

**S-TYPE**DATE 05/01
Amended 09/03**S501-09****SERVICE****TECHNICAL BULLETIN****Water Leaks – Diagnostics**MODEL 2000 MY-ON
S-TYPE

VIN L00001-ON

Remove and destroy Bulletin S501-09, amended 09/03.
Replace with this Bulletin.
Warranty and parts information has been added.

Issue:

In the event of customers complaining of water leaks on their vehicle, this Technical Bulletin has been issued to give Water Leak Diagnostic information and should be **used as a guide only**.

Action:

Before any action can be taken in diagnosing a water leak, it is necessary to question the customer to gain as much information as possible.

The following questions should be put to the customer before the diagnostic procedure can be started:

- When was the first water leak discovered?
- Was the vehicle damaged in an accident in the leaking area?
- Does the vehicle leak in the rain or on a wet road?
- Is the vehicle laden/unladen when it leaks?
- Does the road surface affect the water leak?
- Does the vehicle leak in a car wash?
- Does the vehicle leak when parked on a slope or level ground or both?
- Does the ambient temperature affect the water leak? I.e. cold/warm

There are two procedures to follow depending on the information given by the customer. If there is enough information supplied by the customer so that a diagnosis is possible, follow the procedure in Section 1. If a diagnosis is not possible from the information supplied by the customer, follow the procedure listed in section 2.

Note: Before beginning with the following procedures, refer to the recommended Tools, Equipment and Materials in Appendix 1.

SECTION 1 - DIAGNOSIS POSSIBLE FROM CUSTOMER INFORMATION

If the diagnosis is possible from the information given by the customer, follow the diagnostic procedure below.

1. Visually inspect the area for missing or damaged outer seals or trim components.
2. Check the water drainage holes are clear.
3. Have the trim components been retrofitted?

Note: Incorrectly retrofitted parts can cause water leaks.

4. Expose the leaking area by removing trim components, carpets and anti-drumming material.
5. Locate any signs of water and follow its trail.
6. Is the water clean or dirty?

Note: Clean water normally enters from above and dirty water normally enters from below.

7. Clean and dry the wet area in the interior.
8. Using the Ultra Violet (UV) lamp, test for the leakage path. (See Appendix 2)
9. Having identified the leak, dry the affected area, using warm air if necessary. The appropriate remedial action should then be carried out.

Note: Once the remedial action has been carried out, repeat the water test in the area the leak was detected.

SECTION 2 - DIAGNOSIS NOT POSSIBLE FROM CUSTOMER INFORMATION

If the diagnosis is not possible from the information given by the customer, follow the diagnostic procedure below.

Note: Check for related Technical Bulletins before proceeding.

1. Visually inspect the area for missing or damaged outer seals or trim components.
2. Check the water drainage holes are clear.
3. Expose the leaking area by removing trim components, carpets and anti-drumming material.
4. Locate any signs of water and follow its trail.
5. Clean and dry the wet area in the interior.
6. Visually inspect the area for accident damage or damage that has already been repaired.
7. Have the trim components been retrofitted?

Note: Incorrectly retrofitted parts can cause water leaks.

8. Carry out a water test to locate the leaks. (See Appendix 3)
9. Using the Ultra Violet (UV) lamp, test for the leakage path. (See Appendix 2)
10. Road test the vehicle in various conditions:
 - Laden/unladen
 - Different speeds
 - Different road surfaces
 - Varying road gradients

Note: Be careful when assessing wet/damp areas as these can be misread due to internal/external conditions i.e. Snow being carried into the vehicle on shoes or defrosting of windows leading to the fascia/interior trim becoming soaked.

11. Having identified the leak, dry the affected area, using warm air if necessary. The appropriate remedial action should then be carried out.

Note: Once the remedial action has been carried out, repeat the water test in the area the leak was detected.

POTENTIAL AREAS OF CONCERN

The following lists potential areas of concern around the vehicle:

