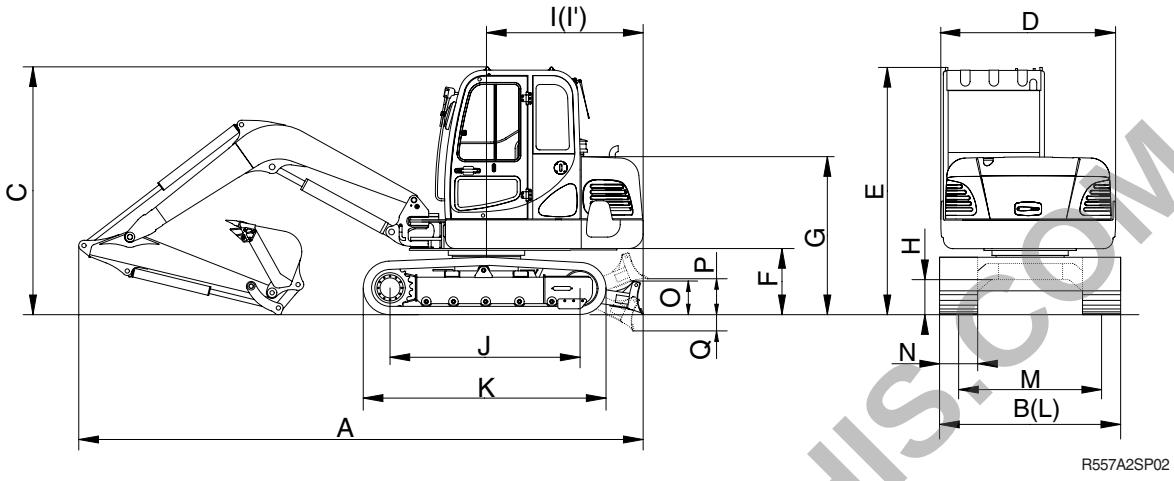
2. SPECIFICATIONS

1) 3.0m(9'10") MONO BOOM, 1.6m(5' 3") ARM, WITH BOOM SWING POST



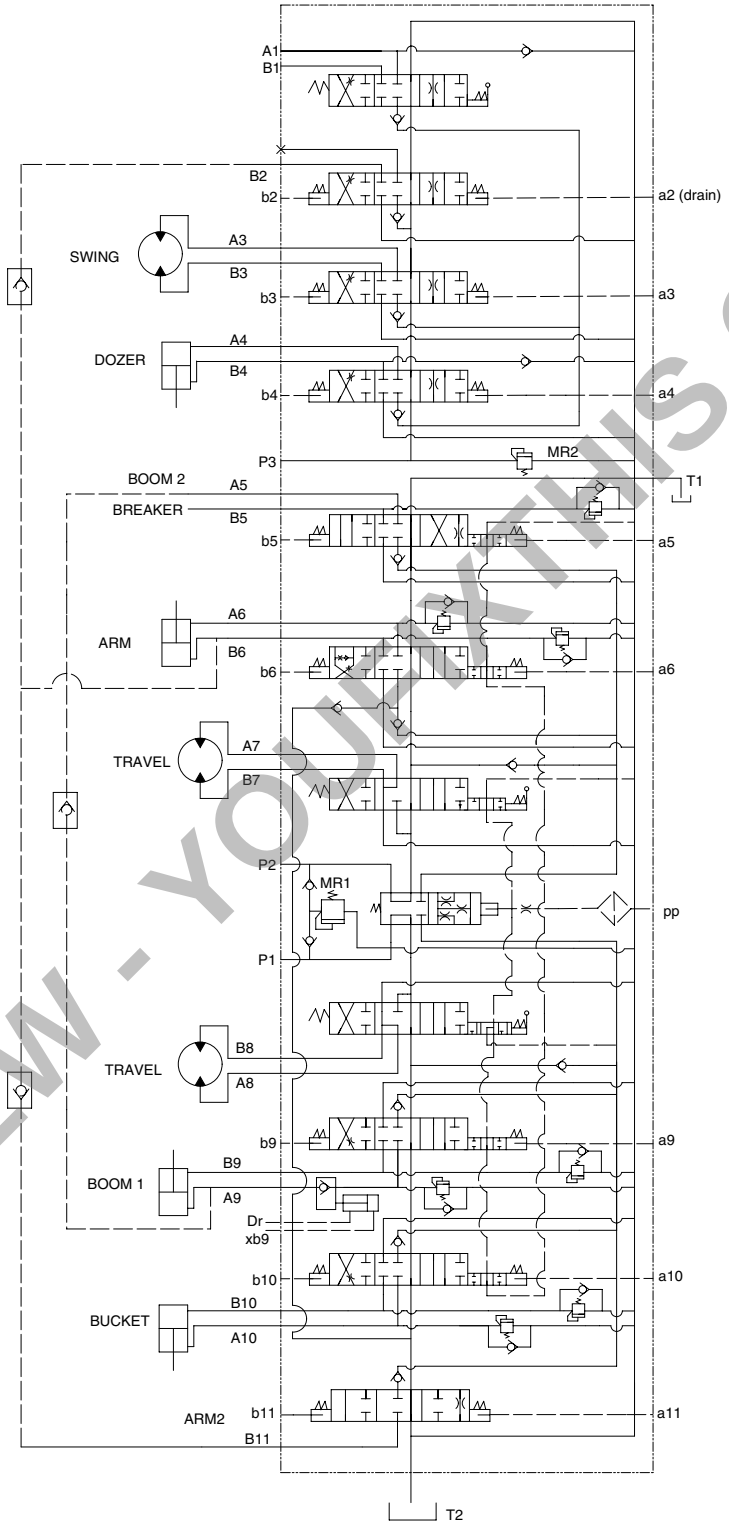
R557A2SP02

Description		Unit	Specification
Operating weight		kg(lb)	5700(12570)
Bucket capacity(SAE heaped), standard		$m^3(yd^3)$	0.18(0.24)
Overall length	A	mm(ft-in)	5900(19' 4")
Overall width, with 400mm shoe	B		1920(6' 4")
Overall height	C		2550(8' 4")
Superstructure width	D		1830(6' 0")
Overall height of cab	E		2550(8' 4")
Ground clearance of counterweight	F		690(2' 3")
Engine cover height	G		1650(5' 5")
Minimum ground clearance	H		380(1' 3")
Rear-end distance	I		1640(5' 5")
Rear-end swing radius	I'		1650(5' 5")
Distance between tumblers	J		1990(6' 6")
Undercarriage length	K		2530(8' 4")
Undercarriage width	L		1900(6' 3")
Track gauge	M		1500(4'11")
Track shoe width, standard	N		400(16")
Height of blade	O		350(1' 2")
Ground clearance of blade up	P		420(1' 5")
Depth of blade down	Q		440(1' 5")
