

*Supra<sup>®</sup>  
Vision<sup>™</sup> Control  
2020*

*Owner's Manual*



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**This product can expose you to chemicals including lead, which is known to the State of California to cause cancer. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).**

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AutoWake<sup>®</sup>: U.S. Patent Nos. 8,798,825; 9,689,395; 9,828,075; 9,873,491; 10,093,398 and other patents pending.

Amplitude Display: U.S. Patent No. 9,950,771 and other patents pending.

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## Product Information

The Supra<sup>®</sup> Vision<sup>™</sup> Control 2020 displays are designed for instrumentation and control on electronically controlled engines communicating via SAE J1939 and NMEA 2000. The displays enable boat operators to view many different engine, ballast, transmission parameters and service codes and are multi-functional tools that provide GPS tracking, AutoWake<sup>®</sup>/Surf controls and cruise control. Included with this solution are the PV1100, PV1200 and PV450 Touch units.

PV1100	PV1200	PV450
 A vertical, black, rectangular touch display unit. The screen shows the word "SUPRA" in a stylized, metallic font, centered between two circular outlines.	 A horizontal, black, rectangular touch display unit. The screen shows the word "SUPRA" in a stylized, metallic font, centered between two circular outlines.	 A horizontal, black, rectangular touch display unit with a rugged, textured bezel. The screen shows the word "SUPRA" in a stylized, metallic font, centered between two circular outlines. To the right of the screen, there are four physical buttons arranged vertically.

## **Care and Maintenance**

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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 units.

## Basic Navigation Features

All product features are easily accessed through Quick Access Buttons (only on the PV450), Touch Screen Points and Menus.

### Quick Access Buttons (PV450 Only)

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Functions can be accessed quickly by pressing one of the following Quick Access Buttons:



## **Touch Screen Points (PV450, PV1100 and PV1200)**

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Navigation within the screens is controlled by touching the screen's active areas. These areas are illustrated within the following sections specific to each display.

### **Menus (PV450 and PV1100)**

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Menus within the PV450 and PV1100 displays allow the system's controls to be customized. These areas will be discussed within the Settings section for the PV450 and PV1100.

# PV1200 Features

## Home Screen

The Home screen will appear after accepting the Acknowledgement of Risk that appears on the PV1100 screen when it is powered on.



<b>Screen Area</b>	<b>Description</b>
<b>Fault Display</b>	Engine or PDM faults will appear in this area. To investigate the cause of the fault, review the Diagnostics utility within Settings on the PV1100.
<b>Time</b>	Displays the local time.
<b>Direction</b>	Displays the current direction in which the boat is traveling.
<b>Media Notifications</b>	Displays the number of missed incoming calls for connected cellular devices.
<b>Water Temperature</b>	Displays the current temperature of the water in which the boat is residing.
<b>Water Depth</b>	Displays the current detected depth of the water.
<b>Media Controls</b>	Displays the currently selected media (i.e., Bluetooth, Wireless Devices or USB) and the selection currently being played.
<b>Maps Display</b>	Displays the GPS-controlled Maps selection.

<b>Screen Area</b>	<b>Description</b>
<b>Video Display</b>	Displays one of two video feeds on the boat (Tower and Transom).
<b>AutoWake Controls</b>	Displays the AutoWake settings for Pitch and Roll, Surf Settings and Rider Profiles.
<b>ZeroOff On/Off</b>	Turns on and off the ZeroOff GPS Speed Control® system.

## Media

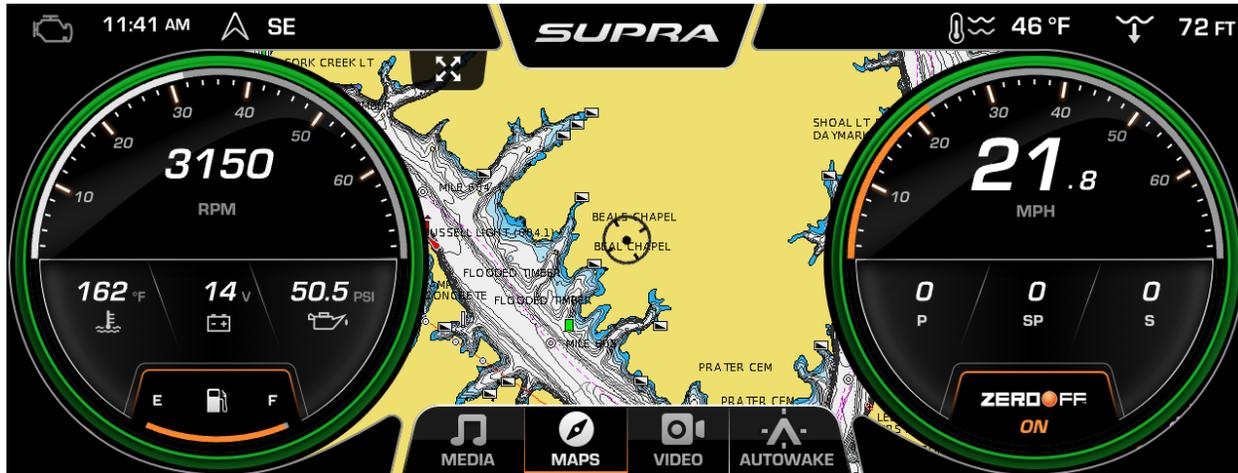
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In order for the PV1200 to display media contents, the media must be connected on the PV1100. Please see the section within PV1100 titled Bluetooth for instructions on connecting the two devices to a Bluetooth source.

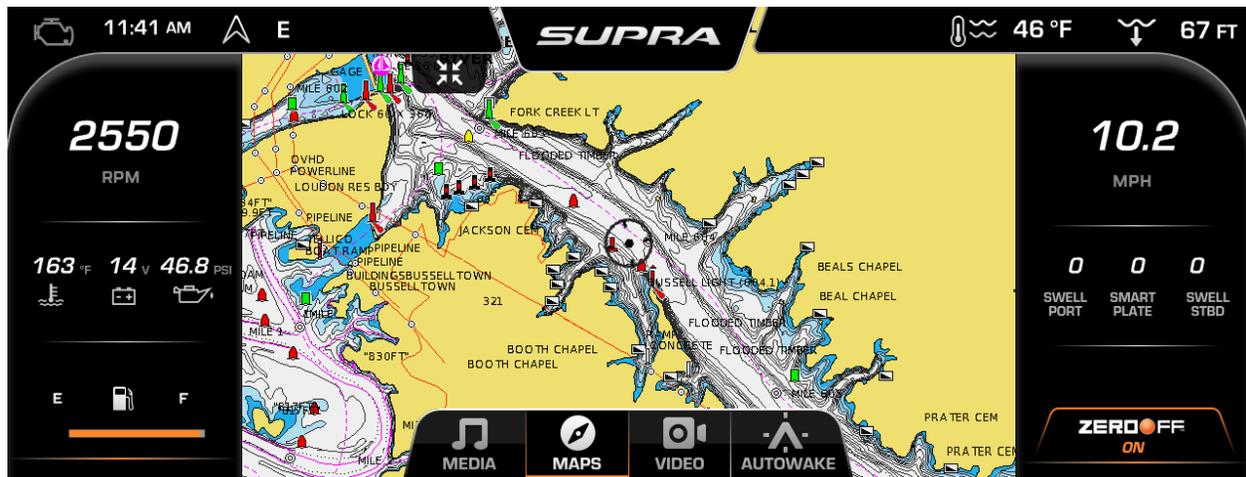
## Maps

Similar to Media, Maps will be displayed on the PV1200, with the Maps controls residing on the PV1100. Please see the section titled PV1100 Maps for instructions on using this utility.

The one Maps control that resides on the PV1200 is the expandable screen:



When a larger Maps screen is desired, touch the  symbol, and the two dials will slide to the side, expanding the screen:



The same information from the dials is displayed on the sides of the map, but in a different format. To bring the screen back to what is shown in the top picture, touch the  symbol again.

## Video

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The video controls that reside on the PV1200 allow you to choose between a view from the Tower or the Transom:



Touch the Tower or Transom button to switch to the alternate video view.

## AutoWake®

When AutoWake is enabled and active, the ballast system will be automatically controlled to target and maintain specific boat axes (pitch and roll). Pitch and roll set points are determined by the active rider profile and the currently selected Surf side (Left/Right). Changes to the current Surf side's pitch and roll set points can be saved to the active rider profile or saved to a new profile.