Front Door

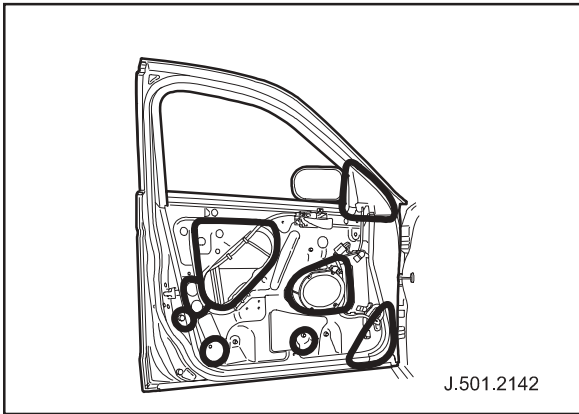


ILLUSTRATION 1

1. The following illustrations depict possible water leak points around the front door area (Illustration 1).

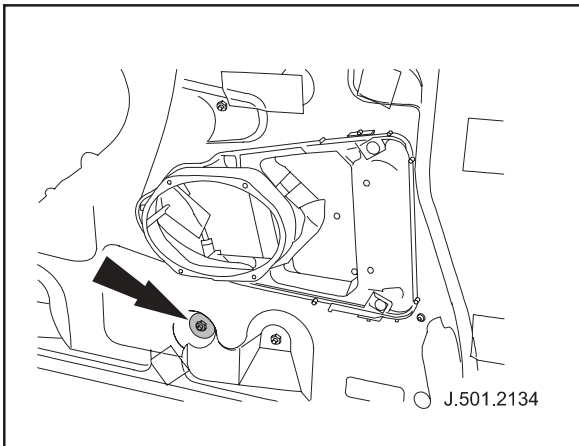


ILLUSTRATION 2

2. Fixing nut (Illustration 2).

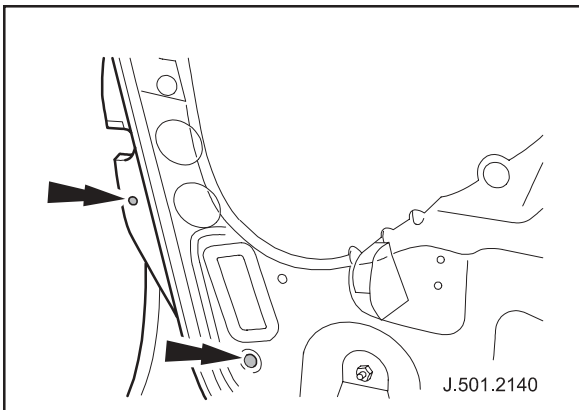


ILLUSTRATION 3

3. Door casing fir tree clips. (Illustration 3)

4. Door sealing patches (Illustration 4).

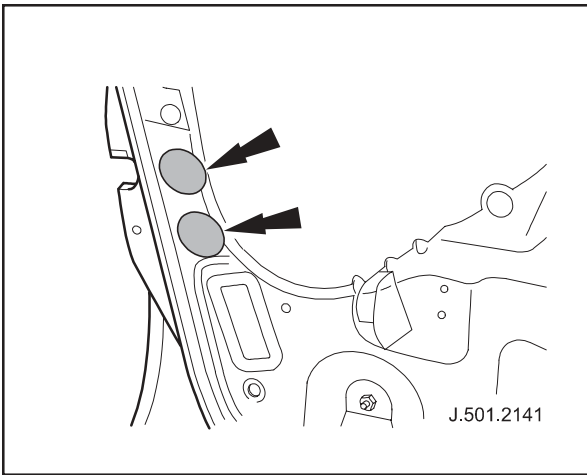


ILLUSTRATION 4

5. Body sealing patch (Illustration 5).

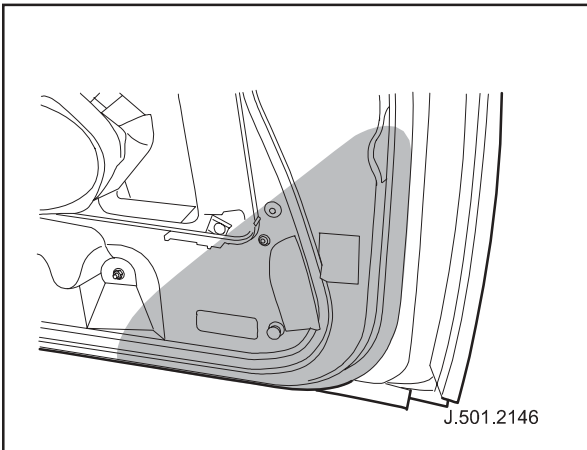


ILLUSTRATION 5

6. Door casing water shedder (Illustration 6).

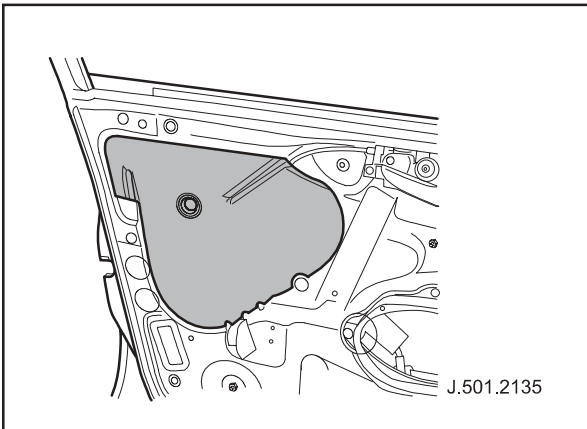


ILLUSTRATION 6

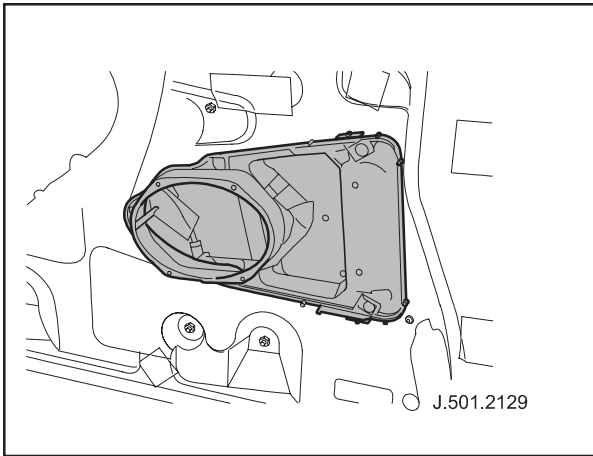


ILLUSTRATION 7

7. Door speaker module (Illustration 7).

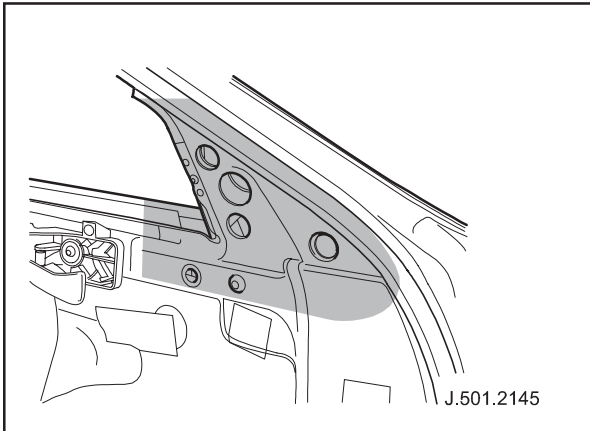


ILLUSTRATION 8

8. Door cheater plate area (Illustration 8).

Rear Door

