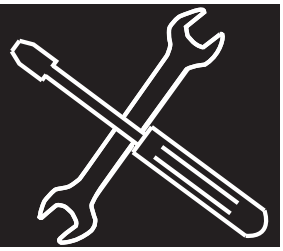
Cycle Times - Pressures - Adjustments

For: L130F-109

L U M B E R J A C K



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CYCLE TIMES

		Engine Idle			Engine H.F.I		
		Min	Max	Observed (Sec)	Min	Max	Observed (Sec)
Hoist Cylinder	*Retract :*	*Measured at Startup (no calculated value)*			**17**	**41**	
	Extend :				**33**	**41**	
Tilt Cylinder	*Retract :*	*Measured at Startup (no calculated value)*			**20**	**46**	
	Extend :				**38**	**46**	
RH Holddown Cylinder	*Retract :*	*Measured at Startup (no calculated value)*			**7**	**13**	
	Extend :				**11**	**13**	
LH Holddown Cylinder	*Retract :*	*Measured at Startup (no calculated value)*			**7**	**13**	
	Extend :				**11**	**13**	
RH Kickoff Cylinder	*Retract :*	*Measured at Startup (no calculated value)*			**5**	**11**	
	Extend :				**7**	**9**	
LH Kickoff Cylinder	*Retract :*	*Measured at Startup (no calculated value)*			**5**	**11**	
	Extend :				**7**	**9**	
RH Aux Holddown Cylinder	*Retract :*	*Measured at Startup (no calculated value)*			**4**	**8**	
	Extend :				**6**	**8**	
LH Aux Holddown Cylinder	*Retract :*	*Measured at Startup (no calculated value)*			**4**	**8**	
	Extend :				**6**	**8**	
Steering	*Right-Left*	*Measured at Startup (no calculated value)*			**2**	**4**	
	Left-Right				**2**	**4**	

		Min	Max	Observed (Turns)
Steering Wheel Turns	*Right-Left*	**4**	**6**	
	Left-Right	**4**	**6**	

PRESSURE

NOTE: Hydraulic pressures should be set at 1500 RPM (unless otherwise noted) and double checked at maximum RPM. Check pressures in sequence shown and only when hydraulic oil is hot (above 120° F or 50° C).

	Min PSI	Max PSI	Observed PSI
Steering Main Relief :	2400	2600	
Steering Circuit Relief :	3150	3850	
LH HD/KO/Aux HD Main Relief :	2700	2800	
LH HD Base End Circuit Relief :	2600	2800	
LH HD Stem End Circuit Relief :	2600	2800	
LH KO Base End Circuit Relief :	2600	2800	
LH KO Stem End Circuit Relief :	1000	1200	
LH Aux HD Base End Circuit Relief :	2600	2800	
LH Aux HD Stem End Circuit Relief :	2600	2800	
RH HD/KO/Aux HD Main Relief :	2700	2800	
RH HD Base End Circuit Relief :	2600	2800	
RH HD Stem End Circuit Relief :	2600	2800	
RH KO Base End Circuit Relief :	2600	2800	
RH KO Stem End Circuit Relief :	1000	1200	
RH Aux HD Base End Circuit Relief :	2600	2800	
RH Aux HD Stem End Circuit Relief :	2600	2800	
Hoist/Tilt Main Relief :	2700	2800	
Hoist Base End Circuit Relief :	2600	2800	
Hoist Stem End Circuit Relief :	2600	2800	
Tilt Base End Circuit Relief :	800	1000	

⚠ CAUTION

CAUTION: To help prevent injury to personnel or damage to the Lumberjack, read the safety information section 2 of your service manual before performing any maintenance.

TRANSMISSION CIRCUIT PRESSURE CHECKS

See Figure 1 & 2

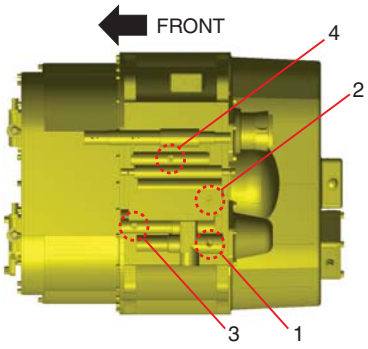
Transmission

Tools Used: Oil pressure gauge.

