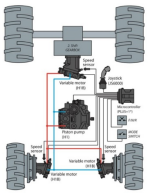

Danfoss Heavy Duty Hydrostatics for Constant Speed Control Instruction Manual

Contents

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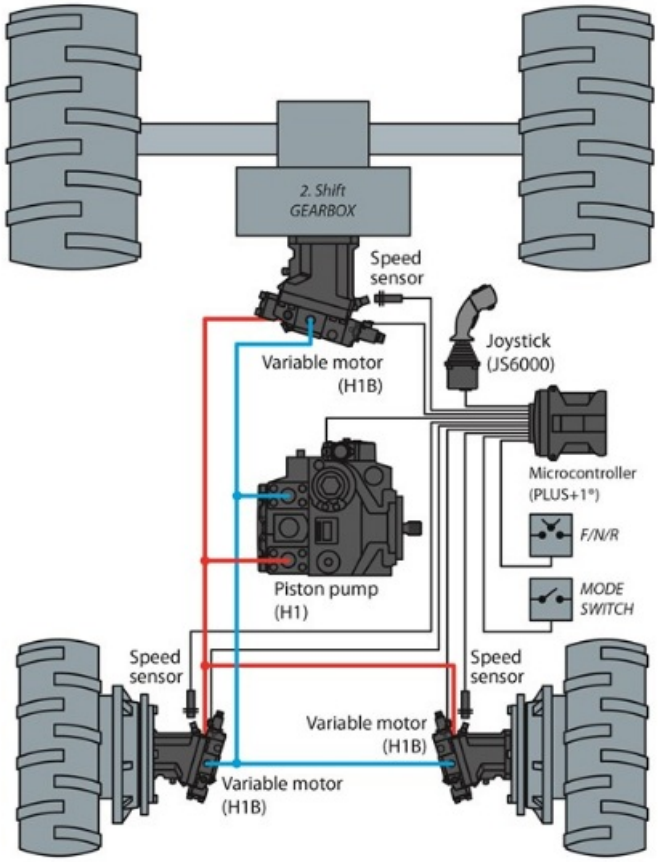


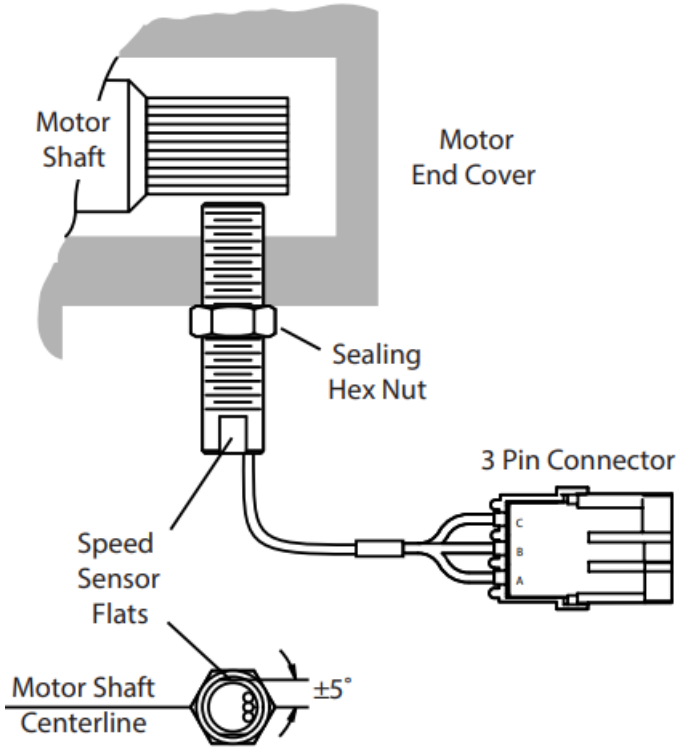
Operating Instructions for Constant Speed Control

(The valve package, speed sensor, and electronic control box are installed by following the instructions and diagrams on a 12 VDC system.)

