SHOP MANUAL

model SK08

PREVIEW - YOUFIXTHIS.COM

KOBELCO

APPLICABLE No. SK08 PT07-03001～

Book code No. **S5PT0009E01**
(0BKB1-EN0160)

Download full manual at youfixthis.com

Printed in Japan 2016.12

CONTENTS

CHAPTER 1
General Cautions for Maintenance Work

1-1 Correct Work 1-1
1-2 Safety Precautions 1-1
1-3 Preparations 1-1
1-4 Cautions for Disassembly and Reassembly 1-1
1-5 Cautions for Removal and Installation of Hydraulic Equipment 1-2
1-6 Cautions for Removal and Installation of Hydraulic Piping 1-2
1-7 Cautions for Handling Seals 1-3
1-8 Correct Installation of Hydraulic Hose 1-3
1-9 Specifications of Hydraulic Hose 1-6
1-10 Air Release of Hydraulic Equipment 1-11

CHAPTER 2
Technical Data

2-1 Specifications 2-1-1
2-2 Outline Drawing and Working Area 2-2-1
2-3 Weight List of Main Parts 2-3-1
2-4 Lifting Capacity List 2-4-1

CHAPTER 3
Service Standards

3-1 Machine Performance 3-1-1
3-2 Engine 3-2-1
3-3 Undercarriage 3-3-1
3-3-1 Rubber Crawler Specifications 3-3-1
3-4 Controls 3-4-1
3-5 Hydraulic Equipment 3-5-1
3-5-1 Hydraulic Cylinders 3-5-1
3-6 Implement 3-6-1
3-6-1 Front Attachments 3-6-1
3-6-2 Variable Track Gauge Type and Blade Moving Device 3-6-2
3-6-3 Bucket Teeth 3-6-2
3-7 List of Tightening Torque 3-7-1
3-7-1 Machine 3-7-1
3-7-2 Engine 3-7-4
3-7-3 Tightening Torque for General Bolts and Nuts (Machine) 3-7-5
3-7-4 Hydraulic Hose Joint 3-7-6

CHAPTER 4
Engine

4-1 Disassembly of Engine 4-1-1
4-1-1 Removing the Nozzle and Glow Plug 4-1-1
4-1-2 Removing the Cylinder Head Cover 4-1-1
4-1-3 Removing the Oil Pipe 4-1-1
4-1-4 Removing the Water Pump Assembly 4-1-1
4-1-5 Removing the Rocker Arm and Push Rods 4-1-2

PREVIEW - YOUFIXTHIS.COM

2. TECHNICAL DATA

2. Technical Data

2-1 Specifications

Note : *< > : at minimum track gauge*

Item				Unit	SK08 Slide track gauge change type
Main specifications of machine					
Dimensions					
Overall length (Transportation position)				in. (mm)	102.4 (2600)
Canopy	Overall height		Transportation position	in. (mm)	86.6 (2200)
			Traveling position	in. (mm)	86.6 (2200)
	Overall width		Full machine width	in. (mm)	33.1 (840) <26.8 (680)>
Cabin	Overall height		Transportation position	in. (mm)	-
			Traveling position	in. (mm)	-
	Overall width		Full machine width	in. (mm)	-
Tumbler center distance				in. (mm)	35.4 (900)
Track gauge				in. (mm)	26.0 (660) <19.7 (500)>
Minimum ground clearance				in. (mm)	5.1 (130)
Traveling performance					
Travel speed	Steel crawler		Low speed (Forward/Reverse)	MPH (km/hr)	-
			High speed (Forward/Reverse)	MPH (km/hr)	-
	Rubber crawler		Low speed (Forward/Reverse)	MPH (km/hr)	1.12 (1.8) / 1.12 (1.8)
			High speed (Forward/Reverse)	MPH (km/hr)	-
Climbing ability				degrees	-
Permissible water depth limit				in. (mm)	11.4 (290)
Work performance					
Bucket	Width (Standard)			in. (mm)	13.8 (350)
	(Standard. JIS heaped capacity)			cu.ft. (cu.m)	0.78 (0.022)
	Number of teeth / Installation method			pcs.	3 / Weld
Maximum digging depth	With blade raised			in. (mm)	59.1 (1500)
	With blade on the ground			in. (mm)	63.8 (1620)
Maximum depth of vertically digging				in. (mm)	49.6 (1260)
Maximum dumping height				in. (mm)	76.8 (1950)
Minimum front swing radius (with boom in front)				in. (mm)	46.5 (1180)
Minimum front swing radius (at 90 degrees right boom swing)			Canopy	in. (mm)	37.4 (950)
			Cabin	in. (mm)	-
Rear swing radius				in. (mm)	28.0 (710)

PREVIEW - YOUFIXTHIS.COM

3-7 List of Tightening Torque

3-7-1 Machine

Unit : ft•lbf (N•m)

Applicable model:			SK08			
Equipment No.		Tightening part	Thread size	Tightening torque ft•lbf (N•m)	Adhesive	Remarks
Engine						
	1	Engine mount L, R	M10× 25	32.5 to 43.4 (44.1 to 58.9)	Three Bond 1324 or its equivalent	
	2	Engine vibration proof rubber	Nut M10	18.1 to 23.8 (24.5 to 32.3)		Fan side
	3	Engine vibration proof rubber	Nut M14	50.6 to 61.4 (68.6 to 83.3)		Pump side
	4	Plate A, Stopper FL and Stopper FR	M10 × 30	32.5 to 43.4 (44.1 to 58.9)	Three Bond 1324 or its equivalent	Tighten plate A together with stopper
	5	Radiator hose band	Hose band 35	1.8 to 2.2 (2.45 to 2.94)		Engine side
	6	Radiator hose band	Hose clip 25	1.8 to 2.2 (2.45 to 2.94)		Radiator side
	7	Air cleaner hose (2 pcs)	Hose clip 54	1.6 to 1.8 (2.16 to 2.45)		
	8	Accelerator cable	Cable fixed nut	3.0 to 3.6 (4.0 to 4.9)		
Fuel oil tank						
	1	Fuel oil tank clamp (Lock side)	Nut M10	18.1 to 21.7 (24.5 to 29.4)		
	2	Fuel oil tank clamp (For tank fixing)	Nut M10	1.8 to 2.2 (2.45 to 2.94)		Tank clamp side
Electric equipment						
	1	Battery clamp (Battery fixing side)	Nut M8	1.4 to 2.2 (1.96 to 2.94)		Lower side
	2	Battery clamp (Lock side)	Nut M8	3.6 to 4.3 (4.9 to 5.88)		Upper side
Undercarriage						
	1	Inner race of swing bearing	M10 × 45	50.7 to 57.9 (68.7 to 78.5)	Loctite 262 or its equivalent	
	2	Track roller	M12 × 25	57.9 to 72.4 (78.5 to 98.1)	Three Bond 1324 or its equivalent	
	3	Sprocket	Hexagon socket bolt M10 × 25	32.5 to 43.4 (44.1 to 58.9)	Three Bond 1324 or its equivalent	
	4	Idler	M12 × 25	57.9 to 72.4 (78.5 to 98.1)	Three Bond 1324 or its equivalent	
	5	Nut (Stopper)	M16	159.1 to 195.3 (215.7 to 264.8)	Three Bond 1324 or its equivalent	
	6	Plate (For track gauge change cylinder stopper)	M10	32.5 to 43.4 (44.1 to 58.8)	Three Bond 1324 or its equivalent	
	7	Adjusting bolt	Nut M20	159.1 to 195.3 (215.7 to 264.8)		
	8	Under cover	M10 × 20	32.5 to 43.4 (44.1 to 58.9)	Three Bond 1324 or its equivalent	

PREVIEW - YOUFIXTHIS.COM

4. Engine

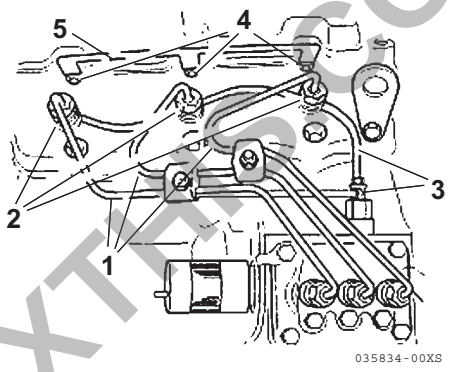
4-1 Disassembly of Engine

The following disassembly procedures apply to both two-cylinder and three-cylinder engines.

4-1-1 Removing the Nozzle and Glow Plug

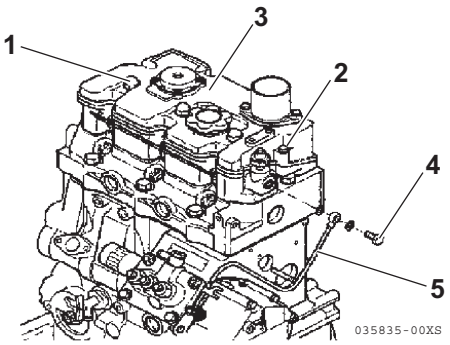
Note:
Clean the engine to remove dirt and debris before disassembly.

(1) Remove the high pressure pipes **1**.
(2) Disconnect the fuel return pipes **3**.
(3) Remove the injection nozzle assemblies **2**.
(4) Disconnect the connector **5** and remove the glow plugs **4**.



4-1-2 Removing the Cylinder Head Cover

(1) Remove the cap nuts **1** and bolts **2** and then remove the cylinder head cover **3**.
(2) Remove the eyebolt **4**.

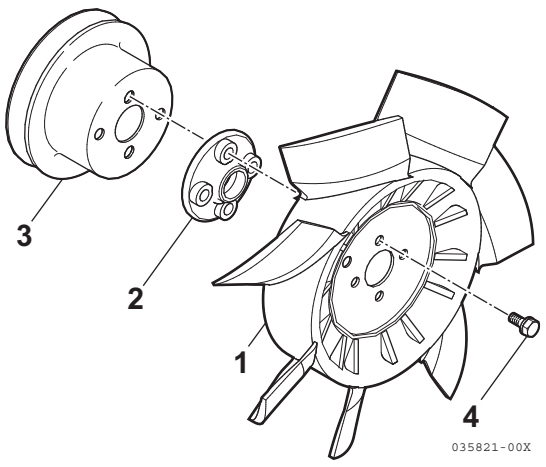


4-1-3 Removing the Oil Pipe

Remove the oil pipe **5** and the two gaskets.

