

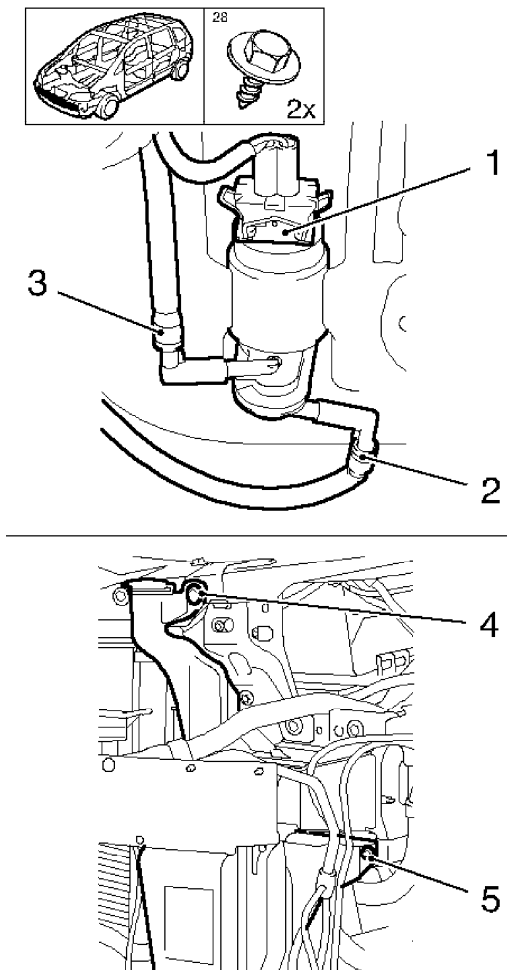
# Upper Tie Bar Replacement

## Removal Procedure

**Caution:** Refer to [Battery Disconnect Caution](#) in the Preface section.

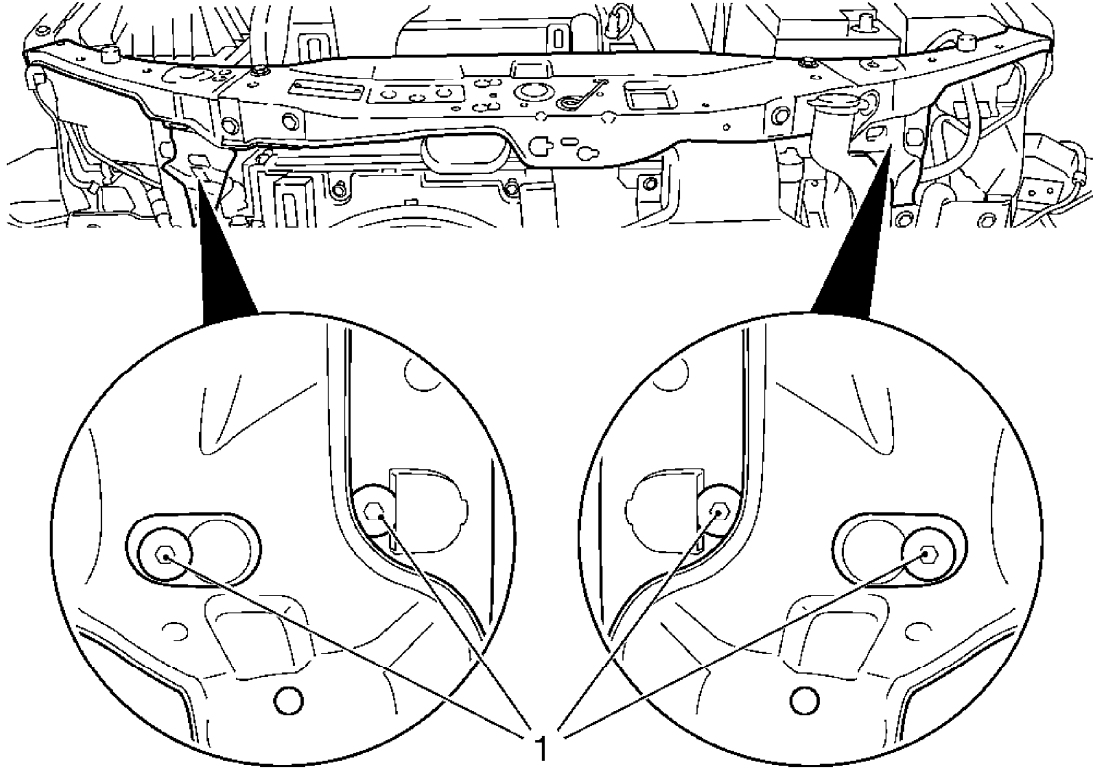
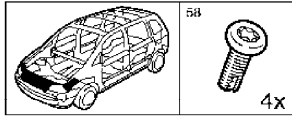
**Important:** Disconnect the battery and wait 1 minute for the capacitor to discharge.

