

# COMMUNICATION TOOLS AND B.U.D.S.

## SERVICE TOOLS

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| MPI-2 DIAGNOSTIC CABLE .....    | 710 000 851 ..... | 28, 30–31 |
| MPI-2 INTERFACE CARD .....      | 529 036 018 ..... | 28–29     |
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## SERVICE TOOLS – OTHER SUPPLIER

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## GENERAL

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

If communication problems occur, refer to *TROUBLESHOOTING*.

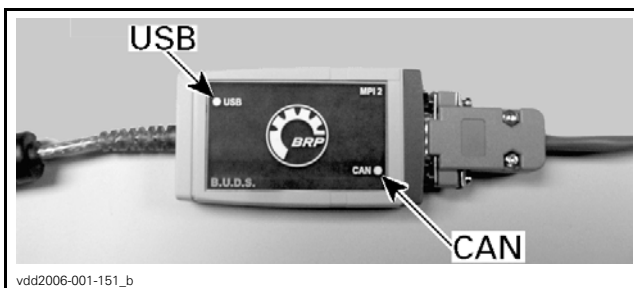
## TROUBLESHOOTING

### COMMUNICATION PROBLEMS

#### 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.



##### Prerequisite for USB Communication:

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

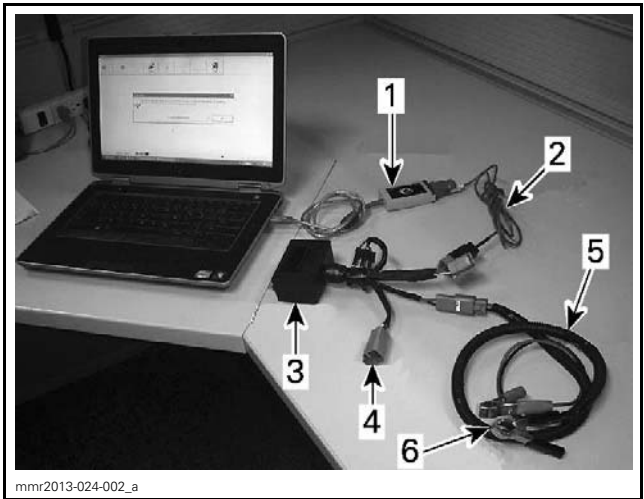
| COMMUNICATION PROBLEM (USB) |                                                                                                                                                                                      |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------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

##### Prerequisite for CAN Communication:

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

Section 03 ELECTRONIC MANAGEMENT SYSTEMS

Subsection 05 (COMMUNICATION TOOLS AND B.U.D.S.)



1. MPI-2 INTERFACE CARD (P/N 529 036 018)
2. MPI-2 DIAGNOSTIC CABLE (P/N 710 000 851)
3. POWER INTERFACE (P/N 515 177 223)
4. To vehicle diagnostic connector.
5. 12 V BATTERY SUPPLY CABLE (P/N 529 035 997)
6. To 12 V battery

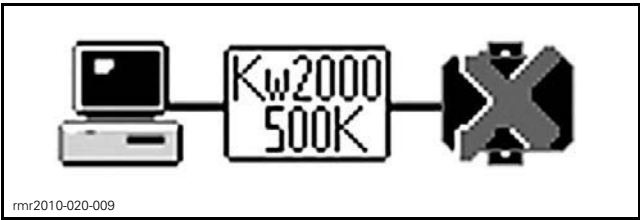
| COMMUNICATION PROBLEM (CAN) |                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| STATUS                      | WHAT TO DO                                                                                                                                                                                                                                                                                                                                     |
| CAN Light is OFF            | <ul style="list-style-type: none"><li>– BUDS does not communicate with the vehicle.</li><li>– Check connections from computer to vehicle.</li><li>– Check if BUDS is started.</li><li>– Check if vehicle is powered: is cluster turned ON. If it is not ON, install the tether cord cap (D.E.S.S. key) on the engine cut-off switch.</li></ul> |
| CAN Light is RED            | <p>This occurs when BUDS loses communication with vehicle.</p> <ul style="list-style-type: none"><li>– Check connections from computer to vehicle.</li><li>– Check if vehicle is powered: is cluster turned ON? If not, install the tether cord cap (D.E.S.S. key) on the engine cut-off switch.</li></ul>                                     |
| CAN Light is GREEN          | <ul style="list-style-type: none"><li>– Connections are GOOD. BUDS communicates normally with the vehicle.</li></ul>                                                                                                                                                                                                                           |

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.

