Field Service Spares Replacement Procedure – Furuno GPS Kit, Coastal

Approval:

Approving Authority	Signature	Date
Doc Control:	Ron Chaffee / Signature on file.	3-26-12
Assistant Service Manager, Global	John VanderJagt / Signature on file.	3-27-12
Author:	Stuart Broadfield / Signature on file.	03-23-12

Revision History

Rev.	ECO	Description of Change	Date
A	9117	Initial release	02-14-2012

1. Brief Summary:

Troubleshooting document for diagnosing a fault with and replacing the Furuno GPS antenna on the Coastal series systems.

2. Checklist:

- Verify Acquisition During Initialization
- Manually override the current GPS

3. Theory of Operation:

A GPS antenna is installed on the pedestal to feed the vessels location directly into the antennas PCU. When a satellite is targeted the system will use the GPS position to physically align the polarity of the system, ensuring the LNB in the correct reception position for the desired satellite. The GPS is also used to calculate the elevation look angle for the desired satellite, once targeted the antenna will then sweep in azimuth at the correct elevation looking in search for the targeted satellite which will be indentified via its Network Identity (NID).

Failure of the GPS will cause misalignment of the feed meaning the LNB won't be correctly aligned with the linear signal and in turn signal quality will be lost and in extreme cases the reception can be lost completely. Another cause of not having a valid GPS is that the system takes longer to find the desired satellite due to targeting at an incorrect elevation (provided it still has enough signal quality to decode a NID and identify the correct satellite).

4. Initialization:

Cycle the power to the pedestal by pressing the power button on the control panel. During the initialization process the control panel will display "Initializing" with a flashing "o" next to it. Once the system has acquired a valid GPS lock the "o" will change into a "*". Monitor the control panel during the initialization process to verify if the GPS position is acquired.

If no GPS lock is required the system will eventually come out of initialization and target based on that last GPS update position. If no GPS lock is acquired during the initialization process then it is possible that the reflector could have been partially blocking the signal to the GPS antenna installed on the reflector. Manually override the GPS position in the PCU as per the following step of this procedure.

5. Manually Override the GPS Position in the PCU:

Once the antenna has come out of initialization it will begin to search for the desired satellite. It is now plausible that as the reflector rotates it may bring itself into sight with the GPS satellites and acquire a lock on its position.

To verify this press and hold the save and down arrow keys together on the control panel until the system enters the setup menu. Now press the down arrow to scroll through the options until the "factory settings" are displayed. Press the next button to enter into the factory settings options and then use the down arrow key to scroll until either "Ship Lat" or "Ship Lon" is displayed.

Adjust one of these coordinates by pressing in the next button to highlight the cursor, continue to use the next button to scroll the cursor along until it's under the characters and then use the up or down arrows to change the value. Once complete press the save button to input the new value into either the latitude or longitude coordinate.

Provide the GPS is functioning correctly it should automatically update back to the vessels current coordinates. Failure of this step is an indication that the GPS antenna is not providing a valid input into the PCU and is therefore defective and needs to be replaced.

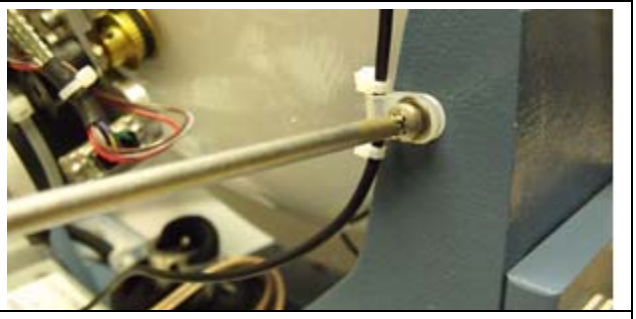
6. Replacing the Furuno GPS Antenna:

6.1. Tools.

- Snips Cutters
- #1 Phillips Screwdriver
- Acetone
- Cable Ties/Tie Wraps
- Loctite 242

6.2. Procedure.

Procedure for replacing the Furuno GPS Antenna, Sea Tel kit part number: 121877-4 (GPS antenna part number: 121966-4).

***Caution:** Power down the pedestal before following this procedure. 1. Disconnect the GPS antennas BNC connector from the PCU. 2. Snip the cable ties securing the GPS antenna harness using a pair of cutters.	
3. Using a #1 Phillips screwdriver undo the screw for the P-clip on the rear of the yoke and remove it. Save the hardware for future use.	
4. Remove the GPS antenna harness from the retaining clips on the rear of the reflector.	

5. Gently work the GPS antenna from side to side to break the seal of the 3M adhesive and remove the defective assembly. If any glue residue is left on the reflector this can be cleaned using acetone and a lint free cloth.	
6. Install the 3M adhesive provided in the kit to the replacement GPS antenna and attach it to the reflector in the same position the defective one was removed from.	
7. Route the GPS antenna harness into the retaining clips on the rear of the reflector. Ensure the harness isn't pulled taught and that the there is sufficient clearance so the harness doesn't get trapped between the reflector and elevation end stop. Once satisfied secure the harness by installing cable ties either side of the retaining clips.	
8. Apply loctite 242 to the thread and install the P-clip and retaining screw to the yoke, securing the GPS antenna harness. Rotate the reflector backwards and forwards ensuring there is enough slack on the harness and secure it by installing cable ties on either side of the P-clips. 9. Connect the GPS antennas BNC connector to the PCU. 10. Secure the excess harness to the PCU using cable ties.