

COMMUNICATION TOOLS AND B.U.D.S.

SERVICE TOOLS

Description	Part Number	Page
12 V BATTERY SUPPLY CABLE	529 035 997	1, 6
MPI-2 DIAGNOSTIC CABLE	710 000 851	1, 5
MPI-2 INTERFACE CARD	529 036 018	1, 4
T-HARNESS	529 035 869	1, 3, 5

SERVICE TOOLS – OTHER SUPPLIER






Description	Part Number	Page
MALE-FEMALE EXTENSION SERIAL CABLE	DB9	6

GENERAL

Refer to *PROCEDURES* in this subsection for instructions on the communication tools.

If communication problems occurs, refer to *TROUBLESHOOTING* in this subsection.

REQUIRED TOOLS

MANDATORY TOOLS	
A personal computer (laptop or desktop)	
MPI-2 INTERFACE CARD (P/N 529 036 018)	
MPI-2 DIAGNOSTIC CABLE (P/N 710 000 851)	
T-HARNESS (P/N 529 035 869)	
550F and 600 HO E-TEC Models ONLY: 12 V BATTERY SUPPLY CABLE (P/N 529 035 997)	
OPTIONAL TOOL	
Extension cable available at electronic retail outlets. Do not exceed 7.5 m (25 ft)	

TROUBLESHOOTING

COMMUNICATION PROBLEMS

IMPORTANT: Make sure all connections have been made **before starting B.U.D.S.** to allow proper operation.

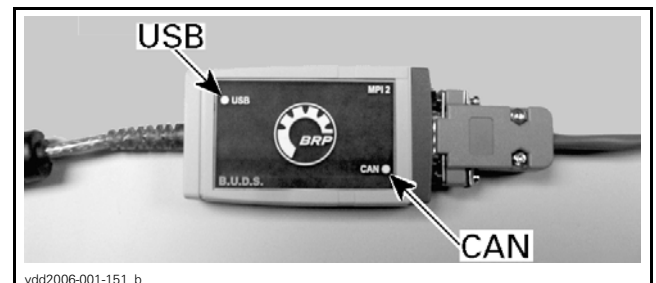
MPI-2 Connection Troubleshooting

MPI-2 Status Lights

The MPI-2 includes 2 status lights to show the connection conditions: USB and CAN.

Both lights must be GREEN for the MPI-2 to function properly. Otherwise, refer to the following charts.

NOTE: Flashing GREEN lights indicate the communication is active.



Prerequisite for USB Communication:

- PC Computer turned on.
- MPI-2 connected to PC computer.

COMMUNICATION PROBLEM (USB)	
STATUS	WHAT TO DO
Light is OFF	<ul style="list-style-type: none">– Check USB connection between MPI-2 and PC computer.– Check USB operation on PC computer (hardware or Windows drivers).
Light is GREEN	<ul style="list-style-type: none">– Connections are GOOD. Communication can take place on USB side.

Prerequisite for CAN Communication:

- 1. MPI-2 connected to diagnostic connector.
- 2. The tether chord cap (D.E.S.S. key) installed on engine cut-off switch.
- 3. B.U.D.S. started and logged.

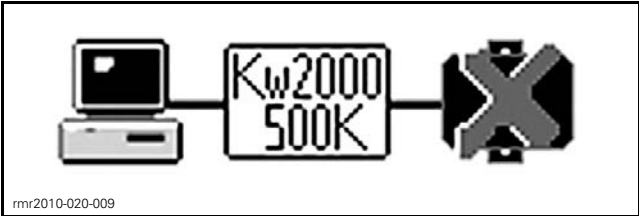
COMMUNICATION PROBLEM (CAN)	
STATUS	WHAT TO DO
Light is OFF	<ul style="list-style-type: none">– Check connection between MPI-2 and diagnostic cable connector.– Check connection between diagnostic cable connector and T-harness.– Check connection between T-harness and diagnostic connector.– Check that battery supply cable is connected to a 12 V battery.– Check that ECM is powered.
Light is RED	<ul style="list-style-type: none">– Check CAN wires and connectors on vehicle.
Light is GREEN	<ul style="list-style-type: none">– Connections are GOOD. Communication can take place on USB side.

