

COMMUNICATION TOOLS AND B.U.D.S.

SERVICE TOOLS

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GENERAL

Refer to *PROCEDURES* for instructions on the communication tools.

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

TROUBLESHOOTING

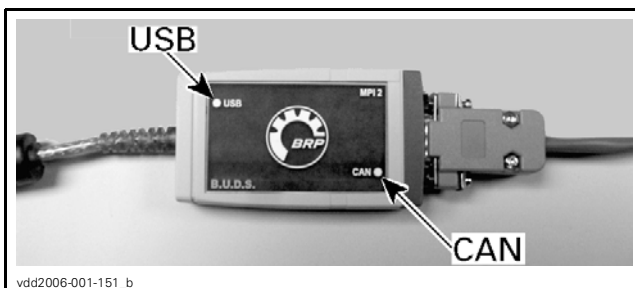
DIAGNOSTIC TIPS

IMPORTANT: Make sure all connections are made and vehicle is powered up **before starting B.U.D.S.** to allow proper communication between the vehicle and B.U.D.S. software.

MPI-2 Connection Troubleshooting

MPI-2 Status Lights

The MPI-2 includes 2 status lights that indicate the connection condition: USB and CAN. **Both lights must be GREEN** for the MPI-2 to function properly. Otherwise, refer to the following charts.



Prerequisite for USB communication:

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

USB LIGHT	
STATUS	WHAT TO DO
Light is OFF	– Check USB connection between MPI-2 and PC computer. – Check USB operation on PC computer (hardware or Windows drivers).
Light is GREEN	– Connections are GOOD. Communication can take place on USB side.

Prerequisite for CAN communication:

- MPI-2 connected to diagnostic connector on vehicle.
- Tether cord installed on the vehicle engine cut-off switch.
- ECM turned on (momentarily press the START button).
- B.U.D.S. started and logged on.

CAN LIGHT	
STATUS	WHAT TO DO
Light is OFF	Check connection between MPI-2 and diagnostic connector on vehicle.
Light is RED	Check CAN wires/connectors on vehicle.
Light is GREEN	Connections are GOOD. Communication can take place on CAN side.

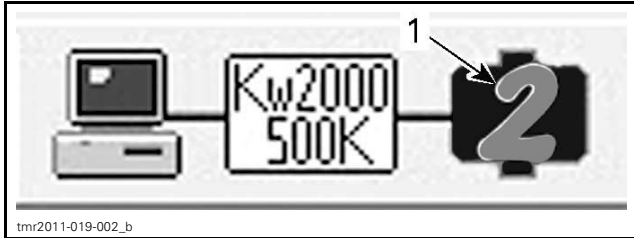
Section 03 ELECTRONIC MANAGEMENT SYSTEMS

Subsection 04 (COMMUNICATION TOOLS AND B.U.D.S.)

Communication Problems when Using B.U.D.S.

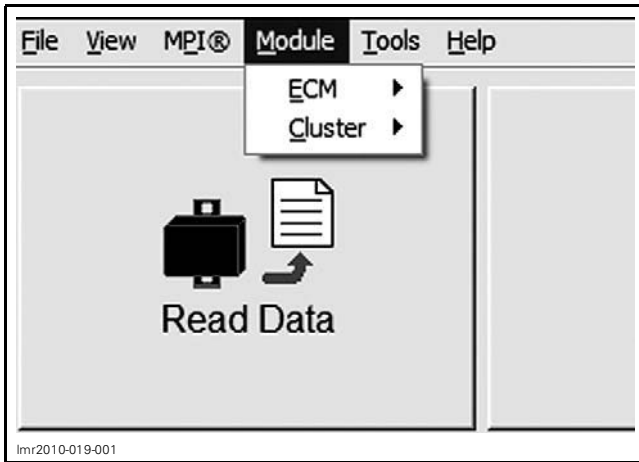
Missing Module

If one or more ECU is not communicating with the MPI, refer to *DIAGNOSTIC AND FAULT CODES* subsection.



STATUS BAR

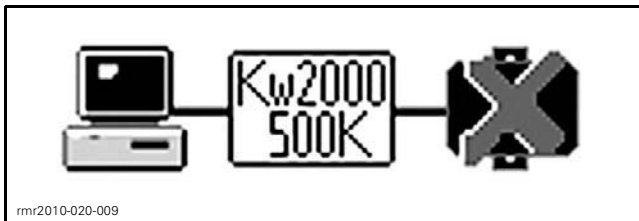
1. Number of modules read by B.U.D.S.



MODULE SUBMENU - LIST OF MODULES READ BY B.U.D.S.

No Vehicle Detected

If an "X" is shown in the status bar, it means that no ECU is communicating with the MPI.



