

MasterCraft: X-Series



Models HV700 and HV450 *Owners Manual*

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Product Information for the HV700

The X-Series is designed for instrumentation and control on electronically controlled engines communicating via SAE J1939 and NMEA 2000. The displays are multi-functional tools that provide GPS tracking, Multimedia Display, Cruise control, rider profiles and enables equipment operators to view many different engine, ballast, transmission parameters and service codes. Included with this solution is HV700 Touch unit.



Care and Maintenance

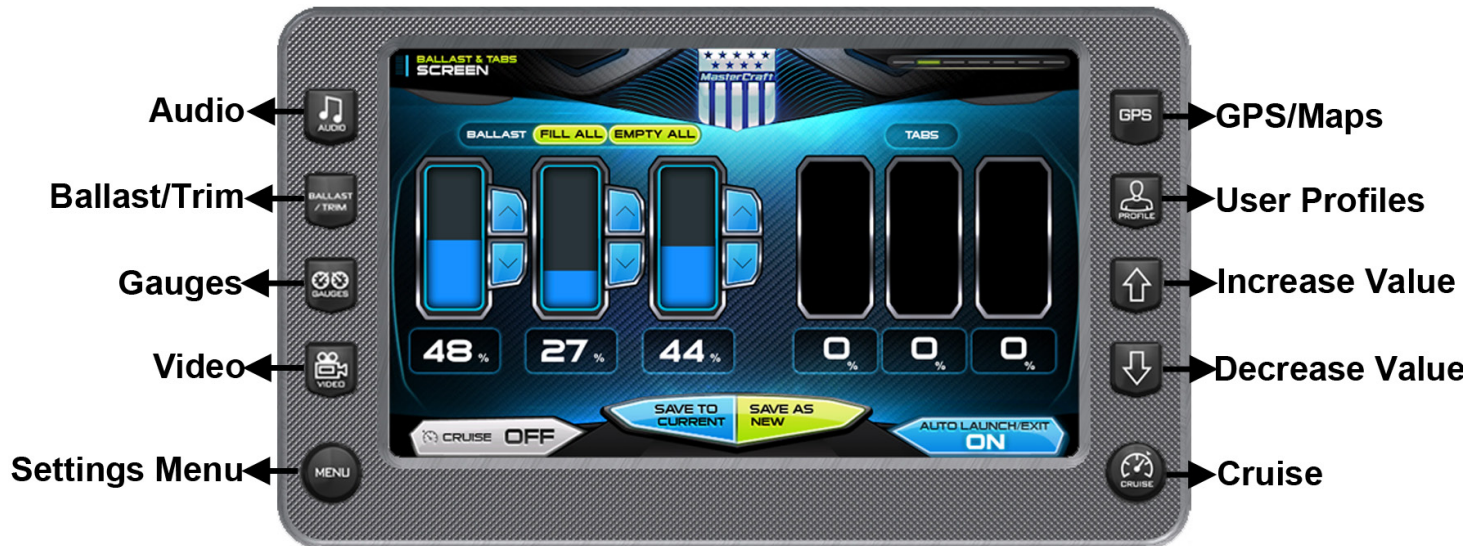
General maintenance is not required; however a soft cloth can be used for cleaning the units. Window cleaner or alcohol can also be used to clean the glass portion of the display. Do not use harsh or abrasive cleaners on the unit.

Basic Navigation Features

All product features are easily accessed through Quick Access Keys, Touch Point commands and Menus.

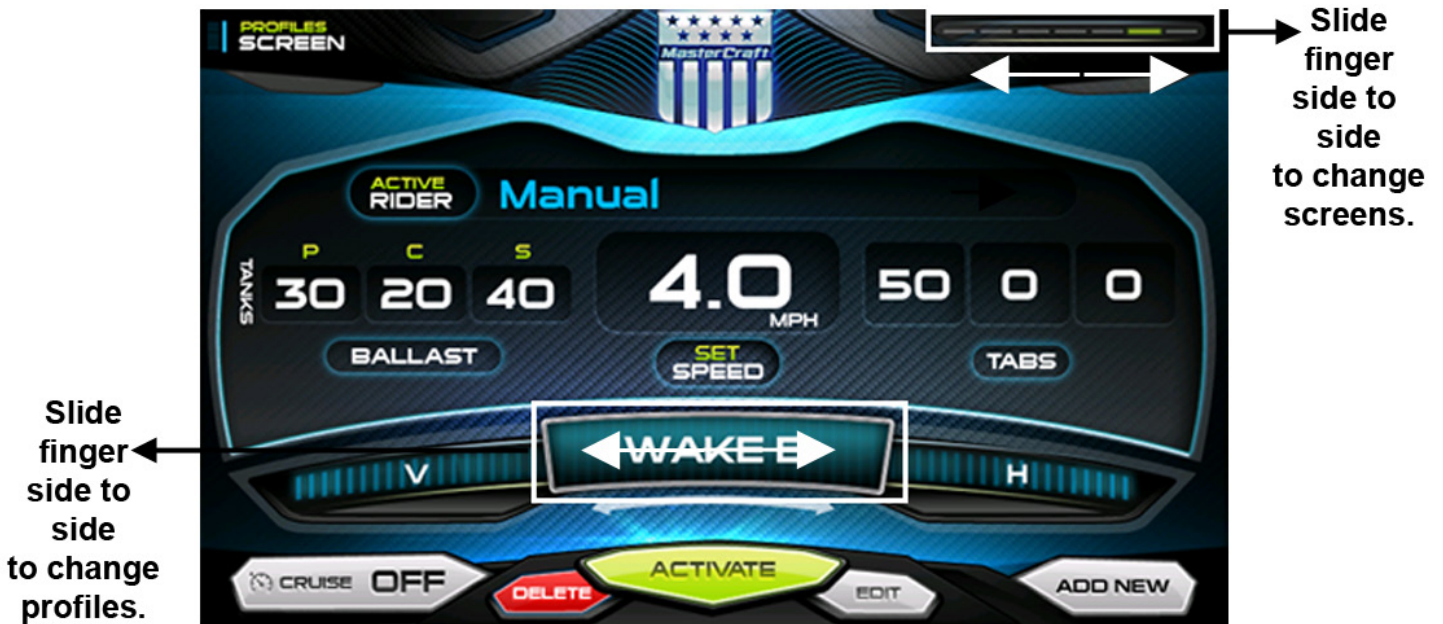
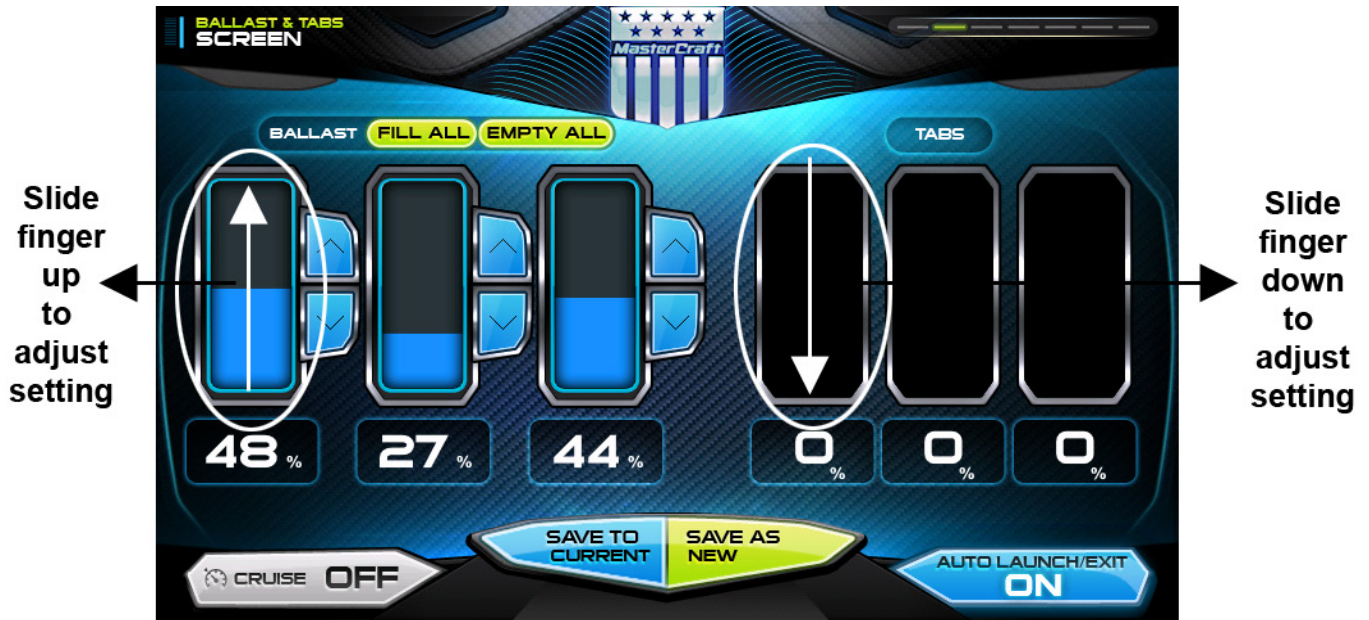
Quick Access Keys

The following controls are accessed via the Quick Access Keys: Audio, Ballast/Trim, Gauges, Video, Settings Menu, GPS, User Profiles, Cruise ON/OFF, Increase Value and Decrease Value. They are called quick access keys because a new screen can be accessed quickly by pressing the key.



Touch Point Commands for the HV700

Once the desired screen is accessed, navigation within the screen is controlled with Touch Point commands. They are executed by touching the screen in areas that are outlined with a highlighted bezel. In addition, there are areas where sliding the finger up or down can adjust settings. For example on the Ballast and Tabs Screen, sliding the finger up on the inside of the tank area adjusts the ballast setting. There are also areas where sliding the finger from side to side will scroll through a list or change screens.




HV700 Features

Audio

If the boat is equipped with a Clarion radio, please see the Clarion owner's manual. If the boat is equipped with a JL Audio Media Master, please see their owner's manual.



Ballast and Trim





The Ballast and Trim screen can be accessed by pressing the Quick Access Key  on the HV700. This screen displays the current state of the ballasts and trim tabs.




To adjust the Ballast settings slide finger up the tank to the desired level or tap the UP or DOWN arrows to right of the tank. To adjust the Tabs settings, slide finger down to the desired level as shown above.

Touch Commands

Function	Description
	Touch to turn cruise control OFF or ON.
	Touch to turn Autolaunch ON or OFF. When Autolaunch is on, it automatically controls the center tab. When speed is above the autolaunch speed the center tab will be retracted to 0% or if a profile is selected, it

Function	Description
	deploys the center tab to the profile setting. If the speed is above the autolaunch speed and then decelerated below the autolaunch speed, the tab deploys to 100.
	Touch to save the settings to the current rider profile. NOTE: If no rider profile is selected, does nothing.
	Touch to save these settings to a new rider profile. A keyboard is displayed to name the new profile and the new profile process is launched. (See Profiles for more information.)
	Touch to fill all ballasts.
	Touch to empty all ballasts.


Gauges

The Gauges screen can be accessed by pressing the  Quick Access Key on the HV700.



This screen shows the Speedometer, Air Temperature, Water Temperature, Battery Voltage, Water Depth and Engine Hours Gauges. The Cruise control can be turned ON or OFF from this screen by touching **[CRUISE]**.

Video

The Video screen can be accessed by pressing  .




There is access to three video sources provided on the screen:



- Tower
- Aux Video
- Media

Touch appropriate source for the video to be displayed. Cruise can be turned ON or OFF by touching **[CRUISE]**.

Profiles

The Profiles screen can be accessed by pressing the Quick Access Key  on the HV700.


This feature displays rider/user profiles for cruise controls based on user preferences for speed, ballast, and smart plate settings. To scroll through the available profiles, touch

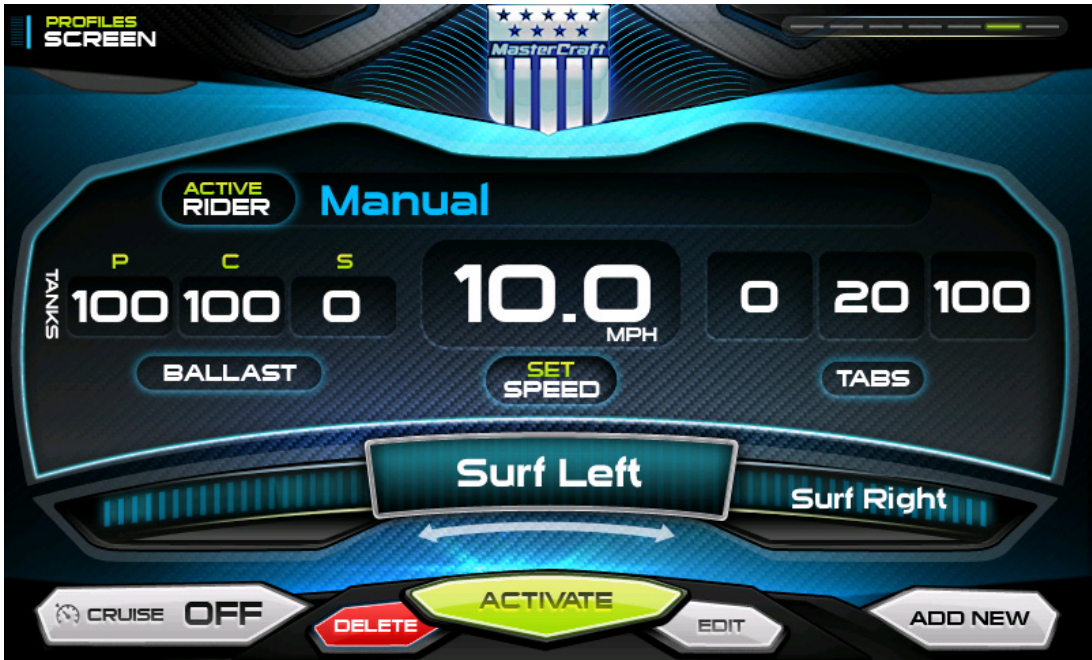
 and slide finger to the left and right. Touch  when the desired profile is shown.

Up to 16 rider/user profiles can be created and stored.




