CASE

PROFESSIONAL PARTNER

REPAIR MANUAL

SKID STEER
COMPACT TRACK LOADER

450
465
450CT

(Mechanical and Pilot Control Machines - H and ISO Pattern)

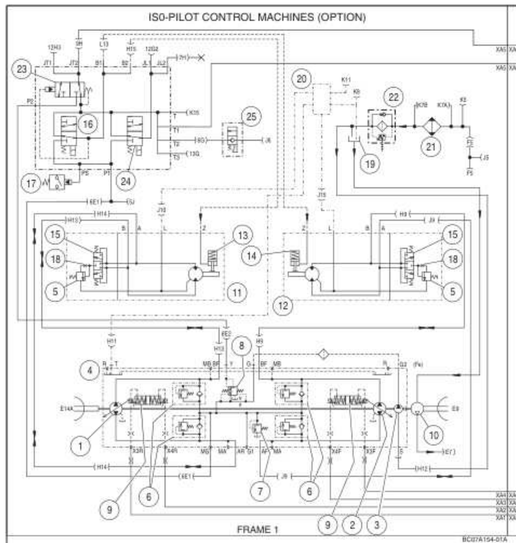
87578832 NA

Replaces 87519801 NA

Revised 01-2007
Issued 08-2006

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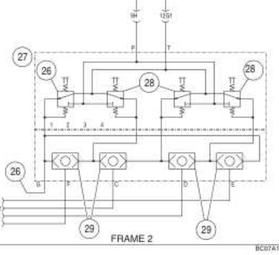
ISO-PILOT CONTROL MACHINES (OPTION)



FRAME 1

BC07A154-01A

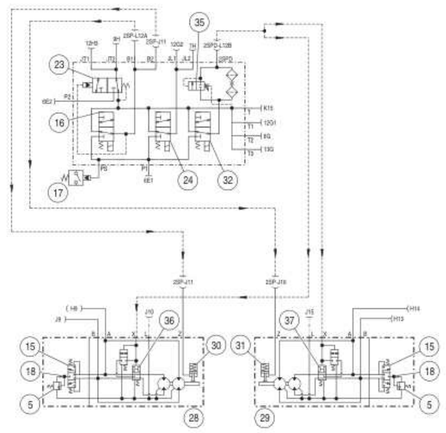
GROUND DRIVE CONTROLLER ISO PATTERN



FRAME 2

BC07A154-02A

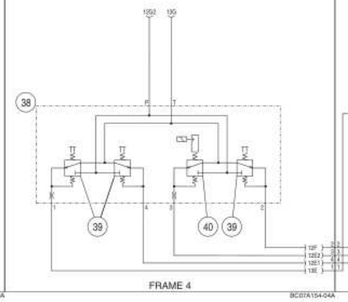
PILOT TWO SPEED (OPTION)



FRAME 3

BC07A154-03A

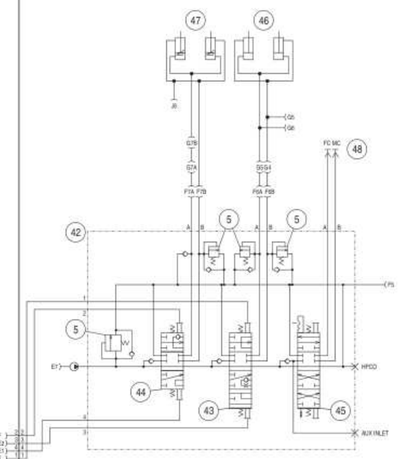
IMPLEMENT CONTROLLER ISO PATTERN



FRAME 4

BC07A154-04A

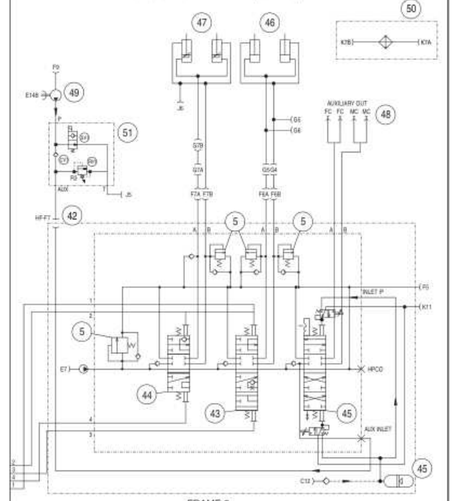
CONTROL VALVE



FRAME 5

BC07A154-05A

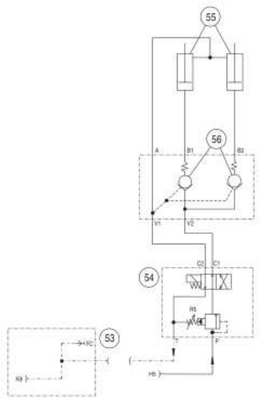
PILOT CONTROL EH VALVE (OPTION)