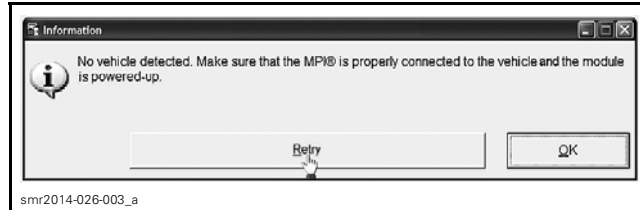
1. Check connections between the PC computer and the vehicle.

2. Ensure the electrical system is powered up.

NOTE: The **tether cord** cap must be installed on the engine cut-off switch.

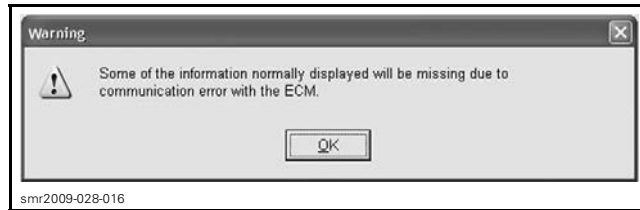
3. Ensure both USB and CAN lights on the MPI-2 are GREEN. Refer to *MPI-2 CONNECTION TROUBLESHOOTING* subsection.

If B.U.D.S. does not automatically exit the following message box, click the **Retry** button. This will manually establish the communication with the ECUs.



Message Box: "Some of the Information Normally Displayed..."

If the following message box is displayed in B.U.D.S.:



1. Click on the **OK** button in the box.
2. Ensure the tether cord is properly installed.
3. **Briefly** press the vehicle **START** button to activate the ECM. **Do not hold START button to avoid engine starting.**
4. Click on the **Read Data** button in B.U.D.S.

Message Box: "Engine must be Stopped..."

If the following message box is displayed in B.U.D.S.:



1. Turn off the engine if it is running.
2. Click on the **Cancel** button in B.U.D.S.
3. Ensure the tether cord is properly installed.
4. **Briefly** press the vehicle **START** button to activate the ECM. **Do not hold START button to avoid engine starting.**
5. Continue with the procedure undertaken prior to the appearance of the message box.

NOTE: If the message persists and the engine is **not** running, press the **Read Data** button. Thereafter, repeat the procedure.

PROCEDURES

MULTI-PURPOSE INTERFACE-2 (MPI-2)

The MPI-2 (Multi-Purpose Interface-2) in conjunction with the MPI-2 diagnostic cable is used with B.U.D.S. software to communicate with the ECM (engine control module) and other modules.

MPI-2 Power

The MPI-2 interface card uses the power from the PC computer USB port.

Diagnostic Connector Location

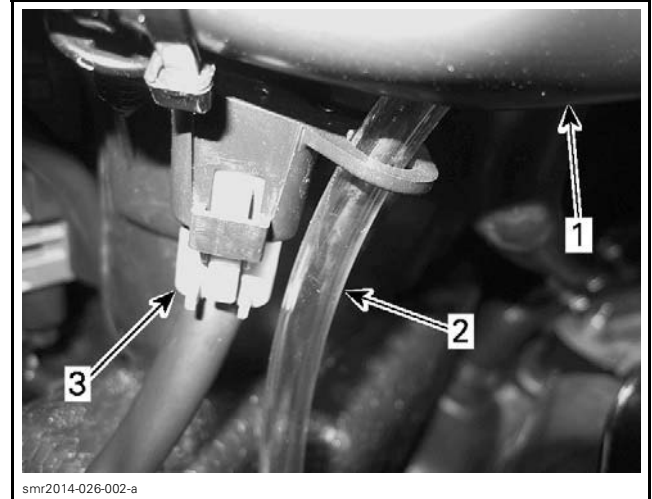
The 6-pin diagnostic connector is located near the coolant tank, stored in its protective cap. To access it, remove the LH access cover.



DIAGNOSTIC CONNECTOR LOCATION

Connecting the PC to the Vehicle

1. Disconnect the 6-pin diagnostic connector from its holder (protective cap).



1. Coolant tank holder
2. Coolant tank overflow hose
3. Diagnostic connector

2. Connect one end of the MPI-2 DIAGNOSTIC CABLE (P/N 710 000 851) to vehicle connector.



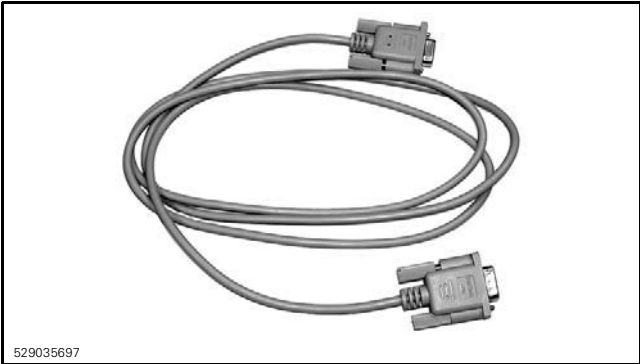
3. Connect the other end of diagnostic cable to the MPI-2 INTERFACE CARD (P/N 529 036 018).



