

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 120-37 or 38 contains an engine oil pressure gauge, an engine water temperature gauge, a speedometer, a fuel gauge, an ammeter and an electric clock.

A printed circuit is used to complete the circuit for all lights, instruments and gauges in the cluster assembly. See Figure 120-40 for the cluster gauge 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. See Figure 120-39. If the Electro-Cruise option is specified, the standard instrument panel wiring harness will be replaced with a composite harness which provides special connections to the cruise engagement

switch, the speedometer, and to the amplifier-relay mounting block.

b. Water Temperature Gauge

This gauge registers the temperature of the coolant in the engine.

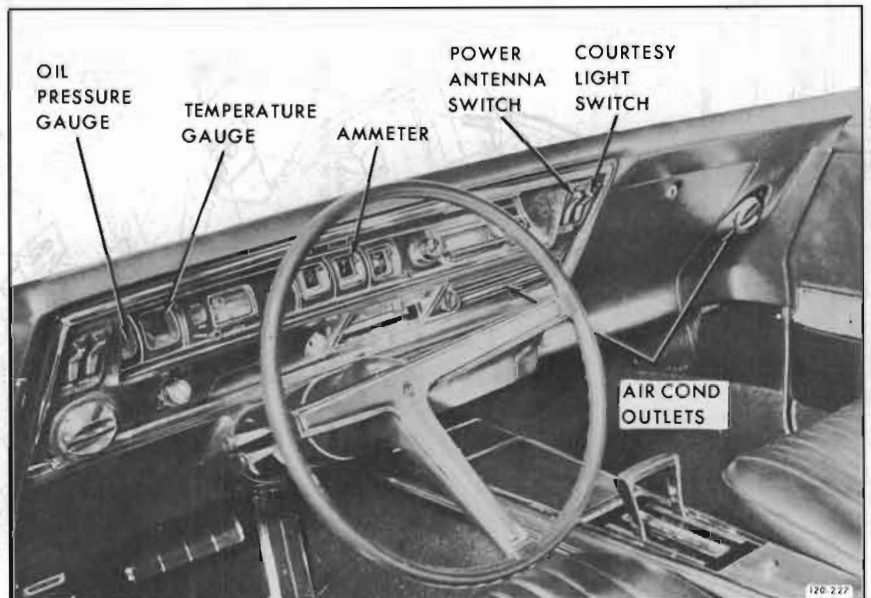


Figure 120-37—Instrument Panel - Riviera

When the engine is cold, the pointer will be at or just below the C; if the engine should become too hot, the pointer will rise to the H. As the engine warms up, the pointer will rise above the C; this indicates that the heater can be used effectively and the car speed can be gradually increased. If the pointer ever rises to the H, the engine should be stopped immediately and the cause of overheating determined.

c. Oil Pressure Gauge

This gauge registers the pressure of the oil in your engine. Before the engine is started, the pointer will be at or just below the L to indicate low (or no) oil pressure. When the engine is started, the pointer should rise above the L immediately. Sometimes while idling with a hot engine, the pointer may be near the L; however, if the pointer ever drops to the L while driving, the engine should be stopped immediately and the oil level checked.

d. Ammeter

The ammeter registers the electrical current going into (charging) the battery, or coming from (discharging) the battery. When there is no current flow, the pointer will be at or near the 0 (zero); this is the normal position when the engine is not running and all accessories are turned off. Immediately after starting the engine, the pointer will move toward the C (charge); as the current used by the starter is replaced, the pointer will drop back to just above the 0. Sometimes while idling with many accessories turned on, the pointer will drop toward the D (discharge); however, if the ammeter ever shows discharge while driving at highway speeds, the charging system should be checked as soon as possible to prevent the battery from becoming discharged.

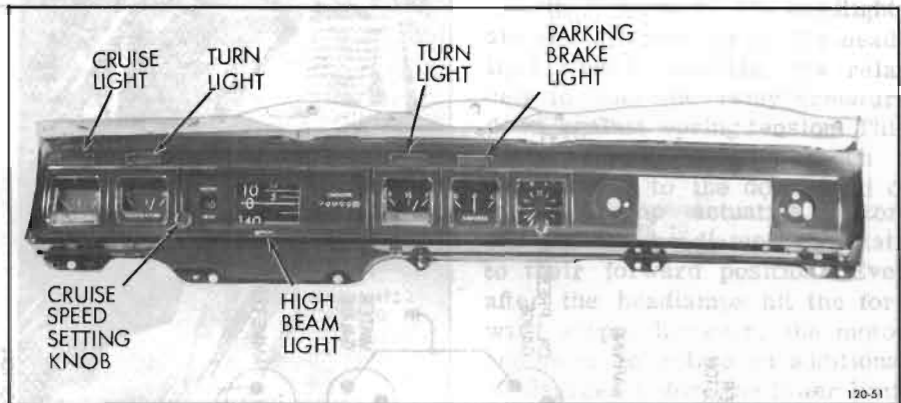


Figure 120-38—Instrument Cluster Assembly - Riviera

e. Trouble Diagnosis—Ammeter, Water Temperature and Oil Pressure Gauges

Use Figure 120-53 to trace the wiring circuits to the gauges. The ammeter is of the shunt type and is connected across a long section of No. 10 wire which functions as a calibrated resistance. The ammeter is connected in such a location that all current going into or coming out of the battery (except main starter current) will register. Current supplied from the generator directly to accessories will not register.

The water temperature gauge is of the electrical type in which the temperature reading varies according to the resistance in a water temperature sending unit

in the cylinder head. When the engine is cold, the resistance of the sending unit is high, resulting in a cold reading on the gauge; if the engine becomes overheated, the resistance of the sending unit will become low, resulting in a hot reading on the gauge.

The oil pressure gauge is of the electrical type in which the pressure reading varies according to the resistance in an oil pressure sending unit in the block. When there is no engine oil pressure, the resistance of the sending unit is low, resulting in a low reading on the gauge; when engine oil pressure is high, the resistance of the sending unit is high, resulting in a high reading on the gauge.

