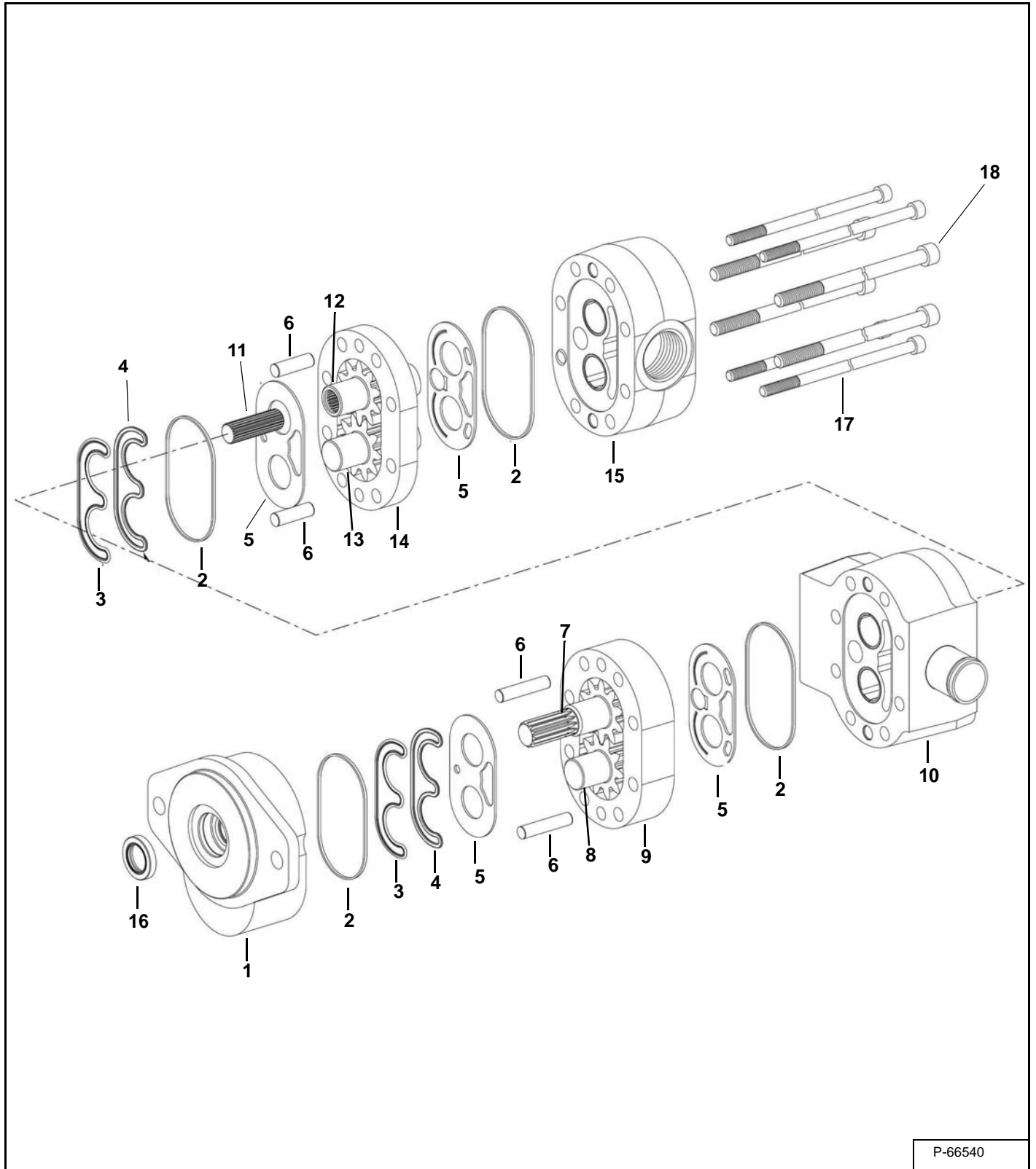


HYDRAULIC PUMP (STANDARD) (CONT'D)

Parts Identification

Figure 20-60-23



P-66540

HYDRAULIC PUMP (STANDARD) (CONT'D)

Parts Identification (Cont'd)

The items listed below refer to Page 20-60-11 [Figure 20-60-23].

