



HF80983-12

INSTALLATION INSTRUCTIONS AND OPERATOR'S MANUAL

FEATURES • VALVE FUNCTIONS • ADJUSTMENTS • SCHEMATICS

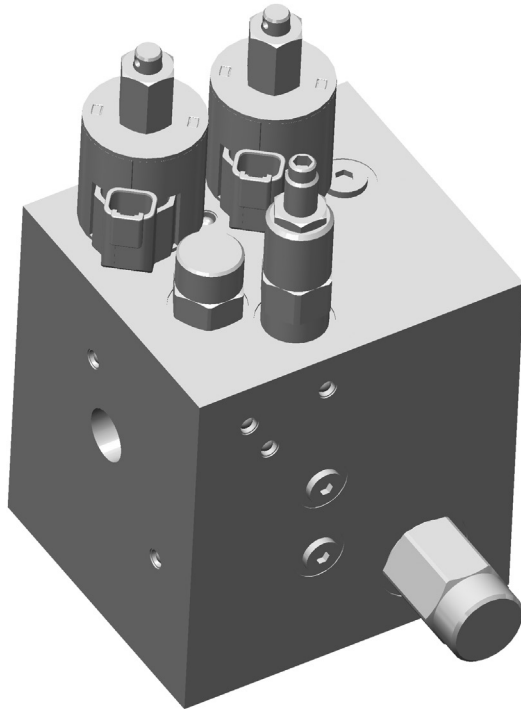


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FEATURES

DIRECT ACTING - PROPORTIONAL SOLENOID VALVES

For consistent and predictable flow control

ADJUSTABLE MAIN RELIEF PRESSURE

PRESSURE COMPENSATED

CONFIGURABLE FOR EITHER GEAR OR PISTON PUMPS

MANUAL OVERRIDES

SPECIFICATIONS

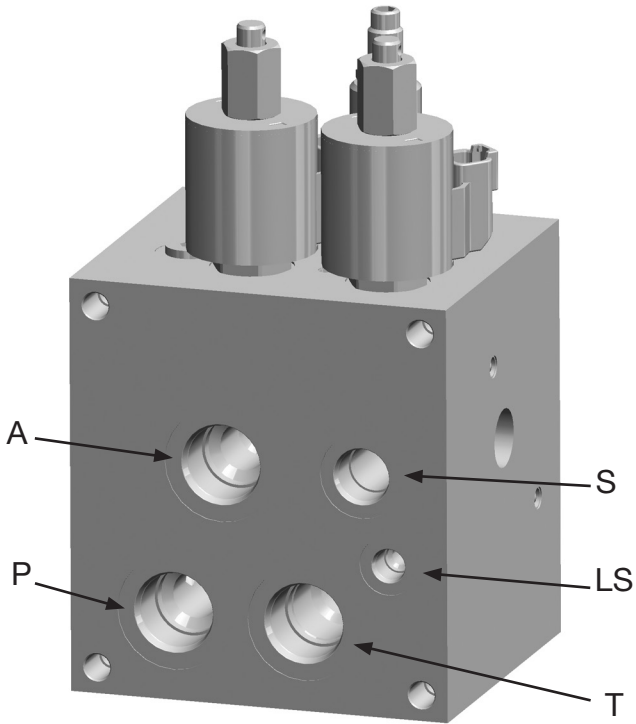
Maximum Inlet Flow 40 GPM

Maximum System Pressure 3,000 PSI
Factory Setting (1800 PSI)