1. The motor will remain stopped if: A) The manual control valve is in the center position; B) The switch on the electronic controller is in the “OFF” position.
2. The direction of the motor rotation is controlled by the manual control handle. The electronic controller does not affect the direction of motor rotation.
3. The speed of the motor is determined by the position of the manual control handle when the electronic controller is in the “NORMAL” position. With the switch in the “normal” position, the manual control handle has the same (normal) effect on motor rotation as it does when there is no electronic controller on the pump.
4. With the engine at minimum rpm and the manual control handle displaced from the center enough to cause the drum to rotate at least two revolutions per minute (rpm), placing the controller switch in the “AUTOMATIC” position will cause the drum speed to be controlled automatically. (The manual control handle may be placed all the way forward or reverse without affecting the speed at which the motor is automatically controlled). Drum speed will be limited to approximately one and 11 /2 rpm.
5. Drum rotation can be stopped or started with an electrical switch wired across the “remote” terminals (in place of the electrical jumper strap which may have been across the terminals when the controller was received). The switch can act as a remote switch by attaching it to an electrical cable extending from the controller to the back of the truck or other location within 100 feet of the controller.

Note: The controller switch must be in the “NORMAL” position to enable the remote switch to control the motor.

Also note that the remote switch must be in the “ON” position to empower motor rotation.



Installing the Digital Speed Sensor

The electronic transit mixer control requires the use of a Danfoss motor with the digital speed sensor option to monitor the speed of the hydraulic motor. The digital speed sensor (PN 106768) has a three-pin connector that mates with the wiring harness connector shown on page 5. Screw the digital speed sensor into the motors’ end cover until it touches the shaft. Unscrew the sensor until the ats are parallel with the motor shaft (see Figure 3). To provide running clearance between the motor shaft and speed sensor, unscrew the speed sensor an additional 1 /2 turn. The total amount the speed sensor is unscrewed must not exceed 270˚. Tighten the sealing hex nut against the end cover and torque it to 14Nm [10 lb-ft]*. Make sure that the sensor ats are still parallel with the motor shaft. *Caution: More torque than the specified amount may permanently damage the sensor.

Constant Speed Control Installation Requirements

Electrical Cable

Use an oil-resistant, weather-resistant cable such as industrial type SJOW, 2 wire, AWG size 18 or heavier. A molded assembly with the connector molded on the cable will have superior resistance to weather and washing. Route the wires in a protected area and secure them frequently to prevent snagging.

Connectors

The pump connectors must meet DIN 43650 specifications such as Hirschmann GDM 209, IMEX # MPM-182-09-N or equivalent. The cable to the connector joint must be weather tight. The connector lug cavity should be filled with an electrical corrosion-resistant grease. NOCO Company, NCP–2 battery corrosion preventative works well. The speed pick-up has a weather pack connector, #12015793.

Connections

The polarity of the solenoid and speed sensor wiring is interchangeable on the pump and motor connections. The solenoid with the external tube fitting must have one wire going to the control box lower terminal strip marked “solenoid” (see wiring diagram).

