

TL140

Crawler Loader

BOOK No. **CT9E003**

WORKSHOP MANUAL

Serial No. **21400011~**

TAKEUCHI

NOTICE OF REVISIONS

Revisions in this edition are indicated by the following symbols in the list of revisions below. Please follow the following instructions.

Symbol	Explanation	Treatment
A	Added Page	Insert
R	Revised Page	Replace
X	Abolished Page	Discard

Rev. 3

Symbol	Page	Rev.	Symbol	Page	Rev.	Symbol	Page	Rev.	Symbol	Page	Rev.	Symbol	Page	Rev.
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R	0-2	3	R	III-3	3	R	III-33-1	3		III-65	1		IV-4	
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	0-4		A	III-3-2	3		III-34	1		III-67	1		IV-6	
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FOREWORD

This manual is intended for persons who engage in maintenance operations, and explains procedures for disassembly and reassembly of the machine, check and maintenance procedures, maintenance reference values, troubleshooting and outline specifications, etc. Please use this manual as a reference in service activities to improve maintenance techniques.

Further, please be advised that items contained in this manual are subject to change without notice due to design modifications, etc.

MACHINE FRONT AND REAR, LEFT AND RIGHT

The end where the bucket is mounted is the front and the end with the travel motors is the rear. Also the right and left sides of the operator when he is seated in the driver's seat are the right and left sides of the machine.

MACHINE SERIAL NUMBER

The machine serial number is stamped on the identification plate. When sending reports and inquiries, and when ordering parts, etc., be sure to include this number.

MANUAL CONTROL

Information on those to whom this manual is distributed is recorded in the ledger in the section in charge at this company, so please decide on a person to be in charge of it and control it. When there are updates or additions, etc., we will notify the person in charge.

- I . GENERAL**
- II . SPECIFICATIONS**
- III. MACHINE CONFIGURATION**
- IV. HYDRAULIC UNITS**
- V . TROUBLESHOOTING**
- VI. ENGINE**

I . GENERAL

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SAFETY PRECAUTIONS



SAFETY ALERT SYMBOL

This symbol means Attention! Be Alert! Your Safety Is Involved.

The message that follows the symbol contains important information about safety.

Read and understand the message to avoid personal injury or death.

■ SIGNAL WORDS

Safety messages appearing in this manual and on machine decals are identified by the words “DANGER”, “WARNING” and “CAUTION”. These signal words mean the following:

 DANGER
The word “DANGER” indicates an imminently hazardous situation which, if not avoided, can result in serious injury or death.

 WARNING
The word “WARNING” indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.

 CAUTION
The word “CAUTION” indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

IMPORTANT: The word “IMPORTANT” is used to alert against operators and maintenance personnel about situations which can result in possible damage to the machine and its components.

This manual is intended for trained and qualified personnel only. Warnings or cautions described in this manual do not necessarily cover all safety measures. For maintenance work, each person must take adequate safety precautions against possible hazards present in the respective working environment.

Observe all safety rules

- Operation, inspection and maintenance of this machine must be performed only by a trained and qualified person.
- All rules, regulations, precautions and safety procedures must be understood and followed when performing operation, inspection and maintenance of this machine.
- Do not perform any operation, inspection and maintenance of this machine when under the adverse influence of alcohol, drugs, medication, fatigue, or insufficient sleep.



E3A040

Wear appropriate clothing and personal protective equipment

- Do not wear loose clothing or any accessory that can catch on controls or in moving parts.
- Do not wear oily or fuel stained clothing that can catch fire.

- Wear a hard hat, safety shoes, safety glasses, filter mask, heavy gloves, ear protection and other protective equipment as required by job conditions. Wear required appropriate equipment such as safety glasses and filter mask when using grinders, hammers or compressed air, as metal fragments or other objects can fly and cause serious personal injury.
- Use hearing protection when operating the machine. Loud prolonged noise can cause hearing impairments, even the total loss of hearing.

Provide a fire extinguisher and first aid kit



E3A080

- Know where a fire extinguisher and first aid kit are located and understand how to use them.
- Know how to contact emergency assistance and first aid help.

Attach a “DO NOT OPERATE” tag

Severe injury could result if an unauthorized person should start the engine or touch controls during inspection or maintenance.

- Stop the engine and remove the key before performing maintenance.
- Attach a “DO NOT OPERATE” tag to the starter switch or control lever.

Use the correct tools



E3A530

Do not use damaged or weakened tools or tools designed for other purposes. Use tools suited for the operation at hand.

Replace important safety parts periodically

- Replace fuel hoses periodically. Fuel hoses become weaker over time, even if they appear to be in good shape.
- Replace important safety parts whenever an irregularity is found, even if it is before the normal time for replacement.

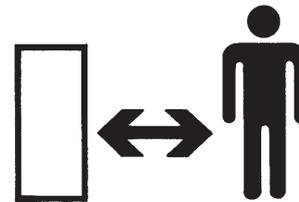
Anti-explosive lighting



E3A550

Use anti-explosive electrical fixtures and lights when inspecting fuel, oil, coolant, battery fluid, etc. If lighting that is not anti-explosive should break, the substance could ignite, resulting in serious injury or death.

Do not allow unauthorized personnel in the work area

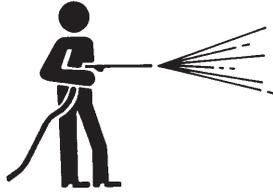


E3A140

Do not allow unauthorized personnel in the work area. Chips or other debris can fly off machine parts when grinding, welding or using a hammer.

