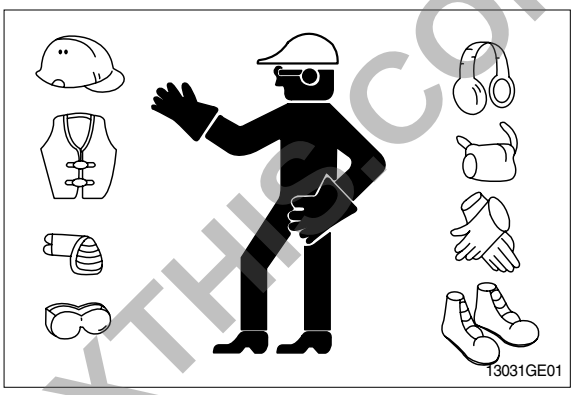
GROUP 1 SAFETY

FOLLOW SAFE PROCEDURE

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

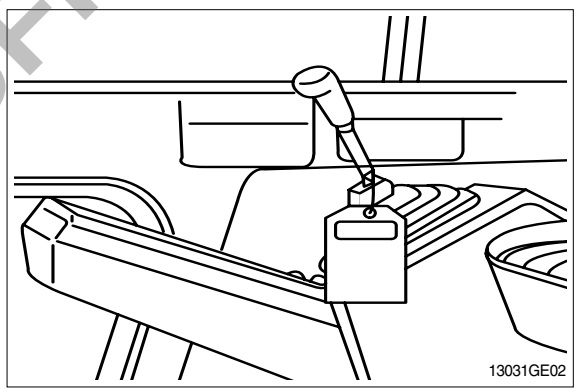
WEAR PROTECTIVE CLOTHING

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



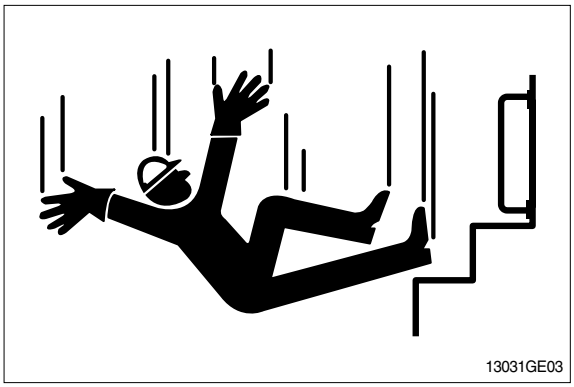
WARN OTHERS OF SERVICE WORK

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

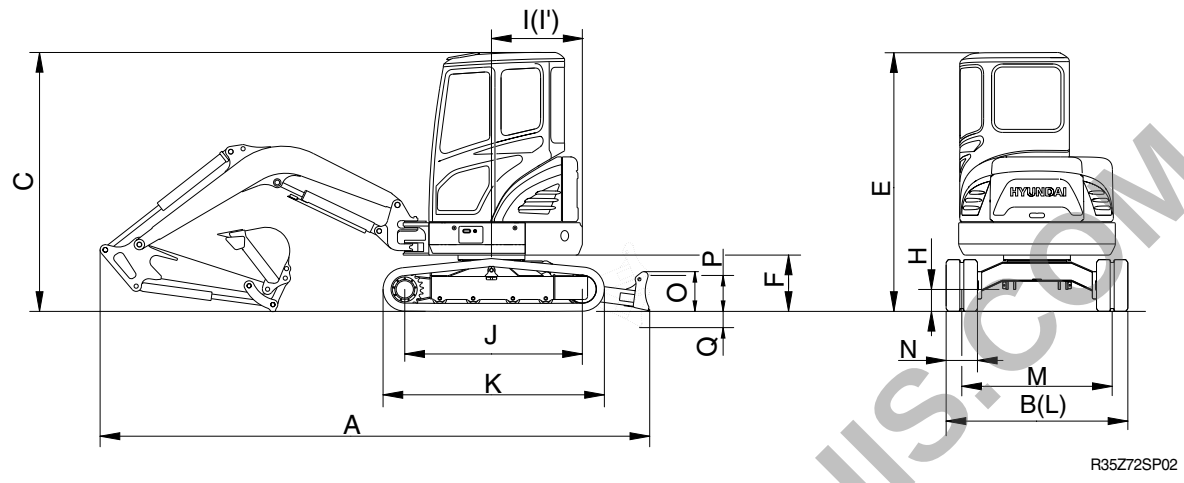
Falling is one of the major causes of personal injury.
When you get on and off the machine, always maintain a three point contact with the steps and handrails and face the machine. Do not use any controls as handholds.
Never jump on or off the machine. Never mount or dismount a moving machine.
Be careful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



