1965

CORVAIR

CHASSIS SHOP MANUAL

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1965 CHEVROLET CORVAIR

CHASSIS SHOP MANUAL

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FOREWORD

This manual is designed to provide complete information on the maintenance and repair of various units, except the Body, of the 1965 Chevrolet Corvair Passenger Vehicles. Service information for 1965 body items for these vehicles is contained in the 1965 Body Service Manual. For service information on the 1965 Corvair Greenbrier refer to the 1961 Corvair Shop Manual and the 1964 Corvair Shop Manual Supplement.

An effort has been made to produce a manual that will serve as a ready reference book for the experienced service man and also cover step by step procedure for the guidance of the less experienced man.

The Section Index on this page enables the user to quickly locate any desired section. At the beginning of each section, a Table of Contents gives the page number on which major subjects begin. An Index is placed at the beginning of each major subject within the section.

Summaries of Special Tools, when required, are found at the end of major sections, while Specifications covering vehicle components are presented at the rear of the manual.

This manual should be kept in a handy place for ready reference. If properly used, it will enable the technician to better serve the owners of Chevrolet Corvair vehicles.

All information, illustrations and specifications contained in this literature 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.

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CHEVROLET MOTOR DIVISION
General Motors Corporation
DETROIT, MICHIGAN

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LIGHTING SYSTEM

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GENERAL DESCRIPTION

The lighting system includes the main lighting switch, stop light and dimmer switches, headlamps, parking lamps, stop, tail and directional signal lamps, instrument illumination and indicator lamps and the necessary wiring to complete the various circuits. A fuse panel provides convenient power take-offs and fuse clips for the appropriate circuits. Replacement of the headlamps, various other lamps and fuses should conform to the released specifications included at the end of this section.

MAINTENANCE AND ADJUSTMENTS

Maintenance of the lighting units and wiring system consists of an occasional check to see that all wiring connections are clean and tight, that the units are tightly mounted to provide a good ground, that the wiring is not pinched or damaged, and that the headlamps are properly adjusted.

SAFETY AIMER AND HEADLAMP ADJUSTMENT

Since the Corvair engine is located at the rear of the vehicle and the luggage compartment is forward of the passenger compartment, headlamp beam deflection which results from passenger and luggage loading is downward rather than upward as in the case of vehicles with front-mounted engines.

The T-3 Safety Aimer, Type B (fig. 2), consists of a circular base the size of a Corvair sealed beam unit (5-3/4" diameter) which attaches to the sealed beam unit by means of a plunger operated suction cup (An adapter converts the aimer for use with 7" T-3 Sealed Beam units when desired.) Attached to the front of the base and extending perpendicular to the base is an "L" shaped arm. When mounted on the sealed beam unit this arm points toward the center of the car and is parallel to the ground. Mounted in the arm between the base and cross arm is a bubble level which may be adjusted to compensate for variations in floor levelness. With the Safety-Aimer, the headlights may be correctly aimed in the daylight without even turning them on. The T-3 Aimer meets SAE specifications for mechanical headlamp aimers.

While aiming headlamps, car should be at curb weight, that is, with spare tire and filled to capacity with gas and oil but no passengers. Tires should be uniformly inflated to recommended pressure.

Before adjusting aim of headlamp bounce car up and down and roll the vehicle back and forth several times to allow suspension to settle. The floor should be reasonably level with enough room to walk around the car. If the area is level the T-3 Aimer can be used as it comes from the factory. Before the Aimer is packaged, the bubbles are set for use on level aiming space. The Aimer itself provides a means of checking any given area for levelness.

The following Corvair headlamp aiming procedures are based on a recommended "O" deflection from horizontal for the vertical aim. Where State laws require aiming other than that recommended here, follow the regulations of those States whenever adjusting headlamps.

HEADLAMP ADJUSTMENT—T-3 HEADLAMPS

The T-3 Safety Aimer—Type B (fig. 2), is used for the headlamp aiming description that follows.

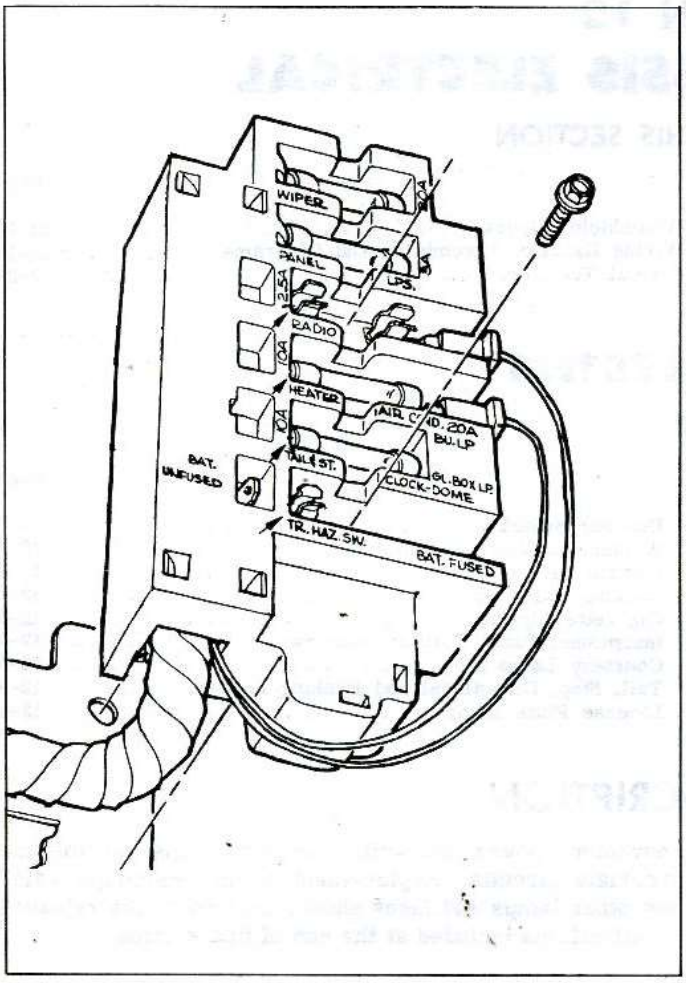

Fig. 1—Fuse Panel

1. Drive vehicle onto selected aiming area. Bounce vehicle several times and allow to settle.
2. Remove headlamp bezels.
3. Mount the T-3 Aimers on either the No. 1 or No. 2 pair of headlamps so that the points of the headlamps engage the smooth inner ring of the aimers.
4. Secure the aimers to the headlamp units by firmly pressing knob at center of each aimer (fig. 3). Rotate crossarms inboard to approximate horizontal position.

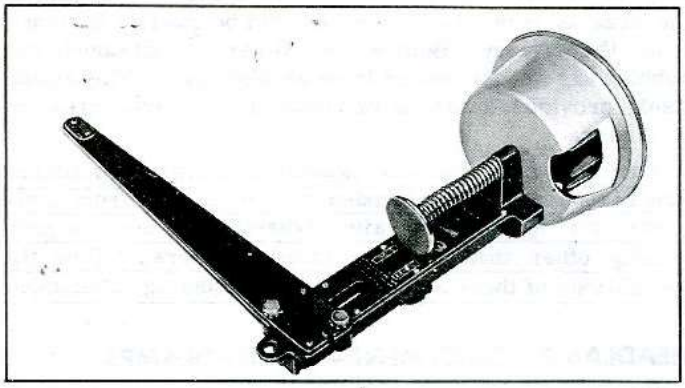

Fig. 2—T-3 Safety Aimer

NOTE: Moisten suction cups slightly to obtain maximum holding force.

5. With both aimers in place, knot both ends of elastic string and, using slots provided, fasten string across horizontal crossarms of each aimer.
6. Rotate both aimers so that the string just clears the points on the crossarms.

HORIZONTAL ADJUSTMENT

7. a. Turn horizontal aiming screw, Figure 4 on left-hand lamp until the string is positioned over the crossarm centerline. Turn the screw clockwise in making the final adjustment to take up play in the headlamp mechanism.
   b. Repeat the above procedure on the right-hand lamp to complete the horizontal adjustment of the headlamps.

VERTICAL ADJUSTMENT

8. a. Numeral "2" (fig. 5) should appear in the "down" window of each aimer. If not, loosen knob at underside of aimer arm and slide back and forth until the numeral does appear.

   NOTE: This setting will give a 2" drop of the headlamp high beam spot centerline on a screen placed 25 feet forward of the vehicle. Check state laws for proper vertical setting.

   b. Turn headlamp vertical aim screw (fig. 5) on left-hand unit counter-clockwise until the bubble is at the inner end of the glass tube. Then turn screw clockwise until bubble is centered in tube.
   c. Repeat this procedure on right-hand headlamp unit to complete vertical adjustment of lamps.
9. Recheck the string at the ends of each crossarm for correct setting and the bubble on each aimer for centered position.
10. Remove the aimers by pulling on the suction cup tabs through the openings in the aimers (fig. 6).
11. With headlamps properly aimed, replace headlamp bezels.

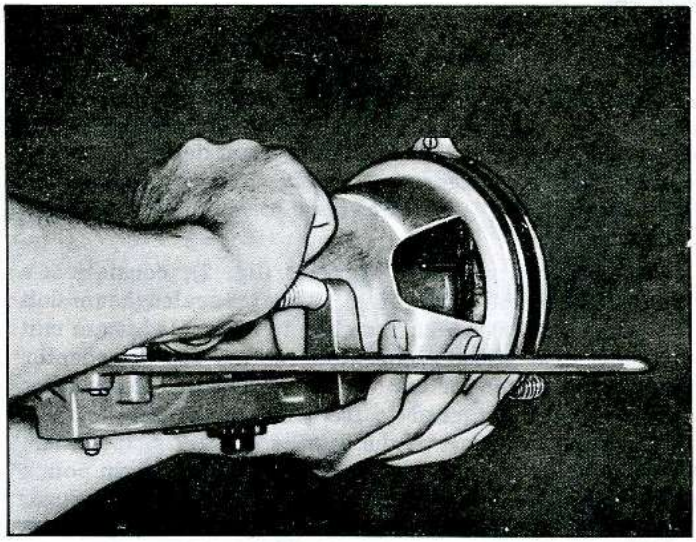

Fig. 3—Installing Aimer on Headlamp Unit

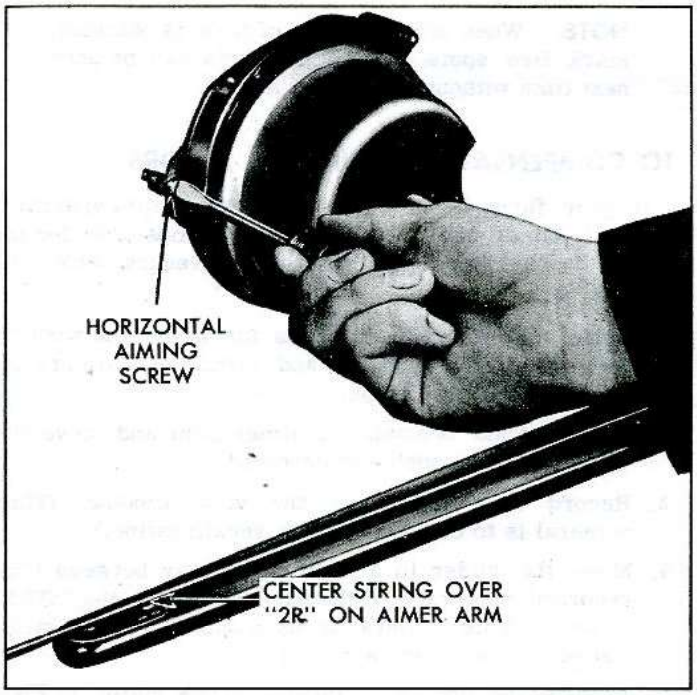

Fig. 4—Headlamp Horizontal Adjustment

T-3 AIMER CALIBRATION

HOW TO SELECT A LEVEL AIMING AREA

1. Select area you believe to be level.
2. Remove headlamp bezels and install Aimers on each headlamp (fig. 3) making sure aiming lugs engage smooth inner ring of the Aimer. To install Aimer, press firmly on the knob extending out from the center of the Aimer base. This forces the suction cup into place on the Sealed Beam unit.
3. Loosen the slider knob beneath the aimer arm and set the numeral "2" in the DOWN view window (fig. 7). Back vertical lamp adjuster out on each lamp until bubble is outside of black line of vial, then

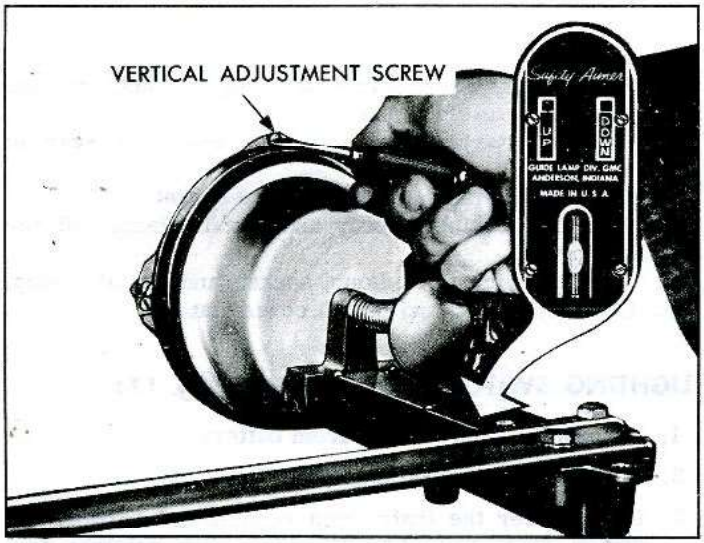

Fig. 5—Headlamp Vertical Adjustment

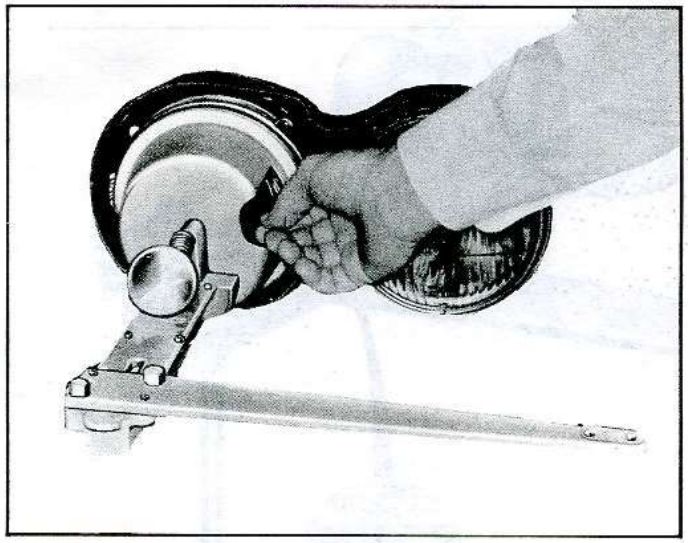

Fig. 6—Removing Aimer from Headlamp

center bubble between black lines of vial by turning clockwise.

4. After both bubbles are centered, turn the car around end for end, making sure the tires rest in the spots made on the floor before the car was moved.
5. If the bubbles are still within the two outside black marks on the vials, the floor is level enough to use the Aimer as it comes from the factory.

NOTE: A quick level check can be made by using the T-3 Safety-Aimer as a level. Use with a true eight to ten foot two by four as an extension. Make sure pads on base of Aimer are used. Place the board where you expect the wheels to be and take readings as outlined above.

6. If either bubble moves outside the black lines of the vial there is too much slant to the floor. Try driving the car in at different angles onto the aiming area. If bubbles can not be centered follow procedure under "How to Compensate for Unlevel Floor."