Communication Problems with B.U.D.S.

Vehicle not Detected in B.U.D.S.:

Make sure both USB and CAN lights on the MPI-2 are GREEN.

If an “X” is shown in the status bar and the protocol indication is blinking between Kw2000 500K and KW2000, it means that no “ECU” is communicating with the MPI.

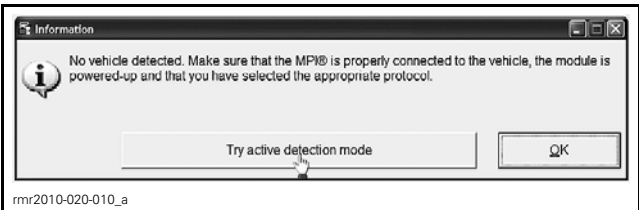


TYPICAL

Check the following:

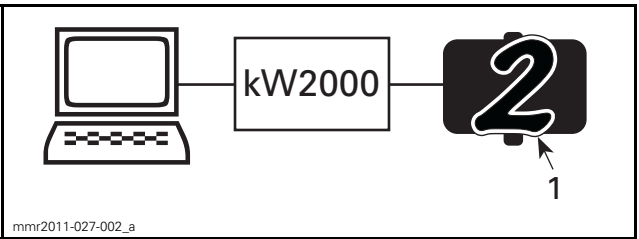
- Connections between the PC computer and the vehicle.
- The multifunction gauge is powered up.

If B.U.D.S. does not automatically exit the following message box, click the **Try active detection mode** button. This will manually establish the communication with the vehicle.



One or More "ECU" is not Communicating with the MPI

Ensure the status bar shows the appropriate communication protocol and number of modules according to the vehicle model.

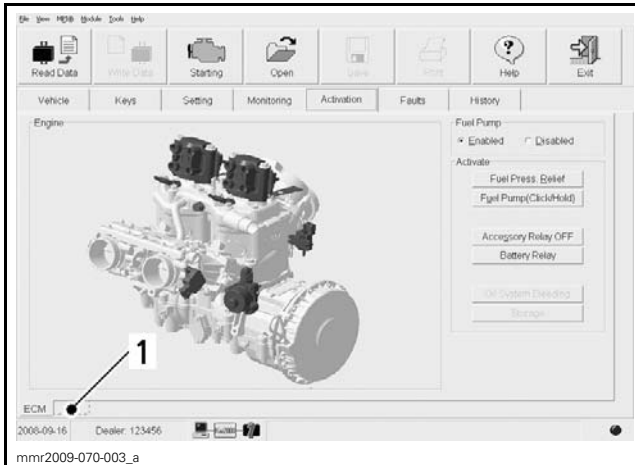


TYPICAL — CONNECTION SUCCESSFUL

1. Number of modules

MODEL	NUMBER OF MODULES	PROTOCOL
550F	1 (Gauge only)	Kw2000
600 HO E-TEC	2 (ECM and gauge)	
600 ACE		Kw2000/500K

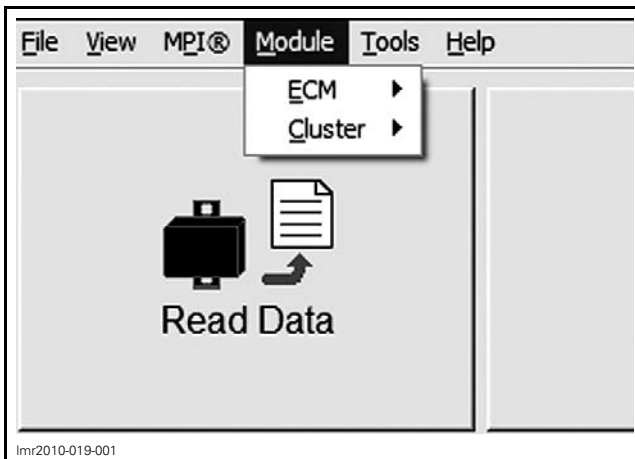
If one or more “ECU” is (are) not communicating with the MPI, a module may not be properly connected, powered, or is defective. To check which module is missing in B.U.D.S., look for its page tab at the bottom of the B.U.D.S. window. It will not be visible. Then check the wiring and power supply to that module.



