PART NO. T4ER-EN-00

HITACHI

Reliable solutions

Technical Manual

ZW50

Wheel Loader

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle) : Vol. No.T4ER-EN

Workshop Manual : Vol. No.W4EK-E

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SECTION 1
GENERAL

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Group 2 Component Specification

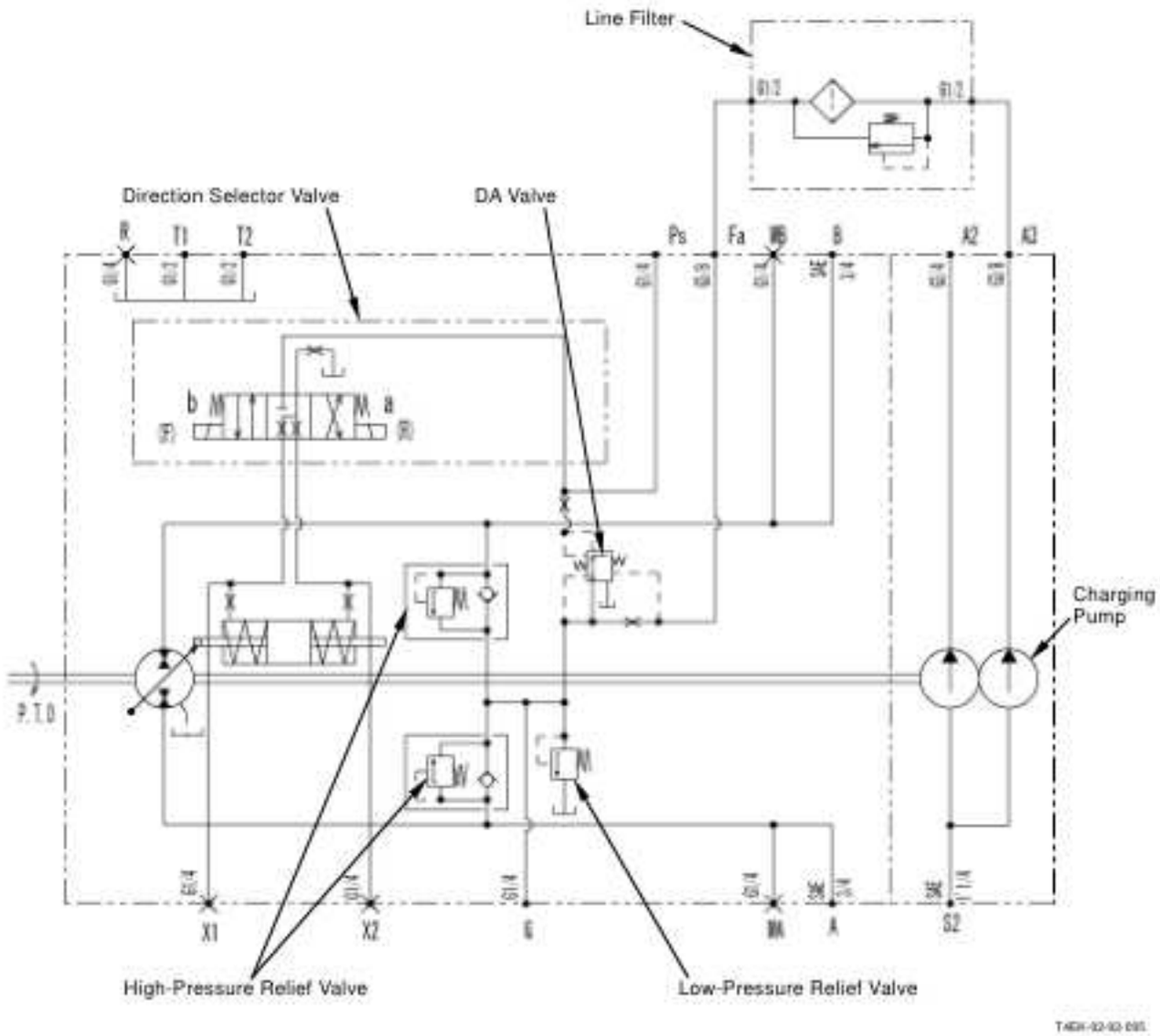
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HST Circuit Diagram



Item	ZW50
1. High Relief Pressure	38.5 MPa (392 kgf/cm^2, 5597 psi)
2. Low Relief Pressure	2.5 MPa (26 kgf/cm^2, 360 psi)
3. Main Pump Flow Rate	22.4 cc/rev (1.4 in^3/rev)
4. Charging Pump Flow Rate	6.5 cc/rev (0.4 in^3/rev)

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ACT. ENG SPEED

Summary

1. Measure the engine speed.

NOTE: If the engine speed is out of specification, all other measured performance data will also be out of specification. Therefore, measure the engine speed before performing all other tests in order to check that the engine speed meets specification.

