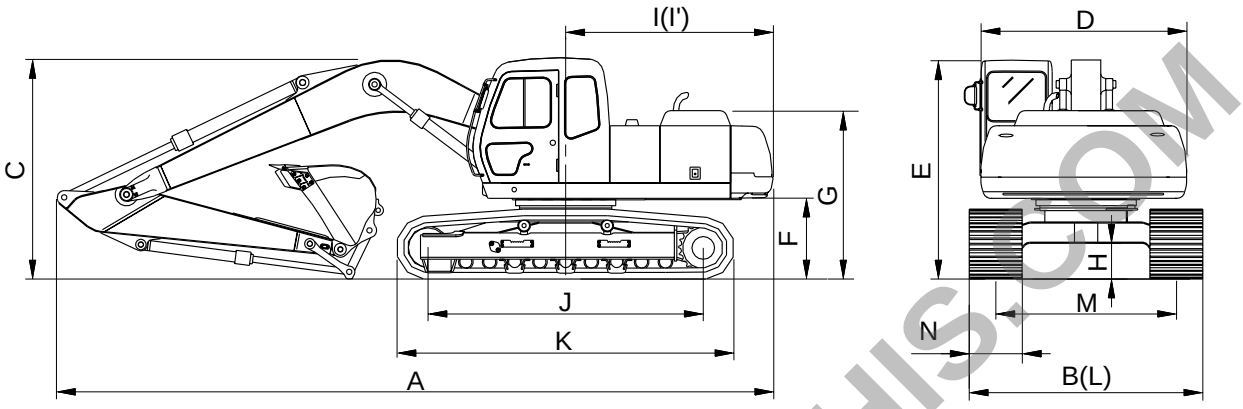
2. SPECIFICATIONS

1) ROBEX 320-3

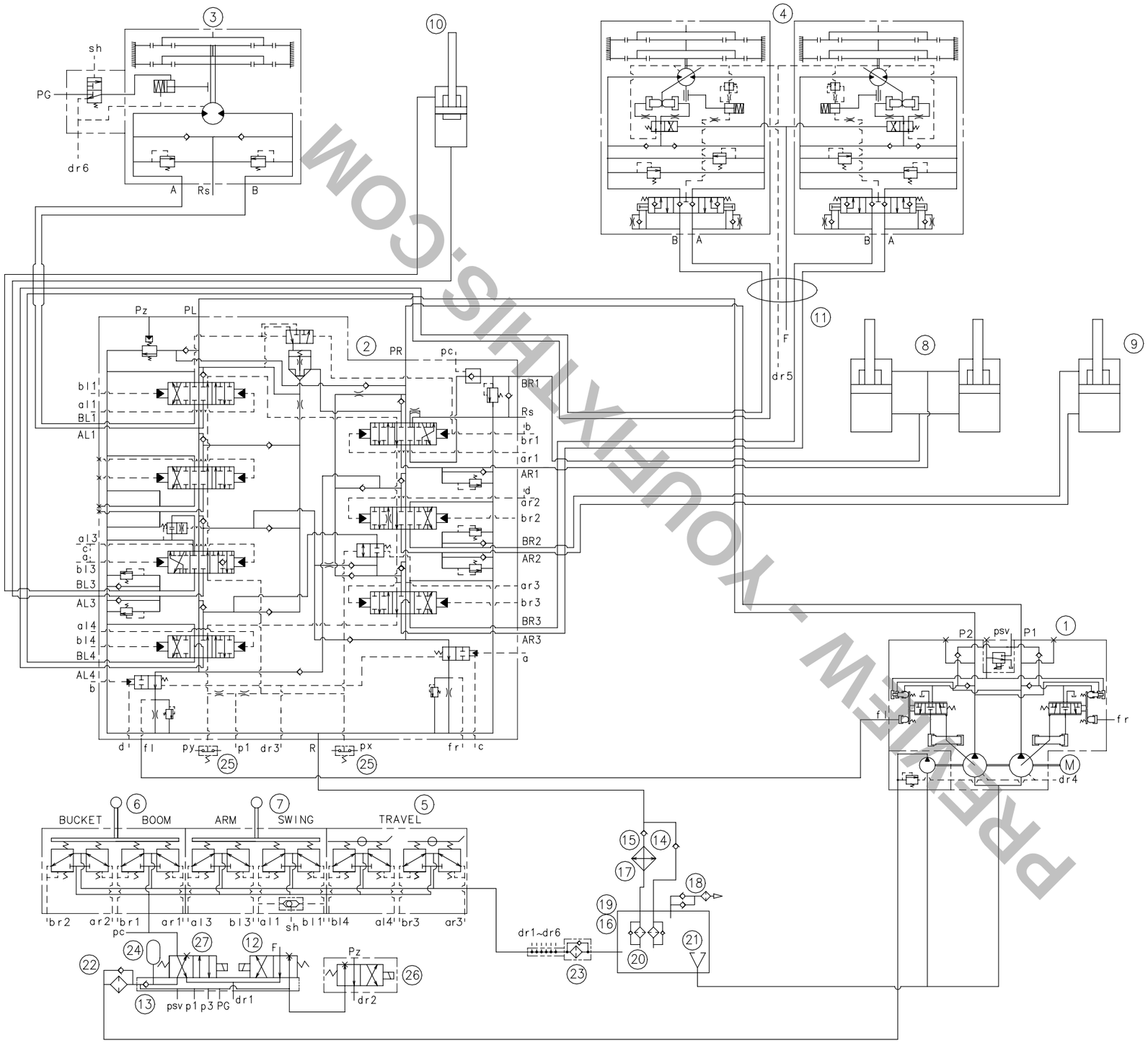


Description		Unit	Specification
Operating weight		kg(lb)	30150(66470)
Bucket capacity(PCSA heaped), standard		$m^3(yd^3)$	1.44(1.89)
Overall length	A	mm(ft-in)	10860(35' 8")
Overall width, with 600mm shoe	B		3280(10' 9")
Overall height	C		3360(11' 0")
Superstructure width	D		2920(9' 7")
Overall height of cab	E		3060(10' 0")
Ground clearance of counterweight	F		1205(3' 11")
Engine cover height	G		2530(8' 4")
Minimum ground clearance	H		505(1' 8")
Rear-end distance	I		3250(10' 8")
Rear-end swing radius	I'		3250(10' 8")
Distance between tumblers	J		3710(12' 2")
Undercarriage length	K		4630(15' 2")
Undercarriage width	L		3280(10' 9")
Track gauge	M		2680(8' 10")
Track shoe width, standard	N		600(24")
Travel speed(Low/high)		km/hr(mph)	3.1/4.6(1.9/2.8)
Swing speed		rpm	9.0
Gradeability		Degree(%)	35(70)
Ground pressure(600mm shoe)		$kg/cm^2(psi)$	0.62(8.82)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

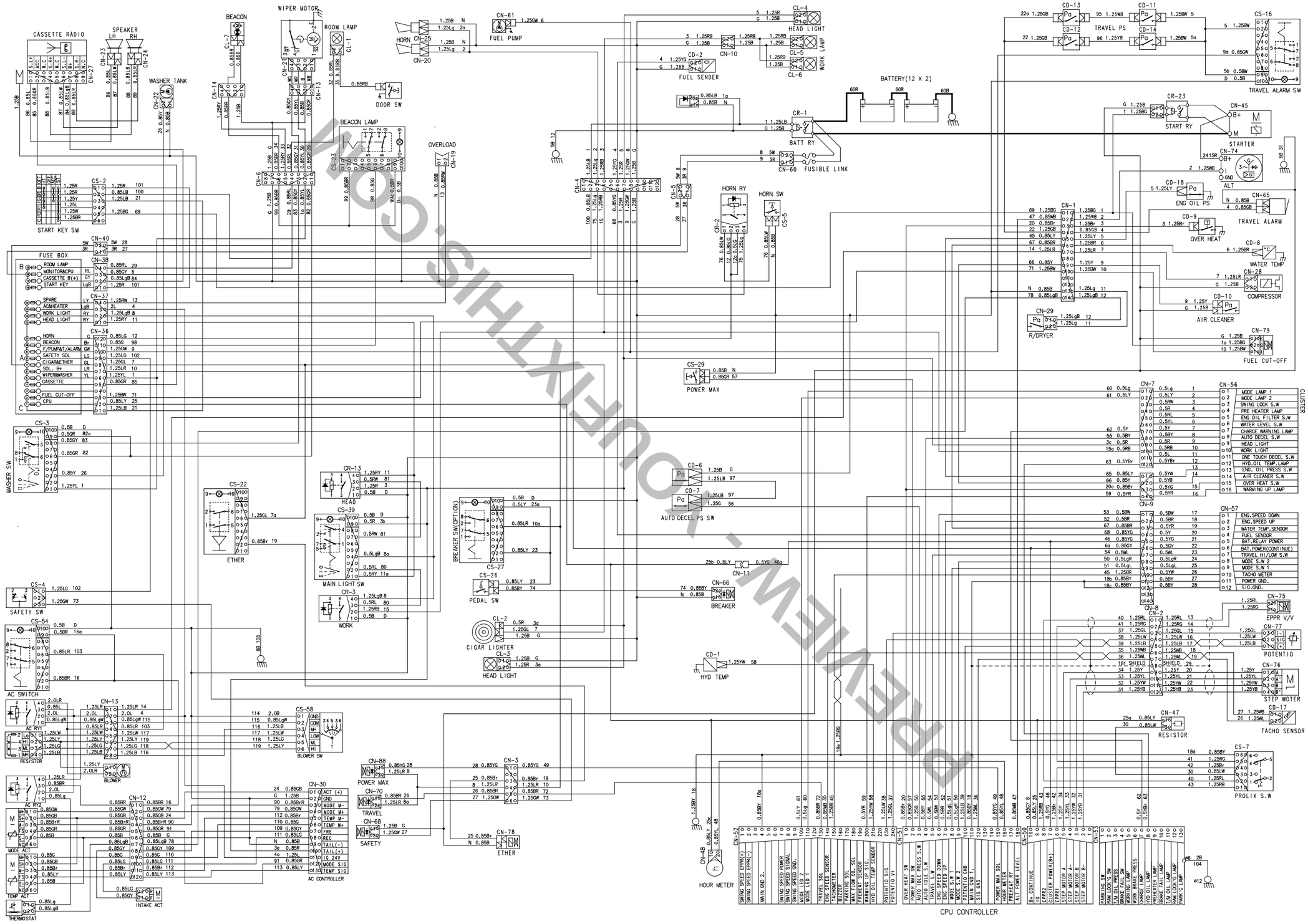
GROUP 1 HYDRAULIC CIRCUIT



1 MAIN PUMP
2 MAIN CONTROL VALVE
3 SWING MOTOR
4 TRAVEL MOTOR
5 RCV PEDAL
6 RCV LEVER
7 RCV LEVER
8 BOOM CYLINDER
9 BUCKET CYLINDER
10 ARM CYLINDER
11 TURNING JOINT
12 SOLENOID VALVE
13 CHECK VALVE
14 CHECK VALVE
15 CHECK VALVE
16 HYDRAULIC TANK
17 OIL COOLER
18 AIR BREATHER
19 BY PASS VALVE
20 RETURN FILTER
21 STRAINER
22 LINE FILTER
23 DRAIN FILTER
24 ACCUMULATOR
25 PRESSURE SWITCH
26 SOLENOID BLOCK
27 SOLENOID VALVE

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



PREVIEW - POWERED BY

Download full manual at youfixthis.com

GROUP 3 PUMP DEVICE

1. REMOVAL AND INSTALL

1) REMOVAL

(1) Lower the work equipment to the ground and stop the engine.

(2) Loosen the breather slowly to release the pressure inside the hydraulic tank.

⚠ Escaping fluid under pressure can penetrate the skin causing serious in injury.

(3) Loosen the drain plug under the hydraulic tank and drain the oil from the hydraulic tank.

· Hydraulic tank quantity : 270 ℓ

(4) Remove bolts(12) and disconnect pipe(1,2)

(5) Disconnect pilot line hoses(4,5,6,7,8,9,10)

(6) Remove bolts(11) and disconnect pump suction tube (3)

※ When pump suction tube is disconnected, the oil inside the piping will flow out, so catch it in oil pan.

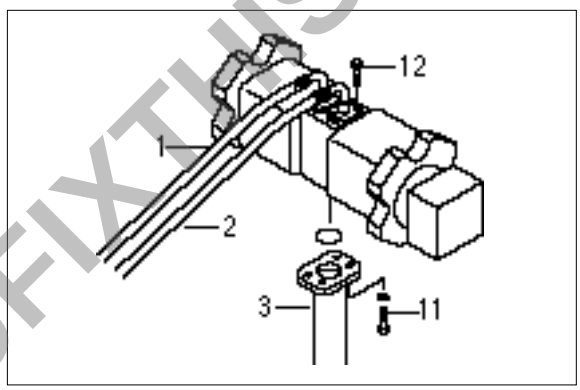
(7) Sling the pump assembly and remove the pump mounting bolts.

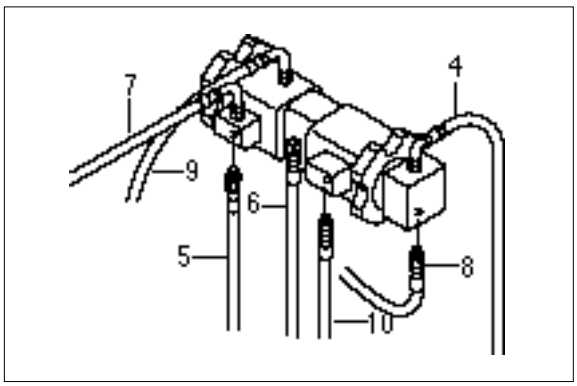
· Weight : 155 kg (342 lb)

Pull out the pump assembly from housing.

※ When removing the pump assembly, check that all the hoses have been disconnected.







PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

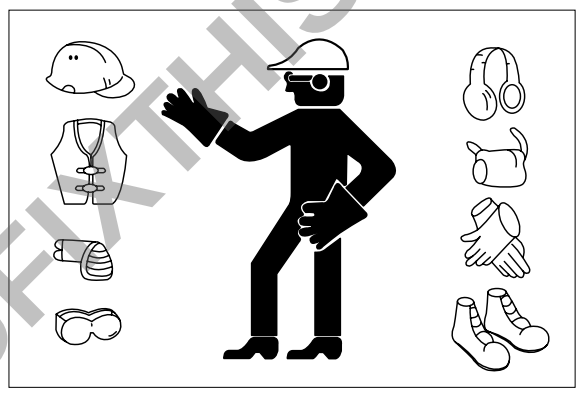
GROUP 1 SAFETY

FOLLOW SAFE PROCEDURE

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

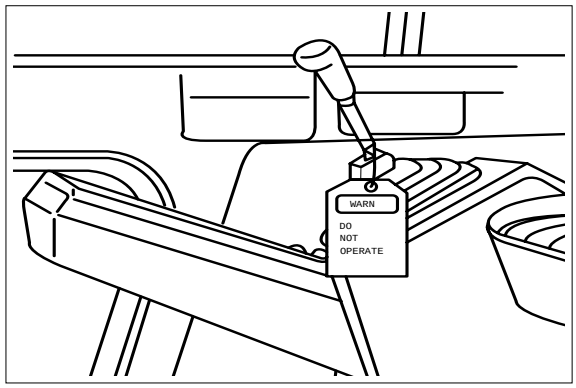
WEAR PROTECTIVE CLOTHING

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



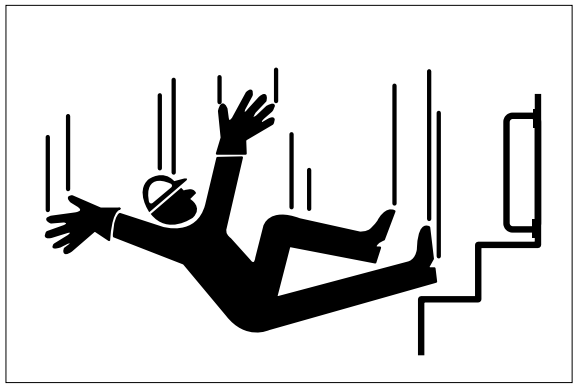
WARN OTHERS OF SERVICE WORK

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



PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

Millimeters to inches

1mm = 0.03937 in

	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 = 2.2046 lb

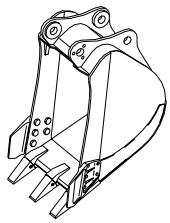
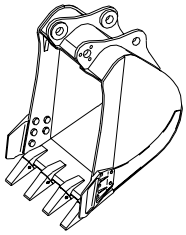
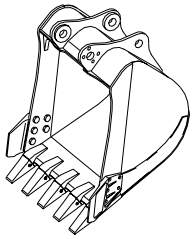
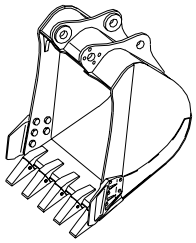
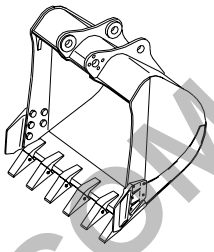
	0	1	2	3	4	5	6	7	8	9
0		2.20	4.41	6.61	8.82	11.02	13.23	15.43	17.64	19.84
10	22.05	24.25	26.46	28.66	30.86	33.07	35.27	37.48	39.68	41.89
20	44.09	46.30	48.50	50.71	51.91	55.12	57.32	59.5.	61.73	63.93
30	66.14	68.34	70.55	72.75	74.96	77.16	79.37	81.57	83.78	85.98
40	88.18	90.39	92.59	94.80	97.00	99.21	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

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

6. BUCKET SELECTION GUIDE

1) GUIDE 1

				
0.90m³ PCSA heaped bucket	1.14m³ PCSA heaped bucket	1.38m³ PCSA heaped bucket	※1.44m³ PCSA heaped bucket	1.74m³ PCSA heaped bucket

