

Faria[®] MARINE
INSTRUMENTS

MG2000™

SmartCraft™ - Tachometer

4-Line Code



Owner's Manual

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Important

 **WARNING**

 **CAUTION**

NOTE

Please read this manual and follow its instructions carefully. To emphasize special information, the symbol  and the words WARNING, CAUTION and **NOTE** have special meanings. Pay special attention to the messages highlighted by these signal words:

NOTE: *Indicates special information to make maintenance easier or instructions clear.*

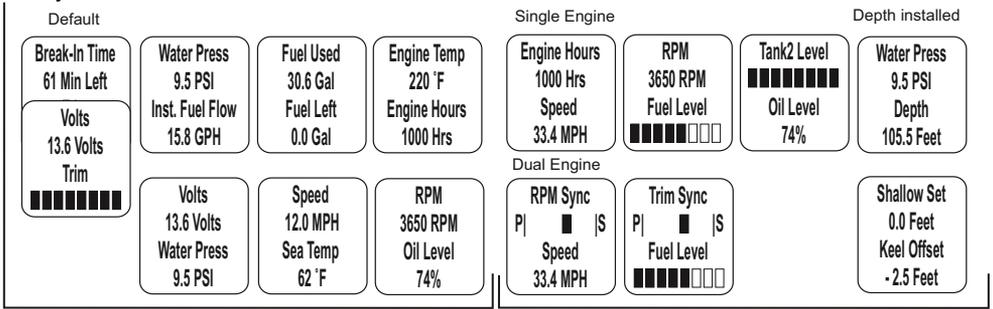
WARNING

Indicates potential hazard that could result in death or injury.

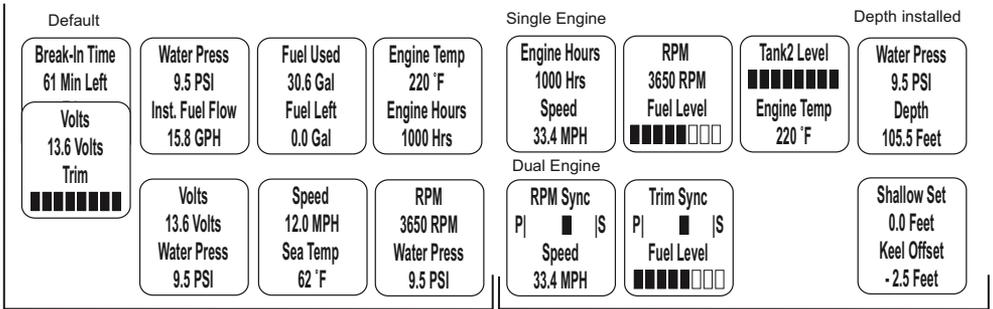
CAUTION

Indicates potential hazard that could result in vehicle damage.

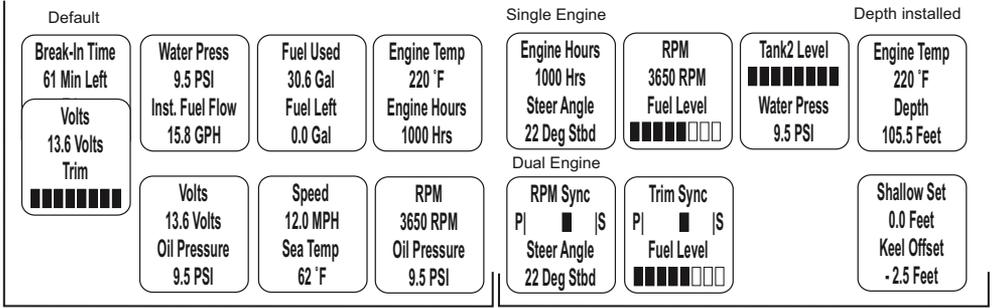
2 Cycle Outboard (Break-In defaults to Volts when break in is complete.)



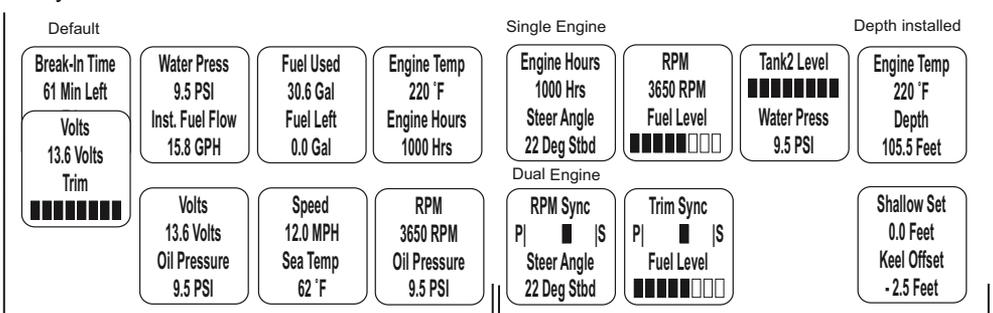
4 Cycle Outboard (Break-In defaults to Volts when break in is complete.)



Inboard/Outboard (Break-In defaults to Volts when break in is complete.)



4 Cycle Inboard (Break-In defaults to Volts when break in is complete.)



Verado (Break-In defaults to Volts when break in is complete.)

Default				Single Engine			Depth installed	
Break-In Time 61 Min Left	Water Press 9.5 PSI	Fuel Used 30.6 Gal	Engine Temp 220 °F	Engine Hours 1000 Hrs	RPM 3650 RPM	Tank2 Level ■■■■■■■■	Oil Temp 30 °F	
Volts 13.6 Volts	Inst. Fuel Flow 15.8 GPH	Fuel Left 0.0 Gal	Engine Hours 1000 Hrs	Speed 12.0 MPH	Fuel Level ■■■■■□□□	Manifold Press 100 PSI	Depth 105.5 Feet	
Trim ■■■■■■■■	Volts 13.6 Volts	Speed 12.0 MPH	RPM 3650 RPM	Dual Engine			Shallow Set 0.0 Feet	
	Oil Pressure 9.5 PSI	Sea Temp 62 °F	Oil Pressure 9.5 PSI	RPM Sync P ■ S	Trim Sync P ■ S	Fuel Level ■■■■■□□□	Keel Offset -2.5 Feet	
				Speed 12.0 MPH	Fuel Level ■■■■■□□□			

Diesel (Break-In defaults to Volts when break in is complete.)

Default				Single Engine			Depth installed	
Break-In Time 61 Min Left	Water Press 9.5 PSI	Fuel Used 30.6 Gal	Engine Temp 220 °F	Engine Hours 1000 Hrs	RPM 3650 RPM	Tank2 Level ■■■■■■■■	Gear Press 25 PSI	
Volts 13.6 Volts	Inst. Fuel Flow 15.8 GPH	Fuel Left 0.0 Gal	Engine Hours 1000 Hrs	Steer Angle 22 Deg Stbd	Fuel Level ■■■■■□□□	Boost Press 25 PSI	Depth 105.5 Feet	
Trim ■■■■■■■■	Volts 13.6 Volts	Speed 12.0 MPH	RPM 3650 RPM	Dual Engine			Shallow Set 0.0 Feet	
	Oil Pressure 9.5 PSI	Sea Temp 62 °F	Manifold Temp 53 °F	RPM Sync P ■ S	Trim Sync P ■ S	Fuel Level ■■■■■□□□	Keel Offset -2.5 Feet	
				Steer Angle 22 Deg Stbd	Fuel Level ■■■■■□□□			

Jet Drive (Break-In defaults to Volts when break in is complete.)

Default				Single Engine			Depth installed	
Break-In Time 61 Min Left	Water Press 9.5 PSI	Fuel Used 30.6 Gal	Engine Temp 220 °F	Engine Hours 1000 Hrs	RPM 3650 RPM	Tank2 Level ■■■■■■■■	Water Press 9.5 PSI	
Volts 13.6 Volts	Inst. Fuel Flow 15.8 GPH	Fuel Left 0.0 Gal	Engine Hours 1000 Hrs	Speed 12.0 MPH	Fuel Level ■■■■■□□□	Oil Level 74%	Depth 105.5 Feet	
Trim ■■■■■■■■	Volts 13.6 Volts	Speed 12.0 MPH	RPM 3650 RPM	Dual Engine			Shallow Set 0.0 Feet	
	Water Press 9.5 PSI	Fuel Level ■■■■■□□□	Oil Level 74%	RPM Sync P ■ S	Trim Sync P ■ S	Fuel Level ■■■■■□□□	Keel Offset -2.5 Feet	
				Speed 12.0 MPH	Fuel Level ■■■■■□□□			

Common to all styles

Troll RPM ON				Troll Speed ON		Showing Troll OFF		Alarm
On/Troll Off Set RPM 550 999 RPM	On/Troll Off Set MPH 5.0 12.0 MPH	On/Troll Off Max RPM 1000 999 RPM	On/Troll Off Min RPM 550 999 RPM	On/Troll Off Set RPM 550 999 RPM	On/Troll Off Set MPH 5.0 12.0 MPH	ALARM SCREEN WILL DISPLAY ALARMS		

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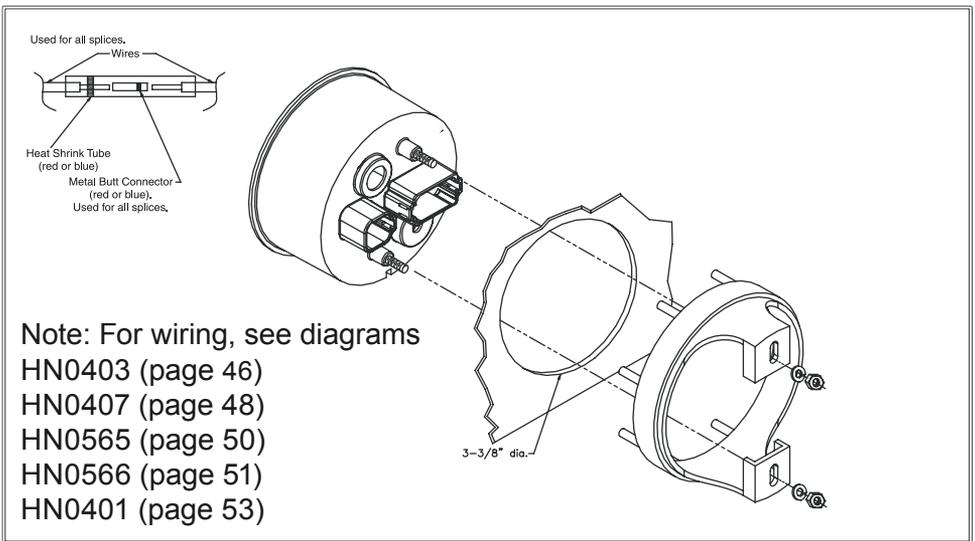


Figure 1
 Use this manual for the SmartCraft™ MG2000™ Tachometer.

⚠ CAUTION

Disconnect the battery during installation. Tighten nuts on the backclamp only slightly more than you can tighten with your fingers. Six inch-pounds of torque are sufficient. Over-tightening could result in damage to the instrument and may void your warranty.

Tools Required

Ref. Tools Description

1. 3/8" Nut Driver



Installation

1. Cut a 3-3/8" diameter hole in the dash for the 4" gauge. Mount the gauge with the backclamp supplied.

Cut a 4-3/8" diameter hole in the dash for the 5" gauge.

2. Small Connector Socket
 Follow the wiring diagram at the end of this manual for connections. (See page 53)
3. Large Connector Socket
 Follow the wiring diagram at the end of this manual for connections. (See page 46, 48, 50 and 51 depending on your connection type.)

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Description

MG2000™ Tachometer Manual

Specifications:

SmartCraft™ bus.

