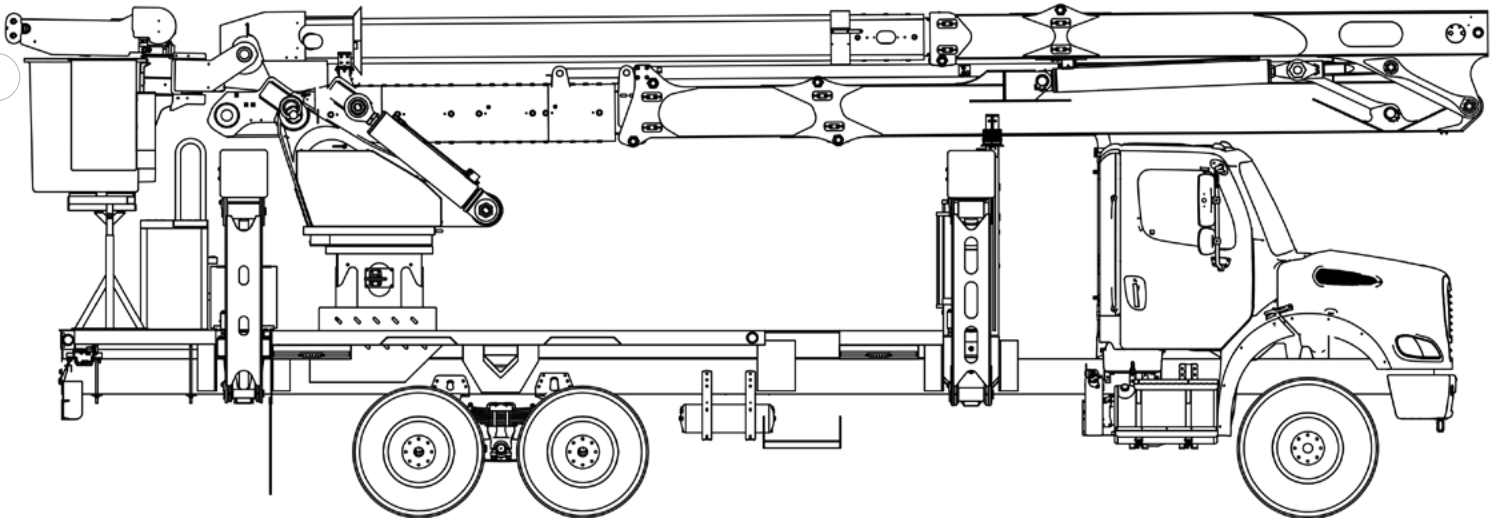




# TECH TIPS

CHECKING FLOWS

NO. 65



**SERVICE CALL:  
CHECKING FLOWS**



**MODEL(S):  
TM**




**TOOLS NEEDED:  
0-30 GPM FLOW METER  
0-5000 PSI PRESSURE GAUGE  
OPEN END WRENCH SET TO 1 1/4"  
ALLEN WRENCH SET  
1/4", 1/2" AND 3/4" PLUG AND CAP**


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**! WARNING**



**Injection Hazard**  
Fluid escaping under pressure can penetrate skin and result in death or serious injury.



Relieve pressure before disconnecting hydraulic lines.  
Stay clear of leaks and pin holes. Use a piece of cardboard or wood to search for leaks. Do not use hand.  
Fluid injected into skin must be surgically removed within a few hours by a doctor familiar with this type of injury, or gangrene will result.



## DANGER

Failure to obey the instructions and safety rules in the appropriate Operator's Manual and Service Manual for your machine will result in death or serious injury.

Many of the hazards identified in the Operator's Manual are also safety hazards when maintenance and repair procedures are performed.

## DO NOT PERFORM MAINTENANCE UNLESS:

- ✓ You are trained and qualified to perform maintenance on this machine.
- ✓ You read, understand and obey:
  - manufacturer's instructions and safety rules
  - employer's safety rules and worksite regulations
  - applicable governmental regulations
- ✓ You have the appropriate tools, lifting equipment and a suitable workshop.

