

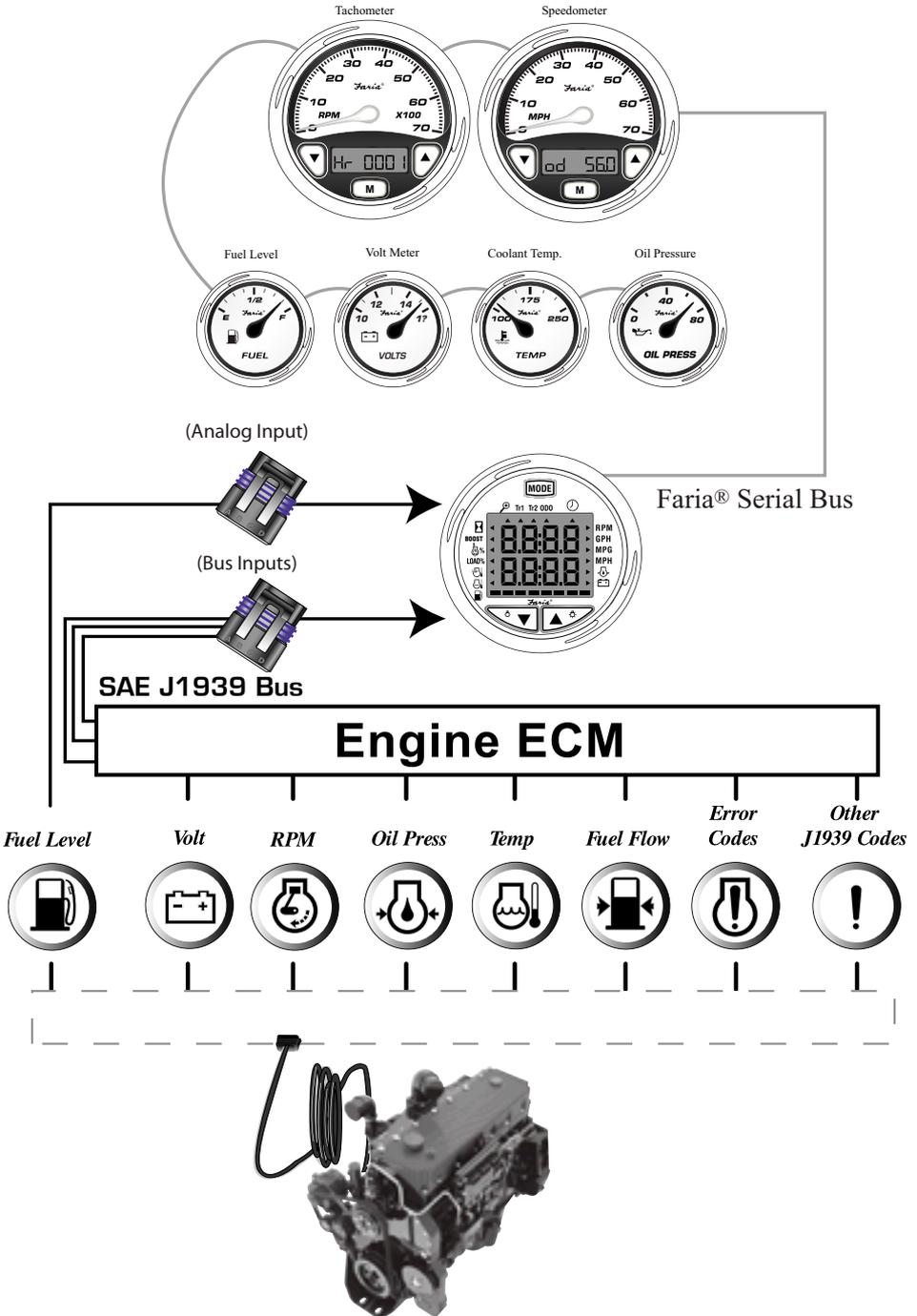
Owner's Manual

J1939 CAN Information Center

Diesel Engine - Electronic Control Module
(ECM)

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Basic System Diagram



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CAN-Information Center

For Diesel Engine Electronic Control Module (ECM) J1939 Bus.

Specifications:

CAN bus: SAE J1939 compliant

Auxiliary gauge communication:

Faria® Serial Bus

Operation Voltage: 12 vDC or 24 vDC
12 vDC (10 vDC (min.) to 16 vDC (max.))

24 vDC (20 vDC (min.) to 32 vDC (max.))

Operating Temperature:
-40 °F to 185 °F (-40 °C to 85 °C)

View angle of LCD: 12 o'clock

Description:

The CAN-Information Center

- monitors electronically controlled engines using SAE J1939 Controller Area Network (CAN) Protocol.
- includes a three-line, backlit LCD (Liquid Crystal Display). The top two lines are 4-character 7-segment displays. The third line is an 8-segment bar graph.
- has three push buttons (MODE, UP and DOWN) for scrolling through the parameter list and the menu list.
- has the capability to add up to 4 (four) 2" Faria® serial bus gauges and 2 (two) 5" or 4" Faria® serial bus gauges.
- has audible and visible alarms. Displays warning information alarms for:
 - Water in fuel,
 - Low engine oil pressure,
 - Low fuel level,
 - High engine temperature,
 - Low system voltage,
 - High system voltage,
 - Low coolant level.
- can be connected up to 120 feet (40 meters) from the engine ECM

(Electronic Control Module) by SAE J1939 Bus Interface.

The CAN Info Center™ face is environmentally sealed, and is water resistant per SAE J1960 paragraphs 4.6.2, 4.7.1.2 and 4.8.1.2.

Parameters and features:

The CAN Information Center can display the following information on two large 4-character lines and an 8-segment Bar Graph for Fuel Level.

Available on Stationary units (IC0501) and Mobile units (IC0502) .

1. Engine hours
2. Engine RPM
3. System voltage
4. % Engine load at current RPM
5. Coolant temperature
6. Engine oil pressure
7. Fuel economy
8. Accelerator pedal position
9. Inlet manifold air temperature
10. Current fuel consumption
11. Boost Pressure
12. Active service codes (For factory or dealership use)
13. Stored service codes from the engine (For factory or dealership use)
14. View the engine configuration parameters (For factory or dealership use)
15. Clock (if available on the data bus)
16. Amber warning lamp
17. Red warning lamp
18. Water in fuel warning (if on the bus)
19. 12 or 24 volts power supply
20. One analog input (for fuel level)

Also available on Mobile units IC0502 only.

21. Vehicle speed (User calibrated)
22. Odometer
23. Trip odometers (Trip 1, and Trip 2).

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Important:

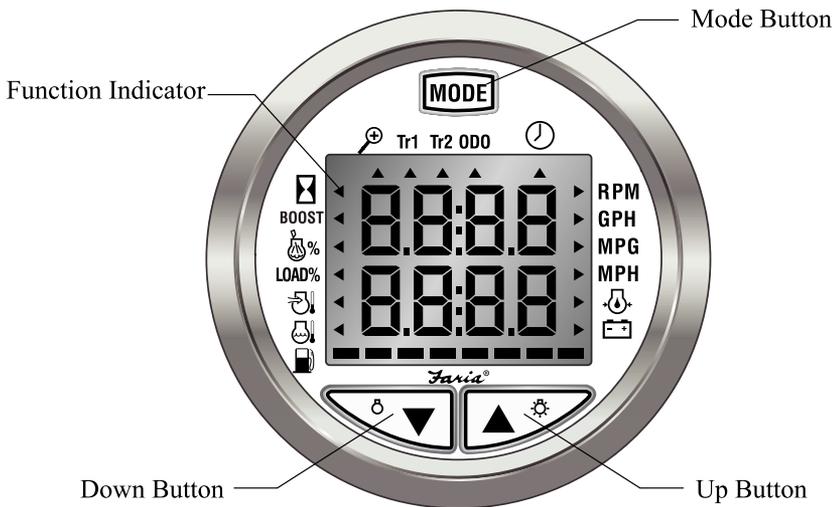
- 1) Please read this manual before you install the Faria® CAN Information Center.
- 2) ***Two 120 Ohm termination resistors across the CAN-H and CAN-L wires are required on the SAE-J1939 Network. Please check your Owners Manual or call the Dealership before installing the CAN Information Center.***
- 3) Installation by a qualified service technician is recommended. Connecting the CAN Information Center incorrectly could void warranties.
- 4) A visual inspection of this product for damage during shipping is recommended.

Warning:

Before installation be sure to do the following;

- 1) Disconnect all electrical power to the vehicle and engine.
- 2) Lock out the engine so that it cannot be operated during installation.
- 3) Follow all safety warnings of the engine manufacturer.

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Note: if the value of the displayed function is out of the operating range described below, that parameter may not be supported by the engine ECM or the sender signal to the ECM may not be working correctly. Please refer to your vehicle owner's manual.

Upper Display Functions:

1. **RPM** : Engine Speed, 0-8031 Revolutions Per Minute (RPM)
2. **GPH** : Current Fuel Consumption, (Gallons per Hour), 0-849 GPH
3. **MPG** : Fuel Economy (Miles per Gallon), 0-295 MPG
4. **LOAD%** : Accelerator pedal position, 0-100%
5. **BOOST** : Boost Pressure, 0-72.5 Pounds per Square Inch (PSI)
6. **Hourmeter** : Engine Hourmeter, 0-99,999,999 hours
7. **Second page** : Second page will be displayed (when indicator is present)
8. **Tr1** : Trip distance 1, 0- 1 Million miles
9. **Tr2** : Trip distance 2, 0- 1 Million miles
10. **ODO** : Odometer 0-1 million miles
11. **Hours and minutes** : Hours and minutes, if available on the data bus.

Lower Display Functions:

1. **MPH** : Vehicle speed, 0-155 Mile Per Hour (MPH)
2. **Engine Oil Pressure** : Engine Oil Pressure 0-145 Pounds Per Square Inch (PSI)
3. **System Voltage** : System Voltage (Volts)
4. **Engine Coolant Temperature** : Engine Coolant Temperature -40°F - 410°F (-40°C - 210°C)
5. **Inlet Air Temperature** : Inlet Air Temperature -40°F - 410°F (-40°C - 210°C)
6. **LOAD%** : Engine load % at current RPM 0%-125%

Bar Display Functions:

1. **Fuel Level (%)** : Fuel Level (%) 0-100%

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Operating Instructions:

Power ON:

The CAN Info Center™ will turn on when the ignition switch is set to the run position. When the ignition switch is turned to the off position, the CAN Info Center™ will turn off.

When turned on the CAN Info Center™ will test all of the LCD segments for 2 seconds, and the buzzer will beep once, then enter Normal mode

The CAN Information Center has three modes. These three modes are Normal, Self Test, and Service.

Note:

1) There is a 10-second period of silence after turning the power on. During this period of silence there are no audible or visual alarms.

2) There is also a 1-minute period of silence programmed into the CAN Info Center™ after the Mode button is pushed. This includes any Menu selection, Edit operation or Quick Alarm Disable. There will be no audible or visual alarms during this period.

To Disable the warning alarm

Quick Disable alarm for 1 minute:

When an alarm is active, pressing the MODE button quickly will disable all alarms for 1 minute.



Disable alarm for 3 minutes:

When the alarm is active, push and hold the UP and DOWN buttons together until a long beep is heard or the existing alarm is turned off. This will disable all alarms for 3 minutes.



The default start Mode is Normal Mode.

Changing Modes

Self Test Mode

To enter the Self Test mode from the Normal mode: push and hold both the MODE and the UP buttons until the all LCD segments turn on.



To exit the Self Test mode: push and hold both the MODE and the DOWN buttons until CAN Info Center™ beeps (a long beep) and returns to the Normal mode.