Location: Under boom below removable access plate.

Procedure: Attach gauge to each pressure test port.

NOTE: Oil Temperature should be between 180° F and 200° F before reading pressures on transmission circuit.



1. Clutch Pressure
2. Lube Pressure
3. Reverse Pressure
4. Forward Pressure

Figure 1 - Top View of Transmission

Transmission Fluid Cooler

Tools Used: Oil pressure gauge.

Location: Under chassis at rear of machine.

Procedure: Attach gauge to each pressure test port.

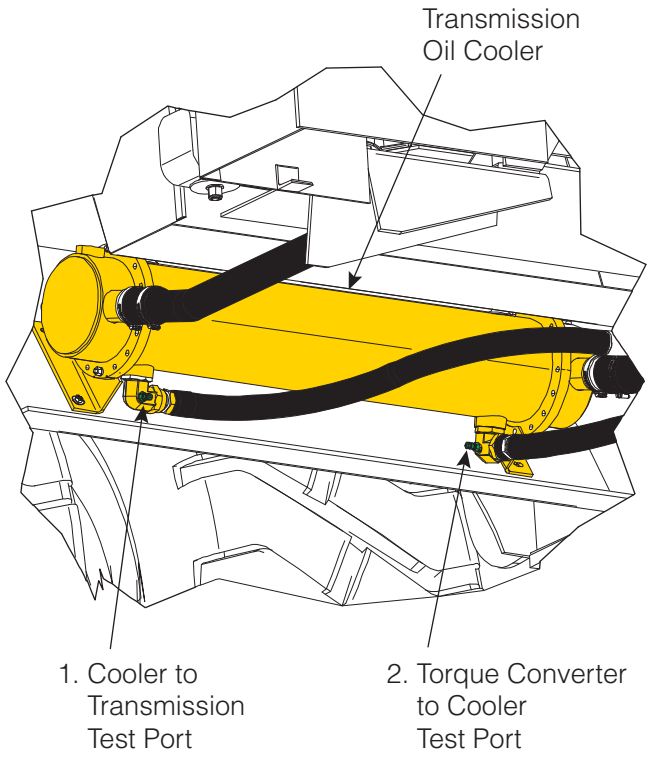


Figure 2 - Transmission Cooler

ACCUMULATOR CHARGE MANIFOLD

⚠ CAUTION

CAUTION: To help prevent injury to personnel or damage to the Lumberjack, read the safety information section 2 of your service manual before performing any maintenance.

Procedure: Brake and pilot pressure settings and test.

⚠ WARNING

WARNING: Always stand away from Lumberjack and all moving parts when using a pressure gauge. Hose connected to pressure gauge should be long enough so the gauge can be read from at least three feet away from Lumberjack.

Pressure Setting

1. Open accumulator drain needle valves on brake manifold to relieve hydraulic pressure (see Figure 3). Accumulators and brake manifold are located on the LH side, inside on the chassis wall.

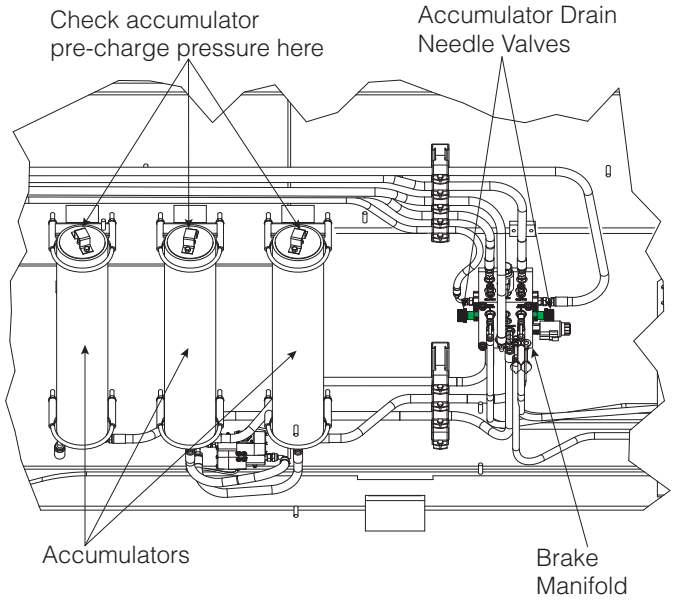


Figure 3 - Accumulators & Brake Manifold

2. Verify accumulators have correct nitrogen charge. (1500 psi)

3. Close accumulator drain needle valves.

4. Start machine, implement pilot switch on, machine at idle, hydraulic oil temperature 100F minimum.

5. Locate accumulator charge manifold on RH side of machine under chassis, near converter.

⚠ CAUTION

Always shut down machine before installing or removing pressure gauge from test port .

