

INSTALLATION INSTRUCTIONS

AND USER'S MANUAL

www.seastarsolutions.com





Integrated Autopilot System



Before you do it your way, please try it our way

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California

Proposition 65 Warning Battery posts, terminals, and related accessories contain lead and lead

compounds, chemicals known to the state of California to cause cancer and reproductive harm.

Wash hands after handling.

Thank you for choosing Optimus[™] SeaWays by SeaStar Solutions. SeaWays is an integrated autopilot system that will ease and improve your boating experience.

About this Book

This manual serves as both an installation and user's manual for Optimus SeaWays autopilot. It contains the information you need to install and safely operate SeaWays. It must remain on the boat.

Notice to the Installer & Operator/User

Throughout this publication, Dangers, Warnings and Cautions (accompanied by the International Hazard Symbol \triangle) are used to alert the user to special instructions concerning a particular service or operation that may be hazardous if ignored or performed incorrectly or carelessly. **Observe them carefully!**

These safety alerts alone cannot eliminate the hazards that they signal. Strict compliance with these special instructions during installation, operation, and maintenance, plus common sense operation, are important measures to prevent accidents.

Failure to adhere to these notices may lead to propeller injuries causing severe bodily injury and/or death.

A DANGER	IMMEDIATE HAZARDS WHICH, IF NOT ACTED UPON, <u>WILL</u> RESULT IN SEVERE PERSONAL INJURY OR DEATH.
A WARNING	HAZARDS OR UNSAFE PRACTICES WHICH, IF NOT ACTED UPON, <u>COULD</u> RESULT IN SEVERE PERSONAL INJURY OR DEATH.
	Hazards or unsafe practices which could result in minor injury or product or property damage.
NOTICE	Information which is important to proper use or maintenance, but is not hazard-related.

ABBREVIATIONS

The following abbreviations are used in this manual:

ABYC	American Boat & Yacht Council
CAN	Controller Area Network
EPS	Electronic Power Steering
GPS	Global Positioning System
NMEA	National Marine Electronics Association
NMEA 2000 [®]	A protocol for digital communication on a CAN Bus
PCM	Pump Control Module
RPM	Revolutions Per Minute
SBAS	Satellite-Based Augmentation System
STBD	Starboard (right)

Note: Some abbreviations not listed here may be found in their respective sections.

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1.0 SAFETY INFORMATION

	THE SAFETY INFORMATION PROVIDED BELOW IS INTENDED TO INFORM YOU OF THE DANGERS THAT MAY BE PRESENT BEFORE, DURING AND AFTER USE. IT IS CRITICAL THAT YOU READ AND UNDERSTAND ALL THE POINTS NOTED.	
	THE OPTIMUS SEAWAYS SYSTEM MUST ONLY BE INSTALLED BY AN AUTHORIZED DEALER OR BOAT BUILDER.	
	Safe operation of the SeaWays system depends upon proper installation and maintenance of the system, and the common sense, safe judgment, knowledge, and expertise of the operator. Every installer and operator of SeaWays should know the following requirements before installing or operating.	
	SeaStar Solutions.	
	To reduce the risk of severe injury or death:	
	 Always wear a Coast Guard Approved personal flotation device (PFD) and use an engine shut-off cord (lanyard). Engaging SeaWays causes the boat to steer automatically. This could injure someone in the water. It is the operator's responsibility to make sure no one is in the water or enters the water. If someone enters the water, pull all engine lanyard(s). Read and understand this User's manual and the Quick Reference Card provided with your vessel control components. SeaStar and Optimus components are highly engineered and safety tested to ensure system integrity. DO NOT substitute any component. Substitution with non-SeaStar or non-Optimus components may compromise system safety, performance, and reliability. 	
Prior to every use	 Perform a system inspection as outlined below. Refer to Section 9.1 in the Optimus EPS Installation Manual (Book 50) for further details. 1. Check steering fluid level in all steering pumps. 2. Verify immediate steering response when turning steering wheel(s). 3. Inspect all steering hoses, fittings, mechanical cables, and electrical harnesses for wear, kinks, or leaks. 4. Check for binding, loose, worn or leaking steering or shift/throttle control components. 5. Verify proper shift and throttle response for all control handles. 6. Take control with the joystick and verify that steering, shift and throttle respond to joystick movement. 7. Verify that no alarms or warnings are shown on the CANtrak display. 	
	DO NOT OPERATE BOAT IF ANY COMPONENT IS NOT IN PROPER WORKING CONDITION.	

