

## COMNAV MARINE 101, 201, 211 and TS-201 Remote Controls

### Installation Instructions (Manual P/N 70986)

Revised July 19, 1999

SERIAL #

### CAUTION

**This Remote Control is watertight when factory assembled. Proper care must be taken if you are assembling the cable to the remote in the field. ComNav Marine will not repair or replace under warranty any unit damaged by moisture caused by poor installation practices. The Liquid Crystal Display used in the remote control is by nature fragile. Please handle this remote carefully. Do not drop it or subject it to excessive shock. ComNav Marine will not repair or replace under warranty any Liquid Crystal Display damaged by rough handling.**

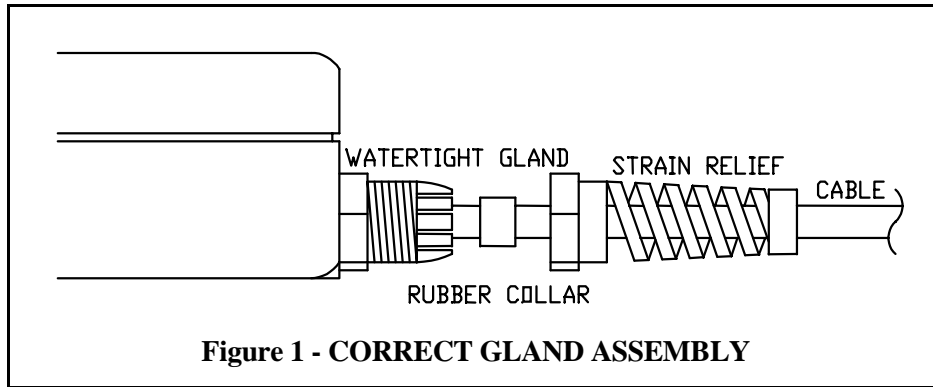
#### General:

These instructions detail the installation of a ComNav Marine 101, 201, 211 or TS-201 Remote Control. In most cases, ComNav remote controls come from the factory with a cable already installed. Installation in these cases is simple and only involves running the cable from the remote control to the rear of the autopilot and plugging the cable into the appropriate remote control receptacle. In cases where the remote control and cable have been ordered separately, installation involves plugging in the cable to the appropriate remote receptacle and running the cable from the location where the remote is to be used, opening the case of the remote, and attaching the cable wires to the remote control terminals. If the remote control already has a cable attached to it, go to the section on page 2 entitled "DIP Switch Configuration". If the remote control and cable have not been attached, refer to the following section.

#### Installing the cable to the remote:

Run the remote cable from the rear of the autopilot to the location where the remote is to be used or mounted. Open the remote case by unscrewing the six screws (only about 3-4 turns are required) on the back. The screws are held captive in the bottom case by small 'O' rings.

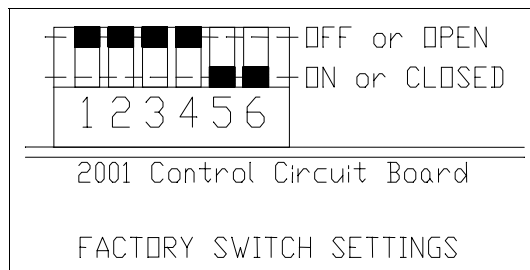
If it is not already done, remove about 6 inches (15 cm) of outer jacket from the cable, strip about 1/4 inch (0.6 cm) of insulation off each wire, and tin each with a soldering iron. Unscrew the strain relief (Figure 1) from the watertight gland. Slide the strain relief down the cable. Wet the outer cable jacket slightly and then slide the rubber collar 1 1/4 inches (3.2 cm) onto it. Insert the cable into the remote control through the watertight gland. Make sure that the rubber collar fits into the gland without bending or breaking any of the fingers. The outer jacket of the cable should extend inside the remote about 1/4 inch (0.6 cm). Slide the strain relief back up the cable and screw it onto the gland hand-tight. Fasten each wire into the correct terminal as shown in Figure 3 (when looking at the circuit board as shown in Figure 2, Terminal 1 is to the left). This information is duplicated in Table 1, along with the corresponding plug pin connections.



Some 101 Remote Controls only have 10 terminals. If this is the case, do not connect the Blue wire. Before re-assembling the remote control, ensure that all 6 'O' rings are still on the screws and the gasket is properly seated in the upper half of the remote case. Place the case halves together with the watertight gland at the top or bottom of the remote as desired. Tighten the six screws sequentially until resistance is felt.