Capacity		Width		Weight	Recommendation					
					6.45m(21' 2") boom				6.15m(20' 2") boom	
PCSA heaped	CECE heaped	Without side cutter	With side cutter		2.2m arm (7' 3")	2.5m arm (8' 2")	3.2m arm (10' 6")	4.05m arm (13' 3")	2.2m arm (6' 7")	2.5m arm (7' 10")
0.90m³ (1.18yd³)	0.80m³ (1.05yd³)	950mm (37.4")	1070mm (42.1")	835kg (1840lb)						
1.14m³ (1.49yd³)	1.00m³ (1.30yd³)	1140mm (44.9")	1260mm (49.6")	935kg (2060lb)						
1.38m³ (1.81yd³)	1.20m³ (1.57yd³)	1330mm (52.4")	1450mm (57.1")	1040kg (2290lb)						
※1.44m³ (1.89yd³)	1.25m³ (1.63yd³)	1380mm (54.3")	1500mm (59.1")	1055kg (2330lb)						
1.74m³ (2.28yd³)	1.50m³ (1.96yd³)	1610mm (63.4")	1730mm (68.1")	1145kg (2520lb)						

※ : Standard backhoe bucket

Applicable for materials with density of 2000kg/m³ (3370lb/yd³) or less

Applicable for materials with density of 1600kg/m³ (2700lb/yd³) or less

Applicable for materials with density of 1100kg/m³ (1850lb/yd³) or less

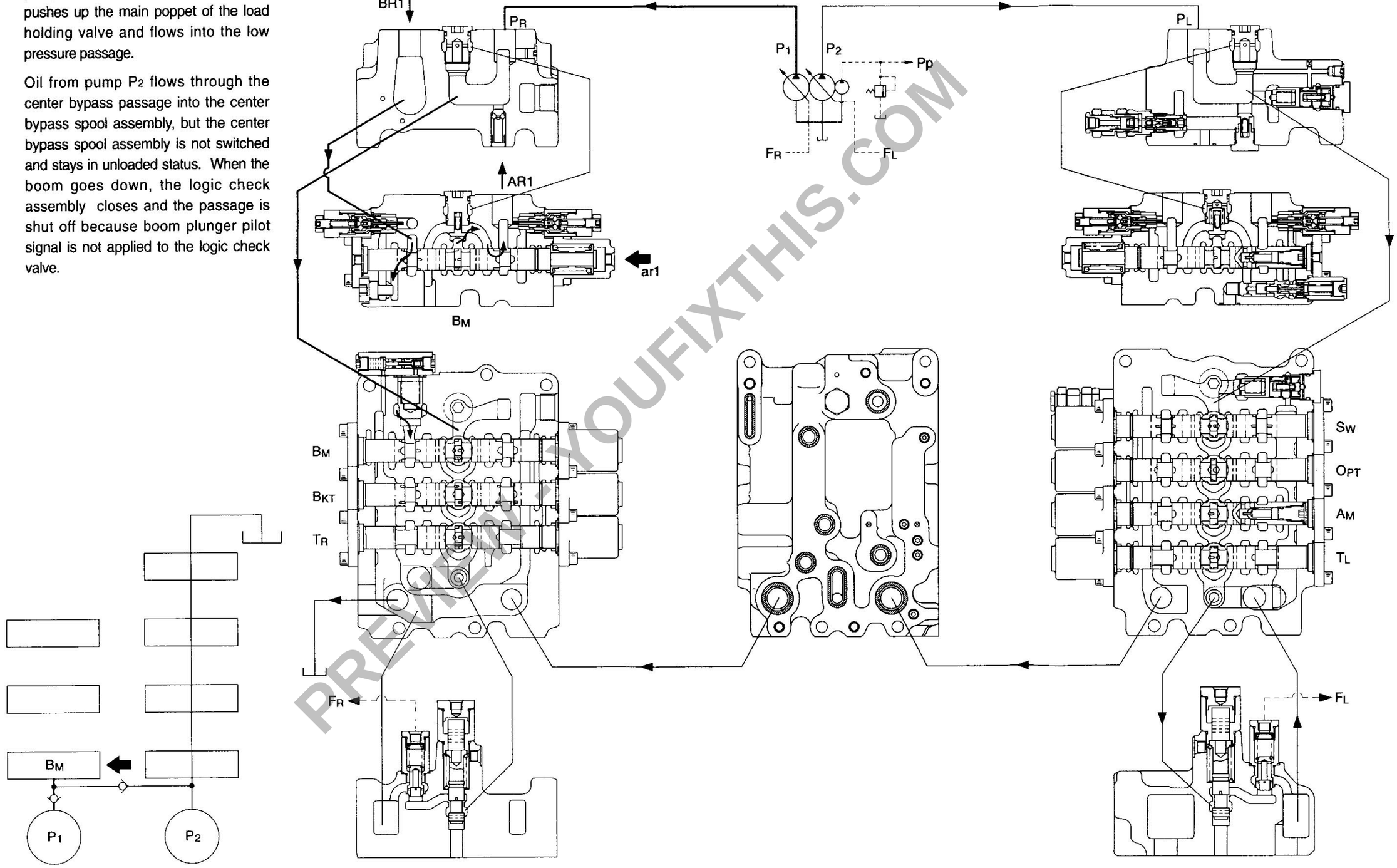
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(6) Boom down operation circuit

Oil from pump P_1 is fed into cylinder port A_{R1} by adding pressure to boom plunger pilot port a_{r1}. Oil from cylinder port B_{R1} pushes up the main poppet of the load holding valve and flows into the low pressure passage.

Oil from pump P_2 flows through the center bypass passage into the center bypass spool assembly, but the center bypass spool assembly is not switched and stays in unloaded status. When the boom goes down, the logic check assembly closes and the passage is shut off because boom plunger pilot signal is not applied to the logic check valve.



PREVIEW IF YOU FIXTHIS.COM

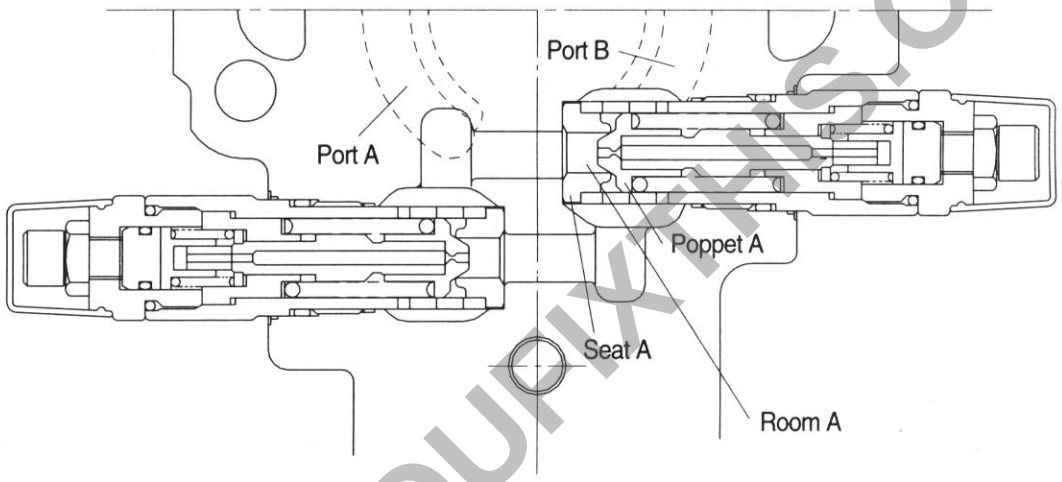
Download full manual at youfixthis.com

4) RELIEF VALVE

The relief valve mainly has the following two functions :

(1) To keep the starting pressure of the hydraulic motor at a constant value and bypass to the return line excessive oil generated at the motor inlet depending upon the acceleration speed of the driven inertia.

(2) To generate a brake pressure at the outlet during stopping of the driven inertia, and stop it forcedly.

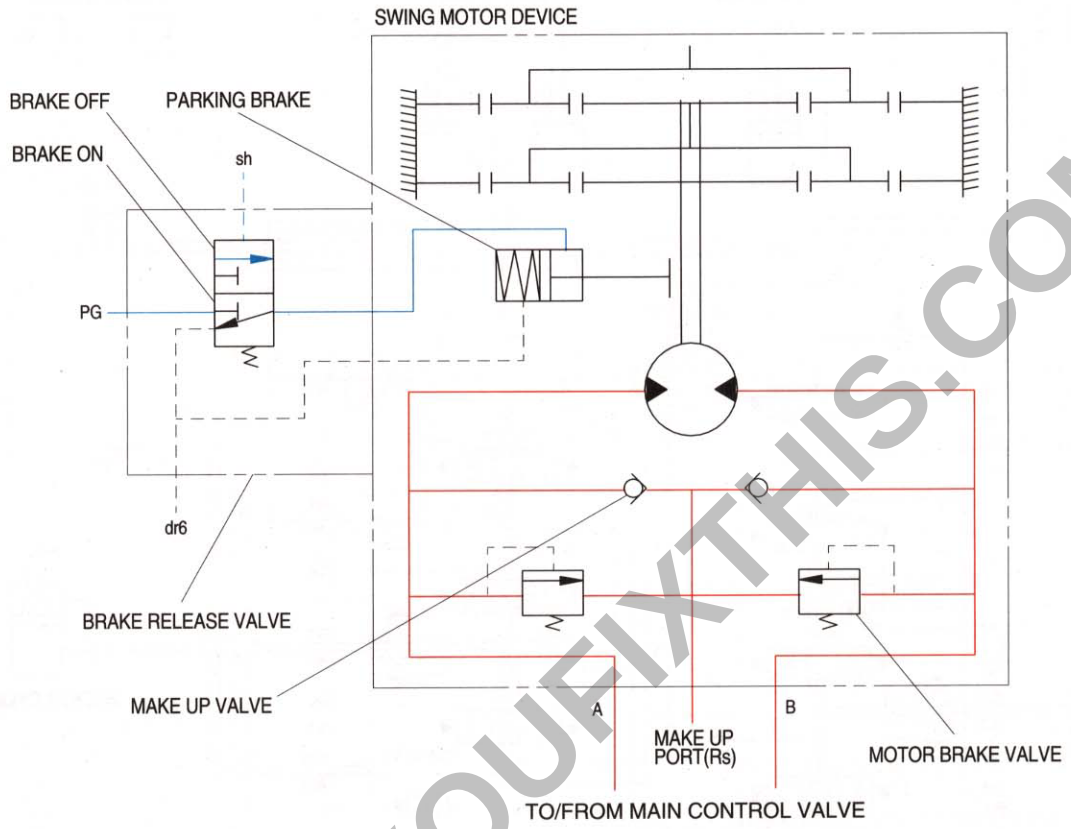


The room A is always connected to port A of the motor.
When the pressure at port A increases and the force pushing poppet A is higher than the set pressure of the spring, then poppet A is pushed up from the contact surface of seat A, and oil flows from room A to port B.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SWING CIRCUIT OPERATION



1) MOTOR BRAKE VALVE

Motor brake valve for the swing motor limits to cushion the starting and stopping pressure of swing operation.

2) MAKE UP VALVE

The make up valves prevent cavitation by supplying return oil to the vacuum side of the motor.

3) PARKING BRAKE

In case that the parking, of the machine at slope is required during operation, there is the danger of involuntary swing caused by the self weight of the machine. The brake is connected to prevent this involuntary swing.

PARKING BRAKE "OFF" OPERATION

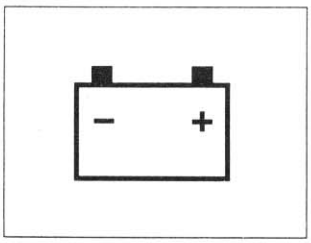
The parking brake is released by the pilot pressure oil from the pilot pump.
When the left control lever placed in the swing position, the pilot pressure at the shuttle valve is transferred to the brake release valve and the brake release valve is change over. Then the pilot pressure lift the brake piston and release the parking brake.

PARKING BRAKE "ON" OPERATION

When the control lever placed in the neutral position, the pressure of the pilot oil passage down. Then the brake release valve returned to the neutral position and the oil is returned from the brake piston to the tank. And the brake is set to "ON".

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

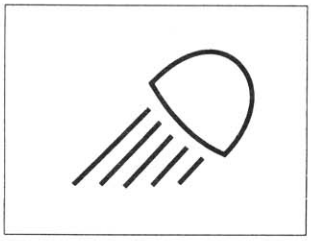
5) BATTERY CHARGING WARNING LAMP



① Check if the charging lamp is OFF during engine operation. If the lamp is turned ON, it is not charged.

