

# FENDERS

## CONTENTS

Subject	Page No.
<b>DESCRIPTION AND OPERATION:</b>	
Description of Chassis Sheet Metal .....	8B-16
<b>DIAGNOSIS: (Not Applicable)</b>	
<b>MAINTENANCE AND ADJUSTMENTS:</b>	
Fender Adjustments .....	8B-16
<b>MAJOR REPAIR:</b>	
Fender and Wheel House Panel Removal and Installation .....	8B-19
<b>SPECIFICATIONS: (Not Applicable)</b>	

### DESCRIPTION AND OPERATION

best results, the following procedure should be used:

#### DESCRIPTION OF CHASSIS SHEET METAL

#### Preliminary Tightening

##### All Series

The chassis sheet metal assembly is attached to the frame and body at adjustment points. 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 at the fender rear attaching point and chassis sheet metal mounts. Special shims at the rear locations allow adjustment of the rear of the assembly. The lower rear edge of the assembly is attached to the body at the rocker panel by bolts on each side. Shims are used at this location to provide up and down adjustment at the rear of the fender. 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.

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 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 and hood alignment. 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.

### MAINTENANCE AND ADJUSTMENTS

#### A-E Series

1. For alignment of the fender and hood at front doors, fender to leading edge of door should have a 7/32 inch (approximately) parallel gap and be flush. If realignment is necessary, check what this move will do at the rear end of the hood opening (approximately 1/8 inch gap between fenders and hood). The total gap of both sides should be approximately 1/4 inch, regardless of how the hood is spaced. If moving the fender flush with the door will impair this gap too badly, the door must be moved to make it flush with the fender.

#### FENDER ALIGNMENT

When the front sheet metal is misaligned, it is imperative to make the correct adjustment since an incorrect move on one item can throw the error to another area. Therefore, it is necessary to analyze the sheet metal as a whole before adjustments are made. For

Before making any adjustment of sheet metal to provide necessary clearance, 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 loosening the 2 vertical attachments of fender to upper cowl and 1 attachment of fender to front of dash (rear of hood hinge); this will allow the upper portion of the door to be moved. If the lower portion of the fender must be realigned for flushness, the fender skirt bracket to body bracket located below steering column should be loosened, the vertical attachment of fender to body at the rear of the wheel opening, and the horizontal attachment of the rear lower portion of fender behind the door. Shims must be removed or added to flush the fender to door at this rear lower location.

2. The fender to top edge of door should be flush and parallel.

3. If the hood to fender gap at the rear is correct, the hood split line should be parallel the full length of the hood with the nose of the hood parallel to the front end panel.

4. The hood should be flush with the fenders from front to rear. When the hood and fender split lines are parallel from front to rear and the hood front end is not parallel to the front end panel, it is necessary to shift the front end of the chassis sheet metal (attached at chassis frame on each side of radiator) in the direction of the smaller gap. Some variation of parallel lines and hood to fender nose flushness can be allowed in mild cases, but shifting the sheet metal is the only way a correct alignment can be obtained. **BEFORE YOU HAVE DECIDED THIS IS THE MOVE TO MAKE, BE SURE THAT THE REAR ENDS OF THE FENDERS ARE NOT INBOARD** to the door on one side and outboard on the other; this will have the same effect on out-of-square sheet metal. The hood is the final adjustment item on sheet metal and will not fit in and meet specification in an opening that is not square.

To adjust for poor fender to door gap (but parallel) move a fender fore or aft. It is necessary to loosen all attachments to the body (two at the hood hinge area, one at the front of dash slightly below the hood hinge, one at the lower portion of dash attaching to inner fender skirt, and two at the rocker-rear lower end of fender).

Many times after loosening these attachments, the fender will spring to its proper position. If the move isn't too great, the fender can be slightly forced to its correct position; but if too much force is necessary to obtain this setting, further procedures should be used. (Remember that putting the fender under severe strain can result in only a temporary alignment or a changing in the door line or hood split line contour, this can also cause the fender at the rocker at the rear of the wheel cut to flare out or in.)

When a major move is necessary, remove the battery

and battery base and loosen all sheet metal attachments of the chassis sheet metal to radiator support of both fenders even if only one is to be relocated. Bolts to loosen are fender skirt (wheel house panel) radiator support, fender to radiator support (behind headlamps). Do not loosen the upper tie bar to fender bolts if equipped. Loosen the chassis sheet metal to frame bolts located at each side of the radiator on the side to be relocated. When necessary to make side-to-side adjustments, loosen the radiator braces on models so equipped.

When all bolts are loose, the sheet metal can shift to any desired position. It is not necessary to remove the hood, but the hood should be in the open position when sheet metal is shifted.

From this point, it is very important to secure the previously-loosened bolts in the following sequence.

Before any tightening is performed at this stage, it should have been determined whether the fender and door will have a parallel gap when set at the correct height at the rear. If correction is needed to make the gap parallel, the sheet metal must be raised or lowered at the chassis sheet metal mounts by adding or removing shims between the radiator support and the mount. Remember that the mount is compressed after tightening and will account for approximately 1/16 inch smaller gap on the bottom of the door opening than at the top.

1. Tighten the outer vertical fender to body attachment point first. Add or remove shims to position the fender vertically to door. Position the fender and door with a 7/32 inch (approximately) gap and flush to the door at the upper portion of fender to door.

Lower the hood gently to down position and check for squareness of the fender set. The hood should have parallel split lines with the fender, and the noses of the fenders parallel to the front end panel. If not in line, the sheet metal must be shifted sideways in the direction of the smaller gap until they are parallel. If only one fender has been loosened and much movement is necessary, the other fender must be loosened the same as the fender being reset; that is, all attachments except directly behind the hood hinge. The final position, if correct, will produce parallel hood- to-fender lines and a parallel condition to the front panel.

Tighten the chassis sheet metal to frame bolts and torque to specifications. The sheet metal will not move once these four attachments (two fender to body at hood hinge and two sheet metal to frame) are tightened.

2. If the fender has poor alignment to upper portion of door, correcting may be made by loosening the two vertical attachments of fender to upper cowl and

one attachment of fender to front of dash (rear of hood hinge); this will allow the upper portion of the door to be moved. If the lower portion of the fender must be realigned for flushness, the fender skirt bracket to body bracket located below steering column should be loosened, the vertical attachment of fender to body at the rear of the wheel opening, and the horizontal attachment of the rear lower portion of fender behind the door. Shims must be removed or added to flush the fender to door at this rear lower location.

3. All remaining bolts may now be tightened in any sequence.

If both fenders have been loosened, the other side should be attached using the same procedure.

### **B-C Series**

1. For alignment of the fender and hood at front doors, fender to leading edge of door should have a 7/32 inch (approximately) parallel gap and be flush. If realignment is necessary, check what this move will do at rear end of the hood opening (approximately 1/8 inch gap between fenders and hood). The total gap of both sides should be approximately 1/4 inch regardless of how the hood is spaced. If moving the fender flush with the door will impair this gap too badly, the door must be moved to make it flush with the fender.

Before making any adjustment of sheet metal to provide necessary clearance, 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.

2. The fender to top edge of door should be flush and parallel.

3. If the hood to fender gap at the rear is correct, the hood split line should be parallel the full length of the hood with the nose of the hood aligning with the tips of the fenders.

4. The hood should be flush with the fenders from front to rear. When the hood and fender split lines are parallel from front to rear and the fender on one side is short of the hood nose while the other side is flush or long of the hood nose, it is necessary to shift the front end of the chassis sheet metal (attached at chassis frame on each side of radiator) in the direction of the short fender. Some variation of parallel lines and hood to fender nose flushness can be allowed in mild cases, but shifting the sheet metal is the only way a correct alignment can be obtained. Before you have decided this is the move to make, be sure that the rear ends of the fenders are not inboard to the door on one side and outboard on the other; this

will have the same effect on out-of-square sheet metal. The hood is the final adjustment item on sheet metal and will not fit in, and meet specification in an opening that is not square.

To adjust for door fender to door gap (but parallel), move a fender fore or aft, it is necessary to loosen all attachments to the body (two at the hood hinge area, one at the front of dash slightly below the hood hinge, one at the lower portion of dash attaching to inner fender skirt, and two at the rocker-rear lower end of fender).

Many times after loosening these attachments, the fender will spring to its proper position. If the move isn't too great, the fender can be slightly forced to its correct position; but if too much force is necessary to obtain this setting, further procedures should be used. (Remember that putting the fender under severe strain can result in only a temporary alignment or a change in the door line or hood split line contour; this can also cause the fender at the rocker at the rear of the wheel cut to flare out or in.)

When a major move is necessary, remove the battery and battery base and loosen all sheet metal attachments of the chassis sheet metal to radiator support of both fenders even if only one is to be relocated. Bolts to loosen are fender skirt (wheel house panel) radiator support, fender to radiator support, (behind headlamps). Do not loosen the upper tie bar to fender bolts. Loosen the chassis sheet metal to frame bolts located at each side of the radiator on the side to be relocated. When necessary to make side-to-side adjustments, loosen the radiator braces on models so equipped.

When all bolts are loose, the sheet metal can shift to any desired position. It is not necessary to remove the hood, but the hood should be in the open position when sheet metal is shifted.

From this point, it is very important to secure the previously loosened bolts in the following sequence:

Before any tightening is performed at this stage, it should have been determined whether the fender and door will have a parallel gap when set at the correct height at the rear. If correction is needed to make the gap parallel, the sheet metal must be raised or lowered at the chassis sheet metal mounts by adding or removing shims between the radiator support and the mount. Remember that the mount is compressed after tightening and will account for approximately 1/16" smaller gap on the bottom of the door opening than at the top.

1. Tighten the vertical fender to body attachment point first. Add or remove shims to position the fender vertically to door. Position the fender and door with a 7/32 inch (approximately) gap and flush to the door at the upper portion of fender to door.

Lower the hood gently to down position and check for squareness of the fender set. The hood should have parallel split lines with the fender, and the noses of fenders and hood in line. If not in line, the sheet metal must be shifted sideways in the direction of the short fender until they do line up. If only one fender has been loosened and much movement is necessary, the other fender must be loosened the same as the fender being reset, that is, all attachment except directly behind the hood hinge. The final position, if correct, will produce parallel hood to fender lines and a flush condition at the nose of hood and fenders.

2. If fenders and door panel surfaces are not reasonably flush, correction may be made by loosening the 2 vertical attachments of fender to upper cowl and 1 attachment of fender to front of dash (rear of hood hinge); this will allow the upper portion of the door to be moved. If the lower portion of the fender must be realigned for flushness, the fender skirt bracket to body bracket located below steering column should be loosened, the vertical attachment of fender to body at the rear of the wheel opening, and the horizontal attachment of the rear lower portion of fender behind the door. Shims must be removed or added to flush the fender to door at this rear lower location. The fender to front of dash should now be secured and shim stuffed if the gap exceeds 1/4 inch. The attachment at the rocker is last with shims stuffed between body and fender at the two bolt location so as not to affect the fender set when bolts are tightened.

3. The fender can be fattened or flattened to the door contour by either over or under shimming at the rocker panel attachment and forcing the fender up to fatten or down to flatten. This will only handle a small amount of contour change, however, but it is in a direction desired. When doing so, you should use the rear bolt location to work with and then stuff shim and tighten the front location. The parallel door to fender gap can be improved at this time, but too much fore or aft forcing will cause the fender to flare in or out at the bottom of the wheel cut.

4. All remaining bolts may now be tightened in any sequence.

If both fenders have been loosened, the other side should be attached using the same procedure.

