# 60XT and 70XT
# SKID STEER

Service Manual

6-45730

CASE

MidWestTech | Case 60XT, 70XT Skid Steer Service Manual | Publication 6-45720

Order the manual at mid-west-tech.com >

# TABLE OF CONTENTS

CAPACITIES AND LUBRICANTS . . . . . 3
ENVIRONMENT . . . . . 3
ENGINE LUBRICATION . . . . . 4
Engine Oil Selection . . . . . 4
Oil Viscosity/Temperature Ranges . . . . . 4
DIESEL FUEL SYSTEM . . . . . 5
Fuel Storage . . . . . 5
Specifications for Acceptable No. 2 Diesel Fuel . . . . . 5

Bur 6-44860 Issued 9-01 Printed in U.S.A.

MidWestTech | Case 60XT, 70XT Skid Steer Service Manual | Publication 6-45720 Order the manual at mid-west-tech.com >

# TABLE OF CONTENTS

RADIATOR ..... 3
Removal ..... 3
Installation ..... 4
ENGINE ..... 6
Removal ..... 6
Installation ..... 11



MidWestTech | Case 60XT, 70XT Skid Steer Service Manual | Publication 6-45720 Order the manual at mid-west-tech.com >

# TABLE OF CONTENTS

GENERAL INFORMATION . . . . . 3
Circuit Diagram Legends . . . . . 3
Fuses . . . . . 3
LEFT HAND INSTRUMENT PANEL . . . . . 4
Standard RIGHT HAND INSTRUMENT PANEL . . . . . 5
Optional Engine Shutdown System
Right Hand INSTRUMENT PANEL . . . . . 6
CONTROL LEVERS . . . . . 7
Left Hand Control Lever . . . . . 7
Right Hand Control Lever . . . . . 7
HOW TO TEST A WIRING HARNESS . . . . . 8
Visual Inspection . . . . . 8
Testing for Open Circuits . . . . . 8
Finding An Open Circuit . . . . . 8
Testing for Short Circuits . . . . . 9
Finding a Short Circuit . . . . . 9
Testing for a High Resistance Circuit . . . . . 10
Finding a High Resistance Circuit . . . . . 10
TROUBLESHOOTING EXAMPLE . . . . . 12
TROUBLESHOOTING . . . . . 13

Bur 6-44880 Issued 9-01 Printed in U.S.A.

MidWestTech | Case 60XT, 70XT Skid Steer Service Manual | Publication 6-45720 Order the manual at mid-west-tech.com >

## 16 Loader Valve Solenoid Relay

| Check Points | Reading | Possible Cause of Bad Readings |
|---|---|---|
| ⑮ Terminal for wire 178F to ground | Continuity | Bad ground circuit. |

**NOTE:** *Put the ignition switch in the RUN position. Have someone sit in the operators seat with the seat bar in the down position.*

| | | |
|---|---|---|
| ⑯ Terminal for wire 603B to ground | 12 volts | Check the circuit between the loader valve solenoid relay and the engine shut down relay (15). Also check the engine shut down relay (15). |
| ⑰ Terminal for wire 313A to ground | 12 volts | Check the circuit between the loader valve solenoid relay and the seat bar switch (19). Also check the seat bar switch (19). |
| ⑱ Terminal for wires 311A and 311B to ground | 12 volts | Bad loader valve solenoid relay. |

## 17 Loader Valve Solenoids

| Check Points | Reading | Possible Cause of Bad Readings |
|---|---|---|
| ⑲ Terminal for wire 178K to ground | Continuity | Bad ground circuit. |
| ⑳ Terminal for wire 178BD to ground | Continuity | Bad ground circuit. |

**NOTE:** *Put the ignition switch in the RUN position. Have someone sit in the operators seat with the seat bar in the down position. Ensure that the cab door (if installed) is closed and latched.*

| | | |
|---|---|---|
| ㉑ Terminal for wire 311G to ground | 12 volts | Check the circuit between the loader valve solenoid and the cab door switch (44). Also check the cab door switch (44).<br>**NOTE:** *If the front door option is not installed, check the diode installed in the front door interlock connector in the cab harness.* |
| ㉒ Terminal for wire 311H to ground | 12 volts | Check the circuit between the loader valve solenoid and splice 14. |