Service Mode

Enter the Service Mode:

- 1) Turn power off.
- 2) While pressing the MODE button turn the ignition on.



+ Ignition On

Exit Service Mode:

Step 1. Select the following ASK menu using the Up or Down buttons.



Step 2. **Push and Hold the Up and Down** buttons together to exit the service mode.



Exiting the Service Mode returns you to the Normal Mode.

Normal Mode:

The Normal Mode is used for displaying user-selected information and for displaying warning information sent from the SAE J1939 CAN Data Bus.

1. If the selected information is not available on the CAN Data Bus, the LCD screen will display “—”.



In this example the Accelerator Pedal Position shows not available and the Coolant Temperature shows 200 ° F.

2. Illumination.

There are 4 levels of illumination: Off,

Low, Medium, High, and can only be changed in the Normal Mode.

To turn on or increase the dial illumination, press the right “up” arrow when in the Normal mode.



To turn off or decrease the dial illumination, press the left “down” arrow when in the Normal mode.



3. Display information

The CAN Info Center™ will display the following information if available on the data bus.

Upper Display Functions:

1. Engine Speed, 0-8031 Revolutions Per Minute (RPM).
2. Current Fuel Consumption (Gallons per Hour), 0-849 GPH
3. Fuel Economy (Miles per Gallon), 0-295 MPG
4. Accelerator pedal position, 0-100%
5. Boost Pressure, 0-72.5 PSI
6. Engine Hourmeter, 0-99,999,999 hours
7. Second page, for data more than 4 digits.
8. Trip distance 1, 0- 1 Million miles
9. Trip distance 2, 0- 1 Million miles
10. Odometer 0-1 million miles
11. Hours and minutes, if available on the data bus.

Lower Display Functions:

1. Vehicle speed, 0-155 Mile Per Hour (MPH)

2. Engine Oil Pressure 0-145 Pounds Per Square Inch (PSI)
3. System Voltage (Volts)
4. Engine Coolant Temperature -40 °F - 410 °F (-40 °C - 210 °C)
5. Inlet Air Temperature -40 °F - 410 °F (-40 °C - 210 °C)
6. Engine load % at current RPM 0%-125%

Bar Display Functions:

1. Fuel Level (%) 0-100%

Note:

The Fuel Level bar will blink when the fuel level is less than 10%.

4. Trip 1 and Trip 2 Reset

Trip 1 and Trip 2 can only be reset in the Normal Mode.

Step 1. Select Trip 1 or Trip 2 as the current display. (See Select function to select Trip 1 Page 5 or Trip 2, page 5)

Step 2. Push and hold the MODE button until the displayed value is reset to zero.



5. Clock Reset (Requires Engine ECM support).

If the Engine ECM supports a quick clock reset, the CAN Info Center™ can reset the clock hours and minutes to zero.

The CAN Info Center™ can only reset the clock when in the Normal Mode.

Step 1. Select the clock as the current function in the display window.



Step 2. Push and hold the MODE button until the display clock is reset to zero.



Select function:

The select function allows the selection of the upper or lower LCD displays and/or the particular function desired in either display. When making a selection of the top LCD window or the bottom LCD window, the selected display will flash to indicate current selection.

To enter the Select Function from the Normal Mode.

Step 1: Press the MODE button first, then Select the desired display widow:



a) Press the UP button to select the Upper Display window.



b) Press the DOWN button to select the Lower Display window.



Step 2: The function indicator can be moved in a clockwise or counter clockwise direction. Use the UP or DOWN button to choose the desired functions.



Pressing the UP or DOWN buttons will move the function indicator () in the desired direction. Move the function indicator until the desired function is displayed.

Upper Display

The Upper display includes functions: RPM, GPH, MPG, Throttle Position %, Boost Pressure, Engine Hourmeter, Trip 1, Trip 2, Odometer and Clock.

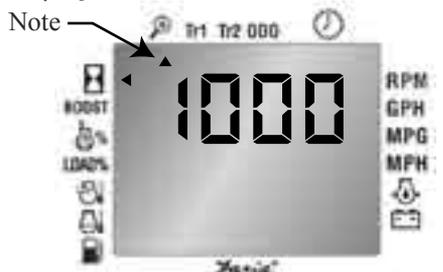
Second Page Display

The upper display can be expanded from a 4-digit numerical display (0-9,999) to an 8-digit numerical display (0-99,999,999) for Engine Hourmeter, Trip 1, Trip 2 and Odometer. Values larger than the four digits normally displayed on the upper display can be displayed by accessing a second page.

For example, the Hourmeter would display units up to 9999 hours on the display as shown:



When the Hourmeter measures 10,000 hours the display will change and display;



Note

Notice the addition of the function indicator () under the Second Page icon. () This indicates that a second page is being used to display the

information in an expanded view.

The second page will alternate with the first page and display the remaining information every 1.5 seconds automatically.



Notice the function indicator for the Second Page icon is turned off indicating this is the second page, there are no more pages.

Lower Display

The Lower display includes functions: MPH, Engine Oil pressure, System Voltage, Coolant Temperature, Inlet Manifold Air Temperature, Load % at current RPM.)



Step 3: To exit the Select functions: Pressing the MODE button will exit the Select function and the CAN Info Center™ will return to the Normal Mode.



Note:

1) If no button is pushed in Select function for 5 seconds, the CAN Info Center™ will return to the Normal Mode automatically.

Bar Line Display

The Bar Line is used for fuel level only. It displays the level of fuel in the tank.



One Segment lit and flashing, the Fuel tank is empty. Eight segments lit, the tank is full.

This display is always on when power applied to the CAN Info-Center™.

Warning information

In the Normal Mode, the CAN Information Center will display the Amber Warning Lamp, the Red Warning Lamp and seven other warnings as sent from the ECM.

Note:

- 1) There is a 10-second period of silence after turning the power on. During this period of silence there are no audible or visual alarms.
- 2) There is also a 1-minute period of silence programmed into the CAN Info Center™ after a push of the Mode button.

This includes any Menu selection, Edit operation or Quick Alarm Disable. There will be no audible or visual alarms during this period of silence.

Amber Warning Lamp

When the CAN Info Center™ receives an “Amber Warning Lamp ON” alert from the engine ECM, it will turn on the Amber warning light in the middle of the CAN Info Center™ display. This amber warning will be accompanied by short beeps.

The Amber Warning Lamp is used to relay potential problems from the CAN Data Bus concerning vehicle systems, but the vehicle and engine may not need to be immediately stopped. Please consult your Engine/ Vehicle Owner's Manual.

Red Warning Lamp

A "Red Stop Lamp ON" received by the CAN Info Center™ from the engine ECM will **flash** the red warning lights inside of the CAN Info Center™. This warning will be accompanied with long beeps.

The Red Warning Lamp is used to relay problems with the engine's systems that may be of a severe enough condition that it warrants stopping the vehicle and the engine.

Please consult your Engine/Vehicle Owner's Manual or see your dealer.

Other Warning Indications

Seven other warnings can be displayed on the CAN Info Center™. Six of these warnings come directly from the CAN Data Bus. The Low Fuel Warning turns on when fuel level is 10% of full or less.

Warnings are displayed on the CAN Info Center™ on the Upper and Lower displays.

Warning messages will be accompanied by a long beep once they appear on the display. The alarm information will remain on the display for 5 seconds, then the CAN Info Center™ will be returned to the previous display. The alarm will be repeated for 5 seconds each minute until the condition is corrected and the engine ECM stops broadcasting one of the following messages;

Water in Fuel warning:
(PGN 65279 Byte 1)



Low oil pressure warning:
(PGN 65226 SPN 100 FMI 1)



Low fuel level warning (from fuel level sensor):



High coolant temperature warning:
(PGN 65226 SPN 110 FMI 0)



Low system voltage warning:
(PGN 65226 SPN 168 FMI 1)



High system voltage warning:
(PGN 65226 SPN 168 FMI 0)



Low Coolant Level:
(PGN 65226 SPN 111 FMI 1)



Note:

1) With the exception of the “low fuel level” warning, the warning information is sent from the engine ECM, which should be initialized by the engine dealership or other related manufacturers.

Edit Function

The Edit function allows the user to change the settings of the following items:

A) Default Start Menu display (User Set/Remember last) The user can customize the default Start menu

display of the CAN Info-Center. Any combination of the Upper and Lower display parameters can be programmed to appear on “Start-Up”.

If no parameters are programmed (user set), the CAN Info-Center™ will remember your last selections which reappear on “Start-Up”.

B) Clock setup (for those engine ECMs which support clock setup by J1939 only): The user is able to setup or adjust the clock if their engine ECM supports the clock setup via SAE J1939 protocol.

Note:

Some engine ECMs only support a special tool/protocol for clock setup. Refer to the engine manual for this information.

C) Tachometer (Faria serial bus) range setup: This function enables the user to set the upper and lower limit values of a separate tachometer on the Faria serial bus connected to the CAN Info Center™.

The upper limit value can be adjusted from 1000 to 8000 RPM. The default value is 6000 RPM. The lower limit value can be adjusted from 0 to 700 RPM. The default value is 0 RPM.

D) Speedometer (Faria serial bus) range setup: This function enables the user to set the upper and lower limit values of a separate speedometer on the Faria serial bus.

The upper limit value can be adjusted from 25 to 155 MPH. The default value is 120 MPH. The lower limit value can be adjusted from 0 to 20 MPH. The default value is 0 MPH.

E) Oil pressure gauge (Faria serial bus) range setup: This function enables

the user to set-up the upper and lower limit value of a separate oil pressure gauge display range.

The upper limit value can be adjusted from 80 to 145 PSI. The default value is 80 PSI. The lower limit value can be adjusted from 0 to 40 PSI. The default value is 0 PSI. The set range should match the gauge dial face.

F) Coolant temperature gauge (Faria serial bus) range setup: This function enables the user to setup the upper and lower limit value of a separate coolant temperature gauge display range.

The upper limit value can be adjusted from 175°F to 410°F. The default value is 250°F. The lower limit value can be adjusted from -40°F to 100 °F. The default value is 100 °F.

G) Voltmeter (Faria serial bus) range setup: This function enables the user to set the upper and lower limit value of a voltmeter gauge's display range.

The upper limit value can be adjusted from 14 to 60 volts. The default value is 16 volts. The lower limit value can be adjusted from 0 to 20 volts. The default value is 10 volts.

Be sure the upper value is larger than the lower value to ensure proper gauge function.

H) Fuel sender type setup: The CAN Info Center™ can operate with 3 types of analog fuel senders:

- Type 0: 240-103-33 (ohm)
(Empty-50%- Full) type fuel sender
- Type 1: 10-95-180 (ohm)
(Empty-50%- Full) type fuel sender
- Type 2: 105-55-5 (ohm)
(Empty-50%- Full) type fuel sender

I) Speedometer calibration: Allows the user to calibrate the speedometer.

To enter the Edit function:

Press the MODE button twice,



The CAN Info Center™ will enter the Edit function. (See Figure 2, Page 47).

Pressing the UP or Down button selects the Edit menu desired.



Default start menu:



Clock Setup menu:



Faria Serial Bus Tachometer Upper limit value setup menu:



Faria Serial Bus Tachometer Lower limit value setup menu:



Faria Serial Bus Speedometer Upper limit value setup menu:



Faria Serial Bus Speedometer Lower limit value setup menu:



Faria Serial Bus Engine Oil pressure gauge Upper limit value setup menu:



Faria Serial Bus Engine Oil pressure gauge Lower limit value setup menu:



Faria Serial Bus Coolant Temperature gauge Upper limit value setup menu:



Faria Serial Bus Coolant Temperature gauge Lower limit value setup menu:



Faria Serial Bus Voltmeter Upper limit value setup menu:



Faria Serial Bus Voltmeter Lower limit value setup menu:



Fuel Sender type setup menu:



Select Voltmeter Source menu.



