Section XI
Model 23
Loader and Backhoe

Service Manual

9-70011H

Reprinted

CASE

FOREIGN MATERIAL IN SYSTEM

If foreign material enters the system, the entire system must be disassembled and component parts thoroughly cleaned. Flushing reservoirs alone will not remove all of the foreign matter - material remaining will ruin the system.

RESERVOIR BREATHER

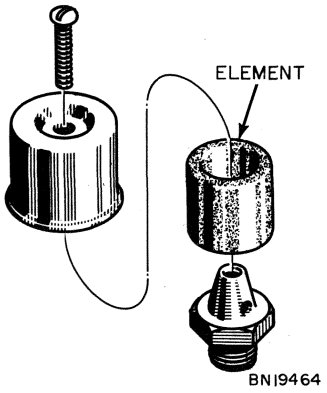

Figure 8 - Reservoir Breather

The breather, located on top of the reservoirs, contains an "edge wound" cartridge element. So that air may enter or escape the reservoir rapidly as the cylinders are operated; clean the element in solvent after every 50 hours operation.

INFERIOR GRADE OF OIL

If an inferior grade of oil must be added during an EMERGENCY, the entire system (reservoirs and components) must be drained as soon as possible, and refilled with Case Hi-Lo TCH Oil.

COLD WEATHER OPERATION

During cold weather, the Tractor engine should be allowed to operate for approximately fifteen minutes, to allow the hydraulic oil to "warm up" before checking the level or operating the system.

IMPORTANT !

DIRT IS THE ENEMY OF ANY HYDRAULIC SYSTEM. THE BEST WAY TO FIGHT THIS ENEMY IS TO PREVENT ITS ENTRY INTO THE SYSTEM.

WHEN ADDING OIL TO THE SYSTEM, BE SURE OIL, FUNNELS, AND CONTAINERS ARE CLEAN.

5. HYDRAULIC PUMPS

The hydraulic pump is attached to the front of the Tractor and connected to the engine crankshaft by means of a splined coupling, a shaft, and a flexible coupling. See Figure 11.

REMOVING PUMP

On Loader only models, the Webster 3JDS pump is used (Case Part Number D33702) This pump is rated at 13.5 G.P.M. at 1750 R.P.M.

On Loader-Backhoe models, the Webster 4JDS pump is used (Case Part Number D33703). This pump is rated at 16.5 G.P.M. at 1750 R.P.M.

REFERRING TO FIGURE 9: Clean the exterior of the pump thoroughly with solvent.

Drain hydraulic oil from reservoir(s) as instructed under the heading "Draining Hydraulic Oil Reservoirs, page XI-4.