FRAME 6

BC07A154-06A

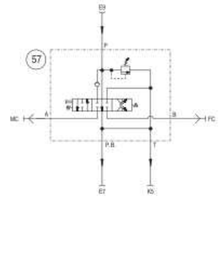
HYDRAULIC COUPLER (OPTION)



FRAME 7

BC07A154-07A

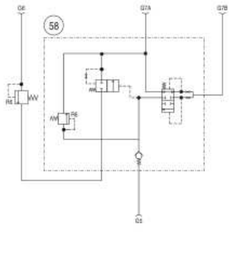
SECONDARY AUXILIARY (OPTION)



FRAME 8

BC07A154-08A

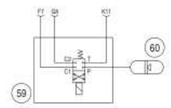
SELF-LEVEL (OPTION)



FRAME 9

BC07A154-09A

RIDE CONTROL (OPTION)



FRAME 10

BC07A154-10A

COMPONENTS - PILOT CONTROL MACHINES

FRAME - COMPONENT NUMBERS

FRAME 7 COMPONENTS
1 - 1. Left Piston Pump
1 - 2. Right Piston Pump
1 - 3. Charge Pump
1 - 4. Hydrostatic Pump
1 - 5. Circuit Relief Valve
1 - 6. High Pressure Relief Valve
1 - 7. Control Cartridge
1 - 8. Boost Valve
1 - 9. Servo Piston
1 - 10. Hydraulic Pump
1 - 11. Left Drive Motor
1 - 12. Right Drive Motor
1 - 13. Left Brake
1 - 14. Right Brake
1 - 15. Flushing Valve
1 - 16. Brake Solenoid Valve
1 - 17. Charge Pressure Switch
1 - 18. Shut-Off Plug
1 - 19. Hydraulic Reservoir
1 - 20. Drain Manifold
1 - 21. Oil Cooler
1 - 22. Oil Filter Bypass Valve
1 - 23. Ground Drive Interlock
1 - 24. Loader Interlock
1 - 25. Manual Boom Lowering Valve

FRAME 2 COMPONENTS
2 - 26. Backup Alarm Port
2 - 27. Ground Drive Controller
2 - 28. Ground Drive Controller Spool
2 - 29. Resolver Block Shuttle Valve

FRAME - COMPONENT NUMBERS

FRAME 3 COMPONENTS
3 - 5. Circuit Relief Valve
3 - 15. Flushing Valve
3 - 16. Brake Solenoid Valve
3 - 17. Charge Pressure Switch
3 - 18. Shut-off Plug
3 - 23. Ground Drive Interlock
3 - 24. Loader Interlock
3 - 28. Left Two Speed Drive Motor
3 - 29. Right Two Speed Drive Motor
3 - 30. Left Brake
3 - 31. Right Brake
3 - 32. Two Speed Valve
3 - 35. Two Speed Solenoid Valve
3 - 36. Left Two Speed Shuttle Valve
3 - 37. Right Two Speed Shuttle Valve

FRAME 4 COMPONENTS
4 - 38. Implement Controller
4 - 39. Implement Controller Spool
4 - 40. Implement Controller Spool with Magnetic Detent

FRAME 5 COMPONENTS
5 - 5. Circuit Relief Valve
5 - 42. Loader Control Valve
5 - 43. Tilt Spool
5 - 44. Lift Spool
5 - 45. Auxiliary Spool
5 - 46. Tilt Cylinders
5 - 47. Lift Cylinders
5 - 48. Auxiliary Outlets

FRAME - COMPONENT NUMBERS

FRAME 6 COMPONENTS
6 - 5. Circuit Relief Valve
6 - 42. Loader Control Valve
6 - 43. Tilt Spool
6 - 44. Lift Spool
6 - 45. Auxiliary Spool
6 46. Tilt Cylinders
6 - 47. Lift Cylinders
6 - 48. Auxiliary Outlets
6 - 49. High Flow Pump
6 - 50. High Flow Filter
6 - 51. High Flow Control Valve
6 52. Accumulator

FRAME 7 COMPONENTS
7 - 53. Attachment Case Drain
7 - 54. Hydraulic Coupler Control Valve
7 - 55. Hydraulic Coupler Cylinder
7 - 56. Check Valve

FRAME 8 COMPONENTS
8 - 57. Secondary Auxiliary Control Valve

FRAME 9 COMPONENTS
9 - 58. Self-Level Valve

FRAME 10 COMPONENTS
10 - 59. Ride Control Valve
10 - 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

