GROUP 12

SHEET METAL AND BUMPERS

CONTENTS OF GROUP 12

12-1 DESCRIPTION OF FRONT END SHEET METAL

The front sheet metal parts are attached directly to the inner fender skirts and the frame to provide rigidity with a minimum of vibration. The radiator assembly is suspended by "U"-shaped, rubber-faced bracket assemblies. The lower brackets attach to the lower radiator cross support. On V-8 models, two upper radiator brackets attach to the radiator upper tie bar; on V-6 models, one bracket attaches to the upper tie bar. The fan shroud attaches to the upper bracket arrangement on both V-8 and V-6 models.

12-2 HOOD ASSEMBLY REMOVAL AND REPLACEMENT

a. Removal

1. Prop the hood in the open position and place the protective covering at top of cowl and on fenders.

2. Scribe a reference line along edge of each hinge flange so hood can be replaced in same position.

3. Remove hinge to hood bolts shown in Figure 12-1. Then lift hood from car.

b. Installation

1. Protect top of hood and fenders with a covering.

2. Place hood in position over hinges and loosely install attaching four bolts and washers.

3. Prop hood in open position, and place hinge to hood attaching plate within scribe marks and torque bolts to 15 ft. lbs.

4. Remove prop and protective covering. Adjust if necessary.

12-3 HOOD ADJUSTMENT

1. Rear Height. Rear hood height is determined by slots in the hood hinge.

2. Front Height. This is determined by two adjustable bumpers. (See Figure 12-1.) However, the front of the hood may not contact these bumpers unless the hood latch is correctly adjusted as described in Step 4.

3. Latch Tension.

a. Raise hood of car.

b. Loosen three bolts attaching latch to panel assembly. (See Figure 12-8).

c. Close hood; hood will align itself in hood lock catch.

d. Raise hood carefully and tighten all four bolts on the panel assembly to a torque of 10-15 ft. lbs. Close hood to check alignment.

12-4 REMOVAL AND INSTALLATION OF HOOD SPRINGS

1. Remove hood as described in paragraph 12-2, Steps 1-3.

2. To remove hood spring, insert Remover and Installer J-9214 through loop in forward end of spring with bend of tool approximately one inch from loop. Using inside corner formed by hinge as a pivot, unseat spring from notch.

3. Then push tool forward, causing hood spring to slide clear of hinge.

4. To replace hood spring, insert Remover and Installer J-9214 through loop in forward end of spring. Using hinge as a pivot, seat spring into notch.

12-5 REMOVAL & INSTALLATION OF HOOD HINGE

a. Removal

1. Prop the hood in the extreme open position and place protective covering over the cowl panel and fenders.

2. Scribe position of the hood hinge on the hood and remove two bolts. Remove hood as described in paragraph 12-2, Steps 1-3.

3. Scribe position of the hinge attachment on wheelhouse. Remove the two bolts attaching the front of the hinge to the wheelhouse (Figure 12-12) and remove the hinge.

b. Installation

1. Align hood hinge with scribe marks on wheelhouse and install

three bolts and washers attaching the hinge to the wheelhouse. Do not tighten.

2. Replace the hood as described in paragraph 12-2, Steps 1-3.

3. Close hood and align flush with cowl and fenders.

4. Raise hood and tighten all mounting bolts to 15 ft. lbs.

5. Remove all protective coverings.

12-6 HOOD, FENDER, AND BUMPER ALIGNMENT INSPECTION & ADJUSTMENT

The hood, front fenders and bumper must be aligned with each other on every car to take care of slight variations in form and dimensions of the individual parts. Sheet metal parts stamped in a given set of dies will vary somewhat in form and dimensions due to variations in the hardness of different batches of sheet metal, which cause the stampings to spring in varying amounts when released from the form dies.

The hood and front fenders are properly aligned during the installation at the factory; however, some readjustment may be required after a car has been shipped or has been in service for some time. In judging the need for readjustment it must be understood that exactly uniform fit and spacing cannot be obtained on all cars of a given model.

a. Preliminary Tightening

Before deciding upon any adjustment to correct hood or fender misalignment, it is advisable to check tightness of all attaching screws and bolts, since a true picture of correction requirements cannot be obtained when the sheet metal is loose and free to shift.

After all parts are properly tightened, inspect fender and hood alignment (subpar. c) and hood alignment (subpar. d). Make all inspections before performing any adjustments because an adjustment at one point will usually alter alignment at other points. The preliminary inspection should determine the adjustments that will produce the best overall alignment of hood and fenders at all points.

b. Hood Noises or Panel Flutter

Squeaks or grunting noises in the hood when driving over rough roads do not necessarily indicate misalignment of hood and fenders. These noises may be caused by metal contact at some point where clearance should exist or by worn or dry hood bumpers.

If the hood squeaks, check for uniform clearance all around the hood, fenders and cowl. If an edge of metal is making contact at any point where clearance should exist, a bright metal spot will usually be found. Such spots may be depressed by spring hammering to provide clearance.

A grunting noise in the hood is usually caused by dry rubber bumpers or cowl ledge lacing. Lubricate all rubber bumpers on fender rails and cowl with silicone rubber lubricant. To correct a persistent case of squeaking or grunting where hood top panel contacts ledge lacing, even when lubricated, cement a 1/16 inch thick strip of felt to panel where the lacing makes contact.

To prevent hood panel flutter, the rear end of the hood panel must have firm contact with the rubber bumpers and lacing attached to cowl ledge. The hood may be raised or lowered by adjustment at hinges. (See Figure 12-1).

c. Fender and Hood Alignment at Front Doors

With front doors closed there should be no metal-to-metal contact between doors and rear ends of front fenders. Check for clearance at frequent points, using a strip of fibre or other soft material 1/32 inch thick. The spacing between rear end of front fenders and the shoulder on front edge of doors should be approximately 1/8 inch and fairly uniform from top to bottom.

Before making any adjustment of sheet metal to provide necessary clearance at points mentioned, first make sure that front doors are properly aligned in the body openings. If fender and door panel surfaces are not reasonably flush, correction may be made by adding or removing shims between the fender and the cowl.

See Figure 12-4. Where spacing between rear edge of front fender and door is objectionably uneven from top to bottom, it may be necessary to loosen fender attaching bolts and pry between fender and rocker panel to have fender into position; then retighten bolts.

Up and down adjustment of the lower rear edge of the front fender is accomplished by shimming at the fender to body attaching point shown in Figure 12-3. The fender line should be flush with the rocker panel.

d. Hood Alignment Inspection

When closed and latched, the hood should bear firmly against the rubber bumpers on upper tie bar panel and on edge of fenders. Height of hood and width of space between hood and fenders should be reasonably even from front to rear. See paragraph 12-3 for adjustment.

