

## GROUP 12 FRAME AND SHEET METAL

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### 12-1 DESCRIPTION OF FRONT END SHEET METAL

#### a. Front End Sheet Metal Assembly

The front end sheet metal assembly is attached to the frame and body at adjustment points. See Figures 12-1 and 12-2. The front of the assembly is supported by two mounts located at the frame side rails. Shims at these locations allow up and down movement of the front of the sheet metal assembly. Fore and aft and side adjustment is allowed by oversize holes in the inner skirt assembly. Special washers at the upper rear locations allow adjustment of the rear assembly. See Figure 12-5. The lower rear edge of the assembly is attached to the body at the rocker panel by two bolts on each side. See Figure 12-5. Shims are used at this location to provide up and down adjustment at the rear of the fender.

**IMPORTANT:** The bolts that retain the sheet metal braces must be torqued to the required torques. If these bolts are loose, the braces will not provide additional support for the sheet metal assembly.

#### b. Hood, Hinges and Latch Mechanism

The hood panel is of one piece

construction, strengthened and held to shape reinforcement of stamped sheet metal.

The rear of the hood assembly is attached to the body cowl and fender on each side by hinge assemblies which permit the front of the hood to be raised. A heavy coil spring connected between each hinge assembly assists in raising the hood and holds it in the open position. See Figures 12-3 and 12-4.

The front of the hood is held down by a ratchet type hood latch located on the upper tie bar. See Figure 12-11.

The hood is unlocked by lifting the latch handle located beneath the front center of the grille.

#### c. Radiator Mounting and Adjustment

The radiator is mounted in rubber, using a three-point mounting system of rubber-faced "U" shaped brackets.

Two of the brackets are included in the lower support bracket assembly which attaches at each end of the frame. The third is located at the top center in the guard and bracket assembly which attaches to the upper tie bar. Fore and aft adjustment is provided by slotted holes in the bracket assembly.

Non air conditioning radiators are to be located 1-3/16" plus or 1/8" ahead of cooling fan and parallel

within 1/8". Minimum fan to top tank clearance should be 3/4". The air conditioning radiator is to be located parallel to the fan, with the shroud parallel to the radiator core and the fan approximately one-quarter enclosed by the fan shroud.

### 12-2 FENDER, BUMPER AND HOOD ALIGNMENT INSPECTION

The hood, front fenders and bumpers 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 readjustments may be required after a car has been shipped or has been in service for sometime. This is because sheet metal parts may take a different "set" as a result of vibration and shock incident to shipping or operation during the break-in period. 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.

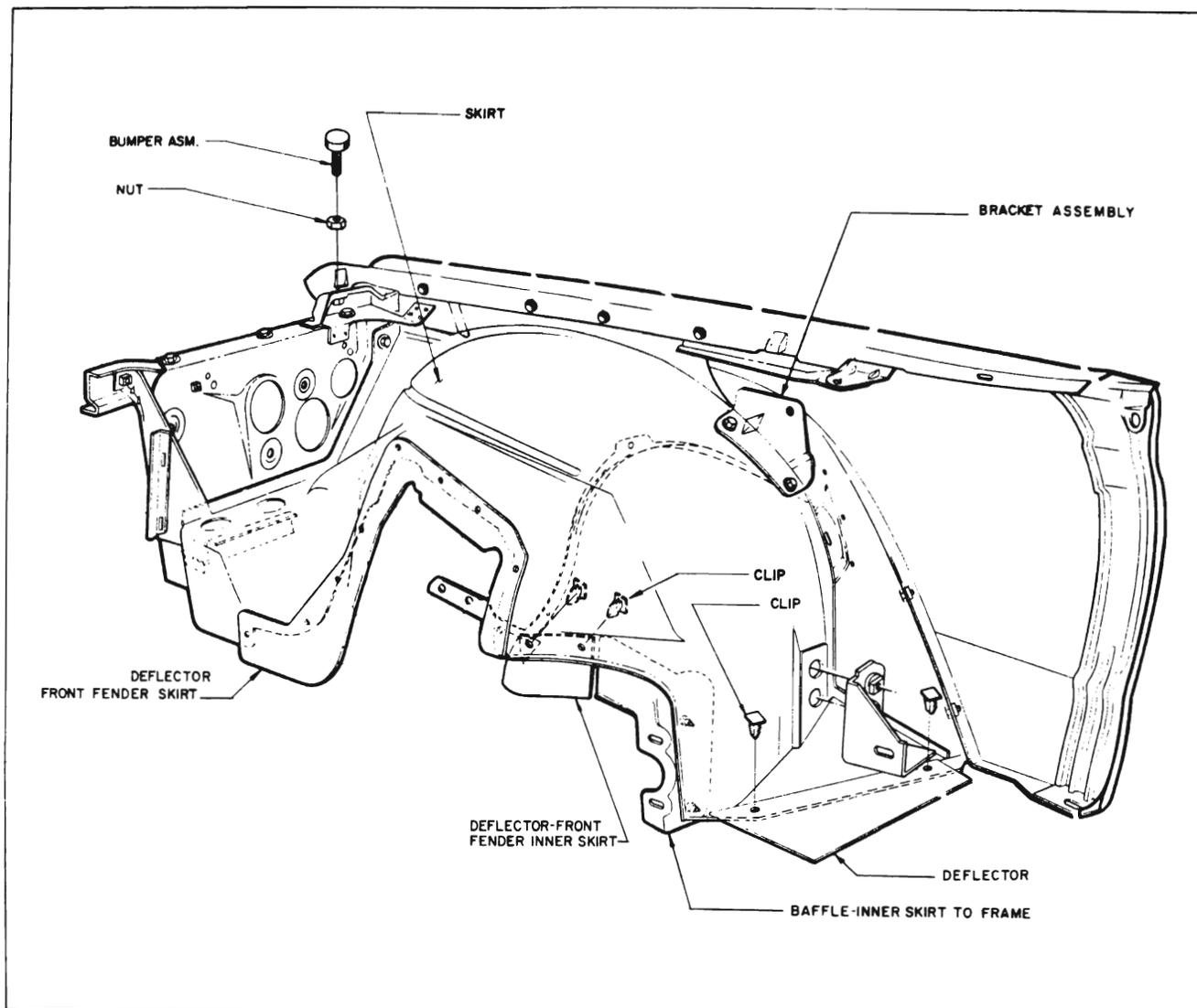


Figure 12-1—Front Fender Skirt Assembly—4400-4600 and 4800 Series

### a. 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 with 1/16" thick feeler all around the hood for clearance at the 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 can 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 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" thick

strip of felt to panel where the lacing makes contact.

To prevent hood panel flutter, the rear end of hood panel must have firm contact with the lacing attached to cowl ledge. The hood may be raised or lowered by adjustment at hinges. See Figure 12-7.

### b. Preliminary Tightening

Before deciding upon any adjustment to correct hood or fender misalignment it is advisable to

