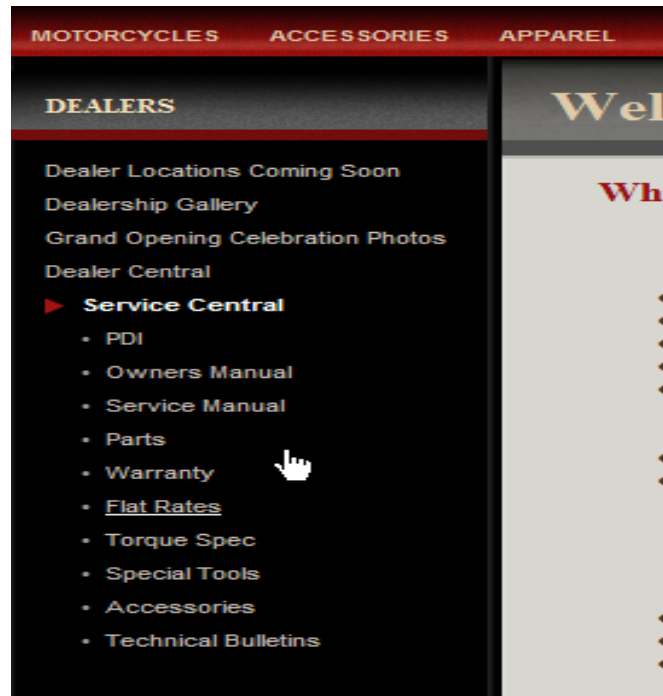# Indian Speedometer and Body Control Module Service Tool Users Guide
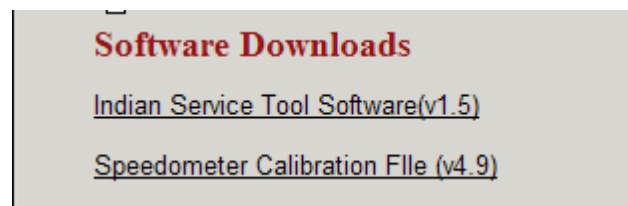
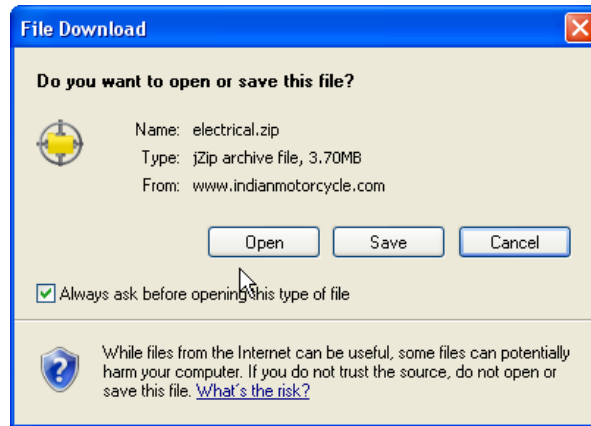## Installing speedometer software to your computer

1. Go to the Indian Motorcycle Website: WWW. Indianmotorcycle.com
2. Log in to Service Central.
3. Go to Special Tools located on the far left side

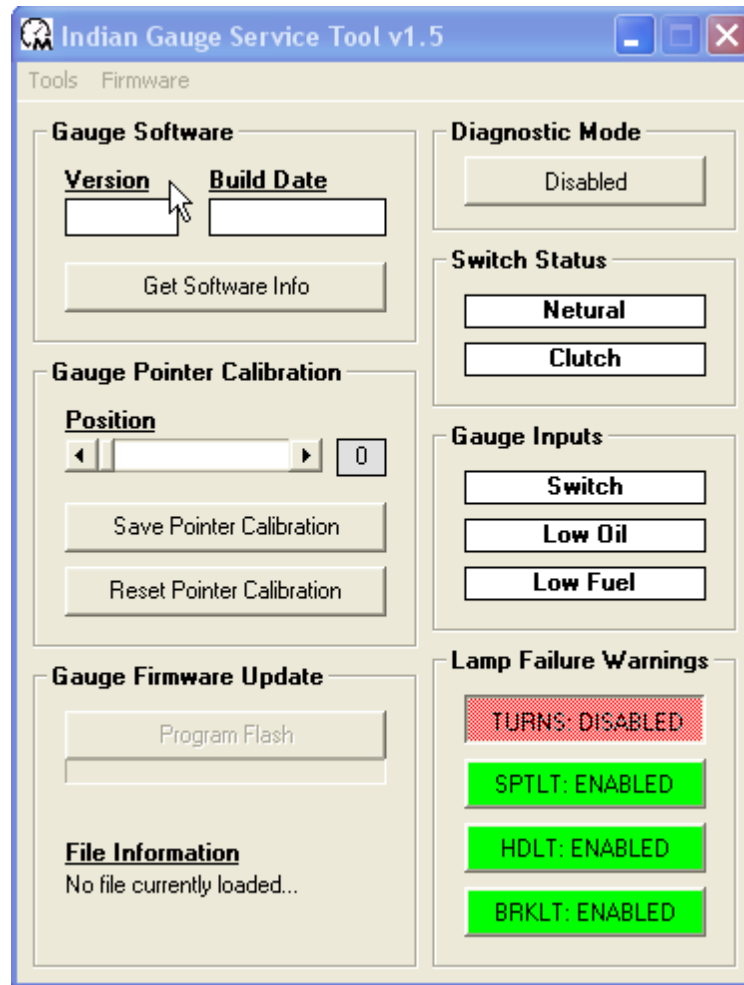4. Click on the link under Software Downloads called "Indian Service Tool Software (V1.5)"

5. The following screen should show up

File Download

Do you want to open or save this file?

Name: electrical.zip
Type: jZip archive file, 3.70MB
From: www.indianmotorcycle.com

[Open] [Save] [Cancel]

☑ Always ask before opening this type of file

While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What's the risk?