TYPICAL

1. Cluster tab not visible meaning this "ECU" is not communicating

NOTE: The module submenu will also provide a list of modules that are communicating with B.U.D.S.



TYPICAL - MODULE SUBMENU LIST

If the module is missing, check wiring and power supply to that module.

Engine cannot be Started when Using B.U.D.S.

600 ACE Models

If the engine cannot be started when using B.U.D.S. proceed as follows:

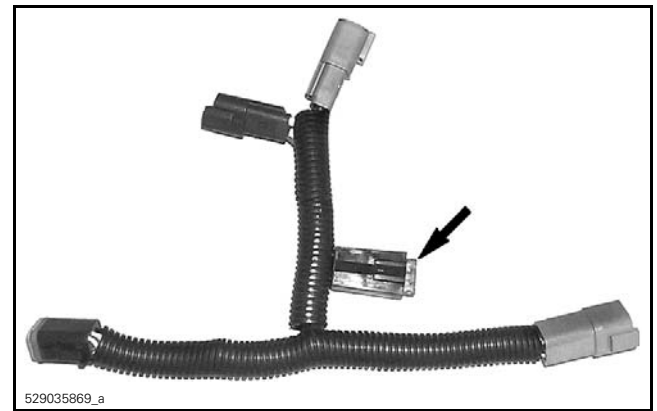
1. Remove tether chord cap (D.E.S.S. key) from engine cut-off switch.
2. Disconnect T-harness from the diagnostic connector.
3. Wait until the ECM shuts down (indicated by the gauge that turns off after approximately 10 seconds).
4. Install tether chord cap on engine cut-off switch.

5. Connect T-harness to the diagnostic connector.
6. Start B.U.D.S. and logon.
7. In B.U.D.S., click **Read Data**.
8. Start engine.

T-Harness Test

When the T-HARNESS (P/N 529 035 869) is connected to the vehicle diagnostic connector, the multifunction gauge should turn on. Otherwise, check the following and repair or replace T-harness if any test failed.

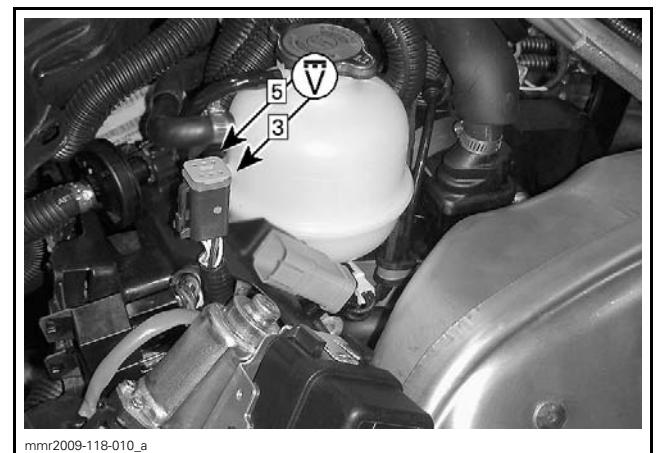
1. T-harness fuse.



2. Vehicle battery voltage.

2.1 Charge battery if it is too low.

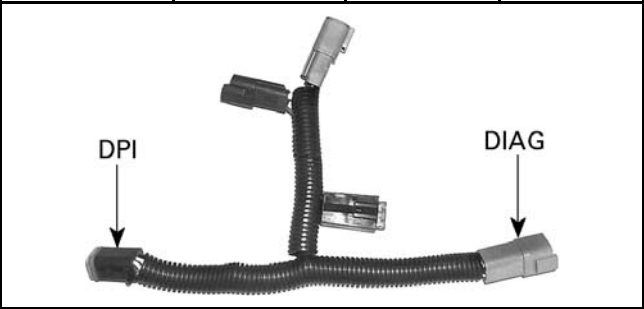
3. Battery power between pins 5 and 3 of vehicle diagnostic connector.