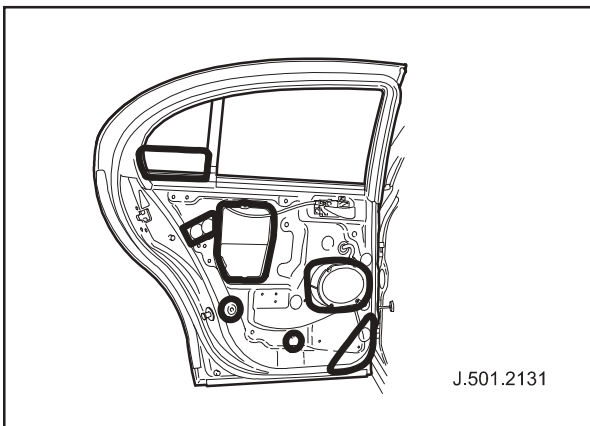


ILLUSTRATION 9

1. The following illustrations depict possible water leak points around the rear door area (Illustration 9).

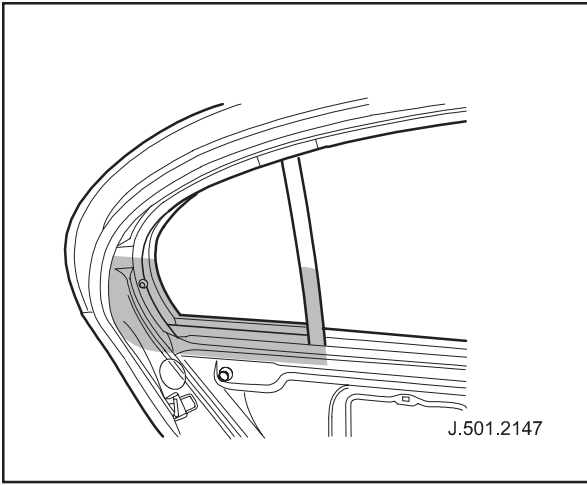


ILLUSTRATION 10

2. Door latch: water ingress via sixth light (Illustration 10).

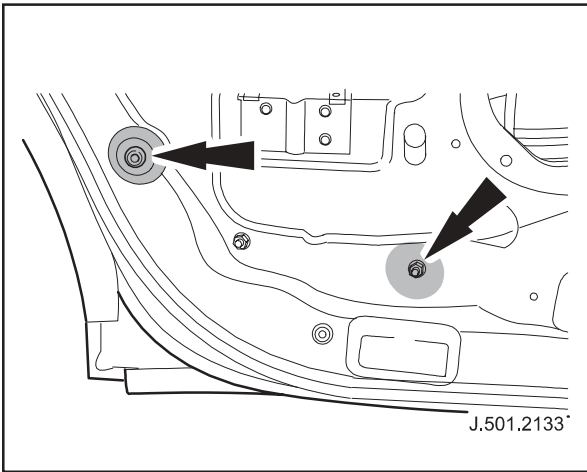


ILLUSTRATION 11

3. Door casing fir tree clip and fixing nut (Illustration 11).

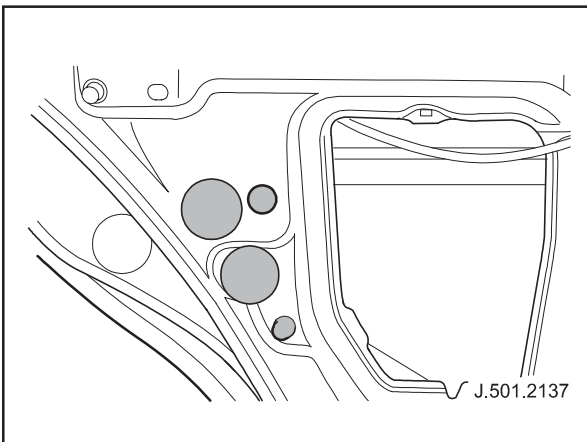


ILLUSTRATION 12

4. Door sealing patches. (Illustration 12)

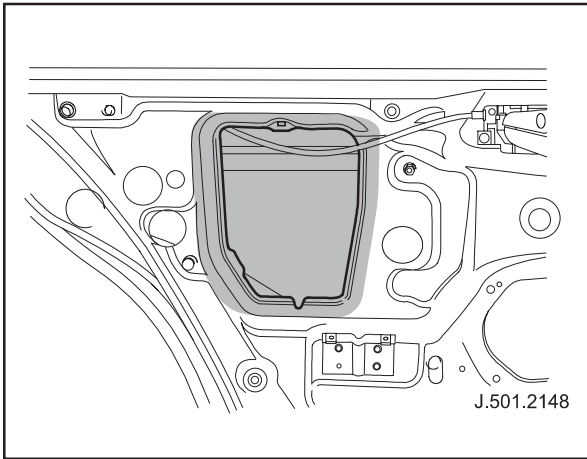


ILLUSTRATION 13

5. Water shedder (Illustration 13).

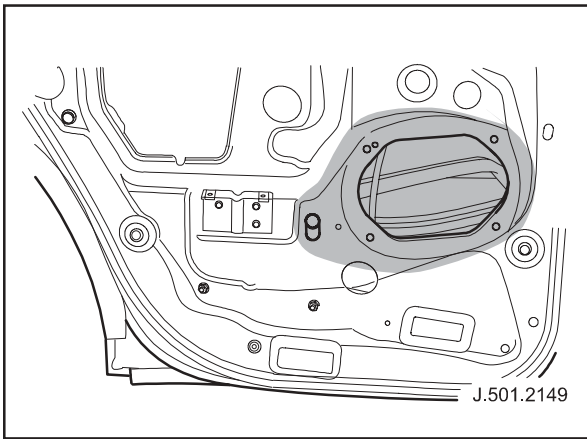


ILLUSTRATION 14

6. Door speaker module (Illustration 14).

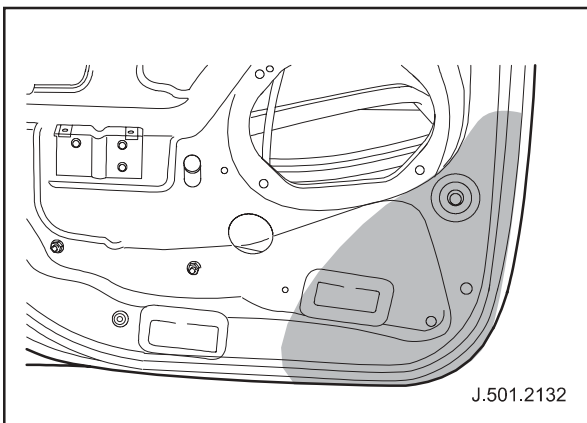


ILLUSTRATION 15

7. Body sealing patch (Illustration 15).

Luggage Compartment

