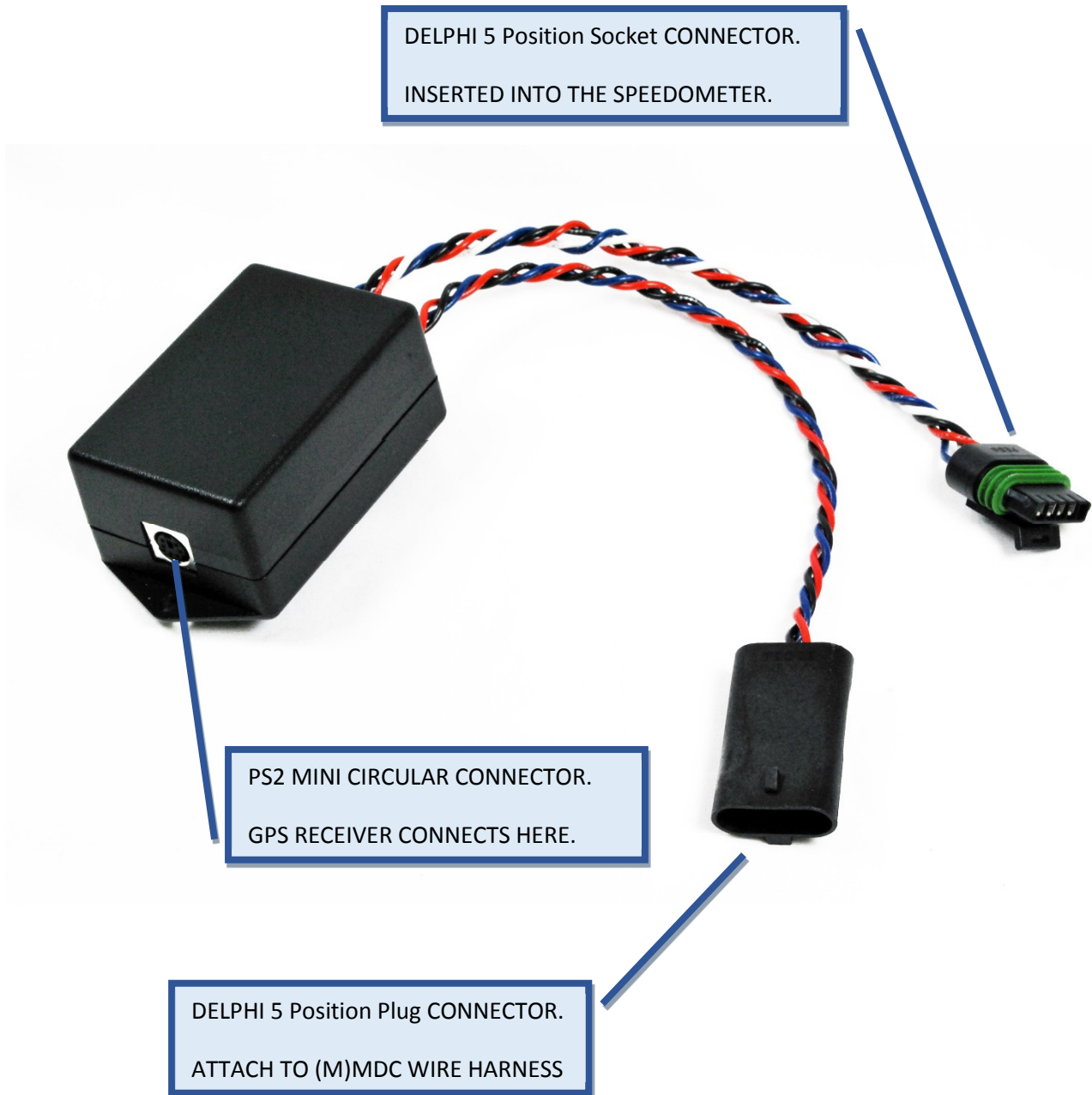


NL2 INSTALLATION and OPERATION GUIDE

→→→ FOR THOSE BOATS WITH MEDALLION ii GAUGES ONLY! ←←←



NL2 INSTALLATION and OPERATION GUIDE

The installation of the NL2 is a snap. Actually it's a snap, snap, snap, and in. This is a retro-fit. The NL2's power and signal connectors are inserted in-line between the existing MMDC wire harness and the speedometer. Wire stripping and/or splicing are NOT required.