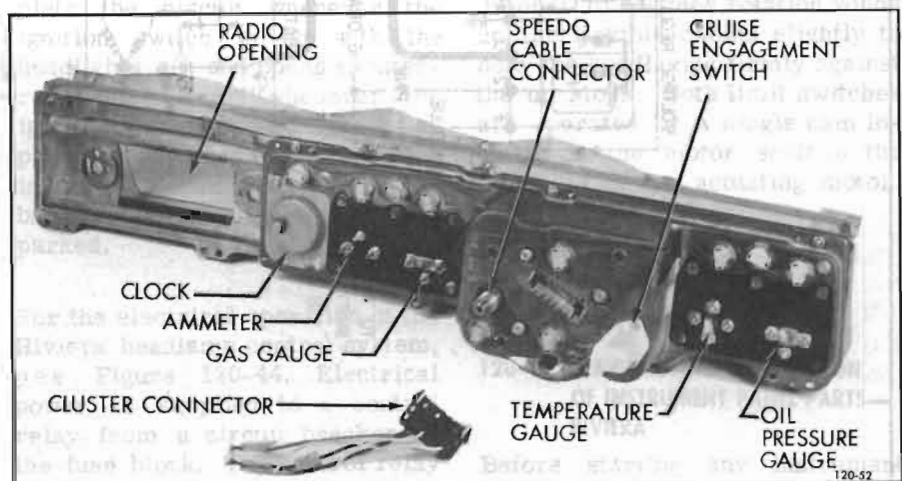
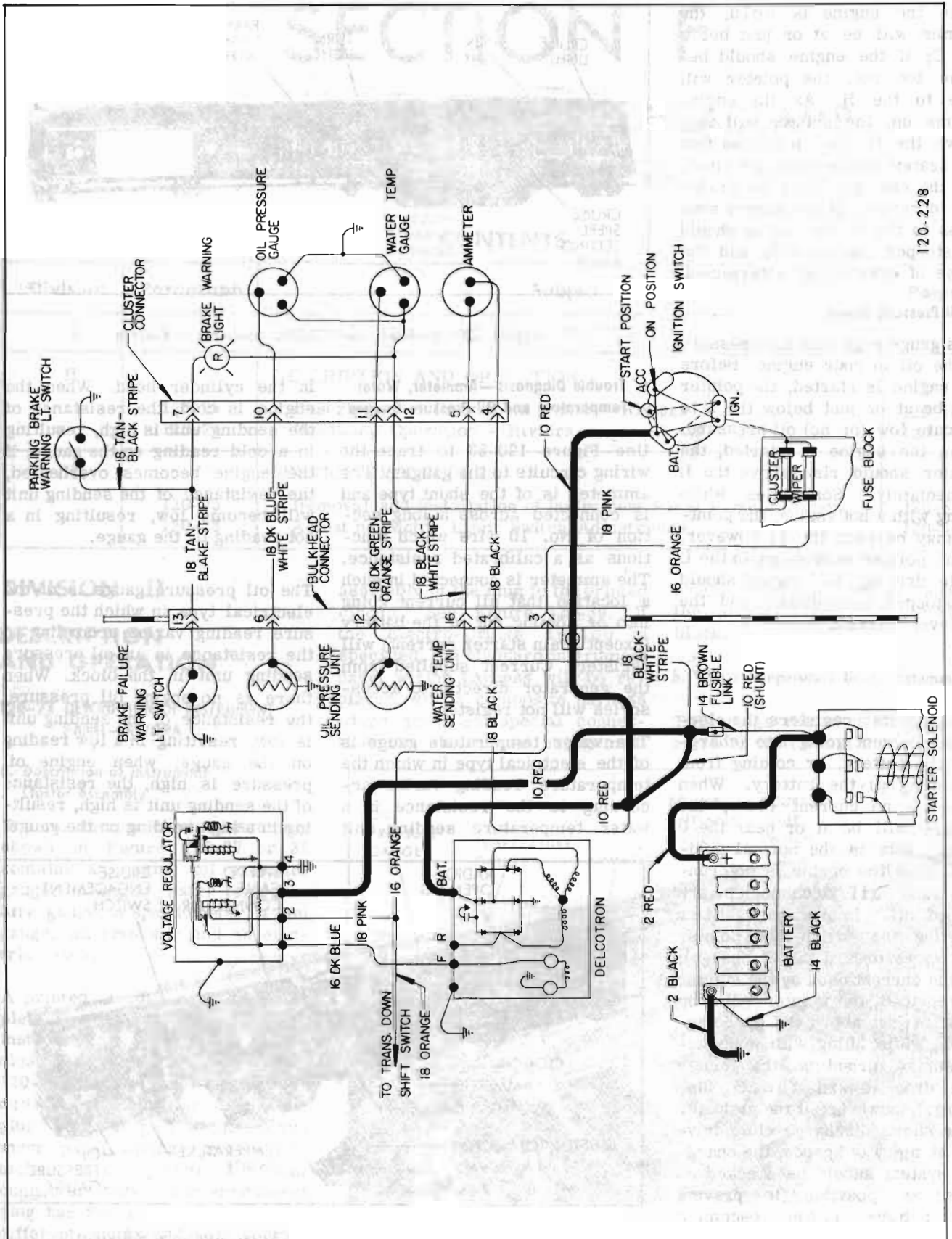


Figure 120-39—Back of Instrument Cluster Assembly - Riviera



120-228

Figure 120-40—Instrument Gauges & Brake Warning Light Wiring Diagram - Riviera



Figure 120-41—Locating Flexible Cable Set Screws



Figure 120-43—Locking Headlamps in Forward Position

In case an electrical failure prevents the headlamps from rotating forward when the lights are turned on, the headlamps can be rotated manually, so that the owner can drive the car until it is convenient to schedule the car for repairs.

To rotate the headlamps manually:

1. Open hood and locate two set screws - one in each flexible cable. See Figure 120-41.
2. Loosen set screws with a lug nut wrench or a 13/16 socket. See Figure 120-42.
3. Rotate headlamps forward and tighten set screws finger tight. See Figure 120-43.

120-24 HEADLAMP OPERATION—RIVIERA

All Riviera headlamps are concealed in a position above the



Figure 120-42—Loosening Set Screws

grille when the lights are off. This is accomplished by rotating the headlamps so that they point straight upward when not in use. In the upward position, right and left grille sections also rotate to line up with the main grille.

When the headlights are turned on, the headlamps rotate from the upward position 90 degrees to a straight forward position. While in the forward position, the individual headlight sealed beam units can be adjusted in the conventional way. The headlamps can be kept in the forward position, with the lights off, by turning the ignition switch off before turning the lights off. An auxiliary relay in the up circuit to the headlamp actuating motor closes to complete the circuit whenever the ignition switch is on with the headlights off, and opens to interrupt the circuit whenever the ignition switch is off; this relay prevents any possible malfunction in the up circuit from running the battery down while the car is parked.

For the electrical operation of the Riviera headlamp control system, see Figure 120-44. Electrical power is supplied to a control relay from a circuit breaker on the fuse block. The control relay is a two position relay which is always making contact one way or

the other; whenever the headlights are on, a circuit from the headlight switch energizes the relay coil to hold the relay armature down against spring tension. This completes a circuit through a brown wire to the down field of the headlamp actuating motor, causing the headlamps to rotate to their forward position. Even after the headlamps hit the forward stops, however, the motor continues to rotate an additional 15 degrees before the lower limit switch opens the circuit; this additional 15 degrees rotation winds up the flexible cables slightly to hold the headlamps firmly against the forward stops.

