COMPACT EXCAVATOR

TB045

WORKSHOP MANUAL

SERIAL NUMBER
TB045 : 1453001 ~

07. 98
8595

FOREWORD

This manual is intended for persons who engage in maintenance operations, and explains procedures for disassembly and reassembly procedures for 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 dozer blade is mounted is the front and the end with the track gearboxes 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 inquires, and when ordering parts, etc., be sure to include this number.

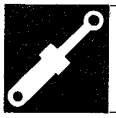
MANUAL CONTROL

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

I. GENERAL

FOREWORD

This section "General", summarizes the basic items which persons servicing the machine should be cautious about, and includes only those items which are essential for safe and correct operation. Please read this section thoroughly and apply it in maintenance operations.

Further, since the contents of this Workshop Manual may change due to future revisions, if you have any opinions or observations concerning this manual, please notify the person responsible.

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Cautions during Disassembly and Assembly 04

Cautions during Removal and Installation of the Hydraulic Units 05

Cautions during Removal and Installation of Piping 06

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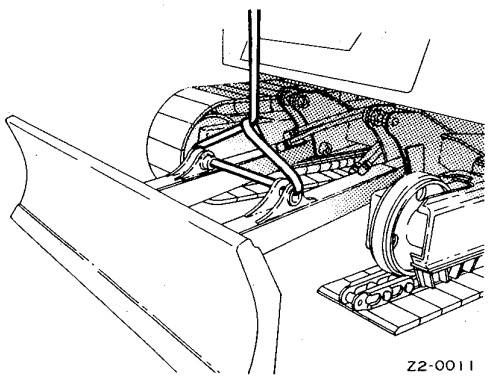
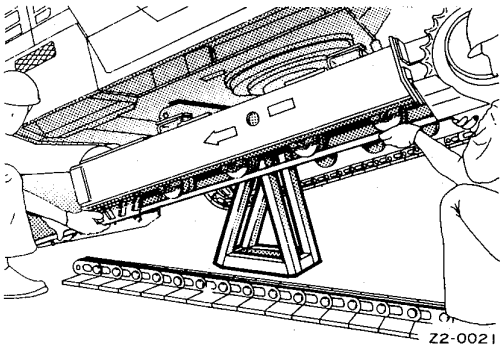
Tightening Torques 08

GENERAL CAUTIONS

1. Wear a helmet, safety shoes and work clothes.
2. Be sure to check equipment and tools, particularly equipment used for hoisting.
3. If more than one person is working together, decide the job and call sign and maintain good communications during operations.
4. Crane operation and hoisting should be done by persons with the proper qualifications.
5. Keep all persons from getting underneath a suspended load.
6. Before removing the installation bolts of heavy parts, support the parts by temporary hoisting using a crane.



7. If lifting a machine with a hoe attachment, etc. and going underneath it, be sure to support it with stands etc.



8. When repairing the electrical system, disconnect the cables from the battery before beginning the operation.
9. When welding the machine, disconnect the battery first.
10. Maintain the standard tightening torques for piping and bolts, etc.
11. After completing repairs, run the engine at low speed, and conduct trial operation after filling it full with operating oil.

CAUTIONS DURING DISASSEMBLY AND ASSEMBLY

1. Clean the machine before disassembly operations.

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 part, etc.

3. To make reassembly operations easy, make matching marks at the necessary points.

4. Clean all disassembled parts and all new parts, then arrange them in the proper sequence.

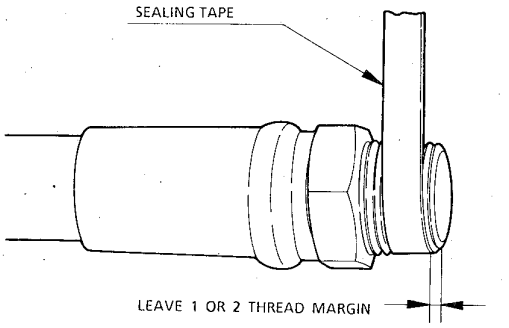
5. Be sure to replace all seals and cotter pins, etc. with new parts.

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.

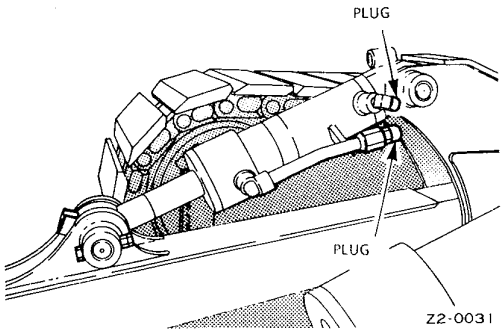


CAUTIONS DURING REMOVAL AND INSTALLATION OF THE HYDRAULIC UNITS

1. Make sure that the hydraulic oil's temperature 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 oil tank should be bled out.

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.



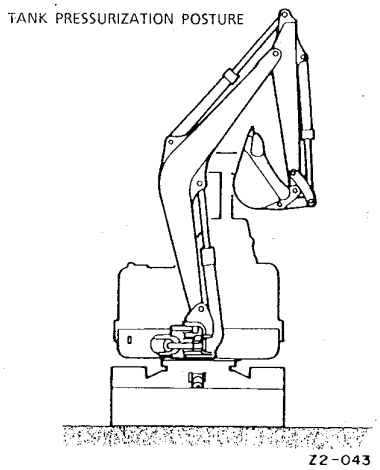
4. It is easy to mistake hydraulic oil adhering to the hydraulic unit for an oil leak, so wipe the unit off throughly.

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. When removing and installing the hydraulic cylinder, be sure to bleed out the air.
(See the item in "IV. Hydraulic Units, Cylinder".)