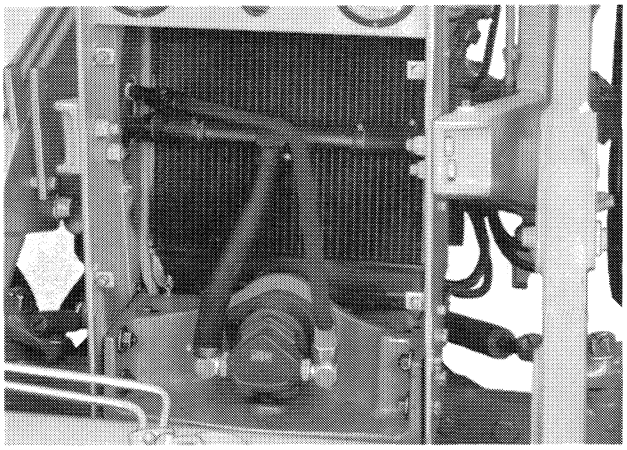

Figure 9 - Hydraulic Pump

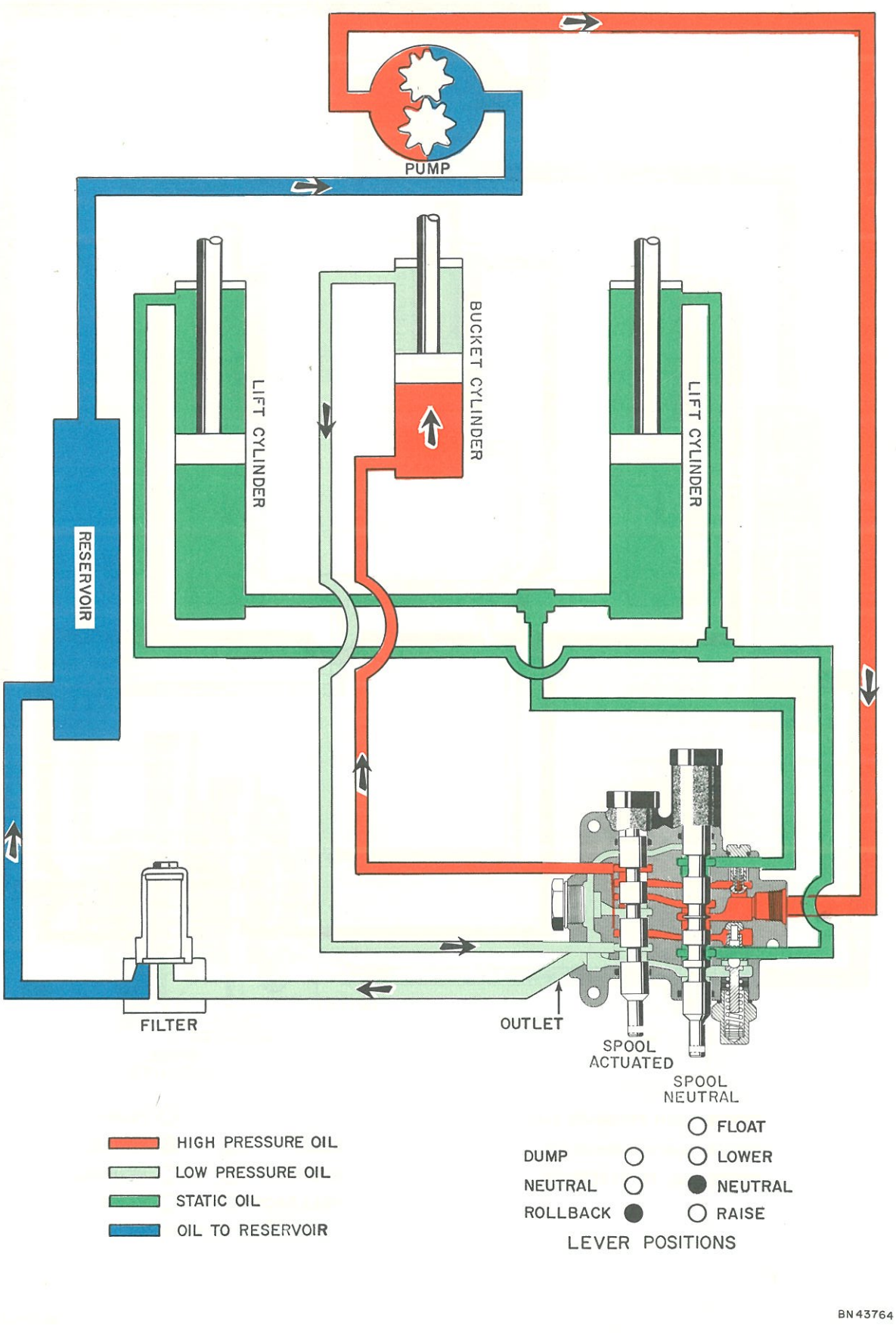

Figure 38 - Oil Flow Through Valve - Rolling Bucket Back

reading when pressure is adjusted after installation of the valve.

REFERRING TO FIGURE 65: After the plug for the front check poppet has been removed, extract the hardened steel check poppet. Carefully examine it for wear, nicks, etc; also examine the "O" ring. Replace parts as required and then reassemble the check poppet.

After the valve has been serviced, reinstall on Loader.

Be sure to shim between valve and support plate. Readjust Loader main relief valve pressure. See page XI-61.

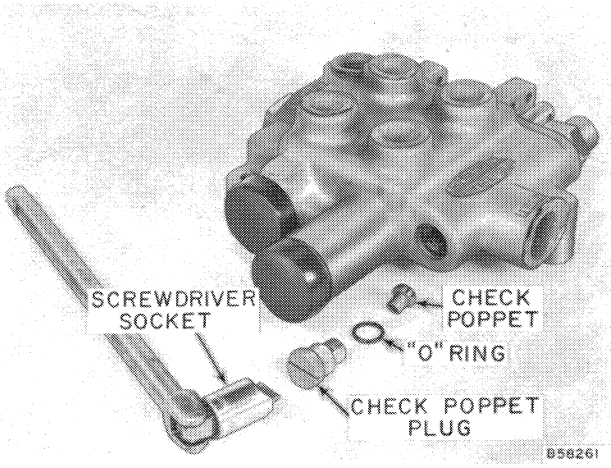

Figure 65 - Front Check Poppet

7. LOADER HYDRAULIC CYLINDERS

Disassembly and assembly procedures start on page XI-47.

