PART NO. T4L1-E-00

HITACHI

Technical Manual

ZW

65

75

95

Wheel Loader

Service Manual consists of the following separate Part No.

Technical Manual : Vol. No.T4L1-E

Workshop Manual : Vol. No.W4L1-E

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GENERAL

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SERVICE BRAKE CAPACITY

Summary:

1. The overall performance of the service brake is judged.
2. The braking capability of the brake is an item of safety control. Conduct the performance test correctly.

Preparation:

1. Air pressure of the front and rear tires are different. Adjust air pressure at both right and left sides for the front and rear tires evenly in advance.
   ZW65: 294/ 265 KPa (3/2.7 kgf/cm^2) at tire size 12.5-18-10PR (L-2)
   ZW75: 294/ 265 KPa (3/2.7 kgf/cm2) at tire size 365/70R18 (L-2)
   ZW95: 265/ 245 KPa (2.7/2.5 kgf/cm^2) at tire size 14.5-20-12PR (L-2)
2. On a paved dry ground, prepare a 100 m (328 ft) straight travel course (a 50 m (164 ft) of acceleration/deceleration zone and a 50 m (164 ft) of measurement road), and set the brake starting point.
3. Empty the bucket, and hold the lift arm at 0.3 to 0.4 m (12 in to 1 ft 4 in) above the ground.
4. Keep hydraulic oil temperature at 50±5 °C (122±9 °F). Warm the axle oil by repeating travel and brake operations.
   Warm up the engine so that the needle of the indicators of the engine coolant temperature gauge rise above the horizontal positions.

Measurement:

CAUTION: Avoid measurement during travel reverse operation for dangers.
(FNR switch: F)

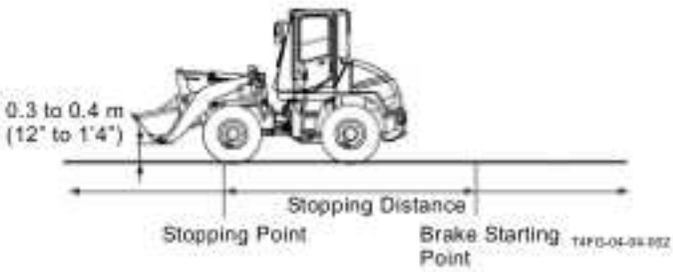
1. Measurement for high-speed mode.
2. Select the pedal, switch, and FNR switch as follows.

Shift Switch	Parking Brake Lever	Accelerator Pedal
Hi (2nd gear)	OFF	Full depression

3. Put the FNR lever at the F (Forward) position. From the acceleration zone, travel at 20 km/h (12 mph) by depression the accelerator pedal to the stroke end.
4. Depress the brake pedal at the brake starting point, and completely stop the vehicle. (Left Service Brake Pedal)
5. Measure the distance from the brake starting point to the point where the front tire is contacting.
6. Repeat the measurement three times and calculate the mean values.

Evaluation:
Refer to Operational Performance Standard in T4-2.

Remedy:
Refer to Trouble Shooting in T5.



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5. Perform troubleshooting

CAUTION: Do not disconnect harnesses or hydraulic lines while the engine is running. The machine may malfunction or pressurized oil may spout, possibly resulting in personal injury. Stop the engine before disconnecting harnesses or hydraulic lines.

Perform diagnosis by using the service mode of monitor.

Check operating condition of each component by referring to Troubleshooting in this section and by using the monitoring function of the service mode of the monitor.

6. Trace possible causes
   Before reaching a conclusion, check the most likely causes again. Try to identify the actual cause of the trouble.
   Based on your conclusion, make a plan for appropriate repairs to avoid consequent malfunctions.

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Trouble symptoms	A-2. Traveling is impossible either forward or reverse

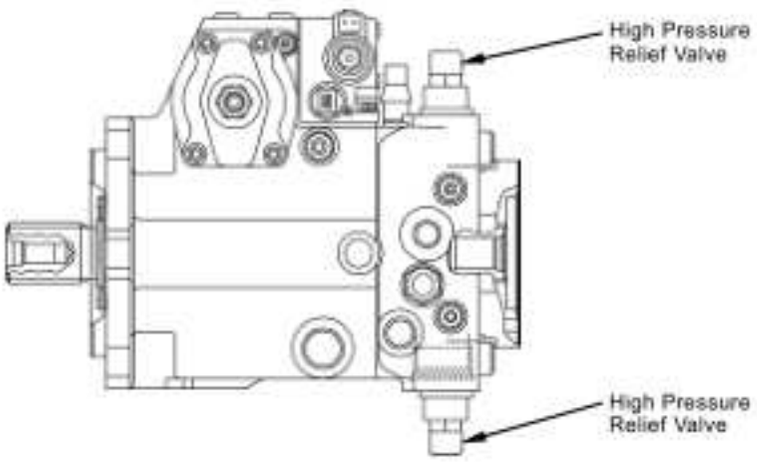
(3) Faulty high-pressure relief valve

↓

Remove and check the high-pressure relief valve.

