CASE

SERVICE MANUAL

LOADER BACKHOE

580M
580 Super M
590M
590 Super M

Series 1

6-41490

Issued Mar 01

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TABLE OF CONTENTS

CAPACITIES AND LUBRICANTS 3
ENGINE OIL RECOMMENDATIONS 5
DIESEL FUEL 6
Fuel Storage 6
Specifications for Acceptable No. 2 Diesel Fuel 6

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TABLE OF CONTENTS

SPECIAL TOOLS 2
RADIATOR REMOVAL 3
ENGINE REMOVAL 7
INSTALLING THE FRONT ENGINE SUPPORT 23

SPECIAL TOOLS



B430842

The CAS1690A is used to rotate the flywheel on the engine.

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TABLE OF CONTENTS

SPECIFICATIONS 3
GENERAL INFORMATION 4
PREPARING THE MACHINE FOR THE STALL TEST 4
Machines with Carraro (Standard) Transmission 4
Machines with Clark (Powershift) Transmission 4
PROCEDURE TO HEAT TORQUE CONVERTER AND HYDRAULIC OIL 5
STALL TEST PROCEDURE 5
CHECK SHEET - 580M 6
CHECK SHEET - 580M - Turbo 7
CHECK SHEET - 580 Super M 8
CHECK SHEET - 590 Super M 9

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74 – Rear Turn Lamp

Left Rear Turn Lamp: The left rear turn lamp is located at the top of the ROPS cab or canopy on the left side of the rear of the machine.

Check Points	Reading	Possible Cause of Bad Reading
Bulb	Good	Bad bulb.
Terminal for 40E to ground	Continuity	Bad ground circuit.
NOTE: *Turn the key switch to ON. Move the turn signal switch for a left turn.*		
Terminal for wire 45L to ground	Intermittent 12 volts	Check the circuit between the left rear turn lamp and the turn signal switch (66). Also check the turn signal switch (66).
NOTE: *Turn the key switch to ON. Move the turn signal switch for a right turn.*		
Terminal for wire 45R to ground	12 volts	Check the circuit between the right rear turn lamp and the turn signal switch (66). Also check the turn signal switch (66).

Right Rear Turn Lamp: The right rear turn lamp is located at the top of the ROPS cab or canopy on the right side of the front of the machine.

Check Points	Reading	Possible Cause of Bad Reading
Bulb	Good	Bad bulb.
Terminal for 40E to ground	Continuity	Bad ground circuit.

75 – Turn Signal Indicator Lamps

The turn signal indicator lamps are located in the front console.

Check Points	Reading	Possible Cause of Bad Reading
Terminal for wire 10 to ground	Continuity	Bad ground circuit.
NOTE: *Turn the key switch to ON. Move the turn signal switch for a left turn.*		
Terminal for wire 45L to ground	Intermittent 12 volts	Check the circuit between the left rear turn lamp and the turn signal switch (66). Also check the turn signal switch (66).
NOTE: *Turn the key switch to ON. Move the turn signal switch for a right turn.*		
Terminal for wire 45R to ground	12 volts	Check the circuit between the right rear turn lamp and the turn signal switch (66). Also check the turn signal switch (66).

76 – Power Plug #1

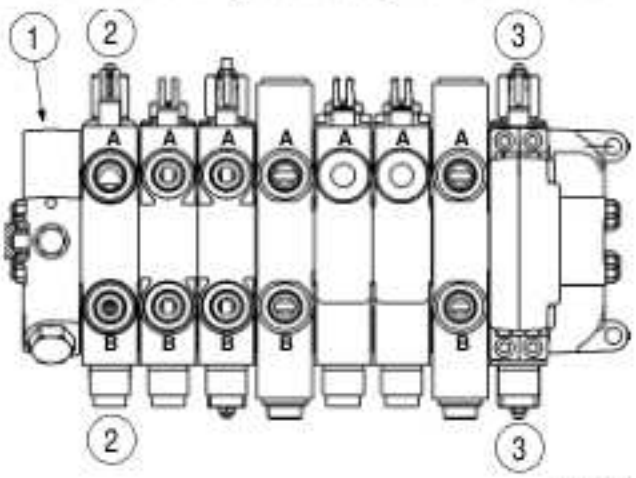
The power plug is located to the rear of the the right hand console.

