LMF-400
Multi-function Gauge
Installation and Operation Instructions

**For free owner's manuals and other information,
visit our web site:**

www.lowrance.com

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Section 1: Introduction

Thank you for buying the Lowrance® LMF-400! Your unit is a high-quality, multi-function, digital gauge designed to work with a LowranceNET™ network. This is the NMEA 2000® networking system developed by Lowrance Electronics.

Caution:

> *Installing LowranceNET NMEA 2000 devices is **significantly different** from installing earlier Lowrance components without NMEA 2000 features. You should read all of the installation instructions before proceeding.*

This gauge will *only* work with a NMEA 2000 network. It *MUST* be connected to a NMEA 2000 network or it *WILL NOT* function. When properly installed, the LMF-400 will display information from a variety of Lowrance Electronic Probe (EP) sensors connected to the network.
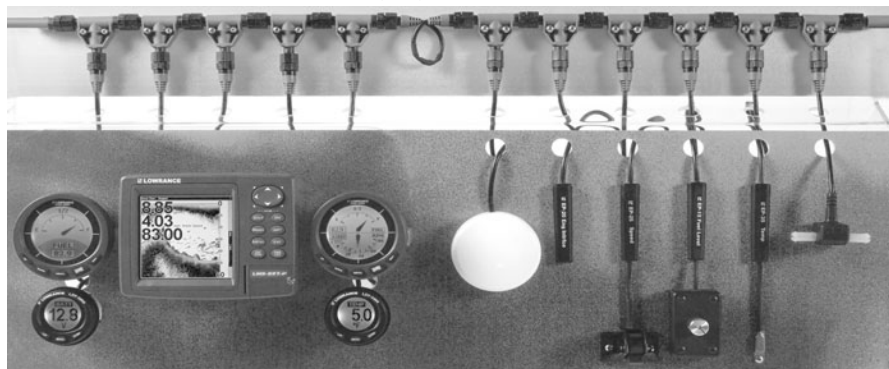
A NMEA 2000 network using LowranceNET components.

All Lowrance NMEA 2000 capable devices are either NMEA 2000 certified or certification is pending. See our web site, www.lowrance.com, for the latest product status information.

To get started with your Lowrance gauge, first read the installation section. It contains instructions for installing the LMF-400.

After you've read those instructions, install the gauge and any EP sensors you may have purchased, then read the rest of this manual. Each sensor comes with its own installation instruction sheet, but this manual describes how the gauge operates with each sensor, and how to calibrate the sensors. The more you know about the gauge, the better it will work for you.

Your package also includes another manual, part 988-0154-172, which contains complete instructions for creating or expanding a NMEA 2000 network.

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LowranceNET teams up the powerful NMEA 2000 network standard with a fast-growing, cutting-edge family of Lowrance Electronic Probe Sensors. At press time, the product line includes the EP-10 Fuel Flow, EP-15 Fluid Level, EP-20 Engine interface, EP-25 Speed, EP-35 Temp and EP-45 Water Pressure sensors.

And what's more exciting, there are others on the way! Be sure to log onto www.lowrance.com from time to time for the latest developments, including updated operation manuals and instruction sheets you can download free of charge. When you're ready to expand your network, see the accessory ordering information on the back cover of this manual.

NOTICE!

The storage and operation temperature range for your unit is from -4 degrees to +167 degrees Fahrenheit (-20 degrees to +75 degrees Celsius). Extended storage or operation in temperatures higher or lower than specified will damage the liquid crystal display in your unit. This type of damage is not covered by the warranty. For more information, contact the factory's Customer Service Department; phone numbers are inside the manual's back cover.

Section 2: Installation

Preparation

The design of the LMF-400 allows convenient mounting in the dash of your boat, or it can be mounted on any flat panel at least four inches in diameter.

To mount the LMF-400 in the dash, first make sure there is sufficient clearance behind the panel in the desired location. Also, see that there is adequate room to connect power and transducer cables. At least 3-1/2 inches are needed behind the surface of the dash to clear all connectors and wiring.

Recommended Tools and supplies

Recommended tools for this job include: hole saw, drill, drill bit (for starter hole). Required supplies for this job include: "U" bracket, lock washers and wing nuts (included).

Mounting the Unit

Cut a 3-3/8 inch diameter mounting hole with a hole saw. A "U" bracket is supplied to hold the sonar to the dash. Place it over the threaded studs on the back of the unit and secure it with the lock washers and nylon wing nuts provided with the unit.
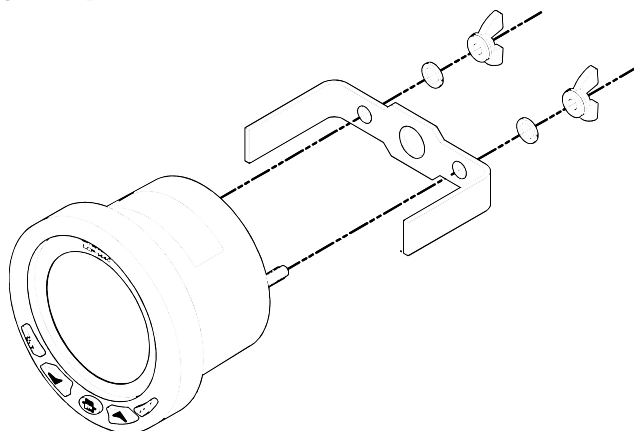
Secure unit to the dash using "U" bracket as shown.

The bracket is designed to secure the unit to a dash with a thickness of 2 mm. If your dash is thicker than 2 mm, the "U" bracket will be too long. Simply place washers or spacers between the unit and the bracket until you can tighten the wing nuts and secure the unit in place. Once the unit is in place, you need to connect it to a power supply, to the speaker (provided) and the LowranceNET.

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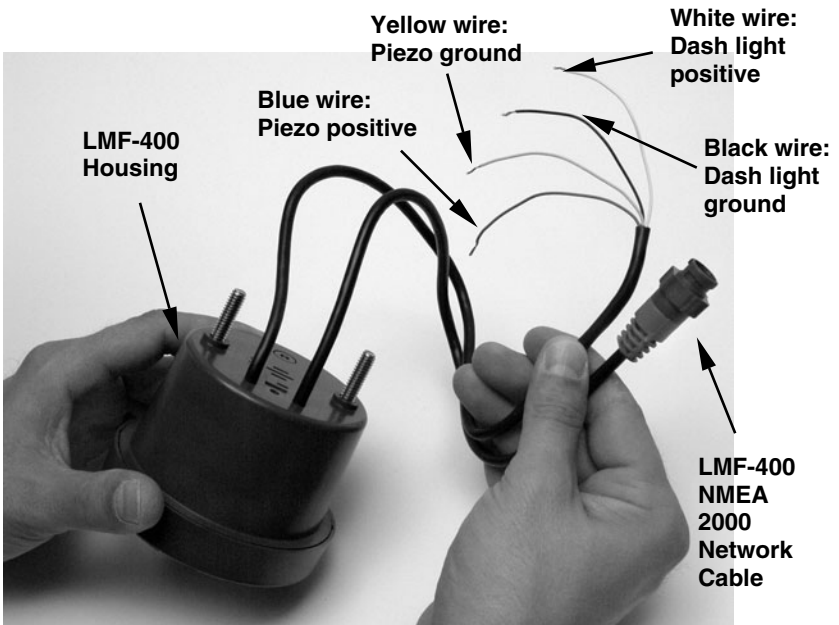
LMF-400 with power cable wiring and NMEA 2000 Cable Connection.

Connecting to a NMEA 2000 Network

A network bus is an installed and operational network cable (backbone) running the length of your boat, already connected to a power supply and properly terminated. Such a bus provides network connection nodes at various locations around your boat.

This is similar to the telephone wiring in a house. If you pick up a phone in your living room, you can hear someone talking into the phone in the bedroom.

LowranceNET Node Kit for a NMEA 2000 network. Includes a 2 foot extension cable, T connector, 120-ohm male terminator and 120-ohm female terminator.

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For complete instructions on setting up a new NMEA 2000 network or expanding an existing one, see the other document packed with your gauge, "*Setup and Installation of NMEA 2000 Networks, General Information*" part number 988-0154-172. If that document is missing, it can be downloaded free from the Lowrance web site.

Network Nodes

A network bus is built of network nodes spread along a backbone. Network nodes are made by fitting T-shaped connectors into the backbone (using the sockets on the sides), and attaching a display unit or sensor at the bottom of the "T."

Using our telephone example, the T connectors are similar to telephone jacks. The backbone is like the phone wiring running through a house. Phones in a house must be connected to each other to communicate, and in the same way only sensors and display units plugged into the NMEA network can share information.

Connections found in the middle of the bus will have one or more of these T-shaped connectors with the backbone cables plugged into both sides. Connections at the end of a network will have the backbone plugged into one side, and a terminator plugged into the other, as shown in the following figure.
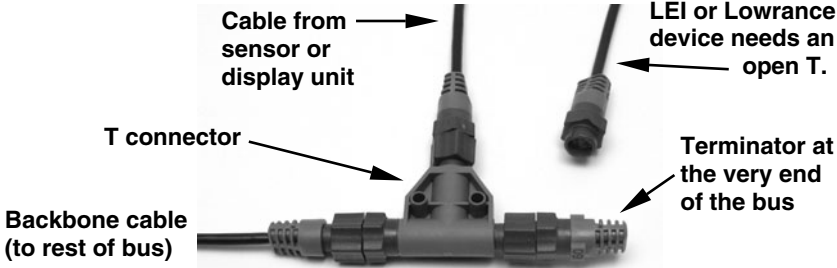
NMEA 2000 network node located at the end of a NMEA 2000 bus.

