# U80

# Loader Landscaper

## Service Manual

Bur 6-81740

CASE CONSTRUCTION

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## Service Manual
## 6-81730

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CNH America LLC.
245 E NORTH AVENUE
CAROL STREAM, IL 60188 U.S.A.

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**NOTE:** CNH 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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# ROBERT BOSCH INJECTORS

| Part Number | | Spray Angle | Number of Orifices | Spray Orifice Size | Nozzle Size | Opening Pressure New* |
|---|---|---|---|---|---|---|
| New Holland | Robert Bosch | | | | | |
| J909464 | 0432131877 | 155 Degrees | 4 | 0.28 mm | 9 mm | 245 to 253 Bar (3553 to 3670 PSI) |
| J909475 | 0432131881 | 155 Degrees | 4 | 0.29 mm | 9 mm | 220 to 228 Bar (3190 to 3307 PSI) |
| J909476 | 0432131880 | 155 Degrees | 4 | 0.29 mm | 9 mm | 245 to 253 Bar (3190 to 3307 PSI) |
| J909472 | 0432131869 | 155 Degrees | 4 | 0.28 mm | 9 mm | 220 to 228 Bar (3190 to 3307 PSI) |
| J909474 | 0432131854 | 155 Degrees | 4 | 0.29 mm | 9 mm | 220 to 228 Bar (3190 to 3307 PSI) |
| J909532 | 0432131875 | 155 Degrees | 4 | 0.29 mm | 9 mm | 220 to 228 Bar (3190 to 3307 PSI) |
| J919300 | | 155 Degrees | 4 | 0.28 mm | 7 mm | 220 to 228 Bar (3190 to 3307 PSI) |
| J919304 | | 155 Degrees | 4 | 0.28 mm | 7 mm | 220 top 228 Bar (3190 to 3307 PSI) |
| J919339 | | 155 Degrees | 4 | 0.30 mm | 7 mm | 245 to 253 Bar (3553 to 3670 PSI) |
| J919341 | | 155 Degrees | 4 | 0.28 mm | 7 mm | 220 to 228 Bar (3190 to 3307 PSI) |
| J919343 | | 155 Degrees | 4 | 0.29 mm | 7 mm | 245 to 253 Bar (3553 to 3670 PSI) |
| J914472 | 0432131869 | 155 Degrees | 4 | 0.28 mm | 9 mm | 220 to 228 Bar (3190 to 3307 PSI) |
| J914474 | 0432131854 | 155 Degrees | 4 | 0.29 mm | 9 mm | 220 to 228 Bar (3190 to 3307 PSI) |
| J929490 | 0432131749 | 145 Degrees | 5 | 0.258 mm | 7 mm | 240 to 254 Bar (3481 to 3684 PSI) |
| J930573 | 0432131740 | 145 Degrees | 5 | 0.23 mm | 7 mm | 240 to 254 Bar (3481 to 3684 PSI) |
| J935036 | | 145 Degrees | 5 | 0.23 mm | 7 mm | 240 to 254 Bar (3481 to 3684 PSI) |
| J935213 | | 145 Degrees | 5 | 0.23 mm | 7 mm | 240 to 254 Bar (3481 to 3684 PSI) |

