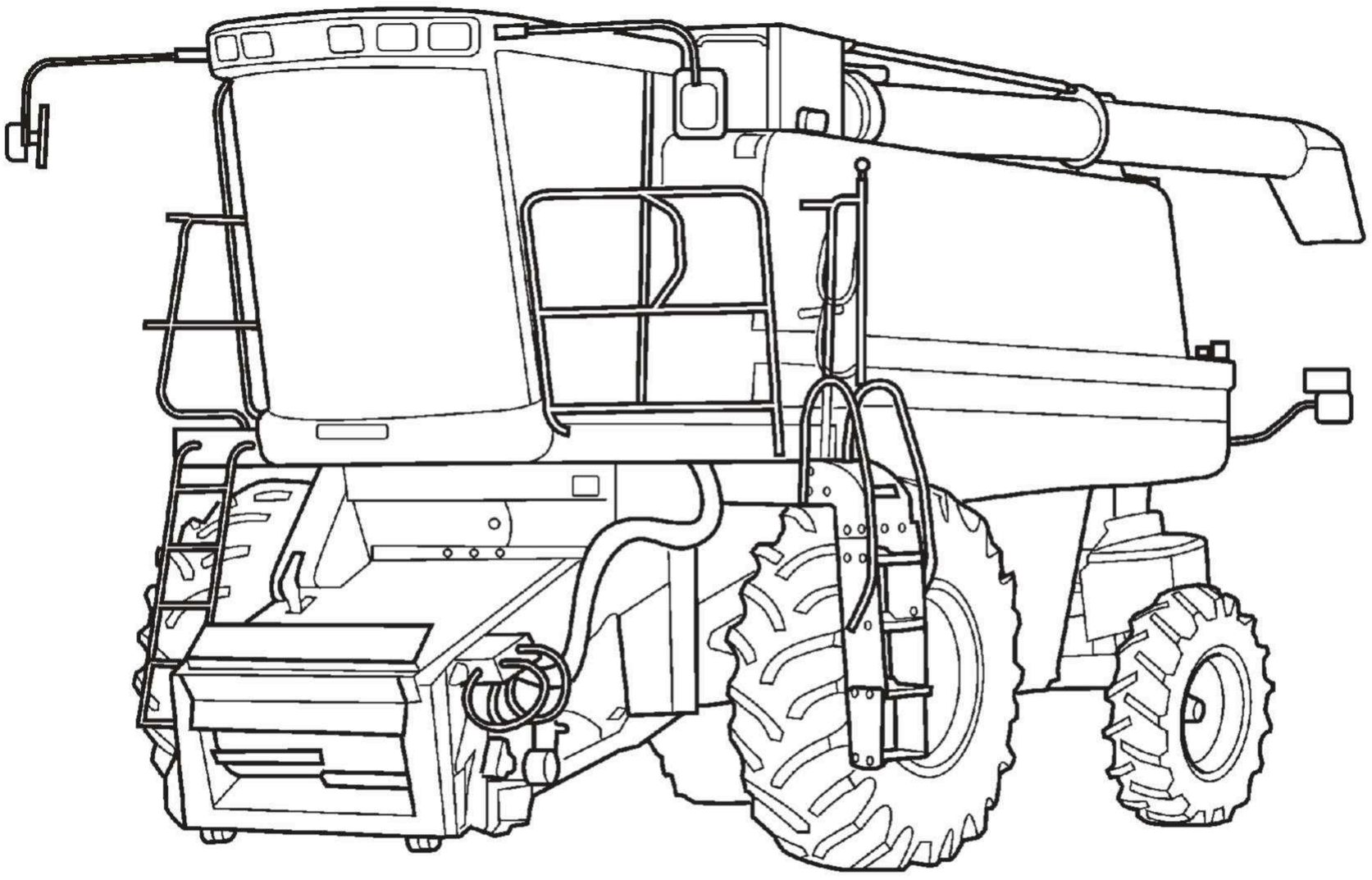


2377/88 and 2577/88 Combines

P.I.N. HAJ0292001 and After

Repair Manual

Book 5
Brakes, Hydraulics

84125895
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CASE IH AGRICULTURE

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REVERSER HYDRAULIC SYSTEM

General

The feeder reverser hydraulic circuit consists of the following components: PFC pump, feeder reverser solenoid, the signal valve solenoid, reverser motor and reverser cylinder.

