



<b>QUALITY MANAGEMENT SYSTEM</b>	<b>Doc. No. QMSF-1025 TECHNICAL BULLETIN – ETM Power Supply</b>		
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### Subject

Remanufactured XeMODeX ETM not functioning correctly after installation.

### Vehicles effected

- 1999-2004 Volvo C70
- 1999-2000 Volvo S70, V70, XC70

### Symptoms

- Car runs the same or worse after the throttle was replaced.
- Combination of any of the following diagnostic trouble codes is stored in the Engine Control Module: ECM-902B, ECM-902A, ECM-903F, ECM-912A, ECM-532D, ECM-9150, ECM-9160, ECM-951F.
- ETM sweep test graph may show faulty sensor readings.

### Cause of this failure

#### **Inadequate current supply to the ETM.**

Contact-less potentiometers installed in our ETM's are electronic devices that rely on good, solid power supply. The ETM will not function properly if the voltage or currents are inadequate.

### Root cause of the problem

There are a few common areas that can cause significant current loss in the above vehicles:

- Engine management relay;
- ETM relay (1999 only);
- B+ terminal; and
- Corroded ETM power supply junction point.

This bulletin highlights each one of these areas and suggests an appropriate repair remedy.

**Please be advised that no warranty claims can be processed until the following steps are followed through.**

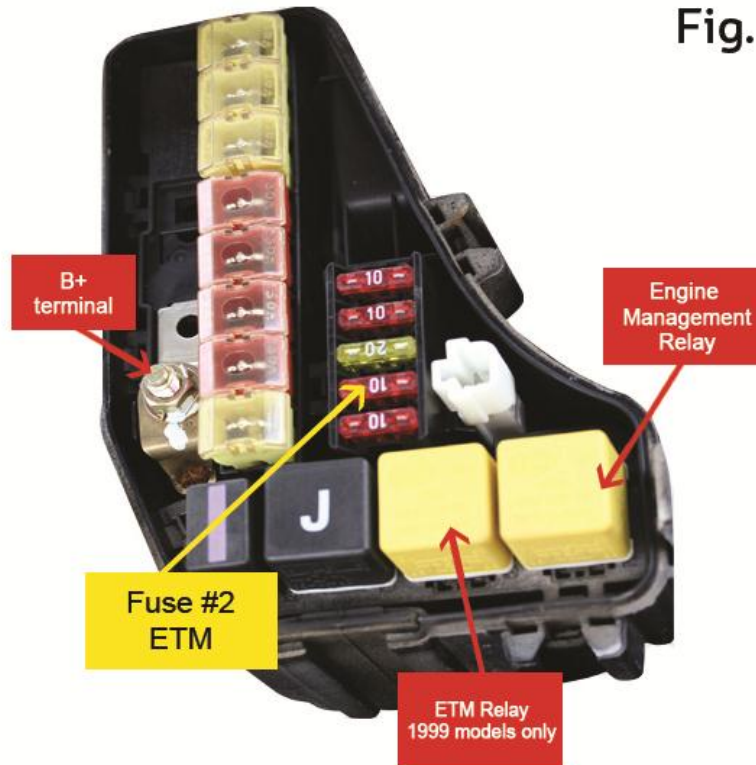
### Test 1: Fuse Check.

Step 1: Locate fuse box on the left strut tower - open the lid.

Step 2: Locate fuse #2, pull it out and check if its blown. Replace if necessary with a 10 Amp fuse (see fig. 1). If the fuse is OK, proceed to the next test.

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**Fig. 1**



**Test 2: Engine Management Relay Replacement.**

Failing engine management relay will directly effect the ETM operation. Early 1999 models also had an ETM relay installed (Volvo never changed the description on the legend from the air pump to the ETM).

Step 1: Replace both relays (see fig.1) and test drive the car. If symptoms persist, proceed to Test 3.

