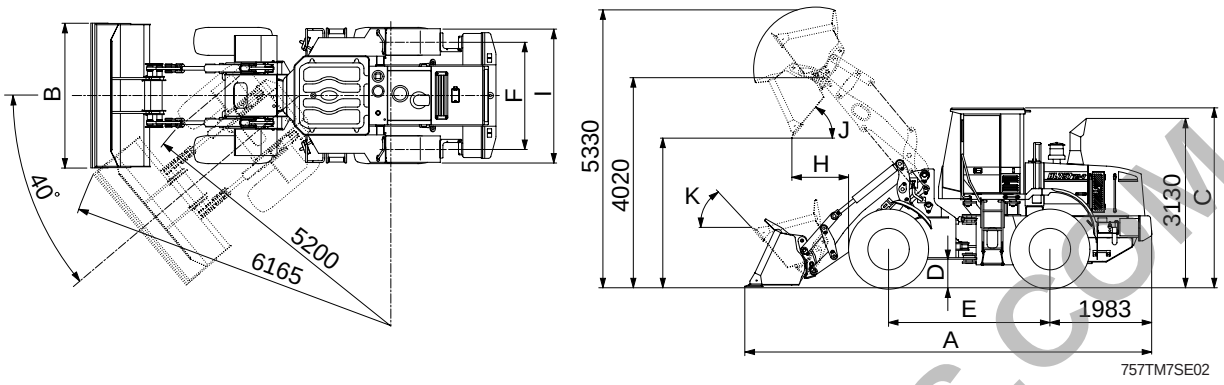
2. SPECIFICATIONS

1) WITHOUT CUTTING EDGE TYPE BUCKET



Description			Unit	Specification
Operating weight			kg(lb)	14300(31530)
Bucket capacity		Struck	$m^3(yd^3)$	2.0(2.6)
		Heaped		2.4(3.1)
Overall length		A	mm(ft-in)	7580(24'10")
Overall width		B		2740(9' 0")
Overall height		C		3300(10'10")
Ground clearance		D		410(1' 4")
Wheelbase		E		3030(9'11")
Tread		F		2050(6' 9")
Dump clearance at 45°		G		2960(9' 9")
Dump reach(Full lift)		H		1245(4' 1")
Width over tires		I		2580(8' 6")
Dump angle		J	Degree (°)	50
Roll back angle(Carry position)		K		54
Cycle time		Lift(With load)	sec	5.9
		Dump(With load)		2.5
		Lower(Empty)		3.0
Maximum travel speed			km/hr(mph)	37.0(23.0)
Braking distance			m(ft-in)	12(39' 4")
Minimum turning radius(Center of outside tire)				5.2(17' 1")
Gradability			Degree (°)	30
Travel speed	Forward	First gear	km/hr(mph)	7.4(4.6)
		Second gear		12.1(7.5)
		Third gear		23.7(14.7)
		Fourth gear		37.0(23.0)
	Reverse	First gear		7.8(4.9)
		Second gear		12.8(8.0)
		Third gear		25.0(15.6)

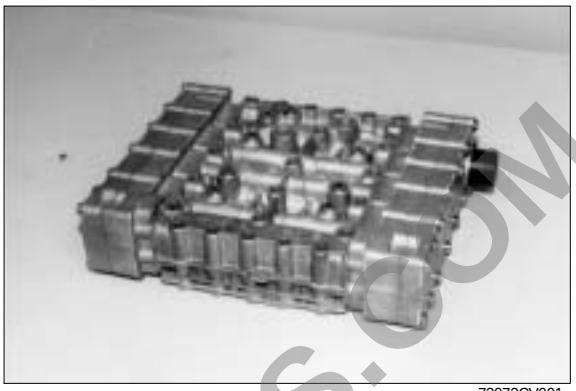
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1. CONTROL VALVE

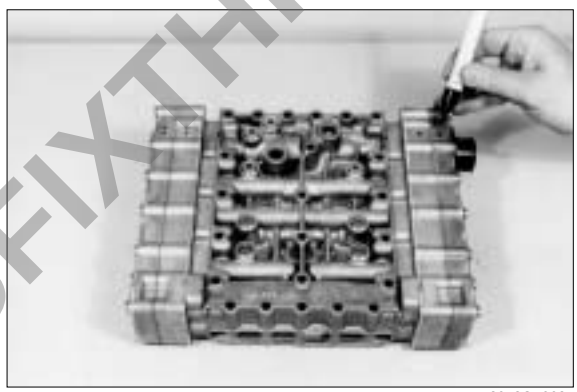
1) DISASSEMBLY

(1) Illustration on the right shows the complete control unit.



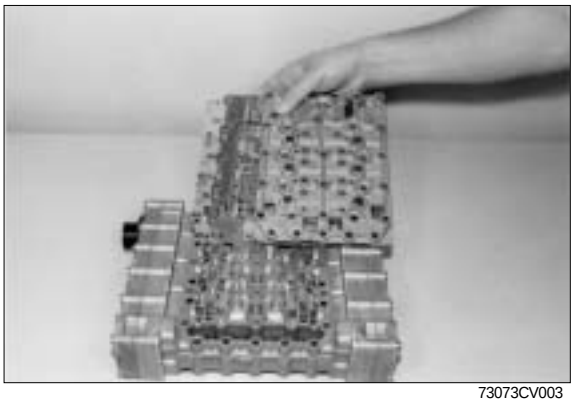
73073CV001

(2) Mark the installation position of the different covers, the housing and cable harness with the valve housing.



