PART NO. TO4GD-E-00

HITACHI

Technical Manual
Operational Principle

ZW
180
Wheel Loader

Service Manual consists of the following separate Part No.
Technical Manual (Operational Principle) : Vol. No.TO4GD-E
Technical Manual (Troubleshooting) : Vol. No.T T4GD-E
Workshop Manual : Vol. No.W4GD-E

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PERFORMANCE

IMPORTANT: This list shows design specifications, which are not servicing standards.

Fuel Consumption Ratio	233±12 g/kW·h (171±9 g/PS·h) @ 2200 min^{-1} (rpm)
Maximum Output Torque	763±39 N·m (77.8±4 kgf·m) @ at approx. 1400 min^{-1} (rpm)
No Load Speed	Slow: (at Full Load: 900±20 min^{-1} (rpm))
	Fast: (at Full Load: 2350±30 min^{-1} (rpm))

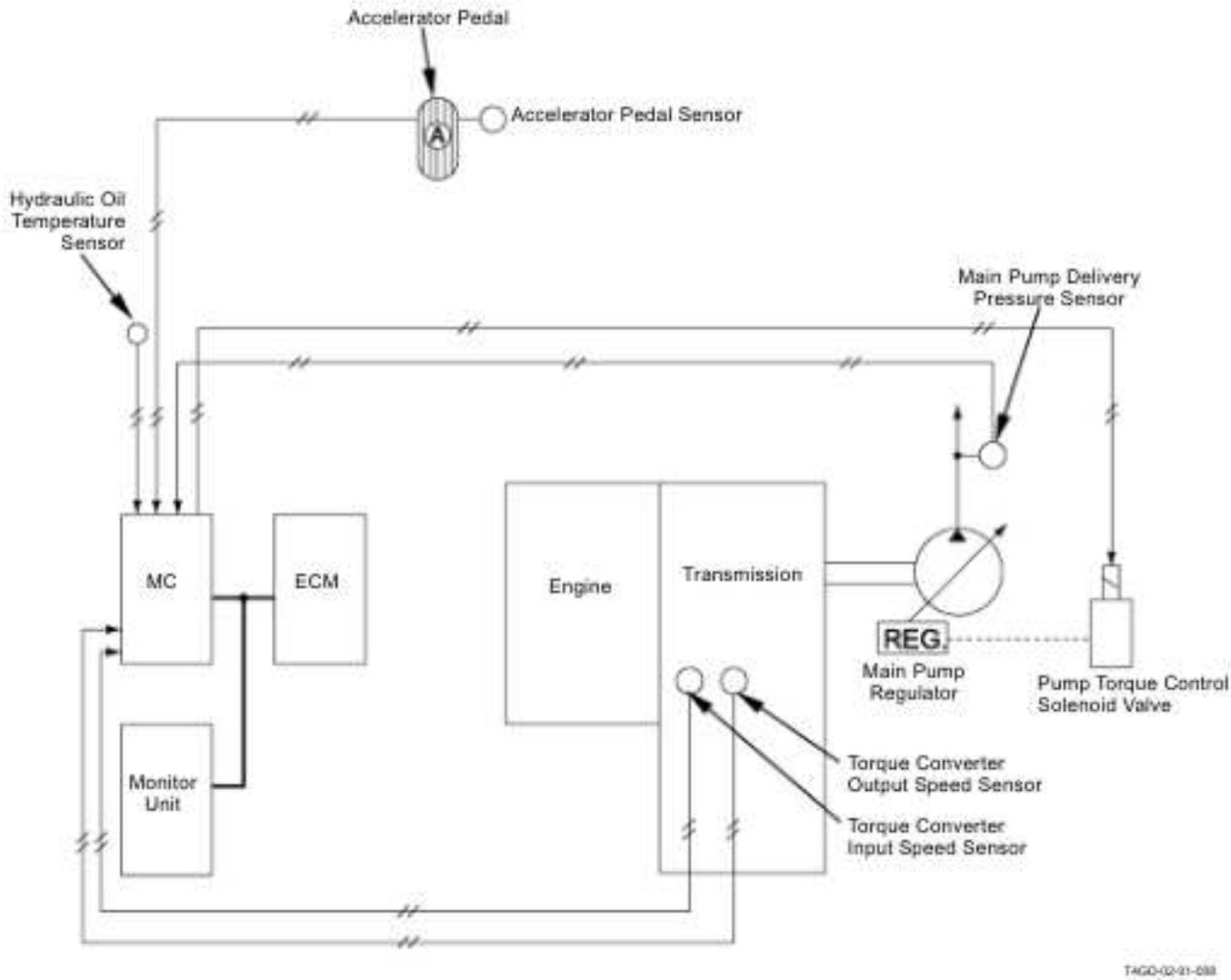
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PUMP CONTROL

The pump controls consist of the followings.

