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Marine Magnetics
True Detection Power

September 18, 2006

SeaSPY

Observe precautions for handling electrostatic sensitive devices.

**** See page 4 of this guide for a diagram of the towfish internal equipment layout ****

Tools Required

Large flat head screwdriver
Medium flat head screwdriver
5/16" wrench, or small adjustable wrench

Parts

4x, 10-24 by 3/4" flat head screws
4x, 4-40 by 3/8" binding head screws

SeaSPY towfish disassembly

1. Remove the 4x 10-24 countersink screws that attach the grey PVC nose bulkhead to the orange housing.
2. Align the fish so that the connector end is near you and the pressure sensor hole in the nose bulkhead is pointing up.
3. Attach the tow-cable connector to the brass flange in the nose bulkhead.
4. Gradually pull the bulkhead from the tube by holding the black boot of the tow-cable connector. You may need to apply some force up and down to get the bulkhead loosened.
5. Slowly pull the rack from the towfish housing, while slightly elevating the rack. This is to try and prevent damage to the leak detector, which is located on the bottom of the second lead weight.
6. Once the rack is out past the leak detector, pull the rack the rest of the way out of the tube.

Electronics module removal

1. Lay the rack on a flat level surface.
2. Disconnect the black 8-pin connector from the end of the electronics module near the nose bulkhead.
3. Using a 5/16" wrench undo the three SMA connectors from the electronics module housing.
4. Remove the 4x 4-40 by 3/8" screws that attach the electronics to the PVC rack.

Polarization Circuit Retuning

1. Remove the polycarbonate tube from the EM and the 2 aluminium brackets that hold the signal processor PCB to the white Delrin end caps.

2. Loosen the SMA adapter from the white Delrin end cap to the signal processor PCB.

3. Gently pull apart the two PCBs and set aside the signal processor PCB.

4. Locate Q3 on the power PCB, it is on the opposite side from the TCXO (The big silver can) and is located near C36.

5. The brown to yellow ribbon cable may be in the way when tuning this circuit. If necessary disconnect the cable and note its polarity.

6. Short the large pad of Q3 to the pad closet to the edge of the PCB (shown in attached diagram step 5 on page 5). This will make the polarization circuit always on.

7. Connect the polarization cable from the Overhauser sensor to the corresponding SMA connector on the EM.

8. Connect the power connector at the front of the4 EM and apply power to the PCB.

9. Set the Oscilloscope to 5V/div, 10ns/div, AC coupling, and trigger from channel 1, automatic triggering, rising edge, with the trigger level set slightly positive.

10. Attach the probe to TP4 and the ground to the ground pad beside TP4, and tune C7 till the signal is at maximum amplitude (shown in attached diagram Tuning test point on page 6).

11. This should be the peak tuning for the polarization circuit. Note - when the polarization circuit is tuned in step 10 there will be several peaks in the signal tune to the highest peak.

12. Power down the EM and disconnect the SMA connectors.

13. Remove the short from Q3. 20. Reconnect the Green to Grey ribbon cable to the 20 pin connector on the signal processing PCB.

14. Reconnect the brown to yellow ribbon cable to the 4 pin header at the rear of the power PCB.

15. Connect SMA adapter from the signal processing PCB to the mating connector on the white Delrin end cap.

16. With the signal processor PCB SMA adapter slightly loose, swing the two PCBs together and carefully align and mate the 20 pin connector.

17. Replace the two aluminium brackets.

18. Tighten all SMA connectors just beyond hand tight.

19. Push the EM back into the polycarbonate tube.

20. Reinstall into the towfish.

21. Power the towfish and send the "d" command.

22. Note the power and current levels from the blue box.

23. Send the "r" command to activate the polarization circuit it will say RF On.

24. Send the "d" command again and note the power and current levels. They should be close to the values from step 16.

Reassembly Instructions

1. Mount the electronics to the PVC rack using the 4x 4-40 by 3/8" screws.
2. Reconnect the black 8-pin connector to the front of the electronics module.
3. Reconnect the SMA Cable to the front of the electronics module.
4. Attach the cable with the shiny finish to the upper board feed through at the electronics module.
5. Attach the cable with the matte finish to the lower board feed through at the electronics module.

Closing up the Towfish

1. Grease the large O-ring on the nose bulkhead, as well as the inside of the orange tube just past the screw holes.
2. Align the tube so that the one of the 3 tail fins is centered between two screw holes. This alignment is at the top of the towfish.
3. With the tube laid flat, insert the rack into the towfish Overhauser sensor end first.
4. Slowly push the rack into the tube while slightly elevating it. Take care not to damage the leak detector wires while installing the rack.
5. When the towfish is almost closed, take care not to damage the pressure sensor, and press fit the nose bulkhead into the tube just before the O-ring. (do not try to force it closed at this point)
6. Put the brass plug into the rear tow connector flange, and cover it with the tow connector cap.
7. Stand the towfish up on the rear tow connector and align the screw holes in the nose bulkhead with the ones in the orange tube.
8. Push straight down on the nose till the towfish is fully closed (Be careful not to pinch the O-ring in the process)
9. Turn the nose bulkhead in the tube if the screw holes are still misaligned and replace the 4x 10-24 by 3/4" screws.
10. Connect the tow-cable power the towfish and check for proper operational status.