8. SERVICING LOADER

REMOVING LOADER

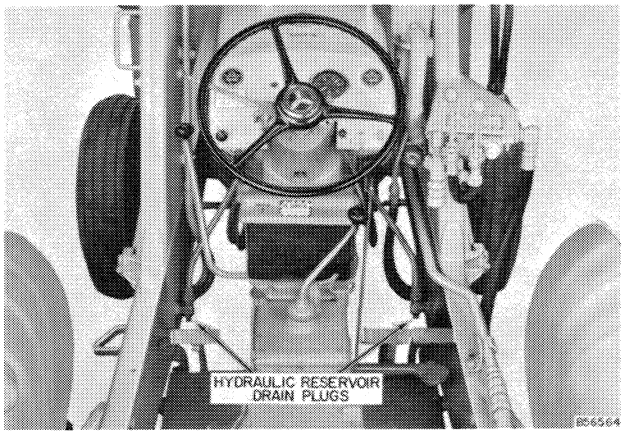

Figure 67 - Reservoir Drain

To remove the loader proceed as follows:

REFERRING TO FIGURE 67: Drain the hydraulic reservoirs (see page XI-4). On Backhoe models, remove the Backhoe and disconnect the equalizer tube.

REFERRING TO FIGURE 68 - Remove the grille and the screws attaching the radiator guard to the hood and side plate.

Disconnect the headlight leads.