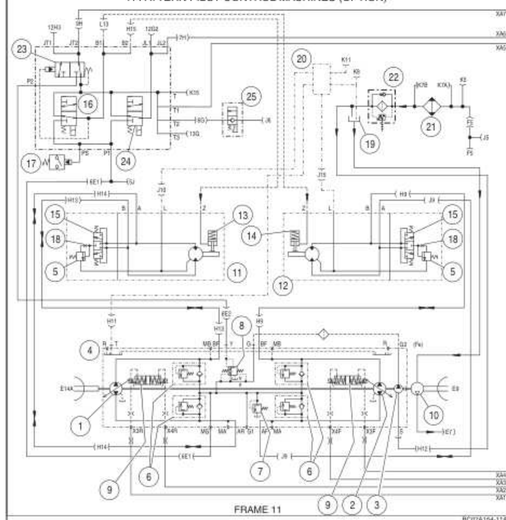
HYDRAULIC SCHEMATIC
ISO-PATTERN PILOT CONTROL MACHINES (OPTION)
450, 465 SKID STEER and 450CT TRACK LOADER

Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System.
The part number is 5-5360

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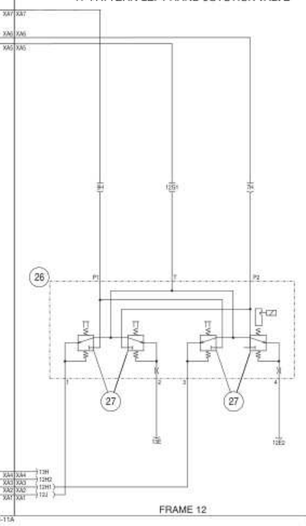
H-PATTERN PILOT CONTROL MACHINES (OPTION)



FRAME 11

BC07A154-11A

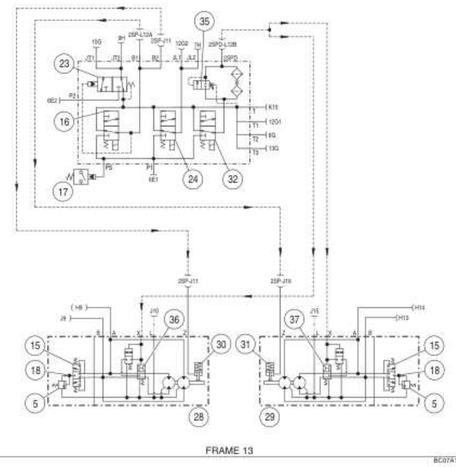
H- PATTERN LEFT-HAND JOYSTICK VALVE



FRAME 12

BC07A154-12A

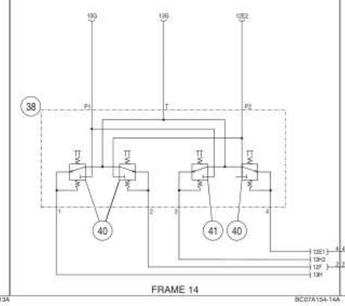
PILOT TWO SPEED (OPTION)



FRAME 13

BC07A154-13A

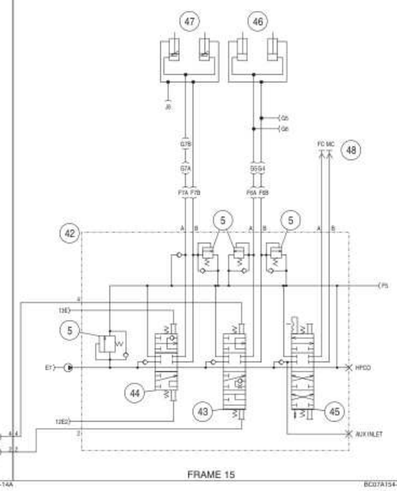
H-PATTERN RIGHT-HAND JOYSTICK VALVE



FRAME 14

BC07A154-14A

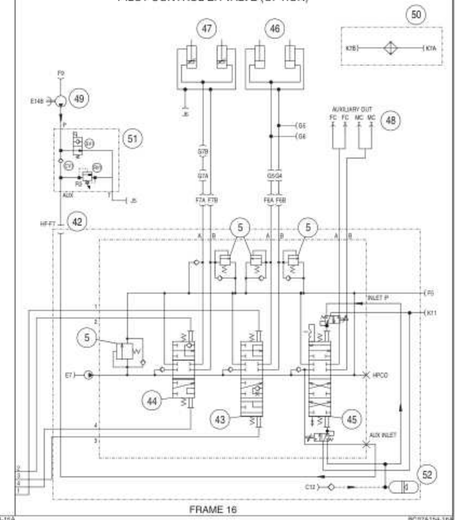
CONTROL VALVE



FRAME 15

BC07A154-15A

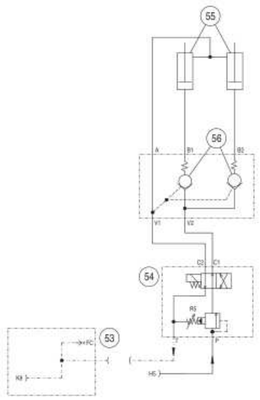
PILOT CONTROL EH VALVE (OPTION)