1. Auxiliary Pump End Section
2. Section Seal
3. Pre-Load Seal
4. Load Seal
5. Wear Plate
6. Alignment Pins
7. Drive Gear (Auxiliary Pump)
8. Idler Gear (Auxiliary Pump)
9. Auxiliary Pump Center Section
10. Auxiliary Pump End Section
11. Spline Shaft
12. Drive Gear (Charge Pump)
13. Idler Gear (Charge Pump)
14. Charge Pump Center Section
15. Charge Pump End Section
16. Shaft Seal
17. Bolts (4)
18. Bolts (4)

Disassembly And Assembly

IMPORTANT

When repairing hydrostatic and hydraulic systems, clean the work area before disassembly and keep all parts clean. Always use caps and plugs on hoses, tubelines and ports to keep dirt out. Dirt can quickly damage the system.

I-2003-0888

Mark the pump sections for correct assembly.

To disassemble and assemble the hydraulic pump, follow the Parts Identification page [Figure 20-60-23] for proper placement of components along with the information below.

NOTE: A seal kit is available through Bobcat Service Parts.

Assembly: Tighten the eight pump housing bolts (Item 19) [Figure 20-60-23] to 50 N•m (37 ft-lb) torque.

NOTE: Position the wear plate (Item 5) and (Item 10) [Figure 20-60-23] inlets and traps as shown with the bronze side toward the gears on all wear plates.

NOTE: Inspect all gears, shafts and pump end sections. If any of these components have excessive wear or damage is visible, the complete pump must be replaced.

HYDRAULIC PUMP (STANDARD) (HIGH FLOW)

Description

The hydraulic gear pump is attached to the end of the hydrostatic pumps and are located on the right side of the loader between the hydraulic control valve and the engine.

The hydraulic gear pump is a combination of gear pumps that provide hydraulic flow to several hydraulic systems.

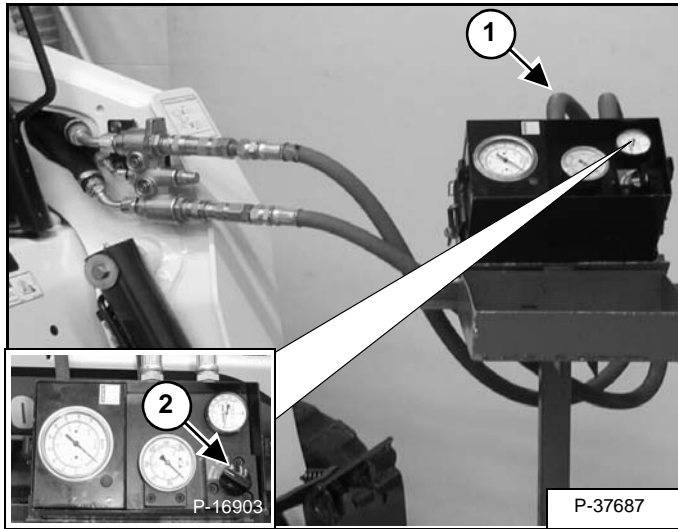
Pump Test At Quick Couplers

The tools listed will be needed to do the following procedure:

MEL10003 - In-Line Hydraulic Tester

MEL10006 - Flow Meter Fitting Kit

Figure 20-61-1



NOTE: When testing the hydraulic flow of a machine hoses must be at least 19,05 mm (0.75 in) diameter and connected directly to the hydraulic tester without using any type of “quick coupler” on the connection to the tester. Also make sure your hydraulic tester is capable of at least 189,3 L/min (50 U.S. gpm).

Install a hydraulic tester (Item 1) [Figure 20-61-1] onto the front auxiliary quick couplers.

This procedure will require a operator in the cab and one operator running the tester.

Start the engine and run at low idle rpm. Press the Front Auxiliary button. Engage the front auxiliary with the trigger on the right handle. Make sure the tester is connected correctly. If no flow is indicated on the tester, the hoses are connected wrong. With the hoses connected correctly, increase the engine speed to full rpm*.

Warm the fluid to 60°C (140°F) by turning the restrictor control clockwise on the tester so it reads about a 6894,8 kPa (68,9 bar) (1000 psi).

NOTE: DO NOT EXCEED 22752,7 kPa (227,5 bar) (3300 psi).

Turn the restrictor control (Item 2) [Figure 20-61-1] on the tester counterclockwise to obtain free flow, the flow should be approximately 74,5 L/min (21 U.S. gpm). Start turning the restrictor clockwise, causing more restriction on the flow. The L/min (U.S. gpm) should drop off slightly until the pressure reaches approximately 19305,3 kPa (193,1 bar) (2800 psi). At approximately 19305,3 kPa (193,1 bar) (2800 psi) the flow should start decreasing rapidly until the pressure reaches 22408 - 22752,7 kPa (224,1 - 227,5 bar) (3250 - 3300 psi). At 22408 - 22752,7 kPa (224,1 - 227,5 bar) (3250 - 3300 psi) the flow should be at 0 L/min (0 U.S. gpm). Turn the restrictor (Item 2) [Figure 20-61-1] counterclockwise to free flow. Shut the front auxiliary hydraulics off.

