

Workshop Manual

Arteon 2018 ➤ , Beetle 2012 ➤ ,
CC 2010 ➤ , CC 2012 ➤ , Eos 2006 ➤ ,
Golf 2009 ➤ , Golf 2013 ➤ ,
Golf 2015 ➤ , Golf 2017 ➤ ,
Golf Cabriolet 2012 ➤ ,
Golf Plus 2009 ➤ ,
Golf Sportsvan 2015 ➤ ,
Golf Sportsvan 2018 ➤ ,
Golf Variant 2010 ➤ ,
Golf Variant 2014 ➤ ,
Golf Variant 2015 ➤ ,
Golf Variant 2017 ➤ , Jetta 2011 ➤ ,
Jetta 2013 ➤ , Jetta 2015 ➤ ,
Passat 2006 ➤ , Passat 2011 ➤ ,
Passat 2015 ➤ ,
Passat (NMS - US) 2012 ➤ ,
Passat (NMS - US) 2016 ➤ ,
Passat CC 2009 ➤ ,
Passat Variant 2006 ➤ ,
Passat Variant 2011 ➤ ,
Passat Variant 2015 ➤ , Polo 2010 ➤ ,
Polo 2014 ➤ , Polo 2018 ➤ ,
Polo KH IN 2015 ➤ ,
Polo KH MY 2014 ➤ ,
Polo KH MY 2015 ➤ ,
Polo Lim IN 2016 ➤ ,
Polo Lim MY 2014 ➤ ,
Polo Lim MY 2016 ➤ ,
Polo Lim RUS 2011 ➤ ,
Polo Lim RUS 2016 ➤ , Scirocco 2009 ➤ ,



Scirocco 2015 ➤ , Sharan 2011 ➤ ,
Sharan 2016 ➤ , T-Roc 2018 ➤ ,
The Beetle Cabriolet 2012 ➤ ,
The Beetle Cabriolet 2017 ➤ ,
Tiguan 2008 ➤ , Tiguan 2016 ➤ ,
Touareg 2010 ➤ , Touareg 2015 ➤ ,
Touran 2003 ➤ , Touran 2016 ➤ ,
e-Golf 2014 ➤ , e-Golf 2017 ➤ ,
e-up! 2014 ➤ , e-up! 2017 ➤ ,
up! 2012 ➤ , up! 2017 ➤

Manual on Localising the Ingress of Water

Edition 12.2017





List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.





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00 – Technical data

1 Introduction

(VRL011150; Edition 12.2017)

This handbook serves as an aid to record, localise and rectify complaints relating to water ingress. All descriptions and diagrams are for demonstration purposes.

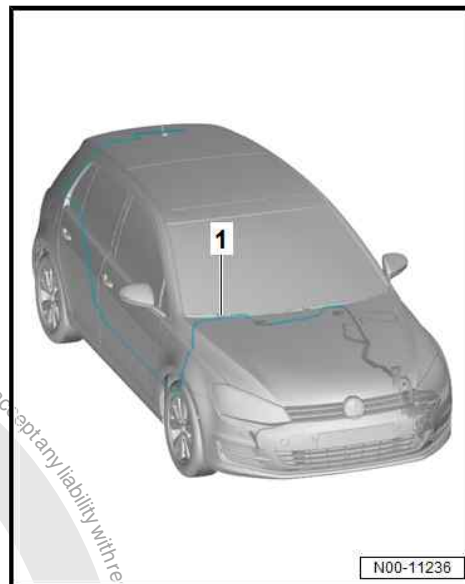
The attached check list is designed to help the customer service advisor accurately determine the complaint with the customer in order to approximately localise the water ingress or rule out various causes. To do this, the TPIs in the TSH should also be referred to.

This handbook is designed as a type of workshop manual to help the mechanic organise the work steps for localising the point at which water is seeping in. Different repair procedures are to be applied for rectifying the ingress of water, depending on the respective point of ingress.

