GEN00116-02

Field Assembly Instruction

BULLDOZER

D275AX-5E0

SERIAL NUMBERS 40001 and up

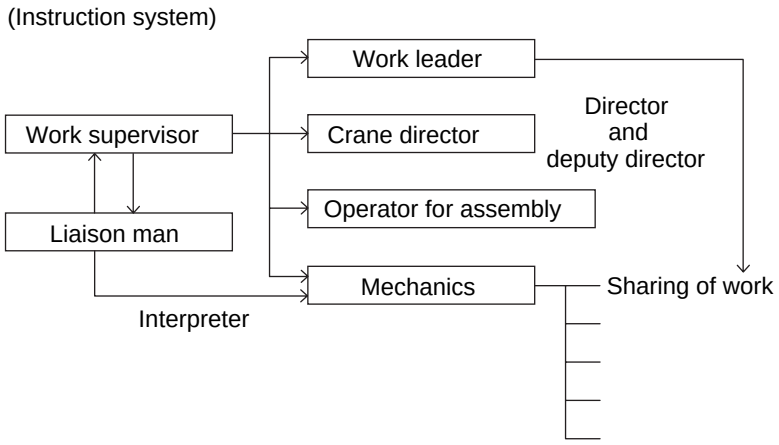
ecot3

KOMATSU

Preface

Since this machine is large in size, it is divided into some units to meet the transportation conditions and regulations applied to the transportation route when shipped from our factory.
This manual describes how to assemble the units into the complete machine in the field. We hope that this machine will display its quality and you will use it safely according to the operation manual.

Many units are large in size and heavy in weight and may be handled in a dangerous place or posture and many workers may have to work together to sling them with cranes.
Accordingly, before starting the assembly work, the work supervisor is required to hold a safety meeting to oblige the workers to put on protective gear and appoint a work leader and a crane work signal man and allot roles to all the workers for safe work.
In particular, the above meeting is more important when worker of different languages and customs work together.
The following is a reference supervision system diagram.



When the work equipment is installed, the engine must be operated.
Accordingly, before installing the work equipment, inspect and maintain the machine thoroughly.

Note that this manual does not describe the whole specification of the machine but describes only the basic specification.
If you have any question when dividing and transporting the machine by yourself in future, ask one of our distributors.

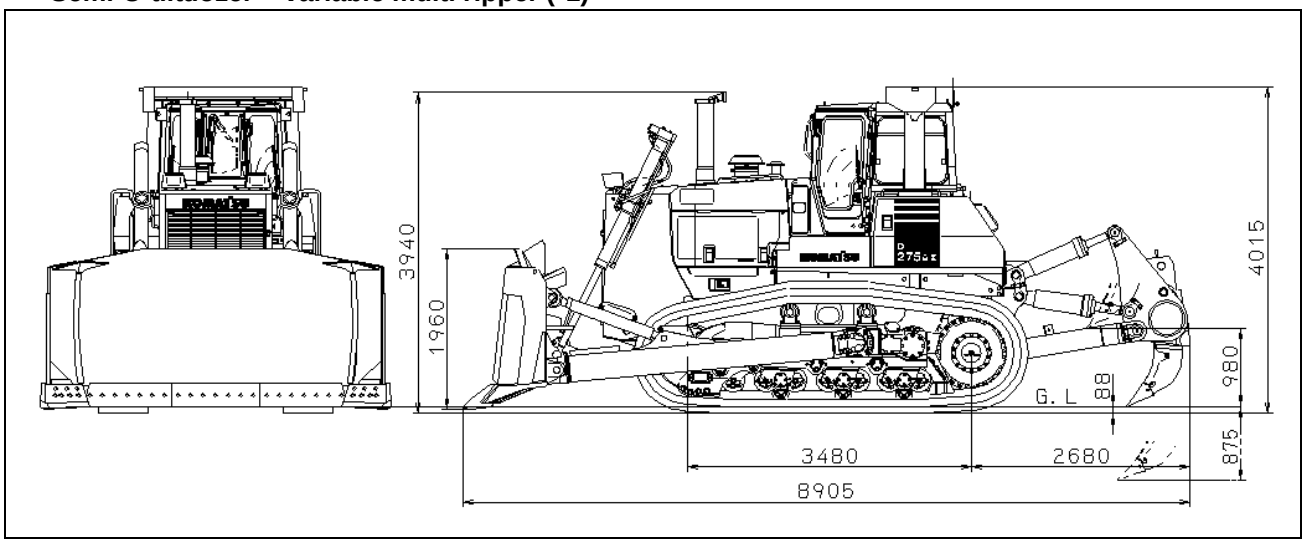
CONTENTS

Specifications

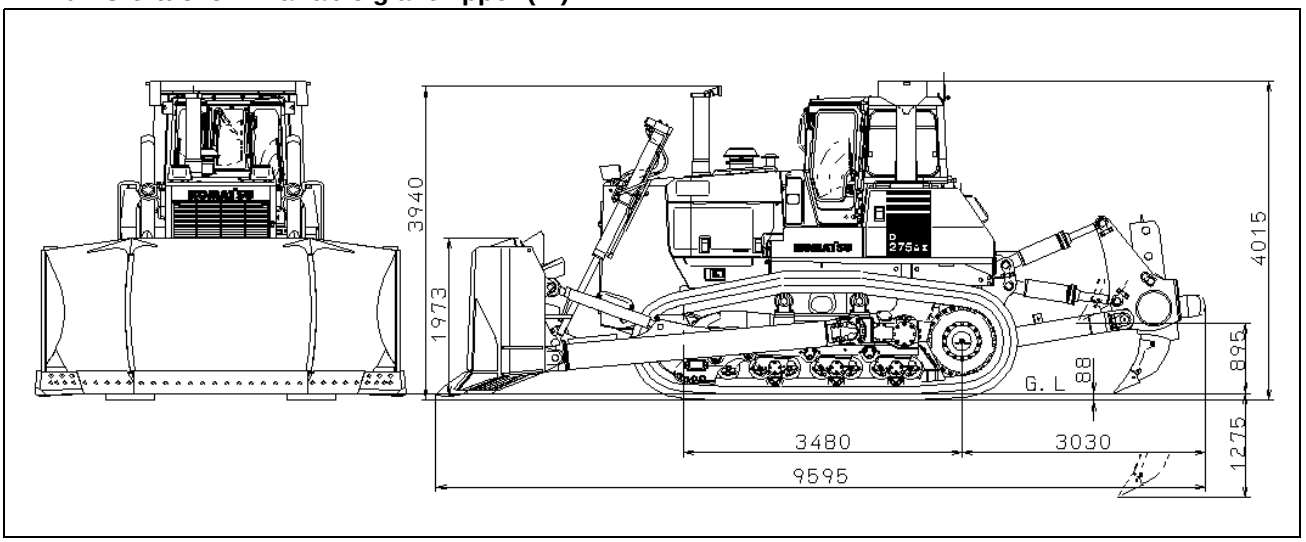
Item		Unit	Semi-U tiltdozer	Full U tiltdozer	Reinforced sigma dozer	Semi-U tiltdozer	Full U tiltdozer	Reinforced sigma dozer
			+ Giant ripper			+ Multi ripper		
Operating weight (without operator)		kg	49,850	50,775 (*2)	51,400 (*3)	50,710 (*1)	51,640	52,260
Blade weight (including cylinder)		kg	6,750	7,676	8,300	6,750	7,675	8,300
Ripper weight (including cylinder)		kg	3,600			4,462		
Name of engine		—	Komatsu SAA6D140E-5 diesel engine					
Engine horsepower		kW/rpm {HP/rpm}	335/2,000 {449/2,000}					
Overall length		mm	9,260	9,595	8,990	8,905	9,245	8,635
Overall height		mm	4,015					
Overall width		mm	4,300	4,615	4,440	4,300	4,615	4,440
Travel speed (1st/2nd/3rd)	Forward	km/h	3.8/6.7/11.2					
	Reverse	km/h	4.9/8.7/14.9					