**Test 3: B+ Terminal Inspection.**

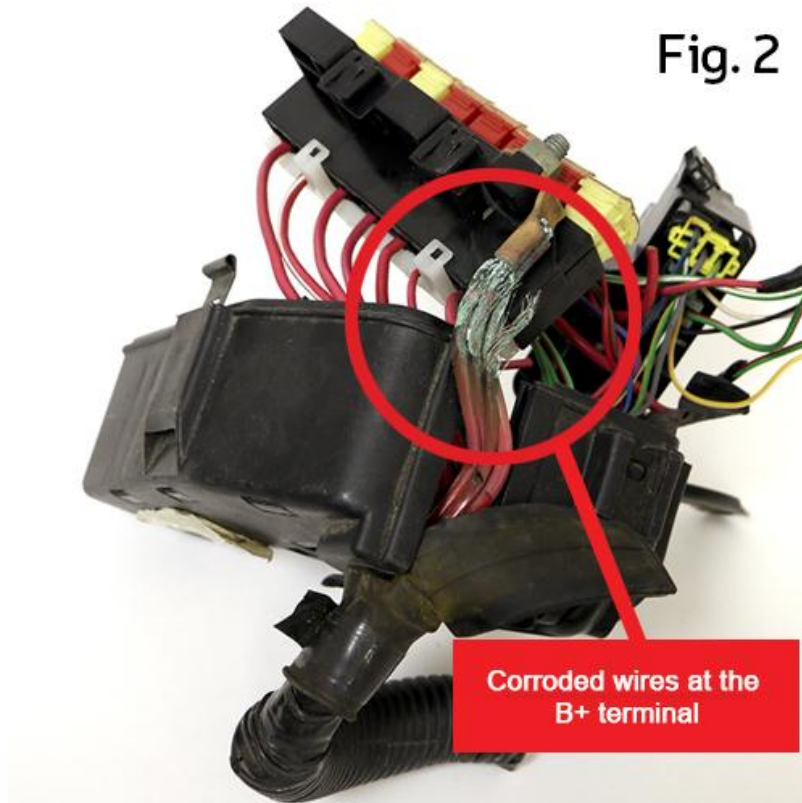
The B+ terminal supply powers the entire vehicle (except to the starter motor).

Step 1: Disconnect the negative battery terminal.

Step 2: Remove the 13mm nut from the top of B+ terminal (see fig. 1).

Step 3: Lift up the terminal and inspect the wiring condition. If the wiring looks anything like Fig. 2 below, repair the terminal (good repair instructions can be found on Matthew's Volvo Site / google B+ terminal repair). If the wiring looks OK, proceed to Test 4

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**Test 4: Power Supply by-pass to the ETM.**

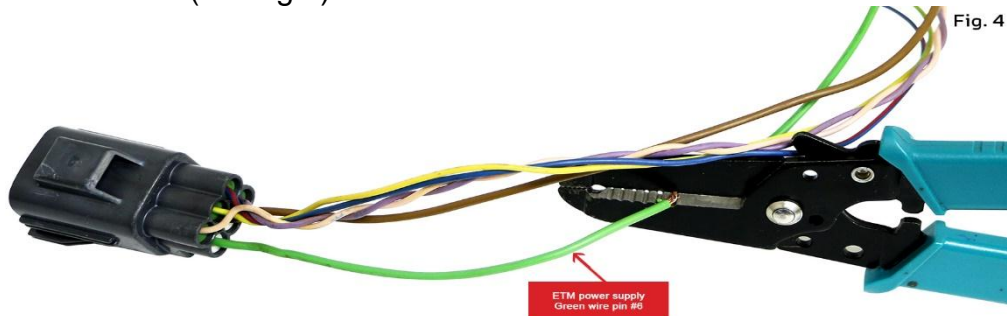
There is a hidden junction located in the engine harness about 8 inches from the fuse box (see fig. 3). This junction splits the power supplied by fuse #2 to the ETM and the accelerator pedal. It is very common for the wires to corrode there and cause significant current drop to the ETM.

It is not necessary to locate this junction point and repair it, we have a great success rate with simply by-passing the power supply directly from fuse #2 to the ETM.