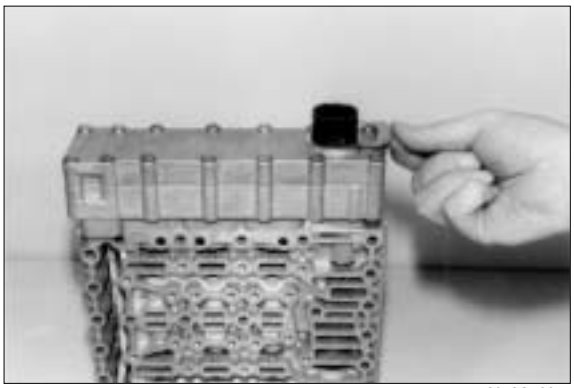
73073CV002

(3) Loosen socket head screws.
Separate duct plate, 1st gasket, intermediate plate and 2nd gasket from the valve housing.
Box spanner 5873 042 002



73073CV003

(4) Remove retaining clip.



73073CV004

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2. TROUBLESHOOTING

1) TRANSMISSION

※ **Diagnose malfunction charts are arranged from most probable and simplest to verify, to least likely, more difficult to verify. Remember the following steps when troubleshooting a problem :**

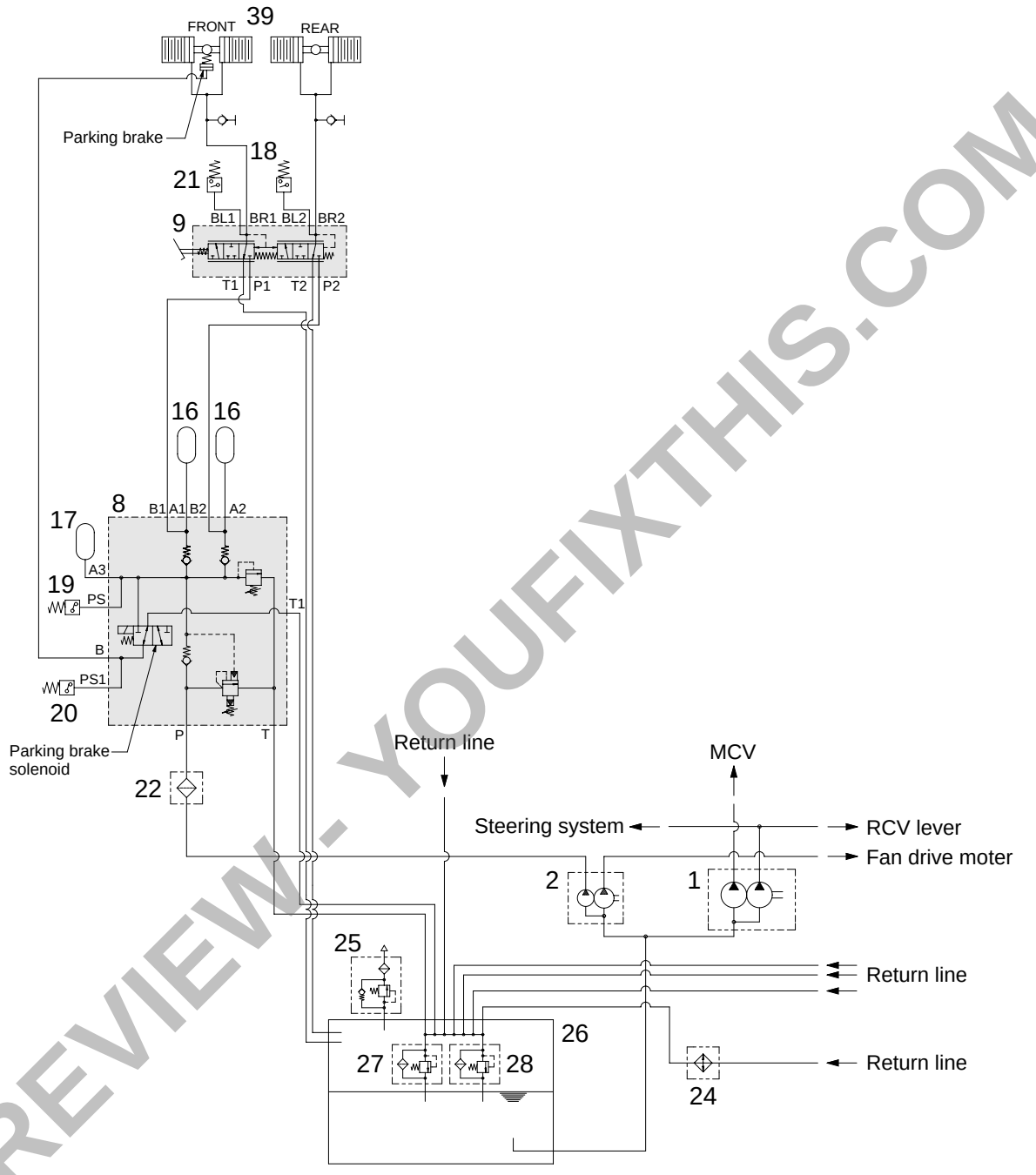
Step 1. Operational check out procedure(See group 3 in section 1.)
Step 2. Operational checks(In this group.)
Step 3. Troubleshooting
Step 4. Tests and/or adjustments(See group 3.)