## MAJOR REPAIR

### FENDER AND WHEELHOUSE REMOVAL AND INSTALLATION

#### A Series Fender Removal

1. Remove the chrome headlight ring.

2. Remove the 4 fender to radiator support bolts. See Figure 8B-3.

3. Remove the bolt attaching the fender brace rod to front lower edge of fender. See Figure 8B-4.

4. Support the hood in the open position and remove the hood hinge to fender bolts.

5. Remove the 5 fender to body bolts. See Figure 8B-5. Note number and size of shims for reinstallation.

6. Remove the side marker lamp socket by removing the spring clip retaining the lense. See Figure 8B-4.

7. Remove the fender to wheelhouse panel bolts. See Figure 8B-6. (Place protective cloth between fender and bumper.)

8. Remove fender by pushing backwards and up. Protect from contact with door.

#### A Series Fender Installation

1. Place fender in position. Be careful not to damage fender.

2. Reinstall fender to wheelhouse bolts. See Figure 8B-6.

3. Reinstall side marker socket and spring clip. See Figure 8B-4.

4. Install the 5 fender to body bolts and shims. See Figure 8B-5.

5. Install hood hinge.

6. Install fender brace rod. See Figure 8B-4.

7. Install the 4 fender to radiator support bolts. See Figure 8B-3 and install headlight ring.

8. Realign fender if necessary for proper adjustment.

#### A Series Wheelhouse Panel Removal

1. Remove batter for right side removal or canister for left side removal.

2. Remove fender as per fender removal procedure.

3. Remove the battery box attaching bolts and then box. See Figure 8B-7.

4. Remove the wheelhouse to radiator support, and body bolts. See Figure 8A-7.

SKETCHES SHOWING CAUSES OF UNPARALLELED HOOD LINES

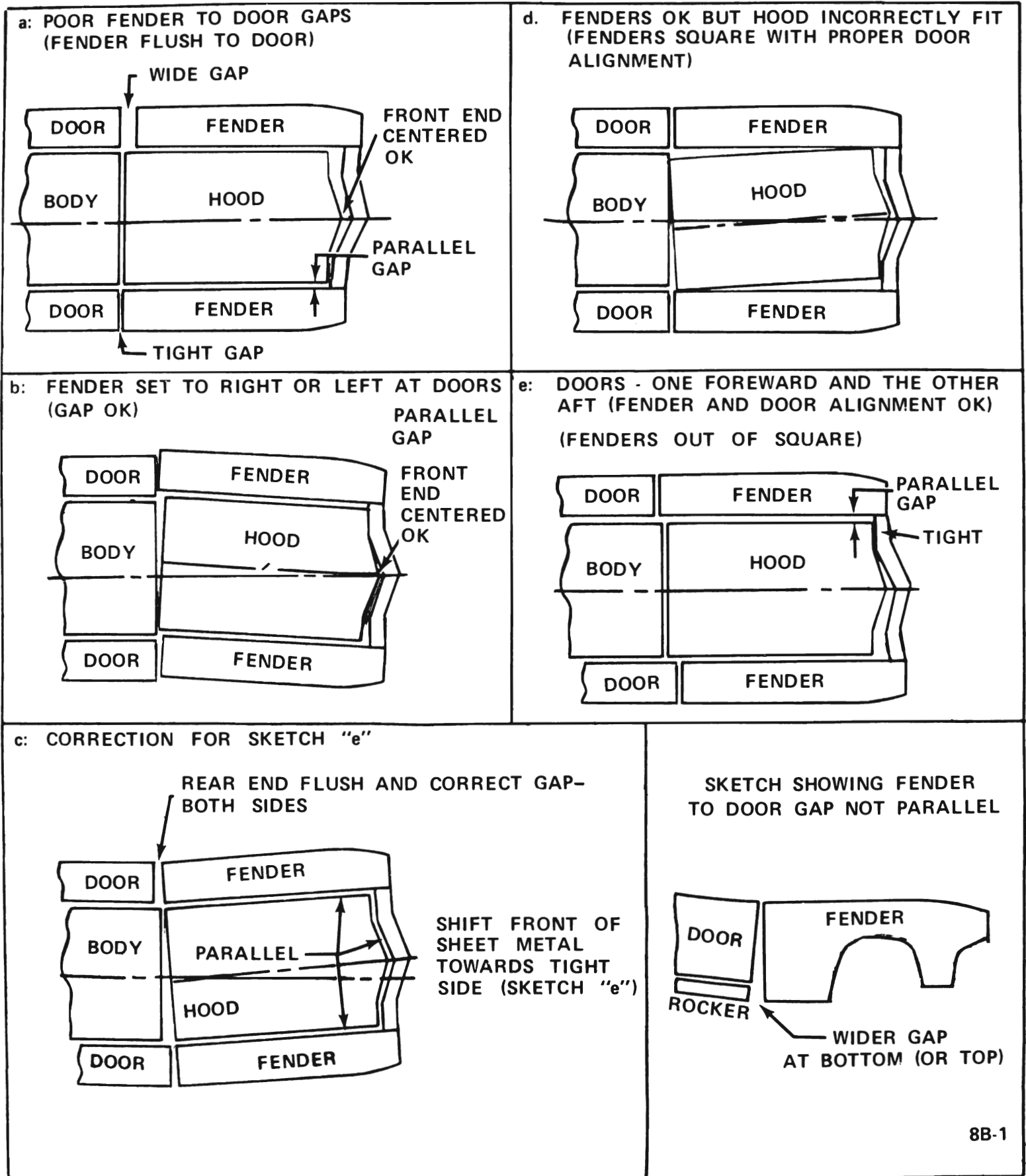


Figure 8B-1 A-E Chassis Sheet Metal Alignment

SKETCHES SHOWING CAUSES OF LONG AND SHORT FENDERS

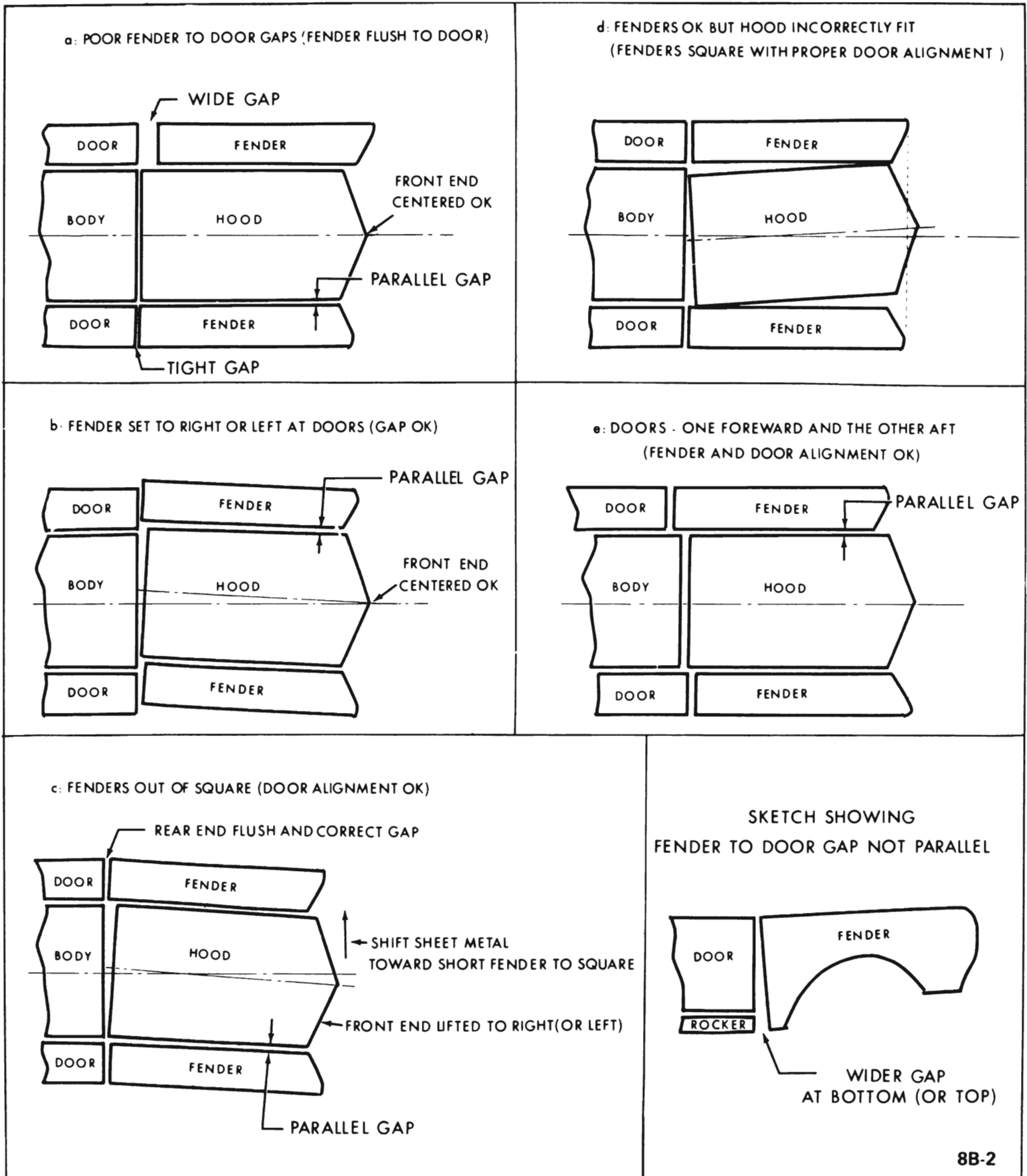
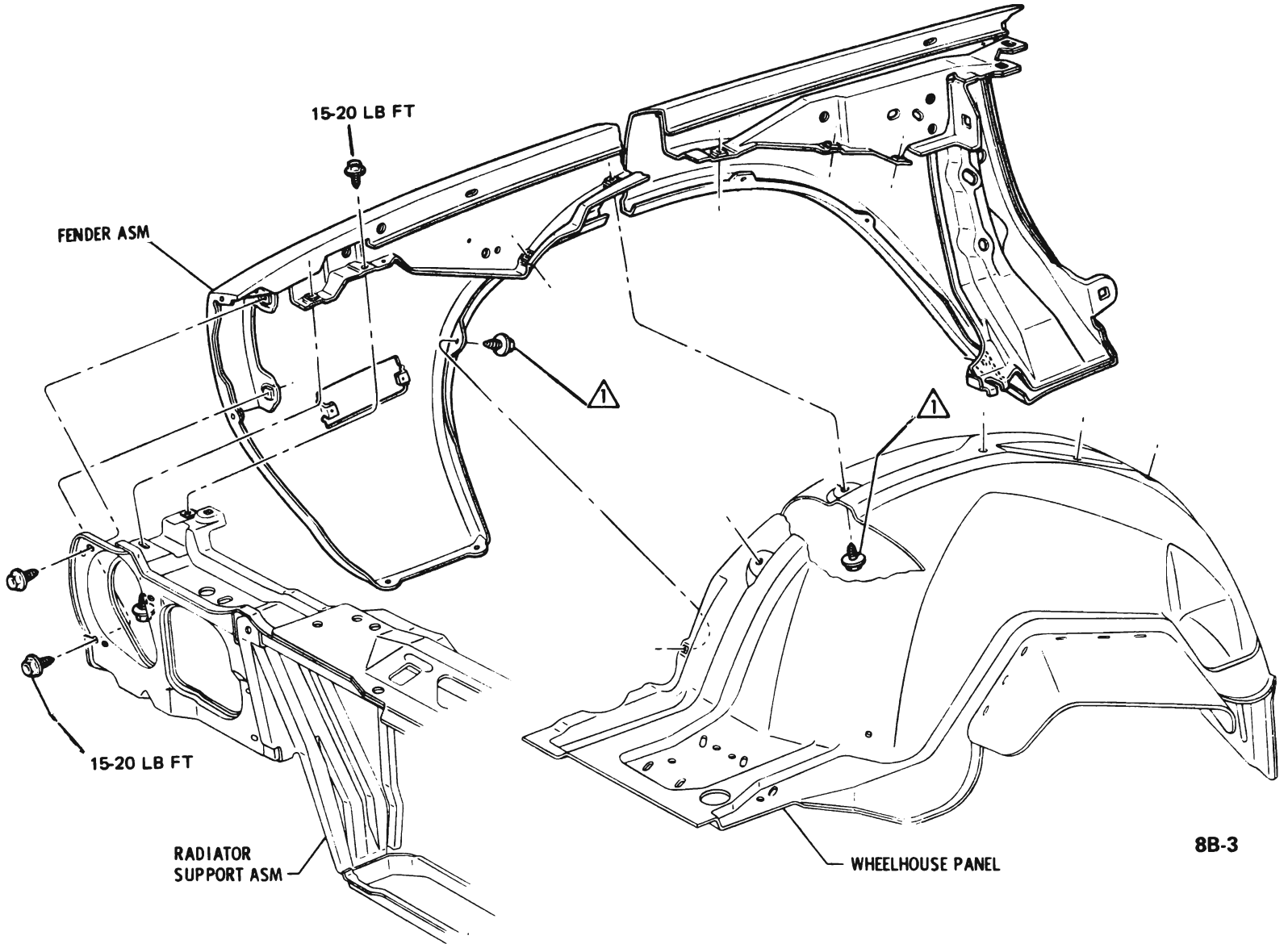
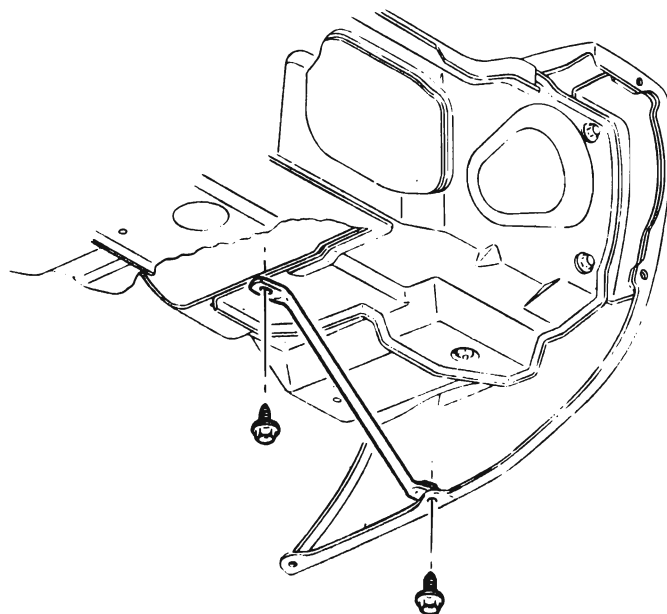


