WSM

WORKSHOP MANUAL
KUBOTA EXCAVATOR

U35

Kubota

Code No.97899-60640

Record of Revisions
Rapport de Révision
Inspektionsaufzeichnungen

Symbol *Symboles* Symbol	Date *Date* Datum	Main Revised Points & Corrective Measures *Principaux points de révision et mesures correctives* Hauptpumkte der Inspektion und korrektive Mßsnahmen	Person-in-charge *Personne responsable* Verantwortlicher
△1			
△2			
△3			
△4			

CONTENTS

To THE READER!

Although some components are different, like TPSS valve for KTC, KCL, KTA version and accumulator and quick coupler pressure gauge for EU-version, U35 and U35-3 have basically same structure and functions. Still, EU and KTA market have already been introducing previous model of U-35 but KTC and KCL for the first time. Therefore, we have slightly different model names as follows.

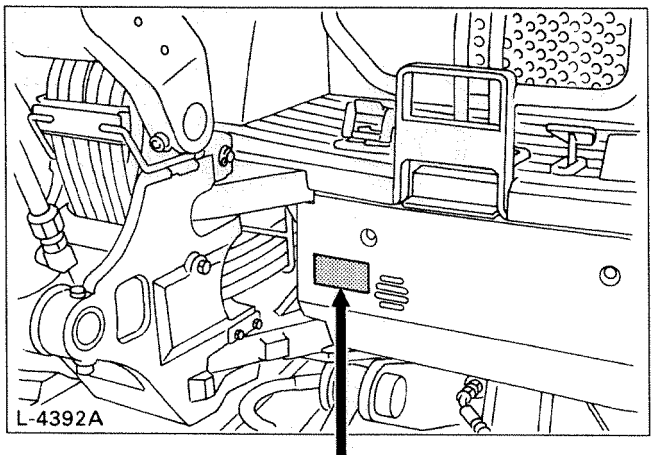
U35-3 : EU market (KE, KUK, KBM), KTA
U35 : KTC, KCL market

I. General

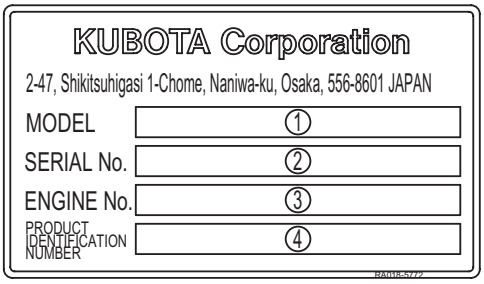
A.Body and engine identification marks

If trouble should occur during use, or if servicing is necessary, contact the dealer who handles the machine. At the time please inform the deals of

(1) Model of machine and serial number



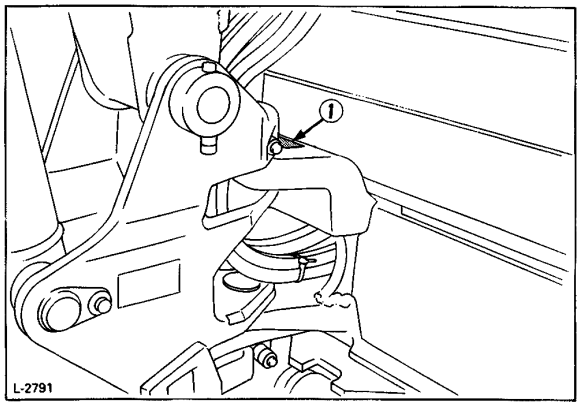
Name plate



Code No. : RA018-57721

No.	Items	Contents ; Example
①	Machine model	U35
②	Serial No.	20001
③	Engine No.	2L2958
④	PRODUCT IDENTIFICATION No.	>JKUU0353LO1H20001<

(2) Machine serial number



(3) Engine serial number
e.g. D1503-2L0025
"2" indicates year of 2002 and "L" indicating June.
So, 2L indicates that the engine was manufactured in June 2002.

B.Safty precautions for servicing, disassembly and reassembly

⚠ Safty precautions for servicing

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

⚠ Safty precautions for Disassembly and reassembly

Machines must be diassembled 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. Safty 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 hydrauricunits 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. Safty 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. Clane 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 removingbolts.

(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 batteris, 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 tp 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 nessesary.)

(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 corting.
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.

C.IMPORTANT SAFTY 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 panal, 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)

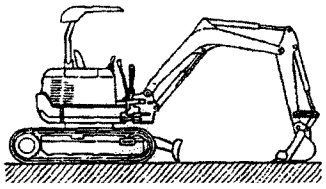
D.IMPORTANT INSPECTION ITEMS AFTER REASSEMBLING

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 Hydrauric 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 hydrauric 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) Keep the machine front as shown as following posture.

Posture: Extend the rods of the arm and bucket cylinders nealy half. Place the bucket on the ground, the offset swing at the center, and the dozer also on the ground.



F. Maintenance intervals

a. KTC, KCL, KTA-version

No.	Check points		Intervals	Hour meter indicator																	Consequently		
				50	100	150	200	250	300	350	400	450	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 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	Washer liquid (cabin type)		check	Daily check																			
8	Engine and electrical wiring		check	Daily check																	every year		
9	Fuel tank, Fuel filter		drain	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 hrs		
10	Battery condition		check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 hrs		
11	Greasing swing bearing teeth		---	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 hrs		
12	Fan belt tension		adjust				○				○				○				○	○	every 200 hrs		
13	Radiator hoses and clamps		check				○				○				○				○	○	every 200 hrs		
			replace																		every 2 years		
14	Air filter element	Outer element	clean				○				○				○				○	○	every 200 hrs	*2	@
			replace																	○	every 1000 hrs	*2	
		Inner element	replace																	○	every 1000 hrs	*2	
15	Greasing swing ball bearings		---				○				○				○				○	○	every 200 hrs		
16	Fuel filter element		replace																○		every 400 hrs		@
17	Engine oil filter	KX91-3	replace	◉					○					○					○		every 250 hrs		
		KX121-3		◉										○							every 500 hrs		
18	Drive unit oil		change		◉										○						every 500 hrs		
19	Hydraulic return filter element		replace					◉										○			every 500 hrs		
20	Hydraulic suction filter element		replace																	○	every 1000 hrs		
21	Filter in the pilot hydraulic system		replace																	○	every 1000 hrs		
22	Fuel injection nozzle injection pressure		check																		every 1500 hrs	*4	@
23	Front idler and track roller oil		change																		every 2000 hrs		
24	Alternator and starter motor		check																		every 2000 hrs		
25	Injection pump		check																		every 3000 hrs	*4	@
26	Radiator system		rinse																		every 2 years		
27	Fuel line and Intake air line		check				○				○				○				○	○	every 200 hrs		@
			replace																		every 2 years	*3	

IMPORTANT:

◉ 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.