6. Click on "save". Put these files in a location that you want to use.
7. Un zip the files and install on your computer

Connecting Motorcycle to your Computer

8. You will need special tool Speedo diagnostic CAN ADAPTOR PN# 90000000
9. Connect special tool to USB port on your computer
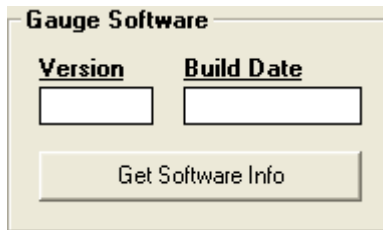10. Open tool on your computer

Indian Gauge Service Tool v1.5

Tools Firmware

Gauge Software

Version | Build Date

Get Software Info

Gauge Pointer Calibration

Position

◄ |_____| ► | 0 |

Save Pointer Calibration

Reset Pointer Calibration

Gauge Firmware Update

Program Flash

File Information
No file currently loaded...

Diagnostic Mode

Disabled

Switch Status

Netural

Clutch

Gauge Inputs

Switch

Low Oil

Low Fuel

Lamp Failure Warnings

TURNS: DISABLED

SPTLT: ENABLED

HDLT: ENABLED

BRKLT: ENABLED

Connecting to the Motorcycle

1. Follow above steps for installing and/ or connecting special tool to your computer
2. Ensure battery is fully charged.
3. Remove side panels for access to fuses and OBDII connector
4. Connect service tool to the OBDII connector on right side of motorcycle
5. Turn ignition switch to the ON position
6. Manually ensure motorcycle is in neutral

Identifying software version and build date

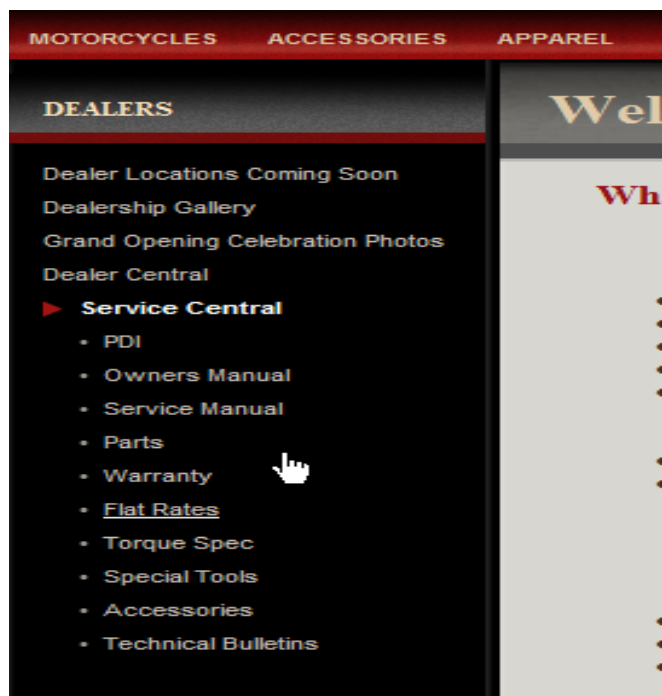1. Click on "Get Software info" and read screen

Note: Ensure the speedometer has completed the self test cycle prior to identifying software information

Loading the Calibration File

1. Go to the Indian Motorcycle Website: WWW. Indianmotorcycle.com
2. Log in to Service Central.
3. Go to Special Tools located on the far left side

4. Go to the Software Download section and click on the link called "Speedometer Calibration File (v X.X)"

Software Downloads

Speedometer/BCM Tool Software

Speedometer Calibration file (v4.9)
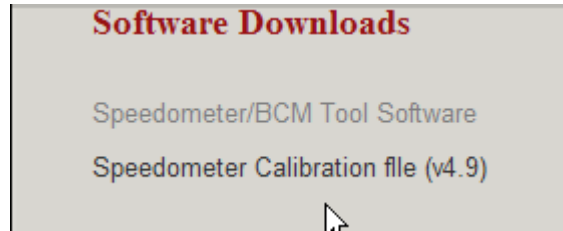
5. Copy file to your computer (in a place you can find easily)

Re-Flashing Speedometer

Warning: Neutral Light is no longer a valid indicator of the gear selection when the ECM Fuse is removed. You must manually check that the bike is in neutral before starting this test!
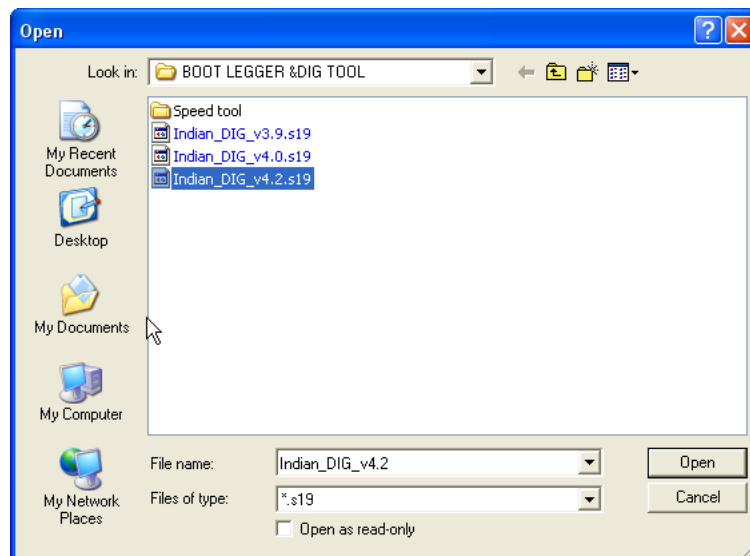
Remove 7.5 amp ECM fuse located in upper center of right side fuse block
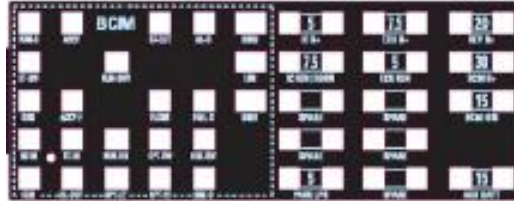
1. You will first need to "load" the latest file see above
2. Open the Indian Service Gauge Software tool
3. Connect your computer to the Motorcycle
4. Click on "Firmware" tab at the top of the tool screen
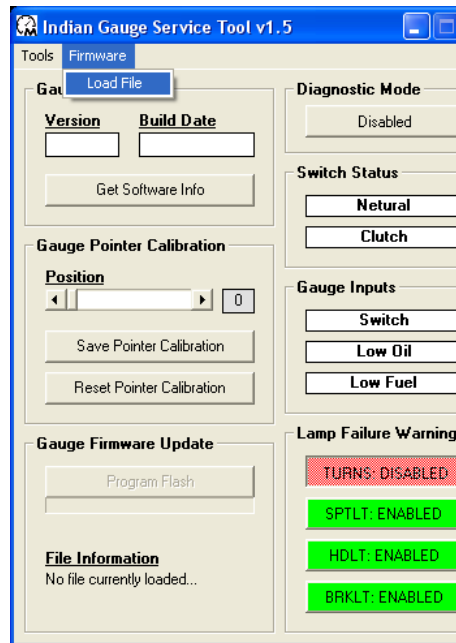
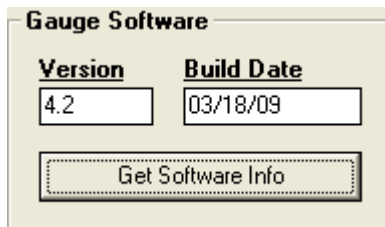5. Click on "Load File" and upload the latest calibration file that you previously loaded.