3.1 If battery voltage is not read, check vehicle wiring harness.

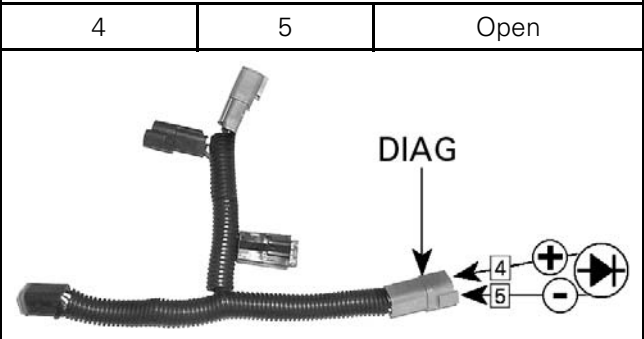
4. Wiring and connectors of the T-harness.

T-HARNESS CONTINUITY TEST			
"DPI" CONNECTOR	"DIAG" CONNECTOR	FUNCTION	TEST
1	1	CAN line	Continuity (close to 0 Ω)
2	2	CAN line	
3	3	Ground	
4	4	None	N.A.
5	5	Vehicle battery	Continuity (close to 0 Ω)
6	6	None	N.A.



5. Diode in the T-harness.

T-HARNESS DIODE TEST		
"DIAG" CONNECTOR		TEST
FROM	TO	
5	4	Close to 0.5 V



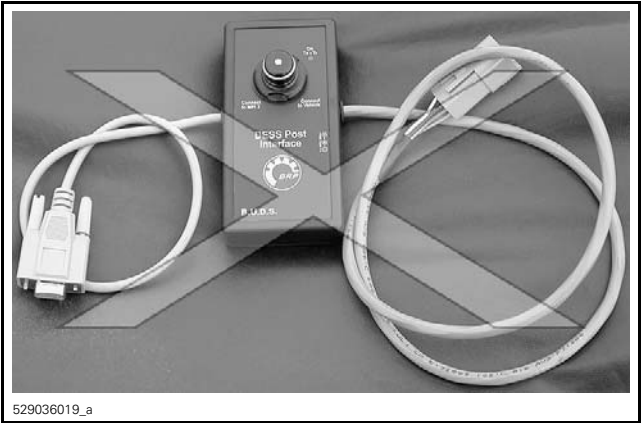
Notes:
Set multimeter to .
Probe diode paying attention to proper polarity. The + sign indicates the RED probe.

PROCEDURES

MULTI-PURPOSE INTERFACE-2 (MPI-2)

The MPI-2 (Multi-Purpose Interface-2) is used with B.U.D.S. to communicate with the ECM (engine control module) and other modules such as the multifunction gauge.

NOTICE Do not use the D.E.S.S. post interface.



MPI-2 Power

The MPI-2 uses the PC computer USB port for its power supply.

Connecting the PC to the Vehicle

WARNING

If the computer you are using is connected to a power outlet, there is a potential risk of electrocution when working in contact with water. Be careful not to touch water while working with the computer.

NOTE: Some components will generate heat when leaving vehicle in diagnostic mode for a long period. Always disconnect MPI supply harness and supply cable from vehicle/battery when not working on vehicle.

