CASE
CONSTRUCTION

SERVICE MANUAL

WHEEL LOADER

621E
TIER 3

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84243974
(Replaces 87634756

Revised June 2009
Issued September 2007

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621E Wheel Loader
Service Manual 84243974
(Replaces 87634756)

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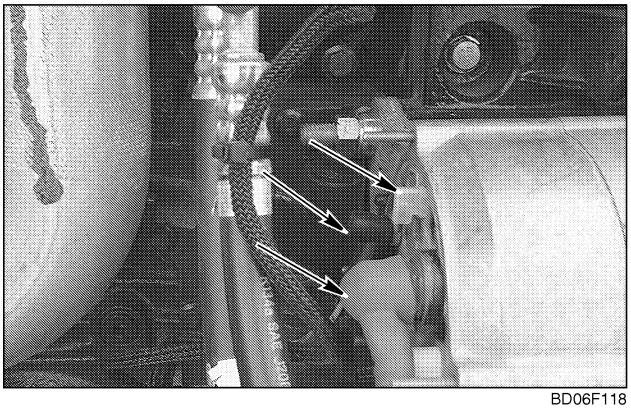
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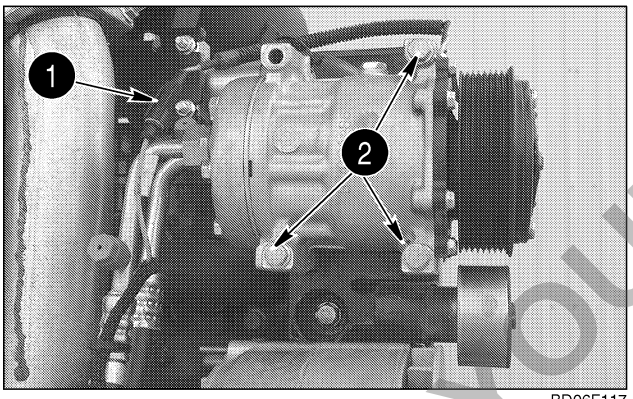
STEP 60



BD06F118

Connect the wiring to the alternator. Remove and discard tags.

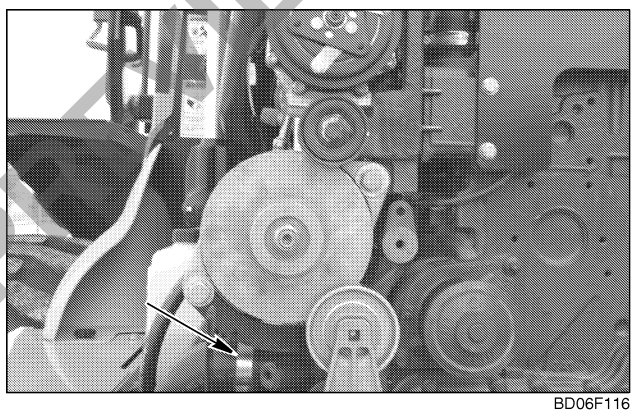
STEP 61



BD06F117

If loader is equipped with air conditioning, mount the compressor using the three mounting bolts (2), connect the engine wiring harness connectors to air compressor clutch connector (1). Remove and discard tags.

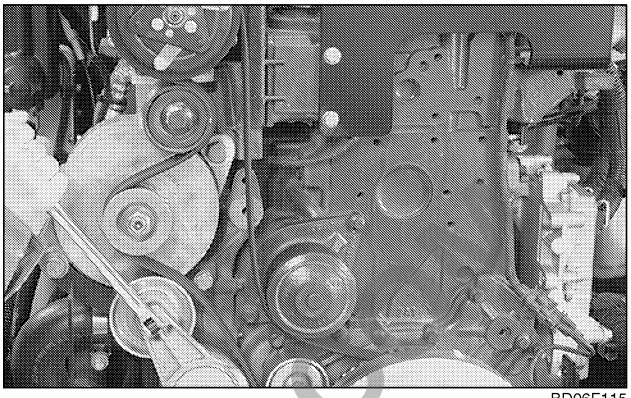
STEP 62



BD06F116

Install lower cooler hose to the engine and tighten the clamps to a torque of 10.1 to 11.3 Nm (90 to 100 lb-inch).

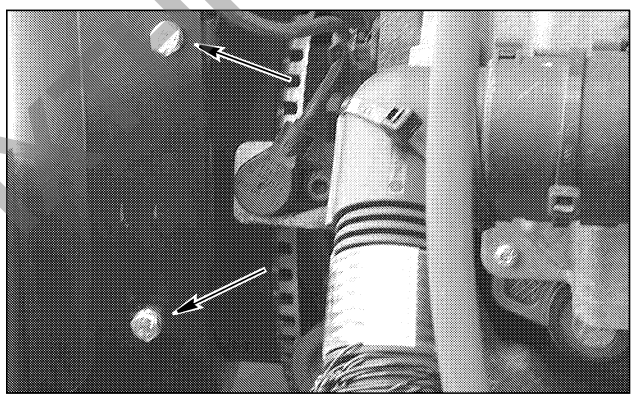
STEP 63



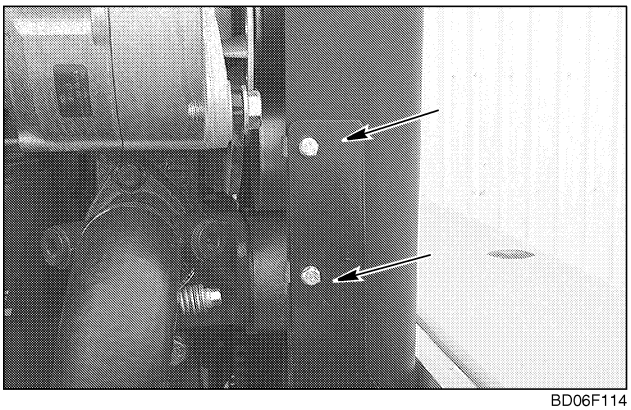
BD06F115

Install the drive belt.

STEP 64



BD06F113



BD06F114

Install the cover mounting brackets to the machine frame. Install the belt cover, install the four mounting bolts for the belt cover.

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TORQUE SPECIFICATIONS - METRIC HARDWARE

Use the following torques when specifications are not given.

These values apply to fasteners with coarse threads as received from supplier, plated or unplated, or when lubricated with engine oil. These values do not apply if graphite or Molydisulfide grease or oil is used.

Grade 8.8 Bolts, Nuts, and Studs



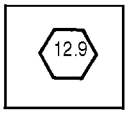
Size	Pound-Inches	Newton metres
M4	24 to 36	3 to 4
M5	60 to 72	7 to 8
M6	96 to 108	11 to 12
M8	228 to 276	26 to 31
M10	456 to 540	52 to 61
Size	Pound-Feet	Newton metres
M12	66 to 79	90 to 107
M14	106 to 127	144 to 172
M16	160 to 200	217 to 271
M20	320 to 380	434 to 515
M24	500 to 600	675 to 815
M30	920 to 1100	1250 to 1500
M36	1600 to 1950	2175 to 2600

Grade 10.9 Bolts, Nuts, and Studs



Size	Pound-Inches	Newton metres
M4	36 to 48	4 to 5
M5	84 to 96	9 to 11
M6	132 to 156	15 to 18
M8	324 to 384	37 to 43
Size	Pound-Feet	Newton metres
M10	54 to 64	73 to 87
M12	93 to 112	125 to 150
M14	149 to 179	200 to 245
M16	230 to 280	310 to 380
M20	450 to 540	610 to 730
M24	780 to 940	1050 to 1275
M30	1470 to 1770	2000 to 2400
M36	2580 to 3090	3500 to 4200

Grade 12.9 Bolts, Nuts, and Studs



Usually the torque values specified for grade 10.9 fasteners can be used satisfactorily on grade 12.9 fasteners.

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MAINTENANCE SCHEDULE

Model 621E

SERVICE INTERVAL	ITEM NUMBER	SERVICE POINTS	Initial Service	FREQUENCY IN HOURS						
				CHECK	CLEAN	CHANGE	DRAIN	LUBRICATE	REPLACE	ADJUST
Variable Periodic (*)	29	Air cleaner		*	*					
	18	Bleed Fuel Filter of Condensation					*			
	19	Hydraulic Filter		*						
	22	Alternator, AC, Drive Belt		*						
	13	Radiator Coolant Level		*						
	XX	Fire extinguisher		*						
	14	Tires		*						
Every 10 Hours	1	Check Engine Oil Level		10						
Every 50 Hours	2	Check Engine Coolant Level		50						
	3	Check Transmission Oil Level		50						
	4	Check Hydraulic Oil Level		50						
	5 & 6	Grease Bucket Mounting Fittings						50		
Every 100 Hours	7	Grease Front Drive Shaft Support Bearing						100		
	8 & 9	Lubricate The Steering Cylinder Pivots - Rod And Closed End (4 Fittings)						100		
	10	Lubricate Loader Lift & Cylinder Pivots (10) Z-bar						100		
	11	Lubricate Loader Lift & Cylinder Pivots (18) XT						100		
Every 250 Hours	12	Check Cab Air Filter		250						
	13	Check Tire Pressure & Wheel Torque	**100**	250						
	14	Check Drive Belt		250						
Every 500 Hours	15	Check Battery Electrolyte Level		500						
	16	Check Axle Oil Level		500						
	17	Drain Fuel Tank Condensation & Water Separator					500			
	18	Change Engine Oil and Filter	**100**			500				
	18	Change Crankcase Filter				500				
	19 & 27	Replace Fuel Filter	**100**						500	
	XX	ROPS/CSF and seat belt torques		500						
Every 1000 Hours	20	Change Front & Rear Axle Oil	**100**			1000				
	21	Replace Hydraulic Oil filter	**100**						1000	
	22	Replace Cab Air Filter							1000	
	23	Replace Drive Belt							1000	
	24	Change Transmission Oil and Filter	**100**			1000				
	25	Grease Articulation Fittings						1000		
	26	Check Injector Calibration		1000						
	27	Fuel Pre-Filter				1000				
	XX	Drive Shaft Slip Joint						1000		
	XX	Check Valve Adjustment (Engine Manual)		1000						
	XX	Trans Clutch Calibration (See Section 6002)	**250**	1000						
Every 2000 Hours	28	Change Hydraulic Oil				2000				
	29	Change Coolant				2000				
	30	Replace Engine Air Cleaner							2000	
Every 4000 Hours	XX	Valve Clearance (Engine Manual)								4000

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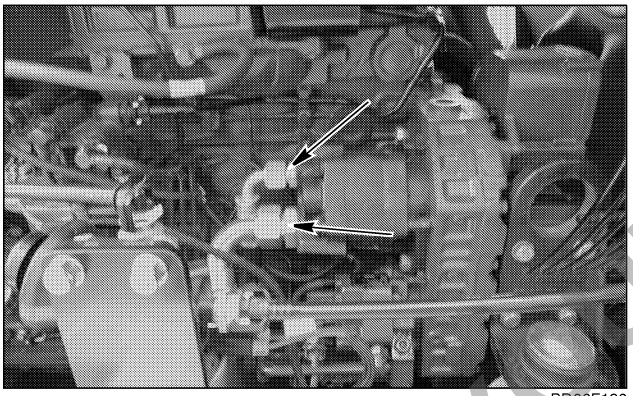
STEP 48



BD06F127

Install the lower cover for the drive shaft.

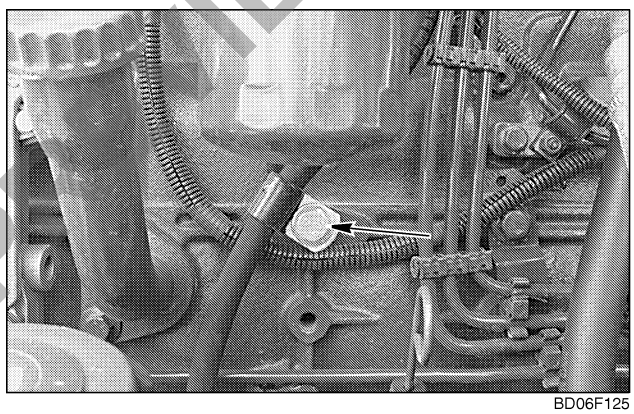
STEP 49



BD06F126

Connect and turn on vacuum pump to the hydraulic reservoir. Remove caps from fittings and plugs from hoses. Connect hoses to brake pump following tags installed during removal. Remove and discard tags. Turn off and disconnect vacuum pump from hydraulic reservoir.