Travel speed(Low/high)		km/hr(mph)	2.2/4.1(1.4/2.5)
Swing speed		rpm	9.3
Gradeability		Degree(%)	35(70)
Ground pressure(400mm shoe)		$kgf/cm^2(psi)$	0.33(4.69)

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3. HYDRAULIC CIRCUIT

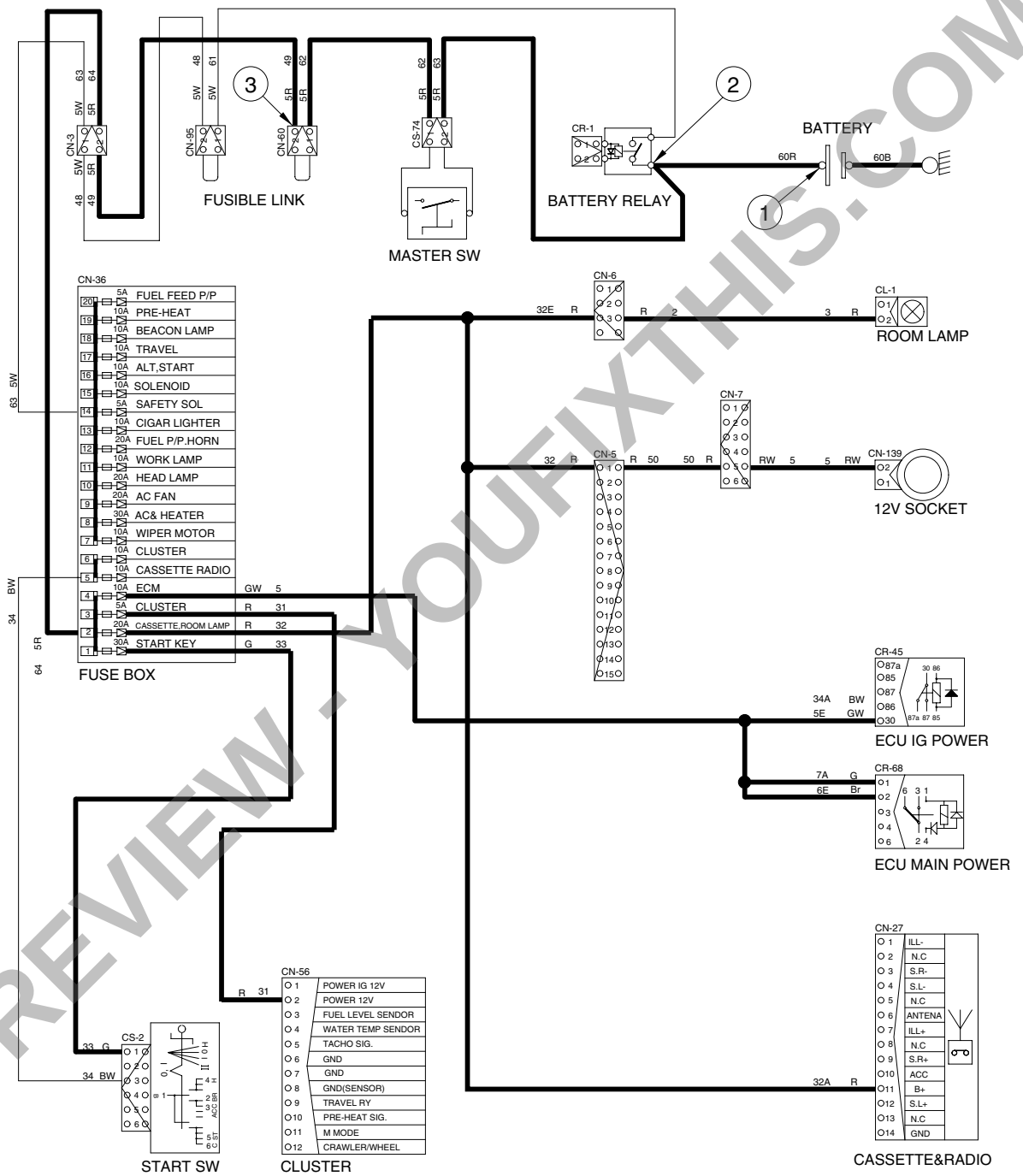


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POWER CIRCUIT



R557A4EL04

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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 and Electrical system system.

At each system part, an operator can check the machine according to the troubleshooting process diagram.



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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 : 70 ℓ (18.5 U.S.gal)

(5) Disconnect hydraulic hoses(22, 64, 65).

(6) Remove socket bolts(83) and disconnect pump suction pipe(10).

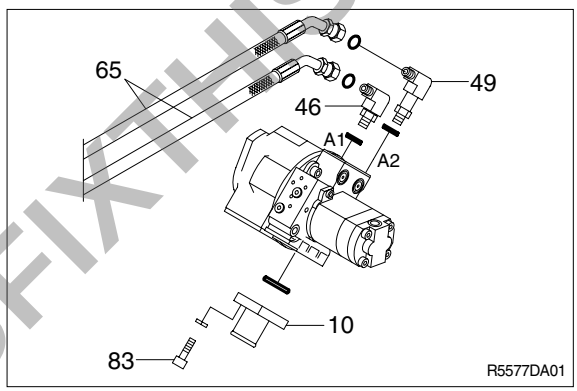
※ When pump suction pipe is disconnected, the oil inside the piping will flow out, so catch it in oil pan.

