L140, L150 AND L150 (CAB UPGRADE MACHINES) REPAIR MANUAL COMPLETE CONTENTS

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The following pages are the collation of the contents pages from each section and chapter of the L140/L150 and L150 (Cab Upgrade Machines) Repair Manual. Complete Repair Manual part # 87634743.

The sections used through out all New Holland product Repair Manuals may not be used for each product. Each Repair Manual will be made up of one or several books.

Each book will be labeled as to which sections are in the overall Repair Manual and the sections that each book contains.

The sections listed above are the sections utilized for the L140/L150 and L150 (Cab Upgrade Machines) Skid Steer Loaders.

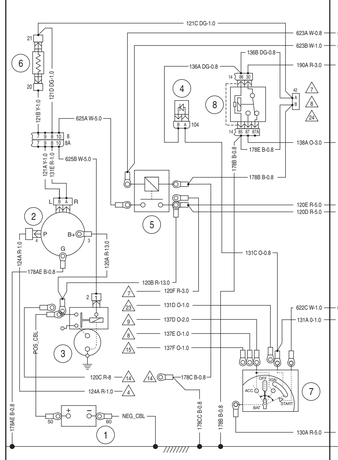
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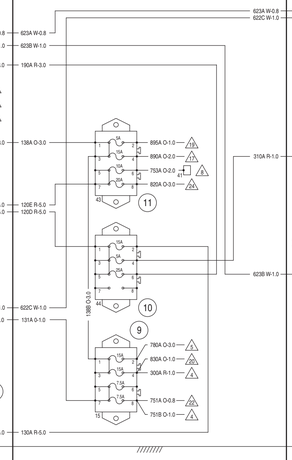
STARTING SYSTEM



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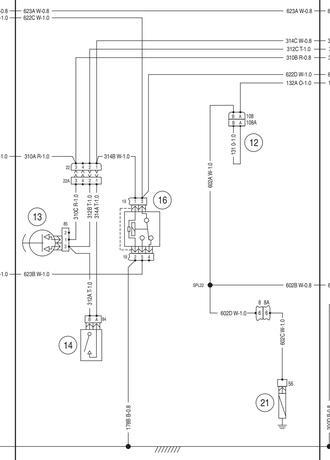
POWER DISTRIBUTION



FRAME 2

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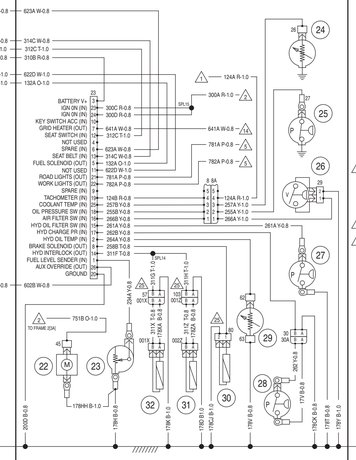
SAFETY INTERLOCK AND FUEL SUPPLY SYSTEM



FRAME 3

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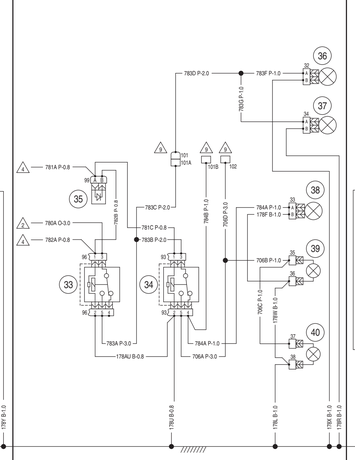
INSTRUMENT CLUSTER MONITORING SYSTEM



FRAME 4

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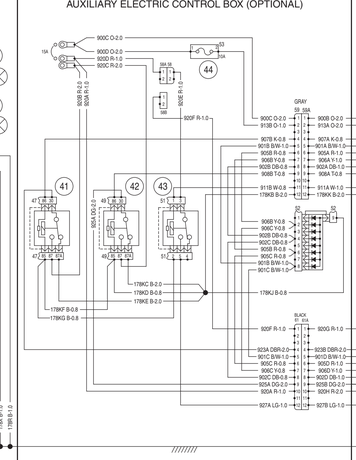
STANDARD LAMPS



FRAME 5

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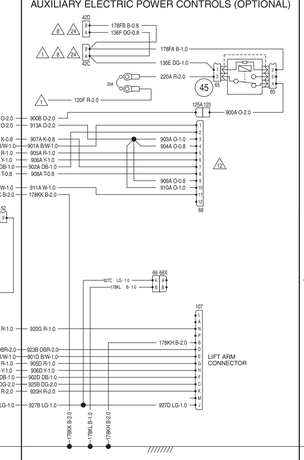
LOADER ARM
AUXILIARY ELECTRIC CONTROL BOX (OPTIONAL)



FRAME 6

BC06M3592-06A

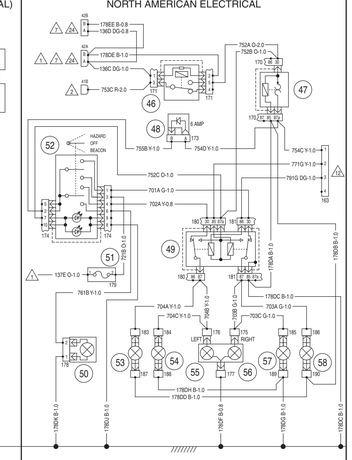
LOADER ARM
AUXILIARY ELECTRIC POWER CONTROLS (OPTIONAL)



FRAME 7

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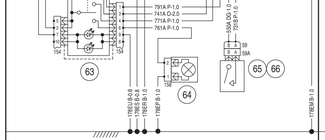
FLASHER AND TURN SIGNALS
NORTH AMERICAN ELECTRICAL



FRAME 8

BC06M3592-08A

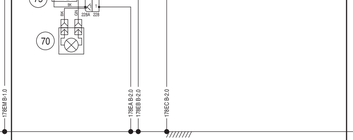
MAIN ELECTRICAL
EUROPEAN ON-ROAD REGULATIONS



FRAME 9

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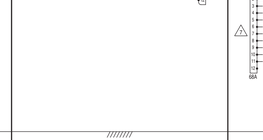
BOOM/REAR ELECTRICAL
EUROPEAN ON-ROAD REGULATIONS



FRAME 10

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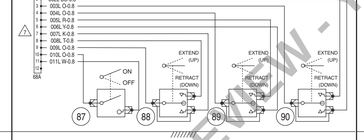
RIGHT-HAND HANDLE (OPTION)
ELECTRICAL MULTIFUNCTION ADAPTION



FRAME 11

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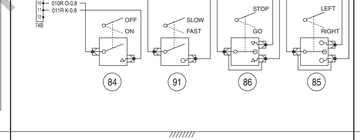
LEFT-HAND HANDLE (OPTIONS)



FRAME 12

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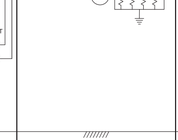
RIGHT-HAND HANDLE (OPTIONS)



FRAME 13

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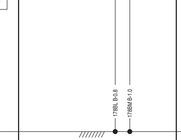
GLOW PLUGS



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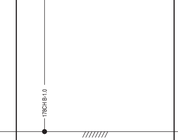
ROTATING BEACON
(OPTIONAL)



FRAME 15

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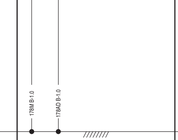
2 SPEED
(OPTIONAL)



FRAME 16

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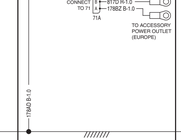
HORN
(OPTIONAL)



FRAME 17

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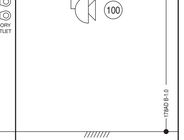
ACCESSORY OUTLET
(OPTIONAL)



FRAME 18

BC06M3592-18A

BACK-UP ALARM
(OPTIONAL)



FRAME 19

BC06M3592-19A

WIPER/WASHER
(OPTIONAL)

FRAME 20

BC06M3592-20A

AUXILIARY HYDRAULICS
(OPTIONAL)

FRAME 21

BC06M3592-21A

HIGH FLOW
(OPTIONAL)

FRAME 22

BC06M3592-22A

HYDRAULIC COUPLER
(OPTIONAL)

FRAME 23

BC06M3592-23A

HEATING AND AIR CONDITIONING (OPTIONAL)

FRAME 24

BC06M3592-24A

PILOT HYDRAULIC
CONTROLS

FRAME 25

BC06M3592-25A

GROUND CONNECTIONS

FRAME 26

BC06M3592-26A

GROUND CONNECTIONS

FRAME 27

BC06M3592-27A

COMPONENTS - MECHANICAL AND PILOT CONTROL MACHINES

FRAME - COMPONENT NUMBERS

FRAME 1 COMPONENTS
1 - 1. Battery
1 - 2. Alternator
1 - 3. Starter And Solenoid
1 - 4. Reverse Polarity Diode
1 - 5. Starter Relay
1 - 6. Resistor
1 - 7. Ignition Switch
1 - 8. Run Relay

FRAME 2 COMPONENTS
2 - 9. Cab Fuse Block
2 - 10. Rear Fuse Block #1
2 - 11. Rear Fuse Block #2

FRAME 3 COMPONENTS
3 - 12. Auxiliary Override Switch
3 - 13. Seat Switch
3 - 14. Seat Belt Switch
3 - 15. Not Used
3 - 16. Interlock Start Relay
3 - 17. Not Used
3 - 18. Not Used
3 - 19. Not Used
3 - 20. Not Used
3 - 21. Fuel Hold-in Solenoid

FRAME 4 COMPONENTS
4 - 22. Fuel Pump (ISM Engine Only)
4 - 23. Fuel Sender
4 - 24. Engine Coolant Temperature Sender
4 - 25. Engine Oil Pressure Switch
4 - 26. Air Filer Restriction Switch
4 - 27. Hydraulic Filter Pressure Switch
4 - 28. Charge Pressure Switch
4 - 29. Hydraulic Oil Temperature Sender
4 - 30. Brake Release / Tandem Pump Neutral Override Switch
4 - 31. Loader Valve Solenoid
4 - 32. Loader Valve Solenoid

