PART NO. TO4HA-E-00

HITACHI

Technical Manual
Operational Principle

ZW

310
Wheel Loader

Service Manual consists of the following separate Part No;

Technical Manual (Operational Principle)	: Vol. No. TO4HA-E
Technical Manual (Troubleshooting)	: Vol. No. TT4HA-E
Workshop Manual	: Vol. No. W4HA-E

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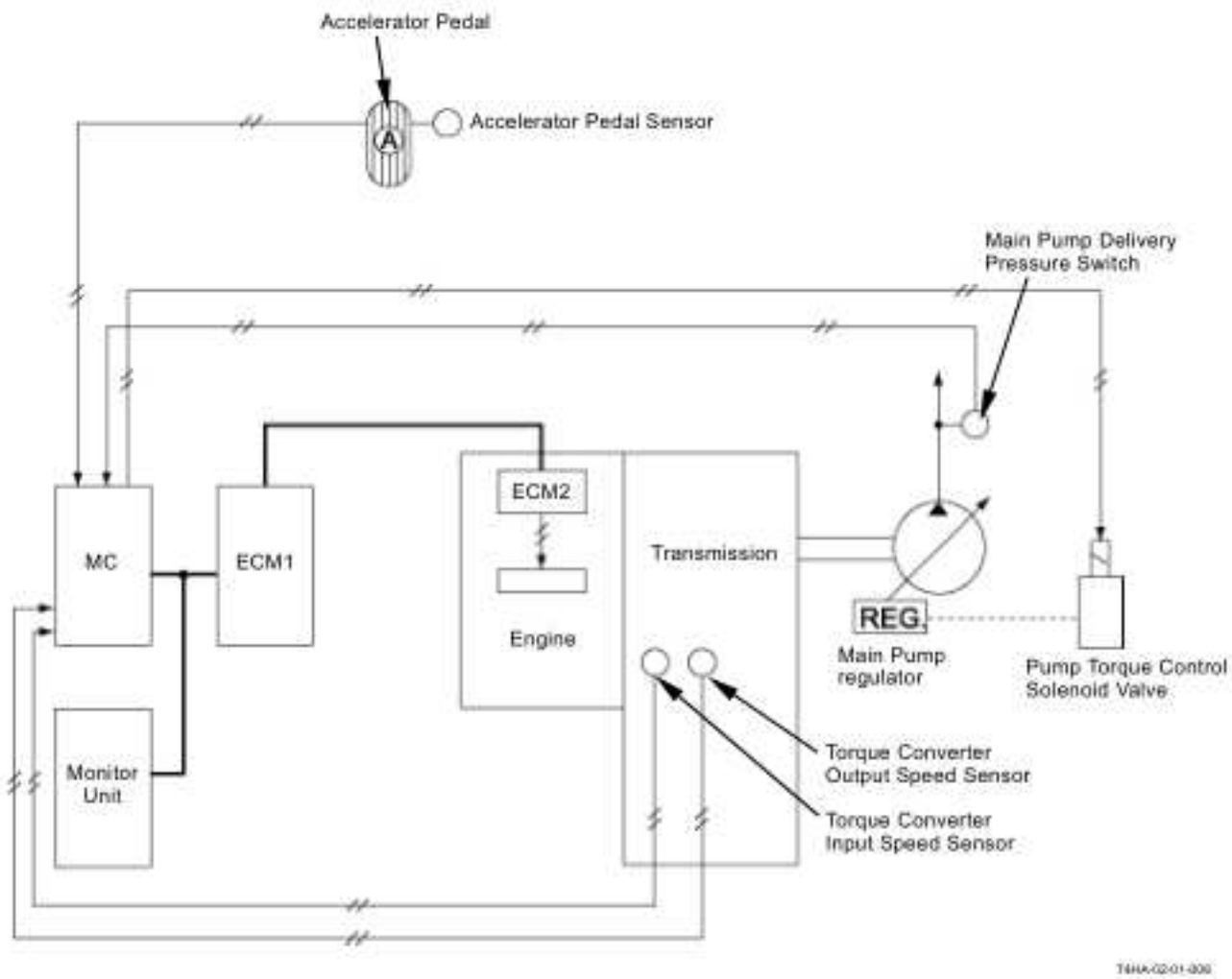
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PUMP CONTROL

Following pump controls are made.

- Standard Torque Control
- Torque Reduction Control

Pump Control System Layout



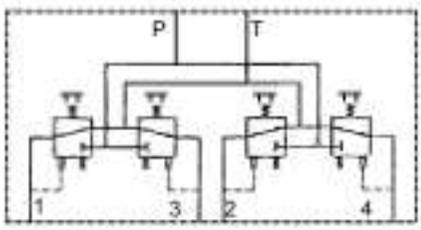
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OUTLINE (JOYSTICK TYPE PILOT VALVE FOR ADDITIONAL CIRCUIT) (OPTIONAL)