Note: On all vehicles that have luggage compartment water leak issues, a luggage compartment floor drain valve grommet and boot debris deflectors **MUST** be installed.

Install luggage compartment floor drain valve grommet:

1. Open luggage compartment lid.
2. Reposition luggage compartment floor carpet for access.
3. Remove tool foam inlay.
4. Remove the spare wheel securing tee bolt and remove the spare wheel and place aside.
5. Remove and discard the blanking grommet at the rear of the luggage compartment floor. (Illustration 16)

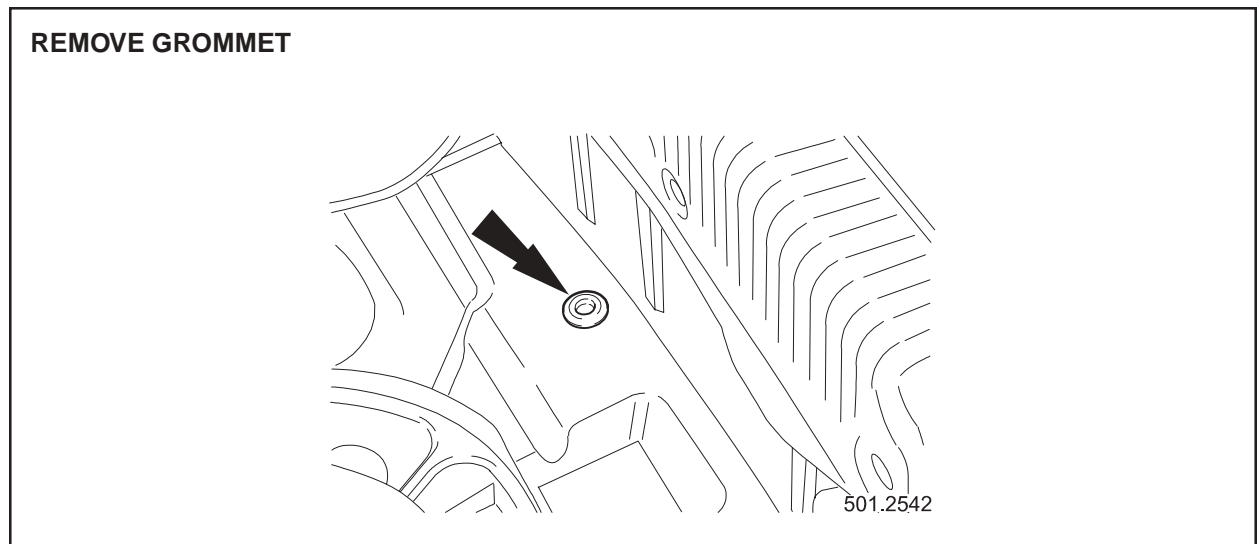


ILLUSTRATION 16

6. Install the new drain valve grommet in the luggage compartment floor.
7. Install spare wheel into the luggage compartment, install and fully tighten the spare wheel tee bolt.
8. Install the tool foam inlay.
9. Install the luggage compartment floor carpet to the original position.

Install debris deflectors:

Working on the right hand side of the vehicle.