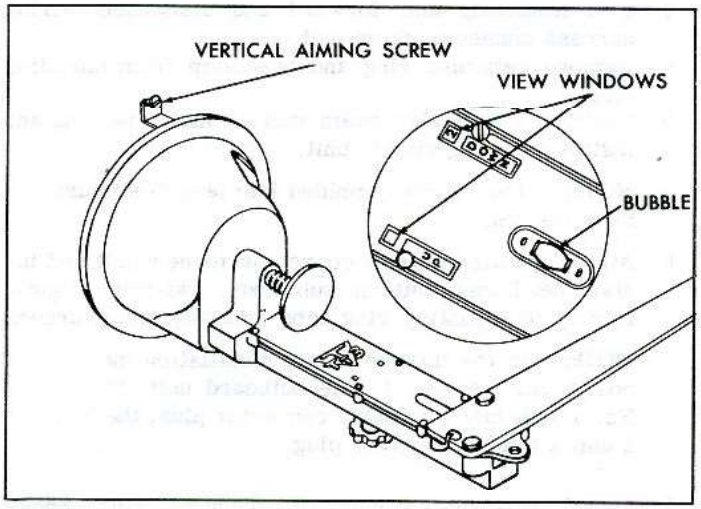

Fig. 7—Selecting Level Aiming Area

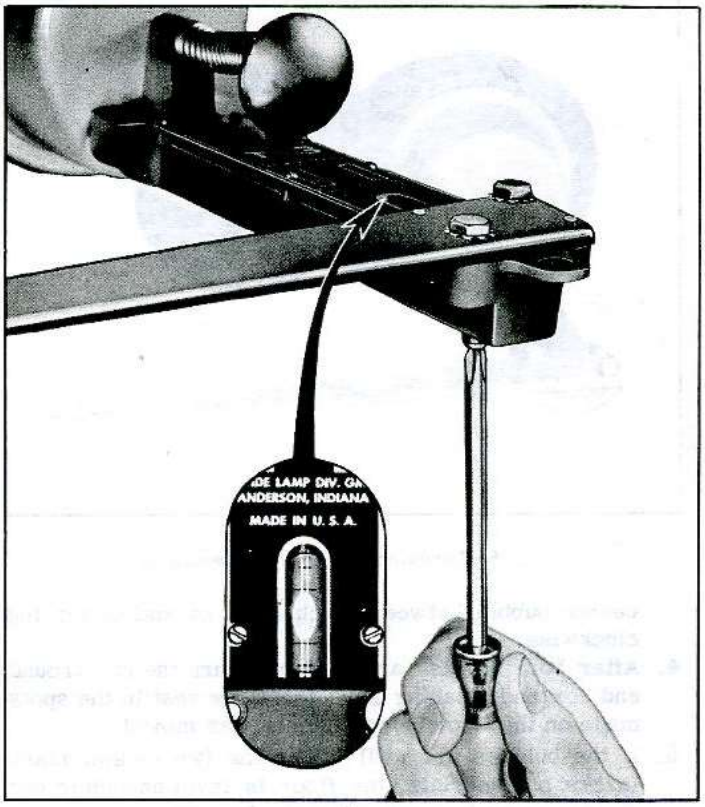

Fig. 8—Turning Level Adjusting Screw to Calibrate Aimer

NOTE: When level portion of floor is obtained, mark tire spots on floor so spots can be used next time without calibrating Aimer.

TO COMPENSATE FOR UNLEVEL FLOORS

If your floor is not level within the limits specified, the T-3 Aimer can be calibrated to compensate for the error in the floor. Follow this procedure with both aimers.

1. Drive the car onto the area for which you wish to compensate the aimers, and install the aimers in place on the headlamps.
2. Loosen knob beneath the aimer arm and move the slider until the bubble is centered.
3. Record the numeral in the view window. (This numeral is to be used only for recalibration.)
4. Move the slider to a position halfway between this recorded numeral and the numeral "2" in the DOWN window. (This numeral is used only in recalibration and not for headlamp aiming.)
5. Recalibrate aimers by turning screw shown in Figure 8 until the bubble is centered.
6. The T-3 Aimers are now calibrated for the selected area. All future aiming must be done in the same area and with the car pointed in the same direction. Mark the tire spots on the floor so that future cars can be located in the same position.

SERVICE OPERATIONS

SEALED BEAM REPLACEMENT

1. Remove headlamp bezel retaining screws and bezel (fig. 9).
2. Disengage retaining spring from unit (fig. 10). Turn lamp unit slightly to disengage unit from headlamp adjusting screws.

   NOTE: Do not disturb adjusting screw setting.

3. Pull headlamp unit forward and disconnect wiring harness connector from unit.
4. Remove retaining ring and headlamp from mounting ring.
5. Position new sealed beam unit in mounting ring and install retaining ring to unit.

   NOTE: The number molded into lens face must be at the top.

6. Attach wiring harness connector to new unit and install headlamp unit in sub body, twisting slightly to engage mounting ring tabs with adjusting screws.

   NOTE: In the dual headlight installation the inboard unit is No. 1, the outboard unit, No. 2. No. 1 unit takes a double connector plug, the No. 2 unit a triple connector plug.

7. Install retaining spring to mounting ring, check operation of unit, aim headlamps if necessary, and replace bezel.

PARKING LAMP SERVICE (Fig. 9)

Lense or Bulb Replacement

1. Remove two lense attaching screws and lense from housing.
2. Remove bulb and install replacement lamp.
3. Position lense to housing and install retaining screws.

Housing

1. Working inside the luggage compartment, remove cover plate in floor pan.
2. Remove attaching nut and "U" clamp at rear of housing.
3. Disconnect wiring at rear of lamp socket.
4. Position housing to body and install clamp and retaining nut.
5. Connect wiring to lamp socket and install lamp.
6. Check operation and install cover plate.

LIGHTING SWITCH REPLACEMENT (Fig. 11)

1. Disconnect ground cable from battery.
2. Pull knob out to headlamp "ON" position.
3. Reach under the instrument console and depress the switch shaft retainer (fig. 11). With retainer depressed pull knob and shaft assembly from the switch.

Fig. 9—Headlamp, Parking Lamp and Horn Assemblies

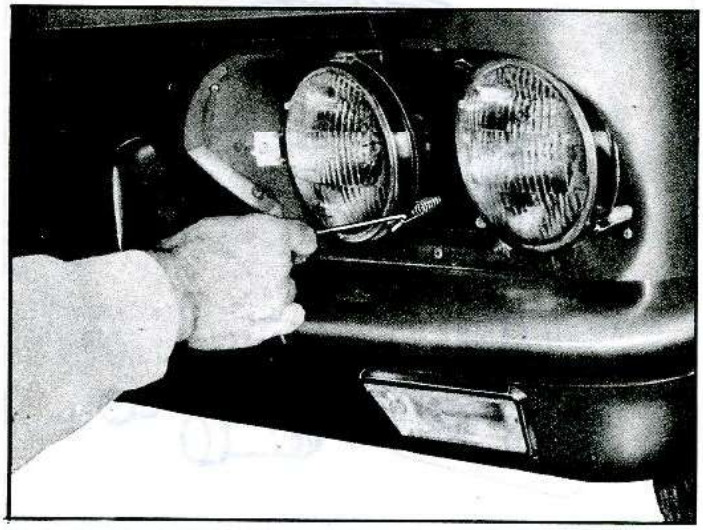

Fig. 10—Removing Retaining Ring Spring

4. Remove the switch bezel nut using Tool J-21932 (fig. 12).
5. Remove the retaining ferrule nut using Tool J-4880, then lower the switch assembly.

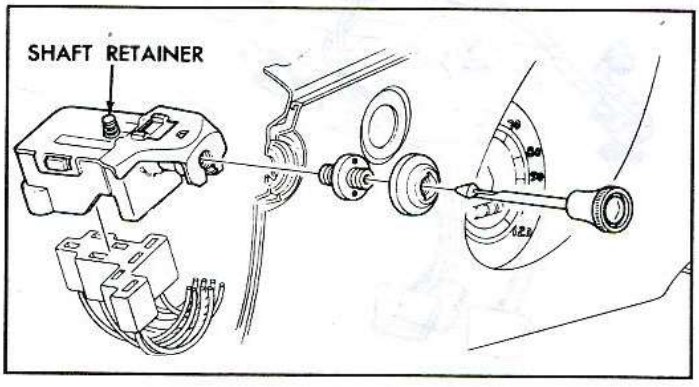

Fig. 11—Lighting Switch Installation

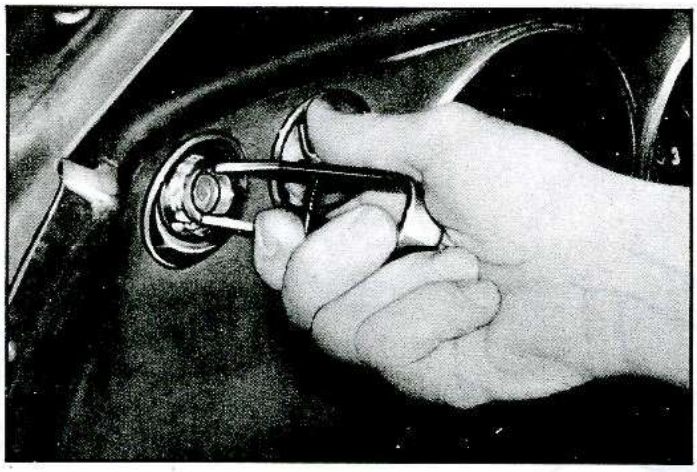

Fig. 12—Removing Bezel Nut

6. Disconnect the multi-plug connector from the lighting switch. A screw driver may be inserted in the side of the switch to pry the plug from the switch.
7. Connect the multi-plug connector to a new switch.
8. Position the switch in the console and install the retaining ferrule nut.
9. Install the bezel nut.
10. Push the switch knob and shaft assembly into position so that it engages the shaft retainer.
11. Connect the battery ground cable and check operation of lights.

STOPLIGHT SWITCH REPLACEMENT (Fig. 13)

1. Disconnect the two connectors from the switch terminals. The switch is located under the instrument panel adjacent to the brake pedal.

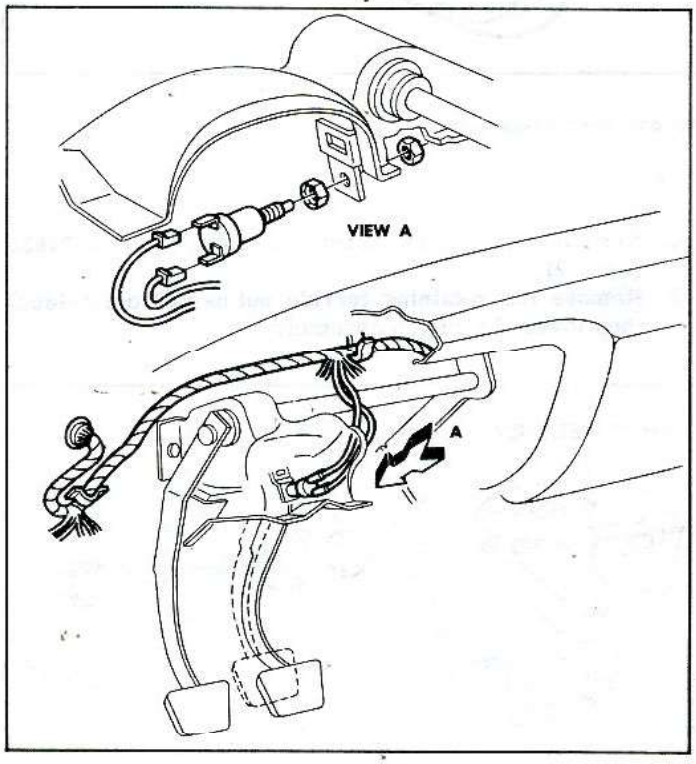

Fig. 13—Stoplight Switch Installation

2. Remove the locknut from the plunger end of the switch and remove switch from bracket.
3. Remove second locknut from switch and install on the new switch.
4. Position the switch in the bracket and install the remaining locknut.
5. Install the two electrical connectors.
6. Check operation of switch and adjust as required. Electrical contact should be made when the brake pedal is depressed .38 to .50 inch from fully released position.

DIMMER SWITCH REPLACEMENT (Fig. 14)

1. Lift interior floor mat.
2. Remove the multiple connector from the switch.
3. Remove the two screws securing switch to floor pan and remove switch.
4. Install multiple connector to new switch.
5. Secure switch to floor pan with the two attaching screws.
6. Replace floor mat and check operation of switch.

WINDSHIELD WIPER SWITCH REPLACEMENT (Fig. 15)

1. Disconnect battery ground cable from battery.
2. Loosen the small set screw at the bottom of the wiper arm and remove knob.
3. Remove bezel using Tool J-21932.
4. Remove the locking nut and washer.
5. Withdraw wiper switch from instrument panel and remove the connector from the rear of the switch. A single unit is used on units without windshield washers. Two connectors are used on units with windshield washers.
6. Attach wiring connectors to new switch, set switch in place, and install ground washer and locknut.
7. Install bezel using Tool J-21932.
8. Set knob in place and secure with set screw.
9. Connect battery ground cable to battery and check operation of switch.

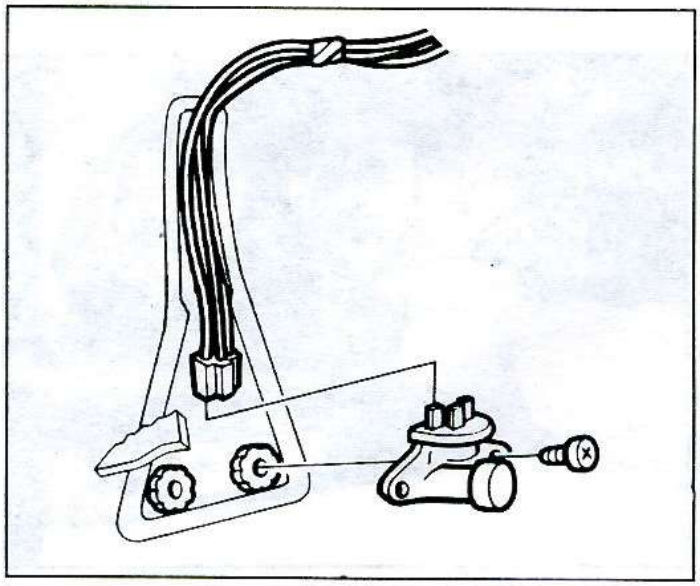

Fig. 14—Dimmer Switch Installation

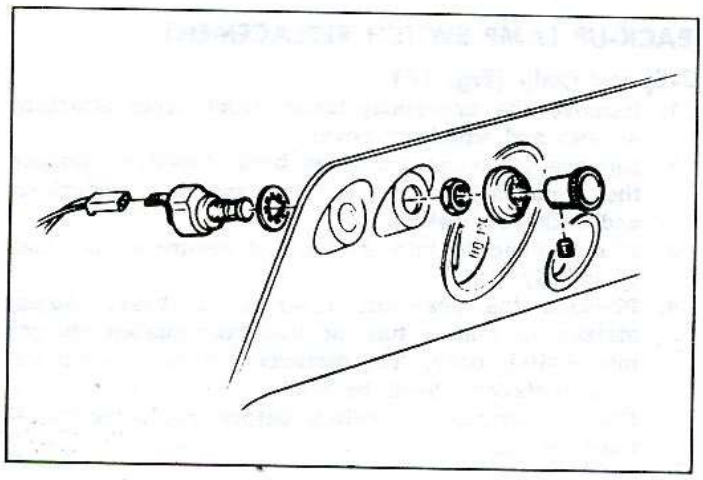

Fig. 15—Windshield Wiper Switch Installation

NEUTRAL SAFETY SWITCH REPLACEMENT (Fig. 16)

1. Disconnect the battery ground cable.
2. Remove instrument cluster assembly from vehicle.
3. Remove the retaining ring securing the switch lever arm to range selector assembly.
4. Remove the two screws that attach the switch to the range selector assembly.
5. Lower the switch and disconnect the wiring harness connectors from the switch terminals.
6. Install wiring harness connectors onto new switch.
7. Extend plunger in switch to its outer most position and insert gauge block in switch case.
8. Position switch plunger pin to the range selector assembly and loosely install the two attaching screws.

