PART NO. TONHJ40-EN-01

HITACHI

Reliable solutions

Technical Manual
Operational Principle

ZW370-6
Wheel Loader

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TONHJ40-EN
Technical Manual (Troubleshooting)	: Vol. No.TTNHJ40-EN
Workshop Manual	: Vol. No.WNHJ40-EN

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Declutch Control

Purpose:
The declutch control disengages the forward clutch by applying the brake pedal. With the drivetrain not drawing torque from the engine, the power can be concentrated on the loading circuit functions.

Operation:

1. Main Controller (MC) (Main) (3) receives a signal from declutch position switch (33).
2. When all the items listed under "Conditions" exist, MC (Main) (3) stops energizing forward clutch solenoid valves (19) of transmission (13). In this state, neither forward/reverse clutches are engaged.
3. Consequently, the engine output power can be concentrated on the loading circuit functions.
4. When all the items listed under "Deactivation Conditions" exist, MC (Main) (3) sends a signal to energize forward clutch solenoid valve (19) of transmission (13). In this state, the forward clutch is engaged.
5. Monitor (6) displays the forward/reverse position with declutch cutoff control when the forward/reverse clutches of transmission (13) are disengaged.

Conditions:

- Declutch Position Switch (33): (a) or (c) Position
- Speed Range: Second or less
- Machine speed: 20 km/h (12.5 mph) or less
- Brake pedal (left): Applied
- Pressure Sensor (Brake Secondary Pressure) (41): Above specified pressure

Deactivation Conditions:

- Declutch Position Switch (33): OFF Position
- Speed Range: Third speed or more
- Brake pedal (right): Applied
- Pressure Sensor (Brake Secondary Pressure) (41): Below specified pressure

NOTE: When declutch position switch (33) and pressure sensor (brake secondary pressure line) (41) malfunctions, the declutch control is deactivated.

Declutch Position (33)	Brake pedal (42) lightly applied (a)		Brake pedal (42) fully applied (b)	
Throttle Pedal Position	Not applied	Fully applied	Not applied	Fully applied
Speed Range: First	1.2 MPa (174 psi)	1.5 MPa (218 psi)	2.5 MPa (363 psi)	3.0 MPa (435 psi)
Speed Range: Second	0.6 MPa (87 psi)	0.8 MPa (116 psi)	1.5 MPa (218 psi)	2.5 MPa (363 psi)

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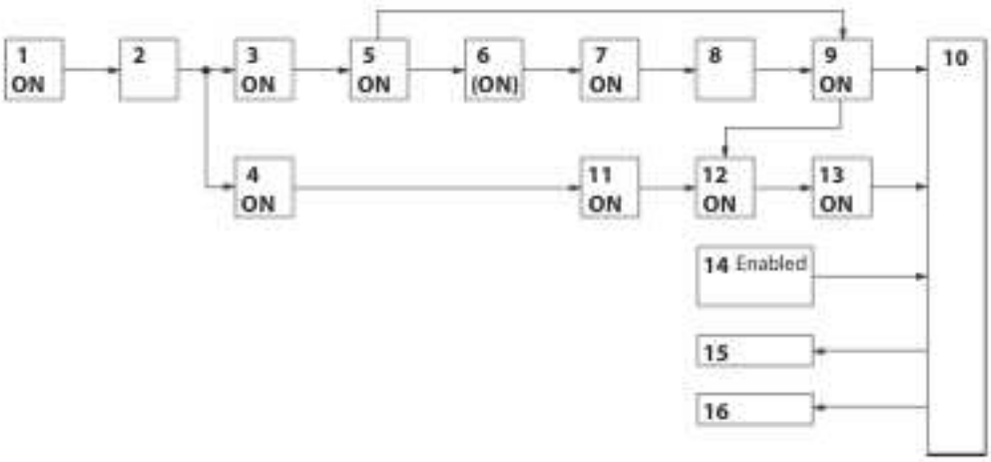
Outline

Joystick Steering Electrical Circuit

The joystick steering electrical circuit disables/enables the joystick steering operation.

- Armrest Switch 1 (3), Armrest Switch 2 (4): ON
- Joystick Steering Selector Switch (6): (ON)

NOTE: When +24V is applied to cut off solenoid valve (13), the joystick steering lever (14) operation is enabled.