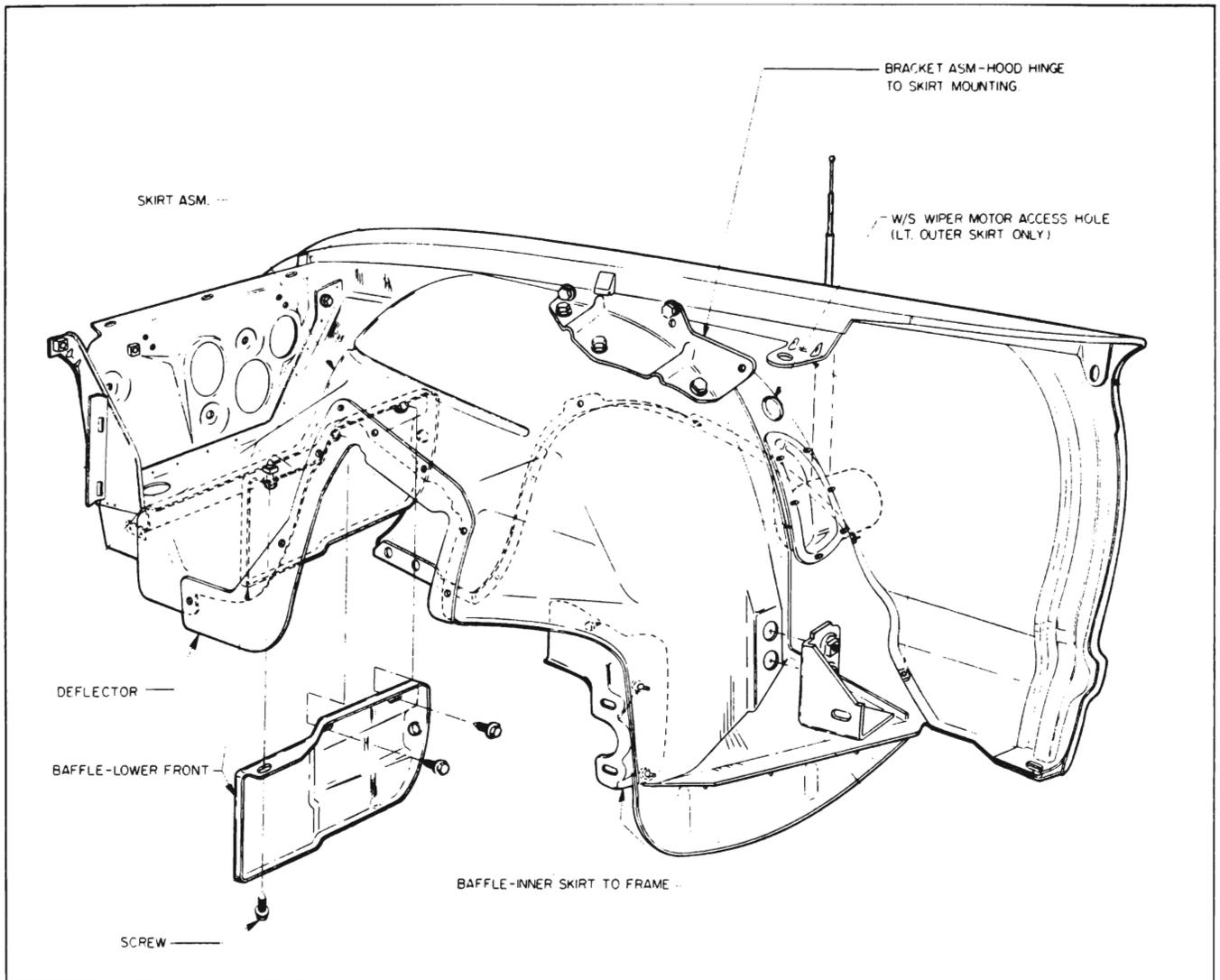


Figure 12-2—Front Fender Skirt Assembly—4700 Series

check tightness of all attaching screws, and bolts, since a true picture of the 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.

### 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  $1/32$ " thick. The spacing between the rear end of front fenders and the shoulder on front edge of doors should be approxi-

mately  $1/8$ ", 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 fenders 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 12-5.

Where spacing between the rear edge of front fender and door is

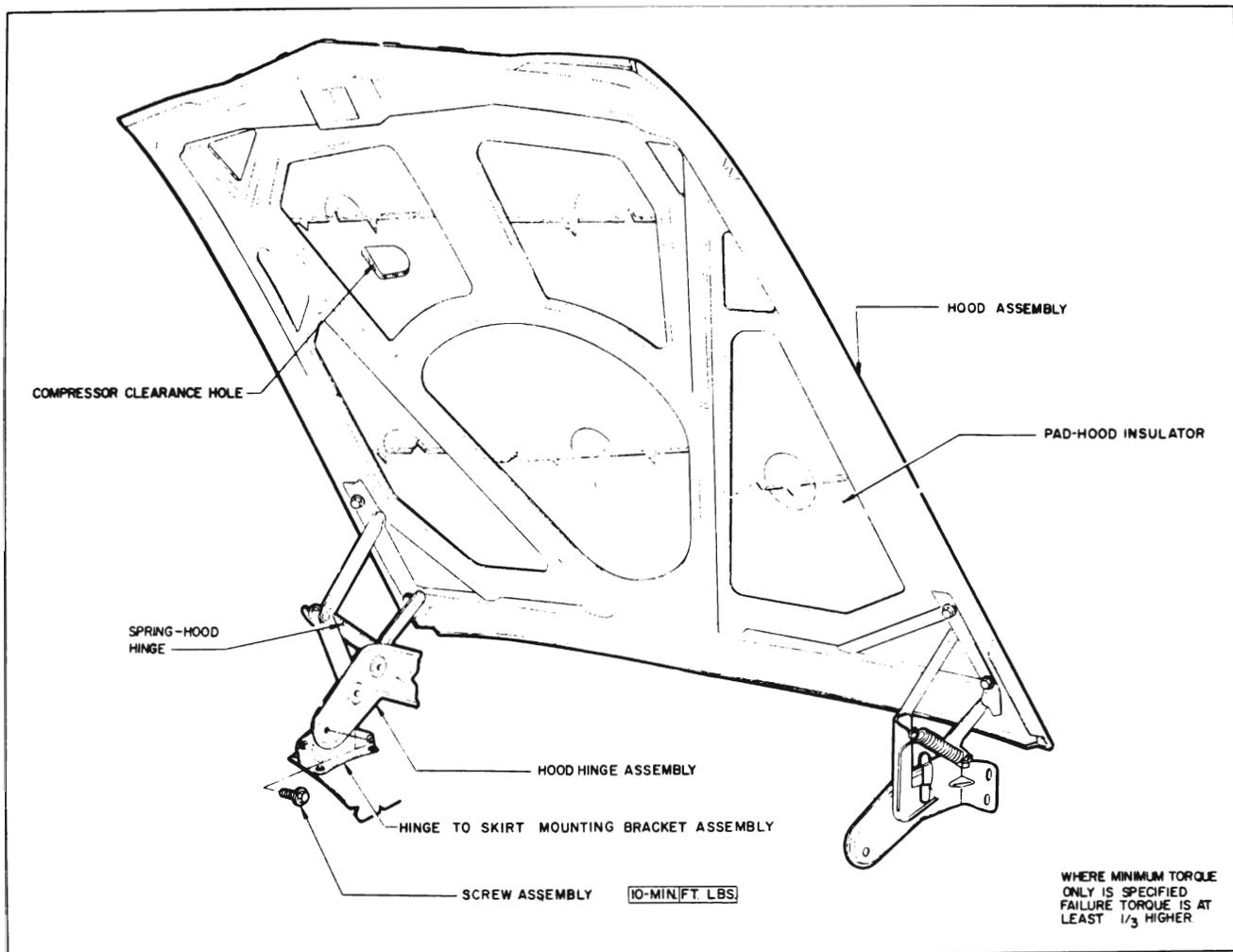


Figure 12-3—Hood &amp; Hood Hinge Assembly—4400-4600-4800 Series

objectionably uneven from top to bottom, it may be necessary to adjust the shims between fender inner skirt and frame, to adjust shims between fender and rocker panel or loosen fender attaching bolts and pry between fender and rocker panel or draw fender and rocker panel or draw fender into position and retighten bolts.

#### d. Hood Alignment Inspection

When the hood is closed and latched it should bear firmly against the front rubber bumpers on upper tie bar. Height of hood and width of space between hood and fenders should be reasonably even from front to rear. See par-

agraph 12-3 (a) for hood adjustment and paragraph 12-3 (a) for fender adjustment.

## 12-3 FENDER, BUMPER AND HOOD ADJUSTMENT

### a. Front Fender

If the front end of the sheet metal assembly is too high or too low, resulting in objectionably uneven vertical spacing between the front fenders and doors, it will be necessary to add or remove shims at front support locations. Whenever shims are to be added or removed at the front support locations, it will be necessary to

loosen the lower rear attaching bolts at the inner skirt to body. See Figures 12-3 and 12-4. Adjustment of rear edge of the front fender is accomplished by shimming at the two fender to body attaching points shown in Figure 12-5. The fender line should be flush with the rocker panel.

### b. Bumper Adjustment

The bumper attaching bolt holes in frame cross member, back bars and bumper face plate are slotted to permit movement of the bumper and permit proper alignment with adjacent parts. See Figure 12-10. Step assembly on rear bumper of estate wagons



