CASE

REPAIR MANUAL

SKID STEER/ COMPACT TRACK LOADER

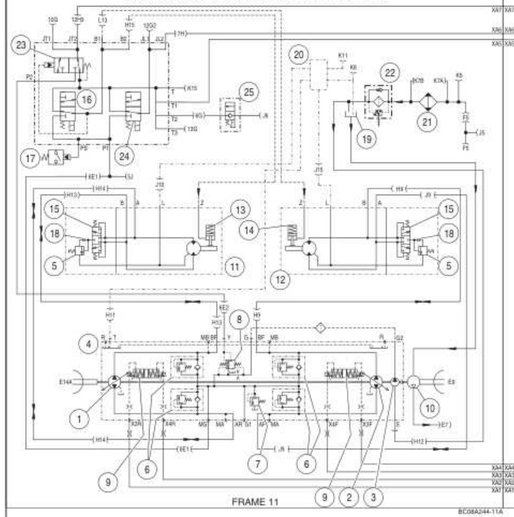
435
445
445CT
SERIES 3

87634768 NA

Issued 01Jan08

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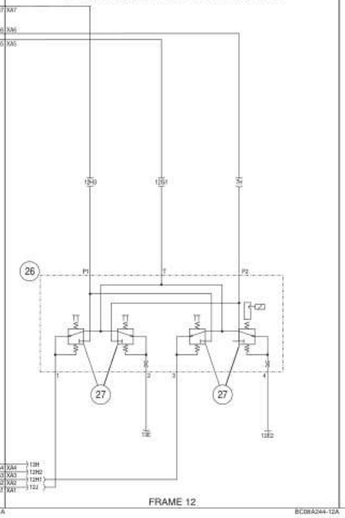
H-PATTERN PILOT CONTROL MACHINES (OPTION)



FRAME 11

BC08A244-11A

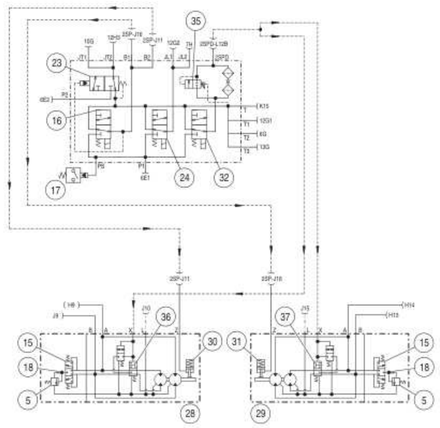
H- PATTERN LEFT-HAND JOYSTICK VALVE



FRAME 12

BC08A244-12A

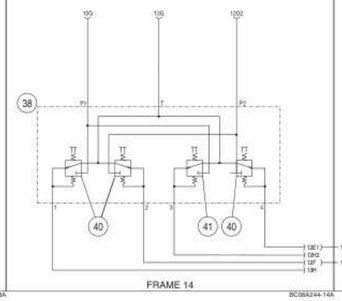
PILOT TWO SPEED (OPTION)