**DIP Switch Configuration:**

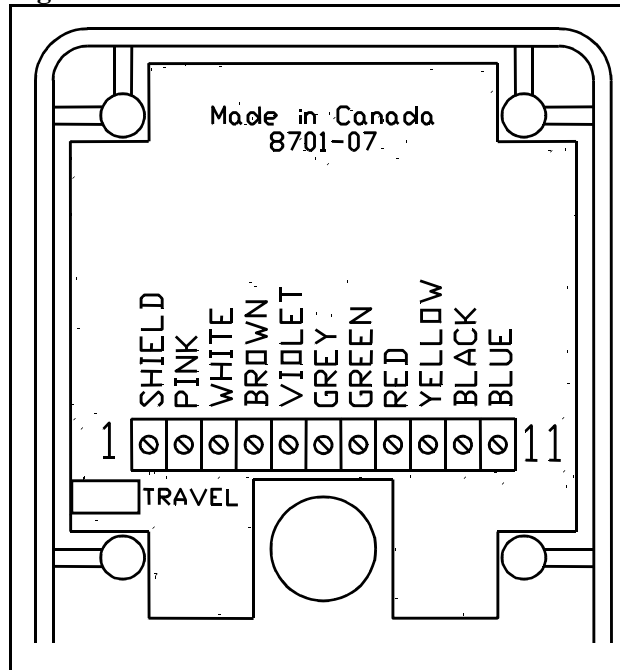
If this remote is used with a ComNav Marine 2001 autopilot, the DIP switches on the Control Circuit Board inside the autopilot must be set correctly (see Figure 2). If a 101 remote control is plugged into the REMOTE 1 receptacle, DIP switch 5 must be in the OFF or OPEN position. If a 201, 211 or TS-201 remote control is plugged into the REMOTE 1 receptacle, DIP switch 5 must be in the ON or CLOSED position. If a 101 remote control is plugged into the REMOTE 2 receptacle, DIP switch 6 must be in the OFF or OPEN position. If a 201, 211 or TS-201 remote is plugged into the REMOTE 2 receptacle, DIP switch 6 must be in the ON or CLOSED position.



**Tiller Adjustment:**

The centering and travel of the tiller on the 201, 211 and TS-201 remote controls is factory pre-set and should not need adjustment. However due to variations between individual autopilots, it may need to be adjusted for use with your autopilot. Take control with the remote and place its master select switch in the **TILLER** position. Centre the tiller. The rudder should move to centre, indicated by 0 degrees on the rudder angle indicator, or 0 volts difference between the RAI SIGNAL and RAI RETURN terminals in the autopilot distribution box. If the rudder is not centred as described above, loosen the Allen-head screw, which secures the tiller, and remove it. Turn the exposed shaft by hand until the rudder is centred by the above test. Replace the tiller at exactly 0 degrees, press it down firmly and retighten the Allen-head screws. Take control at the autopilot front panel by pressing both the red and green **ARROW** keys for one second. Turn the master select switch to the **POWER STEER** position.

**Figure 2 - Remote Cable Connections**



**Table I - Remote Cable Connections**

Wire Colour	Terminal Number	Plug Pin Number
Shield	1	11
Pink	2	3
White	3	10
Brown	4	2
Violet	5	5
Grey	6	12
Green	7	9
Red	8	8
Yellow	9	7
Black	10	6
Blue	11	4

Turn the rudder hard over to port and then hard over to stbd using the red and green **ARROW** keys and note the angles shown on the rudder angle indicator, or the voltages between RAI SIGNAL and RAI RETURN in the autopilot distribution box. Take control with the remote and place its master select switch in the **TILLER** position. Turn the tiller hard over to port and then hard over to stbd and note the angles shown on the rudder angle indicator, or the voltages between RAI SIGNAL and RAI RETURN in the autopilot distribution box. If adjustment is required, open the remote control case and adjust the tiller hard over limits using the **TRAVEL** potentiometer mounted on the circuit board (see Figure 3) to equal, **BUT NOT EXCEED**, the limits measured in the previous step. Close the remote control case as previously described on page 1 and 2. This completes the adjustment of the tiller on the remote control.

If the vessel does not go straight with the tiller at 0 degrees after completion of this alignment procedure, adjust the rudder follower linkage as described in the autopilot Installation and Operation Manual until it does. Recheck the adjustment of the **RUDDER GAIN** potentiometer on the Control Circuit Board inside the autopilot after any adjustment of the rudder follower linkage to make sure that the rudder is not being driven hard over on either side.

### **101S Sail Pilot Remote Control (Part #91033)**

The operation of the 101S remote is identical to the 101 remote as described in the 1001 and 2001 Operators manuals with one exception; the third (recessed) pushbutton. This pushbutton is used to switch the wind vane interface on and off. Pressing the button once will engage the wind vane interface. Pressing it again will disengage the wind vane interface. This transfer will be indicated by the tack sign (symbol on the left hand side of the display).