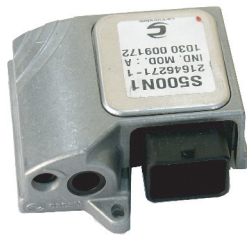


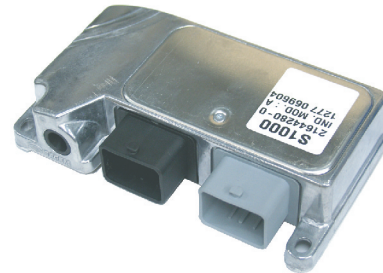


SERVICE BULLETIN

BULLETIN	ISSUED	MODEL(S) AFFECTED	SUBJECT(S)
SBM01-05	11/8/01	2001 X440s, 2002 X440s, See list on page 5., And, units installed with the MC1000 Update Kit (P/N 913-5002053)	1 - MC1000 operating code 2 - Hard starting and cold start



MC500
Engine Control Unit (ECU)



MC1000
Engine Control Unit (ECU)

CONDITION : This service bulletin addresses two conditions identified individually below. Both conditions concern the engine management system of affected vehicles.

(1) Field reports of intermittent engine stalling have been attributed to early releases of the MC1000 ECU operating code. The operating code is something like the operating system in an ordinary personal computer or PC (example: Windows 95). The operating code should not be confused with the calibration file; that file contains mapping and vehicle specific calibrations.

(2) Field reports indicate hard starting and/or difficult cold starting experiences. These experiences have been attributed to the cold starting “strategies” programmed in early releases of the calibration files on affected units. A calibration file is something like the software running on a particular operating system (example: MS Excel or Word).

SOLUTION : (1) For condition 1 above, a revised version of the MC1000 operating code has been developed and must be installed on all affected models. A special MS-DOS program has been developed to install the revised code file to the vehicle ECU.

(2) A new calibration file has been developed and should be installed into the vehicle ECU after the revised operating code (Condition (1) above) has been installed.

This service bulletin includes step-by-step instructions to correct both conditions in the same “work procedure.”

PARTS : The kit (P/N 912-5001986) including PC software programs, a data cable, and user manuals is necessary to perform the instructions of this service bulletin. The kit has been shipped to dealerships. The software installation is a prerequisite to performing any work. Consult the kit documentation for more details.

If you have any questions about this service bulletin, call toll free 1-800-MOTO-USA.

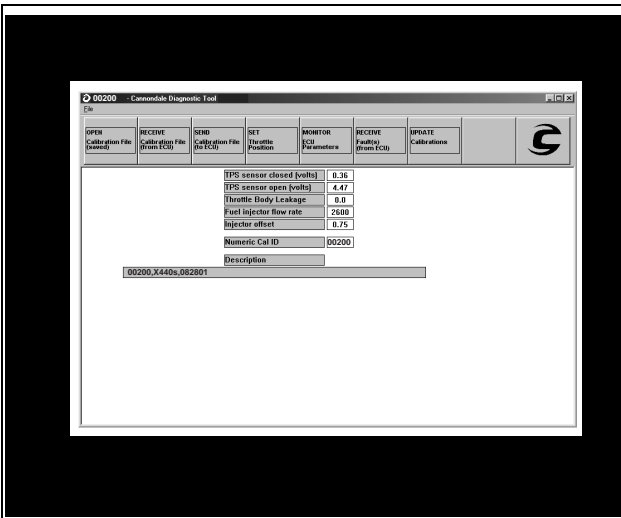
INSTRUCTIONS

connector can be released easily using only your finger tips.

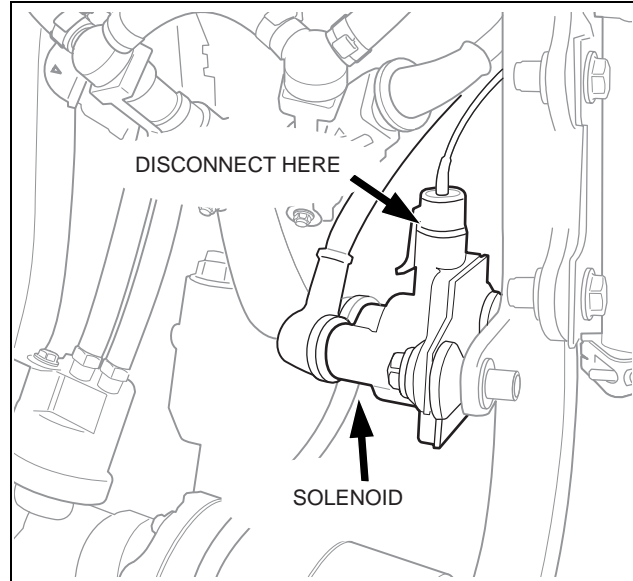
NOTE :

Before starting this procedure, we strongly recommend that you read the Cannondale Diagnostic Tool Manual (P/N 912-5001985) included with kit (P/N 912-5001986). The manual contains important background information and explanations that will be helpful to know before you attempt this simple, but very technical procedure. We also recommend that the service technician performing the work have moderate PC skills.

