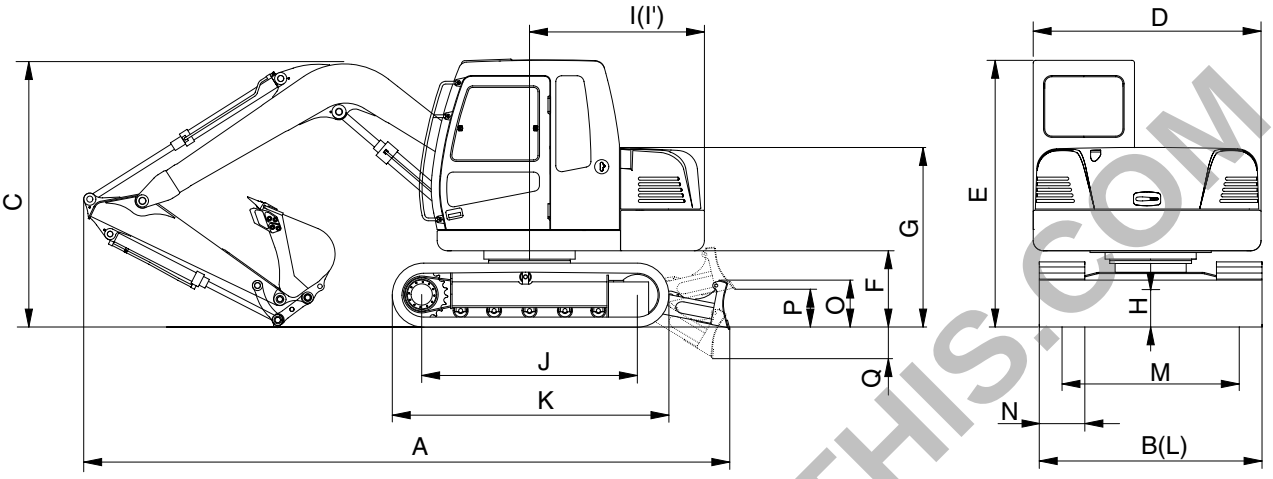
2. SPECIFICATIONS

1) R80-7

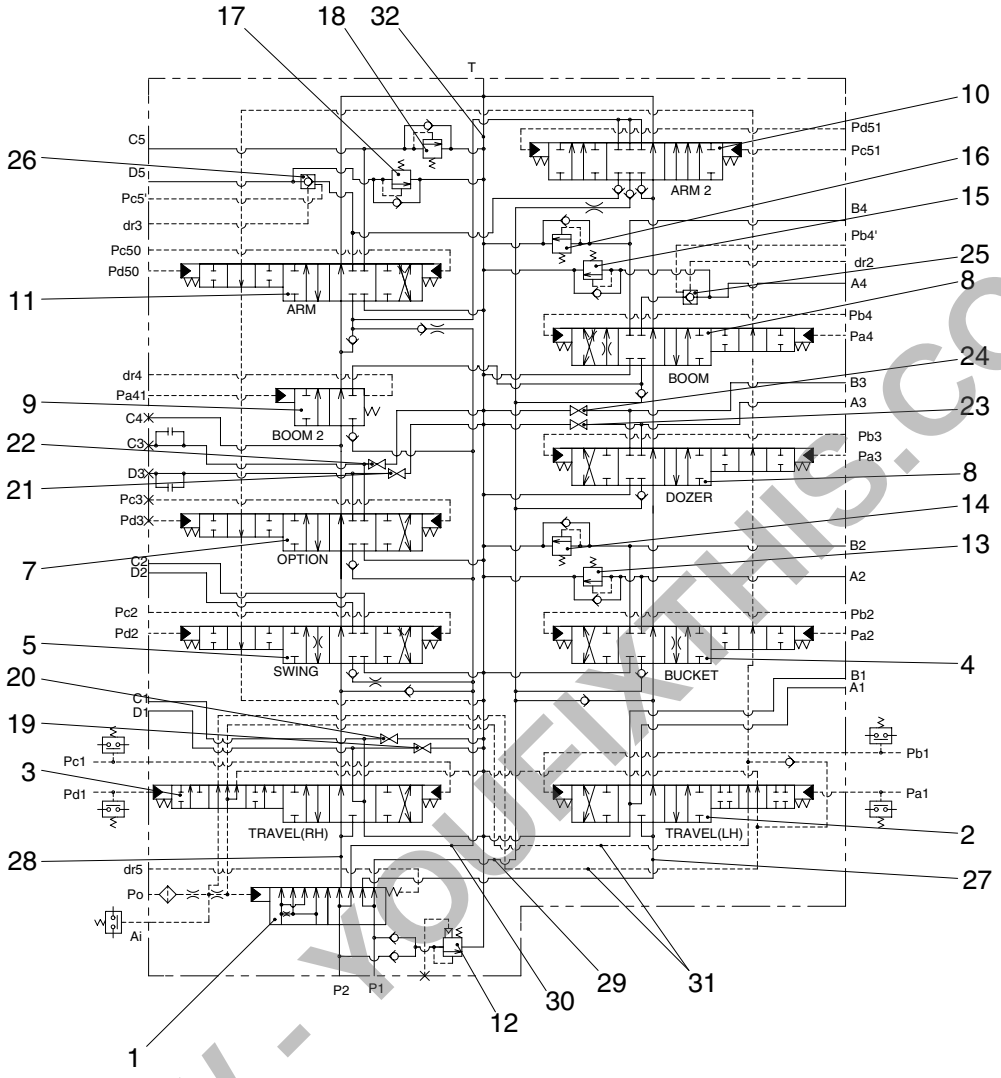
(1) 3.7m(12' 2") MONO BOOM, 1.67m(5' 6") ARM AND FRONT DOZER BLADE



Description		Unit	Specification
Operating weight		kg(lb)	7800(17200)
Bucket capacity(SAE heaped), standard		$m^3(yd^3)$	0.28(0.25)
Overall length	A	mm(ft-in)	6325(20' 9")
Overall width, with 450mm shoe	B		2260(7' 5")
Overall height	C		2605(8' 7")
Superstructure width	D		2250(7' 5")
Overall height of cab	E		2650(8' 8")
Ground clearance of counterweight	F		755(2' 6")
Engine cover height	G		1775(5' 10")
Minimum ground clearance	H		360(1' 2")
Rear-end distance	I		1727(5' 8")
Rear-end swing radius	I'		1750(5' 9")
Distance between tumblers	J		2130(6' 12")
Undercarriage length	K		2724(8' 11")
Undercarriage width	L		2200(7' 3")
Track gauge	M		1750(5' 9")
Track shoe width, standard	N		450(1' 6")
Height of blade	O		460(1' 6")
Ground clearance of blade up	P		400(1' 4")
Depth of blade down	Q		280(0' 11")
Travel speed(Low/high)		km/hr(mph)	3.3/4.6(2.1/2.9)
Swing speed		rpm	12.0
Gradeability		Degree(%)	30(58)
Ground pressure(450mm shoe)		$kgf/cm^2(psi)$	0.37(5.26)

