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SECTION 6 TROUBLESHOOTING

SECTION 7 MAINTENANCE STANDARD

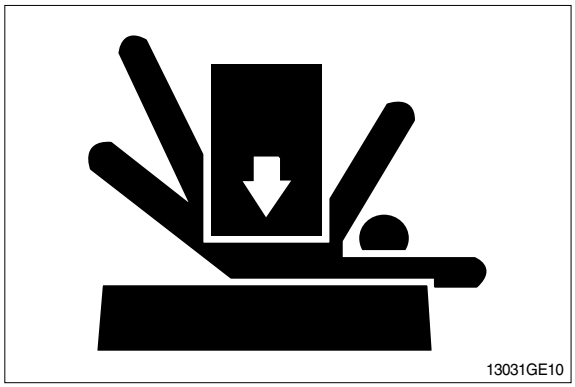
SECTION 8 DISASSEMBLY AND ASSEMBLY

SECTION 9 COMPONENT MOUNTING TORQUE

SUPPORT MACHINE PROPERLY

Always lower the attachment or implement to the ground before you work on the machine. If you must work on a lifted machine or attachment, securely support the machine or attachment.

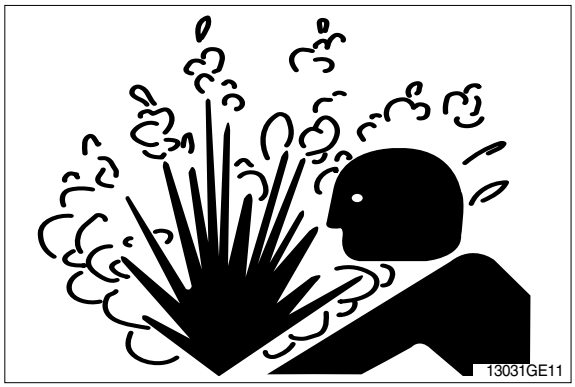
Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load.
Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.



SERVICE COOLING SYSTEM SAFELY

Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands.



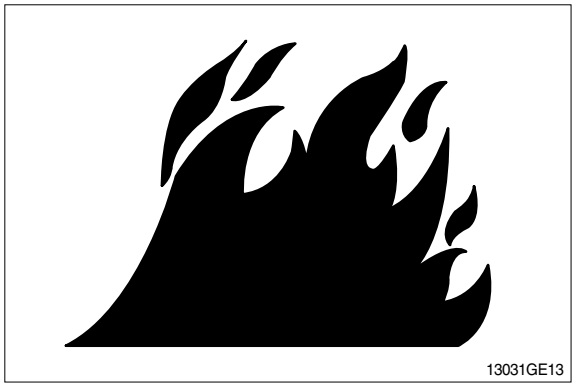
HANDLE FLUIDS SAFELY-AVOID FIRES

Handle fuel with care; It is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks. Always stop engine before refueling machine.
Fill fuel tank outdoors.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

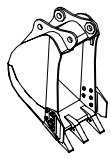
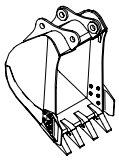
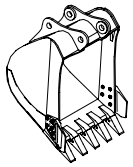
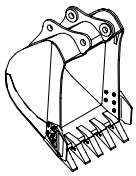
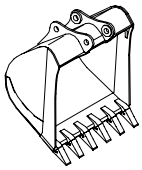
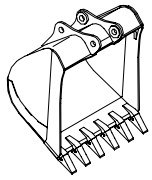
Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; They can ignite and burn spontaneously.



6. BUCKET SELECTION GUIDE

1) GENERAL BUCKET

					
0.79m³ SAE heaped bucket	1.03m³ SAE heaped bucket	⊙0.52m³ SAE 1.27m³ SAE heaped bucket	1.50m³ SAE heaped bucket	1.73m³ SAE heaped bucket	1.85m³ SAE heaped bucket