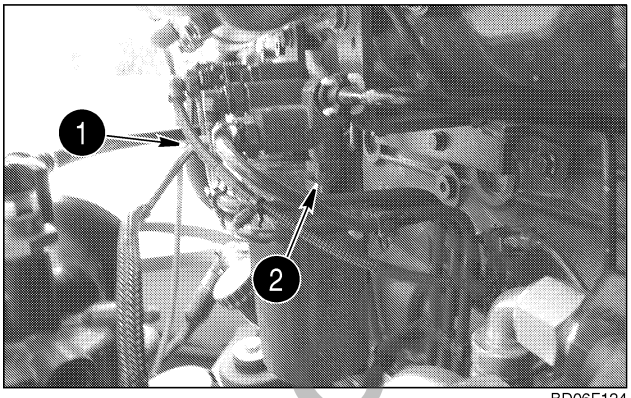
STEP 50



BD06F125

Install bolt and clamp for fuel return hose.

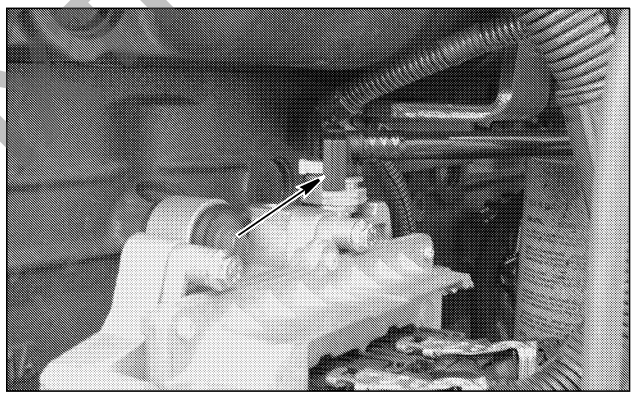
STEP 51



BD06F124

Remove cap from fitting and plug from the hose, connect fuel line (2). Connect fuel filter heater wires (1). Remove and discard tag.

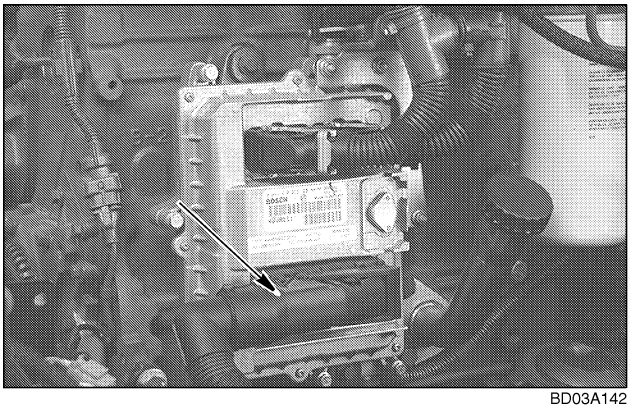
STEP 52



BD06F123

Remove cap from fitting and plug from the hose, connect fuel line to EDC 7.

STEP 53



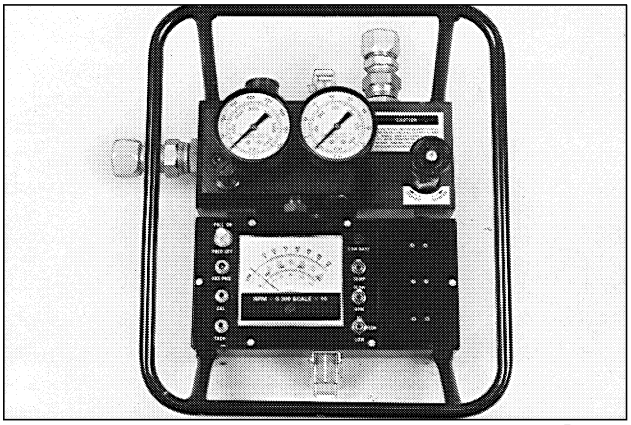
BD03A142

Connect wiring harness to EDC 7 controller.

NOTE: *Start the connector on the EDC 7 with lever straight out from EDC 7. Use lever to pull connector into position.*

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SPECIAL TOOLS



B785789

OEM1239 (CAS10280) FLOWMETER



B009638

CAS1804 PRESSURE TEST FITTING KIT



B797157

CAS1808 FLOWMETER FITTING KIT

TROUBLESHOOTING THE STEERING SYSTEM

NOTE: *The steering hydraulic schematic is included in the hydraulic schematic. Refer to the rear pocket of this manual.*

1. Make sure the oil level in the hydraulic reservoir is correct. Visually inspect the steering system for leakage and damage.
2. Do the steering relief valve pressure test. Refer to page 7. If the pressure is above or below specifications, adjust the steering relief valve in the loader control valve.
3. Do the main hydraulic pump test. See Section 8002. If the main pump is bad, repair or replace the main hydraulic pump.
4. Test the steering cylinders for leakage, refer to instructions on page 10. If a steering cylinder is leaking, repair or replace the steering cylinder.

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ELECTRICAL WIRE IDENTIFICATION

Wire Identification Codes

21C Bk - 1.0

- 21C — Wire Name
- Bk — Wire Color
- 1.0 — Wire Size (mm^2)

Wire Size (mm^2)			
0.8 mm	1.0 mm	2.0 mm	5.0 mm

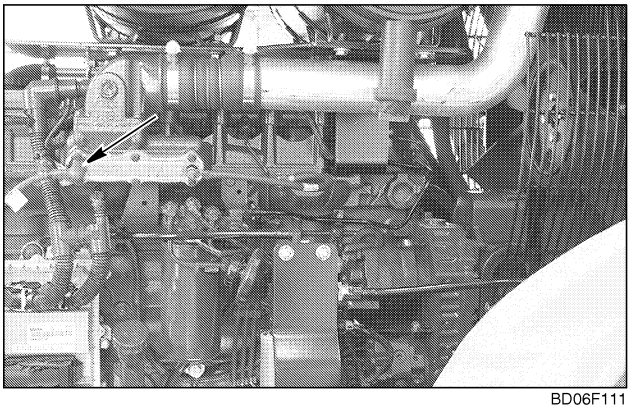
Wire Color				
Bk = Black	DU = Dark Blue	S = Gray	LG = Light Green	K = Pink
T = Tan	W = White	N = Brown	G = Green	U = Blue
LU = Light Blue	Or = Orange	R = Red	P = Purple	Y = Yellow

Wire Identification			From Connector		To Connector	
Wire	**Circuit**	**Color, Size, and Material**	**Connector**	**Cavity**	**Connector**	**Cavity**
14	Alternator D+	Lg 1.0 SXL	AD, Alternator D+	1	ENG, Engine Cab	26
42	Work Lights Switched Fused Pwr	R2.0 GXL	SPL-WL, Ultrasonic	A	ECC, Work Lights	23
44	Brake Lt Control Power	T 1.0 SXL	FRONT, Cab Front Chassis	23	PBL, Brake Light Press Switch	2
49	Back Lt Power	DU1.0 GXL	D-OR, Diode OR	C	SPL-BCK-LGT, Spl Back Lgt Pwr	A
52	Fan Reverse LSD	W 0.8 TXL	AIC-1, Adv Instr Clust 1	23	ECB, Electrical Center B	B8
56	Fan Control PWM	W 0.8 TXL	CAB-E, Cab Engine	23	AIC-1, Adv Instr Clust 1	26
57	Pin Engage Sol Pwr	W 1.0 SXL	FRONT, Cab Front Chassis	20	YPE, Pin Engage Option	A
58	Ride Control Sol Pwr	W 1.0 SXL	PRBF, Rollback Press Sw	A	YRC, Ride Control Option	1
64	Horn Power	Or 1.0 SXL	FRONT, Cab Front Chassis	13	HN1, Horn Power	1
0 29	RTT/Float Ground	Bk 0.8 GXL	SFL, Return To Travel Sw	4	SPL-BCK-LT-GD2, Spl Back Lgt Gnd	K
0 AA	Proximity Switch Grnd	Bk 1.0 SXL	PXH, Height Control RTT	B	SPL-A2, Ultrasonic	A
0 AB	Proximity Switch Grnd	Bk 1.0 SXL	SPL-A2, Ultrasonic	A	GND-FC, Ground A	1
0 AC	Proximity Switch Grnd	Bk 1.0 SXL	PXF, RTD	B	SPL-A2, Ultrasonic	A
0 AD	Ride Control Ground	Bk 1.0 SXL	YRC, Ride Control Option	2	SPL-A1, Ultrasonic	A
0 AE	Pin Engage Ground	Bk 1.0 SXL	SPL-A1, Ultrasonic	A	YPE, Pin Engage Option	B
0 AF	Horn Ground	Bk 1.0 SXL	HN2, Horn Ground	1	SPL-A1, Ultrasonic	A
0 AG	Front Chassis Ground	Bk 2.0 SXL	SPL-A1, Ultrasonic	A	GND-FC, Ground A	1
0 AH	RH Front Lights Ground	Bk 1.0 SXL	SPL-A1, Ultrasonic	A	LRF, Lights RH	1
0 AJ	LH Front Lights Ground	Bk 1.0 SXL	SPL-A1, Ultrasonic	A	LLF, Lights LH	1
0 AK	Park Brake/Warning Ground	Bk 1.0 SXL	SPL-A4, Ultrasonic	A	GND-FC, Ground A	1
0 AL	Brake Warning Press Sw Gnd	Bk 1.0 SXL	PBW, Brake Warn Press Sw	2	SPL-A4, Ultrasonic	A
0 AM	RTD Grnd	Bk 1.0 SXL	PXM, RTD	B	PXT, RTD	B
0 AN	Park Brake Solenoid Ground	Bk 1.0 SXL	YPB, Park Brake Solenoid	2	SPL-A4, Ultrasonic	A
0 AP	Front To Rear Chassis Ground	Bk 5.0 SXL	GND-S1, Ground A	1	GND-S2, Ground A	1
0 AQ	Comfort Steering Solenoid Gnd	Bk 1.0 SXL	YCS, Comfort Steer Solenoid	B	SPL-A4, Ultrasonic	A
0 AR	Front Axle Temp Sensor Ground	Bk 1.0 SXL	FRONT, Cab Front Chassis	9	HOT-FA, Front Axle Oil Temp	2
0 B	Front Washer Ground	Bk 1.0 SXL	FWW, Front Washer	2	SPL-ENG-GRD, Gnd Spl 6 Pck	E
0 B1	Back Light Ground	Bk 0.8 GXL	SPC, Pilot Control Switch	7	SPL-PED-BL-GD, Spl Bk Lgt Grnd 6 Pck	B

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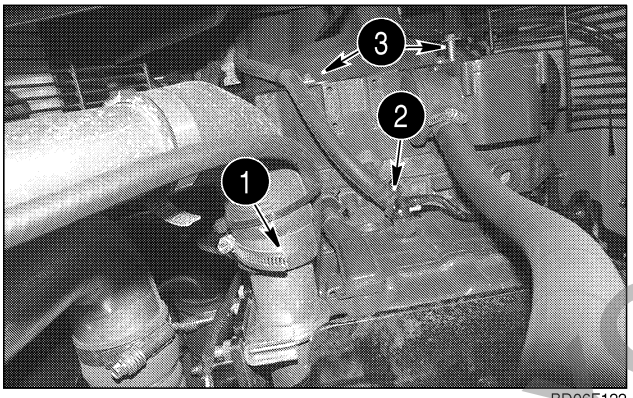
STEP 54



BD06F111

Connect grid heater cable to grid heater. Remove and discard tag.

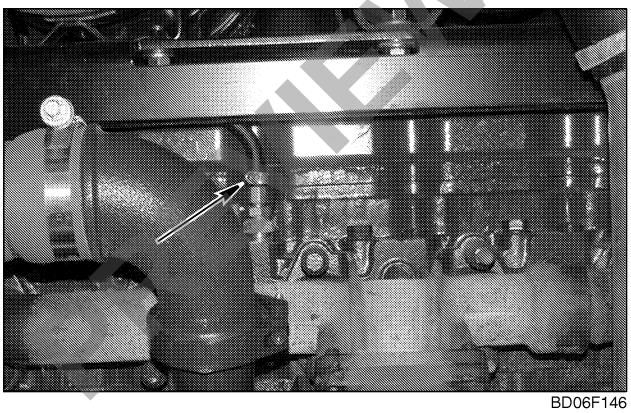
STEP 55



BD06F122

Install the heater hose (2) to the rear of the engine, mount the clamps (3), install the radiator hose (1).