Whenever the headlights are off, the control relay armature spring holds the armature up to complete the circuit to the black-double white stripe wire. See Figure 120-44. However, the circuit through the black wire to the up field of the actuating motor is complete only when the auxiliary relay is closed; this relay is closed through the wiper fuse circuit whenever the ignition switch is on with the headlights off. With the headlights off and the ignition on, the headlamps rotate to their up position. Even after the headlamps hit the up stop, however, the motor continues to rotate 15 degrees before the upper limit switch opens the circuit; this additional 15 degrees rotation winds up the flexible cables slightly to hold the headlamps firmly against the up stops. Both limit switches are operated by a single cam located on the motor shaft at the left side of the actuating motor.

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.

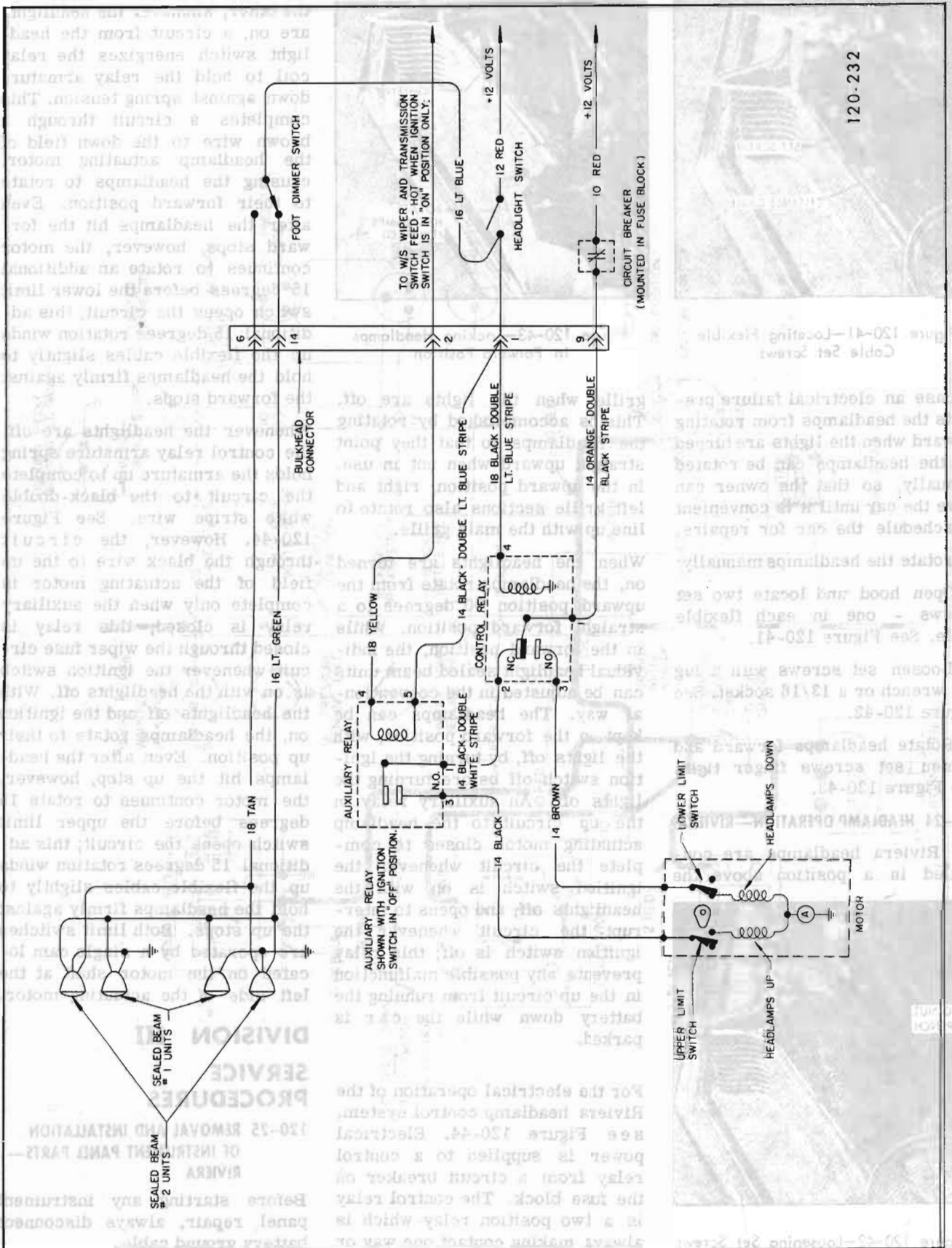


Figure 120-44—Riviera Headlamp Control Wiring Diagram

a. R. & I. Instrument Cluster Assembly

1. Remove ash receiver assembly.
2. Remove center air outlet and duct.
3. Remove radio. See subparagraph f.
4. Remove upper cover assembly by removing three Philips screws at cluster housing and two 3/8 hex nuts at glove box opening.
5. Remove instrument panel molding by prying.
6. Remove instrument panel lower housing filler.
7. Remove instrument panel lower housing (right and left).
8. Lower steering column.
9. To loosen upper housing assembly, first place a pad over steering column to protect it from damage. Remove two 3/8 hex nuts from below (one from each end of housing). Remove four 1/4 hex screws across top of housing. Pull upper housing assembly out to rest on steering column and knees.
10. Rotate upper housing assembly so that cluster retaining screws can be seen. Disconnect speedometer cable, unplug cluster connector, cruise connector, courtesy light connector and clock connector. Remove two 1/4 hex wiring harness clamp screws.
11. Remove five 1/4 hex screws across bottom of cluster and five 3/8 hex nuts across top of cluster. Remove instrument cluster assembly.
12. Install instrument cluster by reversing above steps.

b. R. & I. Speedometer or Printed Circuit

Before a speedometer or a printed circuit can be removed, instrument cluster assembly must be removed from car. Speedometer can then be removed on the

bench. See subparagraph a above for instrument cluster removal and installation.

c. Removal and Installation of Gauges**1. Oil Pressure or Temperature Gauge.**

- (a) Disconnect battery ground cable.
- (b) Remove instrument panel molding by prying.
- (c) Remove steering column lower cover.
- (d) Lower steering column.
- (e) Remove ash receiver.
- (f) Remove instrument panel lower housing.
- (g) Remove light switch.
- (h) Remove oil and temperature gauge assembly after removing five 1/4 hex screws.
- (i) Remove defective gauge from assembly.