1. Disconnect the battery.
2. Remove the hood. Refer to [Hood Replacement](#) .
3. Remove the front fascia. Refer to [Front Bumper Fascia Replacement](#) .
4. Remove the headlamps. Refer to [Headlamp Replacement](#) .
5. Remove the impact bar. Refer to [Front Bumper Impact Bar Replacement](#) .



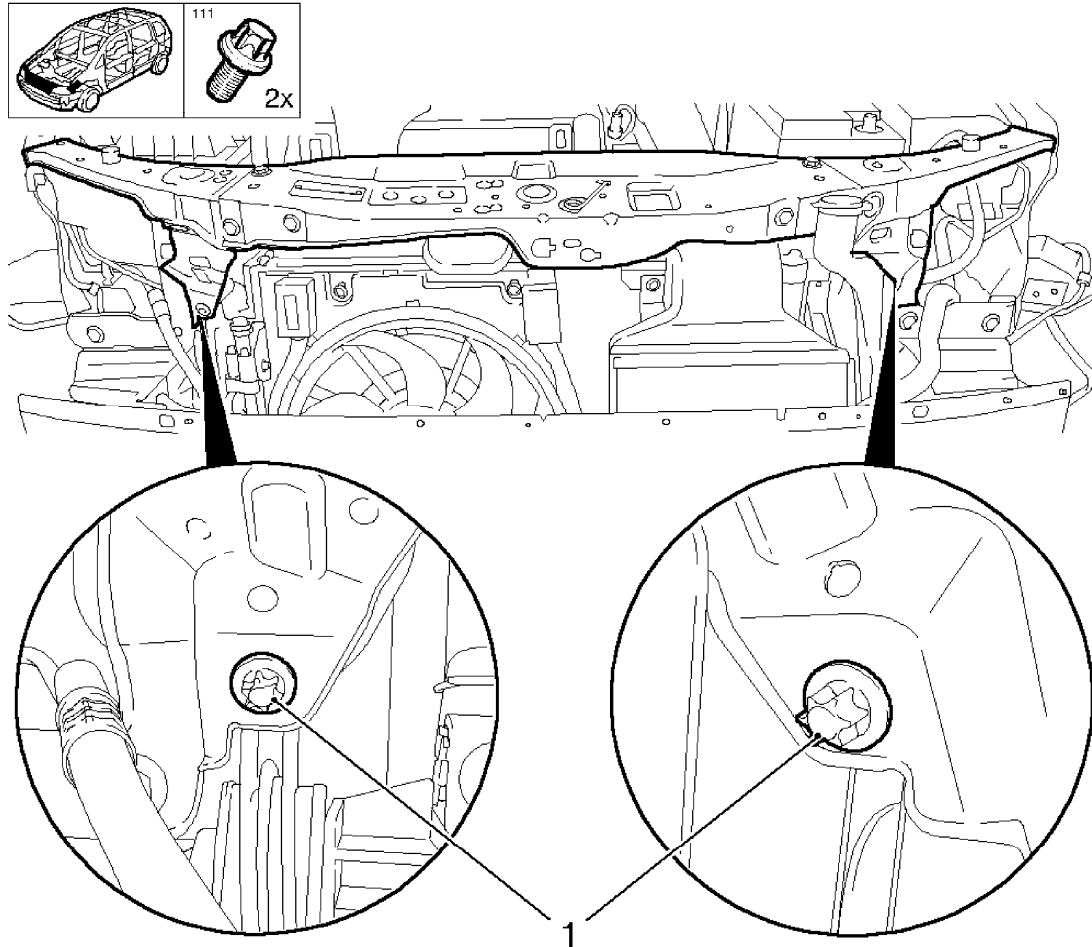
6. Remove the windshield washer solvent container.
  - Disconnect the windshield washer pump wiring harness plug (1).
  - Remove the windshield wash hose (2) from the pump.
  - Remove the rear window wash hose (3) from the pump.
  - Remove the 2 hoses from the guide.
  - Remove the 2 bolts (4 and 5).
  
