

**Bendix ATR-6 Valve, Permanent
Repair****VN, VHD****RVXX1203, Bendix ATR-6 Valve, Permanent Repair****(April 2012)**

Bendix has determined that a design modification, which eliminated four small internal ribs in the cover assembly and a material change made to a rubber ball seal in the solenoid, have led to a safety defect. In extremely cold conditions (at or below 0 degrees Fahrenheit / -18 degrees Celsius), internal leakage can potentially develop, resulting in pressure being delivered to the affected service brake circuit. If the solenoid armature lifts off, air pressure is delivered to the primary or secondary brake circuits, causing intermittent or, in isolated cases, continuous brake application. During the brake application, ABS will still be operational and service brakes are still available.

The potential consequence is that the brakes may inadvertently apply resulting in a vehicle fire, or if wheel lock-up occurs, may contribute to a vehicle crash.

There are approximately 25,504 vehicles (21,625 United States, 3,111 Canada, 768 Export) affected by the recall.

Vehicles will be added as parts are received with the initial release of approximately 12,000 vehicles occurring on April 13, 2012. The remainder of the vehicles will be added as parts become available. This will be communicated by a Safety Recall and Parts Alert.

Parts will have to be ordered by calling Volvo's dedicated phone line, 1-866-865-1052. Since there is a limited quantity of available kits, VIN numbers may be requested at the time of order.

Please feel to contact the Regulatory Affairs department at vtna.regulatoryaffairs@volvo.com if you have any questions.

Required Parts:

For new Vehicles in dealer inventory use K071015 Bendix/85134345 VOLVO.

For in service vehicles use K070677 Bendix/ 85134294 Volvo or K071015 Bendix/85134345 Volvo.

2 kits per vehicle are required if the vehicle is equipped with Volvo Enhanced Stability Technology (VEST). 1 kit per vehicle if no VEST system.

IMPORTANT:**NOTE**

The parts described above will only be used for recall purposes, not future service repairs. Bendix is offering the K071015 which is a new part for repairing vehicles that have not been placed in service. For in-service vehicle repairs, Bendix is offering K070677, which is a remanufactured part. This

was done to expedite the repair of customer vehicles to address the safety issue. Bendix has informed Volvo that there is no quality difference between the new and the reman part. **Reman parts are not to be used for dealer inventory/ undelivered vehicles.**

NOTE

Removed ATR-6 Top Plates must be returned to: Technical Material Analysis Center (TMAC) at: 4100 Bob White Blvd, Polaski, Va 24301

Reimbursement

This repair is covered by an authorized Safety Recall campaign. Reimbursement is obtained through the normal claim handling process.	
Claim Type (used only when uploading from the Dealer Bus. Says.)	R
Recall Status	
Vehicle inspected, no repair required	
Vehicle repaired per instructions	2-Modified per instructions
Labor Code	
Primary Labor Code, two valve repair	56309-0-01 - 1.0 hr.
Primary Labor Code, one valve repair	56309-0-02 - 0.5 hr.
Time to take charge of vehicle and determine campaign status	17003-0-01 - 0.3 hr.
Causal Part	21555951
Authorization No.	RVXX1203

Take-charge time is not included in the labor code for this operation. Take charge may be eligible, but can only be used once per vehicle repair visit. If the vehicle is having other warranty repairs performed, take-charge should be charged to the warranty repair, otherwise take-charge can be charged to this Safety Recall.

NOTE

Dealers are to perform Safety Recall Campaigns on all subject vehicles at no charge to the vehicle owner regardless of mileage, age of vehicle or ownership (original purchaser or subsequent purchasers). Whenever vehicles are subject to a safety recall are brought to your dealership for service, or taken into your dealership vehicle inventory, it is strongly recommended that every effort be made to perform the recall correction before the vehicle is sold or released to the owner.



How to Install a Replacement Cover Assembly for a Bendix® ATR-6™ Traction Relay Valve (Kits K070677 and K071015)

ALERT: If the cover assembly of the valve being serviced has a steel tag here, STOP — the repair has already been made!

ALERT: Some relay pistons have a spring beneath them.

Key No.	Description	Qty
1 . . .	Cover Assembly	1
2 . . .	Large Sealing O-ring	1
3 . . .	Small O-ring	1
4 . . .	Cap Screw (spare)	1
	(not shown) Silicon Grease, Return Info Sheet	

FOLLOW ALL STANDARD INDUSTRY SAFETY PRECAUTIONS, INCLUDING THOSE LISTED ON PAGE FOUR OF THIS DOCUMENT. Park the vehicle on level ground, chock the wheels, **FULLY DRAIN ALL** the reservoirs, and turn off the ignition. Locate the Bendix® ATR-6™ Traction Relay Valve(s) on the vehicle.

CAUTION: You must **FULLY** complete **ALL FOUR PROCEDURES, IN ORDER.**

OVERVIEW:

PROCEDURE ONE:

Changeout the cover assembly and remove the temporary blocking device (if present), and install the O-ring(s). (If necessary, remove the valve from the vehicle to service.)