10. Loosen but do not remove the rear muffler fixing clamp securing nut. (Illustration 17)

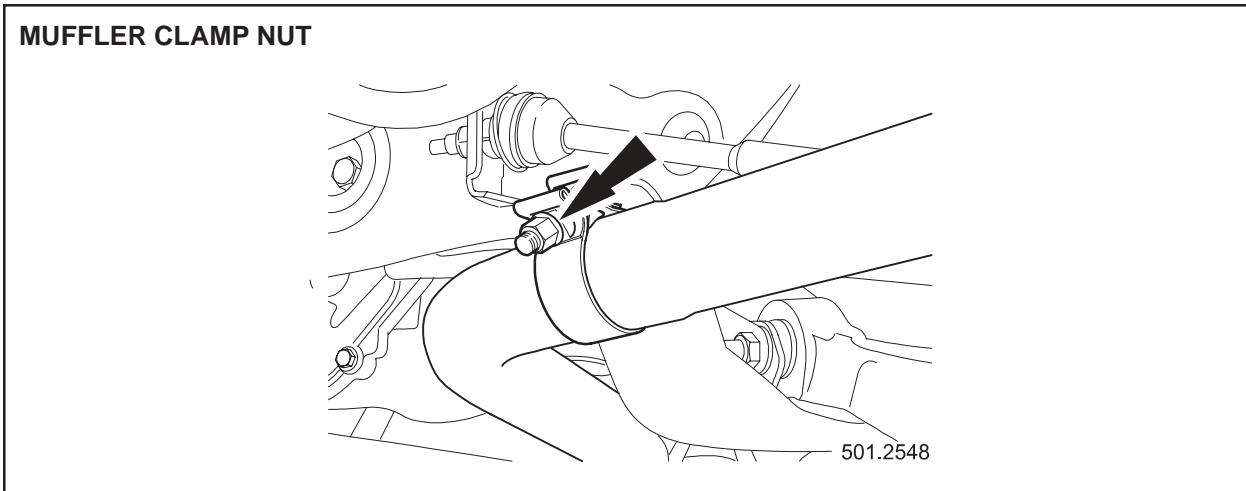


ILLUSTRATION 17

11. Displace the rear muffler from the hanger. (Illustration 18)

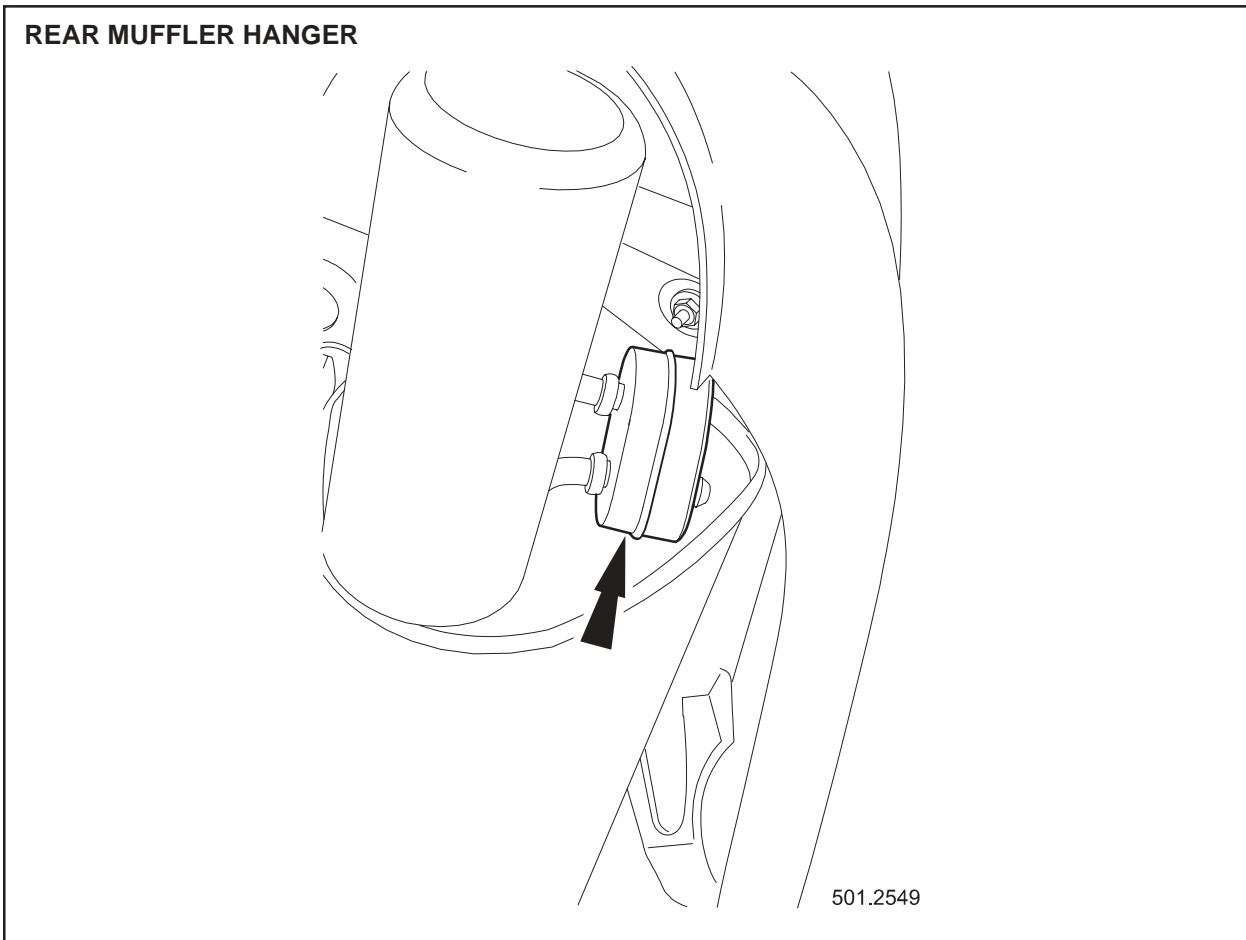


ILLUSTRATION 18

12. Reposition the rear muffler for access.
13. Using a suitable implement ensure that the luggage compartment vent box drain hole is free from blockage. (Illustration 19)