Prepare the work area

- Select a firm, level work area. Make sure there is adequate light and, if indoors, ventilation.
- Clear obstacles and dangerous objects. Eliminate slippery areas.

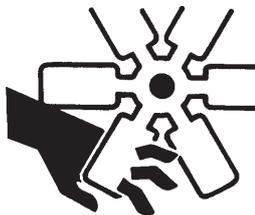
Always clean the machine

E3A580

- Clean the machine before performing maintenance.
- Cover electrical parts when washing the machine. Water on electrical parts could cause short-circuits or malfunctions. Do not use water or steam to wash the battery, sensors, connectors or the operator's seat area.

Stop the engine before performing maintenance

- Avoid lubrication or mechanical adjustments with the machine in motion or with the engine running while stationary.
- If maintenance must be performed with the engine running, always work as a 2-person team with one person sitting in the operator's seat while the other works on the machine.
 - When performing maintenance, be sure to keep your body and clothing away from moving parts.

Stay clear of moving parts

E3A630

- Stay clear of all rotating and moving parts. Wrapping or entanglement may result in serious injury or death.
- Keep hands, clothing and tools away from the rotating fan and running fan belts.

Securely block the machine or any component that may fall

E3A570

- Before performing maintenance or repairs under the machine, set all working equipment against the ground or in the lowermost position.
- Securely block the tracks.
- If you must work beneath the raised machine or equipment, always use wood blocks, jack-stands or other rigid and stable supports. Never get under the machine or working equipment if they are not sufficiently supported. This procedure is especially important when working on hydraulic cylinders.

Securely block the working equipment

To prevent unexpected movement, securely block the working equipment when repairing or replacing the cutting edges or bucket teeth.

Secure the engine hood or cover when opened

Be sure to secure the engine hood or cover when opening it. Do not open the engine hood or cover on slopes or in strong wind.

Place heavy objects in a stable position

E3A560

When removing or installing the hoe attachment, place it in a stable position so that it does not tip over.

Cautions on working on the machine



L3A005

- When performing maintenance on the machine, clean up the foot area and strictly observe the following so as not to fall:
 - Do not spill oil or grease.
 - Do not leave tools laying around.
 - When walking, watch your step.
- Never jump off the machine. Use the steps and handrails when climbing on and off the machine, and always support your body at three points with your hands and feet.
- Use protective equipment as required by job conditions.

Use caution when fueling



E3A100

- Do not smoke or permit open flames while fueling or near fueling operations.
- Never remove the fuel cap or refuel with the engine running or hot. Never allow fuel to spill on hot machine components.
- Maintain control of the fuel filler nozzle when filling the tank.
- Do not fill the fuel tank to capacity. Allow room for expansion.
- Clean up spilled fuel immediately.
- Tighten the fuel tank cap securely. Should the fuel cap be lost, replace it only with the original manufacturer's approved cap. Use of a non-approved cap without proper venting may result in pressurization of the tank.
- Never use fuel for cleaning purposes.
- Use the correct fuel grade for the operating season.

Handling of hoses

Fuel, oil or hydraulic fluid leaks can cause a fire.

- Do not twist, bend or hit the hoses.
- Never use twisted, bent or cracked hoses, tubes and pipes. They may burst.
- Retighten loose connections.

Be careful with hot and pressurized components



E3A110

Stop the engine and allow the machine to cool down before performing inspection and maintenance.

- The engine, muffler, radiator, hydraulic lines, sliding parts and many other parts of the machine are hot directly after the engine is stopped. Touching these parts will cause burns.
- The engine coolant, oil and hydraulic fluid are also hot and under high pressure. Be careful when loosening caps and plugs. Working on the machine under these conditions could result in burns or injuries due to the hot oil spurted out.

Be careful with hot cooling systems



E3A540

Do not remove the radiator cap or drain plugs when the coolant is hot. Stop the engine, let the engine and radiator cool and loosen the radiator cap or drain plugs slowly.

Be careful with fluids under pressure



E3A600

Pressure can be maintained in the hydraulic circuit long after the engine has been shut down.

- Release all pressure before working on the hydraulic system.
- Hydraulic fluid under pressure can penetrate the skin or eyes and cause injury, blindness or death. Fluid escaping from a small hole can be almost invisible. Wear a safety goggles and heavy gloves and use a piece of cardboard or wood to search for suspected leaks.

If fluid is injected into the skin, it must be removed within a few hours by a doctor familiar with this type of injury.

Release all pressure before working on the hydraulic system

Oil may spurt out if caps or filters are removed or pipes disconnected before releasing the pressure in the hydraulic system.

- Gradually loosen the vent plug to relieve tank pressure.
- Move all the control levers and pedals several times in all directions to release the pressure from the working equipment circuitry. (For link type controls)
- When removing plugs or screws or disconnecting hoses, stand to the side and loosen slowly to gradually release the internal pressure before removing.

Handling of the Accumulator



N0A005

High pressure nitrogen gas is enclosed in the accumulator and incorrect handling could possibly bring about serious injury due to explosion. The following matters should be strictly observed:

- Do not disassemble.
- Do not bring close to fire or throw into a fire.
- Do not make hole, weld, or fuse.
- Do not subject to shock such as hitting or rolling.
- At time of disposal, it will be necessary to release the enclosed gas. Please contact a sales or service agent.

Be careful with grease under pressure



E3A6201

The track adjuster contains highly pressurized grease. If the tension is adjusted without following the prescribed procedure, the grease discharge valve may fly off, resulting in injury.