If you have any problems or questions about this guide please contact Marine Magnetics for assistance.

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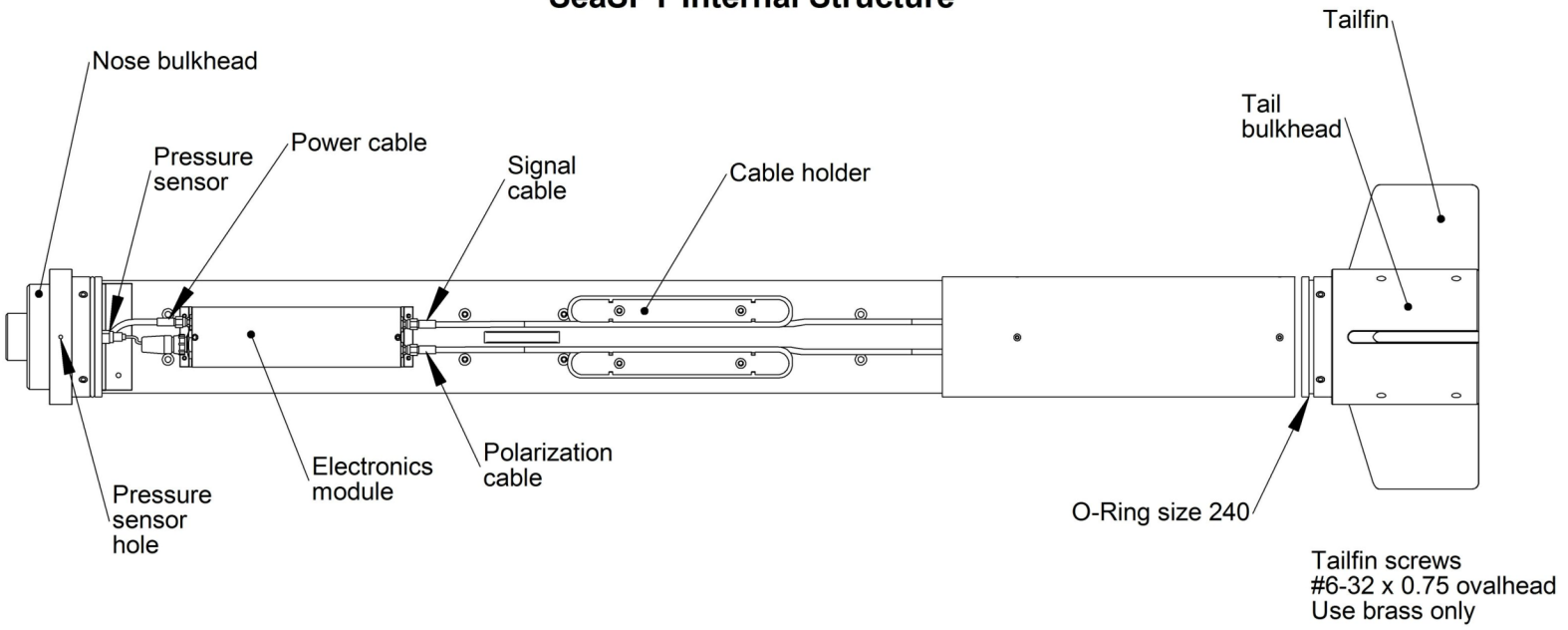
