b. Machine specifications

[1] Major specifications

		Unit		KX61-3		KX71-3 EU		KX71-3 PP	
Engine									
Type				Vertical, water-cooled 4 cycle, 4 cylinders diesel					
Model				V1505-E2BH-9-EU		V1505-E2BH-10-EU		V1505-E2BH-10	
gross engine output (SAE J1349)		kW		18.3		20.6		←	
		PS		24.9		28.0		←	
Displacement		cc	in^3	1498.0	91.4	1498.0	91.4	←	
Dimensions									
Overall length		mm	in	4270	168.1	4520	178.0	4550	179.1
Overall width		mm	in	1400	55.1	1500	59.1	←	
Overall crawler width		mm	in	1400	55.1	1500	59.1	←	
Overall height	Canopy	mm	in	2430	95.7	2430	95.7	←	
	Cabin	mm	in	2410	94.9	2410	94.9	←	
Min. ground clearance		mm	in	305	12.0	305	12.0	←	
Max. digging depth	STD. Arm	mm	in	2490	98.0	2680	105.5	←	
	Long Arm	mm	in	2740	107.9	2870	113.0	←	
Max. digging height	STD. Arm	mm	in	4360	171.7	4470	176.0	←	
	Long Arm	mm	in	4540	178.7	4600	181.1	←	
Max. digging radius	STD. Arm	mm	in	4480	176.4	4700	185.0	←	
	Long Arm	mm	in	4720	185.8	4890	192.5	←	
Max. dumping height	STD. Arm	mm	in	3060	120.5	3170	124.8	←	
	Long Arm	mm	in	3240	127.6	3300	129.9	←	
Swing angle (left/right)		deg.		78 / 57		←		←	
Travel speed	Low speed	km/h	mph	2.8	1.7	2.7	1.7	2.6	1.6
	High speed	km/h	mph	4.4	2.7	4.6	2.9	4.5	2.8
Swivel speed		rpm		9.5		←		←	
Max. traction force	Low speed	kN	lbf	20.2	4.5	22.3	5.0	22.1	5.0
		kgf		2.1		2.3		2.3	
	High speed	kN	lbf	11.7	2.6	14.6	3.3	11.1	2.5
		kgf		1.2		1.5		1.1	
Performance									
Tumbler distance		mm	in	1560	61.4	←		←	
Tread		mm	in	1100	43.3	1200	47.2	←	
Crawler width x No. of shoe x pitch (Rubber crawler)		mm		300 x 53 x 80		←		←	
		in		11.8 x 2.1 x 3.2		←		←	
Bucket									
Capacity CECE heaped		m^3	yd^3	0.06	0.1	0.07	0.1	0.08	0.1
Width		mm	in	1100	43.3	1200	47.2	←	
Blade									
Width x height		mm	in	1400 x 300	55.1 x 11.8	1500 x 300	59.1 x 11.8	←	
Lift above GL / below GL		mm	in	350 x 310	13.8 x 12.2	370 x 350	14.6 x 13.8	340 x 300	13.4 x 12.2

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F. Maintenance intervals

a. Maintenance intervals chart:EU - version

	General Maintenance	Elapsed Operating Hour *																				
		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	Interval
Operator Services	Check engine oil level																					daily
	Check hydraulic oil level																					daily
	Chcek fuel level																					daily
	Check coolant level																					daily
	Grease front attachments																					daily
	Check V-belt																					daily
	Check water in fuel filter																					daily
	Tracks and chassis: clean, visual inspection and check tension	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	weekly (50 hrs)
	Grease swivel gear	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	50 hrs
	Check, clean air filter 1.)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	50 hrs
	Check nuts and bolts		○		○		○		○		○		○		○		○		○		○	100 hrs
	Grease swivel gear bearing				○				○				○				○				○	200 hrs
	Check battery electrolyte level										○										○	500 hrs
	Drain water in fuel tank										○										○	500 hrs

* The services identified with ● must be carried out at the specified service hours after initial operation.

1.) Under dusty conditions the air filter must be cleaned more frequently or renewed.

2.) When using a hydraulic hammer over 20% every 800h. When using a hydraulic hammer over 60%every 300h.
When using a hydraulic hammer over 40%every 400h. When using a hydraulic hammer over 80%every 200h.

3.) When using a hydraulic hammer over 50%every 200h. When using a hydraulic hammer over 50%every 100h.

4.) Earlier if necessary.

5.) At least annually.

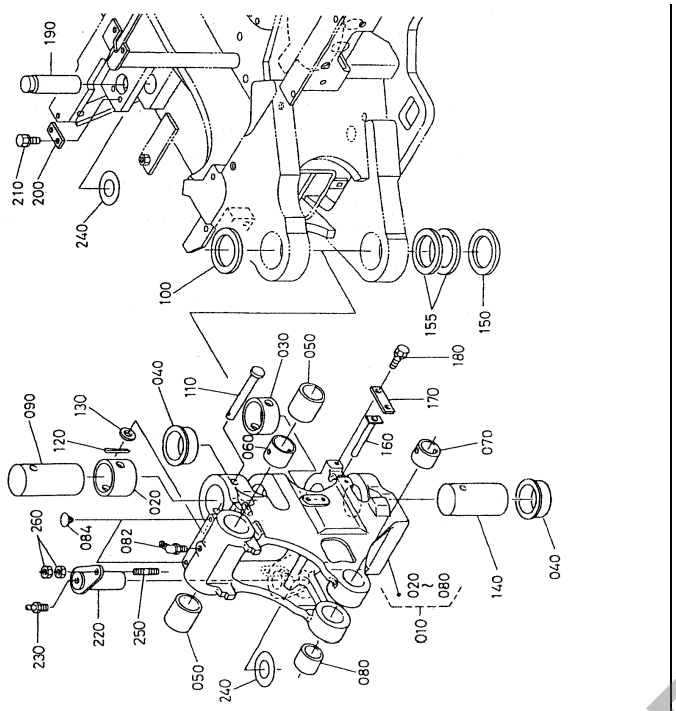
	Service	Elapsed Operating Hours *																				
		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	Interval
Servicing by skilled personnel or KUBOTA dealer	Change engine oil and oil filter	●				○					○					○					○	250 h
	Inspect coolant hoses and clamps					○					○					○					○	250 h
	Check/adjust V-belt tension					○					○					○					○	250 h
	Grease pilot valve linkage					○					○					○					○	250 h
	Change fuel filter 4.)										○										○	500 h
	Change hydraulic return line filter element 3.)					●					○										○	500 h
	Change drive unit oil 5.)	●									○										○	500 h
	Change hydraulic oil and suction filter. 2.)																				○	1000 h
	Renewing the Pilot Circuit Filter																				○	1000 h
	Change air filter elements1.)																				○	1000 h
	Change idler and track roller oil																					2000 h
	Check altemator and starter motor						Please contact your KUBOTA dealer.															2000 h
	Inspect electric cables and connections						Please contact your KUBOTA dealer.															annually
	Change coolant																					every 2 years
	Change hydraulic hoses						Please contact your KUBOTA dealer.															every 6 years