*1: Semi-U tiltdozer, multi-shank ripper, ROPS, cab, air conditioner
*2: U tiltdozer, Giant ripper, ROPS, cab, air conditioner
*3: Reinforced sigma dozer, Giant ripper, ROPS, cab, air conditioner

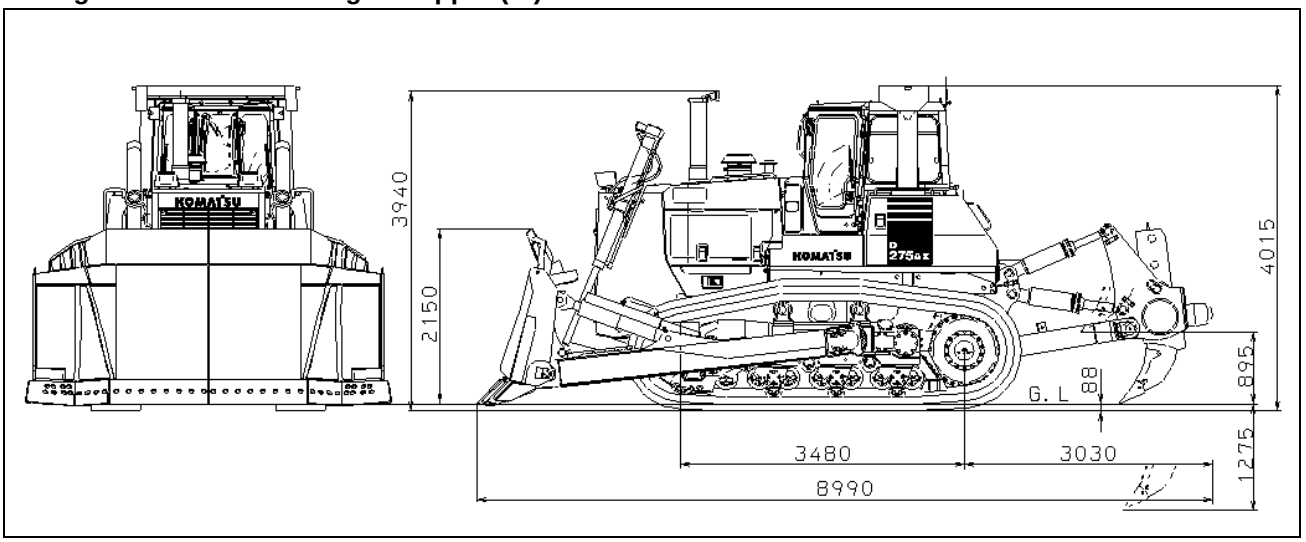
- **Semi-U-tiltdozer + variable multi ripper (*1)**



- **Full U-tiltdozer + variable giant ripper (*2)**



- **Sigma dozer + variable giant ripper (*3)**



Precautions for field assembly

1. Selection of work place

1) When selecting a work place, consider the following.
   - Is the work place sufficiently wide for loading and unloading the machine? (See the kit layout drawing.)
   - Is the ground sufficiently hard? (The machine and crane truck must not sink into the ground.)
   - Is the ground flat? (The ground surface must not be uneven or sloping.)
   - Is the road to inlet/outlet of the work place sufficient for turning the trailer and crane truck?
2) Take care extremely that dirt or water will not enter the hydraulic circuit while it is assembled.
3) Avoid working outdoors while strong wind is blowing or it is raining.
4) Take measures to protect the machine from sand, dirt and rainwater while the work is stopped.

2. How to do work

The work supervisor or the work leader should not do the work while reading this manual but should read and understand this manual thoroughly and then start the work.
In particular, write the "Precautions" for each work process in a sheet to explain or stick that sheet to the work place so that all the workers will observe the precautions.

3. Preparation and check of protective gear, slings and tools

The work supervisor or the work leader must perform the following checks about protective gear, slings and tools.

1) Are all the workers wearing helmets and other protective gear which they are obliged to wear?
   If special protective gear is necessary, check that it is prepared and can be used without problem.
2) Are all the slings and tools prepared? Check in advance that they are ready to be used without problem. In particular, check wooden blocks for internal decay and cracking.

4. ⚠ Check during actual work

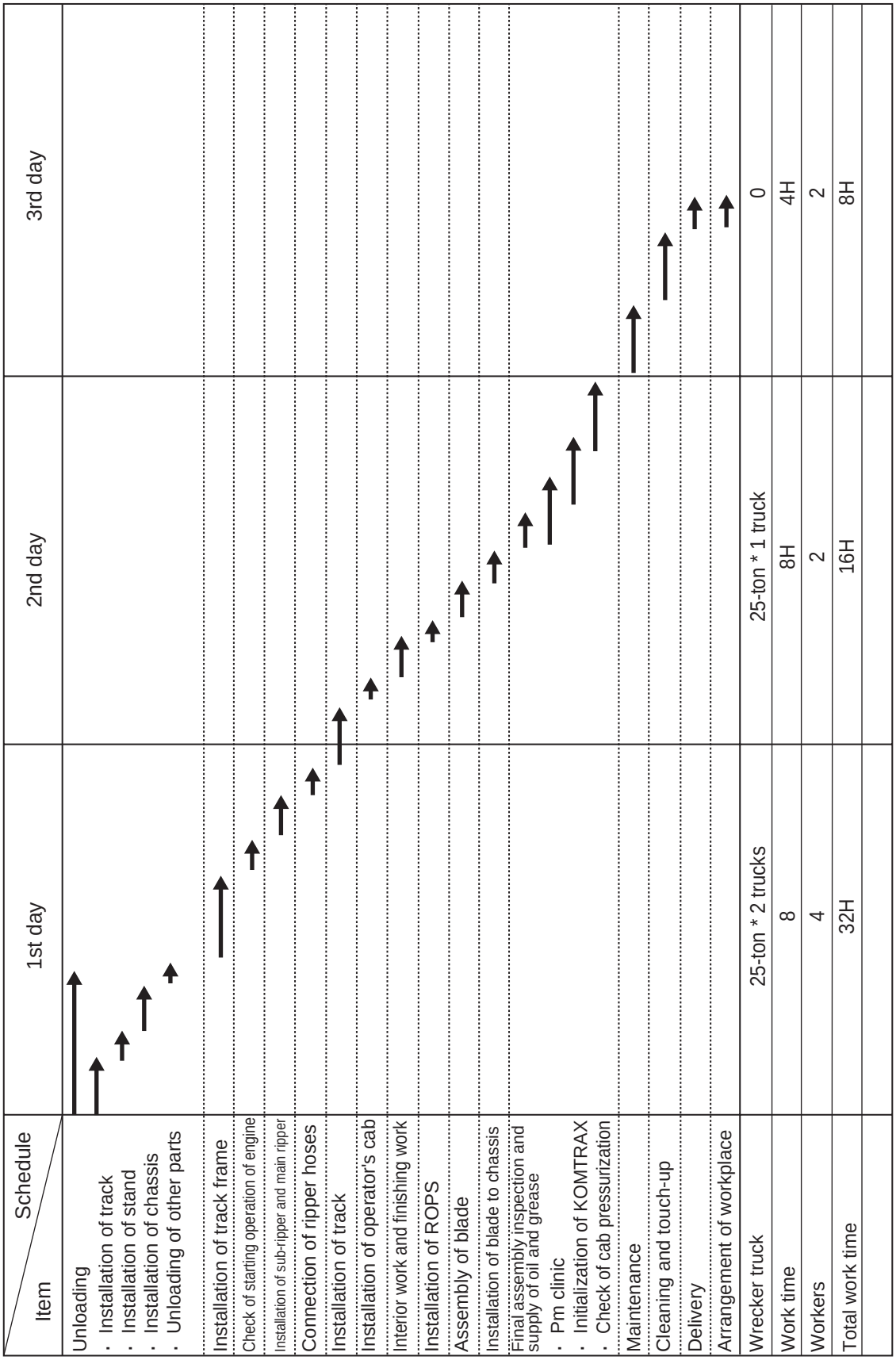
The work supervisor or the work leader must check the following items constantly and make all the workers observe them.