- 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.

b. EU(KE, KDG, KUK)-version

	General Maintenance	Elapsed Operating Hours *																				Interval	Section
		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000		
Operator Services	Check engine oil level																					daily	6.3.1
	Check hydraulic oil level																					daily	6.3.1
	Check fuel level																					daily	6.3.1
	Check coolant level																					daily	6.3.1
	Grease front attachments																					daily	6.3.1
	Check V-belt																					daily	6.3.1
	Check water separator																					daily	6.3.1
	Tracks and chassis: clean, visual inspection and check tension	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	weekly (50 hrs)	8.5.17
	Grease swivel gear	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	50 hrs	8.5.15
	Check, clean air filter 1.)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	50 hrs	8.5.7
	Check nuts and bolts		❍		❍		❍		❍		❍		❍		❍		❍		❍		❍	100 hrs	8.5.22
	Grease swivel gear bearing				❍				❍				❍				❍				❍	200 hrs	8.5.16
	Check battery electrolyte level										❍										❍	500 hrs	8.5.14
	Drain water in fuel tank										❍										❍	500 hrs	8.5.9

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

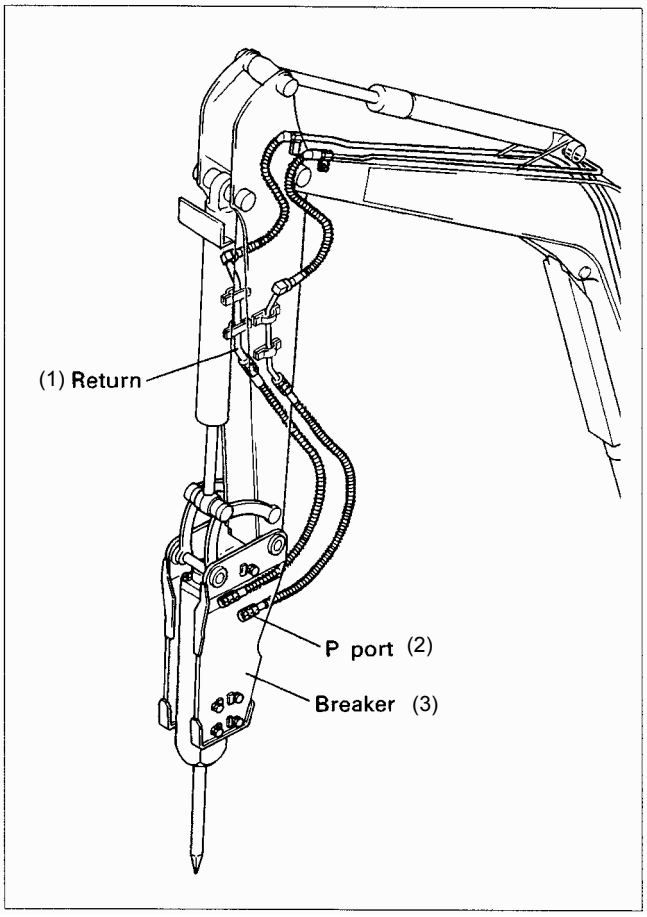
3.) When using a hydraulic hammer up to 50 % every 200 h. When using a hydraulic hammer over 50 % every 100 h.

4.) Earlier if necessary.

5.) At least annually.

	Service	Elapsed Operating Hours *																				Interval	Section
		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000		
Servicing by skilled personnel or KUBOTA dealer	Change engine oil and oil filter	●				❍					❍					❍					❍	250 h	8.5.6
	Inspect coolant hoses and clamps					❍					❍					❍					❍	250 h	8.5.4
	Check/adjust V-belt tension					❍					❍					❍					❍	250 h	8.5.3
	Grease pilot valve linkage					❍					❍					❍					❍	250 h	8.5.19
	Change fuel filter 4.)										❍										❍	500 h	8.5.8
	Change hydraulic return line filter element 3.)					●					❍										❍	500 h	8.5.10
	Change drive unit oil 5.)	●									❍										❍	500 h	8.5.18
	Change hydraulic oil and suction filter 2.)																				❍	1000 h	8.5.11 8.5.12
	Renewing/Cleaning the Hydraulic Oil Tank Breather Filter 1.)																				❍	1000 h	8.5.13
	Renewing the Pilot Circuit Filter																				❍	1000 h	8.5.21
	Change air filter elements 1.)																				❍	1000 h	8.5.7
	Change idler and track roller oil																					2000 h	--
	Check alternator and starter motor						Please contact your KUBOTA dealer.															2000 h	--
	Inspect electric cables and connections						Please contact your KUBOTA dealer.															annually	8.5.20
	Change coolant																					every 2 years	8.5.5
	Change hydraulic hoses						Please contact your KUBOTA dealer.															every 6 years	--
	Safety inspection																					annually	9

c. Hydraulic Oil Check for machines with Hydraulic Breakers



(1) Return
(2) P port
(3) Breaker

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.

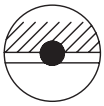
		Hydraulic oil	Return Filter	Suction Filter
Normal excavator work		every 1000 Hrs.	500 Hrs.	1000 Hrs.
Breaker work portion	20%	every 800 Hrs.	300 Hrs.	
	40%	every 400 Hrs.		
	60%	every 300 Hrs.	100 Hrs.	
	More than 80%	every 200 Hrs.		