6. Click on "Open" file once you have selected the correct file
7. The file information will show up on the bottom left screen

Gauge Firmware Update

Program Flash

File Information
Indian_DIG_v4.2.s19
3/18/2009 8:27:07 PM
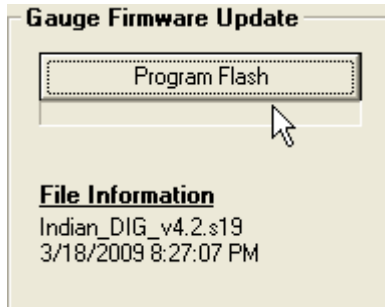
8. Click on "Program Flash" and it will guide you through the install
9. Once the reflash is complete, the following screen will pop up on your computer

Indian Gauge Service Tool

Program Transfer Successful

OK

10. See "Identifying Calibration" to ensure the motorcycle has the latest calibration.

Gauge Software

Version
4.2

Build Date
03/18/09

Get Software Info

Note: You may have to exit the program for the Speedometer Gauge Service tool and restart it for latest calibration to be viewed by tool.

Gauge Pointer Calibration

Warning: Neutral Light is no longer a valid indicator of the gear selection when the ECM Fuse is removed. You must manually check that the bike is in neutral before starting this test!
Remove 7.5 amp ECM fuse located in upper center of right side fuse block

The gauge pointer calibration tool can be used to re-set your speedometer needle at the zero MPH or resting position. The tool can only be used to raise the needle to the zero position and *not to lower it.*

Gauge Pointer Calibration

Position

| ◄ | | | ► | 0 |

Save Pointer Calibration

Reset Pointer Calibration
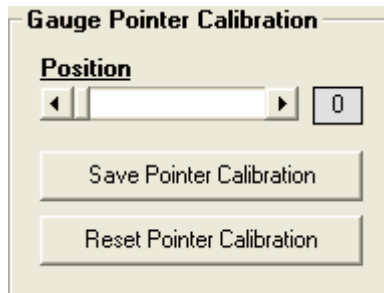
Adjusting

To adjust the needle position, move the tab on the bar to the desired position while looking at the speedometer needle on the motorcycle. The corresponding adjustment value will be shown on the right side of the screen.

Gauge Pointer Calibration

Position

| ◄ | | | ► | 20 |
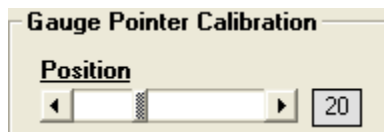
Saving

To save the adjusted position, click on the Save Pointer Calibration button

Save Pointer Calibration

Reset to Factory Settings

To reset the speedometer needle to the factory settings, click on the Reset Pointer Calibration button

Reset Pointer Calibration

Note: The throttle position on the tab bar will remain at the new settings even after new settings have taken affect.

Switch Status

The Neutral and Clutch switch can be checked using the Speedometer Gauge Tool. Both switches are direct inputs and can be activated or deactivated and seen on the tool.
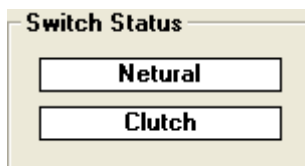
NOTE: The 7.5amp ECM fuse must be installed for this to work

Neutral Switch

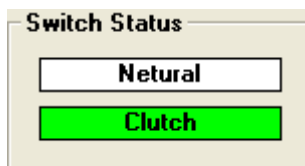1. Place motorcycle in Neutral. The status switch will illuminate green.

Switch Status
Netural
Clutch
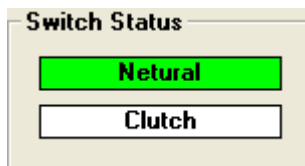
2. Put the motorcycle in gear. The status switch will no longer illuminate

Switch Status
Netural
Clutch

Clutch Switch

3. Activate clutch by pulling on clutch lever. The status switch will illuminate green.

Switch Status
Netural
Clutch

4. Let go of clutch lever. The status switch will no longer illuminate

Switch Status
Netural
Clutch
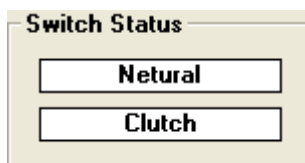
Gauge Inputs

The Speedometer Tool will allow the user to see the gauge inputs: the "mode" switch, "low oil" signal and "low fuel" signals that are being sent to the speedometer.