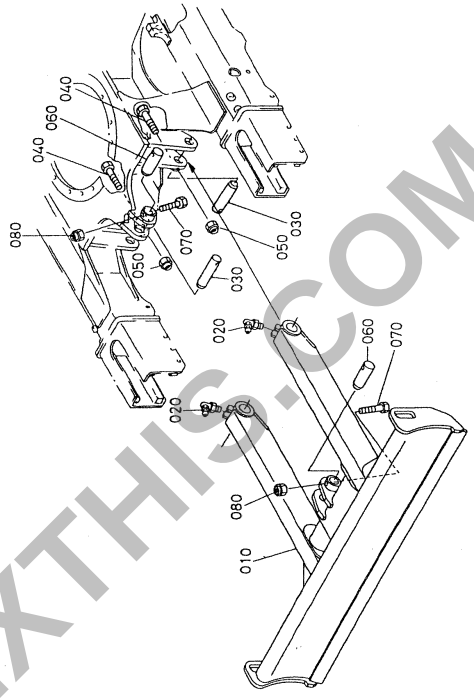
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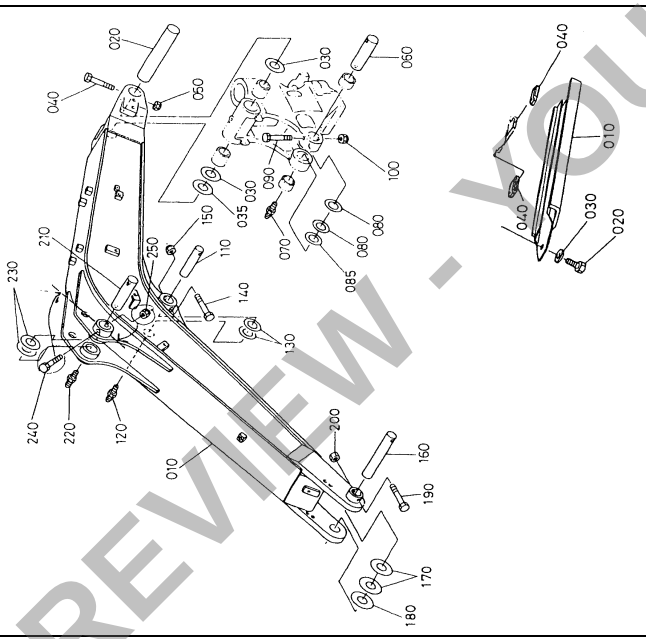
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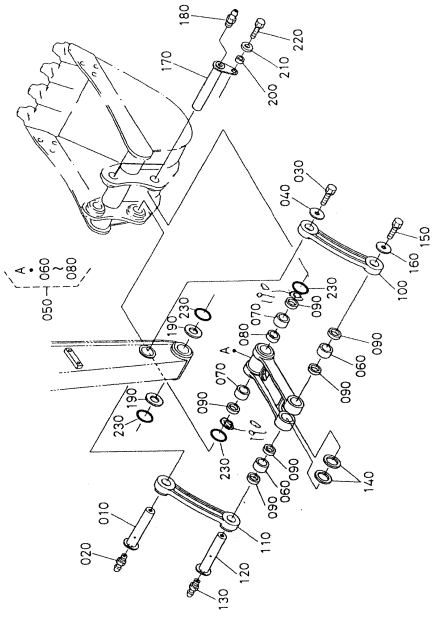
B. Front attachment