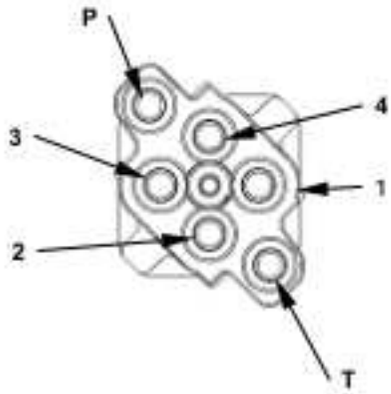
Port No.	
1	Optional
2	Optional
3	Optional
4	Optional



Hydraulic Symbol



T1S-02-07-033



T1V1-02-04-301

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EMERGENCY STEERING CHECK CIRCUIT (OPTIONAL: GENERAL SPECIFICATION)

(Manual Check Circuit)

- When the key switch is turned ON, the electric current from Terminal M the battery relay, and the electricity from the power source enters the emergency steering relay through #323 terminal of Fuse Box B, and also enters Terminal B of the emergency steering pump unit.
- When the emergency steering check switch is turned ON, electric current flows to #179 Terminal of the monitor unit.
- At the same time, as the monitor unit excites #180 Terminal, the emergency steering relay is excited.
- Electricity from the power unit enters Terminal C of the emergency steering pump unit through the emergency steering relay, exciting Terminal B, and the emergency steering pump unit is started.

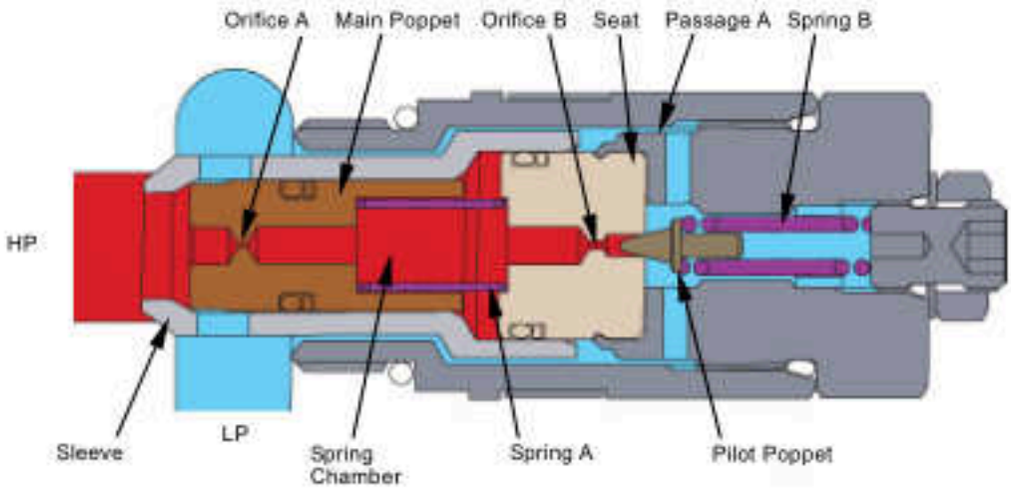
IMPORTANT: Emergency steering pump unit is not so designed as to be operated for a long time. When its operation has been confirmed, turn the emergency steering check switch OFF by stopping pushing the switch.

(Auto Check Circuit)(EU Model Only)

- When the engine is started by turning the key switch to the ST position, the alternator starts generating electricity.
- When part of the electricity generation signal from Terminal L of the alternator enters the monitor unit, and rises to the predetermined voltage, Terminal #180 is earthed, and the emergency steering relay is excited.
- Electricity from the power unit enters Terminal C of the emergency steering pump unit through the emergency steering relay, exciting Terminal B, and the emergency steering pump unit is started.
- The emergency steering pump unit works for several seconds, and then the earthed circuit of Terminal #180 is automatically cancelled and the emergency steering pump unit stops.
- In case hydraulic oil higher than the predetermined value has been being delivered during operation of the emergency steering pump unit, the emergency steering pump delivery pressure switch is turned OFF, and the automatic inspection operation is stopped normally.
- In case hydraulic oil higher than the predetermined value has not been being delivered, the emergency steering pump delivery pressure switch remains ON, and the emergency steering operation warning lamp on the monitor unit flickers to notify abnormality of the emergency steering pump unit.

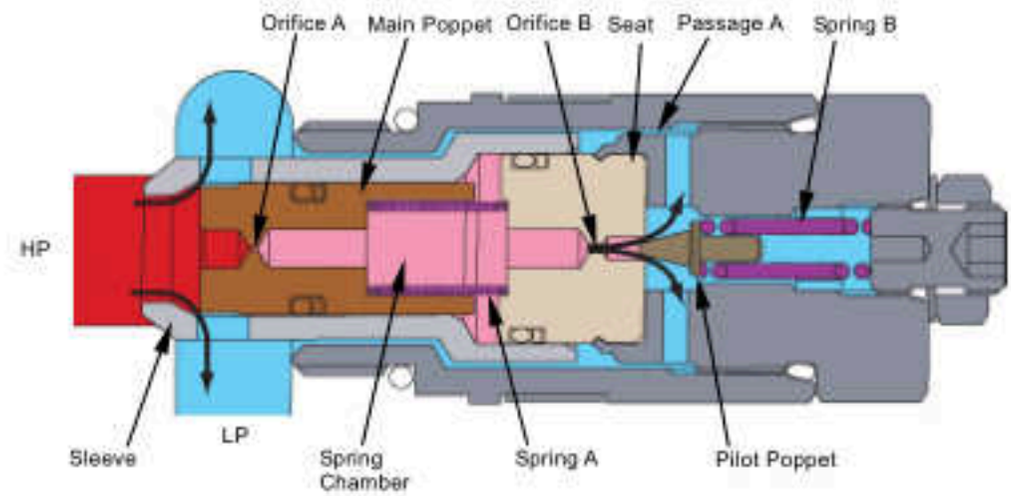
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Normally (When not Relieving):