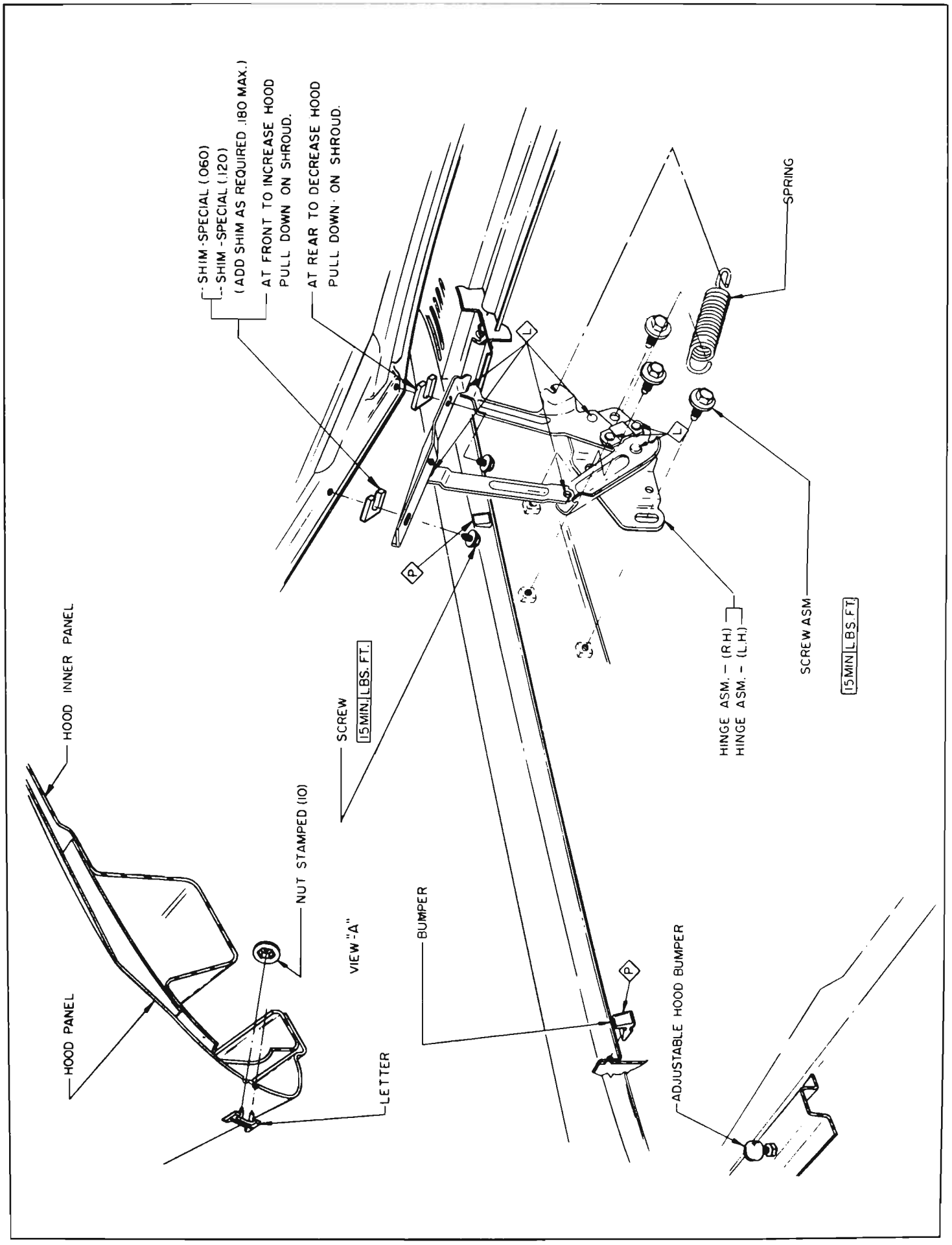

Figure 12-1—Hood Installation

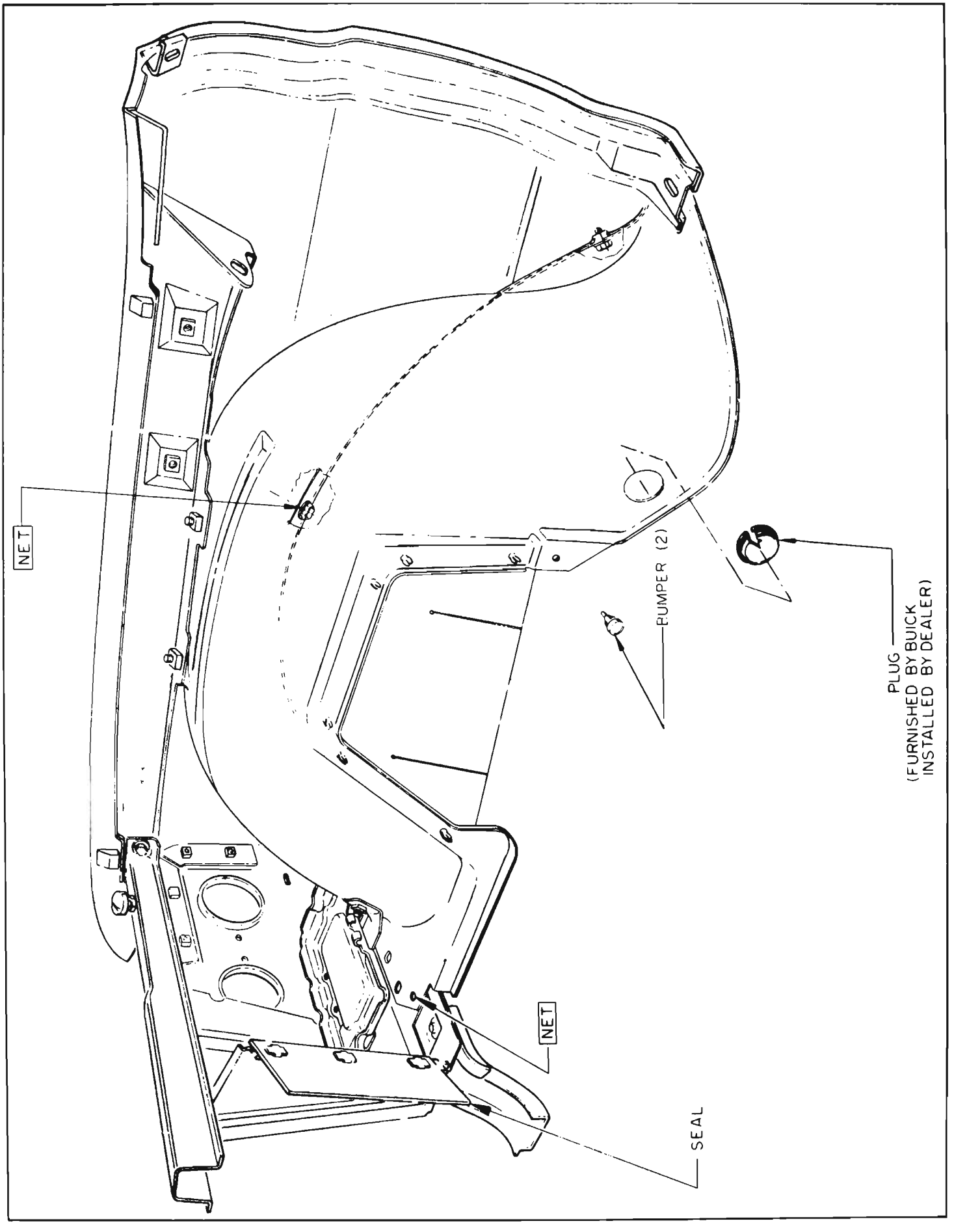

Figure 12-2—Front Fender and Skirt Installation

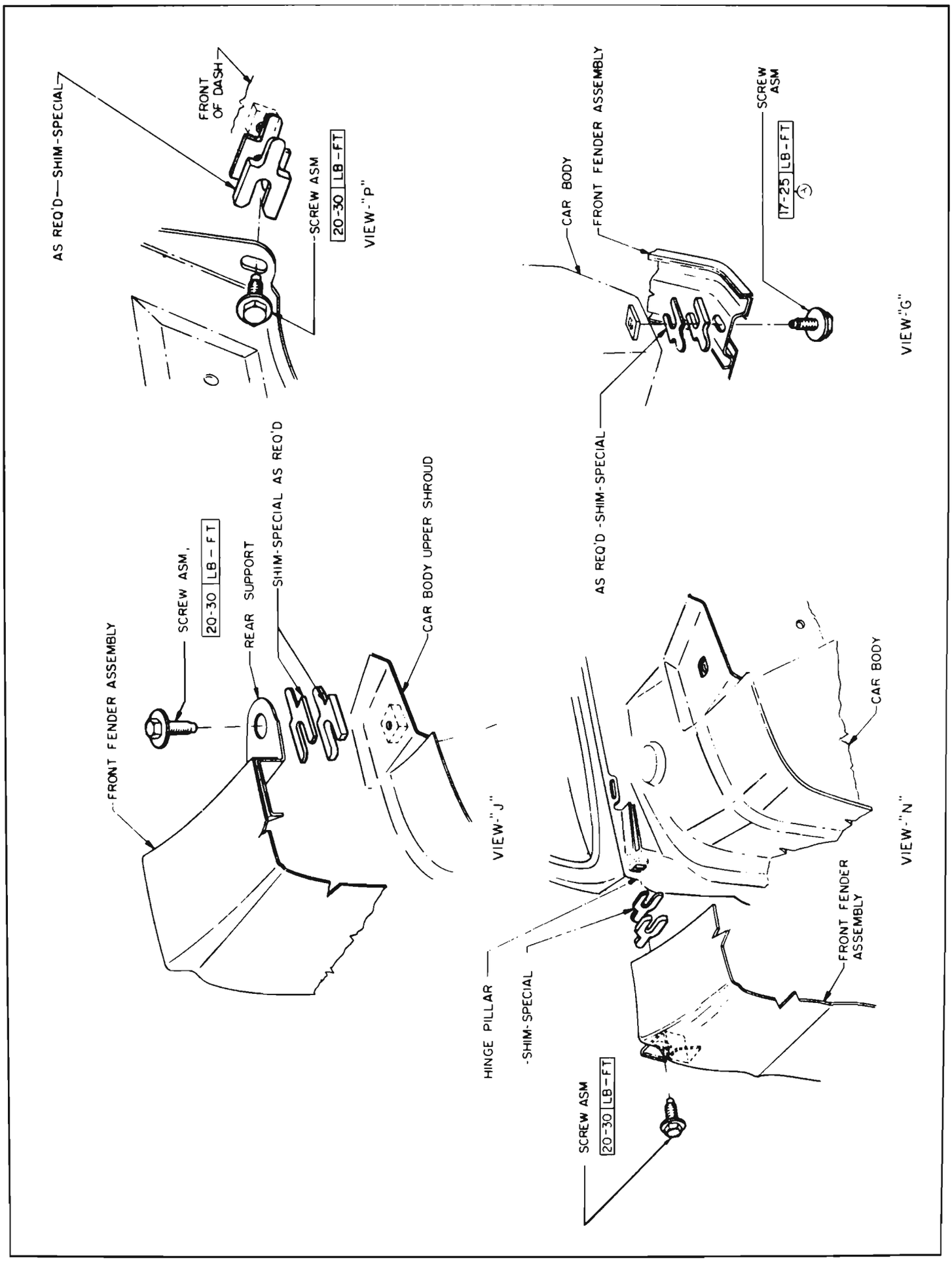

Figure 12-3—Front Fender and Skirt Installation

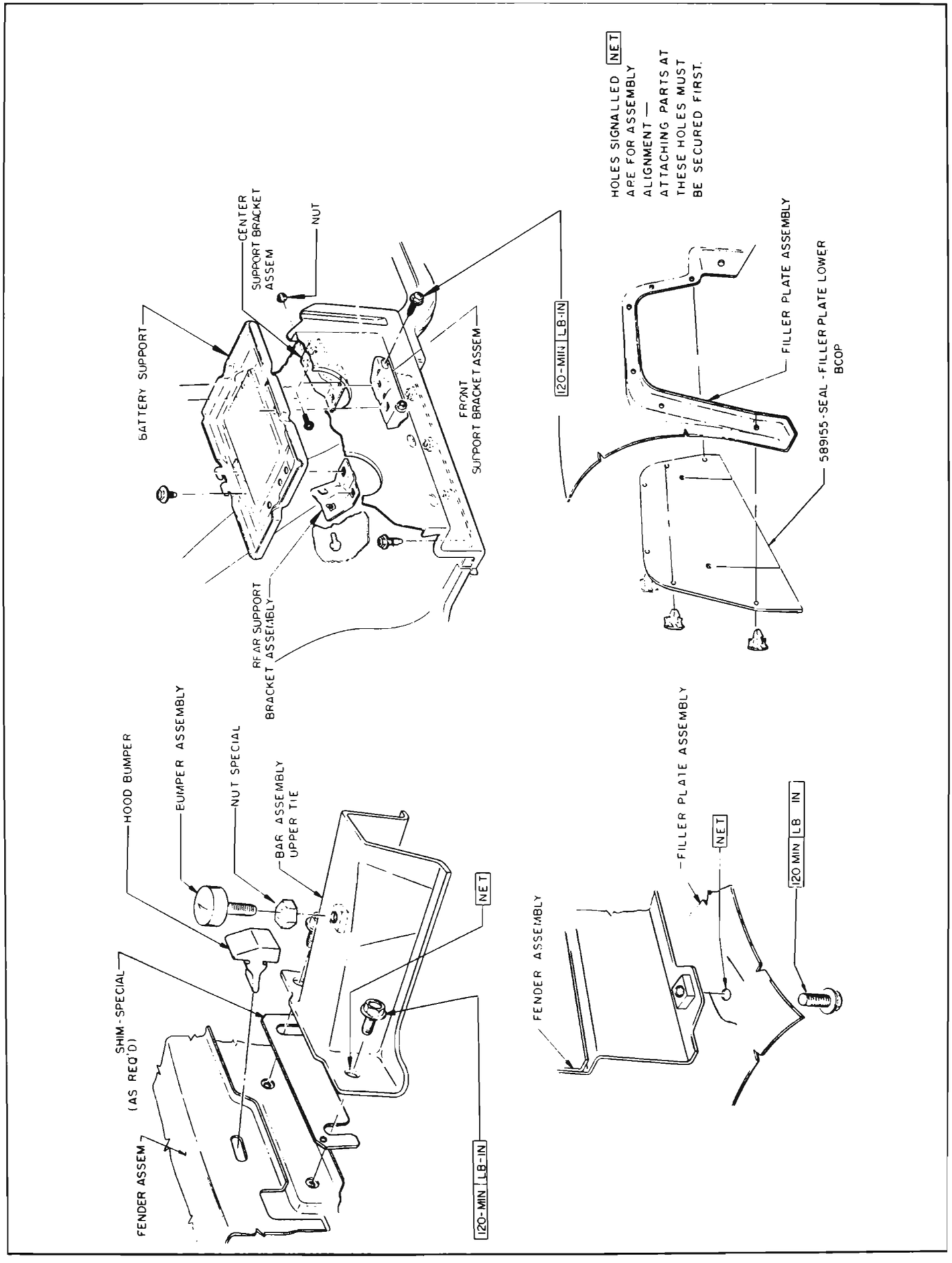

Figure 12-4—Front Fender and Skirt Installation

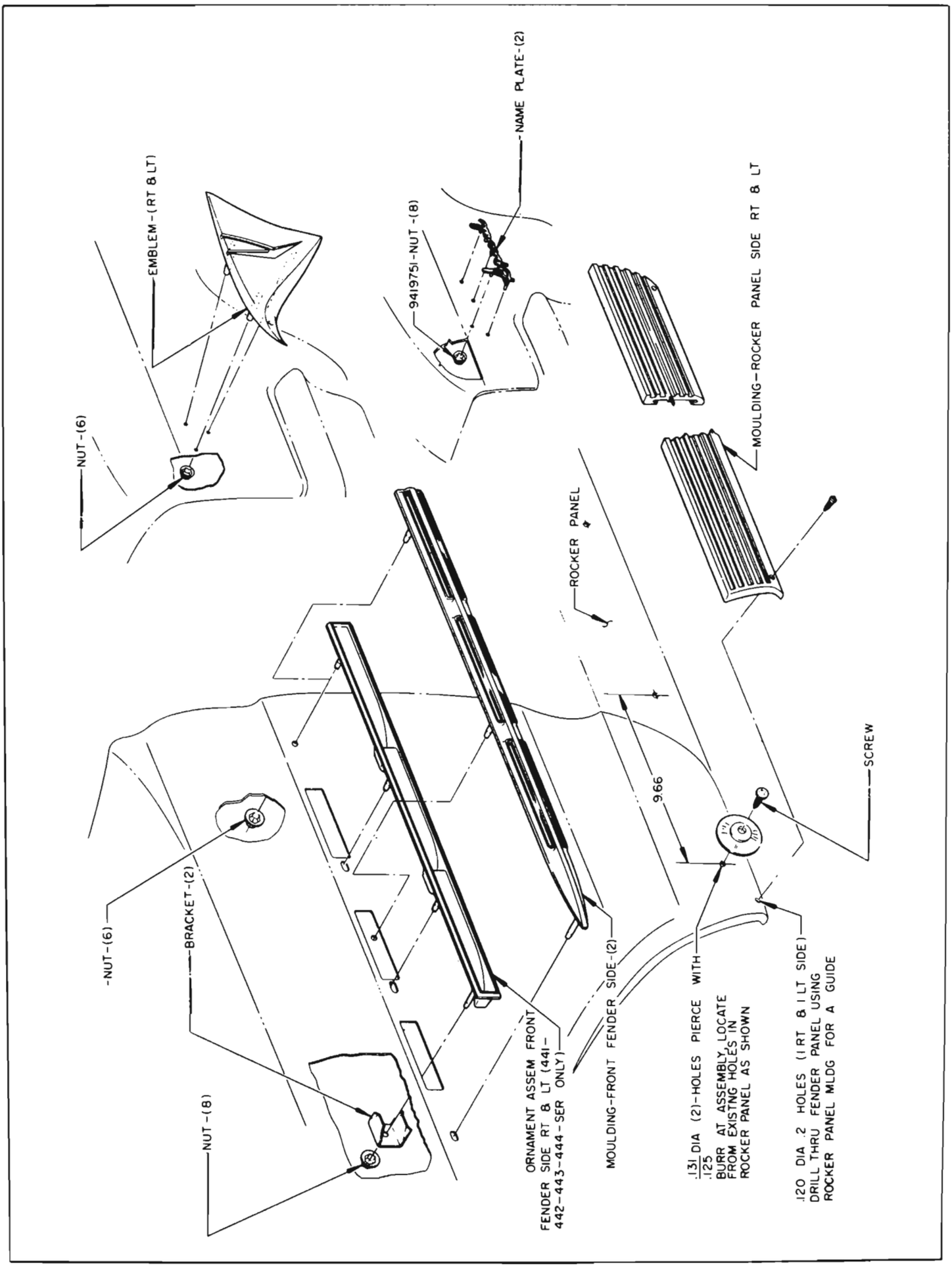

Figure 12-5—Front Fender and Skirt Installation

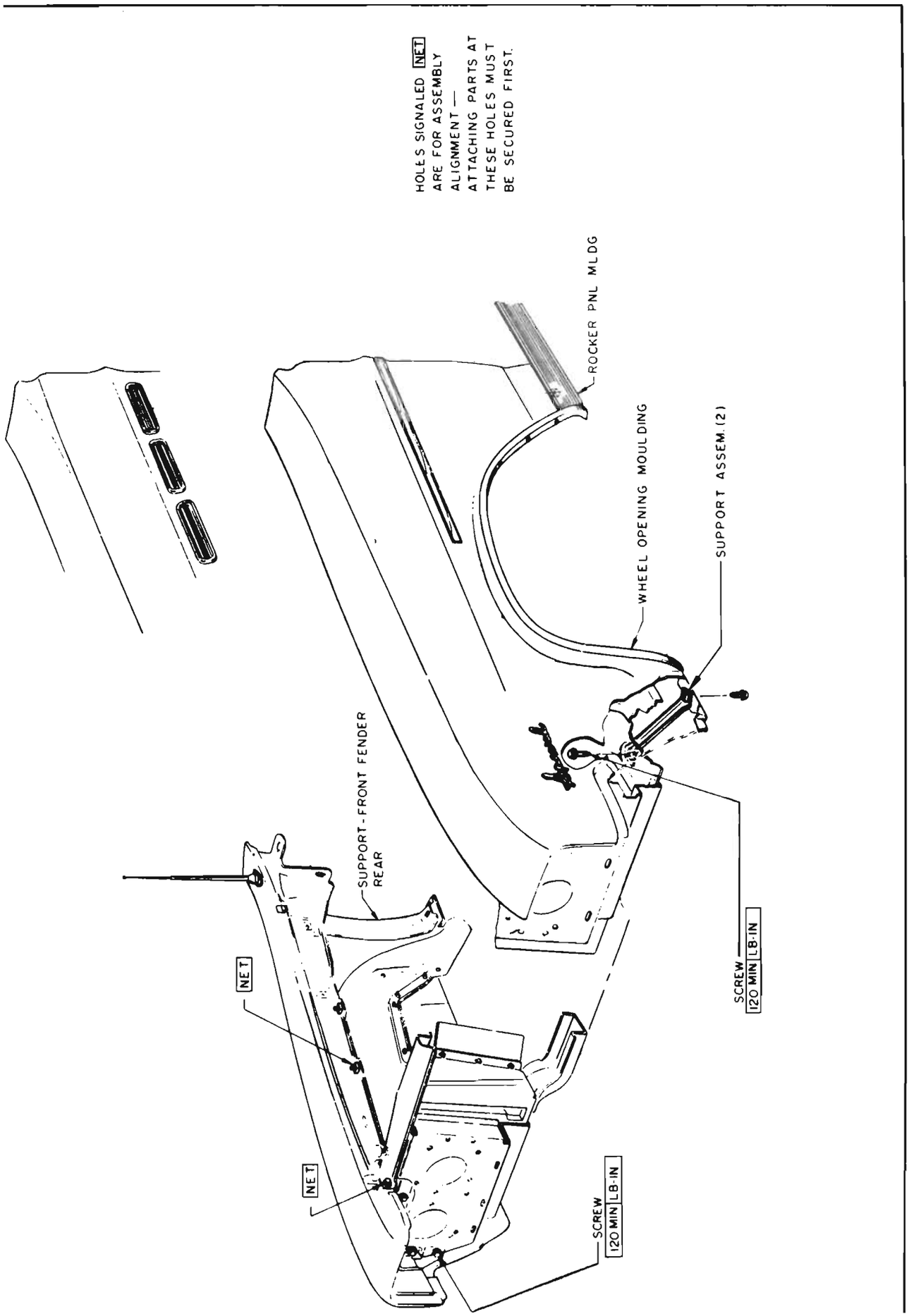

Figure 12-6—Front Fender and Skirt Installation

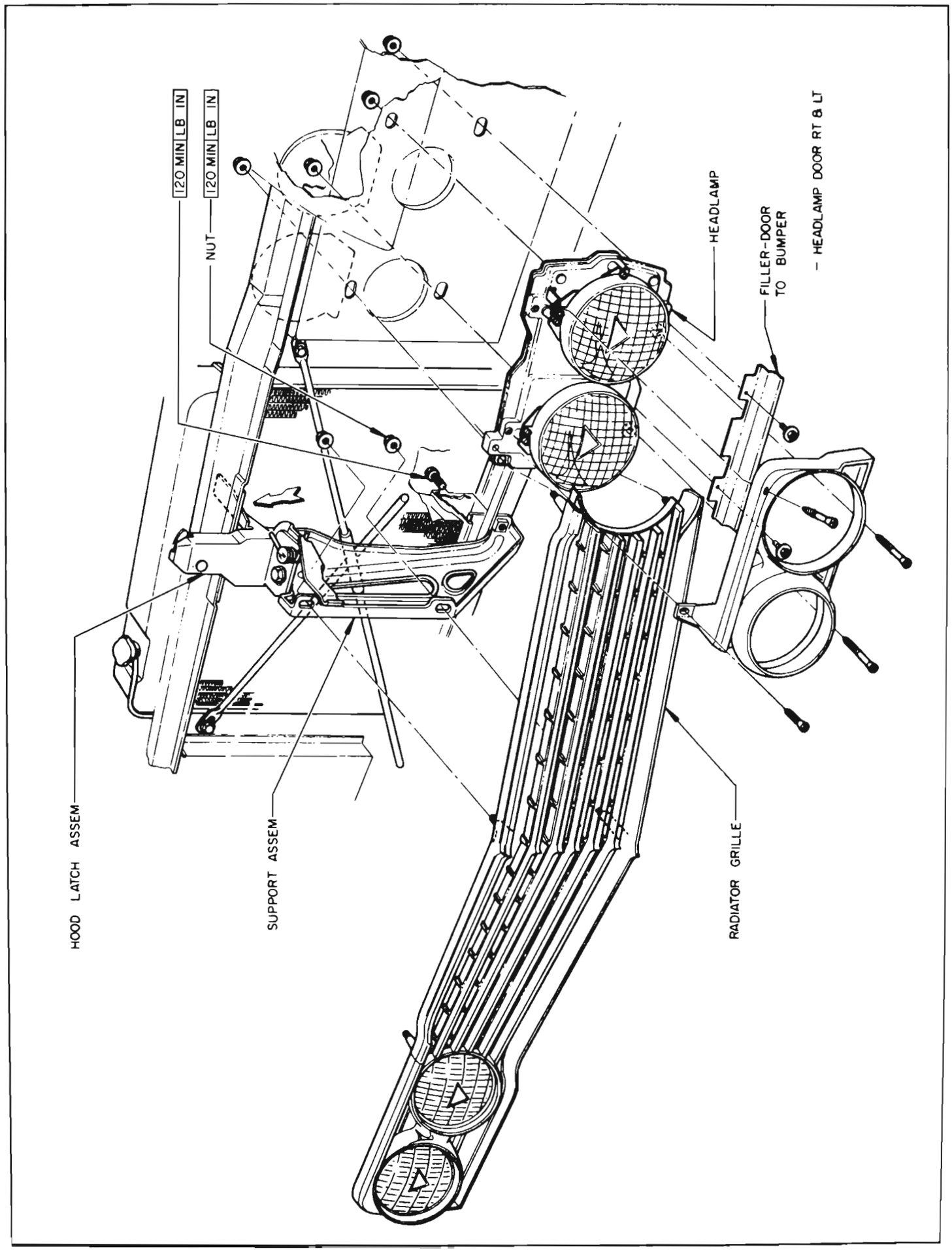

Figure 12-7—Grille and Headlamp

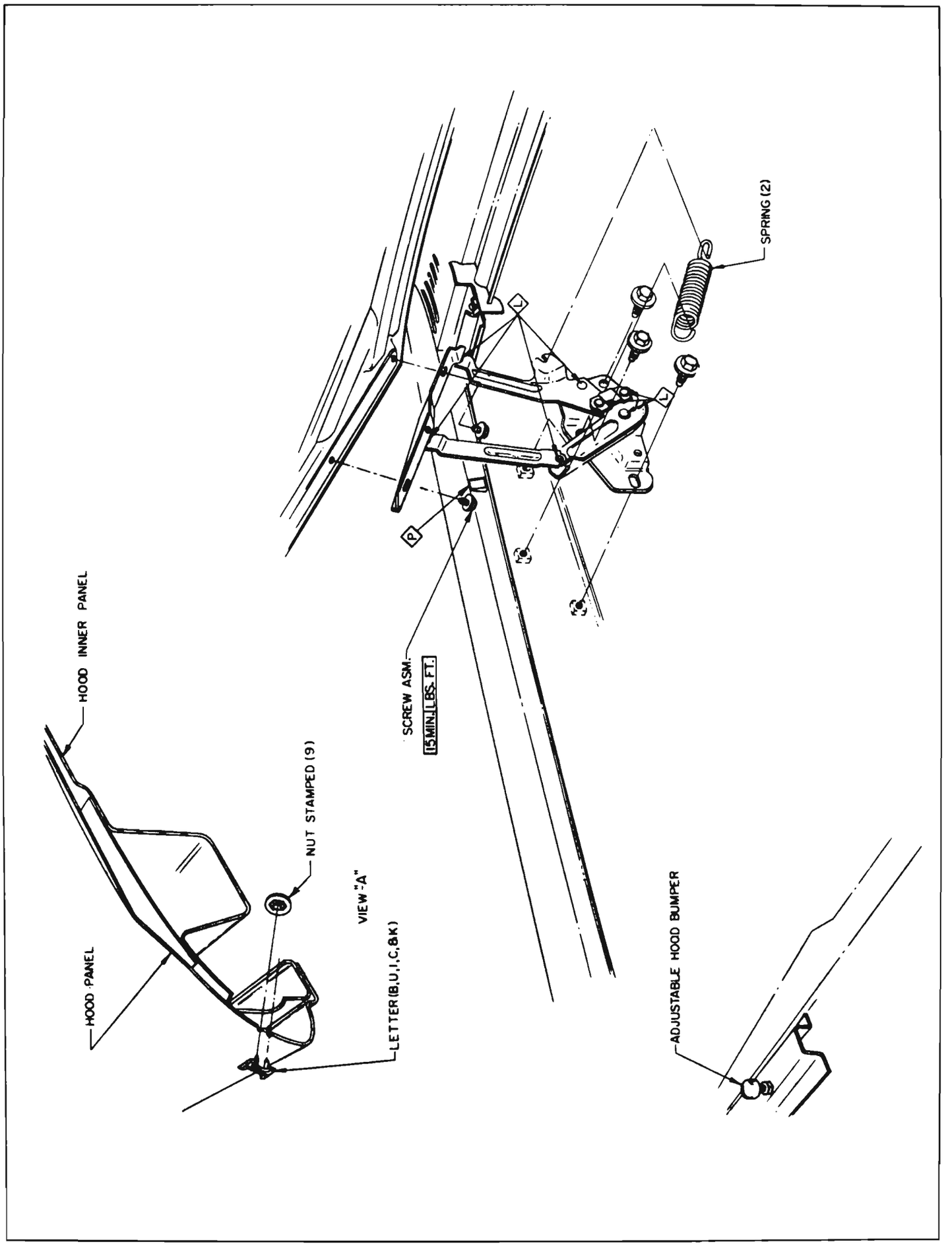

Figure 12-8—Hood Latch

