D150B
Crawler

Service Manual

87693704

CASE
CONSTRUCTION

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D150B CRAWLER
Repair Manual
Bur 87693704
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37 – Equipment Valve Hydraulic Safety Solenoid Valve

Right ROPS side panel, end plate equipment valve.		
Check Points	**Reading**	**Possible Cause of Bad Reading**
NOTE: *Put the master disconnect switch in the ON position. Disconnect the harness connector for the hydraulic valve solenoid.*		
Terminal for wire 0 to ground	Continuity	Bad ground circuit.
NOTE: *Have another person place the ignition switch in the run position. Release the parking brake levers.* ***DO NOT*** *start the engine.*		
Terminal for wire LB (272) to ground	24 Volts	Bad drivetrain controller (24), bad wire from solenoid to drivetrain controller.
Check hydraulic control solenoid coil resistance between the connector cavities of the solenoid connector.	40 Ohm at 20° C (68° F)	Bad hydraulic control solenoid.

38 – Equipment Valve Blade Lift Solenoid

Right ROPS side panel.		
Check Points	**Reading**	**Possible Cause of Bad Reading**
NOTE: *Disconnect the harness connector for the blade lift solenoid.*		
Check solenoid coil resistance between the connector cavities of the solenoid connector.	12 Ohm at 20° C (68° F)	Bad solenoid.

39 – Equipment Valve Blade Lower Solenoid

Right ROPS side panel.		
Check Points	**Reading**	**Possible Cause of Bad Reading**
NOTE: *Disconnect the harness connector for the blade lower solenoid.*		
Check solenoid coil resistance between the connector cavities of the solenoid connector.	12 Ohm at 20° C (68° F)	Bad solenoid.

40 – Equipment Valve Tilt Left Solenoid

Right ROPS side panel.		
Check Points	**Reading**	**Possible Cause of Bad Reading**
NOTE: *Disconnect the harness connector for the blade tilt left solenoid.*		
Check solenoid coil resistance between the connector cavities of the solenoid connector.	12 Ohm at 20° C (68° F)	Bad solenoid.

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BATTERY TEST

NOTE: *To correctly test a battery, do each part of the battery test until you know the condition of the battery.*

Visual Checks

1. Make sure the cable connections are clean and tight. Clean foreign material from the top of the battery.
2. Inspect the battery case, battery posts, and cables for damage.
3. Check the electrolyte level. See Page 4.
4. If you added water to the battery, the battery must be charged for 15 minutes at 15 to 25 amperes to mix the water with the electrolyte.

Specific Gravity Check

A hydrometer is used to check the specific gravity (weight) of the electrolyte. The specific gravity is an indication of the level of charge for each cell.

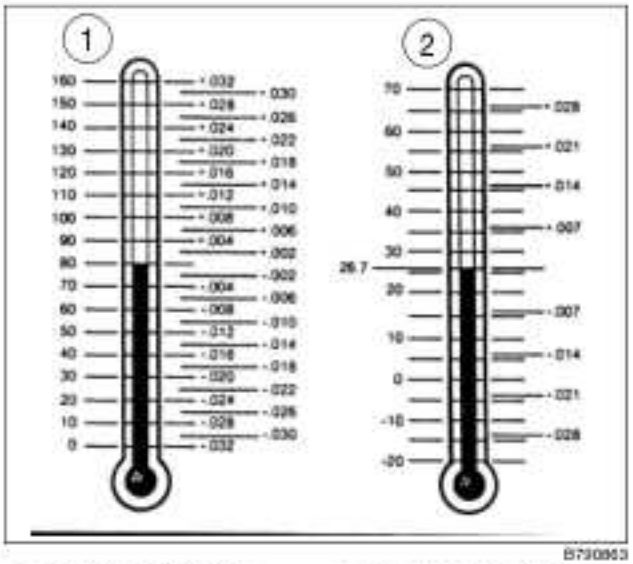
Hydrometers are made to show the correct specific gravity when the temperature of the electrolyte is 26.7°C (80°F).