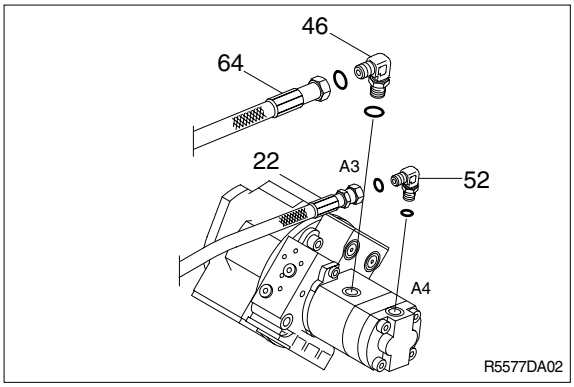
(7) Sling the pump assembly and remove the pump mounting bolts.

- Weight : 30kg(70lb)

※ 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	7.0±1.0	50.6±7.2
2		Engine mounting bolt(Bracket-Frame)	M16 × 2.0	8.0±1.0	57.9±7.2
3		Radiator mounting bolt, nut	M10 × 1.5	6.9±1.4	50±10.0
4		Coupling mounting bolt	M10 × 1.5	6.0±1.0	43.4±7.2
5	Hydraulic system	Main pump mounting bolt	M12 × 1.75	12.8±3.0	92±22.0
6		Main control valve mounting bolt	M 8 × 1.25	2.5±0.5	18±3.6
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	12.8±3.0	92±22.0
10	Power train system	Swing motor mounting bolt	M16 × 2.0	29.7±4.5	215±33.0
11		Swing bearing upper mounting bolt	M16 × 2.0	29.7±4.5	215±33.0
12		Swing bearing lower mounting bolt	M16 × 2.0	29.7±4.5	215±33.0
13		Travel motor mounting bolt	M14 × 2.0	20±2.0	145±14.0
14		Sprocket mounting bolt	M14 × 2.0	19.6±2.5	142±18.0
15	Under carriage	Carrier roller mounting bolt, nut	M18 × 2.0	41±5.0	297±36.0
16		Track roller mounting bolt	M18 × 2.0	41±5.0	297±36.0
17		Track tension cylinder mounting bolt	M12 × 1.75	12.8±3.0	92±22.0
18		Track shoe mounting bolt, nut	1/2-20UNF	19±1.0	137±7.2
19		Track guard mounting bolt	M16 × 2.0	29.6±3.2	214±23.0
20	Others	Counter weight mounting bolt	M20 × 2.5	57.8±6.4	418±46.3
21		Cab mounting bolt, nut	M12 × 1.75	12.8±3.0	92±22.0
22		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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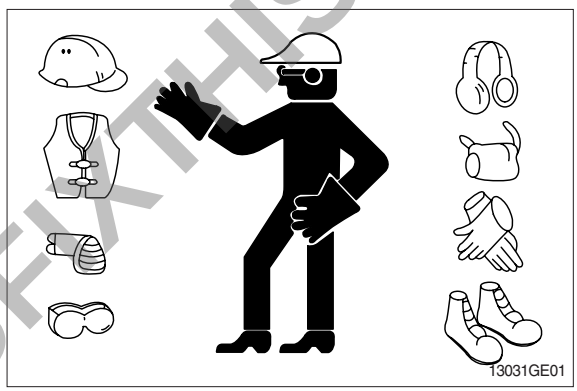
GROUP 1 SAFETY

FOLLOW SAFE PROCEDURE

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

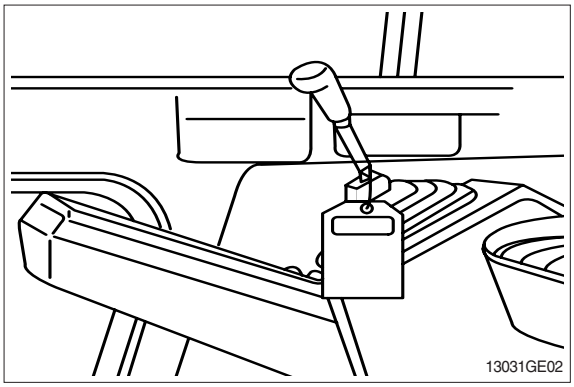
WEAR PROTECTIVE CLOTHING

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



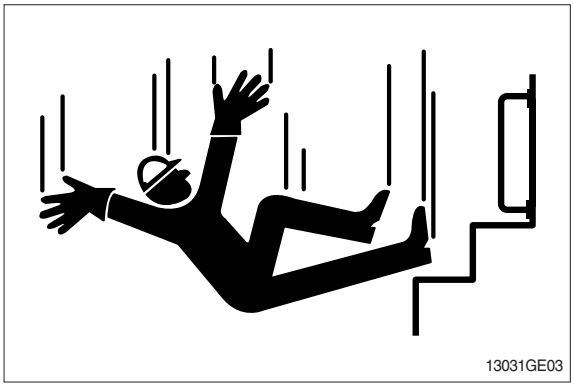
WARN OTHERS OF SERVICE WORK

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.



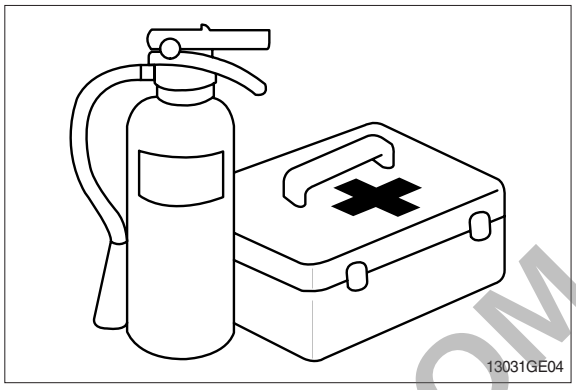
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PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

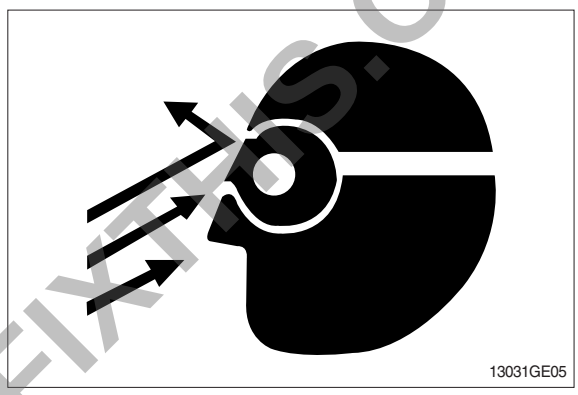
Keep a first aid kit and fire extinguisher handy.

