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*Accu-Steer, Inc.*

HIGH-PERFORMANCE HYDRAULIC CONTROL OF STEERING SYSTEMS

# Defining **Reliability** through form and function.

(Each unit is completely tested after assembly)

Dedicated to quality high-performance  
hydraulic control of steering systems for  
yachts and commercial vessels.

## Instruction Manual **HM 260**





## HYDRAULIC STEERING MANIFOLD

# HM260

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## 1. GENERAL INFORMATION

The **Accu-Steer HM260** steering manifold is designed to interface hydraulic steering with electric/autopilot control. The **HM260** features a high pressure filter, independent adjustable high speed and low speed flow controls, a pressure relief valve, a four way directional valve and an output lockvalve. This unit is available in a wide range of voltages and flows for both standard and custom requirements.

This steering manifold is suitable for steering systems with actuator volumes up to 150 cu in.

## 2. TECHNICAL SPECIFICATIONS

<b>Max. Input Flow (from pump)</b>	10 gpm   39 lpm
<b>Max. Output Flow</b>	15 cu in/sec   15 lpm
<b>Pressure Relief</b>	750 psi
<b>Weight</b>	10 lbs   4.5 kgs

## 3. HYDRAULIC MANIFOLD

The hydraulic manifold features the following:

- *Pressure relief cartridge (factory set @ 750 psi)*
- *Two speed operation electrical*
- *Adjustable high/low speed or flow control cartridge*
- *4-way solenoid valve (12 VDC, 24 VDC or AC voltages)*
- *Output lockvalve (double P.O. check valves)*
- *Valve housing constructed from aluminum*
- *Blue anodized with laser etching*

## 4. INSTALLATION

### 4.1 MECHANICAL

The **HM260** can be mounted vertically or horizontally on a solid foundation. It should be mounted in such a way as to facilitate the connection of the hydraulic steering lines.

## 4.2 HYDRAULIC

Four hydraulic connections are required for the manifold. The input and return port are SAE-08 ORB fitted with adapters to 3/8" NPT. The port and starboard outputs are SAE-06 ORB fitted with adapters to 1/4" NPT. Two lines connect the main steering lines, and the other two lines connect to the pump unit. Short flexible hoses with a pressure rating of minimum 1500 psi working pressure are recommended for all connections. The short hoses minimize hydraulic shock noise when the manifold is operating. The built-in high pressure assembly has a 90-micron filter element. This effectively acts as what is called a "rock catcher" as it prevents debris from entering the cartridge valves. It is strongly recommended that a 10-micron hydraulic filter be installed in the return line between the manifold and the pump suction. Ensure the filter is capable of the full flow of the pump. *Note – the suggested maximum input flows from the pump are 10 gpm/39 lpm.*

## 4.3 ELECTRICAL

The electrical connections for the manifold are in the connection box mounted on the 4-way valve. The high speed solenoid and port and starboard solenoid coils use a common wire, which can be either positive or negative in polarity. The coils are not polarity sensitive.

# 5. OPERATION and ADJUSTMENTS

## 5.1 INITIAL ADJUSTMENTS

After the hydraulic and the electrical connections have been completed, open all isolating valves and allow sufficient time for the pump and lines to fill with oil.

Check the hard over to hard over speed of the rudder and adjust the flow adjustment for the appropriate speed (usually 12–16 sec. HOH). Once this has been completed then adjust the H-O-H high speed of the rudder (usually 8-10 sec. H-O-H). Turn clockwise to decrease and counter clockwise to increase. The actual H-O-H speed of the rudder is dependent on a number of factors and should not be set too fast as it may cause instability of the vessel.

The pressure relief is factory set at 750 psi and should not re-

quire adjustment. If a higher pressure relief setting is required please order from the factory. The pressure relief setting can be changed in the field by removing the end cap of the relief valve and adjusting the internal setting with a hex socket (clockwise to increase). If this is done there will be a small flow of oil through the relief valve (this is normal).

## 6. MAINTENANCE

### 6.1 ROUTINE MAINTENANCE

During normal operation the high pressure filter element should be checked for contamination. These filters should be cleaned or replaced as required. The return line filter (customer supplied) should be checked periodically depending on its flow capacity. This filter can usually be fitted with a differential pressure gauge, which will provide a visual indication of the filter condition.