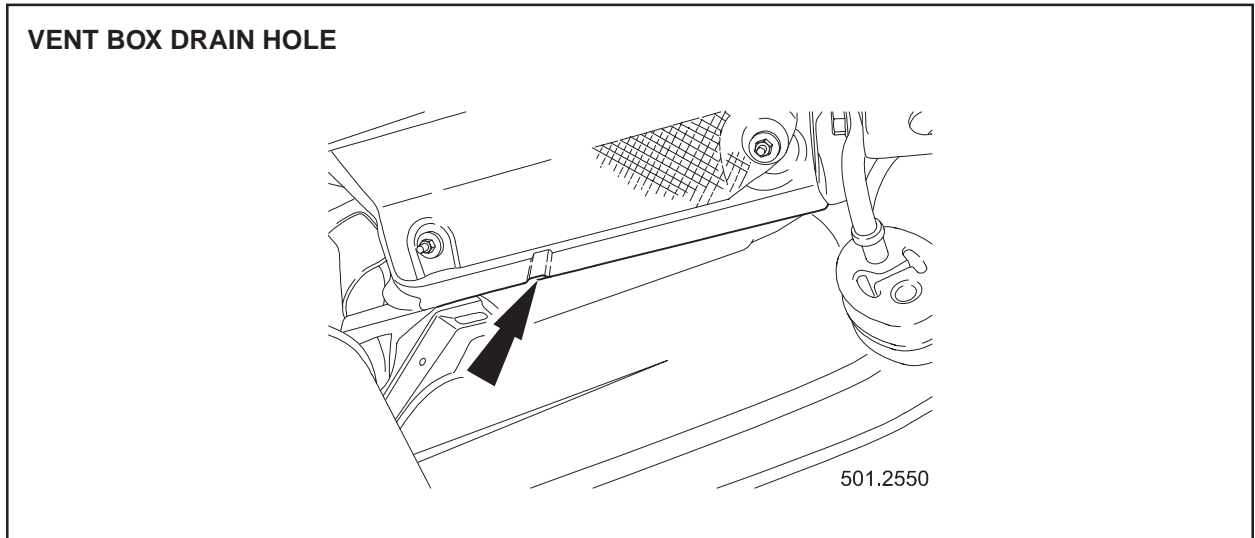


ILLUSTRATION 19

14. Use a suitable cleaner to prepare the area where the debris deflector will be secured.
15. Remove and discard the debris deflector securing putty protective tape. (Illustration 20)

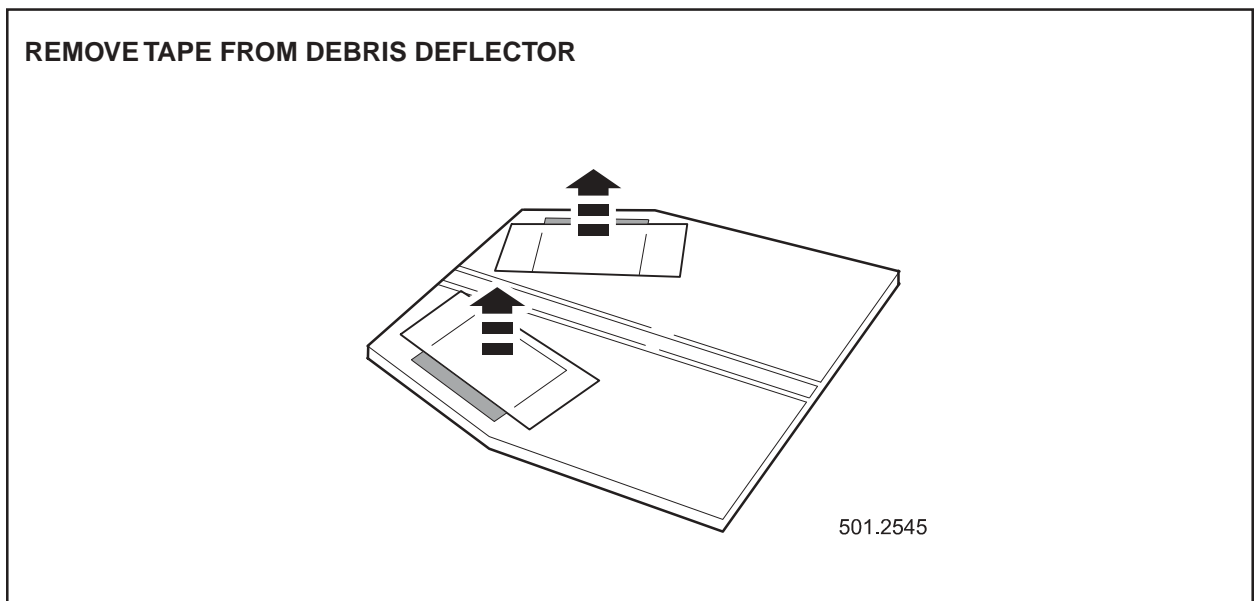


ILLUSTRATION 20

LOCATION FOR DEBRIS DEFLECTOR

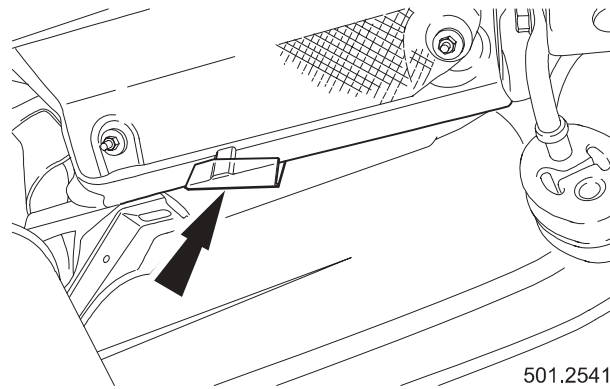


ILLUSTRATION 21

16. Attach the debris deflector to the vehicle to shield the vent box drain hole. (Illustration 21)

Note: Firmly press the debris deflector at the securing points to achieve a secure fix.

17. Reposition the rear muffler to the original position.
18. Install rear muffler into the rear hanger.
19. Fully tighten the rear muffler clamp securing nut to 55 Nm.
20. Repeat steps 10 to 19 on the left hand side of the vehicle.