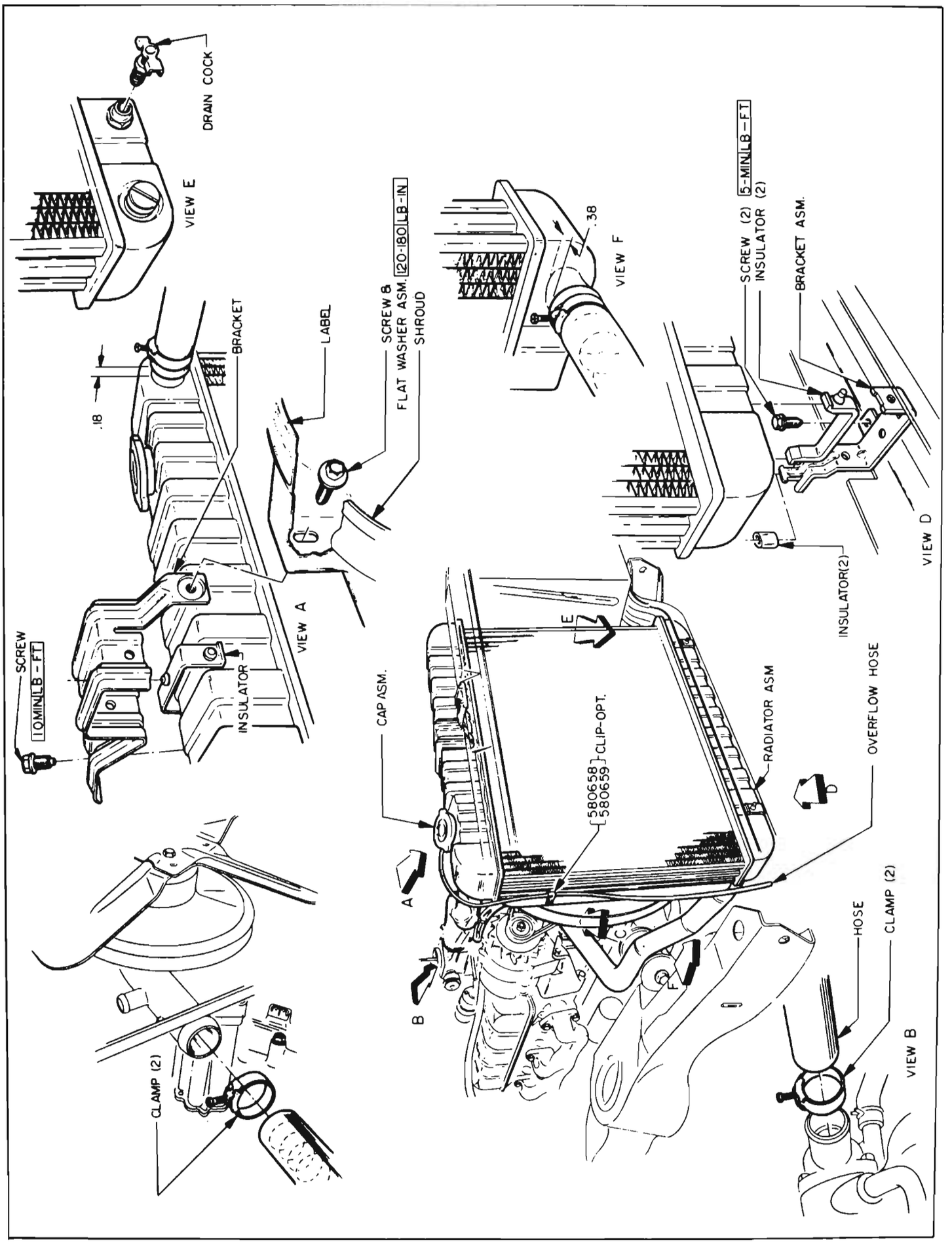

Figure 12-9—Radiator Installation V-6

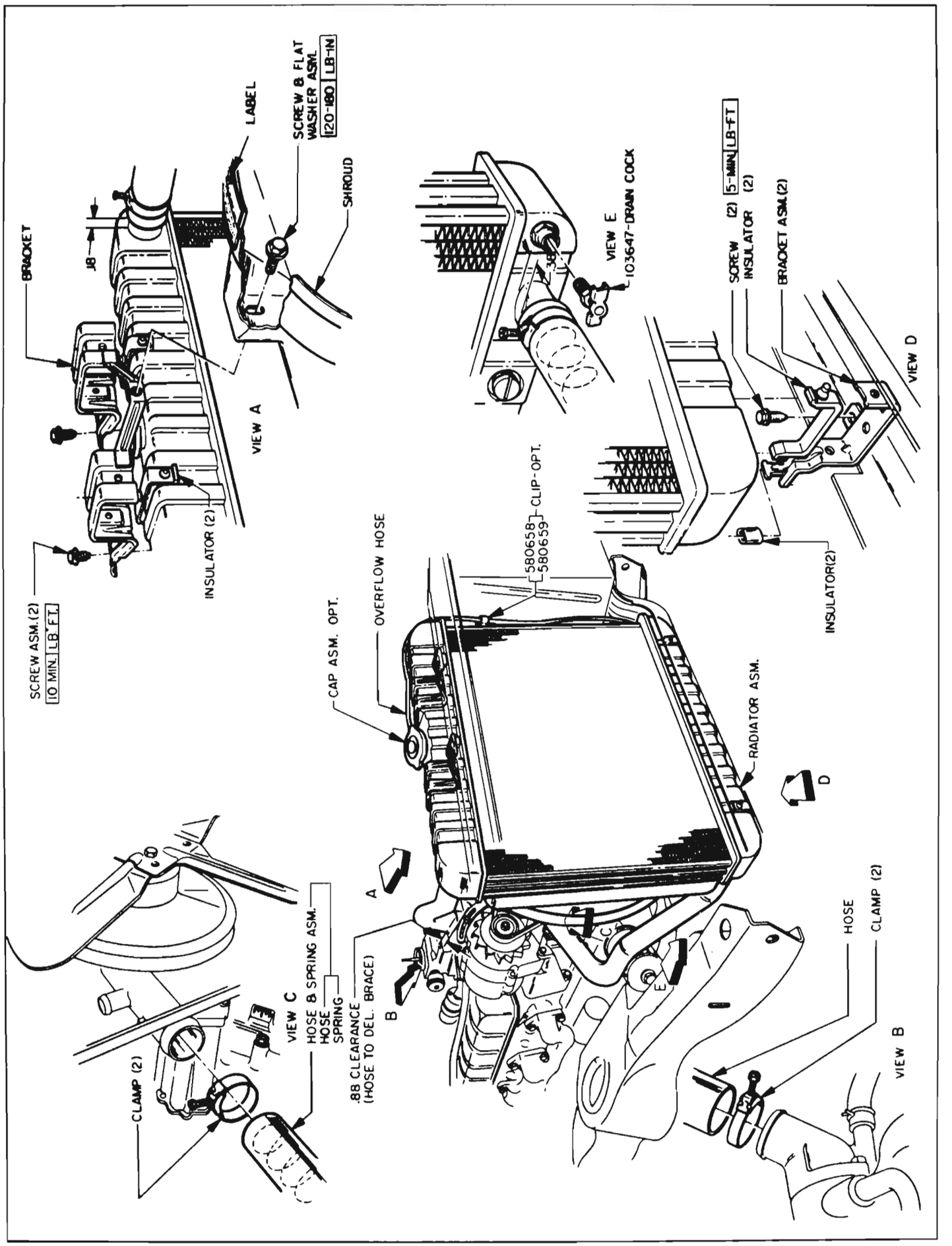

Figure 12-10—Radiator Installation

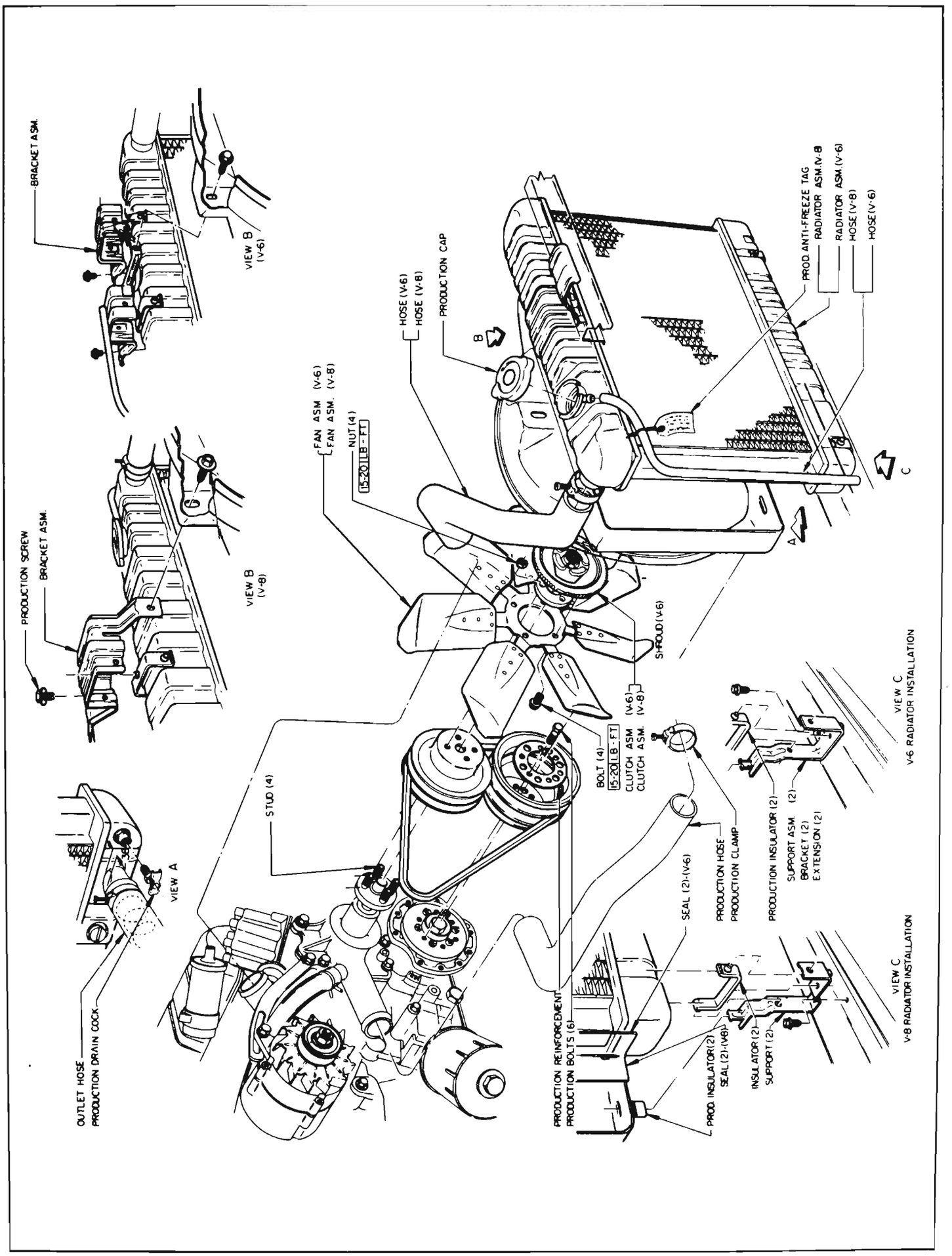

Figure 12-11—Radiator Installation - Heavy Duty

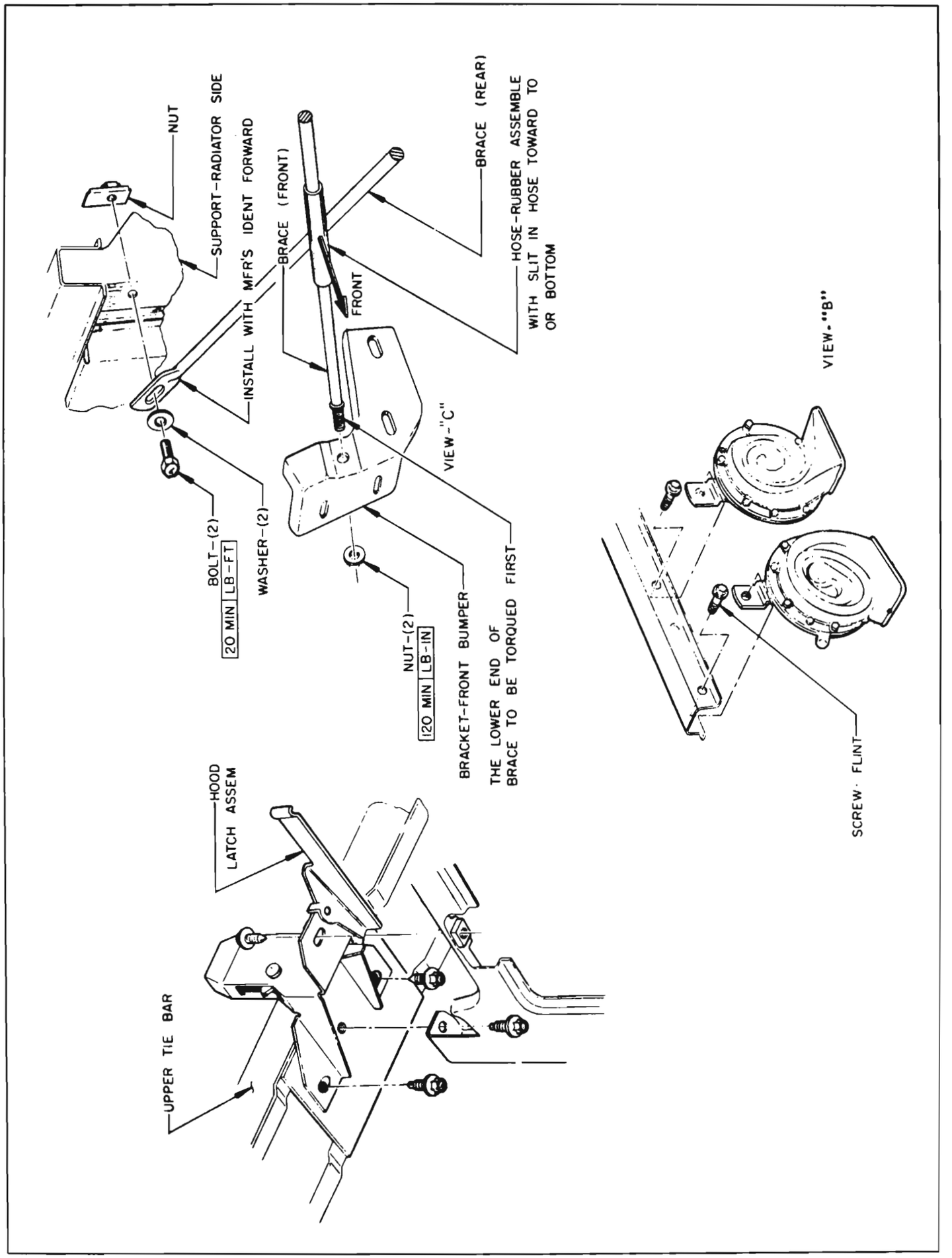

Figure 12-12—Hood Latch Installation

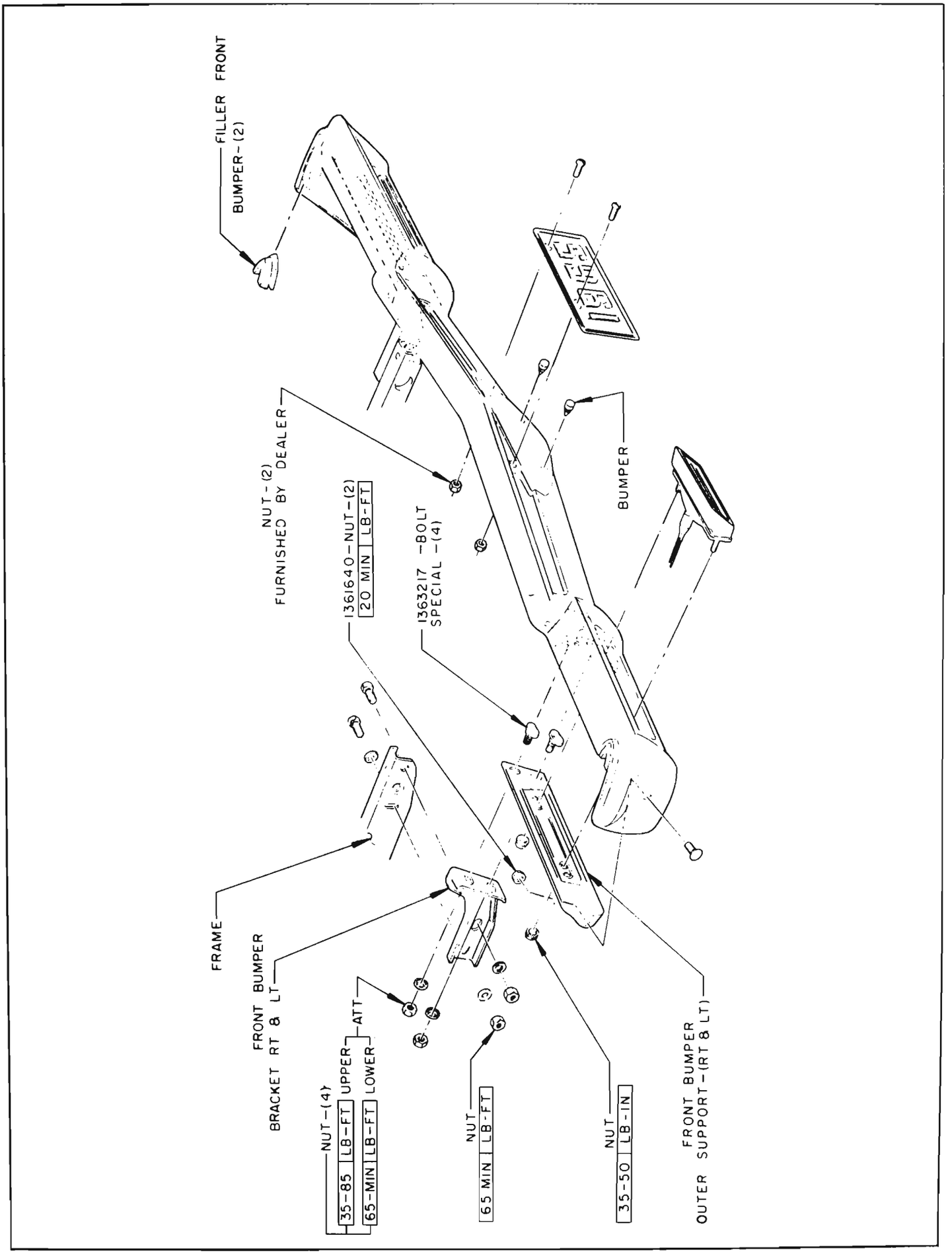

Figure 12-13—Front Bumper Installation

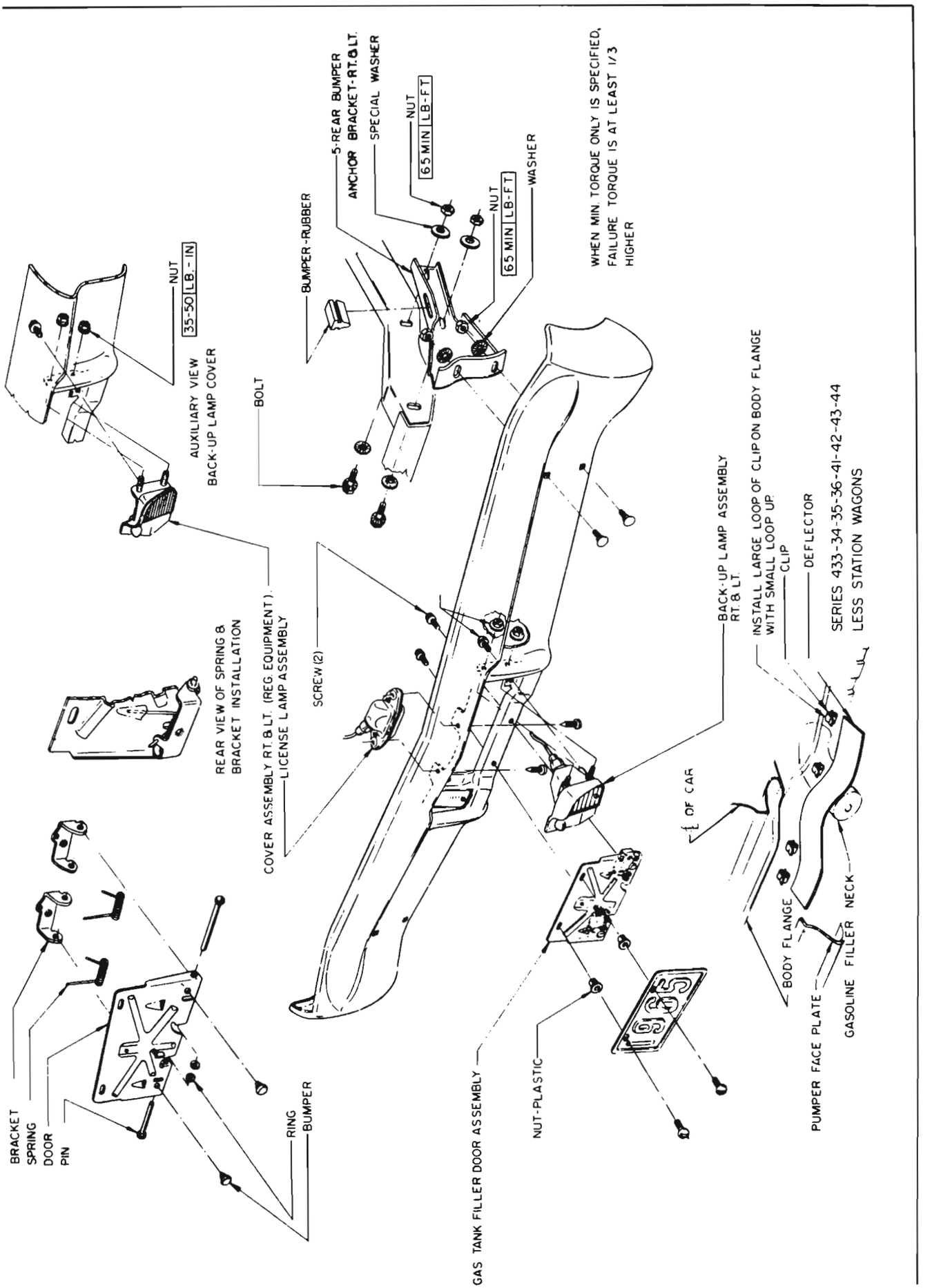

Figure 12-14—Rear Bumper Installation

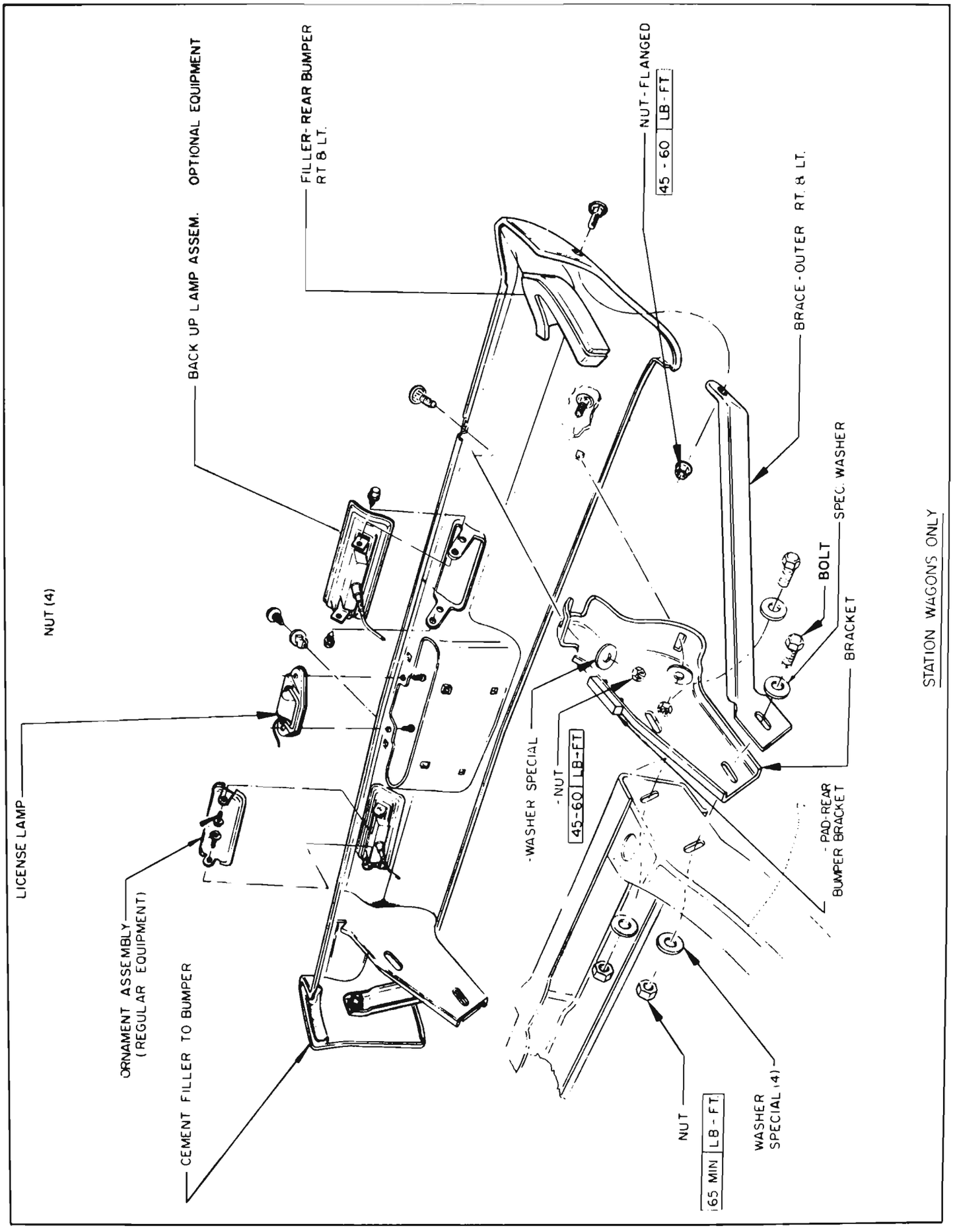

Figure 12-15—Rear Bumper Installation, Station Wagons

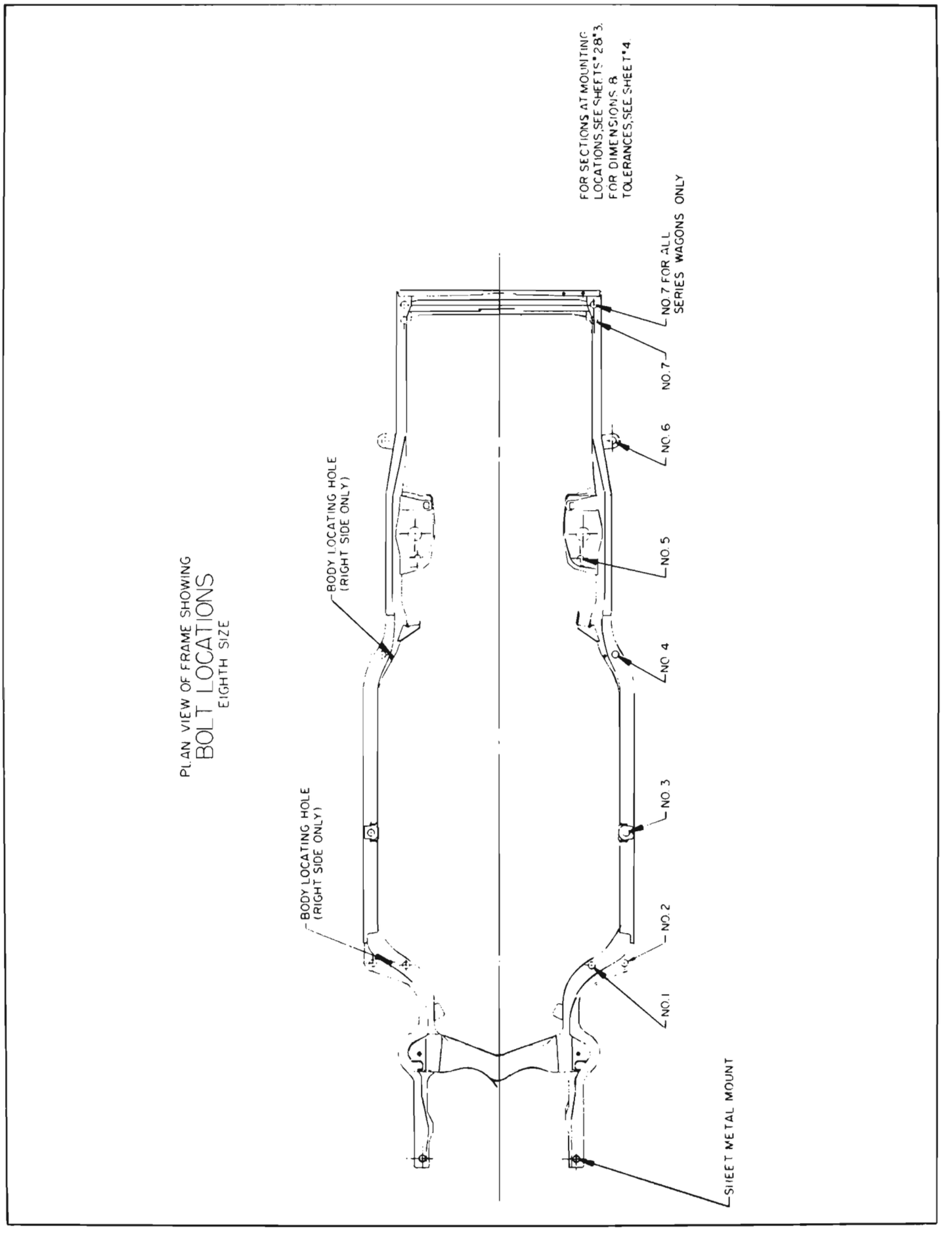

Figure 12-16—Frame Bolt Locations

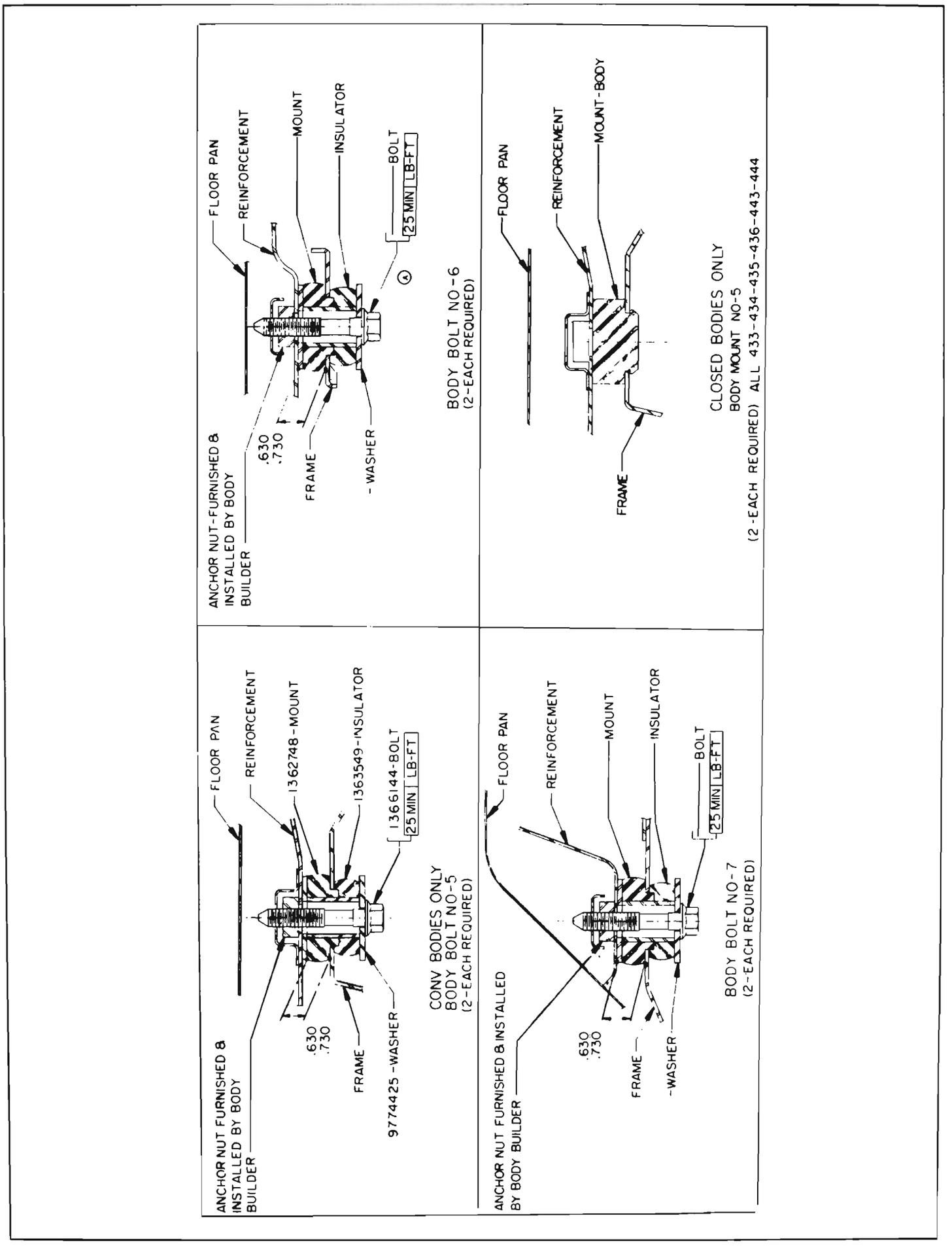

