

COMMUNICATION TOOLS AND B.U.D.S.

SERVICE TOOLS

Description	Part Number	Page
DIAGNOSTIC CABLE	710 000 851	1, 3
MPI-2 INTERFACE CARD	529 036 018	1
MPI-3 INTERFACE CARD	529 036 353	1

GENERAL

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

If communication problems occur, 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)	
OR	
MPI-3 INTERFACE CARD (P/N 529 036 353)	
DIAGNOSTIC CABLE (P/N 710 000 851)	
OPTIONAL TOOL	
Extension cable available at electronic retail outlets. Do not exceed 7.5 m (25 ft)	

TROUBLESHOOTING

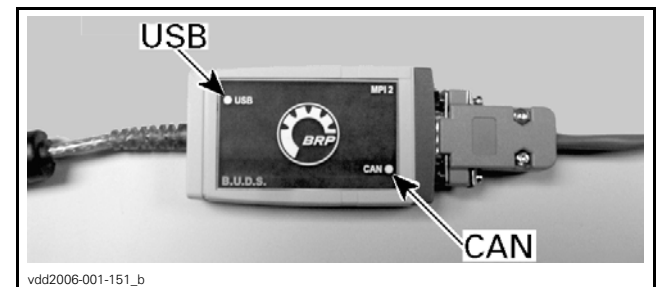
DIAGNOSTIC TIPS

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 the BRP Utility and Diagnostic Software (B.U.D.S.)

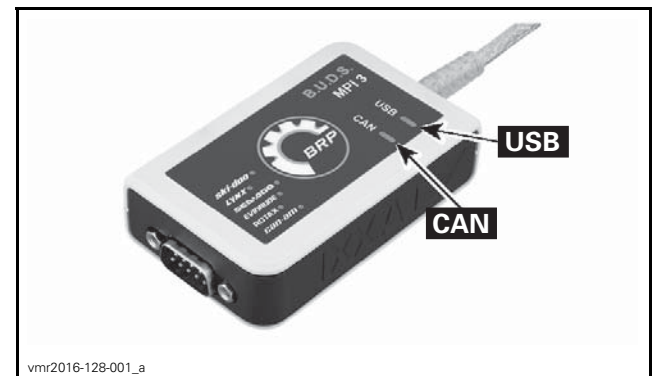
Multi-Purpose Interface Card Connection Troubleshooting

MPI Status Lights

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



MPI-2 CARD



MPI-3 CARD

Prerequisite for USB Communication:

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

Subsection 03 (COMMUNICATION TOOLS AND B.U.D.S.)

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

Prerequisite for CAN Communication:

- MPI card connected to diagnostic connector on vehicle.
- Ignition key installed and turned to ON (electrical system powered up without engine started).
- B.U.D.S. started and logged on.

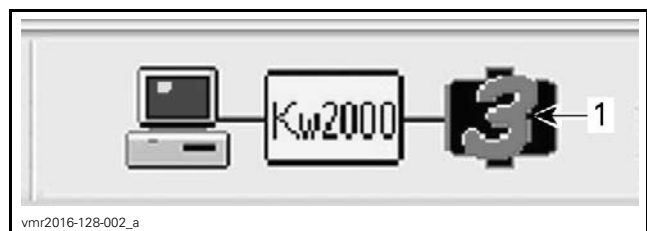
CAN LIGHT	
STATUS	WHAT TO DO
Light is OFF	Check connection between MPI card and diagnostic connector on vehicle
Light is RED	Check CAN wires/connectors on vehicle
Light is GREEN	Connections are GOOD. Communication can take place on CAN side

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

Missing Module

Ensure the appropriate number of modules is shown at the bottom of B.U.D.S. screen.

MODEL	NUMBER OF MODULES
Models without DPS	2 (ECM and multifunction gauge)
Models with DPS	3 (ECM, DPS and multifunction gauge)



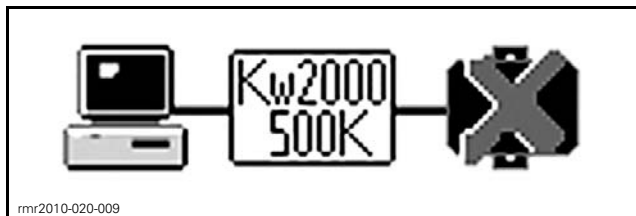
TYPICAL

1. Number of modules

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

No Vehicle is Detected

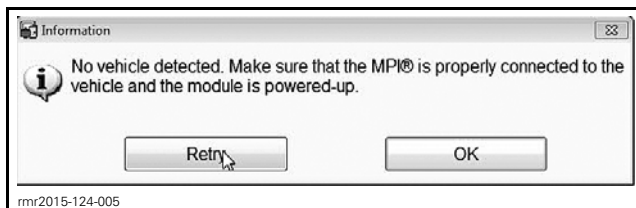
If an "X" is shown in the status bar and the protocol indication is blinking between Kw2000 500K and KW2000, it means that no "ECU" is communicating with the MPI card.