FRAME - COMPONENT NUMBERS

FRAME 5 COMPONENTS
5 - 33. Light Relay #1
5 - 34. Light Relay #2
5 - 35. Diode
5 - 36. Left Front Work Lamp
5 - 37. Right Front Work Light
5 - 38. Rear Work Lamp
5 - 39. Left Rear Indicator Light
5 - 40. Right Rear Indicator Light

FRAME 6 COMPONENTS
6 - 41. Motor Control Left Relay
6 - 42. Motor Control Right Relay
6 - 43. Wiper Motor Relay
6 - 44. Fuse (10 amp)

FRAME 7 COMPONENTS
7 - 45. Attachment Relay

FRAME 8 COMPONENTS
8 - 46. Hazard / Turn Relay
8 - 47. Flasher Module
8 - 48. Diode (6 amp)
8 - 49. Turn Signal Converter Module
8 - 50. Beacon
8 - 51. Fuse
8 - 52. Hazard/beacon Switch
8 - 53. Left Front Flashing Lamp
8 - 54. Left Rear Flashing Lamp
8 - 55. Turn Indicator Lamp (Left)
8 - 56. Turn Indicator Lamp (Right)
8 - 57. Right Front Flashing Lamp
8 - 58. Right Rear Flashing Lamp

FRAME 9 COMPONENTS
9 - 59. Road Light Switch (Europe)
9 - 60. Flasher Module (Europe)
9 - 61. Cab Fuse Block (Europe)
9 - 62. Diode (6 amp)
9 - 63. Hazard/beacon Switch (Europe)
9 - 64. Beacon (Europe)
9 - 65. Left Brake Lamp Switch (Europe)
9 - 66. Right Brake Lamp Switch (Europe)
9 - 67. Turn Indicator Lamp (Left) (Europe)
9 - 68. Turn Indicator Lamp (Right) (Europe)

FRAME - COMPONENT NUMBERS

FRAME 10 COMPONENTS
10 - 69. Optional Right Turn Lamp (Europe)
10 - 70. Optional Left Turn Lamp (Europe)
10 - 71. Right Front Turn Lamp (Europe)
10 - 72. Right Front Position Lamp (Europe)
10 - 73. Right Front Road Lamp (Europe)
10 - 74. Left Front Position Lamp (Europe)
10 - 75. Left Front Turn Lamp (Europe)
10 - 76. Left Front Road Lamp (Europe)
10 - 77. Right Rear Brake Lamp (Europe)
10 - 78. Right Rear Position Lamp (Europe)
10 - 79. Left Rear Position Lamp (Europe)
10 - 80. License Plate Light
10 - 81. Left Rear Position Lamp (Europe)
10 - 82. Left Rear Brake Lamp (Europe)
10 - 83. Left Rear Turn Lamp (Europe)

FRAME 12 COMPONENTS
12 - 84. Horn Switch
12 - 85. Turn Signal Switch
12 - 86. Auxiliary Hydraulic Switch
12 - 87. Front Electric Control Switch #1
12 - 88. Front Electric Control Switch #2
12 - 89. Front Electric Control Switch #3
12 - 90. Front Electric Control Switch #4

FRAME 13 COMPONENTS
13 - 84. Horn Switch
13 - 85. Turn Signal Switch
13 - 86. Auxiliary Hydraulic Switch
13 - 91. 2 Speed Switch

FRAME 14 COMPONENTS
14 - 92. Glow Plug Relay
14 - 93. Glow Plugs

FRAME 15 COMPONENTS
15 - 50. Beacon
15 - 94. Fuse (7.5 amp)
15 - 95. Beacon Switch

FRAME 16 COMPONENTS
16 - 96. 2 Speed Solenoid

FRAME 17 Components
17 - 97. Horn (Optional)

FRAME - COMPONENT NUMBERS

FRAME 19 COMPONENTS
19 - 98. Back-Up Alarm Switch (Left) (Optional)
19 - 99. Back-Up Alarm Switch (Right) (Optional)
19 - 100. Back-Up Alarm (Optional)

FRAME 20 COMPONENTS
20 - 101. Wiper / Washer Switch (Optional)
20 - 102. Washer Pump
20 - 103. Wiper Motor

FRAME 21 COMPONENTS
21 - 104. Second Auxiliary Hydraulics - Solenoid #1
21 - 105. Second Auxiliary Hydraulics - Solenoid #2

FRAME 22 COMPONENTS
22 - 106. High Flow Switch (Optional)
22 - 107. High Flow Solenoid (Optional)

FRAME 23 COMPONENTS
23 - 108. Fuse
23 - 109. Hydraulic Coupler Switch (Optional)
23 - 110. Hydraulic Coupler Release Solenoid (Optional)
23 - 111. Hydraulic Coupler Engage Solenoid (Optional)

FRAME 24 COMPONENTS
24 - 112. Heater / Air Conditioner Relay (Optional)
24 - 113. Blower Switch (Optional)
24 - 114. Air Conditioner Switch (Optional)
24 - 115. Heater Control Switch (Optional)
24 - 116. Compressor Clutch
24 - 117. Pressure Switch
24 - 118. Thermostat
24 - 119. Blower Motor

FRAME 25 COMPONENTS
25 - 120. Loader Control Pressure Solenoid
25 - 121. Magnetic Detent Solenoid
25 - 122. Ground Drive Control Pressure Solenoid
25 - 123. Brake Valve Solenoid

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

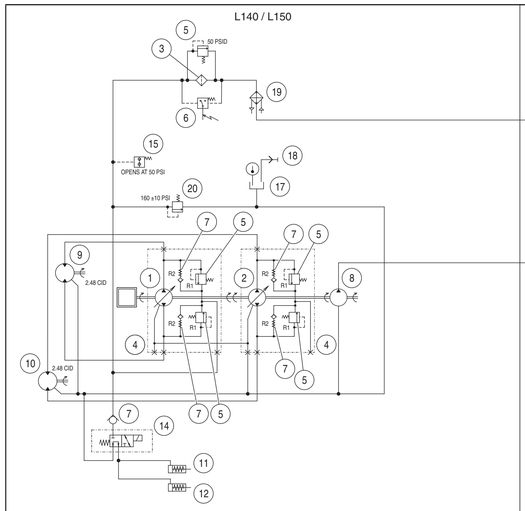
ELECTRICAL SCHEMATIC
(MECHANICAL and PILOT CONTROL MACHINES)
L140 / L150 / L160 /170 SKID STEER

Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System.
The part number is 5-4100

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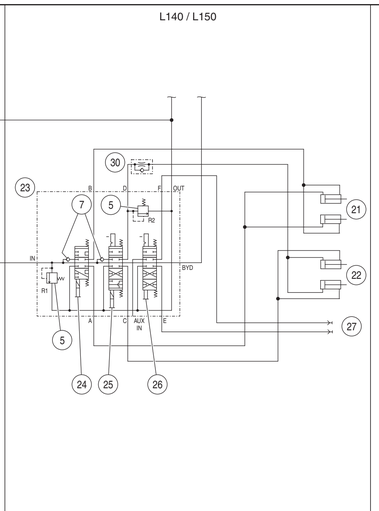
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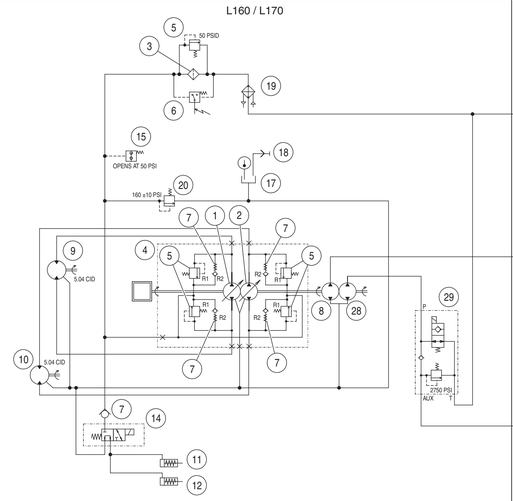
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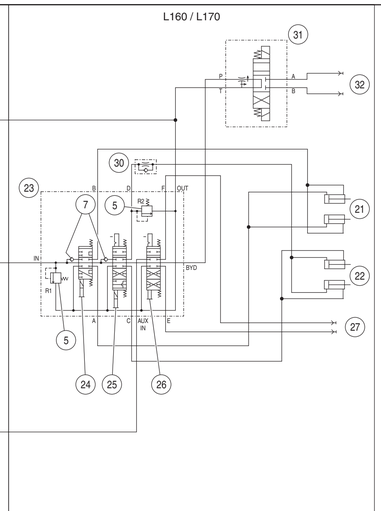
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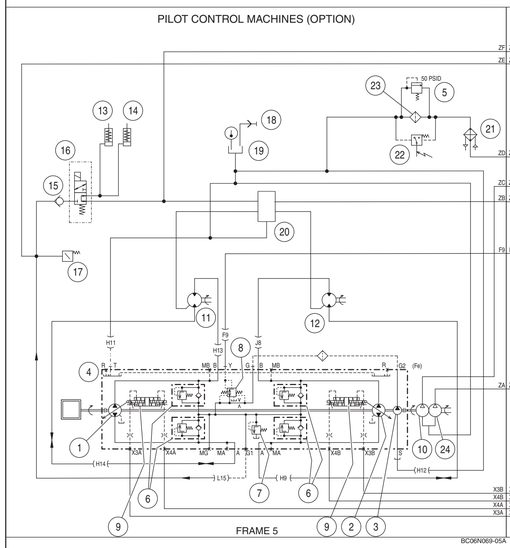
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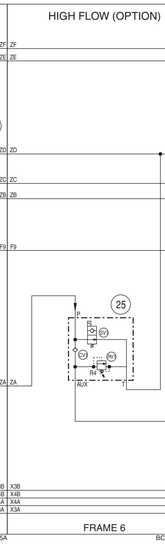
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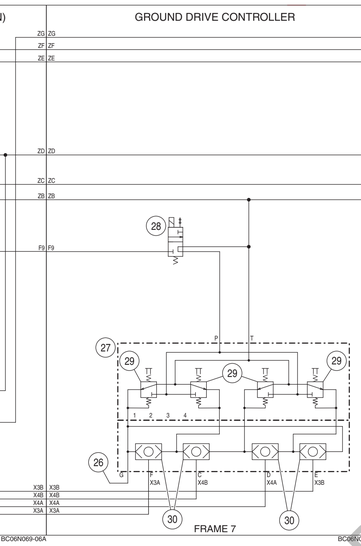
FRAME 5

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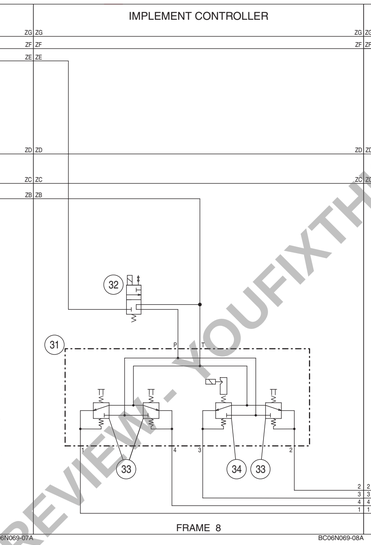
FRAME 6

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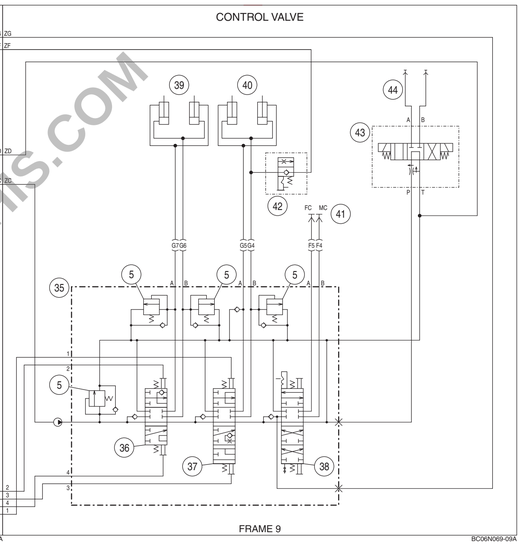
FRAME 7

BC06N069-07A



FRAME 8

BC06N069-08A



FRAME 9

BC06N069-09A

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COMPONENTS - MECHANICAL CONTROL MACHINES		COMPONENTS - PILOT CONTROL MACHINES	
FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS
FRAME 1 COMPONENTS 1 - 1. Left Piston Pump 1 - 2. Right Piston Pump 1 - 3. Oil Filter 1 - 4. Hydrostatic Pump 1 - 5. Circuit Relief Valve 1 - 6. Oil Filter By-pass Switch 1 - 7. Check Valve 1 - 8. Hydraulic Pump 1 - 9. Left Drive Motor 1 - 10. Right Drive Motor 1 - 11. Left Brake Cylinder 1 - 12. Right Brake Cylinder 1 - 13. NOT USED 1 - 14. Brake Solenoid Valve 1 - 15. Charge Pressure Switch 1 - 16. NOT USED 1 - 17. Hydraulic Reservoir 1 - 18. Attachment Case Drain 1 - 19. Oil Cooler FRAME 2 COMPONENTS 2 - 5. Circuit Relief Valve 2 - 7. Check Valve 2 - 20. Main Relief Valve 2 - 21. Tilt Cylinders 2 - 22. Lift Cylinders 2 - 23. Loader Control Valve 2 - 24. Tilt Spool 2 - 25. Lift Spool 2 - 26. Auxiliary Spool 2 - 27. Auxiliary Outlets 2 - 28. Not Used 2 - 29. Not Used 2 - 30. Flow Restrictor	FRAME 3 COMPONENTS 3 - 1. Left Piston Pump 3 - 2. Right Piston Pump 3 - 3. Oil Filter 3 - 4. Hydrostatic Pump 3 - 5. Circuit Relief Valve 3 - 6. Oil Filter By-pass Switch 3 - 7. Check Valve 3 - 8. Hydraulic Pump 3 - 9. Left Drive Motor 3 - 10. Right Drive Motor 3 - 11. Left Brake Cylinder 3 - 12. Right Brake Cylinder 3 - 13. NOT USED 3 - 14. Brake Solenoid Valve 3 - 15. Charge Pressure Switch 3 - 16. NOT USED 3 - 17. Hydraulic Reservoir 3 - 18. Attachment Case Drain 3 - 19. Oil Cooler 3 - 20. Main Relief Valve 3 - 28. High Flow Pump (If Equipped) 3 - 29. High Flow Control Valve (If Equipped) FRAME 4 COMPONENTS 4 - 5. Circuit Relief Valve 4 - 7. Check Valve 4 - 21. Tilt Cylinders 4 - 22. Lift Cylinders 4 - 23. Loader Control Valve 4 - 24. Tilt Spool 4 - 25. Lift Spool 4 - 26. Auxiliary Spool 4 - 27. Auxiliary Outlets 4 - 30. Flow Restrictor 4 - 31. Secondary Auxiliary Control Valve (If Equipped) 4 - 32. Secondary Auxiliary Outlets (If Equipped)	FRAME 5 COMPONENTS 5 - 1. Left Piston Pump 5 - 2. Right Piston Pump 5 - 3. Charge Pump 5 - 4. Hydrostatic Pump 5 - 5. Circuit Relief Valve 5 - 6. High Pressure Relief Valve 5 - 7. Boost Valve 5 - 8. Control Cartridge 5 - 9. Servo Piston 5 - 10. Hydraulic Pump 5 - 11. Left Drive Motor 5 - 12. Right Drive Motor 5 - 13. Left Brake Cylinder 5 - 14. Right Brake Cylinder 5 - 15. Check Valve 5 - 16. Brake Solenoid Valve 5 - 17. Charge Pressure Switch 5 - 18. Attachment Case Drain 5 - 19. Hydraulic Reservoir 5 - 20. Drain Manifold 5 - 21. Oil Cooler 5 - 22. Oil Filter Bypass Switch 5 - 23. Oil Filter 5 - 24. High Flow Pump (If Equipped) FRAME 6 COMPONENTS 6 - 25. High Flow Valve (If Equipped) FRAME 7 COMPONENTS 7 - 26. Backup Alarm Port 7 - 27. Ground Drive Controller 7 - 28. Control Interlock Valve 7 - 29. Ground Drive Controller Spool 7 - 30. Resolver Block Shuttle Valve	FRAME 8 COMPONENTS 8- 31. Implement Controller 8- 32. Control Interlock Valve 8- 33. Implement Controller Spool 8- 34. Implement Controller Spool with Magnetic Detent FRAME 9 COMPONENTS 9- 5. Circuit Relief Valve 9- 35. Loader Control Valve 9- 36. Tilt Spool 9- 37. Lift Spool 9- 38. Auxiliary Spool 9- 39. Tilt Cylinders 9- 40. Lift Cylinders 9- 41. Auxiliary Outlets 9- 42. Emergency Boom Lower Safety Valve (Pilot Control Models Only) 9- 43. Second Auxiliary Valve (If Equipped) 9- 44. Second Auxiliary Outlets (If Equipped)

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

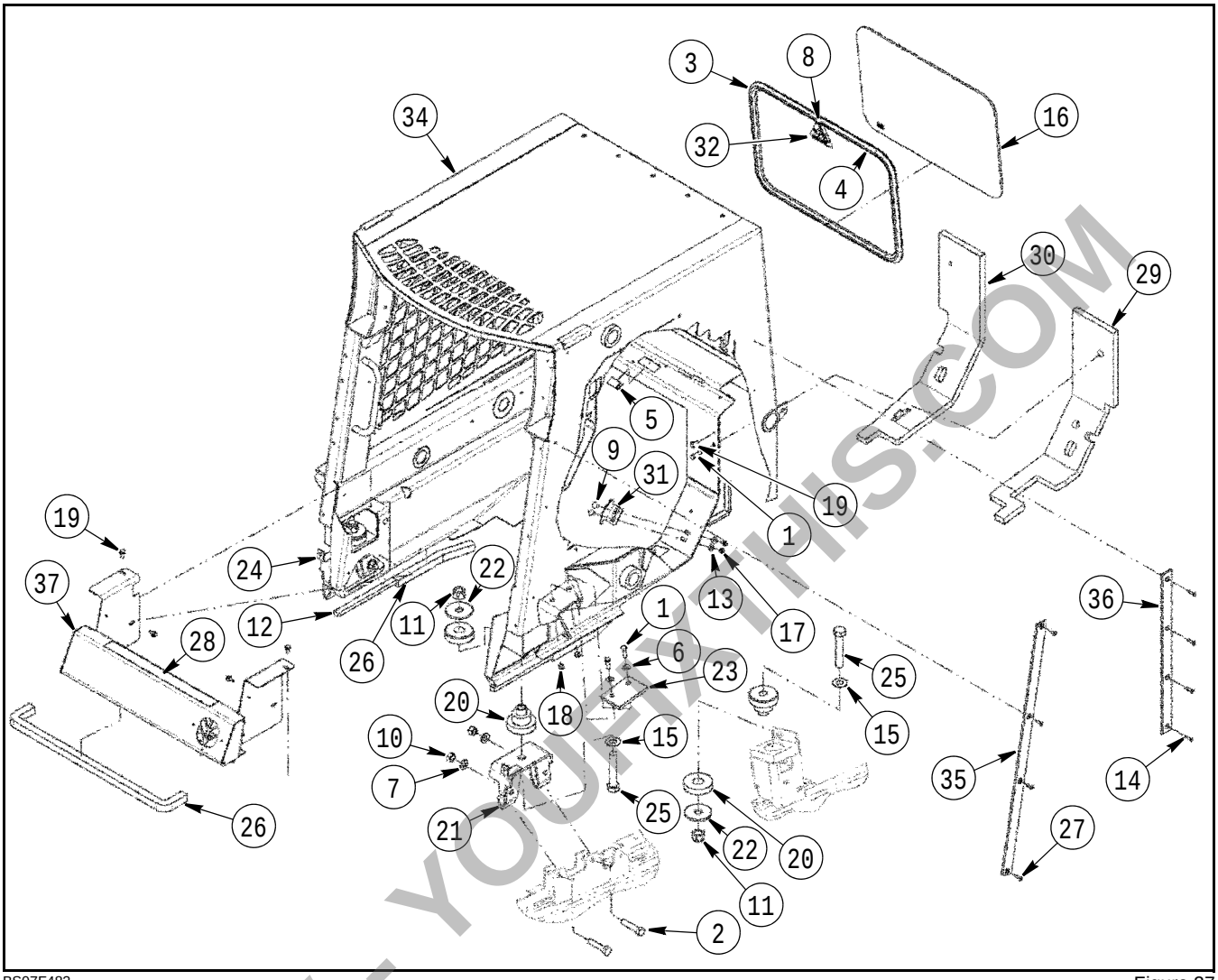
HYDRAULIC SCHEMATIC
(MECHANICAL and PILOT CONTROL MACHINES)
L140 / L150 / L160 /170 SKID STEER

Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System.
The part number is 5-4100

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BC06N069-00A

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BS07F483

Figure 27

1. BOLT
2. BOLT
3. WINDOW MOLDING
4. LOCKING STRIP
5. PLATE
6. SPRING WASHER
7. SPRING WASHER
8. CABLE TIE
9. BOLT
10. NUT
11. NUT
12. SEALING STRIP
13. SPRING WASHER
14. SCREW
15. WASHER
16. WINDOW
17. NUT
18. NUT
19. SEALING SCREW
20. ISOLATION MOUNT
21. SUPPORT, LH
22. WASHER
23. BUMPER
24. SUPPORT, RH
25. BOLT
26. FOAM, CLOSED CELL
27. RIVET
28. SAFETY WALK TAPE
29. SOUND BARRIER, LH
30. SOUND BARRIER, RH
31. STRIKER PLATE
32. EXIT TAG
33. RTV SEALANT
34. CAB
35. WEAR STRIP
36. WEAR STRIP
37. COVER

CAB (CAB UPGRADE MACHINES ONLY)

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TORQUE SPECIFICATIONS

COMPONENT	SETTING/REMARKS
Bearing holder bolts - hex hole type	24 - 30 N·m (18 - 22 ft. lbs.)
- hex bolt type	49 - 54 N·m (36 - 40 ft. lbs.)
Rear plate bolts	14 - 18 N·m (10 - 13 ft. lbs.)
Flywheel housing bolts	24 - 28 N·m (18-21 ft. lbs.)
Flywheel bolts	58-69 N·m (43 - 51 ft. lbs.)
Connecting rod nuts	49 - 54 N·m (36 - 40 ft. lbs.)
Suction filter bolt	9 - 12 N·m (7 - 9 ft. lbs.)
Sump bolts	9 - 12 N·m (7 - 9 ft. lbs.)
Crankshaft pulley nut	275 - 333 N·m (203 - 246 ft. lbs.)
Cylinder head bolts	98 - 103 N·m (72 - 76 ft. lbs.)/oiled
Injection pump bolts	9 - 12 N·m (7 - 9 ft. lbs.)
Injection pump nuts	9 - 12 N·m (7 - 9 ft. lbs.)
Rocker arm nuts	20 - 26 N·m (15 - 19 ft. lbs.)/3-cylinder engines
Head cover nuts	8 - 12 N·m (6 - 9 ft. lbs.)/3-cylinder engines
Cooling fan bolts	9 - 12 N·m (7 - 9 ft. lbs.)
Oil pipe banjo bolts	9 - 12 N·m (7 - 9 ft. lbs.)
Oil sump drain bolt	30 - 39 N·m (22 - 29 ft. lbs.)
Injection nozzle	58 - 69 N·m (43 - 51 ft. lbs.) IDI engines
Injection pipe	15 - 24 N·m (11 - 18 ft. lbs.)
Thermo switch	24 - 30 N·m (18 - 22 ft. lbs.)
Oil pressure switch	15 - 20 N·m (11 - 15 ft. lbs.)
Glow plug	15 - 20 N·m (11 - 15 ft. lbs.)
Stop solenoid	15 - 20 N·m (11 - 15 ft. lbs.)
Oil relief valve	60 - 69 N·m (44 - 51 ft. lbs.)
Smokeset nut (max fuel)	20 - 26 N·m (15 - 19 ft. lbs.)
Adjusting screw nuts	9 - 16 N·m (7 - 12 ft. lbs.)

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TROUBLESHOOTING

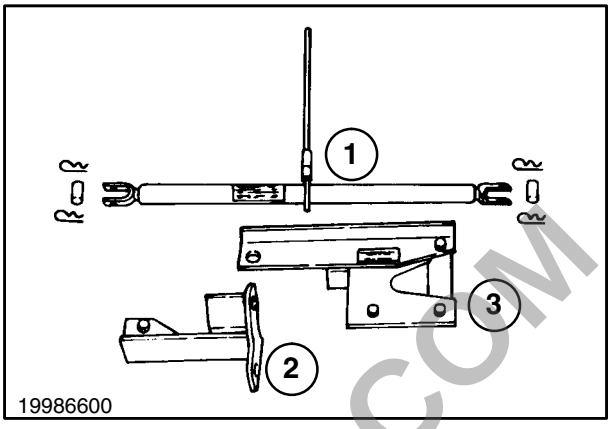
PROBLEM	CAUSE	CORRECTION
Engine will crank but does not start	Faulty key switch	Correct the connection and/or replace switch
	Blown 5-amp electronic ignition fuse (cab fuse panel)	Replace fuse
	Fuel solenoid not operating	Check solenoid for battery voltage and correct
	Battery insufficiently charged or completely discharged	Charge or replace battery
	Lack of fuel	Fill fuel tank
	Air mixed in the fuel system	Bleed the air
	Clogged fuel filter	Replace
	Irregular and faulty fuel supply (electric fuel pump)	Check power supply and/or replace pump
	Irregular and faulty fuel supply (injection pump trouble)	Repair in an authorized service shop
	Glow plug not heating	Failure of the glow plug; replace
	Improper viscosity of the lubricating oil	Inspect and replace
	Clogged air cleaner	Clean or replace
	Low compression	Repair in a service shop
Engine will not crank or start	Seat belt not fastened	Buckle seat belt
	Faulty key switch	Correct the connection and/or replace switch
	Battery insufficiently charged or complete discharged	Charge or replace battery
	Blown 5-amp electronic battery fuse (engine fuse panel)	Replace fuse
	Blown 15-amp key main fuse (engine fuse panel)	Replace fuse
	Open in W/O (white-orange) wire between the seat/seat belt connector and start interlock relay	Check and repair as required
	Faulty start interlock relay	Check and repair as required
Irregular running of the engine	Air mixed in the fuel system	Bleed the air from the system
	Uneven fuel injection (faulty fuel injection pump)	Repair at authorized shop
	Clogged fuel filter	Replace
	Defective governor	Check and correct
	Engine itself defective	Repair in a service shop

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CAB AND BOOM TILT PROCEDURE

The cab and boom assembly can be tilted forward for easier access to the major skid steer hydrostatic transmission or engine components. To tilt the cab, the proper cab tilting tool must be used to ensure safety and to prevent damage to the skid steer frame, cab, and boom structure. Contact your New Holland dealer for major service or repairs of the skid steer. Using the proper cab tilting tool and following these steps, the cab and boom can be tilted forward.

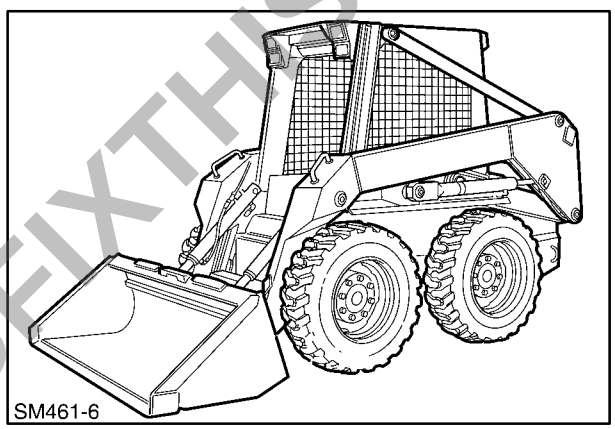


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Cab Tilting Jack and Support Bracket

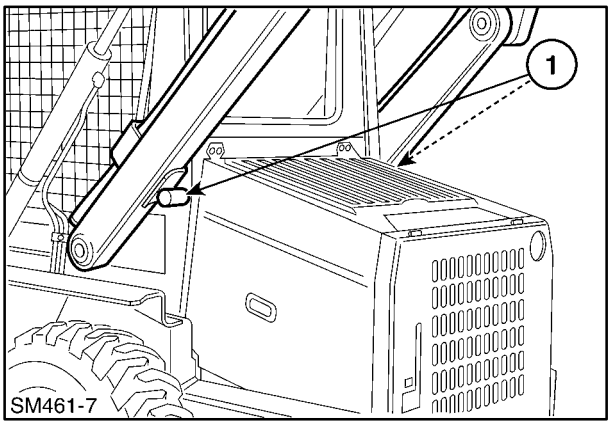
1. Jack and Screw Assembly
2. Lower Support
3. Upper Support

1. Remove any attachment, bucket, etc. from the boom quick-attach plate.



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2. Raise the boom and lower onto boom lock pins, 1.
   a. Raise boom above boom lock pins.
   b. Engage boom lock pins.
   c. Stop engine, ignition key off position.
   d. Turn ignition key to the on position.
   e. Lower boom onto boom lock pins.
   f. Turn the ignition key to the “OFF” position.