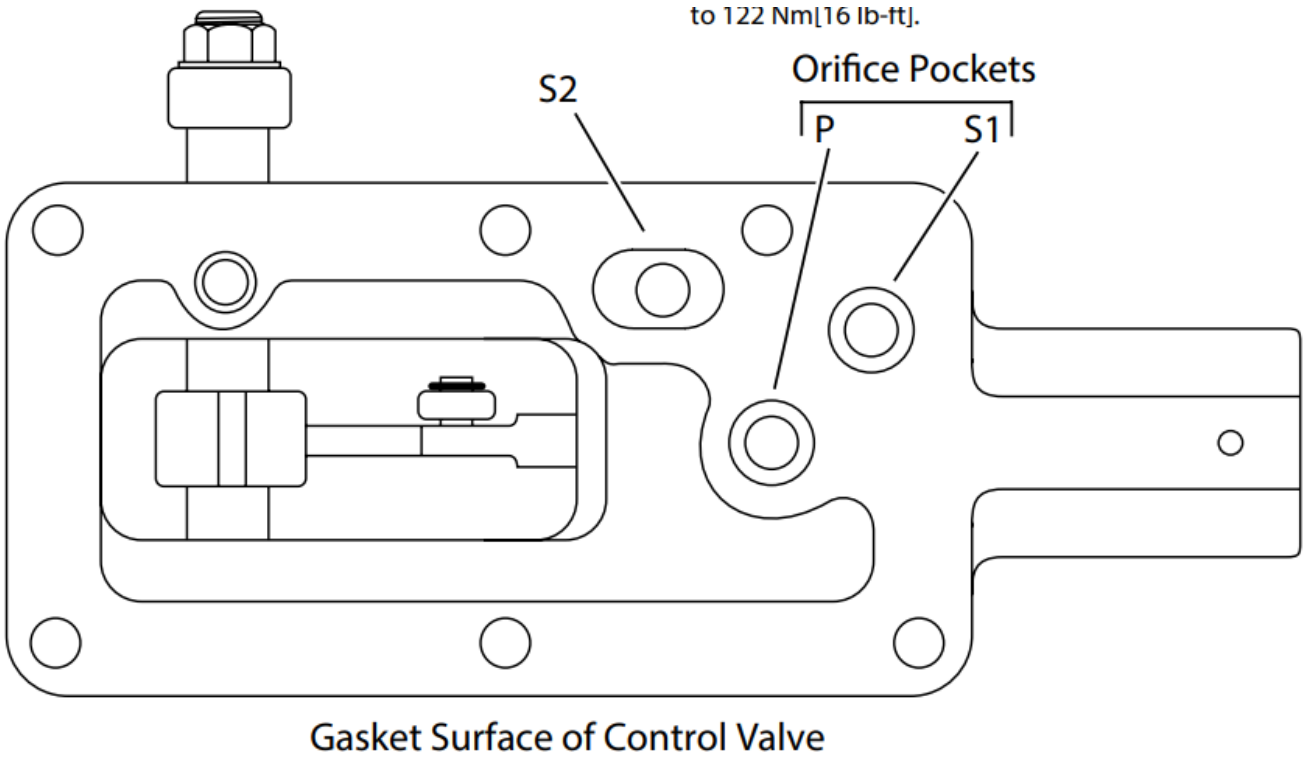
Mounting
Replace the S1 orifice under the controller following the instructions below. The solenoid valves must be oriented on the pump as shown. Failure to do so will result in bending the tube assembly unnecessarily, causing erratic operation of the control. Remove the two plugs on the manual control and mount the valve package with the fittings provided. The plug on the pump housing is replaced with the fitting provided and the tube is connected to it. Tighten all fittings to 22 Nm[16 lb-ft].

Failures
See attached troubleshooting. In the event of an electrical or solenoid failure, the particular solenoid can be override- den by turning the screw on the end in about-turns.

Orifice Removal and Installation

Note: The orifice size is stamped on the oriñce in thousandths of an inch, example: 21 = .021 in.

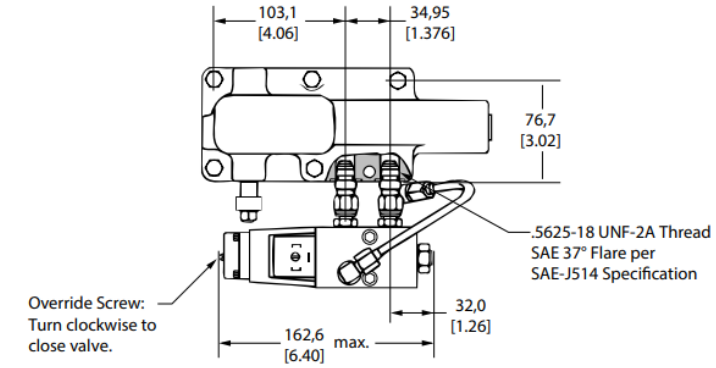
1. Place the .021 inch orifice in the ‘S1’Orifice pocket so the size is visible.
2. Stake the orifice in three places with a center punch.
3. Insure that the orifice is properly seated after staking.
4. Reinstall the manual control valve with a new gasket and the control line attached. Torque the controller mounting bolts to 122 Nm[16 lb-ft].