1) Are the parking brakes of the trailer and crane truck applied securely and are their wheels locked with chocks during work? Are outriggers, if installed, used securely?
2) Are the temperature and pressure of the engine, hydraulic oil, coolant, etc. lowered sufficiently during work?
3) Is horn or another signal is made to warn around when the engine is started? In addition, is it checked that work equipment control lever and other control levers are in neutral and the fuel control dial (or fuel control lever) is in the low idle position?
4) Is the balance of the slung item checked extremely during sling work with the crane?
5) Is entry prohibition for outsiders to the work place observed?

5. The work supervisor or the work leader is required to hold a meeting with all the workers at the beginning of every morning and explain the work plan of the day to them and give them instructions to observe the safe work.

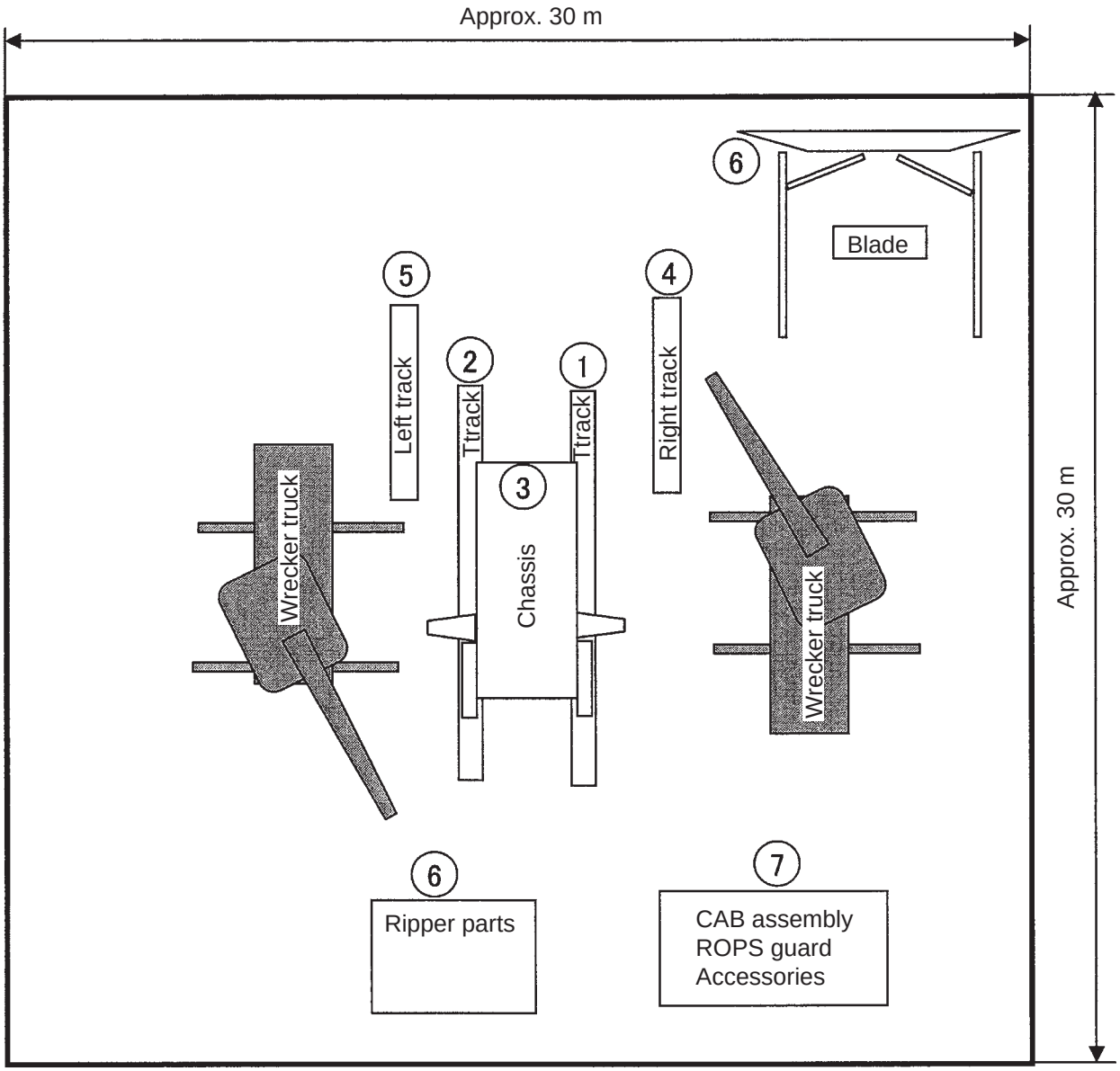
Assembly procedure, necessary equipment, and schedule

A change of the schedule caused by weather is not considered.
The special work in the field shall be adjusted separately.



Layout of kit

- When selecting the work field, see “Precautions for field assembly”.
- The dimensions in the drawings are reference dimensions for installation in the following space (30 m × 30 m).
- If a wider work field is available, the shown dimensions should be increased.

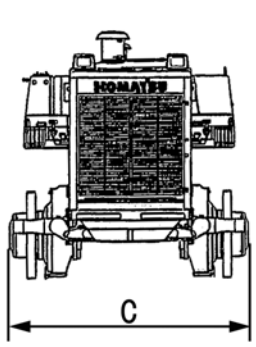


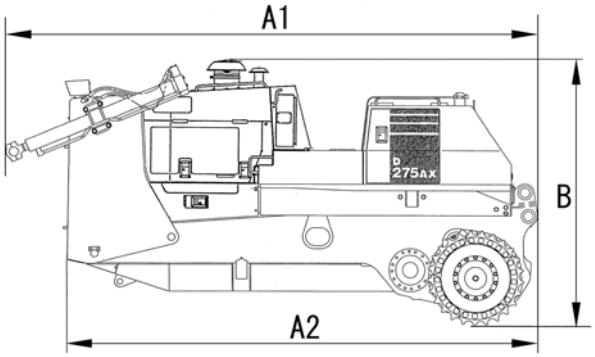
Style for transportation

Since the machine can be divided for transportation, ask us or our service shop before transportation.