Capacity		Width		Weight	Recommendation				
					6.25m(20' 6") boom				10.2m boom (33' 6")
SAE heaped	CECE heaped	Without side cutter	With side cutter		2.1m arm (6' 11")	2.5m arm (8' 2")	3.05m arm (10' 0")	3.75m arm (12' 4")	7.85m arm (25' 9")
⊙0.52m³ (0.68yd³)	0.45m³ (0.59yd³)	910mm (35.8")	1010mm (39.8")	460kg (1010lb)					
0.79m³ (1.03yd³)	0.70m³ (0.92yd³)	890mm (35.0")	1010mm (39.8")	790kg (1740lb)					
1.03m³ (1.35yd³)	0.90m³ (1.18yd³)	1090mm (42.9")	1210mm (47.6")	890kg (1960lb)					
1.27m³ (1.66yd³)	1.10m³ (1.44yd³)	1290mm (50.8")	1410mm (55.5")	1010kg (2230lb)					
1.50m³ (1.96yd³)	1.30m³ (1.70yd³)	1490mm (58.7")	1610mm (63.4")	1080kg (2380lb)					
1.73m³ (2.26yd³)	1.50m³ (1.96yd³)	1700mm (66.9")	1820mm (71.7")	1170kg (2580lb)					
1.85m³ (2.42yd³)	1.60m³ (2.09yd³)	1800mm (70.9")	1920mm (75.6")	1230kg (2710lb)					

⊙ : 10.2m boom, 7.85 arm only

Applicable for materials with density of 2000kgf/m³ (3370lbf/yd³) or less

Applicable for materials with density of 1600kgf/m³ (2700lbf/yd³) or less

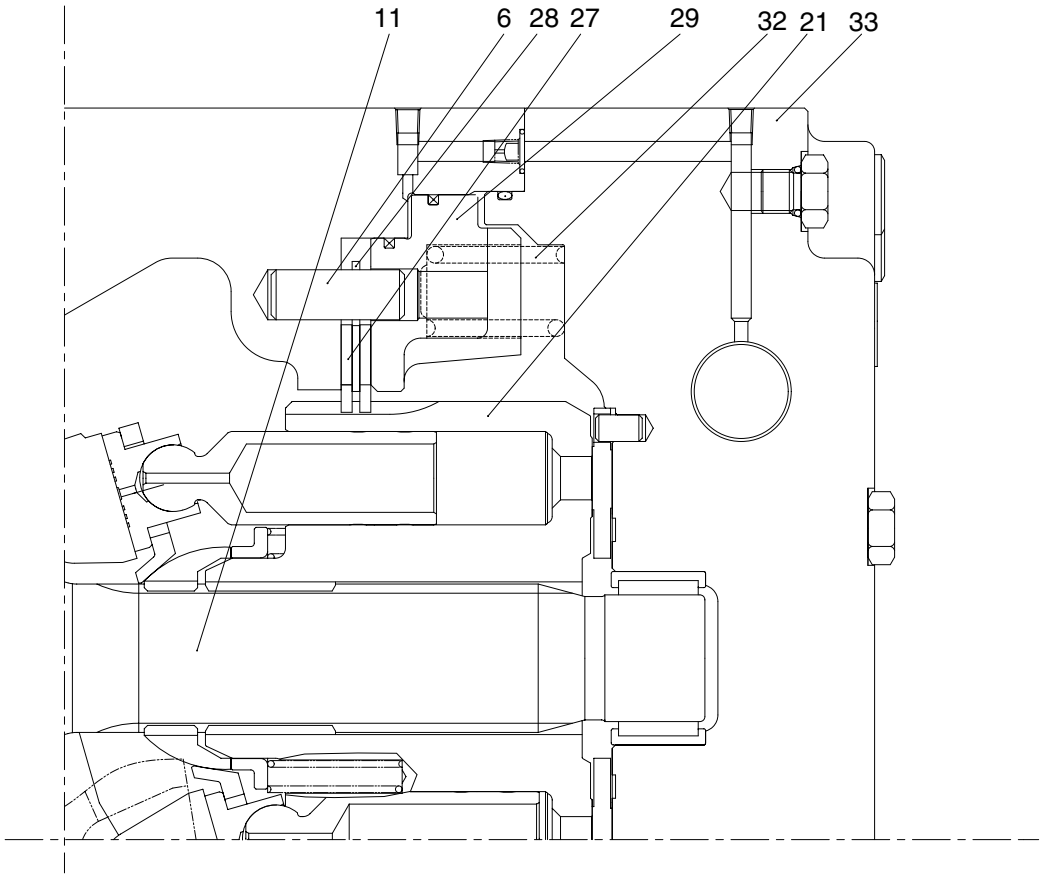
Applicable for materials with density of 1100kgf/m³ (1850lbf/yd³) or less

3) WORKING OF NEGATIVE BRAKE

The negative brake is released applying to the brake piston(29) the pressure led through built in the valve casing(33) spool. With no pressure working, the brake force is always ensured.