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



PROTECT AGAINST FLYING DEBRIS

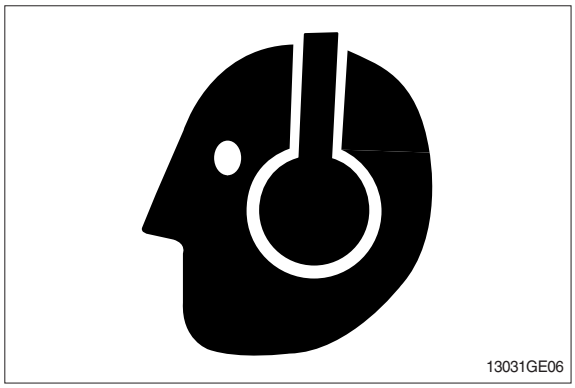
Guard against injury from flying pieces of metal or debris; Wear goggles or safety glasses.



PROTECT AGAINST NOISE

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

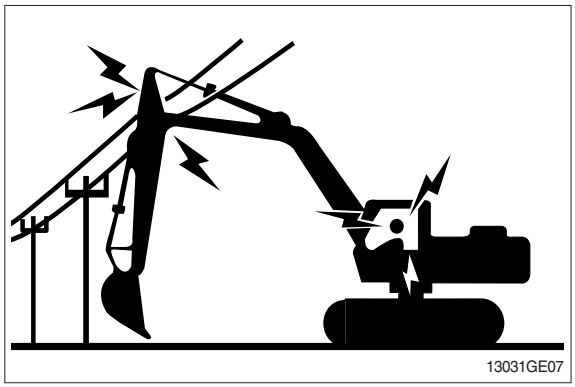
Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



AVOID POWER LINES

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

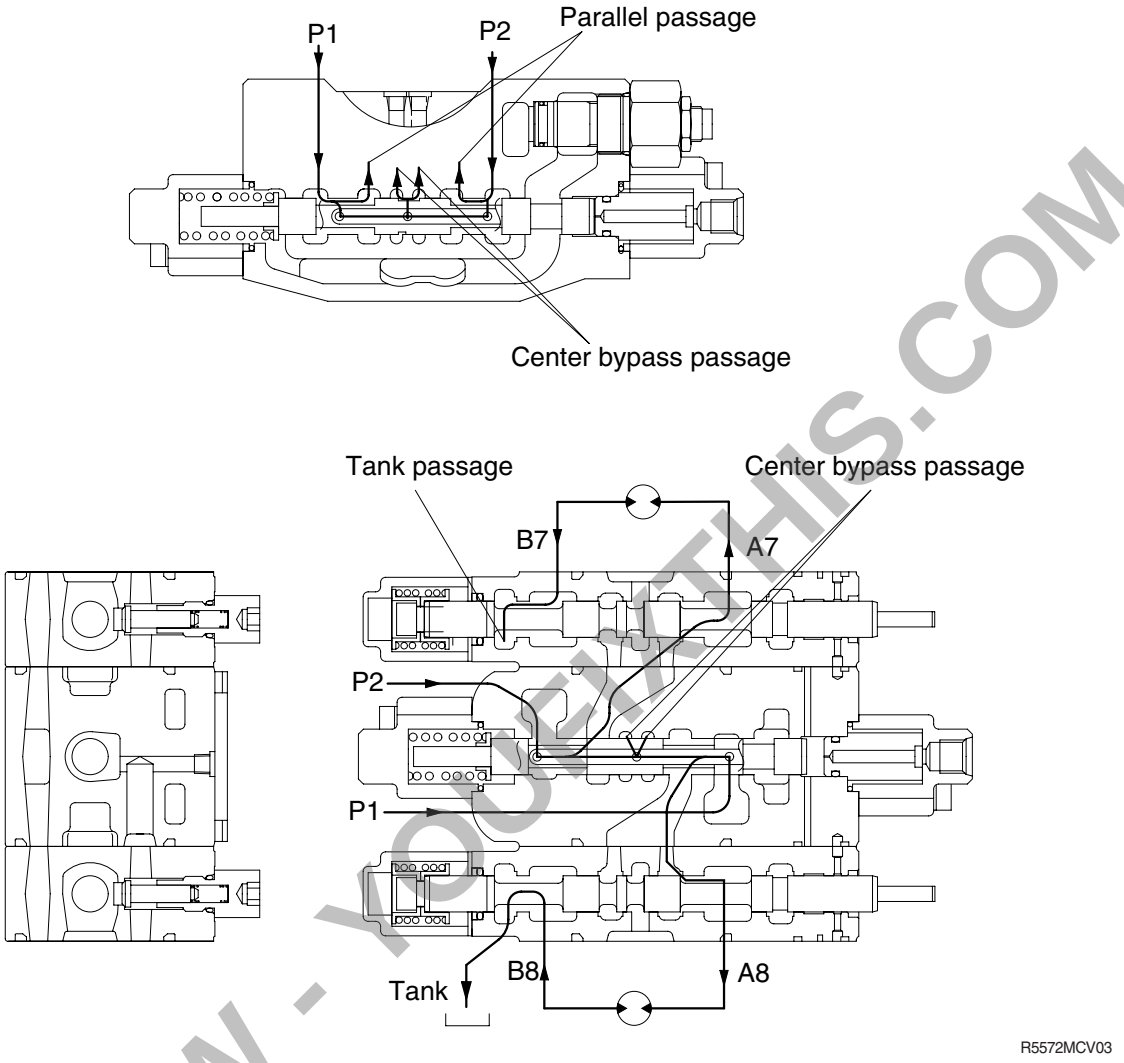
Never move any part of the machine or load closer to electric line than 3m(10ft) plus twice the line insulator length.



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(2) TRAVEL STRAIGHT FUNCTION



This function keeps straight travel in case of simultaneous operation of other actuators(boom, arm, bucket, swing) during a straight travel.