6. With pressure gauge at TP1, temporally set (5) pilot supply valve cartridge to 550-750 psi (see Figure 4).

7. With pressure gauge at TP4, set (11) P.O. reducing valve cartridge to 450 +/-25 psi.

8. With pressure gauge at TP1, set (5) pilot supply valve cartridge to 450 +/- 25 psi.

9. With pressure gauge at TP2, temporally set (6) accumulator sense valve cartridge to 3300-3500 psi, (may require increasing the setting of the (3) brake, main relief valve cartridge).

10. With pressure gauge TP3, set (3) brake, main relief valve cartridge to 3100 +/- 25 psi.

11. With pressure gauge at TP2, set (6) accumulator sense valve cartridge to 2900 +/- 25 psi (High Limit).

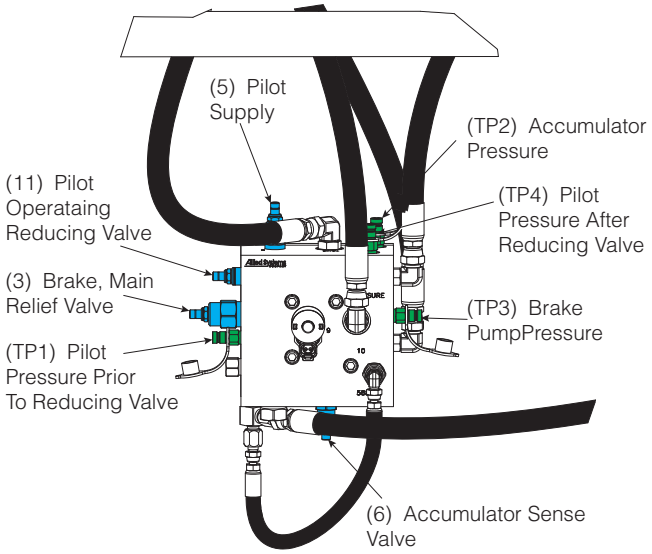


Figure 4 - Accumulator Charge Manifold

Test

1. Place pressure gauge at TP2, accumulator circuit.
2. Start engine, idle.
3. Open one needle valve on brake manifold, commonly located in the differential compartment of the chassis.
4. Check Accumulator pressure high (unload pressure) and low (reset pressure).
   - Unload pressure, 2900 +/- 25 psi
   - Reset pressure, 2425-2525 psi (nominally 85%
   - +/- 1% and +/- 25 psi of unload pressure)
   - Shut needle valve on brake manifold
   - Turn engine off, key off.
5. Check Pilot Supply with engine off.
   - Place pressure gauge on TP4, pilot pressure circuit.
   - With the key off, pressure should be at 0 psi.
   - Pressure key on & implement pilot switch on, 450 +/- 25 psi.
   - Place pressure gauge on TP2, Accumulator pressure
   - The pilot leakage is 7-10 cubic inches, pressure will decrease by a rate of 200 +/-100 psi per minute down until the accumulator charge pressure is reached at which point the pressure will drop to 0 psi.

VALVE ADJUSTMENTS

See page 9

⚠ CAUTION

CAUTION: To help prevent injury to personnel or damage to the machine, read the safety information in section 2 of your service manual before performing any maintenance.

⚠ WARNING

WARNING: Never rely on the hydraulic system to support any part of the machine during maintenance. NEVER stand under a component that is supported only by the hydraulic system. Make sure it is resting on its mechanical stops or safety stands. If necessary, support components with appropriate safety stands.

⚠ WARNING

WARNING: Never Make adjustments to the Lumberjack while the engine is powered ON.