Feeder Reverser Dis-Engaged

Hydraulic flow and pressure is supplied to the reverser valve from a tee in the header valve supply line. The flow is directed to the rod end of the reverser cylinder.

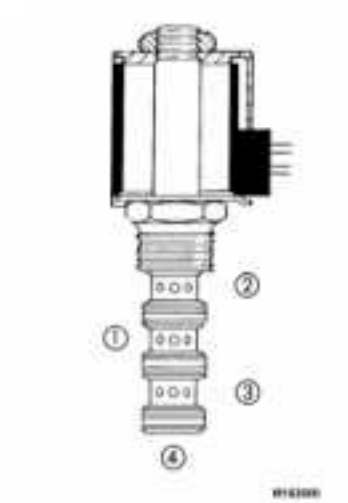
Feeder Reverser Engaged

The signal valve will direct pump discharge pressure to the flow compensator spool, placing the PFC pump on high-pressure stand-by. *Refer to the main hydraulic section for the signal valve operation.*

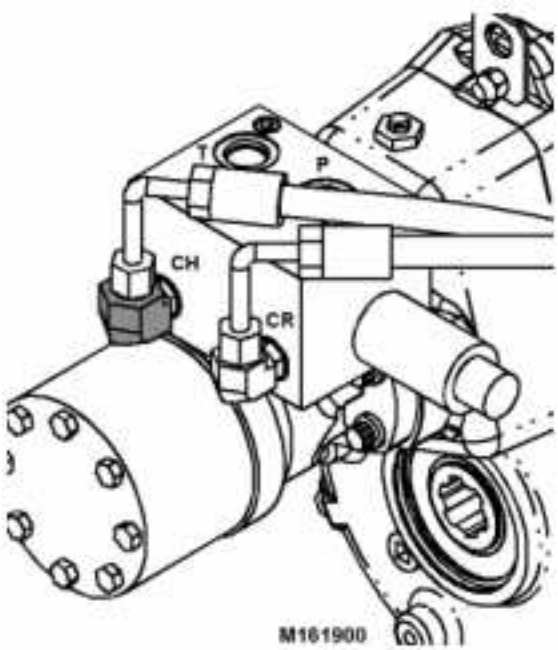
The reverser valve will direct flow to the base end of the reverser cylinder, causing the cylinder to extend fully.

The reverser valve will direct flow to the reverser motor and direct the return flow to the reel drive return hose at the feeder couple manifold. A 0.096" orifice plug threaded into port "P" of the reverser valve limits the reverser motor speed.

REMEMBER: The elbow fitting that connects the reverser cylinder extend hose to port "CH" is a 1/2" fitting rather then the 3/8" fitting used in port "CR" to prevent crossing the hoses.



1 "P" Pump Supply
2 "T" Return to Reel Drive Return
3 "CR" Reverser Cylinder Retract
4 "CH" Reverser Cylinder Extend & Motor Run



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PROBLEM: Rotary Air Screen will not rotate. (2388 ONLY)