① **During travel only :**

The hydraulic fluid of the pump P1 is supplied to the travel motor and the pump P2 is supplied to the other motor.

Thus, the machine keep travel straight.

② **The other actuator operation during straight travel operation :**

When the other actuator spool(s) is selected under straight travel operation, the straight travel spool is moved.

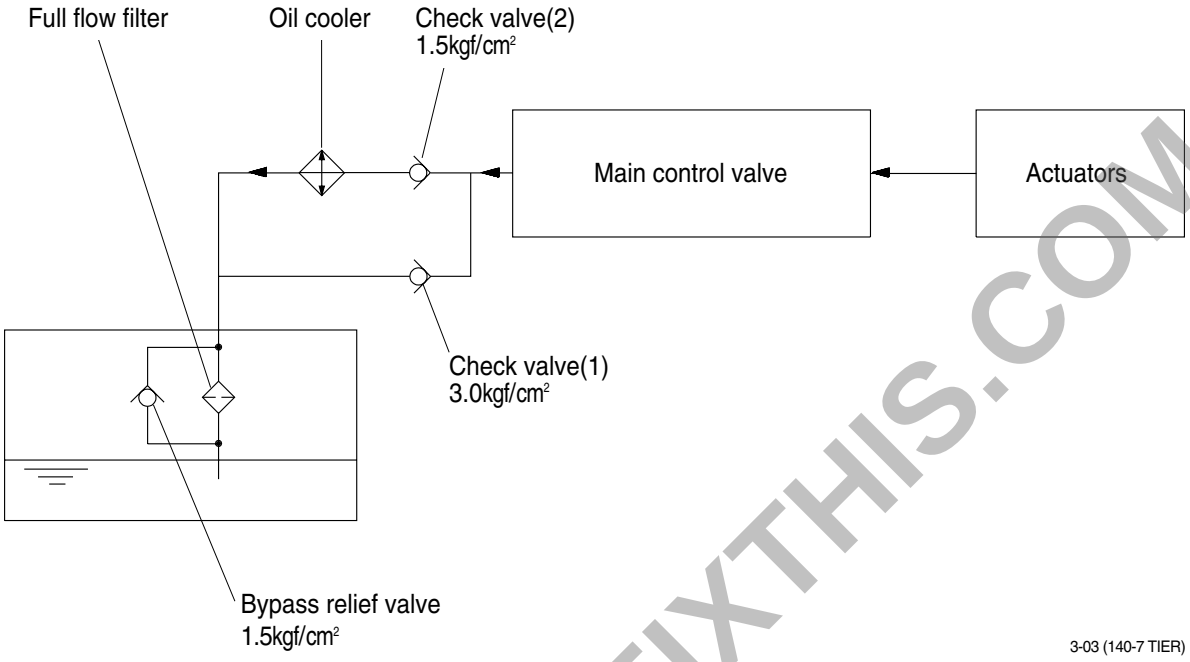
Some of hydraulic fluid from pump P1 and P2 is supplied to the travel motors through parallel passage and the other hydraulic fluid is supplied to the actuator(s) through center bypass passage via orifice passage.

Thus, the machine keeps straight travel.

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2. RETURN CIRCUIT

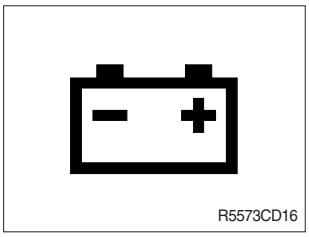


All oil returned from each actuator returns to the hydraulic tank through the control valve.
The bypass check valves are provided in the return circuit.
The setting pressure of bypass check valves are 1.5kgf/cm²(21psi) and 3.0kgf/cm²(43psi). Usually, oil returns to the hydraulic tank from the left side of control valve through oil cooler.
When oil temperature is low, viscosity becomes higher and flow resistance increases when passing through the oil cooler. When the oil pressure exceeds 3.0kgf/cm²(43psi), the oil returns directly to the hydraulic tank, resulting in the oil temperature being raised quickly at an appropriate level.
When the oil cooler is clogged, the oil returns directly to the hydraulic tank through bypass check valve(1).
The full-flow filter and bypass relief valve are provided in the hydraulic tank.
The oil returned from right and left side of control valve is combined and filtered by the full-flow filter. A bypass relief valve is provided in the full-flow filter.
When the filter element is clogged, the bypass relief valve opens at 1.5kgf/cm²(21psi) differential pressure.

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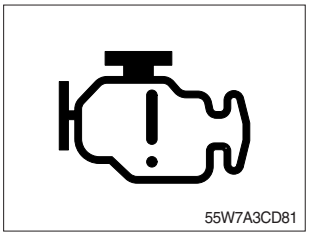
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(6) Battery charging warning lamp



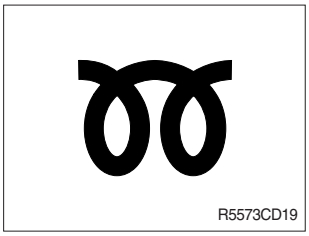
① This lamp blinks and the buzzer sounds when the starting switch is ON, it is turned OFF after starting the engine.
② Check the battery charging circuit when this lamp blinks during engine operation.

(7) Engine fault warning lamp



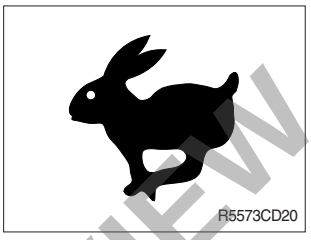
① This lamp is ON and the buzzer sounds when the ECM on the engine is abnormal.
② Check the ECM of the engine.
※ **Check the fault code by the Yanmar Engine Diagnostic Service Tool(YEDST).**
Refer to our web(CERES) for ECM(Electronic control manual) of TNV Engine.

(8) Preheat pilot lamp



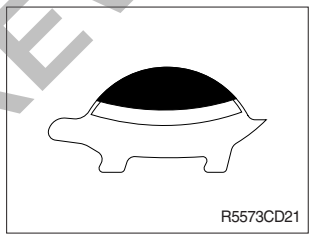
① When engine preheating switch is turned ON, pilot lamp cames ON.
② Refer to the preheating switch for details.