Problem	Cause	Remedy
Transmission slippage	Low oil level.	Add oil.
	Wrong oil grade.	Change oil.
	Restricted transmission pump suction screen.	Remove and clean screen.
	Leak in transmission control valve or gasket.	Remove valve and inspect gaskets.
	Low transmission pump flow due to worn pump.	Do transmission pump flow test.
	Weak or broken pressure regulating valve spring.	Do transmission system pressure test.
Error code on display	Something wrong in transmission.	Go to transmission error code group at page 3-25~3-53.

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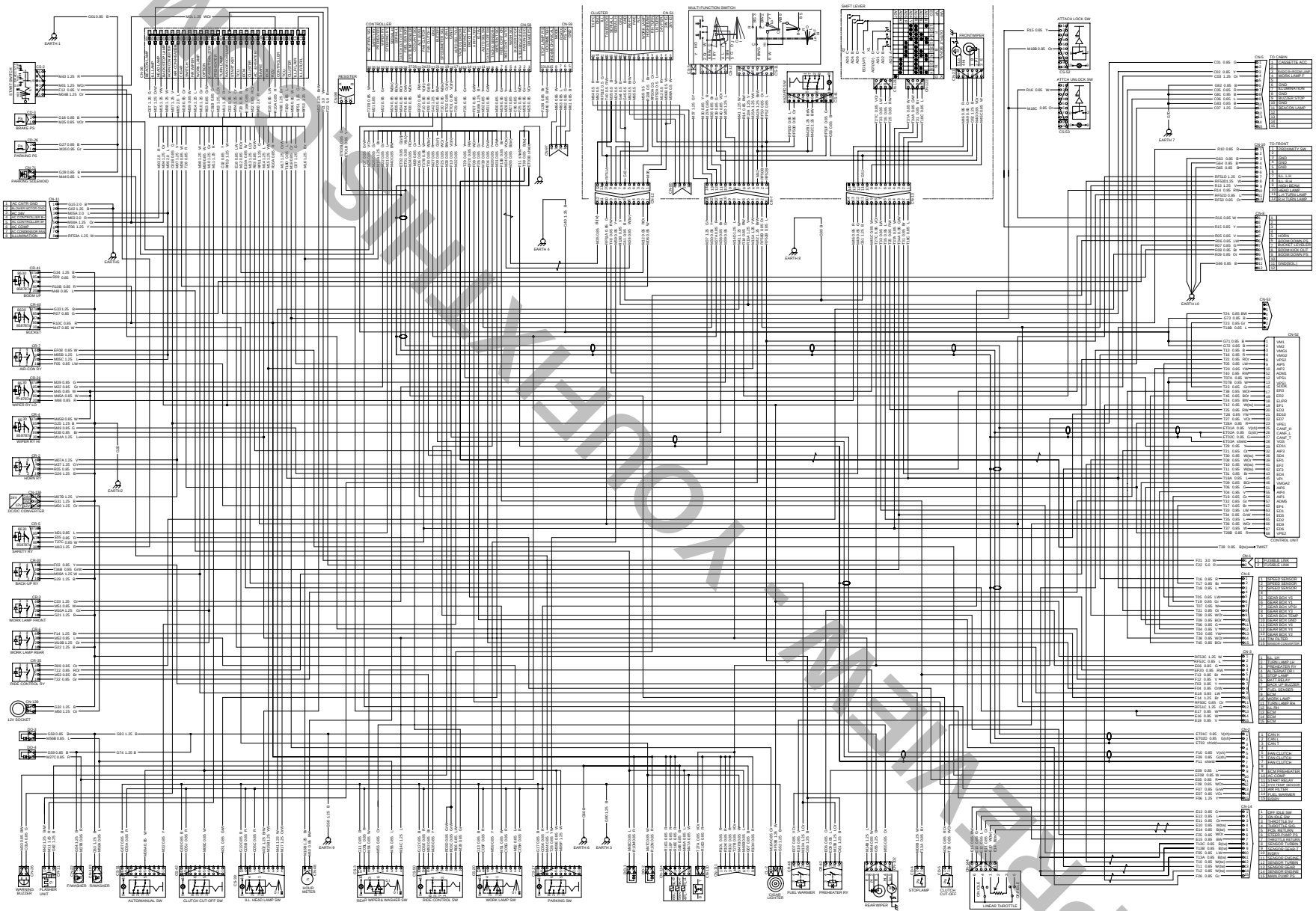
2. HYDRAULIC CIRCUIT



2	Brake & fan pump	19	Pressure switch	25	Air breather
8	Cut off valve	20	Pressure switch	26	Hydraulic tank
9	Brake valve	21	Pressure switch	27	Return filter
16	Accumulator	22	Line filter	28	Bypass valve
17	Accumulator	24	Oil cooler	39	Axle
18	Pressure switch				

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5. TIGHTENING TORQUE OF MAJOR COMPONENT

