



Retailer Technical Journal 14545

Water intrusion into passenger compartment S40 / V50

Date 10-7-2008

Volvo Cars of North America, LLC
Technical Support

Reference: VIDA

Note! If using a printed copy of this Retailer Technical Journal, first check for the latest online version.

AFFECTED VEHICLES:

Models	Type	Model year	Chassis range
S40	544	2004.5 -	See the following pages for chassis ranges listed by issue
V50	545	2005 -	See the following pages for chassis ranges listed by issue

DESCRIPTION: We have had cases of water intrusion into the passenger compartment of S40 and V50 vehicles. Customer comments may include: water on the carpet, odor, and noise. If you have a vehicle with water on the front floor of the passenger compartment be sure to **inspect / address all causes of intrusion listed within this document as necessary to avoid repeat repair!** These are known issues and are the most common causes of water intrusion on S40 and V50. You may find more than one of these conditions exists simultaneously causing the water intrusion.

NOTE: Do not limit the possible cause to these listed, although less likely you may have an issue not included here.

IMPORTANT INFORMATION: Should the floor carpet / foam pad be affected by the water intrusion every attempt should be made to **REUSE** this material. The original mats and carpets ensure the best fit. Reusing the material may require cleaning and drying for reinstallation after repair.

Suggestions for cleaning: Household cleaning agents appropriate for the condition. Including but not limited too carpet cleaning agents. If the deodorizer / cleaner used has a "perfume" odor be sure to notify the customer so they're aware when they take possession of the vehicle.

Suggestions for drying: Place in direct sunlight, place in an area within the retailer facility that is warmer and dryer, safely hang by a heater unit.

Should a carpet / foam pad be replaced the original should be returned to TMA **WITHOUT** being placed in a bag for review. Please include any / all information related to what was attempted and why in your judgment it needed to be replaced. If it is determined that this material could have been reused it will be returned to you and your claim will be debited.

Water intrusion at top corner of windscreen:

NOTE: Prior to performing any work related to this issue be sure the vehicle falls within the chassis limits listed here. If the vehicle does not fall within these chassis limits move on to the next possible known cause. See page 4.

AFFECTED VEHICLES:

Model	Type	Model year	Chassis range
S40	544	2005	053753-057709
		2007	264074-265128
V50	545	2005 -	049191-053781

DESCRIPTION: When using a high pressure washer or water hose with high pressure, it might be possible that some water enters the passenger compartment when the water hits the top corner(s) of the windscreen.

MATERIAL:

Description	Quantity	Part Number
Clip	2	30781445
Sealing Compound	as needed*	1161767

* shop supply

SERVICE: Inspect, verify and repair as described in the following steps.

Remove the A-pillar trim from both sides, see VIDA:

- Removal, replacement and installation
- 8 Body and interior
- 85 Interior
- Upholstery for the door, side, parcel shelf, cargo shelf
- A pillar trim panel



Remove the retaining clip, shown here and replace when trim the panel is reinstalled.

Note: windscreen removed in these pictures to identify concern. There is no need to remove the windscreen for this repair.

Check the water tightness of the windscreen sealant under the following conditions:

- high pressure washer jet spray
NOTE: max 2200 PSI (150 bar)
- if possible adjust water volume to 4.5 gal / min (17 ltr / min)
- distance 12 inches (30 cm)
- max detergent mix: 5%
- direction from roof to windscreen parallel to rain gutter
- spray time: 5 seconds if leakage detected

From inside the vehicle be sure no water is entering the area. If so, locate the exact spot (pictures 1 & 2 might give you a hint of a possible location)

NOTE: Prior to reinstalling the A pillar cover see page 4 for additional possible source of water intrusion.