If flow and pressure specs are not obtained, go to the Direct Pump Testing (Standard Section). (See Direct Pump Test (Standard Section) on Page 20-61-2.) If flow and pressure specs are obtained continue on to the next paragraph.

With the engine running at low idle rpm. Press the Front Auxiliary button. Engage the front auxiliary with the trigger on the right handle. Make sure the tester is connected correctly. If no flow is indicated on the tester, the hoses are connected wrong. With the hoses connected correctly, increase the engine speed to full rpm*.

Warm the fluid to 60°C (140°F) by turning the restrictor control on the tester to about 6894,8 kPa (68,9 bar) (1000 psi).

NOTE: DO NOT EXCEED 22752,7 kPa (227,5 bar) (3300 psi).

Turn the restrictor control (Item 2) [Figure 20-61-1] on the tester counterclockwise, to obtain free flow, the flow should be approximately 74,5 L/min (21 U.S. gpm). Press the High Flow button. The flow should increase approximately 140,1 L/min (37 U.S. gpm). Start turning the restrictor clockwise, causing more restriction on the flow. The L/min (U.S. gpm) should drop off slightly until the pressure reaches approximately 21373,8 kPa (213,7 bar) (3100 psi). At approximately 21373,8 kPa (213,7 bar) (3100 psi) the flow should start decreasing rapidly until the pressure reaches 22408 - 23097,4 kPa (224,1 - 231 bar) (3250 - 3350 psi). At 22408 - 23097,4 kPa (224,1 - 231 bar) (3250 - 3350 psi) the flow should be at 0 L/min (0 U.S. gpm). Turn the restrictor control (Item 2) [Figure 20-61-1] counterclockwise to free flow. Shut the front auxiliary hydraulics off.

If the specs from above are reached, the high flow hydraulic pump is OK.

If the flow and pressure were not obtained, go to the Direct Pump Testing (High Flow Section) (See Direct Pump Test (High Flow Section) on Page 20-61-8.)

*Refer to Hydraulic Schematics for system relief pressure and full rpm.

HYDRAULIC PUMP (STANDARD) (HIGH FLOW) (CONT'D)

Direct Pump Test (Standard Section)

The tools listed will be needed to do the following procedure:

MEL10003 - In-Line Hydraulic Tester
MEL10006 - Flow Meter Fitting Kit

WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W-2017-0286

Lift and block the loader. (See Procedure on Page 10-10-1.)

Raise the lift arms and install an approved lift arm support device. (See Installing on Page 10-20-1.)

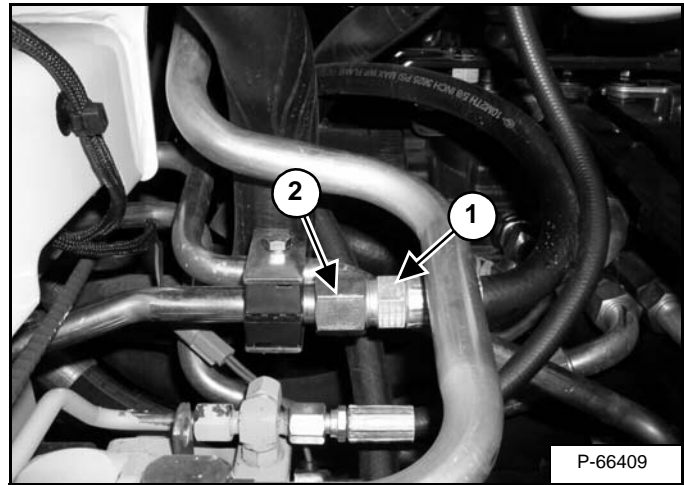
WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by an approved lift arm support device. Failure to use an approved lift arm support device can allow the lift arms or attachment to fall and cause injury or death.

