CONTENTS

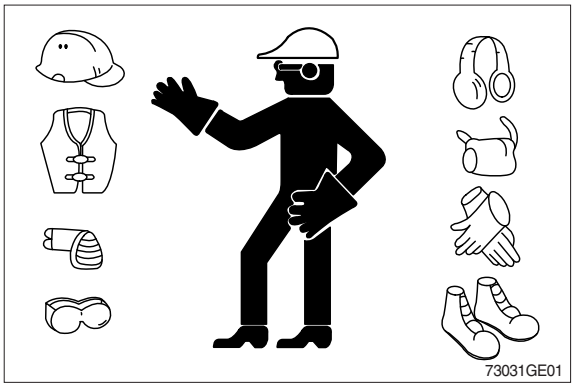
GROUP 1 SAFETY HINTS

FOLLOW SAFE PROCEDURE

Unsafe work practices are dangerous. Understand service procedure before doing work; Do not attempt shortcuts.

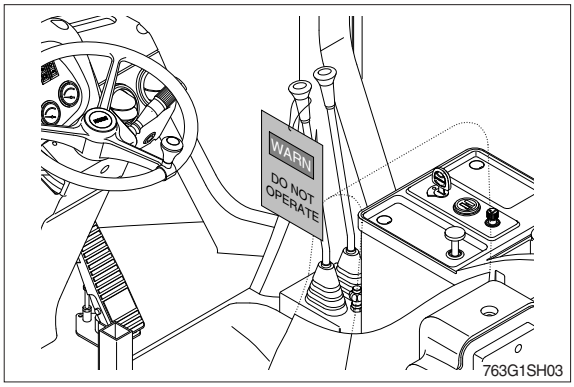
WEAR PROTECTIVE CLOTHING

Wear close fitting clothing and safety equipment appropriate to the job.



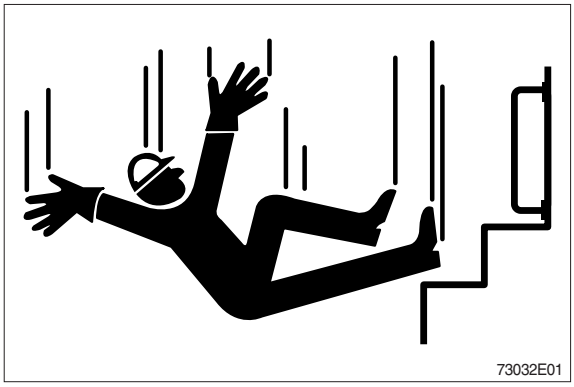
WARN OTHERS OF SERVICE WORK

Unexpected machine movement can cause serious injury.
Before performing any work on the wheel loader, attach a 「**Do Not Operate**」 tag on the right side controller lever.



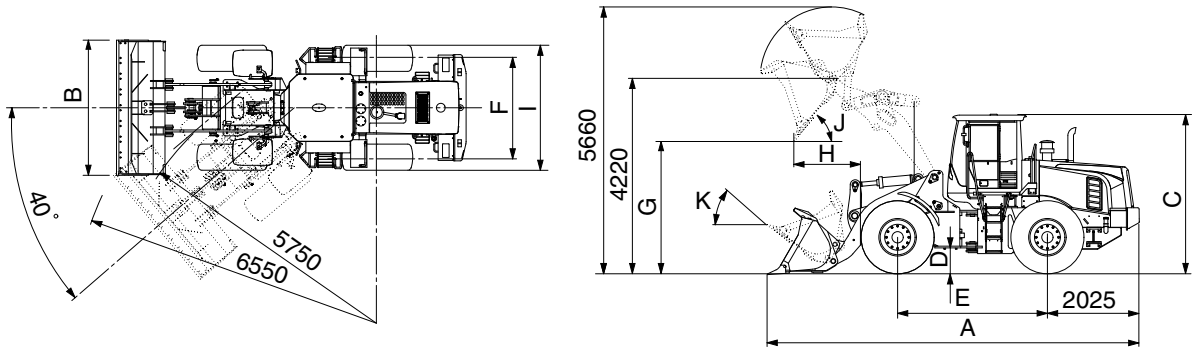
USE HANDHOLDS AND STEPS

Falling is one of the major causes of personal injury.
When you get on and off the machine, always maintain a three point contact with the steps and handrails and face the machine. Do not use any controls as handholds.
Never jump on or off the machine. Never mount or dismount a moving machine.
Be careful of slippery conditions on platforms, steps, and handrails when leaving the machine.



2. SPECIFICATIONS

1) WITH BOLT-ON CUTTING EDGE TYPE BUCKET



763G2SE03

Description			Unit	Specification
Operating weight			kg (lb)	16800 (37040)
Bucket capacity		Struck	m^3 (yd^3)	2.7 (3.5)
		Heaped		3.1 (4.1)
Overall length		A	mm (ft-in)	8150 (26' 9")
Overall width		B		2900 (9' 6")
Overall height		C		3480 (11' 5")
Ground clearance		D		430 (1' 5")
Wheelbase		E		3300 (10' 10")
Tread		F		2200 (7' 3")
Dump clearance at 45˚		G		3135 (10' 3")
Dump reach (full lift)		H		1025 (3' 4")
Width over tires		I		2770 (9' 1")
Dump angle		J	degree (˚)	45
Roll back angle (carry position)		K		47
Cycle time		Lift (with load)	sec	5.2
		Dump (with load)		0.8
		Lower (empty)		3.7
Maximum travel speed			km/hr (mph)	40.0 (24.9)
Braking distance			m (ft-in)	12.5 (41' 0")
Minimum turning radius (center of outside tire)				5.75 (18' 10")
Gradeability			degree (˚)	30
Travel speed	Forward	First gear	km/hr (mph)	10.9 (6.8)
		Second gear		40.0 (24.9)
	Reverse	First gear		14.9 (9.3)

4. Brake system and clutch cut off checks

- Park brake capacity check ☐ ☐ _____
- Park brake transmission lockout check ☐ ☐ _____
- Service brake capacity check ☐ ☐ _____
- Brake system leakage check ☐ ☐ _____
- Service brake pedal check ☐ ☐ _____
- Service and park brake system drag check ☐ ☐ _____
- Clutch cut off check ☐ ☐ _____

