EP-65R Fluid Level
Electronic Sensor

Installation, Configuration and Calibration Instructions

This document shows how to install an EP-65R Fluid Level sensor and how to connect it to a NMEA 2000® network. It also provides instructions on how to configure and calibrate your fluid level sensor with Lowrance digital gauges (LMF-200 & LMF-400) and display units.

NMEA 2000 is the communication bus standard developed by the National Marine Electronics Association (NMEA) for use in boats. Lowrance has introduced the LowranceNet™, a line of products that can communicate over a NMEA 2000 network.

All Lowrance NMEA 2000 capable devices are either NMEA 2000 certified or certification is pending.

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. Decide where to install all components before drilling any holes in your vessel.*

Some sonar or GPS display units may require a software upgrade to display NMEA 2000 data correctly. For free software upgrades or additional information on the LowranceNet NMEA 2000® network system, visit our web site, www.lowrance.com.

Smart module

NMEA 2000 red cable connector

Sending unit connections red lead and black lead.
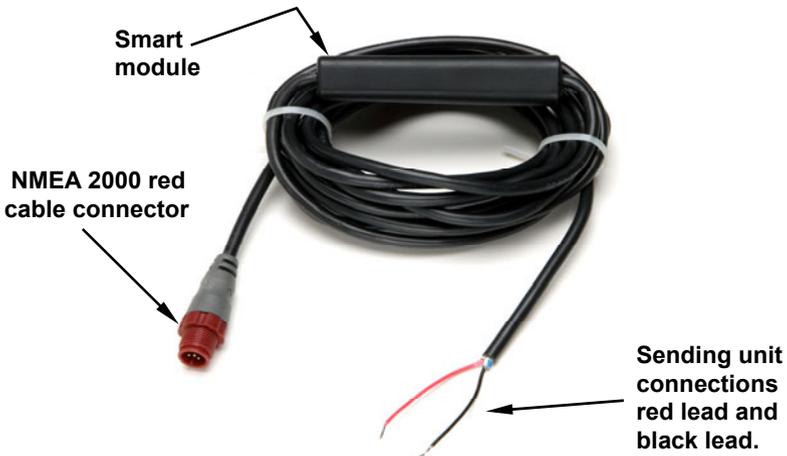
The EP-65R Fluid Level sensor.

The EP-65R consists of a smart module with a red cable connector on one end and two bare wires on the other. The cable length from the connector to the smart module is 18 inches (46 cm). The cable length from the smart module to the bare wires is 10 feet (3 meters).

The smart module converts fluid level information received from the sending unit (fluid level float) to the NMEA 2000 data format. This allows any digital gauge, sonar or GPS unit connected to the NMEA 2000 network to display fluid level information.

The EP-65R fluid level sensor is designed to monitor fuel, live well, oil, fresh water, waste water (gray water), and black water tanks.

The EP-65R Fluid Level, like the other LowranceNet Electronic Probe (EP) sensors, is designed for use with a NMEA 2000 network. Your sensor, however, is also compatible with LowranceNet blue connector networks. It can be added to a blue connector network by using a red female to blue female adapter cable. Your sensor *MUST* be connected to a NMEA 2000 network or it *WILL NOT* function.

The NMEA 2000 red female to blue female adapter cable allows users to add red connector devices to a blue connector network.

Tools and Supplies

Your EP sensor packs with a T connector needed to attach it to a LowranceNET NMEA 2000 network. If you are connecting to an existing LowranceNET network, those are all the electronic components you need. If this is the first sensor you are connecting, you will need to purchase a LowranceNET Node Kit.

For complete instructions on setting up a new NMEA 2000 network or expanding an existing one, refer to the *"Setup and Installation of NMEA 2000 Networks, General Information"* document (part number 988-0154-173) included with your EP-65R sensor. If that document is missing it can be downloaded free from the Lowrance web site.

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

Sending unit mounting plate configurations vary. When connecting the EP-65R, you will need whatever tools and supplies that will work with your sending unit's specific design. Recommended tools include: wire pliers. You will need a drill and a 7/8" (22 mm) drill bit. If you need to route the smart module or cable connector through a bulkhead, you will need a drill and a 7/8" (22 mm) drill bit.

Supplies are not included, unless otherwise indicated. The EP-65R's two lead wires are pre-stripped. We recommend using marine-grade crimp-on connectors that will fit your sending unit's electrical connections.

Tip:

The EP-65R is designed to be the only device receiving signals from the sending unit. If the EP-65R is replacing a previous gauge, make sure you remove all the old gauge wires before you begin. If this is a replacement, note which connection is positive before disconnecting the old wires.

Installation

This instruction sheet assumes the mounting bracket is connected to the fluid level float (or potentiometer) and is already installed in the tank. The EP-65R wires — red (positive) and black (negative) — will connect to the sending unit's mounting bracket on top of the tank.

Caution:

Do NOT connect the sensor's red cable connector to the network until you have finished connecting the red and black leads to the sending unit. This reduces the risk of a spark when working around fuel tanks.

First, attach marine-grade crimp-on connectors to both the red lead (+) and the black (–) lead. **The EP-65R must be the ONLY device connected to the sender.**
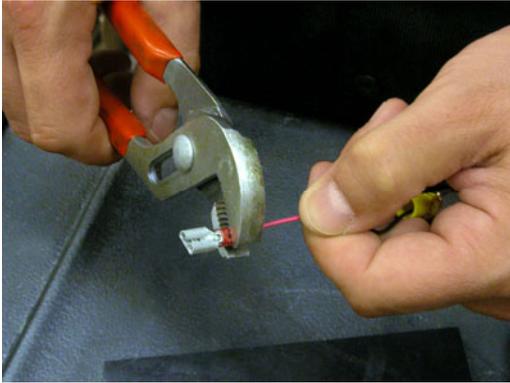
Attach appropriate connectors to wire leads.

Attach the positive red lead to the sending unit's positive connector, usually located in the center of the mounting plate. Connect the negative black lead to the sending unit's negative connector. To ensure you know which connection is which, refer to the mounting instructions that came with the sending unit.

Negative connector

Positive connector
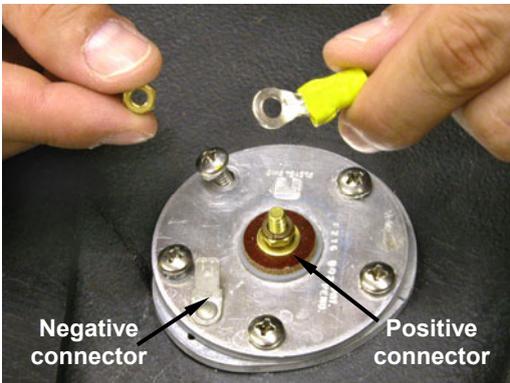
Connect wire leads to fluid level sending unit. This is a typical sending unit mounting bracket. The center threaded post is + and the blade is – .

Finally, route the sensor's red cable connector to the T on the network backbone where you intend to attach it and plug it in. The sensor is ready to use.

Connecting to a NMEA 2000 Network

A NMEA 2000 network is a communications link between two or more devices that transfer NMEA 2000 information. LowranceNET is the NMEA 2000 networking system developed by Lowrance Electronics. A NMEA 2000 network functions like the phone wiring in a house. If,

for example, you pick up a phone in the living room you will be able to hear the conversation someone is having on a phone in the bedroom.

In similar fashion, a NMEA 2000 network allows multiple display units to receive data from a GPS antenna or multiple sonar units to receive messages sent by a fluid level sensor. A NMEA 2000 network gives you the flexibility to view information like engine diagnostics and fuel level data on digital gauges or display units located anywhere on your boat.
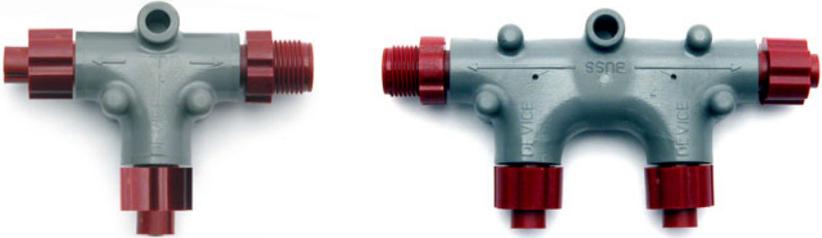
There are two types of LowranceNet red connectors: the single T connector (left) and the double T connector (right).
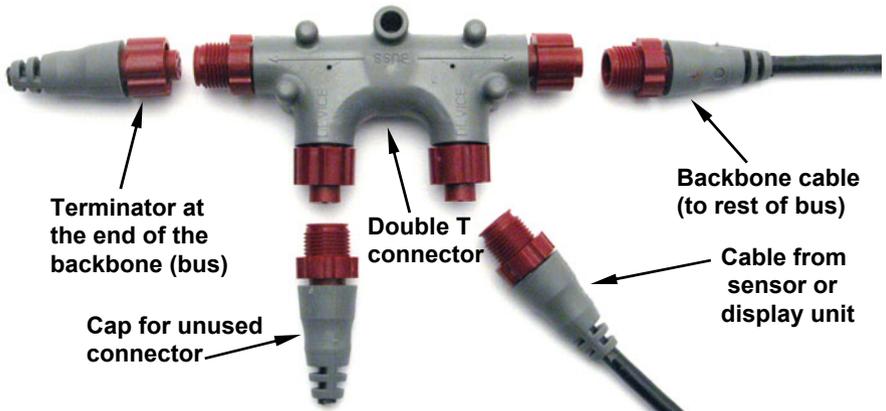
Network Backbone and Network Nodes

A network bus backbone consists of network cabling, terminators and T connectors. Network nodes are made by fitting T-shaped connectors into the backbone (using the sockets on the sides) and attaching any network device to the bottom of the T.