7. For vehicles with a high-pressure headlamp wash system, disconnect the pump wiring harness plug.

8. Remove the impact bar.



9. Remove the right and left airbag sensors.

- Loosen the 4 bolts (1).
- Disconnect the wiring harness plug.
- Remove the cable tie.



11. Remove the right and left radiator brackets.

Remove the 2 bolts (1).

12. Remove the small components from the top of the right front.

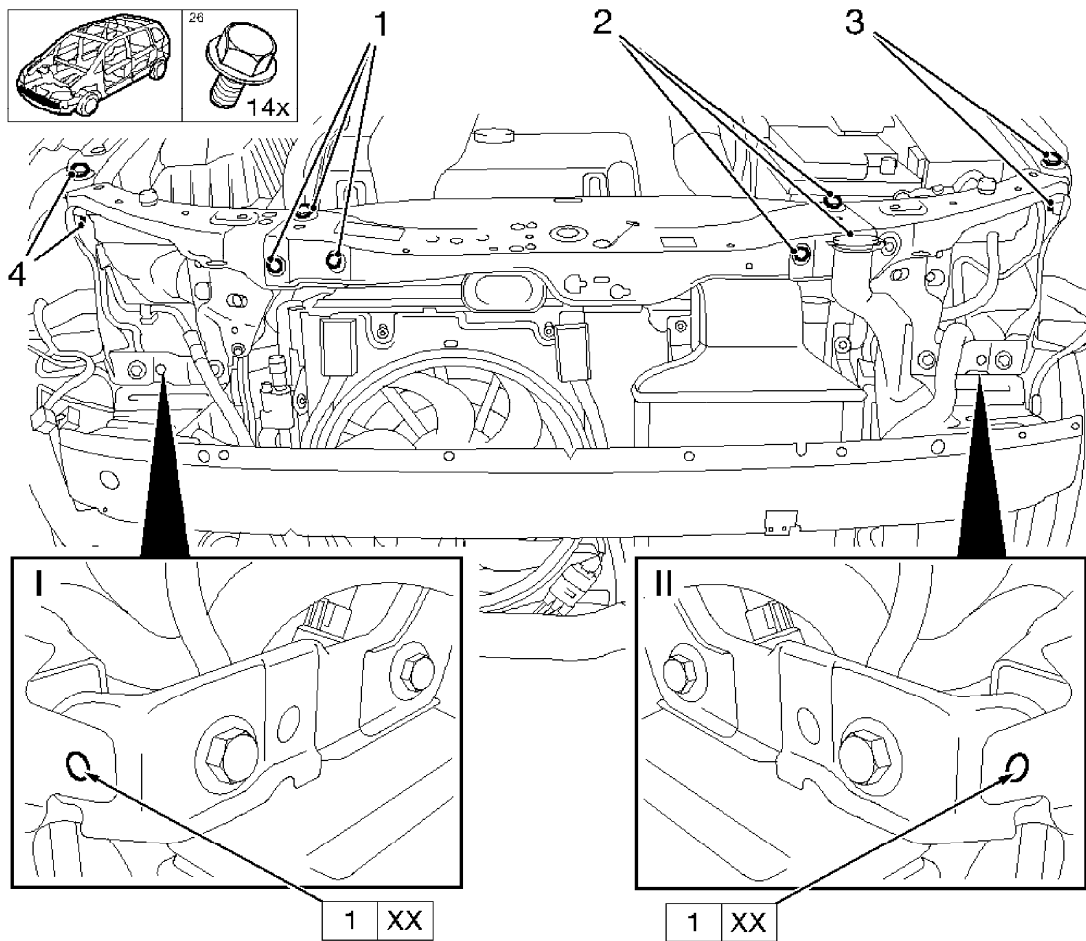
- Remove the 2 headlamp nuts.
- Remove the 2 hood buffers.