Adding a Network Node

You can add a node anywhere along the network backbone where a connection already exists. This connection could be at the end of the network (between a T connector and a terminator), between two T connectors, between a T connector and a backbone extension cable, or between two extension cables. Wherever you want to add the new node, simply separate the sockets of the old connection and attach your new T connector between them.

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Lowrance or LEI device connects to new T connector.

Add T-shaped connector to add device to bus.

Existing network node

Attach terminator at end of bus.
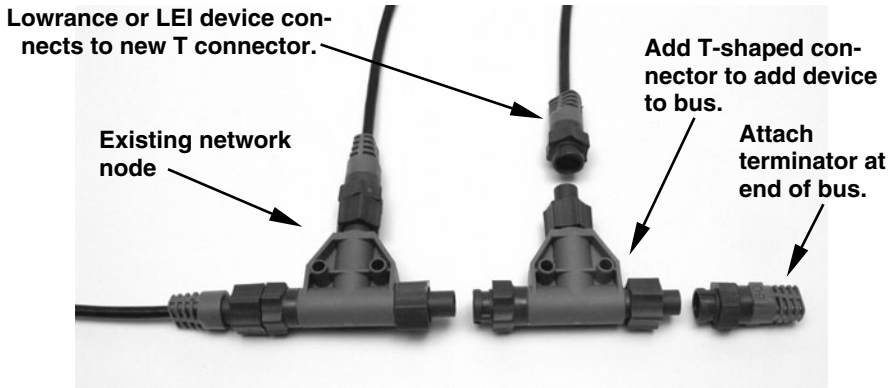
Add a new device to a NMEA 2000 bus by attaching a T connector between two T connectors, between a T connector and the end terminator, or between two backbone extension cables.

If you want to add a node at the end of the line (as shown in the previous figure), remove the terminator from the very last connector, securely attach the new T connector, and then attach the terminator on the new connector. Either method will allow you to add a device.

Additional Network Information

Further instructions on creating or expanding a LowranceNET network are illustrated in the NMEA 2000 network setup booklet, part number 988-0154-172, which came packed with this manual.

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Section 3: Operation

The displays and settings in this digital gauge are controlled by a five-button keypad. The buttons are **UP**, **DOWN**, **MENU**, **PAGES/ENTER** and **EXIT**. The **MENU** key calls up the basic menu, which allows you to set up as many as 16 pages for display. The **UP** and **DOWN** keys are used to scroll through and highlight menu items. The **PAGES/ENTER** key (also referred to as the **ENTER** key) allows you to scroll forward through a series of pages and is used to select items from menus. The **EXIT** key is used to close menus and scroll backward through a series of pages.

LMF-400 keypad.

Boat Setup

When the LMF-400 powers up for the first time, the screen will show the Boat Setup menu. You will not be able to proceed without completing Boat Setup, which requires you to program into the unit the number of engines and gas tanks on your vessel. Boat Setup will only appear again if you reset Engine/Tank configuration, add certain EP sensors or if configuration is lost.

To complete Boat Setup:

1. With Boat Setup highlighted, press **ENTER**. A menu will appear, allowing you to choose the number of engines and fuel tanks on your vessel. The Boat Setup menu options are: 1 Eng/1 Tank**,** 1 Eng/2 Tank**,** 2 Eng/1 Tank**,** 2 Eng/2 Tanks**,** 3 Eng/1 Tank or 3 Eng/3 Tanks.

2. Choose the option that applies to your vessel and press **ENTER**. After setting the engine/tank configuration, you will need to enter the size of each tank via the Set Tank Size menu. It will appear with up to three options, depending on the number of tanks you chose during Boat Setup. The options are: Port Tank, Stbd Tank and Cen Tank.

3. Select the tank you want to set up and press **ENTER**. That will launch the Setting Tank Size window. If you selected one tank during Boat Setup, you will be taken directly to the Setting Tank Size Window.

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4. Use the **UP** and **DOWN** keys to enter how many gallons the tank will hold and press **ENTER**.

Press **EXIT** and repeat steps 3 and 4 for each of the remaining tanks.

5. After all tanks on your vessel have been setup, press **EXIT** repeatedly to be directed back to the main display.

NOTE:

> If your LMF-400 was already installed on your boat you likely will not have to complete boat setup. But, if you would like to go through the setup, take a look at the following instructions.
>
> 1. Press **MENU**, scroll down to **SYSTEM SETUP**, then press **ENTER**. Select **ENG/TANK CFG** and press **ENTER | ENTER**.
>
> 2. The following message will appear: Press Enter to Reset Eng/Tank Cfg. Press **ENTER** to reset the configuration and be directed to the Boat Setup screen. From the Boat Setup screen, press **ENTER** to access the engine/tank configuration menu.

Pages

Pages are the backbone of the LMF-400. They give you the power to mix and match data that will be displayed on the screen. Once you have picked pages that meet your preferences, the 400's multi-functionality really kicks in, allowing you to customize pages with the data most important to you. We'll take a closer look at customizing pages in Section 5: Advanced Operation.

The LMF-400 has the capability to support up to 16 pages, which means you can add pages you find most helpful more than once, customizing each one differently.
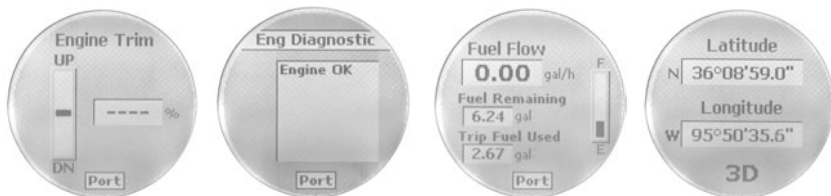
Engine Trim (from left to right), Diagnostics, Fuel Manager and GPS Module page.

Engine Trim

Monitors position of the boat's engine in either percentages or degrees.

Diagnostics

Monitors engine performance, notifying you if a problem arises.

Fuel Manager

Fuel Manager page has three digital readouts capable of displaying: Fuel Flow, Fuel Economy, Fuel Remaining, Fuel Range, Trip Fuel Used, Seasonal Fuel, Paddle Wheel Speed, Pitot Speed and GPS Speed.

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GPS Position

The GPS position page displays the boater's position in Latitude-Longitude, using Degrees-Minutes-Seconds or Degrees-Minutes as units of measure.
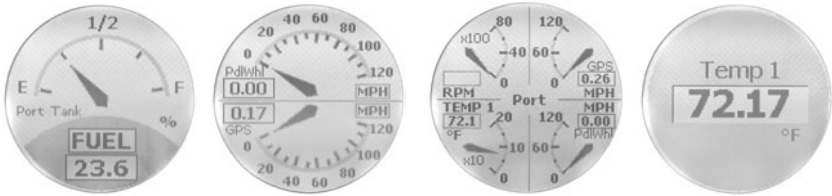
Single Analog (from left to right), Dual Analog, Quad Analog and Single Digital page.

Single Analog

The single analog page displays an analog gauge that can show: Alt Voltage, Battery Voltage, Engine Temp, Atmospheric Pressure, Temperature, Fluid Level, PaddleWheel Speed, Pitot Speed, GPS Speed and Tachometer.

Dual Analog

The Dual Analog page shows a pair of analog gauges that can display: Alt Voltage, Battery Voltage, Engine Temperature, Atmospheric Pressure, Temperature, Fluid Level, Paddle Wheel Speed, Pitot Speed, GPS Speed and Tachometer.

Quad Analog

The Quad Analog page displays four analog gauges that can monitor: Alt Voltage, Battery Voltage, Engine Temperature, Atmospheric Pressure, Temperature, Paddle Wheel Speed, Pitot Speed, GPS Speed and Tachometer.

Single Digital

The Single Digital page displays a digital gauge that can monitor: Alt Voltage, Battery Voltage, Engine Temperature, Atmospheric Pressure, Temperature, Depth, Engine Load, Total Engine Hours, Fuel Flow, Fuel Economy, Fuel Remaining, Fuel Range, Paddle Wheel Speed, Pitot Speed, GPS Speed and Tachometer.

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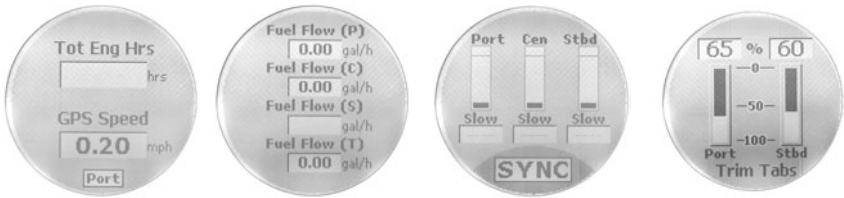
Dual Digital (from left to right), Quad Digital, Synchronizer and Trim Tabs page.

Dual Digital

The Dual Digital page features a pair of digital gauges which can display: Alt Voltage, Battery Voltage, Engine Temp, Atmospheric Pressure, Temperature, Depth, Engine Load, Total Engine Hours, Fuel Flow, Fuel Economy, Fuel Remaining, Fuel Range, Paddle Wheel Speed, Pitot Speed, GPS Speed and Tachometer.

Quad Digital

The Quad Digital page has four digital gauges capable of displaying: Alt Voltage, Battery Voltage, Engine Temperature, Atmospheric Pressure, Temperature, Depth, Engine Load, Total Engine Hours, Fuel Flow, Fuel Economy, Fuel Remaining, Fuel Range, Paddle Wheel Speed, Pitot Speed, GPS Speed and Tachometer.

Synchronizer

The Synchronizer page will show RPM for up to three engines, allowing users to synchronize the engines for smoother performance.