Switch

5. To activate the mode switch pull in the switch on the back of the left hand control. When the mode switch is activated, the input will illuminate green
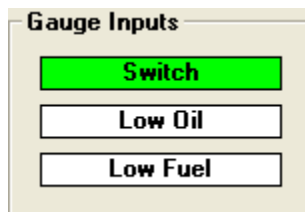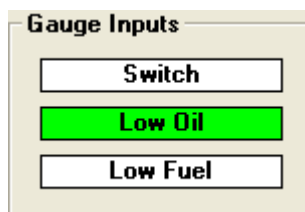

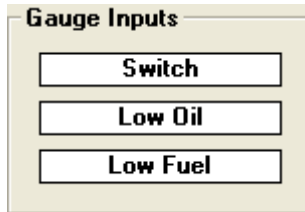6. When the switch is not activated, it will no longer illuminate
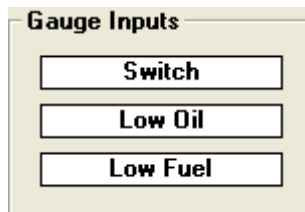
Low Oil

7. The Low Oil switch activated when a signal is sent to the speedometer. This will usually activate when the motorcycle is not running. This will illuminate green when activated

8. When the switch is not activated, the light will no longer illuminate

Low Fuel

9. The low fuel input will illuminate when the signal from is sent to the speedometer.
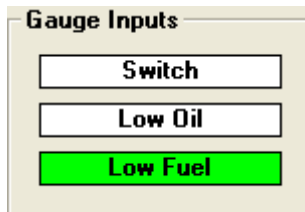
Lamp Failure Warnings

The Speedometer Tool allows the user to enable or disable the lamp failure warnings seen in the speedometer by the user.

TURNS: This is a warning that will display "∨TURNS" when any of the turn signal bulbs have failed.

> Note: Body Control Module Version 3 or higher must be present for this function to work properly. See *Body Control Module Information* to determine software level

SPTLT: This is a warning that will display "∨SPTLT" when either of the spot lamp bulbs has failed.

> *Note: This should be disabled for any model that does not have spot lamps. If this is not disabled, then a spotlamp fault will activate when if headlight fails.*

HDLT: This is a warning that will display "∨HDLT" when the headlight bulb (high or low beam) has failed.

BRKLT: This is a warning that will display "∨BRKLT" when the tail light bulb (brake light or tail light) has failed.

Note: Speedo software version 4.9 must be installed for all lamp failures to display with specific descriptions (as stated above) on speedometer screen.

ENABLE or DISABLE Lamp Failure Warnings

To enable or disable any of the above lamp failure warnings click on the specific warning key. Below is shown an example of the TURN SIGNAL and SPOT LAMPS disabled and the HEADLIGHT and BRAKE LIGHT enabled.

Lamp Failure Warnings

TURNS: DISABLED

SPTLT: DISABLED

HDLT: ENABLED

BRKLT: ENABLED
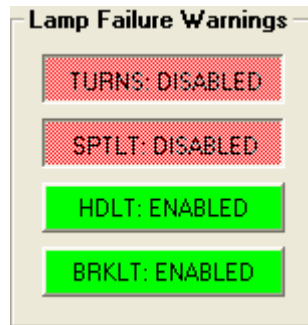
Diagnostic Mode

The body control module diagnostics can be accessed using the Speedometer Diagnostic Tool. The EMC fuse must be removed before using the diagnostic mode

10. Enable Diagnostic Mode by pressing the enable button

Diagnostic Mode

Disabled
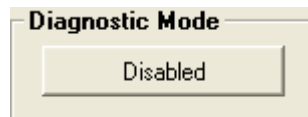
Note: You may have to exit the program for the Speedometer Gauge Service tool and restart the tool.

11. A screen will appear to remind you to remove the ECM fuse.

Indian Gauge Service Tool

Please remove the ECU fuse.

Has the ECU fuse been removed?

Yes   No

Warning: Neutral Light is no longer a valid indicator of the gear selection when the ECM Fuse is removed. You must manually check that the bike is in neutral before starting this test!

12.   Remove 7.5 amp ECM fuse located in upper center of right side fuse block
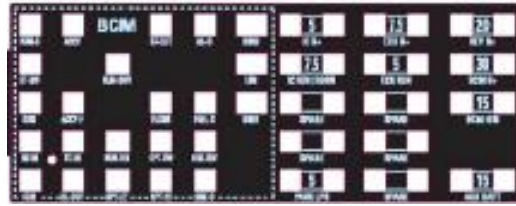
13. The Speedometer Diagnostic Tool will expand to the right side.

Body Control Module Information

To obtain module information by clicking "Get Info" in the upper left corner of the expanded speedometer diagnostic tool.

Module Information

Get Info	Gauge Serial Number 276	BCM Serial Number 431	BCM Hardware Rev 0
	Gauge Mfg Date Code 9138	BCM Mfg Date Code 	BCM Software Rev 2

Body Control Module Inputs

The Body Control Module diagnostics allow the user to view the status of the inputs to the body control module by activating and de-activating each input.
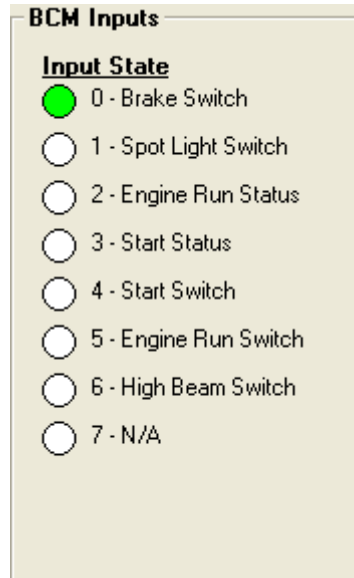
BCM Inputs

Input State

○ 0 - Brake Switch

○ 1 - Spot Light Switch

○ 2 - Engine Run Status

○ 3 - Start Status

○ 4 - Start Switch

○ 5 - Engine Run Switch

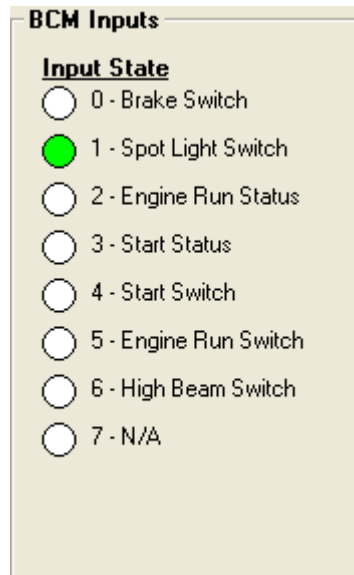○ 6 - High Beam Switch

○ 7 - N/A

Brake Switch

The input state will illuminate green when either brake is engaged.