## 7. TROUBLESHOOTING

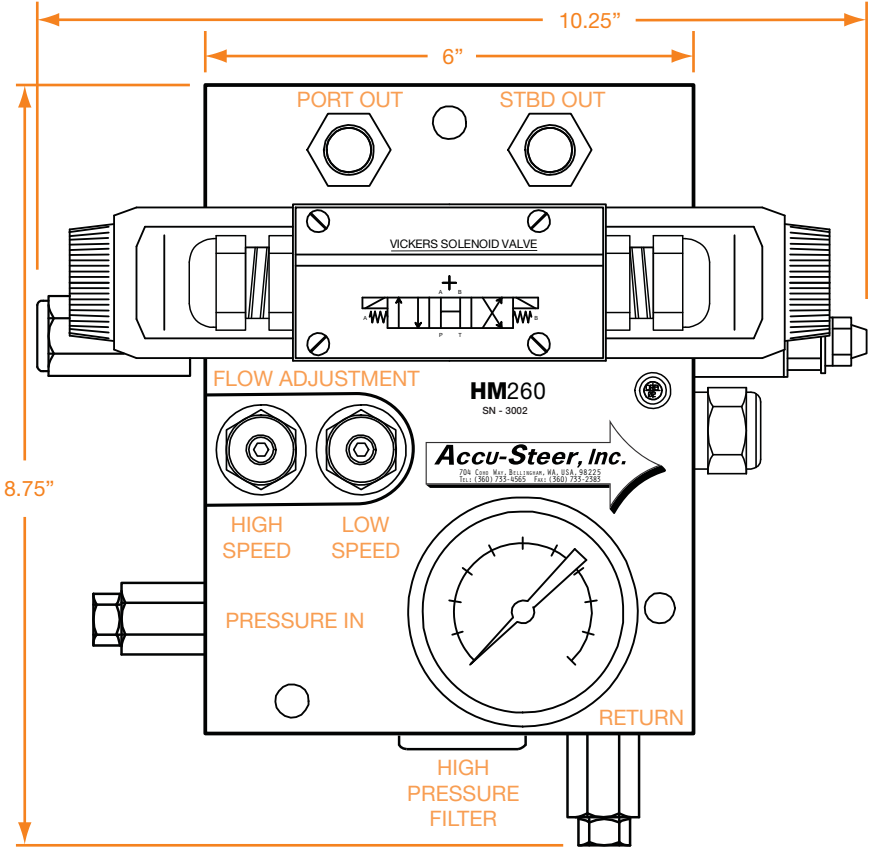
SYMPTOM	POSSIBLE CAUSE	REMEDY
Steering gear goes hard over	Short circuit in electrical wiring to solenoid Solenoid valve is contaminated	Test wiring and solenoid valve coils Isolate lines, clean and/or repair the solenoid valve as required
Steering gear does not respond	Solenoid is not being energized	Test operation of solenoid valve
Pump is noisy	Air is in system	Fill and bleed the hydraulic system to remove air

## 8. NOTES

A series of horizontal dotted lines for writing notes.