1.0 Safety information (continued)

During use	 WEAR A COAST GUARD-APPROVED PERSONAL FLOTATION DEVICE (PFD). Attach engine shut-off cord (lanyard) to your PFD. Never allow anyone not familiar with the operation of the vessel control system to operate the boat at ANY time. Know and adhere to all applicable federal, state, and municipal laws and regulations that govern boating in your area. DO NOT OPERATE BOAT IF ANY COMPONENT IS NOT IN PROPER WORKING CONDITION. 		
	DO NOT OPERATE THE VESSEL WITHOUT A FUNCTIONING CANTRAK DISPLAY.		
After use	Rinse off the SmartCylinders thoroughly, using only fresh, clean water. (Outboard-powered vessels only.) DO NOT rinse the PCM, pumps, actuators, or any other component of the Optimus system. DO NOT use acetone, or cleaners containing ammonia, acids, or any other		
Maintenance	corrosive ingredients on any Optimus components. Refer to your Optimus 360 manual for maintenance instructions. Keep our waters clean for all current and future users. Dispose of all fluids in accordance with your local regulations.		

2.0 INSTALLATION

2.1 Overview

SeaWays is an integrated autopilot system. SeaWays builds off of an Optimus 360 system by adding a GPS and heading sensor. The system uses position and heading data to steer the vessel automatically.

Once your Optimus 360 system is installed, adding SeaWays is simple:

- 1. Install the SeaWays Sensor
- 2. Route CAN2 cable from sensor to Optimus CAN2 backbone
- Apply Sensor license provided with kit (captured on back cover of this booklet)
- 4. SeaWays commisioning

2.2 Before You Begin

Before installing GPS Sensor:

- **1.** Optimus 360 must be fully installed and commissioned.
- **2.** All software must be up to date See book 65 for instructions on updating software.

2.3 Contents

- 1. 682175 SeaStation Installation and Users Manual
- 2. 682176 SeaStation Quick Reference Card
- 3. 929500 x 3 SeaStation warning decal
- 4. CM10020 20' CAN M/F drop cable
- 5. CM10001 1' CAN M/F drop cable
- 6. CM10060 Single port CAN tee
- 7. 214642 SeaStation/Seaways Sensor
- 8. 682208 SeaWays Installation and Users Manual
- 9. 682209 SeaWays Quick Reference Card

2.4 Installing the Sensor

2.4.1 Mounting Location

This section provides information on determining the best location for the sensor.

GPS Reception

When considering where to mount the sensor, consider the following GPS reception recommendations:

- Ensure there is a clear view of the sky available to the sensor so the GPS and SBAS satellites are not masked by obstructions that may reduce system performance.
- Mount the sensor as close to the center of the vessel as possible. This includes both the fore-aft direction and the port-starboard direction.
- Locate any transmitting antennas away from the sensor by at least several feet to ensure tracking performance is not compromised, giving you the best performance possible.
- Make sure there is enough cable length to tie into the Optimus CAN2 backbone of the vessel.
- Do not locate the antenna where environmental conditions exceed those specified in the table 2-1 Environmental Conditions below.

Environmental Considerations

The sensor is designed to withstand harsh environmental conditions; however, adhere to the following limits when storing and using the sensor:

Item	Specification
Operating Temperature	-30°C to +70°C (-22°F to +158°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Humidity	100% non-condensing

Table 2-1. Environmental Conditions.

VHF Interference

VHF interference from devices such as cellular phones and radio transmitters may interfere with GPS operation. For example, if installing the sensor near marine radios consider the following:

- VHF radios can interfere with GPS signals.
- Follow VHF radio manufacturers' recommendations on how to mount their radios and what devices to keep a safe distance away. Before installing the sensor use the following diagram to ensure

there are no nearby devices that may cause VHF interference.

NOTICE

The sensor should be mounted as low as possible while still maintaining good sky visibility. This will reduce false movement due to the boat rocking back and forth.



Figure 2-1. Sensor mounting distance from nearby VHF antennas and other equipment.