No	Items		Size	kgf · m	lbf · ft
1	Engine	Engine mounting bolt(2EA)	M20×2.5	57.9±8.7	419±62.9
2		Engine mounting bolt(Bracket)	M12×1.75	10.7±1.6	77.4±11.6
3		Radiator mounting bolt	M16×2.0	29.7±4.5	215±32.5
4		Fuel tank mounting bolt	M16×2.0	29.7±4.5	215±32.5
5		Air cleaner mounting bolt	M 8×1.25	2.5±0.5	18.1±3.6
6	Hydraulic system	Main pump housing mounting bolt	M12×1.75	12.8±3.0	92.6±21.7
7		Main control valve mounting bolt	M12×1.75	12.8±3.0	92.6±21.7
8		Steering unit mounting bolt	M10×1.5	6.9±1.4	49.9±10.1
9		Steering valve mounting bolt	M 8×1.25	2.5±0.5	18.1±3.6
10		Brake valve mounting bolt	M 8×1.25	2.5±0.5	18.1±3.6
11		Fan and brake pump mounting bolt	M10×1.5	6.9±1.4	49.9±10.1
12		Cut-off valve mounting bolt	M12×1.75	12.8±3.0	92.6±21.7
13		Remote control lever mounting bolt	M 6×1.0	1.1±0.2	8.0±1.4
14		Pilot supply unit mounting bolt	M 8×1.25	2.5±0.5	18.1±3.6
15		Safety valve	M 8×1.25	2.5±0.5	18.1±3.6
16		Hydraulic oil tank mounting bolt	M16×2.0	29.7±4.5	215±32.5
17	Power train system	Transmission mounting bolt	M24×3.0	100±15	723±109
18		Transmission mounting bolt(Bracket)	M20×2.5	46.3±7.0	335±50.6
19		Torque converter housing mounting bolt	M10×1.5	4.6±0.7	33.3±5.1
20		Front axle mounting bolt, nut	M24×2.0	100±15	723±109
21		Rear axle support mounting bolt, nut	M27×2.0	135±15	976±108
22		Tire mounting nut	M22×1.5	79±2.5	571±18
23		Drive shaft joint mounting bolt	3/8-24UNF-48	5.95±0.85	43.0±6.1
24	Others	Counterweight mounting bolt	M30×2.0	199±29.9	1439±216
25		Additional counterweight mounting bolt	M24×2.0	100±15	723±108
26		Operator's seat mounting bolt	M 8×1.25	3.4±0.8	24.6±5
27		ROPS Cab mounting bolt(4EA)	M27×2.0	124	900

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GROUP 1 SAFETY HINTS

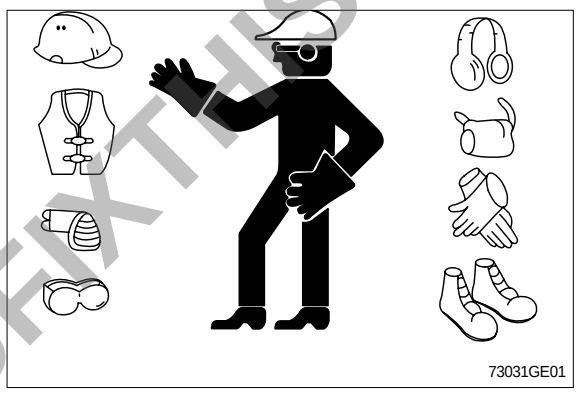
FOLLOW SAFE PROCEDURE

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



WEAR PROTECTIVE CLOTHING

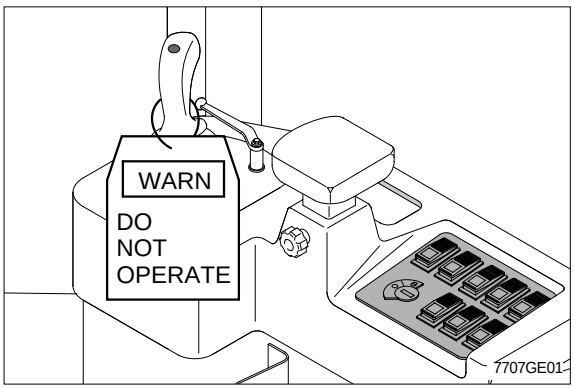
Wear close fitting clothing and safety equipment appropriate to the job.



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.



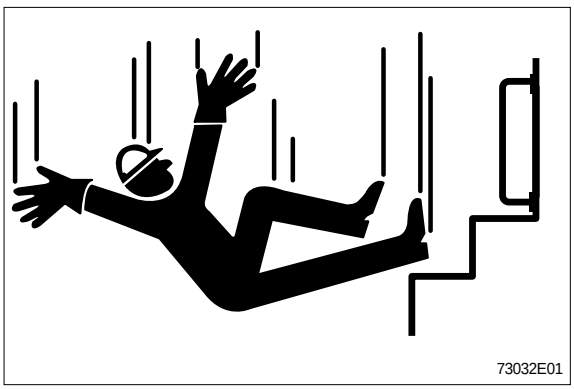
USE HANDHOLDS AND STEPS

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.