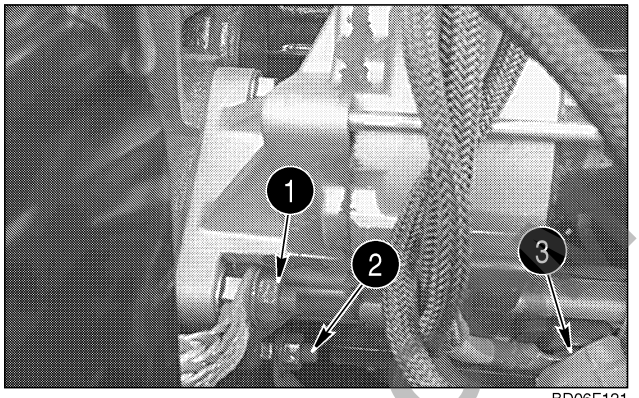
STEP 56



BD06F146

Connect the engine coolant vent hose.

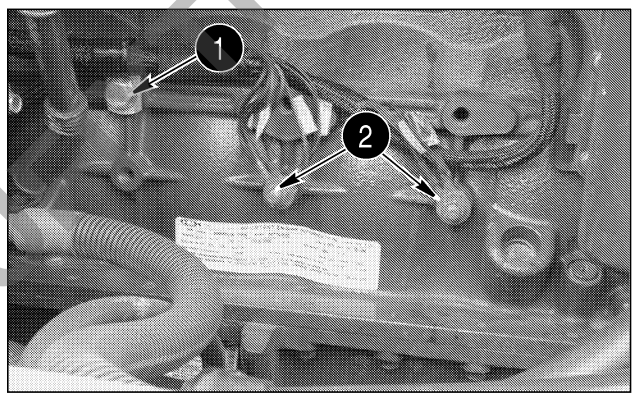
STEP 57



BD06F121

Install the wires to the starter solenoid (3), install the ground cable (2), and ground strap (1) to the starter. Remove and discard tags.

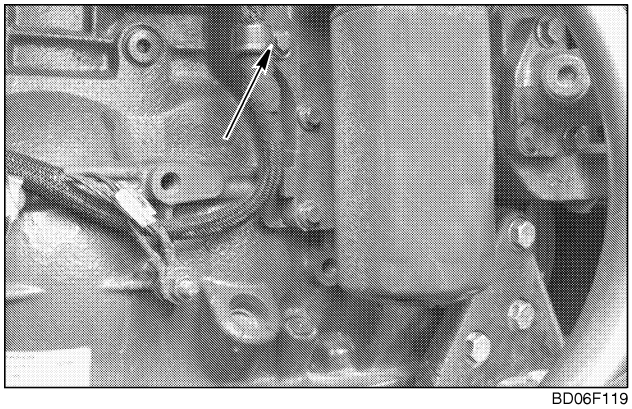
STEP 58



BD06F120

Install bolt securing wiring harness (1) clamp to the engine. Install ground wires (2) to the engine.

STEP 59



BD06F119

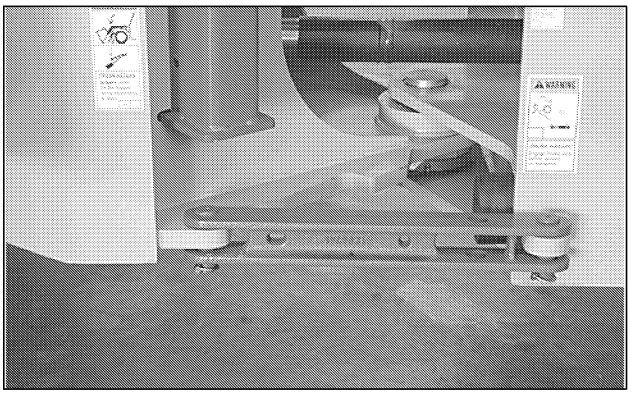
Install bolt securing wiring harness clamp to engine.

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ENGINE

Removal

STEP 1



BD03A040

Park machine on a level surface and lower bucket to ground. Put articulation lock in LOCKED position.

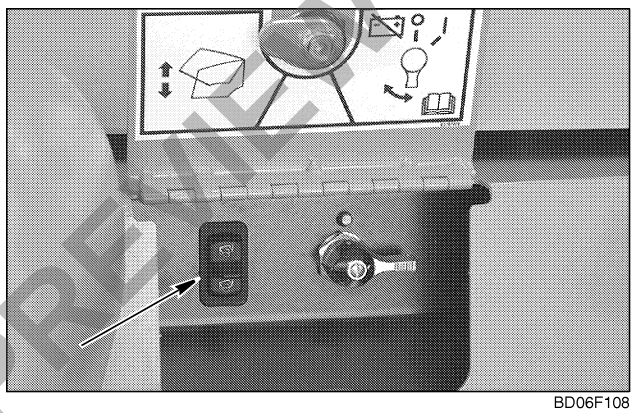
STEP 2

Stop engine. Actuate brake pedal several times to discharge brake accumulators. Put key switch in ON position and move loader control lever back and forth at least 30 times to release any pressure from hydraulic circuit. Put key switch in OFF position.

STEP 3

Slowly loosen the filler cap for hydraulic reservoir to release air pressure in hydraulic reservoir.

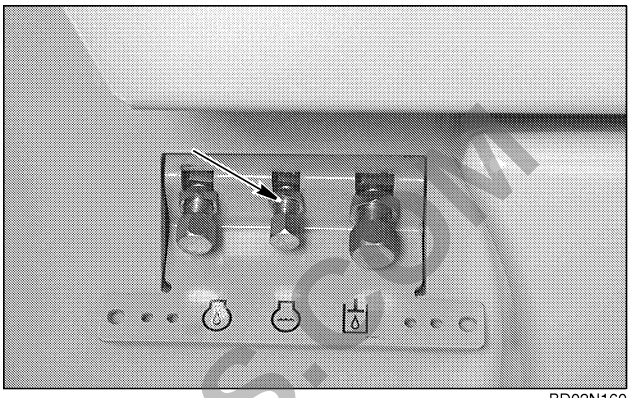
STEP 4



BD06F108

The master and hood raise switch are located in the right batter box. Raise the hood with the hood lift motor. Put master disconnect switch in OFF position. Remove both battery covers and disconnect batteries from the machine.

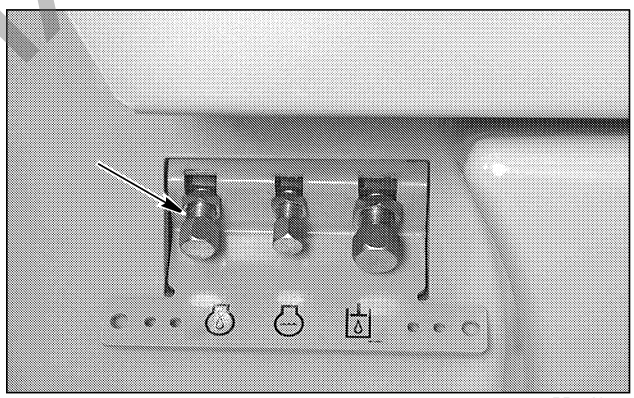
STEP 5



BD02N160

Put a 37 liter (10 gallon) container below radiator drain. Remove radiator cap. Remove cap and drain coolant into container. Install cap after coolant has drained. Install radiator cap.

STEP 6



BD02N160

Put a 14.2 liter (15 U.S. quarts) container below engine oil drain. Remove cap and drain oil into container. Install cap after oil has drained.

NOTE: *After draining oil disconnect drain hose from frame for removal with engine.*

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ERROR CODES

Errors for the JSS will only be displayed if the switch is in the ON position.

The errors can be reset by turning the JSS system OFF and On. The following two errors will not reset:

- 1821r Power Supply Failure
- 1830y Activation Switch failure.

The errors will always be shown on the display once they are present. To reset these errors the engine must be turned off.

ERROR CODES TABLE

Error Item	Error	Message
1	1812	JSS Failure Armrest Switch
2	1816	JSS Activation Button Failure
3	1820	JSS Power Supply Failure
4	**1821**	**JSS Power Supply Failure JSS Active**
5	1823	JSS Relais Grd Failure
6	1824	JSS Activation Switch Short to Battery
7	**1830**	**JSS Activation Switch failure**
8	1831	JSS Error JSC
9	1832	JSS Signal Input Error JSC
10	1833	JSS Signal Output Error JSC
11	1835	JSS Valve Failure Power Supply
12	1841	JSS Valve Alarm
13	1842	JSS Valve Alarm Open Circuit
14	1843	JSS Pilot Pressure is High
15	1844	JSS Pilot Pressure Switch Short to Ground
16	1845	JSS Pilot Pressure is Low
17	1846	JSS Failure on LS Pressure Switch
18	1850	JSS Joystick Failure Neutral Switch / Power Supply
19	1852	JSS Error in Ground Connection
20	9134	JSS CAN communication failed

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SPECIFICATIONS

SPECIAL TORQUES

M16 bolt for upper pivot pin	220 to 250 Nm (162 to 184 pound-feet)
M12 bolts for the lower pin plate	124 Nm (91 pound-feet)
M12 bolts screws for the lower pin plate	128 to 136 Nm (94 to 100 pound-feet)
Ferry head screws for the drive shaft	61 to 81 Nm (45 to 60 pound-feet)

LUBRICANT

Pivot bearings and seals	Case IH molydisulfide grease
Steering cylinder rod eyes	Case IH molydisulfide grease

FLUIDS

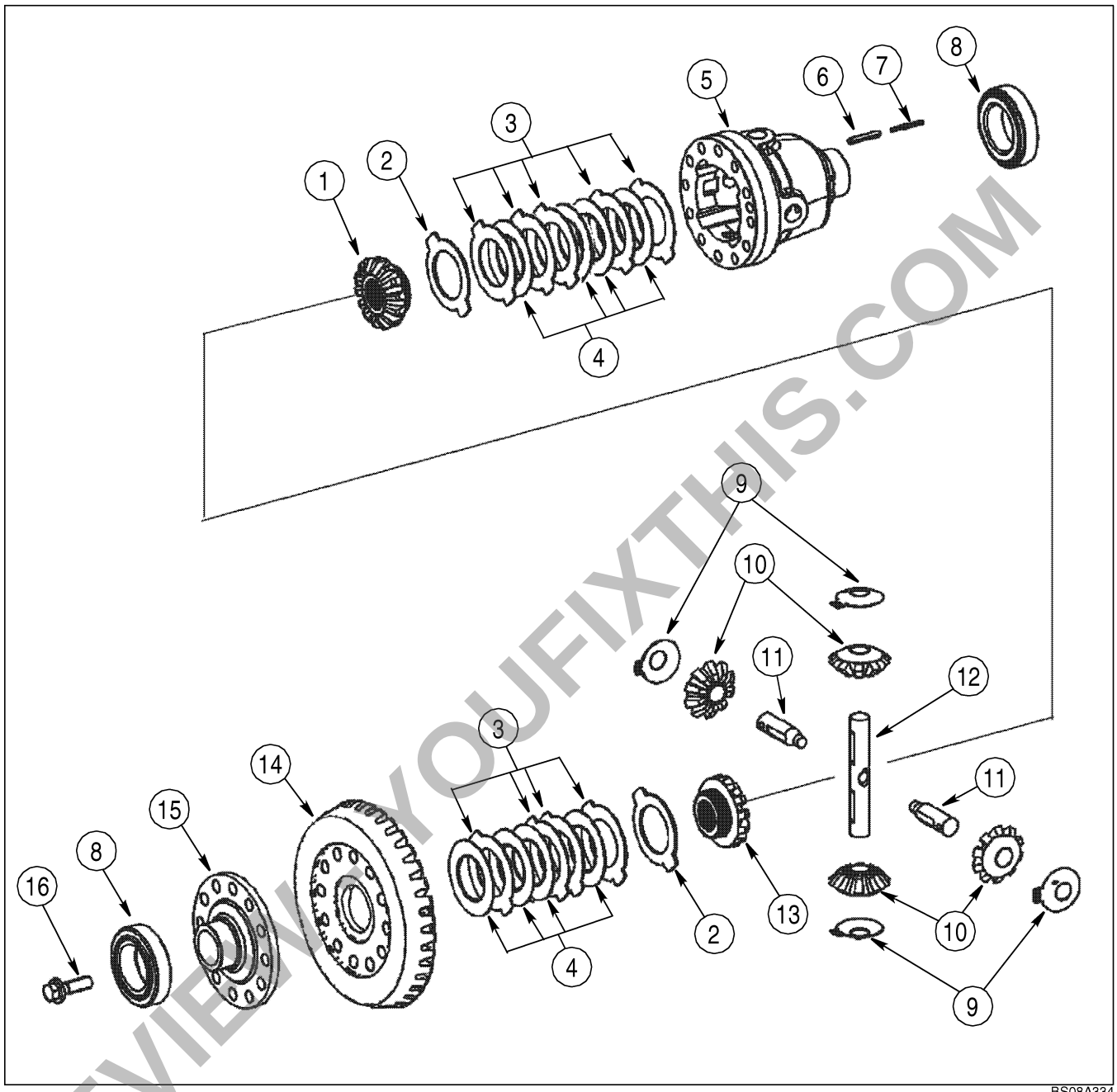
Hydraulic system reservoir	MS-1209, Hy-Tran® Ultra