G.Water and oil quantity

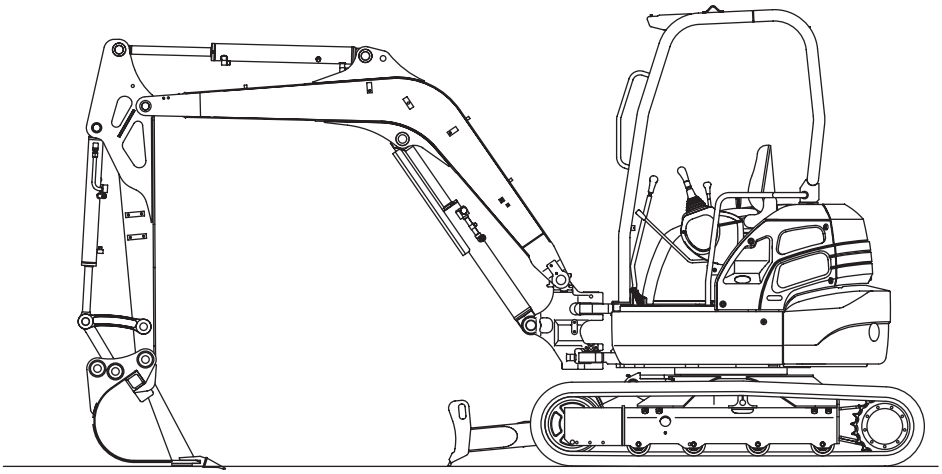
	Unit	**U35, U35-3**	KX91-3	KX101-3	Remarks
Radiator	L gal	5.6 1.48	←	←	Kubota LLC-N-50F 50%
Reserve tank	L gal	1.6 0.42	←	←	
Engine Crank case Without filter	L gal	5.3 1.40	←	←	SAE10W30(CD) Gauge center
Hydraulic oil Full	L gal	55.0 14.53	←	←	ISO 46
Hydraulic oil Tank gauge center	L gal	36.0 9.51	←	←	ISO 46
Wheel motor	L gal	0.5 0.13	←	←	SAE90 (API GL-4)
Track roller	cc gal	70 0.018	←	←	SAE30(CD)
Upper roller	cc gal	60 0.02	←	←	SAE30(CD)
Front idler	cc gal	80 0.02	←	←	SAE30(CD)
Fuel tank	L gal	40 10.6	46.5 12.30	←	

Inspection of hydraulic oil

When checking the hydraulic oil level, satisfy the following conditions and make sure the oil level is above the center the oil gauge.


The oil level is within the shaded area shown in the figure at left.

1) Oil temp. should be between 10 ~ 30 °C, 50 ~ 86 °F.
2) Stance of front attachment :
   Swing : Straight forward
   Arm : Vertical to the ground
   Bucket : On the ground at its bottom
   Dozer blade : Down to the ground



3)Air breather hose is connected to the oil tank. (Not pressurized type.)

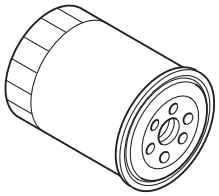
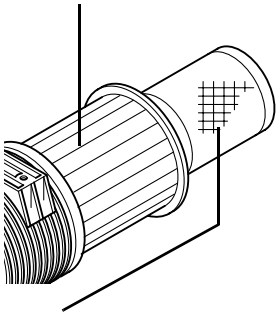
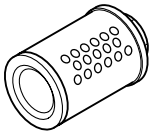
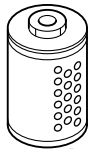
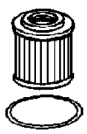
H.Recommended oil

IMPORTANT:

1. Before delivery the hydraulic oil used was an ISO 46 viscosity grade.
2. Use engine oil API service classification CD, CE or CF.
3. Use SAE 90 (API, CLA/GL5) as drive unit oil for all seasons.

	Application	Viscosity	Shell	Mobil	Exxon	MIL-Standard
Engine oil	In winter or by low temperatures	SAE 10W	Shell Rotella T10W Shell Rimula 10W	Mobil Delvac 1310	XD-3 10W XD-3 Extra 10W	MIL-L-2104C MIL-L-2104D
		SAE 20W	Shell Rotella T20W-2 Shell Rimula 20W-2	Mobil Delvac 1320	XD-3 20W-20 XD-3 Extra 20W-20	
	In summer or by high ambient temperatures	SAE 30	Shell Rotella T30 Shell Rimula 30	Mobil Delvac 1330	XD-3 30 XD-3 Extra 30	
		SAE 40	Shell Rotella T40 Shell Rimula 40	Mobil Delvac 1340	XD-3 40 XD-3 Extra 40	
		SAE 50	Shell Rotella 50	Mobil Delvac 1350		
	All-Season Engine oil	Multi-purpose	Shell Rotella T15W		XD-3 15W-40 XD-3 Extra 15W-40	
Gear oil	In winter or by low temperatures	SAE 75		Mobilube HD80W-90		MIL-L-2105C
			Shell Oil S8643			
		SAE 80		Mobilube HD80W-90		
			Shell Spirax HD80W			
	In summer or by high ambient temperatures	SAE 90		Mobilube 46		MIL-L-2105
			Shell Spirax HD90	Mobilube HD80W-90		MIL-L-2105C
		SAE 140		Mobilube HD85W-140		MIL-L-2105C
			Shell Spirax HD140	Mobilube HD80W-140		MIL-L-2105C
	All-weather gear oil	Multi-purpose	Shell Spirax HD80W Shell Spirax HD85W	Mobilube HD80W-90	GX80W-90	MIL-L-2105C
Hydraulic oil	In winter or by low temperatures	ISO 32	Shell Tellus T32	Mobil DTE-Oil 13	NUTO H32	
		ISO 46	Shell Tellus T46	Mobil DTE-Oil 15	NUTO H46	
	In summer or by high ambient temperatures	ISO 68	Shell Tellus T68	Mobil DTE-Oil 16	NUTO H68	
Grease			Shell Alvania EP2	Mobilux EP2	BEACON Q2	
Fuel			Light oil No. 2-D (ASTM D975)			
Fuel under -5 °C (+23 °F)			Light oil No. 1-D (ASTM D975)			