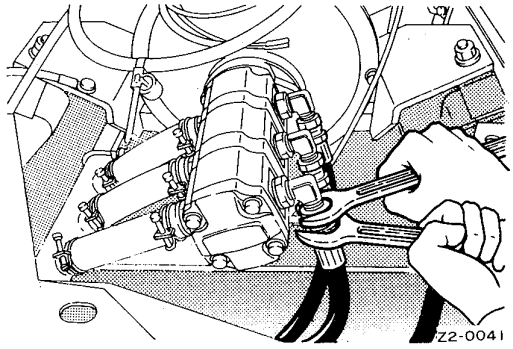
8. After installation of the hydraulic unit, be sure to pressurize the hydraulic oil tank. If this operation is forgotten, it could cause cavitation of the hydraulic pump. Also, it could have a drastic effect on the life of the hydraulic pump.
   - Hydraulic tank prerssurization method :
     Lower the dozer blade until it comes in contact with the ground. Extend all the cylinders fully except the blade cylinder. In this state, tighten the air vent plug to seal the tank tight.



CAUTIONS DURING REMOVAL AND INSTALLATION OF PIPING

1. 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 exlcuded.

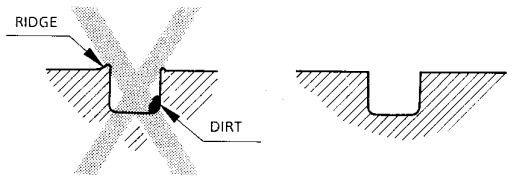
2. Use 2 spanners, each on an opposite side, to remove and tighten fittings so that the hoses or steel pipes are not twisted.



3. 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

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



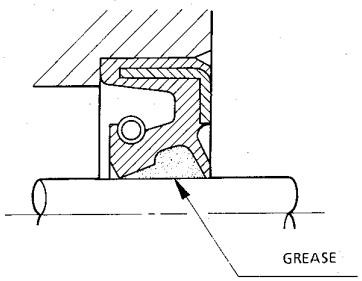
LO-002A

2. Be careful not to twist O-rings. If an O-ring is twisted, remove the twist with the fingertips.

3. During insertion, be careful not to damage the seal.

4. 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.

5. 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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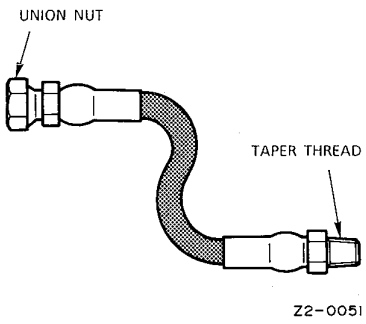
TIGHTENING TORQUES

Hydraulic Hoses

Hose Fitting Size	Torque			
	Union Nut (PF)		Taper Threads (PT)	
	kgf·m	ft-lb	kgf·m	ft-lb
1/8	$1.0^{+0.5}_{0}$	$7.3^{+3.5}_{0}$	$1.2^{\pm 0.12}$	$8.7^{\pm 0.8}$
1/4	$2.5^{+0.5}_{0}$	$18.1^{+3.5}_{0}$	$3.0^{\pm 0.30}$	$21.7^{\pm 2.1}$
3/8	$5.0^{+0.5}_{0}$	$36.2^{+3.5}_{0}$	$5.5^{\pm 0.55}$	$39.8^{\pm 3.9}$
1/2	$6.0^{+0.5}_{0}$	$43.4^{+3.5}_{0}$	$9.0^{\pm 0.90}$	$65.1^{\pm 6.4}$
3/4	$12.0^{+0.5}_{0}$	$86.8^{+3.5}_{0}$	$15.0^{\pm 1.50}$	$108.5^{\pm 10.7}$
1	$14.0^{+0.5}_{0}$	$101.3^{+3.5}_{0}$	$20.0^{\pm 2.00}$	$144.7^{\pm 14.3}$



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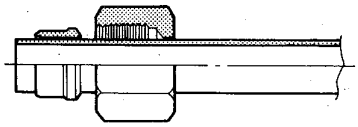
Bite Type Pipe Fitting For Steel Pipe

Pipe Outer Diameter (mm)	Torque	
	kgf·m	ft-lb
8	$3.5^{\pm 0.5}$	$25.3^{\pm 3.5}$
10	$4.25^{\pm 0.25}$	$30.7^{\pm 1.7}$
12	$6.0^{\pm 0.5}$	$43.4^{\pm 3.5}$
15	$9.0^{\pm 0.5}$	$65.1^{\pm 3.5}$
16	$9.5^{\pm 0.5}$	$68.7^{\pm 3.5}$
18	$13.5^{\pm 0.5}$	$97.6^{\pm 3.5}$
22	$21.0^{\pm 1.0}$	$151.8^{\pm 7.2}$
27.2	$25.0^{\pm 1.0}$	$181.0^{\pm 7.2}$
28	$32.0^{\pm 2.0}$	$231.4^{\pm 14.3}$
32	$32.0^{\pm 2.0}$	$231.4^{\pm 14.3}$
35	$42.0^{\pm 2.0}$	$303.7^{\pm 14.3}$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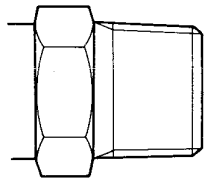
Joints for Piping

Thread Nominal Diameter (PT)	Torque			
	Steel		Cast Steel	
	kgf·m	ft-lb	kgf·m	ft-lb
1/8	$1.2^{\pm 0.12}$	$8.7^{\pm 0.8}$	$1.1^{\pm 0.11}$	$8.0^{\pm 0.7}$
1/4	$3.0^{\pm 0.30}$	$21.7^{\pm 2.1}$	$2.5^{\pm 0.25}$	$18.1^{\pm 1.7}$
3/8	$5.5^{\pm 0.55}$	$39.8^{\pm 3.9}$	$5.0^{\pm 0.50}$	$36.2^{\pm 3.5}$
1/2	$9.0^{\pm 0.90}$	$65.1^{\pm 6.4}$	$7.5^{\pm 0.75}$	$54.3^{\pm 5.3}$
3/4	$15.0^{\pm 1.50}$	$108.5^{\pm 10.7}$	$13.0^{\pm 1.30}$	$94.1^{\pm 9.3}$
1	$20.0^{\pm 2.00}$	$144.7^{\pm 14.3}$	$17.5^{\pm 1.75}$	$126.6^{\pm 12.5}$