Calibrate Speedometer menu:



To Exit the Edit function:

The only way to exit the Edit function is to press the MODE button after you finish the edit process.

Start Menu

Edit the start menu:

The CAN Info Center™ allows the user to choose the start up display, which are the functions the CAN Info Center™ displays at power on.

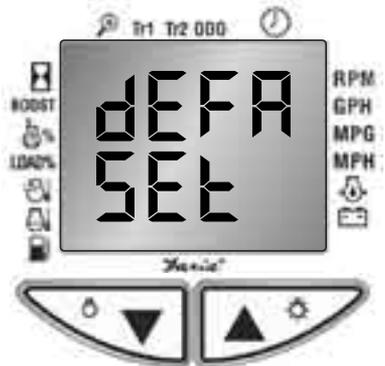
There are two options for setting the Start menu:

- a) "Remember Last" will display the same information on "Start-Up" that was displayed at Power off.
- b) Or the user can program a customized menu as the Start menu.

To make the selection:

Step 1. **Enter the Edit function.**

Using the UP or DOWN button to select the following menu,



Step 2. Push and hold the UP and DOWN buttons together until the CAN Info Center™ enters the sub-menus and displays either of the following displays:



Remember Last



User set



Step 3. Use the UP or DOWN button to select the desired display.



To select the CAN Info Center™ Remember Last display menu at the next Start menu continue at Step 4. To select a User Set default display skip to step 7.

Step 4. Select Remember Last display.



Step 5. Push and hold the UP and DOWN buttons together until the screen returns to the Start Menu.



The CAN Info Center™ will remember the last functions displayed before shut off and will display those functions on power up until changed by the user.

Step 6. Pressing the MODE button will exit the EDIT function and return to the Normal Mode.



Step 7. To select a User Set default Start menu: If not already in the Edit function, enter the Edit function. (See To Enter the Edit function, page 9) Use the UP or DOWN button to select the User Set display.





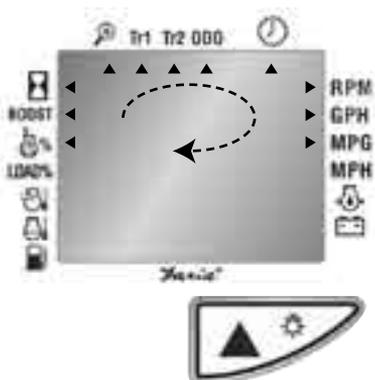
Step 8. Push and hold the UP and DOWN buttons together until the screen changes:



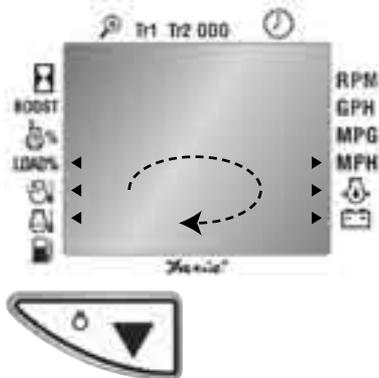
The CAN Info Center™ will ask you to select the desired functions.



Step 9. Use the UP button to move the function indicator to select the desired default function for top display window. (the indicator moves only in a clockwise direction.)



Use the DOWN button to move the function indicator to select the default function for bottom display. (the indicator moves only in a clockwise direction.)



Step 10. Once the selection is done, push the MODE button to exit the EDIT function and return to the Normal Mode.



Note:

1) This setting is for the Start menu only. It will not change any current display item until the next start.

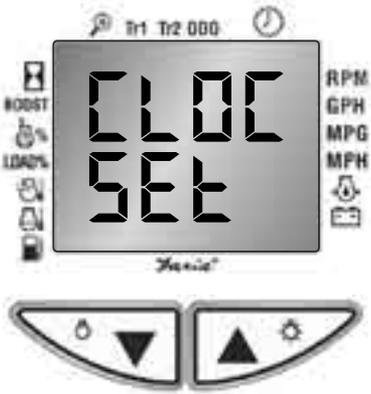
Clock Setup menu

The CAN Info Center™ can be used to set the clock of the engine ECM, if the clock function is supported by engine ECM. (Please refer to your engine ECM manufacturer user's guide to see if your engine ECM supports the clock function.)

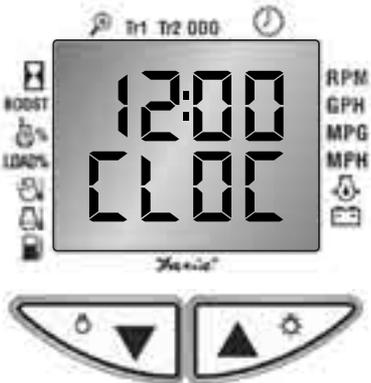
Step 1: Enter the Edit function. (Push the MODE button twice).



Step 2: Using the UP or DOWN button select the following menu:



Step 3: Push and Hold both the UP and the DOWN buttons together until the display changes:



The top display shows the current time of the ECM. The bottom display indicates that this is a clock setup menu.

Step 4: Use the DOWN button change the hour setting.



The hour setting can only be changed using the DOWN button. When the value reaches the 23rd hour, the clock will restart from zero (midnight).

Push the DOWN button once to increase the hours value by 1 hour. Pushing and holding the DOWN button will make the numbers cycle faster.

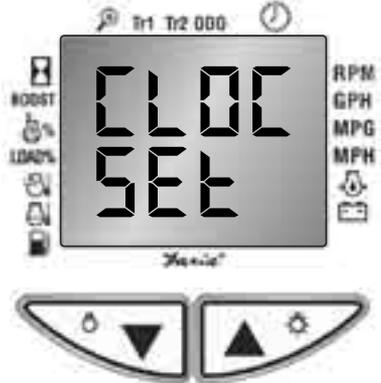
Step 5: Use the UP button to change the minutes.



The minute setting can only be changed by UP button. When the value reaches the 59th minute, the clock will restart from zero.

Push the UP button once to increase the value by 1 minute. Pushing and holding the UP button will make the numbers cycle faster.

Step 6: Push and Hold both the UP and the DOWN buttons together until the screen changes:



This will change the settings in the ECM Clock.

Step 7: push MODE button to exit the Edit function.



Faria Serial Bus Tachometer, Upper limit value setup menu

The CAN Info Center™ may be used to drive a separate Faria serial bus tachometer. This tachometer may have a different upper limit display value from the CAN Info Center™ value. Use the steps

below to set up this upper limit value:

Step 1: Enter the Edit function. (Push the MODE button twice.)



Step 2: Using the UP or DOWN button select the following menu:



Step 3: Push and Hold both the UP and the DOWN buttons until the display changes to following menu:



The top display shows the current upper limit value of the separate Faria serial bus tachometer. The default value is 6000 RPM. The bottom display indicates this is the tachometer upper limit value setup menu.

Step 4: Use the UP or the DOWN button to change the value of the upper limit to

the desired value. (The upper limit should be a number from 1000 to 8000 RPM).



Push the UP or the DOWN button once to increase or decrease the value by 500 RPM. Pushing and holding the buttons will make the numbers cycle faster.

Step 5: Push and Hold both the UP and the DOWN buttons together until the screen changes:



This will set the upper limit value for the Faria serial bus tachometer.

Step 6: push the MODE button to exit the Edit function.



Faria Serial Bus Tachometer, Lower limit value setup menu

This tachometer may have a different lower limit display value from the CAN Info Center™ value. Use the steps below to set up this lower limit value:

Step 1: Enter Edit Function (Push the MODE button twice.)



Step 2: Using the UP or the DOWN button select the following menu:



Step 3: Push and Hold both the UP and the DOWN buttons together until the display changes:



The bottom display is the current lower limit value of the Faria serial bus tachometer. The default value is 0 RPM. The top display indicates this is the tachometer lower limit value setup menu.

Step 4: Use the UP or the DOWN button to change the value to the desired lower limit. (from 0 to 700 RPM).



Push the UP or the DOWN button once to increase or decrease the value by 100 RPM. Pushing and holding the buttons will make the numbers cycle faster.

Step 5: Push and Hold both the UP and the DOWN buttons together until the screen changes:



This will set the lower limit value of the Faria serial bus tachometer.

Step 6: push the MODE button to exit the Edit function.



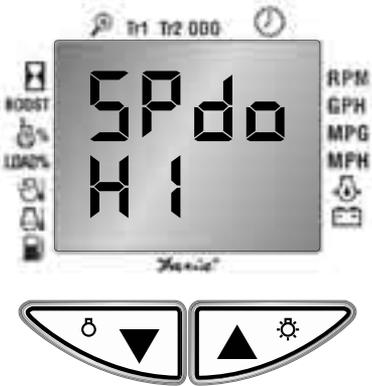
Faria Serial Bus Speedometer, Upper limit value setup menu

Speedometers with different upper limit display values may be added to the Faria Serial Bus. Use the steps below to set up this upper limit value:

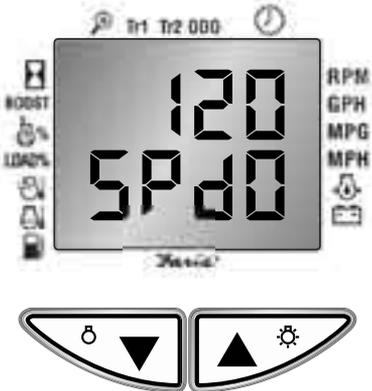
Step 1: Enter the Edit Function (Push the MODE button twice).



Step 2: Using the UP or the DOWN button select the following menu:



Step 3: Push and Hold both the UP and the DOWN buttons together until the display changes:



The top display is the current upper limit value of the Faria serial bus speedometer. The default value is 120 MPH. The bottom display indicates this is the Speedometer upper limit value setup menu.

Step 4: Use the UP or the DOWN button to change the value to the desired upper limit. (from 25 to 155 MPH).



Push the UP or the DOWN button once to increase or decrease the value by 5 MPH. Pushing and holding the buttons will make the numbers cycle faster.

Step 5: Push and Hold both the UP and the DOWN buttons together until the screen changes:



This will set the upper limit value of the Faria serial bus speedometer.

Step 6: push the MODE button to exit the Edit function.



Faria Serial Bus Speedometer, Lower limit value setup menu

The Faria serial bus speedometer may also have a different lower limit display value. Use the steps below to set up this lower limit value:

Step 1: Enter the Edit function (Push the MODE button twice)



Step 2: Using the UP or the DOWN button select the following menu:





Step 3: Push and Hold both the UP and the DOWN buttons together until the display changes:



This will set the lower limit value of the Faria serial bus speedometer.



Step 6: Push the MODE button to exit the Edit function.



The top display indicates this is a speedometer lower limit value setup menu. The bottom display is the current lower limit value of the Faria serial bus speedometer. The default value is 0 MPH.

Faria Serial Bus Engine Oil Pressure gauge, Upper limit value setup menu

The CAN Info Center™ may be used to drive a Faria serial bus Oil Pressure gauge with a different upper limit display value. Use the steps below to set up this upper limit value:

Step 4: Use the UP or the DOWN button to change the value to the desired lower limit. (from 0 to 20 MPH).

Step 1: Enter the Edit Function (Push the MODE button twice).



Push the UP or the DOWN button once to increase or decrease the value by 1 MPH. Pushing and holding the buttons will make the numbers cycle faster.