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2. HYDRAULIC CIRCUIT DIAGRAM



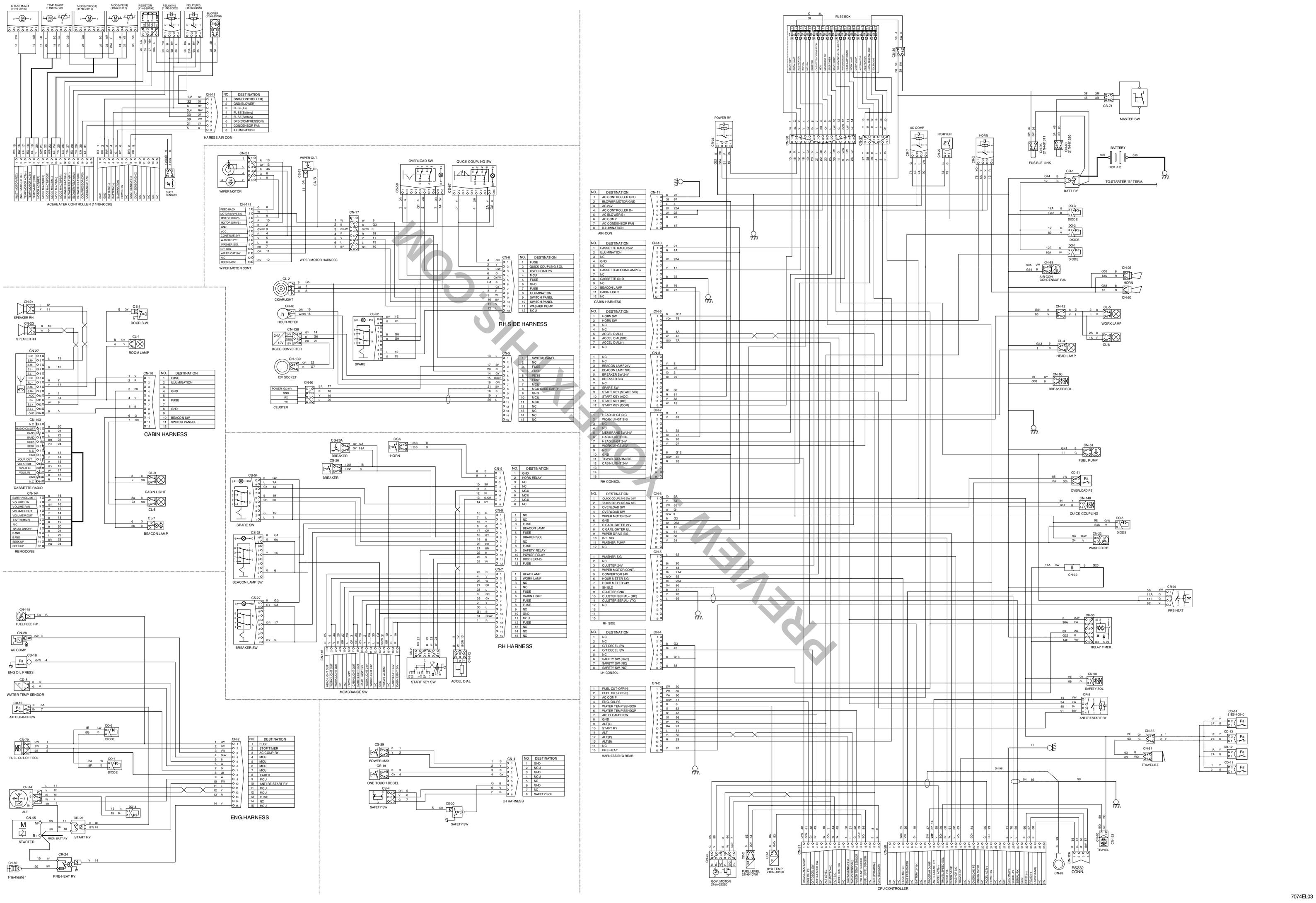
7072MCV01

Ref. No.	Description	Ref. No.	Description
1	Spool - Straight travel	17	Overload relief valve
2	Spool - Tavel left	18	Overload relief valve
3	Spool - Tavel right	19	Relief plug
4	Spool - Bucket	20	Relief plug
5	Spool - Swing	21	Relief plug
6	Spool - Dozer	22	Relief plug
7	Spool - Option	23	Relief plug
8	Spool - Boom	24	Relief plug
9	Spool - Boom2	25	Boom lock valve
10	Spool - Arm2	26	Arm lock valve
11	Spool - Arm	27	By - Pass(P1)
12	Main relief valve	28	By - Pass(P2)
13	Overload relief valve	29	Parallel passage(P1)
14	Overload relief valve	30	Parallel passage(P2)
15	Overload relief valve	31	Pilot signal passage
16	Overload relief valve	32	Tank passage

