

Faria[®] **MARINE**
INSTRUMENTS



Owner's Manual

MG2000[™]

Speedometer

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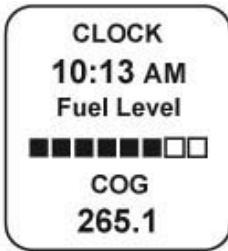
MG2000 Speedometer Manual

The MG2000™ Speedometer combines the features of a speedometer and several digital instruments into one unit:

- The MG2000™ Speedometer is analog in appearance but is driven by a stepper motor for digital accuracy.
- The high resolution LCD screen displays information for many other functions and the various “screens” can be configured as the user wishes. As received, the screens are configured as shown in Figure 1.

Figure 1

Screen #1



Screen #2



Screen #3



Screen #4



Note: The “Air Temp” is not displayed when

the paddle wheel signal is selected.

Description

The MG2000™ Speedometer receives digital data via the Faria Serial Bus from the MG2000™ Tachometer. If the speed signal is available on the bus then that will be sent to the speedometer. If there is no speed signal on the engine bus then the analog inputs are used.

Analog inputs are provided for two sensors; a paddle wheel speed sensor (or an air temperature sensor) and a water temperature sensor. A direct pressure port allows monitoring of pitot pressure for the speedometer.

The Faria MG2000™ Speedometer will turn on when the ignition key is turned on and will turn off when the ignition key is turned off. The unit will power up showing the default screen selected by the user prior to shut off.

The instrument has three push buttons; M (Mode), “Down”, and “Up” that control the functions available. The M (Mode) button is used to change the function of the LCD display and to access submenus and adjustable settings. The “Down” and “Up” buttons are used to modify the settings.



In the “Normal” operation mode, pressing the “Mode” button and then pressing “Down” or “Up” causes the display to cycle between the available screens.



Press the “Mode” button to exit the “Screen Selection” mode and return to

“Normal” mode. If no buttons are pushed for 4 seconds the current screen will stay selected and the unit will return to “Normal” mode (see Figure 2 & 3).



From the “Normal” mode, press the “Mode” and “Up” buttons to change to the “Edit” menu (see Figure 3).



When the “Edit” menus have been selected, pressing the “Mode” button causes the instrument to return to “Normal” mode.



Press the “Down” or “Up” to cycle between the available “Edit” functions.



Press and hold the “Down” and “Up” buttons for two (2) seconds to select an “Edit” function to change.

Within each “editing” function the “Down” or “Up” buttons select settings or sub-functions.

Follow the instructions in the “Edit” mode section of this manual to save the new settings after you select / adjust them.

Normal Mode

When the MG2000™ Speedometer is

turned on, the unit enters a “Self Test” mode. The screen will display “The Self Test Mode Is In Operation” for 10 seconds. The warning lights and back lights will flash.

When this is complete, the user selected “Default” screen will appear.

Note: The information below applies to the MG2000™ Speedometer as if received with no user changes to the screen selections.

Display Contrast

In the “Normal” operating mode the instrument display contrast and display mode can be adjusted by pressing the “Down” and “Up” buttons.



With the display in “Positive” mode, black on white, pressing the “Down” button decreases the contrast. Pressing the “Up” button increases contrast.

Continuing to press the “Up” button causes the display to reverse to the “Negative” mode, white on black. The contrast in this mode is controlled the same way as the “Positive” mode.

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



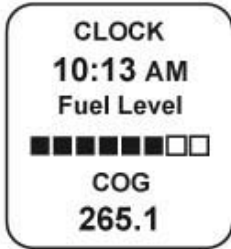
The instrument lighting intensity is controlled by the lighting adjustment in the MG2000™ Tachometer. Lighting level signals are received via the Faria bus.

Displayed Functions

MG2000™ Speedometer

The MG2000™ Speedometer is a digital instrument with the appearance of an analog instrument. The MG2000™ Speedometer receives its input from a paddle wheel speed sensor OR a pitot pressure input. The “Edit” mode allows selection of the paddle wheel or pitot inputs, calibration of the speedometer. A microprocessor controlled stepper motor moves the pointer to display speed.

Screen “1”



Clock

Displays time received from the GPS NMEA 0183 signal (if installed and connected). The display will be in 12 or 24 hour format based on the “set clock type” setting selected in the edit mode.

Fuel Level

ANALOG INPUT. Displays setting of the analog fuel level sender. Data is received via the Faria Bus from the tachometer

Heading

Displays the GPS heading received from the GPS NMEA0183 signal (if installed and connected).

