

# OWNER'S MANUAL

## W703 HYDRAULIC HOOK-UP KIT FOR 8-1/2 FOOT BACKHOE FOR TRACTORS WITH CLOSED-CENTER HYDRAULIC SYSTEMS

### General System Description

There are two basic types of hydraulic systems - open-center and closed-center. The open-center system constantly pumps oil through the hydraulic cylinder operating valves and returns the oil to the reservoir. The closed-center system does not pump oil until there is a demand for oil from one of the hydraulic cylinders.

In this case, CLOSED-CENTER means that when the operating valves which control the hydraulic cylinders are in the neutral position, there is no flow of oil through the valves. As long as the engine and pump are running, a constant stand-by oil pressure of approximately 2000 PSI or more is maintained in the system. Pressure oil is available instantaneously to go to work when any one of the operating valves is opened.

Because there must be no flow through the backhoe control valve, when the levers are in neutral position, the backhoe must be converted for closed-center operation.

### Hook-Up Requirements

The hook-up of the 8-1/2 Foot Backhoe to the closed-center system requires more than connecting it to the remote couplers. The required devices are:

1. A flow restrictor in the pressure line to keep the speed of the backhoe operation within safe and acceptable limits.
2. A main relief valve in the backhoe control valve with a pressure setting that is always higher than the tractor system pressure.
3. A closed-center plug in the backhoe control valve to make it a non-circulating or a demand type system.

4. A low pressure surge relief valve in the return line to keep the tractor back-pressure surges from damaging the backhoe control valve seals or tractor system. A surplus flow line from the relief valve carries only the excess surge oil directly back to the tractor hydraulic reservoir so that it bypasses all other tractor functions.

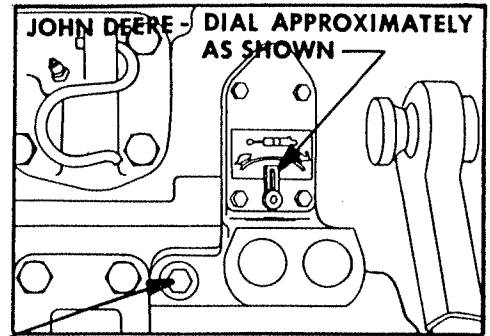
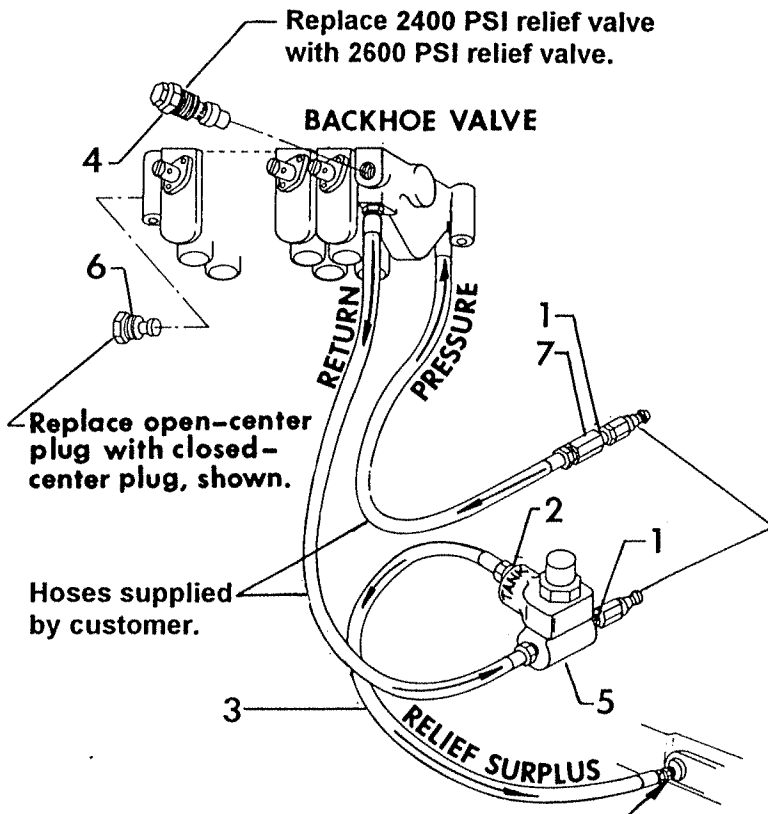
### Backhoe Operation

For the most part, a backhoe will function about the same whether it is powered by an open-center or closed-center hydraulic system. However there are some differences which the operator should be aware of.

As a backhoe function (lifting, actuating the bucket to fill it, etc.) becomes increasingly difficult and the hydraulic system pressure is rising closer to its maximum setting, there will be a noticeable slow down before stoppage occurs. As the system pressure is approaching maximum, the pump is also beginning to stroke back for less and less fluid delivery. At maximum pressure, the pump is completely destroyed and there is no delivery.

Therefore, when working various backhoe functions at near maximum ability, it will give the operator the impression that the backhoe is sluggish and somewhat unresponsive. Learning to ease up slightly at the first indication of slow down will permit the backhoe to perform at continuing maximum speed and efficiency.

# Hook-Up Diagram:



Typical plug for surplus relief flow line. Check carefully that it enters the reservoir before using. Note that the location varies with different tractor makes and models. A John Deere Tractor is shown.

Tractor Coupler Tip

## W703 - PARTS LIST

Index	Description	Part No.
1	Pipe Nipple, 1/2 Close .....	7903
2	Pipe Bushing, 1/2M x 3/8F .....	7936
3	Hose, 3/8 NPT x 24" Long, with Swivel.....	10903
4	Relief Valve Cartridge, 2600 PSI .....	23068
5	Relief Valve, 800 PSI .....	10293
6	Closed-Center Plug.....	10444
7	Restrictor.....	852296

Seal Kit for 23068 Relief Valve..... 10172

For John Deere Tractors use reservoir plug. Remove plug, drill plug with 37/64 drill, and tap 3/8 NPT pipe. Screw plug onto hose, locking with Loctite to assure assembly will remain together during connecting and disconnecting procedures. Obtain another plug from your dealer to use when backhoe is removed.

For other tractor makes use; filler plug, drain plug, or any other port that goes directly into the hydraulic reservoir. Do not rely only on the remote coupler return.