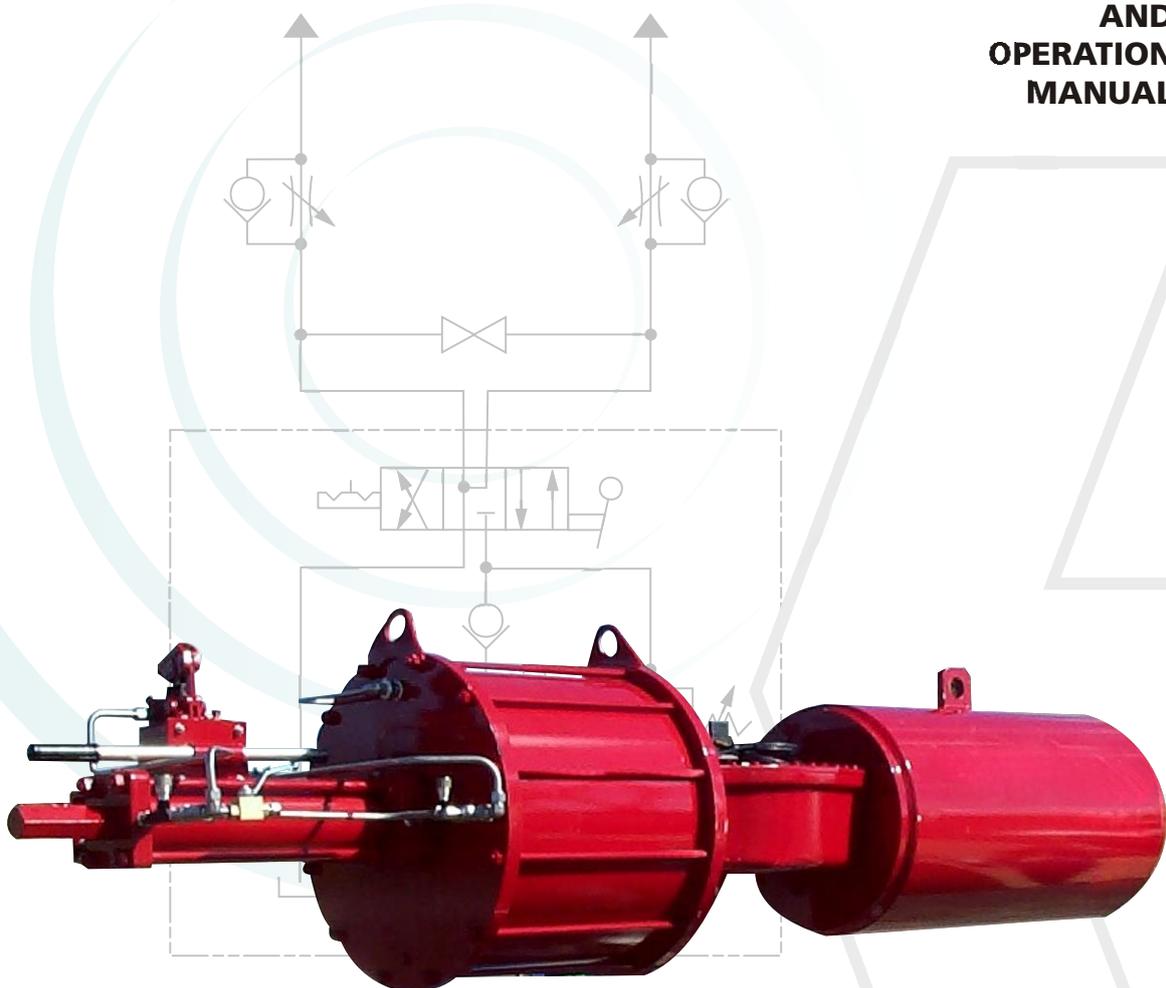


## HP HYDRAULIC MANUAL OVERRIDE

HPA / HPB / HPC / HP1

### INSTALLATION AND OPERATION MANUAL



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## 1.0 Introduction

1.1 The Rotork HP Hydraulic Override is a self-contained system for manual operation of GP, RP and P Range pneumatic actuators; and GH, RH and H Range hydraulic actuators. The unit consists of two main components, the hydraulic cylinder and the pump/reservoir assembly. It comes in four configurations for use with pneumatic or hydraulic actuators in double acting and spring return configurations.