■ **Style of each KIT.**

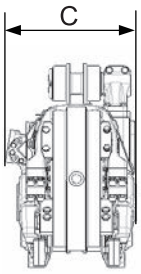
- **Tractor (Body)**

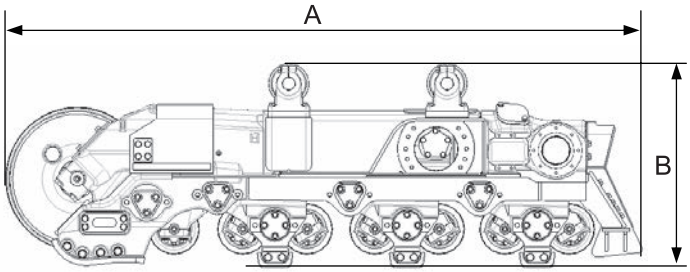




A	1	Overall length (mm)	5,855
	2		5,190
B		Overall height (mm)	2,945
C		Overall width (mm)	2,730
Weight (kg)			20,850

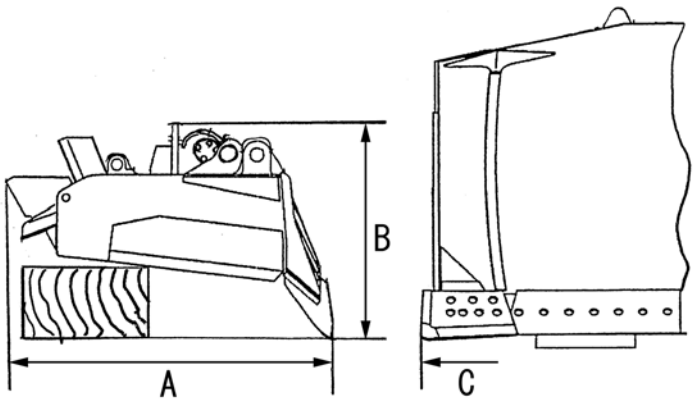
- **Track frame**





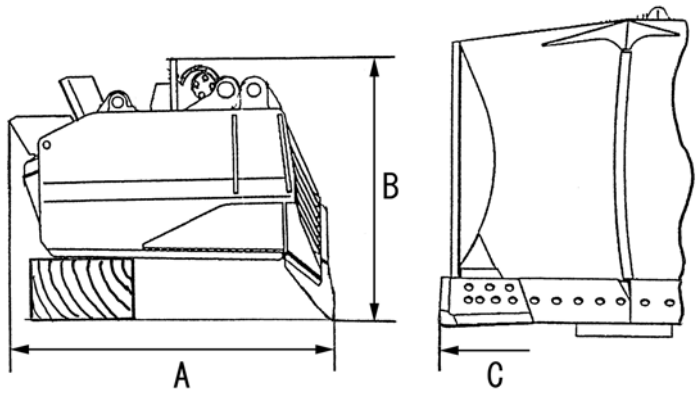
A	Overall length (mm)	3,555
B	Overall height (mm)	1,180
C	Overall width (mm)	755
Weight (kg)		5,090

- **Work equipment**
  (1) Blade (semi U)



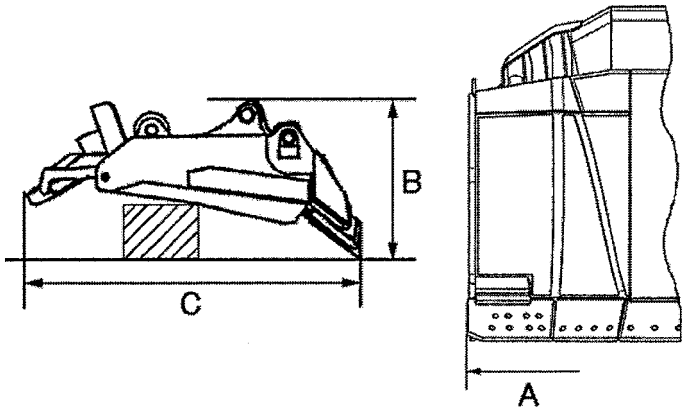
		Standard	Reinforced
A	Overall length (mm)	4,300	
B	Overall height (mm)	1,280	
C	Overall width (mm)	2,065	
Weight (kg)		4,000	4,550

- **Blade (full U)**



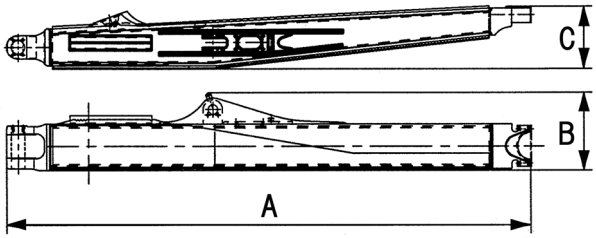
		Standard	Reinforced
A	Overall length (mm)	4,617	
B	Overall height (mm)	1,620	
C	Overall width (mm)	2,065	
Weight (kg)		5,050	5,800

- **Blade (For sigmadozer)**



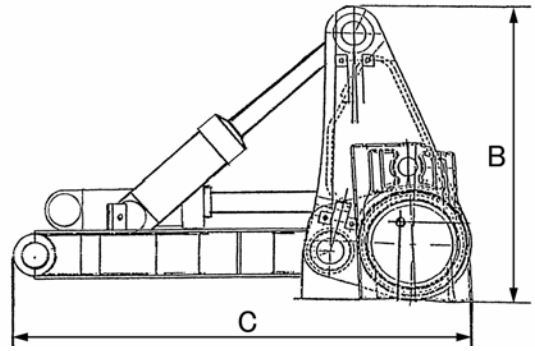
A	Overall length (mm)	4,400
B	Overall height (mm)	1,280
C	Overall width (mm)	2,150
Weight (kg)		5,000

(2) Straight frame



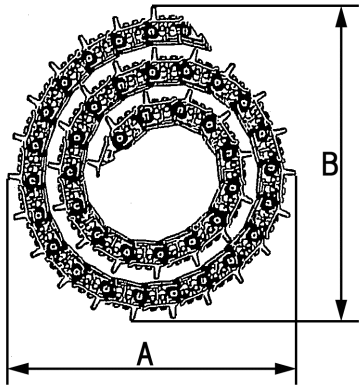
		Semi U, Full U		Sigma-dozer
		Standard	Reinforced	
A	Overall length (mm)	4,215		4,020
B	Overall height (mm)	640		640
C	Overall width (mm)	490		630
Weight (kg)		2,700	3,100	3,400

