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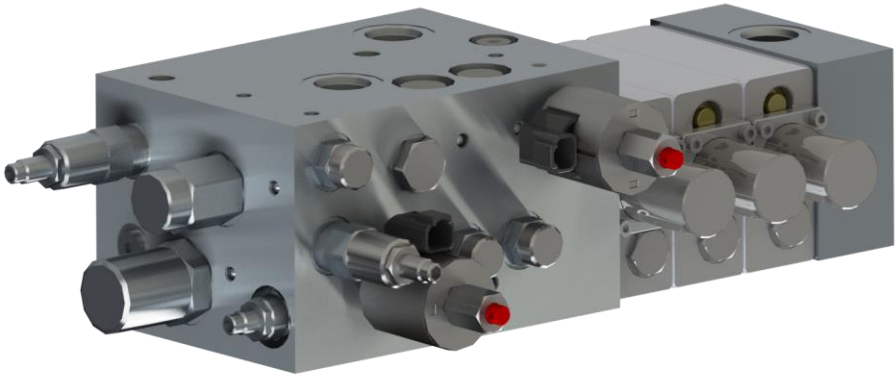
INSTALLATION INSTRUCTIONS AND OWNER'S MANUAL

FEATURES • VALVE FUNCTIONS • ADJUSTMENTS • SCHEMATIC



Muncie Power Products, Inc.

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FEATURES

ADJUSTABLE FLOW DIVISION
Shared flow between the cylinder and spreader functions

ADJUSTABLE MAIN RELIEF

PRESSURE COMPENSATED SPREADER CIRCUIT

MANUAL OVERRIDES

SPECIFICATIONS

Maximum Inlet Flow…… 30 GPM

Maximum Pressure……..…...3000 PSI

Maximum Auger Flow……10 GPM

Maximum Spinner Flow…..……10 GPM

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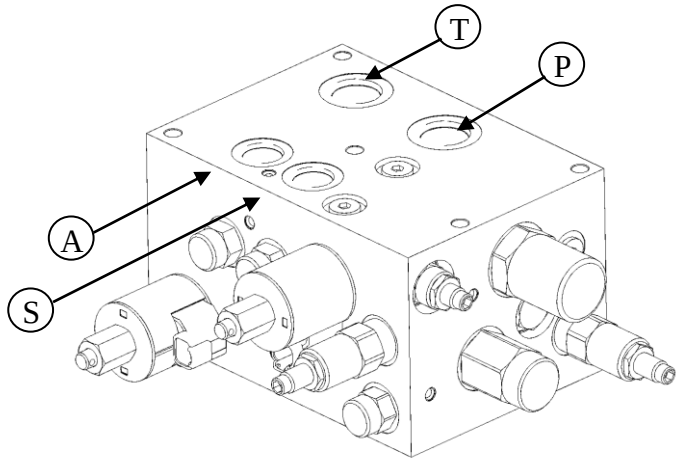

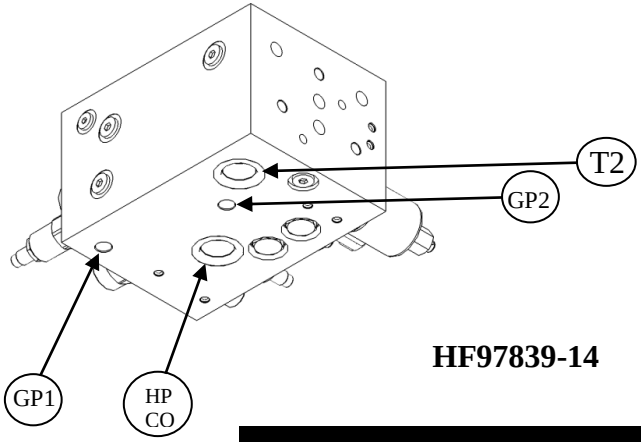

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DESIGNATION	DESCRIPTION	SIZE (SAE)
HPCO	HIGH PRESSURE CARRY OVER	12
P	PUMP	12
T	TANK	12
T2	TANK	12
A	AUGER	10
S	SPINNER	10
GP1	PUMP GAUGE PORT	4
GP2	SPREADER GAUGE PORT	4

