TECHNICAL BULLETIN

No: LTB00034
Issue: **1**
Date: 01 Mar 2007

CIRCULATE: TO	Service Mgr	Warranty	Workshop	Body Shop	Parts
	X	X	X	X	X

LTB00034 REPLACES LS501-012, ISSUE 2, DATED 29-JUN-2006.
CHANGES ARE HIGHLIGHTED WITH GREY BACKGROUND.

SECTION: 501-00 – BODY – GENERAL INFORMATION

Passenger Compartment Water Ingress

AFFECTED VEHICLE RANGE:

Range Rover Sport (LS) **VIN: 6A900129 onwards**

CONDITION SUMMARY:

POSSIBLE CAUSES AND RESOLUTION OF WATER INGRESS

This bulletin provides technicians with guidance for identification of possible water ingress causes when water enters the passenger compartment. If a customer complains of water ingress, locate the point of origin and take the appropriate corrective action.

Symptom	Potential Root Cause
Water Ingress through headliner in proximity of roof opening panel.	Sealed end valve of the roof opening panel drain tubes. This may affect any one of the four roof opening panel drain tubes on the vehicle.
	Poorly routed, kinked or twisted roof opening panel drain tubes.
	Roof opening panel alignment.
Water Ingress through headliner in proximity of roof opening panel, predominantly front right-hand side of roof opening panel although, depending upon inclination of vehicle, or acceleration/deceleration, ingress may be evident at other points around the roof opening panel.	Foam sound-deadening pad in right-hand side fender air intake blocking the sunroof panel drain tube.
Water ingress to foot well (driver or passenger side) or lower D-pillar area (driver or passenger side).	Roof opening panel drain tube end not routed through the fender or wheel arch, or drain tube end pinched or clogged with debris.
Water ingress to passenger side foot well, water dripping from the glove compartment area. Note: There may be a delay of days between the vehicle being subjected to water and the complaint of water ingress arising due to the time taken for the water to soak through the pollen filter.	Plenum chamber panel not securely clipped, allowing water to pass through the air inlet, positioned on the passenger side of the vehicle, and collecting in the pollen filter.
Illumination of miscellaneous warning lamps and/or water in foot well.	Refer to NAS Technical Bulletin LS501-007 to address water ingress through A-Pillar exterior trim.

PARTS:

△ **NOTE: A customer may report water ingress during the use of a high pressure car wash. If the vehicle was built prior to VIN 6A922812 the roof opening glass panel assembly bracket may prevent sufficient travel to meet alignment specifications.**
Follow the troubleshooting and diagnosis Repair Procedures detailed in this bulletin to determine cause of water ingress and verify if the glass panel requires replacement.
Glass panel may only be replaced when it is determined to be the root cause of the leak.

EFT500032 .....Roof opening glass panel assembly Qty 1 (if diagnosed)

WARRANTY:

This procedure is issued for information and guidance only. Only those procedures justified by a customer complaint are allowed to be claimed, and will be subject to warranty audit.

Normal warranty policy and procedures apply.

REPAIR PROCEDURE

TEST SUNROOF DRAINS

1. Perform the following test to determine if the sunroof drain tubes are functioning normally or are potentially the water ingress source.

NOTE: The restricted access caused by the roof opening panel glass may require the vehicle to be inclined rearward slightly to pass water down the rear drain holes.
To prevent mis-diagnosis, the rear drain tubes require a greater volume of water poured into the water trap than when testing the front drains due to the rear drains venting into the rear bumper area.