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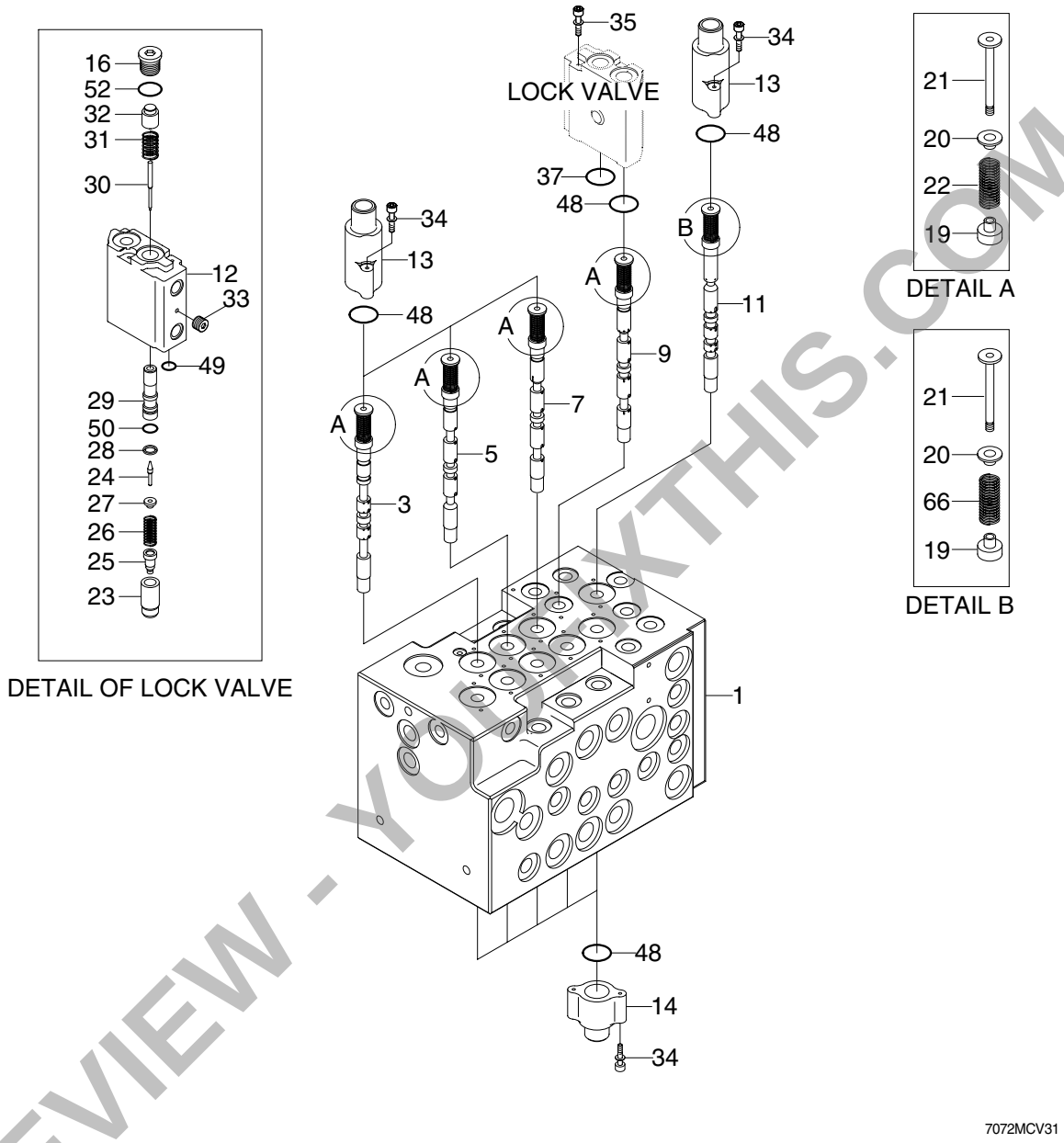
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GROUP 2 ELECTRICAL CIRCUIT



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1) Structure(1/4)



1	Body	20	Spring holder	31	Lock valve spring
3	Spool-Travel(LH)	21	Spool end	32	Piston
5	Spool-Swing	22	Spring	33	Plug
7	Spool-Option	23	Lock valve	34	Socket head bolt
9	Spool-Boom 2	24	Poppet	35	Socket head bolt
11	Spool-Arm	25	Lock valve restrictor	37	O-ring
12	Pilot-Cover	26	Lock valve spring	48	O-ring
13	Pilot-Cover	27	Spring holder	49	O-ring
14	Pilot-Cover	28	Retaining ring	50	O-ring
16	Plug	29	Piston guide	52	O-ring
19	Spring holder	30	Piston	66	Spring

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1. REMOVAL AND INSTALL

1) REMOVAL

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

(2) Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping

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

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

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

· Hydraulic tank quantity : 75 ℓ

(5) Disconnect hoses(4) and remove connectors(3).

(6) Disconnect pilot line hoses(6,8) and remove connectors(5,7).

(7) Remove socket bolts(2) and disconnect pump suction tube(1).

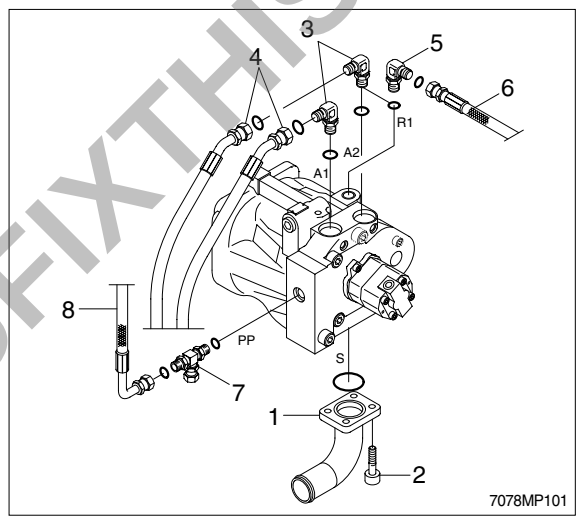
※ When pump suction tube is disconnected, the oil inside the piping will flow out, so catch it in oil pan.

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

· Weight : 50kg(110lb)

※ Pull out the pump assembly from housing. When removing the pump assembly, check that all the hoses have been disconnected.





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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	7±1.5	50.6±10.9
2		Engine mounting bolt(Bracket-Frame)	M16 × 2.0	25±0.5	181±3.6
3		Radiator mounting bolt, nut	M12 × 1.75	12.2±1.3	88.2±9.4
4		Coupling mounting bolt	M14 × 2.0	14±1.0	101±7.2
5	Hydraulic system	Main pump mounting bolt	M12 × 1.75	12±1.0	86.8±7.2
6		Main control valve mounting bolt	M10 × 1.5	6.9±1.4	49.9±10.1
7		Fuel tank mounting bolt	M16 × 2.0	25±2.5	181±18.1
8		Hydraulic oil tank mounting bolt	M16 × 2.0	25±2.5	181±18.1
9		Turning joint mounting bolt, nut	M12 × 1.75	12.3±1.3	88.2±9.4
10	Power train system	Swing motor mounting bolt	M16 × 2.0	29.7±3.2	215±23.1
11		Swing bearing upper mounting bolt	M16 × 2.0	29.7±5	215±36.2
12		Swing bearing lower mounting bolt	M16 × 2.0	29.7±5	215±36.2
13		Travel motor mounting bolt	M16 × 2.0	23±2.5	166±18.1
14	Under carriage	Sprocket mounting bolt	M16 × 2.0	29.7±4.5	215±32.5
15		Carrier roller mounting bolt, nut	M16 × 2.0	29.7±4.5	215±32.5
16		Track roller mounting bolt	M14 × 2.0	19.6±2.5	142±18
17		Track tension cylinder mounting bolt	M16 × 2.0	29.7±4.5	215±32.5
18		Track shoe mounting bolt, nut	M14 × 1.5	25.5±2.5	184±18.1
19	Others	Counter weight mounting bolt	M20 × 2.5	57.8±6.4	418±46.3
20		Cab mounting bolt, nut	M12 × 1.75	12.2±1.3	88.2±9.4
21		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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5. ERROR CODES TABLE