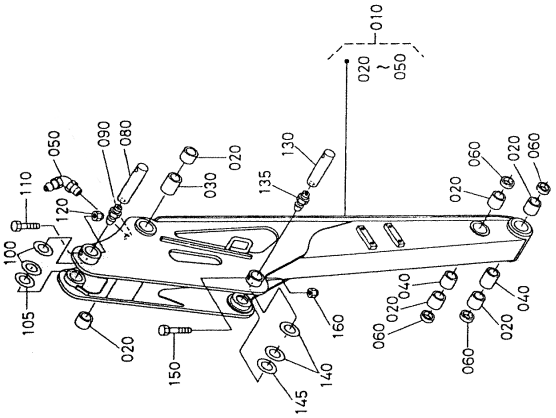
a. Parts designation









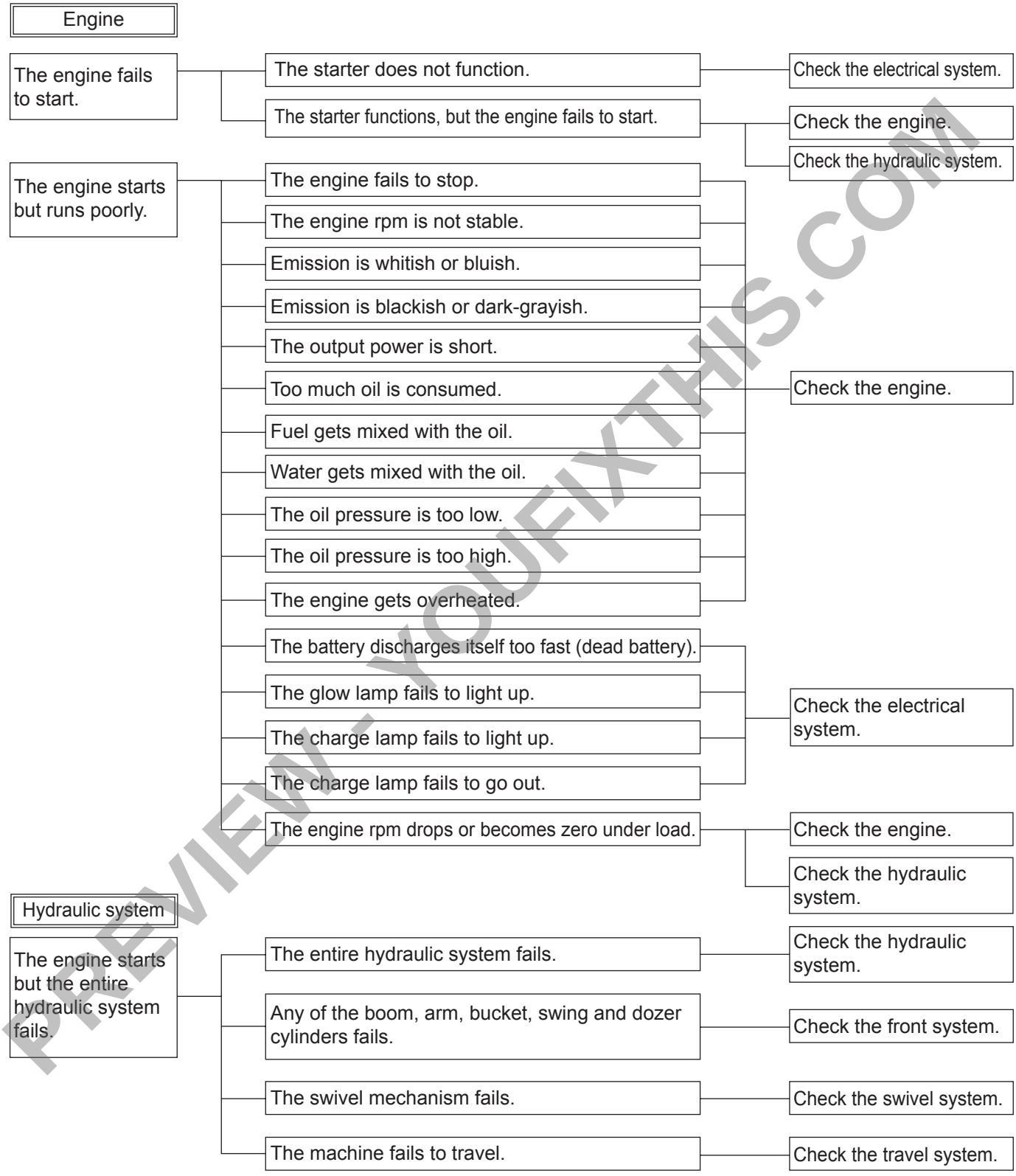


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A. Troubleshooting

a. Common Circuit



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(4) Hose screw

Thread size (piping screw)	Tightening torque N·m kgf·m		Wrench size
	Union nut section	Taper thread section	
1/8”	7.8 ~ 11.8 N·m 0.8 ~ 1.2 kgf·m	14.71 ~ 19.61 N·m 1.5 ~ 20 kgf·m	17 mm
1/4”	24.5 ~ 29.4 2.5 ~ 3.0	36.3 ~ 44.1 3.7 ~ 4.5	19 mm
3/8”	49.0 ~ 53.9 5.0 ~ 5.5	49.0 ~ 68.6 5.0 ~ 7.0	22 mm
1/2”	58.8 ~ 63.7 6.0 ~ 6.5	83.4 ~ 88.3 8.5 ~ 9.0	27 mm
3/4”	117.7 ~ 127.5 12.0 ~ 13.0	127.5 ~ 147.1 13.0 ~ 15.0	36 mm
1”	137.3 ~ 147.1 14.0 ~ 15.0	147.1 ~ 166.7 15.0 ~ 17.0	41 mm

Metric Size Hose

Thread size (piping screw)	Torque N·m kgf·m
M12 × 1.5	20 ~ 30 2.0 ~ 3.1
M14 × 1.5	20 ~ 30 2.0 ~ 3.1
M16 × 1.5	30 ~ 50 3.1 ~ 5.1
M18 × 1.5	30 ~ 50 3.1 ~ 5.1
M22 × 1.5	40 ~ 60 4.1 ~ 6.1

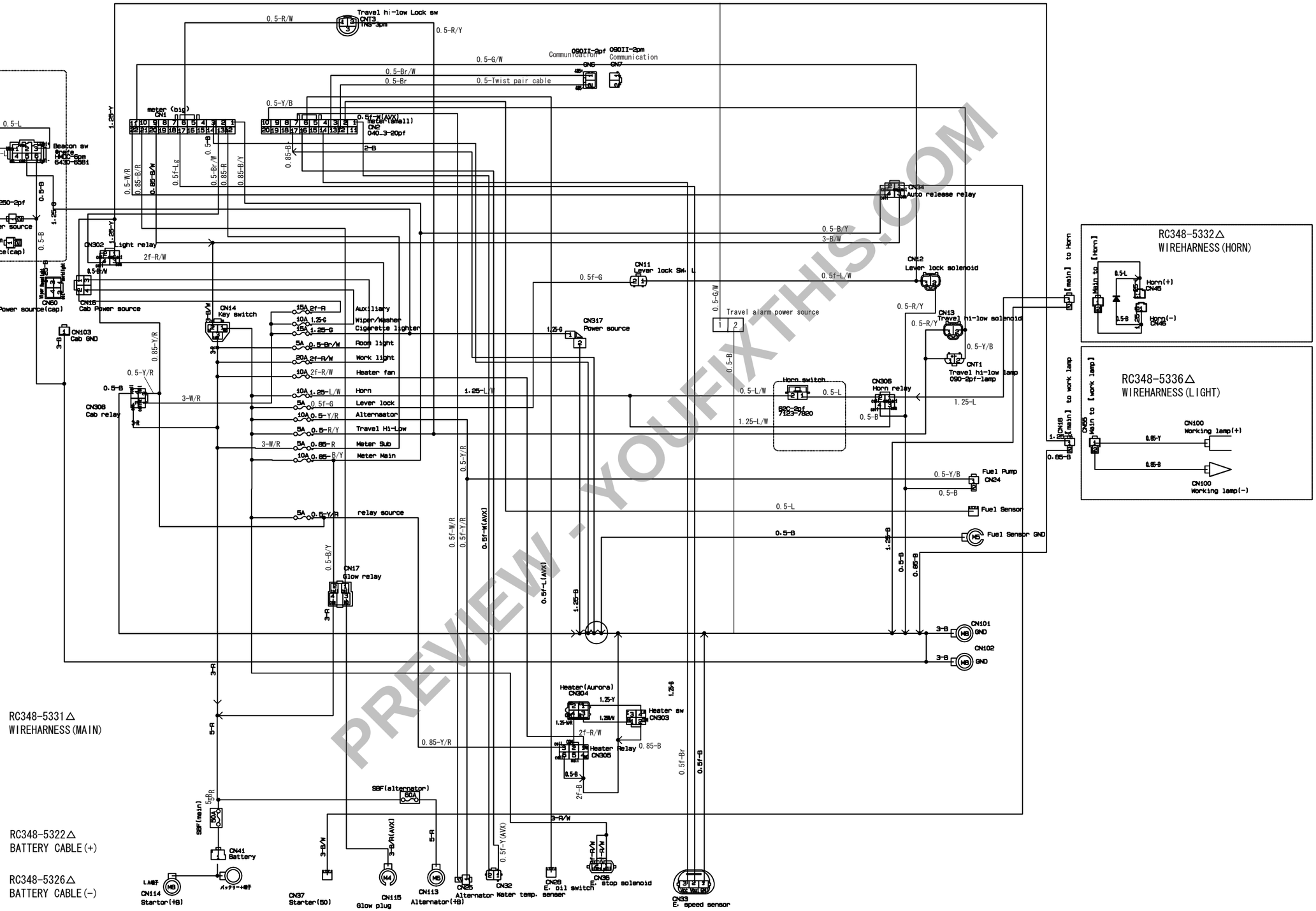
(5) Joint bodies

Thread size (piping screw)	Tightening torque N·m kgf·m		Spanner size (reference)	Remarks Steel pipe (OD)	
	R (tapered thread)	G (straight thread)			
1/8”	19.6 ~ 29.4 N·m 2.0 ~ 3.0 kgf·m	—	17 mm	When in steel pipe is in use.	8 mm
1/4”	36.3 ~ 44.1 3.7 ~ 4.5	W/O-ring *Joint Torque* 58.8 ~ 78.5 6 ~ 8	19 mm		12 mm
3/8”	39.2 ~ 49.0 4.0 ~ 5.0	W/O-ring *Joint Torque* 78.5 ~ 98.1 8 ~ 10	23 mm		15 mm
1/2”	49.0 ~ 68.6 5.0 ~ 7.0	W/O-ring *Joint Torque* 117.7 ~ 137.3 12 ~ 14	26 mm		16 mm

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b. Wireharness diagram : KX61-3, KX71-3, EU - version



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b. Exchange of bucket (Kubota Japan Bucket)

CAUTION

* When replacing the bucket, wear a hard helmet, goggles and other protective gears.
* When working in buddy system, fully understand signals from each other for added safety.