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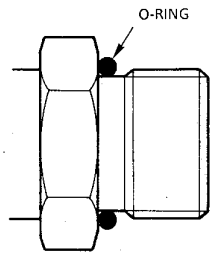
Joints for Piping (O-Ring Seal Type)

Thread Nominal Diameter (PF)	Torque	
	kgf·m	ft-lb
1/8	$2.0^{\pm 0.2}$	$14.5^{\pm 1.4}$
1/4	$3.5^{\pm 0.5}$	$25.3^{\pm 3.5}$
3/8	$5.5^{\pm 0.5}$	$39.8^{\pm 3.5}$
1/2	$6.5^{\pm 0.5}$	$47.0^{\pm 3.5}$
3/4	$9.5^{\pm 0.5}$	$68.7^{\pm 3.5}$
1	$11.0^{\pm 1.0}$	$79.5^{\pm 7.2}$
1-1/4	$12.0^{\pm 1.0}$	$86.8^{\pm 7.2}$
1-1/2	$14.0^{\pm 1.0}$	$101.2^{\pm 7.2}$



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Thread Nominal Diameter (UNF)	Torque	
	kgf·m	ft-lb
7/16-20	$1.7^{\pm 0.2}$	$12.3^{\pm 1.4}$
1/2-20	$2.3^{\pm 0.2}$	$16.6^{\pm 1.4}$
9/16-18	$3.2^{\pm 0.3}$	$23.1^{\pm 2.1}$
3/4-16	$6.1^{\pm 0.5}$	$44.1^{\pm 3.5}$
1-1/16-12	$10.4^{\pm 0.6}$	$75.2^{\pm 4.4}$
1-5/16-12	$13.8^{\pm 0.8}$	$99.8^{\pm 5.8}$
1-5/8-12	$18.5^{\pm 1.0}$	$133.8^{\pm 7.2}$

Bolts and Nuts (for ISO Strength Category 10.9)

Thread	Size × Pitch mm	Torque					
		General Tightening Points			Special Tightening Points		
		N·m	kgf·m	ft-lb	N·m	kgf·m	ft-lb
Coarse	M6 × 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
	M8 × 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	M8 × 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	99.8 ±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

1. General Tightening Points (Non-lubricated)
   - All securing points other than the special tightening points.

2. Special Tightening Points (Grease with molybdenum disulfide applied.)
   - Points where particularly necessary due to function.

   a. Other parts where it is deemed particularly necessary due to the design.

3. Points where thread lock is used (Three Bond #1324 is applied.)
   a. Conections between the slew bearing and lower frame.
   b. Engine foot connections.
   c. Pump coupling connections.
   d. Counterweight tightening position.
   e. Other parts where it is deemed particularly necessary due to the design.

4. 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.)
5. In order to tighten bolts and nuts evenly, they should be tightened alternately top, bottom, left, right.

Ⅱ. SPECIFICATIONS

FOREWORD

This section, "Specifications", includes brief specifications and maintenance standards, etc. for this machine, and is organized around the data required for service operations. Please use this manual in checks of the machine before servicing, checks after servicing and when replacing parts, etc.
We want, through future revisions of this manual, etc. to improve it and make it as complete as we possibly can. We welcome any opinions or suggestions, etc., which you may have that would help us. Please address all comments to the person in charge.

In regard to Standard Values and allowable values
The terms used in the items "Servicing Standards" and "Standatrds for Judging Performance" have the following meanings.

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

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.