2.4.2 Mounting Alignment

The SeaWays sensor should be mounted parallel to, and along the centerline of, the axis of the boat. The bottom of the sensor has an arrow - the arrow must point forward.

The top of the sensor enclosure incorporates sight design features to help align the sensor with respect to a centered feature on your vessel, such as the bow.

To use the sights, look through the medallion in the center of the enclosure such that the sighting post is centered, as shown in figure 2-2. Adjust the sensor until the vessel's centered feature is in line with the medallion channel and the center post.



Figure 2-2. Long site alignment channel.

2.5 Mounting Options

2.5.1 Mounting Options

This section provides information on determining the best location for the SeaWays sensor.

The sensor allows for both pole or flush mounting. Follow directions below for detailed mounting directions.

Sensor Dimensions

Figure 2-3 and figure 2-4 illustrates the physical dimensions of the sensor.



Figure 2-3. Sensor dimensions.



Figure 2-4 : SeaStation sensor dimensions with adapter.

2.5.2 Cable Considerations

Before mounting the sensor, consider the following regarding cable routing:

- Avoid running the cable in areas of excessive heat
- Keep cable away from corrosive chemicals
- Do not run the cable through door or window jams
- Keep cable away from rotating machinery
- Do not crimp or excessively bend the cable
- Avoid placing tension on the cable
- Remove unwanted slack from the cable at the sensor end
- Secure along the cable route using plastic tie wraps

IMPROPERLY INSTALLED CABLE NEAR MACHINERY CAN BE DANGEROUS

2.5.3 Flush Mount

The bottom of the sensor contains two holes for flush mounting the unit to a flat surface (figure 2-5). The flat surface may be something you fabricate per your installation, an off-the-shelf item (such as a radar mounting plate), or an existing surface on your vessel.

NOTICE

SeaStar Solutions does not supply the mounting surface hardware. You must supply the appropriate fastening hardware required to complete the installation of the sensor.

Figure 2-5: Flush mounting with holes in the SeaStation sensor.

Before flush mounting the sensor

- Choose a location that meets the mounting location requirements.
- Using the fixed base as a template, mark and drill the mounting holes as necessary for the mounting surface.

Flush mounting the sensor

- **1**. Mark the mounting hole centers and connector center on the mounting surface.
- **2**. Place the sensor over the marks to ensure the planned hole centers align with the true hole centers (adjusting as necessary).
- **3**. Use a center punch to mark the hole centers.
- **4**. Drill the mounting holes to a diameter of 1/4" appropriate for the surface.
- 5. Drill the connector hole to a diameter of 1-1/8" appropriate for the surface.
- 6. Pull the cable through the center connector hole and attach the cable directly to the sensor, ensuring the connector is fastened securely to the unit.
- 7. Place the sensor over the mounting holes and insert the mounting screws through the top of the sensor and through the mounting surface.
- 8. Use two M6 washers and M6 nuts to secure the sensor to the mounting plate (washers and nuts not included).

WHEN INSTALLING THE **SENSOR, HAND TIGHTEN ONLY. DAMAGE RESULTING** FROM OVER-TIGHTENING **IS NOT COVERED BY THE** WARRANTY.



Figure 2-6: Sensor, with adapter.

Before pole mounting the sensor

- Choose a location that meets the mounting location requirements.
- Mark and drill the mounting holes as necessary for the threaded pole.

Pole mounting instructions for sensor (Inside Pole)

Required tools: 5 mm Allen key for M6 screws and adjustable wrench to tighten jam nut.

- **1**. Insert mating cable through both the jam nut and 1" mounting adapter base.
- **2**. Place the jam nut on the pole followed by the 1" adapter base. Hand tighten the base to the desired orientation.
- **3**. Adjust the jam nut to secure the orientation.
- **4**. Connect the mating end of the cable to the sensor connector located on the bottom of the unit.
- **5**. Insert the base adapter into sensor by placing the tongue of the base into the groove of the sensor unit. When the tongue is properly seated in the groove, the rest of the base can be pressed into place to create a smooth seam between the base and sensor unit.
- **6**. Use 5 mm Allen key to fasten two M6 screws to secure sensor onto adapter. Use 15 in-lb torque.
- **7**. Insert each O-ring onto a plastic cap.

