

**NOTE:** this procedure is for pre-Universal Sonar 2 units only. US2 units already have the internal ground in place and adding the external fused ground wire may cause additional interference!

## Ground Wire Kit

Minn Kota p/n 2880310

Under certain circumstances variable speed motors with Maximizer® (PWM) speed control systems may interfere with the operation of a depth finder. Installation of this kit, consisting of a fused ground wire and a motor lower unit ground wire, is recommended if depth finder interference occurs when the trolling motor is being operated.

**Step 1.** Determine source of power for the depth finder to make sure that the trolling motor battery/batteries is/are NOT being used for this purpose. The depth finder MUST be powered from the boat's starting battery. If the starting battery is not being used, make the connections to do so at this time.

**Step 2.** After verifying that the starting battery is being used to power the depth finder, connect one end of the fused ground wire to the starting battery negative post. Connect the other end of the fused ground wire to the battery post that the trolling motor's negative (-) battery lead is connected to. (see Figure 1)

**NOTE:** On 24 or 36 volt trolling motor electrical systems the fused ground wire MUST NOT be connected to the negative battery posts used for the battery series connection(s).

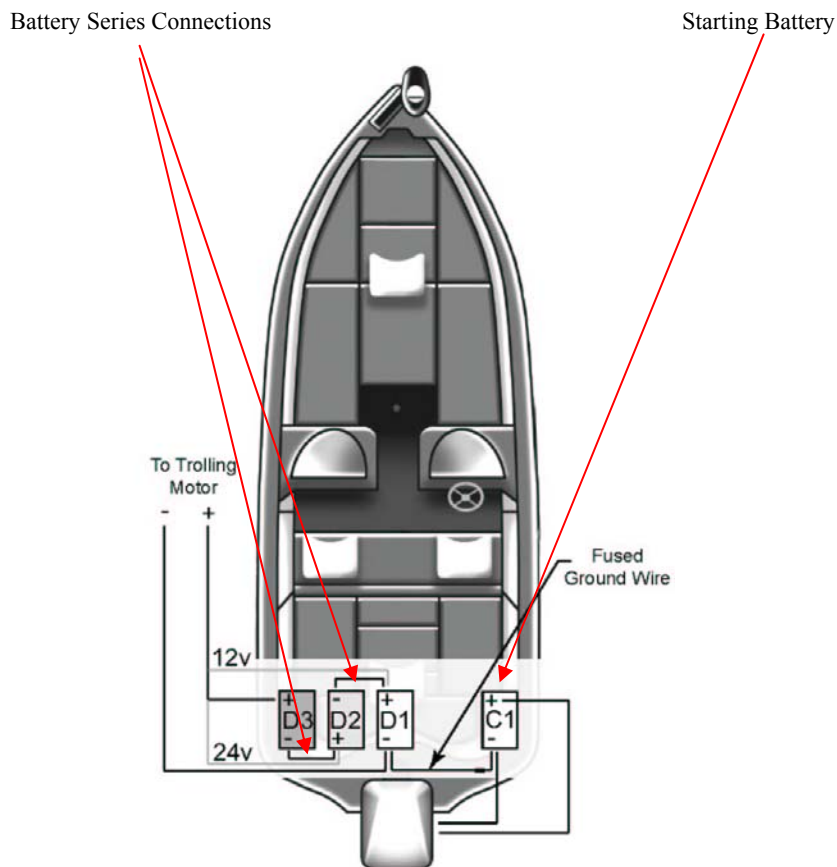


Figure 1

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**Step 3.** Disassemble the motor lower unit to install the motor case grounding wire. Locate and loosen one of the brush plate mounting screws. (These are the screws that hold the brush plate to the motor end bell.) Slip the forked terminal of the ground wire under the head of the brush plate mounting screw (DO NOT attach to the brush), and re-tighten the screw to secure this end of the ground wire. (Make sure the wire terminal does not contact the brush wire terminal block or brush shunt wire.) (see Figure 2)