FRAME 16

BC07A154-16A

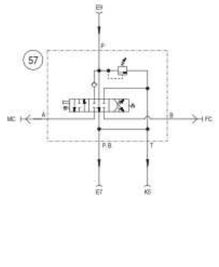
HYDRAULIC COUPLER (OPTION)



FRAME 17

BC07A154-17A

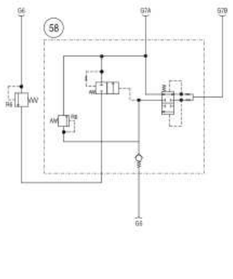
SECONDARY AUXILIARY (OPTION)



FRAME 18

BC07A154-18A

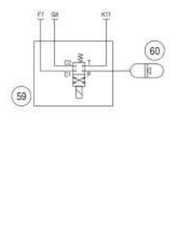
SELF-LEVEL (OPTION)



FRAME 19

BC07A154-19A

RIDE CONTROL (OPTION)



FRAME 20

BC07A154-20A

COMPONENTS - PILOT CONTROL MACHINES

FRAME - COMPONENT NUMBERS

FRAME 7 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 - COMPONENT NUMBERS

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 - COMPONENT NUMBERS

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

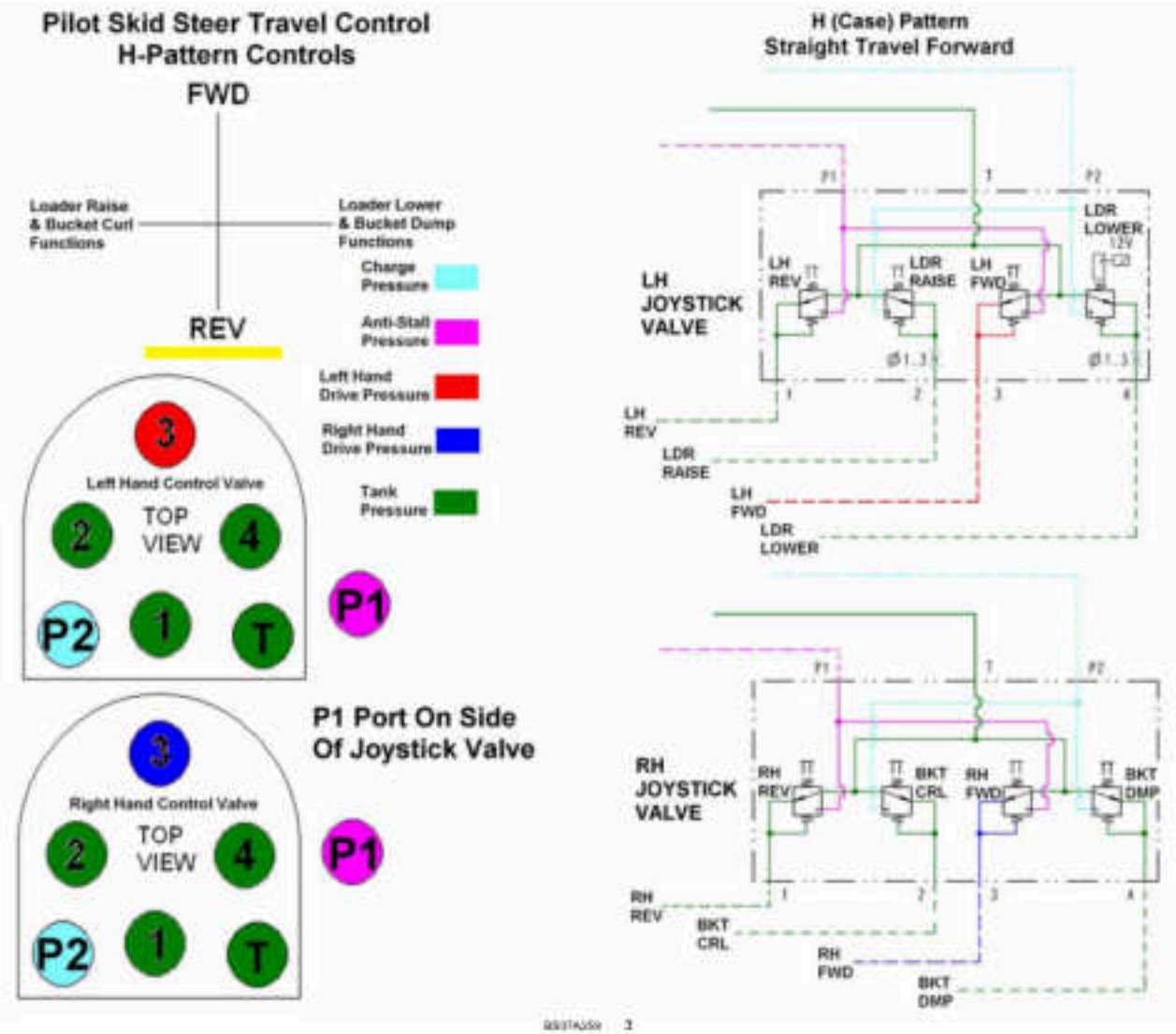
HYDRAULIC SCHEMATIC
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450, 465 SKID STEER and 450CT TRACK LOADER

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The part number is 5-5360

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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.

