

Scott Rosenthal

From: Don Haynie <dghaynie@gmail.com>
Sent: Monday, August 8, 2016 3:03 PM
To: scott@sltf.com
Subject: Autopilot Power Reduction Circuit Wiring

Scott,

I previously responded via the Bristol site but I have no idea where my reply went after hitting send.

I have a linear actuator consisting of a hydraulic cylinder, a reversing hydraulic pumpset and a solid state motor. The pumpset has its own reservoir & bleed screws and a SOLENOID. The solenoid functions as a clutch and when engaged/energized it closes and the autopilot then steers the boat.

The power reduction circuit (10 ohm resistor, 10 watt & 3300 microfarad capacitor, 50 watt, are wired in PARALLEL to each other) is wired in SERIES to the switched power (B+) connection to the SOLENOID (In my case from the Signal Processing Unit). Polarity of the capacitor MUST be correct: + end towards the switched power; the opposite end towards the solenoid. My EE engineer Son-in-Law advised enclosing the resistor and capacitor in a metal electrical box which then serves as a heat sink and is mounted near the pumpset below deck of the cockpit.

As you know, the wind/sea forces on the hull cause the bow to move side-to-side continuously and thus cause the autopilot to continuously 'correct' its course slightly depending on your set tolerances. The capacitor 'stores' and dampens the amps needed to drive the reversing pumpset and thus reduces the power needed by 50% according to ComNav.

I hope my explanation is understandable and helpful.

Don