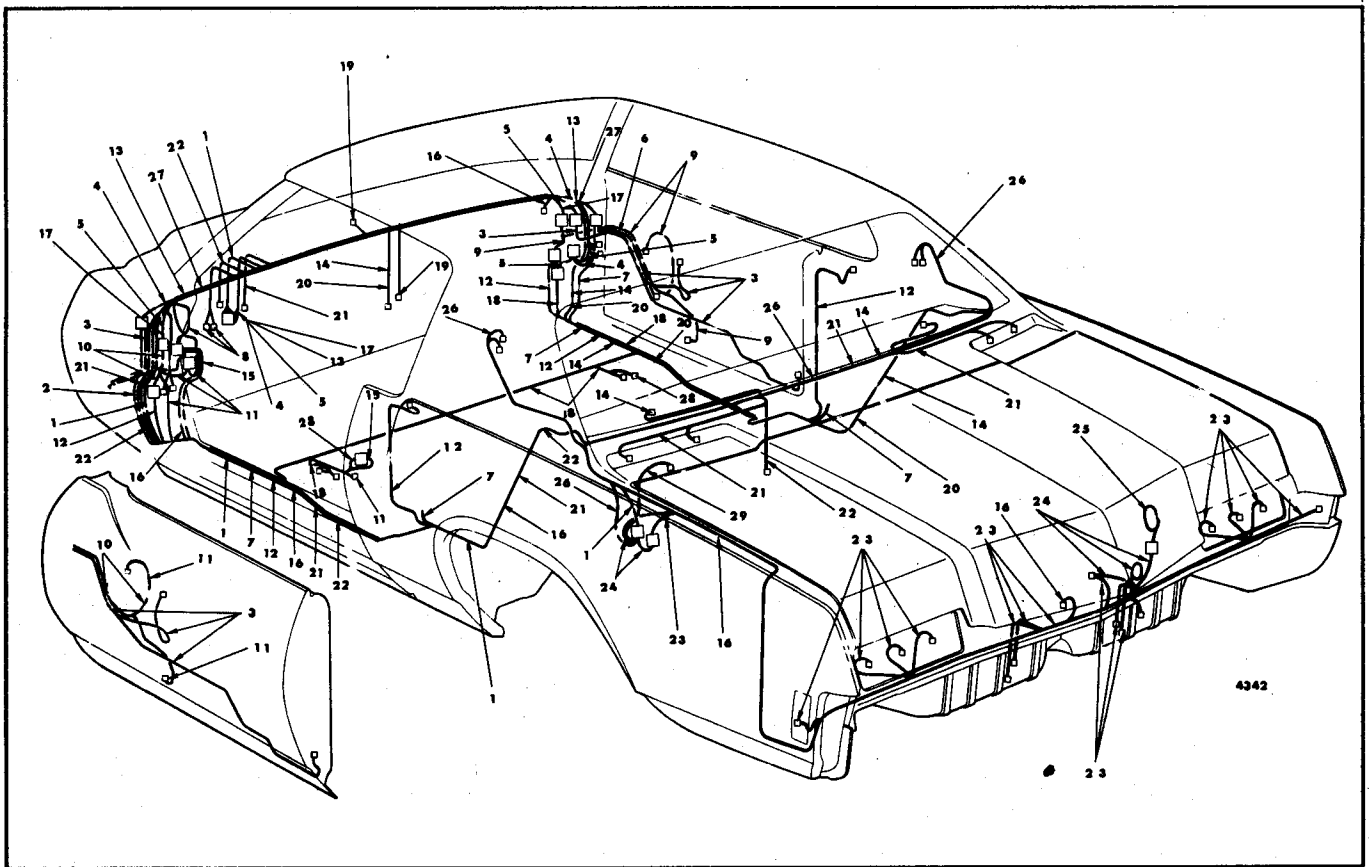


Fig. 15-131-Body Wire Routing - Oldsmobile "E-57" Style

- | | | | |
|---|--|---|--|
| 1. Front Body Harness | 7. Quarter Arm Rest
Lighter Harness | 14. Rear Stereo Speaker
Harness | 22. Heated Back Window
Harness |
| 2. Door Jamb Switch
Harness | 8. Power Option Feed | 15. Seat Adjuster Harness | 23. Rear Body Harness |
| 3. Door Lock Control
Harness - Right and
Left | 9. Right Front Door
Window Control
Harness | 16. Rear Compartment
Lid Release Harness | 24. Trailer Wiring
Harness |
| 4. Door Lock and Seat
Back Lock Harness | 10. Left Front Door
Window Control
Harness | 17. Door Lock and
Window Control
Harness (Center) | 25. Trailer Adapter
Harness |
| 5. Door Lock Seat Back
Lock and Window
Control Harness | 11. Left Front Door
Window Control and
Seat Adjuster Harness | 18. Seat Back Lock
Harness | 26. Quarter Courtesy
Lamp Harness |
| 6. Right Front Door
Lighter, Courtesy and
Warning Lamp
Harness | 12. Quarter Window
Control Harness | 19. Windshield Antenna
Lead-In Cable | 27. Jamb Switch, Lighter
and Courtesy Lamp
Harness |
| | 13. Door Lock Control
Harness (Center) | 20. Rear Speaker Harness | 28. Seat Adjuster Harness
(Passenger) |
| | | 21. Rear Hi-Level
Lighting Harness | 29. Rear Compartment
Lamp Harness |

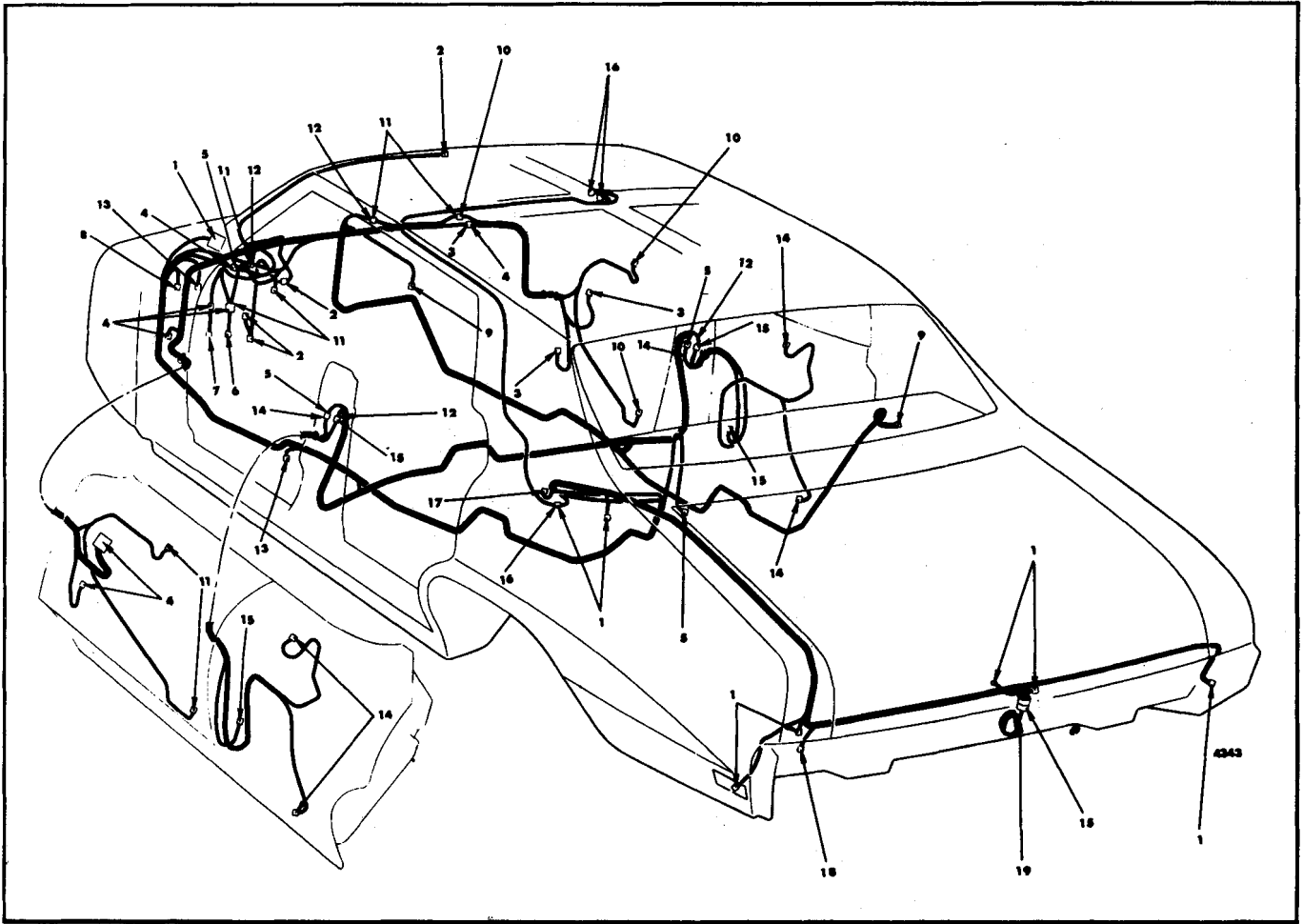


Fig. 15-132-Body Wire Routing - Buick "A-39" Style

- | | | | |
|--|---|---|---|
| 1. Body Wire Harness | 5. Rear Door Window Control Harness (Front) | 11. Left Front Door Lock Control Harness | 15. Rear Door Lock Control Harness (Rear) |
| 2. Rear View Map Lamp Feed Wire | 6. Power Option Feed | 12. Rear Door Lock Control Harness (Front) | 16. Dome Lamp Harness |
| 3. Right Front Door Window Control Harness | 7. Ignition Feed | 13. Seat Adjuster Harness | 17. Heated Back Window Harness |
| 4. Left Front Door Window Control Harness | 8. Rear Window Defogger Harness | 14. Rear Door Window Control Harness (Rear) | 18. Body to Trailer Adapter Harness |
| | 9. Rear Speaker Harness | | 19. Trailer Adapter Harness |
| | 10. Right Front Door Lock Control Harness | | |

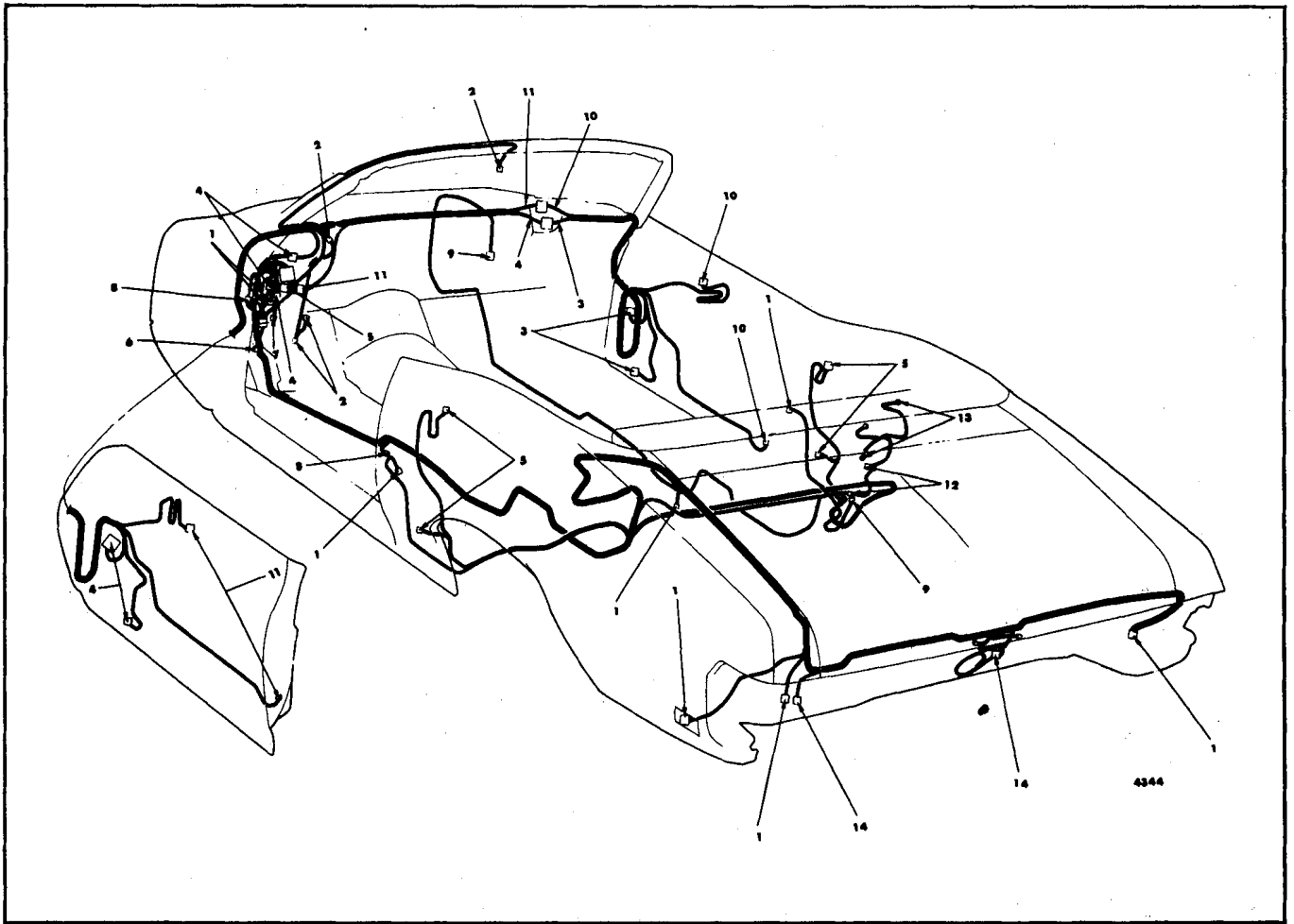


Fig. 15-133-Body Wire Routing - Buick "A-67" Style

- | | | | |
|--|---|--|----------------------------------|
| 1. Body Wire Harness | 4. Left Front Door Window Control Harness | 8. Seat Adjuster Harness | 12. Rear Window Defogger Harness |
| 2. Rear View Mirror Map Lamp Feed | 5. Quarter Window Control Harness | 9. Rear Speaker Harness | 13. Rear Speaker Ground Wire |
| 3. Right Front Door Window Control Harness | 6. Power Option Feed | 10. Right Front Door Lock and Seat Back Lock Harness | 14. Trailer Adapter Harness |
| | 7. Ignition Feed | 11. Left Front Door Lock and Seat Back Lock Harness | |

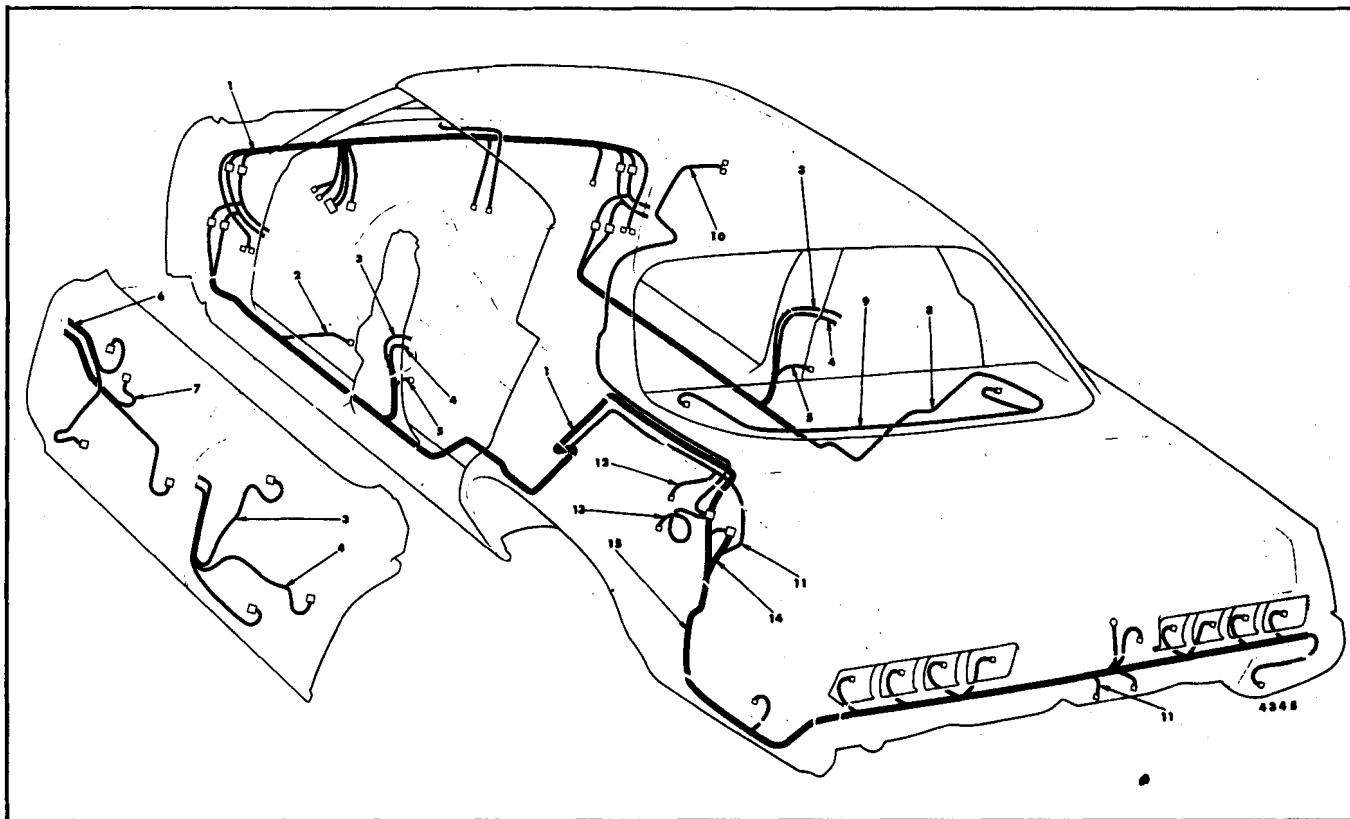


Fig. 15-134-Body Wire Routing - Buick "B-39" Style

- | | | | |
|--|---|---|--|
| 1. Front Body Harness | 5. Rear Door Jamb
Switch Harness | 8. Rear Speaker Harness | 12. Heated Back Window
Harness |
| 2. Seat Adjuster Harness | 6. Left Front Door
Window Control
Harness | 9. Rear Stereo Speaker
Harness | 13. Rear Compartment
Lid Lamp Harness |
| 3. Rear Door Window
Control Harness | 7. Front Door Lock
Harness | 10. Dome and Reading
Lamp Harness | 14. Trailer Adapter
Harness |
| 4. Rear Door Lock
Control Harness | | 11. Rear Compartment
Lid Release Harness | 15. Rear Body Harness |

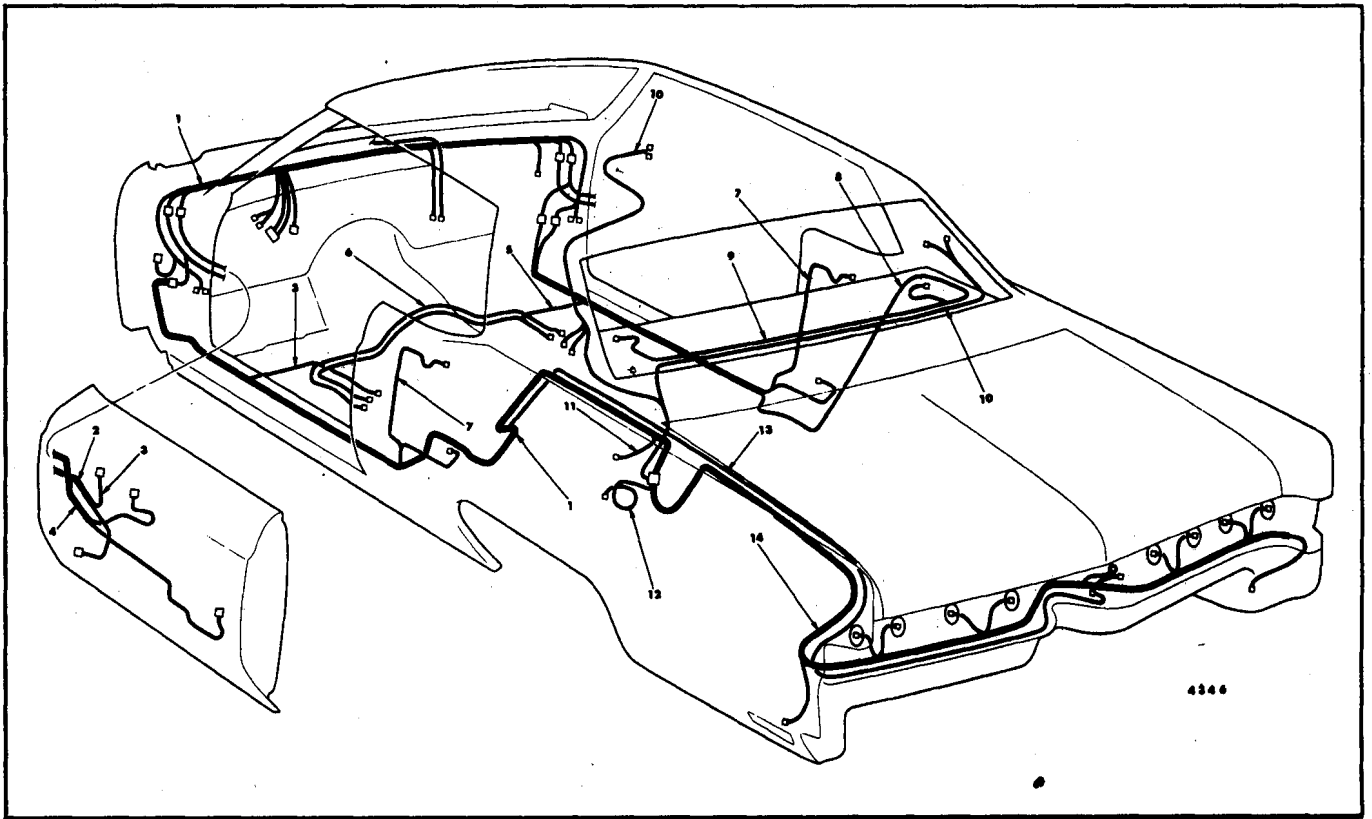


Fig. 15-135-Body Wire Routing - Buick "C-37" Style

- | | | | |
|---|---|--|--|
| 1. Front Body Harness | 4. Door Lock Control Harness | 8. Rear Speaker Harness | 11. Back Window Defogger Harness |
| 2. Left Front Door Window Control Harness | 5. Seat Back Lock Harness | 9. Rear Stereo Speaker Harness | 12. Rear Compartment Lamp Harness |
| 3. Left Front Door Window and Seat Control Harness (In Door Arm Rest) | 6. Seat Adjuster Feed Harness | 10. Dome and Quarter Courtesy Lamp Harness | 13. Rear Compartment Lid Release Harness |
| | 7. Quarter Window Control and Lighter Harness | | 14. Rear Body Harness |

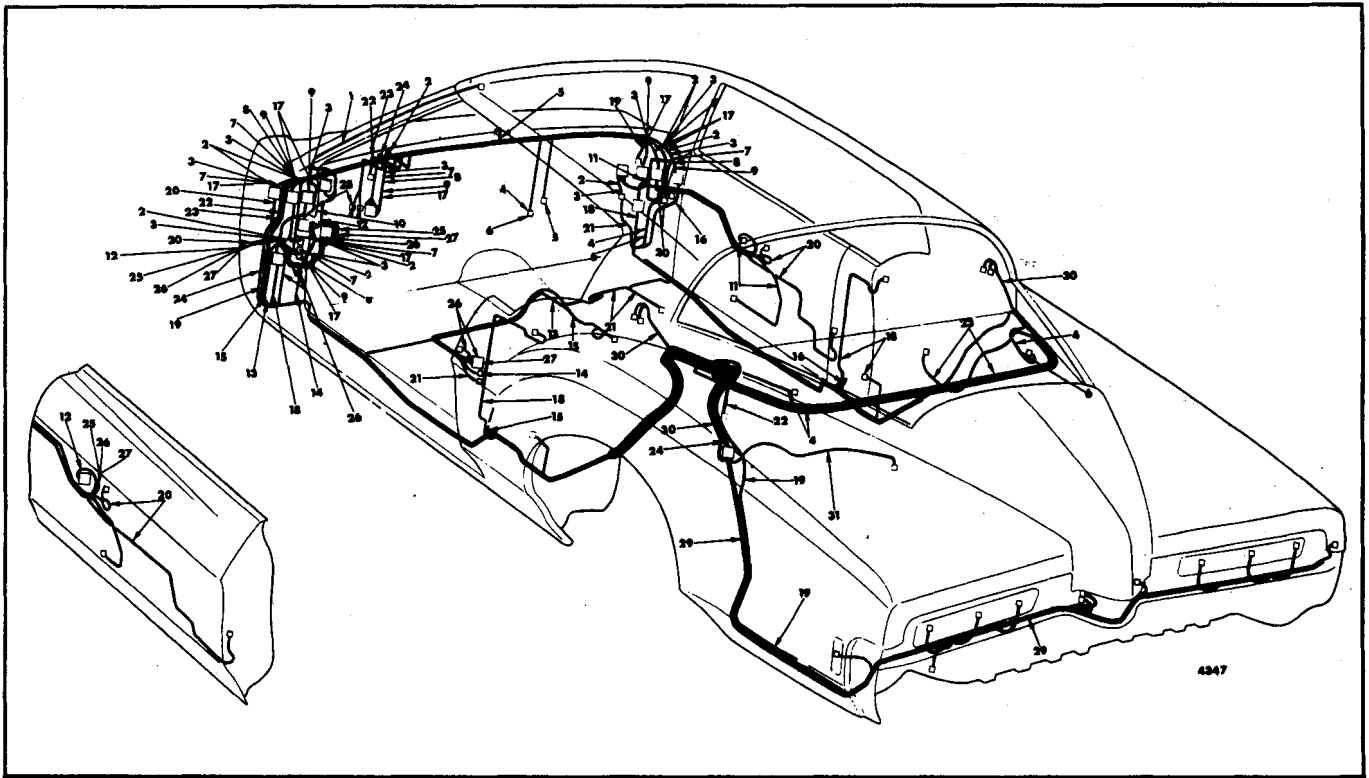


Fig. 15-136-Body Wire Routing - Buick "E-87" Style

- | | | | |
|---|---|---|---|
| 1. Sunshade Support
Map Lamp Harness | 9. Door Window
Control Harness
(Center) | 16. Right Quarter Lighter
Harness | 24. Front Body Harness |
| 2. Door Lock and Seat
Back Lock Harness
(Center) | 10. Power Option Feed | 17. Door Lock and
Window Control
Harness (Center) | 25. Left Front Door
Window Control
Harness |
| 3. Door Window Lock
and Seat Back Lock
Harness (Center) | 11. Right Front Door
Window Control
Harness | 18. Quarter Window
Control Harness | 26. Left Front Door
Window and 6-Way
Seat Control Harness |
| 4. Rear Stereo Speaker
Harness | 12. Left Front Door
Window Control
Harness | 19. Rear Compartment
Lid Release Harness | 27. Left Front Door
Window and 4-Way
Seat Control Harness |
| 5. Windshield Antenna
Lead-In Cable | 13. Console Courtesy
Lamp Harness | 20. Front Door Lock
Control Harness | 28. Ignition Feed |
| 6. Rear Speaker Harness | 14. Seat Adjuster Harness | 21. Seat Back Lock
Harness | 29. Rear Body Harness |
| 7. Door Lock Control
Harness (Center) | 15. Console Courtesy
Lamp and Left
Quarter Lighter
Harness | 22. Heated Back Window
Harness | 30. Quarter Courtesy
Lamp Harness |
| 8. Jamb Switch, Lighter,
Courtesy and
Warning Lamp
Harness | | 23. Back Window
Defogger Harness | 31. Rear Compartment
Lamp Harness |

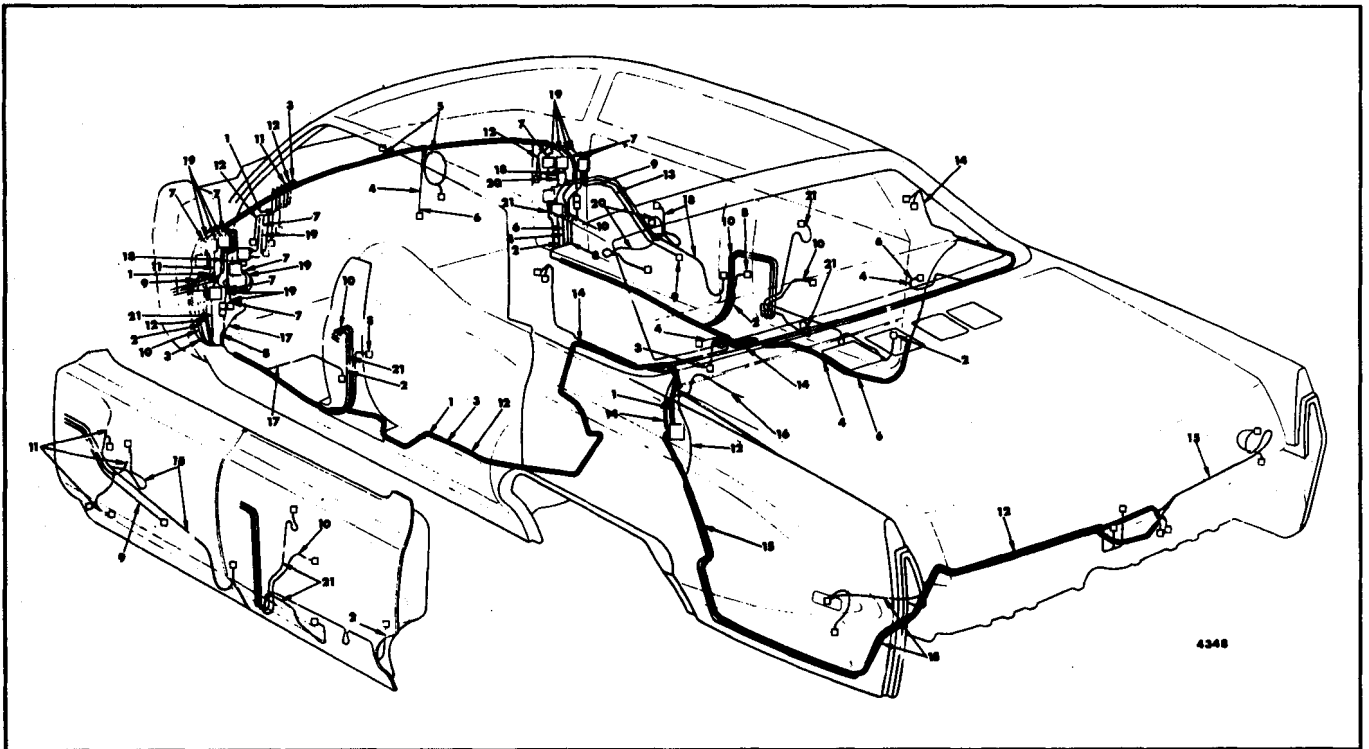


Fig. 15-137-Body Wire Routing - Cadillac "C-49" Style •

- | | | | |
|-------------------------------------|---|---|---|
| 1. Front Body Harness | 8. Rear Door Jamb Switch Harness | 12. Rear Compartment Lid Lamp and Release Harness | 17. Seat Adjuster Harness |
| 2. Rear Door Lock Control Harness | 9. Front Door Lighter, Courtesy and Warning Lamp Harness | 13. Right Front Door Lighter, Courtesy and Warning Lamp Harness | 18. Front Door Lock Control Harness |
| 3. Rear Window Defogger Harness | 10. Rear Door Lighter, Courtesy and Warning Lamp Harness | 14. Quarter Courtesy Lamp Harness | 19. Door Lock and Window Control Harness (Center) |
| 4. Rear Stereo Speaker Harness | 11. Left Front Door Window and Windshield Wiper Control Harness | 15. Rear Body Harness | 20. Right Front Door Window Control Harness |
| 5. Windshield Antenna Lead-In Cable | | 16. Rear Compartment Lamp Harness | 21. Rear Door Window Control Harness |
| 6. Rear Speaker Harness | | | |
| 7. Window Control Harness (Center) | | | |

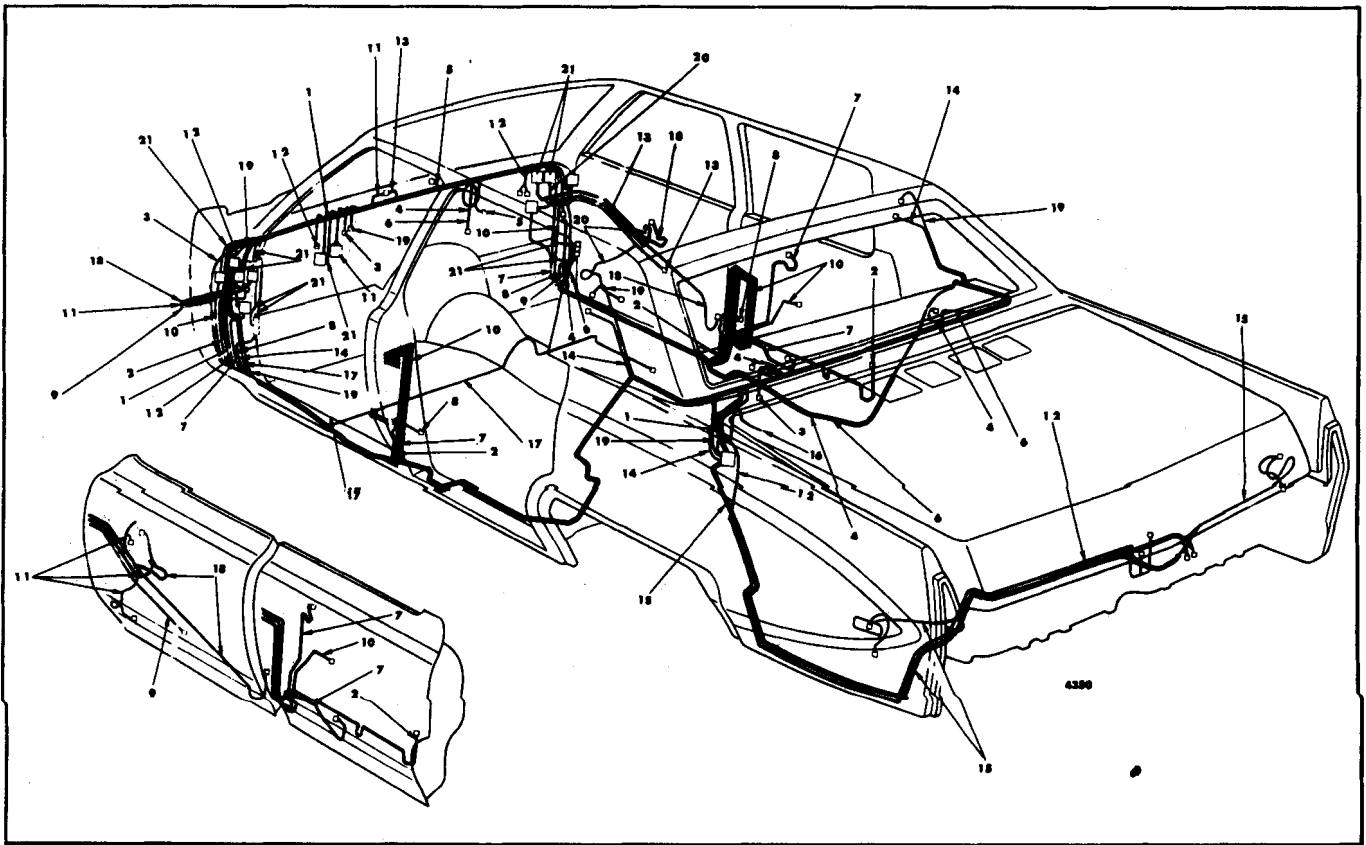


Fig. 15-138-Body Wire Routing - Cadillac "C-69" Style

- | | | | |
|-------------------------------------|---|---|---|
| 1. Front Body Harness | 8. Rear Door Jamb Switch Harness | 12. Rear Compartment Lid Lock and Warning Lamp Harness | 16. Rear Compartment Lamp Harness |
| 2. Rear Door Lock Control Harness | 9. Front Door Lighter, Courtesy and Warning Lamp Harness | 13. Right Front Door Lighter, Courtesy and Warning Lamp Harness | 17. Seat Adjuster Harness |
| 3. Rear Window Defogger | 10. Rear Door Lighter, Courtesy and Warning Lamp Harness | 14. Quarter Reading Lamp Harness | 18. Front Door Lock Control Harness |
| 4. Rear Stereo Speaker Harness | 11. Left Front Door Window and Windshield Wiper Control Harness | 15. Rear Body Harness | 19. Quarter Opera Lamp Harness |
| 5. Windshield Antenna Lead-In Cable | | | 20. Right Front Door Window Control Harness |
| 6. Rear Speaker Harness | | | 21. Door Lock and Window Control Harness (Center) |
| 7. Rear Door Window Control Harness | | | |

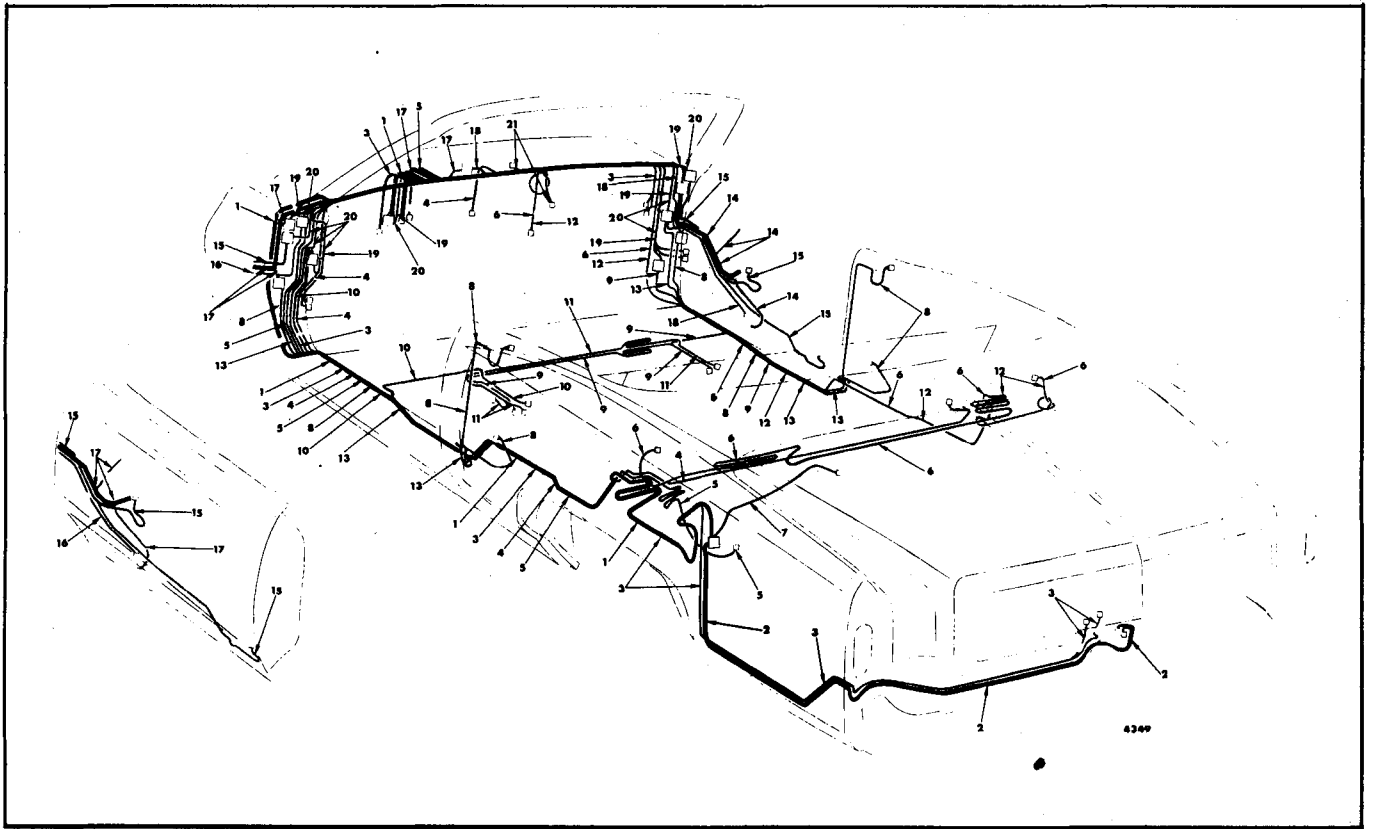


Fig. 15-139-Body Wire Routing - Cadillac "E-67" Style

- | | | | |
|---|---|--|---|
| 1. Front Body Harness | 7. Rear Compartment Lamp Harness | 14. Right Front Door Window Control Harness | 18. Right Front Door Lighter, Courtesy and Warning Lamp Harness |
| 2. Rear Body Harness (Cadillac) | 8. Quarter Window Control Harness | 15. Front Door Lock Control Harness | 19. Door Window Control Harness (Center) |
| 3. Rear Compartment Lid Lamp and Warning Lamp Harness | 9. Seat Back Lock Harness | 16. Left Front Lighter, Courtesy and Warning Lamp Harness | 20. Door Window, Lock and Seat Back Lock Control Harness |
| 4. Folding Top Harness | 10. Seat Adjuster Harness | 17. Left Front Window and Windshield Wiper Control Harness | 21. Windshield Antenna Lead-In Cable |
| 5. Back Window Defogger Harness | 11. Seat Adjuster Harness (Passenger) | | |
| 6. Rear Stereo Speaker Harness | 12. Rear Speaker Harness | | |
| | 13. Quarter Lighter and Courtesy Lamp Harness | | |

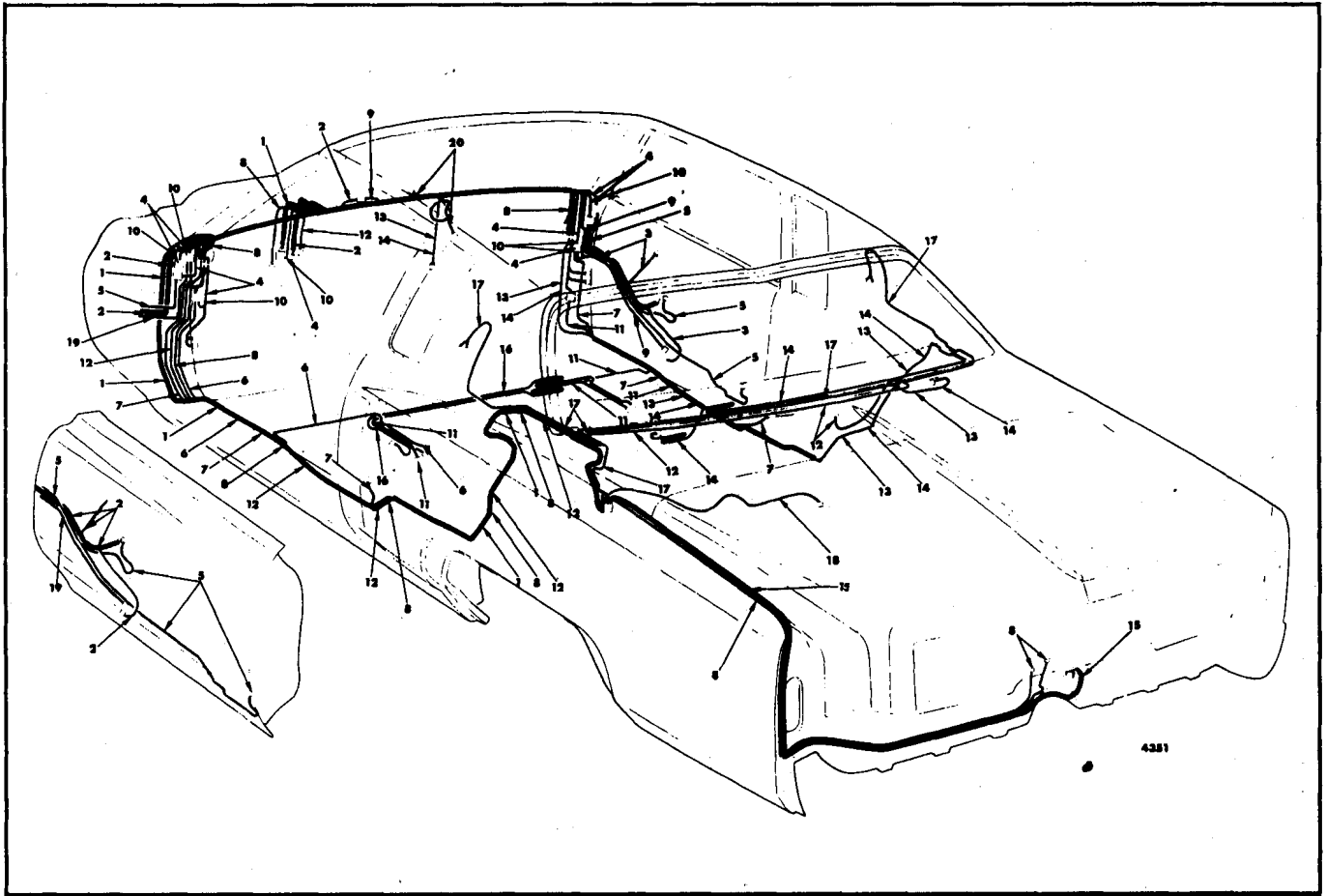


Fig. 15-140-Body Wire Routing - Cadillac "E-47" Style

- | | | | |
|--|--|--|--|
| 1. Front Body Harness | 5. Front Door Lock Control Harness | 10. Door Window Control Harness (Center) | 16. Seat Adjuster Harness (Passenger) |
| 2. Left Front Door Window and Windshield Wiper Control Harness | 6. Seat Adjuster Harness | 11. Seat Back Lock Harness | 17. Quarter Courtesy Lamp Harness |
| 3. Right Front Door Window Control Harness | 7. Quarter Arm Rest and Lighter Harness | 12. Rear Window Defogger Harness | 18. Rear Compartment Lamp Harness |
| 4. Door Lock, Window and Seat Back Lock Control Harness | 8. Rear Compartment Lid Release and Warning Lamp Harness | 13. Rear Speaker Harness | 19. Left Front Door Lighter, Courtesy and Warning Lamp Harness |
| | 9. Right Front Door Lighter, Courtesy and Warning Lamp Harness | 14. Rear Stereo Speaker Harness | 20. Windshield Antenna Lead-In Cable |
| | | 15. Rear Body Harness | |

SECTION 16

EXTERIOR MOLDINGS

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DESCRIPTION

The exterior moldings are secured to the body by any one or a combination of the following attachments. Refer to Fig. 16-1, 16-2 and 16-3 for illustrations of attachments.

- A. Attaching screw.
- B. Bolt and clip assembly with attaching nut.
- C. Integral stud with attaching nut.
- D. Windshield side reveal molding clip.
- E. Reveal molding snap-on clip.
- F. "W-base" type snap-in clip.
- G. Weld stud or screw retained plastic clip.
- H. Snap-in stud with pre-installed retainer.
- J. Snap-in type stud and clip (bayonet type) - (clip is an integral part of stud).
- K. Attaching screw (drip molding retainer).
- L. "Bath-tub" type snap-in clip.