Check Points	Reading	Possible Cause of Bad Reading
Terminal for wire 20B to ground	Continuity	Bad ground circuit.
Terminal for wire 83 to ground	12 volts	Check the circuit between power plug #1 and the battery (1). Also check the 30 ampere fuse in the fuse block (18), the power junction (4) and the battery (1).

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Adjustment

1. Loosen the lock nut on the adjusting screw.
2. Turn the adjusting screw clockwise to increase the pressure setting or counterclockwise to decrease the pressure setting.
3. Check the pressure setting again. When the pressure setting is correct, tighten the lock nut.



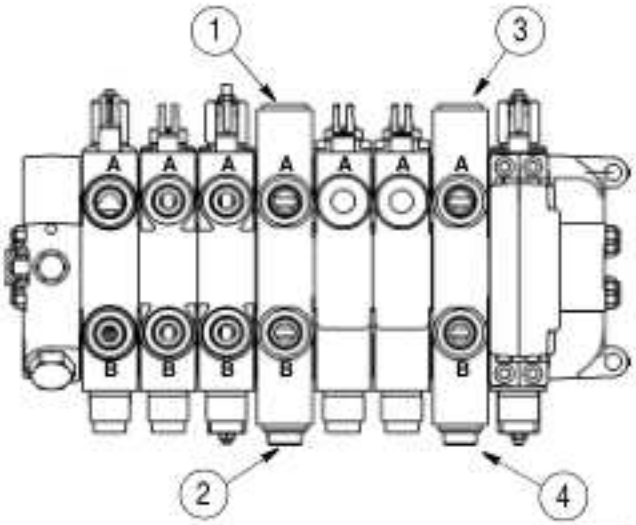
BC00N008

1. BACKHOE CONTROL VALVE.
2. CIRCUIT RELIEF VALVES FOR BACKHOE AUXILIARY HYDRAULICS.
3. CIRCUIT RELIEF VALVES FOR SWING A (UPPER) AND B (LOWER) PORTS.

Multifunction Valves for Boom and Dipper

Pressure Check - Method 1

1. Make sure the hydraulic oil is at operating temperature, 48.9° C (120° F) minimum.
2. Park the machine on a level surface. Make sure the boom is in the transport position. Apply the parking brake and stop the engine.
3. Disconnect the hose from the fitting in the "A" (top) or the "B" (bottom) port in the boom or dipper section of the backhoe control valve.



BC00N009

1. MULTIFUNCTION VALVE FOR DIPPER A (UPPER) PORT.
2. MULTIFUNCTION VALVE FOR DIPPER B (LOWER) PORT.
3. MULTIFUNCTION VALVE FOR BOOM A (UPPER) PORT.
4. MULTIFUNCTION VALVE FOR BOOM B (LOWER) PORT.

NOTE: *Use fittings from the CAS-1804 Pressure Fitting Kit to make the following connections:*

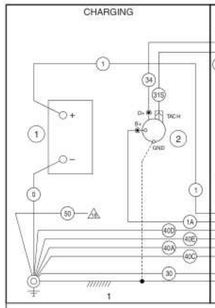
4. Use a pressure gauge with a capacity of at least 34 475 kPa, 345 bar (5000 psi). Connect the pressure gauge and the fitting in the boom or dipper section of the backhoe control valve to the CAS-10090 hand pump.
5. Actuate the hand pump and record the highest pressure reading. Check the pressure setting several times to be sure of the reading.
6. Compare the reading with the specifications on page 3.
7. The multifunction valve is not adjustable. If the pressure setting is not within the specifications indicated on page 3, replace the multifunction valve. See Replacement on page 13.

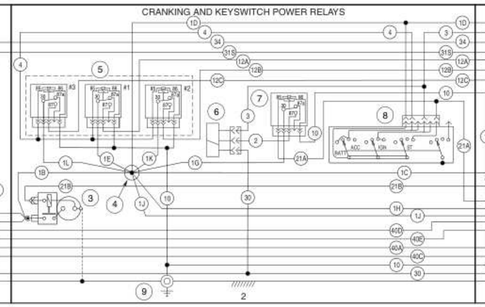
Pressure Check - Method 2

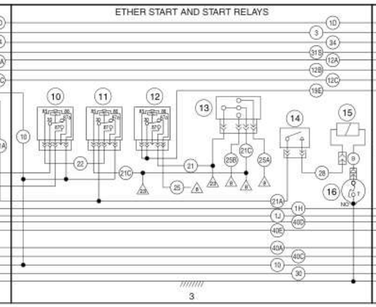
NOTE: *If necessary, use fittings from the CAS-1804 Pressure Fitting Kit to make the following connections:*