(3) Ripper



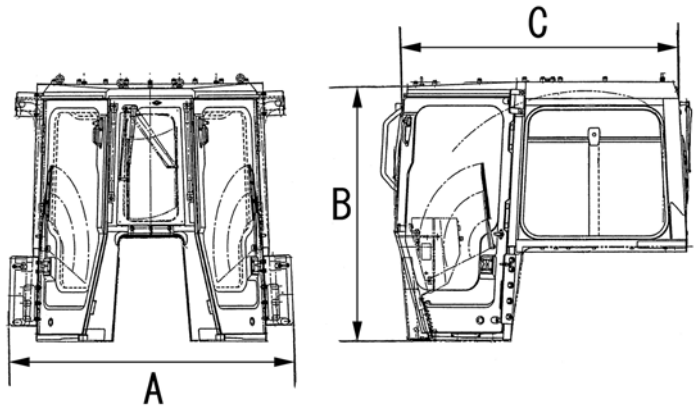
		Multi	Giant
A	Overall length (mm)	2,010	2,010
B	Overall height (mm)	1,560	1,560
C	Overall width (mm)	2,495	1,445
Weight (kg)		4,500	3,600

- **Track shoe**



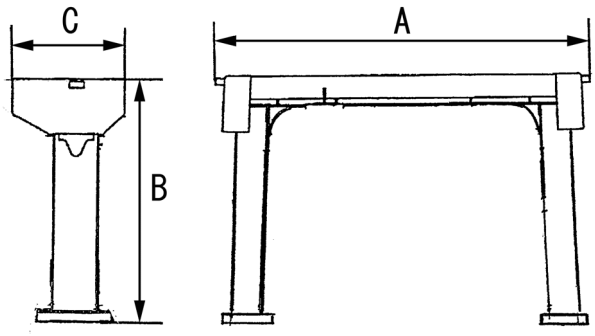
Shoe width	610	710	760
A (mm)	2,500	2,500	2,500
B (mm)	2,500	2,500	2,500
Weight (kg)	3,400 (1/2)	3,690 (1/2)	3,830 (1/2)

- **Cab**



A	Overall length (mm)	1,787
B	Overall height (mm)	1,676
C	Overall width (mm)	1,740
Weight (kg)		500

- **ROPS**



A	Overall length (mm)	2,055
B	Overall height (mm)	1,324
C	Overall width (mm)	612
	Weight (kg)	580

Tools list for field assembly

No.	Tool name	Specification	Q'ty	Remarks
1	Air compressor	7.5 kg/cm², 15 cm³/min	1	
2	Crane truck	Capacity: 25 tons	2	
3	Lever block	1.5 ton, 2 ton	2	
4	Wire sling	ø 30 × 5 m	2	
		ø 20 × 6 m	4	
		ø 20 × 5 m	2	
		ø 12 × 2 m	4	
5	Nylon sling	25 mm wide × 3 m	2	
		50 mm wide × 3 m	1	
6	Hydraulic wrench	600 kgm	1	For master link bolt
7	Impact wrench	See No. 39 on next page		
8	Impact wrench socket	Width across flats: 32, 36, 41	1 each	* Match socket installed dimension to impact wrench.
9	Torque wrench	Tightening capacity 588 Nm {60 kgm}	1	
		Tightening capacity 1370 Nm {140 kgm}	1	
		Tightening capacity 2060 Nm {210 kgm}	1	
10	Torque wrench socket	Width across flats: 32, 36, 41	1 each	
11	Extension bar	□38.1 × L300	1	
12	Eyebolt	M 12 × P 1.75	4	
		M 16 × P 2	2	For blade center link
13	Shackle	SD22 (For 2 ton)	4	
		BC36 (For 8 ton)	2	
		SA60 (For 22 ton)	1	For front hook
14	Sledge hammer	10P	1	
15	Bar	L = 1000 mm	1	
16	Tap	M 27 × P 3	1	For master hook
		M 30 × P 3	1	
		M 24 × P 3	1	
17	Jack	15 ton	2	
18	Spanner wrenches set	Width: 19 – 50 mm	1	
19	Standard tools set		1	
20	Hydraulic oil	SAE10W-CD	60 ℓ	For hydraulic tank
21	Grease	G2-LI	10 ℓ	
22	Lubricant	LM-P (09940-00040)	1	
23	Adhesive		1	For sealing cab
24	Detergent		20 ℓ	
25	Paint remover		5	

No.	Tool name	Specification	Q'ty	Remarks
26	Paint for repair	Natural yellow	5	
		Lake blue	5	
27	Glass cleaner		1	
28	Cloth	Bunch	5	
29	Angle meter		1	For dual tilt (If equipped)
30	Grease pump	Air type	1	
31	Oil pump	Manual or air type	1	
32	Oil jack	5 L	1	
33	Waste oil receiving pan		1	
34	Step	Height: 2 m	1	
35	Stand	Front	1	See attached tool drawing
		Rear	1	See attached tool drawing
36	Sling (track frame)		1	See attached tool drawing
37	Temporary blade stand (sigmadozer)		2	See attached tool drawing
38	Wood block	350 mm × 600 mm	4	
		300 mm × 400 mm	4	
		100 mm × 750 mm	4	

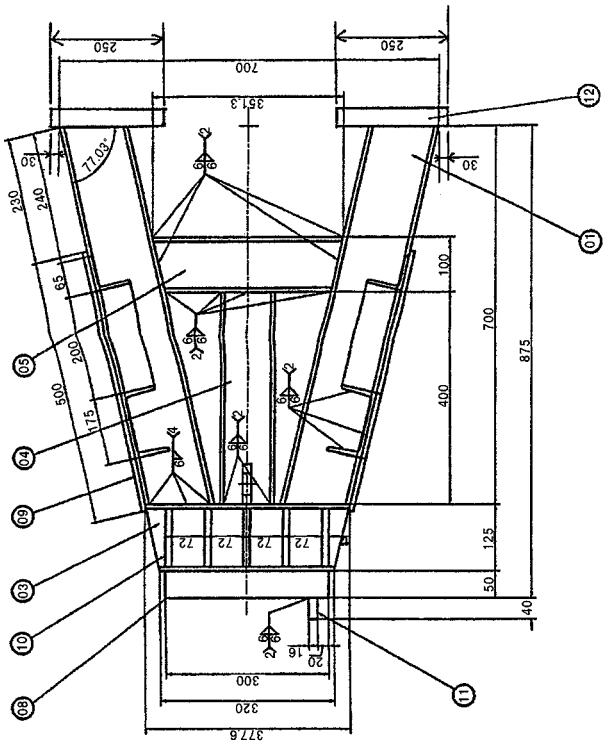
39	Applicable thread size (mm)	Tightening capacity (Nm) Note 1)	Socket Installed dimension (mm) Note 2)	Q'ty
	M10 – M14	– 200 kgm	□ 12.7	1
	M16 – M20	– 600 kgm	□ 19.0	1
	M22 – M24	– 1,000 kgm	□ 25.4	1
	M27 – M36	– 3,000 kgm	□ 38.1 or spline type Note 3)	1
	M39 and above	– 6,500 kgm		1

Note 1) Prepare an impact wrench on the basis of the tightening capacity.
Note 2) The socket installed dimensions are shown for reference. Match the wrench to the socket prepared separately.
Note 3) Hydraulic wrench No. 6 on the previous page may be used for M27 mm bolts and larger ones.