2. Fuel or Amperes Gauge.

- (a) Disconnect battery ground cable.
- (b) Remove ash receiver.
- (c) Remove center air outlet and duct.
- (d) Remove radio assembly (subparagraph f).
- (e) Remove fuel and amperes gauge assembly.
- (f) Remove defective gauge from assembly.

d. R. & I. Cruise Engagement Switch

To remove the cruise engagement switch, unbolt the upper housing assembly, pull the housing out and rotate it so that the switch retaining screws are visible. See Steps 1, 2 and 4 through 9 in subparagraph a above. After removing the retaining screws, the switch will slide from the switch rod.

e. R. & I. Clock

1. Remove ash receiver assembly.
2. Remove center air outlet and duct.
3. Remove heater-air conditioner control panel and pull out. Do not disconnect.
4. Remove clock reset knob by loosening center set screw using a 1/16 Allen wrench.
5. Unplug clock connector.
6. Remove two 1/4 hex screws and remove clock.

f. R. & I. Radio

1. Remove ash receiver assembly.
2. Remove center air outlet and duct.
3. Remove brace from underside of radio.
4. Remove radio knobs and escutcheons. Remove two 5/8 inch hex nuts.
5. Unplug feed and speaker wire connector and antenna cable from radio.
6. Remove radio through ash receiver opening.

g. R. & I. Front Radio Speaker

1. Remove radio (subparagraph f).
2. Remove four 3/8 inch hex nuts from right corners of speaker grille.
3. Remove grille and speaker assembly. Remove speaker from grille on bench.

h. R. & I. Ignition Switch

1. Remove ash receiver assembly.
2. Remove instrument panel molding.
3. Remove steering column lower cover.
4. Lower steering column.
5. Remove instrument panel lower housing.

6. Remove ignition switch lock cylinder (in accessory position).
7. Remove switch retaining nut.
8. Lower switch and unplug connector.

i. R. & I. Light Switch

1. Remove ash receiver assembly.
2. Remove instrument panel molding.
3. Remove steering column lower cover.
4. Lower steering column.
5. Remove instrument panel lower housing.
6. Pull switch knob out to last notch, then depress latch button while pulling knob and rod assembly out of switch.
7. Remove switch escutcheon.
8. Lower switch and unplug connector.

j. R. & I. Windshield Wiper or Washer Switch

The windshield wiper and washer switches are removed together by prying with a small screwdriver in a notch at the bottom edge of the switch housing. The faulty switch can then be disconnected and removed from the assembly.

k. R. & I. Courtesy Light or Power Antenna Switch

The courtesy light and power an-

tenna switches are removed together by prying with a small screwdriver in a notch at the bottom edge of the switch housing. The faulty switch can then be disconnected and removed from the assembly.

120-26 ACTUATING MOTOR LIMIT SWITCH ADJUSTMENTS

The headlamps are operated by an actuating motor mounted midway between the right and left headlamps on the center grille support. Short flexible shafts transmit the rotational force of the motor to each headlamp assembly. When the flexible cables are in a neutral (no wind-up) position, the flats of the motor shaft are aligned with the flats of each headlamp assembly shaft. When the headlamps are in the forward position, their shaft flats are horizontal. See Figure 120-45. If the motor shaft flats are stopped in a position 15 degrees beyond horizontal, this will provide correct wind-up of the cables to make sure the headlamps are held firmly against the forward stops. See Figure 120-46.

When the headlamps are in the up position, their shaft flats are vertical. See Figure 120-47. If the motor shaft flats are stopped in a position 15 degrees beyond vertical, this will provide correct wind-up of the cables to make sure the headlamps are held

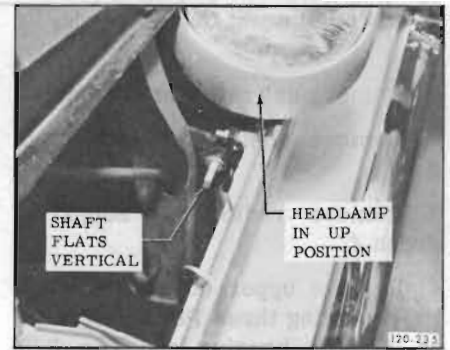


Figure 120-47—Headlamp in Up Position

against the up stops. See Figure 120-48.

When the limit switches on the actuating motor need adjusting (such as, after replacement of the harness and switches assembly), the forward position (lower) limit switch must always be adjusted first. The reason for this is that the lower limit switch can be adjusted only by moving the switch mounting plate on which both switches are mounted; this means that whenever the lower switch is adjusted, the upper switch is thrown out of adjustment. The upper switch, however, is adjusted by moving the switch itself, rather than the mounting plate.

In order to adjust the limit switches, the two Phillips head retaining screws and the plastic switch cover on the left of the motor must be removed. Before the cover can be removed, however, the left flexible cable must

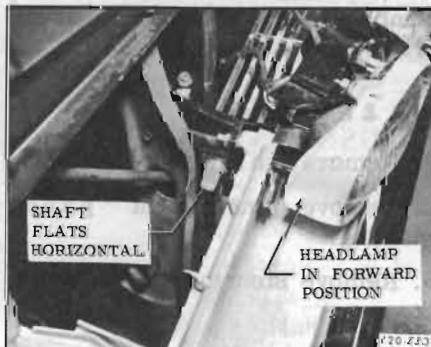


Figure 120-45—Headlamp in Forward Position

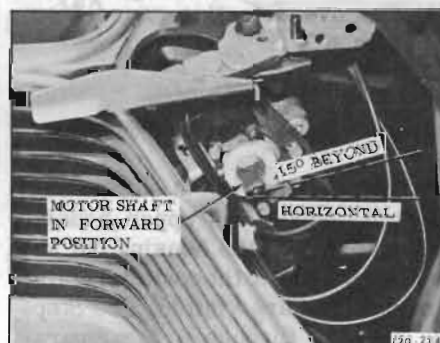


Figure 120-46—Motor in Forward Position

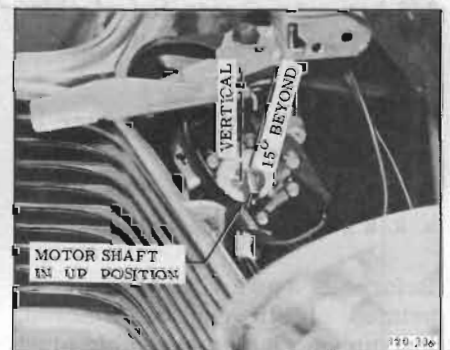


Figure 120-48—Motor in Up Position

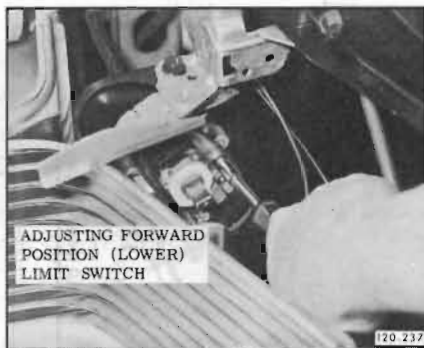


Figure 120-49—Adjusting Forward Position Limit Switch

be removed by loosening two 3/16 Allen head screws.

Adjust actuating motor limit switches as follows:

1. Unplug motor connector from right side of center grille support.

2. Turn headlights on. Plug in connector intermittently, "bumping" motor until flats of motor shaft are positioned 15 degrees beyond horizontal. See Figure 120-46. Unplug connector and turn off headlights.

3. Loosen 5/16 hex screw as shown in Figure 120-49 so that limit switch mounting plate can be moved. Move lower switch and mounting plate assembly toward cam until switch barely clicks and retighten screw.

