SERVICE MANUAL

EH50.B
Hydraulic Excavator

NEW HOLLAND
CONSTRUCTION

6-78600

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13. Always use the proper tools that are in good condition and that are suited for the job. Be sure you understand how to use them before performing any service work.
14. Reinstall all fasteners with the same part number. Do not use a lesser quality fastener if replacements are necessary.
15. Repairs which require welding should be performed by personnel adequately trained and knowledgeable in welding procedures. Determine type of metal being welded and select correct welding procedure and electrodes, rods or wire to provide a weld strength equivalent at least to that of the parent metal. Make sure to disconnect battery before any welding procedures are attempted.
16. Do not damage wiring during removal operations. Reinstall the wiring so it will not be damaged during operation of the machine by contacting sharp corners, or by rubbing against some object or hot surface.
17. Be sure all protective devices including guards and shields are properly installed correctly before starting repair. If a guard or shield must be removed to perform the repair work, replace the guard or shield after repair is completed.
18. Performing maintenance or repair work with the bucket raised is dangerous due to the possibility of it falling. Lower the attachment and place the bucket on the ground before starting the work.
19. Loose or damaged fuel, lubricant and hydraulic lines, tubes and hoses can cause fires. Do not bend or strike high pressure lines or install ones which have been bent or damaged. Inspect lines, tubes and hoses carefully. Do not check for leaks with your hands. Very small (pinhole) leaks can result in a high velocity oil stream that will be invisible close to the hose. This oil can penetrate the skin and cause personal injury. Use cardboard or paper to locate pinhole leaks.
20. Tighten connections to the correct torque. Make sure that all heat shields, clamps and guards are installed correctly to avoid excessive heat, vibration or rubbing against other parts during operation. Shields that protect against oil spray onto hot exhaust components in event of a line, tube or seal failure must be installed correctly.
21. Do not operate a machine if any rotating part is damaged or contacts any other part during operation. Any high speed rotating component that has been damaged or altered should be checked for balance before reusing.
22. Be careful when servicing or separating the tracks. Chips can fly when removing or installing a track pin. Wear safety glasses and long sleeve protective clothing. Tracks can unroll very quickly when separated. Keep away from front and rear of machine. The machine can move unexpectedly when both tracks are disengaged from the sprockets. Block the machine to prevent it from moving.

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1.3 GENERAL PRECAUTIONS FOR REPAIRS

1.3.1 PREPARATION BEFORE DISASSEMBLING



1. Understand operating procedure

   Read OPERATOR'S MANUAL and this MANUAL carefully prior to operating the machine.

2. Cleaning machines

   Remove soil, mud, and dust from the machine before service. This will prevent loss of work efficiency, damaged parts, and difficulty in rust prevention and dust protection while reassembling.

3. Inspecting machines

   Identify the parts to be disassembled before starting work, determine the disassembling procedure considering the workshop situations etc., request necessary parts in advance.

4. Record the following items

   A. Inspection date and place

   B. Model name, applicable machine number, and hour meter reading

   C. Trouble condition, place and cause.

   D. Visible oil leakage, water leakage and damage

   E. Clogged filters, oil level, oil quality, oil contamination and loose connections

   F. Is it a recurring fault at approximately the same amount of operating hours.

5. Arrangement and cleaning in service shop

   A. Tools required for repair work.

   B. Prepare space to place the disassembled parts.

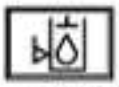
   C. Prepare oil containers for draining oil etc.

1.3.2 SAFETY IN DISASSEMBLING AND ASSEMBLING



1. Wear appropriate clothes with long sleeves, safety shoes, safety helmet and protective glasses.
2. Suspend warning tag DO NOT OPERATE from the doorknob or the operating lever.
3. Stop the engine before starting inspection and maintenance.
4. Identify the location of a first-aid kit and a fire extinguisher, also who to contact in case of an emergency.
5. Choose a hard, level and safe place, and place the attachment on the ground securely.
6. Use a hoist to remove heavy parts (20 kg [45 lbs] or more) from the machine.
7. Use proper tools, and replace or repair defective tools.
8. Support the machine and attachment with supports or blocks if the work is performed in the lifted condition.

1.3.3 DISASSEMBLING AND ASSEMBLING HYDRAULIC EQUIPMENT



1. Removing hydraulic equipment

   A. Before disconnecting pipes, release the hydraulic pressure in the system.

   B. Carefully drain oil of the removed pipes into a containers without spilling on the floor.

   C. Install plugs or caps on the pipe ends to avoid oil spillage and contamination.

   D. Clean off the external surface of the equipment before disassembling, drain hydraulic and gear oil before placing component on the workbench.

2. Disassembling hydraulic equipment

   A. Do not modify the hydraulic equipment without the permission of the manufacturer. Manufacturer will not be responsible for the performance and function of the product after modification.

   B. When disassembling and reassembling for repair, refer the work to qualified personnel who have the knowledge or have completed the service training.

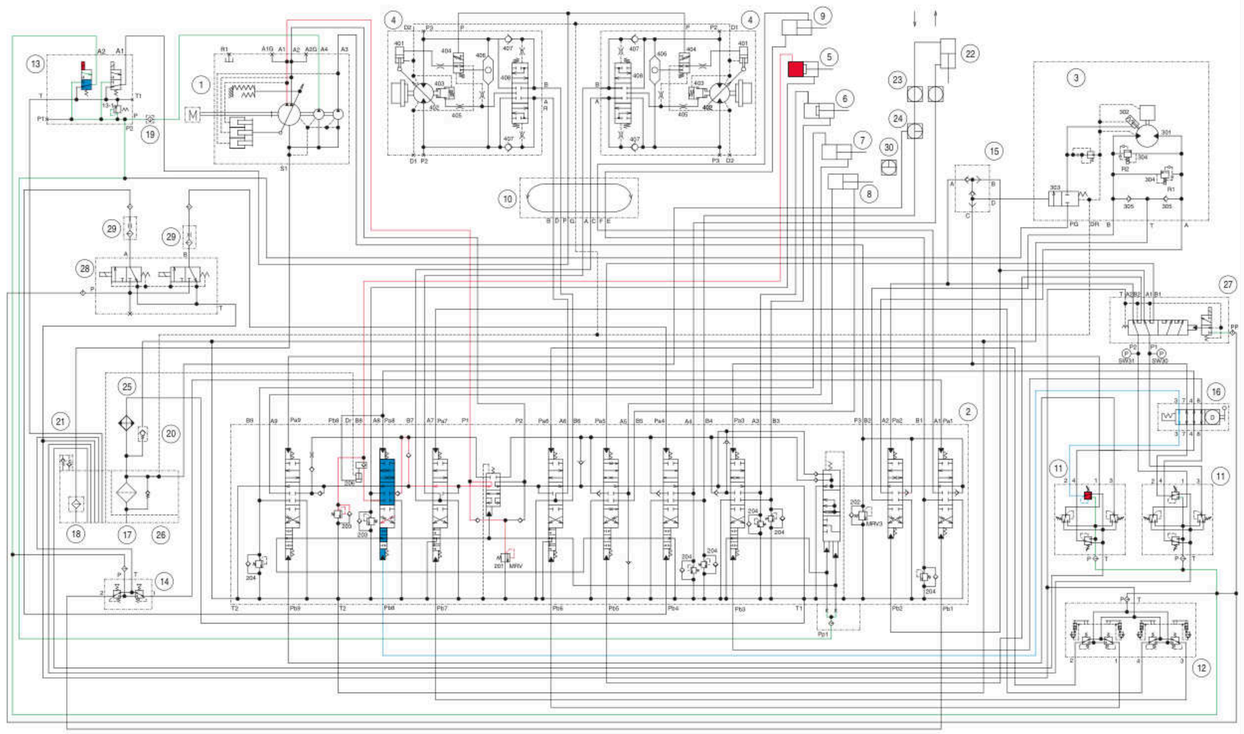
   C. Provide aligning marks to facilitate reassembly.

   D. Before starting the work, read the manual for disassembly procedures and decide whether the work can be performed by yourself or if assistance is required.

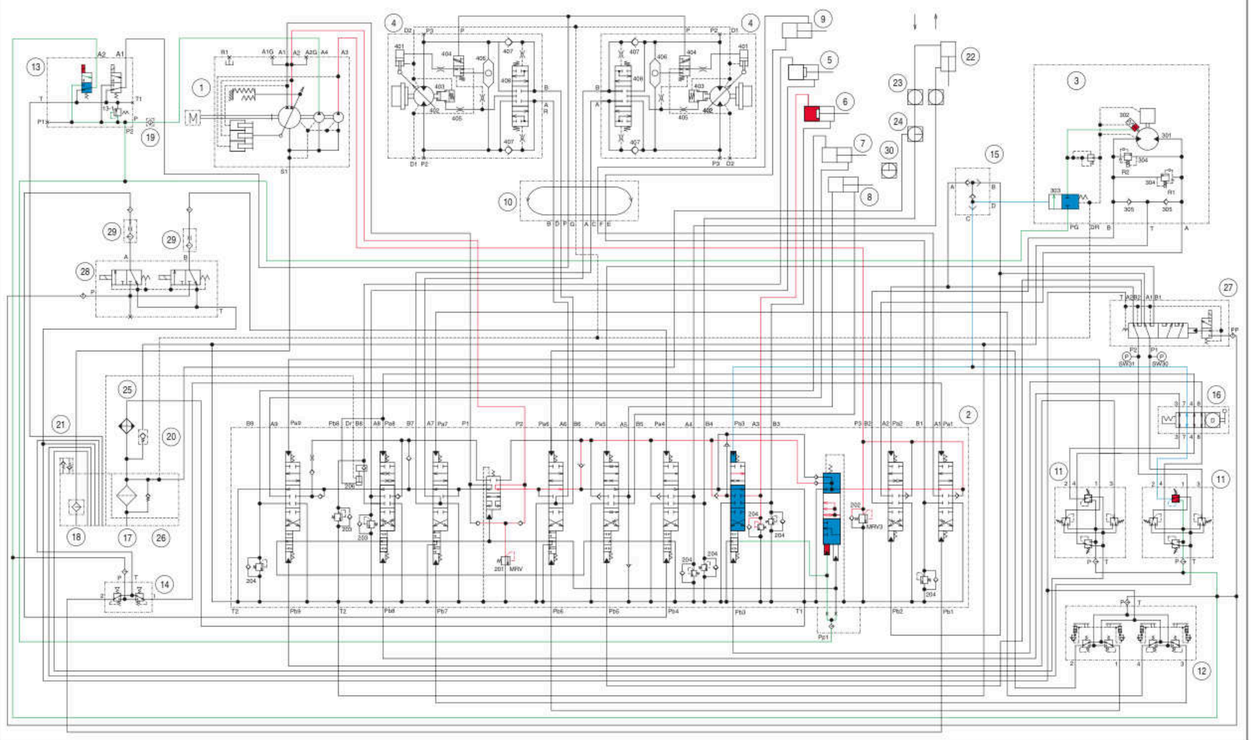
   E. Use the special jig or tools if they are specified.

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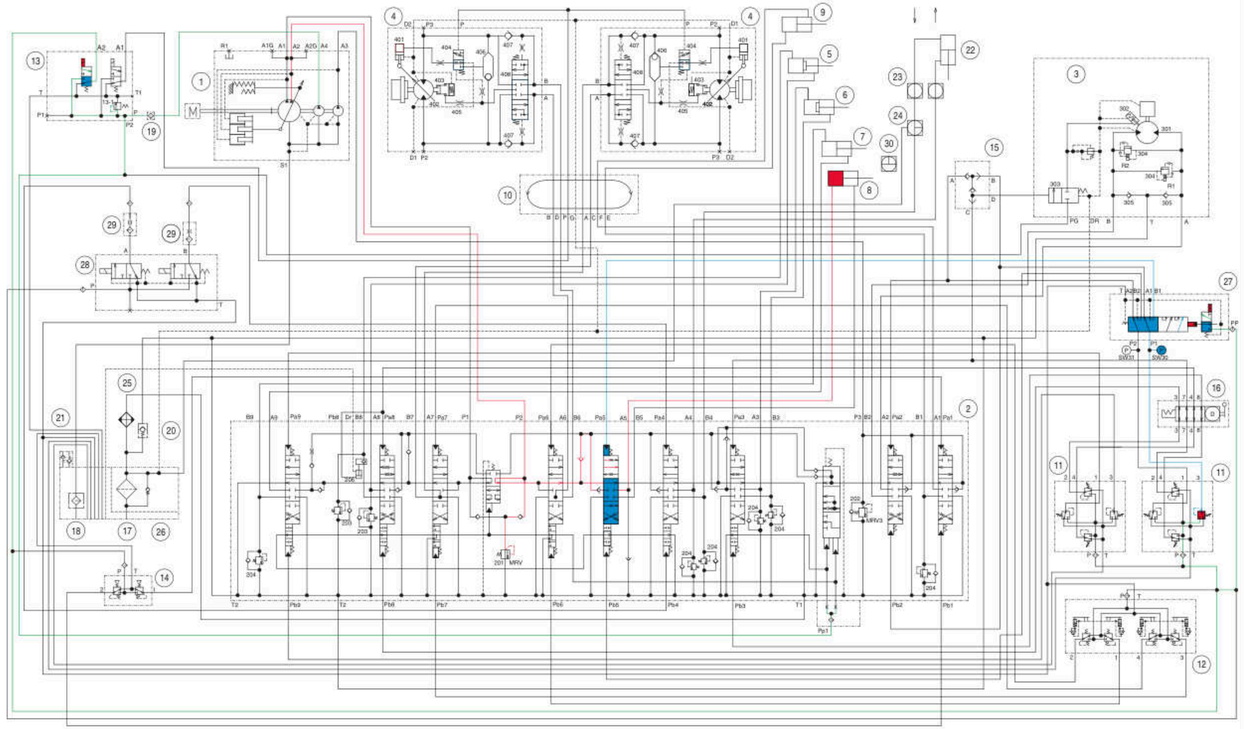
BOOM CIRCUIT - BOOM-UP OPERATION