- Loosen the grease discharge valve slowly. Do not unfasten it more than one full turn.
- Do not put your face, arms, legs or body in front of the grease discharge valve.

Disconnect the battery



E3A590

Disconnect the battery before working on the electrical system or doing any welding. Remove the negative (-) battery cable first. When reconnecting the battery, connect the negative (-) battery cable last.

Avoid battery hazards

- Batteries contain sulfuric acid which will damage eyes or skin on contact.
 - If acid contacts eyes, flush immediately with clean water and get prompt medical attention.
 - If acid is accidentally swallowed, drink large quantities of water or milk and call a physician immediately.
 - If acid contacts skin or clothing, wash off immediately with clean water.
- Wear safety glasses and gloves when working with batteries.
- Batteries generate flammable and explosive gases. Keep arcs, sparks, flames and lighted tobacco away.
- Use a flashlight to check battery electrolyte level.
- Stop the engine and shut off electrical equipment while inspecting or handling the battery.
- Do not short circuit the battery posts with metal items.
- Always unfasten the negative (–) battery cable first when disconnecting the battery cable. Always connect the negative (–) battery cable last when fastening the battery cable.
- Loose battery terminals may result in sparks. Be sure to fasten terminals tightly.
- Make sure the vent caps are tightened securely.
- Do not charge a battery or jump-start the engine if the battery is frozen. Warm to 15°C (60°F) or the battery may explode.

Have a service agent repair welding cracks or other damage

Ask a service agent to repair any welding problems which are detected. If not feasible, make sure the welding is done by a qualified person in a properly equipped workplace.

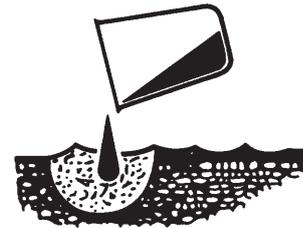
Safety signs

- Keep all safety signs clean and legible.
- Replace all missing, illegible or damaged safety and warning signs.

Checks after maintenance

- Gradually raise the engine speed from a low idle to maximum speed and check that no oil or air is leaking from serviced parts.
- Move the controls and check that the machine is operating properly.

Disposing of wastes

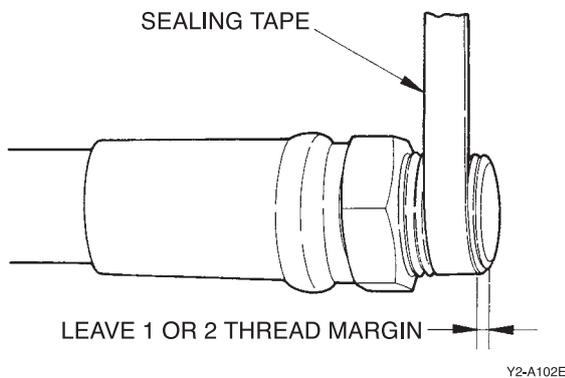


E3A640

- Funnel spent fluids from the machine into containers. Disposing of fluids improperly destroys the environment.
- Follow the prescribed regulations when disposing of oil, fuel, engine coolant, refrigerant, solvents, filters, batteries or other harmful substances.

CAUTIONS DURING DISASSEMBLY AND ASSEMBLY

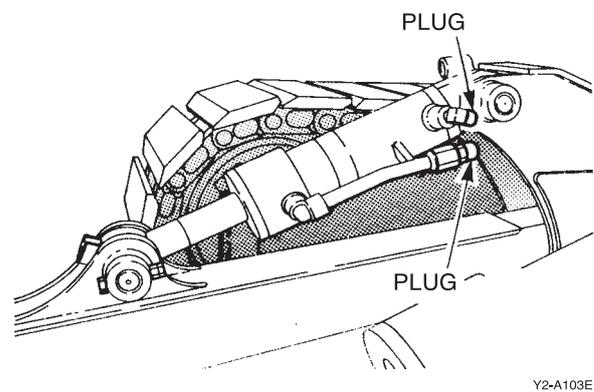
1. Clean the machine before disassembly operation.
2. Before disassembly, check the machine conditions and record them.
 - Model, Machine Serial Number, Hourmeter
 - Reason for Repairs, Repair History
 - Dirtiness of Filters
 - Fuel and Oil Conditions
 - Damage to each parts, etc.
3. To make reassembly operations easy, make matching marks at the necessary points.
4. Clean all disassembled parts and new parts, then arrange them in the proper sequence.
5. Be sure to replace all seals and cotter pins, etc., with new parts.
6. Keep parts which should not come in contact with oil and water separate from parts with oil on them.
 - Electrical Parts, Rubber, V-Belts, etc.
7. When installing bearings, bushings and oil seals, as a rule, use a press. When a hammer, etc., is used, it leaves bruises.
8. Wipe all joining surfaces clean so that there is no dirt or dust adhering to them.
9. Wrap seal tape from the front end, Wrapping it tight and leaving 1 or 2 threads bare, Overlap the tape by about 10 mm.