Disconnect pump suction and pressure

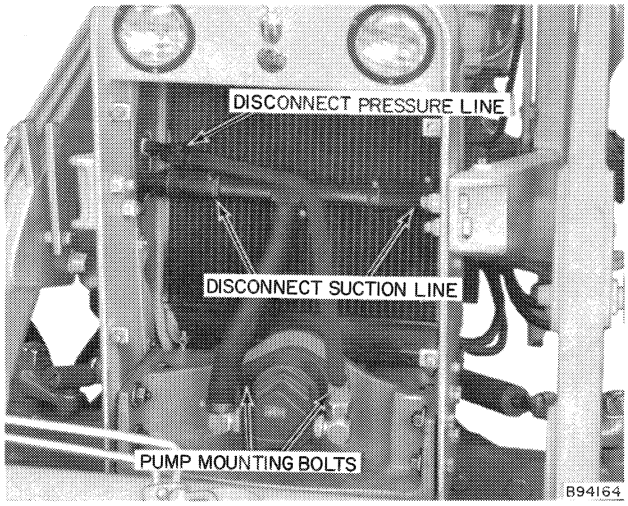

Figure 68 - Removing Front End Parts

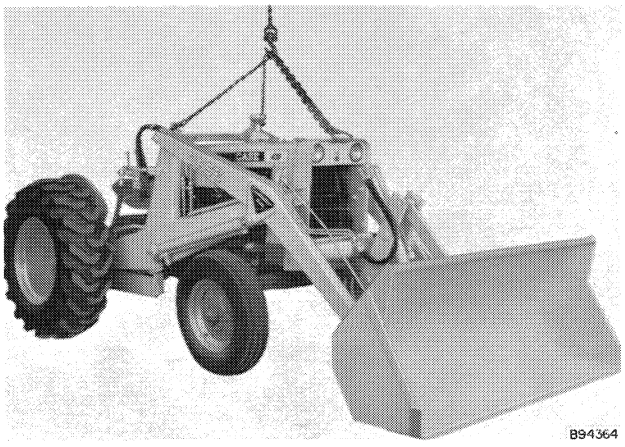

Figure 69 - Chain Hoist Attachment

BACKHOE SWUNG TO LEFT WITH
SWING TOWER AGAINST STOPS

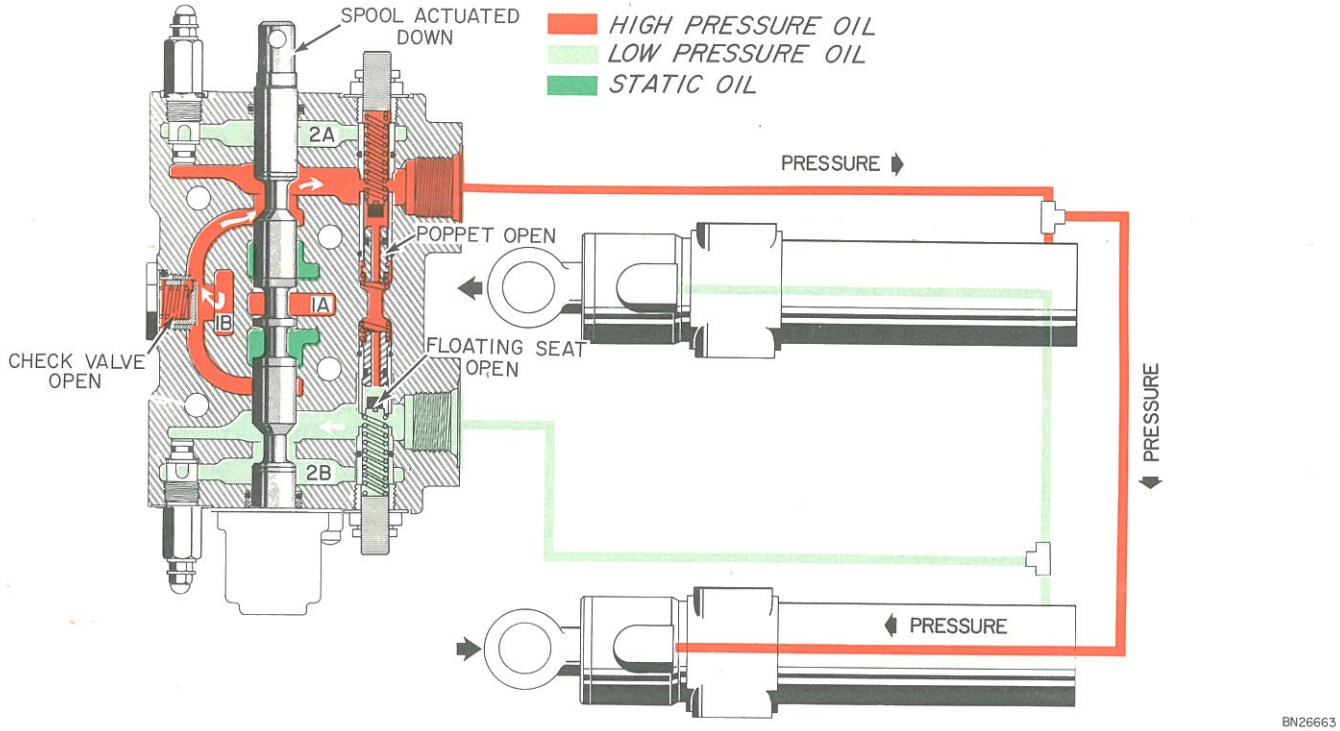

Figure 13 - Swing Criss Cross Relief Valve Actuated

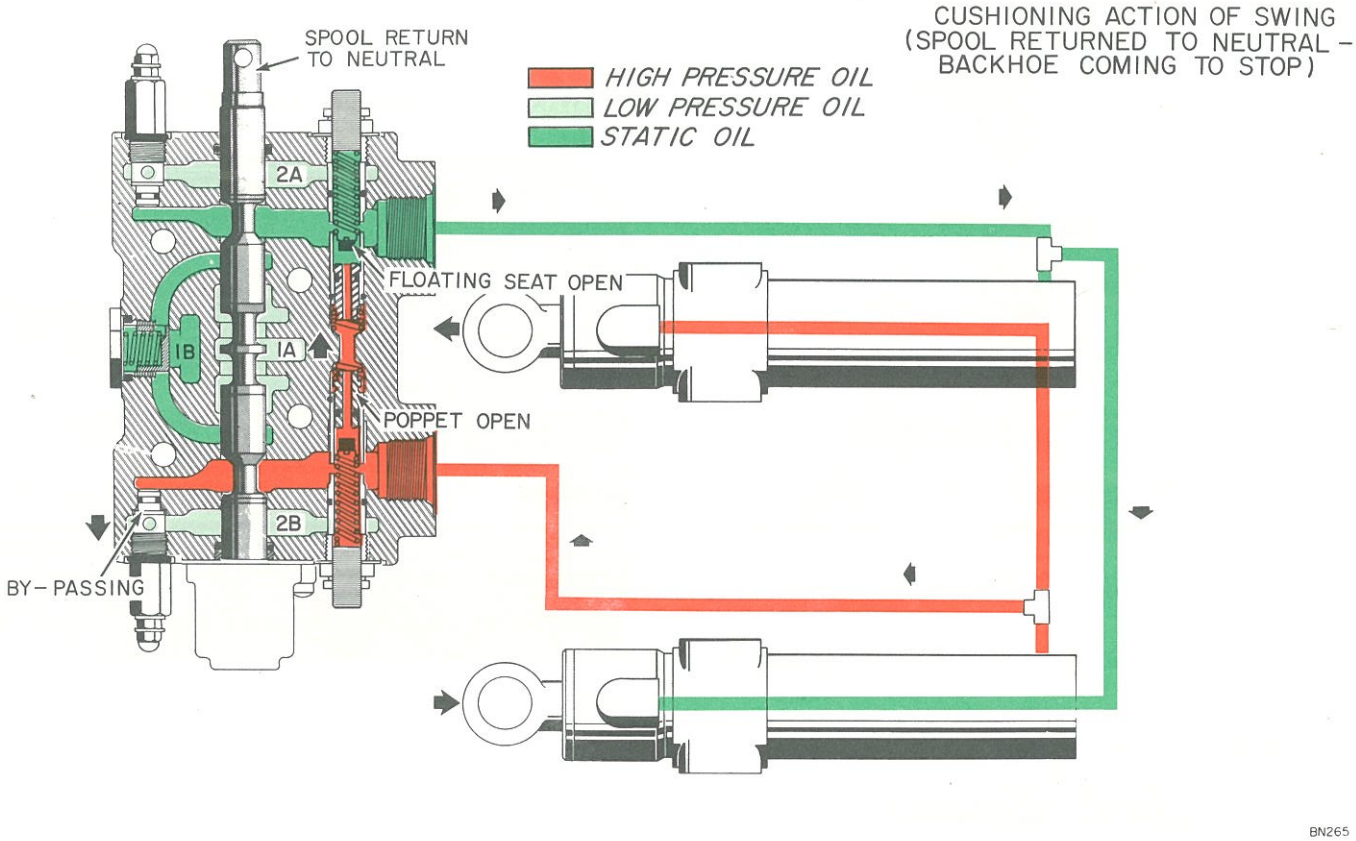

Figure 14 - Swing High Pressure Relief Valve Actuated

mounting bolts are tightened.

The Model "23" Loader-Backhoe incorporates a "power beyond" feature in the Backhoe control valve. Hydraulic oil from the pump passes through the Backhoe control valve before going to the Loader control valve, EXCEPT when a Backhoe valve spool is actuated. If any Backhoe valve spool is pushed or pulled, it cuts off oil pressure to the Loader.

Therefore, the Backhoe main relief valve pressure must always be set higher than Loader main relief valve pressure (1800 P.S.I. versus 1750 P.S.I.). If Loader pressure is set higher than Backhoe pressure, Backhoe relief valve will function for Loader operation.

6. HYDRAULIC CYLINDERS