CARTRIDGE DESIGNATIONS AND PART NUMBERS

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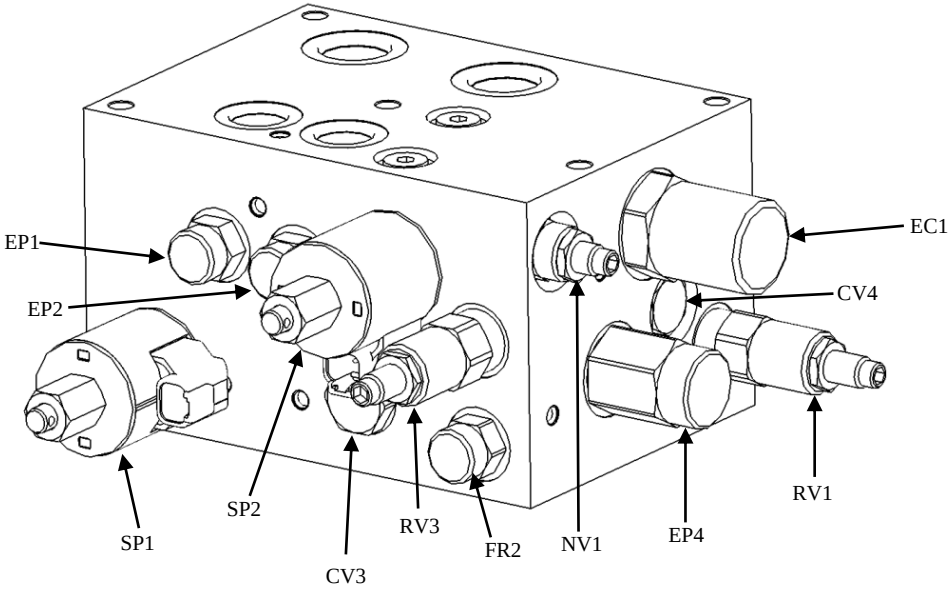

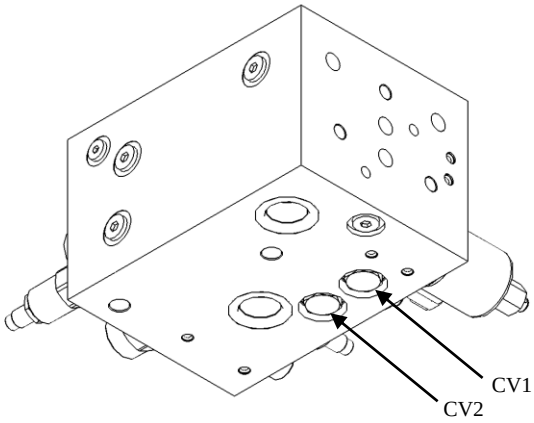

* Coil P/N: NX4303712

DESIGNATION	P/N	FUNCTION
RV1	NXRV1022A0N35	MAIN RELIEF
RV3	NXRV0820A0N33	SPREADER RELIEF
CV3	NXCV10200N02	CHECK VALVE
CV1	NXCV08200N04	AUGER CHECK
CV2	NXCV08200N04	SPINNER CHECK
CV4	NXCV08200N04	CHECK VALVE
FR2	NXFR0820F0N/0.40	PRESSURE COMP. ORIFICE
NV1	NXNV0820A0N	NEEDLE VALVE
EC1	NXEC16420N80	COMPENSATOR
EP4	NXEP12S35T0N160	COMPENSATOR
EP1	NXEP08350N10	AUGER COMPENSATOR
EP2	NXEP08350N10	SPINNER COMPENSATOR
SP1	NXSP10200N12ER	AUGER FLOW CTRL
SP2	NXSP10200N12ER	SPINNER FLOW CTRL

EXPLANATION OF CARTRIDGES

Proportional Valve (SP2) – Spinner flow control valve. SP2 is a proportional solenoid flow control valve. In its un-energized state it provides a blocked path between the pump flow and the spinner work port. When it is energized it provides an increasing orifice opening to flow as a result of increasing electric current to its solenoid coil.

Proportional Valve (SP1) – Auger/Conveyor flow control valve. SP1 is a proportional solenoid flow control valve. In its 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 increasing orifice opening to flow as a result of increasing electric current to its solenoid coil.

Pressure Compensator (EP1 & EP2) – EP1 & EP2 are pressure compensators for the spreader circuit. They are used in conjunction to deliver constant flow despite varying pressures. EP1 is used with the Auger and EP2 is used with the Spinner.

Relief Valve (RV3) – Spreader Pressure Relief. RV3 limits the pressure of the spreader motor circuits. RV3 is adjustable. Its pressure setting will be displayed at GP2 if a spreader load exceeds the relief setting or a blockage of a spreader work port occurs.

CV1 & CV2 – CV1 and CV2 are back-to-back check valves. Their purpose is to communicate the higher of the two spreader motor pressures back to EP4.

EC1 – Pressure Compensator- EC1 will provide flow to the spreader circuit until pressure overcomes the bias spring setting. When this occurs, excess flow is directed to the cylinder circuit. The Adjustment of NV1 controls the flow split between the Spreader and Cylinder circuit when operating concurrently.

Needle Valve (NV1) – NV1 is a needle valve designed to the flow between. NV1 works in part with EC1 to control flow to the HPCO circuit. Adjusting CCW increases flow to the spreader circuit, and CW decreases flow to the spreader circuit.

Gauge Port (GP1) – Indicates the inlet pressure from the pump.

Gauge Port (GP2) – Indicates the pressure from the spreader circuit.

Relief Valve (RV1) – RV1 is the Main Relief Valve.

FR2 – HPCO drain orifice. FR2 provides a controlled drain for the spreader circuit. Its function is to ensure that the pressure cannot be trapped in this pilot and result in EP4 not being able to fully open at low pressure when required.

CV3 – Load Sense Check Valve. CV3 provides a block to prevent back feeding into the HPCO, while allowing flow from the HPCO to the spreader circuit.

CV4 – Load Sense Check Valve. CV4 provides a block to prevent back feeding into the spreader circuit, while helping to balance system pressure.

EP4 – Compensator- EP4 acts as an unloading compensator. When pressure overcomes the bias spring (160 PSI), EP4 opens its flow path and dumps to tank. However, when a spinner function is engaged the LS Signal will add to the spring setting, which will cause EP4 to remain closed until the LS signal pressure plus bias spring setting is achieved.

SCHEMATIC

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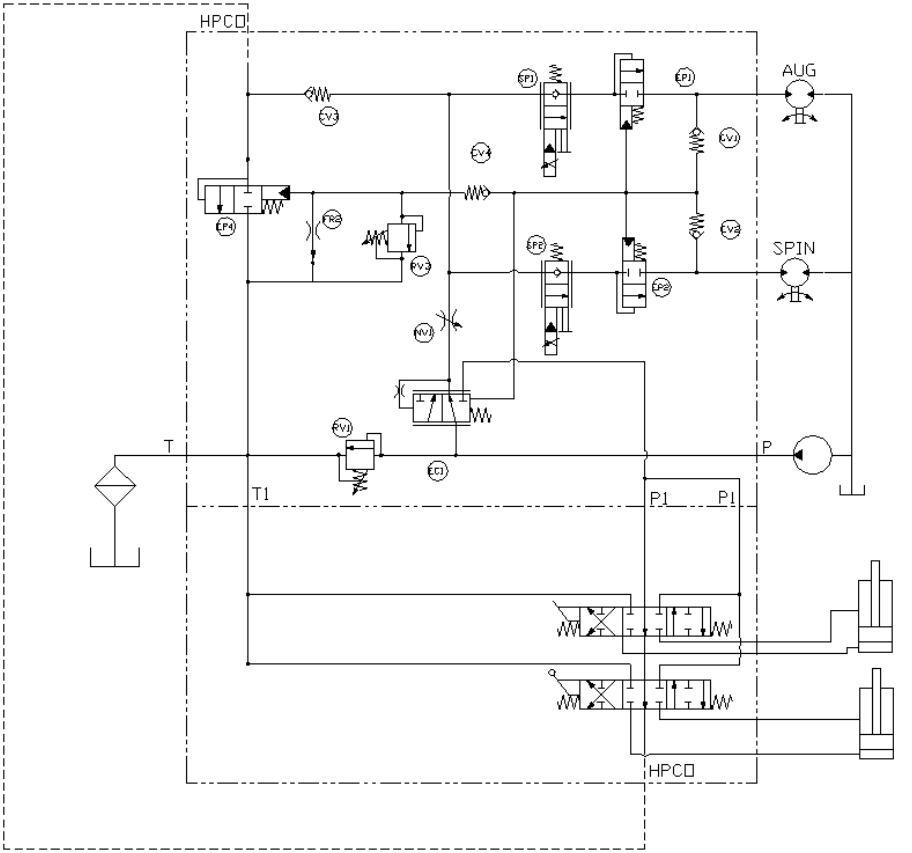
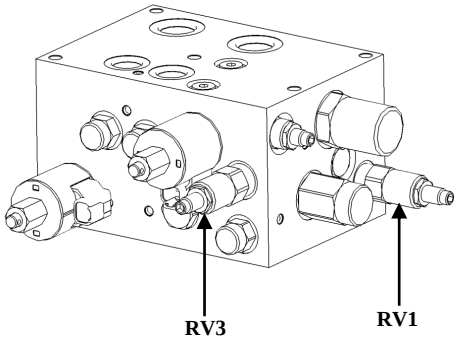


