

Tech-Net Notes

"Fixed Right - First Time"

Volvo Technicians, Service and Parts Managers

NO: 43-38
DATE: 2-27-2003
MODEL/YEAR: MY 2001-2002 S60 / V70 / V70 XC
SUBJECT: AW 55-50 Neutral Control Function, Valve Body Diagnosis, TCM DTC 012A and 012B
CHASSIS: See chart below

DESCRIPTION:

A function called 'Neutral Control' (used for reducing fuel consumption and idle vibrations) is present on all 2001 V70 and S60 cars. It is also present on 2002 non-turbo V70 and S60 cars built before January 2002. When the vehicle comes to a stop, the Transmission Control Module (TCM) activates Neutral Control. Even though the gear selector is in the Drive position, a Neutral condition is engaged hydraulically in the transmission. Neutral Control disengages when the brake pedal is released or the throttle is applied. The transmission engages first gear, which allows the vehicle to start moving forward.

SYMPTOMS:

When the neutral control function is faulty, there are three symptoms that can be felt in the car:

1. After coming to a complete stop and keeping the brakes applied, a "thump" can be felt in the car. It is felt about 2 seconds after coming to a stop.
2. When releasing the brake there is a delayed, harsh, or double re-engagement of drive.
3. When idling in 'D' range with the brake applied, the engine speed oscillates (fluctuates).

In addition to these symptoms, some cars may set a DTC 012A or 012B in the TCM.

Note that Neutral Control is not active during the following:

- Transmission in 'W' mode
- Transmission in Geartronic mode
- Gear selector in 'L' range (non-Geartronic shifter)
- Operating with high AC demand (higher idle speed)

FAULT TRACING:

Move the Geartronic shifter over to Geartronic mode, or the standard shifter down to 'L' range. If the symptom is not present in Geartronic or 'L', this confirms that the neutral control is faulty. Continue fault tracing by using the 'Control Module Adaptation' in the vehicle communication section of VADIS to be sure the TCM is fully adapted. This is especially important if the symptom matches #2 listed above. There is no need to reset the adaptation to zero, since a part has not yet been replaced.

After confirming that the ATF temperature is between 65° Celsius and 110° Celsius, activate the mode and perform the adaptation as follows:

1. Drive along slowly (about 5 MPH) in 'D' range. Gently bring the car to a complete stop. Repeat this maneuver until the orange triangle flashes a few seconds after coming to a stop. This indicates that the Neutral Control engagement is adapted.

2. With the engine idling and your foot on the brake, shift to 'D' range. Wait approximately 25 seconds and the orange triangle will flash once, indicating that it is ready to adapt. After it has flashed, release the brake pedal and allow the car to crawl forward. Repeat this maneuver until the triangle flashes just after releasing the brake pedal. This indicates that the Neutral Control disengagement is adapted.

Note that the TCM is continuously adapting. Not every shift will be a "perfect shift". For example, you will not see the triangle flash every time you release the brake pedal. You only need to see it flash once to know that the neutral control adaptation has reached its target.

SERVICE: If completing the adaptation does not remedy the problem, or if the TCM refuses to adapt the neutral control, then the cause is a contaminated SLT solenoid. This microscopic contamination is stuck in an area of the solenoid that will not be cleaned by flushing the transmission. Because the solenoids are pressure-tuned to the valve body during manufacturing, the complete valve body must be replaced according to the procedure in VADIS.

The two valve body O-rings and the suction cover gasket (Sealing Kit, PN 274470) must be replaced as part of the repair. **If the O-rings are not replaced, it will result in a repeat repair.**