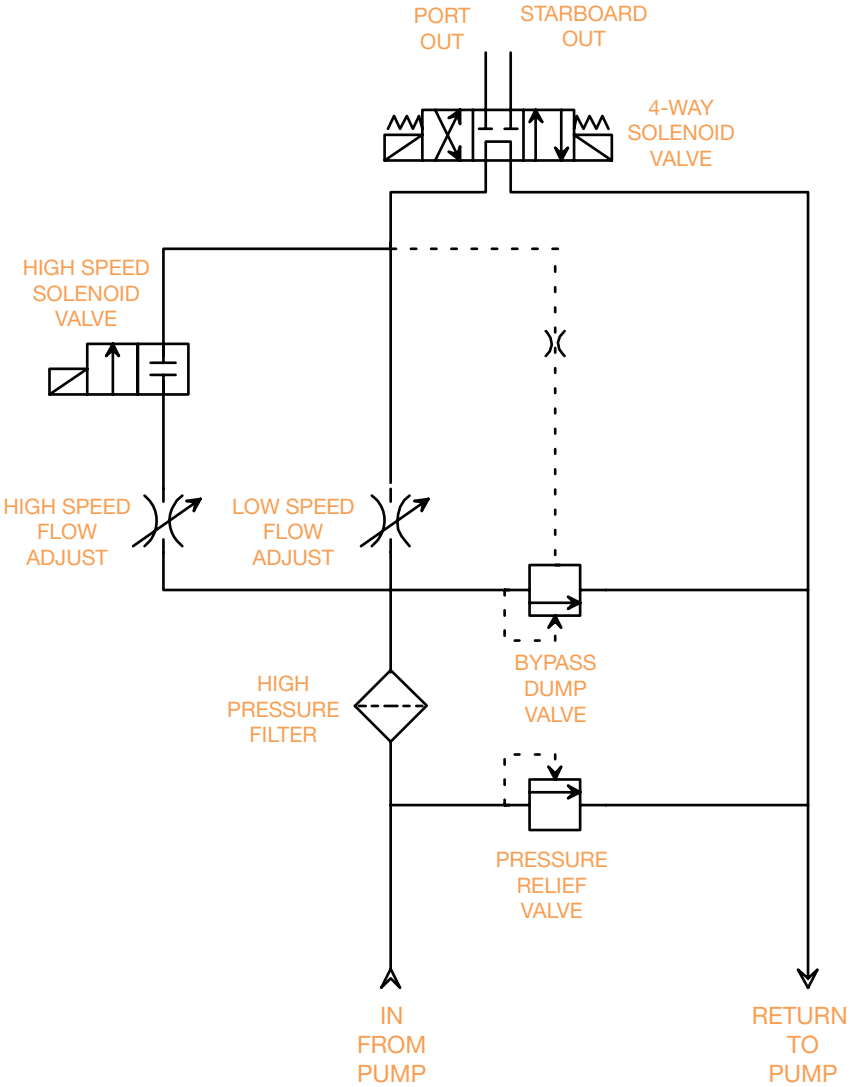
## 9. DRAWINGS

### 9.1 HM260 ASSEMBLY SCHEMATIC

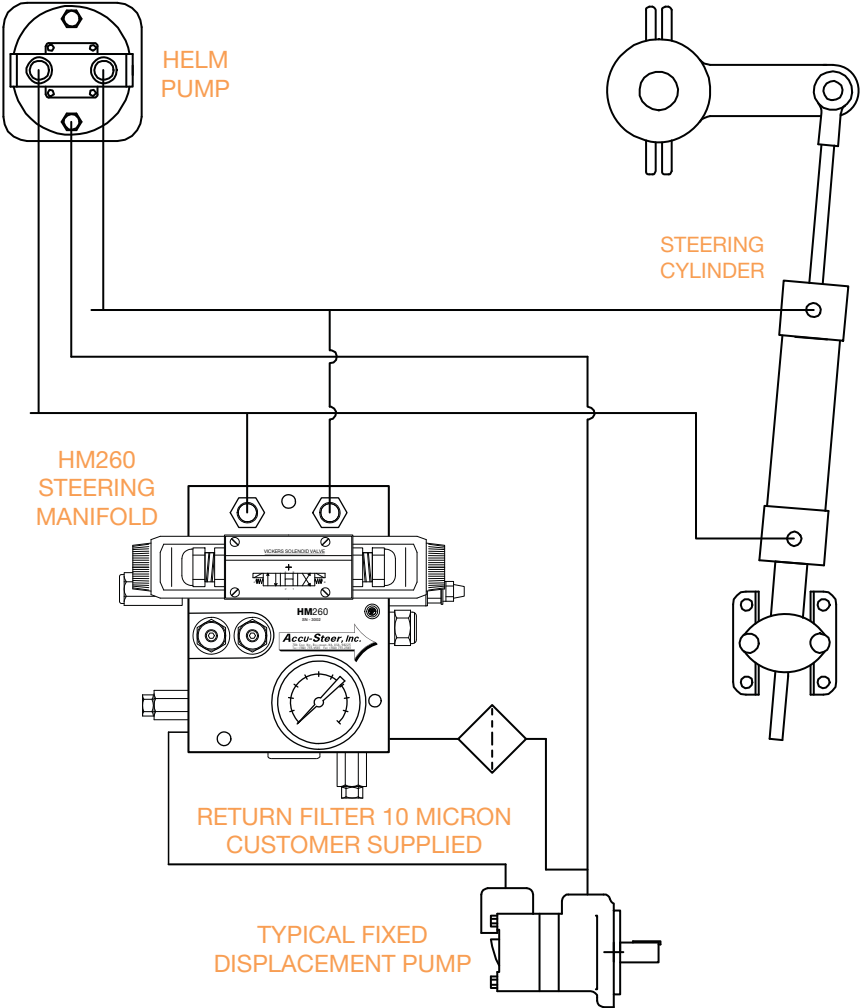




## 9.2 HM260 HYDRAULIC SCHEMATIC



### 9.3 HM260 SYSTEM CONNECTION SCHEMATIC







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