

# WSM

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## WORKSHOP MANUAL KUBOTA EXCAVATOR

### U15 U15-3 Service Chapter

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**Kubota**

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**Note : PP - version = Pan Pacific - version = KTC, KCL, KTA - version**

# A.Body and engine identification marks

If trouble should occur during use, or if servicing is necessary, contact the dealer who handles the machine. At that time please inform the machine model and engine type and serial numbers.

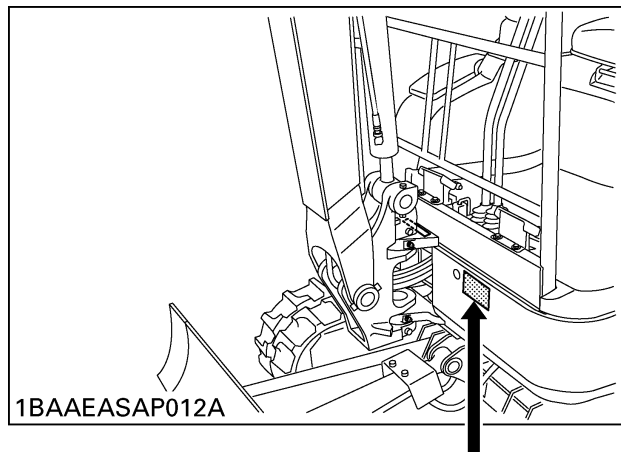
Model \_\_\_\_\_ Serial No. \_\_\_\_\_

Excavator \_\_\_\_\_

Engine \_\_\_\_\_

Dealer's name \_\_\_\_\_  
 (To be filled in through the owner)

EU - version



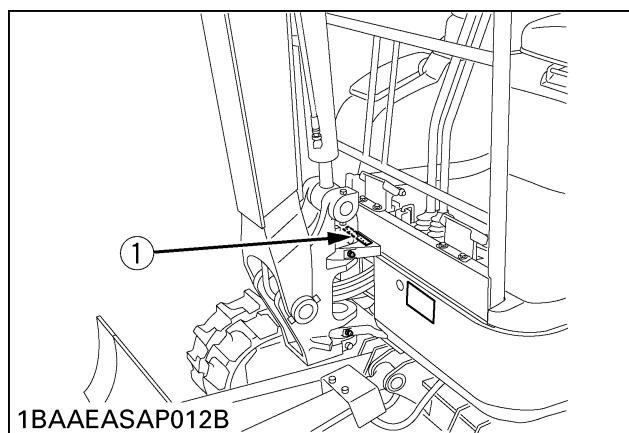
<b>KUBOTA Corporation</b>	
2-47, Shikitsuhigasi 1-Chome, Naniwa-ku, Osaka, 556-8601 JAPAN	
MODEL	①
SERIAL No.	②
ENGINE No.	③
PRODUCT IDENTIFICATION NUMBER	④

Name plate : Code No. RA018-57721

No.	Items	Contents ; Example
①	Machine model	U15-3
②	Serial No.	40001
③	Engine No.	
④	PRODUCT IDENTIFICATION No.	>JKUU0153*00S40001<

Example : S/N 40001

## (1) Machine serial number



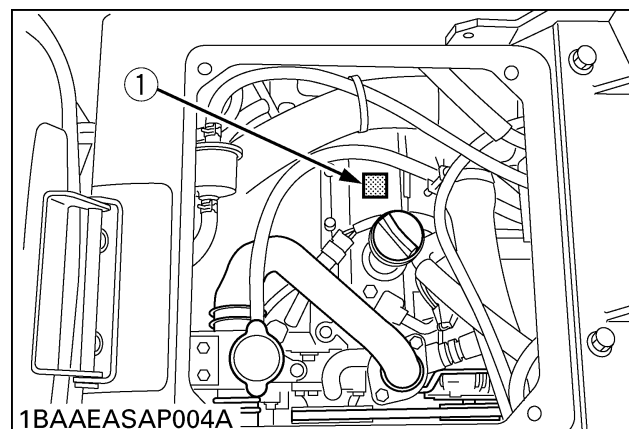
(1) Serial No.

## (2) Engine serial number

e.g. D782 5L0023

“5” indicates year of 2005 and “L” indicates June.

So, 5L indicates that the engine was manufactured in June 2005.



(1) Engine serial No.

## 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 hoisting 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.

## 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 assembled only after removing the coating.
3. Separated parts must be correctly reassembled using alignment marks.
4. As a rule, use a press to reassemble 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.)

### a. Essential Adhesives

Type of screw adhesive

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

Type of instantaneous adhesive

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

### b. Important Safety Process **S**.

1. Reconnecting the fuel hose (clearance, hose routes, clamps, etc.)
2. Electrical cabling (engine, instrument panel, controls, etc.) (wiring routes, clamps and couplers)

### c. 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

a. Operate the Machine and check for Unusual Noise and Vibrations.