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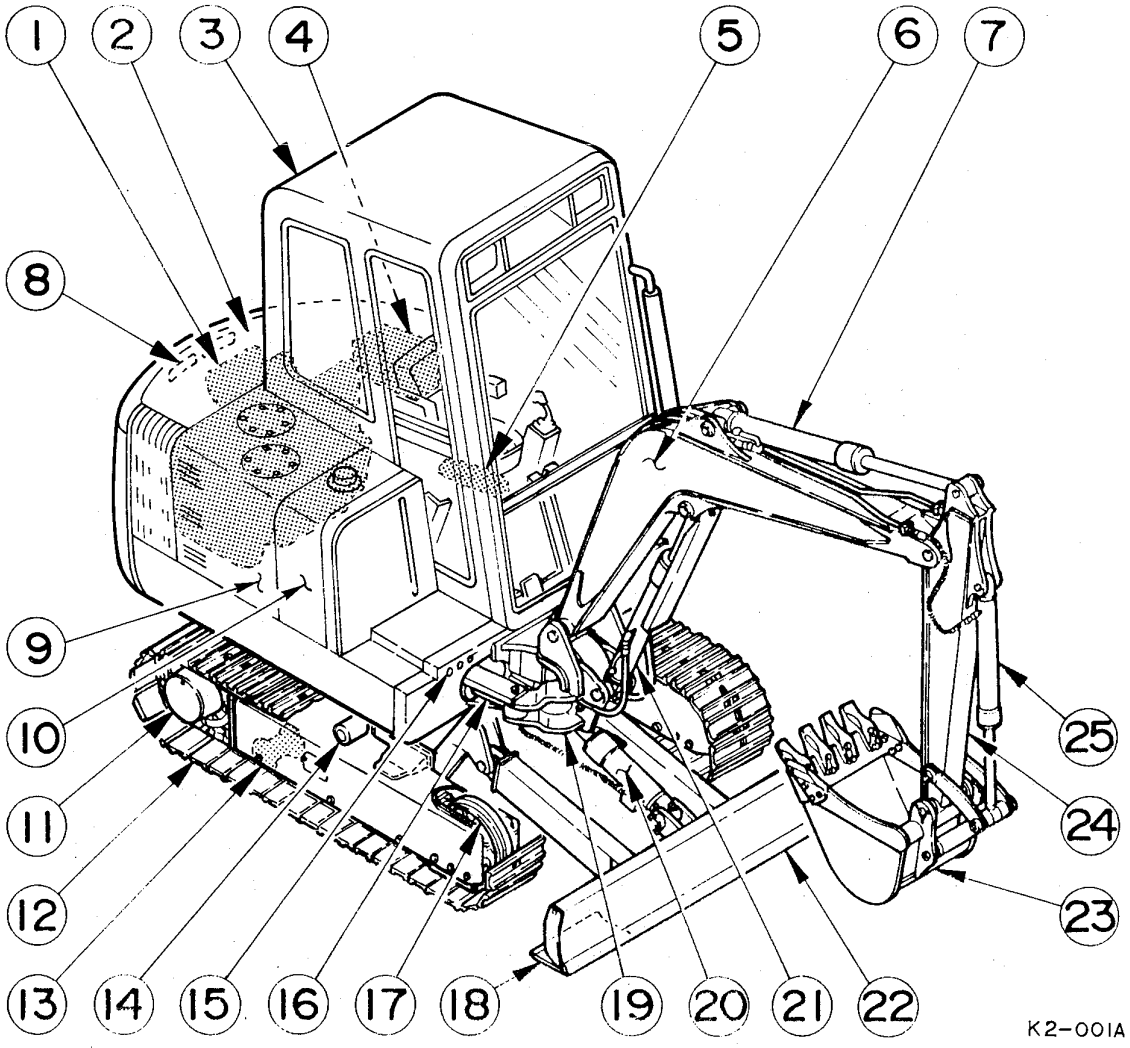
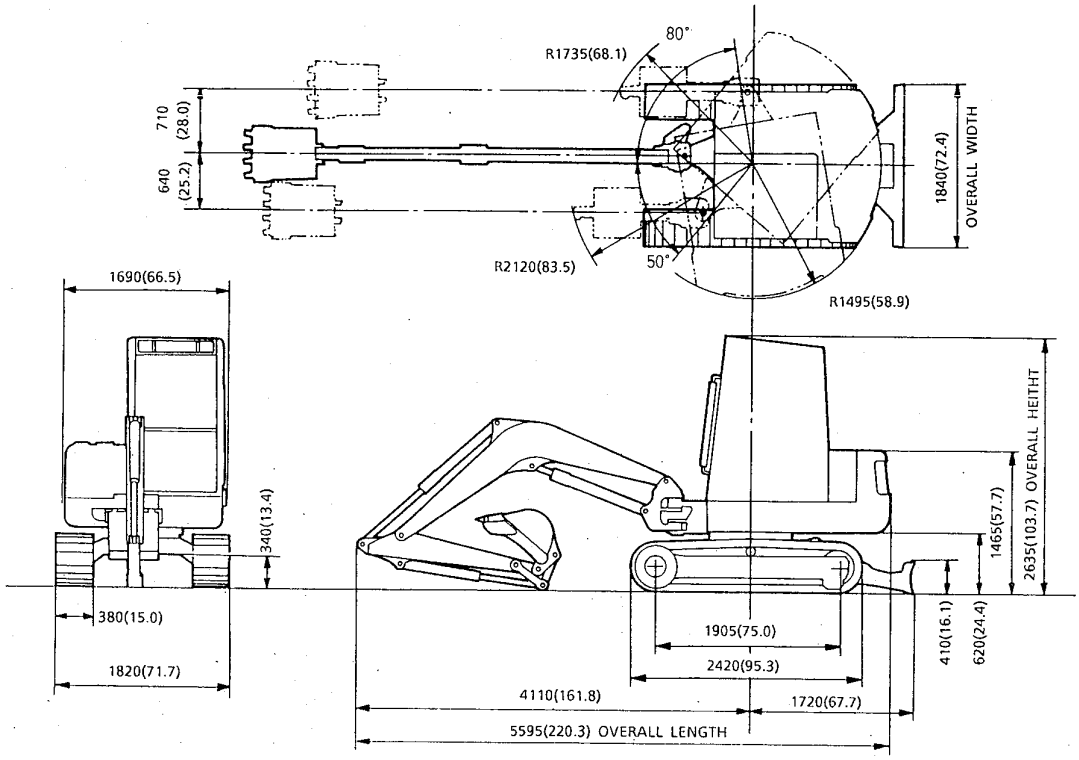
NAMES OF COMPONENTS