Trim Tabs

The Trim Tab page monitors the position of the Trim Tabs using either percentages or degrees as units of measure.

Viewing options

The pages may be viewed on the screen in one of two ways. You can scroll through them manually by using the **ENTER** and **EXIT** keys or set them to scroll automatically via the Page Scrolling function. We'll explore Page Scrolling in greater detail later in this section.

NOTE:

The **ENTER** and **EXIT** keys work together to help you scroll through pages on the main display. Pressing the **ENTER** key moves the scroll in one direction. Pushing the **EXIT** key moves the scroll in the other direction.

Basic Menu

Each page has its own menu. The menus vary somewhat from page to page, but all include these basic menu categories: Page**,** Screen**,** Audio Setup and System Setup**.**

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The pages may be displayed one at a time or in a timed scroll set at an interval of your choosing via the page scrolling setting.

NOTE:
The System Setup menu is the lone basic menu category that differs slightly from page to page, depending on the page being displayed. We'll delve into that later in this section.
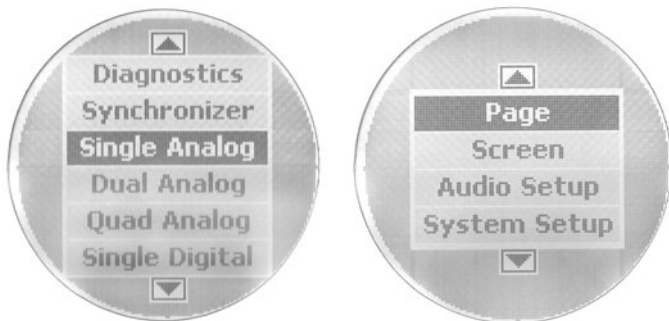
Scrolling list of page options (left) with basic menu categories (right).

Adding Pages

To add a page to the display:

1. Press **MENU**, select **PAGES** and press **ENTER**. A menu will pop up with four options: Add Page**,** Remove Page**,** Page Scrolling and Pop-Ups Setup**.**

2. Select **ADD PAGE** and press **ENTER**. Use the **UP** and **DOWN** keys to scroll through the list.

3. You can select the page you want to display by pressing **ENTER** when the desired page is highlighted. An adding page prompt will appear asking you to press the **ENTER** key to add the page.

4. Press **ENTER** to add the page, which will take you back to the main display, where the page you selected will be on the screen.

5. If you choose not to add the selected page, press **EXIT** repeatedly to return to the main display.

Removing Pages

To remove a page from the display:

1. Press **MENU**, select **PAGES** and press **ENTER.**

2. Choose **REMOVE PAGE** and press **ENTER**. You won't have a list to choose from, like when we added a page. You will only be able to remove the page that was on the main display when you pressed the **MENU** key. The following prompt will appear: Press Enter to Remove current Page.

3. Press **ENTER**, which will return you to the main display.

4. If you decide not to remove the selected page, press **EXIT** repeatedly to return to the main display.

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Page Scrolling

Once you have added the pages you want to monitor, you'll have two ways to view them on the display. You can scroll through the pages manually by using the **ENTER** and **EXIT** keys or utilize the Page Scrolling function to automatically scroll through the pages at an interval of your choosing.

To activate Page Scrolling:

1. Press **MENU**, select **PAGES** and press **ENTER**.

2. Select **PAGE SCROLLING** and press **ENTER**. The Page Scrolling menu will appear with two settings: Off and Set Time**.**

3. To set the scrolling interval, choose **SET TIME** and press **ENTER**.

4. Use the **UP** and **DOWN** keys to select an interval between one and 60 seconds. At the bottom of the Set Time display will be a message, Press Enter when finished**.** After you are satisfied with the selected interval, press **ENTER**.

To turn off Page Scrolling:

To get back into the Page Scrolling menu, repeat the steps you used to activate Page Scrolling.

But this time, when you access the Page Scrolling menu, select **OFF** instead of **SET TIME**.

Pop-Ups Setup

Pop-Ups Setup is accessed from the basic menu by selecting **PAGES** and pressing **ENTER**. Scroll down to Pop Ups Setup and press **ENTER**. Four options will appear: RPM**,** Engine Trim**,** Trim Tabs and Stay-on Time**.**

The Pop-Ups feature makes it possible for you to be alerted when the category you selected (RPM, Engine Trim, Trim Tabs) exceeds a threshold of your choosing. When a threshold is exceeded, the main page for the category will pop up on the main display for a preset duration. You can choose how long the page will be displayed via the Stay-on Time option.

RPM: If you highlight **RPM** and press **ENTER**, a pair of menu options will appear: Off and Set Threshold**.** Select **OFF** to turn off a RPM pop up or highlight Set Threshold and press **ENTER**, to set a RPM threshold. The threshold for RPM ranges from 50 to 3,000 RPM.

Engine Trim: If you select **ENGINE TRIM** and press **ENTER**, a pair of menu options will appear: Off and Set Threshold**.** Select Off to turn off an Engine Trim pop up or highlight Set Threshold and press **ENTER**, to set an Engine Trim threshold. The threshold for Engine Trim ranges from 3% to 50%.

Trim Tabs: If you choose **TRIM TABS** and press **ENTER**, a pair of menu options will appear: Off and Set Threshold**.** Select **OFF** to turn off a Trim

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Tab pop up or highlight Set Threshold and press **ENTER**, to set a Trim Tab threshold. The threshold for Trim Tabs ranges from 3% to 50%.

Stay-on Time: By highlighting Stay-on Time you are able choose how long the RPM, Engine Trim and Trim Tab pages will be displayed when their respective thresholds have been exceeded. To set the duration of each display, highlight **STAY-ON TIME** and press **ENTER.** The Set Time menu will appear, giving you the option to select a duration between 2 and 15 seconds. You need only set the Stay-on Time duration once since it will affect all three categories (RPM, Engine Trim and Trim Tabs).

Basic menu with Screen highlighted (left). Screen option menu (center) with Set Backlight window (right).

Screen

To access the Screen menu:

1. Press **MENU**, choose **SCREEN** and press **ENTER**. There are three options from which to choose: Backlight**,** Contrast and Reverse Video**.**

Adjusting Backlight:

1. Select **BACKLIGHT** and press **ENTER** to adjust the brightness of the backlight. A vertical adjustment bar will appear on the Set Backlight window. If more than one gauge is on the bus, it will automatically adjust the other gauge to the same setting.

2. Use the **UP** and **DOWN** keys to set the backlight to a desired level.

3. Press **EXIT** to return to the Screen menu or **ENTER** to get back to the main display.

Adjusting Contrast:

You can adjust the Contrast in the same manner as the Backlight.

1. Select **CONTRAST** from the Screen menu and press **ENTER** to launch the Contrast Adjust window.

2. Use the **UP** and **DOWN** keys to move the slider bar to a desired level.
3. Press **EXIT** to return to the Screen menu or press **ENTER** to get back to the main display.

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Contrast is highlighted on the Screen menu (left). The Contrast Adjust window (center). Reverse Video highlighted on Screen menu (right).

The easiest way to change the look of the display is to utilize the Reverse Video command, commonly used for nighttime viewing.

To select Reverse Video:

1. From the screen menu, highlight **REVERSE VIDEO** and press **ENTER**. You'll notice the dark and light colors have been swapped for one another. The white text, which was on top of a dark background, now has been switched to dark text on top of a white background. If more than one gauge in on the bus, it will automatically adjust the other gauge to the same setting.

2. To toggle back to the previous setting, return to the Screen menu, select **REVERSE VIDEO** and press **ENTER**.

3. Press **EXIT|EXIT** to return to the main display.

Audio Setup highlighted on the basic menu (left). Audio Setup menu (center) with Key Sounds menu (right).

Audio Setup

To modify audio settings:

1. Press **MENU**, highlight **AUDIO SETUP**, then press **ENTER**. A menu will appear with two options: Key Sounds and Alarm Sound**.**

Adjusting Key Sounds:

2. Select **KEY SOUNDS** and press **ENTER**.

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3. Select **ON** or **OFF** and press **ENTER**, which will take you back to the main display.

4. If you choose to keep the current setting, press **EXIT** to return to the Audio Setup menu

Adjusting Alarm Sounds:

1. To turn on or turn off Alarm Sounds, select **ALARM SOUNDS** from the Audio Setup menu and press **ENTER**.

2. Select **ON** or **OFF** and press **ENTER**, which will take you back to the main display.

3. If you choose to keep the current setting, press **EXIT** to return to the **AUDIO SETUP** menu.

4. Press **EXIT** repeatedly to return to the main display.

System Setup

On each page, the System Setup menu contains, Engine Displayed, Change Units, Bus Devices**,** Sonar Alarms, Eng/Tank Configuration, Reset Values and System Information**.**

To access the System Setup menu**,** press **MENU** and use the **UP** and **DOWN** keys to highlight **SYSTEM SETUP**, then press **ENTER**. We'll discuss the System Setup menu in more detail in the Advanced Operation section.

Bus Devices

One of the more significant commands in the System Setup menu is the Bus Devices command. It allows you to run a system check for all devices connected to the LowranceNet.

1. To run a system check for devices connected to the NMEA 2000 LowranceNet, press **MENU**, select **SYSTEM SETUP** and press **ENTER**. Choose **BUS DEVICES** and press **ENTER.** After a Searching for Bus Devices message comes up, a list of all devices attached to the LowranceNET — the Bus Devices list — will appear.

NOTE:

> If you modify settings and are not satisfied with the results, you can reset the gauge to its factory default settings via the Reset Values command.

To Reset Values:

1. Press **MENU**, highlight **SYSTEM SETUP** and press **ENTER**.

2. Scroll down to **RESET VALUES** and press **ENTER**. The following message will appear: Press Enter to reset all values.