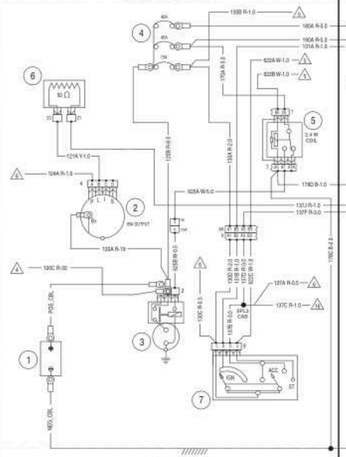
There are four work ports per control handle that send pilot pressure to different areas of the hydrostatic pump and loader control valve.

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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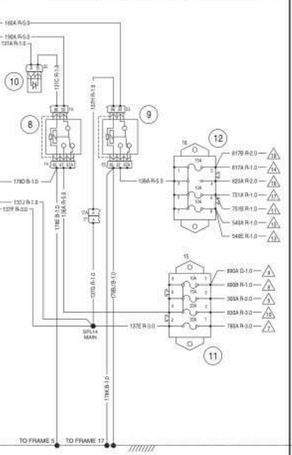
STARTING SYSTEM



FRAME 1

BC07A153-01A

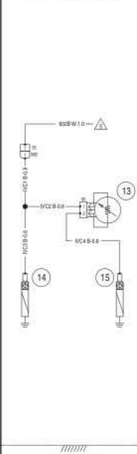
POWER DISTRIBUTION



FRAME 2

BC07A153-02A

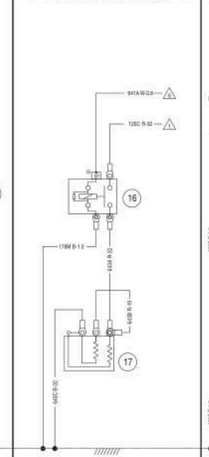
FUEL SUPPLY SYSTEM



FRAME 3

BC07A153-03A

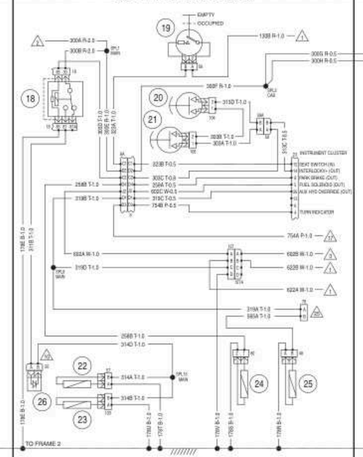
GRID HEATER SYSTEM



FRAME 4

BC07A153-04A

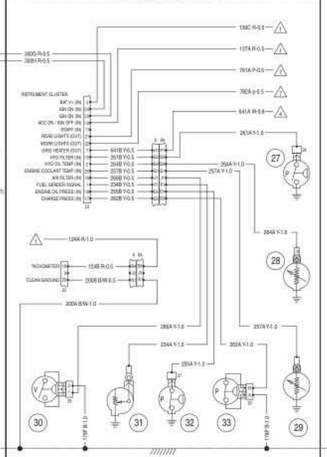
SAFETY INTERLOCK SYSTEM



FRAME 5

BC07A153-05A

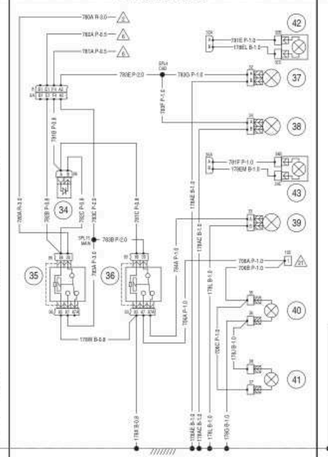
INSTRUMENT CLUSTER



FRAME 6

BC07A153-06A

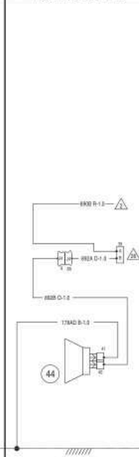
STANDARD LAMPS



FRAME 7

BC07A153-07A

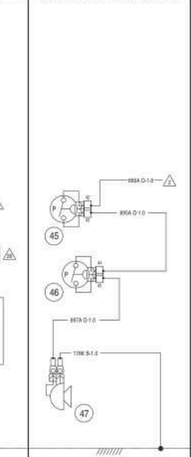
HORN (OPTIONAL)



FRAME 8

BC054M183-08A

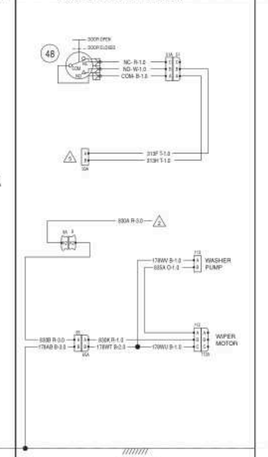
BACK-UP ALARM (OPTIONAL)



FRAME 9

BC07A153-09A

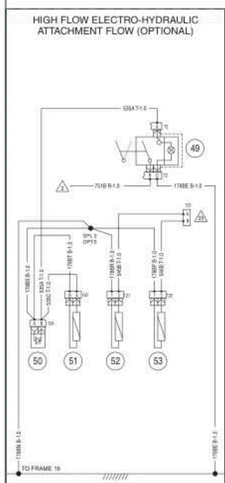
FRONT DOOR (OPTIONAL)



FRAME 10

BC07A153-10A

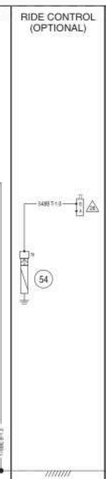
HIGH FLOW ELECTRO-HYDRAULIC ATTACHMENT FLOW (OPTIONAL)



FRAME 11

BC07A153-11A

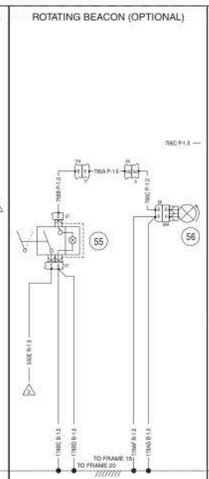
RIDE CONTROL (OPTIONAL)



FRAME 12

BC07A153-12A

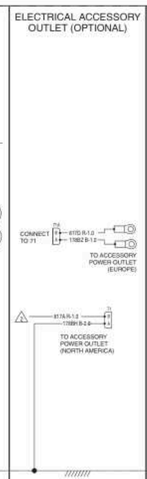
ROTATING BEACON (OPTIONAL)



FRAME 13

BC07A153-13A

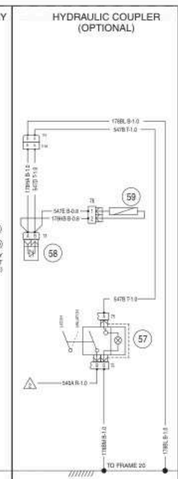
ELECTRICAL ACCESSORY OUTLET (OPTIONAL)



FRAME 14

BC07A153-14A

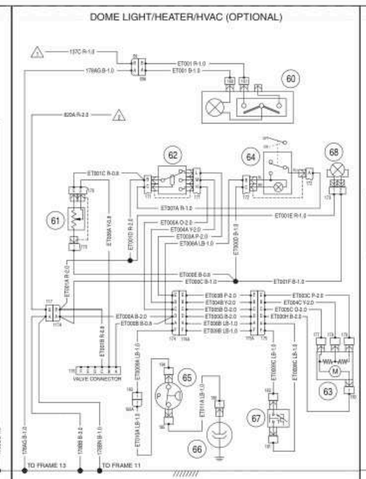
HYDRAULIC COUPLER (OPTIONAL)



FRAME 15

BC07A153-15A

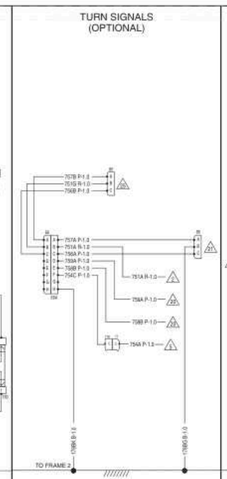
DOME LIGHT/HEATER/HVAC (OPTIONAL)



FRAME 16

BC07A153-16A

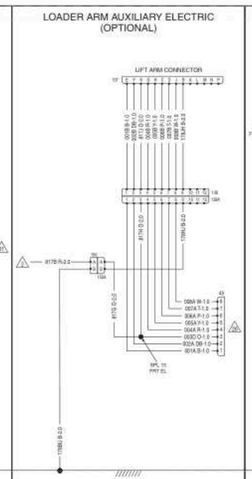
TURN SIGNALS (OPTIONAL)



FRAME 17

BC07A153-17A

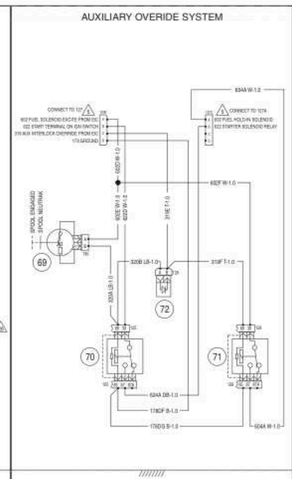
LOADER ARM AUXILIARY ELECTRIC (OPTIONAL)



FRAME 18

BC07A153-18A

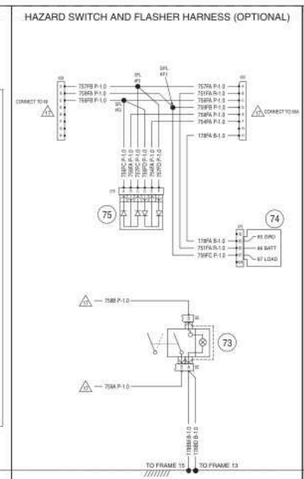
AUXILIARY OVERIDE SYSTEM



FRAME 19

BC07A153-19A

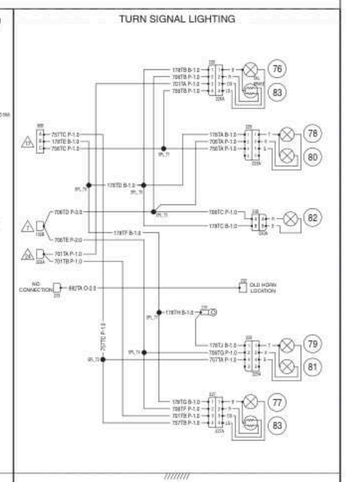
HAZARD SWITCH AND FLASHER HARNESS (OPTIONAL)



FRAME 20

BC07A153-20A

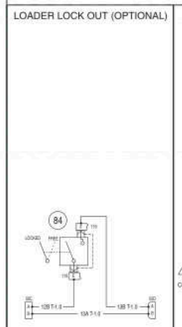
TURN SIGNAL LIGHTING



FRAME 21

BC07A153-21A

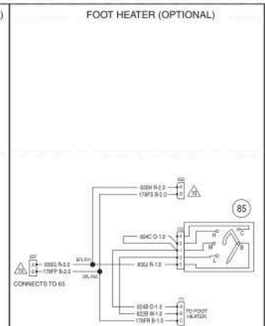
LOADER LOCK OUT (OPTIONAL)



FRAME 22

BC07A153-22A

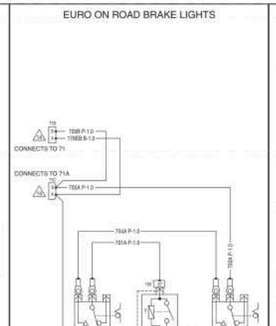
FOOT HEATER (OPTIONAL)



FRAME 23

BC04M183-23A

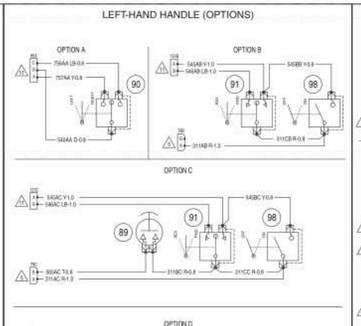
EURO ON ROAD BRAKE LIGHTS



FRAME 24

BC04M183-24A

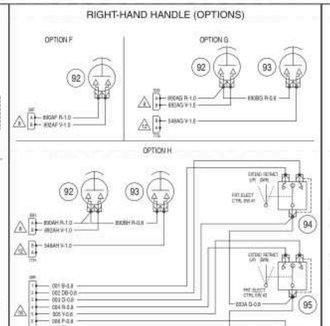
LEFT-HAND HANDLE (OPTIONS)



FRAME 25

BC04M183-25A

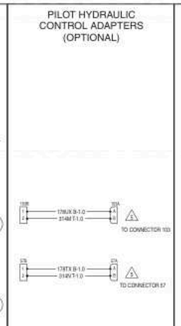
RIGHT-HAND HANDLE (OPTIONS)



FRAME 26

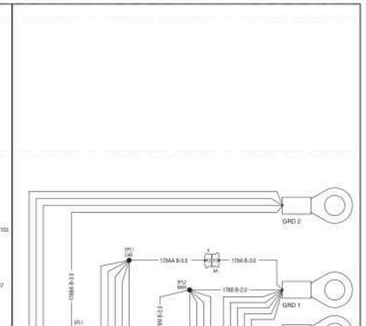
BC04M183-26A

PILOT HYDRAULIC CONTROL ADAPTERS (OPTIONAL)



FRAME 27

BC04M167-27A



FRAME 28

BC04M183-28A

1. BATTERY
2. ALTERNATOR
3. STARTER AND SOLENOID
4. CIRCUIT BREAKER
5. STARTER RELAY
6. RESISTOR (50 OHMS)
7. IGNITION SWITCH
8. MAIN POWER RELAY
9. OPTIONS POWER RELAY
10. DIODE (REVERSE POLARITY)
11. PRIMARY FUSE BLOCK
12. OPTIONS FUSE BLOCK
13. COLD START ADVANCE TEMPERATURE SENDER
14. FUEL HOLD-IN SOLENOID
15. COLD START ADVANCE SOLENOID
16. GRID HEATER RELAY
17. GRID HEATER
18. INTERLOCK RELAY
19. SEAT SWITCH
20. SEAT BAR SWITCH
21. CAB LOCK DOWN SWITCH
22. LOADER VALVE SOLENOID
23. LOADER VALVE SOLENOID
24. BRAKE RELEASE/TANDEM PUMP NEUTRAL OVERRIDE SOLENOID
25. TWO (2) SPEED SOLENOID
26. DIODE
27. HYDRAULIC PRESSURE SWITCH
28. HYDRAULIC OIL TEMPERATURE SENDER
29. ENGINE COOLANT TEMPERATURE SENDER
30. AIR FILTER RESTRICTION SWITCH
31. FUEL SENDER
32. ENGINE OIL PRESSURE SWITCH
33. CHARGE PRESSURE SWITCH
34. DIODE
35. LIGHT RELAY No. 1
36. LIGHT RELAY No. 2
37. LEFT FRONT WORKLIGHT
38. RIGHT FRONT WORKLIGHT
39. REAR WORKLIGHT
40. LEFT REAR INDICATOR LIGHT
41. RIGHT REAR INDICATOR LIGHT
42. LEFT FRONT EURO ROAD LIGHT
43. RIGHT FRONT EURO ROAD LIGHT
44. HORN
45. BACKUP ALARM SWITCH (LEFT)
46. BACKUP ALARM SWITCH (RIGHT)
47. BACKUP ALARM
48. CAB DOOR SWITCH
49. ELECTRO HYDRAULIC HIGH FLOW SWITCH
50. DIODE
51. COMBINATION SOLENOID
52. FORWARD SOLENOID
53. REVERSE SOLENOID
54. RIDE CONTROL SOLENOID
55. ROTATING BEACON SWITCH
56. ROTATING BEACON
57. HYDRAULIC COUPLER SWITCH
58. DIODE
59. HYDRAULIC COUPLER RELEASE SOLENOID
60. DOME LIGHT AND SWITCH
61. HEAT CONTROL SWITCH
62. FAN SPEED SWITCH
63. BLOWER MOTOR
64. AIR CONDITIONER SWITCH
65. AIR CONDITIONER PRESSURE SWITCH
66. AIR CONDITIONER COMPRESSOR CLUTCH
67. THERMOSTAT
68. AIR CONDITIONER INDICATOR LAMP
69. AUXILIARY HYDRAULIC NEUTRAL SPOOL SWITCH
70. STARTING INTERLOCK RELAY
71. FUEL SOLENOID RELAY
72. DIODE
73. HAZARD SWITCH
74. FLASHER MODULE
75. DIODE PACK
76. LEFT REAR TURN LIGHT
77. RIGHT REAR TURN LIGHT
78. LEFT FRONT TURN LIGHT
79. RIGHT FRONT TURN LIGHT
80. LEFT FRONT POSITION LIGHT
81. RIGHT FRONT POSITION LIGHT
82. LICENSE PLATE LIGHT
83. RESISTOR
84. LOADER LOCKOUT SWITCH (OPTIONAL)
85. FAN SPEED SWITCH (OPTIONAL FOOT HEATER)
86. LEFT BRAKE LIGHT SWITCH (EURO)
87. RIGHT BRAKE LIGHT SWITCH (EURO)
88. BRAKE LIGHT TIMER RELAY (EURO)
89. TWO (2) SPEED SWITCH
90. TURN SIGNAL SWITCH
91. ATTACHMENT HYDRAULIC SWITCH
92. HORN SWITCH
93. RIDE CONTROL SWITCH
94. FRONT ELECTRIC CONTROL SWITCH No. 1
95. FRONT ELECTRIC CONTROL SWITCH No. 2
96. FRONT ELECTRIC CONTROL SWITCH No. 3
97. FRONT ELECTRIC CONTROL SWITCH No. 4
98. ATTACHMENT HYDRAULIC FORWARD FLOW "ON" SWITCH

CIRCUIT DIAGRAM LEGEND

- SHOWS CIRCUIT NOT CONNECTED
- SHOWS CIRCUIT CONNECTED
- 54 COMPONENT NUMBER
- 30 WIRE TAG NUMBER
- 8 CONNECTOR NUMBER
- NUMBERS REFER TO THE FRAME NUMBER AT THE BOTTOM CENTER OF EACH FRAME.
- MALE TERMINAL / FEMALE TERMINAL
- INDICATES EXTERNAL GROUND
- GROUND
- INDICATES INTERNALLY GROUNDED COMPONENT

WIRE IDENTIFICATION

702A P-1.0 (WIRE NUMBER / WIRE COLOR / WIRE SIZE)

B .. BLACK	LB .. LIGHT BLUE	P .. PURPLE	
B/W BLACK/WHITE	O .. ORANGE	R .. RED	

NOTES

ELECTRICAL SCHEMATIC
450, 465 SKID STEER and 450CT TRACK LOADER

Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System.
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