M. T-Nut.

N. Joint clip.

P. Slide-in T-Nut.

Q. Tail gate belt finishing molding clip.

R. Pinchweld molding clip.

S. Spring type (self retained).

T. Spring type (self retained).

U. Hanger type clip.

V. Roof panel cover molding retaining strip (weld stud or screw attached).

To use molding chart, and attachment illustrations use the following procedure:

1. Locate illustration of the body. Illustrations are separated by car line and body type.
2. Note the number and letter(s) of the molding to be removed.
3. Turn to the molding chart and locate the number

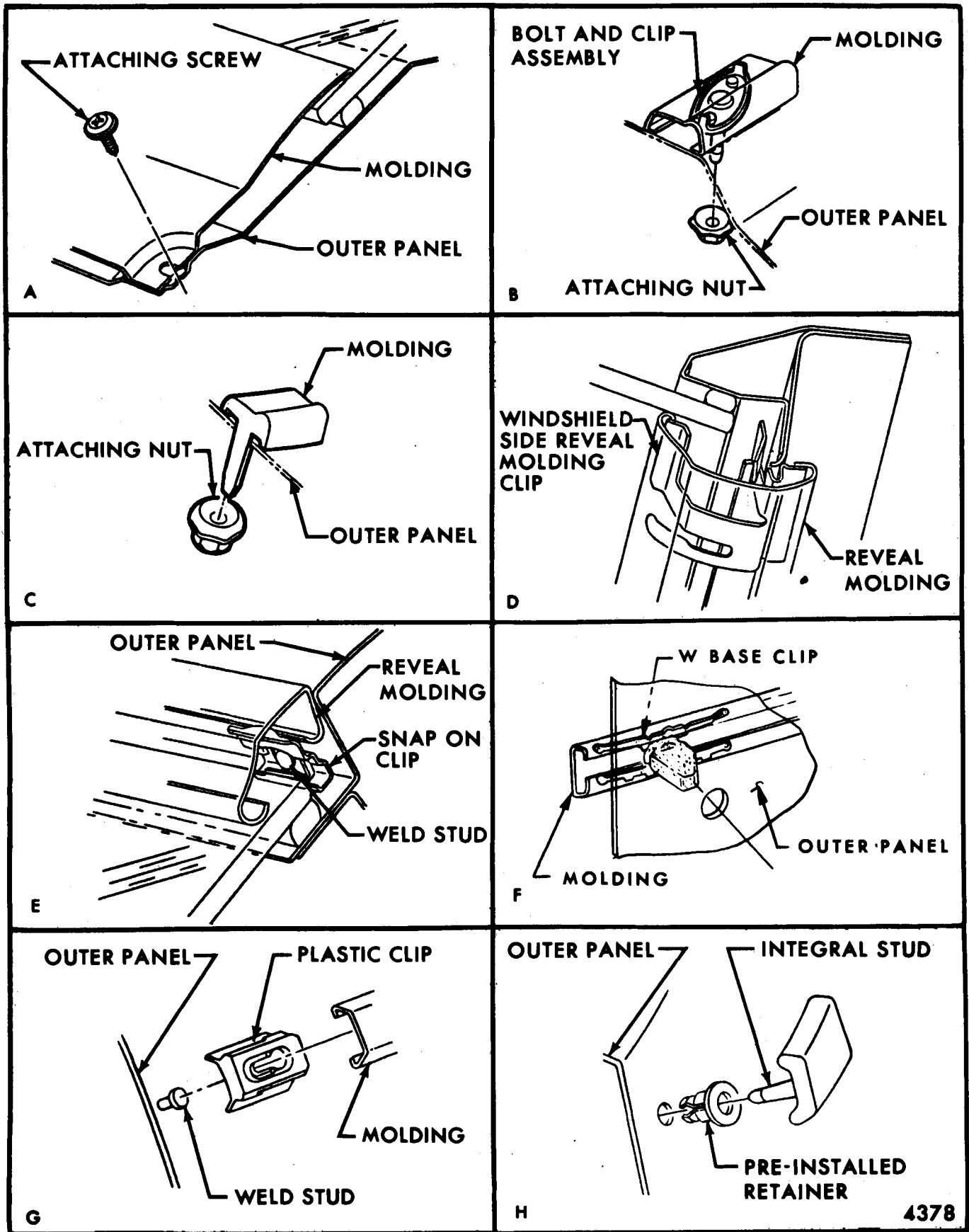
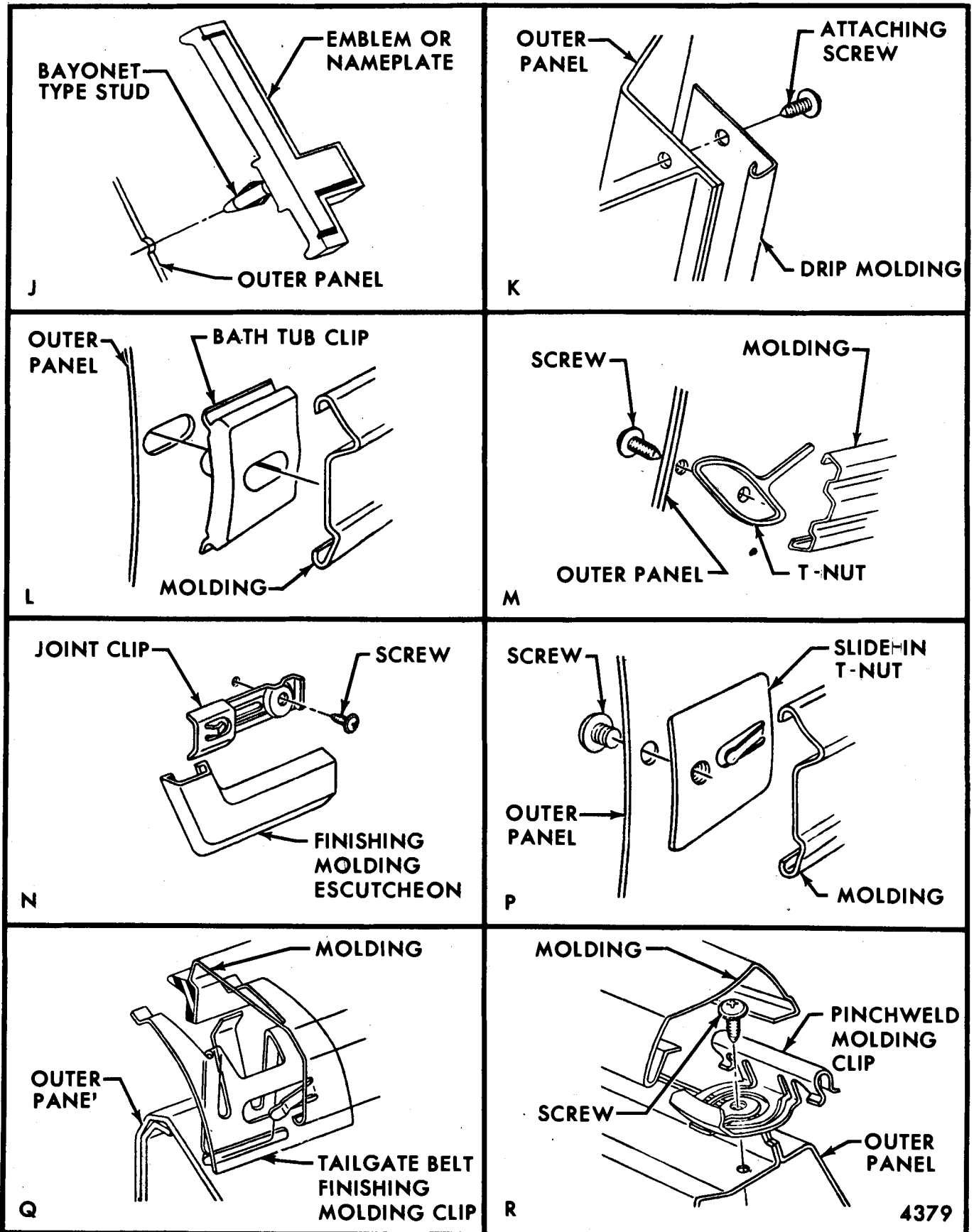


Fig. 16-1-Exterior Molding Attachments



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Fig. 16-2-Exterior Molding Attachments

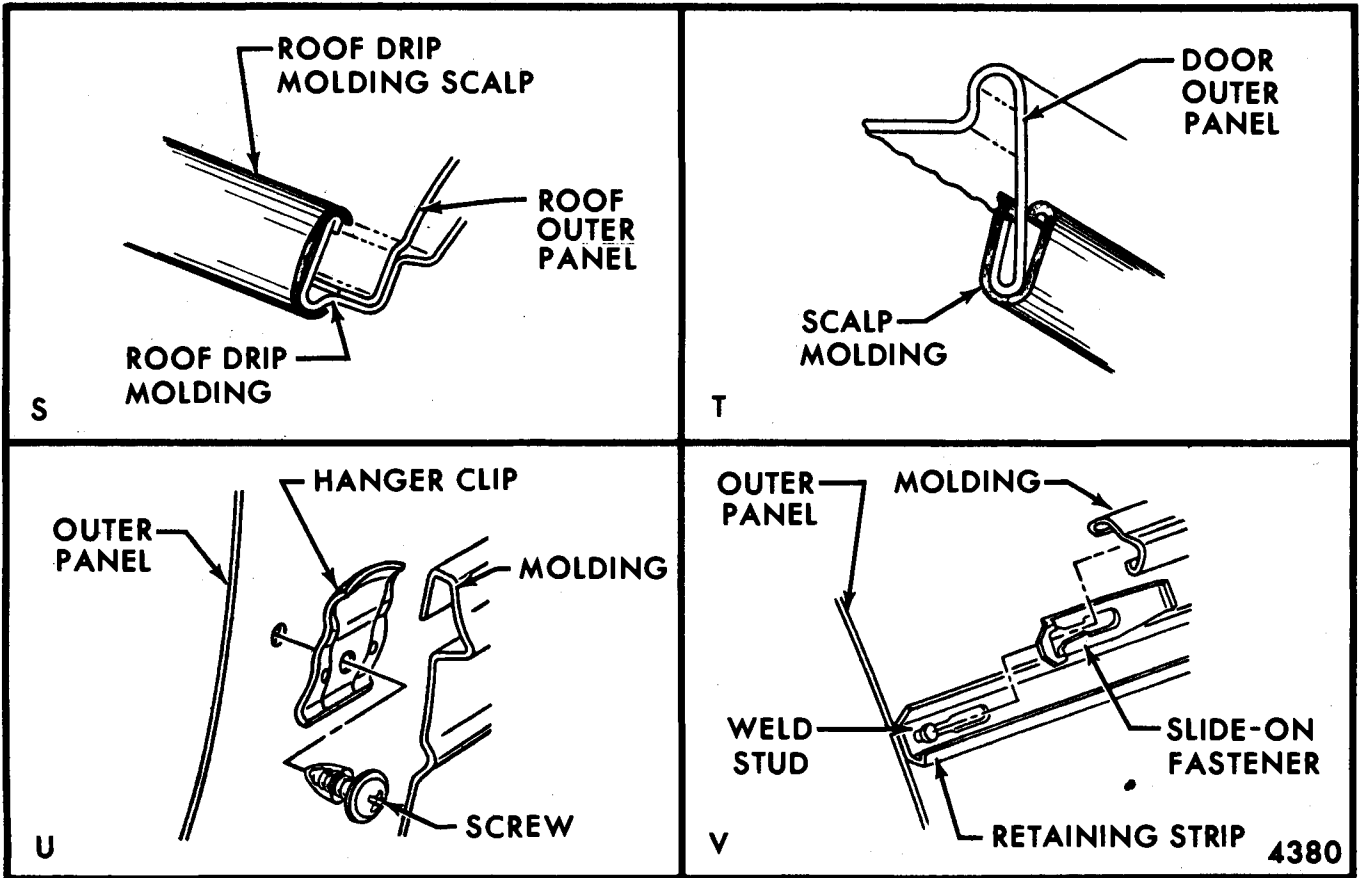


Fig. 16-3-Exterior Molding Attachments

Series	Windshield	Back Window	Quarter Window	Sky Light Window
"A and X"	J-21549-5 J-21549-6	J-21549-5 J-21549-6	J-21549-5 J-21549-6	J-21549-5 J-21549-6
"B,C,D,E and F"	J-21549-10 J-21549-11	J-21549-10 J-21549-11	J-21549-10 J-21549-11	- -

<u>TOOLS</u>	<u>DESCRIPTION</u>
J-21549-1	Handle
J-21549-5	Reveal Molding Remover (Lt.) (Use with J-21549-1)
J-21549-6	Reveal Molding Remover (Rt.) (Use with J-21549-1)
J-21549-10	Reveal Molding Remover (Lt.) (Use with J-21549-1)
J-21549-11	Reveal Molding Remover (Rt.) (Use with J-21549-1)

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Fig. 16-4-Reveal Molding Removal Tool Usage Chart

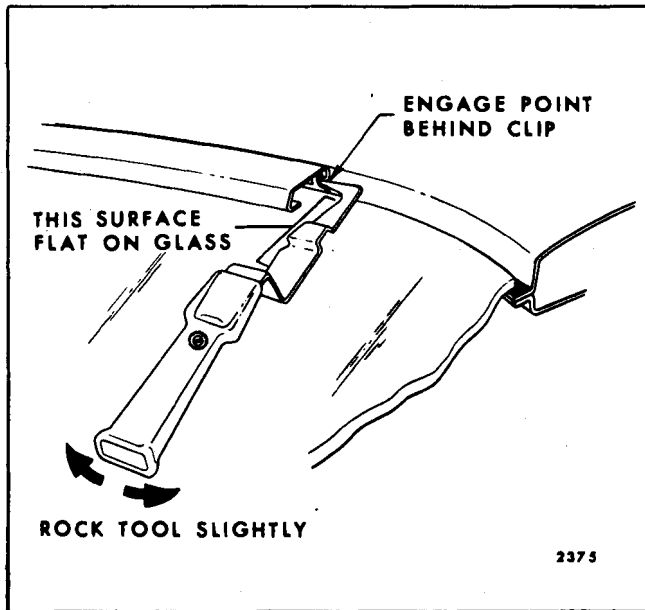


Fig. 16-5-Reveal Molding Removal Tool Usage Procedure

noted in step two for proper molding nomenclature.

4. Turn to the attachment illustrations (Fig. 16-1, 16-2 and 16-3) and locate the letter(s) for appropriate method of retention.

NOTE: Convertible styles are not illustrated but are indicated on similar styles.

GENERAL PRECAUTIONS

When removing or installing any body exterior molding certain precautions should be exercised.

1. Adjacent finishes should be protected with masking tape to prevent damage to finish.
2. Proper tools and care should be employed to guard against molding damage.
3. When a molding is overlapped the overlapping molding must be partially disengaged or removed first.

SEALING OPERATION

Although detailed sealing operations for each individual molding are not described, the following information is given to permit a satisfactory sealing operation.

Medium-bodied sealer or body caulking compound are the sealers most frequently used to provide either a watertight seal or for anti-rattle measures.



Fig. 16-6-Removal of Bath-Tub Type Molding Clip

Holes in body panels for screws, bolts, or clips that would permit water to enter the interior of the body must be sealed with body caulking compound or presealed screws, nuts or clips.

Drip moldings require a 1/4" bead of medium-bodied sealer along the full length of the inner attaching surface. Door window scalps and center pillar scalps require a 1/8" x 1/4" x 1/4" bead of caulking compound at 5" intervals for anti-rattle purposes. Pinchwelds require medium-bodied sealer on both sides when pinchweld clips are used.

TOOLS AND CARE

The following groups of moldings are listed with the name or description of the tool which is suitable for molding removal.

1. Roof Drip Scalps - pointed hook tool.
2. Door Window Scalps - thin flat-bladed tool (putty knife).

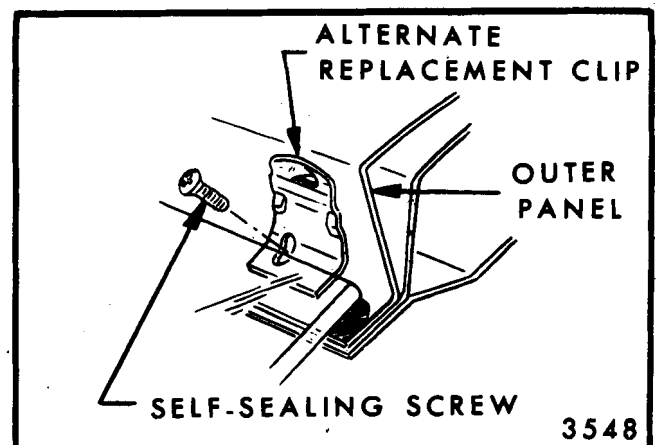


Fig. 16-7-Reveal Molding Clip Alternate Replacement

REVEAL MOLDINGS

Reveal moldings around adhesive caulked glass installations are retained by clips, which are attached to the body opening by weld-on studs or screws. A projection on the clip engages the reveal molding flange, retaining the molding between the clip and body metal (View "E", Fig. 16-1). To disengage a molding from retaining clips, use appropriate tool (see chart on Fig. 16-4) as shown in Figure 16-5 (equivalent tools may be used). Windshield side reveal moldings on "B,C,D,E and F" hardtop styles are retained by barbed clips (View "D", Fig. 16-1). A thin flat-bladed tool (putty knife) must be inserted from windshield side of molding to disengage barbed clips while lifting molding.

MOLDING CLIP REPLACEMENT

If it is necessary to replace a damaged plastic "bath-tub" molding clip (View "L", Fig. 16-2), use the following procedure for removal and installation:

1. Insert sharp edge of flat-bladed tool, such as a putty knife, under edge of clip and hammer tool until base of clip is cut approximately half-way through (Fig. 16-6) then disengage clip from hole.

NOTE: In some cases, it may also be necessary to cut clip at opposite end of base.

2. Special tool J-21214 or equivalent is required when installing metal bath-tub type clips.
3. No special tool is needed to install a new plastic bath-tub type clip.

If a weld stud on an outer panel becomes damaged or broken off, use the following procedure:

1. Drill a small hole in the panel adjacent to where original weld on stud was installed.
2. Insert a self sealing screw through original clip and into outer panel, or replace damaged weld stud with self sealing screw type weld stud.

If a weld stud, attaching screw, or molding clip become damaged or broken off and must be replaced in a windshield, back window, quarter window, or skylight opening, use the following procedure:

1. Drill a small hole in the corner of the window opening rabbet adjacent to where original weld stud or screw was installed.
2. Insert a self-sealing screw through alternate replacement clip and into panel (Fig. 16-7).

IMPORTANT: Avoid contact with edge of glass during drilling operation and when installing clip.

EXTERIOR MOLDING CHART

KEY	MOLDING NAME	REMOVE HARDWARE OR TRIM	KEY	MOLDING NAME	REMOVE HARDWARE OR TRIM	KEY	MOLDING NAME	REMOVE HARDWARE OR TRIM
1	Windshield Reveal Lower		18	Rear Door Window Frame Rear Scalp		32	Rear Quarter Pinchweld Belt Finishing Front	
2	Windshield Reveal Side		19	Rear Quarter Window Frame Front Scalp		33	Rear Quarter Pinchweld Belt Finishing Rear	
3	Windshield Pillar Finishing		20	Rear Quarter Window Frame Upper Scalp		34	Rear Quarter Pinchweld Belt Finishing Rear of Rear-Upper	
4	Windshield Reveal Upper		21	Rear Quarter Belt Reveal Front Corner Escutcheon		35	Rear Quarter Belt Finishing Rear of Rear - Lower	
5	Windshield Header		22	Roof Drip Upper Side Scalp		36	Roof Panel Cover Front	
6	Windshield Pillar Drip Scalp		23	Rear Quarter Belt Reveal	Rear Quarter Upper Trim if Req'd	37	Roof Panel Cover Front Corner Escutcheon	
7	Windshield Upper Corner Escutcheon		24	Rear Quarter Belt Reveal Rear Corner Escutcheon		38	Roof Panel Cover Side	
8	Roof Drip Front Scalp Escutcheon		25	Body Lock Pillar Belt Reveal		39	Front Door Outer Panel Upper	
9	Roof Drip Front Scalp		26	Rear End Belt Reveal		40	Front Door Outer Panel Lower	
10	Roof Drip Rear Scalp		27	Rear Quarter Window Reveal Front Upper Corner Escutcheon		41	Rear Door Outer Panel Upper	
11	Roof Drip Scalp		28	Rear Quarter Window Reveal Upper		42	Rear Door Outer Panel Lower	
12	Front Door Window Frame Front Scalp		29	Rear Quarter Window Reveal Front		43	Front of Rear Wheel Opening	
13	Front Door Window Frame Upper Scalp		30	Rear Quarter Window Reveal Lower		44	Rear Wheel Opening	
14	Front Door Window Frame Rear Scalp		31	Rear Quarter Belt Finishing at Back Window	Seat Back	45	Rear of Rear Wheel Opening	
15	Center Pillar Scalp							
16	Rear Door Window Frame Front Scalp							
17	Rear Door Window Frame Upper Scalp							

EXTERIOR MOLDING CHART

KEY	MOLDING NAME	REMOVE HARDWARE OR TRIM	KEY	MOLDING NAME	REMOVE HARDWARE OR TRIM	KEY	MOLDING NAME	REMOVE HARDWARE OR TRIM
46	Rear Quarter Outer Panel Emblem and/or Nameplate		57	Rear of Rear Wheel Opening Outer Panel Transfer Finishing		71	Back Body Opening Side Reveal	
47	Front Door Outer Panel Transfer Finishing Upper		58	Rear of Rear Quarter Outer Panel Transfer Finishing Upper		72	Tailgate Outer Panel Upper	
48	Rear Door Outer Panel Transfer Finishing Upper		59	Rear of Rear Quarter Outer Panel Transfer Finishing Lower		73	Tailgate Outer Panel Lower	
49	Rear Door Outer Panel Transfer Finishing Lower		60	Rear End Outer Panel (Upper and Lower for 13857 Style)	Bumper if Req'd	74	Tailgate Outer Panel Transfer Finishing Side	
50	Rear Quarter Outer Panel Transfer Finishing Upper		61	Rear End Outer Panel Side (Upper and Lower for 13857 Style)	Bumper if Req'd	75	Tailgate Outer Panel Transfer Finishing Upper	
51	Rear Quarter Outer Panel Transfer Finishing Upper Front (Lt. Side)		62	Back Window Upper Reveal		76	Tailgate Outer Panel Transfer Finishing Lower	
52	Rear Quarter Outer Panel Transfer Finishing at Gas Tank Filler Door (Lt. Side)		63	Back Window Side Reveal		77	Rear of Rear Quarter Outer Panel Transfer Finishing	
53	Rear Quarter Outer Panel Transfer Finishing Upper Rear (Lt. Side)		64	Back Window Lower Reveal		78	Rear Quarter Outer Panel Crown Finishing	
54	Rear Quarter Outer Panel Transfer Finishing Rear Vertical		65	Back Window Reveal Upper Corner Escutcheon		79	Rear of Rear Quarter Outer Transfer Finishing Vertical	
55	Rear Quarter Outer Panel Transfer Finishing Rear Vertical Lower		66	Back Window Reveal Lower Corner Escutcheon		80	Tailgate Outer Panel Emblem and/or Nameplate	
56	Front of Rear Wheel Opening Outer Panel Transfer Finishing		67	Back Window Reveal Upper and Side		81	Tailgate Belt Finishing	
			68	Back Window Reveal Lower and Side		82	Front Door Belt Reveal Front	
			69	Back Body Opening Upper Reveal		83	Front Door Window Belt Reveal	Front Door Window Lower Stop, if Req'd
			70	Quarter Window Reveal Upper Rear Escutcheon		84	Rear Quarter Window Belt Reveal	Rear Quarter Window Lower Stop, if Req'd
						85	Rear End Outer Panel Emblem and/or Nameplate	

EXTERIOR MOLDING CHART

KEY	MOLDING NAME	REMOVE HAROWARE OR TRIM	KEY	MOLDING NAME	REMOVE HARDWARE OR TRIM	KEY	MOLDING NAME	REMOVE HARDWARE DR TRIM
86	Rear Compartment Lid Outer Panel Emblem and/or Nameplate		101	Rear Door Edge Guard		116	Center Pillar Upper	
			102	Roof Panel Cover Side-Rear Lower Corner Escutcheon		117	Center Pillar Lower	
87	Roof Panel Emblem and/or Nameplate		103	Rear of Rear Wheel Opening Lower		118	Rear Quarter Outer Panel Transfer Finishing Front	
88	Rear Compartment Lid Outer Panel		104	Roof Panel Cover Side-Rear Upper Corner Escutcheon		119	Rear Quarter Outer Panel Rear	
89	Rear Compartment Lid Outer Panel Side		105	Roof Panel Cover Side-Rear Vertical		120	Rear Wheel Opening Cover Front	
90	Front Door Outer Panel Peak		106	Rear Quarter Outer Panel Transfer Finishing Front		121	Rear Wheel Opening Cover Rear	
91	Rear Quarter Outer Panel Peak		107	Front Door Outer Panel Transfer Finishing Lower		122	Rear Quarter Belt Reveal Front	
92	Rear Quarter Outer Gas Tank Filler Door Edge Guard		108	Rear Quarter Outer Panel		123	Roof Drip Upper Rear Scalp	
93	Rear Wheel Opening Cover		109	Center Pillar Drip Upper Front Corner		124	Rear Quarter Outer Panel Louver	
94	Front Skylight Front Reveal		110	Center Pillar Drip Upper Rear Corner		125	Roof Drip Upper Front Scalp	
95	Front Skylight Rear Reveal		111	Center Pillar Drip Front		126	Roof Drip Upper Front Corner Escutcheon	
96	Side Skylight Upper Reveal		112	Center Pillar Drip Rear		127	Rear of Rear Quarter Outer Panel	Bumper if Req'd
97	Quarter Window Upper and Side Skylight Lower Reveal		113	Rear Door Window Belt Reveal	Rear Door Window Lower Stop, if Req'd	128	Back Body Pillar Belt Reveal	
98	Quarter Window and Side Skylight Rear Reveal		114	Rear Door Belt Reveal Rear		129	Quarter Window and Skylight Front Reveal	
99	Rear Quarter Pinchweld Finishing		115	Center Pillar Belt Reveal		130	Rear Door Outer Panel Peak	
100	Front Door Edge Guard							

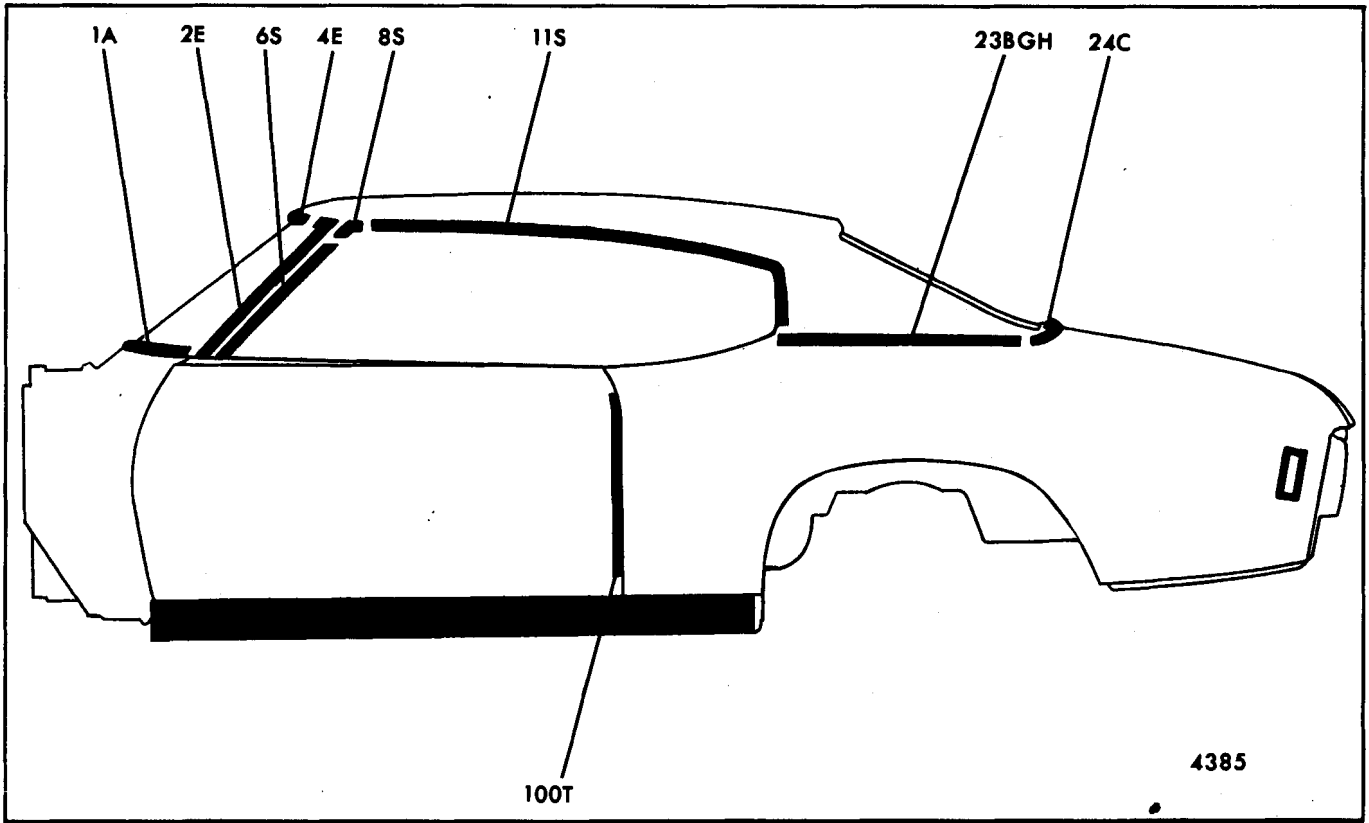


Fig. 16-8-Chevrolet 13437 Styles (13637-67 Similar)

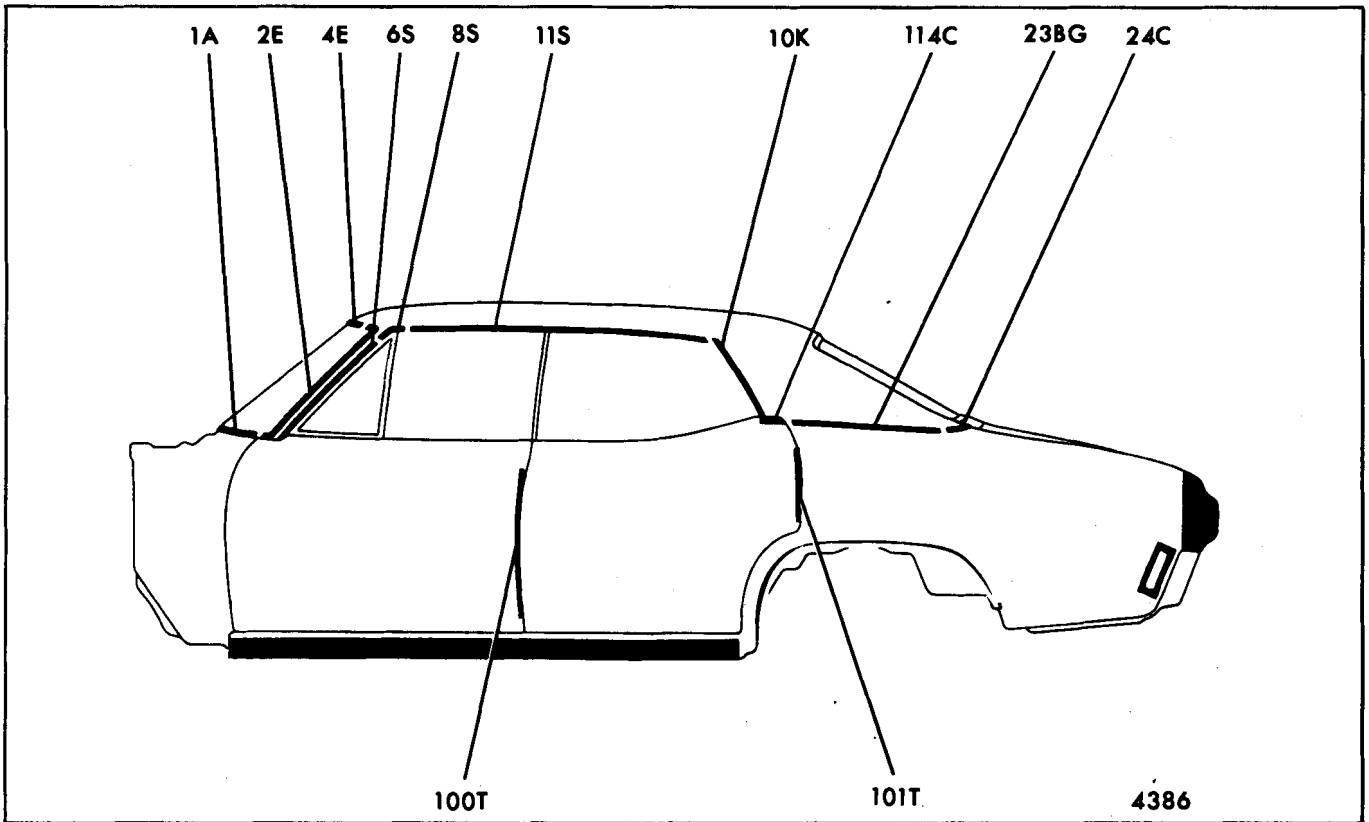


Fig. 16-9-Chevrolet 13639 Styles

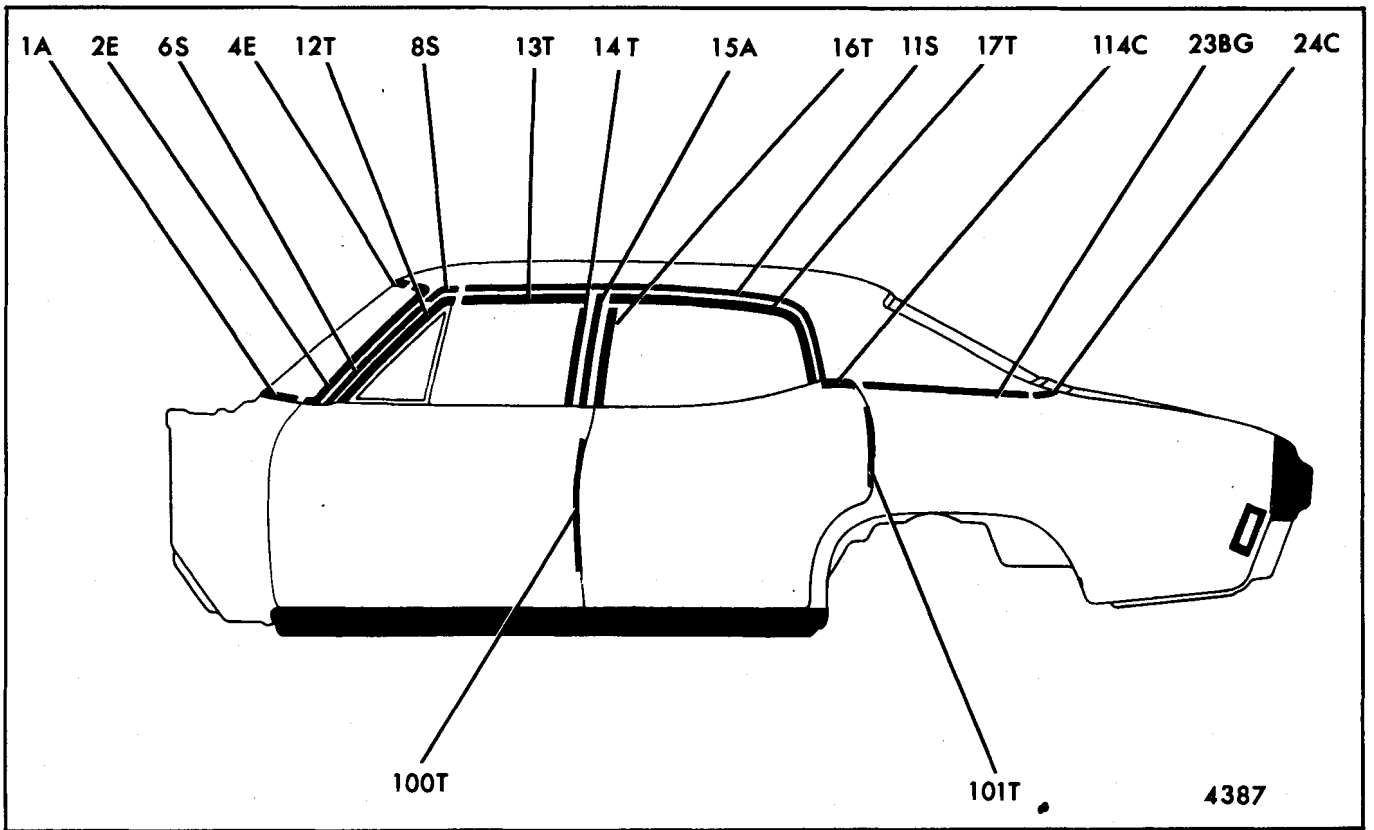


Fig. 16-10-Chevrolet 13669 Styles (13469 Similar)

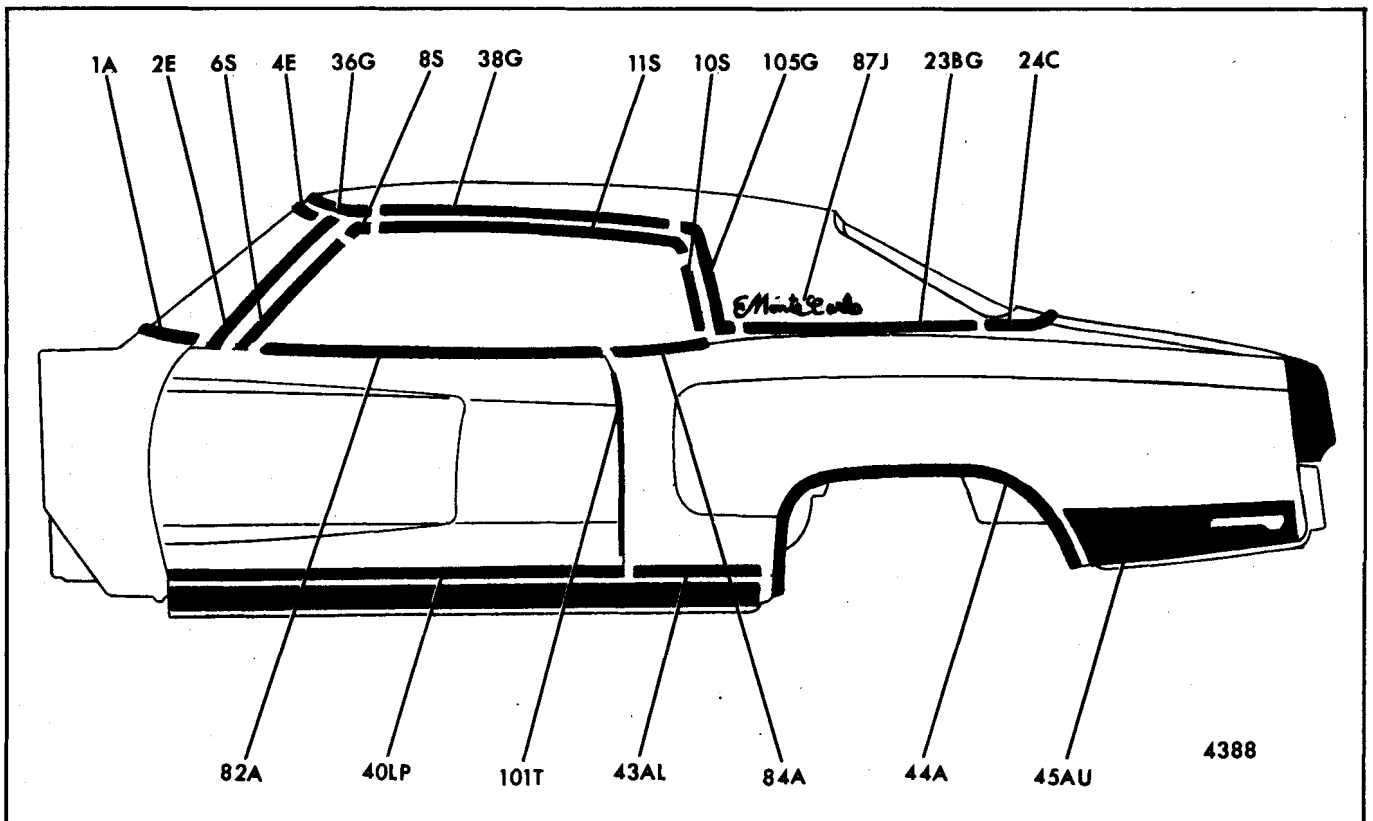


Fig. 16-11-Chevrolet 13857 Styles

16-12 EXTERIOR MOLDINGS

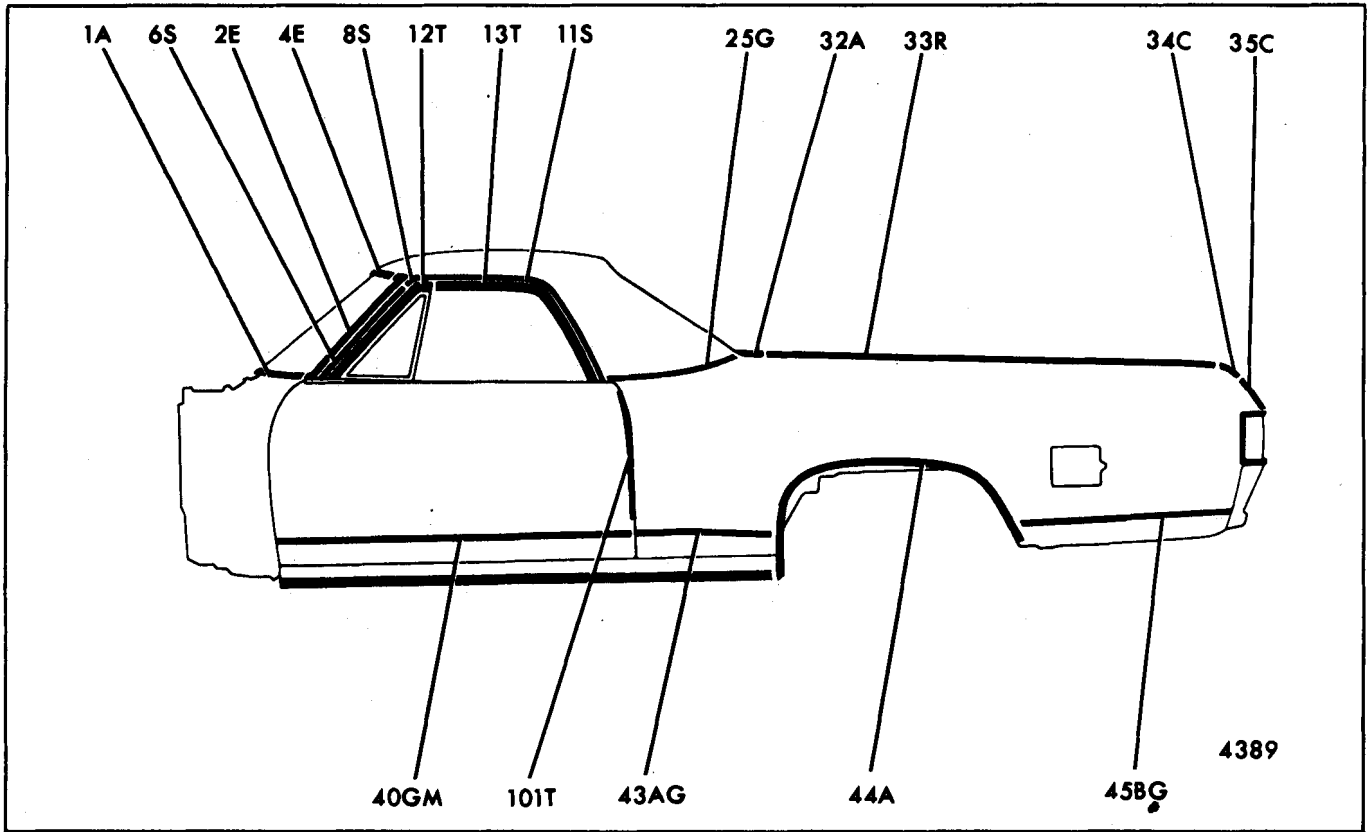


Fig. 16-12-Chevrolet 13680 Styles (13480, 53480, 53680 Similar)

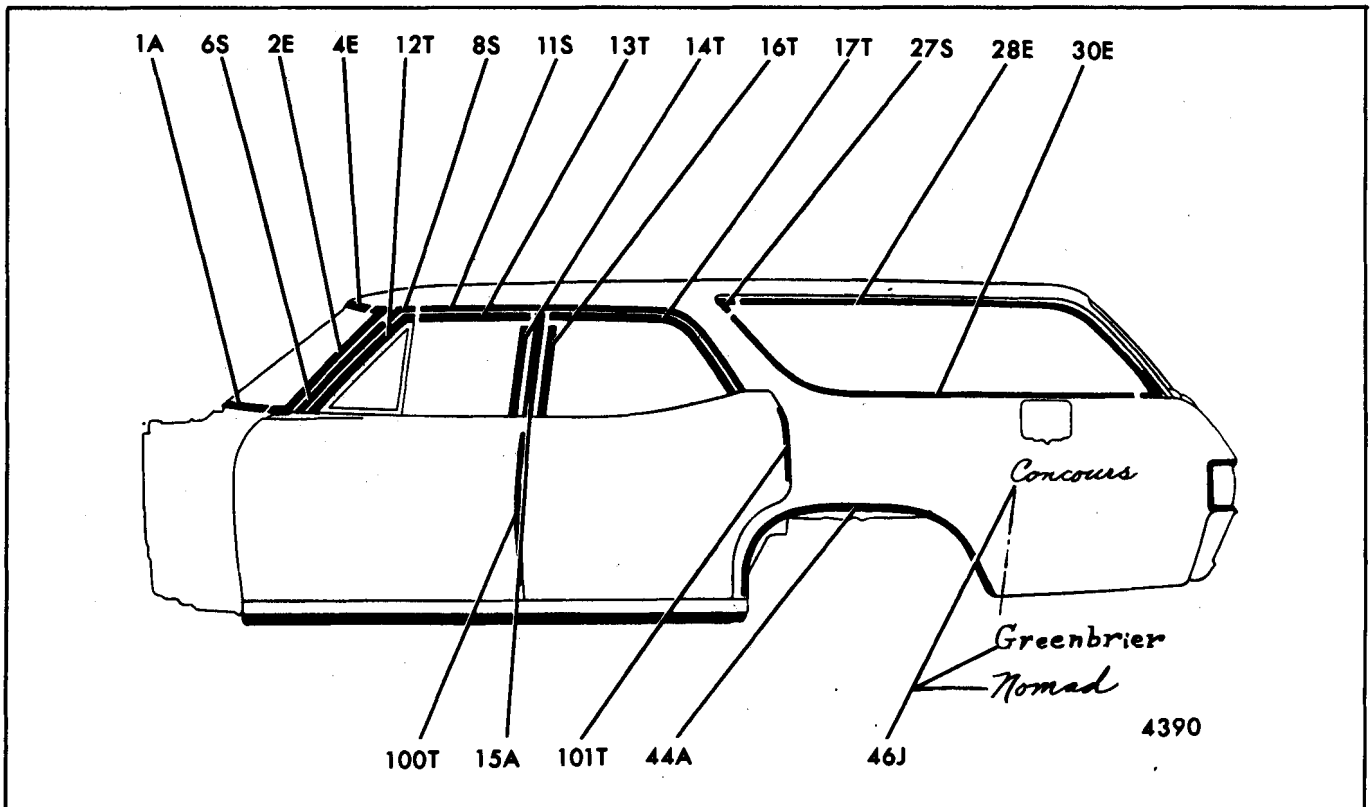


Fig. 16-13-Chevrolet 13636 Styles (13236, 13436-46, 13646 Similar)

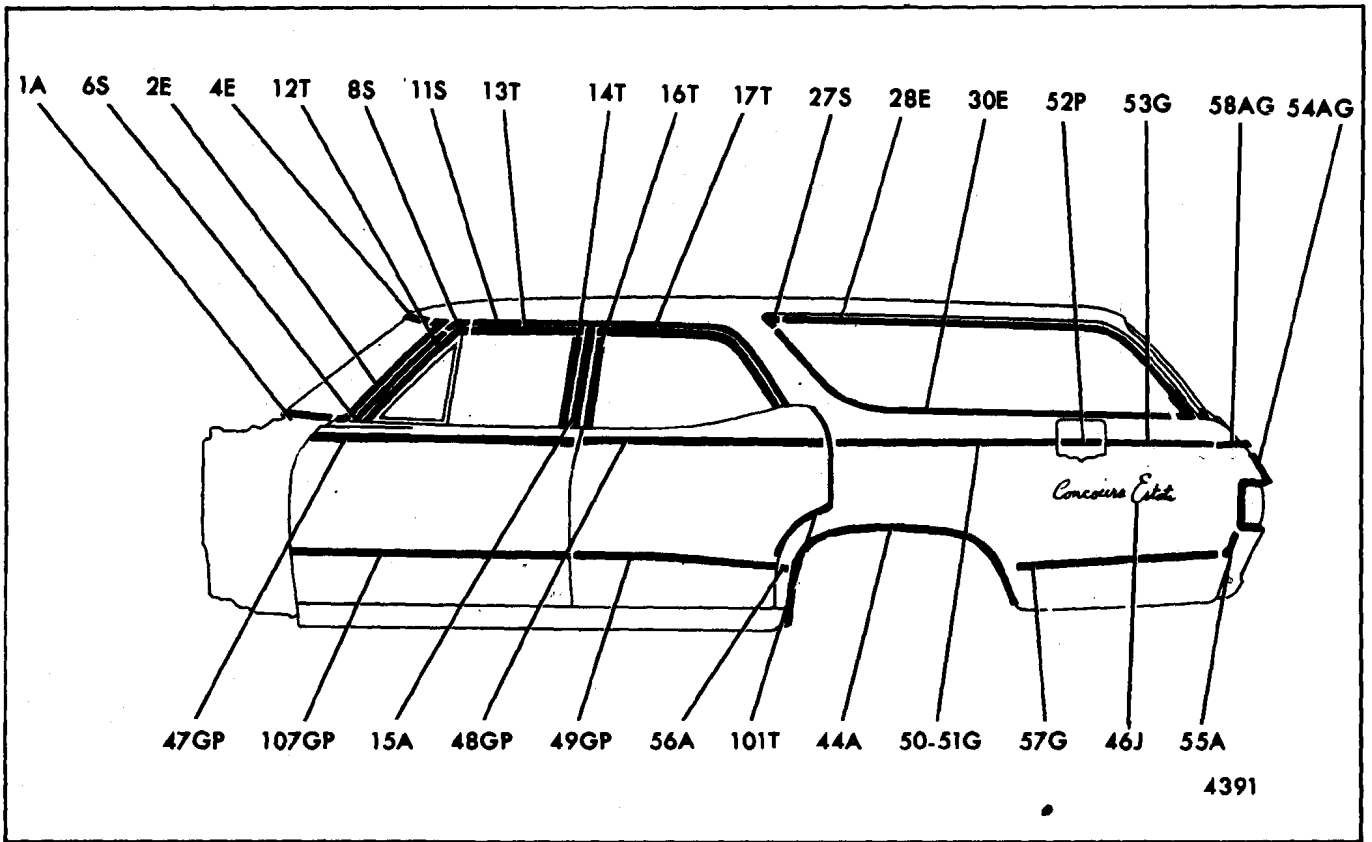


Fig. 16-14-Chevrolet 13836-46 Styles

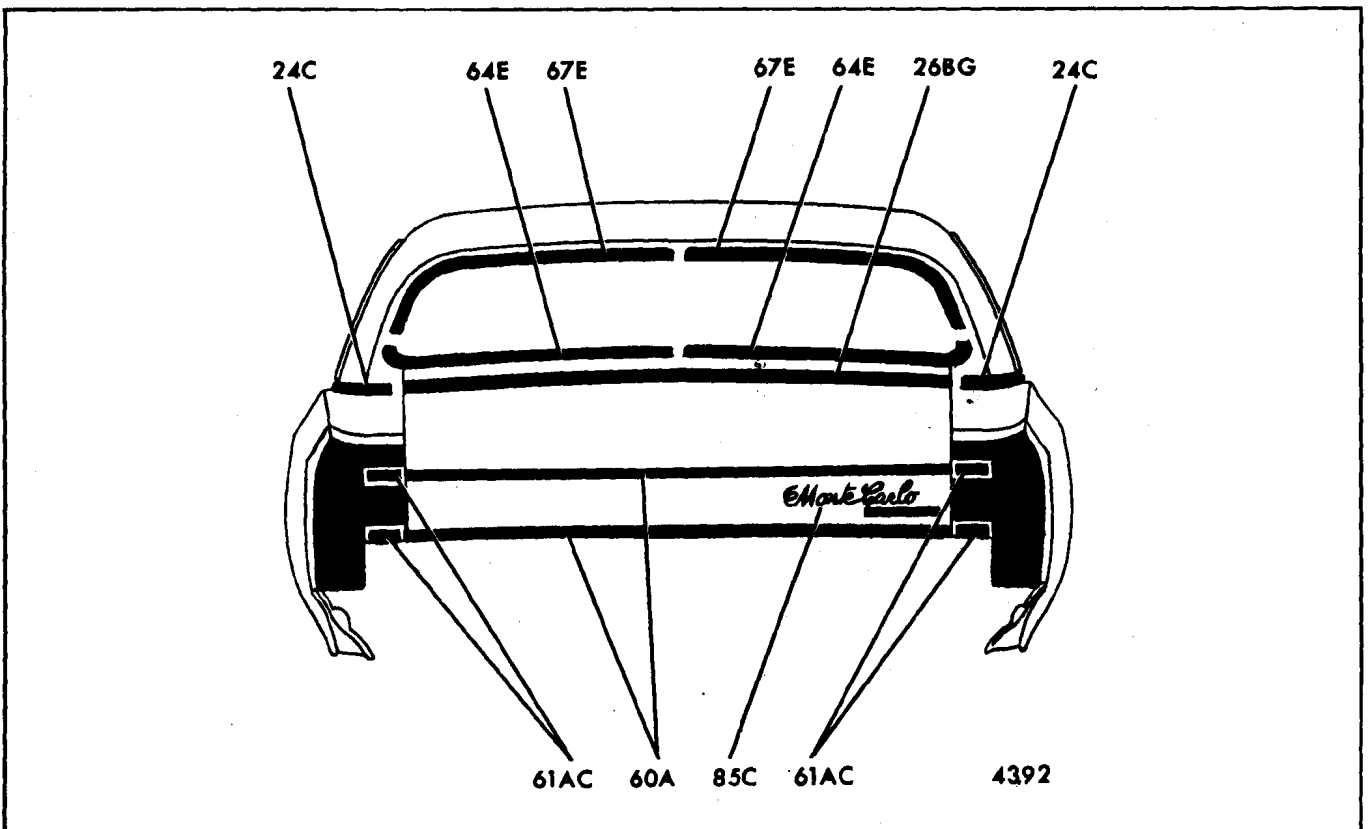


Fig. 16-15-Chevrolet 13857 Styles

16-14 EXTERIOR MOLDINGS

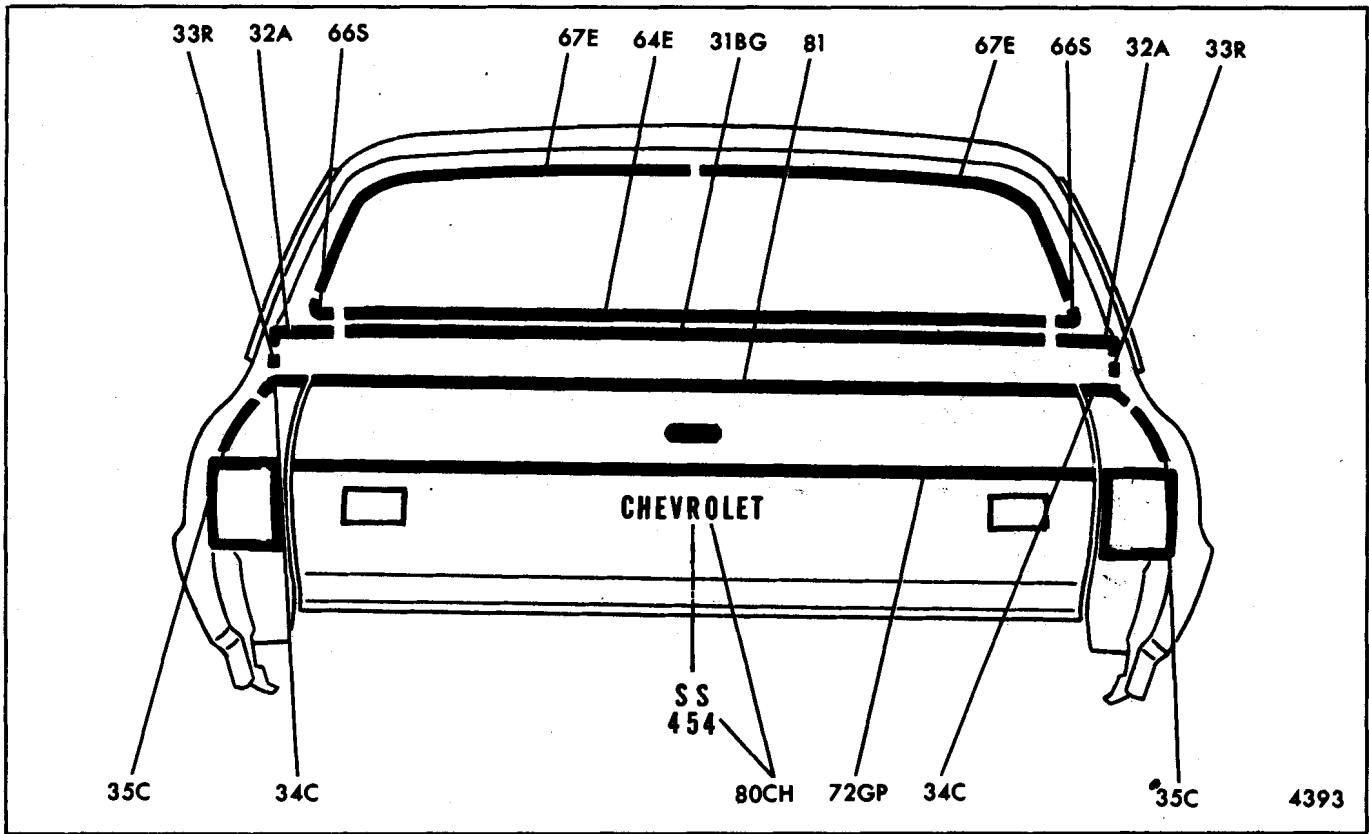


Fig. 16-16-Chevrolet 13680 Styles (13480, 53480, 53680 Similar)