FRAME 13

BC08A244-13A

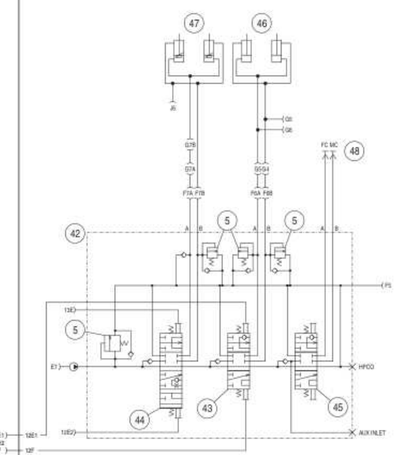
H-PATTERN RIGHT-HAND JOYSTICK VALVE



FRAME 14

BC08A244-14A

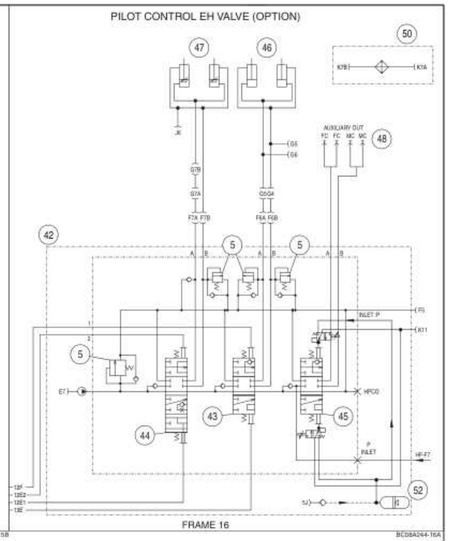
CONTROL VALVE



FRAME 15

BC08A244-15B

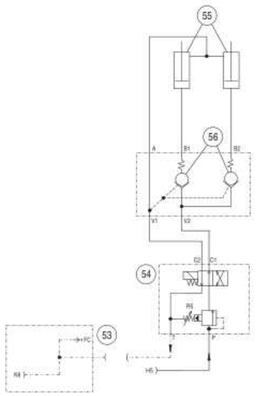
PILOT CONTROL EH VALVE (OPTION)



FRAME 16

BC08A244-16A

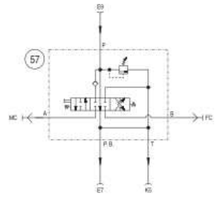
HYDRAULIC COUPLER (OPTION)



FRAME 17

BC08A244-17A

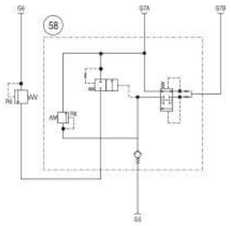
SECONDARY AUXILIARY (OPTION)



FRAME 18

BC08A244-18A

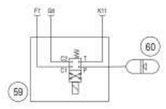
SELF-LEVEL (OPTION)



FRAME 19

BC08A244-19A

RIDE CONTROL (OPTION)



FRAME 20

BC08A244-20A

COMPONENTS - PILOT CONTROL MACHINES

FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS
FRAME 11 COMPONENTS 11- 1. Left Piston Pump 11- 2. Right Piston Pump 11- 3. Charge Pump 11- 4. Hydrostatic Pump 11- 5. Circuit Relief Valve 11- 6. High Pressure Relief Valve 11- 7. Control Cartridge 11- 8. Boost Valve 11- 9. Servo Piston 11- 10. Hydraulic Pump 11- 11. Left Drive Motor 11- 12. Right Drive Motor 11- 13. Left Brake 11- 14. Right Brake 11- 15. Flushing Valve 11- 16. Brake Solenoid Valve 11- 17. Charge Pressure Switch 11- 18. Shut-Off Plug 11- 19. Hydraulic Reservoir 11- 20. Drain Manifold 11- 21. Oil Cooler 11- 22. Oil Filter Bypass Valve 11- 23. Ground Drive Interlock 11- 24. Loader Interlock 11- 25. Manual Boom Lowering Valve FRAME 12 COMPONENTS 12- 26. Left-Hand Joystick Valve 12- 27. Controller Spool	FRAME 13 COMPONENTS 13- 5. Circuit Relief Valve 13- 15. Flushing Valve 13- 16. Brake Solenoid Valve 13- 17. Charge Pressure Switch 13- 18. Shut-off Plug 13- 23. Ground Drive Interlock 13- 24. Loader Interlock 13- 28. Left Two Speed Drive Motor 13- 29. Right Two Speed Drive Motor 13- 30. Left Brake 13- 31. Right Brake 13- 32. Two Speed Valve 13- 35. Two Speed Solenoid Valve 13- 36. Left Two Speed Shuttle Valve 13- 37. Right Two Speed Shuttle Valve FRAME 14 COMPONENTS 14- 38. Right-Hand Joystick Valve 14- 40. Controller Spool 14- 41. Controller Spool FRAME 15 COMPONENTS 15- 5. Circuit Relief Valve 15- 42. Loader Control Valve 15- 43. Tilt Spool 15- 44. Lift Spool 15- 45. Auxiliary Spool 15- 46. Tilt Cylinders 15- 47. Lift Cylinders 15- 48. Auxiliary Outlets	FRAME 16 COMPONENTS 16- 5. Circuit Relief Valve 16- 42. Loader Control Valve 16- 43. Tilt Spool 16- 44. Lift Spool 16- 45. Auxiliary Spool 16- 46. Tilt Cylinders 16- 47. Lift Cylinders 16- 48. Auxiliary Outlets 16- 49. High Flow Pump 16- 50. High Flow Filter 16- 51. High Flow Control Valve 16- 52. Accumulator FRAME 17 COMPONENTS 17- 53. Attachment Case Drain 17- 54. Hydraulic Coupler Control Valve 17- 55. Hydraulic Coupler Cylinder 17- 56. Check Valve FRAME 18 COMPONENTS 18- 57. Secondary Auxiliary Control Valve FRAME 19 COMPONENTS 19- 58. Self-Level Valve FRAME 20 COMPONENTS 20- 59. Ride Control Valve 20- 60. Ride Control Accumulator