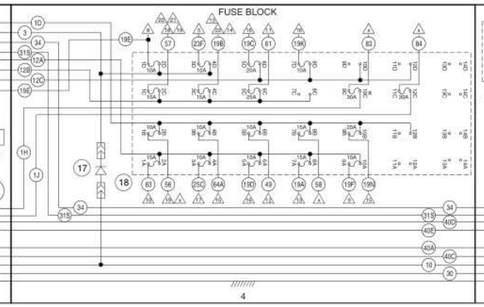
1. Use a pressure gauge with a capacity of at least 34 475 kPa, 345 bar (5000 psi). Connect the pressure gauge and the CAS2864 test block to the CAS-10090 hand pump.
2. Install the multifunction valve in the CAS2864 test block.
3. Actuate the hand pump and record the highest pressure reading. Check the pressure setting several times to be sure of the reading.

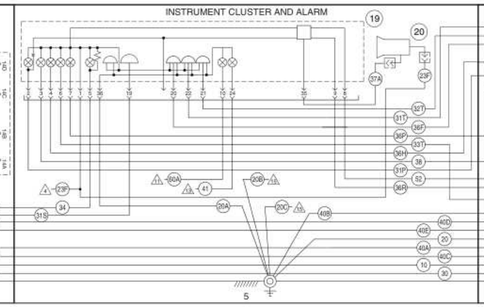
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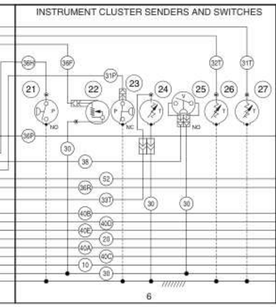