Preparations

1. Install rotary pickup (1) to injection pipe (2).
2. Warm up the machine until coolant temperature reaches 50 °C (122 °F) or more, and hydraulic oil temperature is 50 5 °C (122 9 °F) or more.

NOTE: When the slow idle speed (low idle) is set, confirm that governor lever (4) touches slow idle stopper bolt (3). When the fast idle speed (high idle) is set, confirm that governor lever (4) touches slow idle stopper bolt (5).

Measurement

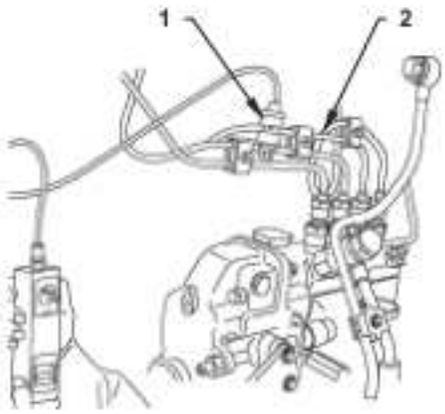
1. Measure the slow idle speed and the fast idle speed at no load.
2. Start the engine, set the parking brake switch to the ON position and FNR lever to the Neutral position.
3. Measure the engine speeds while operating the accelerator pedal.
4. Repeat the measurement three times. Calculate the average values.

Evaluation

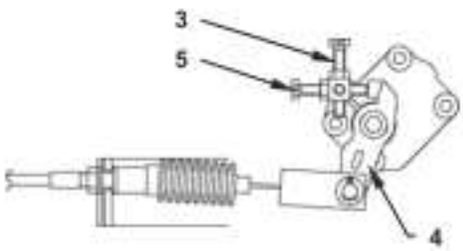
Refer to OPERATIONAL PERFORMANCE TEST / Standard

Remedy

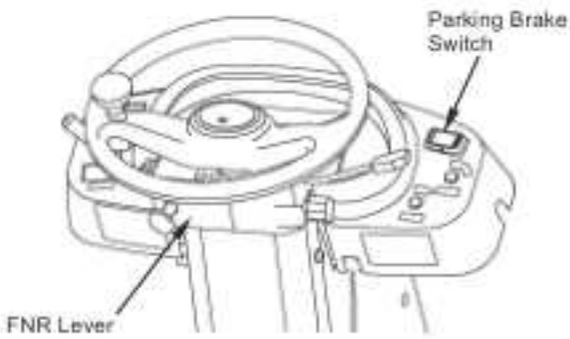
Refer to Troubleshooting.



T4EH-04-03-001



T4EH-04-03-002



T4EH-04-03-003

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DIAGNOSING PROCEDURE

These six basic steps are essential for efficient troubleshooting:

1. Study the System
   Study the machine's technical manuals. Know the system and how it works, and what the construction, functions and specifications of the system components are.

2. Ask the operator
   Before inspecting, get the full story of malfunctions from the operator below.

   (a) How is the machine being used? (Find out if the machine is being operated correctly)

   (b) When was the trouble noticed, and what types of work the machine doing at that time?

   (c) What are the details of the trouble? Is the trouble getting worse, or did it appear suddenly for the first time?

   (d) Did the machine have any other troubles previously? If so, which parts were repaired before?

3. Inspect the machine
   Before starting the troubleshooting procedure, check the machine's daily maintenance points, as shown in the operator's manual.

   Also, check the electrical system, including the batteries, as troubles in the electrical system such as low battery voltage, loose connections and blown fuses will result in malfunction of the controllers, causing total operational failure of the machine.
   If troubleshooting is started without checking for blown fuses, a wrong diagnosis may result, wasting time. Check for blown fuses before troubleshooting. Even if a fuse looks normal by visual inspection, a fine crack is difficult to find. Always use a tester when checking the fuses.



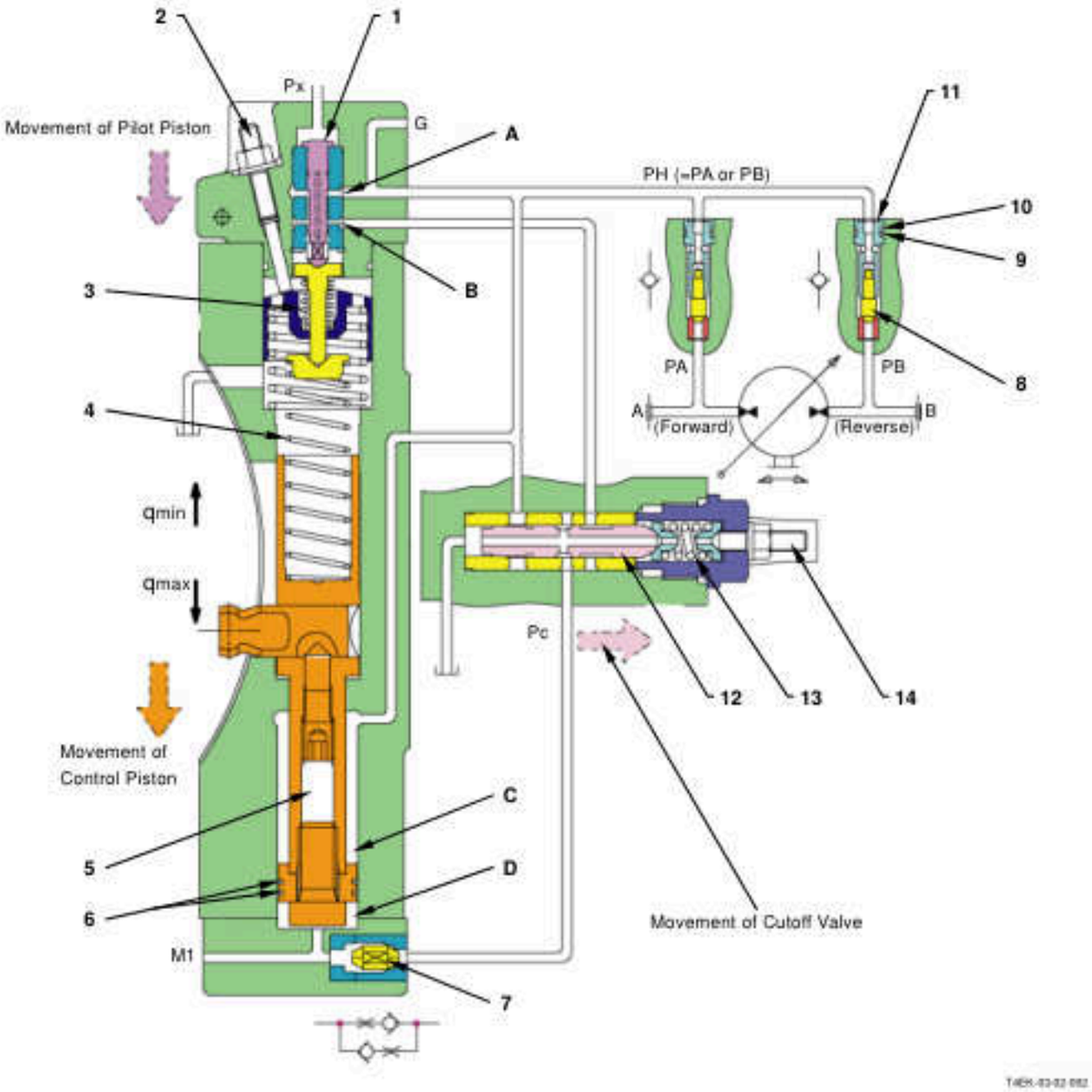
T4GB-05-01-001



T4GB-05-01-002

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HD CONTROL



1 - Pilot Piston
2 - Set Screw
3 - Adjust Spring
4 - Feedback Spring
5 - Control Piston
6 - O-Ring
7 - Restriction Valve
8 - Check Valve
9 - O-Ring
10 - Backup Ring
11 - O-Ring
12 - Cutoff Valve
13 - Adjust Spring
14 - Set Screw

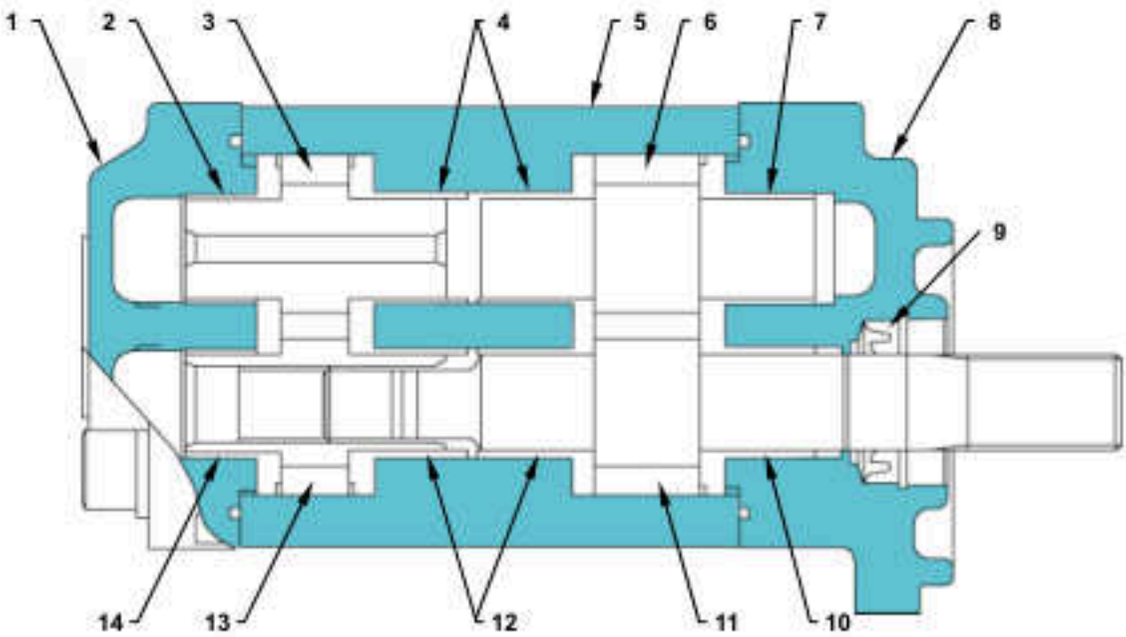
A- Control Bushing Primary Side
B- Control Bushing Secondary Side
C- Control Piston Small Diameter (Cyclic) Side
D- Control Piston Large Diameter Side

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MAIN PUMP

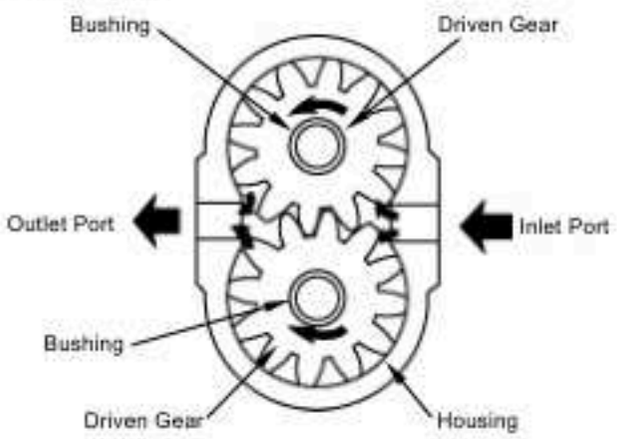
It is 2-spool gear pump combined 1st pump (main pump) and 2nd pump (charging pump).
The charging pump is installed to HST pump through the coupling and rotates together with the engine.
1st pump doubles as the main hydraulic circuit and the steering hydraulic circuit.
1st (main) pumps draw hydraulic oil through the hydraulic oil tank and deliver to the orbitroll (VP valve).
Hydraulic oil is divided into the main hydraulic circuit and the steering hydraulic circuit in the orbitroll (VP valve).

As for the operation of 1st (main) pump and 2nd (charging) pump, hydraulic oil from the hydraulic oil tank is filled the space, which composed of the gear teeth bottom and the housing inner surface due to the suction force when the drive gear and the driven gear are meshed and rotate together. Hydraulic oil is delivered to the outlet port at the restart point to mesh.
In addition, the main pump uses the bushing to prevent oil leaks from the gap between the gear and the side plate. In order to increase the pump efficiency (volumetric efficiency), route delivery pressure to this bushing surface to balance pressure and reduce the gap.