The brake force is generated by the frictional force among a plate(28) fixed by pin(6) and shaft casing, brake piston(29) and a frictional plate(27) connected through spline outside the cylinder block(21).

Without pressure being applied to the brake piston, the brake piston is pushed by ten brake springs(32) and the friction plate and separator plate are held between the brake piston and casing. This friction force restrains the shaft(11) spline-coupled with the cylinder block, and thus functions the brake.

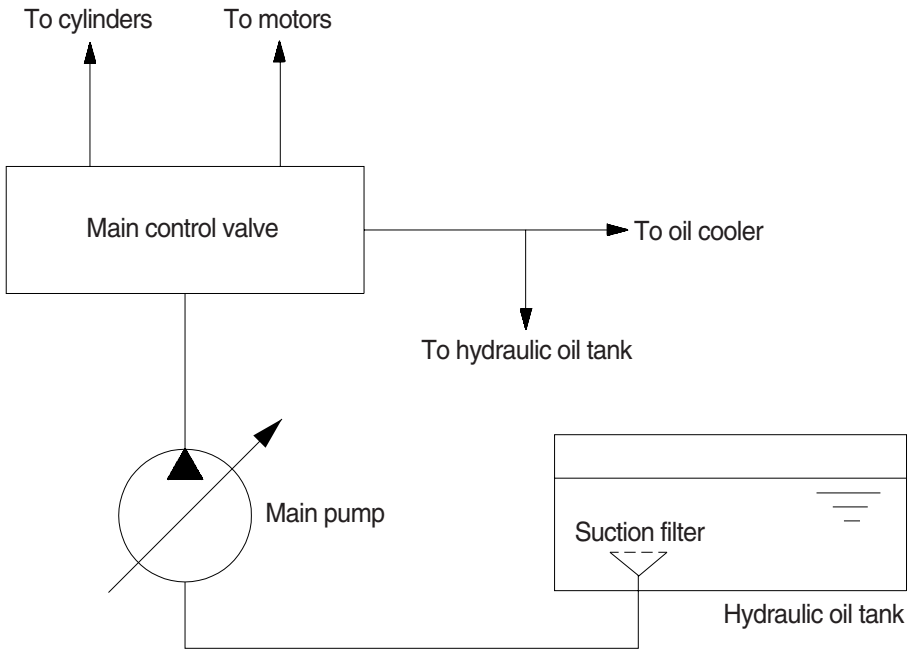


300075TM05

GROUP 2 MAIN CIRCUIT

The main hydraulic circuit consists of suction circuit, delivery circuit, return circuit and drain circuit.
The hydraulic system consists of one main pump, one control valve, one swing motor, four cylinders and two travel motors.
The swash plate type variable displacement tandem axial piston pump is used as the main pump and is driven by the engine at ratio 1.0 of engine speed.