10. When fitting the snap rings, the bigger, rounder side of their circumferences should face the mating surfaces.

CAUTIONS DURING REMOVAL AND INSTALLATION OF THE HYDRAULIC UNITS

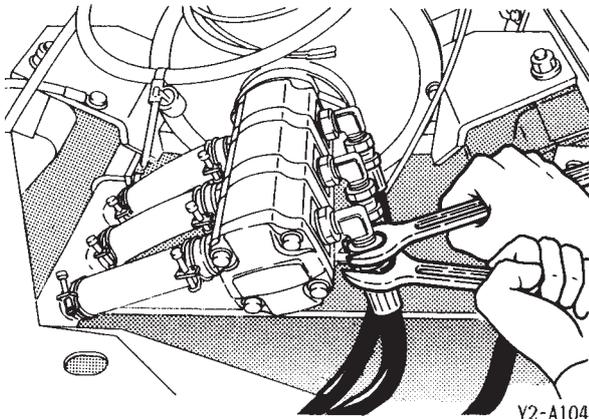
1. Make sure that the temperature of the hydraulic oil has dropped.
2. To prevent a loss of flow of the hydraulic oil, the residual pressure in the piping and the internal pressure in the hydraulic tank should be released.
3. Be sure to install caps or plugs on all openings in the hydraulic unit to prevent dirt from getting into the unit through the openings.



4. It is easy to mistake hydraulic oil adhering to the hydraulic unit for an oil leak, so wipe the unit off thoroughly.
5. Be sure that no damage is done to the plating on the rod in the hydraulic cylinder.
6. As a rule, removal and installation of the hydraulic cylinder should be done with the rod fully retracted.
7. Be sure to bleed the air after replacing the hydraulic oil or removing any of the hydraulic devices.
 - ☞ “III. Machine Configuration, Hydraulic System”

CAUTIONS DURING REMOVAL AND INSTALLATION OF PIPING

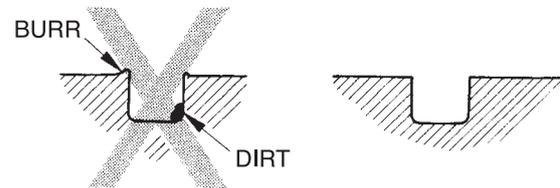
- When hydraulic hoses are installed, tighten them once to the prescribed torque, then loosen them slightly and retighten them to the prescribed torque.
 - Tighten the fittings after the installation surfaces fit snugly together.
 - Pieces wrapped with seal tape are excluded.
- Use 2 spanners, each on an opposite side, to remove and tighten fittings so that the hoses or steel pipes are not twisted.



- After installation of hydraulic hoses or steel pipes, apply the maximum working pressure 5 or 6 times and confirm that there is no leakage.

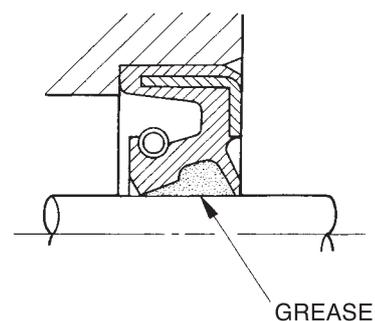
HANDLING OF SEALS

- Clean the grooves for O-rings and if there is any burr, etc., remove it.



Y2-A105E

- Be careful not to twist O-rings. If an O-ring is twisted, remove the twist with the fingertips.
- During insertion, be careful not to damage the seal.
- Handling of Floating Seals
 - Wipe all oil off the O-ring and housing of the floating seal.
 - When assembling, apply a thin coating of gear oil to the contact surface of the housing.
 - After assembly, turn the seal 2 or 3 times to get it to fit snugly.
- Apply grease to the lip of the oil seal.
 - This is to prevent wear when it is first started up after assembly.

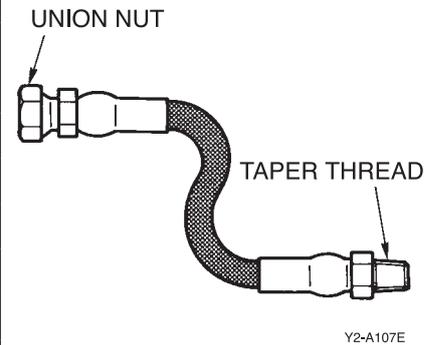


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TIGHTENING TORQUES

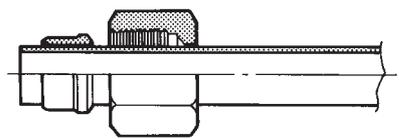
Hydraulic Hoses

Hose Fitting Size	Torque			
	Union Nut (G)		Taper Thread (R)	
	N·m	ft-lb	N·m	ft-lb
1/8	9.8 ^{+4.9} ₀	7.3 ^{+3.5} ₀	11.8 ±1.2	8.7 ±0.8
1/4	24.5 ^{+4.9} ₀	18.1 ^{+3.5} ₀	29.4 ±2.9	21.7 ±2.1
3/8	49 ^{+4.9} ₀	36.2 ^{+3.5} ₀	53.9 ±5.4	39.8 ±3.9
1/2	58.8 ^{+4.9} ₀	43.4 ^{+3.5} ₀	88.3 ±8.8	65.1 ±6.4
3/4	117.7 ^{+4.9} ₀	86.8 ^{+3.5} ₀	147.1 ±14.7	108.5 ±10.7
1	137.3 ^{+4.9} ₀	101.3 ^{+3.5} ₀	196.1 ±19.6	144.7 ±14.3