Figure 8B-2 B-C Chassis Sheet Metal Alignment



8B-3

Figure 8B-3 A Series Fender to Radiator Support Mounting



8B-4

Figure 8B-4 A Series Fender Brace and Marker Light

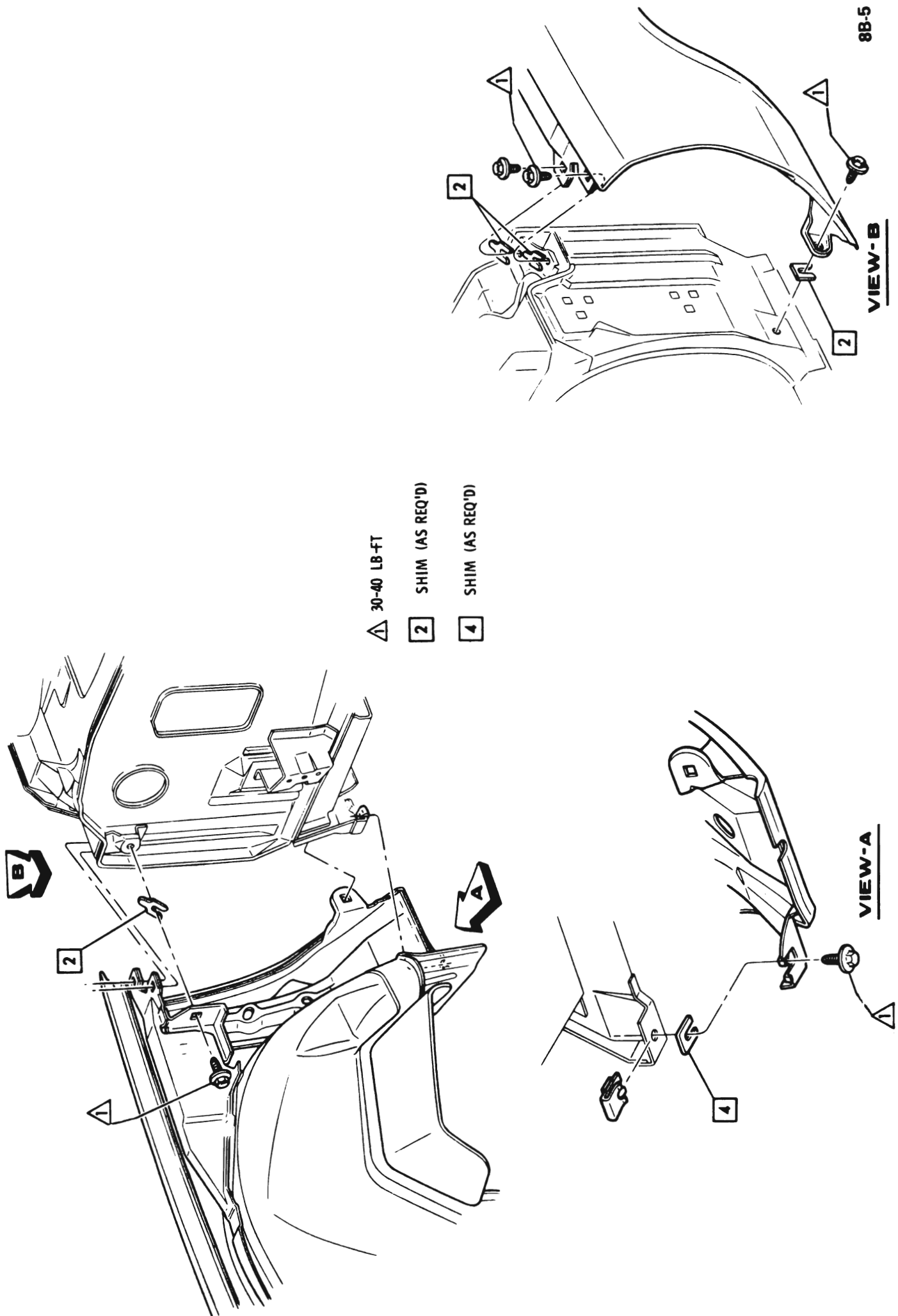


Figure 8B-5 A Series Fender to Body Mounting



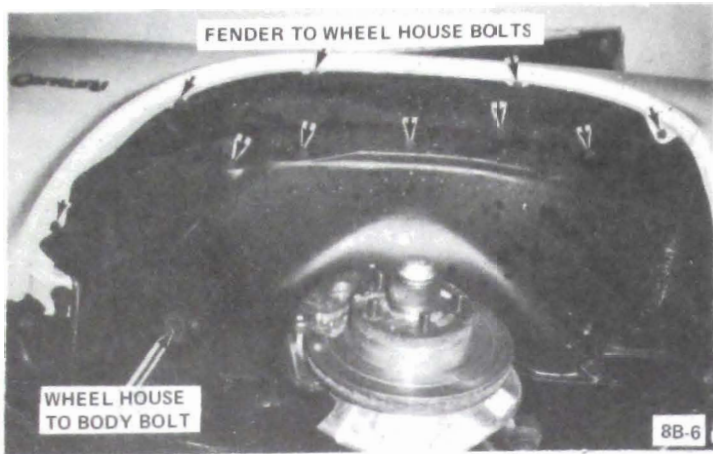


Figure 8B-6 A Series Wheelhouse to Fender

### A Series Wheelhouse Panel Installation

1. Install the wheelhouse to radiator support and body bolts. See Figure 8B-7.
2. Install the battery box. See Figure 8B-7.
3. Install fender as per fender installation procedure.
4. Install battery and or canister. Align fender if necessary.

### B-C Series Fender and Wheelhouse Removal

1. Disconnect battery cables and remove battery if battery is on same side as fender being removed.
2. Unfasten all electrical wires attached to wheelhouse.
3. Remove bolts securing battery base to support and wheelhouse. Lift out battery base.
4. Remove bolts securing battery base reinforcement to wheelhouse and radiator support. See Figure 8B-11.
5. Remove bolts securing outer end of radiator support to wheelhouse and fender. See Figure 8B-11.
6. Remove bolts securing front of fender to radiator support. See Figure 8B-12.
7. Remove screws and clip securing fender lower front baffle to frame. See Figure 8B-13.
8. Remove hood hinge to fender bolts supporting hood as outlined in Hood Removal.
9. Remove bolts securing wheelhouse to lower portion of cowl. Note shims. See Figure 8B-11.
10. Remove bolts securing lower rear edge of fender to rocker panel. Note shims. See Figure 8B-14.

11. Remove bolt securing upper rear portion of fender to hinge pillar.

12. Remove bolts securing upper rear portion of fender to upper portion of cowl. Note shims. See Figure 8B-14.

13. Disconnect antenna lead (if so equipped).

14. Remove bolts securing fender to upper tie bar.

15. Rise up and lift off fender and wheelhouse.

16. Wheelhouse can now be removed from fender by removing wheelhouse to fender attaching bolts. See Figure 8B-12.

### B-C Series Fender and Wheelhouse Panel Installation

1. Install wheelhouse to fender and attach with bolts. See Figure 8B-12.
2. Install bolts, securing fender to upper tie bar.
3. Secure upper rear portion of fender to upper portion of cowl with bolts. See Figure 8B-14.
4. Secure upper rear portion of fender to hinge pillar with bolt.
5. Secure lower rear edge of fender to rocker panel with bolts. See Figure 8B-14.
6. Secure wheelhouse to lower portion of cowl with bolts. See Figure 8B-11.
7. Install 2 hood hinge to fender bolts supporting hood, as per hood hinge installation procedure.
8. Install screws and clip securing fender lower front baffle to frame. See Figure 8B-13.
9. Install bolts securing front of fender to radiator support. See Figure 8B-12.
10. Install bolts securing outer end of radiator support to wheelhouse and fender. See Figure 8B-11.
11. Install bolts securing battery base reinforcement to wheelhouse and radiator support. See Figure 8B-11.
12. Install battery base to support and wheelhouse.
13. Connect all electrical wiring and battery cables. Align fender if necessary.