1. Connect the MPI-2 INTERFACE CARD (P/N 529 036 018) to the USB port of a PC (personal computer).



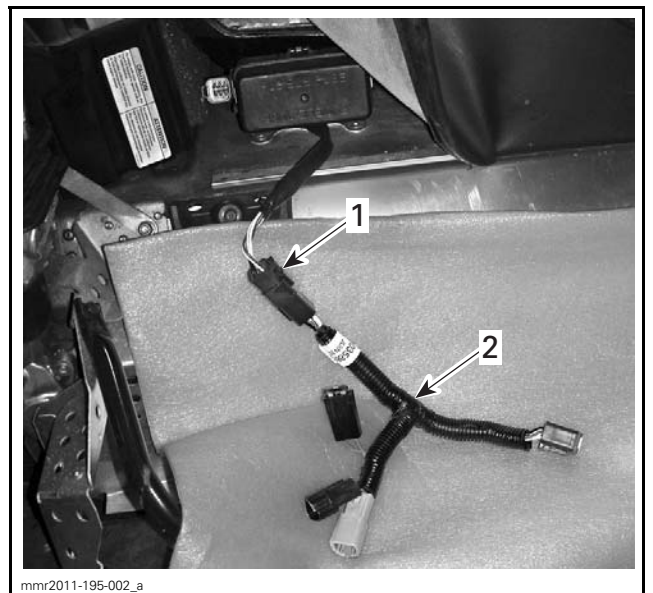
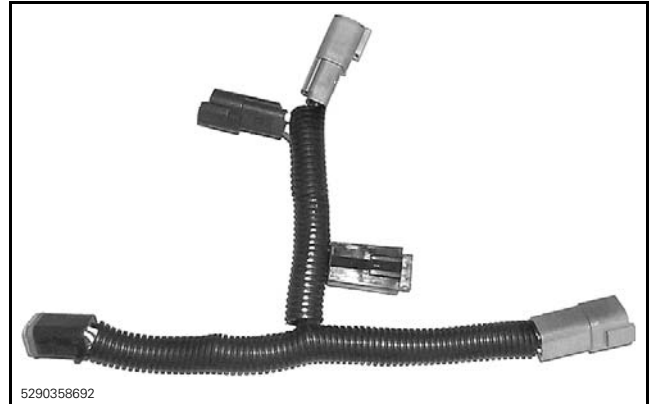
MPI-2 INTERFACE CARD CONNECTED TO USB PORT

2. Remove the diagnostic connector from the protective cap beside fuse box on the left side of the vehicle.



1. Diagnostic connector

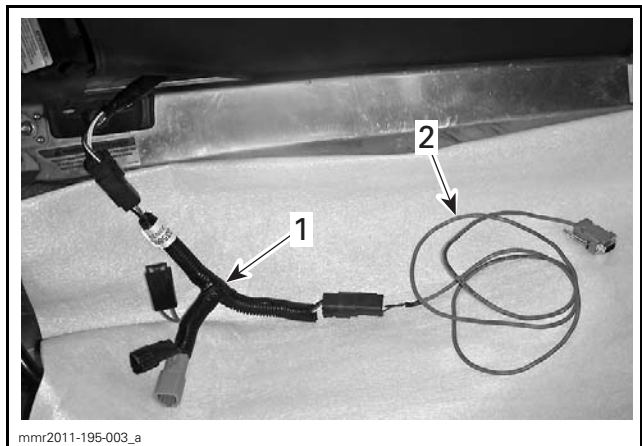
3. Connect the T-HARNESS (P/N 529 035 869) to vehicle diagnostic connector.



1. Diagnostic connector
2. T-harness

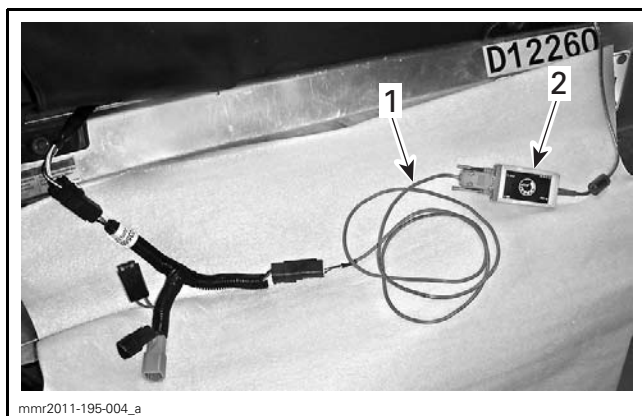
4. Connect the MPI-2 DIAGNOSTIC CABLE (P/N 710 000 851) to the T-harness connector.

Subsection XX (COMMUNICATION TOOLS AND B.U.D.S.)



1. T-harness
2. Diagnostic cable connected to T-harness

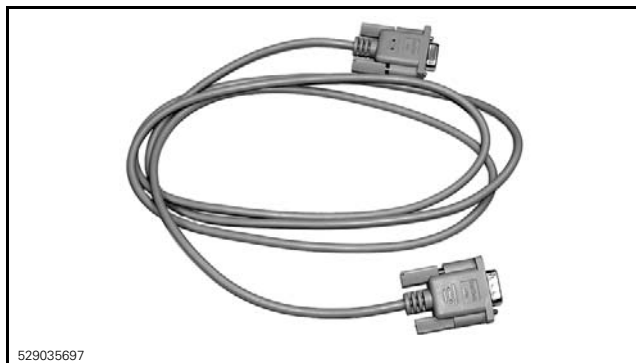
5. Connect the MPI-2 interface card to the diagnostic cable.