- Analog signal inputs for: fuel level sender (low fuel warning based on the sender), trim sender, on the MG2000 tachometer.
- 1 Pressure port for: engine water pressure on the MG2000 tachometer.
- 1 NMEA 0183 (version 3.01) GPS signal input for: clock, boat/vessel speed, position, and heading.
- 128 x 128 graphic dot-matrix LCD display.
- Auxiliary gauge communication: Faria serial bus (RS485/SAE J1708) from the MG2000 tachometer
- Operation voltage: 12 vDC or 24 vDC
- Operation temperature: -20 °C to 70 °C
- Storage temperature: -30 °C to 80 °C

Nominal current draw (tachometer, speedometer, and five 2" gauges with lights on maximum level): 420 mA.

The MG2000 combines the features of an ECU serial bus gateway and several instruments into one unit:

- The tachometer is analog in appearance but is driven by a stepper motor for digital accuracy.



The LCD display

- The high resolution LCD screen displays information for many other functions. As received, the screens are configured as shown in the default screens. Figure 2 shows the

sequence of the screens.



Example of digital screen.

The MG2000 receives digital engine and sensor data from the Engine Control Unit (ECU) via the bus and can receive GPS information via a NMEA 0183 connection to a suitable GPS unit. GPS information is displayed in the MG2000 speedometer for use with the SmartCraft Tachometer.

The MG2000 tachometer provides a Faria Bus output to allow use of various other 5, 4, and 2 inch instruments.

If connected properly (see wiring diagrams at the back of this manual.) the MG2000 tachometer will turn on when the ignition key is turned on and will turn off when the ignition key is turned off. See the "Normal" mode section of this manual for initial screen information.

The instrument has three push buttons; "M" (Mode), "Down", and "Up" that control the functions available.



In the "Normal" mode, pressing the "Down" or "Up" buttons causes the display to cycle between the available screens (see Figure 2, page 11).

In "Normal" mode, pressing the "Mode" and "Up" buttons together will put the MG2000 into the "Edit" mode (see Edit mode, page 12).



and



Operation

Normal Mode

When the MG2000 is turned on, the unit enters “Self Test” mode. The following screen will be displayed for 10 seconds.



The horn will sound once, the warning lights will flash, and the backlights will flash. When this is complete, this screen will appear for 2 seconds.

Note: If the key is turned on to the “accessory” position and therefore there is no data being received from the ECU the “ECU Data Error” warnings will appear. This is normal as the engine is not running.

Once the engine is running, the “Default” screen will appear. If the “ECU Data Error” warning continues to appear after the engine is running, check all connections between the engine and the MG2000.

The MG2000 then enters the “Normal” mode.

Lighting

Brightness Mode

In the “Normal” mode, to adjust the lighting intensity of all of the instruments connected to the MG2000 tachometer press the “Mode” button.

In the “Brightness” mode, the lighting intensity can be changed by using the “Down” or “Up” buttons.



Contrast Mode

To enter the “Contrast” mode press the “Mode” button, from the “Brightness” mode. (To change the contrast from the “Normal” mode press the “Mode” button twice.)



In the “Contrast” mode the MG2000 display contrast can be adjusted by pressing the “Down” or “Up” buttons.



With the display in “Positive” mode, black text on a white background, pressing the “Down” button decreases the contrast (make the text appear less dark).

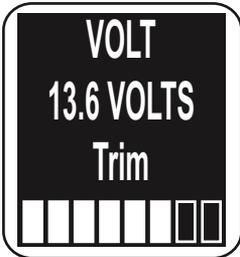




Pressing the “Up” button increases contrast (making the text appear darker).



To change the background from a white to a black, continue to press the “Up” button. The display will reverse to the “Negative” mode (white text on a black background).



Pressing the “Up” button increases contrast (making the text appear more white). Pressing the “Down” button decreases the contrast (make the text appear more dark).



To return to “Positive” mode, continue to press the “Down” button until the display reverses.

Troll Control

The “Troll Control” function allows the operator to set the engine RPM or the boat speed and have the engine maintain the RPM or speed setting automatically.

The SmartCraft paddle wheel option must be installed on the boat for the “Troll Control” function to operate. The upper and lower limits for these functions are preset in the engine ECU and can not be changed by the operator. For the troll control function to operate the engine control **MUST** be “In Gear” and at “Idle”.

To use the “Troll Control” function, from “Normal” mode, press and hold both the “Up” and “Down” buttons until the screen changes to the Troll mode.



Press “Mode” to turn the troll control function “ON” and “OFF”.





Once the troll function is “ON”, press the “Up” or “Down” buttons to change the troll setting.



The troll control function has two modes of operation, “RPM mode” and “Speed mode”. Press and hold both “Up” and “Down” buttons in the, Troll mode, to switch between the two modes.



The speed control operates between the same RPM limits as the RPM control.

Adjust the RPM or speed setting using the “Up” and “Down” buttons until the desired setting is obtained. The control will maintain the set RPM or speed automatically (between the set limits).



There is no manual way to return to the “Normal” mode from the “Toll Control” mode, if no buttons are pressed for 10 seconds the unit will automatically return to the “Normal” mode. Troll control will continue to work until you manually turn it off.

Note: The engine control must be “In Gear” and set to “Idle” for the troll control to function. The “Not in Gear” or “Not in Idle” (not shown) screens will appear if these conditions have not been met. The “No Paddle Sig” screen will appear if there is no paddle wheel signal for the troll function. Troll Control requires engine support; please make sure a Mercury® SmartCraft™ engine with the Troll function has been installed.

When the Troll Control is on, the warning LED’s will flash once every 20 seconds. This indicates that the Troll Control is active.

Tachometer

The tachometer is a digital instrument with the appearance of an analog instrument. A microprocessor controlled stepper motor moves the pointer to display engine revolutions per minute.

A digital LCD display is used to show various digital information received from the engine ECU. There are 13 default screens used. A brief discussion of the default displays follows. Your default screens may differ based on the type of engine you have installed. Use the table at the beginning of the manual to see what defaults you may have.

The information below applies to the MG2000 as received from the factory with no user changes to the screen selections. The Faria MG2000 can be customized according to your specific needs. Using the "Edit" mode you can organize the default screens in any manner you desire. See the "Edit" mode (page 12) for more information.

Default Screen "1"



Volts or Break-In Time

Displays system voltage as received from the ECU or the amount of "Break-In Time" remaining. Once the "Break-In Time" has been completed, the unit will display system volts on this screen.

Trim or Eng Temp or Sea Temp

Displays trim setting for 2 cycle and 4 cycle outboards, Inboard/Outboard, and Verado outboards. When "Trim" goes to "Trailer" position, trim display shows "TL" and six (6) boxes."

Displays "Engine Temp" for inboards.

Displays "Sea Temp" for Jet drives.

Default Screen "2"



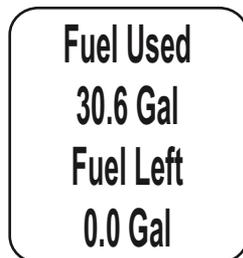
Water Press

Displays water pressure for all engine types.

Inst Fuel Flow

Displays the instantaneous fuel flow in GPH or LPH.

Default Screen "3"



Fuel Used

Displays the amount of fuel used since last reset based on the instantaneous fuel flow from the engine ECU and the time spent at each flow rate.

Fuel Left

Displays the amount of fuel left based on operator input of amount of fuel in tank as set in the "Edit" mode.

For this function to work correctly, the following settings must be set by the operator in the "Edit" mode: "Fuel Tank Size"; and "Fuel Tank Full" or "Amount of Fuel". The default "Fuel Tank Size" is 0. The operator must set the fuel tank size as described in the "Edit" mode section of this manual (page 22).

Note: if a "Master Reset" is performed, the "Fuel Tank Size" must be reset.

Default Screen "4"



Eng Temp or Gear Temp

Displays the coolant temperature received from the ECU on all engines except diesel engines. Dial range for two inch gauges can be selected in the "Select Gauge Range" edit function.

Displays "Gear Temp" on diesel engines.

Engine Hours

Displays the engine hour's data received from the engine ECU.

Default Screen "5"



Volts

Displays system voltage from the ECU.

Water Press or Oil Pressure or Oil Temp

Displays "Water Pressure" on outboards, and Jet drives.

Displays "Oil Pressure" on inboards, inboard/outboards and diesels.

Displays "Oil Temp" on Verado

Outboards.

Default Screen "6"



Speed

Displays boat speed as received from the SmartCraft bus. For improved accuracy at all speeds, the SmartCraft system allows the use of both a pitot tube speed input (the default) and a paddle wheel input.

If the paddle wheel option is installed, the SmartCraft system uses the paddle wheel at low speeds and the pitot tube at high speeds. The point at which the change from paddle wheel to pitot occurs is called the "Transition Point". The user can adjust the "Transition Point" in the "Edit" mode "Configure Speed" function (see page 29).

Adjust the "Set Sender Transition" as described in the "Edit" mode function (see page 30 to obtain the best performance of this function.

Sea Temp or Fuel Level

Displays sea temperature as received from the SmartCraft bus on all engines except Jet Drive.

Displays "Fuel Level" on Jet Drives.

Default Screen "7"



RPM

Displays engine RPM as received from the SmartCraft bus.

Oil Level or Oil Pressure or Water Pressure or Intake Manifold Temp.

Displays "Oil Level" on two cycle outboards, and jet drives.

"Oil Pressure" is displayed boats with inboard, inboard/outboard, and Verado out-board engines.

Displays "Water Pressure" on 4 cycle outboards.

Displays "Intake Manifold Temperature" on diesels engines.

Default Screen "8"



Engine Hours or RPM Sync

Displays "Engine Hours" on single engine installations.

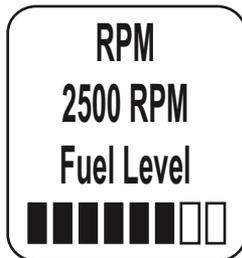
Displays a graphic display showing engine sync in dual engine installations. Center mark appears if engines are synchronized.

Steering Angle or Speed

Displays "Steer Angle" on inboard/outboards, inboards and diesel engines.

Displays "Speed" for 2 cycle and 4 cycle outboards, Jet drives, and Verado outboards.

Default Screen "9"



RPM or Trim Sync

Displays RPM for all single engine installations and Trim Sync for all dual engine installations.

Fuel Level

Displays a graphic display of 8 boxes for all engine types. All boxes filled in indicates a full level.

Default Screen "10"



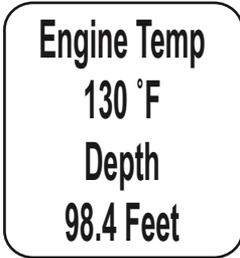
Tank2 Level

Displays a graphic display of 8 boxes represent the volume of liquid in an auxiliary tank. The tank name can be changed. (Refer to the "Edit" mode, page 33.)

Oil Level or Engine Temp or Water Pressure or Manifold Pressure or Boost Pressure.

Displays Oil Level on 2 cycle outboards and Jet Drives. Displays Engine Temp on 4 cycle outboards. Displays Water Pressure on inboard/outboards, and inboards. Displays Manifold Pressure on Verado outboards, and displays Boost Pressure on diesel engines.

Default Screen "11"



Water Press or Engine Temp or Oil Temp or Gear Pressure

Displays "Water Pressure" on 2 cycle, 4 cycle and Jet drives.

Displays "Engine Temp" on inboard/outboards and inboards.

Displays "Oil Temp" on Verado outboards and Gear Press on diesel engines.

The following screen appears if a valid depth sounder is being received on the SmartCraft bus.

Depth

Displays water depth under the depth transducer as received from the SmartCraft bus.

Default Screen "12"



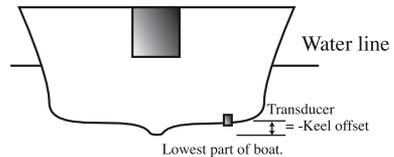
Shallow set

Displays shallow depth alarm setting entered by the user.

Keel offset

Displays the keel offset entered by the user.

Negative numbers indicate that the Depth Sounder transducer is located ABOVE the deepest part of the hull (typical).



Allow for worst case boat loading when adjusting the Keel Offset as this setting affects the Shallow Alarm.

Default screen "13"



This screen displays fault conditions as described in the "Alarm" mode section of this manual (page 40).