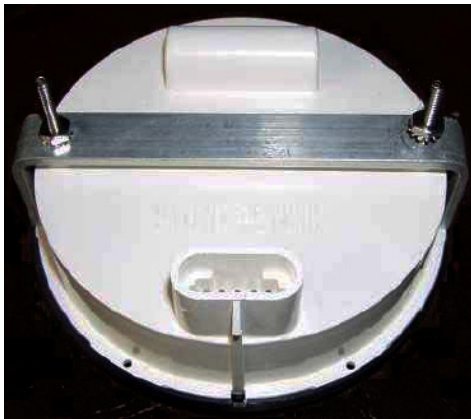
TURN OFF THE POWER and DISCONNECT THE BATTERY.

Locate the GPS Receiver.

The NL2 compatible GPS Receivers are waterproof with great reception. They are resilient and tolerant in marine surroundings. These following constraints are key: the GPS requires a clear line-of-sight to the sky; the windshield and cloth top shouldn't present a problem. Keep it away from other electronics / antenna's that may interfere with the receiver. Every boat is different, so experiment with varied Receiver locations to find the best (before mounting it permanently). Route the GPS cable / connector to the back of the dash.



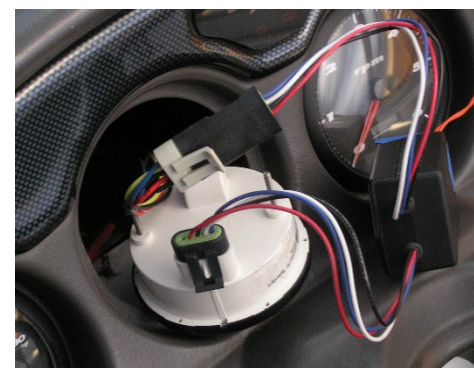
Access to the rear of the Speedometer.



If your boat has two speedometers, it will work with either. You'll need to remove the Speedo from the dash... unless somehow you can snake your hand to the rear of the installed Speedo, manage to remove the connector, and accomplished this without breaking the connector, clip, or speedometer. Otherwise, the gauges are secured with a rear mounting bracket. The bracket is captivated by two nuts (5/16ths). Remove the nuts. Slide the bracket back and clear of the screws. Pull the gauge out of the dash front. Remove the connector by lifting the connector latch up, while backing it out.

Multiple Speedometers: The NL2 updates only those gauges it's directly connected to.

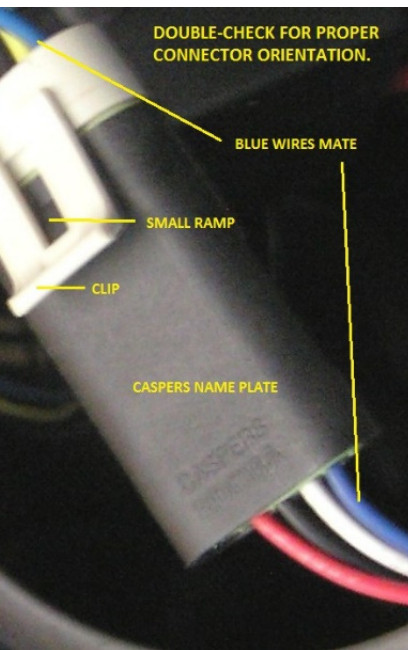
Attach the NL2.



Plug the NL2's (long) five-position Male connector into the now free wire harness connector. Insert the NL2's five-position Female connector into the back of the Speedo; the fit is tight, a little finesse is required. NOTE: The female is NOT polarized! Make sure the clip and mating ramp engage, otherwise electrical damage will ensue.

Twin Speedo Option: Remove the computer connector from the secondary speedo. Plug the NL2's "2nd" Female in its place. Attach the now free computer Female to the NL2's "2nd" Male.

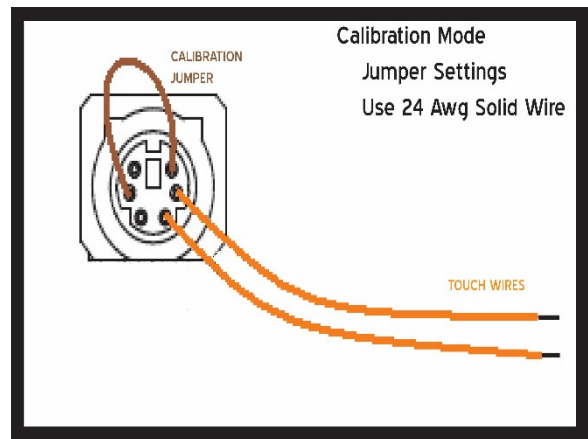
It's time to Calibrate. Reconnect the Battery.