**NOTE:** *If the readings are ok, check with a screwdriver to see whether the solenoid magnetizes when energized. If not, replace the solenoid. If the solenoid magnetizes, the problem may be in the hydraulic system.*

## 18 Seat Switch

| Check Points | Reading | Possible Cause of Bad Readings |
|---|---|---|

**NOTE:** *Put the ignition switch in the RUN position.*

| | | |
|---|---|---|
| ㉓ Terminal for wire 300F to ground | 12 volts | Check the circuit between the seat switch and the 15 ampere fuse in the primary fuse block (7). Also check the 15 ampere fuse and the primary fuse block (7). |

**NOTE:** *Disconnect the seat switch connector from the cab harness.*

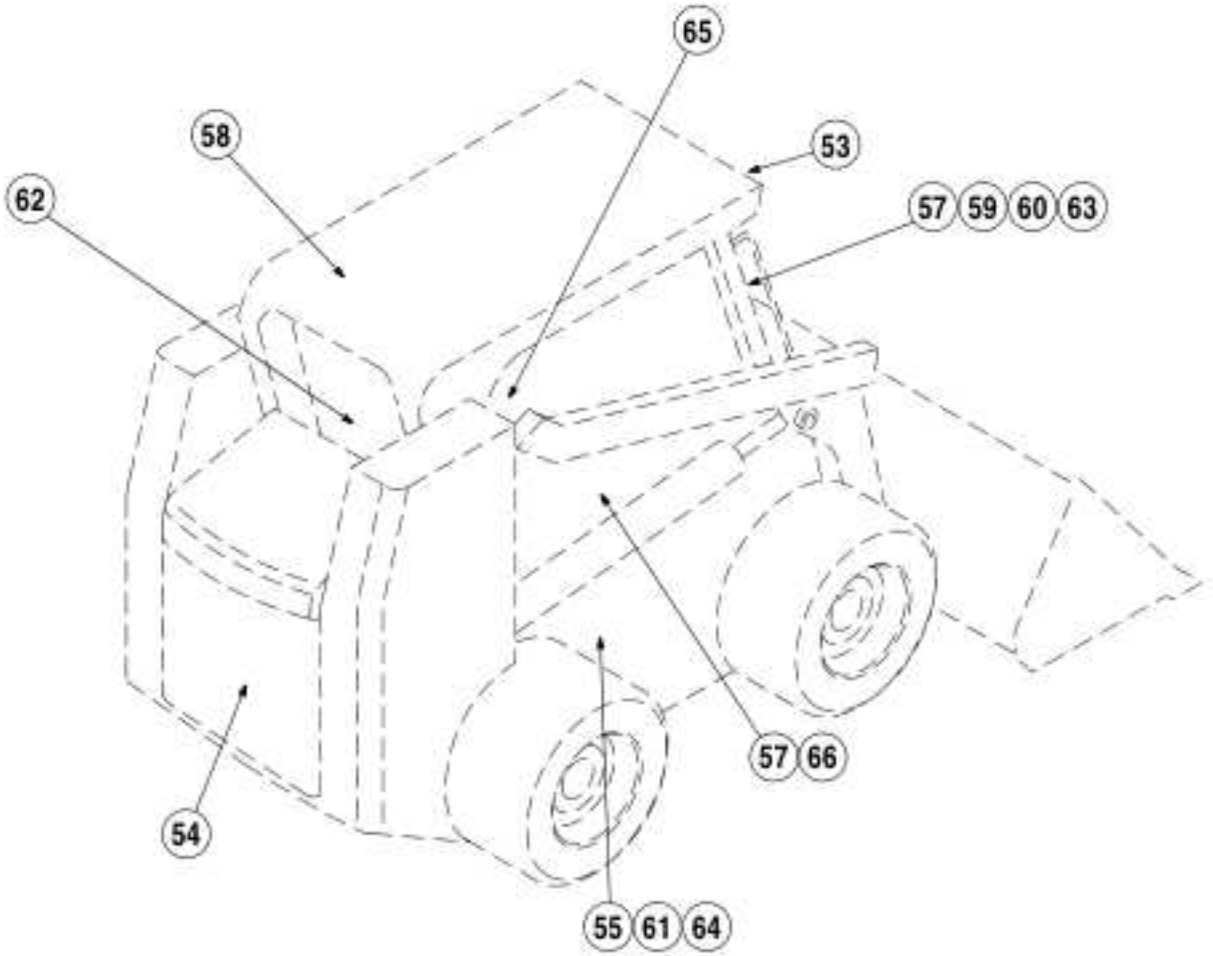
| | | |
|---|---|---|
| ㉔ Between the terminals in the connector for the seat switch. | Open | Bad seat switch. |

**NOTE:** *Have another person sit in the operators seat.*

| | | |
|---|---|---|
| ㉕ Between the terminals in the connector for the seat switch. | Continuity | Bad seat switch. |



MidWestTech | Case 60XT, 70XT Skid Steer Service Manual | Publication 6-45720 Order the manual at mid-west-tech.com >




H01E015

CHASSIS HARNESS/CAB HARNESS CONNECTOR




| PIN | CIRCUIT | PIN | CIRCUIT |
|---|---|---|---|
| A1 | 130A | K2 | 830A |
| B1 | 200H | B3 | 622A |
| C1 | 311F | D3 | PLUGGED |
| D1 | PLUGGED | G3 | PLUGGED |
| E1 | 706D | J3 | 239A |
| F1 | 234A | A4 | 786B |
| G1 | 257A | B4 | 124A |
| H1 | 641B | C4 | 313A |
| J1 | 266A | D4 | PLUGGED |
| K1 | 200D | E4 | 255A |
| A2 | 780A | F4 | 235A |
| B2 | 131A | G4 | 264A |
| D2 | 300D | H4 | 311A |
| G2 | 261A | J4 | PLUGGED |
| J2 | 602A | K4 | 178S |

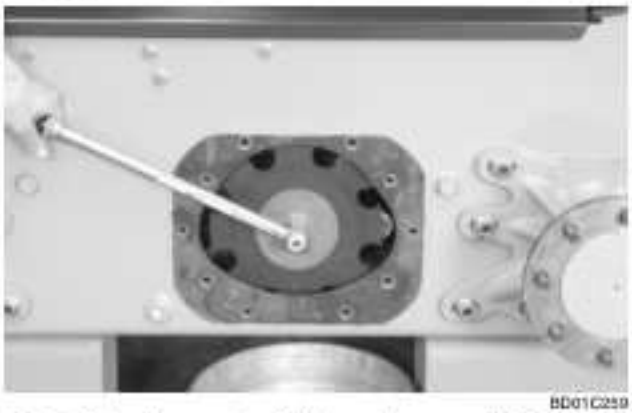


MidWestTech | Case 60XT, 70XT Skid Steer Service Manual | Publication 6-45720 Order the manual at mid-west-tech.com >



BD01C256

10. When the deflection is 3 to 12 mm (1/8 to 1/2 inch), tighten the axle housing mounting nuts to a torque of 7 Nm (5 lb-ft).
11. Repeat the above steps for the remaining drive chains.
12. Following adjustment of all drive chains, start the engine and run at low idle.
13. Move the control levers all the way forward for five seconds. Stop the engine.
14. Check the deflection of all four drive chains. The drive chains are correctly adjusted if the deflection is 3 to 12 mm (1/8 to 1/2 inch).
15. If required, tighten or loosen the drive chains to get the correct deflection.
16. Tighten the axle housing mounting bolts to a torque of 223 to 265 Nm (165 to 190 lb-ft).
17. Install the brake disc, retaining plate and center bolt.



BD01C259

18. Tighten the center bolt to a torque of 247 to 320 Nm (185 to 235 lb-ft).
19. Apply RTV sealant between gasket, cover and chassis.



BD01C258

20. Install the inspection covers. Tighten the inspection cover bolts to a torque of 125 to 150 Nm (93 to 112 lb-ft).

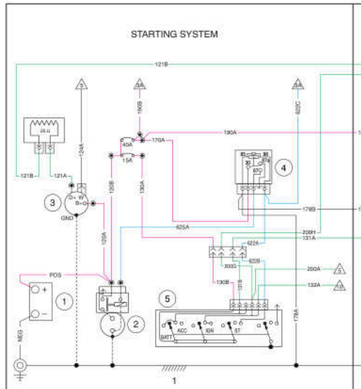


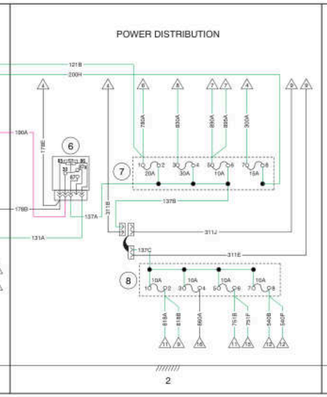
BD01C260

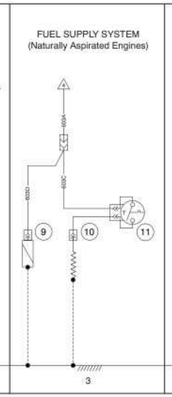
21. Install the four wheels and tighten the wheel nuts to a torque of 135 to 163 Nm (100 to 120 lb-ft).
22. Remove the blocks or stands and lower the machine to the floor.

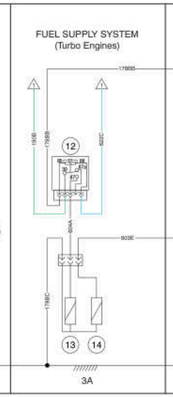


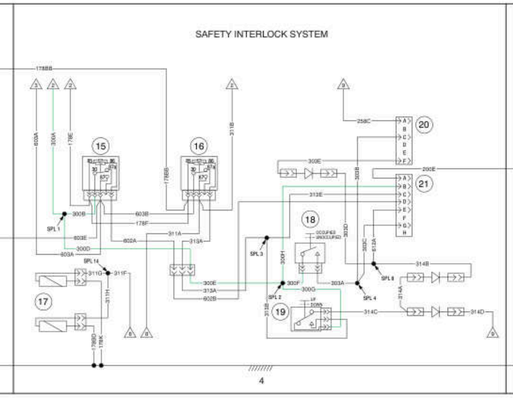
MidWestTech | Case 60XT, 70XT Skid Steer Service Manual | Publication 6-45720 Order the manual at mid-west-tech.com >

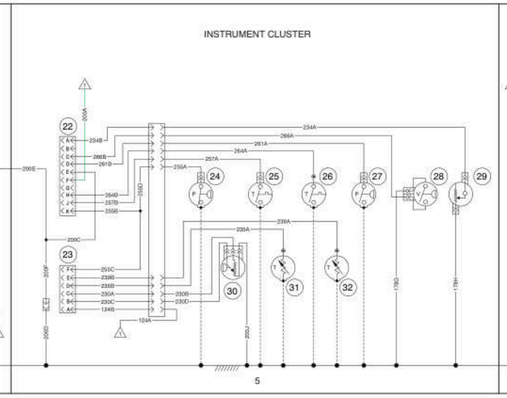


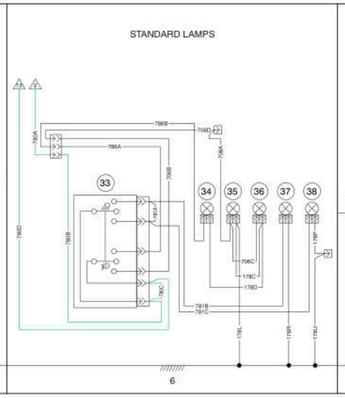



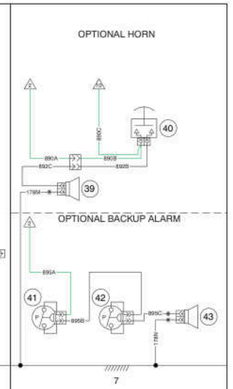



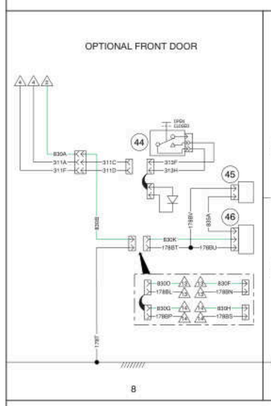



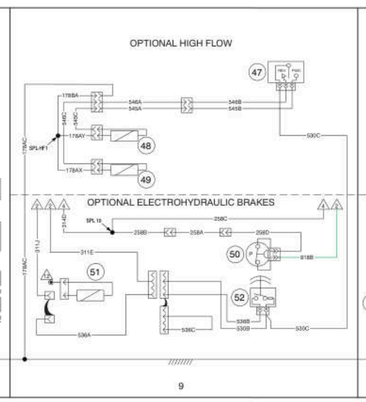



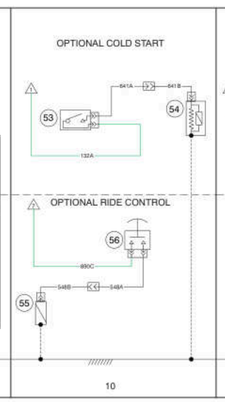



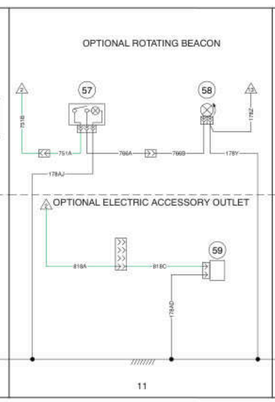



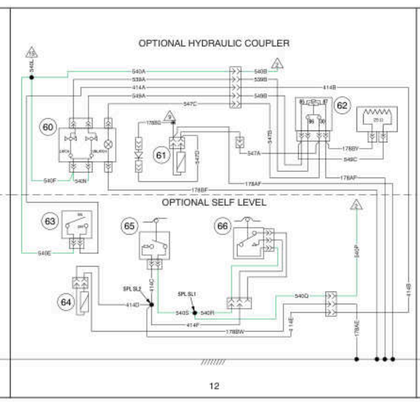



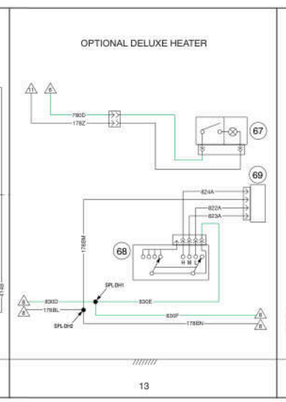



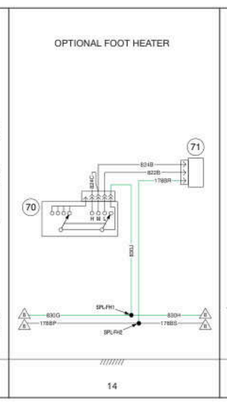



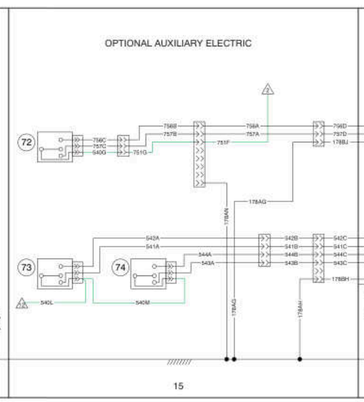



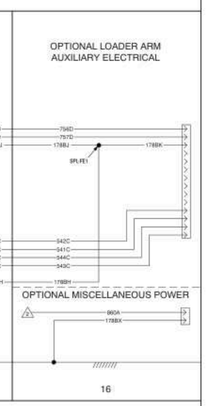



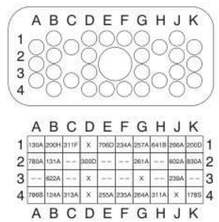




## CHASSIS HARNESS TO CAB HARNESS

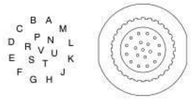



| | A | B | C | D | E | F | G | H | J | K | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 139A | 200H | 311F | X | 796D | 234A | 257A | 641B | 296A | 200D | 1 |
| 2 | 785A | 131A | — | 300D | — | — | 261A | — | 602A | 830A | 2 |
| 3 | — | 620A | — | X | — | — | — | X | — | 239A | 3 |
| 4 | 786B | 104A | 313A | X | 255A | 235A | 264A | 311A | X | 178S | 4 |

A B C D E F G H J K

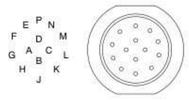
## CHASSIS OPTIONS TO CAB OPTIONS

| | | | |
|---|---|---|---|
| A | 751B | L | 759A |
| B | 540B | M | 544B |
| C | 539B | N | 754C |
| D | 418B | P | 547B |
| E | 549B | R | 818A |
| F | 543B | S | X |
| G | 542B | T | X |
| H | 541B | U | X |
| J | 258D | V | X |
| K | 758B | | |

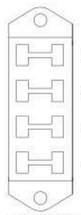



## FRONT AUXILIARY ELECTRIC

| | | | |
|---|---|---|---|
| A | X | H | 544C |
| B | 178BK | J | X |
| C | 757D | K | X |
| D | 756D | L | X |
| E | 541C | M | X |
| F | 542C | N | X |
| G | 543C | P | X |




## FUSES



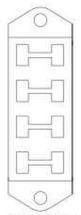
20 AMPERES (LIGHTS)

30 AMPERES (WIPER/HEATER)

10 AMPERES (BACKUP ALARM/HORN)

15 AMPERES (INTERLOCK SYSTEM)

PRIMARY FUSE BLOCK



10 AMPERES (ACCESSORIES/BRAKE LIGHT)

10 AMPERES (MISCELLANEOUS POWER)

10 AMPERES (BEACON/FRONT ELECTRICS)

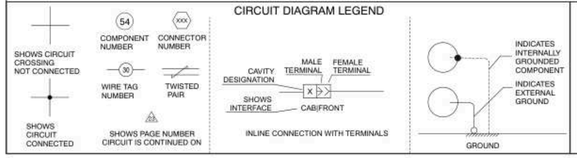
10 AMPERES (HYDRAULIC COUPLER/SELF LEVEL)

OPTIONS FUSE BLOCK

## COMPONENTS

1. BATTERY
2. STARTER MOTOR AND SOLENOID
3. ALTERNATOR
4. STARTING RELAY
5. IGNITION SWITCH
6. MAIN POWER RELAY
7. PRIMARY FUSE BLOCK
8. OPTIONS FUSE BLOCK
9. FUEL HOLD IN SOLENOID
10. FUEL TIMING HEATER
11. FUEL TIMING TEMPERATURE SWITCH
12. FUEL SOLENOID PULL IN RELAY
13. FUEL PULL IN SOLENOID
14. FUEL HOLD IN SOLENOID
15. ENGINE SHUT DOWN RELAY
16. LOADER VALVE SOLENOID RELAY
17. LOADER VALVE SOLENOIDS
18. SEAT SWITCH
19. SEAT BAR SWITCH
20. LH INSTRUMENT CLUSTER (6-PIN CONNECTOR)
21. RH INSTRUMENT CLUSTER (8-PIN CONNECTOR)
22. LH INSTRUMENT CLUSTER (10-PIN CONNECTOR)
23. RH INSTRUMENT CLUSTER (6-PIN CONNECTOR)
24. ENGINE OIL PRESSURE SWITCH
25. ENGINE COOLANT TEMPERATURE SWITCH
26. HYDRAULIC OIL TEMPERATURE SWITCH
27. HYDRAULIC FILTER PRESSURE SWITCH
28. AIR FILTER RESTRICTION SWITCH
29. FUEL SENDER
30. ENGINE OIL PRESSURE SENSOR (OPTIONAL)
31. ENGINE COOLANT TEMPERATURE SENDER (OPTIONAL)
32. HYDRAULIC OIL TEMPERATURE SENDER (OPTIONAL)
33. WORK/ROAD LIGHT SWITCH
34. REAR HALOGEN WORK LAMP
35. LH REAR POSITIONAL LAMP
36. RH REAR POSITIONAL LAMP
37. LEFT FRONT HALOGEN WORK LAMP
38. RIGHT FRONT HALOGEN WORK LAMP
39. HORN
40. HORN SWITCH
41. BACKUP ALARM SWITCH
42. BACKUP ALARM SWITCH
43. BACKUP ALARM
44. CAB DOOR SWITCH
45. WASHER PUMP
46. WIPER MOTOR
47. HIGH FLOW SWITCH
48. FORWARD HIGH FLOW SOLENOID
49. REVERSE HIGH FLOW SOLENOID
50. BRAKE PRESSURE SWITCH
51. BRAKE RELEASE SOLENOID
52. BRAKE SWITCH
53. COLD START SWITCH
54. THERMOSTART COIL
55. RIDE CONTROL SOLENOID
56. RIDE CONTROL SWITCH
57. ROTATING BEACON SWITCH
58. ROTATING BEACON
59. ACCESSORY OUTLET
60. HYDRAULIC COUPLER SWITCH
61. HYDRAULIC COUPLER RELEASE SOLENOID
62. HYDRAULIC COUPLER RELEASE TIMER
63. SELF LEVEL OVERRIDE SWITCH
64. SELF LEVEL OVERRIDE SOLENOID
65. LOADER VALVE FLOAT SPOOL SWITCH
66. LOADER VALVE TIP SPOOL SWITCH
67. DOME LIGHT WITH SWITCH
68. DELUXE HEATER BLOWER SWITCH
69. DELUXE HEATER
70. FOOT HEATER BLOWER SWITCH
71. FOOT HEATER
72. FRONT ELECTRIC CONTROL SWITCH
73. AUXILIARY ELECTRIC SWITCH #1
74. AUXILIARY ELECTRIC SWITCH #2

### CIRCUIT DIAGRAM LEGEND

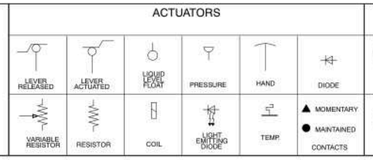



### WIRE IDENTIFICATION

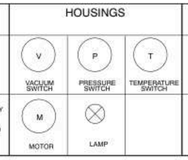
| ABBREV | WIRE COLOR |
|---|---|
| B | BLACK |
| BR | BROWN |
| DB | DARK BLUE |
| DG | DARK GREEN |
| G | GRAY |
| LB | LIGHT BLUE |
| LG | LIGHT GREEN |

| ABBREV | WIRE COLOR |
|---|---|
| O | ORANGE |
| P | PINK |
| R | RED |
| T | TAN |
| V | VIOLET (PURPLE) |
| W | WHITE |
| Y | YELLOW |

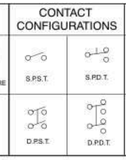
### ACTUATORS



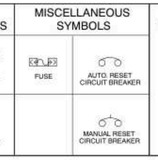

### HOUSINGS




### CONTACT CONFIGURATIONS




### MISCELLANEOUS SYMBOLS




### 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.

### 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
# 60/70XT SKID STEER LOADERS

Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System. The part number is 6-44940.

H0014002



Order the manual at mid-west-tech.com >