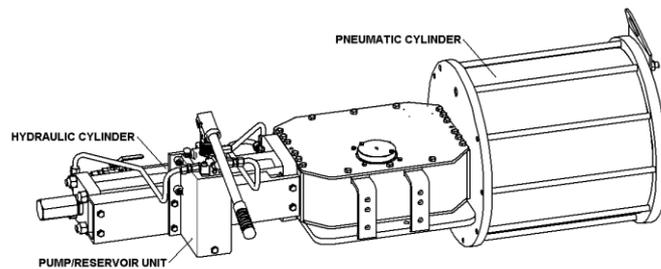
HYDRAULIC MANUAL OVERRIDE APPLICABILITY					
ACTUATOR TYPE		OVERRIDE TYPE			
		HPA	HPB	HPC	HP1
PNEUMATIC	DOUBLE-ACTING				●
	SPRING-RETURN	●			
HYDRAULIC	DOUBLE-ACTING			●	●
	SPRING-RETURN		●		

*Note: HPB and HPC overrides utilise a single hydraulic cylinder for both local-manual and remote operation.  
HPA and HP1 overrides utilise a dedicated cylinder for manual operation.*

## 2.0 Overview

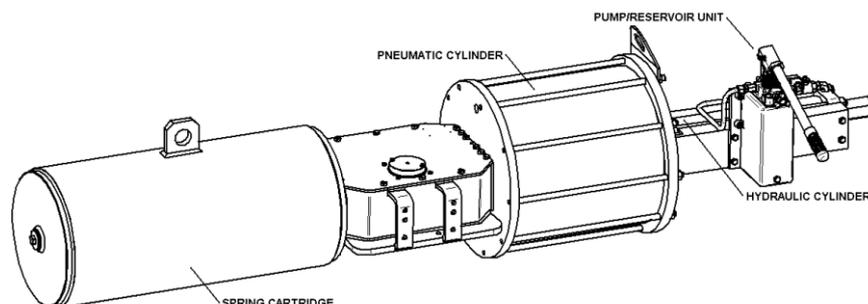
### 2.1 Double-Acting

The HP push/pull pump supplies high-pressure fluid to either side of the hydraulic cylinder depending on the position of the pump open/close selector valve. The valve actuation lever is moved from a disengaged centre position towards either the inboard or outboard end of the cylinder. This will pressurise the selected side to allow manual stroking of the actuator.



### 2.2 Spring-Return

The HP push/pull pump supplies high-pressure fluid to the outboard side of the cylinder, moving the piston towards the actuator body and compressing the spring. This is accomplished through operation of the pump handle with the manual valve on the face of the pump closed.