When you check the specific gravity, you must know the temperature of the electrolyte. If your hydrometer does not have a thermometer, get a thermometer to check the temperature of the electrolyte. The thermometer must indicate a high temperature of at least 52°C (120°F).

1. Remove enough electrolyte from a cell so that the float is free in the tube.

NOTE: *If the specific gravity cannot be checked without first adding water to the cell, the battery must be charged for 15 minutes at 15 to 25 amperes to mix the water with the electrolyte. Then check the specific gravity.*

2. Read the float.
3. Read the thermometer. If the reading is above 26.7°C (80°F) add specific gravity points to the reading for specific gravity. If the reading is below 26.5°C (80°F) subtract specific gravity points from the reading for specific gravity. See the following illustration and add or subtract specific gravity points as needed.



1. TEMPERATURE IN F 2. TEMPERATURE IN C

SPECIFIC GRAVITY CHART

4. Make a record of the corrected specific gravity reading for each cell.
5. If the difference between the high reading and the low reading is 0.050 or more, charge the battery and check the specific gravity again. If after charging, the difference is still 0.050 or more, install a new battery.
6. The corrected specific gravity reading shows the level of charge for the cell. The level of charge must be at least 75% in each of the cells. In maintenance free batteries the level of charge is at least 75% if the corrected specific gravity reading is 1.240 or higher. In all other batteries the level of charge is at least 75% if the corrected specific gravity reading is 1.230 or higher.
7. If the difference between the high reading and the low reading is less than 0.050, and the level of charge is at least 75% in all of the cells, do the Capacity (Load) Test.
8. If the difference between the high reading and the low reading is less than 0.050, but the level of charge is less than 75% in any of the cells, charge the battery and check the specific gravity again. If after charging:

   A. The level of charge is less than 75% in any of the cells, discard the battery.

   B. The level of charge is at least 75% in all of the cells, do the Capacity (Load) Test.

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Section 8000

HOW TO READ HYDRAULIC SCHEMATICS

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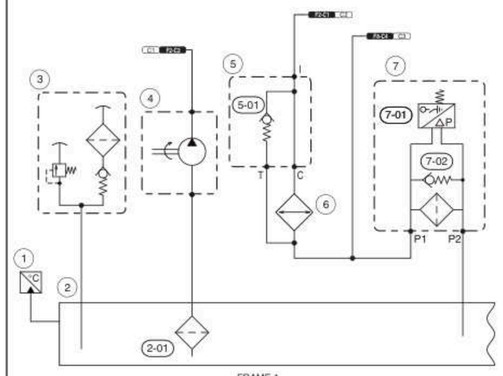
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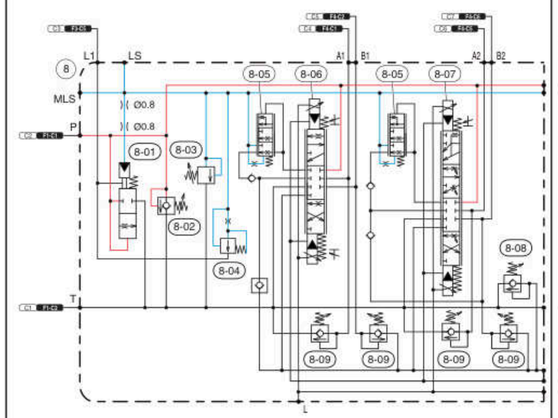
MAIN HYDRAULIC PUMP AND RESERVOIR