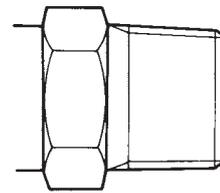
Bite Type Pipe Fitting for Steel Pipe

Pipe Outer Diameter (mm)	Torque	
	N·m	ft-lb
8	34.3 ±4.9	25.3 ±3.5
10	41.7 ±2.5	30.7 ±1.7
12	58.8 ±4.9	43.4 ±3.5
15	88.3 ±4.9	65.1 ±3.5
16	93.2 ±4.9	68.7 ±3.5
18	132.4 ±4.9	97.6 ±3.5
22	205.9 ±9.8	151.8 ±7.2
27.2	245.2 ±9.8	181.0 ±7.2
28	313.8 ±19.6	231.4 ±14.3
32	313.8 ±19.6	231.4 ±14.3
35	411.9 ±19.6	303.7 ±14.3



Joints for Piping

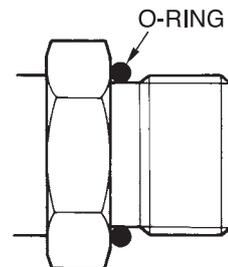
Nominal Thread Diameter (R)	Torque			
	Steel		Cast Steel	
	N·m	ft-lb	N·m	ft-lb
1/8	11.8 ±1.2	8.7 ±0.8	10.8 ±1.1	8.0 ±0.7
1/4	29.4 ±2.9	21.7 ±2.1	24.5 ±2.5	18.1 ±1.7
3/8	53.9 ±5.4	39.8 ±3.9	49 ±4.9	36.2 ±3.5
1/2	88.3 ±8.8	65.1 ±6.4	73.5 ±7.4	54.3 ±5.3
3/4	147.1 ±14.7	108.5 ±10.7	127.5 ±12.7	94.1 ±9.3
1	196.1 ±19.2	144.7 ±14.3	171.6 ±17.2	126.6 ±12.5



Y2-A109

Joints for Piping (O-ring Seal Type)

Nominal Thread Diameter (G)	Torque	
	N·m	ft-lb
1/8	19.6 ±2.0	14.5 ±1.4
1/4	34.3 ±4.9	25.3 ±3.5
3/8	53.9 ±4.9	39.8 ±3.5
1/2	63.7 ±4.9	47.0 ±3.5
3/4	93.2 ±4.9	68.7 ±3.5
1	107.9 ±9.8	79.5 ±7.2
1-1/4	117.7 ±9.8	86.8 ±7.2
1-1/2	137.3 ±9.8	101.2 ±7.2



Y2-A110

Nominal Thread Diameter (UNF)	Torque	
	N·m	ft-lb
7/16-20	16.7 ±2.0	12.3 ±1.4
1/2-20	22.6 ±2.0	16.6 ±1.4
9/16-18	31.4 ±2.9	23.1 ±2.1
3/4-16	59.8 ±4.9	44.1 ±3.5
1-1/16-12	102.0 ±5.9	75.2 ±4.4
1-5/16-12	135.3 ±7.8	99.8 ±5.8
1-5/8-12	181.4 ±9.8	133.8 ±7.2

Bolts and Nuts (for ISO Strength Category 10.9)

Thread	Size × Pitch	Torque					
		General Tightening Points			Special Tightening Points		
		N·m	kgf·m	ft-lb	N·m	kgf·m	ft-lb
Coarse	M 6 × 1.0	9.8 ±0.5	1.0 ±0.05	7.2 ±0.4	11.8 ±0.6	1.2 ±0.06	8.7 ±0.4
	M 8 × 1.25	22.6 ±1.1	2.3 ±0.11	16.6 ±0.8	26.5 ±1.3	2.7 ±0.13	19.5 ±0.9
	M10 × 1.5	47.1 ±2.4	4.8 ±0.24	34.7 ±1.7	54.9 ±2.7	5.6 ±0.28	40.5 ±2.0
	M12 × 1.75	83.4 ±4.1	8.5 ±0.42	61.5 ±3.0	97.1 ±4.8	9.9 ±0.49	71.6 ±3.5
	M14 × 2.0	134.4 ±6.7	13.7 ±0.68	99.1 ±4.9	155.9 ±7.7	15.9 ±0.79	115.0 ±5.7
	M16 × 2.0	207.9 ±10.4	21.2 ±1.06	153.3 ±7.7	241.2 ±12.1	24.6 ±1.23	177.9 ±8.9
	M20 × 2.5	410.9 ±20.5	41.9 ±2.09	303.1 ±15.1	475.6 ±23.7	48.5 ±2.42	350.8 ±17.5
Fine	M 8 × 1.0	24.5 ±1.2	2.5 ±0.12	18.1 ±0.9	28.4 ±1.4	2.9 ±0.14	21.0 ±1.0
	M10 × 1.25	50.0 ±2.5	5.1 ±0.25	36.9 ±1.8	58.8 ±2.9	6.0 ±0.30	43.4 ±2.2
	M12 × 1.5	87.3 ±4.3	8.9 ±0.44	64.4 ±3.2	102.0 ±5.1	10.4 ±0.52	75.2 ±3.8
	M14 × 1.5	135.3 ±6.8	13.8 ±0.69	99.9 ±5.0	157.9 ±7.8	16.1 ±0.80	116.5 ±5.8
	M16 × 1.5	220.6 ±11.0	22.5 ±1.12	162.7 ±8.1	256.0 ±12.7	26.1 ±1.30	188.8 ±9.4
	M20 × 1.5	452.1 ±22.6	46.1 ±2.30	333.4 ±16.6	524.7 ±26.1	53.5 ±2.66	387.0 ±19.2

- General Tightening Points (Non-lubricated)
 - All securing points other than the special tightening points.
- Special Tightening Points (Grease with molybdenum disulfide applied.)
 - Points where particularly necessary due to function.
Special tightening positions and associated instructions are given in the text.
- Points where thread-locking compound is used (Three Bond #1324 is applied.)
Thread-locking compound positions and associated instructions are given in the text.
- If tightening torque values are provided in this manual, then tightening should be done according to those values.
(This indicates that the tightening torque differs from the values given in this table.)
- In order to tighten bolts and nuts evenly, they should be tightened alternately top, bottom, left, right.

