| Pressure | PORT 1 Transmission Pump | PORT 2 Forward Clutch | PORT 3 Reverse Clutch | PORT 4 Torque Converter | PORT 5 Lubrication Pressure | PORT 6 Modulator Pressure |
|---|---|---|---|---|---|---|
| kPa (psi) | 965 to 1170 (140 to 170) | 724 to 860 (105 to 125) | 724 to 860 (105 to 125) | 724 to 860 (105 to 125) | 105 to 175 (15 to 25) | Pressure Variation |

**NOTES:**

All pressures are measured at 2000 rpm with oil temperature at 50°C (130°F)

The difference in the forward and Reverse clutch pressures must not be more than 70 kPa (10 psi)

TEST PORT 1 – PRESSURE FROM THE TRANSMISSION PUMP
TEST PORT 2 – PRESSURE TO THE FORWARD CLUTCH
TEST PORT 3 – PRESSURE TO THE REVERSE CLUTCH
TEST PORT 4 – OIL PRESSURE TO THE TORQUE CONVERTER
TEST PORT 5 – OIL PRESSURE FROM THE OIL COOLER
TEST PORT 6 – MODULATOR PRESSURE

*On some T43 transmissions and on T42 transmissions before serial number T42M 3040 (and one unit T42M 3068) test ports 3 and 5 are reversed.

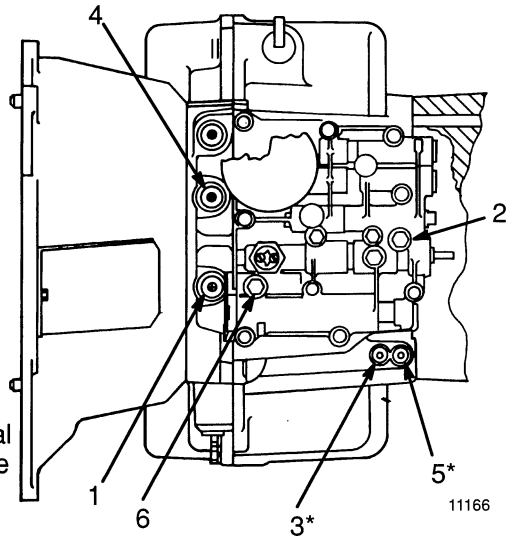


FIGURE 51. TEST PORTS FOR TRANSMISSION OIL PRESSURES

2. Run the engine at 2000 rpm and push the inching pedal down. The clutch pressure must decrease to approximately zero pressure when the inching pedal is fully pushed down.

3. Put the transmission in REVERSE. If the pressure is not 724 to 860 kPa (105 to 125 psi), see the TROUBLESHOOTING procedures.

4. Run the engine at 2000 rpm and push the inching pedal down. The clutch pressure must decrease to approximately zero pressure when the inching pedal is fully pushed down.

5. The difference in the Forward and Reverse clutch pressures can not be more than 70 kPa (10 psi). A larger difference in clutch pressures indicates a problem.

### Check The Torque Converter Regulator

Apply the parking brake. Run the engine at 2000 rpm and push the inching pedal fully down. If the pressure is not 724 to 830 kPa (105 to 120 psi), see the TROUBLESHOOTING procedures.

### Check The Oil Pressure from the Oil Cooler

This test checks the operation of the by–pass valve for the oil cooler and makes sure there is oil flow that returns from the oil cooler. Remove the plug at Test Port 5 and install a 0 to 500 kPa (0 to 50 psi) gauge. The transmission oil must be at the operating temperature of 65 to 70°C (150 to 160°F). Apply the parking brake. (Direction Control Lever Only) Put the direction control lever in the **NEUTRAL** position. Run the engine at 2000 rpm. The correct pressure is 105 to 175 kPa (15 to 25 psi).

### Check The Modulator Pressure

This test checks the operation of the modulator. When the direction spool is moved from one direction to another, the modulator causes a 1.75 to 3.0 second delay in the application of the clutch for the new direction. The changes in modulator pressure are shown in FIGURE 52.

Install a 0 to 2000 kPa (0 to 300 psi) gauge in Test Port 6 and operate the engine at 1500 to 2000 rpm. Check the pressure on the gauge when you change the position of the direction spool. Use a stop watch to measure the operation of the modulator. A pressure gauge will not operate quickly enough to show the complete variation shown in FIGURE 52., but it will indicate the decrease and increase of pressure in the modulator. If the operation of the modulator is not correct, the control valve must be disassembled for repairs.

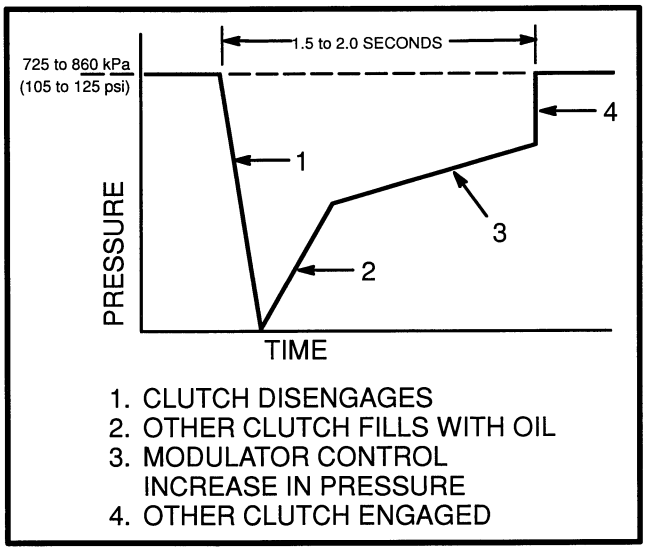


FIGURE 52. PRESSURE VARIATION IN THE MODULATOR FOR ONE CYCLE

## TROUBLESHOOTING

| PROBLEM | POSSIBLE CAUSE |
|---|---|
| Engine will not start. | The transmission is not in NEUTRAL or the parking brake is not applied.<br>The parking brake is applied. The switch in the parking brake is damaged.<br>The neutral start switch is damaged or needs adjustment. |
| Transmission is too hot. | Inching and operating the lift truck with loads greater than capacity.<br>Oil level is not correct.<br>Clutch does not engage completely.<br>Clutch pressure is too low.<br>Worn or wrong friction discs or separator plates.<br>Oil cooler circuit has a restriction or damage.<br>Oil cooler in radiator has a restriction.<br>Problem in the torque converter.<br>Clutch discs are bent or are not fully releasing.<br>Oil pump is worn or damaged.<br>Clutch assembly will not disengage completely because piston orifice has a restriction. |
| Bubbles in the oil fill tube. | Air leak on the suction side of the oil pump.<br>Oil level is not correct.<br>Oil is too hot.<br>Problem in the torque converter. |