Repeat this procedure for ALL ATR-6 valves present on the vehicle before continuing.



PROCEDURE TWO:

Return the removed cover.

Please retain your shipping carton and packing materials for this Procedure.



PROCEDURE THREE:

NOTE: If you are servicing two Bendix® ATR-6™ Traction Relay Valve(s) on the vehicle, wait until both cover assemblies have been replaced before carrying out Procedure Three.

Use the Chuff Test and the ATC/ESP lamp to confirm that the replacement procedure is completed.



PROCEDURE FOUR:

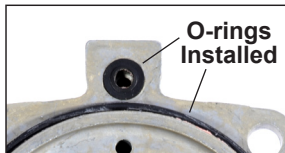
Complete the *Operational and Leakage Tests.*

FIGURE 1 - BENDIX® ATR-6™ TRACTION RELAY VALVE

PROCEDURE ONE: Changeout the cover assembly and replace the temporary blocking device (if used) with a small O-ring. (If necessary, remove the valve from the vehicle to service.)

1. Verify that the Bendix® ATR-6™ valve does not have a steel tag (See Figure 1) that indicates it has already been serviced.
2. **Clean the valve and take care to avoid any contamination inside the valve during these procedures.**
3. Disconnect the electrical connector from the traction solenoid.
4. With ALL reservoirs drained, remove the air hose from the control port of the relay valve cover.
5. Be sure to mark the orientation of the cover. Using hand wrenches, remove and retain the four cap screws (and I.D. washer) and bracket(s). (ALERT: Some relay pistons have a spring beneath them).
NOTE: If cap screw(s) break off, or are stripped, install a replacement ATR-6 valve (or relay valve lower body). A spare cap screw is included in the kit.
6. • **Remove and discard the ball or plug** (“A” in Figure 1) from between the cover and the valve, OR,
• For ATR-6 valves that have not been serviced by a temporary disable kit, there will not be a ball or plug; **remove and discard the original small O-ring.**
7. Remove and discard the large sealing O-ring.

8. Grease and install the new large sealing O-ring (2) and the small O-ring (3) supplied, into the NEW valve cover.



9. Verify that no contamination has entered the valve. You **MUST** remove any debris inside. Use a clean shop cloth/shop air and use the supplied grease to replace any removed. With the replacement cover assembly (and mounting bracket) in the same orientation as the original, place the cover assembly into position over the valve body.

USE HAND-WRENCHES (ideally torque-wrenches) to re-install the four cap screws and I.D. washer in the cover and torque (in a cross-pattern) to 120-160 in-lbs. NOTE: All torques specified are assembly torques and can be expected to fall off slightly after assembly. Do not re-torque after the initial assembly torque falls off; **Do not over-tighten — overtightening could crack the cover or strip the threads.**

10. Reconnect the control air hose to the cover. Torque to 130-220 in-lbs, plus no more than one full turn. [If it was necessary to remove the valve from the vehicle, reinstall the Supply and Delivery hoses, using a torque of 180-340 in-lbs, plus no more than one full turn.] Follow OEMs recommendations for re-installing the valve/any brackets to the vehicle.
11. Reconnect the wire harness to the traction solenoid.
12. Repeat steps 1-11 where a second Bendix ATR-6 is present.



**PROCEDURE TWO:
Return the removed cover assembly/
assemblies.**

The arrangements for returning the removed cover(s) vary:

If you are filing this claim through the vehicle manufacturer	Follow the OEM's return part process for returning the part and making the claim.
Returning Parts (Non-OE)	1. Please complete the information sheet enclosed. (One form per shipping box.)
	2. Put the removed cover(s) in their respective parts box(es).
	3. Put the form(s) and parts box(es) into the original outer shipping box. Seal the box(es).
	4. Return the cover and form to file the claim.



PROCEDURE THREE:

NOTE: If you are servicing two Bendix® ATR-6™ Traction Relay Valves on the vehicle, wait until both cover assemblies have been replaced before carrying out Procedure Three.

Use the Chuff Test (or Bendix® ACom® diagnostics software - see step 4) to confirm that the replacement cover(s) are functioning.

1. Power-up and FULLY charge the vehicle’s air brake system (listen for the air dryer exhaust). Turn the vehicle off.

The **Bendix Chuff Test** occurs after ignition power is applied and during it, in sequence, the ABS modulator valves are energized and the ATR-6 valve(s) emit a short burst of air (the rear ATR-6 valve has a much quieter exhaust during the Chuff Test than the front valve).

NOTE: This Procedure requires the brakes NOT be applied.

2. **Check the rear ATR-6 valve: Have the ignition switch activated (brakes not applied) while a technician closely monitors the rear ATR-6 valve.** Listen closely, or use your hand to feel for a short release of air. With the new cover installed, the ATR-6 valve **WILL** perform the momentary exhaust as normal.

3. **Check the front ATR-6 valve (if present): Repeat the chuff test [again, brakes not applied].**

Listen for the front ATR-6 valve during the Chuff Test. The front ATR-6 valve with an enabled solenoid emits a short audible burst of air. With the new cover installed, the ATR-6 valve **WILL** perform the momentary exhaust as normal.

CAUTION: If you DO NOT observe an exhaust from the ATR-6 valve(s) during the Chuff Test, go back to Procedure One and check that the ball or plug was removed from the valve that is not exhausting air.

4. The ALTERNATE TEST using PC-based Bendix ACom diagnostics’ Component Test Feature permits the ATR-6 valves to be selected and cycled. Follow the directions on the Component Test screen.

5. Since the traction functionality has been restored, at vehicle start-up, the **ATC/ESP lamp** will briefly illuminate (as a bulb-check) and then go out.

If the lamp remains ON, see the Bendix Service Data sheet for the ABS system or call the Tech Team.

6. Verify that the **ABS lamp** illuminates briefly at start-up. If the lamp remains ON, see the Bendix Service Data sheet for the ABS system or call the Tech Team.



PROCEDURE FOUR:

Complete the *Operational and Leakage Tests*.

1. Always check the vehicle brake system for proper operation after performing brake work and before returning the vehicle to service. Chock the wheels, and fully charge the air brake system.
2. Operational Test: Apply and release the brakes several times and check for prompt application and release at each wheel.

If an incomplete or sluggish release of the brakes is noted at some, but not all wheels, test the Antilock Modulator Valve(s) operating those wheels for proper operation, and inspect for a kinked or obstructed air hose leading to, or from, the Modulator(s).

If an incomplete or sluggish release is noted at all wheels, inspect for a kinked or obstructed air hose leading to, or from, the ATR-6™ valve(s).

Three Part Leakage Test:

- 3a. With the air system pressure charged to governor cut-out, apply a soap solution to the exhaust port(s). The leakage noted should not exceed a one-inch bubble in 3 seconds.
- 3b. Make and hold a full brake application and apply a soap solution to the exhaust port and around the cover where it joins the body. The leakage noted should not exceed a one-inch bubble in 3 seconds at the exhaust port(s).
- 3c. Check for inlet valve and O-ring leakage. Make this check with the service brakes released. Coat the exhaust port(s) and the area around the relay valve exhaust retaining ring(s) with a soap solution; leakage of a one-inch bubble in 3 seconds is permitted.



ALL PROCEDURES, ONE THROUGH FOUR MUST BE COMPLETED FOR THE KIT(S) USED, TO BE EFFECTIVE AND THE VEHICLE RETURNED TO SERVICE.

Before returning the vehicle to service, perform the *Operational and Leakage Tests*.

Double-check the dash ATC lamp is no longer illuminated before operating the vehicle.

REMOVE ANY TEMPORARY SIGNAGE alerting the driver that the ATR-6 valve’s solenoid was temporarily disabled (if present).

GENERAL SAFETY GUIDELINES

WARNING! PLEASE READ AND FOLLOW THESE INSTRUCTIONS TO AVOID PERSONAL INJURY OR DEATH:

When working on or around a vehicle, the following general precautions should be observed at all times.

1. Park the vehicle on a level surface, apply the parking brakes, and always block the wheels. Always wear safety glasses.
2. Stop the engine and remove ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, **EXTREME CAUTION** should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically charged components.
3. Do not attempt to install, remove, disassemble or assemble a component until you have read and thoroughly understand the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.
4. If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning ANY work on the vehicle. If the vehicle is equipped with an AD-IS® air dryer system or a dryer reservoir module, be sure to drain the purge reservoir.
5. Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
6. Never exceed manufacturer's recommended pressures.
7. Never connect or disconnect a hose or line containing pressure; it may whip. Never remove a component or plug unless you are certain all system pressure has been depleted.
8. Use only genuine Bendix® replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
9. Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle and component manufacturer.
10. Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.
11. For vehicles with Automatic Traction Control (ATC), the ATC function must be disabled (ATC indicator lamp should be ON) prior to performing any vehicle maintenance where one or more wheels on a drive axle are lifted off the ground and moving.

CAUTION: It is very important to be sure that the air pressure has been completely drained from all vehicle reservoirs. Any remaining air pressure would be present underneath the Relay Piston, presenting a hazard to the technician during valve disassembly.

Bendix Technical Assistance Team

For direct telephone technical support, call the Bendix Tech Team at:

1-800-AIR-BRAKE (1-800-247-2725), option 2, then option 1. Follow the instructions in the recorded message.

(For a limited period, phone lines are being staffed for extended hours.)

Our normal hours are Monday through Thursday, 8:00 A.M. to 6:00 P.M., Friday, 8:00 A.M. to 5:00 P.M., EST.

Or, you may e-mail: techteam@bendix.com

Please have the following information ready when you call: Bendix product model number, part number and configuration, vehicle make and model, vehicle configuration (number of axles, tire size, etc.).

Reference: The full Service Data sheet for the Bendix® ATR-6™ Traction Relay Valve is SD-13-4812 (BW1794) and is available for download on www.bendix.com, or you can order copies from the Literature Center at the website.