FRAME 1

BC07K690-01A

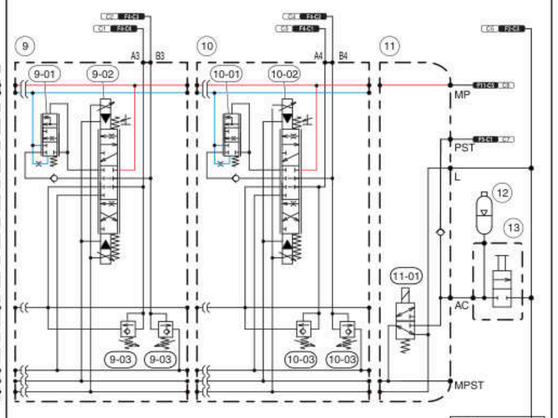
EQUIPMENT VALVE



FRAME 2

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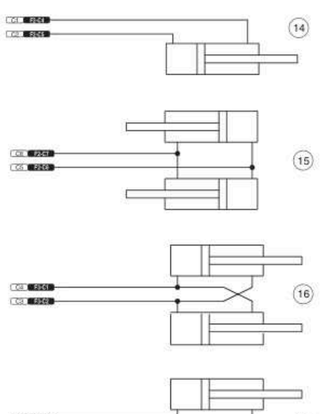
EQUIPMENT VALVE



FRAME 3

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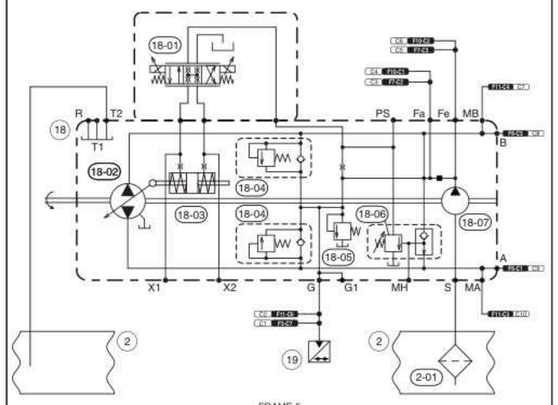
CYLINDERS



FRAME 4

BC07K690-04A

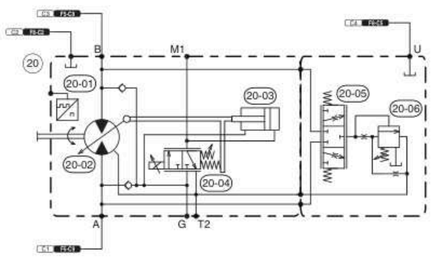
LEFT-HAND HYDROSTATIC PUMP ASSEMBLY



FRAME 5

BC07K690-05A

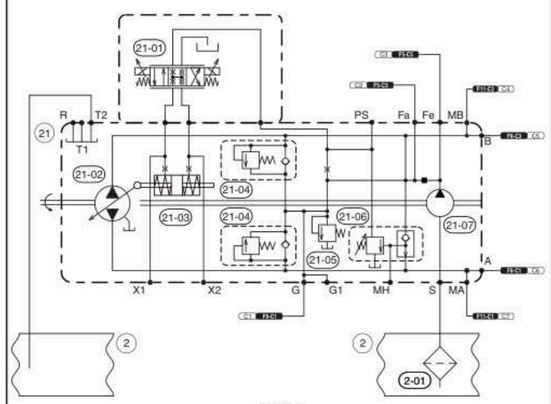
LEFT-HAND HYDROSTATIC MOTOR



FRAME 6

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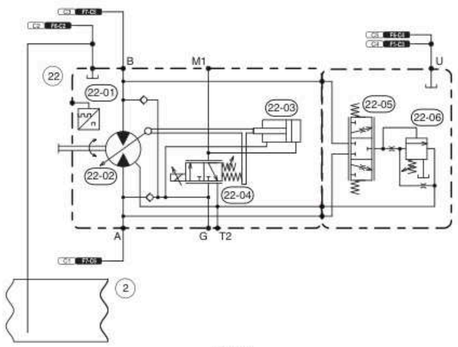
RIGHT-HAND HYDROSTATIC PUMP ASSEMBLY