3. Press **ENTER** to reset the values.

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WARNING:
    **Resetting values is a factory hard reset. All settings will
be wiped out.**
NOTE:
    Resetting values does not affect engine/tank configuration or the
calibration and configuration settings of devices on the bus.

Section 4: EP Configuration & Calibration

To configure items linked into the LowranceNET networking system, press **MENU** and select **SYSTEM SETUP**. Highlight **BUS DEVICES** and press **ENTER**, which will bring up the message, Searching Bus Devices. Once all devices are detected, a list of the devices (Bus Devices list) will be displayed.

The Bus Devices command acts as the device manager for the bus, allowing you to configure and unconfigure devices and set and reset critical values such as alarms and calibration.

Bus Devices highlighted in the System Setup menu (left). Searching Bus Devices window (center) with Bus Devices list (right).

NOTE:

Devices will vary in name and number depending on what has been connected to the LowranceNET. The number of temp sensors attached to the network will match the number that comes up on the Bus Devices list.

If you configure or reconfigure a sensor, you're assigning or reassigning its designation in the LMF-400 to a different sensor location on the boat.

The following items can be configured, unconfigured or reconfigured: Temperature Sensors (UnCfg Temp), Fuel Flow Sensors (UnCfg F Flow) and Fluid Level (UnCfg F Level). When UnCfg Temp, UnCfg F Flow and the UnCfg Fluid Level appear on the bus devices list it shows they are unconfigured. Proceed through this section to configure each one. You can have multiple Temperature sensors and Fluid Level Tanks, but will have no more than three Fuel Flows to configure since the LMF-400 supports a maximum of three engines.

The GPS Module and Paddle Wheel Speed do not need to be configured. Engines and tanks are configured through the System Setup menu. Trim Tabs are configured through the Pages menu, which will be addressed later in this section.

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NOTE:

    If you configure the desired sensors and are not satisfied with the results, you may clear the configuration settings for each sensor individually, by resetting values from the sensor's configuration menu. Remember, ONLY the sensor you select from the Bus Devices list will be set back to its defaults. To reset the LMF-400 to its defaults, you must select **RESET VALUES** from the System Setup Menu. We'll take a closer look at the **RESET VALUES** command later in this section.

To get to the configuration menu:

1. Press **MENU**, select **SYSTEM SETUP** and press **ENTER**.

2. Highlight **BUS DEVICES** and press **ENTER.** After a few moments, items detected in the network will be listed. Use the **UP** and **DOWN** keys to scroll through the list.

3. To configure an item in the list, highlight the item and press **ENTER**.

Temperature Sensors

When temperature sensors are selected from the Bus Devices menu, the temp sensor configuration menu comes up with two choices: **UNCONFIGURE** or **RECONFIGURE**.

To Unconfigure a temp sensor:

1. After selecting a temp sensor from the Bus Devices list and pressing **ENTER**, choose **UNCONFIGURE** from the configuration menu and press **ENTER**. The following message will appear: Hit Menu to UnCfg Temp Sns.

2. Press **ENTER** to unconfigure the sensor and be directed back to the Bus Devices list.

To Configure a temp sensor:

1. If you highlight **UNCFG TEMP** and press **ENTER**, a window will pop up asking if you want to configure the sensor.

2. Press **ENTER** to be taken to the Selecting Temp menu.

3. Highlight one of the Temp options (Temp1, Temp 2, Temp 3, etc.) on the Selecting Temp menu and press **ENTER**. The UnCfg temp now has been configured as the Temp you selected. You automatically will be redirected to the Bus Devices list.

To Reconfigure a temp sensor:

If you want to reconfigure a sensor, but all the sensors linked to the LowranceNET are already configured, you must first unconfigure a sensor, so its name will be available. Otherwise a Name Already Selected message will appear.

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In the following example, we want to swap the configuration of Temp 2 and Temp 1. We will first unconfigure Temp 2, then reconfigure Temp 1 as Temp 2. We'll finish by configuring UnCfg Temp (formerly Temp 2) as Temp 1.

1. Highlight **TEMP 2** on the Bus Devices list and press **ENTER**, which will launch the temp sensor configuration menu.

2. Choose **UNCONFIGURE** and press **ENTER**. The following message will pop up: Hit Menu to UnCfg Temp Sns.

3. Press **ENTER**, and you will be taken back to the Bus Devices list.

4. Select **TEMP 1** from the Bus devices menu and press **ENTER**. Choose **RECONFIGURE** and press **ENTER**. That will direct you to the Temp Selection menu.

5. Select **TEMP 2** and press **ENTER**, which will take you back to the Bus Devices list.

6. Now highlight **UNCFG TEMP** from the Bus Devices list and press **ENTER**, which will call up the Selecting Temp menu. Choose one of the Temp options (Temp 1, Temp 3, etc.) and press **ENTER**. You will be returned to the Bus Devices list.

NOTE:

To run a system check for devices connected to the NMEA 2000 network, select **BUS DEVICES** from the System Setup menu and press **ENTER**. A Searching Bus Devices message comes up, followed by a list of all devices attached to the LowranceNET — the Bus Devices list. To select an item from the bus devices list, use the **UP** and **DOWN** keys to scroll through the list. Highlight the desired category and press **ENTER**.

Fuel Flow (Port, Center and Stbd)

Port Fuel Flow (Port Fflow), Center Fuel Flow (Cen Fflow) and Starboard Fuel Flow (Stbd Fflow) all share the same internal configuration menu, which includes: Change Engine (for two or more engines only), Fuel Warning, Unset Engine and Reset Values. After selecting a Fuel Flow (Port, Center or Stbd) from the Bus Device list and pressing **ENTER**, the following options will appear in the menu.

To Unconfigure Fuel Flow:

See Unset Engine below.

To Configure Fuel Flow:

1. From the Bus Devices list, highlight **UNCFG F FLOW** and press **ENTER**. That will launch the following message: Hit Menu to Cfg Flow Sns.

2. Press **ENTER** to proceed with configuration.

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To Change Engine (Reconfigure; active only with multiple-engine setting):

1. From a fuel flow menu, select **CHANGE ENGINE** and press **ENTER**. That will call up an internal menu with three options: Port**,** Center and Starboard**.** When you select one of the three options a message appears: Changing Device Settings. When the LowranceNET has been scanned and all devices have been detected, you will be directed back to the Bus Device list.

To set Fuel Warning:

1. Highlight **FUEL WARNING** and press **ENTER,** which opens a menu with the following options: Low Level or High Level.

2. After choosing either **HIGH LEVEL** or **LOW LEVEL** and pressing **ENTER**, a Level Warning window will appear. It will be set to **OFF** by default.

When setting a Fuel Warning, you should choose **LOW LEVEL**, which will warn you when the fuel level drops below a preset percentage of the tank's capacity.

3. To set the Fuel Warning level, use the **UP** and **DOWN** keys to select a desired percentage and press **ENTER**. You then will be directed back to the Bus Devices list.

To Unset Engine (Unconfigure):

1. After highlighting **UNSET ENGINE** and pressing **ENTER**, a message will pop up: Press Ent to Unconfig Dev Instance.

2. Press **ENTER** and you will be directed back to the Bus Devices list., where UnCfg F Flow will now be displayed.

To Reset Values:

1. Choose **RESET VALUES**, press **ENTER** and a message will be displayed: Press Enter to Reset Device Values.

2. Press **ENTER** to reset the device values to the default settings.

NOTE:

> By resetting values from the configuration menu, ONLY the device selected from the Bus Devices list will be set back to its defaults. When you Reset Values, the calibration on the device is reset. But when you unconfigure a device, its calibration is unaffected.

WARNING:

> **If you reset any EP, that EP will lose all configuration and calibration.**

Fluid Level

Up to three tanks for each Fluid Level category (Fuel, Fresh Water, Oil, Black Water, Waste Water and Live Well) can be supported by the LMF-400. On the Bus Devices list, the fuel tanks will be displayed as Fuel Tank (P) for portside, Fuel Tank (C) for center and Fuel Tank (S) for starboard.

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If you have one tank it will be shown as Fuel Tank. Other tanks will be displayed as Blackwater Tank, Freshwater Tank, Oil Tank, Live Well Tank and Waste Water Tank. If you have more than one of the tank types above, it will be displayed as Blk Wtr 1, 2, 3, Live Well 1, 2, 3, etc. If the tank or tanks have not been configured, they will be listed as Unfcg F Level.

To unconfigure Fluid Level:

1. Choose a configured Fluid Level from the Bus Devices list and press **ENTER**.

2. Highlight **UNCONFIGURE** and press **ENTER**, which will launch the following message: Press Enter to Unconfigure Device.

3. Press **ENTER** and you will be returned to the Bus Devices list where you now will see UnCfg F Level on the devices list.

To Configure Fluid Level:

1. Select **UNFCG F LEVEL** from the Bus Devices list and press **ENTER**, which will launch the following message: Press **ENTER** to configure Fluid Level Sensor.

2. Press **ENTER** and a menu will be called up with these configuration options: Fuel, Fresh Water, Waste Water, Live Well, Oil and Black Water. You can have up to three tanks for each category.

NOTE:

The gauge must be set to Fuel Level for the Fuel Remaining Source to display fuel level sensor information properly. For more information on the topic, see Fuel Remaining source under Fuel Setup in Section 5, Advanced Operation.

To configure Fuel:

1. Highlight **FUEL** from the list of configuration options and press **ENTER**. The number of options on the menu will vary with the number of tanks you selected during Boat Setup. See Boat Setup on the first page of Section 3: Operations.