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Millimeters to Inches

1mm = 0.03937in

	0	1	2	3	4	5	6	7	8	9
0		0.039	0.079	0.118	0.157	0.197	0.236	0.276	0.315	0.354
10	0.394	0.433	0.472	0.512	0.551	0.591	0.630	0.669	0.709	0.748
20	0.787	0.827	0.866	0.906	0.945	0.984	1.024	1.063	1.102	1.142
30	1.181	1.220	1.260	1.299	1.339	1.378	1.417	1.457	1.496	1.536
40	1.575	1.614	1.654	1.693	1.732	1.772	1.811	1.850	1.890	1.929
50	1.969	2.008	2.047	2.087	2.126	2.165	2.205	2.244	2.283	2.323
60	2.362	2.402	2.441	2.480	2.520	2.559	2.598	2.638	2.677	2.717
70	2.756	2.795	2.835	2.874	2.913	2.953	2.992	3.032	3.071	3.110
80	3.150	3.189	3.228	3.268	3.307	3.346	3.386	3.425	3.465	3.504
90	3.543	3.583	3.622	3.661	3.701	3.740	3.780	3.819	3.858	3.898

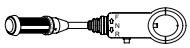
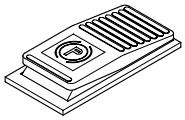
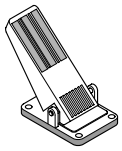
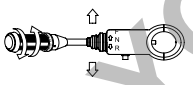
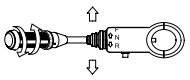
Kilogram to Pound

1kg = 2.2046lb

	0	1	2	3	4	5	6	7	8	9
0		2.20	4.41	6.61	8.82	11.02	13.23	15.43	17.64	19.84
10	22.05	24.25	26.46	28.66	30.86	33.07	35.27	37.48	39.68	41.89
20	44.09	46.30	48.50	50.71	51.91	55.12	57.32	59.5.	61.73	63.93
30	66.14	68.34	70.55	72.75	74.96	77.16	79.37	81.57	83.78	85.98
40	88.18	90.39	92.59	94.80	97.00	99.21	101.41	103.62	105.82	108.03
50	110.23	112.44	114.64	116.85	119.05	121.25	123.46	125.66	127.87	130.07
60	132.28	134.48	136.69	138.89	141.10	143.30	145.51	147.71	149.91	152.12
70	154.32	156.53	158.73	160.94	163.14	165.35	167.55	169.76	171.96	174.17
80	176.37	178.57	180.78	182.98	185.19	187.39	189.60	191.80	194.01	196.21
90	198.42	200.62	202.83	205.03	207.24	209.44	211.64	213.85	216.05	218.26

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Item	Description	Service action
	LOOK/FEEL : Transmission must shift to former(2nd or 3rd or 4th) gear. **NOTE** : If gear selector lever kick down switch or RCV lever switch is pressed twice, transmission will shift down the immediately back to former gear.	
Forward, reverse and 4th speed clutch pack drag check **※ Transmission must be warmed up for this check.** Engine running.	  	Park unit on level surface. Apply service brakes. Move gear selector lever to neutral. Move gear selector lever to 1st. Release parking brake and service brakes. Run engine at low idle. **LOOK** : Unit must not move in either direction. **NOTE** : If unit moves forward, either the forward pack or the 4th speed pack is dragging.	**OK** Check completed. **NOT OK** If unit moves, repair transmission.
Transmission shift modulation check Engine running.		Run engine at approximately 1300rpm. Put transmission in 1st forward, shift several times from forward to reverse and reverse to forward. Repeat check in 2nd gear. **LOOK** : Unit must slow down and change direction smoothly.	**OK** Check completed. **NOT OK** Go to unit shifts too fast, chapter 2 in this group.
Torque converter check		Start engine. Apply service brakes and release parking brake. Move gear selector lever to 3rd speed. Move gear selector control lever to forward "F" position. Increase engine speed to high idle. **LOOK** : Torque converter stall rpm must be within the following range. Stall rpm : 2150±70rpm Move gear selector control lever to neutral "N" position and run for 15 seconds.	**OK** Check completed. **NOT OK** If stall rpm are too low or too high, problem may be engine power or torque converter. **IF OK** Replace transmission torque converter.

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⑧ Press on end shim with about 100N (10kg), apply dial indicator and set it at zero.



75773TM157

⑨ Now, push the end shim by means of screw driver against snap ring until contact is obtained(Upward) and read plate clearance on the dial indicator.

※ In case of a deviation from the required plate clearance, correct with corresponding snap ring(s=2.1~4.2㎜). After the adjustment of the plate clearance has been carried out, remove the plate pack, oil plates and install it again.

※ Use oil SAE 15W-40(API CH-4).

Magnetic stand	5870 200 055
Dial indicator	5870 200 057



75773TM158

⑩ Introduce idler gear until all inner plates are accommodated.

※ This step makes the later assembly of the idler gear easier.
Now, remove the idler gear again.



75773TM159

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⑧ Insert into relevant holes the six pins that, for proper operation of whole system, have to be of the same length and however in accordance with relevant drawing.



