PART NO. TONHK70-EN-00

HITACHI

Reliable solutions

# Technical Manual
## Operational Principle

# ZW550-6
## Wheel Loader

Service Manual consists of the following separate Part No.

| | |
|---|---|
| Technical Manual (Operational Principle) | : Vol. No.TONHK70-EN |
| Technical Manual (Troubleshooting) | : Vol. No.TTNHK70-EN |
| Workshop Manual | : Vol. No.WNHK70-EN |

MidWestTech | Hitachi ZW550-6 Wheel Loader Operational Principle Technical Service Manual | Publication TONHK70-EN-00

Order the manual at mid-west-tech.com >

# SECTION 1

# GENERAL

## CONTENTS


### Group 1 Specifications

Specifications ..... T1-1-1
Weight of Main Components ..... T1-1-2

### Group 2 Component Layout

Main Component (Overview) ..... T1-2-1
Main Component ..... T1-2-2
Main Component ..... T1-2-3
Electric Component Layout (Front Chassis) ..... T1-2-4
Electric Component Layout (Rear Grill) ..... T1-2-5
Electrical System (Cab) ..... T1-2-6
Electrical System (Around Battery Box) ..... T1-2-12
Electrical System (Around Hydraulic Tank) ..... T1-2-13
Electrical System (Around Fuel Tank) ..... T1-2-14
Electrical System (Rear Chassis Center Frame) ..... T1-2-15
Engine ..... T1-2-16
Aftertreatment Device ..... T1-2-17
Hydraulic Pump ..... T1-2-18
Transmission and Torque Converter Assembly ..... T1-2-20
Multiple Control Valve ..... T1-2-21
Unloader Valve (Brake Charge Valve) and Combination Valve (Brake Manifold Valve) ..... T1-2-22
Steering Valve ..... T1-2-23
Flow Regulator Valve ..... T1-2-23
Ride Control Valve (Option) ..... T1-2-24
Fuel Priming Pump (us Option) ..... T1-2-24
Secondary Steering Pump (Option) ..... T1-2-24

### Group 3 Component Specifications

Engine ..... T1-3-1
Engine Accessories ..... T1-3-4
Hydraulic Component ..... T1-3-6
Electrical Component ..... T1-3-11