LCD display screens sequence:

In "Normal" mode, press "Up" or "Down" to move between screens.

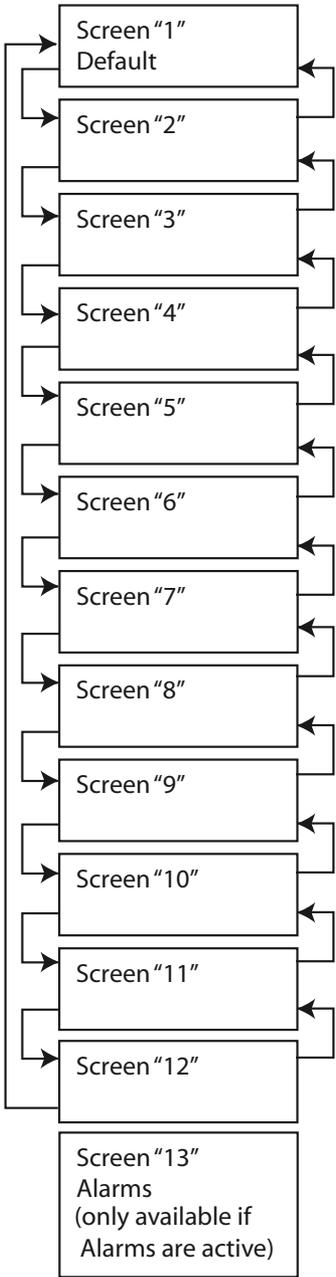


Figure 2

Edit Mode

The “Edit” mode is used to adjust or set the values of numerous functions and options in the MG2000.

To enter “Edit” mode press the “Mode” and “Up” buttons together from the “Normal” mode.



Go to the “Edit” mode instruction table, on page 11, and follow the instructions for each edit function.

Edit functions that are set, adjusted or observed in the “Edit” mode;

1. Reset Fuel Used
2. Set Fuel Tank Full
3. Set Amount Of Fuel
4. Calibrate Trim Sender (Down, UP and Trailer)
5. Select Engine Position (Starboard, Port, Starboard Inner and Port Inner)
6. Select Display Units (Pressure, Volume, Temperature, Distance and Depth)
7. Select Fuel Tank Size (Standard = 25, 36, 40, 50, 55, 80 and 120. Others 0 to 999)
8. Low Fuel Alarm
9. Fuel Tank Calibrate
10. Software ID and Revision
11. Depth Sounder Warnings (Shallow 0 to 99.9 ft. Keel offset +/- 19.9 ft)
12. Self Test
13. Enable Display Screens
14. Configure Speed (Calibrate Pitot, Calibrate Paddlewheel, and Set Transition Speed)
15. Invert Steering Angle (Normal and Inverted)
16. Helm Select (Helm 1 and Helm 2)
17. Pitot Select (100 PSI and 200 PSI)
18. Master Reset
19. Tank2 Name (Tank2 Level, Fuel2 Level, Oil Level, Waste Water, and Water Level

20. Engine Type Up and Down
21. Sea Water Temp Sensor Installed?
22. Steering Position Sensor installed?
23. Pitot Sensor installed?
24. Paddlewheel Sensor Installed?
25. Fuel 1 Sensor installed?
26. Fuel 2 Sensor installed?
27. Calibrate Trim Sync

Use the “Up” or “Down” buttons to select an edit function and to change the setting.



Press and hold the “Up” and “Down” buttons together for 2 seconds to save the changes.



Press the “Mode” button from the edit function to exit the edit function without saving.

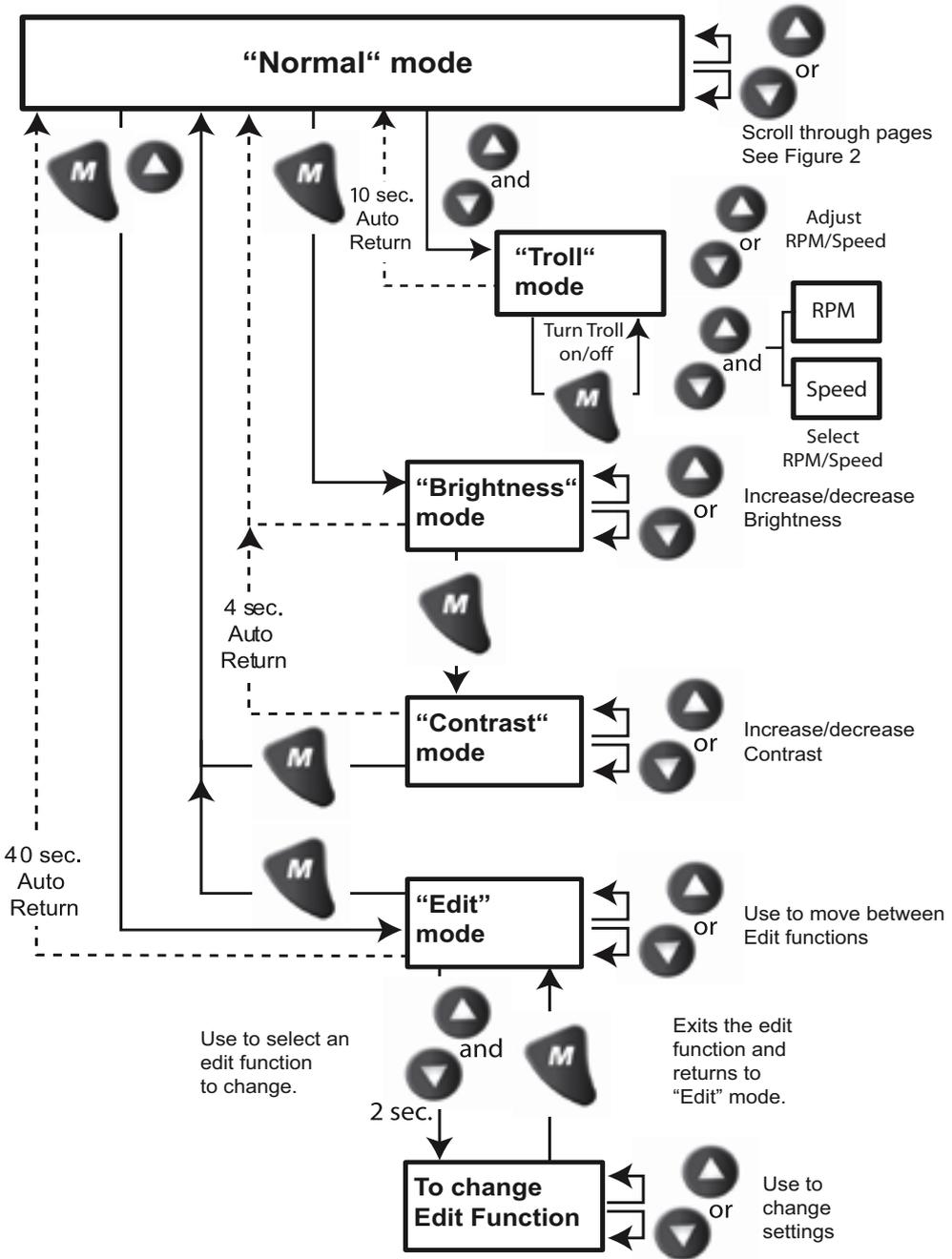


To return to “Normal” mode press the “Mode” button once from the “Edit” mode.



If no buttons are pushed for 40 seconds, the unit will exit “Edit” mode and return to “Normal” mode.

LCD Display Screens



Dashed lines indicate Auto Return to the Normal Mode after the indicated number of seconds with no button activity.

Figure 3

(This page left blank intentionally.)

Instructions – Function

Press and hold the **“Mode”** **and** **“Up”** buttons together to enter the “Edit” mode. The first edit function is “Select Default Screen”.

Select
Default
Screen

Use the **“Up”** or **“Down”** button to select the desired edit function.

Reset Fuel Used

From the “Edit” mode, using the **“Up”** or **“Down”** buttons, select the “Reset Fuel Used” edit function.

Press and hold the **“Up”** **and** **“Down”** buttons for 2 seconds to select the “Reset Fuel Used.” Follow the instructions below.

Reset
Fuel
Used

Otherwise,

Press the **“Up”** or **“Down”** button to select another function or **“Mode”** to return to “Normal” mode.

Press and hold the **“Up”** **and** **“Down”** buttons for 2 seconds to reset “Fuel Used” to zero (0). The screen will change to Fuel Reset Done to signal a successful reset.

Fuel
Reset
Done

Press and hold the **“Up”** **and** **“Down”** buttons together to return to the “Edit” mode.

Reset
Fuel
Used

Press **“Up”** or **“Down”** to select another “Edit” mode edit function.

Otherwise,

Press the **“Mode”** button to return to the “Normal” mode.

Set Fuel Tank Full

From the “Edit” mode, using the **“Up”** or **“Down”** buttons, select the “Set Fuel Tank Full” edit function.

Press and hold the **“Up”** **and** **“Down”** buttons for 2 seconds to select the “Set Fuel Tank Full.” Follow the instructions below.

Set
Fuel Tank
Full

Otherwise,

Press the **“Up”** or **“Down”** button to select another function or **“Mode”** to return to “Normal” mode.

<p><i>Note: In order to use the “Fuel Left” function, the owner must set this function when the fuel tank is filled or use the set current amount of fuel below. In addition, if “Set Fuel Tank Full” function is used, the “Fuel Tank Size” must be set correctly to the size of the fuel tank in this application. The computer will monitor fuel usage and calculate the fuel left in the tank. This function does not replace the fuel level function provided by the fuel sender and should be used with caution.</i></p>	
<p>Press and hold the “Up” and “Down” buttons for 2 seconds. The display will show the maximum amount of gallons for the fuel tank size selected.</p>	<p>Set Amount X.X G</p>
<p>At this time you can use the “Up” or “Down” button to adjust the amount of fuel in the tank.</p>	
<p>When the proper amount of fuel is shown in the display, press both “Up” and “Down” buttons together to save the function.</p> <p>The screen returns to the “Edit” mode.</p>	<p>Set Fuel Tank Full</p>
<p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	
<p>Set Amount Of Fuel</p>	
<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Set Amount Of Fuel” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Set Amount Of Fuel” Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Set Amount Of Fuel</p>
<p><i>Note: If a known amount of fuel is in the fuel tank but it is not full, this function can be used to indicate the amount of fuel available. The “fuel left” function will then use the amount of fuel entered to calculate the “Fuel Left.”</i></p>	
<p>Press the “Up” or “Down” button to set the amount of fuel known to be in the fuel tank. Adjust until the displayed volume matches the known amount of fuel in the tank.</p>	<p>Fuel Amount X.X G</p>

<p>When the volume is correctly set, Press and hold the “Up” and “Down” buttons together for 2 seconds to save and exit.</p> <p>The screen returns to the “Edit” mode.</p>	<p>Set Amount Of Fuel</p>
<p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	
<p>“Calibrate Trim Sender”</p>	
<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Calibrate Trim Sender” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Calibrate Trim Sender”. Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Calibrate Trim Sender</p>
<p>Step 1: Adjust the engine’s trim to the full “Down” position. Press the “Down” button to save the setting.</p>	<p>Set Trim Down Press Down X.X</p>
<p>Step 2: Adjust the engine’s trim to the full “Up” position. Press the “Up” button to save the setting.</p> <p>Press the “Up” and “Down” buttons for 2 seconds to save the new calibration.</p> <p><i>Note: If this step is skipped, the calibration will not be saved.</i></p>	<p>Set Trim Up Press Up X.X</p>
<p>Step 3: Adjust the engine’s trim to the “Trailer” position. Press the “Down” button to save the setting.</p> <p>Press the “Up” and “Down” buttons for 2 seconds to save the new calibration.</p> <p><i>Note: If this step is skipped, the calibration will not be saved.</i></p>	<p>Set Trim Trailer Press Down X.X</p>
<p>The screen returns to the “Edit” mode.</p>	<p>Calibrate Trim Sender</p>
<p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	