1. SUCTION AND DELIVERY CIRCUIT

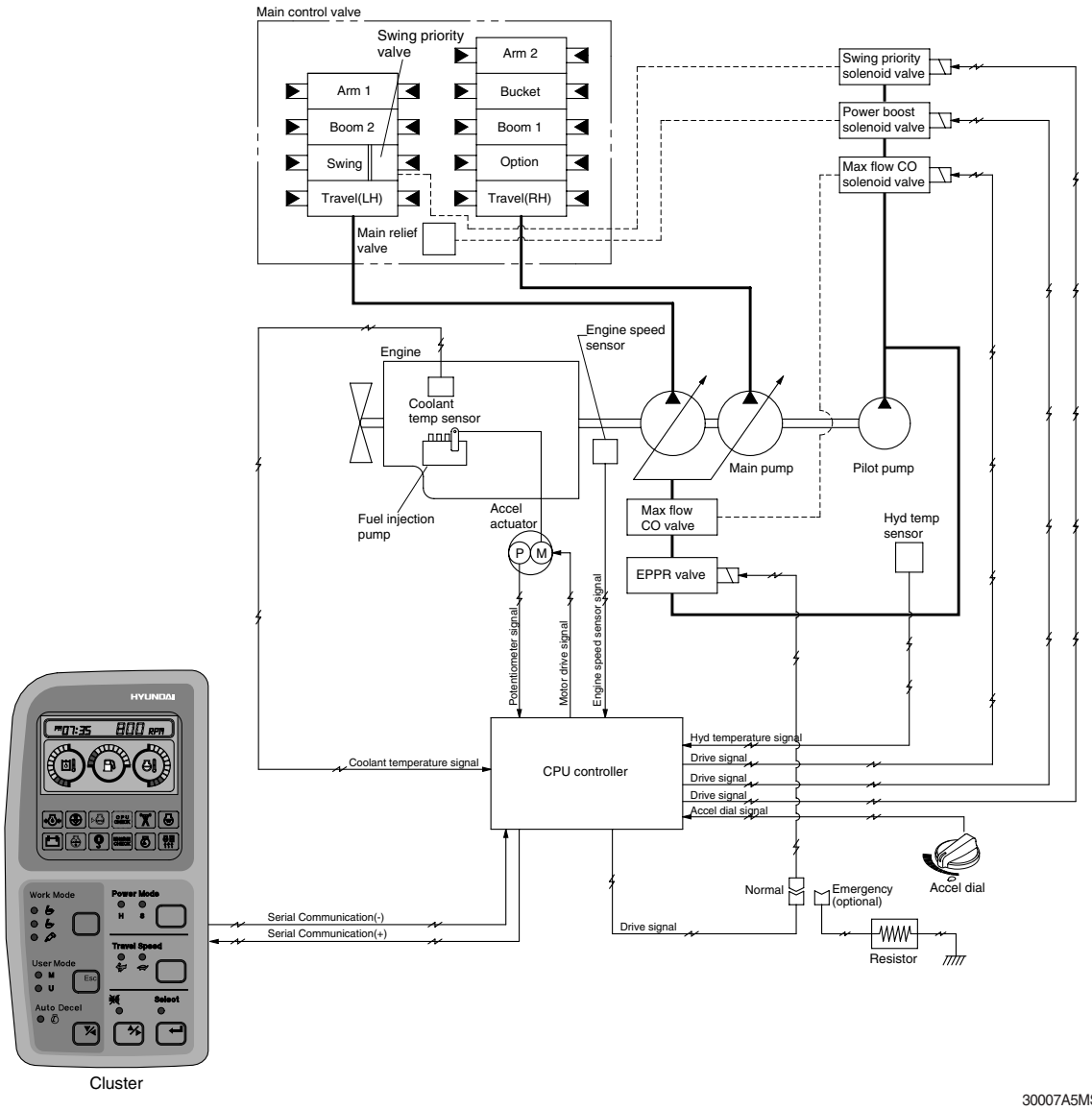


3-02

The pumps receive oil from the hydraulic tank through a suction filter. The discharged oil from the pump flows into the control valve and goes out the tank ports.
The oil discharged from the main pump flows to the actuators through the control valve.
The control valve controls the hydraulic functions.
The return oil from the actuators flows to the hydraulic tank through the control valve and the oil cooler.

2. WORK MODE SELECTION SYSTEM

3 work modes can be selected for the optional work speed of the machine operation.



1) HEAVY DUTY WORK MODE

The heavy duty work solenoid is deactivated to make the arm operation speed faster.

2) GENERAL WORK MODE

When key switch is turned ON, this mode is selected and swing operation speed is faster than heavy duty work mode.

