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PV140-xx-TR Pumpset

Marine** Hydraulic **Pumpset for Autopilot and power steering

- o Variable flow pumpset for 20-80 ft. boats
- ● For steering cylinders 4 in^3 to 60 in^3
- o MOSFET control of motor direction
- ● Low power consumption
- o 15' (5m) 2#10 Cable
- o 30' (10m) Control cable & plug
- o Rudder speed adjustment knob

TR Series Pumpsets available:

Mod	Part No.
PV140-12-TR	530-181
PV140-24-TR	530-182
PV140-32-TR	530-183

The Model PV140-xx-TR includes an electric motor driven variable volume axial piston pump. The motor direction is reversed by transistors to control the output direction of oil from the pump. The pumpset is suitable to interlace autopilots and non follow-up controllers to hydraulic steering systems. The low power consumption of the pumpset makes it ideal for vessels with limited battery capacity.

The pumpset consists of the following equipment:

- o Permanent magnet electric motor - 12, 24 or 32 VDC
- ● Variable volume axial piston pump with integral relief valves
- o Lockvalve
- ● Motor control box (TR box)

Technical Specifications

Model Number	PV140-12-TR	PV140-24-TR	PV140-32-TR
Assembly Part Number	530-181	530-182	530-183
Voltage	12 VDC	24 VDC	32 VDC
Maximum output flow (no load)	323 cu in/min (5291 cu cm/min)		
Maximum output flow (full load)	254 cu in/min (4162 cu cm/min)		
No load current - max. output flow	7A	6.3A	4.9A
Full load current - max. output flow	20A	12A	10A
Max. St'g cylinder displacement	60 cuin (983 cu cm)		
Relief Valve setting	600 psi		
Weight	21.0 lb (9.5 kg)		

Pumpset Power Supply (See fig. 2)

1. To minimize radio interference, the pumpset should be electrically bonded to vessel ground (negative or neutral).

(a) Remove any paint or other contamination from the bonding surface to ensure a reliable connection.

2. The PV140-xx-TR pumpset is supplied with 15' (5m) of 2 #10 power cable. If the power cord to the pumpset must be extended, a larger wire gauge than supplied must be used for the extension. Use No. 8 AWG wire for extensions of 10 to 20 feet.

(a) The positive (+) side of the battery connects to the white or red conductor in the pumpset power cable.

(b) The negative side of the battery connects to the black conductor in the power cable.

(c) Do not reverse the positive and negative connections. Failure to connect correctly could cause extensive damage to the electronics and void the warranty.

3. A circuit breaker or a slow-blow fuse (not supplied) and disconnect switch must be installed in the positive battery lead to protect the pumpset and provide a means for emergency shut-down (see 'Warning', page 2).

(a) Install the disconnect switch in the console at the helm position for immediate access in the event of an emergency.

(b) A thermal circuit breaker is preferred because it will tolerate a moderate overload before tripping, and also serves as a disconnect switch. Refer to Fig. 2 for wiring details. Select the correct size breaker or fuse according to the system voltage that is being used:

12 VDC	20 amp
24 VDC	12 amp
32 VDC	10 amp

(c) When used with the Wagner MicroPilot or the MP•320 Autopilot, excessive current draw by the pumpset will be limited (but not cut-off) to a level that is pre-set at the factory.