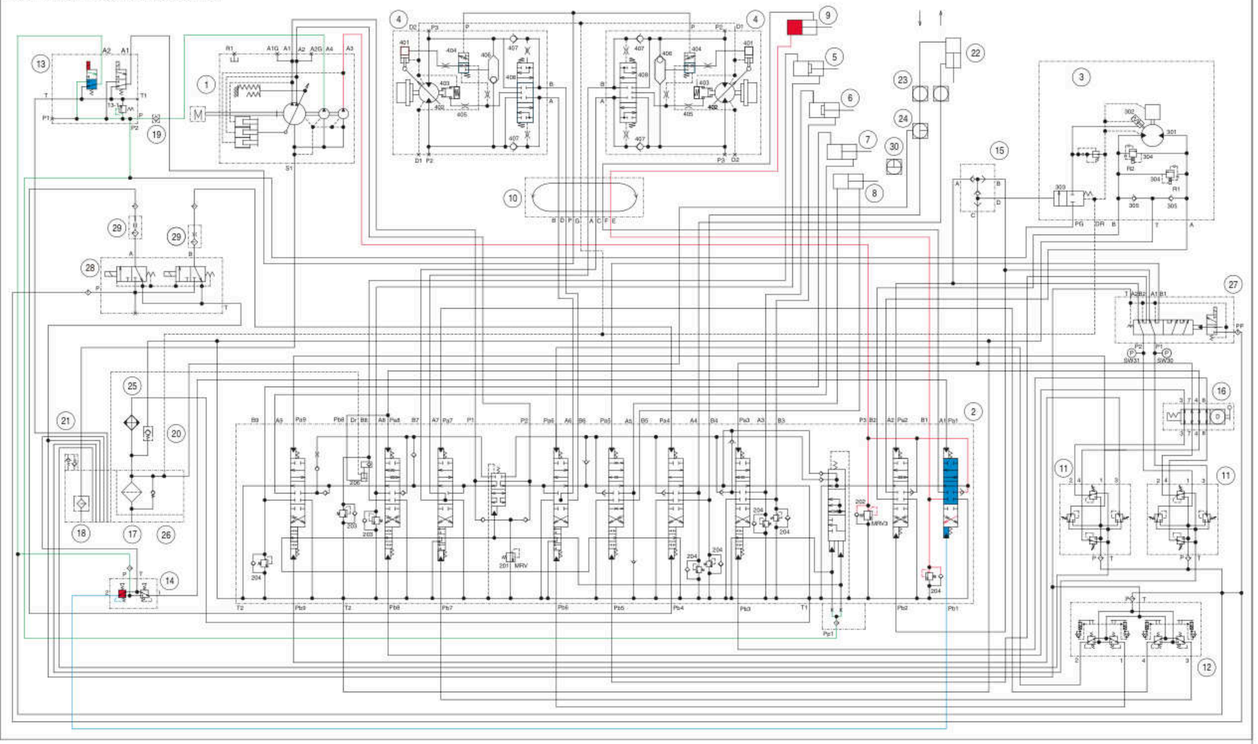
ARM CIRCUIT - ARM-IN OPERATION



SWING CIRCUIT - BOOM SWING-LEFT OPERATION



DOZER CIRCUIT - DOZER-DOWN OPERATION



COMPONENT IDENTIFICATION

1. PUMP ASSEMBLY
2. CONTROL VALVE
3. SLEWING MOTOR
4. TRAVEL MOTOR
5. BOOM CYLINDER / CANOPY CAB
6. ARM CYLINDER
7. BUCKET CYLINDER
8. SWING CYLINDER
9. DOZER CYLINDER
10. SWIVEL JOINT
11. PILOT VALVE (ATT)
12. PILOT VALVE (TRAVEL)
13. SOLENOID VALVE
14. PILOT VALVE (DOZER)
15. SHUTTLE VALVE
16. MULTI CONTROL VALVE
17. RETURN FILTER (ELEMENT)
18. SUCTION STRAINER
19. INLINE FILTER
20. CHECK VALVE
21. HYDRAULIC RESERVOIR VENT
22. NIBBLER CYLINDER
23. STOP VALVE
24. SELECTOR VALVE
25. OIL COOLER
26. HYDRAULIC OIL TANK
27. SOLENOID VALVE
28. SOLENOID VALVE
29. ORIFICE

NOTES

1. 201 (MAIN RELIEF VALVE P1,P2) 23.0 MPa (3340 psi)
2. 202 (MAIN RELIEF VALVE P3) 23.0 MPa (3340 psi)
3. 203 (OVERLOAD RELIEF VALVE) 27.5 MPa (4000 psi)
4. 204 (OVERLOAD RELIEF VALVE) 25.5 MPa (3700 psi)
5. 304 (SLEW RELIEF VALVE) 21.0 MPa (3050 psi)
6. 13-1 (PILOT RELIEF VALVE) 3.5MPa (508 psi)

HYDRAULIC SYMBOLS

PRESSURE
PILOT MAIN PRESSURE
PILOT SEC PRESSURE
CASE DRAIN
COMPONENT
54 COMPONENT NUMBER
SHOWS CIRCUIT CROSSING NOT CONNECTED
SHOWS CIRCUIT CONNECTED
CHECK VALVE
RESTRICTOR
FILTER OR SCREEN
OIL COOLER

HYDRAULIC SCHEMATIC
EH50.B HYDRAULIC EXCAVATORS

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