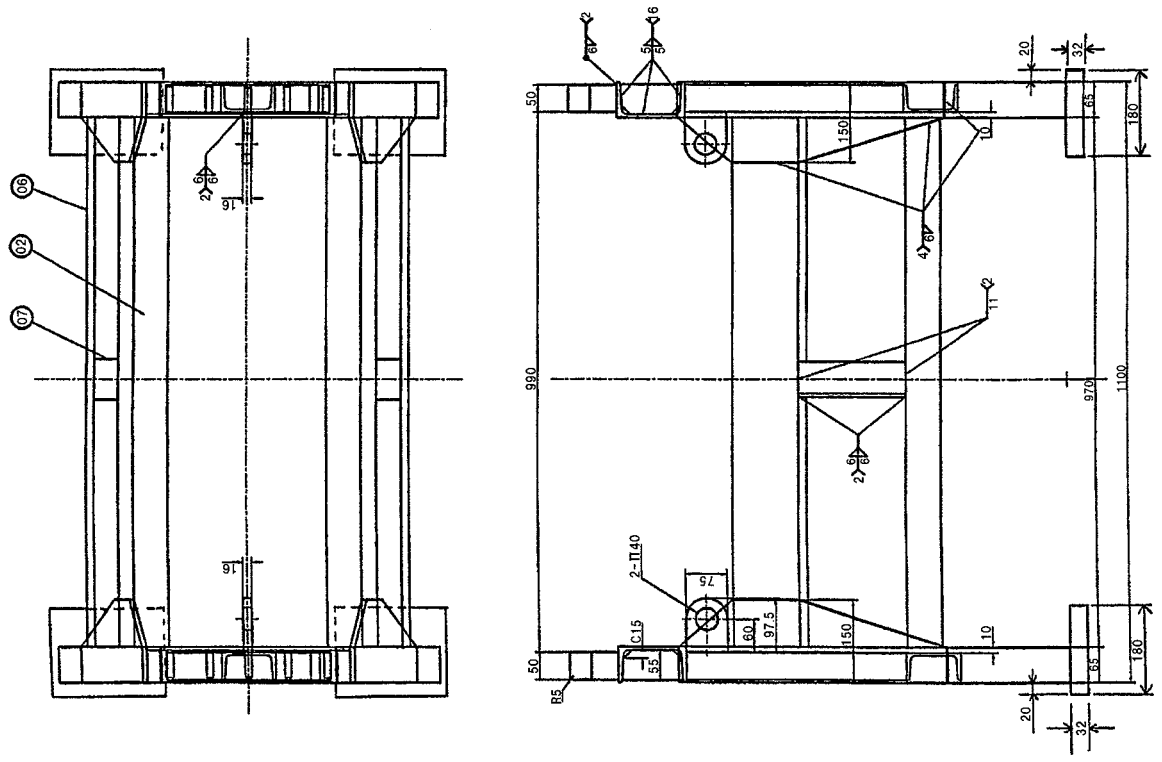
Sketch of tools

Note) We are not liable for any result of use of tools manufactured according to these drawings.

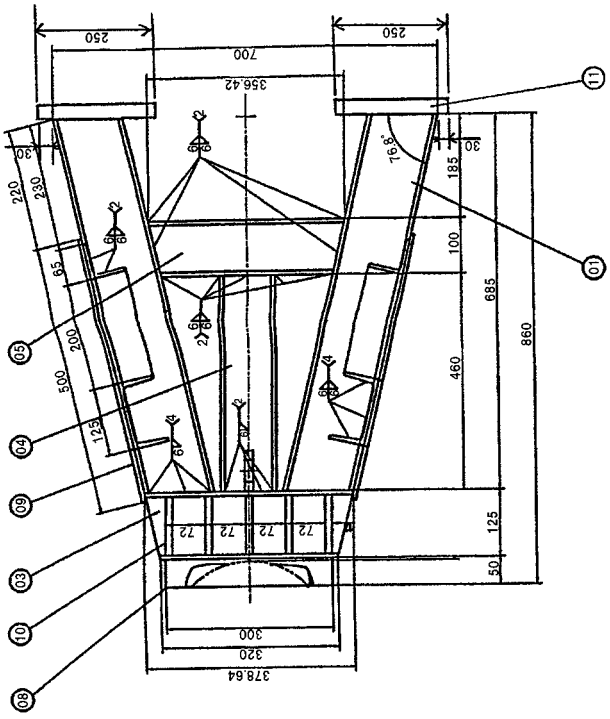
Chassis stand (Front side)



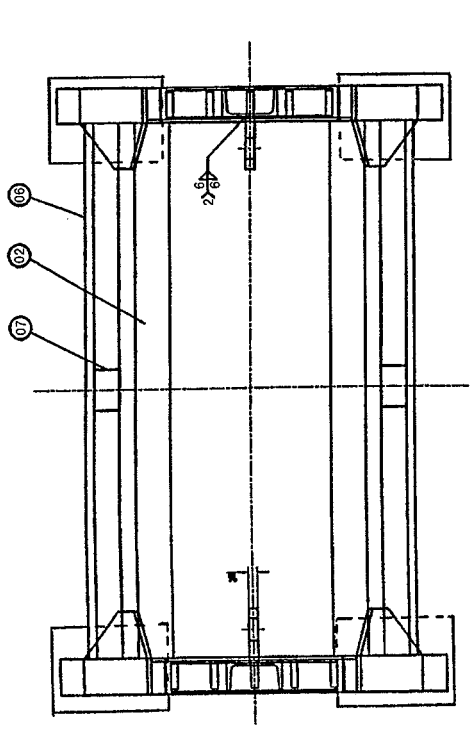
No.	Part name	Material	Q'ty	Remarks
12	Plate	SS400	4	32T × 180 × 250
11	Plate	SS400	2	9T × 50 × 40
10	Plate	SS400	10	12T × 55 × 102
09	Plate	SS400	4	9T × 150B × 500
08	Plate	SS400	2	50 × 300L
07	Angle	SS400	2	65 × 65 × 6T × 200L
06	Angle	SS400C	2	65 × 65 × 6T × 970L
05	Channel	SS400C	2	C100 × 100 × 5T × 351L
04	Channel	SS400C	2	C100 × 100 × 5T × 400L
03	Channel	SS400C	2	C125 × 65 × 6T × 378L
02	Channel	SS400C	2	C125 × 65 × 6T × 970L
01	Channel	SS400C	2	C100 × 65 × 6T × 747L

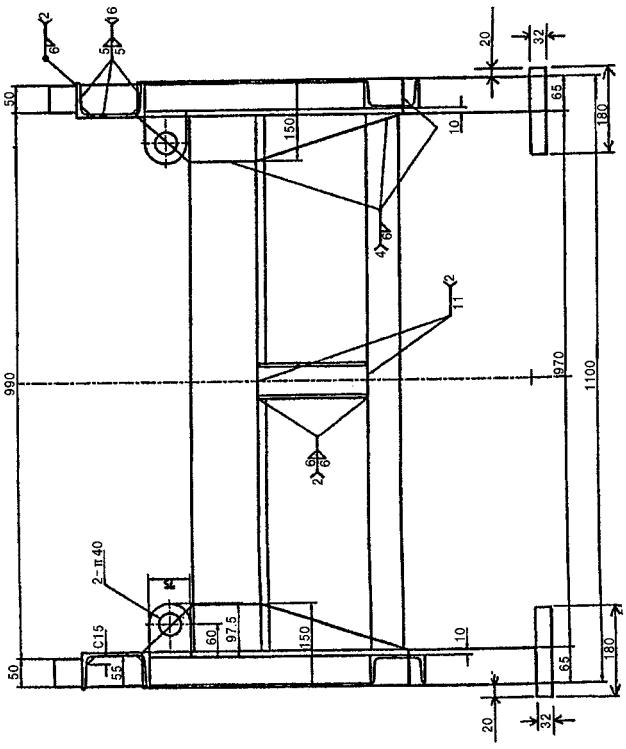


Chassis stand (Rear side)