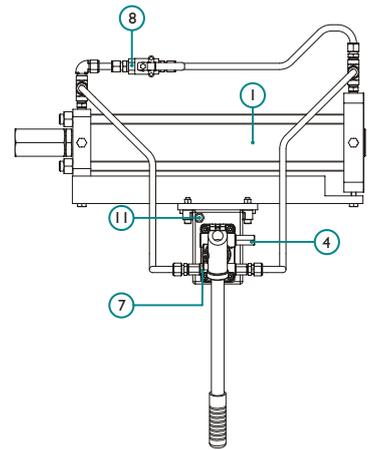
### 3.0 Installation

- 3.1 The preferred position for operation of the hydraulic override is with the unit horizontal. In this position, the pump/reservoir will be mounted toward the upper side of the hydraulic cylinder. The unit may be mounted in the vertical axis if the pump/reservoir is positioned such that the pump is mounted upright and above the end of the hydraulic cylinder. This will require modification to the mounting bracket to allow for rotation of the pump/reservoir assembly. To facilitate any mounting position, the HP pump assembly is completely self-contained. The pump/reservoir assembly can be moved to any convenient mounting surface by re-routing tubing from the cylinder to the pump. When the pump/reservoir is located remote to the unit, it must be mounted so that the pump is above the highest point of the cylinder.
- 3.2 Prior to shipment all manual valves will be in the open, remote operation ready position. These valves are represented by items 3 and 8 on the operational schematics included in section 4 and 5. If the optional flow controls are included, they are supplied in the full open position to allow for uninhibited remote operation.
- 3.3 The HP hydraulic manual override system is self-purging and self-priming. To purge and prime the system, operate the unit in both directions for two complete cycles.
- 3.4 The proper oil level is approximately 2.5 cm (1") below the fill port/vent. The oil level should be checked with the unit in the horizontal position, with the piston at the farthest position in relation to the centre body. Our standard oil specification is listed in section 6. Many applications require alternative oils. If in doubt, consult Rotork Fluid Systems.
- 3.5 A vent is required on top of the reservoir for proper operation. This vent is generally installed at the factory but in certain cases a plug is installed instead to prevent leakage during transport. If a plug is installed at the factory, a vent with installation instructions is attached to the reservoir. The vent must be installed prior to hand pump operation.
- 3.6 Double-Acting Hydraulic Override Filling Procedure
- 3.6.1 Position the actuator so that the piston is contacting the end stop in the hydraulic override cylinder.
- 3.6.2 Remove the breather located in the left rear corner of the top of the hydraulic reservoir.
- 3.6.3 Remove the plug located in the top of the hydraulic override cylinder bottom flange.
- 3.6.4 Move the open/close selector valve towards the outboard side of the cylinder.
- 3.6.5 Operate the pump handle slowly until oil exits the port in the top of the hydraulic override cylinder bottom flange. Be sure to maintain the oil level in reservoir so as not to drain the reservoir below intake tube.
- 3.6.6 Reinstall the plug into bottom flange.
- 3.6.7 Continue to operate the pump until the hydraulic piston reaches its closest position to the centre body.
- 3.6.8 Remove the plug located in the top of the hydraulic override cylinder adapter flange.
- 3.6.9 Move the open/close selector valve to the inboard side of the cylinder.
- 3.6.10 Operate the pump handle slowly until oil exits the port in the top of the hydraulic override cylinder adapter flange.
- 3.6.11 Reinstall the plug into adapter flange.
- 3.6.12 Run the actuator in both directions for two complete cycles to completely purge the system of air.
- 3.6.13 Verify oil level is correct and reinstall reservoir breather.
- 3.7 Spring-Return Hydraulic Override Filling Procedure
- 3.7.1 Remove all air supply to the actuator so that the spring decompresses and the piston is contacting the end stop in the hydraulic override cylinder.
- 3.7.2 Remove the breather located in the rear left corner of the top of the hydraulic reservoir.
- 3.7.3 Verify proper reservoir oil level.
- 3.7.4 Close the pump On/Off selector valve and verify that the manual holding valve is open.
- 3.7.5 Operate the pump to compress the spring to the point that the piston reaches its closest position to the centre body.
- 3.7.6 Allow the cylinder to hold pressure for three to five minutes, to allow for any air to settle out of the oil.
- 3.7.7 Slowly turn the On/Off selector valve counter-clockwise, allowing the spring to completely decompress.
- 3.7.8 Repeat steps 3 to 7.
- 3.7.9 Reinstall reservoir breather.