I. Filters

Name & Fig.	Specifications item	KX91-3, 101-3, **U35, U35-3**	Remarks
Engine oil filter 	Cartridge code No.	1C020-32430	
	Percolation area	0.29 m^2	
	Percolation grade		
	Relief valve setting	$1.0^{+0.3}_{-0.1}$ kgf/cm^2	
	Element material	Paper	
		15 kgf/cm^2	
Air cleaner, outer  Air clreaner, inner	Outer filter code No.	T0270-16320	
	Percolation area	1 m^2	
	Percolation grade		
	Element material	Paper	
	Inner element code No.	T0270-93220	
	Percolation area	262 cm^2	
	Percolation grade	250 mesh	
	Element material	SUS 304	
Fuel filter 	Element code No.	RA211-51280	
	Filtering area	800 cm^2	
	Percolating grade	15 ± 5 μ at 0.4l/min	
Suction filter 	Strainer code No.	68773-6221-0	KBM-make : 69481-62211
	Percolation area		
	Percolation grade	150 mesh (105 μ)	
	Screen material	BSW2-1/2H	
Return filter 	Filter code No.	68651-62120	KBM-make : RG518-62131
	Percolation area	4400 cm^2	
	Percolation grade	10 μ	
	Pressure loss	0.6 kgf/cm^2 <	
	Relief valve setting	1.0 ± 0.15 kgf/cm^2	
	Burst pressure in new	6 kgf/cm^2 <	
	Element material	Filter paper	
			KBM-make : RG518-62640
Pilot filter 	Element kit code No.	RD401-61270	
	Filtering rate	10 μ	
	Durable pressure	70 kgf/cm^2	
	Valve setting pressure	1.5 kgf/cm^2	

J. Tightening torque

a. 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

b. 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

c. 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	

d. 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	

e. 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

f. Types and materials of bolts and nuts

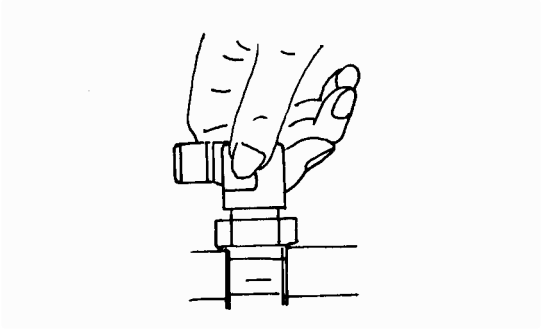
[ex. bolts]

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

g. Washer-equipped elbow

Tightening torque

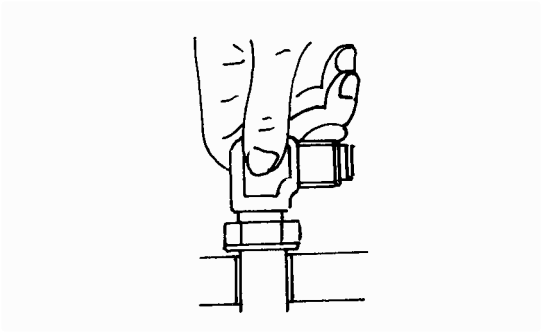
Size	N·m	kgf·m	ft·lbs
G1/4	25 ~ 30	2.5 ~ 3.0	18 ~ 22
G3/8	49 ~ 54	5.0 ~ 5.5	36 ~ 40
G1/2	59 ~ 64	6.0 ~ 6.5	43 ~ 47
G3/4 G1	118 ~ 127	12.0 ~ 13.0	87 ~ 94



Tightening procedure

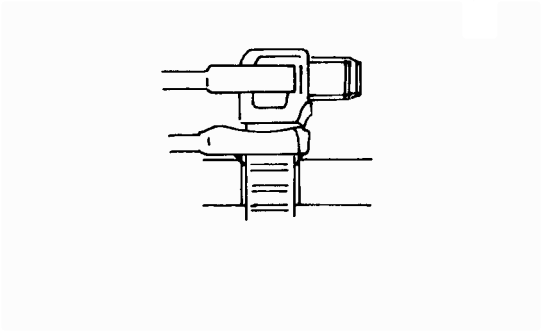
1) Connecting with the valve
   - Screw in the elbow by hand until the washer comes into contact.

Note: Clean up hte mating seal boforehand.



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)

K.Machine Quality Specifications

U35 : KTC, KCL ; U35-3: KTA ; U35-3: KE, KDG, KUK

Machine specification:Service port, Wrist rest, STD-arm, KBT-cab, KBT-bucket

No		Specifications Items			Unit	U35(KTC, KCL) U35-3(KTA)	U35-3 (EU)	Remarks
Q1	Main Spec. JIS A8404							
1	1	Machine size	Total length (Transport)		mm	4695 ± 94	4865 ± 95	
					inch	184.8 ± 3.7	191.5 ± 3.7	
	2		Total width		mm	1700 ± 17	←	
					inch	66.9 ± 0.7	←	
	3		Total height (Canopy)		mm	2440 ± 24	←	
					inch	96 ± 0.9	←	
	4		Total height (Cabin)		mm	2440 ± 24	←	
					inch	96.1 ± 0.9	←	
2	1	Weight	Machine weight (Canopy)		kg	3560 ± 71	3490 ± 70	Fuel tank
					lbs	7848.4 ± 156.6	7694.1 ± 154.3	
	2		Machine weight (Cabin)		kg	3660 ± 73	3590 ± 72	
					lbs	8068.8 ± 160.9	7914.5 ± 158.7	
3	1	Performance	Swivel speed	L	rpm	9.0 ± 0.9	8.9 ± 0.9	
	2			R	rpm	9.0 ± 0.9	8.9 ± 0.9	
	3		Travel speed	Rubber F1	km/h	3.0 ± 0.3	←	
					mph	1.86 ± 0.19	←	
	4			Rubber F2	km/h	4.6 ± 0.5	←	
					mph	2.86 ± 0.31	←	
	5			Iron F1	km/h	2.9 ± 0.3	←	
					mph	1.80 ± 0.19	←	
	6			Iron F2	km/h	4.6 ± 0.5	←	
					mph	2.86 ± 0.31	←	
	7		Gradeability		deg	30	30	
4	1	Rear end min. turning radius			mm	850 ± 17	←	
					inch	33.5 ± 0.7	←	
	2	Swivel frame rear ground clearance			mm	525 ± 11	←	
					inch	20.7 ± 0.4	←	
	3	Tambler center distance			mm	1670 ± 50	←	
					inch	65.7 ± 2.0	←	
	4	Crawler total length			mm	2100 ± 63	←	
					inch	82.7 ± 2.5	←	
	5	Crawler total width			mm	1700 ± 34	←	
					inch	66.9 ± 1.3	←	
	6	Min. ground clearance			mm	285 ± 9	←	
					inch	11.2 ± 0.4	←	
5	1	Front attachment	Bucket heaped capacity	CECE	m^3	-	0.093	
					yd^3	-	0.122	
	2			SAE, JIS	m^3	0.1	-	
					yd^3	0.13	-	
	3		Bucket width		mm	555 ± 12	550 ± 11	Without side cutter
					inch	21.9 ± 0.5	21.7 ± 0.4	
	4		Swing angle	Canopy L	deg	70 ± 2	←	
	5			Canopy R	deg	50 ± 2	←	
	6			Cabin L	deg			
	7			Cabin R	deg			