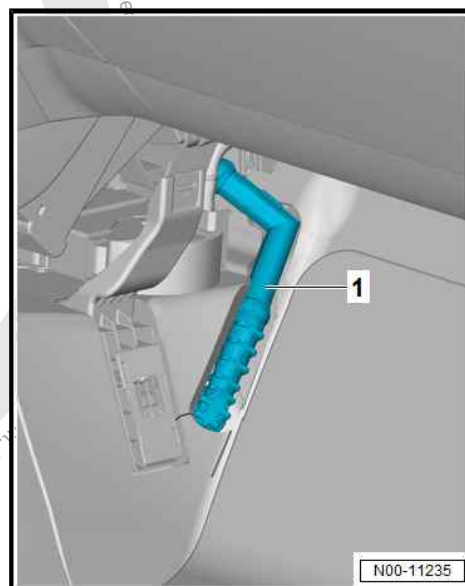


2 Causes

2.1 Vehicle fluids



- ◆ Coolant (e.g. water lines and heat exchanger in interior)
- ◆ Windscreen washer fluid (e.g. hose -1- from reservoir to rear window washer system)
- ◆ Condensation from evaporator (e.g. water drain -1- of evaporator blocked)



2.2 External factors

- ◆ Rain water
- ◆ Water from car wash or washing the vehicle by hand (with and without washer fluid)
- ◆ Snow, melting snow

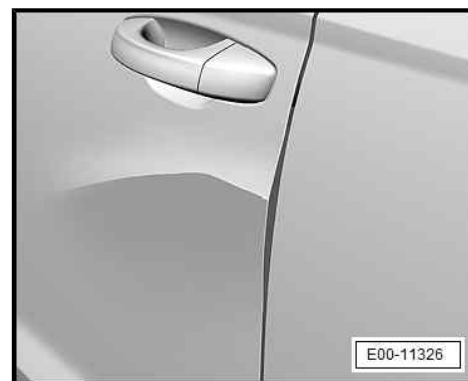


2.3 Components

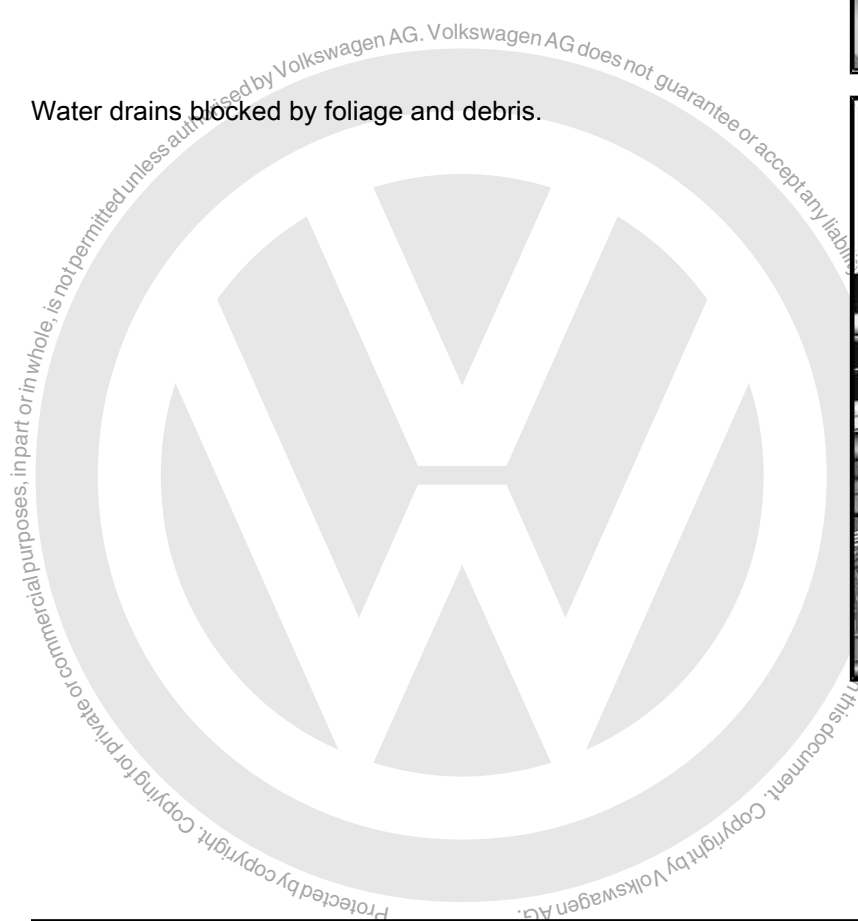
Damaged seals, e.g. on doors, lids and flaps.