Luggage Compartment

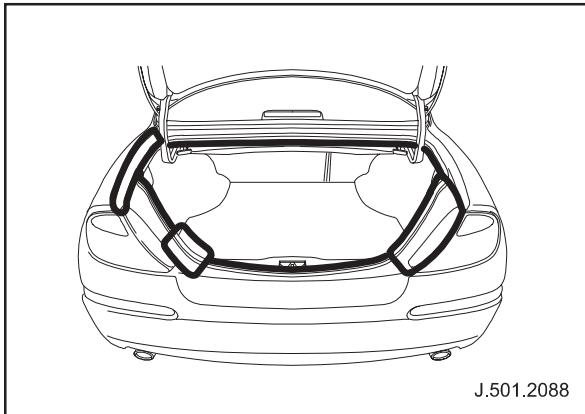


ILLUSTRATION 22

1. The following illustrations depict possible water leak points around the luggage compartment (Illustration 22).

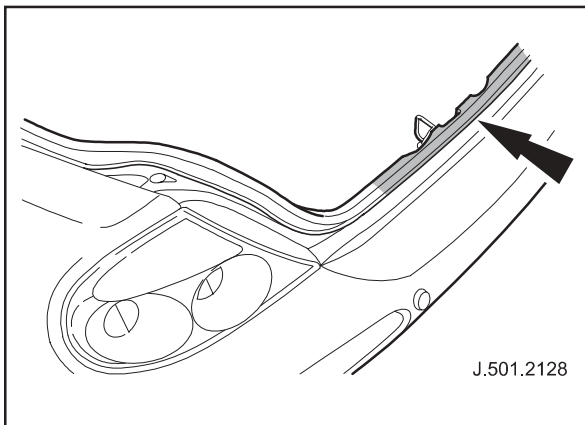


ILLUSTRATION 23

2. Luggage compartment seal (Illustration 23).

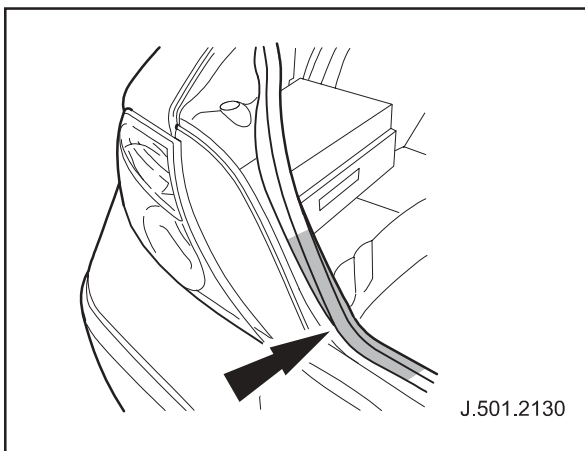


ILLUSTRATION 24

3. Luggage compartment seal (Illustration 24).

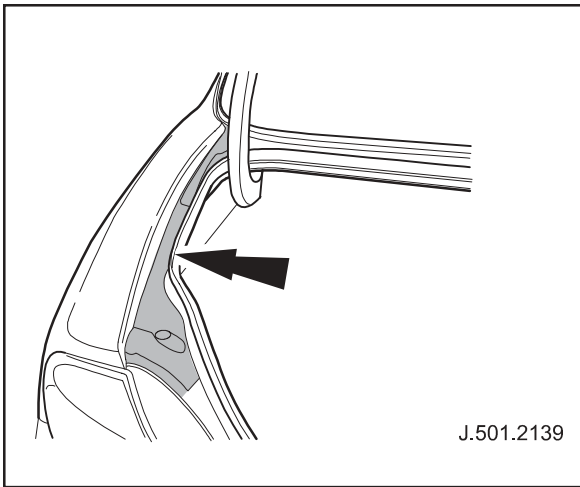


ILLUSTRATION 25

4. Luggage compartment channel seams (Illustration 25).

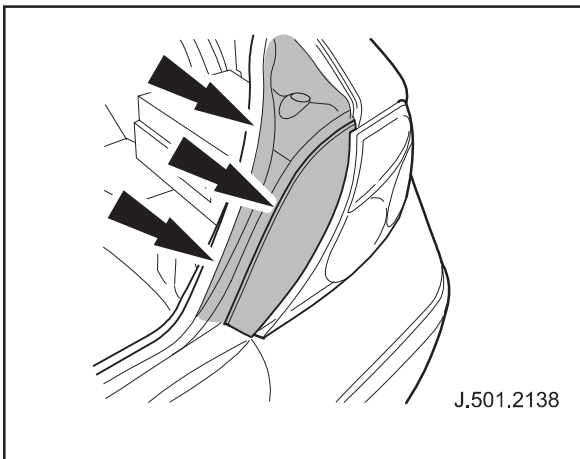


ILLUSTRATION 26

5. Luggage compartment seal and flange, and rear lamp seal (Illustration 26).

Luggage Compartment – Exterior

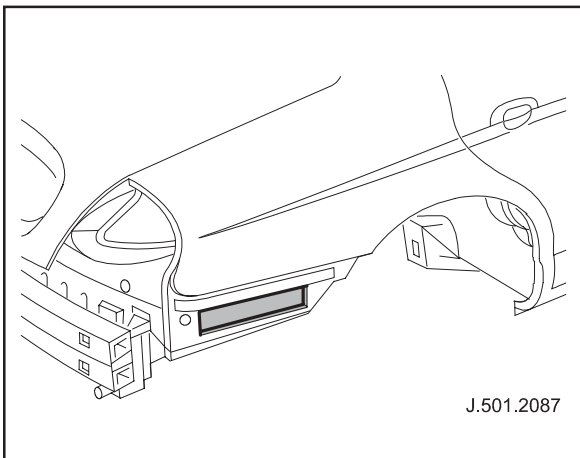


ILLUSTRATION 27

1. Luggage compartment air ducts: water ingress (Illustration 27).

APPENDIX 1

TOOLS, EQUIPMENT AND MATERIALS

The following can be used when proceeding with any of the Workshop Procedures listed in this Technical Bulletin:

- Dry absorbent clothes
- Variable water spray gun
- Flashlight
- Mirror
- Compressed air line and gun
- Wet/dry vacuum cleaner
- Sealer gun
- Suitable knife
- Wedge (plastic or wooden)
- Hot air blower
- UV Lamp
- Sealing compound (tape and plastic compound)
- Multipurpose adhesive
- Flange protection material
- Door sealing sheet (PVC)
- Double-sided adhesive tape for door sealing sheet
- Butyl tape for foam gaskets
- Denatured alcohol (from specialist suppliers)
- PU Adhesive
- Silicone remover
- Tar remover

APPENDIX 2

USE OF THE ULTRA VIOLET (UV) LAMP

Note: Before using the UV lamp, the safety instructions indicated in the operating instructions must be noted.