Trouble Shooting Guide

Trouble Shooting Guide		
Problem	Cause	Corrective Action
Motor will not run with the switch in NORMAL or AUTOMATIC position.	Control lever centered.	Move manual control lever one-inch (or more) from the center position.
	Loose or corroded wire attached to POWER (+12) or GROUND (-12) terminal on the controller.	Tighten and/or clean the connection and secure the wire.
	Modulating valve stuck open.	Remove valve and clean out debris or replace valve.
	Solenoid bad.	Replace solenoid valve.
	Control and/or secondary orifice plugged.	Remove and clean holes in orifices.
	Fuse blown in controller.	Remove and replace fuse. Check wiring for short from solenoid to ground. Exchange controller with known good unit. Check solenoid coils on valves for shorts. NOTE: To override control system and restore motor rotation, turn the screw in until the valve is seated.
	Incorrect wiring.	Insure the jumper or remote switch is attached to the correct terminals.
	Incorrect wiring.	Insure the 2 solenoid connections are not reversed.
Motor will not rotate when the controller switch is in the NORMAL position.	No electrical power to the modulation / control solenoid because the remote switch is OFF.	Change position of remote switch to ON.

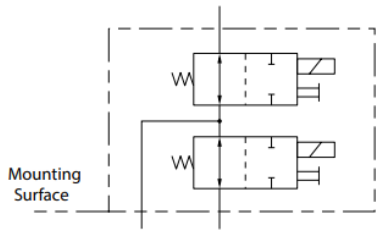
Manual Control Installation



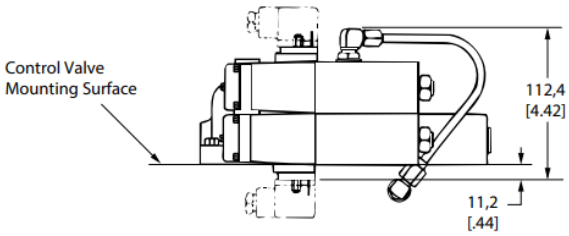
Functional Relationships
(Normally Open)

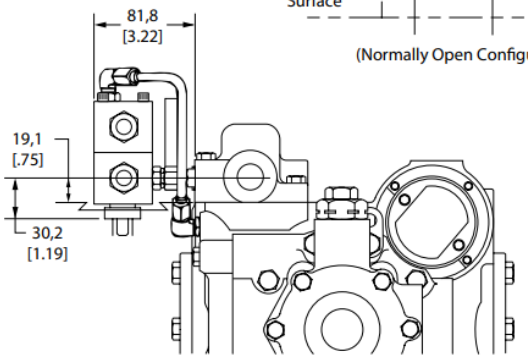
Power on, 12V DC 2.0 Amp must be applied to both solenoids to operate pump displacement control.

Power off – pump will return to neutral regardless of commanded displacement with both solenoids off.

