621C, 721C
WHEEL LOADER

Service Manual

7-12113

CASE

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621C/721C Loaders
Service Manual

Table of Contents

Description	Section No.	Form No.
General	**Tab 1**	
Section Index - General		7-12120
Standard Torque Specifications	1001	8-71601
Fluids and Lubricants	1002	7-12131
Loctite Product Chart		8-98902
Engines	**Tab 2**	
Section Index - Engines		7-12140
Engine and Radiator Removal and Installation - 621C	2000	7-12150
Engine and Radiator Removal and Installation - 721C	2000	7-12160
Stall Tests	2002	7-12171
For Engine Repair, See the Engine Service Manual		
Fuel System	**Tab 3**	
Section Index - Fuel System		7-12180
For Fuel System Repair, See the Engine Service Manual		
Electrical	**Tab 4**	
Section Index - Electrical		7-12190
Removal and Installation of Starter and Alternator - 621C	4001	7-12210
Removal and Installation of Starter and Alternator - 721C	4001	7-15380
Electrical Specifications and Troubleshooting	4002	7-12221
Batteries	4003	7-49440
Starter and Starter Solenoid - 621C	4004	7-12230
Starter and Starter Solenoid - 721C	4004	7-12240
Information and Diagnostic Center	4005	7-12251
Alternator	4007	7-12260
Steering	**Tab 5**	
Section Index - Steering		7-12270
Removal and Installation of Steering Components	5001	7-12290
Steering Specifications, Pressure Checks, and Troubleshooting	5002	7-12300
Steering Control Valve	5003	7-12310
Steering Priority Valve	5004	7-12320
Steering Cylinders	5005	7-12330
Center Pivot	5006	7-12340

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621C/721C Loaders
Service Manual

Table of Contents

Description	Section No.	Form No.
Power Train	**Tab 6**	
Section Index - Power Train		7-12360
Transmission Specifications, Pressure Checks, and Troubleshooting	6002	7-12391
Transmission - 621C	6003	7-12401
Transmission - 721C	6003	7-12411
Front and Rear Axle	6004	7-13281
Drive Shaft, Center Bearing, and Universal Joints	6005	7-12430
Wheels and Tires	6006	7-12440
Transmission Control Valve	6007	7-12450
Brakes	**Tab 7**	
Section Index - Brakes		7-12460
Removal and Installation of Brake Components	7001	7-12480
Hydraulic Brake Troubleshooting	7002	7-12490
Brake Accumulators	7004	7-12510
Brake Actuator Valve	7005	7-12520
Brake Accumulator Valve	7007	7-12530
Parking Brake	7008	7-12540
NOTE: *For parking brake and brake pedal adjustments, see Section 9001.*		
Hydraulics	**Tab 8**	
Section Index - Hydraulics		7-12550
Removal and Installation of Hydraulic Components	8001	7-12571
Hydraulic Specifications, Troubleshooting, and Pressure Checks	8002	7-12581
Cleaning the Hydraulic System	8003	7-49640
Hydraulic Pump	8004	7-12601
Loader Control Valve	8005	7-12611
Cylinders	8006	7-12620
Coupler Lock Valve	8007	7-12630
Remote Control Valves	8010	7-12640
Combination Valve	8011	7-12650
Accumulator for Ride Control	8013	7-13471
Solenoid Valve and Accumulator Valve for Ride Control	8014	7-13480

Bur 7-12112 Issued 4-00 Printed in U.S.A.