1. From the exterior of the vehicle, wet the affected area using the water spray gun.
2. From the exterior of the vehicle, spray the prepared test fluid (see UV lamp operation instructions) over the affected area/s.

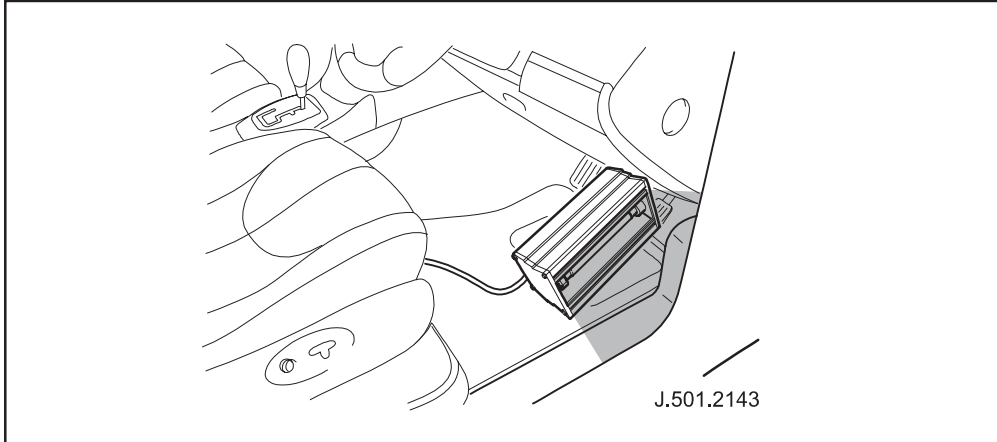


ILLUSTRATION 28

3. Connect the UV lamp and from the interior of the vehicle illuminate the affected area (Illustration 28).
4. The leak is located as soon as a bluish reflection can be seen in the area of the water leak.

Note: Light colors absorb a part of the test fluid.
Once a leak path has been identified, the test fluid must be thoroughly washed away using an appropriate cleanser.

APPENDIX 3

WATER LEAK TESTING PROCEDURE

The water leak detection can be carried out using one of 2 methods:

- Using a car wash/jet wash when the ingress path is not clear.
- Using a variable water spray gun, when the ingress path has been isolated to a specific area.

Note: Before beginning with the following procedures, recommended Tools, Equipment and Materials can be found in Appendix 1.

USING A CAR WASH/JET WASH:

A car wash/jet wash should be used when a water leak ingress path is not clear. If it is suspected that a vehicle is leaking water from e.g. the front lower door area, ensure the area is completely dry then:

1. Have at least one person inside the vehicle while the car is being washed using the car wash/ jet wash checking for signs of water ingress.
2. Look at the suspect area for signs of water seeping into the vehicle.
3. Once water seepage/ingress has been identified, mark the general location.

Note: When checking for signs of water ingress in darkened areas use a light.

4. Ensure there is no water ingress in any other area of the vehicle.
5. Once the car wash/jet wash is complete, return the vehicle to the workshop to perform the water leak test using the spray gun (see below).

USING A VARIABLE SPRAY GUN:

The variable spray gun should be used once the leak ingress path has been isolated to a specific area i.e. door, luggage compartment etc...

If it is suspected that a vehicle is leaking water from e.g. the front lower door area, ensure the area is completely dry, then:

1. Have at least one person inside the vehicle checking for signs of water ingress.
2. From the exterior of the vehicle, direct the spray gun at the lowest point of the suspected leaking area (Illustration 29).

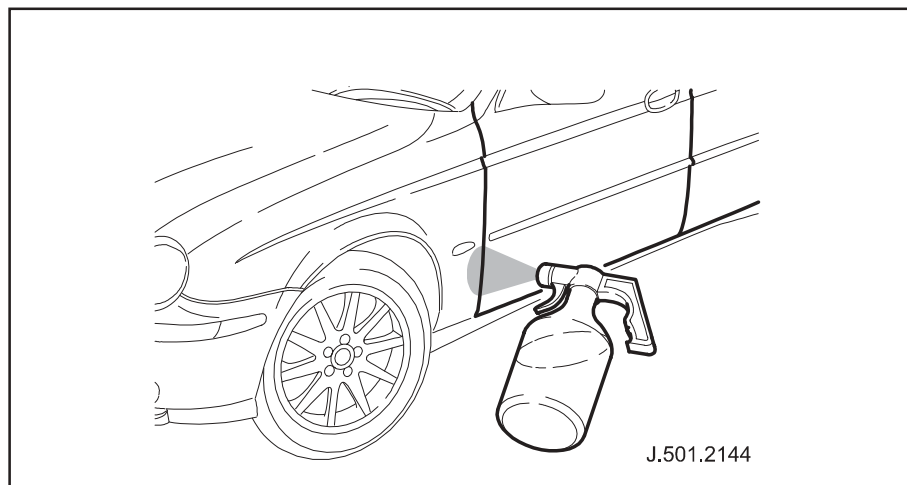


ILLUSTRATION 29

3. Working slowly upwards, spray water over the suspected leaking area until the person inside the vehicle identifies water seepage/ingress.
4. Ensure there is no water ingress from any other point around the suspect area.
5. Once all suspect areas have been tested, mark the ingress point and dry the tested area.
6. Perform the appropriate repair.

Parts Information:

<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>QTY</u>
Drain valve grommet	XR8 47028	1
Debris deflector	XR8 47239	2

Warranty Information:

Warranty claims should be submitted quoting the information found in the table below. This will result in payment of the stated time and, where applicable parts/miscellaneous expense codes as listed.

Description	SRO	Time	Causal Part Number
Install luggage compartment floor drain valve grommet and debris deflectors	76.94.31	0.4 hrs.	XR8 47028