Staying with the previous phone wiring example, T connectors on the backbone are the equivalent of phone jacks spread throughout a house. To pick up a phone and be able to hear a conversation from another phone in the house, both phones have to be connected to the main phone line. In similar fashion, only sensors and display units plugged into the NMEA network can share information. The network backbone is like the phone wiring that runs throughout a home.

It connects the network nodes, allowing them to communicate across the network. Connections found in the middle of the bus could have T connectors or backbone network cable plugged into one or both sides.

Connections at the end of a network will have the backbone cable plugged into one side and a terminator plugged into the other, as shown in the following figure.

Terminator at the end of the backbone (bus)

Double T connector

Backbone cable (to rest of bus)

Cable from sensor or display unit

Cap for unused connector

NMEA 2000 network node located at the end of a NMEA 2000 backbone.

NOTE:

If you have a double T Connector on your network that is not attached to a device, you must cap the unused connector with a NMEA 2000 cap. This will protect the pin connectors from corrosion. The NMEA 2000 cap looks like a terminator, but has "Cap" stamped into the connector housing.

All T connectors on your network probably will be connected to a device. If you want to add another node to a working network, add another T connector. T connectors may be purchased from LEI (ordering information appears on the back page of this booklet). If you are adding a Lowrance or LEI NMEA 2000 sensor, it will come with it a T connector.
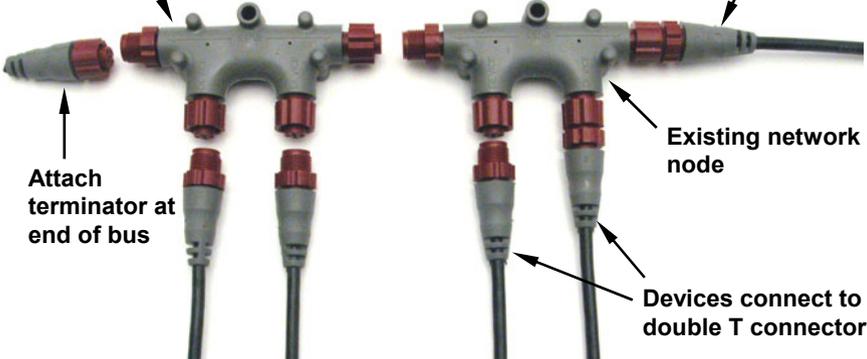
Adding a Network Node

You can add a node to any existing connection, anywhere along the network backbone. This connection could be 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, separate the sockets of the existing connection and install the T connector between them.

If you want to add a node at the end of the backbone (network bus) remove the terminator from the last connector, like the figure above. Install the new T connector and attach the terminator to the side of the connector.

Use T-connector or double T connector to add device to bus (maintaining linear architecture)

Backbone cable to rest of bus

Existing network node

Attach terminator at end of bus

Devices connect to double T connector

In this example, a new device is added to the NMEA 2000 bus by installing a T connector between a T connector and a terminator at the end of the backbone (network bus).

Additional Network Information

For more information on creating or expanding a network refer to the NMEA 2000 network setup booklet, part number 988-0154-173, which came packed with this document.

Notes

LMF-200: EP-65R Configuration & Calibration

This section covers how to use EP-65R Fluid Level with the LMF-200 Multi-function gauge.

NOTE:
> You will notice the LMF-200 does not have an Exit key. Menus will time out after a preset amount of time (3, 5, 10 or 15 seconds). The default setting is 5 seconds. Refer to your LMF-200 instruction manual for more information on the Timeout feature.

LMF-200 Multi-function Digital Gauge

Boat Setup

If this is the first time you have turned on your LMF-200, you will have to complete Boat Setup before you will be able to configure or calibrate your fluid level. If you have already completed Boat Setup, skip ahead to the segment covering fluid level configuration.

To execute Boat Setup:

1. With Boat Setup highlighted on the screen, press **MENU**. The Boat Setup menu will appear, allowing you to select an engine-tank configuration to match the number of engines and fuel tanks on your vessel. Boat Setup options include: 1 En/1 Tk, 1 En/2 Tk, 2 En/1 Tk, 2 En/2 Tk, 3 En/1 Tk and 3 En/3 Tk.

2. Use the **UP** and **DOWN** keys to choose the correct configuration and press **MENU**.

3. If you selected a configuration with more than one tank, the Tank Size menu will appear. Select the tank you want to set up and press

MENU, which will open the Tank Size window. (If you chose a single-tank configuration, you will be taken directly to the Tank Size window covered in Step 4.)

4. Use the **UP** and **DOWN** keys to input the number of gallons the tank will hold and press **MENU**. Repeat steps 3 and 4 for each tank. After all tanks have been set up, you will be taken to the main display.

Boat Setup Reset
If you want to access the Setup screen (Boat Setup) after an engine-tank configuration has been chosen you will have to reset the configuration to default settings.

To reset engine tank configuration:
1. Press **MENU**, highlight **SYSTEM SETUP** and press **MENU**.

2. Choose **ENG/TANK** and press **MENU** twice. The following message will appear: *Hit menu to reset Eng/Tnk.*

3. Press **MENU**. The Setup screen will appear with Boat Setup highlighted.

Fuel Remaining Source (FRem Src)
The Fuel Remaining source function allows you to select the device used to measure the amount of fuel remaining in the tank.

NOTE:

> The Fuel Remaining Source must be set to fluid level for the unit to correctly display fuel level information from the EP-65R fluid level sensor. It is set to Fuel Level (Fluid Level) by default.

To set Fuel Remaining Source to Fluid Level (Fuel Level):

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **MENU**. Select **FUEL MNGR** and press **MENU**.

2. Highlight **FREM SRC** and press **MENU**. That will open the FRem Src menu, which has two options: Eng/FFlow and Fuel level.

3. Use the **UP** and **DOWN** keys to select **FUEL LEVEL** and press **MENU**. You are now ready to configure your fluid level sensor.

EP-65R Fluid Level Configuration
The LMF-200 can be configured with up to three tanks for each fluid level type, which includes Fuel, Fresh Water, Oil, Black Water, Waste Water (Gray Water) and Live Well.

Fluid Level menu
The menu for unconfigured fluid level sensors will be different than the menu for configured sensors.

A configured fluid level will have the following menu options: Unconfigure, Reconfigure, Level Warning, Calibrate, Reset Cal and Reset. The menu for an unconfigured fluid level will show the following configuration options: Fuel, Water, Waste Water (Gray Water), Black Water, Oil and Live Well.

Caution:

If you configure your fluid level for fuel, you will NOT be able to get a fuel range reading. Fuel Range will NOT be calculated with a fluid level sensor. It will only be calculated with an engine interface, EP-60R Fuel Flow or EP-85R Storage Device.

To configure a fluid level for Fuel:

1. Press **MENU**, select **SYSTEM SETUP** and press **MENU**. Highlight **B. DEVICES** and press **MENU**.

2. Select an unconfigured fluid level (UnCfg FL) from the bus devices list and press **MENU**. The following message will appear: *Hit Menu to Cfg FLev Sns.*

3. Press **MENU** to open the fluid level menu. Select **FUEL** from the list of fluid types and press **MENU**. If your engine-tank configuration is set for multiple tanks, the Select Tank menu will appear.

NOTE:

If your gauge is set to a single-tank configuration, you will not see the Select Tank menu. After selecting Fuel from the list of fluid types, you will be taken back to the Bus Devices list.

4. Highlight a tank option and press **MENU**. Configure remaining fuel flows by following the steps above.

To configure a fluid level for Oil:

1. Press **MENU**, select **SYSTEM SETUP** and press **MENU**. Highlight **B. DEVICES** and press **MENU**.

2. Select the desired unconfigured fluid level (Unfcg FL) from the Bus Devices list and press **MENU**, which will launch the following message: *Hit Menu to Cfg FLev Sns.*

3. Press **MENU**, select **OIL** from the list of fluid types and press **MENU**. If your gauge is configured for more than one tank, the Select Tank menu will appear.

NOTE:

If your gauge is set to a single-tank configuration you will not see the Select Tank menu. You will be taken directly to the Tank Size menu (Step 5) after selecting Oil from the list of fluid types.

4. Select a tank and press **MENU**, which will launch the Tank Size window.

5. Input the size of the tank (gallons) and press **MENU**. You will be directed to the Bus Devices list.

NOTE:

If your fluid level is not updated on the Bus Devices list, refresh the list by letting it time out, and then access it again.

To configure a fluid level for Fresh Water, Waste Water (Gray Water), Live Well or Black Water:

1. Press **MENU**, select **SYSTEM SETUP** and press **MENU**. Highlight **B. DEVICES** and press **MENU**.

2. Select an unconfigured fluid level (Unfcg FL) from the Bus Devices list and press **MENU**, which will launch the following message: *Hit Menu to Cfg FLev Sns.*

3. Press **MENU**, select the desired configuration option (Fresh Water, Waste Water, Live Well or Black Water) from the list of fluid types and press **MENU**. The Tank Number window will appear.

4. Assign a tank number (1, 2 or 3) to your fluid level you are configuring and press **MENU**. That will launch the Tank Size window.

5. Input the capacity of the tank (gallons) and press **MENU**. You will be directed to the Bus Devices list, where the fluid level you configured will be displayed as FrW Tnk (1, 2 or 3), WtW Tnk (1, 2 or 3), LW Tnk (1, 2 or 3) or BlkW Tnk (1, 2 or 3).

NOTE:

If your fluid level is not updated on the Bus Devices list, refresh the list by letting it time out, and then access it again.

To unconfigure a fluid level:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **MENU**. Highlight **B. DEVICES** and press **MENU**.

2. Select a configured fluid level from the Bus Devices list and press **MENU**, which will open the fluid level menu with the following options: Configure, Unconfigure, Reconfigure, Level Warning, Calibrate, Reset Cal and Reset Values.

3. Highlight **UNCONFIG** (Unconfigure) and press **MENU**, which will launch the following message: *Hit Menu to Unset Dev Name.*

4. Press **MENU** and you will be taken back to the Bus Devices list where the fluid level you unconfigured will be listed as UnCfg FL.