5. Driving checks

- Transmission noise check ☐ ☐ _____
- 1st and 2nd speed clutch pack drag check ☐ ☐ _____
- Transmission pressure, pump flow and leakage check ☐ ☐ _____
- Torque converter check ☐ ☐ _____
- Engine power check ☐ ☐ _____

6. Hydraulic system checks

- Hydraulic system warm up procedure ☐ ☐ _____
- Hydraulic pump performance check ☐ ☐ _____
- Control lever boom float check ☐ ☐ _____
- Bucket rollback circuit relief valve check ☐ ☐ _____
- Bucket dump circuit relief
  - Low pressure check ☐ ☐ _____
  - High pressure check ☐ ☐ _____
- Boom and bucket cylinder drift check ☐ ☐ _____

7. Steering system checks

- Steering unit check ☐ ☐ _____
- Steering system leakage check ☐ ☐ _____

(4) The oil temperature should be lower than 120˚C. When it exceeds, keep the engine speed within 1200~1500 rpm and make the transmission at neutral, then the oil temperature should decrease to a normal value in 2~3 min. If not, it shows there are problems in the system, which must be resolved before operation.

(5) Reduce machine speed before transmission changing down. And stop before reversing.

(6) The shifting lever should be at neutral position when starting the engine.

(7) Stop when control by using the axle releasing device.

After installation of a new T/M, keep running in for twelve hours under a load less than 70%, four hours for each of three gears. Check the oil temperature, oil pressure and the tightness of bolts. After running in, clean the sump strainer of transmission and then renew oil.

3) MAINTENANCE

Maintenance is carried out after running for 50, 250, 1000 and 2000 hours.

(1) 50 hours maintenance : ① check oil level ② Inspect the control system.

(2) 250 hours maintenance : Clean filter and clean sump.

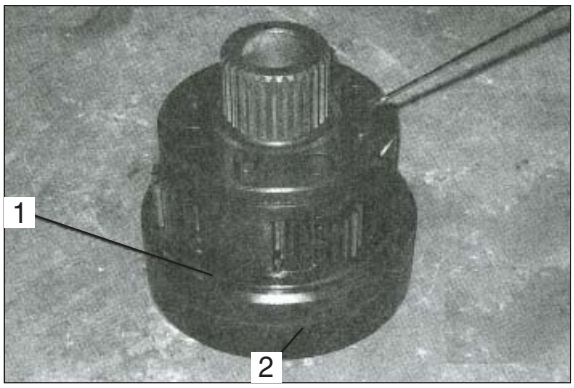
(3) 500 hours maintenance : Change oil.

(4) 1000 hours maintenance : Replace filter.

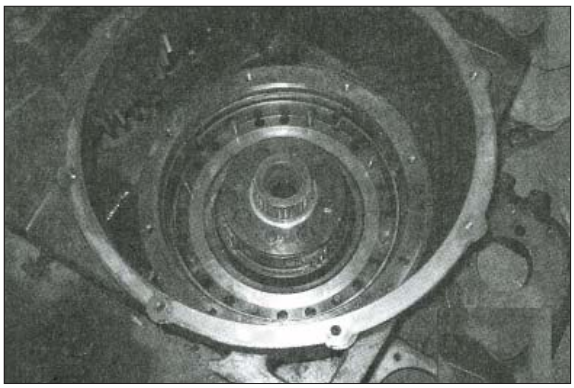
(5) 2000 hours maintenance : Dismantle and inspect the transmission and the torque converter, replace easily-worn parts, regulate or replace parts when necessary.

(5) Assemble gear I planet gear carrier assy.

1 Pinion carrier
2 Reverse ring gear

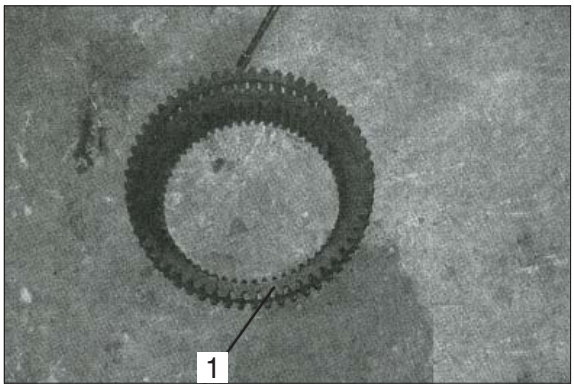


850KTM33


850KTM34

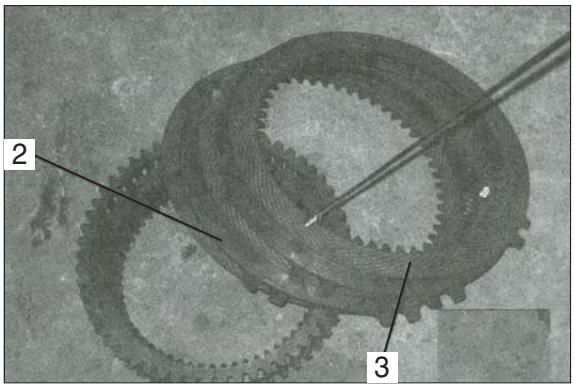
(6) Assemble gear I ring gear and 4 sets of driving disc and driven disc.