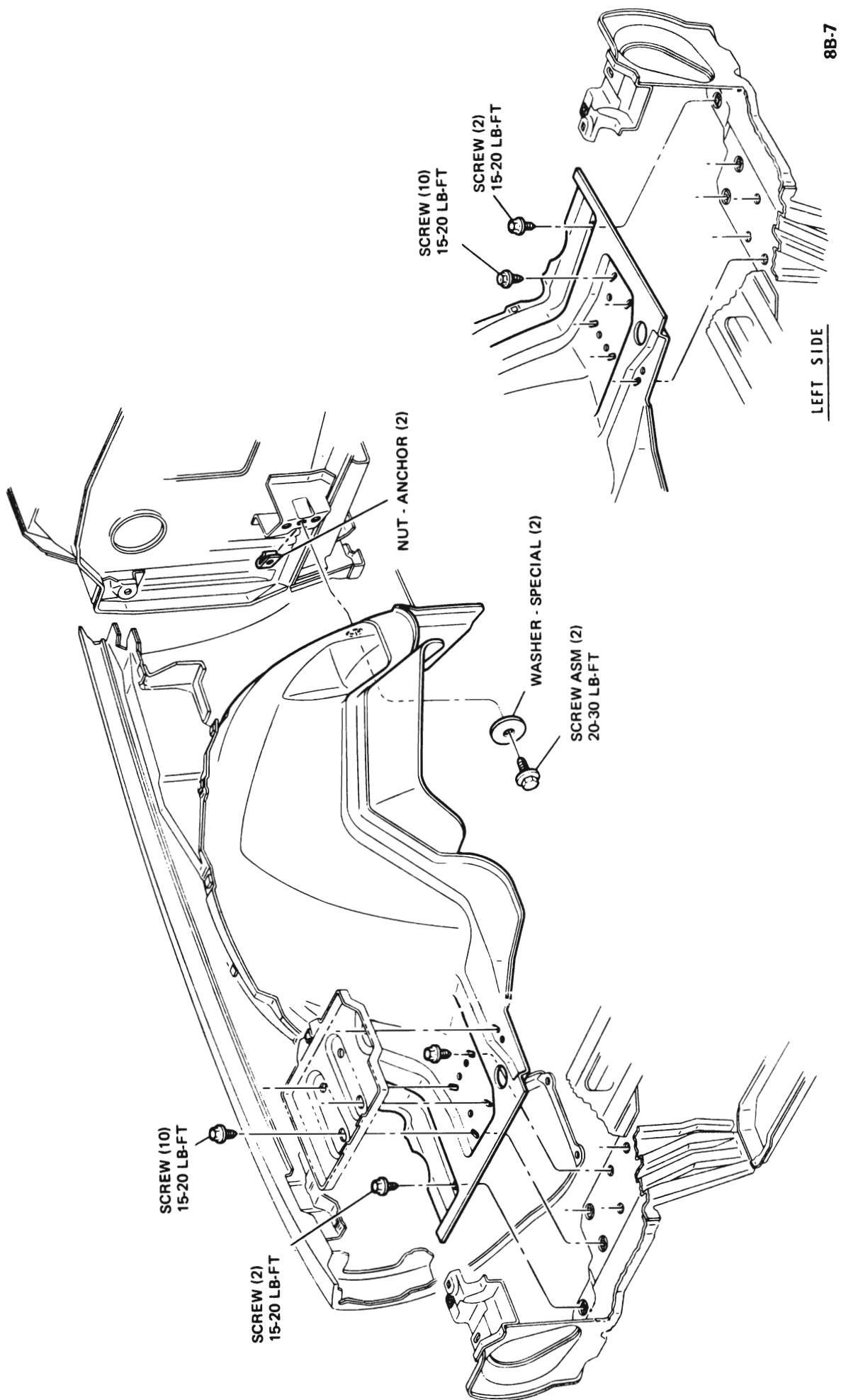
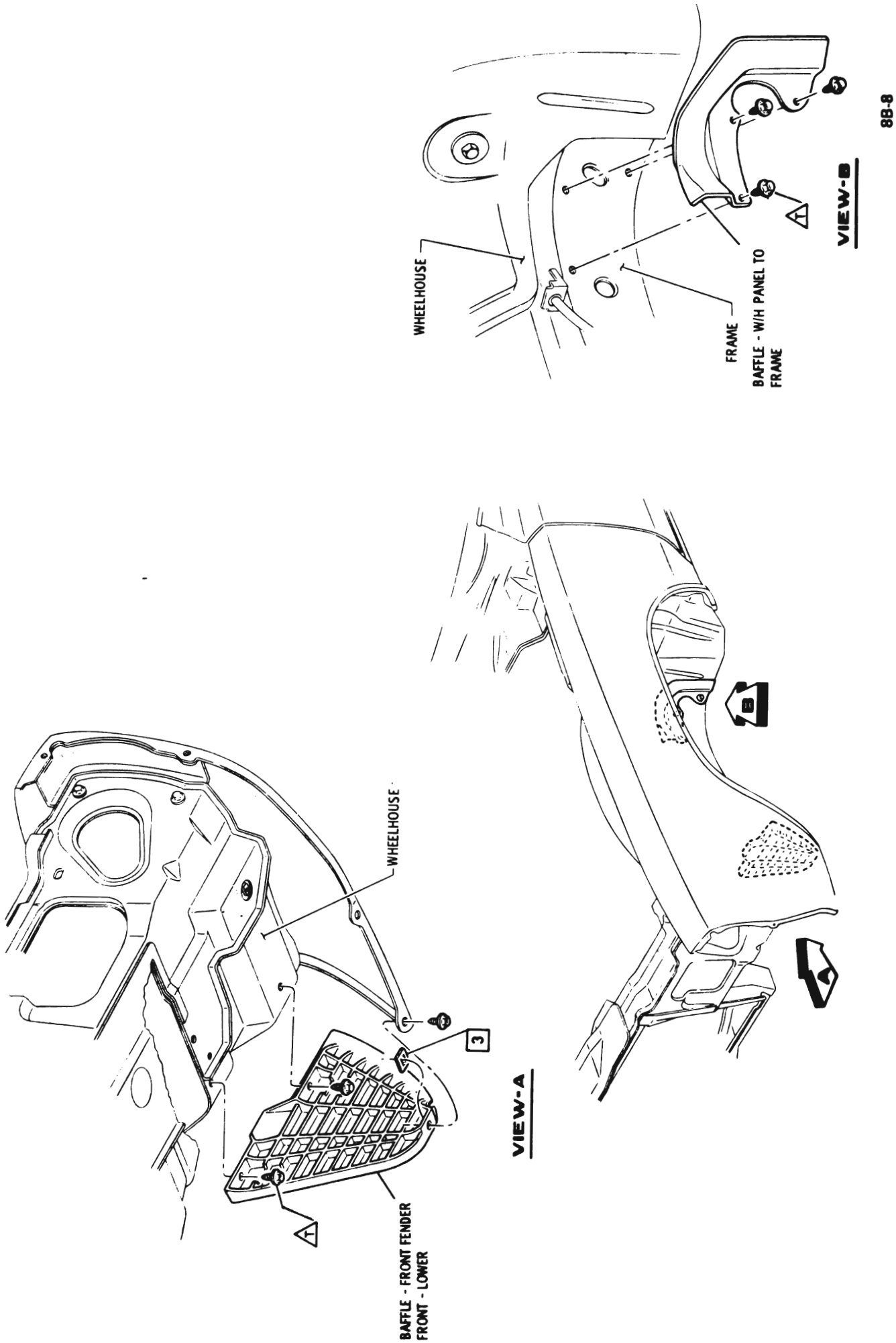


Figure 8B-7 A Series Wheelhouse Mounting



 FULLY DRIVEN, SEATED AND NOT STRIPPED.