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 **Retry** button. This will manually establish the communication with the vehicle.



PROCEDURES

MULTI-PURPOSE INTERFACE CARD (MPI-2 OR MPI-3)

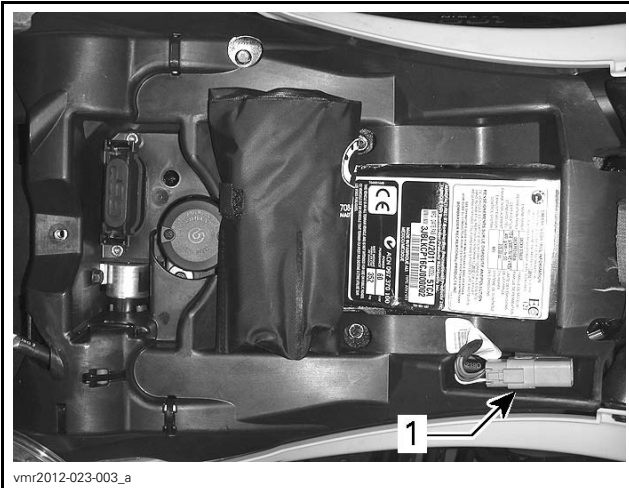
The MPI (Multi-Purpose Interface) in conjunction with the diagnostic cable is used with B.U.D.S. to communicate with the ECM (engine control module) and other modules.

MPI Card Power

The MPI card uses the power from the PC computer's USB port.

Diagnostic Connector Location

The 6-pin diagnostic connector is located under the seat, stored in its protective cap.



1. Diagnostic connector

Connecting the PC to the Vehicle

⚠ WARNING

If the computer you are using is connected to the 110 Vac 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 VCK.

1. Locate the 6-pin diagnostic connector, refer to *DIAGNOSTIC CONNECTOR LOCATION* in this subsection.
2. Disconnect the 6-pin diagnostic connector from its holder (protective cap).
3. Connect one end of the DIAGNOSTIC CABLE (P/N 710 000 851) to the vehicle connector.



DIAGNOSTIC CABLE CONNECTED TO VEHICLE

4. Connect the other end of diagnostic cable to the MPI card.
5. Connect the MPI card to the USB port of a PC (personal computer).



MPI CARD CABLE CONNECTED TO USB PORT

6. Use B.U.D.S. as described further in *B.U.D.S. SOFTWARE* topic

B.U.D.S. SOFTWARE

B.U.D.S. is designed for:

- Programming ignition key(s) to the vehicle
- Monitoring some electrical and electronic components
- Activating certain components for diagnostic purposes
- Updating electronic module software
- And, to carry out setting changes.

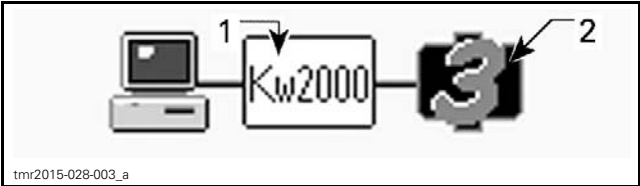
Always use the latest applicable B.U.D.S. version available on Knowledge Center.

Reading 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 *CONNECTING THE PC TO THE VEHICLE* in this subsection.

1. Turn ignition switch to ON. Do not start the engine.
2. Set the emergency engine stop switch to RUN.
3. Start B.U.D.S. and login.
4. Ensure the status bar shows the appropriate protocol and the appropriate number of modules to its right according to the vehicle model.

Subsection 03 (COMMUNICATION TOOLS AND B.U.D.S.)



TYPICAL - SUCCESSFUL CONNECTION
1. Connection protocol
2. Number of modules read

MODEL	NUMBER OF MODULES
Models without DPS	2 (ECM and multifunction gauge)
Models with DPS	3 (ECM, DPS and multifunction gauge)

If the number is less than indicated in *NUMBER OF MODULES* table, refer to *TROUBLESHOOTING* in this subsection.

