WSM

WORKSHOP MANUAL
KUBOTA EXCAVATOR

U17
U17-3

Kubota

Code No.97899-61970

Record of Revisions

Symbol	Date	Main Revised Points & Corrective Measures	Person-in-charge
△1			
△2			
△3			
△4			

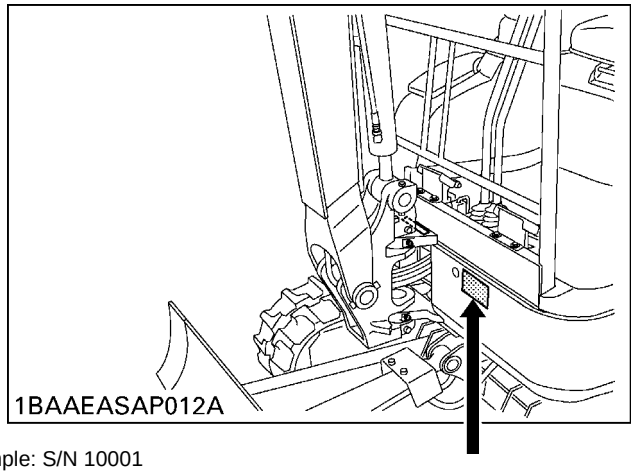
U17-3α is the model name of EU - version
U17/U17-3 is the model name for KTC, KCL and KTA - version

CONTENTS

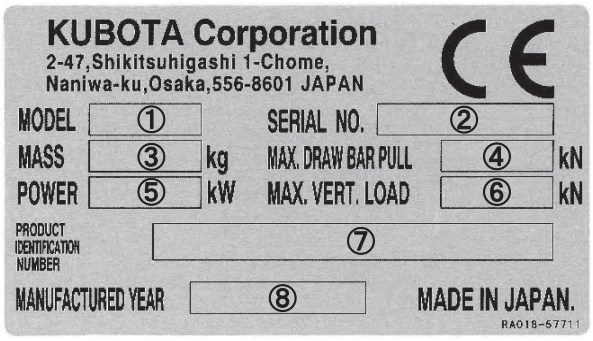
I. GENERAL

(A) BODY AND ENGINE IDENTIFICATION MARKS

If trouble occurs during use, or servicing is necessary, contact your dealer. Pass on your machine model, engine type and serial number to them.

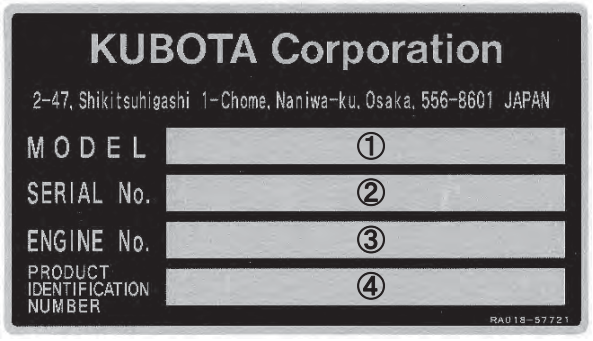


Example: S/N 10001



EU-version

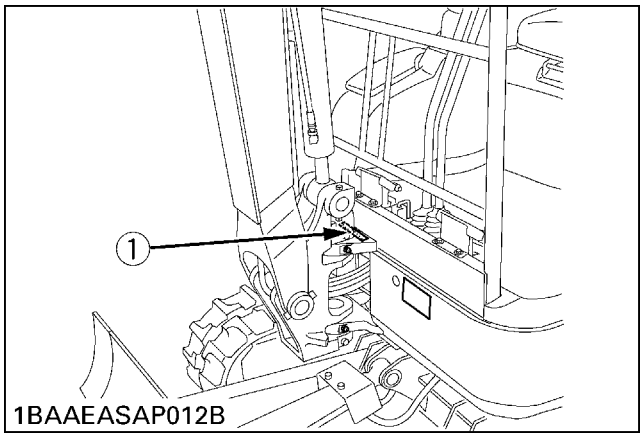
No.	Items	Contents
①	MODEL	U17-3α
②	SERIAL No.	10001
③	MASS	1650
④	MAX, DRAW BAR PULL	32.3
⑤	POWER	11.6
⑥	MAX,VERT,LOAD	2.7
⑦	PRODUCT IDENTIFICATION NUMBER	>JKUU0173*01S10001<
⑧	MANUFACTURED YEAR	2008



Name plate: Code No. RA018-57721

No.	Items	Contents
①	Machine model	U17 or U17-3
②	Serial No.	10001
③	Engine No.	
④	PRODUCT IDENTIFICATION No.	>JKUU0173*01S10001<

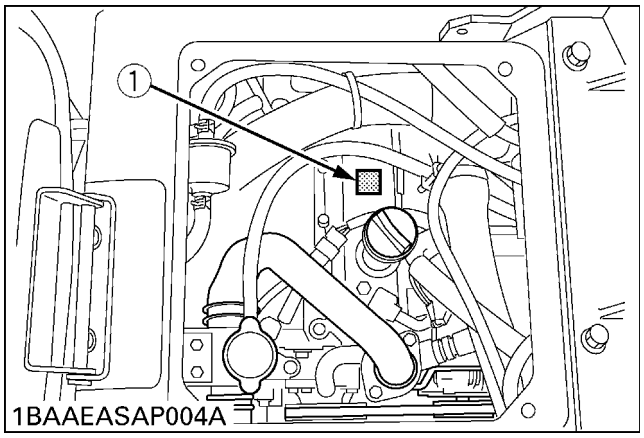
(1) Machine serial number



(1) Serial No.

(2) Engine serial number
The engine serial number is an identified number for the engine. It is marked after the engine model number.
It indicates month and year of manufacture as follows.

e.g. D902-8L001
"8" indicates year of 2008 and "L" indicates June.
So, 8L indicates that the engine was manufactured in June 2008.



(1) Engine serial No.

Year of manufacture

Alphabet or Number	Year	Alphabet or Number	Year
1	2001	F	2015
2	2002	G	2016
3	2003	H	2017
4	2004	J	2018
5	2005	K	2019
6	2006	L	2020
7	2007	M	2021
8	2008	N	2022
9	2009	P	2023
A	2010	R	2024
B	2011	S	2025
C	2012	T	2026
D	2013	V	2027
E	2014		

Month of manufacture

Month	Engine Serial Number	
	0001 ~ 9999	10000 ~
January	A0001 ~ A9999	B10000 ~
February	C0001 ~ C9999	D10000 ~
March	E0001 ~ E9999	F10000 ~
April	G0001 ~ G9999	H10000 ~
May	J0001 ~ J9999	K10000 ~
June	L0001 ~ L9999	M10000 ~
July	N0001 ~ N9999	P10000 ~
August	Q0001 ~ Q9999	R10000 ~
September	S0001 ~ S9999	T10000 ~
October	U0001 ~ U9999	V10000 ~
November	W0001 ~ W9999	X10000 ~
December	Y0001 ~ Y9999	Z10000 ~

A: Engine Model Name and Serial Number

(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 hydraulic 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) Set workshop in order

1. Secure appropriate space needed for disassembly.
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. Basically, use a crane for objects heavier than 44lb (20kg).
2. Crane operation and hoisting must be performed only by qualified personnel.
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 underneath.
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.

c) Preparation for Disassembly

(1) Cleaning

Remove mud and dirt from the body before disassembly.