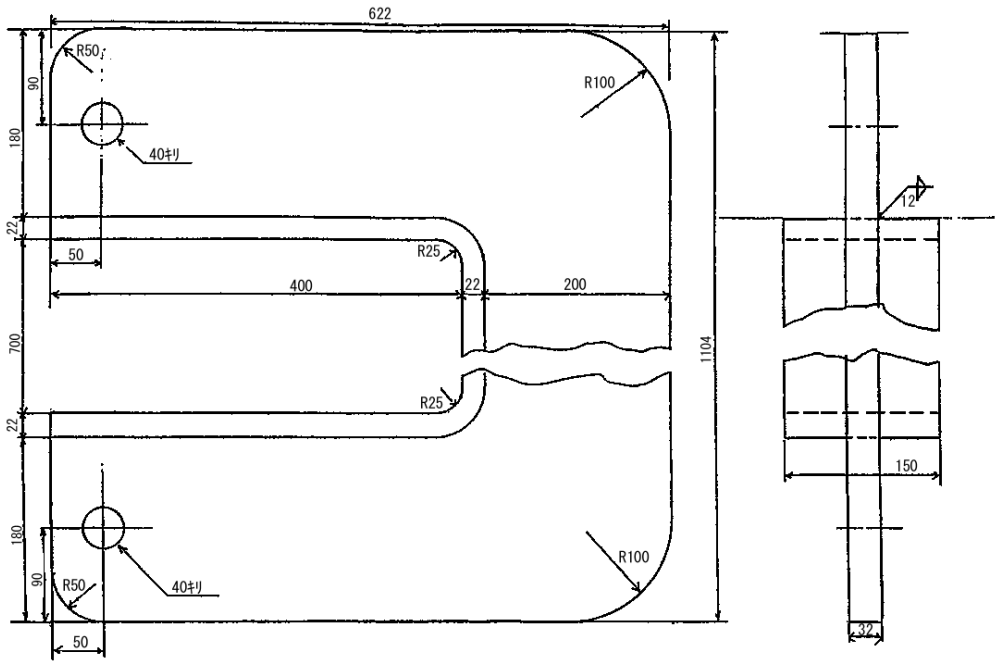
No.	Part name	Material	Q'ty	Remarks
11	Plate	SS400	4	32T × 180 × 250
10	Plate	SS400	10	12T × 55 × 102
09	Plate	SS400	4	9T × 150B × 500
08	Plate	SS400	2	50 × 300L
07	Angle	SS400	2	65 × 65 × 6T × 200L
06	Angle	SS400C	2	65 × 65 × 6T × 970L
05	Channel	SS400C	2	C100 × 100 × 5T × 351L
04	Channel	SS400C	2	C100 × 100 × 5T × 400L
03	Channel	SS400C	2	C125 × 65 × 6T × 378L
02	Channel	SS400C	2	C125 × 65 × 6T × 970L
01	Channel	SS400C	2	C100 × 65 × 6T × 747L



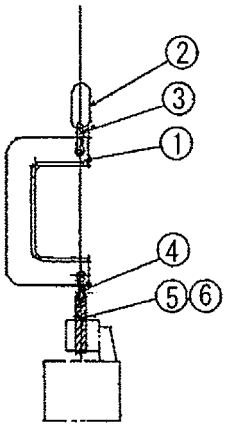


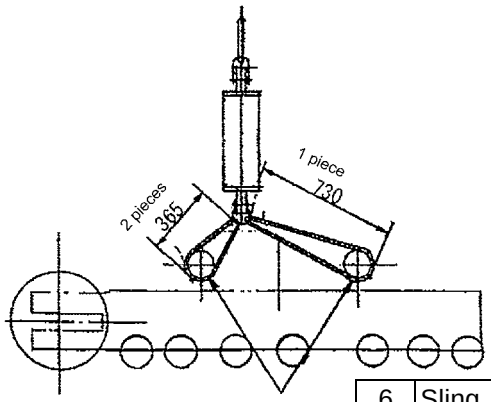
Sketch of tools

Sling (Track frame)



Sling (Track frame)

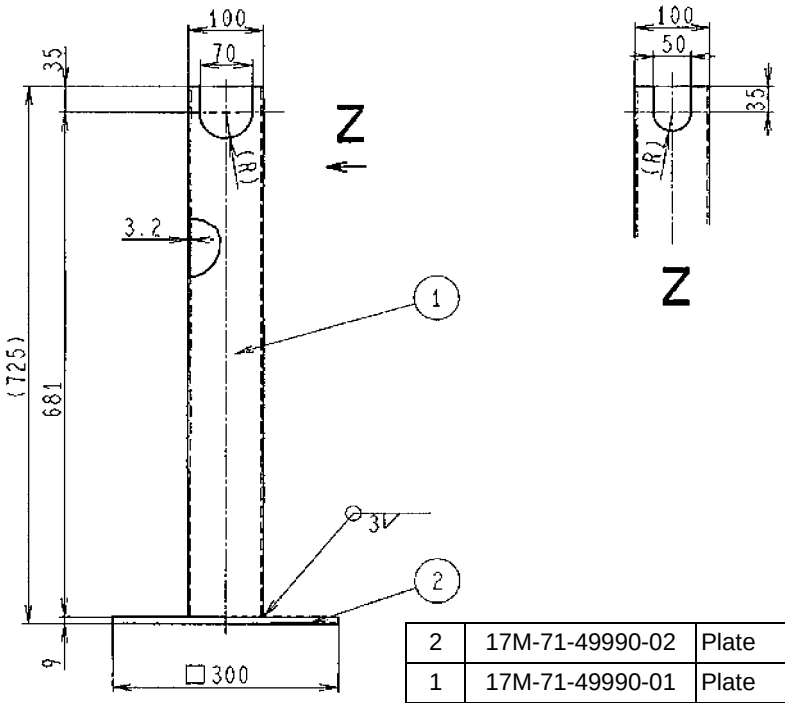




Fitting to the carrier roller.

No.	Part name	Q'ty	Remarks
6	Sling	1	Load resistance: Min. 5 ton
5	Sling	2	Load resistance: Min. 5 ton
4	Shackle	1	RB10
3	Shackle	1	RS10
2	Master link	1	HM125
1	Frame	1	

Temporary blade stand (sigma dozer)



No.	Part No	Part name	Material	Q'ty	Remarks
2	17M-71-49990-02	Plate	SS400	1	t9
1	17M-71-49990-01	Plate	SS400	1	sq100 × 100 × 3.2

Tightening torque

1. Tightening torque for bolts
   Tightening torque for bolts is indicated in the text as shown below. Tighten each bolt to the specified torque.