SPECIAL TOOLS

CAS-10219	Hand pump (hydraulic ram)
CAS-10512	10 ton ram (long)
CAS-10592	Puller set, includes 24827 leg ends
CAS-10600	Bearing cup and seal puller, includes 24850 adapter
CAS-10193	Vacuum pump (12 volt)
CAS-1960	*Top bearing driver, bottom bearing driver and plate * (Requires screw, two nuts, and two washers from CAS-10592)

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DIFFERENTIAL ASSEMBLY EXPLODED VIEW

1. INNER BEVEL GEAR
2. THRUST WASHER (COPPER COLOR)
3. REACTION PLATE
4. FRICTION PLATE
5. DIFFERENTIAL
6. ROLL PIN
7. ROLL PIN
8. BEARING
9. THRUST WASHER
10. SPIDER GEAR
11. DIFFERENTIAL HALF SHAFT
12. DIFFERENTIAL SHAFT
13. OUTER BEVEL GEAR
14. RING GEAR
15. COVER DIFFERENTIAL
16. BOLT

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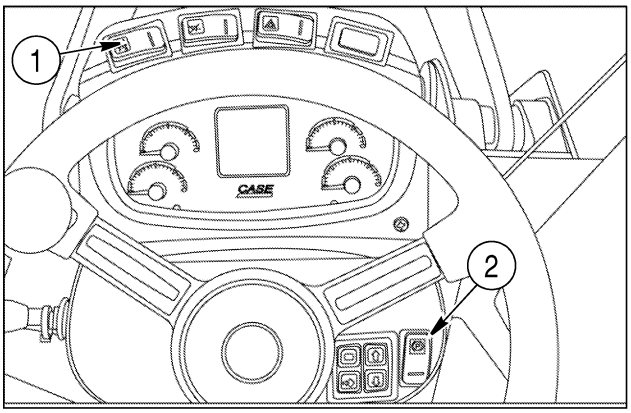
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STEERING SPEED CALIBRATION PROCEDURE

STEP 1

Before running the unit calibration procedure, the following procedures must be completed.
- Start the engine;
- Set the unit in a straight position;
- Activate the Joystick Steering System;
- Slightly lift the bucket off the ground;
- Release the parking brake.

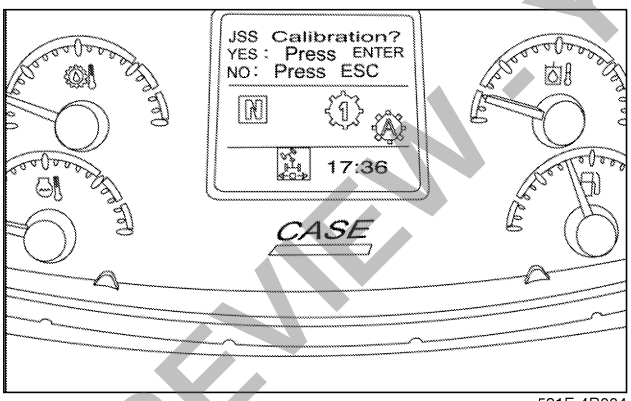
STEP 2



521E-4R003

At the same time press the Joystick Steering activation switch (1) and the confirm/send button (2).

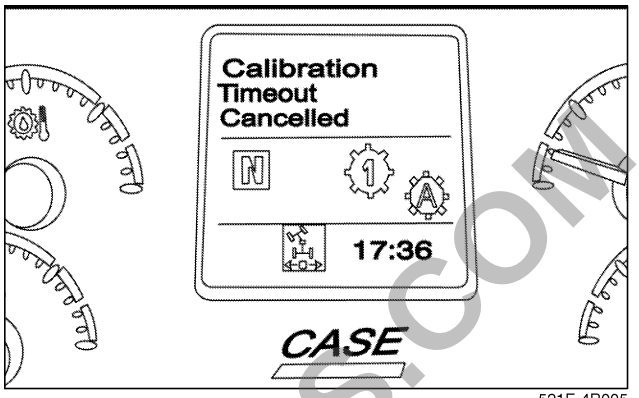
STEP 3



521E-4R004

Keep pressed until the screen shows "**Calibration?**".

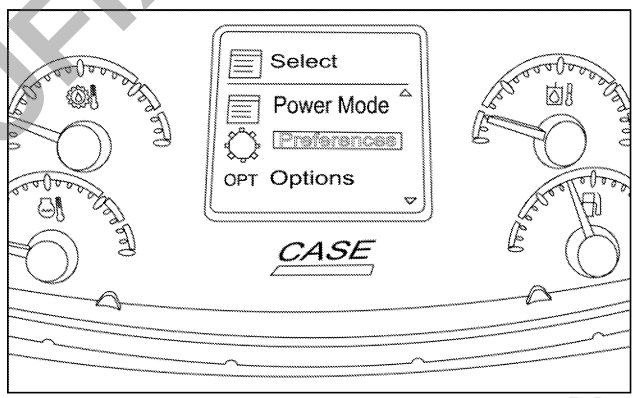
STEP 4



521E-4R005

Press the enter button (2) within two seconds to confirm access to the calibration procedure. If you do not press any buttons after two seconds, the screen will show "**Calibration**", "**Timeout**", "**Cancelled**". Repeat Step 2 to reenter the calibration procedure.

STEP 5



521E-4R006

If it is kept pressed longer than expected, the main menu screen will appear.

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2002

Section
2002

STALL TEST

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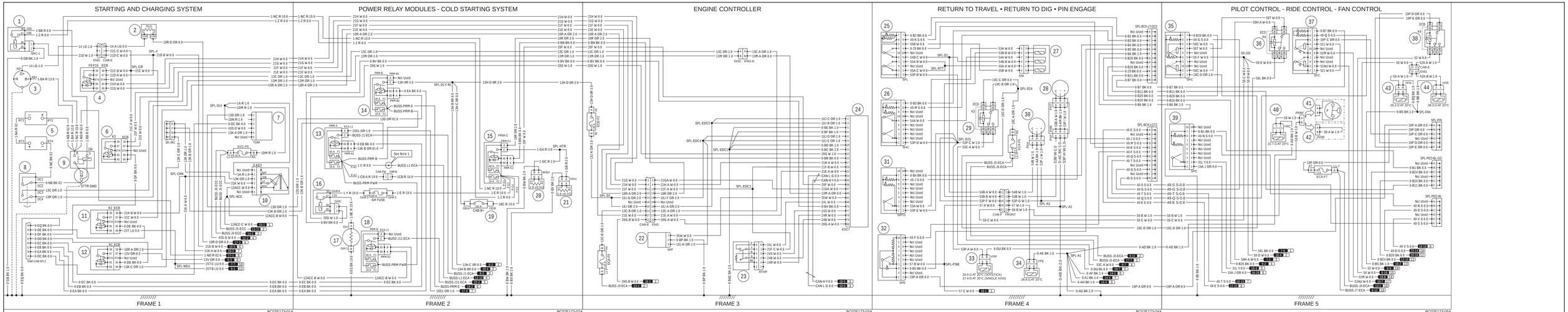
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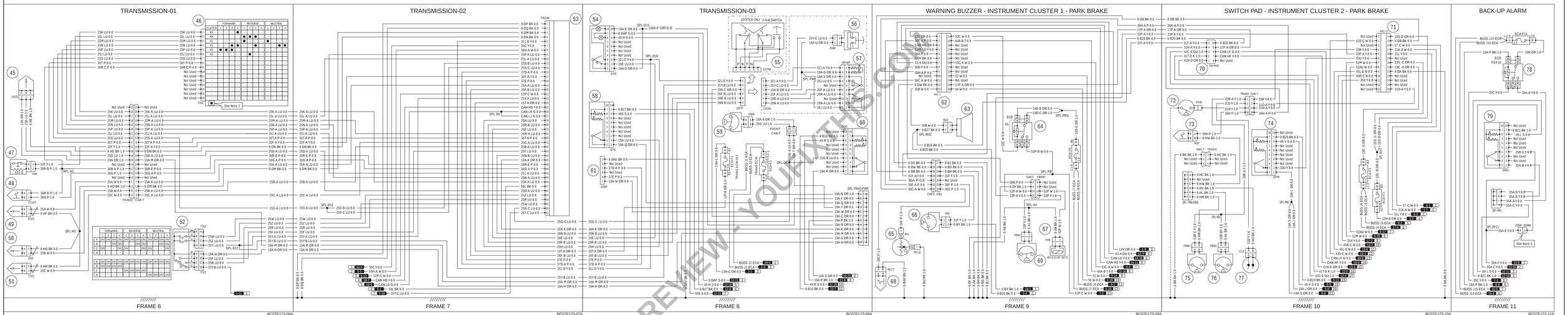
TABLE OF CONTENTS

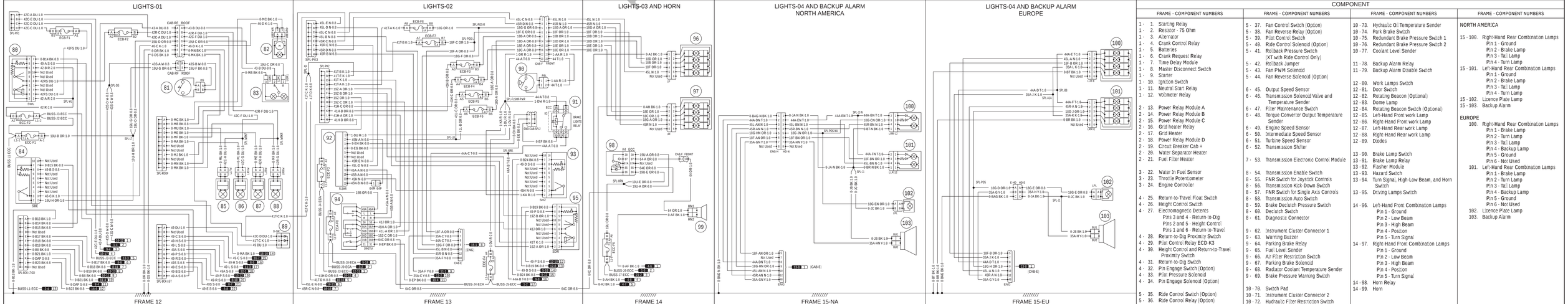
TROUBLESHOOTING AFTER COOLER 3
AFTERCOOLER REMOVAL 4
Removal 4
Leak Test 6
Installation 6