1 Gear I ring gear



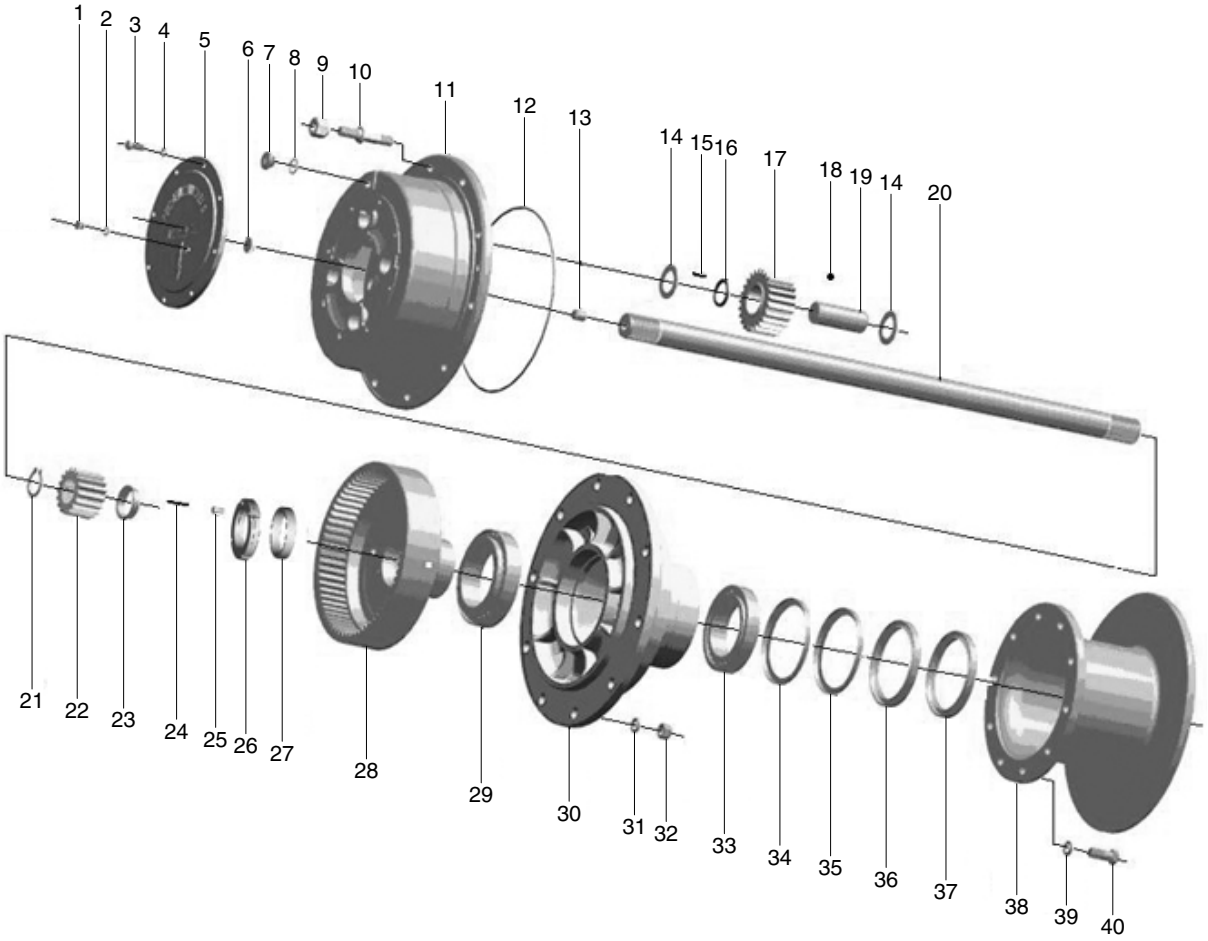
850KTM35

2 Driven disc
3 Driving disc



850KTM36

(2) Planetary reductor

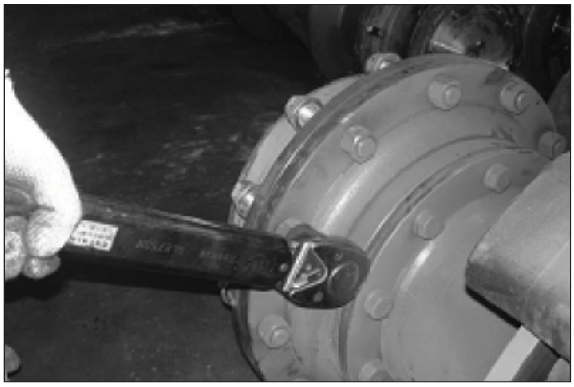


7612PT12

1	Plug	15	Roller needle	29	Bearing
2	Washer	16	Space bushing	30	Rim
3	Bolt	17	Planetary gear	31	Washer
4	Washer	18	Steel ball	32	Nut
5	Cover	19	Planetary gear shaft	33	Bearing
6	Snap ring	20	Shaft	34	Washer
7	Plug	21	Snap ring	35	Snap ring
8	Seal	22	Sun gear	36	Oil seal
9	Nut	23	Spacer	37	Oil seal
10	Bolt	24	Iron wire	38	Brake disk
11	Planetary gear carrier	25	Fastening bolt	39	Washer
12	Seal ring	26	Slot nut	40	Bolt
13	Adjusting pin	27	Set		
14	Washer	28	Internal gear assy		

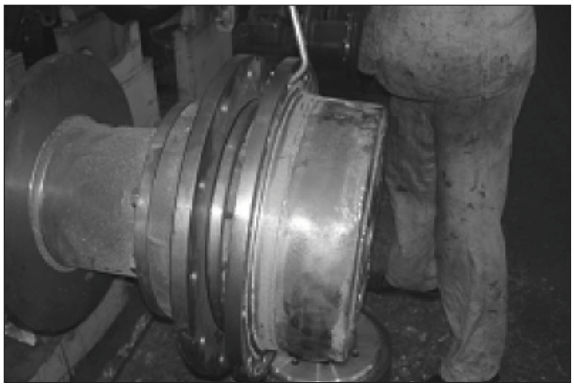
9) DISASSEMBLY AND INSPECTION OF PLANETARY REDUCTOR

(1) Remove the bolts for rim.



850KAX30

(2) Push the planetary carrier off with bolt through the thread hole (There are two thread holes on a planetary carrier) and O-ring on the hub.



850KAX31

(3) Remove the inner hexagon nut and lock washer on final drive axle.

