

Pneumatic System

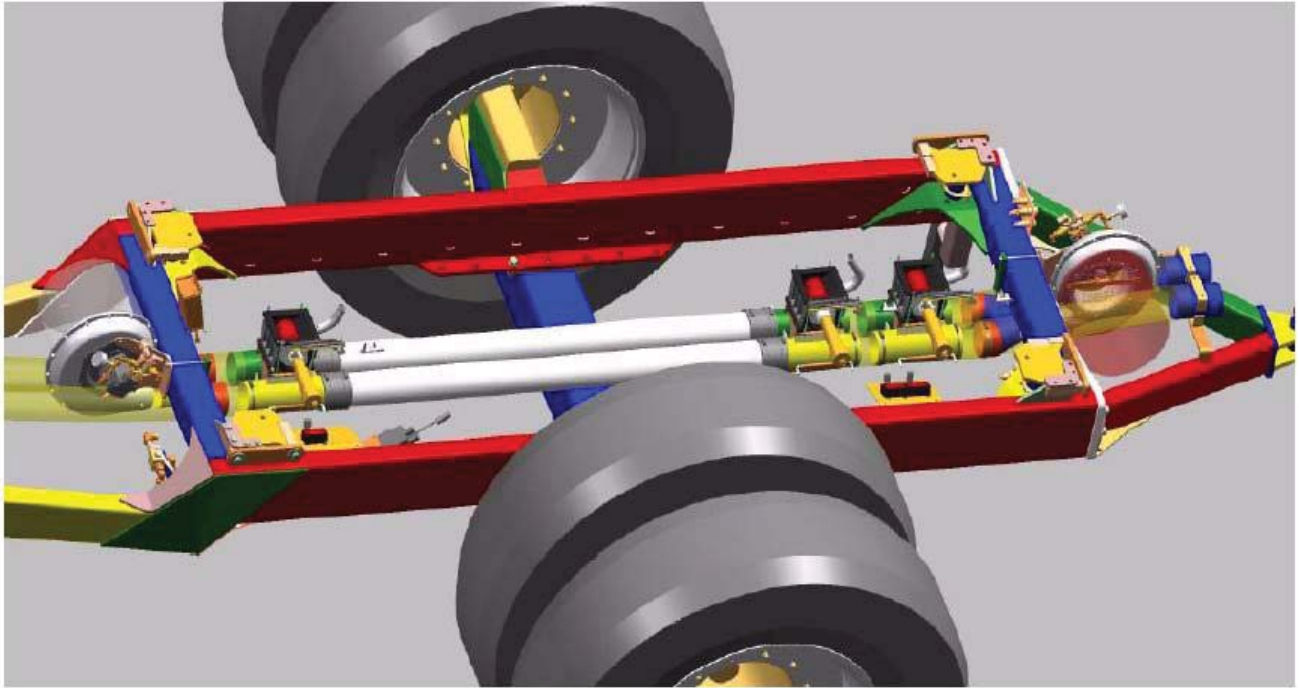


Figure 4. Pneumatic System

The pneumatic system on the Commodity Cart is made up of a hydraulic fan unit, a pressurized tank with three separate chambers and three metering devices fitted with air seed hoses.

The fan can be mounted at the front or at the back of the Commodity Cart.

The flow of air from the fan is conveyed, via tube, to the Venturi and from there to the main distribution head and the openers.

In the Venturi tube seed and fertilizer are deposited by the metering units in the air flow and are conveyed to the distributors by the air flow and deposited in the soil through the openers.

To ensure trouble-free seed conveyance and uniform metering quantity, all pneumatic components, such as the Venturi tube, distributor, air and seed tubes and seed hopper, must be absolutely air tight.

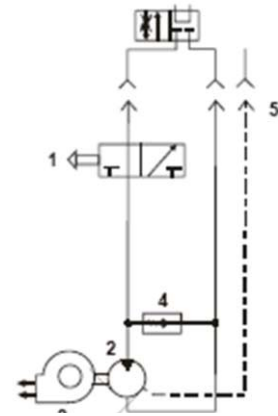
Loss of pressure in the pneumatic system reduces the quantity which can be metered out.

Leaks in the metering unit cause the air to swirl and may force seeds into the compression section of the metering unit. This damages the seeds and may cause blockages in the metering unit.

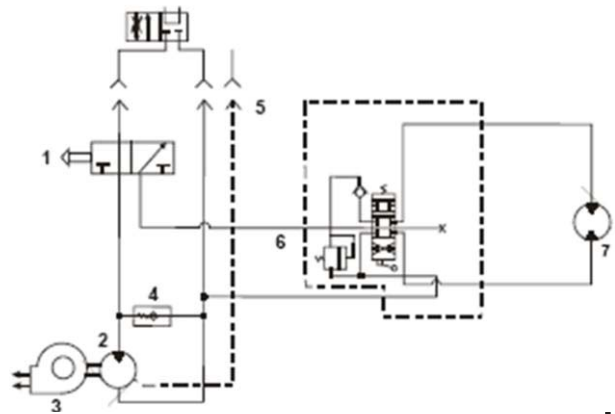
Important! Both fans must be running at all times on a dual air system.