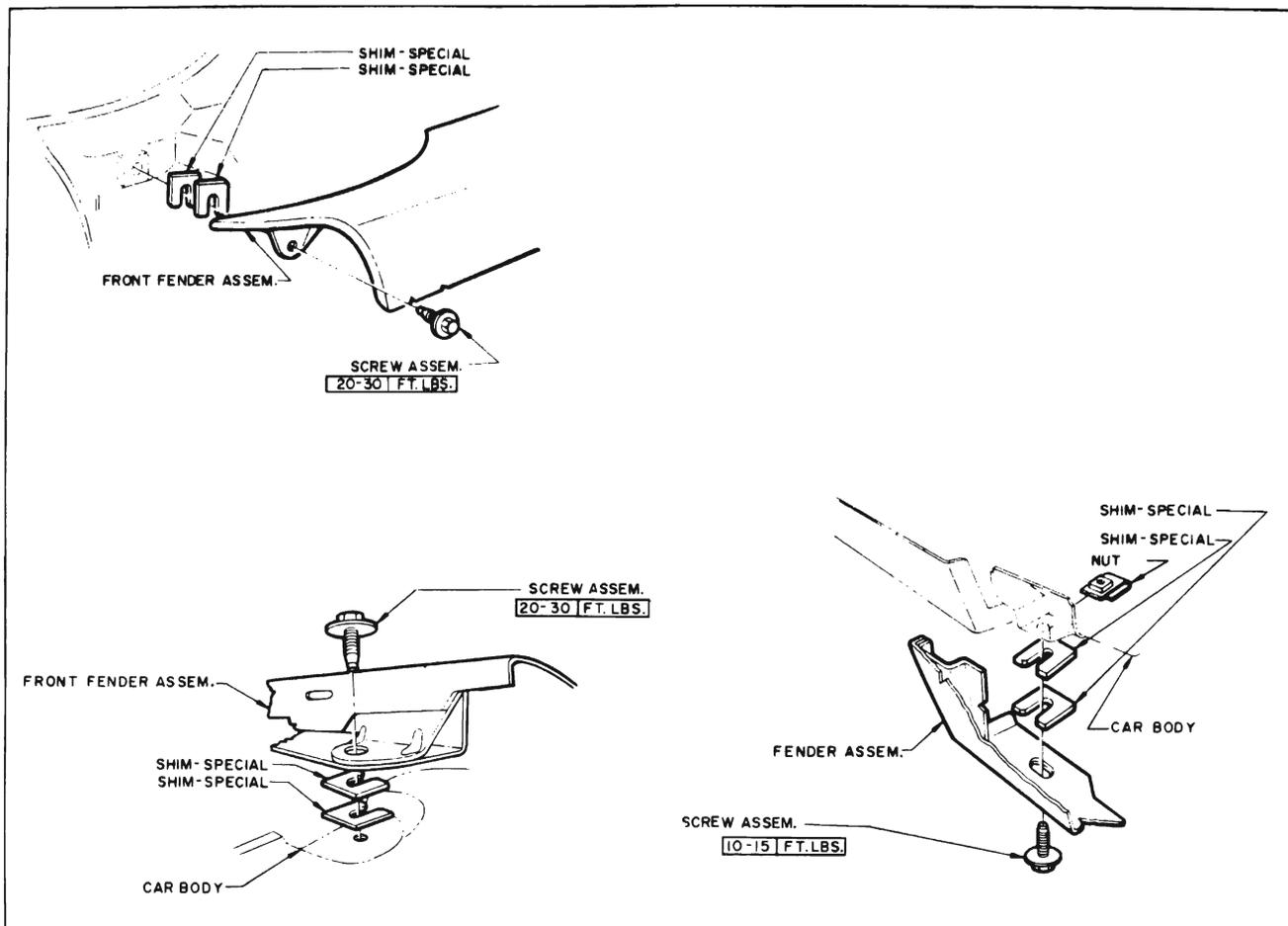


Figure 12-5—Front Fender Adjustment

the hood and the hinges at the rear bolts. See Figure 12-7.

3. Front Height. This is determined by two adjustable bumpers. See Figure 12-4. However, the

front of the hood may not contact these bumpers unless the hood latch is correctly adjusted as described in Step 4.

4. Hood Latch. Loosen four bolts

attaching latch to upper tie bar. Close hood. Hood will align itself in hood lock catch. Raise hood carefully and tighten all four bolts on the panel assembly. Close hood to see if alignment is still okay.

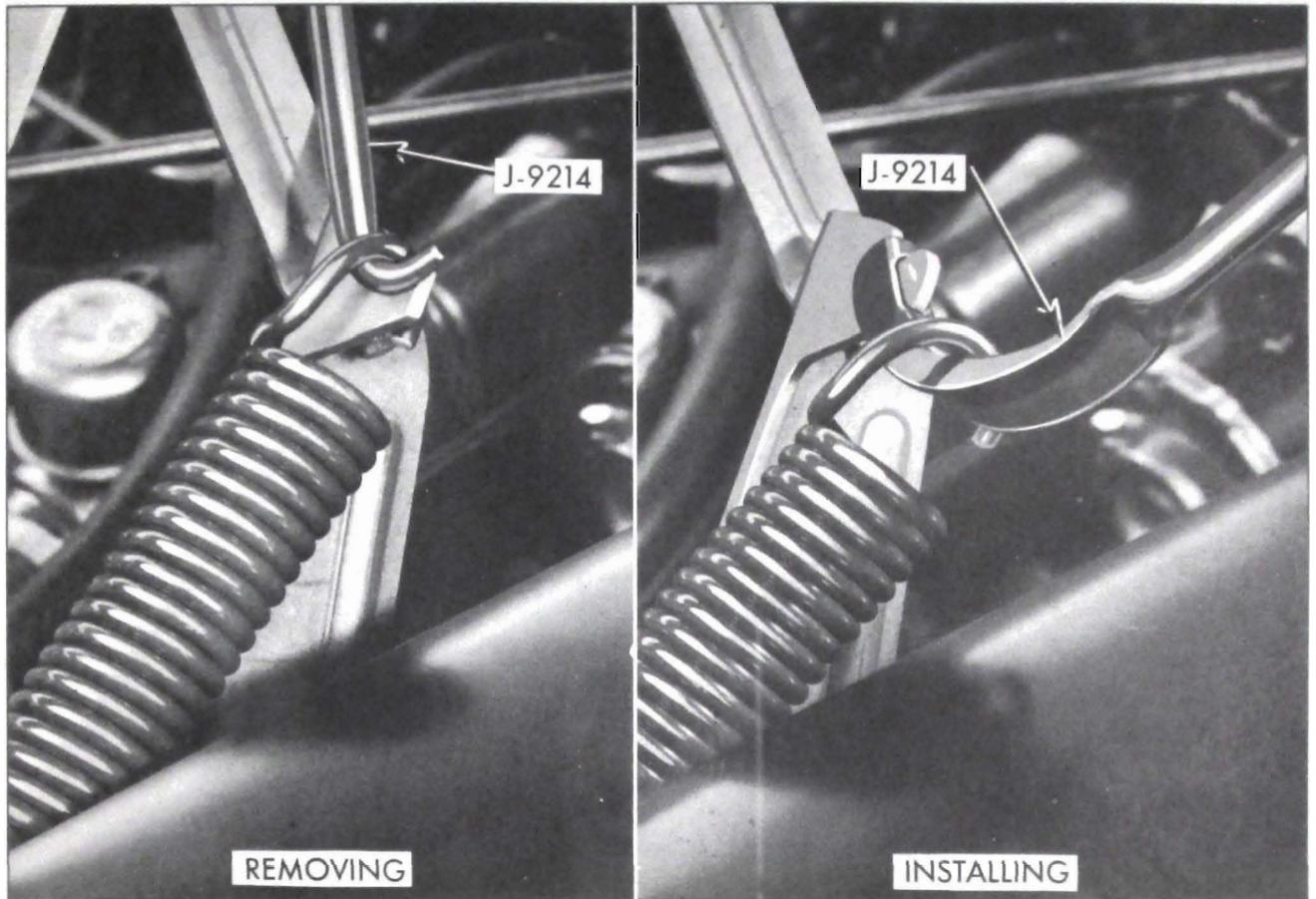


Figure 12-6—Removing and Installing Hood Hinge Spring

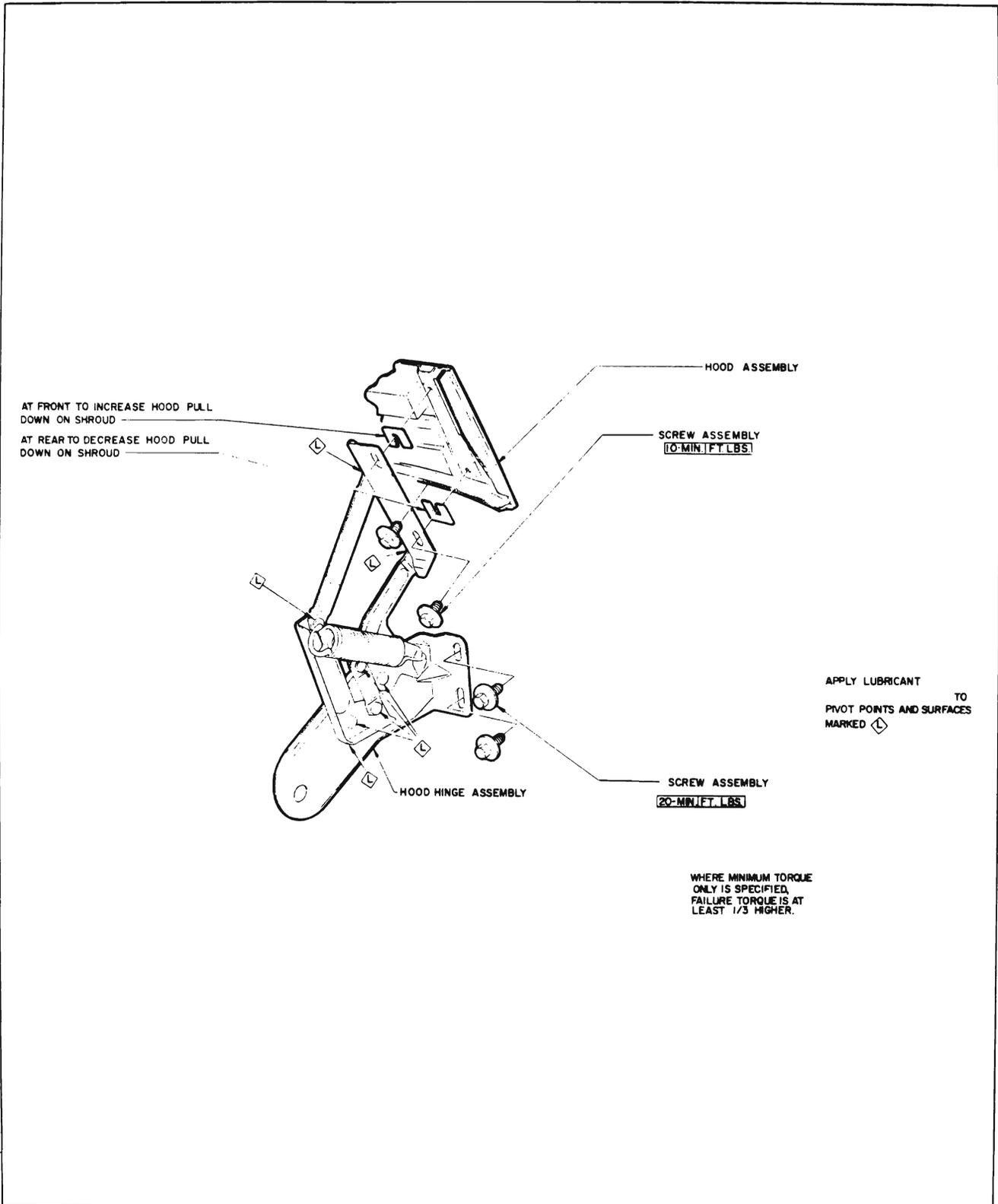


Figure 12-7—Hood & Hood Hinge Assembly—4400-4600-4800 Series

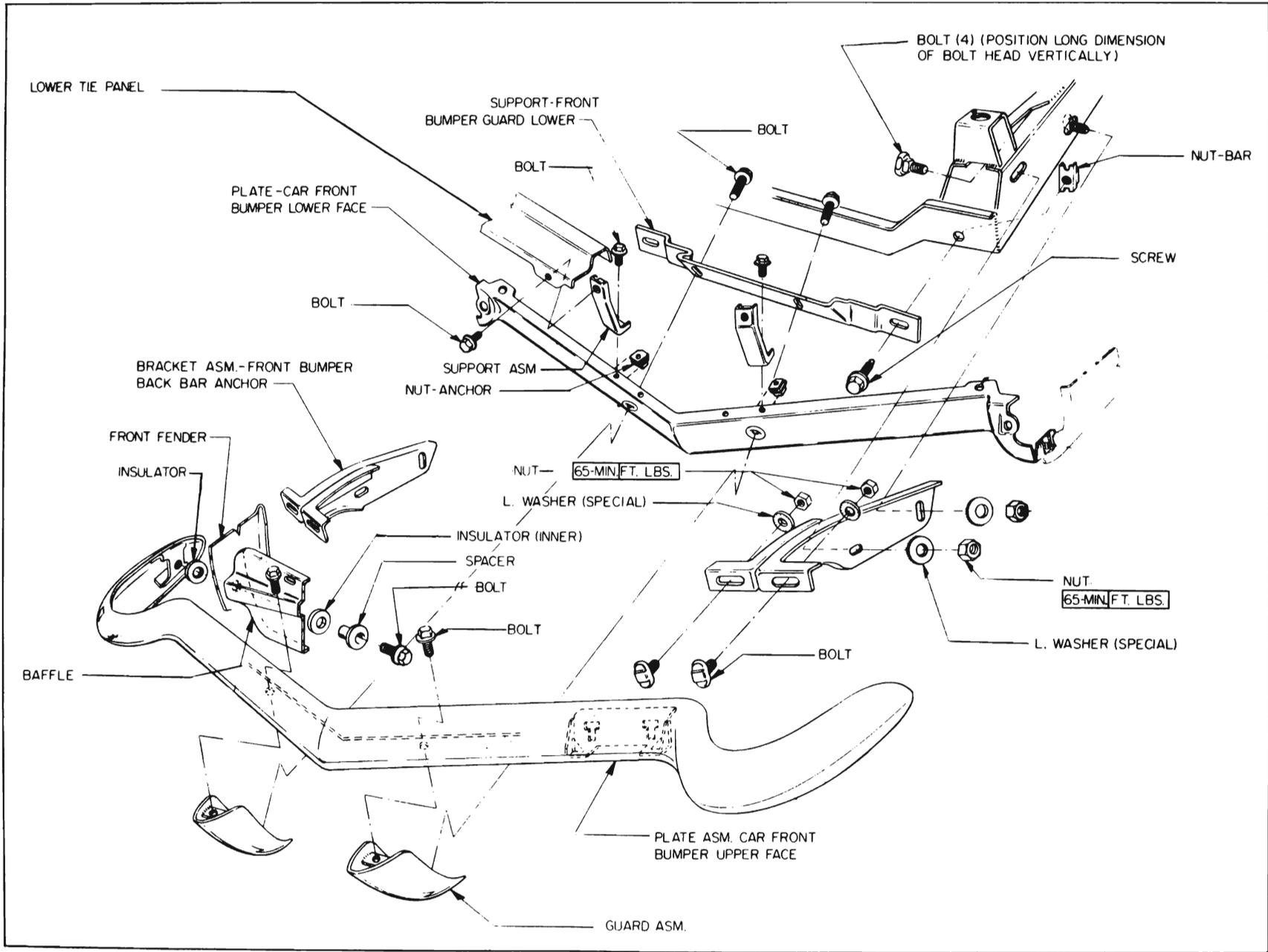


Figure 12-9—Front Bumper Assembly—4700 Series

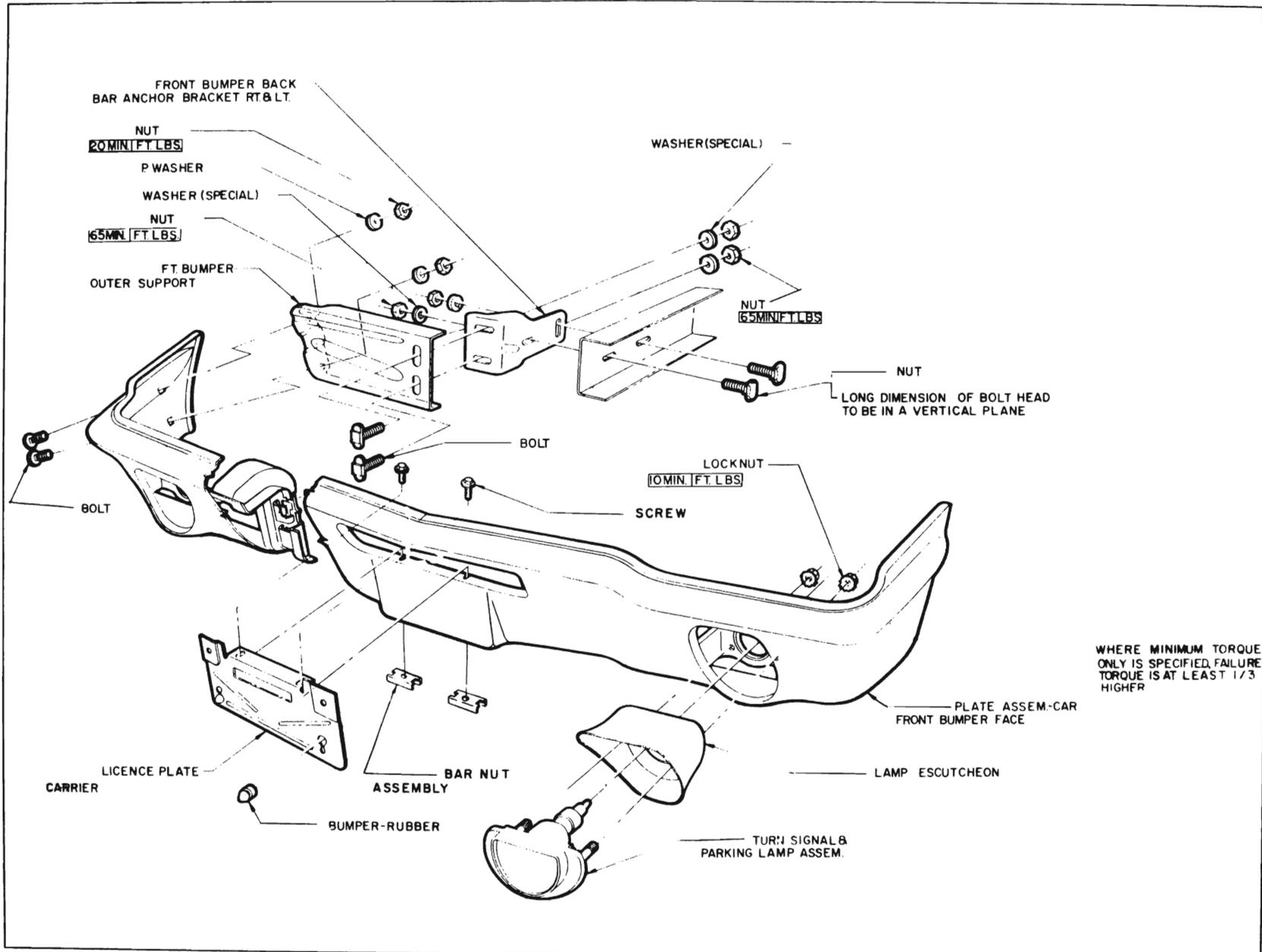


Figure 12-10—Front Bumper Assembly—4400-4600-4800 Series

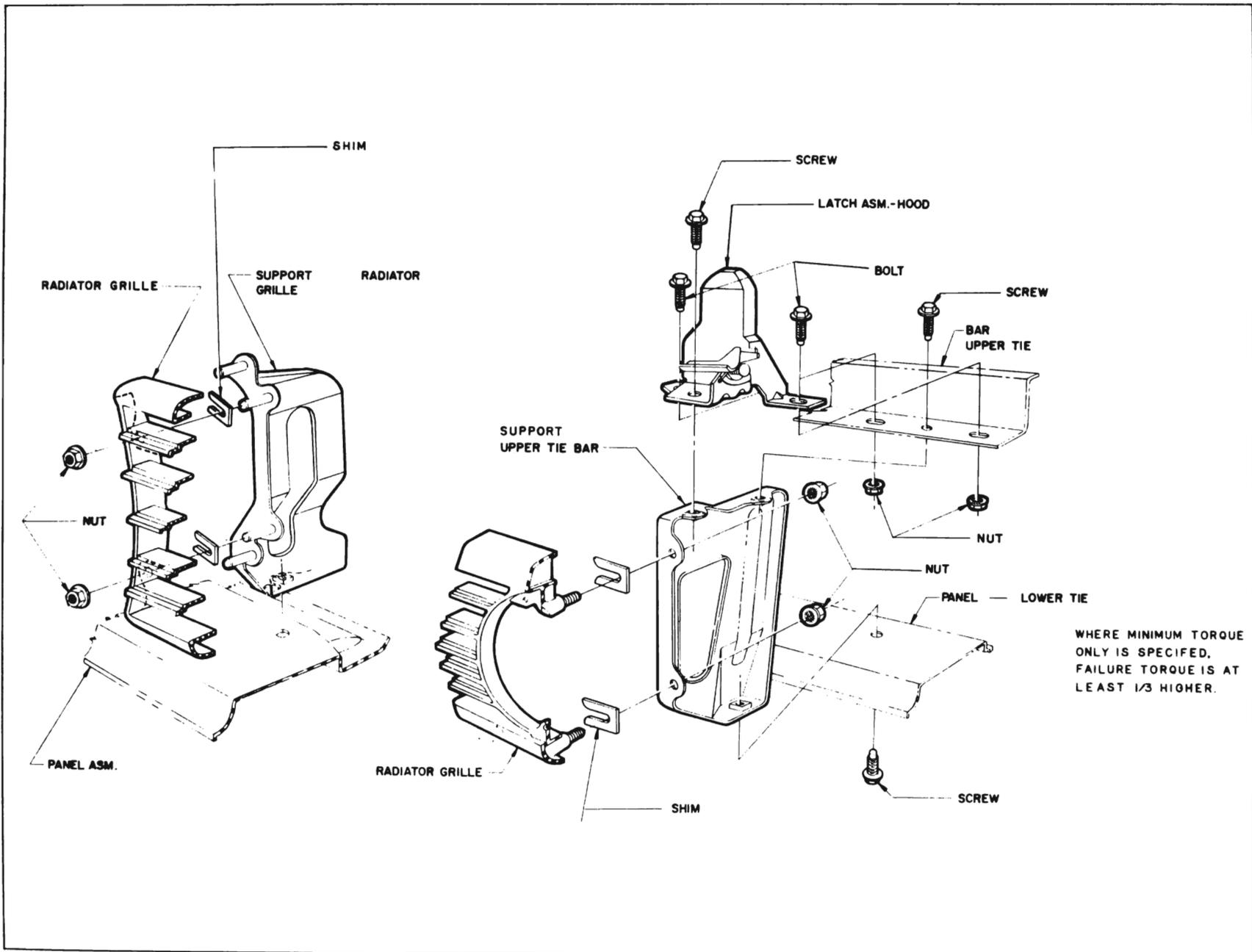


Figure 12-11—Radiator, Grille Assembly—4400-4600-4800 Series

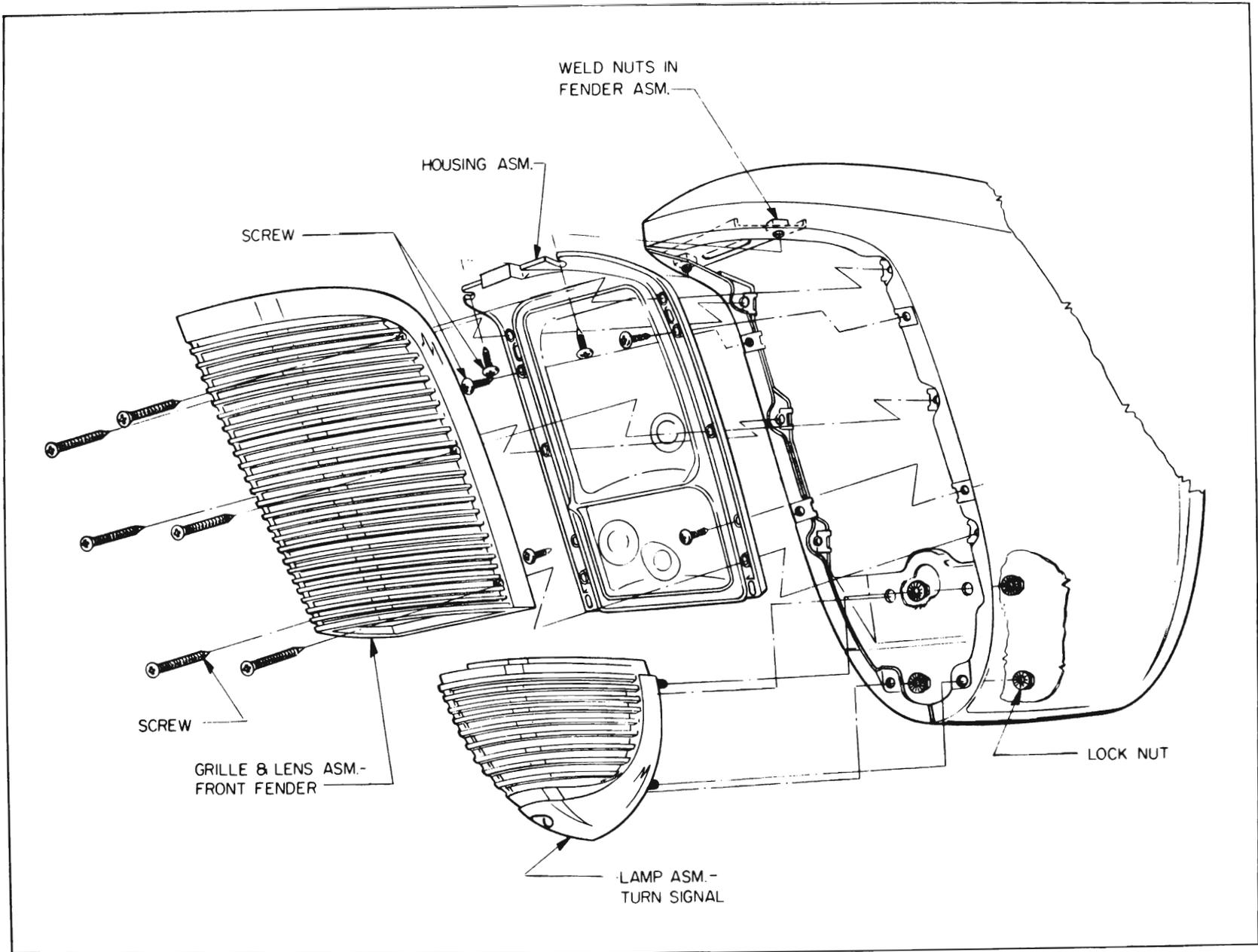


Figure 12-12—Parking Lamp, Cornering Light, & Directional Signal Grille Assembly—4700 Series

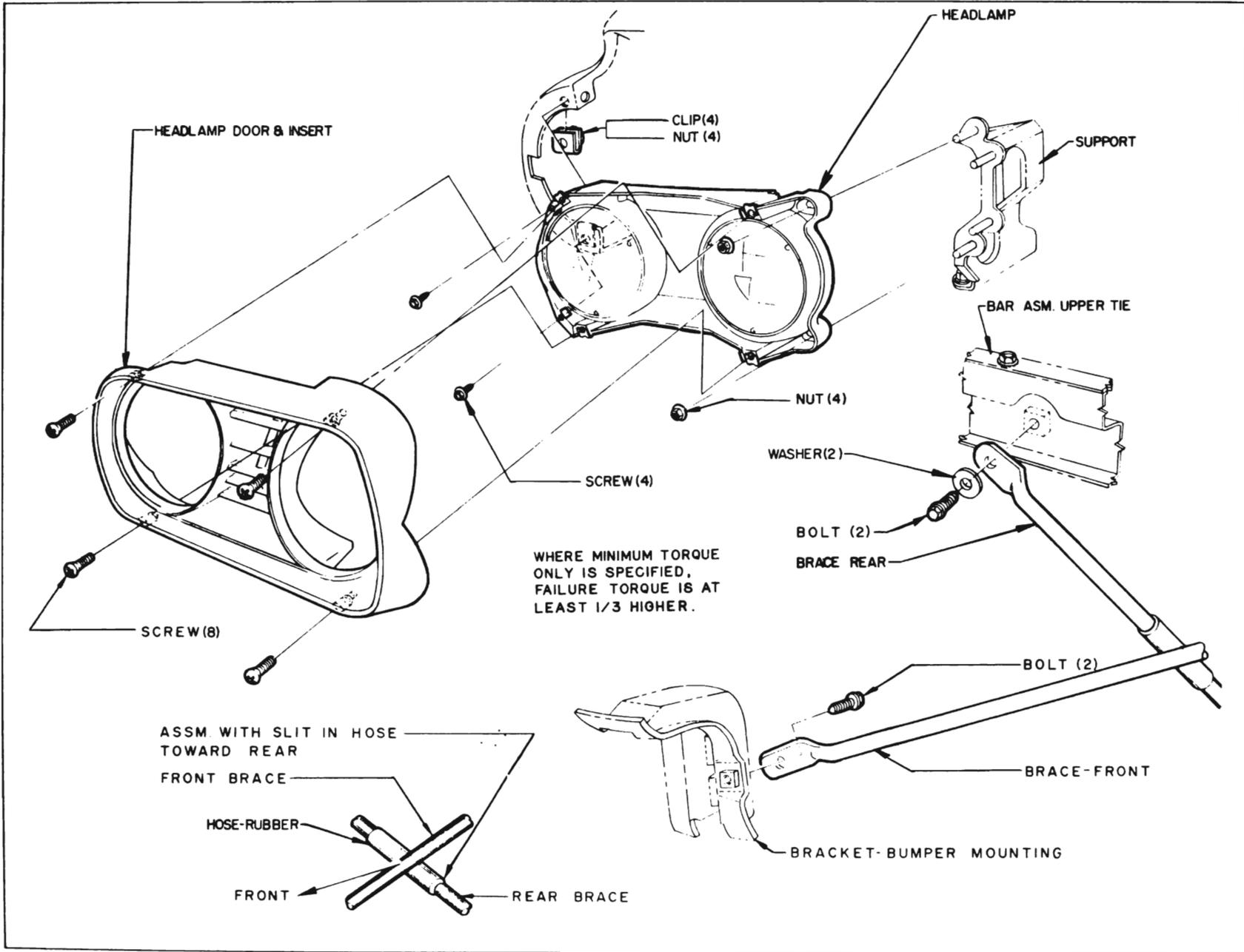


Figure 12-13—Headlight Installation—4400-4600-4800 Series

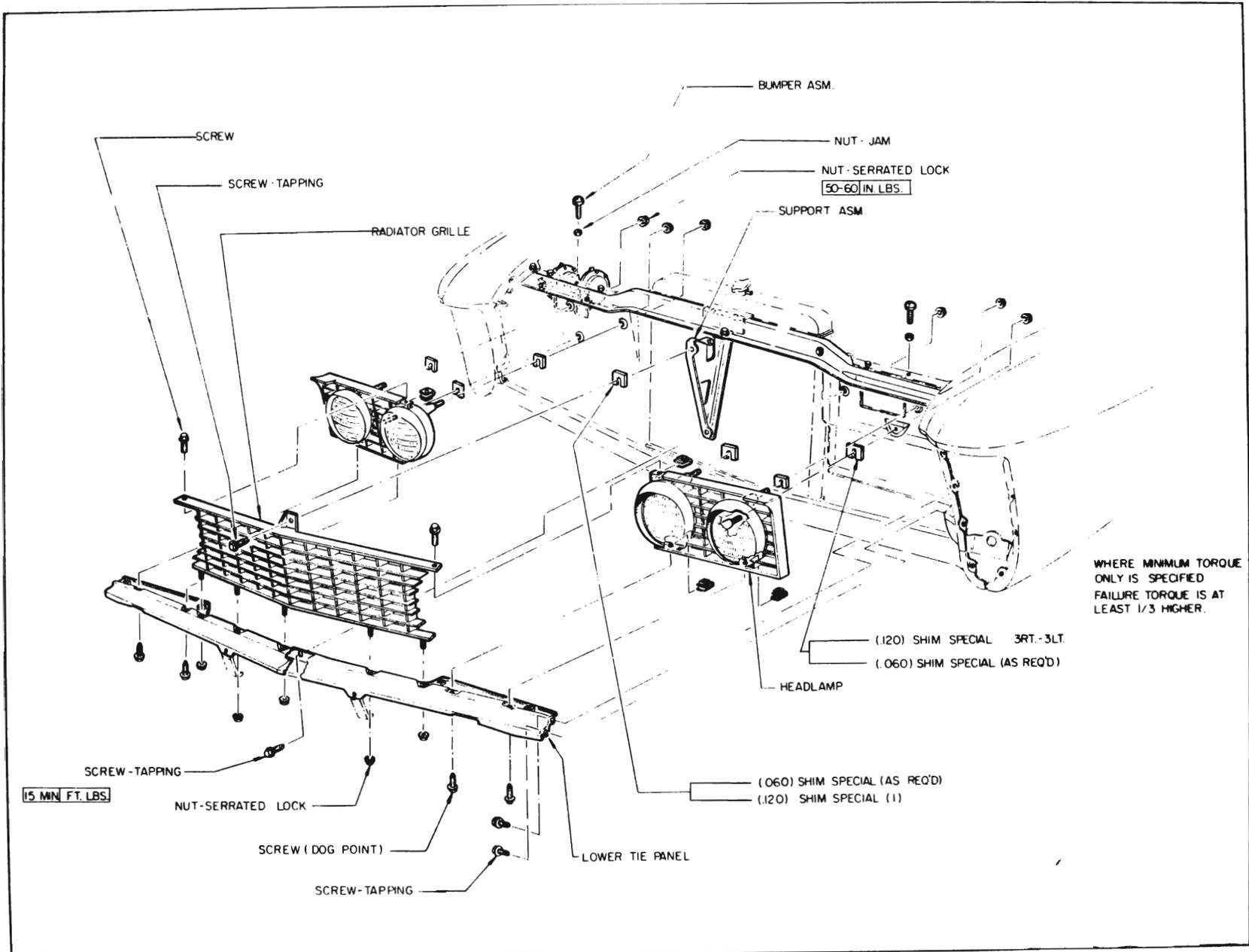


Figure 12-14—Radiator, Grille, & Headlamp Installation—4700 Series

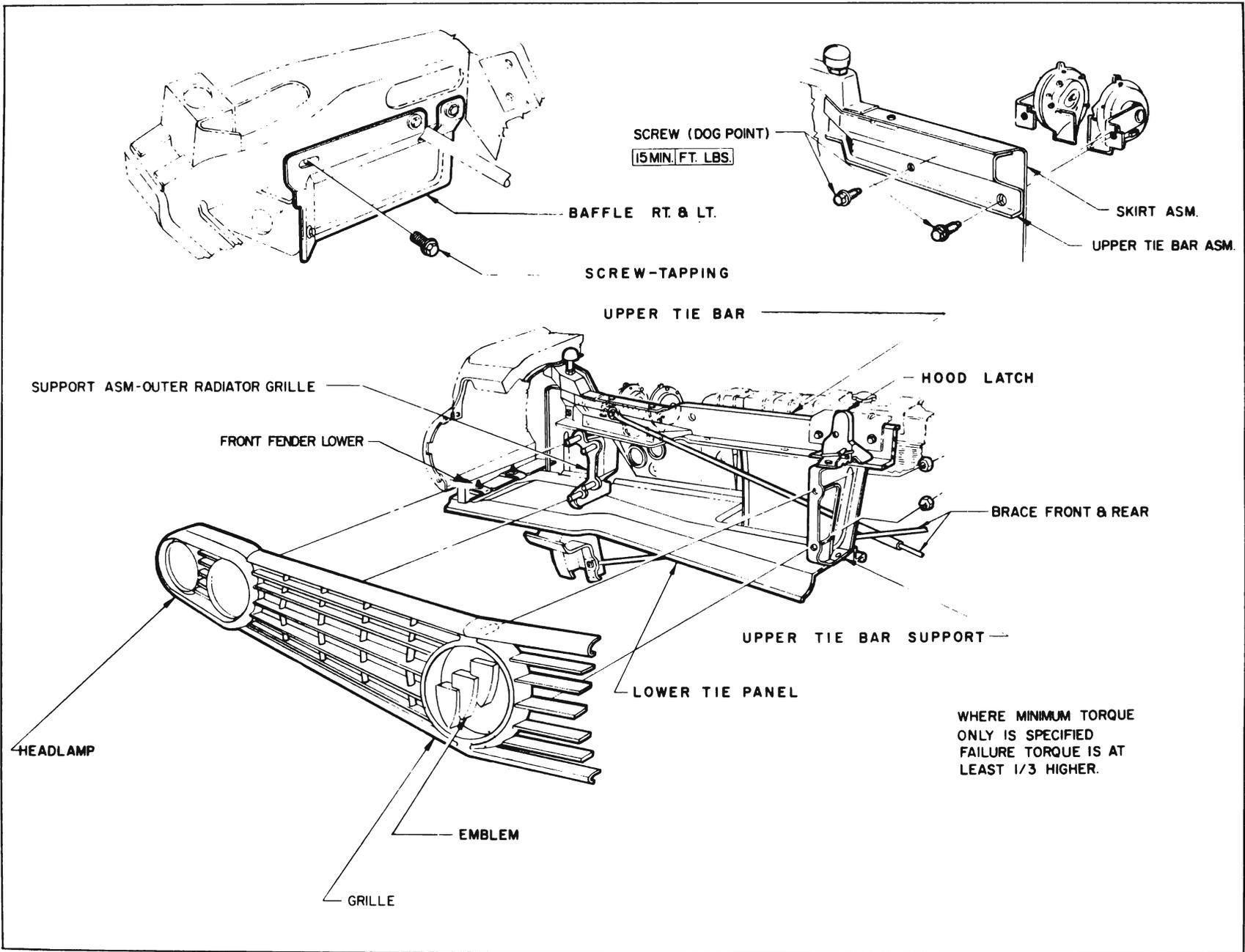


Figure 12-15—Grille Installation—4400-4800 Series

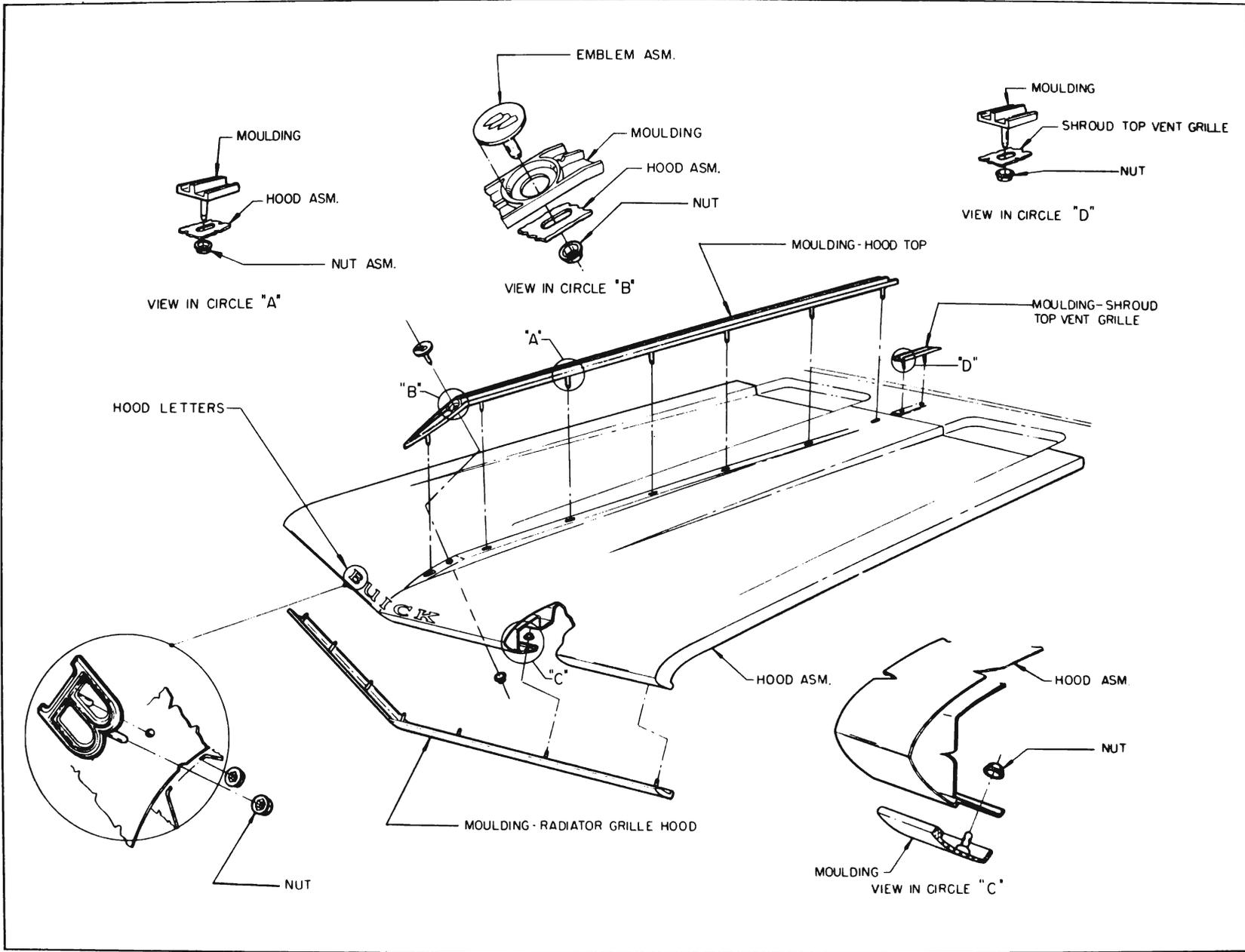


Figure 12-16—Hood Installation—4700 Series

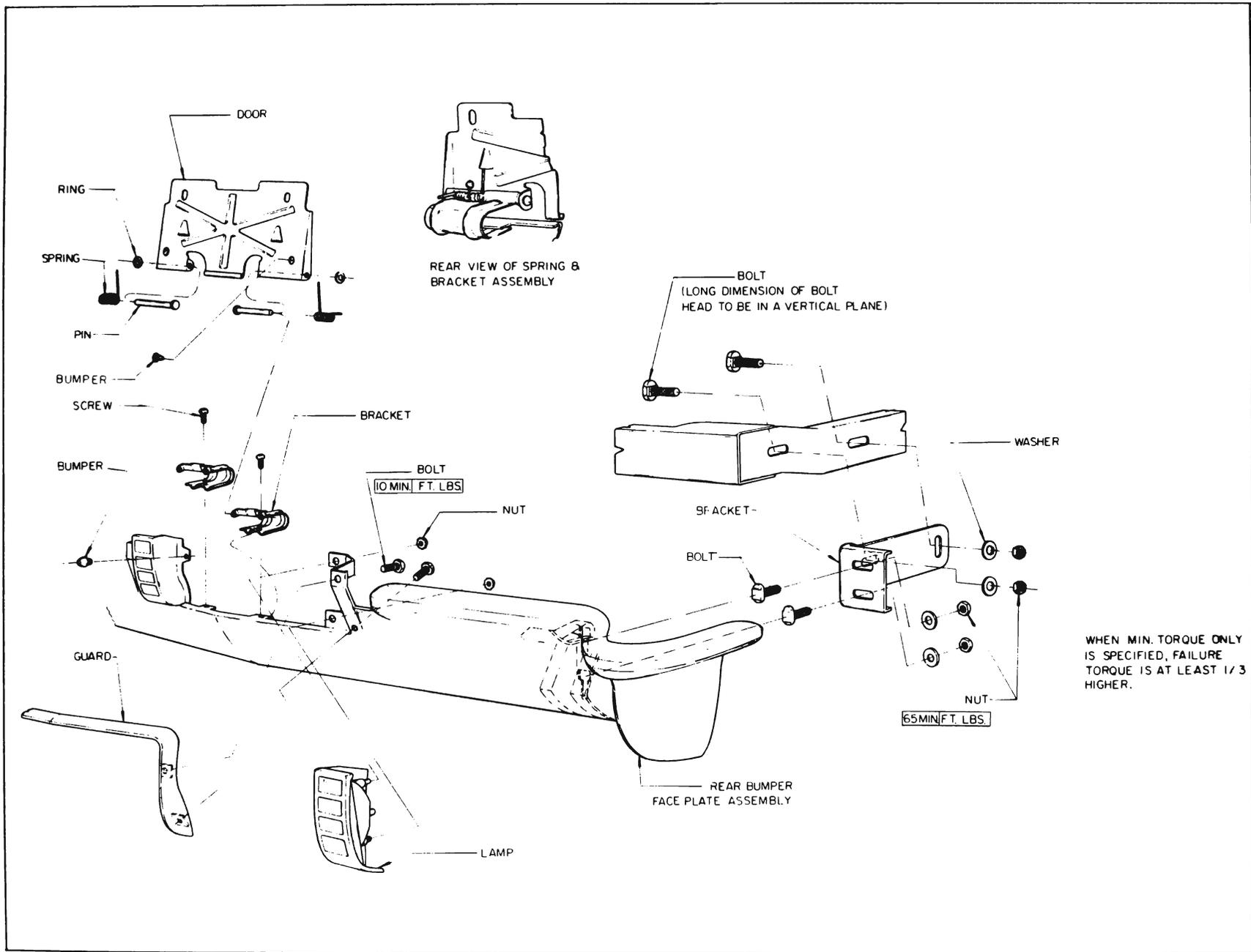


Figure 12-17—Rear Bumper Installation—4700 Series

