MURPHY®

by **ENOVATION** CONTROLS

HelmView™ 450
Model HV450

Operation Manual

In order to consistently bring you the highest quality, full-featured products, we reserve the right to change our specifications and designs at any time. The latest version of this manual can be found at www.fwmurphy.com.

WARNING

BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT:

- Read and follow all installation instructions.

- Please contact Enovation Controls immediately if you have any questions.

- A visual inspection of this product for damage during shipping is recommended before installation.

- It is your responsibility to ensure that qualified mechanical and electrical technicians install this product.

Contact Enovation Controls Technical Service if you have any questions or concerns at: +1 918-317-4100.

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Product Information

The HelmView™ HV450 display was specifically designed for instrumentation and control on electronically controlled engines. These engines communicate using SAE J1939 and NMEA 2000 protocols. The HV450 display allows operators to view many different engine and transmission parameters and service codes. The unit can simultaneously display port and starboard (left and right, respectively) information. Optional upgrades (software and firmware) are available to expand the usability. For more information, review the following summary about the **Enovation Controls Murphy Forum**.

Forum Access

Enovation Controls has created a forum for PowerVision Configuration Studio ® supported products. The forum is a location where a demonstration/trial version of the PowerVision configuration tool is available for download. Many frequently asked questions are stored on the forum along with demo configurations and examples on how to configure products. Please use the link below and register for the forum:

http://forum.fwmurphy.com/

Once you register, you will receive your user name and password confirmation in separate emails. Go to the Forum and log in; a page displays indicating a successful login. Almost immediately, the page is directed to the **Demo Users Forum**. From here, you can investigate and download a demo-configuration software tool or review previously asked questions.

In addition, the Forum contains software that has been released to the public. You can obtain software updates here, so check the Forum regularly. Use the link below to go directly to the software section:

http://forum.fwmurphy.com/viewtopic.php?f=10&t=43

This tool allows you to test and even build your own configurations. You can save them, but if you would like to download the configuration to a product, please contact your local sales representative.

HV450 Features and Operations

Flat Screen Display

LCD Screen Display

A color screen displays gauges, soft key commands and fault messages, as well as menu options for setup and configuration.

Soft Key Commands

Columns of vertical commands may be located to the left and/or right of the display. They will change according to the options available for the screen being displayed.

Soft Keys

The soft keys correspond to the soft key commands and allow selections to be made accordingly.

MENU Key

The bottom left key is a soft key reserved in most cases for the Menu. In rare cases, it could be used for other options. Pressing the **MENU** key at any time displays the list of menu options. If not labeled, it is the **MENU** key.

ENTER Key

The bottom right key is a soft key reserved in most cases for Enter. In rare cases, it could be used for other options. Pressing the ENTER key will select the option displayed much like the ENTER key on a keyboard. If not labeled, it is the **ENTER** key

Setting Up your HV450 Display for the First Time

The guidelines presented below are intended for setting up the HV450 display for the first time. Once the configuration is set up, there is no need to revisit or change any of the settings.

> **NOTE:** If you require assistance during the set-up process, contact Enovation Controls customer support at +1(918) 317-4100.
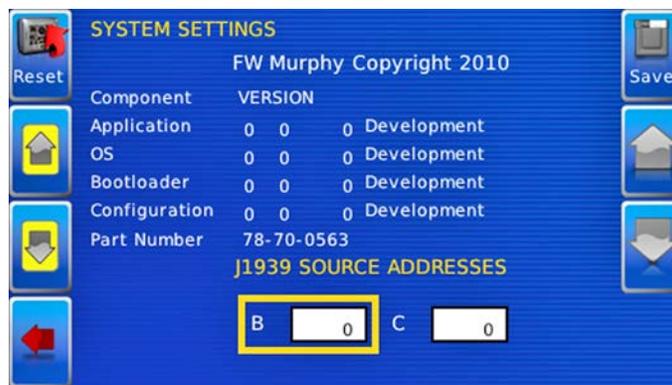
1. At the main menu, press the soft key to the left of Utilities.