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2. SPECIFICATIONS

1) 2.5m(8' 2") MONO BOOM, 1.3m(4' 3") ARM, WITH BOOM SWING POST



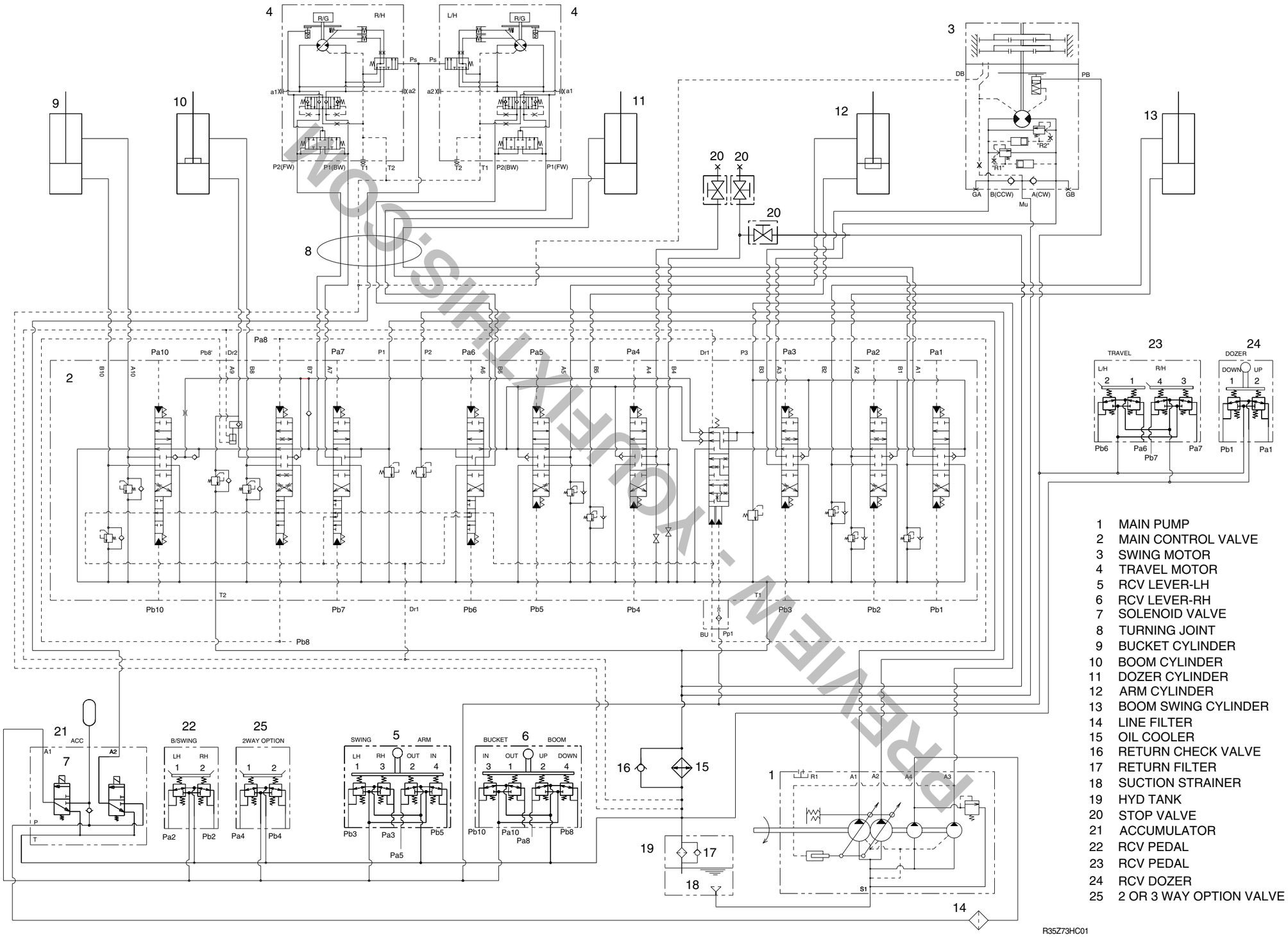
R35Z72SP02

Description		Unit	Specification
Operating weight		kg(lb)	3650(8050)
Bucket capacity(SAE heaped), standard		$m^3(yd^3)$	0.11(0.14)
Overall length	A	mm(ft-in)	4790(15' 9")
Overall width, with 300mm shoe	B		1740(5' 9")
Overall height	C		2500(8' 2")
Overall height of cab	E		2500(8' 2")
Ground clearance of counterweight	F		540(1' 9")
Minimum ground clearance	H		290(0' 11")
Rear-end distance	I		870(2' 10")
Rear-end swing radius	I'		870(2' 10")
Distance between tumblers	J		1700(5' 7")
Undercarriage length	K		2130(7' 0")
Undercarriage width	L		1740(5' 9")
Track gauge	M		1440(4' 9")
Track shoe width, standard	N		300(1' 0")
Height of blade	O		370(1' 3")
Ground clearance of blade up	P		375(1' 3")
Depth of blade down	Q		390(1' 3")
Travel speed(Low/high)		km/hr(mph)	2.7/4.5(1.7/2.8)
Swing speed		rpm	9.5
Gradeability		Degree(%)	30(58)
Ground pressure(300mm shoe)		$kgf/cm^2(psi)$	0.34(4.83)