Profiles Screen - Soft Key Commands

 **PROFILES** – provides utilities for adding new users, editing/deleting existing users.



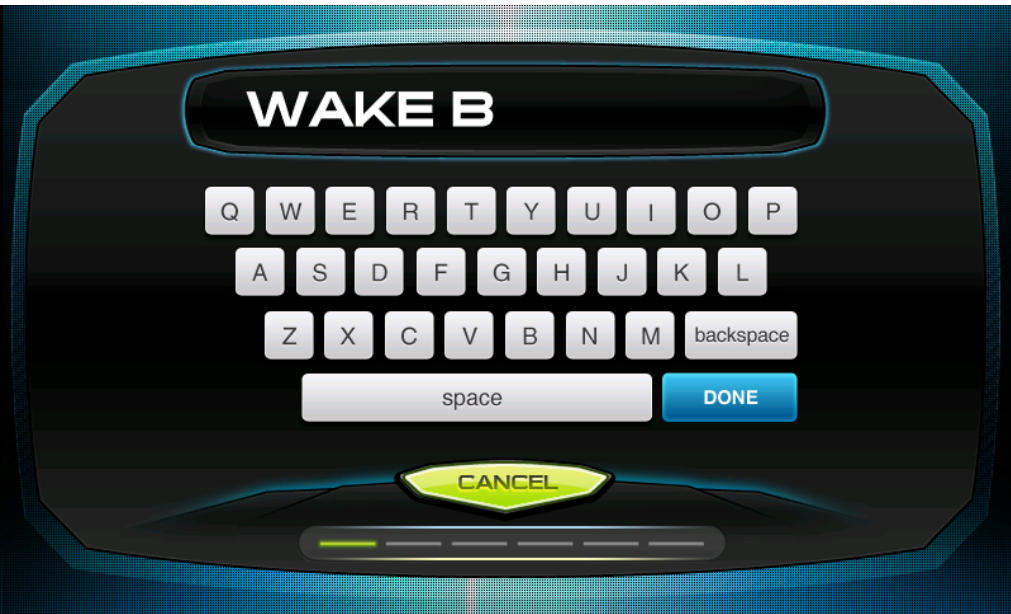
The screenshot shows the 'PROFILES SCREEN' interface. At the top, it says 'PROFILES SCREEN' and 'MasterCraft'. The main display shows 'ACTIVE RIDER Manual'. Below this, there are three tanks labeled 'P', 'C', and 'S' with values '100', '100', and '0' respectively. A central speed display shows '10.0 MPH'. To the right of the speed display are three buttons labeled '0', '20', and '100'. Below the tanks are buttons for 'BALLAST', 'SET SPEED', and 'TABS'. At the bottom of the main display area are two large buttons labeled 'Surf Left' and 'Surf Right'. At the very bottom of the screen are five navigation buttons: 'CRUISE OFF', 'DELETE', 'ACTIVATE', 'EDIT', and 'ADD NEW'.


Touch Screen Commands for Profiles include:



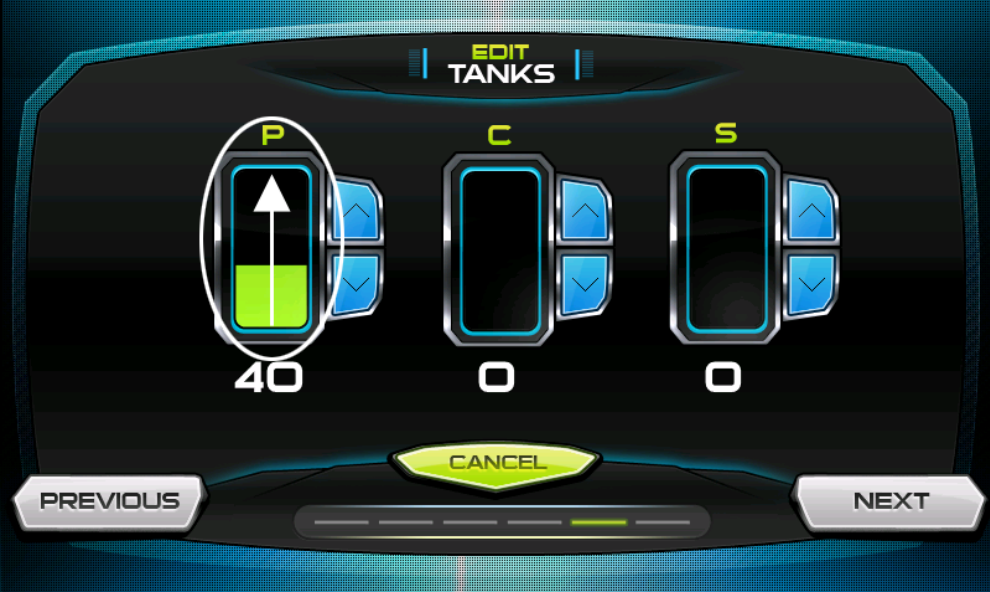

- CRUISE** – touch to turn the cruise ON or OFF.
- DELETE** –deletes selected rider after confirmation warning.
- ADD NEW** – provides an interface to add new user information (see Page 9).
- ACTIVATE** – makes the user displayed in  active with all settings activated.
- EDIT** – select and edit existing user name information.
- ADD NEW** – Allows for the addition of new riders. See the process in the next section.



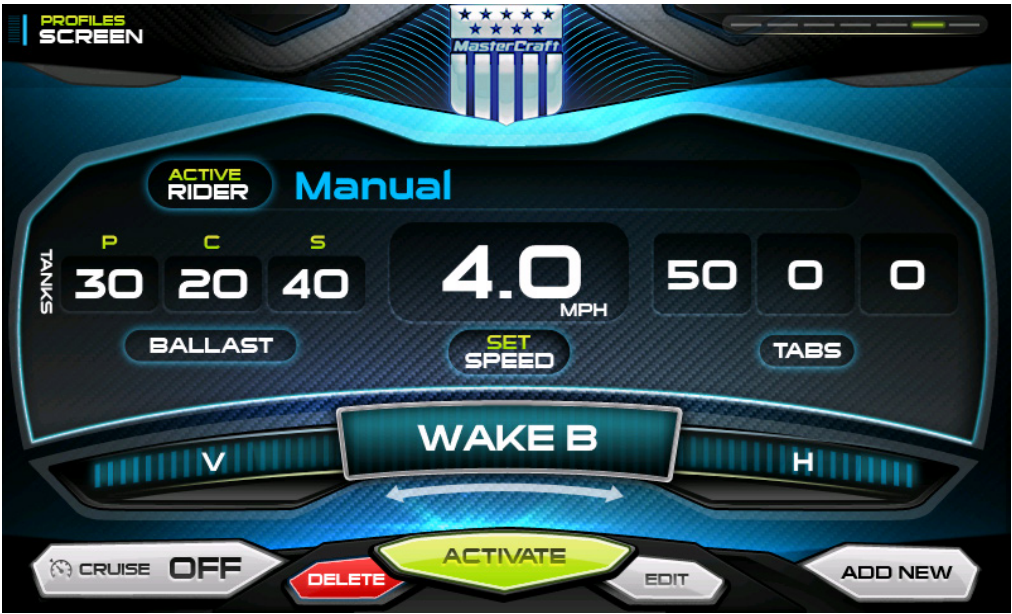

New User Profile


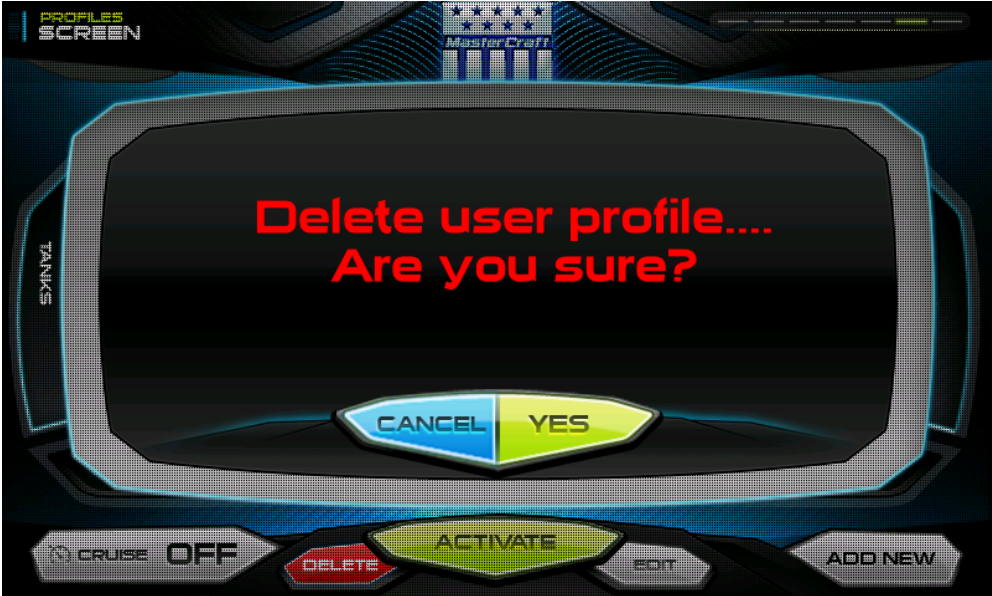
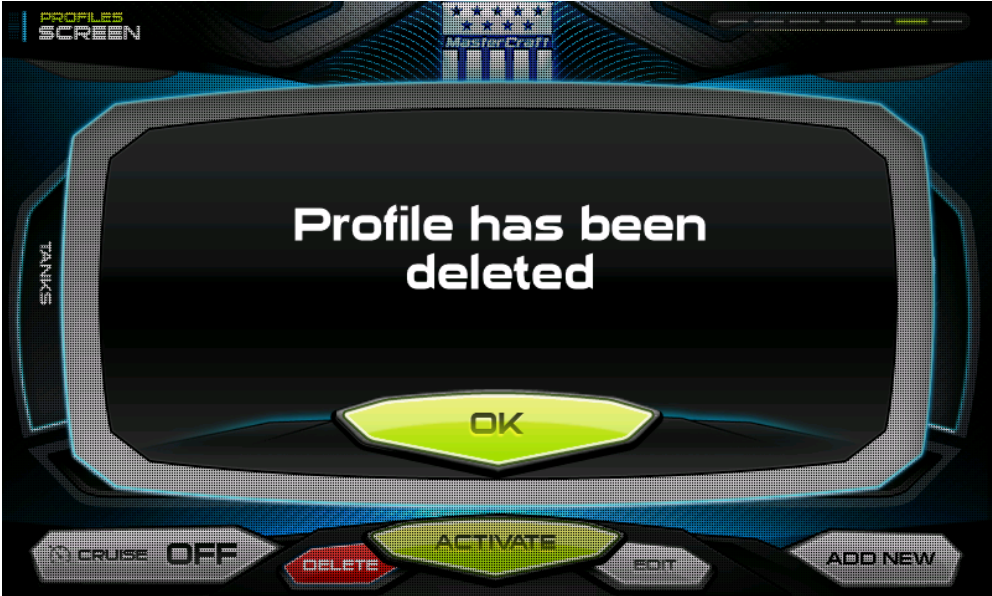
A new rider profile can be setup using the HV700 Touch.

Function	Description
	<p data-bbox="402 405 1325 478">To create a new profile press the [Profile] Quick Access Key: Touch [ADD NEW] to create a new profile.</p>   <p data-bbox="402 1745 1468 1780">Type a name for the new profile using the touch keypad and touch [DONE].</p>
	<p data-bbox="402 1808 1484 1873">Touch [EDIT] to retype the name, touch [NEXT] to continue or [CANCEL] to return to the Profiles Screen. If [NEXT] was touched, set the speed for this</p>


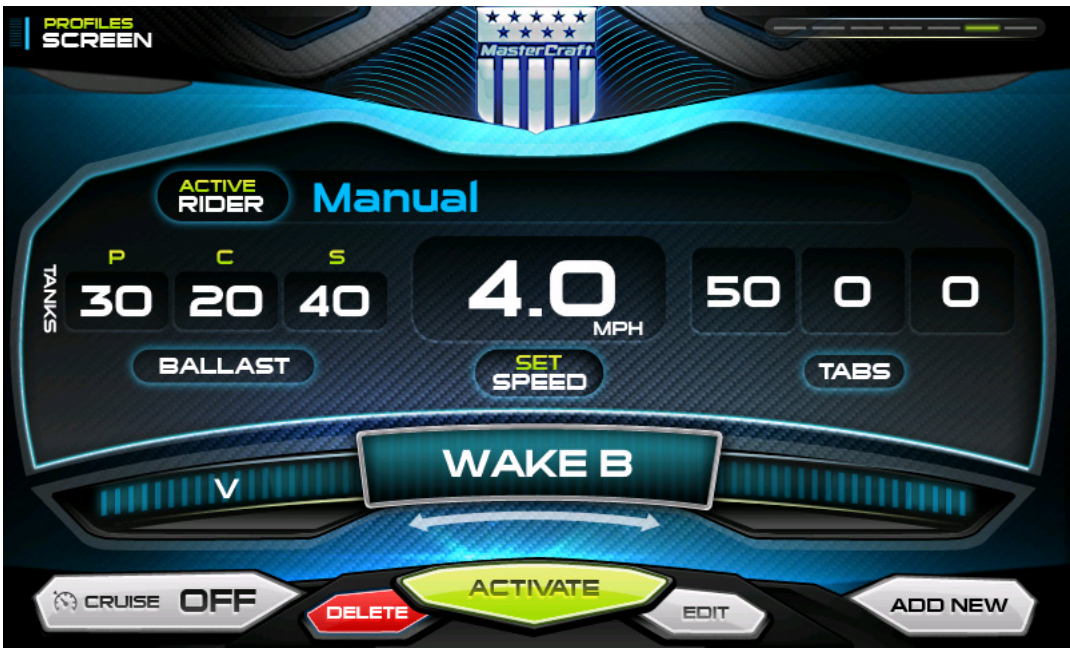
Function	Description
	<p>profile. Touch the [UP] arrow to increase the speed or the [DOWN] arrow to decrease the speed. Touch [CANCEL] to go back to the Profiles screen, [PREVIOUS] to go back to the last screen or [NEXT] continue.</p>  <p>The image contains two screenshots of a user interface for editing a profile. The top screenshot is titled 'EDIT NAME' and shows a large black rounded rectangle containing the text 'WAKE B' in white. To the right of this rectangle is a blue button labeled 'EDIT'. Below the main rectangle is a green button labeled 'CANCEL' and a grey button labeled 'NEXT'. A progress bar is visible at the bottom. The bottom screenshot is titled 'EDIT SET SPEED' and shows a large black rounded rectangle containing the text '4.0' in white. To the right of this rectangle are two blue buttons with up and down arrows. Below the main rectangle is a green button labeled 'CANCEL', a grey button labeled 'PREVIOUS' on the left, and a grey button labeled 'NEXT' on the right. A progress bar is visible at the bottom.</p>