<u>Select "Engine Position"</u>	
<p>From the "Edit" mode, using the "Up" or "Down" buttons, select the "Select Engine Position" edit function.</p> <p>Press and hold the "Up" and "Down" buttons for 2 seconds to select the "Select Engine Position". Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the "Up" or "Down" button to select another function or "Mode" to return to "Normal" mode.</p>	Select Engine Position
<p>Press the "Up" or "Down" buttons to scroll through the selections.</p> <p>When the correct choice is next to the selection arrow ">", Press and hold the "Up" and "Down" buttons together for 2 seconds to save the selection.</p>	Select Eng Position Port Inner > Starboard
<p>These selections will appear during scrolling. Only two selections are displayed at a time.</p>	Port Star Inner
<p><i>Note: After changing the Engine Position you will need to turn the MG2000 off then back on for the change to take effect.</i></p>	
<p>The screen returns to the "Edit" mode.</p>	Select Engine Position
<p>Press "Up" or "Down" to select another "Edit" mode edit function.</p> <p>Otherwise,</p> <p>Press the "Mode" button to return to the "Normal" mode.</p>	
<u>Select Display Units - "Pressure Units"</u>	
<p>From the "Edit" mode, using the "Up" or "Down" buttons, select the "Select Display Units" edit function.</p> <p>Press and hold the "Up" and "Down" buttons for 2 seconds to select the "Select Display Units". Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the "Up" or "Down" button to select another function or "Mode" to return to "Normal" mode.</p>	Select Display Units
<p>From the "Select Display Units" function, using the "Up" or "Down" buttons display the "Select Pressure Units" screen.</p> <p>Press and hold the "Up" and "Down" buttons for 2 seconds to select "Select Pressure Units."</p>	Select Pressure Units

<p>Press “Up” or “Down” to scroll through the selections.</p> <p>When the correct choice is next to the selection arrow “>”, press and hold the “Up” <u>and</u> “Down” buttons together for 2 seconds to save the selection.</p>	<p>Pressure Units BAR > PSI</p>
<p>The screen returns to the “Select Pressure Units” screen.</p>	<p>Select Pressure Units</p>
<p>Press the “Up” or “Down” button to select another “Display Unit.”</p> <p>Or press “Mode” to return to the “Edit” mode.</p>	
<p>Select Display Units - “Volume Units”</p>	
<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Select Display Units” edit function.</p> <p>Press and hold the “Up” <u>and</u> “Down” buttons for 2 seconds to select the “Select Display Units”. Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Select Display Units</p>
<p>From the “Select Display Units” function, using the “Up” or “Down” buttons display the “Select Volume Units” screen.</p> <p>Press and hold the “Up” <u>and</u> “Down” buttons for 2 seconds to select “Select Volume Units.”</p>	<p>Select Volume Units</p>
<p>Press “Up” or “Down” to scroll through the selections.</p> <p>When the correct choice is next to the selection arrow “>”, press and hold the “Up” <u>and</u> “Down” buttons together for 2 seconds to save the selection.</p>	<p>Volume Units Liters > Gal</p>
<p>The screen returns to the “Select Pressure Units” screen.</p>	<p>Select Volume Units</p>
<p>Press the “Up” or “Down” button to select another “Display Unit.”</p> <p>Or press “Mode” to return to the “Edit” mode.</p>	

Select Display Units - "Temperature Units"

From the "Edit" mode, using the **"Up" or "Down"** buttons, select the "Select Display Units" edit function.

Press and hold the **"Up" and "Down"** buttons for 2 seconds to select the "Select Display Units". Follow the instructions below.

Otherwise,

Press the **"Up" or "Down"** button to select another function or **"Mode"** to return to "Normal" mode.

Select
Display
Units

From the "Select Display Units" function, using the **"Up" or "Down"** buttons display the "Select Temperature Units" screen.

Press and hold the **"Up" and "Down"** buttons for 2 seconds to select "Select Temperature Units."

Select
Temperature
Units

Press **"Up" or "Down"** to scroll through the selections.

When the correct choice is next to the selection arrow ">", Press and hold the **"Up" and "Down"** buttons together for 2 seconds to save the selection.

Temperature
Units
° C
> ° F

The screen returns to the "Select Pressure Units" screen.

Select
Temperature
Units

Press the **"Up" or "Down"** button to select another "Display Unit."

Or press **"Mode"** to return to the "Edit" mode.

Select Display Units - "Distance Units"

From the "Edit" mode, using the **"Up" or "Down"** buttons, select the "Select Display Units" edit function.

Press and hold the **"Up" and "Down"** buttons for 2 seconds to select the "Select Display Units". Follow the instructions below.

Otherwise,

Press the **"Up" or "Down"** button to select another function or **"Mode"** to return to "Normal" mode.

Select
Display
Units

From the "Select Display Units" function, using the **"Up" or "Down"** buttons display the "Select Distance Units" screen.

Press and hold the **"Up" and "Down"** buttons for 2 seconds to select "Select Distance Units."

Select
Distance
Units

<p>Press “Up” or “Down” to scroll through the selections.</p> <p>When the correct choice is next to the selection arrow “>”, Press and hold the “Up” and “Down” buttons together for 2 seconds to save the selection.</p>	<p>Distance Units NM > Miles</p>
<p>This selection will appear during scrolling. Only two selections are displayed at a time.</p>	<p>km</p>
<p>The screen returns to the “Select Distance Units” screen.</p>	<p>Select Distance Units</p>
<p>Press the “Up” or “Down” button to select another “Display Unit.”</p> <p>Or press “Mode” to return to the “Edit” mode.</p>	

Select Display Units - “Depth Units”

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Select Display Units” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Select Display Units”. Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Select Display Units</p>
<p>From the “Select Display Units” function, using the “Up” or “Down” buttons display the “Select Depth Units” screen.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select “Select Depth Units.”</p>	<p>Select Distance Units</p>
<p>Press “Up” or “Down” to scroll through the selections.</p> <p>When the correct choice is next to the selection arrow “>”, Press and hold the “Up” and “Down” buttons together for 2 seconds to save the selection.</p>	<p>Depth Units Fathoms > Feet</p>
<p>This selection will appear during scrolling. Only two selections are displayed at a time.</p>	<p>Meters</p>
<p>The screen returns to the “Select Depth Units” screen.</p>	<p>Select Depth Units</p>
<p>Press the “Up” or “Down” button to select another “Display Unit.”</p> <p>Or press “Mode” to return to the “Edit” mode.</p>	

Select Fuel Tank Size

From the “Edit” mode, using the “Up” or “Down” buttons, select the “Select Fuel Tank Size” edit function.

Press and hold the “Up” **and** “Down” buttons for 2 seconds to select the “Select Fuel Tank Size.” Follow the instructions below.

Otherwise,

Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.

Select
Fuel Tank
Size

Press and hold the “Up” **and** “Down” buttons for 2 seconds to select “Standard Fuel Tank Size.”

Select
Standard
Fuel Tank
Size

Note: Review the list of standard fuel tank sizes for a size that matches the fuel tank in the application.

If the standard tank sizes do not match your boats tank size then go to “Select Other Fuel Tank Size”

Press “Up” or “Down” to scroll through the selections.

When the correct choice is next to the selection arrow “>”, Press and hold the “Up” **and** “Down” buttons together for 2 seconds to save the selection.

Select
Fuel Tank
120 Gal
> 25 Gal

These selections will appear during scrolling. Only two selections are displayed at one time.

36 Gal
40 Gal
50 Gal
55 Gal
80 Gal

The screen returns to the “Select Standard Tank Size” screen.

Select
Standard
Fuel Tank
Size

Press the “Mode” button to return to the “Edit” mode.

Select
Fuel Tank
Size

Select “Other Fuel Tank Size”

If there is no standard tank size available in the list that matches your tank size, press the “Mode” button to return to “Select Standard Fuel Tank Size”. Use the “Up” or “Down” button to select “Select Other Fuel Tank Size.”

Select
Other
Fuel Tank
Size

Press “Up” or “Down” to set the fuel tank size displayed on the screen to match your fuel tank size in Gal. (Line 4 value “XXX” will adjust.)	Select Other Fuel Tank XXX
When set, press and hold the “Up” and “Down” buttons for 2 seconds to save the selection.	
The screen returns to the “Select Other Tank Size” screen.	Select Other Fuel Tank Size
Press the “Mode” button to return to the “Edit” mode.	Select Fuel Tank Size

“Low Fuel Alarm”

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Select Data Sources” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Select Data Sources”. Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	Select Data Sources
<p>From the “Select Data Sources” function, using the “Up” or “Down” buttons display the “Low Fuel Alarm” screen.</p> <p>Press and hold “Up” and “Down” buttons together for 2 seconds to choose “Low fuel Alarm.”</p>	Low Fuel Alarm
<p>Using the “Up” or “Down” buttons set the instance. The value “X” will be the amount of fuel remaining in the tank to indicate you are low on fuel.</p> <p><i>Note: To disable the alarm set the “Low Fuel Alarm” to ‘0’.</i></p> <p>When set, press and hold “Up” and “Down” buttons together for 2 seconds to save the selection.</p>	Low Fuel (G) X
<p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	Low Fuel Alarm

Fuel Tank Calibrate - Tank Empty

From the “Edit” mode, using the “Up” or “Down” buttons, select the “Fuel Tank Calibrate” edit function.

Press and hold the “Up” **and** “Down” buttons for 2 seconds to select the “Fuel Tank Calibrate”. Follow the instructions below.

Otherwise,

Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.

Fuel
Tank
Calibrate

Note: Ensure fuel tank is empty before continuing to the next step.

Using the “Up” or “Down” buttons display “Calibrate Fuel Empty”.

Press and hold the “Up” **and** “Down” buttons for 2 seconds to select “Calibrate Fuel Empty”.

Calibrate
Fuel
Empty

Ensure fuel tank is empty before setting this level.

The last line of the display shows the percentage of fuel being sent by the fuel sender for the empty condition.

Press and hold the “Up” **and** “Down” buttons for 2 seconds to save the empty calibration point.

Fuel
Empty
Input Fuel%
XX%

The screen returns to the “Calibrate Fuel Empty” screen.

Calibrate
Fuel
Empty

Press the “Mode” button to return to the “Edit” mode.

Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.

Fuel
Tank
Calibrate

Fuel Tank Calibrate - Half Full

From the “Edit” mode, using the “Up” or “Down” buttons, select the “Fuel Tank Calibrate” edit function.

Press and hold the “Up” **and** “Down” buttons for 2 seconds to select the “Fuel Tank Calibrate”. Follow the instructions below.

Otherwise,

Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.