HYDRAULIC SYMBOLS

54 COMPONENT NUMBER

SHOWS CIRCUIT CROSSING NOT CONNECTED

SHOWS CIRCUIT CONNECTED

CHECK VALVE

RESTRICTOR

FILTER OR SCREEN

OIL COOLER

DIRECTION OF FLOW

PRESSURE

CASE DRAIN

COMPONENT

PILOT PRESSURE

LINE TYPES

NOTES

HYDRAULIC SCHEMATIC

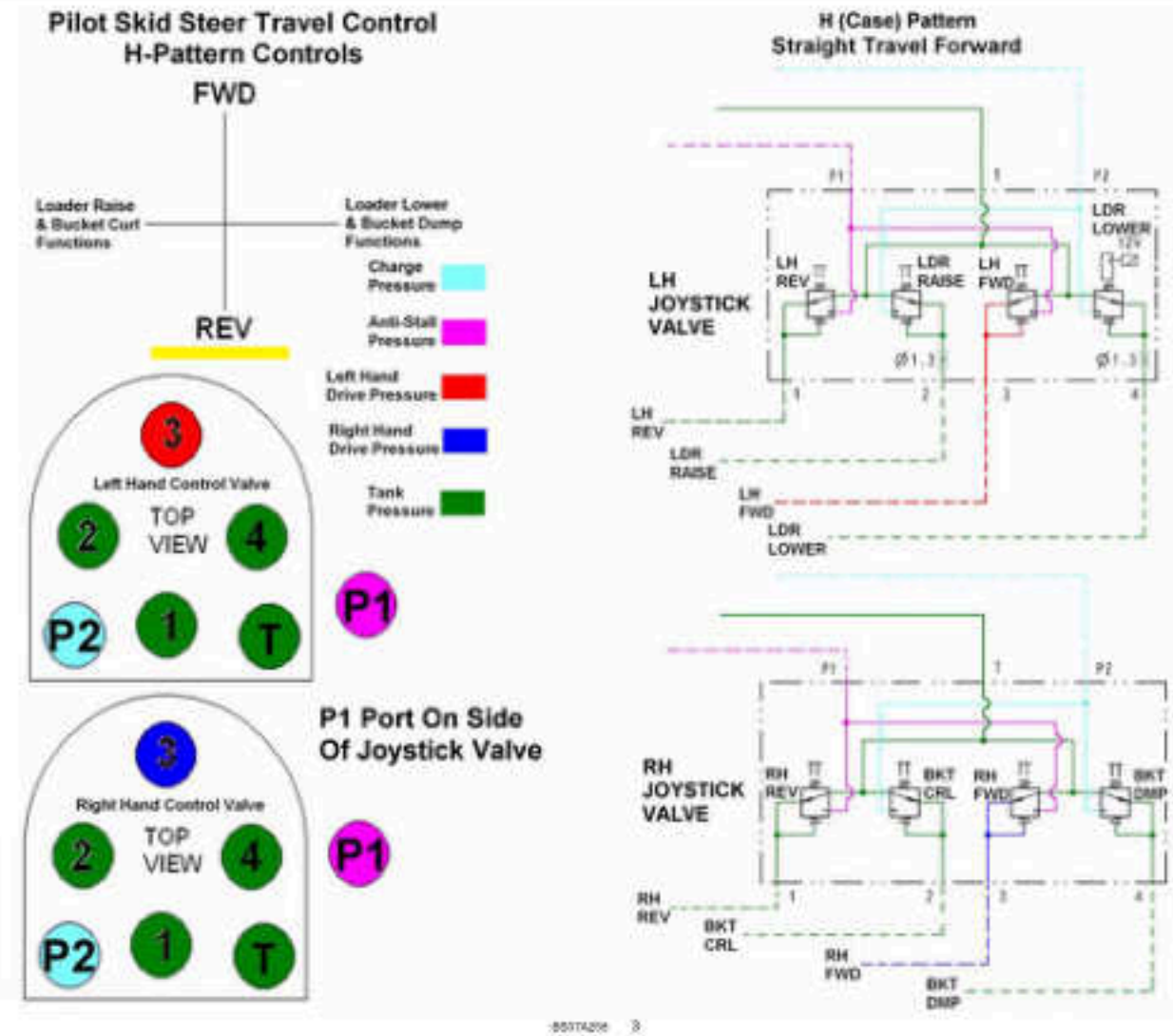
H-PATTERN PILOT CONTROL MACHINES (OPTION)