13. Remove the hood primary latch. Refer to [Hood Primary Latch Replacement](#) .

14. Remove the air cleaner assembly. Refer to [Air Cleaner Assembly Replacement](#) .

15. Remove the resonator.

- Remove the bolt.
- Pull the tube from the center top front guide.



16. Remove the upper tie bar.

- Remove the 6 bolts (1 and 2) from the center top front.
- Remove the resonator.
- Drill out the 2 spot welds (I and II) at the right top front.
- Remove the 4 bolts (3 and 4) at the right and left top front.

## Installation Procedure

**Important:** During production the top front is spot welded to the front frame longitudinal member and the wheel housing. These welds are not included in service repairs.

1. Install the top front right and left of the upper tie bar.

Install the 4 top bolts.

**Notice:** Refer to [Fastener Notice](#) in the Preface section.

2. Fasten the radiator bracket.

**Tighten**

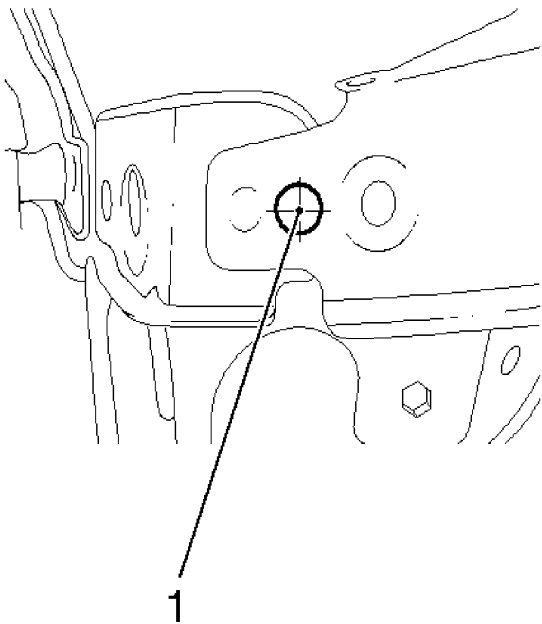
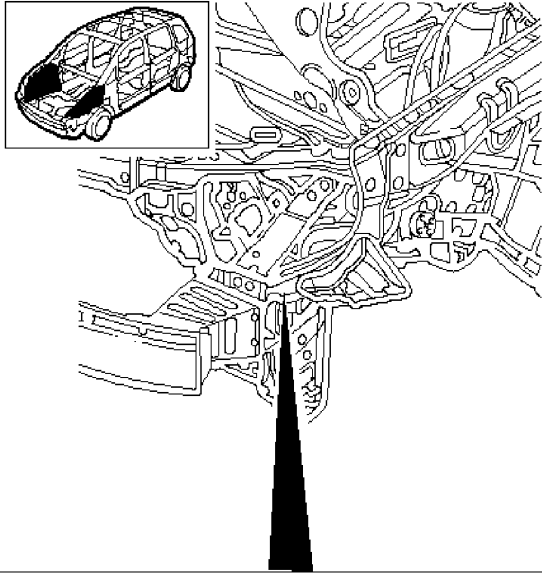
Tighten the 2 bolts to 5 N·m (44 lb in).

3. Place the resonator on the radiator.
4. Install the center top front upper tie bar.

Install the 6 bolts.

**Important:** Observe the body dimension chart.

Adjust the top front upper tie bar.