Fuel
Tank
Calibrate

<p>Note: Ensure fuel tank is half full before continuing to the next step.</p> <p>Using the “Up” or “Down” buttons display “Calibrate Fuel Half Full”.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select “Calibrate Fuel Half Full”.</p>	<p>Calibrate Fuel Half Full</p>
<p>Fill the tank to HALF full before setting this level.</p> <p>The last line of the display shows the percentage of fuel being sent by the fuel sender for the half full condition.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to save the half full calibration point. Press “Down” to go to the next section.</p>	<p>Fuel Half Full Input Fuel% XX%</p>
<p>The screen returns to the “Calibrate Fuel Half Full” screen,</p>	<p>Calibrate Fuel Half Full</p>
<p>Press the “Mode” button to return to the “Edit” mode.</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Fuel Tank Calibrate</p>
<p>Fuel Tank Calibrate - Full</p>	
<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Fuel Tank Calibrate” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Fuel Tank Calibrate”. Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Fuel Tank Calibrate</p>
<p>Note: Ensure the fuel tank is FULL before continuing to the next step.</p> <p>Using the “Up” or “Down” buttons display “Calibrate Fuel Full”.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select “Calibrate Fuel Full”.</p>	<p>Calibrate Fuel Full</p>

<p>Fill the tank before setting this level.</p> <p>The last line of the display shows the percentage of fuel being sent by the fuel sender for the full condition.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to save the full calibration point.</p>	<p>Fuel Full Input Fuel% XX%</p>
<p>The screen returns to the “Calibrate Fuel Full” screen.</p>	<p>Calibrate Fuel Full</p>
<p>Press “Mode” to return to “Edit” mode.</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Fuel Tank Calibrate</p>

“Software Revision”

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Software Revision” edit function.</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>SW ID & Rev. SmartCraft PGFXXXX Date</p>
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Depth Sounder Warnings - “Shallow Warning”

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Depth Sounder Warnings” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Depth Sounder Warnings”. Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Depth Sounder Warnings</p>
<p>From the “Depth Sounder Warnings” function, using the “Up” or “Down” buttons display the “Shallow Warning” screen.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select “Shallow Warning.”</p>	<p>Shallow Warning</p>
<p>Set depth sounder “Shallow Warning.”</p> <p>Press “Up” or “Down” to set the desired depth sounder “Shallow Alarm” setting. Line 3 value will adjust.</p>	<p>Shallow Warning X.X</p>

<p>Press and hold “Up” and “Down” buttons together for 2 seconds to save the shallow alarm setting.</p>	<p>Shallow Warning</p>
<p>Use the “Up” or “Down” button to select another “Depth Sounder Warnings” edit function.</p> <p>Or,</p> <p>Press the “Mode” button to return to the “Edit” mode.</p>	<p>Depth Sounder Warnings</p>

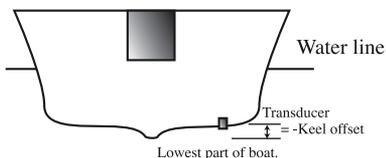
Depth Sounder Warnings - “Keel Offset”

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Depth Sounder Warnings” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Depth Sounder Warnings”. Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Depth Sounder Warnings</p>
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<p>From the “Depth Sounder Warnings” function, using the “Up” or “Down” buttons display the “Keel Offset” screen.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select “Keel Offset.”</p>	<p>Keel Offset</p>
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When setting the Keel Offset, negative numbers indicate that the Depth Sounder transducer is located ABOVE the deepest part of the hull (typical). Allow for worst case boat loading when adjusting the Keel Offset as this setting affects the Shallow Alarm.

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<p>Set depth sounder “Keel Offset”</p> <p>Press “Up” or “Down” to set the desired “Keel Offset” setting. Line 3 value will adjust.</p>	<p>Keel Offset X.X</p>
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<p>Press and hold “Up” and “Down” buttons together for 2 seconds to save the keel offset setting.</p>	<p>Keel Offset</p>
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<p>Use the “Up” or “Down” button to select another “Depth Sounder Warnings” edit function.</p> <p>Or,</p> <p>Press the “Mode” button to return to the “Edit” mode.</p>	<p>Depth Sounder Warnings</p>
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Select “Self Test”

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Select Self Test” edit function.</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Select Self Test</p>
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<p>Press and hold the “Up” and “Down” buttons for 2 seconds to select “Self Test.”</p>	
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<p>The back lighting will turn off and, this screen will display for 10 seconds.</p> <p>The backlights will flash three times.</p>	
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<p>When “Self Test” is complete the unit will return to the “Edit” mode.</p> <p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	<p>Select Self Test</p>
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Enable Display Screens

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Enable Display Screens” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Enable Display Screens”. Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Enable Display Screens</p>
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<p>A box will appear around “On” if the display screen is “On.”</p> <p>Press and hold the “Up” and “Down” buttons together to toggle the box between the “On” and “Off” positions.</p> <p>When the unit is returned to “Normal” mode, Display 1 will not be displayed if the box was around “Off”.</p>	<p>Display 1 [On] Off Break-In Time Engine Temp</p>
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<p>Press the “Up” button to select the next display to be turned “On” or “Off.” Continue as in display 1.</p> <p>Refer to Figure 1 for display screen contents which will vary with engine type. Screen 1 shown is for reference purposes only.</p>	<p>Display 2 [On] Off Water Press Inst. Fuel Flow</p>
<p>Use the “Up” or “Down” buttons to select another “Display screen”.</p> <p>Or,</p> <p>Press the “Mode” button to return to the “Edit” mode.</p>	<p>Enable Display Screens</p>
<p>Configure Speed - “Calibrate Pitot Sender”</p>	
<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Configure Speed” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Configure Speed”. Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Configure Speed</p>
<p>From the “Configure Speed” function, using the “Up” or “Down” buttons display the “Calibrate Pitot Sender” screen.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select “Calibrate Pitot Sender.”</p>	<p>Calibrate Pitot Sender</p>
<p><i>Note: The speed calibration requires the boat speed to be in the range of the device you are calibrating. If you are calibrating the paddle wheel, the boat speed must be below the transition point. If you are calibrating the pitot, the boat speed must be above the transition point.</i></p>	
<p>Press the “Up” or “Down” buttons to modify the displayed speed (XX.X) to match a known reference standard.</p>	<p>Pitot Sender XX.X</p>
<p>Press and hold the “Up” and “Down” buttons together for 2 seconds to save the pitot sender value.</p>	<p>Calibrate Pitot Sender</p>
<p>Use the “Up” or “Down” button to select another “Configure Speed” edit function.</p> <p>Or,</p> <p>Press the “Mode” button to return to the “Edit” mode.</p>	<p>Configure Speed</p>

Configure Speed - "Calibrate Paddlewheel Sender"	
<p>From the "Edit" mode, using the "Up" or "Down" buttons, select the "Configure Speed" edit function.</p> <p>Press and hold the "Up" and "Down" buttons for 2 seconds to select the "Configure Speed". Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the "Up" or "Down" button to select another function or "Mode" to return to "Normal" mode.</p>	Configure Speed
<p>From the "Configure Speed" function, using the "Up" or "Down" buttons display the "Calibrate Paddlewheel Sender" screen.</p> <p>Press and hold the "Up" and "Down" buttons for 2 seconds to select "Calibrate Paddlewheel Sender"</p>	Calibrate Paddlewheel Sender
<p><i>Note: The speed calibration requires the boat speed to be in the range of the device you are calibrating. If you are calibrating the paddle wheel, the boat speed must be below the transition point. If you are calibrating the pitot, the boat speed must be above the transition point.</i></p>	
<p>Press the "Up" or "Down" buttons to modify the displayed speed (XX.X) to match a known reference standard.</p>	Paddlewheel Sender XX.X
<p>Press and hold the "Up" and "Down" buttons together for 2 seconds to save the paddlewheel sender value.</p>	Calibrate Paddlewheel Sender
<p>Use the "Up" or "Down" button to select another "Configure Speed" edit function.</p> <p>Or,</p> <p>Press the "Mode" button to return to the "Edit" mode.</p>	Configure Speed
Configure Speed - "Set Sender Transition"	
<p>From the "Edit" mode, using the "Up" or "Down" buttons, select the "Configure Speed" edit function.</p> <p>Press and hold the "Up" and "Down" buttons for 2 seconds to select the "Configure Speed". Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the "Up" or "Down" button to select another function or "Mode" to return to "Normal" mode.</p>	Configure Speed

<p>From the “Configure Speed” function, using the “Up” or “Down” buttons display the “Set Sender Transition” screen.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select “Set Sender Transition.”</p>	Set Sender Transition
<p>This function adjusts the point where the speed sender is changed from the paddlewheel to the pitot tube. Typically, the paddlewheel is best for low speeds and the pitot tube is best for higher speeds.</p>	
<p>Press the “Up” or “Down” buttons to modify the displayed transition speed (XX.X) to the desired speed.</p>	Sender Transition (MPH) XX.X
<p>Press and hold the “Up” and “Down” buttons together for 2 seconds to save the transition value.</p>	Set Sender Transition
<p>Use the “Up” or “Down” button to select another “Configure Speed” edit function.</p> <p>Or,</p> <p>Press the “Mode” button to return to the “Edit” mode.</p>	Configure Speed

Invert Steering Angle

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Invert Steering Angle” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Invert Steering Angle”. Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	Invert Steering Angle
<p>Press “Up” or “Down” to scroll through the selections.</p> <p>When the correct choice is next to the selection arrow “>”, Press and hold the “Up” and “Down” buttons together for 2 seconds to save the selection.</p>	Select Mode Inverted > Normal
<p>The screen returns to the “Invert Steering Angle” screen.</p> <p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	Invert Steering Angle

Helm Select

From the “Edit” mode, using the “**Up**” or “**Down**” buttons, select the “Helm Select” edit function.

Press and hold the “**Up**” **and** “**Down**” buttons for 2 seconds to select the “Helm Select.” Follow the instructions below.

Otherwise,

Press the “**Up**” or “**Down**” button to select another function or “**Mode**” to return to “Normal” mode.

Helm
Select

Press “**Up**” or “**Down**” to scroll through the selections.

When the correct choice is next to the selection arrow “>”, Press and hold the “**Up**” **and** “**Down**” buttons together for 2 seconds to save the selection.

Select
Helm
Helm 2
> Helm 1

The screen returns to the “Helm Select” screen.

Press “**Up**” or “**Down**” to select another “Edit” mode edit function.

Otherwise,

Press the “**Mode**” button to return to the “Normal” mode.

Helm
Select

Pitot Select

From the “Edit” mode, using the “**Up**” or “**Down**” buttons, select the “Pitot Select” edit function.

Press and hold the “**Up**” **and** “**Down**” buttons for 2 seconds to select the “Pitot Select.” Follow the instructions below.

Otherwise,

Press the “**Up**” or “**Down**” button to select another function or “**Mode**” to return to “Normal” mode.

Pitot
Select

Press “**Up**” or “**Down**” to scroll through the selections.

When the correct choice is next to the selection arrow “>”, Press and hold the “**Up**” **and** “**Down**” buttons together for 2 seconds to save the selection.

Select
Pitot
200 PSI
> 100 PSI

The screen returns to the “Pitot Select” screen.

Press “**Up**” or “**Down**” to select another “Edit” mode edit function.

Otherwise,

Press the “**Mode**” button to return to the “Normal” mode.

Pitot
Select

“Perform Master Reset”

From the “Edit” mode, using the “**Up**” or “**Down**” buttons, select the “Perform Master Reset” edit function.

Note: Caution, this function will reset all values changed in the “Edit” mode to the factory default settings.

Press and hold the “**Up**” **and** “**Down**” buttons for 2 seconds to select the “Perform Master Reset.” Follow the instructions below.

Otherwise,

Press the “**Up**” or “**Down**” button to select another function or “**Mode**” to return to “Normal” mode.

Perform
Master
Reset

Note: Caution, this function will reset all values changed in the “Edit” mode to the factory default settings.

Press and hold the “**Up**” **and** “**Down**” buttons for 5 seconds to perform a “Perform Master Reset.”

Hold
Up + Down
To Reset

“Master Reset Performed” will be displayed on the screen after the Master Reset has completed.

Press the “**Mode**” button 2 times to return to the “Edit” mode.

Master
Reset
Performed

Press “**Up**” or “**Down**” to select another “Edit” mode edit function.

Otherwise,

Press the “**Mode**” button to return to the “Normal” mode.

Perform
Master
Reset

Tank2 Name

From the “Edit” mode, using the “**Up**” or “**Down**” buttons, select the “Tank2 Name” edit function.

Press and hold the “**Up**” **and** “**Down**” buttons for 2 seconds to select the “Tank2 Name.” Follow the instructions below.

Otherwise,

Press the “**Up**” or “**Down**” button to select another function or “**Mode**” to return to “Normal” mode.

Tank2
Name

Press “**Up**” or “**Down**” to scroll through the selections.

When the correct choice is next to the selection arrow “>”, Press and hold the “**Up**” **and** “**Down**” buttons together for 2 seconds to save the selection.

Tank2
Name
Water Level
>Tank2 Level

<p>These selections will appear during scrolling. Only two selections are displayed at one time.</p>	<p>Fuel2Level OilLevel WasteWater</p>
<p>The screen returns to the “Tank2 Name” screen.</p> <p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	<p>Tank2 Name</p>

View Engine Type

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Engine Type” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Engine Type.” Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Engine Type Press Up And Down</p>
<p>This function is used to view the engine type. This information is sent from the SmartCraft engine. This display shows the current engine type (Type) installed in the boat. The display will change depending on the type of engine installed.</p> <p>Press the “Mode” button to return to the “Engine Type” screen.</p>	<p>Engine Type (Type)</p>
<p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	<p>Engine Type Press Up And Down</p>

Sea Water Temp Sensor - Installed?