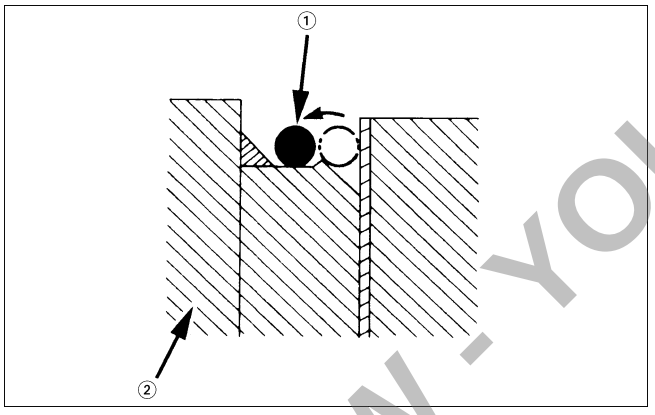
Take the following procedures to replace the bucket.

IMPORTANT

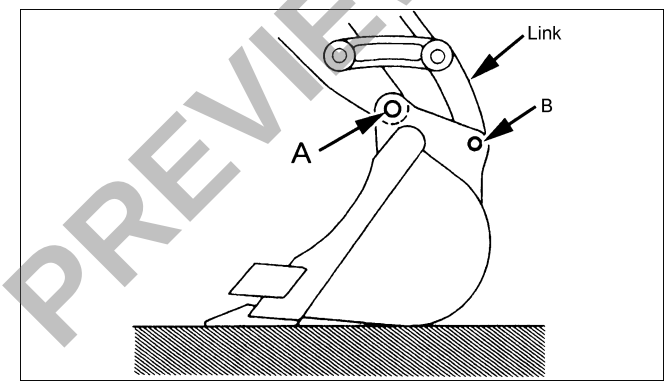
* Be careful to keep the drawn-out pins free of sand and mud.
* A dust seal is attached at each end of the bushing. In removing and fitting the pins, be careful not to damage the dust seals.

■ Removing the bucket

1.Place the bucket just on a flat, level ground.
2.Stop the engine and let out pressure from the hydraulic system.
3.Detach the O-ring from the groove and draw out the pins A and B.

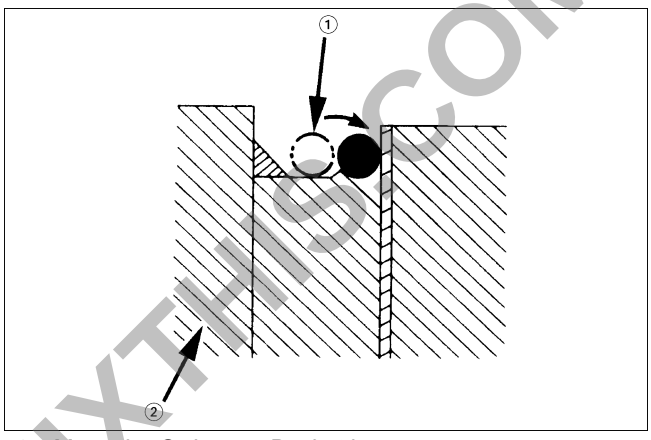


1 Move the O-ring 2 Bucket boss



■ Fitting the bucket

1.Place the O-ring on the boss of the bucket.
2.Align the arm with the hole A, put the shims at both ends of the arm, and couple them with the pins. Align the link with the hole B, put the shims at both ends of the link, and couple them with the pins.
3.Apply and tighten up the pin fixing bolts.
4.Fit the O-ring in the groove.



1 Move the O-ring 2 Bucket boss

5.Grease up the pins.

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[4] Troubleshooting

Symptom	Probable Cause	Solution	Reference Page
Engine Does Not Start	• No fuel	Replenish fuel	–
	• Air in the fuel system	Vent air	III-S-27
	• Water in the fuel system	Change fuel and repair or replace fuel system	–
	• Fuel pipe clogged	Clean	–
	• Fuel filter clogged	Clean or change	III-S-29
	• Excessively high viscosity of fuel or engine oil at low temperature	Use specified fuel or engine oil	III-S-28
	• Fuel with low cetane number	Use specified fuel	–
	• Fuel leak due to loose injection pipe retaining nut	Tighten retaining nut	–
	• Incorrect injection timing	Adjust	III-S-78, 79
	• Fuel camshaft worn	Replace	III-S-47
	• Injection nozzle clogged	Clean	III-S-80, 81
	• Injection pump malfunctioning	Repair or replace	III-S-46, 79 III-S-80
	• Seizure of crankshaft, camshaft, piston, cylinder or bearing	Repair or replace	–
	• Compression leak from cylinder	Replace head gasket, tighten cylinder head screw, glow plug and nozzle holder	III-S-39, 42 III-S-43
	• Improper valve timing	Correct or replace timing gear	III-S-50
	• Piston ring and cylinder worn	Replace	III-S-63, 64 III-S-71
	• Excessive valve clearance	Adjust	III-S-31
(Starter Does Not Run)	• Battery discharged	Charge	–
	• Starter malfunctioning	Repair or replace	–
	• Key switch malfunctioning	Repair or replace	–
	• Wiring disconnected	Connect	–
Engine Revolution Is Not Smooth	• Fuel filter clogged or dirty	Clean or change	III-S-29
	• Air cleaner clogged	Clean or change	III-S-30
	• Fuel leak due to loose injection pipe retaining nut	Tighten retaining nut	–
	• Injection pump malfunctioning	Repair or replace	III-S-46, 79 III-S-80
	• Incorrect nozzle opening pressure	Adjust	III-S-80, 81
	• Injection nozzle stuck or clogged	Repair or replace	III-S-80, 81
	• Governor malfunctioning	Repair	III-S-48
Either White or Blue Exhaust Gas Is Observed	• Excessive engine oil	Reduce to specified level	III-S-26, 28
	• Piston ring and liner worn or stuck	Repair or replace	III-S-63, 64 III-S-71
	• Incorrect injection timing	Adjust	III-S-78, 79
	• Deficient compression	Adjust top clearance	III-S-39