The display will be in “TRUE” or “MAG” heading based on the “set GPS COG display” setting selected in the “Edit” mode.

Note: If the magnetic bearing is not available from the GPS unit, the operator will be unable to select “MAG” in the “set GPS COG display” function. In addition, the screen display will change to:



The display will continuously flash at a slow rate to ensure that the operator is aware that the displayed COG is being presented in relation to true north not magnetic north!

Screen “2”



GPS Speed

Displays GPS (SOG) speed received from the GPS NMEA0183 signal (if installed and connected).

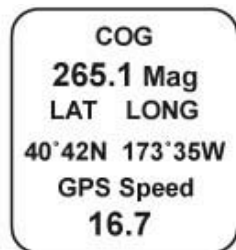
Trip Log

Displays the travel distance since last reset.

Range

Displays the distance that can be traveled with the current amount of fuel as measured by the “fuel left” set in the Tachometer and the current GPH being used by the engine as received via the Faria Bus from the ECU / tachometer.

Screen “3”



Heading

Displays the GPS heading received from the GPS NMEA0183 signal (if installed and connected). The display will be in "TRUE" or "MAG" heading based on the "SET GPS COG DISPLAY" setting selected in the edit mode.

Note: If magnetic bearing is not available from the GPS unit, the operator will be unable to select "MAG" in the "set GPS COG display" function. In addition, the screen display will change to:



The display will continuously flash at a slow rate to ensure that the operator is aware that the displayed COG is being presented in relation to true north not magnetic north!

Lat Long

Displays the GPS latitude and longitude of the current location received from the GPS NMEA0183 signal (if installed and connected).

GPS Speed

Displays GPS Speed Over Ground (SOG) speed.

Screen "4"



Air Temp

ANALOG INPUT. Displays current air temperature.

Water Temp

From bus or an Analog input. Displays current water temperature.

Clock

Displays time received from the GPS NMEA0183 signal (if installed and connected). The display will be in 12 or 24 hour format based on the "set clock type" setting selected in the edit mode.

LCD Display Screens:

In the "Normal mode, press the "Mode" button once to enter screen "Select" mode,



Use the "Up" or "Down" buttons to move between screens.