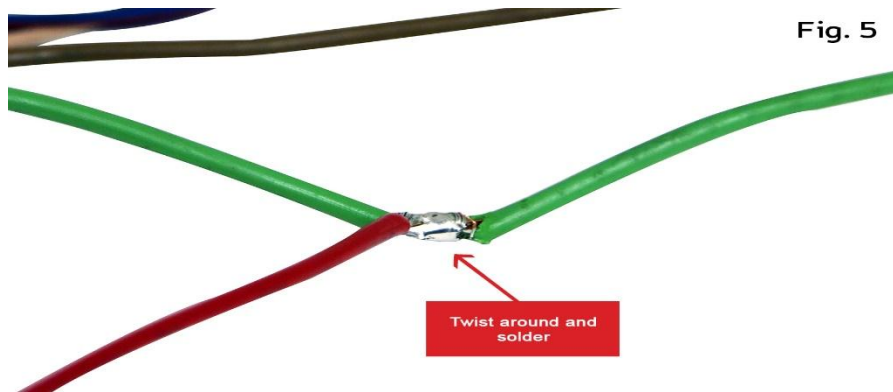


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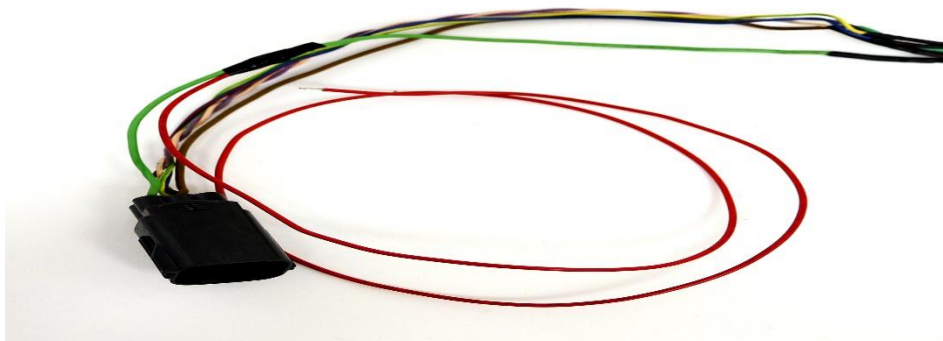
Step 1: Unplug the ETM, peel back the plastic wiring loom and expose the wires to the ETM. Locate the green wire connected to pin #6. Using a wire stripper, peel back insulation (see fig.4)



Step 2: Connect solder in and insulate 3 ft. long 18 or 16-gauge wire around it (see fig.5).



Step 3: Insulate the junction with electrical tape.

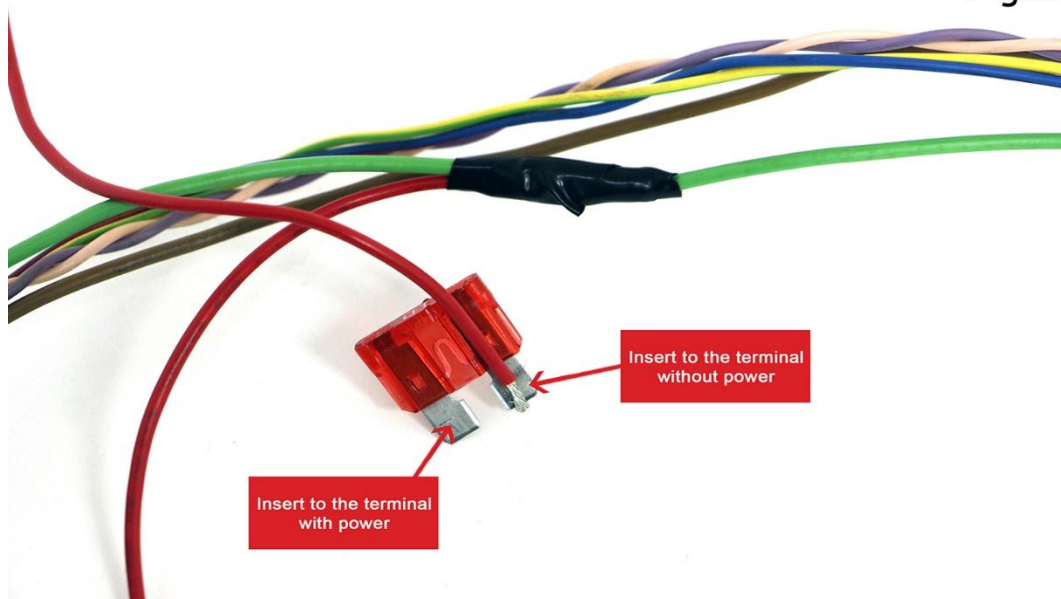


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Step 4: Remove fuse #2 from the fuse box and switch the ignition on. The fuse has two terminals in the fuse box. Using a voltmeter, test which side of the fuse terminal has no power.

Step 5: Wrap the other end of the jumper wire around the fuse and insert it back to position #2 with the jumper wire connected to the unpowered terminal (see fig.6).

**Fig. 6**



Step 5: Re-connect the ETM plug.

Step 6: Test drive the car to see if all the ETM failure symptoms are gone. If the symptoms persist, contact our technical support via email [tech@xemodex.com](mailto:tech@xemodex.com) or phone 1-888-712-2525.

**Please be advised that no warranty claims can be processed until all the above steps had been followed through.**