TNEK-05-08-028

Electrical Component	2	3	4	5	6	7	8	9
JCU(10) (Terminal)	24V	ON Detection	ON Detection	OFF	ON (GND)	ON (GND)	-	ON (GND)
	B-5/B-6	C-4	C-10	D-24	D-19	D-15	-	D-6

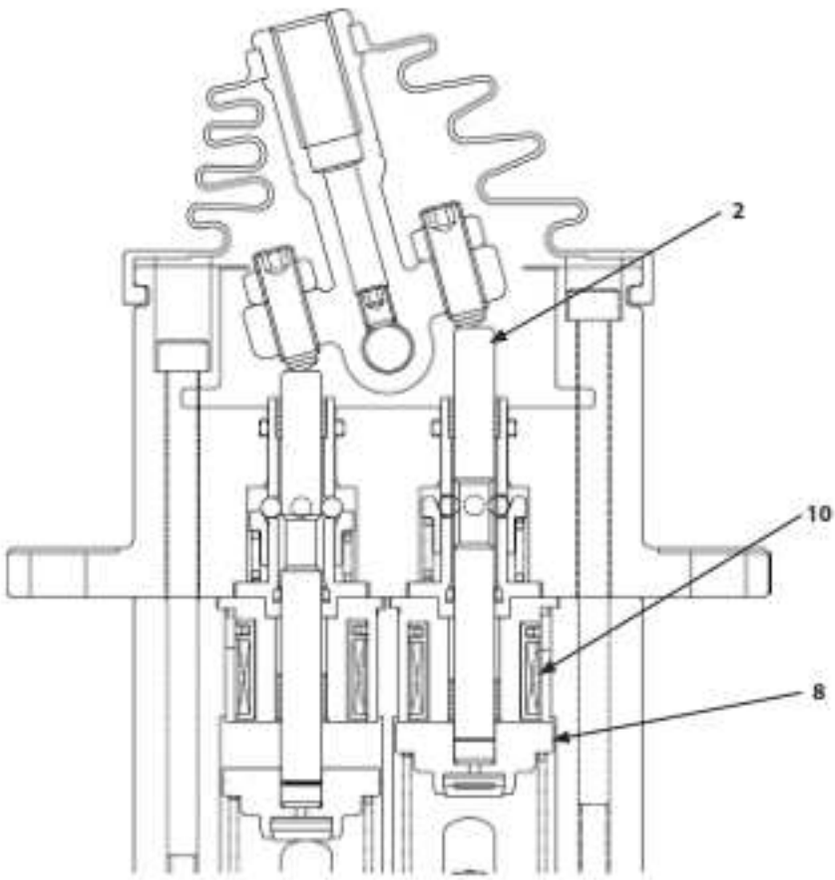
Electrical Component	11	12	13	14	15	16	1
JCU(10) (Terminal)	OFF	ON (GND)	ON Detection	Enabled	Output (V)	Output (V)	ON
	A-2	A-2	C-11	B-4/B-12	E-6/E-20	E-7/E-9	A-10

1- Key Switch
2- Fuse #20 (Fuse Box A)
3- Armrest Switch 1
4- Armrest Switch 2
5- JSS OFF Relay
6- Joystick Steering Selector Switch
7- JSS ON Relay
8- Diode B
9- JSS Hold Relay
10- JCU
11- Cut Off Relay 1
12- Cut Off Relay 2
13- Cut Off Solenoid Valve
14- Joystick Steering Lever
15- Right Steering Proportional Solenoid Valve
16- Left Steering Proportional Solenoid Valve