If you have three tanks, a menu will appear with these options: Port Tank, Cen (Center) Tank and Stbd (Starboard) Tank.

2. Highlight one of the three tank options and press **ENTER**, which will take you back to the Bus Devices list. If you have more than one tank, one of the following will now be on the list: Fuel Tank (P), Fuel Tank (C), Fuel Tank (S). If you have one tank, Fuel Tank will be on the list.

To configure Fresh Water:

1. Choose **FRESH WATER** from the list of configuration options and press **ENTER**. A window will appear prompting you to input the tank number.

2. Enter the tank number (1, 2 or 3) and press **ENTER**. That will launch a tank size window.

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3. Use the **UP** and **DOWN** keys to enter how many gallons the tank will hold and press **ENTER**. You will then be directed back to the Bus Devices list.

To configure Waste Water:

1. Highlight **WASTE WATER** from the list of configuration options and press **ENTER**. A window will appear prompting you to input the tank number.

2. Enter the tank number (1,2 or 3) and press **ENTER**, which will launch a tank size window.

3. Use the **UP** and **DOWN** keys to enter how many gallons the tank will hold and press **ENTER**. The Changing Device Settings window will appear. You will then be directed back to the Bus Devices list.

To configure Live Well:

1. Choose **LIVE WELL** from the list of configuration options and press **ENTER**, which will launch a window prompting you to input the tank number.

2. Enter the tank number (1,2 or 3) and press **ENTER**, which will launch a tank size window.

3. Use the **UP** and **DOWN** keys to enter the size of the tank and press **ENTER**. You will then be directed back to the Bus Devices list.

To configure Oil:

1. Highlight **OIL** from the list of configuration options and press **ENTER**, which will launch a menu with these options: Port Tank, Cen Tank and Stbd Tank.

2. Select a tank and press **ENTER**, which will call up a Setting Tank Size window.

3. Use the **UP** and **DOWN** keys to enter the number of gallons the tank will hold and press **ENTER**. You will then be returned to the Bus Devices List.

To configure Black Water:

1. Highlight **BLACK WATER** from the list of configuration options and press **ENTER**, which will launch a window prompting you to input the tank number.

2. Enter the tank number (1, 2 or 3) and press **ENTER**, which will call up a tank size window.

3. Use the **UP** and **DOWN** keys to enter how many gallons the tank will hold and press **ENTER**. You will then be directed back to the Bus Devices list.

To Reconfigure Fluid Level:

1. Select a configured Fluid Level (Fuel Tank, Oil Tank, Black Water Tank, Waste Water Tank, Fresh Water Tank, Live Well Tank) from the Bus Devices list and press **ENTER**.

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A menu will be displayed with the following options: Level Warning, Unconfigure, Reconfigure, Calibrate and Reset Values.

To set Level Warning:

1. Select **LEVEL WARNING** and press **ENTER**, which will open a menu with two options: Low Level or High Level.

2. Choose one of the levels (Low or High) and a box will appear, allowing you to set the warning level you selected to Off or to a desired percentage.

NOTE:

> If you configure a tank for fuel, you should choose a **LOW LEVEL** warning, which will warn you when the fuel level drops below a preset percentage of the tank's capacity. Fresh Water and Oil also should be set for Low Level. If you configure a tank for Black Water or Waste Water, you should configure the Level Warning to the **HIGH LEVEL**. For example, if the High Level warning is set to 3 quarters of a tank, you will be notified before the tank's capacity has been exceeded, allowing you to dump the tanks before they fill up.

3. Use the **UP** and **DOWN** keys to set the warning percentage to a desired level and press **ENTER**, then you will be returned to the Bus Devices list.

Calibrate

See detailed information on Calibration later in this section.

Reset Values

1. Highlight **RESET VALUES** on the Tank configuration menu and press **ENTER**. The following message will appear: Hit Menu to Rst Values.

2. Press **ENTER** to reset the Tank device configuration values to the default setting. This will remove any calibration previously set.

NOTE:

> By resetting values from the configuration menu, ONLY the device selected from the Bus Devices list will be set back to its defaults. When you Reset Values, the calibration on the device is reset. But when you unconfigure a device, its calibration is unaffected.

WARNING:

> **If you reset any EP, that EP will lose all configuration and calibration.**

GPS Module, Paddle Wheel Speed and Trim Tabs

The remaining items from the Bus Devices list, GPS Module, Paddle Wheel Speed and Trim Tab Sensors do not need to be configured. If you highlight GPS Module or Paddle Wheel Speed and press **ENTER**, the following message should appear: Device Working Properly.

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Trim Tab Sensors: highlighting Trim Tab Sensors and pressing **ENTER,** will launch the following message: Press Enter to Reset Device Values. To reset the Trim Tab Sensor settings to the default setting, press **ENTER**.

Calibration of EP Devices

Calibrating Fluid level is an important step to ensuring the status of your tank is correctly transmitted over the NMEA 2000 bus.

For example: if you have an odd-shaped tank, like one that is wider at the top than at the bottom, the float inside the tank will tell you there is a half tank of gas when it reaches the midpoint of the tank, regardless of the tank's actual capacity below the midpoint. That could cause you to run out of gas more quickly than expected. Whether the tank is configured for Fuel, Fresh Water, Waste Water, Black Water or Oil, calibrating the Fluid Level protects you from unpleasant surprises.

NOTE:

> To run a system check for devices connected to the NMEA 2000 network, select **BUS DEVICES** from the System Setup menu and press **ENTER**. A Searching Bus Devices message comes up, followed by a list of all devices attached to the LowranceNET — the Bus Devices list. To select an item from the bus devices list, use the **UP** and **DOWN** keys to scroll through the list. Highlight the desired category and press **ENTER**.

To calibrate a tank:

1. Press **MENU**, select **SYSTEM SETUP** and press **ENTER**.

2. From the System Setup menu, highlight **BUS DEVICES** and press **ENTER** to bring up the Bus Devices list.

3. From the devices list, highlight the fluid level source you want to calibrate, press **ENTER**, select **CALIBRATE** and press **ENTER**. A menu will appear with three calibration options: 2 point, 3 point and 5 point.

To execute 2-Point Calibration: there will be a pair of settings in the 2-point calibration menu: Empty Level and Full Level. 2-Point calibration is best for rectangular or square shaped tanks that allow the fuel level sensor to provide an accurate reading of the fuel level at the top and bottom of the tank.

1. Choose the level (**EMPTY OR FULL LEVEL**) that corresponds with your tank's current fuel level and press **ENTER**.

If you choose FULL LEVEL, the following message will appear: Calibrating Set Tank to Full Level Press Enter.

2. Press **ENTER** and you will be taken back to the 2-point menu.

3. Press **EXIT** to return to the Bus Devices list.

To execute 3-Point Calibration: there will be three options in the 3-point calibration menu: Empty Level, Half Level and Full Level. 3-point calibration is designed for tanks that vary in shape from the top to the bottom, leading to an inaccurate fuel level sensor reading, in the narrower, bottom portion of the tank.

1. Choose the level (**EMPTY**, **HALF** OR **FULL LEVEL**) that corresponds with your tank's current fuel level and press **ENTER**. If you choose half level, the following message will appear: Calibrating Set Tank to Half Level Press Enter.

2. Press **ENTER** and you will be taken back to the 3-point menu.

3. Press **EXIT** to return to the Bus Devices list.

To execute 5-point Calibration: there will be five options in the 5-point calibration menu: Empty Level, 1 Qtr Level, Half Level, 3 Qtr Level and Full Level. 5-point calibration is designed for the most uniquely formed tanks that vary greatly in shape from top to bottom, making an accurate fuel level sensor reading impossible without calibration.

1. Choose the level (**EMPTY**, **1 QTR**, **HALF**, **3 QTR** or **FULL LEVEL**) that corresponds with your tank's current fuel level and press **ENTER**. If you chose 3-quarter level, the following message will appear: Calibrating Set Tank to 3 Qtr Press Enter.

2. Press **ENTER** and you will be directed back to the 5-point menu.

3. Press **EXIT** to return to the Bus Devices list.

Fuel Flow
If using the EP-10 Fuel Flow as the Fuel Remaining source, you must tell the unit when you add fuel or fill the tank. If just adding fuel, but not topping off the tank, use the **PARTIAL FILL** option and enter the amount of fuel added.

WARNING:
>   **Be sure to carefully follow these instructions, otherwise fuel calibration could be inaccurate, resulting in incorrect Fuel Flow, Fuel Remaining, Fuel Economy and Fuel Range readings.**

If you are topping off the tank, but do not want or need to calibrate the unit, select the **FILL TANK** option and choose **NO** on the Calibrate option. To calibrate the EP-10 Fuel Flow, you must use the Refill Tank option.

1. First, fill up the vessel's tank, but do not recalibrate, just input that the tank has been refilled.

2. Once you have burned at least 5 gallons of fuel, fill up the tank again, carefully noting how much fuel was added to top off the tank. The amount of fuel added should be very close to the amount of Fuel

Used shown by the gauge. If the difference between these two figures is greater than 5 percent, then you need to recalibrate the unit.

3. To do this, after entering the tank has been refilled, select **YES** on the **RECALIBRATE** option.

4. Then enter in the amount of fuel added to fill the tank. The calibration is calculated by comparing the actual fuel used to the calculated fuel used. It is vital to get an accurate reading on the actual fuel used and the amount of fuel added to fill the tank the second time. On multiple engine installations with a single tank configuration, only one engine should be run when calibrating the EP-10 Fuel Flow. This is the only way to know how much fuel has gone through the EP-10 Fuel Flow you want to calibrate.

Refill Tank

1. After you have filled the gas tank, scroll through the pages until the Fuel Manager page is on the main display. Press **MENU**.