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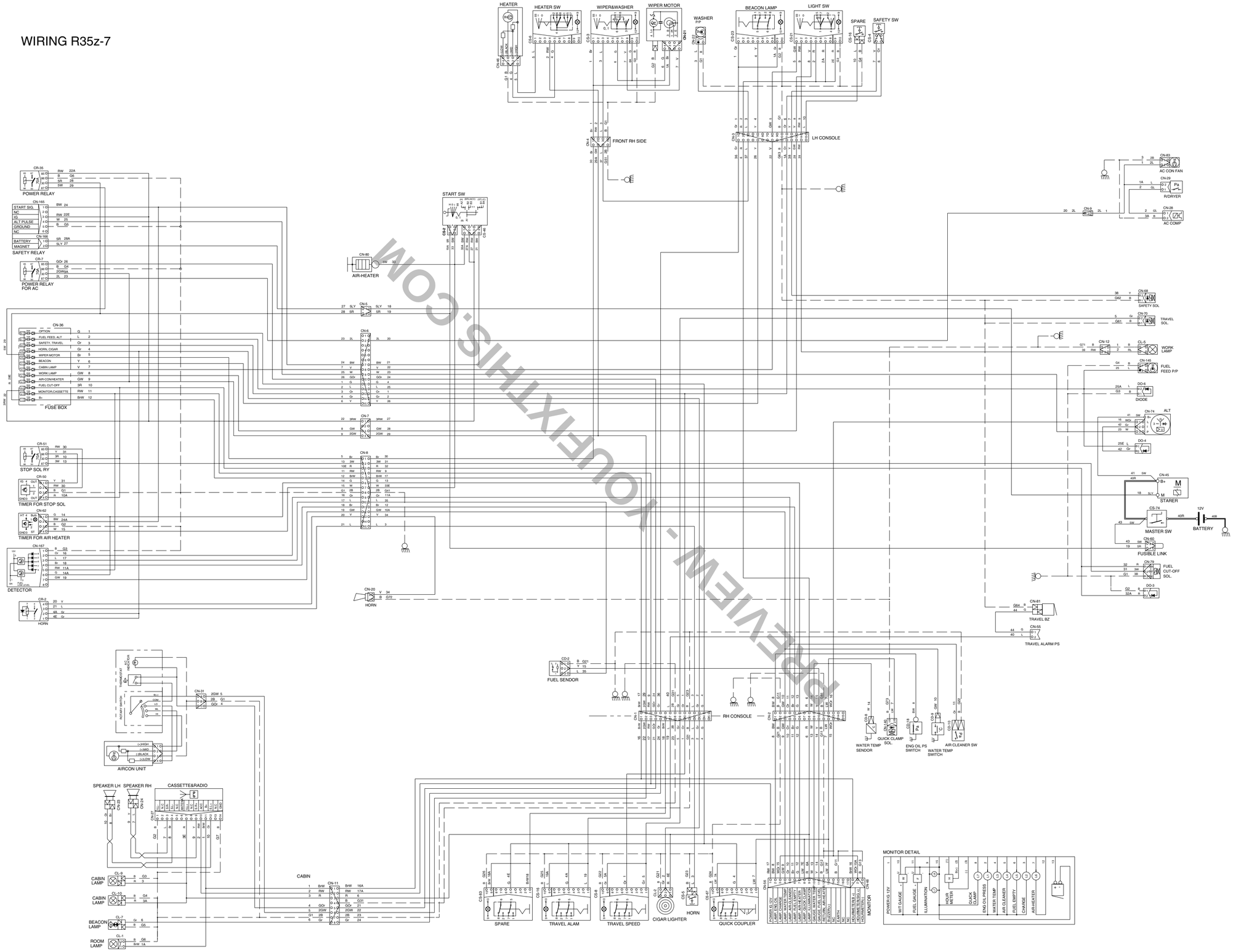
GROUP 1 HYDRAULIC CIRCUIT



1 MAIN PUMP
2 MAIN CONTROL VALVE
3 SWING MOTOR
4 TRAVEL MOTOR
5 RCV LEVER-LH
6 RCV LEVER-RH
7 SOLENOID VALVE
8 TURNING JOINT
9 BUCKET CYLINDER
10 BOOM CYLINDER
11 DOZER CYLINDER
12 ARM CYLINDER
13 BOOM SWING CYLINDER
14 LINE FILTER
15 OIL COOLER
16 RETURN CHECK VALVE
17 RETURN FILTER
18 SUCTION STRAINER
19 HYD TANK
20 STOP VALVE
21 ACCUMULATOR
22 RCV PEDAL
23 RCV PEDAL
24 RCV DOZER
25 2 OR 3 WAY OPTION VALVE

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WIRING R35z-7



R35Z74EL01

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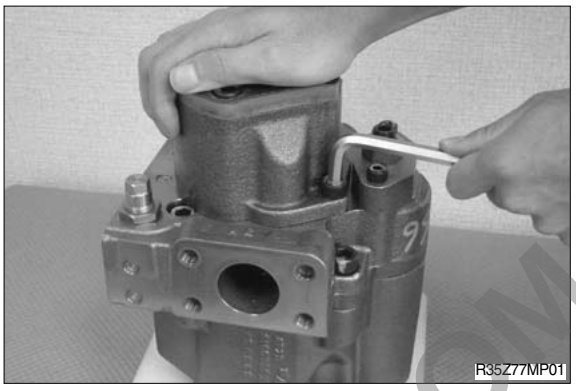
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3. DISASSEMBLING PROCEDURE

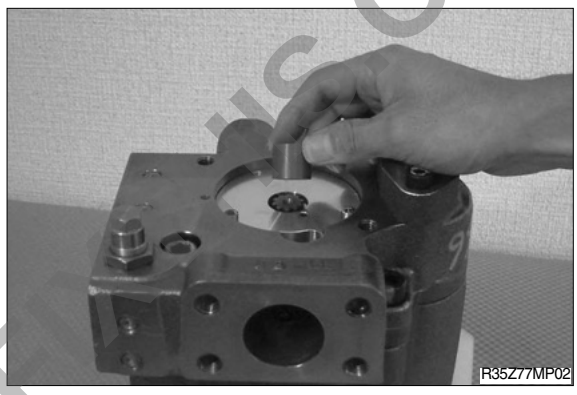
1) DISASSEMBLING THE GEAR PUMP

(1) Remove the hexagon socket head cap screw. (M10 × 25, 2 pieces)
Hexagon socket screw key (8 mm)

※ Be careful because the O-ring (at 2 pieces) are provided to the housing.

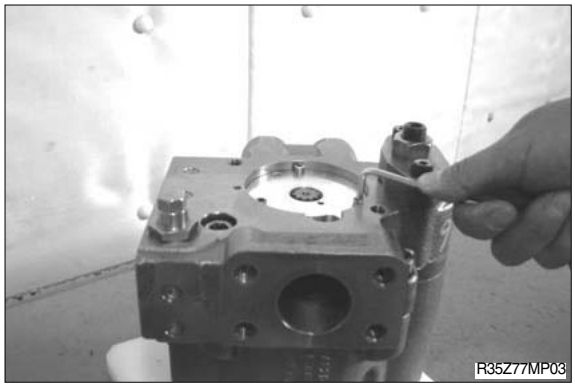


(2) Remove the coupling.