REMOVING CYLINDERS

To ensure safe and expeditious removal of cylinders, follow these procedures:

With engine shut off, put applicable control lever through several operational cycles to equalize pressure within the system.

Clean the exterior of the cylinder to be removed thoroughly with solvent, then disconnect the hoses. Install plugs in ends of hose or valve ports (as required) to prevent entrance of foreign material into the system.

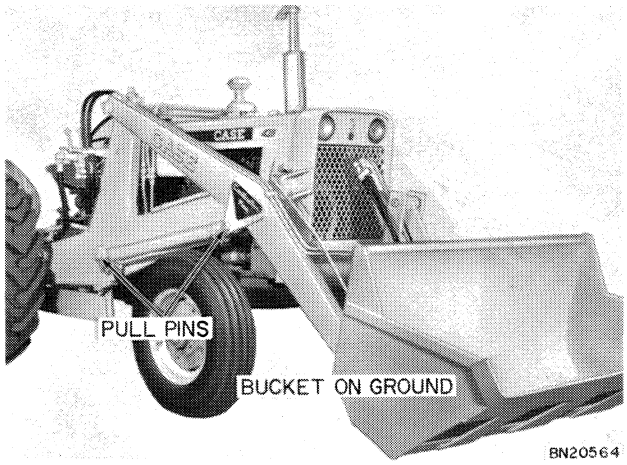

Figure 52 - Loader Lift Cylinders

LOADER LIFT CYLINDERS

REFERRING TO FIGURE 52: Lower bucket to ground and remove pins.

LOADER BUCKET CYLINDER

REFERRING TO FIGURE 53:

1. Lower bucket to ground.
2. Remove pin that attaches cylinder rod to bucket.
3. Remove snap rings from pins at both ends of cylinder links.
4. Pull cylinder link from cylinder trunnion and lift out cylinder.

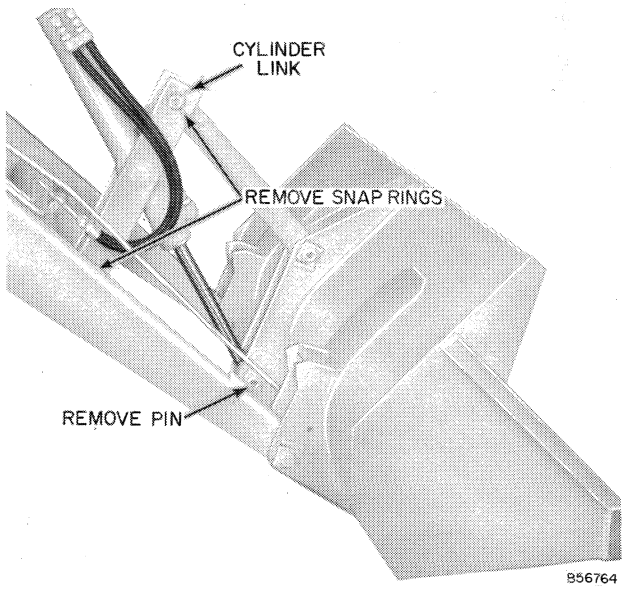

Figure 53 - Removing Bucket Cylinder

STABILIZER CYLINDER

REFERRING TO FIGURE 54: With stabilizer leg resting on ground, remove snap rings and pull pins. Disconnect hoses at the cylinder.