4. Turn ignition switch on. Plug in connector intermittently, "bumping" motor until flats of motor are positioned 15 degrees



Figure 120-50—Adjusting Up Position Limit Switch

beyond vertical. See Figure 120-48. Unplug connector and turn off ignition.

5. Loosen 1/4 hex nut as shown in Figure 120-50 so that upper limit switch can be moved. Move upper switch toward cam until it barely clicks and retighten screw.

6. Plug in motor connector securely. Operate motor in both directions using the headlight

switch. Make sure motor shaft overtravel is approximately 15 degrees in both directions; if not, repeat adjustment procedure.

As a final check, observe the point where the cam stops in both directions; for a safety margin, the cam must stop with the limit switch at least 1/16 inch before the corner in each direction. See Figure 120-51.

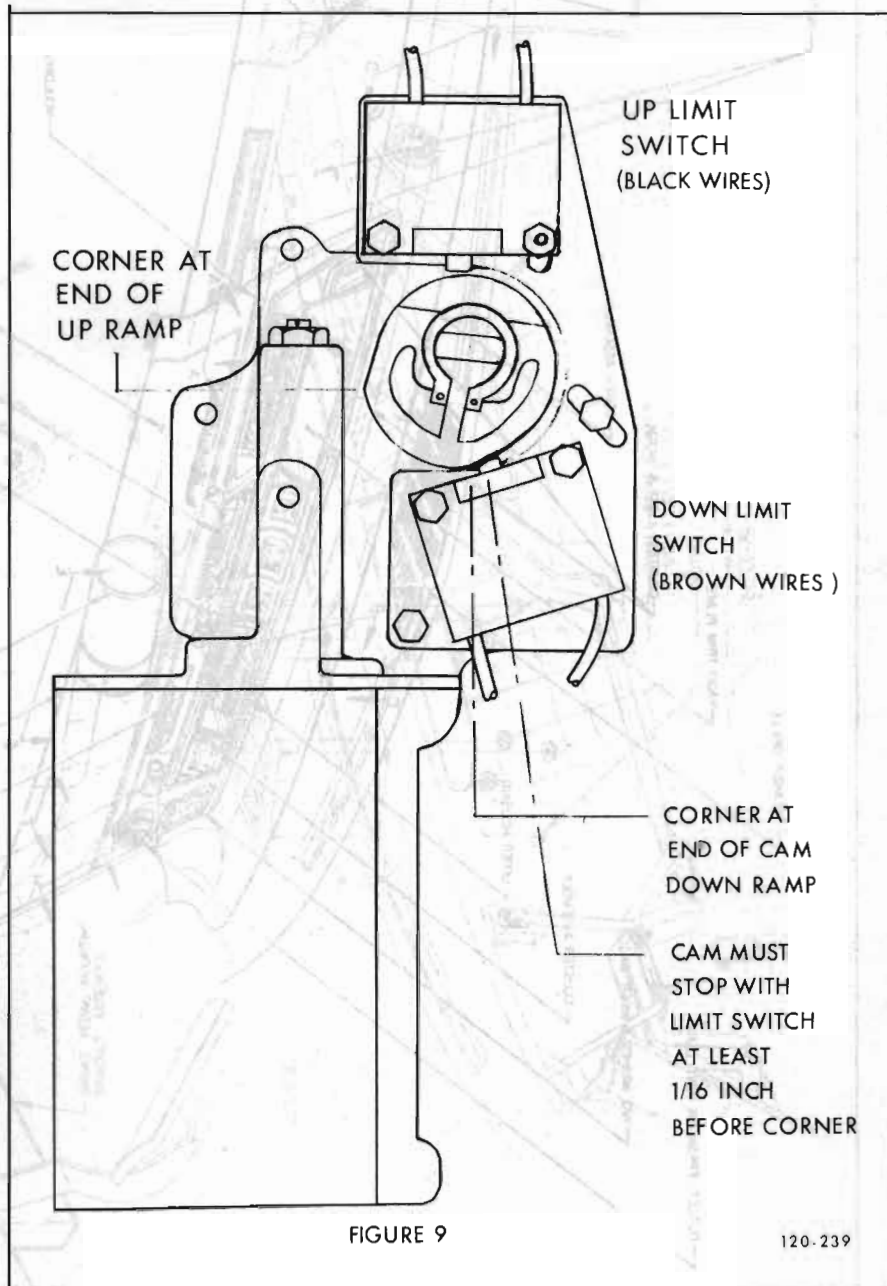
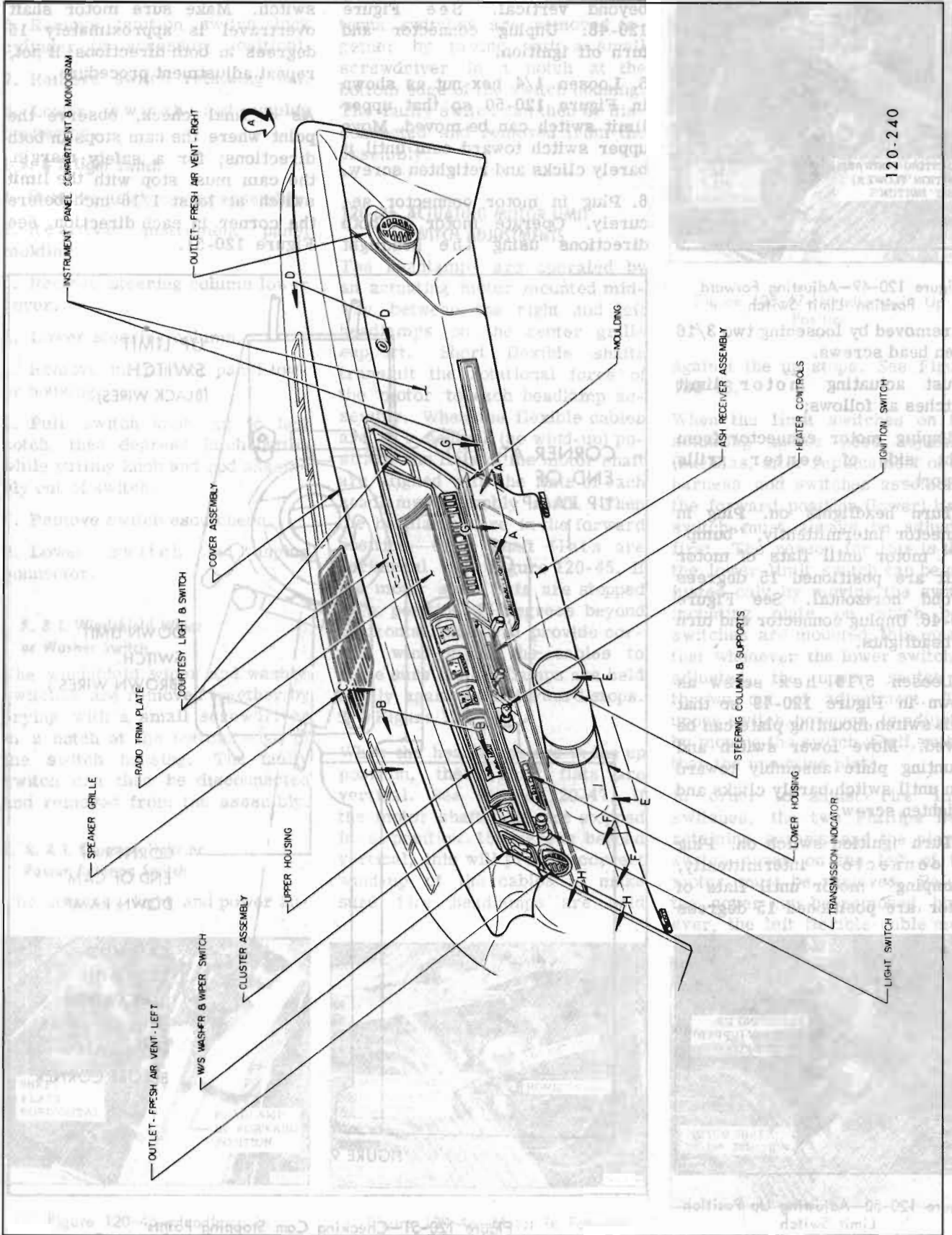