Step 2: Using the UP or the DOWN button select the following menu:



Step 5: Push and Hold both the UP and the DOWN buttons together until the screen changes:



Step 3: Push and Hold both the UP and the DOWN buttons together until the display changes:



The top display shows the current upper limit value of the Faria serial bus Oil Pressure gauge. The default value is 80 PSI (Pounds per square inch). The bottom display indicates this is the Oil Pressure gauge upper limit value setup menu.

Step 4: Use the UP or the DOWN button to change the value to the desired upper limit. (from 80 to 145 PSI).



Push the UP or the DOWN button once to increase or decrease the value by 5 PSI. Pushing and holding the buttons will make the numbers cycle faster.

Step 5: Push and Hold both the UP and the DOWN buttons together until the

screen changes:



This will set the upper limit value of Faria serial bus engine Oil Pressure gauge.

Step 6: Push the MODE button to exit the Edit function.



Faria Serial Bus Engine Oil Pressure gauge, Lower limit value setup menu

The Oil Pressure gauge can be set with a different lower limit display value. Use the steps below to set up this lower limit value:

Step 1: Enter Edit Function (Push the MODE button twice).



Step 2: Using the UP or the DOWN button select the following menu:





Step 3: Push and Hold both the UP and the DOWN buttons together until the display changes:



The top display indicates this is the Oil Pressure lower limit value setup menu. The bottom display is the current lower limit value of the Faria serial bus Oil Pressure gauge. The default value is 0 PSI.

Step 4: Use the UP or the DOWN button to change the value to the desired lower limit. (from 0 PSI- 40 PSI).



Push the UP or the DOWN button once to increase or decrease the value by 5 PSI. Pushing and holding the buttons will make the numbers cycle faster.

Step 5: Push and Hold both the UP and the DOWN buttons together until the screen changes:



This will set the lower limit value of the Faria serial bus engine Oil Pressure gauge.

Step 6: push the MODE button to exit the Edit function.



Faria Serial Bus Coolant Temperature gauge, Upper limit value setup menu

A Coolant Temperature gauge with a different upper limit display value can also be used on the Faria Serial Bus System. Use the steps below to set up this upper limit value:

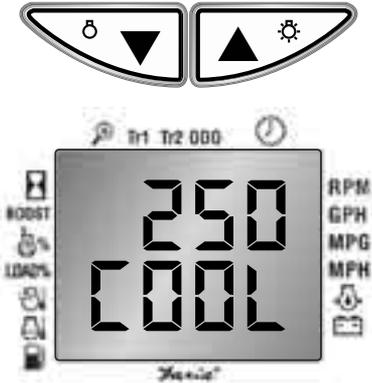
Step 1: Enter Edit Function (Push the MODE button twice).



Step 2: Using the UP or the DOWN button select the following menu:



Step 3: Push and Hold both the UP and the DOWN buttons together until the display changes:



The top display shows the current upper limit value of Faria serial bus Coolant Temperature gauge. The default value is 250°F (degrees Fahrenheit). The bottom display indicates this is the Coolant Temperature gauge upper limit value setup menu.

Step 4: Use the UP or the DOWN button to change the value to the desired upper limit. (from 175°F to 410°F).



Push the UP or the DOWN button once to increase or decrease the value by 5°F. Pushing and holding the buttons will make the numbers cycle faster.

Step 5: Push and Hold both the UP and the DOWN buttons together until the screen changes:



This will set the upper limit value of the Faria serial bus Coolant Temperature gauge.

Step 6: push the MODE button to exit the Edit function.



Faria Serial Bus Coolant Temperature gauge, Lower limit value setup menu

The Coolant Temperature gauge can be set to a different lower limit display value. Use the steps below to set up this lower limit value:

Step 1: Enter the Edit function (Push the MODE button twice).

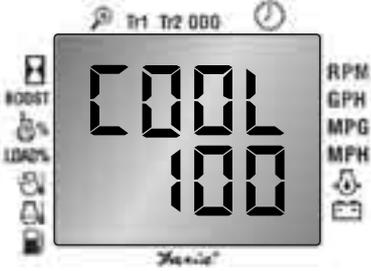


Step 2: Using the UP or the DOWN button select the following menu:



Step 3: Push and Hold both the UP and

the **DOWN** buttons together until the display changes:



The top display indicates that this is the Coolant Temperature lower limit value setup menu. The bottom display is the current lower limit value of the Faria serial bus Coolant Temperature gauge. The default value is 100°F.

Step 4: Use the UP or the DOWN button to change the value to the desired lower limit. (from -40°F to 100°F).



Push the UP or the DOWN button once to increase or decrease the value by 5 °F. Pushing and holding the buttons will make the numbers cycle faster.

Step 5: Push and Hold both the UP and the DOWN buttons together until the screen changes:



This will set the lower limit value of the Faria Serial Bus Coolant Temperature gauge.

Step 6: push the MODE button to exit the Edit function.



Faria Serial Bus Voltmeter, Upper limit value setup menu

To setup the Faria serial bus Voltmeter with a different upper limit display value use the steps below.

Step 1: Enter the Edit Function (Push the MODE button twice).



Step 2: Using the UP or the DOWN button select the following menu:



Step 3: Push and Hold both the UP and the DOWN buttons until the display changes:



The top display shows the current upper limit value of the Faria Serial Bus Voltmeter. The default value is 16 volts. The bottom display indicates this is the Voltmeter upper limit value setup menu.

Step 4: Use the UP or the DOWN button to change the value to the desired upper limit. (values from 14 to 60 volts).



Push the UP or the DOWN button once to increase or decrease the value by 1 volt. Pushing and holding the buttons will make the numbers cycle faster.

Step 5: Push and Hold both the UP and the DOWN buttons together until the screen changes:



This will set the upper limit value for the Faria serial bus Voltmeter.

Step 6: push the MODE button to exit the Edit function.



Faria Serial Bus Voltmeter, Lower limit value setup menu

The Faria serial bus Voltmeter can be set with a different lower limit display value. To setup this lower limit value, use the steps below:

Step 1: Enter Edit Function (Push the MODE button twice).



Step 2: Using the UP or the DOWN button select the following menu:



Step 3: Push and Hold both UP and DOWN buttons until the display changes:





The top display indicates this is the Voltmeter lower limit value setup menu. The bottom display is the current lower limit value of the Faria Serial Bus Voltmeter. The default is 10 volts.

Step 4: Use the UP or the DOWN button to change the value to the desired lower limit.(from 0 to 20 volts).



Push the UP or the DOWN button once to increase or decrease the value by 1 volt. Pushing and holding the buttons will make the numbers cycle faster.

Attention: Make sure this lower limit value is less than the upper limit value to ensure a proper gauge function.

Step 5: Push and Hold both the UP and the DOWN buttons together until the screen changes:



This will set the lower limit value of the Faria serial bus Voltmeter.

Step 6: push the MODE button to exit the Edit function.



Fuel Sender type setup menu

The CAN Info Center™ can connect with different types of Fuel level senders, including:

Type 0: 240-103-33 (ohm) (Empty-50%- Full) type fuel sender

Type 1: 10-95-180 (ohm) (Empty-50%- Full) type fuel sender

Type 2: 105-55-5 (ohm) (Empty-50%- Full) type fuel sender

To setup for the desired different fuel sender, follow the steps below:

Step 1: Enter Edit Function (Push the MODE button twice).



Step 2: Using the UP or the DOWN button select the following menu:



Step 3: Push and Hold both UP and DOWN buttons until the display changes:



The top display represents the fuel level sender type. The default is type 0 (240-33 ohm). The bottom display indicates this is the Fuel Level Sender setup menu.

Step 4: Use the UP or the DOWN button to change the value to the desired fuel sender. (type 0, type 1 or type 2).



Step 5: Push and Hold both the UP and the DOWN button until the screen changes :



This will set Fuel level sender type.

Step 6: push the MODE button to exit the Edit function.



Voltmeter Source Selection menu

The CAN Info Center™ can receive information from different sources including:

Type 0: (Alternator Potential)

Type 1: (Electrical Potential)

Type 2: (Battery Potential)

To setup for the desired different source, follow the steps below:

Step 1: Enter Edit Function (Push the MODE button twice).



Step 2: Using the UP or the DOWN button select the following menu:



Step 3: Push and Hold both UP and DOWN buttons until the display changes:





The top display represents the voltmeter source. The default is type 1 (Electrical Potential). The bottom display indicates this is the voltmeter source setup menu.

Step 4: Use the UP or the DOWN button to change the value to the desired voltmeter source. (type 0, type 1 or type 2).



Step 5: Push and Hold both the UP and the DOWN button until the screen changes :



This will set voltmeter source.

Step 6: push the MODE button to exit the Edit function.



Speedometer Calibration:

Use this menu to calibrate the vehicle's Speedometer with an accurate speed measurement tool.

Note:

- 1) Please stop the vehicle when calibrating the speedometer.
- 2) During the calibration, any speed information displayed in the additional speedometer gauge is not accurate. Accurate information will be available only when the calibration is finished.
- 3) The user is responsible for the accuracy of the CAN Info Center™ Speedometer once they calibrate the unit.
- 4) The CAN Info Center™ has a record of how many times the user has calibrated the Speedometer, which is only readable by the Thomas G. Faria Corporation.
- 5) Calibration of the Speedometer will only effect the CAN Info-Center™. The engine ECM will remain unaffected.
- 6) The aim of Speedometer recalibration is to achieve an accurate speedometer display and odometer information for various vehicles.

Any individual action of Speedometer Calibration should comply with the Vehicle Information and Cost Savings Act of 1972, as amended, 49 U.S.C. Section 32701 et seq., and other State and Federal laws and regulations. These statutes and regulations authorize the imposition of significant civil, financial and criminal penalties, including imprisonment.

Faria® disclaims any and all liability that may arise out of the user's decision contrary to its position in this notice. If you have any questions regarding the content of the notice or require further legal advice, please contact your legal counsel.

Conditions of Calibration:

With an accurate speed measurement tool, the user might find that there are two conditions where the displayed speed from the CAN Info Center™ may be different from the real speed as measured

by an accurate speed measurement tool.

1. In the first condition the whole speed range displayed on the CAN Info Center™ differs by the same percentage from the speed recorded by an accurate speed measurement tool:

So that;

$$\boxed{\begin{array}{c} \text{The} \\ \text{real} \\ \text{speed} \end{array}} = \boxed{\begin{array}{c} \text{CAN} \\ \text{displayed} \\ \text{speed} \end{array}} \times \boxed{\begin{array}{c} \text{Correction} \\ \text{Factor (Y)} \end{array}}$$

Where Y changed from 0.0 to 999.9. (Y is the correction factor to make the two speeds agree.)

This condition requires the user to calculate the value of Y.

For example: You drive 25 mph, 40 mph, 80 mph as measured by an accurate speed measurement tool. The CAN Info Center™ displays; 31.3 mph, 50 mph, 100 mph.

Calculate the difference in speed as follows,

$$Y = \frac{\boxed{\begin{array}{c} \text{The} \\ \text{real} \\ \text{speed} \end{array}}}{\boxed{\begin{array}{c} \text{CAN} \\ \text{displayed} \\ \text{speed} \end{array}}} \times 100$$

so for this example:

$$\frac{25 \text{ mph}}{31.3 \text{ mph}} \times 100 = 80 \quad \frac{80 \text{ mph}}{100 \text{ mph}} \times 100 = 80$$

$$\frac{40 \text{ mph}}{50 \text{ mph}} \times 100 = 80$$

So Y (the correction factor) = 80

2. The second condition would exist when at different speeds there is a different error for each speed range. The error has to be calculated for each different speed range. We cannot find a single correction factor to calibrate the result.