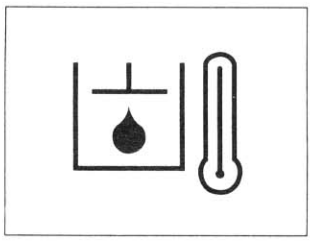
② This lamp is ON before starting the engine, it is turned OFF after starting the engine. Check the battery charging circuit when this lamp comes ON.

6) WORKING LIGHT PILOT LAMP



① When the main light switch is turned ON second step, the working light mounted on boom and the working light indicator lamp light ON.

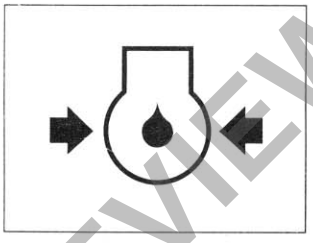
7) HYDRAULIC OIL OVERHEAT WARNING LAMP



① This warning lamp operates and the buzzer sounds when the temperature of hydraulic oil is over 105°C.

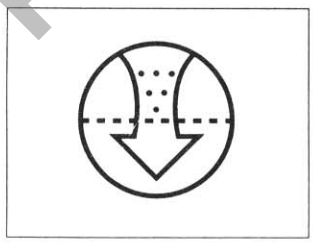
② Check the coolant when the lamp is turned ON.

8) ENGINE OIL PRESSURE WARNING LAMP



① This lamp is turned ON before starting the engine but turned OFF after starting the engine as the pressure caused from the engine oil pump lubricates each part.

9) AIR CLEANER WARNING LAMP



① This lamp operates by the vacuum caused inside when the filter of air cleaner is clogged which supply air to the engine.

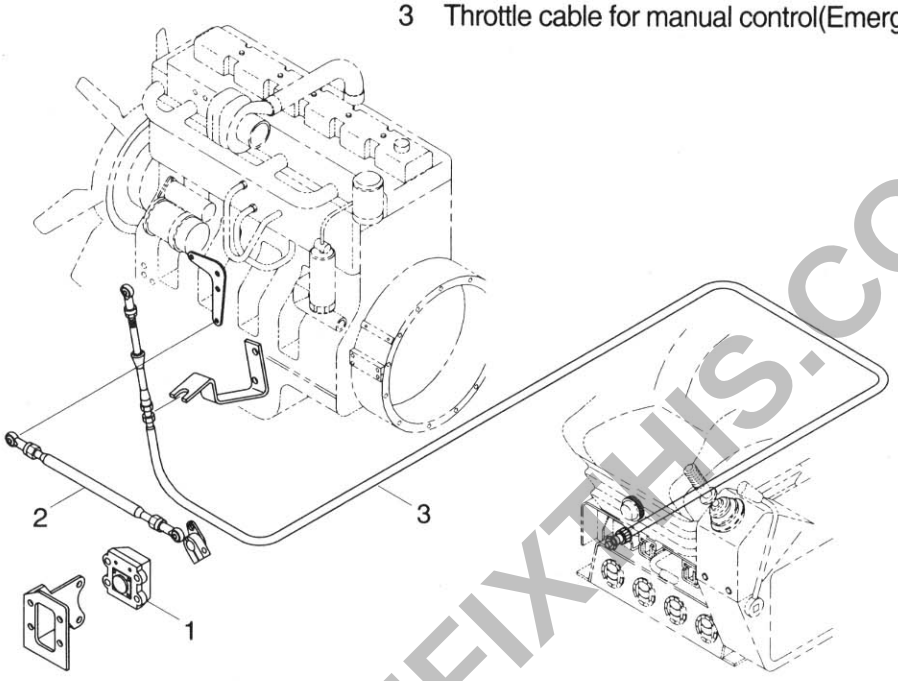
② Check the filter and wash or replace it when the lamp operates.

PREVIEW - YOUFIXTHIS.COM

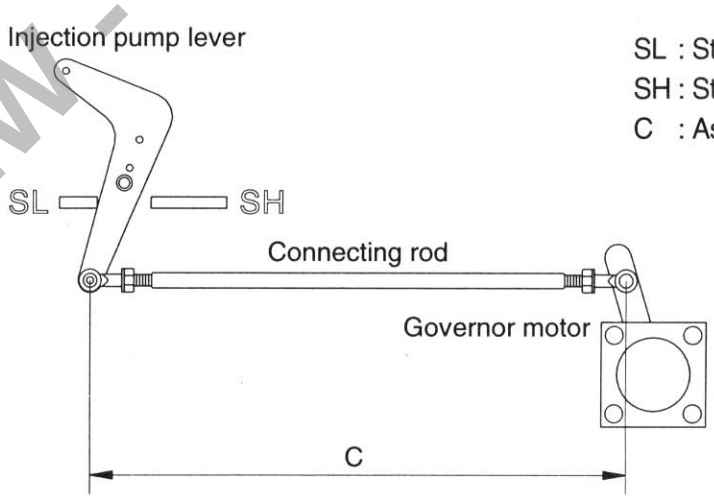
Download full manual at youfixthis.com

3. ENGINE GOVERNOR MOTOR AND EMERGENCY CABLE MOUNTING

1 Governor motor(step motor)
2 Connecting rod
3 Throttle cable for manual control(Emergency cable)



1) ENGINE THROTTLE LEVER



SL : Stopper, low idle
SH : Stopper, high idle
C : As required

2) EMERGENCY CABLE (push-pull cable)

It controls engine speed by connecting onto the lever of the injection pump when the malfunction of the CPU controller or the governor motor happen.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

(2) **Test 4 :** Check pressure at EPPR valve.

① Remove plug and connect pressure gauge as figure.
Gauge capacity : 0 to 40~50 kg/cm^2
(0 to 570~710 psi)

② Start engine.

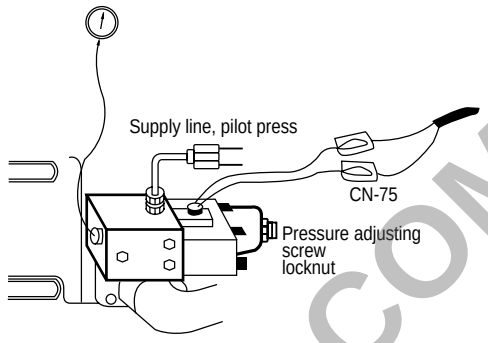
③ Set S-mode and cancel auto decel mode.