Spot Lamp Switch

The input state will illuminate green when the spot lamp switch is engaged or in the ON position

Note: This feature is disabled for models that do not come with spot lamps.
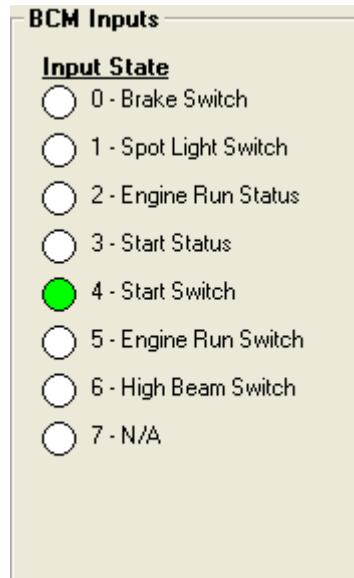
Engine Run Status

This feature will be available on future models. This Input can be checked using the diagnostic tool built into the speedometer.

Start Status

This feature will be available on future models. This Input can be checked using the diagnostic tool built into the speedometer.
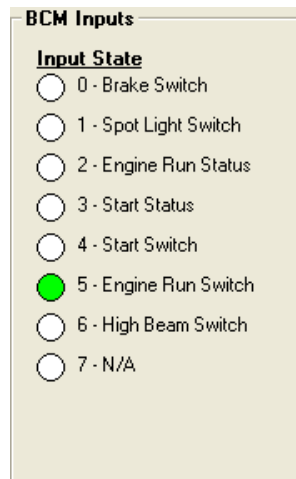
Start Switch

The input state will illuminate green when the starter button is engaged

BCM Inputs

Input State
- ○ 0 - Brake Switch
- ○ 1 - Spot Light Switch
- ○ 2 - Engine Run Status
- ○ 3 - Start Status
- 🟢 4 - Start Switch
- ○ 5 - Engine Run Switch
- ○ 6 - High Beam Switch
- ○ 7 - N/A

Engine Run Switch

This input state will illuminate when the Engine Run Switch is in the RUN position

BCM Inputs

Input State
- ○ 0 - Brake Switch
- ○ 1 - Spot Light Switch
- ○ 2 - Engine Run Status
- ○ 3 - Start Status
- ○ 4 - Start Switch
- 🟢 5 - Engine Run Switch
- ○ 6 - High Beam Switch
- ○ 7 - N/A

High Beam Switch

The input state will illuminate green when the High/ Low Beam switch is in the High position

BCM Inputs

Input State
- ○ 0 - Brake Switch
- ○ 1 - Spot Light Switch
- ○ 2 - Engine Run Status
- ○ 3 - Start Status
- ○ 4 - Start Switch
- ○ 5 - Engine Run Switch
- ● 6 - High Beam Switch
- ○ 7 - N/A

 Note: If the unit is started when in body diagnostic mode, the headlight will not turn on automatically unless over ridden by the user

Body Control Module Outputs

The body control module diagnostics tool will override the outputs to the body control module and have the ability to turn on and off outputs from the body control module. The body control module diagnostics will also show the current for each output where applicable.

BCM Outputs

Output State	Current	Alarm	Override
○ 0 - Engine Run #1	0	○	Off
○ 1 - Engine Run #2	0	○	Off
○ 2 - Starter Solenoid	0	○	Off
○ 3 - Turn Signal	0	○	Off
○ 4 - Head Light	0	○	Off
○ 5 - Brake Light	0	○	Off
○ 6 - Spot Light	0	○	Off
○ 7 - Auxiliary #1	0	○	Off
○ 8 - Auxiliary #2	0	○	Off
○ 9 - Engine Run Request		○	Off

ALARM

- If the override is activated and the output state does not activate, then a red dot will illuminate (along with the green dot) to show that there is a problem with the override.

    For example, on a model that does not have spot lamps (2010 Dark Horse). If the spot lamp override is turn on you will see the following

    BCM Outputs

Output State	Current	Alarm	Override
○ 0 - Engine Run #1	0	○	Off
○ 1 - Engine Run #2	0	○	Off
○ 2 - Starter Solenoid	0	○	Off
○ 3 - Turn Signal	0	○	Off
○ 4 - Head Light	0	○	Off
○ 5 - Brake Light	0	○	Off
🟢 6 - Spot Light	0	🔴	On
○ 7 - Auxiliary #1	0	○	Off
○ 8 - Auxiliary #2	0	○	Off
○ 9 - Engine Run Request		○	Off

- The Alarm is also used to show a fault if the current expected of that output is out of range. This can be from a short circuit or it can be from pulling too much current that is not short circuited.

    For example, if a 100 watt headlamp bulb is used in place of the OE bulb, the output would fault the alarm due to the headlight output would be out of range

Engine Run #1

WARNING: YOU MUST DISCONNECT THE FUEL LINE BEFORE PERFORMING THIS TEST!

Engine Run #1 is the output that supplies 12V power to the fuel pump, injectors and ignition coil.

Current value range: Running 3.5-4.2 amps

                                   Not running 4-6 amps

Note: Do not leave the override in the ON position for more than 10 seconds.

Note: You will hear the fuel pump when this is activated

Engine Run #2
Engine Run #2 is the output that supplies 12V power to the oxygen sensor heaters

BCM Outputs

Output State	Current	Alarm	Override
◯ 0 - Engine Run #1	0	◯	Off
🟢 1 - Engine Run #2	0	◯	On
◯ 2 - Starter Solenoid	0	◯	Off
◯ 3 - Turn Signal	0	◯	Off
◯ 4 - Head Light	0	◯	Off
◯ 5 - Brake Light	0	◯	Off
◯ 6 - Spot Light	0	◯	Off
◯ 7 - Auxiliary #1	0	◯	Off
◯ 8 - Auxiliary #2	0	◯	Off
◯ 9 - Engine Run Request		◯	Off

Current value range: 0-4.5amps

Note: The current value is only seen when the bike is running.