(2) Acceptance inspection

The machine must be checked before it is disassembled to record existing conditions, such as those listed below.

Model, serial number, and hourmeter reading

- Reason for repair and repair history
- Element stains
- Fuel and oil condition
- Parts damage *(Take photographs if necessary.)

(3) Equipment and tools

Prepare equipment, tools, cranes and parts storage racks as required.

d) Precautions for Disassembly and Reassembly

(1) Disassembly

1. Follow the specified disassembly procedures.
2. Make alignment marks to insure correct reassembly.
3. Arrange disassembled parts in an orderly way, and attach identification tags or put marks if needed.

(2) Reassembly

1. Clean all parts before assembly. Repair any scratches or dents. Take special precautions against dirt and dust.
2. Parts with rust-preventive coatings must be assembles only after removing the coating.
3. Separated parts must be correctly reassembled using alignment marks.
4. As a rule, use a press to reassembled bearings, bushing and oil seals. Use pads when using a hammer.

e) Maintenance

CAUTION

When adding oil and servicing:

1. Park the machine on a large, flat place.
2. Place the bucket and dozer on the ground.
3. Stop the engine
4. Move the attachment control lever and dozer lever to make sure the remaining pressure is relieved.
5. Draw out the starter key and check around the machine for safety.

Before starting the job, carefully read the Operational Manual in " ! Servicing Precautions" on the yellow pages.

f) Waste Disposal

WARNING

Do not carelessly throw away and burn waste materials. Such actions may lead to environmental pollution and punishment by local laws.

When disposing of waste:

* Let out waste fluid from the machine into a container.
* Do not let waste fluid flow on the ground as well as into a river, lake, marsh, and sea.
* Contact your dealer or a qualified industrial waste handler to treat (dispose of or incinerate) harmful waste materials. Those materials include waste oil, fuel, cooling water (anti-freeze), coolant, solvent, filters, batteries, rubber and other toxic substances.

(C) IMPORTANT SAFETY PROCESS AND CRITICAL FUNCTIONAL PROCESS

The following instructions are related to essential adhesives, important safety process [S] and critical functional process [A]. Pay special attention in servicing these process. (Pay also close attention in reconnecting the electrical cables.)

1. Essential Adhesives

   Screw adhesive type:
   - Unless otherwise specified, use Three-Bond 1324 adhesive (medium-duty type). Keep the screw threads free of oil and water.

   Instantaneous adhesive:
   - Use Three-Bond 1733 or Three-Bond 1741E adhesive. Keep the bond areas free of oil and water.

2. Important Safety Process [S]
   1. Reconnecting the fuel hose (clearance, hose routes, clamps, etc.)
   2. Electrical cabling (engine, instrument panal, controls, etc.) (wiring routes, clamps and couplers)

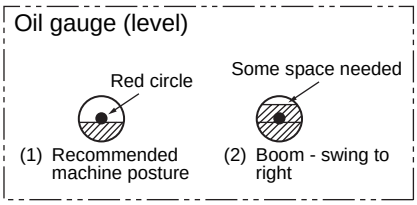
3. Important Critical Functional Process [A]
   1. Setting up the travel wheel motor (tightening torque)
   2. Reassembling the rotary joints (joint direction and shaft set-up)
   3. Installing the swivel base bearing and the swivel motor (tightening torque)
   4. Fitting the pump couplings (tightening torque)

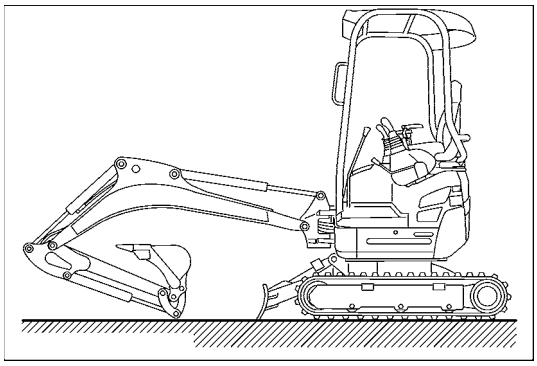
(D) IMPORTANT INSPECTION ITEMS AFTER REASSEMBLING

1.Operate the Machine and Check for Unusual Noise and Vibrations.
2.Make Sure the Safety Decals and Wireharness Clamps Are in Their Specified Positions.
3.With the Machine Front in a Specified Posture, Check the Amount of Hydraulic Oil

Checking the oil level (For further datails, refer to the Operator's Manual of each model.)
1) Park the machine on a level ground.
2) Make sure the hydraulic oil temperature is in the range of 10-30°C (50-86°F) and see if the oil level is within the specified zone of the oil level gauge.
3) Extend the track cylinder to Max. position.
4) Keep the machine front as shown as following posture.

Posture: (1) Extend the rods of the arm and bucket cylinders to max. Place the bucket link on the ground, the offset swing at the center, and the dozer also on the ground.
(2) Hold this posture and swing the boom to right.





a) Piping

(1) General precautions

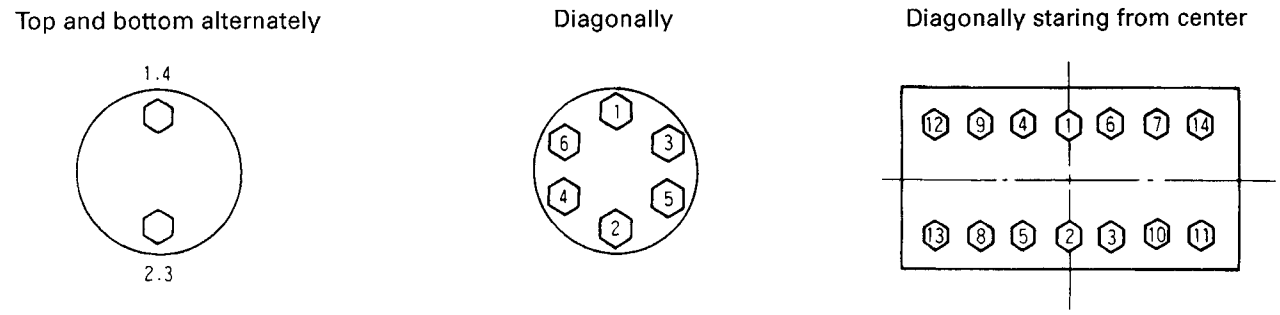
- Tighten the pipe socket to the specified torque. If too tight, the socket itself or a hydraulic component may get damaged. It too loose, an oil leak may result.
- In connecting a new hose or pipe, tighten its nut first to the specified torque and then turn it back (about 45°). Then tighten it again to the specified torque. (Do not this to the sealing tape-applied hose or pipe.)
- When disconnecting a vertical hose or pipe, separate its bottom connection first.
- In disconnecting and reconnecting the hose and pipe, be sure to use two wrenches. With one wrench, restrain the mating part to allow no twist.
- Check the mating connector's sleeve and the hose's taper for dust deposits and scratches.
- When the pipe socket has been tightened up, wipe the joint clean. Apply the maximum operating pressure 2 or 3 times to make sure there is no oil leak.