(9) Travel speed pilot lamp(High)



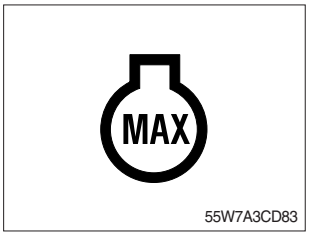
① When this lamp turned ON, the machine travel high speed.
② Refer to the travel speed select switch for details.

(10) Travel speed pilot lamp(Low)



① When this lamp turned ON, the machine travel low speed.
② Refer to the travel speed select switch for details.

(11) M mode pilot lamp

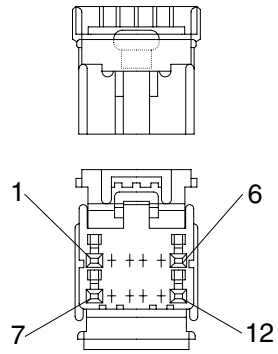


① This lamp is ON when the M mode switch is pressed.

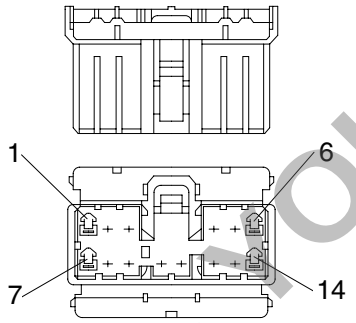
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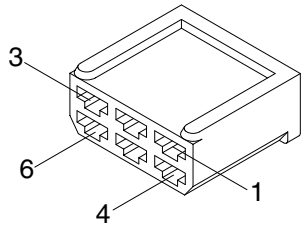
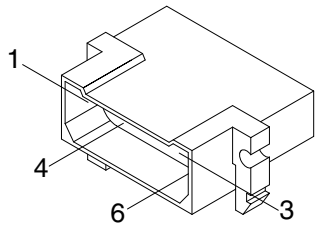
8) AMP 040 MULTILOCK CONNECTOR

No. of pin	Connector(Female)	Connector(Male)
12	 174045-2	

9) AMP 070 MULTILOCK CONNECTOR

No. of pin	Connector(Female)	Connector(Male)
14	 173852	

10) AMP FASTIN - FASTON CONNECTOR

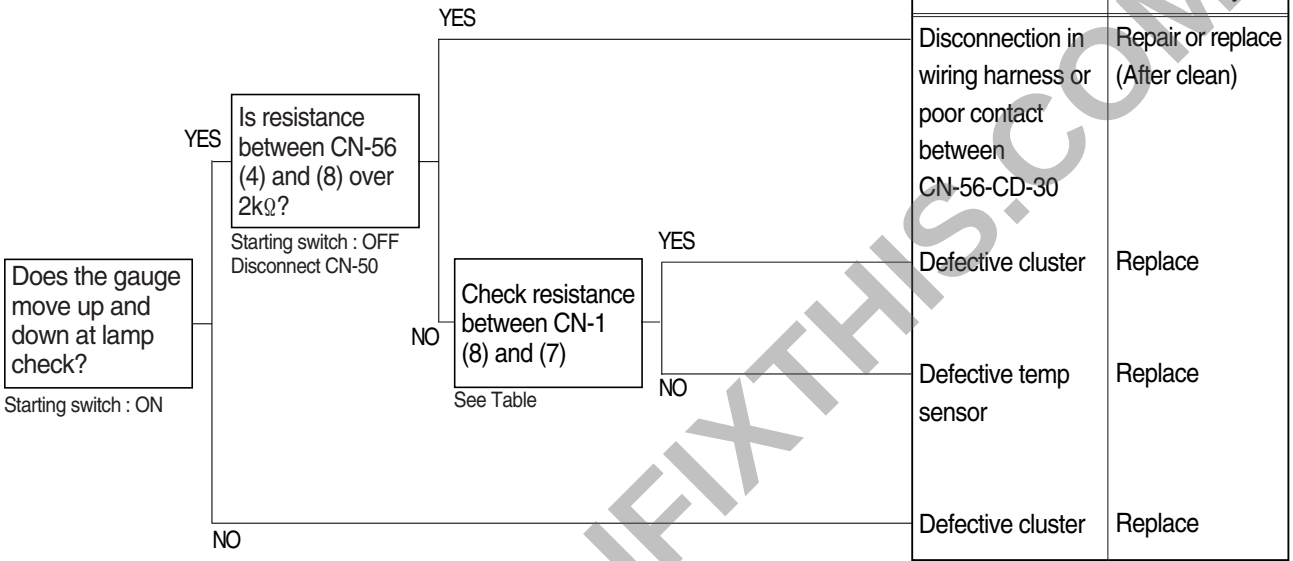
No. of pin	Connector(Female)	Connector(Male)
6	 925276-0	 480003-9

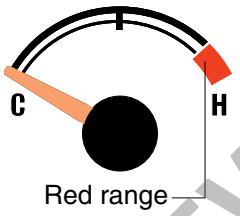
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7. WHEN COOLANT TEMPERATURE GAUGE DOES NOT OPERATE

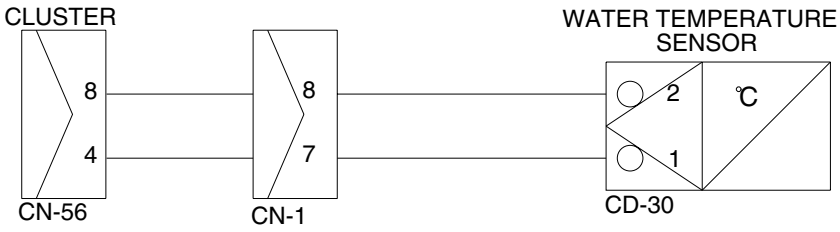
- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.