- Standard Torque Control
- Torque Decrease Control

Pump Control System Layout



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OVERLOAD RELIEF VALVE

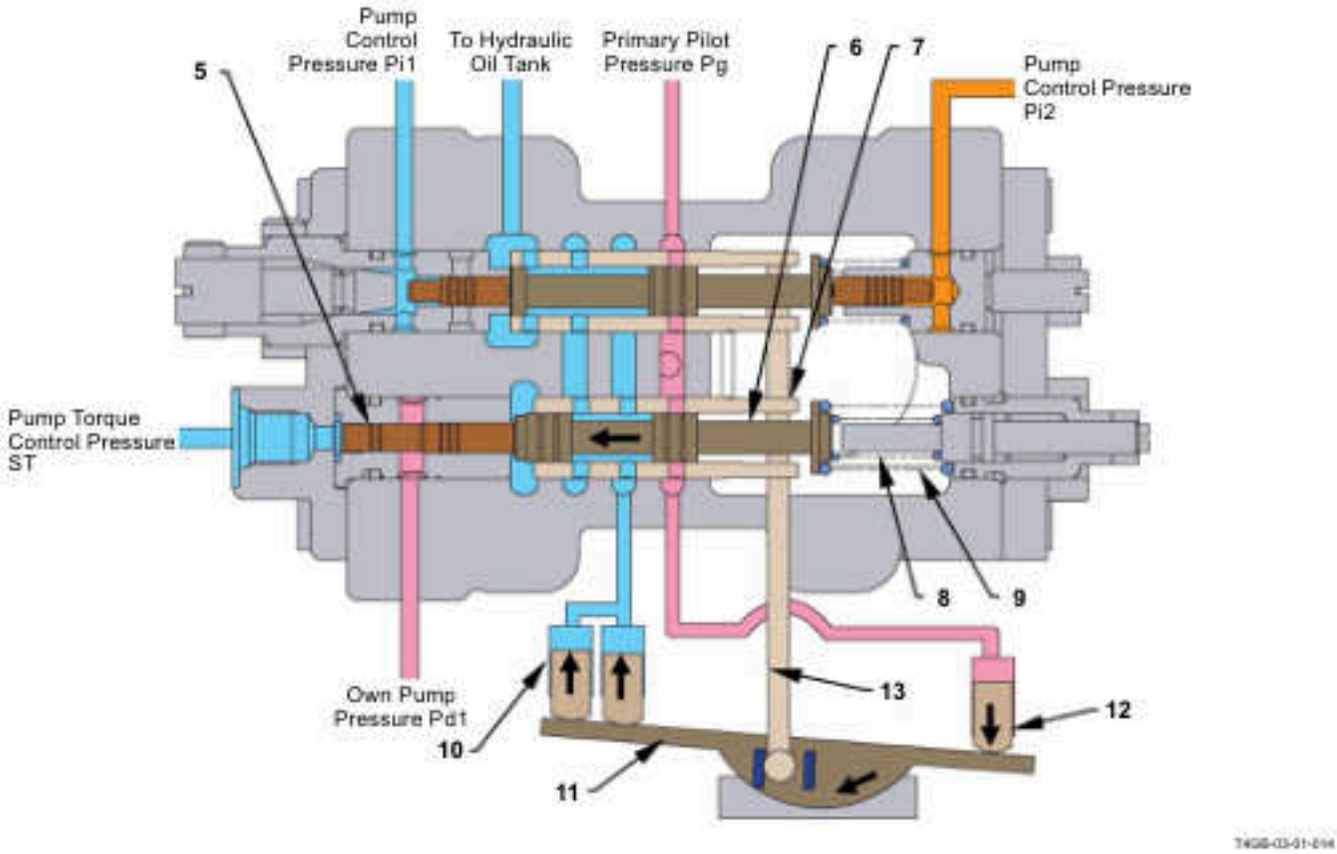
The overload relief valve is installed in order to prevent the hoses and the ride control accumulator from being damaged in case pressure in the bottom side circuit of the lift arm cylinder is suddenly raised by an external force or something during operation of the lift arm cylinder.