RELIEF VALVE ADJUSTMENTS



Main System Relief (Factory Setting 1800 PSI) – RV1

1. The tools required for adjusting the main relief setting includes: ¾" wrench and a ¼" Allen drive.

2. Tee a pressure gauge into GP1
(3000 PSI Gauge)

3. Loosen the lock nut while holding the Allen screw stationary.

4. Deadhead Plow Up

5. While observing the pressure gauge , turn the Allen screw CCW to decrease pressure, and CW to increase pressure.
*** DO NOT EXCEED 3000 PSI**

6. Once the desired pressure has been established, hold the Allen screw stationary and tighten the lock-nut.

Spreader Relief (Factory Setting 2000 PSI) – RV3

1. The tools required for adjusting the spreader relief setting includes: ¾"wrench and a ¼" Allen drive.

2. Tee a pressure gauge into GP2
(3000 PSI Gauge)

3. Loosen the lock nut while holding the Allen screw stationary.

4. Start the truck and deadhead flow at the Auger or Spinner.
(Pressure will increase to spreader relief setting)

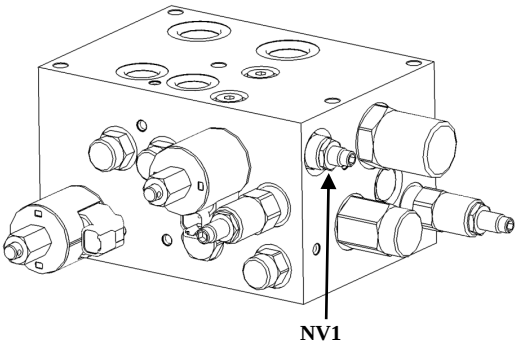
5. While observing the pressure gauge, turn the Allen screw CCW to decrease pressure, and CW to increase pressure.

6. Once the desired pressure has been established, hold the Allen screw stationary and tighten the lock-nut.

CYLINDER/SPREADER FLOW SPLIT ADJUSTMENT

Description of NV1

NV1 does not control pressure it controls flow. It only comes into play when concurrently operating a motor and cylinder function. Adjusted fully CCW sends flow to motors, but takes away some flow to cylinders.



Cylinder/Spreader Flow Split Adjustment – NV1

1. The tools required for adjusting the Needle Valve setting includes: 3/4"wrench and a ¼" Allen drive.

2. Loosen the lock nut while holding the Allen screw stationary.

3. Start the truck and operate a function from each of the circuits, a Cylinder function and a spreader function.

5. Turn the Allen screw CCW to increase flow to the motors/decrease flow to the cylinders, and CW to decrease flow to the motors and increase flow to the cylinders..