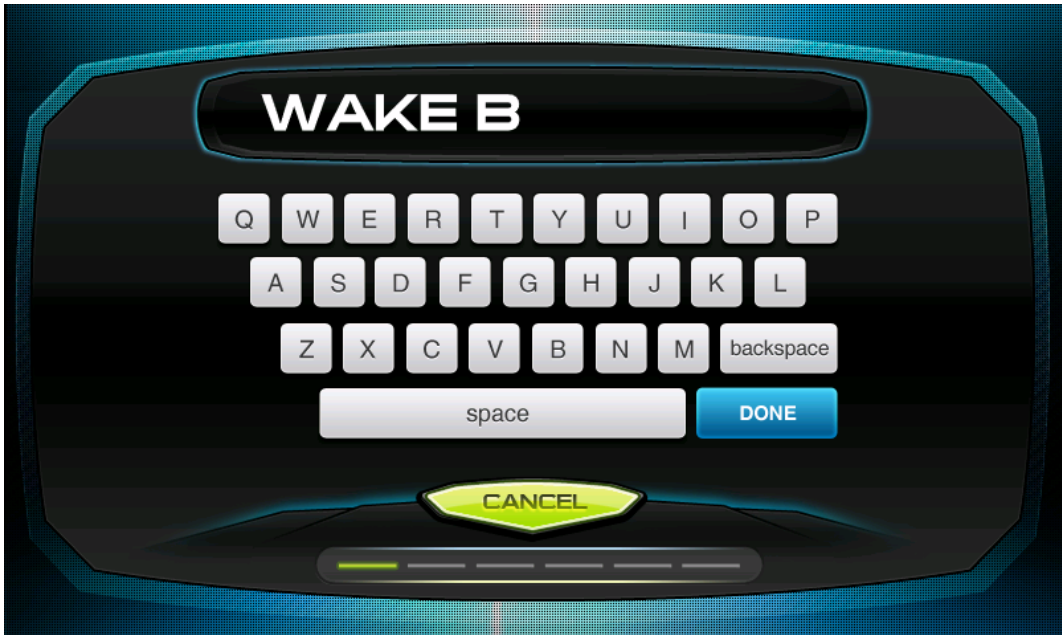
Function	Description
	<p data-bbox="402 264 1468 443">Set the tabs by either touching and sliding the finger down the ridged area or by touching the [UP] and [DOWN] arrows next to the ridged area. Touch [NEXT] to continue. Set the ballast tanks by touching and sliding the finger up the tank area or by touching the [UP] and [DOWN] arrows alongside the tank area. Touch [NEXT] to continue.</p> <div data-bbox="451 464 1435 1052">  </div> <div data-bbox="451 1073 1435 1661">  </div>
	<p data-bbox="402 1696 1455 1801">Review the Profile settings. Touch [SAVE] to save the profile and return to the Profiles screen with the new profile displayed. Touch [ACTIVATE] to activate the settings for this profile.</p>

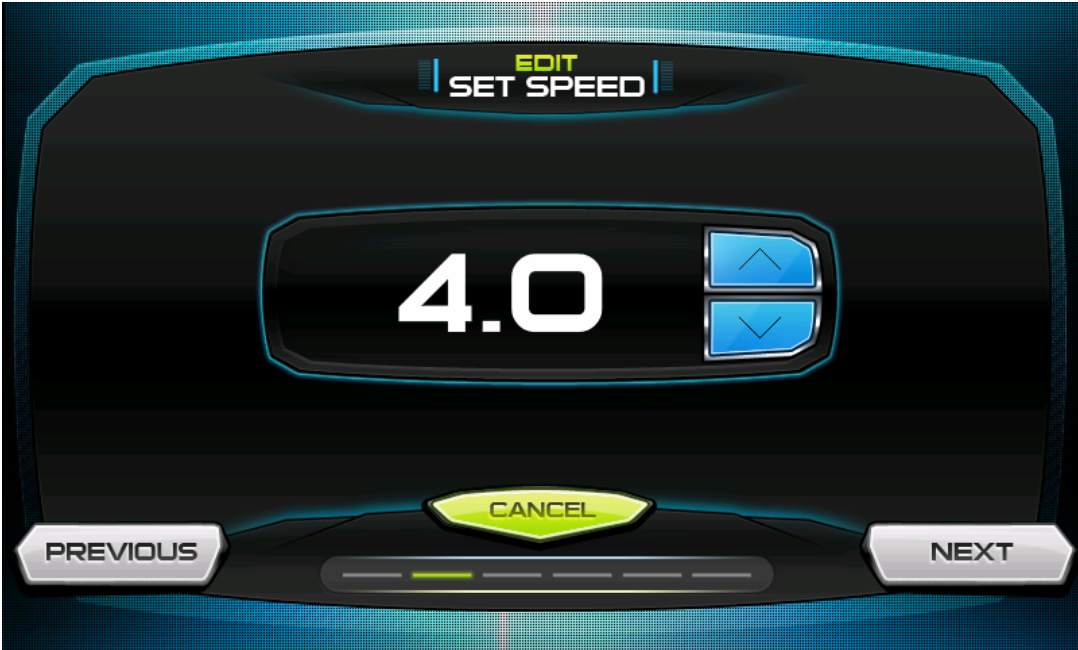

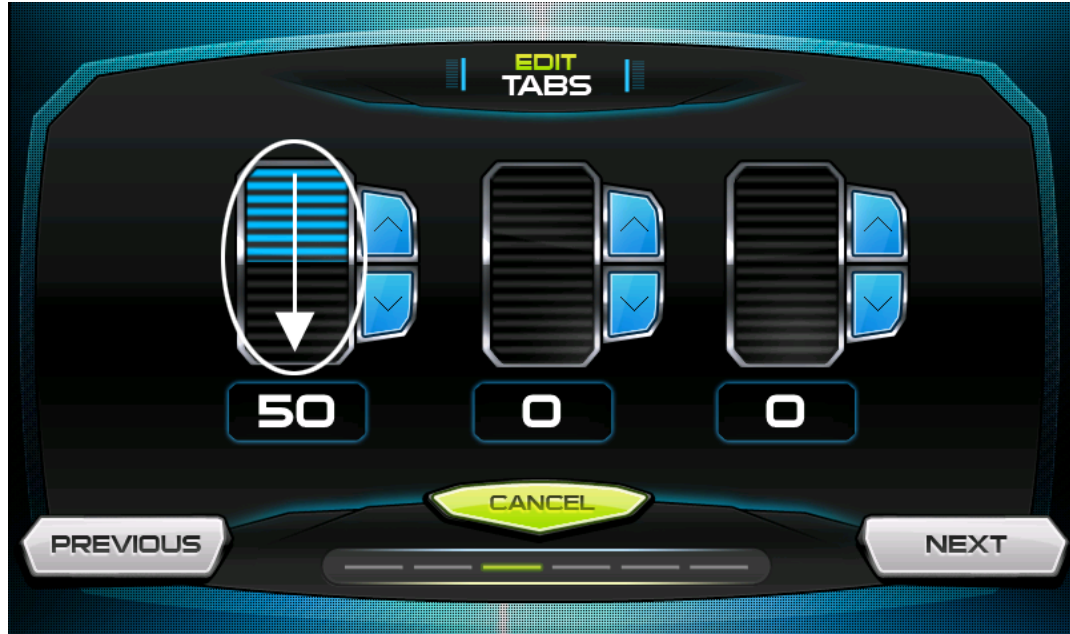
Function	Description
	 
	<p>EDIT – Touch [EDIT] to modify the user profile. See the following section for how to edit an existing profile.</p>

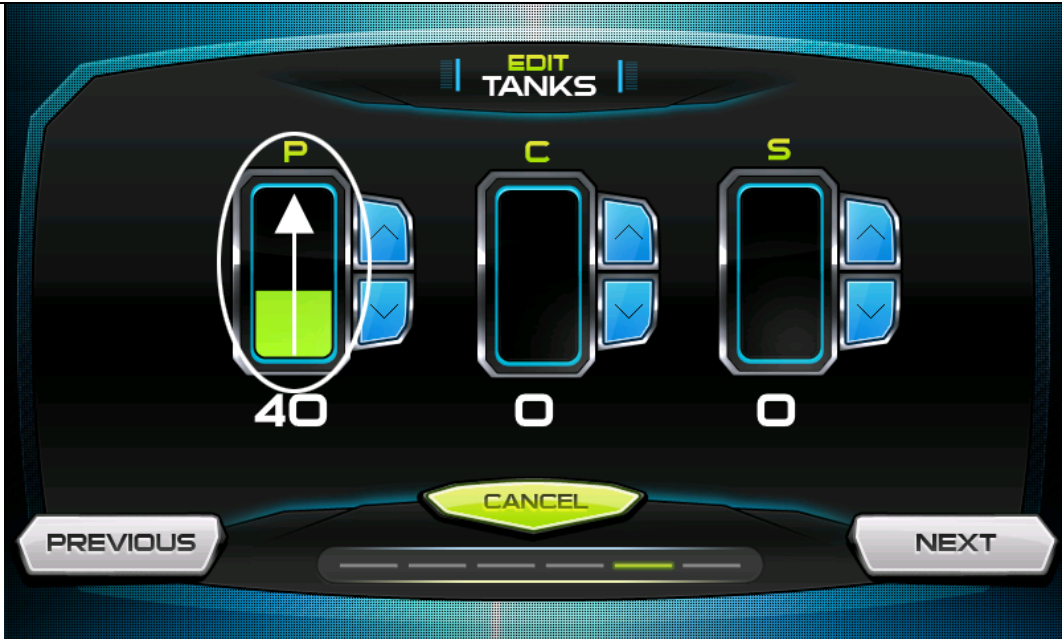
Function	Description
	<p data-bbox="402 249 1435 352">DELETE – Touch [DELETE] to delete the current profile. A confirmation overlay is displayed. Touch [CANCEL] to abort the process and [YES] to confirm delete. Touch [OK] to return to the Profiles screen.</p>  

Edit Current User

Function	Description
	 <p data-bbox="407 982 967 1018">Touch [EDIT] to modify the user profile.</p>

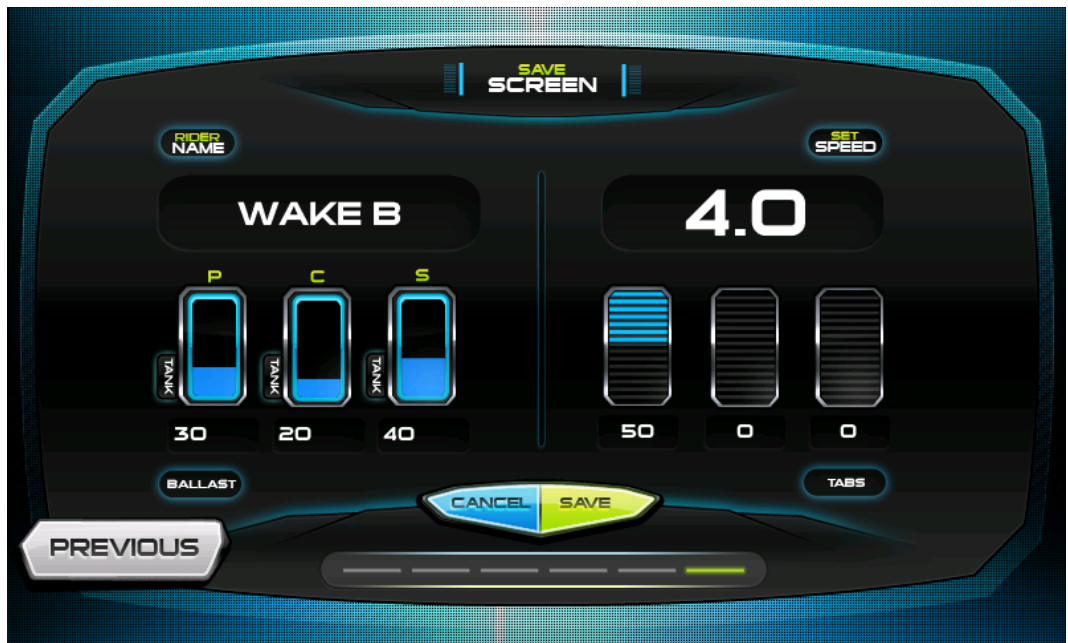
Function	Description
	<p data-bbox="409 300 1463 483">Touch [EDIT] to retype the name, touch [DONE] to continue or [CANCEL] to return to the Profiles Screen. If [DONE] was touched, set the speed for this profile. Touch the [UP] arrow to increase the speed or the [DOWN] arrow to decrease the speed. Touch [CANCEL] to go back to the Profiles screen, [PREVIOUS] to go back to the last screen or [NEXT] to continue.</p>  


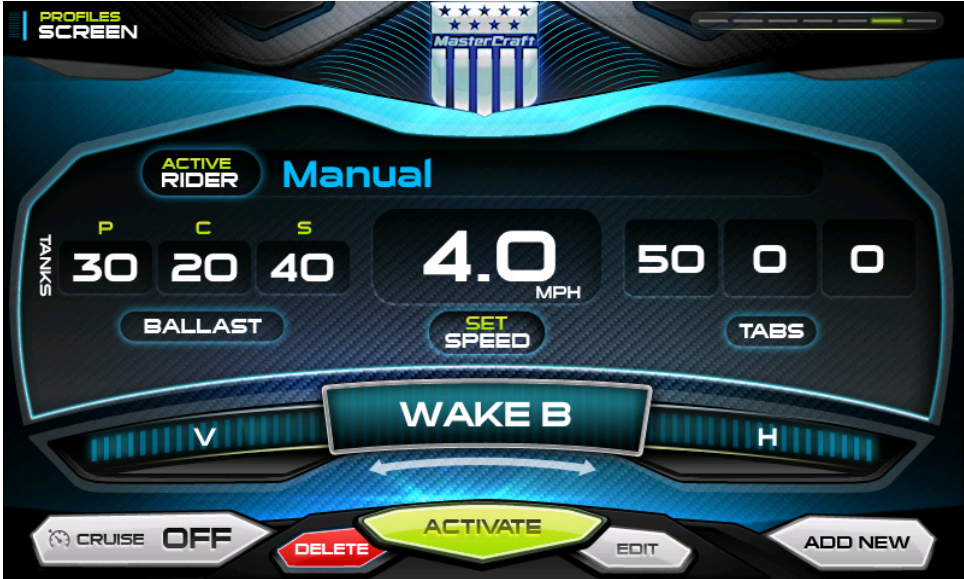

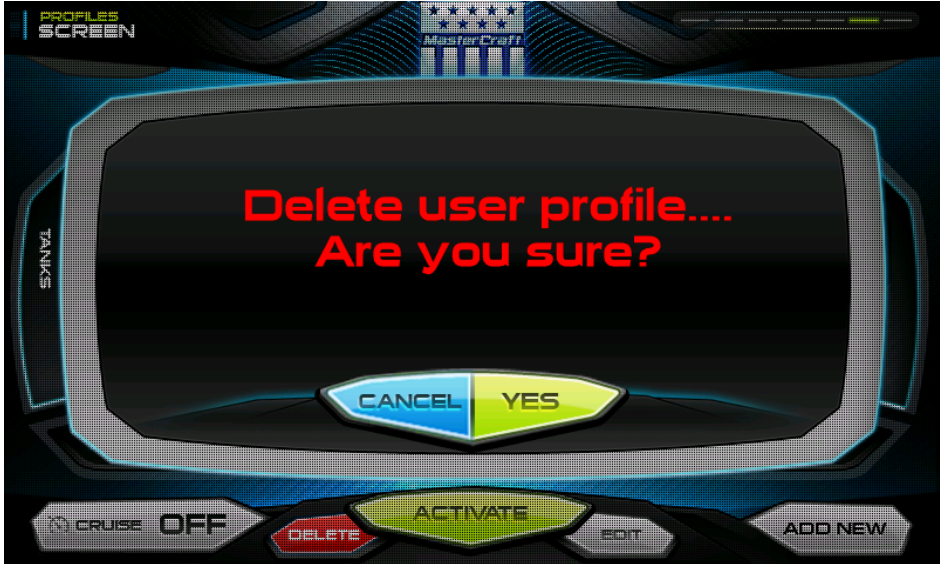
Function	Description
	
	<p data-bbox="415 961 1479 1136">Set the tabs by either touching and sliding the finger down the ridged area or by touching the [UP] and [DOWN] arrows next to the ridged area. Touch [NEXT] to continue. Set the ballast tanks by touching and sliding the finger up the tank area or by touching the [UP] and [DOWN] arrows alongside the tank area. Touch [NEXT] to continue.</p> 