1. Diagnostic cable
2. MPI-2 interface card

NOTICE Connecting MPI-2 directly to diagnostic connector (without T-harness) may prevent proper communication. Always use the T-harness.

NOTE: An optional MALE-FEMALE EXTENSION SERIAL CABLE (P/N DB9) available at electronic retail outlets can be used. Do not exceed 7.6 m (25 ft).



OPTIONAL MALE-FEMALE EXTENSION SERIAL CABLE

550F and 600 HO E-TEC Models

6. Connect the 12 V BATTERY SUPPLY CABLE (P/N 529 035 997) to the T-harness.



1. T-harness
2. 12 V battery supply cable

7. Connect the battery supply cable to the vehicle battery posts. Ensure to match harness wire color with battery cable color.



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1. Connect 12 V battery supply cable to battery posts

B.U.D.S.

B.U.D.S. (BRP Utility and Diagnostic Software) is designed to allow

- Electrical and electronic component monitoring
- Making setting changes (such as the Closed throttle reset)
- Diagnostics
- Reading fault codes.

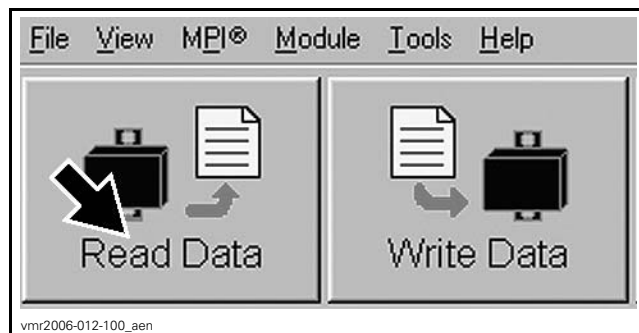
For more information pertaining to the use of the B.U.D.S. software, use its help menu which contains detailed information on its functions.

Use the latest applicable B.U.D.S. version available on BOSSWeb.

IMPORTANT: Make sure tether chord cap is on engine cut-off switch and all connections have been made **before starting B.U.D.S.** to allow proper communication initialization and operation.

Reading Data from Electronic Modules using the B.U.D.S. Software

1. Install the tether cord cap (D.E.S.S. key) on the engine cut-off switch.
2. Start B.U.D.S. and logon.
3. Read ECM by clicking the **Read Data** button.



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Electronic Modules ("ECU") Update

NOTICE Failure to strictly follow a procedure when updating a module may permanently damage the module.

Whenever B.U.D.S. is started, check for an update icon in B.U.D.S. status bar.



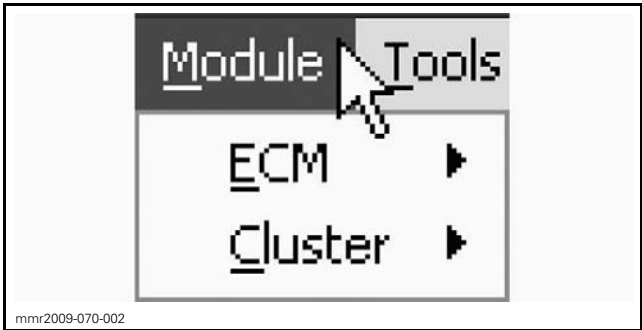
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TYPICAL

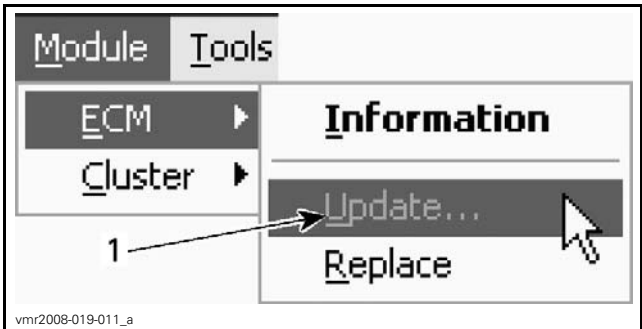
The icon indicates that a file is available in B.U.D.S. to update any of the following electronic modules: ECM or multifunction gauge (as applicable).