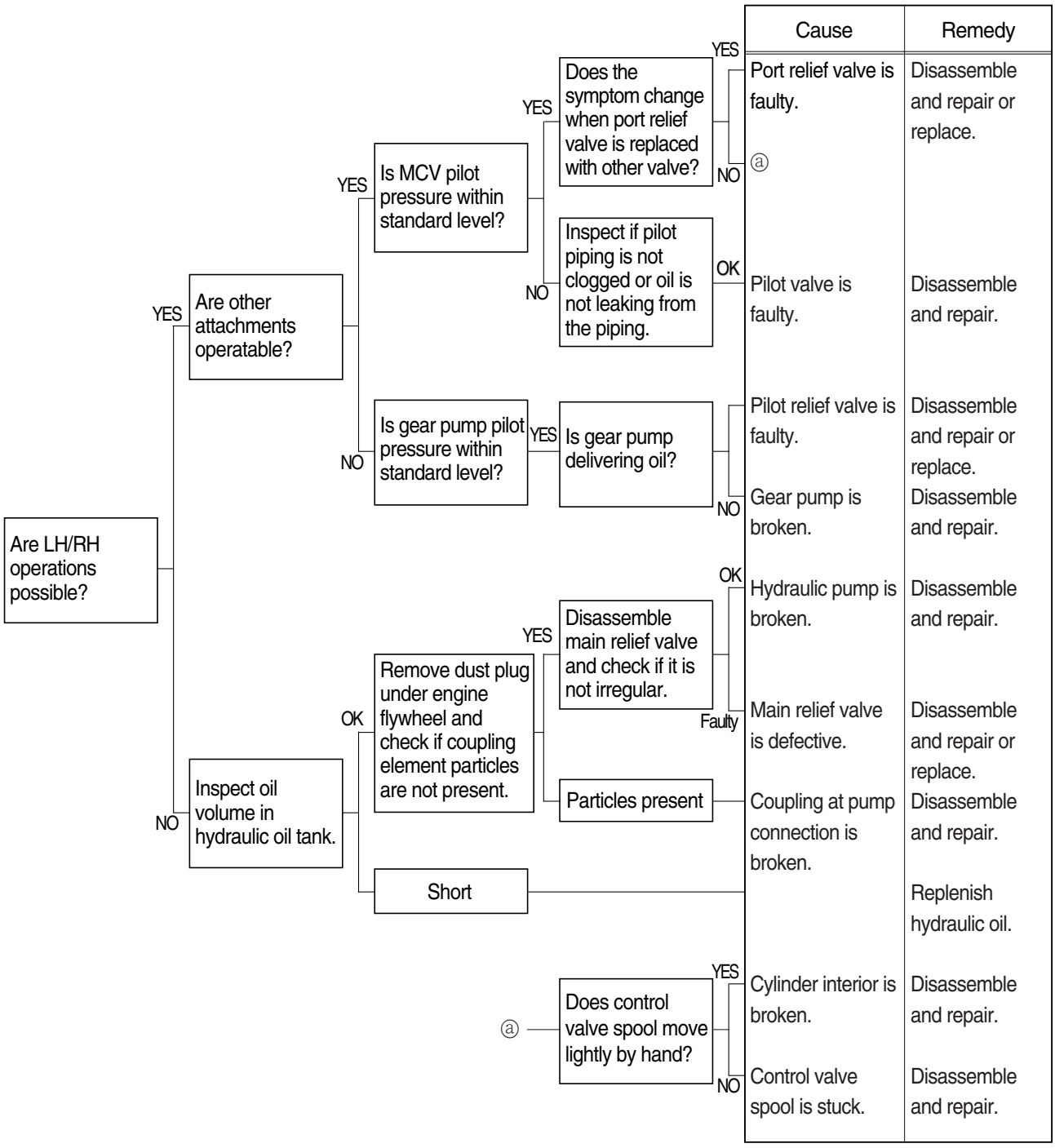
3) BREAKER OPERATION MODE

It sets the pump flow to the optimal operation of breaker by activating the max flow cut-off solenoid.

Work mode	Swing priority solenoid	Max flow cut-off solenoid
Heavy duty	ON	OFF
General	OFF	OFF
Breaker	OFF	ON

6. ATTACHMENT SYSTEM

1) BOOM OR ARM ACTION IS IMPOSSIBLE AT ALL



15) SWING PARKING BRAKE RELEASING PRESSURE

(1) Preparation

① Stop the engine.

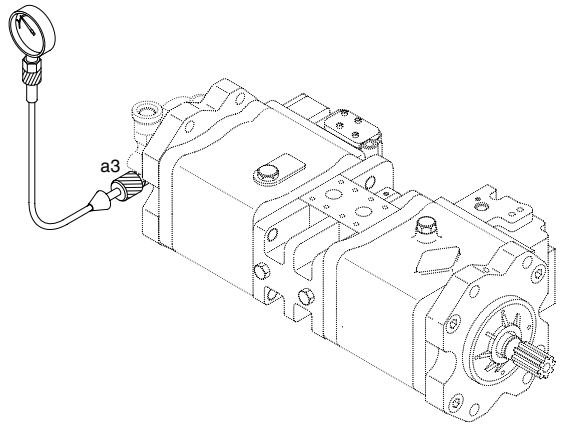
② Remove the top cover of the hydraulic tank oil supply port with a wrench.

③ The pressure release L wrench to bleed air.

④ Install a connector and pressure gauge assembly to swing motor SH port, as shown.

⑤ Start the engine and check for oil leakage from the adapter.

⑥ Keep the hydraulic oil temperature at 50±5°C.



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(2) Measurement

① Select the following switch positions.

· Mode selector : M mode

② Operate the swing function or arm roll in function and measure the swing brake control pressure with the brake disengaged. Release the control lever to return to neutral and measure the control pressure when the brake is applied.