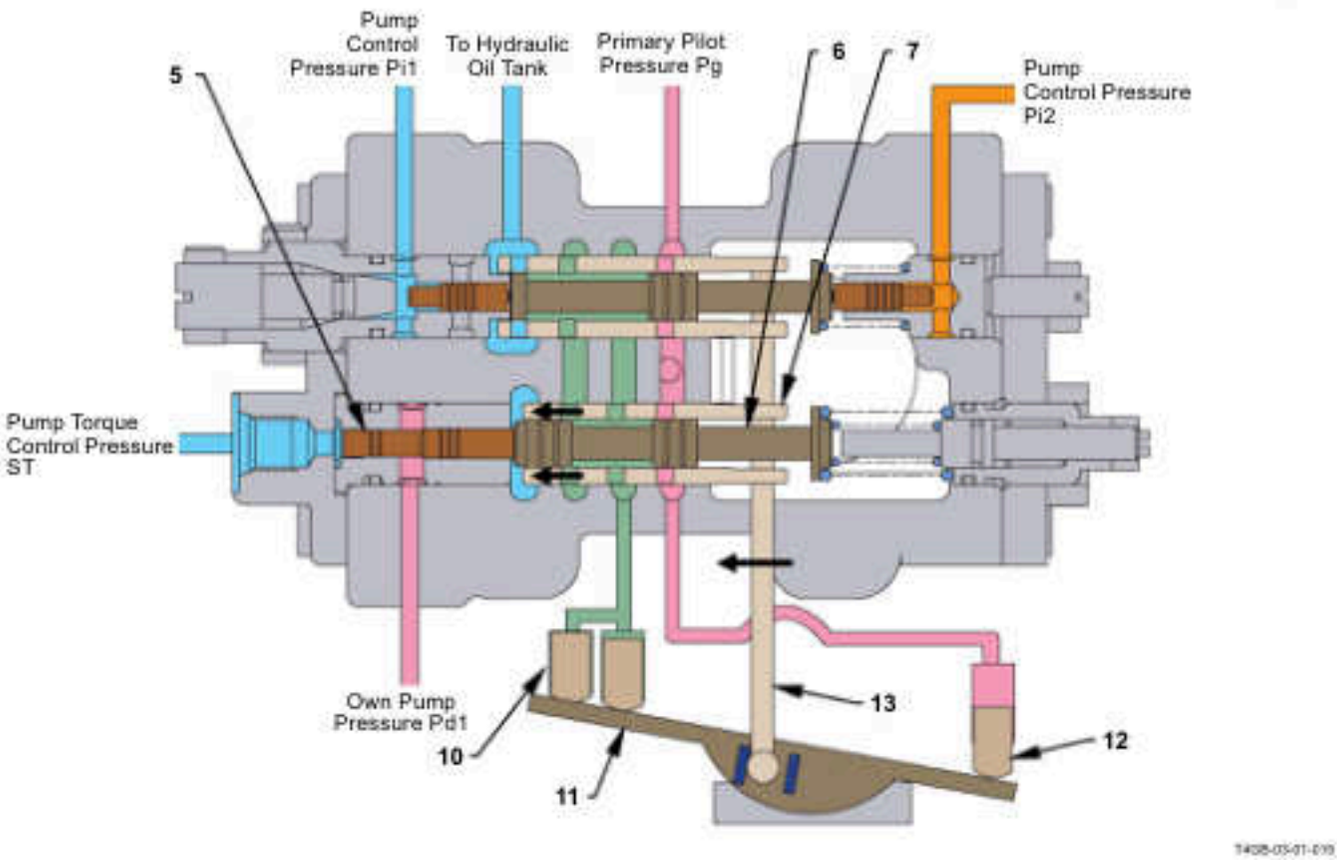
Operation

1. Pressure at port HP acts on the pilot poppet via orifice A of the main poppet and orifice B of the seat.
2. When pressure at port HP reaches the set force of spring B, the pilot poppet opens and pressure oil flows to port LP, through passage A and the periphery of the sleeve.
3. At this time, pressure difference arises between port HP and the spring chamber by orifice A.
4. When this pressure difference reaches the set force of spring A, the main poppet opens and pressure oil at port HP flows to port LP.
5. Consequently, pressure in the actuator circuit lowers.
6. If pressure in the actuator circuit is lower than the set pressure, the main poppet is closed by the force of spring A.