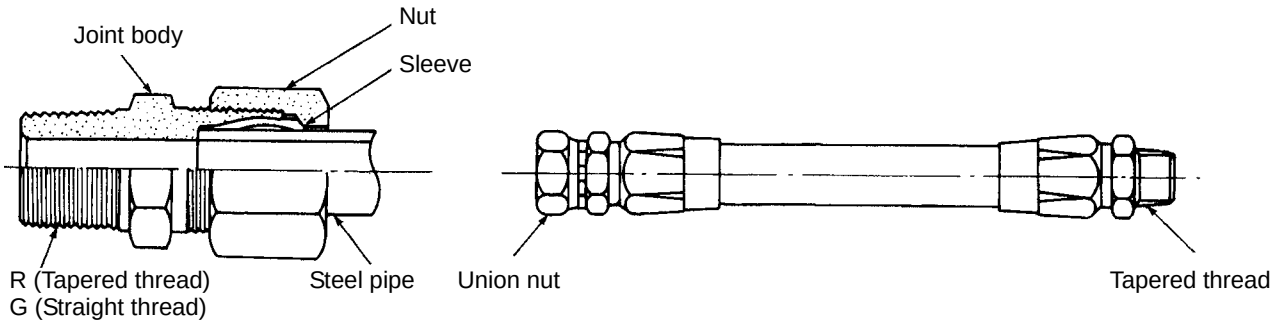
(2) Hydraulic hose

Check the hydraulic hose for too tight a connect or twist.
* Excessively tight contact
Let's suppose that a hose is in contact with another hose or other part. If the hose is pulled away by a force of 2 kg but still in contact, it means the contact is too tight.

(3) Precautions in tightening the bolts and nuts

- Use specified length of bolt.
- Do not over tighten the bolts; Its threads may get deformed or the fixed part may get damaged. Do not undertighten the bolt either; it may get loose.
- Tighten the bolt to the specified torque.
- Tighten the bolts and nuts diagonally for even tightness.





(4) Hose screw

Thread size (piping screw)	Tightening torque N·m kgf·m ft·lbf		Wrench size (reference)
	Union nut section	Taper thread section	
1/8”	7.8 ~ 11.8 N·m 0.8 ~ 1.2 kgf·m 5.8 ~ 8.7 ft·lbf	14.71 ~ 19.61 N·m 1.5 ~ 20 kgf·m 10.85 ~ 14.47 ft·lbf	17 mm 0.67 in
1/4”	24.5 ~ 29.4 2.5 ~ 3.0 18.1 ~ 21.7	36.3 ~ 44.1 3.7 ~ 4.5 26.8 ~ 32.5	19 mm 0.75 in
3/8”	49.0 ~ 53.9 5.0 ~ 5.5 36.2 ~ 39.8	49.0 ~ 68.6 5.0 ~ 7.0 36.2 ~ 50.6	22 mm 0.87 in
1/2”	58.8 ~ 63.7 6.0 ~ 6.5 43.4 ~ 47.0	83.4 ~ 88.3 8.5 ~ 9.0 61.5 ~ 65.1	27 mm 1.06 in
3/4”	117.7 ~ 127.5 12.0 ~ 13.0 86.8 ~ 94.0	127.5 ~ 147.1 13.0 ~ 15.0 94.0 ~ 108.5	36 mm 1.42 in
1”	137.3 ~ 147.1 14.0 ~ 15.0 101.3 ~ 108.5	147.1 ~ 166.7 15.0 ~ 17.0 108.5 ~ 123.0	41 mm 1.61 in

Metric Size Hose

Thread size (piping screw)	Torque N·m kgf·m ft·lbf
M12 × 1.5	20 ~ 30 2.0 ~ 3.1 14.75 ~ 22.13
M14 × 1.5	20 ~ 30 2.0 ~ 3.1 14.75 ~ 22.13
M16 × 1.5	30 ~ 50 3.1 ~ 5.1 22.13 ~ 36.9
M18 × 1.5	30 ~ 50 3.1 ~ 5.1 22.13 ~ 36.9
M22 × 1.5	40 ~ 60 4.1 ~ 6.1 29.5 ~ 44.25

(5) Joint bodies

Thread size (piping screw)	Tightening torque N·m kgf·m ft·lbf		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 14.5 ~ 21.7 ft·lbf	-	17 mm 0.67 in	When in steel pipe is in use.	8 mm 0.31 in
1/4”	36.3 ~ 44.1 3.7 ~ 4.5 26.8 ~ 32.5	W/O-ring *Joint Torque* 58.8 ~ 78.5 6 ~ 8 43.4 ~ 57.9	19 mm 0.75 in		12 mm 0.47 in
3/8”	39.2 ~ 49.0 4.0 ~ 5.0 28.9 ~ 36.2	W/O-ring *Joint Torque* 78.5 ~ 98.1 8 ~ 10 57.9 ~ 72.3	23 mm 0.91 in		15 mm 0.59 in
1/2”	49.0 ~ 68.6 5.0 ~ 7.0 36.2 ~ 50.6	W/O-ring *Joint Torque* 117.7 ~ 137.3 12 ~ 14 86.8 ~ 101.3	26 mm 1.02 in		16 mm 0.63 in

(6) Tightening torque table for hose clamp (Screw type)

No.	Dia. (mm)	Code No.	Tightening torque N·m kgf·m ft·lbf
1	Ø12 ~ 16	09318-89016	2.5 ~ 3.4 25 ~ 35 1.84 ~ 2.51
2	Ø19 ~ 25	09318-89024	
3	Ø31 ~ 40	09318-89039	
4	Ø36 ~ 46	09318-89045	
5	Ø15 ~ 25	RC101-64580	4.9 ~ 5.9 50 ~ 60 3.61 ~ 4.35
6	Ø26 ~ 38	68311-72820	
7	Ø13 ~ 20	RB101-63630	3.4 ~ 4.4 35 ~ 45 2.58 ~ 3.31
8	Ø40 ~ 55	RC411-63180	4.9 ~ 5.9 50 ~ 60 3.61 ~ 4.35
9	Ø77 ~ 95	69284-63170	
10	Ø50 ~ 60	RC401-63190	
11	Ø32 ~ 44	RD411-63820	
12	Ø32 ~ 51	68311-72830	