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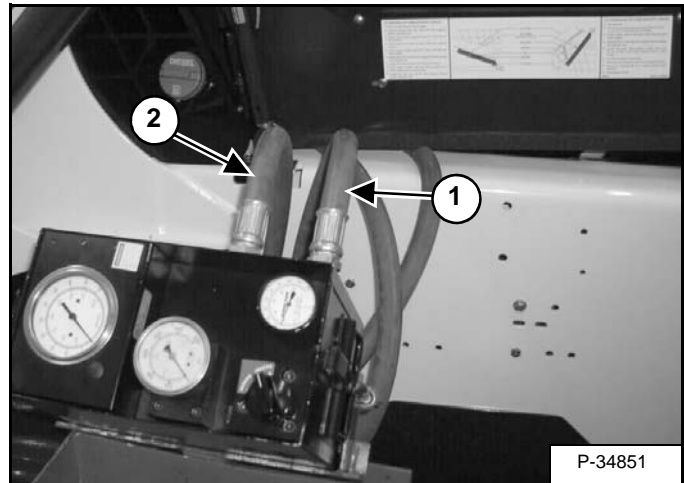
Raise the operator cab. (See Raising on Page 10-30-2.)

Figure 20-61-2



At the control valve, disconnect the standard (auxiliary) pump OUTLET hose (Item 1) [Figure 20-61-2] from the tube line.

Figure 20-61-3



NOTE: When testing the hydraulic flow of a machine hoses must be at least 19,05 mm (0.75 in) in diameter and connected directly to the hydraulic tester without using any type of “quick coupler” on the connection to the tester. Also make sure your hydraulic tester is capable of at least 189,3 L/min (50 U.S. gpm).

Connect the INLET hose (Item 1) [Figure 20-61-3] from the tester to the OUTLET hose (Item 1) [Figure 20-61-2] of the pump. Connect the OUTLET hose (Item 2) [Figure 20-61-3] from the tester to the tube line (Item 2) [Figure 20-61-2] which goes to the control valve.

Lower the cab down.

HYDRAULIC PUMP (STANDARD) (HIGH FLOW) (CONT'D)

Direct Pump Test (Standard Section) (Cont'd)

IMPORTANT

The hydraulic tester must be in the fully open position before you start the engine.

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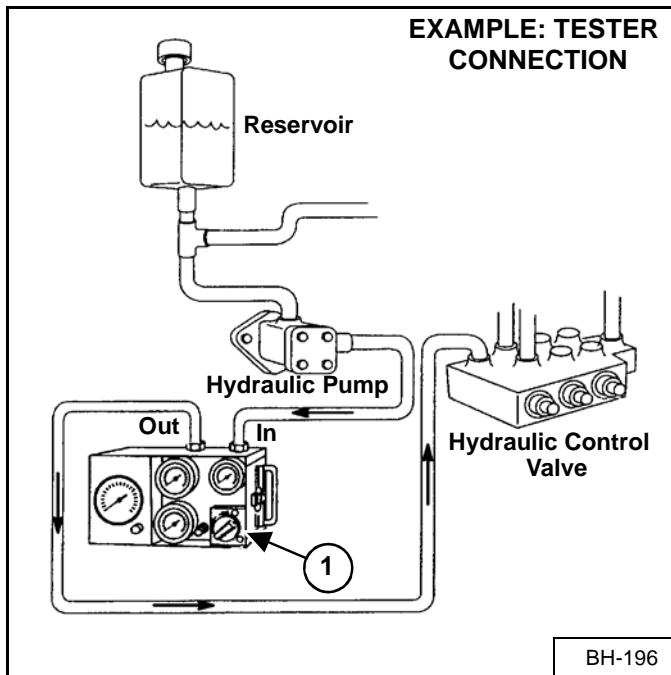
Record the flow (L/min [U.S. gpm]) at 18615,8 kPa (186,2 bar) (2700 psi), this is the high pressure flow. The high pressure flow must be at least 80% of free flow.

$$\% = \frac{\text{HIGH PRESSURE FLOW (L/min [U.S. gpm])}}{\text{FREE FLOW (L/min [U.S. gpm])}} \times 100$$

A low percentage may indicate a failed pump.

*Refer to (See Hydraulic System on Page SPEC-10-2.) for system relief pressure and full rpm.

Figure 20-61-4



Sample tester connection shown [Figure 20-61-4].

This procedure will require a operator in the cab and one operator running the tester.

Start the engine and run at low idle rpm. Make sure the tester is connected correctly. If no flow is indicated on the tester, the hoses are connected wrong. With the hoses connected correctly, increase the engine speed to full rpm*.

Warm the fluid to 60°C (140°F) by turning the restrictor control (Item 1) [Figure 20-61-4] on the tester clockwise to about 6894,8 kPa (68,9 bar) (1000 psi).

NOTE: DO NOT EXCEED 22752,7 kPa (227,5 bar) (3300 psi).

Open the restrictor control and record the free flow (L/min [U.S. gpm]) at full rpm.