VOLVO "850" 50-40LE

DIAGNOSTIC TROUBLE CODE RETRIEVAL
1992-1995 MODELS ONLY

TROUBLE CODE RETRIEVAL

Faults are recorded in the Transmission Control Module (TCM) memory, in the form of Diagnostic Trouble Codes (DTC). Codes can be displayed manually using the LED Indicator on the Volvo diagnostic unit. The diagnostic unit is located at the right front of the engine compartment, as shown in Figure 1. The diagnostic unit is equipped with an LED Indicator, Function Selector Cable and Activation Button, as shown in Figure 2. Diagnostic unit output socket number 1 is used to retrieve TCM diagnostic codes, as shown in Figure 2. Use the following procedure to retrieve (DTC's).

(1) Turn the ignition switch to the "OFF" position.

(2) Remove the Fuction Selector Cable from it's storage cavity, and install it into diagnostic unit output socket number 1, as shown in Figure 2.

(3) Turn the ignition switch to the "ON" position.

(4) Depress the Activation Button and keep depressed for more than one second, but not more than three seconds. Refer to Figure 2.

(5) Observe the LED Indicator on the diagnostic unit, and count the number of flashes to determine the ***first*** Diagnostic Trouble Code stored in the TCM memory. All codes contain three digits (Example: 2-1-3). Since all codes have three digits, each code requires three series of flashes on the LED Indicator. Example is shown in Figure 2.

(6) Since only one DTC can be retrieved with one push of the button, depress the Activation Button again to determine if any additional DTC's have been stored in the TCM memory.

(7) Read and record all Diagnostic Trouble Codes, pushing the activation button as many times as necessary, until the first code returns to the display.
Note: The Transmission Control Module is capable of storing a maximum of five DTC's, so these faults must be corrected and their DTC's cleared before any additional DTC's can be displayed. Refer to Figure 3 for a Diagnostic Trouble Code description and interpretation.

CLEARING TROUBLE CODES

All Diagnostic Trouble Codes must be displayed at least once ***before*** it is possible to clear the codes from the TCM memory. Only after the first DTC has returned to the display, will it be possible to clear the codes. Use the following procedure:

(1) Ensure that the Function Selector Cable is still located in diagnostic unit output socket number 1, as shown in Figure 2, and the ignition switch is in the "ON" position.

(2) Depress the activation button, and hold down for at least five seconds, and watch for LED indicator response. The LED indicator should go out three seconds after the button is released.

Depress the activation button, and hold down for at least an additional five seconds, and watch for LED indicator response. The LED indicator should go out when the button is released.

(4) Ensure that the Diagnostic Trouble Codes have been cleared by pressing once on the activation button again for more than one second, but less than three seconds, and observe LED indicator. If the code 1-1-1 is displayed on the LED indicator, the DTC's have been cleared.