5. Read the ECUs by clicking the **Read Data** button.

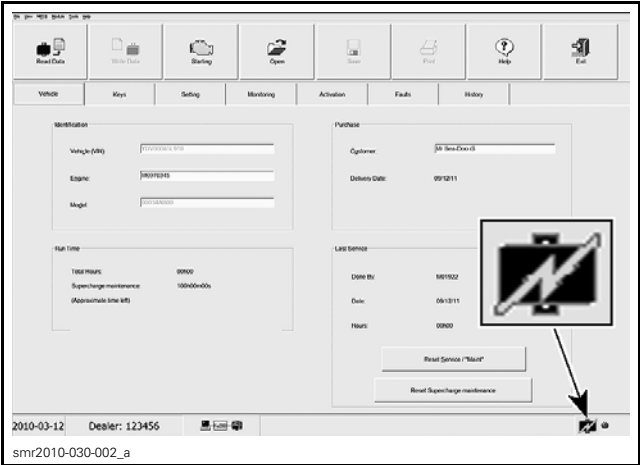


B.U.D.S. is now ready to use.

Updating Electronic Module (ECU) Software

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

Whenever B.U.D.S. is first connected to a vehicle, check for an update icon in the status bar at the bottom of the **Vehicle** page.

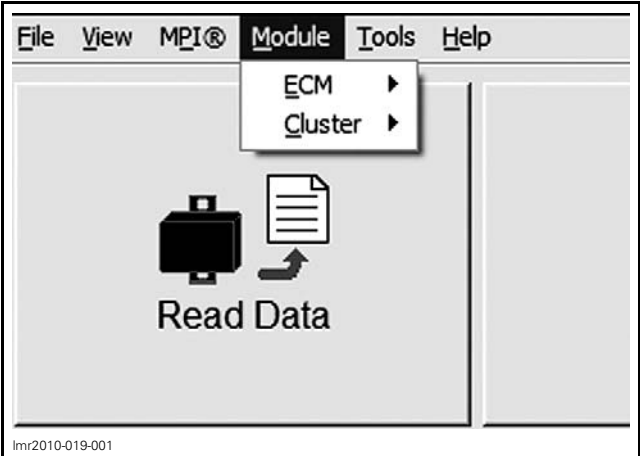


TYPICAL

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

NOTE: If an update file is available on *KNOWLEDGE CENTER* 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.



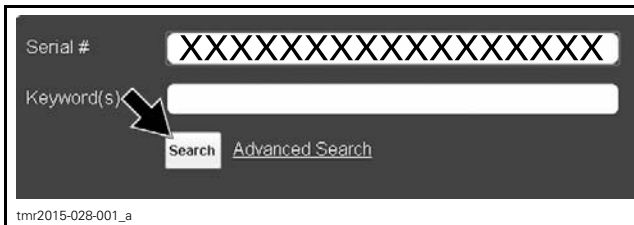
TYPICAL - MODULE SUBMENU LIST

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.



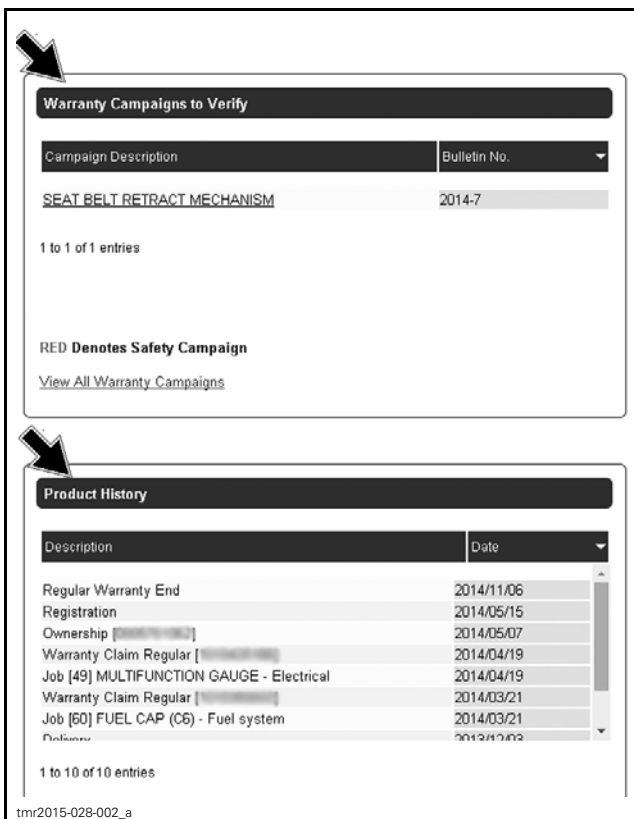
1. Greyed out: No update to perform
Black: Update file available

Before applying an update, log onto *KNOWLEDGE CENTER* and search the vehicle's VIN to find the unit's history.