POSSIBLE CAUSE	PROCEDURE
NOTE: *At high idle, the rotary air screen should be turning above 195 r/min.*	
A. Low oil level in separator clutch housing.	A. Check oil level and add oil as necessary.
B. Plugged suction filter.	B. Inspect visual indicator on filter housing while the machine runs at high idle. If the indicator registers plugged, replace the filter element.
C. No power to air screen bypass solenoid valve.	C. Disconnect the harness from the rotary air screen solenoid valve (Located directly below rotary air screen). With the separator switch in ON position check for 12 volts on harness end connector with multimeter.
D. Faulty air screen bypass solenoid coil.	D. Use multimeter to check resistance of air screen bypass coil. Resistance must be 7.0 to 10.0 ohms. Replace if faulty.
E. Air screen bypass solenoid valve spool is not shifting properly.	E. Inspect valve, repair or replace as necessary.
F. The air screen bypass valve may be set too low.	F. Install a tee fitting in line at the pump outlet with a diagnostic coupler and 1000 PSI (69 bar) gauge on the remaining tee port. Install a 600 PSI (41 bar) gauge at the diagnostic test port at the separator clutch, see item 2 on preceding page. Engine must be running at high idle and the separator switch in ON position. The pump outlet pressure should be 500 to 750 PSI (34 to 52 bar). The normal pressure drop across the air screen hydraulic motor is approximately 350PSI (24.1 bar) If the pump outlet pressure is low, use the following procedure to adjust the air screen bypass valve relief setting: 1. Cap both ports of the air screen bypass valve. These are the ports connected by tube assemblies to the rotary air screen motor. 2. Run the engine at high idle with the separator switch in the ON position. 3. Record the operating pressure on gauge at diagnostic test port at the separator clutch. 4. Adjust the air screen bypass relief valve to obtain a pressure reading at the pump outlet gauge that is 500 PSI (34 bar) higher than the pressure recorded for item 3 at separator clutch.
G. Bad pump.	G. Flow check the pump. At high idle the pump flow rate should be at least 5.0 GPM (18.9 L/min) at 450 PSI (31 bar). If the pump flow rate is okay, replace the rotary air screen hydraulic motor.

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GENERAL TROUBLESHOOTING

The following is a suggested order in determining separator drive problems. Prior to any work determining a drive problem, the OIL LEVEL SHOULD BE CHECKED. Does the oil look black or burnt? This would be an indicator of a failed clutch.

Combine Symptoms:	Things to do:
- Separator does not engage when switched on (Rotary screen is functioning properly.).	1. Refer to Separator Clutch Control Valve Test.
- Separator does not disengage when switched off.	1. Refer to Separator Clutch Control Valve Test. 2. Refer to Separator Drive Pressure/Flow Testing in this Section.
- Separator takes a long time to engage.	1. Refer to Separator Accumulator Test on Page 6. 2. Refer to Separator Clutch Control Valve Test. 3. Refer to Separator Drive Pressure/Flow Testing in this Section.
- Separator drive assembly running "hot."	1. Clean dirt and chaff from fins of separator drive oil cooler. 2. Refer to Separator Drive Pressure/Flow Testing in this Section.

SEPARATOR CLUTCH CONTROL VALVE TEST

Electrical Testing

1. Operate the engine at low idle and engage the separator. The control valve solenoid coil should energize and magnetize the nut on top of the valve. Any steel tool (such as a screwdriver) should be attracted to the magnetized top nut when the separator is on.

2. Operating the engine at low idle and with the separator disengaged, the control valve solenoid coil should de-energize and the top nut should not be magnetized.

3. If the separator is turned on but the coil is not energized or the nut is not magnetic, there is an electrical problem. Disconnect the solenoid coil from the circuit. Check the electrical resistance across the solenoid coil. It should be 7.5 ±1 ohm. Check for 12 volts at the solenoid electrical connector when energized.

Hydraulic Testing

1. Operate engine at low idle and engage the separator. If the coil is energized but the separator is not operating, the control valve spool maybe stuck. Shut off engine, disconnect the solenoid coil, remove the control valve spool from the valve block and inspect. Clean any obstruction from the valve or replace the valve. The valve spool should move smoothly when pushing against the return spring.

2. If contamination is present in the control valve, the separator drive assembly must be flushed to remove any contamination which may be present in the assembly. Refer to Separator Drive Assembly Oil Flush Procedure in this Section.

3. If separator does not engage correctly or is slow to engage, refer to Separator Drive Pressure/ Flow Testing in this Section.

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