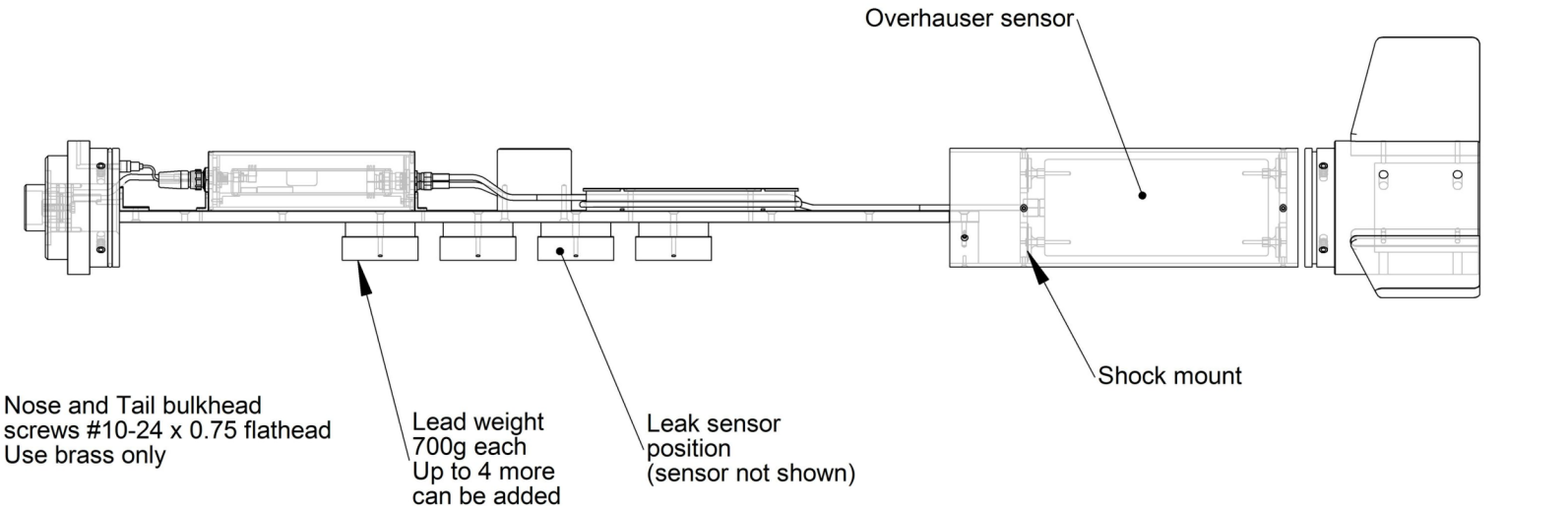
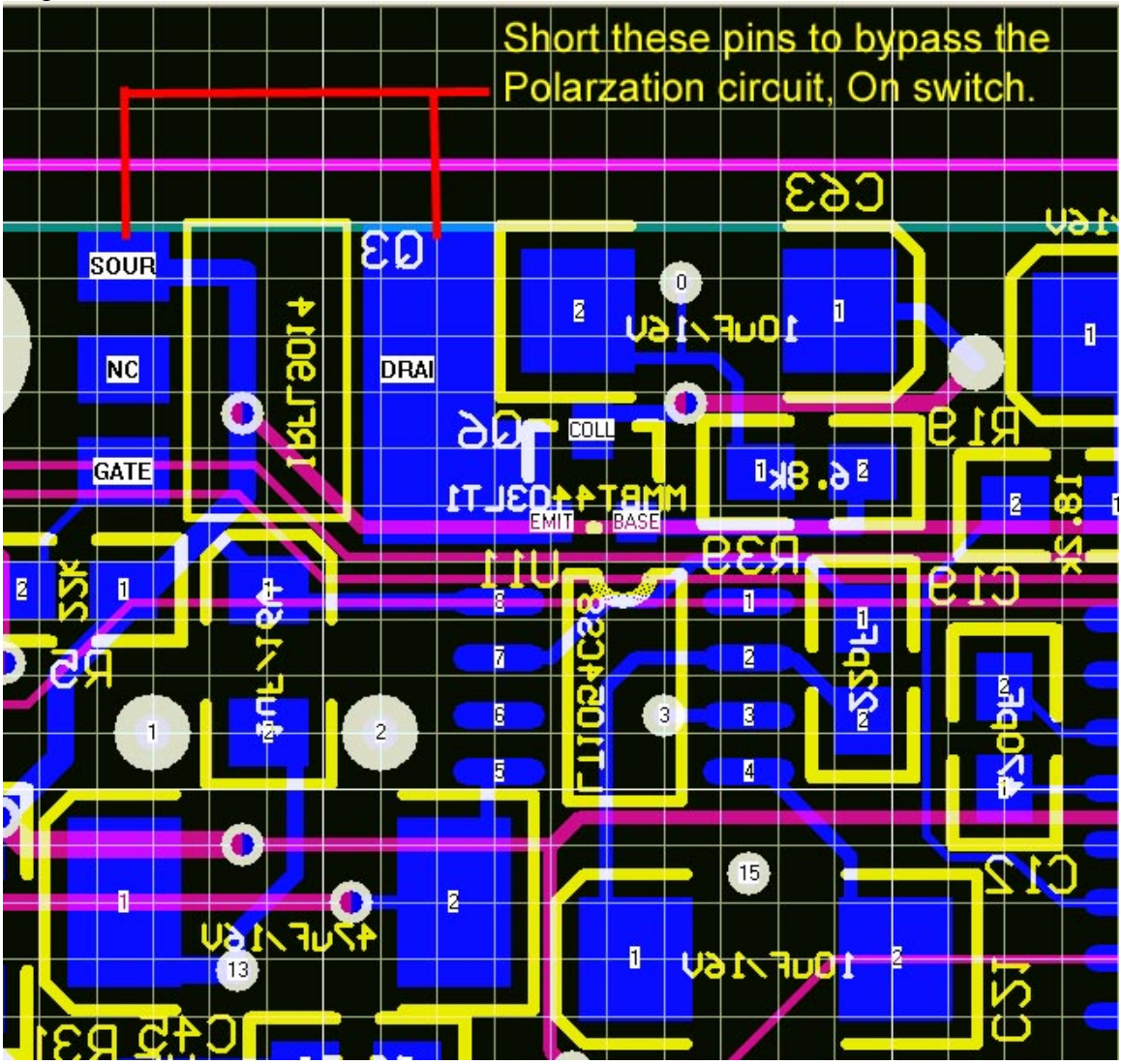
SeaSPY Internal Structure





Step 6


Short these pins to bypass the
Polarzation circuit, On switch.
SOUR
NC
GATE
DRAI
COLL
EMIT
BASE

Tuning test point