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Sea Water Temp Sensor Installed?” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Sea Water Temp Sensor Installed.” Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Sea Water Temp Sensor Installed?</p>
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<p>This function is used to tell the system whether or not the Sea Water Temperature Sensor is installed.</p> <p>Press “Up” or “Down” to scroll through the selections.</p> <p>When the correct choice is next to the selection arrow “>”, Press and hold the “Up” <u>and</u> “Down” buttons together for 2 seconds to save the selection.</p>	<p>Sea Water Temp Sensor No > Yes</p>
<p>The screen returns to the “Sea Water Temp Sensor Installed?” screen.</p> <p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	<p>Sea Water Temp Sensor Installed?</p>

Steering Position Sensor- Installed?

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Steering Position Sensor Installed?” edit function.</p> <p>Press and hold the “Up” <u>and</u> “Down” buttons for 2 seconds to select the “Steering Position Sensor Installed?” Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Steering Position Sen Installed?</p>
<p>This function is used to tell the system whether or not the Steering Position Sensor is installed.</p> <p>Press “Up” or “Down” to scroll through the selections.</p> <p>When the correct choice is next to the selection arrow “>”, Press and hold the “Up” <u>and</u> “Down” buttons together for 2 seconds to save the selection.</p>	<p>Steering Position Sen No > Yes</p>
<p>The screen returns to the “Steering Position Sensor Installed?” screen.</p> <p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	<p>Steering Position Sen Installed?</p>

Pitot Sensor - Installed?

From the “Edit” mode, using the “**Up**” or “**Down**” buttons, select the “Pitot Sensor Installed?” edit function.

Press and hold the “**Up**” **and** “**Down**” buttons for 2 seconds to select the “Pitot Sensor Installed?.” Follow the instructions below.

Otherwise,

Press the “**Up**” or “**Down**” button to select another function or “**Mode**” to return to “Normal” mode.

Pitot
Sensor
Installed?

This function is used to tell the system whether or not the Pitot Sensor is installed.

Press “**Up**” or “**Down**” to scroll through the selections.

When the correct choice is next to the selection arrow “>”, Press and hold the “**Up**” **and** “**Down**” buttons together for 2 seconds to save the selection.

Pitot
Sensor
No
> Yes

The screen returns to the “Pitot Sensor Installed?” screen.

Press “**Up**” or “**Down**” to select another “Edit” mode edit function.

Otherwise,

Press the “**Mode**” button to return to the “Normal” mode.

Pitot
Sensor
Installed?

Paddlewheel Sensor - Installed?

From the “Edit” mode, using the “**Up**” or “**Down**” buttons, select the “Paddlewheel Sensor Installed?” edit function.

Press and hold the “**Up**” **and** “**Down**” buttons for 2 seconds to select the “Paddlewheel Sensor Installed?” Follow the instructions below.

Otherwise,

Press the “**Up**” or “**Down**” button to select another function or “**Mode**” to return to “Normal” mode.

Paddlewheel
Sensor
Installed?

This function is used to tell the system whether or not the Paddlewheel Sensor is installed.

Press “**Up**” or “**Down**” to scroll through the selections.

When the correct choice is next to the selection arrow “>”, Press and hold the “**Up**” **and** “**Down**” buttons together for 2 seconds to save the selection.

Paddlewheel
Sensor
No
> Yes

<p>The screen returns to the “Paddlewheel Sensor Installed?” screen.</p> <p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	<p>Paddlewheel Sensor Installed?</p>
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Fuel 1 Sensor - Installed?

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Fuel 1 Sensor Installed?” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Fuel 1 Sensor Installed?” Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Fuel 1 Sensor Installed?</p>
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<p>This function is used to tell the system whether or not the Fuel 1 Sensor is installed.</p> <p>Press “Up” or “Down” to scroll through the selections.</p> <p>When the correct choice is next to the selection arrow “>”, Press and hold the “Up” and “Down” buttons together for 2 seconds to save the selection.</p>	<p>Fuel 1 Sensor No > Yes</p>
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<p>The screen returns to the “Fuel 1 Sensor Installed?” screen.</p> <p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	<p>Fuel 1 Sensor Installed?</p>
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Fuel 2 Sensor - Installed?

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Fuel 2 Sensor Installed?” edit function.</p> <p>Press and hold the “Up” and “Down” buttons for 2 seconds to select the “Fuel 2 Sensor Installed?” Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Fuel 2 Sensor Installed?</p>
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<p>This function is used to tell the system whether or not the Fuel 2 Sensor is installed.</p> <p>Press “Up” or “Down” to scroll through the selections.</p> <p>When the correct choice is next to the selection arrow “>”, Press and hold the “Up” <u>and</u> “Down” buttons together for 2 seconds to save the selection.</p>	<p>Fuel 2 Sensor No > Yes</p>
<p>The screen returns to the “Fuel 2 Sensor Installed?” screen.</p> <p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	<p>Fuel 2 Sensor Installed?</p>

Calibrate Trim Sync

<p>From the “Edit” mode, using the “Up” or “Down” buttons, select the “Calibrate Trim Sync” edit function.</p> <p>Press and hold the “Up” <u>and</u> “Down” buttons for 2 seconds to select the “Calibrate Trim Sync” Follow the instructions below.</p> <p>Otherwise,</p> <p>Press the “Up” or “Down” button to select another function or “Mode” to return to “Normal” mode.</p>	<p>Calibrate Trim Sync</p>
<p>This function is used to balance the trim sync display on a boat with more than one engine. Set the trim on each engine to the same positions and then perform the “Calibrate Trim Sync.”</p> <p>Press and hold the “Up” <u>and</u> “Down” buttons together for 2 seconds to save the selection.</p>	<p>Trim Sync To Calibrate Press Up And Down</p>
<p>Press “Up” or “Down” to select another “Edit” mode edit function.</p> <p>Otherwise,</p> <p>Press the “Mode” button to return to the “Normal” mode.</p>	<p>Calibrate Trim Sync</p>

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Alarm Mode

The “alarm” screen appears only if an alarm condition exists. The alarm condition may be a warning sent from the engine ECU or an alarm such as “Shallow Alarm”. When an alarm condition occurs, the “Alarm Screen” will appear and the screens described below will be displayed.

The descriptions below also explain how to temporarily override the alarm screen and return to “Normal” mode. In all cases, the alarm will re-occur after a period of time to ensure that the user remembers the alarm condition. Once an alarm condition has been corrected, the alarm screen, horn, and warning lights will no longer be displayed.

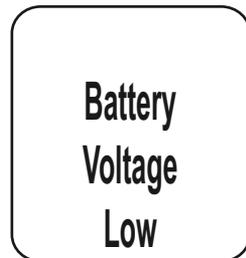
Note: The warning LEDs will flash when there is no ECU data present. Ensure that there is connection to the SmartCraft bus.

Alarm Mode	Display
<p>The “Alarm” screen will appear if an alarm occurs.</p> <p>The “Low Fuel” and “Low Oil” alarms display in the MG2000 speedometer and tachometer alarm screens.</p> <p>All other alarms will be displayed in the tachometer screen only.</p> <p>When all alarm conditions are cleared the screen will revert back to the last displayed screen. If there are two or more alarms, then the screen will scroll through all the warnings, changing the display every 5 seconds.</p>	
<p>For all alarms, the red LED’s blink and the display shows the warning condition. When a “Shallow” alarm occurs, the instrument horn will sound.</p> <p>Press and hold the “Mode” button to cancel alarms.</p> <p>Press the “Mode” and then the “Down” button to return to “Normal” mode.</p> <p>The shallow alarm screen will reappear after 1 minute to continue to warn the user that the alarm condition still exists. The horn will again sound for the shallow alarm when the screen reappears.</p>	

Sample Warning Screens



Screen showing typical “standard” alarm with no “engine alarms”



Screen showing typical “standard” alarm one “engine alarm”

<p>Shallow Alarm Warns that water depth is less than Shallow Alarm setting.</p>	Shallow
<p>Low Fuel Warns that Fuel level is lower than 1/8 tank.</p>	Low Fuel No Engine
<p>Multiple Starboard Engines In multiple engine applications, each engine must first be assigned a position with a Quicksilver Diagnostic Tool before the system will function properly.</p>	Many Stbd
<p>No Starboard Engine Instrument does not see a “starboard engine computer.” Usually indicates that no data is being received from engine. (Check wiring, also make sure both terminator resistors are installed in bus). Make sure both ECMs are not configured for port location using a DDT or Quicksilver Diagnostic Tool.</p>	No Stbd
<p>Over Heat The engine is overheating.</p>	Over Heat
<p>Oil Pressure Engine oil pressure is low.</p>	Oil Pressure
<p>Low Oil Critical The level in the on-engine 2 stroke oil tank is low.</p>	Low Oil
<p>Low Oil The oil level in the 2 stroke oil tank is low.</p>	Low Oil
<p>Engine Over Speed Engine speed is too high.</p>	Engine Over Speed
<p>Battery Voltage High Battery voltage is above normal limit.</p>	Battery Voltage High

<p>Battery Voltage Low Battery voltage is below normal limit.</p>	<p>Battery Voltage Low</p>
<p>Water Pressure Water Pressure in the cooling system is low.</p>	<p>Water Pressure</p>
<p>Check Engine Various engine errors-See Dealer.</p>	<p>Check Engine</p>
<p>Guardian X% Reduced Reduce Throttle Guardian condition and power limit percentage is displayed on the screen.</p>	<p>Guardian X% Reduced Reduce Throttle</p>
<p>Water In Fuel There is water in the fuel system.</p>	<p>Water In Fuel</p>
<p>Injector Fault An injector is not operating properly.</p>	<p>Injector Fault</p>
<p>Engine Performance Limited Engine RPM is being limited.</p>	<p>Engine Performance Limited</p>
<p>Miscellaneous Fault Miscellaneous</p>	<p>Miscellaneous Fault</p>
<p>Ignition Fault An ignition coil is not operating properly.</p>	<p>Ignition Fault</p>
<p>Sensor Fault A sensor is not operation properly.</p>	<p>Sensor Fault</p>
<p>Engine Sensor Fault An engine sensor is not operating properly.</p>	<p>Engine Sensor Fault</p>

<p>Oil Pump Fault There is an oil pump fault.</p>	<p>Oil Pump Fault</p>
<p>Engine Coolant System Fault The coolant sensor is not operating properly.</p>	<p>Engine Coolant System Fault</p>
<p>Engine Sensor Fault MAP The manifold air pressure sensor is not operating properly.</p>	<p>Engine Sensor Fault MAP</p>
<p>Engine Sensor Fault TPS The throttle positioning sensor is not operating properly.</p>	<p>Engine Sensor Fault TPS</p>
<p>Engine Sensor Fault Charge Temp The super charger output temperature sensor is not operating properly.</p>	<p>Engine Sensor Fault Charge Temp</p>
<p>Warning Horn Fault The warning horn in the boat is not operating.</p>	<p>Warning Horn Fault</p>
<p>Oil Temp The engine oil is overheating.</p>	<p>Oil Temp</p>
<p>Sensor Fault Sea Water Temp The sea water temperature sensor is not operating properly.</p>	<p>Sensor Fault Sea Water Temp</p>
<p>ECU Data Error</p>	<p>ECU Data</p>

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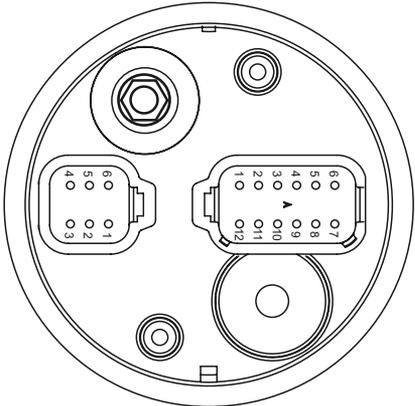
Harness HN0403

SmartCraft

Tachometer Cable

(To connect from the SmartCraft harness to the junction box.)