II . SPECIFICATIONS

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In regard to Standard Values and Allowable Values

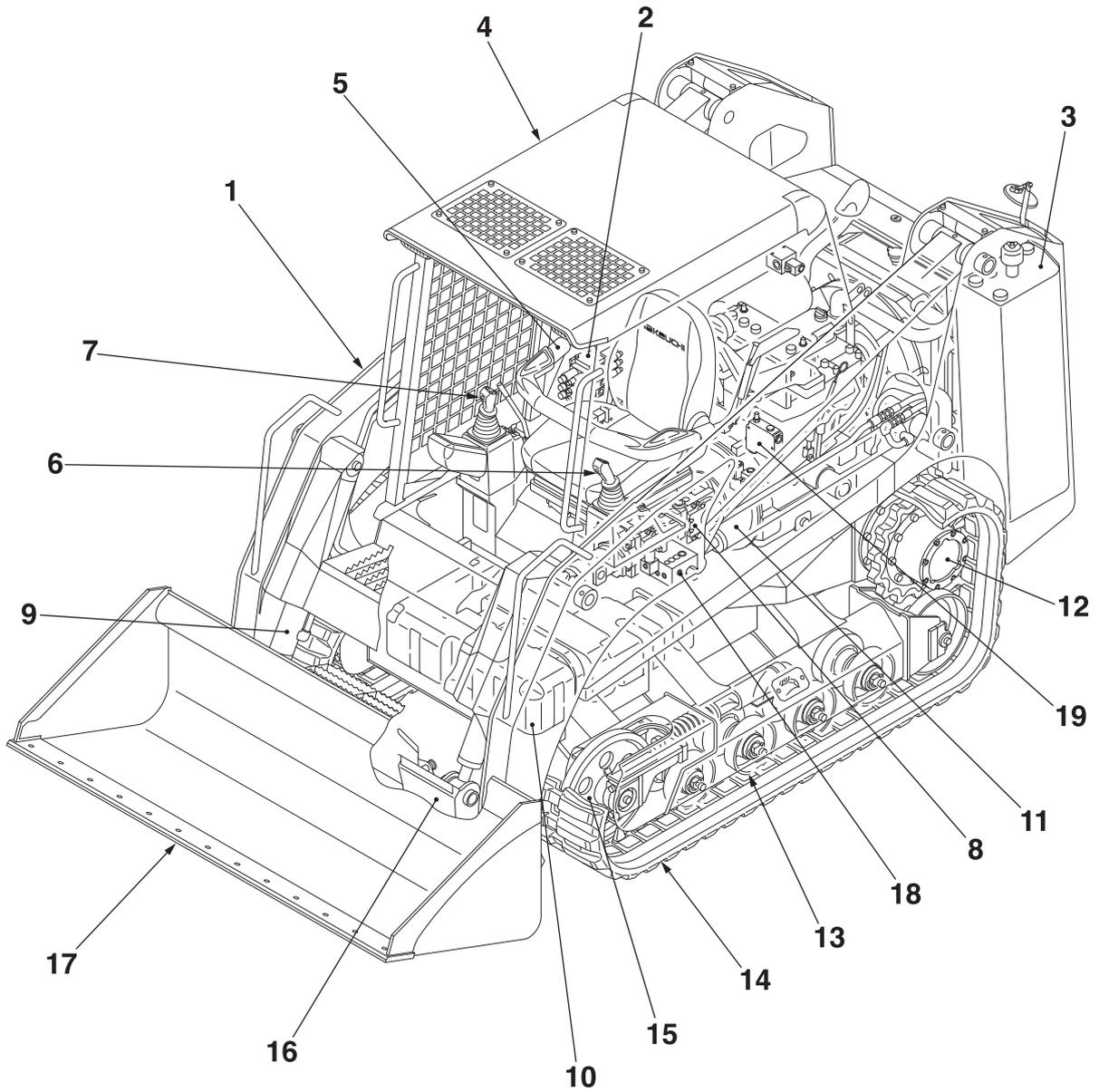
The terms used in the items “Servicing Standards” and “Standards for Judging Performance” have the following meanings.

Standard Value This indicates the standard value for the new machine at the time of shipping from the factory. It should be used as the target value for maintenance work after operation.

Allowable Value..... The dimensions of parts change during use because of wear and deformation. Also, the performance of pumps, motors, and other hydraulic equipment drops, and this is the estimated value indicating the use limit for the respective part. It is decided under reference to the standard at the time of shipping, the results of various tests, etc. As the use conditions, the degree of repairs, etc., differ for each machine, these should be combined and used as reference for servicing standards and standards for judging performance.

* Do not use the standard values and the allowable values as standards for customer claims.