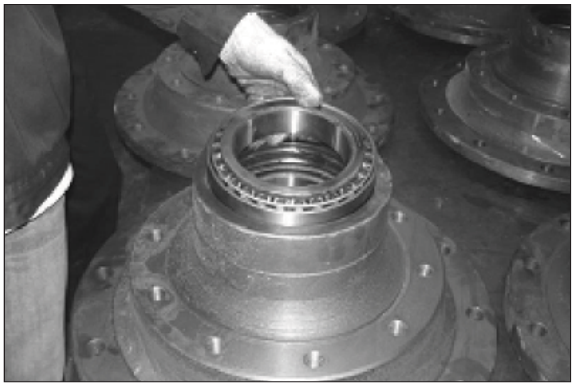
850KAX32

(4) Remove the taper bushing (Use a copper bar to shock out).

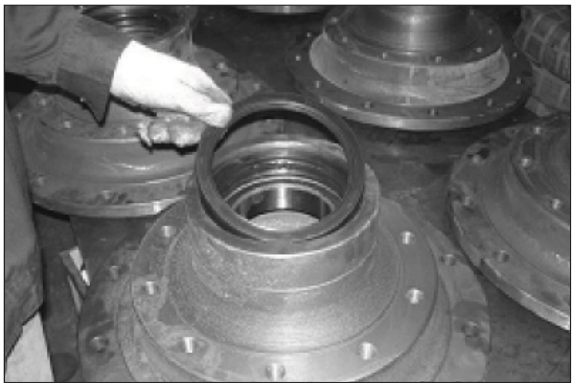
850KAX33

5) REASSEMBLY OF HUB ASSEMBLY

(1) Place the hub on a table with its small side upward, apply a right amount of grease on the inner surface of the bore of hub and then push a bearing outer ring into small side, put up the inner race, and push the oil seal spacing bush into the bore. Use a specialized tool to push oil seal B150×180×15 and FB150×180×15 into the bore of hub in order.



850KAX65

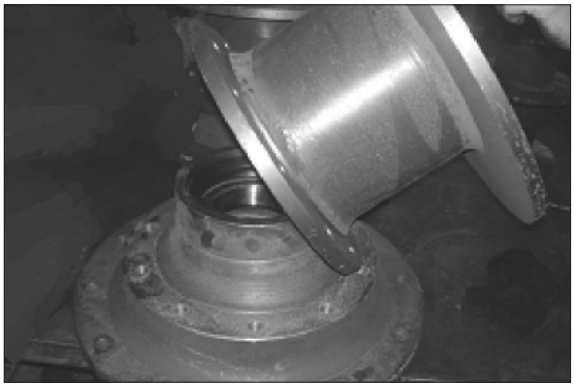


850KAX66

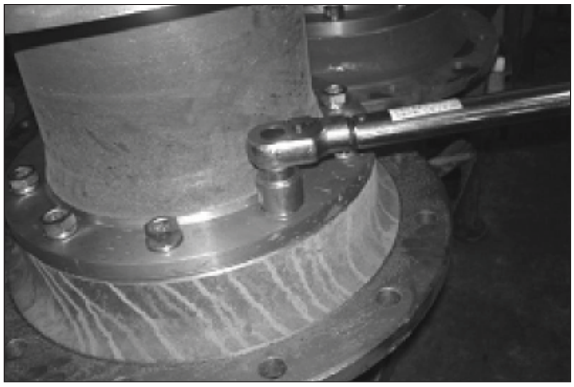
(2) Assemble the brake disc and fasten with brake disc bolts M20×1.5 and grower washer with a torque at 51~60 kgf · m (369~434 lbf · ft).

(3) Turn over the hub with brake disc assembled with its large side upward, apply a right amount of grease on the inner surface of the bore on the large side of hub, and push the outer ring of bearing 32026 in.

(4) Fit the O-ring onto the rabbet of ∅384 hub.



850KAX67



850KAX68

GROUP 3 COMPONENTS SPECIFICATION AND FUNCTION

1. BRAKE VALVE

1) USE AND STRUCTURE

As a main device of foot brake, this unit adopts high technology and can be applied to single circuit braking system of machines.

2) WORKING PRINCIPLE

When the brake pedal (2) is pressed, the rod (3) presses the equalizing spring (4) to produce a pressure, which then pushes the piston (6) to move down to make intake valve (7) to open allowing compressed air to flow from inlet to outlet port. When brake pedal (2) is released, return spring (5) pushes the piston (6) to move up to make intake valve to return to original position to close air flow between inlet and outlet. Remaining pressure at outlet is vented through exhaust port.

3) TECHNICAL DATA

(1) Operating air pressure : 784 kPa
(2) Working temperature : -30 ~ +80˚C
(3) Working medium : air

4) MOUNTING AND CONNECTION SIZE

(1) Connection screw : M22×1.5 (3EA)
(2) Mounting : 4-ϕ9
(3) Dimensions : 136×136×335

5) CORRECT USE AND MAINTENANCE

(1) Notes in using

① Before mounting, remove the plugs for inlet and outlet, and be sure to have the pedal and valve body are securely assembled. Valve clearance should be adjusted properly with adjusting screw (pressure of surplus for the roller to press the rod should be less than 0.5 ㎜) and fasten up the nut.
② Insert M8 bolts through 4-ϕ9 holes to make secure assembly.
③ When connecting with piping, distinguish inlet port from outlet. Marking “1” means, inlet, “2” means outlet and “3” exhaust port.