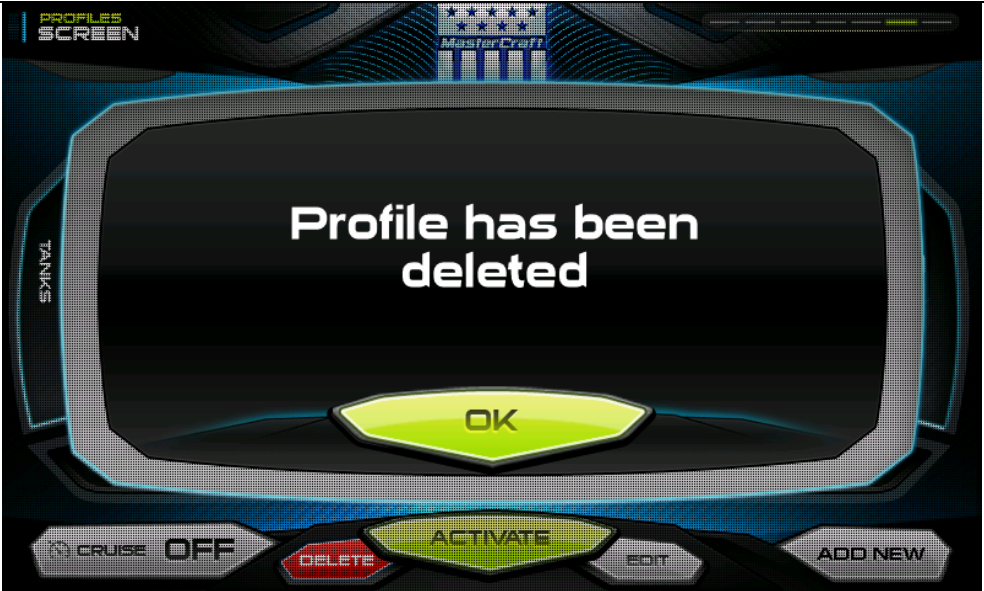
Function	Description
	




Review the Profile settings. Touch **[SAVE]** to save the profile and return to the Profiles screen with the new profile displayed. Touch **[ACTIVATE]** to activate the settings for this profile.



Function	Description
	
	<p data-bbox="412 856 1446 961">DELETE – Touch [DELETE] to delete the current profile. A confirmation overlay is displayed. Touch [CANCEL] to abort the process and [YES] to confirm delete. Touch [OK] to return to the Profiles screen.</p> 

Function	Description
	

Cruise

The Cruise screen can be accessed by pressing . This screen displays the following:





- Actual Speed and Set Speed
- Active Rider
- Ballast and Trim Tabs
- Depth

From this screen the following screens can be accessed by touching the field associated with it:


- Active Profile
- Ballast

The set speed can be adjusted by tapping the UP and DOWN arrows to the right of the Set Speed field. In addition, the Cruise control can be turned ON and OFF by touching the CRUISE ON/OFF button at the center top or in the lower left corner of the page.



Function	Description
	Touch to turn cruise control OFF or ON.
	Touch to turn Autolaunch ON or OFF. When Autolaunch is on, it automatically controls the center tab. When speed is above the autolaunch speed the center tab will be retracted to 0% or if a profile is selected, it deploys the center tab to the profile setting. If the speed is above the autolaunch speed and then decelerated below the autolaunch speed, the tab deploys to 100.
	Touch to save the settings to the current rider profile. When on a rider profile other than Manual <p style="text-align: center;">NOTE: If no rider profile is selected, does nothing.</p>
	Touch to save these settings to a new rider profile. A keyboard is displayed to name the new profile and the new profile process is launched. (See Profiles for more information.)

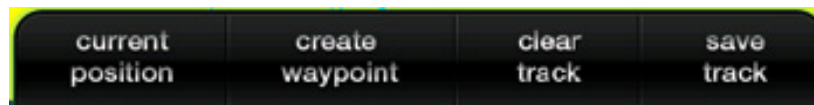
GPS (Optional)

The GPS Display screen can be accessed by pressing . The GPS feature displays map data, Latitude and Longitude coordinates, time, and speed. Additional Touch Point Commands are accessed by touching the screen.



GPS Display – Touch Point Commands

TRACKING MENU OPTIONS – Tracking shows the current route and any waypoints you have set. A green arrow indicates your current position, while the red square indicates the initial point of tracking.



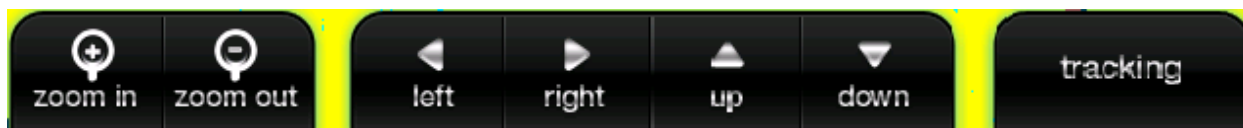
CURRENT POSITION – used to return to the current boat/satellite position after having moved the cursor to another location.

CREATE WAYPOINT – places a marker or ‘waypoint’ on the map to mark a favorite location after displaying the following confirmation message..

CLEAR TRACK – displays the following confirmation message before deleting the current track information.

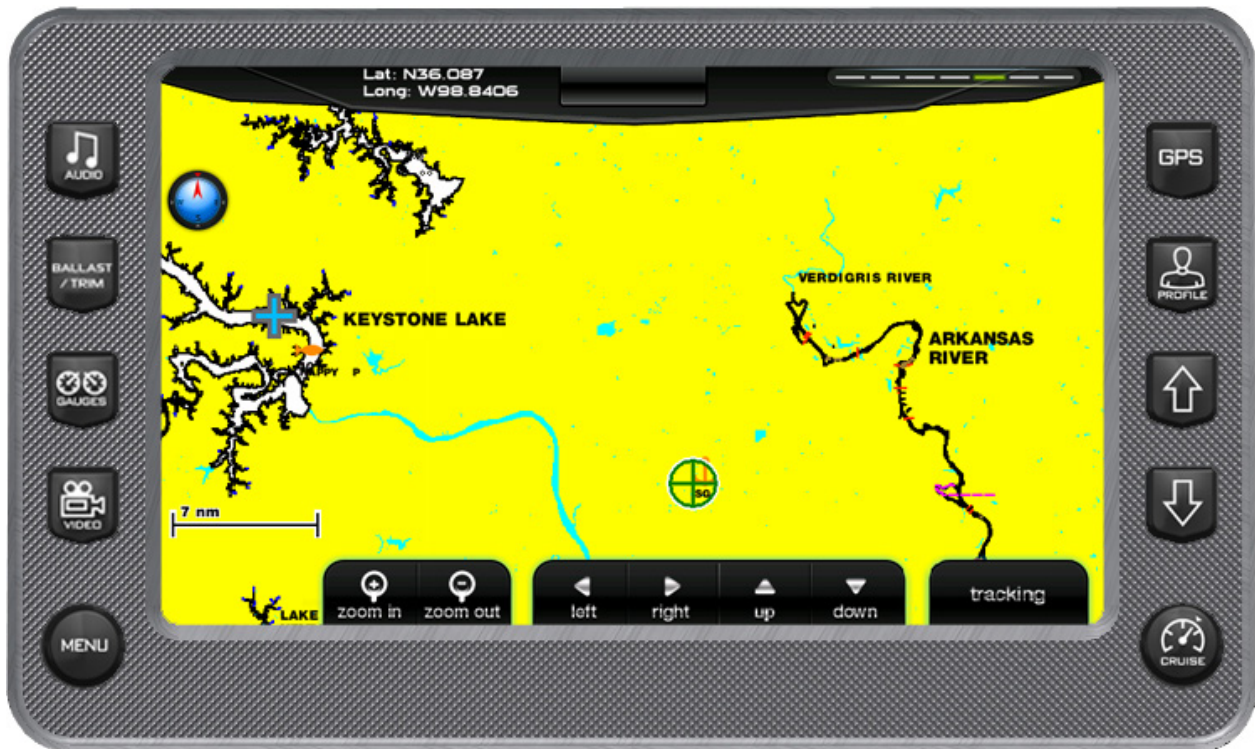
SAVE TRACK – displays the following confirmation message before saving the current track information.

ZOOM/PAN MENU OPTIONS




ZOOM IN – Zooms in closer to the area indicated by the + as shown below:



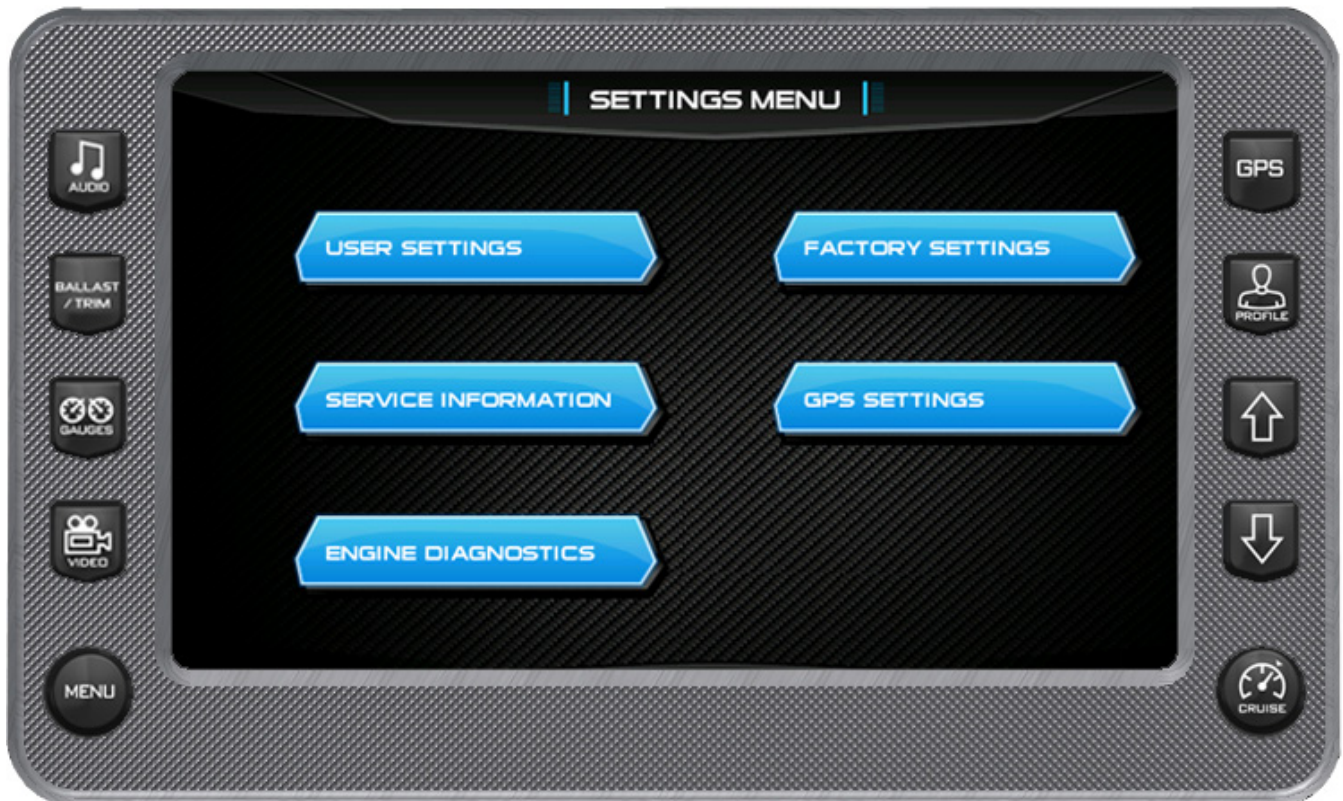


UP – LEFT – RIGHT – DOWN ARROWS – facilitates navigation of the GPS map by moving the + over the map in the direction of the arrow.

Main Settings Menu

The Main Menu screen for viewing engine statistics can be accessed by pressing the Quick Access Key.  The following settings are available:

- **User Settings** – allows you to customize the display options for ambient light and brightness, set US or metric units and other settings.
- **Service Information** – provides information about the software version, dealer, oil changes and dealer services.
 - ▮ **NOTE:** Some settings require a dealer code to access them.
- **Engine Diagnostics** – displays a list of engine fault codes and descriptions; on some engines, corrective action will be shown.
- **Factory Settings** – displays boat model, center tab, surf tabs and depth transducer.
 - ▮ **NOTE:** These settings require a dealer code to access them.
- **GPS Utilities** – contains options to set up track and position, chart and time, and waypoint manager. Also displays satellite status.





User Settings

The User Settings option provides the user a way to specify viewing preferences. The settings are all editable by touching the field following the option. Touch **[USER SETTINGS]** to access the first of two user settings screens.







All the settings are accessed through touch points on the User Settings screens. Either touch the field to the right of the label or touch  or  to adjust the settings.

Function	Description
Units	The choices are: <ul style="list-style-type: none"> • US Standard (US Std) • Metric
Fire Extinguisher	The choices are: <ul style="list-style-type: none"> • Enable (Popup) • Disable (Popup) <div data-bbox="516 1392 1307 1864" data-label="Image"> </div>

Function	Description
Auto Volume	The choices are: <ul style="list-style-type: none"> • Enable • Disable
Fuel Alarm	Sets the percent of fuel left in tank to deploy the alarm.
Min Depth Alarm	The choices are: <ul style="list-style-type: none"> • ON • OFF
Day Brightness	Sets the screen brightness for daylight.
Night Brightness	Sets the screen brightness for nighttime.
Gauge Brightness - Day	Sets the gauge brightness for daylight.
Gauge Brightness - Night	Sets the gauge brightness for nighttime.
Tab Settings Page	The Auto Tab Settings provide the user with the opportunity to control the tab positions for two trim tabs on the boat. The following can be controlled through these settings: <ul style="list-style-type: none"> • Two Speed settings • Trim tab positions • Turn Auto Limits ON and OFF • Set the Auto Launch timing

Function	Description
	
Ballast Settings Page	<p>This screen provides the ability to control the ballast fill and drain times.</p> 
Connects to GPS	<p>Choices are YES or NO.</p> <p>NOTE: If NO is selected a Paddle Wheel Offset field is provided. If set to YES, there is no Paddle Wheel Offset field.</p>
Paddle Wheel Offset	<p>Sets the paddle wheel offset.</p> <p>NOTE: Only available if GPS is not connected.</p>

Service Information

This set of screens provides the ability for the user to view the Software versions. In addition it allows the dealer to reset the oil change and the dealer service schedule.