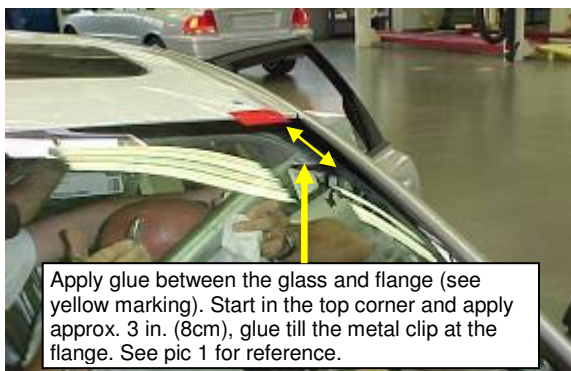
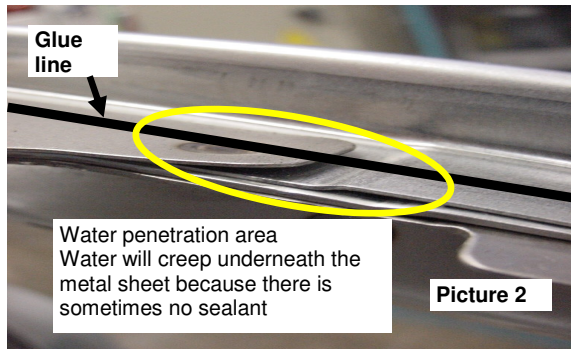
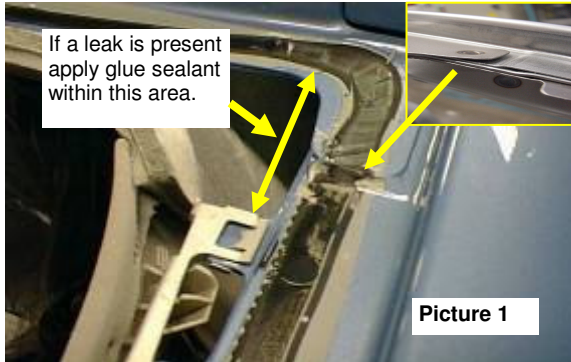
If no leak is detected install a new retaining clip (PN 30781445) on both A pillars, install the cover panels and proceed to the next possible cause. See page 4

If a leak has been detected, do not remove the windscreen, perform the following:

- dry the area completely with compressed air
- apply sealing compound (PN 1161767) by use of a generic sealant gun. (insert a small spacer between the headliner and flange in the top corner for better access)
- ensure the application of sufficient amount of sealant, remove excess sealant with a 'wet' finger or spatula
- after the sealant has hardened (approx 6 hrs), check the water tightness of the area again.

NOTE: Prior to reinstalling the A pillar cover see page 4 for additional possible source of water intrusion.

- install a new retaining clip (PN 30673305) to both A pillars
- install both A pillar trims



Water intrusion due to sun roof drains / sound traps:

Prior to performing any work related to this issue be sure the vehicle falls within the chassis limits listed. If the vehicle does not fall within chassis limits; move on to the next possible known cause. See page 7.

AFFECTED VEHICLES:

Model	Type	Model year	Chassis range
S40	544	2004.5 -	000001 - 214300
V50	545	2005 -	000001 - 220721

DESCRIPTION: We've had cases of sunroof drains coming loose or having blocked sound traps at the front end of the drain tubes. This may cause water to drain into the front floor area. Shortened sound traps and an improved installation process have been introduced to minimize the risk of blockage and / or incorrect assembly.

MATERIAL:

Description	Quantity	Part Number
Sound Trap	2*	30784158

*as needed

SERVICE: Inspect, verify and repair as described in the following steps.

Remove the A-pillar trim from the affected side, see VIDA:

- Removal, replacement and installation
- 8 Body and interior
- 85 Interior
- Upholstery for the door, side, parcel shelf, cargo shelf
- A pillar trim panel

Gently pull the headliner inward and with a mirror inspect that the drain hose is connected to the sunroof tub correctly.

Inspect the installation, location and condition of the drain. It should look the same as the one shown here.