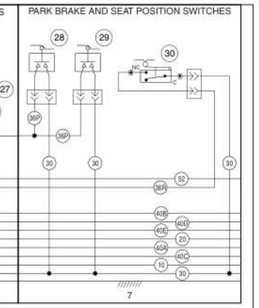


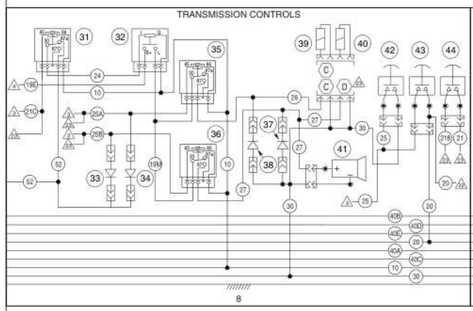


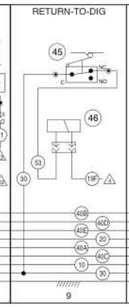


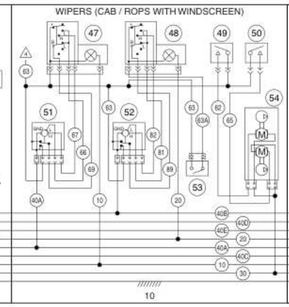


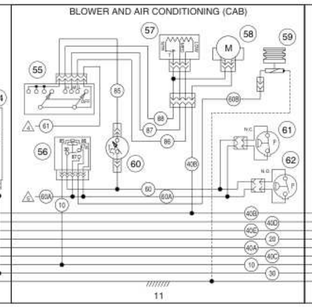


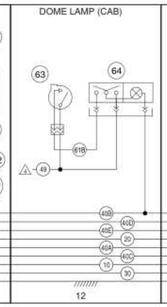


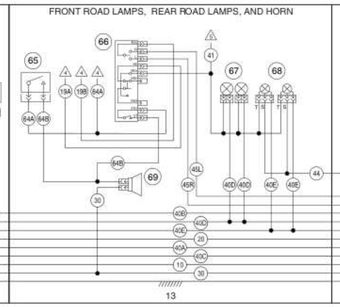


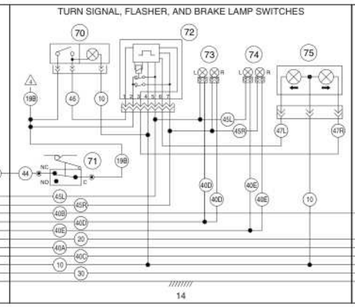


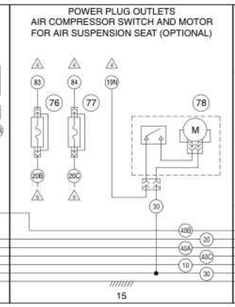


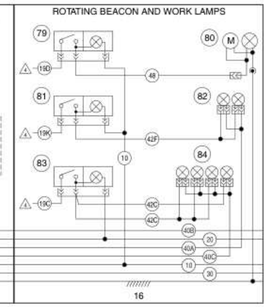


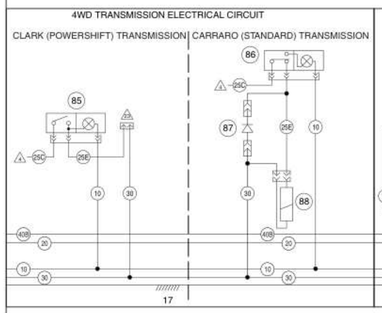


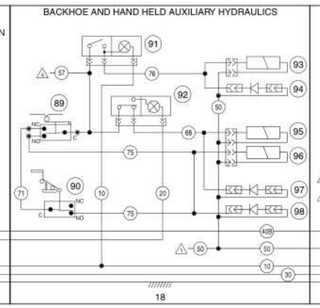


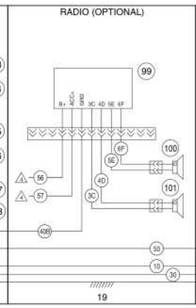


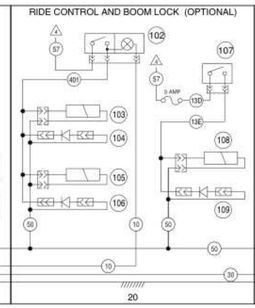


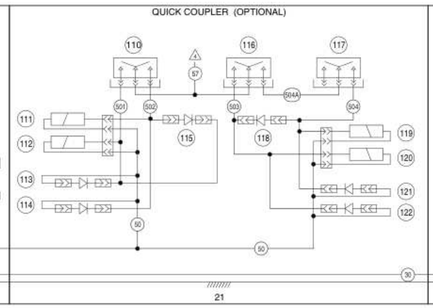


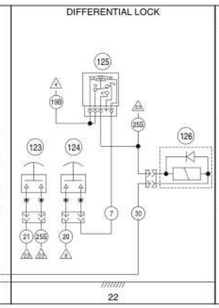


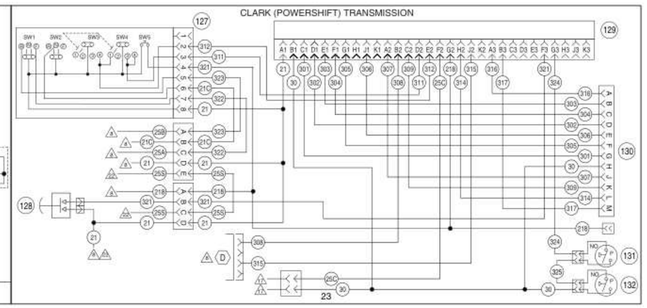


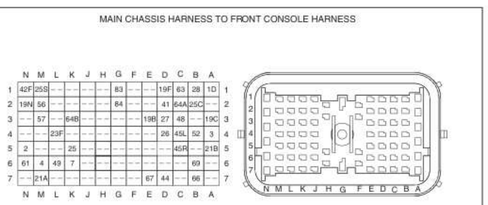


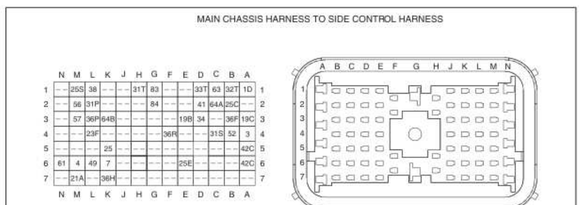


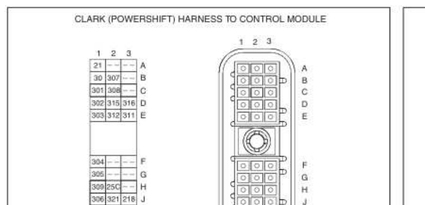


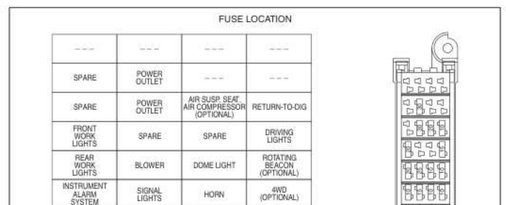


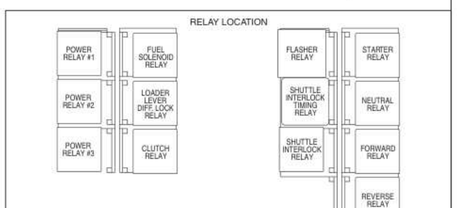












COMPONENTS

1. BATTERY
2. ALTERNATOR
3. STARTER AND STARTER SOLENOID
4. POWER JUNCTION
5. POWER RELAYS
6. FUEL SHUTOFF SOLENOID
7. FUEL SOLENOID RELAY
8. KEY SWITCH
9. CHASSIS GROUND
10. STARTER RELAY
11. NEUTRAL START RELAY
12. CLUTCH CUTOUT RELAY
13. FNR SWITCH
14. ETHER START BUTTON (OPTIONAL)
15. ETHER INJECTION SOLENOID
16. THERMAL SWITCH
17. DIODE
18. FUSE BLOCK
19. INSTRUMENT CLUSTER
20. WARNING ALARM
21. HYDRAULIC FILTER RESTRICTION SWITCH
22. FUEL LEVEL SENDER
23. ENGINE OIL PRESSURE SWITCH
24. REAR AXLE TEMPERATURE SENDER
25. AIR FILTER RESTRICTION SWITCH
26. TRANSMISSION TEMPERATURE SENDER
27. ENGINE TEMPERATURE SENDER
28. PARKING BRAKE SWITCH #1
29. PARKING BRAKE SWITCH #2
30. SEAT POSITION SWITCH
31. SHUTTLE INTERLOCK RELAY
32. SHUTTLE INTERLOCK TIMING RELAY
33. DIODE
34. DIODE
35. FORWARD RELAY
36. REVERSE RELAY
37. DIODE
38. DIODE
39. FORWARD SOLENOID
40. REVERSE SOLENOID
41. BACKUP ALARM
42. CLUTCH CUTOUT SWITCH (SHIFT HANDLE)
43. CLUTCH CUTOUT SWITCH (LOADER HANDLE) CARARRO (STANDARD) TRANSMISSION
44. CLUTCH CUTOUT SWITCH (LOADER HANDLE) CLARK (POWERSHIFT) TRANSMISSION
45. RETURN-TO-DIG LIMIT SWITCH
46. LOADER VALVE SOLENOID
47. FRONT WIPER SWITCH
48. REAR WIPER SWITCH
49. FRONT WINDSHIELD WASHER SWITCH (CAB/ROPS WINDSCREEN)
50. REAR WINDSHIELD WASHER SWITCH (CAB/ROPS WINDSCREEN)
51. FRONT WIPER MOTOR (CAB)
52. REAR WIPER MOTOR (CAB)
53. REAR WIPER PARK SWITCH
54. WINDSHIELD WASHER MOTOR
55. BLOWER SWITCH
56. AIR CONDITIONING PRESSURE RELAY