In the first condition, the CAN Info Center™ will require only one-point (called one "PAGE") calibration because the data needs only to be multiplied by one correction factor.

The second condition requires the CAN Info Center™ to calculate a multi-point calibration solution (up to 8 points, called multi-"PAGE", from PAGE 0 to PAGE 7).

Note:

The user can only use one of these two solutions at one time. Attempting to use both calibration types at the same time can lead to an incorrect result.

One-point Speedo Calibration:

Step 1. **Enter the Edit function** from the Normal Mode. Press the MODE button twice. (See Figure 2, page 27)



Step 2. **Use the UP or DOWN button** to select following menu:



Step 3. Press and hold the UP and DOWN buttons together, until the display changes.



“PAGE 0” represents the first point for speed calibration.

Step 4. Push and hold the MODE button until the CAN Info Center™ beeps (a long beep). All of the setting values on each PAGE will be reset to zero.



Note:

1) To quickly reset all of the former calibration values to zero, push and hold the MODE button until a long beep is heard when “PAGE 0” is on the screen.

2) This rule is true for all PAGE’s from PAGE 0 to PAGE 7; when the current display shows any one of those 8 pages,

a push and hold of the MODE button, until the CAN Info Center™ beeps (long beep), will always reset all the calibration values to zero.

Step 5. Push and hold the UP and DOWN buttons together until the display changes.



The upper display “d150” represents the displayed speed on the CAN Info Center™ at point 0.

0.0 represents the different values depending on whether the CAN Info Center™ has been calibrated. If Step 4 has been executed correctly, the initial value is 0.0.

Important:

- If the initial value is not 0.0 (zero),
 - a. Press the MODE button to return to the NORMAL mode.



- b. Repeat steps 1-4.

Use the speed displayed by the CAN Info Center™ and the speed from an accurate speed measurement tool to calculate the difference in speeds as follows:

$$Y = \frac{\text{Speed from an accurate tool}}{\text{Speed from CAN Info Center}} \times 100$$

Y = correction factor.

The following example will assume a case of Y = 80. The percent of difference in Real speed and CAN-displayed speed is 80% (Use your recorded speeds for your calibration).

Step 6. Enter 100 in the display.

Use the UP button (which will increase the value) or DOWN button (which will decrease the value) to enter the number 100.0 on the CAN Info Center™. The screen changes and displays:



Note:

- 1) To get a fast value increase, push and hold the UP button.
- 2) To get a fast value decrease, push and hold the DOWN button.
- 3) A normal push of the UP button makes the value increase by 0.1.
- 4) A normal push of the DOWN button makes the value decrease by 0.1.
- 5) A push and hold of the MODE button until a long beep is heard will reset the value to 0.0 quickly.

Step 7. Push and Hold the UP and DOWN

buttons together until display changes:



0.0 represents different values depending on whether the CAN Info Center™ has been calibrated. If Step 4 was executed correctly, the initial value should be 0.0.

Step 8. Enter the Correction factor (Y) as calculated.

Use the UP button (the value will increase) or the DOWN button (which will decrease the value) to enter the value of "Y". (For this example input the value of 80).



Note:

A push and hold of the MODE button until a long beep is heard will reset to 0.0 quickly.

Step 9. Press the MODE button to return to Normal mode.



Note:

Only PAGE 0 can be used for One-point Speed Calibration.

Multi-point Speed Calibration:

For those conditions where the one-point speedometer calibration cannot be used, the CAN Info Center™ allows for Multi-point speedometer calibration for non-linear situations. Up to 8 speed points (from point 0 to point 7 (called PAGE 0 to PAGE 7)) can be used for speed calibration.

Note:

The following three steps must be observed to prevent unpredictable results:

Step 1: The value from points 0 to 7 should be arranged in ascending order. For example, if points 0 - 7 will be used, then make sure:

The Real speed at Point 0 is less than the Real speed at Point 1. The Real speed at Point 1 is less than the Real speed at point 2 and so on.

Step 2: No matter how many speed points will be used, the user has to start from speed point 0.

Step 3: If there are less than 8 calibration points, make sure all unused points have been reset to zero.

For example, when we only need calibration from point 0 to point 5 make sure the value at points 6 and 7 is set to zero. Reset to be sure all values are set to zero before entering a new calibration.

2) Before the user can start to input the calibration values, the rules above must be followed. The following is an example of 8-point speed calibration table;

Speed point	CAN speed	Real speed
PAGE 0	12.5 MPH	11.3 MPH
PAGE 1	22.4 MPH	26.1 MPH
PAGE 2	30.5 MPH	33.3 MPH
PAGE 3	42.4 MPH	43.3 MPH
PAGE 4	50.5 MPH	53.3 MPH
PAGE 5	62.4 MPH	61.1 MPH
PAGE 6	70.5 MPH	70.3 MPH
PAGE 7	84.4 MPH	86.1 MPH

To separate the different speed points, the CAN Info Center™ organizes the displayed speed and the real speed at the same point as a PAGE. For example, the display speed of the first point “12.5 MPH” and real speed of the first point “11.3 MPH” are organized as PAGE 0.

Step 1. Enter the Edit function from the Normal Mode. (Make sure neither of the top two LCD lines are flashing).

Press the MODE button twice, (See Figure 2, page 27).



Step 2. Use the UP or DOWN buttons and select following menu:



Step 3. Press and hold the UP and DOWN buttons together until the display changes.

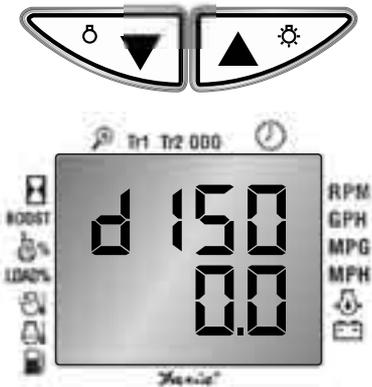


“PAGE 0” represents the first point for speed calibration.

Step 4. Push and hold the MODE button until the CAN Info Center™ beeps (a long beep). All of the setting values on each PAGE will be reset to zero.



Step 5. Push and hold the UP and DOWN buttons together until the display changes.



The top display “d150” represents the displayed speed on the CAN Info Center™ at point 0. (The first point where a speed measurement is made).

If Step 4 has been executed correctly, the initial value is 0.0.

Important:

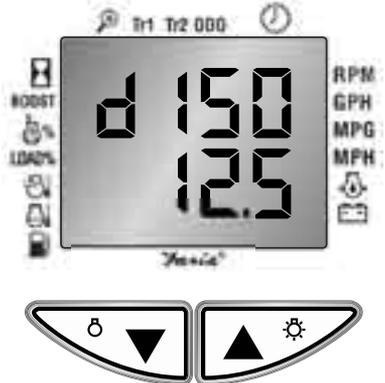
If the initial value is not 0.0 (zero),
 a. Press the MODE button to return to the NORMAL mode.



b. Repeat steps 1-4.

Step 6. **Enter the Displayed speed.**

Use the UP button (which will increase the value) or DOWN button (which will decrease the value) to input the displayed speed at point 0. (In this example it's 12.5) the screen displays as:

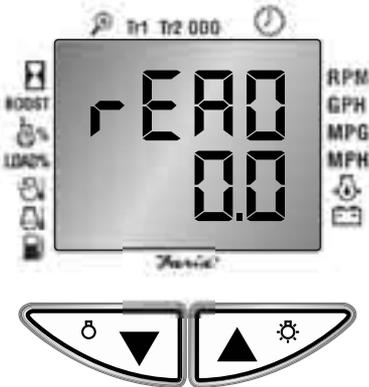


Note:

- 1) To get a fast value increase, push and hold the UP button.
- 2) To get a fast value decrease, push and hold the DOWN button.
- 3) A normal UP button push makes the value increase by 0.1.
- 4) A normal DOWN button push makes the value decrease by 0.1.
- 5) A push and hold the MODE button until a beep is heard will reset the current

values to 0.0 quickly.

Step 7. *Push and Hold the UP and DOWN buttons together until the display changes:*



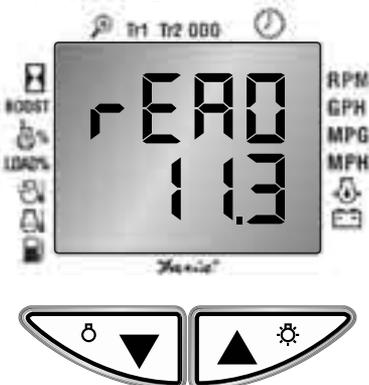
The top line “rEAO” represents the measurement of the real speed at point 0.

If Step 4 was executed correctly, the initial value should be 0.0.

Step 8. **Enter the Accurate Real speed.**

Use the UP button (the value will increase) or the DOWN button (which will decrease the value) and enter the Real Speed. (For this example, the input value of 11.3.)

The display changes:



Step 9. *Press and hold the UP and DOWN buttons together, the display changes.*



Step 10. Use the UP button to select the next PAGE, the display changes;



Step 11. Repeat steps 5-10 to finish the other 7 pages.

Step 12. Once all PAGEs have been set up, press the MODE button to return to the Normal Mode.



Cancel all Speedo Calibration:

Step 1. Enter the Edit function from the Normal Mode. Press the MODE button twice. (See Figure 2, page 47)



Step 2. Press the UP or DOWN button to select the following menu:



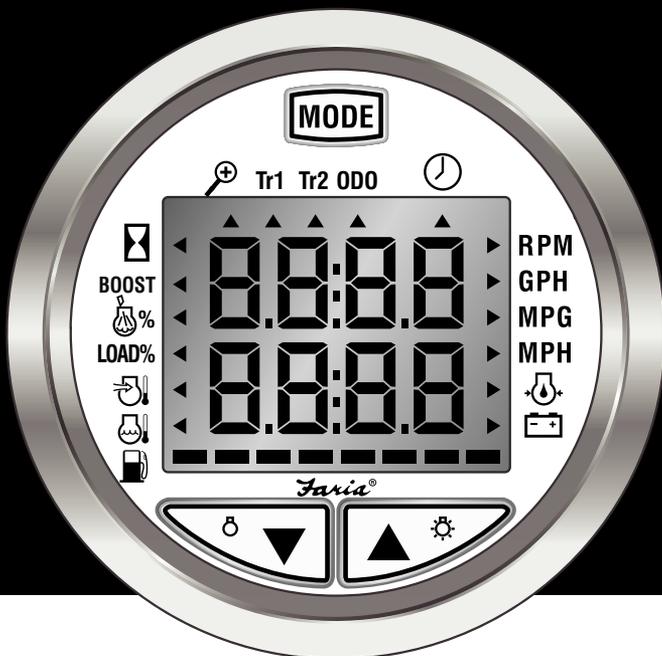
3. Press and hold the UP and DOWN buttons together until the display changes:



Step 4. Press and hold the MODE button until the CAN Info Center™ beeps (a long beep). This will reset all of the former calibration settings at all speed calibration points. The Speedometer calibration will be canceled.

Step 5. Press the MODE button to return to the NORMAL mode.





Service Modes

Warning:

Only one CAN Info Center at a time should be connected to the J1939 Bus to view Diagnostic Engine Codes.