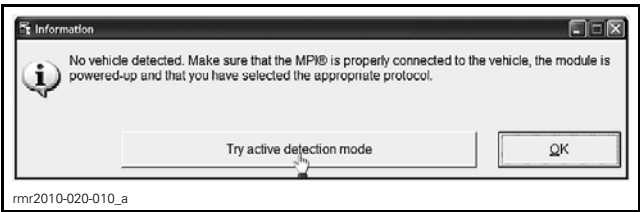
If an “X” is shown in the status bar and the protocol indication is blinking between Kw2000 500K and KW2000, it means that no ECU is communicating with the MPI-2.



Check the following:

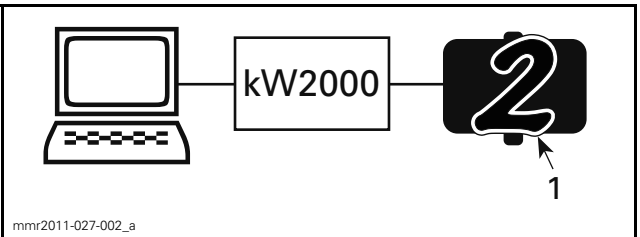
- Connections between the PC computer and the vehicle.
- The multifunction gauge is powered up.

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-2

Ensure the status bar shows the Kw2000 and the appropriate number of modules to its right according to the vehicle model.



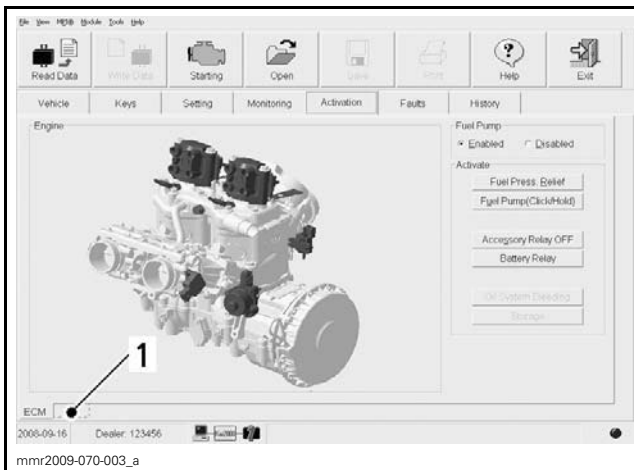
TYPICAL — CONNECTION SUCCESSFUL

1. Number of modules

| VEHICLE MODEL  | PROTOCOL | NUMBER OF MODULES       |
|----------------|----------|-------------------------|
| 600            | Kw2000   | 2 (ECM and gauge)       |
| 800R Power TEK |          |                         |
| 600 HO E-TEC   |          |                         |
| 800R E-TEC     | Kw2000   | 3 (ECM, gauge and THCM) |

If one or more “ECU” is (are) not communicating with the MPI-2, 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

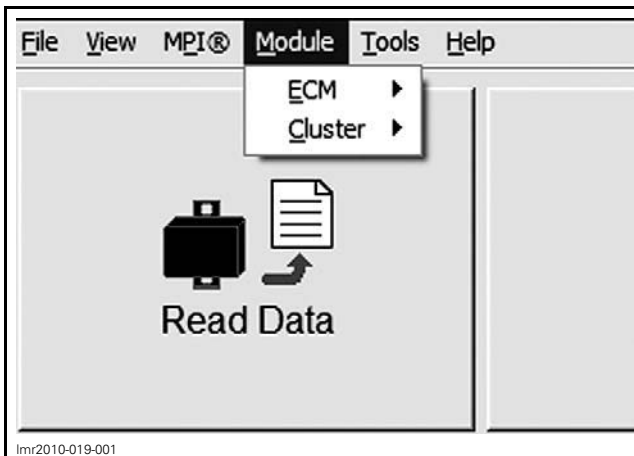
page tab at the bottom of the B.U.D.S. window. It will not be visible. Then check the wiring and power supply to that module.