1. From the Windows START menu select *DealerCal.exe* from the Cannondale Diagnostic and Maintenance program group. The Cannondale Diagnostic Tool main menu will open. See example below.



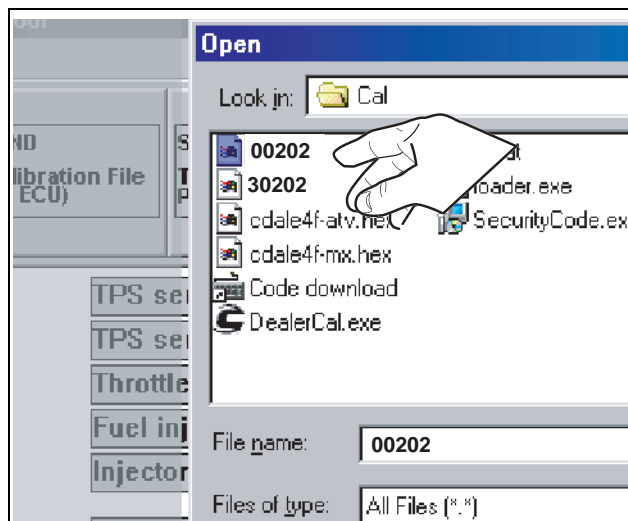
2. Connect the data cable to the vehicle and PC. See the Cannondale Diagnostic Tool Manual for details.
3. Disconnect the vehicle starter solenoid harness lead. The solenoid is mounted on the inner side of the left engine rail just below the fuel filter mount. In the illustration below, the radiator is shown removed for clarity; the



4. Press the vehicle engine start button briefly. This will activate the engine management circuits. The green LED on the data cable block should be lit. Look at the block to confirm that it is on. If you read the Cannondale Diagnostic Tool Manual, you would have learned that this LED stays on while the ECU is active and that the ECU remains active for only 2 minutes if communications are not occurring- then it shuts down automatically. If the light goes out anytime during this procedure, just press the engine start button again to turn it on.
5. Click the **OPEN Calibration file (saved)** button in the Cannondale Diagnostic Tool main menu.

Then, select the file named 00202 located in

the C:\Program Files\Cal directory. You may have to navigate (use explorer) to find it.

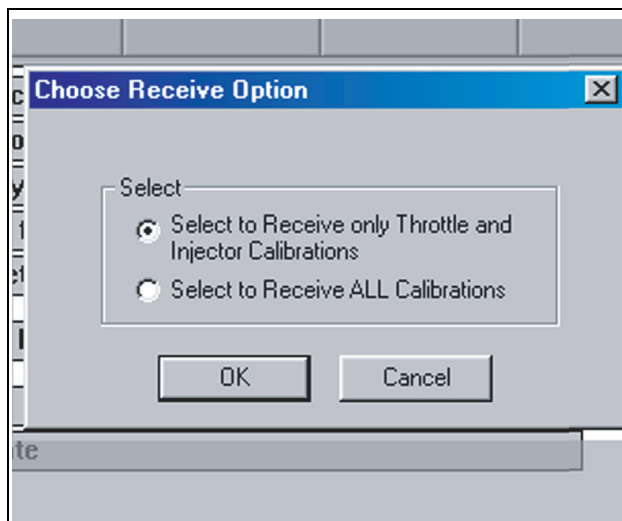


6. Make sure "00202" is displayed at Numeric Cal ID. If it is not, repeat the previous step.
7. Make sure the green LED on the data cable block is still lit. If its not press the engine start button to turn it on.

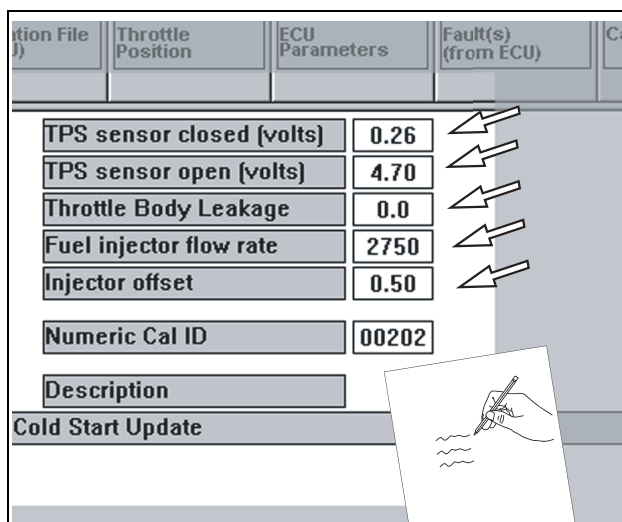
Now, click the **RECIEVE Calibration file (from ECU)** button.

