INTRODUCTON

This manual provides, in condensed form, service and maintenance information which will serve as a guide when repairing or rebuilding a Sperry New Holland Model 114 Pivot Tongue Windrower.

The first section details a step-by-step procedure to trouble-shoot the hydrostatic system. Each component must be tested separately to isolate a problem. Detailed information to rebuild each component is outlined separately.

The operator's manual issued with each machine should be used in conjunction with this manual as much of the information contained herein is condensed or supplementary in nature.

TROUBLESHOOTING HYDROSTATIC SYSTEM

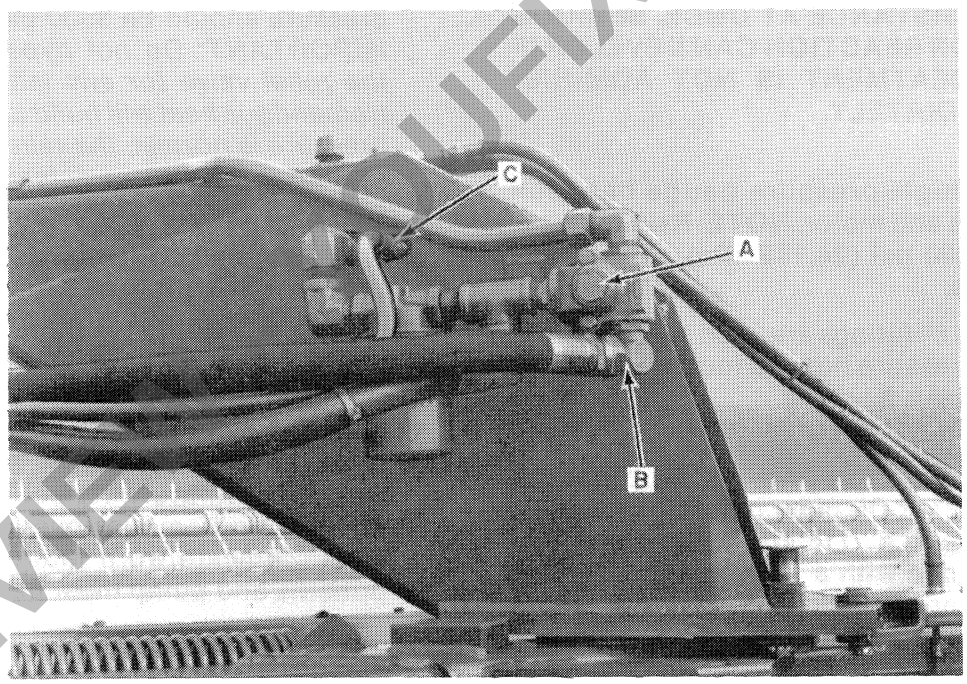


FIGURE 1

The hydrostatic system consists of a pump and gearbox assembly, relief valve, motor, and filter. The high pressure oil from the pump goes through the pressure relief valve and then to the motor. Return oil is filtered between the motor and the tongue reservoir.

If a unit loses hydraulic power, use the following procedure to troubleshoot the system.

1. Check the hydrostatic oil level in the tongue as outlined in the operator's manual.
2. Change the oil filter.
3. Remove the relief valve, A, Figure 1, from the housing. Clean the valve and inspect for wear or contamination. Inspect O-rings for possible wear and replace if worn or damaged. Reinstall valve or replace and then test machine.

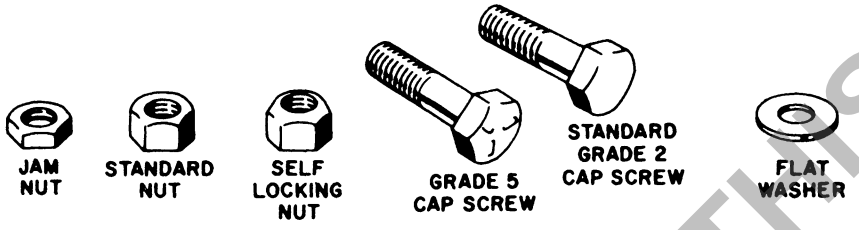
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GENERAL INFORMATION

"Left" and "right" are determined from a position facing in the direction of travel of the unit during operation.

Install a lock washer on all bolts unless a jam nut or self-locking nut is specified. Install a flat washer on all slotted holes except under the heads of carriage and truss head bolts.



SPERRY NEW HOLLAND

MINIMUM HARDWARE TIGHTENING TORQUES IN FOOT POUNDS FOR NORMAL ASSEMBLY APPLICATIONS

	GRADE 2 SAE	GRADE 5 SAE		GRADE 8 SAE	
BOLT SIZE	UNPLATED OR PLATED	UNPLATED	PLATED	UNPLATED	PLATED
1/4"	5	8	7	12	10
5/16"	10	18	15	26	21
3/8"	18	31	25	48	39
7/16"	31	53	43	75	60
1/2"	45	82	66	115	92
5/8"	82	170	140	235	190
3/4"	155	290	230	415	330
7/8"	165	430	340	600	480
1"	250	640	510	900	720

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HYDRAULIC SYSTEM

WARNING: GAUGES, GAUGE FITTINGS, AND HOSES MUST HAVE OPERATING PRESSURE RATINGS OF AT LEAST 25 PERCENT HIGHER THAN HIGHEST PRESSURES OF THE SYSTEM.