NOTE: the Dealer Service Reset requires a dealer code to be entered before the gaining access to the screens.

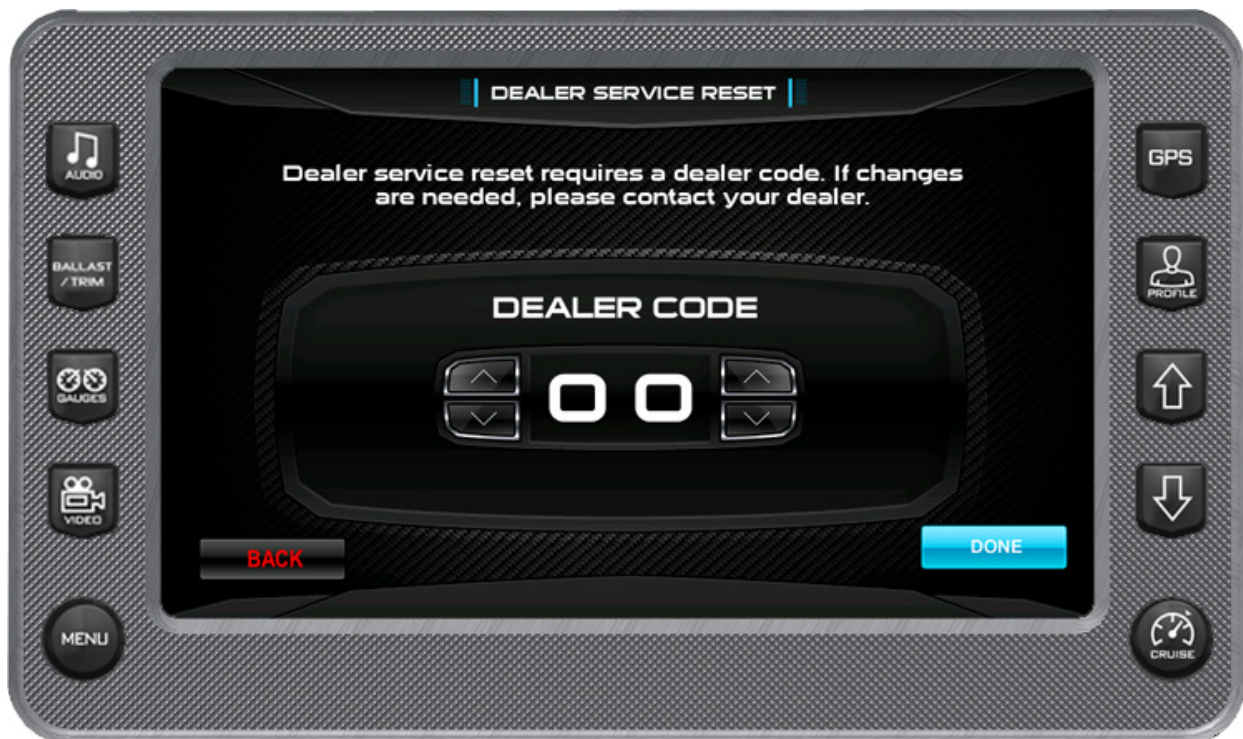
Software Version

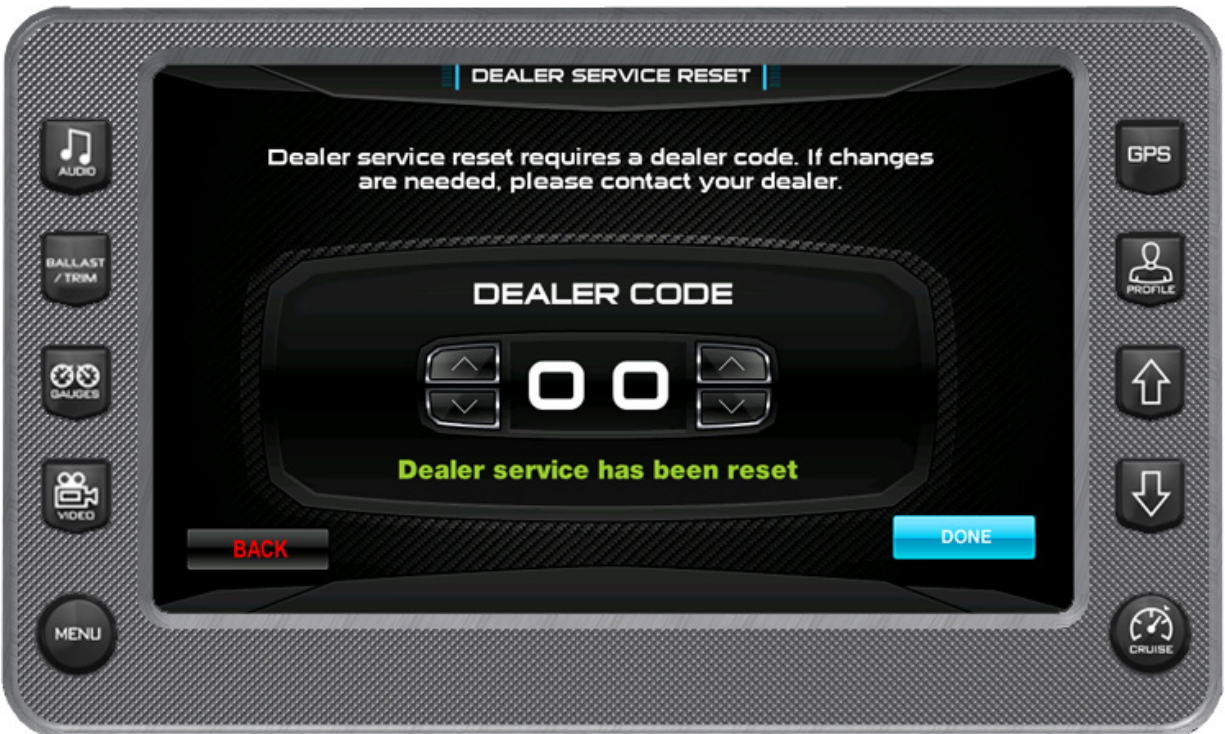
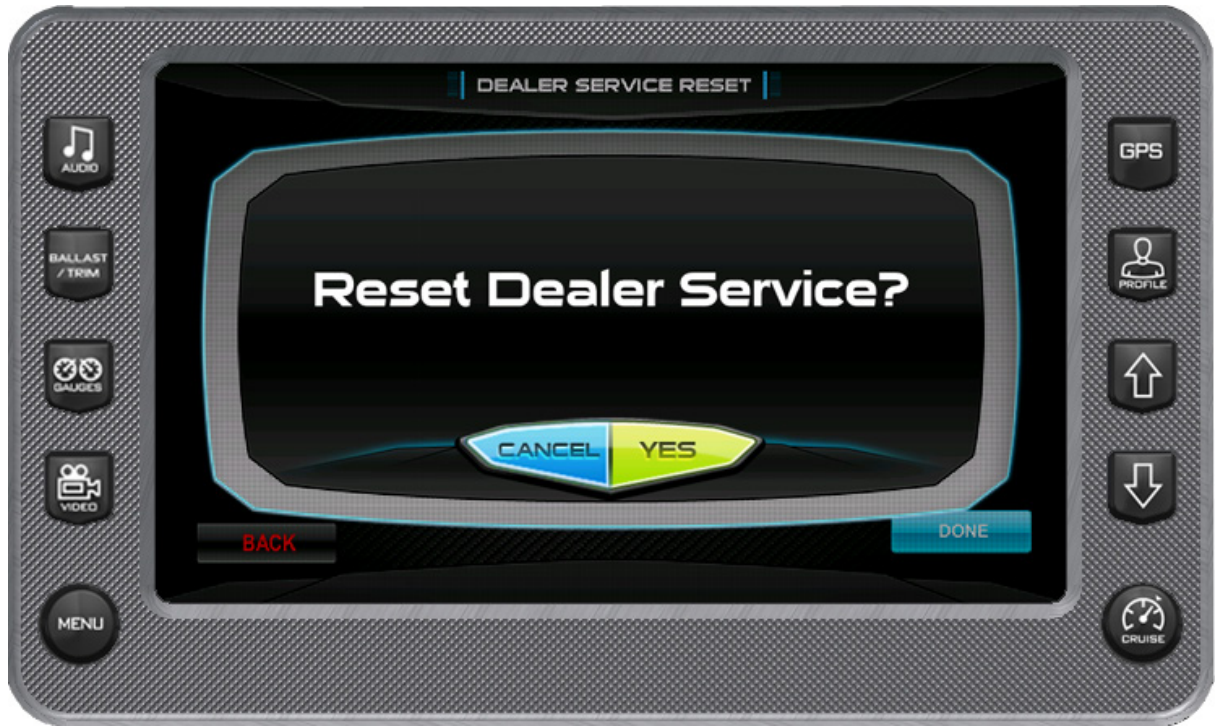
This screen is an information only screen that provides the following:

- Application version and part number
- Operating system version and part number
- Bootloader version and part number
- Software version

Dealer Service Reset

This provides the dealer with the ability to reset the number of engine hours to zero. Service is required for the engine every 100 hours. When 100 engine hours has been reached, an alert is displayed to perform maintenance service on the engine.





Oil Change Reset

This provides the dealer with the ability to reset the number of engine hours to zero. An Oil Change alert is displayed the first time after 10 engine hours. Subsequent alerts are displayed at 50 engine hour intervals.



Engine Diagnostics

When choosing this selection, the display will query the engine(s) ECU, as illustrated below, and provide feedback on any diagnostic codes that have been activated and stored in the ECU for service needs.



The following is a list of field definitions contained on the ENGINE DIAGNOSTICS screen:

Active Faults/Stored Faults

Shows the number of active faults and which fault number is currently being displayed. To advance to the next fault, touch **[NEXT]** and **[PREV]** to go back to the previous fault. Touching **[BACK]** returns to the Settings Menu.

- **SPN** – "Suspect Parameter Number" - fault code
If not translated into text by the 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.
- **Description Field** – Most common SPN's and FMI's have text for the description stored in the 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.

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

Corrective Action -- suggested action for correction.

Get Faults

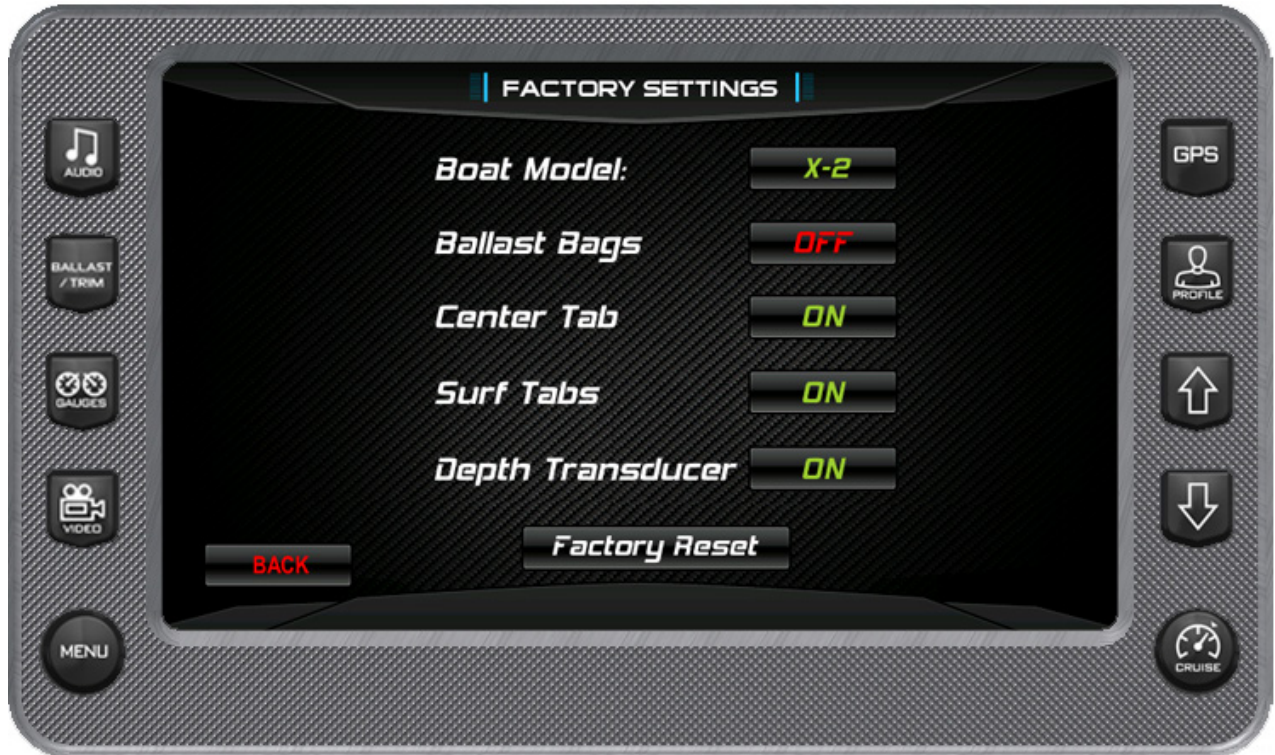
Touching **[Get Faults]** queries the engine(s) ECU for feedback on diagnostic codes that have been activated and stored in the ECU for service needs.

Factory Settings

This screen allows the dealer to indicate the following:

- Boat Model
- Center Tab (ON or OFF)
- Surf Tabs (ON or OFF)
- Depth Transducer (ON or OFF)

NOTE: To gain access to this screen requires enter a Dealer Code.



NOTE: If Factory Reset is touched, the following popup is displayed.