The information contained in this Tech Tip is a supplement to the Service Manual. Consult the appropriate Service Manual of your machine for safety rules and hazards.



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## TECH TIP #65

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| *Flow meter set-up*

**STEP 1**

5

| *Connect inlet hose to outrigger selector valve*

| *Remove load sense line*

**STEP 2 - STEP 3**

6

| *Hook up load sense line*

**STEP 4**

7

| *Connect the return line*

| *Check flow*

**STEP 5 - STEP 9**

8

| *Increase the pressure*

| *Check flow on the small pump*

**STEP 10 - STEP 12**

9

| *Check flow on small pump*

**STEP 13 - STEP 19**

# STEP 1

The illustration and picture below show examples of the flow meter set-up needed to test the pump for flow and pressure.

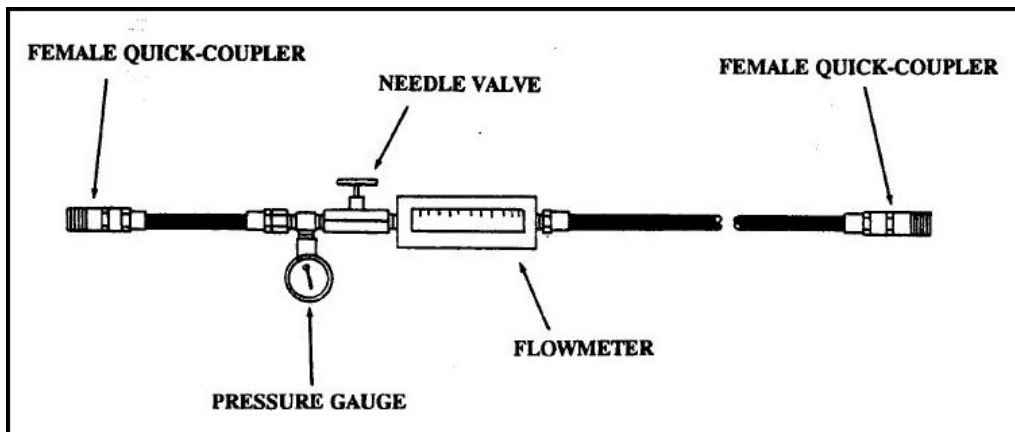
To test a pump with load sense, add a tee in front of the pressure gauge to connect the load sense line.

**Note:** If the load sense line is not hooked up, the pressure cannot be increased on the pump.



Escaping fluid under pressure can penetrate skin causing serious injury.

Relieve pressure before disconnecting hydraulic lines. Keep away from leaks and pin holes. Use a piece of cardboard or paper to search for leaks. **DO NOT** use your hand.



## STEP 2

To connect the large side of the pump to the flowmeter, hook up the inlet hose to the hose coming from the Outrigger/Unit selector valve. Use the selector as a shut-off valve to stop oil from dripping.

Depending on the flowmeter hose size, it will connect to the ½" (-8) outrigger hose or ¾" (-12) unit hose.

Position the selector opposite to the hose the flowmeter is plumbed into. Use the inlet marking or the arrow on the flowmeter to verify the flow is going in the proper direction.



## STEP 3

Remove the load sense line from the curbside outrigger valve, cap the fitting, and connect the hose to the inlet hose to the flow meter.

The load sense is the ¼" line hooked to the side of the outrigger valve.







## STEP 5

Connect the return line to the tool return quick coupler at the tail shelf.



## STEP 6

Select the Unit/Outrigger Selector to allow oil to flow to the flow meter. Make sure any shut offs are in the open position.

## STEP 7

Start the engine and engage the PTO. Verify there is flow to the flowmeter.

## STEP 8

There should be 14-15 GPM shown on the flow meter at idle and 19-21 GPM with 2-speed.