Calibration.

A calibration is required to accurately convert reported GPS speeds into needle positions. The procedure is simple and takes two minutes. For best results read the entire procedure first. The NL2's circular PS2 connector is shipped stuffed with Factory jumper wires. These wires assist in the Calibration process. Remove them after the Calibration is complete.

1. Confirm the GPS Receiver is unplugged. And the Jumper wires are correctly inserted in the PS2 mini circular connector.
2. Confirm the NL2 power and signal connectors are plugged into the MMDC wire harness and the Speedo.
3. Turn the Dash / Gauge / NAV lights on; note that the Speedo's backlight is now controlled by the NL2.
4. With the two orange Touch wires in reach, view the Speedometer's face at a close-up.
5. Turn the Key On and power-up the gauges.
6. After two seconds the Speedo will present 4 rapid flashes. This signals Calibration Mode is now entered. If it's not there already, the needle will fall to the lowest possible position. This position varies with boat model.
7. The needle will slowly increase. When the needle points exactly at **ELEVEN** [11] miles per hour, briefly contact the two Touch Wire (exposed) ends. The Speedo will acknowledge this 'touch' with a Flash.
8. The needle will jump to approach **FIFTEEN** [15] miles per hour. Again the needle will creep upwards. When it is centered on FIFTEEN, momentarily touch the wires. The Speedo will flash.
9. Continue the jump, approach - center and touch routine for **20, 25, 30, 35, 40, and 45** miles per hour; for those speedometers with a 60 mph scale, additional points are taken at **50 and 55** miles per hour.
10. **ONLY** after the confirmation 'touch' at the last calibration point will the NL2 compute the calibration constants. The calibration constants are saved in non-volatile memory.
11. The needle will reset and automatically retrace most of the calibration steps (over-and-over). The first retrace step will be near TEN [10]. No intervention is required... just observe.
12. An accurate retrace indicates the calibration is valid; see notes below. To redo or replace this calibration, simply turn the key/power off, wait 10 seconds, and begin again at step 5.
13. Your Calibration is done. Turn the power off. Remove the Jumper wires.

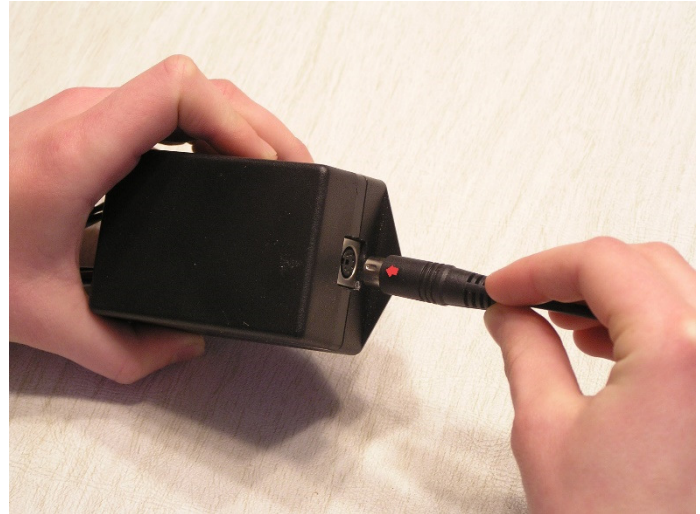


Notes:

- The first Cal step is ELEVEN because some Speedo's (i.e. Toyota) begin at TEN... and thus TEN is unapproachable. After the calibration is saved, all needle positions are calculated.
- We've found there are Speedo's limited to FORTY-FIVE [45] mph, despite their printed scale of FIFTY [50]. And, even after valid Calibration, the needle still falls short of FORTY-FIVE.
- Should your boat be equipped with Speedometer Calibration buttons or switches, they will have no effect on the NL2 system. Unlike the Pitot tube and Rotary Speed Sensors that drift due to temperature, wear, and/or contaminant, the NL2 system won't require further calibration.

Dash re-assembly.