④ If tachometer show approx. 2250+50rpm, check pressure.

⑤ If pressure is not correct, adjust it.

⑥ After adjust, test the machine.

SPEC : 10~16kg/cm^2(140~230psi)



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

5) TRAVEL DEVIATION

(1) Measure the deviation by the tracks from a 20m straight line.

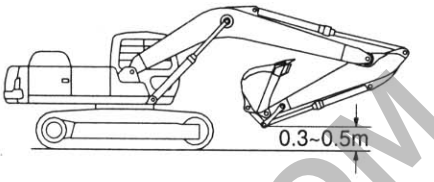
(2) Preparation

① Adjust the tension of both tracks to be equal.

② Provide a flat, solid test yard 20m in length, with extra length of 3 to 5m on both ends for machine acceleration and deceleration.

③ Hold the bucket 0.3 to 0.5m above the ground with the arm and bucket rolled in.

④ Keep the hydraulic oil temperature at 50±5°C.



(3) Measurement

① Measure the amount of mistracking at fast and slow travel speeds.

② Before beginning each test, select the following switch positions:

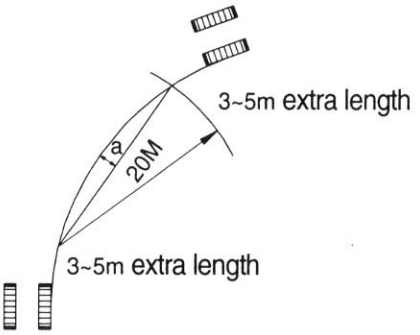
· MODE selector : H mode

③ Start traveling the machine in the acceleration zone with the travel levers at full stroke.

④ Measure the distance between a straight 20m line and the track made by the machine.(dimension a)

⑤ After measuring the tracking in forward travel, turn the upperstructure 180° and measure that in reverse travel.

⑥ Repeat steps ④ and ⑤ three times and calculate the average values.



(4) Evaluation

Mistrack should be within the following specifications:

Unit : mm/20m

Model	Standard	Maximum allowable	Remarks
R320LC-3	200	240	

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2. TORQUE CHART

The torques given are standard figures. Any figures specifically described in this manual has priority.

1) METRIC BOLT-coarse thread

Bolt size	8T		10T	
	kgf · m	lbf · ft	kgf · m	lbf · ft
M 6 × 1.0	0.9 ~ 1.3	6.5 ~ 9.4	1.1 ~ 1.7	A8.0 ~ 12.3
M 8 × 1.25	2.0 ~ 3.0	14.5 ~ 21.7	2.7 ~ 4.1	19.5 ~ 29.7
M10 × 1.5	4.0 ~ 6.0	28.9 ~ 43.4	5.5 ~ 8.3	39.8 ~ 60.0
M12 × 1.75	7.4 ~ 11.2	53.5 ~ 81.0	9.8 ~ 15.8	70.9 ~ 114.3
M14 × 2.0	12.2 ~ 16.6	88.2 ~ 120.0	16.7 ~ 22.5	120.8 ~ 162.7
M16 × 2.0	18.6 ~ 25.2	134.5 ~ 182.3	25.2 ~ 34.2	182.3 ~ 247.4
M18 × 2.0	25.8 ~ 35.0	186.6 ~ 253.2	35.1 ~ 47.5	253.9 ~ 343.6
M20 × 2.5	36.2 ~ 49.0	261.8 ~ 354.4	49.2 ~ 66.6	355.9 ~ 481.7
M22 × 2.5	48.3 ~ 63.3	349.4 ~ 457.8	65.8 ~ 98.0	475.9 ~ 708.8
M24 × 3.0	62.5 ~ 84.5	452.1 ~ 611.2	85.0 ~ 115.0	614.8 ~ 831.8
M30 × 3.0	124.1 ~ 167.9	897.6 ~ 1214.4	169.1 ~ 228.9	1223.1 ~ 1655.6
M36 × 4.0	174.3 ~ 235.6	1260.7 ~ 1704.0	250.0 ~ 310.0	1808.3 ~ 2242.2

2) METRIC BOLT-fine thread

Bolt size	8T		10T	
	kgf · m	lbf · ft	kgf · m	lbf · ft
M 8 × 10	2.2 ~ 3.4	15.9 ~ 24.6	3.0 ~ 4.4	21.7 ~ 31.8
M10 × 1.2	4.5 ~ 6.7	32.5 ~ 48.5	5.9 ~ 8.9	42.7 ~ 64.4
M12 × 1.25	7.8 ~ 11.6	56.4 ~ 83.9	10.6 ~ 16.0	76.7 ~ 115.7
M14 × 1.5	13.3 ~ 18.1	96.2 ~ 130.9	17.9 ~ 21.1	129.5 ~ 174.3
M16 × 1.5	19.9 ~ 26.9	143.9 ~ 194.6	26.6 ~ 36.0	192.4 ~ 260.4
M18 × 1.5	28.6 ~ 43.6	206.9 ~ 315.4	38.4 ~ 52.0	277.7 ~ 376.1
M20 × 1.5	40.0 ~ 54.0	289.3 ~ 390.6	53.4 ~ 72.2	386.2 ~ 522.2
M22 × 1.5	52.7 ~ 71.3	381.2 ~ 515.7	70.7 ~ 95.7	511.4 ~ 692.2
M24 × 2.0	67.9 ~ 91.9	491.1 ~ 664.7	90.9 ~ 123.1	657.5 ~ 890.4
M30 × 2.0	136.9 ~ 185.1	990.2 ~ 1338.8	181.7 ~ 248.3	1314.2 ~ 1796.0
M36 × 3.0	192.1 ~ 259.9	1389.5 ~ 1879.9	261.8 ~ 354.2	1893.6 ~ 2561.9

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

14) BUCKET FLOW SUMMATION CHECK

(1) Disassembling

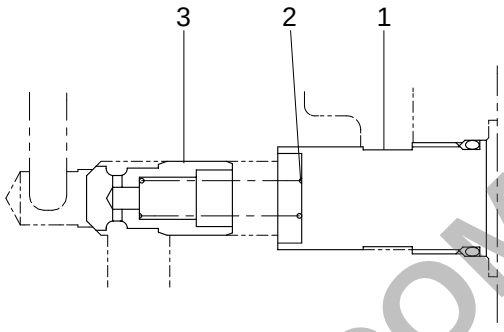
① Remove cap(1).