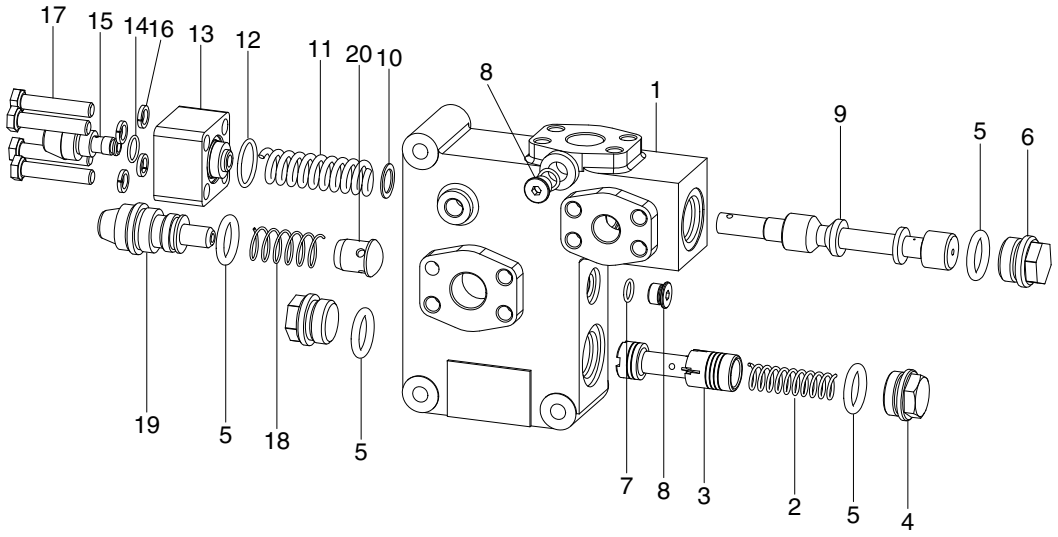
(2) Notes in Maintenance

① There should be water draining and filtering devices in air circuit to secure a clean air source. Anti-rust process is required for the brake tubes and air cylinder.
② A space should be secured for freely moving of the pedal.
③ When replacing a wearing part, use a part same with the worn, the damaged fastening pieces (such as stop ring, bolt) must also be replaced. All parts should be assembled in correct position securely and no other part be damaged. After replacing, do not assemble to the machine before completing test.
④ The moving part of air brake valve should be served grease. If the brake doesn’t grip properly or grips weakly, check the wearing parts of air brake valve and braking system.

SECTION 4 STEERING SYSTEM

3. STEERING VALVE

1) STRUCTURE



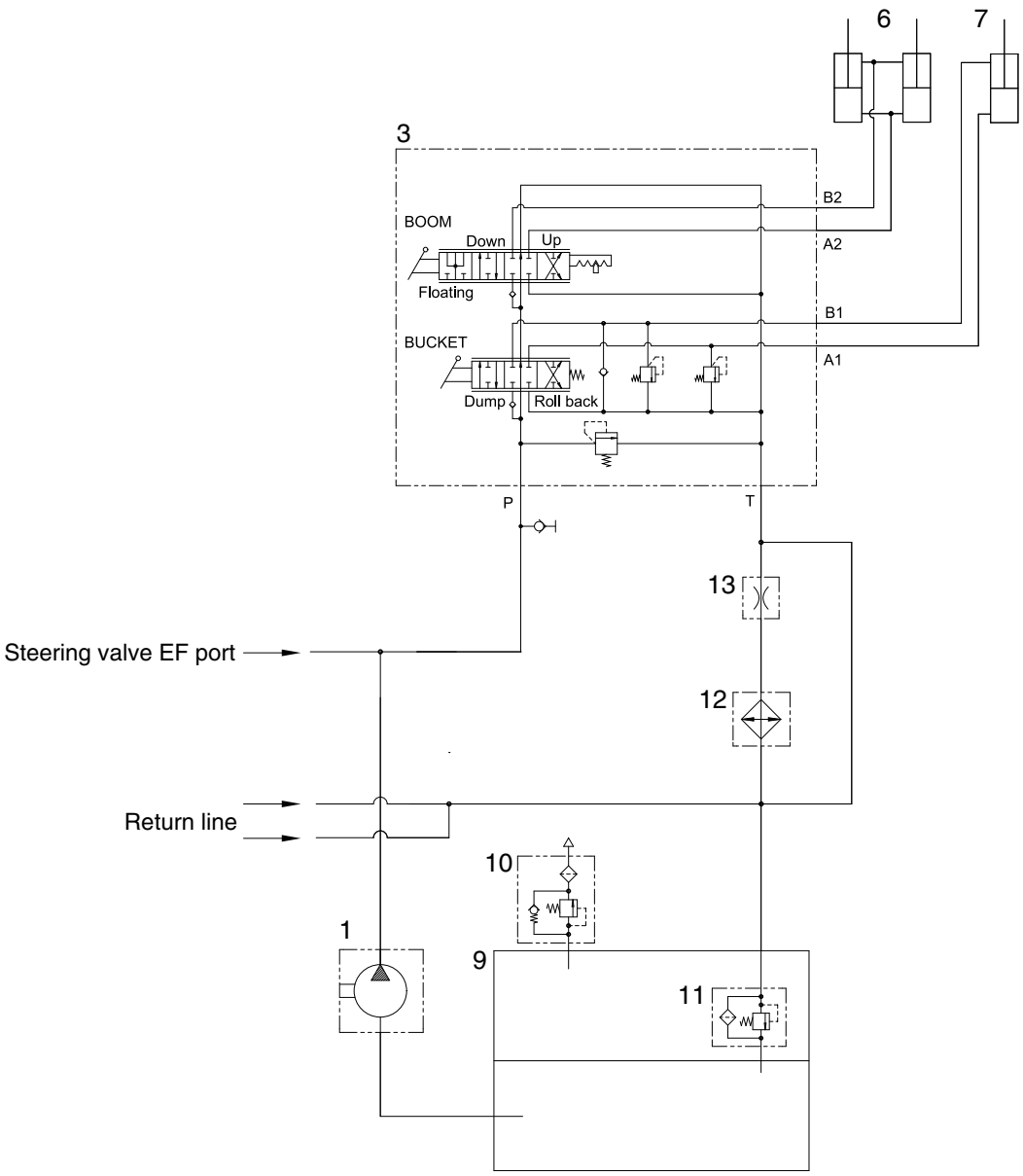
7614SE06

1	Valve body	8	Screw plug	15	Safety valve
2	Unload valve spring	9	Priority valve spool	16	Spring washer
3	Unload valve spool	10	Shim	17	Bolt
4	Screw plug	11	Spring	18	Spring
5	O-ring	12	O-ring	19	Safety valve
6	Screw plug	13	Safety valve seat	20	Check valve
7	O-ring	14	O-ring		