Fault code No.	Description
00	No error
01	Short circuit in accel actuator motor system
02	Potentiometer circuit is shorted to Vcc(5V) or battery +
05	Short circuit in travel speed solenoid system
10	Short circuit in hour-meter system
11	Accel dial circuit is shorted to Vcc(5V) or battery +
16	Accel actuator motor circuit is open or shorted to ground
17	Potentiometer circuit is open or shorted to ground
20	Travel speed solenoid circuit is open or shorted to ground
25	Hour-meter circuit is open or shorted to ground
26	Accel dial circuit is open or shorted to ground
31	Engine preheater circuit is open or shorted to ground
33	Alternator circuit is open or shorted to ground
34	Actuator input voltage is below 18V
35	Actuator input voltage is over 38V
36	Communication error with cluster
37	Engine speed sensor circuit is open or shorted to ground
41	Hydraulic oil temperature sensor circuit is shorted to ground
42	Fuel level sensor circuit is shorted to ground
43	Coolant temperature sensor circuit is shorted to ground
45	Hydraulic oil temperature sensor circuit is open or shorted to battery +
46	Fuel level sensor circuit is open or shorted to battery +
47	Coolant temperature sensor circuit is open or shorted to battery +
49	Engine preheater circuit is shorted to battery +

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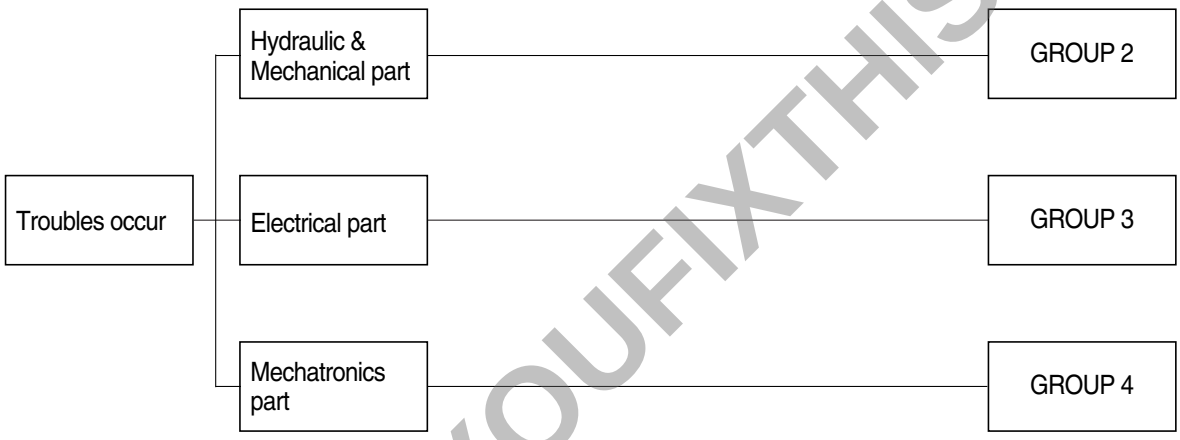
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GROUP 1 BEFORE TROUBLESHOOTING

1. INTRODUCTION

When a trouble is occurred in the machine, this section will help an operator to maintain the machine with easy.

The trouble of machine is parted Hydraulic & Mechanical system, Electrical system and Mechatronics system. At each system part, an operator can check the machine according to the troubleshooting process diagram.



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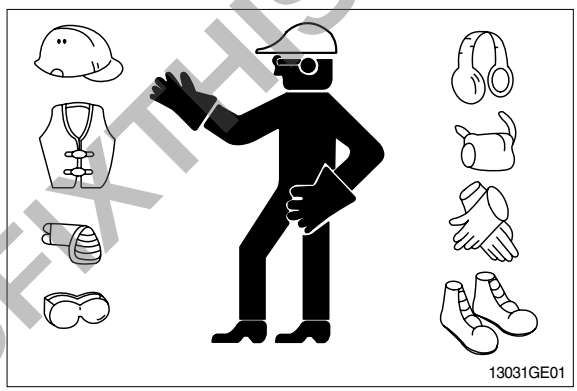
GROUP 1 SAFETY

FOLLOW SAFE PROCEDURE

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

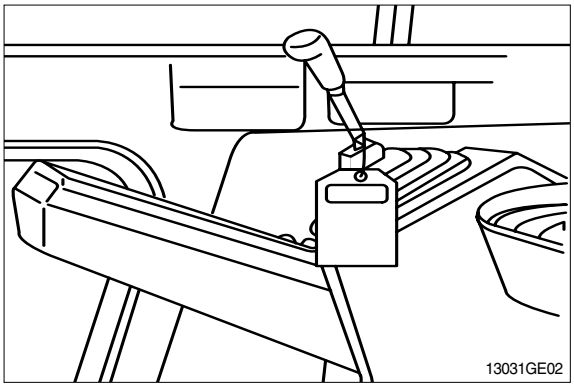
WEAR PROTECTIVE CLOTHING

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



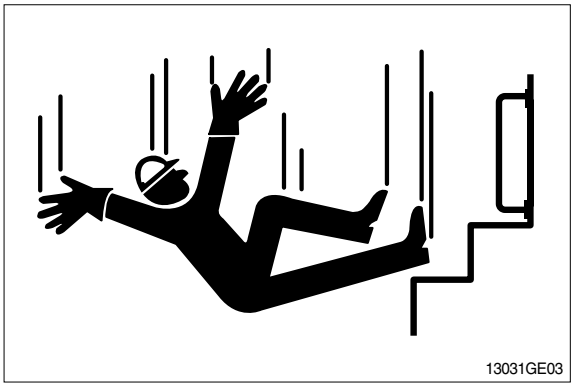
WARN OTHERS OF SERVICE WORK

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.



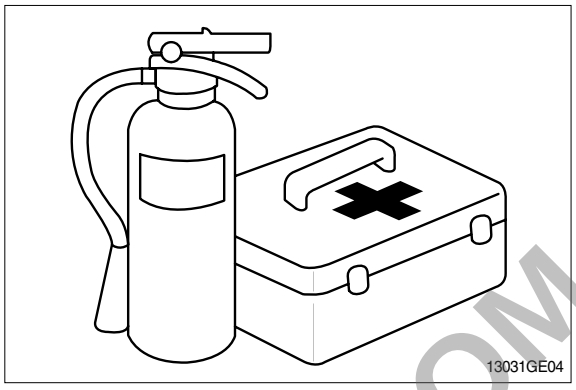
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PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

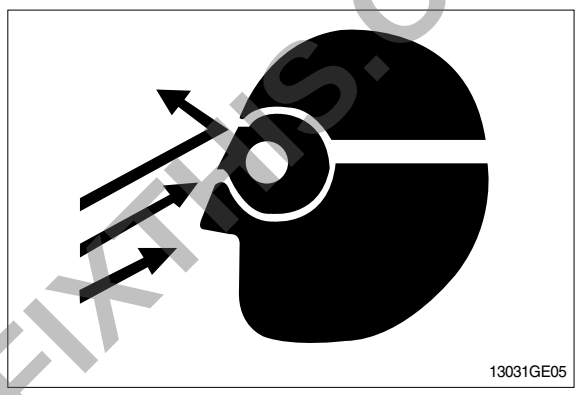
Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



PROTECT AGAINST FLYING DEBRIS

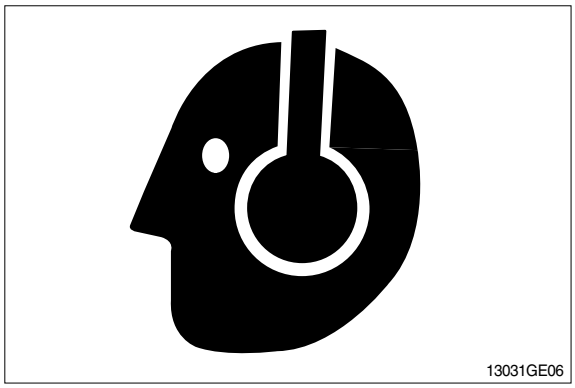
Guard against injury from flying pieces of metal or debris; Wear goggles or safety glasses.



PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing.

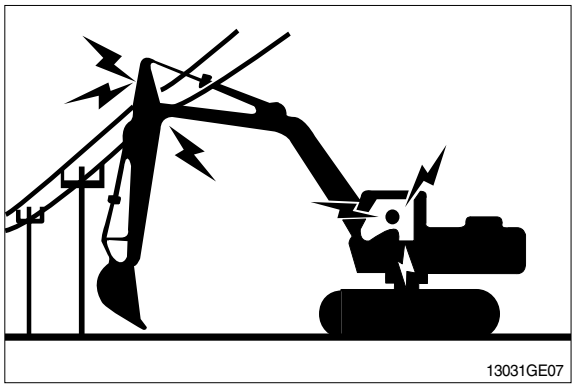
Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



AVOID POWER LINES

Serious injury or death can result from contact with electric lines.

Never move any part of the machine or load closer to electric line than 3m(10ft) plus twice the line insulator length.



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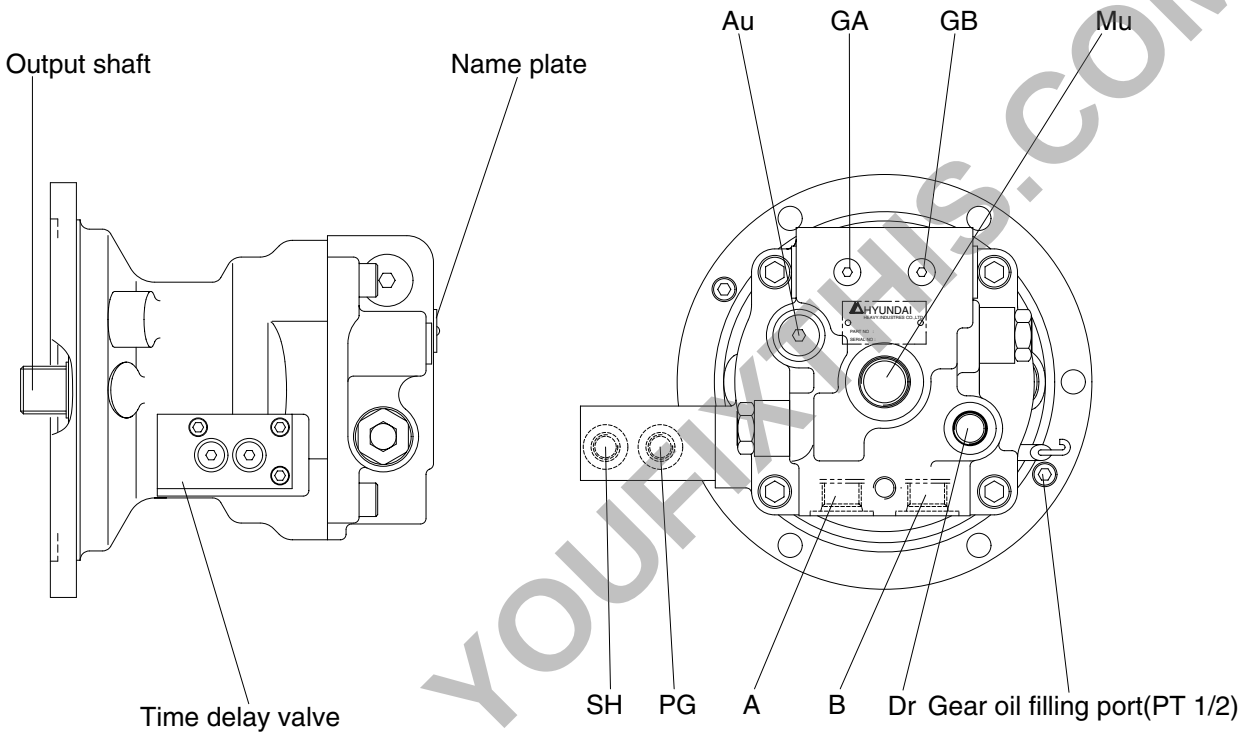
GROUP 3 SWING DEVICE

1. STRUCTURE

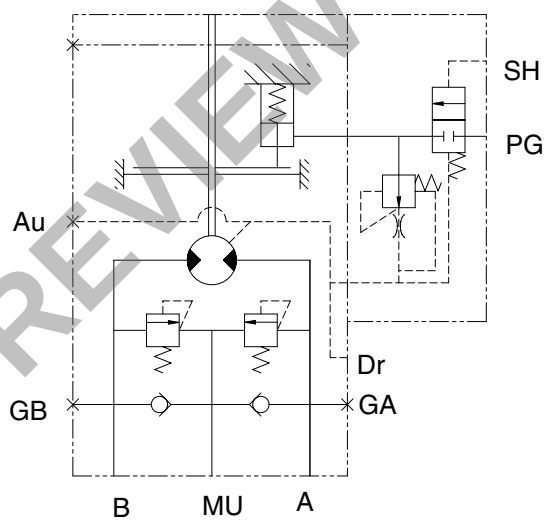
Swing device consists swing motor and swing reduction gear.

1) SWING MOTOR

Swing motor include mechanical parking valve, relief valve, make up valve and time delay valve.