② Take off spring(2) and check valve(3).

(2) Assembling

① Mount check valve(3) and spring(2) to the valve housing.

② Tighten cap(1) at the specified torque.
Tightening torque : 10kgf · m(72.3lbf · ft)



Tools
· Hexagon socket : 12mm
· Torque wrench

15) CHECK ASSEMBLY

(1) Disassembling

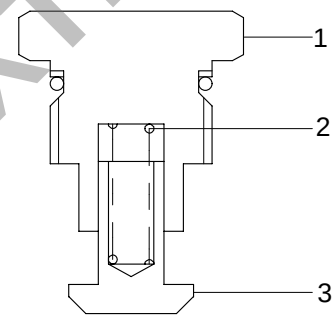
① Remove cap(1).

② Take off spring(2) and check valve(3).

(2) Assembling

① Mount check valve(3) and spring(2) to the valve housing.

② Tighten cap(1) at the specified torque.
Tightening torque : 6kgf · m(43.4lbf · ft)



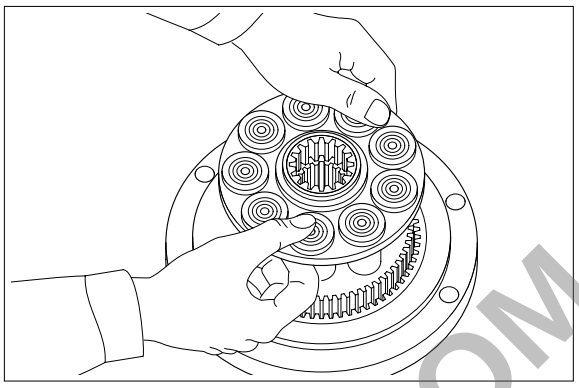
Tools
· Hexagon socket : 30mm
· Torque wrench

PREVIEW - YOUFIXTHIS.COM

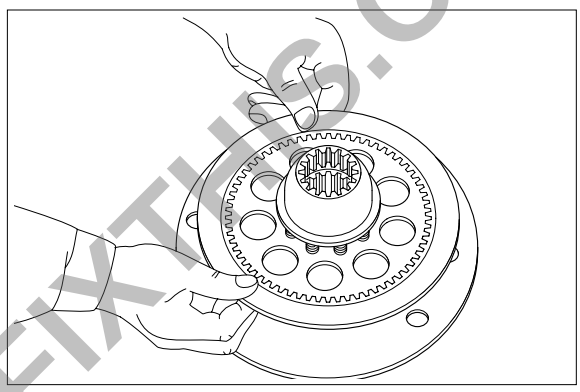
Download full manual at youfixthis.com

(4) Disassembling of cylinder sub-assembly

① Pull out set plate(123), piston(121), and shoe(122) sub-assembly.



② Remove friction plate(742) and separator plate(741) from cylinder block(111).
Remove spherical bush(113), spacer (116) and cylinder spring(114).



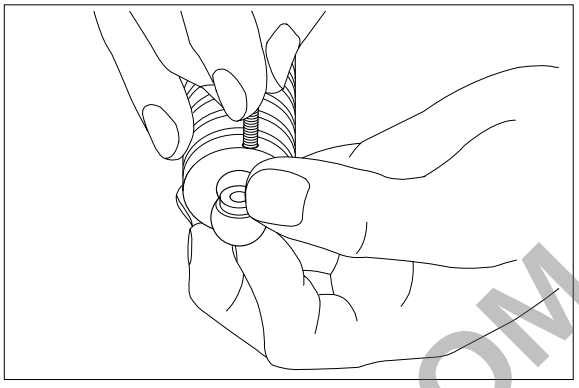
That is all of the disassembling work.
The pins(451, 452, 709) force-fitted to the valve casing and casing cannot be removed.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(19) Assemble cap(403) and tighten machine screw 2(421) and nut(422) to their specified torques.

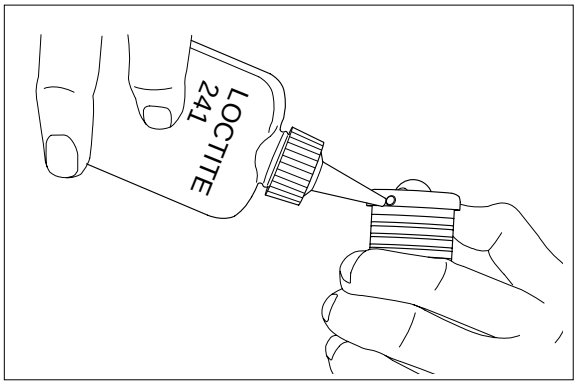
※ For valve with switch, assemble roller (451) in stead of cap and tighten them.
In this time confirm that the clearance between roller and handle(401) is 0.5 to 1.5mm.



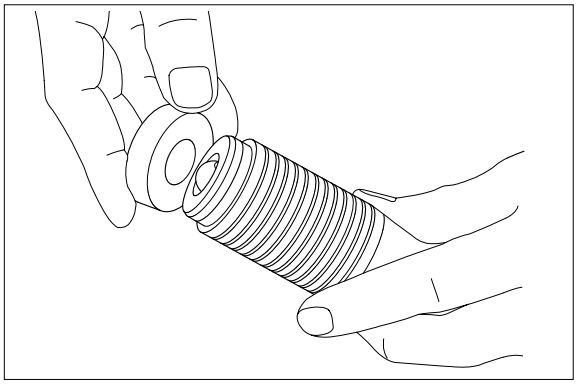
(20) Tighten remaining machine screws 3 (431) to the specified torque.

(21) Tighten machine screws 1(411), plain washer(413) and nuts(412) to the specified torque.

※ Apply loctite #241 to threaded sections of machine screws 1, 2 and 3.



(22) Fit handle cap(402).



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 18 of 480 pages

The full manual includes:

- All 480 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Hyundai ROBEX 320-3, ROBEX 320LC-3, ROBEX 320NLC-3 Shop Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual