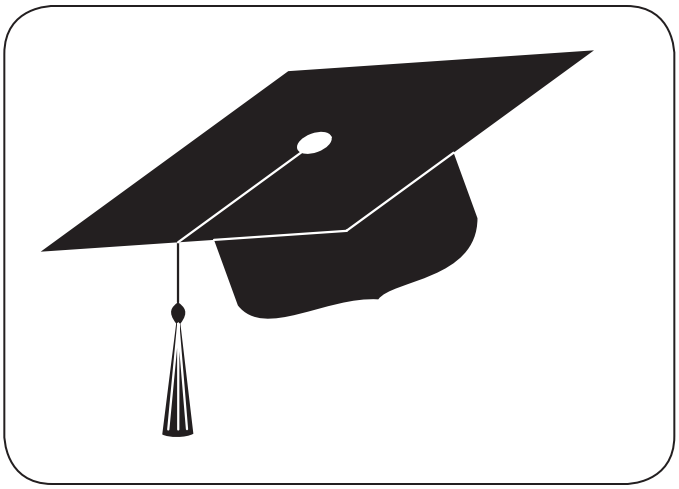
Section 6.2



Implement Circuit - Tests & Adjustments

Safety information

NOTICE

You must read and understand the warnings and basic safety rules, found in Group-1 of the Operation & Maintenance manual, before performing any operation, test or adjustment procedures.

00015

Diesel exhaust fumes contain elements that are hazardous to your health. Always run engine in a well ventilated area. If in an enclosed space, vent exhaust to the outside.

00017

At operating temperature, the engine, exhaust system components, cooling system components and hydraulic system components are HOT. Any contact can cause severe burns.

Tools Required

- Tachometer
- 0 - 60 psi (0 - 1000 kPa) pressure gauge
- 0 - 600 psi (0 - 5 Mpa) pressure gauge
- 0 - 10,000 psi (0 - 80 Mpa) pressure gauge
- 9/16”, 11/16”, 3/4”, 13/16”, 1-1/4”, & 1-3/8” wrenches
- 13mm wrench
- 4mm allen wrench
- PN# 15437, #12 ORS cap
- PN# 15869, quick-couple adapter
- PN# 18838, #6 ORS plug
- PN# 18839, #6 ORS cap
- Gauge test hose
- #12 ORBM - #4 JICM adapter
- Calibrated container - 10 gallons (38 litres)
- Stop watch

- The operator or another mechanic may be required to operate a control while a pressure reading is being taken.

NOTE: Each machine is shipped from the factory with at least one 600 psi and one 10,000 psi gauge with quick-couple adapters. The gauges can be found in the machine Up-Time Kit.

Implement Pump Stand-By Pressure

Specification:

400-425 psi (28 bar)

Test Standards:

- Hydraulics at operating temperature of 140°F (60°C) or greater.
- Engine operating at idle

Procedure:

1. Ensure the hydraulics are at correct operating temperature.

2. Access the implement pump behind the swing-out guard located below the hydraulic tank.

3. Use the 13/16” wrench to disconnect the implement pump’s load sense line were it connects to the load sense shuttle valve. See Figure 1.

   NOTE: The load sense must be disconnected before testing or adjusting the implement pump stand-by pressure. This prevents false readings from the control valve interacting with the pump.

3. Plug the Hose, but leave the pump open to atmosphere.

4. Start the engine and run at idle.

5. Connect the 600 psi pressure gauge, with the quick-couple adapter attached, to the gauge port tap provided on the centralized pressure check manifold. See Figure 2.

   NOTE: Only install a 600 psi pressure gauge after the engine is running. If the gauge is installed before the engine is started it can be damaged.

6. Read the pressure gauge, the implement pump stand-by pressure should be set at 400-425 psi (28 bar).

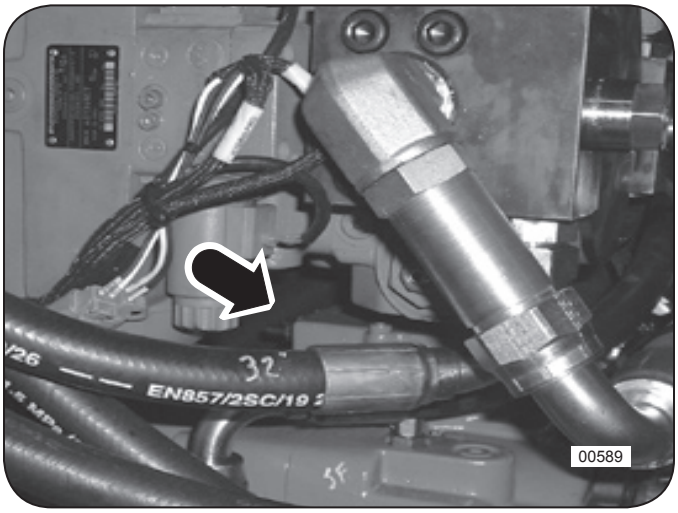


Figure 1: Disconnect Load Sense Line (Typical)

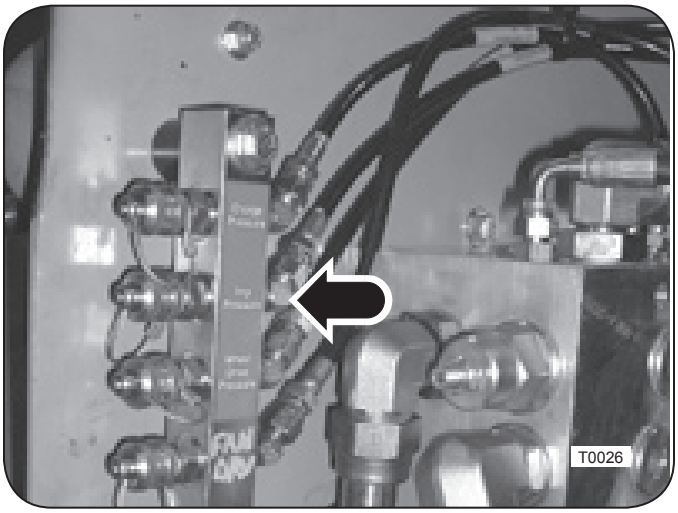


Figure 2: Implement Pump Pressure Gauge Port Tap

If implement pump stand-by pressure setting is correct, go to step #11. If adjustment is required, continue with step #7.

7. Use the 13mm wrench to loosen the jam nut on the stand-by pressure adjustment setscrew. See Figure 3.

8. Use the 4mm allen wrench to turn the adjustment setscrew.

   Turning the adjustment setscrew CLOCKWISE increases the pressure setting. Turning the setscrew COUNTER-CLOCKWISE decreases the pressure setting.

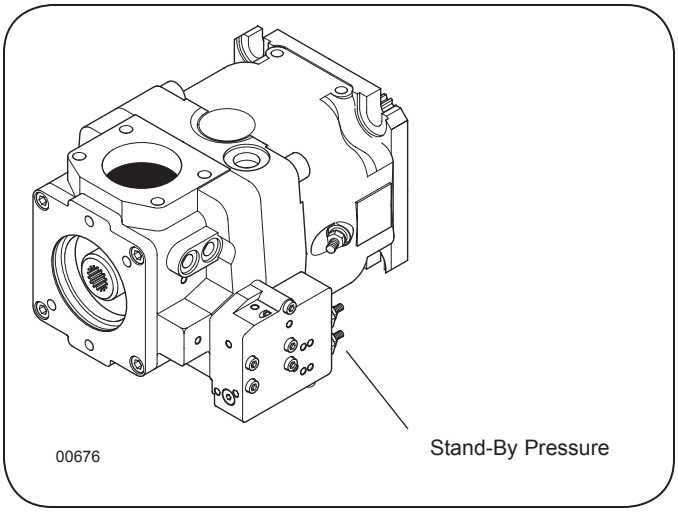


Figure 3: Implement Pump Stand-By Pressure Adjustment

9. Read the pressure gauge and adjust pressure setting as required.

10. After the correct pressure setting is made, tighten the jam nut to lock the setscrew.

11. Remove the pressure gauge and shut down the engine.

12. Re-connect the load sense line removed in step #3.

    NOTE: It is not necessary to bleed the load sense line because the pump is vented internally.

13. Close and secure the rear engine guard.

Implement Pump POR Pressure

Specification:

TF 830: 3000 +/- 50 psi (206 +/- 3.5 bar)
TB 830: 4000 +/- 50 psi (276 +/- 3.5 bar)
TB 630: 4000 +/- 50 psi (276 +/- 3.5 bar)

NOTE: The settings listed above are standard settings for most TimberPro machines. Some specialized machines with special attachments can require these settings to be different. Please contact your TimberPro dealer if you have any question on the setting of your machine.

Test Standards:

- Hydraulics at operating temperature of 140°F (60°C) or greater.
- Engine operating at high idle (approx. 1200 RPM).

Procedure:

1. Ensure the hydraulics are at correct operating temperature.

2. Access the implement pump behind the operator's cab in front of the hydraulic tank.

3. Connect the 10,000 psi pressure gauge, with the quick-couple adapter attached, to the gauge port tap provided on the centralized pressure check manifold. See Figure 2.

4. Start engine and increase engine throttle to high idle (approx. 1200 RPM).

5. Instruct the operator or another mechanic to bottom out an implement function while you read the pressure gauge, implement pump POR pressure should be set at specification. (Because different function have different pressure settings make sure and select a function (stick boom) that has a main relief setting higher than the implement pump POR.)

