CASE CONSTRUCTION

SERVICE MANUAL

WHEEL LOADER

921E
TIER 3

84299249
(Replaces 87624950)

Revised December 2009
Issued February 2007

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Description	Section No.	Form No.
Electrical Schematic Foldouts and Hydraulic Schematic Foldout	**In Rear Pocket**	**5-5800**

NOTE: CNH America LLC. reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

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65 – Front Axle Oil Temperature Sender

Located on the front axle.

Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-AR to ground	Continuity	Bad ground circuit.
NOTE: *Disconnect the connector from the axle temperature sender.*		
Between terminals of axle oil temperature sender	3521 ohm @ 20° C (68° F)	Replace front axle oil temperature sender.
NOTE: *Put the master disconnect switch and the ignition switch in the ON position.*		
Terminal A for wire 36B-A to ground	Approximately 5 volts	Check the instrument cluster (57).

66 – Radiator Coolant Temperature Sender

Located on the lower radiator hose to engine on left side of engine compartment.

Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-BAE to ground	Continuity	Bad ground circuit.
NOTE: *Disconnect the connector from the radiator coolant temperature sender.*		
Between terminals of radiator coolant temperature sender	3521 ohm @ 20° C (68° F)	Replace radiator coolant temperature sender.
NOTE: *Put the master disconnect switch and the ignition switch in the ON position.*		
Terminal A for wire 36C to ground	Approx 5 volts	Check the instrument cluster (57).

67 – Rear Axle Oil Temperature Sender

Located on the rear axle.

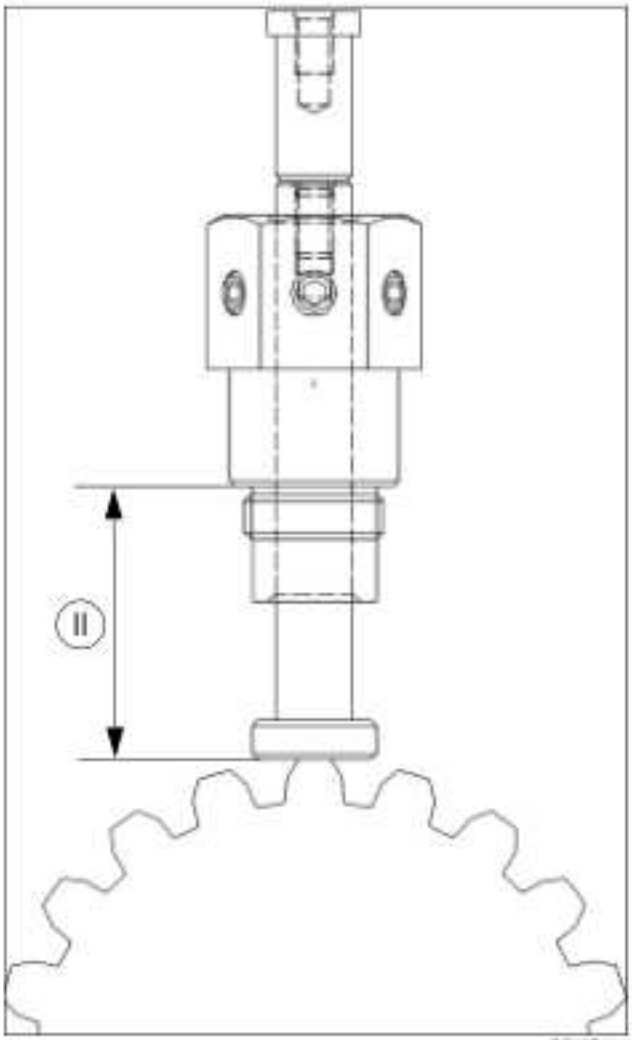
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-BAS to ground	Continuity	Bad ground circuit.
NOTE: *Disconnect the connector from the axle temperature sender.*		
Between terminals of axle oil temperature sender	3521 ohm @ 20° C (68° F)	Replace rear axle oil temperature sender.
NOTE: *Put the master disconnect switch and the ignition switch in the ON position.*		
Terminal A for wire 36A-A to ground	Approx 5 volts	Check the instrument cluster (57).