435, 445 SKID STEER and 445CT TRACK LOADER

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The part number is 5-9630

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Left Hand Pivot Turn

The hydrostatic pump displacement is infinitely variable between zero and 100%. A given swashplate position can be affected by drive system pressure, control pressure to the pilot hand control valve from the anti-stall cartridge, pilot hand control lever position, pump drive speed, as well as the servo stroking piston centering springs. Flow direction is determined by which pump servo cylinder control port is pressurized.

Steering is caused by pressure acting on the servo piston causing the servo piston to increase displacement. The opposite side of the servo piston is ported back to tank.

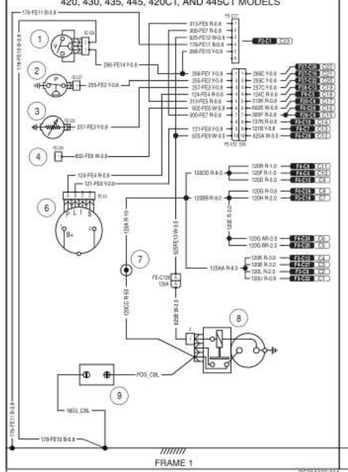
There are four work ports per control handle that send pilot pressure to different areas of the hydrostatic pump and loader control valve.

Actuating the right travel control lever toward the straight forward direction causes controller number 3 to be pressurized in proportion to the distance that the lever is moved. Activating controller number 3 causes the machine to pivot due to the right hand wheels turning forward. This motion causes the machine to steer to the left. Return oil from the non-pressurized sides of the servo pistons is forced back through number 1 control back to tank.

If the operator wished to have a power steer (one side traveling slower than the other in the same direction) pilot pressure would need to be sent from the left hand control handle controller number 3 to actuate the left pump.

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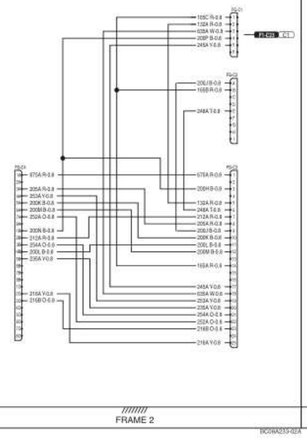
STARTING SYSTEM
420, 430, 435, 445, 420CT, AND 445CT MODELS