FRAME 7

BC07K690-07A

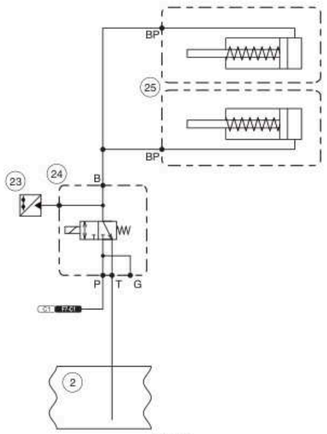
RIGHT-HAND HYDROSTATIC MOTOR



FRAME 8

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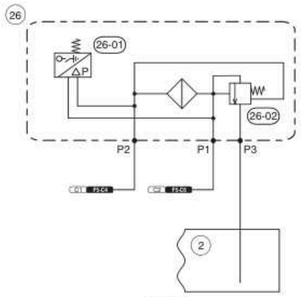
BRAKES



FRAME 9

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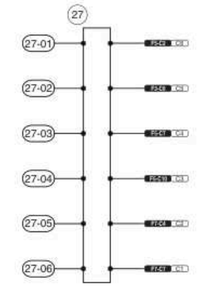
HYDROSTATIC FILTER



FRAME 10

BC07K690-10A

TEST PORT PANEL



FRAME 11

BC07K690-11A

COMPONENTS

FRAME 1 COMPONENTS

1 - 1. Hydraulic Temperature Sending Unit
1 - 2. Hydraulic Reservoir
1 - 2-01. Screen
1 - 3. Hydraulic Reservoir Vent
Pressure: 1.3 Bar / 20 psi
Vacuum: 0.06
Filter: 10 Micron
1 - 4. Equipment Hydraulic Pump
64.5 cc / 4 Cubic Inch
1 - 5. Hydraulic Cooler Bypass Valve
1 - 5-01. 13.8 Bar / 200 psi
1 - 6. Oil Cooler
1 - 7. Hydraulic Filter
1 - 7-01. Filter Bypass Switch
1 - 7-02. 3.5 Bar / 50 psi

FRAME 2 COMPONENTS

2 - 8. Equipment Valve
2 - 8-01. Unloading Valve
138 liters per minute
10-16 Bar / 145-232 psi
2 - 8-02. Main Pressure Relief
185 Bar / 2683 psi
2 - 8-03. Load Sense Relief
163 Bar / 2364 psi
2 - 8-04. Load Sense Bleed Down Orifice
0.4 liters per minute / 0.1 gpm
2 - 8-05. Flow Compensator Spool
2 - 8-06. Tilt Spool
2 - 8-07. Lift Spool
2 - 8-08. Pre-charge Valve
16 Bar / 232 psi
2.- 8-09. Circuit Relief Valve with Anti-cavitation
198 Bar / 2872 psi

FRAME 3 COMPONENTS

3 - 2. Hydraulic Reservoir
3 - 9. Angle Section
3 - 9-01. Flow Compensator Spool
3 - 9-02. Angle Spool
3 - 9-03. Circuit Relief Valve with Anti-cavitation
198 Bar / 2872 psi
3 - 10. Ripper Section (Optional)
3 - 10-01. Flow Compensator Spool
3 - 10-02. Ripper Spool
3 - 10-03. Circuit Relief Valve with Anti-cavitation
198 Bar / 2872 psi
3 - 11. End Cover
3 - 11-01. ON/OFF Solenoid
3 - 12. Pilot Accumulator
3 - 13. Accumulator Charge Valve

FRAME 4 COMPONENTS

4 - 14. Tilt Cylinder
Bore:125 mm
Rod: 63 mm Diameter
Stroke: 135 mm
4 - 15. Lift Cylinders
Bore: 90 mm
Rod: 50 mm Diameter
Stroke 826 mm
4 - 16. Angle Cylinders
Bore: 110 mm
Rod: 55 mm Diameter
Stroke: 509 mm
4 - 17. Ripper Cylinders (Optional)
Bore: 125 mm Cylinder
Rod: 70 mm Diameter
Stroke: 275 mm