OVER-TIGHTENING MAY DAMAGE THE SYSTEM. THIS IS NOT COVERED UNDER WARRANTY.

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- **8**. Install plastic cap with O-ring onto sensor unit (rectangular notch faced towards the outside).
- **9**. Align and set the direction of sensor unit, while using the jam nut to secure the unit (hand-tighten).

Pole mounting instructions for sensor (Outside Pole)

Required tools: 5 mm Allen key for M6 screws and adjustable wrench to tighten jam nut

- **1**. Place the jam nut on the pole followed by the 1" adapter base. Hand tighten the base to the desired orientation.
- 2. Adjust the jam nut to secure the orientation.
- **3**. Run the cable throughout the vessel making sure to leave enough slack to mate the CAN cable to both the Optimus CAN2 and the sensor unit.
- **4**. Run the CAN cable through the opening in the side of the pole mounting adapter. And then connect the mating end of the cable to the sensor connector located on the bottom of the unit.
- **5**. Insert the base adapter into sensor by placing the tongue of the base into the groove of the sensor unit. When the tongue is properly seated in the groove, the rest of the base can be pressed into place to create a smooth seam between the base and sensor unit.

A WARNING

OVER-TIGHTENING MAY DAMAGE THE SYSTEM. THIS IS NOT COVERED UNDER WARRANTY.

- **6**. Use 5 mm Allen key to fasten two M6 screws to secure sensor onto adapter. Use 15 in-lb torque.
- 7. Insert each O-ring onto a plastic cap.
- **8**. Install plastic cap with O-ring onto sensor unit (rectangular notch faced towards the outside).
- **9**. Align and set the direction of sensor unit, while using the jam nut to secure the unit (hand-tighten).

2.6 Electrical Connection

The SeaWays sensor connects to the Optimus CAN2 backbone. The installation kit comes with a 20 foot CAN2 cable, a 1 foot CAN2 cable and a tee connector. If the CAN2 hub in the Optimus 360 installation is full, remove the terminator and connect the 1 foot CAN2 cable in its place. Install the tee connector at the opposite end of the 1 foot cable and reinstall the terminator on the tee. The 20 foot cable can now be routed from the tee connector up to the SeaStation sensor.

If the 20 foot CAN2 cable is not long enough to reach from the CAN2 hub to the SeaWays sensor, a longer cable (CM10030) must be ordered separately. In this case the 30 foot cable must be connected directly to the hub and the tee, and the terminator and 1 foot cable are connected at the SeaWays sensor end of the 30 foot cable.

The sensor can be alternatively connected to CAN3 (public N2K network). If the sensor is installed on public network, it can replace any other GPS or compasses that may have been installed otherwise.

CAN3 is the preferred connection if a chartplotter is used.

2.7 Enabling SeaWays

SeaWays requires a license code that is specific to each installation. A copy of the license is fixed to the back of your original manual as well as to the bottom of your SeaWays sensor.

The license key must be entered in the CANtrak display to enable SeaWays. Follow these steps:

1. Using the CANtrak, navigate to **Dealer Menu > Initial Setup > SeaWays and SeaStation > Enter New License Code**.





NOTICE

The license key is shared with SeaStation and will be the same.

- 2. Enter the license code (captured on back cover of this booklet).
- **3.** Make sure the new license code is correct and press OK to confirm.



Figure 2-8.

4. Check that the **Sensor Status** has changed to **Licensed**. If it has not, retry entering the license code.

SEAWAYS AND SEASTATION			
Sensor Status	Licensed		
Sensor Serial No	19030759		
License Code	80642086		
1) Enter New License Code 💦 📎			
2) SeaStation Commissioning			
3) SeaWays Commissioning 💦 📎			
	্য		

Figure 2-9.

2.8 Commissioning

2.8.1 Autopilot Parameters

NOTICE

SeaWays has to be enabled and commisioned before use.

Some parts of SeaWays commissioning can be performed at dock with the boat securely restrained, but others will require deep open water with adequate operating space.

<u>ALWAYS</u> wear a PFD and connect the engine lanyard(s) to the operator during commisioning.