- Place the vehicle on dry level ground.
- Fully open the sunroof panel to gain access to the water trap.
- Carefully pour water into the water traps, one corner at a time so that the water drains into the drain hole and drain hose. (Figures 1 and 2)
- Confirm that water has pooled on the ground at all four drain points under the A-pillar and D-pillar on both sides of the vehicle. (Figures 1 and 2)

Figure 1 RH Front Side Shown

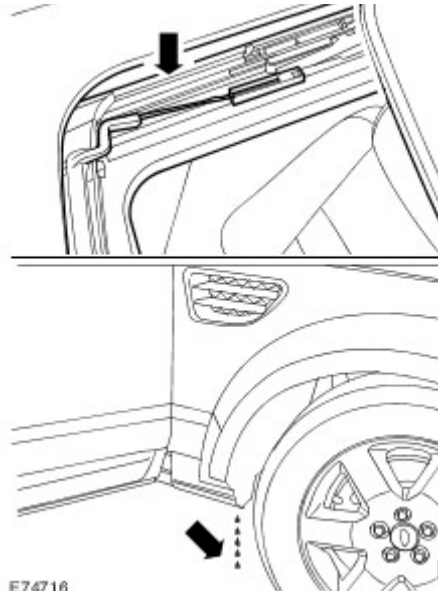
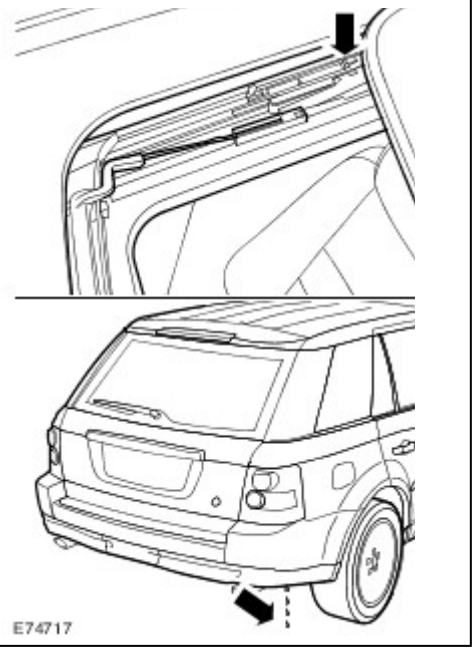


Figure 2 RH Rear Side Shown



RIGHT FRONT DRAIN CORRECTION PROCEDURE

NOTE: This procedure should be followed if there is no water found pooling on the ground below the right hand side A-pillar during testing.

CAUTION: Care should be taken when removing the fender air intake grill to prevent damage to retaining clips.

1. Remove the fender air intake grill by first pulling up to release the two lower clips, then pulling down and outward to release the two upper clips. (Figure 3)
2. Move the air duct aside. (Figure 4)
3. Release the foam insulation pad to gain access to the roof opening panel drain tube end. (Figure 4)
4. Verify that the drain tube is protruding through the hole in the body. (Figure 5)

NOTE: GTR lookup sequence is as follows: GTR Home > NAS > Service Information/ LS Range Rover Sport/2006> Workshop Manuals > Range Rover Sport 2005 Workshop Manual > Bookmark "Body and Paint/Body and Paint/501-05 Interior Trim and Ornamentation" > Link "Cowl Side Trim Panel (76.13.27)"

5. If the tube is not protruding through the hole in the body perform the following steps to correctly position the roof opening panel drain tube:
   - Refer to GTR Workshop Manual Section 76.13.27 and remove the cowl side trim panel to gain access to the roof opening panel drain tube.
   - Connect and secure the drain tube through the hole.
   - Verify the valve of the roof opening panel drain tube can be fully opened. (Figure 6)
   - If the valve can not be opened, cut as required to permit full opening. (Figure 6)
   - Install cowl side trim panel