Starter Solenoid

The starter solenoid will activate the starter when it is overridden. The pop up screen will state to have the bike in neutral or the clutch activated.
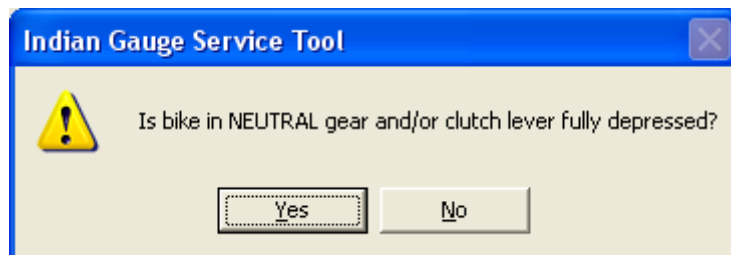
Indian Gauge Service Tool

⚠ Is bike in NEUTRAL gear and/or clutch lever fully depressed?

[Yes]   [No]

Warning: Neutral Light is no longer a valid indicator of the gear selection when the ECM Fuse is removed. You must manually check that the bike is in neutral before starting this test!

The starter solenoid will be activated and the starter will engage

The current range: 10-12 amps

Turn Signal

Turn Signal is a flasher output that supplies both the turn signal and hazard switch. To activate this function engage either one of the turn signals or the hazard switch. The BCM turn signal output will override the flash function of the turn signals or hazard switch.

The current range: Turn Signals 3-5amps

Hazards   6-10amps

Head Light

The Headlight override will turn the head light. The low will be default. The high beam can be switched on using the body control module inputs (see above)

Low Beam

BCM Outputs

Output State	Current	Alarm	Override
○ 0 - Engine Run #1	0	○	Off
○ 1 - Engine Run #2	0	○	Off
○ 2 - Starter Solenoid	0	○	Off
○ 3 - Turn Signal	0	○	Off
● 4 - Head Light	4.6	○	On
○ 5 - Brake Light	0	○	Off
○ 6 - Spot Light	0	○	Off
○ 7 - Auxiliary #1	0	○	Off
○ 8 - Auxiliary #2	0	○	Off
○ 9 - Engine Run Request		○	Off

Current Range: 3.8-4.8 amps

High Beam

BCM Outputs

Output State	Current	Alarm	Override
○ 0 - Engine Run #1	0	○	Off
○ 1 - Engine Run #2	0	○	Off
○ 2 - Starter Solenoid	0	○	Off
○ 3 - Turn Signal	0	○	Off
● 4 - Head Light	5	○	On
○ 5 - Brake Light	0	○	Off
○ 6 - Spot Light	0	○	Off
○ 7 - Auxiliary #1	0	○	Off
○ 8 - Auxiliary #2	0	○	Off
○ 9 - Engine Run Request		○	Off

Current Range: 4.9-5.5 amps

Brake Light

This function will illuminate the brake light when activated

Current Range: 1.5-1.9 amps

Auxiliary #1

The auxiliary #1 is the rear power port located on the left side panel. The current range is 0-10amps when activated

Auxiliary #2

The auxiliary #2 is the front power port located on the right rear side of the head light cover. The current range is 0-3 amps when activated

Engine Run Request

Engine Run Request is a ground output that follows the Engine Run Switch input from above

OBD TOOL

The Speedometer diagnostic Tool can be used to view and clear codes. To access the OBD tool, go to Tools on the upper left corner. In the drop down menu, pick the OBD tool.

Indian Gauge Service Tool v1.5

Tools **Firmware**

OBD Tool
ECU Data Monitor/Sim
Odometer/Hourmeter/PPM
Lamps Programmer
Launch BCM Software

Get Software Info

Diagnostic Mode

Disabled

Switch Status

Netural

Clutch

Gauge Pointer Calibration

Position

◄ [_____] ► | 0 |

Save Pointer Calibration

Reset Pointer Calibration

Gauge Inputs

Switch

Low Oil

Low Fuel

Gauge Firmware Update

Program Flash

Lamp Failure Warnings

TURNS: DISABLED

SPTLT: DISABLED

HDLT: ENABLED

BRKLT: ENABLED

File Information
No file currently loaded...

The following screen will pop up
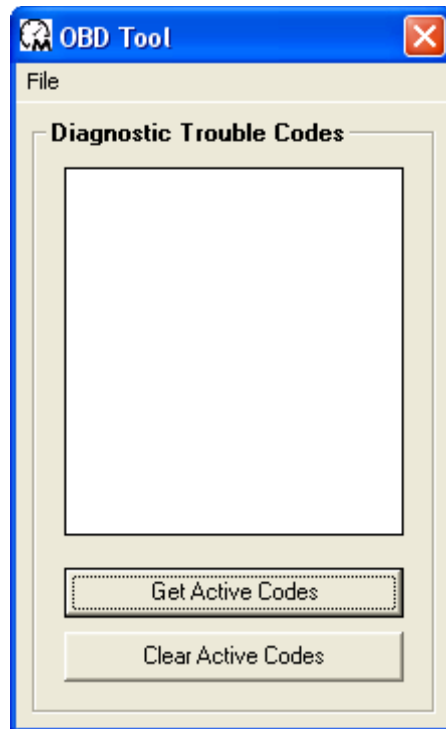
Active Codes

To see all active codes press *Get Active Codes* button on the bottom of the OBD Tool screen.