(7) Nuts for piping

Steel pipe size (O.D. × I.D. × Thickness)	Tightening torque N·m kgf·m ft·lbf	Spanner size (reference)	Remarks
8 × 6 × 1 mm 0.31 × 0.24 × 0.04 in	29.4 ~ 39.2 3.0 ~ 4.0 21.7 ~ 28.9	17 mm 0.67 in	When sleeve nut is in use.
10 × 7 × 1.5 mm 0.39 × 0.28 × 0.06 in	39.2 ~ 44.1 4.0 ~ 4.5 28.9 ~ 32.5	19 mm 0.75 in	
12 × 9 × 1.5 mm 0.47 × 0.35 × 0.06 in	53.9 ~ 63.7 5.5 ~ 6.5 39.7 ~ 47.0	21 mm 0.83 in	
16 × 12 × 2 mm 0.63 × 0.47 × 0.08 in	88.3 ~ 98.1 9.0 ~ 10.0 65.1 ~ 72.3	29 mm 1.14 in	
18 × 14 × 2 mm 0.71 × 0.55 × 0.08 in	127.5 ~ 137.3 13.0 ~ 14.0 94.0 ~ 101.3	32 mm 1.26 in	
27.2 × 21.6 × 2.8 mm 1.07 × 0.85 × 0.11 in	235.4 ~ 254.97 24.0 ~ 16.0 173.6 ~ 188.1	41 mm 1.61 in	

(8) Tightening torque of bolts and nuts

Refer to the tightness torque table below.

Bolts, Nuts / Nomial Dia.	4T 	7T 	9T 
	SS41	S40C, S45C	SCr4
M6	7.8 ~ 9.3 N·m 0.80 ~ 0.95 kgf·m 5.8 ~ 6.9 ft·lbf	9.8 ~ 11.3 N·m 1.00 ~ 1.15 kgf·m 7.2 ~ 8.3 ft·lbf	12.3 ~ 14.2 N·m 1.25 ~ 1.45 kgf·m 9.0 ~ 10.5 ft·lbf
M8	17.7 ~ 20.6 N·m 1.80 ~ 2.10 kgf·m 13.0 ~ 15.2 ft·lbf	23.5 ~ 27.5 N·m 2.40 ~ 2.80 kgf·m 17.4 ~ 20.3 ft·lbf	29.4 ~ 34.3 N·m 3.00 ~ 3.50 kgf·m 21.7 ~ 25.3 ft·lbf
M10	39.2 ~ 45.1 N·m 4.00 ~ 4.60 kgf·m 28.9 ~ 33.3 ft·lbf	48.0 ~ 55.9 N·m 4.90 ~ 5.70 kgf·m 35.4 ~ 41.2 ft·lbf	60.8 ~ 70.6 N·m 6.20 ~ 7.20 kgf·m 44.8 ~ 52.1 ft·lbf
M12	62.8 ~ 72.6 N·m 6.40 ~ 7.40 kgf·m 46.3 ~ 53.5 ft·lbf	77.5 ~ 90.2 N·m 7.90 ~ 9.20 kgf·m 57.1 ~ 66.5 ft·lbf	103.0 ~ 117.7 N·m 10.50 ~ 12.00 kgf·m 75.9~ 86.8 ft·lbf
M14	107.9 ~ 125.5 N·m 11.00 ~ 12.80 kgf·m 79.6 ~ 92.6 ft·lbf	123.6 ~ 147.1 N·m 12.60 ~ 15.0 kgf·m 91.1 ~ 108.5 ft·lbf	166.7 ~ 196.1 N·m 17.00 ~ 20.00 kgf·m 123.0 ~ 144.7 ft·lbf
M16	166.7 ~ 191.2 N·m 17.00 ~ 19.50 kgf·m 123.0 ~ 141.0 ft·lbf	196.1 ~ 225.6 N·m 20.00 ~ 23.00 kgf·m 144.7 ~ 166.4 ft·lbf	259.9 ~ 304.0 N·m 26.50 ~ 31.00 kgf·m 191.7 ~ 224.2 ft·lbf
M18	245.2 ~ 284.4 N·m 25.00 ~ 29.0 kgf·m 180.8 ~ 209.7 ft·lbf	274.6 ~ 318.7 N·m 28.00 ~ 32.50 kgf·m 202.5 ~ 235.1 ft·lbf	343.2~ 402.1 N·m 35.00 ~ 41.00 kgf·m 253.2 ~ 296.5 ft·lbf
M20	333.4~ 392.2 N·m 34.00 ~ 40.00 kgf·m 245.9 ~ 389.3 ft·lbf	367.7 ~ 431.5 N·m 37.50 ~ 44.0 kgf·m 271.2 ~ 318.2 ft·lbf	519.8 ~ 568.8 N·m 53.00 ~ 58.00 kgf·m 383.3 ~ 419.5 ft·lbf

(9) Types and materials of bolts and nuts

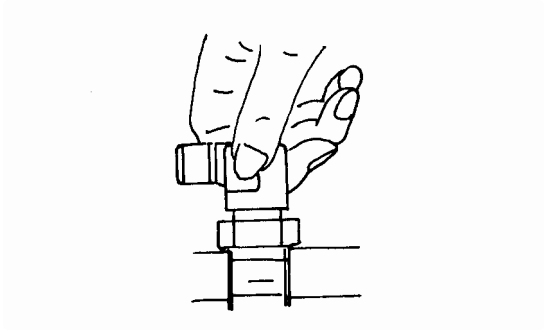
[ex. bolts]

Types	Material	Tensile strength	Hardness	Bolt head marking	
4T	SS41	Over 392 MPa 4000 kgf/cm^2 56892 lbf/in^2	H_RB 62 ~ 98		No mark or marked 4
7T	S40C S45C	Over 686 MPa 7000 kgf/cm^2 99561 lbf/in^2	H_RC 20 ~ 28		Marked 7
9T	SCr4	Over 882 MPa 9000 kgf/cm^2 128007 lbf/in^2	H_RC 28 ~ 34		Marked 9