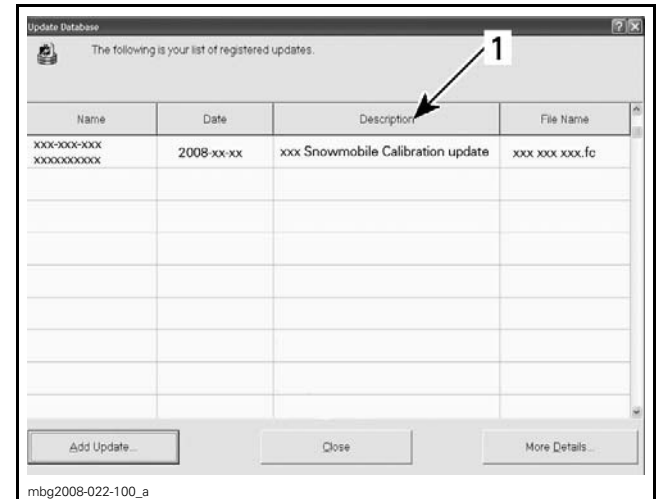


Complete all *WARRANTY CAMPAIGNS TO VERIFY*.

NOTE: *PRODUCT HISTORY* will show all repairs performed and claimed under warranty.



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 on *KNOWLEDGE CENTER*.

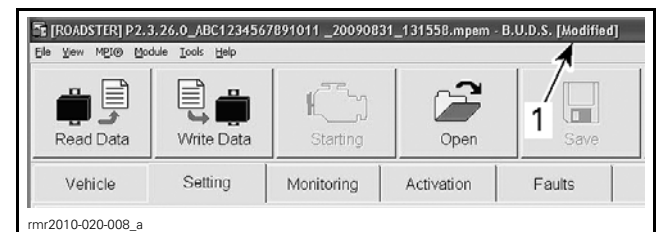


TYPICAL

1. File description

Saving Changes to an ECU

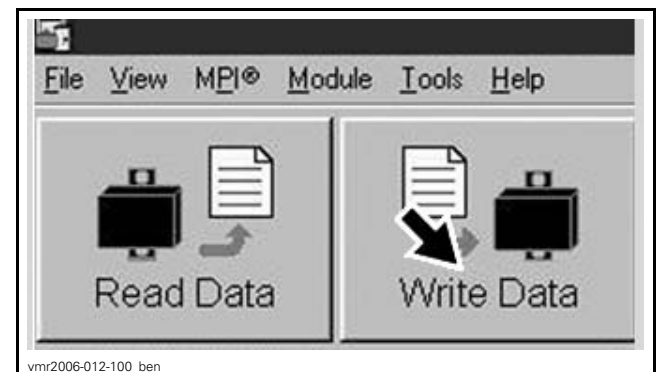
If the word **Modified** appears at the end of the vehicle file name at the top of the B.U.D.S. page, then a change has been made that requires it to be saved to the proper electronic module.



TYPICAL

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

Click the **Write Data** button.

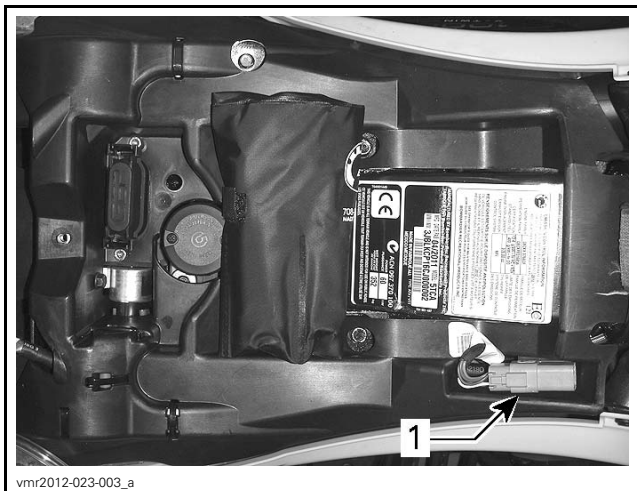


NOTE: A message box will confirm a successful operation.

Subsection 03 (COMMUNICATION TOOLS AND B.U.D.S.)

In such a case, turn ignition switch OFF, then wait for the message to disappear before disconnecting the MPI.

Disconnect MPI card and store the vehicle diagnostic connector in its protective cap.



1. Diagnostic connector in its storage cap

NOTICE Failure to secure the diagnostic connector in its protective cap may result in corrosion or other damage to the terminals.