Repeat step ② three times and calculate the average values.

(3) Evaluation

The average measured pressure should be within the following specifications.

Unit : kgf / cm^2

Model	Description	Standard	Allowable limits	Remarks
R300LC-7	Brake disengaged	35	26~44	
	Brake applied	0	-	

4) ASSEMBLY

(1) For reassembling reverse the disassembling procedures, paying attention to the following items.

① Do not fail to repair the parts damaged during disassembling, and prepare replacement parts in advance.

② Clean each part fully with cleaning oil and dry it with compressed air.

③ Do not fail to apply clean working oil to sliding sections, bearings, etc. before assembling them.

④ In principle, replace seal parts, such as O-rings, oil seals, etc.

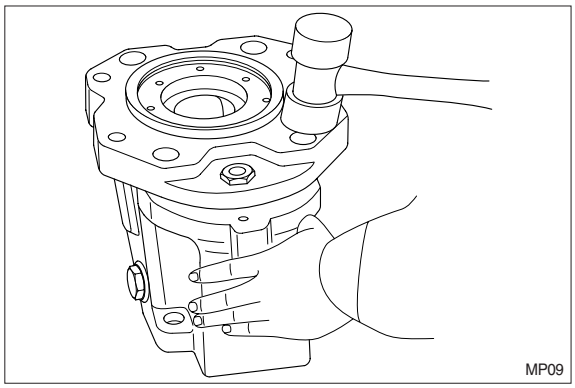
⑤ For fitting bolts, plug, etc., prepare a torque wrench or so on, and tighten them with torques shown in Section 2-3.

⑥ For the double-pump, take care not to mix up parts of the front pump with those of the rear pump.

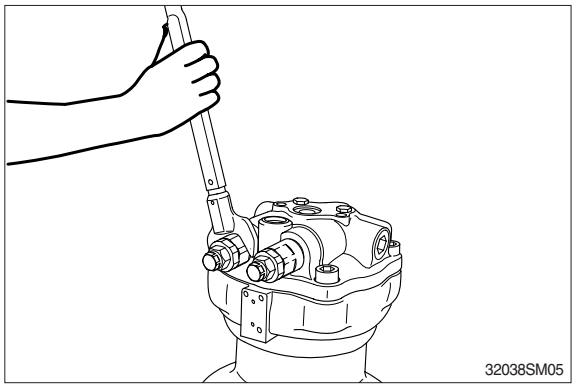
(2) Fit swash plate support(251) to pump casing(271), tapping the former lightly with a hammer.

※ After servo piston, tilting pin, stopper(L) and stopper(S) are removed, fit them soon to pump casing in advance for reassembling.

※ In tightening servo piston and tilting pin, use a protector to prevent tilting pin head and feedback pin from being damaged. In addition, apply lock-tight(Medium strength) to their threaded sections.

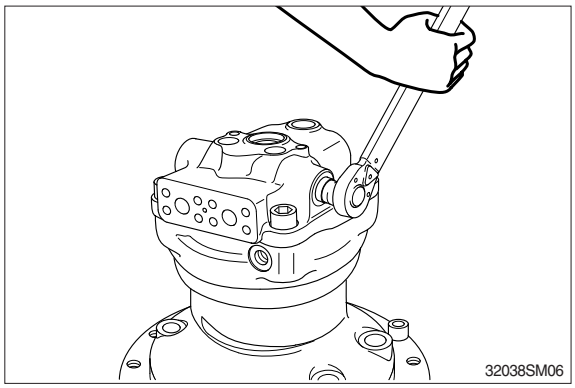

MP09

(5) Remove the relief valve(051) from valve casing(303).

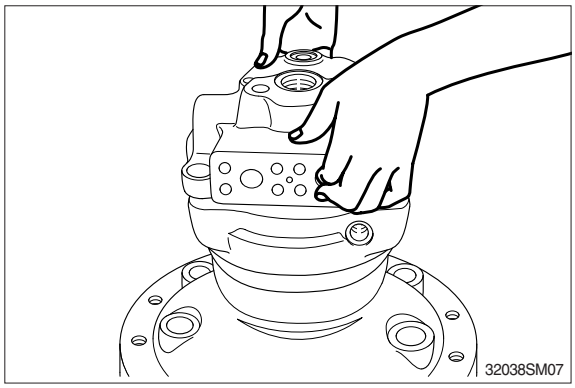


(6) Remove plug(469) from valve casing (303) and spring(355), plunger(351).