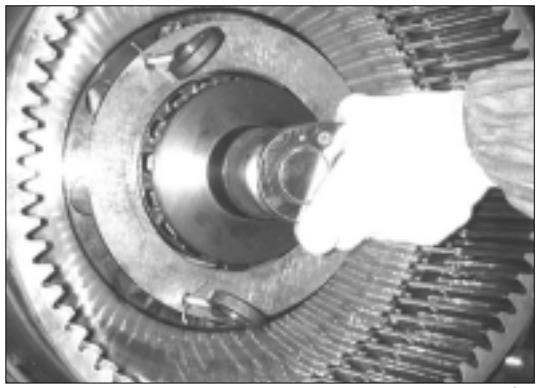
757AX29

⑨ Position return spring, cover and spacer on pressure plate, press compression tool.



757AX30

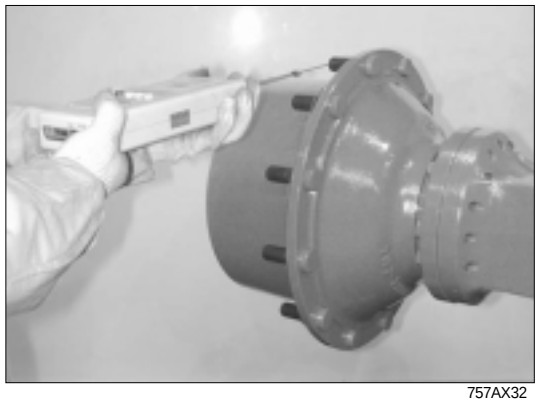
⑩ Assemble support assembly with spring compression tool on spindle and tighten adjusting nut.



757AX31

⑪ With proper wrench lock ring so to reach the specified wheel bearing pre-load corresponding to a rotation torque and a rope pull strength on studs included into 15~18kg.

To prevent wrong torque recording, it is advisable to set bearings, by various wheel revolutions, prior performing the check.



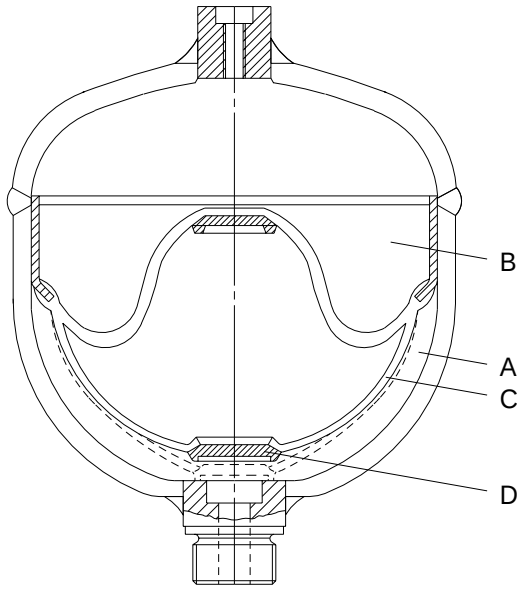
757AX32

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6. BRAKE ACCUMULATOR

1) STRUCTURE



(770-3ATM) 4-22

Item	81L1-0004 (Item16)	81L1-0003 (Item17)
Diameter	121mm	136mm
Mounting height	146mm	160mm
Norminal volume	0.75m^3	1.0m^3
Priming pressure	50kgf/cm^2	50kgf/cm^2
Operating medium	Oil	Oil
Operating pressure	Max 210kgf/cm^2	Max 200kgf/cm^2
Thread	M18×1.5	M18×1.5
Priming gas	Nitrogen	Nitrogen

A Fluid portion
B Gas portion
C Diaphragm
D Valve disk

2) OPERATION

(1) Purpose

Fluids are practically incompressible and are thus incapable of accumulating pressure energy. In hydropneumatic accumulators, the compressibility of a gas is utilized to accumulate fluid. The compressible medium used in the accumulators is nitrogen.

In braking systems, the purpose of the accumulators is to store the energy supplied by the hydraulic pump. They are also used as an energy reserve when the pump is not working, as a compensator for any losses through leakage, and as oscillation dampers.

(2) Operation

The accumulator consists of a fluid portion (A) and a gas portion (B) with a diaphragm (C) as a gas-tight dividing element. The fluid portion (A) is connected to the hydraulic circuit, causing the diaphragm accumulator to be filled and the gas volume to be compressed as the pressure rises.

When the pressure falls, the compressed gas volume will expand, thus displacing the accumulated pressure fluid into the circuit.

The diaphragm bottom contains a valve disk (D) which, if the diaphragm accumulator is completely empty, closes the hydraulic outlet, thus preventing damage to the diaphragm.

(3) Installation requirements

The accumulators can be fitted in the hydraulic circuit, directly on a component or in blocks on suitable consoles.

They should be fitted in as cool a location as possible.

Installation can be in any position.

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2. TROUBLESHOOTING

※ **Diagnose malfunction charts are arranged from most probable and simplest to verify, to least likely, more difficult to verify. Remember the following steps when troubleshooting a problem :**

Step 1. Operational check out procedure(See group 3 in section 1)

Step 2. Operational checks(In this group)

Step 3. Troubleshooting

Step 4. Tests and adjustments(See group 3)

Problem	Cause	Remedy
No steering	Low oil level	Add recommended oil.
	Failed steering pump	Remove and inspect return filter for metal pump particles.
	Failed main pump drive	Do main pump flow test.
	Stuck priority valve spool	Remove and inspect priority valve spool.
	Broken priority valve spring	Remove and inspect spring.
	Relief valve in steering valve stuck open.	Do relief cartridge leakage test in group 3.
No hydraulic functions steering normal	Faulty or misadjusted pilot supply unit valve	Do pilot supply unit test in group 3.
	Stuck open system relief valve	Replace relief valve.
	Locked safety valve	Unlock safety valve.
	Plugged pilot line filter	Inspect and replace.
	Failed hydraulic pump	Remove and inspect the pump.
	Low secodary pressure of RCV	Check the pressure and replace if necessary.