57. BLOWER MOTOR RESISTOR BOARD AND THERMAL FUSE
58. BLOWER MOTOR
59. AIR CONDITIONER COMPRESSOR CLUTCH
60. AIR CONDITIONER TEMPERATURE SWITCH
61. AIR CONDITIONER LOW PRESSURE SWITCH
62. AIR CONDITIONER HIGH PRESSURE SWITCH
63. DOME LAMP SWITCH (DOOR SWITCH)
64. DOME LAMP WITH SWITCH
65. REAR HORN BUTTON
66. TURN SIGNAL, DRIVING LAMP, AND HORN SWITCH
67. DRIVING LAMPS
68. REAR STOP AND TAIL LAMPS
69. HORN
70. HAZARD FLASHER SWITCH
71. BRAKE LAMP SWITCH
72. FLASHER RELAY
73. FRONT TURN SIGNAL LAMPS
74. REAR TURN SIGNAL LAMPS
75. TURN SIGNAL INDICATOR LAMPS
76. POWER PLUG
77. POWER PLUG
78. AIR SUSPENSION SEAT - AIR COMPRESSOR SWITCH AND MOTOR
79. ROTATION BEACON SWITCH
80. ROTATING BEACON
81. FRONT WORK LAMP SWITCH
82. FRONT WORK LAMPS
83. REAR WORK LAMP SWITCH
84. REAR WORK LAMPS
85. 4WD SWITCH (CLARK (POWERSHIFT) TRANSMISSION)
86. 4WD SWITCH (CARRARO (STANDARD) TRANSMISSION)
87. DIODE
88. 4WD SOLENOID
89. AUXILIARY BACKHOE HYDRAULIC LEVER POSITION SWITCH (UNLATCHED POSITION)
90. FOOT OPERATED REAR AUXILIARY HYDRAULIC SWITCH
91. HAND HELD AUXILIARY HYDRAULIC ENGAGE SWITCH
92. LOW FLOW HYDRAULIC ENGAGE SWITCH
93. HAND HELD AUXILIARY HYDRAULIC SOLENOID
94. DIODE
95. LOW FLOW SOLENOID (LOW FLOW WHEN DE-ENERGIZED)
96. AUXILIARY BACKHOE HYDRAULIC SOLENOID
97. DIODE
98. DIODE
99. RADIO
100. LEFT SPEAKER
101. RIGHT SPEAKER
102. RIDE CONTROL ENGAGE SWITCH
103. RIDE CONTROL SOLENOID (ACCUMULATOR)
104. DIODE
105. RIDE CONTROL SOLENOID (TANK)
106. DIODE
107. BOOM LOCK SWITCH
108. BOOM LOCK SOLENOID
109. DIODE
110. LOADER QUICK COUPLER SWITCH
111. LOADER QUICK COUPLER SOLENOID (UPPER)
112. LOADER QUICK COUPLER SOLENOID (LOWER)
113. DIODE
114. DIODE
115. DIODE
116. BACKHOE QUICK COUPLER SWITCH #1
117. BACKHOE QUICK COUPLER SWITCH #2
118. DIODE
119. BACKHOE QUICK COUPLER SOLENOID (UPPER)
120. BACKHOE QUICK COUPLER SOLENOID (LOWER)
121. DIODE
122. DIODE
123. LOADER LEVER DIFFERENTIAL LOCK ENGAGE SWITCH - CLARK (POWERSHIFT) TRANSMISSION
124. LOADER LEVER DIFFERENTIAL LOCK ENGAGE SWITCH - CARRARO (STANDARD) TRANSMISSION
125. LOADER LEVER DIFFERENTIAL LOCK ENABLE RELAY
126. LOADER LEVER DIFFERENTIAL LOCK SOLENOID
127. FNR LEVER SWITCH - CLARK TRANSMISSION
128. DIRECTION CONTROL LEVER KICKDOWN SWITCH - CLARK (POWERSHIFT) TRANSMISSION
129. CLARK (POWERSHIFT) TRANSMISSION CONTROL MODULE CONNECTION
130. CLARK (POWERSHIFT) TRANSMISSION CONNECTOR
131. LEFT-HAND BRAKE PRESSURE SWITCH
132. RIGHT-HAND BRAKE PRESSURE SWITCH