7072SM02



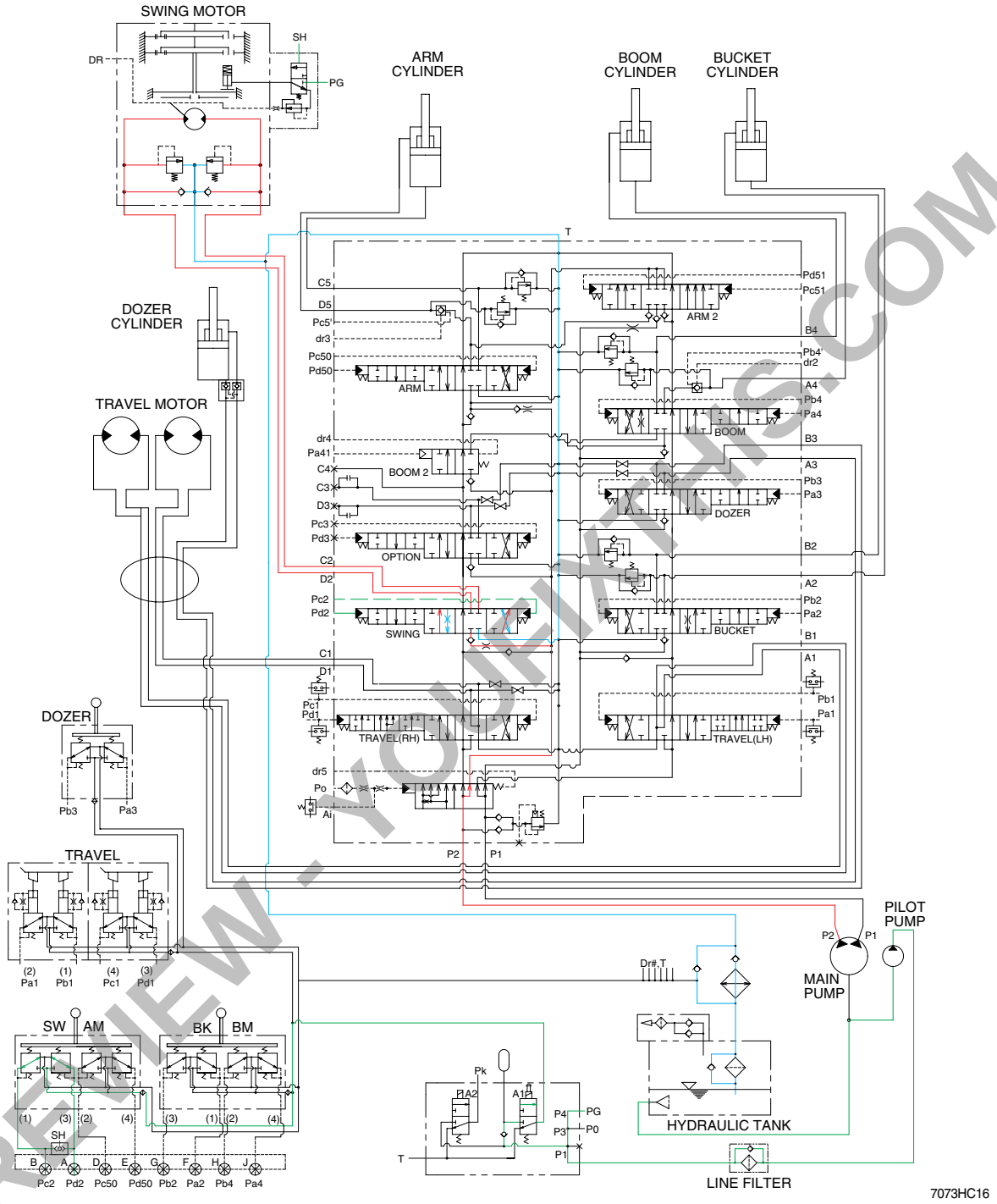
7072SM03

Port	Port name	Port size
A	Main port	PF 1/2
B	Main port	PF 1/2
Dr	Drain port	PF 3/8
Mu	Make up port	PF 3/4
PG	Brake release port	PF 1/4
SH	Brake pilot port	PF 1/4
GA,GB	Gage port	PF 1/4
Au	Air vent port	PF 3/8

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7. SWING OPERATION



When the left control lever is pushed left or right, the swing spool in the main control valve is moved to the left or right swing position by the pilot oil pressure from the remote control valve.

The oil from the P2 pump flows into the main control valve and then goes to the swing motor.

At the same time, the return oil from the swing motor returns to the hydraulic oil tank through the swing spool in the main control valve.

When this happens, the superstructure swings to the left or right.

The swing parking brake, make up valve and the overload relief valve are provided in the swing motors. The cavitation which will happen to the swing motor is also prevented by the make up valve in the swing motor itself.

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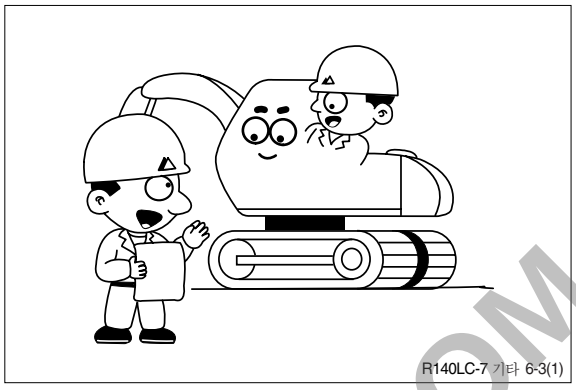
Connectorn umber	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CN-83	KET	4	AC Fan	MG651092	-
CN-92	AMP	1	Safety	S814-101100	S814-001100
CN-95	KET	2	Fusible link	-	S813-130200
CN-125	-	4	GPS	S816-004002	S816-104002
CN-126	DEUTSCH	4	RS232C connector	DT06-4S-P012	DT04-4P-E004
CN-138	DEUTSCH	3	DC/DC converter	DT06-3S	DT04-3P
CN-139	DEUTSCH	2	12V Socket	-	DT04-2P
CN-140	DEUTSCH	2	Quick coupling	DT06-2S-EP06	DT04-2P-E005
CN-141	AMP	13	Wiper motor control unit	172498-1	-
CN-142	DEUTSCH	3	Accel dial	DT06-3S	-
CN-143	KET	14	Cassette radio	MG610406	-
CN-144	AMP	12	Remocon	174045-2	-
CN-145	-	2	Fuel feed pump	7123-6423-30	-
RELAY					
CR-1	RING TERM	1	Battery relay	S820-104002	-
CR-3	-	4	Work lamp relay	S820-104000	-
CR-23	-	2	Start relay	S820-104000	-
CR-24	-	1	Pre-heater relay	S822-014000	-
CR-43	-	4	Engine stop relay	S810-004202	-
SWITCH					
CS-1	CB104	1	Door switch	S822-014004	-
CS-2	-	6	Start key switch	S814-006000	-
CS-4	DEUTSCH	6	Safety switch	DT06-3S	-
CS-5	DEUTSCH	2	Horn switch	-	DT04-2P
CS-19	DEUTSCH	2	One touch decel	DT06-2S	DT04-2P
CS-20	AMP	1	Safety switch	S822-014002	-
CS-21	SWF	10	Main light switch	SWF593757	-
CS-23	SWF	10	Beacon lamp switch	SWF593757	-
CS-24	SWF	10	Overload switch	SWF593757	-
CS-26	DEUTSCH	2	Breaker switch	SWF593757	-
CS-27	SWF	10	Breaker switch	SWF593757	-
CS-53	AMP	1	Wiper cut switch	S822-014002	-
CS-54	SWF	10	Travel alarm	SWF593757	-
CS-67	SWF	10	Quick coupling switch	SWF593757	-
LAMP					
CL-1	KET	2	Cab room lamp	MG610392	-
CL-2	-	1	Cigar light	S822-014002	-
CL-4	DEUTSCH	2	Head lamp	-	DT04-2P-E005
CL-5	DEUTSCH	2	Work lamp-LH	-	DT04-2P
CL-6	DEUTSCH	2	Work lamp-RH	-	DT04-2P
CL-7	CB104	1	Beacon lamp	S822-014004	-