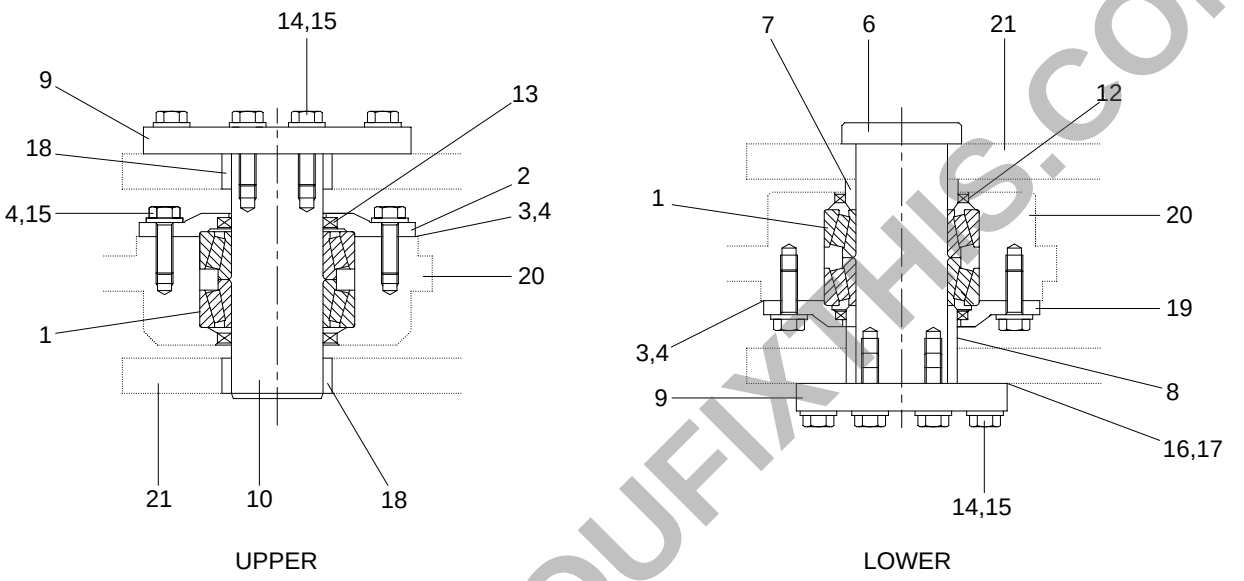
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3. CENTER PIVOT PIN

1) CONSTRUCTION

Figure shows the construction of the center pivot pin assembly. This assembly serves to connect the front frame with the rear frame; two sets of assemblies are provided, one each for the upper and lower parts. The numbers in parentheses following the parts name denote the item numbers shown in the figure in the disassembly and assembly procedures.



1	Bearing	9	Plate	16	Shim(0.1T)
2	Cover	10	Pin	17	Shim(0.5T)
3	Shim(0.1T)	12	Seal	18	Bushing
4	Shim(0.5T)	13	Seal	19	Cover
6	Pin	14	Hexagon bolt	20	Front frame
7	Collar	15	Hardened washer	21	Rear frame
8	Collar				

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GROUP 2 OPERATIONAL CHECKS AND TROUBLESHOOTING

1. OPERATIONAL CHECKS

This procedure is designed so the mechanic can make a quick check of the system using a minimum amount of diagnostic equipment. If you need additional information, read **structure and function**, Group 1.
A location will be required which is level and has adequate space to complete the checks.

The engine and all other major components must be at operating temperature for some checks.

Locate system check in the left column and read completely, following the sequence from left to right. Read each check completely before performing.

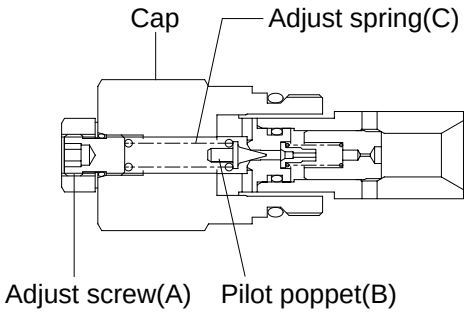
At the end of each check, if no problem is found(OK), that check is complete or an additional check is needed. If problem is indicated(NOT OK), you will be given repair required and group location.
If verification is needed, you will be given next best source of information:

- Chapter 2 : Troubleshooting
- Group 3 : Tests and adjustments

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(5) RESETTING THE RELIEF PRESSURE



7607WE52

※ If setting pressure is mistaken, hydraulic unit may be destroyed and danger may be caused.
Do not raise by any means more than the pressure decided for every model.