### 4.0 Double-Acting Hydraulic Override Operating Instructions

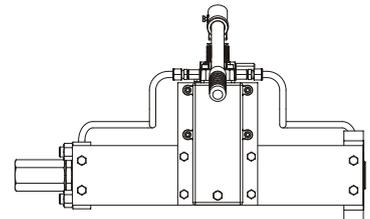
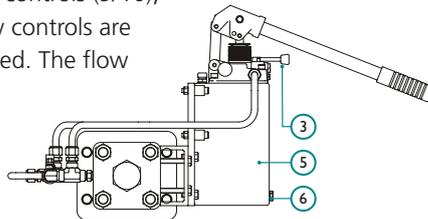
#### 4.1 Manual Operation

- 4.1.1 The Hydraulic Bypass Valve (8) must be in the Closed position.
- 4.1.1.1 For HPC overrides, the Local/Remote Selector Valve (12) must be in the Local position.
- 4.1.2 Selection of operating direction is made by moving the Open/Close Selector Valve (3) toward the end of the cylinder to be pressurised.
- 4.1.3 If the actuator is fitted with optional Flow Control Valves (9/10), the valve in the return line for the cylinder side being exhausted must be Open.
- 4.1.4 Operating the Pump (7) will stroke the actuator.
- 4.1.5 When manual operation is complete, return the Open/Close Selector to the Middle position and the Hydraulic Bypass Valve to the Open position.
- 4.1.5.1 For HPC overrides, the Local/Remote Selector Valve (12) must be returned to the Remote position.

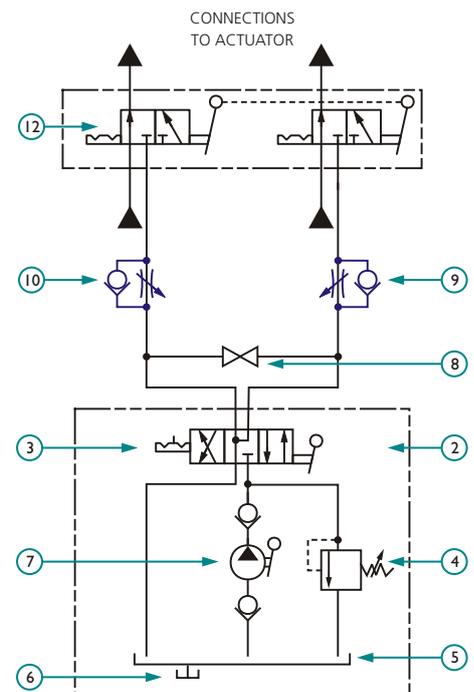


#### 4.2 Power Operation

- 4.2.1 The Hydraulic Bypass Valve (8) must be in the Open position.
- 4.2.1.1 For HPC overrides, the Local/Remote Selector Valve (12) must be in the Remote position.
- 4.2.2 The Open/Close Selector Valve (3) must be in the Middle position.
- 4.2.3 If the actuator is fitted with optional flow controls (9/10), they must be Open. The amount the flow controls are open will affect the remote operation speed. The flow controls can also be closed to lock the actuator in last position.



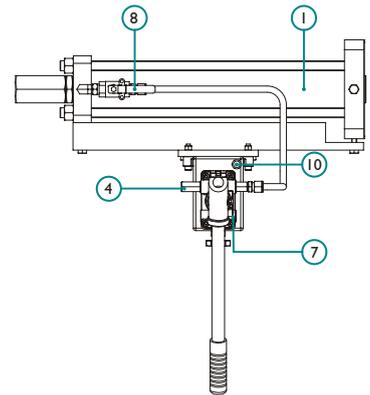
HP OVERRIDE FOR DOUBLE-ACTING ACTUATORS	
ITEM	DESCRIPTION
1	Hydraulic Cylinder
2	Hydraulic Manual Override Assembly
3	Open/Close Selector Valve
4	Pressure Relief Valve (factory set)
5	Hydraulic Reservoir
6	Drain Plug
7	HP Push/Pull Pump
8	Hydraulic Bypass Valve
9	Adjustable Flow Control Valve (optional)
10	Adjustable Flow Control Valve (optional)
11	Fill Port / Vent
12	Local / Remote Selector Valve (HPC only)