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A. Specifications

a. Main specifications

Machine model		KX61-3 EU		KX71-3 EU		KX71-3 PP	
Engine Model		V1505-E2-BH-9-EU		V1505-E2-BH-10-EU		V1505-E2-BH-10	
		Gross	Net	Gross	Net	Gross	Net
No. of cylinder		4		←		←	
Bore × Stroke	mm	78×78.4		←		←	
	in.	3.07×3.09		←		←	
Displacement	cc	1498		←		←	
	$in.^3$	91.4		←		←	
Max. output/rpm	kW / rpm	18.3/2100	17.7/2100	20.6/2300	19.9/2300	20.6/2300	19.7/2300
	PS / rpm	24.9/2100	24.1/2100	28.0/2300	27.1/2300	28.0/2300	26.8/2300
	HP/rpm	24.5/2100	23.7/2100	27.6/2300	26.7/2300	27.6/2300	26.4/2300
Test code		ISO 3406				SAE-J1349	
Compression ratio		24		←		←	
Max. torque	N · m	93.5/1500 ~ 1700	91.2/1500 ~ 1700	98.3/1500 ~ 1700	95.9/1500 ~ 1700	98.3/1500 ~ 1700	95.5/1500 ~ 1700
	kgf · m	9.5/1500 ~ 1700	9.3/1500 ~ 1700	10.0/1500 ~ 1700	9.8/1500 ~ 1700	10.0/1500 ~ 1700	9.7/1500 ~ 1700
	ft · lbf	69.0/1500 ~ 1700	67.3/1500 ~ 1700	72.5/1500 ~ 1700	70.7/1500 ~ 1700	72.5/1500 ~ 1700	70.4/1500 ~ 1700
Dimensions:L×W×H	mm	584 x 396 x 610		←		←	
	in.	23.0 x 15.6 x 24.0		←		←	
Dry weight	kg	110		←		←	
	lbs	242.5		←		←	
Valve clearance	mm	0.145 ~ 0.185		←		←	
	in.	0.006 ~ 0.007		←		←	
Firing sequence		1-3-4-2		←		←	
Combustion chamber		E-TVCS		←		←	
Compression pressure (A) / (B)	MPa	3.24 ~ 3.63/2.26		←		←	
	kgf / cm^2	33 ~ 37/23		←		←	
	psi	469 ~ 526/327		←		←	
Fan belt		RPF2370		←		←	
Fuel consumption ratio	g/kWh	261	270	261	270	261	273
	g / PSh	192	199	192	199	192	201
	lbs / Hph	0.43	0.44	0.43	0.44	0.43	0.45
Fuel consumption L=100%	l / h	5.8		6.5		6.5	
	gal/h	1.52		1.71		1.71	
Max. speed without load	rpm	2300>=		2500>=		←	
Speed with 2 pumps relief	rpm	2000<=		2200<=		←	
Speed with idling (Canopy)	rpm	1050 ~ 1150		←		←	
(Cab)		1250 ~ 1350		←		←	
Engine oil pressure with rated engine rpm	kPa	196 ~ 441		←		←	
	kgf / cm^2	2.0 ~ 4.5		←		←	
	psi	28.4 ~ 64.0		←		←	
Injection pressure	MPa	13.7 ~ 14.7		←		←	
	kgf / cm^2	140 ~ 150		←		←	
	psi	1991 ~ 2133		←		←	
Cooling system		Pressurized radiator (0.088MPa,0.9kgf / cm^2) ,water pump					
Engine oil consumption ratio	g / kWh	0.95		←		←	
	g / PSh	0.7		←		←	
	lbs / Hph	0.0016		←		←	

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b. Maintenance interval chart : PP - version

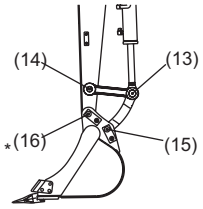
No.	Check points		Intervals	Hour meter indicator									Consequently	Ref. page		
				50	100	150	200	250	300	350	400	450				
1	Coolant		check	Daily check												
			change										every 2 years			
2	Fuel		check	Daily check												
3	Engine oil		check	Daily check												
			change	◉					○				every 250 hrs			
4	Hydraulic oil		check	Daily check												
			change										every 1000 hrs		*1	
5	Lubrication points		-	Daily check												
6	Radiator and oil cooler		check	Daily check												
7	Engine and electrical wiring		check	Daily check									every year			
8	Fuel tank, Fuel filter		drain	○	○	○	○	○	○	○	○	○	every 50 hrs			
9	Battery condition		check	○	○	○	○	○	○	○	○	○	every 50 hrs			
10	Greasing swivel bearing teeth		-	○	○	○	○	○	○	○	○	○	every 50 hrs			
11	Fan belt tension		adjust				○				○		every 200 hrs			
12	Radiator hoses and clamps		check				○				○		every 200 hrs			
			replace										every 2 years			
13	Air filter element	Outer element	clean				○				○		every 200 hrs		*2	@
			replace										every 1000 hrs		*2	
		Inner element	replace										every 1000 hrs		*2	
14	Greasing swivel ball bearings		-				○				○		every 200 hrs			
15	Fuel filter element		replace								○		every 400 hrs			@
16	Engine oil filter		replace	◉					○				every 250 hrs			
17	Drive unit oil		change		◉								every 500 hrs			
18	Hydraulic return filter element		replace					◉					every 500 hrs			
19	Hydraulic suction filter element		replace										every 1000 hrs			
20	Fuel injection nozzle injection pressure		check										every 1500 hrs		*4	@
21	Front idler and track roller oil		change										every 2000 hrs			
22	Alternator and starter motor		check										every 2000 hrs			
23	Injection pump		check										every 3000 hrs		*4	@
24	Radiator system		rinse										every 2 years			
25	Fuel line and intake air line		check				○				○		every 200 hrs			@
			replace										every 2 years		*3	

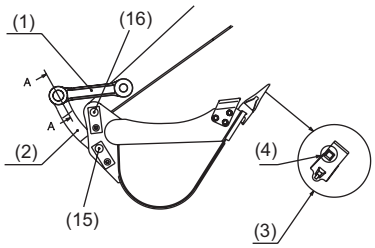
*500 thru 1000 continued to the following table.

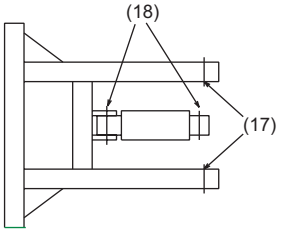
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[2] Pin, bush

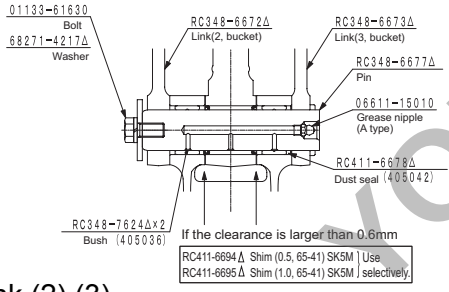




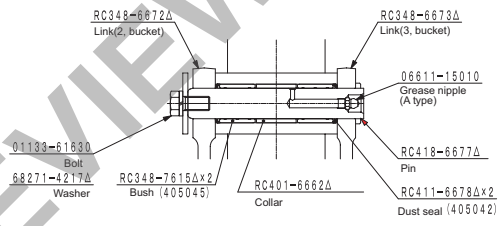


No.	
1	Place the bucket links 2 and 3 with their machined faces inward.
2	Place the bucket link 1 with its character-relief side inward (toward the machine).
3	Attach in position with the gate (convex) toward outside of the bucket.
4	Gate