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Electromagnetic Detent

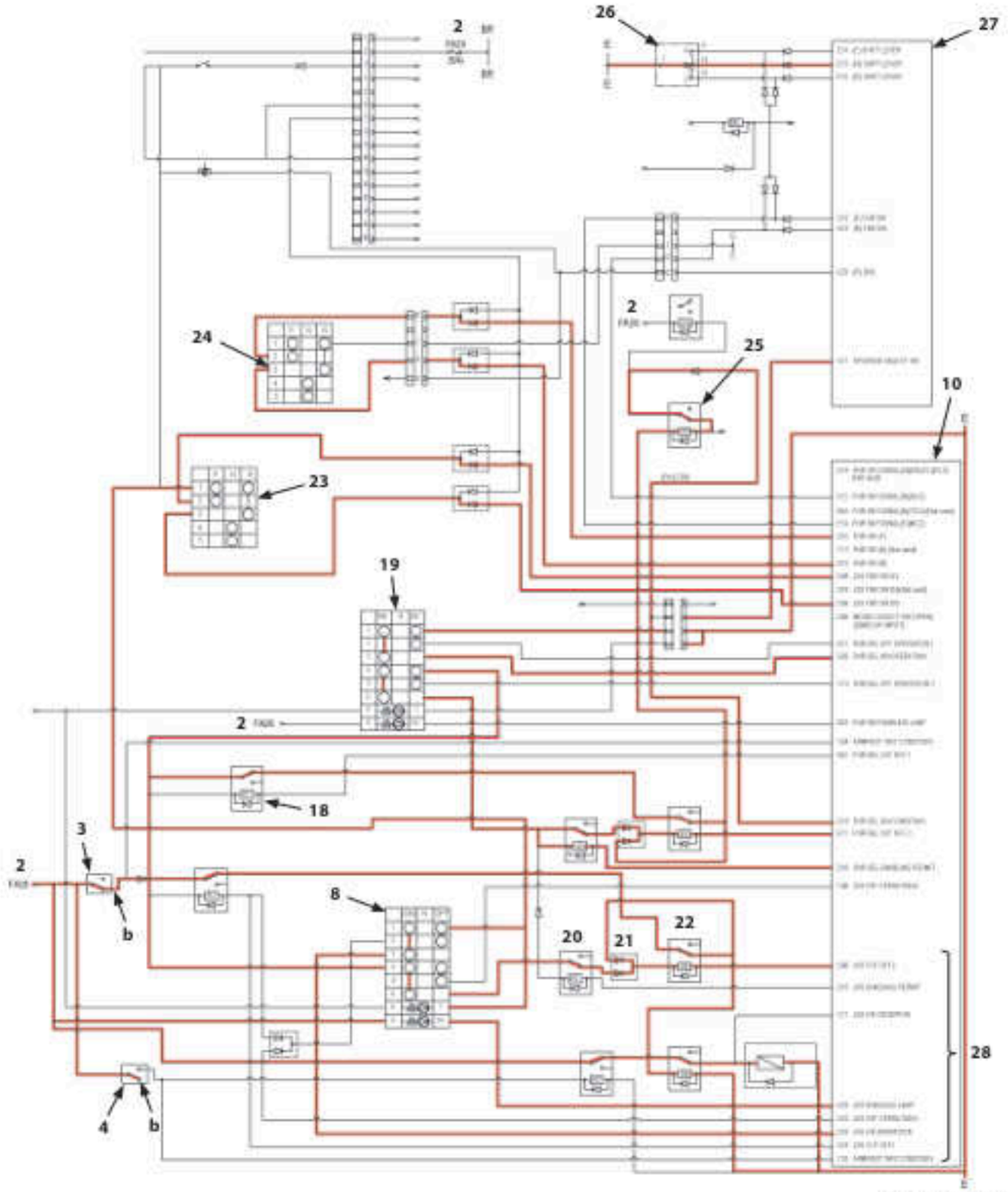
1. Coil for detent is installed at the push rod part of the pilot valve.
2. When one of the control levers is tilted, push rod (2) and plate (8) of the opposite side are pushed upwards by the spring force.
3. If the control lever is fully stroked, plate (8) of the opposite side (forced up side) is held by electromagnetic coil assembly (10). This holds the control lever at it's position.
4. This electromagnetic attraction between coil assembly (10) and plate (8) continues until coil assembly (10) is deenergized or until the magnetic force is forcibly separated by operating the control lever toward the neutral direction with enough force to overcome the power of detents.



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2- Push Rod 8 - Plate 10 - Coil Assembly

