

## Grounding An Outboard Engine

A frequent question on forums and answer boards is, how are outboard engines grounded to the boat's electrical system? In particular should an outboard without electric start be grounded, and what about an outboard boat that also has an onboard generator? These are all good questions and the answers may be simpler than you might imagine.

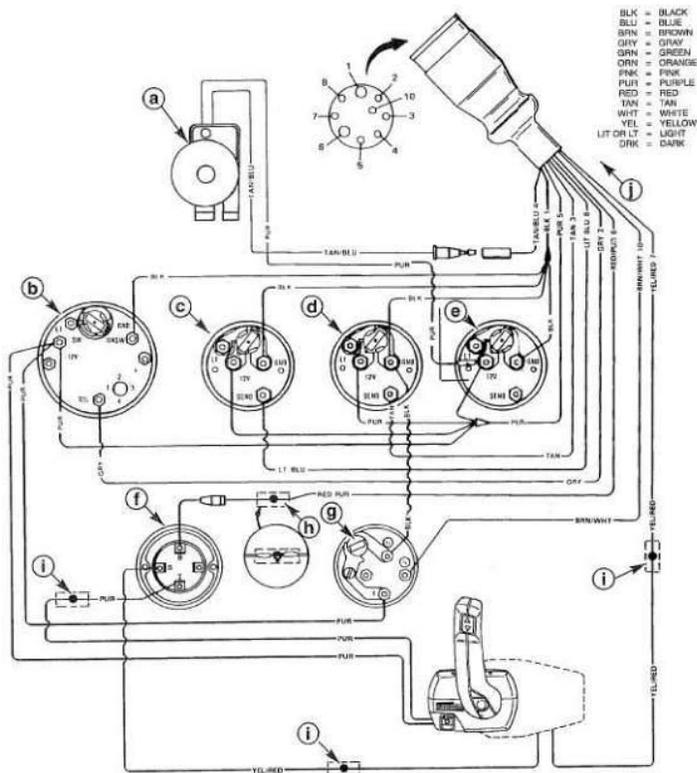
Why do we ground the electrical system anyway? See Ground on page <http://newboatbuilders.com/pages/electricity2.html> Grounding an electrical system is essential to prevent corrosion and for safety.

As in the page referenced above, on most power boats the ground point is the engine block. But, what about an outboard? The engine is also used as ground on an outboard. Most outboards over ten horsepower have a built in wire harness that leads to the battery and the instrument panel. One of the wires in that harness is the ground wire. That wire is most likely run to the back of the tachometer, or it may be connected to a ground buss or other instruments behind the panel. For outboards with a built in wire harness there is no need to run a separate ground wire to the engine block. See <http://www.perfprotech.com/store/articles/mercruiser-engine-harness-schematic.aspx> The diagram below is from that page.

NOTE: 1 Connect wires together with screw and hex nut; Apply liquid Neoprene to connection and slide rubber sleeve over connection.

NOTE: 2 Power for a fused accessory panel may be taken from this connection. Load must not exceed 40 Amps. **Panel ground wire must be connected to instrument terminal that has an 8-gauge black (Ground) harness wire connected to it.**

NOTE: 3 Lanyard stop switch lead and neutral safety switch leads must be soldered and covered with shrink tube for a water proof connection. If an alternative method of connection is made, verify connection is secure and sealed for a water proof connection.



However what of an engine that has no wiring harness? Then a wire can be run from the battery negative, the battery negative connection at the battery switch, or from a ground buss. But the wire must be connected to the engine block. It should not be connected to the cover or to the lower unit. This could result in stray current corrosion.

SO now we have grounded the DC system. So what happens if we add an Alternating Current System (AC)? AC systems have three wires, hot (black), neutral (white), and **grounding** (green). For more info see <http://newboatbuilders.com/pages/electricity7.html>

The green **grounding** wire should be connected at the engine block as well. This is a good reason to have a ground buss. Then you can run a wire from the ground buss to the battery negative and connect the green **grounding** wire