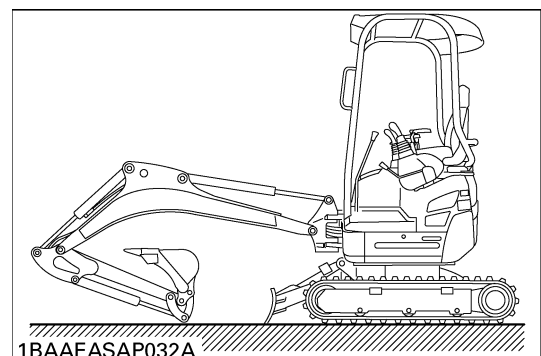
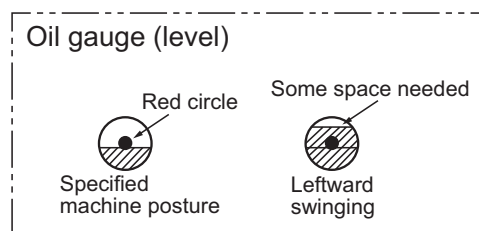
b. Make Sure the Safety decals and Wireharness Clamps are in their Specified Positions.

c. With the Machine Front in a Specified Posture, Check the Amount of Hydraulic Oil

Checking the oil level (For further details, 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: 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.



## d. Piping

### (1) General precautions

- Tightening the pipe socket to the specified torque. If too tight, the socket itself or a hydraulic component may get damaged. If 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 do 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.

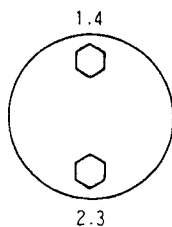
\* Excessively tight contact

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.

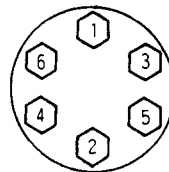
### (3) Precautions in tightening the bolts and nuts

- Use bolts of specified length.
- 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.
- In other words, tighten the bolt to the specified torque.
- Tighten the bolts and nuts diagonally for even tightness.

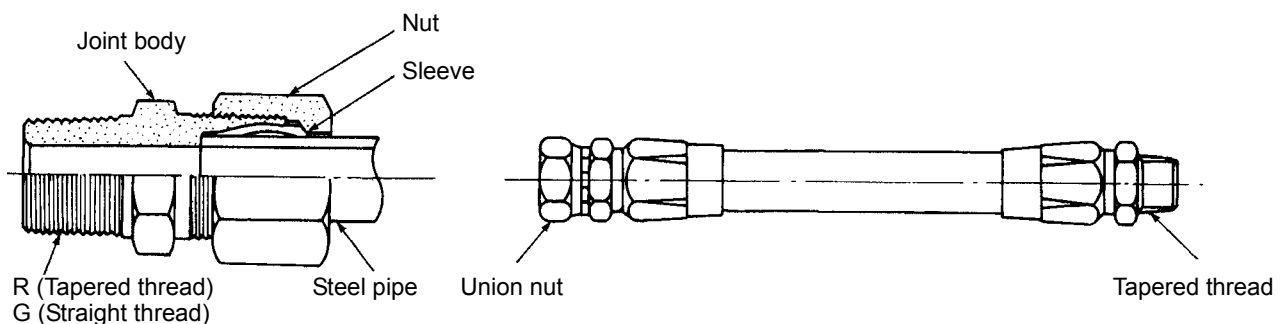
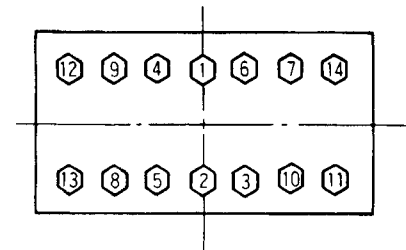
Top and bottom alternately



Diagonally



Diagonally starting from center





(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		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	When in steel pipe is in use.	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

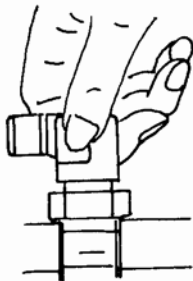
[ex. bolts]

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

## (10)Washer-equipped elbow

Tightening torque

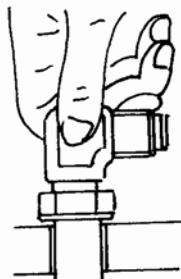
Size	N·m	kgf·m	ft·lbs
G1/4	25 ~ 30	2.5 ~ 3.0	18 ~ 22
G3/8	49 ~ 54	5.0 ~ 5.5	36 ~ 40
G1/2	59 ~ 64	6.0 ~ 6.5	43 ~ 47
G3/4 G1	118 ~ 127	12.0 ~ 13.0	87 ~ 94



### Tightening procedure

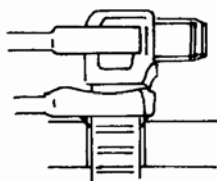
- 1) Connecting with the valve
  - Screw in the elbow by hand until the washer comes into contact.

**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										Interval
	50	100	150	200	250	300	350	400	450	500	
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										Interval
	550	600	650	700	750	800	850	900	950	1000	
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 *										Interval
	50	100	150	200	250	300	350	400	450	500	
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.) Earlier if necessary.

[Servicing by skilled personnel or KUBOTA dealer]

Servicing	Elapsed hours of operation										Interval	
	550	600	650	700	750	800	850	900	950	1000		
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.) 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	@
		Inner element	replace												every 1000 hrs	*2	
			replace													every 1000 hrs	
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	@
		Inner element	replace							○	○	every 1000 hrs	*2	
			replace								○	○	every 1000 hrs	
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.

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