6. If implement pump POR pressure setting is correct, go to step #10. If adjustment is required, continue with step #7.

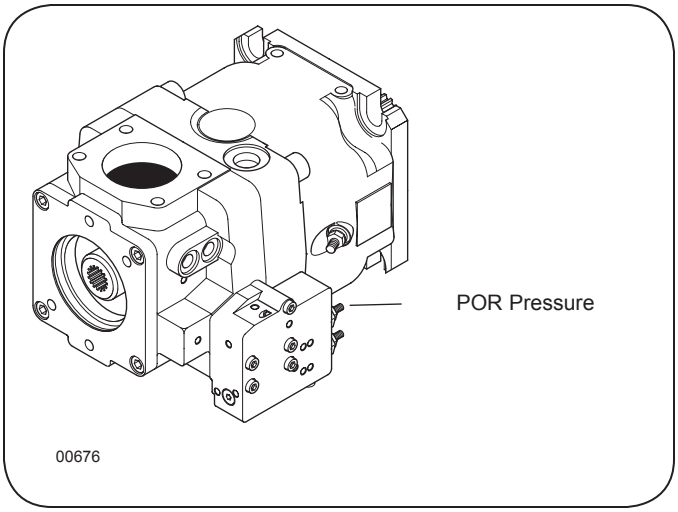


Figure 5: Implement Pump POR Pressure Adjustment

7. Use the 13 mm wrench to loosen the jam nut on the POR pressure adjustment setscrew. See Figure 5.

8. Use the 4 mm allen wrench to turn the adjustment setscrew.

   Turning the adjustment setscrew CLOCKWISE increases the pressure setting. Turning the setscrew COUNTER-CLOCKWISE decreases the pressure setting.

9. Instruct the operator or another mechanic to bottom out an implement function while you read the pressure gauge, implement pump POR pressure should be set at specification. (Because different function have different pressure settings make sure and select a function (stick boom) that has a main relief setting higher than the implement pump POR.)

10. After the correct pressure setting is made, tighten the jam nut to lock the setscrew.

11. Shut down the engine.

12. Remove the pressure gauge then close and secure all access panels and guards.

Implement Pump Case Drain Pressure

Specification:

Maximum 35 psig (2.4 bar) allowed.

Test Standards:

- Hydraulics at operating temperature of 140°F (60°C) or greater.
- Engine operating at full throttle (approx. 2000 RPM).
- Implement pump pressure at specification.

Procedure:

1. Produce a gauge test hose that will allow you to tee in a 60 psi (4 bar) gauge to the #12 ORFS connector that will be installed into the implement pump case drain port.
2. Ensure the hydraulics are at correct operating temperature.
3. Access the implement pump behind the operator's cab next to the hydraulic tank.
4. Locate and remove the implement pump case drain hose and connector and tee in a fitting and 60 psi (4 bar) gauge.
5. Install the gauge test hose and pressure gauge to the case drain port adapter.

NOTICE

Be sure the pump case is full of oil before starting the machine otherwise catastrophic damage to the pump will occur.

6. Start engine and run at full throttle.
7. Instruct the operator or another mechanic to bottom out an implement function and hold it for a full minute while you observe the pressure gauge.

   The implement pump case drain pressure should not exceed specification. If the specification is exceeded, look for conditions that would increase backpressure in the case drain circuit such as a plugged case drain filter element, failing component, etc.
8. After completing the test, cycle all implement functions for a least 2-minutes to cool the hydraulics down.
9. Shutdown the engine and remove the adapter tee that was installed for testing.
10. Close and secure the rear engine guard.

Implement Pump Case Drain Flow

Specification:

- New or rebuilt - Maximum 4.6 gpm (17,5 litres) allowed.
- Used - Maximum 5.8 gpm (22 litres) allowed.

Test Standards:

- Hydraulics at operating temperature of 140°F (60°C) or greater.
- Engine operating at full throttle (approx 2000 RPM).
- Implement pump pressure at specification.

Procedure:

1. Ensure the hydraulics are at correct operating temperature.
2. Access the implement pump behind the operator's cab in front of the hydraulic tank.
3. Use the 1-1/4" and 1-3/8" wrenches to remove the implement pump case drain line at the hydraulic tank. Cap the fitting to prevent contaminates from entering the hydraulic system.
4. Place the open end of the case drain hose into the calibrated container.

NOTICE

Be sure the pump case is full of oil before starting the machine otherwise catastrophic damage to the pump will occur.

5. Start engine and run at full throttle. Immediately have the operator or another mechanic bottom out an implement function and hold it for a full minute.
6. After one minute, deactivate the implement function and shutdown the engine.
7. Remove implement pump case drain hose from the container and re-connect it to the hydraulic tank.
8. Cycle all implement functions for a least 2-minutes to cool the hydraulics down.
9. Measure the oil in the container. If the amount exceeds specification, the implement pump is worn or failing and may have to be replaced.
10. Close and secure the rear engine guard.

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