No		Specifications Items			Unit	U35(KTC, KCL) U35-3(KTA)	U35-3 (EU)	Remarks
5	8	Front attachment	Max. digging radius		mm	5755 ± 79	5410 ± 81	
					inch	226.6 ± 3.1	213.0 ± 3.2	
	9		Ground level Max. digging radius		mm	5140 ± 77	5300 ± 80	
					inch	202.4 ± 3.0	208.7 ± 3.1	
	10		Ground level Min. finish radius		mm	1755 ± 35		Bucket bottom horizontal
					inch	69.1 ± 1.4		
	11		Max. digging depth		mm	3115 ± 62	3140 ± 63	
					inch	122.6 ± 2.4	123.6 ± 2.5	
	12		Max. vertical digging depth		mm	2185 ± 44	2340 ± 47	
					inch	86.0 ± 1.7	92.1 ± 1.9	
	13		Max. digging height	Conopy	mm	4890 ± 98	4830 ± 97	
					inch	192.5 ± 3.9	190.2 ± 3.8	
	14			Cabin	mm	4660 ± 93	4830 ± 97	
					inch	183.5 ± 3.7	190.2 ± 3.8	
	15		Max. dump height	Conopy	mm	3470 ± 69	3455 ± 69	
					inch	136.6 ± 2.7	136.0 ± 2.7	
	16			Cabin	mm	3265 ± 65	3455 ± 69	
					inch	128.5 ± 2.6	136.0 ± 2.7	
	17		Max. dump height (Arm vertical)	Conopy	mm	1230 ± 37	1255 ± 38	
					inch	48.4 ± 1.5	49.4 ± 1.5	
	18			Cabin	mm	1125 ± 34	1255 ± 38	
					inch	44.3 ± 1.3	49.4 ± 1.5	
	19		Mini. turning radius	Conopy	mm	2065 ± 62	2255 ± 68	
					inch	81.3 ± 2.4	88.8 ± 2.7	
	20			Cabin	mm	2190 ± 66	2255 ± 68	
					inch	86.2 ± 2.6	88.8 ± 2.7	
	21		Mini. turning radius (Left swing)	Conopy	mm	-	-	
					inch	-	-	
	22			Cabin	mm	-	±	
					inch	-	±	
6	1	Dozer	Width		mm	1700 ± 5	←	
					inch	66.9 ± 0.2	←	
	2		Height		mm	335 ± 25	←	
					inch	13.2 ± 1.0	←	
	3		Max. lift above GL		mm	360 ± 25	370 ± 26	
					inch	14.2 ± 1.0	14.6 ± 1.0	
	4		Max. below GL		mm	340 ± 24	370 ± 26	
					inch	13.4 ± 0.9	14.6 ± 1.0	
Q2	Main Specs JIS A8404							
1	1	Bucket tooth slagging			mm	70 >	←	F = 30 kgf
					inch	2.8 >	←	
	2	Tilt amount of front attachment			mm	10 >	←	
					inch	0.4 >	←	
	3	Dozer's declination			mm	10 >	←	
					inch	0.4 >	←	
2	1	Distance from tooth tip to cylinder protector			mm	72 ± 25	←	
					inch	2.8 ± 1.0	←	
3	1	Approach angle			deg	31.4 ± 3.5	←	

No		Specifications Items			Unit	U35(KTC, KCL) U35-3(KTA)	U35-3 (EU)	Remarks
4	1	Crawler height			mm	420 ± 8	←	Include grouser on the spocket
					inch	16.54 ± 0.31	←	
	2	Max. crawler height			mm	450 ± 9	←	
					inch	17.72 ± 0.35	←	
Q3	Engine performance							
1	1	Max, engine rpm	no load		rpm	2550 >	←	
	2		Gear pump	1 pump relief	rpm	-	-	
	3			2 pump relief	rpm	-	-	
	4			3 pump relief	rpm	-	-	Boom, arm, swivel
	5		Variable pump	2 pump relief	rpm	2300 <	←	
	6			Dozer+2 pump relief	rpm	2100 <	←	
2	1	Idleing rpm			rpm	1050 ± 5	←	
Q4	Travelling performance							
1	1	Travel motor block performance	L		mm	300 >	←	20 deg, 10 min Engine stop Oil temp..50 ± 5 °C
					inch	11.81 >	←	
	2	Travel motor block performance	R		mm(inch)	300 >	←	
					inch	11.81 >	←	
2	1	Max, Traction force	F1		kgf	2766	←	Slip. 70% of theoretical traction force.
					kN	27.1	←	
					lbs	6098	←	
	2		F2		kgf	1546	←	Relief. 60% of theoretical traction force.
					kN	15.2	←	
					lbs		←	
3	1	Travel straightness	F1		mm	600 >	←	10m distance
					inch	23.62 >	←	
	2		F2		mm	600 >	←	
					inch	23.62 >	←	
	3		Dozer F1		mm	600 >	←	Dozer up & down 10m distance
					inch	23.62 >	←	
	4		Dozer R1		mm	600 >	←	
					inch	23.62 >	←	
4	1	Track shoe sag distance	Iron		mm	75 ~ 80	←	Iron. Tread to tread.
					inch	2.95 ~ 3.15	←	
	2		Rubber		mm	10 ~ 5	←	Rubber. Tread to tread.
					inch	0.39 ~ 0.20	←	
Q5	Work performance							
1	1	Boom lifting capacity			kgf	575	670	Front end, Arm extend bucket crowd, dozer down.
					kN	5.6	6.6	
					lbw	1267.7	1477.1	
	2	Arm digging force			kgf	1878	1870	Bucket tooth root Arm length : U35 = mm U35-3 =
					kN	18.4	18.3	
					lbw	4140.3	4122.6	
	3	Bucket digging force			kgf	3176	3180	Machine stance to JIS bucket tooth root
					kN	31.1	31.2	
					lbw	7001.9	7010.7	
	4	Dozer force		down	kgf	2838	2835	Cutting edge down force at ground level
					kN	27.8	27.8	
					lbw	6256.7	6250.1	