CIRCUIT DIAGRAM LEGEND

SHOWS CIRCUIT CROSSING NOT CONNECTED
SHOWS CIRCUIT CONNECTED
COMPONENT NUMBER
CONNECTOR NUMBER
WIRE TAG NUMBER
TWISTED PAIR
SHOWS PAGE NUMBER CIRCUIT IS CONTINUED ON
CAVITY DESIGNATION
MALE TERMINAL
FEMALE TERMINAL
SHOWS INTERFACE
CAB/FRONT
INLINE CONNECTION WITH TERMINALS
INDICATES INTERNALLY GROUNDED COMPONENT
INDICATES EXTERNAL GROUND
GROUND

WIRE IDENTIFICATION

ABBREV	WIRE COLOR
B	BLACK
BR	BROWN
DB	DARK BLUE
DG	DARK GREEN
G	GRAY
LB	LIGHT BLUE
LG	LIGHT GREEN
O	ORANGE
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 BLOCK.
3. CLARK (POWERSHIFT) TRANSMISSION OPTION AVAILABLE ON 580SM AND 590SM MACHINES ONLY.

LEGEND

- INDICATES CONSTANT POWER
- INDICATES POWER WHEN KEY SWITCH IS IN ON POSITION
- INDICATES MOMENTARY POWER WHEN KEY SWITCH IS IN START POSITION

ELECTRICAL SCHEMATIC
580M, 580SM, and 590SM LOADER BACKHOE

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