(10) Washer-equipped elbow

Tightening torque

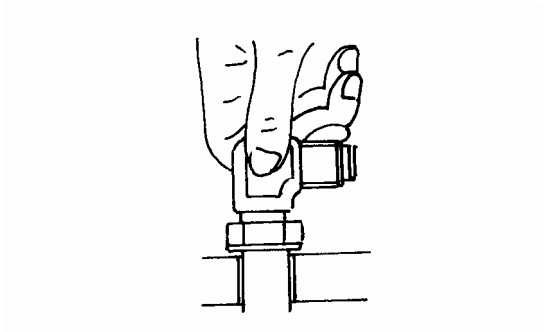
Size	N·m	kgf·m	ft·lbs
G1/4	25 ~ 30	2.5 ~ 3.0	18 ~ 22
G3/8	49 ~ 54	5.0 ~ 5.5	36 ~ 40
G1/2	59 ~ 64	6.0 ~ 6.5	43 ~ 47
G3/4 G1	118 ~ 127	12.0 ~ 13.0	87 ~ 94



Tightening procedure

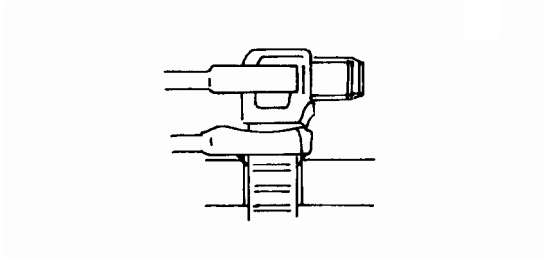
1) Connecting with the valve
   - Screw in the elbow by hand until the washer comes into contact.

Note: Clean up the mating seal beforehand.



2) Positioning
   - Turn the elbow back to its set position.

Note: Do not make any more than one turn back.



3) Fixing
   - Tighten up the lock nut with a wrench.
   - Lock nut tightening torque
     G1/4: 25 ~ 30 N·m (2.5 ~ 3.0 kgf·m, 18 ~ 22 ft·lbs)
     G3/8: 50 ~ 55 N·m (5.0 ~ 5.5 kgf·m, 36 ~ 40 ft·lbs)
     G1/2: 60 ~ 65 N·m (6.0 ~ 6.5 kgf·m, 43 ~ 47 ft·lbs)
     G3/4: 118 ~ 127 N·m (12.0 ~ 13.0 kgf·m, 87 ~ 94 ft·lbs)
     G1: 118 ~ 127 N·m (12.0 ~ 13.0 kgf·m, 87 ~ 94 ft·lbs)

(11) Adhesives

1. Thread adhesive

Types of thread adhesive	Loctite 271 or equivalent (heavy-duty) ThreeBond 1305P or equivalent (heavy-duty) ThreeBond TB1401B or equivalent (light-duty) ThreeBond 1324 (medium-duty) unless otherwise specified

* No oil and water allowed on the threads.

Type of instant adhesive	ThreeBond 1733 or 1741E

* No oil and water allowed on the threads.

2. Radiator hose sealant

Sealant	ThreeBond #1208E or equivalent

(E) MAINTENANCE INTERVALS

a) EU-version

[Operator servicing]

General maintenance	Elapsed hours of operation										
	50	100	150	200	250	300	350	400	450	500	Interval
Checking the engine oil level											daily
Check hydraulic oil level											daily
Check fuel level											daily
Check coolant level											daily
Lubricate front-end attachments											daily
Checking the radiator and oil cooler											daily
Check electric cables and connections											daily
Check water separator											daily
Check V-belt											daily
Drain water from the fuel reservoir										○	500 h
Lubricate the swivel gear	○	○	○	○	○	○	○	○	○	○	50 h
Battery service	○	○	○	○	○	○	○	○	○	○	50 h
Tracks and chassis: clean, visually inspect and check tension	○	○	○	○	○	○	○	○	○	○	weekly (50 h)
Check nuts and bolts		○		○		○		○		○	100 h
Check, clean air filter 1.)				○				○			200 h
Grease the swivel bearing				○				○			200 h

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

[Operator servicing]

General maintenance	Elapsed hours of operation										
	550	600	650	700	750	800	850	900	950	1000	Interval
Checking the engine oil level											daily
Check hydraulic oil level											daily
Check fuel level											daily
Check coolant level											daily
Lubricate front-end attachments											daily
Checking the radiator and oil cooler											daily
Check electric cables and connections											daily
Check water separator											daily
Check V-belt											daily
Drain water from the fuel reservoir										○	500 h
Lubricate the swivel gear	○	○	○	○	○	○	○	○	○	○	50 h
Battery service	○	○	○	○	○	○	○	○	○	○	50 h
Tracks and chassis: clean, visually inspect and check tension	○	○	○	○	○	○	○	○	○	○	weekly (50 h)
Check nuts and bolts		○		○		○		○		○	100 h
Check, clean air filter 1.)		○				○				○	200 h
Grease the swivel bearing		○				○				○	200 h

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

[Servicing by skilled personnel or KUBOTA dealer]

Servicing	Elapsed hours of operation *										
	50	100	150	200	250	300	350	400	450	500	Interval
Check/adjust V-belt tension					○					○	250 h
Check coolant hoses and clamps					○					○	250 h
Grease pilot valve linkage					○					○	250 h
Change engine oil and oil filter										○	500 h
Replace the fuel filter 4.)										○	500 h
Change return filter for the hydraulic oil tank 3.)					●					○	500 h
	Please contact your KUBOTA dealer.										
Replace the drive unit oil	●									○	500 h
Change hydraulic oil and suction filter 2.)	Please contact your KUBOTA dealer.										1000 h
Replace the in-line filter	Please contact your KUBOTA dealer.										1000 h
Replace the air filter elements 1.)											1000 h
Change running gear and track roller oil	Please contact your KUBOTA dealer.										2000 h
Check alternator and starter motor	Please contact your KUBOTA dealer.										2000 h
Check electric cables and connections	Please contact your KUBOTA dealer.										Annually
Safety inspection											Annually
Replace the coolant and rinse the cooling system											every 2 years
Replace coolant hoses and clamps					○					○	250 h
	Please contact your KUBOTA dealer.										
Change hydraulic hoses	Please contact your KUBOTA dealer.										every 6 years

* The servicing identified with ● must be carried out after the specified hours of operation after initial operation have been reached.

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

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

3.) When using a hydraulic hammer up to 50% → every 200 h.
When using a hydraulic hammer over 50% → every 100 h.
Replace the return filter approximately 250 hours after the initial operation.

4.) Replace it earlier if necessary.