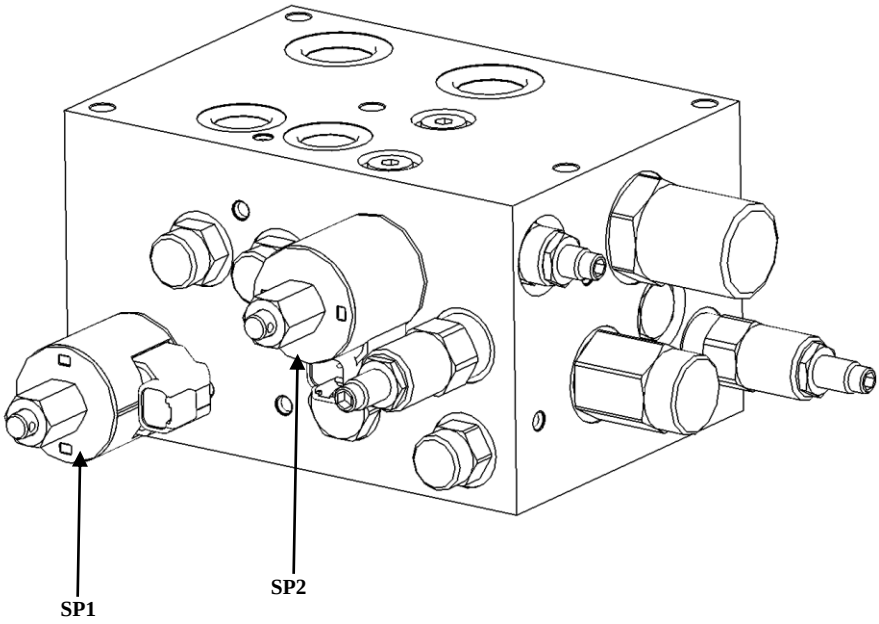
6. Once the desired flow has been established, hold the Allen screw stationary and tighten the lock-nut.

MANUAL OVERRIDE INSTRUCTIONS

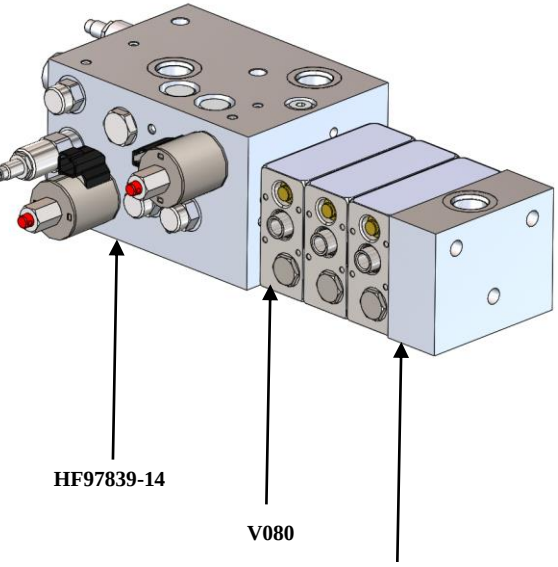
SP1 & SP2 – Auger / Spinner
1. To manually override SP1 or SP2: Push the red override down and turn CCW. (Up Position)