NOTE:

> If your fluid level is not updated on the Bus Devices list, refresh the list by letting it time out, and then access it again.

Reconfiguring a Fluid Level

Reconfiguring a fluid level allows you to easily switch the configuration name of a fluid level.

Name already in use

If you want to reconfigure a fluid level, but the desired configuration name, location and fluid type is configured to another fluid level, you will have to unconfigure a fluid level to make the desired configuration settings available. When you attempt to reconfigure a fluid level to a configuration name already in use, the following message will appear: *Name already in use*.

To reconfigure fluid level for Fuel:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **MENU**. Highlight **B. DEVICES** and press **MENU**.

2. Select a configured fluid level from the Bus Devices list and press **MENU**, which will open the fluid level menu with the following options: Unconfigure, Reconfigure, Level Warning, Calibrate, Reset Cal and Reset Values.

3. Highlight **RECONFIG** (Reconfigure) from the Configuration Options menu and press **MENU**. That will open the Fluid Type menu.

4. Select **FUEL** from the list of fluid types and press **MENU**. If your unit is set to a multiple-tank configuration, the Select Tank menu will appear. (If your unit is set to a single-tank configuration, you will be taken back to the Bus Devices list.)

5. Highlight the tank you are reconfiguring and press **MENU**. You will be taken back to the Bus Devices list.

NOTE:

> If your fluid level is not updated on the Bus Devices list, refresh the list by letting it time out, and then access it again.

To reconfigure a fluid level for Oil:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **MENU**. Highlight **B. DEVICES** and press **MENU**.

2. Select a configured fluid level from the Bus Devices list and press **MENU**, which will open the fluid level menu with the following options: Unconfigure, Reconfigure, Level Warning, Calibrate, Reset Cal and Reset Values.

3. Highlight **RECONFIG** (Reconfigure) from the Configuration Options menu and press **MENU**.

4. Select **OIL** from the list of fluid types and press **MENU**. The Select Tank menu will appear. (If your unit is set to a single-tank configuration, taken directly to the Tank Size window (Step 5).

NOTE:
If, for example, all fluid levels are configured and the desired configuration name is configured to another fluid level; you will have to unconfigure that fluid level. That is the only way to make its configuration name available for the fluid level you are trying to reconfigure.

5. Select a tank and press **MENU**, which will launch the Tank Size window.

6. Input the size of the tank (gallons) and press **MENU**. You will be directed to the Bus Devices list.

NOTE:
If your fluid level is not updated on the Bus Devices list, refresh the list by letting it time out, and then access it again.

To reconfigure a fluid level for Fresh Water, Waste Water (Gray Water), Live Well or Black Water:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **MENU**. Highlight **B. DEVICES** and press **MENU**.

2. Select a configured fluid level from the Bus Devices list and press **MENU**, which will open the fluid level menu with the following options: Unconfigure, Reconfigure, Level Warning, Calibrate, Reset Cal and Reset.

3. Highlight **RECONFIG** (Reconfigure) from the Configuration Options menu and press **MENU**. That will open the Fluid Type menu. Highlight Fresh Water, Waste Water (Gray Water), Live Well or Black Water and press **MENU**. The Tank Number window will appear.

4. Assign a tank number (1, 2 or 3) to the fluid level and press **MENU**. That will launch the Tank Size window.

5. Input the capacity of the tank (gallons) and press **MENU**. You will be directed to the Bus Devices list, where the fluid level you configured will be displayed with its new configuration.

NOTE:
If your fluid level is not updated on the Bus Devices list, refresh the list by letting it time out, and then access it again.

EP-65R Fluid Level Calibration

The factory calibration settings for the EP-65R Fluid Level should be adequate for the majority of applications, so calibration will not be necessary in most cases. The default calibration for the EP-65R Fluid Level is just as accurate as standard fluid level gauges. If, however, the tank has an irregular shape or greater accuracy is needed, calibration is recommended. The EP-65R Fluid Level has three calibration options: 2 point, 3 point and 5 point.

2-Point Calibration

A 2-point calibration is best suited for rectangular or square-shaped tanks, where the capacity of the top half of the tank matches the capacity in the lower half of the tank. In a two-point calibration, you will set two points, one each for empty and full levels. You can begin calibration at either of the two points, but we recommend starting with an empty tank. You will fill the tank to complete calibration.

NOTE:

Adequate calibration may be achieved without calibrating both points and you can calibrate the points (Empty Level and Full Level) in any order you wish. In the following instructions, we begin calibration with an empty tank.

To execute 2-Point calibration:

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

2. Highlight **B. DEVICES** and press **MENU**, which will open the Bus Devices list.

3. Highlight the fluid level sensor you want to calibrate and press **MENU**. Select **CAL** (Calibrate) and press **MENU**. The Points menu will appear with three options: 2, 3 and 5.

4. Select **2** and press **MENU**. The Points menu will appear with two options: Empty Lev and Full Lev.

5. Make sure the tank is empty, then select **EMPTY LEV** from the Points menu and press **MENU**. The following message *Tnk to Empty lev hit Menu*. Press **MENU**. Fill up the tank.
6. When the tank has been filled, follow steps 1-4 to access the Points menu. Highlight **FULL LEV** and press **MENU**. The following message will appear: *Tnk to Full lev hit Menu*. Press **MENU** and let the menus time out, which will take you to the main display.

3-Point Calibration:

3-point calibration is designed for tanks that vary in shape from the top to the bottom. You can begin calibration at any point in the 3-point

process, but we recommend starting calibration with an empty tank. In a 3-point calibration, you will set three points, one each for empty, half and full levels.

NOTE:

> Adequate calibration my be achieved without calibrating all three points and you can calibrate the points (Empty Level, Half Level and Full Level) in any order you wish. In the following instructions, we begin calibration with an empty tank.

To execute 3-Point calibration:

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

2. Highlight **B. DEVICES** and press **MENU**, which will open the Bus Devices list.

3. Highlight the fluid level sensor you want to calibrate and press **MENU**, then select **CAL** (Calibrate) and press **MENU**. The Points menu will appear with three options: 2, 3 and 5.

4. Select **3** and press **MENU**. The Points menu will appear with three options: Empty Lev, Half Lev and Full Lev.

5. Make sure your tank is empty, then highlight **EMPTY LEV** and press **MENU**. The following message will appear: *Tnk to Empty lev hit Menu.* Press **MENU**.

6. Add a half a tank of fuel. If, for example, you have a 100 gallon tank, add 50 gallons of fuel. Repeat steps 1-4, then select **HALF LEV** from the Points menu and press **MENU**. The following message will appear: *Tnk to Half lev hit Menu.* Press **MENU**.

7. Fill up the tank and repeat steps 1-4 to access Points menu. Highlight **FULL LEV** and press **MENU**. The following message will appear: *Tnk to Full lev hit Menu.*

8. Press **MENU** and let the menus time out, which will take you to the main display.

5-point Calibration

5-point calibration is best suited tanks that vary greatly in shape from top to bottom. You can begin calibration at any point in the 5-point calibration process.

We recommend starting calibration with an empty tank. In a five-point calibration you will set five points: Empty Level, 1 Qtr Level, Half Level, 3 Qtr Level and Full Level.

NOTE:

Adequate calibration may be achieved without calibrating all five points and you can calibrate the points (Empty Level, 1 Quarter Level, Half Level, 3 Quarter Level and Full Level) in any order you wish. We begin calibration with an empty tank.

To execute 5-Point calibration:

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

2. Highlight **B. DEVICES** and press **MENU**, to open the Bus Devices list.

3. Highlight the fluid level sensor you want to calibrate and press **MENU**, then select **CAL** (Calibrate) and press **MENU**. The Points menu will appear with three options: 2, 3 and 5.

4. Select **5** and press **MENU**. The Points menu will appear with five options: Empty lev, 1 Qtr lev, Half lev, 3 Qtr lev and Full Lev.

5. Make sure your tank is empty, then highlight **EMPTY LEV** and press **MENU**. The following message will appear: *Tnk to Empty lev hit Menu*. Press **MENU**.

6. Fill up one quarter of the tank. If you had a 100 gallon tank, you would add 25 gallons of fuel. Repeat steps 1-4, then select **1 QTR LEV** from the Points menu and press **MENU**. The following message will appear: *Tnk to 1 Qtr lev hit Menu*. Press **MENU**.

7. Fill up the tank halfway. If you had a 100 gallon tank, you would add another 25 gallons of fuel to bring the fuel total to 50 gallons. Repeat steps 1-4 to access the Points menu, then highlight **HALF LEV** and press **MENU**. The following message will appear: *Tnk to Half lev hit Menu*. Press **MENU**.

8. Fill up three quarters of the tank. If you had a 100 gallon tank, you would add another 25 gallons of fuel to increase the fuel total to 75 gallons. Repeat steps 1-4 to access the Points menu, then highlight **3 QTR LEV** and press **MENU**. The following message will appear: *Tnk to 3 Qtr lev hit Menu*. Press **MENU**.

9. Top off the tank and repeat steps 1-4 to access the Points menu, then highlight **FULL LEV** and press **MENU**. The following message will appear: *Tnk to Full lev hit Menu*. Press **MENU** and let the menus time out, which will take you back to the main display.

Reset Calibration

The Reset Calibration command allows you to reset a fluid level's calibration back to factory default settings. You should only reset calibration when you believe calibration settings for your EP-65R Fluid Level are incorrect.

To Reset Calibration:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **MENU**.

2. Highlight **B. DEVICES** and press **MENU**. Select the desired fluid level and press **MENU**.

3. Select **RST CAL** from the fluid level menu and press **MENU**. The following message will appear: *Hit Menu to Rst the Cal*.

4. Press **MENU** to set calibration back to factory default settings. To recalibrate the fluid level, revisit the segment covering fluid level calibration.