The following is a list of all OBD II codes :

DTC	Description
P0130	Front O2 Sensor circuit (resistance for sensor not in range)
P0150	Rear O2 Sensor circuit (resistance for sensor not in range)
P0110	Intake Air temperature sensor circuit (resistance not in range)
P0560	Battery voltage out of range
P0601	Internal Engine control module memory checksum error
P0115	Engine Temperature (front cylinder) circuit (resistance not in range)

P0120		Throttle Position Sensor circuit "A"
P0351		Front Ignition coil circuit (ECU to Coil)
P0352		Rear Ignition coil circuit (ECU to Coil)
P0201		Injector 1 circuit (open), cylinder 1
P0202		Injector 2 circuit (open), cylinder 2
P0135		Front O2 sensor heater circuit (resistance not in range)
P0155		Rear O2 sensor heater circuit (resistance not in range)
P0105		Manifold Pressure (MAP sensor) circuit (resistance not in range)
P0604		Internal Control Moudle Random Access Memory (RAM) error
P0605		Internal Control Moudle Read Only Memory (ROM) error
P0335		Crankshaft Position sensor circuit (CPS)
P0505		Idle Air Control System (IAC)
P0606		ECM/PCM Processor
P0500		Vehicle Speed Sensor

**Clear Codes**

To clear all active codes press the *Clear Active Codes* button on the OBD Tool Screen

Clear Active Codes

ECU Data Monitor/ Simulation Tool

The ECU Data Monitor/ Simulation tool can be used to monitor data while the vehicle is running or simulate data. To access the tool, go to Tools on the upper left corner. In the drop down menu, pick the ECU Data Monitor/ Simulator tool.
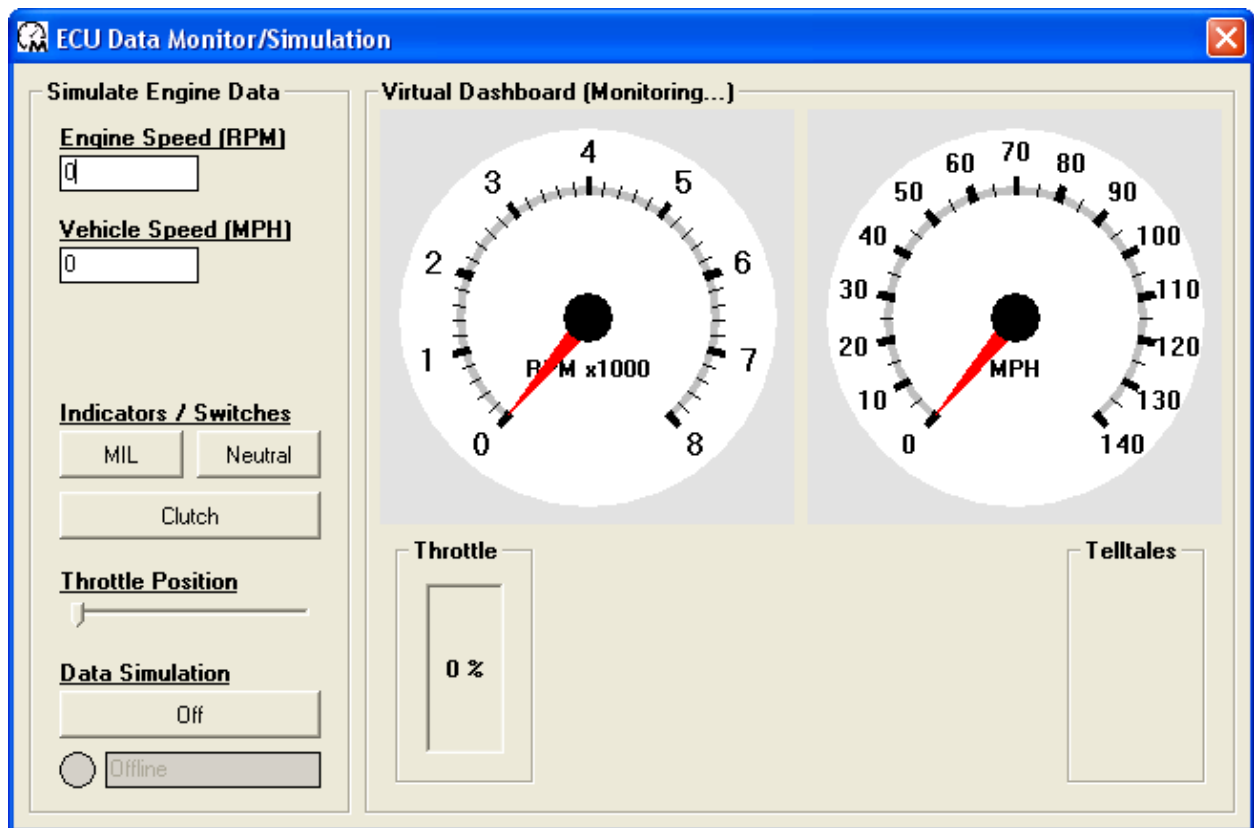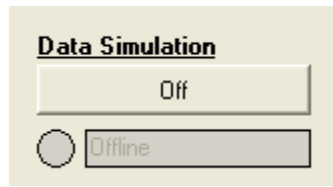

Simulation

Warning: Neutral Light is no longer a valid indicator of the gear selection when the ECM Fuse is removed. You must manually check that the bike is in neutral before starting this test!
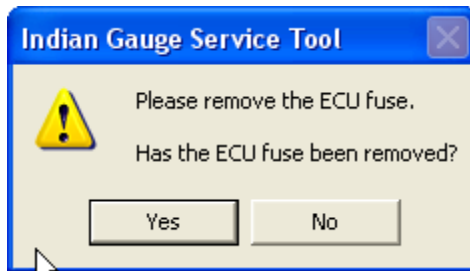
Remove 7.5 amp ECM fuse located in upper center of right side fuse block
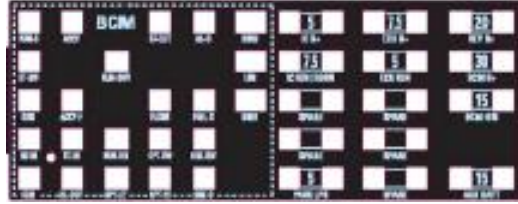
A simulation can be ran using the *Data Simulation* button on the bottom left corner of the ECU Data Monitor/ Simulation Screen. The default setting is OFF.