NOTE: If an update file is available on BOSSWeb but the B.U.D.S. software being used is not up to date, the update icon will not appear. Refer to the *SERVICE BULLETINS* to see if there is an update available.

Use the **Module** submenu and check all modules one at a time to see which module(s) can be updated.



1. If the **Update** option is **greyed out**, no update file is available for this module.
2. If the **Update** option is **black**, an update file is available for this module.



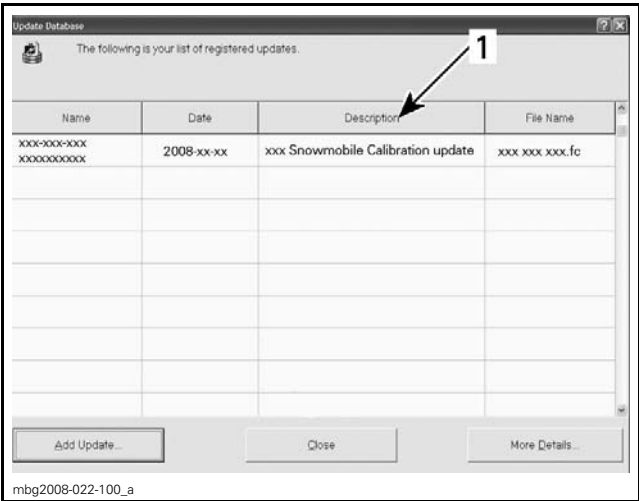
1. Greyed out: No update to perform
Black: Update file available

Before applying an update, log onto BOSSWeb and look in **Service** menu for the **Unit history** to find out if any information or publication related to the vehicle is available. If so, carefully follow the given instructions.



SERVICE, UNIT HISTORY

NOTE: When selecting the update menu in B.U.D.S., a dialog box will appear and the update file description may provide some clue to find the vehicle-related information in BOSSWeb.



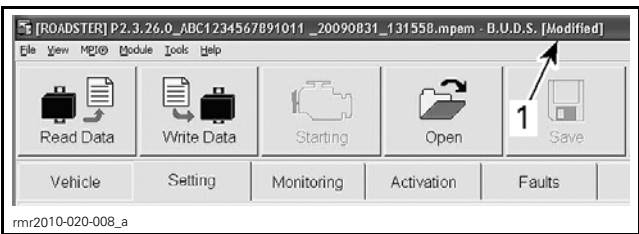
TYPICAL
1. File description

Writing Data Changes (Saving) in a Module

When making a data or setting change in a module using B.U.D.S., save the new data (or setting) in the module by clicking the **Write Data** button.



If the word **Modified** appears in the vehicle file identification number at the top of the B.U.D.S. page, then a change has been made that requires selecting the Write Data to save the change.

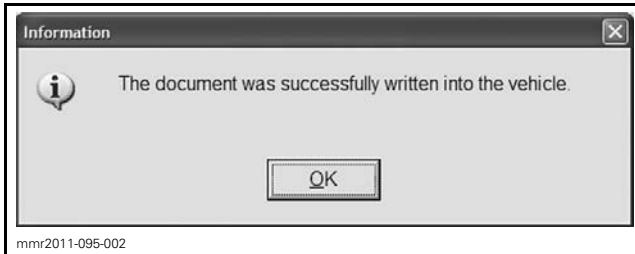


TYPICAL
1. Indicate setting or data modified; Write Data to save

If a message box appears on the PC screen after clicking the Write Data button, follow the on screen instructions.

600 ACE Models

Anytime a change is saved to the ECM through B.U.D.S., wait for the following window that confirms that the ECM has been written properly.



When this occurs, remove tether chord cap and wait until the message disappears (approximately 20 seconds after key removal).

All Models

Disconnect T-harness and other MPI connections. Reconnect the 6-pin connector in its protective cap.

NOTICE Failure to secure the diagnostic connector in its protective cap would allow corrosion and damage to the terminals.