DIAGNOSTIC UNIT LOCATION

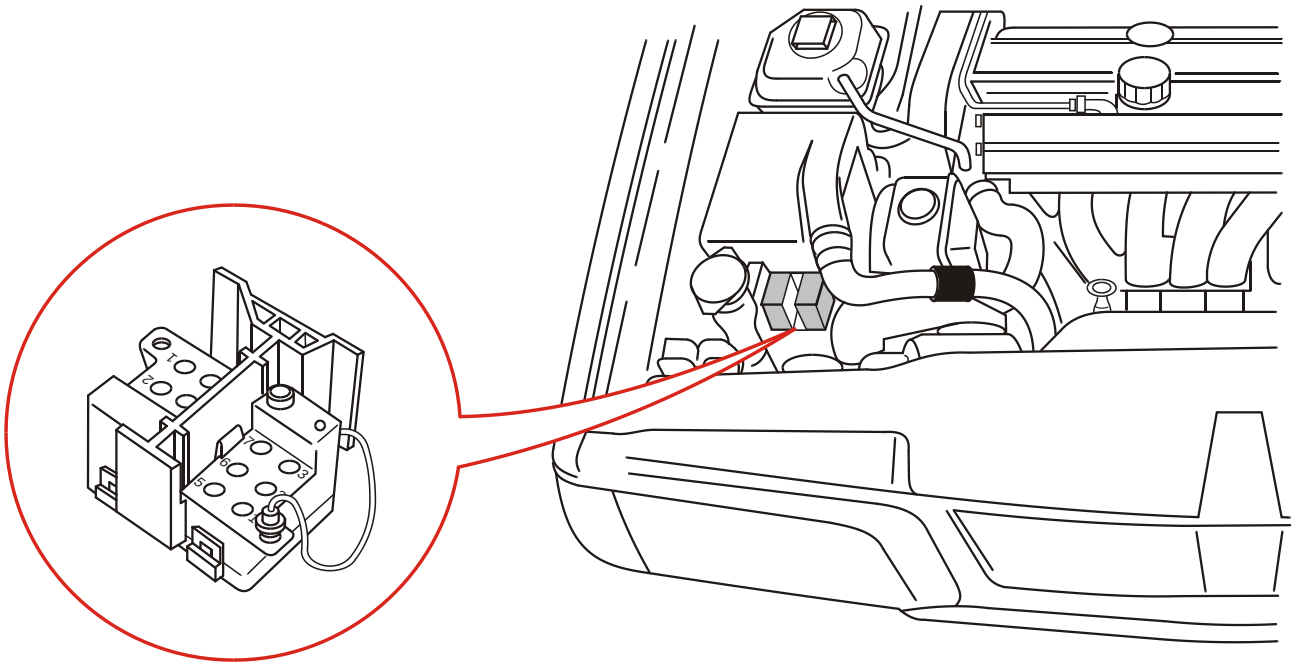
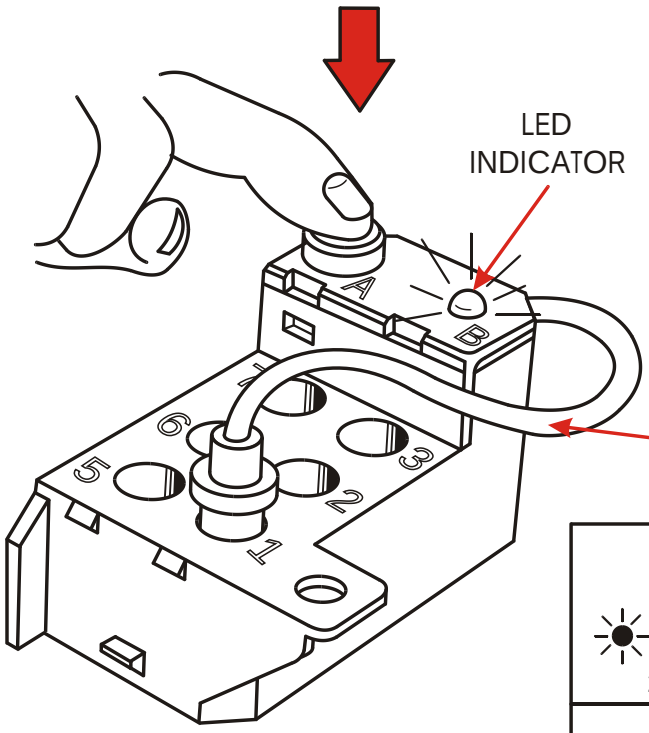


Figure 1

RETRIEVING TROUBLE CODES



Once the Function Selector Cable has been inserted in correct socket, depress button once and keep depressed for more than one second, but not more than three seconds. Diagnostic Trouble Codes are read by observing and counting LED flashes to determine the Diagnostic Trouble Code.