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Self Test

In self test, the CAN Info Center™ will test the LCD, buzzer, lighting, and the auxiliary gauges automatically according to the following sequence:

1. All of the LCD segments will be on for 5 seconds and the Buzzer will beep.
2. The lighting will cycle 4 times from full off to maximum on while the buzzer beeps.
3. Any auxiliary gauge(s) will be driven from the minimum to maximum reading then back to the minimum/or zero point.
4. After the auxiliary gauge(s) return to zero, or minimum display value, the following will occur:
 - a) the engine oil pressure gauge pointer will go to and stay at 69.6 PSI
 - b) the voltmeter will go to and stay at 14.2 volts
 - c) the fuel gauge will go to and stay at 60% of Full
 - d) the coolant temperature will go to and stay at 140°F
 - e) The Speedometer and/or Tachometer will be driven to simulate a real driving condition

The CAN Info Center™ will mimic the information of the above auxiliary gauges for the same functions. The other parameters will be displayed as;

- f) GPH - 2.64
- g) MPG - 28.1
- h) Throttle Position % - 30.0
- i) Engine Hourmeter - 200,000
- j) Trip 1 - the actual Trip 1 miles.
- k) Trip 2 - the actual Trip 2 miles
- l) Odometer reads the actual Odometer reading.
- m) The Clock will run as a timer.

MM:SS

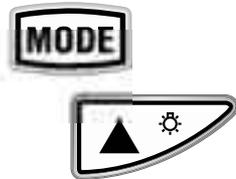
MM represents the minutes

SS represents the seconds

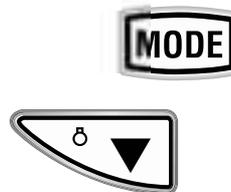
- n) the Inlet Manifold Temp. displays 86°F
- o) the Load % displays 40
- p) The BOOST Pressure displays 58.0 PSI

This mode is a diagnostic tool and should only be used by a qualified technician at your dealership.

To enter Self Test from the Normal mode: push and hold both the MODE and the UP buttons until the all LCD segments turn on. It will take about 3 seconds.



To exit Self Test push and hold both the MODE and the DOWN buttons until the CAN Info Center™ beeps (a long beep) and returns to the Normal mode. It will take about 3 seconds.



Service Mode

The Service mode allows access to the diagnostic codes from the CAN Data Bus to help find engine problems.

The Service Mode will display the Active Diagnostic codes (DM1), the Stored Diagnostic codes (DM2) or the Engine Configuration information.

Enter Service Mode:

- 1) Turn Power off.
- 2) While pressing the MODE button turn the ignition on.



Exit Service Mode:

Step 1. Select the following ESC menu using the Up or Down buttons.



Step 2. *Push and Hold the Up and Down buttons together* until you exit the service mode.



Using the Service Mode:

Use the UP and DOWN buttons to select the desired menus from the following displays:

Active diagnostic trouble codes (DM1):



Previously active diagnostic trouble codes (DM2):



Engine configuration:



Exit menu:



Note:

- 1) The number in the second line (00) of the Exit Menu is reserved as a Faria® Corp Identification Code.
- 2) Faria® retains the right to use this ID for its own usage.

View the Active Diagnostic Trouble Codes (DM1):

Step 1. Enter the Service Mode:

1) Turn Power off.

2) While pressing the MODE button turn the ignition on.



Step 2. Press the UP or DOWN button to select the following display.



Step 3. Press and Hold the UP and DOWN buttons together until the CAN Info Center™ beeps (a long beep).



The CAN Info Center™ displays a wait message.



A "HOLD PLS" means the CAN Info Center™ is communicating with the engine ECM. No action is required. Once the desired information has been

received from the engine ECM, the display will switch to the information screen automatically. (There may be times where the wait message will be too brief to be seen. This is normal.) The display will change.



The upper display (1234) is the Suspect Parameter Number (SPN). The value can change from 0-9999 according to the codes from the engine ECM.

The lower display (00) is the Failure Mode Identifier (FMI). The value can change from 0-32 according to different codes sent from the engine ECM.

Both the SPN and FMI are used in the SAE J1939 standard for identification of faults and conditions. Please refer to SAE J1939 standards for definitions of these fault codes.

Step 4. Use the UP (forward) or DOWN (backward) button to select other SPN and FMI parameters.



Step 5. The user can cycle and view all of the codes in order. The user may cycle through the list of codes forward (Up Button) or backward (Down Button). The CAN Info Center™ will issue a long beep as it scrolls past the first or initial record to indicate all codes have been reviewed.

Step 6. **To exit the Active Code,**
 Press and hold the UP and DOWN buttons together, until the display returns to the Active Code menu (ACTi CODE).



Note:

- 1) The CAN Info Center™ is capable of updating the active code in real time and dynamically. The engine ECM sends out different active diagnostic trouble codes at different situations, so the code length and content may change from time to time.
- 2) If there are no other codes for either the Active Diagnostic Trouble code menu or the Previous/Active Diagnostic Trouble code menu, the screen will display:



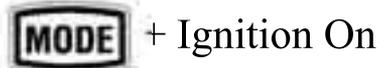
View Previously Active Diagnostic Trouble Codes (DM2):

If the CAN Info Center™ is already in the Service Mode, go to Step 2.

Step 1. Enter the Service Mode

- 1) Turn power off.
- 2) While pressing the MODE button turn

the ignition on.



Step 2. Press the UP or DOWN button to select the Previous Active Diagnostic Trouble Codes.



Step 3. Press and Hold the UP and DOWN buttons together until the CAN Info Center™ beeps (a long beep). The CAN Info Center™ may display a wait message.



A “HOLD PLS” means the CAN Info Center™ is communicating with the engine ECM. Once all the information has been received, the display will switch to the information screen automatically.

Note:

If the CAN Info Center™ displays the

“HOLD PLS” message, for more than 30 seconds, this may indicate the Engine ECM does not support this parameter.

Press and Hold the UP and DOWN buttons together to exit.



When the information becomes available and the communication with the engine ECM is complete, the display automatically changes.



The Upper display shows the Warning Lamp Status in a decimal based numerical value (00). The value of (00) can be changed from 00-255 according to different codes received from the Engine ECM via the CAN Data Bus.

The Lower display shows Pg 0. This is the first page for the previously active diagnostic trouble codes.

Step 4. Use the UP (forward) or DOWN (backward) button to select and browse all other SPN and FMI parameters.



The upper display (1234) is the Suspect Parameter Number (SPN). The value can change from 0-9999 according to the codes sent from the engine ECM via the CAN Data Bus.

The lower display (00) is the Failure Mode Identifier (FMI). The value can change from 0-32 according to different codes sent from the engine ECM via the CAN Data Bus.

Both the SPN and FMI are used in the SAE J1939 standard for identification of faults and conditions.

Step 5. Use the UP (forward) or DOWN (backward) button to select and browse all other SPN and FMI parameters.



Step 6. The user can cycle and view all of the codes in order. The user may cycle through the list of codes forward (Up Button) or backward (Down Button). The CAN Info Center™ will beep (a long beep) as it scrolls past the first record as a reminder that one viewing cycle is complete.

Step 7. To exit the **Previously Active Code menu**:

Press and hold the UP and DOWN buttons together until the display returns to the Previous Active Diagnostic Trouble Codes menu.



Note:

If there are no codes for the Previous/Active Diagnostic Trouble code menu, the screen will display:

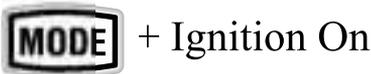


Delete Previously Active Diagnostic Trouble Codes(DM2): (if supported by engine ECM)

When done the DM2 diagnostic codes can be deleted by clearing them with the CAN Info Center™.

Step 1. Enter the Service Mode

- 1) Turn power off.
- 2) While pressing the MODE button turn the ignition on.



Step 2. Press the UP or DOWN button to select the Previous Active Diagnostic Trouble Codes.



Step 3: Push and Hold both the UP and DOWN buttons together until the screen changes to the following menu:



Note:

The top line may display different codes according to different lamp status.

Step 4: Push and hold the MODE button until the CAN Info Center™ beeps (a long beep).



Step 5: Push and Hold both the UP and DOWN buttons together until the screen changes to the following menu:



Step 6: Push and Hold both the UP and DOWN buttons together until the screen changes to either one of the following displays, this will check if the ECM supports the DM2 delete operation.



If the engine ECM supports the DM2 delete using the J1939 protocol, the CAN Info Center™ will display:



If the engine ECM does not support the DM2 delete using the J1939 protocol, the CAN Info Center™ will display:



Step 7: Push and Hold both the UP and DOWN buttons together until the screen changes to:



Step 8: Press the UP or DOWN button to select the following menu:



Step 9: Push and Hold both the UP and DOWN buttons together to exit to Normal Mode.



Engine Configuration:

If the CAN Info Center™ is already in the Service Mode, go to step 2.

Step 1. Enter the Service Mode

- 1) Turn power off.
- 2) While pressing the MODE button turn the ignition on.

MODE + Ignition On

Step 2. Use the UP or DOWN button to select the Engine Configuration menu:



Step 3. Press and Hold the UP and DOWN buttons together until the CAN Info Center™ beeps (a long beep).



The CAN Info Center™ displays a wait message.



A “HOLD PLS” means the CAN Info Center™ is communicating with the engine ECM. No action is required. Once the desired information has been received from the engine ECM, the display will switch to the information screen automatically. (There may be times where the wait message will be too fast to be seen. This is normal.)

Note:

If the CAN Info Center™ displays the “HOLD PLS” message for more than 30 seconds, this may indicate the Engine ECM does not support this parameter. Press and Hold the UP and DOWN buttons together to exit. The display changes:



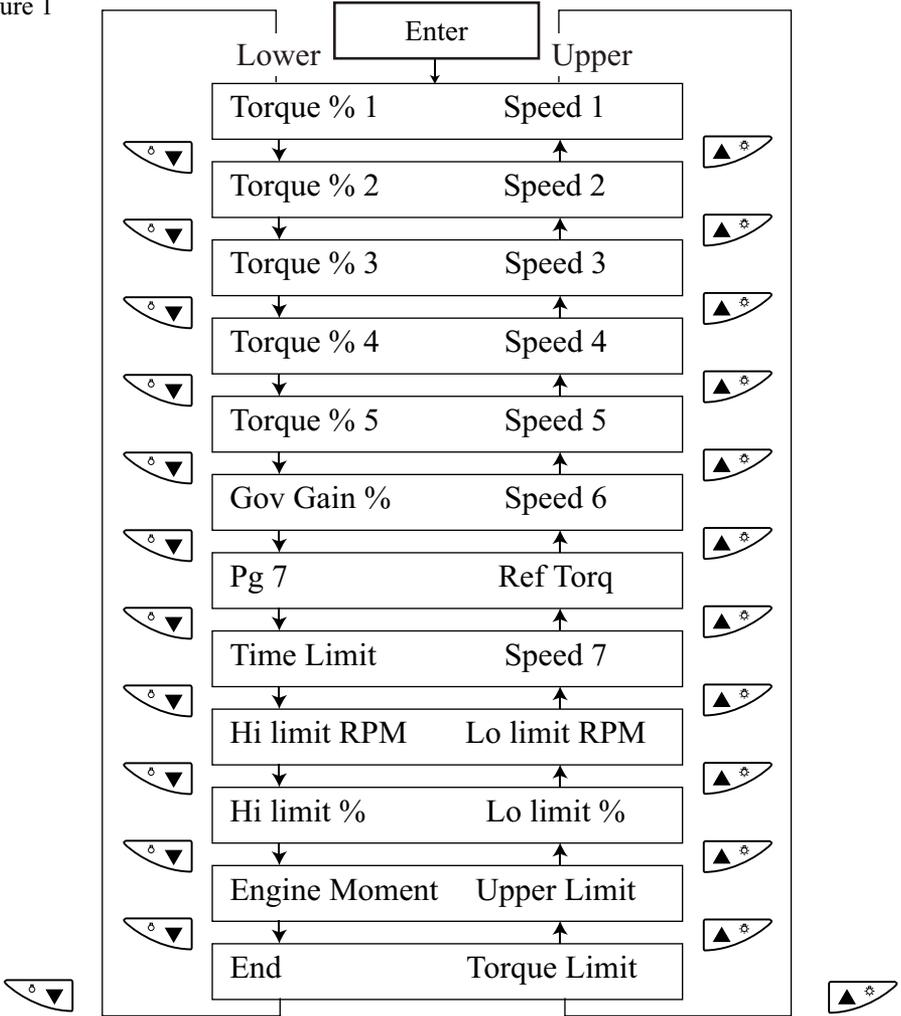
(1234) and (000) are the data which represent the engine configuration information sent from the Engine ECM via the CAN Data Bus.