Figure 8B-8 A Series Front Baffle

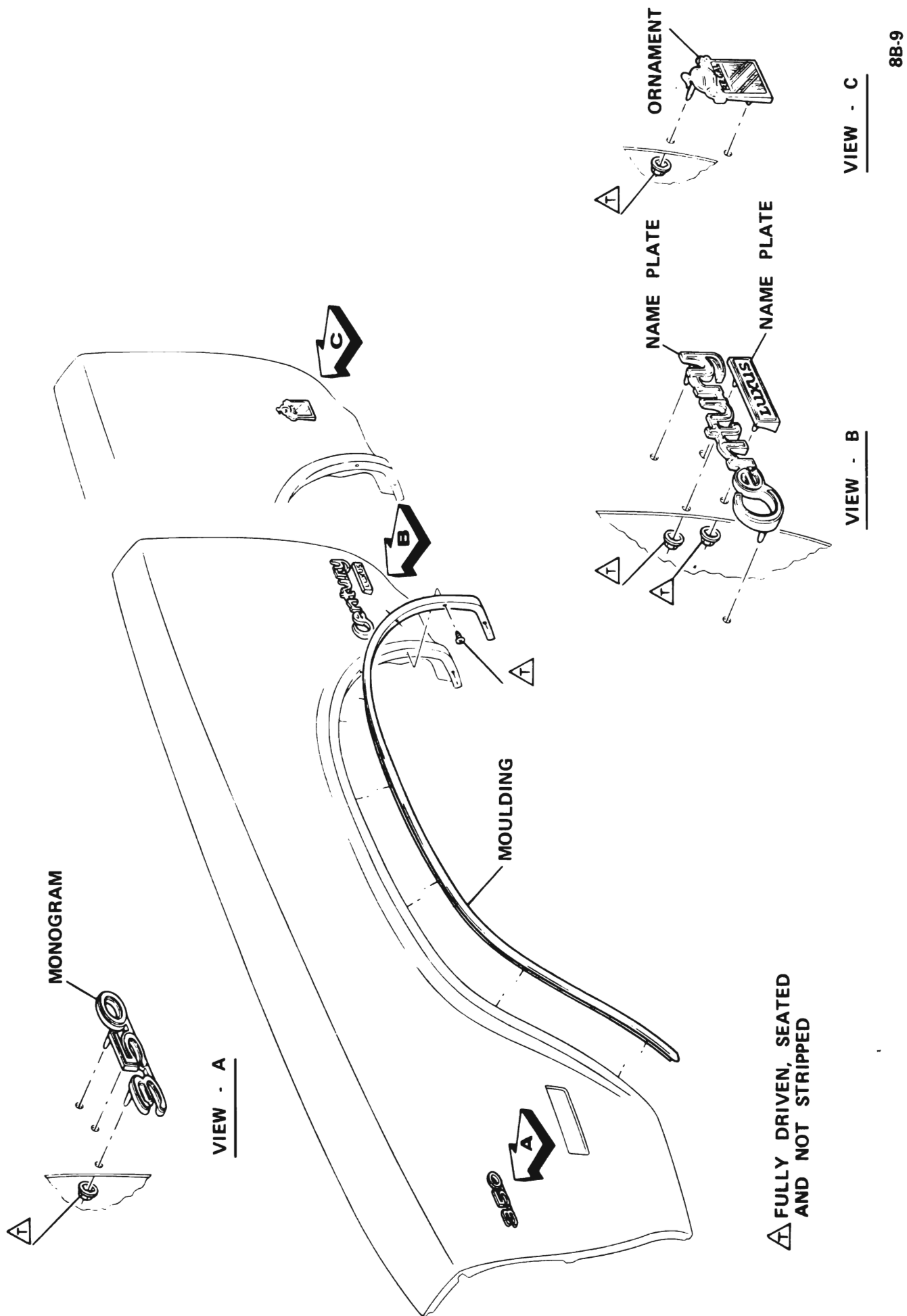


Figure 8B-9 A Series Fender Ornamentation

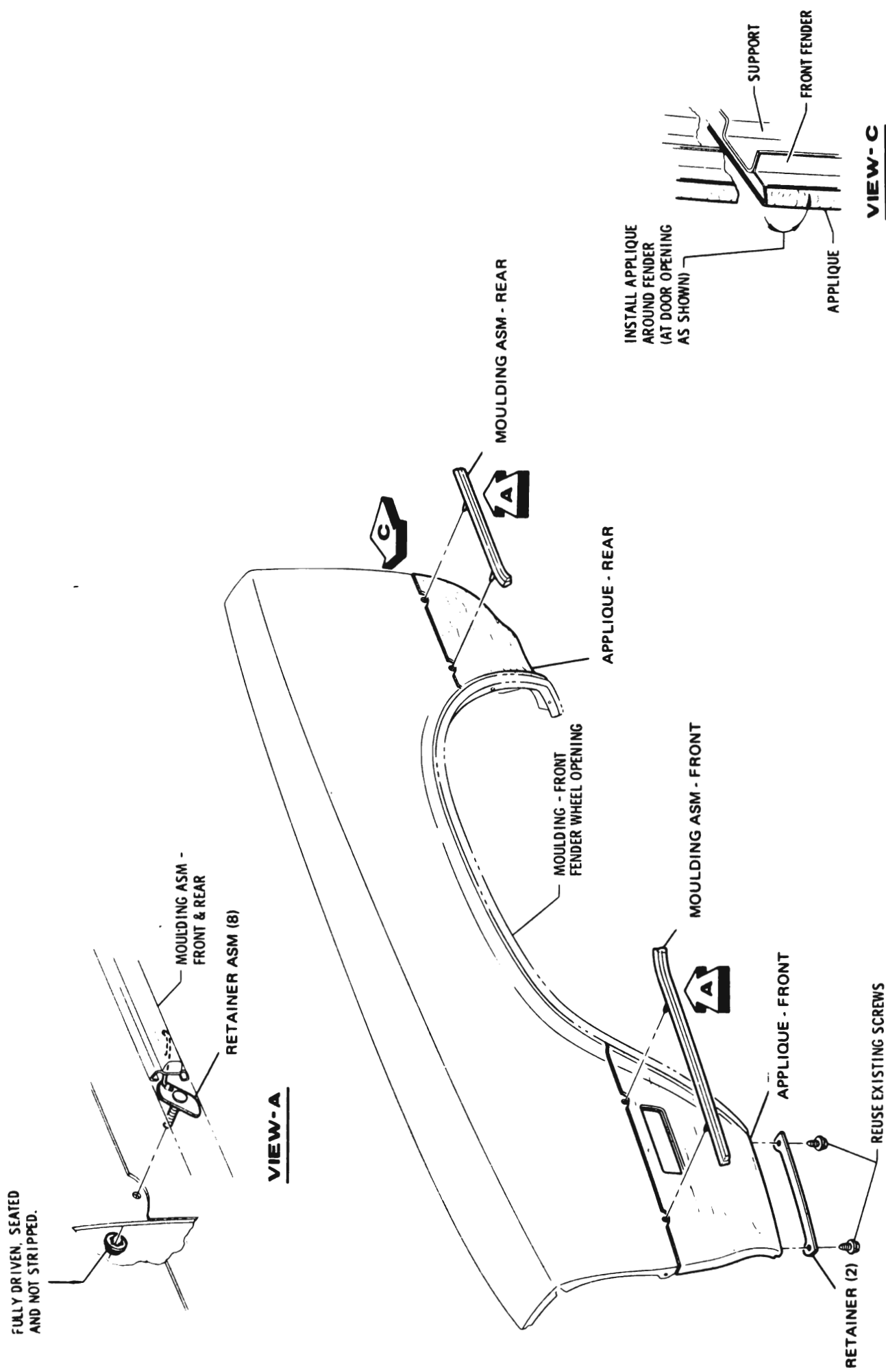


