CASE CONSTRUCTION

SERVICE MANUAL

WHEEL LOADER

721E
TIER 3

84243980
(Replaces 87634099)

Revised December 2009
Issued September 2007

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CNH America LLC.
700 State Street
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110 – Rear Wiper Motor

Located in top of rear cab head liner.

Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-MA to ground	Continuity	Bad ground circuit.
NOTE: *Make sure the rear wiper and washer switch (107) is in the OFF position.*		
Between terminals for wires 68C-A and 68L-A	Continuity	Bad rear wiper and washer switch (107).
NOTE: *Put the master disconnect switch and the ignition switch in the ON position.*		
Terminal for wire 19K-C to ground	24 volts	Check fuse ECA-F13, also check circuit 19K.
NOTE: *Put the rear wiper and washer switch (107) in the ON position.*		
Terminal for wire 68C-A to ground	24 volts	Bad rear wiper and washer switch (107).
Terminal for wire 68L-A to ground	0 volt	Bad rear wiper and washer switch (107).
NOTE: *If the readings are good, replace the rear wiper motor.*		

111 – Rear Washer Pump Motor

Located in left side engine compartment.

Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-BL to ground	Continuity	Bad ground circuit.
NOTE: *Put master disconnect switch and ignition switch in ON position. Depress and hold rear wiper and washer switch (107) in WASH position.*		
Terminal for wire 68W-A to ground	24 volts	Bad rear wiper and washer switch (107) Also check wires 68W-A and 68W.
NOTE: *If the readings are good, replace the rear washer pump motor.*		

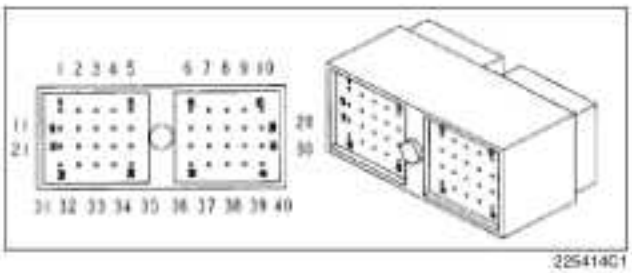
112 – Front Washer Pump Motor

Located in left side engine compartment.

Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-B to ground	Continuity	Bad ground circuit.
NOTE: *Put the master disconnect switch and the ignition switch in the ON position. Connect volt meter to check point then push down on front wiper and washer switch (108).*		
Terminal for wire 63W-A to ground	24 volts	Bad front wiper and washer switch (108), also check circuit 63W.
NOTE: *If the readings are good, replace the front washer pump motor.*		

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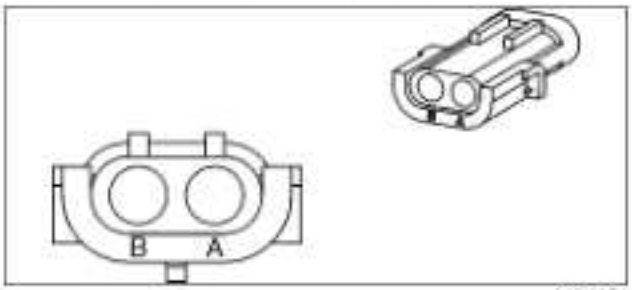
CONNECTOR ENG - ENGINE TO CAB



225414C1

CAV	WIRE IDENT	CIRCUIT
1	21C-D	Starter Relay signal
2	61C-A	AC Relay Out
2	61C-B	AC Relay Out
3	21GA	EDC7 Crank Control Relay
4	21H-A	Crank Control Relay LSD
5	18F-AN	LH Position/Tail Fuse Power
5	18F-B	LH Position/Tail Fuse Power
6		Not Used
7	35A-R	Backup Alarm Relay Out
7	35A-J	Reverse Light
8	44A-D	Brake Light Relay Out
8	44A-DN	Brake Light Relay Out
9	18G-H	RH Position/Tail Fuse Power
9	18G-HN	RH Position/Tail Fuse Power
10	45L-A	Left Turn Signal
10	45L-AN	Left Turn Signal
11	21F-A	EDC7 Digital Ground
12	45R-A	Right Turn Signal
12	45R-AN	Right Turn Signal
13	18R	Voltmeter Relay Fused Power
14	18J-F	EDC7 Time Delay Fused Power
15	21D	Starter Relay Signal
16	28E	Ether Relay Signal
17	0-BJ	AIC Sensor Ground
18	18J-A	EDC7 Time Delay Fused Power
19	0-BG	AIC Power Ground
20	0-BH	AIC Power Ground Red
21	13C-A	Fuel Shutoff Fused Power
22	52A-B	Fan Reverse Relay Out
23	56-A	Fan Control PWM
24	68W-A	Rear Washer Pump
25	63W-A	Front Washer Pump
26	14	Alternator D+
27	21E-A	Key Switch Crank
28	31F	Air Filter Restriction Sw Signal
29	61R	AC Relay Control
30	61A	Trinary Pressure Switch Input
31	20G-A	EDC7 ISO-K Interface
32	36A-A	Rear Axle Temperature
33	36F	Fuel Level ANALOG
34	36C	Radiator Coolant Temp Signal
35	19Y-D	Hood Switch Fused Power
36	60D-A	Hood Down Relay Out
37	59D-A	Hood Down Relay Control
38	60U-A	Hood Up Relay Out
39	59U-A	Hood Up Relay Control
40	35A-G	Backup Alarm Relay Out
40	35A-GN	Backup Alarm Relay Out