BOOM CYLINDER

REFERRING TO FIGURE 55: Extend bucket and dipper arm and lower boom to ground level. Remove snap rings and pull pins. Disconnect hose and tube at the cylinder.

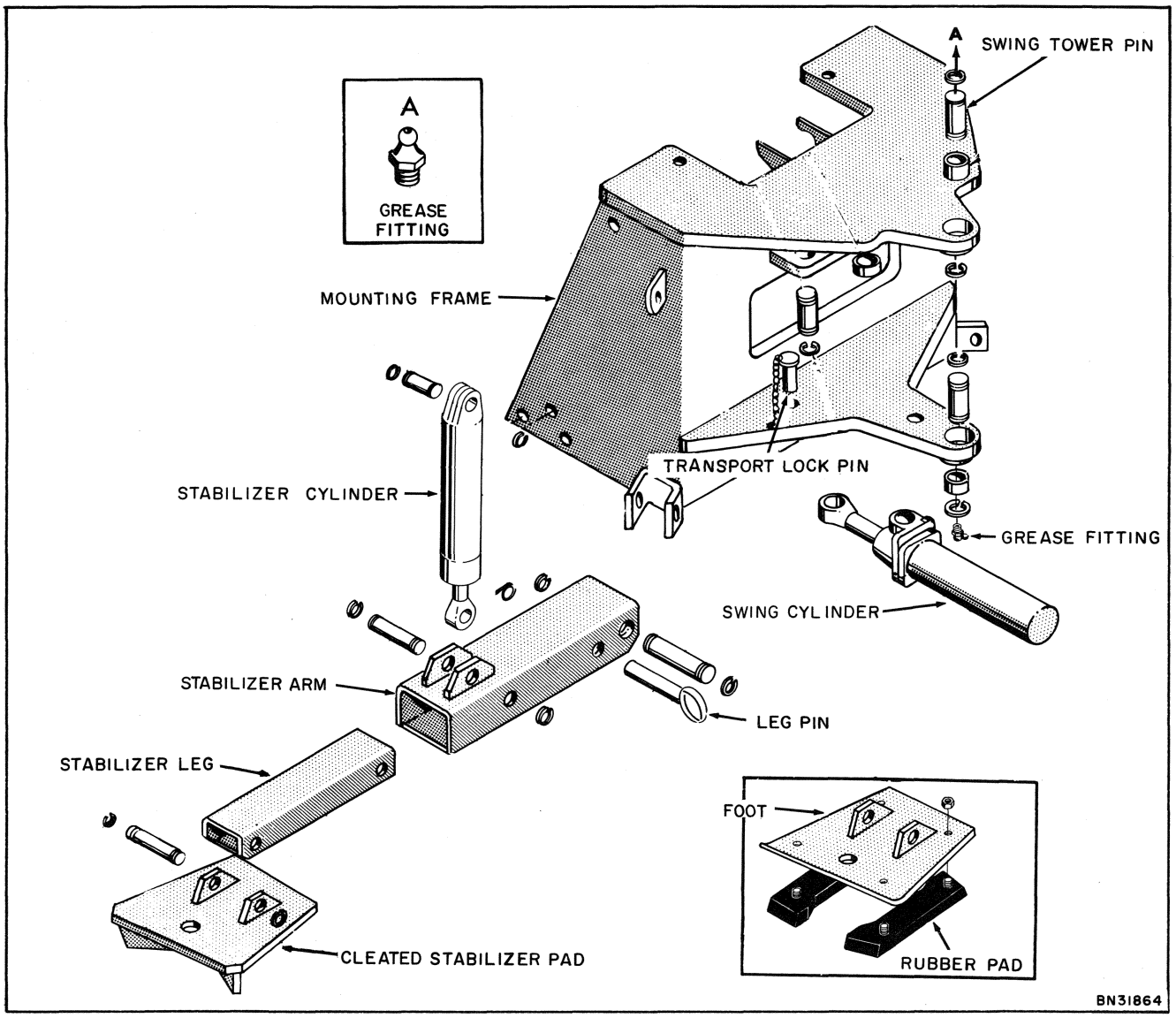

Figure 83 - Backhoe Mounting Frame and Stabilizers

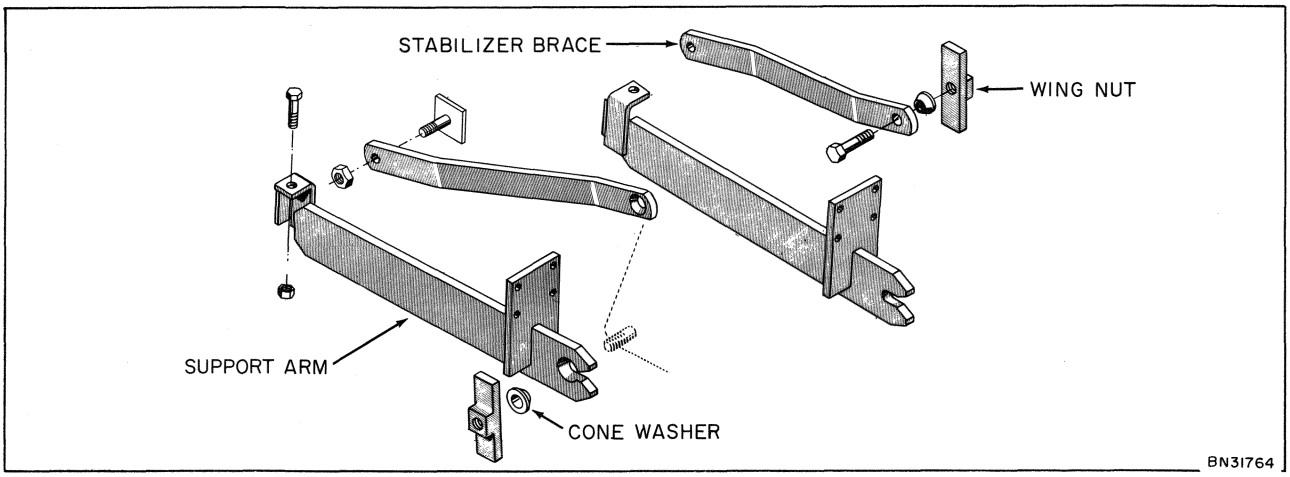

Figure 84 - Backhoe Mounting Parts

4. HYDRAULICS TESTING WITH "FLOWMETER"

Hydraulic troubles in the "23" Loader Backhoe can be quickly located and diagnosed with the Schroeder Portable Tester (PT) or Hydra-Sleuth commonly called "flowmeters".

These lightweight testers can be used in the shop or transported to the field for on-the-spot troubleshooting.

The tester measures the flow, pressure and temperature that affect the function of each component of a circuit and identifies any faults. This results in the saving of time and the expense of trial and error component replacement. All instrument readings are taken under actual load conditions identical to those incurred during operation of the hydraulic circuit.

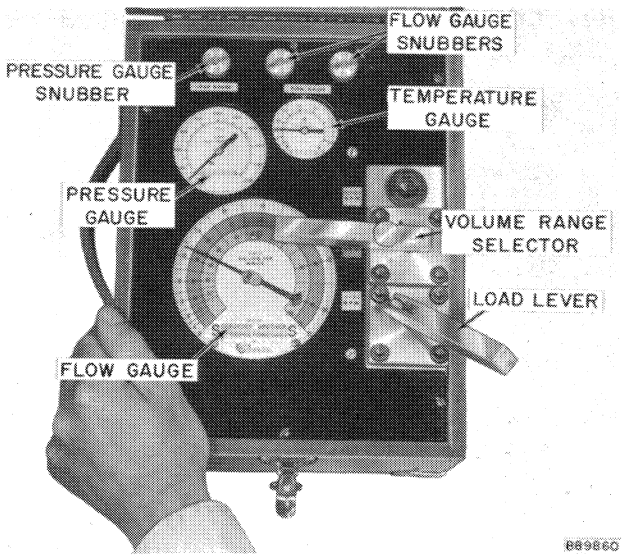

Figure 7 - Flowmeter (PT series)

FLOWMETER CONTROLS (PT SERIES)

Referring to Figure 7, familiarize yourself with the controls.

PRESSURE GAUGE SNUBBER: Protects pressure gauge from shock and pulsating loads. To assure long life, close snubber, and then open it about 1/4 turn before starting test. Open or close snubber as necessary as test is being made to secure steady gauge reading.

FLOW GAUGE SNUBBERS: Protect flow gauge from shock and pulsating loads. To assure long life, close snubbers, and open them about 1/4 turn before starting test. Open or close snubbers as test is being made to secure steady gauge readings.

VOLUME RANGE SELECTOR: Three position valve for using one of three scales:

Low (Yellow) . . . . . 4 to 25 G.P.M.
Medium (Green) . . . . . 12 to 50 G.P.M.
High (Orange) . . . . . 32 to 100 G.P.M.

When making the test, read the corresponding scale on the flow gauge.

LOAD LEVER: Depressing the load lever restricts oil flow through the tester. This enables the operator to load a hydraulic circuit to the desired test pressures.

TEMPERATURE GAUGE: Measures temperature of hydraulic oil. Operate the unit until the temperature gauge reaches 120° F. Depressing flowmeter load lever and building up 1000 P.S.I. pressure will assist in heating the oil. This gauge has a range of 50° F. to 250° F.