Check Table

Item \ Temperature	40℃	85~110℃	115℃ (Red range)
Unit Resistance(Ω)	1170~	270~130	~124
Tolerance(%)	±5	-8~0	±5

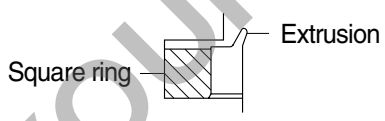
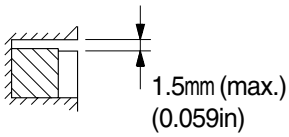
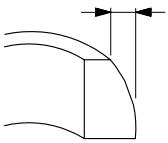


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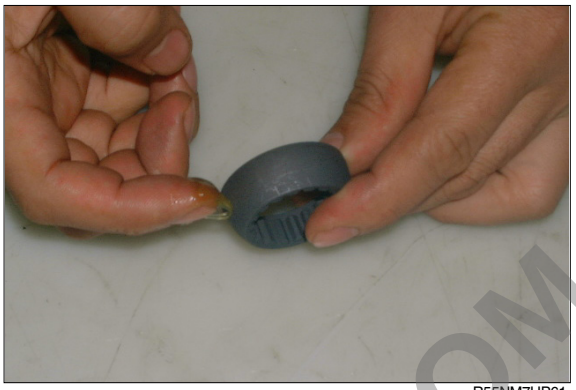
5. TURNING JOINT

Part name		Maintenance standards	Remedy
Body, Stem	Sliding surface with sealing sections.	Plating worn or peeled due to seizure or contamination.	Replace
	Sliding surface between body and stem other than sealing section.	· Worn abnormality or damaged more than 0.1mm (0.0039in) in depth due to seizure contamination.	Replace
		· Damaged more than 0.1mm(0.0039in) in depth.	Smooth with oilstone.
	Sliding surface with thrust plate.	· Worn more than 0.5mm(0.02in) or abnormality.	Replace
		· Worn less than 0.5mm(0.02in).	Smooth
		· Damage due to seizure or contamination remediable within wear limit (0.5mm)(0.02in).	Smooth
Cover	Sliding surface with thrust plate.	· Worn more than 0.5mm(0.02in) or abnormality.	Replace
		· Worn less than 0.5mm(0.02in).	Smooth
		· Damage due to seizure or contamination remediable within wear limit (0.5mm)(0.02in).	Replace
Seal set	-	· Extruded excessively from seal groove square ring. 	Replace
	-	· Slipper ring 1.5mm(0.059in) narrower than seal groove, or narrower than back ring. 	Replace
	-	· Worn more than 0.5mm(0.02in) ~ 1.5mm(MAX.) (0.059in) 	Replace

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(11) Apply grease to the spherical portion of the guide.



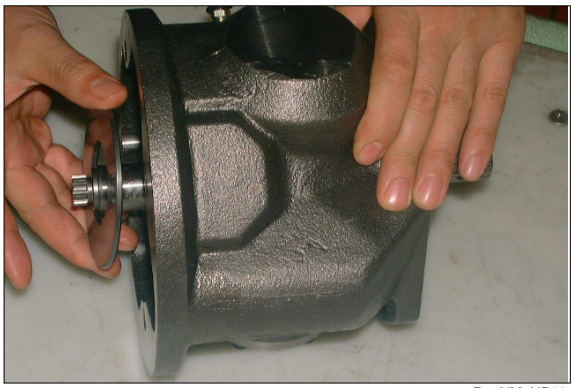
R55NM7HP61

(12) Insert the guide between the retainer and cylinder block and assemble the piston into the hole of cylinder block.



R55NM7HP62

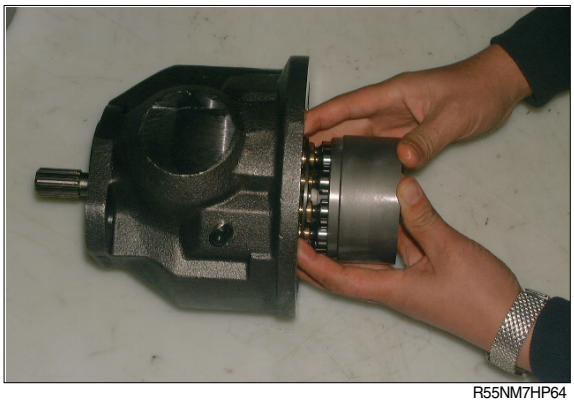
(13) Assembling the rotary group.
To prevent dislodgement, apply grease to the back side of the plate and assemble it to the hanger.



R55NM7HP63

(14) Assemble the rotary group along the shaft spline.

※ During assembly, apply grease to the slide surface of piston shoe and to the slide surface of the cylinder block relative to the control plate.



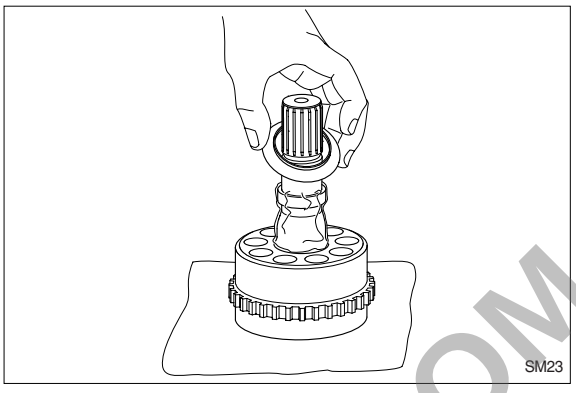
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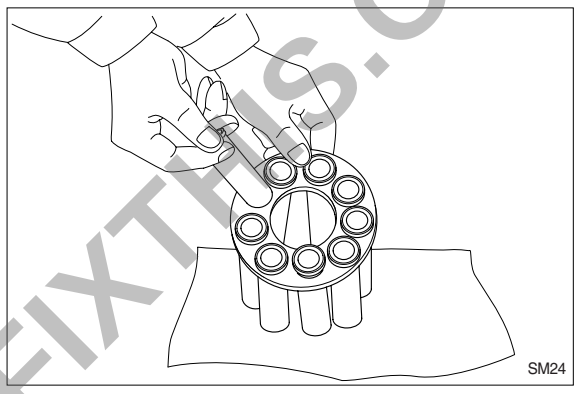
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(2) Cylinder assembly

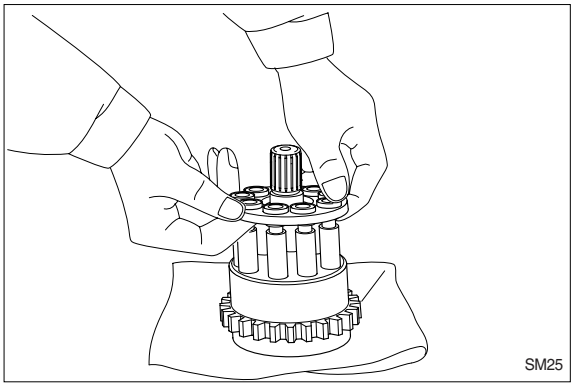
① Lubricate grease on round area (Contacting area withball guide(11)) of cylinder block(3) and assemble spring(4).