Figure 12-17—Body Mounts

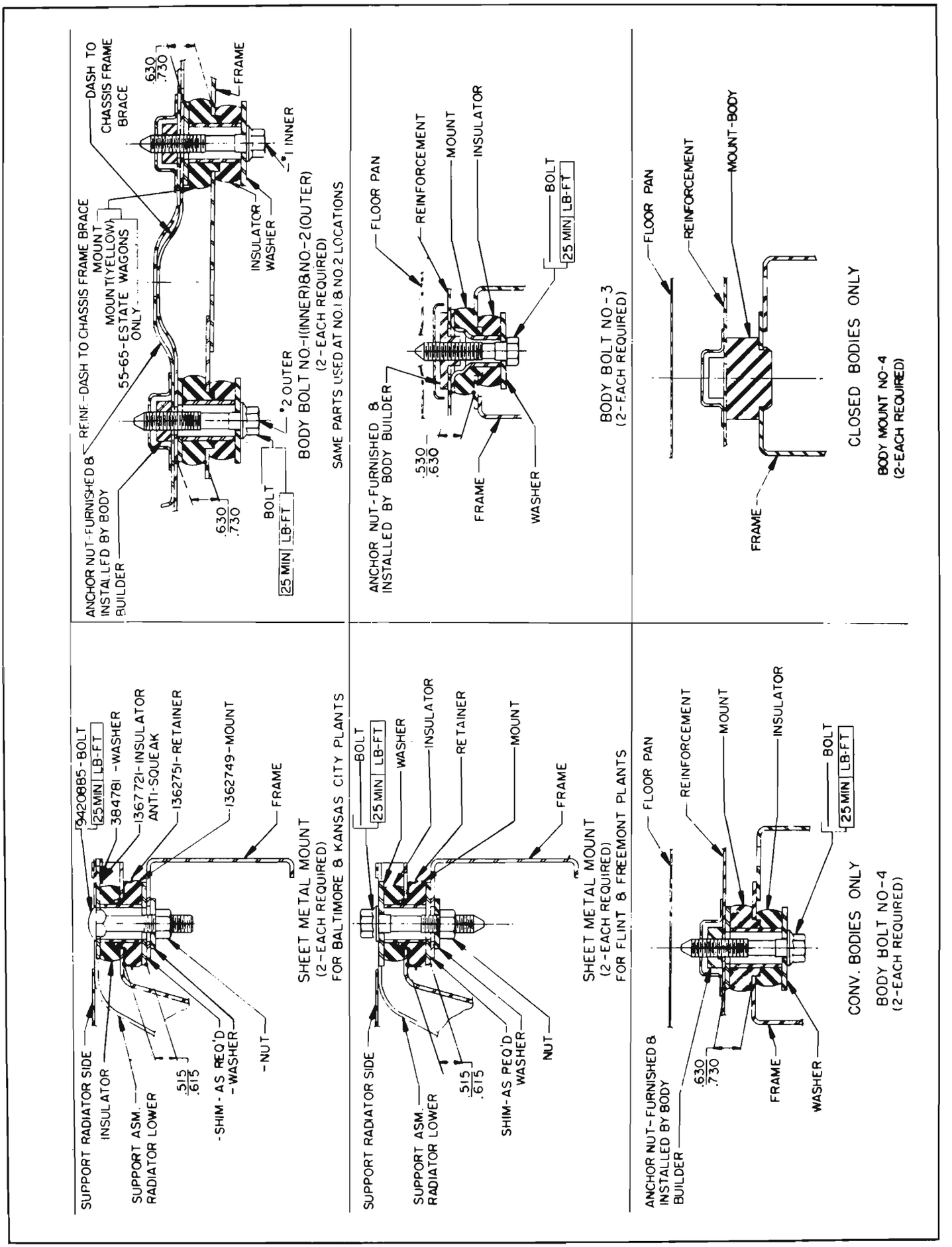

Figure 12-18—Body Mounts

12-7 BUMPER ADJUSTMENT AND REPLACEMENT

The front bumper inner and outer brackets are slotted which permits proper alignment of bumper with adjacent parts. (See Figure 12-13) The rear bumper brackets and outer braces are also both slotted to permit adjustment. (See Figures 12-14 and 12-15).

12-8 BODY MOUNT INSTALLATION

At each closed body mounting point, a rubber mount is placed between the body and the frame bracket and a rubber insulator washer is placed under the frame bracket. A plain steel washer and a tubular spacer limit compression of the rubber parts to