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COMPONENT

FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS	FRAME - COMPONENT NUMBERS
1 - 1. Starting Relay	5 - 37. Fan Control Switch (Option)	10 - 73. Hydraulic Oil Temperature Sender	NORTH AMERICA
1 - 2. Resistor - 75 Ohm	5 - 38. Fan Reverse Relay (Option)	10 - 74. Park Brake Switch	15 - 100. Right-Hand Rear Combination Lamps
1 - 3. Alternator	5 - 39. Pilot Control Switch	10 - 75. Redundant Brake Pressure Switch 1	Pin 1 - Ground
1 - 4. Crank Control Relay	5 - 40. Ride Control Solenoid (Option)	10 - 76. Redundant Brake Pressure Switch 2	Pin 2 - Brake Lamp
1 - 5. Batteries	5 - 41. Rollback Pressure Switch (XT with Ride Control Only)	10 - 77. Coolant Level Sender	Pin 3 - Tail Lamp
1 - 6. Crank Request Relay	5 - 42. Rollback Jumper	11 - 78. Backup Alarm Relay	Pin 4 - Turn Lamp
1 - 7. Time Delay Module	5 - 43. Fan PWM Solenoid	11 - 79. Backup Alarm Disable Switch	15 - 101. Left-Hand Rear Combination Lamps
1 - 8. Master Disconnect Switch	5 - 44. Fan Reverse Solenoid (Option)	12 - 80. Work Lamps Switch	Pin 1 - Ground
1 - 9. Starter	6 - 45. Output Speed Sensor	12 - 81. Door Switch	Pin 2 - Brake Lamp
1 - 10. Ignition Switch	6 - 46. Transmission Solenoid Valve and Temperature Sender	12 - 82. Rotating Beacon (Optional)	Pin 3 - Tail Lamp
1 - 11. Neutral Start Relay	6 - 47. Filter Maintenance Switch	12 - 83. Dome Lamp	Pin 4 - Turn Lamp
1 - 12. Voltmeter Relay	6 - 48. Torque Convertor Output Temperature Sender	12 - 84. Rotating Beacon Switch (Optional)	15 - 102. Licence Plate Lamp
2 - 13. Power Relay Module A	6 - 49. Engine Speed Sensor	12 - 85. Left-Hand Front work Lamp	15 - 103. Backup Alarm
2 - 14. Power Relay Module B	6 - 50. Intermediate Speed Sensor	12 - 86. Right-Hand Front work Lamp	
2 - 15. Power Relay Module C	6 - 51. Turbine Speed Sensor	12 - 87. Left-Hand Rear work Lamp	EUROPE
2 - 16. Grid heater Relay	6 - 52. Transmission Shifter	12 - 88. Right-Hand Rear work Lamp	100. Right-Hand Rear Combination Lamps
2 - 17. Grid Heater	7 - 53. Transmission Electronic Control Module	12 - 89. Diodes	Pin 1 - Brake Lamp
2 - 18. Power Relay Module D	8 - 54. Transmission Enable Switch	13 - 90. Brake Lamp Switch	Pin 2 - Turn Lamp
2 - 19. Circuit Breaker Cab +	8 - 55. FNR Switch for Joystick Controls	13 - 91. Brake Lamp Relay	Pin 3 - Tail Lamp
2 - 20. Water Separator Heater	8 - 56. Transmission Kick-Down Switch	13 - 92. Flasher Module	Pin 4 - Backup Lamp
2 - 21. Fuel Filter Heater	8 - 57. FNR Switch for Single Axis Control's	13 - 93. Hazard Switch	Pin 5 - Ground
3 - 22. Water In Fuel Sensor	8 - 58. Transmission Auto Switch	13 - 94. Turn Signal, High-Low Beam, and Horn Switch	Pin 6 - Not Used
3 - 23. Throttle Potentiometer	8 - 59. Brake Decutch Pressure Switch	13 - 95. Driving Lamps Switch	101. Left-Hand Rear Combination Lamps
3 - 24. Engine Controller	8 - 60. Decutch Switch	14 - 96. Left-Hand Front Combination Lamps	Pin 1 - Brake Lamp
4 - 25. Return-to-Travel Float Switch	8 - 61. Diagnostic Connector	Pin 1 - Ground	Pin 2 - Turn Lamp
4 - 26. Height Control Switch	9 - 62. Instrument Cluster Connector 1	Pin 2 - Low Beam	Pin 3 - Tail Lamp
4 - 27. Electromagnetic Detents Pins 3 and 4 - Return-to-Dig Pins 2 and 5 - Height Control Pins 1 and 6 - Return-to-Travel	9 - 63. Warning Buzzer	Pin 3 - High Beam	Pin 4 - Backup Lamp
4 - 28. Return-to-Dig Proximity Switch	9 - 64. Parking Brake Relay	Pin 4 - Position	Pin 5 - Ground
4 - 29. Pilot Control Relay ECD-K3	9 - 65. Fuel Level Sender	Pin 5 - Turn Signal	Pin 6 - Not Used
4 - 30. Height Control and Return-to-Travel Proximity Switch	9 - 66. Air Filter Restriction Switch	14 - 97. Right-Hand Front Combination Lamps	102. Licence Plate Lamp
4 - 31. Return-to-Dig Switch	9 - 67. Parking Brake Solenoid	Pin 1 - Ground	103. Backup Alarm
4 - 32. Pin Engage Switch (Option)	9 - 68. Radiator Coolant Temperature Sender	Pin 2 - Low Beam	
4 - 33. Pilot Pressure Solenoid	9 - 69. Brake Pressure Warning Switch	Pin 3 - High Beam	
4 - 34. Pin Engage Solenoid (Option)		Pin 4 - Position	
5 - 35. Ride Control Switch (Option)	10 - 70. Pushbutton Switch Pad	Pin 5 - Turn Signal	
5 - 36. Ride Control Relay (Option)	10 - 71. Instrument Cluster Connector 2	14 - 98. Horn Relay	
	10 - 72. Hydraulic Filter Restriction Switch	14 - 99. Horn	

CIRCUIT DIAGRAM LEGEND

SHOWS CIRCUIT CROSSING NOT CONNECTED

SHOWS CIRCUIT SPLICE CONNECTION

Frame and Wire Tag Number where circuit continues. WIRE TAGS: FRAME - WIRE / WIRE. Wire Tag assigned to wire in Frame. CIRCUIT CONTINUATION

54 COMPONENT NUMBER

MALE TERMINAL / FEMALE TERMINAL

INDICATES EXTERNAL GROUND / GROUND

INDICATES INTERNALLY GROUNDED COMPONENT

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

WIRE IDENTIFICATION

BK . . BLACK
DU . . DARK BLUE
G . . . GREEN
K . . . PINK
LG . . LIGHT GREEN
LU . . LIGHT BLUE
N . . . BROWN

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

OR . . ORANGE
P . . . PURPLE (Violet)
R . . . RED
S . . . GREY
T . . . TAN
U . . . BLUE
W . . . WHITE
Y . . . YELLOW

NOTES

NOTE 1: Electrical Center C - Power Stud
NOTE 2: Indicates Modulated and Current Controller.
NOTE 3: Disconnect when Backup Alarm Disable Switch is installed. Applicable only on TUV Road Approved Machines.

ELECTRICAL SCHEMATIC
621E WHEEL LOADER

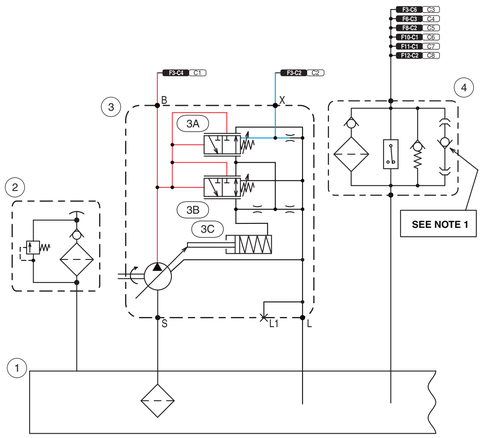
Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System. The part number is 5-7560

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BC07E173-00A

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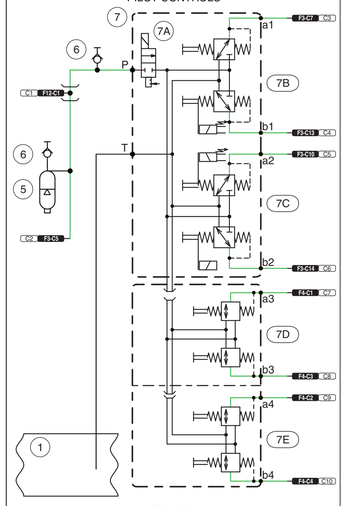
MAIN HYDRAULIC PUMP AND RESERVOIR



FRAME 1

BC07G260-01A

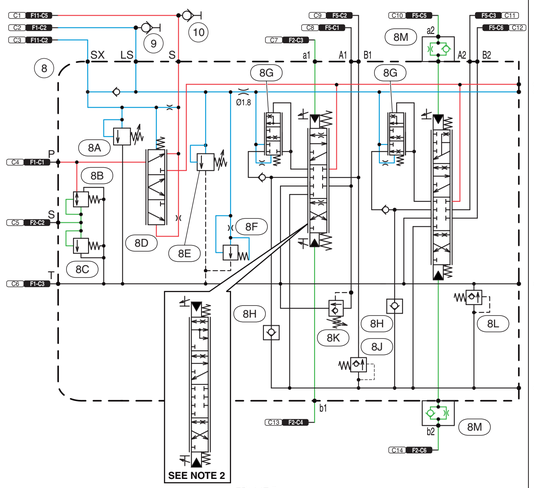
PILOT CONTROLS



FRAME 2

BC07G260-02A

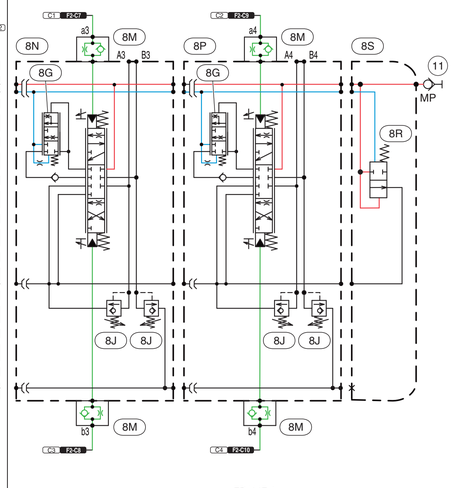
EQUIPMENT VALVE



FRAME 3

BC07G260-03A

EQUIPMENT VALVE

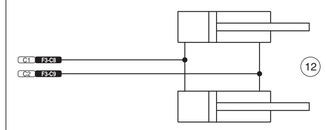


FRAME 4

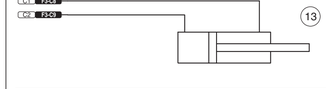
BC07G260-04A

CYLINDERS

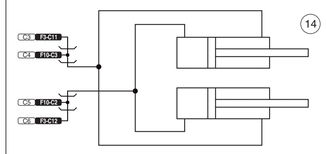
BUCKET CYLINDERS - XT MODELS



BUCKET CYLINDER - Z-BAR and XR MODELS



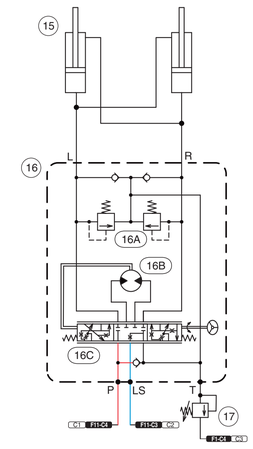
LIFT CYLINDERS



FRAME 5

BC07G260-5A

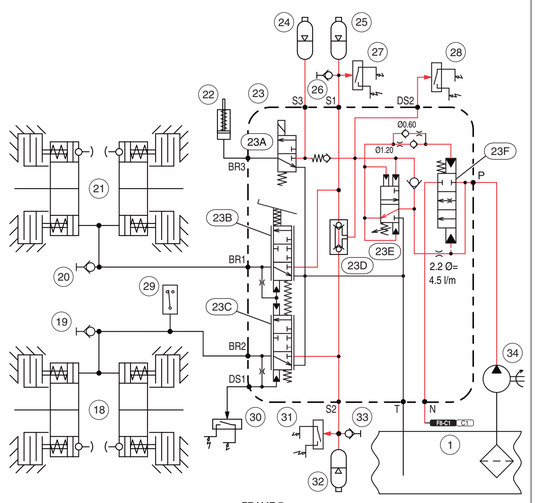
STEERING



FRAME 6

BC07G260-6A

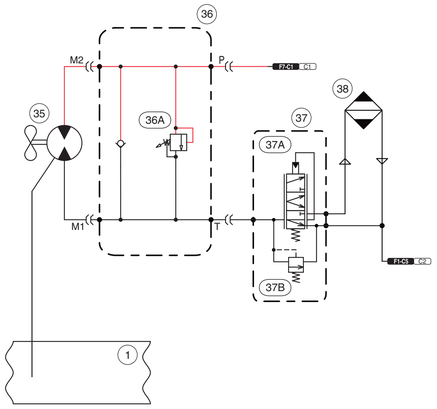
BRAKES



FRAME 7

BC07G260-07A

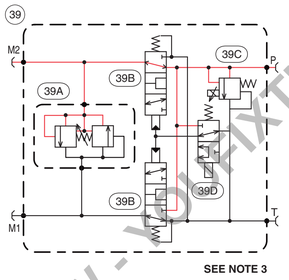
HYDRAULIC OIL COOLER AND FAN DRIVE MOTOR



FRAME 8

BC07G260-08A

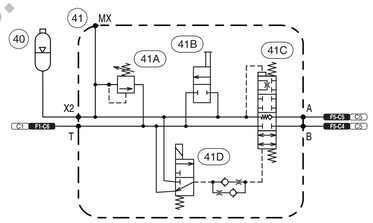
FAN REVERSING VALVE (OPTIONAL)