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SPECIFICATIONS

MODEL	L140	L150
ENGINE		
MANUFACTURER	NEW HOLLAND	NEW HOLLAND
MODEL	N843	N843H
CYLINDERS	3	3
ASPIRATION	NATURAL	NATURAL
CYCLE	4 STROKE	4 STROKE
BORE AND STROKE	84 x 90 mm (3.3″ x 3.54″)	84 x 90 mm (3.3″ x 3.54″)
DISPLACEMENT	1496 cu. cm (91.3 cu. in.)	1496 cu. cm (91.3 cu. in.)
COMPRESSION RATIO	22 to 1	22 to 1
SPEEDS		
-FAST (no load)	3070 - 3150 RPM	3410 - 3480 RPM
-IDLE (no load)	950 - 1050 RPM	950 - 1050 RPM
HORSEPOWER		
(GROSS) Mfg rating	33 @2900 RPM	38 @3200 RPM
(SAE NET)	30 @2900 RPM	36 @3200 RPM
TORQUE (Mfg rating) Gross	94.2 N·m (69.5 ft. lbs.)	99 N·m (73 ft. lbs.)
VALVE CLEARANCE		
Intake (cold)	0.21 mm (0.008″)	0.21 mm (0.008″)
Exhaust (cold)	0.21 mm (0.008″)	0.21 mm (0.008″)
FIRING ORDER	1-2-3	1-2-3
FUEL CONSUMPTION (approximate at continuous full load)	7.6 L (2.0 gal.)	8.7 L (2.3 gal.)
IGNITION TYPE	Compression	Compression
GRADEABILITY (Intermittent duty)		
All Directions	30 Degrees	30 Degrees
AIR CLEANER Dry-type dual element		
(Primary element)	NH #86504145	NH #86504145
(Safety element)	NH #86504143	NH #86504143
FUEL SYSTEM		
Type of fuel	Diesel	Diesel
Injection Type	Indirect	Indirect
Cleaning system	Inline filter replaceable	Inline filter replaceable
	NH#9611973	NH#9611973
	Inline water trap (diesel)	Inline water trap (diesel)
	NH#86504140	NH#86504140

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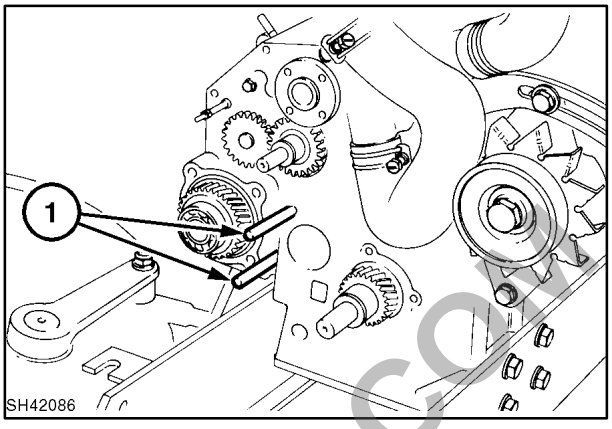
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MODEL	L140	L150
ENGINE		
Oil type	API SH/CG-4 SAE 10W-30	API SH/CG-4 SAE 10W-30
Filter part #	NH #86546618	NH #86546618
Engine crankcase capacity w/filter	5.5 L (5.8 qt.)	5.5 L (5.8 qt)
Dipstick length	394 mm (15.5″)	394 mm (15.5″)
CAPACITIES		
Cooling system	9.3 L (9.8 qt.)	9.3 L (9.8 qt.)
Cooling system pressure	Radiator cap pressure 48.3 kPa (7 PSI)	Radiator cap pressure 48.3 kPa (7 PSI)
Fuel tank	37.8 L (10 gal.)	37.8 L (10 gal.)
Hydraulic system	18.9 L (5 gal.)	18.9 L (5 gal.)
Chain case (final drive)	5.7 L (1.5 gal.)	5.7 L (1.5 gal.)
ELECTRICAL SYSTEM		
Battery	BCI Group 31-12V 650 amps @ –18° C (0° F)	BCI Group 31-12V 650 amps @ –18° C (0° F)
Alternator capacity	40 amps	40 amps
Starter switch	Key start and relay	Key start and relay
Ignition system protection	Fuse 15 amps	Fuse 15 amps
Headlights	NH #86533429	NH #86533429
Taillights	NH #86533429	NH #86533429
Taillights (road)	NH #86505510	NH #86505510
Amber flasher	NH #529068	NH #529068
HYDRAULIC SYSTEM		
Pump - Type	Gear pump	Gear pump
Output	10.8 GPM (40.9 LPM) @ 2900 RPM	11.9 GPM (45.0 LPM) @ 3200 RPM
Hydraulic system	18.9 L (5 gal.)	18.9 L (5 gal.)
Hydraulic fluid	API SH/CG-4 SAE 10W-30	API SH/CG-4 SAE 10W-30
Control valve	3 Spool Open Center	3 Spool Open Center
Main system relief	170 - 176 bar (2500 - 2600 PSI)	170 - 176 bar (2500 - 2600 PSI)
Circuit relief - boom	238 bar (3500 PSI)	238 bar (3500 PSI)
Filter - Spin-on canister	NH #9842392	NH #9842392

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2. Install two guide pins, 1, into the face of the engine block.

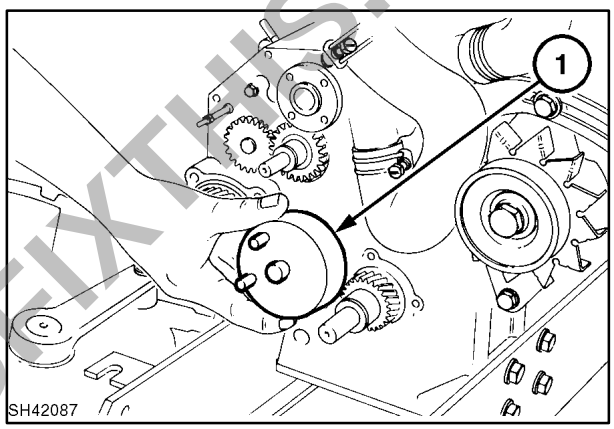


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3. Insert the port block assembly into installer FNH00117 and place on the guide pins. Drive the port block into the engine block until the installer bottoms against the face of the engine block.

NOTE: *Drive only against the installation tool. Do not strike the oil pump shaft.*

Use of the installer tool assures correct alignment of the oil passages in the engine block with those in the port block.



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Op. 10 304 10

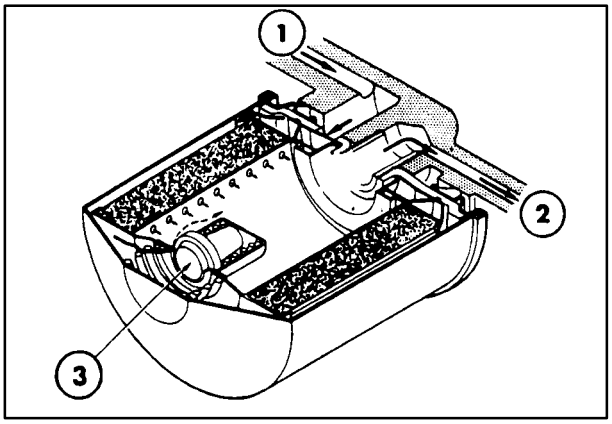
OIL FILTER

Construction and Function

This engine employs a cartridge-type filter.

Pressurized oil from the pump enters from 1 and is filtered by a full flow filter before discharge through 2.

When the full flow filter is clogged, the safety valve, 3, opens to bypass the oil.



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Maintenance

The oil filter must be replaced every 100 hours of operation.

When installing a new filter, coat its mounting face with clean oil. Hand-tighten only.

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Op 29 130 06

DRIVE CONTROL ADJUSTMENT PROCEDURE

If the machine creeps (tires rotate slowly with steering control in neutral) and the transmissions make a noise indicating they are being slightly stroked, a neutralizing adjustment is required.

⚠ CAUTION ⚠

To make a neutralizer adjustment, block the machine off the ground so that the wheels turn freely. Raise the boom and place it on the boom lockpins. When the engine is running, stay clear of the rotating wheels.

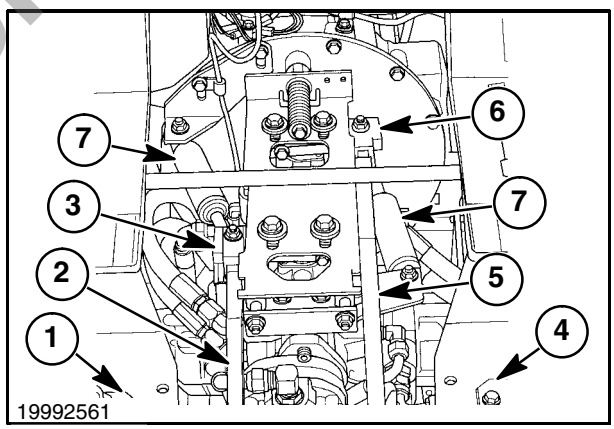
To make any transmission control linkage adjustments, first block the loader off the ground with the boom in the raised position resting on the boom lockpins. Unlatch the seat and raise it to the up locked position to access the transmission area.

⚠ CAUTION ⚠

Never work under a raised seat unless it is securely latched in the raised position.

Control lever, 1; link, 2; and arm, 3, control the right side. Control lever, 4; link, 5; and arm, 6 control the left side. There are shock absorbers, 7, connected to the steering linkage to dampen the hydraulic vibration from the control levers to the operator's hands. The neutralizer plate, 8, is spring loaded to return the arms, 3 and 6, to their neutral position.

When the operator strokes both control levers in the same direction, the operator can momentarily release one lever and the unit will still run straight until the levers are stroked differently to change direction or both levers are released and then the unit will neutralize.