a predetermined amount as the body bolt is tightened. This form of mounting eliminates metal-to-metal transmission of road and chassis noise into the body. For mounting information see Figures 12-16, 12-17 and 12-18.

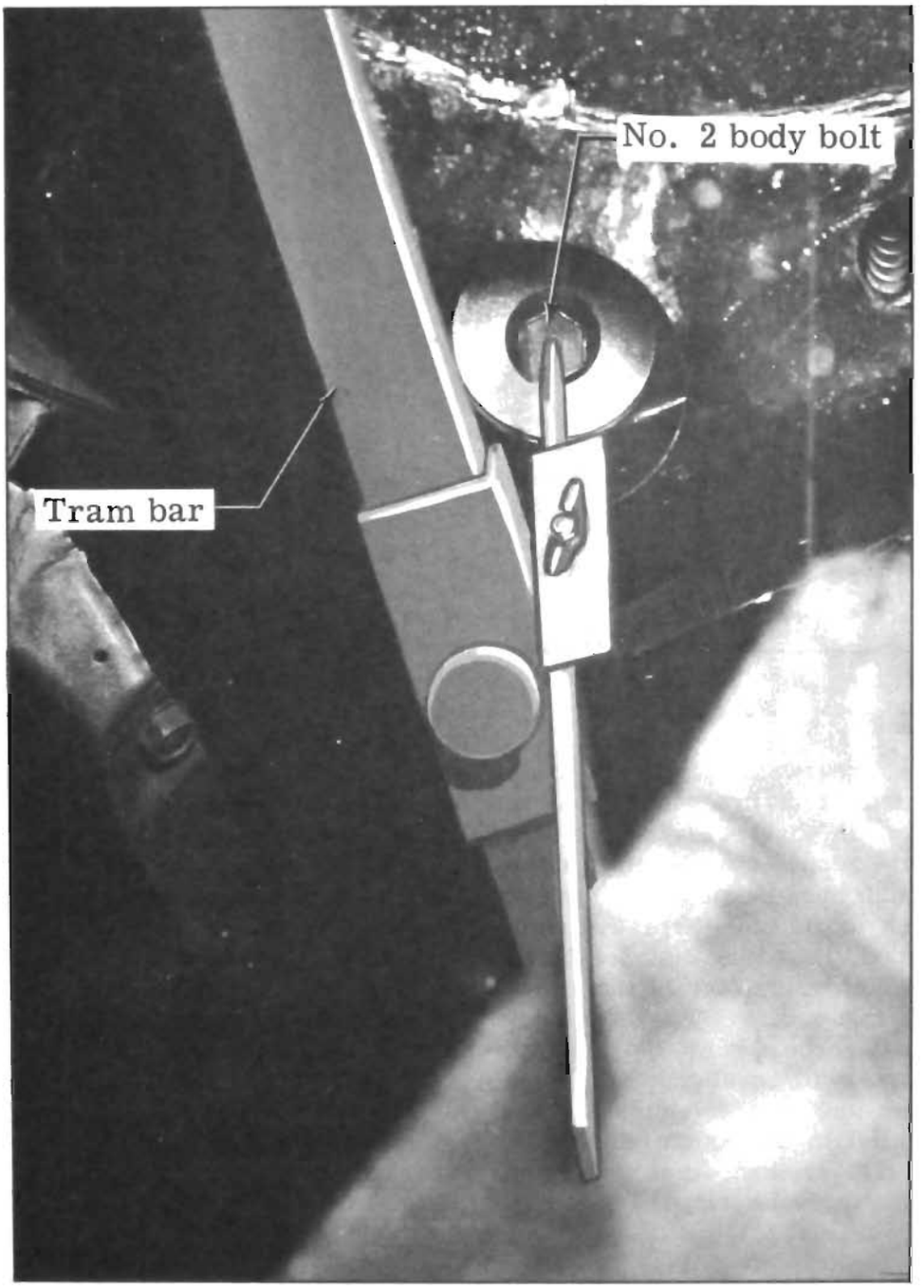

Figure 12-19—Measuring with Tram Bar to a Typical Body Reference Location

12-9 PROCEDURE FOR MEASURING DAMAGED FRAMES ON SPECIALS AND SKYLARKS

a. Taking Horizontal Measurements (Tramming)

1. Jack up car and support securely on jack stands, or if available, use twin post hoist to raise car.

2. All body bolts are accessible through openings in the frame on the Special and Skylark Series. The center of these bolt heads serves as accurate reference points, and it is not necessary to establish reference points. Figure 12-19 and frame layouts 12-20 and 12-21 show location of these reference points.

3. Two men are required to measure using tram bar method. CAUTION: To get accurate measurements, it is important to hold tram bar the same way, both when setting pointers between frame reference points and when measuring between pointer tips after pointers are set and bar is removed. For example, slight flexing of the bar may change the distance between the pointer tips if the tram is held by the ends when taking measurements on the frame and by the middle when measuring between the tips.

4. To determine the extent of frame damage, measure car using frame layouts shown in Figures 12-26 and 12-27 which indicate reference points, dimensions, and tolerances. In addition to body bolt locations, frame layouts

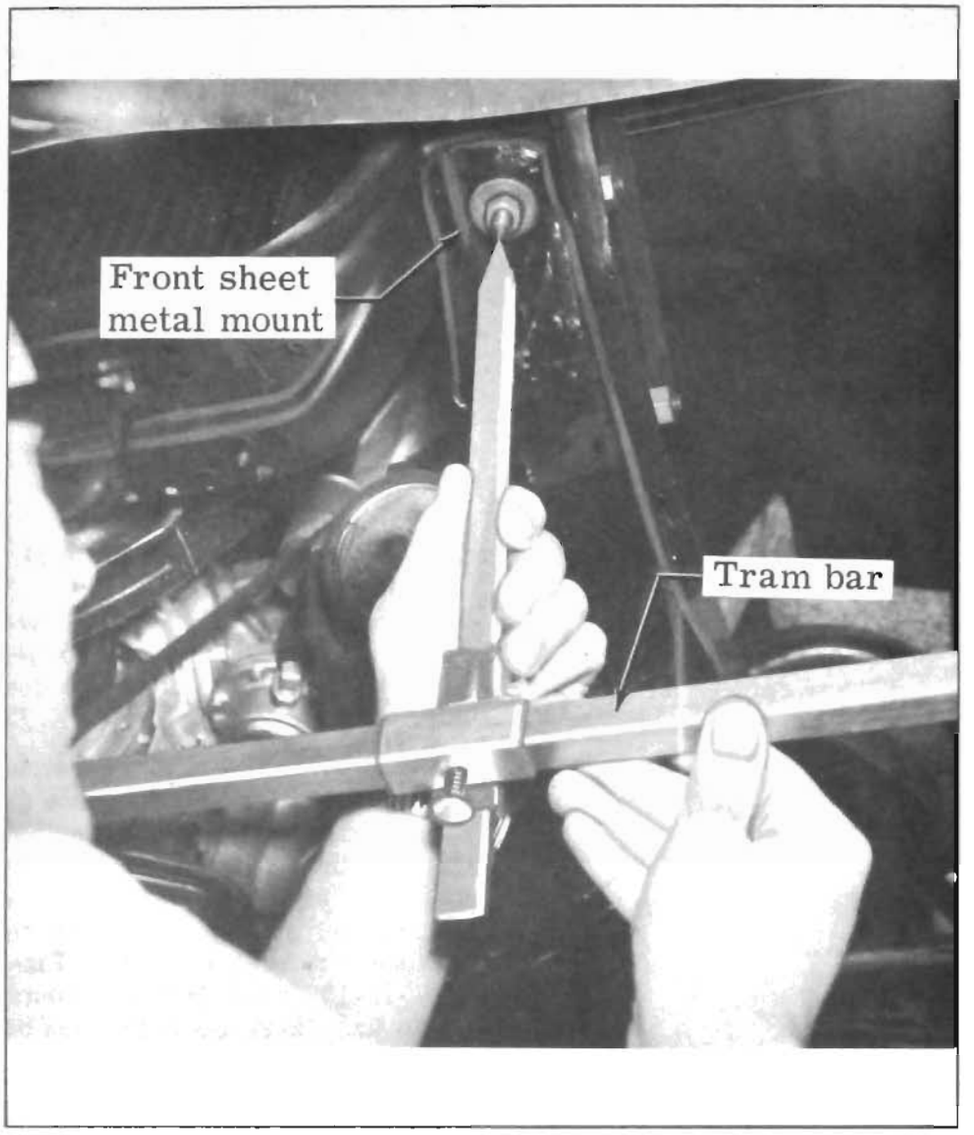

Figure 12-20—Measuring to Front Sheet Metal Mount

12-20 and 12-21 show front sheet metal mounts and lower control arm bolts which are also used as reference points.

b. Taking Vertical (Datum) Measurements

1. With car still on stands, suspend two centering gauges from frame mid-section. Hang forward gauge from inner holes in frame as shown in Figure 12-22. Hang rearward gauge on lower control arm bracket flanges as shown in Figure 12-23. The vertical supports of each gauge should then be adjusted so that both horizontal bars are suspended the same distance below the bottom surface of the frame rail mid-section. Thus, the horizontal cross bars on the two gauges will be aligned with each other and will establish a plane parallel to the bottom surface of the mid-section. (It is suggested that gauges be suspended 6-3/4" below the frame mid-section. This distance will drop the horizontal gauge bars lower than the rear axle and front suspension so that the front-to-rear line of sight is not obstructed.)

2. After the first two gauges are set, the third gauge may be suspended from either the front or rear frame horn areas, and adjusted vertically by sighting the alignment with the two center gauges. See Figures 12-24 and 12-25. The actual dimensions, front or rear, are found by measuring up from the top edge of the cross bar on the third gauge to the bottom surface of the frame rail above. After checking on one end is completed, the operation can be repeated in similar fashion on the opposite end.

3. To determine the extent of frame damage, compare actual measurements with dimensions and tolerances given in frame layouts 12-26 and 12-27.

c. Frame Repair Suggestions

When straightening sharply buckled areas, it is common practice to use heat while force is being applied by use of jacks or suitable frame machines. Heat can be applied without materially weakening a frame, provided heating temperatures are kept below 1200°F. A steel temperature of 1200°F. is seen as a deep cherry red when viewed in subdued daylight conditions which exist in an average repair shop. (Metal at the same temperature will appear slightly brighter under direct artificial light.) CAUTION: Heat in excess of 1200°F. will permanently weaken the metal structure and lead to eventual frame failure in service.