2. Highlight **FUEL SETUP** and press **ENTER**.

3. Scroll down the menu to **REFILL TANK** and press **ENTER**, which will call up the following message: ReCalibrate? A menu will be below the message with two options: Yes or No.

4. Highlight **YES** and press **ENTER**, which will launch the Filled Fuel Quantity window.

5. Use the **UP** and **DOWN** keys to enter the number of gallons you put in the tank and press **ENTER** to finalize the calibration. You will be directed back to the Fuel Setup menu.

Partial Fill

1. Scroll through the pages until the Fuel Manager page is on the screen, then press **MENU**.

2. Highlight **FUEL SETUP** and press **ENTER**.

3. Scroll down to **PARTIAL FILL** and press **ENTER**, which will launch the Adding Fuel Window.

4. Use the **UP** and **DOWN** keys to enter the amount of fuel you added to the tank, then press **ENTER**. You will be directed back to the Fuel Setup menu.

Trim Tabs

If the Trim Tabs have not been calibrated or have been reset, the display will flash between 0 and 100. This is normal prior to the trim tabs being calibrated for the first time.

Trim Tabs can only be calibrated from the Trim Tabs page. If the page is not present in the scrolling page display, add the Trim Tab page by following the Adding Pages instructions in Section 3: Operation.

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1. Scroll through the displayed pages until the Trim Tab page is on the main display.

2. Press **MENU**, select **CALIBRATE TAB** and press **ENTER**, which will launch the following message: Bring Tabs Full Up Press Enter.

3. Adjust the position of the Trim Tabs to the Full Up Position and press **ENTER**. A second message will appear: Run Tabs Full DN (Down).

4. Move the Trim Tabs into the full down position. The Trim Tabs are now calibrated. Recalibration can be performed at any time and as many times as necessary by following the step by step trim tab calibration instructions listed in this section.

Trim Tabs menu (left). When calibrating Trim Tabs, the Full Up message (center) appears first. It is followed by the Run Tabs Full Down message (right).

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Notes

Section 5: Advanced Operation

Customizing Pages

In this section, we're going to take a look at how each of the pages can be customized.

NOTE:

In order to access a page-specific menu make sure the desired page is on the display when you press the menu button. The page menus have a lot of similarities, but many have specific menu categories that only will appear on the basic menu if accessed while that page is on the main screen. For example, if you wanted to access the Fuel Manager menu, then you must scroll through the pages until the Fuel Manager page is displayed on the screen before pressing **MENU**.

Basic menu with Customize highlighted.

Single Analog

A single gauge display, the Single Analog page may be customized to monitor any of the following: Alt Voltage, Battery Voltage, Engine Temp, Atmospheric Pressure, Temperature, Fluid Level, PaddleWheel Speed, Pitot Speed, GPS Speed and Tachometer.

To customize the Single Analog page:

1. Scroll through the pages set for display by pushing the **ENTER** or **EXIT** key.

2. Once the Single Analog page is displayed, press **MENU**, select **CUSTOMIZE** and press **ENTER**.

3. Scroll through the device list and highlight the category you want to monitor, then press **ENTER**. The information you selected will be displayed on the screen.

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NOTE

The System Setup menu for all three analog gauges feature Speed Range and Pressure Range. A more detailed description of Speed Range and Pressure range may be found under System Setup later in this section.
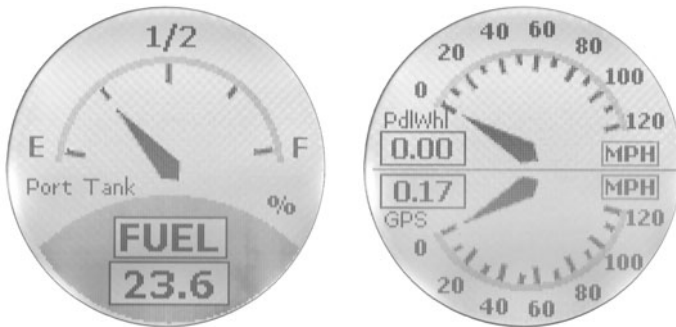
Single Analog page (left) with Dual Analog page (right).

Dual Analog

A pair of analog gauges, the Dual Analog page may be customized to show information from any of the following: Alt Voltage, Battery Voltage, Engine Temperature, Atmospheric Pressure, Temperature, Fluid Level, Paddle Wheel Speed, Pitot Speed, GPS Speed and Tachometer.

To customize the Dual Analog page:

1. Scroll through the pages set for display by pushing the **ENTER** or **EXIT** key.

2. Once the Dual Analog page is displayed, press **MENU**, select **CUSTOMIZE** and press **ENTER**.

3. A menu prompt will appear giving you the option to customize the Top Gauge or the Bottom Gauge**.** Use the **UP** and **DOWN** keys to highlight the desired gauge and press **ENTER**.

4. Scroll through the device list and highlight the category you want to monitor, then press **ENTER**. This will take you back to the menu prompt. If you want to customize the other portion of half of the gauge repeat the steps above, otherwise press **EXIT**, **EXIT**. The information you selected will be displayed on the screen.
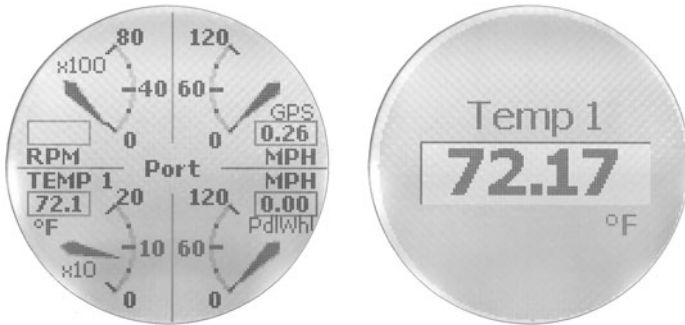
Quad Analog

A display featuring four analog gauges, the Quad Analog page supports: Alt Voltage, Battery Voltage, Engine Temperature, Atmospheric Pressure, Temperature, Paddle Wheel Speed, Pitot Speed, GPS Speed and Tachometer.

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To Customize the Quad Analog page:

1. Scroll through the pages set for display by pushing the **ENTER** or **EXIT** key.

2. Once the Quad Analog page is displayed, press **MENU**, select **CUSTOMIZE** and press **ENTER**.

3. A menu prompt will appear giving you the option to customize the gauge on the Top Left, Top Right, Bottom Left or Bottom Right**.**

4. Use the **UP** and **DOWN** keys to highlight the gauge you want to customize and press **ENTER**.

5. Scroll through the device list and highlight the desired item, then press **ENTER**. This will take you back to the gauge menu prompt. If you want to customize any of the other gauges, repeat the steps above, otherwise press **EXIT**, **EXIT**. The information you selected will be displayed on the main screen.

NOTE:

If a page is customized to show information from a device that is working improperly or is not connected to the NMEA 2000 network, the data boxes on the gauge will flash. This indicates the device is not sending data to the Bus. This could occur for a variety of reasons, depending on the device type. If it is a GPS sensor, the GPS unit probably has not locked on to a satellite yet and may take a few moments to acquire a position. All other EP sensors need to be configured, which may be done via Bus Devices in the System Setup menu.

Quad Analog page (left) with Single Digital page (right).

Single Digital

The single digital page displays a single digital gauge that can display: Alt Voltage, Battery Voltage, Engine Temperature, Atmospheric Pressure, Temperature, Depth, Engine Load, Total Engine Hours, Fuel Flow, Fuel Economy, Fuel Remaining, Fuel Range, Paddle Wheel Speed, Pitot Speed, GPS Speed and Tachometer.

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To customize the Single Digital page:

1. Scroll through the pages set for display by pushing the **ENTER** or **EXIT** key.

2. Once the Single Digital page is displayed, press **MENU**, select **CUSTOMIZE** and press **ENTER**.

3. Scroll through the device list and highlight the category you want to monitor, then press **ENTER**. The information you selected will be displayed on the main screen.

Dual Digital

The Dual Digital page features a pair of digital gauges which can monitor: Alt Voltage, Battery Voltage, Engine Temp, Atmospheric Pressure, Temperature, Depth, Engine Load, Total Engine Hours, Fuel Flow, Fuel Economy, Fuel Remaining, Fuel Range, Paddle Wheel Speed, Pitot Speed, GPS Speed and Tachometer.

To customize the Dual Digital page:

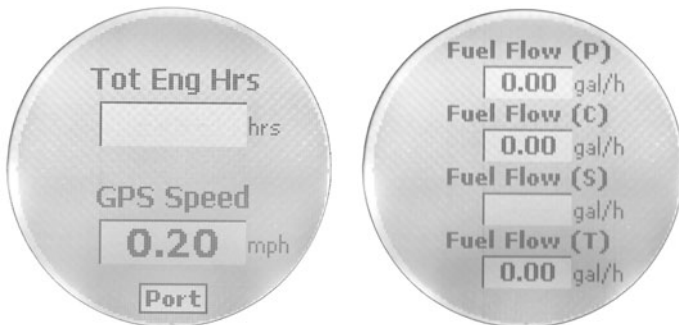1. Scroll through the pages set for display by pushing the **ENTER** or **EXIT** key.

2. Once the Dual Digital page is displayed, press **MENU**, select **CUSTOMIZE** and press **ENTER**.

3. A menu prompt will appear give you the option to customize Top Data or Bottom Data**.** Use the **UP** and **DOWN** keys to highlight the data you want to change and press **ENTER**.

4. Scroll through the list and highlight the category you want to monitor, then press **ENTER**. This will take you back to the menu prompt. If you want to customize the other data, repeat the steps above, otherwise press **EXIT**, **EXIT**. The information you selected will be displayed on the main screen.