Figure 8B-10 A Series Wagon Fender Ornamentation

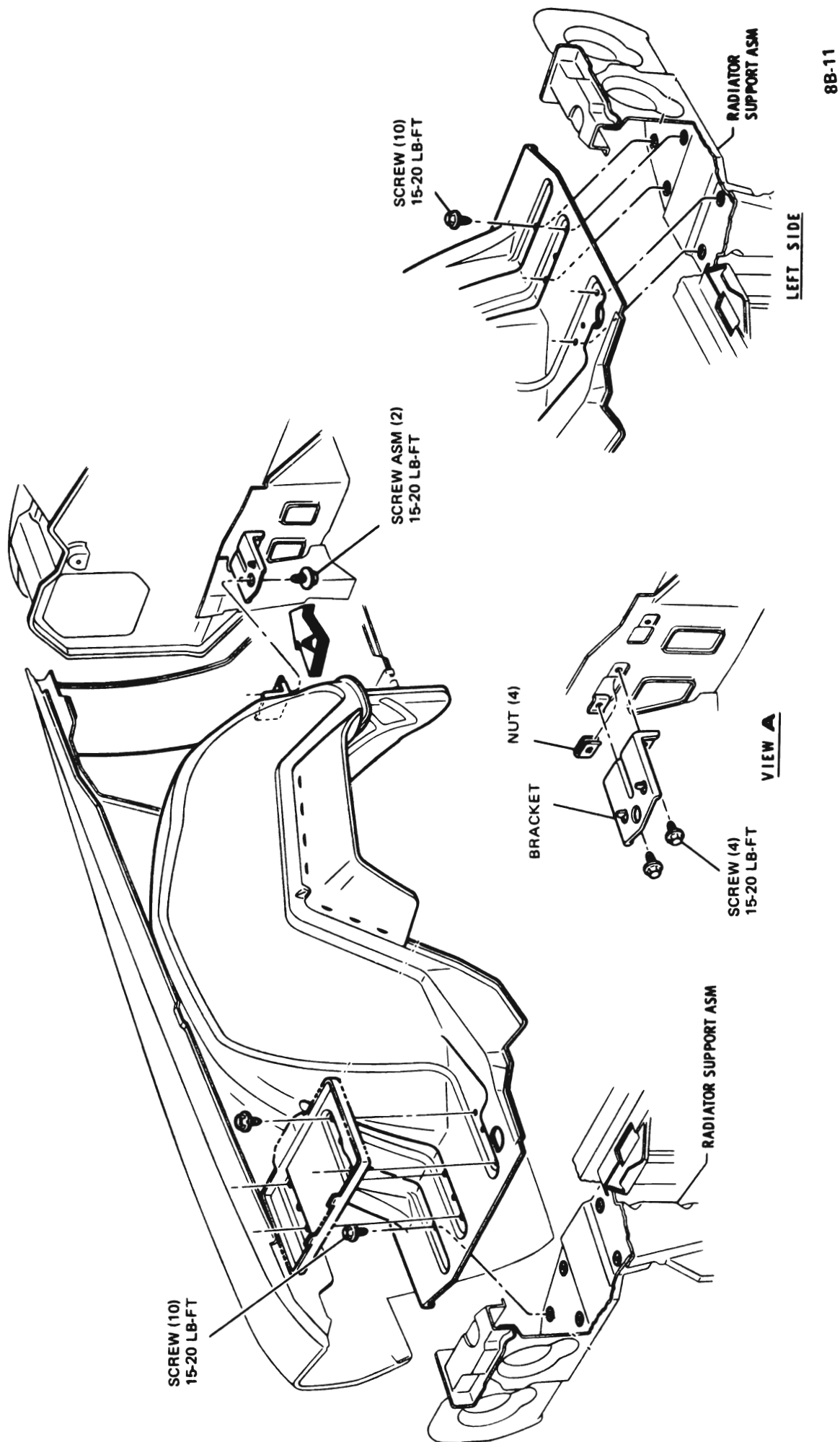
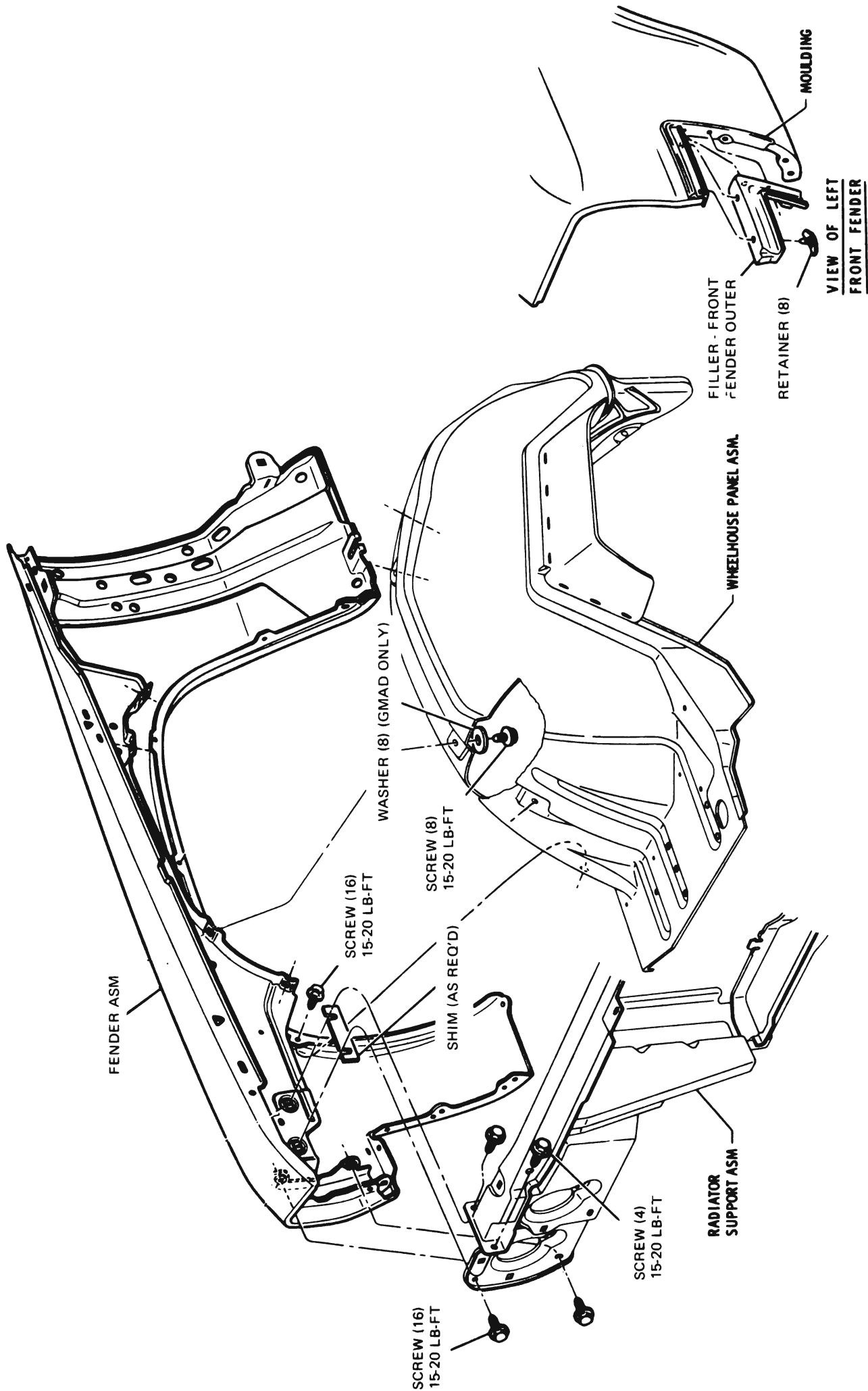
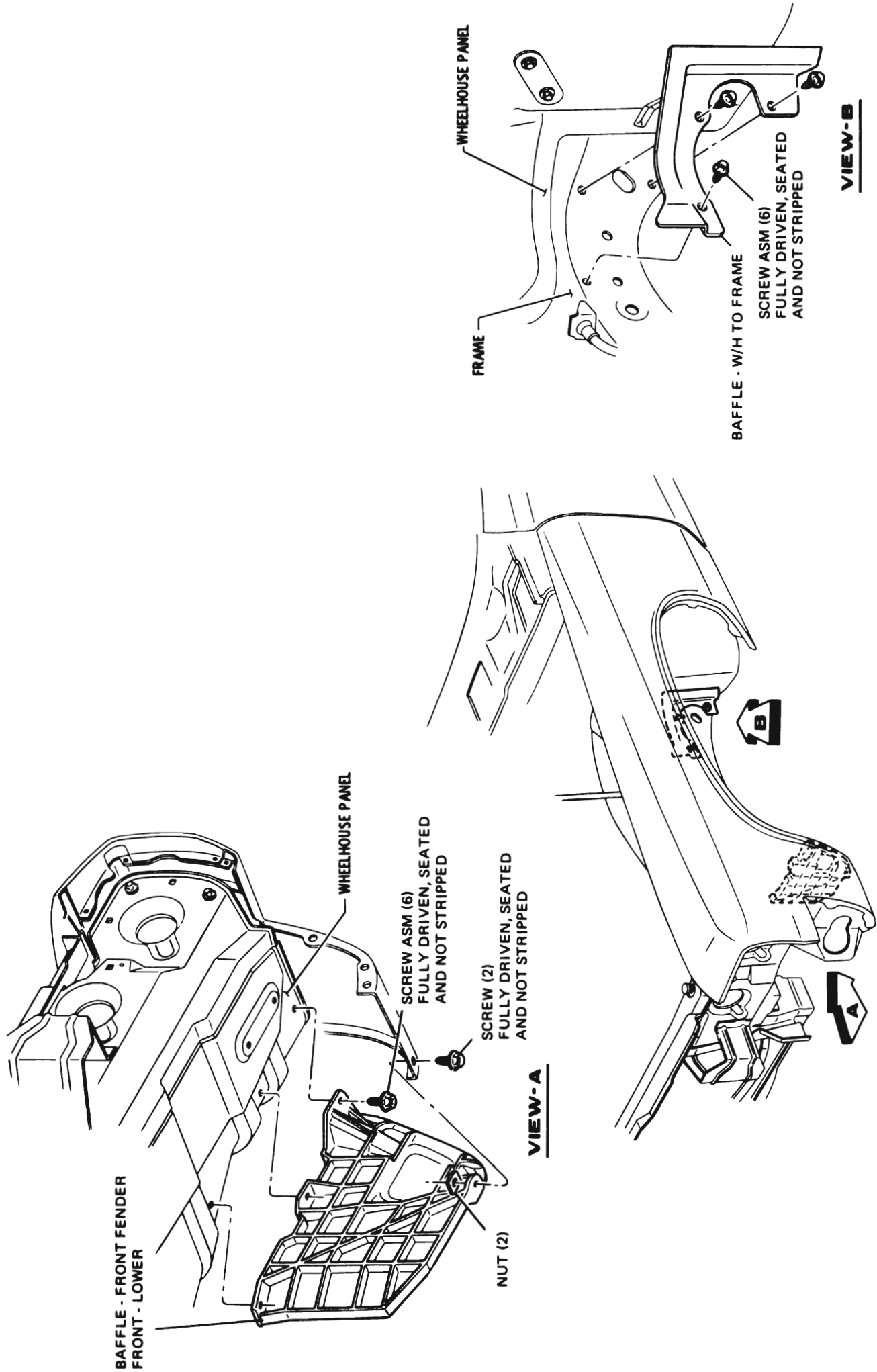