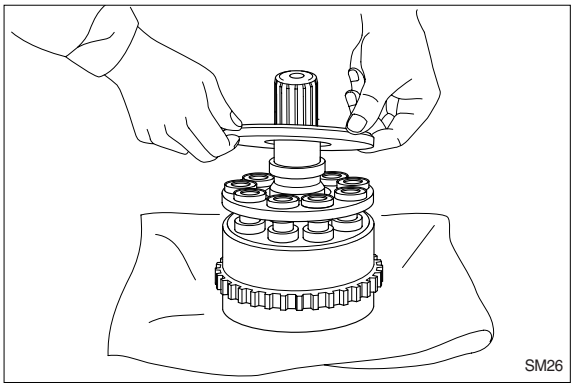
② Insert piston assembly(10) in hole of set plate(9).



③ Assemble piston assembly(10) and set plate(9) to cylinder block(3). When assembling, check matching mark between them. Before assembling, lubricate specified hydraulic oil in piston hole of cylinder block(3).



④ Lubricate specified hydraulic oil on shoe sliding face of piston assembly(10) and assemble shoe plate(7).



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(6) To mount the rear flange(1) back in the holder flange(101)

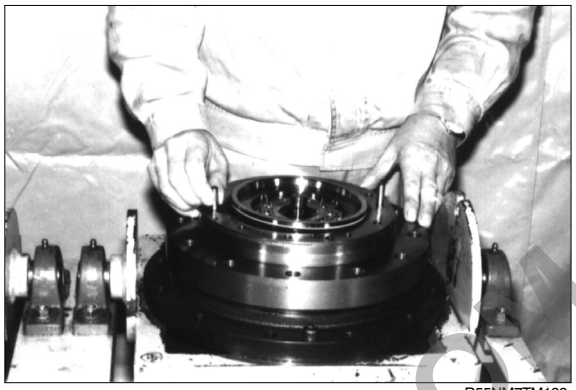
① Mount the ball bearing(50) in the rear flange(1).

② Fit the two dowel pins(41) into the pin holes of the rear flange(1).

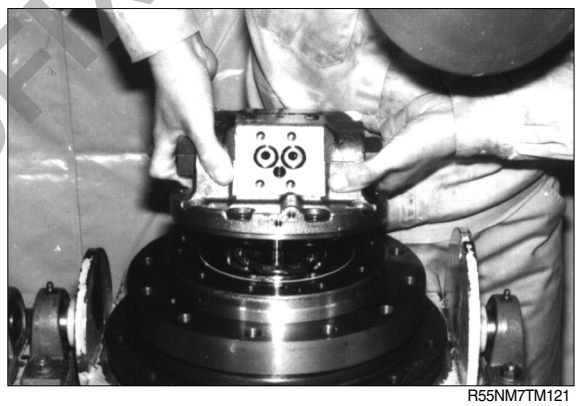
③ Using the dowel pins(41) as a guide, mount the timing plate(9) in the rear flange(1).
At this time, apply grease to the contact surface of the timing plate(9) and the rear flange(1).

④ Arrange the eight springs(113) correctly in the spring mounting hole of the rear flange(1).

⑤ Fit the two dowel pins(42) into the holder flange(101).


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⑥ Mount the rear flange(1) on the holder flange(101).
At this time, the two dowel pins that have been fitted into the holder flange(101) must be aligned with the pin holes.


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⑦ Tighten the eight hex. socket head bolts into the holder flange(101) at the required torque.
· Tightening torque : 25.7±4kgf · m
(185.9±29lbf · ft)


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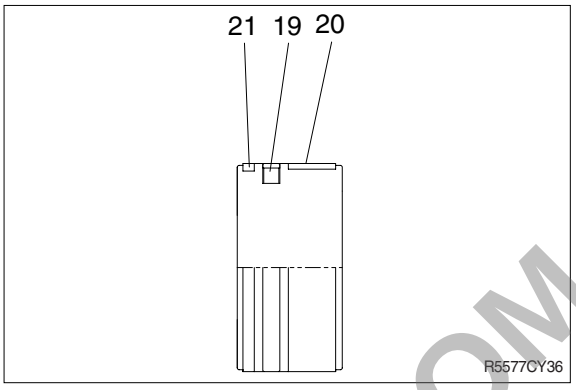
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(3) Disassemble the piston assembly

① Remove wear ring(20).

② Remove dust ring(21) and piston seal (19).

※ Exercise care in this operation not to damage the grooves.



(4) Disassemble gland assembly

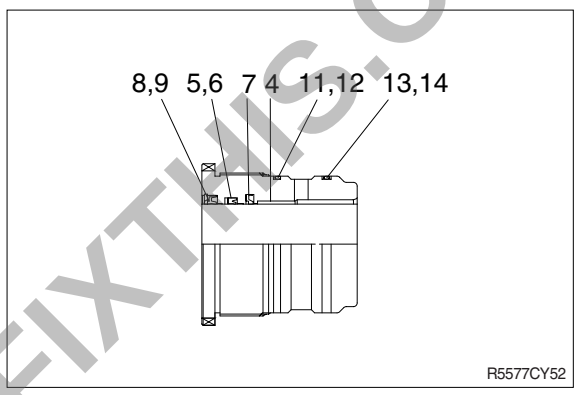
① Remove back up ring(12,14) and O-ring (11,13).

② Remove snap ring(9), dust wiper(8).

③ Remove back up ring(6), rod seal(5) and buffer ring(7).

※ Exercise care in this operation not to damage the grooves.

※ Do not remove seal and ring, if does not damaged.



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