# LUCAS CAV INJECTORS

| Part Number | | Spray Angle | Number of Orifices | Spray Orifice Size | Nozzle Size | Opening Pressure New* |
|---|---|---|---|---|---|---|
| New Holland | Lucas CAV | | | | | |
| J914710 | 6760406 | 155 Degrees | 4 | 0.30 mm | 9 mm | 245 to 255 Bar (3553 to 3698 PSI) |
| J915568 | 6760501 | 155 Degrees | 4 | 0.28 mm | 9 mm | 220 to 230 Bar (3190 to 3335 PSI) |
| J916495 | 6760513 | 155 Degrees | 4 | 0.29 mm | 9 mm | 220 to 230 Bar (3190 to 3335 PSI) |
| J916745 | 6760508 | 155 Degrees | 4 | 0.32 mm | 9 mm | 255 to 265 Bar (3698 to 3843 PSI) |
| J917567 | 6760514 | 155 Degrees | 4 | 0.27 mm | 9 mm | 220 to 228 Bar (3190 to 3307 PSI) |
| J917661 | 6760416 | 155 Degrees | 4 | 0.29 mm | 9 mm | 225 to 235 Bar (3263 to 3408 PSI) |
| J918554 | 6760515 | 155 Degrees | 4 | 0.27 mm | 9 mm | 220 to 230 Bar (3190 to 3335 PSI) |
| J919322 | 6760417 | 155 Degrees | 4 | 0.30 mm | 7 mm | 245 to 255 Bar (3553 to 3698 PSI) |
| J919331 | 6760525 | 155 Degrees | 4 | 0.28 mm | 7 mm | 220 to 228 Bar (3190 to 3307 PSI) |
| J919332 | 6760523 | 155 Degrees | 4 | 0.32 mm | 7 mm | 255 to 265 Bar (3698 to 3843 PSI) |
| J919334 | 6760518 | 155 Degrees | 4 | 0.29 mm | 7 mm | 220 to 230 Bar (3190 to 3335 PSI) |
| J919336 | 6760519 | 155 Degrees | 4 | 0.27 mm | 7 mm | 220 to 230 Bar (3190 to 3335 PSI) |
| J919760 | 6760528 | 155 Degrees | 4 | 0.30 mm | 7 mm | 220 to 230 Bar (3190 to 3335 PSI) |
| J920334 | 6760529 | 155 Degrees | 4 | 0.27 mm | 7 mm | 220 to 230 Bar (3190 to 3335 PSI) |
| J921703 | 6760530 | 155 Degrees | 4 | 0.28 mm | 7 mm | 20 to 230 Bar (3190 to 3335 PSI) |
| J922162 | 6760531 | 155 Degrees | 4 | 0.27 mm | 7 mm | 245 to 255 Bar (3553 to 3698 PSI) |

Acceptable opening pressure of used injectors can be up to 15% less than the new opening pressure.
Valve Leakage Rate ..... No Leakage Permissible. Slight Moistening of Nozzle Tip Permissible
Maximum Opening Pressure Variation Between each Cylinder ..... 10.34 Bar (150 PSI)



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## 33 – Forward Relay

See the electrical schematic foldout for fuse and relay locations.

| Check Points | Reading | Possible Cause of Bad Reading |
|---|---|---|
| Terminal for wire 10 to ground | Continuity | Bad ground circuit. |
| **NOTE:** *Make sure the transmission control lever is in NEUTRAL. Turn the key switch to ON. Make sure the clutch cutout switches are in the disengaged position. Move the shift lever to the FORWARD position.* | | |
| Terminal for wire 25A to ground | 12 volts | Check the circuit between the forward relay and the FNR switch 13 on page 18. Check the diode 31 and 32 on page 34 in the circuit. Also check the FNR switch 13 on page 18. |
| Terminal for wire 19M to ground | 12 volts | Check the circuit between the forward relay and the shuttle interlock timing relay 30 on page 34. Check the shuttle interlock timing relay 30 on page 34. |
| Terminal for wire 26 to ground | 12 volts | Bad forward relay. |

## 34 – Reverse Relay

See the electrical schematic foldout for fuse and relay locations.

| 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 shift lever to the REVERSE position.* | | |
| Terminal for wire 25B to ground | 12 volts | Check circuit between the reverse relay and shuttle interlock timing relay 30 on page 34. Check the diode 31 and 32 on page 34 in the circuit. Check FNR switch 13 on page 18. |
| Terminal for wire 19M to ground | 12 volts | Check the circuit between the reverse relay and the shuttle interlock timing relay 30 on page 34. Also check the shuttle interlock timing relay 30 on page 34. |
| Terminal for wire 27 to ground | 12 volts | Bad reverse relay. |

## 35 and 36 – Diode

| Check Points | Reading | Possible Cause of Bad Reading |
|---|---|---|
| **NOTE:** *Disconnect the diode from the connector.* | | |
| Between the terminals of the diode | Continuity in one direction only. | Bad diode. |

## 37 – Forward Solenoid

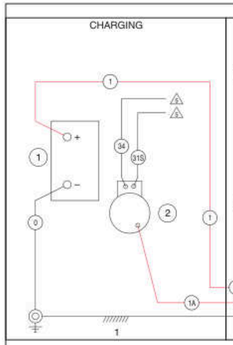
The forward solenoid is located in the transmission control valve.