1. Check for the abnormality (looseness and so on) of high-pressure relief valve installation. (If the installation is loosened, the circuit between high-pressure and low-pressure is shorted and pressure decreases.)
2. If there is no abnormality for the installation, remove the high-pressure relief valve. Check for the foreign object overlapped on valve seat surface.
3. Switch the forward high-pressure relief valve and the reverse high-pressure relief valve. Check for the change of trouble symptoms.
4. Replace the high-pressure relief valve with a new one and check if trouble symptoms disappear.

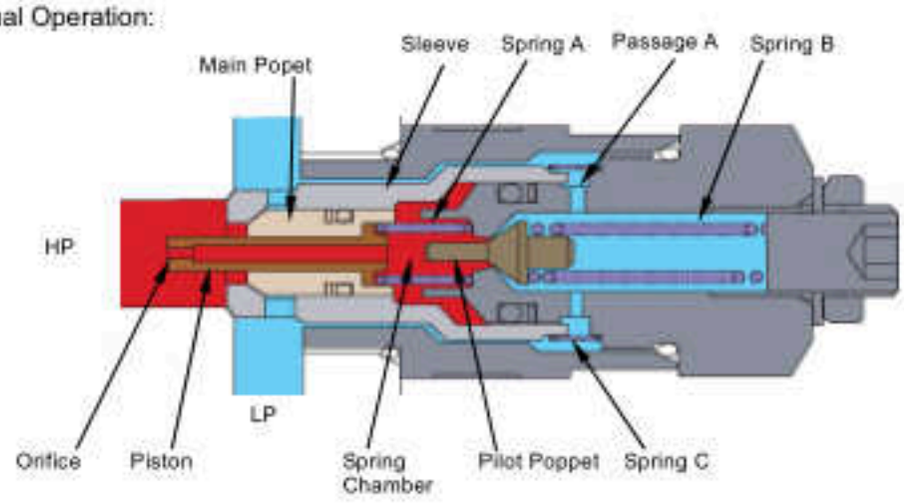
Abnormal	Normal
Repair or replacement of high-pressure relief valve	HST motor assembly check



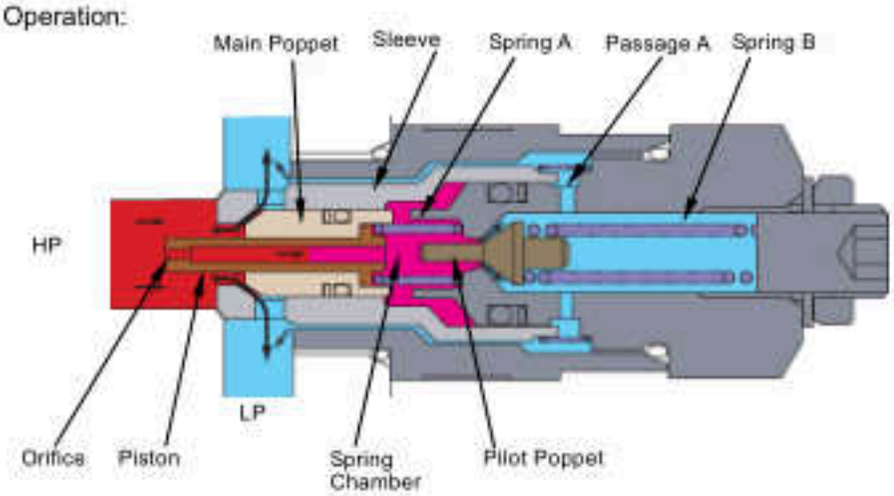
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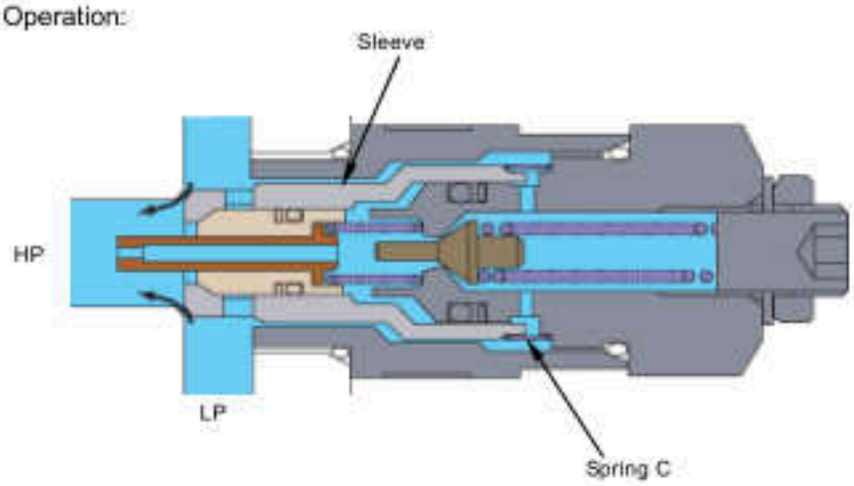
During Normal Operation:



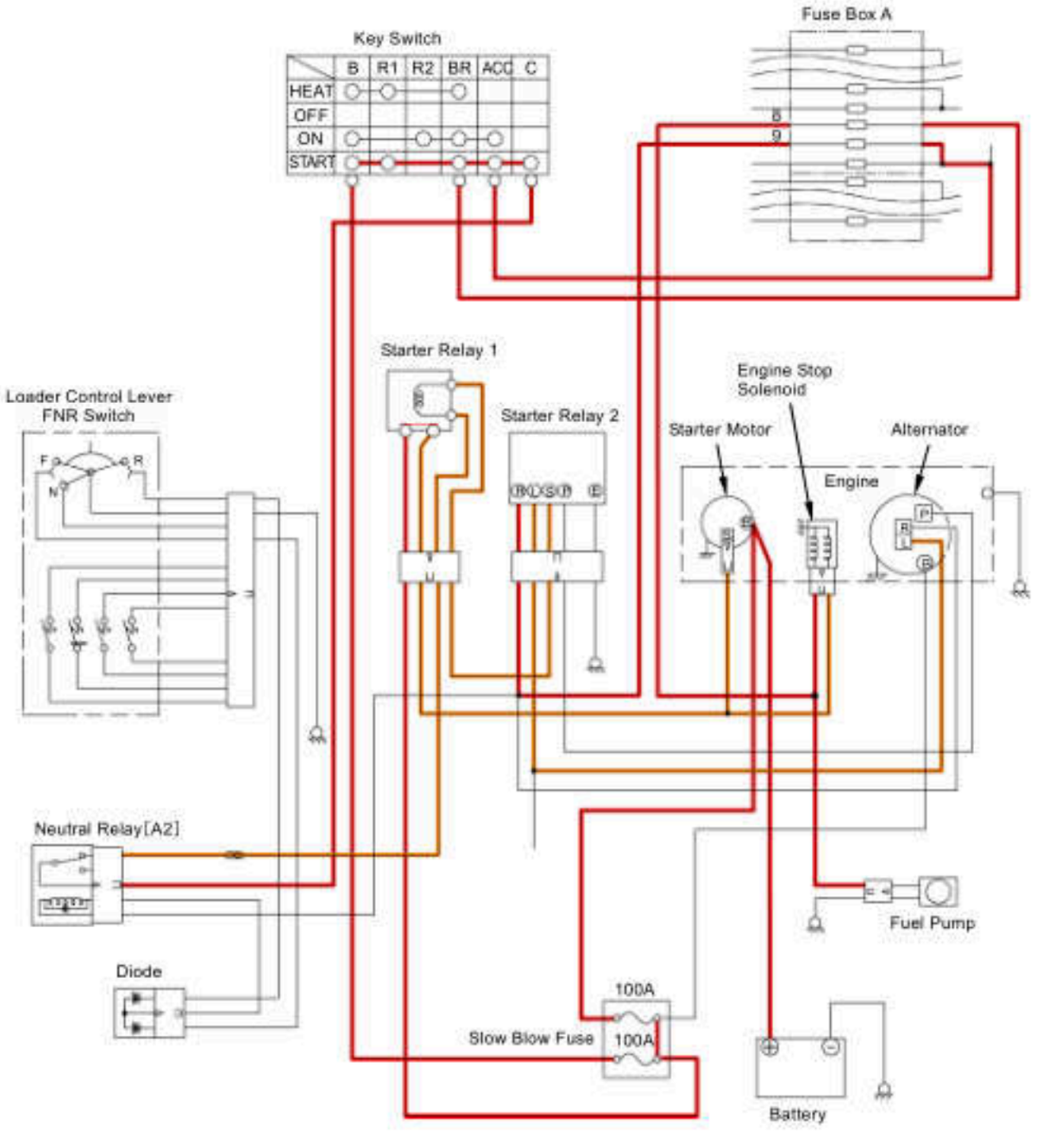
During Relief Operation:



During Make-Up Operation:



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NOTE: *The illustration shows the current flow when the FNR switch is in the neutral position and the engine speed is 940 min^{-1} or less.*

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