DO NOT PERFORM COMMISIONING:

- AT EXTREME SPEED
- IN HEAVY TRAFFIC AREAS OR IN NARROW WATERS
- IN POOR VISIBILITY OR EXTREME SEA CONDITIONS
- WHEN IN AREAS WHERE USE OF AUTOPILOT IS PROHIBITED BY LAW



The Autopilot parameters can be accessed using the CANtrak display:

1. Using the CANtrak, navigate to **Dealer Menu > Initial Setup > SeaWays and SeaStation > SeaWays Commisioning**.

SEAWAYS AND SEASTATION		
Sensor Status		
Sensor Serial No		
License Code		
1) Enter New License Code	≥	
2) SeaWays Commissioning		
3) SeaStation Commissioning		
\land \lor \land \land \land	5	

Figure 2-10.

SeaWays autopilot must be enabled before use. If SeaWays is not used it can be disabled. Default is disabled.





2. Adjust GPS-Compass offset to compensate for sensor misalignment. Drive the boat at high speed until the autopilot confirms the sensor is adjusted.



Figure 2-12.

3. Define idle, planning and maximum engine RPM's.

SET RPM LEVE	s		
Idle RPM		6	00 RPM
Planing RPM		28	00 RPM
Max RPM		53(00 RPM
		+	5

Figure 2-13.

4. Drive boat at 5–6 knots, engage heading mode, jog target heading by 10°. Reduce sensitivity if boat turns too aggressively or overshoots. Increase sensitivity if autopilot is too lazy.



Figure 2-14.

5. Drive at at cruising speed (30–35 knots). Repeat step 4.



Figure 2-15.

2.8.2 Settings

General user settings can be accessed using the CANtrak display. To access these settings press the **MENU** button and then **SETTINGS**.



Figure 2-16.

User level sensitivity adjustments can be made from this menu as well as waypoint alarm options.





1. Global sensitivity adjustment:



Figure 2-18.

2. Waypoint arrival alarm options.



Figure 2-19.



Figure 2-20.

3. An option also exist to reset SeaWays user options to default.



Figure 2-21.

2.8.3

A WARNING

ALWAYS WEAR A PFD AND CONNECT THE ENGINE LANYARD(S) TO THE OPERATOR DURING SEA TRIAL.

Sea Trial

When using an autopilot:

- Do not leave the helm unattended
- · Verify the course and position of the vessel at regular intervals
- Always switch to Standby mode, and reduce speed in sufficient time to avoid hazardous situations

	An autopilot is a useful navigational aid, but DOES NOT under any circumstances replace a human navigator.
A WARNING	DO NOT USE AUTOMATIC STEERING WHEN: • AT EXTREME SPEED • IN HEAVY TRAFFIC AREAS OR IN NARROW WATERS • IN POOR VISIBILITY OR EXTREME SEA CONDITIONS • WHEN IN AREAS WHERE USE OF AUTOPILOT IS PROHIBITED BY LAW

2.9 Troubleshooting Guide

A WARNING	WHENEVER, IN THE FOLLOWING TEXT, A SOLUTION CALLS FOR REMOVAL FROM VESSEL AND/OR DISMANTLING OF STEERING SYSTEM COMPONENTS, SUCH WORK MUST ONLY BE CARRIED OUT BY A QUALIFIED MARINE MECHANIC. SEASTAR SOLUTIONS OFFERS THE FOLLOWING AS A GUIDE ONLY AND IS NOT RESPONSIBLE FOR ANY CONSEQUENCES RESULTING FROM INCORRECT DISMANTLING OR REPAIRS.		
	Optimus SeaWays will provide years of safe reliable performance with a minimum of service if properly commissioned. Most faults occur when the installation instructions are not followed and usually show up immediately. Listed below are the most common faults encountered and their likely cause and solution.		
1. Nav data communication loss	GPS-Compass is not communicating.	Confirm all connections are in place. Confirm GPS is connected to correct network.	
	License is incorrect.	Confirm license is correct. See section 2.7 for details.	
2. Nav data unstable	GPS-Compass is not communicating.	Wait for GPS to acquire satellites. Move away from tall buildings and bridges. Mount GPS with good sky visibility (Refer to page 2-3).	

FAULT	CAUSE	SOLUTION	
3. GPS data invalid	No GPS-Compass position fix.	Wait for GPS to acquire satellites. Move away from tall buildings and bridges. Mount GPS with good sky visibility.	
	GPS-Compass is malfunctioning.	Contact SeaStar technical support.	
4. Heading data invalid	No GPS-Compass position fix.	Wait for GPS to acquire satellites. Move away from tall buildings and bridges. Mount GPS with good sky visibility.	
	GPS-Compass is malfunctioning.	Contact SeaStar technical support.	
5. Significant XTE change detected	Conditions are too strong.	Some conditions may be too strong for autopilot operation.	
6. Significant heading change detected	Conditions are too strong.	Some conditions may be too strong for autopilot operation.	

3.0 USER

3.1 Overview

SeaWays is a feature rich autopilot that is integrated into Optimus 360 systems.

An autopilot is a useful navigational aid, but DOES NOT under any circumstances replace a human navigator.

When using an autopilot:

- Do not leave the helm unattended
- Verify the course and position of the vessel at regular intervals
- Always switch to Standby mode, and reduce speed in sufficient time to avoid hazardous situations

WARNING

- DO NOT USE AUTOMATIC STEERING WHEN:
- AT EXTREME SPEED
- IN HEAVY TRAFFIC AREAS OR IN NARROW WATERS
- IN POOR VISIBILITY OR EXTREME SEA CONDITIONS
- WHEN IN AREAS WHERE USE OF AUTOPILOT IS PROHIBITED BY LAW

3.2 SeaWays Operation

3.2.1 SeaWays Modes

Seaways features three ways to operate the autopilot. Seaways is controlled by the CANtrak display.

1. HEADING MODE

- Autopilot holds a desired heading
- · Boat may drift with wind and current



Figure 3-1.

2. TRACK MODE

- Autopilot holds a desired course over ground.
- Boat heading may be changed by the autopilot to hold the desired course.



Figure 3-2.

3. ROUTE MODE

- Autopilot follows waypoints provided by third party chartplotter.
- Boat heading will be changed by the autopilot to follow the waypoints.





3.2.2 How to Engage and Disengage SeaWays

NOTICE

SeaWays requires a GPS fix. In some conditions, this may require a few minutes after power on.

ENGAGING SEAWAYS CAUSES THE BOAT TO STEER WITHOUT INPUT FROM DRIVER. WHEN USING SEAWAYS ALL PERSONS ON THE VESSEL SHOULD BE SECURED. THE OPERATOR SHOULD NEVER LEAVE THE HELM STATION.

- A single button press is all that's required to engage SeaWays:
- From the run screen (shown below) you have the option of Heading, Track, or Route.
- Route will only be available if a route has been setup and activated in the chartplotter
- Press the desired autopilot mode.



Figure 3-4.

Figure 3-4 shows a screen while pilot is engaged. SeaWays can be disengaged by pressing the **STBY** button.



Figure 3-5.

3.2.3 Override Mode

Autopilot is temporarily disabled when the helm is turned. For Heading and Track mode the autopilot re-engages automatically when the helm is no longer turned and the boat heading is stable. When the autopilot re-engages, the current heading becomes the new desired heading. When using Route mode the autopilot will not re-engage automatically if steering override is used. It will have to be re-engaged by pressing the Route button.

3.2.4 Heading Bump

While SeaWays is engaged, changes to your heading can be made by:

 Using the jog buttons on CANtrak display. Momentarily press for 1° change. Press and hold for 10° change.



Figure 3-6.

2. Move joystick momentarily sideways for 1°. Move joystick and hold sideways for 10°.



Figure 3-7. Joystick.

3-4

3.2.5 Route Mode Considerations

Depending on the chartplotter used in conjunction with SeaWays; not all behave the same when initiating a turn while reaching a waypoint.

In addition, the waypoint arrival alarm may behave differently or even be turned off in the chartplotter.

It is important to understand the functionality of the chartplotter being used:

The CANtrak display has a waypoint arrival alarm that can be toggled on or off.



Figure 3-8.



These arrival alarms pop up automatically when a way point is reached and a 10° or more course change is required.

The screen disappears when the user presses the OK button or automatically after 10 seconds. The CANtrak display will provide audible beep when the screen is displayed.

The vessel will initiate turning regardless if the arrival alarm OK is pressed.