**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.

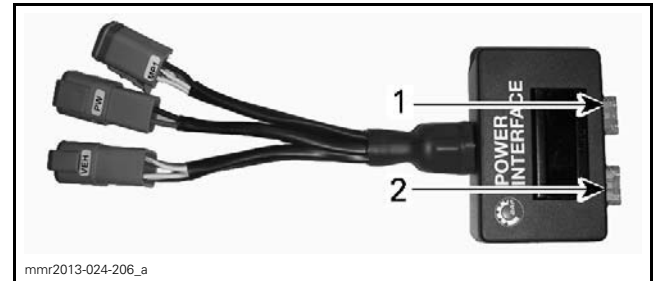


**TYPICAL - MODULE SUBMENU LIST**

## Power Interface Test

When the POWER INTERFACE (P/N 515 177 223) is connected to the vehicle diagnostic connector, the multifunction gauge and the headlight should turn on. Otherwise, check the following and repair or replace Power interface if any test failed.

1. Power interface fuses.



1. Fuse 1
2. Fuse 2

2. Vehicle battery voltage should be displayed on Power interface.

2.1 Ensure battery charge is high enough to keep the vehicle ON for the duration of the maintenance.

**NOTE:** This is especially **IMPORTANT** if you are updating vehicle software. In case of doubt, charge battery for at least 15 minutes; disconnect it prior to updating software.

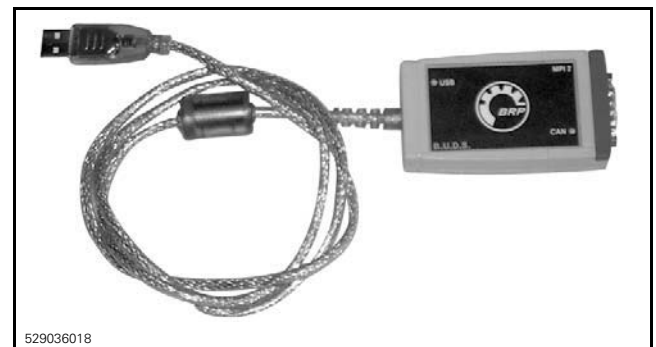
## PROCEDURES

### MULTI-PURPOSE INTERFACE-2 (MPI-2)

The MPI-2 (Multi-Purpose Interface-2) is used with B.U.D.S. to communicate with vehicle electronic module.

### Parts Required for Connecting the PC to the Vehicle

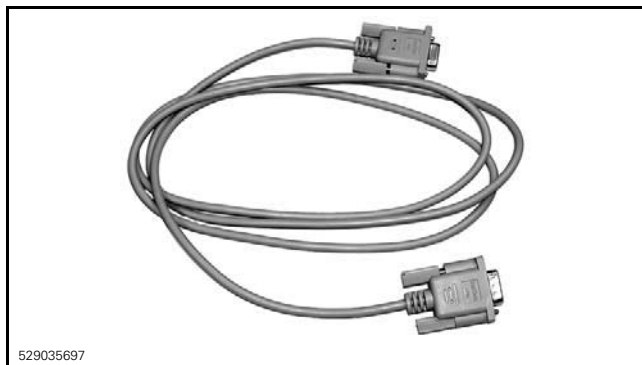
MPI-2 INTERFACE CARD (P/N 529 036 018)



OPTIONAL MALE-FEMALE EXTENSION SERIAL CABLE (P/N (DB9))

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**NOTE:** The extension cable is available at electronic retail outlets. Do not exceed 7.6 m (25 ft).

MPI-2 DIAGNOSTIC CABLE (P/N 710 000 851)



POWER INTERFACE (P/N 515 177 223)



12 V BATTERY SUPPLY CABLE (P/N 529 035 997)



## 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-2 supply harness and supply cable from vehicle/battery when not working on vehicle.

1. Connect MPI-2 connector to the USB port of a PC (personal computer).



2. Remove the diagnostic connector from the protective cap on the right side of the vehicle.

## Section 03 ELECTRONIC MANAGEMENT SYSTEMS

### Subsection 05 (COMMUNICATION TOOLS AND B.U.D.S.)



TYPICAL

1. Diagnostic connector

3. Connect the POWER INTERFACE (P/N 515 177 223) to the diagnostic connector.



TYPICAL

1. Diagnostic Connector

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



TYPICAL

1. MPI-2 connector

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

5. Connect the battery supply cable to a 12 V battery.

**NOTE:** Connect cable clips to vehicle battery if so equipped.



TYPICAL

1. Red cable to battery "+" terminal  
2. Black cable to battery "-" terminal

6. Connect the 12 V BATTERY SUPPLY CABLE (P/N 529 035 997) to the Power interface.

**NOTICE** Always use the proper supply harness and cables. Make sure to respect polarity when connecting cable clips to battery. Match RED cables together.

7. Set headlights to low beam to reduce battery discharge rate.

## Section 03 ELECTRONIC MANAGEMENT SYSTEMS

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8. Connect DESS key.



**TYPICAL**

1. DESS key

9. Use B.U.D.S. as described further in *B.U.D.S.*

#### **600/800R Power TEK**

**NOTE:** Engine cannot be started in diagnostic mode. Battery supply cable must be disconnected from battery to allow engine starting.

### B.U.D.S.

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

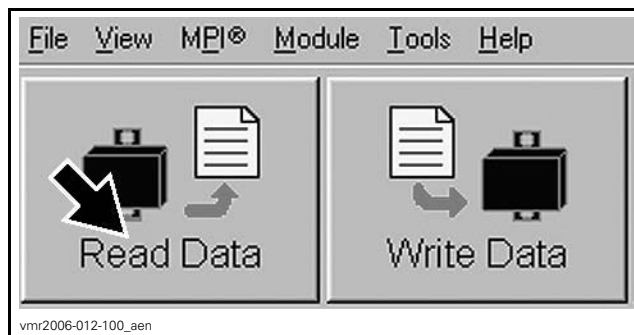
- Electrical and electronic component monitoring
- Making setting changes (such as the Closed throttle reset)
- Diagnostics
- Update electronic module software
- Reading fault codes.

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

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

#### **Reading Data from a Vehicle using the B.U.D.S. Software**

1. Install the tether cord (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.



#### **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 the B.U.D.S. status bar.

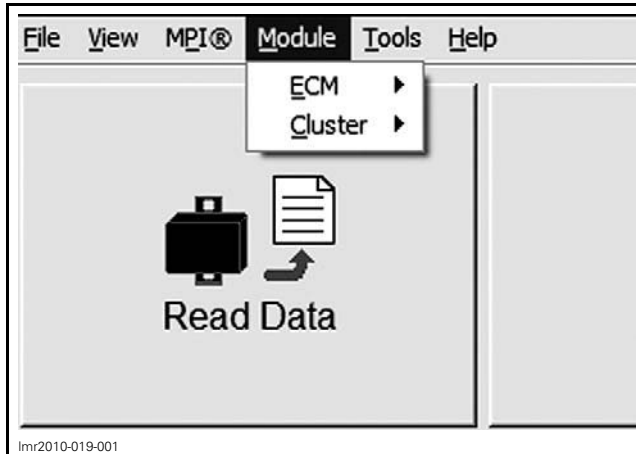


**TYPICAL**

The icon indicates that a file is available in B.U.D.S. to update any of the electronic modules.

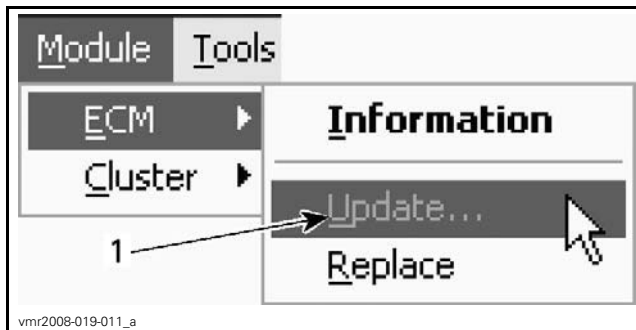
**NOTE:** If an update file is available on BOSSWeb but the B.U.D.S. software being used is not up to date, the update icon will not appear. Refer to the *SERVICE BULLETINS* to see if there is an update available.