Dual Digital page (left) with Quad Digital page (right).

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Quad Digital

The Quad Digital page has four digital gauges capable of displaying: Alt Voltage, Battery Voltage, Engine Temperature, Atmospheric Pressure, Temperature, Depth, Engine Load, Total Engine Hours, Fuel Flow, Fuel Economy, Fuel Remaining, Fuel Range, Paddle Wheel Speed, Pitot Speed, GPS Speed and Tachometer.

To Customize the Quad Digital page:

1. Scroll through pages set for display by using the **ENTER** or **EXIT** key.

2. Once the Quad Digial page is displayed, press **MENU**, select **CUSTOMIZE** and press **ENTER**.

3. A menu prompt will appear giving you the option to customize Data Box 1, Data Box 2, Data Box 3 or Data Box 4.

4. Use the **UP** and **DOWN** keys to highlight the data box you want to customize and press **ENTER**.

5. Scroll through the device list and highlight the category you want to monitor, then press **ENTER**. This will take you back to the menu prompt. If you want to customize any of the other boxes, repeat the steps above, otherwise press **EXIT|EXIT**. The box you customized will display the data you selected.

Trim Tabs

The Trim Tab page can display Trim Tabs position in percentages and degrees, giving boaters precise control of Trim Tab position.

To Customize Trim Tabs:

1. Scroll through the pages set for display, pressing **MENU** when the Trim Tab page is on the main display.

2. Select **CUSTOMIZE** and press **ENTER**.

3. There will be two choices: Percentage or Degrees.

4. Choose the desired unit of measure and press **ENTER**. The Trim Tab page displays position information in the unit of measure you chose.

Trim Tabs page (left), GPS Module page (center) and Fuel Manager Page (right).

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GPS Position

Displays user position in Latitude/Longitude.

Fuel Manager

The Fuel Manager page has three digital readouts capable of displaying: Fuel Flow, Fuel Economy, Fuel Remaining, Fuel Range, Trip Fuel Used, Seasonal Fuel, Paddle Wheel Speed, Pitot Speed and GPS Speed. While on the Fuel Manager page, press **MENU** to access the Fuel manager menu, which contains the following options: Customize, Fuel Setup, Pages, Screen, Audio Setup and System Setup.

NOTE

If you have multiple engines, you must go into System Setup and select Engine Displayed. Here you can select the engine you want to set up. The Fuel Management page shows the engine you selected at the bottom of the page.

To Customize the Fuel Manager Page:

1. Scroll through pages set for display using the **ENTER** and **EXIT** keys.

2. Once the Fuel Manager page is displayed, press **MENU**, select **CUSTOMIZE** and press **ENTER**.

3. The menu prompt will appear with the follow options: Top Data, Center Data and Bottom Data. Use the **UP** and **DOWN** keys to highlight the data box you want to customize and press **ENTER**.

4. Scroll through the list and highlight the desired item, then press **ENTER**. This will take you back to the menu prompt. If you want to customize other data, repeat the steps above, otherwise press **EXIT**, **EXIT**. The information you selected will be displayed on the screen.

Fuel Setup

1. To access the Fuel Setup menu, press **MENU** while viewing the Fuel Manager page, which will bring up the Fuel Manager page menu.

2. Select **FUEL SETUP**, then press **ENTER**.

The Fuel Setup menu contains the following categories: Adjust Calibration, Fuel Remaining Source, Reset Seasonal**,** Refill Tank**,** Partial Fill**,** Eco Speed Source and Reset Trip Fuel.

Adjust Calibration

1. From the Fuel Setup menu, select **ADJUST CAL** and press **ENTER**.

2. Use the **UP** and **DOWN** keys to input the desired calibration adjustment, then press **ENTER.**

Fuel Remaining Source

The Fuel Remaining Source menu prompts you to choose what sensor will be used to monitor your fuel level. There are two options: Engine Fuel Flow and Fluid Level Sensor**.**

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From the Fuel Setup menu, select **FUEL REM SRC** and press **ENTER.**

1. Highlight your preference — **ENG/FFLOW** or **FLUID LEV SNSR** — and press **ENTER.** Press **EXIT** repeatedly to get back to the main display.

Reset Seasonal

The LMF-400 has the capability to track fuel usage not only for trips, but also for entire seasons. The reset seasonal option allows you to reset the running tally of seasonal fuel usage to zero.

1. From the Fuel Setup menu, select **RST SEASONAL** and press **ENTER**. The following message will appear: Press Enter to reset Seasonal Fuel**.**

2. Press **ENTER** to reset seasonal fuel or press **EXIT** to return to the Fuel Setup menu.

Refill Tank

The Refill Tank category gives you the option of re-calibrating after you have filled the fuel tank.

1. From the Fuel Setup menu, select **REFILL TANK** and press **ENTER**. The following message will appear: Press Enter after refilling the fuel tank.

If you choose to recalibrate, a window will pop up, asking you to enter the amount of fuel you put into the tank. Use the **UP** and **DOWN** keys to enter the fuel amount and press **ENTER**.

Partial Fill

Partial Fill helps maintain the accuracy of the Fuel Remaining and Fuel Range figures, by allowing you to input into the unit the amount of fuel added to the tank.

1. From the Fuel Setup menu, select **PARTIAL FILL** and press **ENTER**. An Adding Fuel window will appear.

2. Use the **UP** and **DOWN** keys to enter the amount of fuel you added to the tank and press **ENTER**.

Economy Speed Source

Economy Speed source allows you to select the speed source that will be factored into the Fuel Economy equation.

1. From the Fuel Setup menu, select **ECO SPEED SRC** and press **ENTER**, which will call up the Economy speed Source menu with the following options: Paddle Wheel Speed**,** Pitot Speed andGPS Speed**.**

2. Select one of the three options and press **ENTER**, which will take you back to the Fuel Management display. Paddle Wheel Speed is best suited for low speeds, while Pitot Speed will work best at high speeds. GPS Speed works well at both high and low speeds.

Reset Trip Fuel

Reset Trip Fuel allows you to reset to zero the running tally of how much fuel you have used on a particular trip.

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1. From the Fuel Setup menu, select **RST TRIP FUEL** and press Enter, which will launch the following message: Press Enter to Reset Trip Fuel**.**
2. Press **ENTER**, which will take you back to the Fuel Setup menu. Press **EXIT** repeatedly to return to the main display.

System Setup Menu

To get to the System Setup menu, press **MENU**, then scroll down to System Setup and press **ENTER**. The System Setup menu contains**:** Engine Displayed, Bus Devices, Sonar Alarms, Eng/Tank Configuration, Reset Values**,** System Information and Change Units.

Engine Displayed

The Engine Displayed command allows you to monitor up to three engines on your vessel.
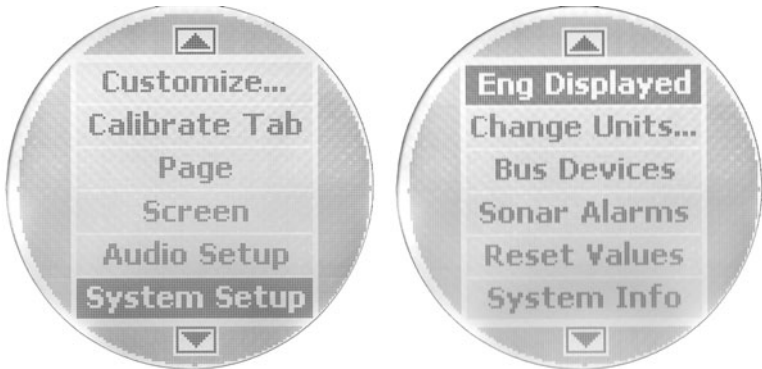
Basic menu with System Setup highlighted (left). System Setup menu (right) with Engine Displayed selected.

1. After accessing the System Setup menu, highlight **ENGINE DISPLAYED** and press **ENTER**. A menu will appear with the following options: Port**,** Center and Starboard**.** This is important when viewing information like Fuel Management, RPM and Engine Voltage.
2. Select the engine you would like to monitor and press **ENTER**.

Bus Devices

1. To run a system check for devices connected to the NMEA 2000 network, choose **BUS DEVICES** from the System Setup menu and press **ENTER.** After a Searching for Bus Devices message comes up, a list of all devices attached to the LowranceNET — the Bus Devices list — will appear.

Sonar Alarms

1. If you would like to set Deep or Shallow Sonar Alarms, select **SONAR ALARMS** from the System Setup menu and press **ENTER**. An alarm menu will pop up with two choices: Shallow or Deep.

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2. In this example, we'll select **SHALLOW** and press **ENTER**. A small menu will appear, giving you the option to turn off the alarm or set the depth.

3. Select **SET DEPTH** and press **ENTER.**

4. Use the **UP** and **DOWN** keys to select the desired depth and press **ENTER**. To set the Deep alarm, press **EXIT**, select **DEEP** from the alarms menu and press the **ENTER** key.

Sonar Alarms highlighted on System Setup menu (left). Sonar Alarms menu (center); Reset Values selected on System Setup menu (right).

5. Choose **SET DEPTH,** then use the **UP** and **DOWN** keys to set the alarm to the desired depth. Press **ENTER|EXIT|EXIT** to return to the System Setup menu.

Engine/Tank Configuration

1. From the System Setup menu, scroll down to **ENG/TANK CFG** and press **ENTER**. Boat Setup will be highlighted. Press **ENTER**, which will bring up the following message: Press Enter to reset Eng/Tank Cfg. Press **ENTER**.