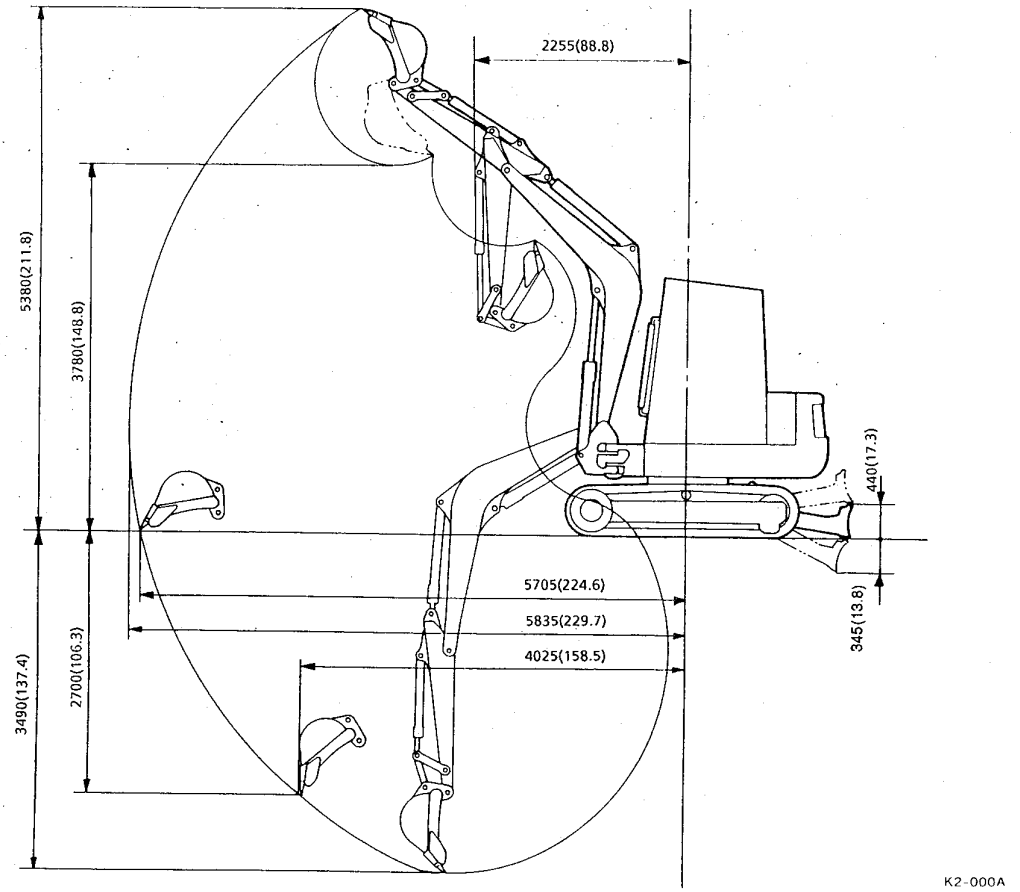


1. Engine
2. Bonnet
3. Cabin
4. Battery
5. Tools
6. Boom
7. Arm Cylinder
8. Flasher Lamp
9. Hydraulic Tank
10. Fuel Tank
11. Travel Motor
12. Crawler Belt
13. Track Roller
14. Carrier Roller
15. Auxiliary Port
16. Swing Cylinder
17. Idler
18. Road Surface Protector
19. Swing Bracket
20. Dozer Blade Cylinder
21. Boom Cylinder
22. Dozer Blade
23. Bucket
24. Arm
25. Bucket Cylinder

DIMENSIONS

UNITS : mm (in)





IMPORTANT INFORMATION

Rated lift capacity chart

- The numerical values in the charts indicate either 87% of the hydraulic lift capacity or 75% of the tipping load, whichever value is smaller. (*Marks indicate values limited by the hydraulic lift capacity.)
- The mass of slings and any auxiliary lifting devices shall be deducted from the rated load to determine the net load that may be lifted.
- The load point is the bucket hinge pin, and the bucket posture is with the standard bucket completely retracted under the arm.
- Units: kg (lbs.)

Load hooking system

A load hooking system with all of the following capacities must be provided and used.

① A system which can withstand a weight of two times the rated lift capacity no matter at what position the load is applied.

② A system in which there is no risk of the lifted load falling from the hooking device, for example one equipped with a hook slippage prevention device.

③ A system in which there is no risk of the hooking system slipping from the hoe attachment.

⚠ WARNING

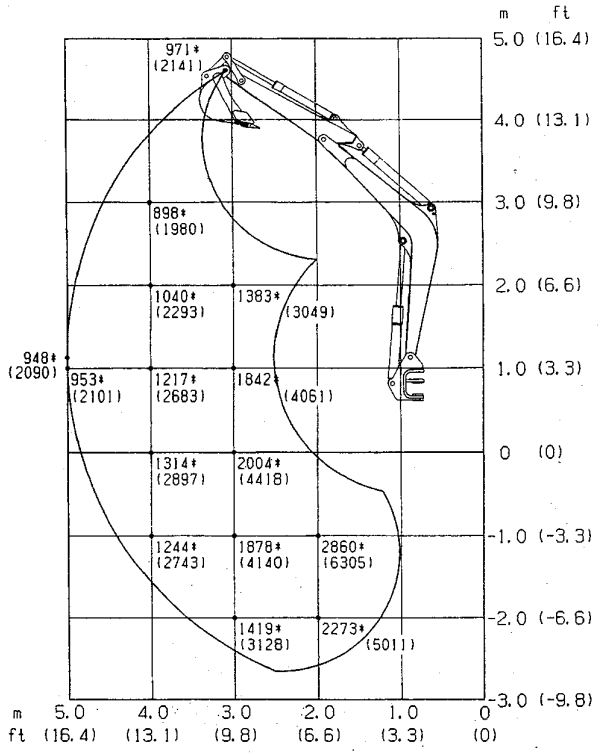
- **DO NOT attempt to lift or hold any load that is greater than these rated values at their specified load radii and height.**
- **All rated lift capacities are based on the machine being level and on a firm supporting surface. For safe working loads, the user is expected to make due allowance for the particular job conditions such as soft or uneven ground, non-level conditions, side loads, hazardous conditions, experience of personnel, etc. The operator and other personnel should fully acquaint themselves with the operator's manual furnished by the manufacturer before operating this machine, and rules for safe operation of equipment shall be adhered to at all times.**