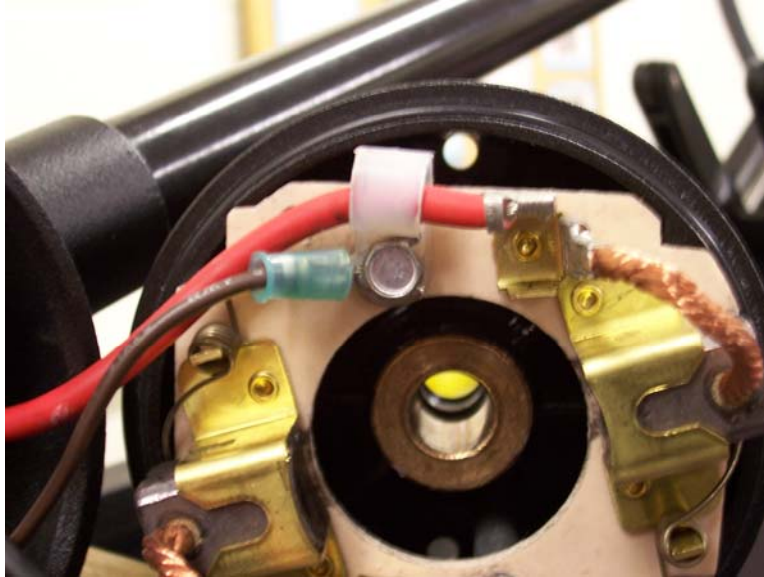


Figure 2

**Step 4.** Use a small gauge wire as a wire “fish” to pull the case grounding wire up the motor shaft/tube to the motor control box. (see Figure 3) Re-assemble the motor lower unit in proper order replacing motor thru bolt o-rings, etc..., as needed. Use care when re-assembling the lower unit to make sure that the motor brush wires, motor case grounding wire, brush shunt wires, and transducer lead (if a Universal Sonar model) do not contact or rub the motor armature commutator or windings.

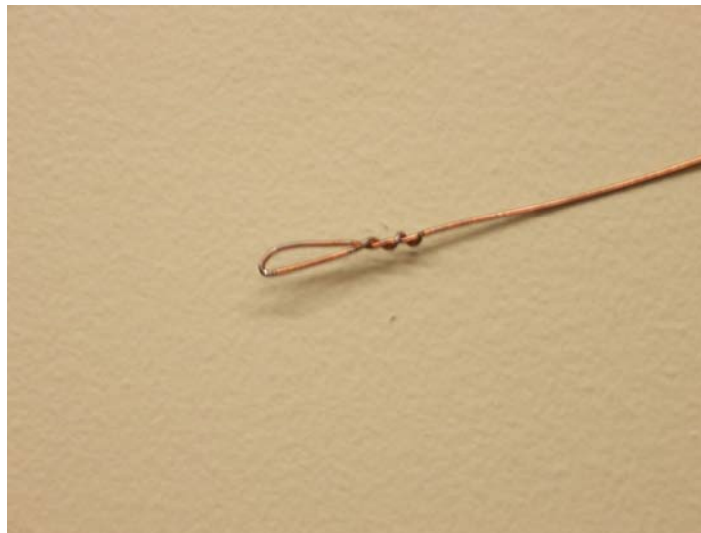


Figure 3

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**Step 5.** Connect internal ground wire in control box per the following instructions:

**If motor being serviced is a Maxxum unit:** connect the motor case grounding wire to the negative indicator light wire. To determine which wire is the negative lead, disconnect both the small gauge black and black w/orange stripe wires from the directional indicator light. Using a digital V.O.M. set to test continuity, touch one V.O.M. lead to the trolling motor negative battery lead wire. (see Figure 4) Touch the other V.O.M. lead (one wire at a time) to the black and the black w/orange striped wires in the control box. The wire showing continuity, with no resistance, is the negative wire. Cut the grounding wire to the proper length then cut the insulated male terminal off the negative wire. Strip both wires, twist them together, and install and crimp the new male insulated terminal on the wires. (see Figure 5) Then reconnect the leads to the indicator light.



Figure 4



Figure 5

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**If the motor being serviced is an AutoPilot (PD/AP):** cut the motor case grounding wire to the proper length, strip, wrap, and solder it to the female terminal of the brown wire (coming from the coil cord wire) on the AP compass control board. (see Figure 6)

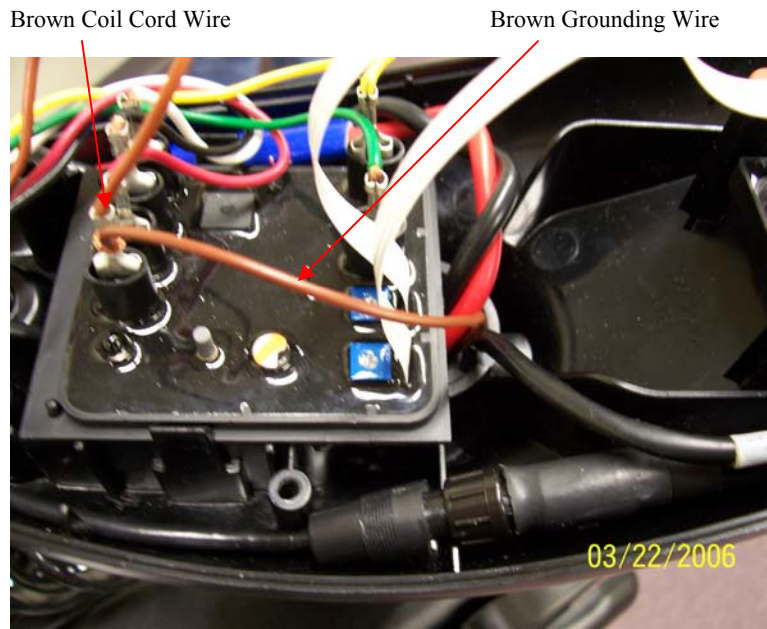


Figure 6

**If the motor being serviced is a PowerDrive (non-AutoPilot PowerDrive):** the motor case grounding wire must be extended from the control box down through the coil cord wraps to the negative battery lead on the main control board.

Re-assemble motor, as required, to complete the motor grounding wire installation procedure.