7. ADJUSTMENT AND REPAIR

7-1-3 Wiring Diagram



Y	Yellow	L	Blue	R	Red	GW	Green white	Gr	Gray
YB	Yellow black	LW	Blue white	RY	Red yellow	GR	Green red	Or	Orange
YR	Yellow red	LR	Blue red	RW	Red white	B	Black	Br	Brown
YI	Yellow blue	LB	Blue black	RB	Red black	BR	Black red		

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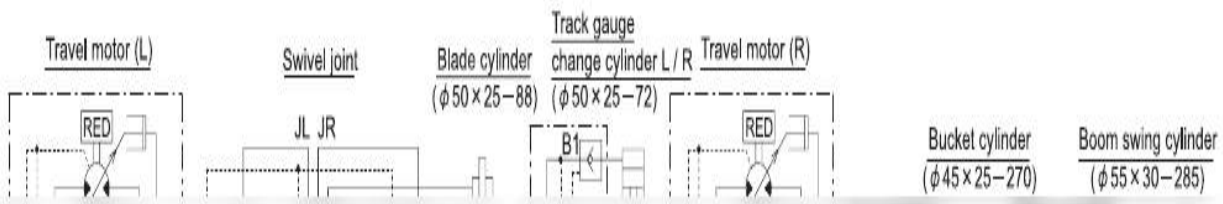
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5. HYDRAULIC SYSTEM

5-2 Hydraulic Circuit Schematic

5-2-1 Variable Track Gauge Type Specifications



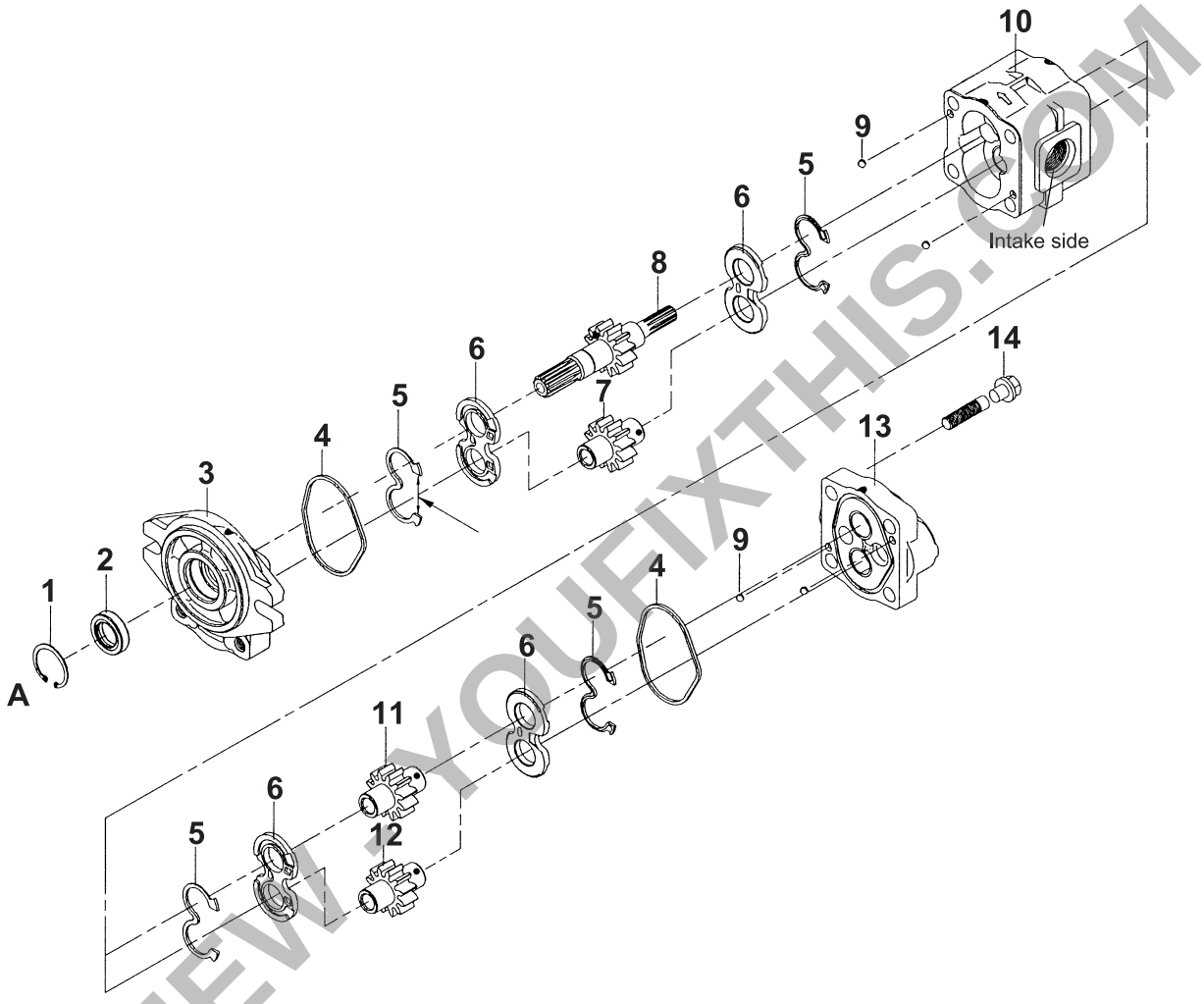
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3. Exploded View and Component Parts

This exploded view is for the hydraulic pump which rotates counterclockwise when viewed from the side A.
For B08-3, since the hydraulic pump rotates clockwise, the intake side and the discharge side are reversed.



No.	Part	Q'ty	No.	Part	Q'ty
1	Internal snap ring C	1	8	Driving gear No.1	1
2	Oil seal	1	9	Steel ball	4
3	Front cover (with bushes)	1	10	Body (with bushes)	1
4	Gasket	2	11	Driving gear No.2	1
5	3-shaped gasket	4	12	Driven gear No.2	1
6	Side plate	4	13	Rear cover (with bushes)	1
7	Driven gear No.1	1	14	Washer faced hexagon head bolt	4

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3. SERVICING STANDARDS

3-7 List of Tightening Torque

3-7-1 Machine

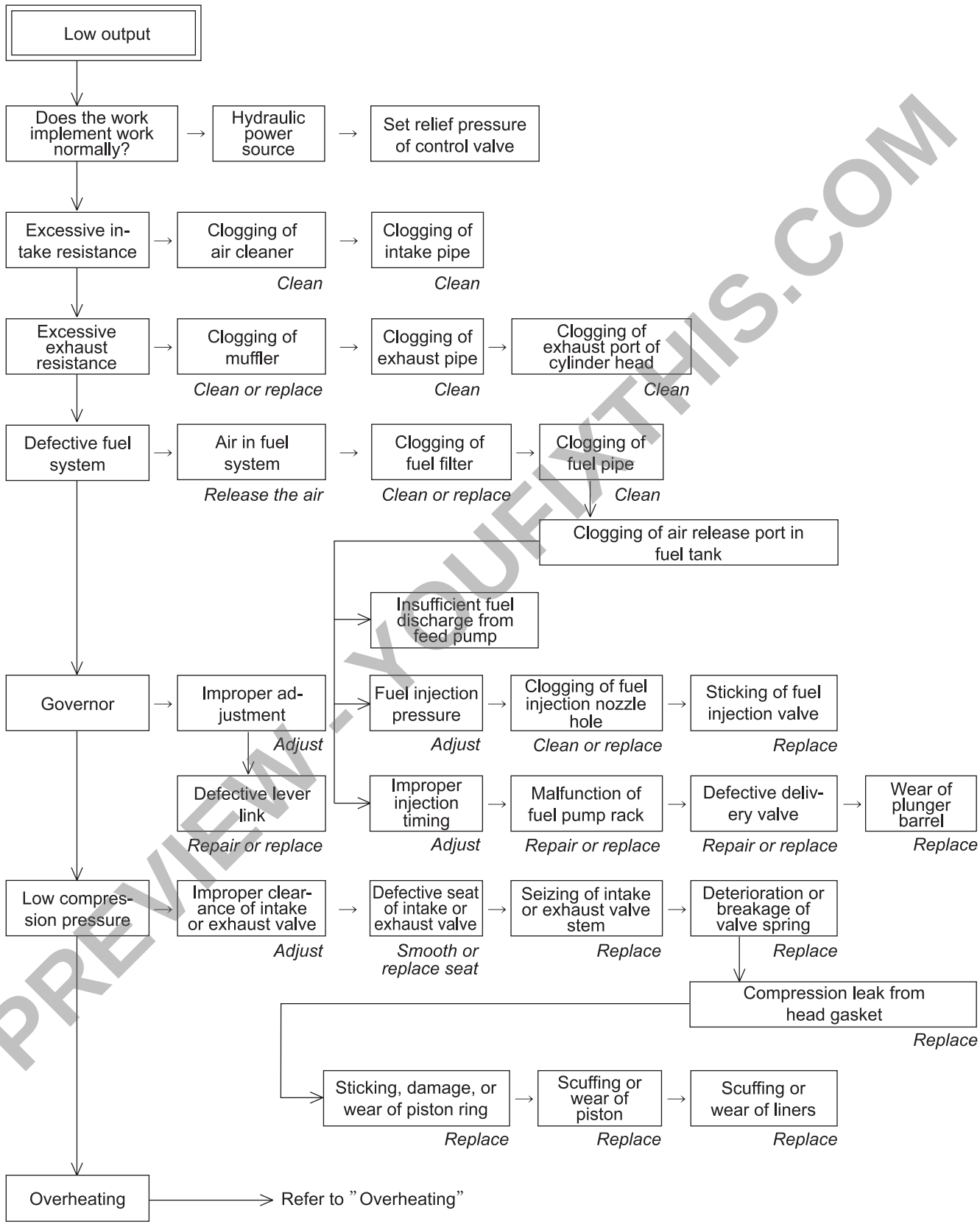
Unit : N•m

Applicable model:			SV08-1			
Equipment			Thread size	Tightening torque	Adhesive	Remarks
	No.	Tightening part				
Engine / Electrical equipment						

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9. REFERENCE DATA

9. Fuel, Lube Oil and Grease Recommended

Item	Type
Engine oil	Engine oil SAE 10W30, CD class
Travel reduction gear	SAE 30, CC class
Hydraulic oil	YANMAR SUPER HYDRO. OIL (ISO VG46)
Fuel	Diesel light oil
Engine cooling water	YANMAR genuine long-life coolant (LLC) 30 % added
Idler	SAE 30
Track roller	
Carrier roller	Grease

Part be refilled	Oil type	Recommendations withe regard to temperature ranges °C -20 -10 0 10 20 30	Prescribed amount of oil	Amount of oil to be changed
Engine oil pan	Engine oil	SAE 10WCD SAE 10W-30CD SAE 15W-40CD	1.8 L	1.8 L
Travel reduction gear	Gear oil	SAE 30CC	0.33 L (For right and left each)	0.33 L (For right and left each)
Hydraulic oil system	Hydraulic oil	ISO VG46	In the tank 6.6 L Other parts 4.4 L	6.6 L
Fuel tank	Light oil	No.2-D No.3-D No.3-D (S)	10.0 L	—
Cooling system	Water	YANMAR genuine long-life coolant (LLC) added	Radiator 1.6 L Sub tank 0.4 L	—

★Mixture ratio of cooling water and antifreeze

Lowest temperature	°C	-5	-10	-15	-20	-25	-30	-35	-40
Amout of anti-freeze	L	0.3	0.5	0.6	0.7	0.8	0.9	1.0	1.1
Amout of water	L	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.9

Note :

At the delivery, water and antifreeze are mixed at the ratio for -15 °C temperature above.

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8. Periodic Inspection and Servicing

8-1 List of Periodic Inspection and Servicing

◇ : Check ○ : Supply ● : Replace □ : Adjust (clean) ■ : Oil & grease

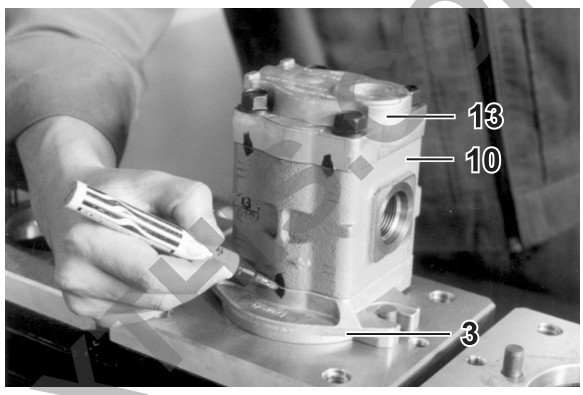
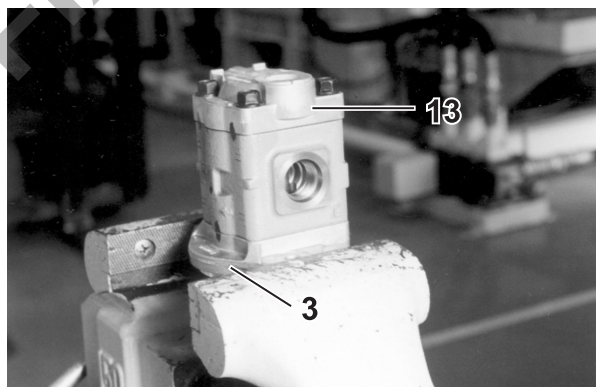
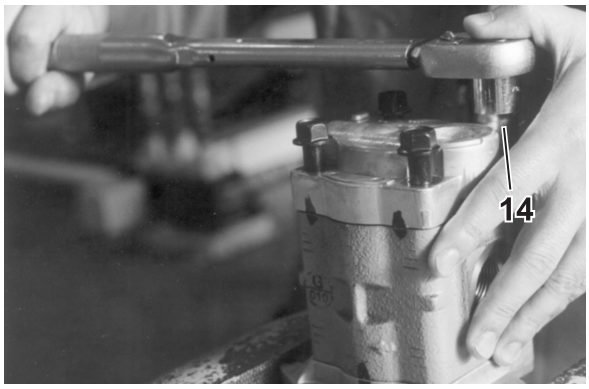
Check & service items			Daily	Every 50	Every 100	Every 250	Every 500	Every 1000 hrs
General	Check falling off, breakage of parts		◇					
	Check loosened bolts & nuts, retighten		◇					
	Check engine condition		◇					
	Clean		□					
Lube oil	*Swing gear case oil	Check, resupply				○		
		Replace			● 1st time			●
	Travel reduction gear oil	Check, resupply				○		
		Replace			● 1st time			●
	*Transmission oil	Check, resupply	◇					
		Replace			● 1st time			●
	*Differential gear oil	Check, resupply			◇			
		Replace			● 1st time			●
Hydraulic system	Hydraulic oil	Check, resupply	◇					
		Replace						●
	Clean suction filter					□ 1st time		□
	Replace return filter					● 1st time	●	
	Check for abnormality of hydraulic pump		◇					
Grease	Check grease-up positions, grease		■					
	Greasing the swing gears and the swing bearings			■				
	Greasing the track gauge change cylinder and the link fulcrum			■				
Undercar-riage	Check, adjust track tension		◇					
	*Check air pressure, wear, flaw in tyres		◇					
Steering equipment	*Check performance, play of steering lever		◇					
	Check performance, play of travel lever		◇					
	*Check performance of speed change lever		◇					
	*Check performance of forward/reverse pedal		◇					
	*Check performance, play of steering wheel		◇					
	*Brake pedal	Stroke	◇					
		Performance	◇					
	*Parking brake	Stroke	◇					
		Performance	◇					
	Check performance of accel. level		◇					
Electric equipment	Check front & work lights, horn		◇					
	Check hourmeter function		◇					
	Check function of change, oil and pilot lamps		◇					
	Check wire breakage, short-circuits, loosened terminals, retighten		◇					
	Check, resupply battery fluid		◇					
	Check specific gravity of electrolyte						□ As required	
	Check function of OK monitor		◇					

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4) Disassembly

Notes :

- *Mark the parts for identification so that they can each be reinstalled in their correct position and direction.*
- *This procedure is for the hydraulic pump which rotates counterclockwise (when viewed from the input shaft). Since B08-3 uses a hydraulic pump which rotates clockwise, the intake side and the discharge side are reversed.*

Procedure	
(1) Put match marks. Before disassembly, put a match mark on the joint of the front cover **3** and the body **10**, and that of the body **10** and the rear cover **13**.	
(2) Hold the hydraulic pump. Hold the front cover **3** of the pump with a vice or an anchor block, with the rear cover **13** up.	
(3) Remove the hexagon head bolts. Turn the four hexagon head bolts **14** each counterclockwise with a torque wrench to remove them. ***Note :*** *Check whether each of the bolts has been loosened when removing them, since it is an important factor to identify the cause of a failure.*	

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2. TECHNICAL DATA

2. Technical Data

2-1 Specifications

Note : *( ) : at minimum track gauge*

Item	Unit		SV08-1
			Variable track gauge type

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2. Servicing Standards

1) Nominal and Allowable Values

Applicable model				2TE67L-BV	
Item			Unit	Standard	Wear limit
Cylinder head					
Cylinder head distortion			mm	0.05 or less	0.12
Valve seat angle	Intake		degrees (°)	90	–
	Exhaust			90	–
Valve seat width	Intake		mm	1.59 to 1.8	2.5
	Exhaust			1.59 to 1.8	2.5
Intake valve	Stem outside dia.		mm	Ø5.960 to 5.975	Ø5.9
	Guide inside dia.			Ø6.000 to 6.012	Ø6.08
	Oil clearance			Ø0.025 to 0.052	Ø0.2
Exhaust valve	Stem outside dia.		mm	Ø5.940 to 5.955	Ø5.9
	Guide inside dia.			Ø6.000 to 6.012	Ø6.08
	Oil clearance			Ø0.045 to 0.072	Ø0.2
Valve sinkage	Intake		mm	0.7 to 0.9	1.8
	Exhaust			0.7 to 0.9	
Valve head thickness	Intake		mm	0.775 to 1.075	0.5
	Exhaust			0.775 to 1.075	
Intake valve operating timing	Open	b. TDC	degrees (°)	13	–
	Close	a. BDC		43	–
Exhaust valve operating timing	Open	b. BDC	degrees (°)	43	–
	Close	a. TDC		13	–
Valve spring	Free length		mm	33	–
	Inclination		mm	1.0	1.2
	Tension [28.3 mm compressed]		kg	6.9	6.5
Intake / exhaust valve clearance			mm	0.2	0.5
Cylinder block					
Cylinder bore dia.			mm	67.000 to 67.019	67.2
Cylinder bore dia.				67.250 to 67.265	Over size 0.25
Roundness of cylinder				0.00 to 0.01	0.03
Cylindricity of cylinder				0.00 to 0.01	0.03
Upper surface distortion				0.05 or less	0.12
Valve rocker arm					
Rocker arm for Intake / exhaust valve	Shaft outside dia.		mm	9.950 to 9.968	Ø11.57
	Bush inside dia.			10.000 to 10.015	Ø10.09
	Oil clearance			0.032 to 0.065	0.2
Push rod bend				0.03 or less	–
Tappet	Stem outside dia.			Ø17.965 to 17.980	Ø17.93
	Guide hole inside dia.			Ø18.000 to 18.018	Ø18.05
	Oil clearance			0.02 to 0.053	0.12

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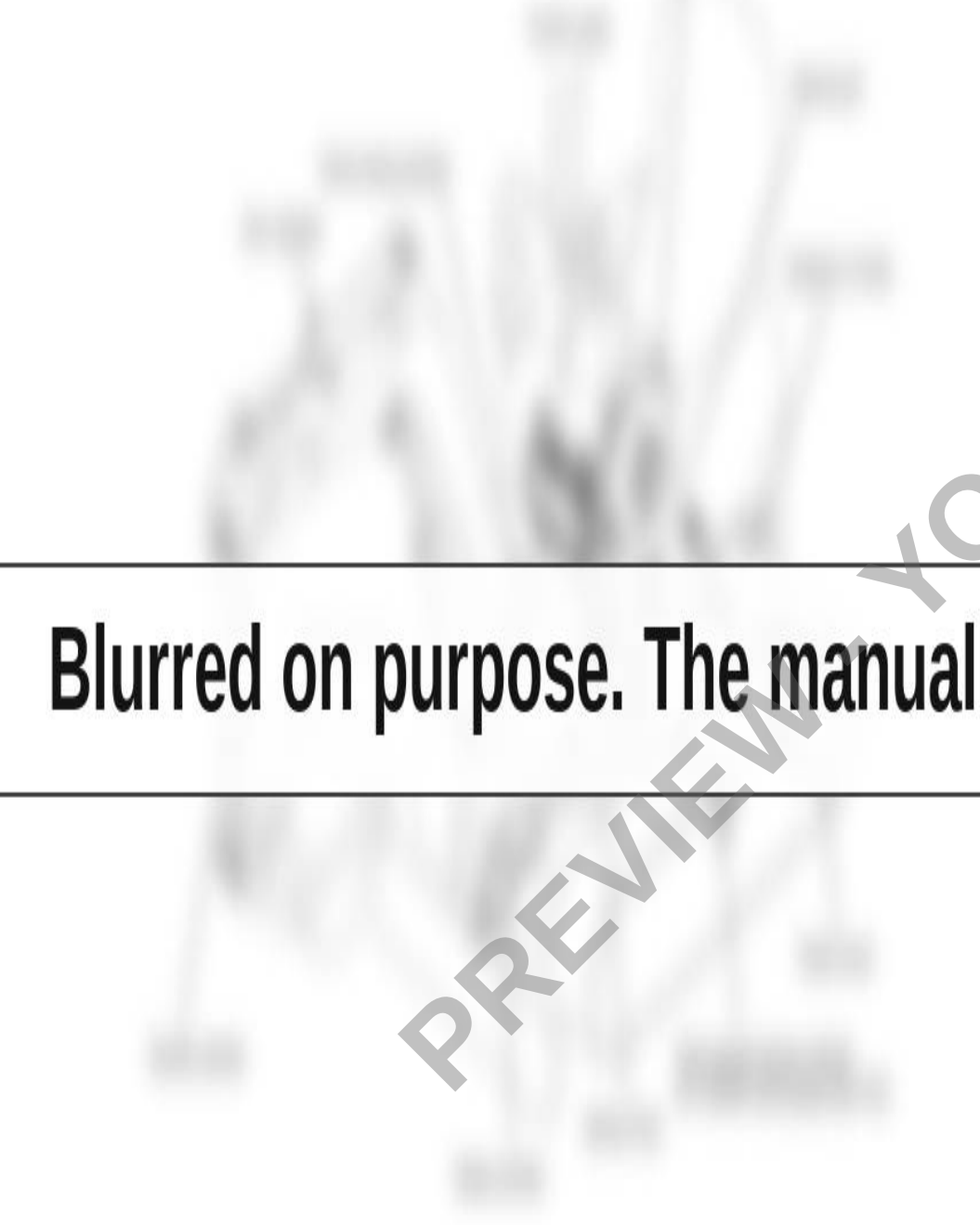
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5. HYDRAULIC SYSTEM

5. Hydraulic System

5-1 Outline

The hydraulic system consists of an engine, a double hydraulic pump, a control valve, a boom cylinder, an arm cylinder, a bucket cylinder, a blade cylinder, a boom swing cylinder, two track gauge change cylinders (for the variable track gauge type only), a pilot check valve CMP (for the variable track gauge type only), a swing motor, a swivel joint,



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4-2. Measurement Procedure, Service Data and Corrective Action

For the maintenance of all parts, make measurements according to the following measurement procedure. If any part is found to be defective or if any part is not within the allowable value, replace it with a new one. However, if it is expected that any part within the allowable value will exceed the value before the next maintenance based on the record of its use, be sure to replace such a part beforehand.

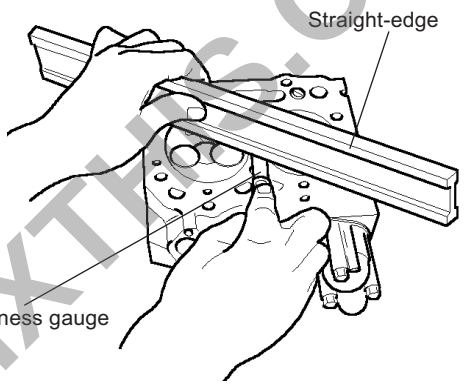
4-2-1 Cylinder Head

1) Checking the Combustion Surface for Distortion

(1) Remove the intake / exhaust valves and the fuel injection valve from the engine. Clean the surface of the cylinder head.

(2) Place a straight-edge along each of the four sides and each diagonal of the cylinder head. Measure the clearance between the straight-edge and the combustion surface with a thickness gauge.

Cylinder head combustion surface distortion	Standard	Wear limit
Refer to Section "2 1) Nominal and Allowable Values".		



(Measuring the combustion surface distortion)

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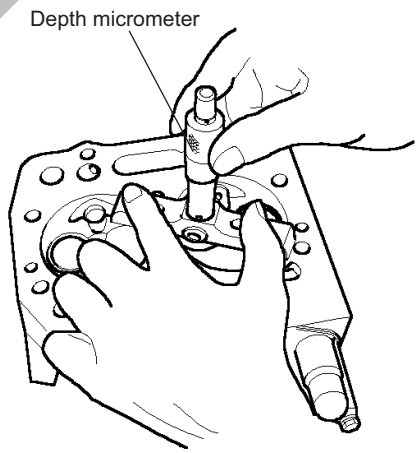
(3) Visually check if the combustion surface is free from discoloration, cracks, and crazing. In addition, use the color check kit for cracks and crazing.

2) Intake / Exhaust Valve Seat

(1) Valve sinkage

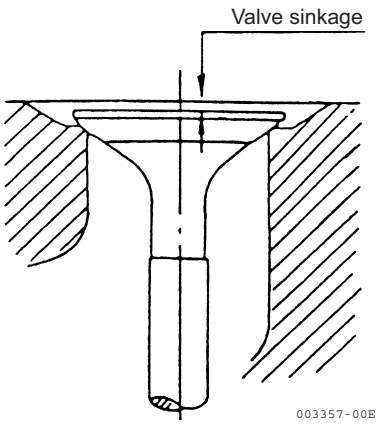
Over long periods of use and repeated lappings, combustion efficiency may drop. Measure the sinking depth and replace the valve and valve seat if the valve sinking depth exceeds the standard value.

		Standard	Wear limit
Valve sinkage	Intake valve	Refer to Section "2 1) Nominal and Allowable Values".	
	Exhaust valve		



(Measuring the valve sinkage)

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5. HYDRAULIC SYSTEM

5-3-6 Blade

The blade lever is linked to the spool of the control valve through L-balls and a blade cable.

1) Blade "Down"

Oil Flow from Hydraulic Pump

When the blade lever is pushed forward to lower the

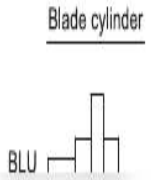
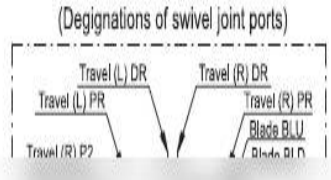


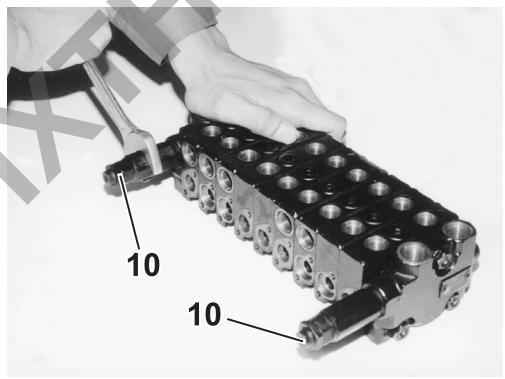
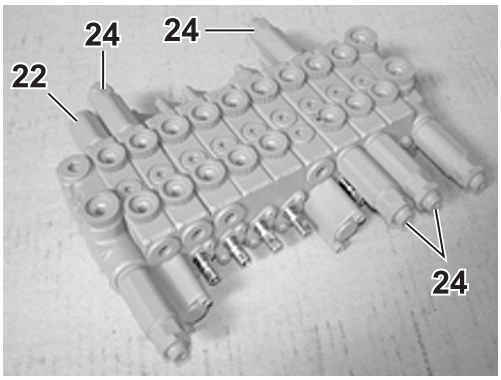
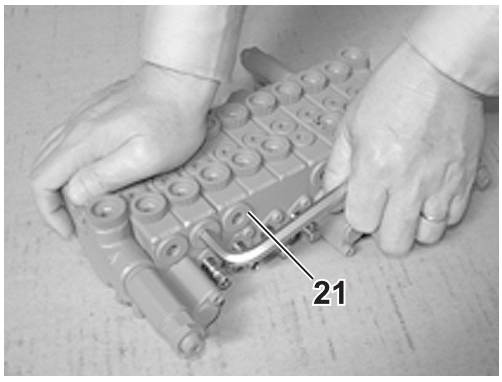
Fig 1. Fixed track gauge type
(Degignations of swivel joint ports)



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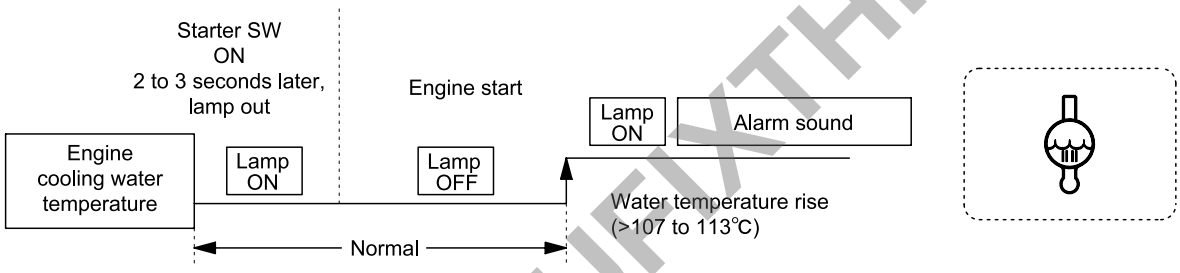
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Procedure	
(9) Install O-rings **12**, backup rings **13** and seal plates **14** on the spool link side. Tightening torque : 2.0 to 3.0 N·m	
(10) Install system relief valves **10.** Tightening torque : 39.2 N·m ***Note :*** *Apply grease thinly to O-rings **8** and **9**.*	
(11) Install circuit relief valves **24** and anti-cavitation valve **22.** Tightening torque : 39.2 N·m ***Note :*** *Apply grease thinly to O-rings **9**.*	
(12) Install plug G3 / 8 **21** (with O-ring **9**) on the side of each section. Tightening torque : 39.2 to 49.0 N·m ***Note :*** *Apply grease thinly to O-rings **9**.*	

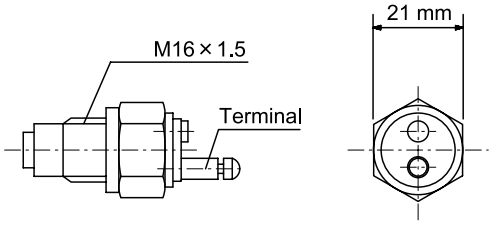
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When the alarm buzzer sounds, check the following items.
[1] Degeneration of engine oil.
[2] Clogging of oil filter element.
[3] Malfunction of engine oil pressure switch.
Refer to Section 4-1-8 in the chapter "4. Engine" for the checking procedure of the engine oil pressure switch.
[4] Malfunction of pressure control valve.
[5] Wear or breakage of lube oil pump.

(2) Overheating sensor (Water temperature switch)
The water temp. meter indicates the engine cooling water temperature.
If the pointer goes up to the set water temperature of the water temperature switch while the engine is running, the engine is overheating.

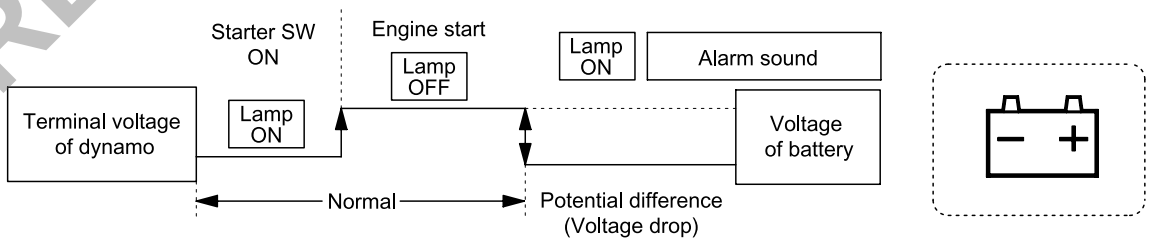


Turned on : Set water temp. : 107 to 113°C
Turned off : Set water temp. : 100°C or less
Installation position : Cooling water pump on engine



When the alarm buzzer sounds, check the following items.
[1] Refer to Section 4-1-7 in the chapter "4. Engine" and the chapter "10. Troubleshooting".

(3) Battery charge
When there occurs a potential difference between the output voltage of the dynamo and the voltage of the battery, the lamp goes on and the buzzer sounds.

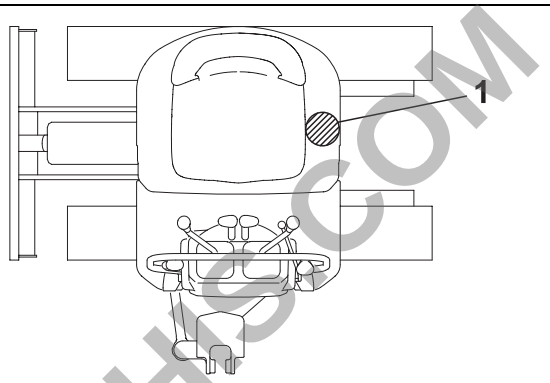
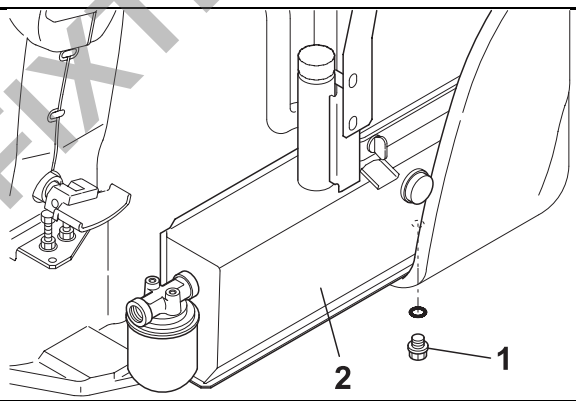
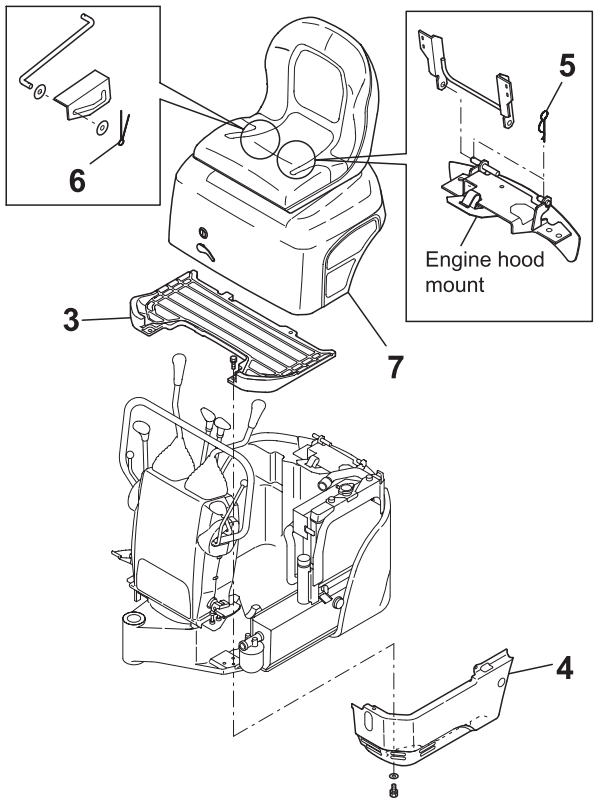


When the alarm buzzer sounds, check the following items.
[1] Degeneration or malfunction of battery.
[2] Refer to Section "7-1-4 Circuit Description of Engine Start and Stop" and the Section "7-1-5 Circuit Description of Battery Charging".

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7-5-7 Removal and Reinstallation of Hydraulic Oil Tank

1) Removal

Procedure	
(1) Swing the upperstructure so that the drain plug **1** of the hydraulic oil tank is positioned halfway between the right and left crawlers. Lower the bucket to the ground and stop the engine.	
(2) Remove the drain plug **1** from the hydraulic oil tank **2** to drain the hydraulic oil. Type : YAMMARE SUPER HYDRO. OIL (VG 46 or its equivalent) Q'ty : 6.6 L	
(3) Remove the step **3** and the side cover L **4**. (4) Remove the snap rings **5** on the engine hood mount and the split pins of the link **6** to remove the engine hood (with the operator's seat) **7**.	

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