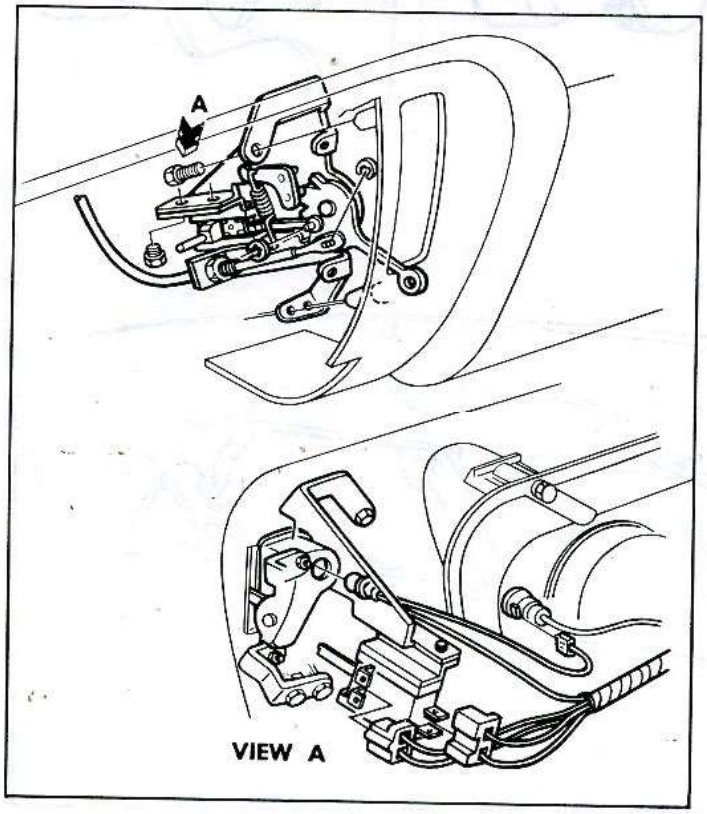

Fig. 16—Neutral Safety Switch Installation

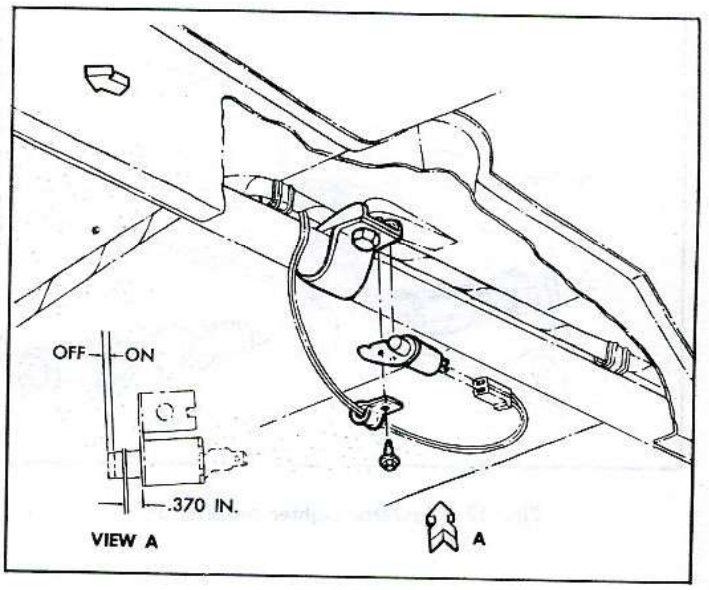

Fig. 17—Backing Lamp Switch—3-Speed Transmission

9. Install the retainer securing the plunger pin to the selector assembly.
10. Place transmission range selector into "N"-neutral position.
11. Push forward on switch case until contact carrier is against gauge block.
12. Tighten switch attaching screws and remove gauge block.
13. Test operation of switch. Engine must start in "N"-neutral position only. Check operation of backing lamps if so equipped.

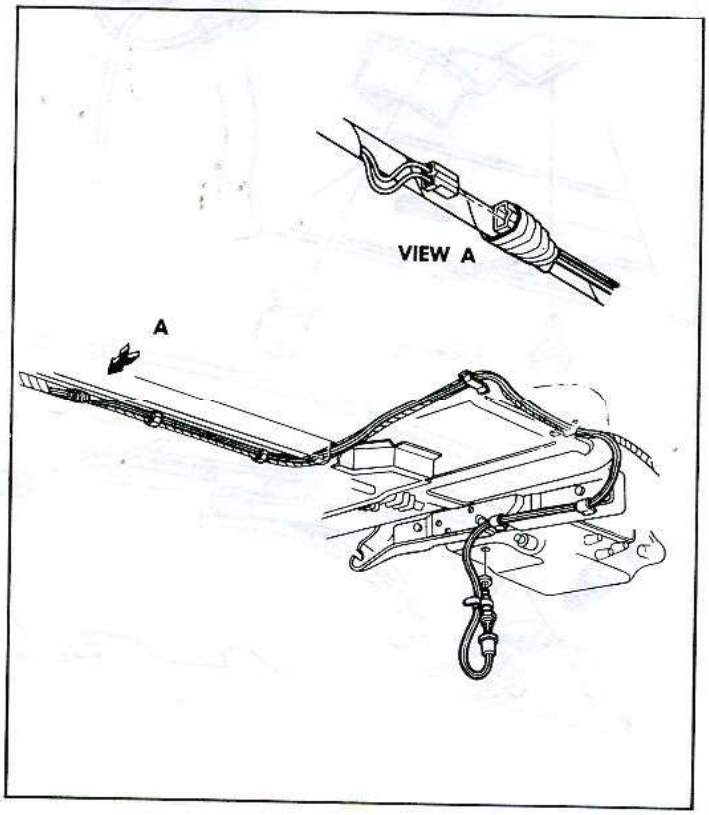

Fig. 18—4-Speed Transmission Backing Lamp Switch

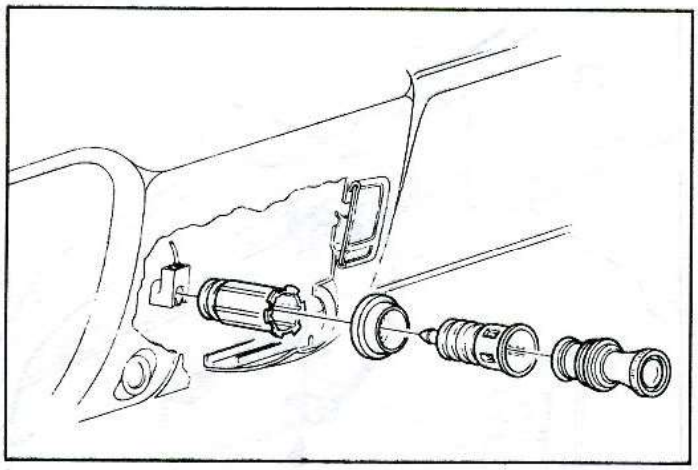

Fig. 19—Cigarette Lighter Installation

BACK-UP LAMP SWITCH REPLACEMENT

3-Speed Only (Fig. 17)

1. Remove the underbody tunnel front cover attaching screws and withdraw cover.
2. Remove the connector from back of switch. Remove the metal screw that attaches switch to underbody and withdraw switch.
3. Plug connector into switch and secure switch onto underbody.
4. Position the gearshift lever in reverse. Adjust striker on shifter tube so that tang pushes plunger into switch body. The distance between switch and tang on striker should be 3/8".
5. Check operation of switch before replacing tunnel front cover.

4-Speed Transmission (Fig. 18)

1. Raise and support vehicle.
2. Remove underbody tunnel cover.

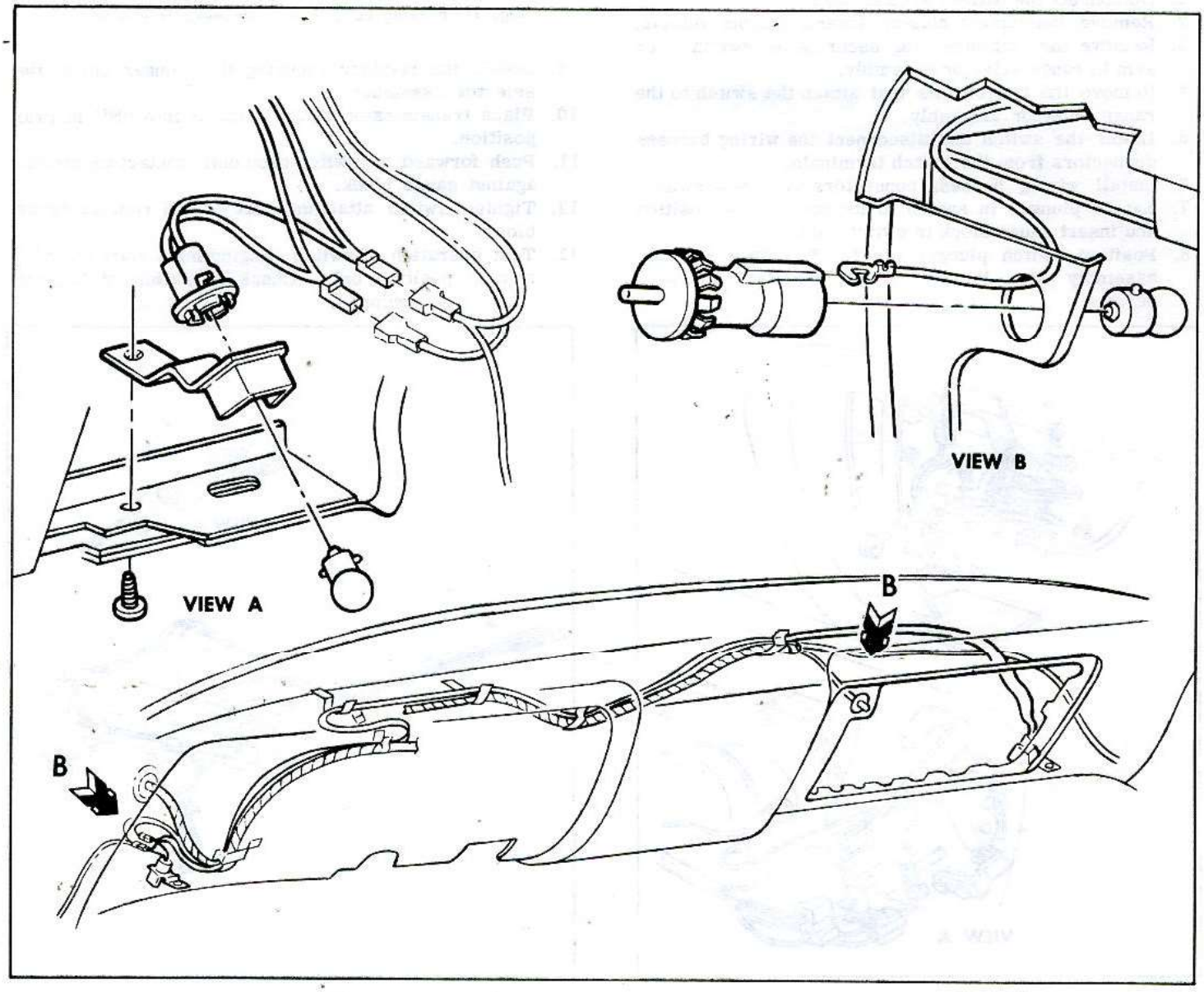

Fig. 20—Instrument Panel Compartment and Courtesy Lamps

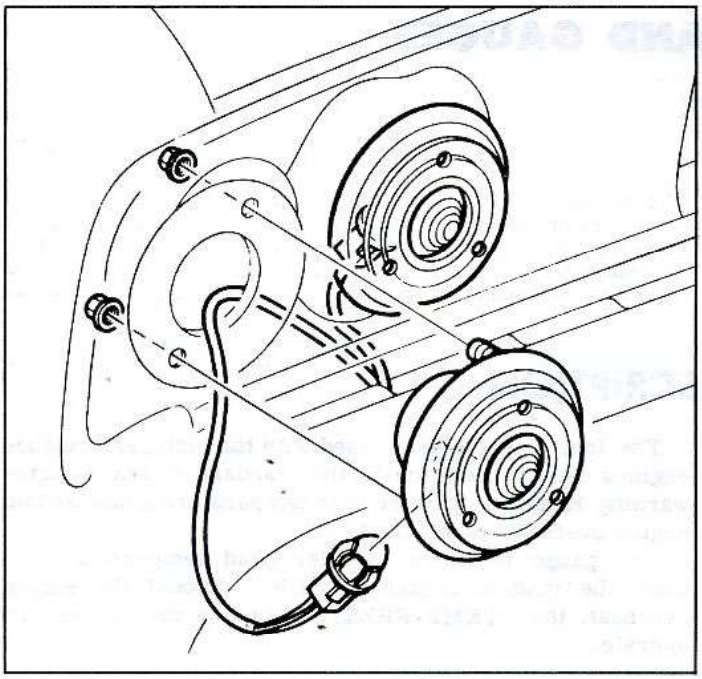

Fig. 21—Rear End Lighting

3. Untape switch wire from body wiring harness and separate switch wiring connectors.
4. Disconnect switch wiring from body attaching clips and remove switch assembly from transmission.
5. Install new switch assembly and gasket in transmission.
6. Route switch wire assembly through body attaching clips and connect to forward wiring connector.
7. Tape switch wire to body wire harness.
8. Install underbody tunnel cover.
9. Lower vehicle and check operation of switch.

CIGARETTE LIGHTER REPLACEMENT (Fig. 19)

Replacement

1. Disconnect terminal at rear of unit under panel.
2. Remove retainer from rear of housing under the instrument panel.
3. Remove knob, housing and bezel from panel opening.
4. To install position housing and bezel to panel opening, then attach retainer to rear of housing.
5. Connect wire lead to rear of housing and insert knob assembly into housing. Check operation of unit.

INSTRUMENT PANEL COMPARTMENT LAMP

Bulb or Switch Replacement (Fig. 20)

1. Reach into panel compartment, depress bulb in end of switch, and turn it counter-clockwise. Remove bulb.
2. Push switch out of mounting hole. Carefully pull wire and terminal out of switch. If terminal is not removable cut switch wire.
3. Insert wire and terminal into new switch. Splice wire if cut during removal.
4. Push switch into place and install bulb by setting it in place, depressing and turning it clockwise.

COURTESY LAMP REPLACEMENT (Fig. 20)

1. Unsnap lamp socket from mounting bracket.
2. Remove bulb from socket and insert new bulb.
3. Snap lamp socket into mounting bracket.

TAIL, STOP, DIRECTIONAL AND BACKING LAMPS (Fig. 21)

To Replace Bulb

1. Unsnap bulb socket from underside of lamp housing in engine compartment.
2. Remove bulb and install new bulb into socket.
3. Snap socket into lamp housing and check operation of lamp. Close engine compartment.

To Replace Housing

1. Unsnap socket from housing inside engine compartment.
2. Remove retaining nuts from housing bolts and detach lamp housing assembly from body.
3. Position new lamp housing assembly to body and install retaining nuts.
4. Snap bulb in place and check operation of lamp.

To Replace Lens

1. Remove lens retaining screws and carefully detach lens from lamp housing.
2. Position new lens to housing and install retaining screws.

LICENSE PLATE LAMP REPLACEMENT (Fig. 22)

1. Remove lens retaining screws and lens.
2. Disengage bulb from socket.
3. Replace bulb, position lens and install retaining screws.

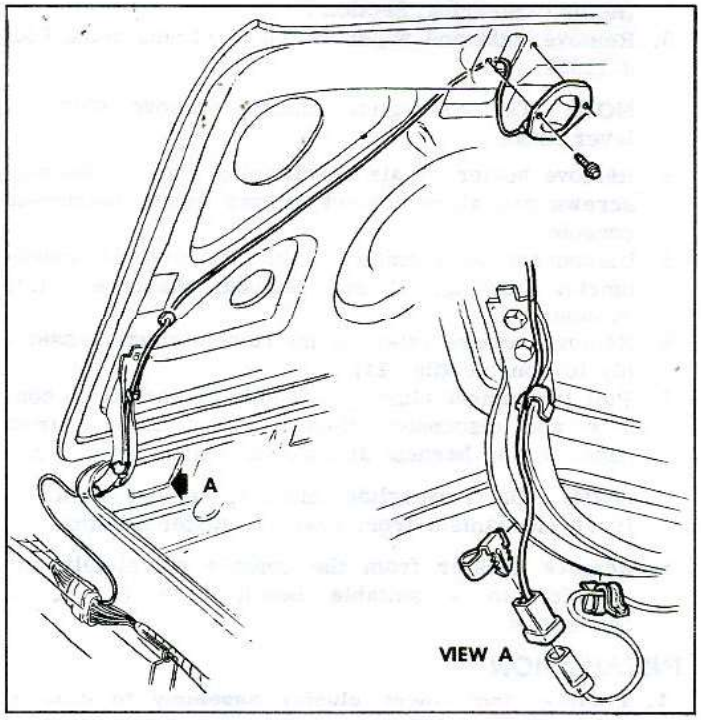

Fig. 22—License Plate Lamp

INSTRUMENTS AND GAUGES

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GENERAL DESCRIPTION

All Corvair instrument, gauges or indicators are located in the console mounted instrument cluster (fig. 23). The entire cluster must be removed to permit servicing of the various instruments and gauges.

The cluster illuminating and indicator bulbs may be replaced without removing the cluster from the console. However, it is necessary to remove the heater control assembly or if so equipped, the air conditioning control assembly. The indicator or cluster illuminating lamp sockets may then be snapped in or out of position.

Regular maintenance is not required on the instrument cluster or its components other than maintaining clean, tight electrical connections, replacing defective parts and keeping the speedometer cable properly lubricated.

The instrument cluster used with the high performance engines has in addition to the standard Corvair engine warning lights, a cylinder head temperature gauge and an engine overheat warning buzzer.