[Servicing by skilled personnel or KUBOTA dealer]

Servicing	Elapsed hours of operation										
	550	600	650	700	750	800	850	900	950	1000	Interval
Check/adjust V-belt tension					○					○	250 h
Check coolant hoses and clamps					○					○	250 h
Grease pilot valve linkage					○					○	250 h
Change engine oil and oil filter										○	500 h
Replace the fuel filter 4.)										○	500 h
Change return filter for the hydraulic oil tank 3.)										○	500 h
	Please contact your KUBOTA dealer.										
Replace the drive unit oil										○	500 h
Change hydraulic oil and suction filter 2.)	Please contact your KUBOTA dealer.										1000 h
Replace the in-line filter	Please contact your KUBOTA dealer.										1000 h
Replace the air filter elements 1.)											1000 h
Change running gear and track roller oil	Please contact your KUBOTA dealer.										2000 h
Check alternator and starter motor	Please contact your KUBOTA dealer.										2000 h
Check electric cables and connections	Please contact your KUBOTA dealer.										Annually
Safety inspection											Annually
Replace the coolant and rinse the cooling system											every 2 years
Replace coolant hoses and clamps					○					○	250 h
	Please contact your KUBOTA dealer.										
Change hydraulic hoses	Please contact your KUBOTA dealer.										every 6 years

1.) Under dusty conditions the air filter must be cleaned more frequently or replaced.
2.) When using a hydraulic hammer over 20% → every 800 h.
When using a hydraulic hammer over 40% → every 400 h.
When using a hydraulic hammer over 60% → every 300 h.
When using a hydraulic hammer over 80% → every 200 h.
3.) When using a hydraulic hammer up to 50% → every 200 h.
When using a hydraulic hammer over 50% → every 100 h.
4.) Replace it earlier if necessary.

b) PP (KTC, KCL)-version

No.	Check points		Intervals	Hour meter indicator									Consequently		
				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 500 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 swing 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 swing ball bearings		-				○				○		every 200 hrs		
15	Fuel filter element		replace								○		every 400 hrs		@
16	Engine oil filter		replace										every 500 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.

No.	Check points		Intervals	Hour meter indicator								Consequently		
				500	550	600	650	700	750	800	1000			
1	Coolant		check	Daily check										
			change									every 2 years		
2	Fuel		check	Daily check										
3	Engine oil		check	Daily check										
			change	○							○	every 500 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 swing 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 swing ball bearings		-			○				○	○	every 200 hrs		
15	Fuel filter element		replace							○		every 400 hrs		@
16	Engine oil filter		replace	○							○	every 500 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	

◉ First operation

*1 When using a hydraulic breaker, change hydraulic oil and return filter according to the table on "Hydraulic Oil Change (Including Exchange of the Suction Filter in the Hydraulic Tank) under "EVERY 1000 SERVICE HOURS" in the chapter "REGULAR CHECKS AND MAINTENANCE WORK".

*2 Clean and replace the air filter more frequently if used under dusty conditions. By heavy soiling, replace the filter.

*3 Replace only if necessary.

*4 Consult your local KUBOTA Dealer for this service.

A The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S. EPA non-road emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction. Please see the Warranty Statement in detail.

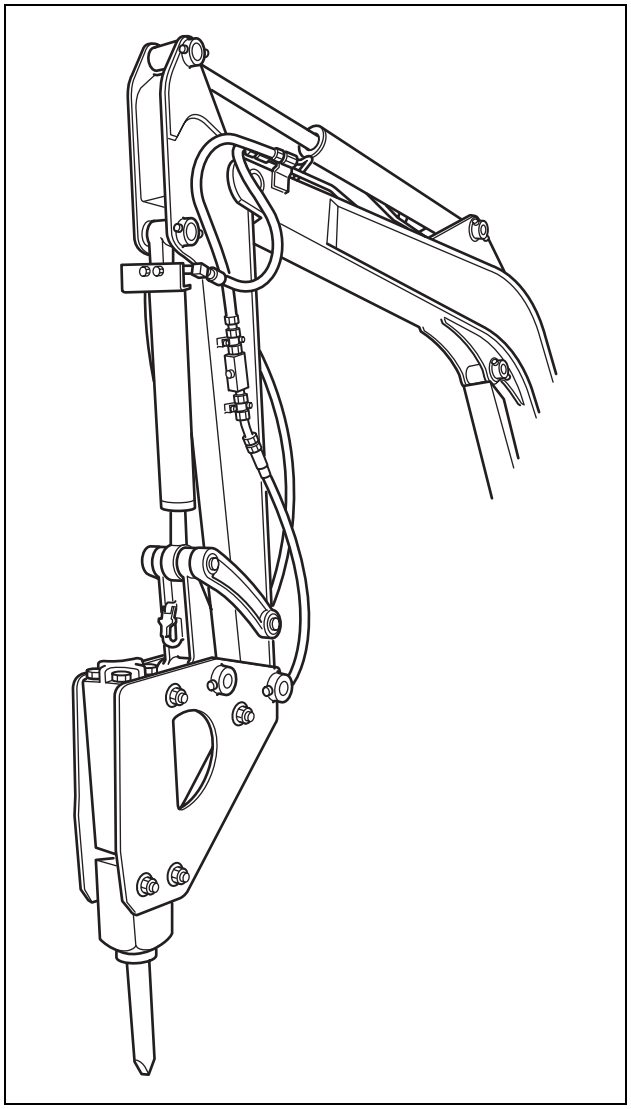
c) KTA-version

No.	Checkpoints	Intervals	Hour meter indicator													Consequently	
			50	100	150	200	250	300	350	400	450	500	550	600	1000	2000	
1	Fuel	check	Daily check														
2	Engine oil	check	Daily check														
		change	⦿					○					○				every 250 hrs
3	Hydraulic oil**	check	Daily check														
		change													○		every 1000 hrs
4	Coolant	check	Daily check														
		change															every 2 years
5	Lubrication points	check	Daily check														
6	Radiator	check	Daily check														
7	Battery condition	check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 hrs
8	Electrical lines	check	Daily check, Annual servicing														
9	Greasing of swing bearing teeth	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 hrs
10	Drive unit oil	change		⦿										○			every 500 hrs
11	Fan belt tension	adjust				○				○				○	○	○	every 200 hrs
12	Radiator hoses and clamps	check				○				○				○	○	○	every 200 hrs
		change															every 2 years
13	Air filter element*	clean				○				○				○	○	○	every 200 hrs @
		change													○	○	every 1000 hrs
14	Greasing of swing ball bearings					○				○				○	○	○	every 200 hrs
15	Fuel pipes and hoses	check				○				○				○	○	○	every 200 hrs
		change															every 2 years
16	Engine oil filter	change	⦿					○					○				every 250 hrs
17	Fuel filter	check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 hrs
		change										○			○	○	every 500 hrs @
18	Hydraulic return filter element	change													○	○	every 1000 hrs
19	Hydraulic suction filter element	change													○	○	every 1000 hrs
20	Front idler and track roller oil	change														○	every 2000 hrs
21	Dynamo and starter motor	check														○	every 2000 hrs
22	Radiator system	rinse															every 2 years
23	Fuel injection nozzle (Injection pressure)	check															every 1500 hrs @
24	Injection pump	check															every 3000 hrs @

IMPORTANT:

- *Clean the air filter more frequently if used in dusty conditions. With heavy soiling, replace the filter.
  ** When using a hydraulic breaker, change hydraulic oil and return filter according to the table on "Hydraulic Oil Change(Including Exchange of the Suction Filter in the Hydraulic Tank)" under "EVERY 1000 SERVICE HOURS" in "REGULAR CHECKS AND MAINTENANCE WORK".
- The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S.EPA nonroad emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction. Please see the Warranty Statement in detail.

d) Hydraulic Oil Check for Machines with Hydraulic Breakers



The hydraulic oil change after 1000 operating hours in the operator's manual is based on the type of work done. Following inspection measure are valid when hydraulic breakers are used:

1. Changing and filling up of hydraulic oil
   1) The hydraulic oil must be changed more often when breakers are used because the machine is subject to harder conditions than at normal excavating work.
   2) Use only the recommended oils mentioned in the operator's manual when changing or fill oil.
   3) When filling up oil, never mix oils of different makes.
2. Changing the return filter and oil
   1) The filter must be changed more often because of contamination resulting from the frequent assembly and disassembly of the hoses.
   2) Use the correct replacement filter.
   3) Oil change according to operating hours.

		Hydraulic oil	Return Filter	Suction Filter
Normal excavator work		every 1000 hrs	500 hrs	1000 hrs
Breaker work portion	20%	every 800 hrs	300 hrs	
	40%	every 400 hrs		
	60%	every 300 hrs	100 hrs	
	More than 80%	every 200 hrs		

3. Kubota's recommended breakers for U17-3α and U17/U17-3.

(Japanese breakers)

Furukawa	HB2G
Tokuu	TNB-1E
Maruzen	MHB-71
Nippon Pneumatic	H-08X

e) Maintenance Items

(1) Drive unit Oil Change (First Oil Change of the 100 hours)

CAUTION

To avoid personal injury:

- Lower attachments on the ground, stop the engine and remove the key before undertaking the oil change.

1) Rotate the crawler so that the drain plug of the drive unit is in the bottom position.

2) Remove the drain plug to let the oil run out. Screw in and tighten the drain plug again and fill with gear oil through the oil check port.

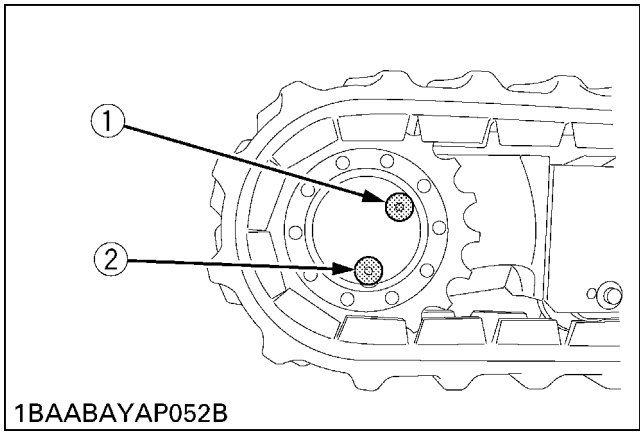
3) Fill oil until it overflows out of the oil check port.

Gear oil volumes	Approx. 0.25 L (0.07 USgal.)

Oil change

- first oil change after 100 hrs
- then every 500 hrs
- or at least once a year

4) Use prescribed gear oil SAE 90.



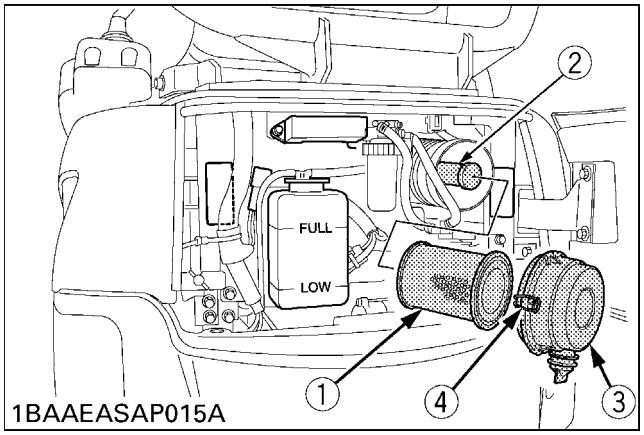
(1) Oil check port (also serves as oil filling port)
(2) Drain plug

(2) Inspection and Cleaning of the Air Filter Element

Open the engine bonnet and remove the dust-cover. Take out only outer element, clean the element, case interior and reassemble. During reassembly, take care to install the dust-cover so that its TOP mark (arrow) faces up-wards. Do not remove the inner element.

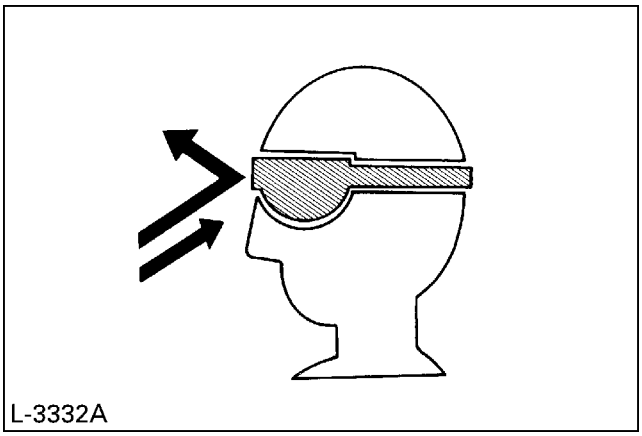
IMPORTANT:

- Should the machine be used in extremely dusty areas, the air filter element must be inspected and cleaned more frequently than the specified maintenance periods.
- The air filter has a dry element, keep free from oil.
- Do not run the engine without the air filter.



(1) Outer element
(2) Inner element
(3) Dust-cover
(4) Clamps

CAUTION
To avoid personal injury:
• Wear eye protection.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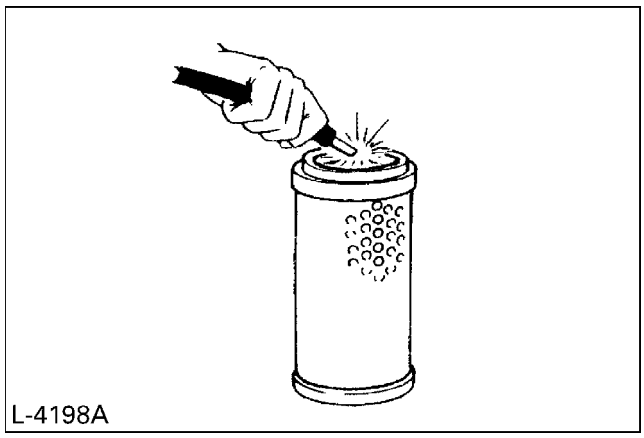
◆Cleaning with compressed air
Pressure of compressed air must be under 205 kPa (2.1 kgf/cm^2, 30 psi) and the cartridge should be blown clean from the inside to the outside until the dust deposits are remarkably reduced.