IMPORTANT: Do not disassemble or adjust the overload relief valve. Replace the overload relief valve as an assembly, if necessary.

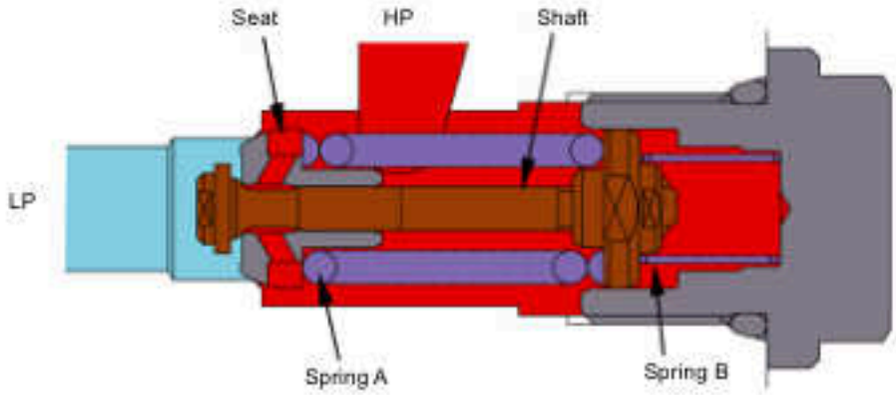
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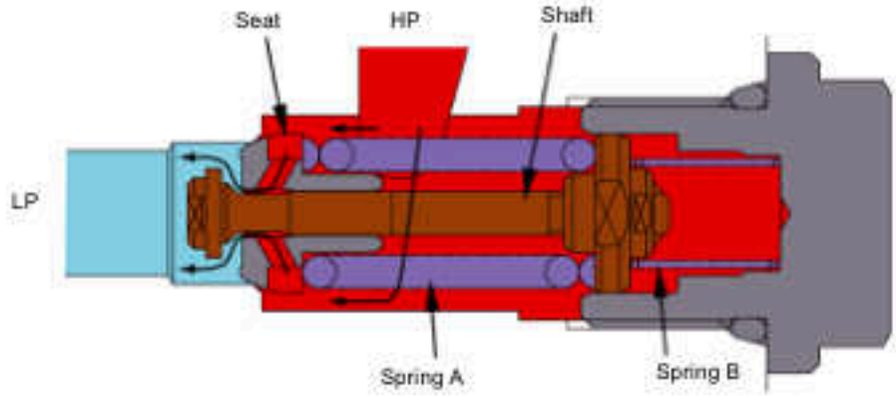
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Normal State:



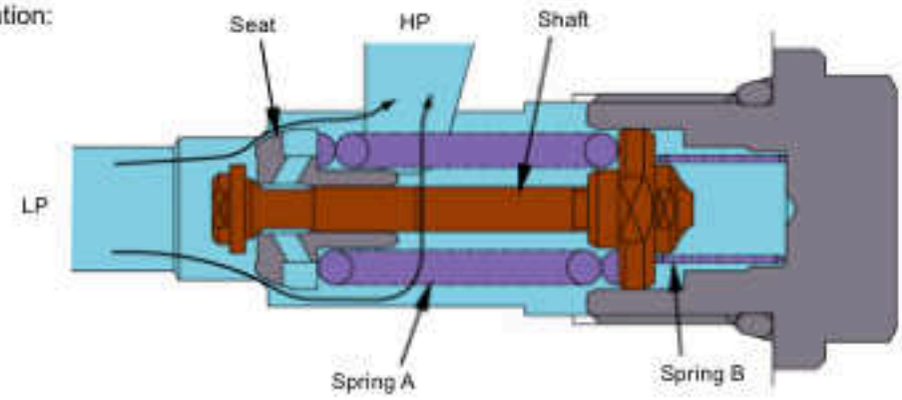
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Relief State:



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Make-Up Operation:



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