GPS Settings Menu

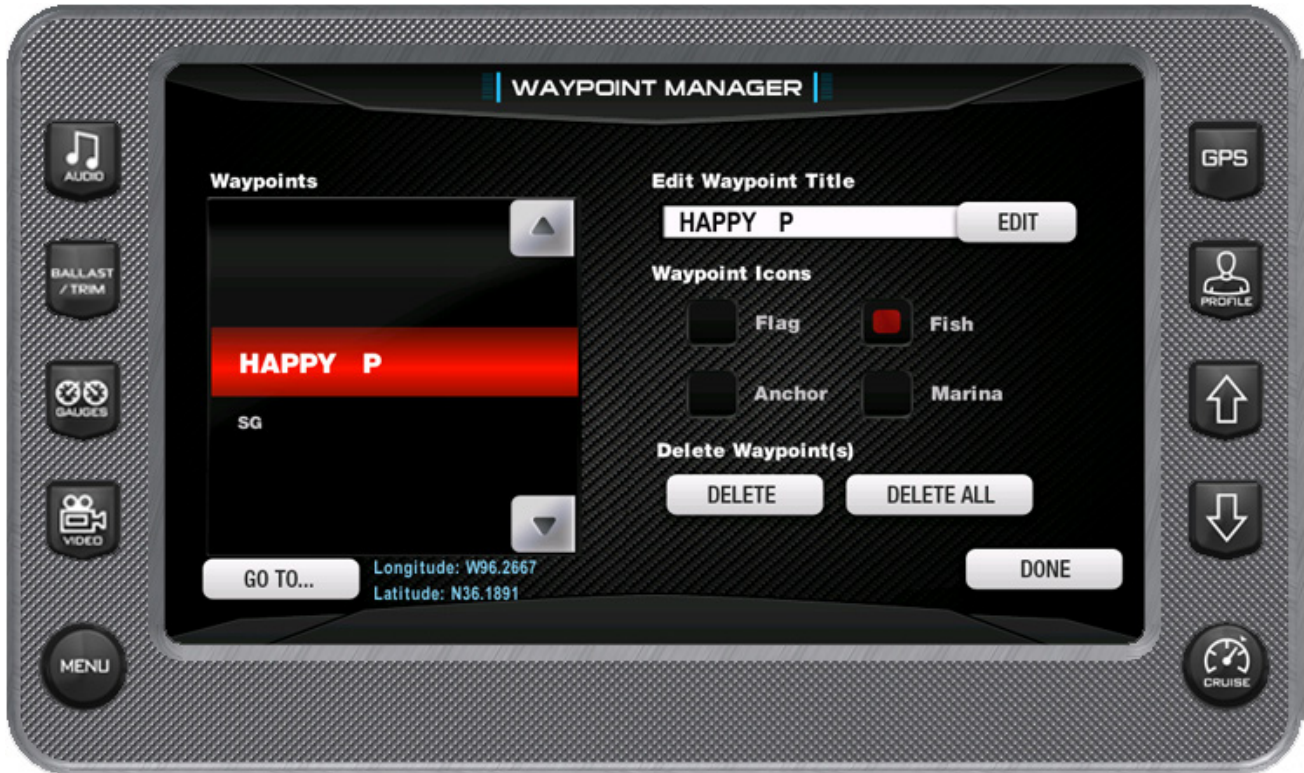
The GPS Utilities include the following:

- Waypoint Manager
- Track Manager
- Chart and Time Setup
- Depth and Position Settings
- GPS Status



Waypoint Manager

Waypoints allow you to mark specific locations by latitude and longitude. Once the waypoints are established, the Waypoint Manager allows you to associate an icon with them for identification. You can delete a single waypoint by using the **DELETE** key, or all of them at once with **DELETE ALL**. Pressing the **GO TO WPT** key displays the GPS screen containing the currently highlighted waypoint.



Waypoints – displays a list of existing waypoints that have been set. Use the **UP** and **DOWN** keys to highlight the desired waypoint.

Waypoint Title – edit the waypoint title.

Waypoint Icon –assign one of four different icons to any of the waypoints listed.

GO TO... – displays Latitude and Longitude values for the currently highlighted waypoint on the list. When touched, it will jump to the maps application to the location of the selected waypoint.

Track Manager

Multiple tracks for displaying on the GPS map can be set up. The Track Manager allows you to select tracks to 'show' on the map or 'hide' a map you are not currently using. You may **DELETE** one track or 'Delete All Tracks' at once.

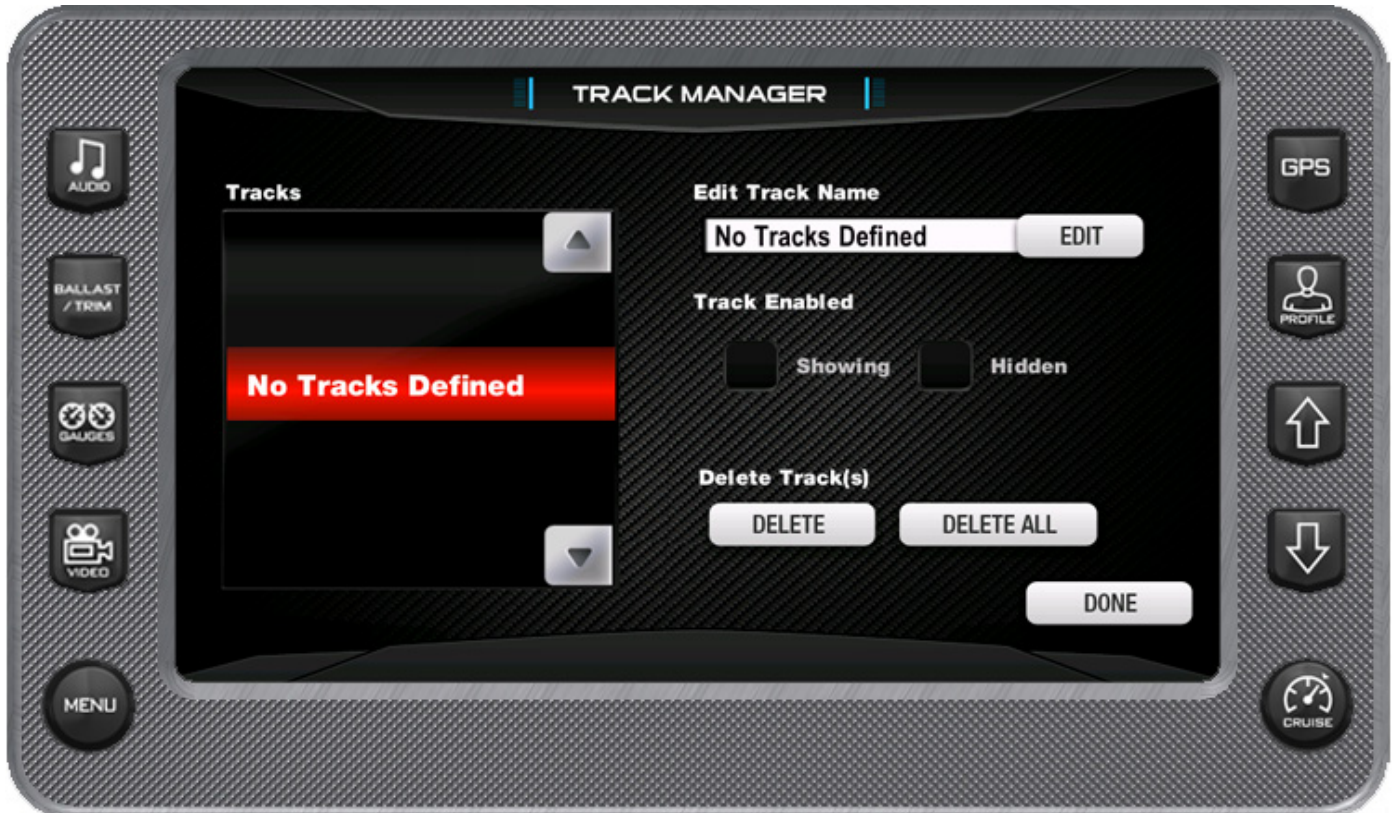
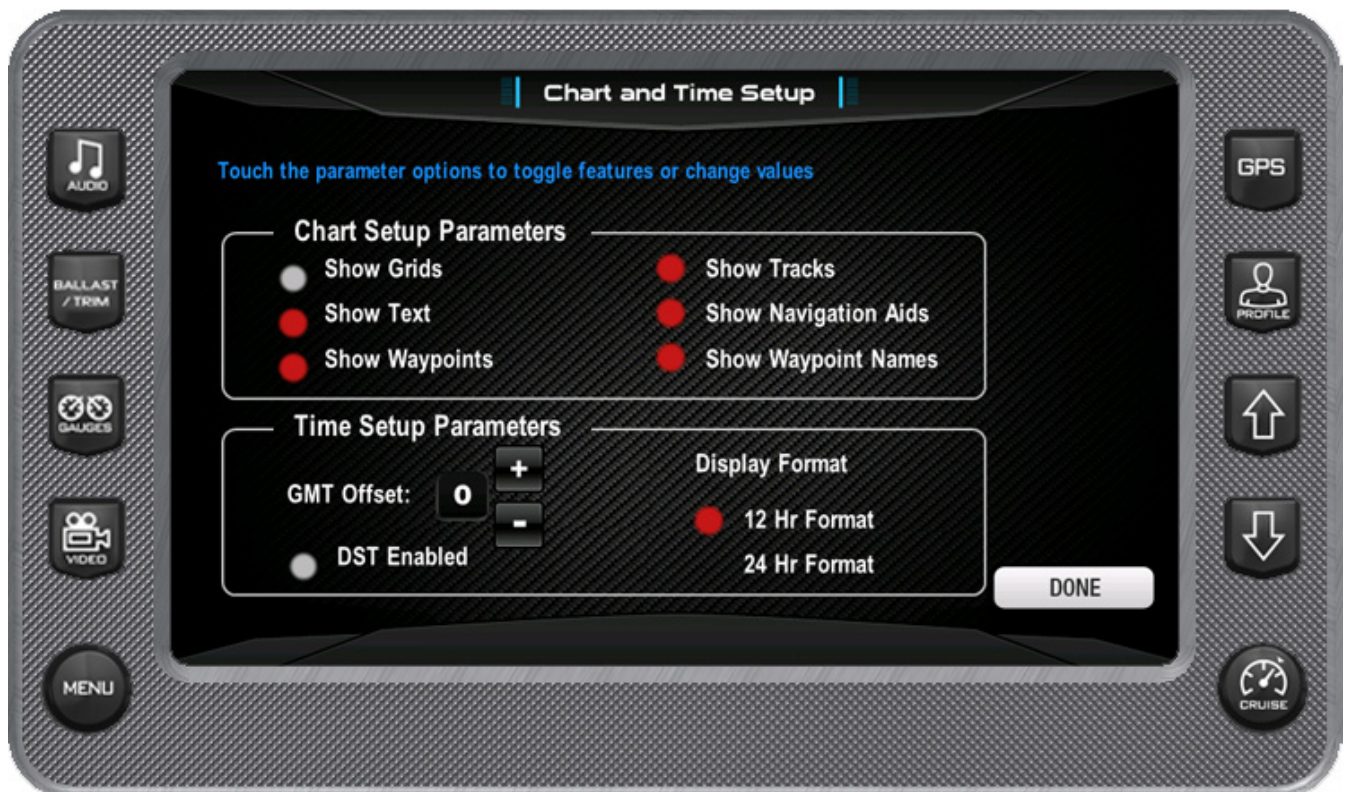


Chart and Time Setup

This menu option allows you to set up viewing options for the GPS Display.

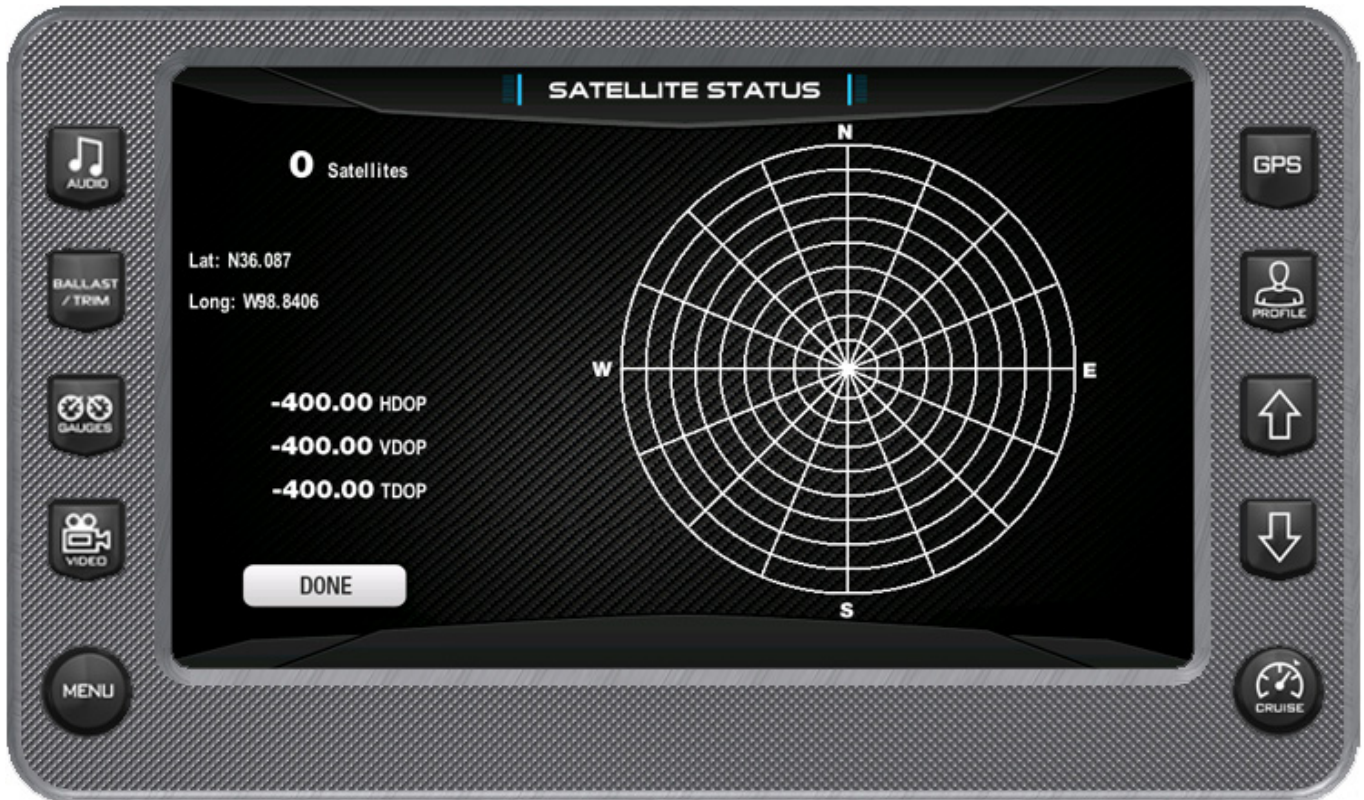
Chart Setup Parameters – use the **PLUS/MINUS** soft keys to select the information you want displayed on the GPS screen.

Time Setup Parameters – is used to select correct time zone and clock mode for either 12-hour or 24-hour time formats. You can also enable DST (Daylight Savings Time) by using the **PLUS/MINUS** soft keys to select the box



GPS Status

Shows the location of the satellites.