No		Specifications Items			Unit	U35(KTC, KCL) U35-3(KTA)	U35-3 (EU)	Remarks
2	1	Boom speed	Canopy	up 1st	sec	2.4 ± 0.3	2.5 ± 0.3	Oil temp. 50 ± 5 °C (122 ± 41 °F) Ground to max. height (exculude cushioning)
	2			up 2nd	sec	-	-	
	3			down	sec	3.0 ± 0.3	3.1 ± 0.3	
	4			down	sec	-	-	
	5		Cabine	up (G → T)	sec	-	2.5 ± 0.3	
	6			up (L → T)	sec	-	-	
	7			down (T → G)	sec	-	3.1 ± 0.3	
	8			down (T → L)	sec	-	-	
3	1	Arm speed		crowd	sec	3.1 ± 0.3	3.3 ± 0.3	
	2			extend	sec	2.7 ± 0.3	2.8 ± 0.3	
4	1	Bucket speed		crowd	sec	2.6 ± 0.3	2.7 ± 0.3	Oil temp. 50 ± 5 °C (122 ± 41 °F)
	2			dump	sec	1.7 ± 0.3	1.9 ± 0.3	
5	1	Dozer speed		up (G → T)	sec			Ground to max. up
	2			up (L → T)	sec	2.2 ± 0.3	2.1 ± 0.3	Max. down to max. up
	3			down (T → G)	sec	-	-	Max.up to ground
	4			down (T → L)	sec	2.9 ± 0.3	2.9 ± 0.3	Max. up to max. down
6	1	Arm cylinder cavitation			mm	5 >	←	Oil temp. 1300 rpm 95 ± 5 °C(203 ± 41 °F) Bucket heaped.
					inch	0.20 >	←	
7	1	Max. digging height radius	Canopy		mm	2800	-	
					inch	110.24	-	
	2		Cabine		mm	3215 ± 322	3250 ± 325	
					inch	126.57 ± 12.68	127.95 ± 12.8	
	3	Max. dump height radius	Canopy		mm	2285 ± 137	32950 ± 198	at bucket pin
					inch	89.96 ± 5.39	1297.24 ± 7.80	
	4		Cabine		mm	2555 ± 153	-	
					inch	100.59 ± 6.02	-	
	5	Bucket bottom height at arm vertical	Canopy		mm	1525 ± 46	1543 ± 54	Bucket horizontal
					inch	60.04 ± 1.87	60.75 ± 2.13	
	6		Cabine		mm	1415 ± 42	1885 + 57	
					inch	55.71 ± 1.65	74.21 + 2.2	
	7	Bucket wrist angle			degree	-	182	
Q6	Swivel, swing performance							
1	1	Swivel torque		L	kgf·m	738	←	Arm extend Quick operation Engine Max. rpm oil temp. 50 ± 5 °C
					kN·m	7.2	←	
					ft·lbs	5338	←	
	2	Swivel torque		R	kgf·m	738	←	
					kN.m	7.2	←	
					ft·lbs	5338	←	
2	1	Swivel angle		L	deg	15 <	16 <	Bucket load=JIS heaped×1.8
	2			R	deg	15 <	16 <	
3	1	Swivel block performance	Engine stops	L	deg	5 >	←	Engine stop
	2			R	deg	5 >	←	
	3		Engine runs	L	deg	30 >	30 >	Engine idle rpm. Loading
	4			R	deg	30 >	30 >	
4	1	Swivel start-up speed		L	sec	2.5 ± 0.3	2.5 ± 0.3	0~90 deg swivel
	2			R	sec	2.5 ± 0.3	2.5 ± 0.3	
5	1	Swing speed	Canopy	L	sec	5.8 ± 0.3	5.9 ± 0.3	Boom, arm : horizontal bucket crowd. No load. Engine Max. rpm.
	2			R	sec	5.8 ± 0.3	5.9 ± 0.3	
	3		Cabine	L	sec	-	-	
	4			R	sec	-	-	

No		Specifications Items			Unit	U35(KTC, KCL) U35-3(KTA)	U35-3 (EU)	Remarks
6	1	Swing Lock		Swivel R&L	mm	10 >	←	90 deg-swivel, 100 times actual digging cylinder dislocation
					inch	0.39 >	←	
	2	Reciprocating motion	L / R	Swing	mm			90 deg-swivel, 100 times
					inch			
Q7	Hydraulic performance							
1	1	Relief pressure setting		P1	kgf/cm^2	255 ± 5	←	At pump deliery port including back pressure. Oil temp. 50 ± 5 °C
					MPa	25.0 ± 0.5	←	
					bar	2.5 ± 0.05	←	
					psi	3627 ± 71	←	
	2			P2	kgf/cm^2	255 ± 5	←	
					MPa	25.0 ± 0.5	←	
					bar	2.5 ± 0.05	←	
					psi	3627 ± 71	←	
	3			P3	kgf/cm^2	207 ± 5	210 ±	
					MPa	20.3 ± 0.5	20.6 ± 0.5	
					bar	2.0 ± 0.05	-	
					psi	2944 ± 71	-	
	4			P4	kgf/cm^2	40 +3, -0	←	
					MPa	3.9 +0.3, -0	←	
					bar	3.9 +0.03,. -0	←	
					psi	569 +43, -0	←	
2	1	Cylinder oil sealing capacity	Boom	50 ± 5 °C	mm	6 >	←	Arm extend, bucket, crowd, boom up, heaped capacity 10 min. Engine stop
				(122 ± 41°F)	inch	0.24 >	←	
	2			95 ± 5 °C	mm	6 >	←	
				(203 ± 41°F)	inch	0.24 >	←	
	3		Arm	50 ± 5 °C	mm	14 >	←	height 1m, 10 min.
				(122 ± 41°F)	inch	0.55 >	←	
	4		Bucket	50 ± 5 °C	mm	25 >	←	Bucket load=JIS heaped×1.8
				(122 ± 41°F)	inch	0.98 >	←	
	5		Dozer	50 ± 5 °C	mm	20	←	Arm vertical, dozer down
				(122 ± 41°F)	inch	0.79	←	
3	1	Boom cushioning performance		30 °C(86 °F)	sec	3 >	←	
	2			50 °C(122 °F)	sec	0.4 ~ 1.3	←	
	3			80 °C(176 °F)	sec	0.3 <	←	
Q8	Lever operating force & stroke							
1	1	Boom lever operating force		up	kgf	1.7 ± 1.0	1.5 ± 1.0	Measuring point : 20 mm lower from lever tip. Pilot system : Engine max. rpm.
					N	17 ± 10	15 ± 10	
					lbs	12.3 ± 7.2	10.8 ± 7.2	
	2			down	kgf	1.4 ± 1.0	1.5 ± 1.0	
					N	14 ± 9.8	15 ± 9.8	
					lbs	10.1 ± 7.2	10.8 ± 7.2	
	3	Arm lever		crowd	kgf	1.7 ± 1.0	1.5 ± 0.5	
					N	17 ± 10	15 ± 5	
					lbs	12.3 ± 7.2	10.3 ± 3.7	
	4			extend	kgf	1.4 ± 1.0	1.5 ± 0.5	
					N	14 ± 10	15 ± 5	
					lbs	10.1 ± 7.2	10.8 ± 3.7	