The gauge indicates cylinder head temperat .e any time the ignition switch is "ON". Should the engine overheat, the "TEMP-PRESS" light and the buzzer will operate.

NOTE: If oil pressure is low, only the "TEMP-PRESS" light oprates. If the engine temperature is too high, both the light and the buzzer operate. THIS IS THE POSITIVE WARNING SYSTEM.

SERVICE OPERATIONS

INSTRUMENT CLUSTER

REMOVAL (Fig. 23)

1. Disconnect battery ground cable.
2. Remove steering wheel and mast jacket assembly (Refer to Steering, Section 9).
3. Remove light and wiper switch bezel nuts using Tool J-21932.

   NOTE: On Powerglide models remove shift lever knob.

4. Remove heater or air conditioning control retaining screws and allow control to hang below instrument console.
5. Disconnect speedometer cable at rear of speedometer housing. If so equipped, disconnect trip odometer.
6. Remove screws retaining instrument cluster assembly to console (fig. 24).
7. Pull instrument cluster assembly forward from console and disconnect cluster wiring harness from panel wiring harness at multiple disconnect (fig. 23).

   NOTE: On Powerglide models, remove shift lever mechanism from rear of cluster housing.

8. Remove cluster from the console completely and transfer to a suitable bench area for repair operations.

INSTALLATION

1. Position instrument cluster assembly to console.

   NOTE: On Powerglide models attach shift lever mechanism to cluster assembly.

2. Connect cluster wiring harness to instrument panel wiring harness (fig. 23).
3. Install screws retaining cluster assembly to console.
4. Connect speedometer cable to rear of speedometer housing (connect trip odometer, if so equipped).
5. Position heater control to cluster and install retaining screws.
6. Install light and wiper switch bezel retaining nuts. On Powerglide models, also install shift lever knob.
7. Install mast jacket and steering wheel assemblies.
8. Connect battery ground cable and check operation of cluster assembly.

TACHOMETER

The tachometer is a self-contained, all transistor unit requiring no external relays or batteries and very little service other than keeping the terminal nuts clean and tight.

TEMPERATURE GAUGE

The manifold temperature gauge requires very little servicing other than testing for malfunctioning, keeping the connections clean and tight and replacing defective units.

OIL PRESSURE SENDING UNIT

Replacement

1. Disconnect wire lead at switch terminal (located at top of oil filter bracket).
2. Remove sending switch using Tool J-21757 (fig. 25).
3. Install new switch and reconnect wire lead to terminal.

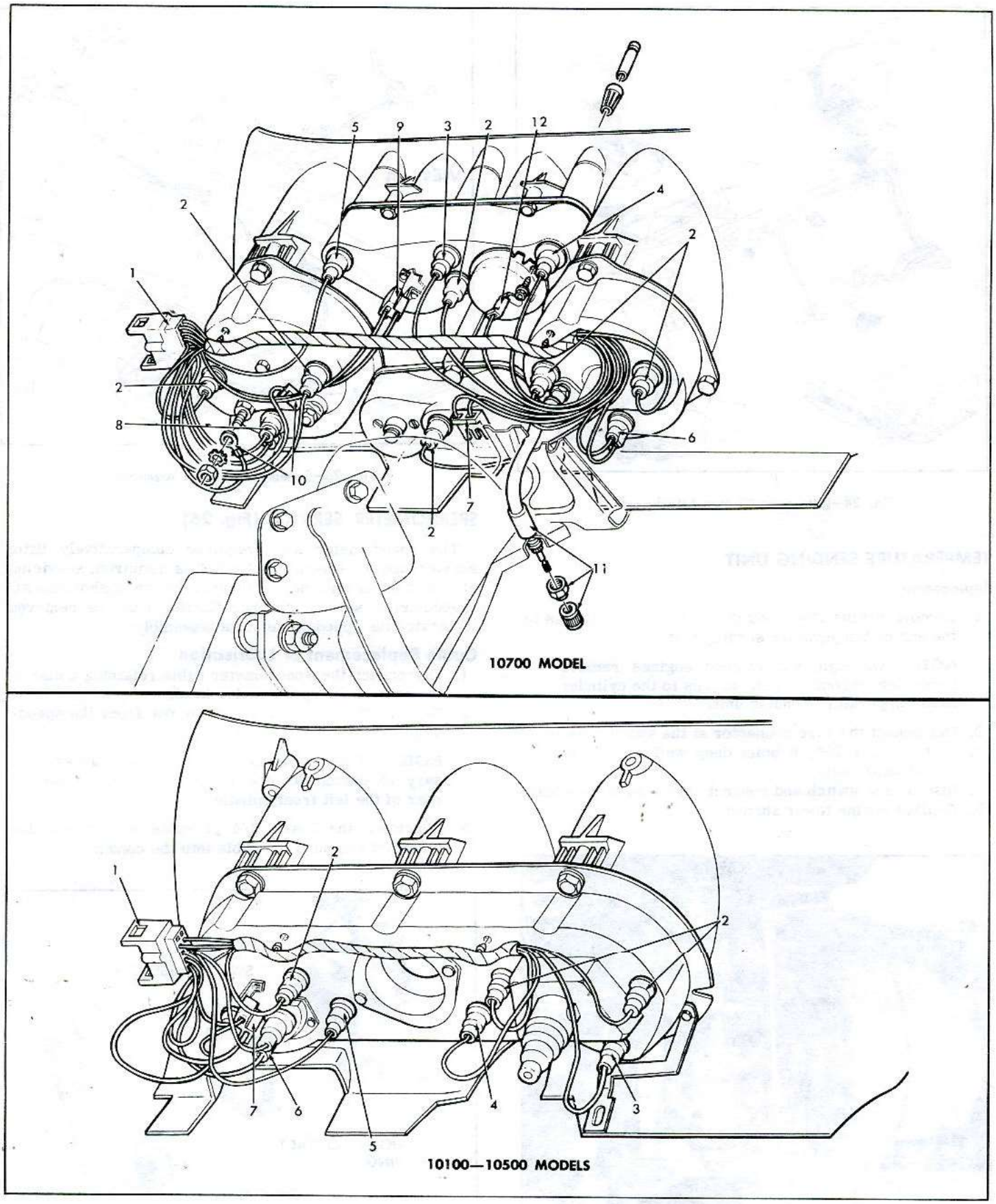

Fig. 23—Instrument Cluster Assemblies

1. To Instrument Panel Harness
2. Instrument Cluster Bulb
3. Hi-Beam Indicator
4. L.H. Direction Indicator
5. R.H. Direction Indicator
6. Gen/Fan Indicator
7. Fuel Gauge
8. Temp/Press Indicator
9. Manifold Temp. Gauge
10. Tachometer
11. Trip Odomete
12. Clock

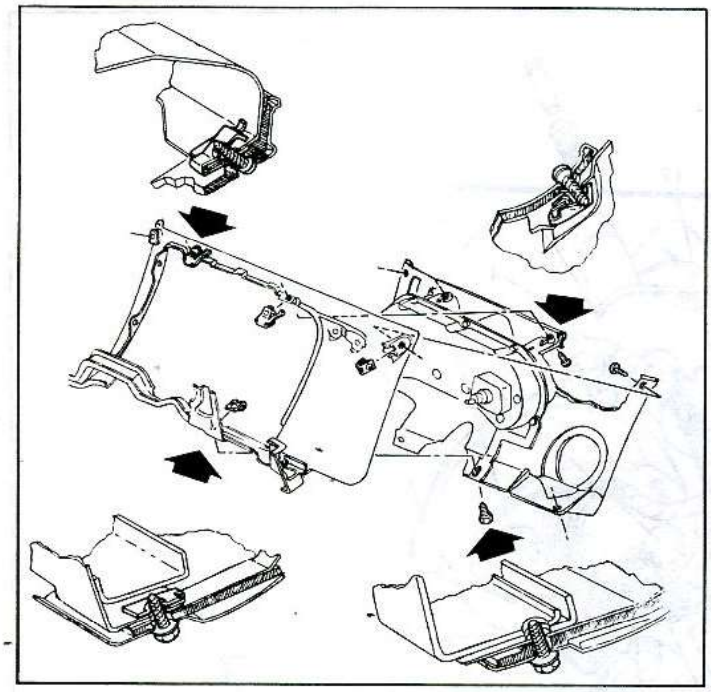

Fig. 24—Instrument Cluster Attachment

TEMPERATURE SENDING UNIT

Replacement

1. Remove engine lower right shroud to gain access to the engine temperature sending unit.

   NOTE: On high performance engines remove lower left shroud to gain access to the cylinder head temperature sending unit.

2. Disconnect the wire connector at the switch terminal.
3. Using a 1-1/16", 6 point deep well socket remove the sending unit.
4. Install new switch and connect wire lead to terminal.
5. Replace engine lower shroud.

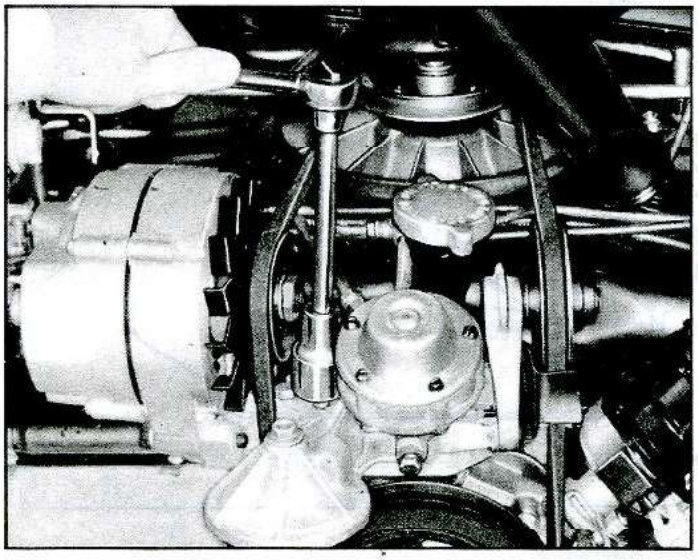

Fig. 25—Oil Pressure Sending Unit Removal

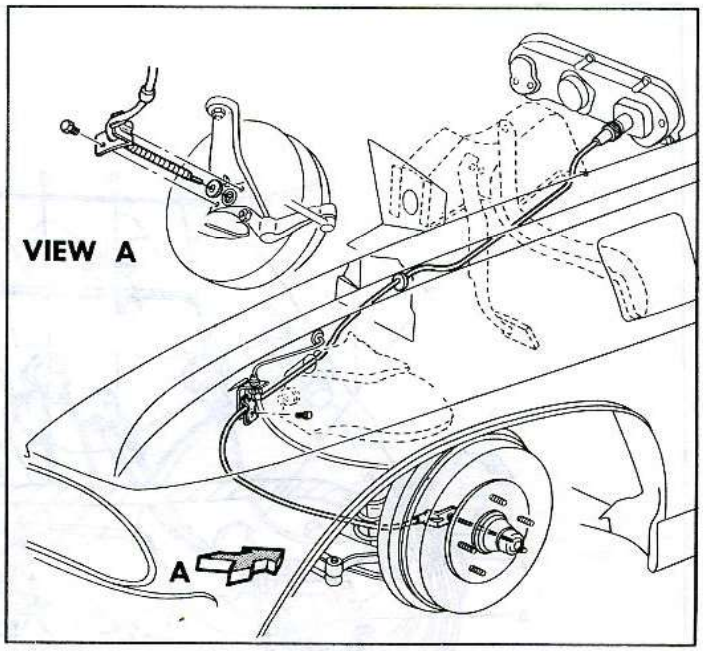

Fig. 26—Speedometer Shaft Assembly

SPEEDOMETER SERVICE (Fig. 26)

The speedometer head requires comparatively little service and as special equipment is required, servicing of the unit should be performed by an authorized AC speedometer service station. Cluster must be removed to service the speedometer head assembly.

Cable Replacement or Lubrication

1. Disconnect the speedometer cable retaining collar at the rear of the speedometer head.
2. Remove the cable by pulling it out from the speedometer head of the conduit.

   NOTE: If old cable is broken it may be necessary to disconnect the cable assembly at the rear of the left front spindle.

3. Lubricate the lower 3/4 of cable with a suitable lubricant and push the cable into the conduit.

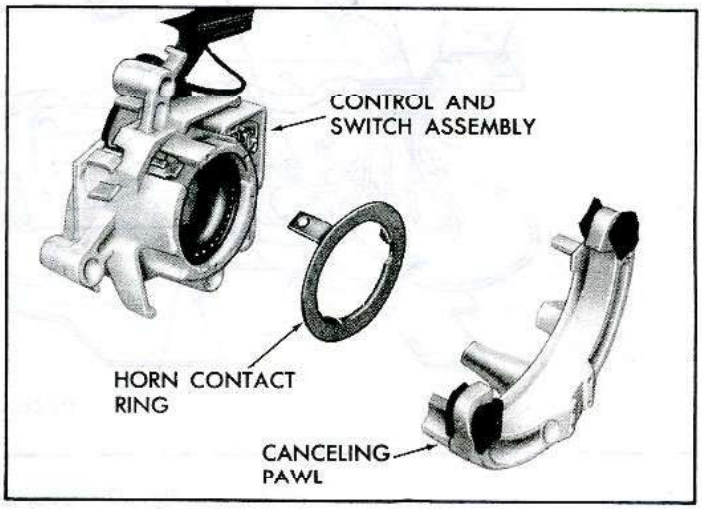

Fig. 27—Direction Signal Control

NOTE: Do not over-lubricate. Apply only a thin film of lubricant.

4. Connect upper end of conduit to the speedometer head. Install lower cable assembly if previously detached.
5. Road test vehicle and check speedometer operation.

HORN

Replacement (Fig. 9)

1. Remove headlamp bezel
2. Remove screws retaining the headlamp and sub-body assembly to the body panel.
3. Carefully remove assembly from opening and disconnect wiring at rear of headlamps.
4. From inside of luggage compartment remove bolt retaining horn unit to the headlamp panel.
5. Disconnect wire lead from horn and remove horn from the opening.
6. Connect wire lead to new horn position unit to the panel and install the retaining bolt.
7. Check operation of the unit, then install headlamp and sub-body assembly to body opening.
8. Install headlamp bezel.

DIRECTIONAL SIGNAL

The Corvair uses a new design directional signal assembly (fig. 27). The switch mechanism is an electrically operated self-contained unit having the cancelling mechanism and the electrical switching in one plastic assembly.

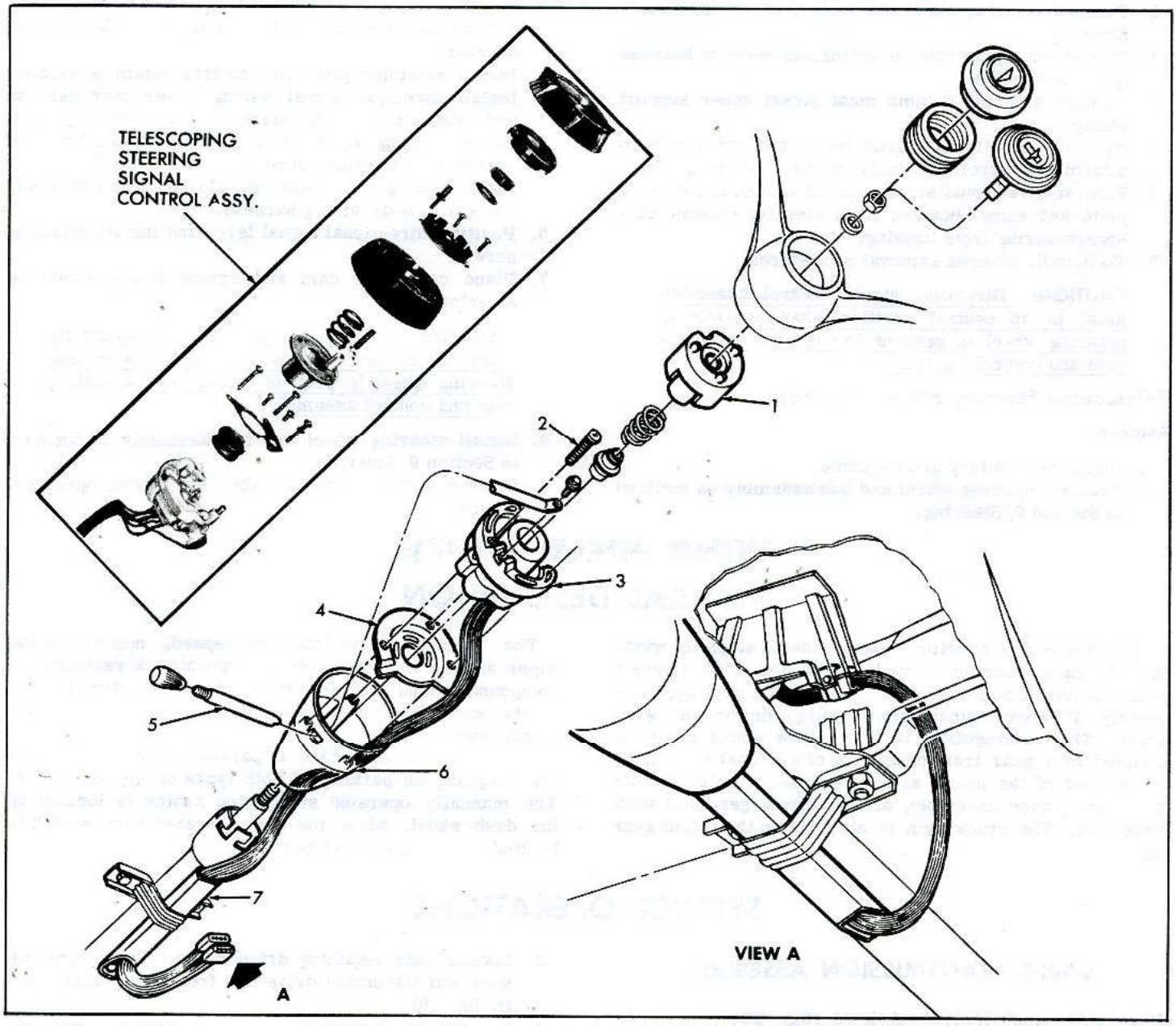

Fig. 28—Directional Signal Assemblies

1. Canceling Cam
2. Attaching Screw
3. Control and Switch Assembly
4. Retaining Plate
5. Lever
6. Housing
7. Wiring Harness Cover

The directional signal control is one complete plastic assembly using a stamped bowl instead of an integral cast bowl. The bowl serves only as a housing.

ADJUSTMENTS

The directional signal mechanism requires no adjustments due to its simplicity of design. However, if any malfunction of this mechanism should occur, the steering wheel may be removed and the mechanism checked for defective parts.

REMOVAL AND INSTALLATION (Fig. 28)

Standard Models

1. Disconnect battery ground cable.
2. Remove steering wheel assembly (Refer to Section 9, Steering).
3. Disconnect signal control wiring assembly at harness quick disconnect.
4. Remove steering column mast jacket upper support clamp.
5. Remove directional signal lever and three screws attaching control assembly to the retaining plate.
6. Remove directional signal control assembly retaining plate and signal housing from steering column, disengage wiring from housing.
7. To install, reverse removal procedures.

CAUTION: Direction signal control assembly must be in neutral position when assembling steering wheel to prevent damage to cancelling cam and control assembly.

Telescoping Steering Wheel (Fig. 28)

Removal

1. Disconnect battery ground cable.
2. Remove steering wheel and hub assembly as outlined in Section 9, Steering.
3. Remove spring and cancelling cam from steering shaft.
4. Remove turn signal lever retaining screw and lever.
5. Remove the three screws retaining directional control to the retaining plate.
6. Remove wiring clamp and cover from directional signal wiring harness.
7. Remove the wire terminals from the plastic connectors using a small, thin bladed screw driver.

NOTE: To facilitate reassembly, record the color code of the wires.

8. Guiding the wiring, carefully pull the directional signal switch out of the housing.

Installation

1. Position directional signal switch into housing being careful to properly route wiring through guide in housing.
2. Install retaining plate and control retaining screws.
3. Install direction signal wiring cover over harness and slide it up into place in the housing guides.
4. Engage wiring clamp tang in mast jacket hole and secure with retaining screw.
5. Install wiring terminals into plastic connectors and connect to body wiring harness.
6. Position directional signal lever and install retaining screw.
7. Place cancelling cam and spring into position on steering shaft.

CAUTION: Direction signal control assembly must be in neutral position when assembling steering wheel to prevent damage to cancelling cam and control assembly.

8. Install steering wheel and hub assembly as outlined in Section 9, Steering.
9. Connect battery ground cable and check operation of unit.

WINDSHIELD WIPER

GENERAL DESCRIPTION

The regular production, single-speed electric windshield wiper assembly available on the 1965 Corvair incorporates a non-depressed type (blades park approximately 2" above windshield molding) motor and gear train. The rectangular, 12 volt, shunt wound motor is coupled to a gear train consisting of a helical drive gear at the end of the motor armature shaft, an intermediate gear and pinion assembly, and an output gear and shaft assembly. The crank arm is attached to the output gear shaft.

The optionally available two-speed, non-depressed wiper and washer assembly incorporates a rectangular, compound wound (series and shunt field) motor adapted to the same type gear train as that used with the new single-speed wipers.

Two switches, connected in parallel, control the starting, stopping an parking of both types of wiper motors. The manually operated start, stop switch is located on the dash panel, while the cam operated park switch is located in the wiper gear box.

SERVICE OPERATIONS

WIPER TRANSMISSION ASSEMBLY

REMOVAL AND INSTALLATION (Fig. 29)

1. Make certain motor is in park position, remove wiper arm and blade assemblies from transmission shaft.
2. Remove plenum chamber grille.
3. Loosen nuts retaining drive link to crank arm ball joint and disconnect drive link from crank arm (View B, fig. 29).
4. Remove transmission retaining screws, lower assembly into plenum chamber and remove complete unit from the chamber.
5. To install, reverse removal procedure and check operation of unit.

WIPER MOTOR ASSEMBLY

REMOVAL AND INSTALLATION (Fig. 29)

1. If possible, place motor in park position and disconnect battery ground cable.
2. Remove wiper blade and arm assemblies.
3. Remove plenum chamber grille.
4. Loosen nuts retaining drive arm to crank arm ball stud (View B, fig. 29).
5. Disconnect all wiring and washer hose connections at the motor and pump assembly.
6. Remove bolts retaining motor to firewall while supporting the motor assembly and remove motor from vehicle.
7. To install, check sealing gasket and bolts, then position motor to the firewall and install retaining bolts.
8. Attach drive link socket to crank arm ball joint and tighten nuts.
9. Install plenum chamber grille.
10. Install wiper blade and arm assemblies.
11. Connect all wiring connection and washer hoses.
12. Connect battery ground cable and check operation of unit.

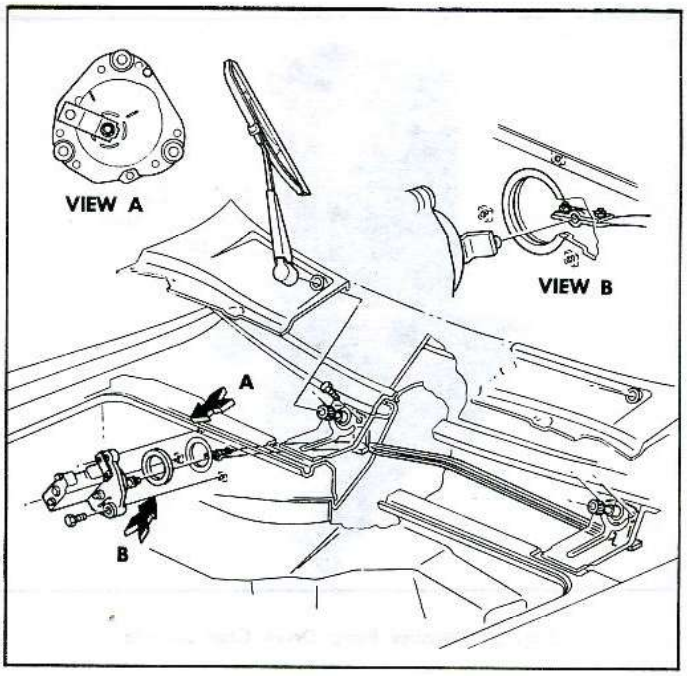

Fig. 29—Windshield Wiper Assembly

DISASSEMBLY

Gear Box

Refer to Figure 30 for explode of motor and gear train.

1. Clamp crank arm in a vise and remove crank arm retaining nut.

   NOTE: Remove washer pump assembly and washer drive cam on wipers so equipped. Drive cam can be pried off using suitable tool (fig. 31).

2. Remove crank arm, seal cap, Tru-Arc retaining ring, flat washer and shims where applicable.
3. Drill out gear box cover retaining rivets, remove cover from gear train.

   NOTE: Mark ground strap location for proper reinstallation.

4. Remove output gear and shaft assembly and slide intermediate gear and pinion assembly off shaft.

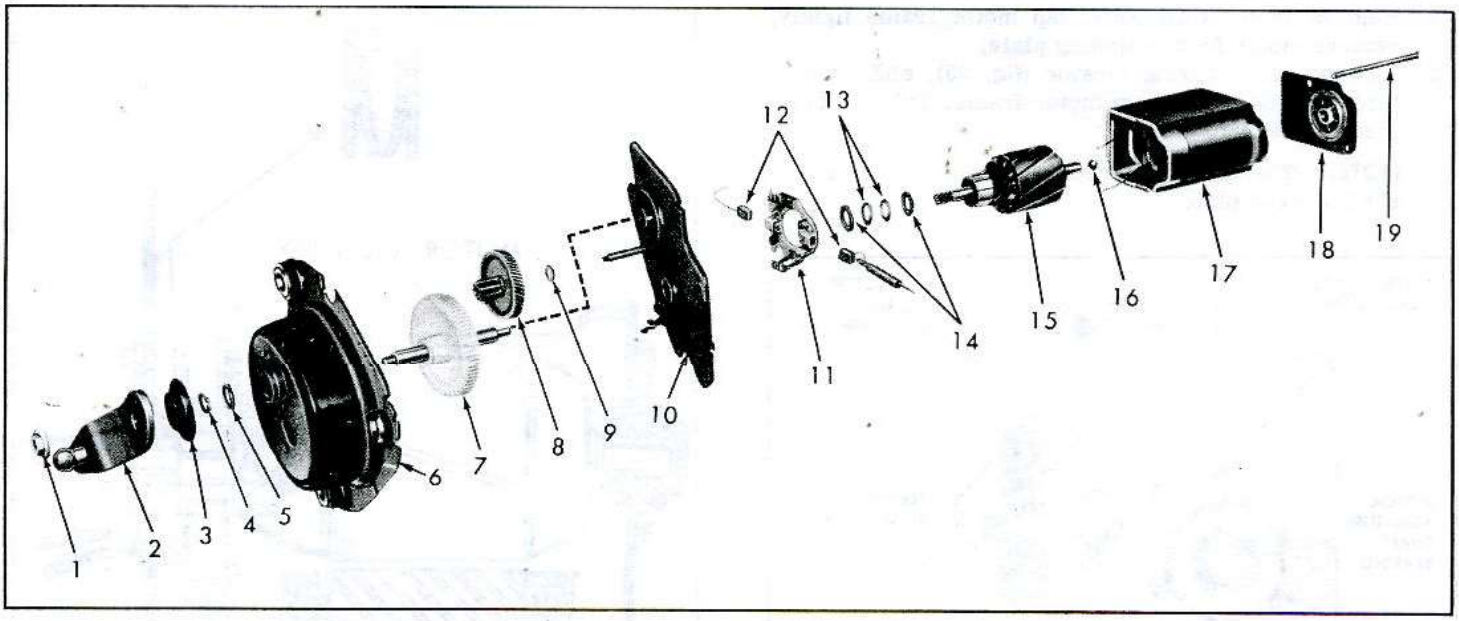

Fig. 30—Wiper Motor and Gear Box Exploded View (Typical)

1. Nut
2. Crank Arm
3. Seal Cap
4. Retaining Ring
5. Washer
6. Gear Box Cover
7. Output Gear and Shaft Assembly
8. Intermediate Gear
9. Wave Washer
10. Gear Box Housing
11. Brush Plate Assembly and Mounting Brackets
12. Brushes
13. Wave Washers
14. Flat Washers
15. Armature
16. Thrust Plug
17. Frame and Field
18. End Plate
19. Tie Bolts (Two required)

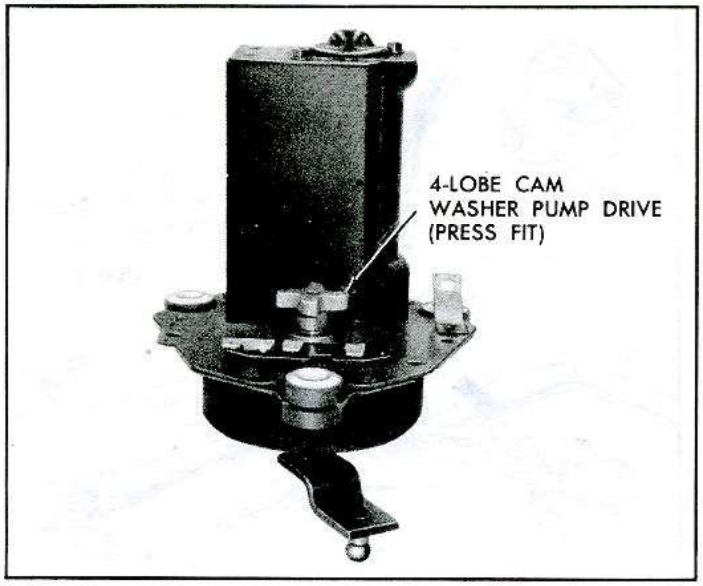

Fig. 31—Washer Pump Drive Cam Location

NOTE: Wave washer located on intermediate gear and pinion shaft.

5. When necessary, remove terminal board and park switch assembly as follows:
   a. Unsolder motor leads from terminals. Coding of motor leads not necessary on Type "E" single-speed wipers.
   b. Drill out rivets securing terminal board and park switch ground strap to mounting plate (fig. 32).

Motor

Refer to Figure 30.

1. Remove motor thru bolts, tap motor frame lightly, remove motor from mounting plate.
2. Release brush spring tension (fig. 33), slide armature and end plate from motor frame. Pull end plate from armature.

NOTE: Thrust plug located between armature shaft and end plate.

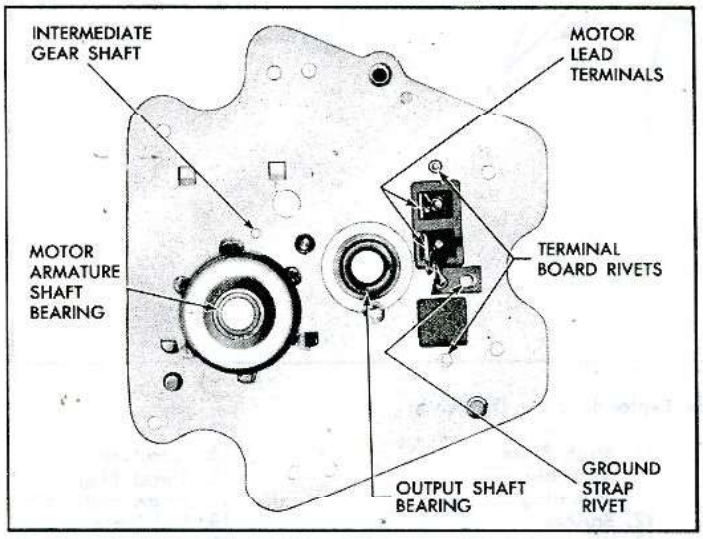

Fig. 32—Terminal Board—Single Speed Wiper

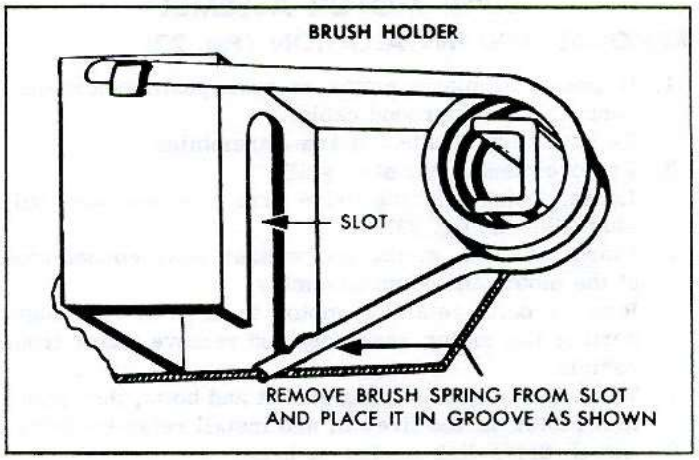

Fig. 33—Releasing Brush Spring Tension

3. Remove end play adjusting washers from armature, noting arrangement for proper reinstallation.

INSPECTION

Check and inspect all parts for serviceability, replace as necessary. All parts can be replaced individually except motor frame and field, which is serviced as an assembly. Service kits also provide screws, nuts, and washers to replace gear cover and terminal board rivets.

ASSEMBLY

Motor

Refer to Figure 30 for explode of motor and gear train.

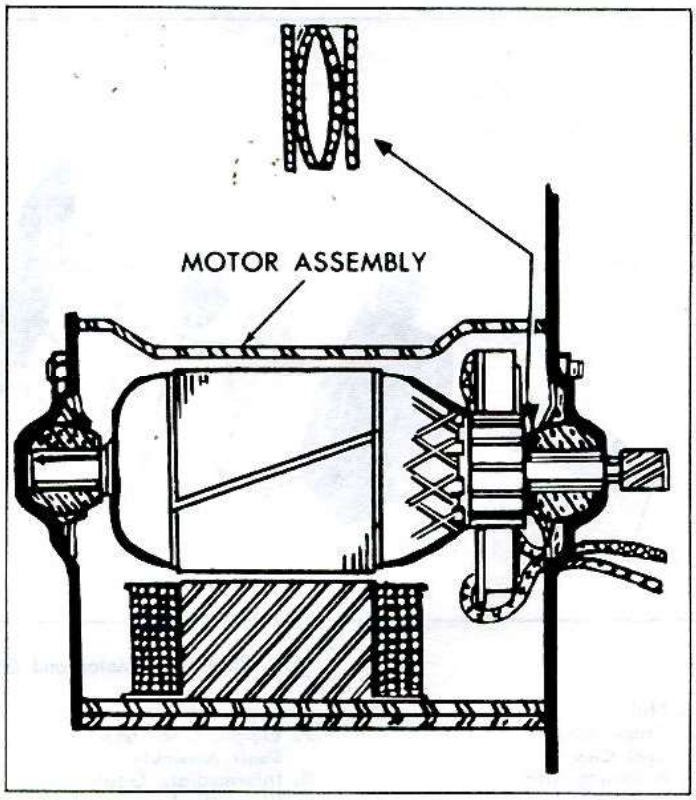

Fig. 34—End Play Washers Installed

1. Reassemble motor using reverse of disassembly procedure outlined above.

NOTE: Lubricate armature shaft bushings with light machine oil. Armature end play is automatically adjusted by the proper installation of end play wave washers (fig. 34).

Gear Box

Refer to Figure 30 for explode of gear box.

1. Assemble gear box using reverse of disassembly procedure.

NOTE: Lubricate gear teeth with Delco Cam and Ball Bearing Lubricant or equivalent. Be sure cover is properly located over dowel pins and be sure to reinstall ground strap.

2. Operate wiper to park position and install crank arm on output shaft so alignment marks line up with those on cover (fig. 35). Replace retaining nut, place crank arm in vise, tighten retaining nut.

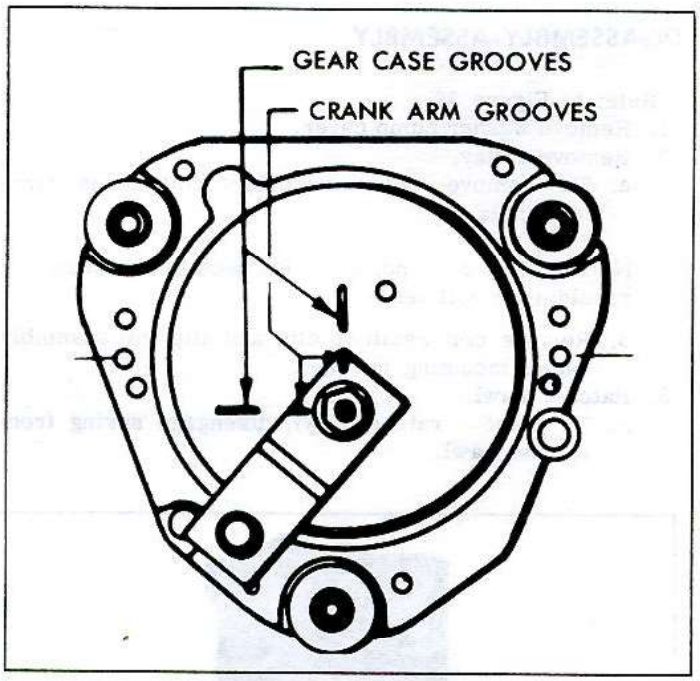

Fig. 35—Wiper Crank Arm in Park Position

WINDSHIELD WASHER

GENERAL DESCRIPTION

The positive displacement washer pumps used on the one and two speed non-depressed park wipers (fig. 36) use a pump mechanism consisting of a small bellows, bellows spring and vale arrangement driven by a 4 lobe nylon cam and pin assembly (fig. 37). The wiper motor drives the cam (fig. 38). Programming is accomplished electrically and mechanically by a relay assembly and ratchet wheel arrangement.

SERVICE OPERATIONS

REMOVAL AND INSTALLATION

Removal of the washer pump from the wiper motor consists of:

1. Disconnect wiring harness from washer.

NOTE: Mark washer hoses for correct reinstallation.

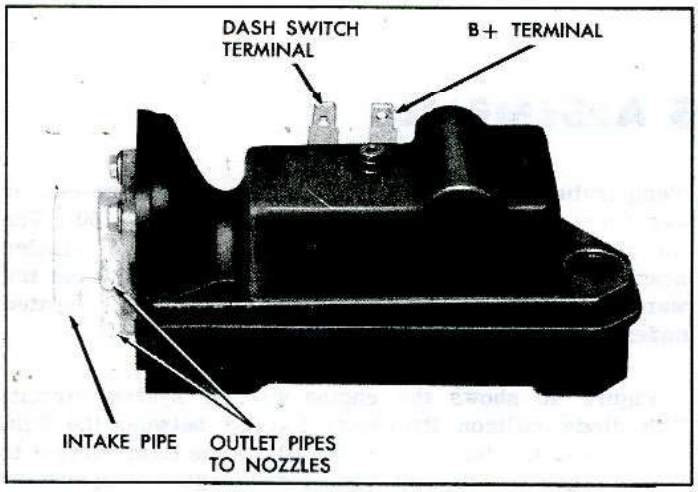

Fig. 36—Washer Pump

2. Remove washer mounting bracket to wiper retaining screws, remove washer from wiper.
3. Reverse above procedure to install assembly.

CAUTION: Install washer multiplug harness connector with battery lead on terminal with no tang (fig. 36). Incorrect installation of connector will result in direct ground and destroy wiper motor fuse.

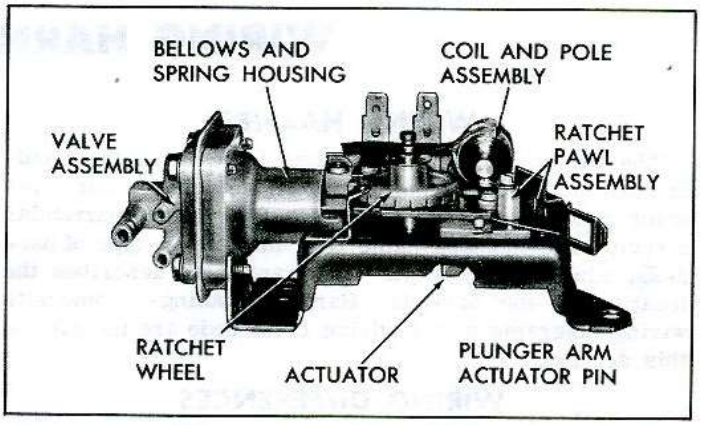

Fig. 37—Washer Pump Mechanism

DISASSEMBLY-ASSEMBLY

Refer to Figure 37.

1. Remove washer pump cover.
2. Remove Relay.
   a. To remove relay unsolder coil leads from terminals.

   NOTE: No coil polarity is necessary when resoldering coil leads.

   b. Remove coil retainer clip and slip coil assembly out of mounting bracket.
3. Ratchet Pawl.
   a. To remove ratchet pawl, disengage spring from ratchet pawl.

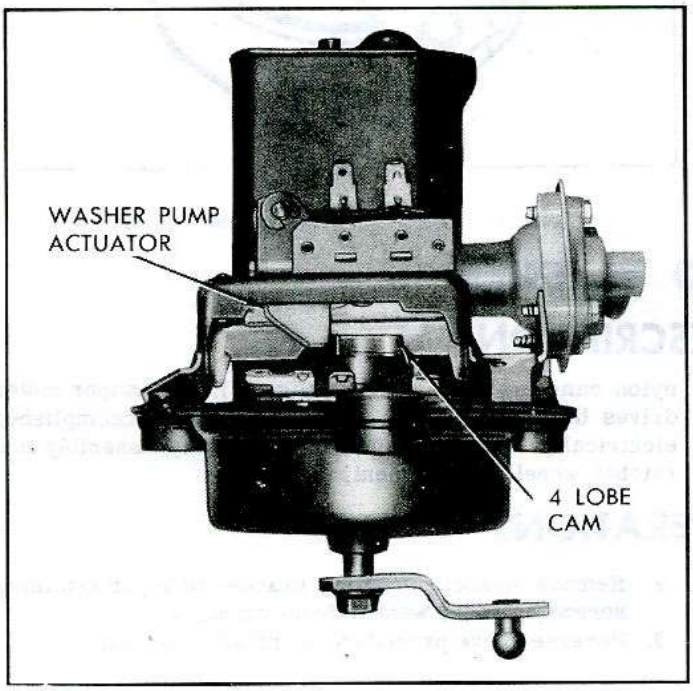

Fig. 38—Washer Drive Mechanism

CAUTION: Be sure spring is properly assembled before replacing washer pump cover.

   b. Remove "E" ring and slide ratchet pawl off shaft.
4. Terminal Board.
   a. Remove two attaching screws and relay terminal board assembly from washer base.
5. Ratchet Wheel.
   a. Remove retaining ring and slide the wheel from the shaft.
6. Valve Assembly.
   a. To remove valve assembly, remove 4 screws that secure valve assembly to bellows housing.

CAUTION: It may be necessary to carefully pry bellows lip out of the valve body groove.

7. Bellows.
   a. To remove bellows first remove valve assembly.
   b. Manually operate pump clockwise to release pump from "lock-out" position (fig. 39).
   c. Hold bellows plunger arm from moving, then push in against bottom of bellows with thumb and twist 90° to remove bellows and bellows spring from housing.
8. Actuator Drive Pin.
   a. Remove actuator spring.
   b. Slide actuator drive from washer base.
9. To assemble washer unit, reverse above procedures.

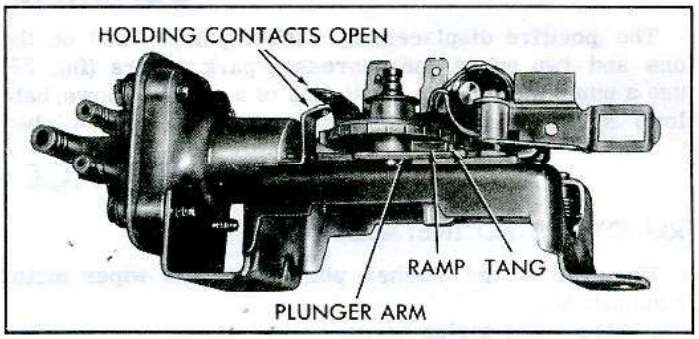

Fig. 39—Releasing Pump from Lockout Position

WIRING HARNESS ASSEMBLIES

WIRING HARNESS

The wiring harness assemblies incorporate the standardized color code common to all vehicles. Under this color code, the color of the wire designates a particular circuit. The harness name title indicates a type of harness, single or multiple wire, and also describes the location of the harness. Harness routings, composite wiring diagrams and a wiring color code are included in this section.

WIRING DIFFERENCES

On the high performance engine models, tachometer leads are attached at coil in engine compartment. Temperature indicator lamp, gauge and warning buzzer are connected as shown in wiring diagram (fig. 40). The thermister unit (fig. 41) is installed on the left cylinder head, the temperature pickup in the right head and the warning buzzer and diode (Silicon Rectifier) are located under dash panel (the diode in wire harness).

Figure 40 shows the engine warning system circuit. The diode (Silicon Rectifier) located between the light circuit and the buzzer circuit allows the light current to flow to ground through the closed engine temperature switch, but prevents the oil pressure switch from completing the buzzer circuit.

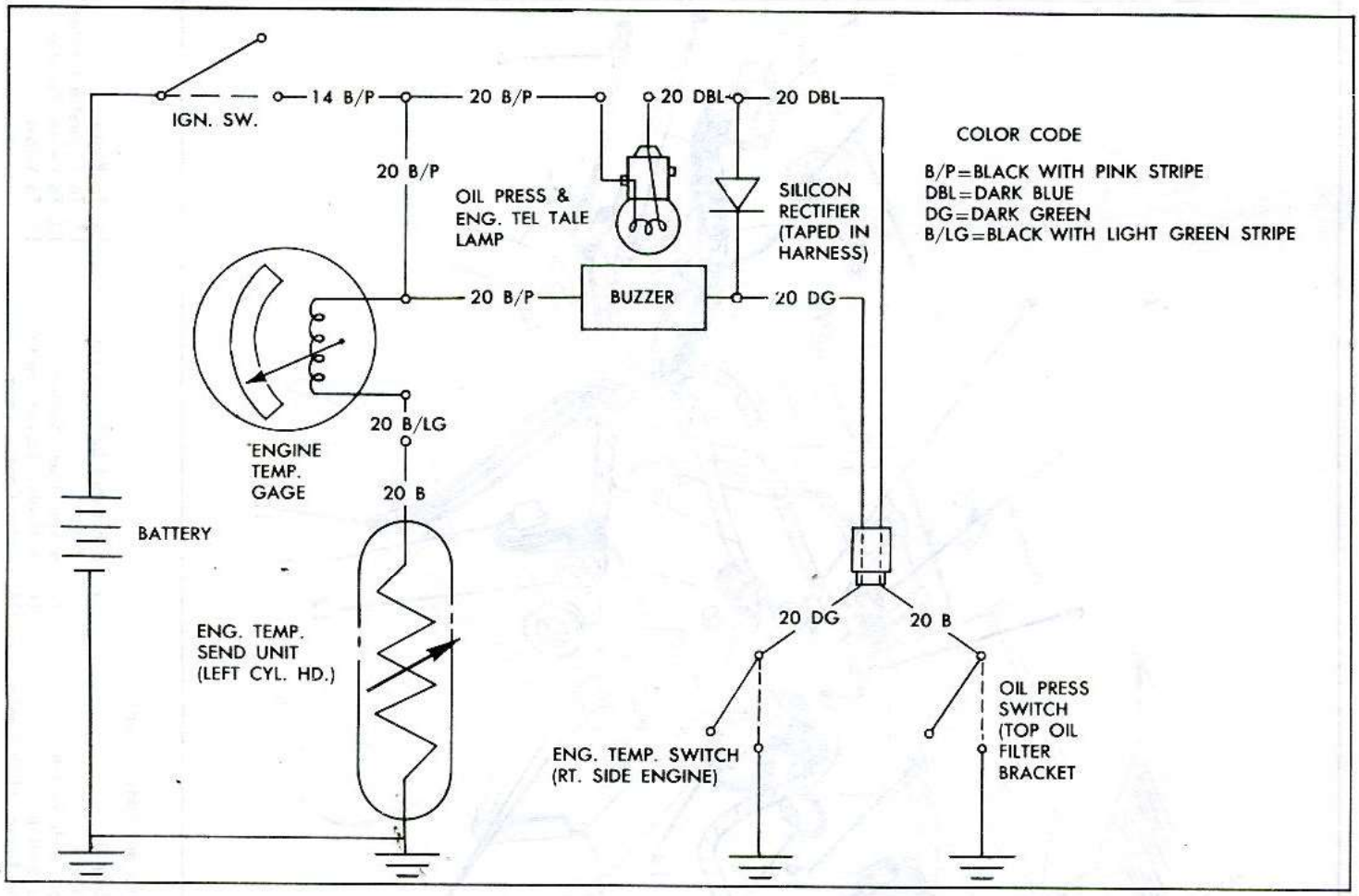

Fig. 40—Oil Pressure and Engine Temperature Tell-tale Lamp, Temperature Gauge and Warning Buzzer Wiring

WIRING CIRCUIT COLOR CODE

DIAGRAM KEY	WIRE COLOR
B	Black
B/LG	Black with Light Green Stripe
B/LBL	Black with Light Blue Stripe
B/P	Black with Pink Stripe
B/OR	Black with Orange Stripe
B/W	Black with White Stripe
B/Y	Black with Yellow Stripe
BRN	Brown
DBL	Dark Blue
DG	Dark Green
PPL	Purple
R	Red
T	Tan
GY	Gray
W/OR/P	White with Orange and Pink Stripes

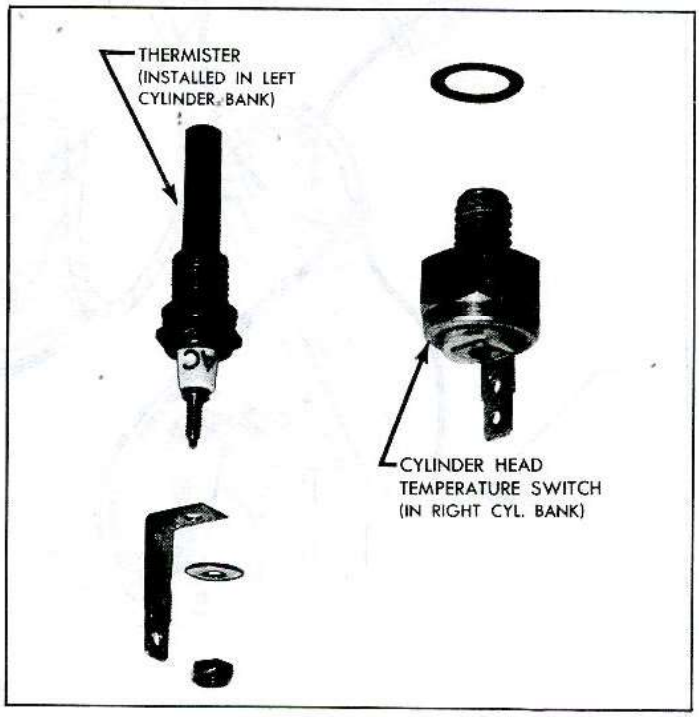

Fig. 41—Cylinder Head Temperature Sensing Units

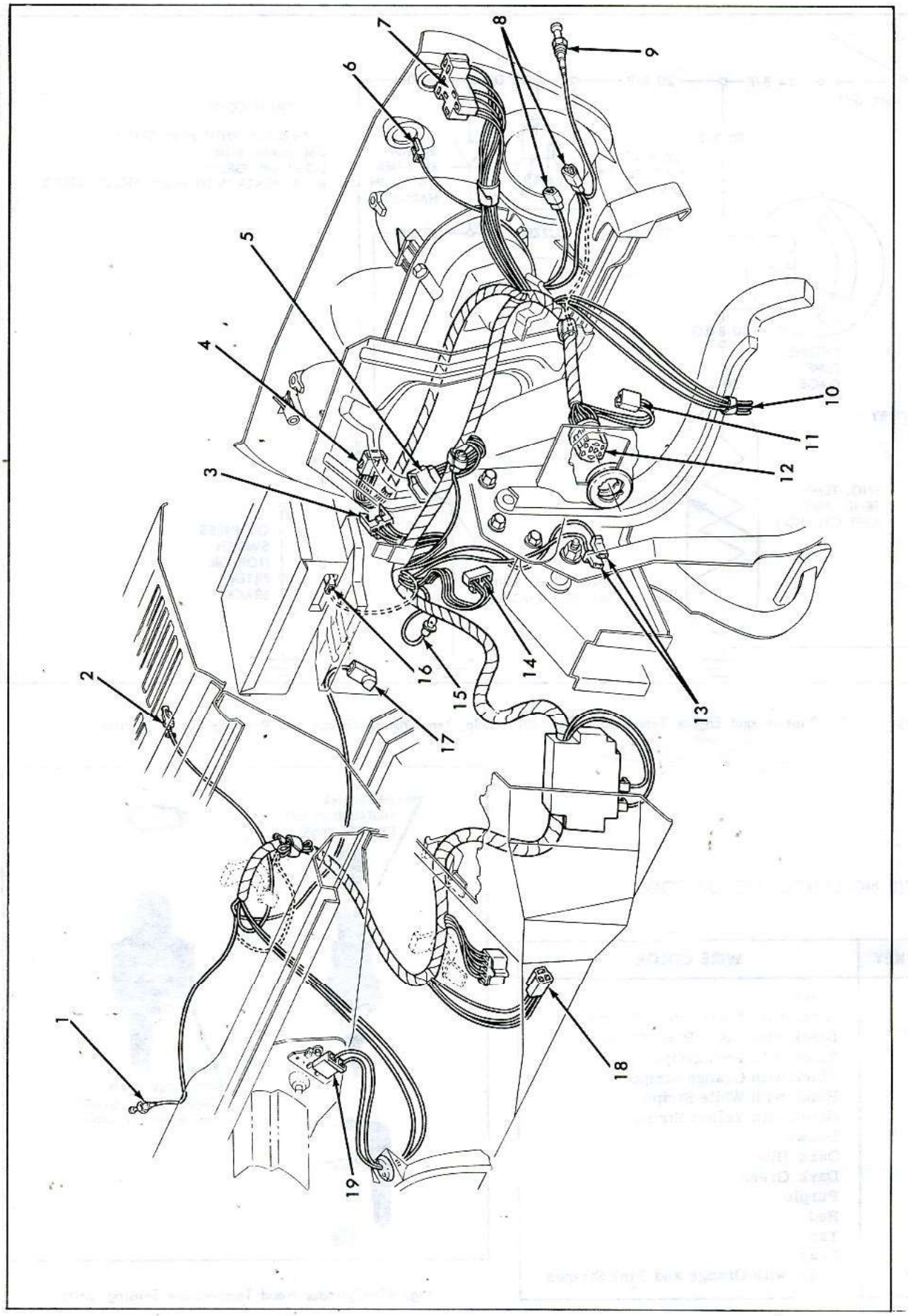

Fig. 42—Instrument Panel Wiring

1. R.H. Door Jamb Switch (10500–700)
2. To Instrument Panel Compartment Light (10500–700)
3. To Ignition Switch
4. To Instrument Cluster Wiring Harness
5. To Directional Signal Harness
6. To Wiper Switch
7. To Light Switch
8. To Dome Lamp
9. L. H. Door Jamb Switch
10. To Dimmer Switch
11. To Warning Buzzer (10700 only)
12. To Forward Lamp Wiring Harness
13. To Stop Lamp Switch
14. To Heater Blower Switch
15. Heater Control Lamp
16. To Radio
17. To Cigarette Lighter
18. To Heater Resistor
19. To Wiper

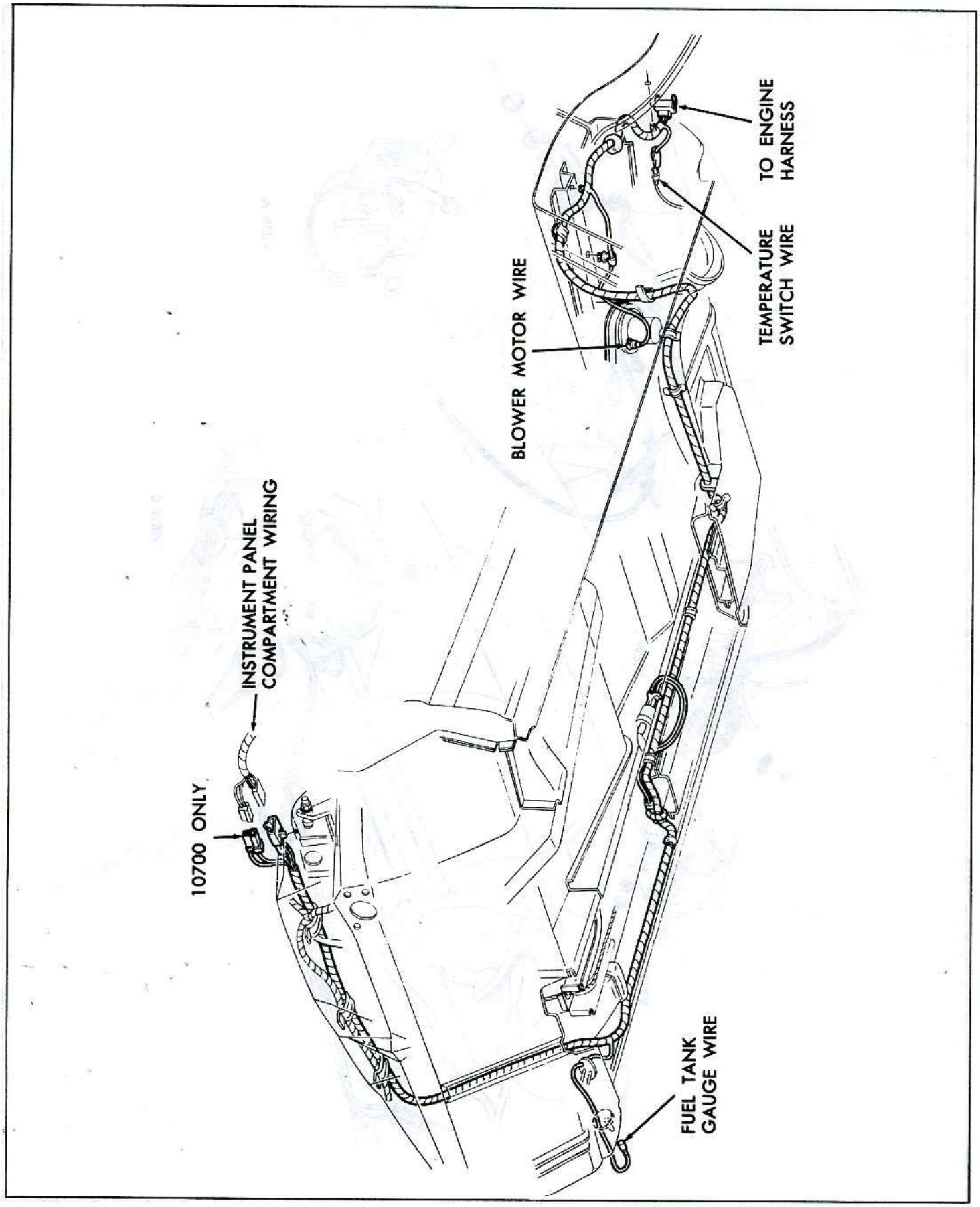

Fig. 43—Body Wiring Harness

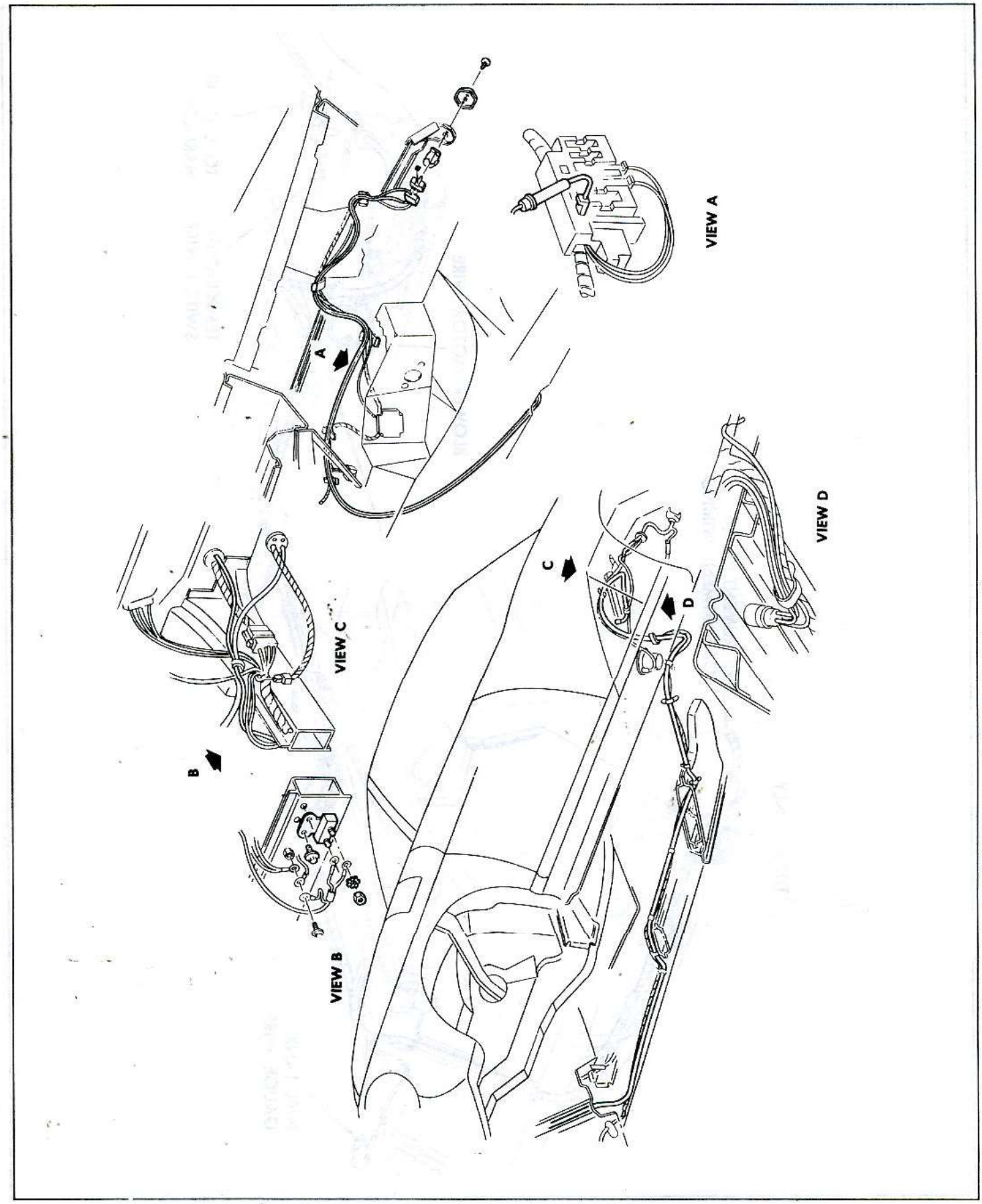

Fig. 44—Power Feed Wiring

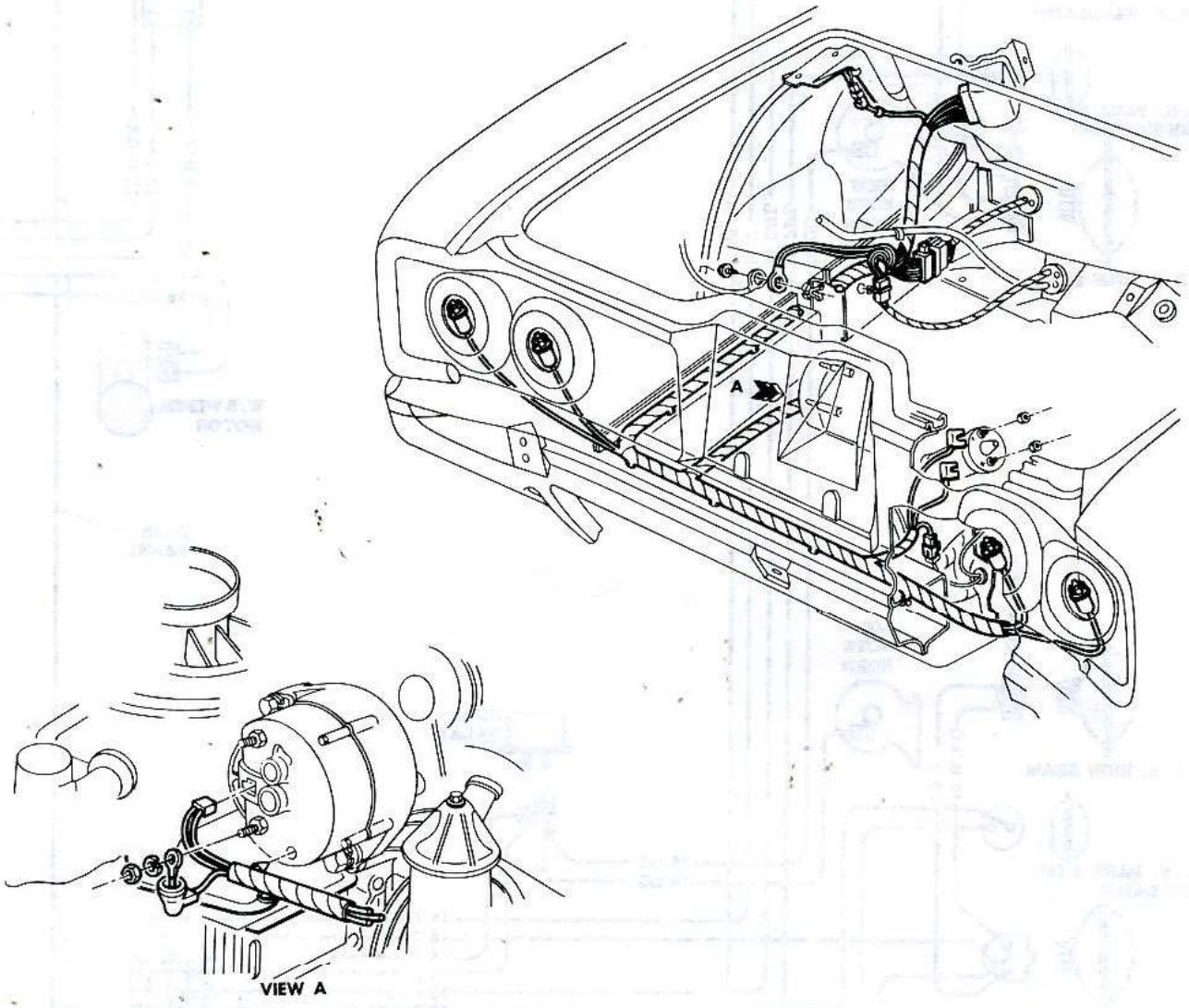

Fig. 45—Engine Compartment Wiring

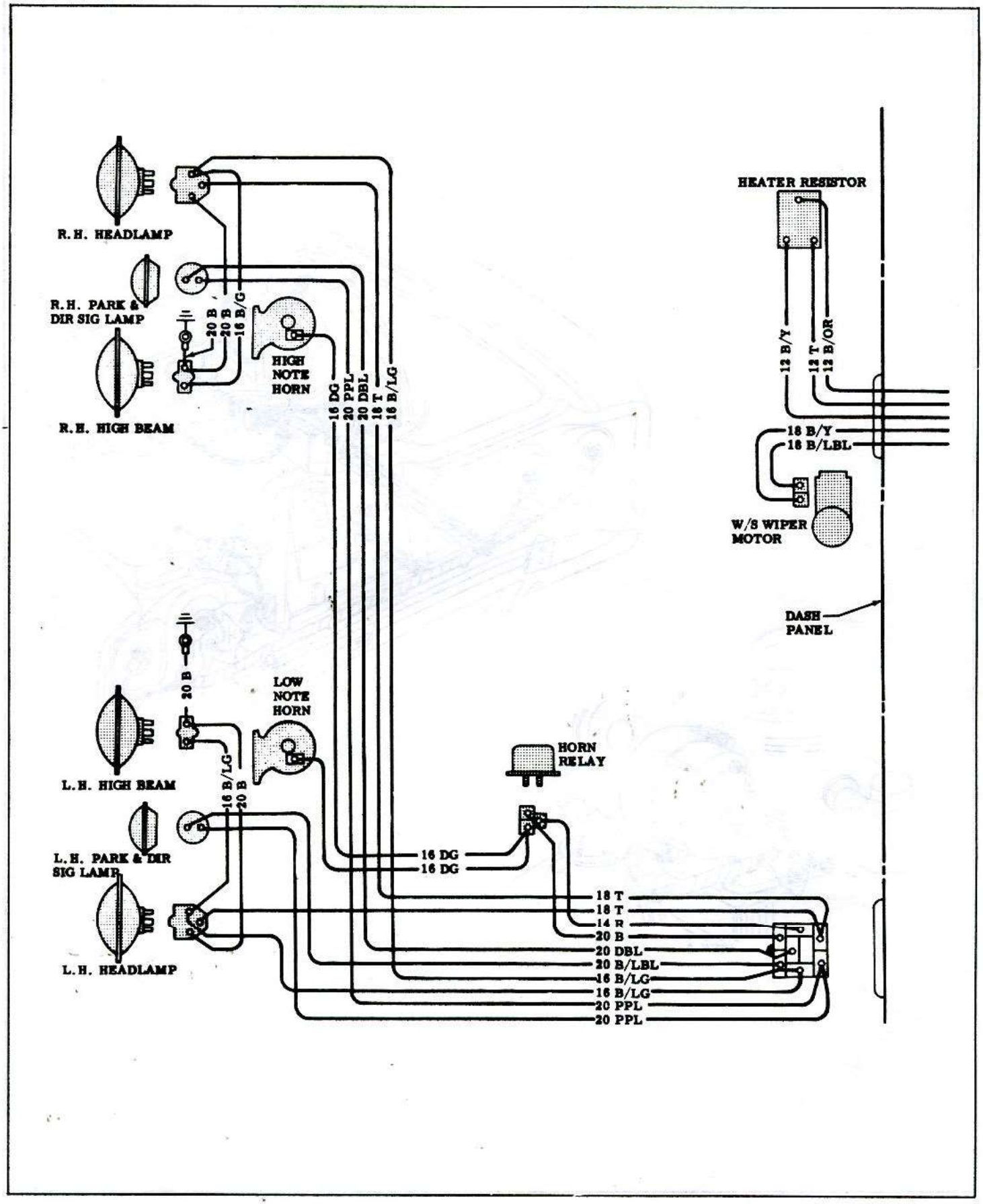

Fig. 46—Front End

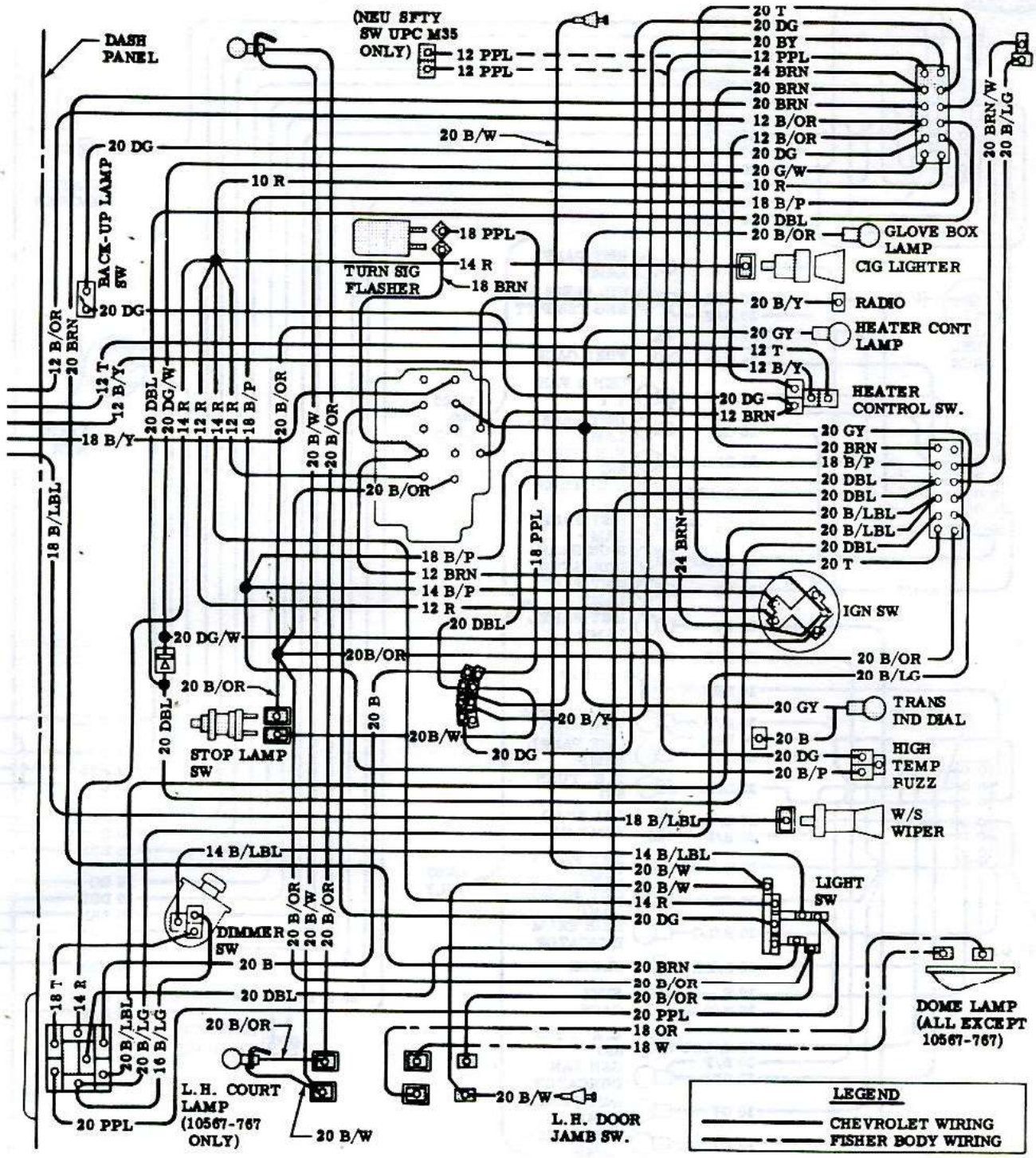

Fig. 47—Engine and Tail Lamps

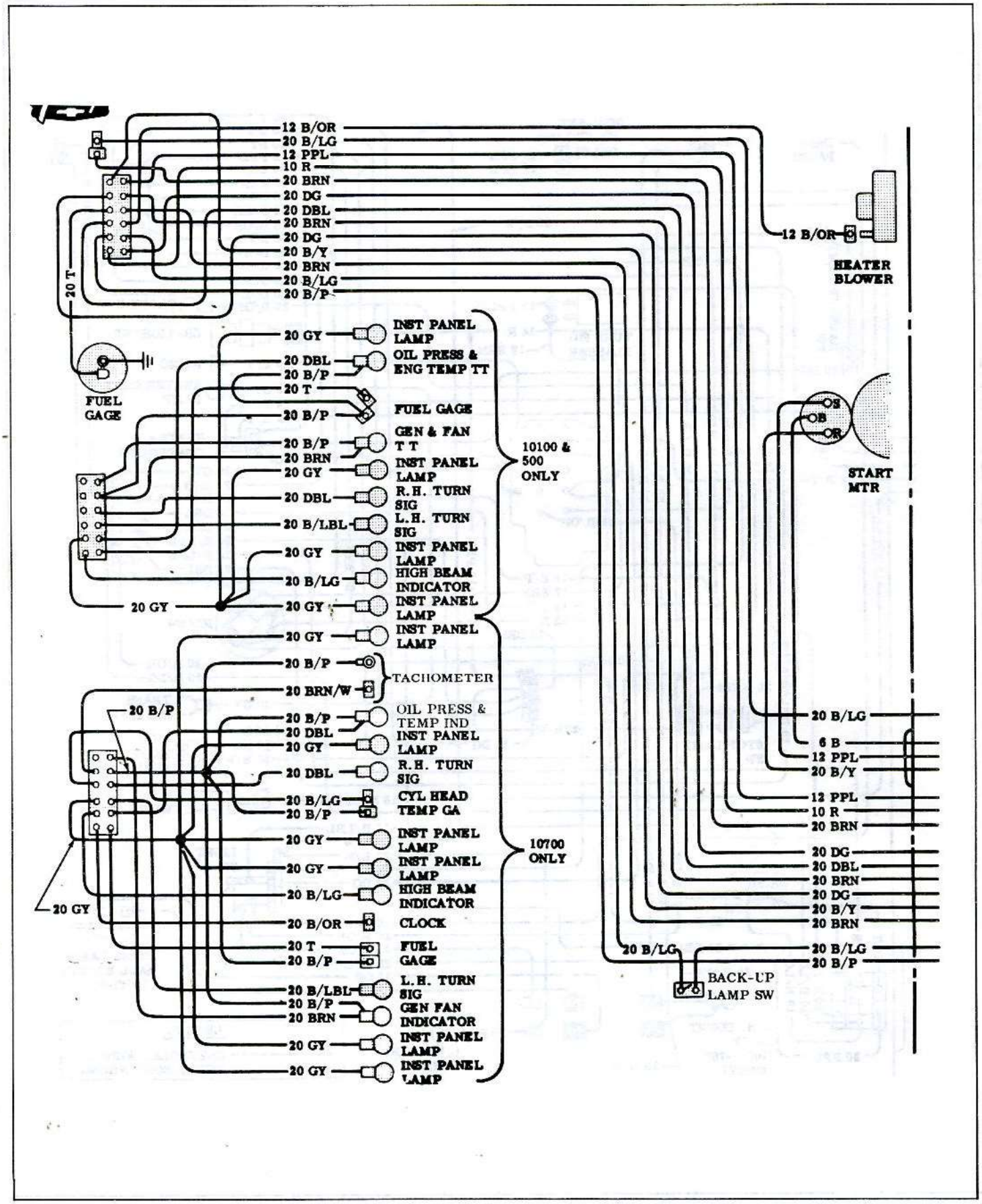

Fig. 48—Instrument Cluster and Body Harness

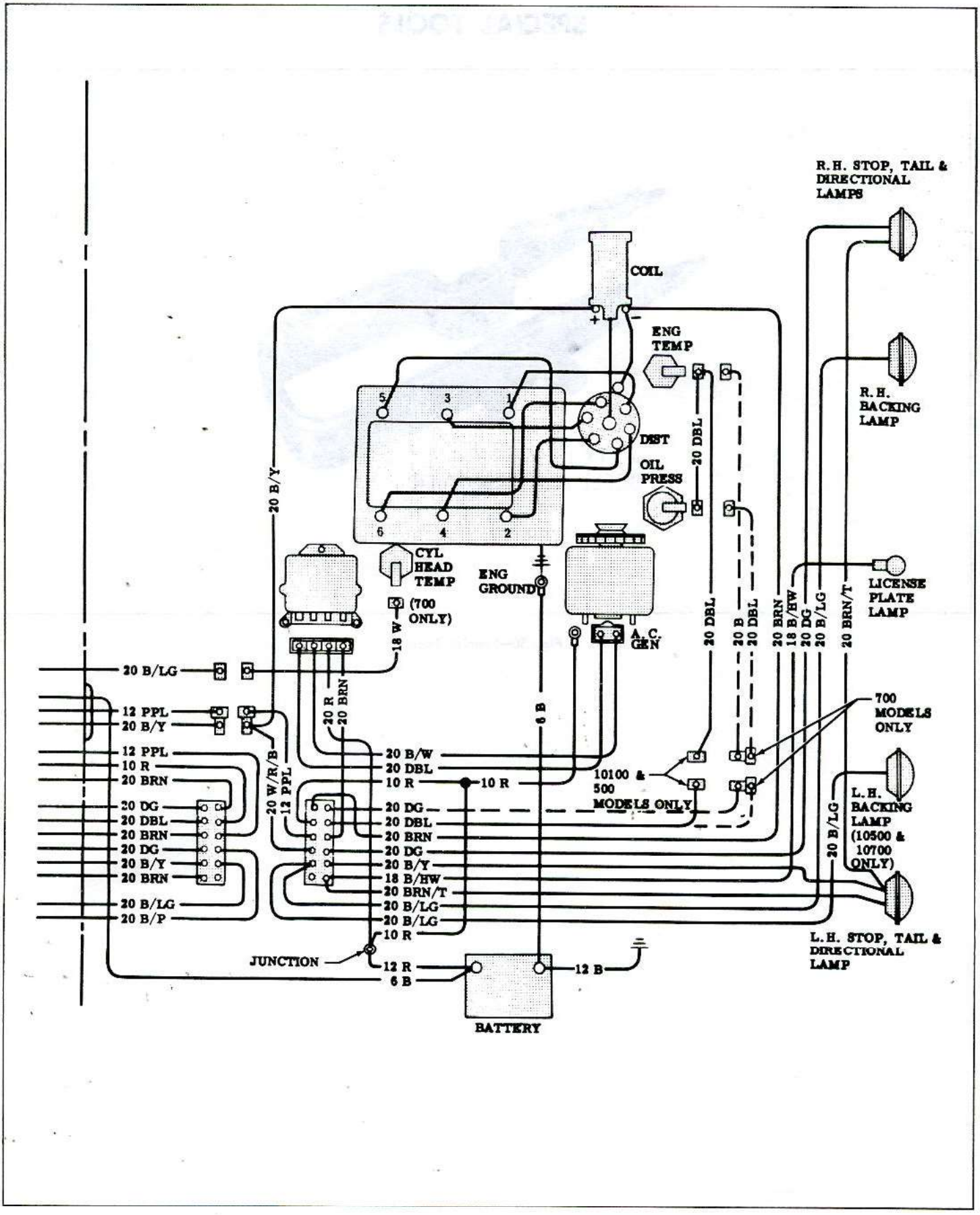

Fig. 49—Fuse Panel and Instrument Panel

SPECIAL TOOLS

J-21932
BEZEL NUT REMOVER

Fig. 50—Special Tools