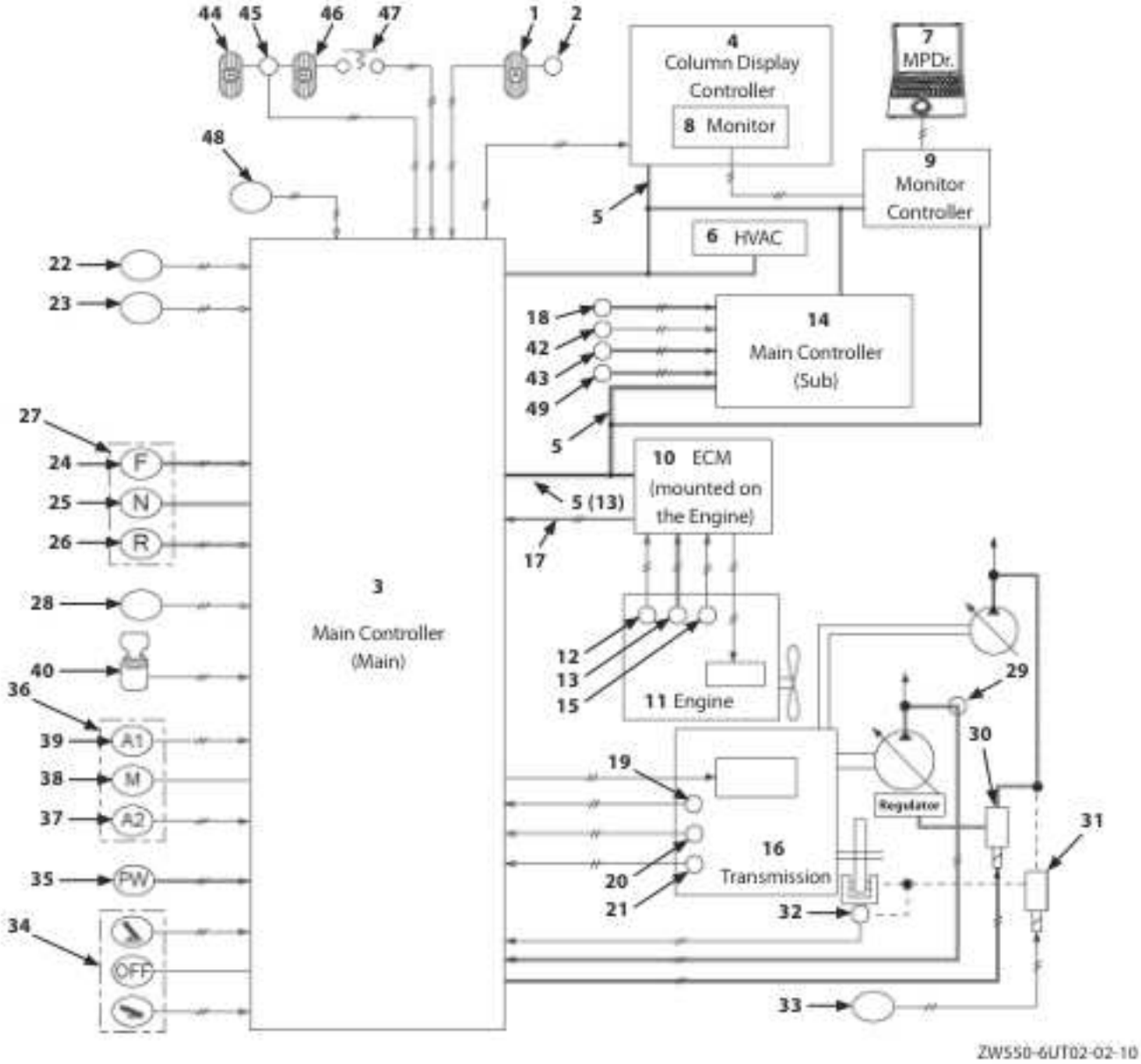
MidWestTech | Hitachi ZW550-6 Wheel Loader Operational Principle Technical Service... Order the manual at mid-west-tech.com >

Engine Accessories

| | | |
|---|---|---|
| BATTERY | Type | COM-8D |
| | Voltage | 12 V |
| | Cold Cranking Amps | 1313 CCA |
| | Reserve Capacity (RC) | 435 min (Discharge: 25 A at 80 °F) |
| | Weight | 60 kg (130 lb)×2 |



MidWestTech | Hitachi ZW550-6 Wheel Loader Operational Principle Technical Service... Order the manual at mid-west-tech.com >