When the Choose Receive Option window opens select "Select to Receive only Throttle and Injector Calibrations" and click OK. This option reads only the TPS sensor closed (volts), TPS open (volts), Throttle Body Leakage, Injector flow rate, and Injector offset variables from the current calibration file in the ECU and does not read the calibration file. These will be needed for the new calibration file installation later because the operating code installation wipes them from the ECU memory. Because the program is reading this relatively small set of vehicle

variables and not the complete calibration file, the transfer of data occurs quickly.



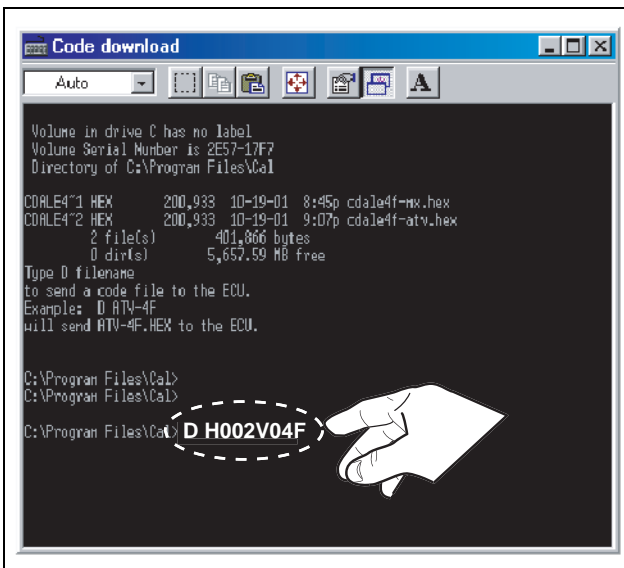
8. The vehicle's variables have now been merged with the new calibration file (00202) that you opened in the program in the first few steps. Write down the values displayed in the main menu (see arrows below). When you write them down you are creating a kind of backup just in case you have computer difficulties (accidentally closing the Cannondale Diagnostic Tool). If you don't have a problem, the next few steps will transfer this information to the ECU following the operation code transfer. But if you do encounter a problem, the Cannondale Diagnostic Tool enables you to input them to the ECU. See Updating Calibrations and Setting the Throttle Body in the tool manual.



9. Press the engine stop button.

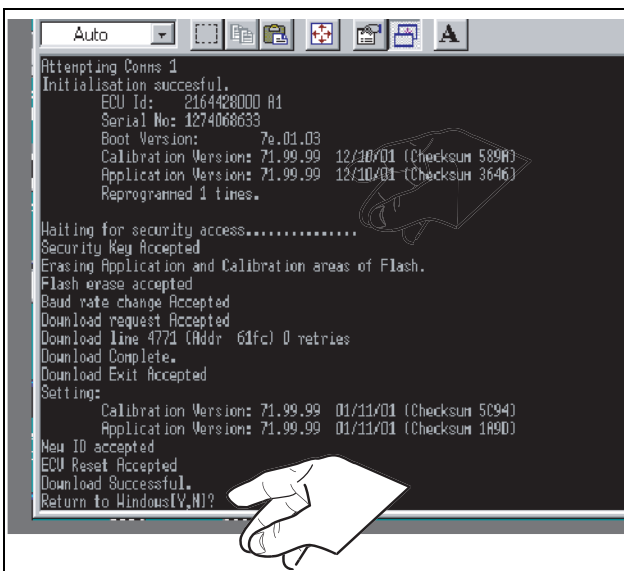
10. From Windows START button (lower left corner of the computer screen) select the Cannondale Diagnostic and Maintenance program group and select *Code Download*. An MS-DOS program window will open.

11. At the prompt type: **D H002V04F** but do not press ENTER yet. D means “download” and H002v04f is the name of the new operating code file that the program will transfer to the ECU in the coming steps.



12. Have an assistant PRESS AND CONTINUE TO HOLD the engine start button on the vehicle.

13. As your assistant holds the engine start button, press the ENTER key on your computer - you will see live data transfer information in the MS-DOS window.



14. When the transfer complete message displays in the lower area of the program window, your assistant can release the engine start button.

Type Y and the MS-DOS window will disappear and the Cannondale Diagnostic Tool main menu should be visible again.

15. Click the **SEND Calibration file (to ECU)** button. The new calibration file together with the vehicle specific variables read from the ECU before the operating code installation will be installed into the ECU.

When the send complete window displays, click OK.

16. Reconnect the starter solenoid. Make sure the connector is latched properly.

17. Disconnect the data cable from the vehicle.

18. Reinstall removed components.

19. Test engine operation.

MODEL(S) AFFECTED

The following is a list of Vehicle Identification Numbers (VIN) of units affected by this service bulletin:

5B6BC11C02B000003
5B6AA11C21B000004
5B6BC11C22B000004
5B6BC11C62B000006
5B6BC11C82B000007
5B6BC11C82B000010
5B6BC11CX2B000011
5B6BC11C32B000013
5B6BC11C52B000014
5B6BC11C72B000015
5B6BC11C92B000016
5B6BC11C02B000017
5B6BC11C22B000018
5B6BC11C42B000019
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5B6BC11C42B000022
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