⚠ WARNING

WARNING: Always stand away from Lumberjack and all moving parts when using a pressure gauge. Hose connected to pressure gauge should be long enough so the gauge can be read from at least three feet away from Lumberjack.

Hoist/Tilt Valve Adjustments

Tools Used: Adjustable wrench, 5/32 allen wrench, two oil pressure gauges.

Location: Under boom on Valve Plate.

Procedure:
Adjust hoist/tilt pressure in the following order:

1. Park on firm level surface and lower carriage to ground.
2. Engage parking brake, turn engine off and remove key.

⚠ CAUTION

Note: Always shut down machine before installing or removing pressure gauge from test port .

3. Attach an oil pressure gauge to hoist base test port (see page 9).

   Note: Make the following adjustments with engine at idle.

4. Adjust (1) main hoist/tilt relief to less than 100 psi.
5. Adjust (1) main hoist/tilt relief to 3500 psi.
6. Adjust (2) hoist cylinder base circuit relief to 2700 psi.
7. Turn engine off and remove key.
8. Attach oil pressure gauge to hoist stem test port.
9. Adjust (3) hoist cylinder stem circuit relief to 2700 psi.
10. Turn engine off and remove key.
11. Attach oil gauge to tilt cylinder base test port (see page 9)
12. Adjust (4) tilt cylinder stem circuit relief to 2700 psi.
13. Turn engine off and remove key.
14. Attach oil pressure gauge to tilt cylinder stem test port.
15. Adjust (5) tilt cylinder base circuit relief between 900 psi.
16. Turn engine off and remove key.
17. Attach oil pressure gauge to hoist base test port (see page 9).
18. Adjust (1) main tilt/hoist relief 2750 psi.

⚠ WARNING

WARNING: Never Make adjustments to the Lumberjack while the engine is powered ON.

⚠ WARNING

WARNING: Always stand away from Lumberjack and all moving parts when using a pressure gauge. Hose connected to pressure gauge should be long enough so the gauge can be read from at least three feet away from Lumberjack.

LH Holddown/ Kickoff Adjustments

Tools Used: Adjustable wrench, 5/32 allen wrench, one oil pressure gauge.

Location: Under boom on Valve Plate.

Procedure: Adjust LH holddown/kickoff pressure in the following order:

1. Park on firm level surface and lower carriage to ground.
2. Engage parking brake, turn engine off and remove key from key switch.

⚠ CAUTION

Always shut down machine before installing or removing pressure gauge from test port .

3. Attach an oil gauge to LH holddown/kickoff test port (see page 9).

   Note: Make the following adjustments with engine at idle.

4. Adjust (6) main LH main holddown/kickoff relief to less than 100 psi.
5. Adjust (6) main LH main holddown/kickoff relief to 3500 psi.
6. Adjust (7) LH stem end kickoff circuit relief to 1100 psi with engine at idle.
7. Adjust (10) LH base end kickoff circuit relief to 2700 psi with engine at idle.
8. Adjust (8) LH stem end holddown circuit relief to 2700 psi with engine at idle.
9. Adjust (9) LH base end holddown circuit relief to 2700 psi with engine at idle.
10. Adjust (11) LH stem end auxiliary circuit relief to 2700 psi with engine at idle.
11. Adjust (12) LH base end auxiliary circuit relief to 2700 psi with engine at idle.
12. With engine at idle, adjust (6) main LH main holddown/kickoff relief to 2750 psi.

RH Holddown/Kickoff Adjustments

Tools Used: Adjustable wrench, 5/32 allen wrench, tone oil pressure gauge.

Location: Under boom on Valve Plate.

Procedure:
Adjust RH holddown/kickoff pressure in the following order:

1. Park on firm level surface and lower carriage to ground.
2. Engage parking brake, turn engine off and remove key from key switch.

⚠ CAUTION

Always shut down machine before installing or removing pressure gauge from test port .