IMPORTANT:
• If the air suction is still inadequate, or the color of the exhaust gases is abnormal even after the cleaning, the air filter element must be replaced.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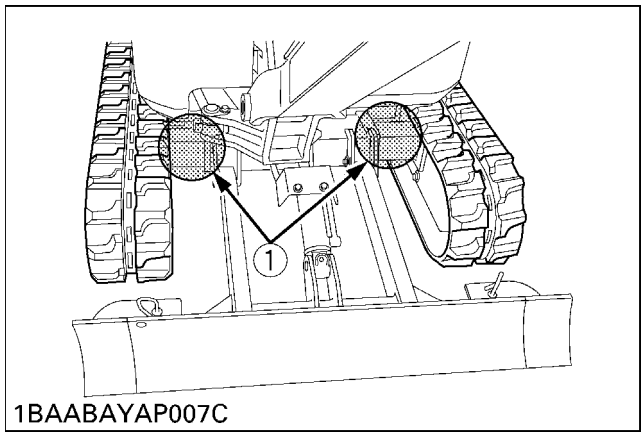
(3) Cleaning the Track Frame Slide Pipes
When the slide pipes of the track frame are clogged or adhered with soil or sand, clean the slide pipes in the following manner according to need.

WARNING
To avoid the personal injury or death:
• Place the machine on even ground when cleaning the track frame slide pipes.

1. First lift the machine off the ground using the dozer blade and boom functions.
2. Switch the track width change / dozer select lever to the “Track width change” position.
3. Push the control lever forward, and expand the track width to 1240 mm (48.8 in.).
4. Remove soil and sand adhered to the slide pipes, then put grease evenly around the pipes. Make sure all 4 slide pipes are greased.
5. Retract and expand the track width repeatedly for a few times by moving the control lever, so that the grease is spread adequately.
6. Switch the track width change / dozer select lever to the “Dozer” position.
7. Place the machine down on the ground carefully by moving the dozer blade and the boom.



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(1) Track frame slide pipes

f) Troubleshooting for Operators

If the excavator does not show the desired performance, or when trouble arises, refer to the table below and undertake appropriate measures.

Trouble		Cause	Countermeasure
Engine	Starting difficulties	Fuel is too viscous	* Check fuel tank and filter * Remove impurities and water * If necessary, replace filter
		Air or water in the fuel system	* Remove water from the fuel tank * Check fuel pipe joint bolts and nuts for looseness * Purging of the fuel system (for fuel filter and injection pump, see "PURGING OF THE FUEL SYSTEM" in "OTHER ADJUSTMENTS AND REPLACEMENTS".)
		Oil viscosity is too high that the engine runs sluggishly in winter	* Pour hot water over the radiator * Use oils of different viscosities depending on the ambient temperature. (Use SAE10W, SAE10W-30 or SAE10W-40)
		Battery is almost dead; insufficient compression	* Recharge battery
	Insufficient engine power	Low fuel level	* Check fuel and add if necessary
		Clogged air cleaner	* Clean the air filter element
	Engine suddenly stops	Low fuel level	* Check fuel and add if necessary * Purge the fuel system
	Abnormal exhaust gas color	Poor fuel	* Use high quality fuel
		Too much engine oil	* Drain engine oil to prescribed oil level
	Water temperature too high (Overheating)	Defective seal of the water pump	* Replace
		Worn or torn fan belt	* Adjust or replace
		Thermostat is defect	* Replace
		Coolant level too low	* Fill to prescribed level
		Radiator grill or fins are clogged	* Clean
		Coolant is contaminated with rust from the cylinder head or crank case	* Replace coolant fluid and add anti-rust
		Defective radiator cap (Evaporation)	* Replace
		Corroded coolant pipes	* Clean
		Continuous operation under full load	* Reduce load
		Cylinder head gasket is damaged (Coolant loss)	* Replace
		Engine oil level too low	* Fill to prescribed level
		Maladjustment of fuel injection	* Readjust ignition timing
		Use of poor fuel	* Use prescribed fuel
Hydraulic System	Boom, arm, bucket, drive, swing and dozer power is too low	Hydraulic oil level too low	* Add oil
		Leakages of hoses and/or joints	* Replace hose or joint
	Non-function of swing motor	Swing lock pin is in lock position	* Remove swing lock pin in unlock position
Drive System	Deviation of drive direction	Blocked through stones	* Remove
		Crawler too loose or too tight	* Adjust accordingly

g) Periodic Replacement of Important Component Parts

To ensure safety in operation, you are strongly requested to inspect and service the machine at regular intervals. For added safety, ask your KUBOTA dealer to replace the following important component parts.
These parts are prone to degradation in material or subject to wear and tear with time. It is difficult to judge how much they have been affected at regular inspection. It is therefore necessary to replace them with new ones, whether wear is visible or not after a specified time of use.
If any of them is found worn even before the specified use, it must be repaired or replaced the same way as other parts.
If any of the hose clamps is found deformed or cracked, the hose clamp must also be replaced.
For the hydraulic hoses other than the ones to be replaced periodically, inspect them for the following points. If found unusual, tighten them up, replace them.
When replacing the hydraulic hoses, change their O rings and sealings with new ones.
For replacement of the important parts, contact your KUBOTA dealer.

- At the following periodic inspections, check the fuel hoses and hydraulic hoses as well.

Inspection Interval	Check points
Daily Checks	Oil leak at fuel and hydraulic hose connections and points
Every month	Oil leak at fuel and hydraulic hose connections and points Damages at fuel and hydraulic hose (cracks, chafing)
Every year	Oil leak at fuel and hydraulic hose connections and points Interference, deformation, degradation, twist and other damages (cracks, chafing) of fuel and hydraulic hoses

List of important component parts

No.	Component parts	Q'ty	Period
1	Fuel hose (Fuel tank-Fuel filter)	2	Every 2 years or 4000 hours
2	Fuel hose (Fuel filter-Fuel pump)	2	
3	Fuel hose (Fuel pump-Fuel nozzle)	2	
4	Fuel hose (Fuel nozzle-Fuel tank)	1	
5	Fuel hose (Fuel tank-Fuel drain)	1	
6	Hydraulic hose (Main pump suction)	1	
7	Hydraulic hose (Main pump delivery)	4	
8	Hydraulic hose (Boom cylinder)	2	
9	Hydraulic hose (Arm cylinder)	2	
10	Hydraulic hose (Bucket cylinder)	2	
11	Hydraulic hose (Swing cylinder)	2	
12	Hydraulic hose (Dozer cylinder)	2	
13	Hydraulic hose (Service port)	4	

To prevent serious damage to the hydraulic system, use only KUBOTA genuine hydraulic hose.