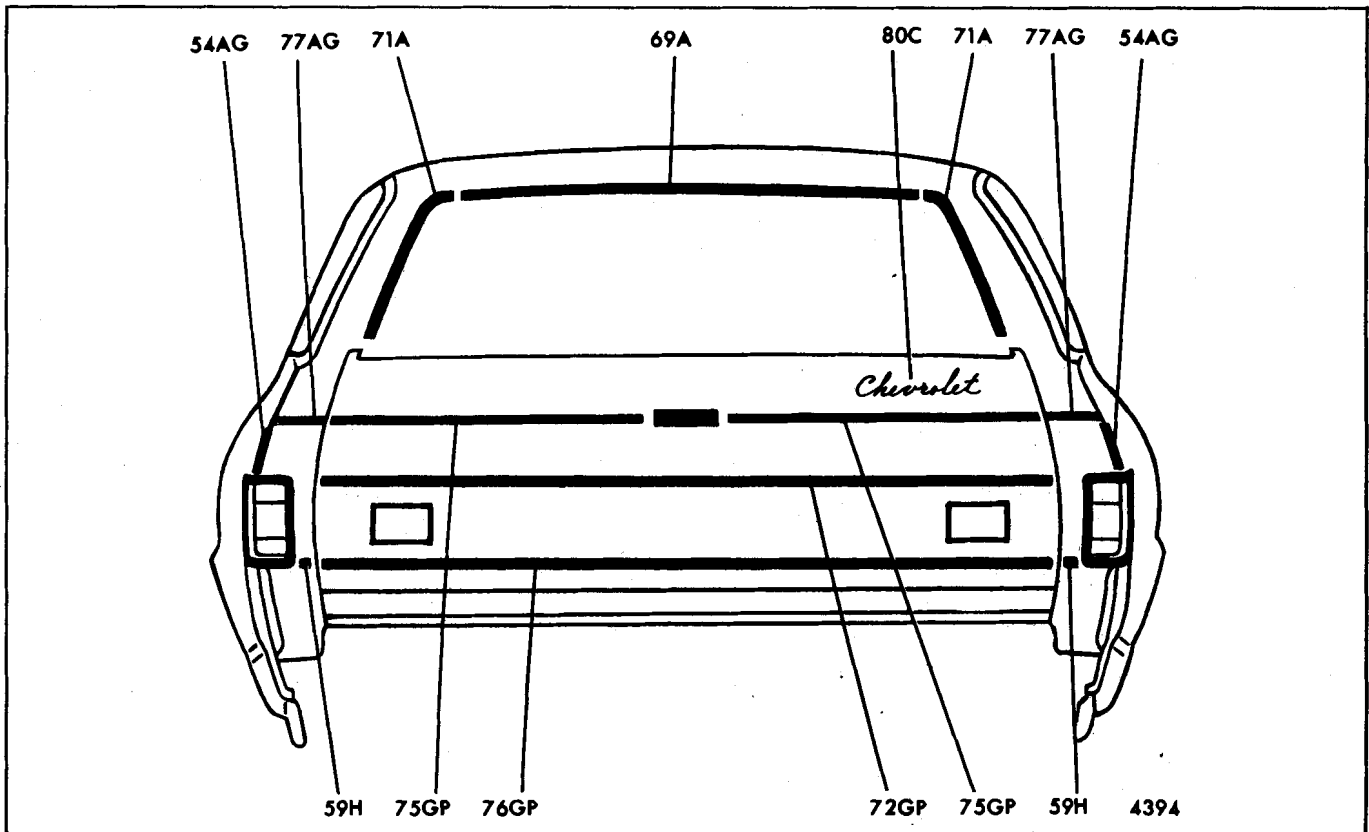


Fig. 16-17-Chevrolet 13800 Styles (All Station Wagons Similar)

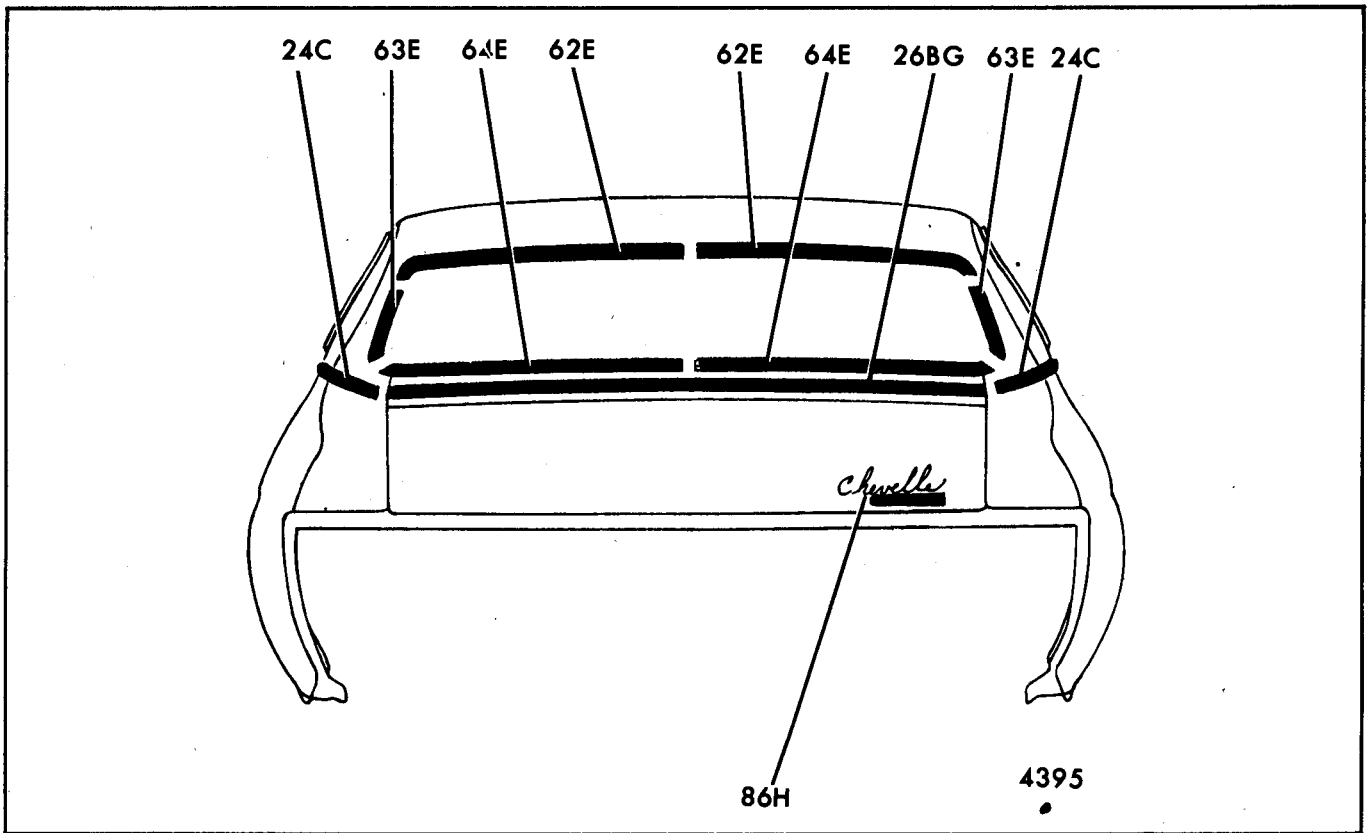


Fig. 16-18-Chevrolet 13600 Styles (13400 Similar Except Station Wagons)

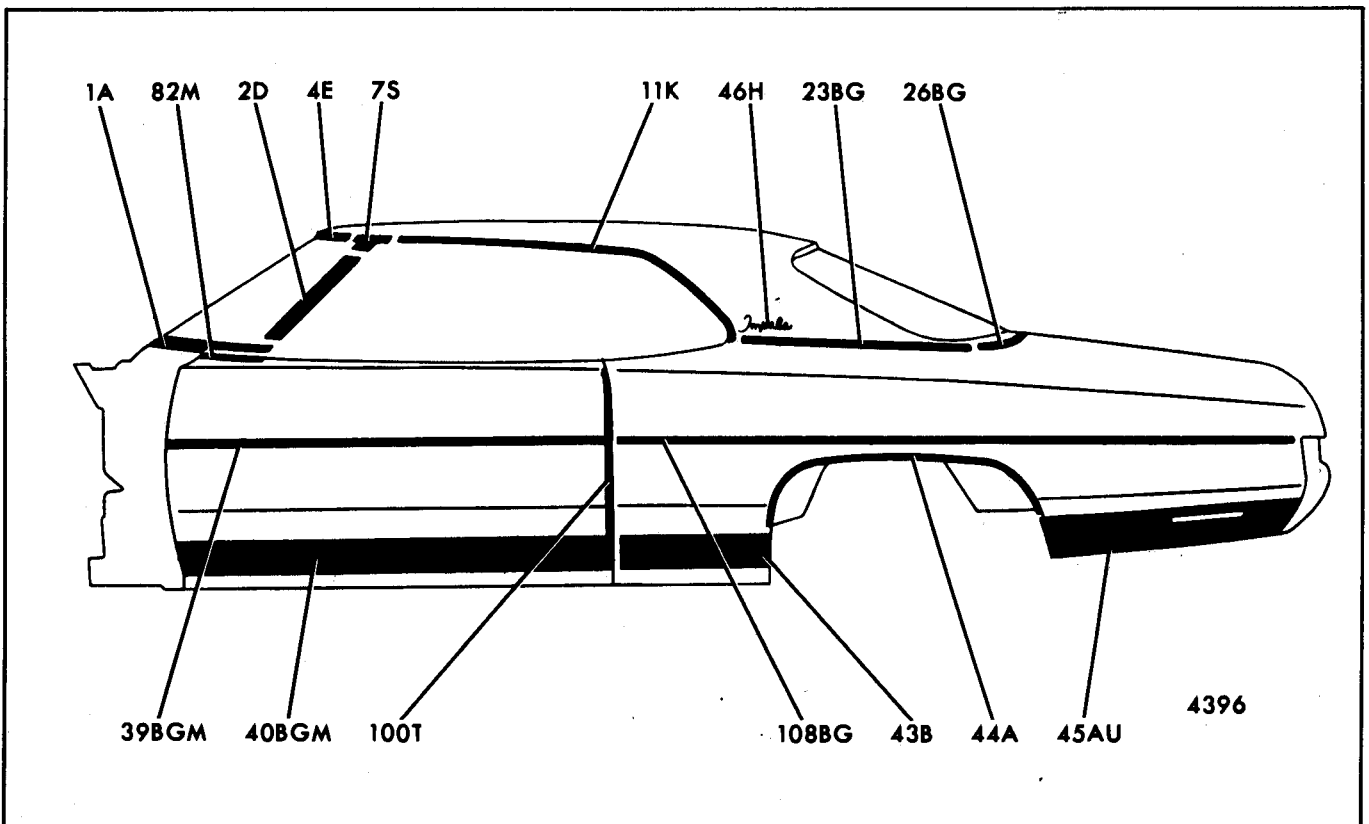


Fig. 16-19-Chevrolet 16457 Styles

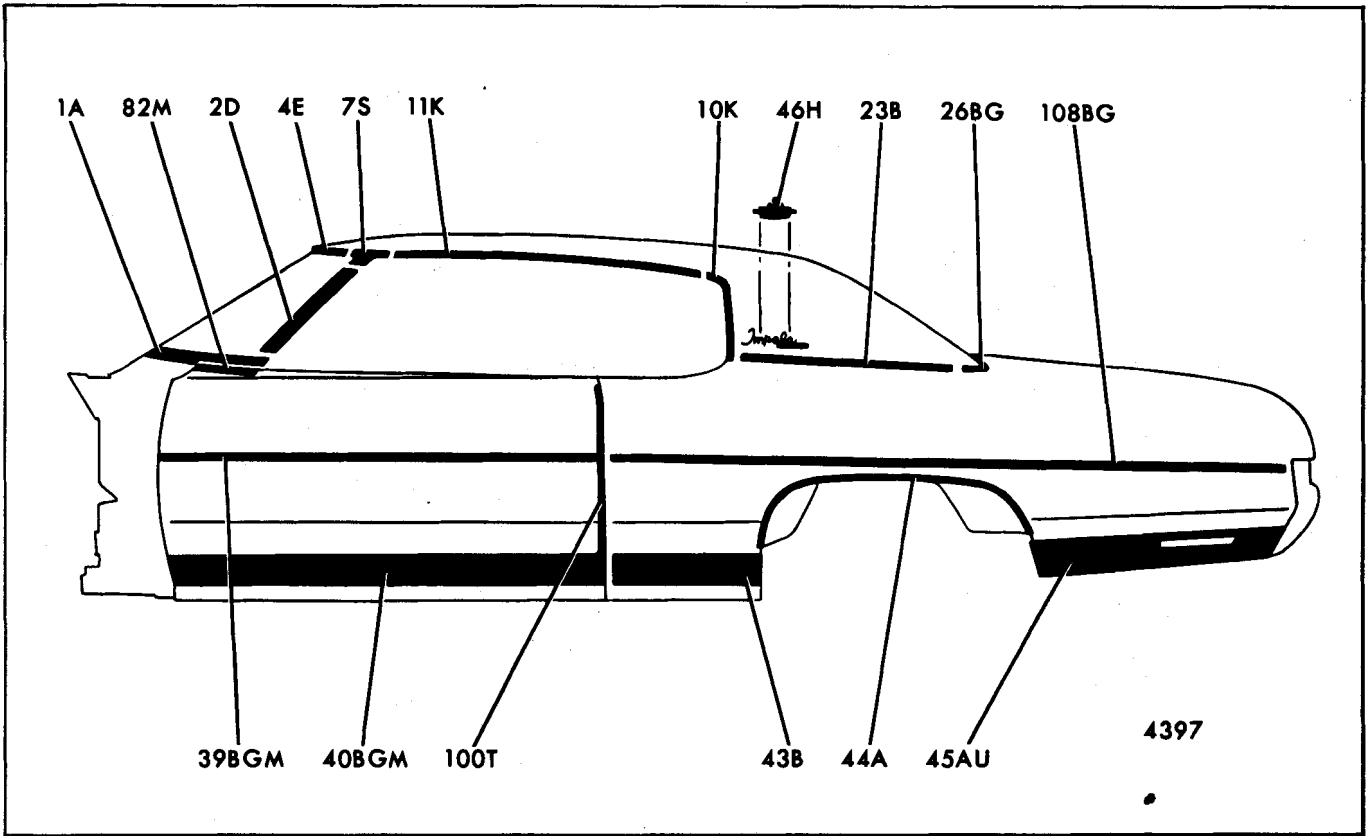


Fig. 16-20-Chevrolet 16447 Styles (16467, 16647 Similar)

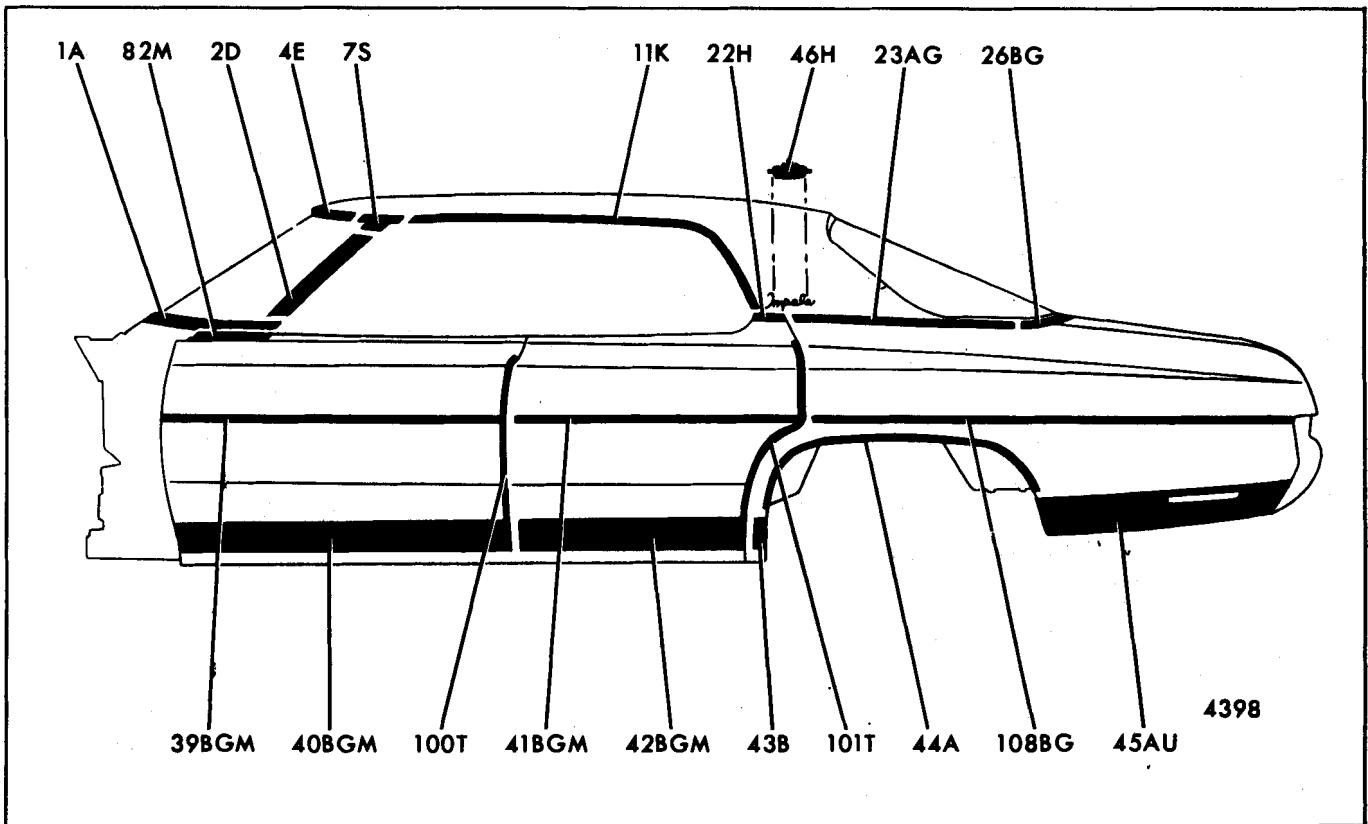


Fig. 16-21-Chevrolet 16439 Styles (16639 Similar)

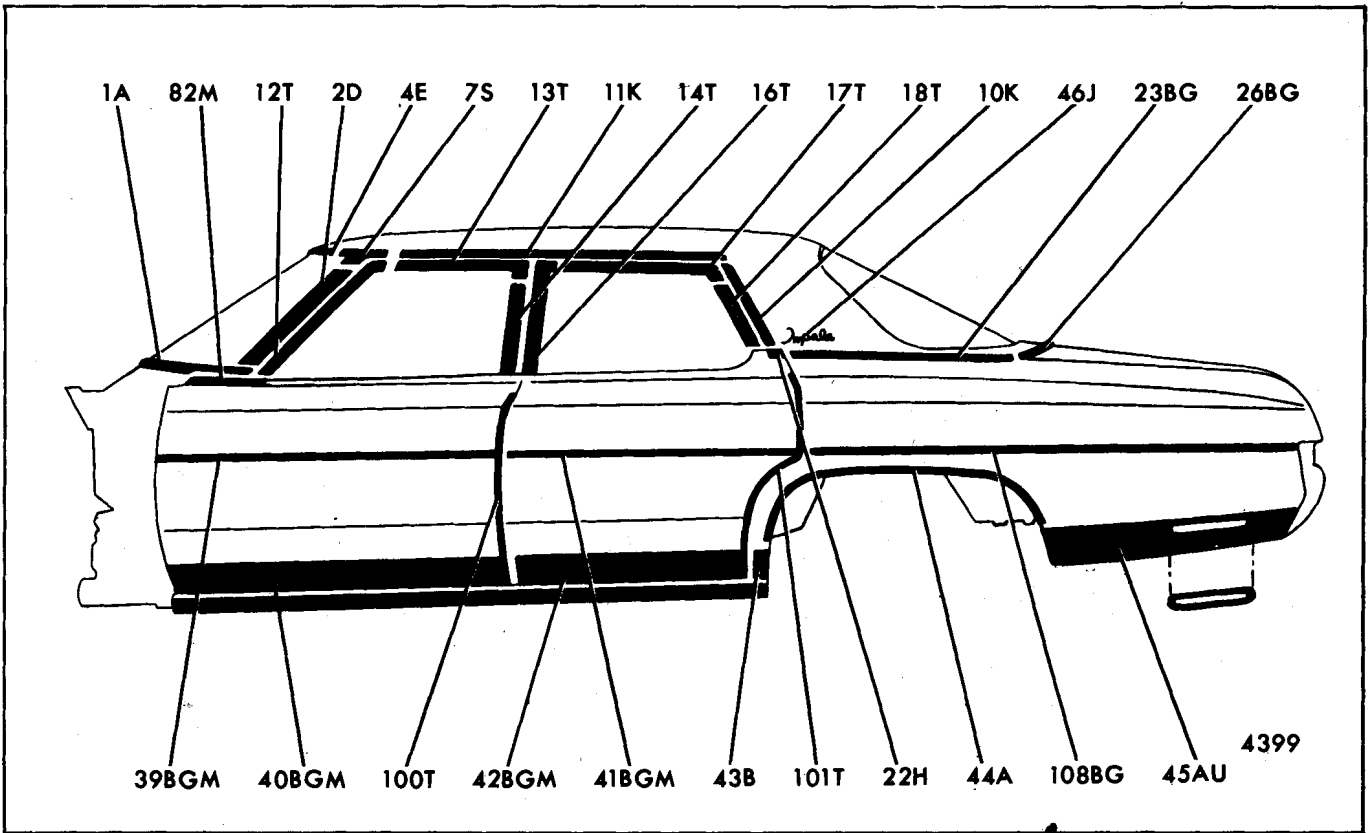


Fig. 16-22-Chevrolet 16469 Styles (15469, 15669 Similar)

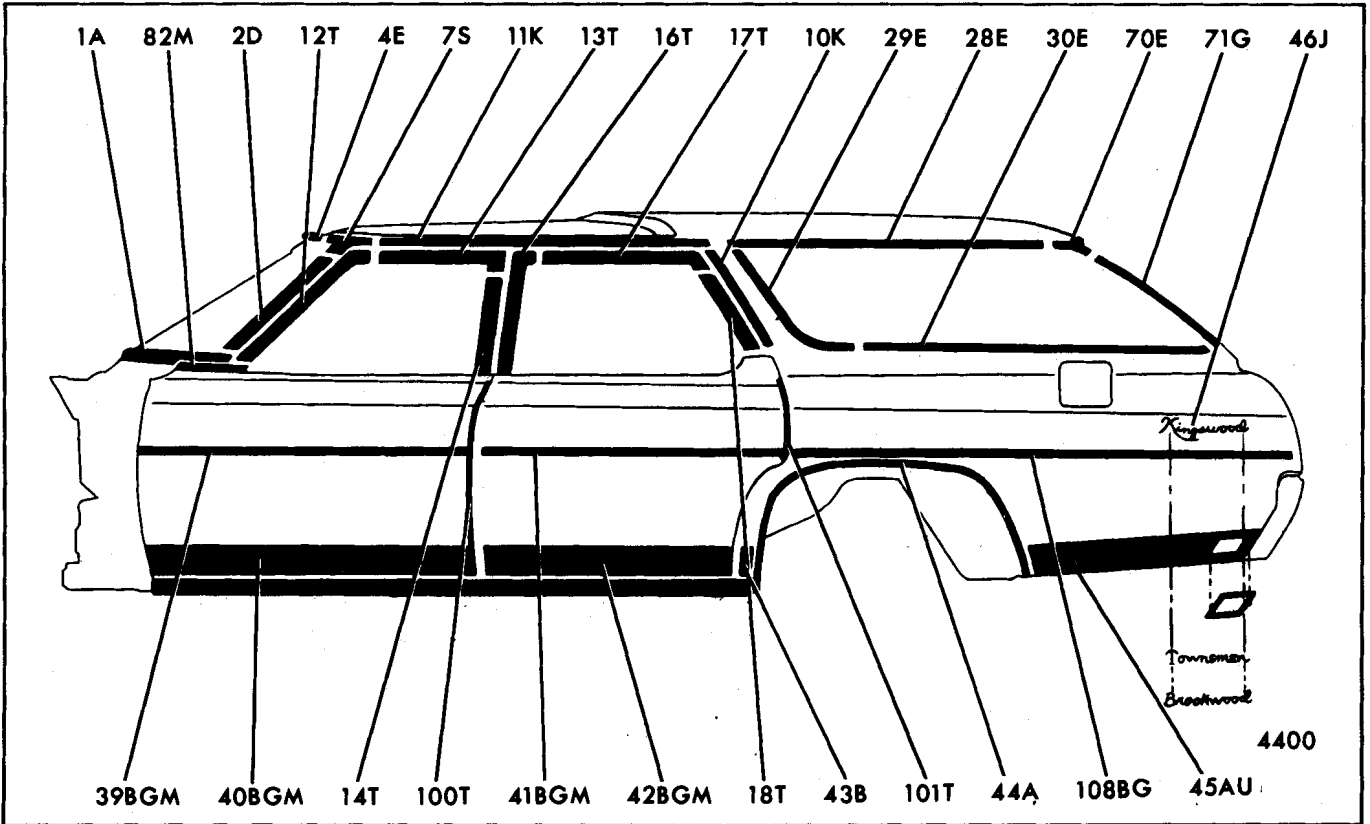


Fig. 16-23-Chevrolet 16435 Styles (15435, 15635-45, 16445 Similar)

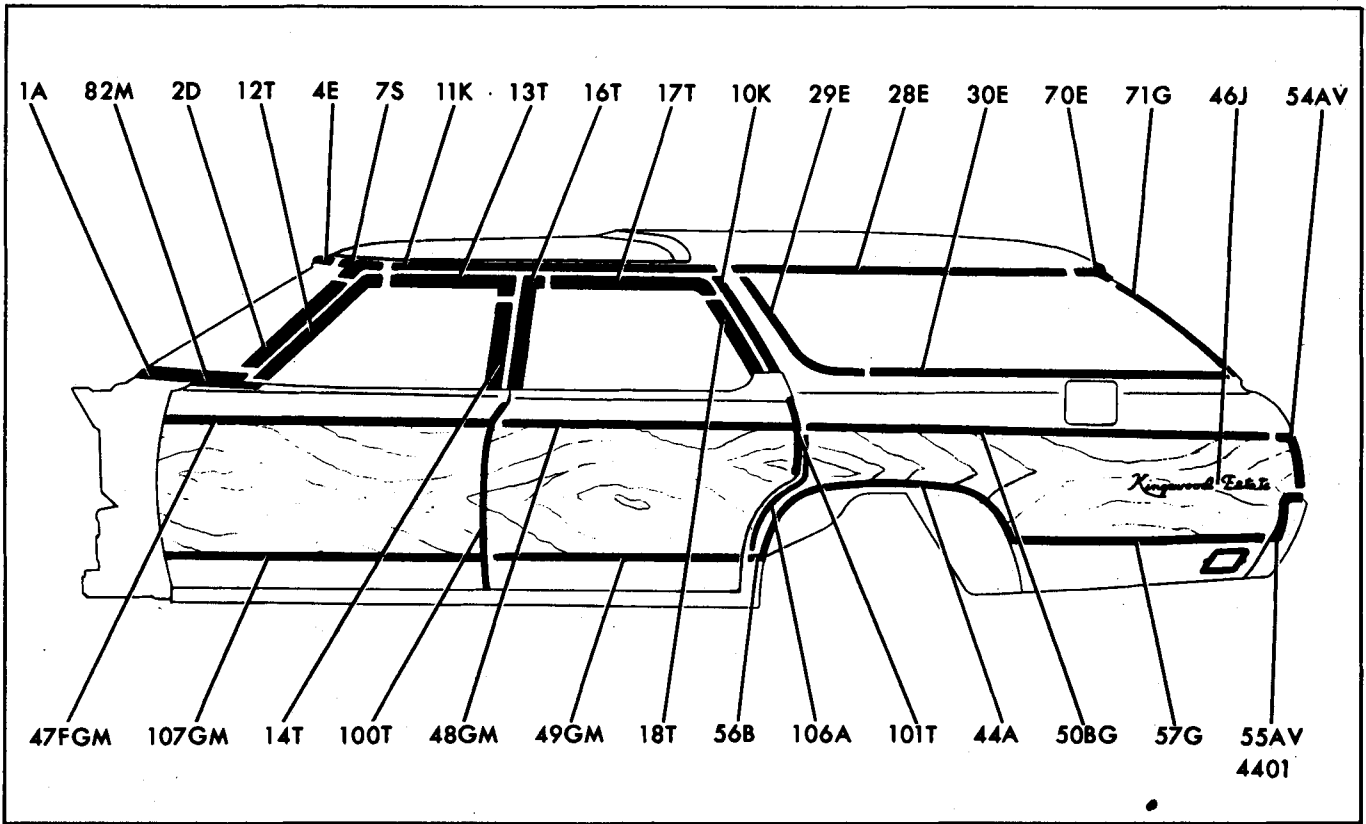


Fig. 16-24-Chevrolet 16635 Styles (16645 Similar)

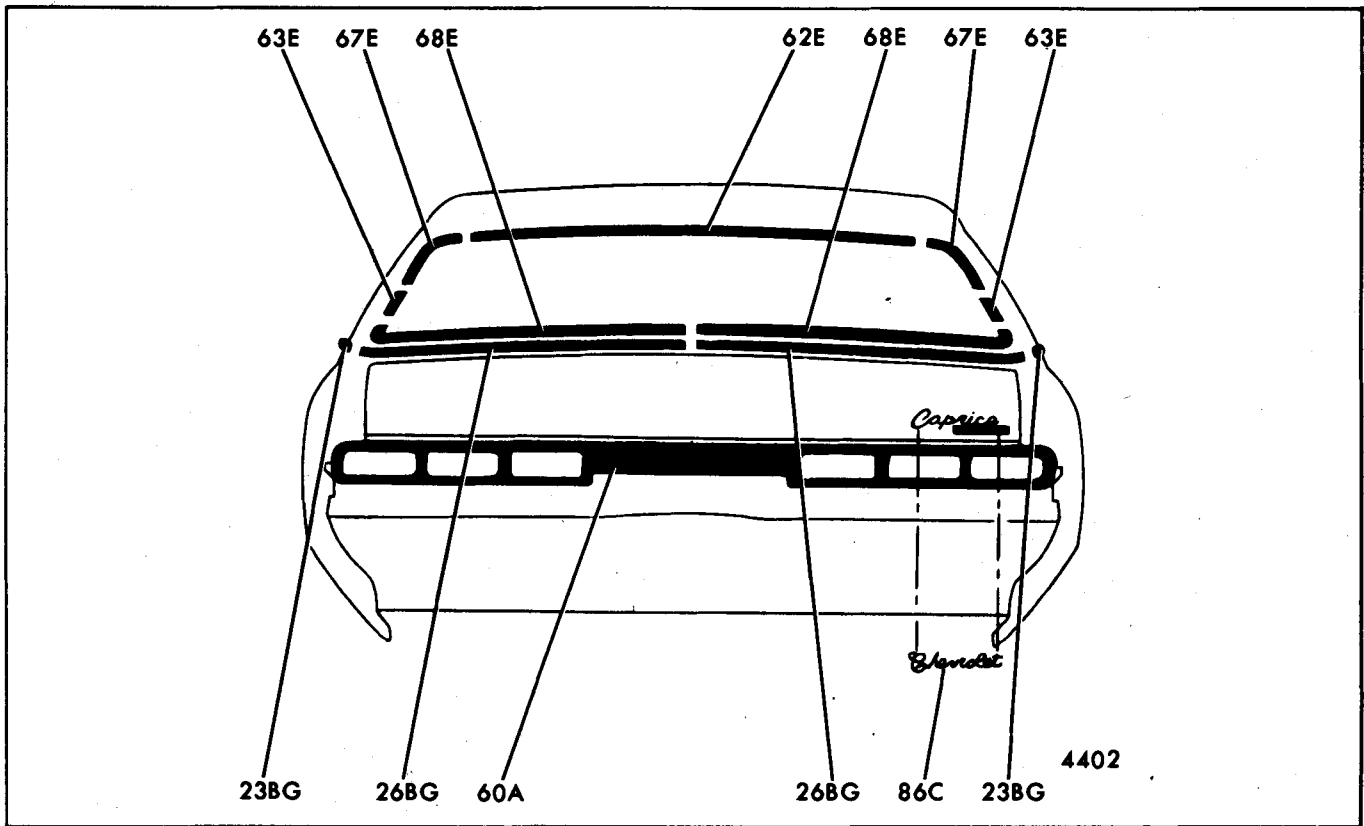


Fig. 16-25-Chevrolet 16600 Styles (15400, 15600, 16400 Similar Except Station Wagons)

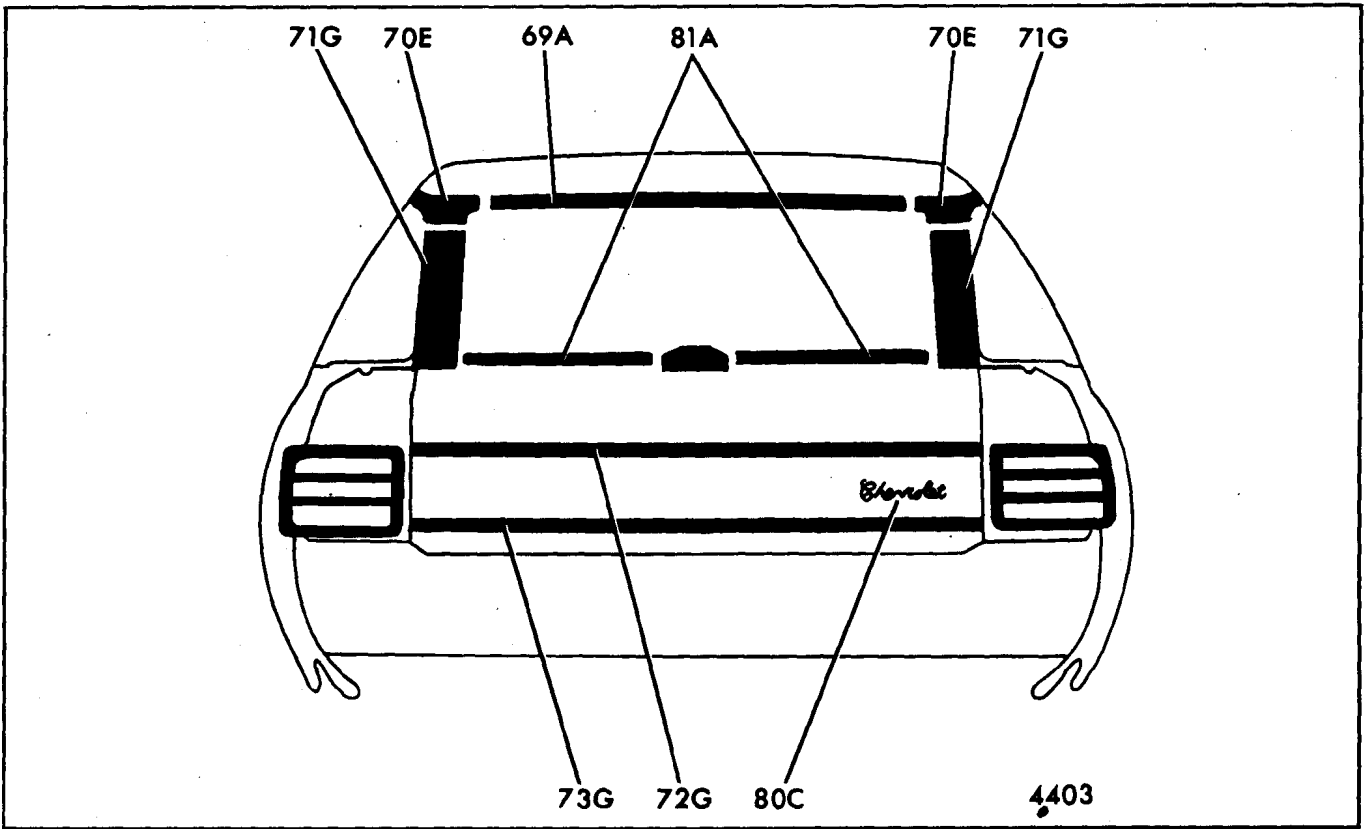


Fig. 16-26-Chevrolet 16400 Styles (15400, 15600 Station Wagons Similar)