3. Attach an oil gauge to RH holddown/kickoff test port (see page 9).

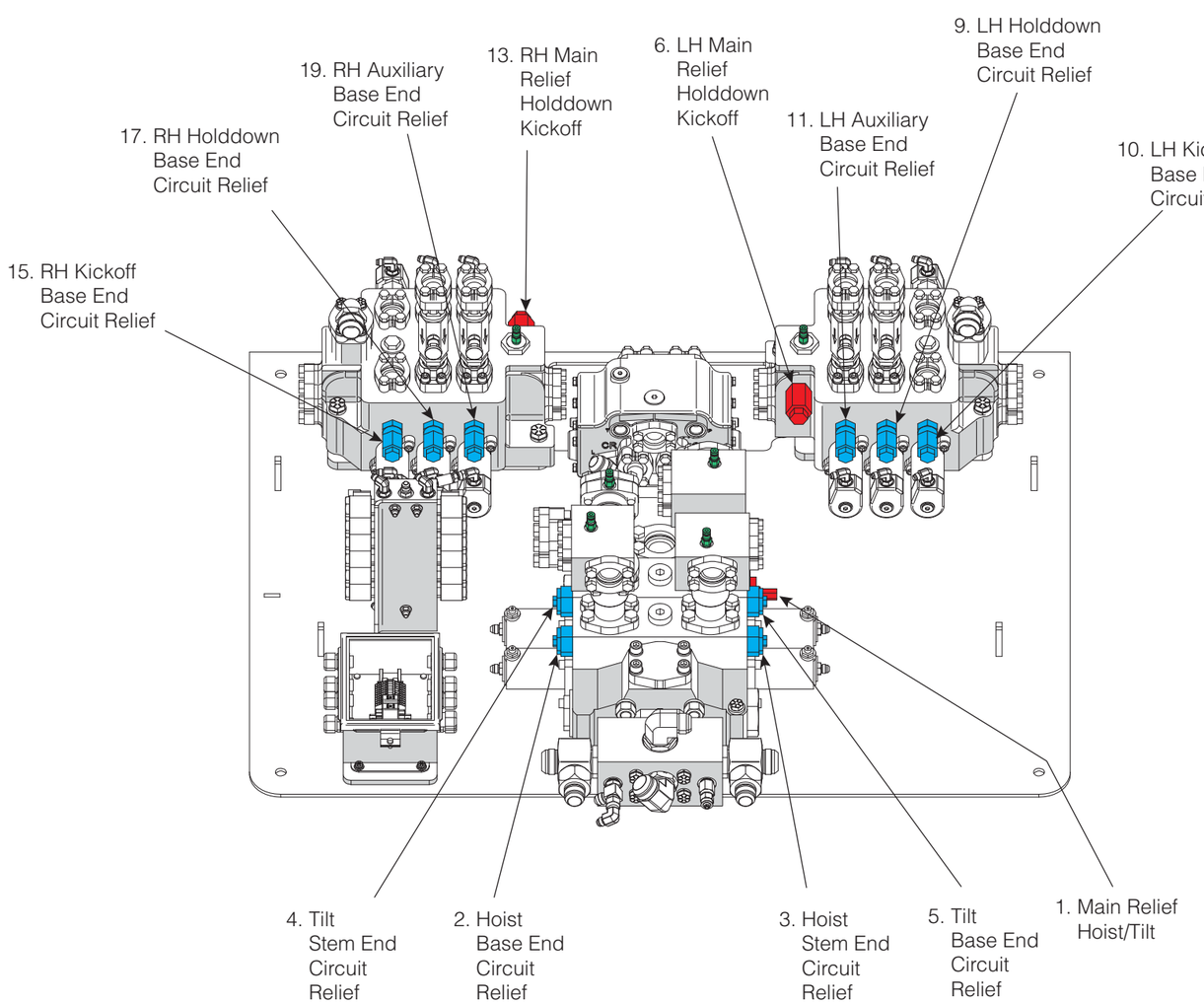
   Note: Make the following adjustments with engine at idle.