SmartCraft
MG2000 Tachometer

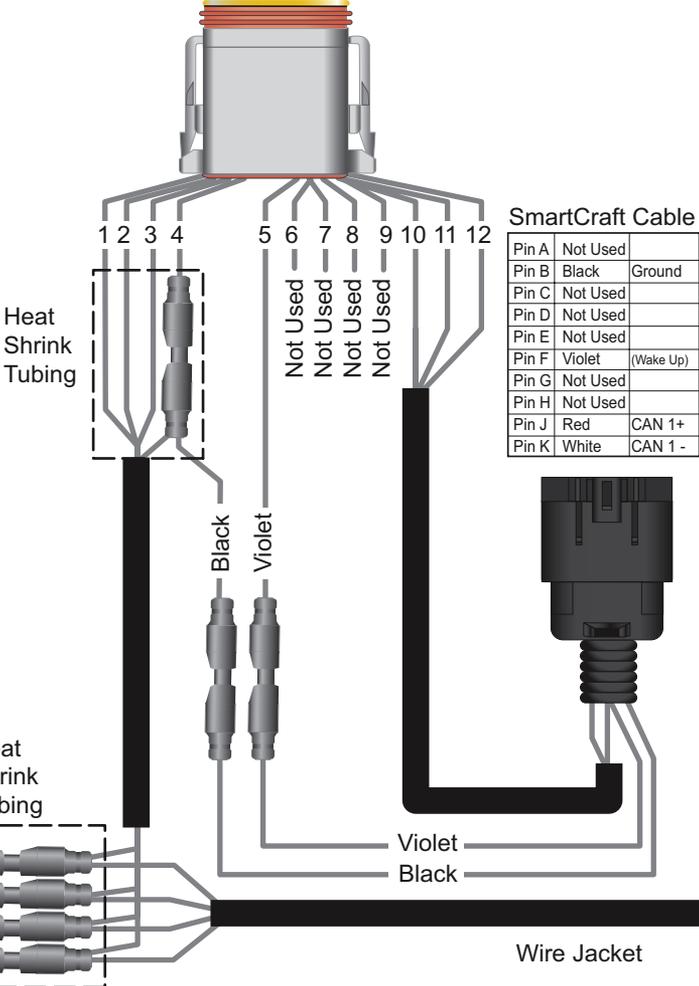


12- pin connector

Pin 1	Red	Faria Bus
Pin 2	White	Faria Bus
Pin 3	Green	Faria Bus
Pin 4	Black	Faria Bus
Pin 5	Violet	Ignition(Wake)
Pin 6	Not Used	
Pin 7	Not Used	
Pin 8	Not Used	
Pin 9	Not Used	
Pin 10	Black	Not Used
Pin 11	Red	CAN 1 +
Pin 12	White	CAN 1 -

4- pin connector

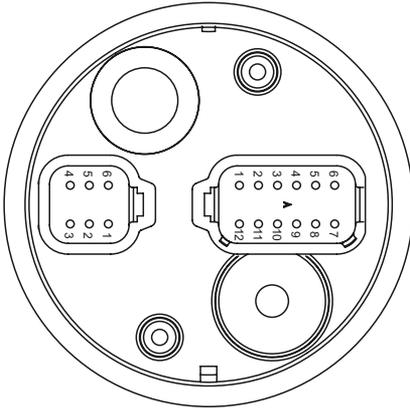
Pin A	Red
Pin B	White
Pin C	Green
Pin D	Black & Shield



SmartCraft Cable

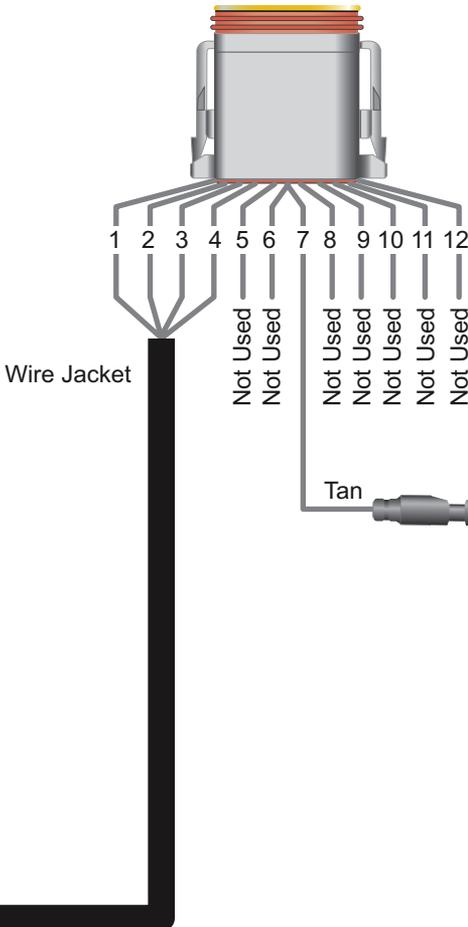
Pin A	Not Used	
Pin B	Black	Ground
Pin C	Not Used	
Pin D	Not Used	
Pin E	Not Used	
Pin F	Violet	(Wake Up)
Pin G	Not Used	
Pin H	Not Used	
Pin J	Red	CAN 1 +
Pin K	White	CAN 1 -

Harness HN0403 Speedometer Cable

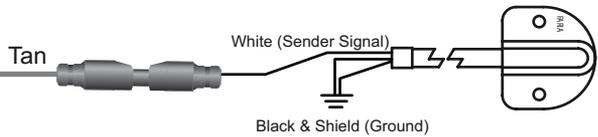


12- pin connector

Pin 1	Red	Faria Bus	+8.4 VDC
Pin 2	White	Faria Bus	AY
Pin 3	Green	Faria Bus	BZ
Pin 4	Black	Faria Bus	Ground
Pin 5	Not Used		
Pin 6	Not Used		
Pin 7	Tan	Temp Signal	
Pin 8	Not Used		
Pin 9	Not Used		
Pin 10	Not Used		
Pin 11	Not Used		
Pin 12	Not Used		



Air Temp Sender



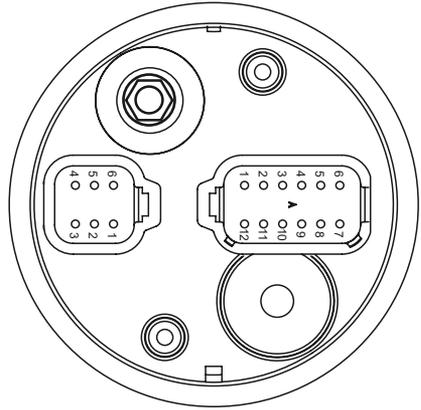
Harness HN0407

SmartCraft

Tachometer Cable

(To connect direct to the SmartCraft junction box.)

SmartCraft
MG2000 Tachometer



12- pin connector

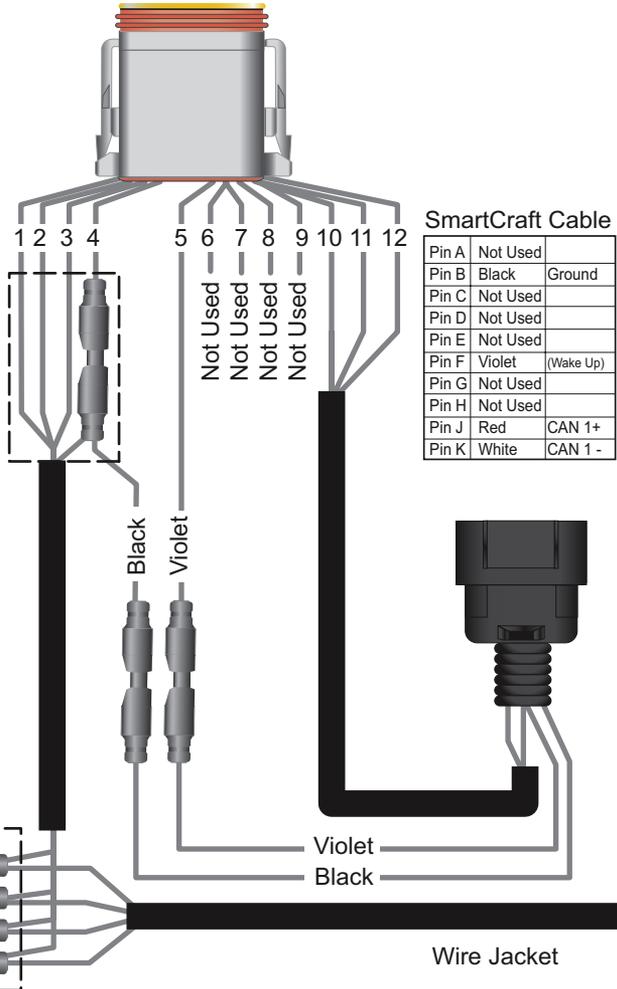
Pin 1	Red	Faria Bus	+8.4 VDC
Pin 2	White	Faria Bus	AY
Pin 3	Green	Faria Bus	BZ
Pin 4	Black	Faria Bus	Ground
Pin 5	Violet	Ignition(Wake)	
Pin 6	Not Used		
Pin 7	Not Used		
Pin 8	Not Used		
Pin 9	Not Used		
Pin 10	Black	Not Used	
Pin 11	Red	CAN 1 +	
Pin 12	White	CAN 1 -	

4- pin connector

Pin A	Red
Pin B	White
Pin C	Green
Pin D	Black & Shield



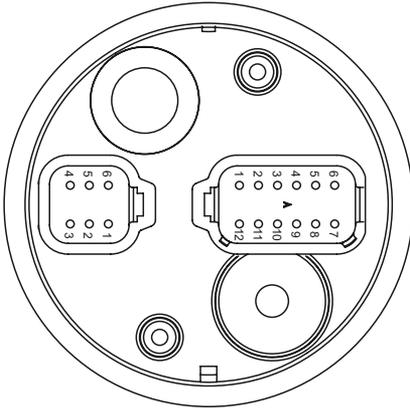
Heat Shrink Tubing



SmartCraft Cable

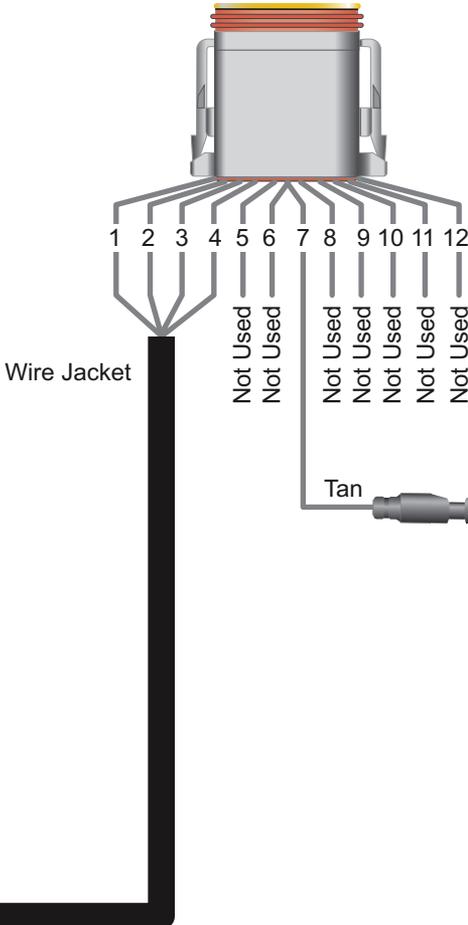
Pin A	Not Used	
Pin B	Black	Ground
Pin C	Not Used	
Pin D	Not Used	
Pin E	Not Used	
Pin F	Violet	(Wake Up)
Pin G	Not Used	
Pin H	Not Used	
Pin J	Red	CAN 1 +
Pin K	White	CAN 1 -

Harness HN0407 Speedometer Cable

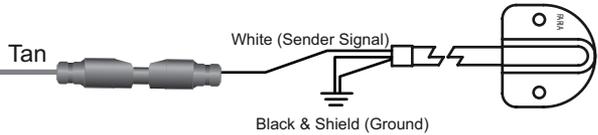


12- pin connector

Pin 1	Red	Faria Bus	+8.4 VDC
Pin 2	White	Faria Bus	AY
Pin 3	Green	Faria Bus	BZ
Pin 4	Black	Faria Bus	Ground
Pin 5	Not Used		
Pin 6	Not Used		
Pin 7	Tan	Temp Signal	
Pin 8	Not Used		
Pin 9	Not Used		
Pin 10	Not Used		
Pin 11	Not Used		
Pin 12	Not Used		



Air Temp Sender



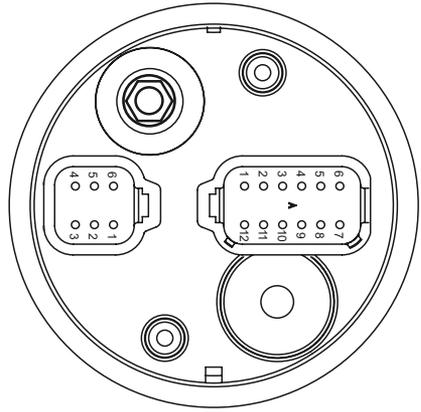
Harness HN0565

SmartCraft

Tachometer Cable

(To connect from the SmartCraft harness to the junction box.)