NEVER ADJUST RELIEF VALVES TO HIGHER PRESSURE THAN THOSE SPECIFIED BY THE EQUIPMENT MANUFACTURER.

WARNING: ALWAYS PROTECT THE SKIN AND EYES FROM ESCAPING FLUID UNDER PRESSURE. FLUID UNDER PRESSURE CAN HAVE SUFFICIENT FORCE TO PENETRATE THE SKIN, CAUSING SERIOUS PERSONAL INJURY.

BEFORE DISCONNECTING LINES OR FITTINGS, BE SURE TO RELIEVE ALL PRESSURE. BEFORE APPLYING PRESSURE TO THE SYSTEM, BE SURE ALL CONNECTIONS ARE TIGHT AND THAT LINES, PIPES, AND HOSES ARE NOT DAMAGED.

IF INJURED BY ESCAPING FLUID, OBTAIN MEDICAL ASSISTANCE AT ONCE. SERIOUS INFECTION OR REACTION CAN DEVELOP IF MEDICAL TREATMENT IS NOT ADMINISTERED IMMEDIATELY.

4. Install a high-pressure gauge between relief valve and motor. **NOTE: Relief valve is set for 3500 psi (24,133 kPa) and is non-adjustable.**

   JIC - 1-5/16" fittings are used at B, Figure 1, on high pressure hose to motor and elbow on relief valve housing.

   Later units have a ¼" pipe plug at A, Figure 1A. Remove plug and install pressure gauge. **NOTE: On older units elbow can be removed and a 7/16" hole can be drilled and threaded with a ¼" pipe tap if fittings are not readily available to install pressure gauge in line.**

5. Block the left telescoping PTO assembly attached to the upper roll to drive the sickle. A large wrench can be used on the square part of the PTO assembly. Turn machine by hand until wrench is blocked against frame.

WARNING: MAKE SURE THAT WRENCH IS PROPERLY SECURED BEFORE STARTING TRACTOR TO CHECK PRESSURE.

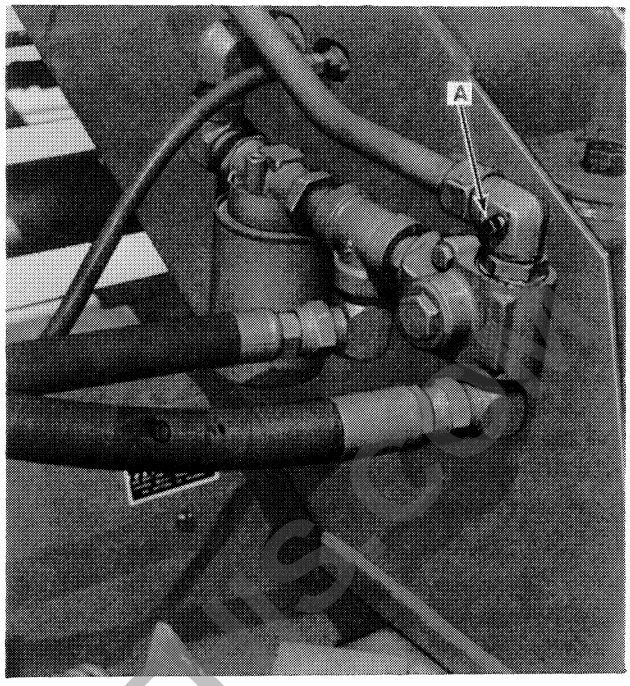


FIGURE 1A

Start the tractor and engage the PTO. The pressure should be 3500 psi (24,133 kPa). *IMPORTANT: Do not bypass oil through the relief valve for any length of time as tremendous heat will build up in the valve. If pressure is normal, the relief valve is functioning properly and leakage must be checked at pump and motor.*

6. If a flow meter is not available to check case drain oil volume at pump, oil can be collected in a measurable container. Disconnect case drain return line, A, Figure 2, and install a ⅜" pipe plug in tongue.

7. Start the tractor and time a certain volume of oil collected. Normally the flow should be approximately 1½ gallons (5.5 l) per minute. Any amount over 2 gallons (7 l) would indicate worn internal pump components and pump must be rebuilt.

8. If pump oil volume is normal, check volume at motor case return line. Remove line at C, Figure 1.

Normal flow should be approximately 1½ gallons (5.5 l) per minute. Any amount over 2 gallons (7 l) would indicate worn internal motor components and motor must be rebuilt.