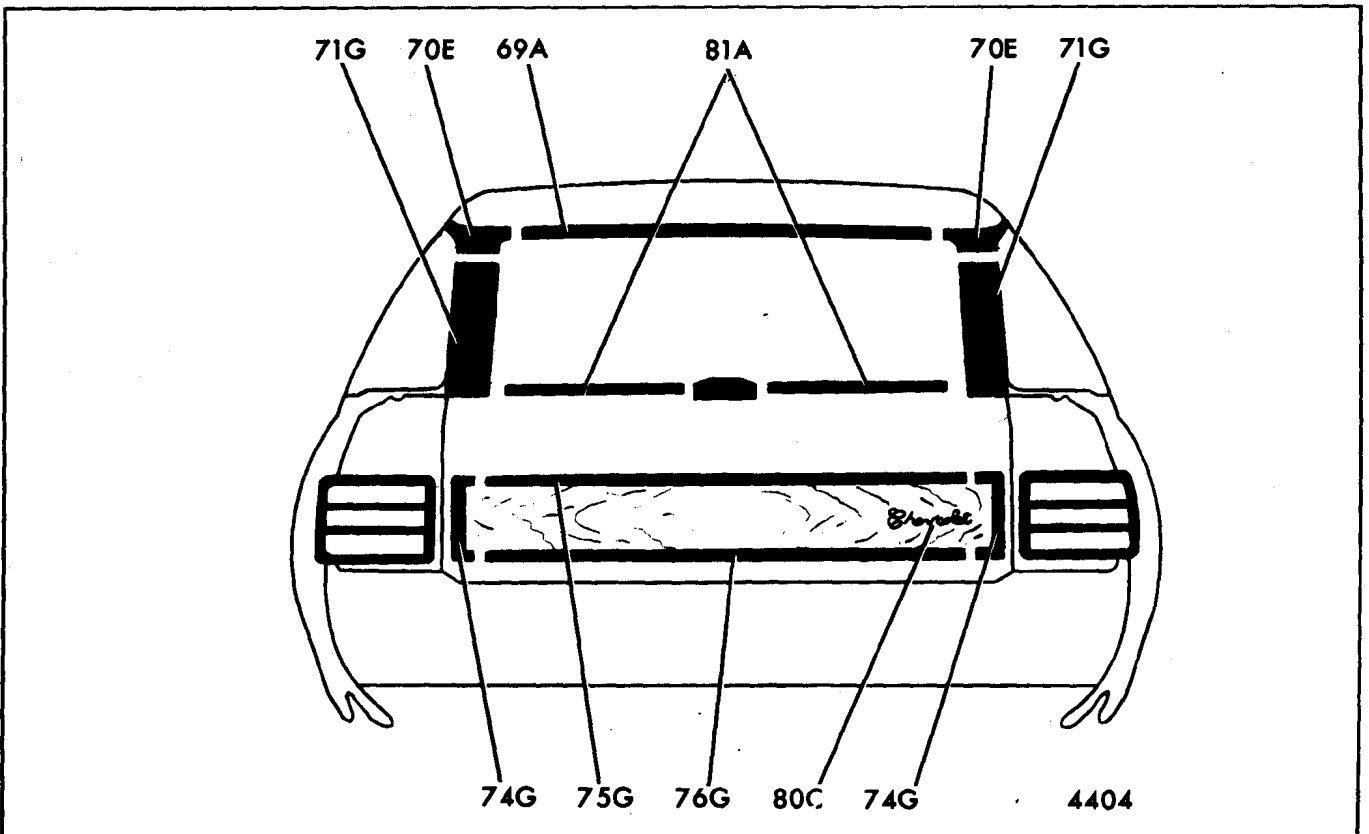


Fig. 16-27-Chevrolet 16600 Station Wagon Styles

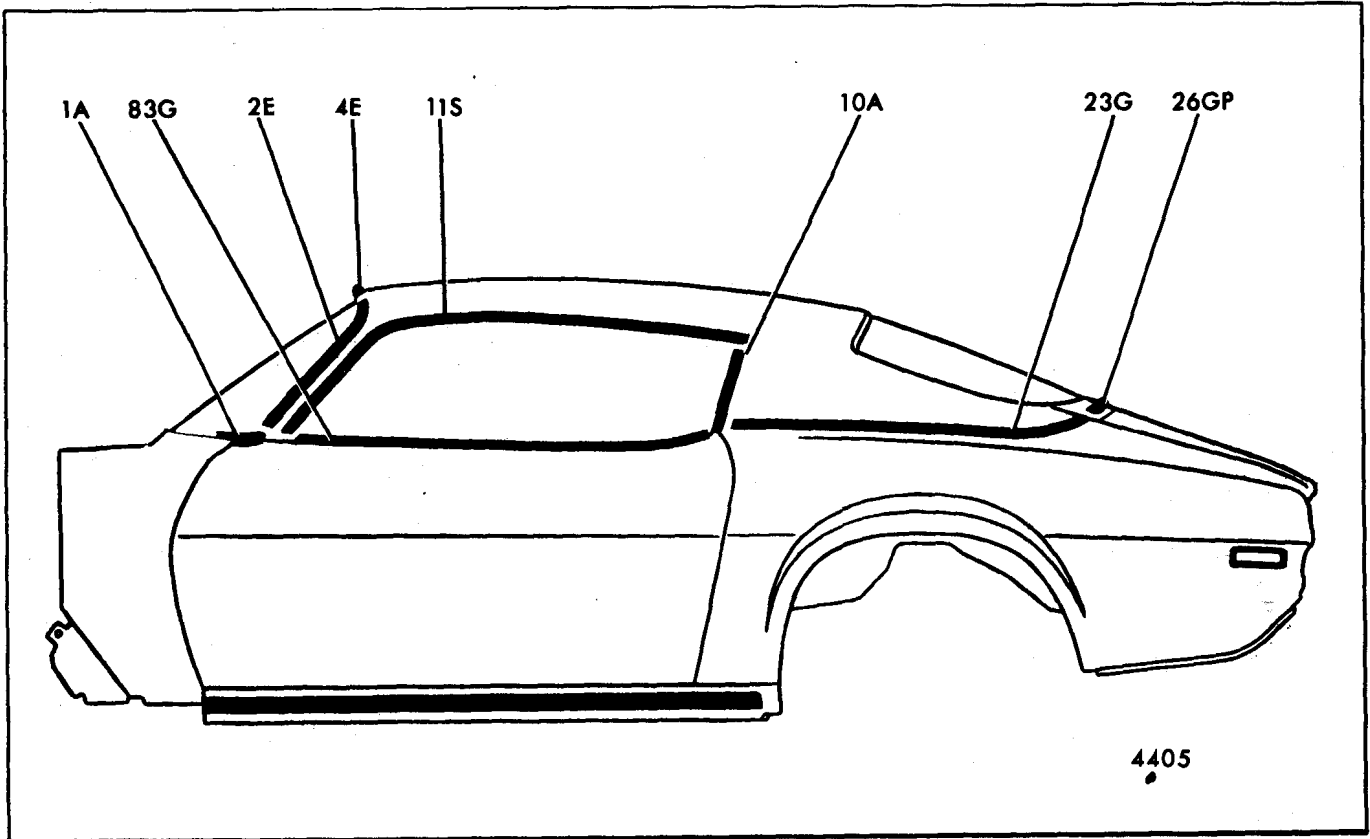


Fig. 16-28-Chevrolet 12487 Styles

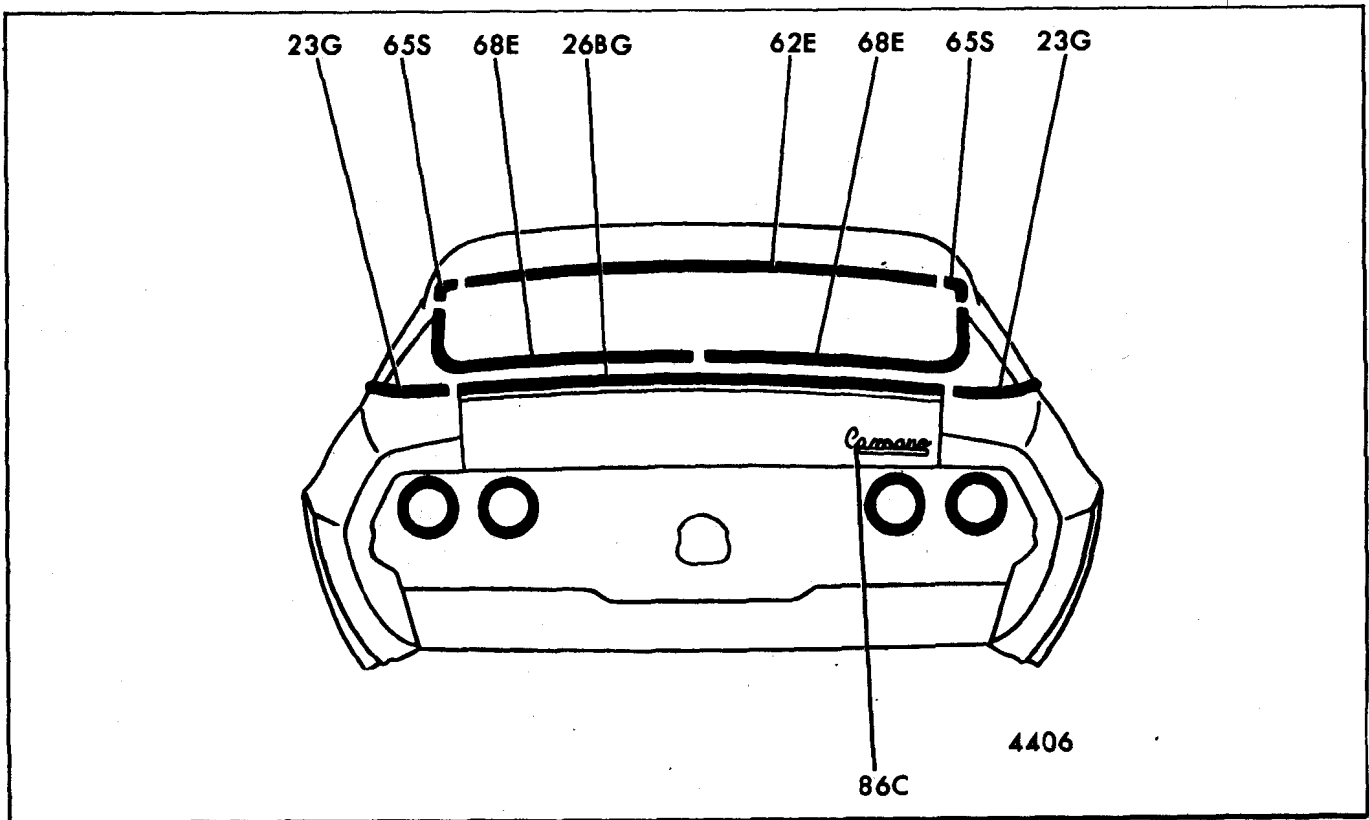


Fig. 16-29-Chevrolet 12487 Styles

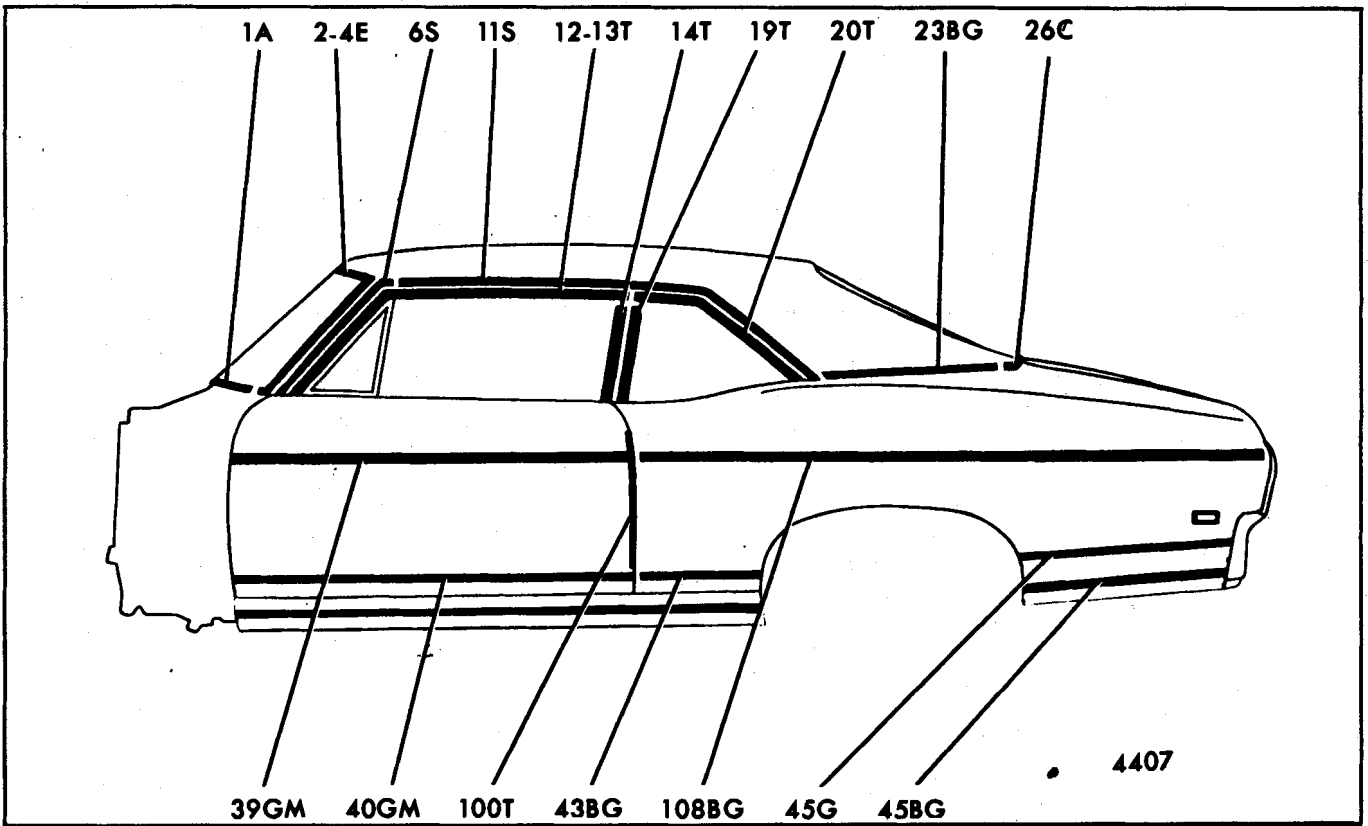


Fig. 16-30-Chevrolet and Acadian (Canadian) 11427 Styles

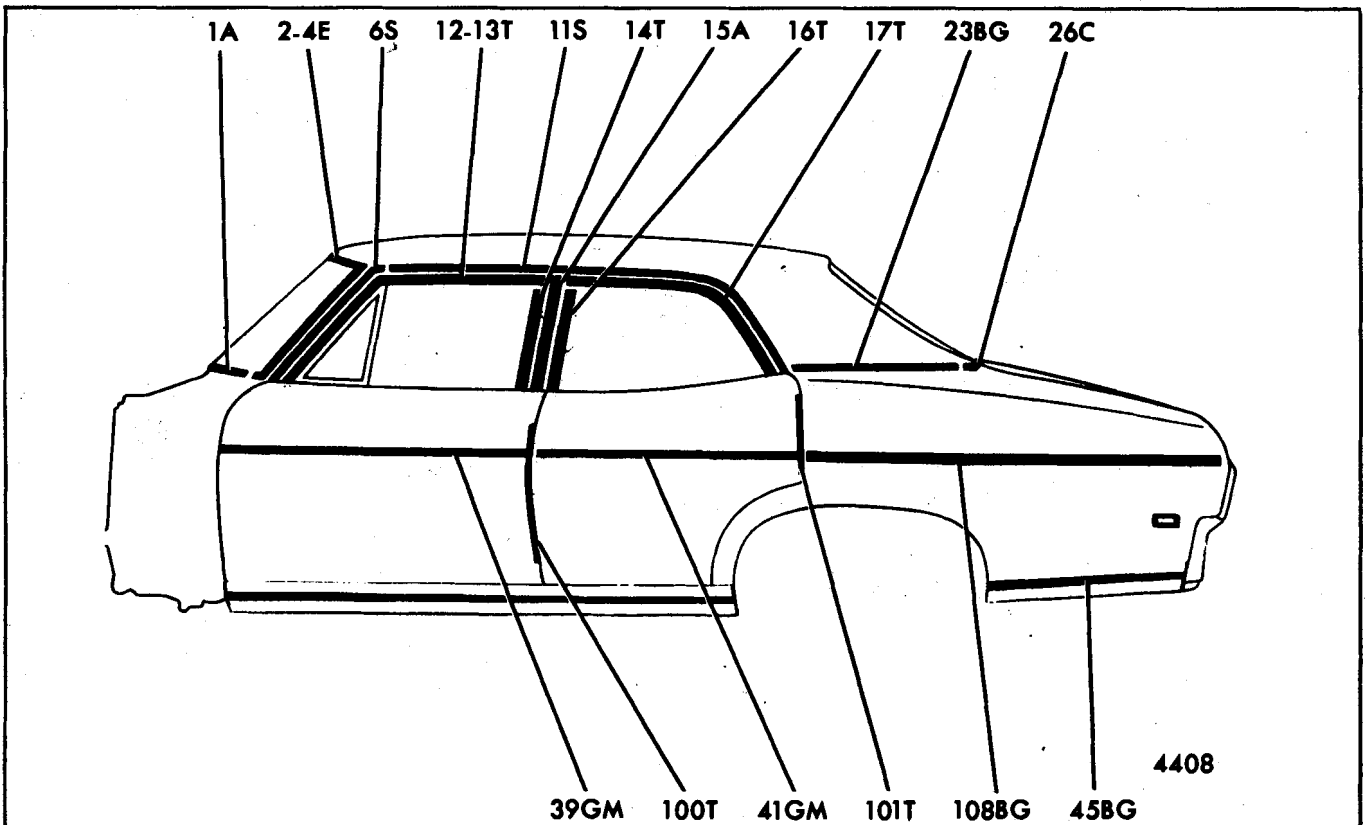


Fig. 16-31-Chevrolet and Acadian (Canadian) 11469 Styles

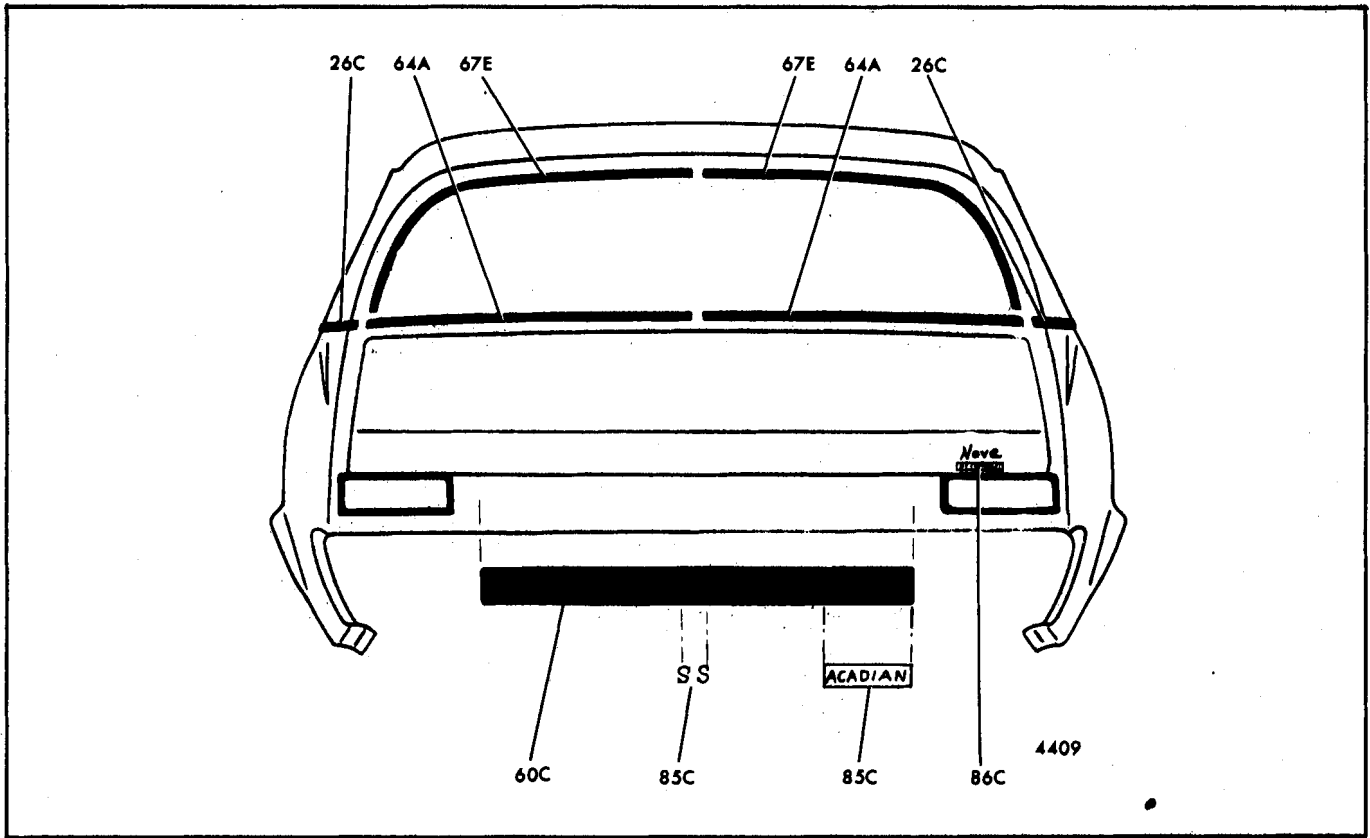


Fig. 16-32-Chevrolet and Acadian (Canadian) 11427-69 Styles

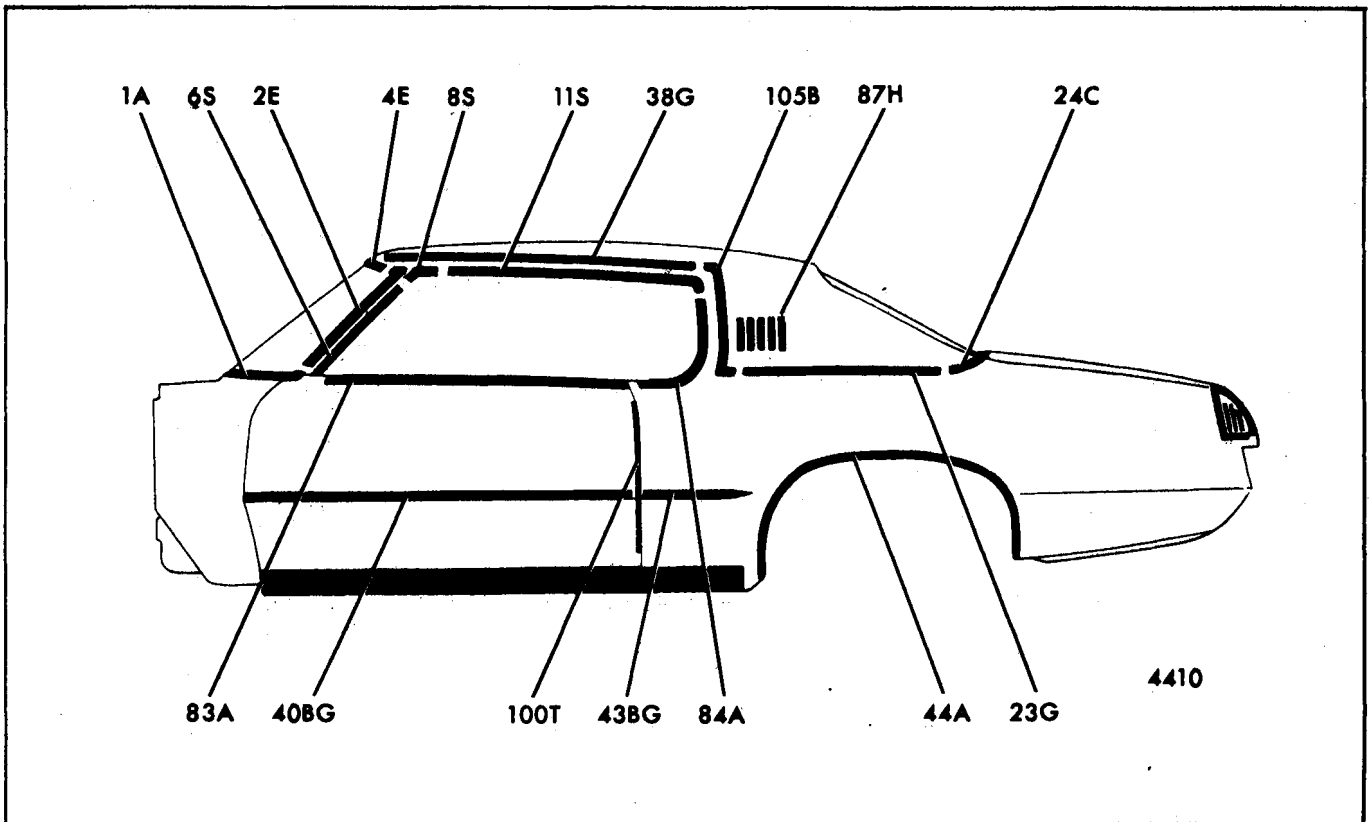


Fig. 16-33-Pontiac 27657 Styles

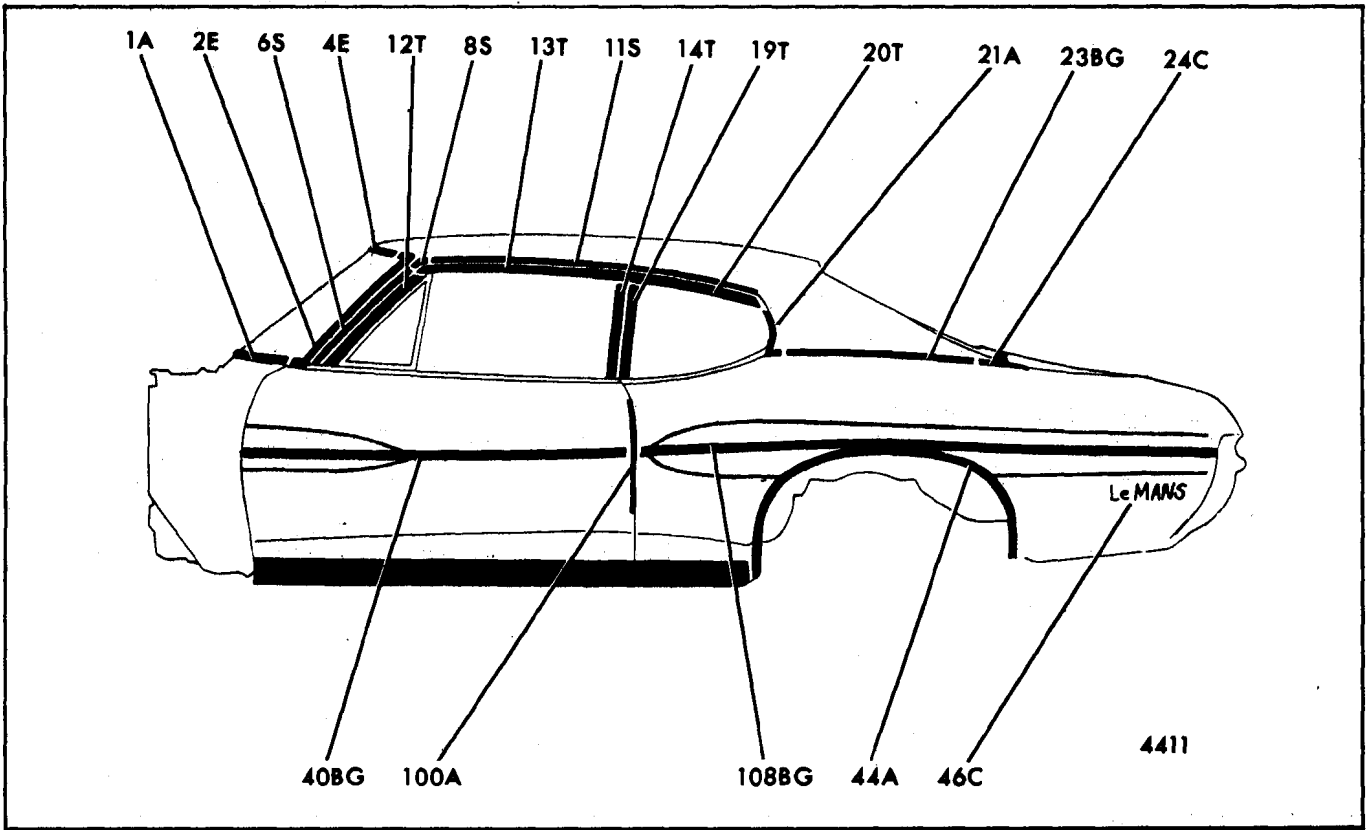


Fig. 16-34-Pontiac 23527 Styles (23327 Similar)

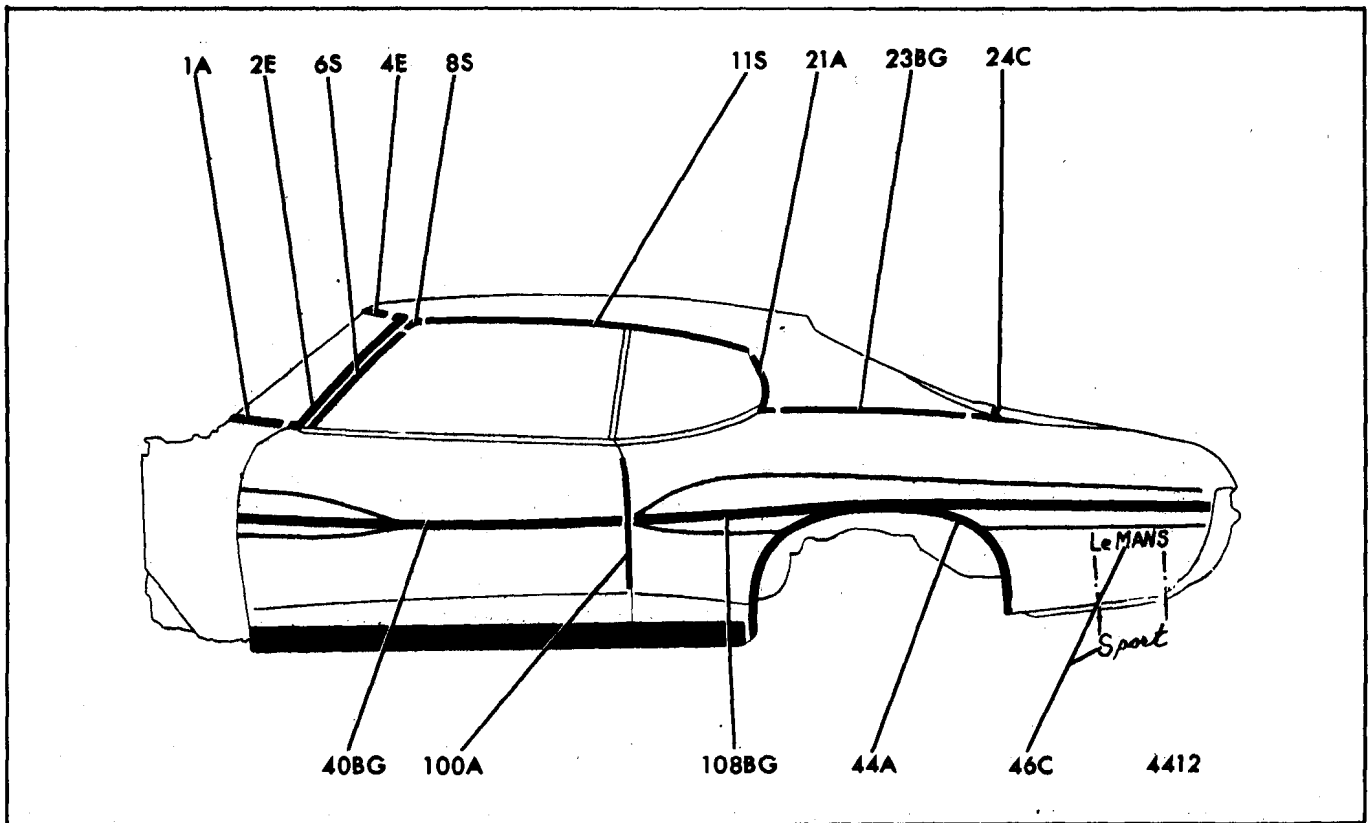


Fig. 16-35-Pontiac 23737 Styles (23337, 23537, 23767, 24237-67 Similar)

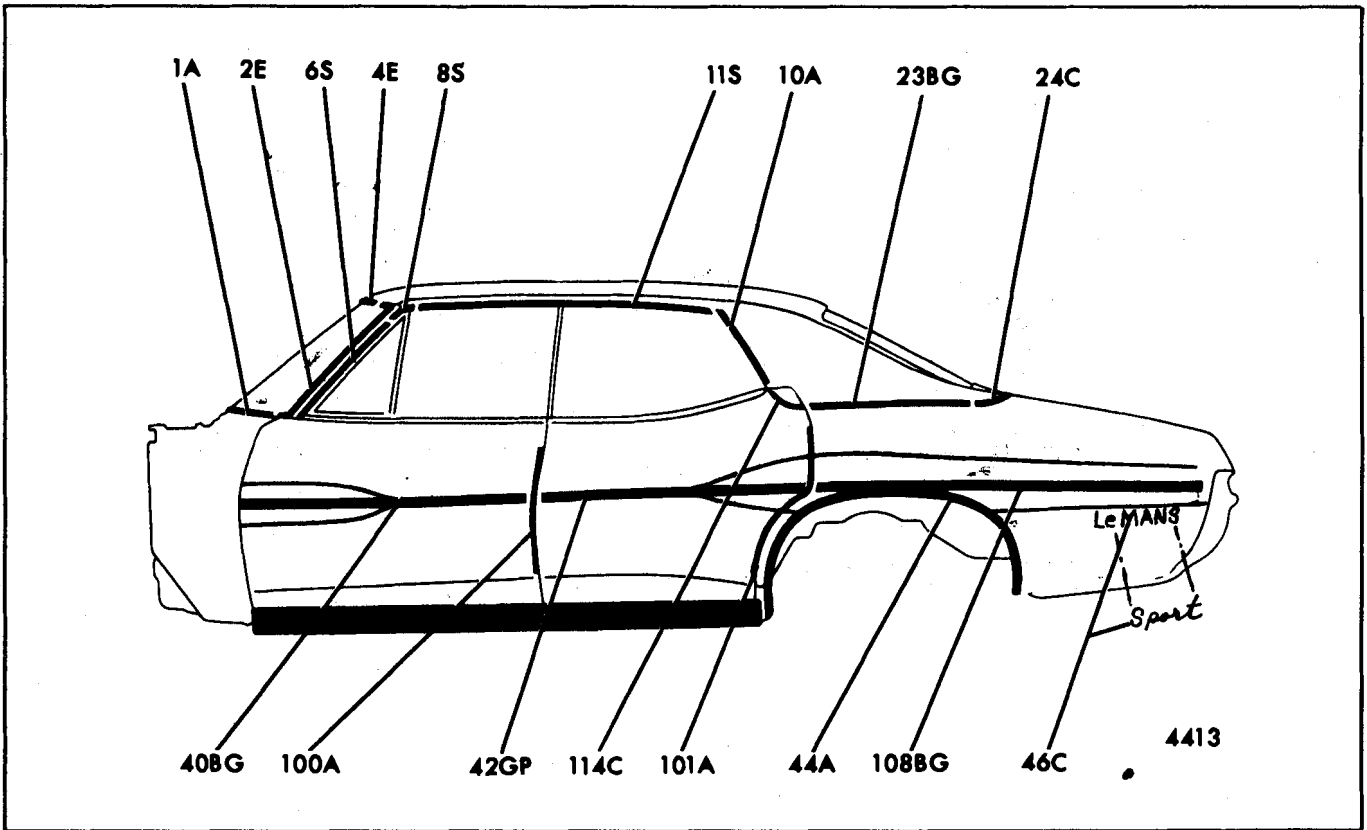


Fig. 16-36-Pontiac 23739 Styles (23539 Similar)

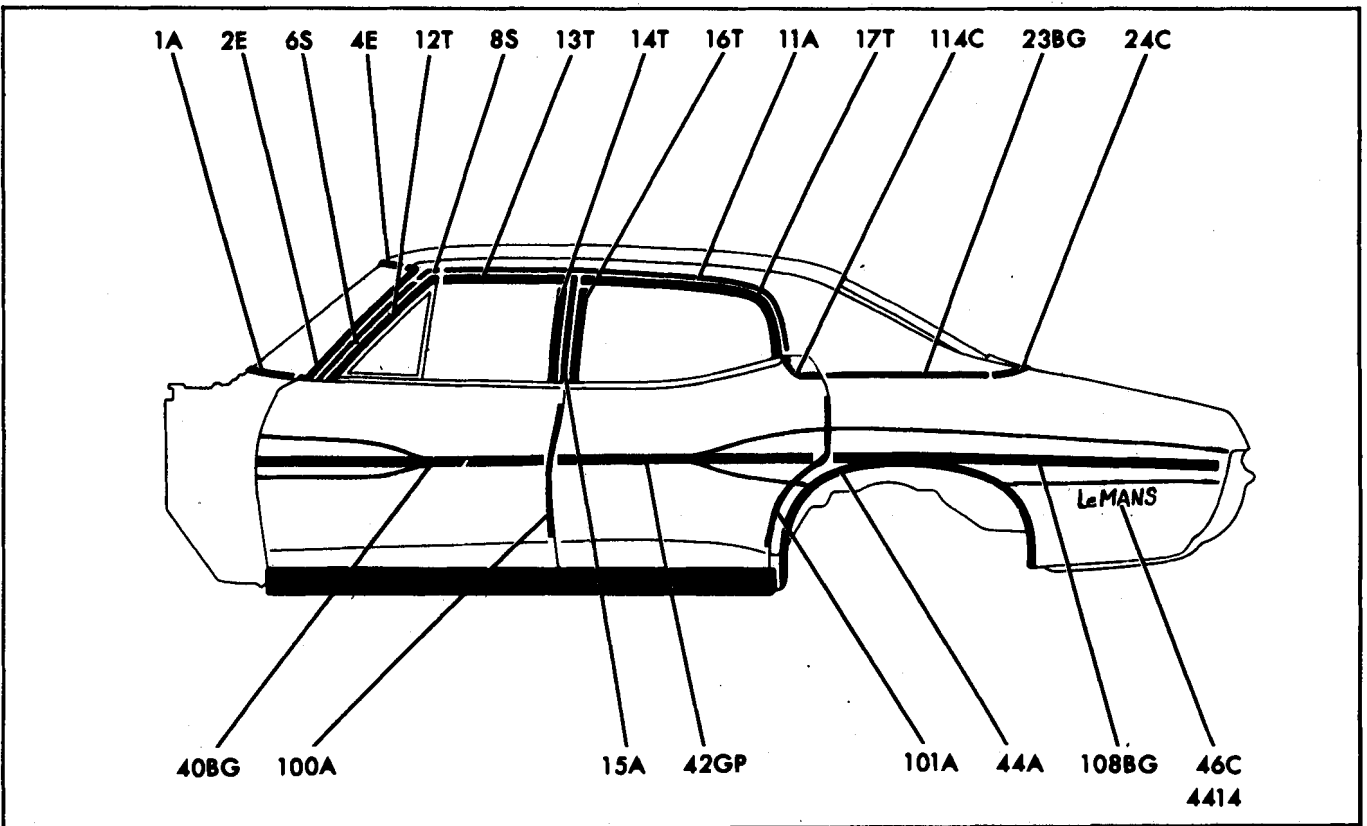


Fig. 16-37-Pontiac 23569 Styles (23369 Similar)

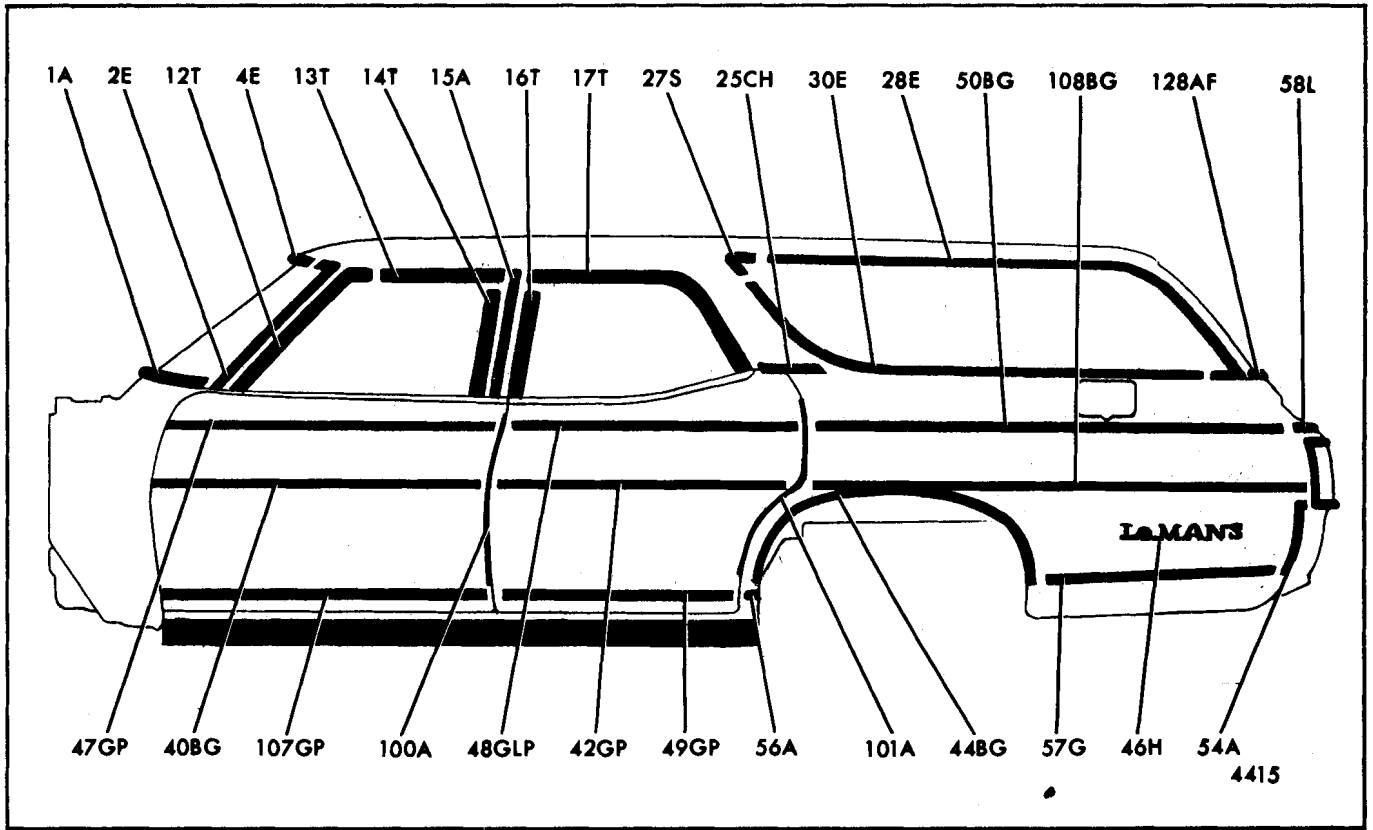


Fig. 16-38-Pontiac 23536 Styles

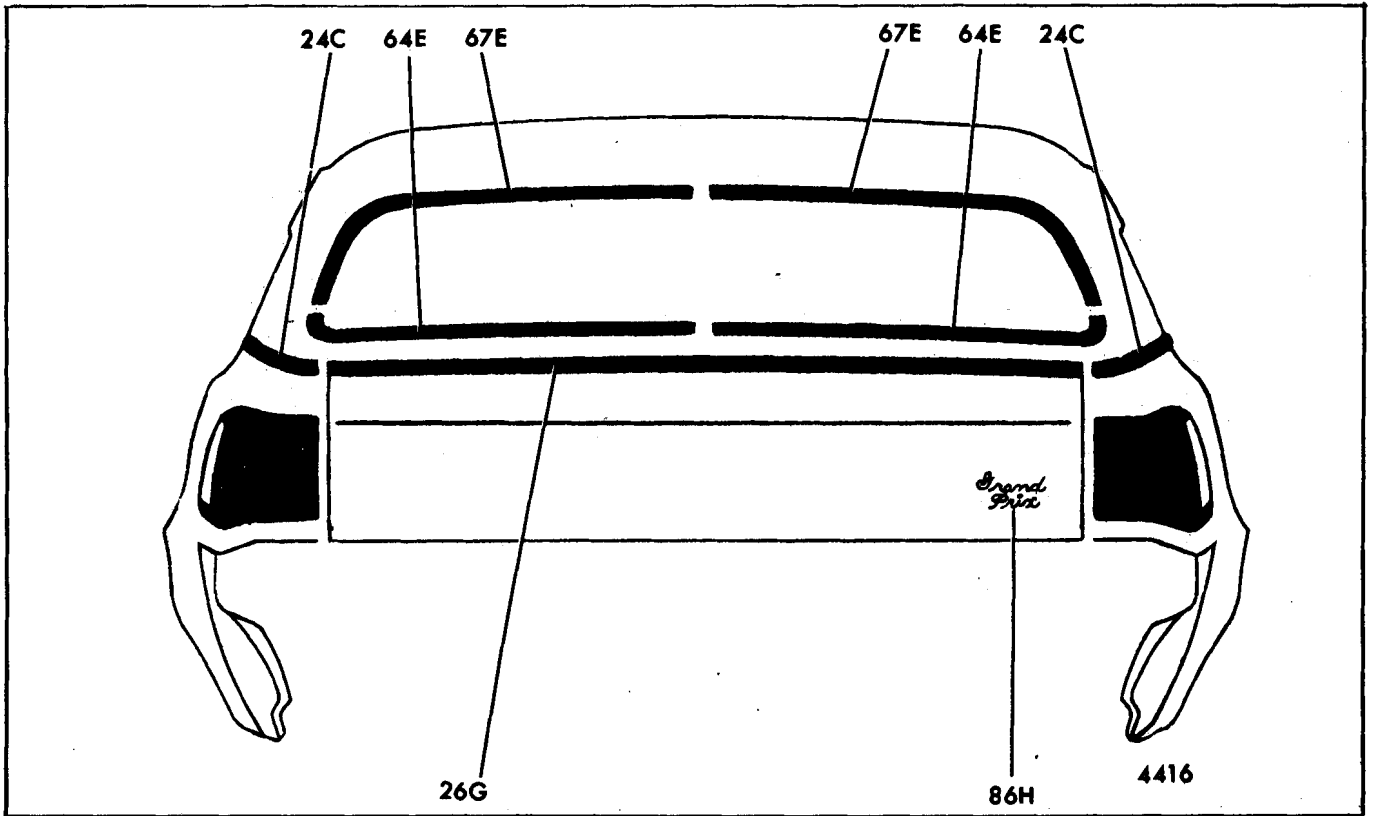


Fig. 16-39-Pontiac 27657 Styles

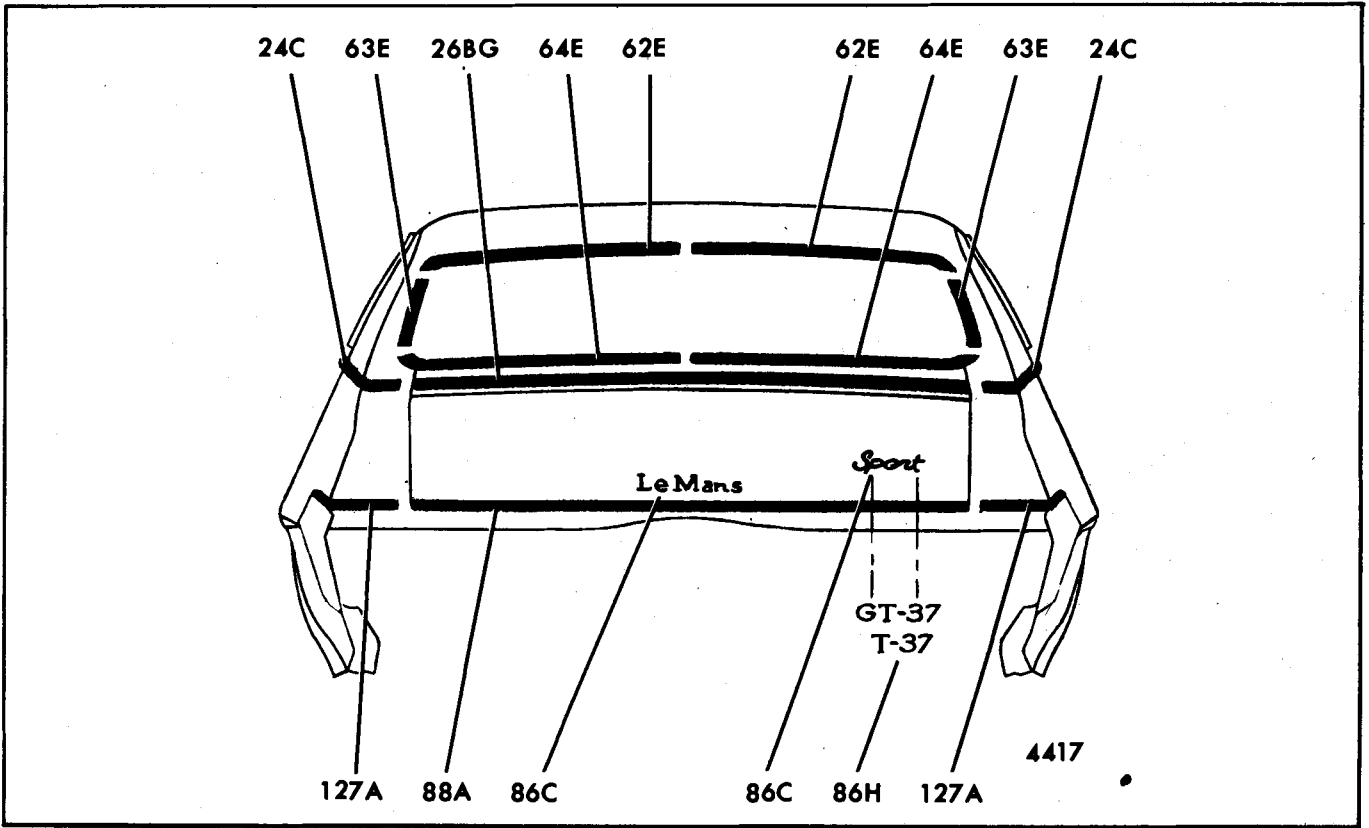


Fig. 16-40-Pontiac 23700 Styles (23300, 23500, 24200 Similar Except Station Wagons)

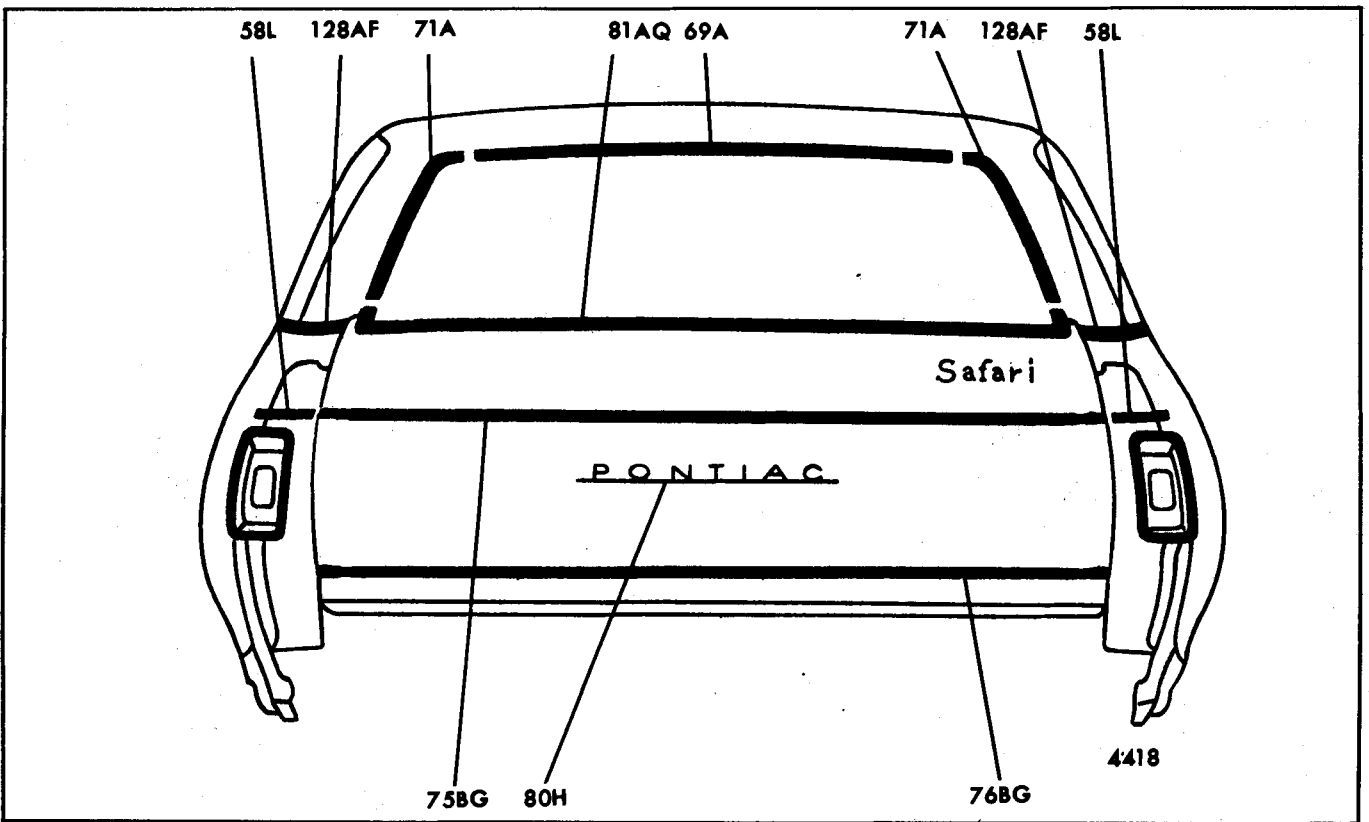


Fig. 16-41-Pontiac 23536 Styles

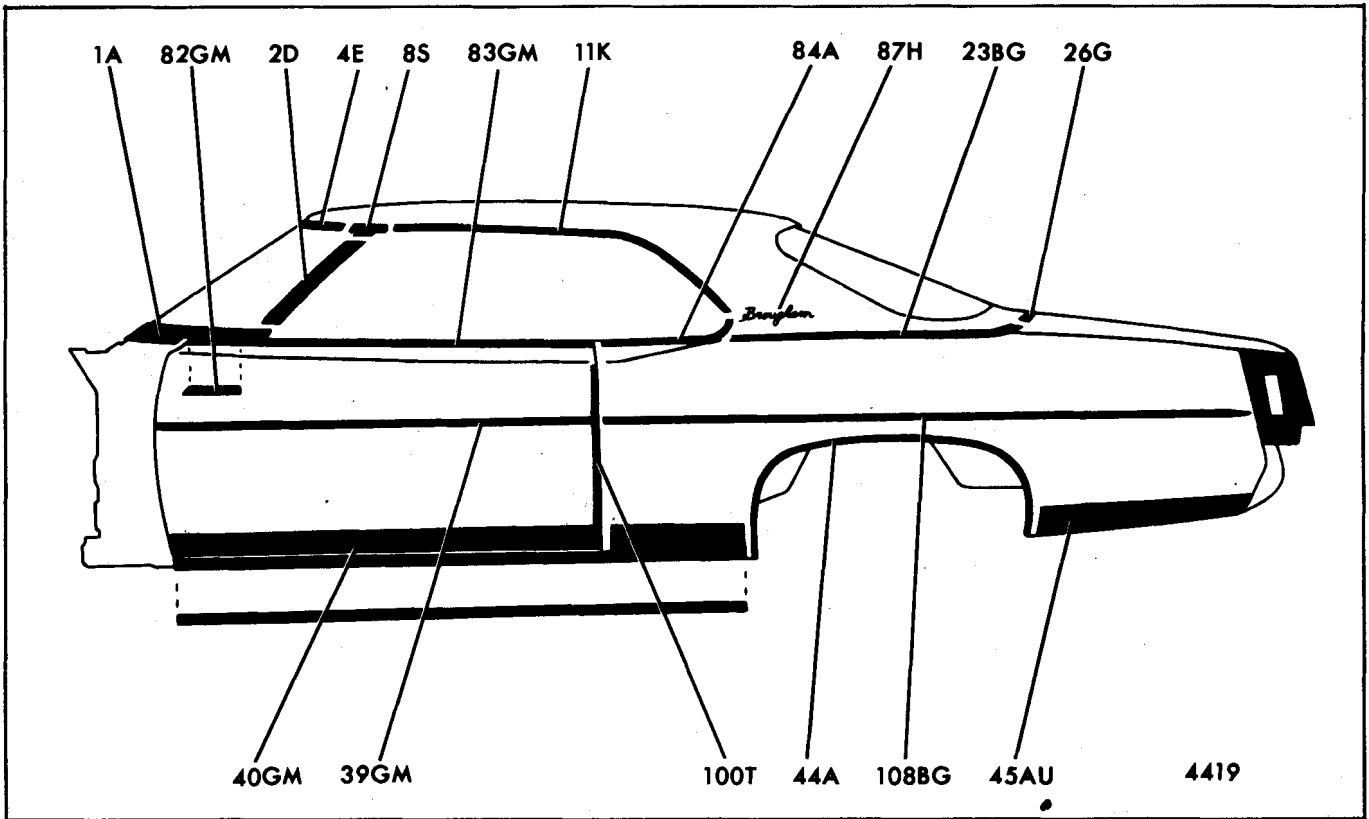


Fig. 16-42-Pontiac 26257 Styles (25257-67, 25857, 26867 and Canadian Styles 75657, 76457 Similar)

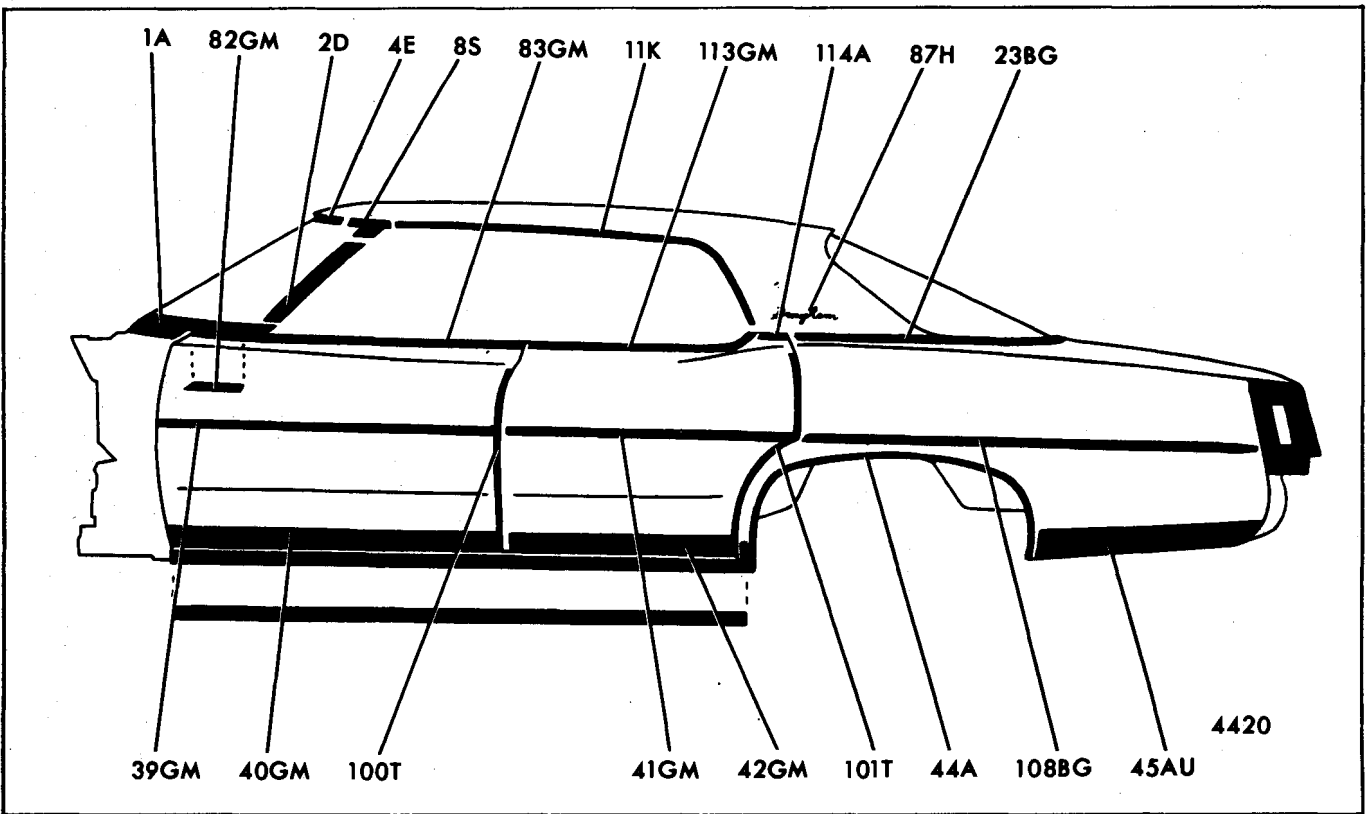


Fig. 16-43-Pontiac 26239 Styles (25239, 25839 and Canadian Style 76439 Similar)