Auger Flow (Proportional) 0-10 GPM

Spinner Flow (Proportional) 0-8 GPM

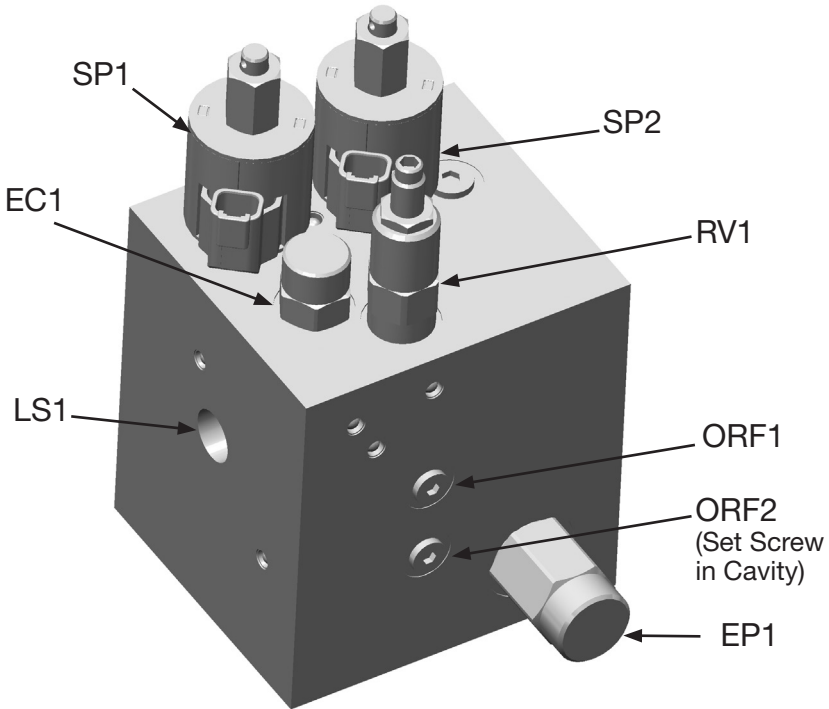
WORK PORTS



HF80983-12

DESIGNATION	DESCRIPTION	SIZE (SAE)
T	TANK	12
P	PUMP	12
LS	LOAD SENSE	04
A	AUGER	12
S	SPINNER	08

CARTRIDGE DESIGNATIONS AND PART NUMBERS

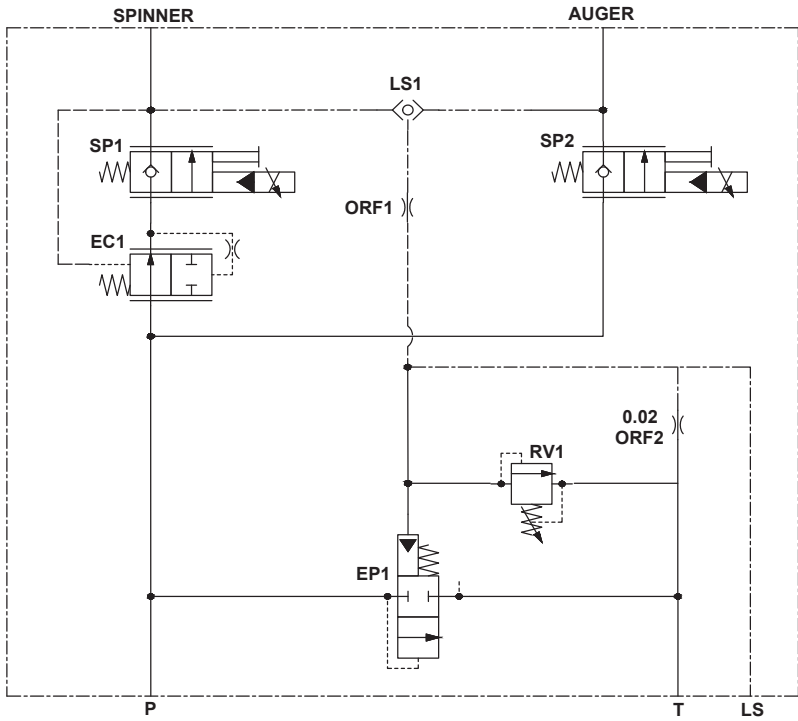


* COIL P/N: NX4303712

DESIGNATION	P/N	FUNCTION
EC1	NXEC10320N80	Pressure Compensator
EP1	NXEP12S3553T0N160	Pump Unloader
LS1	NXLS04B300N	Shuttle Cartridge
ORF1	NX6101040	LS Orifice
ORF2	NX6101020	Orifice
RV1	NXRV0820A0N3318	Main Relief
SP1	NXSP1020M0N00	Spinner Flow Ctrl
SP2	NXSP1020M0N00	Auger Flow Ctrl

SCHEMATIC

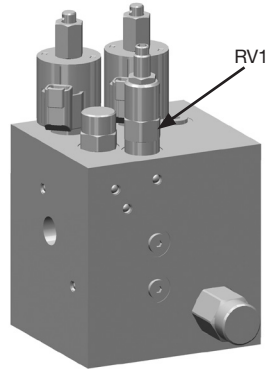
OPEN CENTER



RELIEF VALVE ADJUSTMENT

Main System Relief (Factory Setting 1,800 PSI)

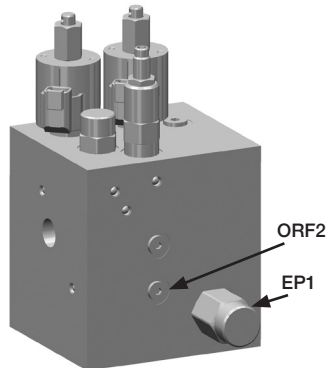
1. The tools required for adjusting the main relief setting includes:
3/4" wrench and a 1/4" Allen drive.
 2. Tee a pressure gauge into the pump port (gauge greater than 3,000 PSI).
 3. Loosen the lock nut while holding the Allen screw stationary.
 4. Start the truck and deadhead flow at either the auger or spinner. (pressure will increase to the main relief setting).
 5. While observing the pressure gauge, turn the Allen screw CCW to decrease pressure, and CW to increase pressure.
- * DO NOT EXCEED 3,000 PSI**
6. Once the desired pressure has been established, hold the Allen screw stationary and tighten the lock-nut.