NOTE:

> If you have calibrated your fluid level sensor and are having problems with the sensor's performance, be sure to check the sending unit. You can do this by using an ohm meter to test the resistance of the unit. Disconnect the EP-65R from the sending unit. Connect the sending unit hot wire (usually pink) and the ship or sending unit ground wire (usually black) to the ohm meter. With the tank full, the resistance should be around 33-1/2 ohms. When the tank is the empty, the resistance should be around 240 ohms. If, when the tank is full or empty, the ohm readings are significantly different from the standard full (33-1/2) and empty (240) ohms levels, there is a problem with the sending unit. If the ohm readings are the same in both cases, the sending unit is stuck.

Displaying Fluid Level Data

You can display your fluid level data on the Gauge page. When a page is added to the display, it automatically is included in the page screen rotation.

Page Screen Rotation

The Page Screen Rotation consists of multiple pages that have been set up for display. Once pages have been added to the page screen rotation, they can be set to scroll across the screen automatically or manually. Press the **UP** and **DOWN** keys to manually scroll pages across the screen. Pressing the **UP** key moves the scroll in one direction. Pushing the **DOWN** key moves the scroll in the other direction. You can use the Autoscroll feature if you want the pages to automatically scroll across the screen. Refer to your LMF -200 manual for more information about Autoscroll.

Adding a page:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **PAGES** and press **MENU**, which will open the Pages menu with the following options: Add Page, Rem Page, Autoscroll and Set Pop-up.

2. Select **ADD PAGE** and press **MENU**.

3. To display fluid level information, select Gauge and press **MENU**. You will be taken back to the main display, where the page you selected will be shown.

Customizing Pages

The customizing pages feature allows you to choose what data will be displayed and how it will be displayed on select pages. You will customize the Gauge page to display fluid level data.

NOTE:

   If you have more than one fluid level, you can add the Gauge page to the page screen rotation more than once, and then customize each page with a different fluid level.

To customize Gauge page:

1. After the Gauge page has been added to the page screen rotation, use the **UP** and **DOWN** keys to display it on the screen.

2. Press **MENU**, select **CUSTOMIZE** and press **MENU**.

3. Highlight **FLUID LEV** and press **MENU**. If you have more than one fluid level on the network, a list of fluid levels will appear.

4. Select the desired fluid level and press **MENU**. You will be taken back to the main display, where the data from the fluid level you selected will be displayed.

Engine Warnings (Alarms)

The Engine Warnings feature allows you to set an alarm for one or more engines, which will alert you to several engine issues including overheating and low oil pressure.

To set Engine Warnings:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **MENU**.

2. Highlight **ENGINE WARNINGS** and press **MENU**. The Engine Warnings menu will appear with up to five options, including Off and All Engines. The default setting is All Engines. (If you have a single-engine configuration, the only options on the Engine Warning menu will be On and Off.)

NOTE:

If you choose All Engines, the alarm will be shown for each alarm engine alarm. If a single engine is selected, the gauge will only show warnings from the selected engine. (To turn off all engine warnings, highlight **OFF** and press **MENU**. If you turn off engine alarms, no alarms will be shown for any of the engines.)

3. Highlight the desired option and press **MENU**. You will be taken back to the main display.

Level Warning

The Level Warning feature allows you to set a Low level or High level alarm for each tank. A pop-up window will appear and an alarm will sound if the amount of fluid rises above (High Level) or falls below (Low level) the selected percentage of tank capacity.

To set a level warning:

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

2. Highlight **BUS DEVICES** and press **MENU** to display the Bus Devices list. Select the desired fluid level and press **MENU**. The Configuration Options menu will appear.

3. Select **LEVEL WARNING (LEV WRNG)** and press **MENU**.

4. The Select Level menu will appear with two options: High Level and Low Level.

5. Select **LOW LEVEL** or **HIGH LEVEL** and press **MENU**. The Level Percentage window will appear. It will be set to Off by default.

6. Use the **UP** and **DOWN** keys to input the desired percentage of tank capacity and press **MENU**. If the fuel falls below that percentage, the alarm will go off. Let the menus time out to return to the main display.

NOTE:

To turn off a level warning, repeat Steps 1-5, then select **OFF** from the Level Percentage window. Press **MENU**. Repeat these steps for each warning you want to turn off. Let the menus time out and you will be directed to the main display.

Reset

The Reset command will reset the EP-65R fluid level values to default settings.

NOTE:

After using the Reset command has been executed, you will have to re-enter your engine-tank configuration. The Reset command will not affect the configuration or calibration of other devices on the network.

To use reset command:

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

2. Highlight **BUS DEVICES**, select the desired fluid level and press **MENU**. The Configuration Options menu will appear.

3. Select **RESET** and press **MENU**. The following message will appear: *Hit Menu to Rst Values.*

4. Press **MENU**, then let the menus time out to return to the main display.

Notes

LMF-400: EP-65R Fluid Level Configuration & Calibration

This section covers how to use EP-65R Fluid Level with the LMF-400 Multi-function gauge.

LMF-400 Multi-function Digital gauge.

Boat Setup

If this is the first time you have turned on your LMF-400, you will have to complete Boat Setup before you will be able to configure or calibrate your fluid level. If you have already completed Boat Setup, skip ahead to the segment covering EP-65R Fluid Level Configuration.

To execute Boat Setup:

1. With Boat Setup highlighted on the screen, 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. Use the **UP** and **DOWN** keys to select the engine-tank configuration that applies to your vessel and press **ENTER**. After setting the engine/tank configuration, the Tank Size menu will appear. (If you selected one tank during Boat Setup, you will be taken directly to the Setting Tank Size Window in Step 4.)

3. Select the desired tank and press **ENTER**, which will open the Setting Tank Size window.

4. Use the **UP** and **DOWN** keys to input the number of 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 set up, press **EXIT** repeatedly to return to the main display.

Boat Setup Reset

If you want to access the Setup screen (Boat Setup) after an engine-tank configuration has been chosen you will have to reset the configuration to default settings.

To reset engine-tank configuration:

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

2. Choose **ENG/TANK CFG** and press **ENTER** twice. The following message will appear: *Press ENTER to reset Eng/Tnk Cfg.*

3. Press **MENU**. The Setup Menu will appear with Boat Setup highlighted.

Fuel Remaining Source

The Fuel Remaining source function allows you to select the device used to measure the amount the fuel remaining in the tank.

NOTE:

> The Fuel Remaining Source must be set to fluid level for the unit to correctly display fuel level information from a fluid level sensor. It is set to Fuel Level (fluid level) by default. Follow the instructions below to ensure (Fuel Level) the Fuel Remaining Source is set to fluid level.

To change Fuel Remaining Source to Fuel Level (fluid level):

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.

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

3. Select **FUEL REM SRC** (Fuel Remaining Source) and press **ENTER**.

4. Highlight the **FUEL LEV SNSR** (Fluid Level Sensor) and press **ENTER**. You are ready to configure your fluid level sensor.

EP-65R Fluid Level Configuration

The LMF-400 will support up to three tanks for each Fluid Level type which includes: Fuel, Fresh Water, Oil, Black Water, Waste Water (Gray Water) and Live Well.

Fluid Level menu

When you configure your Fluid Level sensor, it will be accessed from the Bus Devices list. The Fluid Level menu for unconfigured sensors will be different than the menu for configured sensors.

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

A configured fluid level will have the following menu options:
Unconfigure, Reconfigure, Level Warning, Calibrate, Reset Calibration
and Reset Values.

The menu of an unconfigured fluid level will show configuration
options: Fuel, Fresh Water, Waste Water (Gray Water), Live Well, Oil
and Black Water.

Caution:

*If you configure your fluid level for fuel, you will NOT be able to
get a fuel range reading. Fuel Range will NOT be calculated
with a fluid level sensor. It will only be calculated with an
engine interface, EP-60R Fuel Flow or EP-85R Storage Device.*

To configure a fluid level for Fuel:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and
press **ENTER**.

2. Highlight **BUS DEVICES** and press **ENTER** to open the Bus Devices list.

3. Select **UNFCG F LEV** and press **ENTER**. The following message will
appear: *Press Enter to configure Fluid Lev Snsr.*

4. Press **ENTER** and the Fluid Level menu will appear with the
following options: Fuel, Fresh Water, Waste Water (Gray Water), Live
Well, Oil and Black Water.

5. Select **FUEL** and press **ENTER**, which will open the Select Tank menu
with up to three options.

NOTE:

If your gauge is set to a single-tank configuration you will be taken
directly to the Bus Devices list where the tank will be displayed as
Fuel Tank.

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6. Select a tank option and press **ENTER**. You will be taken back to the Bus Devices list. Press **EXIT** repeatedly to return to the main display.

NOTE:

> If your fluid level is not updated on the Bus Devices list, refresh the list by closing it, and then access it again.

To configure a fluid level for Oil:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.

2. Highlight **BUS DEVICES** and press **ENTER** to bring up the Bus Devices list.

3. Select **UNFCG F LEV** and press **ENTER**. The following message will appear: *Press Enter to configure Fluid Lev Snsr.*

4. Press **ENTER** and the Fluid Level menu will appear with the following options: Fuel, Fresh Water, Waste Water (Gray Water), Live Well, Oil and Black Water.

5. Select **OIL** and press **ENTER**, which will open the Select Tank menu with up to three options.

NOTE:

> If your gauge is set to a single-tank configuration you will not see the Select Tank menu. You will be taken directly to Tank Size window.

6. Select a tank option and press **ENTER**. The Setting Tank Size window will appear. Input the size of the tank and press **ENTER**. You will be taken back to the Bus Devices list.

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

NOTE:

> If your fluid level is not updated on the Bus Devices list, refresh the list by closing it, and then access it again.

To configure a fluid level for Fresh Water, Waste Water (Gray Water), Live Well or Black Water:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.

2. Highlight **BUS DEVICES** and press **ENTER**. The Bus Devices list will appear.

3. Select **UNFCG F LEV** and press **ENTER**. The following message will appear: *Press Enter to configure Fluid Lev Snsr*. Press **ENTER** and the Fluid Level configuration menu will appear.