3. The Boat Setup title bar will appear on the screen. Press **ENTER** to access the Boat Setup menu. The Boat Setup menu options are: 1 Eng/1 Tank**,** 1 Eng/2 Tank**,** 2 Eng/1 Tank**,** 2 Eng/2 Tanks**,** 3 Eng/1 Tank or 3 Eng/3 Tanks**.**

4. Choose the option that applies to your vessel and press **ENTER**, which will bring up the Set Tank Size menu. It will appear with up to three options, depending on the number of tanks you chose during Boat Setup. The options are: Port Tank**,** Stbd Tank and Cen Tank. (If you selected one tank during Boat Setup, you won't see any of these options. You will be taken directly to the Setting Tank Size Window.)

5. Select the tank you want to set up and press **ENTER**, which will launch the Setting Tank Size window.

6. Use the **UP** and **DOWN** keys to enter how many gallons the tank will hold and press **ENTER**.

Press **EXIT** and repeat steps 3 and 4 for each of the remaining tanks.

7. After all tanks on your vessel have been setup, press **EXIT** repeatedly to be directed back to the main display.

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Reset Values:

1. Press **MENU**, highlight **SYSTEM SETUP** and press **ENTER**.

2. Scroll down to **RESET VALUES** and press **ENTER**. The following message will appear: Press Enter to reset all values.

3. Press **ENTER** to reset the values.

NOTE:

Resetting Values will not clear Engine/Tank configuration or the settings of EP sensors previously calibrated or configured.

System Information

The system information screen provides information about the version and build of the software in your LMF-400.

1. To access system information, select **SYSTEM INFO** from the System Setup menu and press **ENTER**. The system information will be displayed on the screen.

NOTE:

The System Setup menu for all three analog gauges feature Speed Range and Pressure Range.

Speed Range

1. To access the Speed Range menu, press **MENU** when a single, dual or quad analog page is on the main display.

2. Scroll down to **SYSTEM SETUP** and press **ENTER**.

3. Select Speed Range and press **ENTER**. The Speed Range menu has three options: 0-40**,** 0-80 and 0-120**.**

4. Choose the desired range and press **ENTER**, which will take you back to the main display.

Pressure Range

1. To access the Pressure Range menu, press Menu when a single, dual or quad analog page is on the main display.

2. Scroll down to **SYSTEM SETUP** and press **ENTER**.

3. Select Pressure Range and press **ENTER**, which will launch the Pressure Range menu, which five options: Engine Water Pressure**,** Engine Oil Pressure, Fuel Pressure**,** Engine Boost Pressure and Transmission Oil Pressure**.**

4. Choose one of the options and press **ENTER**. A menu will appear with the following PSI ranges: 0-15 psi**,** 0-30 psi**,** 0-60**,** 0-80 psi and 0-100 psi.

5. Select the desired range and press **ENTER**, which will take you back to the main display.

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Change Units

From the System Setup menu, select **CHANGE UNITS** and press **ENTER**. The **CHANGE UNITS** menu has six units of measure from which to choose: Speed/Distance**,** Temperature**,** Pressure**,** Depth**,** GPS Coordinates and Volume.
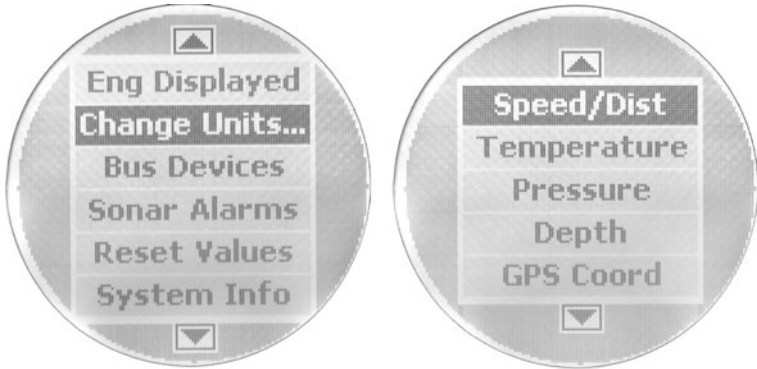
System Setup menu (left) with Change Units highlighted. The Change Units menu (right) with Speed/Distance selected.

Speed and Distance

1. From the Change Units menu, select **SPEED AND DISTANCE** and press **ENTER** to switch its unit of measure to Statute**,** Nautical or Metric units.

2. Select one of the three options and press **ENTER**, which will take you back to the main display.

Temperature

1. To toggle Temperature units between Fahrenheit and Celsius, choose **TEMPERATURE** from the Change Units menu and press **ENTER**.

2. Use the **UP** and **DOWN** keys to choose either **FAHRENHEIT** or **CELSIUS** and press **ENTER**, which will take you back to the main display.

Pressure

1. From the Change Units menu, select **PRESSURE** and press **ENTER**.

2. Use the **UP** and **DOWN** keys to choose either **PSI** or **BARS** and press **ENTER**, which will direct you back to the main display.

Depth

1. To switch the unit of measure for depth to Feet, Fathoms or Meters, select **DEPTH** from the Change Units menu and press **ENTER**.

2. Use the **UP** and **DOWN** keys to choose an option — **FEET**, **FATHOMS** or **METERS** — and press **ENTER**, which will take you back to the main display.

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GPS Coordinates

1. From the Change Units menu, select **GPS COORDINATES** and press **ENTER**.

2. Choose either, **DEG/MIN** or **DEG/MIN/SEC** and press **ENTER**, which will take you back to the main display.

Volume

1. To change the way fluids are measured, select **VOLUME** from the Change Units menu and press **ENTER**.

2. Choose either, **US GALLONS** or **LITERS** and press **ENTER**, which will take you back to the main display.

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LOWRANCE ELECTRONICS
FULL ONE-YEAR WARRANTY

"We," "our," or "us" refers to LOWRANCE ELECTRONICS, INC., the manufacturer of this product. "You" or "your" refers to the first person who purchases this product as a consumer item for personal, family or household use.

We warrant this product against defects or malfunctions in materials and workmanship, and against failure to conform to this product's written specifications, all for one (1) year from the date of original purchase by you. WE MAKE NO OTHER EXPRESS WARRANTY OR REPRESENTATION OF ANY KIND WHATSOEVER CONCERNING THIS PRODUCT. Your remedies under this warranty will be available so long as you can show in a reasonable manner that any defect or malfunction in materials or workmanship, or any non-conformity with the product's written specifications, occurred within one year from the date of your original purchase, which must be substantiated by a dated sales receipt or sales slip. Any such defect, malfunction, or non-conformity which occurs within one year from your original purchase date will either be repaired without charge or be replaced with a new product identical or reasonably equivalent to this product, at our option, within a reasonable time after our receipt of the product. If such defect, malfunction, or non-conformity remains after a reasonable number of attempts to repair by us, you may elect to obtain without charge a replacement of the product or a refund for the product. THIS REPAIR, OR REPLACEMENT OR REFUND (AS JUST DESCRIBED) IS THE EXCLUSIVE REMEDY AVAILABLE TO YOU AGAINST US FOR ANY DEFECT, MALFUNCTION, OR NON-CONFORMITY CONCERNING THE PRODUCT OR FOR ANY LOSS OR DAMAGE RESULTING FROM ANY OTHER CAUSE WHATSOEVER. WE WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO ANYONE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, OR OTHER INDIRECT DAMAGE OF ANY KIND.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This warranty does NOT apply in the following circumstances: (1) when the product has been serviced or repaired by anyone other than us; (2) when the product has been connected, installed, combined, altered, adjusted, or handled in a manner other than according to the instructions furnished with the product; (3) when any serial number has been effaced, altered, or removed; or (4) when any defect, problem, loss, or damage has resulted from any accident, misuse, negligence, or carelessness, or from any failure to provide reasonable and necessary maintenance in accordance with the instructions of the owner's manual for the product.

We reserve the right to make changes or improvements in our products from time to time without incurring the obligation to install such improvements or changes on equipment or items previously manufactured.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

REMINDER: You must retain the sales slip or sales receipt proving the date of your original purchase in case warranty service is ever required.

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If you have technical, return or repair questions, contact the dealer in the country where you purchased your unit. To locate a dealer near you, visit our web site, www.lowrance.com and look for the Dealer Locator.

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Accessory Ordering Information for all countries

To order Lowrance accessories such as power cables or transducers, please contact:

1) Your local marine dealer or consumer electronics store. Most quality dealers that handle marine electronic equipment or other consumer electronics should be able to assist you with these items.

To locate a Lowrance dealer near you, visit our web site, www.lowrance.com and look for the Dealer Locator. Or, you can consult your telephone directory for listings.

2) U.S. customers: LEI Extras Inc., PO Box 129, Catoosa, OK 74015-0129 Call 1-800-324-0045 or visit our web site www.lei-extras.com.

3) Canadian customers can write:
Lowrance/Eagle Canada, 919 Matheson Blvd. E. Mississauga, Ontario L4W2R7 or fax 905-629-3118.

Shipping Information

If it becomes necessary to send a product for repair or replacement, you must first receive a return authorization number from Customer Service. Products shipped without a return authorization will not be accepted. When shipping, we recommend you do the following:

1. Please do not ship the knobs or mounting bracket with your unit.

2. If you are sending a check for repair, please place your check in an envelope and tape it to the unit.

3. For proper testing, include a brief note with the product describing the problem. Be sure to include your name, return shipping address and a daytime telephone number. An e-mail address is optional but useful.

4. Pack the unit in a suitable size box with packing material to prevent any damage during shipping.

5. Write the Return Authorization (RA) number on the outside of the box underneath your return address.

6. For your security, you may want to insure the package through your shipping courier. Lowrance does not assume responsibility for goods lost or damaged in transit.

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