Figure 2

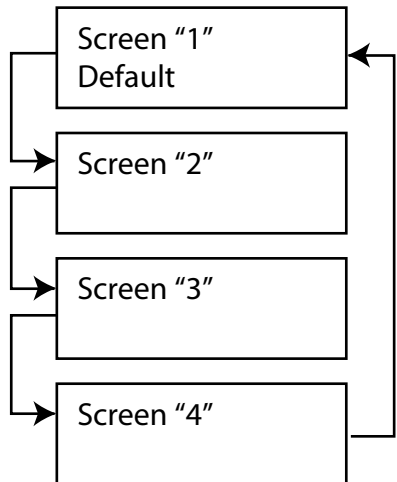
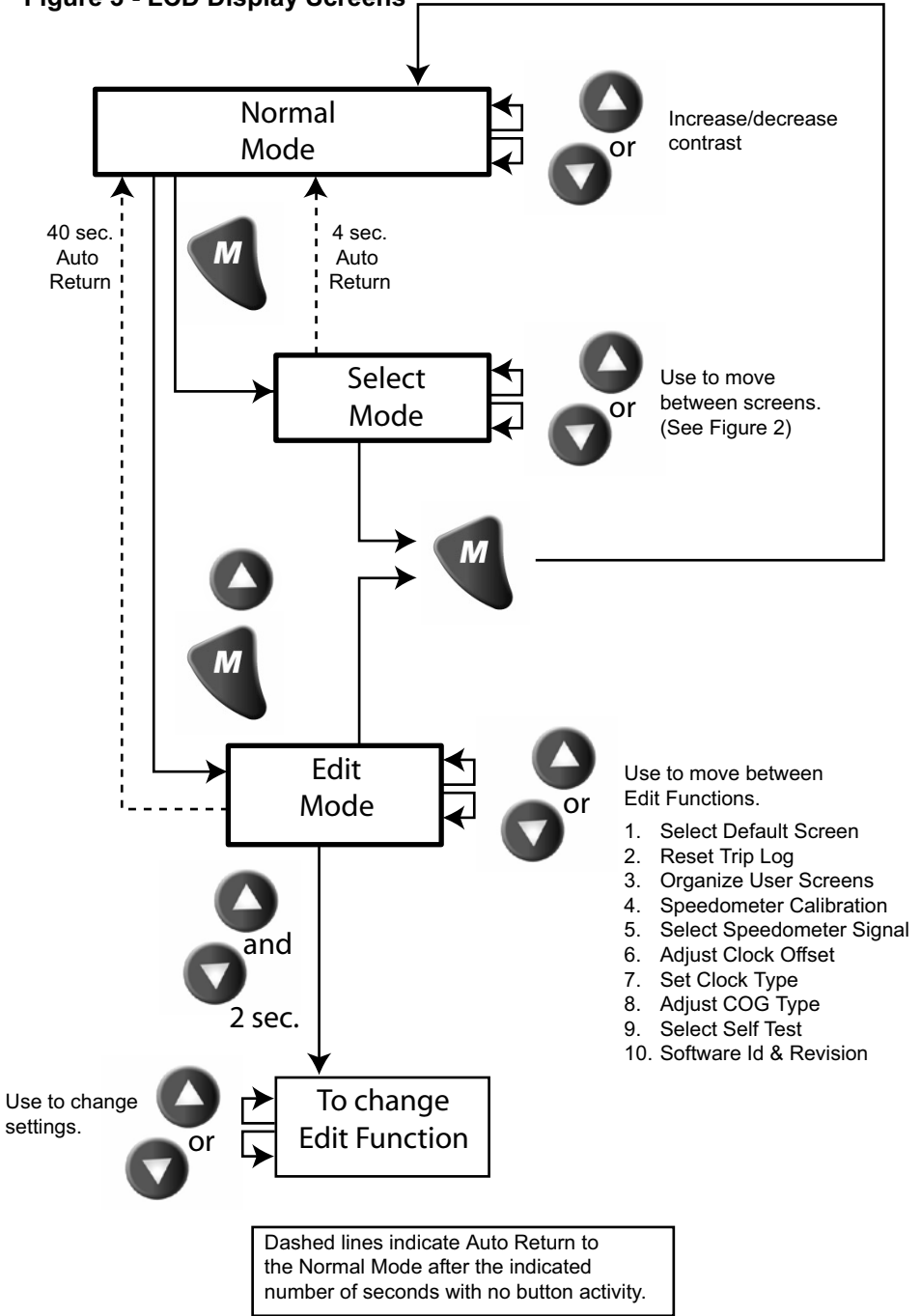
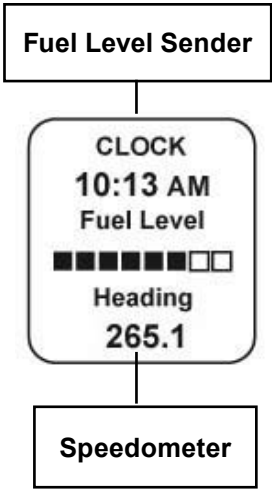


Figure 3 - LCD Display Screens





Fuel Functions

Fuel Level Sender

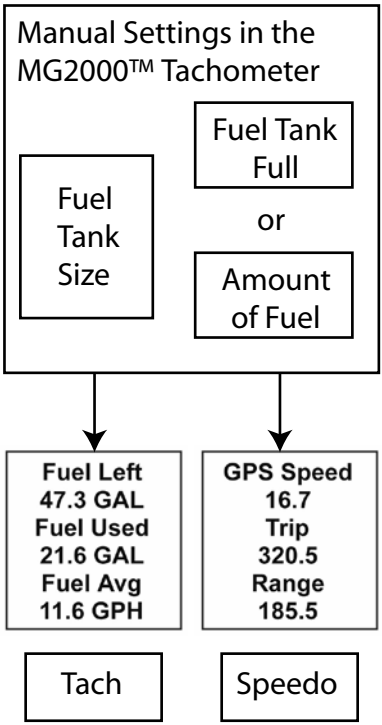
This display is the equivalent of a standard fuel gauge and should be used as the reference for the fuel remaining.

Each filled block represents 1/8 of a tank and when the fuel tank is empty only empty blocks will be displayed. For best accuracy, the fuel level sender should be calibrated as described in the MG2000™ Tachometer manual.

Manual settings

The “Fuel Left” and “Range” display values are dependant on accurately setting the values for “Fuel Tank Size” and either “Fuel Tank Full” or “Amount of Fuel” in the MG2000™ Tachometer.

“Fuel Left” is calculated based on the amount of fuel entered in these settings (the amount of fuel the operator indicates is in the fuel tank) and the fuel flow of the engine. “Range” is calculated based on “Fuel Left”, fuel flow, and current speed



COG (Course Over Ground)

If deviation information is not available from the connected GPS, the COG display will default to the display shown at left. This is the normal display with COG indicated as it would be displayed on a compass. If desired, True North data can be displayed by selecting it in the “set GPS COG display” in the edit mode.