NOTE: An optional MALE-FEMALE EXTENSION SERIAL CABLE (P/N DB9) available at electronic retail outlets can be used between diagnostic cable and MPI-2 interface. Do not exceed 7.6 m (25 ft).

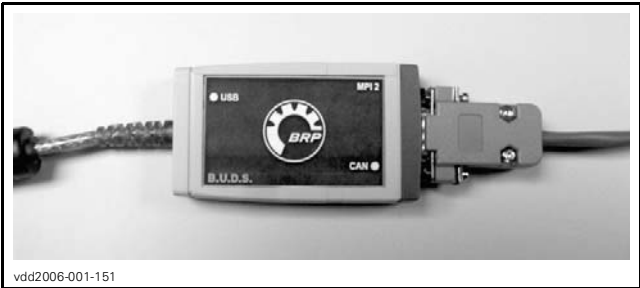
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OPTIONAL MALE-FEMALE EXTENSION SERIAL CABLE

4. 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

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

5. Use B.U.D.S. software as described further in *B.U.D.S. SOFTWARE*.

B.U.D.S. SOFTWARE

B.U.D.S. (BRP Utility and Diagnostic Software) is designed to allow programming key(s) to the vehicle, allow electrical and electronic component

monitoring, activation of certain components for diagnostic purposes, and to carry out settings changes.

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

How to Read the Electronic Control Units Using B.U.D.S. Software

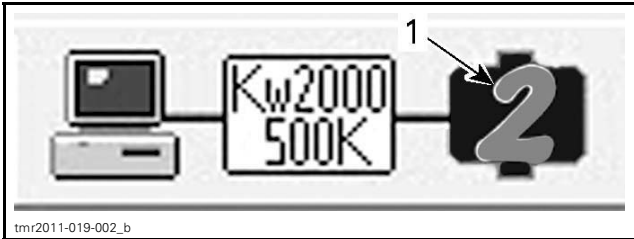
IMPORTANT: Ensure all connections have been made **before starting B.U.D.S.** to allow proper operation. Refer to *MPI-2* in this subsection.

1. Press the START button to wake up the electrical system.
2. Install the tether cord on the engine cut-off switch.
3. Start B.U.D.S. and logon.

NOTE: B.U.D.S. will automatically choose the appropriate MPI 2 protocol.

4. Ensure the appropriate number of modules is shown in the status bar.

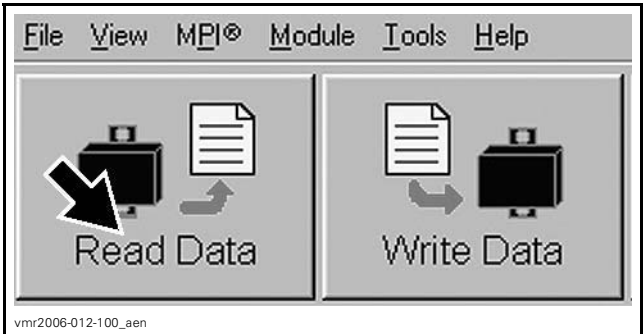
NUMBER OF MODULES	MODULES
2	ECM and multifunction gauge



STATUS BAR

1. Number of modules read by B.U.D.S.

5. Read electronic modules by clicking the **Read Data** button.



B.U.D.S. is now ready to use.

Electronic Modules ECU Update

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

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

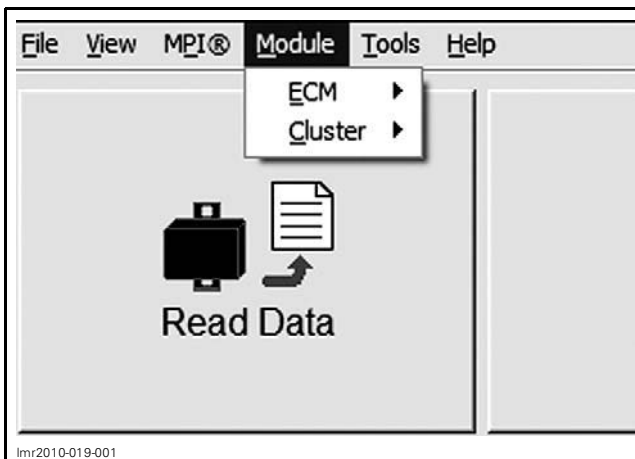


TYPICAL

If the icon is visible, it indicates that a file is available in B.U.D.S. to update at least one of the electronic modules.

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.