Depth/Position Settings

This feature allows you to define the amount of detail to display for longitude and latitude information on the GPS map and depth display.



Minimum Depth

This allows you to choose a minimum depth (measured from bottom of keel) to give an alarm if the vessel comes into a minimum depth situation. Choosing zero turns this option off.

Additional Settings

System Settings

The System Settings screen displays the current software version loaded on the unit. It is typically only accessed when the unit is first installed in order to configure the unit. You can set individual settings for the available options, or choose to select **RESTORE DEFAULTS** for the factory settings.

Default Settings

This screen provides various fields for adjusting the values for Ballast and Smartplate. The Smartplate Crossover point also defines the threshold for setting the automatic audio volume control.

Fault Code Pop-ups

A fault condition will trigger a pop-up dialog box on the screen describing the nature of the fault. The following screens are examples of warning and shutdown fault codes

How to Hide/Show Faults

To hide the fault code pop-up being displayed on the screen, press the soft key 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 “Show” icon will remain in the bottom right corner. When this soft key is pressed, the fault code will again be displayed.

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 to scroll through the different messages.

Product Information for the HV450

The X-Series is designed for instrumentation and control on electronically controlled engines communicating via SAE J1939 and NMEA 2000. The displays are multi-functional tools that provide GPS tracking, Multimedia Display, Cruise control, rider profiles and enables equipment operators to view many different engine, ballast, transmission parameters and service codes. Included with this solution is HV450 Touch unit.



Care and Maintenance

General maintenance is not required; however a soft cloth can be used for cleaning the units. Window cleaner or alcohol can also be used to clean the glass portion of the display. Do not use harsh or abrasive cleaners on the unit.

Basic Navigation Features

All product features are easily accessed through Quick Access Keys, Touch Point commands and Menus.

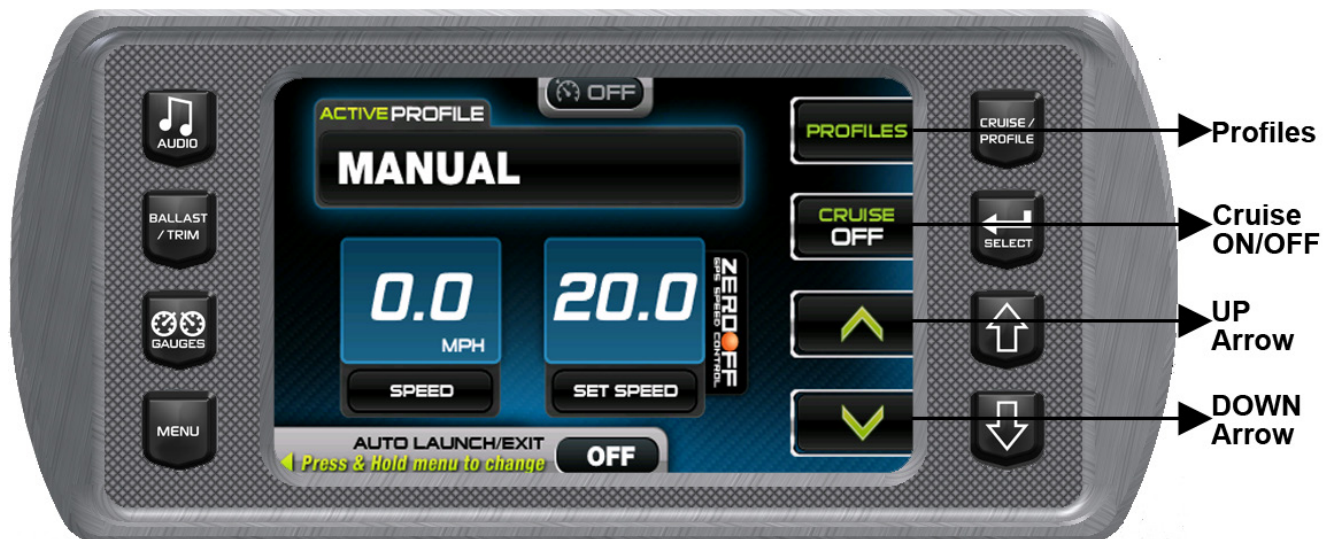
Quick Access Keys

The following controls are accessed via the Quick Access Keys: Audio, Ballast/Trim, Gauges, Video, Settings Menu, GPS, User Profiles, Cruise ON/OFF, Increase Value and Decrease Value. They are called quick access keys because a new screen can be accessed quickly by pressing the key.



Soft Key Commands for the HV450

Once the desired screen is accessed, navigation within the screen is controlled with Soft Key commands. Soft Key commands override Quick Access key functions and are executed by pressing the keys to the side of the label.



HV450 Features


The X-Series HV450 provides the following features:

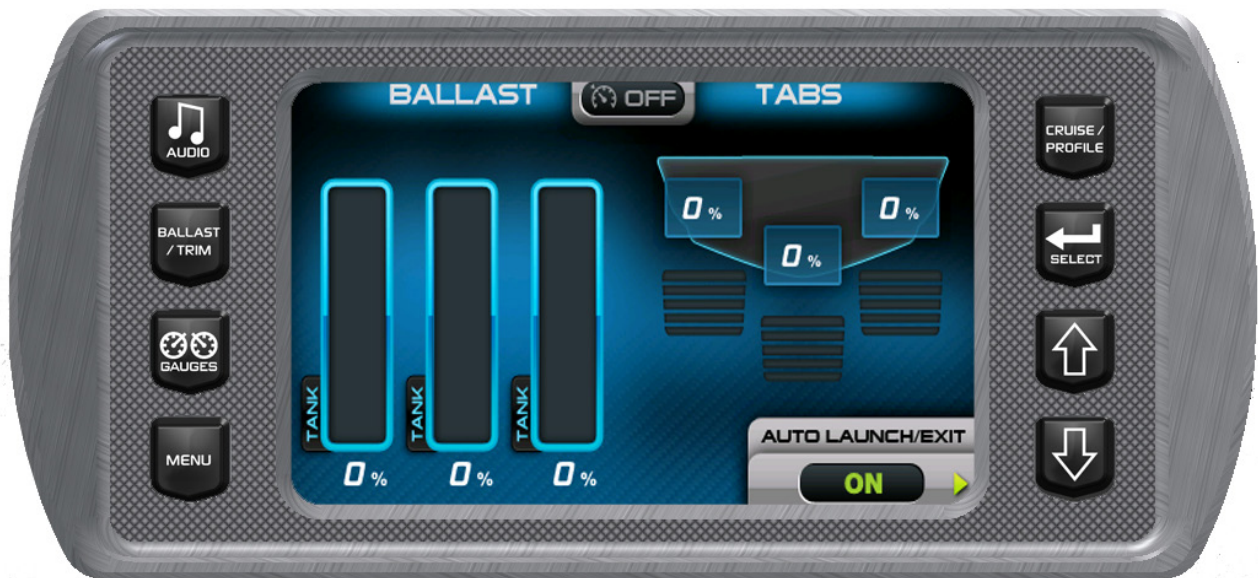
- Audio/Stereo
- Gauges
- Ballast and Trim Tab settings
- Cruise Control
- Settings Menu
 - User
 - Service
 - Factory
- Preset Rider Profiles

Audio

If the boat is equipped with a Clarion radio, please see the Clarion owner's manual. If the boat is equipped with a JL Audio Media Master, please see their owner's manual.

Ballast and Trim

The Ballast and Trim screen can be accessed by pressing the Quick Access Key  on the HV450.



This screen shows the ballast tank fill and empty activity. In addition it shows the trim tab levels. The only soft key on this screen is the Auto Launch/Exit key. Press this key to turn Auto Launch/Exit ON or OFF.

Gauges


The Gauges screen can be accessed by pressing the Quick Access Key  on the HV450.

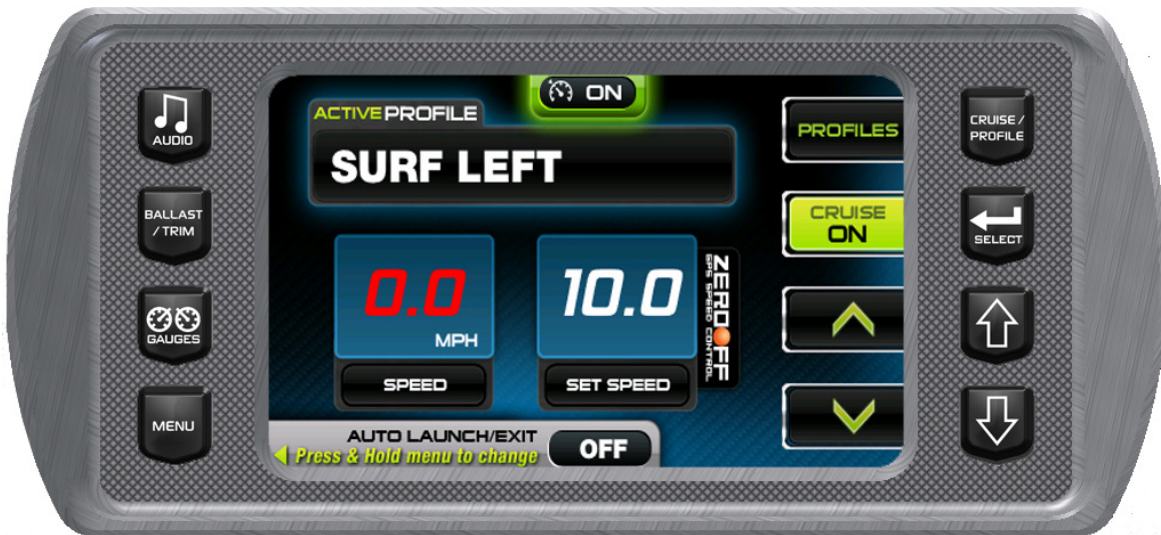


This screen shows the Speedometer, Air Temperature, Water Temperature, Battery Voltage, Water Depth and Engine Hours Gauges.

NOTE: This screen is display only. There are no soft keys with it.

Cruise/Profile



The Profiles screen can be accessed by pressing the Quick Access Key  on the HV450.



This feature displays rider/user profiles for cruise controls based on user preferences for speed, ballast, and smart plate settings.

Cruise/Profile Screen - Soft Key Commands



PROFILES – use this key to access a list of preloaded profiles. Use the  or  to scroll through the list. Press **[SELECT PROFILE]** to select the outlined profile.

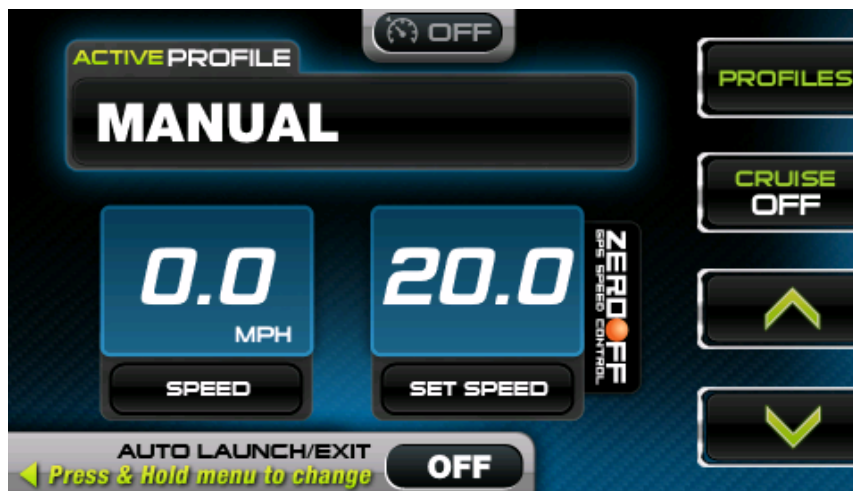


CRUISE – use this key to turn the cruise ON or OFF.

UP ARROW – use this key to increase set speed.

DOWN ARROW – use this key to decrease set speed.

AUTO LAUNCH/EXIT – press and hold the Menu key to turn Auto Launch on or off.



Main Settings Menu

The Main Menu screen for viewing engine statistics can be accessed by pressing the Quick

Access Key.  The following settings are available:

- **User Settings** – allows you to customize the display options for ambient light and brightness, set US or metric units and other settings.
- **Service Information** – provides information about the software version, dealer, oil changes and dealer services.

▮ **NOTE:** Some settings require a dealer code to access them.

- **Engine Diagnostics** – displays a list of engine fault codes and descriptions; on some engines, corrective action will be shown.
- **Factory Settings** – displays boat model, center tab, surf tabs and depth transducer.

▮ **NOTE:** These settings require a dealer code to access them.



User Settings

The User Settings option provides the user a way to specify viewing preferences. The settings are all editable by using the soft keys to the right of the option. Select **[USER SETTINGS]** to access the first of two user settings screens. **User Settings Soft Key Commands**

NEXT PAGE – advances to the next or previous page of settings.

CHANGE – changes the currently selected setting.

DOWN ARROW – highlights the next setting.

BACK – returns to the Main Settings Menu.

PLUS – increases the setting value.


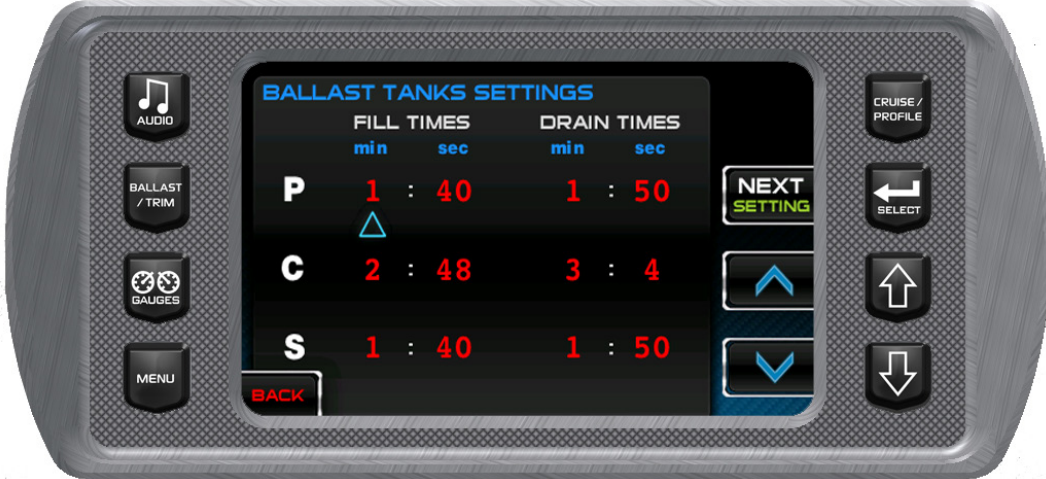
MINUS – decreases the setting value.