4. Choose Fresh Water, Waste Water (Gray Water), Live Well or Black Water and press **ENTER**. The Tank Number window will appear.

5. Use the **UP** and **DOWN** keys to input the number you want to assign the tank and press **ENTER**. The Setting Tank Size window will appear.

6. Use the **UP** and **DOWN** keys to input the size of the tank and press **ENTER**. You will be taken back to the Bus Devices list, where the tank will be displayed as FrshWtr Tnk (1, 2 or 3), WsteWtr Tnk (1, 2 or 3). LWell Tnk (1, 2 or 3) or BlkWtr Tnk (1, 2 or 3).

NOTE:

    If your fluid level is not updated on the Bus Devices list, refresh the list by closing it, and then access it again.

To unconfigure a fluid level:
1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.

2. Highlight **BUS DEVICES** and press **ENTER**, which will open the Bus Devices list.

3. Choose a configured Fluid Level from the Bus Devices list and press **ENTER**. The Fluid Level menu will appear with the following options: Level Warning, Unconfigure, Reconfigure, Calibrate, Reset Cal and Reset Values.

3. Highlight **UNCONFIGURE** and press **ENTER**, which will launch the following message: *Press Enter to Unconfig Device name.*

4. Press **ENTER** and you will be taken back to the Bus Devices list where the fluid level you unconfigured will be displayed as UnCfg F Level.

NOTE:

    If your fluid level is not updated on the Bus Devices list, refresh the list by closing it, and then access it again.

Reconfiguring a Fluid Level

Reconfiguring a fluid level allows you to easily switch the configuration name of a fluid level.

Name already in use
If you want to reconfigure a fluid level, but the desired configuration name, location and fluid type have been configured to another fluid level, you will have to unconfigure a fluid level to make the desired configuration name available. When you attempt to reconfigure a fluid level to a configuration name already in use, the following message will appear: *Name already in use.*

To reconfigure a fluid level for Fuel:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.

2. Highlight **BUS DEVICES** and press **ENTER** to bring up the Bus Devices list.

3. Select the fluid level you want to reconfigure and press **ENTER**. The Fluid Level menu will appear with the following options: Fuel, Fresh Water, Waste Water (Gray Water), Live Well, Oil and Black Water.

4. Select **FUEL** and press **ENTER**, which will open the Select Tank menu with up to three options.

NOTE:

> If your gauge is set to a single-tank configuration you will be taken directly to the Bus Devices list where the tank will be displayed as Fuel Tank.

6. Select a tank option and press **ENTER**. You will be taken back to the Bus Devices list, where the tank will be displayed as Fuel Tank (P), Fuel Tank (C) or Fuel Tank (S). Press **EXIT** repeatedly to return to the main display.

To reconfigure a fluid level for Oil:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.

2. Highlight **BUS DEVICES** and press **ENTER** to bring up the Bus Devices list.

3. Select the fluid level you want to reconfigure and press **ENTER**. The Fluid Level menu will appear with the following options: Fuel, Fresh Water, Waste Water (Gray Water), Live Well, Oil and Black Water.

4. Select **OIL** and press **ENTER**, which will open the Select Tank menu with up to three options.

NOTE:

> If your gauge is set to a single-tank configuration you will be taken directly to the Bus Devices list where the tank will be displayed as Fuel Tank.

6. Select a tank option and press **ENTER**. The Setting Tank Size window will appear. Input the size of the tank and press **ENTER**. You will be taken back to the Bus Devices list, where the tank will be displayed as Oil Tank (P), Oil Tank (C) or Oil Tank (S).

To reconfigure a fluid level for Fresh Water, Waste Water (Gray Water), Live Well or Black Water:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.

2. Highlight **BUS DEVICES** and press **ENTER**. The Bus Devices list will appear.

3. Select the Fluid Level you want to reconfigure and press **ENTER**.

4. The Fluid Level menu will appear with the following options: Level Warning, Unconfigure, Reconfigure, Calibrate, Reset Cal and Reset Values.

5. Choose **RECONFIGURE** and press **ENTER**. The Fluid Level menu will appear with the following options: Fuel, Fresh Water, Waste Water (Gray Water), Live Well, Oil and Black Water.

6. Select Fresh Water, Waste Water (Gray Water), Live Well or Black Water and press **ENTER**. The Tank Number window will appear.

7. Use the **UP** and **DOWN** keys to input the tank number you want to assign the fluid level and press **ENTER**. The Setting Tank Size window will appear.

8. Use the **UP** and **DOWN** keys to input the size of the tank and press **ENTER**. You will be taken back to the Bus Devices list, where the fluid level will be displayed with its new configuration.

NOTE:
> If your fluid level is not updated on the Bus Devices list, refresh the list by closing it, and then access it again.

EP-65R Fluid Level Calibration

The factory calibration settings for the EP-65R Fluid Level should be adequate for the majority of applications, so calibration will not be necessary in most cases. The default calibration for the EP-65R Fluid Level is just as accurate as standard fluid level gauges. If, however, the tank has an irregular shape or greater accuracy is needed, calibration

is recommended. The EP-65R Fluid Level has three calibration options: 2 point, 3 point and 5 point.

2-Point Calibration

A 2-point calibration is best suited for rectangular or square-shaped tanks, where the capacity of the top half of the tank matches the capacity in the lower half of the tank. In a two-point calibration, you will set two points, one each for empty and full levels. You can begin calibration at either of the two points, but we recommend starting with an empty tank. You will fill the tank to complete calibration.

NOTE:

> Adequate calibration may be achieved without calibrating both points and you can calibrate the points (Empty Level and Full Level) in any order you wish. In the following instructions, we begin calibration with an empty tank.

To execute 2-Point calibration:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.

2. Highlight **BUS DEVICES** and press **ENTER**. Choose the fluid level you want to calibrate and press **ENTER**.

3. Select **CALIBRATE** and press **ENTER**. The Number of Points menu will appear with three options: 2, 3 and 5. Select **2**, for two-point calibration, and press **ENTER**.

4. The Levels menu will appear with two choices: Empty Level and Full Level. Choose **EMPTY LEVEL** and press **ENTER**.

5. The following message will appear: *Set Tank to Empty Level Press Enter*. Make sure your tank is empty and then press **ENTER**. You will be taken back to the Levels menu.

6. Fill up your tank.

7. Select **FULL LEVEL** and press **ENTER**. The following message will appear: *Set Tank to Full Level Press Enter*.

8. Press **ENTER**. Press **EXIT** repeatedly to return to the main display.

3-Point Calibration

3-point calibration is designed for tanks that vary in shape from the top to the bottom. You can begin calibration at any point in the 3-point process, but we recommend starting calibration with an empty tank. In a 3-point calibration, you will set three points, one each for empty, half and full levels.

NOTE:

> Adequate calibration may be achieved without calibrating all three points, and you can calibrate the points (Empty Level, Half Level and Full Level) in any order you wish. We begin calibration with an empty tank.

To execute 3-Point calibration:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.

2. Highlight **BUS DEVICES** and press **ENTER**. Choose the fluid level you want to calibrate and press **ENTER**.

3. Select **CALIBRATE** and press **ENTER**. The Number of Points menu will appear with three options: 2, 3 and 5. Select **3**, for three-point calibration, and press **ENTER**.

4. Highlight **EMPTY LEVEL** and press **ENTER**. The following message will appear: *Set Tank to Empty Level Press Enter*.

5. Make sure your fuel tank is empty and then press **ENTER**. You will be taken back to the Levels menu.

6. Add half a tank of fuel. (If you had a 100 gallon tank, you would add 50 gallons.)

7. Select **HALF LEVEL** and press **ENTER**. The following message will appear: *Set Tank to Half Level Press Enter*.

8. Press **ENTER**. You will be taken back to the Levels menu.

9. Fill up your tank.

10. Highlight **FULL LEVEL** and press **ENTER**. The following message will appear: *Set Tank to Full Level Press Enter*.

11. Press **ENTER**. You will be taken back to the Levels menu. Press **EXIT** repeatedly to return to the main display.

5-Point Calibration

5-point calibration is best suited for tanks that vary greatly in shape from top to bottom. You can begin calibration at any point in the 5-point calibration process. We recommend starting calibration with an empty tank. In a five-point calibration there are five calibration points: Empty Level, 1 Qtr Level, Half Level, 3 Qtr Level and Full Level.

NOTE:

Adequate calibration may be achieved without calibrating all five points and you can calibrate the points (Empty Level, 1 Quarter Level, Half Level, 3 Quarter Level and Full Level) in any order you wish. In the following instructions, we begin calibration with an empty tank.

To execute 5-Point calibration:

1. Press **MENU**, use the **UP** and **DOWN** keys to select **SYSTEM SETUP** and press **ENTER**.

2. Highlight **BUS DEVICES** and press **ENTER**. Choose the fluid level you want to calibrate and press **ENTER**. Select **CALIBRATE** and press **ENTER**. The Number of Points menu will appear with three options: 2, 3 and 5. Select **5**, for three-point calibration and press **ENTER**.

3. The Levels menu will appear with five options: Empty Level, 1 Qtr Level, Half Level, 3 Qtr Level and Full level. Select **EMPTY LEVEL** and press **ENTER**. The following message will appear: *Set Tank to Empty Level Press Enter*.

4. Press **ENTER**. You will be taken back to the Levels menu. Add 1-quarter tank of fuel. (If, for example, you have a 100-gallon tank, add 25 gallons of fuel.)

5. Highlight **1 QTR LEVEL** and press **ENTER**. The following message will appear: *Set Tank to 1 Qtr Level Press Enter*.

6. Press **ENTER**. You will be taken back to the Levels menu. Fill your tank up halfway. (If, for example, you have a 100-gallon tank, add another 25 gallons of fuel to increase the fuel total to 50 gallons.)