FRAME 5 COMPONENTS

5 - 2. Hydraulic Reservoir
5 - 2-01 Screen
5 - 18. Left-Hand Track Pump
5 - 18-01. Proportional Solenoids and Spool
5 - 18-02. Hydrostatic Pump
5 - 18-03. Servo Piston
5 - 18-04. Main Pressure Relief
450 Bar / 6527 psi
5 - 18-05. Charge Pump Pressure Relief
30 Bar / 435 psi
5 - 18-06. Override Pressure Relief
Blocked
5 - 18-07. Charge Pressure Pump
19.6 cc / 1.2 Cubic Inch
5- 19 Charge Pressure Switch
Normally Closed (NC)
Opens at
17.5-19.5 Bar / 253-281 PSI

FRAME 6 COMPONENTS

6 - 2. Hydraulic Reservoir
6 - 20. Left-Hand Track Motor
6 - 20-01 Speed Sensor
6 - 20-02. Hydrostatic Motor
6 - 20-03. Positioning Piston
6 - 20-04. Proportional Solenoid
6 - 20-05. Flushing Valve
6 - 20-06. Flushing Orifice

FRAME 7 COMPONENTS

7 - 2. Hydraulic Reservoir
7 - 2-01 Screen
7 - 21. Right-Hand Track Pump
7 - 21-01. Proportional Solenoids and Spool
7 - 21-02. Hydrostatic Pump
7 - 21-03. Servo Piston
7 - 21-04. Main Pressure Relief
450 Bar / 6527 psi
7 - 21-05. Charge Pump Pressure Relief
30 Bar / 435 psi
7 - 21-06. Override Pressure Relief
Blocked
7 - 21-07. Charge Pressure Pump
19.6 cc / 1.2 Cubic Inch

FRAME 8 COMPONENTS

8 - 2. Hydraulic Reservoir
8 - 22. Right-Hand Track Motor
8 - 22-01 Speed Sensor
8 - 22-02. Hydrostatic Motor
8 - 22-03. Positioning Piston
8 - 22-04. Proportional Solenoid
8 - 22-05. Flushing Valve
8 - 22-06. Flushing Orifice

FRAME 9 COMPONENTS

9 - 2. Hydraulic Reservoir
9 - 23. Brake Pressure Switch
Normally Open (NO)
Closes at: 11-12.5 Bar / 164-184 psi
9 - 24. Brake Solenoid
9 - 25. Brake Cylinders

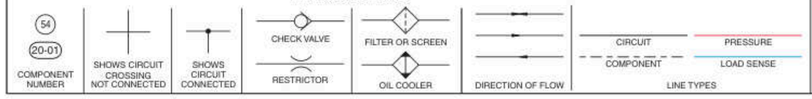
FRAME 10 COMPONENTS

10 - 2. Hydraulic Reservoir
10 - 26. Filter
10 - 26-01. By-pass Switch
10 - 26-02. 3.5 Bar / 50 psi

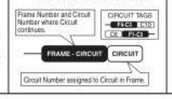
FRAME 11 COMPONENTS

11 - 27. Test Port Panel
11 - 27-01. Charge / Pilot Pressure
11 - 27-02. Equipment Valve Pressure
11 - 27-03. Travel Pressure -Left-Forward
11 - 27-04. Travel Pressure -Left-Reverse
11 - 27-05. Travel Pressure -Right-Forward
11 - 27-06. Travel Pressure -Right-Reverse

HYDRAULIC SYMBOLS



CIRCUIT CONTINUATION



NOTES

NOTE: All Pressures and Flows are at Operating RPM.

HYDRAULIC SCHEMATIC
D150B CRAWLER

Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System.
The part number is 5-9430

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