Figure 8B-11 B-C Series Wheelhouse to RADIATOR Support



8B-12

Figure 8B-12 B-C Series Fender to Radiator Support and Wheelhouse



8B-13

Figure 8B-13 B-C Series Baffle



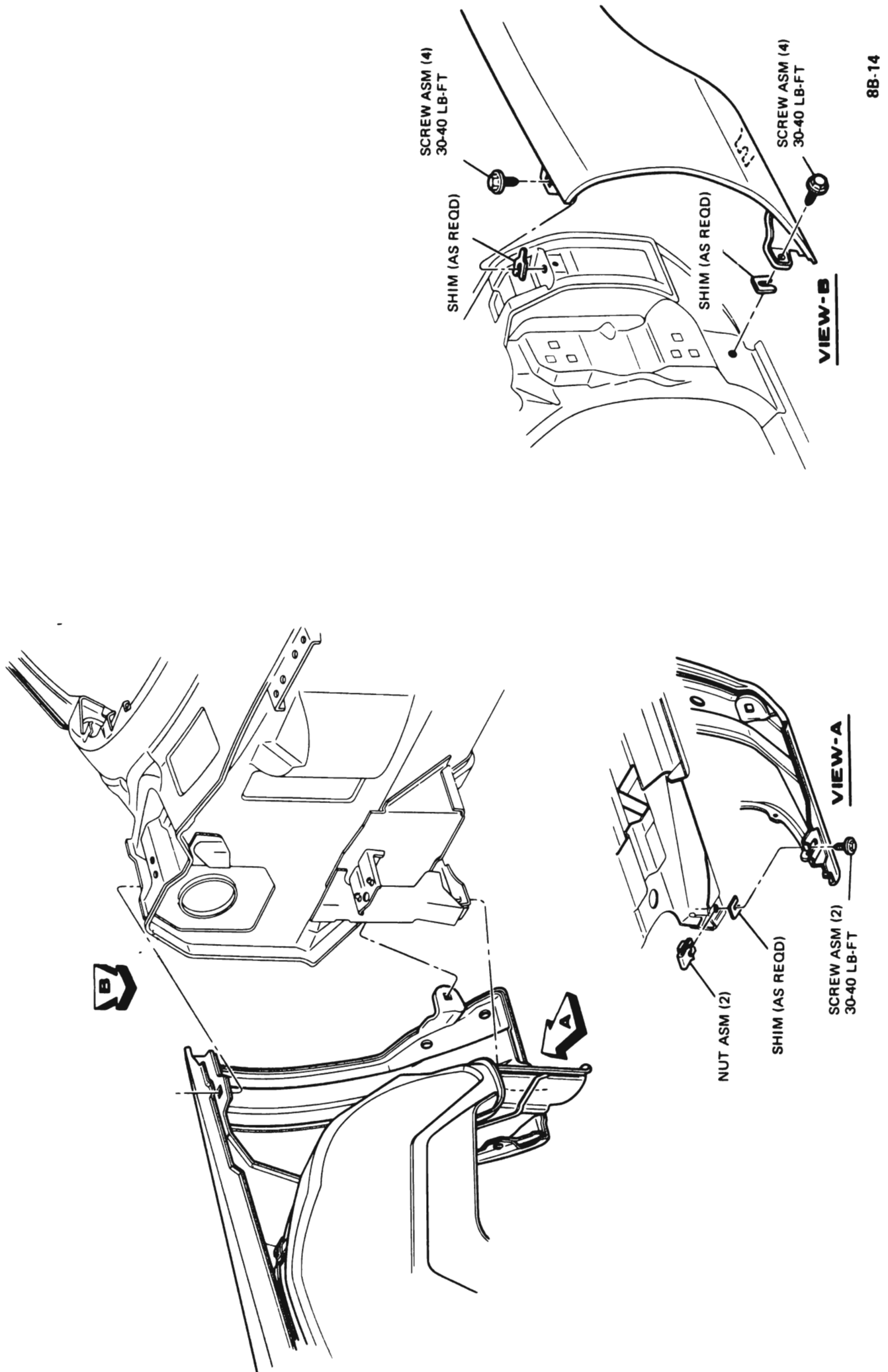


Figure 8B-14 B-C Series Fender to Body Mounting

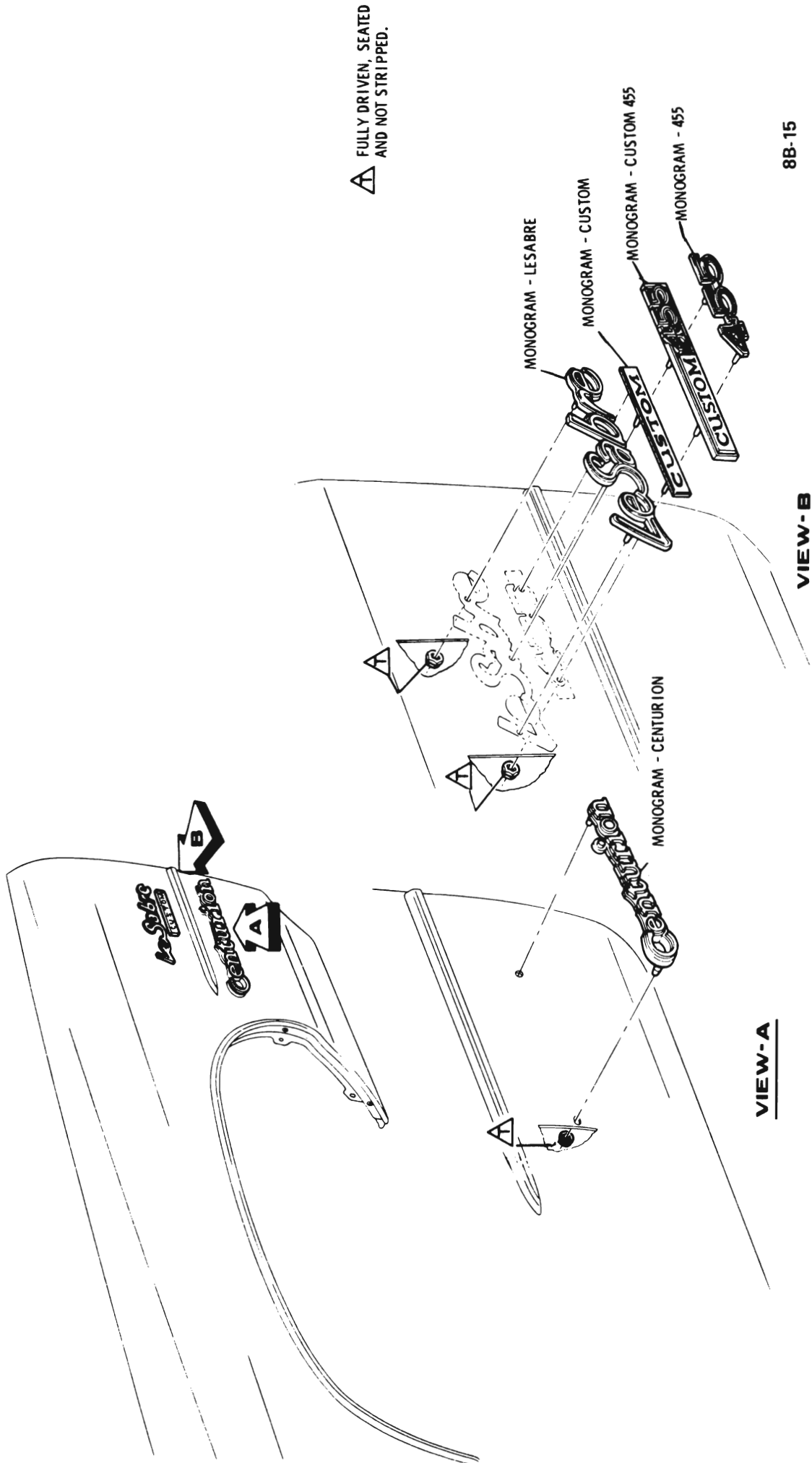


Figure 8B-15 B-C Series Fender Ornamentation

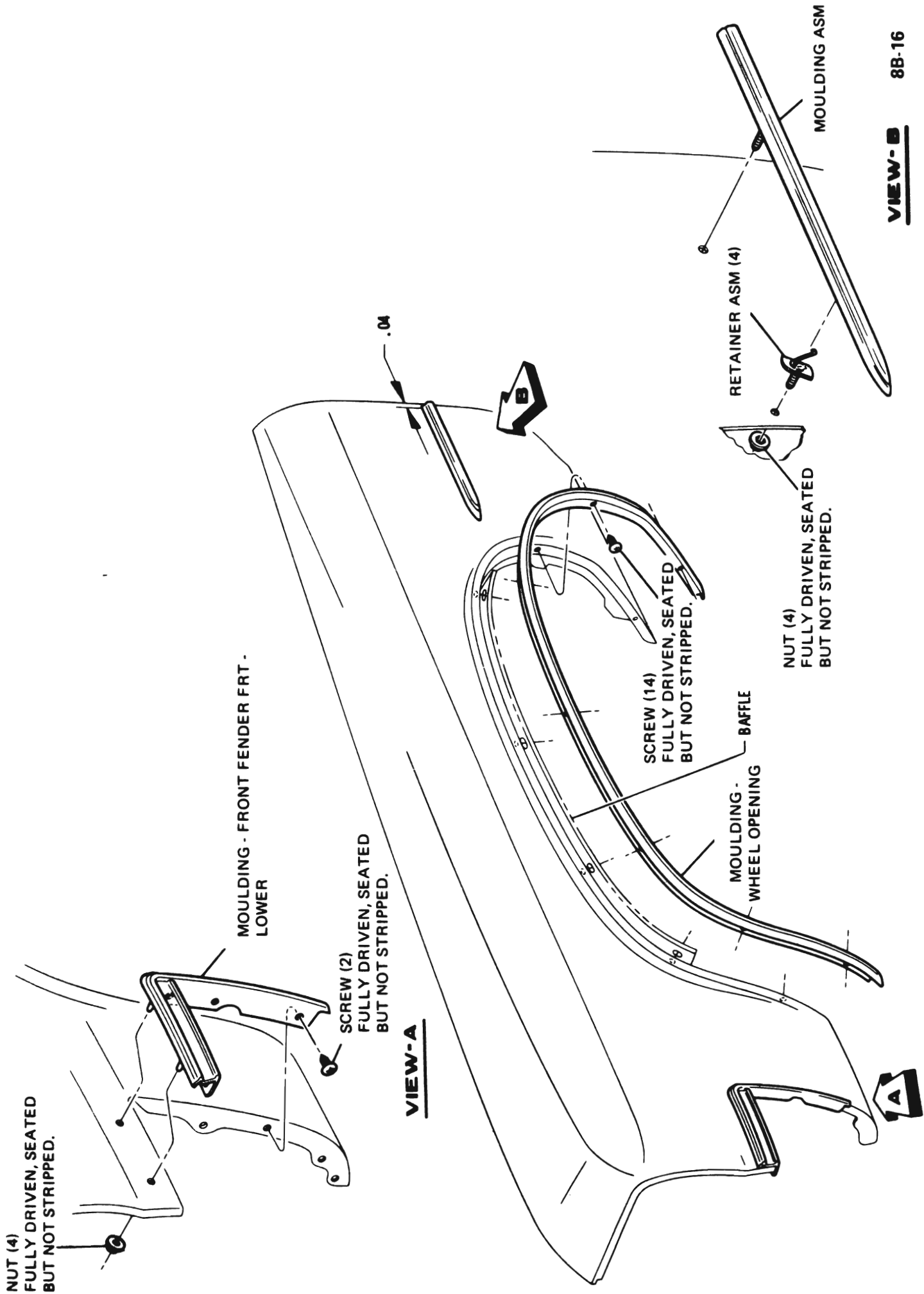
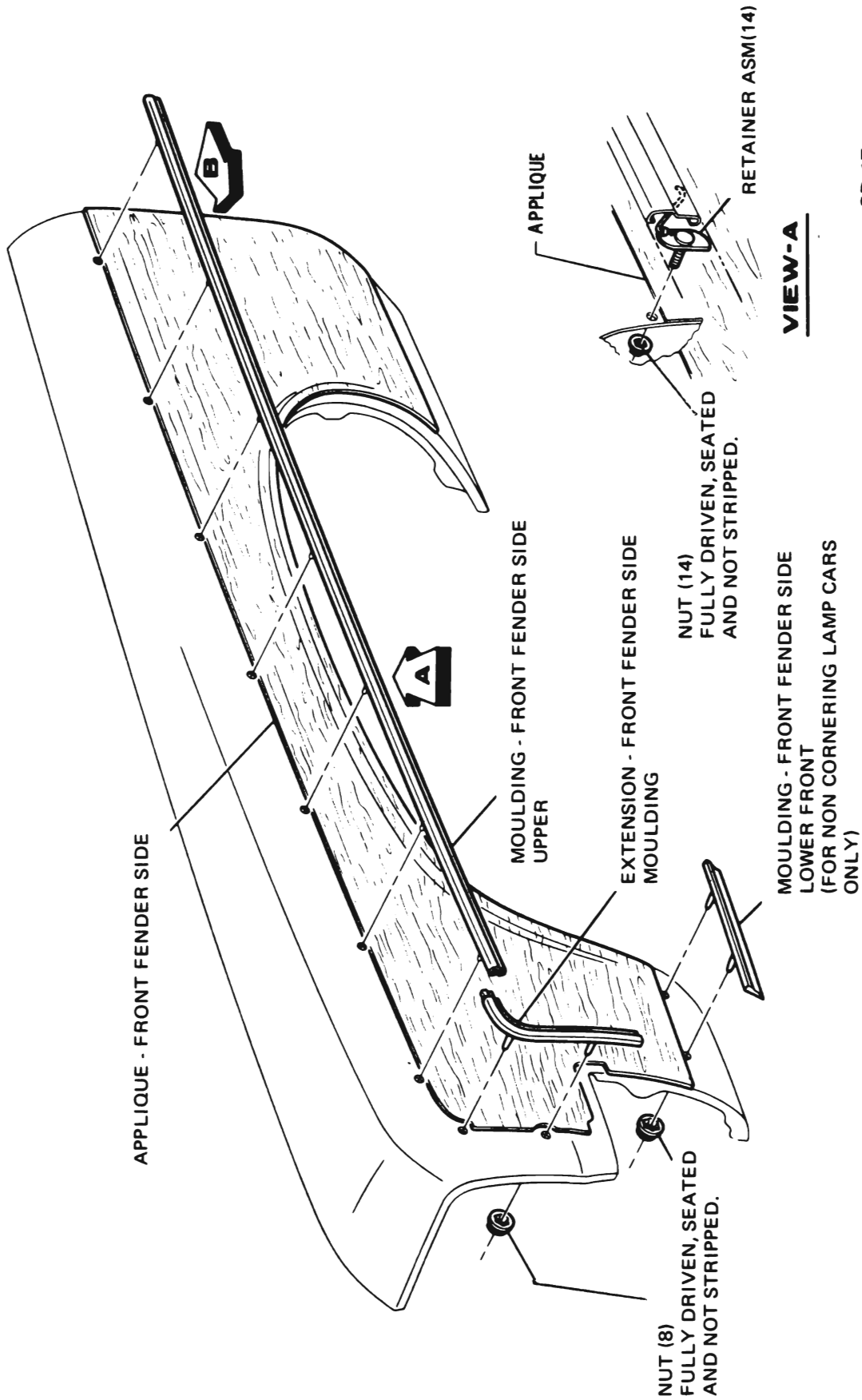


Figure 8B-16 B-C Series Fender Molding



8B-17

Figure 8B-17 B Series Wagon Fender Ornamentation

**E Series Fender and Wheelhouse Panel Removal**

1. Disconnect battery cables and remove battery if battery is on same side as fender being removed.
2. Unfasten all electrical wires attached to fender.
3. Remove bolts securing battery base to radiator support and fender wheelhouse. Lift out battery base. See Figure 8B-18.
4. Remove bolt securing bracket to front bumper outer extension.
5. Remove cornering lamp if so equipped.
6. Remove bolts securing lower portion of radiator support to lower front portion of fender. See Figure 8B-19.
7. Remove bolts securing front of fender to radiator support. See Figure 8B-19.
8. Remove screws securing fender lower front baffle. See Figure 8B-20.
9. Remove two hood hinge to fender bolts supporting hood as outlined in Hood Removal.
10. Remove bolts securing skirt to lower portion of cowl. See Figure 8B-18.
11. Remove rocker panel moulding.
12. Remove bolts securing lower rear edge of fender to rocker panel. See Figure 8B-21.
13. Remove bolt securing upper rear portion of fender to bracket at hinge pillar. It is suggested that bracket not be removed from pillar.
14. Remove bolts securing upper rear portion of fender to upper portion of cowl. See Figure 8B-21.
15. Remove bolts securing fender to upper tie bar.
16. Raise up and lift off fender and skirt.
17. Skirt can now be removed from fender by remov-

ing skirt to fender attaching bolts. See Figure 8B-19.

**E Series Fender and Wheelhouse Panel Installation**

1. Install skirt to fender, securing with bolts. See Figure 8B-19.
2. Install fender to upper tie bar and install bolts.
3. Install bolts, securing upper rear portion of fender to upper portion of cowl. See Figure 8B-21.
4. Install bolt, securing upper rear portion of fender to bracket at hinge pillar.
5. Install bolts, securing lower rear edge of fender to rocker panel. See Figure 8B-21.
6. Install rocker panel moulding.
7. Secure skirt to lower portion of cowl with bolts. See Figure 8B-18.
8. Install hood hinge to fender bolts supporting hood, as outlined in Hood Installation.
9. Install screws, securing fender lower front baffle. See Figure 8B-20.
10. Install bolts, securing front fender to radiator support. See Figure 8B-19.
11. Install bolts, securing lower portion of radiator support to lower front portion of fender.
12. Install cornering lamp, if so equipped.
13. Install bolt, securing bracket to front bumper outer extension.
14. Install battery base and install bolts, securing base to radiator support and fender skirt. See Figure 8B-18.
15. Fasten all electrical wires.
16. Connect battery cables.