No		Specifications Items			Unit	U35(KTC, KCL) U35-3(KTA)	U35-3 (EU)	Remarks
1	5	Bucket lever		crowd	kgf	1.2 ± 1.0	1.5 ± 0.5	Dump & crowd
					N	12 ± 10	15 ± 5	
					lbs	8.7 ± 7.2	10.8 ± 3.7	
	6			extend	kgf	1.2 ± 1.0	1.5 ± 0.5	
					N	12 ± 10	15 ± 5	
					lbs	8.7 ± 7.2	10.8 ± 7.2	
	7	Swivel (Swing) lever		R	kgf	1.2 ± 1.0	1.5 ± 0.5	Left & right
					N	12 ± 10	15 ± 5	
					lbs	8.7 ± 7.2	10.8 ± 3.7	
	8			L	kgf	1.2 ± 1.0	1.5 ± 0.5	
					N	12 ± 10	15 ± 5	
					lbs	8.7 ± 7.2	10.8 ± 3.7	
	9	Dozer lever		up	kgf	2.0 ± 0.5	2.40 ± 0.5	Up & down
					N	20 ± 5	240 ± 5	
					lbs	14.5 ± 3.7	14.5 ± 3.7	
	10			down	kgf	2.0 ± 0.5	2.0 ± 0.5	
					N	20 ± 5	20 ± 5	
					lbs	14.5 ± 3.7	14.5 ± 3.7	
	11	Travel lever	L	Forward	kgf	1.8 ± 0.5	1.6 ± 0.5	
					N	18 ± 5	16 ± 5	
					lbs	13.0 ± 3.7	11.6 ± 3.7	
	12			Back	kgf	1.8 ± 0.5	1.6 ± 0.5	
					N	18 ± 5	16 ± 5	
					lbs	13.0 ± 3.7	11.6 ± 3.7	
	13		R	Forward	kgf	1.8 ± 0.5	1.6 ± 0.5	
					N	18 ± 5	16 ± 5	
					lbs	13.0 ± 3.7	11.6 ± 3.7	
	14			Back	kgf	1.8 ± 0.5	1.6 ± 0.5	
					N	18 ± 5	16 ± 5	
					lbs	13.0 ± 3.7	11.6 ± 13.7	
	15	Accelerator lever		up	kgf	5.0 ± 1.0	-	U35-3 EU version has electric accel. dial.
					N	49 ± 10	-	
					lbs	36.2 ± 7.4	-	
	16			down	kgf	5.0 ± 1.0	-	
					N	49 ± 10	-	
					lbs	36.2 ± 7.4	-	
	17	Swing pedal		R	kgf	5.0 ± 1.0	6.4 ± 1.0	
					N	49 ± 10	63 ± 10	
					lbs	36.2 ± 7.4	46.3 ± 7.4	
	18			L	kgf	5.0 ± 1.0	6.4 ± 1.0	
					N	49 ± 10	63 ± 10	
					lbs	36.2 ± 7.4	46.3 ± 7.4	
	19	Safety lock lever	R	up	kgf	0.8 ± 0.2	0.6 ± 0.2	Up & down
					N	8 ± 2	6 ± 2	
					lbs	5.8 ± 1.4	4.3 ± 1.4	
	20			down	kgf	0.8 ± 0.2	0.6 ± 0.2	
					N	8 ± 2	6 ± 2	
					lbs	5.8 ± 1.4	4.3 ± 1.4	