CONNECTOR ENG-D - DISCONECT HARNESS



245480C1

CAV	WIRE IDENT	CIRCUIT
A	13C-A	Fuel Shutoff Fused Power
B	13M-A	Fuel Shutoff Fused Power
B	13M-B	Key Switch Power Disc Switch

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STEP 155



BO08M374

Install the second pressure ring in the differential housing.

STEP 156- LIMITED SLIP DIFFERENTIAL



BO08M375

Starting with an inner clutch disc, install alternately the inner and outer clutch disc. Thickness of disc pack must be the same on both sides.

STEP 157- OPEN DIFFERENTIAL

Install four outer clutch discs. Thickness of disc pack must be the same on both sides.

STEP 158



BO08M376

Install the driving pin in the differential housing.

Determine Disc Clearance

STEP 159



BO08M377

Determine dimension A, from mounting face of the differential housing to face of the outer clutch disc.

Dimension A (Example). . . . . 15.60 mm (0.61 inch)

STEP 160



BO08M378

Determine dimension B, from contact surface of the outer clutch disc to mounting face of the housing cover.

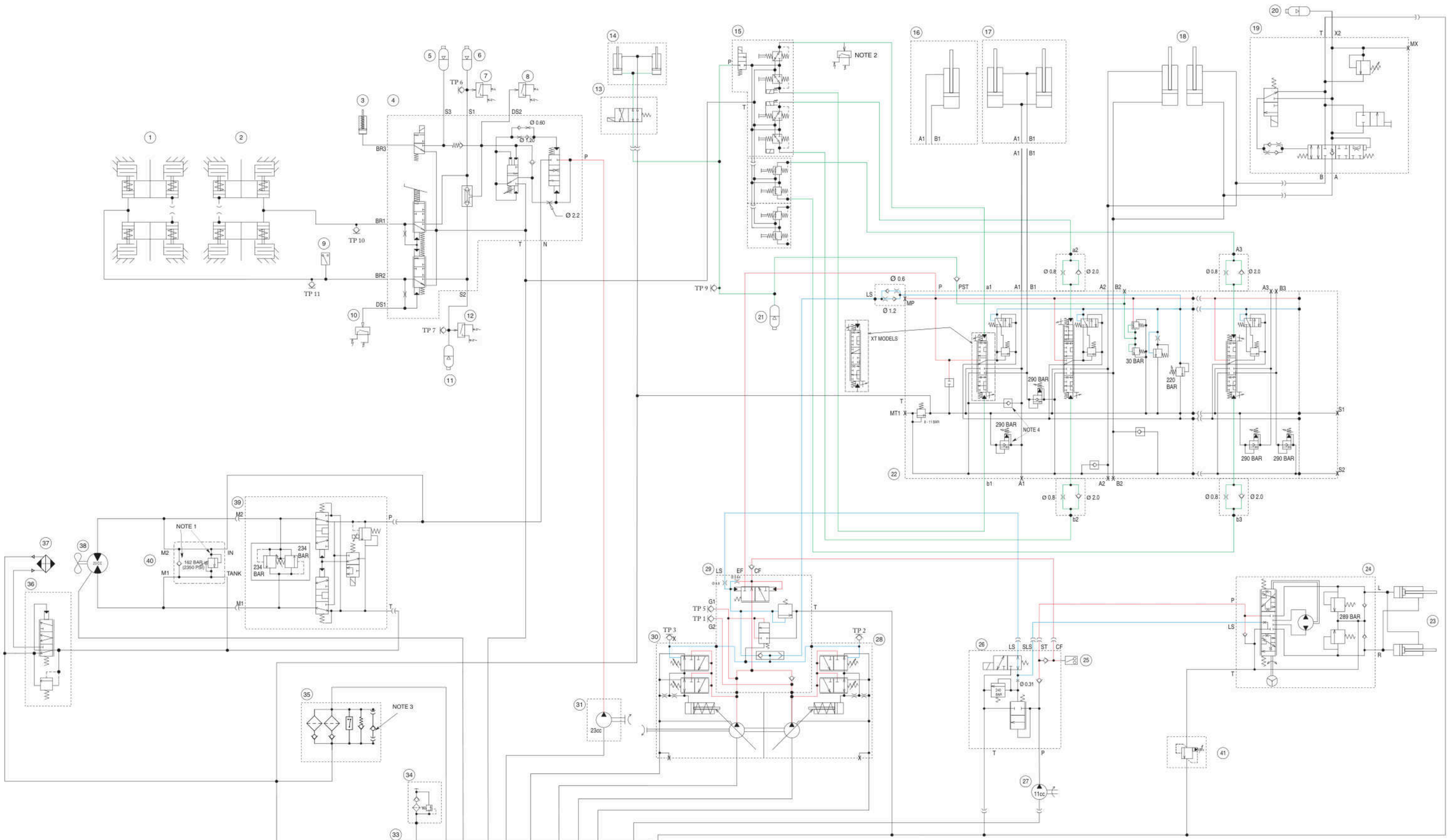
Dimension B (Example). . . . . 15.20 mm (0.60 inch)

Example B:

Dimension A	15.60 mm (0.62 inch)
Dimension B	+15.20 mm (0.60 inch)
Difference = Disc clearance	= **0.40 mm (0.02 inch)**

NOTE: *If required disc clearance of 0.040 mm (0.02 inch) is not obtained, install new outer clutch discs of thickness necessary to obtain 0.040 mm (0.002 inch) disc clearance. Difference in thickness between left and right disc pack must not exceed 0.1 mm (0.004 inch). Outer clutch discs are available in following thicknesses: 2.1 mm (0.083 inch), 2.2 mm (0.087 inch), 2.3 mm (0.090 inch), 2.4 mm (0.094 inch), and 2.5 mm (0.098 inch).*

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COMPONENTS

1. Front Axle Brakes
2. Rear Axle Brakes
3. Parking Brake
4. Brake Valve
   Cut-In Pressure
   157 to 167 BAR (2277 to 2422 PSI)
   Cut-Off Pressure
   190 to 196 BAR (2755.7 to 2842.7 PSI)
5. Parking Brake Accumulator
   0.16 Liter (0.17 Quart)
   96 BAR (1392 PSI) Precharge
6. Rear Brake Accumulator
   2.8 Liter (2.95 Quart)
   55 BAR (797.7 PSI) Precharge
7. Redundant Accumulator Pressure
8. Low Brake Pressure Warning
9. Brake Declutch
10. Brake Light
11. Front Brake Accumulator
    2.8 Liter (2.95 Quart)
    55 BAR (797.7 PSI) Precharge
12. Redundant Accumulator Pressure
13. Coupler Locking Valve (Optional)
14. Coupler Locking Cylinders (Optional)
15. Pilot Control Valve
16. Bucket Cylinder Z Bar
17. Bucket Cylinder XT
18. Lift Cylinders
19. Lift Cylinders
20. Ride Control Accumulator
    3.78 Liter (4 Quarts)
    14.5 Bar (210.3 PSI) Precharge
21. Pilot Control Accumulator
    0.75 Liter (0.79 Quarts)
    13.8 BAR (200 PSI) Precharge
22. Loader Valve
23. Steering Cylinders
24. Steering Control Valve
25. Auxiliary Steering Pressure Switch
26. Auxiliary Steering Control Valve
27. Auxiliary Steering Pump
28. Low Pressure Pump
    86 LPM (22.5 GPM)
    Cut Off 200 BAR (2900 PSI)
    Delta 25 to 28 BAR (362 to 406 PSI)
29. Priority Valve
30. High Pressure Pump
    120 LPM (31.6 GPM)
    Cut Off 280 BAR (4060 PSI
    Delta 24 to 27 BAR (348 to 391 PSI)
31. Brake Pump
32. 100 Mesh Strainers
33. Reservoir
34. Reservoir Vent
35. Filter 10 Micron Media
    Bypass 3.4 BAR (49.3 PSI)
    Warning Switch 2.7 Bar (39 PSI)
36. Oil Cooler Thermal Valve
37. Oil Cooler
38. Oil Cooler Fan
39. Fan Reversing and Variable Valve
40. Standard Fan Valve
41. Steering Back Pressure Valve
    8 to 10 BAR (115 to 145 PSI).

CIRCUIT DIAGRAM LEGEND

- SHOWS CIRCUIT CROSSING NOT CONNECTED
- SHOWS CIRCUIT CONNECTED
- 54 COMPONENT NUMBER
- CHECK VALVE
- RESTRICTOR
- FILTER OR SCREEN
- OIL COOLER
- CIRCUIT COMPONENT
- PUMP SUPPLY
- LOAD SENSE
- PILOT

LINE TYPES

NOTES

NOTE 1. Check and relief valves not used with fan reverser.
NOTE 2. XT Models with ride control only.
NOTE 3. Optional check valve for ride control only.
NOTE 4. On XT models, the regeneration check valve and passage are removed and the A1 port circuit relief is adjusted to 152 BAR.
NOTE 5. For proper testing and adjustments of hydraulic components see section 8002 in the Service Manual.

HYDRAULIC SCHEMATIC
721E WHEEL LOADER

Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System. The part number is 5-3070

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