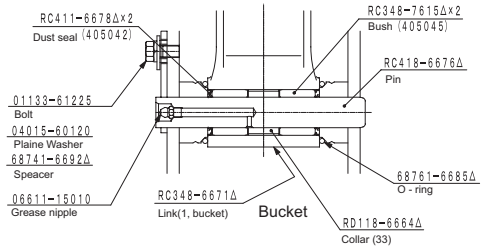
(13)
Bucket link (1) (2) (3)
-
Bucket link single-support
Bucket CYL side



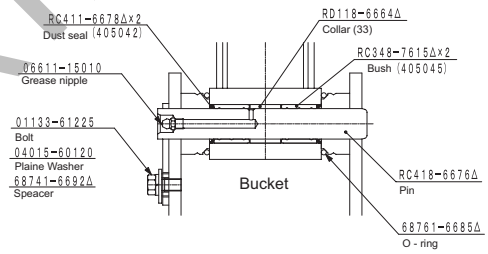
(14)
Bucket link (2) (3)
- Arm assembly
Bucket link double-support
(Arm side)



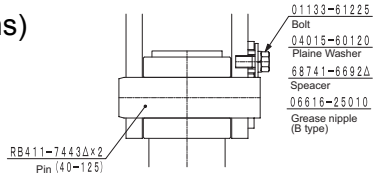
(15)
Bucket
- Bucket link
Bucket link single-support
(Bucket side)



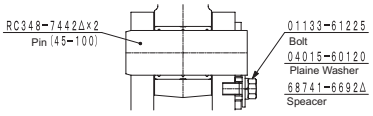
(16)
Arm



(17)
Track frame
- Blade
(2 locations)



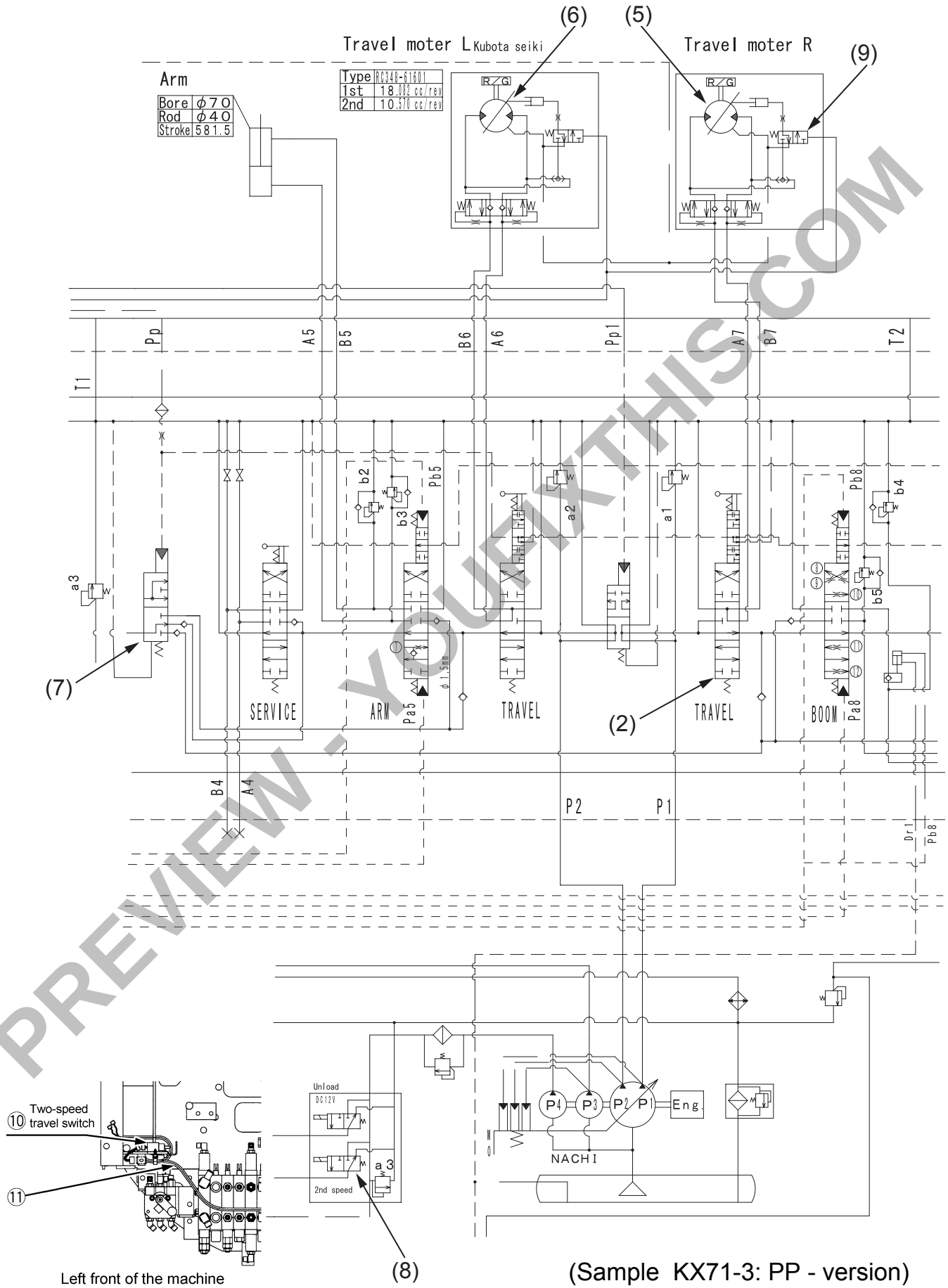
(18)
Cylinder
- Blade
- double-support
(2 locations)



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1) Travel mechanism check points



(Sample KX71-3: PP - version)

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(8) Tightening torque of bolts and nuts

Refer to the tightness torque table below.