2. To disengage SP1 or SP4: Push the red override down and turn CW. (Down Position)

Normal Operation: Push down and turn CW



FULL ASSEMBLY



Torque Specs:
Initial Torque (IN.LBS) 20
Final Torque (IN.LBS) 266

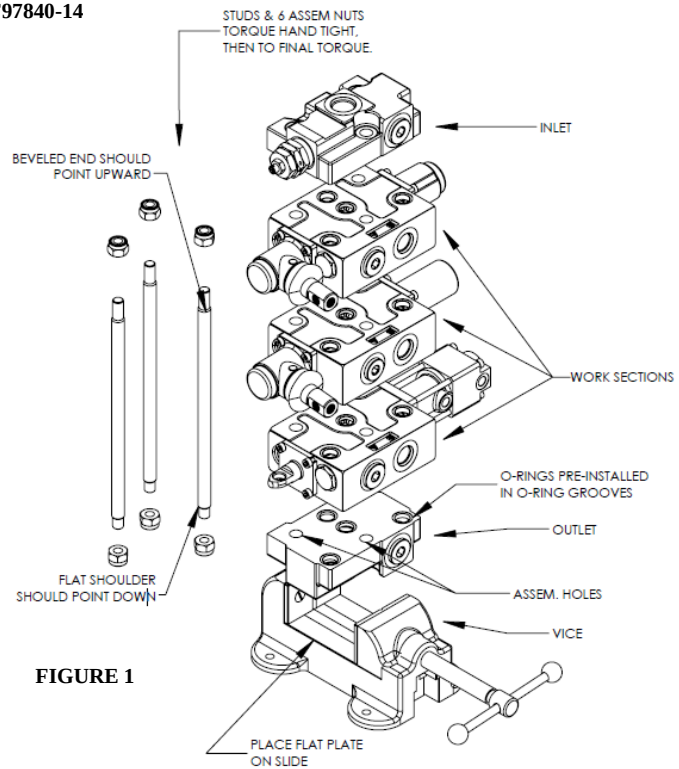


FIGURE 1

ASSEMBLY INSTRUCTIONS

1. PLACE STUDS IN VICE WITH FLAT, SHOULDER SIDE UPWARD. THREAD NUT ON TO EACH STUD AND TIGHTEN UNTIL NUT STOPS ON STUD SHOULDER

2. PLACE STUDS IN OUTLET ALLOWING THE STUDS TO MAKE CONTACT WITH OUTLET CASTING

3. CLAMP OUTLET SECTION INTO A VICE WITH THE MACHINED SURFACE & STUDS POINTING UP. LAY SOMETHING FLAT ACROSS THE VISE SLIDE WHICH WILL BE USED TO HOLD THE STUDS IN PLACE WHILE THE ASSEMBLY IS COMPLETED. ENSURE THAT THE BEVELED STUD END IS SHOWING

4. SLIDE EACH WORK SECTION WITH THE O-RINGS POSITIONED UPWARDS OVER THE STUDS AND ON TOP OF THE PREVIOUS SECTION. BE CAREFUL TO KEEP THE O-RINGS IN POSITION SO THEY ARENT OUT OF THE GROOVES. SOMETIMES A LIGHT COATING OF GREASE MAY HELP HOLD THE SEALS IN PLACE. THE SEALS SHOULD ALREADY BE PRE-INSTALLED IN ALL O-RING GROOVES, BUT IF MISSING REPLACE.

5. V080 ONLY: THE LOAD CHECKS IN THE V080 WORK SECTIONS CAN SOMETIMES CAUSE ASSEMBLY ISSUES. IF THIS HAPPENS, PLACE A THIN BOARD ON THE WORK SECTION FACE AND LIGHTLY TAP WITH MALLET TO ALIGN LOAD CHECKS

6. INSTALL THE INLET SECTION AFTER ALL OF THE WORK SECTIONS HAVE BEEN INSTALLED.

7. INSTALL THE UPPER LOCK NUTS, MAKE THEM FINGER TIGHT.

8. TORQUE ALL 6 NUTS TO THE INITIALL TORQUE, THEN TORQUE ALL 6 NUTS TO THE FINAL TORQUE. (TORQUE VALUES ARE LOCATED IN TABLE AT LEFT)

9. SHIFT ALL VALVE SPOOLS TO MAKE SURE THEY MOVE FREELY. ANY TIGHTNESS OR BINDING COULD BE THE RESULT OF AN O-RING OUT OF PLACE OR IMPROPER TORQUE PROCEDURES.

10. THE BASIC VALVE IS NOW ASSEMBLED. YOU CAN NOW PROCEED WITH ANY ADDITIONAL OPTIONS OR FLOW SETTINGS AS DESCRIBED IN THE DOCUMENTS FOR

Troubleshooting

Symptom	Solution
• Either the auger or spinner operates wide open.	• Check manual overrides of SP1 or SP2 (Reference pg. 10 for manual override instructions) – disengage if necessary • Remove SP1 or SP2 from manifold and inspect cavity and cartridge for contamination
• Either the auger or spinner are inoperative	• 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
• No function operates, System doesn't build pressure.	• Check main relief (RV1) for contamination • Verify that pump is producing flow
• Manifold operates continuously at main relief pressure (1800 PSI)	• Inspect plumbing – If applicable, check quick disconnects.