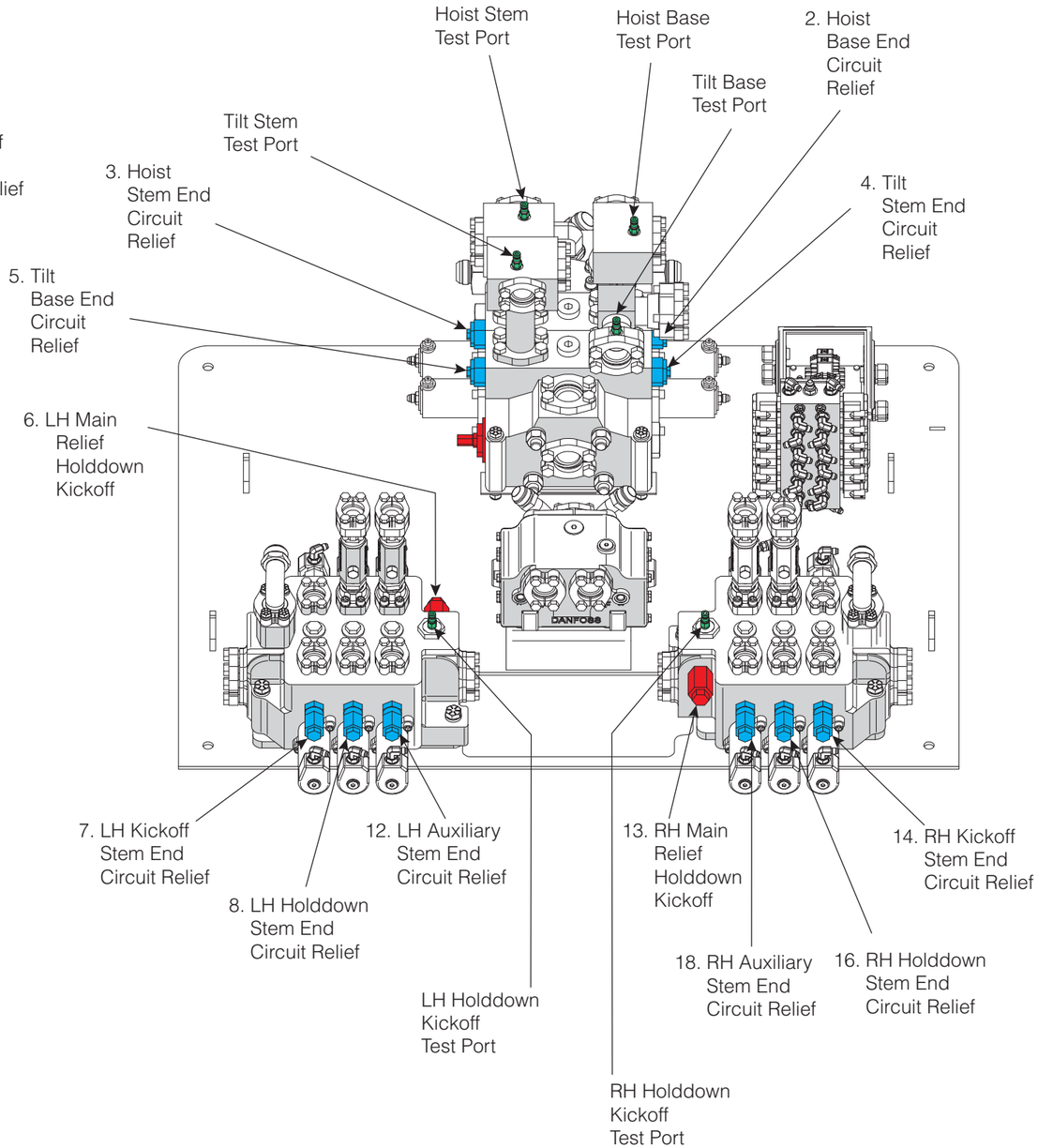
4. Adjust (13) main RH main holddown/kickoff relief to less than 100 psi.
5. Adjust (13) main RH main holddown/kickoff relief to 3500 psi.
6. Adjust (14) RH stem end kickoff circuit relief to 1100 psi.
7. Adjust (15) RH base end kickoff circuit relief to 2700 psi.
8. Adjust (16) RH stem end holddown circuit relief to 2700 psi.
9. Adjust (17) RH base end holddown circuit relief to 2700 psi.

10. Adjust (18) RH stem end auxiliary circuit relief to 2700 psi..

11. Adjust (19) RH base end auxiliary circuit relief to 2700 psi.

12. Adjust (6) main RH main holddown/kickoff relief to 2750 psi.





Test Port | Circuit Relief | Main Relief