## STEP 9

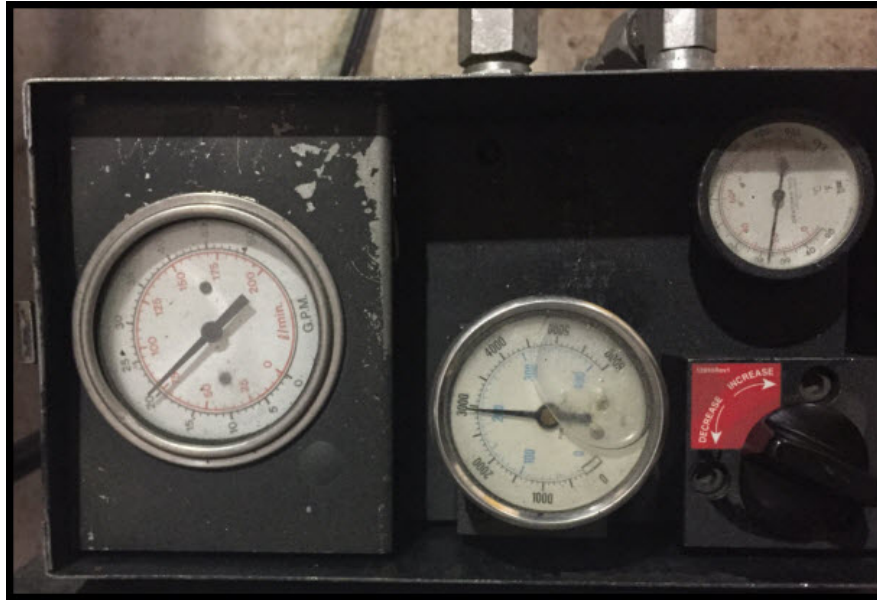
With 2-speed selected, record the flow and then slowly restrict the flow through the flowmeter. Monitor the flowmeter and the pressure on the pressure gauge until the flow is zero and the pressure is at the compensator setting on the pump.

This is the compensator pressure which should be set at 3000 psi. Record the pressure reading. Back the pressure off to allow full flow again. If the pressure isn't 3000 psi, reference Tech-tip 30 to adjust TM pressures.



## STEP 10

Slowly increase the pressure again, while watching the flowmeter. The flow should stay at the recorded flow or no less than 80% (15.2 gpm for 19 gpm and 16.8 for 21 gpm) of the flow until the pressure is within 250-300 psi of the compensator setting. If it is less than that, then the pump is bad.



## STEP 11

Reverse Steps 2 through 5 to reconnect the hoses before continuing to Step 12.

## STEP 12

To check the flow on the small pump for the level/option, remove the hose coming from the small pump on the outrigger interlock valve (port 2).

It may be in the pedestal on a chassis driven unit or on the curbside outrigger valve on a track unit. It could also be located below rotation near the collector block.





### STEP 13

The small pump is a pressure compensated pump. Hook up the pressure line to the hose going to the flowmeter.

### STEP 14

Hook up the outlet hose from the flowmeter to the tool return. Reference **Step 5** for instructions.

### STEP 15

Start the engine and engage the PTO. At this time, there should be 4 GPM of flow.

### STEP 16

Pressing the 2-speed, the flow should increase to between 6 and 8 GPM. The flow will vary depending on how the large pump was set-up for flow.

### STEP 17

With 2-speed selected, record the flow. Slowly restrict the flow on the flowmeter while monitoring the flow and pressure until the flow is zero and the pressure is at the compensator setting on the pump. This is the compensator pressure which should be set at 3000 psi. Record the pressure.

Back the pressure off until it shows full flow again. If pressure isn't 3000 psi, reference **Tech-tip 30** for setting TM Pressures.

### STEP 18

Slowly increase the pressure again and watch the flowmeter. The flow should stay at the recorded flow or no less than 80% (4.8 GPM for 6 GPM or 6.4 GPM for 8 GPM) of the flow until it is within 250-300 psi of the compensator setting. If it is less, then the pump is bad.

### STEP 19

Reconnect the hoses and perform a full operational check of the unit.



FOR FURTHER ASSISTANCE,  
CONTACT THE TEREX UTILITIES TECHNICAL SUPPORT TEAM  
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