FRAME 1

BC06A233-01A

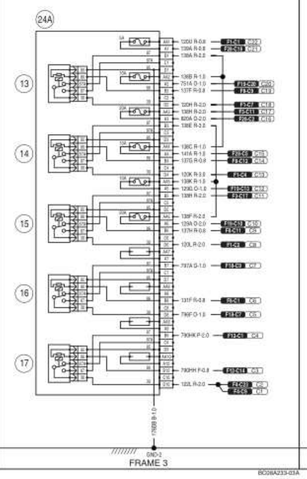
F5C ENGINE HARNESS



FRAME 2

BC06A233-02A

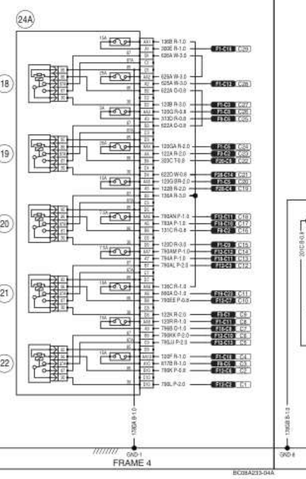
POWER DISTRIBUTION



FRAME 3

BC06A233-03A

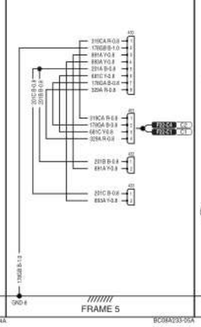
POWER DISTRIBUTION



FRAME 4

BC06A233-04A

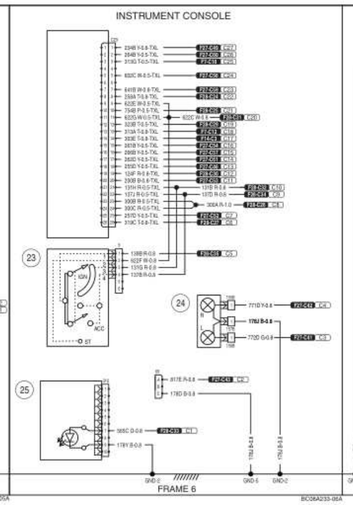
PROPORTIONAL AUXILIARY



FRAME 5

BC06A233-05A

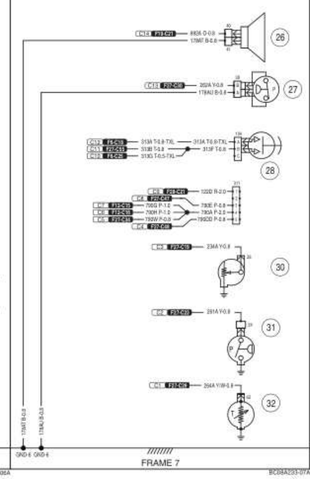
INSTRUMENT CONSOLE



FRAME 6

BC06A233-06A

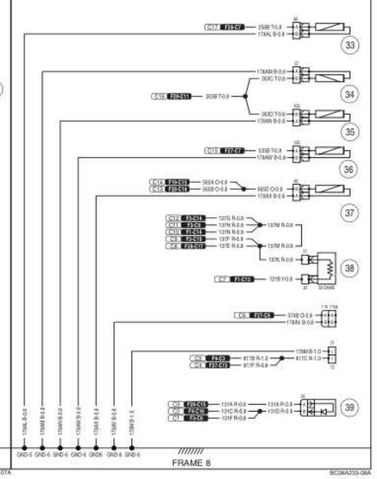
SWITCHES AND SENDERS



FRAME 7

BC06A233-07A

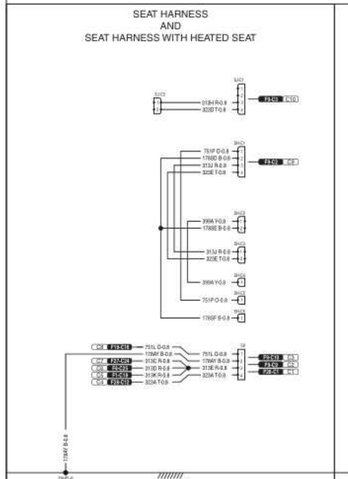
SOLENOIDS AND CONNECTORS



FRAME 8

BC06A233-08A

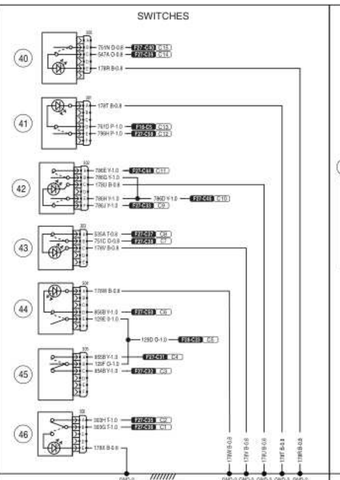
SEAT HARNESS AND SEAT HARNESS WITH HEATED SEAT



FRAME 9

BC06A233-09A

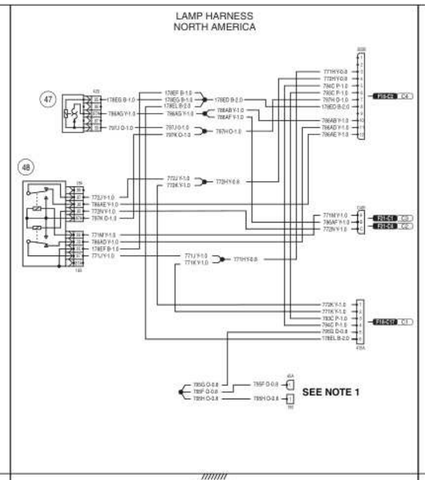
SWITCHES



FRAME 10

BC06A233-10A

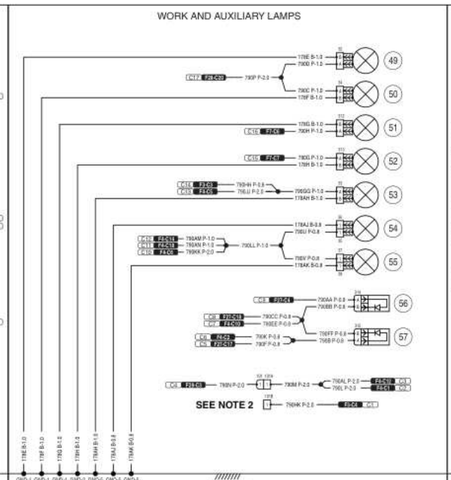
LAMP HARNESS NORTH AMERICA



FRAME 11

BC06A233-11A

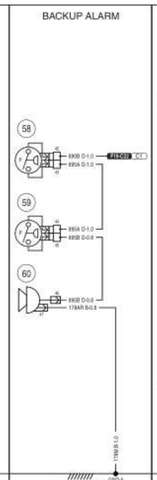
WORK AND AUXILIARY LAMPS



FRAME 12

BC06A233-12A

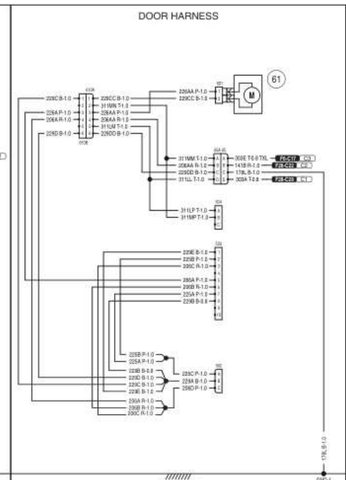
BACKUP ALARM



FRAME 13

BC06A233-13A

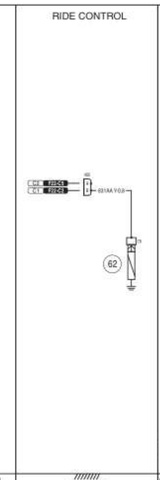
DOOR HARNESS



FRAME 14

BC06A233-14A

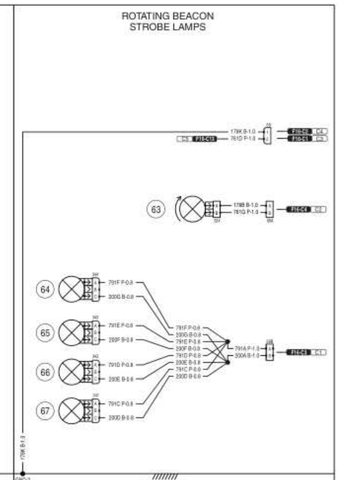
RIDE CONTROL



FRAME 15

BC06A233-15A

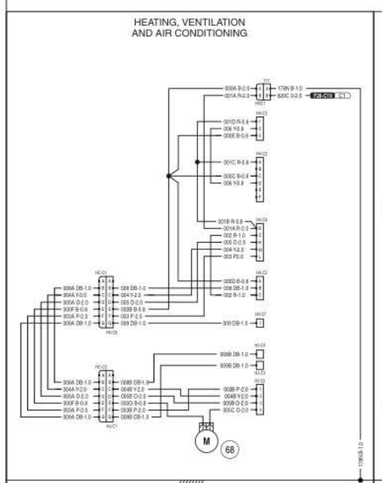
ROTATING BEACON STROBE LAMPS



FRAME 16

BC06A233-016A

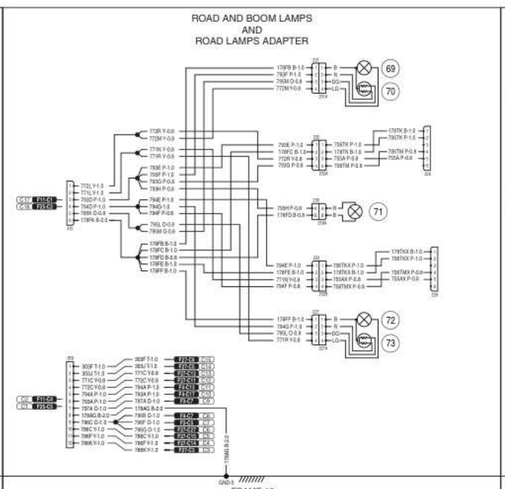
HEATING, VENTILATION AND AIR CONDITIONING



FRAME 17

BC06A233-17A

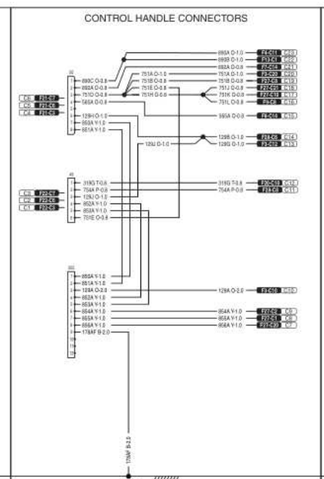
ROAD AND BOOM LAMPS AND ROAD LAMPS ADAPTER



FRAME 18

BC06A233-18A

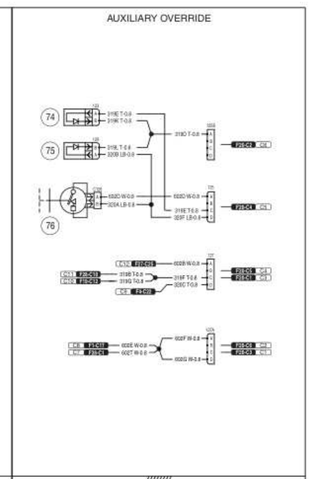
CONTROL HANDLE CONNECTORS



FRAME 19

BC06A233-19A

AUXILIARY OVERRIDE



FRAME 20

BC06A233-20A

COMPONENTS

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. Not Used
1 - 6. Alternator
1 - 7. Power Distribution Point
1 - 8. Starter Motor and Solenoid
1 - 9. Battery
1 - 10. Not Used
1 - 11. Not Used
1 - 12. Not Used

FRAME 2 COMPONENTS
None Assigned

FRAME 3 COMPONENTS
3 - 13. Optional Power Relay - 1
3 - 14. Optional Power Relay - 2
3 - 15. HVAC Relay
3 - 16. Hazard/Turn Relay
3 - 17. Lamp Relay -3

FRAME 4 COMPONENTS
4 - 18. Starting Relay
4 - 19. Start/Interlock Relay
4 - 20. Main Power Relay
4 - 21. Lamp Relay - 1
4 - 22. Lamp Relay - 2

FRAME 5 COMPONENTS
None Assigned

FRAME 6 COMPONENTS
6 - 23. Ignition Switch
6 - 24. Turn Signal Indicator
6 - 25. 2-Speed Indicator