No		Specifications Items			Unit	U35(KTC, KCL) U35-3(KTA)	U35-3 (EU)	Remarks
1	21	Safety lock lever	L	up	kgf	2.7 ± 1.0	←	Up & down
					N	26 ± 10	←	
					lbs	19.5 ± 7.4	←	
	22			down	kgf	6.0 ± 1.0	←	
					N	59 ± 10	←	
					lbs	43.4 ± 7.4	←	
	23	Travel Hi-Lo change			kgf	1.5 ± 0.5	←	
					N	15 ± 5	←	
					lbs	10.8 ± 3.6	←	
2	1	Boom lever stroke		up	mm	110 ± 10	72 ± 10	
					inch	4.33 ± 0.39	2.83 ± 0.39	
	2			down	mm	110 ± 10	72 ± 10	
					inch	4.33 ± 0.39	2.83 ± 0.39	
	3	Arm lever stroke		crowd	mm	110 ± 10	72 ± 10	
					inch	4.33 ± 0.39	2.83 ± 0.39	
	4			extend	mm	110 ± 10	72 ± 10	
					inch	4.33 ± 0.39	2.83 ± 0.39	
	5	Bucket lever stroke		crowd	mm	85 ± 10	75 ± 10	
					inch	3.35 ± 0.39	2.95 ± 0.39	
	6	Bucket lever stroke		extend	mm	85 ± 10	75 ± 10	
					inch	3.35 ± 0.39	2.95 ± 0.39	
	7	Swivel lever stroke		R	mm	85 ± 10	75 ± 10	
					inch	3.35 ± 0.39	2.95 ± 0.39	
	8			L	mm	85 ± 10	75 ± 10	
					inch	3.35 ± 0.39	2.95 ± 0.39	
	9	Dozer lever stroke		up	mm	55 ± 10	←	
					inch	2.17 ± 0.39	←	
	10			down	mm	55 ± 10	←	
					inch	2.17 ± 0.39	←	
	11	Travel lever stroke	L	Forward	mm	73 ± 10	←	
					inch	2.17 ± 0.39	←	
	12			Back	mm	73 ± 10	←	
					inch	2.17 ± 0.39	←	
	13		R	Forward	mm	73 ± 10	←	
					inch	2.87 ± 0.39	←	
	14			Back	mm	73 ± 10	←	
					inch	2.87 ± 0.39	←	
	15	Accel. lever			mm	55 ± 10	←	
					inch	2.17 ± 0.39	←	
Q9	Stability							
1	1	Standard arm, Dynamic operation load limit	Bucket load to 10 degrees tipping	Side, dozer up	kgf	-	-	Arm extend, bucket crowd oil temp.50 ± 5 °C (122 ± 41 °F)
					N	-	-	
					lbs	-	-	
	2			Front, dozer up	kgf			
					N	-	-	
					lbs	-	-	
	3		Bucket load to tip fully	Side, dozer up	kgf	-	-	
					N	-	-	
					lbs	-	-	
	4			Front, dozer up	kgf	-	-	
					N	-	-	
					lbs	-	-	

No		Specifications Items			Unit	U35(KTC, KCL) U35-3(KTA)	U35-3 (EU)	Remarks
1	5	Standard arm, static limited load	Bucket load to tip fully	Side	kgf	430	415	
					N	4217	4070	
					lbs	3110	3002	
	6			Front	kgf	450	440	
					N	4413	4315	
					lbs	3255	3182	
	1	Long arm, Dynamic operation load limit	Bucket load to 10 degrees tipping	Side, dozer up	kgf			Arm extend, bucket crowd oil temp.50 ± 5 °C (122 ± 41 °F)
					N			
					lbs			
	2			Front, dozer up	kgf			
					N			
					lbs			
	3		Bucket load to tip fully	Side, dozer up	kgf			
					N			
					lbs			
	4			Front, dozer up	kgf			
					N			
					lbs			
	5	Long arm, static limited load	Bucket load to tip fully	Side	kgf			
					N			
					lbs			
	6			Front	kgf			
					N			
					lbs			
Q10	Comfortability							
1	1	Noise level	At operator's ear LPA	Canopy	db(A)	80 >	←	
	2			Cab	db(A)	80 >	←	
	3		Noise source;LWA	7m	db(A)			
	4				db(A)	95 >		

Compatibility Table of main components between U35, U35-3. and KX91-3, 101-3

- Compatibility sign : KTC, KCL, KTA-version=●——● KE, KDG, KUK-version=○——○
- KTC, KCL, KTA version has non-AI type. AI (Auto Idle) version is standard for EU market.

U45-3 is for KE,KDG,KUK and KTA.

No.	Components name	KX91-3	**U35, U35-3**	KX101-3	Remarks
MB-1	Bucket	●——●	●——○	○——○	
2	Bucket link	●——● ○——○	●——○	○——○	
3	Arm		○——○	○——○	
4	Boom	●——●	●——○	○——○	
5	Swing bracket	●——● ○——○	●——○	○——○	
6	Dozer blade	○——○	○——○	○——○	
7	Track frame				
8	Idler assy	●——● ○——○	●——○	○——○	
9	Grease cylinder assy	●——● ○——○	●——○	○——○	
10	Idler spring assy	●——● ○——○	●——○	○——○	
11	Track roller assy	●——● ○——○	●——○	○——○	
12	Upper roller assy	●——● ○——○	●——○	○——○	
13	Rubber track	● ○	●——○	○——○	
14	Iron track	● ○	●——○	○——○	
15	Sprocket	●——● ○——○	●——○	○——○	
16	Swivel frame	○——○	○——○	○——○	
17	Swivel bearing	●——● ○——○	●——○	○——○	
18	Counterweight				
19	Seat assy	○——○	○——○	○——○	
20	Rops canopy	○——○	○——○	○——○	
21	Cab assy	○——○	○——○	○——○	
		●——● ○——○	●——○	○——○	
EN-1	Engine assy	●——●	●——○	○——○	
2	Oil filter	●——● ○——○	●——○	○——○	
3	Engine fan	●——● ○——○	●——○	○——○	
4	Radiator assy	●——● ○——○	●——○	○——○	
5	Air cleaner	●——● ○——○	●——○	○——○	
6	Muffler	●——● ○——○	●——○	○——○	
7	Fuel filter	●——● ○——○	●——○	○——○	
8	Fuel tank	○——○	○——○	○——○	
9	Coupling flange	●——● ○——○	●——○	○——○	
10	Pump housing	●——● ○——○	●——○	○——○	

U45-3 is for KE,KDG,KUK and KTA.

No.	Components name	KX91-3	**U35, U35-3**	KX101-3	Remarks
HY-1	Main pump assy				
2	Pilot pump assy				
3	Drive motor assy				
4	Swivel motor assy				
5	Rotary joint				
6	Hydraulic oil tank				
7	Suction filter				
8	Return filter				
9	Control valve assy				
10	Change valve assy				
11	TPSS valve assy				
12	Pilot valve assy				
13	Oil cooler				
14	Boom cylinder				
15	Arm cylinder				
16	Bucket cylinder				
17	Dozer cylinder				
18	Swing cylinder				
19	Travel lock cylinder				
EL-1	Battery				
2	Alternator assy				
3	Starter motor assy				
4	Fuel sensor				
5	Auto release controller				
6	Meter assy(Non AI)				
7	Meter assy (AI)				
8	Wire harness(Non AI)				
9	Wire harness(AI)				
10	AI controller				
11	AI pressure switch				
12	Engine oil pressure SW				
13	Engine speed sensor				
14	Heater assy				
15	Engine stop solenoid				
16	Fuel pump				
17	Auto glow controller				

II. Machine Body