7. Highlight **HALF LEVEL** and press **ENTER**. The following message will appear: *Set Tank to Half Level Press Enter*. Press **ENTER**. You will be taken back to the Levels menu.

8. Fill your tank to the 3 quarter level. (If you have a 100-gallon tank, add 25 gallons of fuel to increase the fuel total to 75 gallons.) Highlight **3 QTR LEVEL** and press **ENTER**. The following message will appear: *Set Tank to 3 Qtr Level Press Enter*.

9. Press **ENTER**. You will be taken back to the Levels menu. Fill up your tank, then select **FULL LEVEL** and press **ENTER**. The following message will appear: *Set Tank to Full Level Press Enter*.
10. Press **ENTER**. You will be taken back to the Levels menu. Press **EXIT** repeatedly to get back to the main display.

Reset Calibration

The Reset Calibration command allows you to reset a fluid level back to factory default settings. You will only need to reset calibration when you believe your fluid level has been calibrated incorrectly.

To Reset Calibration:

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

2. Highlight **BUS DEVICES** and press **ENTER**. Select the fluid level you want to reset and press **ENTER**.

3. Highlight **RESET CAL** from the fluid level menu and press **ENTER**. The following message will appear: *Press Enter to reset Calibration*.

4. Press **ENTER** to set calibration back to factory default settings. You will be taken back to the Bus Devices list.

NOTE:

If you have calibrated your fluid level sensor and are having problems with its performance, be sure to check the sending unit. You can do this by using an ohm meter to test the resistance of the unit. Connect the sending unit hot wire (usually pink) and the ship or sending unit ground wire (usually black) to the ohm meter. With the tank full, the resistance should be around 33-1/2 ohms. When the tank is the empty, the resistance should be around 240 ohms. If, when the tank is full or empty, the ohm readings are significantly different from the standard full (33-1/2) and empty (240) ohms levels, there is a problem with the sending unit. If the ohm readings are the same in both cases, the sending unit is stuck.

Displaying Fluid Level data:

You can display fluid level data on the Single Analog, Dual Analog and Quad Analog pages.

Page Screen Rotation

The Page Screen Rotation consists of multiple pages that have been set up for display. Once pages have been added to the page screen rotation, they can be set to scroll across the screen automatically or manually. Use the **ENTER** and **EXIT** keys to manually scroll pages across the screen. Pressing the **ENTER** key moves the scroll in one direction. Pushing the **EXIT** key moves the scroll in the other direction. You will use the Page Scrolling if you want pages to automatically scroll across the screen. Refer to your LMF-400 manual for more information about Page Scrolling.

To add a page to the display:

1. Press **MENU**, use the **UP** and **DOWN** keys to 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**.

3. Highlight (Single Analog, Dual Analog or Quad Analog) and press **ENTER**. The following message will appear: *Press Enter to add the selected page.*

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

Customizing Pages

The customizing pages feature allows you to choose what data will be displayed on selected pages. You can use the Single Analog, Dual Analog and Quad Analog pages to display fluid level data.

NOTE:

If you have more than one fluid level, you can add the Single Analog page to the page screen rotation more than once, and then customize each page with a different fluid level.

To customize Single Analog page:

1. Make sure the Single Analog page has been added to the page screen rotation.

2. Use the **ENTER** and **EXIT** keys to scroll the Single Analog page onto the main display.

3. Press **MENU**, use the **UP** and **DOWN** keys to select **CUSTOMIZE** and press **ENTER**. The data menu will appear.

4. Select **FLUID LEVEL** and press **ENTER**. If you have more than one fluid level on your network, a list of fluid levels will appear.

5. Highlight the fluid level you want to display and press **ENTER**. You will be taken back to the main display.

To customize Dual Analog page:

1. Make sure the Dual Analog page has been added to the page screen rotation.

2. Use the **ENTER** and **EXIT** keys to scroll the Dual Analog page onto the main display.

3. Press **MENU**, use the **UP** and **DOWN** keys to select **CUSTOMIZE** and press **ENTER**. The Position menu will appear with two options: Top Gauge and Bottom Gauge.

4. Select the desired position and press **ENTER**. The data menu will appear.

5. Highlight **FLUID LEVEL** and press **ENTER**. If you have more than one fluid level on your network, a list of fluid levels will appear. Select the desired fluid level and press **ENTER**.

6. You will be directed to the Position menu. Repeat steps 4-5 to customize the other position or press **EXIT** twice to return to the main display.

NOTE:

If you have more than one fluid level on your boat, you could display the data from one fluid level on the top gauge and data from another fluid level on the bottom gauge.

To customize Quad Analog page:

1. Make sure the Quad Analog page has been added to the page screen rotation.

2. Use the **ENTER** and **EXIT** keys to scroll the Quad Analog page onto the main display.

3. Press **MENU**, select **CUSTOMIZE** and press **ENTER**. The Position menu will appear with four options: Top Left, Top Right, Bottom Left and Bottom Right.

4. Select the desired position and press **ENTER**. The data menu will appear.

5. Highlight **FLUID LEVEL** and press **ENTER**. If you have more than one fluid level on your network, a list of fluid levels will appear. Select the desired fluid level and press **ENTER**.

6. You will be directed to the Position menu. Repeat steps 4-5 to customize the other positions or press **EXIT** twice to return to the main display.

Engine Warnings (Alarms)

The Engine Warnings feature allows you to set an alarm for one or more engines, which will alert you to several engine issues including overheating and low oil pressure.

To set an Engine Warning (Alarm):

1. Press **MENU**, use the **UP** and **DOWN** keys to highlight **SYSTEM SETUP**, and press **ENTER**.

2. Highlight **ENGINE WARNINGS** and press **ENTER**. The Engine Warnings menu will appear with up to five options, including Off and All Engines. The default setting is All Engines. (If you have a single-engine configuration, the only options on the Engine Warning menu will be On and Off.)

3. Choose the desired option and press **ENTER**. You will be taken back to the main display.

NOTE:

> If you choose All Engines, an alarm will be shown for each alarm that has been set. If a single engine is selected, the gauge will only show warnings from the chosen engine. (To turn off all engine warnings, highlight **OFF** and press **ENTER**. If you turn off engine alarms, no alarms will be shown for any of the engines.)

Level Warning

The Level Warning feature allows you to set a Low level or High level alarm for each tank. A pop-up window will appear and an alarm will sound if the amount of fluid rises above (High Level) or falls below (Low level) the selected percentage of tank capacity.

To set a level warning:

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

2. Select **BUS DEVICES** and press **ENTER**. Highlight the desired fluid level and press **ENTER**. The fluid level menu will appear. Select **LEVEL WARNING** and press **ENTER**.

3. The Select Level menu will appear with two options: High Level and Low Level. Highlight **LOW LEVEL** or **HIGH LEVEL** and press **ENTER**. The Set Percentage window will appear. It will be set to Off by default.

4. Use the **UP** and **DOWN** keys to input the desired percentage of tank capacity that will trigger the alarm. If the amount of fuel falls below the percentage you choose, the alarm will go off.

6. Press **ENTER** and you will be taken back to the Bus Devices list. Press **EXIT** repeatedly to return to the main display.

NOTE:

    To turn off a level warning, repeat Steps 1-3, then select **OFF** from the Level Percentage window mentioned in Step 4. Press **ENTER**. Repeat these steps for each warning you want to turn off. Press **EXIT** repeatedly to return to the main display.

Reset Values

Use the Reset Values command to reset EP-65R fluid level settings to factory defaults.

NOTE:

    After using the Reset Values command has been executed, you will have to re-enter your engine-tank configuration. The Reset Values command will not affect the configuration or calibration of other devices on the network.

To reset values:

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

2. Highlight **BUS DEVICES** and press **ENTER**. Select the desired fluid level and press **ENTER**. The Configuration Options menu will appear.

3. Select **RESET VALUES** and press **ENTER**. The following message will appear: *Press Enter to Reset Device Values*. Press **ENTER**.

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

Display Unit: EP-65R Fluid Level Configuration & Calibration

This section covers how to configure and calibrate an EP-65R Fluid Level with a display unit.

The LMS-525cDF is one of many Lowrance display units that may be used to configure and calibrate an EP-65R Fluid Level sensor.
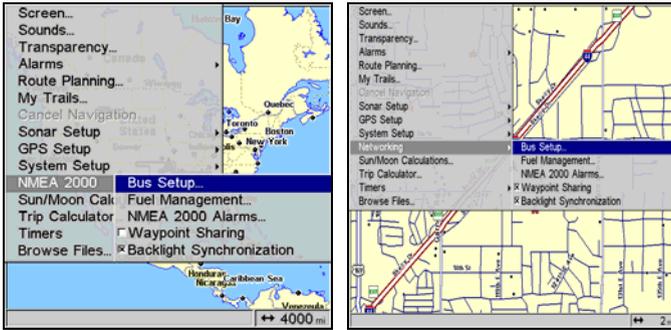
NMEA 2000 Menu/Networking Menu

Your unit may have a NMEA 2000 menu or a Networking menu, depending on the software version installed in your unit. Both menus allow you to perform the same NMEA 2000-related functions.

NOTE:

Some of the menus shown in this section may differ slightly from the menus in your display unit, but your unit will perform the same functions in a similar manner.

Bus Setup

Selecting Bus Setup from the NMEA 2000 or Networking menu will open the Bus Configuration menu, giving you access to the Engine-Tank Configuration menu and the NMEA 2000 Devices list. The list, located in the top half of the Bus Configuration menu, shows all devices connected to the network. The Engine-Tank Configuration menu is located in the bottom half of the Bus Configuration menu.

Bus Setup highlighted on the NMEA 2000 menu (left). Bus Setup selected on Networking menu (right).

Engine & Tank Configuration

The Engine-Tank configuration menu is located below the NMEA 2000 Devices list, but will only be accessible if engine- or fuel-related devices are on the network. When choosing an engine-tank configuration you will use the Tank Select menu, Tank Size dialog box and Set Configuration button.

1 Engine/1Tank highlighted on Engine and Tank Configuration menu (left). Starboard highlighted on Tank Select menu (center). Tank Size set to 40 gallons (right).

Setting Engine-Tank Configuration:

1. Press **MENU** twice, use the **UP** and **DOWN** keys to highlight **NMEA 2000** or **NETWORKING** and press **ENTER**.

2. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization. Choose **BUS SETUP** and press **ENTER**.

3. Select **ENGINE & TANK CONFIG** and press **ENTER**, which will open the Engine & Tank Configuration menu with the following configuration options: 1 Engine/1 Tank, 1 Engine/2 Tanks, 2 Engines/1 Tank, 2 Engines/2 Tanks, 3 Engines/1 Tank, 3 Engine/3 Tanks and Unconfigured Bus.

4. Choose the configuration that matches the number of engines and tanks on your vessel and press **ENTER**.

5. Highlight **TANK SELECT** and press **ENTER**, which will open the Tank Select menu.

6. Select a configuration name for the fluid level sensor you want to set up and press **ENTER**. Highlight the Tank Size dialog box and press **ENTER**.

7. Input the capacity (gallons) of the tank you chose from the Tank Select menu and press **ENTER**.

8. Repeat Steps 5-7 for each remaining tank.

9. When all tanks have been configured, highlight the **SET CONFIGURATION** button and press **ENTER**. The following confirmation message will appear: *Are you sure you wish to change the bus configuration?* Choose **YES** and press **ENTER**, Press **EXIT** to return to the main display.

EP-65R Fluid Level Configuration

Your fluid level device will be configured through its Device Configuration menu, which may be accessed from the network devices list on the Bus Configuration menu.

To configure an EP-65R Fluid Level:

After accessing your fluid level's Device Configuration menu you will see following configuration features: Tank Instance (Location), Fluid Type and Tank Size. You can also change your device name from the Device Configuration menu.

Device Name

You can change how your fluid level will be displayed on your unit's NMEA 2000 Devices list by inputting a customized device name in the Device Name dialog box. *You do not have to change the device name to configure your fluid level.*

NOTE:

Changing the Device Name only will affect the way the EP-65R is shown on your display unit. The customized device name will not be seen by other devices or display units on the NMEA 2000 network.

To input a Device Name:

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **Bus Setup** and press **ENTER**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select a fluid level you want to rename and press **ENTER**. The Device Configuration menu will appear with the Device Name dialog box highlighted.

4. Press **ENTER**. Use the arrow keys to input the desired name for the fluid level and press **ENTER**. Press **EXIT** repeatedly to return to the main display.

To reset device name to default setting:

1. Press **MENU** twice, select **NMEA 2000** or **Networking** and press **ENTER**. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **Bus Setup** and press **ENTER**, to open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select a fluid level with a device name you want to reset and press **ENTER**. The Device Configuration menu will appear with the Device Name dialog box highlighted.

4. Press **ENTER**. Depress the left arrow key until the device name disappears. Press **ENTER**, then press **EXIT** to return to the NMEA 2000 menu.

5. Highlight the device and press **ENTER**. The Device Configuration menu will open. The device name will be reset to its default setting. Press **EXIT** repeatedly to return to the main display.

Tank Instance (Location)

The Location drop-down menu allows you to change the tank setting for your fluid level.

To select Tank Instance (Location):

1. Press **MENU** twice, select **NMEA 2000** or **Networking** and press **ENTER**. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **Bus Setup** and press **ENTER** to open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fluid level and press **ENTER**. The Device Configuration menu will appear.

4. Highlight **TANK INSTANCE (LOCATION)** and press **ENTER**, which will open the Tank Instance menu with the following options: Tank 1, Tank 2, Tank 3 and Unknown (Default).

5. Select the desired Tank Instance (Location) and press **ENTER**. The following confirmation message will appear: *Are you sure you wish to change this device's configuration?*

6. Highlight **YES** and press **ENTER**. Press **EXIT** repeatedly to return to the main display.

Fluid Type

Accessing the Fluid Type drop-down menu allows you to select the type of fluid your fluid level is measuring. The fluid options are: Fuel, Water, Gray Water, Live Well, Oil and Black Water.

To select a fluid type:

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENTER**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fluid level and press **ENTER**. The Fluid Level Device Configuration menu will appear.

4. Highlight **FLUID TYPE** and press **ENTER**, which will open the Fluid Type menu with the following options: Fuel, Water, Gray Water, Live Well, Oil, Black Water and Unknown (Default).

5. Select the desired fluid type and press **ENTER**. The following message will appear: *Are you sure you wish to change this device's configuration?*

6. Highlight **YES** and press **ENTER**. Press **EXIT** repeatedly to return to the main display.

Tank Size

You can input the size of the tank connected to your fluid level into the Tank Size dialog box on your fluid level's Device Configuration menu.

To input Tank Size:

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENTER**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fluid level and press **ENTER**. The Fluid Level Device Configuration menu will appear.

4. Highlight **TANK SIZE** and press **ENTER**. Use the arrow keys to input the capacity of the tank and press **ENTER**. The following message will appear: *Are you sure you wish to change this device's configuration?*

5. Select **YES** and press **ENTER**. Press **EXIT** repeatedly to return to the main display.

To unconfigure an EP-65R Fluid Level:
You can unconfigure a fluid level by manually resetting all the configuration options —Tank Instance and Fluid Type — to default settings (Unknown). Another way to unconfigure a sensor is to use the Restore Defaults command.

NOTE:
    If you use the Restore Defaults command to unconfigure a sensor, you will have to re-enter your vessel's Engine-Tank Configuration.

Restore Defaults
Located on the Advanced Options menu, the Restore Defaults command allows you to reset an EP-65R Fluid Level Sensor's settings to factory defaults.

To restore default settings:
1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENTER**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fluid level and press **ENTER**. The Device Configuration menu will appear.

4. Highlight **ADVANCED OPTIONS** and press **ENTER**.

5. Select **RESTORE DEFAULTS** and press **ENTER**. The following message will appear: *Are you sure you wish to change this device's configuration?*

6. Highlight **YES** and press **ENTER**. Press **EXIT** repeatedly to return to the main display.

Reconfiguring an EP-65R Fluid Level:
If all fluid levels are configured for fuel and you want to swap the Tank Instance (Location) of two of the fluid levels, you first will have to unconfigure one of the fluid levels to make its Tank Instance (Location) available to the other fluid level. In the example below, we will swap the Tank Instance (Location) of the Port and Starboard fluid levels.

To reconfigure a fluid level:
1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**. A menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENTER**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the Port fluid level and press **ENTER**. The Device Configuration menu will appear.

4. Highlight **TANK INSTANCE (LOCATION)** and press **ENTER**. Select **UNKNOWN** and press **ENTER**. The following message will appear: Are you sure you wish to change this device's configuration? Highlight **YES** and press **ENTER**.

5. Press **EXIT**, select the Starboard fluid level and press **ENTER**.

6. Highlight **TANK INSTANCE (LOCATION)** and press **ENTER**. Select **PORT** and press **ENTER**. The following message will appear: *Are you sure you wish to change this device's configuration?* Highlight **YES** and press **ENTER**.

7. Press **EXIT**, select the unconfigured fluid level and press **ENTER**. Highlight Tank Instance (Location) and press **ENTER**. Select **STARBOARD** and press **ENTER**. The following message will appear: *Are you sure you wish to change this device's configuration?* Highlight **YES** and press **ENTER**.

8. The Port and Starboard Tank Instance (Location) settings have been switched. Press **EXIT** repeatedly to return to the main display.

EP-65R Fluid Level Calibration

The factory calibration settings for the EP-65R Fluid Level should be adequate for most applications, so calibration will not be necessary in most cases. If, however, the tank has an irregular shape or greater accuracy is needed, calibration is recommended. There are three calibration options: 2-Point, 3-Point and 5-Point.

2-Point Calibration

A 2-point calibration is best suited for rectangular or square-shaped tanks, where the capacity of the top half of the tank matches the capacity in the lower half of the tank. In a two-point calibration, you

will set two points, one each for empty and full levels. You can begin calibration at either of the two points, but we recommend starting with an empty tank. You will fill the tank to complete calibration.

NOTE:

Adequate calibration may be achieved without calibrating both points and you can calibrate the points (Empty Level and Full Level) in any order you wish. In the following instructions, we begin calibration with an empty tank.

To execute a 2-Point Calibration:

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**.

2. Highlight **BUS SETUP** and press **ENTER** to open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fluid level and press **ENTER**. The Device Configuration menu will appear.

4. Select **CALIBRATE** and press **ENTER** to open the Device Calibration menu. Calibration Instructions will be listed at the top of the menu.

5. Highlight **NUM PTS**, press **ENTER** and select **2**. Press **ENTER**.

6. Select **FLUID LEVEL**, press **ENTER**, then select **EMPTY LEVEL** and press **ENTER**.

7. Make sure your fuel tank is empty, highlight **C**ALIBRATE and press **ENTER**. The following message will appear: *Empty Level Calibration Completed.* Press **ENTER**.

8. Fill up your tank, highlight **FLUID LEVEL** and press **ENTER**.

9. Select **FULL LEVEL** and press **ENTER**. Highlight **CALIBRATE** and press **ENTER**.

10. The following message will appear: *Full level Calibration Completed.* Press **ENTER**. Press **EXIT** repeatedly to return to the main display.
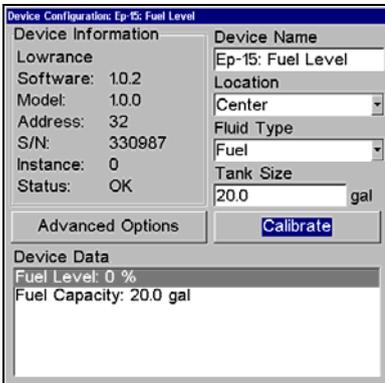
3-Point Calibration

3-point calibration is designed for tanks that vary in shape from the top to the bottom. You can begin calibration at any point in the 3-point process, but we recommend starting calibration with an empty tank. In a 3-point calibration, you will set three points, one each for empty, half and full levels.

NOTE:

> Adequate calibration may be achieved without calibrating all three points and you can calibrate the points (Empty Level, Half Level and Full Level) in any order you wish. In the following instructions, we begin calibration with an empty tank.

To execute a 3-Point Calibration:

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**.

2. Highlight **BUS SETUP** and press **ENTER**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fluid level and press **ENTER**. The Device Configuration menu will appear.

4. Select **CALIBRATE** and press **ENTER** to open the Device Calibration menu.

5. Highlight **NUM PTS**, press **ENTER** and select **3**. Press **ENTER**.

6. Make sure your fuel tank is empty, highlight **FLUID LEVEL** and press **ENTER**. Select **EMPTY LEVEL** and press **ENTER**.

7. Highlight **CALIBRATE** and press **ENTER**. The following message will appear: *Empty Level Calibration Completed*. Press **ENTER**.

8. Add half a tank of fuel, highlight **FLUID LEVEL** and press **ENTER**. Select **HALF LEVEL** and press **ENTER**.

9. Select **CALIBRATE** and press **ENTER**. The following message will appear: *Half Level Calibration Completed*. Press **ENTER**.

Calibrate is highlighted on the device configuration menu (left). Calibration menu (right) with instructions listed at the top.

10. Fill up the tank, highlight **FLUID LEVEL** and press **ENTER**. Select **FULL LEVEL** and press **ENTER**.

11. Highlight **CALIBRATE** and press **ENTER**. The following message will appear: *Full Level Calibration Completed*. Press **ENTER**, then press **EXIT** repeatedly to return to the main display.

5-Point Calibration

5-point calibration is best suited tanks that vary greatly in shape from top to bottom. You can begin calibration at any point in the 5-point calibration process. We recommend starting calibration with an empty tank. In a five-point calibration you will set five points: Empty Level, 1 Qtr Level, Half Level, 3 Qtr Level and Full Level.

Num Pts menu with 5-point calibration selected (left). Half level selected on Fluid Level menu (center). Calibration completed window (right).

In a 5-point calibration, you will have four calibration points left after calibrating your tank's Empty Level. To figure out how much fuel you should add for the remaining steps of the calibration process, divide the total capacity of you tank by four. So, if you have a 40-gallon tank, each quarter tank will equate to 10 gallons.

NOTE:

Adequate calibration may be achieved without calibrating all five points and you can calibrate the points (Empty Level, 1 Quarter Level, Half Level, 3 Quarter Level and Full Level) in any order you wish. In the following instructions, we begin calibration with an empty tank.

To execute a 5-Point Calibration:

1. Press **MENU** twice, select **NMEA 2000 OR NETWORKING** and press **ENTER**.

2. Highlight **BUS SETUP** and press **ENTER**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fluid level and press **ENTER**. The Device Configuration menu will appear.

4. Highlight **CALIBRATE** and press **ENTER** to open the Device Calibration menu.

5. Highlight **NUM PTS**, press **ENTER** and select **5**. Press **ENTER**.

6. Make sure your tank is empty, then highlight **FLUID LEVEL** and press **ENTER**. Select **EMPTY LEVEL** and press **ENTER**.

7. Select **CALIBRATE** and press **ENTER**. The following message will appear: *Empty Level Calibration Completed*. Press **ENTER**.

8. Add 1 quarter tank of fuel, highlight **FLUID LEVEL** and press **ENTER**. Select **1 QTR LEVEL** and press **ENTER**.

9. Select **CALIBRATE** and press **ENTER**. The following message will appear: *1 Qtr Level Calibration Completed*. Press **ENTER**.

10. Add another quarter tank of fuel, which will raise the fuel level to half a tank. Highlight **FLUID LEVEL** and press **ENTER**. Select **HALF LEVEL** and press **ENTER**.

11. Highlight **CALIBRATE** and press **ENTER**. The following message will appear: *Half Level Calibration Completed*. Press **ENTER**.

12. Add another quarter tank of fuel, which should raise the fuel level to 3 quarters of a tank. Highlight **FLUID LEVEL** and press **ENTER**. Select **3 QTR LEVEL** and press **ENTER**.

13. Select **CALIBRATE** and press **ENTER**. The following message will appear: *3 Qtr Level Calibration Completed*. Press **ENTER**.

14. Top off the tank, highlight **FLUID LEVEL** and press **ENTER**. Select **FULL LEVEL** and press **ENTER**.

15. Select **CALIBRATE** and press **ENTER**. The following message will appear: *Full Level Calibration Completed*. Press **ENTER**, then press **EXIT** repeatedly to return to the main display.

Reset Calibration

Located on the Advanced Options menu, the Reset Calibration command allows you to reset an individual EP-65R Fluid Level Sensor's calibration settings to factory defaults.

To reset calibration:

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**. The NMEA 2000 menu will appear with five options: Bus Setup, Fuel Management, NMEA 2000 Alarms, Waypoint Sharing and Backlight Synchronization.

2. Highlight **BUS SETUP** and press **ENTER**, which will open the Bus Configuration menu. A list of network devices will be at the top of the page.

3. Select the desired fluid level and press **ENTER**. The Device Configuration menu will appear.

4. Highlight **ADVANCED OPTIONS** and press **ENTER**.

5. Select **RESET CALIBRATION** and press **ENTER**. The following message will appear: *Are you sure you wish to change this device's configuration?*

6. Highlight **YES** and press **ENTER**. Press **EXIT** repeatedly to get back to the main display.

Displaying Fluid Level Information

The Overlay Data function will be used to show fluid level data on your unit's main display.

To add fluid level as overlay data:

1. Press **MENU**, highlight **OVERLAY DATA** and press **ENTER**.

2. Select **(PRESS ENT TO ADD…)** and press **ENTER**.

3. Highlight **NMEA 2000** and press **ENTER**. A list of devices on the network will appear.

4. Select the desired fluid level and press **ENTER**. Fluid level and fluid capacity data categories will appear. If, for example, your fluid level was configured for fuel the data categories would be Fuel Level and Fuel Capacity.

5. Highlight the desired data and press **ENTER**, which will place a checkmark in its enabled box. It now will be shown as overlay data on your unit's main display.

NOTE:

If you did not input a tank size when you configured your fluid level, you will not be able to use fluid level capacity as overlay data.

6. Repeat step 5 to display the other data category, or press **EXIT** repeatedly to return to the main display.

Fuel Management Menu

The Fuel Management menu is used to calibrate other engine and fuel-related devices. It will not be used with your fluid level.

NMEA 2000 Alarms

The NMEA 2000 Alarms menu allows you to set Full and Empty fuel alarms for a number of NMEA 2000 devices. The alarms may be set to a percentage (0-100%) of tank capacity.

To turn on/off NMEA 2000 Alarm:

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**.

2. Highlight **NMEA 2000 ALARMS** and press **ENTER**.

3. Highlight **FLUID LEVEL DEVICE** and press **ENTER**. Select the device you want to set an alarm for and press **ENTER**.

4. Highlight the **ENABLED** box next to the desired alarm (Full Alarm or Empty Alarm) and press **ENTER** to turn on the alarm. When the alarm is turned on an "X" will be placed in the Enabled box.

5. To set the alarm percentage, press → to highlight **PERCENT** and press **ENT**.

6. Use the arrow keys to input the desired percentage and press **ENTER**. Repeat Steps 3-4 to set the other alarm.

7. Highlight **SET CONFIGURATION** and press **ENTER** to finalize alarm settings. Press **EXIT** repeatedly to get back to the main display.

NOTE:

> To turn off (uncheck) an alarm, select its **ENABLED BOX** and press **ENTER**. Highlight the **SET CONFIGURATION** button and press **ENTER**.

Alarm Status Tab

The Alarm Status tab is the second tab at the top of the NMEA 2000 Alarms page. When an alarm has been set for a device, the alarm and its current status will be shown on the Alarm Status window.

To view Alarm Status:

1. Press **MENU** twice, select **NMEA 2000** or **NETWORKING** and press **ENTER**.

2. Select **NMEA 2000 ALARMS** and press **ENTER**.

3. Highlight the Alarm Status tab.

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

Notes

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.

LOWRANCE ELECTRONICS
12000 E. SKELLY DRIVE, TULSA, OK 74128
(800) 324-1356

How to Obtain Service…
…in the USA:

Contact the Factory Customer Service Department. Call toll-free:

For Lowrance: **800-324-1356.** *For Eagle:* **800-324-1354**

8 a.m. to 5 p.m. Central Standard Time, M-F

Lowrance Electronics and Eagle Electronics may find it necessary to change or end their shipping policies, regulations and special offers at any time. They reserve the right to do so without notice.

…in Canada:

Contact the Factory Customer Service Department. Call toll-free:

800-661-3983

905-629-1614 (not toll-free)

8 a.m. to 5 p.m. Eastern Standard Time, M-F

…outside Canada and the USA:

Contact the dealer in the country where you purchased your unit. To locate a dealer near you, see the instructions in paragraph number 1 below.

Accessory Ordering Information

LEI Extras™, Inc. is the accessory source for sonar and GPS products manufactured by Lowrance Electronics and Eagle Electronics. To order Lowrance or Eagle accessories, please contact:

1) Your local marine dealer or consumer electronics store. To locate a Lowrance dealer, visit the web site, www.lowrance.com, and look for the Dealer Locator. To locate an Eagle dealer, visit the web site, www.eaglesonar.com, and look for the Dealer Locator. Or, consult your telephone directory for listings.

2) U.S. customers: LEI Extras Inc., PO Box 129, Catoosa, OK 74015-0129 **Call toll free in the U.S., 800-324-0045**, 8 a.m. to 5 p.m. Central Standard Time, M-F, or visit our web site www.lei-extras.com.

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

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