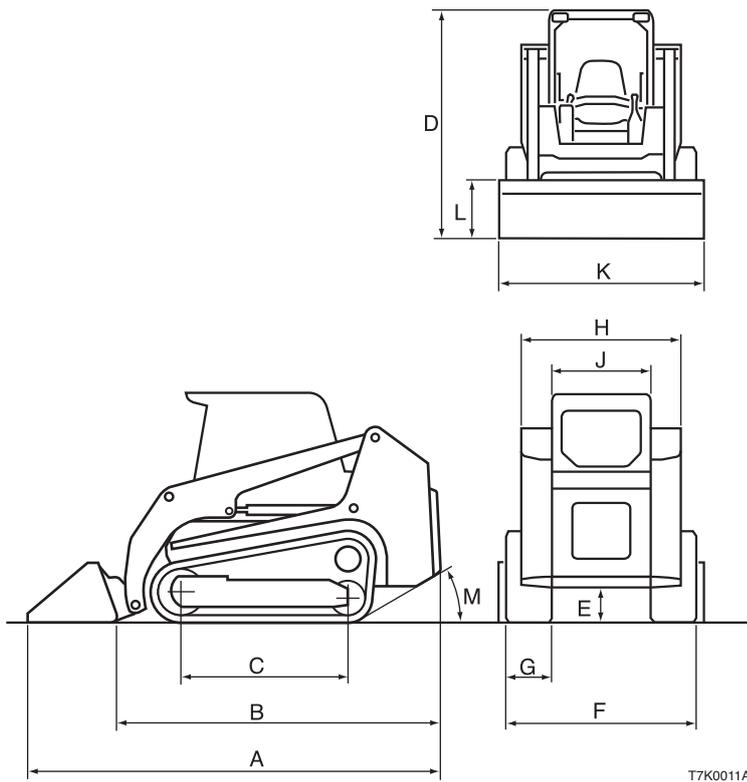
NAMES OF COMPONENTS



T9B001

- | | |
|------------------------|-------------------------|
| 1. Lift Arm | 11. Arm Cylinder |
| 2. Control Valve | 12. Travel Motor |
| 3. Hydraulic Tank | 13. Track Roller |
| 4. Canopy | 14. Crawler Belt |
| 5. Safety Bar | 15. Idler |
| 6. Pilot Valve (L. H.) | 16. Quick Attachment |
| 7. Pilot Valve (R. H.) | 17. Bucket |
| 8. HST Pump | 18. Control Valve (Sub) |
| 9. Bucket Cylinder | 19. Self -Level Valve |
| 10. Fuel Tank | |

DIMENSIONS

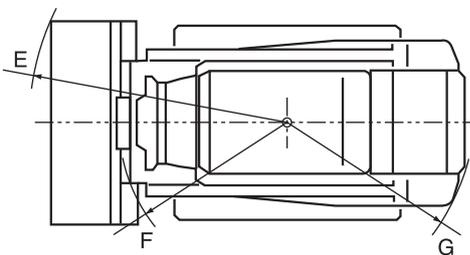


T7K0011A

Machine Dimensions

Unit: mm

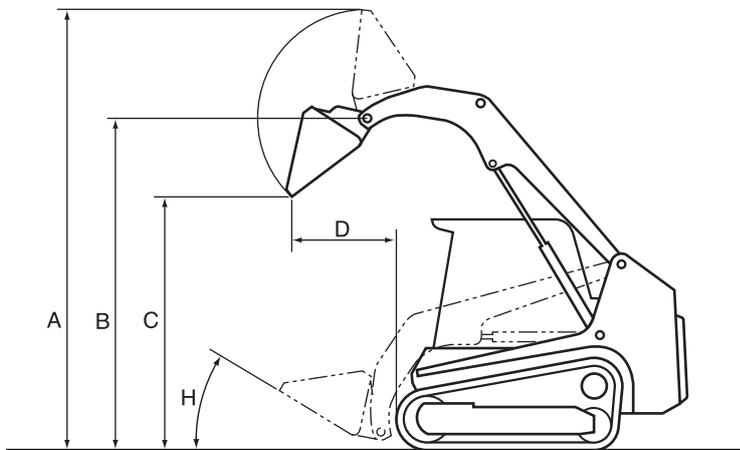
	Standard Bucket
	Rubber Crawler
A	3710
B	2950
C	1495
D	2270
E	325
F	1770
G	450
H	1500
J	985
K	1880
L	535
M	30°



Operating Range

Unit: mm

	Standard Bucket
	Rubber Crawler
A	4080
B	3120
C	2405
D	875
E	2295
F	1500
G	1665
H	31°



T7K0021A

SPECIFICATIONS TABLES**SPECIFICATIONS**

Serial Number		21400011~	
Machine Type		Canopy	Cab
Standard Bucket Capacity			
Rated Capacity	m ³	0.458	←
Struck Capacity	m ³	0.335	←
Machine Mass (not including operator)		kg	4275
Dimensions			
Overall Length:	with bucket	mm	3710
	without bucket	mm	2950
Overall Width:	with bucket	mm	1880
	without bucket	mm	1770
Overall Height		mm	2270
Minimum Ground Clearance		mm	325
Front Clearance Radius:	with bucket	mm	2295
	without bucket	mm	1500
Rear Clearance Radius		mm	1665
Overall Width of Crawler		mm	1770
Bucket Width		mm	1880
Angle of Departure		degree	30
Working Range			
Maximum Lift Height to Bucket Pin		mm	3120
Maximum Dumping Height		mm	2405
Maximum Dump Angle Fully Raised		degree	39
Maximum Bucket Rollback at Ground Level		degree	31
Reach Fully Raised		mm	875
Performance			
Breakout Force		kN	32.9
Travel Speed	1st/2nd	km/h	7.3/10.4
Gradeability		degree	30
Ground Pressure		kPa	28.2
Tipping Load		kg	2700
Cycle Time			
Raise-Full Load (Lift Arm)		Sec.	4.3
Lower-No Load (Lift Arm)		Sec.	2.9
Dump-Full Load (Bucket)		Sec.	3.2
Curl-Full Load (Bucket)		Sec.	2.2

