REPAIR MANUAL

SKID STEER/COMPACT TRACK LOADER

410
420
420CT
SERIES 3

87634765 NA

Issued 01Jan08

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49 Left Front Work Lamp

Check Points	Reading	Possible Cause of Bad Readings
Terminal for wire 178E to ground	Continuity	Bad ground circuit.
Bulb	Good	Bad bulb.
NOTE: *Turn the ignition switch to the RUN position. Turn on the work/road light switch on the instrument cluster.*		
Terminal for wire 790D to ground	12 volts	Check the circuit between the left front work lamp and the work/road light switch. Also check the work/road light switch.

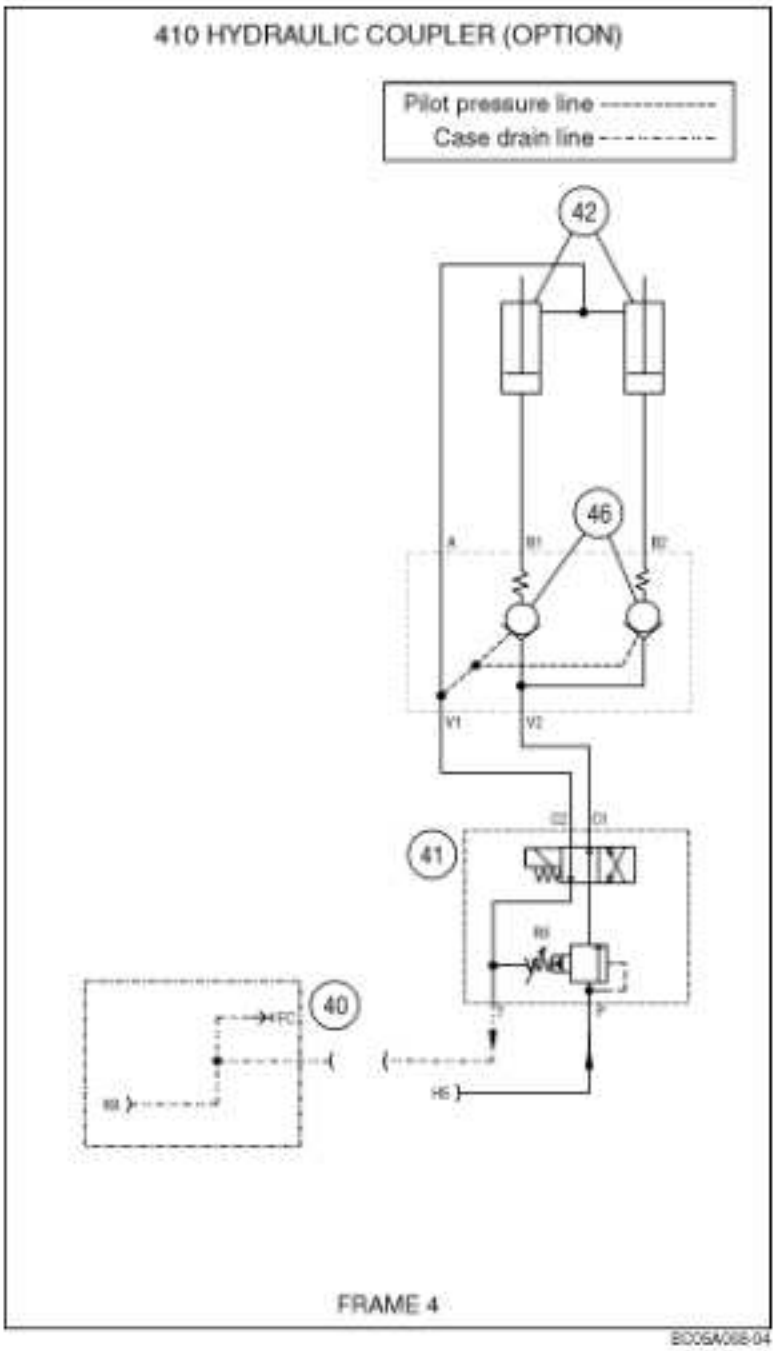
50 Right Front Work Lamp

Check Points	Reading	Possible Cause of Bad Readings
Terminal for wire 178F to ground	Continuity	Bad ground circuit.
Bulb	Good	Bad bulb.
NOTE: *Turn the ignition switch to the RUN position. Turn on the work/road light switch on the instrument cluster.*		
Terminal for wire 790C to ground	12 volts	Check the circuit between the right front work lamp and the work/road light switch. Also check the work/road light switch.

53 Rear Work Lamp

Check Points	Reading	Possible Cause of Bad Readings
Terminal for wire 178AH to ground	Continuity	Bad ground circuit.
Bulb	Good	Bad bulb.
NOTE: *Turn the ignition switch to the RUN position. Turn on the work lamp button on the instrument cluster.*		
Terminal for wire 790GG to ground	12 volts	Check the circuit between the rear work lamp and light relay No. 2. Also check light relay No. 1. Also check the instrument cluster.

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40. ATTACHMENT CASE DRAIN
41. HYDRAULIC COUPLER CONTROL VALVE
42. HYDRAULIC COUPLER CYLINDER
46. CHECK VALVE

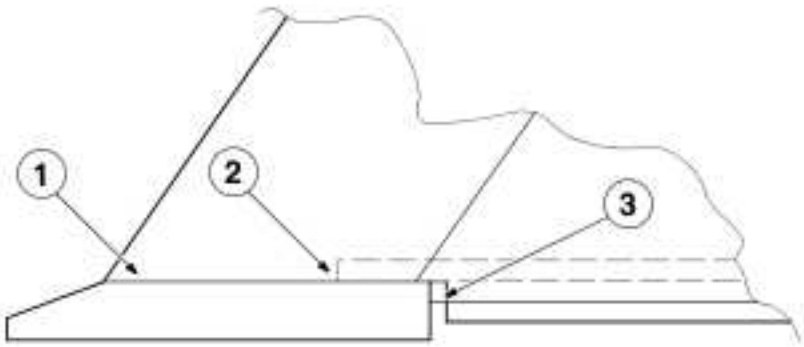
410 HYDRAULIC SCHEMATIC FRAME 4 (MECHANICAL CONTROL MACHINES)

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WELD SPECIFICATIONS FOR BUCKETS

Buckets

1. 86618349	4. 86618352	7. 86618353	10. 86618358	13. 86618361
2. 86618350	5. 86618363	8. 86618354	11. 86618359	
3. 86618351	6. 86618364	9. 86618357	12. 86618360	



BT97G325

1. 10 MM (3/8 INCH) FILLET (WELD TWICE 1 ROOT PASS 1 COVER PASS)
2. 6 MM (1/4 INCH) FILLET (WELD 4 TIMES)
3. 6 MM (1/4 INCH) GROOVE 6 MM (1/4 INCH) FILLET (WELD TWICE -WRAP ENDS)

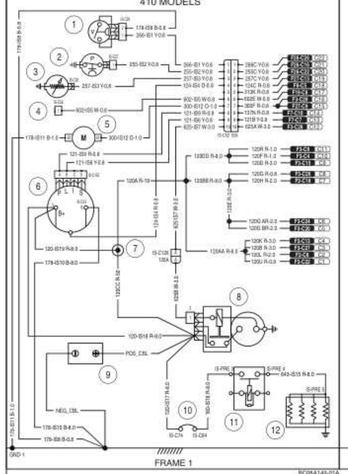
REMOVAL OF THE LOADER FRAME

NOTE: *Refer to illustration on page 6.*

1. Park the machine on a level surface.
2. Remove the bucket from the loader frame (1), refer to Operators Manual.
3. Clean any dirt and grease from the hydraulic connections for the bucket and lift cylinders.
4. Claean any dirt and grease from the hydraulic connections for the auxiliary hydraulic circuits at the rear of the machine.
5. Attach acceptable lifting slings to the loader arms (1) on each side of the loader frame towards the rear of the machine.
6. Attach an acceptable lifting sling to the center of the tube between the loader arms (1).
7. Attach the lifting slings to acceptable lifting equipment.
8. Relieve any pressure from the hydraulic system by turning the key switch to the "on" position and move the hydraulic bypass control lever to the bypass position and move the loader control levers in both directions.
9. Tag all hydraulic lines and couplings for use during assembly procedure.
10. Loosen and remove all the hydraulic lines that pass through both uprights of the chassis.
11. Plug and cap the fittings and couplings to minimize the loss of hydraulic oil and to prevent contamination from entering the hydraulic system.
12. Remove the rubber retaining rings (if equipped) from the hydraulic couplings on each side of the uprights and push the hydraulic couplings into the center of the uprights.