Figure 120-51—Checking Cam Stopping Points



120-240

Figure 120-52—Instrument Panel Installation - Riviera

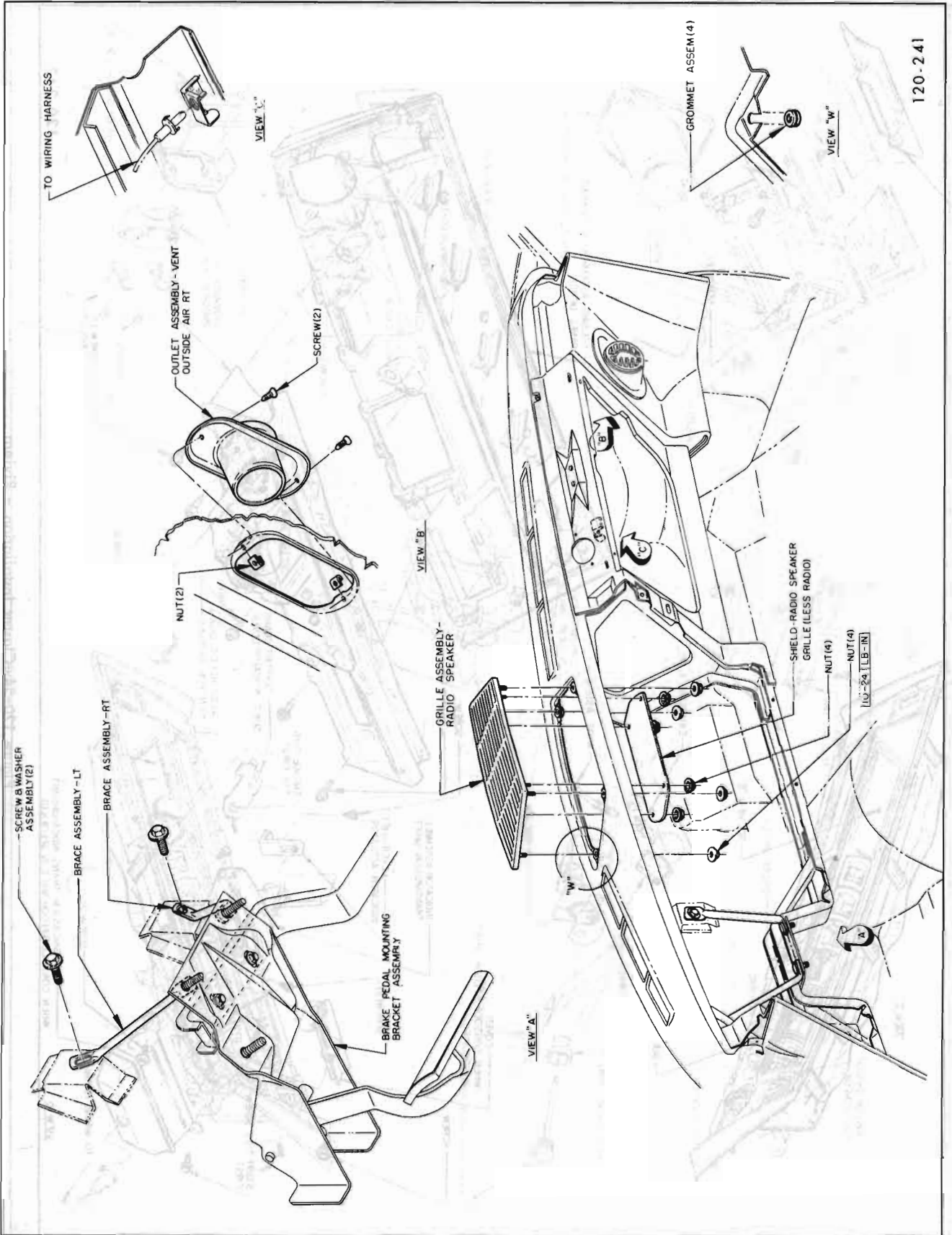
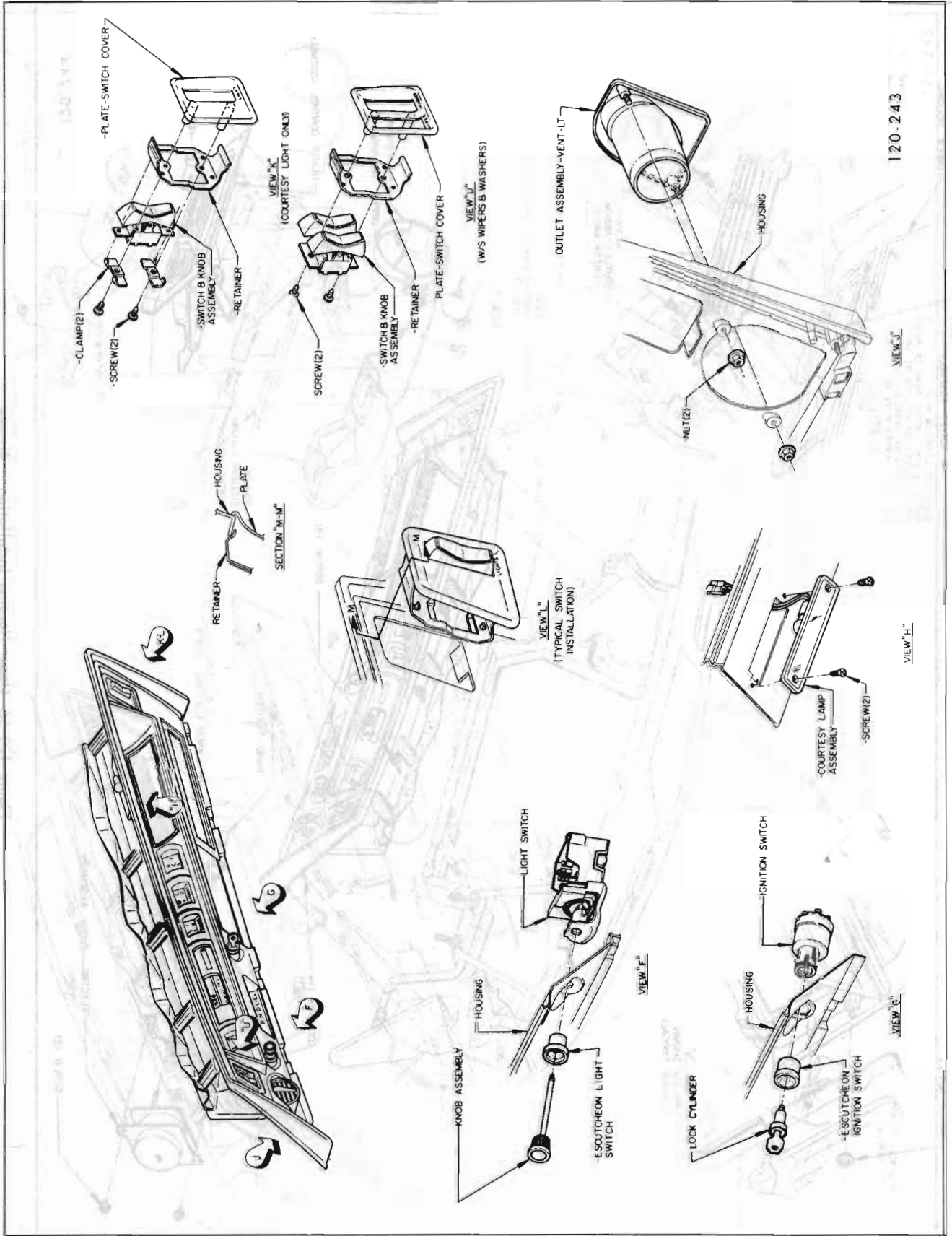
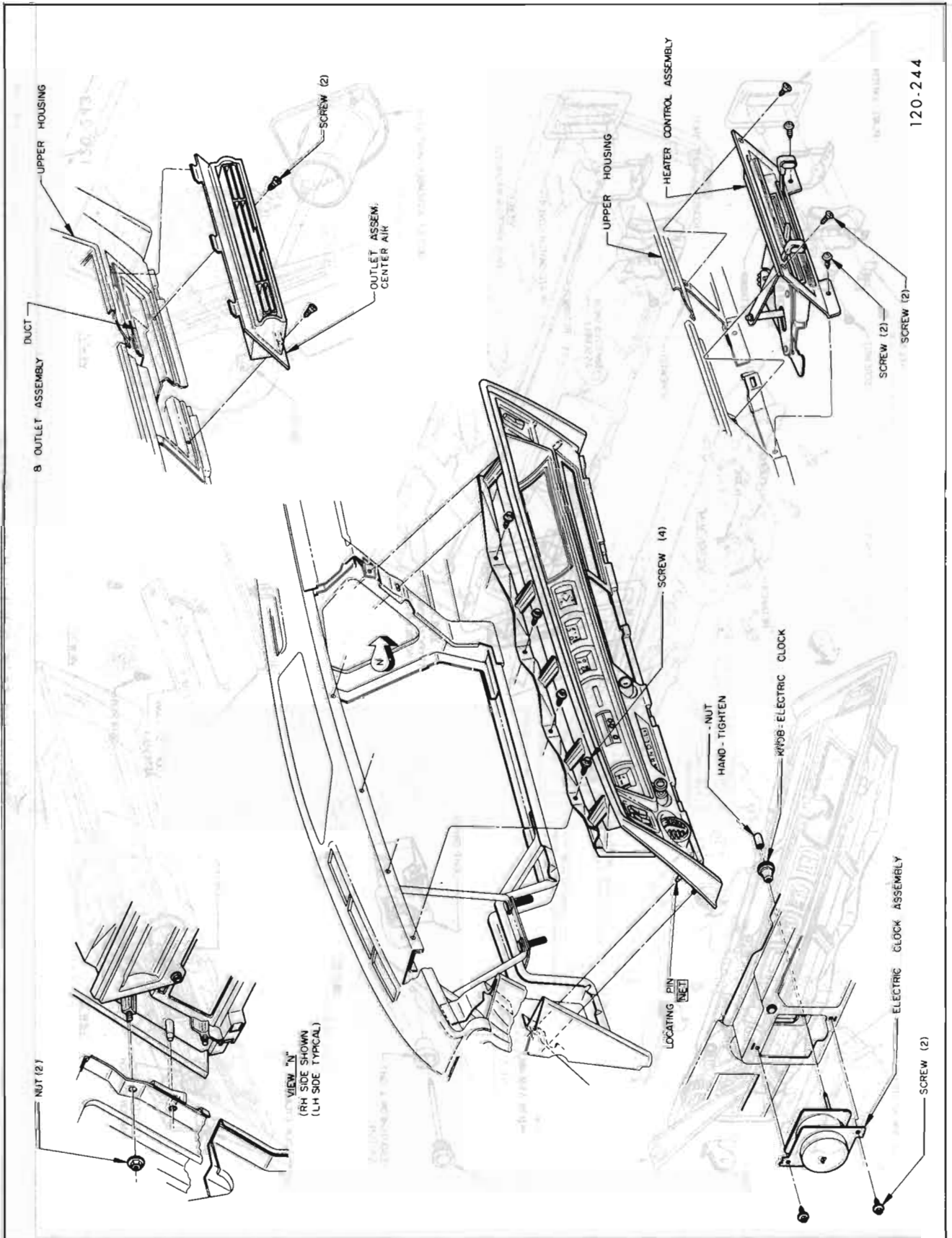