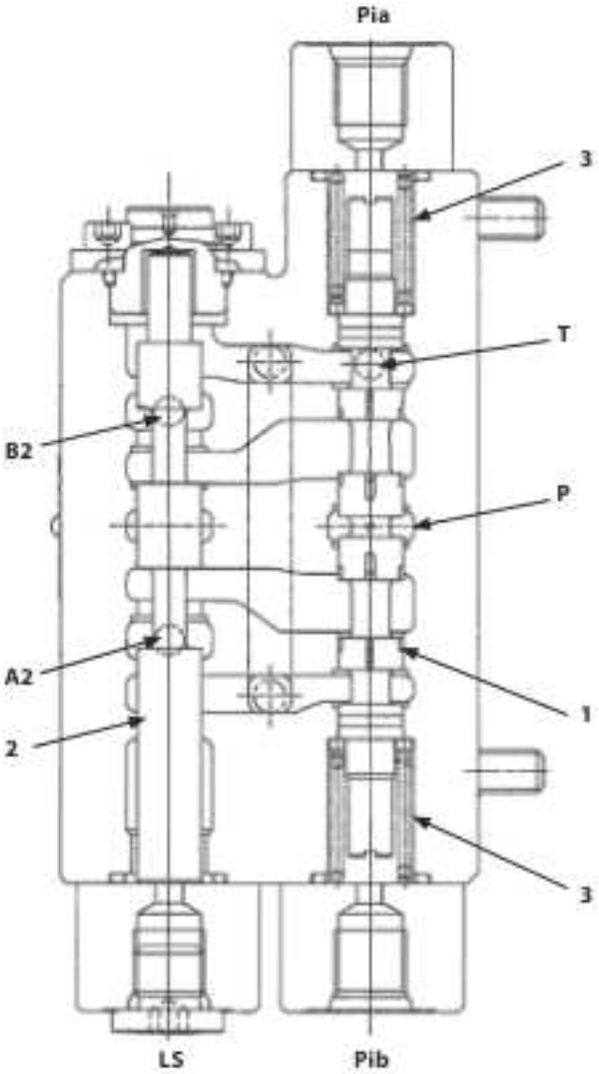



ZW550-6UT02-02-10

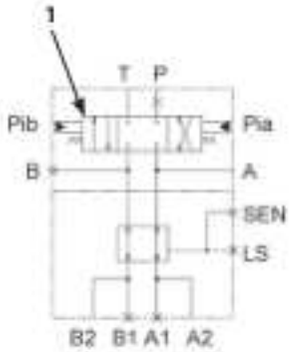
1- Accelerator Pedal
2- Accelerator Pedal Sensor
3- Main Controller (MC) (Main)
4- Column Display Controller
5- Controller Area Network (CAN)
6- Air Conditioner Controller
7- Maintenance Pro (MP) Dr.
8- Monitor
9- Monitor Controller
10- Engine Control Module (ECM)
11- Engine
12- Exhaust Temperature Sensor
13- Engine Speed Sensor
14- Main Controller (MC) (Sub)
15- Coolant Temperature Sensor
16- Transmission
17- Engine Speed Sensor (Backup)
18- Torque Converter Oil Temperature Sensor
19- Machine Speed Sensor (Backup)
20- Torque Converter Output Speed Sensor
21- Machine Speed Sensor
22- Shift Up Switch
23- Shift Down Switch
24- Forward Position
25- Neutral Position
26- Reverse Position
27- Forward/Reverse Switch
28- Joystick Steering System Switch
29- Pump Delivery Pressure Sensor
30- Torque Control Solenoid Valve
31- Parking Brake Solenoid Valve
32- Pressure Sensor (Parking Brake)
33- Parking Brake Switch
34- Declutch Position Switch
35- Power Mode Selector Switch
36- Travel Mode Selector Switch
37- AUTO 2 Mode
38- Manual Mode
39- AUTO 1 Mode
40- Starter Key Switch
41- Hydraulic Oil Temperature Sensor
42- Pressure Sensor (Boom Raise)
43- Pressure Sensor (Bucket Roll Back)
44- Brake Pedal (Left)
45- Pressure Sensor (Brake Secondary Pressure)
46- Brake Pedal (Right)
47- Brake Pedal (Right) Switch
48- Aftertreatment Device Regeneration Switch
49- Lift Arm Angle Sensor



MidWestTech | Hitachi ZW550-6 Wheel Loader Operational Principle Technical Service... Order the manual at mid-west-tech.com >




Cross Section Z




Circuit Diagram

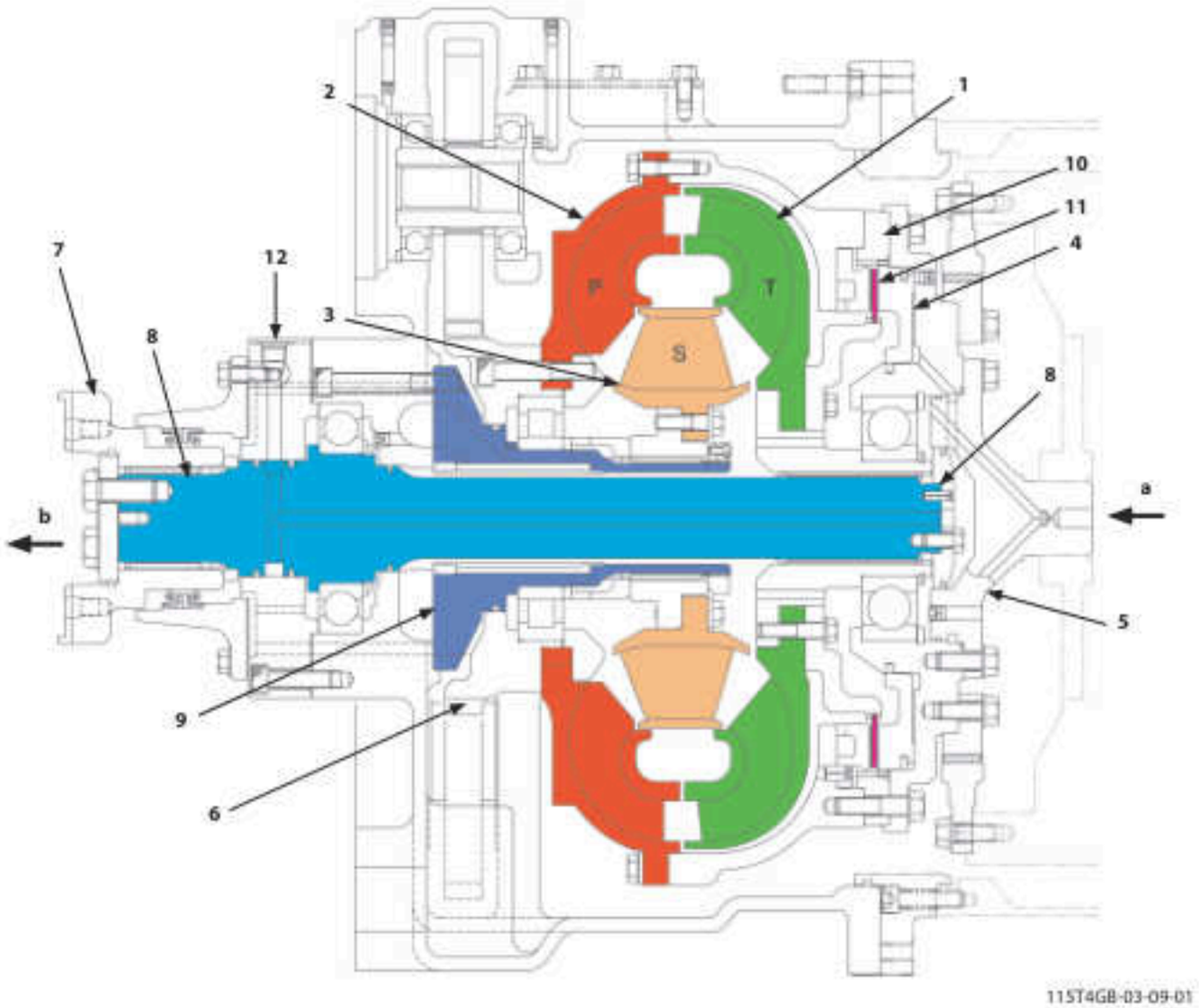
115Z7-03-04-03

1- Main Spool
2- Spool
3- Return Spring



MidWestTech | Hitachi ZW550-6 Wheel Loader Operational Principle Technical Service... Order the manual at mid-west-tech.com >

## Cross Section View of Torque Converter



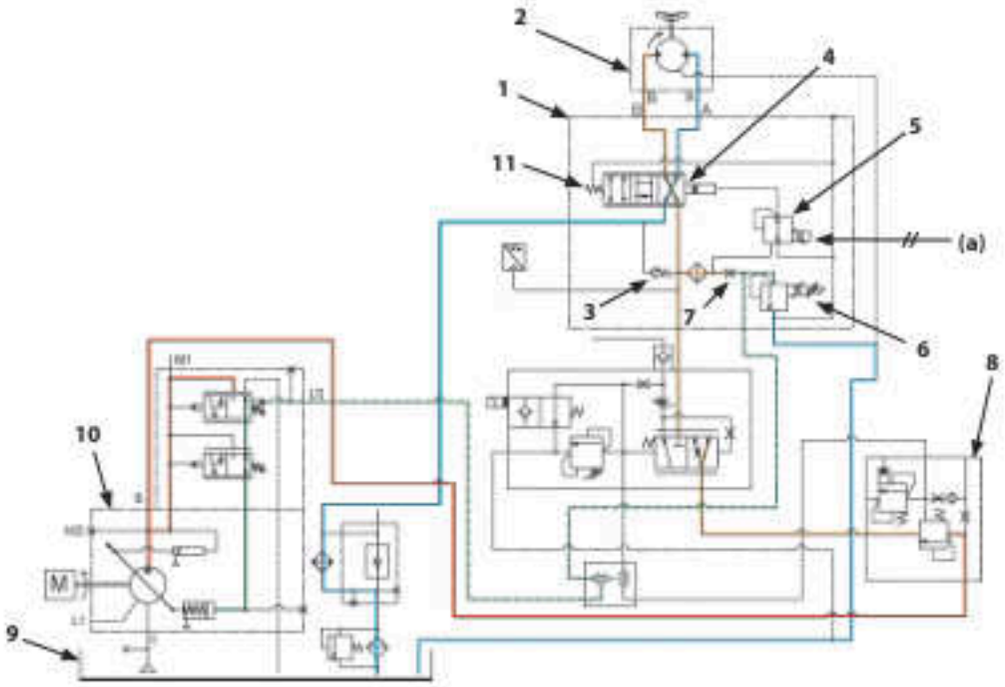

a- Input (Engine) Side
b- Output (Propeller Shaft) Side

1- Turbine impeller Assy
2- Pump Impeller
3- Stator
4- Lock-Up Piston
5- Drive Cover
6- P.T.O. Drive Gear
7- Torque Converter Output Flange
8- Turbine Shaft
9- Stator Shaft
10- Lock-Up Clutch Gear
11- Friction Disc
12- Lock-Up Clutch Control Pressure Input Port

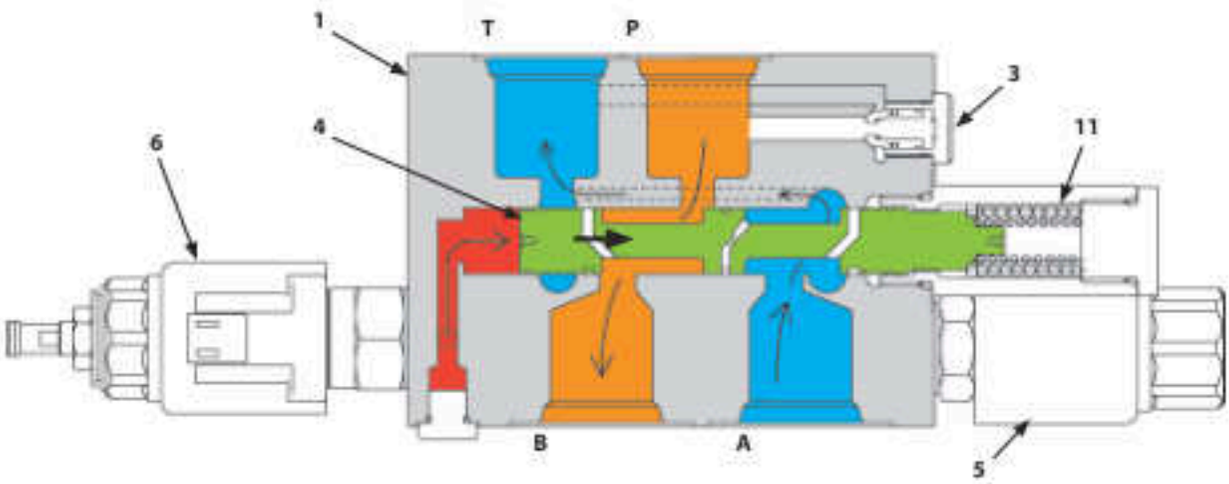


MidWestTech | Hitachi ZW550-6 Wheel Loader Operational Principle Technical Service... Order the manual at mid-west-tech.com >

## Fan Control Valve (Reverse Rotation)




115Z78T02-04-02




95Z7B-03-03-05

a- Fan Reverse Control Solenoid Valve Control Signal (From MC Sub)

P- From Pump
T- To Tank
A- To Fan Motor A Port
B- To Fan Motor B Port
LS- To LS Port

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- Brake Charge Valve
9- Hydraulic Tank
10- Accessory Pump
11- Return Spring



MidWestTech | Hitachi ZW550-6 Wheel Loader Operational Principle Technical Service... Order the manual at mid-west-tech.com >