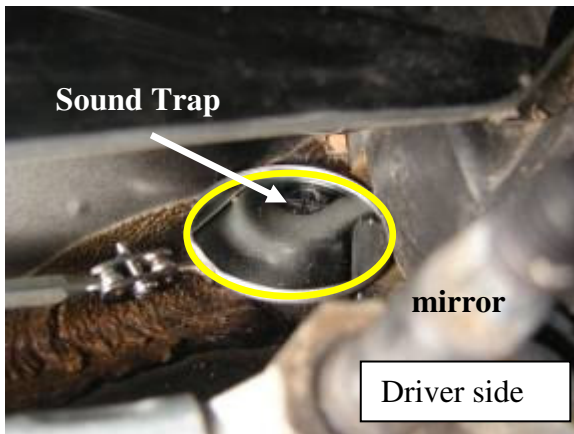
Important! DO NOT remove the sound trap at the base of the hose at this point.

Although difficult to see, feel with your hand and ensure the hose is installed in the sound trap.





At the front - corner area of the sunroof opening of the side with the water intrusion: have helper pour water into the sunroof drain area and observe the water traveling thought the hose.



Also remove the plenum cover, see VIDA:

- Removal, replacement and installation
- 8 Body and interior
- 84 Exterior trim, glass, weatherstrips
- Glass and weather-strip for windshield and rear windshield
- Plenum chamber

With a mirror inspect the sound trap exit condition and water flow.

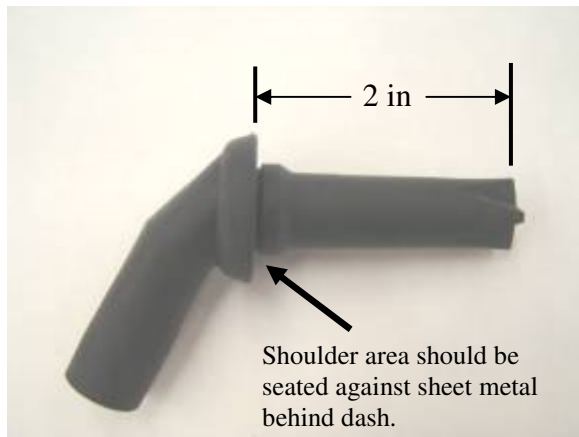


Note the shape and location of the sound trap.

You can place your finger(s) on the tip of the sound trap. It should be slightly higher then the opening in the sheet metal.



View of the sound trap exit.



A change to the sound trap has taken place (PN 30784158) **NOTE:** There is no part number change from the original, but the new sound traps have a length of 2 inches (52 mm) from bottom to flange to exit.

It should look like the one shown here.

If you have a clogged drain system and have confirmed it is not the sunroof assembly or the drain hose: Remove the sound trap from its installed position and ensure it is not blocked or deformed. If it is replace with a new one (PN 30784158).

When installing the sound trap: It is difficult to see the sound trap when installed, feel with your hand and be sure the trap is installed up to the shoulder area (see above), and inspect the position from the cowl area as described previously.

Water intrusion via A pillar at the cowl area:

NOTE: Prior to performing any work related to this issue be sure the vehicle falls within the chassis limits listed here. If the vehicle does not fall within these chassis limits; move on to the next possible known cause. See page 10.

AFFECTED VEHICLES:

Model	Type	Model year	Chassis range
S40	544	2004.5 -	000001 - 193808
V50	545	2005 -	000001 - 199425

DESCRIPTION: We've had cases of water intrusion into the interior via the A pillar at the cowl area. The location of the entrance is where the instrument panel crossbar is attached to the A pillar. In some cases it seems to enter via the thread of the bolt. However; the location where the water actually enters the vehicle is at the A pillar.

MATERIAL:

Description	Quantity	Part Number
Sealing Compound * shop supply	as needed*	1161767

SERVICE: Inspect, verify and repair as described in the following steps.



Verify suspected leakage

1.

- apply water with garden hose at the base of the A pillar on the suspected side.
- Remove the plenum cover for better visibility of the A pillar – cowl area, see VIDA:
- Removal, replacement and installation
- 8 Body and interior
- 84 Exterior trim, glass, weatherstrips
- Glass and weather-strip for windshield and rear windshield
- Plenum chamber

Be sure the marked area is tested thoroughly.