Hydraulic Fan

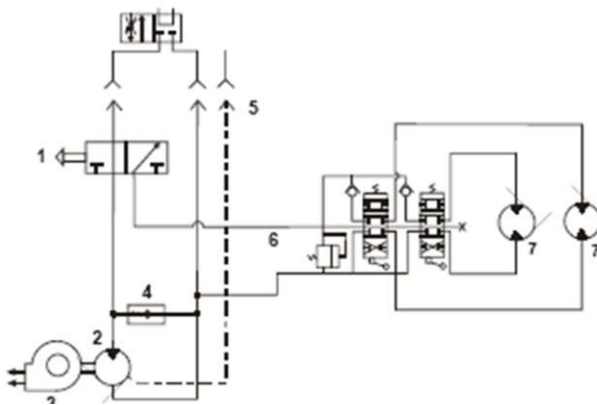
Figure 5. Hydraulic Fan Schematics



Schematic - Hydraulic Fan



Schematic - Hydraulic Fan with Torpedo Winch



Schematic - Hydraulic Fan with 2 Torpedo Winches

Components:

1. Valve, Selector
2. Hydraulic Motor
3. Fan
4. Check Valve
5. Quick Coupler, Male
6. Valve, Winch Control (Single Spool with relief)
7. Motor, Winch

The fan generates the air flow which conveys the seed from metering unit to the openers.

It is mounted to a hydraulic motor, which is directly driven by the hydraulic system of the tractor.

The tractor must be equipped with a flow-control valve for the direct drive and the hydraulic pump must convey sufficient oil to ensure that the fan speed does not drop even if there is a drop in the speed of the tractor or if other hydraulic functions are operated.

Technical Data:

Motor Displacement:06 cu. Inch/rev\

Operating Pressure:2000 psi

Oil Flow Rate:approx. 15.85 gpm

Fan Speed:3000 -5500 r.p.m.

Mode of Operation

The oil is fed to the hydraulic motor via the selector valve. It is then returned back through the return line. The fan motor internal case drain leakage returns into the hydraulic tank via case drain hoses.

The case drain hose line must be connected to the tractor free of pressure! The max. case drain hose pressure is 75 psi (measured at the motor).

The Check valve allows the hydraulic motor to free wheel to stop after the hydraulic system has been switched off.

If a filling auger is attached, the oil is fed through a two-way valve to the auger hydraulic motor of the filling auger.

Adjusting Fan RPM

The fan speed is regulated by the oil flow rate at the tractor flow-control valve. As the speed increases in proportion to the hydraulic pressure.

To check the hydraulic pressure, add a pressure gauge (3000 psi) at the pressure port of the fan hydraulic motor.

The pressure should be between 900 and 2000 psi (maximum) and the speed between 3000 and 5500 rpm.

Retightening the Fan Impeller

The tapered bushing on the hydraulic motor fan drive can become loose due to temperature fluctuations and material deposits on the impeller.

The impeller can creep on the drive shaft and destroy the fan.

Therefore, the tapered bushing should be retightened after approx. 50 hours and checked once per year.

In order to this, the fan guard must be removed. The tapered bushing (1) fixes the impeller (2) in position and simultaneously tightens itself on the drive shaft (3).

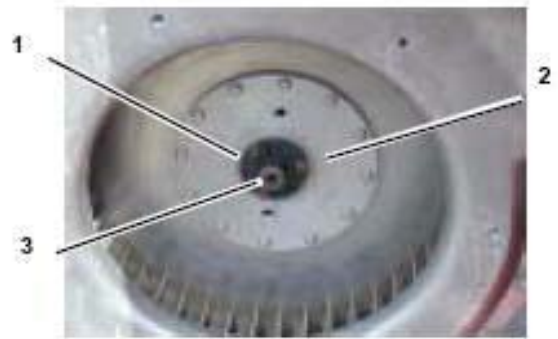


Figure 6. Tapered Bushing

When retightening the tapered bushing screws, keep the following in mind:

- » When the screws are tightened, particularly in the case of reassembly, the impeller moves towards the housing in the direction of the guard.
- » Therefore, a loose tapered bushing must be aligned closer to the hydraulic motor.
- » The tapered bushing screws must be tightened absolutely uniformly in several steps.
- » Between these, the tapered bushing flange should be lightly tapped (plastic hammer or hammer handle) to facilitate seating on the clamping cone.
- » The UNC 10-24 screws must be tightened to max.. 1.5 ft. lbs. Dry Torque. After tightening, the impeller must be checked for free and uniformly smooth running.
- » Replace fan guard before operating.

Adjustment of Fan Sensor

After the rotor has been tightened securely onto the motor shaft and spins freely without contacting the housing, you must make sure that the sensor is within 1/8" of the fan targets designated on the rotor itself when replacing the fan sensor. These targets will either be the two bolt heads of the 3/8" bolts on the rotor or the 3 smaller bolts on the Browning hub that secures the rotor to the shaft.

Make sure that the sensor does not come in contact with the bolts or damage will occur that will cause the sensor to send false readings and eventually fail.