T4OB-03-02-025

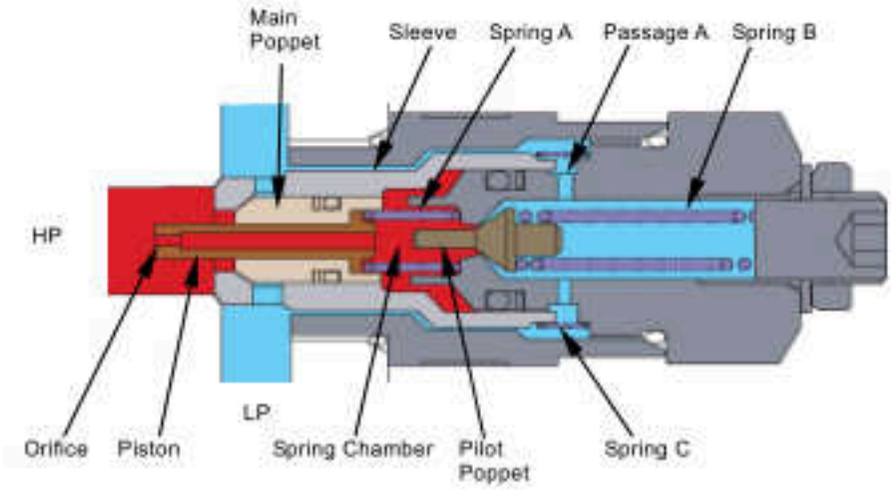
When Relieving:



T4OB-03-02-026

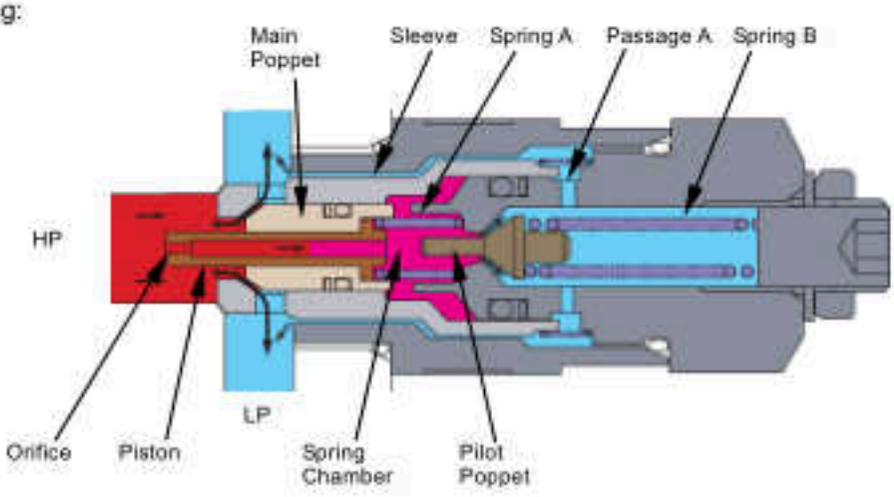
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Normally (When not Relieving):



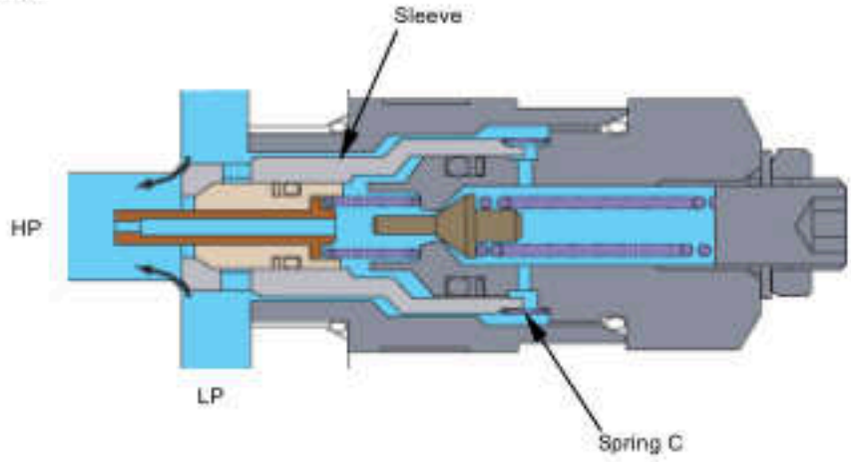
T4OB-03-02-030

When Relieving:



T4OB-03-02-031

In Make-up Operation:



T4OB-03-02-032

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