Tempolary assembly and setting

① Check the position of setting pressure 0 MPa.
Set adjusting screw(A) temporarily in the position that pilot poppet(B) contacts to pilot seat.
Then pressure adjusting spring(C) begins to be effective.

② Install the main relief valve which is set temporarily to main body.
Tighten cap with torque wrench.
· Tightning torque : 10.2kgf · m(73.8lbf · ft)

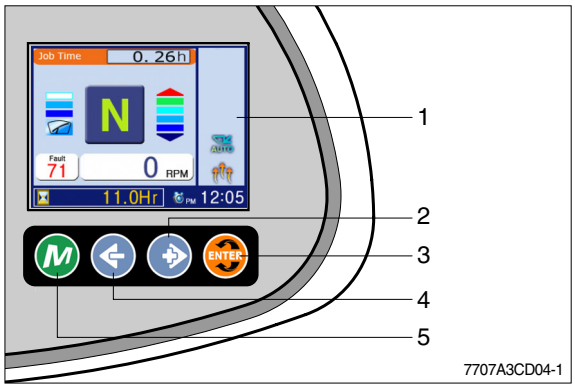
To set pressure

① Attach exact pressure gauge at exit of pump or gauge port of control valve.
② Operate the pump with rated speed.
③ Operate plunger either boom or bucket at full stroke and check the pressure.
④ Turn adjusting screw(A) (right turn) and set pressure with checking pressure gauge.
· One quarter turn of adjusting screw(A) equals about 4 MPa.
· Setting pressure 20.6MPa(210kgf/cm^2) at 220 ℓ/min.
· Relief is very sensitivity. So, do not turn adjusting screw(A) suddenly.
⑤ Tighten lock nut with torque wrench holding adjusting screw.
· Tightning torque : 3.3kgf · m(23.6lbf · ft)
※ Operate plunger and check the setting pressure, again.

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LCD (Machine serial no. ; #0083-)



1 LCD

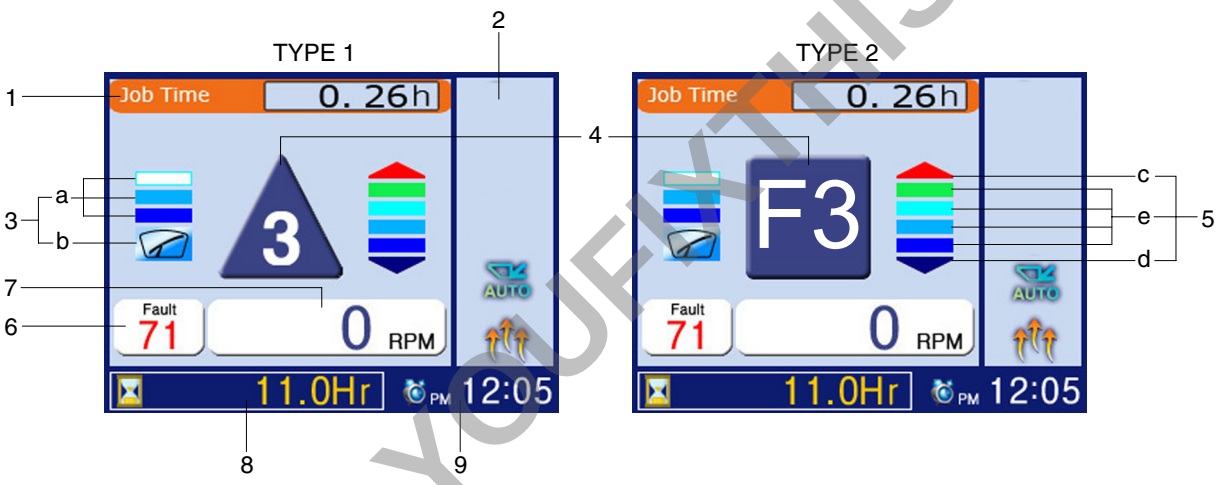
2 ( ) Right
Move to the next selection

3 ( ) Select(Enter)
Activate the currently chosen item

4 ( ) Escape
Return to the previous menu

5 ( ) Main, Menu
- Display menu
- Return to the main display

(1) Main display



7707A3CD10-1

No	Symbol	Meaning	Remark		
1	Job Time 1.26h	Monitoring information	Job timer, Odometer, Hydraulic temperature, Battery voltage, Coolant temperature, T/M oil temperature.		
2	AUTO	State information	Ride state(option), Warming up		
3	a	Wiper display	When operating intermittently, it shows an operating time interval		
	b		Wiper motor intermittently operating		
4	△, ▽, □	Actual gear display	Forward, reverse, neutral	LCD type 1	
	F, R, N		Forward, reverse, neutral	LCD type 2	
	1, 2, 3, 4		Actual gear		
	P		Parking brake mode active		
5	c, d	Select gear display	Up and down shifting	c: Forward, d: Reverse	Automatic mode
	e		Pre-selected gear		
6	Fault 71	Fault code display	Fault code state display		
7	0 RPM	Engine rpm display	Now engine rpm state display		
8	11.0Hr	Hour meter display	Hour meter state display		
9	PM 12:05	Timer & alarm display	Now time & alarm state display		

※ Both type1 and type2 are LCD modes and they can be changed each other by operator's selection. (Adjustment/Display, see page 7-34)

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