T4EK-03-07-001

1 - Rear Cover
2 - Bushing
3 - Driven Gear (2nd Pump)
4 - Bushing
5 - Body
6 - Driven Gear (1st Pump)
7 - Bushing
8 - Front Cover
9 - Oil Seal
10 - Bushing
11 - Drive Gear (1st Pump)
12 - Bushing
13 - Drive Gear (2nd Pump)
14 - Bushing

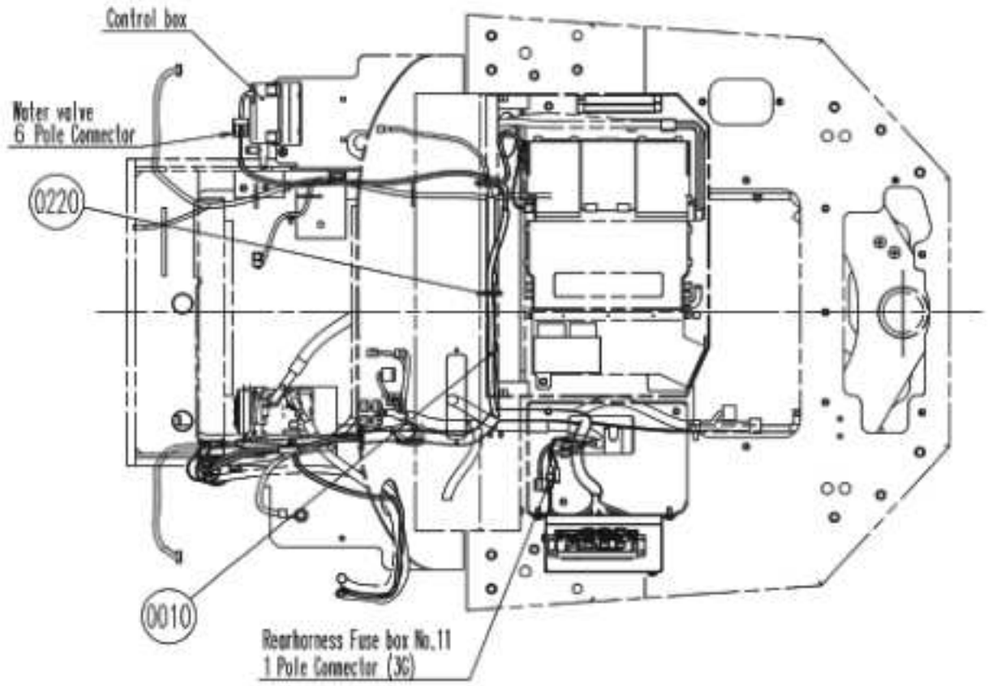


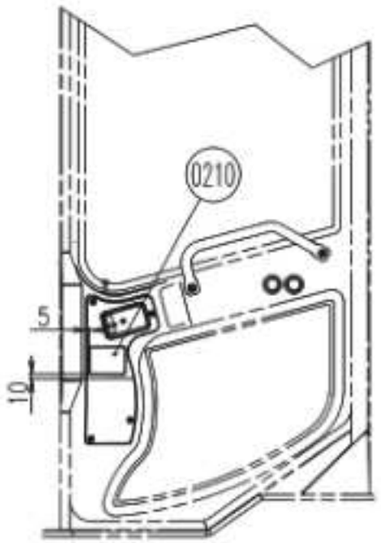
T4EK-03-07-002

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Attach to Part. No. : T4EK-E-01