68 – Not Used

69 – Not Used

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STEP 259



BS078004

Example of correctly installed gauge, dimension II.

NOTE: *The tool shown is not offered, use a depth mike or caliper in this procedure.*

STEP 260



BD078051

Measure dimension (II) on the gauge from contact face to the screw-in face.
Dim. (II) e.g.... 30.10 MM.

STEP 261

Calculation of needed shims as below.

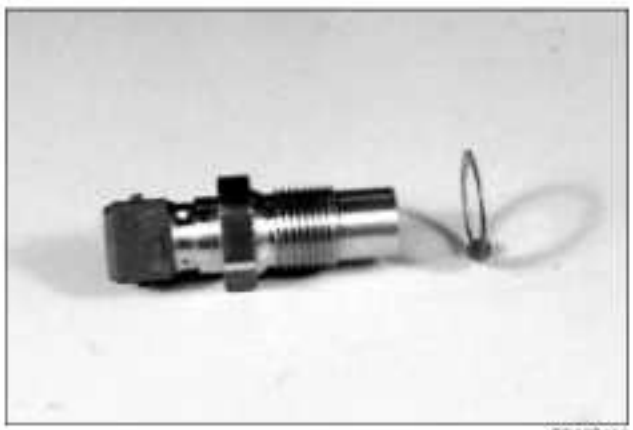
Example A

Dimension II	30.10	mm
Dimension X	-0.60	mm
Dimension A	29.50	mm

Example B

Dimension I	30.00	mm
Dimension A	-29.50	mm
Dimension S (shims)	0.50	mm

STEP 262



BD078052

Install shim (s) as required, apply Loctite 574 to the threads.

STEP 263

Install transmitter and torque to 30 Nm (22 pound feet).

STEP 264

Repeat the procedure for turbine and internal speed transmitters.