Replacing sealing rings

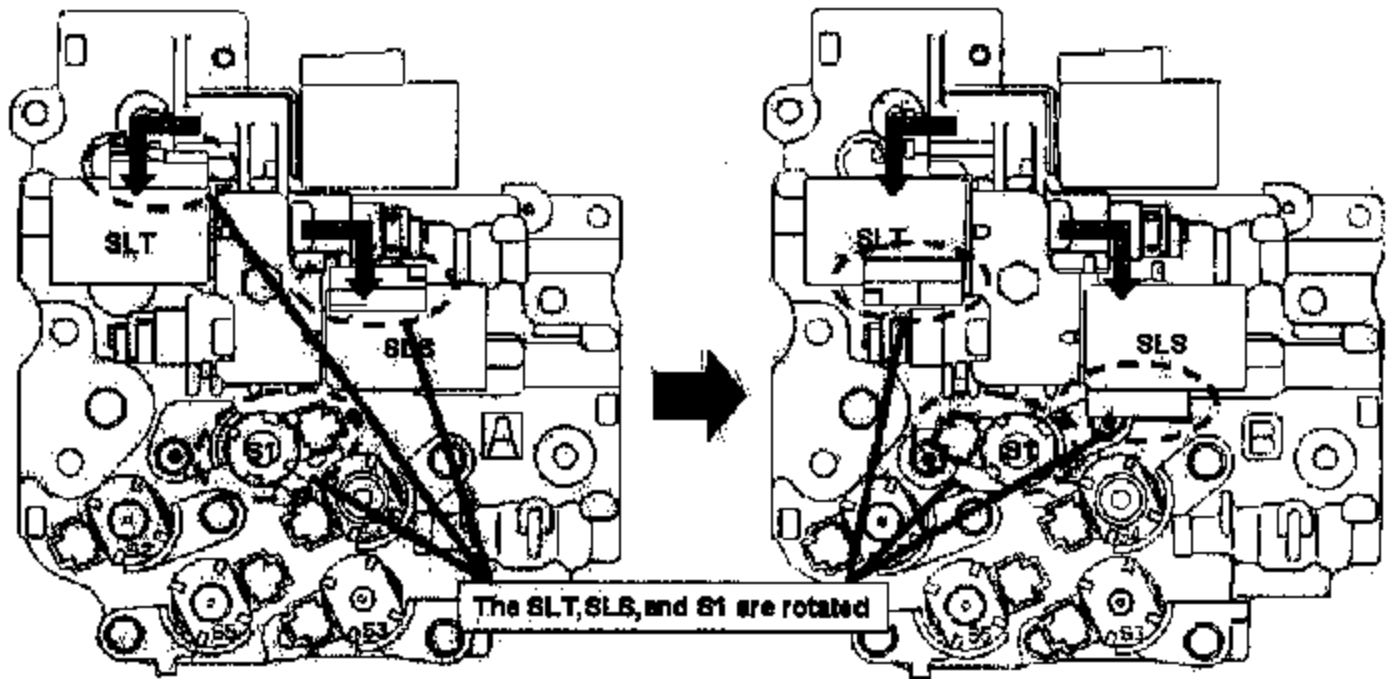
Remove the sealing rings from the transmission.
Note! Ensure that no debris enters the transmission.

Install new sealing rings in the transmission.
Use petroleum jelly to hold the seals in position.



The adaptive values should then be reset to zero, and re-adapted using the procedure in VADIS. Also, clear any DTCs in the TCM and ECM.

To prevent further contamination, the SLT and SLS solenoid have been rotated 180° on all new valve bodies. The S1 solenoid has also been rotated, to accommodate the change.



Because of these changes, the transmission wiring harness must be replaced with the valve body in order for the electrical connectors to reach the solenoids. The new harness is included in the following kits:

V70 cars before:	30651853	274470
2001 V70 XC.....-000908		
2001 V70 turbo.....-026212		
S60 and V70 cars between:	30651852	274470
2001 V70 turbo.....-026212-121703 factory code "1"		
.....-026213-116663 factory code "2"		
2001 V70 non-turbo.....-121732 factory code "1"		
.....-117214 factory code "2"		
NOTE: The factory code is the 11th position of the VIN.		
S60 and V70 cars made after:		
S60 non-turbo.....		
2001 V70 turbo.....		
.....11664- factory code "1"		
2001 V70 non-turbo.....		
.....117210- factory code "2"		

Do not replace a valve body to correct any other condition unless specifically instructed to do so.

Remember that the 3 linear solenoids (SLT,SLS,SLU) are tuned to the valve body during manufacturing and should never be separated from it.

WARRANTY CLAIM INFORMATION

<u>LABOR OP</u>	<u>LABOR DESCRIPTION</u>	<u>LABOR TIME</u>
43727-0	Solenoid, Control System, Replace	5.0 hr.

Claims may be submitted under the New Car warranty when there is a documented customer complaint using claim type: 01

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Please read, initial and circulate:

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