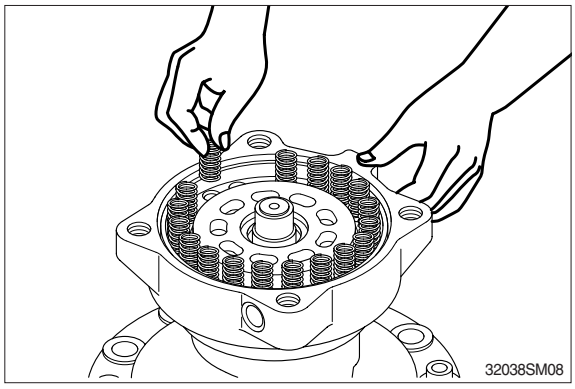
※ Be careful not to damage the plunger seat assembly.



(7) Remove valve casing(303) from casing (301). Then, remove the valve plate(131) from valve casing(303) with care.

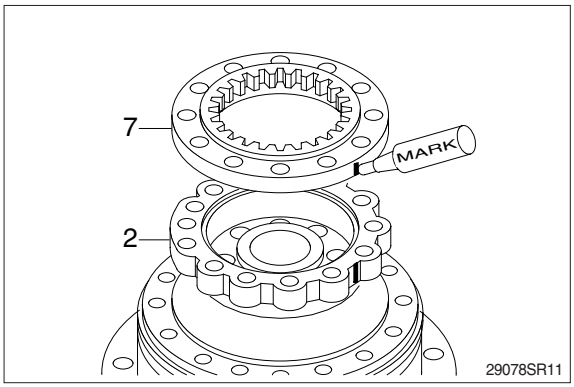


(8) Remove the brake spring(712) from brake piston(702).

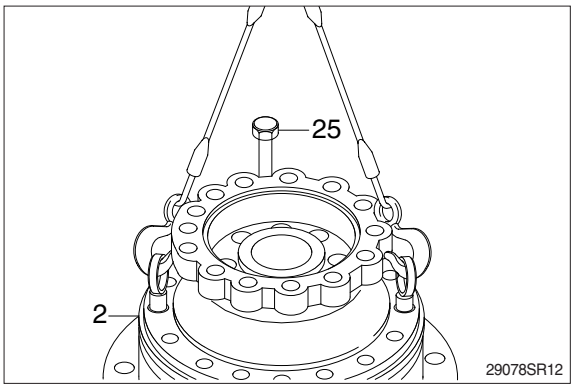


(8) Remove ring gear(7) from middle casing (2).

※ Put matching mark for easy reassembly.

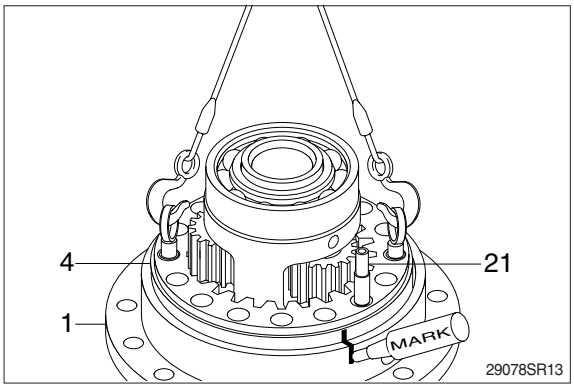


(9) Loosen the socket bolt(25) and tighten 2 M18 eye bolts to middle casing(2) and then lift up and remove middle casing(2).

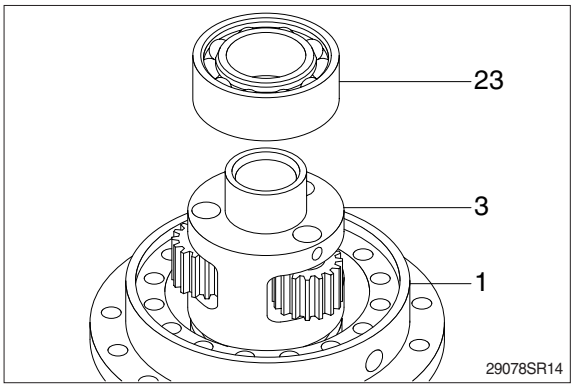


(10) Remove knock pin(21) and then remove ring gear2(4).

※ Put marks at the knock pin hole and across the matching line between ring gear2(4) and front casing(1) and then remove ring gear2(4) for easy reassembly.



(11) Using the bearing disassembly tool, remove roller bearing(23).



3) ASSEMBLING TRAVEL MOTOR

(1) Assemble the sub of a turning axis.

① After assembling bearing spacer(12) into a turning axis(11), have cylinder roller bearing(13) thermal-reacted.

a. In the thermal reaction of cylinder roller bearing, use and induction heating apparatus and adjust the temperature as about 100℃.

b. Deal moisturized copper part oil seal in a turning axis without any damage of it.

300072TM51
300072TM51A
300072TM51B

(2) Assemble ring stop(14) with a plier.

※ Be careful of the direction of ring stop.
(The direction of round is the side of bearing)

300072TM52

(3) Assemble valve casing sub.

① Bond seven pieces of plug(2) in valve casing(33) with standard torque.

② After taping plug with seal taper and spread rock tight, assemble it.

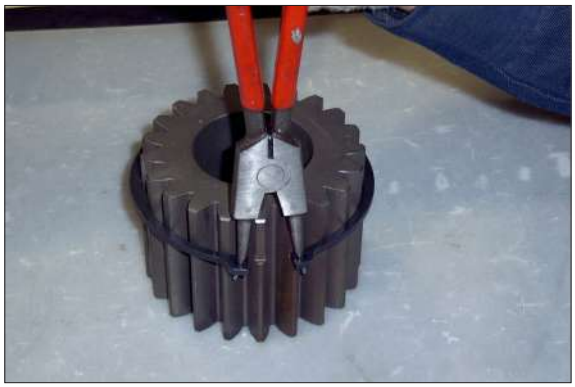
· Tightening torque : 7~11kgf · m
(50.63~79.5lbf · ft)

300072TM53

13) Installing No.3 sun gear(88-7)

(1) Install snap ring(88-8) in No.3 sun gear(88-7) by use if snap ring flier.

(2) Install No.3 sun gear on the spline of No.3 carrier, matching teeth of them.



300078RD32

300078RD09

14) Installing No.2 carrier sub assy

(1) Install eye bolt(M10) on No.2 carrier assembly.

(2) Lift No.2 carrier assembly and then, slowly put it down on ring gear.

(3) Rotate planetary gear by hands and install in ring gear.

300078RD05

3) BOOM CYLINDER

(1) Removal

※ Expand the arm and bucket fully, lower the work equipment to the ground and stop the engine.

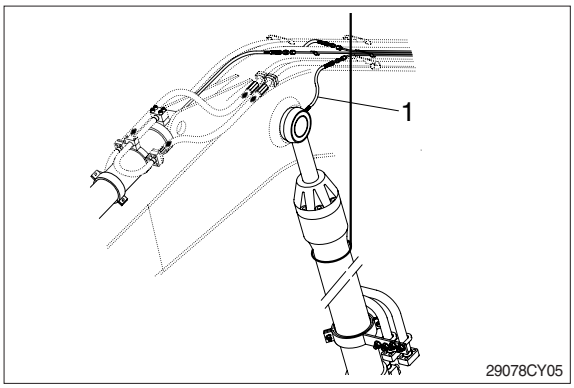
※ Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping.

⚠ Loosen the breather slowly to release the pressure inside the hydraulic tank.

※ Escaping fluid under pressure can penetrate the skin causing serious injury.
Fit blind plugs in the hoses after disconnecting them, to prevent dirt or dust from entering.

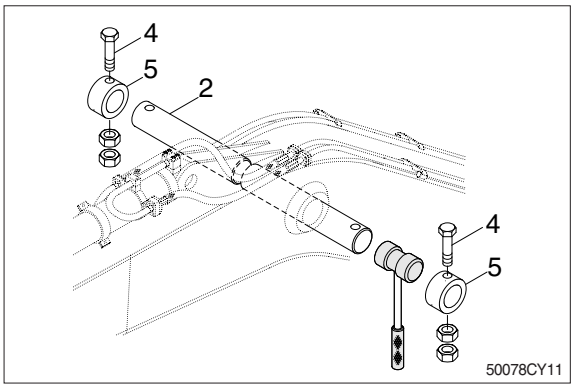
① Disconnect greasing hoses(1).

② Sling boom cylinder assembly.



③ Remove bolt(4), pin stopper(5) and pull out pin(2).

※ Tie the rod with wire to prevent it from coming out.



④ Lower the boom cylinder assembly(6) on a stand.