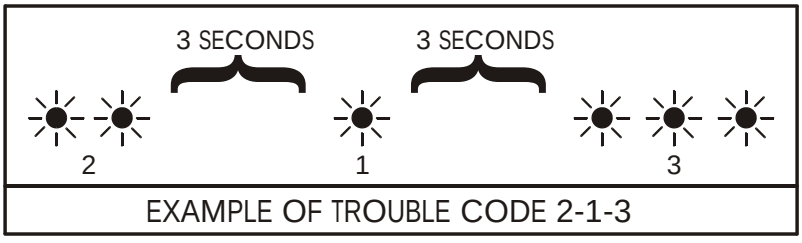


Figure 2

DTC	DESCRIPTION	WARNING LAMP **
1-1-1	NO FAULTS RECORDED	NO
1-1-2	SHORT CIRCUIT TO BATTERY VOLTAGE IN SHIFT SOLENOID S1 CIRCUIT	YES
1-1-3	FAULT IN TRANSMISSION CONTROL MODULE	YES
1-1-4	BREAK IN MODE SELECTOR CIRCUIT	NO
1-2-1	SHORT CIRCUIT TO GROUND IN SHIFT SOLENOID S1 CIRCUIT	YES
1-2-2	BREAK (OPEN) IN SHIFT SOLENOID S1 CIRCUIT	YES
1-2-3	SHORT CIRCUIT TO BATTERY VOLTAGE IN EPC SOLENOID CIRCUIT	YES
1-2-4	SHORT CIRCUIT TO GROUND IN MODE SELECTOR CIRCUIT	NO
1-3-1	BREAK OR SHORT CIRCUIT TO GROUND IN EPC SOLENOID CIRCUIT	YES
1-3-2	FAULT IN TRANSMISSION CONTROL MODULE	YES
1-3-4	INCORRECT LOAD SIGNAL	NO
1-4-1	SHORT CIRCUIT IN TRANSMISSION TEMPERATURE SENSOR CIRCUIT	NO
1-4-2	BREAK (OPEN) IN TRANSMISSION TEMPERATURE SENSOR CIRCUIT	NO
1-4-3	SHORT CIRCUIT TO GROUND IN KICKDOWN SWITCH CIRCUIT	NO
2-1-1	FAULT IN TRANSMISSION CONTROL MODULE	YES
2-1-2	SHORT CIRCUIT TO BATTERY VOLTAGE IN SHIFT SOLENOID S2 CIRCUIT	YES
2-1-3	THROTTLE POSITION SENSOR SIGNAL TOO HIGH	YES
2-2-1	SHORT CIRCUIT TO GROUND IN SHIFT SOLENOID S2 CIRCUIT	YES
2-2-2	BREAK (OPEN) IN SHIFT SOLENOID S2 CIRCUIT	YES
2-2-3	THROTTLE POSITION SENSOR SIGNAL TOO LOW	YES
2-3-1	IRREGULAR THROTTLE POSITION SENSOR SIGNAL	YES
2-3-2	SPEEDOMETER SIGNAL ABSENT	YES
2-3-3	INCORRECT SPEEDOMETER SIGNAL	YES
2-3-5	HIGH TRANSMISSION OIL TEMPERATURE	YES *
2-4-5	BREAK OR SHORT IN TORQUE LIMITING CIRCUIT	YES
3-1-1	RPM SIGNAL ABSENT	YES
3-1-2	RPM SIGNAL FAULTY	YES
3-1-3	INCORRECT SIGNAL FROM GEAR POSITION SENSOR	YES
3-2-2	INCORRECT GEAR RATIO	YES
3-2-3	LOCK-UP SLIPS OR IS NOT ENGAGED	YES
3-3-1	SHORT CIRCUIT TO BATTERY VOLTAGE IN LOCK-UP SOLENOID CIRCUIT	NO
3-3-2	BREAK (OPEN) IN LOCK-UP SOLENOID CIRCUIT	NO
3-3-3	SHORT CIRCUIT TO GROUND IN LOCK-UP SOLENOID CIRCUIT	NO

****** When a fault occurs the code is stored and the "WARNING" lamp in the instrument panel comes on. If the fault is intermittent and ceases, the warning lamp will go out, but the DTC will remain.

***** Only for as long as the temperature remains high.

Figure 3