4-1-4 Removing the Water Pump Assembly

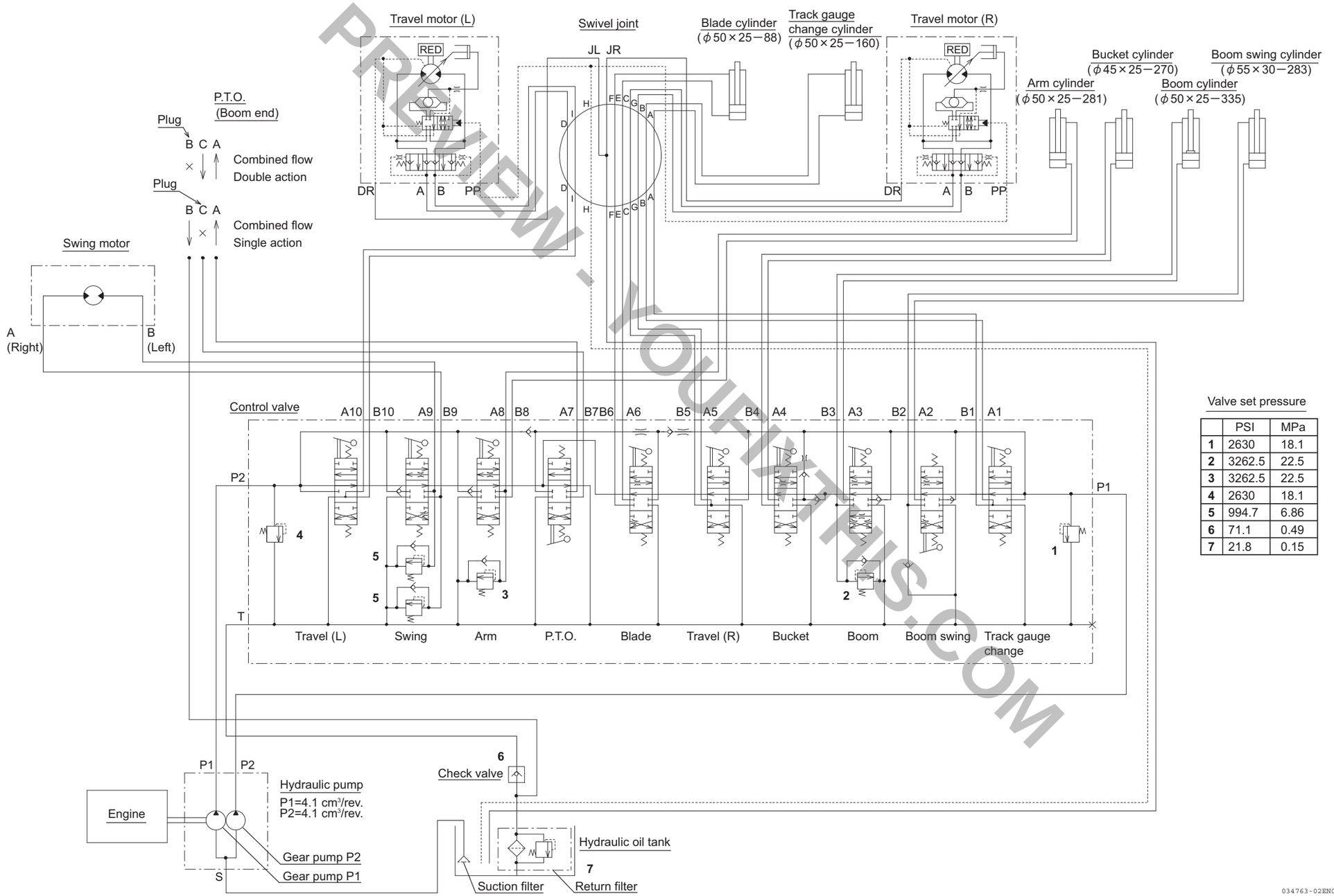
(1) Remove the bolts **4** and then remove the fan **1**, holder **2** and pulley **3**.



PREVIEW - YOUFIXTHIS.COM

5. HYDRAULIC SYSTEM

5-2 Hydraulic Circuit Schematic



	PSI	MPa
1	2630	18.1
2	3262.5	22.5
3	3262.5	22.5
4	2630	18.1
5	994.7	6.86
6	71.1	0.49
7	21.8	0.15

Download full manual at youfixthis.com
PREVIEW - YOUFIXTHIS.COM

6. Hydraulic Equipment

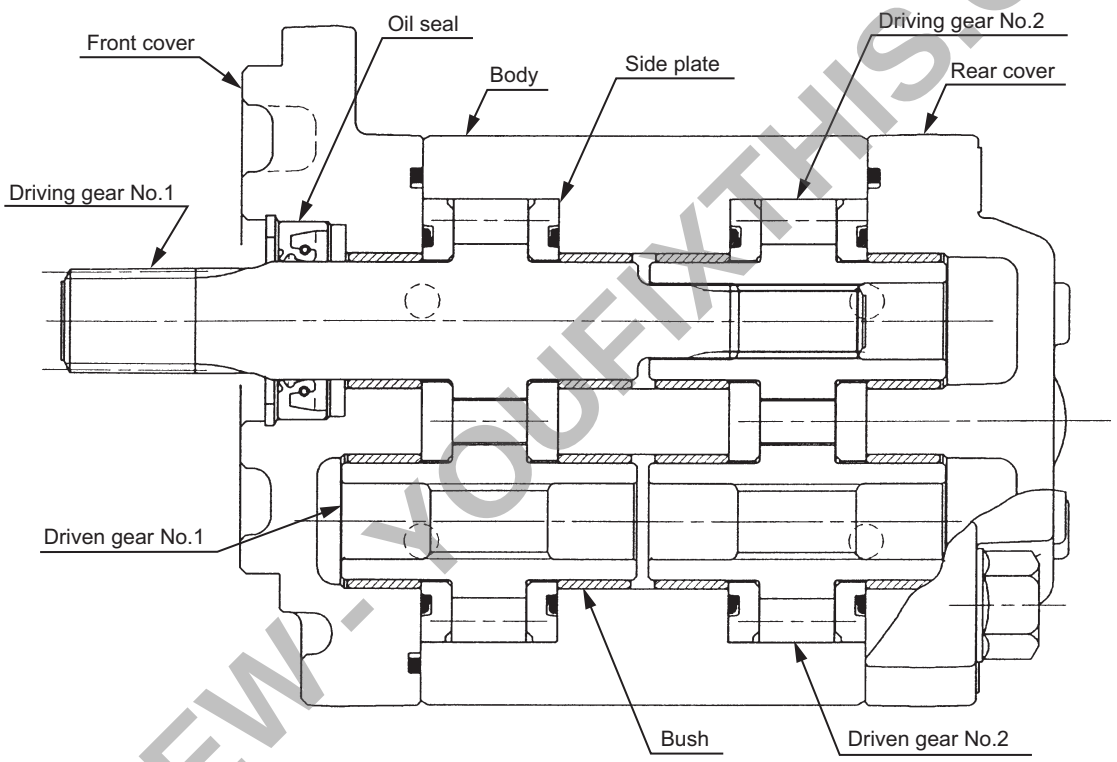
6-1 Hydraulic Pump

1. Outline

The hydraulic pump is a double gear pump consisting of a front cover, side plates, bushes, driving gears, driven gears, an oil seal and a rear cover as main parts. (Refer to the figure below.)

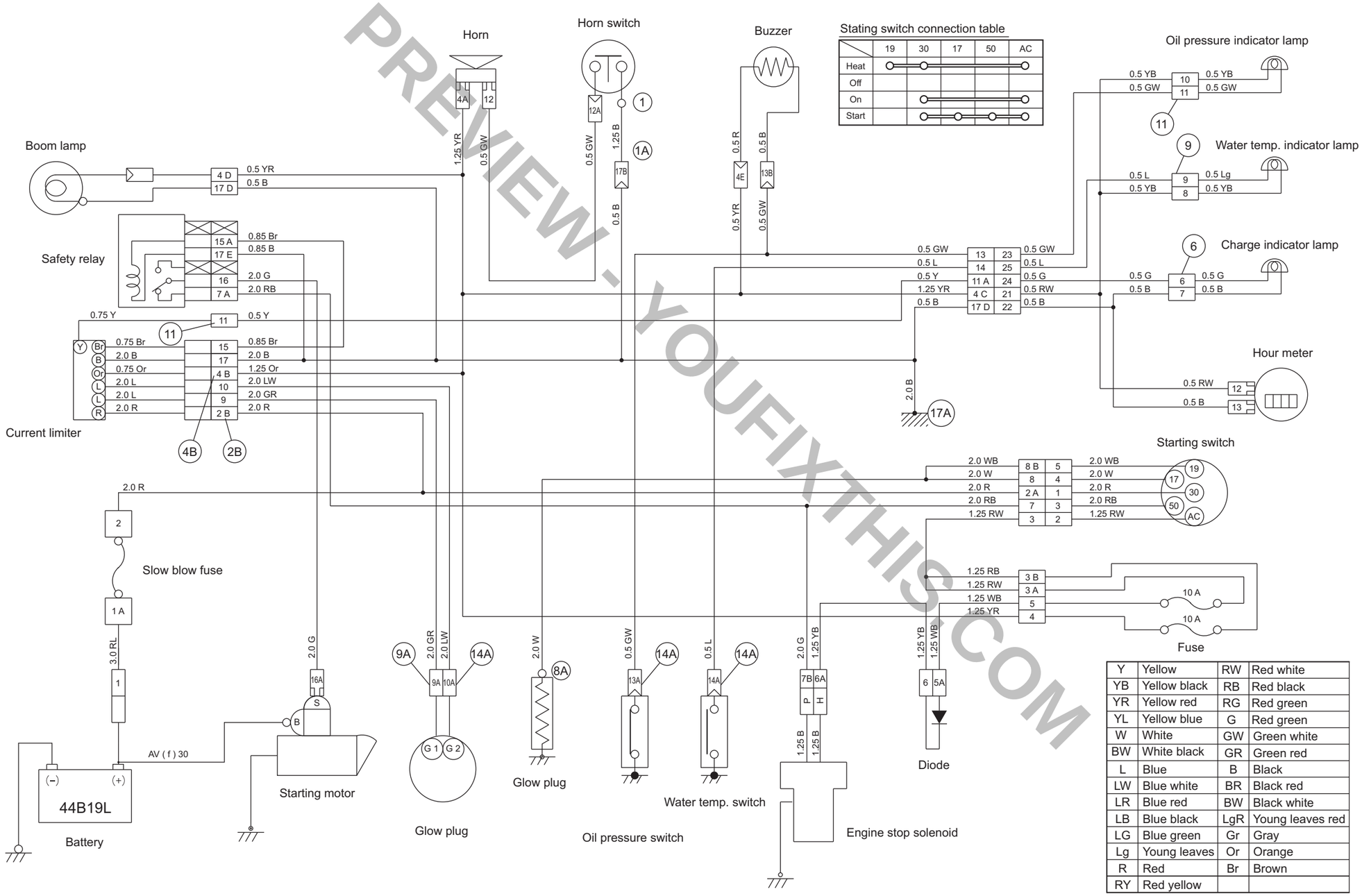
The front cover and the rear cover are made of aluminum alloy. The driving gears are rotated clockwise when seen from the front cover side.

The driving gear of the hydraulic pump P1 and that of the hydraulic pump P2 are directly splined to each other.



PREVIEW - YOUFIXTHIS.COM

7-1-3 Wiring Diagram



	19	30	17	50	AC
Heat					
Off					
On					
Start					

Y	Yellow	RW	Red white
YB	Yellow black	RB	Red black
YR	Yellow red	RG	Red green
YL	Yellow blue	G	Red green
W	White	GW	Green white
BW	White black	GR	Green red
L	Blue	B	Black
LW	Blue white	BR	Black red
LR	Blue red	BW	Black white
LB	Blue black	LgR	Young leaves red
LG	Blue green	Gr	Gray
Lg	Young leaves	Or	Orange
R	Red	Br	Brown
RY	Red yellow		

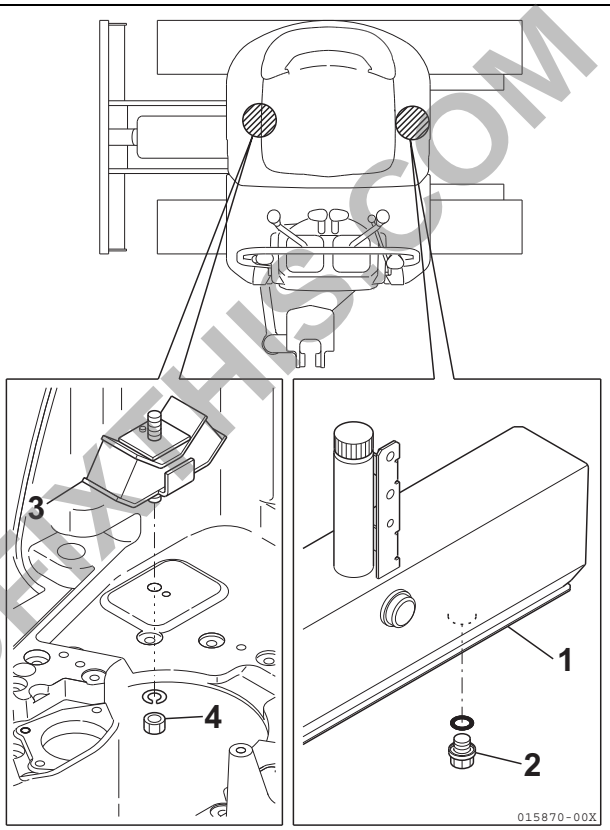
034396-02EN00

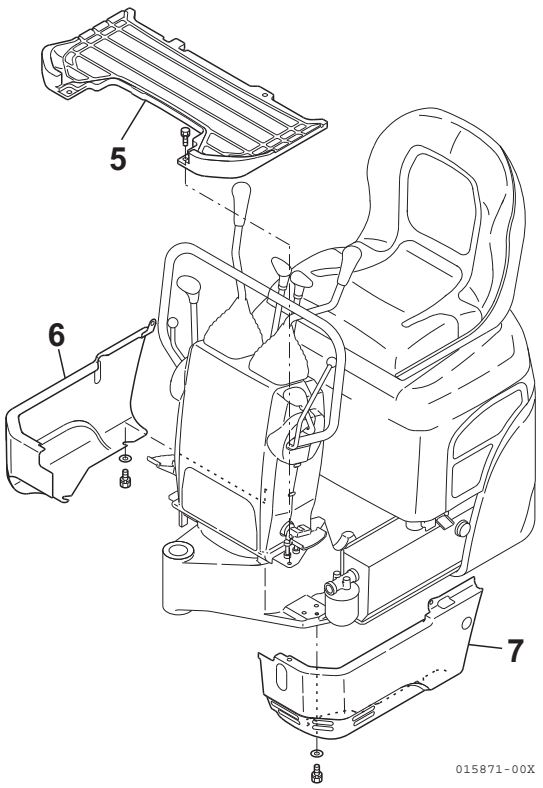
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

7-1-6 Removal and Reinstallation of Engine

1) Removal

Procedure	
(1) Swing the upperstructure so that the drain plug **2** of the hydraulic oil tank **1** and drain cock of the radiator is positioned halfway between the right and left crawlers. Lower the bucket to the ground and stop the engine. ***Note :*** *Make sure the nut **4** under the vibroisolating rubber **3** of the engine mount (pump side) is accessible.* (2) Remove the drain plug **2** of hydraulic oil tank **1** to drain hydraulic oil. Type : KOBELCO GENUINE HYDRO OIL (VG 46 or its equivalent) Q'ty : 1.5 Gals. (5.7 L)	

(3) Remove the floor plate **5**. (4) Remove the frame side covers R **6** and L**7**.	

PREVIEW - YOUFIXTHIS.COM

8. PERIODIC INSPECTION AND SERVICING

8. Periodic Inspection and Servicing

8-1 List of Periodic Inspection and Servicing

*Applicable to models with the relevant equipment

◇ : 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			■				
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		◇					

PREVIEW - YOUFIXTHIS.COM

9. REFERENCE DATA

9. Fuel, Lube Oil and Grease Recommended

9-1 List of Fuel, Lube Oil and Grease Recommended

Item	Type
Engine oil	Engine oil SAE10W30, CD class
Travel reduction gear oil	Gear Oil 90 (GL-4)
Hydraulic oil	KOBELCO GENUINE HYDRO. OIL (ISO VG46)
Fuel	Diesel light oil
Engine cooling water	KOBELCO genuine long-life coolant (LLC) 51% added water

Part be refilled	Oil type	Recommendations with regard to temperature ranges °F (°C) -4 (-20) 14 (-10) 32 (0) 50 (10) 68 (20) 86 (30)	Prescribed amount of oil	Amount of oil to be changed
Engine oil pan	Engine oil	SAE 10WCD SAE 10W-30CD SAE 15W-40CD	1.90 Qts. (1.8 L)	1.90 Qts. (1.8 L)
Travel reduction gear	Gear oil	Gear Oil 90 (GL-4)	0.35 Qts. (0.33 L) (For right and left each)	0.35 Qts. (0.33 L) (For right and left each)
Hydraulic oil system	Hydraulic oil	ISO VG46	In the tank 1.74 Gals. (6.6 L) Other parts 1.16 Gals. (4.4 L)	1.74 Gals. (6.6 L)
Fuel tank	Light oil	No.2-D No.3-D No.3-D (S)	2.64 Gals. (10.0 L)	–
Cooling system	Water	KOBELCO genuine long-life coolant (LLC) added	Radiator 1.69 Qts. (1.6 L) Subtank 0.42 Qts. (0.4 L)	–

Table of mixing ratio of anti-freeze to water

Lowest temperature	°F (°C)	23 (-5)	14 (-10)	5 (-15)	-4 (-20)	-13 (-25)	-22 (-30)	-31 (-35)	-40 (-40)
Amount of anti-freeze	Qts. (L)	0.32 (0.3)	0.53 (0.5)	0.63 (0.6)	0.74 (0.7)	0.85 (0.8)	0.95 (0.9)	1.06 (1.0)	1.16 (1.1)
Amount of water	Qts. (L)	1.80 (1.7)	1.59 (1.5)	1.48 (1.4)	1.37 (1.3)	1.27 (1.2)	1.16 (1.1)	1.06 (1.0)	0.95 (0.9)

Note :

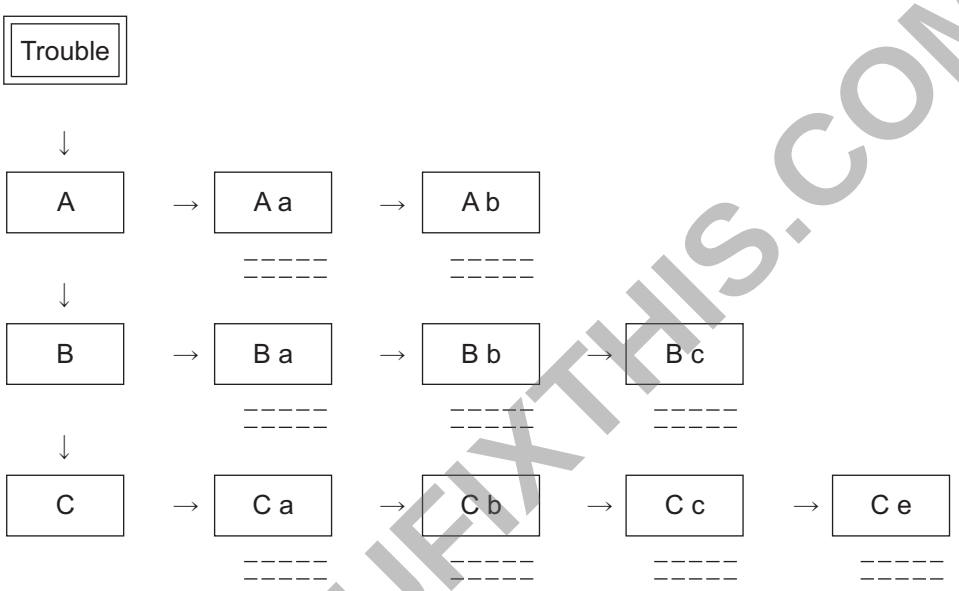
At the delivery from the factory, water and anti-freeze are mixed in the ratio shown above for the -31°F (-35°C) temperature.

PREVIEW - YOUFIXTHIS.COM

10-2 Troubleshooting

10-2-1 Machine and Engine

(How to use the charts)



Factors related to the trouble are enumerated in the columns and instructions for corrective procedures are given below. It is recommended that the troubles be inspected and corrected one by one according to the chart.

← Inspection item

– – – – – – – – – – ← Remedy for failure

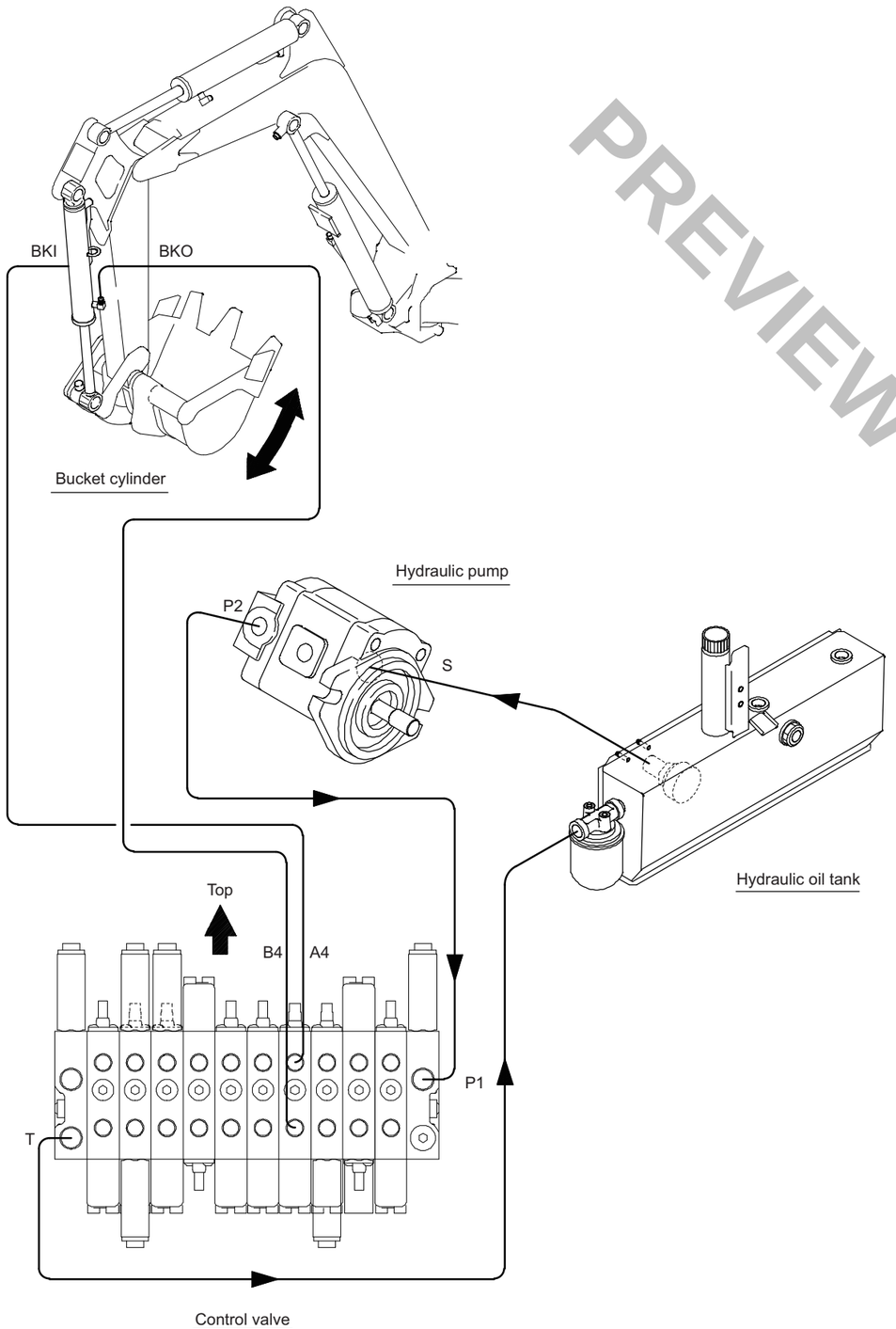
PREVIEW - YOUFIXTHIS.COM

4-1-6 Removing the Exhaust Manifold 4-1-2
4-1-7 Removing the Cylinder Head 4-1-3
4-1-8 Removing the Tappets 4-1-3
4-1-9 Removing the Injection Pump Assembly 4-1-3
4-1-10 Removing the Crankshaft Pulley 4-1-4
4-1-11 Removing the Timing Gear Case Assembly 4-1-5
4-1-12 Removing the Idle Gear and Oil Pump Assembly 4-1-5
4-1-13 Removing the Camshaft Assembly 4-1-6
4-1-14 Removing the Suction Filter and Pipe 4-1-6
4-1-15 Removing the Connecting Rods and Pistons 4-1-6
4-1-16 Removing the Crankshaft Assembly 4-1-7
4-2 Disassembly, Inspection and Reassembly of Main Component Parts 4-2-1
4-2-1 Cylinder Head 4-2-1
4-2-2 Rocker Arm 4-2-3
4-2-3 Cylinder Block 4-2-4
4-2-4 Piston and Piston Rings 4-2-5
4-2-5 Connecting Rod 4-2-7
4-2-6 Connecting Rod Metal 4-2-8
4-2-7 Bearing Holder 4-2-9
4-2-8 Crankshaft Bearing 4-2-10
4-2-9 Crankshaft 4-2-10
4-2-10 Timing Gears and Camshaft Assembly 4-2-11
4-2-11 Lubrication Oil Pump 4-2-13
4-2-12 Thermostat 4-2-14
4-2-13 Nozzle and Holder Assembly 4-2-14
4-2-14 Flywheel and Ring Gear 4-2-15
4-3 Reassembly of Engine 4-3-1
4-3-1 Crankshaft and Bearing Holder Assembly 4-3-1
4-3-2 Oil Seal and Flywheel Cover (Rear Plate) 4-3-1
4-3-3 Flywheel 4-3-1
4-3-4 Pistons and Connecting Rods 4-3-2
4-3-5 Suction Pipe and Suction Filter 4-3-2
4-3-6 Oil Pan and Front Plate 4-3-3
4-3-7 Camshaft Assembly and Plate 4-3-3
4-3-8 Idle Gear and Oil Pump Assembly 4-3-3
4-3-9 Timing Gear Case 4-3-4
4-3-10 Crankshaft Pulley 4-3-5
4-3-11 Injection Pump Assembly 4-3-5
4-3-12 Oil filter and Oil Pipe 4-3-7
4-3-13 Tappets 4-3-7
4-3-14 Cylinder Head Assembly and Cylinder Head Gasket 4-3-7
4-3-15 Caps, Push Rods and Rocker Arm Assembly 4-3-8
4-3-16 Adjusting the valve clearance 4-3-9
4-3-17 Cylinder Head Cover 4-3-9
4-3-18 Water Pump Assembly 4-3-9
4-3-19 Oil Pressure Switch 4-3-9

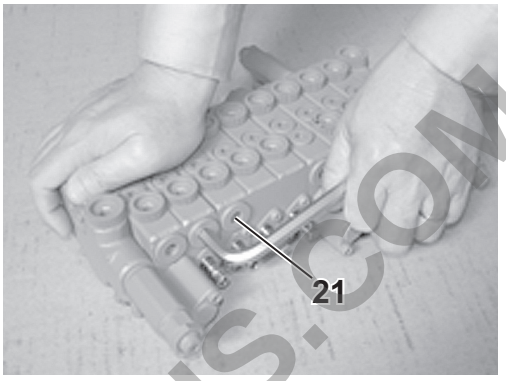
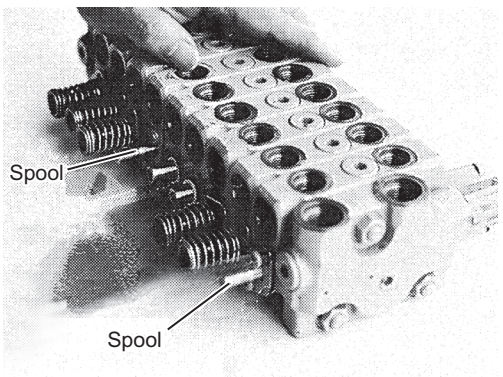
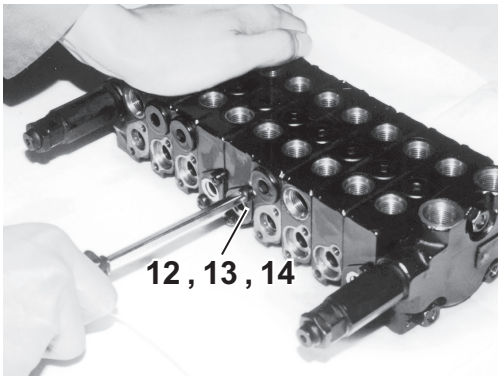
PREVIEW - YOUFIXTHIS.COM

PREVIEW - YOUFIXTHIS.COM

5. HYDRAULIC SYSTEM



Download full manual at youfixthis.com
PREVIEW - YOUFIXTHIS.COM

Procedure	
(3) Remove plug G3 / 8 **21** on the side of each section.	
(4) Remove spring case **15** of each section.	
(5) Remove all spools. ***Note :*** *Each spool is installed into the valve body with a specified clearance between them. Make matchmarks on them so that each spool can be reinstalled in its original position.*	
(6) Remove seal plates **14**, backup rings **13** and O-rings **12** on the spool link side.	

PREVIEW - YOUFIXTHIS.COM

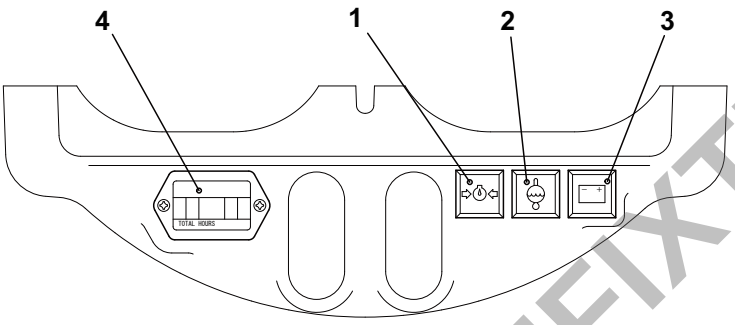
7-1-2 Monitor and Alarm Systems

For safer machine operation, the operator needs to have a clear understanding of the machine's condition. However, it is difficult for the operator to keep an eye on every aspect of the machine he/she is operating.
Therefore, gauges and alarms are installed to warn the operator of any trouble of the machine at the early stage.

Note :

The monitors do not give a full assurance of the machine's condition. The indications shown on them should be used as a guide for daily check and periodic maintenance according to the operation and maintenance manual.

1) Part Name



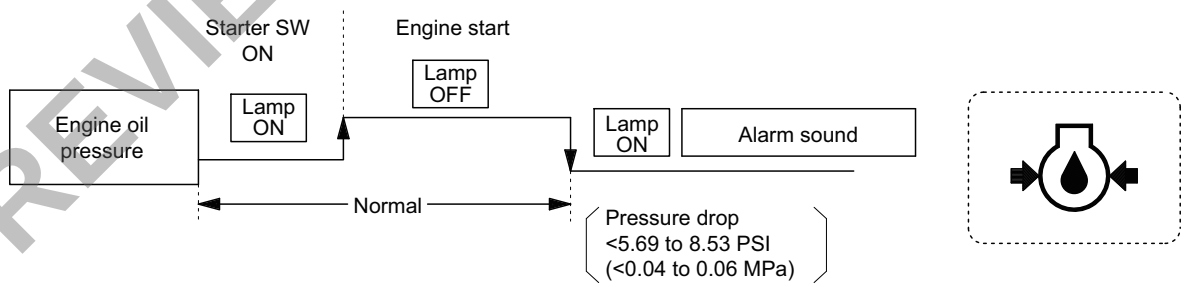
1 Engine oil alarm lamp
2 Water temp. alarm lamp
3 Battery charge alarm lamp
4 Hour meter

2) Function of Alarm Sensor

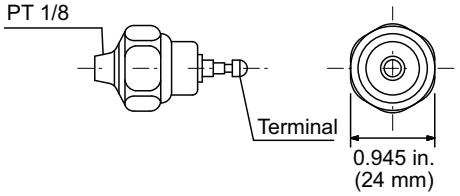
- All the lamps should go on for a few seconds when the starter switch is turned on.
- All the lamps should go off when the engine is running.
- The engine oil pressure and battery charge alarm lamps should go on when the engine is stopped.
- The buzzer should sound when a lamp goes on while the engine is running.

3) Alarm Sensor Operation

(1) Lube oil pressure drop monitoring (Engine oil pressure switch)
When the engine oil pressure falls, the lamp goes on and the buzzer sounds.



The switch monitors the lube oil pressure drop of the engine and causes the engine oil pressure alarm lamp to go on and the alarm buzzer to sound.
Working pressure : 5.69 to 8.53 PSI (0.04 to 0.06 MPa)
Installation position : Engine block

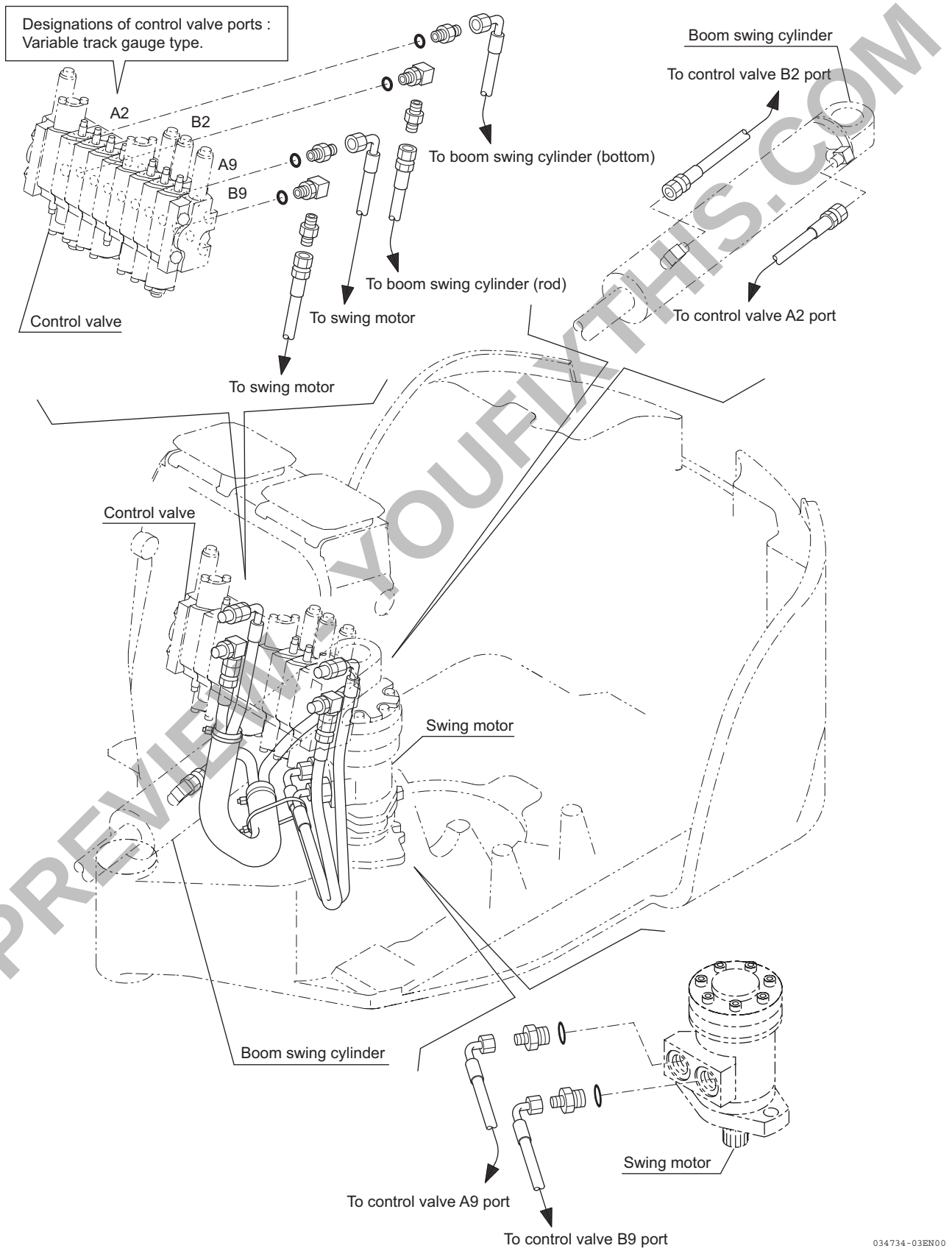


PREVIEW - YOUFIXTHIS.COM

2) Upperstructure

(Control valve ←→ Swing motor)

(Control valve ←→ Boom swing)



PREVIEW - YOUFIXTHIS.COM

PREVIEW ONLY

You're viewing 18 of 344 pages

The full manual includes:

- All 344 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Kobelco SK08 Shop Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual