

SECTION F

INSTRUMENT PANEL AND HEADLAMP OPERATION—RIVIERA

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DIVISION II DESCRIPTION AND OPERATION

120-23 DESCRIPTION OF INSTRUMENT PANEL - RIVIERA

a. Description of Instrument Cluster Assembly

The instrument cluster assembly shown in Figure 120-33 contains a speedometer, a fuel gage, indicator lights and an electric clock.

A printed circuit is used to complete the circuit for all lights, instruments and gages in the cluster assembly. See Figure 120-18 for the cluster gage circuits. A rectangular disconnect plug, which is part of the instrument panel wiring harness, attaches to the printed circuit connector tabs. The disconnect plug has two retaining fingers of different widths to insure correct assembly of the plug to the printed circuit. If either the cruise control or rear window defroster

option is specified, the standard instrument panel wiring harness will be replaced with a composite harness which provides special connections to the cruise control and to the rear window defroster.

b. Generator Charge Indicator

The red "GEN" warning light should light when the ignition is turned "ON" and before the engine is started; if not lighted, either the

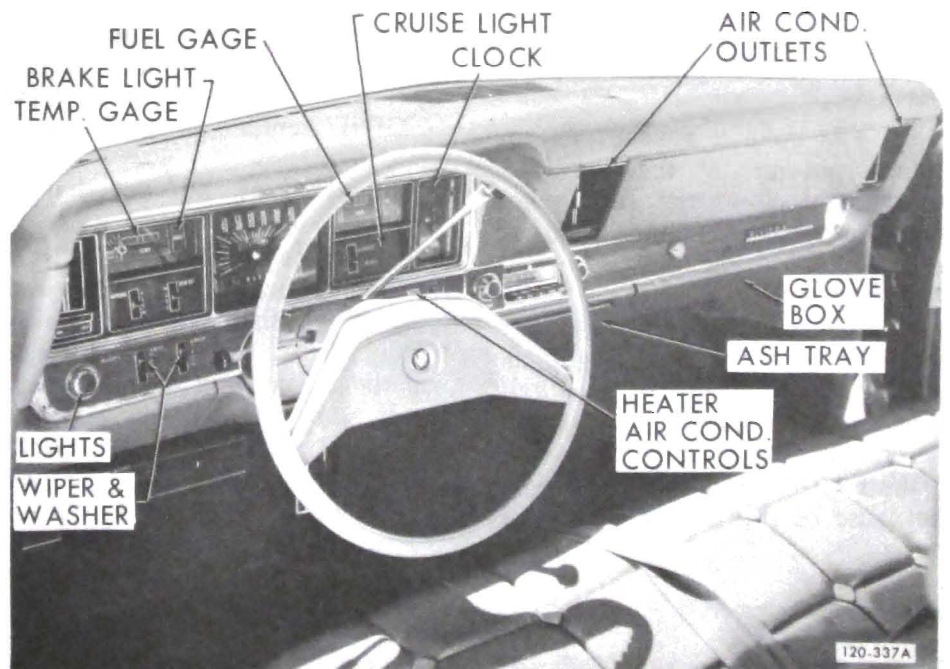


Figure 120-33 Instrument Panel -
Riviera

bulb is burned out or the indicator light wiring has an open circuit. After the engine is started, the "GEN" light should be out at all times; if the light comes on, the generator belt may be loose or missing, the generator or regulator may be defective, or the charging circuit may be defective. See paragraph 68-6 for trouble-shooting procedures.

To trace the generator indicator light circuit, see Figure 120-18. With the ignition switch turned on (engine not running), current flow is through the ignition switch, through the generator light in the instrument cluster, to the "4" terminal of the regulator, through the lower contacts of the voltage regulator (held closed by the spring), out the "F" terminal, in the "F" terminal of the generator, through the brush and slip ring, through the field, through another brush and slip ring to ground.

Before the engine is started, the generator light should glow at about 1/2 brightness. This is because the voltage in the circuit before the light is about 12 volts, but the voltage at the "4" terminal after the light is about 5 volts. This makes the effective voltage across the generator light approximately 7 volts for about 1/2 brightness.

After the engine is started, the voltage put-out by the generator immediately closes the field relay. This causes battery voltage from the "3" terminal to be present at the "4" terminal. See Figure 120-18. Since battery voltage is present on both sides of the generator light, the light goes out. If the generator light comes on with the engine running, the charging circuit should be tested at the first opportunity to determine the cause of the trouble. See paragraph 68-6.

c. Oil Pressure Indicator

The engine oil pressure indicator light is controlled by a pressure operated switch located in the main

oil gallery at the right front of the engine.

This light should come on when the ignition is turned "ON" and the engine is not running. If not lit, either the bulb is burned out, the wiring has an open or the oil switch is defective.

If the engine oil pressure drops below a safe level during operation, the circuit is completed through the pressure switch to ground, and the "OIL" indicator light in the cluster will be turned on.

If the "OIL" indicator stays on or comes on when the engine is running at speeds above idle, the following may be the cause, rather than low oil pressure:

1. Wiring circuit between oil pressure switch and light grounded. Remove connector from pressure switch, if light stays on trouble is in wiring.
2. Switch defective. Replace switch.

d. Temperature Indicator

A water temperature switch located in the right front of the intake manifold controls the operation of a "HOT" temperature indicator with a red lens. A metal temperature switch located in the rear of the left head controls the operation of a "STOP ENGINE" temperature indicator.

NOTE: LeSabres do not have a "STOP ENGINE" light.

If the engine cooling system is not functioning properly and the water temperature should reach approximately 253°F., the "HOT" indicator will be turned on by the water temperature switch. *As a test circuit to check whether the "HOT" indicator bulb is functioning properly, a wire which leads to the "GND" terminal of the ignition switch is connected into its circuit.* See Figure 120-18. When the ignition is in the "Start" position (engine cranking), the "GND" terminal is grounded inside the switch and the "HOT" indicator bulb will be lit. When the

engine is started and the ignition switch is in the "ON" position, the test circuit is opened and the bulb is then controlled by the water temperature switch.

If the metal temperature of the left cylinder head should reach approximately 265°F., the "STOP ENGINE" indicator will be turned on by the metal temperature switch. This indicator bulb has a separate test circuit to ground in the ignition switch during cranking. See Figure 120-18.

e. Trouble Diagnosis - Generator, Oil Pressure, Temperature Indicators

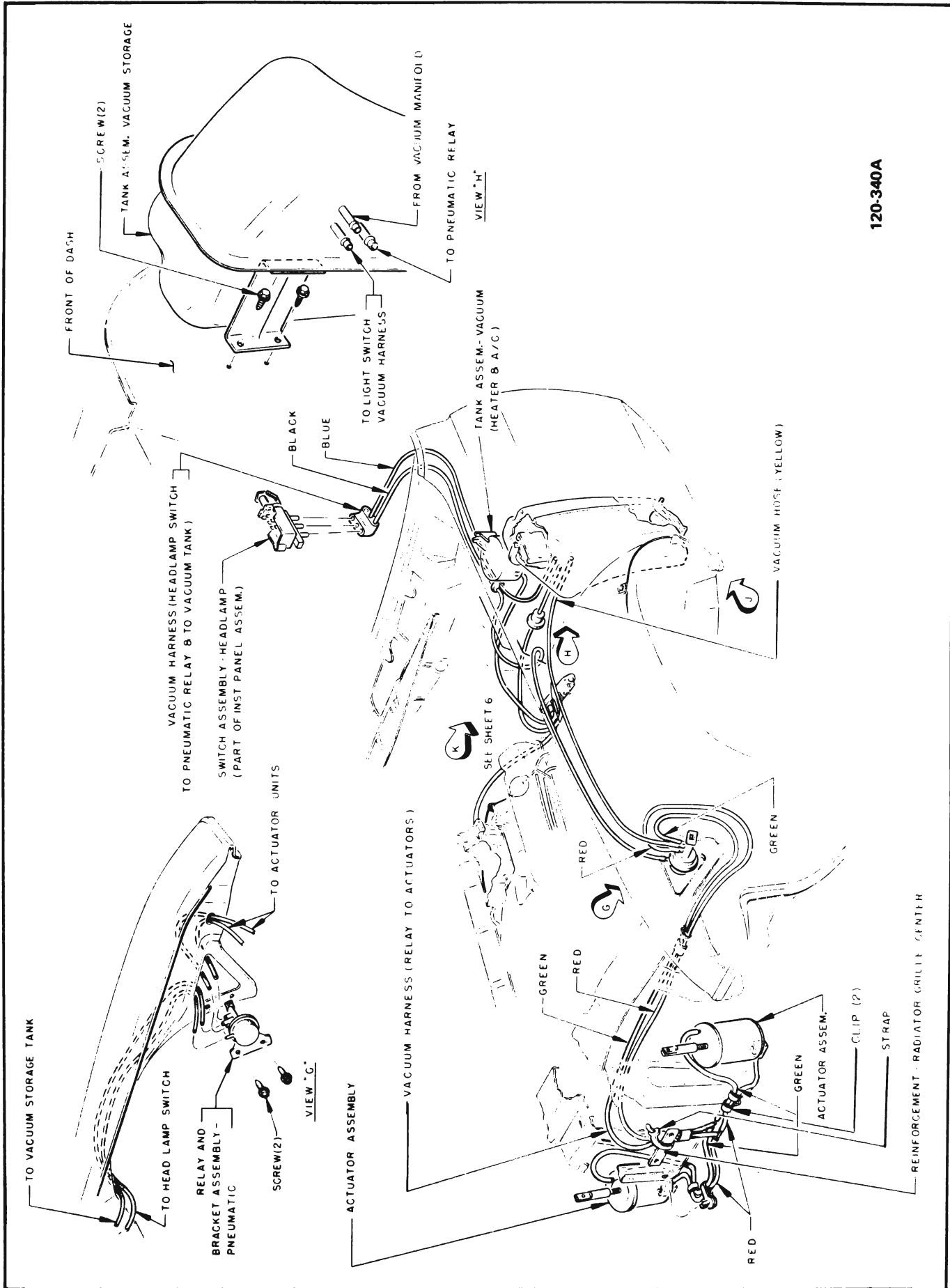
Use Figure 120-18 to trace wiring circuits for indicator lights. To determine if there is a ground in the indicator light circuit, remove connector from control switch, if light stays on, trouble is in circuit.

120-24 HEADLAMP OPERATION - RIVIERA

All Rivieras have disappearing headlamp assemblies which are operated by a vacuum system. See Figure 120-34. This vacuum system consists of a vacuum supply hose coming from the intake manifold, a check valve, a large vacuum storage tank, a hose to the headlight switch, a vacuum valve mounted on the headlight switch, a hose to a vacuum relay, the vacuum relay (mounted to the left of the battery) and hoses to the top and bottom of two headlamp actuator assemblies.

When the headlights are turned off, the headlamp assemblies rotate so that they point straight upward. In this position, right and left grille sections also rotate to line-up with the main grille.

When the headlights are turned on, the headlamp assemblies rotate so that they point straight forward. While in the forward position, the individual headlight sealed beam units can be adjusted in the conventional way.



120-340A

Figure 120-34 Vacuum System
Hose Routing For Riviera
Headlamp Operation

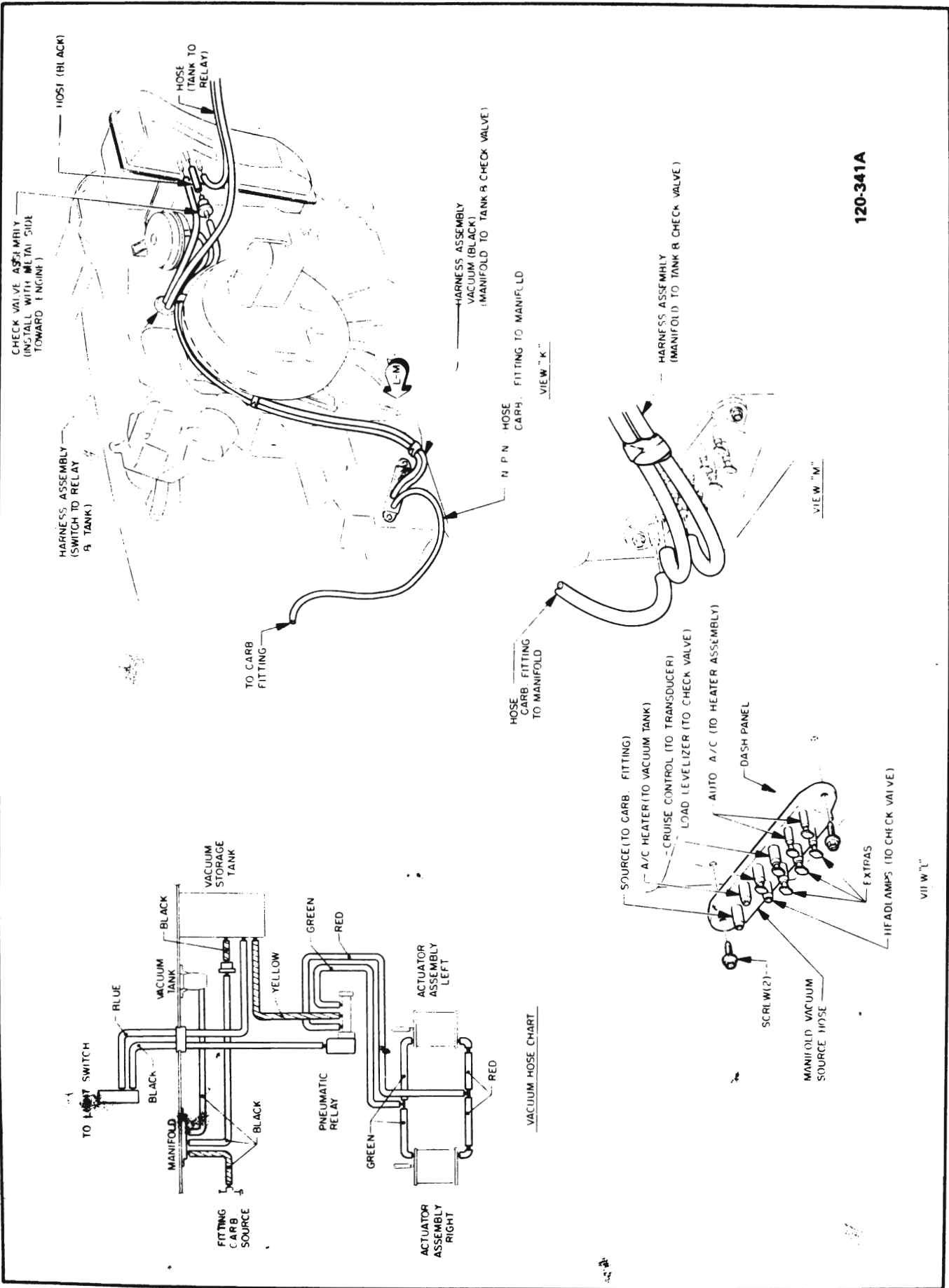


Figure 120-35 Vacuum System Schematic Diagram for Riviera Headlamp Operation

When vacuum is applied in the lower end of each headlamp actuator assembly, the headlamps are held in their upward position. When vacuum is applied in the upper end of each actuator, the headlamps are held in the forward position. The headlamps are always held firmly in one position or the other, depending on the position of a sliding valve in the vacuum relay. See Figure 120-36. The position of the relay valve depends, in turn, on the position of the vacuum valve at the headlight switch.

When the headlight switch is off, the vacuum valve at the switch allows vacuum flow through it. This vacuum is applied to a vacuum diaphragm in the relay, compressing a spring and also moving the relay valve to connect storage tank vacuum (at the large center nipple) directly to the lower end of each headlamp actuator. See Figure 120-34.

When the headlight switch is on, the

vacuum valve at the switch shuts off vacuum flow and allows normal air pressure into the vacuum relay diaphragm. The diaphragm spring then moves the relay valve to connect storage tank vacuum directly to the upper end of each headlamp actuator. This is a "fail-safe" feature, insuring that the headlights will remain in their forward position in case of a failure of the vacuum hose to the headlight switch, failure of the headlight switch vacuum valve or failure of the vacuum hose to the relay diaphragm.

The vacuum relay valve, in either position, applies vacuum to one end of each actuator, while venting the other ends of the actuators to normal air pressure. A filter prevents dust from entering with the air. See Figure 120-34.

None of the parts of the vacuum system which operates the headlamps can be repaired. Any parts found to be defective must be replaced.

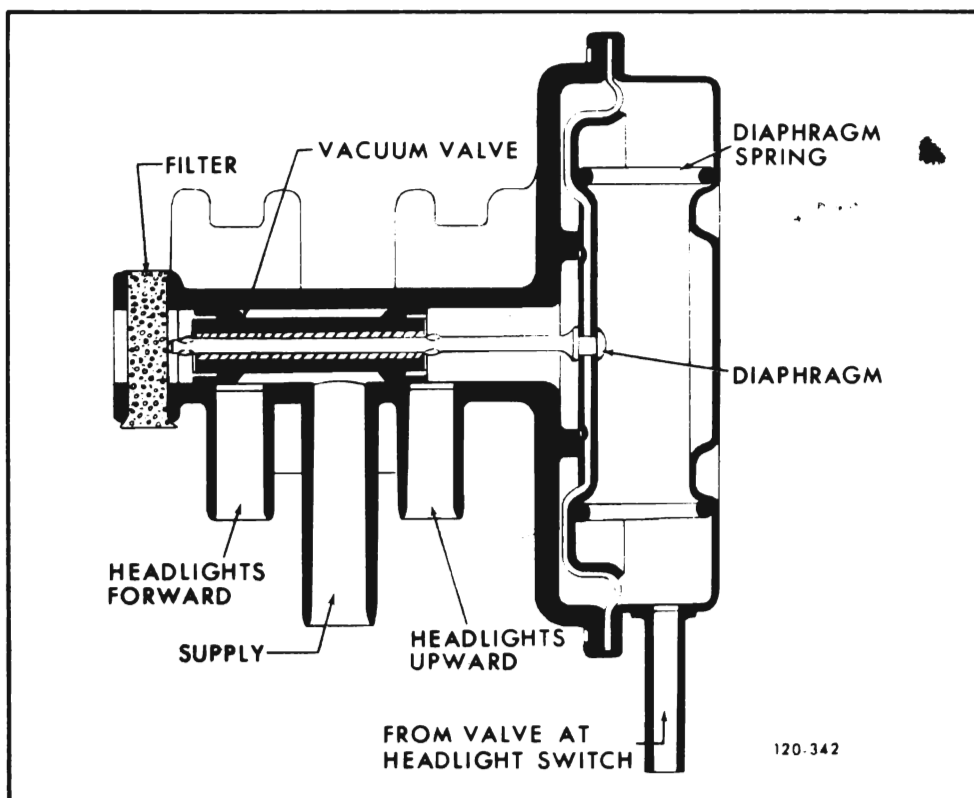


Figure 120-36 Riviera Headlamp Vacuum Relay

DIVISION III

SERVICE PROCEDURES

120-25 REMOVAL AND INSTALLATION OF INSTRUMENT PANEL PARTS - RIVIERA

Before starting any instrument panel repair, always disconnect battery ground cable.

a. R. & I. Instrument Cluster Assembly

CAUTION: If equipped with cruise control, upper speedo cable must be disconnected from transducer so that cluster housing can later be pulled back.

1. Remove glove box after removing 8 screws.
2. Remove four 3/8 hex nuts at right underside of dash assembly and four Philips screws at housing assembly. Pull instrument panel upper cover rearward to remove.
3. Remove two screws from steering column filler and remove filler. If column shift, disconnect shift quadrant link wire at steering column. Remove two 9/16 hex nuts from steering column mounting bracket. Lower steering column.
4. Remove two nuts from lower edge of instrument panel housing at steering column.
5. Remove four screws across upper edge of instrument panel housing.
6. Remove one 3/8 hex nut at lower left side of instrument housing.
7. Remove four screws at ash receiver assembly and remove assembly.
8. Remove one 3/8 hex nut at lower right side of instrument housing.
9. Remove two screws at heater control installation and separate from instrument panel housing.

10. Protect steering column so that instrument panel housing will not mar column when housing is tilted back.

11. Disconnect from instrument cluster:

(a) Speedometer cable (from above).

NOTE: If car is equipped with cruise control, disconnect speedo cable at cruise control transducer located at rear of engine compartment. This will allow instrument housing to be pulled rearward.

(b) Two wiring harness clips (from above).

(c) Printed circuit connector (from above).

12. Disconnect from instrument housing assembly:

(a) Clock connector and two clock bulbs (from above).

(b) Cruise light connector (from above).

(c) Courtesy light connector (from above).

(d) Windshield wiper/washer switch connector (from above).

(e) Antenna and accessory switch connectors (from above).

(f) Cluster ground wire (from above).

(g) A/C hose (from above).

(h) Headlight connector (from above).

13. Remove instrument panel housing assembly.

14. Remove six 1/4 hex screws and remove instrument panel cluster from instrument panel housing.

15. Install instrument cluster by reversing above steps.

b. R. & I. Speedometer

1. To remove a speedometer, first remove the instrument cluster. See subparagraph a, above for instrument cluster removal and installation.

2. Remove speed alert knob and remove speed alert cable from cluster.

3. Remove eight clips from cluster face and remove face.

4. Remove two 1/4 hex screws from speedometer back and remove speedometer from cluster.

5. Install speedometer by reversing above steps.

c. R. & I. Printed Circuit

1. To remove a printed circuit, first remove instrument housing. See subparagraph a, above for instrument housing removal.

2. The printed circuit is removed by first removing the 13 cluster light bulbs.

3. Unsnap speedometer end of speed alert cable. Remove speed alert terminal and screw.

4. Remove four 1/4 hex screws from gas gauge dash unit and remove unit.

5. Remove two 1/4 hex screws at speedometer ground strap and remove strap.

6. Remove one 1/4 hex ground screw from printed circuit and remove circuit.

7. Install printed circuit by reversing above steps.

d. R. & I. Light Switch

1. Pull switch knob out to last notch, then depress latch button and pull knob and rod assembly out of switch.

2. Remove switch escutcheon.

3. Pull switch down and pry connector from switch.

4. Install light switch by reversing above steps.

e. R. & I. Rear Window Defroster, Power Antenna, Courtesy Light or Cruise Control Switch

1. Pry switch cover plate from cluster assembly.

2. Remove two switch retaining screws and unplug switch from connector.

3. Install switch by reversing above steps.

f. R. & I. Windshield Wiper/Washer Switches

1. To remove the windshield wiper/washer switches pull the instrument panel housing assembly out to rest on column and knees. See Steps 1 through 11 in subparagraph a, above.

2. Unplug connectors from switches.

3. Remove two 1/4 hex screws from switches and pull switches out.

4. Install switches by reversing above steps.

g. R. & I. Clock

1. Remove ash tray and radio.

2. Remove instrument panel cover.

3. Unplug clock connector and two clock bulbs.

4. Remove 1/4 hex head screws and pull clock out.

5. Install clock by reversing above steps.

h. R. & I. Gas Gauge Dash Unit

1. To remove gas gauge dash unit pull the instrument panel housing assembly out to rest on column and knees. See Steps 1 through 11 in subparagraph a, above.

2. Remove four 1/4 hex head retaining screws and remove gauge from instrument cluster.

3. Install gauge by reversing above steps.

i. R. & I. Instrument Cluster Light Bulbs

To remove any light bulb in the instrument cluster pull the instrument panel housing assembly out to rest on column and knees. See Steps 1 through 11 in subparagraph a, above.

j. R. & I. Radio

1. Remove four screws at ash receiver assembly and remove assembly.

2. Remove radio knobs and escutcheons. Remove two 5/8 hex nuts.

3. Unplug antenna lead from radio receiver.

4. Unplug three wire and single wire connector from radio receiver.

5. Remove radio downward through ash receiver opening.

6. Install radio by reversing above steps.

k. R. & I. Front Radio Speaker

1. Remove radio (subpar. j.)

2. Remove four 3/8 hex head retaining screws from speaker and remove speaker.

3. Install radio speaker by reversing above steps.

NOTE: If car is equipped with air conditioning, remove eight screws from instrument panel compartment body assembly and remove assembly. Remove four 3/8 hex nuts at right underside of dash assembly and four

Philips screws at housing assembly. Pull instrument panel upper cover rearward to remove. Remove two screws at center A/C duct and remove duct.

l. R. & I. Power Window or Cruise Light Relay

Power window and cruise light relays are both located on a vertical instrument panel support bracket to left of radio.

1. Remove instrument panel upper cover as described in subparagraph a, steps 1 and 2.

2. Remove relay screws.

3. Unplug wiring connector and remove relay.

4. Install relay by reversing above steps.

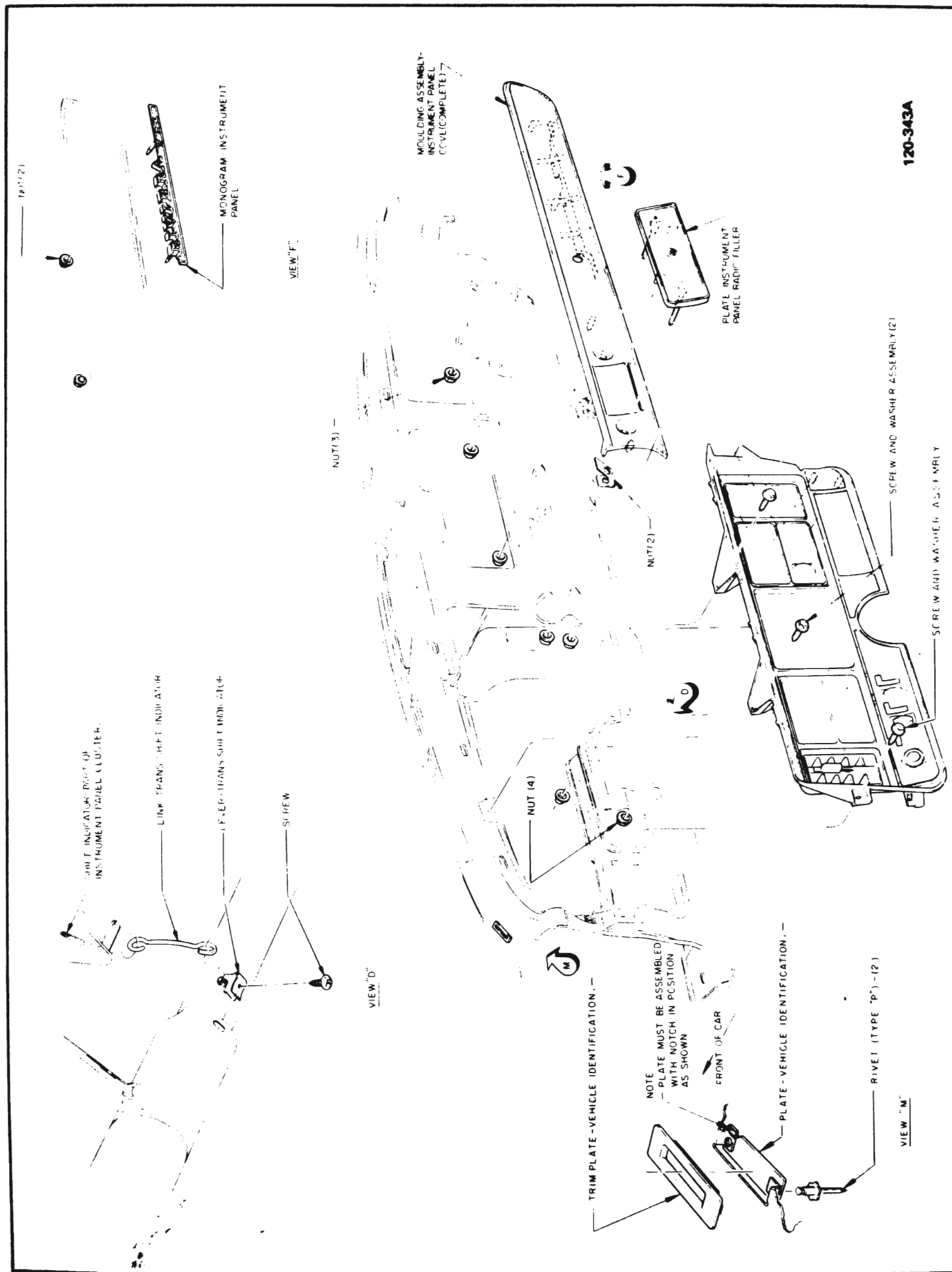


Figure 120-37 Instrument Housing Installation - Riviera

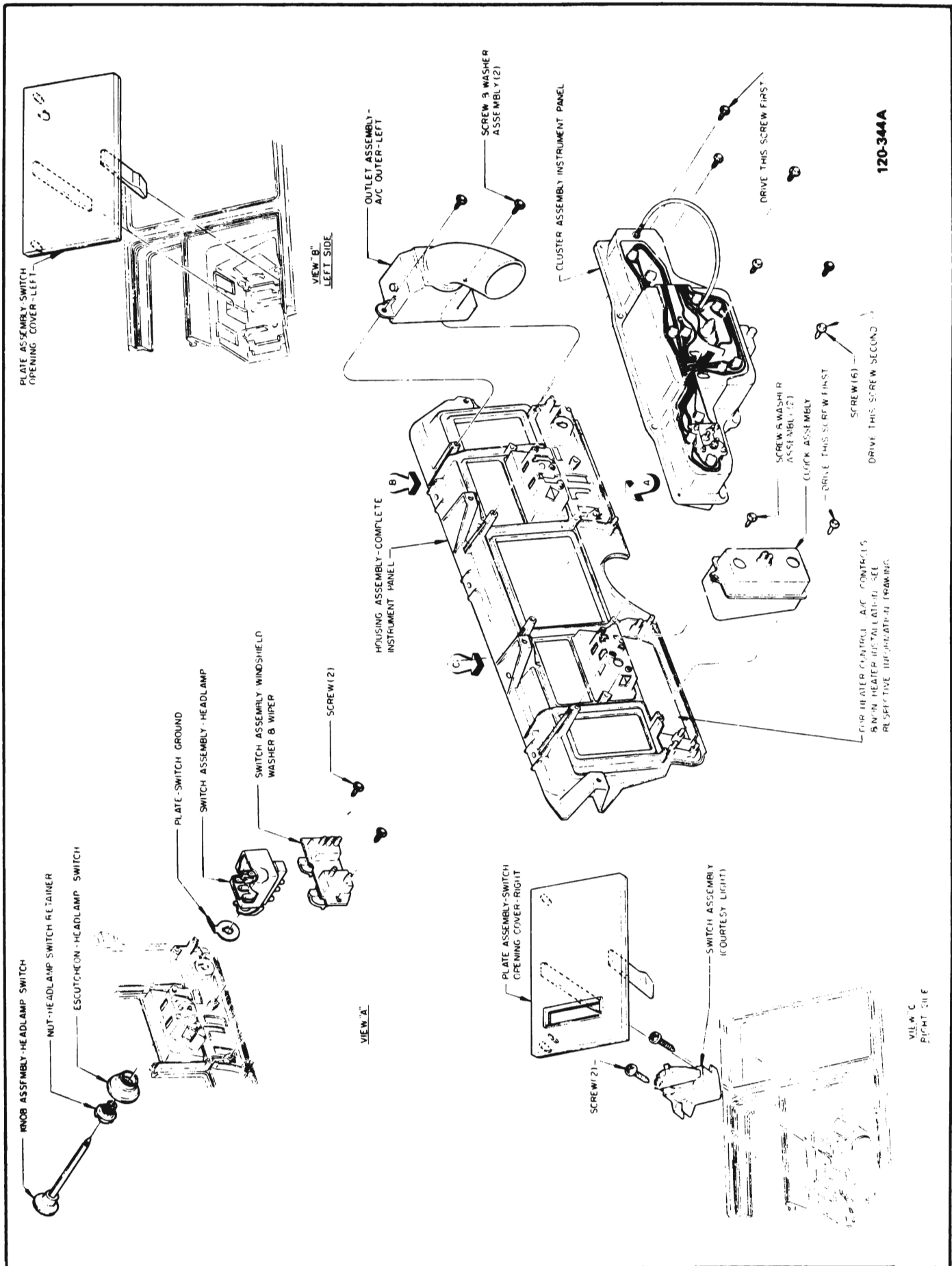


Figure 120-38 Instrument Cluster and Switch Installation - Riviera

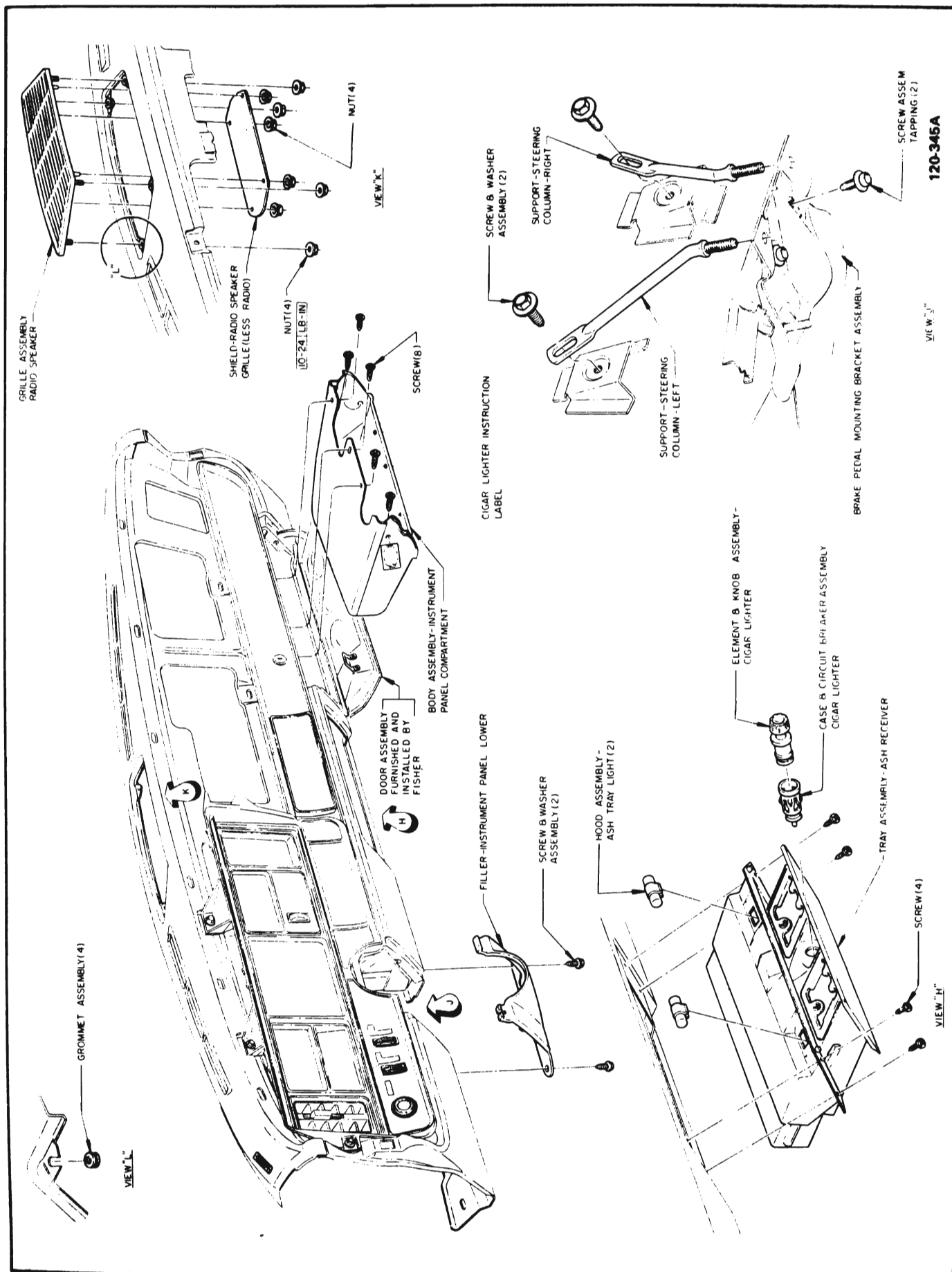


Figure 120-39 Glove Box and Ash Tray Installation - Riviera

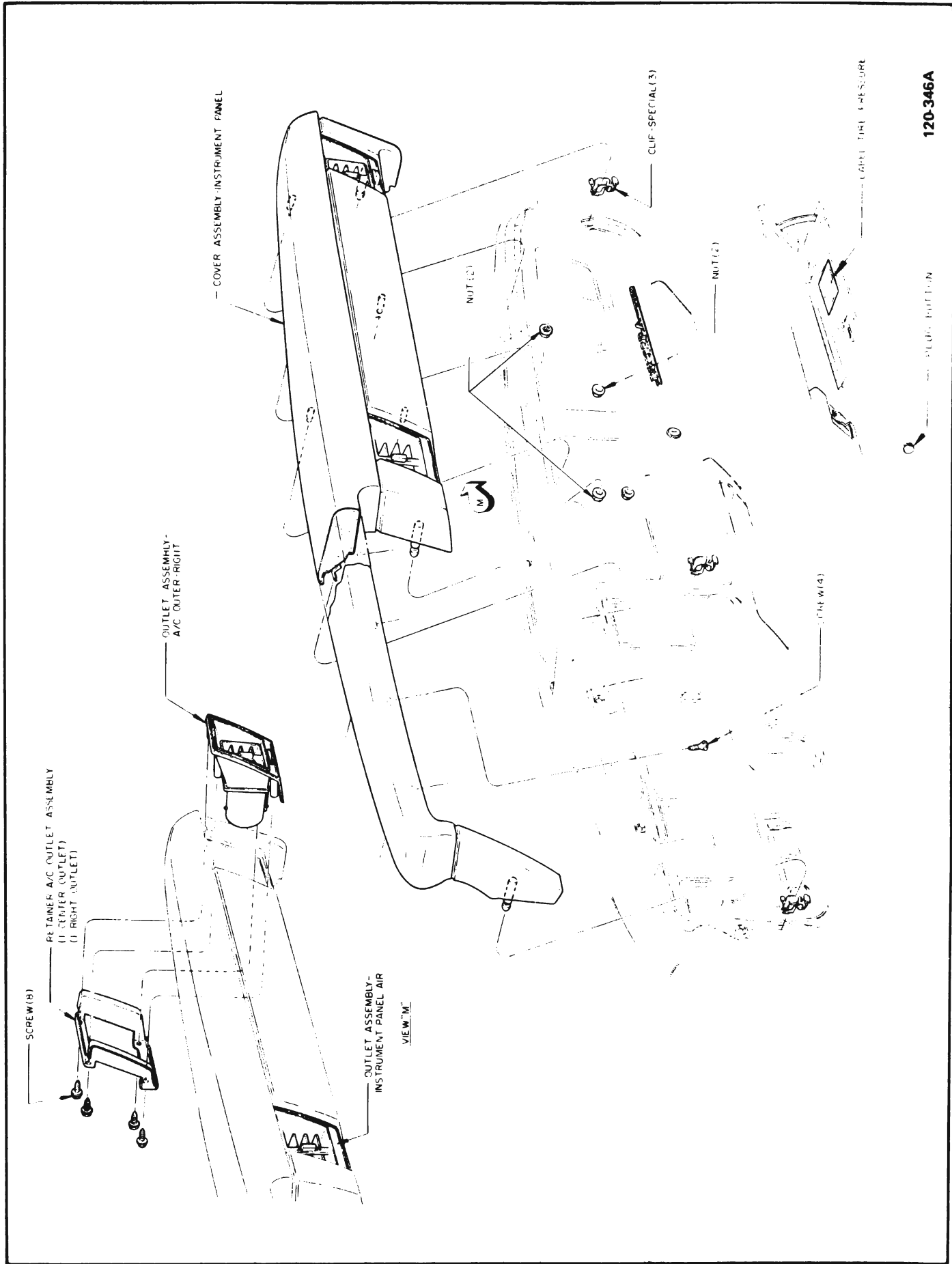


Figure 120-40 Upper Cover
Installation - Riviera