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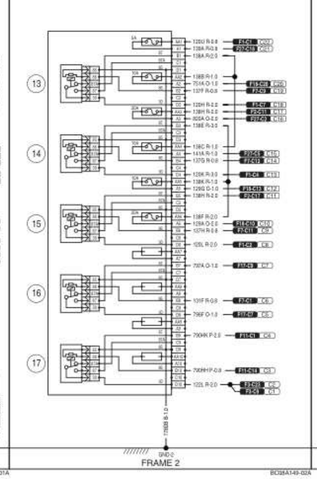
STARTING SYSTEM
410 MODELS



FRAME 1

BC08A149-01A

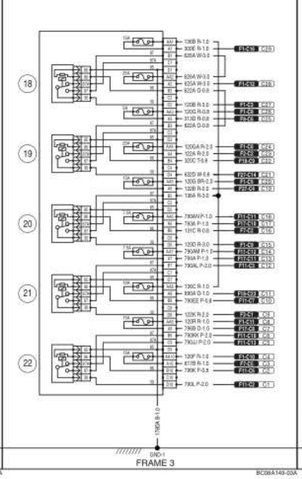
POWER DISTRIBUTION



FRAME 2

BC08A149-02A

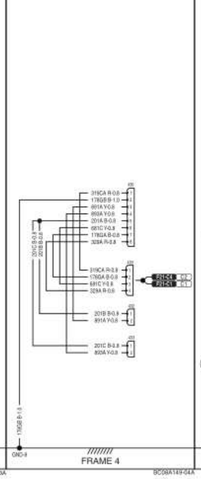
POWER DISTRIBUTION



FRAME 3

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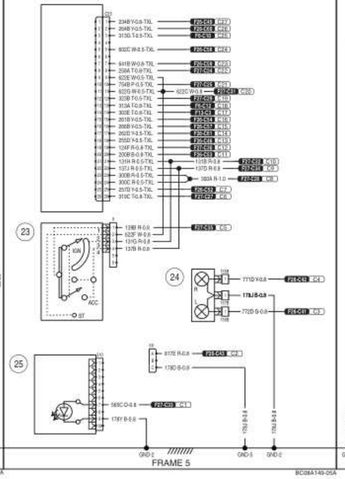
PROPORTIONAL AUXILIARY



FRAME 4

BC08A149-04A

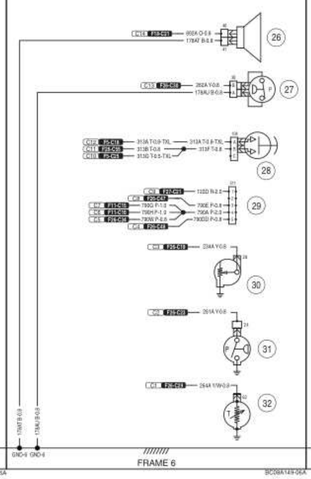
INSTRUMENT CONSOLE



FRAME 5

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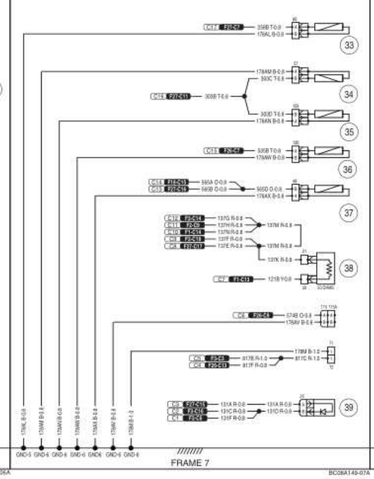
SWITCHES AND SENDERS