FRAME 9

BC07G260-9A

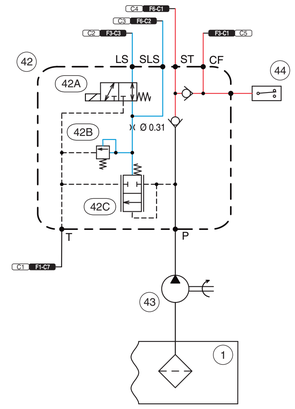
RIDE CONTROL (OPTIONAL)



FRAME 10

BC07G260-10A

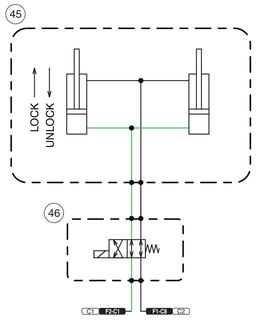
AUXILIARY STEERING (OPTIONAL)



FRAME 11

BC07G260-11A

COUPLER LOCKING CYLINDERS AND VALVE (OPTIONAL)



FRAME 12

BC07G260-12A

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COMPONENTS

FRAME 1 COMPONENTS

1 - 1. Hydraulic Reservoir
1 - 2. Breather - Hydraulic Reservoir
Check Valve (0.03 Bar/0.43 PSI)
Relief Valve (0.35 Bar/5.07 PSI)
1 - 3. Implement Hydraulic Pump
Displacement (90 cc rev/5.5 cu in rev)
Cutoff (280 Bar/4061 psi)
Delta (24 Bar/348 psi)
1 - 3A. Compensator Differential Spool
1 - 3B. Compensator High Pressure Cutoff Spool
1 - 3C. Control Piston with Spring
1 - 4. Hydraulic Filter Assembly
Bypass (3.4 Bar/50 psi)
Warning Switch (2.7 Bar/40psi)

FRAME 2 COMPONENTS

2 - 1. Hydraulic Reservoir
2 - 5. Pilot Pressure Accumulator
Pre-charge (13.8 Bar /200 psi)
Capacity (0.75 liter/45.8 cu in)
2 - 6. Pilot Pressure Test Port
2 - 7. Controller (4-Spool Valve)
2 - 7A. Pilot ON/OFF Solenoid
2 - 7B. Bucket Control
2 - 7C. Lift Control
2 - 7D. Auxiliary Control #1
2 - 7E. Auxiliary Control #2

FRAME 3 COMPONENTS

3 - 8. Equipment Valve: 2-spool
3 - 8A. Steering Pressure Relief
(217 Bar/3147 psi)
3 - 8B. Pilot Pressure Reducing Valve
(30 Bar/435 psi)
3 - 8C. Pilot Pressure Relief
(45 Bar/653 psi)
3 - 8D. Steering Priority Spool
3 - 8E. Loader Main Relief
(227 Bar/3292 psi)
3 - 8F. Load Sense Bleed Down Orifice
(0.7 L/min)
3 - 8G. Flow Compensator Spool
3 - 8H. Regeneration Check Valve
3 - 8J. Circuit Relief Valve with Anti-Cavitation
(290 Bar/4206 psi)
3 - 8K. Circuit Relief Valve with Anti-Cavitation
(XT Models: 183 Bar/2654 psi)
(Z-Bar Models: 290 Bar/4206 psi)
3 - 8L. Regeneration Relief Valve
(6.7 Bar/97 psi)
3 - 8M. Shuttle Check Valve
3 - 9. Load Sense Pressure Test Port
3 - 10. Steering Pressure Test Port

FRAME 4 COMPONENTS

3 - 8G. Flow Compensator Spool
3 - 8J. Circuit Relief Valve with Anti-Cavitation
(290 Bar/4206 psi)
4 - 8M. Shuttle Check Valve
4 - 8N. Auxiliary Valve #1
4 - 8P. Auxiliary Valve #2
4 - 8R. Pressure Differential Valve
(40 Bar/580 psi)
4 - 8S. End Cover
4 - 11. Pump Pressure Test Port

FRAME 5 COMPONENTS

5 - 12. Bucket Cylinders
Bore: 114 mm (4.49 in)
Rod: 63.5 mm (2.5 in)
Stroke: 820 mm (32.28 in)
5 - 13. Bucket Cylinder
Bore: 127 mm (5 in)
Rod: 76.2 mm (3 in)
Stroke: 619.7 mm (24.5 in)
5 - 14. Lift Cylinders
Bore: 120.9 mm (4.9 in)
Rod: 63.5 mm (2.5 in)
Stroke: 787.7 mm (31 in)

FRAME 6 COMPONENTS

6 - 15. Steering Cylinders
Bore: 76.2 mm (3 in)
Rod: 44.5 mm (1.75 in)
Stroke: 486.9 mm (19 in)
6 - 16. Steering Control Valve
Displacement:
983 cc/rev (60 cu in/rev)
6 - 16A. Circuit Relief Valve
(290 Bar/4206 psi)
6 - 16B. Gerotor Pump
6 - 16C. Steering Spool
6 - 17. Back Pressure Valve
(8-10 Bar/115-145 psi)

FRAME 7 COMPONENTS

7 - 1. Hydraulic Reservoir
7 - 18 Rear Brakes
Modulation Pressure:
(87 to 94 Bar/1262 to 1363 psi)
7 - 19. Rear Brake Pressure Test Port
7 - 20. Front Brake Pressure Test Port
7 - 21. Front Brake
Modulation Pressure:
(90 to 97 Bar/1350 to 1406 psi)
7 - 22. Parking Brake Cylinder
7 - 23. Brake Valve and Accumulator Charging Valve
Cut-in Pressure:
(157 to 167 Bar/2277 to 2422 psi)
Cut-out Pressure:
(190 to 196 Bar/2755 to 2843 psi)
7 - 23A. Park Brake Solenoid
7 - 23B. Front Brake Valve
7 - 23C. Rear Brake Valve
7 - 23D. Accumulator Isolation Check Valve
7 - 23E. Accumulator Charging Spool
7 - 23F. Priority Spool
7 - 24. Parking Brake Accumulator
Pre-charge (96 Bar/1392 psi)
Capacity: 0.16 liter/9.7 cu/in)
7 - 25. Front Axle Accumulator
Pre-charge (55 Bar (800 psi)
Capacity (2.8 liter/170.8 cu/in)
7 - 26. Front Accumulator Test Port
7 - 27. Redundant Brake Pressure Switch
(NO, Closes at 62 Bar/900 psi)
7 - 28. Low Brake Pressure Switch
Rising (128 Bar/1856 psi)
Falling (103 Bar/1494 psi)
7 - 29. Brake Declutch Switch
(NC, Opens at 24 Bar/350 psi)
7 - 30. Brake Lamp Switch
(NO, Closes at 4.1 Bar/60 psi)
7 - 31. Redundant Brake Pressure Switch
(NO, Closes at 62 Bar/900 psi)
7 - 32. Rear Axle Accumulator
Pre-charge (55 Bar/800 psi)
Capacity (2.8 liter/170.8 cu/in)
7 - 33. Rear Accumulator Test Port
7 - 34. Brake and Cooling Fan Pump
23cc/rev (0.77 cu/in)

FRAME 8 COMPONENTS

8 - 1. Hydraulic Reservoir
8 - 35. Fan Drive Motor
Displacement: 23 cc/rev (1.4 cu/in)
8 - 36. Fan Valve
Fan Speed: 1200 ± 25 rpm
8 - 36A. Fan Relief
(162 Bar/2350 psi)
8 - 37. Cooler Bypass Valve (Optional)
8 - 37A. Priority Valve
8 - 37B Relief Valve
0.3 ± 0.6 Bar/ 5 ± 8 psi
8 - 38. Hydraulic Cooler

FRAME 9 COMPONENTS

9 - 39. Fan Reversing Valve
Fan Speed: 1200 ± 25 rpm
9 - 39A. Fan Crossover Relief
(234 BAR/3394 psi)
9 - 39B. Reversing Spools
9 - 39C. Pulse Width Modulator (PWM) Relief Solenoid
9 - 39D. ON/OFF Reverse Solenoid

FRAME 10 COMPONENTS

10 - 40. Ride Control Accumulator
Pre-charge (17 Bar/247 psi)
Capacity (3.78 liter/231 cu/in)
10 - 41. Ride Control Valve
10 - 41A. Pressure Relief Valve
(280 BAR/4061 psi)
10 - 41B. Manual Bleed Valve
10 - 41C. Ride Control Spool Valve
10 - 41D. Ride Control Solenoid

FRAME 11 COMPONENTS

11 - 1. Hydraulic Reservoir
11 - 42. Auxiliary Steering Priority Valve
Relief Pressure: (241 Bar/3495 psi)
11 - 42A. Auxiliary Steering Activation Solenoid
11 - 42B. Relief Valve (241 BAR/3495 psi)
11 - 42C. Priority Spool
11 - 43. Auxiliary Steering Pump
Displacement:
11 cc/rev (0.671 cu/in)
11 - 44. Auxiliary Steering Pressure Switch
NO (Normally Open)
Closes at 2.00-2.75 Bar/30-40 psi

FRAME 11 COMPONENTS

12 - 45. Coupler Locking Cylinders
12 - 46. Coupler Locking Valve

HYDRAULIC SYMBOLS

54 — COMPONENT NUMBER
36D — COMPONENT NUMBER
SHOWS CIRCUIT CROSSING NOT CONNECTED
SHOWS CIRCUIT CONNECTED
CHECK VALVE
RESTRICTOR
FILTER OR SCREEN
OIL COOLER
DIRECTION OF FLOW
CIRCUIT
COMPONENT
PRESSURE
LOAD SENSE
PILOT PRESSURE
LINE TYPES

CIRCUIT CONTINUATION

Frame Number and Circuit Number where Circuit continues.
CIRCUIT TAGS
FRAME - CIRCUIT
CIRCUIT
Circuit Number assigned to Circuit in Frame.

NOTES

NOTE 1. Reverse Control Check Valve.
Used with Ride Control equipped Models ONLY.
NOTE 2. Used for XT Model Machines ONLY.
NOTE 3. This will replace Item 36 in Frame 8 when this Option is installed on machine.
NOTE 4. See the Repair Manual for the proper Testing and Adjustment for Hydraulic Components.