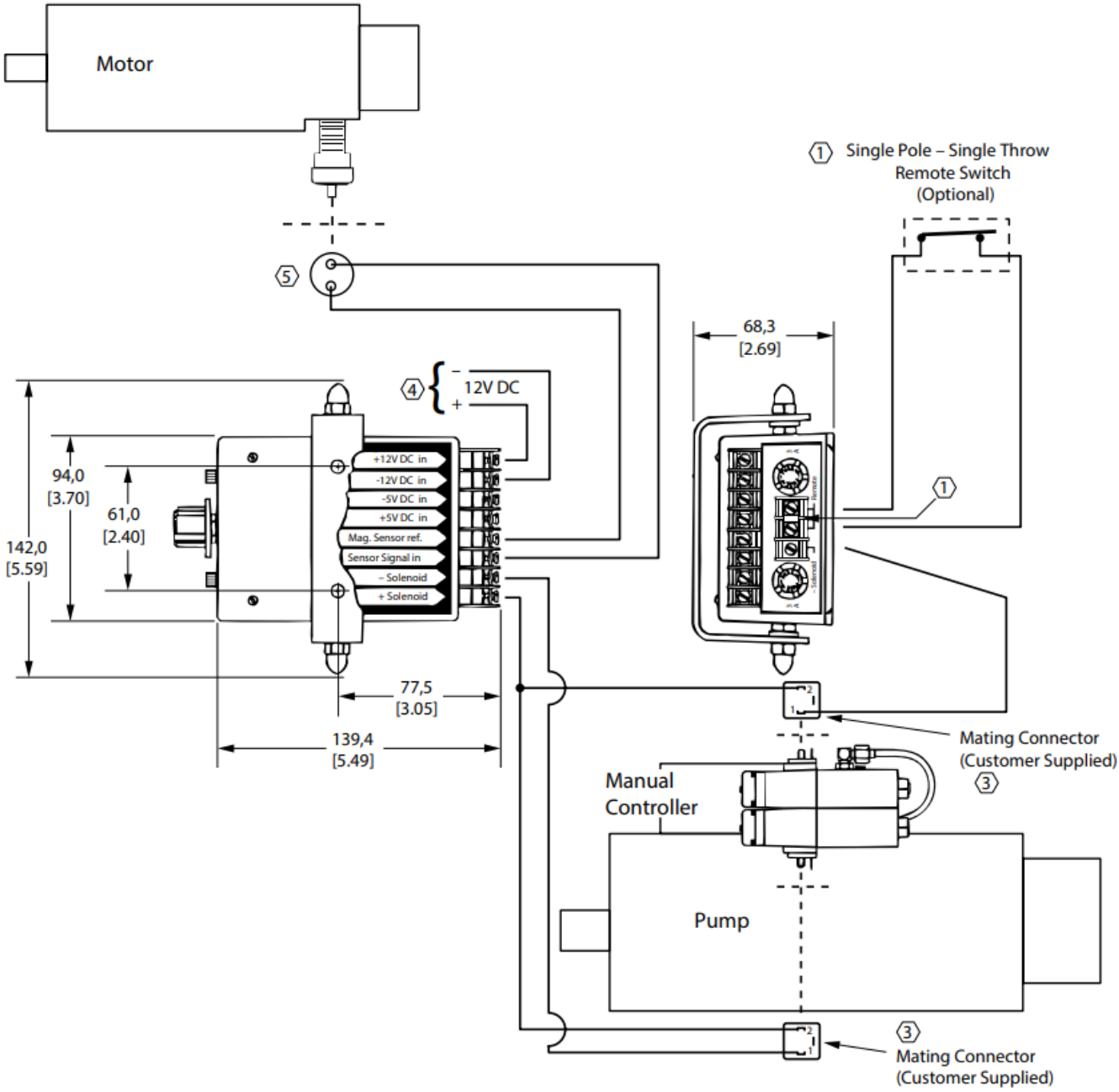


(Normally Open Configuration Shown)





Wiring Diagram



Notes:

1. For remote option, remove jumper and replace with a single pole – single throw switch to be supplied by customer.
2. All wire harnesses and/or cables to be supplied by customer. Recommended wire size to be # 18 AWG or heavier and to be fastened to terminal strip and sensor using ring tongue connectors.
3. Use connector per International Organization for Standardization (ISO) specification ISO 4400 and/or conforming to DIN 43650 specifications. Connectors can be purchased from Danfoss as optional equipment, part no. 103330-000.
    - Alternate Connectors:
      Hirschmann part no. GDM 2009 Source:
      Richard Hirschmann of America, Inc.
      Industrial Row P.O. Box 229
      Riverdale, NJ 07457
      Phone (201) 835-5002

- IMEX part no. MPM-182-09-N Source

  IMEX, Inc.

  4040 Del Ray Ave. Unit 9

  Marina Del Ray, CA 90292

  Phone (213) 821-8292

4. Customer to supply 12V DC power to the controller.
5. If a 3 wire digital speed pickup is used, connect the red wire to the +5 volt terminal, connect the black wire to the -5 volt terminal, connect the green wire to the Sensor Signal terminal

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Documents / Resources

	Danfoss Heavy Duty Hydrostatics for Constant Speed Control [pdf] Instruction Manual Heavy Duty Hydrostatics, Constant Speed Control, Heavy Duty Hydrostatics for Constant Spee d Control, Speed Control

References

- Daikin Sauer Danfoss - Home
- Danfoss - Engineering Tomorrow | Danfoss

- Hydro-Gear Drivetrain Solutions | Home

Manuals+,