Bolts, Nuts / Nominal Dia.	4T 	7T 	9T 
	SS41	S40C, S45C	SCr4
M6	7.8 ~ 9.3 N·m 0.80 ~ 0.95 kgf·m	9.8 ~ 11.3 N·m 1.00 ~ 1.15 kgf·m	12.3 ~ 14.2 N·m 1.25 ~ 1.45 kgf·m
M8	17.7 ~ 20.6 N·m 1.80 ~ 2.10 kgf·m	23.5 ~ 27.5 N·m 2.40 ~ 2.80 kgf·m	29.4 ~ 34.3 N·m 3.00 ~ 3.50 kgf·m
M10	39.2 ~ 45.1 N·m 4.00 ~ 4.60 kgf·m	48.0 ~ 55.9 N·m 4.90 ~ 5.70 kgf·m	60.8 ~ 70.6 N·m 6.20 ~ 7.20 kgf·m
M12	62.8 ~ 72.6 N·m 6.40 ~ 7.40 kgf·m	77.5 ~ 90.2 N·m 7.90 ~ 9.20 kgf·m	103.0 ~ 117.7 N·m 10.50 ~ 12.00 kgf·m
M14	107.9 ~ 125.5 N·m 11.00 ~ 12.80 kgf·m	123.6 ~ 147.1 N·m 12.60 ~ 15.0 kgf·m	166.7 ~ 196.1 N·m 17.00 ~ 20.00 kgf·m
M16	166.7 ~ 191.2 N·m 17.00 ~ 19.50 kgf·m	196.1 ~ 225.6 N·m 20.00 ~ 23.00 kgf·m	259.9 ~ 304.0 N·m 26.50 ~ 31.00 kgf·m
M18	245.2 ~ 284.4 N·m 25.00 ~ 29.0 kgf·m	274.6 ~ 318.7 N·m 28.00 ~ 32.50 kgf·m	343.2~ 402.1 N·m 35.00 ~ 41.00 kgf·m
M20	333.4~ 392.2 N·m 34.00 ~ 40.00 kgf·m	367.7 ~ 431.5 N·m 37.50 ~ 44.0 kgf·m	519.8 ~ 568.8 N·m 53.00 ~ 58.00 kgf·m

(9) Types and materials of bolts and nuts

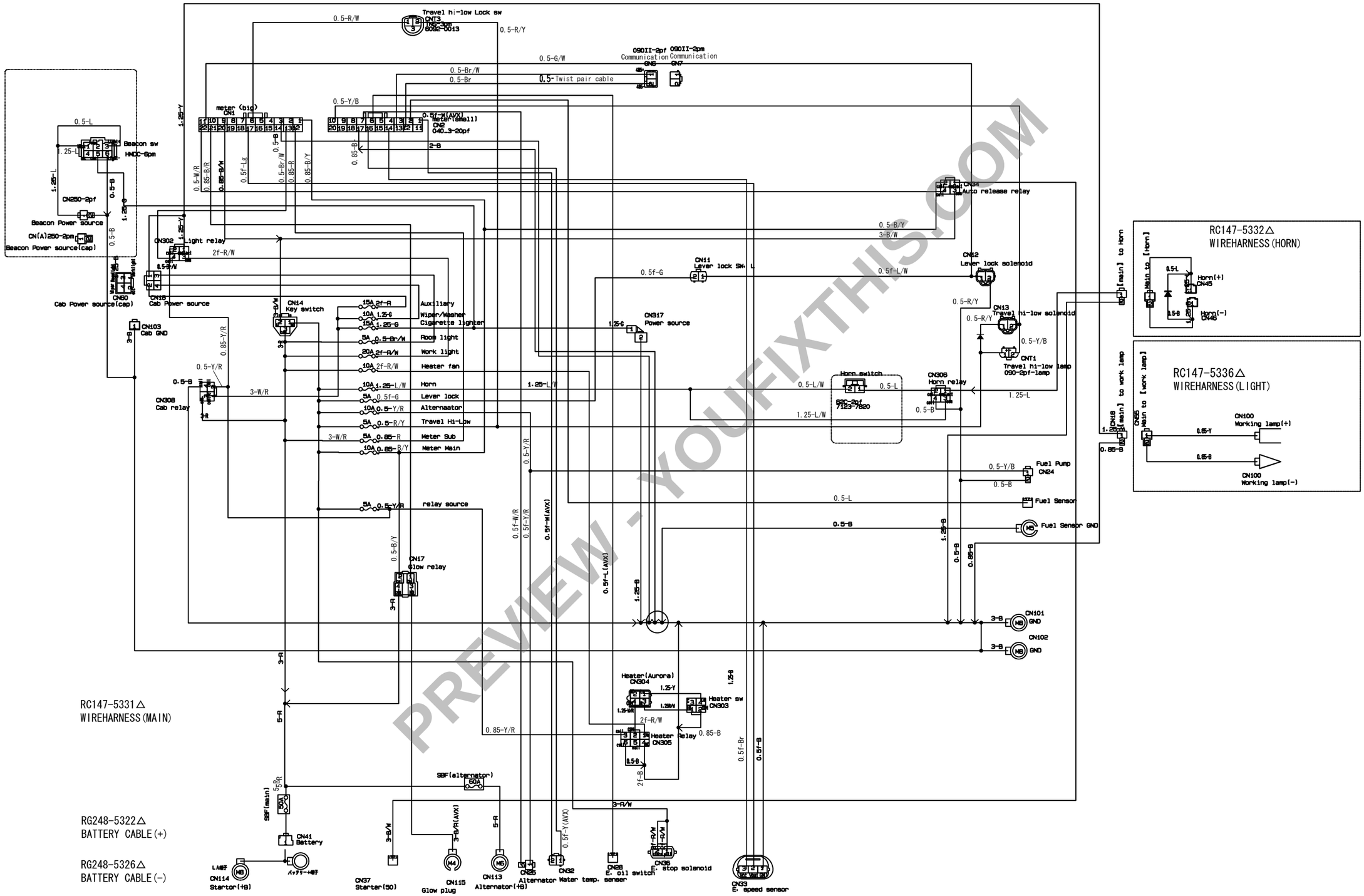
[ex. bolts]

Types	Material	Tensile strength	Hardness	Bolt head marking	
4T	SS41	Over 392 MPa 4000 kgf/cm^2	H_RB 62 ~ 98		No mark or marked 4
7T	S40C S45C	Over 686 MPa 7000 kgf/cm^2	H_RC 20 ~ 28		Marked 7
9T	SCr4	Over 882 MPa 9000 kgf/cm^2	H_RC 28 ~ 34		Marked 9

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c. Wireharness diagram : KX71-3, PP - version