HYDRAULIC SCHEMATIC
621E WHEEL LOADER

Additional copies of this Hydraulic and Electrical Schematic can be ordered through Technical Publications Distribution System.
The part number is 5-7560

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BC07G260-00A

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Symbols

12 Volt Radio 112

A

A/C High/Low Pressure Switch 115
Air Filter Restriction Switch 67
Air Seat Compressor and Switch 114
Alarm
Back-up (Europe Only) 96
Back-up (North America Only) 96
Back-up, Disable Switch 76
Back-up, Relay 76
Alternator 40

B

Back-up Alarm (Europe Only) 96
Back-up Alarm (North America Only) 96
Back-up Alarm Disable Switch 76
Back-up Alarm Relay 76
Batteries 41
Beacon Switch 79
Beacon, Rotating (Option) 78
Brake Lamp Pressure Switch 83
Brake Lamps Relay 83
Brake Warning Pressure Switch 68
Buzzer 66

C

CAN Communication Diagnostics Connector 109
Cigar Lighter 114
Circuit Breaker Cab B+ 47
Climate Control, Standard
Air Conditioning Switch 119
Air Recirculation Motor 117
Air Recirculation Switch 120
Blower Motor 118
Blower Motor Speed Resistors with Thermal Fuse 118
Blower Switch 119
Control Panel Lights 119
Driver 117
Electronic Water Valve 118
Thermostat 119
Water Valve Potentiometer 120
Cluster, Instrument Connector 1 65
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Compressor Clutch 115
Compressor Clutch Relay 114
Compressor, Seat 114
Connector 108F 124
Connector 140M 124
Connector 197F 124
Connector 197M 124
Connector 202M 125
Connector 209F 125
Connector 209M 125
Connector 20M 125
Connector 215F 125
Connector 216F 125
Connector 64F 126
Connector 64M 126
Connector 69 157
Connector ACT 126
Connector AIC1 126
Connector AIC2 127
Connector BUZ 127
Connector CAB_E 128
Connector CAB_F 129
Connector CAB_RF 129
Connector CAB_T 130
Connector CAN 130
Connector CAN2 130
Connector CL 131
Connector CLS 131
Connector CNV 131
Connector D_OR 131
Connector DIA 131
Connector DISC 131
Connector DM 132
Connector DNS-AC-SWITCH 132
Connector DNS-ACTUATOR 132
Connector DNS-CTRL-PANEL-LIGHT 132
Connector DNS-DRIVER 133
Connector DNS-ELECTRIC-FAN 132
Connector DNS-ELECT-WATER-VALVE-S 133
Connector DNS-HVAC1-S 133
Connector DNS-HVAC2-S 133
Connector DNS-RECIRCULATING-SWITCH 132
Connector DNS-RESISTOR 133
Connector DNS-SPEED-SELECTOR 132
Connector DNS-THERMOSTAT-1 132
Connector DNS-THERMOSTAT-2 132
Connector DNS-WATER-VALVE-POT 132
Connector DS 134
Connector E_HD 134
Connector ECA 135
Connector ECB 136
Connector ECC 137
Connector ECD 138
Connector EDC7 139
Connector EM 139
Connector ENG 140
Connector ENG_D 140
Connector ENG_H 141
Connector ENG_T 141
Connector ESS 141
Connector FFH 141
Connector FLSHR 142
Connector FM 142
Connector FRONT 142
Connector FWM 143
Connector FWMG 143
Connector FWW 143
Connector GHC 143

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621E Wheel Loader
Service Manual 84243974
(Replaces 87634756)

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84243975

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86 – Right Hand Front Work Lamp

Located on right front side of cab.

Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: *Disconnect wiring harness connector LRFW from RH front work lamp connector.*		
Flood lamp connector pin A to pin B	Continuity	Bad lamp bulb.
NOTE: *Connect wiring harness connector LRFW to RH front work lamp connector.*		
Terminal for wire 0-MJ to ground	Continuity	Bad ground circuit.
NOTE: *Put master disconnect switch in ON position. Put driving lamp switch (95) in position 3.*		
Terminal for wire 42C-G to ground	24 volts	Check fuse ECB-F1 and driving lamp switch (95). Also check circuit 42C from flood lamp to lamp switch (95) and wire 42-A to fuse ECC-F2.

87 – Left Hand Rear Work Lamp

Located on left rear side of cab.

Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: *Disconnect wiring harness connector LLRW from LH rear work lamp connector.*		
Flood lamp connector pin A to pin B	Continuity	Bad lamp bulb.
NOTE: *Connect wiring harness connector LLRW to LH rear work lamp connector.*		
Terminal for wire 0-ME to ground	Continuity	Bad ground circuit.
NOTE: *Put master disconnect switch in ON position. Put driving lamp switch (95) in position 4 or 5.*		
Terminal for wire 42R-H to ground	24 volts	Check fuse ECB-F2 and driving lamp switch (95). Also check circuit 42R from flood lamp to lamp switch (95) and wire 42-B to fuse ECC-F2.

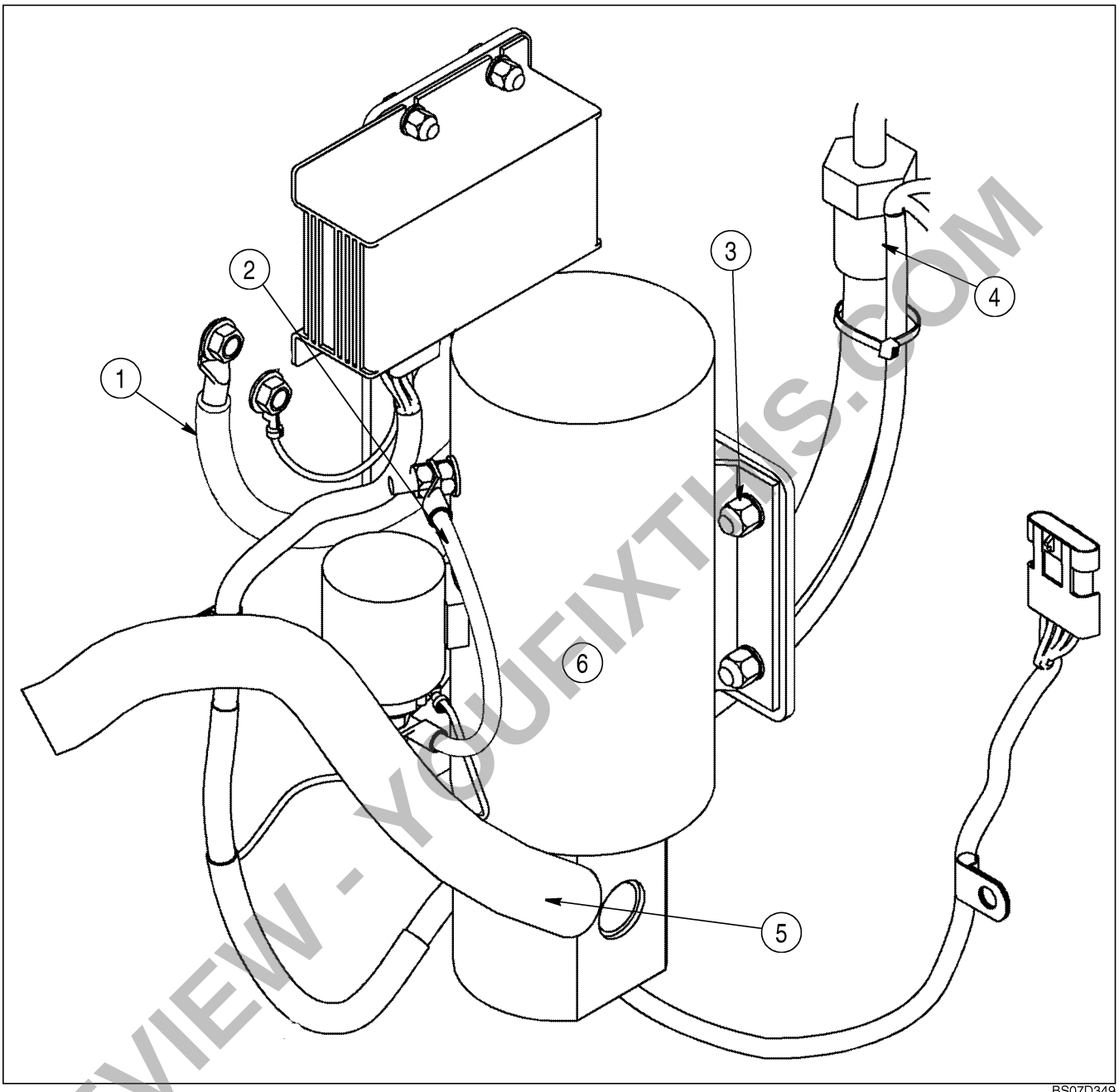
88 – Right Hand Rear Work Lamp

Located on right rear side of cab.

Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: *Disconnect wiring harness connector LRRW from RH rear work lamp connector.*		
Flood lamp connector pin A to pin B	Continuity	Bad lamp bulb.
NOTE: *Connect wiring harness connector LRRW to RH rear work lamp connector.*		
Terminal for wire 0-MF to ground	Continuity	Bad ground circuit.
NOTE: *Put master disconnect switch in ON position. Put driving lamp switch (95) in position 3.*		
Terminal for wire 42R-G to ground	24 volts	Check fuse ECB-F2 and driving lamp switch (95). Also check circuit 42R from flood lamp to lamp switch (95) and wire 42-B to fuse ECC-F2.

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BS07D349

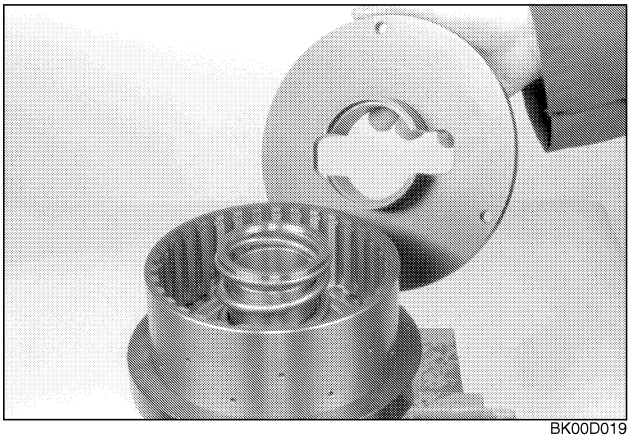
1. GROUND CABLE
2. POSITIVE CABLE
3. NUT (4)
4. PRESSURE HOSE
5. SUCTION HOSE
6. AUXILIARY STEERING PUMP AND MOTOR

AUXILIARY STEERING PUMP AND MOTOR ILLUSTRATION

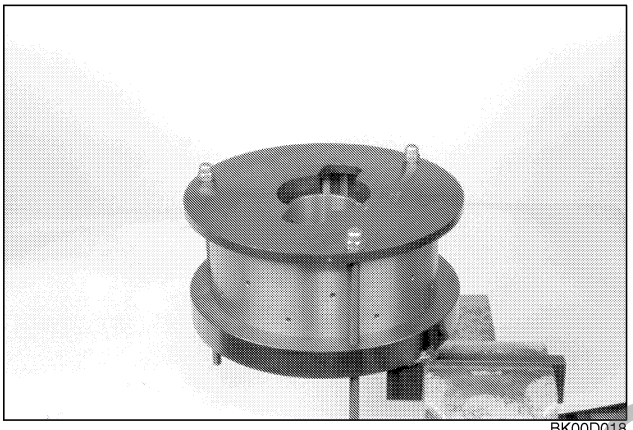
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STEP 99



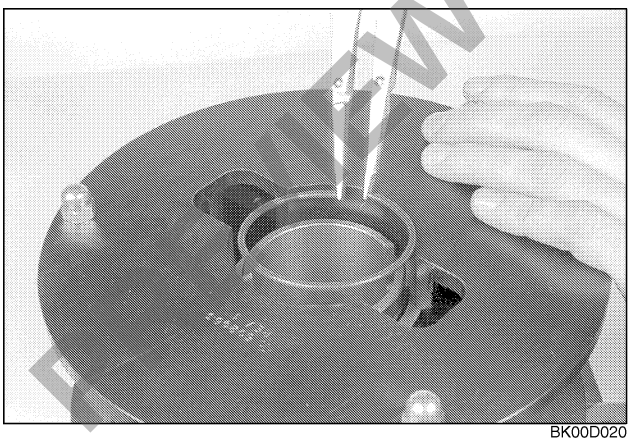
BK00D019



BK00D018

Install compression spring and two spring cups in clutch disc carrier. Preload compression spring using CAS2799 clutch pack holder and spring compressor tool.

STEP 100

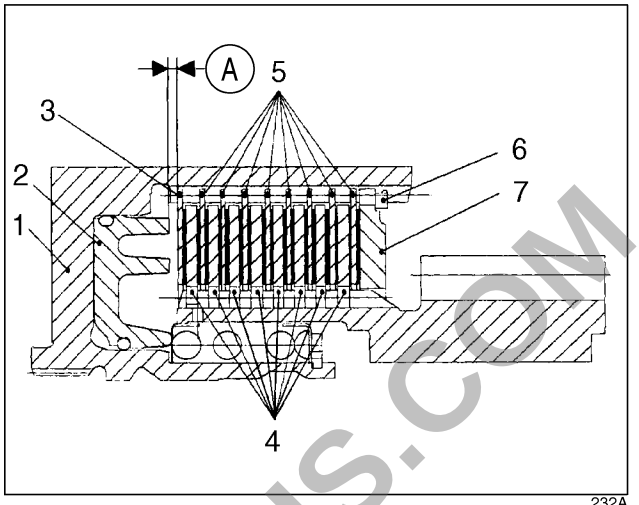


BK00D020

Install the snap ring.

NOTE: *The following steps are for K1, K2 and K3 clutches. The assembly of clutches K1, K2, and K3 is identical except for running clearance dimensions.*

STEP 101



232A

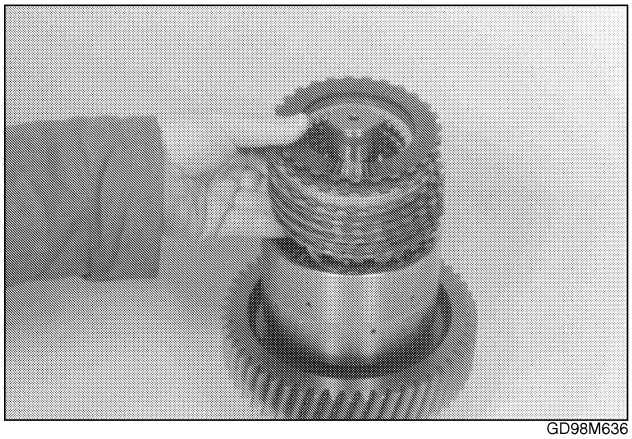
1. PLATE CARRIER
2. PISTON
3. OUTER PLATE - ONE-SIDED COATED
4. INNER PLATES
5. OUTER PLATES - COATED ON BOTH SIDES
6. SNAP RING
7. END SHIM

A. CLUTCH K1 RUNNING CLEARANCE 2.4 TO 2.6 MM (0.094 TO 0.102 IN); CLUTCHES K2 AND K3 RUNNING CLEARANCE 1.8 TO 2.0 MM (0.071 TO 0.079 IN)

Install clutch disc plates in K1, K2, and K3 clutch disc carriers in position and sequence shown above. Install outer plate (3) with steel faced side facing piston.

NOTE: *Snap rings of different thickness are available for adjustment of the running clearance. To ensure correct adjustment, do not apply oil to clutch discs until after adjustment is completed.*

STEP 102



GD98M636

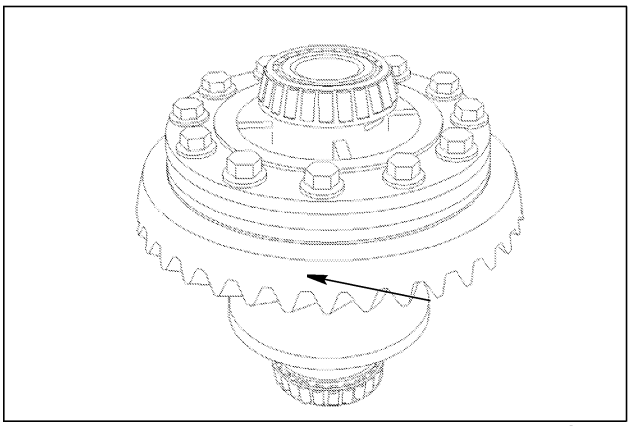
Install the clutch disc pack.

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Setting Backlash and Bearing Preload

Deviation Value	-20	-10	0	+10	+20
Shim A	1.20	1.10	1.00	0.90	0.80
Shim B	0.80	0.90	1.00	1.10	1.20

STEP 214

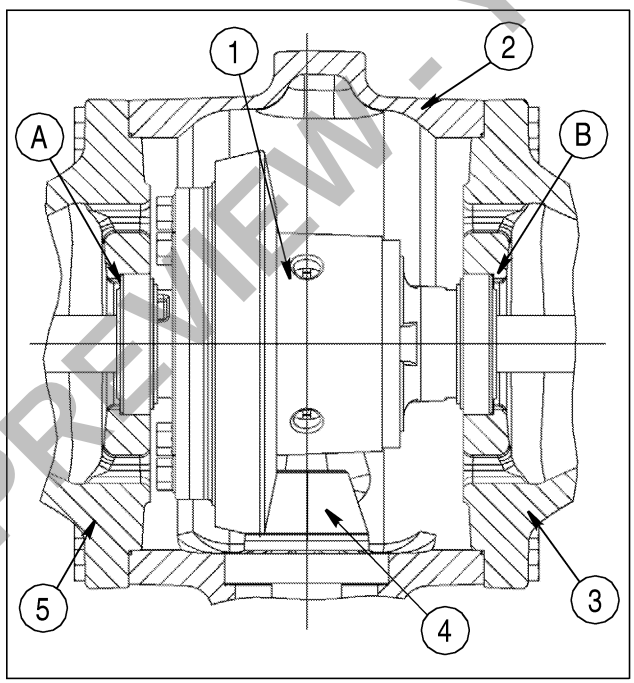


BD06G163-01

Record the deviation value from side of ring gear, the value will be a + or -, use the table to determine shim thicknesses needed.

Example: Deviation value of +10 requires the following shims:
Shim A = 0.90
Shim B = 1.10

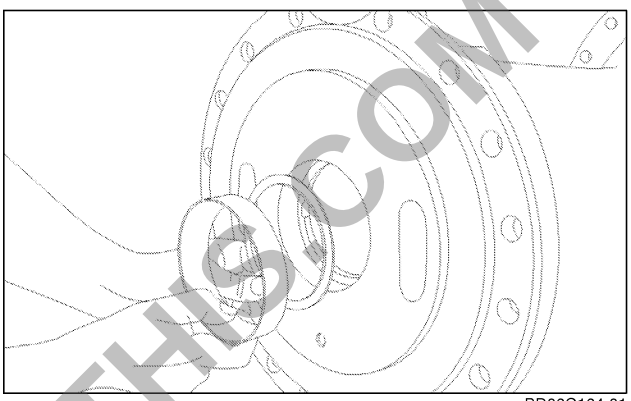
STEP 215



BC06G004

1. DIFFERENTIAL
2. DRIVE HOUSING
3. AXLE HOUSING
4. INPUT PINION
5. AXLE HOUSING
A. RING GEAR SIDE
B. CARRIER SIDE

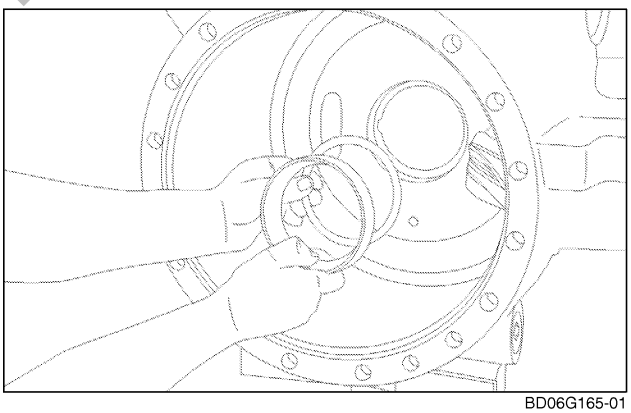
STEP 216



BD06G164-01

Insert shim A (0.90 mm) and install the bearing cup using a suitable driver until seated in axle housing.

STEP 217



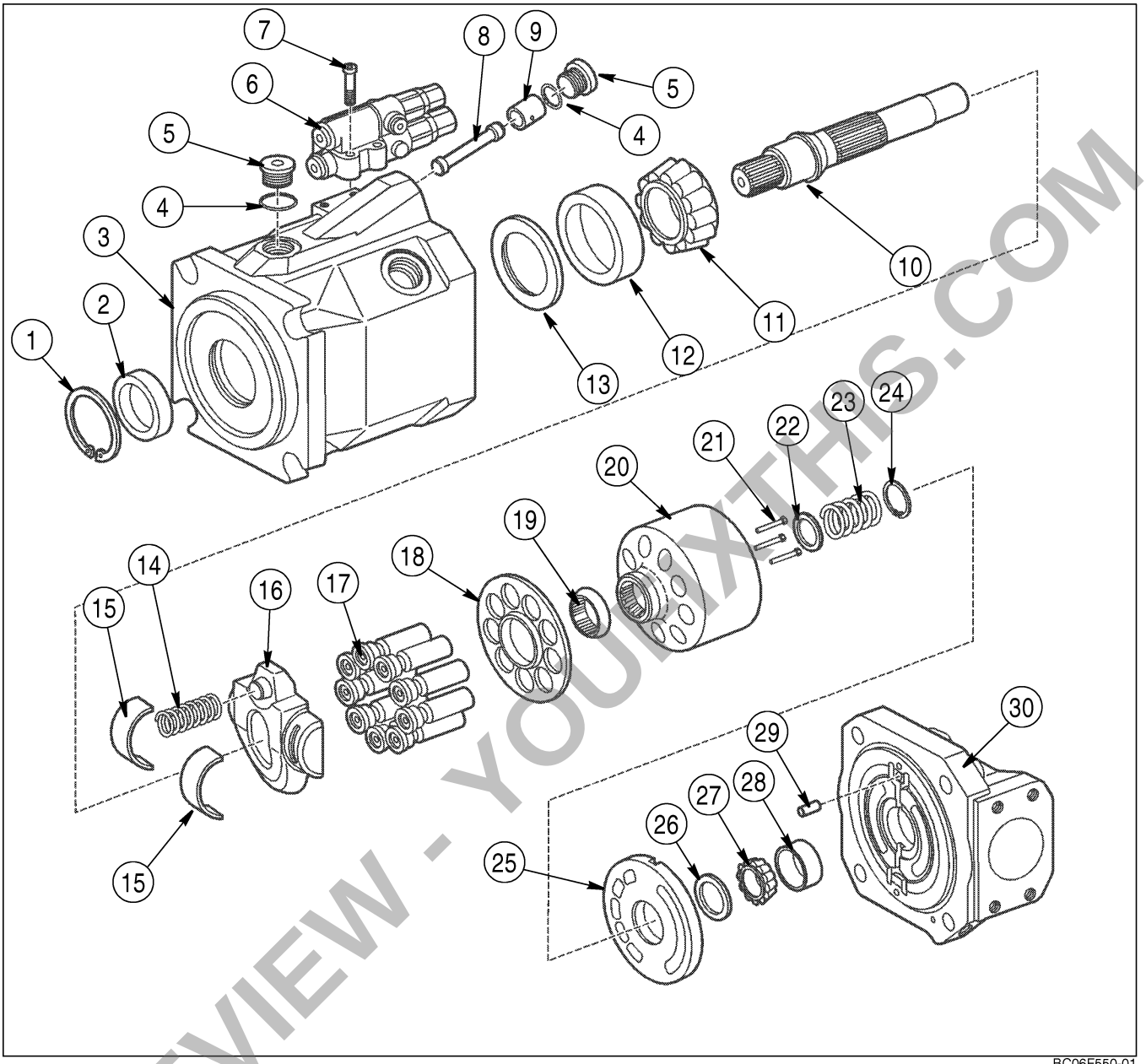
BD06G165-01

Insert shim B (1.10 mm) and install the bearing cup using a suitable driver until seated in axle housing.

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EQUIPMENT PUMP



BC06F550-01

1. SNAP RING
2. SEAL
3. MAIN BODY
4. O-RING
5. PLUG
6. CONTROL VALVE
7. CAP SCREW
8. PISTON ROD
9. CONTROL PISTON
10. SHAFT
11. TAPERED BEARING
12. BEARING RACE
13. SHIM
14. SPRING
15. HALF BEARING
16. SWASH PLATE
17. PISTONS
18. RETAINING PLATE
19. BALL
20. CYLINDER
21. PRESSURE PINS
22. BACKUP PLATE
23. SPRING
24. SNAP RING
25. PORT PLATE
26. SHIM
27. TAPERED BEARING
28. BEARING RACE
29. DOWEL PIN
30. END COVER

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