### 5.0 Spring-Return Hydraulic Override Operating Instructions

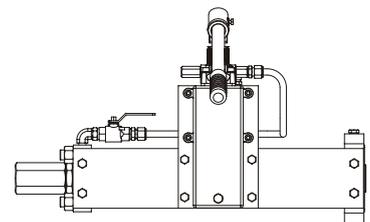
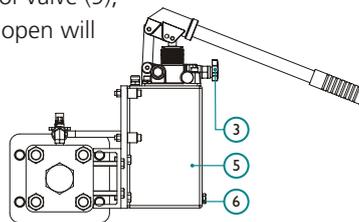
#### 5.1 Manual Operation

- 5.1.1 The Manual Holding Valve (8) must be in the Open position.
- 5.1.1.1 For HPB overrides, the Local/Manual Remote Selector Valve (11) must be in the Local position.
- 5.1.2 Close the On/Off Selector Valve (3) by turning in fully clockwise.
- 5.1.3 Operating the Pump (7) will stroke the actuator and compress the spring.
- 5.1.4 When the actuator has reached the desired position of travel, it can be locked in position by closing the Manual Holding Valve (8).
- 5.1.5 To allow the spring to decompress, the Manual Holding Valve (8) must be moved to the Open position and the On/Off Selector Valve (3) backed out by turning anti-clockwise.
- 5.1.6 If the actuator is fitted with optional Flow Control Valve (9), it must be Open to allow the spring to decompress. Speed of spring decompression can be adjusted via the Flow Control Valve.

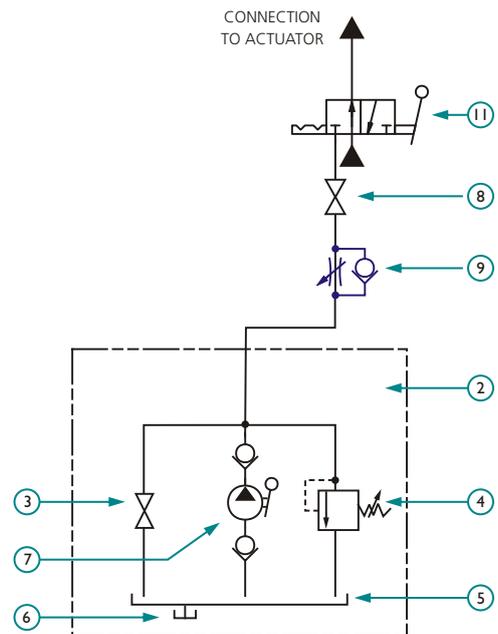


#### 5.2 Power Operation

- 5.2.1 Power operation is accomplished with the On/Off selector valve (3) in Open, full anti-clockwise position and the Manual Holding Valve (8) in the Open position.
- 5.2.2 If the actuator is fitted with optional Flow Control Valve (9), it must be Open. The amount the flow control is open will affect the remote operation speed.



HP OVERRIDE FOR SPRING-RETURN ACTUATORS	
ITEM	DESCRIPTION
1	Hydraulic Cylinder
2	Hydraulic Manual Override Assembly
3	On/Off Selector Valve
4	Pressure Relief Valve (factory set)
5	Hydraulic Reservoir
6	Drain Plug
7	HP Push/Pull Pump
8	Manual Holding Valve
9	Adjustable Flow Control (optional)
10	Fill Port / Vent
11	Local / Remote Selector Valve (HPB only)



## 6.0 Hydraulic Oil Specification

Manufacturer:	Mobil
Trade name:	DTE 11
Viscosity at 40°C:	16.5 cSt
Viscosity at 100°C:	4.2 cSt
Viscosity index ASTM:	168
ISO Grade:	16
Pour point:	-42°C
Specific weight at 15°C:	0.85 kg/dm <sup>3</sup>
Equivalent to:	Statoil - Hydraway HVX-A15

*Note: This is the standard hydraulic oil specification for Rotork Fluid Systems actuators. If an alternative was specified and/or supplied, it is noted in job specific documentation, which is available upon request.*

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