CONVERTING MANIFOLD FROM OPEN-CENTER TO LOAD SENSE

Instructions:

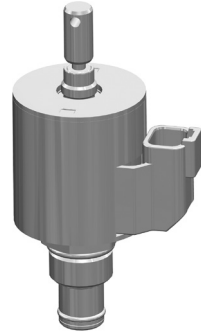
1. Remove EP1 and replace with NXCP12-S30-N.
2. Locate the LS port on the manifold and route to the variable displacement pump.



MANUAL OVERRIDE INSTRUCTIONS

1. To manually override SP1 or SP2:
Push the red override down and turn CCW.
(Up Position)
2. To disengage SP1 or SP2:
Push the red override down and turn CW.
(Down Position)

Normal Operation: Push down and turn CW



TROUBLESHOOTING

SYMPTOM	SOLUTION
<ul style="list-style-type: none"> • Either the auger or spinner operate wide open. 	<ul style="list-style-type: none"> • Check manual overrides of SP1 or SP2 (Reference pg. 8 for manual override instructions). • Remove SP1 or SP2 from manifold and inspect cavity and cartridge for contamination.
<ul style="list-style-type: none"> • Either the auger or spinner are inoperative. 	<ul style="list-style-type: none"> • Inspect wiring and check continuity of Deutsch connector into solenoid receptacle. • Verify that the flow is not bypassing motor (loss of efficiency). • Verify that the SP1 or SP2 are magnetizing when energized.
<ul style="list-style-type: none"> • Both auger and spinner do not operate. 	<ul style="list-style-type: none"> • Remove EP1 from manifold and inspect cavity and cartridge for contamination. • Check RV1 for contamination. • Verify that pump is producing flow.
<ul style="list-style-type: none"> • Manifold operates continuously at main relief pressure (1,800 PSI). 	<ul style="list-style-type: none"> • Inspect plumbing – If applicable, check quick disconnects. • Remove EP1 from manifold and inspect cavity and cartridge for contamination.
<ul style="list-style-type: none"> • Oscillating noise/compensator instability coming from manifold bypassing through EP1. 	<ul style="list-style-type: none"> • Downsize inlet diameter to increase flow velocity (Contact Muncie for assistance).

DETAILED DESCRIPTION OF HF80983-12

REFERENCE SCHEMATIC ON PG. 6

EP1 – Pump bypass, pre-pressure compensation. EP1 is a normally closed – two position – two way – pilot operated cartridge. It can provide a low pressure path for pump flow to escape to tank. This is its primary function when no functions are operating.

The EP1 cartridge also establishes the differential or boost pressure of the system. The differential or boost pressure is a function of the spring tension of the EP1. The purpose of the differential or boost pressure is to increase the pump pressure over the load sense pressure.

When the EP1 has a load sense pressure applied, which is communicated from the LS1 (load sense shuttle) this will add to the pressure required for the EP1 to allow flow to drain back to tank. For example, if the load sense pressure for a spreader motor is 1,000 PSI, this will be added to the (160 PSI +) spring bias pressure of EP1. Now EP1 cannot begin to open its path to tank until the pump pressure has achieved something slightly higher than 1,160 PSI. Pump pressure would equal 1160 PSI or more, and the L.S. pressure would equal 1,000 PSI. In this way the system will always attempt to sustain a differential or boost pressure.

RV1 – Main system relief valve. RV1 is an adjustable relief cartridge that is used in conjunction with EP1 to limit the maximum pump pressure. RV1 is located in the pilot path (Spring Side) of EP1. It is preset from the factory at 1,800 PSI. This can be adjusted to a maximum setting of 0 - 3,300 PSI. **Do Not Exceed 3,000 PSI.** When RV1 opens, it drains the pilot (Spring Side) of EP1 at whatever pressure RV1 has been set. The pressure of the pump (bottom pilot of) EP1 will build slightly higher and force EP1 to begin opening, which provides a tank path for the pump.

ORF1 – Flow limiting orifice. ORF1 limits the amount of LS flow to a fraction of a gallon per minute back to the EP1 valve.

SP1 – Spinner flow control valve. SP1 is a proportional solenoid flow control valve. In the nonenergized state it provides a blocked path between the pump flow and the spinner work port. When it is energized it provides an adjustable orifice opening to flow as a function of electric current to its solenoid coil. The range of flow control is 0-8 Gallons-per-minute.

SP2 – Auger/conveyor flow control valve. SP2 is a proportional solenoid flow control valve. In the non-energized state it provides a blocked path between the pump flow and the auger/conveyor work port. When it is energized it provides an adjustable orifice opening to flow as a function of electric current to its solenoid coil. The range of flow control is 0 - 1,710 gallons-per-minute.

LS1 – Load shuttle cartridge. LS1 is similar to two check valves set back to back. Its purpose is to communicate the load pressure of the highest spreader motor pressure back to the EP1.

EC1 – Spinner pressure compensator. EC1 limits flow and provides pressure compensation for the spinner flow control valve (SP1). The purpose is to create a constant pressure drop across the valve. The pressure compensator ensures consistent flow despite fluctuating pressures.

ORF2 – Internal LS drain.



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