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Section
8000

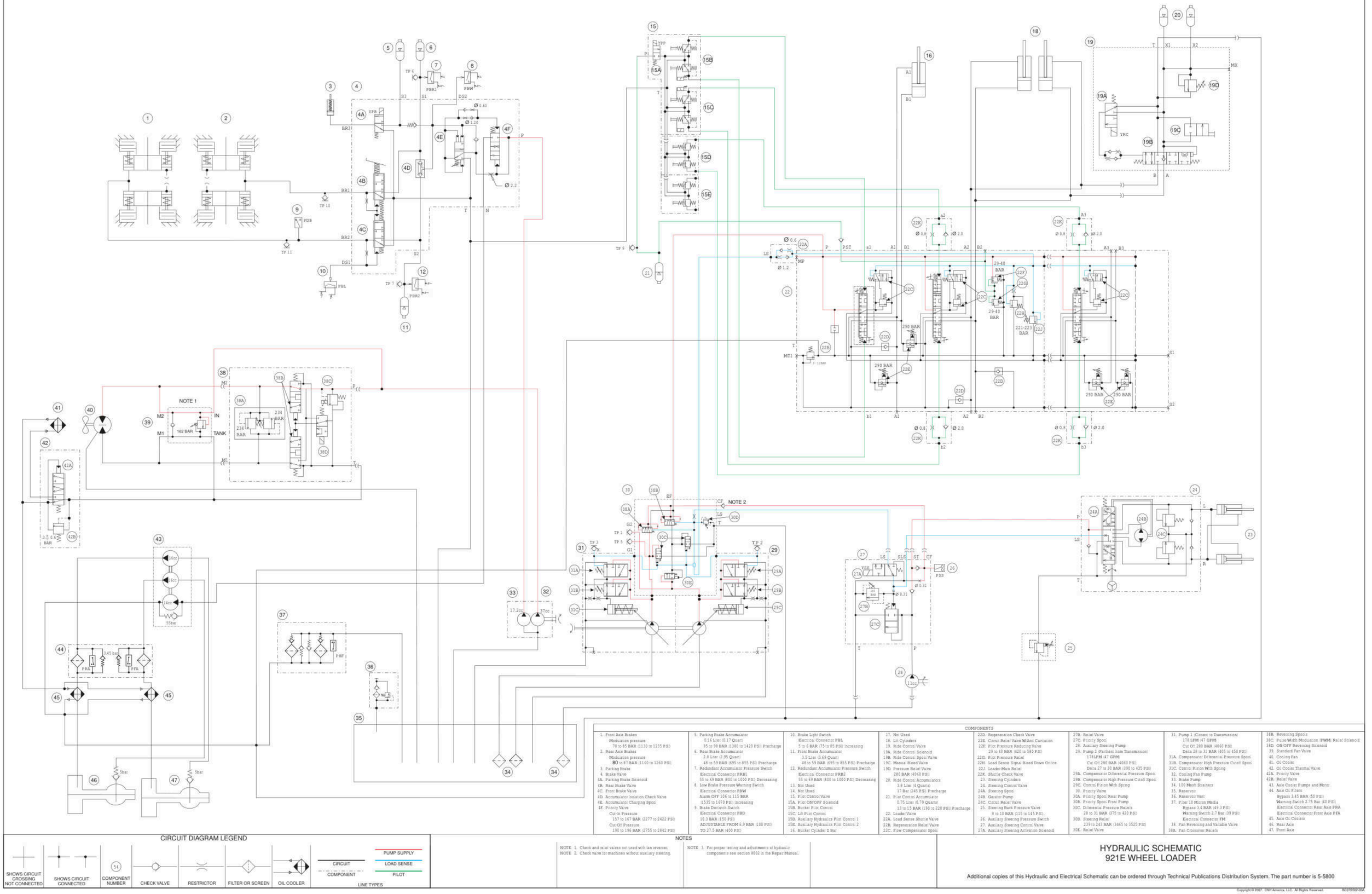
HOW TO READ HYDRAULIC SCHEMATICS

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CIRCUIT DIAGRAM LEGEND

SHOWS CIRCUIT CROSSING NOT CONNECTED

SHOWS CIRCUIT CONNECTED

54 COMPONENT NUMBER

CHECK VALVE

RESTRICTOR

FILTER OR SCREEN

OIL COOLER

NOTES

NOTE 1. Check and relief valves not used with fan reverser.
NOTE 2. Check valve for machines without auxiliary steering.

NOTE 3. For proper testing and adjustments of hydraulic components see section 8002 in the Repair Manual.