Misadjusted doors, lids, flaps, windows, sliding sunroof panel.

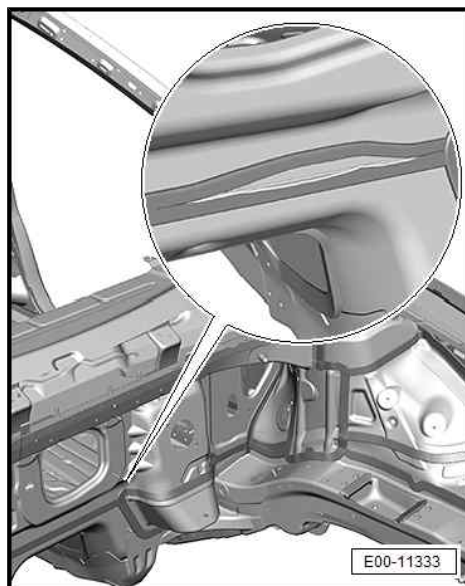


Water drains blocked by foliage and debris.

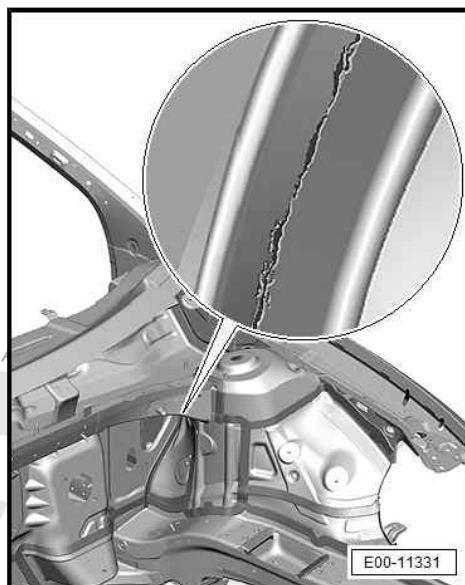




Excess sealant, poorly fitted seals.



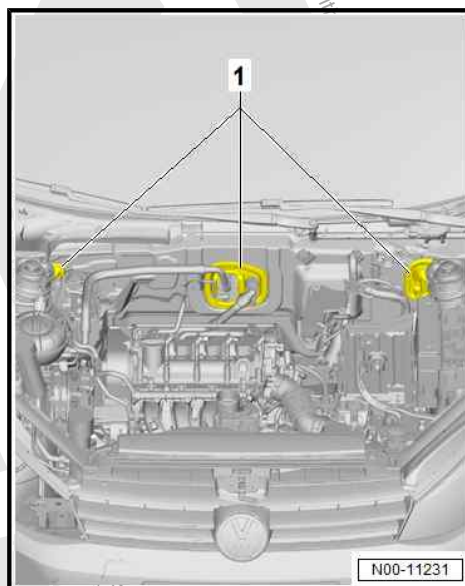
Accident damage not professionally repaired, incorrectly welded panels, spot welds or weld seams burnt through.



Plugs and grommets -1- incorrectly or only partly fitted.

Other possibilities of water ingress:

- ◆ Incorrect operation by the customer.
- ◆ Retrospective installations, attachments or conversions.
- ◆ Production faults such as missing fine seam seal in body area as well as missing welds and poorly executed adhesive bonding.
- ◆ Engineered that way, cannot be changed (e.g. no roof channel). These should be explained to the customer with arguments for and against.
- ◆ Ageing or wear of seals and sealant.





3 Localising water ingress

3.1 Preparation by customer service advisor

- ◆ Using the checklist as an aid, ask the customer questions to determine the precise location.
- ◆ Observe the TPIs in the TSH.
- ◆ A road test may have to be performed with the customer or the vehicle may need to be driven through a car wash.
- ◆ If there is evidence of fluids escaping from the vehicle, a specific order can be created.
- ◆ Visually check for damage to seals, accident damage, blockages in water drains such as in the plenum chamber.
- ◆ Hand the completed checklist, TPIs and the outcome of the customer talk to the fitter.

3.2 Work performed by the mechanic

Localisation of water ingress from external influences

Water always collects at the lowest point in the vehicle. Work is therefore always carried out from the bottom up.

The localisation requires the vehicle to be dry on the inside and the outside.

The point at which water leaks into the vehicle interior is not necessarily the point of ingress.

The used water should be soft, if possible. If possible, a very small amount of washing-up liquid is to be added.

The necessary trim panels need to be removed first for localisation. For example, water seeping in through the door will require the door panel to be removed and, in some cases, also the sill panel. This will make it possible to follow the path of water and thereby determine exactly where it is coming in.

One fitter stays in the vehicle and watches the course taken by the water up to the point of ingress.



While doing this, a second fitter sprinkles water over the outside of the vehicle, starting from the bottom and slowly working upwards. The water should not be concentrated or directed against the vehicle under pressure. This may render the outcome of fault finding inaccurate.

- The sprinkler head should be set to spray (soft jet).
- Once the position has been found, the necessary repairs must be carried out.
- ◆ Make leaking seams water-tight.
- ◆ Reseal areas that have missing adhesive, or remove the component and apply new adhesive during installation.
- ◆ If the sealing pressure is inadequate, adjust the components in relation to each other.

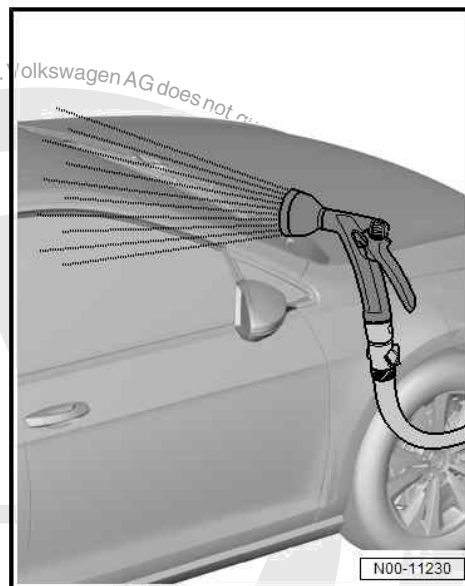
Then spray the area again. A road test may also prove useful. Only after the repair has been carried out should the trim panels or covers be refitted.

The sealing pressure can be determined with stiff paper (about as firm as a business card) or chalk. Chalk will show whether the seal is in contact at all. The card can be used to determine the pressure. It should not be possible to withdraw the card between the components without difficulty.

If the point of water ingress cannot be determined with these aids, the remaining tools as listed are to be used.

For better identification, a fluorescent leak detector (Liqui Moly 3339) Z 371225 TEA can be poured into a spray bottle according to manufacturer's specifications and sprayed over suspected areas. Inside the vehicle, another fitter traces the course of water using the UV leak detector lamp with safety goggles - VAS 6201/4- .

For details on how to use ultrasonic tester - V.A.G 1842S- and endoscope - VAS 6748A- , refer to the operating instructions accompanying the equipment.



3.3 Examples of components causing water ingress

Sliding sunroof

Leaks on the sliding sunroof caused by blocked water drain valves are rectified using the cleaning and insertion aid - VAS 6620- . Water drain hoses have a flow rate of 2 l/min. Larger amounts of water cannot be drained. Pinched or kinked water drain hoses are to be replaced ⇒ General body repairs, exterior; Rep. gr. 60 ; Sliding roof .

Windows

Leaks in bonded windows are caused, for example, by missing adhesive, gaps in the adhesive bead, insufficient adhesive bead height or incorrect use of chemicals, e.g. glass/paint primer mistaken as activator and vice versa ⇒ General body repairs, exterior; Rep. gr. 64 ; Glass .

If side windows are secured with screws, the cause will be insufficient contact of the window seal with the body.

Doors

If water trickles out under the door trim panel, the causes are e.g. the window guide, outer window slot seal, incorrectly fitted grommets, film, cable apertures, interior cover or incorrectly fitted loudspeaker. On older vehicles, the assembly carrier may be the fault or the film lining the inside of the door.



Rear lid

Water ingress from outside might be caused by insufficient bonding of the rear window or a defective seal on the rear lid, tail lights or securing elements.

If vehicle fluids are escaping, it can only be a leaking hose from the rear window washer system.

Luggage compartment

Leaking rear lid seal, missing fine seam seal, missing or damaged tail light seals.

Interior, front and rear footwell

Damage to the underbody, missing or insufficient fine seam seal, missing or incorrectly inserted plugs or grommets for cable apertures, water overflowing through doors or sliding roof, inadequate bonding of windows, water overflowing through blocked water drain valves in the plenum chamber, defective (welded through) spot welds/weld seams.





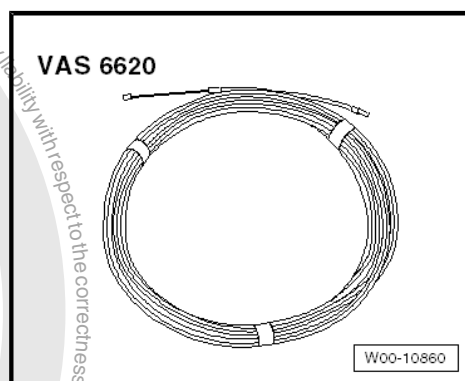
4 Tools for localising ingress point

Special tools and workshop equipment required

- ◆ Commercially available duct tape
- ◆ Detergent
- ◆ Electric torch
- ◆ Stiff paper (about as firm as a business card)
- ◆ Chalk
- ◆ Water hose with sprinkler head
- ◆ Fluorescent leak detector (Liqui Moly 3339): Z 371225 TEA
- ◆ Pump-action bottle: Z 371439 TE
- ◆ UV leak detector lamp with safety goggles - VAS 6201/4-
- ◆ Cleaning and fitting tool - VAS 6620-

- ◆ Ultrasonic tester - V.A.G 1842S-

- ◆ Endoscope - VAS 6748A-



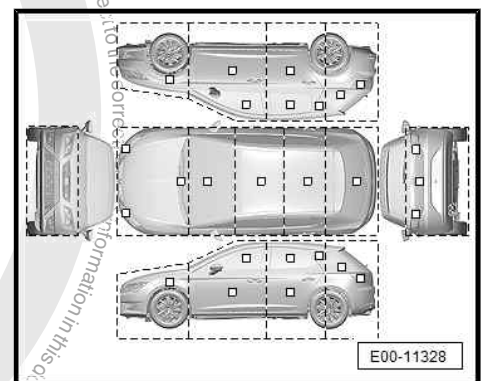


5 Attachments

5.1 Checklist

Protocol for localising the ingress of water					
Vehicle data: (fill in together with vehicle user)					
Item no.:		Brand:		Production date:	
Date:		Status:		Dealership:	
Vehicle identification number				Model	
Engine type:		Mileage:		Retrofitted components:	
Gearbox type:		Service technician:			
Has the vehicle been checked?				YES <input type="checkbox"/>	NO <input type="checkbox"/>
Can the customer complaint be confirmed?				YES <input type="checkbox"/>	NO <input type="checkbox"/>

Diagram for marking area where water has been determined



Since when does water enter? ____ km		From the beginning <input type="checkbox"/>		Since recently <input type="checkbox"/>	
Increasing <input type="checkbox"/>		Since an accident <input type="checkbox"/>		Since repair work on vehicle <input type="checkbox"/>	
Area which was affected by the repair work or the accident _____					
Vehicle history					
Components have been retrofitted by the workshop or customer.				ye <input type="checkbox"/>	no <input type="checkbox"/>
Which ones? _____				s	
Vehicle was involved in an accident.				ye <input type="checkbox"/>	no <input type="checkbox"/>
Which area of the vehicle was affected?				s	

The vehicle is parked under trees or any other plants. YES <input type="checkbox"/> NO <input type="checkbox"/>					
Circumstances under which the water enters					
External			Internal		
Heavy rain	<input type="checkbox"/>		Activation of windscreen wiper	<input type="checkbox"/>	
Continuous rain	<input type="checkbox"/>		Activation of rear window wiper	<input type="checkbox"/>	
Frequent rain	<input type="checkbox"/>		Activation of heater	<input type="checkbox"/>	
Gentle rain	<input type="checkbox"/>		Activation of air conditioning system	<input type="checkbox"/>	
Gantry car wash	<input type="checkbox"/>				
Self-service washing plant	<input type="checkbox"/>				
Rain and velocity	<input type="checkbox"/>				
In any of the aforementioned conditions	<input type="checkbox"/>				



Related observations					
Smell	<input type="checkbox"/>	Windows fogged	<input type="checkbox"/>		
Whistling noises due to ingress of air	<input type="checkbox"/>	Leaves in area of plenum chamber	<input type="checkbox"/>		
Bad radio reception	<input type="checkbox"/>				
Water quantity	Puddles on the floor	<input type="checkbox"/>	Moist floor	<input type="checkbox"/>	
Water constitution					
Rain water	<input type="checkbox"/>	Tap water (car wash)	<input type="checkbox"/>	Washer fluid	<input type="checkbox"/>
				Coolant	<input type="checkbox"/>
Can the responsible component or origin of the water ingress be localised?					
Left headlight	<input type="checkbox"/>	Right headlight	<input type="checkbox"/>	Front left wheel housing	<input type="checkbox"/>
				Front right wheel housing	<input type="checkbox"/>
Plenum chamber	<input type="checkbox"/>	Windscreen	<input type="checkbox"/>	Front left interior floor	<input type="checkbox"/>
				Front right interior floor	<input type="checkbox"/>
Left front door	<input type="checkbox"/>	Right front door	<input type="checkbox"/>	Front door window	<input type="checkbox"/>
				Panoramic tilting sunroof	<input type="checkbox"/>
Roof aerial	<input type="checkbox"/>	Left rear door	<input type="checkbox"/>	Right rear door	<input type="checkbox"/>
				Rear door window	<input type="checkbox"/>
Left fixed side window	<input type="checkbox"/>	Right fixed side window	<input type="checkbox"/>	Left side window	<input type="checkbox"/>
				Right side window	<input type="checkbox"/>
Rear left interior floor	<input type="checkbox"/>	Rear right interior floor	<input type="checkbox"/>	Rear lid	<input type="checkbox"/>
				Rear windscreen	<input type="checkbox"/>
Rear left wheel housing	<input type="checkbox"/>	Rear right wheel housing	<input type="checkbox"/>	Left rear lights	<input type="checkbox"/>
				Right rear lights	<input type="checkbox"/>
Luggage compartment	<input type="checkbox"/>	Heater	<input type="checkbox"/>	Water drain of evaporator	<input type="checkbox"/>
				Leak in line of window wiper system	<input type="checkbox"/>
Door seal	<input type="checkbox"/>	Window strip	<input type="checkbox"/>	Sealing	<input type="checkbox"/>
				Sealing cover	<input type="checkbox"/>
Blocked water drain	<input type="checkbox"/>	Holes	<input type="checkbox"/>	High-level brake light	<input type="checkbox"/>
				Other ...	<input type="checkbox"/>
Which? _____					
Remarks:					