SmartCraft
MG2000 Tachometer



12- pin connector

Pin 1	Red	Faria Bus	+8.4 VDC
Pin 2	White	Faria Bus	AY
Pin 3	Green	Faria Bus	BZ
Pin 4	Black	Faria Bus	Ground
Pin 5	Violet	Ignition(Wake)	
Pin 6	Not Used		
Pin 7	Not Used		
Pin 8	Not Used		
Pin 9	Not Used		
Pin 10	Black	Not Used	
Pin 11	Red	CAN 1 +	
Pin 12	White	CAN 1 -	

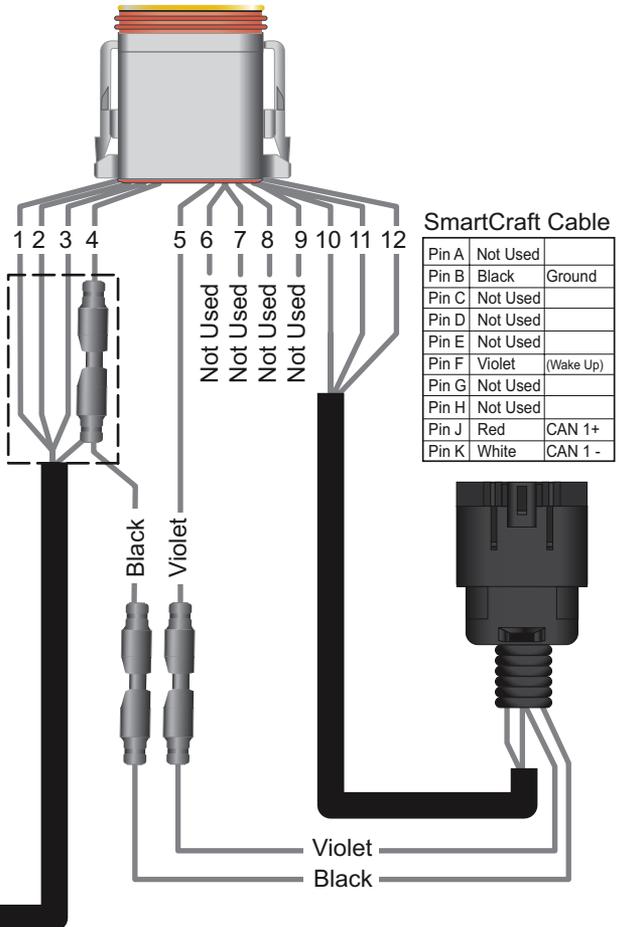
4- pin connector

Pin A	Red
Pin B	White
Pin C	Green
Pin D	Black & Shield



Wire Jacket

Heat Shrink tubing



SmartCraft Cable

Pin A	Not Used	
Pin B	Black	Ground
Pin C	Not Used	
Pin D	Not Used	
Pin E	Not Used	
Pin F	Violet	(Wake Up)
Pin G	Not Used	
Pin H	Not Used	
Pin J	Red	CAN 1 +
Pin K	White	CAN 1 -

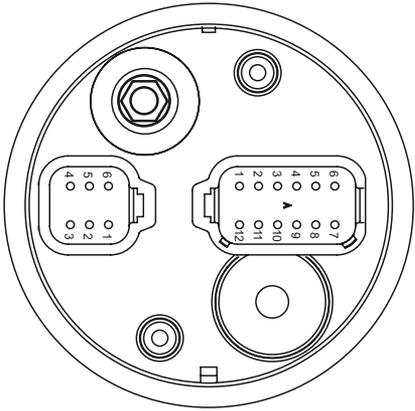
Harness HN0566

SmartCraft

Tachometer Cable

(To connect direct to the SmartCraft junction box.)

SmartCraft
MG2000 Tachometer



12- pin connector

Pin 1	Red	Faria Bus	+8.4 VDC
Pin 2	White	Faria Bus	AY
Pin 3	Green	Faria Bus	BZ
Pin 4	Black	Faria Bus	Ground
Pin 5	Violet	Ignition(Wake)	
Pin 6	Not Used		
Pin 7	Not Used		
Pin 8	Not Used		
Pin 9	Not Used		
Pin 10	Black	Not Used	
Pin 11	Red	CAN 1 +	
Pin 12	White	CAN 1 -	

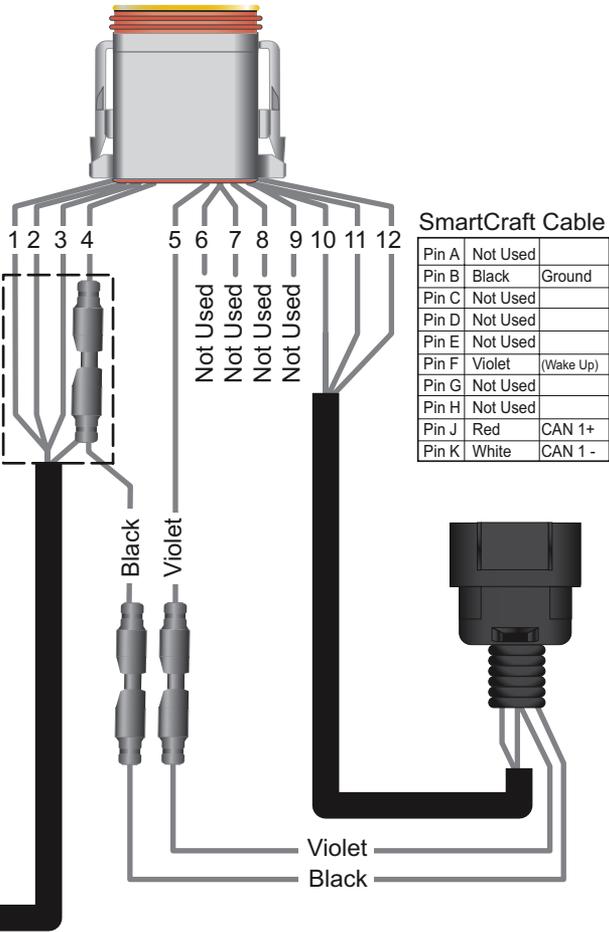
4- pin connector

Pin A	Red
Pin B	White
Pin C	Green
Pin D	Black & Shield



Wire Jacket

Heat Shrink Tubing



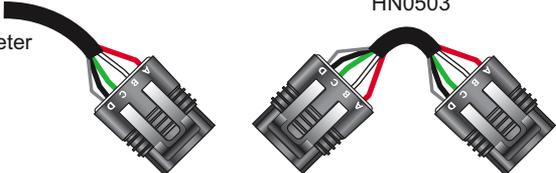
SmartCraft Cable

Pin A	Not Used	
Pin B	Black	Ground
Pin C	Not Used	
Pin D	Not Used	
Pin E	Not Used	
Pin F	Violet	(Wake Up)
Pin G	Not Used	
Pin H	Not Used	
Pin J	Red	CAN 1 +
Pin K	White	CAN 1 -

Tachometer to 2” Gauge Connection

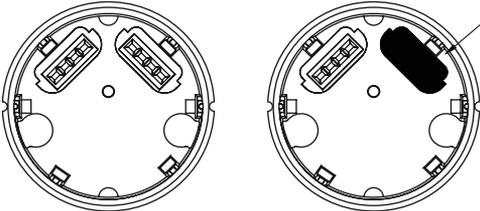
From Tachometer

HN0503



4- pin connector

Pin A	Red
Pin B	White
Pin C	Green
Pin D	Black & Shield



PJ0018

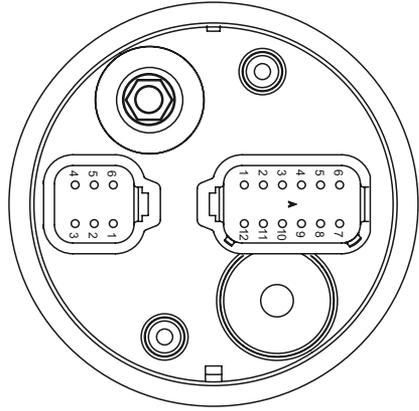
Note: To help reduce moisture in the gauges, be sure to install plug PJ0018 in all open connectors

2” Gauges

Harness HN0401

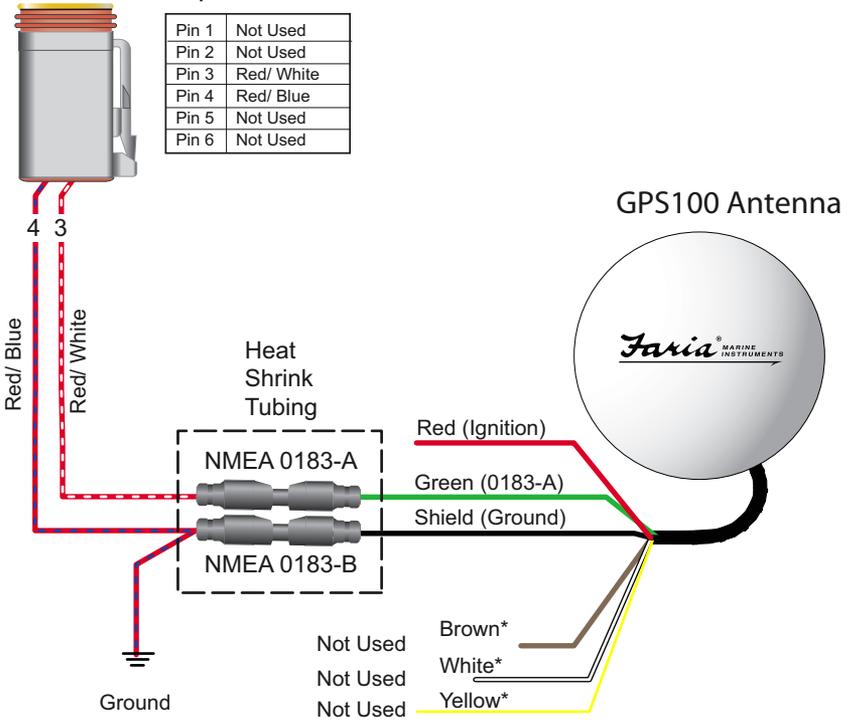
NMEA 0183 Cable

MG2000 Tachometer



6- pin connector

Pin 1	Not Used
Pin 2	Not Used
Pin 3	Red/ White
Pin 4	Red/ Blue
Pin 5	Not Used
Pin 6	Not Used



- *Note:
- 1) Cut off the connector at the end of the antenna cable
 - 2) Cut off the following wires because they are not used: White, Yellow, Brown
 - 3) Cut wires so that they are different lengths. This ensures they do not touch each other.



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