NOTE

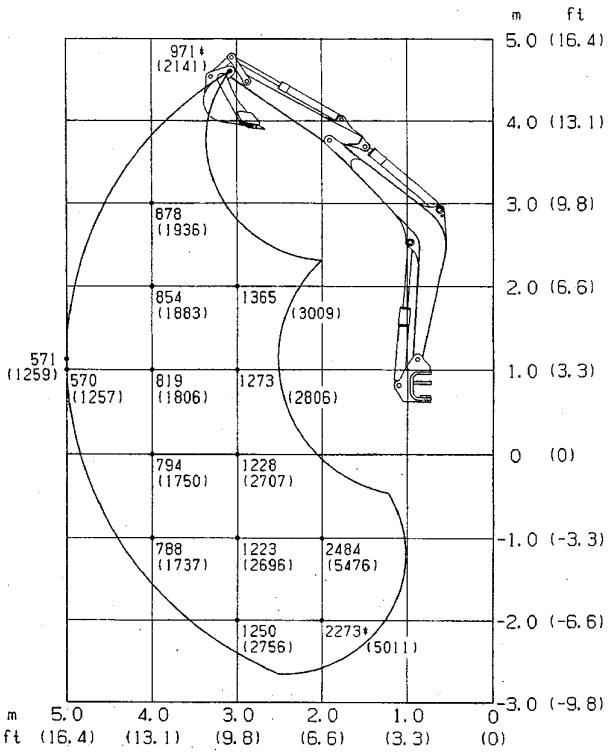
These lift capacity charts supersede all lift capacity charts printed prior to May 1, 1995.

Equipped with Cab and Standard Arm

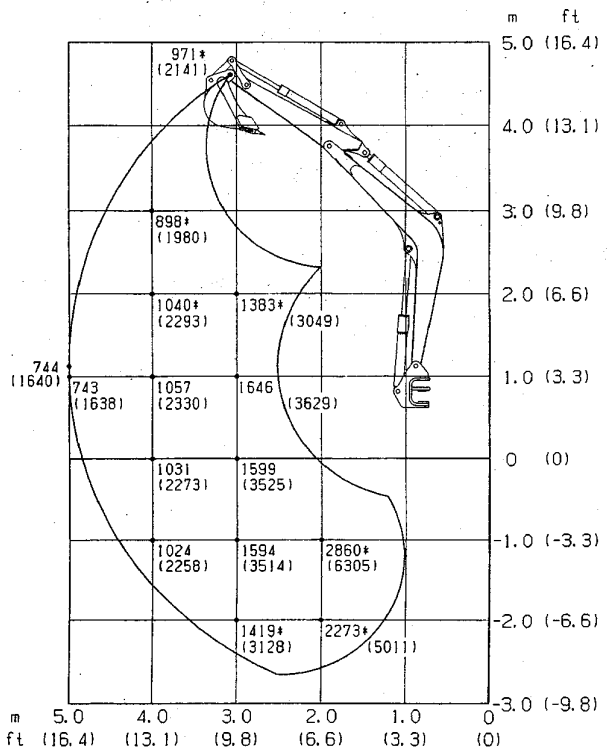
OVER FRONT ; Dozer Blade Down



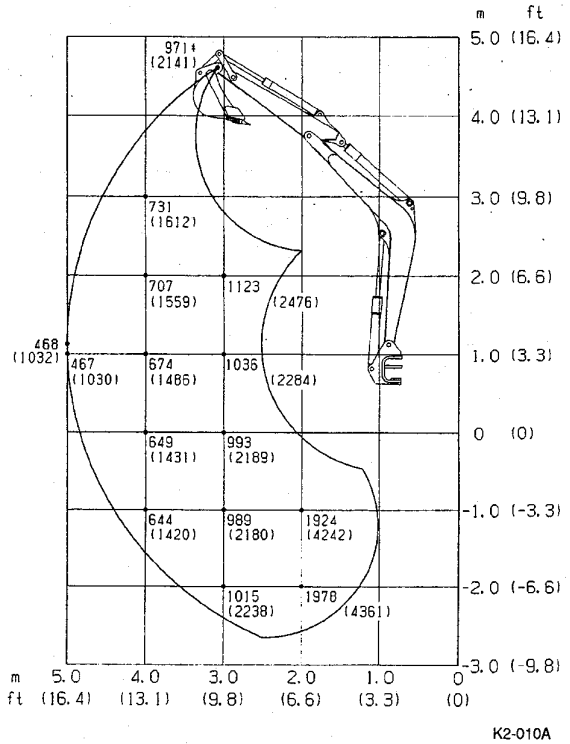
OVER FRONT ; Dozer Blade Up



OVER REAR



OVER SIDE



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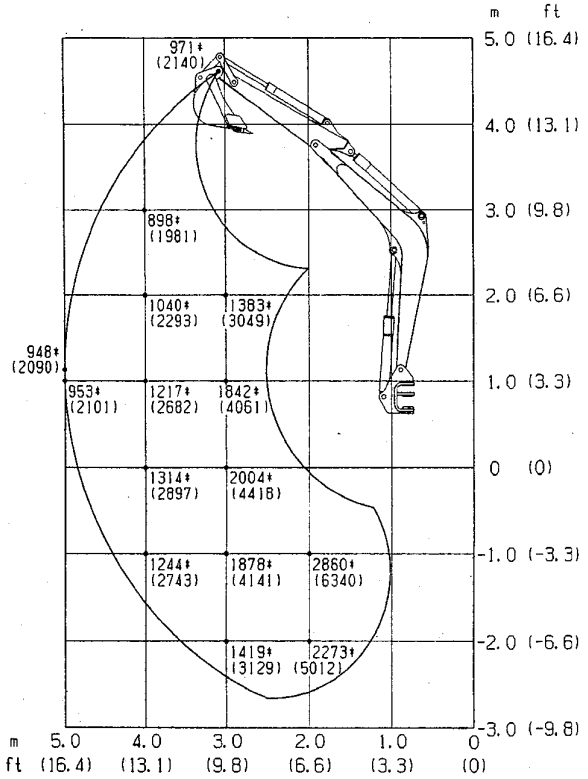
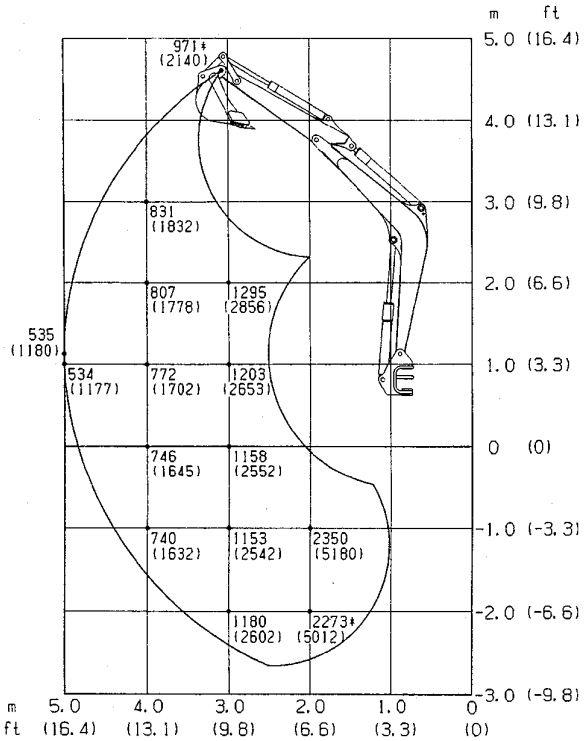
Equipped with Canopy and Standard Arm