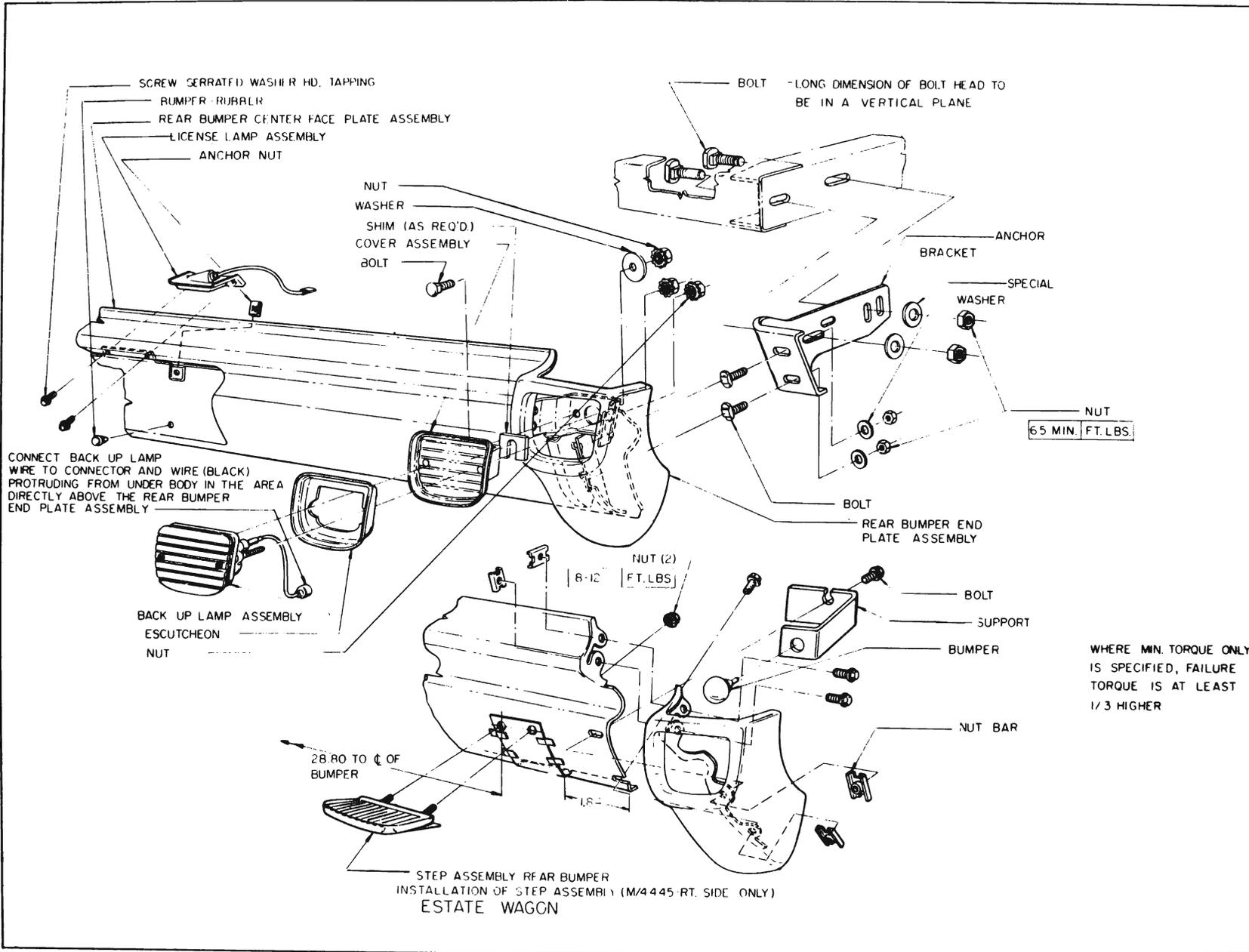
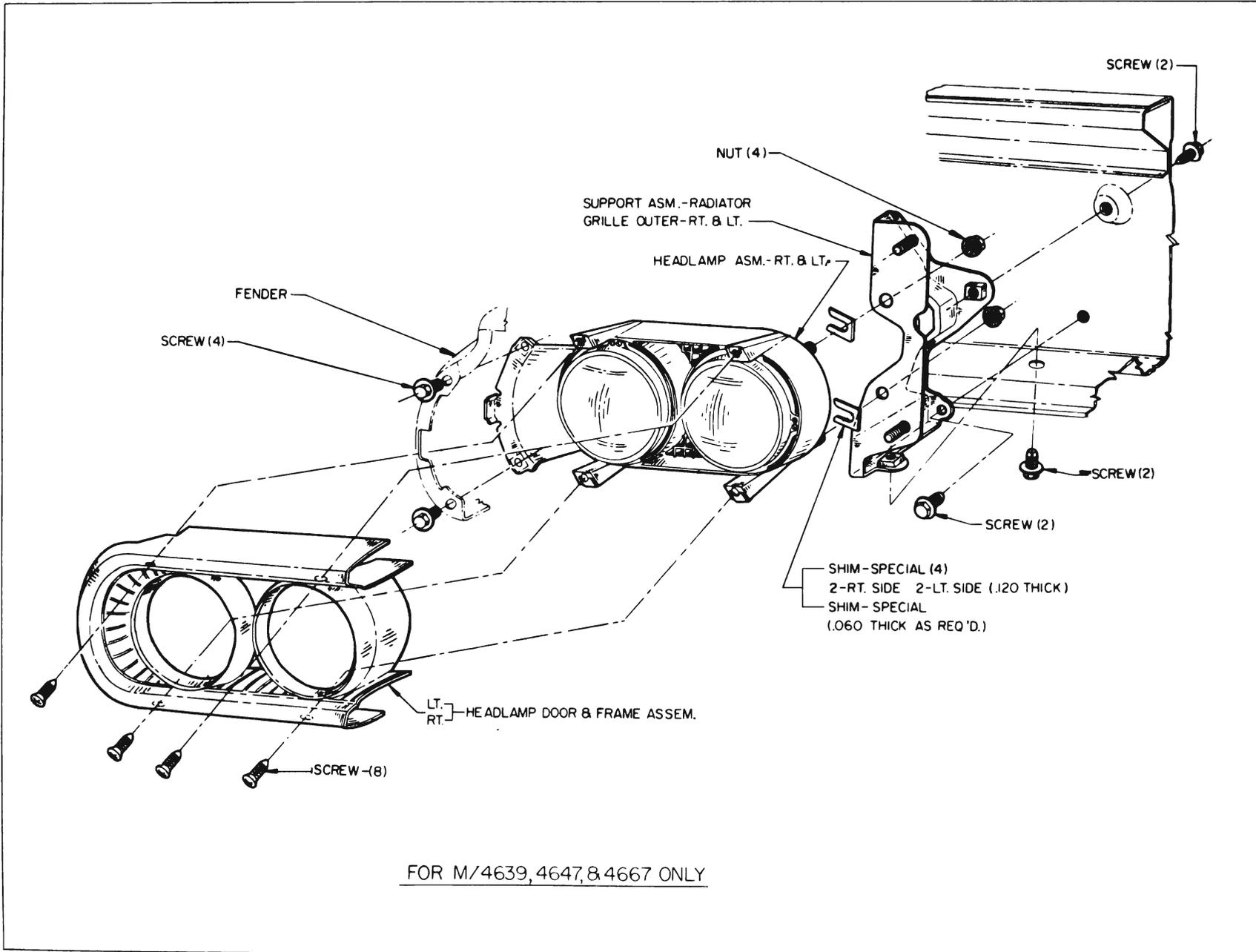


Figure 12-18—Rear Bumper and Back Up Light Installation—4445 Series



FOR M/4639, 4647, & 4667 ONLY

Figure 12-19—Headlight Installation