| Check Points | Reading | Possible Cause of Bad Reading |
|---|---|---|
| Terminal for wire 30 to ground | Continuity | Bad ground circuit. |
| **NOTE:** *Turn the key switch to ON. Move the shift lever to the FORWARD position.* | | |
| Terminal for wire 26 to ground | 12 volts | Check circuit between forward solenoid and forward relay 33 on page 36. Check the forward relay 33 on page 36. Check the diode 31 and 32 on page 34 in the circuit. |
| **NOTE:** *If the readings are good, replace the forward solenoid.* | | |

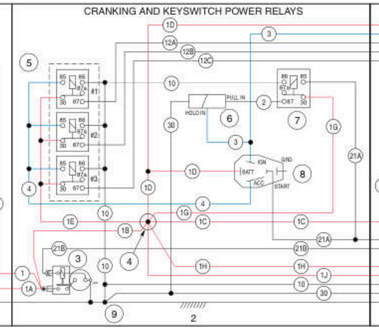


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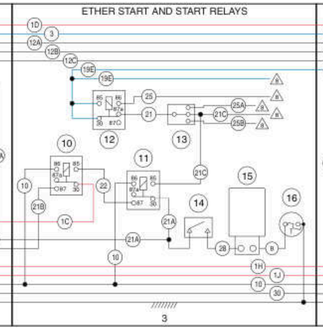
CHARGING



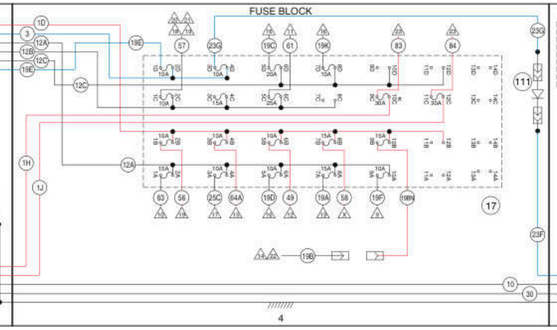
CRANKING AND KEYSWITCH POWER RELAYS



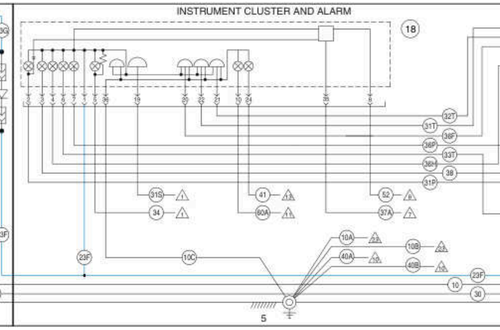
ETHER START AND START RELAYS



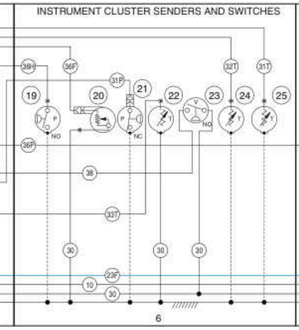
FUSE BLOCK



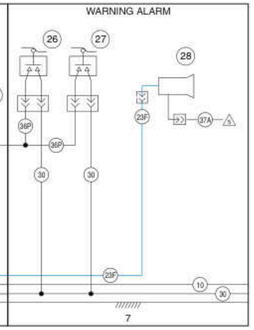
INSTRUMENT CLUSTER AND ALARM



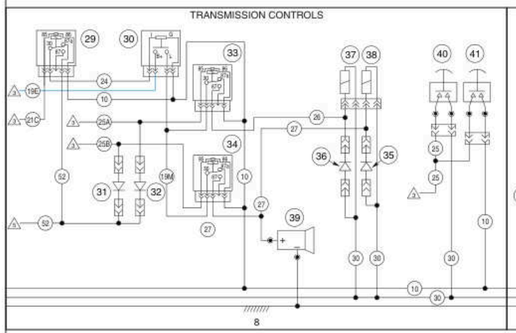
INSTRUMENT CLUSTER SENDERS AND SWITCHES



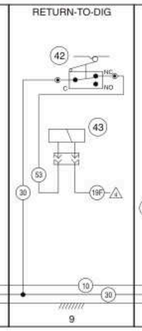
WARNING ALARM



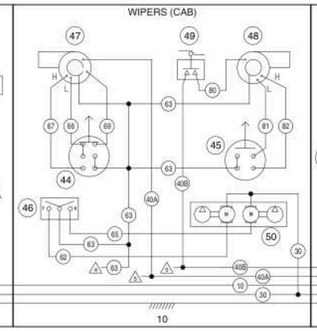
TRANSMISSION CONTROLS



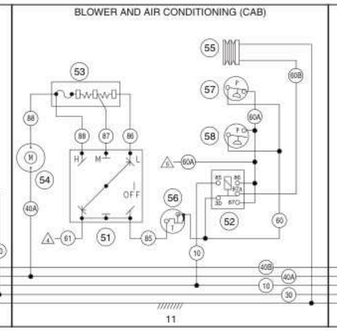
RETURN-TO-DIG



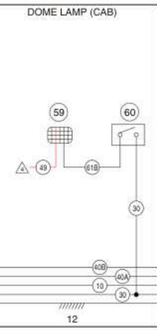
WIPERS (CAB)



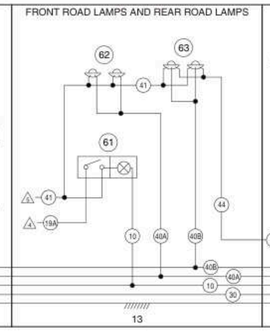
BLOWER AND AIR CONDITIONING (CAB)



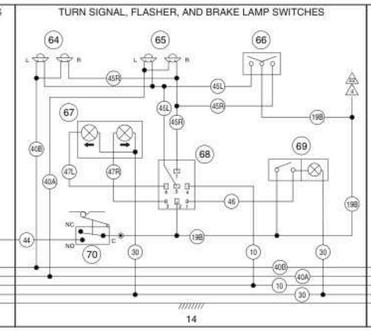
DOME LAMP (CAB)



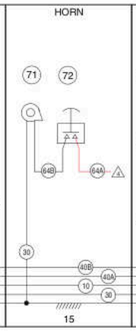
FRONT ROAD LAMPS AND REAR ROAD LAMPS



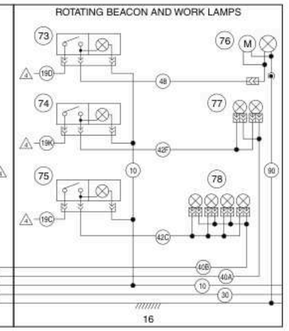
TURN SIGNAL, FLASHER, AND BRAKE LAMP SWITCHES



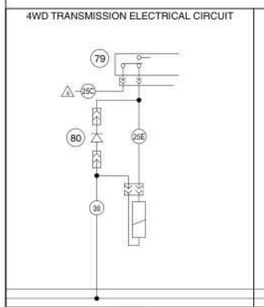
HORN



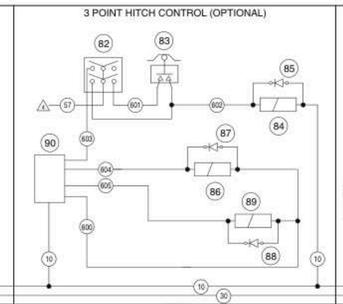
ROTATING BEACON AND WORK LAMPS



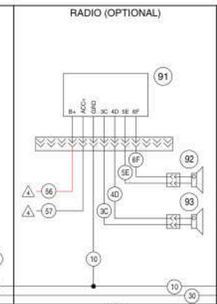
4WD TRANSMISSION ELECTRICAL CIRCUIT



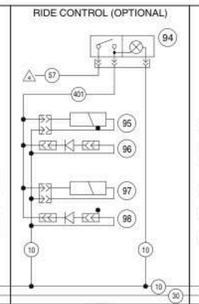
3 POINT HITCH CONTROL (OPTIONAL)



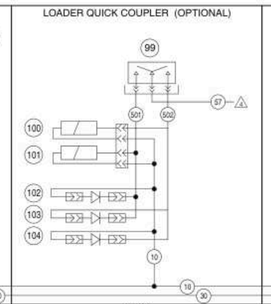
RADIO (OPTIONAL)



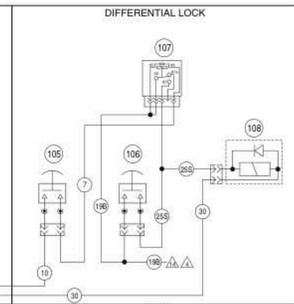
RIDE CONTROL (OPTIONAL)



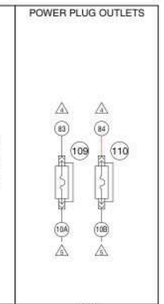
LOADER QUICK COUPLER (OPTIONAL)



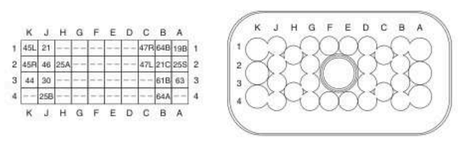
DIFFERENTIAL LOCK



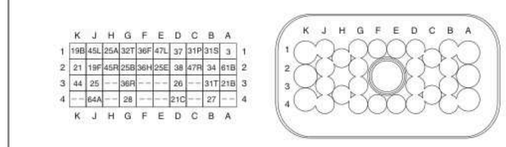
POWER PLUG OUTLETS



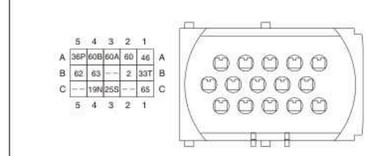
MAIN CHASSIS HARNESS TO FRONT CONSOLE HARNESS



MAIN CHASSIS HARNESS TO SIDE CONTROL HARNESS

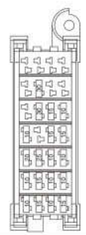


MAIN CHASSIS HARNESS TO SIDE CONSOL HARNESS

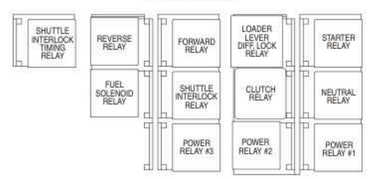


FUSE LOCATION

| | | | |
|---|---|---|---|
| --- | --- | --- | --- |
| SPARE | POWER OUTLET | --- | --- |
| SPARE | POWER OUTLET | --- | RETURN-TO-DIG |
| FRONT WORK LIGHTS | SPARE | SPARE | DRIVING LIGHTS |
| REAR WORK LIGHTS | BLOWER | DOME LIGHT | ROTATING BEACON (OPTIONAL) |
| INSTRUMENT ALARM SYSTEM | SIGNAL LIGHTS | HORN | 4WD (OPTIONAL) |
| STARTING, TRANSMISSION CONTROL | RADIO, RIDE CONTROL, REAR AUX HYD | RADIO (BATT) (OPTIONAL) | WIPERS |



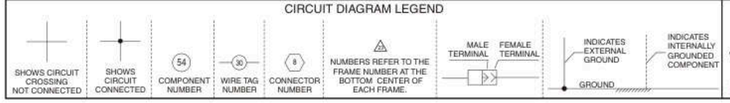
RELAY LOCATION



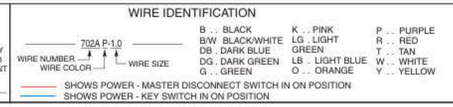

## COMPONENTS

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. FUSE BLOCK
18. INSTRUMENT CLUSTER
19. HYDRAULIC FILTER RESTRICTION SWITCH
20. FUEL LEVEL SENDER
21. ENGINE OIL PRESSURE SWITCH
22. REAR AXLE TEMPERATURE SENDER
23. AIR FILTER RESTRICTION SWITCH
24. TRANSMISSION TEMPERATURE SENDER
25. ENGINE TEMPERATURE SENDER
26. PARKING BRAKE SWITCH #1
27. PARKING BRAKE SWITCH #2
28. WARNING ALARM
29. SHUTTLE INTERLOCK RELAY
30. SHUTTLE INTERLOCK TIMING RELAY
31. DIODE
32. DIODE
33. FORWARD RELAY
34. REVERSE RELAY
35. DIODE
36. DIODE
37. FORWARD SOLENOID
38. REVERSE SOLENOID
39. BACKUP ALARM
40. CLUTCH CUTOUT SWITCH (SHIFT HANDLE)
41. CLUTCH CUTOUT SWITCH (LOADER HANDLE)
42. RETURN-TO-DIG LIMIT SWITCH
43. LOADER VALVE SOLENOID
44. FRONT WIPER SWITCH (CAB)
45. REAR WIPER SWITCH (CAB)
46. WINDSHIELD AND REAR WINDOW WASHER SWITCH
47. FRONT WIPER MOTOR (CAB)
48. REAR WIPER MOTOR (CAB)
49. REAR WIPER PARK SWITCH
50. WINDSHIELD WASHER MOTOR (PUMP)
51. BLOWER SWITCH
52. AIR CONDITIONING PRESSURE RELAY
53. BLOWER MOTOR RESISTOR BOARD AND THERMAL FUSE
54. BLOWER MOTOR
55. AIR CONDITIONER COMPRESSOR CLUTCH
56. AIR CONDITIONER TEMPERATURE SWITCH
57. AIR CONDITIONER LOW PRESSURE SWITCH
58. AIR CONDITIONER HIGH PRESSURE SWITCH
59. DOME LAMP SWITCH
60. DOME LAMP SWITCH
61. DRIVING LAMP SWITCH
62. DRIVING LAMPS
63. REAR STOP AND TAIL LAMPS
64. REAR TURN SIGNAL LAMPS
65. FRONT TURN SIGNAL LAMPS
66. TURN SIGNAL SWITCH
67. TURN SIGNAL INDICATOR LAMPS
68. FLASHER RELAY
69. HAZARD FLASHER SWITCH
70. BRAKE LAMP SWITCH
71. HORN
72. HORN SWITCH
73. ROTATION BEACON SWITCH
74. FRONT WORK LAMP SWITCH
75. REAR WORK LAMP SWITCH
76. ROTATING BEACON
77. FRONT WORK LAMPS
78. REAR WORK LAMPS
79. 4WD ENGAGE SWITCH (IF EQUIPPED)
80. DIODE
81. 4WD SOLENOID
82. THREE POINT HITCH MODE CONTROL SWITCH (IF EQUIPPED)
83. THREE POINT HITCH CONTROL VALVE SWITCH (IF EQUIPPED)
84. LOCK VALVE SOLENOID
85. DIODE
86. LASER SOLENOID #1
87. DIODE
88. LASER SOLENOID #2
90. LASER CONTROL BOX
91. RADIO
92. LEFT SPEAKER
93. RIGHT SPEAKER
94. RIDE CONTROL ENGAGE SWITCH
95. RIDE CONTROL SOLENOID (ACCUMULATOR)
96. DIODE
97. RIDE CONTROL SOLENOID (TANK)
98. DIODE
99. LOADER QUICK COUPLER SWITCH
100. LOADER QUICK COUPLER SOLENOID (UPPER)
101. LOADER QUICK COUPLER SOLENOID (LOWER)
102. DIODE
103. DIODE
104. DIODE
105. LOADER LEVER DIFFERENTIAL LOCK ENGAGE SWITCH
106. SIDE CONSOLE DIFFERENTIAL LOCK ENGAGE SWITCH
107. LOADER LEVER DIFFERENTIAL LOCK ENABLE RELAY
108. DIFFERENTIAL LOCK SOLENOID
109. POWER PLUG
110. POWER PLUG
111. DIODE

## CIRCUIT DIAGRAM LEGEND




## WIRE IDENTIFICATION




B . . BLACK
B/W BLACK/WHITE
DB . DARK BLUE
DG . DARK GREEN
G . . GREEN
K . . PINK
LG . LIGHT GREEN
LB . . LIGHT BLUE
O . . ORANGE
P . . PURPLE
R . . RED
T . . TAN
W . . WHITE
Y . . YELLOW

## NOTES

1. Diagram shown with vehicle parked, power ON, and controls in OFF or NEUTRAL position.
2. Frame numbers refer to the number at the bottom center of each schematic circuit block.

# ELECTRICAL SCHEMATIC
# U80 LOADER LANDSCAPER

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