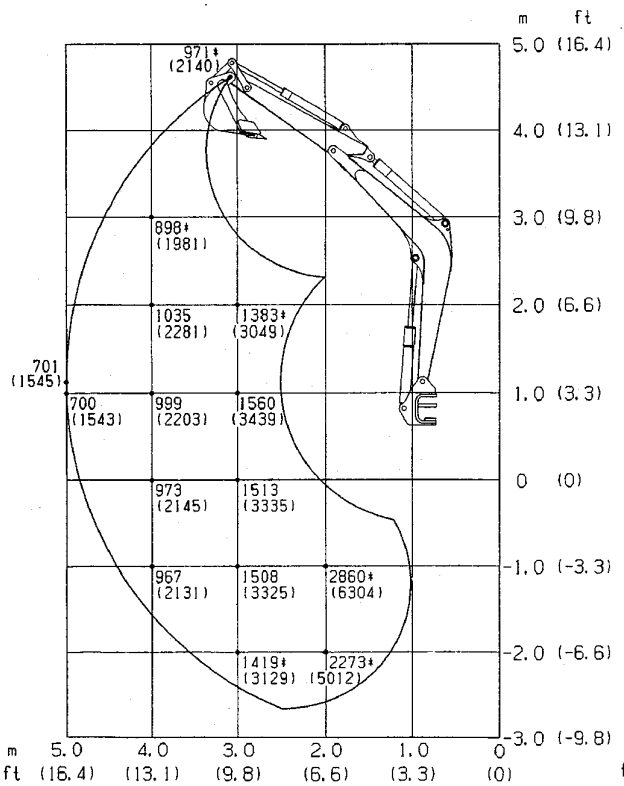
OVER FRONT ; Dozer Blade Down



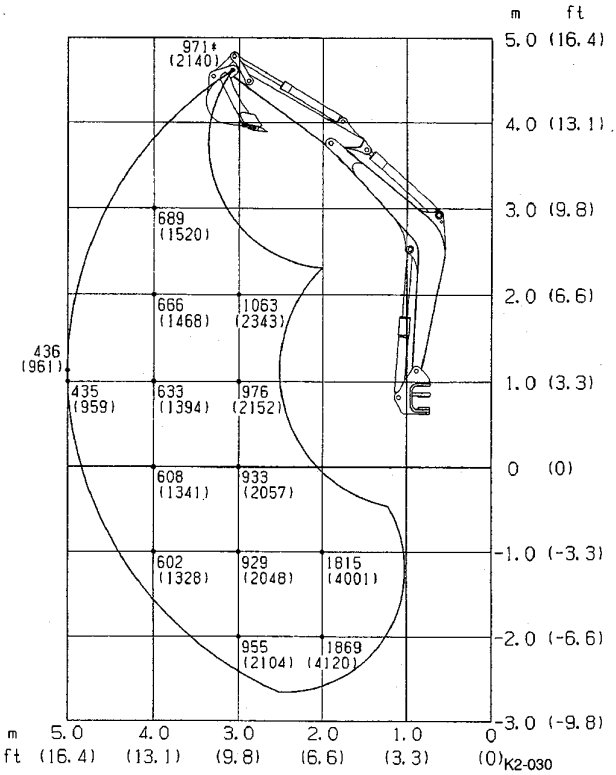
OVER FRONT ; Dozer Blade Up



OVER REAR



OVER SIDE



K2-030

SPECIFICATIONS

SPECIFICATIONS

Serial Number		1453001~	
Type		Cabin	
		Steel Crawler	Rubber Crawler
Bucket Capacity (SAE Rated)	$m^3(yd^3)$	0.141 (0.185)	←
Weight in Transport Condition	kg(lb)	4,540 (10,009)	4,510(9,943)
Dimensions	mm(in)		
Overall Length		5,595 (220.3)	←
Overall Width		1,840 (72.4)	←
Overall Height		2,635 (103.7)	2,640 (103.9)
Minimum Ground Clearance		340 (13.4)	350 (13.8)
Minimum Height of Upper Machinery		620 (24.4)	630 (24.8)
Overall Width of Upper Machinery		1,690 (66.5)	←
Overall Width of Crawler		1,820 (71.7)	1,840 (72.4)
Overall Length of Crawler		2,420 (95.3)	2,490 (98.0)
Minimum Slew Radius		2,255 (88.8)	←
Maximum Height of Hoe at Minimum Slew Radius		4,220 (166.1)	4,225 (166.3)
Tail Swing Radius		1,495 (58.9)	←
Dozer Blade Width		1,840 (72.4)	←
Dozer Blade Height		410 (16.1)	←
Working Range	mm(in)		
Maximum Digging Height		5,380 (211.8)	5,390 (212.2)
Maximum Digging Depth		3,490 (137.4)	3,510 (138.1)
Vertical Digging Depth		2,700 (106.3)	2,725 (107.3)
Maximum Digging Reach		5,835 (229.7)	←
Maximum Reach at Ground		5,705 (224.6)	5,700 (224.4)
Maximum Dumping Height		3,780 (148.8)	3,790 (149.2)
Bucket Offset : Right/Left		710 (28.0)/640 (25.2)	←
Dozer Blade Lift : Above/ Below ground		440 (17.3)/350 (13.8)	←
Performance			
Digging Force : Arm/Bucket	kg(lb)	3,160 (6,967)/2,390 (5,269)	←
Slew Speed	rpm(rpm)	11.3(11.3)	←
Travel Speed	km/h(mph)	Low : 2.7(1.68)/High : 4.7(2.92)	Low : 2.9(1.80)/High : 5.1(3.17)
Traction Force	kg(lb)	5,000 (11,023)	←
Gradeability	deg(deg)	30(30)	←
Ground Pressure (JIS)	$kgf/cm^2(psi)$	0.28(3.91)	0.27 (3.80)