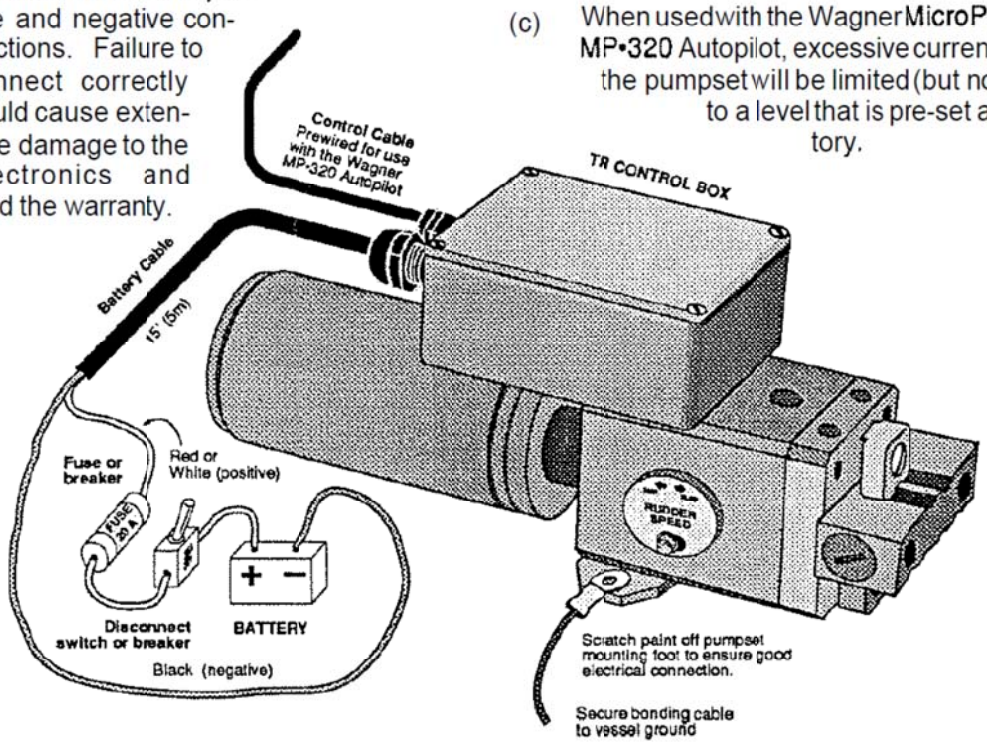

Fig. 2 - Pumpset power supply hookup

I have been told by an "expert" on this Wagner pump that the configuration I have- as illustrated here- is designed to be controlled by an autopilot with solenoid control to the pump- but the pump-set has no solenoids! As configured in my boat, the Furuno autopilot fed a signal (with low voltage wire) to the #3 Port, #4 Stbd and # 6 On (high) terminals. The On(high) terminal supposedly signals the pump to turn on and be ready for a signal for Port or Stbd- thus it is not a constant-running pump.

The expert indicated that for use of the Raymarine ACU-400, I could disconnect the direct to the pump Battery Cable and all other wires into the Control Box. I would then just connect the wires from the Wagner pump Motor to the Motor A and Motor B output terminals of the ACU-400. Since the Wagner is a reversing pump this should work ?

Or am I better off using the ACU-300 and trying to adapt the outputs of that to the appropriate terminals on TB1 on the right side of the Box below.

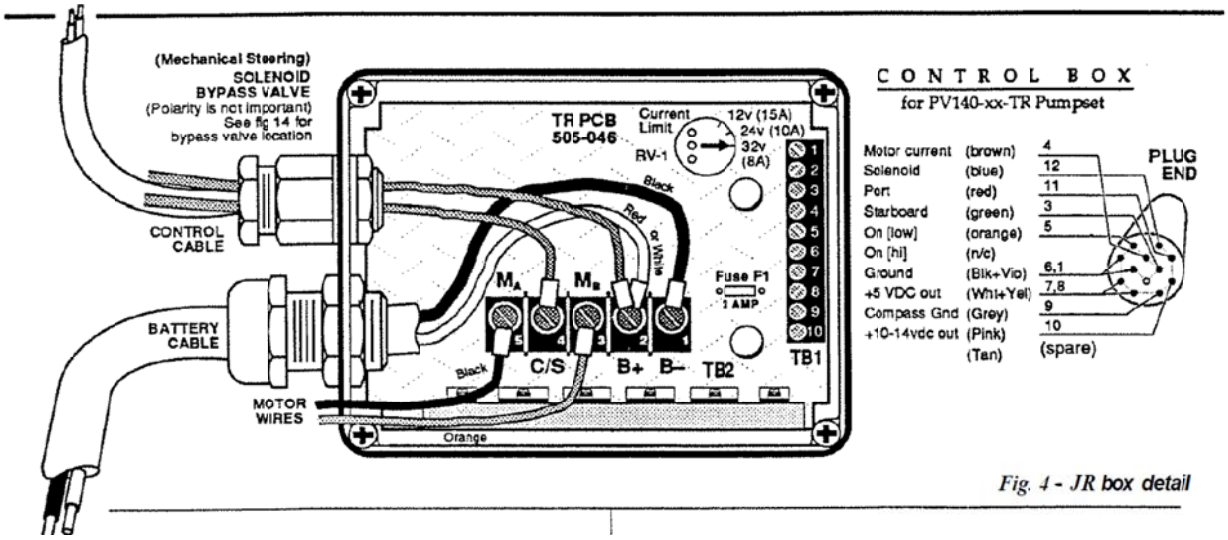

Fig. 4 - JR box detail

The diagram below has handwritten notes that are not original to the spec sheet- could this be another way to connect this pumpset to work with the ACU-400 ? Presumably the high amp feed to the Box would stay in place and the Motor A and B feeds from the ACU-400 would not draw much amperage because they would only be used for signaling the Port/Stbd direction into the Control Box.