COMPONENTS

1. Front Axle Brakes
Modulation pressure
78 to 85 BAR (1130 to 1235 PSI)
2. Rear Axle Brakes
Modulation pressure
80 to 87 BAR (1160 to 1260 PSI)
3. Parking Brake
4. Brake Valve
4A. Parking Brake Solenoid
4B. Rear Brake Valve
4C. Front Brake Valve
4D. Accumulator Isolation Check Valve
4E. Accumulator Charging Spool
4F. Priority Valve
Cut-in Pressure
157 to 167 BAR (2277 to 2422 PSI)
Cut-Off Pressure
190 to 196 BAR (2755 to 2842 PSI)
5. Parking Brake Accumulator
0.16 Liter (0.17 Quart)
35 to 38 BAR (1380 to 1420 PSI) Precharge
6. Rear Axle Brakes Accumulator
2.8 Liter (2.95 Quart)
48 to 59 BAR (695 to 855 PSI) Precharge
7. Redundant Accumulator Pressure Switch
Electrical Connector PBR1
55 to 69 BAR (800 to 1000 PSI) Decreasing
8. Low Brake Pressure Warning Switch
Electrical Connector PBW
Alarm OFF 106 to 115 BAR
(1535 to 1670 PSI) Increasing
9. Brake Declutch Switch
Electrical Connector PBD
10.3 BAR (150 PSI)
ADJUSTABLE FROM 6.9 BAR (100 PSI)
TO 27.5 BAR (400 PSI)
10. Brake Light Switch
Electrical Connector FBL
5 to 6 BAR (75 to 85 PSI) Increasing
11. Front Brake Accumulator
3.5 Liter (3.69 Quart)
48 to 59 BAR (695 to 855 PSI) Precharge
12. Redundant Accumulator Pressure Switch
Electrical Connector FBR2
55 to 69 BAR (800 to 1000 PSI) Decreasing
13. Not Used
14. Not Used
15. Pilot Control Valve
15A. Pilot ON/OFF Solenoid
15B. Bucket Pilot Control
15C. Lift Pilot Control
15D. Auxiliary Hydraulics Pilot Control 1
15E. Auxiliary Hydraulics Pilot Control 2
16. Bucket Cylinder 2 Bar
17. Not Used
18. Lift Cylinders
19. Ride Control Valve
19A. Ride Control Solenoid
19B. Ride Control Spool Valve
19C. Manual Bleed Valve
19D. Pressure Relief Valve
280 BAR (4060 PSI)
20. Ride Control Accumulators
3.8 Liter (4 Quarts)
17 Bar (245 PSI) Precharge
21. Pilot Control Accumulator
0.75 Liter (0.79 Quarts)
13 to 15 BAR (190 to 220 PSI) Precharge
22. Loader Valve
22A. Load Sense Shuttle Valve
22B. Regeneration Relief Valve
22C. Flow Compensator Spool
22D. Regeneration Check Valve
22E. Circuit Relief Valve W/Anti Cavitation
22F. Pilot Pressure Reducing Valve
29 to 40 BAR (420 to 580 PSI)
22G. Pilot Pressure Relief
22H. Load Sense Signal Bleed Down Orifice
22J. Loader Main Relief
22K. Shuttle Check Valve
23. Steering Cylinders
24. Steering Control Valve
24A. Steering Spool
24B. Gerotor Pump
24C. Circuit Relief Valve
25. Steering Back Pressure Valve
8 to 10 BAR (115 to 145 PSI).
26. Auxiliary Steering Pressure Switch
27. Auxiliary Steering Control Valve
27A. Auxiliary Steering Activation Solenoid
27B. Relief Valve
27C. Priority Spool
28. Auxiliary Steering Pump
29. Pump 2 (Farthest from Transmission)
178 LPM (47 GPM)
Cut Off 280 BAR (4060 PSI)
Delta 27 to 30 BAR (390 to 435 PSI)
29A. Compensator Differential Pressure Spool
29B. Compensator High Pressure Cutoff Spool
29C. Control Piston With Spring
30. Priority Valve
30A. Priority Spool Rear Pump
30B. Priority Spool Front Pump
30C. Differential Pressure Reliefs
28 to 31 BAR (375 to 420 PSI)
30D. Steering Relief
239 to 243 BAR (3465 to 3525 PSI)
30E. Relief Valve
31. Pump 1 (Closest to Transmission)
178 LPM (47 GPM)
Cut Off 280 BAR (4060 PSI)
Delta 28 to 31 BAR (405 to 450 PSI)
31A. Compensator Differential Pressure Spool
31B. Compensator High Pressure Cutoff Spool
31C. Control Piston With Spring
32. Cooling Fan Pump
33. Brake Pump
34. 100 Mesh Strainers
35. Reservoir
36. Reservoir Vent
37. Filter 10 Micron Media
Bypass 3.4 BAR (49.3 PSI)
Warning Switch 2.7 Bar (39 PSI)
Electrical Connector FM
38. Fan Reversing and Variable Valve
38A. Fan Crossover Reliefs
38B. Reversing Spools
38C. Pulse Width Modulation (PWM) Relief Solenoid
38D. ON/OFF Reversing Solenoid
39. Standard Fan Valve
40. Cooling Fan
41. Oil Cooler
42. Oil Cooler Thermal Valve
42A. Priority Valve
42B. Relief Valve
43. Axle Cooler Pumps and Motor
44. Axle Oil Filters
Bypass 3.45 BAR (50 PSI)
Warning Switch 2.75 Bar (40 PSI)
Electrical Connector Rear Axle PFA
Electrical Connector Front Axle PFA
45. Axle Oil Coolers
46. Rear Axle
47. Front Axle

HYDRAULIC SCHEMATIC
921E WHEEL LOADER

Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System. The part number is 5-5800

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