Use the UP (forward) or the DOWN (backward) button to browse the different parameters as listed on the next page.



Engine Configuration Parameters

Figure 1



Note:

- 1) The J1939 CAN Info Center will only display the engine Configuration parameters. It cannot change them.
- 2) The data length of the list might change based on the different engines' ECM models.
- 3) The CAN Info Center will display a minimum value of the parameter for data which is not sent by the Engine ECM. The minimum value for each parameter has

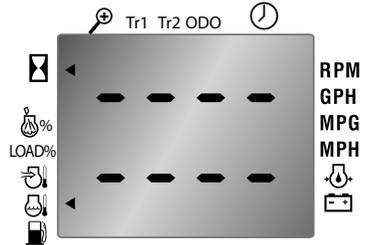
been defined by SAE J1939.

- 4) If any one of the "HOLd PLS" menus in the Service Mode is displayed longer than 1 minute, please check the wire connection to the CAN bus and make sure the Engine ECM is powered on.
- 5) The data for Active, Previously Active Diagnostic Trouble Codes and engine configuration may be changed by the Engine ECM from time to time. The gauge can only display the current information the Engine ECM is sending out.

Note:

1) The Service and Self Test modes are suggested for factory, dealership or Faria® Corporation use only.

2) When the engine is on and serviced with the CUMMINS® diagnostic tool “INSITE”, INSITE Lite”, INSITE Pro” or any other tool which uses the SAE J1587/J1708 protocol, the engine ECM may stop sending or broadcasting J1939 signals. The CAN Info Center will display “- - - -”, which represents a “no signal is received” display.



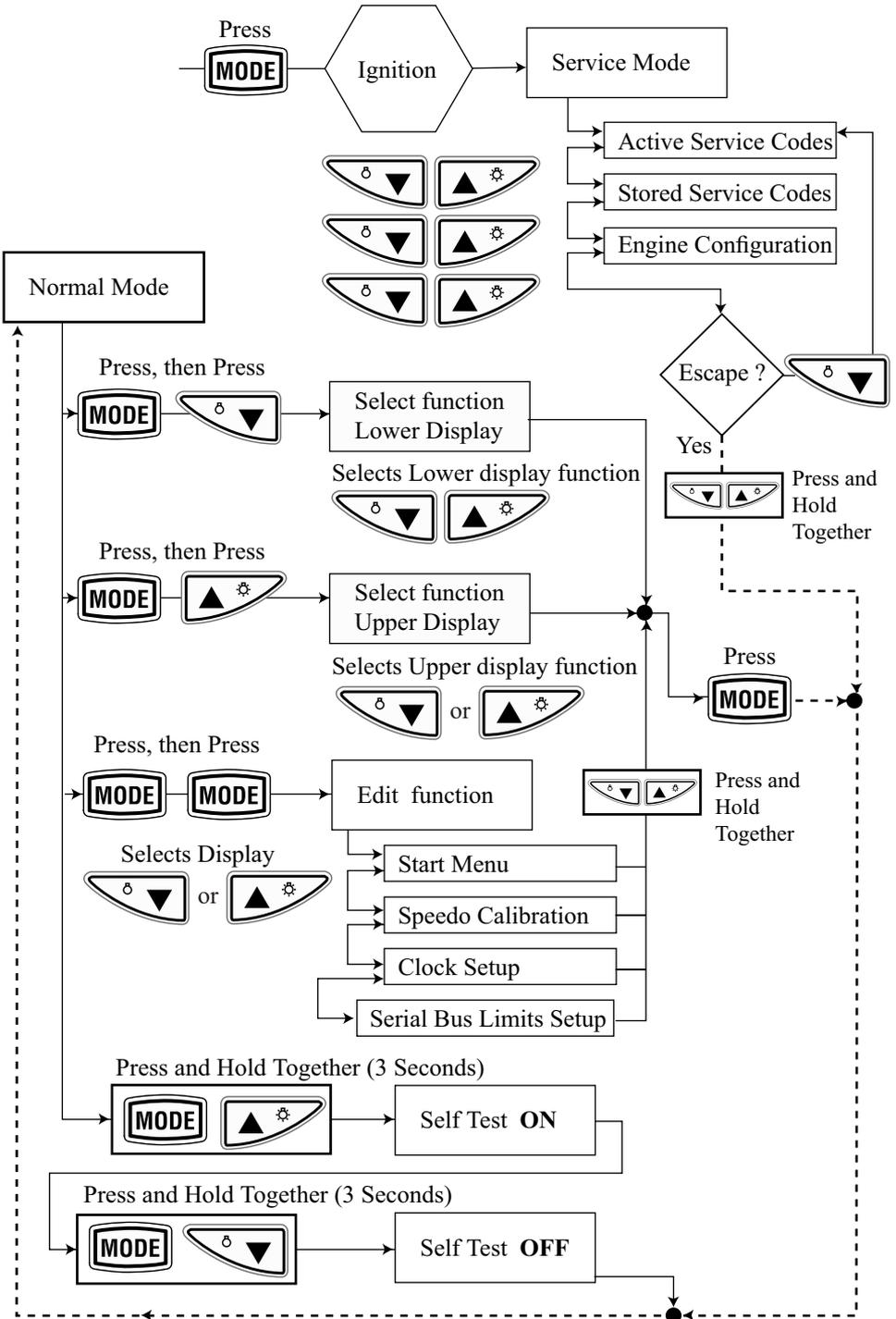
The display of selected information may blink because of the slow response rate of the ECM while communicating in the J1587/J1708 protocol.

The communication will return to normal once the service is done and the user restarts the engine.

Simplified CAN Information Center Modes

Figure 2

Buttons Press and hold buttons together



CAN Info Center PGN Table

Function	PGN	Bytes	
Engine Speed	61444	4, 5	
Fuel Flow (G/H)	65266	1, 2	
Accelerator Pedal Position	61443	2	
Boost Pressure	65270	2	
Engine Hours	65253	1, 2, 3, 4	
Hours & Minutes	65254	2, 3	
Ground Referenced Speed * (Speedo Only)	65265	2, 3	
Oil Pressure	65263	4	
Battery Voltage	65271	5, 6	
Coolant Temp	65262	1	
Inlet Air Temp	65270	3	
Engine Percent Load	61443	3	

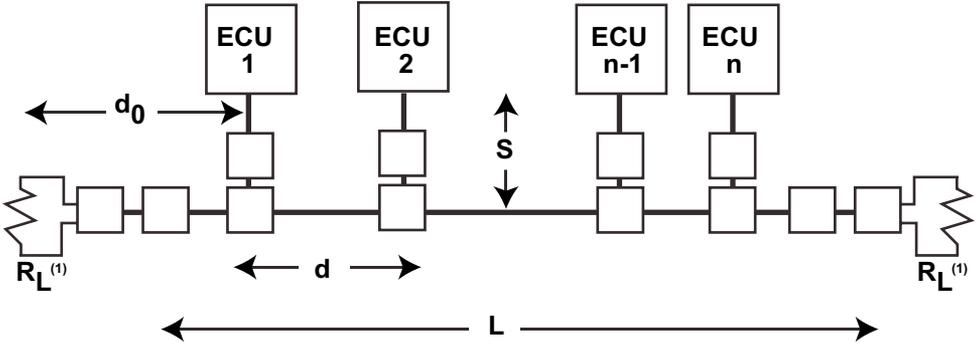
CAN Info Center Diagnostic Table

	PGN	Bytes	
Diagnostic Message 1 DM1	65226	1, 2, 3, 4, 5, 6	
Diagnostic Message 2 DM2	65227	1, 2, 3, 4, 5, 6	

CAN Info Center J1939 Warnings

Warning	PGN	SPN	FMI
Low Oil Pressure Warning	65226	100	1
Eng Hot Warning	65226	110	0
Low Battery Warning	65226	168	1
Hi Battery Warning	65226	168	0
Lo Cool Warning	65226	111	1
Water In Fuel Warning	65279	BYTE 1	N/A

J1939 Network Topology and Parameters

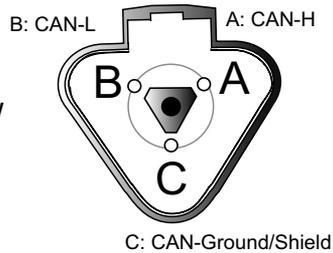


Parameter	Symbol	Min	Nom	Max	Unit	Conditions
Bus Length	L	0		40	m	Not including cable stubs
Cable Stub Length	S	0		1	m	
Node Distance	d	0.1		40	m	
Minimum distance from $R_L^{(1)}$	d_0	0			m	$R_L^{(1)}$ shall not be located within an ECU

1. $R_L = 120$ ohms resistor (2 locations)

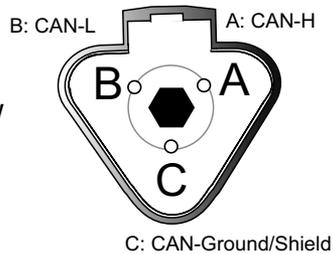
Through Connector (with Female Key)

Pin A: CAN-H
 Pin B: CAN-L
 Pin C: CAN-Ground/
 Shield
 Drain
 Wire



Through Connector (with Male Key)

Pin A: CAN-H
 Pin B: CAN-L
 Pin C: CAN-Ground/
 Shield
 Drain
 Wire



Typical 2-device J1939 Network Topology

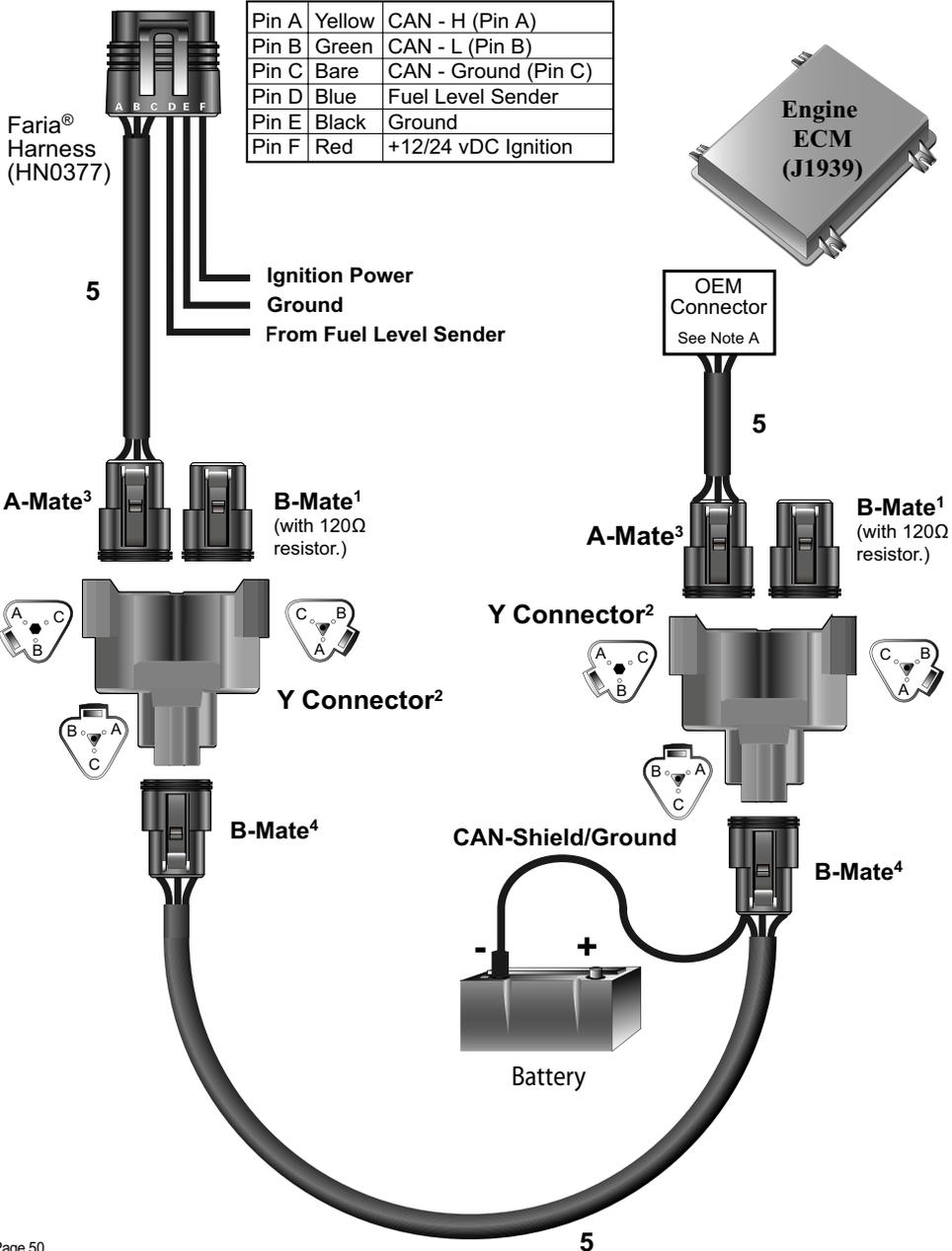


IMPORTANT: This diagram shows a correct example of a SAE CAN network topology. For more information, refer to SAE J1939-11. The Thomas G. Faria Corporation takes no responsibility for the information given. For a copy of SAE J1939-11 contact SAE directly. Tel: 724-776-4970, FAX: 724-776-0790, www.sae.org.

CAUTION: For proper operation of the Faria® system, the SAE topology must be followed.

CAN Info Center

Pin A	Yellow	CAN - H (Pin A)
Pin B	Green	CAN - L (Pin B)
Pin C	Bare	CAN - Ground (Pin C)
Pin D	Blue	Fuel Level Sender
Pin E	Black	Ground
Pin F	Red	+12/24 vDC Ignition



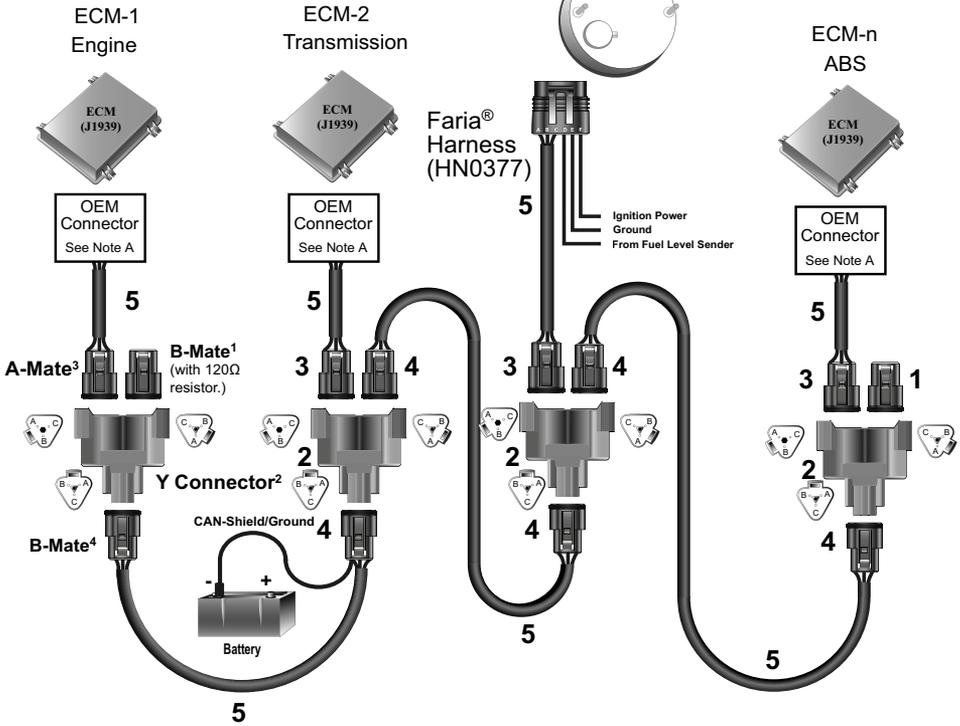
Typical Multi-devices J1939 Network Topology



IMPORTANT: This diagram shows a correct example of a SAE CAN network topology. For more information, refer to SAE J1939-11. The Thomas G. Faria Corporation takes no responsibility for the information given. For a copy of SAE J1939-11 contact SAE directly.
Tel: 724-776-4970, FAX: 724-776-0790, www.sae.org.

CAUTION: For proper operation of the Faria® system, the SAE topology must be followed.

Faria
CAN Info Center



Faria P/N

1:	B-Mate w/120Ω	Plug with 120Ω resistor	Deutsch	DT06-3S-P006	CN0123
2:	Y Connector		Deutsch	DT04-3P-P007	CN0117
3:	A-Mate	3 Pin connector Wedge Lock 3 pins	Deutsch	DT06-3S-E008	CN0118
			Deutsch	W3S	CN0015
			Deutsch	1062-16-0144	CO0086
4:	B-Mate	3 Pin connector Wedge Lock 3 pins	Deutsch	DT06-3S-E008	CN0118
			Deutsch	W3S-1939	CN0086
			Deutsch	1062-16-0144	CO0086
5:	Impedance Controlled Shielded and Twisted J1939 Cable		Champlain Cable	SAEJ1939/1802SHBLK	WR0222

Note A: See engine manufacturer's specifications for proper connector information.

Faria Serial Bus Gauges Installation Instructions.

Description:

The optional Faria® Serial Bus is a series of instruments designed to display digital information transmitted by the Faria CAN Info Center in a traditional analog format.

Communication from the CAN Info Center to the Auxiliary gauges uses a double twisted shielded pair serial link. These gauges are available in the standard 2 inch, 4 inch, or 5 inch nominal diameter case sizes.

Specification:

Input: Faria® Serial Bus

Operating Temperature:

-40°F to 185°F (-40°C - 85°C)

Storage Temperature:

-40°F to 185°F (-40°C - 85°C)

Auxiliary gauge types available:

2" -

Voltmeter

Coolant Temperature

Fuel Level

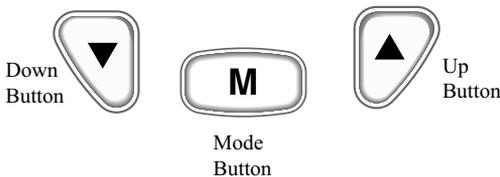
Engine Oil Pressure

4"/5" -

Speedometer with LCD display- Display shows: Odometer and Trip 1

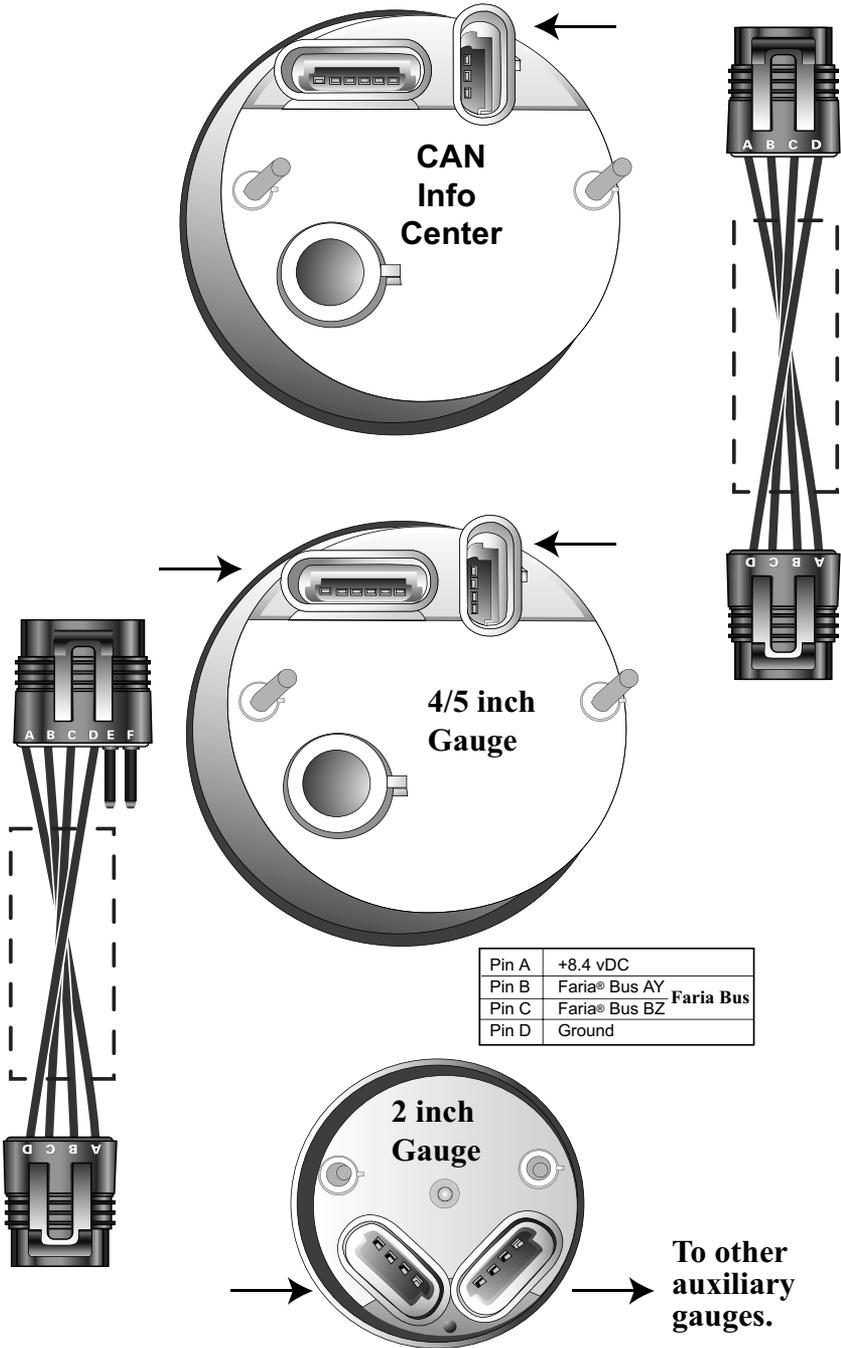
Tachometer with LCD display- Display shows: Engine Hours

The Speedometer and Tachometer have 3 push buttons; Mode, Up, and Down



These buttons can operate the CAN Info Center as a spare or remote operator. Each button's functions are identical to the buttons on the CAN Info Center. Either set of buttons may be used to operate the CAN Info Center. However, only the Mode button on the CAN Info Center can be used to enter the Service Mode.

Typical Wiring for the Auxiliary Serial bus gauges with the CAN Info Center.



Notes:

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