MidWestTech | Case 621C, 721C Wheel Loader Service Manual | Publication 7-12113 Order the manual at mid-west-tech.com >

621C/721C Loaders
Service Manual

Table of Contents

Description	Section No.	Form No.
Mounted Equipment	**Tab 9**	
Section Index - Mounted Equipment		7-12660
Pedals and Levers	9001	7-12670
Air Conditioning Troubleshooting and System Checks For Systems with HFC-134a Refrigerant	9002	7-14150
Air Conditioner System Service	9003	7-14160
Removal and Installation of Air Conditioning Components For Systems with HFC-134a Refrigerant	9004	7-14170
Air Conditioning Compressor and Clutch For Systems with HFC-134a Refrigerant	9005	7-14180
Loader	9006	7-12680
ROPS Cab and ROPS Canopy	9007	7-12690
Cab Glass Installation	9010	7-14290

NOTE: Case Corporation 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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119 – Left Front Marker Lamp (European Models)

Check Points	Reading	Possible Cause of Bad Reading
Terminal for wire 0 to ground	Continuity	Bad ground circuit.
NOTE: *Put the master disconnect switch in the ON position. Put the 5 position rotary lamp switch (112) in position 2 or higher.*		
Bulb	Continuity	Bad bulb.
Terminal for wire 18F to ground	24 volts	Check fuse F', also check circuit 18F and 5 position rotary lamp switch (112).

120 – Right Front Marker Lamp (European Models)

Check Points	Reading	Possible Cause of Bad Reading
Terminal for wire 0 to ground	Continuity	Bad ground circuit.
NOTE: *Put the master disconnect switch in the ON position. Put the 5 position rotary lamp switch (112) in position 2 or higher.*		
Bulb	Continuity	Bad bulb.
Terminal for wire 18G to ground	24 volts	Check fuse G', also check circuit 18G and 5 position rotary lamp switch (112).

121 – Left Rear Marker Lamp (European Models)

Check Points	Reading	Possible Cause of Bad Reading
Terminal for wire 0 to ground	Continuity	Bad ground circuit.
NOTE: *Put the master disconnect switch in the ON position. Put the 5 position rotary lamp switch (112) in position 2 or higher.*		
Bulb	Continuity	Bad bulb.
Terminal for wire 18G to ground	24 volts	Check fuse F', also check circuit 18F and 5 position rotary lamp switch (112).

122 – Right Rear Marker Lamp (European Models)

Check Points	Reading	Possible Cause of Bad Reading
Terminal for wire 0 to ground	Continuity	Bad ground circuit.
NOTE: *Put the master disconnect switch in the ON position. Put the 5 position rotary lamp switch (112) in position 2 or higher.*		
Bulb	Continuity	Bad bulb.
Terminal for wire 18G to ground	24 volts	Check fuse G', also check circuit 18G and 5 position rotary lamp switch (112).

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FAULT CODES

CODE	DEFINITION	POSSIBLE STEPS FOR REPAIR
12900	Engine coolant short circuit measuring less than 50 ohms to the engine coolant temperature sensor.	Troubleshoot electrical circuits.
12901	Engine coolant open circuit measuring greater than 10,000 ohms to the engine coolant temperature sensor with hydraulic oil temperature at 40° C (104° F) or more.	
13000	Low engine coolant level - This code will not be generated if the engine coolant temperature is below 20° C (68° F).	1. A critical stop function warning has occurred. 2. Red stop indicator comes on and continuous buzzer sounds. 3. Stop machine and perform required service on the critical area.
21100	Engine oil pressure is measured below 100 kPa (14.5 PSI)	
21110	Engine coolant temperature is 110° C (230° F) or greater.	
21900	Engine oil pressure short circuit measuring less than 16 ohms to the engine oil pressure sensor.	Troubleshoot electrical circuits. **NOTE:** *Fault code 21900 is possible during cold engine start-up. After machine warm up, verify proper operation.*
21901	Engine oil pressure open circuit measuring more than 270 ohms to the engine oil pressure sensor.	
33900	Fuel level short circuit measuring less than 16 ohms to the fuel level sender.	Troubleshoot electrical circuits.
33901	Fuel level open circuit measuring more than 270 ohms to the fuel level sender.	
34000	Fuel solenoid output short circuit.	
35000	High air filter restriction.	1. A caution level warning has occurred. 2. Yellow caution indicator comes on and buzzer sounds for 3 seconds. 3. Perform required service on the cautioned area.
42125	Transmission temperature measured above 125° C (257° F)	1. A critical stop function warning has occurred. 2. Red stop indicator comes on and continuous buzzer sounds. 3. Stop machine and perform required service on the critical area.
45000	High transmission filter restriction when the transmission oil is above 20° C (68° F).	1. A caution level warning has occurred. 2. Yellow caution indicator comes on and buzzer sounds for 3 seconds. 3. Perform required service on the cautioned area.
46017	Gear range fault error	1. Check the cables from TCU to shift lever. 2. Check signal combinations of shift lever positions for gear range.
46018	Logical error at direction select signal	1. Check the cables from TCU to shift lever. 2. Check signal combinations of shift lever positions F-N-R.

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Testing the Hydraulic Pump

Test No. 1 - Primary Pump Output Test

STEP 1

Connect the flowmeter to the primary pressure hose from the hydraulic pump located toward the engine.

STEP 2

Make sure the load control of the flowmeter is open. Make sure the hydraulic oil is 54 to 66°C (130 to 150°F).

STEP 3

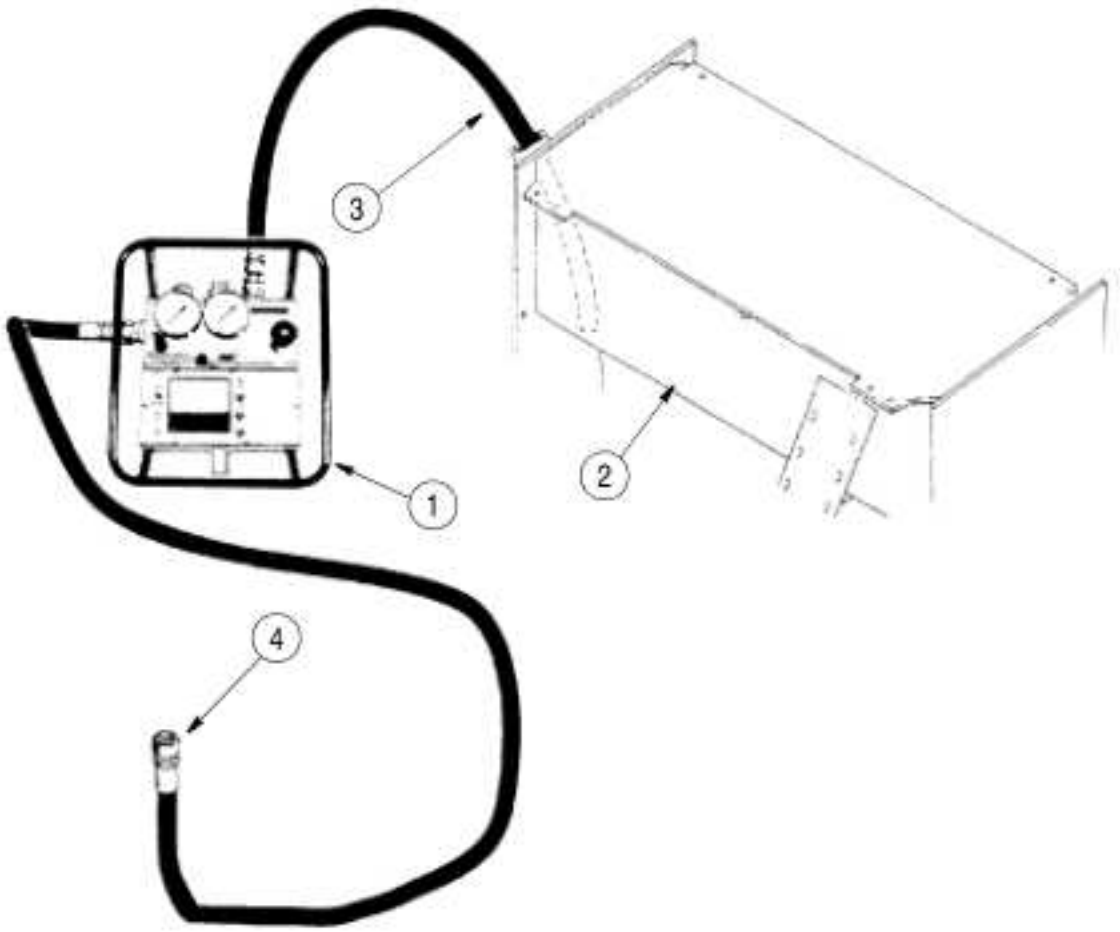
Start and run the engine at 2000 r/min. Measure the flow at 0 kPa, 0 bar (0 psi). Record the flow.

STEP 4

Slowly close the load valve on the flowmeter and measure the flow at 13 790 kPa, 138 bar (2000 psi). Make sure the engine is running at 2000 r/min with the load applied. Record the flow.

STEP 5

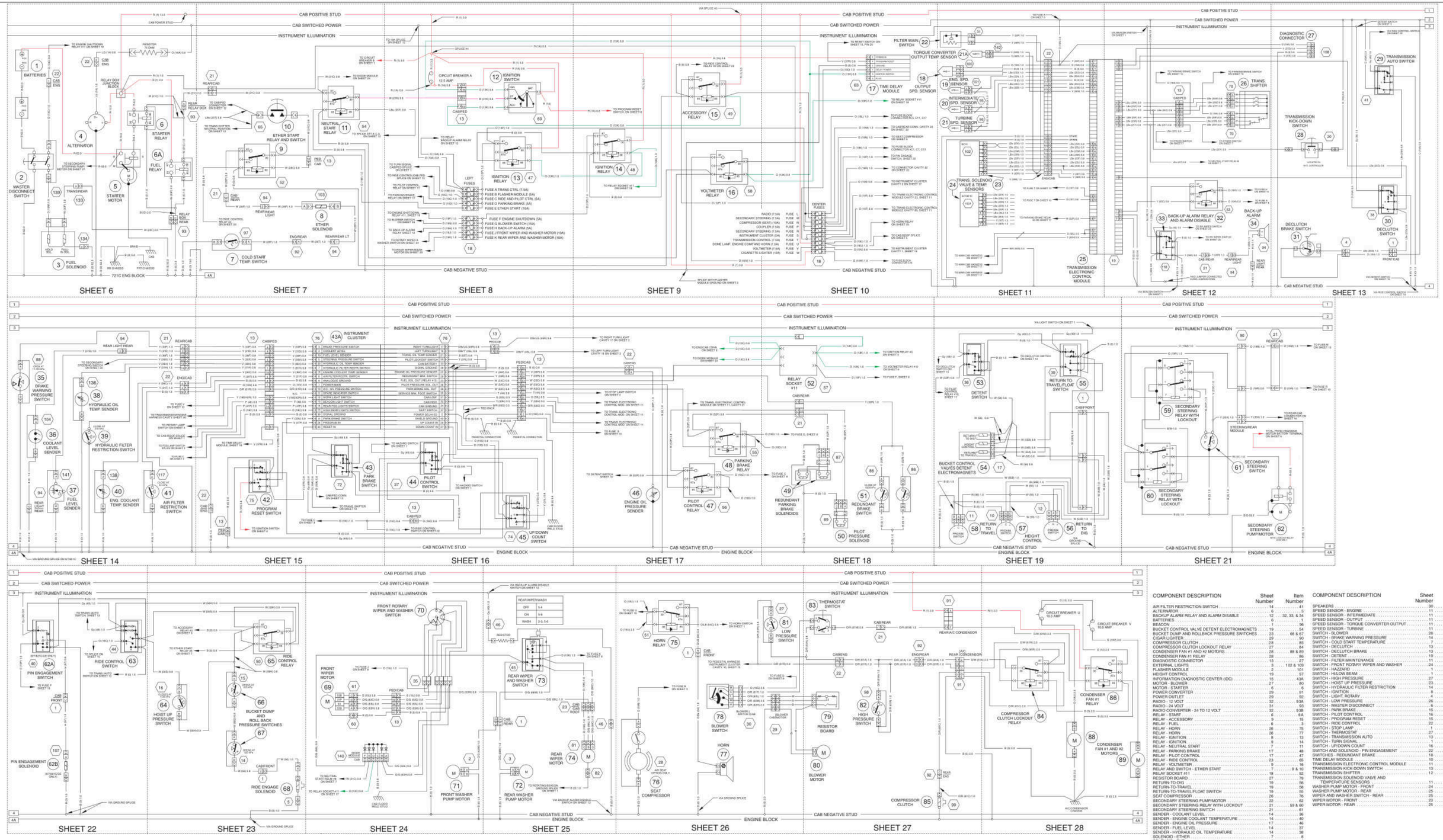
Divide the flow reading at 13 790 kPa, 138 bar (2000 psi) by the reading at 0 kPa, 0 bar (0 psi). The answer multiplied by 100 is the percent efficiency of the primary pump. If the efficiency is less than 75% repair or replace the pump.



GS38M026

1. CAS-10280 FLOWMETER
2. HYDRAULIC RESERVOIR
3. FLOWMETER OUTLET (USE WIRE TO FASTEN HOSE BELOW THE SURFACE OF THE OIL)
4. CONNECT TO PRIMARY PRESSURE PORT HOSE

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COMPONENT DESCRIPTION	Sheet Number	Item Number
AIR FILTER RESTRICTION SWITCH	14	41
ALTERNATOR	1	4
BACKUP ALARM RELAY AND ALARM DISABLE	12	32, 33, & 34
BATTERIES	1	1
BEACON	1	96
BUCKET CONTROL VALVE DETENT ELECTROMAGNETS	19	54
BUCKET DUMP AND ROLLBACK PRESSURE SWITCHES	23	66 & 67
CIGAR LIGHTER	29	90
COMPRESSOR CLUTCH	28	85
COMPRESSOR CLUTCH LOCKOUT RELAY	27	84
CONDENSER FAN #1 AND #2 MOTORS	28	88 & 89
CONDENSER FAN #1 RELAY	28	86
DIAGNOSTIC CONNECTOR	13	27
EXTERNAL LIGHTS	3	102 & 109
FLASHER MODULE	2	101
HEIGHT CONTROL	19	57
INFORMATION DIAGNOSTIC CENTER (IDC)	10	43A
MOTOR - BLOWER	27	80
MOTOR - STARTER	6	6
POWER CONVERTER	29	91
POWER OUTLET	29	92
RADIO - 12 VOLT	32	93A
RADIO - 24 VOLT	31	93
RADIO CONVERTER - 24 TO 12 VOLT	30	93B
RELAY - START	6	6A
RELAY - ACCESSORY	9	15
RELAY - FUEL	6	3
RELAY - HORN	26	75
RELAY - HORN	26	77
RELAY - IGNITION	8	13
RELAY - IGNITION	9	14
RELAY - NEUTRAL START	7	11
RELAY - PARKING BRAKE	17	48
RELAY - PILOT CONTROL	17	47
RELAY - RIDE CONTROL	23	65
RELAY - VOLTMETER	9	16
RELAY AND SWITCH - ETHER START	7	9 & 10
RELAY SOCKET #11	18	52
RESISTOR BOARD	27	79
RETURN-TO-DIG	19	56
RETURN-TO-TRAVEL	19	58
RETURN-TO-TRAVEL/FLOAT SWITCH	19	55
SEAT COMPRESSOR	26	76
SECONDARY STEERING PUMP/MOTOR	22	62
SECONDARY STEERING RELAY WITH LOCKOUT	21	59 & 60
SECONDARY STEERING SWITCH	21	61
SENDER - COOLANT LEVEL	14	36
SENDER - ENGINE COOLANT TEMPERATURE	14	40
SENDER - ENGINE OIL PRESSURE	17	46
SENDER - FUEL LEVEL	14	37
SENDER - HYDRAULIC OIL TEMPERATURE	14	38
SOLENOID - ETHER	7	8
SOLENOID - FUEL	6	4
SOLENOID - PILOT PRESSURE	18	50
SOLENOID - RIDE ENGAGE	23	68
SOLENOIDS - REDUNDANT PARKING BRAKE	18	49

COMPONENT DESCRIPTION	Sheet Number	Item Number
SPEAKERS	30	94 & 95
SPEED SENSOR - ENGINE	11	19
SPEED SENSOR - INTERMEDIATE	11	20
SPEED SENSOR - OUTPUT	11	18
SPEED SENSOR - TORQUE CONVERTER OUTPUT	11	21A
SPEED SENSOR - TURBINE	11	21
SWITCH - BLOWER	26	78
SWITCH - BRAKE WARNING PRESSURE	14	35
SWITCH - COLD START TEMPERATURE	7	7
SWITCH - DECLUTCH	13	30
SWITCH - DECLUTCH BRAKE	13	31
SWITCH - DETENT	19	53
SWITCH - FILTER MAINTENANCE	14	22
SWITCH - FRONT ROTARY WIPER AND WASHER	24	70
SWITCH - HAZZARD	2	100
SWITCH - HI-LOW BEAM	1	100
SWITCH - HIGH PRESSURE	27	82
SWITCH - HOIST UP PRESSURE	23	64
SWITCH - HYDRAULIC FILTER RESTRICTION	14	39
SWITCH - IGNITION	8	12
SWITCH - LIGHT, ROTARY	4	172
SWITCH - LOW PRESSURE	26	81
SWITCH - MASTER DISCONNECT	6	2
SWITCH - PARK BRAKE	15	43
SWITCH - PILOT CONTROL	16	44
SWITCH - PROGRAM RESET	15	42
SWITCH - RIDE CONTROL	22	63
SWITCH - STOP LAMP	1	97
SWITCH - THERMOSTAT	27	83
SWITCH - TRANSMISSION AUTO	13	29
SWITCH - TURN SIGNAL	1	99
SWITCH - UP/DOWN COUNT	16	45
SWITCH AND SOLENOID - PIN ENGAGEMENT	22	62A & 62B
SWITCHES - ROLLBACK	18	51
TIME DELAY MODULE	10	17
TRANSMISSION ELECTRONIC CONTROL MODULE	11	25
TRANSMISSION KICK-DOWN SWITCH	13	28
TRANSMISSION SHIFTER	12	26
TRANSMISSION SOLENOID VALVE AND TEMPERATURE SENSORS	11	23 & 24
WASHER PUMP MOTOR - FRONT	24	71
WASHER PUMP MOTOR - REAR	25	72
WIPER AND WASHER SWITCH - REAR	25	73
WIPER MOTOR - FRONT	23	69
WIPER MOTOR - REAR	25	74

CIRCUIT DIAGRAM LEGEND

INDICATES CIRCUIT CROSSING NOT CONNECTED
INDICATES CIRCUIT CONNECTION
CONNECTOR NUMBER
COMPONENT NUMBER
TWISTED PAIR
CIRCUIT TAG
WIRE SIZE
COLOR
Y (35R) 1.0
MALE TERMINAL
FEMALE TERMINAL
INDICATES INLINE CONNECTION WITH TERMINALS
CAB/FRONT
CAVITY DESIGNATION
INDICATES INTERFACE
INDICATES INTERNALLY GROUNDED COMPONENT
INDICATES EXTERNAL GROUND
GROUND

COLOR ABBREVIATIONS

ABBREV	WIRE COLOR
B	BLACK
BR	BROWN
BR/W	BROWN/WHITE
BR/Y	BROWN/YELLOW
DBe	DARK BLUE
DBr	DARK BROWN
DBr/LG	DARK BROWN/LT GREEN
DBr/Y	DARK BROWN/YELLOW
DG	DARK GREEN
Gy	GRAY
LBe	LIGHT BLUE
LGe	LIGHT GREEN
O	ORANGE
O/Be	ORANGE/BLUE
O/G	ORANGE/GREEN
O/LB	ORANGE/LIGHT BLUE
O/R	ORANGE/RED
O/W	ORANGE/WHITE
P	PINK
R	RED
T	TAN
V	VIOLET (PURPLE)
W	WHITE
Y	YELLOW

ACTUATORS

LEVER RELEASED
LEVER ACTUATED
LIQUID LEVEL FLOAT
PRESSURE
HAND
DIODE
VARIABLE RESISTOR
RESISTOR
COIL
LIGHT EMITTING DIODE
TEMP.
MOMENTARY
MAINTAINED
CONTACTS

HOUSINGS

VACUUM SWITCH
PRESSURE SWITCH
TEMPERATURE SWITCH
MOTOR
LAMP

CONTACT CONFIGURATIONS

S.P.S.T.
S.P.D.T.
D.P.S.T.
D.P.D.T.

MISCELLANEOUS SYMBOLS

FUSE
AUTO. RESET CIRCUIT BREAKER
MANUAL RESET CIRCUIT BREAKER

NOTES

1. DIAGRAM SHOWN WITH VEHICLE PARKED POWER OFF AND CONTROLS IN OFF OR NEUTRAL POSITION.
2. SHEET NUMBERS REFER TO THE NUMBER AT THE BOTTOM CENTER OF EACH DASHED BLOCK.
3. SHEETS 1, 2, 3, 3A, 4, 5, 29, 30, 31, AND 32 (ITEMS 90, CIGAR LIGHTER THROUGH 132, ENGINE COMPARTMENT LAMP) ARE NOT SHOWN ON THIS SCHEMATIC POSTER. SEE SECTION 4002 FOR THESE SHEETS.
4. BUCKET CONTROL VALVES DETENT ELECTROMAGNETS RESISTANCE IS190 OHMS.
5. FUEL LEVEL SENDER (E-F) IS 0-90 OHMS.
6. COOLANT TEMPERATURE SENDER:
   68°C 430 OHMS
   93°C 206 OHMS
   100°C 164 OHMS
7. OIL TEMPERATURE SWITCH CLOSING SETPOINT IS 112°C (269°F).
8. HYDRAULIC FILTER RESTRICTION SWITCH CLOSES AT 310 KPA.
9. AIR FILTER RESTRICTION SWITCH CLOSES AT 6.4 KPA.
10. ENGINE OIL PRESSURE SWITCH OPENS AT 1 BAR.
11. LOW BRAKE PURGE SWITCH OPENS AT 11,700 KPA.
12. A/C HIGH PRESSURE SWITCH CLOSES AT 26 BAR (INCREASING PRESSURE).
13. A/C LOW PRESSURE SWITCH CLOSES AT 0.3 BAR (DECREASING PRESSURE).
14. CONTACTS 2 TO 3 OF THERMOSTAT SWITCH CLOSE AT INITIAL TURN OF THE ROTARY SWITCH. CONTACTS 1 TO 2 CLOSE WITH THERMAL SETTING.
15. ENGINE OIL PRESSURE SENDER. REFERENCE RESISTANCE VS. PRESSURE IS:
   1 BAR 20 OHMS
   3 BAR 82 OHMS
   5.5 BAR 90 OHMS
16. FUEL SOLENOID RESISTANCE IS 36 OHMS.

LEGEND

INDICATES CONSTANT POWER
INDICATES POWER WHEN KEY SWITCH IS IN ON POSITION

721C WHEEL LOADER ELECTRICAL SCHEMATIC

Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System. The Part Number is 7-12731

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