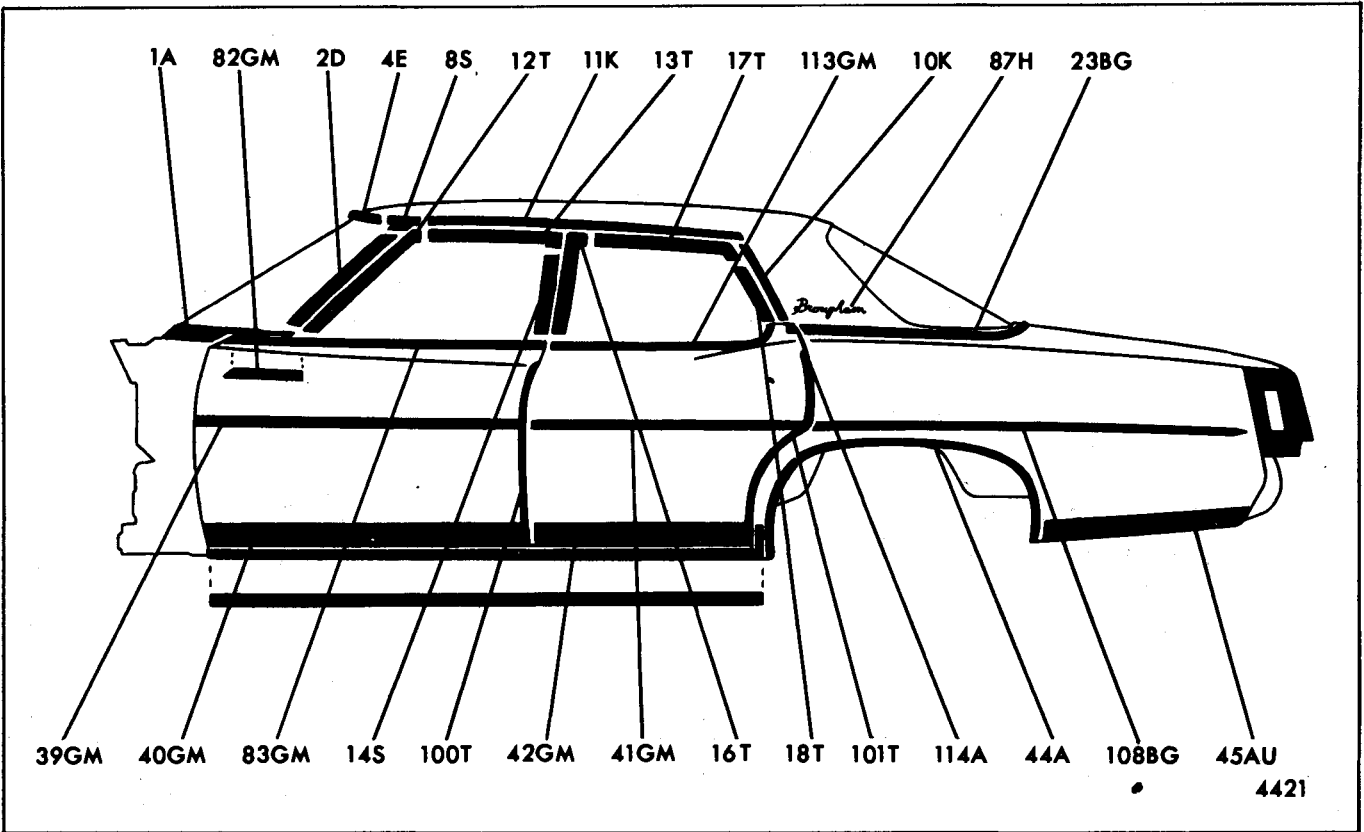


Fig. 16-43A-Pontiac 26269 Styles (25269, 25869 and Canadian Styles 75669, 76469 Similar)

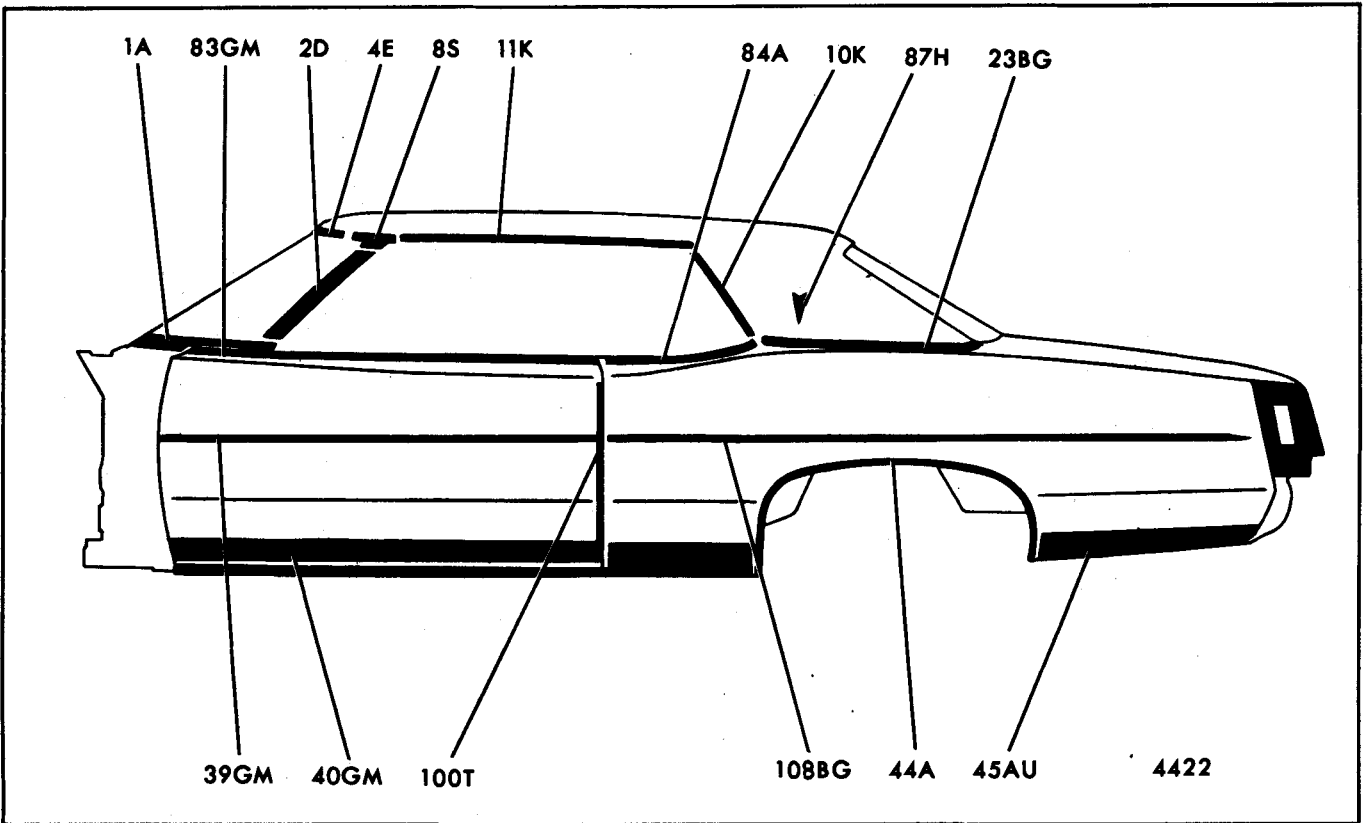


Fig. 16-44-Pontiac 26847 Styles

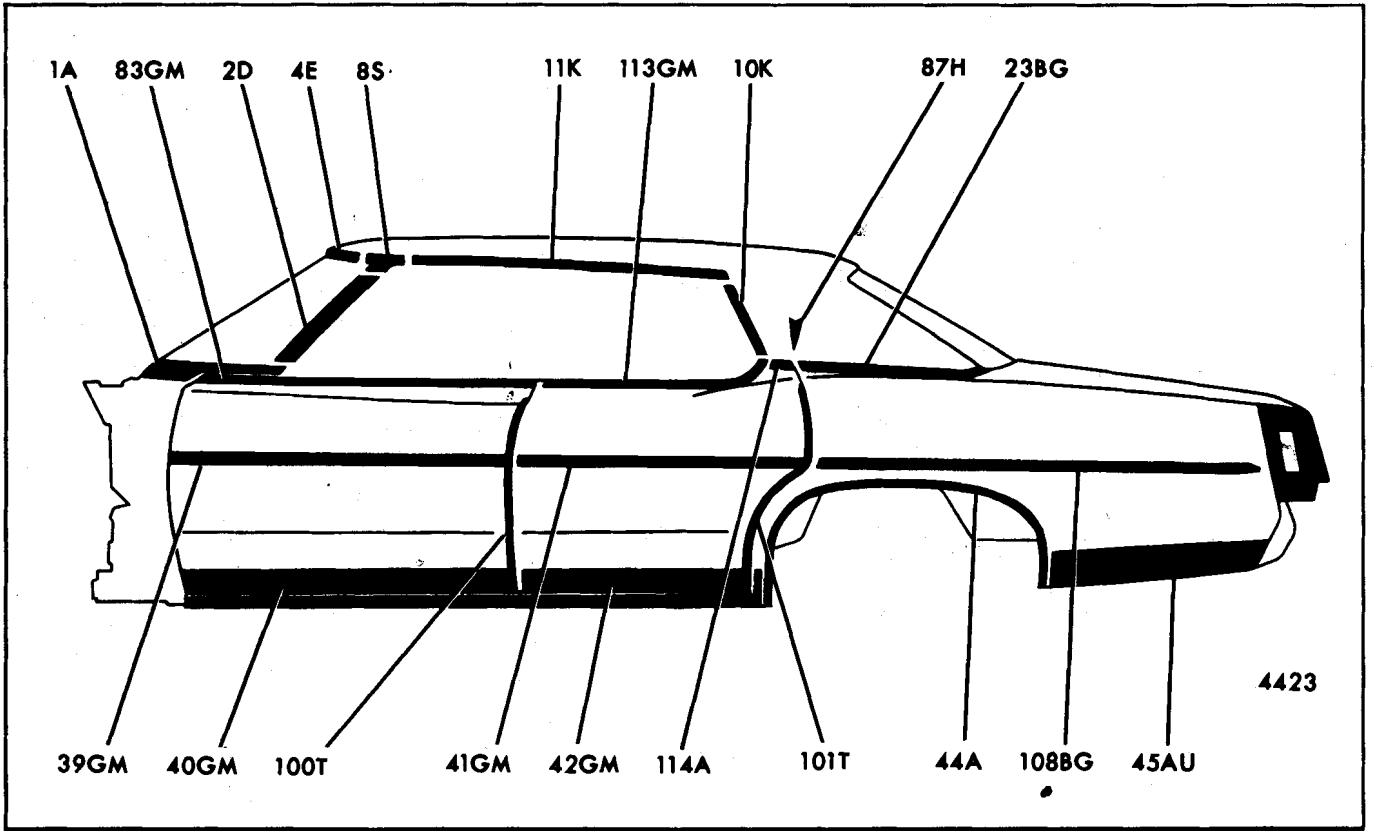


Fig. 16-45-Pontiac 26849 Styles

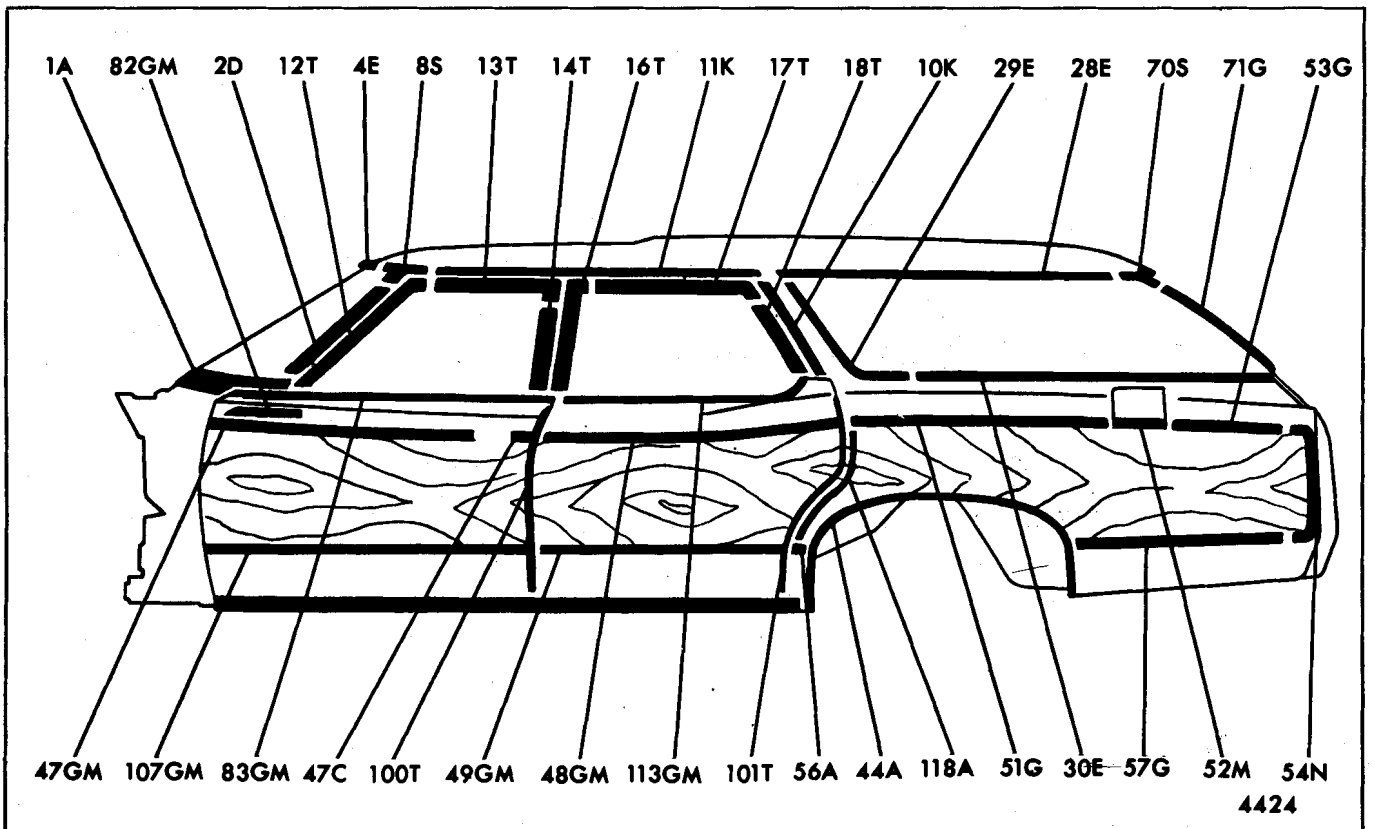


Fig. 16-46-Pontiac 26245 Styles (Woodgrain Option)(25235-45, 26235 Similar)

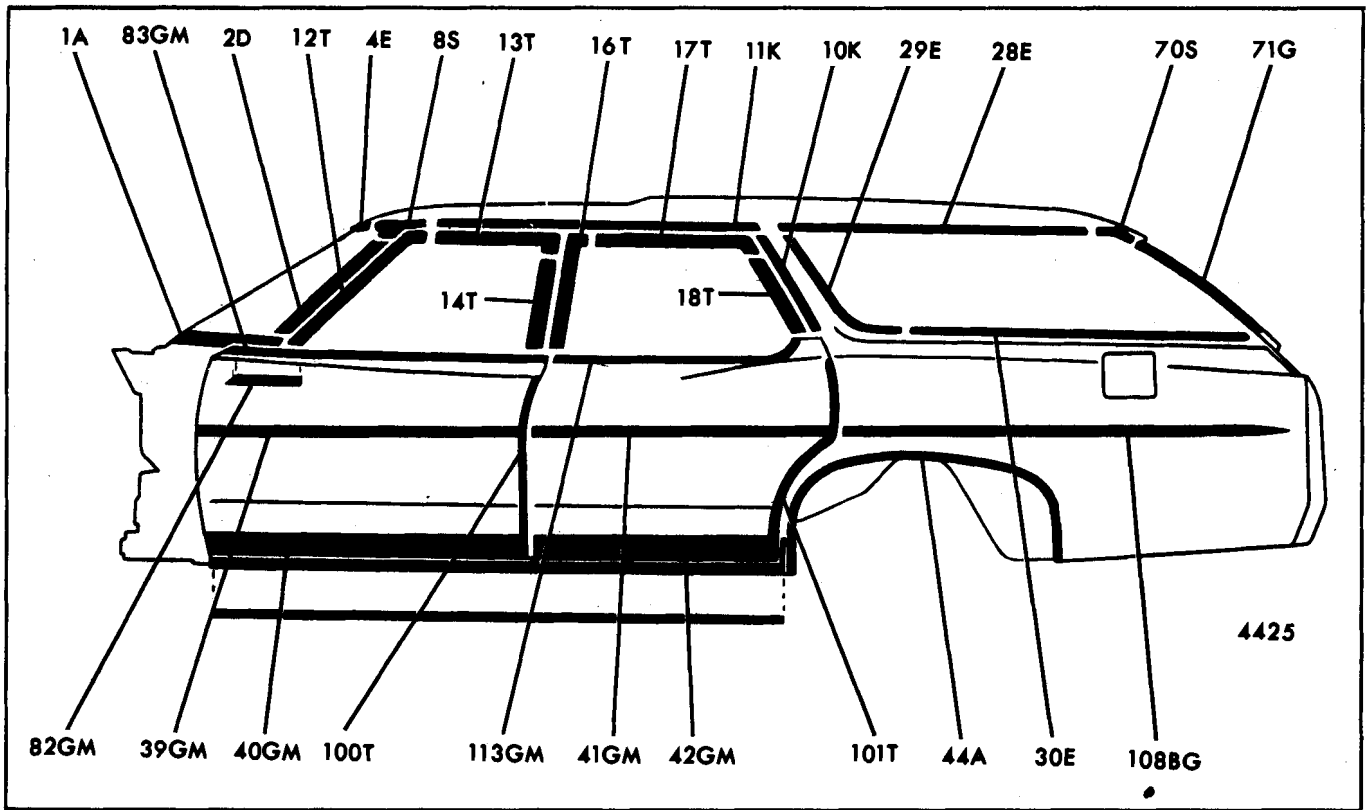


Fig. 16-47-Pontiac 26245 Styles (Without Woodgrain Option)(25235-45, 26235 and Canadian Styles 75635-45 Similar)

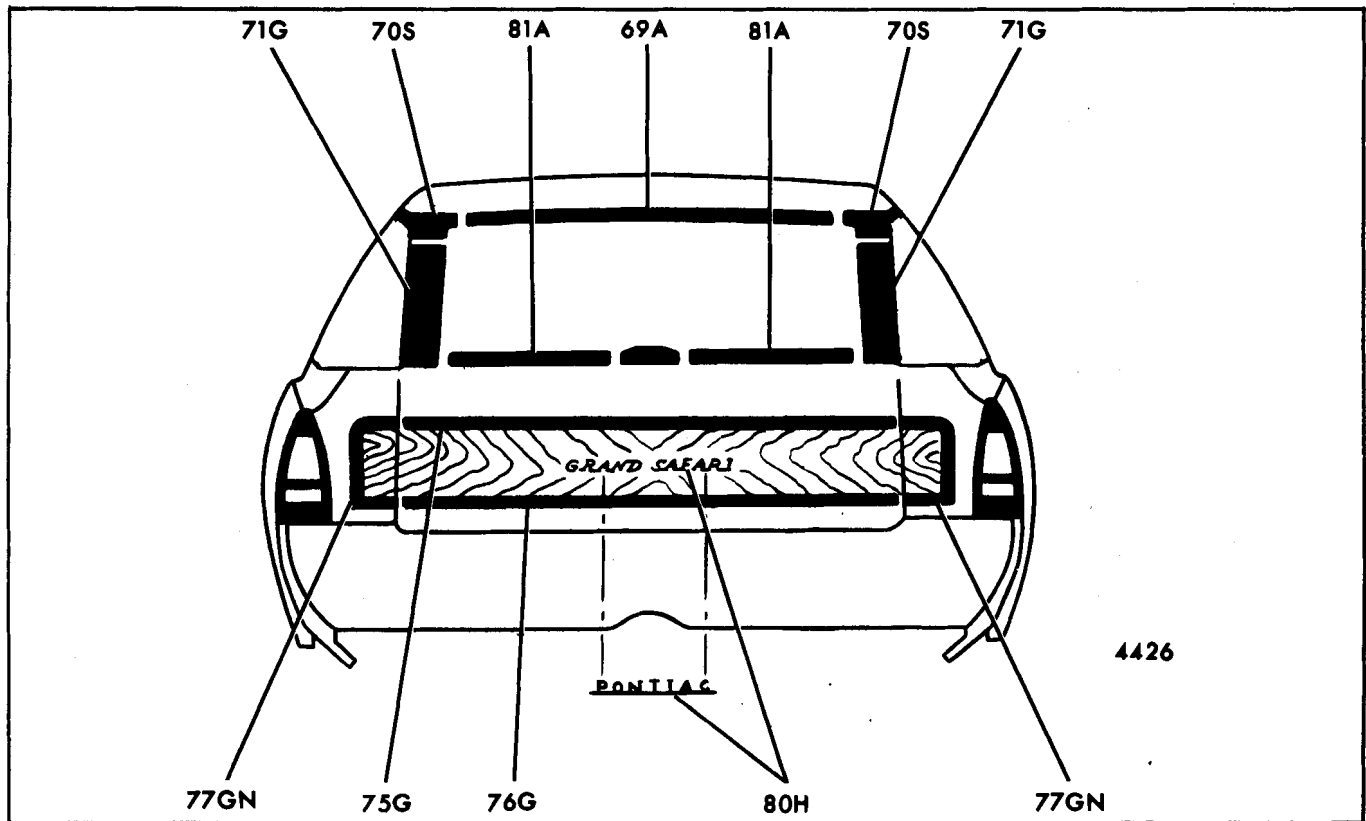


Fig. 16-48-Pontiac 26245 Styles (25235-45, 26235 and Canadian Styles 75635-45 Similar)

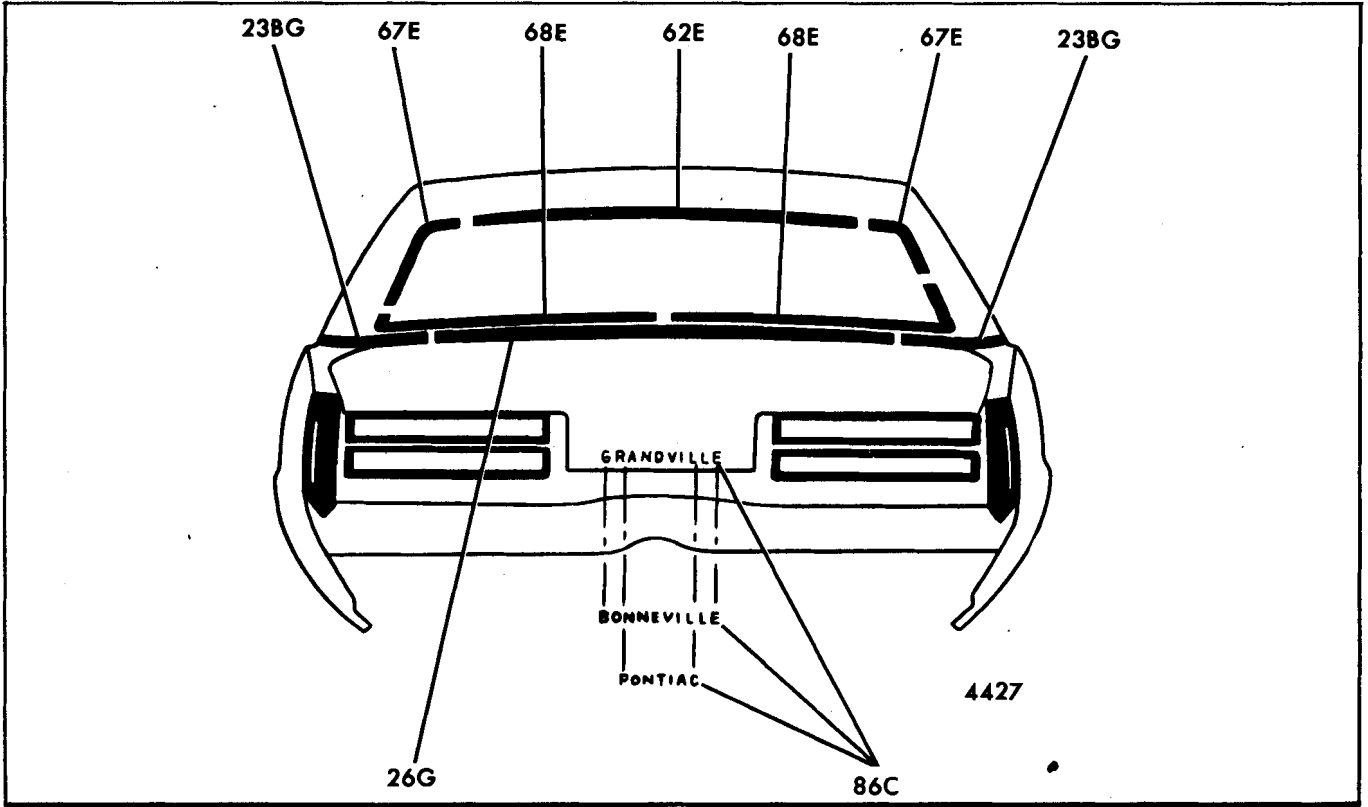


Fig. 16-49-Pontiac 26800 Styles (25200, 25800, 26200 and Canadian Styles 75600, 76400 Similar Except Station Wagons)

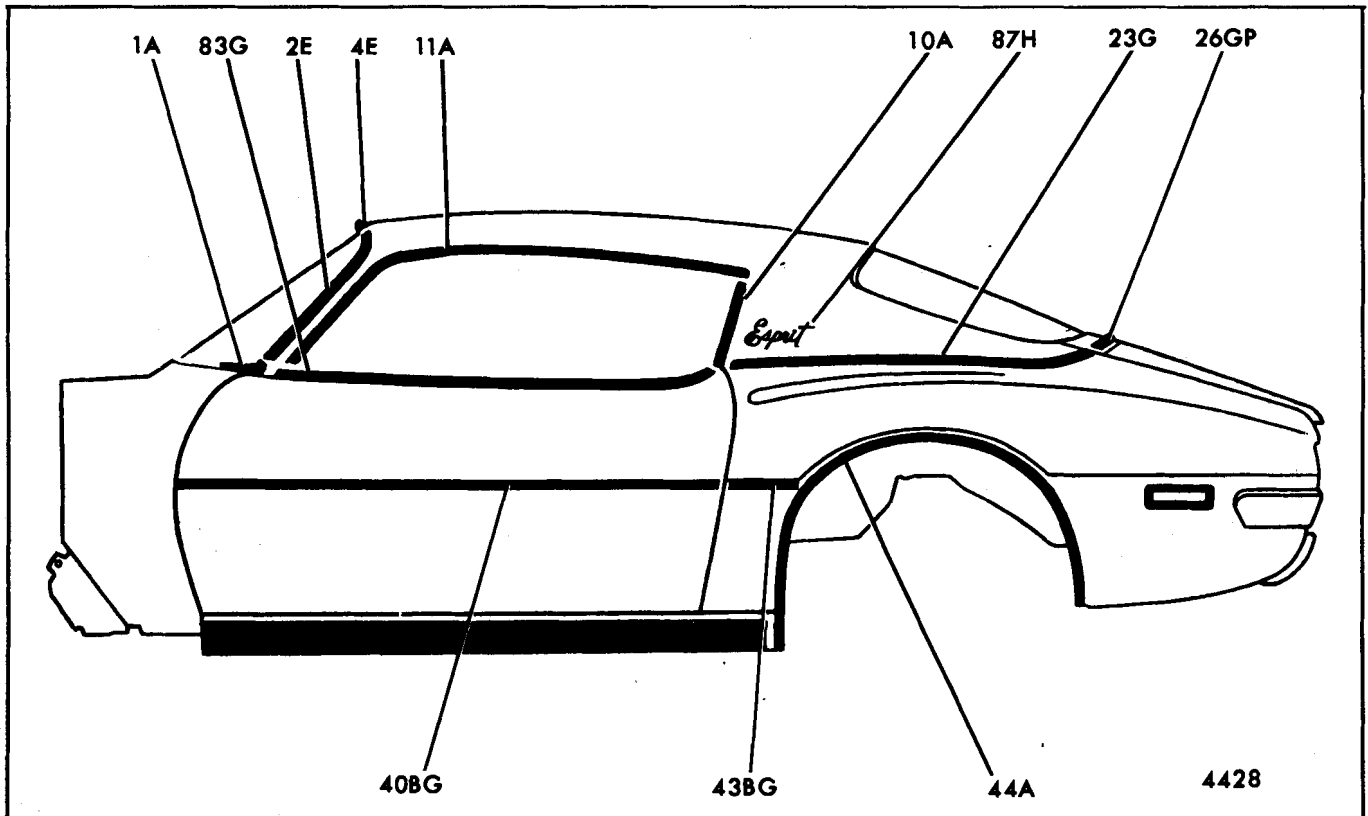


Fig. 16-50-Pontiac 22387 Styles

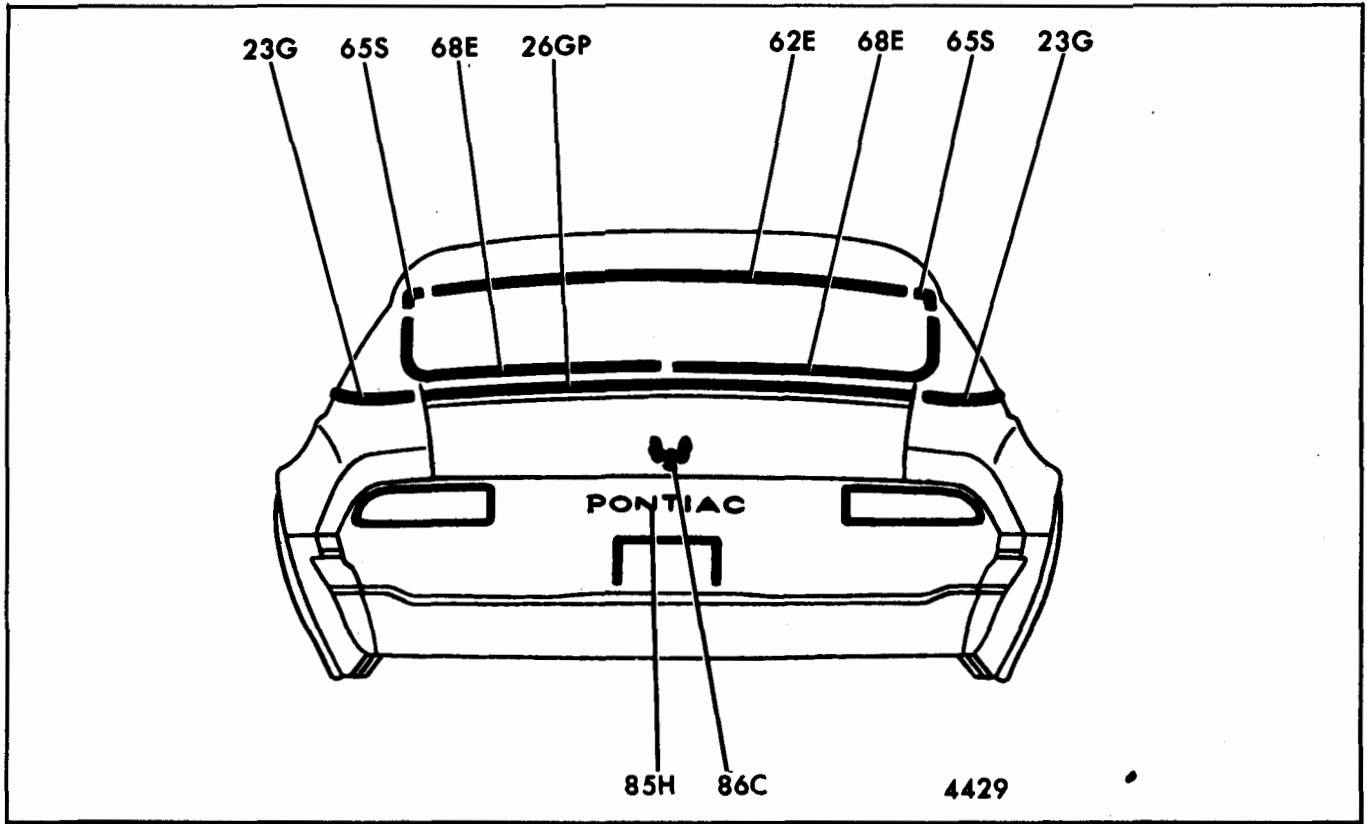


Fig. 16-51-Pontiac 22387 Styles

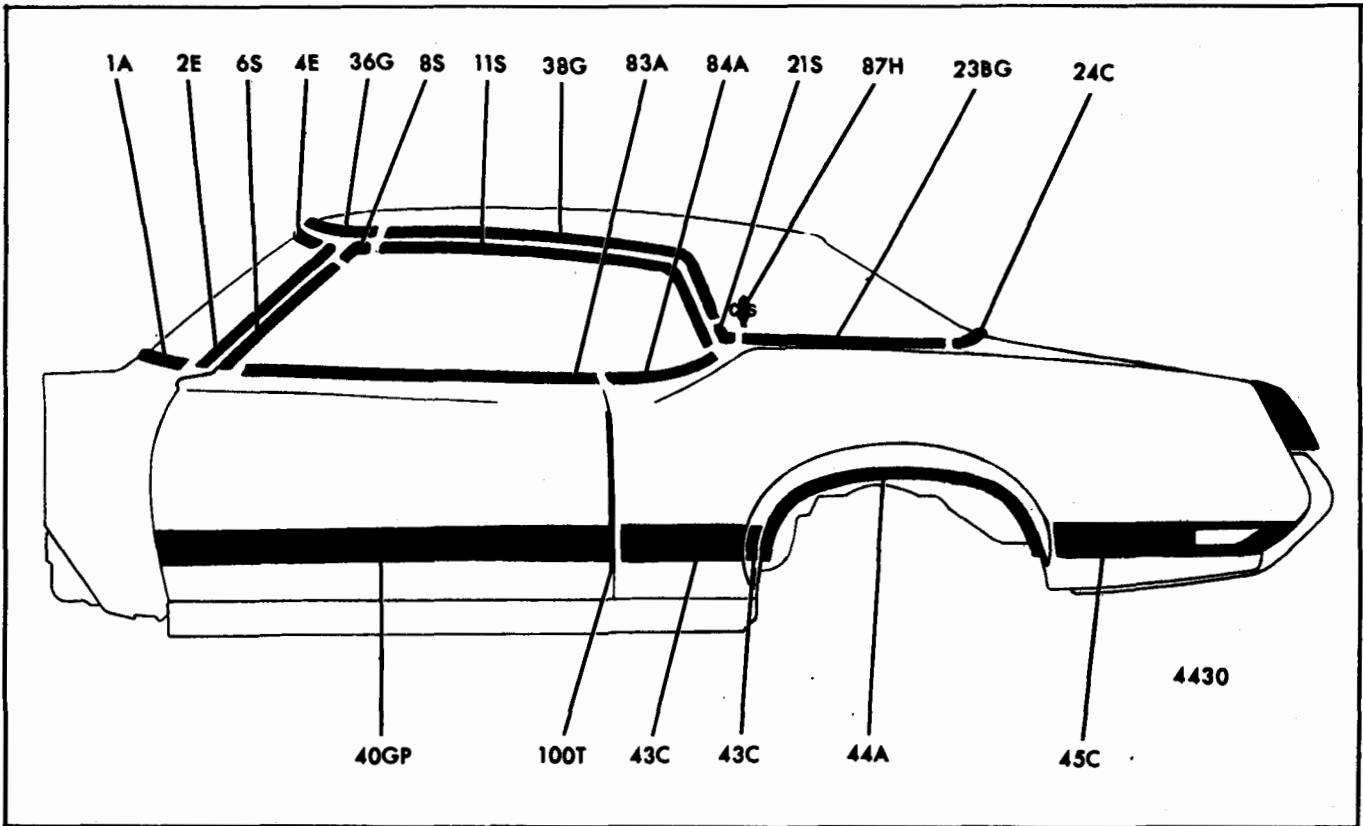


Fig. 16-52-Oldsmobile 34257 Styles (34267, 34467 Similar)

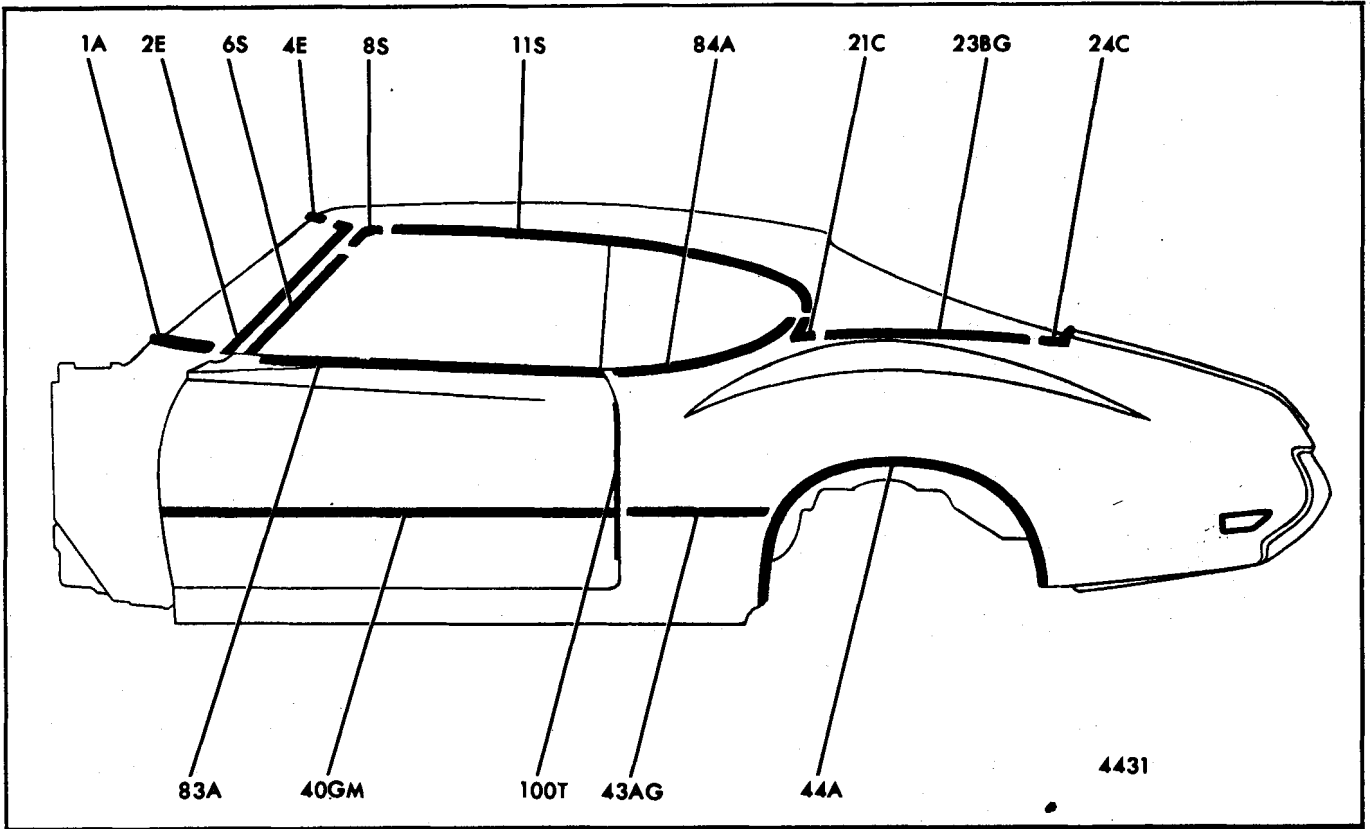


Fig. 16-53-Oldsmobile 33687 Styles (33287, 34487 Similar)

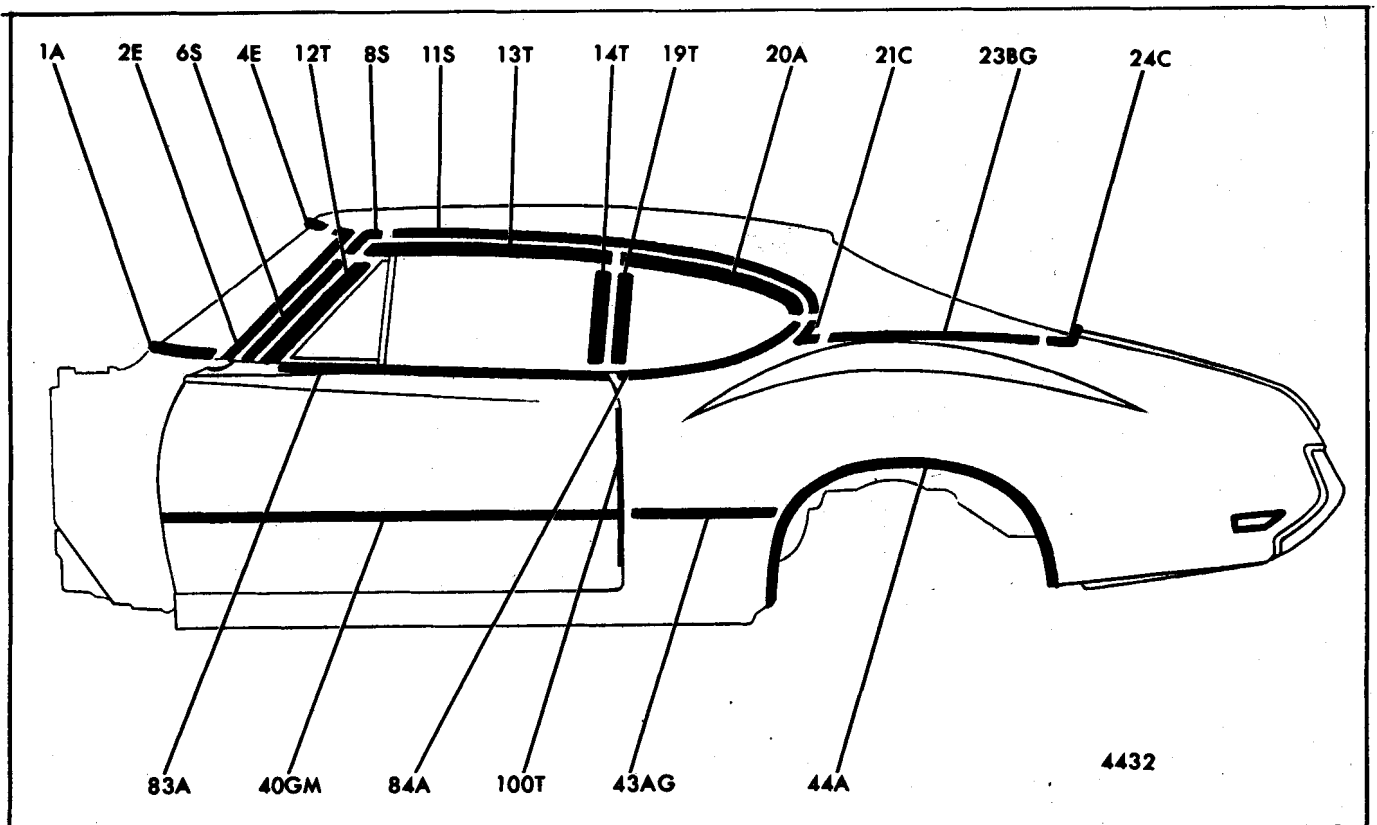


Fig. 16-54-Oldsmobile 33677 Styles

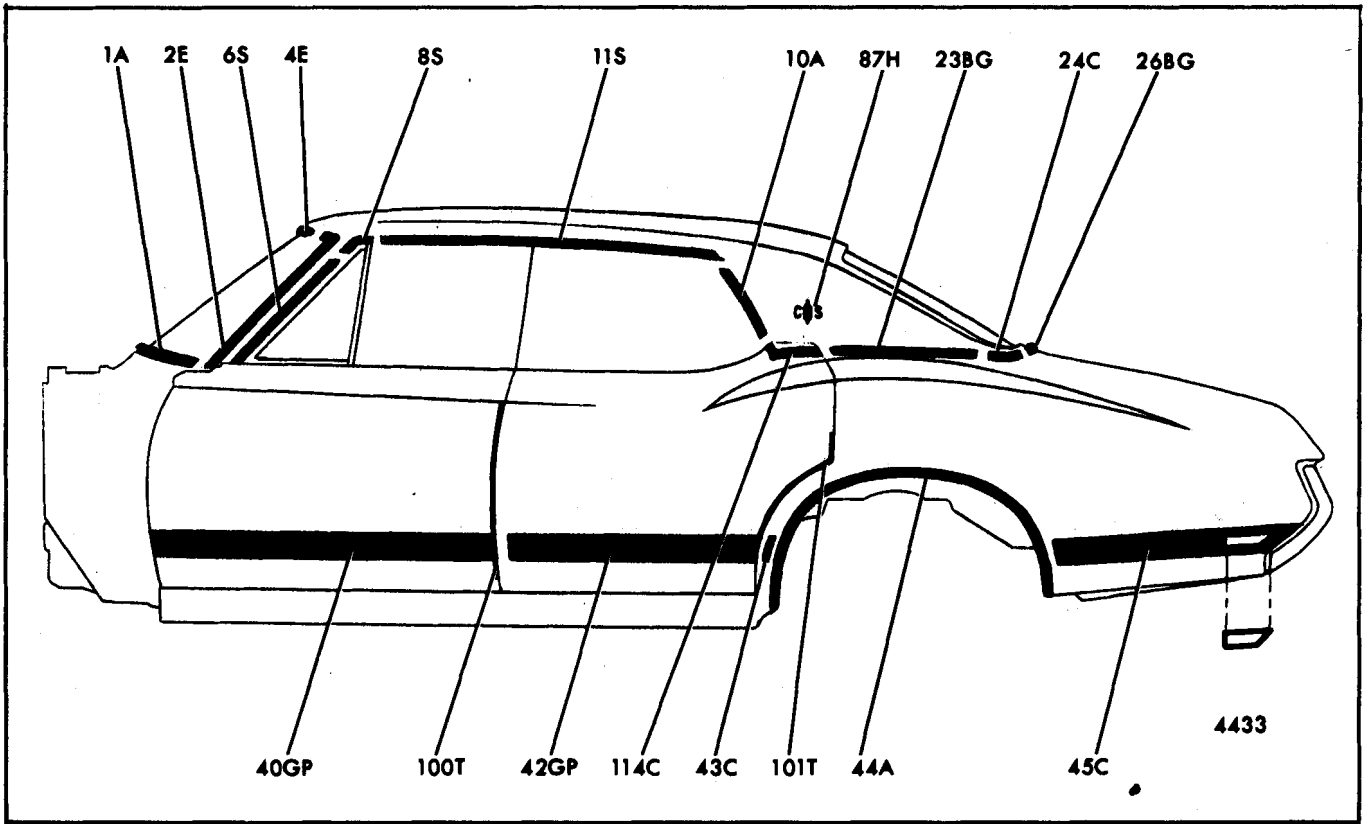


Fig. 16-55-Oldsmobile 34239 Styles

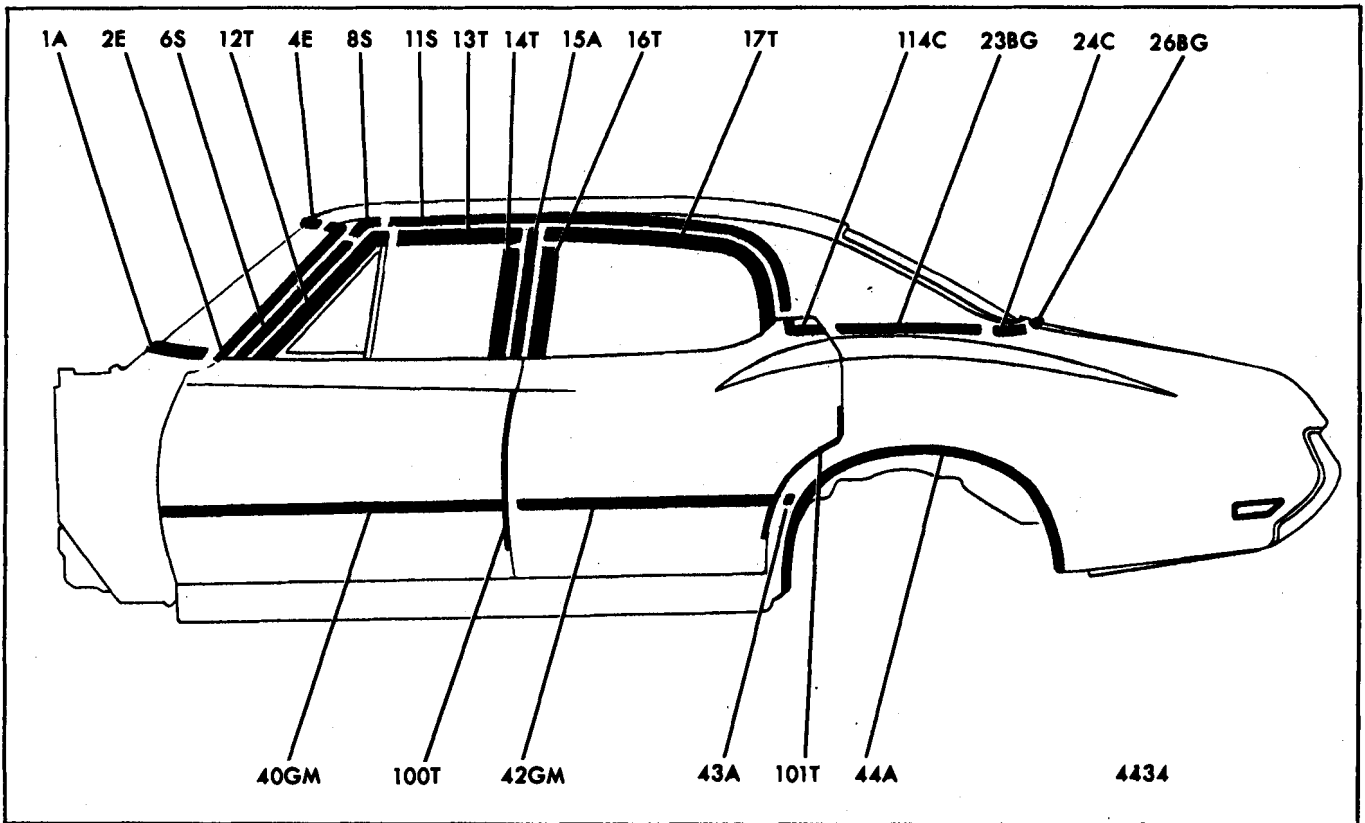


Fig. 16-56-Oldsmobile 33669 Styles (33269 Similar)

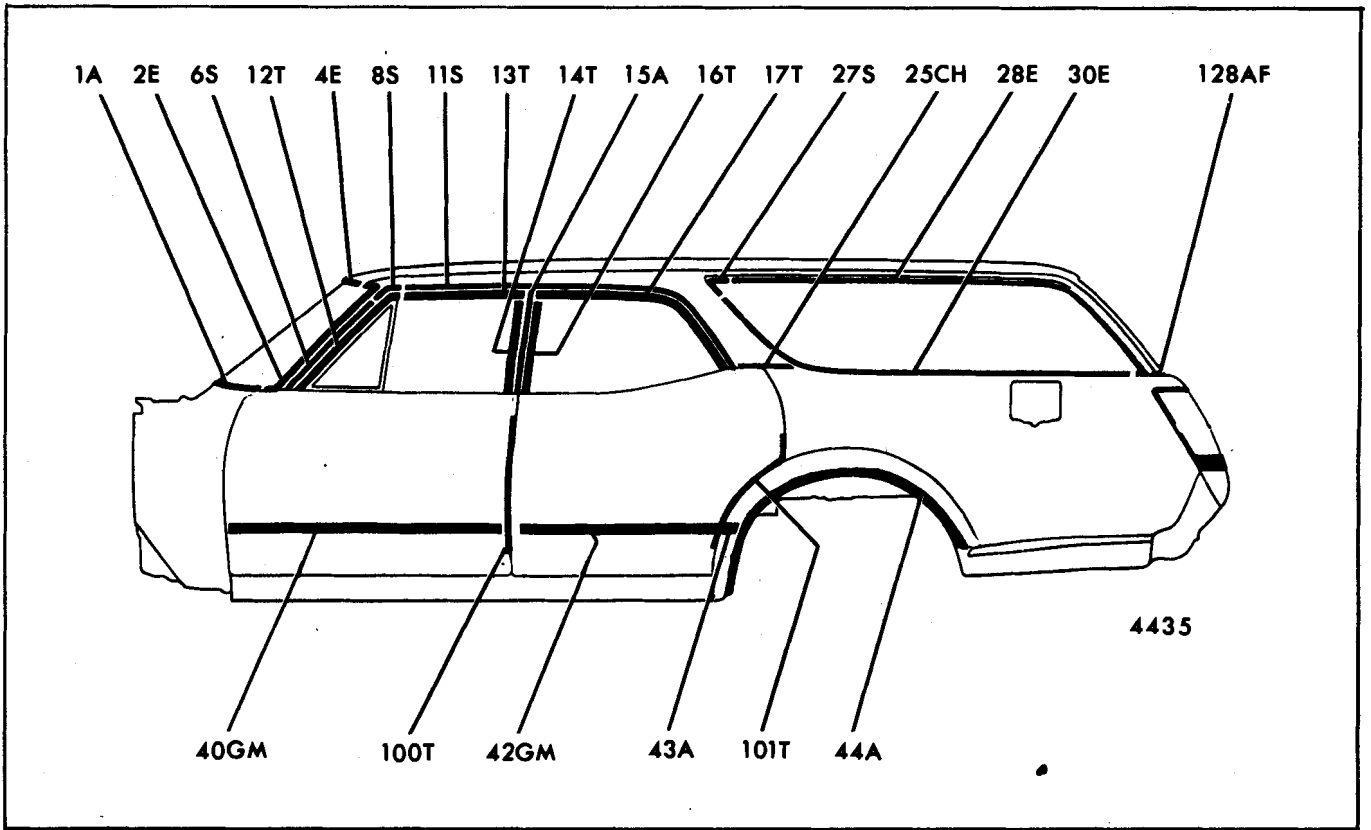


Fig. 16-57-Oldsmobile 33636 Styles

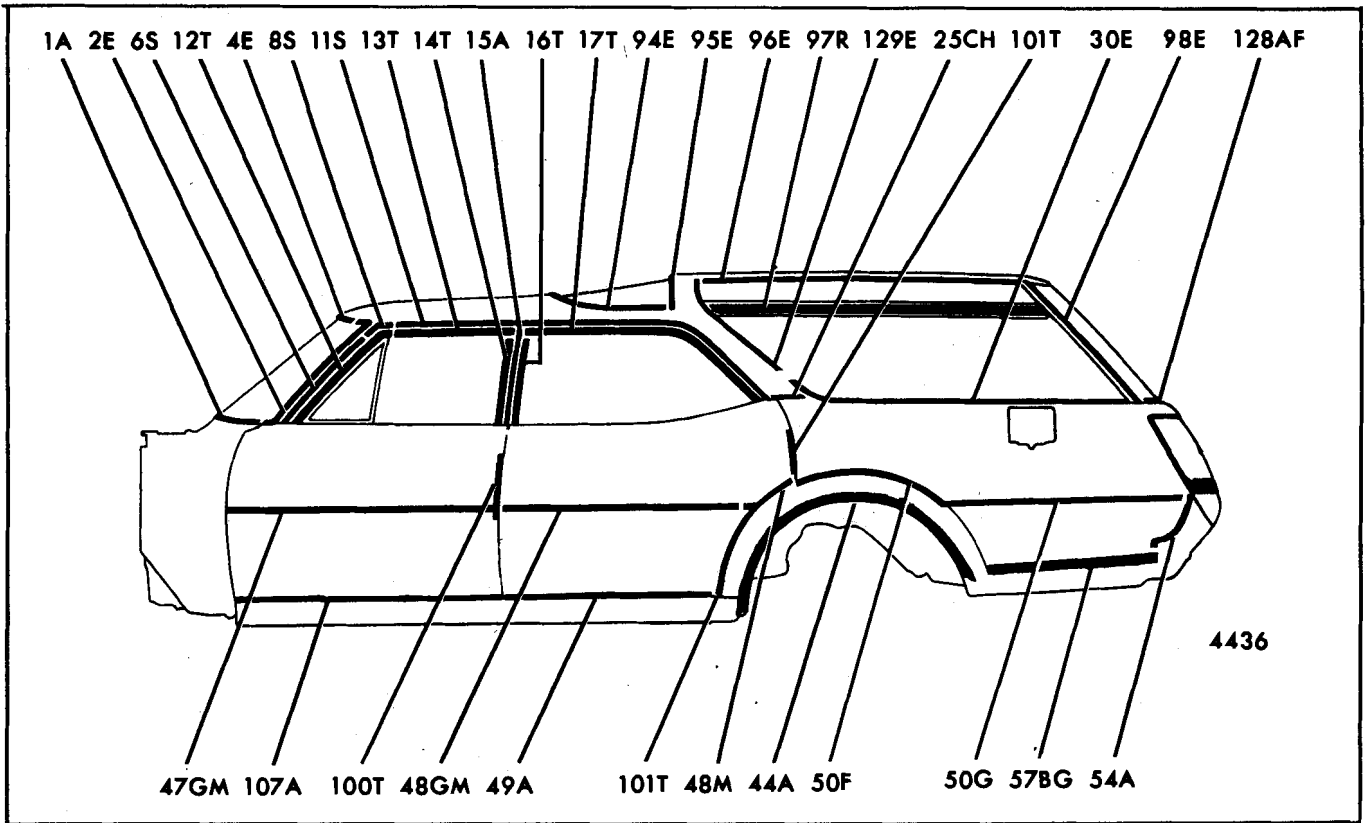


Fig. 16-58-Oldsmobile 34866 Styles (34856 Similar)

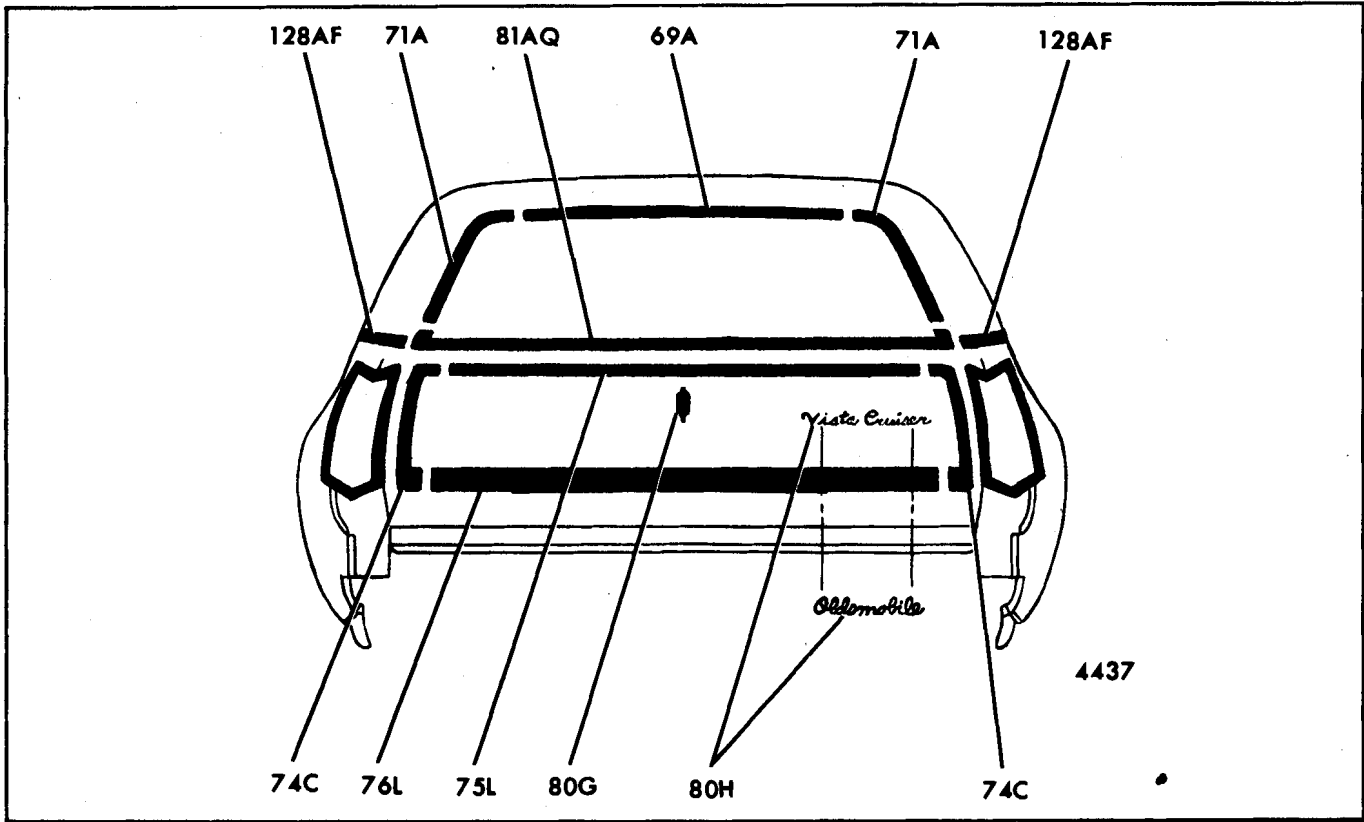


Fig. 16-59-Oldsmobile 34800 Styles (33636 Similar)

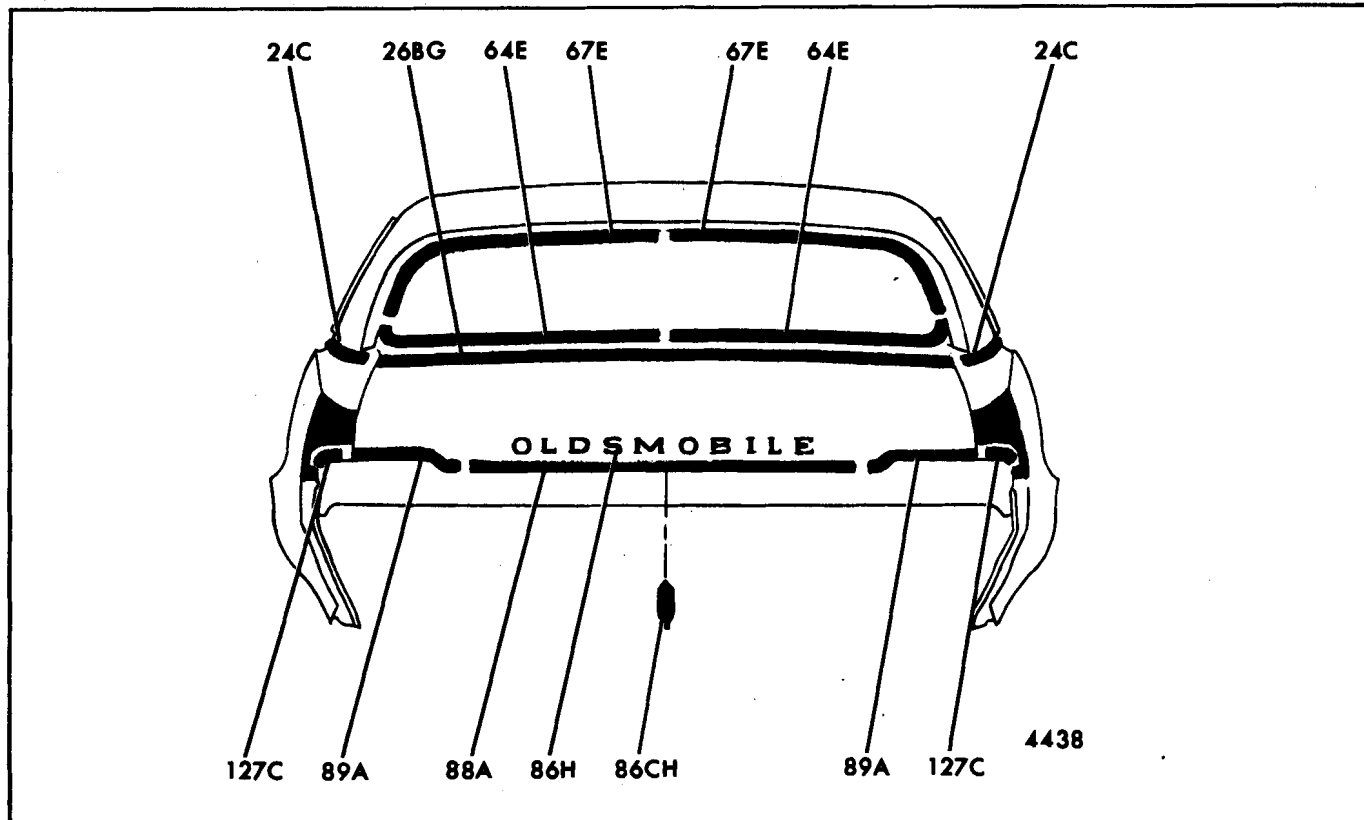


Fig. 16-60-Oldsmobile 34257 Styles (34267 Similar)

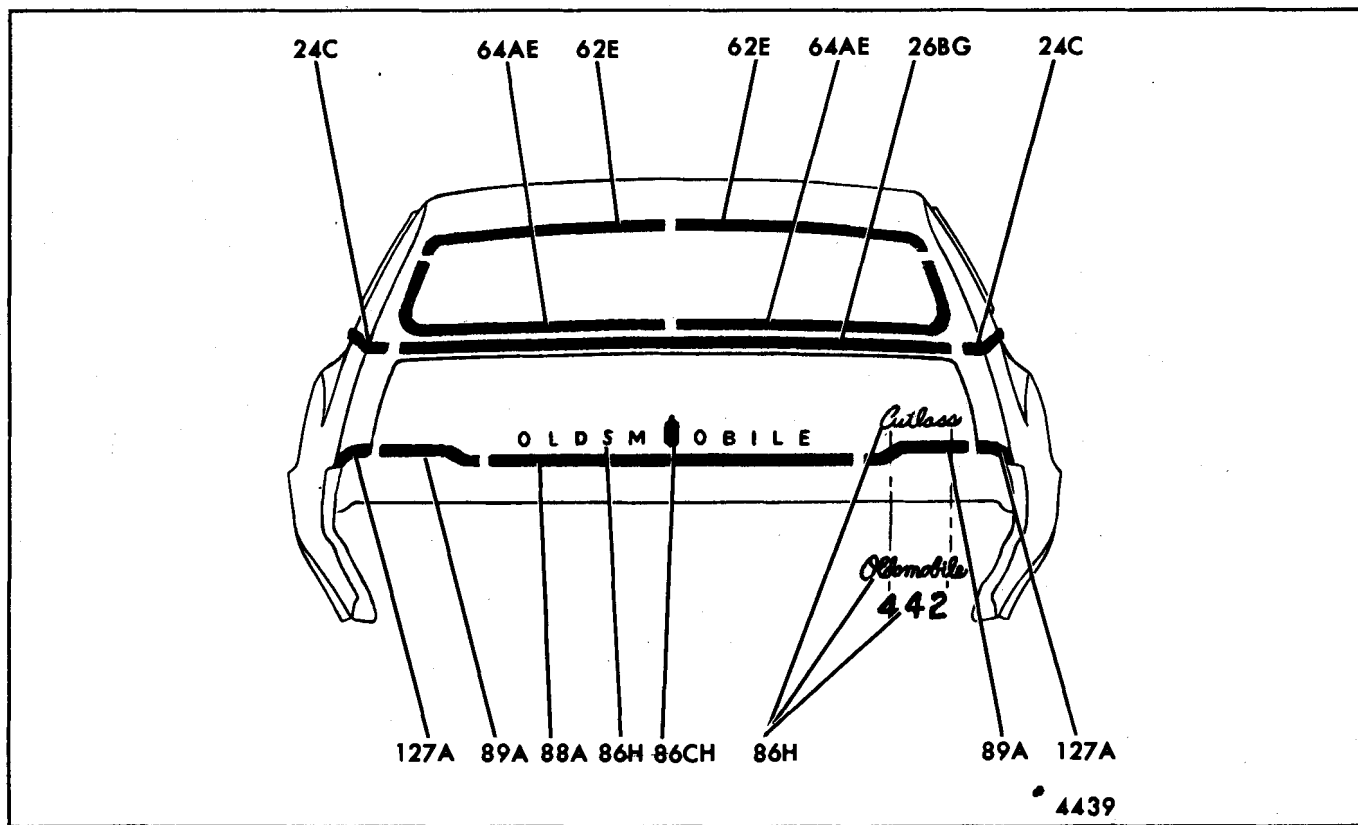


Fig. 16-61-Oldsmobile 34239 Styles (33200, 33600, 34400 Similar Except Station Wagons)

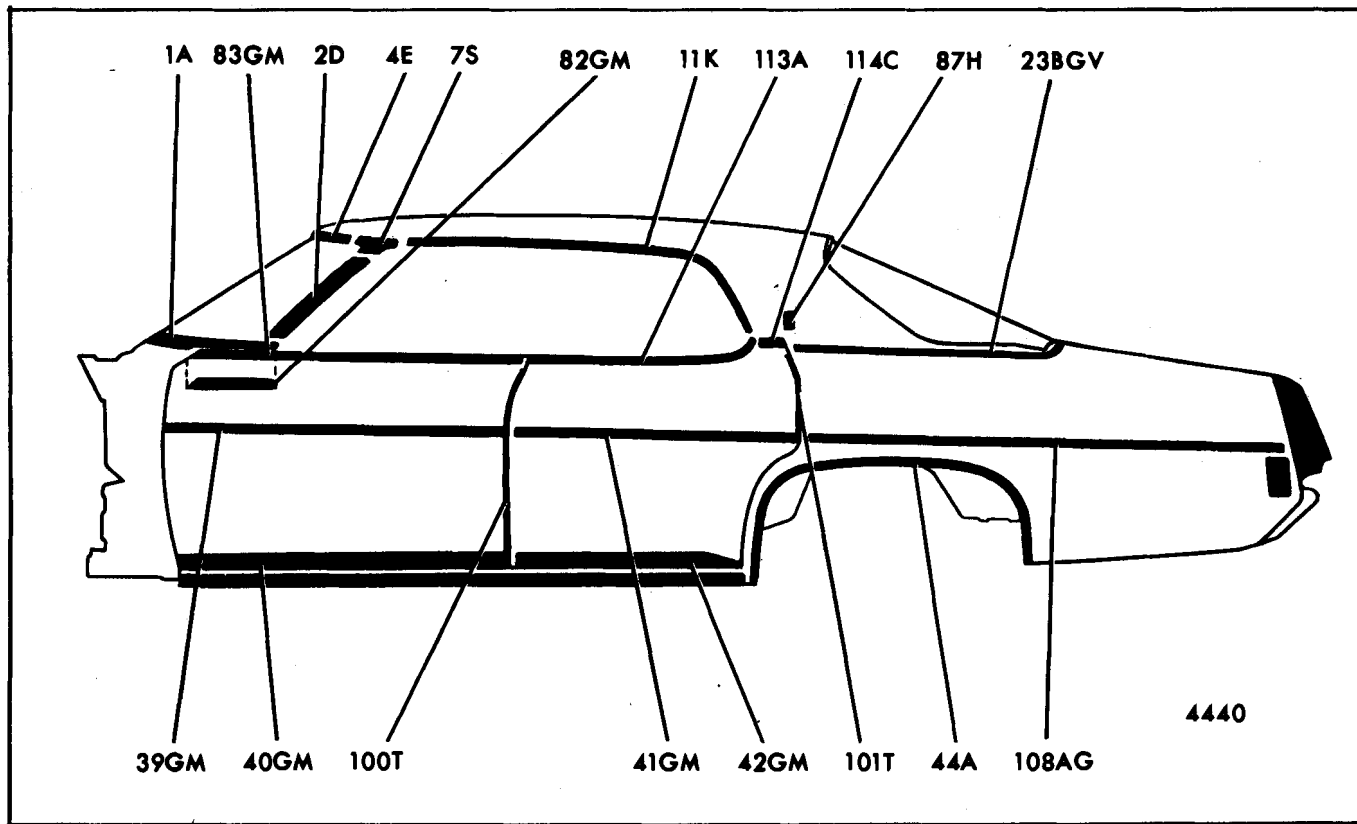


Fig. 16-62-Oldsmobile 36439 Styles (35439 Similar)

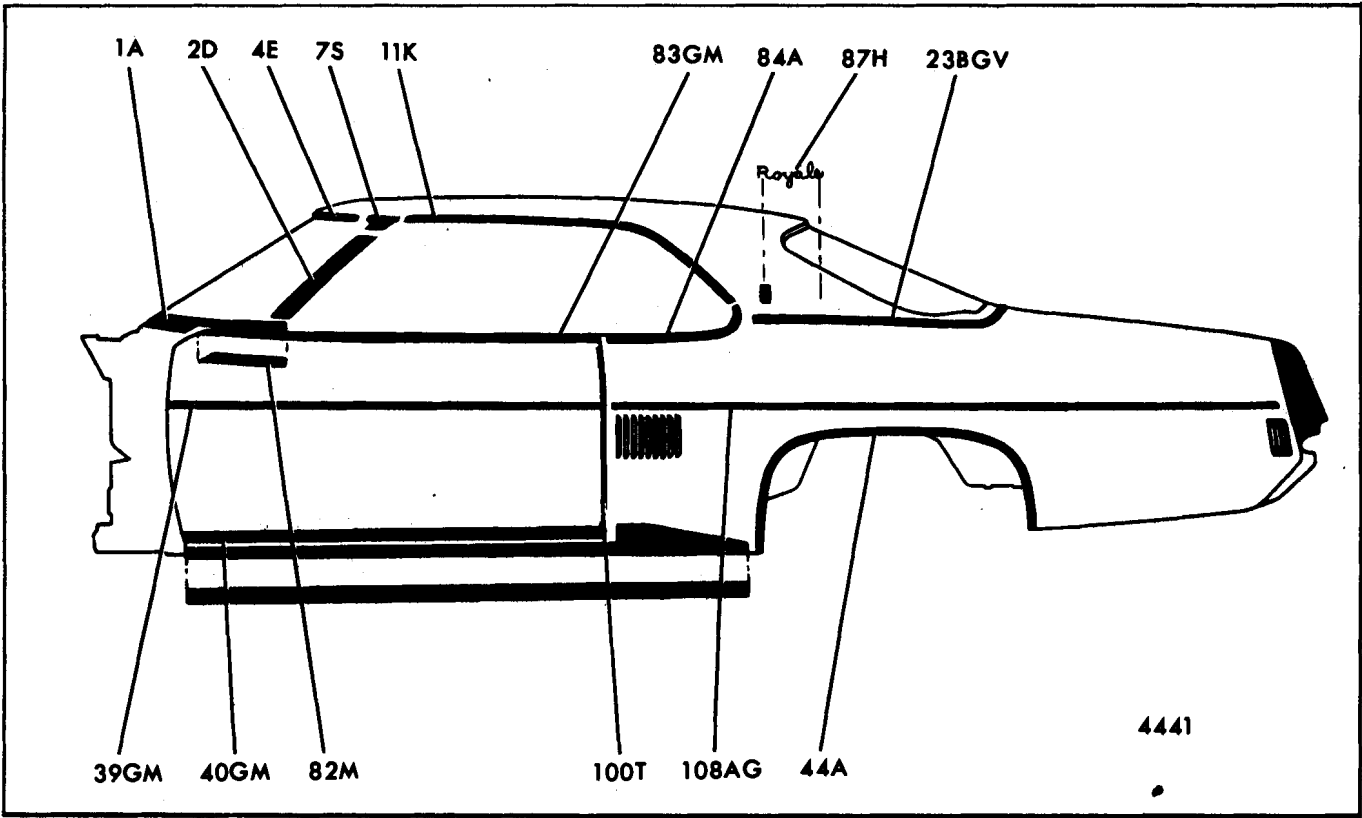


Fig. 16-63-Oldsmobile 36457 Styles (35457, 36647-67 Similar)

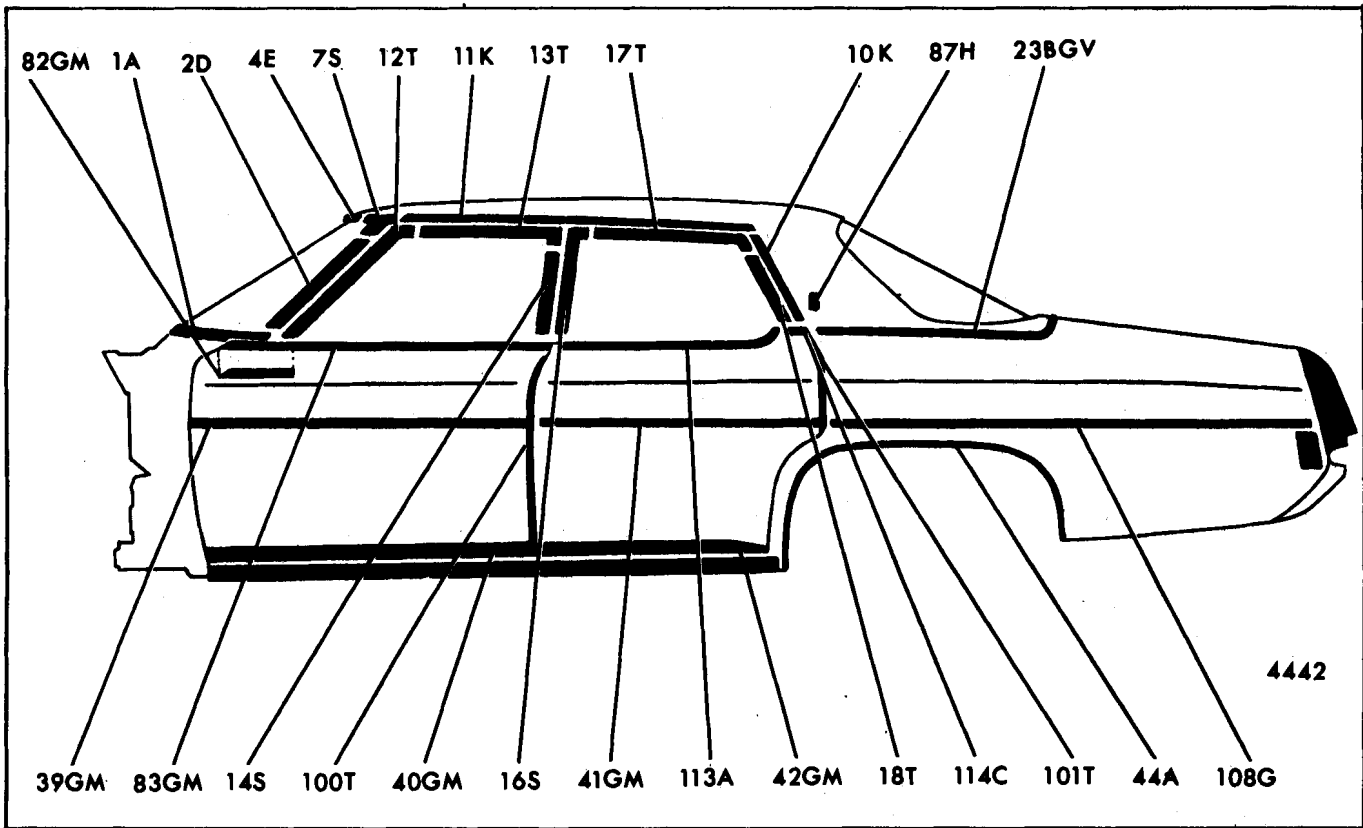


Fig. 16-64-Oldsmobile 36469 Styles (35469 Similar)

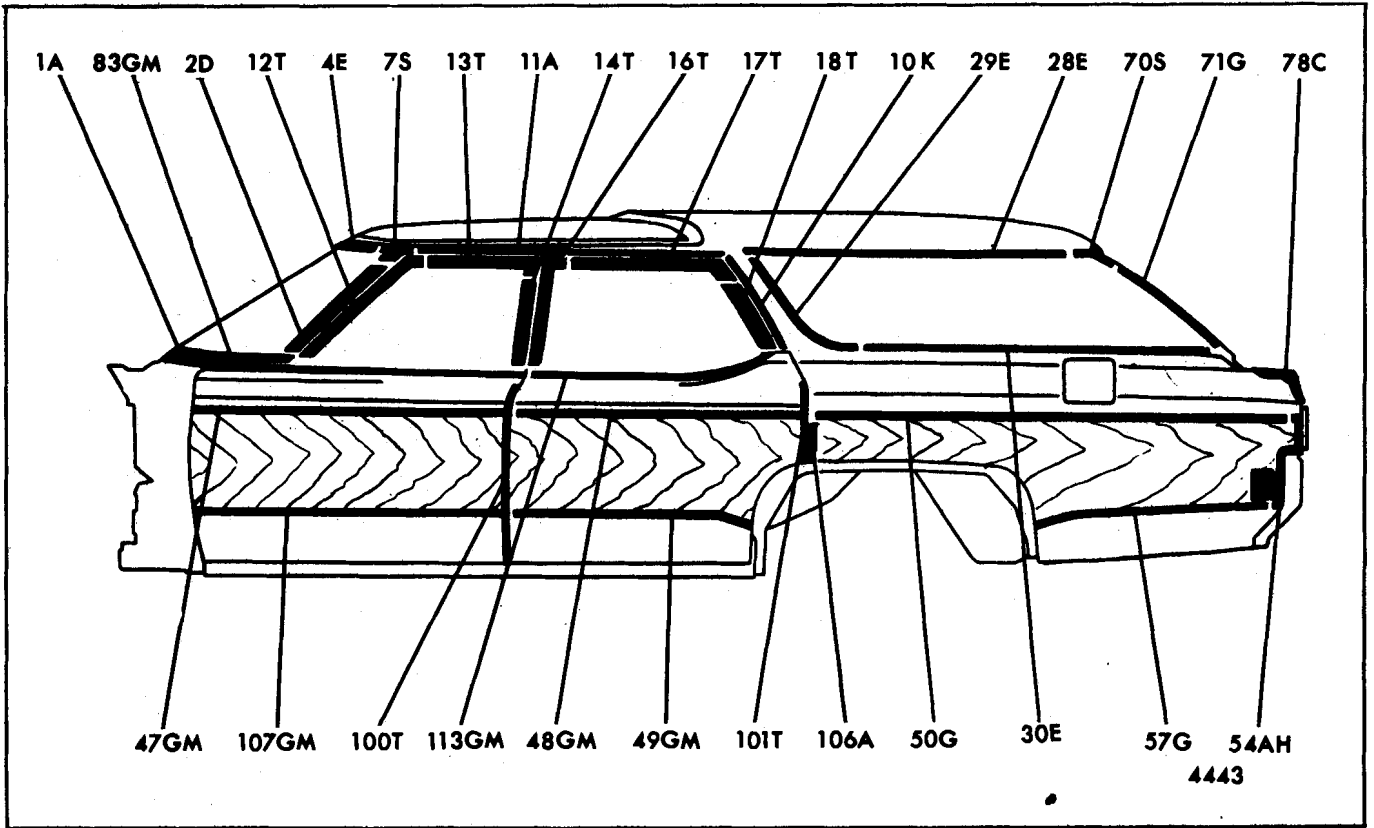


Fig. 16-65-Oldsmobile 36845 Styles (36835 Similar)

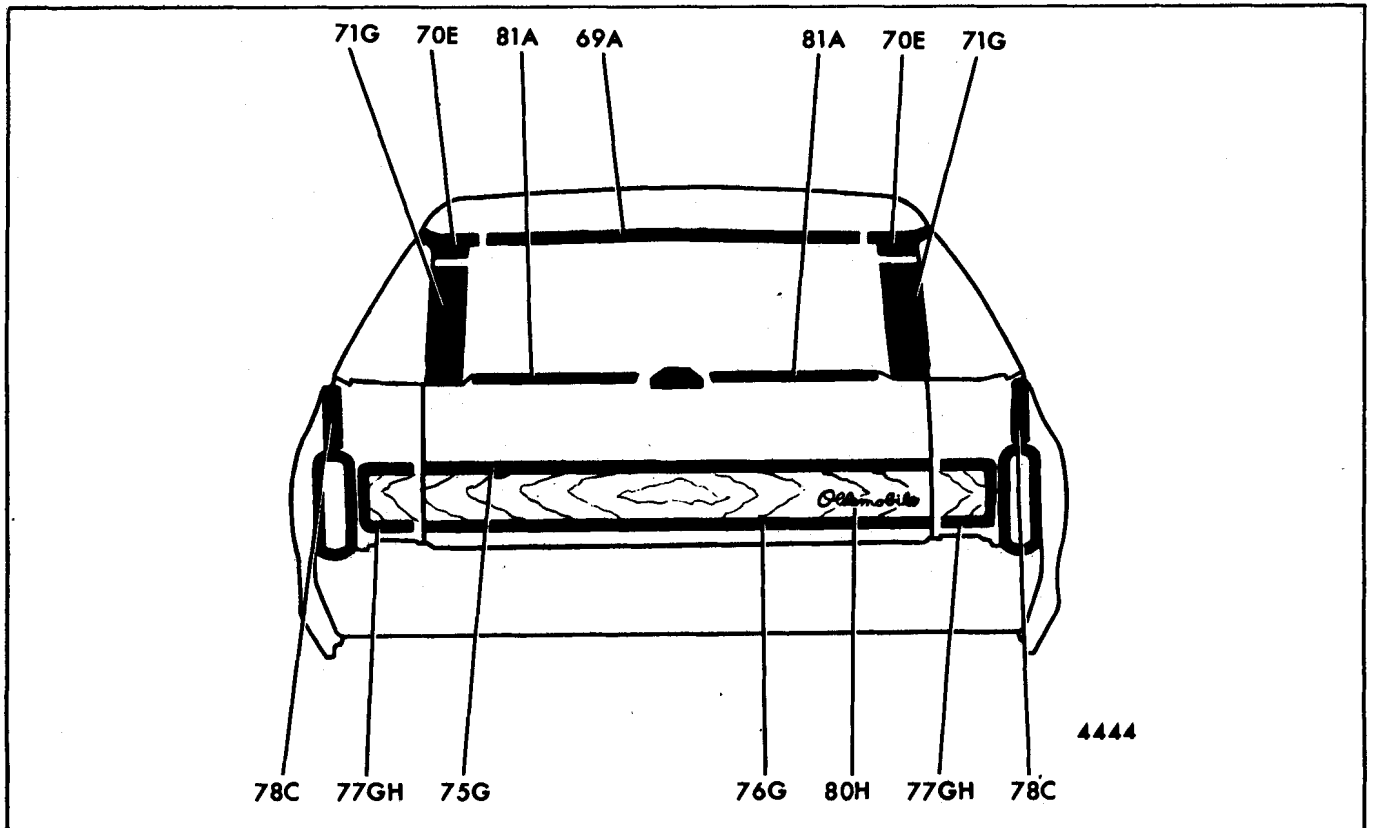


Fig. 16-66-Oldsmobile 36845 Styles (36835 Similar)

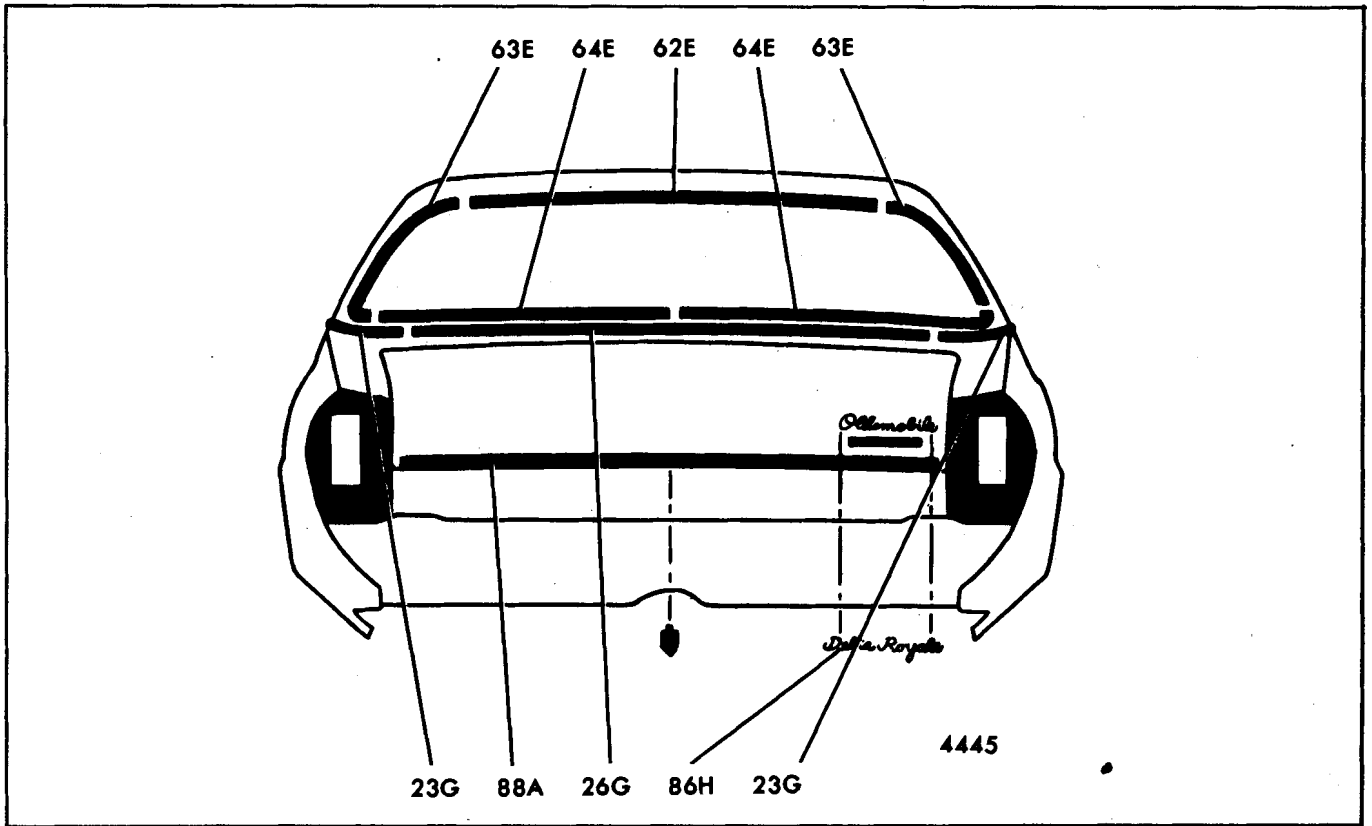


Fig. 16-67-Oldsmobile 36400 Styles (35400, 36600 Similar)

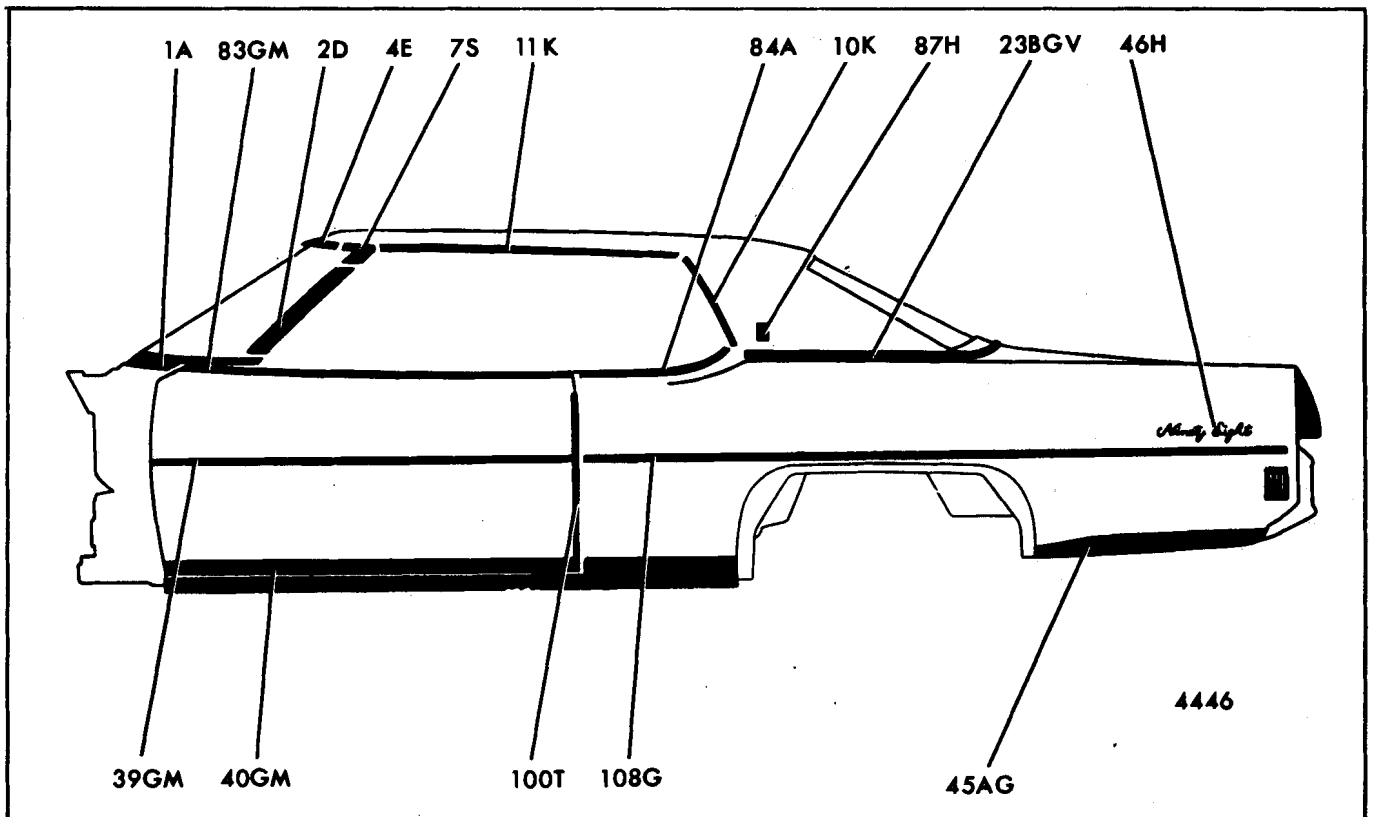


Fig. 16-68-Oldsmobile 38637 Styles (38437 Similar)

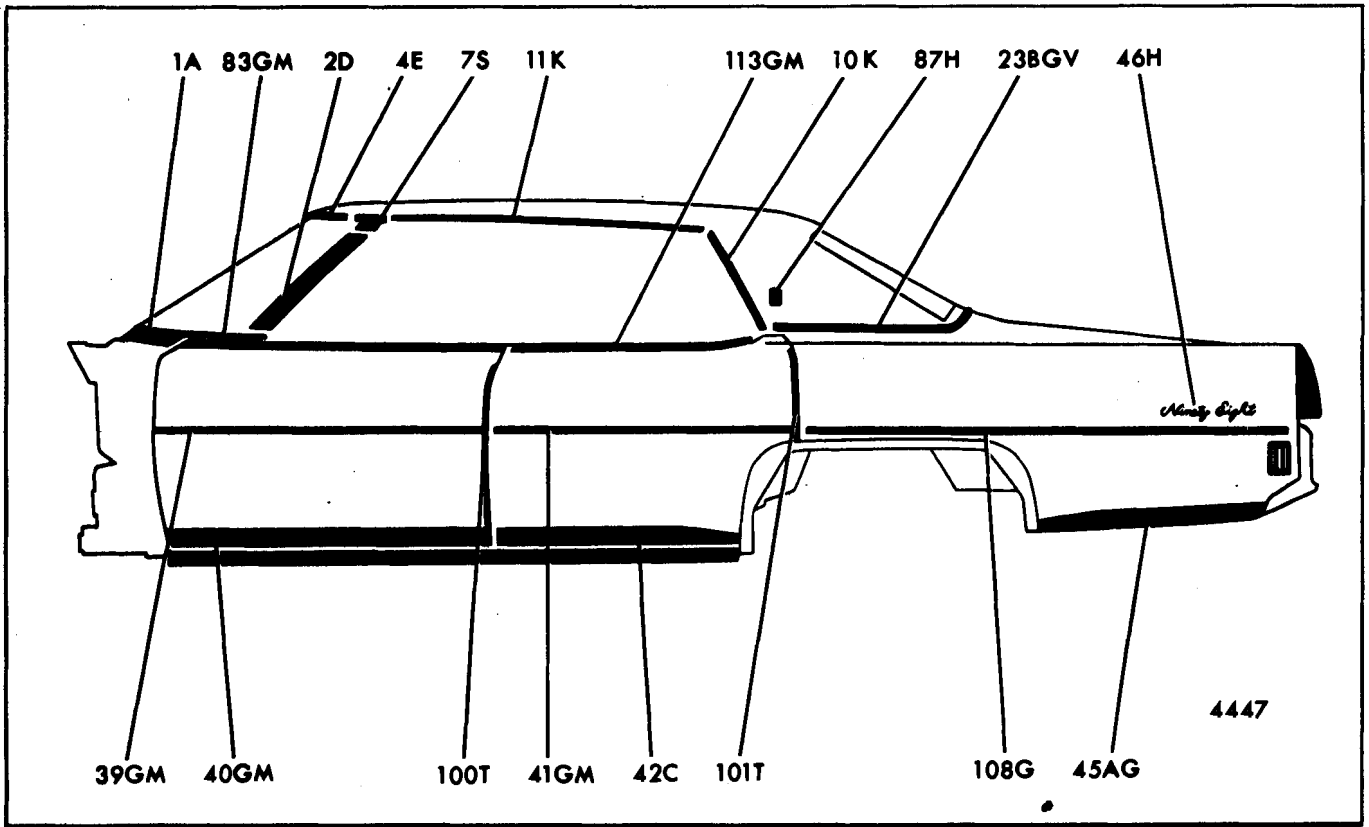


Fig. 16-69-Oldsmobile 38639 Styles (38439 Similar)

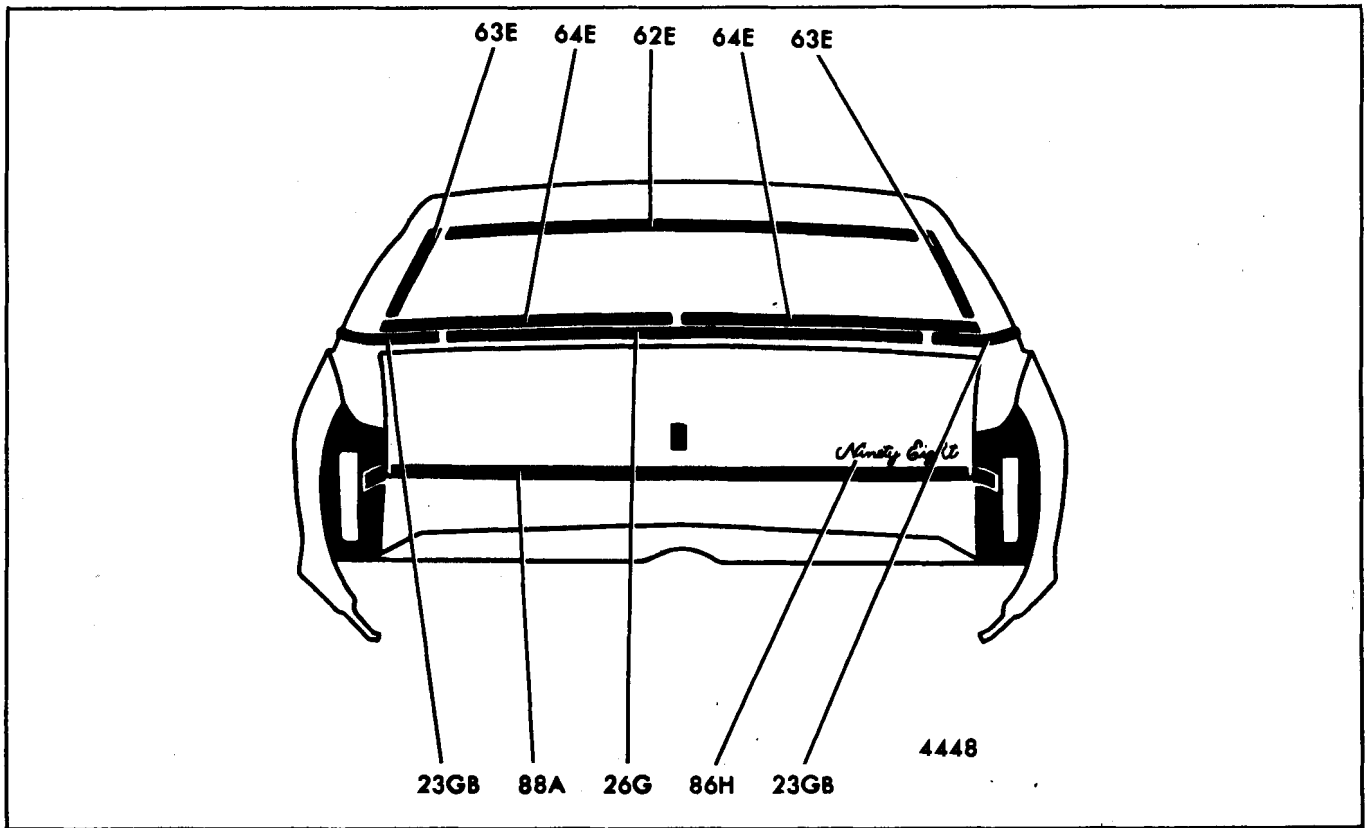


Fig. 16-70-Oldsmobile 38600 Styles (38400 Similar)

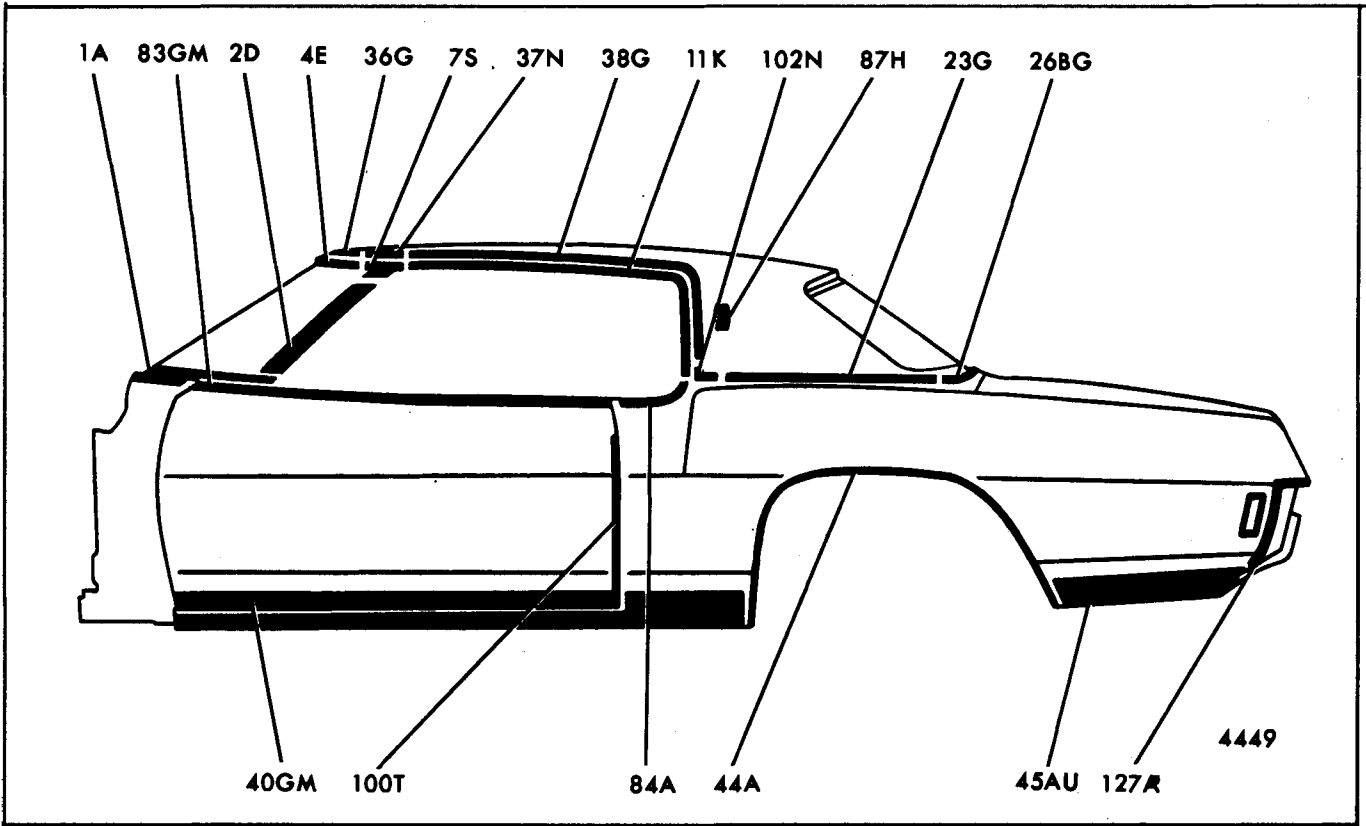


Fig. 16-71-Oldsmobile 39857 Styles (39657 Similar)

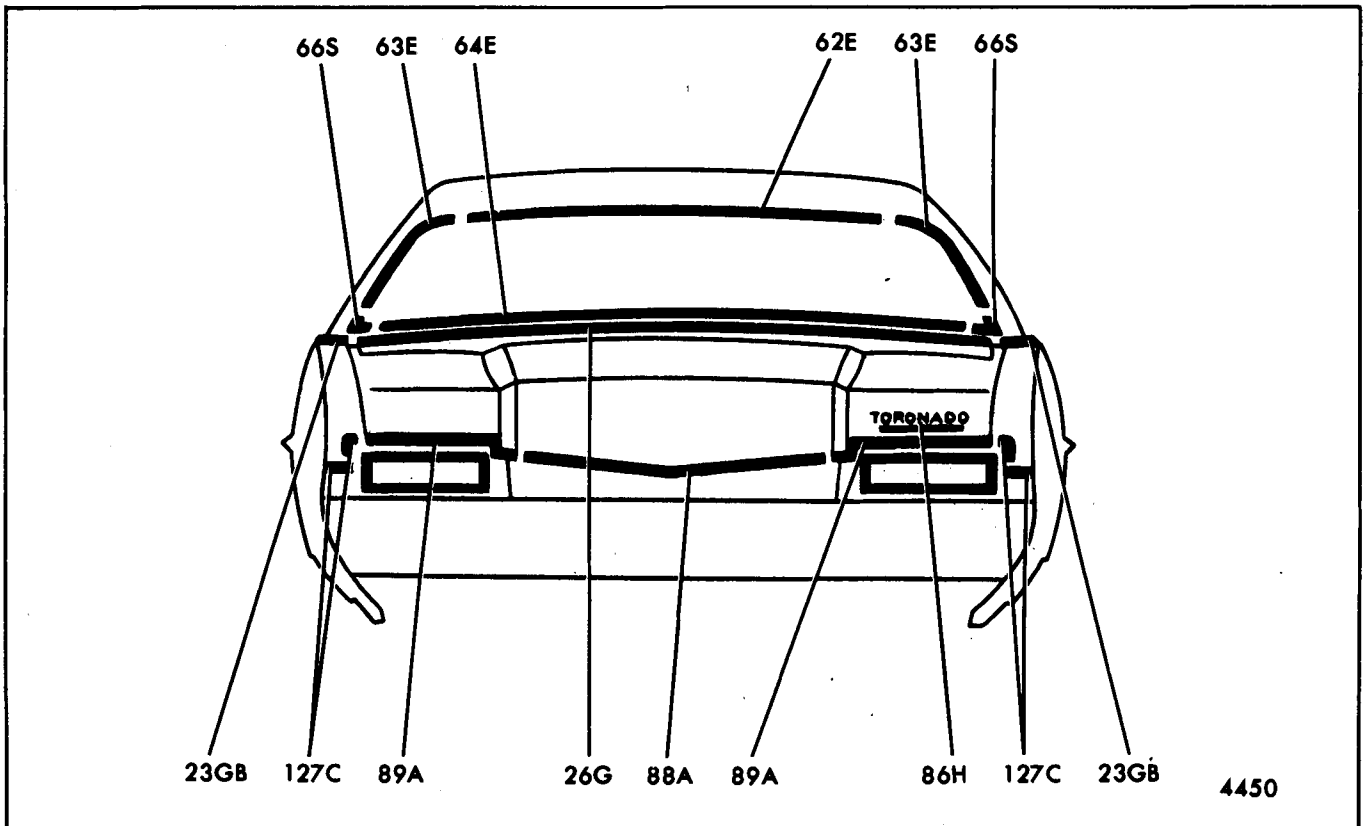


Fig. 16-72-Oldsmobile 39857 Styles (39657 Similar)

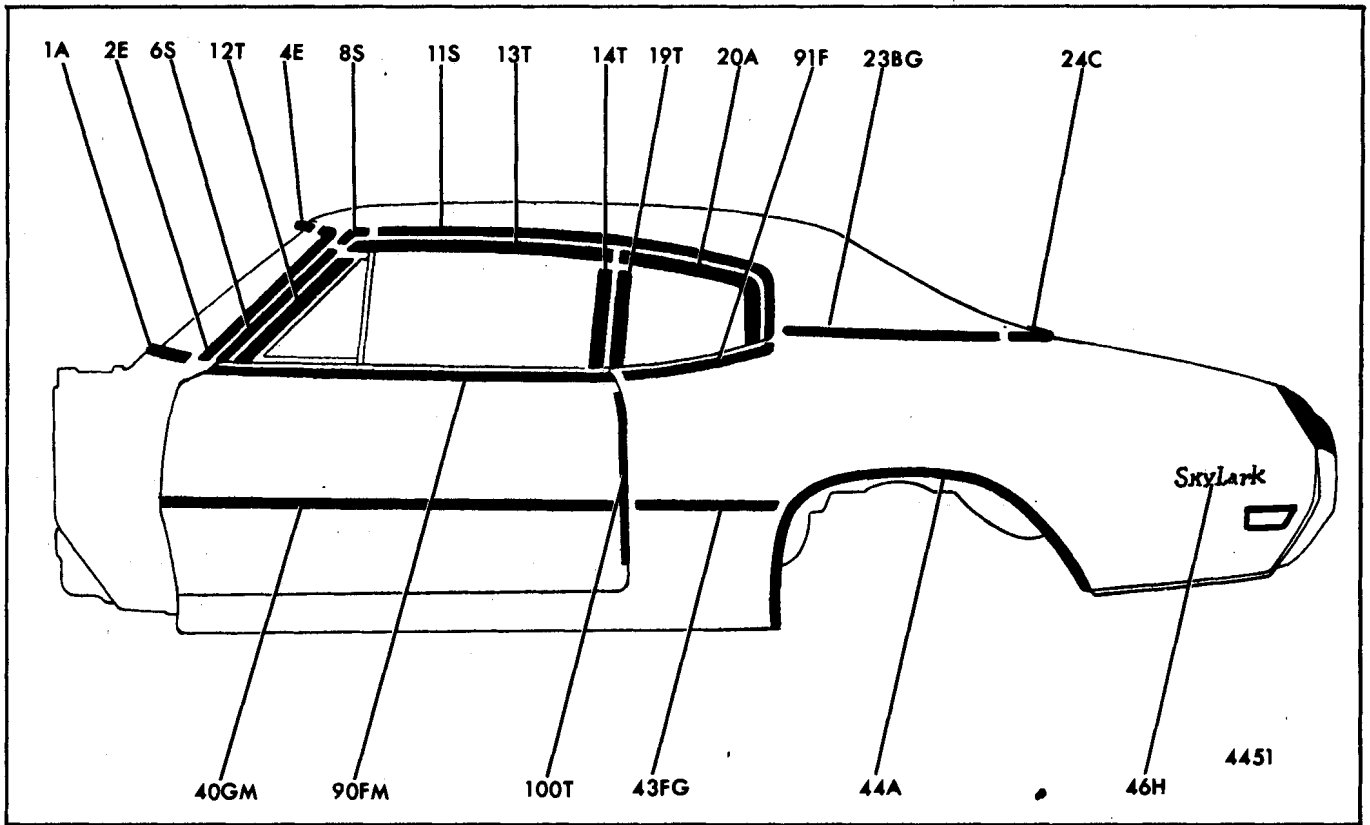


Fig. 16-73-Buick 43327 Styles

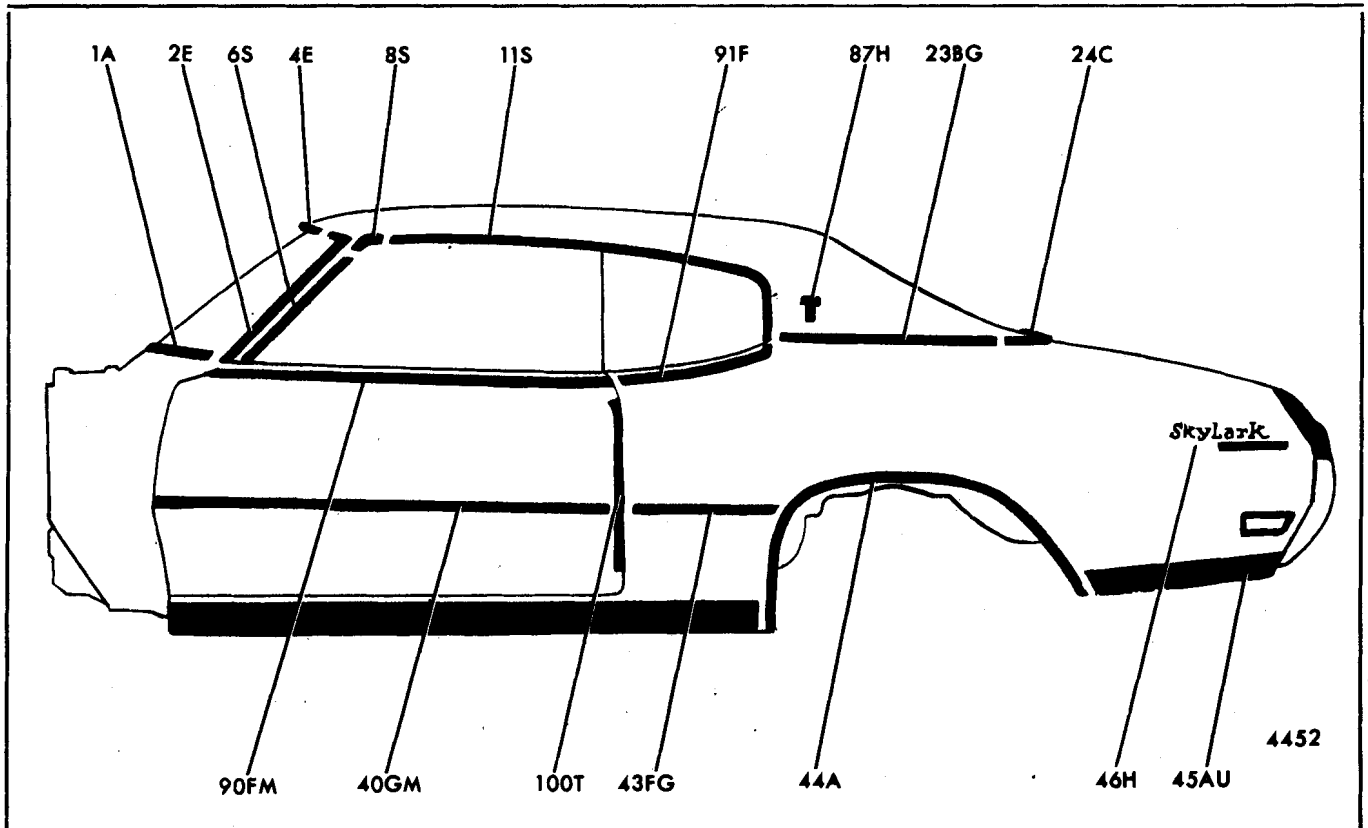


Fig. 16-74-Buick 44437 Styles (43437-67, 43337, 44467 Similar)

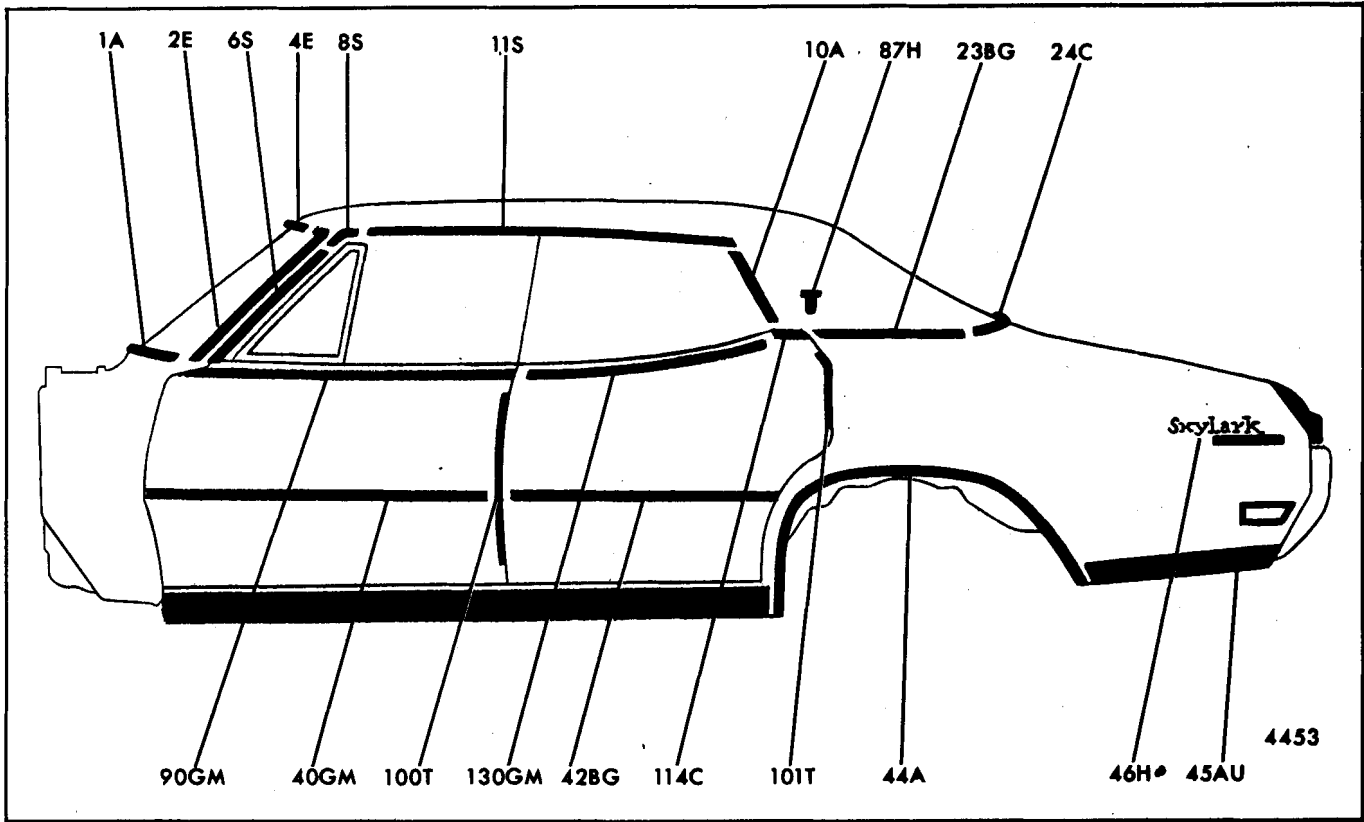


Fig. 16-75-Buick 44439 Styles

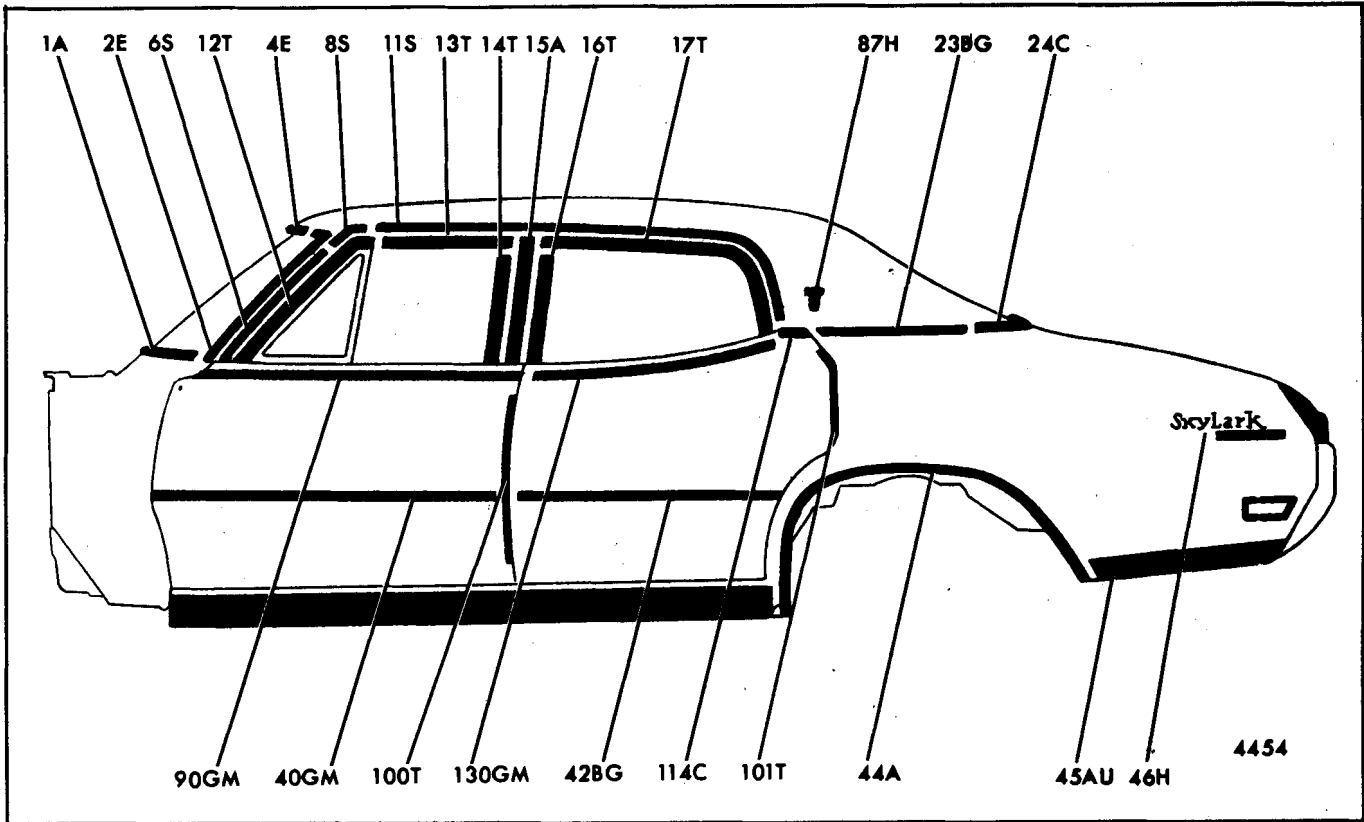


Fig. 16-76-Buick 44469 Styles (43369 Similar)

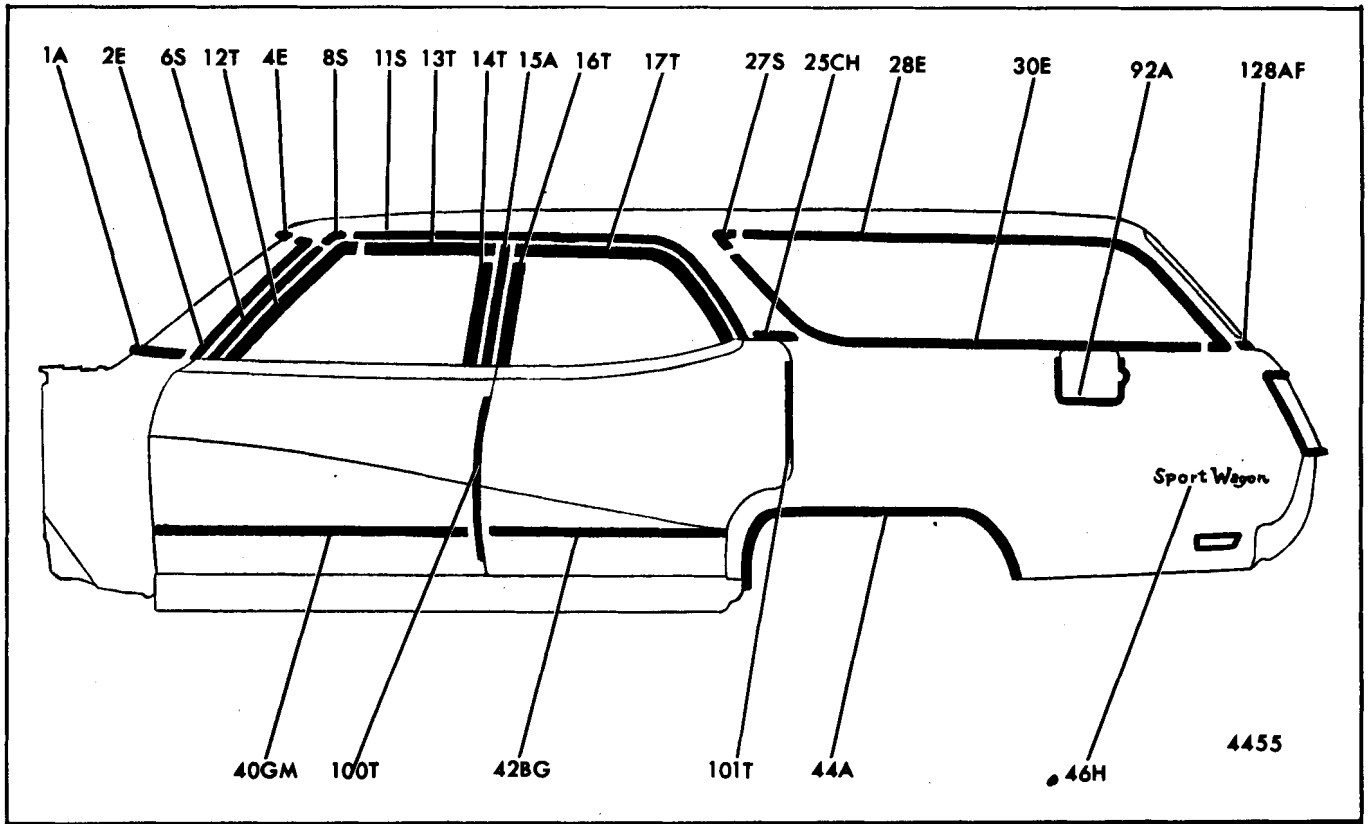


Fig. 16-77-Buick 43436 Styles

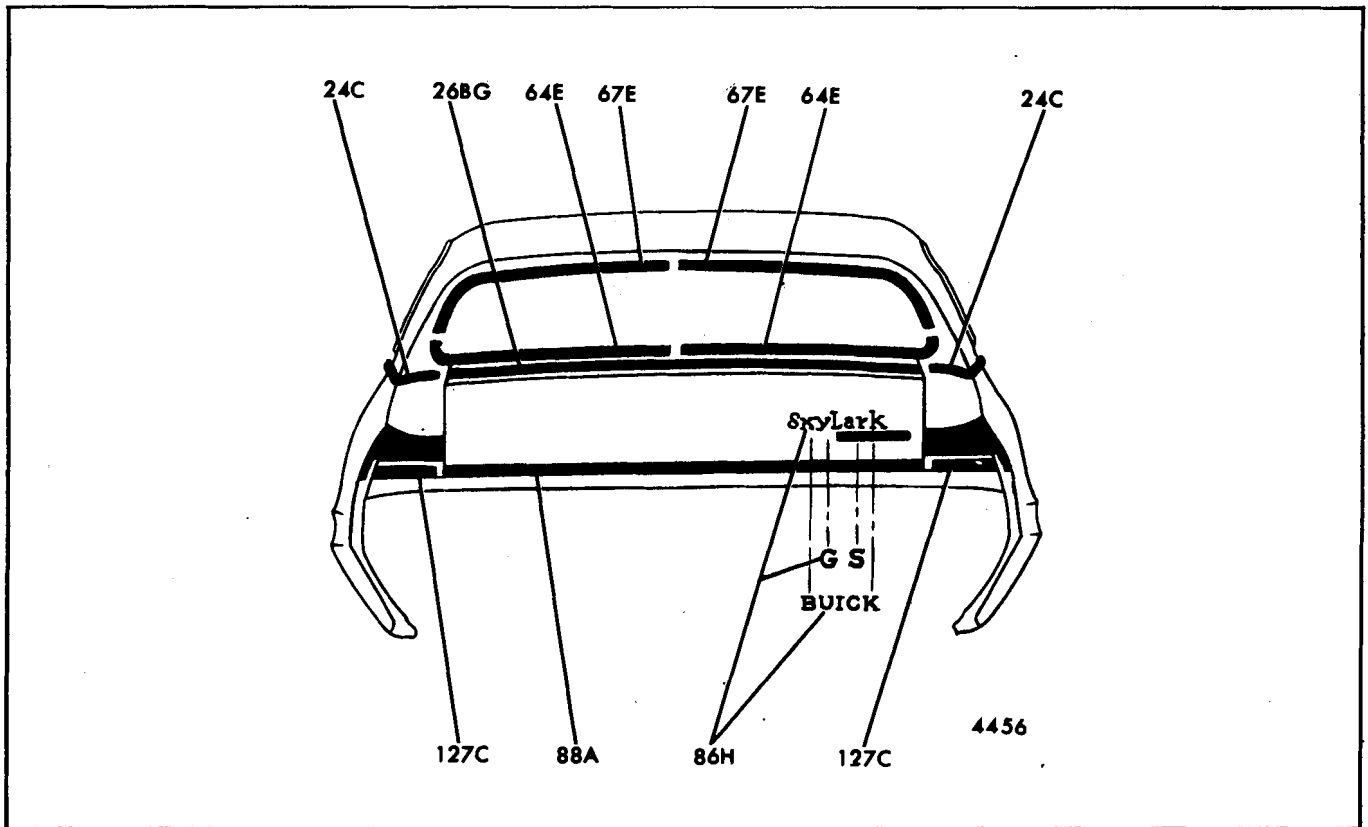


Fig. 16-78-Buick 44400 Styles (43400, 43300 Similar Except Station Wagons)

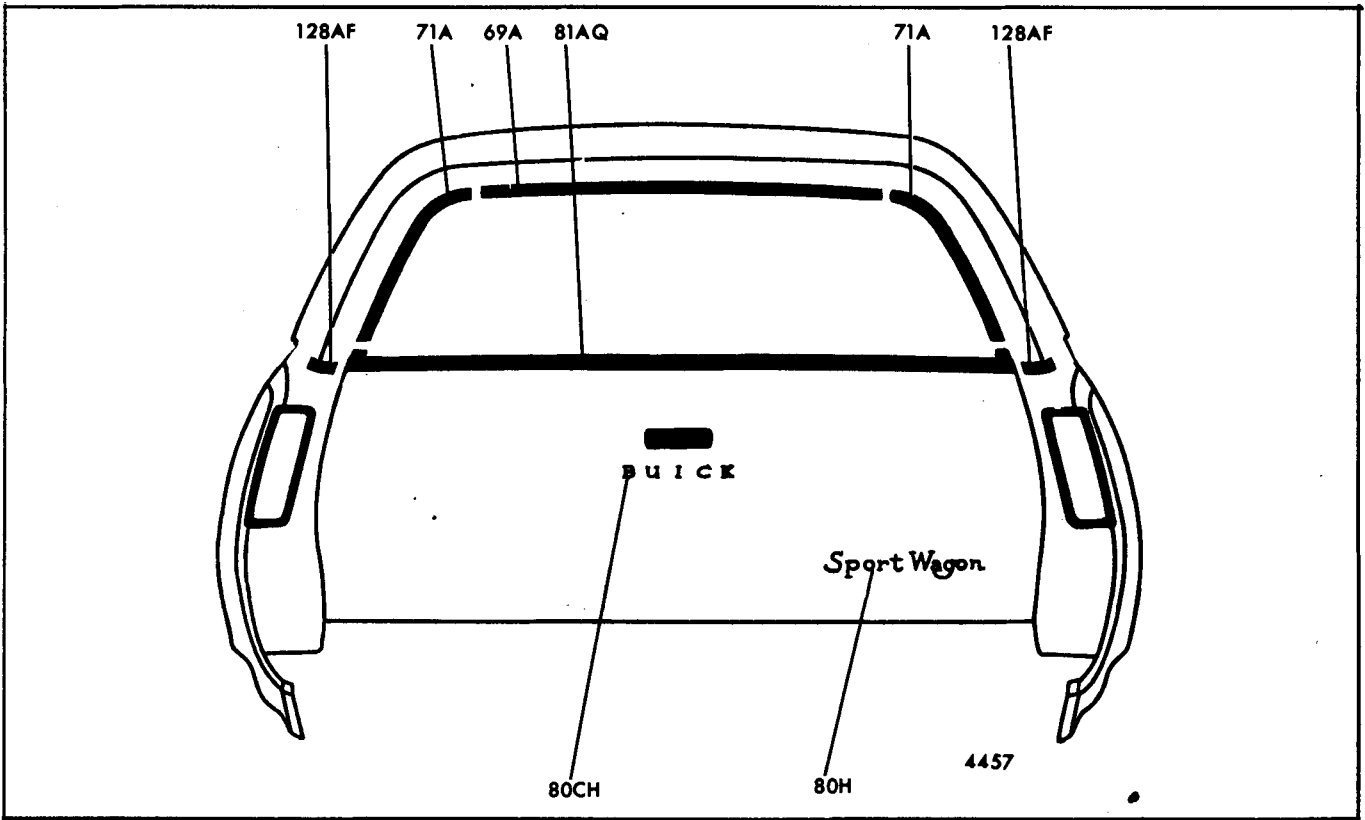


Fig. 16-79-Buick 43436 Styles

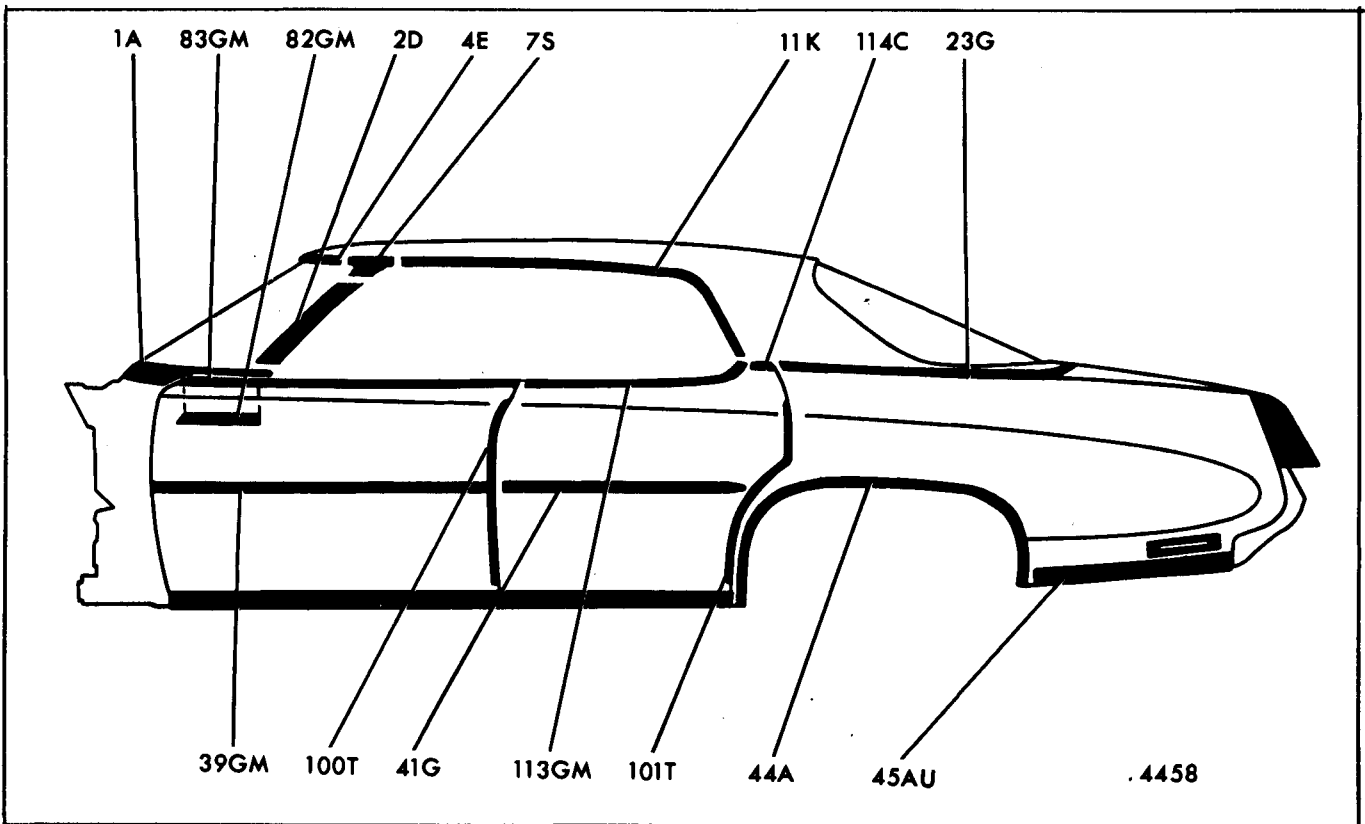


Fig. 16-80-Buick 45439 Styles (45239, 46639 Similar)

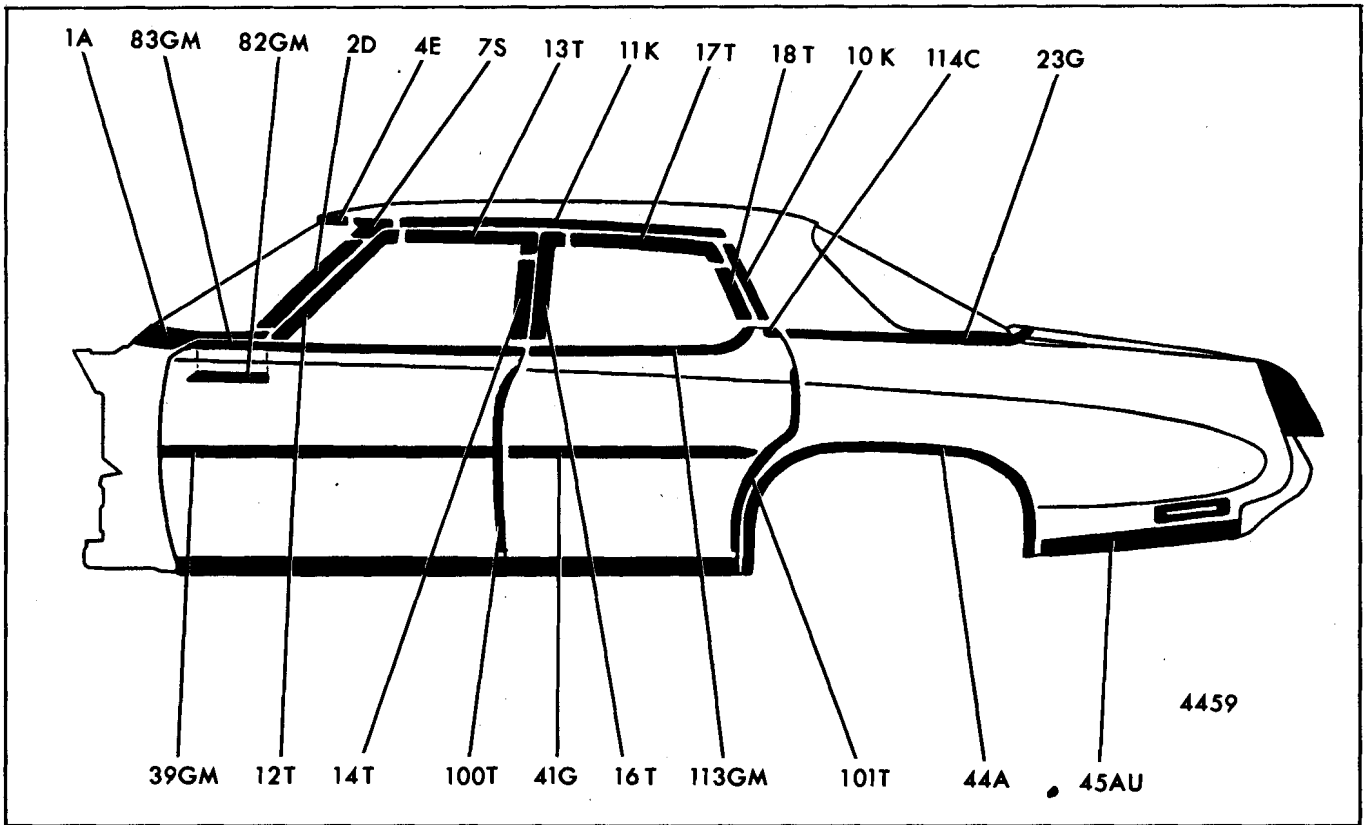


Fig. 16-81-Buick 45469 Styles (45269 Similar)

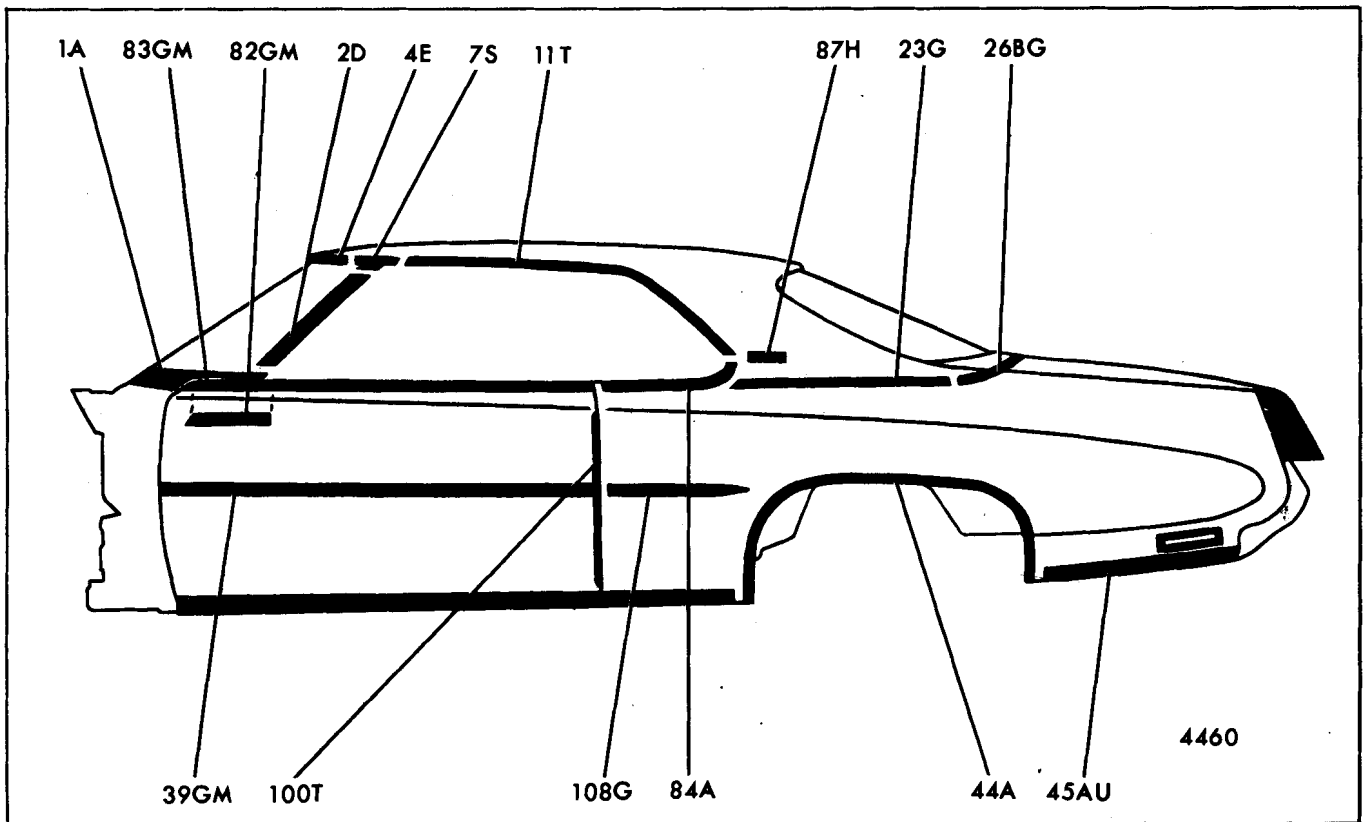


Fig. 16-82-Buick 45457 Styles (45257, 45467, 46647-67 Similar)

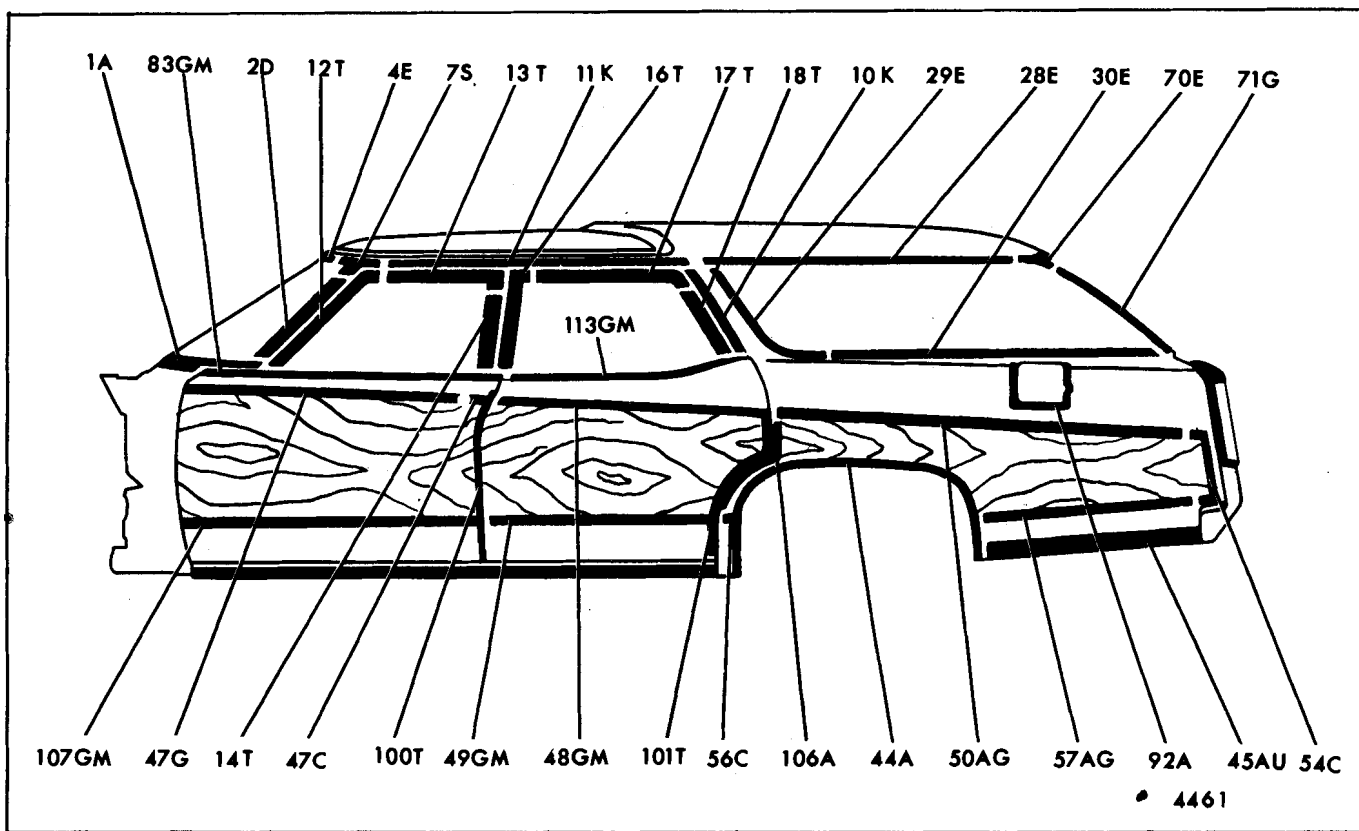


Fig. 16-83-Buick 46045 Styles (Woodgrain Option)(46035 Similar)

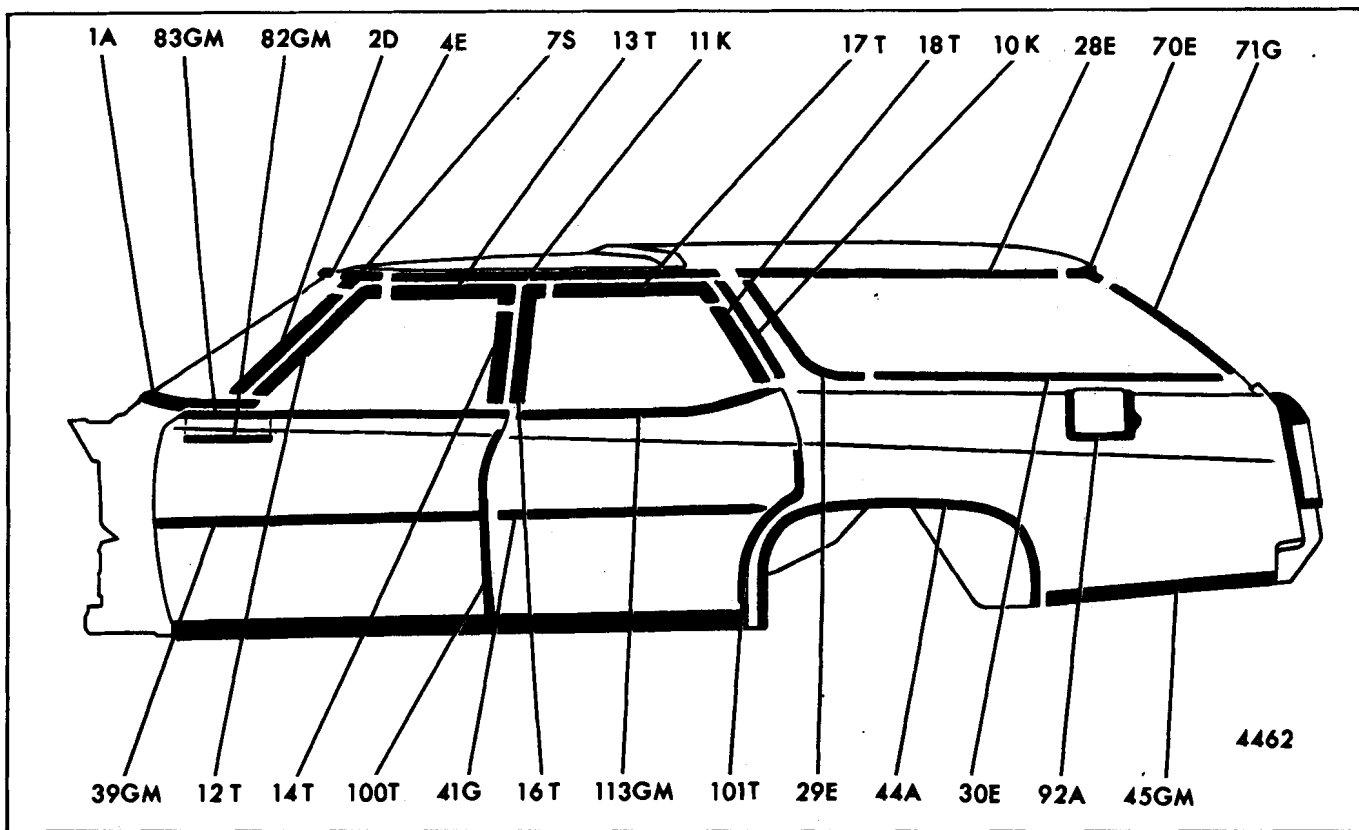


Fig. 16-84-Buick 46045 Styles (Without Woodgrain Option)(46035 Similar)

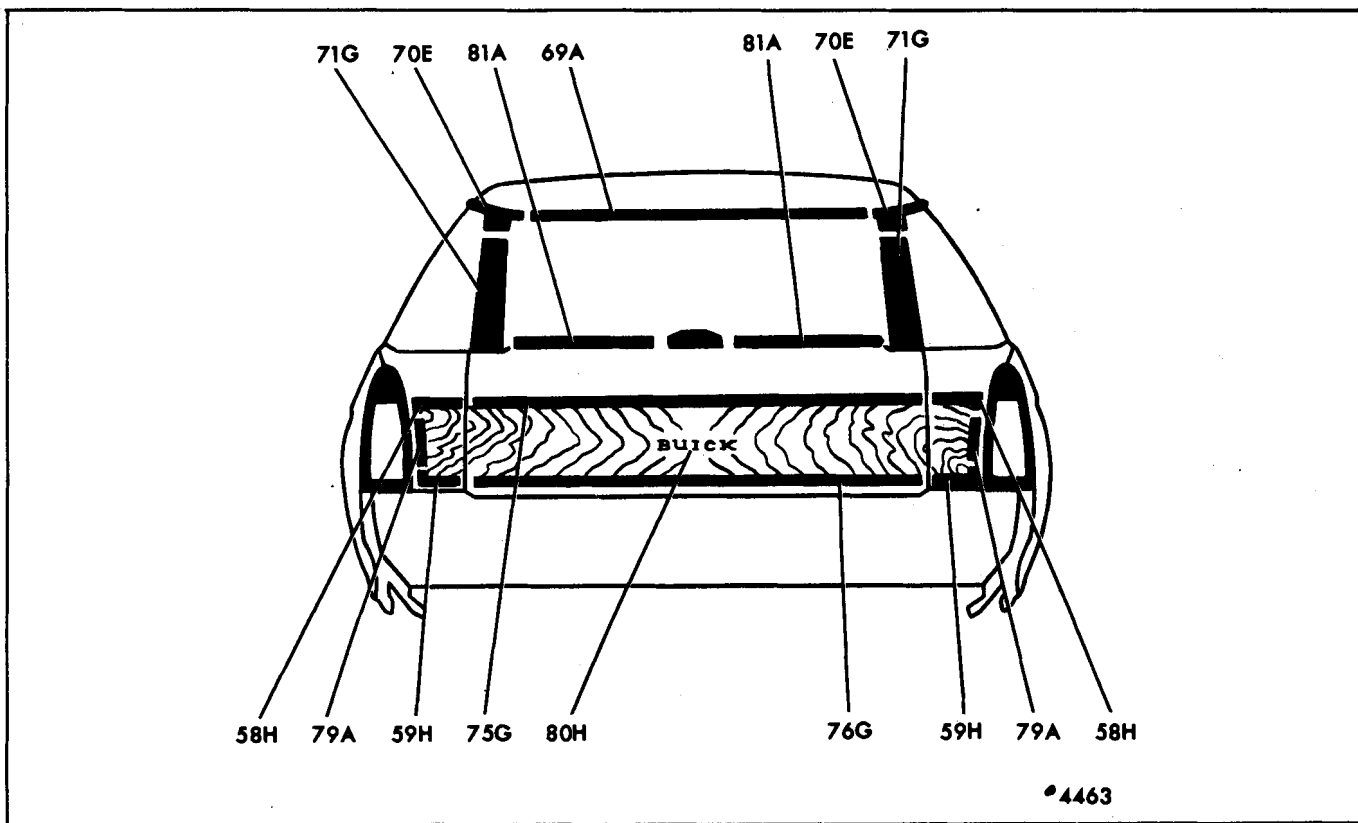


Fig. 16-85-Buick 46045 Styles (46035 Similar)

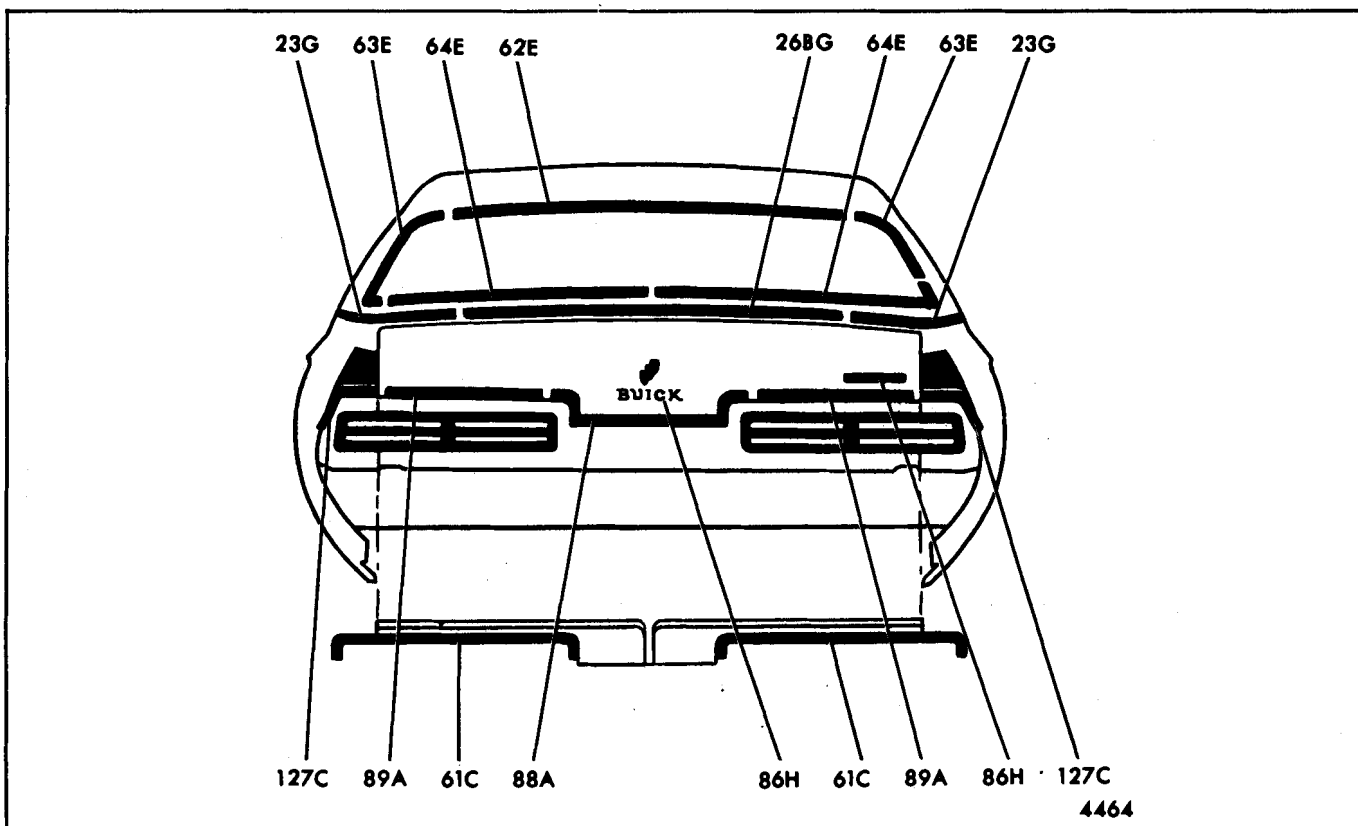


Fig. 16-86-Buick 46600 Styles (45200, 45400 Similar Except Station Wagons)

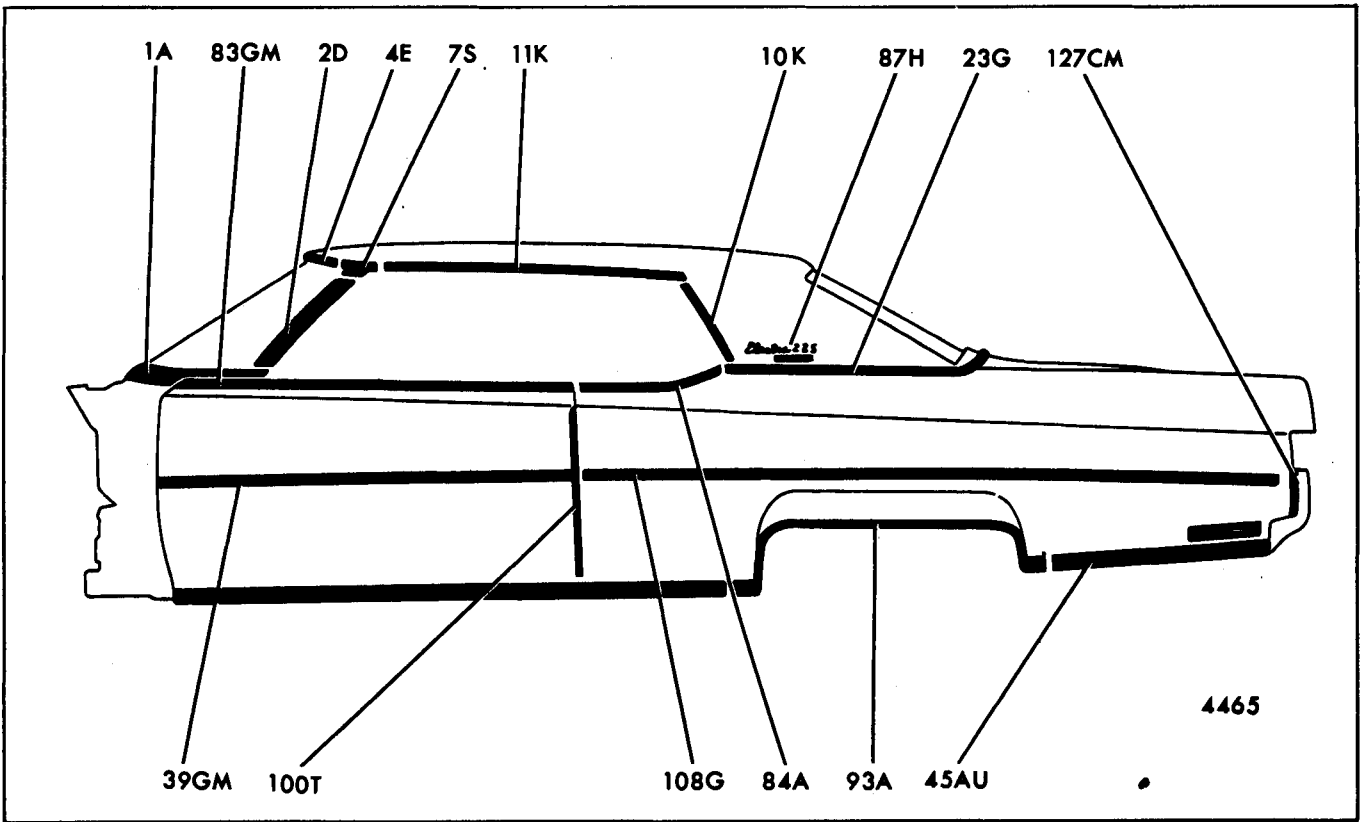


Fig. 16-87-Buick 48437 Styles (48237 Similar)

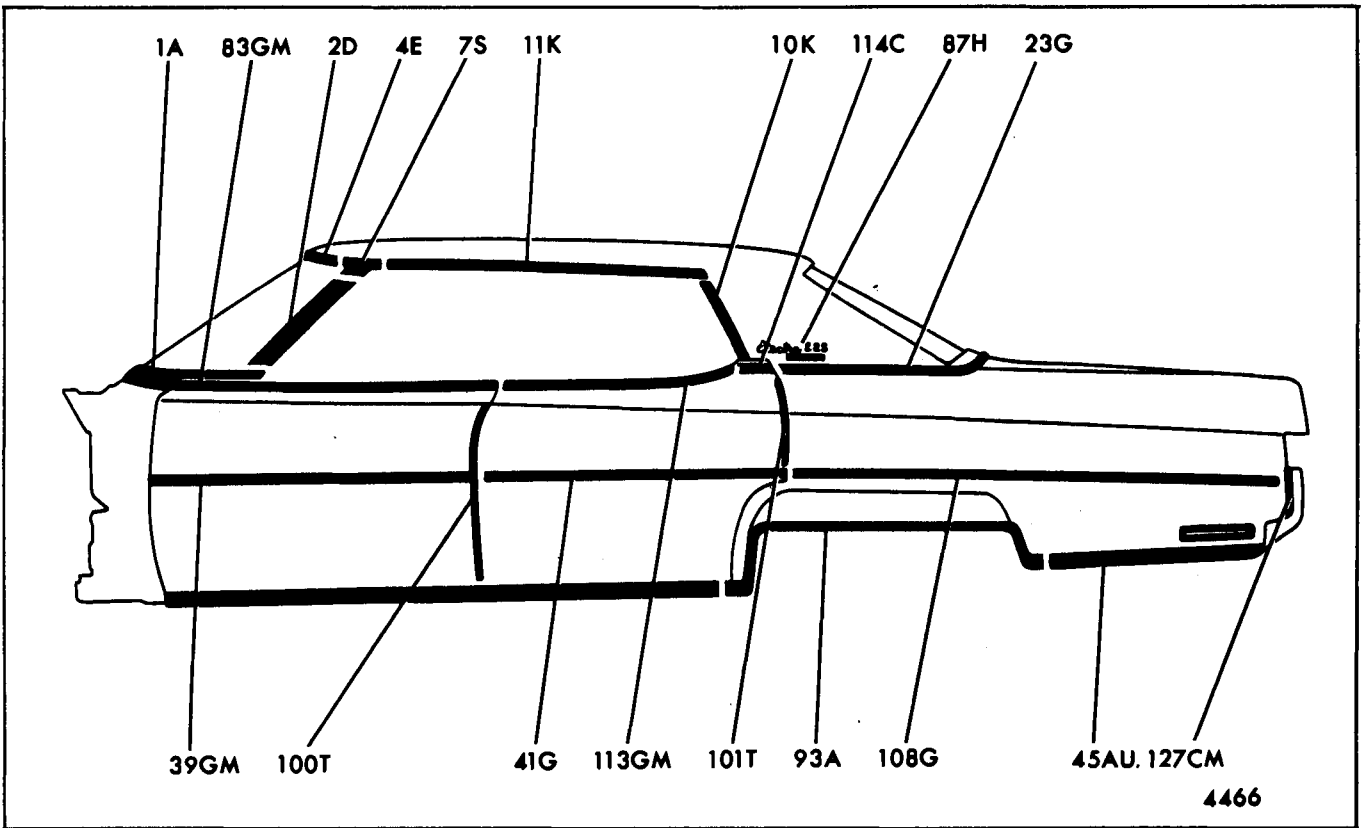


Fig. 16-88-Buick 48439 Styles (48239 Similar)

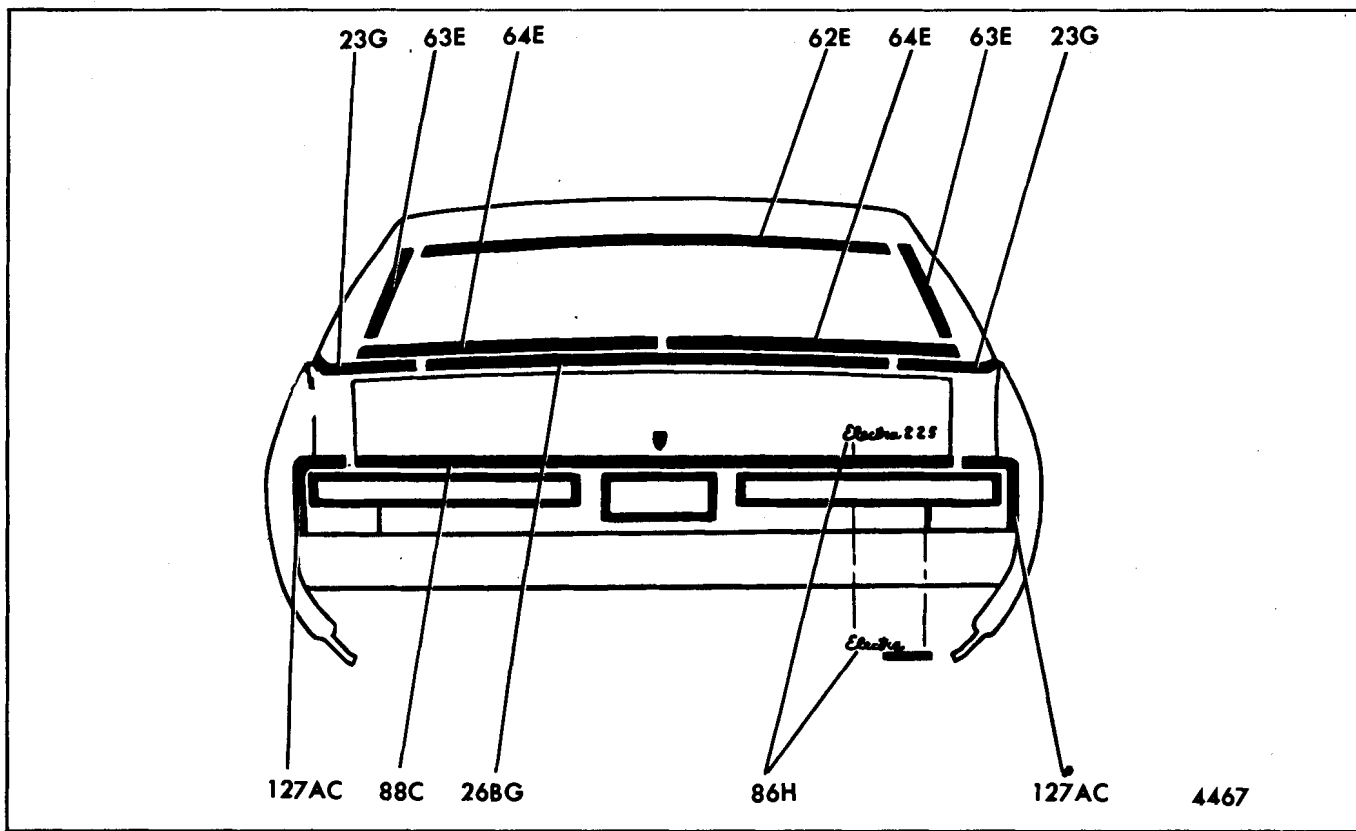


Fig. 16-89-Buick 48400 Styles (48200 Similar)

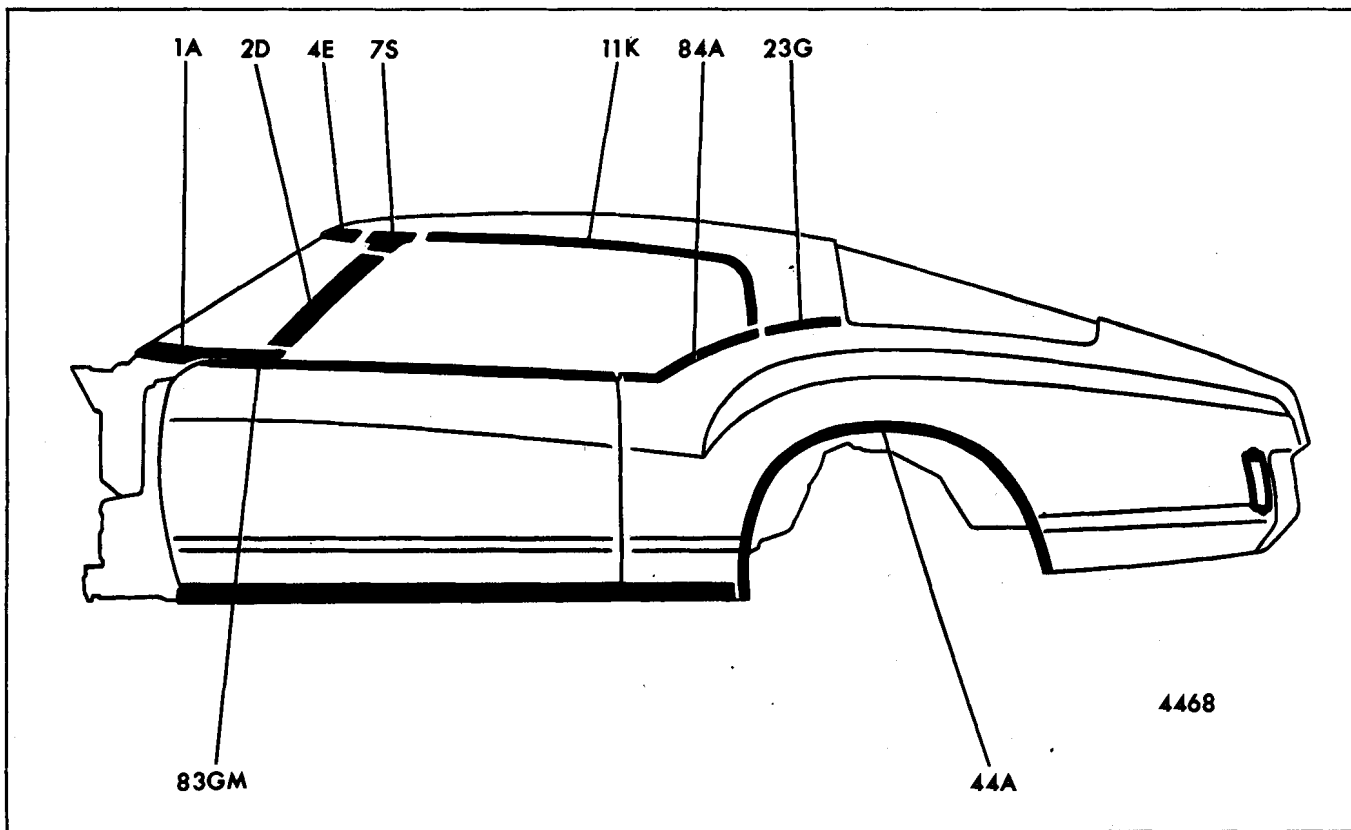


Fig. 16-90-Buick 49487 Styles

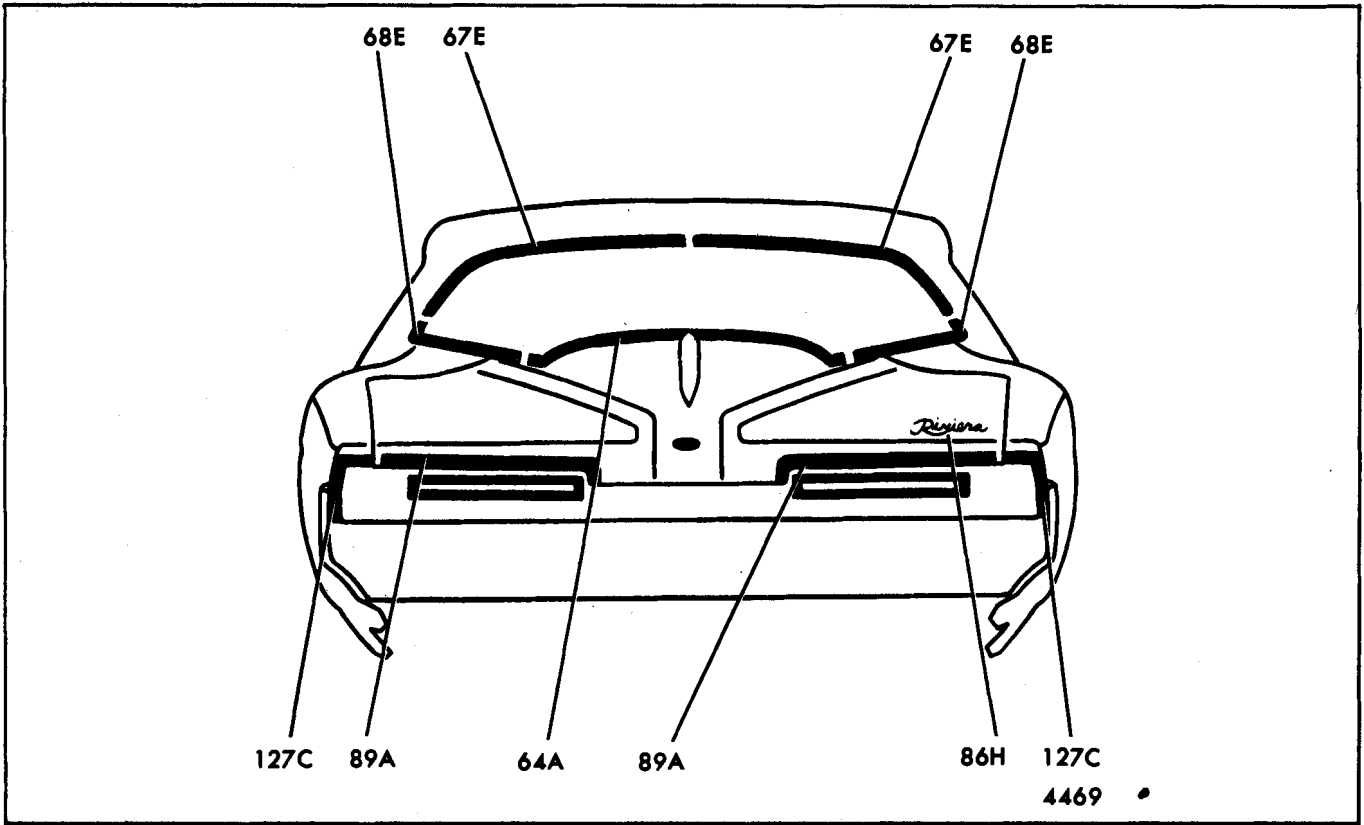


Fig. 16-91-Buick 49487 Styles

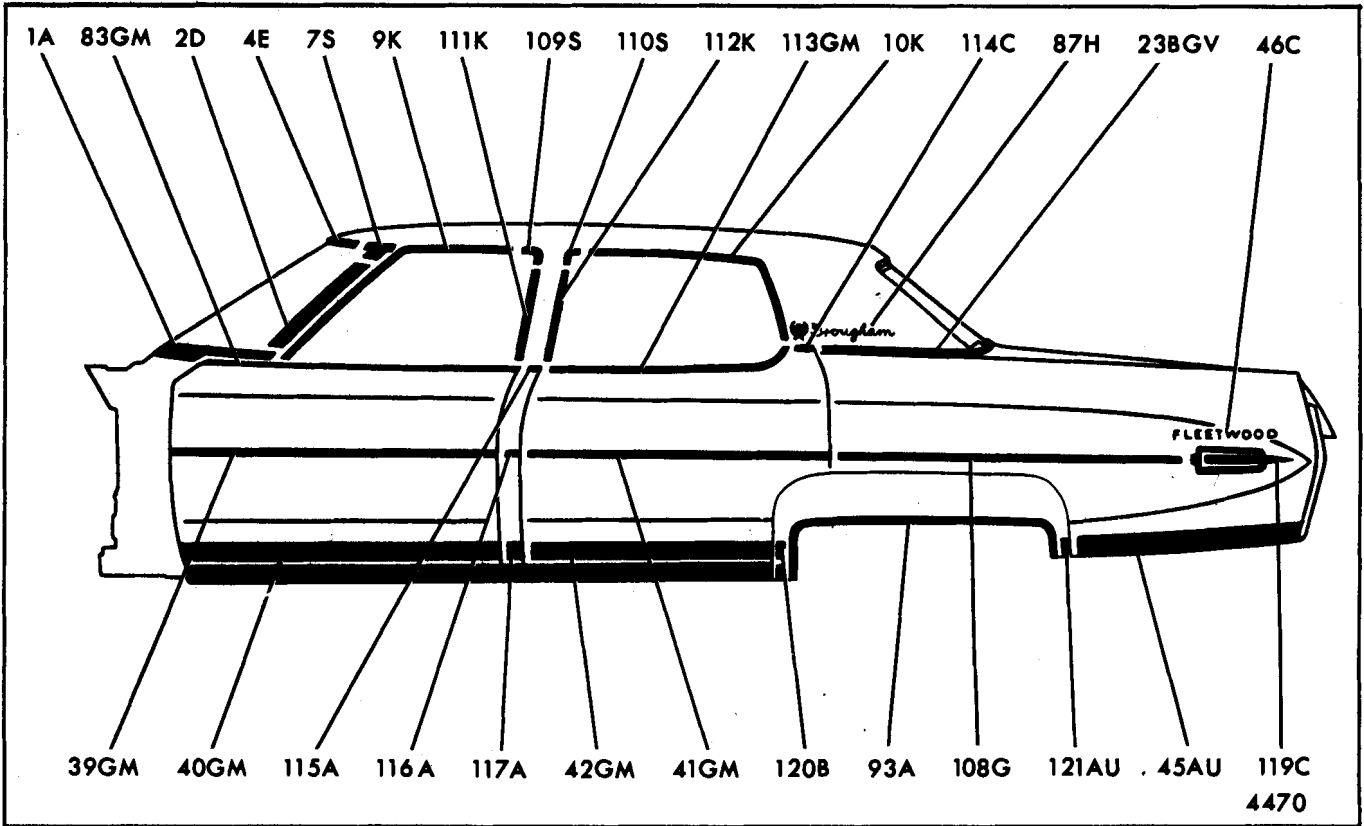


Fig. 16-92-Cadillac 68169 Styles

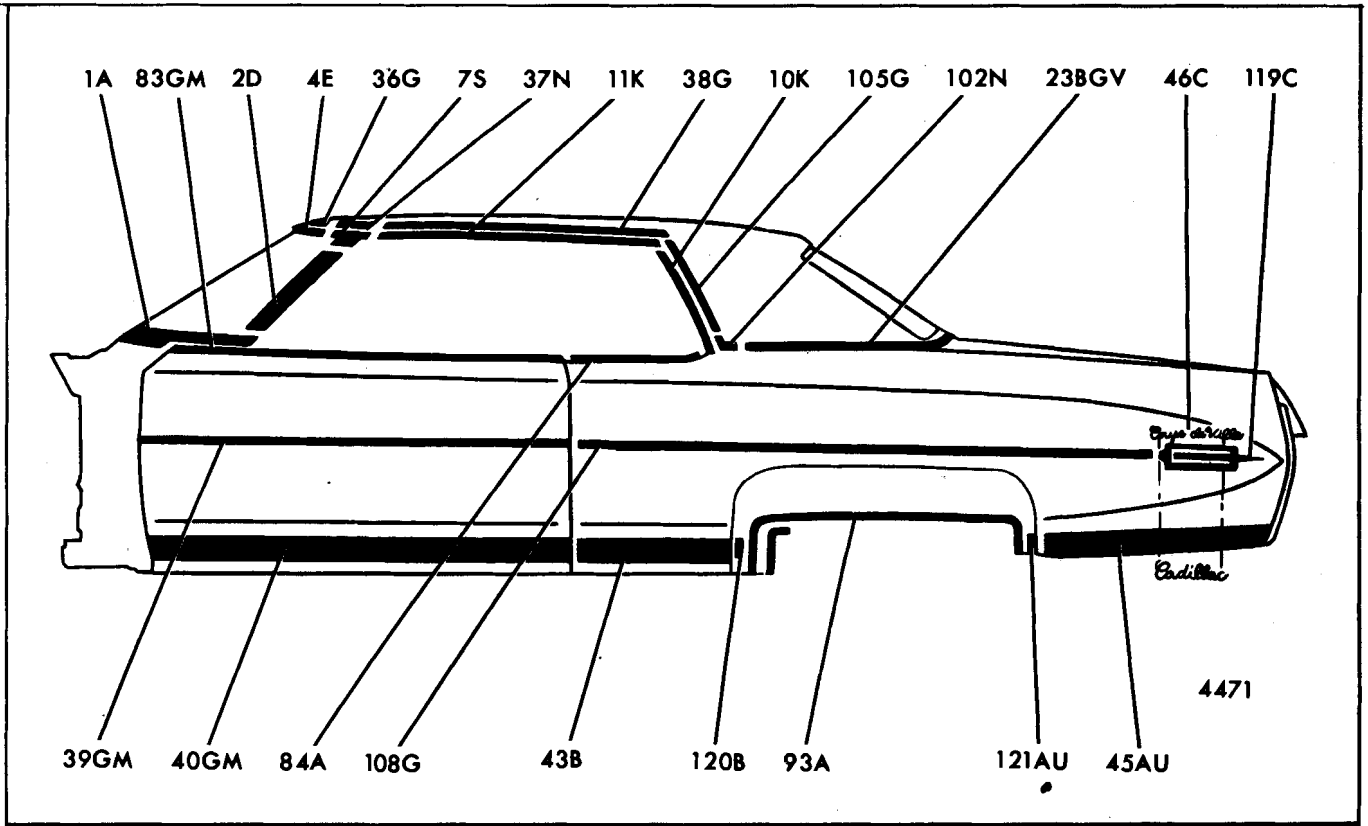


Fig. 16-93-Cadillac 68347 Styles (68247 Similar)

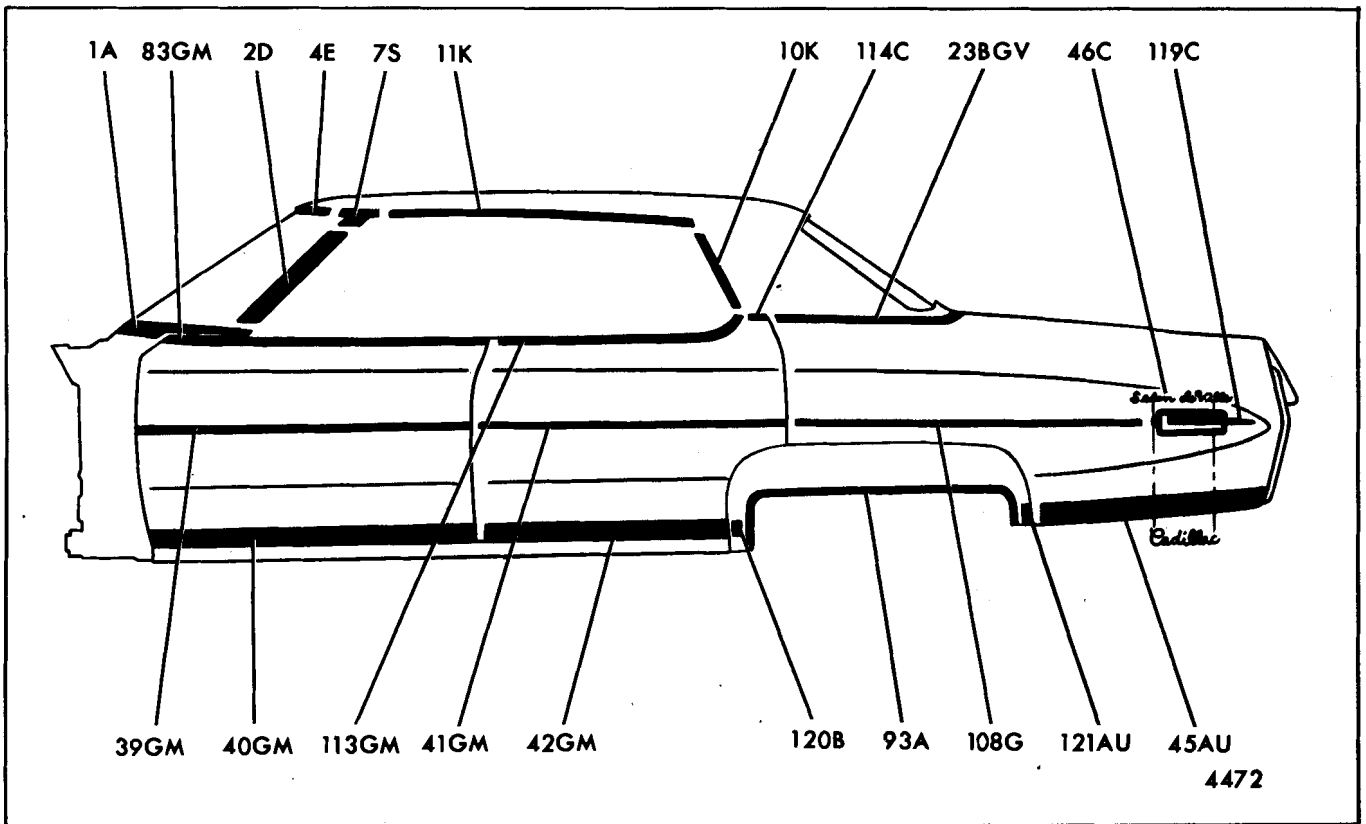


Fig. 16-94-Cadillac 68349 Styles (68249 Similar)

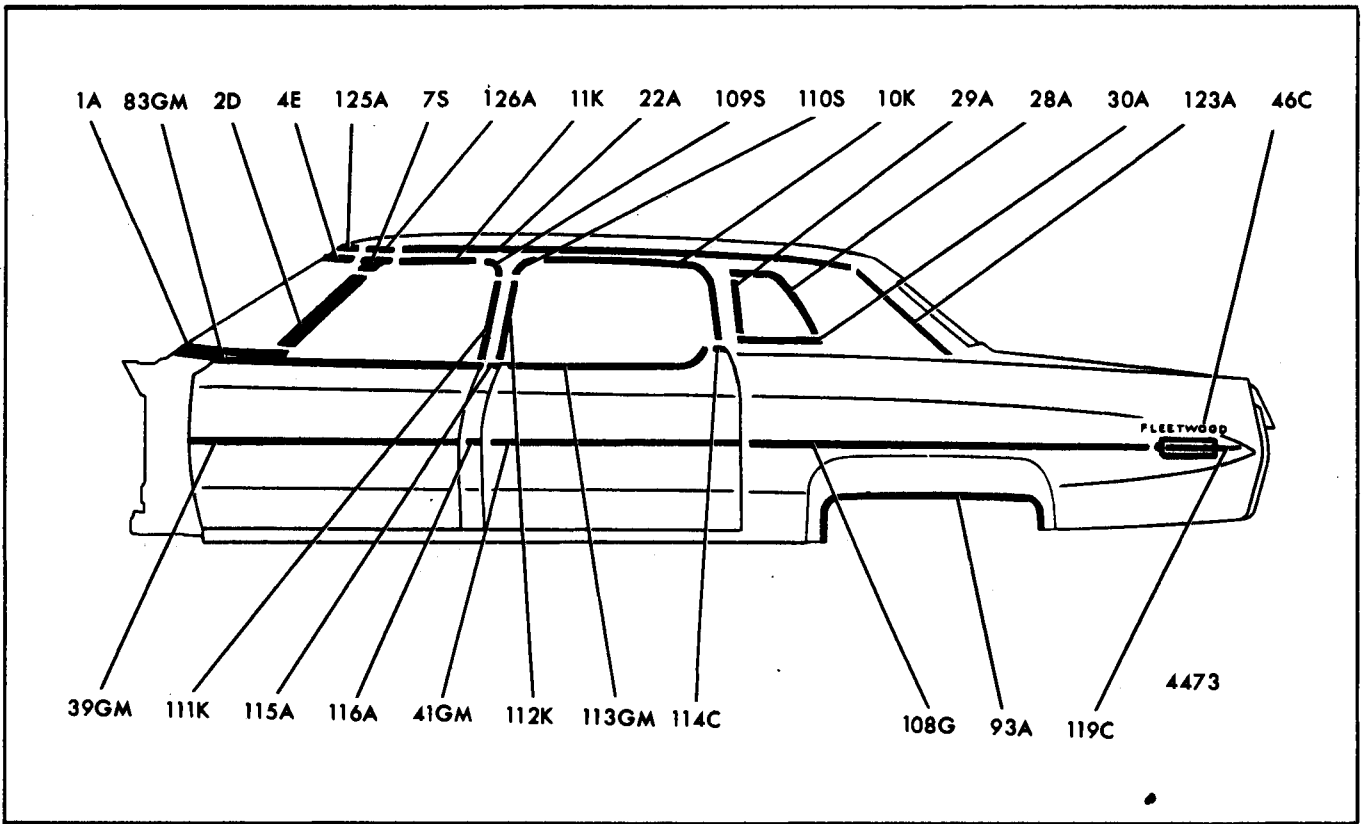


Fig. 16-95-Cadillac 69723 Styles (69733 Similar)

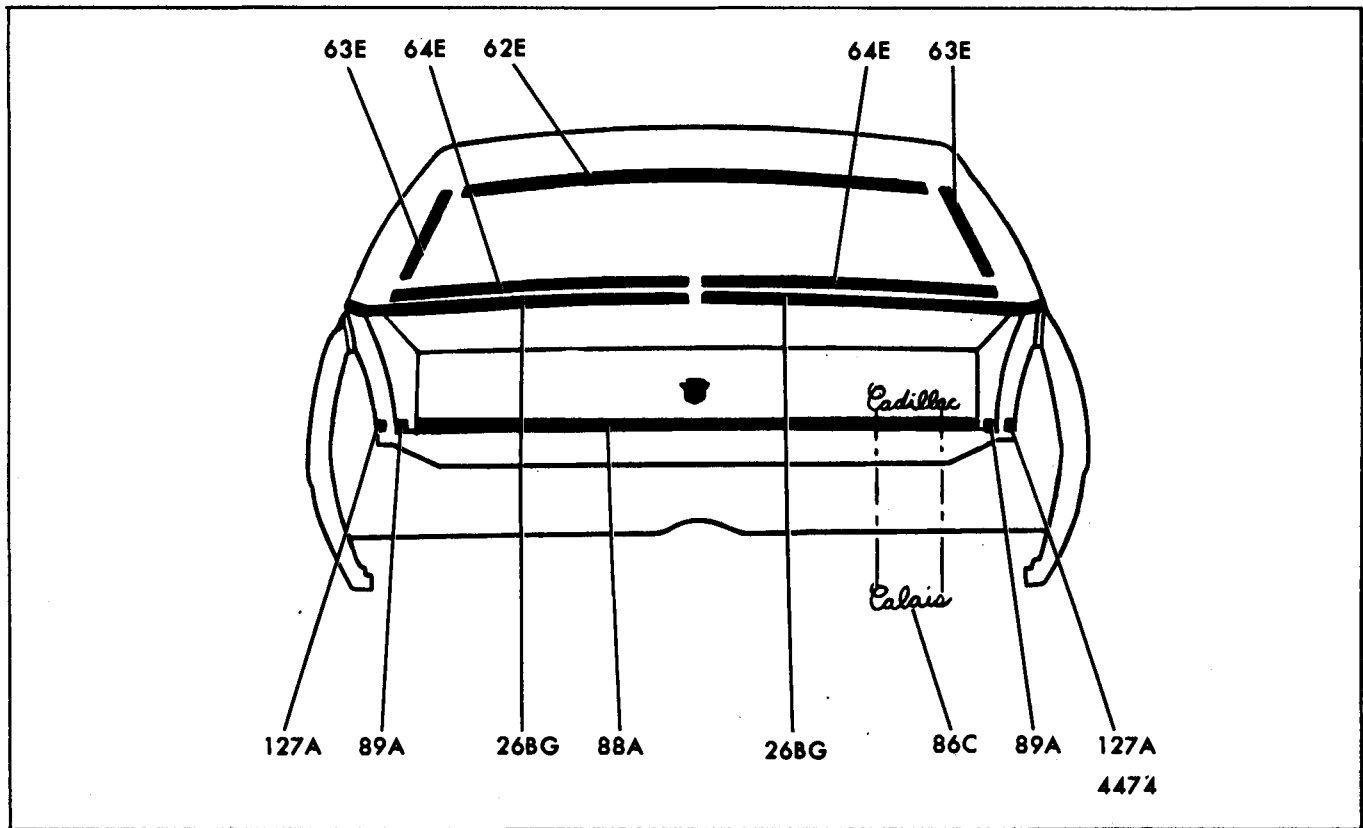


Fig. 16-96-Cadillac 68300 Styles (68200 Similar)

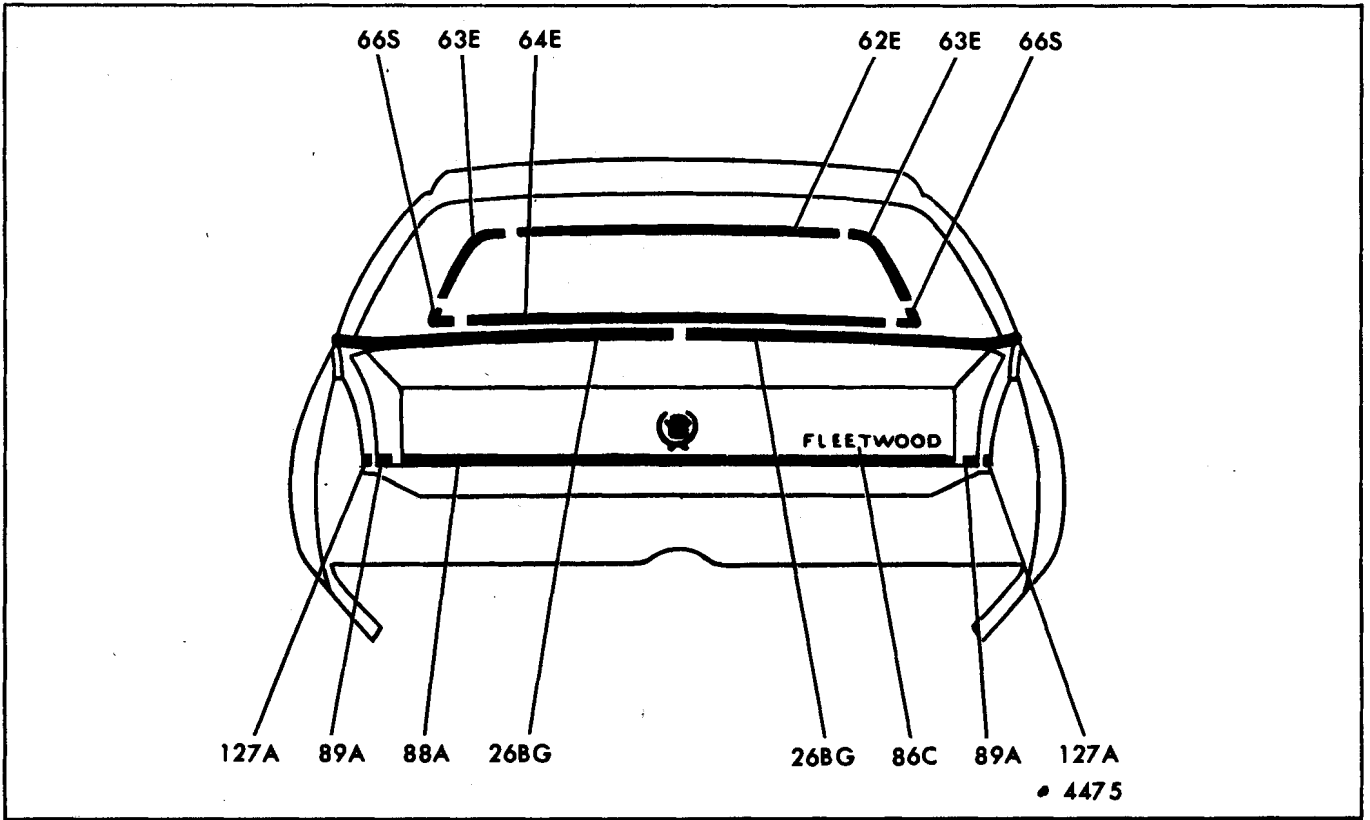


Fig. 16-97-Cadillac 68169 Styles (69723-33 Similar)

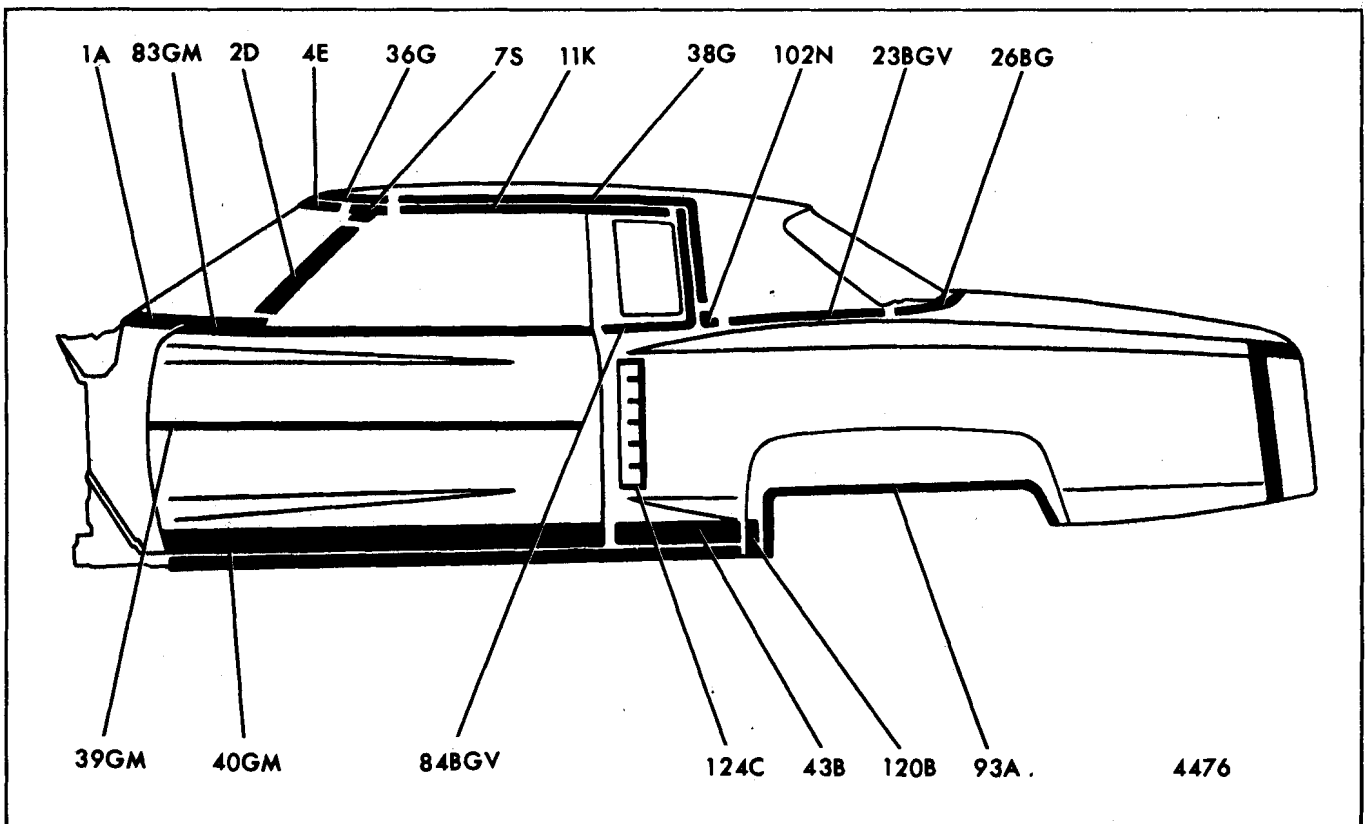


Fig. 16-98-Cadillac 69347 Styles

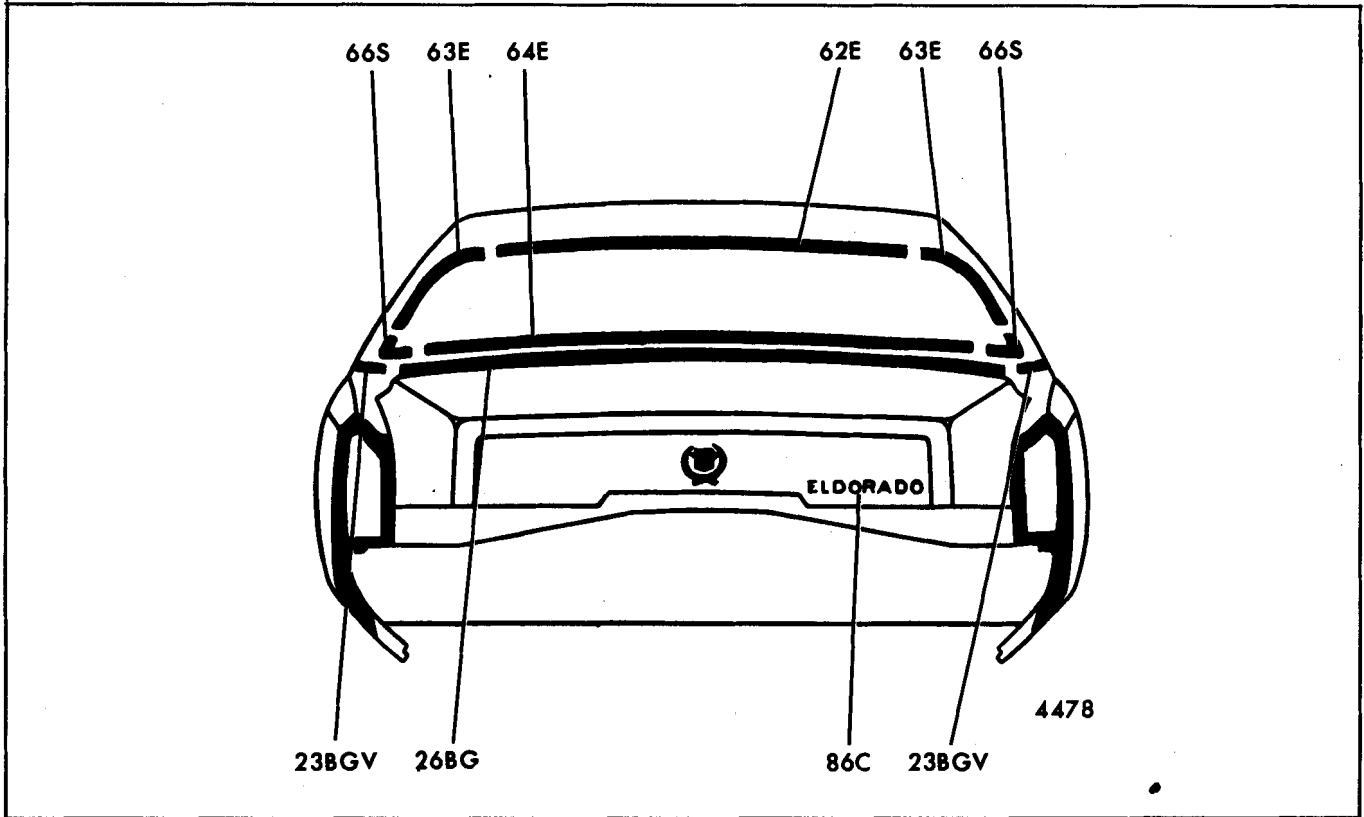


Fig. 16-99-Cadillac 69347 Styles (69367 Similar)

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Wiper Arm Removal and Installation - Two-Speed Rectangular Motor - Windshield Wiper System	2-5	Wood Grain Transfer Removal	1-10
Wiper Arm Removal and Installation - Two-Speed Round Motor - Windshield Wiper System	2-19		
Wiper Blade Removal and Installation - Two-Speed Rectangular Motor - Windshield Wiper System	2-5		