If deviation information is available from the GPS, the COG display can be selected to display the screen shown at left. The display will flash slowly to ensure the operator is aware that the display is showing True North bearing. True North bearing is different from Magnetic North bearing by the amount of magnetic bearing deviation at the boat's current location. Please ensure that the local magnetic deviation is taken into account if this display is to be used for navigation.

Edit Mode

The “Edit” mode is used to adjust or set the values of functions and options in the MG2000 Speedometer. The procedure below specifies the steps to be taken in the “Edit” mode to adjust / set each option.

To enter “Edit” mode, press “Mode” and “Up” button while in “Normal” mode
 To return to “Normal” mode, press “Mode” button once while in “Edit” mode

Functions that are set or adjusted in the “Edit” mode

1. Select Default Screen
2. Reset Trip Log
3. Organize User Screens
4. Speedometer Calibration
5. Select Speedometer Signal
6. Adjust Clock Offset
7. Set Clock Type
8. Adjust COG Type
9. Select Self Test
10. Software Id and Revision

Instructions – <u>Function</u>	Line	Display
<u>Select Default Screen</u>	1	Select
	2	Default
	3	Screen
Press and hold the “Up” <u>and</u> “Down” for 2 seconds to select the “Default Screen.” Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.		
(Display Screen 1 is the “Default” at first turn on.)	1	Default
	2	Display
	3	Screen 1
Press and hold the “Up” <u>and</u> “Down” for 2 seconds to select screen 1 as the “Default Screen” and exit.		
Press “Up” or “Down” to select another screen.	1	Default
	2	Display
	3	Screen 2
Press and hold the “Up” and “Down” for 2 seconds to select this screen as the “Default Screen” and exit.		
Press “Up” or “Down” to select another screen Repeat until desired “Default screen” is selected.	1	Default
	2	Display
	3	Screen
Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.		
<u>Reset Trip Log</u>	1	Reset
	2	Trip
	3	Log

Press and hold the “Up” <u>and</u> “Down” for 2 seconds to reset “Trip Log” to zero (0). Automatically resets trip log to zero and returns to “Edit mode.”		
Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.		
<u>Organize User Screens</u>	1	Organize User Screens
	2	
	3	
Press and hold the “Up” <u>and</u> “Down” for 2 seconds to select “Organize User Screens.”		
Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.		
Organize screen 1	1	Set up Screen 1
	2	
	3	
Press and hold the “Up” <u>and</u> “Down” for 2 seconds to select “Organize Screen 1.”		
Press “Up” or “Down” to select another screen or “Mode” to return to “Edit” mode.		
Refer to the list of available functions in the owner’s manual.	1	Screen 1 Line 1 Item XX
Press and hold the “Up” or “Down” to select the number of the function to be displayed in screen 1, line 1.	2	
	3	
Press and hold the “Up” <u>and</u> “Down” for 2 seconds to save selection for Screen 1, line 1 and advance to Screen 1, line 2 Press “Mode” to exit with no change made.		
Refer to the list of available functions in the owner’s manual. Press and hold the “Up” or “Down” to select the number of the function to be displayed in screen 1, line 2.	1	Screen 1 Line 2 Item XX
	2	
	3	
Press and hold the “Up” <u>and</u> “Down” for 2 seconds to save selection for Screen 1, line 2 and advance to Screen 1, line 3 Press “Mode” to exit with no change made.		
Refer to the list of available functions in the owner’s manual. Press and hold the “Up” or “Down” to select the number of the function to be displayed in screen 1, line 3.	1	Screen 1 Line 3 Item XX
	2	
	3	
Press and hold the “Up” <u>and</u> “Down” for 2 seconds to save selection for Screen 1, line 3 and advance to view new screen 1. Press “Mode” to exit with no change made.		
Press and hold the “Up” <u>and</u> “Down” for 2 seconds to save new Screen 1 an exit. Press “Mode” to exit with no change made.	1	Display Customer’s New screen 1
	2	
	3	
Repeat this process for each of the remaining screens (2, 3, 4).		

Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.		
<u>Speedometer Calibration</u>	1	Speedometer
	2	Calibration
	3	
Press and hold the “Up” <u>and</u> “Down” for 2 seconds to select “Speedometer Calibration.”		
Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.		
NOTE: To calibrate the speedometer another “reference” must be available. This can be the GPS speed (SOG), a radar gun, or some other source of accurate speed indication. Maintain a constant speed and heading to allow the reference and the speedometer to stabilize before attempting to calibrate the speedometer. Calibration accuracy is best if the speedometer is calibrated at mid-range on the dial.		
Press the “Up” or “Down” button while observing speedometer pointer. When speedometer pointer indicates the same speed as the reference, press and hold “Up” <u>and</u> “Down” for 2 seconds to save the calibration and return to “Edit” mode.	1	Calibrate
	2	Speedometer
	3	
Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.		
<u>Select Speedometer Signal</u>	1	Select
	2	Speedometer
	3	Signal
NOTE: This function is normally only used by OEMs and dealers. Do not change this selection without ensuring that the correct selection is being made. Consult your dealer before changing this selection. This signal may come from the bus in which case that signal is used in lieu of these inputs.		
Press and hold the “Up” <u>and</u> “Down” for 2 seconds to select “Speedometer Signal.”		
Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.		
Press the “Up” or “Down” button to scroll through the selections. When correct choice is next to the selection arrow, press and hold “Up” <u>and</u> “Down” for 2 seconds to save the selection and return to “Edit” mode.	1	> Pitot Tube
	2	Paddle wheel
	3	
Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.		
NOTE: IF PITOT IS SELECTED WITH NO PITOT SIGNAL AVAILABLE, THE SPEEDO WILL SHOW MAXIMUM SPEED AT ALL TIMES.		

<u>Adjust Clock Offset</u>	1	Set
	2	Clock
	3	Offset
<p>Press and hold the “Up” <u>and</u> “Down” for 2 seconds to select “Clock Offset.”</p> <p>Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode. OR</p>		
<p>Press “Up” or “Down” while observing clock. When the clock display matches local time , press and hold “Up” <u>and</u> “Down” for 2 seconds to save clock offset and return to “Edit” mode.</p> <p>Note: If the local time zone changes, this adjustment must be repeated.</p>	1	Adjust
	2	Clock
	3	Offset
<p>Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.</p>		
<u>Select “Set Clock Type</u>	1	Set
	2	Clock
	3	Type
<p>Press and hold the “Up” <u>and</u> “Down” for 2 seconds to enter “Set Clock Type.”</p> <p>Press “Up” or “Down” to select another function.</p>		
<p>Press “Up” or “Down” to scroll through the selections. When the correct choice is next to the selection arrow. Press and hold the “Up” <u>and</u> “Down” for 2 seconds to save the selection and return to “Edit” mode.</p>	1	Set
	2	Clock
	3	Type
	4	24 Hour
	5	> 12 Hour
<p>Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.</p>		
<u>Select “Adjust COG Type”</u>	1	Adjust
	2	COG
	3	Type
<p>Press and hold the “Up” <u>and</u> “Down” for 2 seconds to enter “Adjust COG Type.”</p>		
<p>Press “Up” or “Down” to select another function.</p>		
<p>Press “Up” or “Down” to scroll through the selections. When the correct choice is next to the selection arrow, Press and hold the “Up” <u>and</u> “Down” for 2 seconds to save the selection and return to “Edit” mode.</p>	1	Adjust
	2	COG
	3	Type
	4	True North
	5	> Magnetic
<p>Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.</p>		

<u>Select “Self Test”</u>	1	Select
	2	Self
	3	Test
Press and hold the “Up” <u>and</u> “Down” for 2 seconds to select “Self Test.” Press “Up” or “Down” to select another function.		
This screen will display for 10 seconds. The backlights will flash three times	1	The
	2	Self
	3	Test
	4	Mode
	5	Is in
	6	Operation
When “Self Test” is complete the unit will return to the “Edit” mode.		
Press “Up” or “Down” to select another function or “Mode” to return to “Normal” mode.		
<u>Software Id and revision</u>	1	Software Id
	2	and
	3	Revision
	4	Mini gateway
	5	PGFXXXX-X
Press “Up” to select another function or “Mode” to return to “Normal” mode.		

Available Functions for Display in MG2000 Speedometer Screens

The functions listed below can be displayed in the user configured screens. All of the functions may not be available in your installation. If a function is selected for display and that function does not appear on the screen, the function does not exist in this installation. A function is selected for display by selecting it's number from the list below.

1. Clock
2. COG (Course Over Ground)
3. GPS Speed
4. LAT & LONG
5. Fuel Level
6. Barometer
7. Air Temperature (Analog input to MG2000 Speedometer from air temp sender)
8. Water Temperature (from bus)
9. Trip
10. Odometer
11. Range

Notes:

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