Figure 120-53—Radio Grille & Brake Pedal Bracket Installation - Riviera



120-243

Figure 120-55—Switch Installation - Riviera



120-244

Figure 120-56—Upper Housing Installation - Riviera

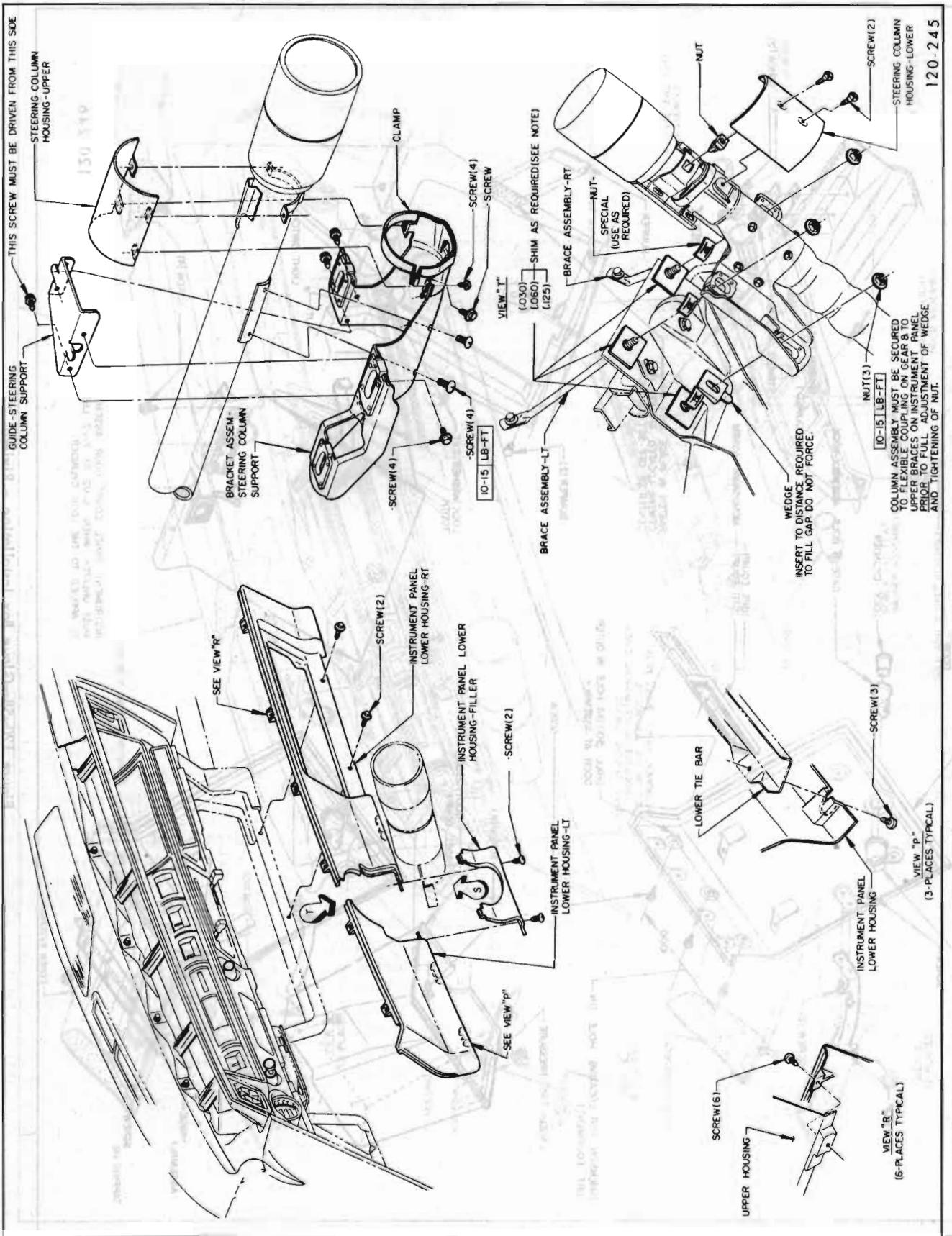


Figure 120-57—Lower Housing and Steering Column Installation - Riviera

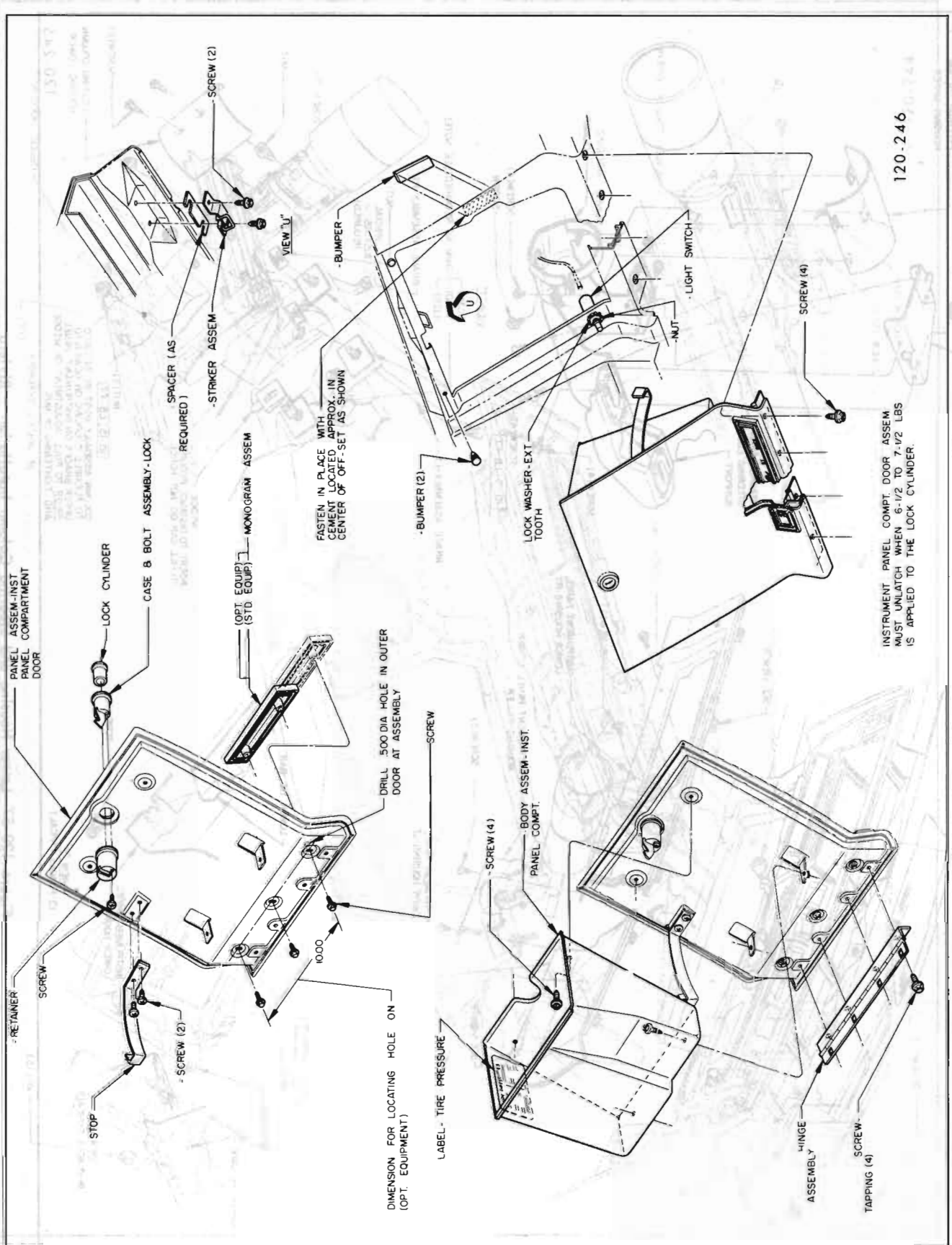


Figure 120-58—Glove Box Installation - Riviera