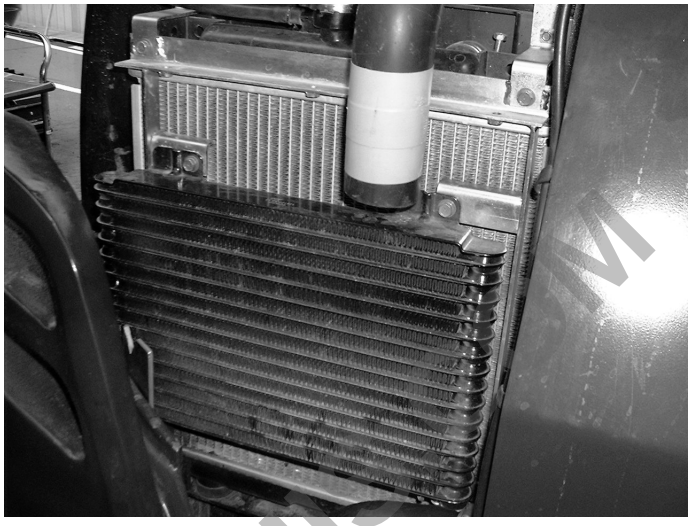


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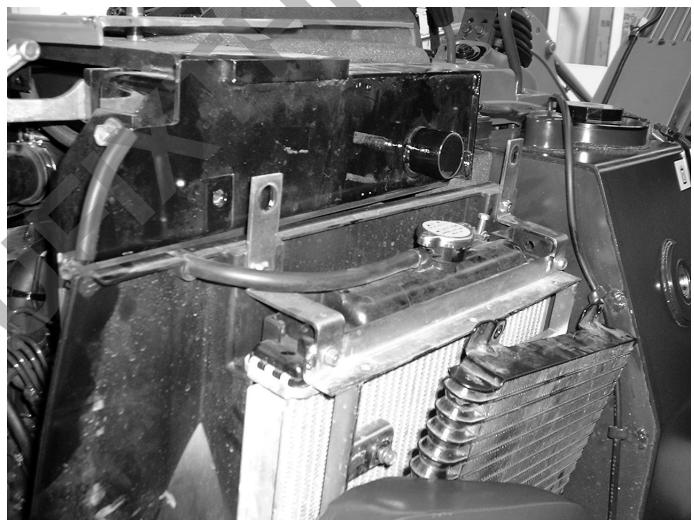
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C.Engine dismounting & remounting

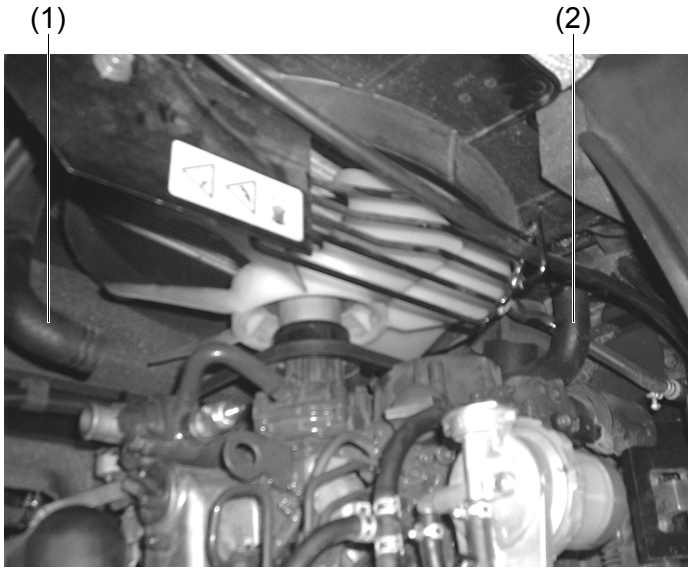
1. Dismounting the oil cooler.



2. Remove radiator mount bolts.



3. Disconnect the upper and lower hosws.
   (1) Upper hose
   (2) Lower hose



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The hydraulic equipment respond too slow or too weak.	The engine's maximum rpm is unusual.	Check the engine.
	The entire hydraulic system responds too slow or too weak.	Check the front system.
	Any of the boom, arm, bucket, swing and dozer cylinders responds too slow or too weak.	Check the front system.
	The swivel motion is too slow or too weak.	Check the swivel system.
	The travel movement is too slow or too weak.	Check the travel system.
	The travel speed fails to shift.	Check the travel system.
	The machine zigzags.	Check the travel system.
The hydraulic attachment drops too much by gravity, or the swivel or travel system fails.	Any of the boom, arm, bucket, swing and dozer cylinders drops too much by gravity.	Check the front system.
	The swivel mechanism fails to stop or overruns.	Check the swivel system.
	The travel mechanism fails to stop or runs away on slope.	Check the travel system.
The hydraulic tank temperature rises too high.	The engine section is in trouble: Cooling water, oil or combustion line.	Check the engine.
	The engine cover is poorly lined with thermal insulation.	See if the thermal insulation and covers are all in position.
	The operator runs the machine in the wrong way.	Train the operator.
	The attachment is not as specified for the job.	Check the specifications of the attachment.
	The grade and quantity of hydraulic oil are not as recommended.	Use the recommended hydraulic oil.
	The hydraulic system is in trouble.	Check the hydraulic system.
Unusual operating noise is heard.	Cover mounting bolts are nuts are loose.	See if the covers are tight in position.
	A pipe or hose is in contact with its nearby part.	See if the pipes and hoses are tight in position.
	Unusual noise is heard from a pin or bushing.	Check the pins and bushings for wear or seizure.
	Unusual noise is heard from the hydraulic system.	Check the hydraulic system.
	Unusual noise is heard from the engine.	Check the engine.
	Unusual noise is heard from the track or the like.	See if the crawlers, idlers, track rollers and the like are in place.

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B. Safety precautions for servicing, disassembly and reassembly

⚠ Safety precautions for servicing

Most accidents during servicing arise from carelessness. Please remember that Safety involves both the welfare of the employees and improved work efficiency.

⚠ Safety precautions for Disassembly and reassembly

Machines must be disassembled and assembled efficiently and safely.
It is very important to thoroughly understand the construction and function of the machine, to make all appropriate preparations, and start operations according to the specified working procedures.

a. Safety measures before starting work

(1) Work clothes

1. Wear specified work cap and clothed. (Under no circumstances may workers wear undershirts only.) Cuffs must be kept buttoned, and any tears must be mended.)
2. Wear safety shoes.
3. Do not wear cotton gloves when working on the internal section of engine, reduction gears or hydrauric units for repair or others, or when using a hammer. Wear leather gloves, however, when hoisting wires.

(2) Inspecting equipment and tools

1. Prepare equipment (cranes, fork lifts, tool, etc.) required for servicing and inspect for any problems before starting work.
2. Hammer heads (metal parts) must be firmly secured to their handles.
3. Check hosting tools (wire ropes, hoisting chains, etc.) before use.

(3) Keep workshop in order

1. Secure appropriate space needed for disassembly to the job.
2. Secure a clean, safe place for arranging disassembled parts.
3. Store volatile substances (gasoline, light oil, thinner, oily articles, etc.) in appropriate containers at selected locations to prevent fire hazards.

b. Safety measures during work

(1) Protectors

1. Wear goggles when using chisels for chipping.
2. Use appropriate protectors during welding.
3. Wear a helmet when working with a crane or at elevated locations.

(2) Team work

1. When working with two or more people, divide the work and maintain close communication.
2. Crane work must be carried out using predetermined signals.

(3) Disassembly and assembly

1. Do not wear gloves when using hammers.
2. Use rods of the specified soft material for removing pins. Do not use a hammer as a pad.
3. Do not place fingers in holes when centering.
4. Heavy parts must be adequately supported before removing bolts.

(4) Cranes

1. In principle, use a crane for objects heavier than 44lb (20kg).
2. Crane operation and hoisting must be performed only by qualified personal.
3. Pay careful attention to the center of gravity when hoisting, and do not stand under the lifted objects.

(5) Others

1. To work under a jacked-up carrier, be sure to place wood pieces under it.
2. When charging batteries, make sure there are no open flames in the immediate vicinity.
3. All electric tools must be grounded.
4. Before welding the machine, remove the battery.
   - When removing the battery, be sure to disconnect negative (-) cord first.
   - When mounting the battery, be sure to connect the positive (+) cord first.

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