FRAME 6

BC08A149-06A

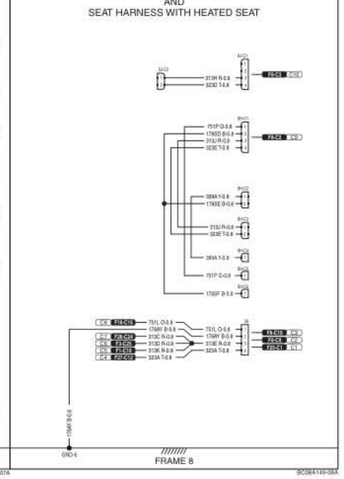
SOLENOIDS AND CONNECTORS



FRAME 7

BC08A149-07A

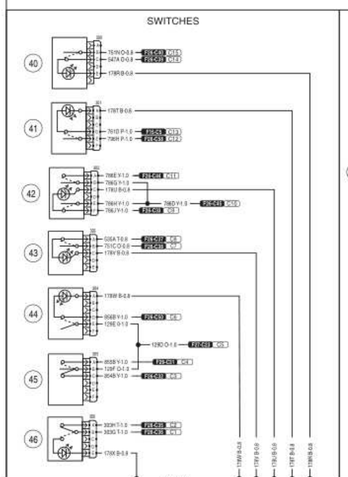
SEAT HARNESS
AND
SEAT HARNESS WITH HEATED SEAT



FRAME 8

BC08A149-08A

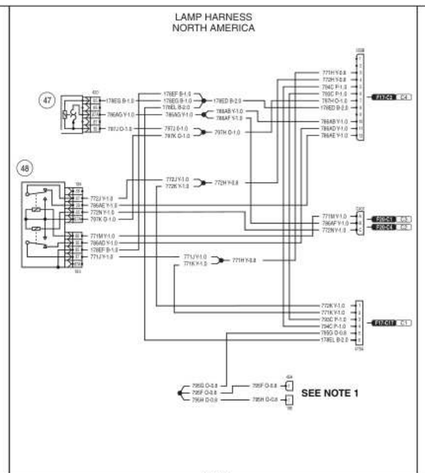
SWITCHES



FRAME 9

BC08A149-09A

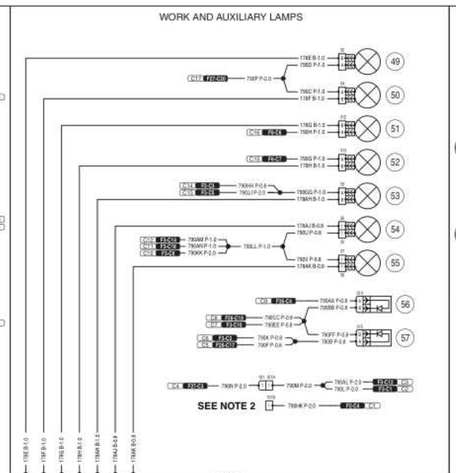
LAMP HARNESS
NORTH AMERICA



FRAME 10

BC08A149-10A

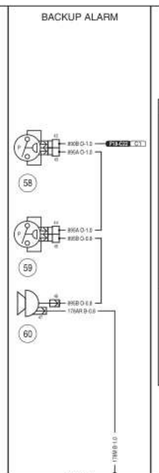
WORK AND AUXILIARY LAMPS



FRAME 11

BC08A149-11A

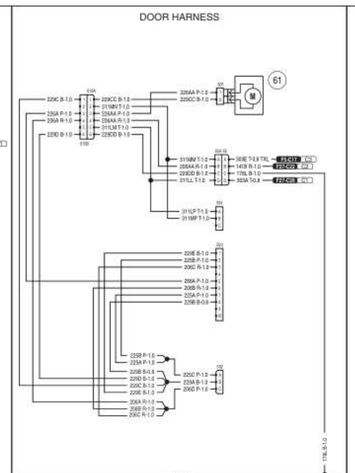
BACKUP ALARM



FRAME 12

BC08A149-12A

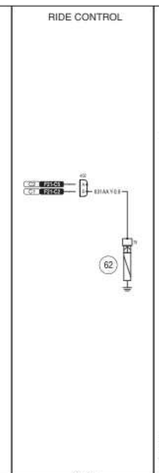
DOOR HARNESS



FRAME 13

BC08A149-13A

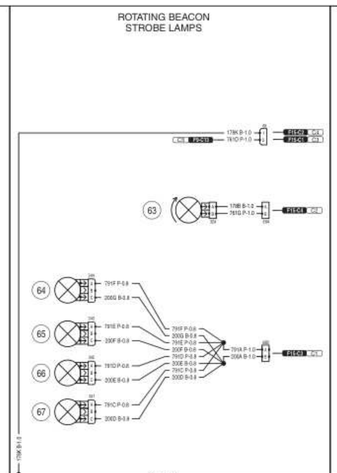
RIDE CONTROL



FRAME 14

BC08A149-14A

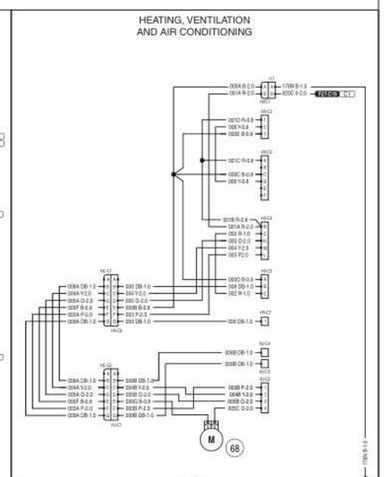
ROTATING BEACON
STROBE LAMPS



FRAME 15

BC08A149-015A

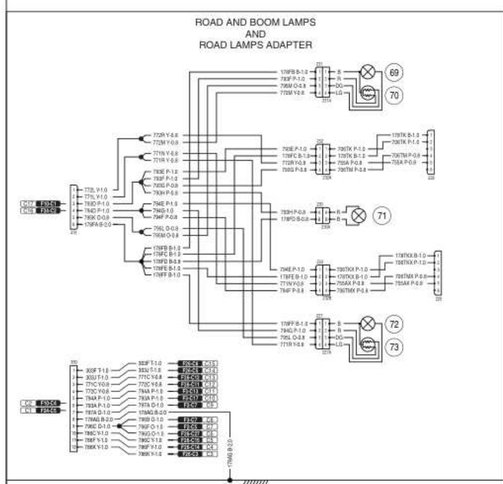
HEATING, VENTILATION
AND AIR CONDITIONING



FRAME 16

BC08A149-16A

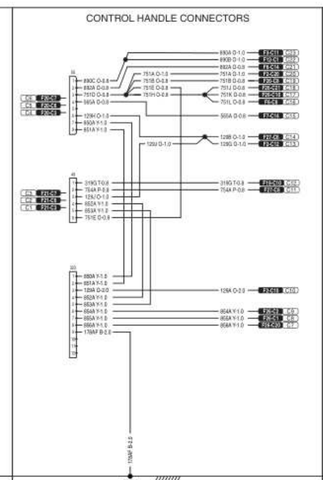
ROAD AND BOOM LAMPS
AND
ROAD LAMPS ADAPTER



FRAME 17

BC08A149-17A

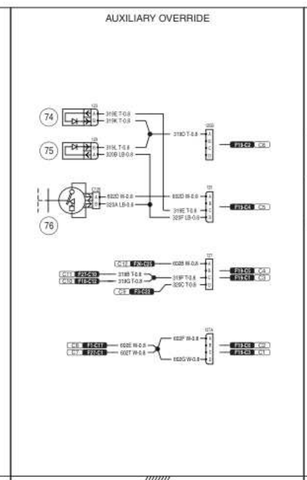
CONTROL HANDLE CONNECTORS



FRAME 18

BC08A149-18A

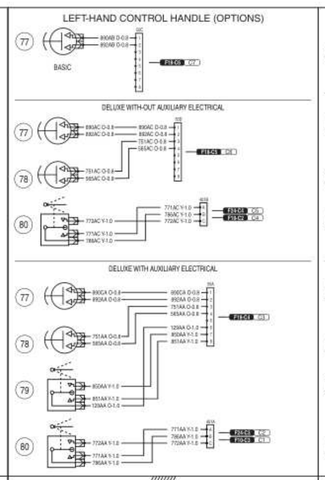
AUXILIARY OVERRIDE



FRAME 19

BC08A149-19A

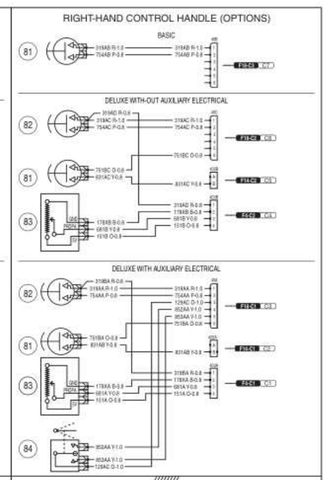
LEFT-HAND CONTROL HANDLE (OPTIONS)



FRAME 20

BC08A149-20A

RIGHT-HAND CONTROL HANDLE (OPTIONS)



FRAME 21

BC08A149-21A

COMPONENTS

FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS
FRAME 1 COMPONENTS 1.- 1. Air Filter Restriction Switch 1.- 2. Engine Oil Pressure Switch 1.- 3. Engine Coolant Temperature Sender 1.- 4. To Fuel Delivery System 1.- 5. Fuel Pump 1.- 6. Alternator 1.- 7. Power Distribution Point 1.- 8. Starter Motor and Solenoid 1.- 9. Battery 1.- 10. Fuse 1.- 11. Coil 1.- 12. Glow Plugs FRAME 2 COMPONENTS 2.- 13. Optional Power Relay - 1 2.- 14. Optional Power Relay - 2 2.- 15. HVAC Relay 2.- 16. Hazard/Turn Relay 2.- 17. Lamp Relay -3 FRAME 3 COMPONENTS 3.- 18. Starting Relay 3.- 19. Start/Interlock Relay 3.- 20. Main Power Relay 3.- 21. Lamp Relay - 1 3.- 22. Lamp Relay - 2 FRAME 4 COMPONENTS None Assigned FRAME 5 COMPONENTS 5.- 23. Ignition Switch 5.- 24. Turn Signal Indicator 5.- 25. 2-Speed Indicator FRAME 6 COMPONENTS 6.- 26. Horn 6.- 27. Charge Pressure Switch 6.- 28. Seat Bar Switch 6.- 29. Not Used 6.- 30. Fuel Level Sender 6.- 31. Hydraulic Filter Pressure Switch 6.- 32. Hydraulic Oil Temperature Sender	FRAME 7 COMPONENTS 7.- 33. Brake Release and Tandem Pump 7.- 34. Override Solenoid 7.- 35. Loader Valve Solenoid 7.- 36. Hi-Flow Solenoid 7.- 37. 2-Speed Solenoid 7.- 38. Alternator Excite 7.- 39. Reverse Polarity Protection Diode FRAME 8 COMPONENTS None Assigned FRAME 9 COMPONENTS 9.- 40. Hydraulic Coupler Switch 9.- 41. Beacon Switch 9.- 42. Hazard Switch 9.- 43. High Flow Switch 9.- 44. Auxiliary Electric ON/OFF Switch 9.- 45. Auxiliary Electric Forward/Reverse Switch 9.- 46. Loader Lock-Out Switch FRAME 10 COMPONENTS 10.- 47. Flasher Module 10.- 48. Turn Signal Conversion Module FRAME 11 COMPONENTS 11.- 49. Left-Hand Front Work Lamp 11.- 50. Right-Hand Front Work Lamp 11.- 51. Left-Hand Auxiliary Work Lamp 11.- 52. Right-Hand Auxiliary Side Lamp 11.- 53. Rear Work Lamp 11.- 54. Left-Hand Rear Position Lamp 11.- 55. Right-Hand Rear Position Lamp 11.- 56. Light Diode #1 11.- 57. Light Diode #2 FRAME 12 COMPONENTS 12.- 58. Backup Alarm Switch 12.- 59. Backup Alarm Switch 12.- 60. Backup Alarm	FRAME 13 COMPONENTS 13.- 61. Washer Switch FRAME 14 COMPONENTS 14.- 62. Ride Control Solenoid FRAME 15 COMPONENTS 15.- 63. Rotating Beacon 15.- 64. Left-Hand Front Strobe 15.- 65. Right-Hand Front Strobe 15.- 66. Right-Hand Rear Strobe 15.- 67. Left-Hand Rear Strobe FRAME 16 Components 16.- 68. Blower Motor FRAME 17 COMPONENTS 17.- 69. Left-Hand Rear Turn Lamp 17.- 70. Left-Hand Rear Tail/Brake Lamp 17.- 71. License Lamp 17.- 72. Right-Hand Rear Turn Lamp 17.- 73. Right-Hand Rear Tail/Brake Lamp FRAME 18 COMPONENTS None Assigned FRAME 19 COMPONENTS 19.- 74. Diode 19.- 75. Diode 19.- 76. Auxiliary Hydraulic Spool Neutral Switch FRAME 20 COMPONENTS 20.- 77. Horn 20.- 78. Two-Speed 20.- 79. Front Electrical Control Switch #1 20.- 80. Turn Signal Switch FRAME 21 COMPONENTS 21.- 81. Park Brake 21.- 82. Ride Control 21.- 83. Prop Auxiliary 21.- 84. Front Electrical Control Switch #2	FRAME 22 COMPONENTS None Assigned FRAME 23 COMPONENTS None Assigned FRAME 24 COMPONENTS 24.- 85. Flasher Module 24.- 86. Timer Relay FRAME 25 COMPONENTS 25.- 87. Timer Relay 25.- 88. Brake Switch 25.- 89. Brake Switch FRAME 26 COMPONENTS None Assigned FRAME 27 COMPONENTS None Assigned FRAME 28 COMPONENTS None Assigned

ACTUATORS: LEVER, HAND, FOOT, COIL, TEMP, DIODE, PRESSURE, FLOAT LIQUID LEVEL

HOUSINGS: VACUUM SWITCH, PRESSURE SWITCH, LAMP, MOTOR, TEMPERATURE SWITCH

CONTACT CONFIGURATIONS: S.P.S.T., S.P.D.T., D.P.S.T., D.P.D.T.

MISCELLANEOUS SYMBOLS: MOMENTARY CONTACTS, MAINTAINED CONTACTS, VARIABLE RESISTOR, RESISTOR, FUSE, CIRCUIT BREAKER, MALE TERMINAL, FEMALE TERMINAL, COMPONENT NUMBER

SHOWS CIRCUIT SPLICE CONNECTION (SPL-90) — SHOWS CIRCUIT CROSSING NOT CONNECTED

INDICATES EXTERNAL GROUND — INDICATES INTERNALLY GROUNDED COMPONENT

FEMALE CONNECTOR — MALE CONNECTOR — CONNECTOR NUMBER — CONNECTOR IDENTIFICATION — CONNECTOR NUMBER — INDICATES PARTIAL CONNECTOR — NOT ALL CONNECTIONS ARE SHOWN

CIRCUIT CONTINUATION

Frame Number and Circuit Number where Circuit continues.

CIRCUIT TAGS: FRAME - CIRCUIT, CIRCUIT

Circuit Number assigned to Circuit in Frame

WIRE IDENTIFICATION

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

BL (933) 0.8 — 702A G-1.0 — WIRE NUMBER, WIRE COLOR, WIRE SIZE

NOTES

NOTE 1: Connect 45A to connector 45 on the Chassis Harness, and Plug Connector 196 to the Backup Switch instead.
NOTE 2: Connect 101 and 101B for European Configuration.
NOTE 3: Connect 45B to Connector 45C on the Brake Lamp Harness.

ELECTRICAL SCHEMATIC
410 SKID STEER LOADER
TIER 3 CAB UPGRADE MACHINES

Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System.
The part number is 5-9610

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