Problem	Cause	Remedy
Steering unit locks up	Large particles of contamination in steering unit.	Inspect hydraulic filter for contamination. Repair cause of contamination. Flush hydraulic system.
	★ Thermal shock	Do priority valve LS port flow test in group 5. This oil flow provides a warm-up flow to steering unit when not using the steering.
	Worn or damaged steering unit.	Repair or replace steering unit.
Abrupt steering wheel oscillation	Improperly timed gerotor gear in steering unit.	Time gerotor gear.
Steering wheel turns by itself	Lines connected to wrong port.	Reconnect lines.
	Worn or damaged steering unit.	Repair or replace steering unit.
Vibration in steering system or hoses jump	High priority valve setting.	Do priority valve pressure test.
Neutral position of steering wheel cannot be obtained, i.e. there is a tendency towards "motoring"	Steering column and steering unit out of line.	Align the steering column with steering unit.
	Too little or no play between steering column and steering unit input shaft.	Adjust the play and, if necessary, shorten the splines journal.
	Pinching between inner and outer spools.	Contact the nearest service shop.
"Motoring" effect. The steering wheel can turn on its own	Leaf springs are stuck or broken and have therefore reduced spring force.	Replace leaf springs.
	Inner and outer spools pinch, possibly due to dirt.	Clean steering unit or contact the nearest service shop.
	Return pressure in connection with the reaction between differential cylinder and steering unit too high.	Reduce return pressure.
Backlash	Cardan shaft fork worn or broken.	Replace cardan shaft.
	Leaf springs without spring force or broken.	Replace leaf springs.
	Worn splines on the steering column.	Replace steering column.
Jerky steering	LS port orifice missing.	Inspect orifice.
	Orifice in top end of priority valve spool	Disassemble and inspect.
	missing.	

★ Thermal shock is caused by a large temperature differential (Approx 30˚C, 50˚F) between the steering unit and hydraulic oil. If the steering is not operated for a long period of time and the orifice in the bottom of the priority valve spool is plugged, the steering unit may bind up when the steering is operated if the hydraulic oil is hot enough.

2. WORK EQUIPMENT HYDRAULIC CIRCUIT

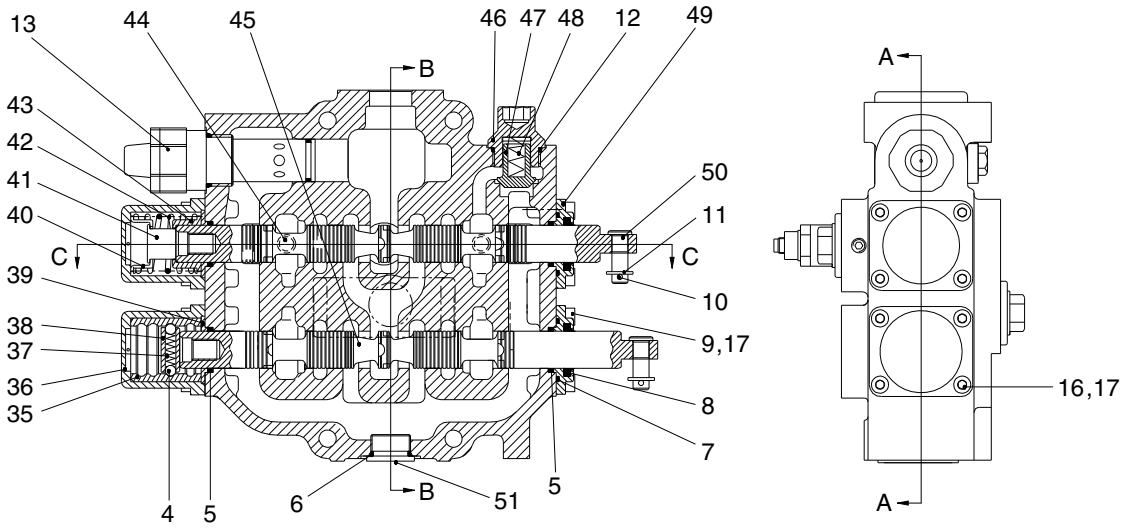


763G5WE01

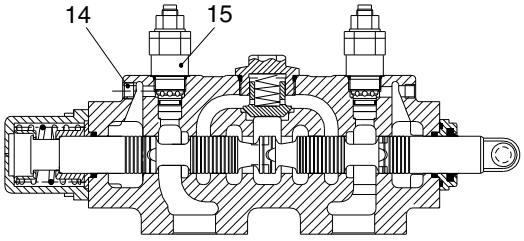
1	Main pump	10	Air breather
3	Main control valve	11	Return filter
6	Boom cylinder	12	Oil cooler
7	Bucket cylinder	13	Orifice
9	Hydraulic tank		

2. MAIN CONTROL VALVE

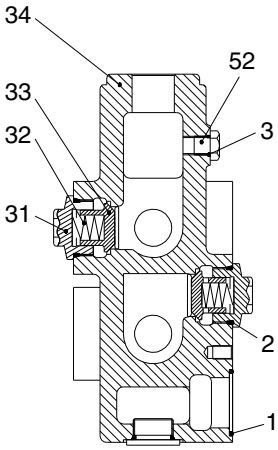
1) STRUCTURE



SECTION A-A



SECTION C-C



SECTION B-B

850KSE17

1	O-ring	15	Relief valve	41	Stopper
2	O-ring	16	Bolt	42	Spring
3	O-ring	17	Washer	43	Spring retainer
4	Ball	31	Plug	44	Spool
5	O-ring	32	Spring	45	Spool
6	O-ring	33	Poppet	46	Plug
7	O-ring	34	Body	47	Poppet
8	Dust seal	35	Spool	48	Spring
9	Bolt	36	End cover	49	Plate
10	Snap ring	37	Spring	50	Pin
11	Ring	38	Spacer	51	Plug
13	Relief valve	39	Spacer	52	Plug
14	Plug	40	Spring retainer		

※ Hydraulic oil must be at operating temperature for these checks.

Item	Description	Service action
Hydraulic system warm-up procedure Run engine at high idle. Refer to page 5-33.	Hold a hydraulic function over relief to heat oil (don't keep relief condition over 5 seconds at a time). Periodically cycle all hydraulic functions to distribute warm oil. Repeat procedure until oil is at operating temperature. **FEEL** : Hydraulic reservoir must be uncomfortable to hold your hand against. (approximately 40 ~50˚C)	**OK** Check completed.
Hydraulic pump performance check Heat hydraulic oil to operating temperature. Run engine at high idle.	With bucket flat on ground, actuate boom raise. Time how long it takes to raise boom to full height. **LOOK** : Boom must raise to full height in less than 7 seconds.	**OK** Check completed. **NOT OK** Check the hydraulic pump. **IF OK** Do steering system leakage check at page 4-26. **IF OK** Do main hydraulic pump flow test at page 5-34.
Control valve lift check Run machine at low idle.	 With bucket partially dumped, lower boom to raise front of machine. Slowly move boom control lever to boom lower position. Slowly move bucket control lever to bucket dump position. **LOOK** : Boom must not raise before moving down. Bucket must not rollback before dumping.	**OK** Check complete. **NOT OK** Repair lift checks in loader control valve.

5) Start the filter caddy. Check to be sure oil is flowing through the filters.
   Operate filter caddy approximately 10 minutes so oil in hydraulic oil tank is circulated through filter a minimum of four times.

※ Hydraulic oil tank capacity : 150 ℓ (39.6 U.S. gal)
   Leave filter caddy operation for the next steps.

6) Start the engine and run it at high idle.

※ For the most effective results, cleaning procedure must start with the smallest capacity circuit then proceed to the next largest capacity circuit.

7) Operate all functions, one at a time, through a complete cycle in the following order : Steering, bucket, and boom. Also include all auxiliary hydraulic functions.
   Repeat procedure until the total system capacity has circulated through filter caddy seven times, approximately 30 minutes.
   Each function must go through a minimum of three complete cycles for a through cleaning for oil.

※ Filtering time for machines with auxiliary hydraulic functions must be increased because system capacity is larger.

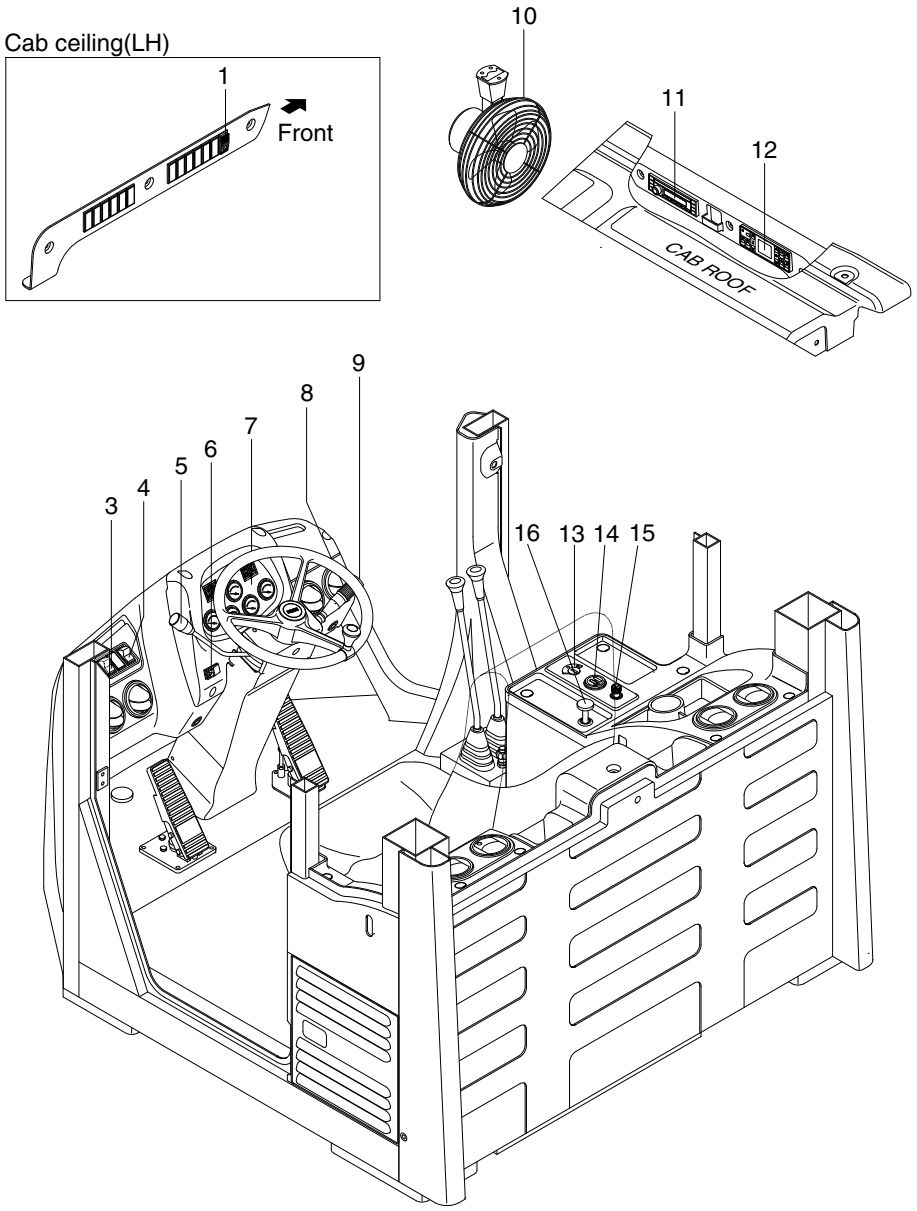
8) Stop the engine. Remove the filter caddy.

9) Install a new return filter element.

10) Check oil level in reservoir; Add oil if necessary.