FLOW GAUGE: Records the flow through flowmeter in gallons per minute (G.P.M.). Read the gauge scale corresponding to Volume Range Selector setting. It has a range of 4 to 100 G.P.M.

PRESSURE GAUGE: Records pressure per square inch of oil going through flowmeter. This gauge has a range of 0 to 2000 P.S.I.

FLOWMETER CONTROLS (HYDRA SLEUTH)

Referring to Figure 8, familiarize yourself with the controls prior to operating flowmeter.

VOLUME RANGE SELECTOR: The position of flow valve determines the volume of hydraulic oil which may be properly tested.

Low (Yellow) . . . . . 4 to 20 G.P.M.
High (White) . . . . . 18 to 60 G.P.M.

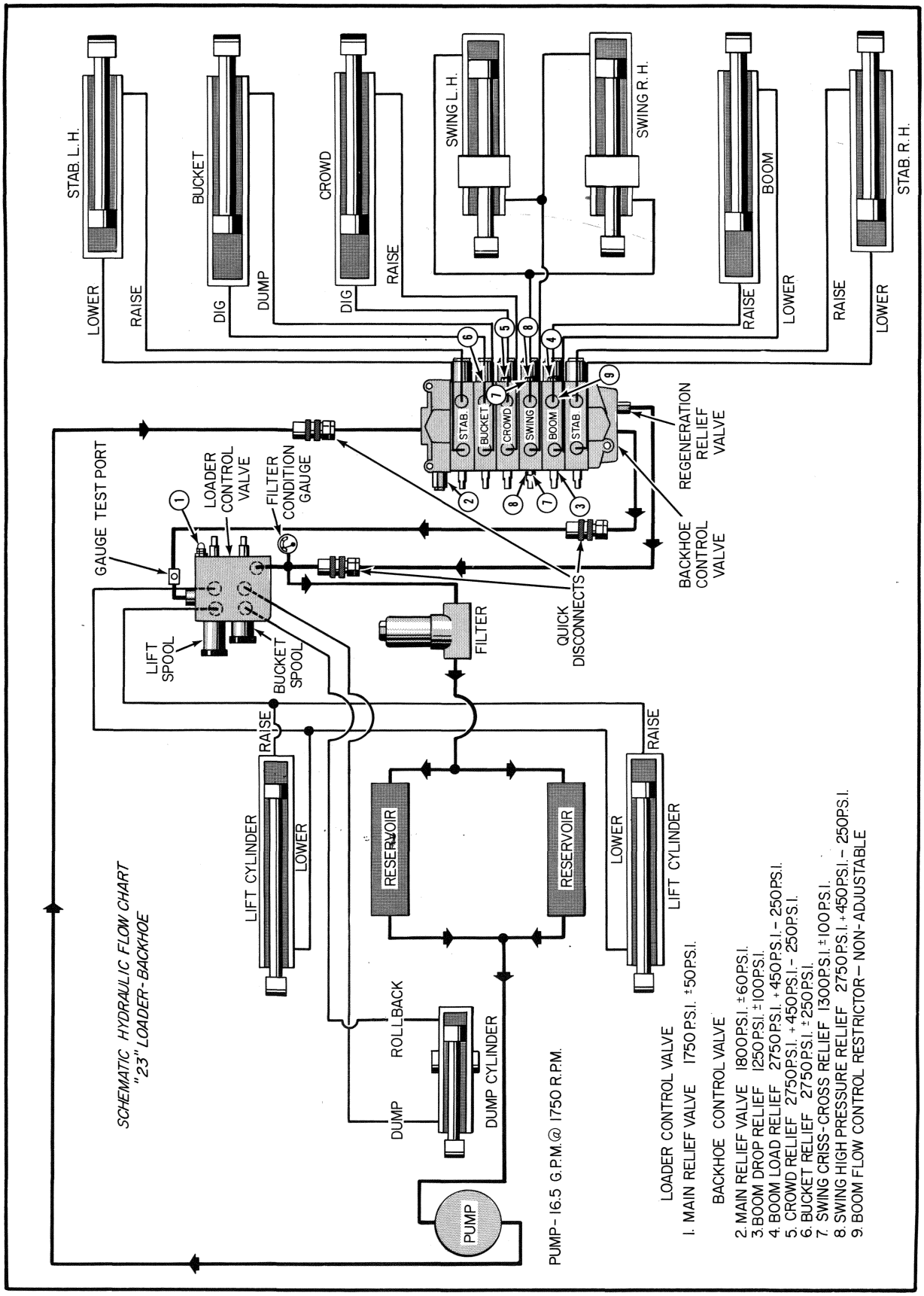

Figure 2 - Loader-Backhoe Hydraulic Circuit