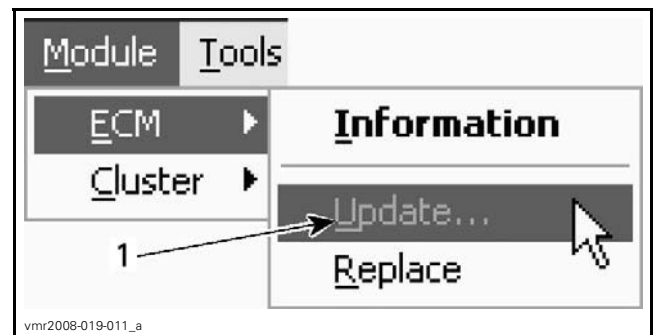
Use the **Module** submenu and check all modules one at a time to see which module(s) can be updated.



MODULE SUBMENU LIST

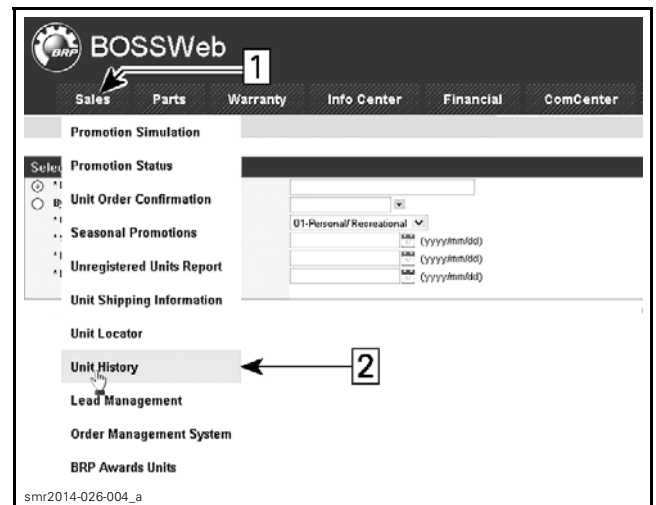
1. If the **Update** option is **greyed out**, no update file is available for this module.

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 in BOSSWeb and look in **Sales** 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.



SALES, UNIT HISTORY

Step 1: Click on **SALES** menu
 Step 2: Select **Unit History**

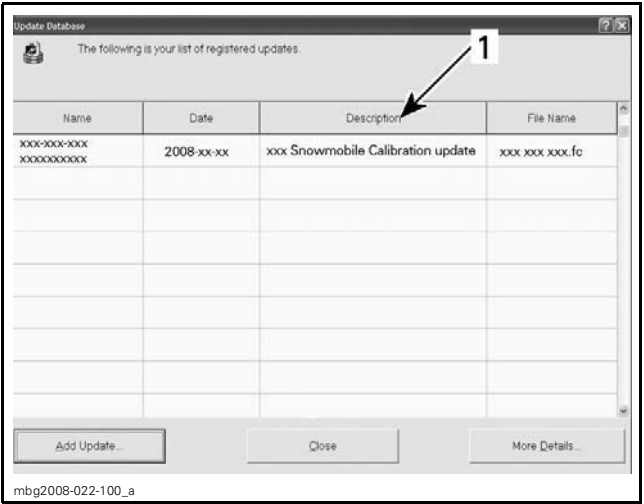


1. Vehicle Serial Number here

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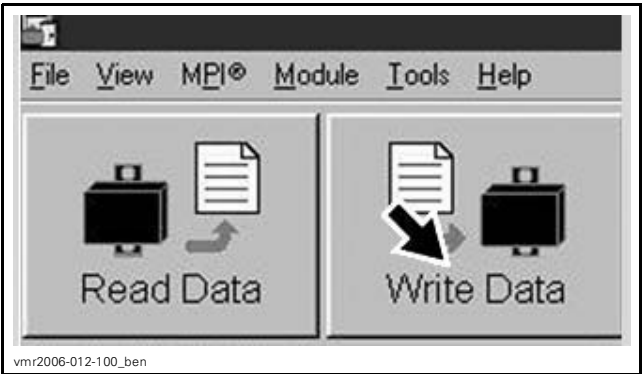
NOTE: When selecting the update menu in B.U.D.S., a dialog box will appear and the update file description may give some clue to finding the vehicle-related information in BOSSWeb.



TYPICAL
1. File description

Writing Changes in an ECU

- 1. When finished, save changes to the related electronic module by clicking the **Write Data** button.



NOTE: A message box may confirm a successful operation.

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

- 2. Remove tether cord from the engine cut-off switch.

Disconnect MPI connections and secure the vehicle diagnostic connector in its holder.



TYPICAL
1. Diagnostic connector secured to holder

NOTICE Failure to secure the diagnostic connector in its protective cap may result in corrosion or other damage to the terminals. Vehicle operation may be affected under certain circumstances.

- 3. Reinstall all removed parts, refer to appropriate subsections.