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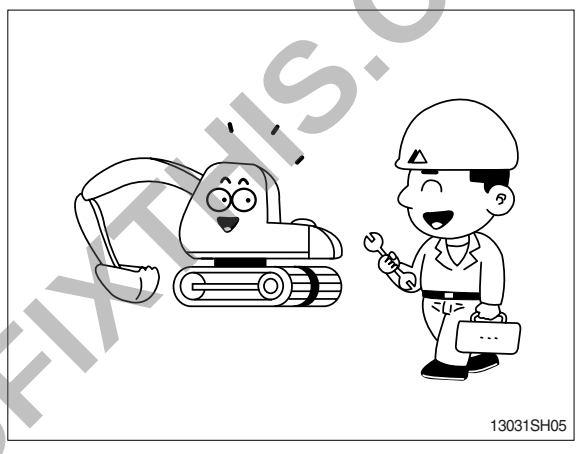
STEP 4. Inspect the trouble actually on the machine

In case that some trouble cannot be confirmed, obtain the details of the malfunction from the operator.
Also, check if there are any in complete connections of the wire harnesses are or not.


R140LC-7 기타 6-3(1)

STEP 5. Perform troubleshooting

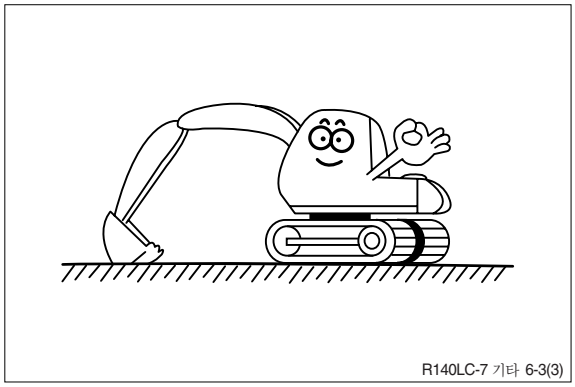
According to where the trouble parts are located, hydraulic & mechanical system part or electrical system part or mechatronics system part, perform troubleshooting the machine refer to the each system part's troubleshooting process diagram.


13031SH05

STEP 6. Trace a cause

Before reaching a conclusion, check the most suspectible causes again. Try to trace what the real cause of the trouble is.

Make a plan of the appropriate repairing procedure to avoid consequential malfunctions.


R140LC-7 기타 6-3(3)

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2) ENGINE SPEED

(1) Measure the engine speed at each power mode

※ The engine speed at each power mode must meet standard RPM; if not, all other operational performance data will be unreliable. It is essential to perform this test first.

(2) Preparation

① Warm up the machine, until the engine coolant temperature reaches 50°C or more, and the hydraulic oil is 50±5°C.
② Set the accel dial at 10(Max) position.
③ Push the H-mode switch and confirm that the fuel injection pump governor lever comes into contact with the high-idle stopper.
④ Measure the engine RPM.

(3) Measurement

① Start the engine. The engine will run at start idle speed. Measure engine speed with a tachometer.
② Measure and record the engine speed at each mode(H, S, L).
③ Select the H-mode.
④ Lightly operate the bucket control lever a few times, then return the control lever to neutral. Select one touch decel ON.
⑤ Measure and record the auto deceleration speed.

(4) Evaluation

The measured speeds should meet the following specifications.

Unit : rpm

Model	Engine speed	Standard	Remarks
R80-7	Start/one touch idle	1050±100	One touch decel
	H mode	2200±50	
	S mode	2050±50	
	L mode	1900±50	

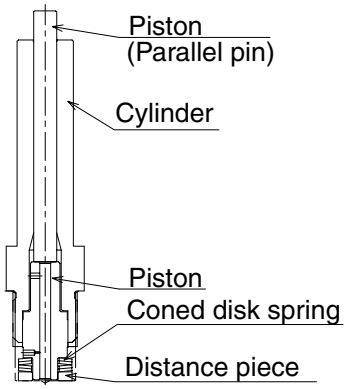
Condition : Set the accel dial at 10(Max) position.

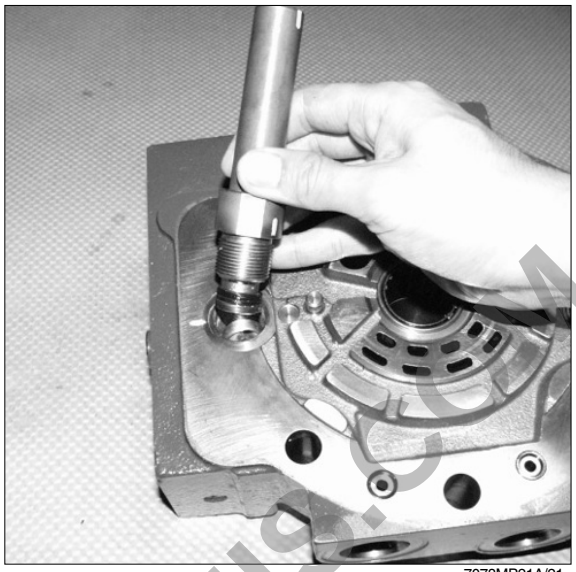
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② Assemble the control piston.

※ Apply three bond #1305 to the thread of the cylinder.



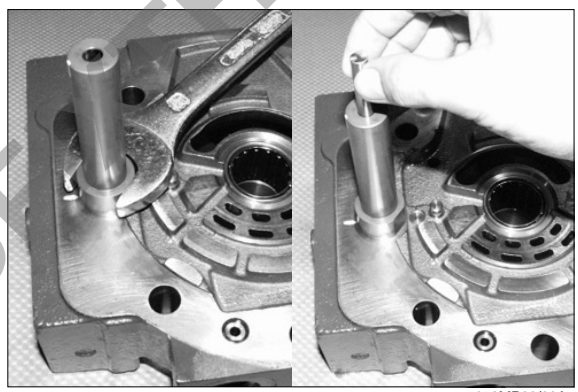

7078MP21A/21

③ Assemble the control piston.

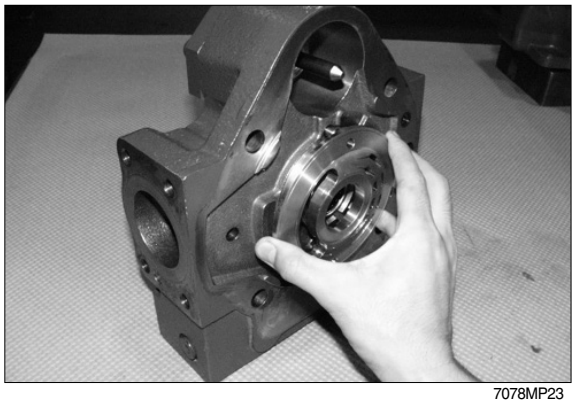
Spanner (27)

· Tightening torque 126~157N · m
(93~116lbf · ft)

④ Install the piston.


7078MP22/22A

⑤ Apply grease to the back side of the control plate.
(To prevent dislodgement)
And assemble it to the cover while matching knock holes.

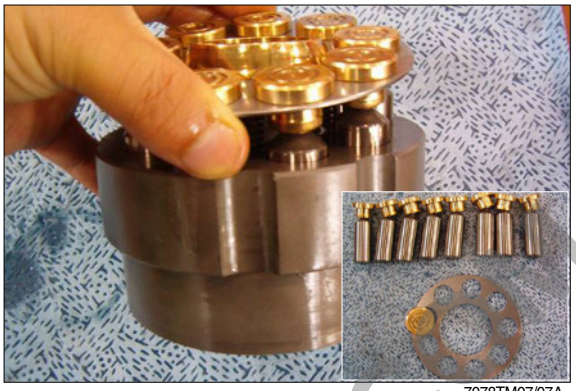

7078MP23

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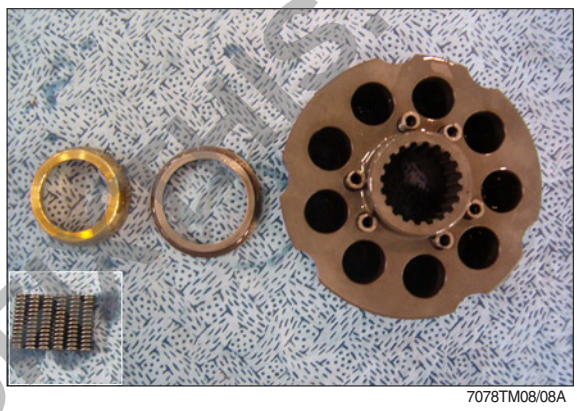
(2) Cylinder block

① Disassemble set plate(12), piston assembly(14) from cylinder block assembly.



7078TM07/07A

② Disassembling in order cylinder block(9), ball guide(11) and spring(10).



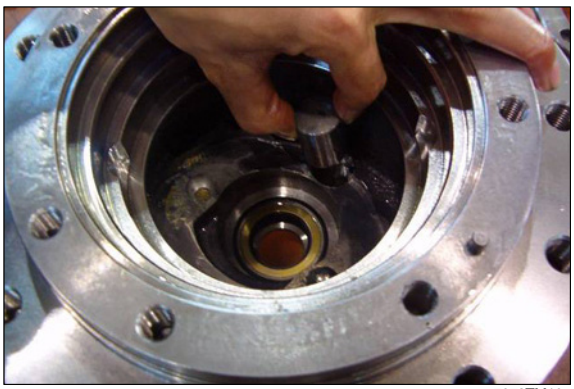
7078TM08/08A

③ Disassembling swash plate(8) and shaft(3) from shaft casing(1).



7078TM09/09A

④ Disassembling swash piston(5) from shaft casing(1).



7078TM10

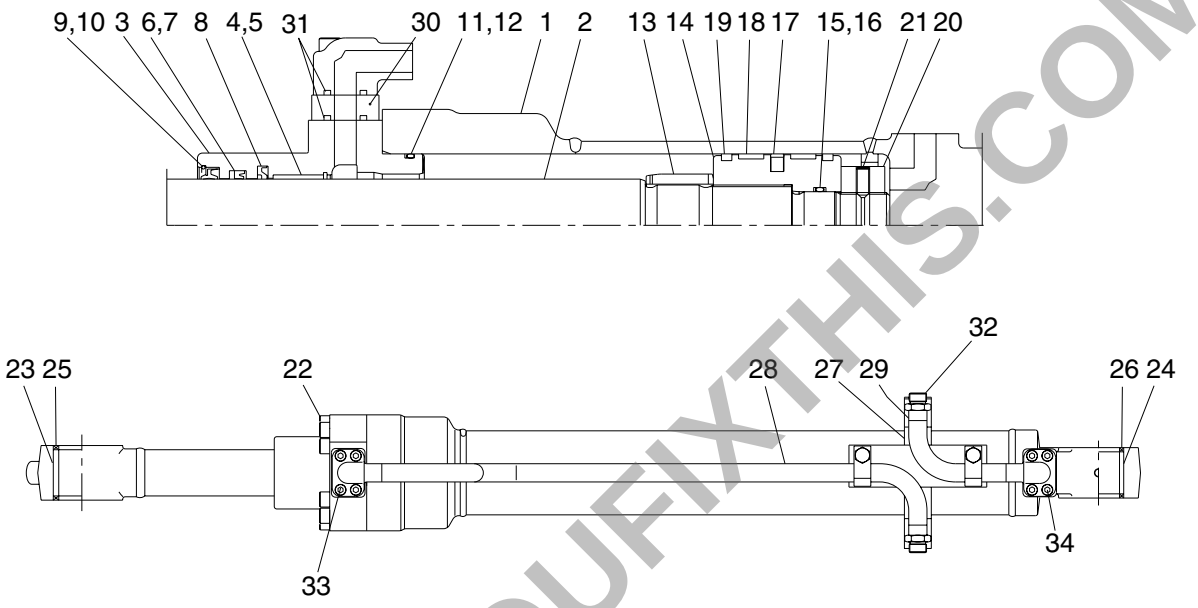
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2. DISASSEMBLY AND ASSEMBLY

1) STRUCTURE

(1) Bucket cylinder



7078CY03

1	Tube assembly	13	Cushion ring	24	Pin bush
2	Rod assembly	14	Piston	25	Dust seal
3	Gland	15	O-ring	26	Dust seal
4	DD2 bush	16	Back up ring	27	Band assembly
5	Snap ring	17	Piston seal	28	Pipe assembly(R)
6	Rod seal	18	Wear ring	29	Pipe assembly(B)
7	Back up ring	19	Dust ring	30	Flange
8	Buffer ring	20	Lock nut	31	O-ring
9	Dust wiper	21	Screw	32	O-ring
10	Snap ring	22	Hexagon socket head bolt	33	Hexagon socket head bolt
11	O-ring	23	Pin bush	34	Hexagon socket head bolt
12	Back up ring				

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