Figure 3 RH Front Shown

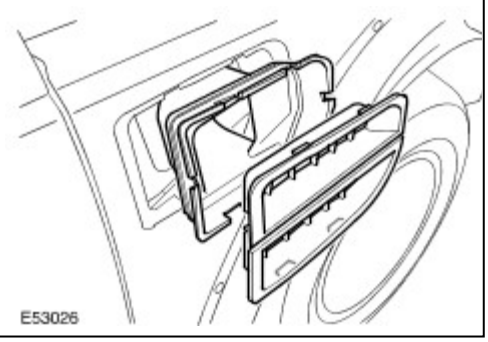


Figure 4 RH Front Shown

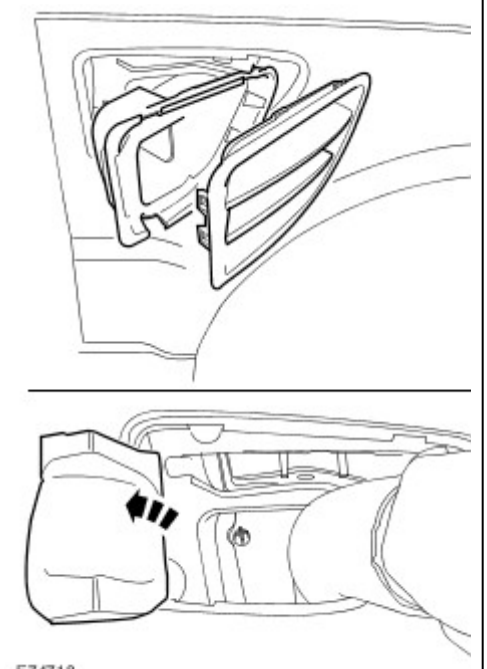


Figure 6

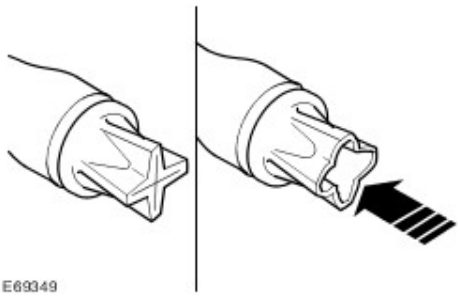
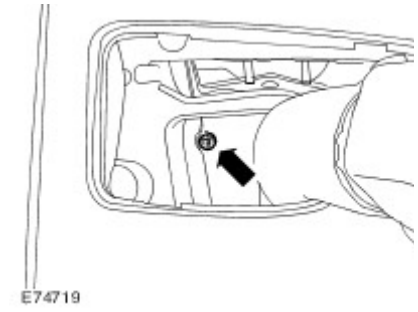


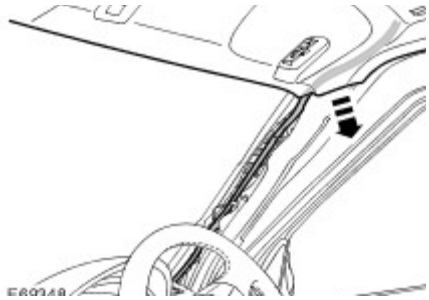
Figure 5



NOTE: If both the routing of the roof opening panel drain tube is correct and the valve of the roof opening panel drain tube cannot be faulted, the foam insulation pad may be the cause. The foam sound-deadening pad may have been installed in such a way as to block the roof opening panel drain tube end.

6. Remove and then install the foam sound-deadening pad, taking care to ensure that the roof opening panel drain tube valve locates in the indent in the foam insulation pad to avoid crimping the tube.
7. Confirm free-flow of water by repeating "Test Sunroof Drains" procedure for the right front drain.
8. If satisfactory test is completed install the duct and fender air intake grill.
9. If satisfactory test is NOT completed, blow out the drain tube with compressed air and test again.
10. If satisfactory test is still NOT completed, refer to GTR Workshop Manual Interior Trim and Ornamentation Section 76.64.15 and remove the headliner to gain access to the drain tube. (Figure 7)
11. Inspect for misrouting or kinking of the roof opening panel drain tube paying particular attention to :
    - Collapsed elbow joints
    - Pinched tube
    - Inclined routing
12. Repair drain tube routing as necessary and confirm free-flow of water by repeating "Test Sunroof Drains" procedure.
13. If satisfactory test is completed, install the headliner.
14. Install fender foam sound deadening pad, taking care not to block or crimp the drain tube end.
15. Position air duct and install fender air intake grill.

Figure 7



LEFT FRONT DRAIN CORRECTION PROCEDURE

NOTE: This procedure should be followed if there is no water found pooling on the ground below the left-hand side A-pillar during testing. There is no air ducting or foam insulation behind the left side air intake grill.

CAUTION: Care should be taken when removing the fender air intake grill to prevent damage to retaining clips.

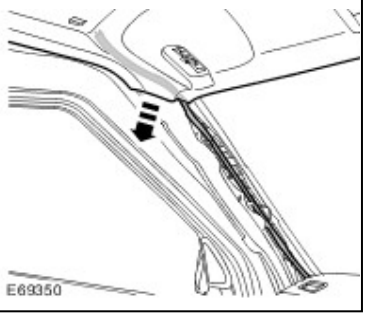
1. Remove the fender air intake grill by first pulling up to release the two lower clips, then pulling outward to release the two upper clips to gain access to the roof opening panel drain tube end. (Figure 3)
2. Verify that the drain tube is protruding through the hole in the body. (Figure 5)

NOTE: GTR lookup sequence is as follows:
GTR Home > NAS > Service Information/ LS Range Rover Sport/2006> Workshop Manuals > Range Rover Sport 2005 Workshop Manual > Bookmark "Electrical/Electrical Distribution/ 418-00: Module Communications Network" > Link "Central Junction Box (CJB) (86.70.56)"

3. If the drain tube is not protruding through the hole in the body perform the following:
    - Refer to GTR Workshop Manual Section 86.70.56 and remove the CJB to gain access to the roof opening panel drain tube.
    - Connect and secure the drain tube through the hole in the body.
    - Check the valve of the roof opening panel drain tube can be fully opened. (Figure 6)
    - If the valve can not be opened, cut as required to permit full opening. (Figure 6)

4. Confirm free-flow of water by repeating "Test Sunroof Drains" procedure for the left front drain.
5. If the concern has not been corrected, blow out drain tube with compressed air and retest.
6. If the concern has still NOT been corrected, refer to GTR Workshop Manual Section 76.64.15 and remove the headliner to gain access to the drain tube. (Figure 8)
7. Inspect for misrouting or kinking of the roof opening panel drain tube, paying particular attention to:
   - Collapsed elbow joints
   - Pinched tube
   - Inclined routing
8. Repair drain tube routing as necessary and retest.
9. If satisfactory test is completed install the headliner.
10. Install the CJB and the fender air intake grill.

Figure 8

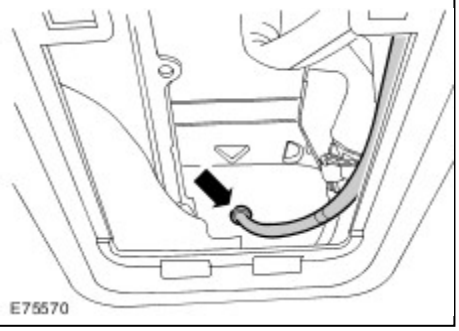


RIGHT REAR DRAIN CORRECTION PROCEDURE

NOTE: This procedure should be followed if there is no water is found pooling on the ground below the right-hand side D-pillar during testing.

1. Open the right-hand side access flap in the tailgate load space to gain access to the roof opening panel drain tube. (Figure 9)
2. Verify that the roof opening panel drain tube is protruding through the hole in the body.

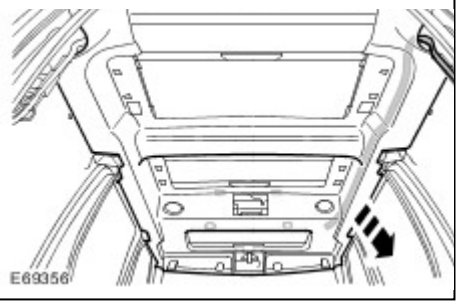
Figure 9



NOTE: GTR lookup sequence is as follows: GTR Home > NAS > Service Information/ LS Range Rover Sport/2006> Workshop Manuals > Range Rover Sport 2005 Workshop Manual > Bookmark "Body and Paint/Body and Paint/501-05: Interior Trim and Ornamentation" > Link "Rear Quarter Trim Panel (76.13.12)"

3. If the tube is not protruding perform the following:
   - Refer to GTR Workshop Manual Section 76.13.12 and release the right-hand side rear quarter trim panel to gain access to the roof opening panel drain tube.
   - Connect and secure the drain tube through the hole in the body.
4. Check that the valve of the drain tube can be fully opened. (Figure 5)
5. If the valve can not be opened, cut as required to permit full opening. (Figure 5)
6. Confirm free-flow of water by repeating "Test Sunroof Drains" procedure for the right rear drain.
7. If the concern has not been corrected, blow out drain tube with compressed air and retest.
8. If the concern has still NOT been corrected refer to GTR Section 76.64.15 and remove the headliner to gain access to the drain tube. (Figure 10)

Figure 10



9. Inspect for misrouting or kinking of the roof opening panel drain tube, paying particular attention to:
   - Collapsed elbow joints
   - Pinched tube
   - Inclined routing
10. Repair drain tube routing as necessary and retest.
11. If satisfactory test is completed, install the headliner.
12. Install the right-hand side rear quarter trim panel.

LEFT REAR DRAIN CORRECTION PROCEDURE

NOTE: This procedure should be followed if there is no water found pooling on the ground below the left-hand side D-pillar during testing.

1. Refer to GTR Workshop Manual Section 76.13.12 and release the left-hand side rear quarter trim panel to gain access to the roof opening panel drain tube.
2. Verify that the drain tube is protruding through the hole in the body.
3. If the tube is not protruding, connect and secure the drain tube through the hole in the body.
4. Check that the valve of the drain tube can be fully opened. (Figure 5)
5. If the valve can not be opened, cut as required to permit full opening. (Figure 5)
6. Confirm free-flow of water by repeating "Test Sunroof Drains" procedure for the left rear drain.
7. If the concern has not been corrected, blow out drain tube with compressed air and retest.
8. If the concern has still NOT been corrected refer to GTR Section 76.64.15 and remove the headliner to gain access to the drain tube. (Figure 11)
9. Inspect for misrouting or kinking of the roof opening panel drain tube, paying particular attention to:
   - Collapsed elbow joints
   - Pinched tube
   - Inclined routing
10. Repair drain tube routing as necessary and retest.
11. If satisfactory test completed, install the headliner.
12. Install the left-hand side rear quarter trim panel.

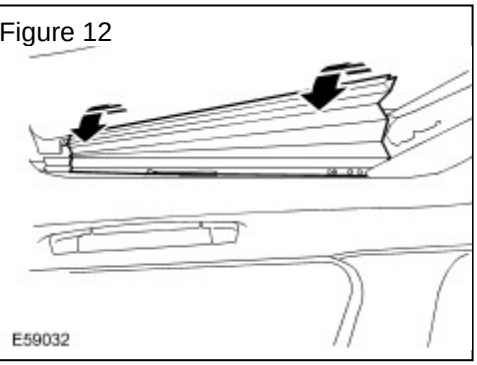
Figure 11

ROOF OPENING PANEL ALIGNMENT AS POTENTIAL LEAK SOURCE

NOTE: When all of the drain tubes are confirmed as functioning correctly the roof opening panel glass alignment can be tested as a leak source.

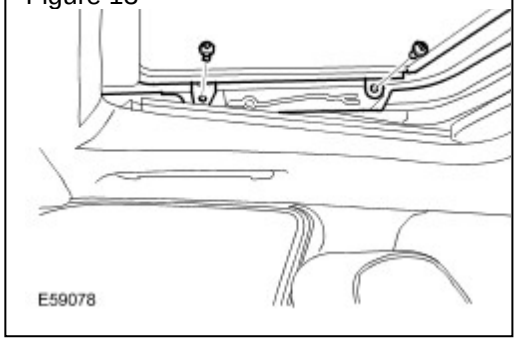
1. Open the roof opening panel blind, leaving the roof opening panel closed.
2. Verify that the glass panel is centered in its opening.
3. Verify that the front edge is set flush or up to 1.0 mm (0.040 in) below the roof line.
4. Verify that the rear edge is set flush or up to 1.0 mm (0.040 in) higher than the roof line.
5. From inside the vehicle, remove the roof opening panel mechanism covers. (Figure 12)

Figure 12



6. Verify that all four (4) Torx screws securing the roof opening panel are correctly positioned and tightened to **6 Nm (4.5 lbf-ft).** (Figure 13)
7. If the roof opening panel is not set within the specified conditions or if any Torx screw is loose, align the roof opening panel as follows:
   - Loosen the four (4) roof opening panel Torx screws
   - Align the roof opening panel so it is centered in all directions to the exterior roof panel opening
   - Verify that the exterior front and rear edges are set within the specified conditions
   - Tighten the four (4) roof opening panel Torx screws
8. Install roof opening panel mechanism covers.
9. Verify proper operation of the roof opening panel.
10. Close the roof opening panel blind.

Figure 13



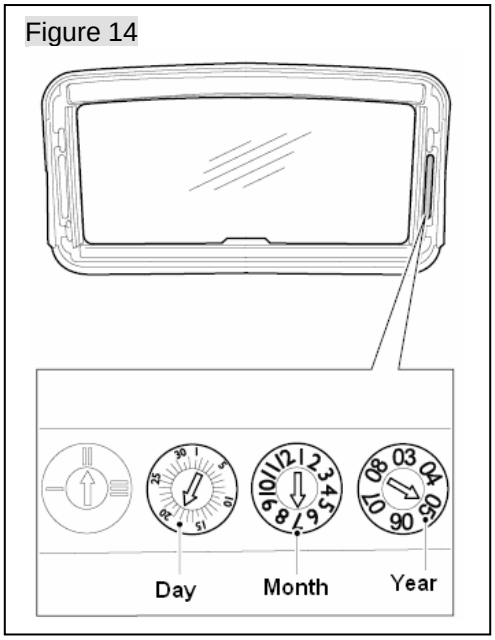
ROOF OPENING PANEL REPLACEMENT

NOTE: If a customer reports water ingress during the use of a machine car wash and the vehicle was built prior to VIN 6A922812 the glass panel assembly bracket may prevent insufficient travel to meet alignment specifications, and the roof opening panel glass assembly may require replacement.

NOTE: GTR lookup sequence is as follows: GTR Home > NAS > Service Information/ LS Range Rover Sport/2006> Workshop Manuals > Range Rover Sport 2005 Workshop Manual > Bookmark "Body and Paint/Body and Paint/501-17: Roof Opening Panel/Removal and Installation" > Link "Roof Opening Panel Glass (76.84.03)"

NOTE: The glass panel assembly production date is determined from the 'Day', 'Month' and 'Year' indicated by the arrows in each of the three dials as illustrated in Figure 14. As an example, the arrows depicted in Figure 14 indicate 18_7_05, a production date of 18-July-2005.

Figure 14



1. Verify the glass panel assembly production date indicated by each of the three arrows located on the assembly. (Figure 14)
2. If the production date indicated by the dials is prior to 1_10_05 (01-Oct-2005), refer to GTR Section 76.84.03 and replace the roof opening panel glass with part number EFT500032.

WATER INGRESS TO GLOVE COMPARTMENT OR PASSENGER FOOT WELL

△ **NOTE: If the previous steps have been carried out and both the roof opening panel drain tubes and the alignment/fasteners of the roof opening panel are correctly assembled, without the need for corrective action, this final check may reveal a footwell leak source.**

1. Confirm that the plenum chamber panel is securely clipped as follows:
   - Inspect and verify that there is no visible gapping.
   - Gently but firmly applying pressure across the panel to confirm it is seated.
   - Listen for a click sound, which indicates that a clip has engaged (if not already engaged).

A-PILLAR WATER LEAK TO FOOT WELL

1. If a customer reports illumination of miscellaneous warning lamps or water in the footwell area, Refer to NAS Technical Bulletin LS501-007 and follow inspection and repair procedure for A-pillar trim clip replacement and sealing.