NOTE: Only driver side is shown. However the same issue can occur at either the driver or passenger sides.



With the water running; check if water enters either around the instrument panel mounting bolt or the area directly surrounding.

The water leak can also be confirmed by checking the A pillar area where the door harness is located (see pictures in step 3).

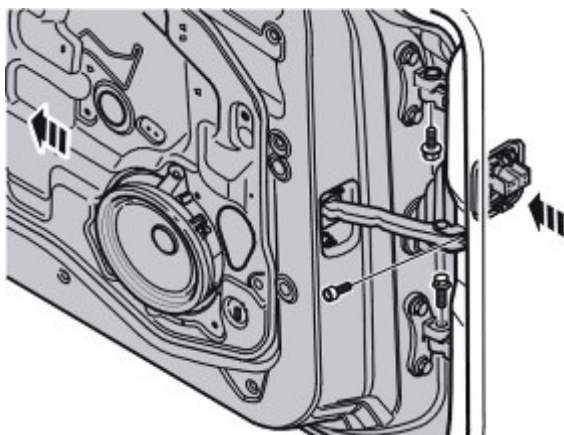
If you can confirm water in either of these this areas proceed to step 2.

If not, continue to fault trace for the cause of the water intrusion. See Page 7 for the next possible cause.



Sealing the cowl top & A pillar connection 2.

- dry the area completely with compressed air
- seal the marked are with sealing compound (PN 1161767) make sure the area is completely sealed
- after the sealant has hardened (approx 6 hrs), check the water tightness of the area again.
- if the area is now sealed touch up the area with the appropriate touch-up paint.



Remove any water from the A pillar 3.

Remove the affected side front door.

- lower the window 12 inches (30 cm).
- ignition off.
- disconnect the door assembly harness.
- remove the door from the vehicle as shown.



With the door removed you will have access to inspect the inside of the A pillar area.

TIP: use a light to inspect this area.



Remove the water from the A pillar with compressed air.

Be sure to insert the nozzle of the air gun in the gaps between the A pillar and brackets as shown.

TIP: Cover the openings with a towel, this to avoid water spray over the area.

Reassembly

4.

Reinstall the front door using the "paint markings" of the original installation for location.

Reinstall the plenum cover according to VIDA.

Water intrusion due to blocked Air Conditioning Evaporator drain (interior):

Prior to performing any work related to this issue be sure the vehicle falls within the chassis limits listed. If the vehicle does not fall within chassis limits; move on to the next possible known cause. See page 11.

AFFECTED VEHICLES:

Model	Type	Model year	Chassis range
S40	544	2004.5 -	000001 - 214069
V50	545	2005 -	000001 - 220413

DESCRIPTION: Leaves and debris have been found to block the evaporator drain from inside the climate housing. Analysis has indicated the fit of the cabin filter left a small gap allowing leaves and debris to bypass the filter and end up inside the housing. An improved version of the cabin filter has been introduced and has a tighter fit at the housing. As a result, the climate housing and drain will remain free of debris and contamination.

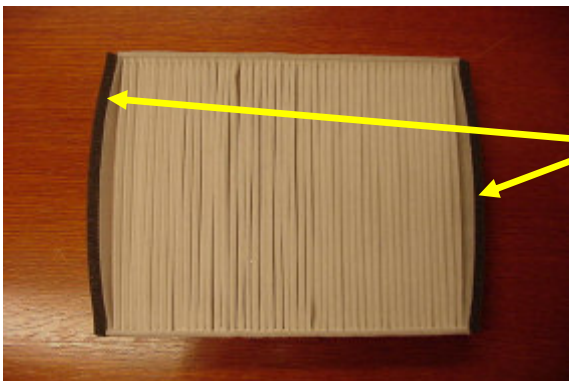
MATERIAL:

Description	Quantity	Part Number
Cabin Filter: Manual Climate Control and Electronic Climate Control variants without Interior Air Quality Sensor (IAQS)	1	30780376
Cabin Filter: Manual Climate Control and Electronic Climate Control variants with Interior Air Quality Sensor (IAQS)	1	30780377

SERVICE: Inspect, verify and replace as described in VIDA.

Remove the side cover as per VIDA:

- Removal, replacement and installation
- 8 Body and interior
- 87 Climate units
- Air distribution, L.H.D
- Pollen filter climate control system



The following improvements of the cabin filter have been introduced:

- Closed cell structure foam on the sides of the filter element.
- More flexible filter core and rounded sides to follow the shape of the HVAC housing.
- Optimized dimensions of the filter element.

Water intrusion due to blocked or damaged Air Conditioning Evaporator drain (exterior):

Prior to performing any work related to this issue be sure the vehicle falls within the chassis limits listed.

AFFECTED VEHICLES:

Model	Type	Model year	Chassis range
S40	544	2004.5 -	000001 - 281453
V50	545	2005 -	000001 - 295633

DESCRIPTION: It has been discovered that the air conditioning evaporator drain can become blocked by the sound insulation material below the floor panel. This may cause the water in the climate system housing to overflow onto the passenger compartment floor.

SERVICE: Inspect, verify and adjust as described in the following steps.



Remove the climate housing drain and inspect to ensure the sound insulation material is not too close to drain.

NOTE: Water on this material causes swelling

The minimum distance between the end of the drain and the sound proof insulation should be 1/4 inch (5.8 mm).

NOTE: When reinstalling the drain ensure there are no kinks in the hose and the assembly is fitted correctly.

Adjustment of the heat shield



The drain for the climate unit is located in this area.



Vehicles with two wheel drive, loosen the cross member as shown here.



Vehicles with all wheel drive, loosen the cross members as shown here.

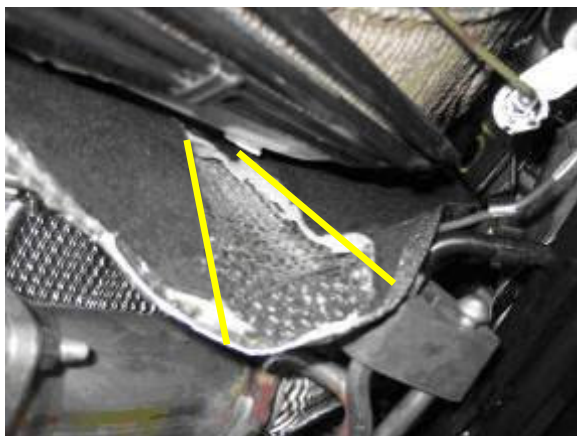


Carefully bend out the heat shield.

NOTE: the arrow indicates the location drainage outlet.



With a knife; slice the insulation in the area of the drain.



Once sliced; remove (scrape) the sound insulation from the area of the drain so that drainage is not restricted.

Carefully reposition the heat shield and reinstall the cross member per VIDA.

WARRANTY CLAIM INFORMATION		
LABOR OP	LABOR DESCRIPTION	LABOR TIME
99203-2	Water intrusion top corner of windscreen checking only	0.3 hrs
99204-3	Water intrusion top corner of windscreen repair	0.2 hrs
99580-2	Sun roof drain check at upper A pillar area (both sides)	0.2 hrs
99581-2	Sun roof drain check at lower A pillar area (both sides)	0.5 hrs
99582-3	Replace clogged sunroof drain sound traps	0.1 hrs
99236-2	Water intrusion at A pillar – cowl area inspection	0.2 hrs
99237-2	Water intrusion at A pillar – cowl area repair	0.7 hrs
87211-2	Air cleaner passenger compartment replace	0.2 hrs
99466-2	Sound insulation heat shield exhaust system adjust	0.3 hrs
Claims may be submitted under the new car warranty when there is a documented customer complaint using claim type: 01		

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