SPECIFICATIONS OF DEVICES

Serial Number		1453001~
Engine		
Model		Yammer 3TN100L-TBZ Diesel
Type		4-Cycle Water Cooled Diesel w/Overhead valve
No. of Cylinders – Bore × Stroke	(mm)	3 – 100×110
Total Displacement	(cc)	2,591
Compression Ratio		17.6
Dry Weight	(kg)	220
Performance		
Rated Output	(PS/rpm)	44.1/2,000
Maximum Torque	(kgfm/rpm)	18.2/1,300
Maximum No-load R.P.M.	(rpm)	2,175
Minimum No-load R.P.M.	(rpm)	950
Specific Fuel Consumption	(g/PS·h)	175
Starter	(V – kW)	12 – 2.5
Generator	(V – A)	12 – 40
Battery	(V – A·h)	12 – 150
Hydraulic Pump		
Model		A10VD28SR1RS5-993-0
Type		Variable Plunger Pump
Displacement	(cc/rev)	28×2
Rated Discharge Volume	(*l*/min)	56×2
Rated Pressure	(kgf/cm^2)	200
Weight	(kg)	39
Hydraulic Pump (Sub)		
Model		HY/ZFS11/19L
Type		Gear Pump
Displacement	(cc/rev)	19.4
Rated Discharge Volume	(*l*/min)	34.5
Rated Pressure	(kgf/cm^2)	175
Weight	(kg)	4
Control Valve		
Model		KVS-65-9
No. of Sections		8
Main Relief Valve Settings	(kgf/cm^2@ *l*/min)	200@56 (P_1, P_2)
Port Relief Valve Settings	(kgf/cm^2@ *l*/min)	240@56 (A_4, B_4, B_6, B_7), 260@ 56 (A_7)
Weight	(kg)	28

Serial Number		1453001~
Control Valve		
Model		KVS-31-2
No. of Sections		2
Main Relief Valve Settings	(kgf/cm²@ l/min)	175@35(P_3)
Port Relief Valve Settings	(kgf/cm²@ l/min)	210 @ 35
Weight	(kg)	8.5
Control Valve (Sub)		
Model		YV179-000
Flow During Use	(l/min)	30 (P), 5(A)
Reducing Valve Settings	(kgf/cm²)	40
Weight	(kg)	6.8
Pilot Valve		
Model		TH40K1051
Secondary Side Pressure	(kgf/cm²)	0~40
Operating Angle : Single (Ports 1, 3)	(deg)	19
Single (Ports 2, 4)	(deg)	25
Simultaneous	(deg)	25
Weight	(kg)	4.6
Cylinders		
Boom		
Bore Diameter× Rod Diameter	(mm)	100×55
Stroke : Canopy/Cabin	(mm)	690/665
Fully Retracted Length (Pitch)	(mm)	1,053
Cushion Mechanism		Rod side
Weight : Canopy/Cabin	(kg)	56/55
Arm		
Bore Diameter× Rod Diameter	(mm)	90×50
Stroke	(mm)	750
Fully Retracted Length (Pitch)	(mm)	1,146
Cushion Mechanism		Both sides
Weight	(kg)	49
Bucket		
Bore Diameter× Rod Diameter	(mm)	80×45
Stroke	(mm)	585
Fully Retracted Length (Pitch)	(mm)	915
Cushion Mechanism		–
Weight	(kg)	32

Serial Number		1453001~
Cylinders		
Swing		
Bore Diameter× Rod Diameter	(mm)	90×50
Stroke	(mm)	620
Fully Retracted Length (Pitch)	(mm)	1,014
Cushion Mechanism		Both sides
Weight	(kg)	45
Dozer Blade		
Bore Diameter× Rod Diameter	(mm)	110×60
Stroke	(mm)	175
Fully Retracted Length (Pitch)	(mm)	540
Cushion Mechanism		–
Weight	(kg)	44
Travel Motor		
Model		MAG-33V-460
Type		Piston Motor
Total Displacement : 1st/2nd Speed	(cc/rev)	1,602/901
Motor Displacement : 1st/2nd Speed	(c/rev)	33.8/9.0
Reduction Ratio		1/47.406
Plunger Switching Pressure	(kgf/cm^2)	6~10
Speed Reducer Lubricating Oil Volume	(l)	1.2
Weight	(kg)	55
Slew Motor		
Model		PC-300-20-6H-1404A
Type		Piston Motor
Total Displacement	(cc/rev)	700
Motor Displacement	(cc/rev)	35.4
Reduction Ratio		1/19.76
Relief Valve Settings	(kgf/cm^2@ l/min)	130@651
Speed Reducer Lubricating Oil Volume	(l)	1.1
Weight	(kg)	56
Swivel Joint		
Model		KV-7095
Weight	(kg)	22