NEW HOLLAND

WHEEL LOADER

W110B TIER 3

SERVICE MANUAL

84249879

Issued 12 - 2009

NEW HOLLAND CONSTRUCTION

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TABLE OF CONTENTS

TORQUE SPECIFICATIONS - DECIMAL HARDWARE 3
TORQUE SPECIFICATIONS - METRIC HARDWARE 4
TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS 5
TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS 6

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TABLE OF CONTENTS

CAPACITIES AND LUBRICANTS 3
ENGINE OIL RECOMMENDATIONS 3
HYDRAULIC/BRAKE SYSTEM OIL TEMPERATURE CHART 4
ENGINE OIL TEMPERATURE CHART 4
TRANSMISSION OIL TEMPERATURE CHART 4
DIESEL FUEL SYSTEM 5
Fuel Storage 5
Specifications for Acceptable No. 2 Diesel Fuel 5
MAINTENANCE SCHEDULE 6
Model W110B 6
MAINTENANCE POINTS 7
Model W110B 7

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TABLE OF CONTENTS

Engine 3
Removal 3
Installation 11
RADIATOR 20
Removal 20
Installation 22

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ERROR CODES

In case of possible errors in the system, an amber or red warning appears on the instrument panel, combined with a recorded error number. See section 4005 for error code retrieval procedures and definitions.

TRANSMISSION SHIFTER LOGIC INFORMATION

Function	Shifter	Shifter Wire Color	Shifter Tower Connector	Shifter Shroud Connector	Harness Wire #	Harness ped/cab #	Trans. ECM #
power	B+	black/red	A	A	19A_H	43	45
forward	V	yellow	-	B	25F	44	43
reverse	R	pink	-	C	25R	45	64
neutral	N	gray	-	D	25T_B	46	67
gear2(3-4)	B2	green	B	-	25W	48	65
gear1(1-2)	B1	blue	C	-	25Z	49	63
downshift	DS	purple	D	-	25Y	50	22

NOTE: *Power is supplied through the fuse A to the transmission shifter via 19A wire. This is 24 Volt. Within the shifter are limit switches to transfer the signal voltages to the outputs. In forward V is high. In reverse R is high. In neutral N is high. In first gear, B1 is high and B2 is low. In second gear, B1 and B2 are low. In third gear, B1 is low and B2 is high. In fourth gear, B1 and B2 are high. Downshift, DS, is activated when the end of the shifter is engaged.*

RELATIONSHIP BETWEEN TRANSMISSION ECM, VALVES, AND CLUTCHES

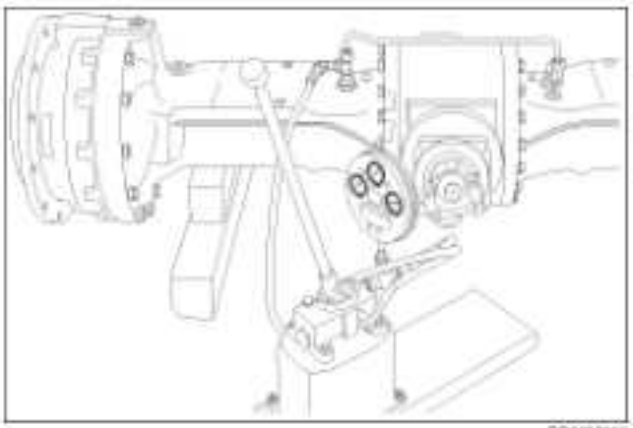
Transmission ECM Function	Transmission ECM Pin #	Transmission Valve	Clutch #	Transmission Valve Pin #	Wire #	Trans/Cab Pin #
A1P1	56	Y1	K4	1	25K	16
A1P2	10	Y2	KR	2	25L	17
A1P3	32	Y3	K1	3	25M	18
A1P4	55	Y4	K3	4	25N	19
A1P5	9	Y5	KV	5	25P	20
A1P6	51	Y6	K2	6	25J	21
VPSI	12,13	all Y	all K	7	25S	22
TEMP	39	TEMP	none	8	36T	5
TEMP	46	TEMP	none	9	36R	12

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BRAKE HYDRAULICS LEAKAGE TEST

IMPORTANT: *DO NOT EXCEED 100 BAR (1450 PSI) PRESSURE IN THE FOLLOWING STEPS. If the maximum pressure of 100 bar (1450 psi) is exceeded, the piston will move too much changing the gripping rings adjustment. If the gripping rings adjustment changes, the wheel end must be removed and disassembled and the gripping rings adjusted to the correct dimension.*

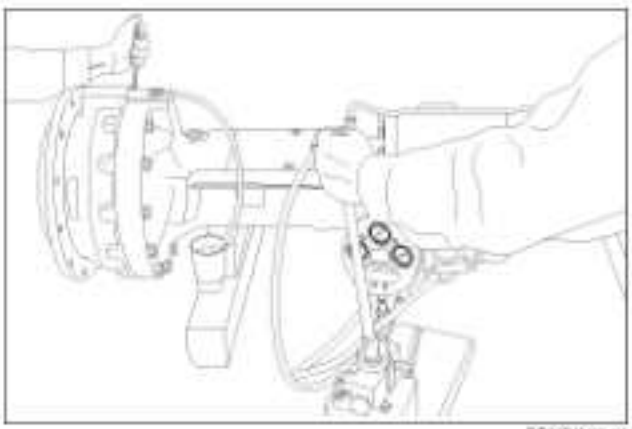
STEP 89



BD03M005

Connect a hand pump with pressure gauge to the brake port as shown above. Fill the hand pump with hydraulic oil.

STEP 90



BD07N208-01

Build up pressure in the axle internal brake lines then bleed air from the lines. After air is bled, actuate the brakes a minimum of 5 times to a pressure of 100 bar (1450 psi) by operating the hand pump.

High Pressure Test

STEP 91

Operate the hand pump to increase pressure to 100 bar (1450 psi) maximum. Close connection to hand pump using the shutoff valve. During a 5 minute period, pressure shall not drop more than 3% or 3 bar (43.5 psi).

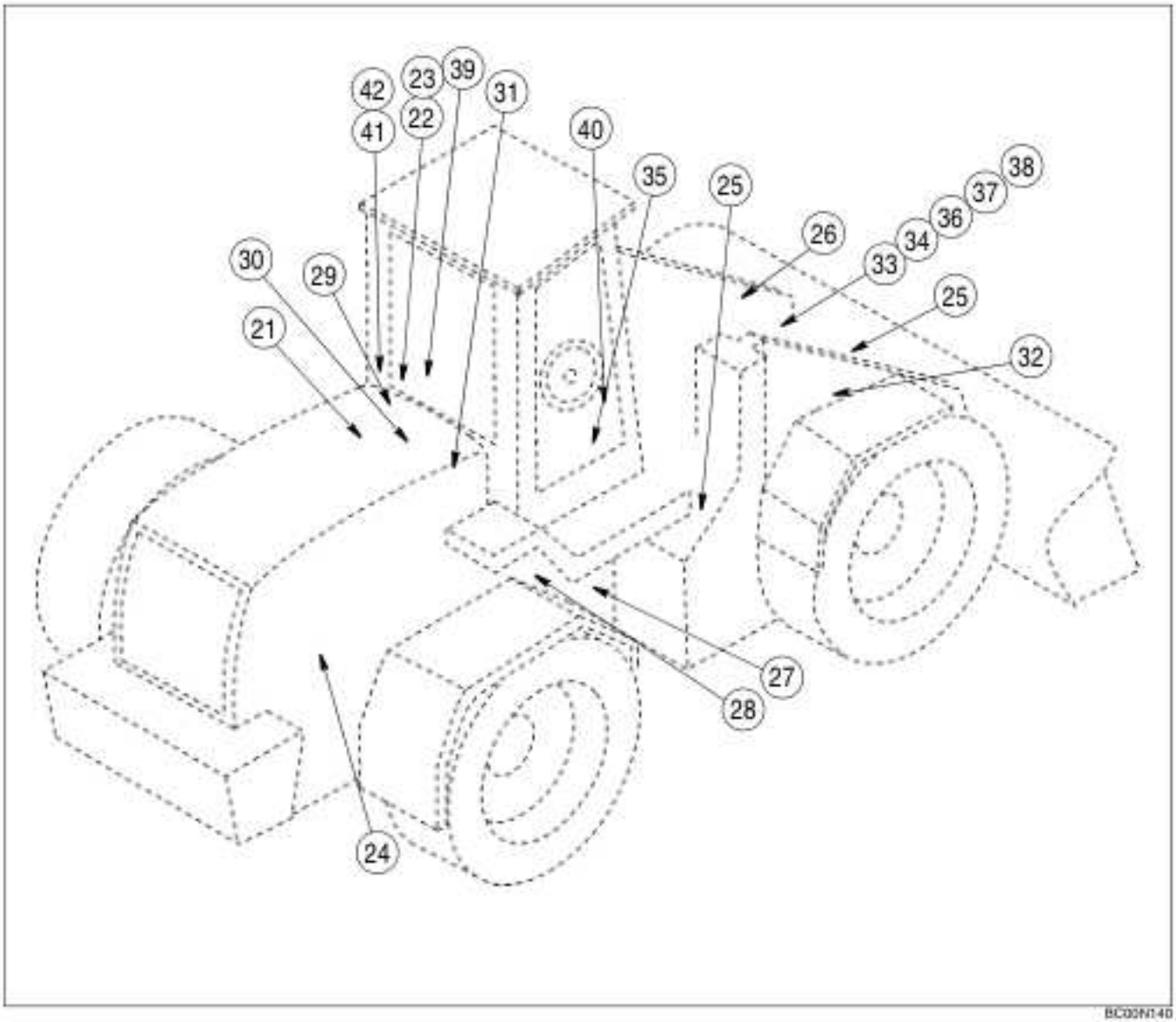
Low Pressure Test

STEP 92

Reduce pressure to 5 bar (72.5 psi) and close the shutoff valve. During a 5 minute period there should be no pressure drop.

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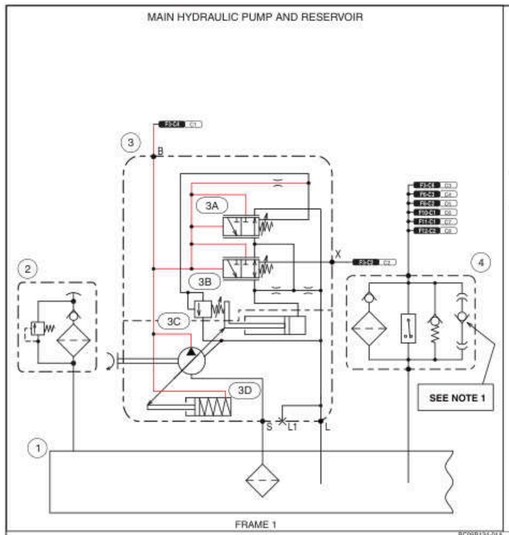
HYDRAULIC COMPONENT LOCATIONS

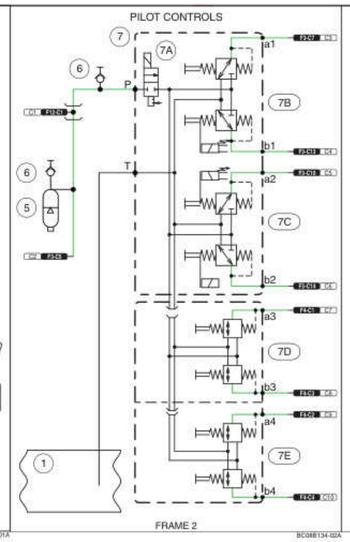


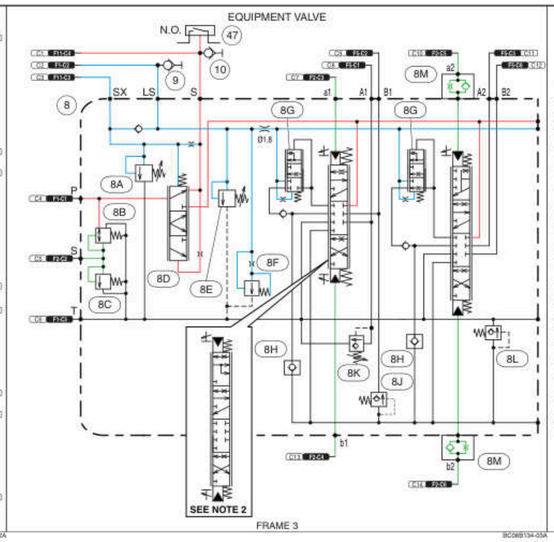
21. FAN DRIVE MOTOR
22. FAN REVERSING VALVE (OPTIONAL)
23. FAN VALVE (STANDARD)
24. BRAKE HYDRAULIC PUMP
25. COUPLER LOCKING VALVE
26. COUPLER LOCKING CYLINDERS
27. IMPLEMENT HYDRAULIC PUMP
28. HYDRAULIC FILTER
29. HYDRAULIC RESERVOIR
30. HYDRAULIC RESERVOIR BREATHER
31. HYDRAULIC COOLER
32. PILOT PRESSURE ACCUMULATOR
33. PILOT PRESSURE DIAGNOSTIC COUPLER
34. FLOAT SWITCH
35. CONTROLLER
36. LOADER CONTROL VALVE
37. PUMP PRESSURE DIAGNOSTIC COUPLER
38. LOAD SENSING DIAGNOSTIC COUPLER
39. BRAKE PRESSURE SWITCH (2)
40. AUXILIARY STEERING LOAD SENSE SOLENOID VALVE (OPTIONAL)
41. PARKING BRAKE ACCUMULATOR
42. PARKING BRAKE ACCUMULATOR DIAGNOSTIC COUPLER

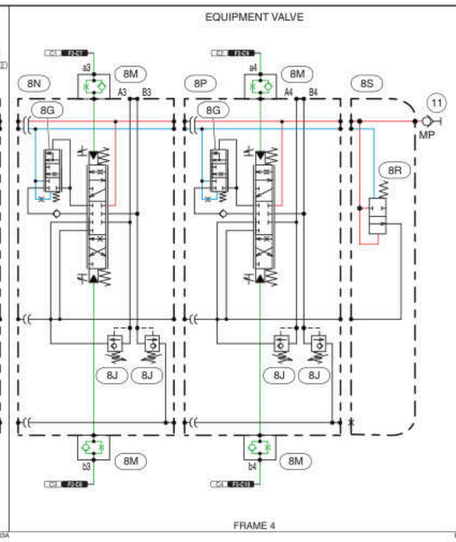
NOTE: *The hydraulic schematic is located in the rear pocket. All numbers are coordinated with the hydraulic schematic for reference.*

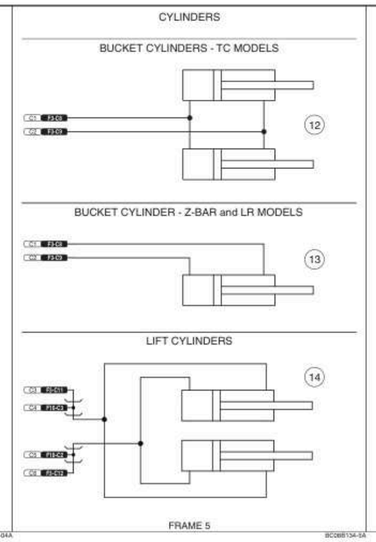
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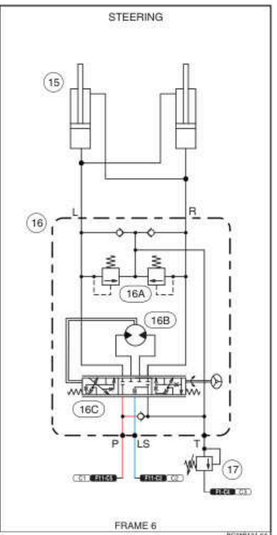


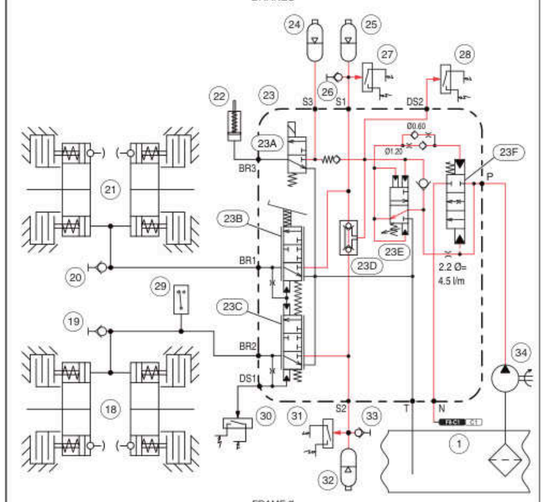


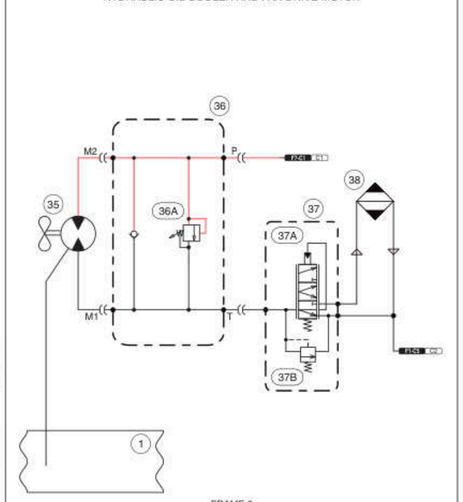


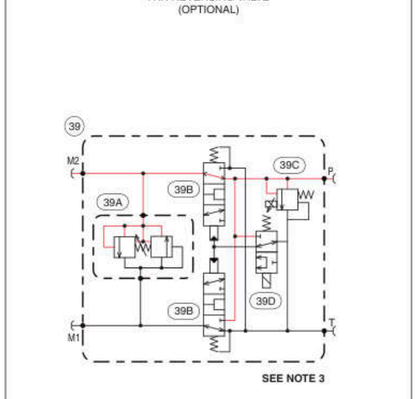


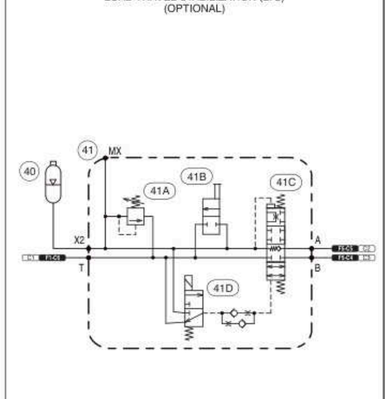


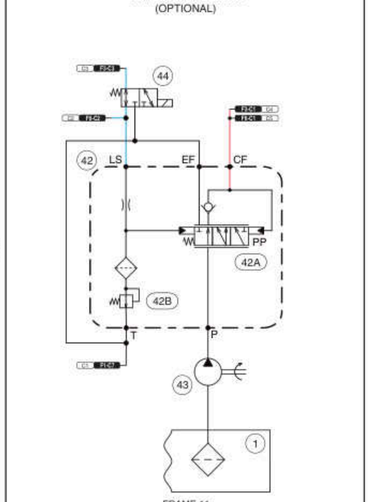


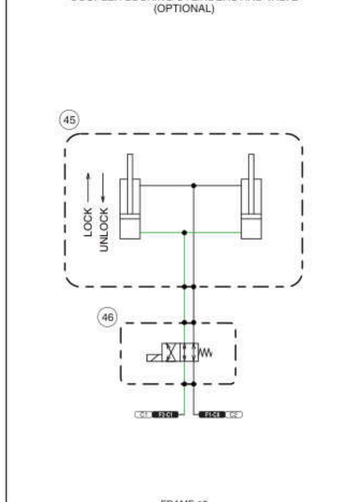












COMPONENTS

FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS
FRAME 1 COMPONENTS 1 - 1. Hydraulic Reservoir 1 - 2. Breather - Hydraulic Reservoir Check Valve (0.03 Bar/0.43 PSI) Relief Valve (0.35 Bar/5.07 PSI) 1 - 3. Implement Hydraulic Pump Displacement (71 cc rev/4.3 cu in rev) Cutoff (280 Bar/4061 psi) Delta (21 Bar/304 psi) 1 - 3A. Compensator Differential Spool 1 - 3B. Compensator High Pressure Cutoff Spool 1 - 3C. Torque Limiter (Disabled) 1. 3D Control Piston with Spring 1 - 4. Hydraulic Filter Assembly Bypass (3.4 Bar/50 psi) Warning Switch (2.7 Bar/40psi) FRAME 2 COMPONENTS 2 - 1. Hydraulic Reservoir 2 - 5. Pilot Pressure Accumulator Pre-charge (13.8 Bar /200 psi) Capacity (0.95 liter/57.9 cu in) 2 - 6. Pilot Pressure Test Port 2 - 7. Controller (4-Spool Valve) 2 - 7A. Pilot ON/OFF Solenoid 2 - 7B. Bucket Control 2 - 7C. Lift Control 2 - 7D. Auxiliary Control #1 2 - 7E. Auxiliary Control #2	FRAME 3 COMPONENTS 3 - 8. Equipment Valve: 2-spool 3 - 8A. Steering Pressure Relief (217 Bar/3147 psi) 3 - 8B. Pilot Pressure Reducing Valve (30 Bar/435 psi) 3 - 8C. Pilot Pressure Relief (45 Bar/653 psi) 3 - 8D. Steering Priority Spool 3 - 8E. Loader Main Relief (227 Bar/3292 psi) 3 - 8F. Load Sense Bleed Down Orifice (0.7 L/min) 3 - 8G. Flow Compensator Spool 3 - 8H. Regeneration Check Valve 3 - 8J. Circuit Relief Valve with Anti-Cavitation (290 Bar/4206 psi) 3 - 8K. Circuit Relief Valve with Anti-Cavitation (TC Models: 183 Bar/2654 psi) (Z-Bar Models: 290 Bar/4206 psi) 3 - 8L. Regeneration Relief Valve (6.7 Bar/97 psi) 3 - 8M. Shuttle Check Valve 3 - 9. Load Sense Pressure Test Port 3 - 10. Steering Pressure Test Port 3 - 47. Auxiliary Steering Pressure Switch Closes At: 2.0 to 2.75 Bar (30-47 psi) FRAME 4 COMPONENTS 3 - 8G. Flow Compensator Spool 3 - 8J. Circuit Relief Valve with Anti-Cavitation (290 Bar/4206 psi) 4 - 8M. Shuttle Check Valve 4 - 8N. Auxiliary Valve #1 4 - 8P. Auxiliary Valve #2 4 - 8R. Pressure Differential Valve (40 Bar/580 psi) 4 - 8S. End Cover 4 - 11. Pump Pressure Test Port	FRAME 5 COMPONENTS 5 - 12. Bucket Cylinders Bore: 101.6 mm (4.00 in) Rod: 57.2 mm (2.25 in) Stroke: 758.2 mm (29.85 in) 5 - 13. Bucket Cylinder Bore: 114.3 mm (4.5 in) Rod: 63.5 mm (2.5 in) Stroke: 529.2 mm (20.84 in) 5 - 14. Lift Cylinders Bore: 101.6 mm (4.0 in) Rod: 57.2 mm (2.25 in) Stroke: 783.0 mm (30.8 in) FRAME 6 COMPONENTS 6 - 15. Steering Cylinders Bore: 63.5 mm (2.5 in) Rod: 34.93 mm (1.375 in) Stroke: 489.2 mm (19.25 in) 6 - 16. Steering Control Valve Displacement: 460 cc/rev (28.07 cu in/rev) 6 - 16A. Circuit Relief Valve (290 Bar/4206 psi) 6 - 16B. Gerotor Pump 6 - 16C. Steering Spool 6 - 17. Back Pressure Valve (6-10 Bar/115-145 psi)	FRAME 7 COMPONENTS 7 - 1. Hydraulic Reservoir 7 - 18 Rear Brakes Modulation Pressure: (59 to 64 Bar/855.5 to 928 psi) 7 - 19. Rear Brake Pressure Test Port 7 - 20. Front Brake Pressure Test Port 7 - 21. Front Brake Modulation Pressure: (62 to 68 Bar/899 to 986 psi) 7 - 22. Parking Brake Cylinder 7 - 23. Brake Valve and Accumulator Charging Valve Cut-in Pressure: (157 to 167 Bar/2277 to 2422 psi) Cut-out Pressure: (190 to 196 Bar/2755 to 2843 psi) 7 - 23A. Park Brake Solenoid 7 - 23B. Front Brake Valve 7 - 23C. Rear Brake Valve 7 - 23D. Accumulator Isolation Check Valve 7 - 23E. Accumulator Charging Spool 7 - 23F. Priority Spool 7 - 24. Parking Brake Accumulator Pre-charge (97 Bar/1405 psi) Capacity: 0.5 liter/30.5 cu/in) 7 - 25. Front Axle Accumulator Pre-charge (55 Bar /800 psi) Capacity (2.8 liter/170.8 cu/in) 7 - 26. Front Accumulator Test Port 7 - 27. Redundant Brake Pressure Switch (NO, Closes at 62 Bar/900 psi) 7 - 28. Low Brake Pressure Switch Rising (141 Bar/2045 psi) Falling (117 Bar/1697 psi) 7 - 29. Brake Declutch Switch Adjustable Factory Setting: (NC, Opens at 24 Bar/350 psi) 7 - 30. Brake Lamp Switch (NO, Closes at 4.1 Bar/60 psi)	7 - 31. Redundant Brake Pressure Switch (NO, Closes at 62 Bar/900 psi) 7 - 32. Rear Axle Accumulator Pre-charge (55 Bar/800 psi) Capacity (2.8 liter/170.8 cu/in) 7 - 33. Rear Accumulator Test Port 7 - 34. Brake and Cooling Fan Pump 14cc/rev (0.85 cu/in) FRAME 8 COMPONENTS 8 - 1. Hydraulic Reservoir 8 - 35. Fan Drive Motor Displacement: 14 cc/rev (0.85 cu/in) 8 - 36. Fan Valve Fan Speed: 1650 ± 25 rpm 8 - 36A. Fan Relief (197 Bar/2857 psi) 8 - 37. Cooler Bypass Valve (Optional) 8 - 37A. Priority Valve 8 - 37B Relief Valve 3.0 ± 0.6 Bar/ 43.5 ± 8.7 psi 8 - 38. Hydraulic Cooler FRAME 9 COMPONENTS 9 - 39. Fan Reversing Valve Fan Speed: 1650 ± 25 rpm 9 - 39A. Fan Crossover Relief (234 BAR/3394 psi) 9 - 39B. Reversing Spools 9 - 39C. Pulse Width Modulator (PWM) Relief Solenoid 9 - 39D. ON/OFF Reverse Solenoid	FRAME 10 COMPONENTS 10 - 40. LTS Control Accumulator Pre-charge (14.5 Bar/210.3 psi) Capacity (3.78 liter/231 cu/in) 10 - 41. LTS Control Valve 10 - 41A. Pressure Relief Valve (280 BAR/4061 psi) 10 - 41B. Manual Bleed Valve 10 - 41C. LTS Control Spool Valve 10 - 41D. LTS Control Solenoid FRAME 11 COMPONENTS 11 - 1. Hydraulic Reservoir 11 - 42. Auxiliary Steering Priority Valve Relief Pressure: (241 Bar/3495 psi) 11 - 42A. Priority Spool 11 - 42B. Relief Valve (240 BAR/3480 psi) 11 - 43. Auxiliary Steering Pump Displacement: 11 cc/rev (0.671 cu/in) 11 - 44. Auxiliary Steering Load Sense Valve FRAME 11 COMPONENTS 12 - 45. Coupler Locking Cylinders 12 - 46. Coupler Locking Valve

HYDRAULIC SYMBOLS

54 — COMPONENT NUMBER
36D — COMPONENT NUMBER
SHOWS CIRCUIT CROSSING NOT CONNECTED
SHOWS CIRCUIT CONNECTED
CHECK VALVE
RESTRICTOR
FILTER OR SCREEN
OIL COOLER
DIRECTION OF FLOW
CIRCUIT — COMPONENT
PRESSURE — LOAD SENSE — PILOT PRESSURE — LINE TYPES

CIRCUIT CONTINUATION

Frame Number and Circuit Number where Circuit continues.
CIRCUIT TAGS
FRAME - CIRCUIT
CIRCUIT
Circuit Number assigned to Circuit in Frame.

NOTES

NOTE 1. Reverse Control Check Valve.
Used with LTS Control equipped Models ONLY.
NOTE 2. Used for TC Model Machines ONLY.
NOTE 3. This will replace Item 36 in Frame 8 when this Option is installed on machine.
NOTE 4. See the Repair Manual for the proper Testing and Adjustment for Hydraulic Components.

HYDRAULIC SCHEMATIC
W110B WHEEL LOADER

Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System.
The part number is 5-11600

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