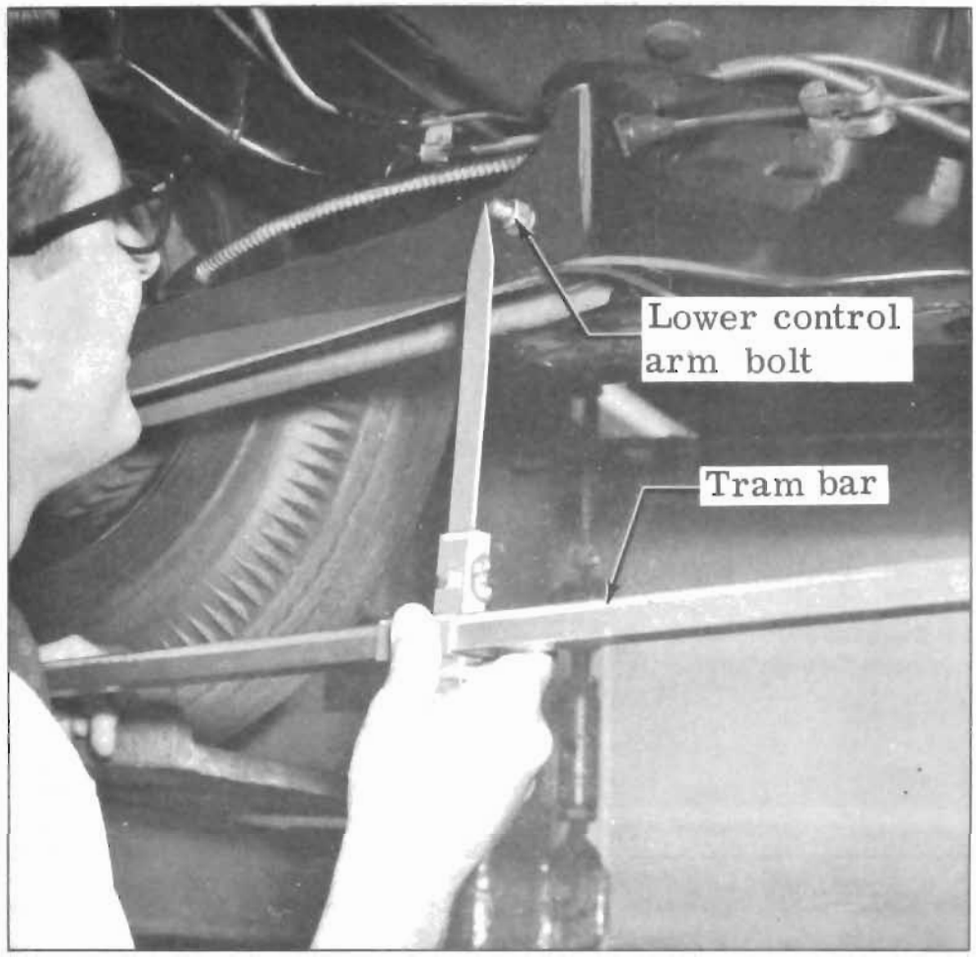

Figure 12-21—Measuring to Lower Control Arm Bolt

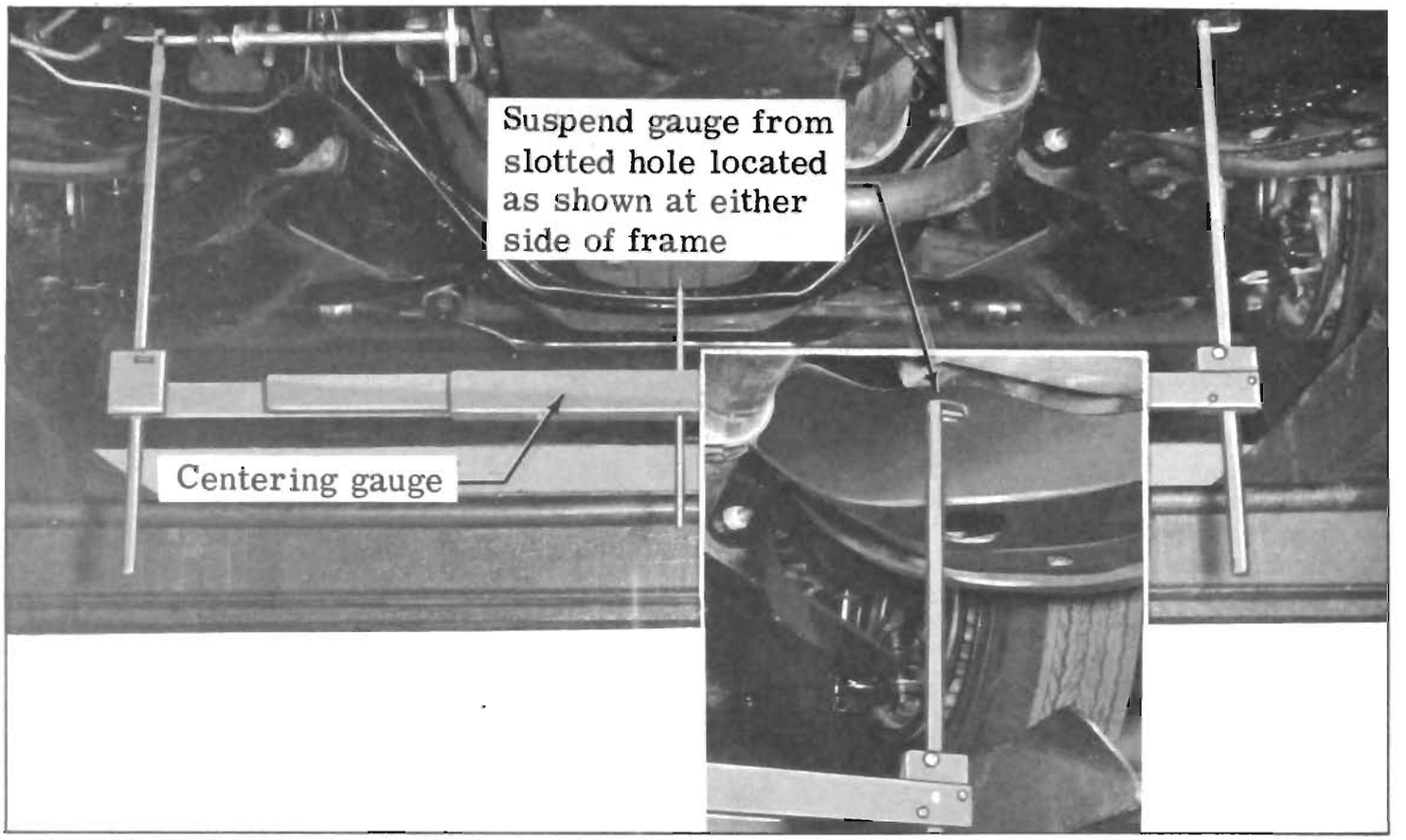

Figure 12-22—Centering Gauge Installed at Forward Portion of Frame Mid-Section

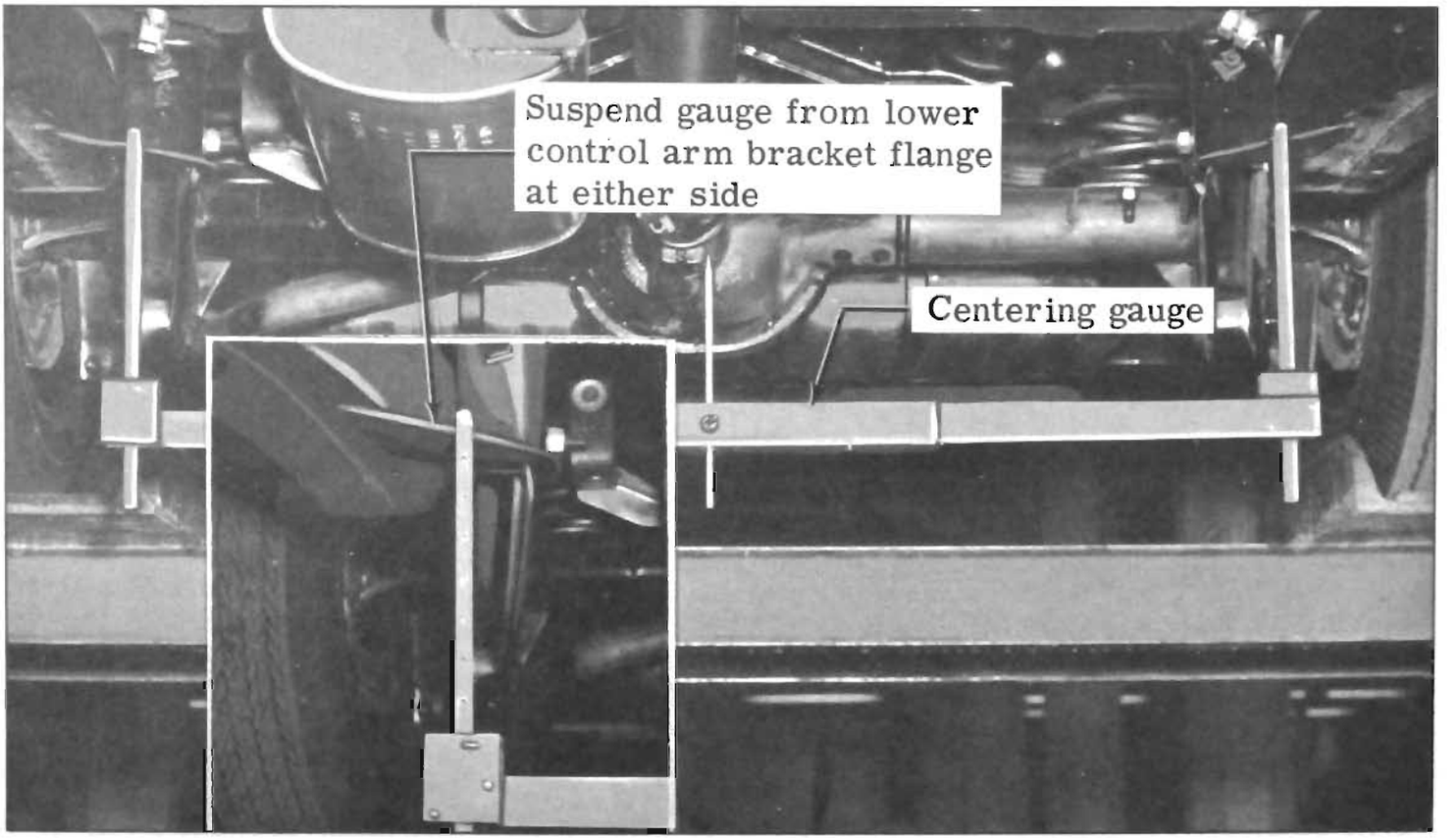

Figure 12-23—Centering Gauge Installed at Rearward Portion of Frame Mid-Section

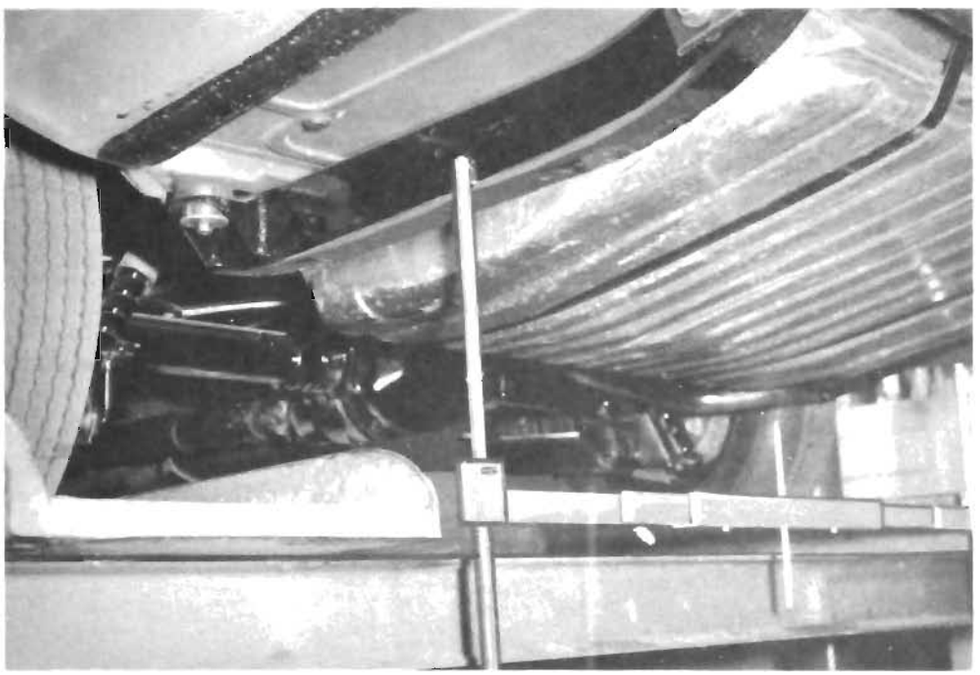

Figure 12-24—Centering Gauge Suspended from Holes in Frame Rear Horn Area

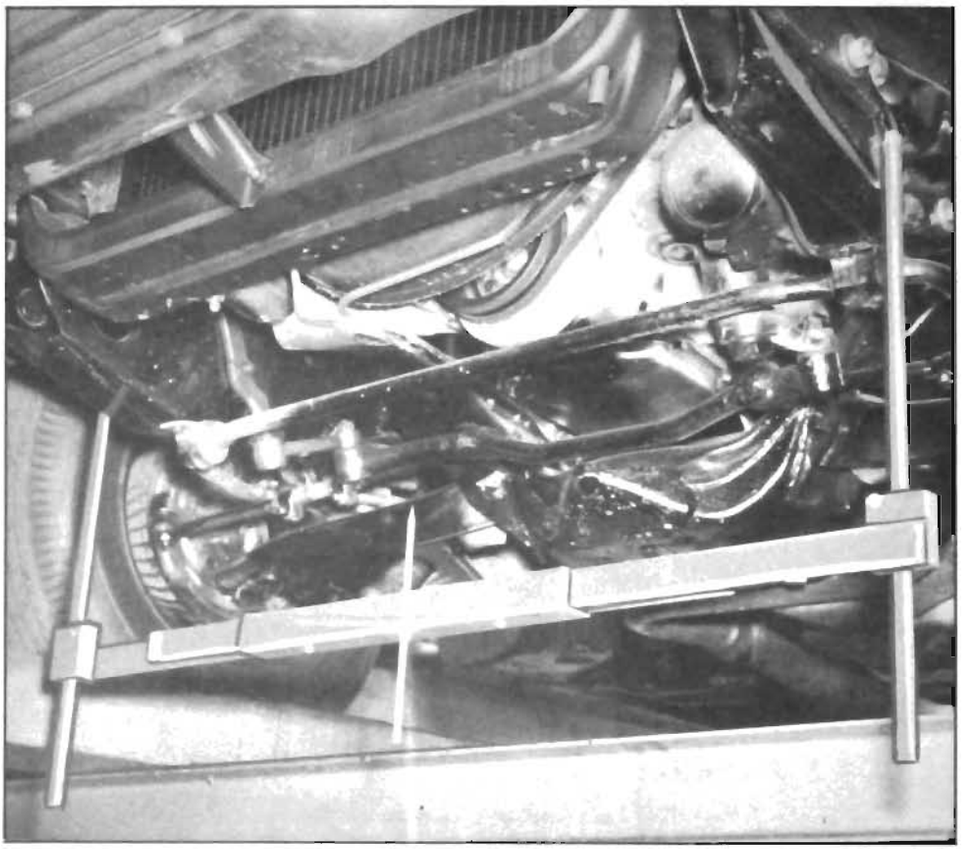

Figure 12-25—Centering Gauge Suspended from Square Cut Outs in Frame Front Horn Area

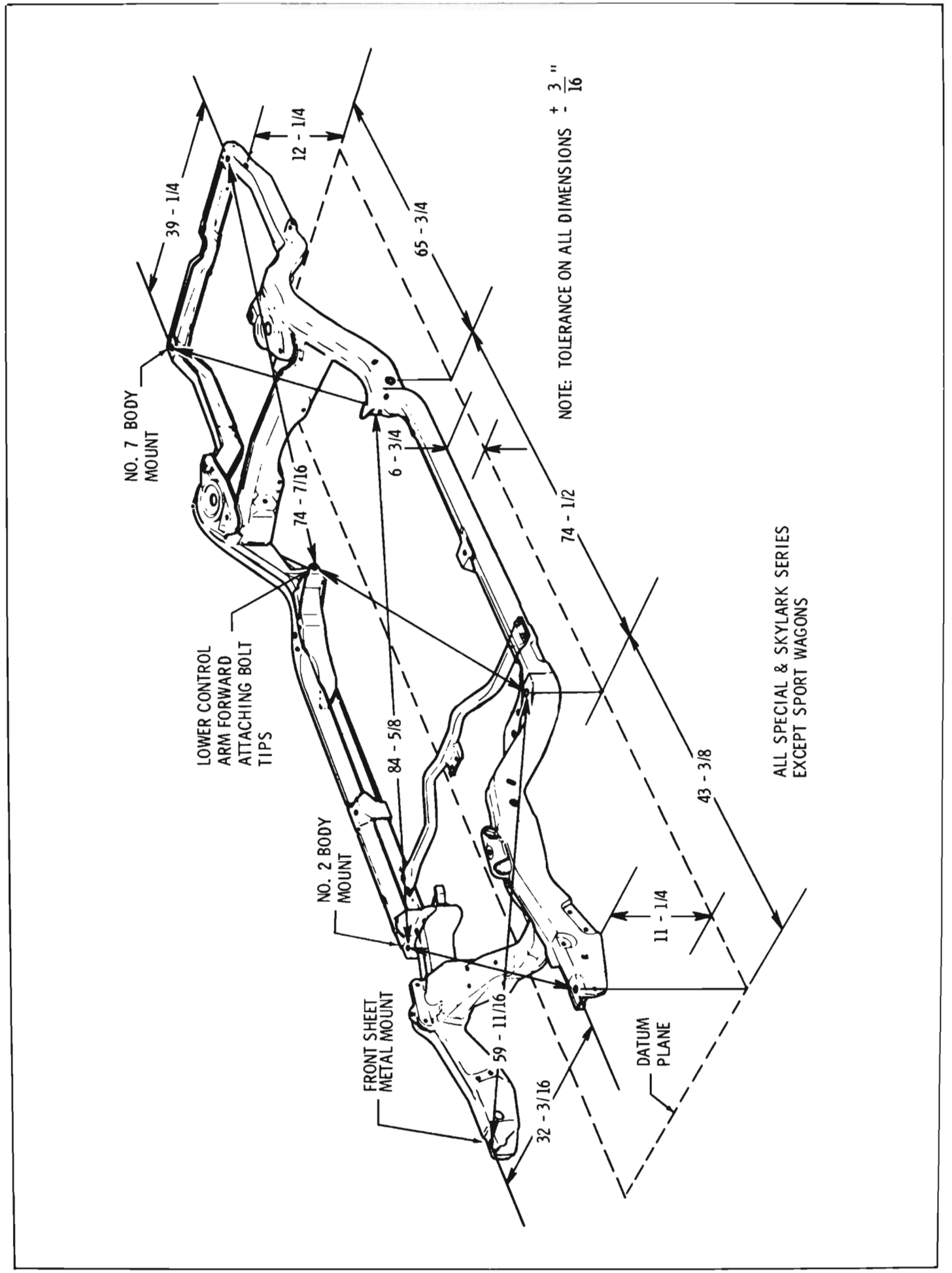

Figure 12-26—All Special and Skylark Series - Except Extended Wagons

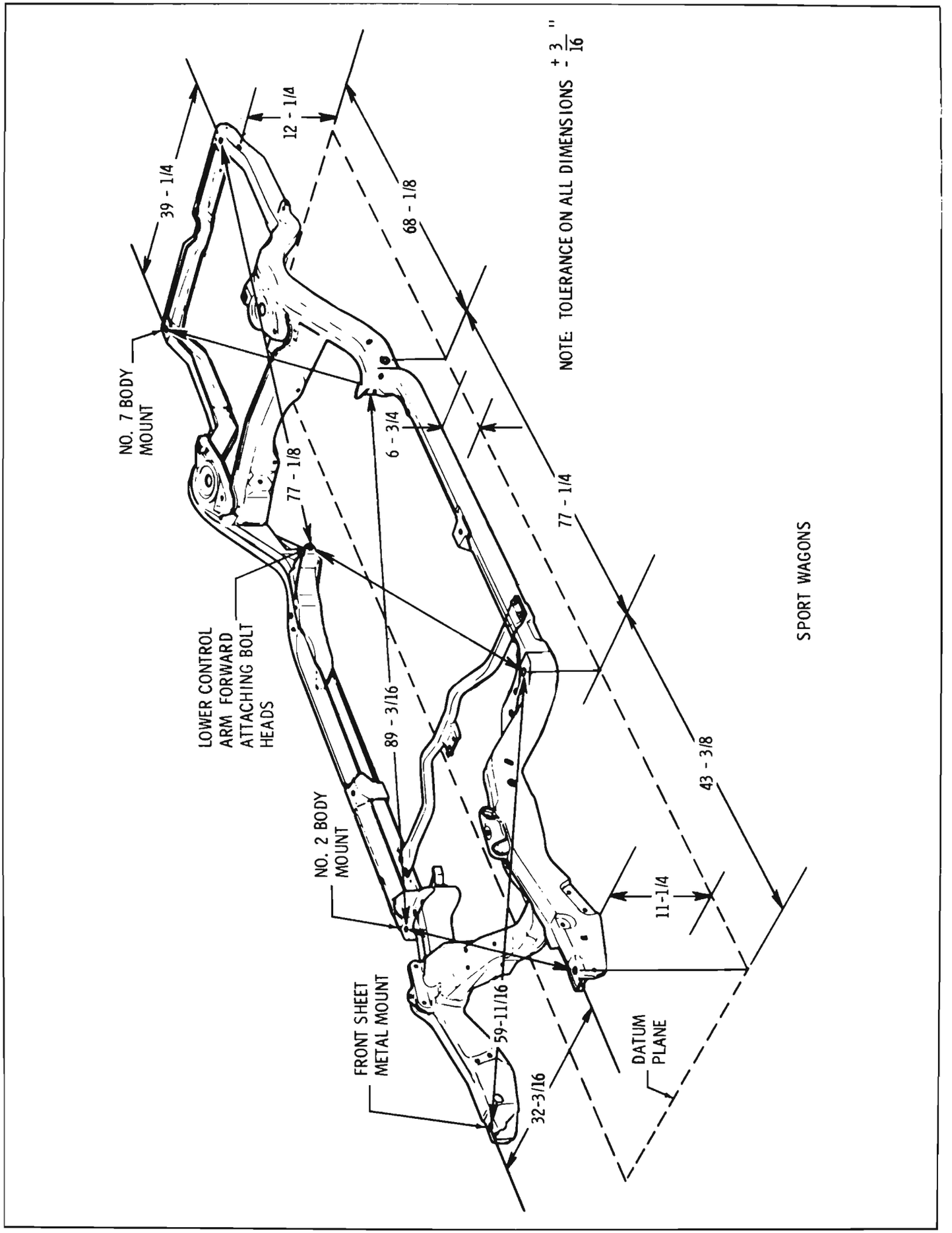

Figure 12-27—Skylark Extended Wagon