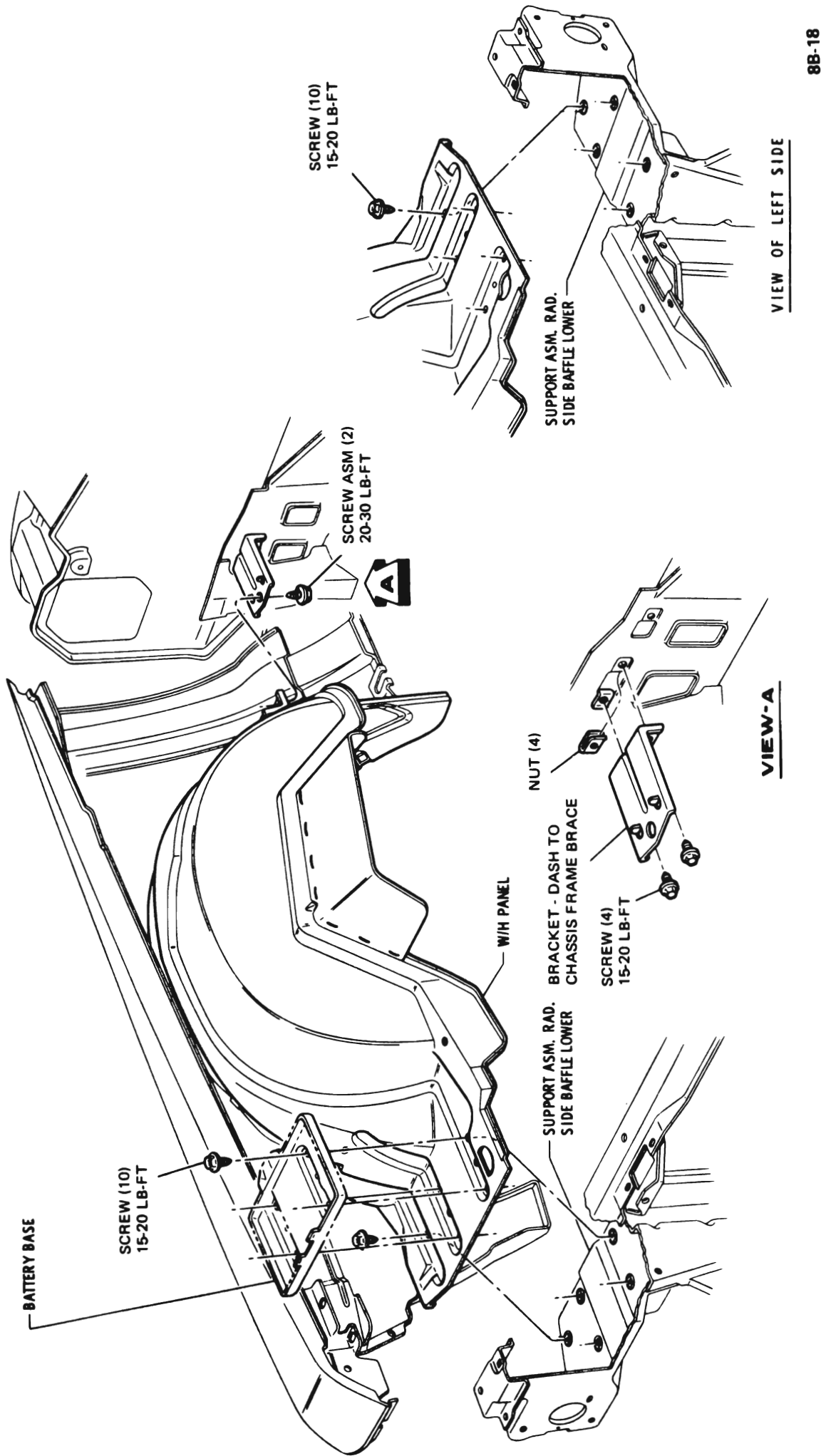
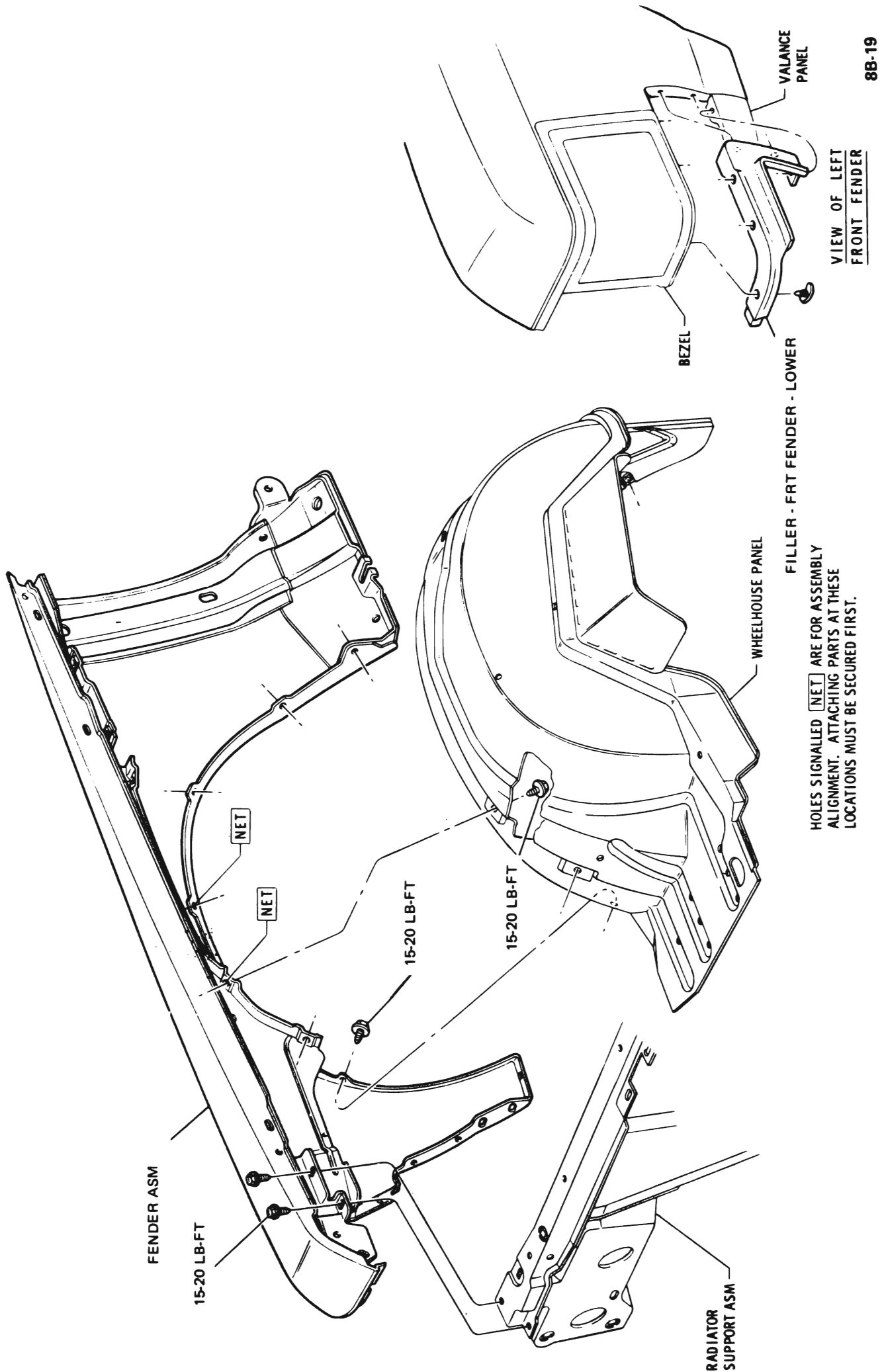


Figure 8B-18 E Series Wheelhouse Mounting



8B-19

Figure 8B-19 E Series Fender and Wheelhouse Installation

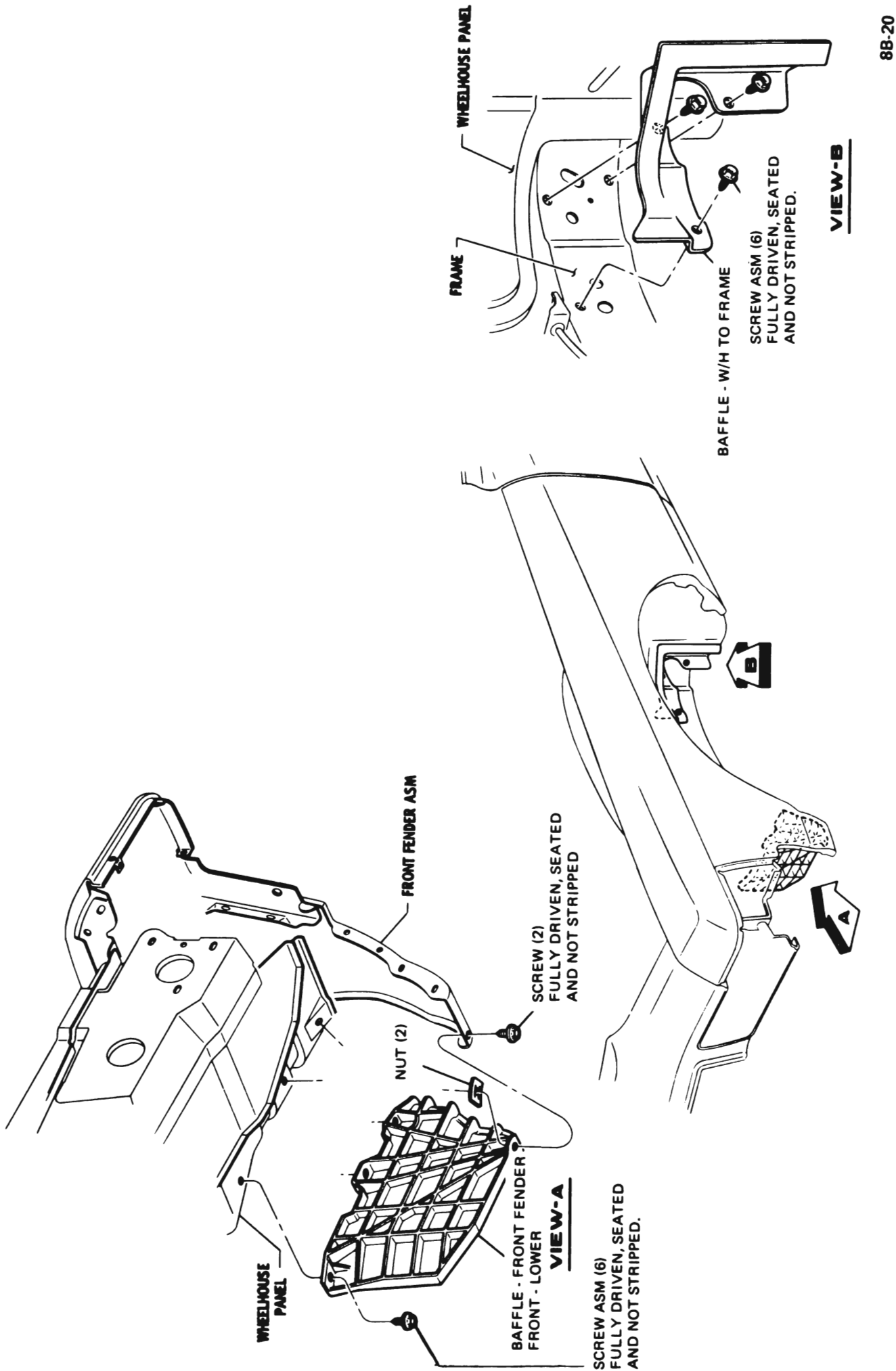


Figure 8B-20 E Series Baffle



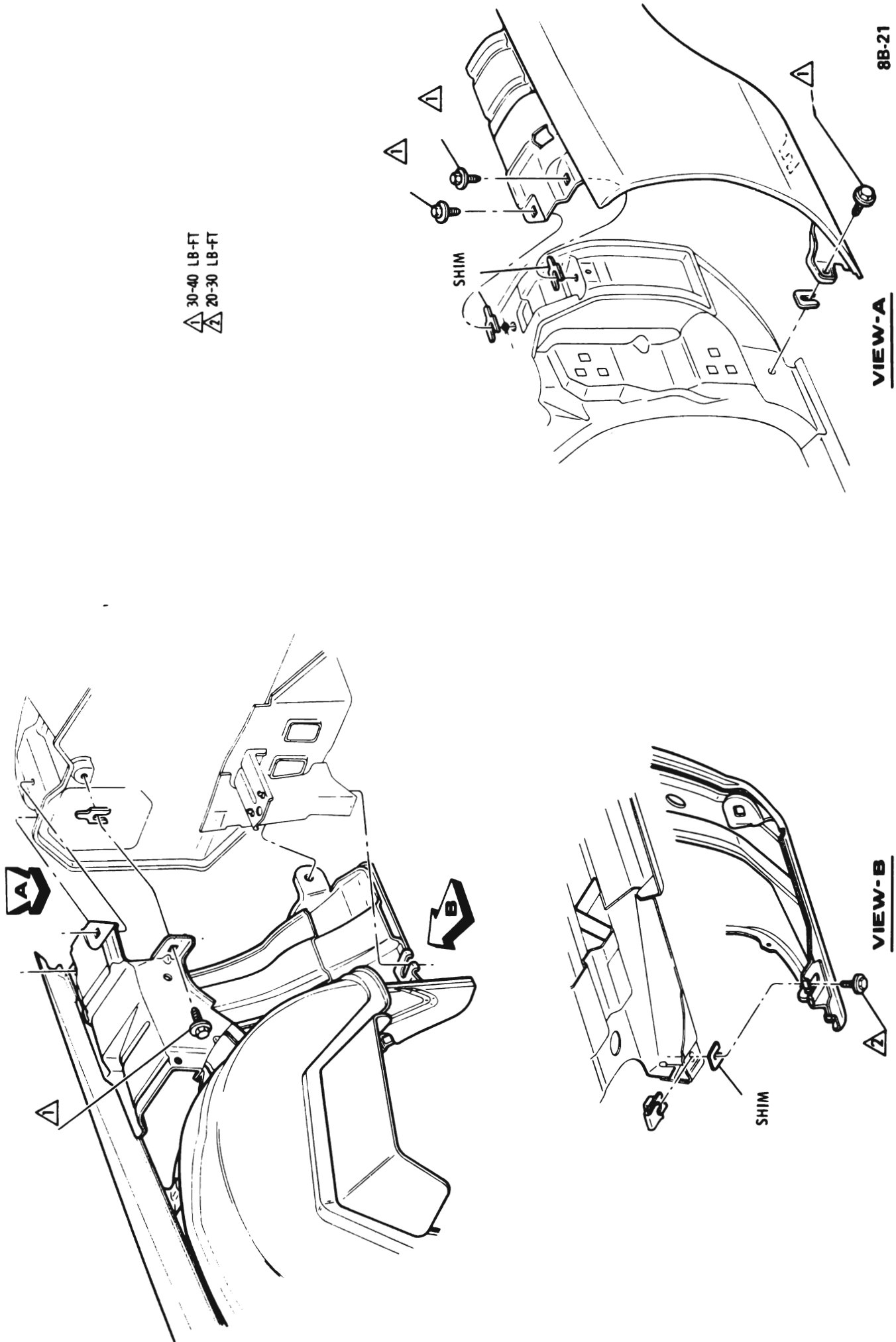


Figure 8B-21 E Series Fender to Body Installation