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SAFETY PRECAUTION INFORMATION

⚠ CAUTION ⚠

Unsafe operating practices and improper use of the skid steer and its attachments on the part of the operator can result in injuries. Observe the following safety precautions at all times:

1. **For servicing, the skid steer should be on level terrain, engine stopped with the wheels blocked or the entire skid steer solidly supported with the wheels off the ground before servicing any component of the drivetrain.**
2. **For servicing under the operator's seat, raise the seat and pan assembly to the raised latched position and securely latch.**
3. **Do not operate the skid steer unless the seat is latched in the operate position.**
4. **Do not service the skid steer with a raised boom unless the boom is resting on the boom lock pins.**
5. **Do not service the skid steer with the engine running unless the skid steer is properly and securely supported with all four wheels off the ground.**
6. **Use caution when servicing the unit around moving parts.**
7. **Do not tilt the boom and cab without proper instruction.**
8. **Do not tilt the boom and cab without using the proper cab tilting tool.**
9. **Reinstall all shields removed for service.**
10. **Never loosen any hydraulic connections before relieving the pressure in the hydraulic system.**
11. **Wear eye protection such as goggles, etc.**
12. **Wear ear protection such as earplugs, etc. When you feel the noise level is uncomfortable.**
13. **If any servicing or adjustments require the battery to be disconnected, disconnect the (–) negative ground cable.**
14. **When servicing electrical components, disconnect the (–) negative ground cable.**
15. **If the electronic instrument cluster (EIC) requires removal from the dash area of the skid steer, disconnect the (–) negative ground battery cable. this will shut off power to the eic and prevent damage to the eic board or blowing the 5-amp fuses if the board is accidentally grounded.**
16. **If welding is required on the skid steer, disconnect the (–) negative ground cable. Failure to disconnect the battery may result in damage to the EIC (electronic instrument cluster) monitoring system and other electrical components.**
17. **If welding is required on an attachment, remove the attachment from the skid steer.**
18. **Give complete and undivided attention to the job at hand so that complete control of the skid steer is maintained at all times.**
19. **Drive slowly over rough ground and on slopes; keep alert for holes, ditches and other irregularities that may cause the skid steer to overturn.**
20. **Avoid steep hillside operation which could cause the skid steer to overturn.**
21. **Never transport a loaded bucket at full height. Operate the skid steer with the load as low as possible until it becomes necessary to raise the boom to discharge the load into a truck, container, etc.**
22. **Reduce speed when turning so there is no danger of the skid steer overturning.**
23. **Never drive up or back up a hill or incline with a raised boom or the skid steer could overturn.**
24. **Always look behind you before backing up the skid steer.**
25. **Maintain proper transmission oil level to prevent loss of hydrostatic braking.**
26. **Do not allow passengers to ride on the skid steer at any time.**
27. **Do not allow children to operate the skid steer or ride on the skid steer at any time.**
28. **Do not allow anyone to operate the skid steer without proper instruction. OSHA requires that all operators be instructed on the proper operation of the machine before they operate the unit.**
29. **Do not operate the skid steer in any position other than while in the operator's seat with the seat belt securely fastened.**

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COMPANY POLICY

Company policy, which is one of continuous improvement, reserves the right to make changes in design and specifications at any time without notice and without obligation to modify units previously built.

All data given in this book is subject to production variations. Dimensions and weights are approximate only and the illustrations do not necessarily show skid steers in standard condition.

PARTS AND ACCESSORIES

Genuine NEW HOLLAND parts and accessories have been specifically designed for NEW HOLLAND MACHINES.

We would like to point out that “NON-GENUINE” parts and accessories have not been examined and released by NEW HOLLAND. The installation and or use of such products could have negative effects upon the design characteristics of your machine and thereby affect its safety. NEW HOLLAND is not liable for any damage caused by the use of “NON-GENUINE” NEW HOLLAND parts and accessories.

MODEL CODES

The range of Skid Steers described in this manual is identified in the text by the engine horsepower Pferdestarke. (PS). The skid steers listed below may not be available in all countries or markets.

ENGINE	PS	MODEL
N843	30	L140
N843H	36	L150

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SECTION 10 – ENGINE

BOOK 1- 87634746

Chapter 1 – L140-N843, L150-N843H

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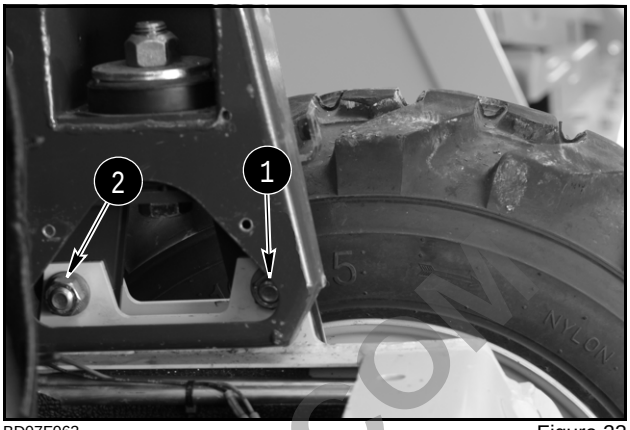
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29. Loosen the front Cab mount bolts, **(1)**, only enough to allow the bolt to rotate.
30. Remove the rear front Cab mount bolts, **(2)**.

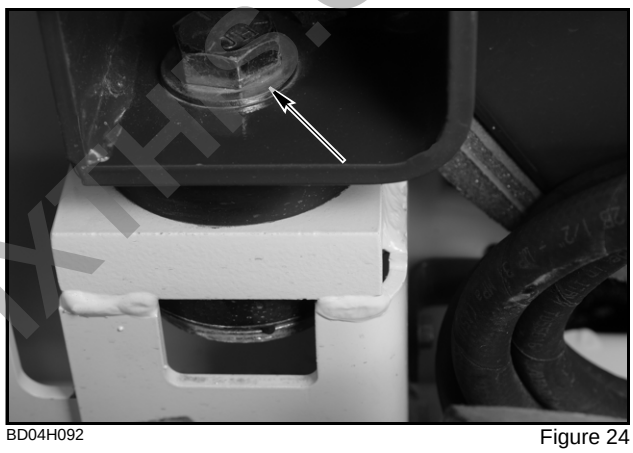
ATTENTION: *Never remove the front Cab bolts, **(1)**, as these are the pivot bolts during the Cab tilting procedure. Removal of these bolts could cause Cab to fall, and may cause injury and machine damage.*



BD07F063 Figure 23

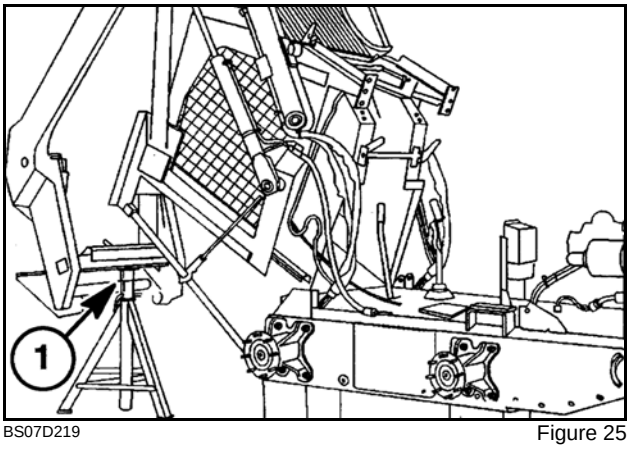
31. Remove the rear Cab mount bolts.

ATTENTION: *Never loosen or remove any Cab retaining hardware before the jack assembly is installed.*


BD04H092 Figure 24

32. Jack Cab and boom assembly over with the unit properly supported off the ground. Support the boom at **(1)**, and Cab to prevent tipping of the skid steer when heavy components, engine, hydrostatic pump etc. are removed from the lower frame. Jack travel will limit the travel of the Cab assembly to prevent over travel.

ATTENTION: *Be sure all wire harnesses, hydraulic hoses and throttle cable clear any obstructions during Cab tilting.*



BS07D219 Figure 25

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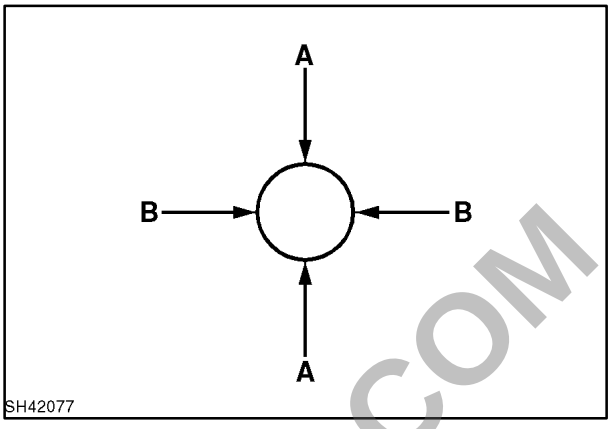
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Connecting Rod Journal Diameter

Standard	
Standard Diameter	Allowable Limit
51.964 - 51.975 mm (2.0458″ - 2.0463″)	51.90 mm (2.0433″)

0.25 mm (0.01″)	
Standard	Allowable Limit
51.714 - 51.725 mm (2.0360″ - 2.0364″)	51.65 mm (2.0335″)

0.50 mm (0.02″)	
Standard	Allowable Limit
51.464 - 51.475 mm (2.0261″ - 2.0266″)	51.0 mm (2.0236″)



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Crankshaft Main Bearing Journal Shaft Diameter

Standard	
Standard Diameter	Allowable Limit
67.957 - 67.970 mm (2.6755″ - 2.6760″)	67.90 mm (2.6732″)

0.25 mm (0.01″)	
Standard	Allowable Limit
67.707 - 67.720 mm (2.6656″ - 2.6661″)	67.65 mm (2.6634″)

0.50 mm (0.02″)	
Standard	Allowable Limit
67.457 - 67.470 mm (2.6558″ - 2.6563″)	67.40 mm (2.6535″)

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SECTION 29 – HYDROSTATIC TRANSMISSION

Chapter 1 – Neutralizer, Pumps, Motors

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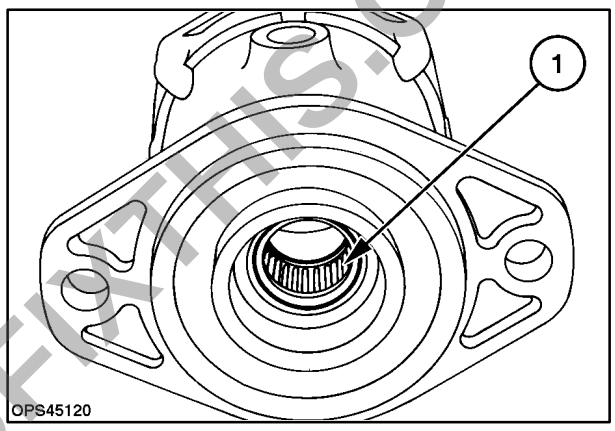
REASSEMBLY