A pop up screen warning will appear to remove the ECU Fuse

Warning: Neutral Light is no longer a valid indicator of the gear selection when the ECM Fuse is removed. You must manually check that the bike is in neutral before starting this test!
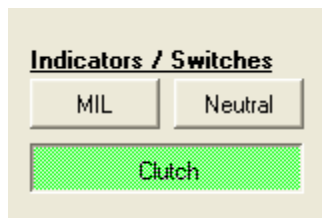
Indicators / Switches

MIL switch can be activated and the check engine light will illuminate on the motorcycle and on the screen
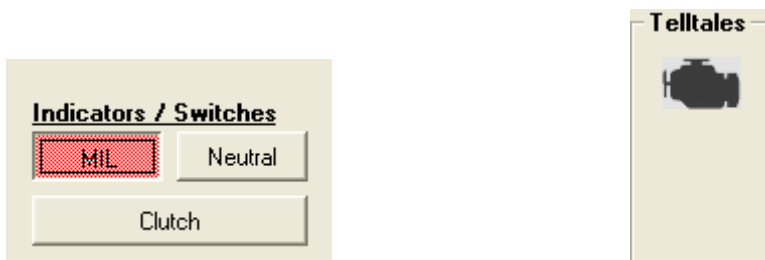
Neutral switch can be activated and the neutral light will illuminate on the motorcycle and screen
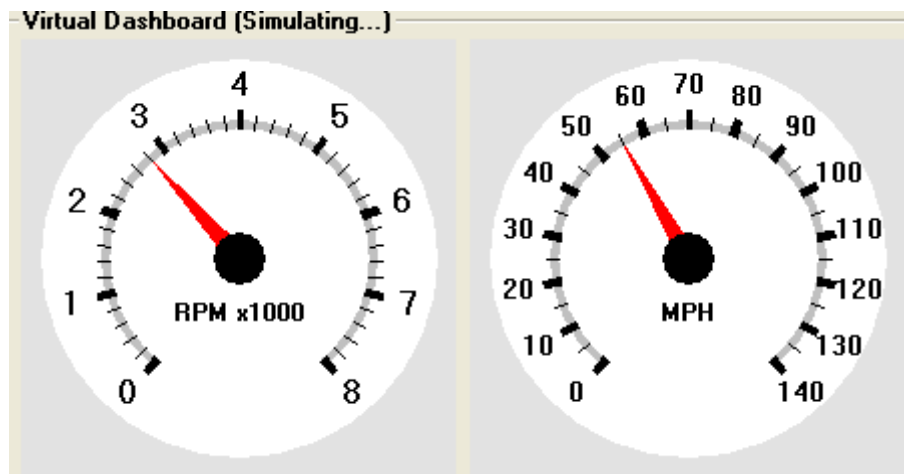

The clutch switch can be activated by pressing the clutch button
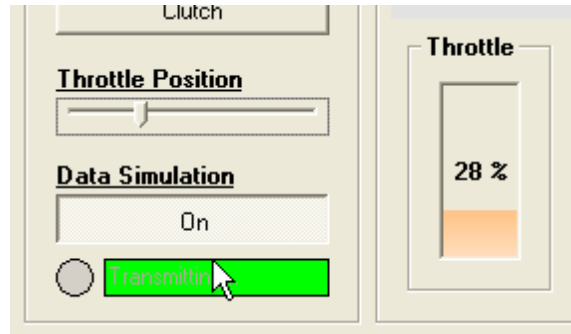

Engine Speed (RPM) and Vehicle Speed (MPH)

RPM and MPH can be added to simulate engine speed and vehicle speed. Both can be seen on the screen and the speedometer

Throttle Position

The throttle position can be simulated and seen by using the ECU Data Monitor/ Simulation screen
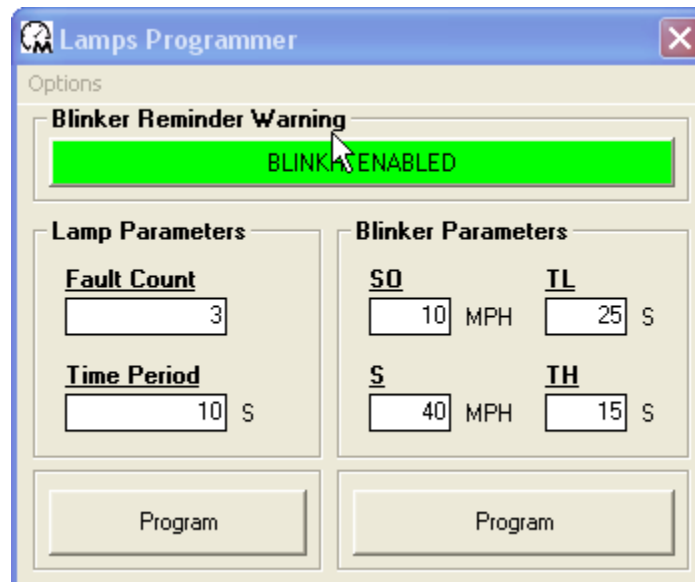

Odometer/ Hourmeter/ PPM

The tool is password protected and dealers will not have access to this tool function

Lamps Programmer

The Lamps Programmer is used to change or adjust the parameters for the Blinkers and the Lamps. To access the tool, go to Tools on the upper left corner. In the drop down menu, pick the Lamps Programmer tool. The following screen will pop up.

Blinker Reminder Warning Display

The blinker reminder warning will display "BLINKR" in the speedometer when the turn signals are engaged and are within the set parameters. When the Blinker Reminder Warning is enabled, the button will illuminate green
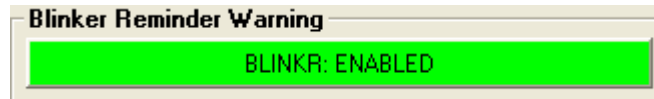
Blinker Parameter

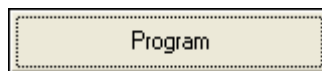SO: This is the minimum speed in which the warning will activate

TL: This amount of time allowed prior to activating between SO and S

S: Cross over speed for activating between TL and TH.

TH: The amount of time allowed prior to activating when above speed S

To change the above parameter simply insert the desires values and click on the Program button

Lamp Parameters

This allows the user to change the parameters in all displayed warnings.

Fault Count: This is the amount of fault messages required in time period below

Time Period: The amount of time which is allowed for set amount of Fault Counts allowed.

To change the above parameter simply insert the desires values and click on the Program button

Resetting Factory Settings

To reprogram the Lamps Programmer to factory settings, click on Options in the upper left corner and click on Restore Default Values

Launch BCM Software

This function is not available to Dealers