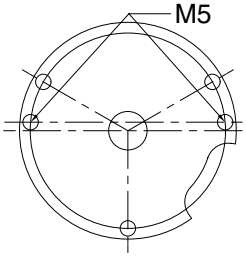


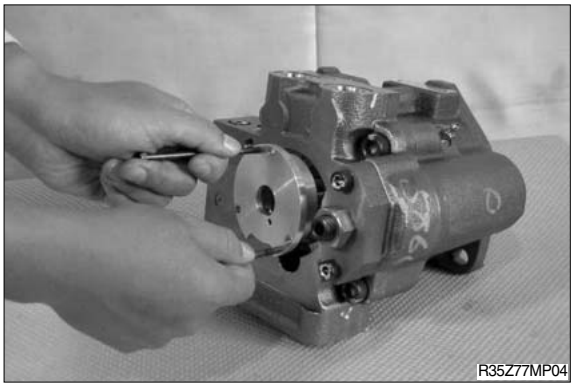
2) DISASSEMBLING THE TROCHOID PUMP

(1) Remove the hexagon socket head cap screw. (M5 × 12, 3 pieces)
Hexagon socket screw key (4 mm)



(2) Remove the case, the side plate (A), and the gear.
Use the hexagon socket head cap screws.
For example : M5 × 90, 2 pieces





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GROUP 2 TIGHTENING TORQUE

1. MAJOR COMPONENTS

No.	Descriptions		Bolt size	Torque	
				kgf · m	lbf · ft
1	Engine	Engine mounting bolt(Engine-Bracket)	M10 × 1.5	6.9±1.4	50±10.0
2		Engine mounting bolt(Bracket-Frame)	M12 × 1.75	25±2.5	181±18.1
3		Radiator mounting bolt, nut	M10 × 1.5	6.9±1.4	50±10.0
4		Coupling mounting bolt	M12 × 1.75	9.25±0.25	67±1.8
5	Hydraulic system	Main pump mounting bolt	M12 × 1.75	9.5±1.9	69±14.0
6		Main control valve mounting bolt	M10 × 1.5	6.9±1.4	50±10.0
7		Fuel tank mounting bolt	M12 × 1.75	12.8±3.0	93±22.0
8		Hydraulic oil tank mounting bolt	M12 × 1.75	12.8±3.0	93±22.0
9		Turning joint mounting bolt, nut	M10 × 1.5	6.9±1.4	50±10.0
10		Swing motor mounting bolt	M14 × 2.0	19.6±2.9	142±21.0
11	Power train system	Swing bearing upper mounting bolt	M12 × 1.75	12.8±3.0	93±22.0
12		Swing bearing lower mounting bolt	M12 × 1.75	12.8±3.0	93±22.0
13		Travel motor mounting bolt	M12 × 1.75	13.8±2.0	100±14.0
14		Sprocket mounting bolt	M12 × 1.75	12.8±3.0	93±22.0
15	Under carriage	Carrier roller mounting bolt, nut	M12 × 1.75	12.8±3.0	93±22.0
16		Track roller mounting bolt	M18 × 2.0	41.3±6.2	299±45.0
17	Others	Counter weight mounting bolt	M20 × 2.5	57.8±6.4	418±46.3
18		Cab mounting bolt, nut	M12 × 1.75	12.8±3.0	92±22.0
19		Operator's seat mounting bolt	M 8 × 1.25	1.17±0.1	8.5±0.7

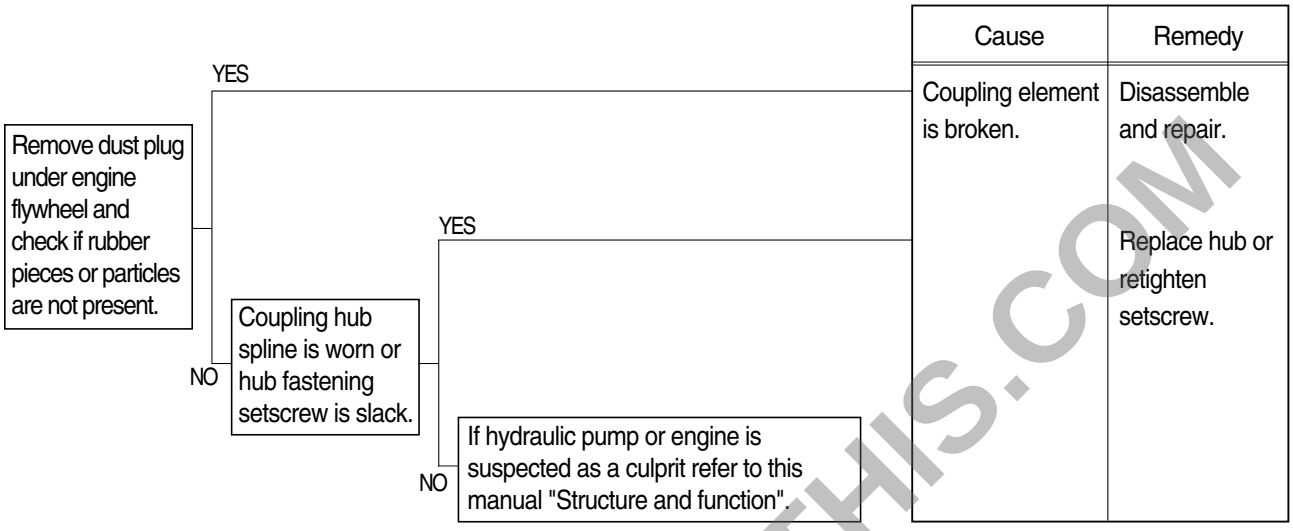
※ For tightening torque of engine and hydraulic components, see each component disassembly and assembly.

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2. DRIVE SYSTEM

1) UNUSUAL NOISE COMES OUT OF PUMP CONNECTION



Cause	Remedy
Coupling element is broken.	Disassemble and repair.
	Replace hub or retighten setscrew.

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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

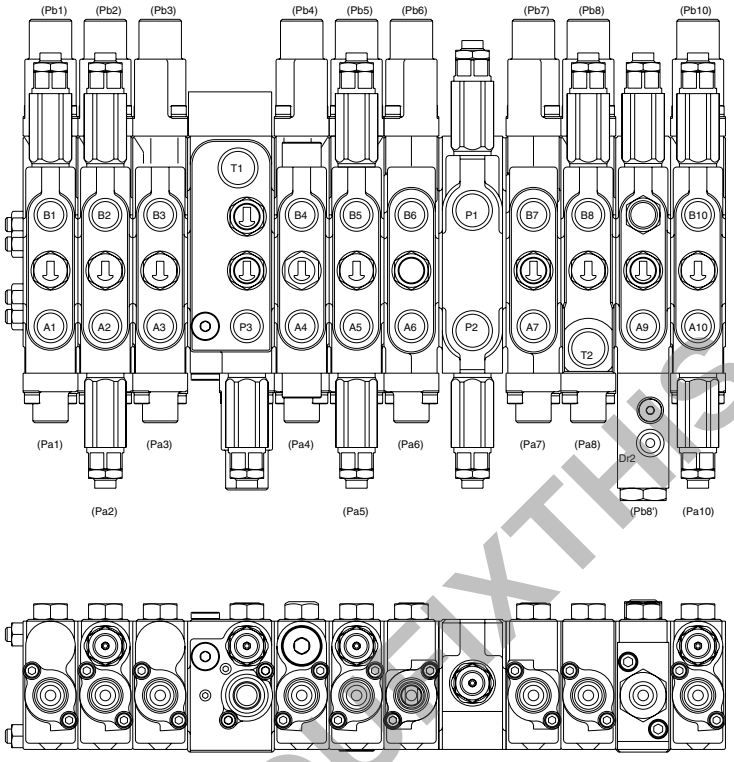
	0	1	2	3	4	5	6	7	8	9
0		2.20	4.41	6.61	8.82	11.02	13.23	15.43	17.64	19.84
10	22.05	24.25	26.46	28.66	30.86	33.07	35.27	37.48	39.68	41.89
20	44.09	46.30	48.50	50.71	51.91	55.12	57.32	59.5.	61.73	63.93
30	66.14	68.34	70.55	72.75	74.96	77.16	79.37	81.57	83.78	85.98
40	88.18	90.39	92.59	94.80	97.00	99.21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

1. OUTLINE



R35Z72MCV01

Mark	Port name	Port size	Tightening torque
P1	P1 pump port	PF 1/2	6~7 kgf · m
P2	P2 pump port		
T1	Tank return port		
T2	Tank return port		
P3	P3 pump port	PF 3/8	4.0~5.0 kgf · m
A1	Dozer		
B1	Dozer		
A2	Boom swing(RH) port		
B2	Boom swing(LH) port		
A3	Swing (LH) port		
B3	Swing (RH) port		
A4	Option port		
B4	Option port		
A5	Arm out port		
B5	Arm in port		
A6	Travel [LH/RR] port		
B6	Travel [LH/FW] port		
A7	Travel [RH/RR] port		
B7	Travel [RH/FW] port		
A9	Boom up port		
B8	Boom down port		

Mark	Port name	Port size	Tightening torque
A10	Bucket out port	PF 3/8	4.0~5.0 kgf · m
B10	Bucket in port		
Pa1	Dozer down pilot port	PF 1/4	2.5~3.0 kgf · m
Pb1	Dozer up pilot port		
Pa2	Boom swing (RH) pilot port		
Pb2	Boom swing (LH) pilot port		
Pa3	Swing (RH) pilot port		
Pb3	Swing (LH) pilot port		
Pa5	Arm out pilot port		
Pb5	Arm in pilot port		
Pa6	Travel [LH/RR] pilot port		
Pb6	Travel [LH/FW] pilot port		
Pa7	Travel [RH/RR] pilot port		
Pb7	Travel [RH/FW] pilot port		
Pa8	Boom up pilot port		
Pb8	Boom down pilot port		
Pa10	Bucket out pilot port		
Pb10	Bucket in pilot port		

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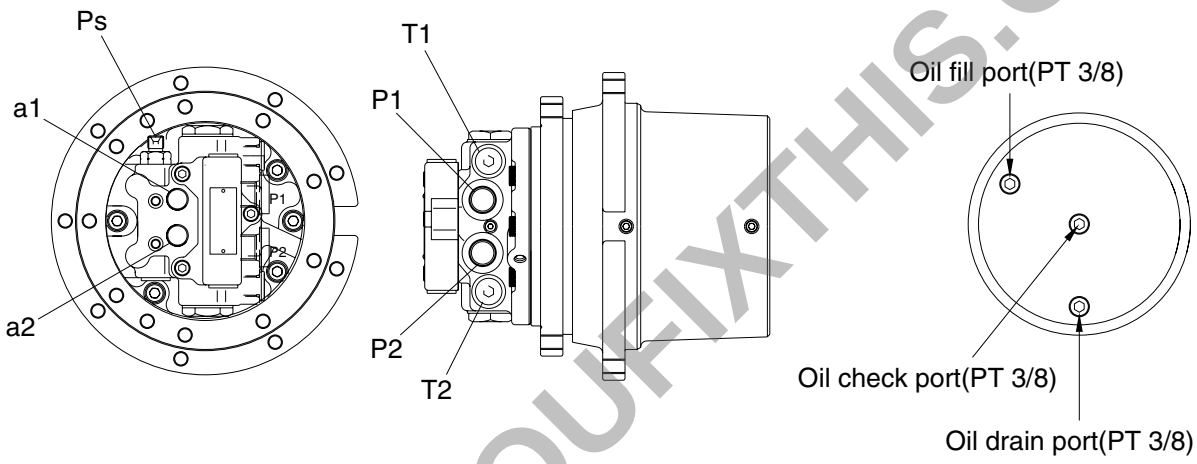
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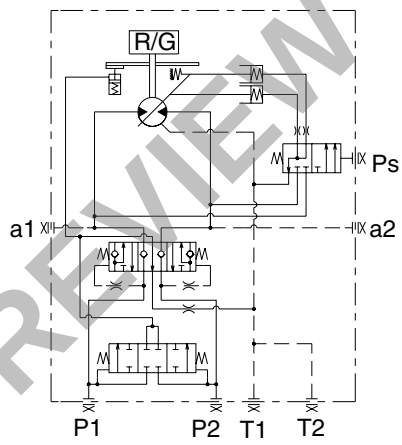
GROUP 4 TRAVEL DEVICE

1. CONSTRUCTION

Travel device consists travel motor and gear box.

Travel motor includes counterbalance valve, parking brake and high/low speed changeover mechanism.





HYDRAULIC CIRCUIT

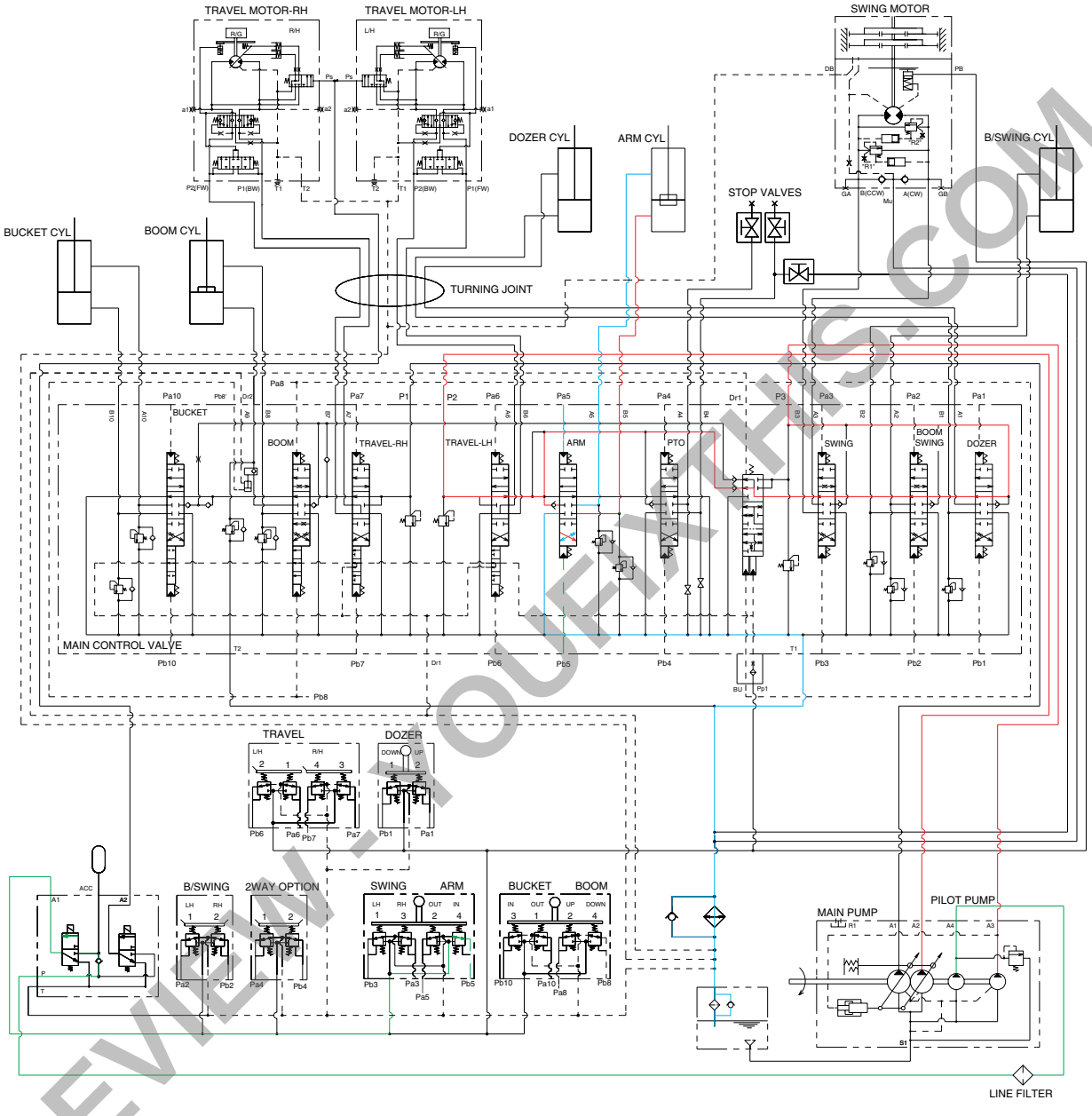
R35Z72TM20

Port	Port name	Port size
P1	Main port	PF 1/2
P2	Main port	PF 1/2
a1,a2	Gauge port	PF 1/8
T1,T2	Drain port	PF 3/8
Ps	2 speed control port	9/16-18 UNF

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3. ARM ROLL IN OPERATION



R35Z73HC12

When the left control lever is pulled back, the arm spools in the main control valve are moved the to roll in position by the pilot oil pressure from the remote control valve.

The oil from the P2 and P3 pump flows into the main control valve and then goes to the large chamber of arm cylinder.

At the same time, the oil from small chamber of arm cylinder returns to the hydraulic oil tank through the arm spool in the main control valve. When this happens, the arm rolls in.

The cavitation which will happen to the bottom of the arm cylinder is also prevented by the make-up valve in the main control valve.

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5. BEACON LAMP CIRCUIT

1) OPERATING FLOW

Fuse box (No.19) → I/conn[CN-6(15)] → Beacon lamp switch[CN-23(5)]

(1) Beacon lamp switch ON

Beacon lamp switch ON [CS-23(1)]

- → Switch Indicator lamp ON [CS-23(9)]
- → I/conn[CN-3(1)] → I/conn[CN-1(5)] → I/conn[CN-11(8)] → Beacon lamp ON [CL-7]

2) CHECK POINT

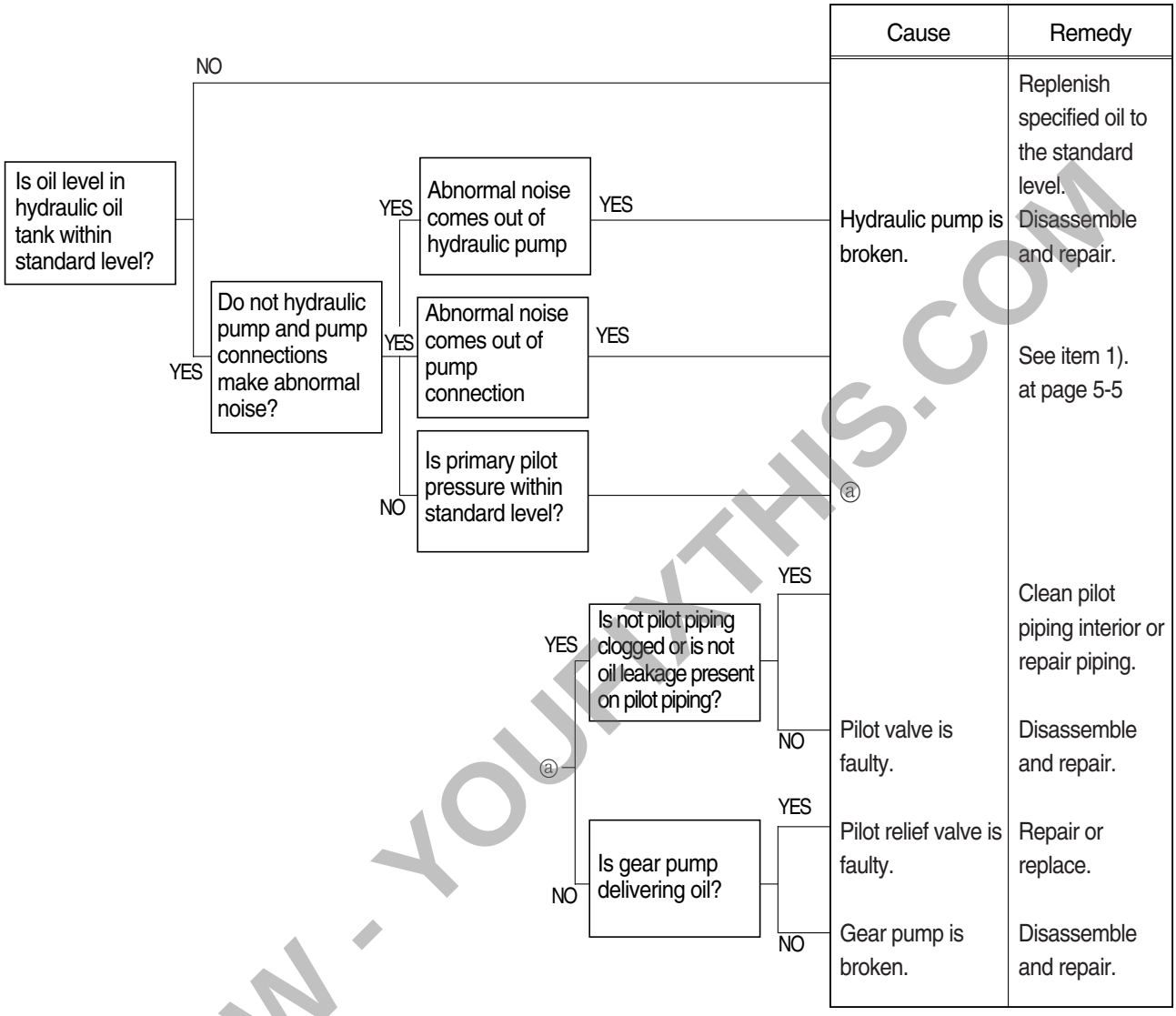
Engine	Start switch	Check point	Voltage
STOP	ON	① - GND(Fuse box) ② - GND(Switch power input) ③ - GND(Switch power output) ④ - GND(Beacon lamp)	10~12.5V

※ GND : Ground

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2) ENGINE STARTS BUT MACHINE DOES NOT OPERATE AT ALL



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3) TRAVEL SPEED

(1) Measure the time required for the excavator to travel a 20m test track.

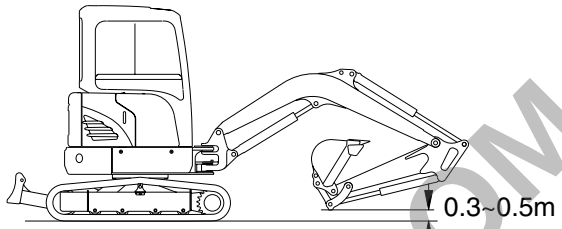
(2) Preparation

① Adjust the tension of both tracks to be equal.

② Prepare a flat and solid test track 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.



R35Z76MC04

(3) Measurement

① Measure both the low and high speeds of the machine.

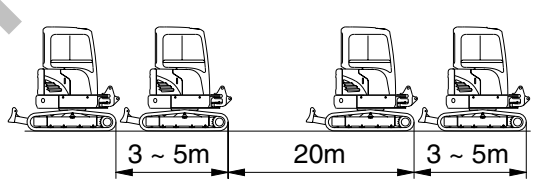
② Before starting either the low or high speed tests, adjust the travel mode switch to the speed to be tested.

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

④ Measure the time required to travel 20m.

⑤ After measuring the forward travel speed, turn the upperstructure 180° and measure the reverse travel speed.

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



R35Z76MC05

(4) Evaluation

The average measured time should meet the following specifications.

Unit : Seconds / 20m

Model	Travel speed	Standard	Maximum allowable	Remarks
R35Z-7	1 Speed	28.8±2.0	36	
	2 Speed	16.0±1.0	20	

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3. COMPLETING WORK

1) If the coolant has been drained, tighten the drain valve, and add water to the specified level. Run the engine to circulate the water through the system. Then check the water level again.
2) If the hydraulic equipment has been removed and installed again, add engine oil to the specified level. Run the engine to circulate the oil through the system. Then check the oil level again.
3) If the piping or hydraulic equipment, such as hydraulic cylinders, pumps, or motors, have been removed for repair, always bleed the air from the system after reassembling the parts.
4) Add the specified amount of grease(Molybdenum disulphide grease) to the work equipment related parts.

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(3) Disassembly of the load check valve and the negative relief valve

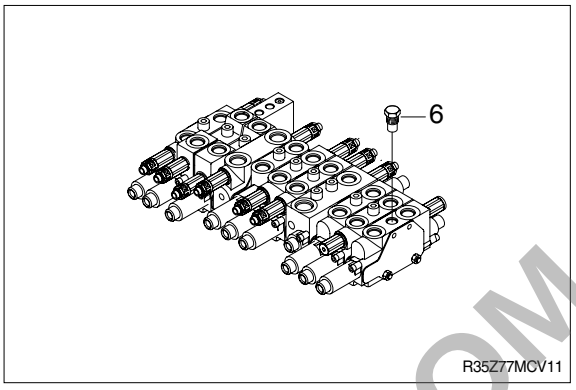
① The load check valve

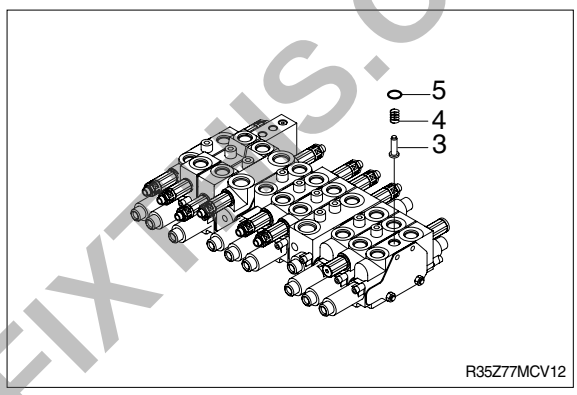
a. Fix the body to suitable work bench.

※ Pay attention not to damage the body.

b. Loosen the plug(6)
(Hexagon wrench : 10㎜).

c. Remove the O-ring(5), spring(4) and the load check valve(3) with pincers or magnet.





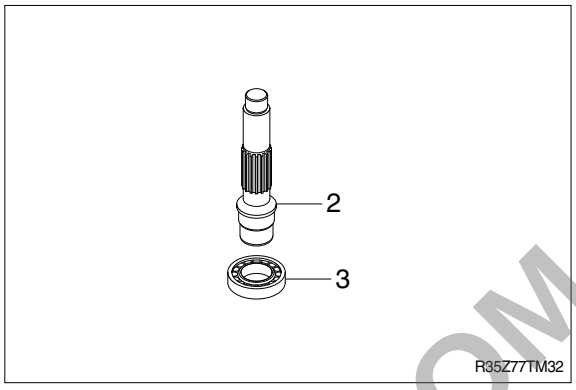
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(31) Take out ball bearing (3) from shaft (2).

· Tools required :
Ball bearing disassembly jig (S-8)

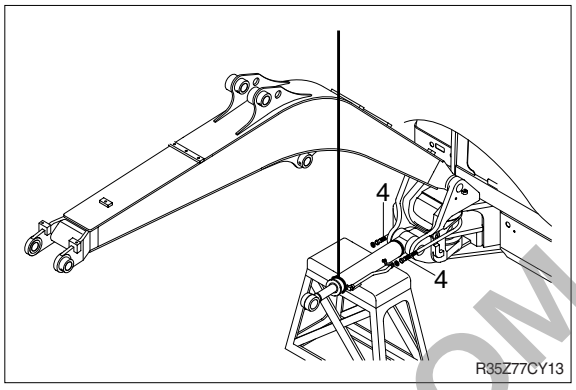
(32) Completed.



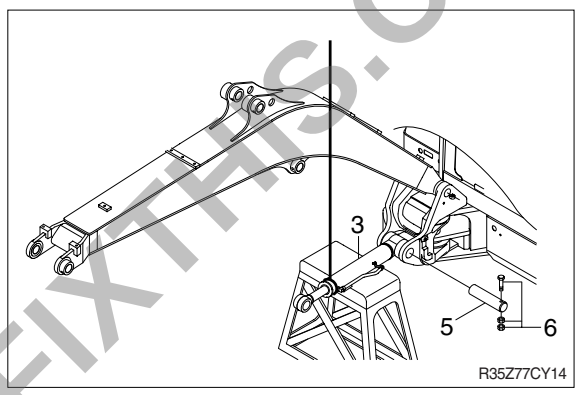
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⑤ Disconnect boom cylinder hoses(4) and put plugs on cylinder pipe.



⑥ Remove bolt(6) and pull out pin(5).
⑦ Remove boom cylinder assembly(3).
· Weight : 60kg(130lb)



(2) Install

① Carry out installation in the reverse order to removal.

⚠ When aligning the mounting position of the pin, do not insert your fingers in the pin hole.

※ Bleed the air from the boom cylinder.
※ Conformed the hydraulic oil level and check the hydraulic oil leak or not.

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