2. The Utilities sub-menu is displayed.

3. From the Utilities sub-menu, select System Settings. The following screen is displayed.

4. With the cursor highlighting the J1939 source addresses, use the left side soft keys to scroll through the ports and the right side soft keys to change the address. Press the Save key to save selected changes or the Restore Defaults key to return to the default settings.

Product Features

Power Up

There are two options to connecting the HV450 display:

- The battery and ignition inputs to display are both connected to the battery
- The battery input is connected to the battery, and the ignition input is connected to the ignition switch.

> **NOTE**: If both are connected to the battery, then an inline battery disconnect must be installed.

When the ignition is turned on, the HV450 display powers up, and the engine health statistics can be viewed via preset gauges. To see more gauge screens, press the **Enter** key.

Main Menu

The main menu is activated at any time by pressing the **Menu** key on the display.

The following features are accessed through the main menu:

- **Gauge Display** – provides a series of screens that display engine and auxiliary information in a variety of formats.
- **Engine Diagnostics** – displays a list of engine fault codes and descriptions through a DM1 message structure.
- **User Settings** – allows you to customize the display options for ambient light and brightness, set US or metric units, language, specify the Home screen and screen setup status.
- **Utilities** – allows configuration of the plug address. Also displays software version information at the top of the page.
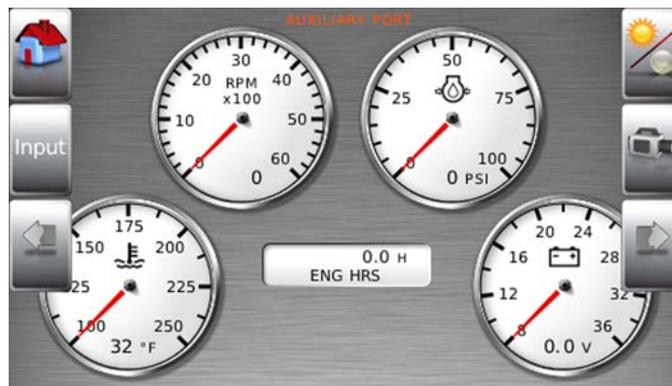
Gauge Display

The Gauge Display screen consists of several predefined layouts that contain combinations of analog gauges, straight bar gauges or digital (text) readouts. These screens are displayed upon startup.

To scroll through the various gauge screens, press the **Prev** and **Next** soft keys. This can be repeated until all screens have been viewed. The currently displayed screen will stay active until another key is pressed.

Soft Key Commands

When a Gauge Display screen is active, pressing the **Enter** key will display soft key commands, as shown below. Continuing to press **Enter** will toggle through any additional soft keys and will eventually remove the soft key commands from the screen.

Soft Key commands provide quick navigation and access to the following features:

- Home
- Video Input
- Prev
- Day/Night
- Video
- Next

Home - This one-touch navigation feature allows a predefined Home screen to be accessed from the available Gauge Display screens. Once selected, the Home screen will be displayed anytime the **Home** key is pressed.

> **NOTE:** For instructions on how to set up the Home screen, refer to the **User Settings** section of this manual.

Video Input – Allows you to toggle between two different video inputs that will be displayed on various screens.

> **NOTE:** .This feature can also be changed in the User Settings section of this manual.

Day/Night - Allows you to toggle the display screen between Day View and Night View.

> **NOTE:** This feature can also be changed in the **User Settings** section of this manual.

Video – When enabled, displays either full-screen video or partial video within a window on the gauge display.

> **NOTE**: For instructions on how to enable full or partial screen video, refer to the **User Settings** section of this manual.
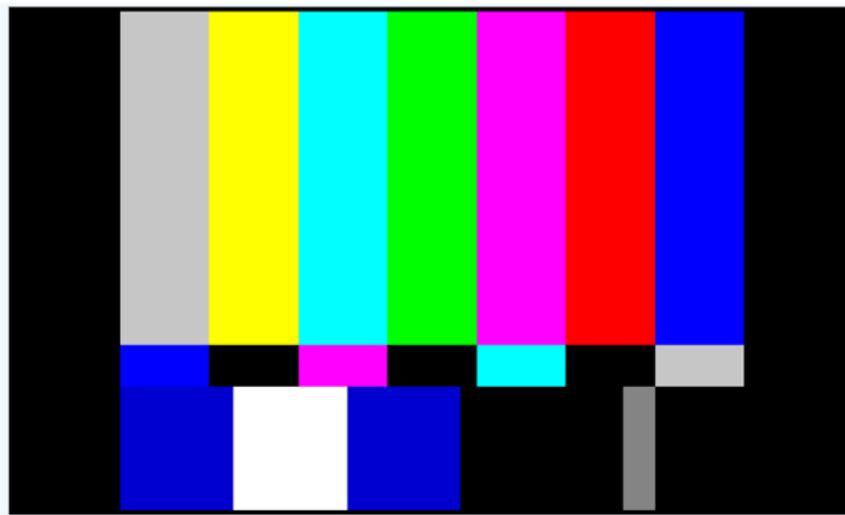
Full View Video

> **NOTE:** For instructions on how to turn screens ON or OFF, refer to the **User Settings** section of this manual.

Engine Diagnostics

After choosing Engine Diagnostics from the Menu, the display will query the engine(s) ECU and provide feedback on any diagnostic codes that have been activated and stored in the ECU for service needs.
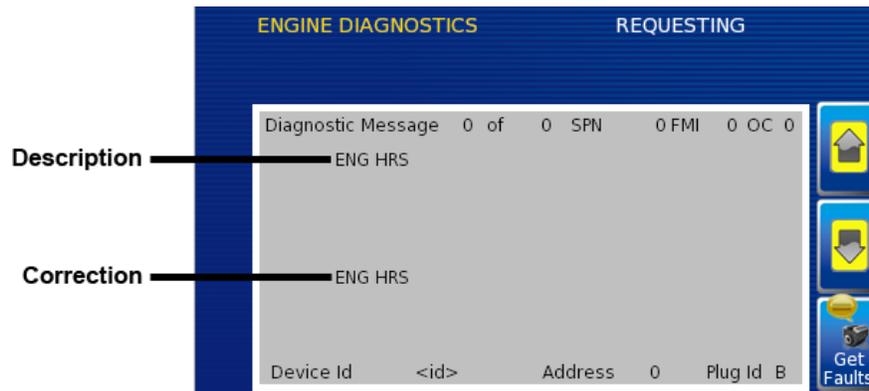
The Engine Diagnostics option displays faults based on engine or auxiliary source.

The following is a list of field definitions contained on the Engine Diagnostics screen:

- **Device ID** – identifies the component having the fault; engine 1, 2 or auxiliary.

- **Address** – identifies the address of the source of the fault (populates the Device ID).

- **Status** – indicates whether the fault has been corrected.

- **SPN** –Suspect Parameter Number - fault code
  If not translated into text by the HV450 display, see the engine manufacturer's literature for the definition of the SPN number.

- **FMI** – Failure Mode Indicator - fault code
  The FMI is defined by SAE J1939. If not translated into text, see the SAE standard or the engine manufacturer's literature.

- **Occurrence Count (OC)** – The number of times the event has been flagged.

- **Description** – Most common SPNs and FMIs have text for the description stored in the HV450 display. If there is no text, then this SPN and FMI must be defined by referring to the engine manufacturer, or the SAE J1939 standard.

- **Correction** – Troubleshooting guidelines for corrective action to take in addressing the fault.

    NOTE: This field is only used with certain brands and models of engines.

Fault Code Pop-Ups

A fault condition will trigger a pop-up dialog box on the screen describing the nature of the fault. Corresponding red or amber fault lights on the corners of the unit are also activated to indicate the severity of the fault. The following screens are examples of warning and shut-down fault code pop-ups.

Warning   **Shut-down**

How to Hide/Show Faults

To hide the fault code pop-up being displayed on the screen, press the soft key on the right next to the Hide icon. The pop-up will disappear; however the Warning or Stop icon will remain on the screen to indicate there is still a fault. Pressing Hide does not clear the fault; it only hides the pop-up message.

When a fault code has been hidden, a Recall icon will remain on the right side. When this soft key is pressed, the fault code will again be displayed. When a pop-up message has been activated, a pop-up message will be displayed until the alarm is acknowledged by pressing the Hide key.

Warning   **Recall View**
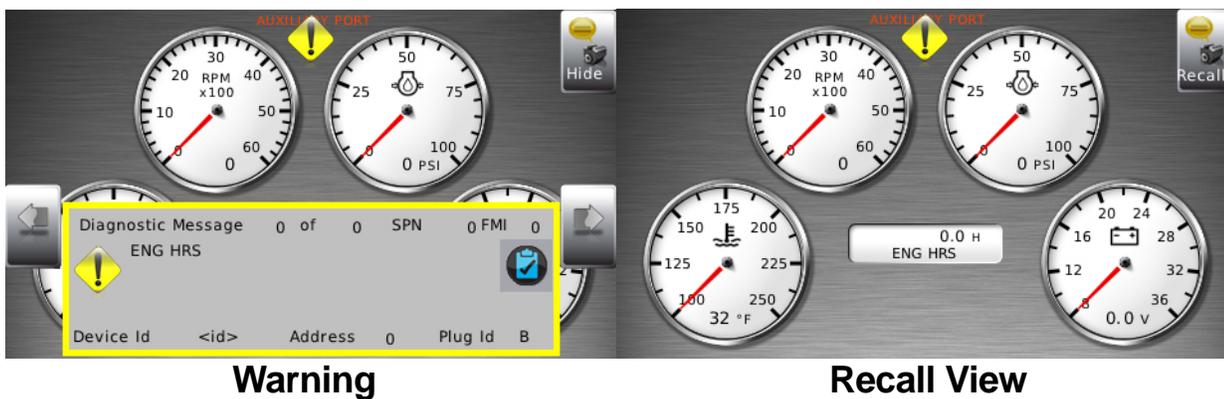
Scrolling Through Multiple Messages

The title bar of the fault code pop-up may indicate multiple messages, as in Diagnostic Message 1 of 3. Press the **Prev** and **Next** keys to scroll through the different messages.

User Settings

User Settings provides options to specify viewing preferences for the HV450 Display. Pressing yellow **Up** and **Down** arrows navigates through the options. To change an option, press the corresponding soft key button next to the desired soft key command.
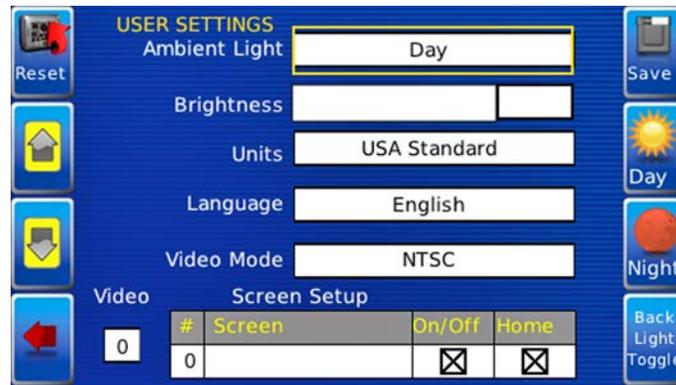
Ambient Light

Night and Day options are provided for ambient lighting. The screens below illustrate these options. When the ambient lighting settings are changed in User Settings, the power-on default is changed.

> **NOTE:** The ambient lighting option is also accessible through soft key commands on the gauge display screens. When selected, the **Day/Night** soft key toggles the display to the opposite mode. Pressing the Night button will toggle between the Red and Blue versions of the Night mode.

Brightness

You can set the brightness control by using the soft keys to change the settings in +5% increments until the desired brightness is achieved.
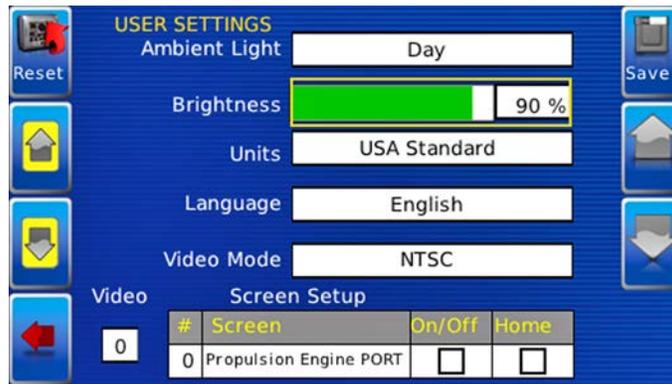
> **NOTE**: Brightness levels will change with ambient light setting. Two brightness levels are saved - one for day and one for night.

Units

Select how units are displayed by using the soft keys to select from the following:

- USA Standard
- Metric Bar
- Metric kPa
- British Standard
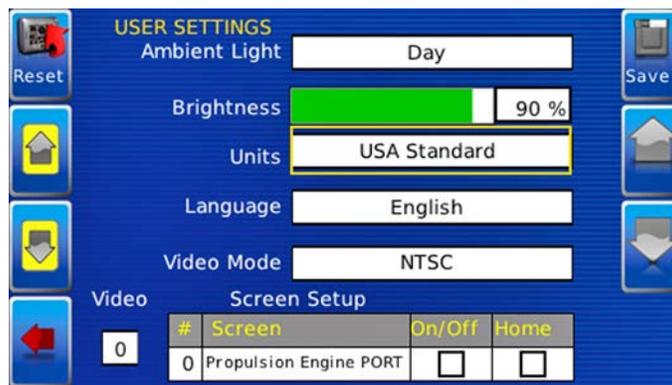
Language

This option allows you to select the language that will be displayed on the HV450. This unit supports English. Available languages include: Russian, Czech, Japanese, Brazilian Portuguese, French, Spanish, German, Italian and Chinese.
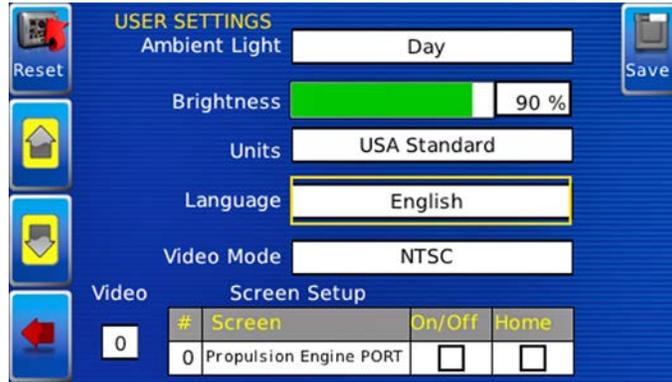
Video Mode

This option provides the choice between NTSC and PAL. The unit will reboot upon this setting change.
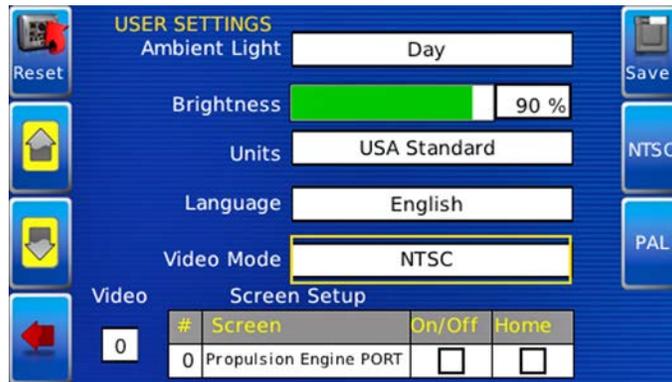
Video Input

This option toggles between two video inputs.
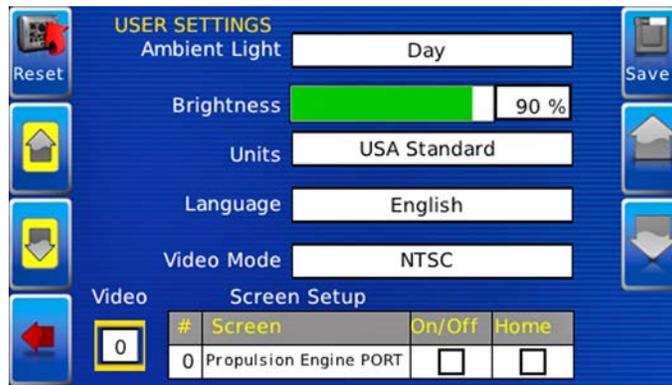
Screen Setup

The Screen Setup option provides a list of screens that can be shown when accessing the Gauge Display screens.

> Press the **Up** and **Down** arrow keys on the right to scroll through the screens.

> Press the **Home** soft key to select the screen as home.

>> **NOTE:** An X in the **On/Off** check box indicates the screen is on. A blank check box indicates the screen is turned off.
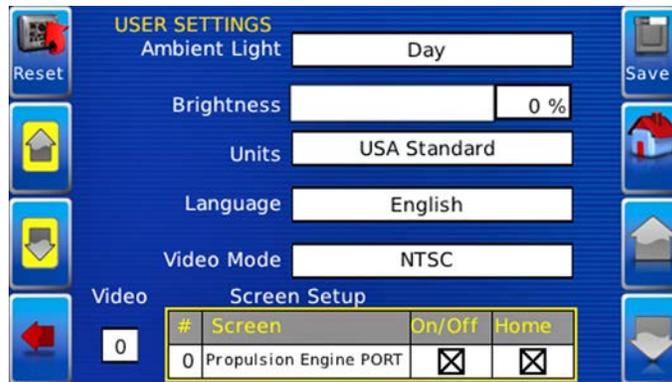
The Screen Setup option also provides the user the ability to turn the screens ON or OFF by pressing the **Enable/Disable** soft key. If a screen is turned OFF, it will not show up when Gauge Display is activated.
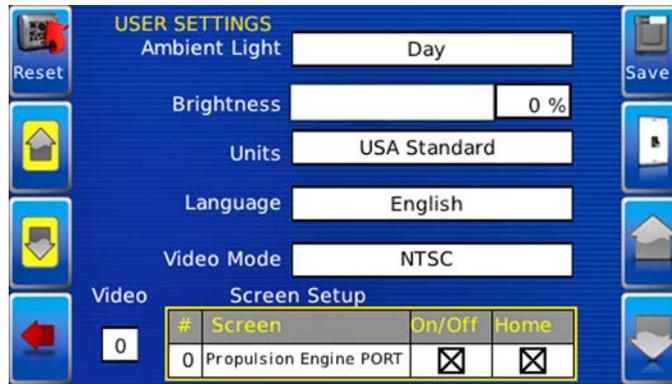
Home Screen

The Home Screen will be the first screen shown when Gauge Display is selected from the User Setting menu. The Home Screen is set to Engine by default and can be changed using the Screen Setup options on the User Settings screen.

Video (Optional)

By default, the Video screen is on or Enabled. To Disable video, change Video option to Off in the screen setup dialog box using the Enable/Disable key in the top right corner. An updated image showing video screen highlighted / off will be displayed.

Save

Once all changes have been made, press **Save**. The following confirmation screen is displayed.

Restore Defaults

Restore Defaults sets the display to the original factory settings. During troubleshooting, this can be used as a last resort to completely reset the display to a known state.

To restore the default user settings, press **Restore Defaults**. The following confirmation screen is displayed.

Backlight Toggle

This sets the Backlight to 0, and pressing any button will turn the backlight back on.

Utilities

Utilities screen allows you to reset external gauges and configure communication settings. It is typically only accessed when the unit is first installed in order to configure the unit. The following sub-menu is displayed when Utilities is selected.

System Settings

The System Settings screen displays the current software version loaded on the HV450 display. You can set individual settings for the available options and **Save** or choose to select **Restore Defaults** for the factory settings.
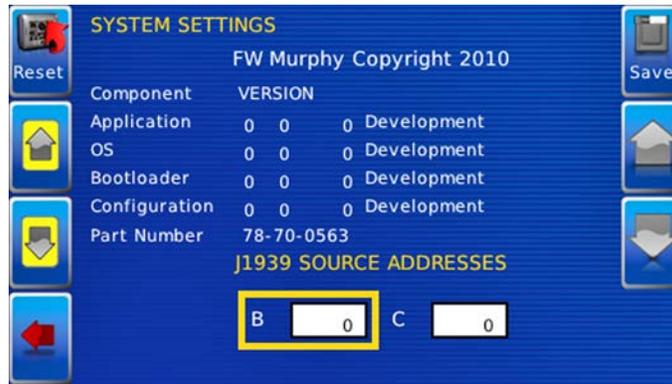
The yellow **Up** and **Down** keys on the left allow you to move the cursor through J1939 Source Addresses fields. While the cursor is highlighting a field, the gray **Up** and **Down** keys scroll through available options. Once all the options have been selected, press **Save**.

Service Reminders

This option allows you to reset the five built-in service reminders:

- Change Engine Oil – Default interval 50.0 Hrs.
- Chang Air Filters – Default interval 75.0 Hrs.
- Change Hydraulic Oil – Default interval 100.0 Hrs.
- Service Engine – Default interval 125.0 Hrs.
- Service Machine – Default interval 150.0 Hrs.
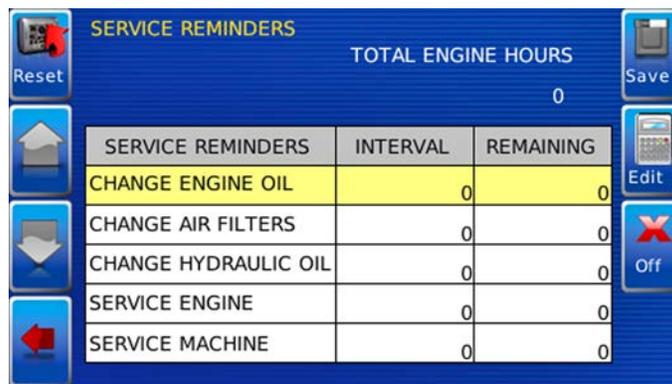
NOTE: The HV450 is Tier 4 compliant. If there are any questions on the Murphy Standard Configuration, please contact Murphy technical services at: (918) 317-1113.

Date and Time

This option allows you to adjust the year, month, day, hour, minute, second, time zone and daylight saving time.

Year

Month

Day

Hour

Minute

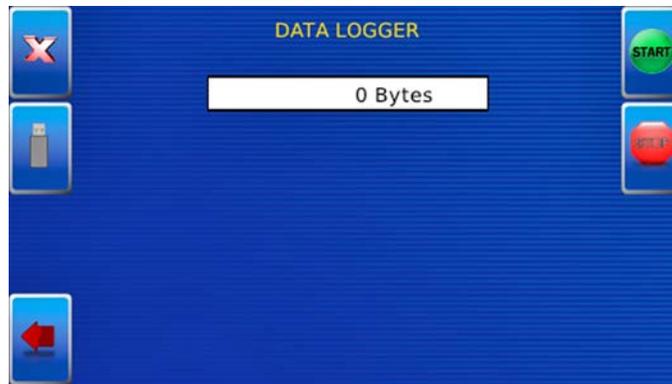Second
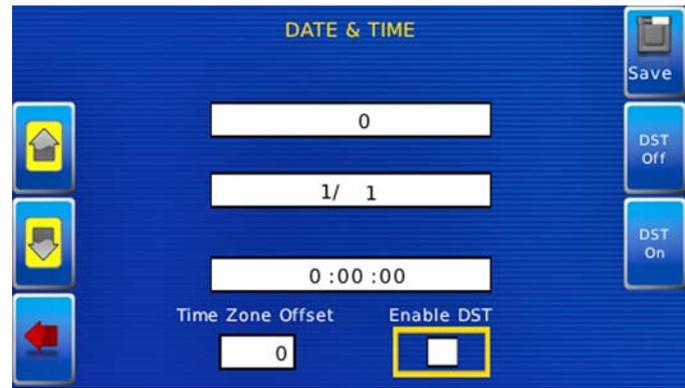
Time Zone Offset   Daylight Saving Time

Data Logger

This option allows you to record data that can be captured on a flash drive.

Icon	Description
	Starts the recording.
	Stops the recording.
	Clears the log.
	Saves the log.

Trip Parameters

This option allows you to choose whether to use J1939 trip fuel source or Calculators trip fuel source.

Reset – resets the calculated trip fuel parameter.

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