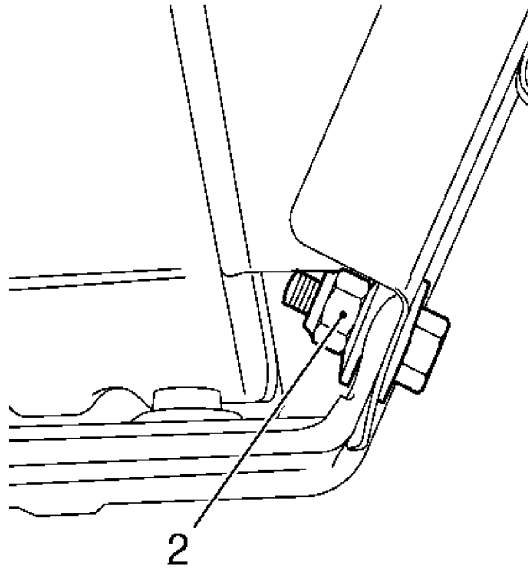
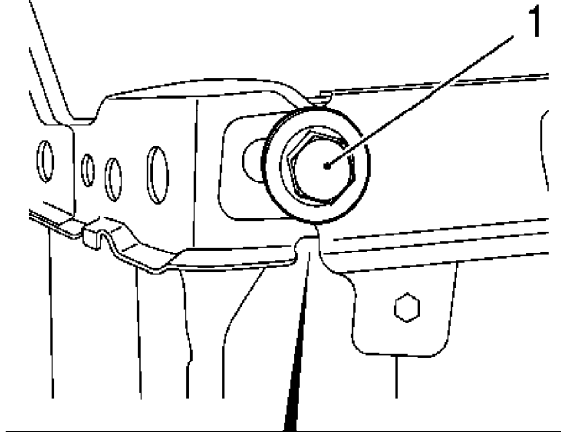
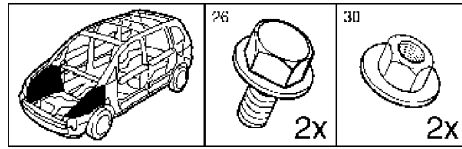


**Important:** Drill each hole through the wheel housing, side front and side member closure plate. Deburr and prime the holes.

5. Drill holes (1) at the right and left side top front upper tie bar.

**Specification**

Diameter 8.5 mm (0.33 in)



6. Install the bolt (1) into the side top front on the right and left side and screw on the nut (2) on the upper tie bar.
7. Tighten the top front upper tie bar.

### **Tighten**

- Tighten the 4 bolts for the upper front on the left and right of the body to 20 N·m (15 lb ft).

- Tighten the 2 bolts with the 2 nuts on the upper front to the left and right sides to 20 N·m (15 lb ft).
- Tighten the 6 bolts on the upper front center to 20 N·m (15 lb ft).

**Important:** Observe corrosion protection measures for protective wax. Apply cavity sealing/protective wax to mounting surfaces and connecting flanges.

8. Seal the cavity.
9. Tighten the resonator.

- Slide the tube into the top front center guide.

10. **Tighten**

Tighten the bolt.

11. Install the air cleaner assembly. Refer to [Air Cleaner Assembly Replacement](#) .
12. Install the hood primary latch. Refer to [Hood Primary Latch Replacement](#) .
13. Install the top front right and left small components.

- Install the 2 hood buffers.
- Install the 2 headlamp nuts.

15. Install the right and left airbag sensors.

- Connect the wiring harness plug.
- Tighten the cable tie.

17. Install the impact bar.
18. Install the windshield washer solvent container.

**Tighten**

Tighten the 2 bolts to 3.5 N·m (31 lb in).

- Install the 2 hoses into the guide.
- Install the rear window wash system hose to the pump.
- Install the front window wash system hose to the pump.
- Connect the windscreen washer pump wiring harness plug.

19. For vehicles with high-pressure headlamp wash system, connect the pump wiring harness plug.
20. Install the impact bar. Refer to [Front Bumper Impact Bar Replacement](#) .
21. Install the headlamps. Refer to [Headlamp Replacement](#) .
22. Install the front fascia. Refer to [Front Bumper Fascia Replacement](#) .

23. Install the hood. Refer to [Hood Replacement](#) .
  24. Connect the battery.
  25. For programming procedures, refer to [Control Module References](#) .
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