ZW50 AIR CONDITIONER ELECTRIC PARTS

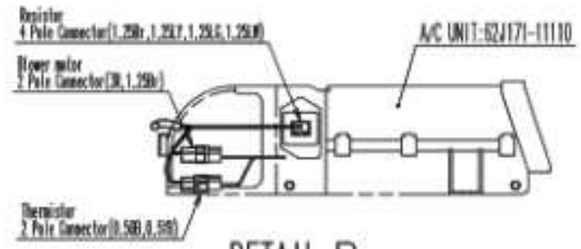




CAB INSIDE IN RIGHT DOOR

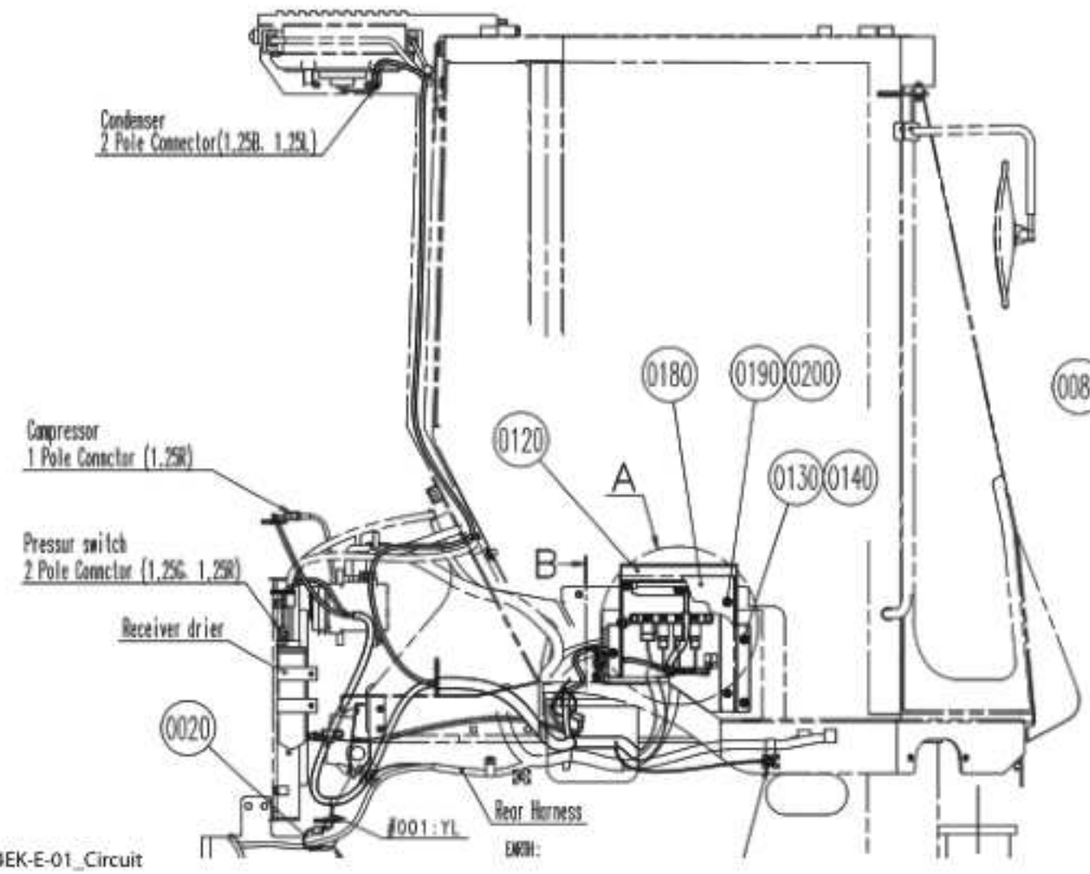


FUSE BOX DETAIL

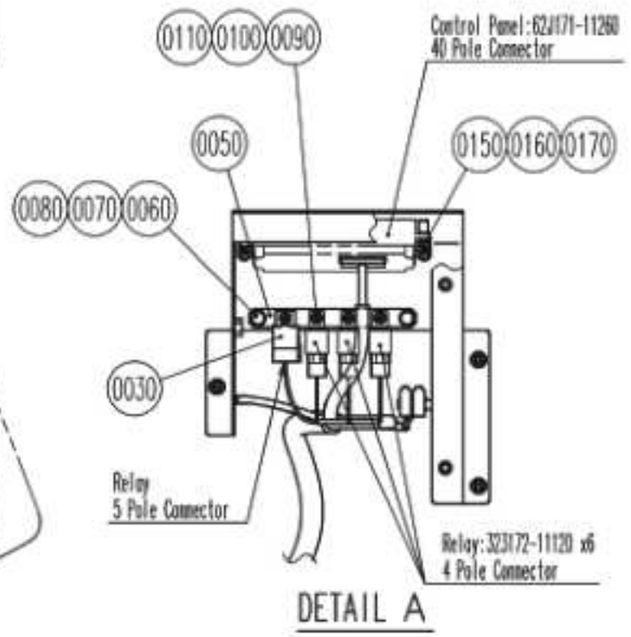


DETAIL B

(A/C UNIT CONNECT DETAIL)



T4EK-E-01_Circuit



DETAIL A

Item No.	Q'ty	Part Name
0010	1	A/C Harness
0020	1	Cable
0030	1	Relay
0040	1	Fuse (30A)
0050	1	Repay Plate
0060	2	Bolt
0070	2	Spring Washer
0080	2	Washer
0090	4	Screw
0100	4	Spring Washer
0110	4	Washer
0120	1	Panel Box
0130	3	Bolt
0140	3	Washer
0150	4	Screw
0160	4	Spring Washer
0170	4	Washer
0180	1	Cover
0190	3	Bolt
0200	3	Washer
0210	1	Decal (Nameplate)
0220	5	Cable Clamp (Black)

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