The AutoWake controls reside on the PV1100. Please see the section titled PV1100 AutoWake for additional information. AutoWake®: U.S. Patent Nos. 8,798,825; 9,689,395; 9,828,075; 9,873,491; 10,093,398 and other patents pending. See [www.skierschoice.com/patents-trademarks/](http://www.skierschoice.com/patents-trademarks/) for virtual patent marking.



2019-07-19

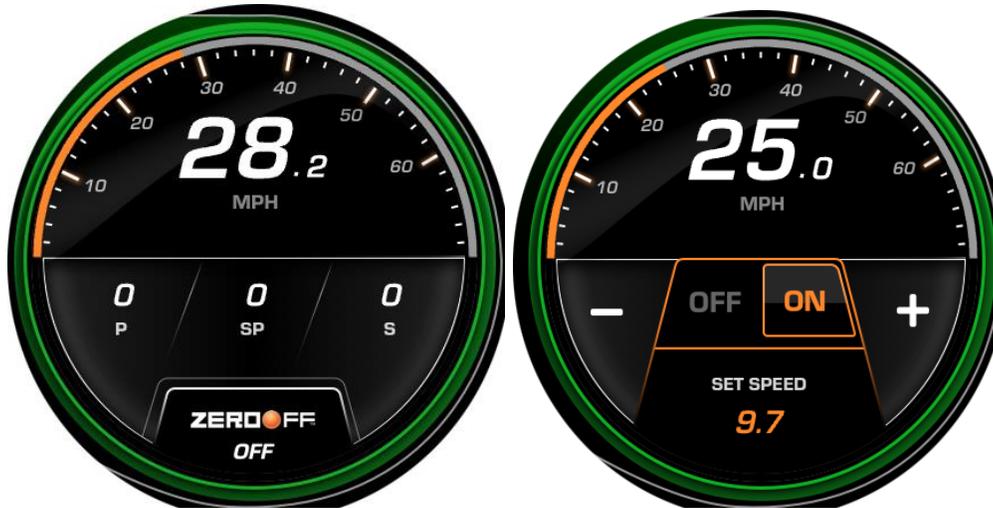
16

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## ZeroOff GPS Speed Control®

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Zero Off is a GPS speed control based solely on input from satellites and engine management systems. It is based on the speed you are traveling across the surface of the water; therefore, there is no requirement for skier weight, crew weight or any kind of wind adjustment. You simply set the desired speed and go. This easy-to-use technology has made Zero Off the industry standard.



Touch the ZeroOff Off button to turn on the GPS speed control. After a few seconds, the Set Speed controls will appear.

Use the + and – buttons to adjust the Set Speed.

To turn off ZeroOff, touch the Off button.

## **PV1100 Features**

### **Home Screen**

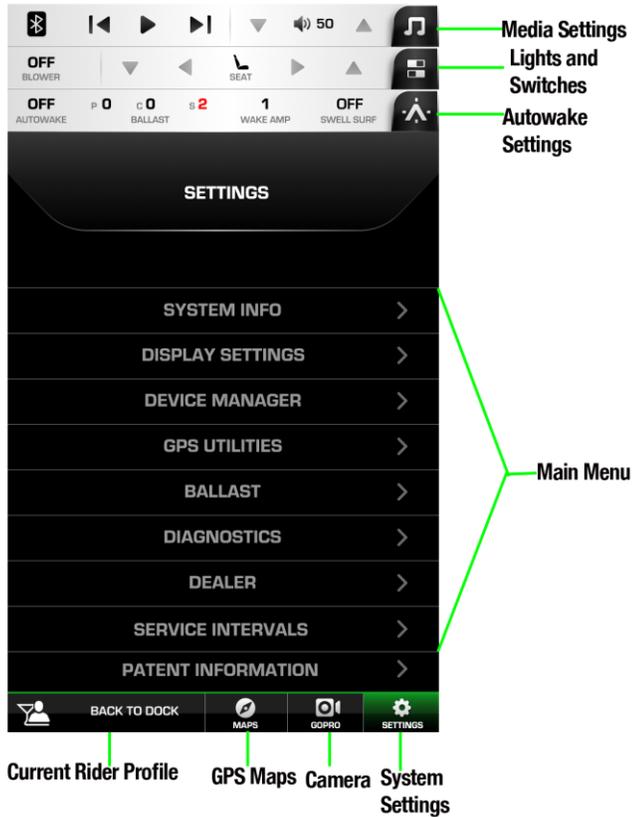
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While the PV1200 is the flash of the Vision Control, the PV1100 is the function. The majority of the settings will be set and controlled through this display.

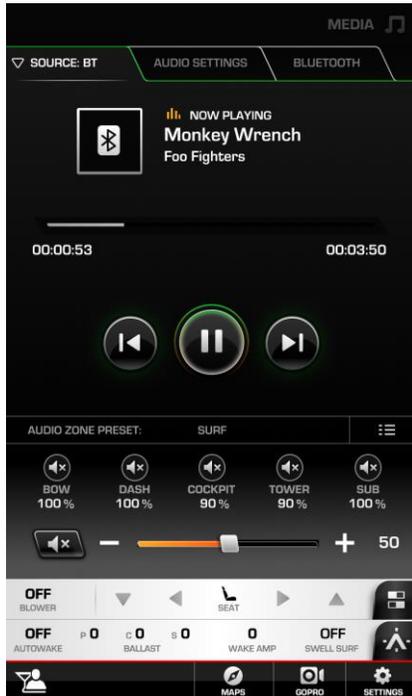
The top portion of this screen has three tabs to control Media, Lights & Switches and AutoWake.

The middle portion of this screen houses all of the system's settings, such as Display Settings, GPS Utilities, Ballast, etc.

The lower portion displays the currently selected rider profile, Maps and GoPro Camera.



## Media Settings



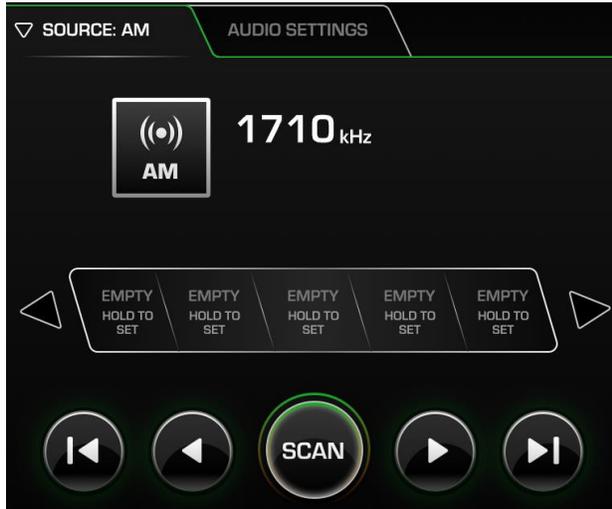
Touching the top tab on the PV1100 display will shift the screen down and this screen will appear.

The first tab shown is **SOURCE**. Media files can be sourced through the following choices:



When the Bluetooth source is chosen, a separate tab will appear to initiate the Bluetooth Connection process.

## Source: AM / FM Radio

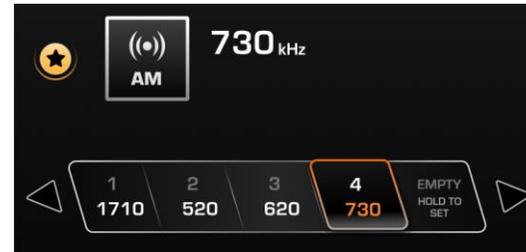


Both AM and FM Radio sources contain 10 slots to save a preferred station.

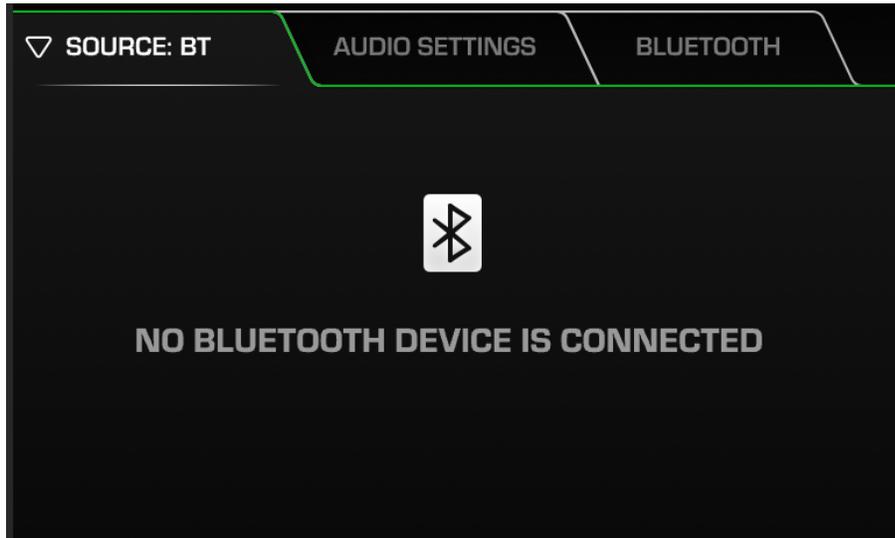


Touch **SCAN**,  or  to navigate to the desired station.

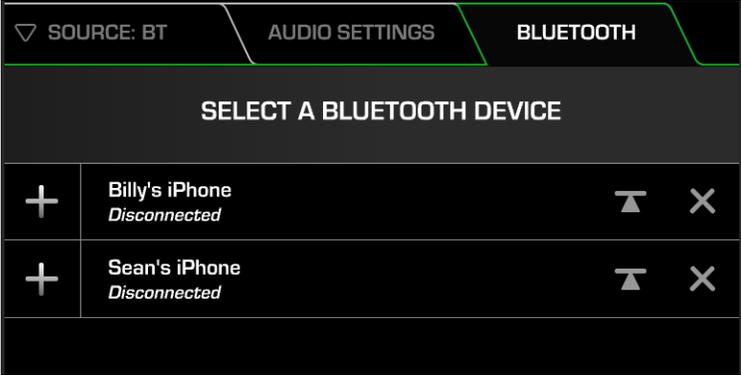
Touch and hold an empty slot until that station number appears in the slot and a circled star appears beside the source, as shown below:



## Source: Bluetooth

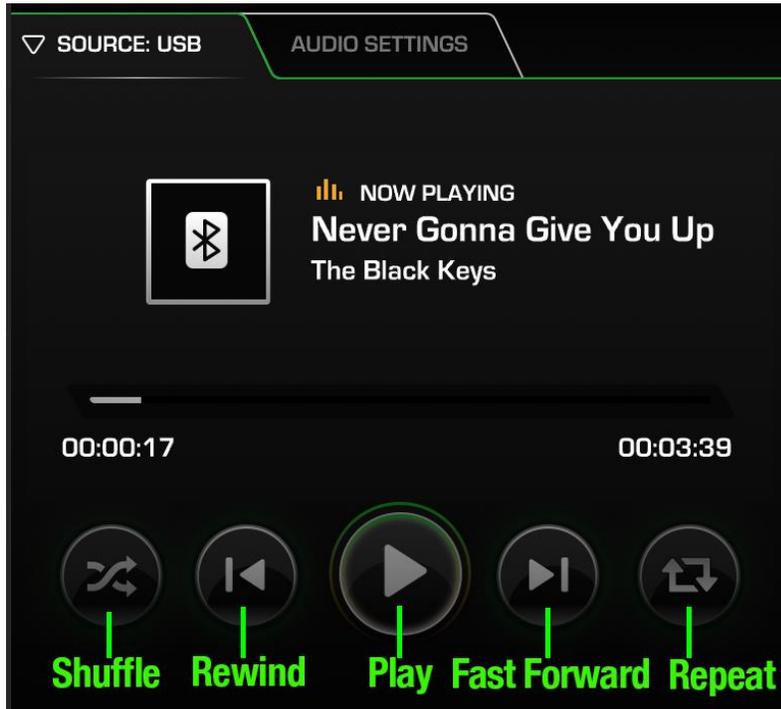


To connect a Bluetooth device, follow these steps:

Step	Action
1	<p>Touch the Bluetooth tab. Previously connected devices will be displayed:</p> 
2	<p>Touch . Directions appear to open the Bluetooth settings on your device, check that Bluetooth is on, and that your device is visible to new devices.</p>

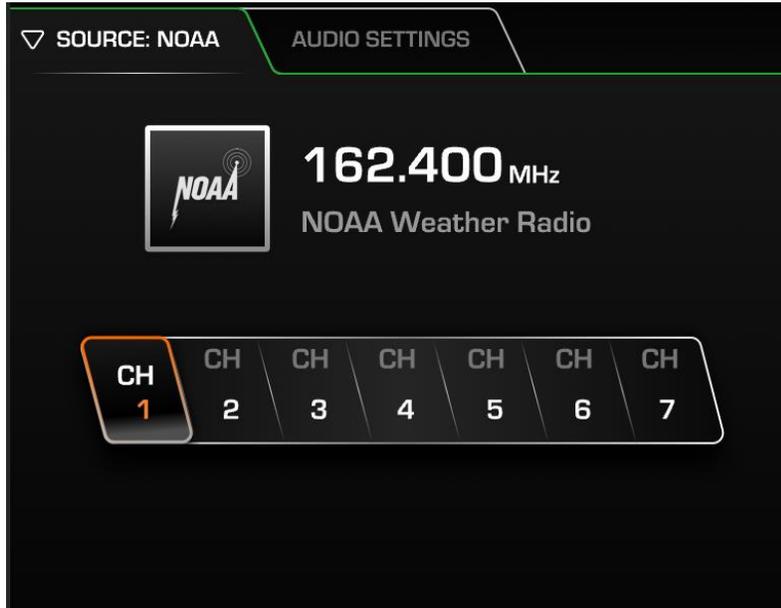
<b>Step</b>	<b>Action</b>
3	The PV1100 will begin to scan for new devices and display its findings on the screen. Touch the + beside the device to be added.
4	A message will appear on the PV1100 stating that a pairing has been requested. On the device to be added, a Bluetooth Pairing Request message will appear. Select Pair.
5	On the PV1100, a message will appear stating Pairing Complete.
6	A second question will appear on the device asking if the PV1100 can have access to the device's contacts. Select either Yes or No.
7	When paired, the PV1100 display will show a check mark beside the connected device.
8	Touch the Source tab again, which now shows BT. The device's music content will be playing on the screen.

## Source: USB



Another source of media that is acceptable for use is the USB drive. Insert the USB into the PV1100's pigtail and the screen will display the contents of the drive (one song at a time).

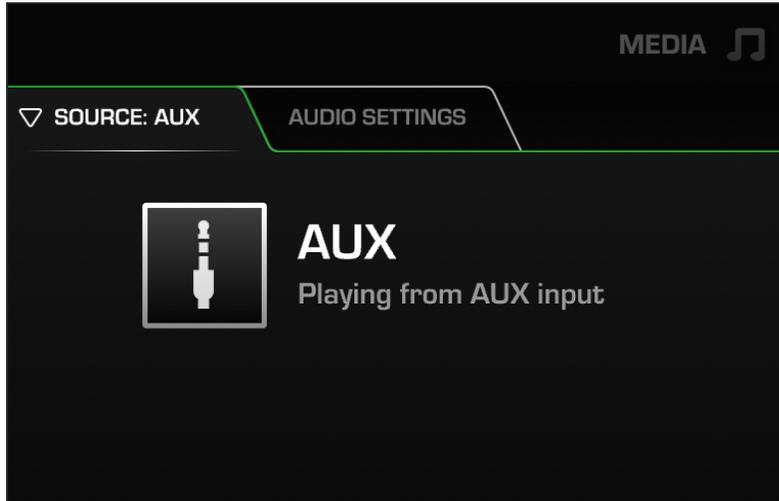
## Source: NOAA



There are seven pre-programmed NOAA (National Oceanic and Atmospheric Administration) weather channels available on the PV1100.

Simply touch a channel button to listen to that channel.

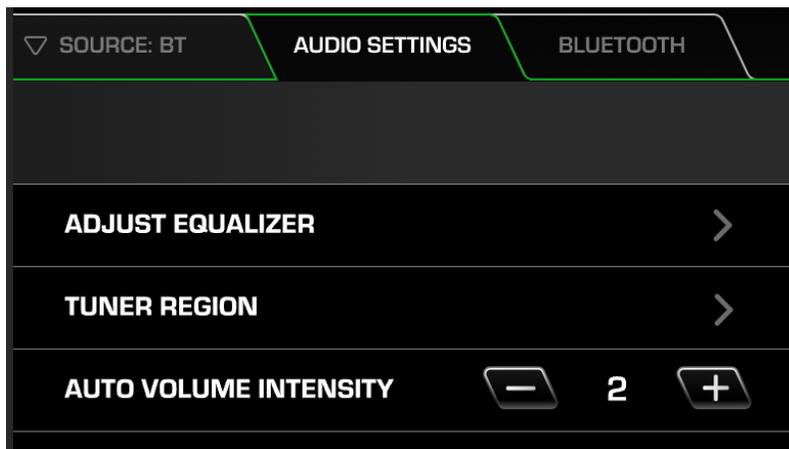
## Source: Auxiliary



The PV1100 also has an auxiliary pigtail that allows 3.5mm connectors to be utilized.

Plug the 3.5mm connector into the pigtail and that device's contents will be displayed on the screen.

## Audio Settings



Adjust Equalizer allows the Bass, Mid and Treble sounds to be adjusted to your liking.

Tuner Region allows you to select the region from which the tuner signals will arrive (Australia, Europe, Europe 50Hz, Japan, North America, South America or Taiwan).

Auto Volume Intensity allows the adjustment of the intensity of the volume when it comes on automatically (i.e., to compensate for wind noise, engine noise, etc.).

## Audio Zone Preset

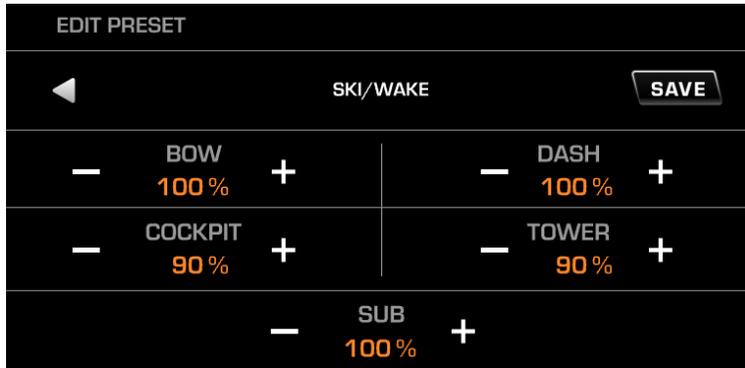


There are four Audio Zone Preset settings that can be adjusted to your liking. To select an Audio Zone Preset, touch the  symbol, and the following screen will appear:



As you can see on the left, the Ski/Wake preset is active.

To edit one of the presets, touch the arrow on the right for that zone.



Use the + or – buttons to adjust the volume for each desired audio zone.

Touch Save when complete.

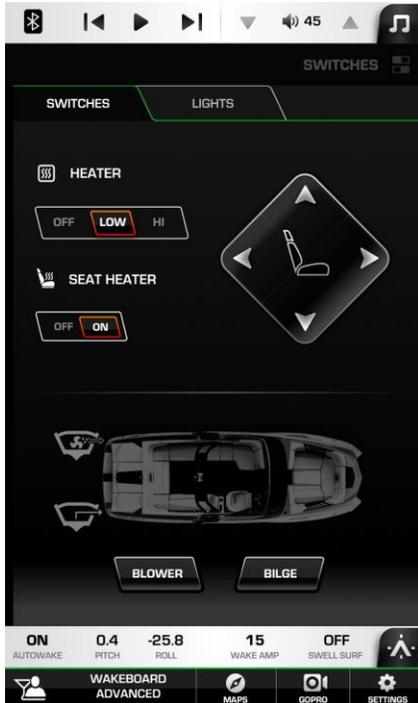


Touch the  symbol above one of the five audio zones to mute that area.

Slide your finger along the volume line to adjust the volume for the entire craft.

Touch the  symbol to mute all audio zones.

# Switches and Lights



## Switches

Touch the Switches tab and the screen to the left will appear.

The Heater has three settings: Off, Low and HI. Touch the button for the desired setting.

The Seat Heater is turned on in the same manner.

The driver's seat can be moved forward, back, up and down with the directional buttons shown for the seat.

Touch the Blower and Bilge buttons to turn on and off those switches.



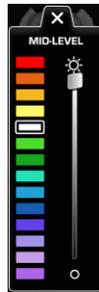
## Lights

The lights on the boat can be turned on and off by touching their respective buttons shown here.

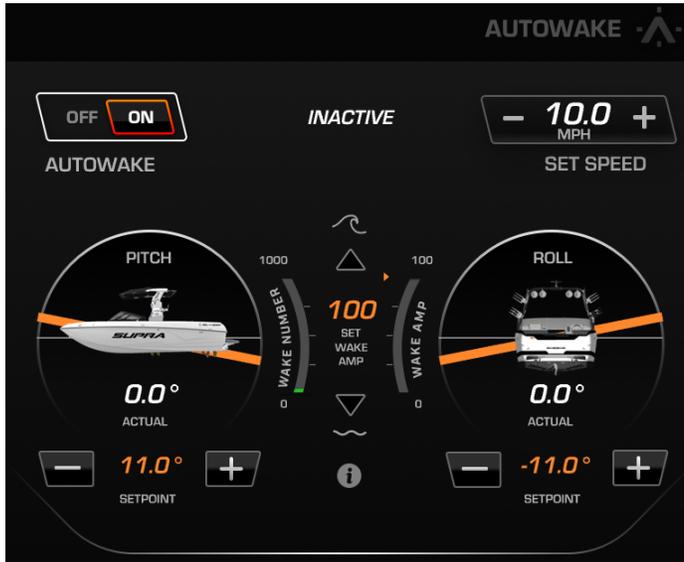
To turn them all on or off at once, touch All On or All Off. The All RGB button will turn on or off the four lights with color selections.



When the  symbol is beside a light button, that represents a myriad of light colors from which to choose and will display the following:



Touch the desired color to display, and adjust the brightness via the slide bar on the right.



AutoWake\* is a patented system that will manipulate the ballast levels in order to achieve and maintain the best possible wake for surfing and wakeboarding. Using an inclinometer (a device that measures angle of pitch and roll) the boat will orient itself for the best boating experience.

\*AutoWake®: U.S. Patent Nos. 8,798,825; 9,689,395; 9,828,075; 9,873,491; 10,093,398 and other patents pending. See [www.skierschoice.com/patents-trademarks/](http://www.skierschoice.com/patents-trademarks/) for virtual patent marking.

The text to the right of the On/Off switch will show one of six current states of the system:

(1) **AutoWake Inactive:** This will occur when:

- AutoWake is turned off
- Cruise setpoint is below 7mph or above 26mph, or
- When actual speed is below 3mph and within 0.1mph of setpoint.

Below 3mph, AutoWake will use static functionality. Within 0.1mph, AutoWake will use dynamic functionality. The 10 second countdown timer will activate when actual speed is within 0.1 of set speed AND when the boat slows down to less than 3mph. During this state, AutoWake will do nothing.

Once the button is pressed to turn on AutoWake, the system will try to first fill front ballast to establish the correct roll, then it will fill all the rear ballast until rear “Amplitude” is achieved. It does this in Static mode when the boat is traveling less than 3 mph and in Dynamic mode when the speed is within .1 of set speed. If AutoWake is active, achieved or in countdown, it will return to inactive if a ballast switch is used, speed is not between 7 mph and 26 mph, or cruise set speed is not within 7 mph and 26 mph. If the display is powered down, it will come back with AutoWake off.

- (2) AutoWake Countdown:** Once all conditions are met in the AutoWake Inactive state, a countdown of 10 seconds will begin. This countdown will remain as long as conditions continue to be met. Once the countdown is finished, AutoWake will become active. If any of the conditions change to be outside of the Active limits, the countdown will stop and the state will go back to AutoWake Inactive. The countdown will start over once conditions are met.

**(3) AutoWake Active:** This will occur once:

- Set speed is between 7mph and 26mph
- Actual speed is within 0.1mph of set speed
- The 10 second countdown has finished.

After the countdown, the AutoWake system will begin to fill and drain ballasts in order to reach the desired pitch and roll values. The system will always fill before it starts to drain. Therefore the side that needs to lower will always fill to 100% before the opposite side begins to drain (to raise that side). For roll, if one side has reached the maximum and the other side has reached the minimum (rear ballasts only), there will be a pop-up that prompts the user to adjust weight in the boat to achieve the desired roll values. The pitch value will have a similar pop-up but will only occur once the roll is finished moving (either achieved or maxed out). When the roll or pitch cannot move, the color of the set points will turn red.

**(4) AutoWake Achieved:** This will occur:

- Once the current pitch and roll values (average value over 5 seconds) are within 0.25 degrees
- AutoWake becomes Active.

The colors of the set points will be green. The achieved status will remain until the pitch or roll is outside of 0.75 degrees of the set point (in which case it will go back to the AutoWake Active state).

**(5) Static AutoWake Active:** This state will occur when:

- Boat is turned on
- AutoWake is turned on
- Actual speed is less than 3mph.

The system will attempt to fill and/or drain ballasts to reach a static pitch, roll and amplitude setpoint. If pitch or roll setpoints cannot be achieved, a pop-up will occur indicating this to the driver (AutoWake will remain in this state).

**(6) Static AutoWake Achieved:** This will occur when:

- Boat is turned on
- AutoWake is turned on
- Actual speed is less than 3mph
- Pitch, roll and amplitude values match their respective setpoints.

If pitch or roll setpoints cannot be achieved, a pop-up will occur indicating this to the driver and AutoWake will remain in Static AutoWake Active state. If

pitch and roll are achieved and amplitude is as close as possible to setpoint, the AutoWake system will go to this state.

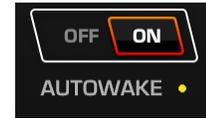
AutoWake settings can be found in the Vessel Settings menu.

## Changing the Pitch and Roll Set Points

The Pitch and Roll Set Points may be changed via the – and + buttons beside the setpoint values:



Once any value has been changed from the settings in the active rider profile, a yellow dot will appear beside the changed value.



## Setting the Wake Amplitude

Use this setting to define the amplitude of your wake (0 is mellow and 100 is aggressive). The Wake Amp\* bar will fill (in blue) or empty to the target Wake Amp setting (orange pointer). This blue fill will indicate your total fill level for all ballast.

The Wake Number on the left is used to reference the current calculated weight of your boat (including passengers, gear and ballast). Weight plays a big part in driving the size of

your wake. Use the yellow line indicator to determine your current/actual Wake Number position. Use the green line indicator as a reference for the potential Wake Number position (i.e., what could be possible if gear and passenger weight was adjusted).

\* Amplitude Display: U.S. Patent No. 9,950,771 and other patents pending. See [www.skierschoice.com/patents-trademarks/](http://www.skierschoice.com/patents-trademarks/) for virtual patent marking.

## Autoleveling

Autoleveling is a system that utilizes an inclinometer sensor to calculate the roll of a boat and correct the roll to be as level as possible while staying within the set parameters.

In order for Autoleveling to occur, ALL of the following conditions must be met:

- The active profile must be Cruise or Back to Dock.
- Autowake must be On.
- Speed must be greater than 85% of the Setspeed.
- Setspeed must be greater than 7 mph and less than 30 mph.
- The Inclinometer must be Active.
- Roll is either above  $1.5^{\circ}$  or below  $-1.5^{\circ}$



Once the above parameters have been met, Autoleveling will retract the plate on the side of the roll fully to 0% and launch the plate opposite of the roll immediately to 40% and begin incrementing in steps of 5% until either the roll has been leveled or the plate has extended to the maximum setpoint of 65%.

Example: If the boat is leaning to the port side the port plate will retract to 0% and the starboard plate will extend to 40%. If the boat is still not level after the initial extension the boat will then increment by 5% until roll has reached level or 65%, whichever comes first. If the boat overcorrects the roll, the plate that extended will begin to retract in 5% increments until roll is corrected or until the plate is back at 0%. If the plate retracts back to 0%, the plate opposite to the one previously retracted will then begin to extend like it would in normal operating conditions.

## Swell™ Surf and Plates

Swell™ Surf will only engage when:

- Cruise is on
- Current speed is between 7 mph and 14.5 mph, and
- Set speed is less than 14.5 mph.

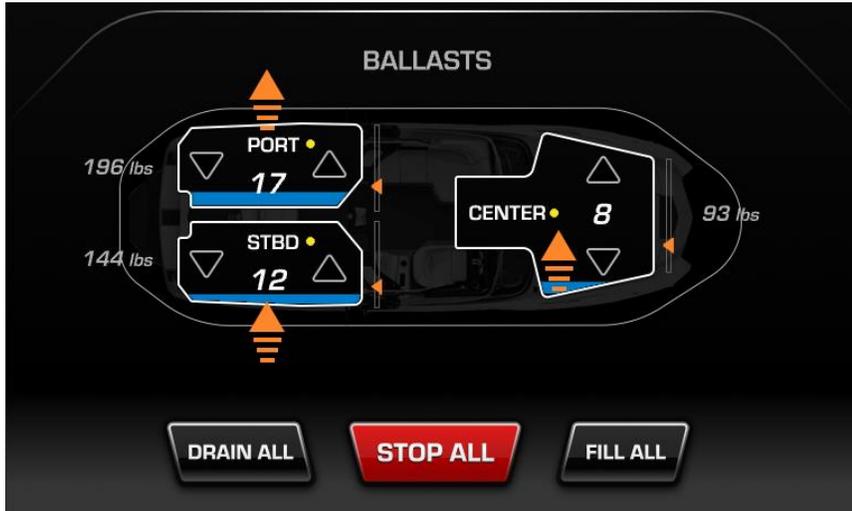


Touch a directional Surf icon to select surfing either on the Left or Right.

Adjust the Swell Plates to create the optimum wave. Touch either Swell Port or Swell Stbd (Starboard) and utilize the – and + keys to adjust the chosen plate. Touch Save when done, or X to exit without saving the changes.



## Ballasts



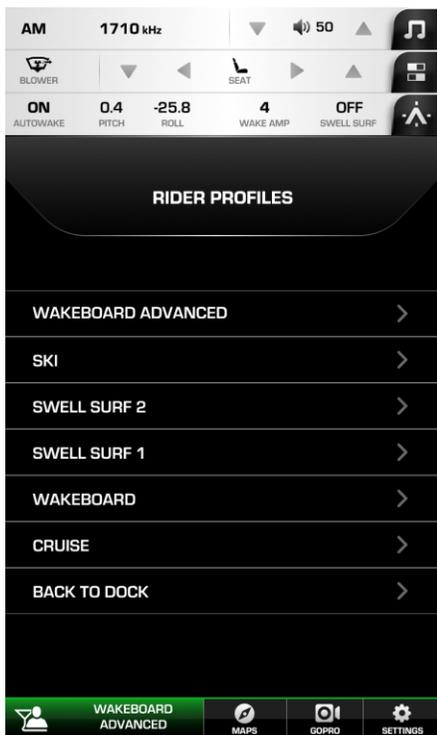
Ballast is used to add displacement to the craft in order to make the waves or wakes larger for specific watersports.

Touch the up or down arrow to begin filling or emptying the ballast. It will graphically begin filling or draining with water, and the added weight will be shown.

Alternately, touch Fill All or Drain All to fill/drain all three ballast bags at the same time.

Stop All will stop the filling or draining in all ballast bags at the same time.

## Rider Profiles



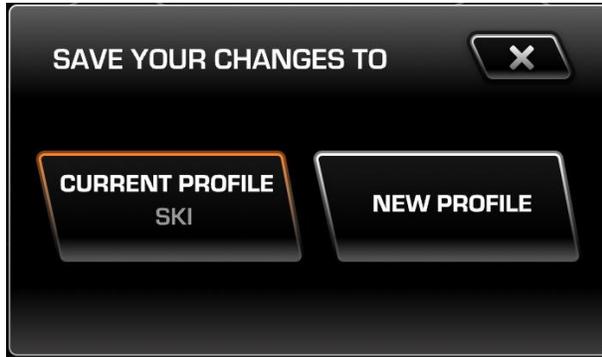
Supra allows the creation and saving of rider profiles in this system. Touch the rider icon  in the lower left corner and the screen at left will display.

Rider profiles that have been prepopulated with various settings exist for you to try out. Follow these steps:

1. Touch a profile name, and then touch .
2. The profile name will then display on the bottom left, and the AutoWake screen will appear in case adjustments are needed.

**To edit an existing profile**, follow these steps:

1. Make any desired changes to an active profile.
2. At the top of the screen, the New Changes box appears.
3. Touch the Save icon .



4. You may choose to save the changes to the Current Profile, or to a New Profile.
5. When saving to a New Profile, the Create New Profile screen appears for a name to be assigned. Type in the profile name, and touch Done.

**To delete an existing (non-prepopulated) profile, follow these steps:**

1. Touch the profile name either at the bottom of the screen by the rider profile icon, or from the Rider Profiles screen.



2. Touch

3. A confirmation message will appear to verify the delete. Touch



# Maps



The Maps utility can be accessed by touching the Maps



icon **MAPS** at the bottom of the screen. The functions on the GPS are handled through touch points on the screen:



This displays the ability to turn on and off the map's grids, text, waypoints, tracks and navigation aids.



This displays the keyboard to name a new waypoint.



This records the boats movements. When done, touch Stop and the keyboard displays to name the track.



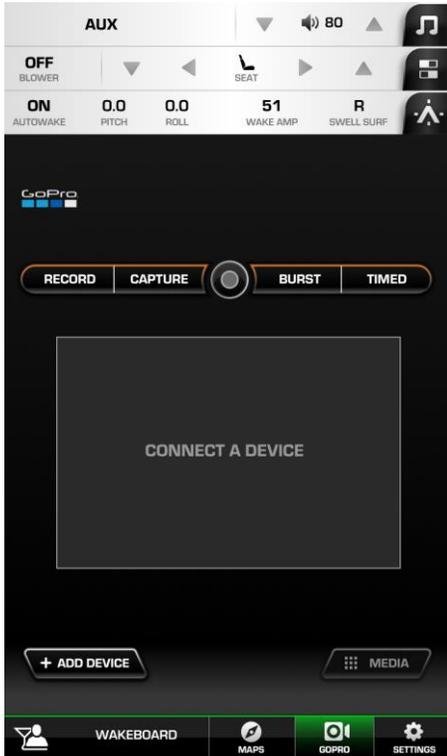
Touching these buttons alternates between North Up and Course Up and will orient the map accordingly.



Zoom Out and Zoom In

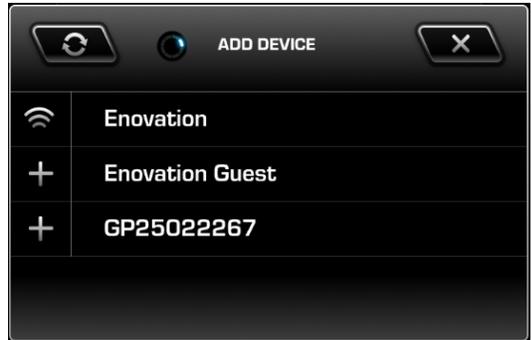
You may also touch a part of the screen and drag it to pan to a different part of the map.

# Go Pro



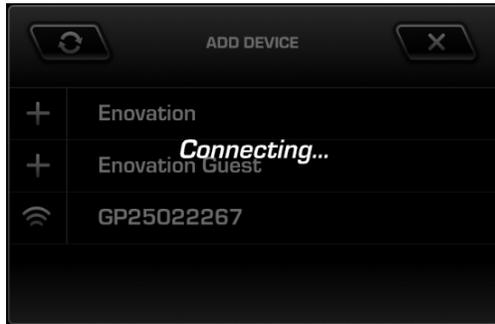
Having a GoPro camera onboard allows interesting photos to be taken by people in (or out of) the boat.

Begin by touching Add Device. A list will appear to show previous devices that have been paired with the system.



Note: Be sure to set the camera name and password via the GoPro mobile phone application. Open your camera settings and check that Wireless is on and in RC+APP mode.

Select the device from the list, and enter the GoPro's password when prompted.



If successful, the camera's view point will appear:



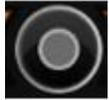


**Record:** use this to record Video.

**Capture:** use this to capture single photographs.

**Burst:** use this to capture several shots in a row.

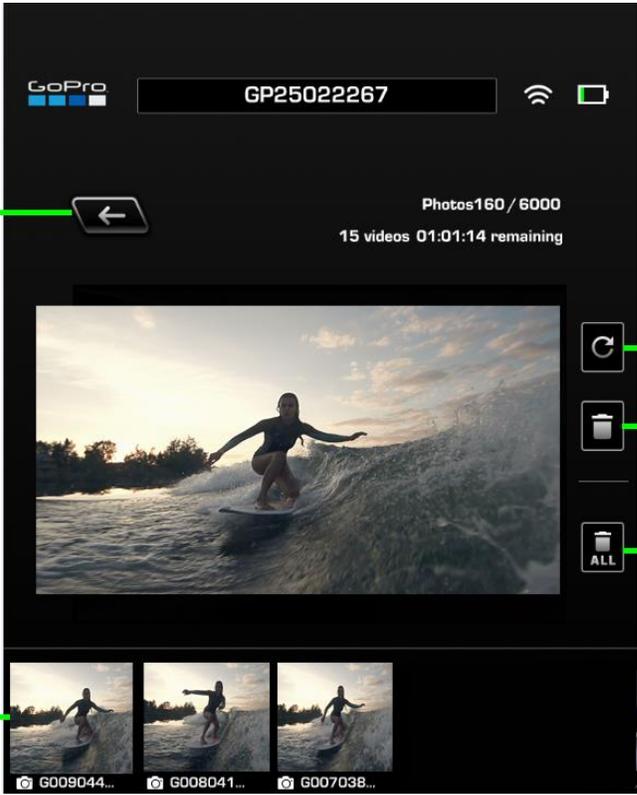
**Timed:** use this to take a time-lapse series of photos.



use this button to begin and end the photos/video.

The Media button will display all photos and videos in memory:

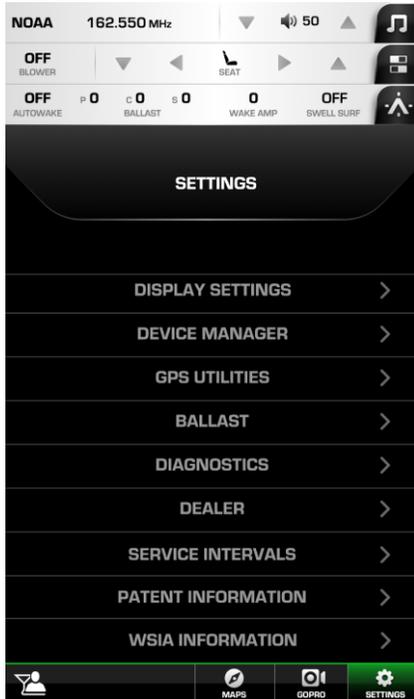
Back  
to  
Camera



Refresh  
Trash  
Selected  
Trash  
All

Gallery

# Settings



The Settings menu contains the following utilities:

- **System Info:** provides the Application, OS, Bootloader and Software information. Also houses the ability to update the software.
- **Display Settings:** controls the brightness, color scheme, etc.
- **Device Manager:** controls the adding of RT Wireless remotes and Bluetooth connected devices.
- **GPS Utilities:** manages the Map utilities and Satellite Status.
- **Ballast:** controls Ballast times and SmartPlate settings.
- **Diagnostics:** provides the Engine and PDM diagnostics.
- **Dealer:** this is a restricted area for Dealers only.
- **Service Intervals:** provides a method to reset service timers for various functions.
- **Patent Information:** contains the QR code to review the Skier's Choice patent information.
- **WSIA Information:** contains safety warnings and the QR code to watch a safety video.

# System Info



This screen displays the current version and part numbers for the Application, Operating System, Bootloader and Software used on the display, Dash display and PDM software.

To perform an online update to a different version of the software, touch , and follow these steps:

<b>Step</b>	<b>Action</b>
1	Connect to one of the Wi-Fi networks shown on the Saved Networks screen that appears. If no networks are shown, touch Add Network and select a displayed network. Enter the network password if one is required.
2	When connected, touch the back arrow to view the Spark Network list of available updates. There could possibly be two items, one for the PV1100 update and one for the PV1200 update. The PV1100 will direct the software to the appropriate display.
3	Touch the download symbol on the right side of each update, and answer the “Are you sure you want to download this update?” question appropriately.

Alternately, plug in a USB with the updated software and touch



# Display Settings



**Auto Backlight:** this automatically dims the brightness when the Navigation light is on.

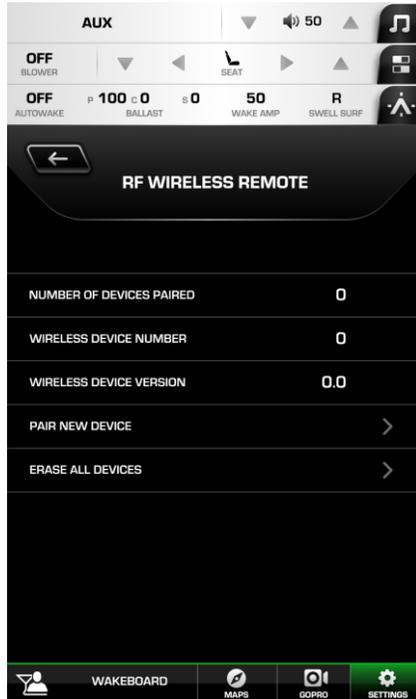
**Brightness:** use the – or + buttons to adjust.

**Units:** choose US Standard or Metric.

**Minimum Depth:** use the – or + buttons to adjust the minimum detectable depth in feet.

**Color Scheme:** the current selection has a checkmark beside it.

# Device Manager

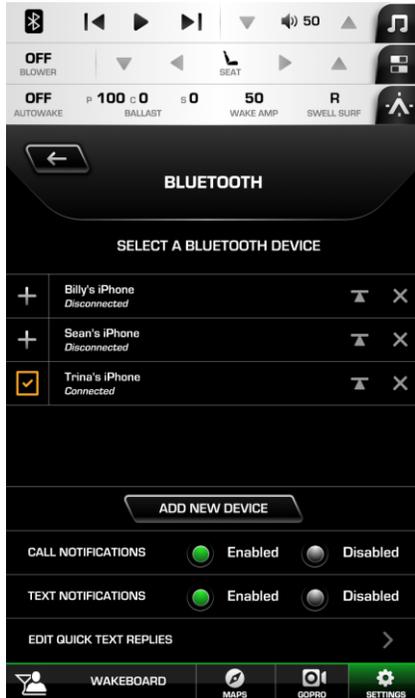


## RF Wireless Remote

This screen displays the number of wireless devices paired to the system along with the wireless device number and version. It also allows you to pair a wireless device and erase all wireless devices paired to the system.

**To pair a new device**, touch Pair New Device. The Add New Device screen will appear. Ensure the device is powered on and touch the green check mark. Press any key on the remote to pair the devices.

# Bluetooth

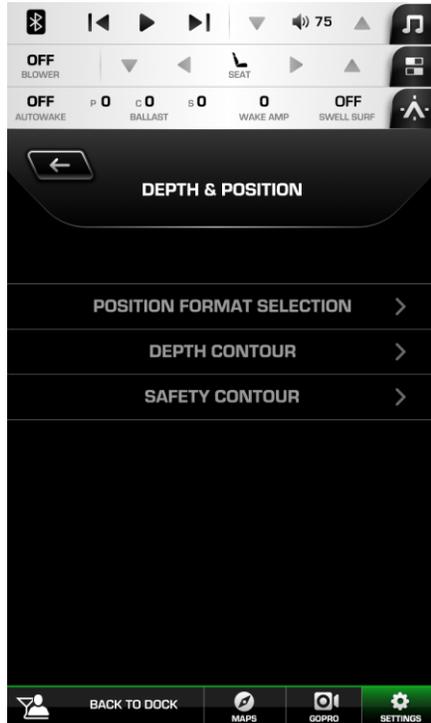


The top half of this screen (Selecting a Bluetooth Device) is the same as previously described within Media Settings of the PV1100.

The bottom half of the screen allows you to enable call and text notifications that will appear on the screen when you receive an incoming phone call or text.

Edit Quick Text Replies allows you to choose or edit a prewritten reply to any incoming texts. When a text arrives, touch Edit Quick Text Replies and choose a reply to be automatically sent.

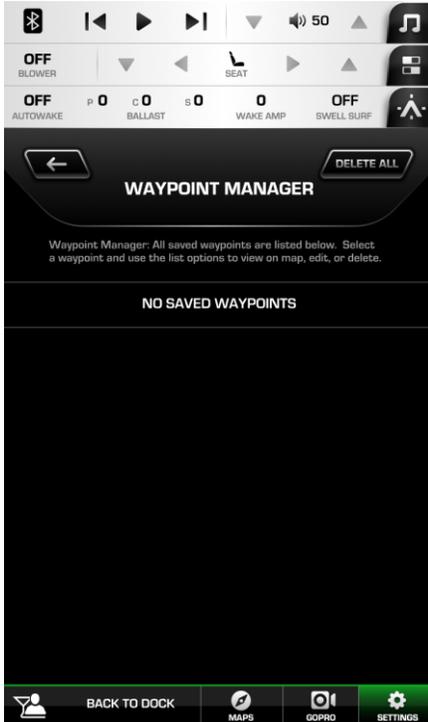
## GPS Utilities



### Depth and Position:

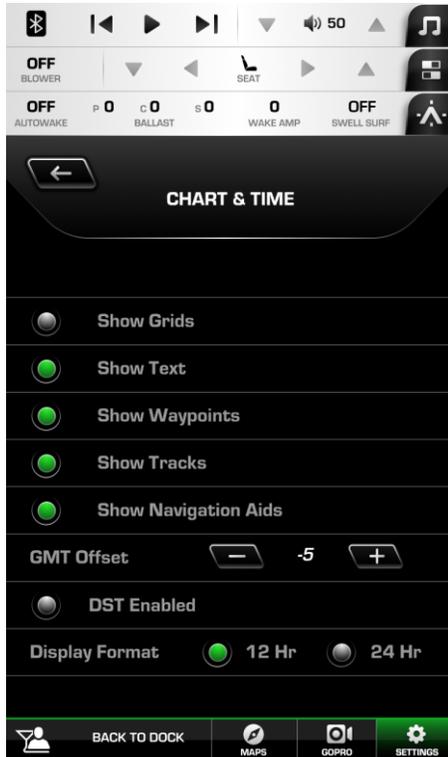
Within this section there are three subsections:

- 1) Position Format Selection: controls how the positions on the map are shown. Choose between Degrees and Decimal Degrees; Degrees, Minutes and Decimal Minutes; or Degrees, Minutes, Seconds and Decimal Seconds
- 2) Depth Contour: signifies the depth that will be displayed on the map. Choose between All, 66 ft, 33 ft, 16 ft, 6 ft or Off.
- 3) Safety Contour: signifies when an alarm will be displayed if a particular depth is close. Choose between 66 ft, 33 ft, 16 ft, 6 ft or Off.



## Waypoint Manager

This section lists all the saved Waypoints from the Map, along with the ability to View, Edit or Delete one or all waypoints.



## Chart and Time:

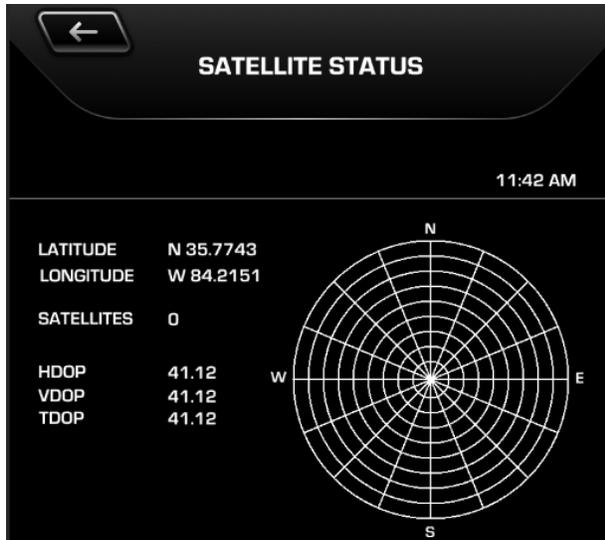
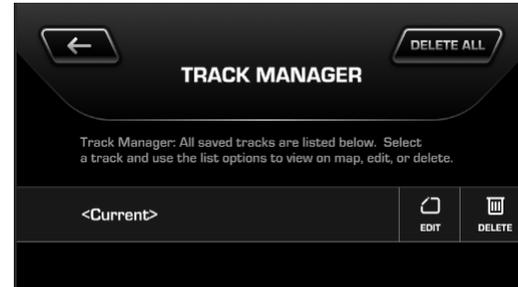
This section allows you to choose if Grids, Text, Waypoints, Tracks and Navigation Aids will be shown on the Map.

This section also provides a way to offset the GMT time by choosing the number of hours difference between GMT and your location.

Lastly, chose to enable or not Daylight Saving Time and choose between a 12 hour and 24 hour clock display.

## Track Manager

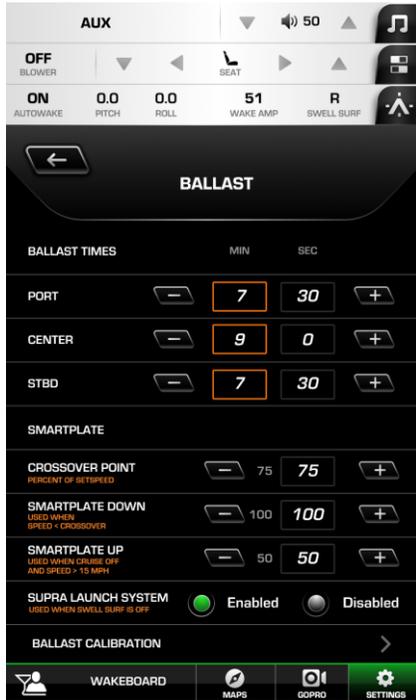
This section allows you to view on the map, edit and delete one or all the saved tracks.



## Satellite Status

This section shows all the detectable satellites transmitting signals in the boat's area.

# Ballast



The first section of this page controls how quickly the ballast fills and drains. Use the – and + buttons to establish the minutes and seconds for the Port, Center and Starboard ballast bags.

The second section of this page concerns the SmartPlate™:

**Crossover Point:** Set the percent of set speed at which the SmartPlate activates to the position set in the rider profile.

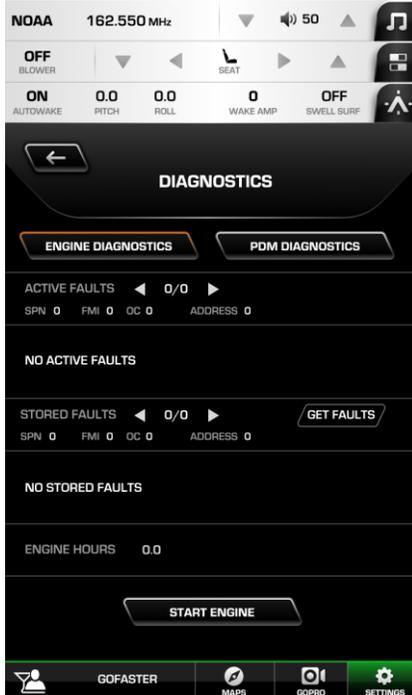
**SmartPlate Down:** Set the percentage at which the SmartPlate will be tilted down when the speed is less than the crossover point.

**SmartPlate Up:** Set the percentage at which the SmartPlate will be tilted up when the speed is greater than 15 mph and the cruise is off.

**Supra Launch System:** enable or disable this system to be used as a launch aid when Swell Surf is turned off.

**Ballast Calibration:** when the ballast is full or empty and the display is showing that it is not full or empty, the ballast will need to be recalibrated. Touch the appropriate button if the ballast is actually full or empty and it will be calibrated.

# Diagnostics



## Engine Diagnostics

This screen will display the active and stored faults for the engine. Touch Get Faults to retrieve any stored faults.

This screen also displays the Engine Hours accumulated for the engine.

The Start Engine button will start the engine when it is not running.

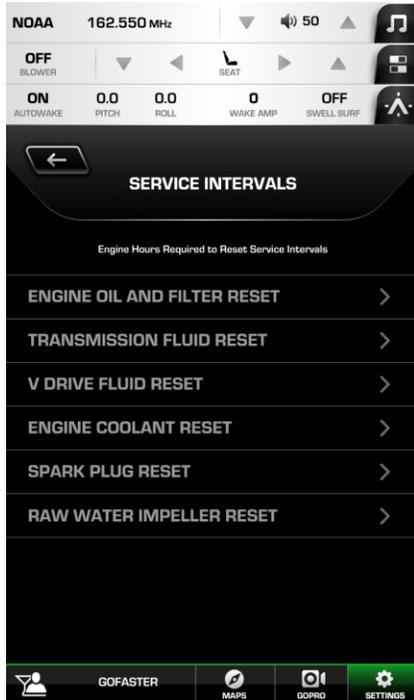


## PDM Diagnostics

This screen provides diagnostics for the Power Display Module.

-  A red light means a short circuit is present.
-  A yellow light means there is an overcurrent.
-  A green light means there are no faults and the circuit is active.

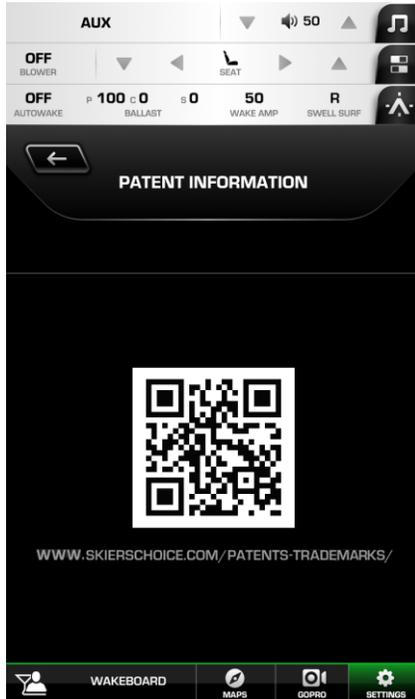
# Service Intervals



This screen allows the resetting of the service intervals. The ability to utilize the Engine Hours function is required to reset the service intervals.

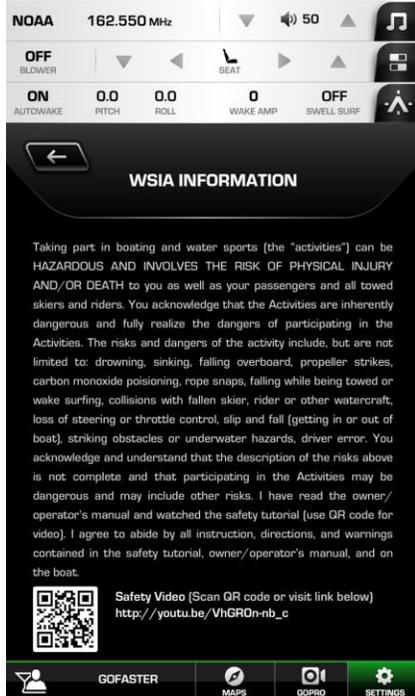
When the service has been performed (i.e., engine oil and filter change), touch that selection and answer Yes to “Reset this interval?”

# Patent Information



This screen's QR code when scanned will display a webpage to satisfy the virtual patent marking provisions of various jurisdictions.

# WSIA Information



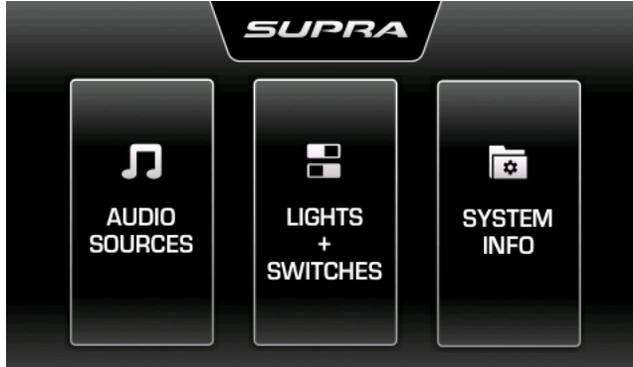
This section serves to increase the awareness of the dangers of boating. Scan the QR code to view a video on Boating Safety.

## PV450 Features

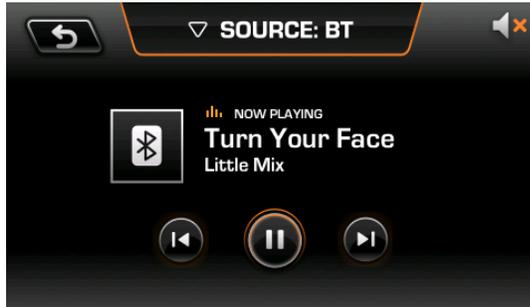
### Home Screen

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The PV450 serves as an additional display/controller for the Audio, Lights and Switches and System Info utilities.



## Audio Sources



Like the Audio function within the PV1100, the PV450 allows the various sources to appear. Touch the Source area and choose between AM/FM Radio, Bluetooth, USB, NOAA and Aux.

Touch the  to return to the Main screen.

## Lights and Switches



Simply touch a light or switch to turn it on or off.

## System Info



Like the System Information screen in the PV100, this screen provides version and part numbers for the Application, Operating System, Bootloader and Software, along with a method to update the software.

## 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 or touch the screen 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 Supra service center.

### **Display has no keypad backlight.**

Contact your Supra service center.