1. Use a suitable solvent to thoroughly clean all parts. Lay the parts on a clean cardboard and air dry.

IMPORTANT: *Due to tight tolerances and finish of motor internal surfaces, it is very important to maintain absolute cleanliness during reassembly.*

2. Use a clean SAE 10W-30 oil to lubricate all moving parts as they are being reassembled.
3. Install the new O ring, seal and retaining rings included with the repair kit.
4. Motor Housing

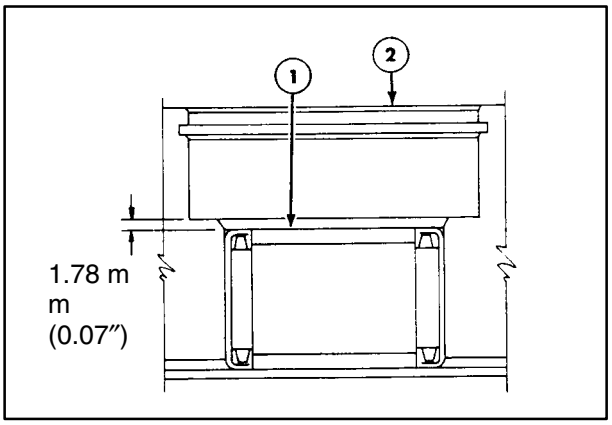
   If required, install a new needle bearing, 1, in the motor housing with the numbered end toward the outside (flange end) of the housing.



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Install the bearing with the numbered end, 1, facing out towards the mounting flange end of the motor housing, 2. Press into place and to the dimension shown, 1.78 mm (0.07″).

NOTE: *When installing bearings in the housing or backplate, be careful not to damage the outer bearing race. If the outer race is damaged, early bearing and shaft failures could occur.*



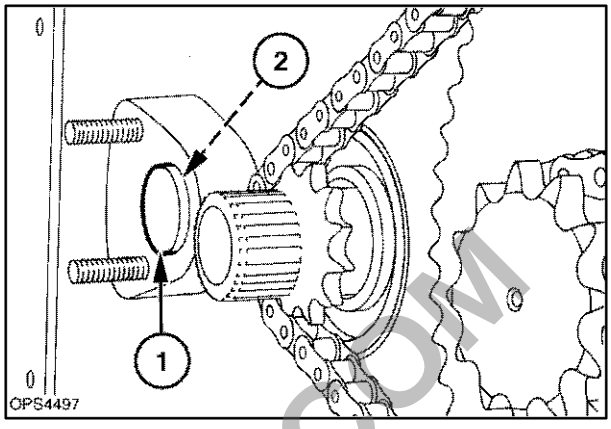
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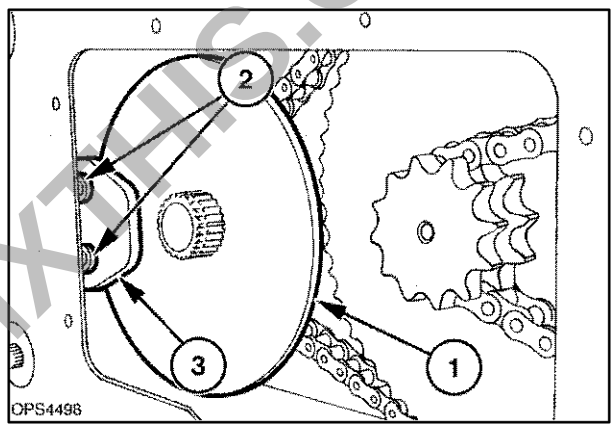
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3. Install the spacer plate, 2, next to the end of the shaft. Install the thick brake friction puck, 1.

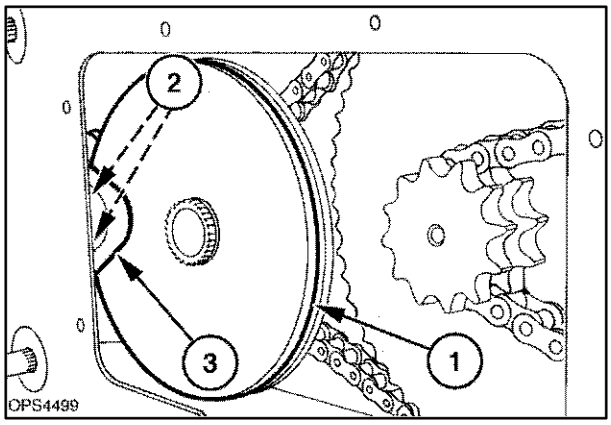
NOTE: *The thin spacer plate must be inserted into the caliper support first, then the friction puck, to ensure proper brake operation.*



4. Install the inside brake disc, 1, onto the splined motor coupler shaft.
5. Place a bead of silicone sealer around the caliper retaining bolts and install into the support.
6. Slide the spacers, 2, and the center caliper, 3, over the bolts.



7. Install the outer brake disc, 1, onto the motor shaft.
8. Thread the caliper retaining bolts, 2, into the outer caliper, 3, and tighten to a torque of 70 Nm (52 pound-feet).



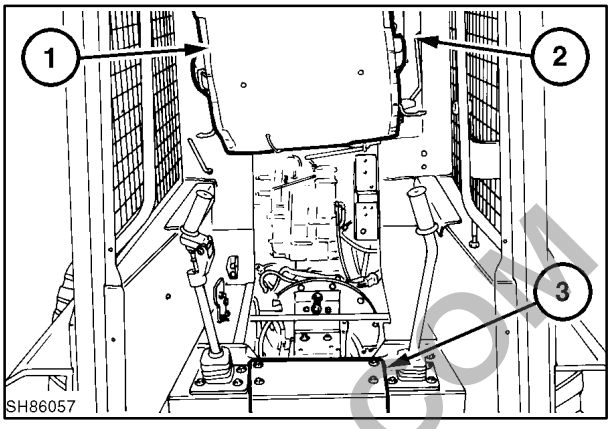
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Op. 35 710 10

PUMP REMOVAL

1. Lower the boom and bucket to the lowered position (resting on the ground), or remove any attachment and raise the boom and rest on the boom lock pins.
2. Stop the engine, turn the ignition key to the run position and operate the boom and bucket control pedals to relieve pressure in the boom and bucket circuits. Turn off the key.
3. Raise the seat and seat pan, 1, to the raised latched position, 2.
4. Remove the step shield, 3, to access the gear pump area. For more access remove the right or left hydrostatic control handle assembly.



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⚠ CAUTION ⚠

Do not work under a raised seat unless it is securely latched in the raised latched position.

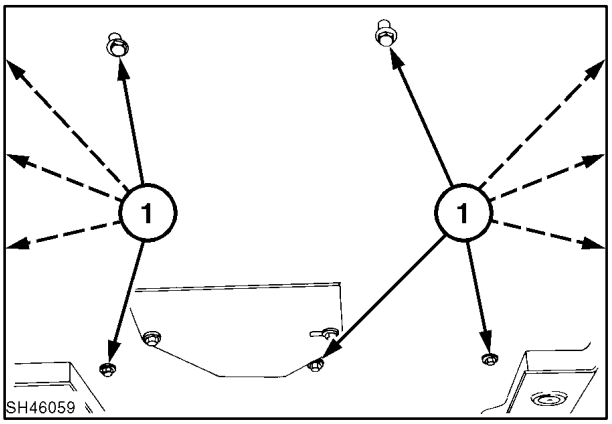
Never work under a raised boom unless it is properly supported by the boom lock pins.

Never work under a raised boom with an attachment. Always remove the attachment from the skid steer.

Never loosen any hydraulic lines without first relieving all pressure in the system.

Draining the hydraulic oil reservoir is not required if the suction and return lines are capped to prevent loss of oil. Drain the reservoir when the hydraulic system requires cleaning.

5. Remove the rear engine belly pan hardware, 1, and remove the belly pan.



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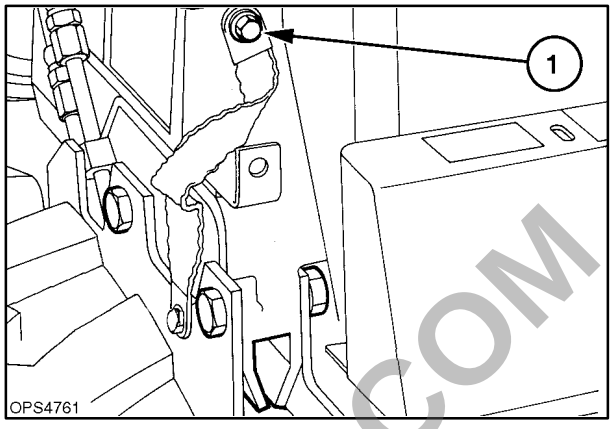
⚠ CAUTION ⚠

Use a floor jack to support the belly pan to prevent serious injury.

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27. Reattach the ground strap from the lower main frame to the ROPS post at 1.

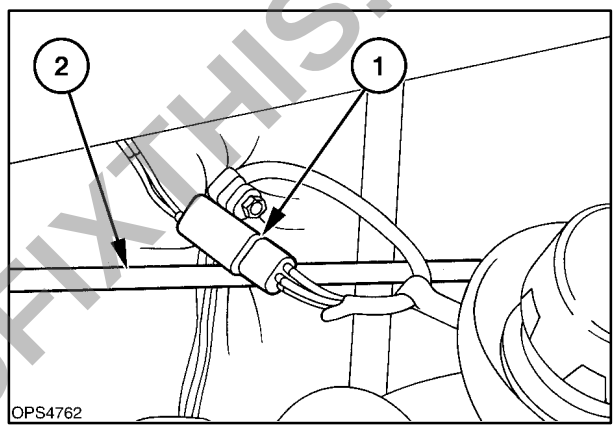


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28. Reconnect the seat and seat belt wire harness connector, 1.

IMPORTANT: IMPORTANT*: Make sure the seat/ main wire harness connector is to the front of the boom lock pin linkage, 2.*

29. Reconnect the (–) negative ground battery cable.
30. Reinstall any shields and fenders previously removed.

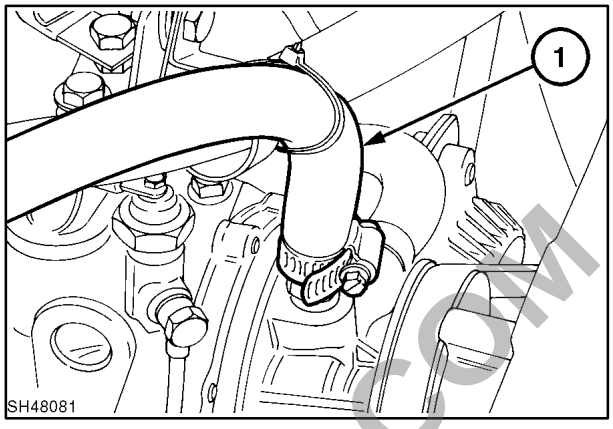


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2. Heater hose from the heater shutoff valve to the plug in the top of the water pump at 1.

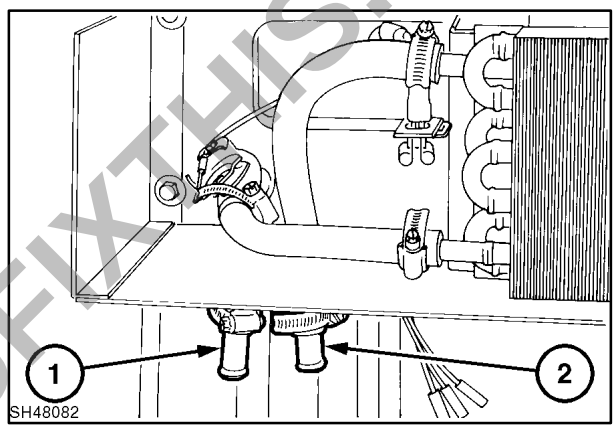


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Heater Core Connections

Connect the pressure hose from the water pump to the left side hose, 1, and the return block hose, 2, to the right side. Secure with hose clamps. The hoses from the engine will have to be cut to length for proper fit.



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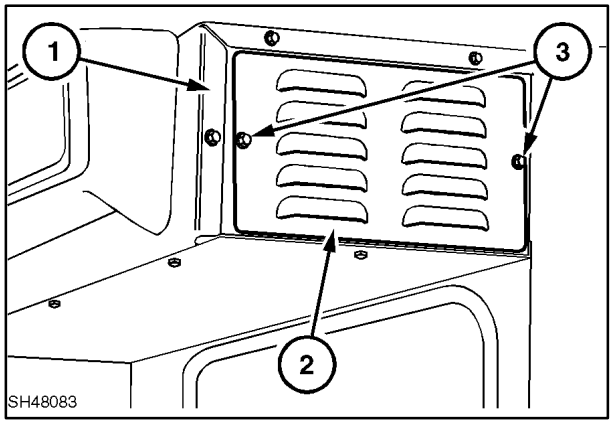
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Filter

Replacement filter #86504784

The heater contains an air filter element in the rear right side at 1.

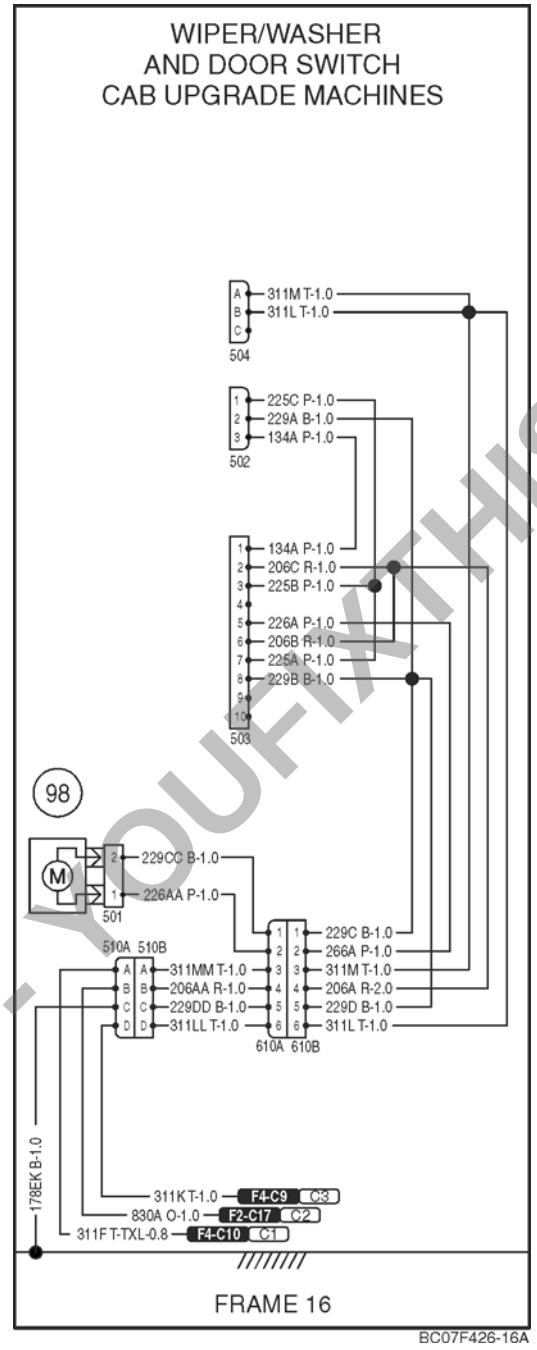
Remove cover plate, 2, by removing two self- tapping screws, 3.



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98. WASHER PUMP

BC07F426-16A

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Ground Side Voltage Drop Test

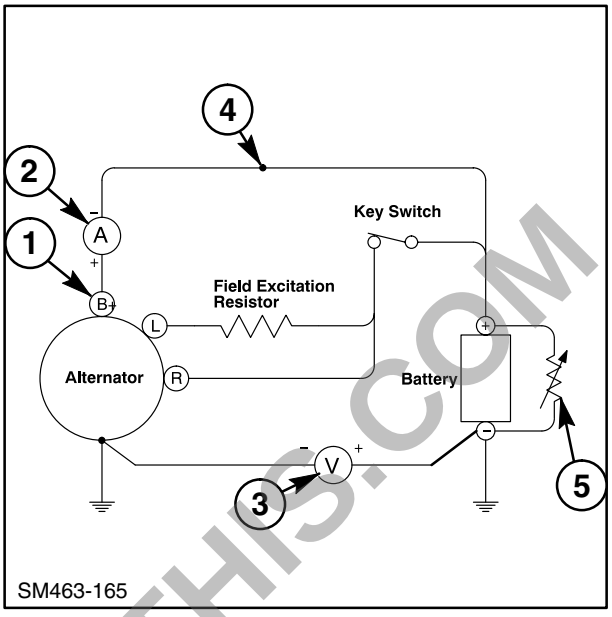
1. Ensure the key start switch is in the off position.
2. Test connections are the same as the previous test except that the voltmeter, 3, is now connected between the negative post of the battery and the alternator frame. Connect the voltmeter negative lead to the alternator frame.

NOTE: *Ensure the variable rate load tester, 5, is set to the minimum current draw position.*

3. Start the engine and increase the speed to 2000 RPM.
4. Slowly increase current draw until the ammeter, 2, reads 40 amps.
5. When the ammeter reads 40 amps, the voltmeter should not read more than 0.2 volts.

   If the reading is in excess of 0.2 volts, there is a high resistance fault in the ground side of the circuit.

   If the maximum output reading obtained is less than 40 amps and voltage drop is within specifications, the alternator is faulty. Conduct the alternator component tests outlined in this section.

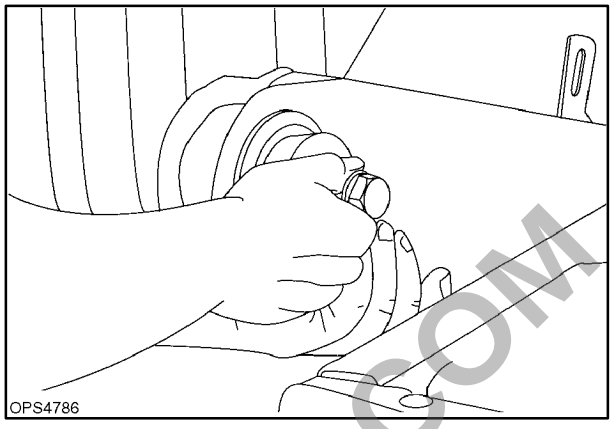


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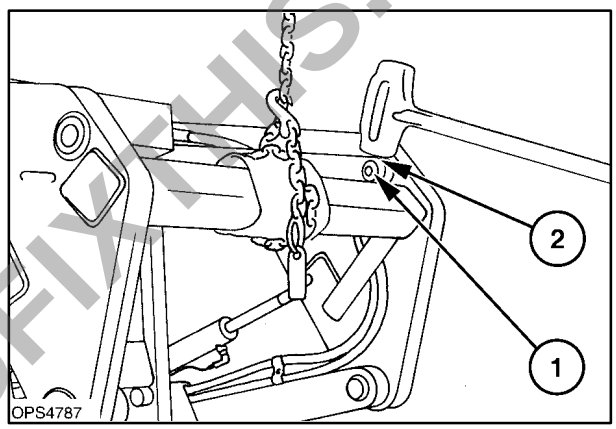
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8. Remove the pin retaining hardware and pin from the link and main boom. Lower the link down and rest it on the loader frame.



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9. Loosen the right and left upper link rear retaining bolts, 1; do not remove. With a soft-faced sledge hammer, strike the link at 2, to break the tapered pivot pin loose in the main boom.
10. Remove the hardware and pins from the link, then rest the link on the lower link.
11. Lift the boom assembly from the loader.



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