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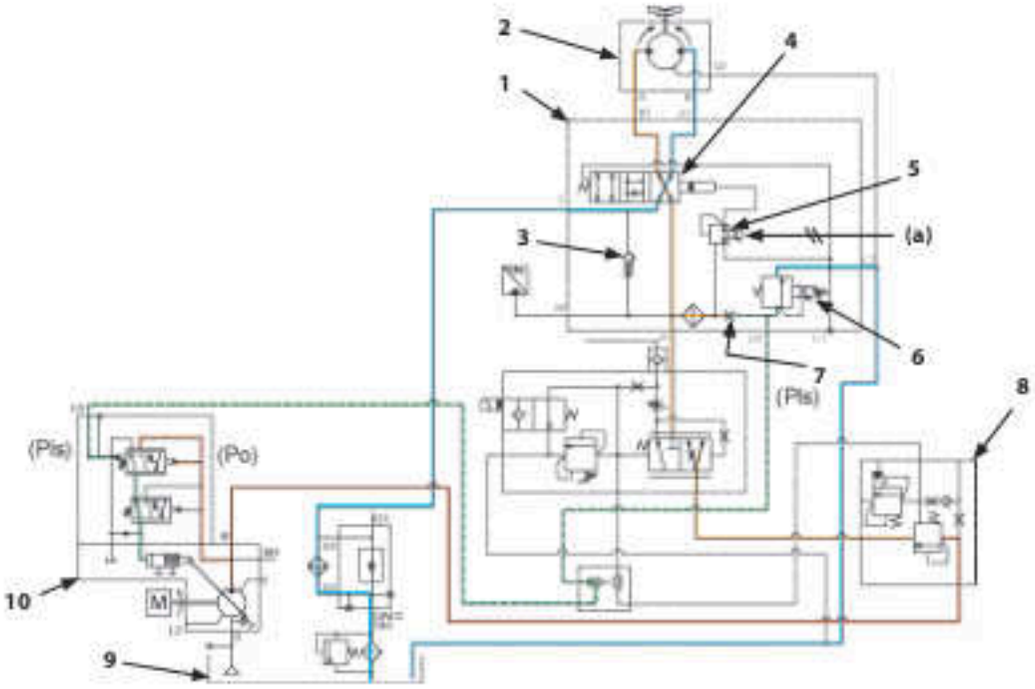
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b- Left Console: Operation Position

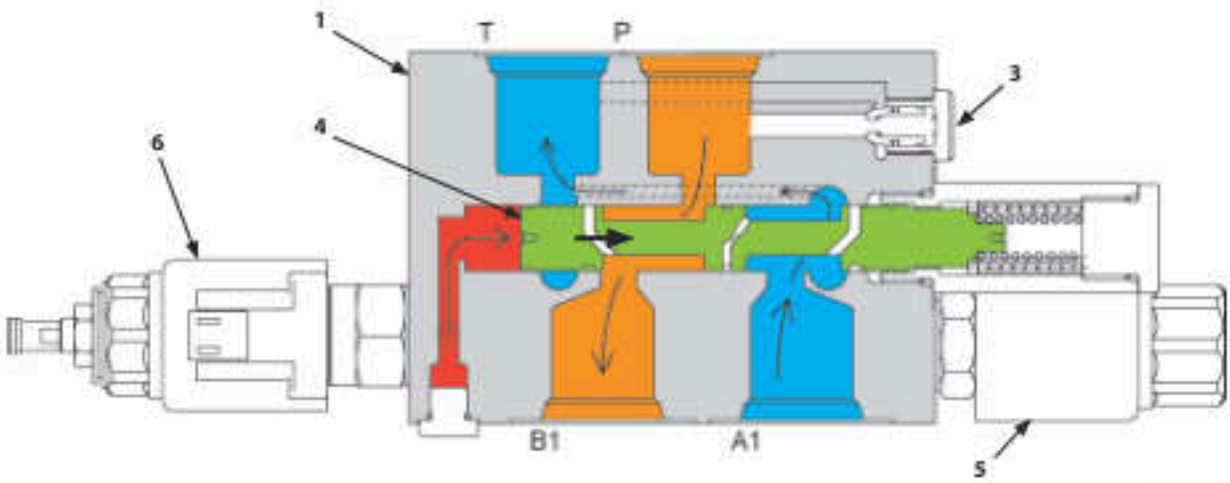
2- Fuse #20 (Fuse Box A)
3- Armrest Switch 1
4- Armrest Switch 2
8- Joystick Steering Selector Switch
10- JCU
18- FNR OFF Relay
19- Forward/Reverse Selector Switch
20- FNR ON Relay
21- Diode C
22- FNR Hold Relay
23- Forward/Reverse Switch (Left)
24- Forward/Reverse Switch
25- 24 V/GND Conversion Relay
26- Forward/Reverse Lever
27- MC
28- Joystick Steering Electrical Circuit

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Fan Control Valve (Reverse Rotation)



95Z7B-02-04-02



95Z7B-03-03-05

a- Fan Reverse Control Solenoid Valve Control Signal (From MC Sub)
P- From Pump
T- To Tank
A1- To Fan Motor B Port
B1- To Fan Motor A Port
LS- To Accessory Pump Control Valve

1- Fan Control Valve
2- Fan Motor
3- Check Valve
4- Fan Reverse Rotation Spool
5- Fan Reverse Rotation Control Solenoid Valve
6- Fan Speed Control Solenoid Valve
7- Orifice
8- Unloader Valve
9- Hydraulic Tank
10- Accessory Pump

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