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



**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. Select the update option and load the proper file.



**TYPICAL**

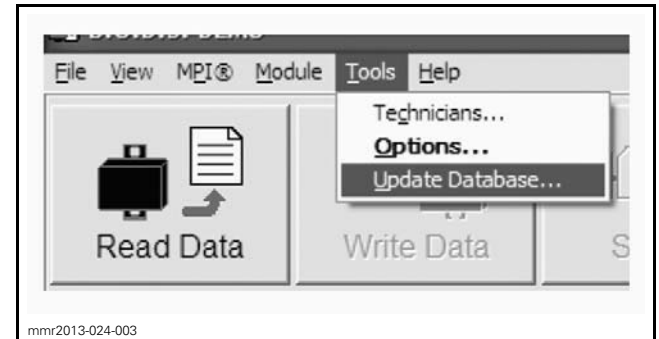
1. Greyed out: No update to perform  
 Black: Update file available

Before applying an update, log onto BOSSWeb and look in the **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.

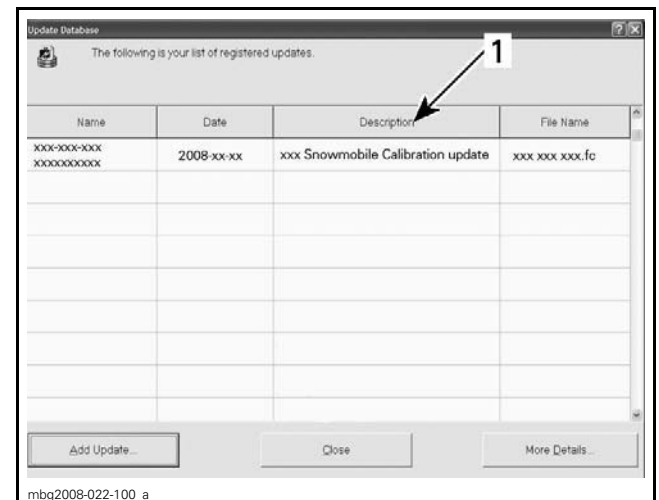


**SERVICE, UNIT HISTORY**

**NOTE:** When selecting the update database in B.U.D.S. (menu Tools - >Update Database), a dialog box will appear and the update file description may provide some clue to finding the vehicle-related information in BOSSWeb.



**TOOLS, UPDATE DATABASE**

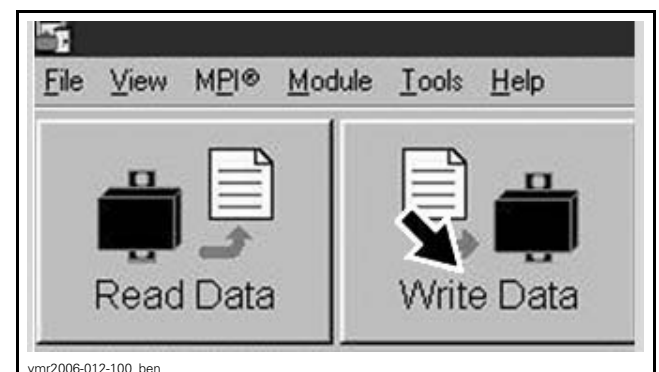


**TYPICAL**

1. File description

## Writing 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.



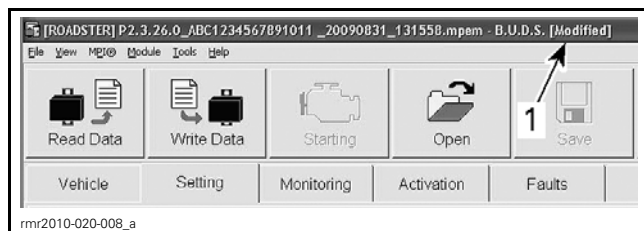
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## Section 03 ELECTRONIC MANAGEMENT SYSTEMS

### Subsection 05 (COMMUNICATION TOOLS AND B.U.D.S.)

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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.

### Exiting B.U.D.S and Disconnecting Computer from Vehicle

Once the maintenance is completed, press the EXIT button and disconnect MPI-2 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.