GROUP 1 COMPONENT LOCATION

1. LOCATION 1



763G7EL02

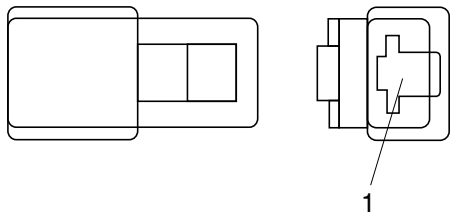
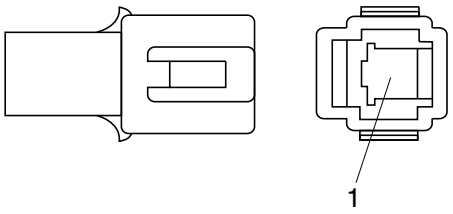
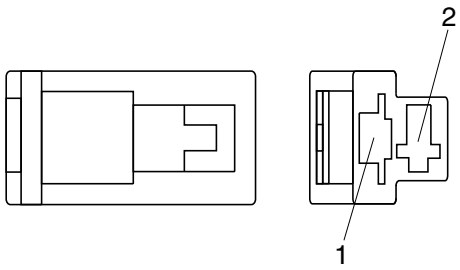
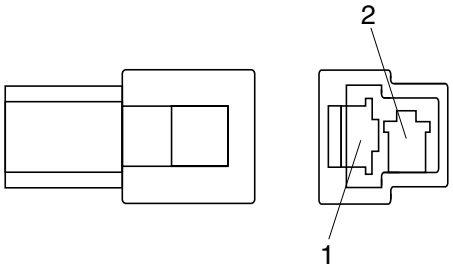
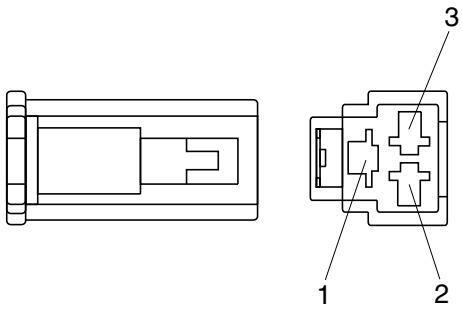
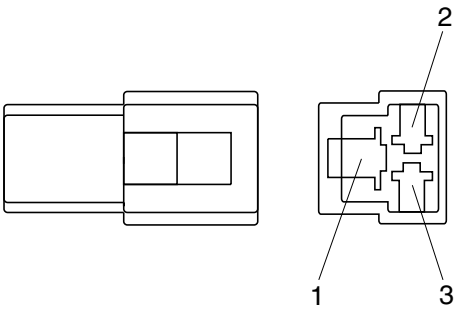
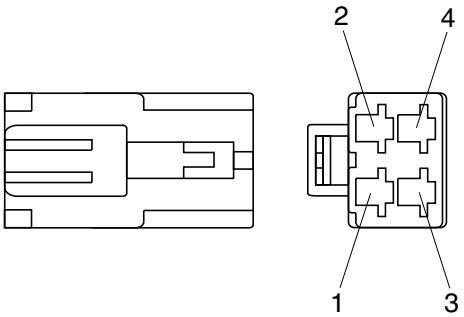
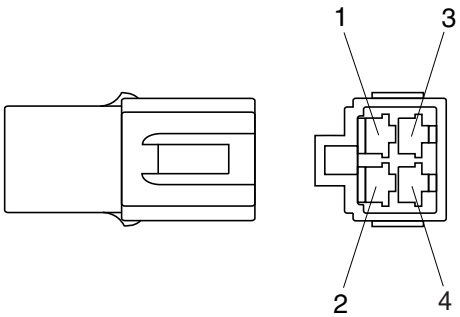
1	Beacon switch	8	Multi function switch	14	Battery volt meter and hour meter
3	Main light switch	9	Horn button		
4	Work lamp switch	10	Electric fan	15	Cigar lighter
5	Gear selector lever	11	Radio and MP3 player	16	Parking brake lever
6	Hazard switch	12	Aircon and heater switch		
7	Cluster	13	Starting Switch		

GROUP 4 CONNECTOR

1. MAIN HARNESS

Connector number	Type	No. of pin	Destination	Connector part no.
CL-2	HES	1	CIGAR	S810-001202 S822-014000 S822-114000
CS-2	HES	6	START SWITCH	S814-006000
CN-125	CHINA	4	GPS	DJ7041-6.3-21
CN-125A	CHINA	4	GPS	DJ7041-6.3-11
CN-171	TYCO	2	SERVICE SOCKET	174198-1
CN-22	-	2	FRONT WASHER	MG640605
CR-55	HELLA	5	WORK LAMP (FR) RELAY	8JA003526-001
CR-3			WORK LAMP (RR) RELAY	
CR-40			LOW BEAM RELAY	
CR-2			HORN RELAY	
CR-63			STOP LAMP RELAY	
CR-35			POWER RELAY	
CR-21			CLEARANCE LAMP RELAY	
CR-26			WINDOW WASHER RELAY	
CR-27			WIPER PARKING RELAY	
CR-30			HIGH BEAM RELAY	
CR-33			AIRCON CONDENSOR FAN RELAY	
CR-7			AIRCON COMPRESSOR RELAY	
CR-58			BACK UP BUZZER RELAY	
CR-11			FLASHER UNIT RELAY	
CR-96			FUEL WARMER AND PUMP RELAY	
CN-37	-	20	FUSE BOX	21N8-20041
CN-26	TYCO	2	WARNING BUZZER	174198-1
CN-1	HES	2	REAR FRAME SIDE 1	S813-130200
CN-2	TYCO	15	REAR FRAME SIDE 2	368301-1
CN-3	TYCO	15	REAR FRAME SIDE 3	2-85262-1
CN-11	DEUTSCH	8	HEATER SIDE	DT06-8S
EARTH4	KSC 2620	1	-	R8-10
CN-9	CHINA	8	-	DJ7081-6.3-21
CN-7	CHINA	8	-	DJ7081-6.3-21
CN-4	TYCO	16	TO DASH	368047-1
CN-5	TYCO	15	TO DASH	85223-1
CN-48	MOLEX	8	HOURMETER & VOLTMETER	39-01-2085
CS-26	TYCO	1	PARKING LEVER	174200-1

5) CN TYPE CONNECTOR

No. of pin	Receptacle connector (female)	Plug connector (male)
1	 S810-001202	 S810-101202
2	 S810-002202	 S810-102202
3	 S810-003202	 S810-103202
4	 S810-004202	 S810-104202