User Settings Descriptions

Function	Description
Units	The choices are: <ul style="list-style-type: none">• US Standard (US Std).• Metric
Auto Volume	The choices are: <ul style="list-style-type: none">• Enable• Disable
Fuel Alarm	Sets the percent of fuel left in tank to deploy the alarm.

Function	Description
Min Depth Alarm	The choices are: <ul style="list-style-type: none"> • OFF or increments of ½ft from 1 to 100ft.
Fire Extinguisher	The choices are: <ul style="list-style-type: none"> • Enable (Popup) • Disable (Popup)
Factory Reset	This setting restores all factory settings to their original values. Choices are: YES or NO. <div data-bbox="402 548 1425 1014" data-label="Image"> </div>
Day Brightness	Sets the screen brightness for daylight. Settings are: 1%, 2%, 3%, 4%, 5% and 10-100% in increments of 10%.
Night Brightness	Sets the screen brightness for nighttime. Settings are: 1%, 2%, 3%, 4%, 5% and 10-100% in increments of 10%.
Gauge Brightness - Day	Sets the gauge brightness for daylight. Settings are: 10-100% in increments of 10%.
Gauge Brightness - Night	Sets the gauge brightness for nighttime. Settings are: 10-100% in increments of 10%.
Auto Tab Settings Page	The Auto Tab Settings provide the user with the opportunity to control the tab positions for two trim tabs on the boat. The following can be controlled through these settings: <ul style="list-style-type: none"> • Speed settings • Trim tab positions • Turn Auto Limits ON and OFF • Set the Auto Launch timing

Function	Description
	
Ballast Settings Page	<p data-bbox="345 764 1352 800">This screen provides the ability to control the ballast fill and drain times.</p> 
Paddle Wheel Offset	Sets the paddle wheel offset.

To adjust the fill and drain times use the soft keys. Use the **NEXT SETTING** key to move between the times. Use the **UP** and **DOWN** arrow keys to adjust the minutes and seconds.

Service Information

This set of screens provides the ability for the user to view the Software versions. In addition it allows the dealer to reset the oil change and the dealer service schedule.

NOTE: The Dealer Service Reset requires a dealer code to be entered before the gaining access to the screens.

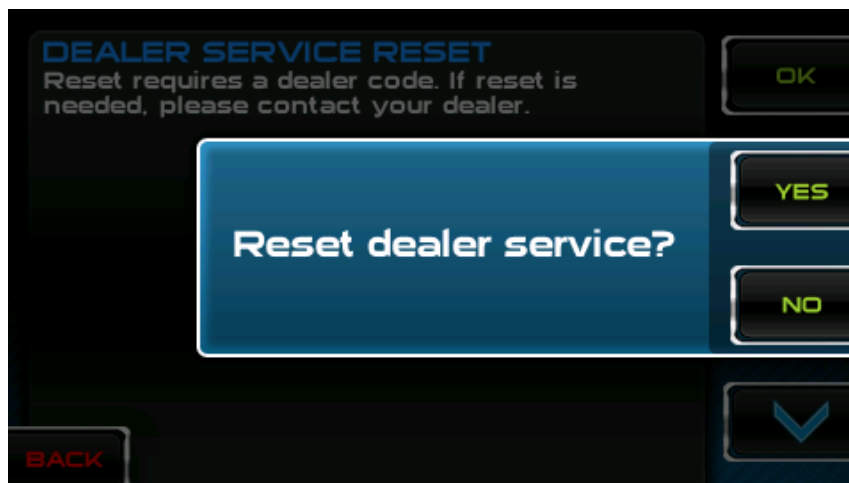
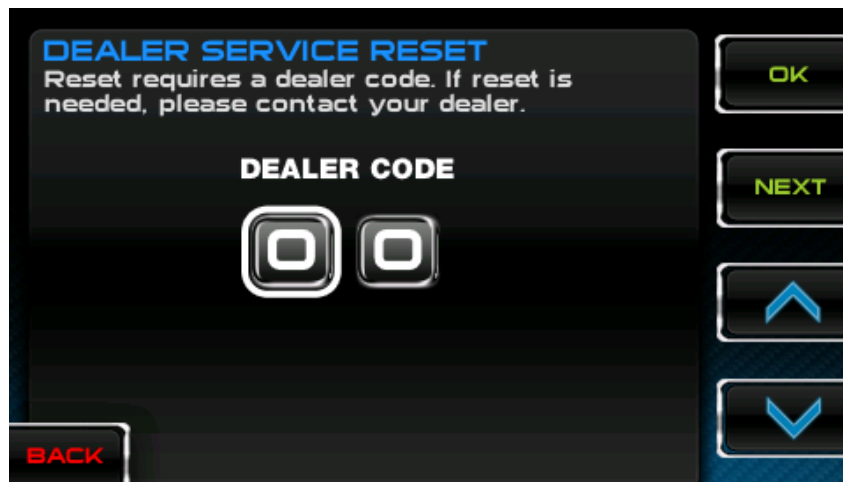
Software Version

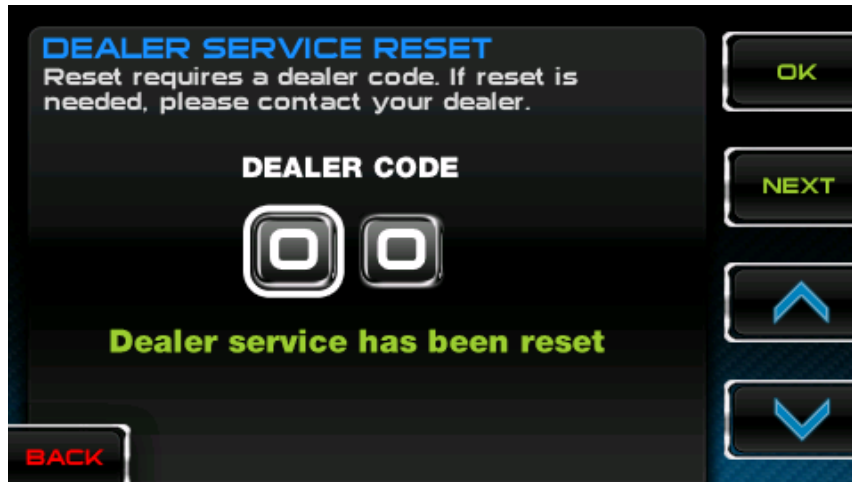
This screen is an information only screen that provides the following:

- Application version and part number
- Operating system version and part number
- Bootloader version and part number
- Software version

Dealer Service Reset

This provides the dealer with the ability to reset the clock. Service is required for the engine every 100 hours. When 100 engine hours has been reached, an alert is displayed to perform maintenance service on the engine.

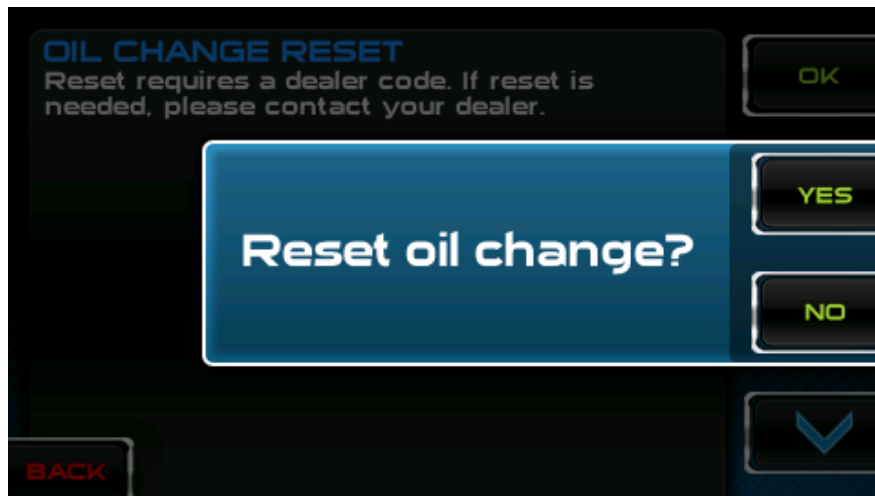




NOTE: To enter the dealer code, use the **UP** and **DOWN** arrow soft keys.

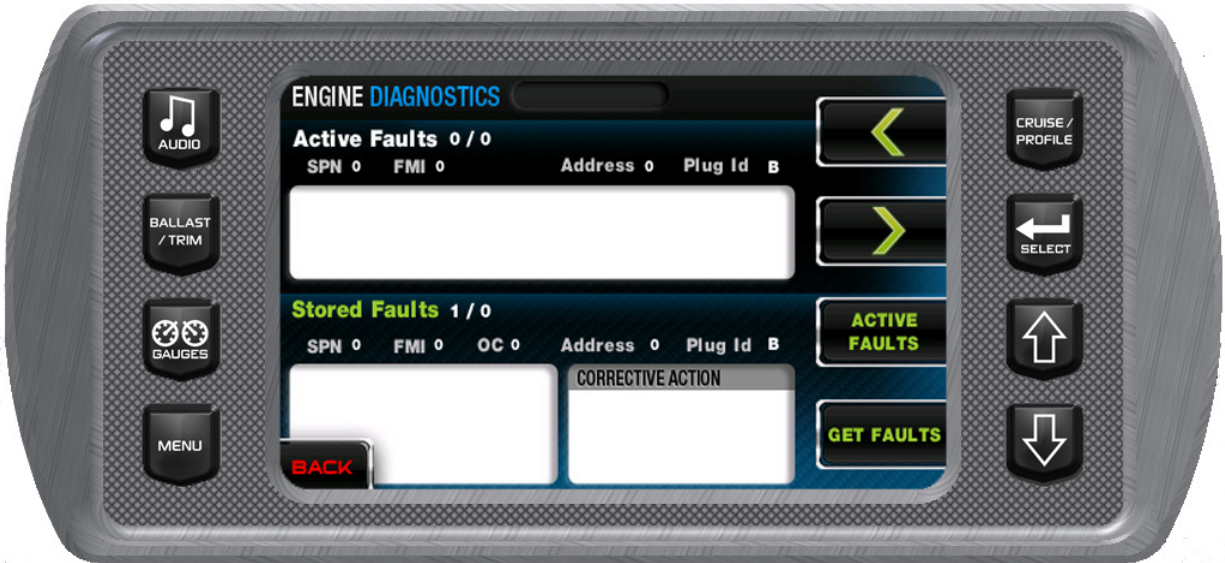
Oil Change Reset

This provides the ability to reset clock. An Oil Change alert is displayed the first time after 10 engine hours. Subsequent alerts are displayed at 50 engine hour intervals.



Engine Diagnostics

When choosing this selection, the display will query the engine(s) ECU, as illustrated below, and provide feedback on any diagnostic codes that have been activated and stored in the ECU for service needs.



The following is a list of field definitions contained on the **ENGINE DIAGNOSTICS** screen:

Active Faults/Stored Faults

Shows the number of active faults and which fault number is currently being displayed. To advance to the next fault, select **>** and select **<** to go back to the previous fault. Selecting **[BACK]** returns to the Settings Menu. To navigate between the Active and Stored faults, use the **STORED FAULTS/ACTIVE FAULTS** soft keys.

- **SPN** – "Suspect Parameter Number" - fault code
If not translated into text by the 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.
- **Description Field** – Most common SPN's and FMI's have text for the description stored in the 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.

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

Corrective Action – see dealer.

Get Faults

Selecting **[Get Faults]** queries the engine(s) ECU for feedback on diagnostic codes that have been activated and stored in the ECU for service needs.

Fault Code Pop-ups

A fault condition will trigger a pop-up dialog box on the screen describing the nature of the fault. The following screens are examples of warning and shutdown fault codes

How to Hide/Show Faults

To hide the fault code pop-up being displayed on the screen, press the soft key 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 “Show” icon will remain in the bottom right corner. When this soft key is pressed, the fault code will again be displayed.

Scrolling Through Multiple Messages

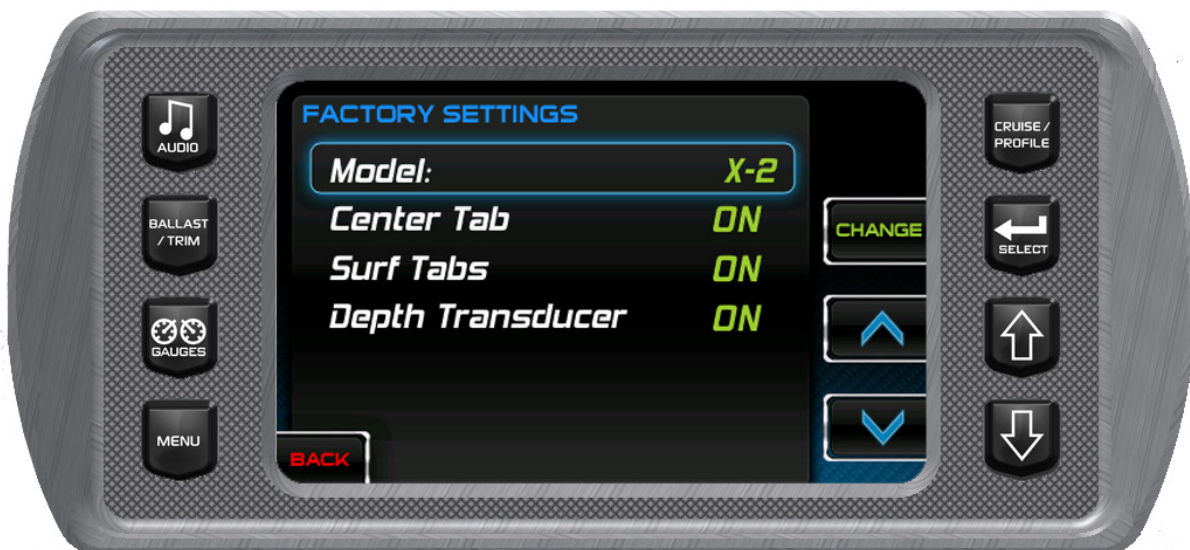
The title-bar of the fault code pop-up may indicate multiple messages, as in ‘Diagnostic Message 1 of 3’. Press **<** or **>** to scroll through the different messages.

Factory Settings

This screen allows the dealer to indicate the following:

- Boat Model
- Center Tab (ON or OFF)
- Surf Tabs (ON or OFF)
- Depth Transducer (ON or OFF)

NOTE: To gain access to this screen requires enter a Dealer Code.



General Troubleshooting Guide

Display appears not to work or doesn't come "ON".

1. Display could be in *sleep* mode. Touch a key on the keypad to activate the display.
2. Check for loose connections at battery and display unit.
3. Check for reversed polarity on the power connections.
4. Verify battery has a minimum voltage of 6 Volts.

Display resets or goes "OFF" when starting engine.

1. Check display supply wires are connected properly to battery.
2. Verify battery is charged properly.
3. Check battery for efficient starter current.

Display has no backlight.

Contact your MasterCraft service center.

Display has no keypad backlight.

Contact your MasterCraft service center.