FRAME 7 COMPONENTS
7 - 26. Horn
7 - 27. Charge Pressure Switch
7 - 28. Seat Bar Switch
7 - 29. Not Used
7 - 30. Fuel Level Sender
7 - 31. Hydraulic Filter Pressure Switch
7 - 32. Hydraulic Oil Temperature Sender

FRAME 8 COMPONENTS
8 - 33. Brake Release and Tandem Pump
8 - 34. Override Solenoid
8 - 35. Loader Valve Solenoid
8 - 36. Hi-Flow Solenoid
8 - 37. 2-Speed Solenoid
8 - 38. Alternator Excite
8 - 39. Reverse Polarity Protection Diode

FRAME 9 COMPONENTS
None Assigned

FRAME 10 COMPONENTS
10 - 40. Hydraulic Coupler Switch
10 - 41. Beacon Switch
10 - 42. Hazard Switch
10 - 43. High Flow Switch
10 - 44. Auxiliary Electric ON/OFF Switch
10 - 45. Auxiliary Electric Forward/Reverse Switch
10 - 46. Loader Lock-Out Switch

FRAME 11 COMPONENTS
11 - 47. Flasher Module
11 - 48. Turn Signal Conversion Module

FRAME 12 COMPONENTS
12 - 49. Left-Hand Front Work Lamp
12 - 50. Right-Hand Front Work Lamp
12 - 51. Left-Hand Auxiliary Work Lamp
12 - 52. Right-Hand Auxiliary Side Lamp
12 - 53. Rear Work Lamp
12 - 54. Left-Hand Rear Position Lamp
12 - 55. Right-Hand Rear Position Lamp
12 - 56. Light Diode #1
12 - 57. Light Diode #2

FRAME 13 COMPONENTS
13 - 58. Backup Alarm Switch
13 - 59. Backup Alarm Switch
13 - 60. Backup Alarm

FRAME 14 COMPONENTS
14 - 61. Washer Switch

FRAME 15 COMPONENTS
15 - 62. Ride Control Solenoid

FRAME 16 COMPONENTS
16 - 63. Rotating Beacon
16 - 64. Left-Hand Front Strobe
16 - 65. Right-Hand Front Strobe
16 - 66. Right-Hand Rear Strobe
16 - 67. Left-Hand Rear Strobe

FRAME 17 Components
17 - 68. Blower Motor

FRAME 18 COMPONENTS
18 - 69. Left-Hand Rear Turn Lamp
18 - 70. Left-Hand Rear Tail/Brake Lamp
18 - 71. License Lamp
18 - 72. Right-Hand Rear Turn Lamp
18 - 73. Right-Hand Rear Tail/Brake Lamp

FRAME 19 COMPONENTS
None Assigned

FRAME 20 COMPONENTS
20 - 74. Diode
20 - 75. Diode
20 - 76. Auxiliary Hydraulic Spool Neutral Switch

FRAME 21 COMPONENTS
21 - 77. Horn
21 - 78. Two-Speed
21 - 79. Front Electrical Control Switch #1
21 - 80. Turn Signal Switch

FRAME 22 COMPONENTS
22 - 81. Park Brake
22 - 82. Ride Control
22 - 83. Prop Auxiliary
22 - 84. Front Electrical Control Switch #2

FRAME 23 COMPONENTS
None Assigned

FRAME 24 COMPONENTS
None Assigned

FRAME 25 COMPONENTS
25 - 85. Flasher Module
25 - 86. Timer Relay

FRAME 26 COMPONENTS
26 - 87. Timer Relay
26 - 88. Brake Switch
26 - 89. Brake Switch

FRAME 27 COMPONENTS
None Assigned

FRAME 28 COMPONENTS
None Assigned

FRAME 29 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
DB . . DARK BLUE
G . . . GREEN
K . . . PINK
LG . . LIGHT GREEN
LB . . LIGHT BLUE
DG . . DARK GREEN
O . . . ORANGE
P . . . PURPLE
R . . . RED
T . . . TAN
W . . WHITE
Y . . . YELLOW

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

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
435, 445 SKID STEER AND 445CT COMPACT LOADER
TIER 3 CAB UPGRADE MACHINES

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The part number is 5-9630

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