When the screen is up, the green arrow blinks at 2 Hz and the 10 second timer counts down.

3.3 3rd Party Autopilots

When a 3rd party autopilot is engaged, the SeaWays buttons on the CANtrak are disabled, so you cannot engage SeaWays.

If SeaWays is engaged and you engage a 3rd party autopilot, SeaWays will dis-engage and give priority to the 3rd party autopilot.

3.4 SeaWays Faults

3.4.1 Cross Track Error (XTE)

XTE faults are usually resultant from strong wind or water currents biasing the vessel laterally from the desired track.



Figure 3-10. Cross Track Error (XTE).



Figure 3-11. Heading Error 7F1A0.

3.4.2 GPS-Compass Faults

There are two types of GPS faults:

- **1.** Communication Fault If a communication fault occurs, contact technical support for assistance.
- 2. Signal Fault

Often a signal fault is due to the GPS-Compass having no signal or a poor quality signal. Try moving to an area with better sky visibility, or give the system more time to track and acquire satellites.

3.5 Maintenance and Replacement Parts

Following the routine maintenance schedules outlined below will ensure years of service from your Optimus SeaWays System, as well as keep you and your passengers safe from the dangers that are present on and off the water. NOTICE Follow all maintenance procedures in Book 65. 3.5.1 **Owner(s) (End Users)** Prior to every use: **1.** Inspect all electrical cables for wear. 2. Verify that no alarms or warnings are shown on the CANtrak display. WARNING A DO NOT OPERATE BOAT IF ANY COMPONENT IS NOT IN PROPER WORKING CONDITION. 3.5.2 **Oualified Marine Mechanic** After the first 20 hours, then every 100 hours or 6 months thereafter (whichever comes first). **1.** All points noted above. 2. Check for signs of corrosion. If corrosion is present contact your dealer or SeaStar Solutions. **3.** Check all electrical cables for chafing and wear.

3.5.3 Replacement Parts

See Book 65 for details on replacement parts within your steering and joystick systems.

EPSK1600 – GPS-Compass Kit

A new SeaStation/SeaWays license key will be provided with the kit — the system must be updated with this new license. See section 2.7.

4.0 WARRANTY4.1 Statement of Limited Warranty

We warrant to the original retail purchaser that **Marine Canada Acquisition Inc. DBA SEASTAR SOLUTIONS** (herein forward referred to as **SeaStar Solutions**) products have been manufactured free from defects in materials and workmanship. This warranty is effective for two years from date of purchase, excepting that where **SeaStar Solutions** products are used commercially or in any rental or income producing activity, then this warranty is limited to one year from the date of purchase.

We will provide replacement product without charge, for any **SeaStar Solutions** product meeting this warranty, which is returned (freight prepaid) within the warranty period to the dealer from whom such product were purchased, or to us at the appropriate address. In such a case **SeaStar Solutions** products found to be defective and covered by this warranty, will be replaced at **SeaStar Solutions'** option, and returned to the customer.

The above quoted statement is an extract from the complete **SeaStar Solutions** products warranty statement. A complete warranty policy is available on the **SeaStar Solutions** website:

http://www.seastarsolutions.com/support-2/warranty-2/seastar-solutions-warranty/

4.2 Return Goods Procedure

Prior to returning product to **SeaStar Solutions** under warranty, please obtain a *Return Goods Authorization number* (claim number).

Be sure to label the goods with:

a) the name and address of the sender, and

b) the return goods authorization number (claim number)

Please address the returned goods as follows:

From U.S.A.

c/o UPS-SCS

SeaStar Solutions

19308 70th Ave S.

Kent, WA 98032

RGA # ?

From Canada

RGA # ? SeaStar Solutions 3831 No. 6 Road Richmond, B.C. Canada V6V 1P6

Technical Support

Phone: 604-248-3858

Email: seastar@seastarsolutions.com

Hours: Monday to Friday 05:00 - 15:30 PST

Web: www.seastarsolutions.com

IMPORTANT: License key to activate SeaWays. DO NOT LOSE.



SEASTAR SOLUTIONS 3831 NO. 6 ROAD RICHMOND, B.C. CANADA V6V 1P6

FAX 604-270-7172

www.seastarsolutions.com

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Please scan this QR code and watch our latest **Boating Safety** video.



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