HYDROSTATIC OIL

The hydrostatic oil must be kept free of dirt, dust, water, rust etc. or severe damage could occur to the hydrostatic components. If a catastrophic failure occurs with a pump or motor, the system must be drained.

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FIGURE 11

11. Remove snap rings, thrust washers, and thrust bearing at E, Figure 12.
12. Remove the needle bearing, D, Figure 8, and A, Figure 13, if they show wear or excessive play.



FIGURE 12

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Inspection

1. Wash all parts thoroughly in a cleaning solvent.
2. Examine the needle bearings in the housing. If the needles do not have excessive play and remain in the bearing cage, there is no need to replace the bearings.
3. Inspect all components for wear or scoring marks. Replace all questionable parts as required.

Assembly

1. Install snap ring on shaft if it was removed and install key, F, Figure 28.
2. Slide piston block, G, Figure 28, on shaft with bore chamfer toward snap ring.
3. Lubricate the pistons and install in the piston block as shown in Figure 26. **NOTE: Pointed ends of pistons are pointed outward toward long end of shaft.**
4. Slide spacer, A, and pivot, B, Figure 27, on shaft.
5. Position housing with open end up. Lubricate thrust washer, C, Figure 28, and install in housing.
6. Slide piston race assembly, A, and thrust bearing, B, Figure 28, on shaft.
7. Lay housing on side and insert lubricated shaft and piston block assembly in housing. Make sure parts are properly aligned and seated.
8. Place the splined end of shaft in a protected jawed vise with open end of housing up. Let shaft hang through housing to keep parts in position.
9. Place spring, C, Figure 25, over shaft. Lubricate and assemble pistons in spider as shown in Figure 24. Assemble pivot, B, and spacer, A, Figure 25, and piston assembly into piston block as shown in Figure 23.
10. Lubricate shoes of pistons and lay flat part of connector plate, A, Figure 23, over pistons.
11. Install new O-ring, C, Figure 22, on back plate. Lay thrust washers and thrust bearing, D, on end of shaft. Install back plate and rotate back plate until all bolt holes are properly aligned. Install bolts and tighten to 15-18 ft. lbs. (20-24 N·m) torque.
12. Remove assembly from vise and install new shaft seal, E, Figure 28. Install retaining ring, D.

Hydrostatic Pump and Gearbox Startup

Before running the gearbox and pump on tractor, fill gearbox and pump at least half full of Dexron II oil.

Connect all lines securely and fill oil reservoir to proper level. Start tractor and run machine slowly under no load for 10 minutes. Recheck hoses and oil reservoir level before operating machine in field.

Hydraulic Cylinder

Three different cylinders are used on the machine. The swing cylinder, A, Figure 29, is a double-acting cylinder. The right lift cylinder, B, Figure 30, is a master cylinder that supplies oil to the left lift cylinder, C, Figure 31. The left cylinder operates as a slave cylinder.

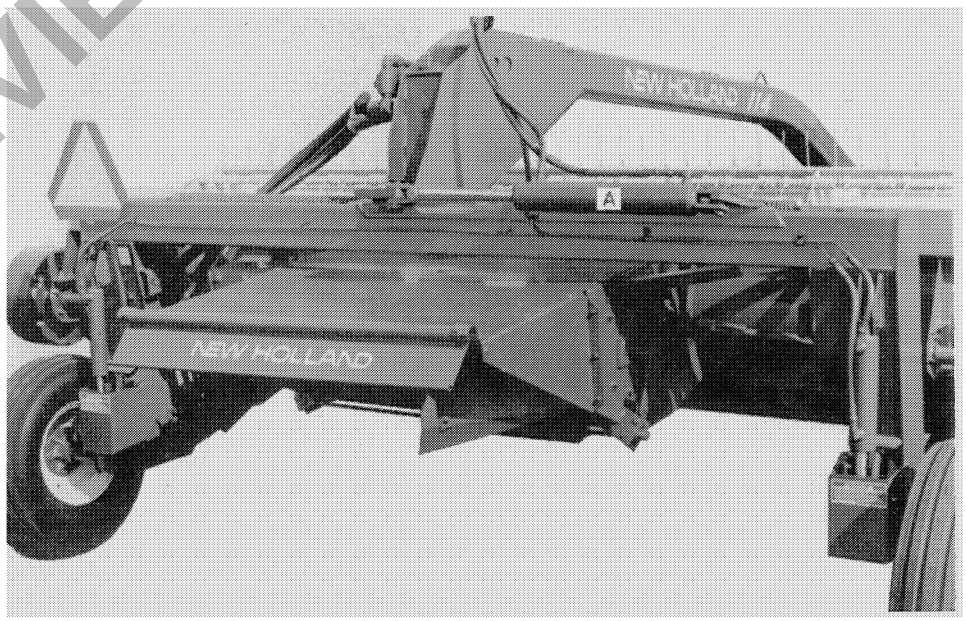


FIGURE 29

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