SPECIFICATIONS OF DEVICES

Serial Number	21400011~	
Engine	Isuzu AA-4JG1TPA	
Model	Isuzu AA-4JG1TPA	
Type	4-Cycle, vertical, water-cooled, in-line, 4-cylinder diesel engine	
Number of Cylinders-Bore × Stroke	mm	4-95.4 × 107
Total Displacement	mL	3059
Compression Ratio		18.6
Performance		
Rated Output	kW/min ⁻¹	60.3/2500
Maximum Torque	N·m/min ⁻¹	261.6/1800
Maximum No-load R.P.M.	min ⁻¹	2750 ±25
Minimum No-load R.P.M.	min ⁻¹	1150 ±25
Specific Fuel Consumption	g/kW·h	260
Starter	V-kW	12-2.2
Generator	V-kW	12-0.6
Battery	V-A·h	12-80
HST Pump	PVM4141	
Model	PVM4141	
Type	Variable displacement type double axial piston	
Displacement	cm ³ /rev	35 + 35
Delivery	L/min	87.5 + 87.5
Relief Valve Pressure Setting	MPa	34.5
Charge Relief Valve Pressure Setting	MPa	1.8
Gear Pump	SD1A3016E2H1-R378	
Model	SD1A3016E2H1-R378	
Type	Tandem gear	
Displacement	cm ³ /rev	29.9 + 16.2
Delivery	L/min	74.8 + 40.5
Gear Pump (High Flow)	SGP1A16D2H5-R319	
Model	SGP1A16D2H5-R319	
Type	Gear	
Displacement	cm ³ /rev	16.2
Delivery	L/min	48.6
Control Valve	07813-0001A	
Model	07813-0001A	
Number of Circuits	3	
Main Relief Valve Pressure Setting	MPa@L/min	20.6 @88
Port Relief Valve Pressure Setting	MPa@L/min	23.1 @88
Control Valve (Sub)	07903-0000B	
Model	07903-0000B	
Rated Flow	L/min	41.6
Relief Valve Pressure Setting	MPa@L/min	3.3 @40
Control Valve (High Flow)	07930-0000A	
Model	07930-0000A	
Relief Valve Pressure Setting	MPa@L/min	20.6 @60

Serial Number	21400011~	
Proportional Control Solenoid Valve	2KWE5G-30/G12R-236	
Model	2KWE5G-30/G12R-236	
Number of Solenoids	2	
Solenoid Rated Voltage	V	12
Pilot Valve (R. H.)	21400011~21404476	21404477~
Model	TH40K1282	PV48K1264
Secondary Side Pressure	MPa	0.49~1.96
Operating Angle	: Single (Ports 1, 3) degree	19 ←
	: Single (Ports 2, 4) degree	25 ←
Pilot Valve (L. H.)	TH40K1281	PV48K1263
Model	TH40K1281	PV48K1263
Secondary Side Pressure	MPa	0.49~1.91
Operating Angle: Single	degree	19 ←
	: Simultaneous degree	25 ←
Self-Level Valve	C0755-00700U	
Model	C0755-00700U	
Maximum Flow	L/min	50.4
Rated Pressure	MPa	20.6
Maximum Working Pressure	MPa	23.1
Cylinder		
Arm		
Bore Diameter × Rod Diameter	mm	70 × 40
Stroke	mm	700
Fully Retracted Length (Pitch)	mm	1066
Cushion Mechanism	Both Ends	
Bucket		
Bore Diameter × Rod Diameter	mm	70 × 40
Stroke	mm	520
Fully Retracted Length (Pitch)	mm	820
Cushion Mechanism	—	
Travel Motor	TEIJIN	DAIKIN
Model	TH06VB	BMVT41B
Type	Piston Motor	←
Total Displacement: 1st	cm ³ /rev	1014
2nd	cm ³ /rev	699
Motor Displacement: 1st	cm ³ /rev	36.3
2nd	cm ³ /rev	25.0
Reduction Gear Ratio		27.94
2-Speed Control Pressure	MPa	1.18~6.86
Parking Brake Torque	N·m	235
Parking Brake Release Pressure	MPa	0.78~20.6
Amount of Reduction Gear Lubricant	L	1.1
		2.2

MASS TABLES

UNIT WEIGHT (DRY MASS)

Unit: kg

Serial Number	21400011~	
Engine	260	
Radiator	30	
Radiator and Oil Cooler (High Flow)	38	
Oil Cooler	4	
HST Pump	84	
Gear Pump	7.4	
Hydraulic Tank Assembly	45	
Fuel Tank Assembly	12	
Control Valve	13	
Control Valve (Sub)	13	
Pilot Valve	21400011~21404476	21404477~
: R. H.	5	2.3
: L. H.	4.8	2.3
Self-Level Valve	5.9	
Canopy/Cab	198/241	
Lift Arm	383	
Quick Attachment	84	
Bucket	228	
Arm Cylinder	33 × 2	
Bucket Cylinder	26 × 2	
Crawler Belt	260 × 2	
Travel Motor	86 × 2 (DAIKIN)/72 × 2 (TEIJIN)	
Sprocket	17 × 2	
Track Roller A	21 × 8	
Track Roller B	36 × 2	
Idler	45 × 2	
Track Adjuster	38 × 2	