Depending on the available work space behind the dash, you may want to mount the NL2 before returning the Speedo... thereby using the Speedo access hole to work through. Likewise the GPS Receiver can remain unplugged during the mounting process, provided there is sufficient access to it. Or the NL2 is reached from under the dash; this is the preferred access, as it will ease the relocation of the GPS Receiver (if needed). Plug the GPS Receiver into the NL2's PS2 connector. Note the 'ARROW' embossed into the connector. Orient the arrow at 12 o'clock, or away from the mounting flange. Be sure to strain relief the GPS Receiver cable/connector, with a cable tie to a nearby fixed provision.

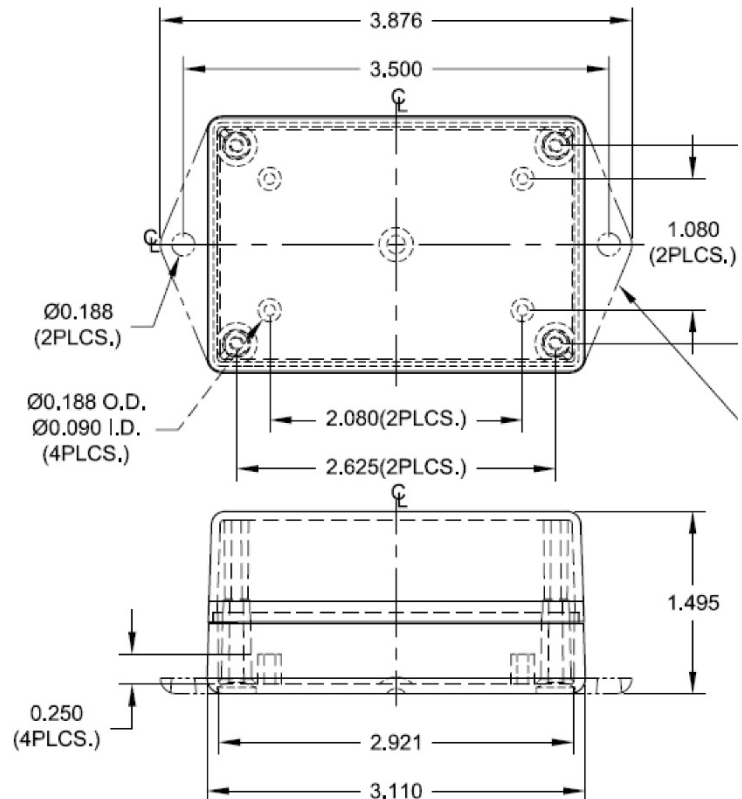


Return the Speedo to its dash hole.

Reinstall it following the reverse order of removal.

Mounting Considerations.

The NL2 provides two mounting flanges on its case. Use these to secure the case to a local surface or bulk head. The mounting holes accept #8 screws (not provided). Alternately, use the mounting holes to cable tie the case to a nearby wire bundle or mounting provision.



Operation.

The NL2's sole function is to communicate speed data from the GPS Receiver to the existing speedometer. The NL2 will in NO-WAY interfere or meddle with normal MDC/MMDC computer functions. The computer data targeted for the NL2's speedometer is now ignored, and GPS speed is injected in its stead.

The NL2 will flash or blink the Speedo's backlight to convey its state, intent, or warning. To witness the flashing, the dash lights must be ON. This is by design! For under normal conditions visual feedback from the NL2 becomes routine and unnecessary. Thus, the user has ability to enable/disable these visible cues by turning the dash lights On or Off. Upon power-up, the NL2 waits 2 seconds for the power to settle.

Visible Cues:

- **No Flash or blinking:** the NL2 is operating normal.
- **Continuous Flash; ON for ½ second, OFF for a ½ second:** the NL2 is waiting for a satellite fix from the GPS Receiver.
- **Rapid Flashing for Eight Seconds:** the non-volatile memory is corrupt; the NL2 will reinitialize it to Defaults.

The GPS Receiver is equipped with an internal Status Light.

1. THE LIGHT FLASHES: When the Receiver has power.
2. THE LIGHT REMAINS SOLID: When the Receiver has a Satellite Sync. This is required for normal operation.

Warranty.

Nautic Laugic warranties the NL2 for one year.

Should this product malfunction or fail, please return it so we can make it right!! Please see our policies page at www.nauticlaugic.com

THANK YOU FOR BUYING OUR PRODUCT!!