Part No. of bolt	□□□□□-□□□□□
Part No. of washer	△△△△△-△△△△△
Bolt specification	Thread diameter × Bolt length
Tool (Socket)	Applicable socket size
Tightening torque	✻✻✻ Nm {○○○ kgm}

If tightening torque for a bolt is not specified in the text, tighten it according to Table 1.

Remarks

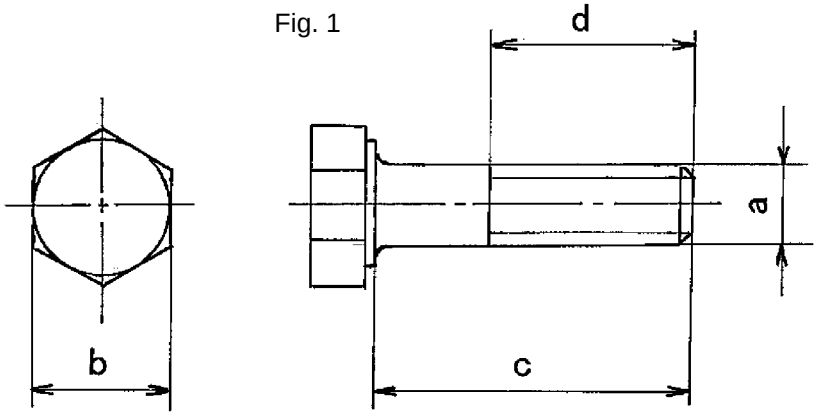
1. The thread diameter is the nominal diameter. For example, 16 mm is expressed as M16 and 20 mm is expressed as M20.
   The pitch in Table 1 is the distance that the bolt advances every turn in the axial direction (Unit: mm).

2. The bolt length is dimension c in Fig. 1.

3. The applicable socket size is expressed as 24 mm, 30 mm, etc. Since 24 mm, 30 mm, etc. correspond to dimension b in Fig. 1, an applicable socket can be selected from Table 1, too.

4. Tightening torque is expressed as ○○○ – ◎◎◎ or ○○○ ± ▽▽. If the target tightening torque is set, expression of ○○○ ± ▽▽ is applied.

Fig. 1



a : Bolt thread diameter (Nominal diameter)
b : Width across flats of bolt head
c : Bolt length
d : Threaded part of bolt

Table 1 Tightening torque for bolts not specified in text

Unit: Nm {kgm}

Nominal size of thread × pitch a (mm)	Width across flats (= Socket size) b (mm)	Tightening torque	
		Target	Range
6 × 1	10	12 {1.2}	8.8 – 14.7 {0.9 – 1.5}
8 × 1.25	13	25 {2.5}	14.7 – 34 {1.5 – 3.5}
10 × 1.5	17	54 {5.5}	34 – 74 {3.5 – 7.5}
12 × 1.75	19	89 {9}	54 – 123 {5.5 – 12.5}
14 × 2	22	137 {14}	84 – 196 {8.5 – 20}
16 × 2	24	230 {23.5}	147 – 309 {15 – 31.5}
18 × 2.5	27	315 {32}	201 – 427 {20.5 – 43.5}
20 × 2.5	30	460 {47}	319 – 608 {32.5 – 62}
22 × 2.5	32	650 {66.5}	471 – 829 {48 – 84.5}
24 × 3	36	810 {82.5}	588 – 1030 {60 – 105}
27 × 3	41	1180 {120}	883 – 1470 {90 – 150}
30 × 3	46	1520 {155}	1130 – 1910 {115 – 195}
33 × 3	50	1960 {200}	1470 – 2450 {150 – 250}
36 × 3	55	2450 {250}	1860 – 3040 {190 – 310}
39 × 3	60	2940 {300}	2260 – 3630 {230 – 370}

2. Tightening torque for pipe threads

Proper tightening torque for pipe threads depends on combination of the materials of the male screw and female screw. In this manual, however, select tightening torque from Table 2 and Table 3 on the basis of the material of the male screw. If tightening torque is specified specially in explanation, however, apply that tightening torque.

2.1 If the male screw is made of mild steel or cast iron, apply Table 2.

Table 2

Unit: Nm {kgm}

Material of female thread / Nominal size	Steel	Cast iron	Light alloy
1/8	3.9 – 6.9 {0.4 – 0.7}	2.9 – 5.9 {0.3 – 0.6}	2.0 – 3.9 {0.2 – 0.4}
1/4	5.9 – 11.8 {0.6 – 1.2}	4.9 – 9.8 {0.5 – 1.0}	3.9 – 7.8 {0.4 – 0.8}
3/8	16.7 – 26.5 {1.7 – 2.7}	13.7 – 21.6 {1.4 – 2.2}	9.8 – 16.7 {1.0 – 1.7}
1/2	32.3 – 52.9 {3.3 – 5.4}	26.5 – 43.1 {2.7 – 4.4}	19.6 – 32.3 {2.0 – 3.3}
3/4	51.0 – 85.3 {5.2 – 8.7}	42.1 – 70.6 {4.3 – 7.2}	31.4 – 52.9 {3.2 – 5.4}
1	86.2 – 173.5 {8.8 – 17.7}	72.5 – 146.0 {7.4 – 14.9}	54.9 – 111.7 {5.6 – 11.4}

2.2 If the male screw is made of refined steel (heat-treated hard steel), apply Table 3.

Table 3

Unit: Nm {kgm}

Material of female thread / Nominal size	Steel	Cast iron	Light alloy
1/8	16.7 – 29.4 {1.7 – 3.0}	9.8 – 19.6 {1.0 – 2.0}	6.9 – 14.7 {0.7 – 1.5}
1/4	19.6 – 44.1 {2.0 – 4.5}	16.7 – 37.2 {1.7 – 3.8}	12.7 – 28.4 {1.3 – 2.9}
3/8	44.1 – 93.1 {4.5 – 9.5}	37.2 – 77.4 {3.8 – 7.9}	27.4 – 58.8 {2.8 – 6.0}
1/2	98.0 – 188.2 {10.0 – 19.2}	83.3 – 157.8 {8.5 – 16.1}	60.8 – 115.6 {6.2 – 11.8}
3/4	170.5 – 316.5 {17.4 – 32.3}	141.1 – 247.0 {14.4 – 25.2}	105.8 – 186.2 {10.8 – 19.0}
1	367.5 – 612.5 {37.5 – 62.5}	309.7 – 514.5 {31.6 – 52.5}	235.2 – 392.0 {24.0 – 40.0}

3. Tightening torque for hydraulic hose connecting nut

For the connecting nuts installed to the hydraulic hose adapters in relatively low pressure systems, apply tightening torque in Table 4.

Table 4

Unit: Nm {kgm}

Outside diameter of hose (mm)	Width across flats (mm)	Tightening torque	
		Range	Target
Approx. 6	19	35 – 63 {3.5 – 6.5}	44 {4.5}
Approx. 10	22	54 – 93 {5.5 – 9.5}	74 {7.5}
	24	59 – 98 {6.0 – 10.0}	78 {8.0}
Approx. 13	27	84 – 132 {8.5 – 13.5}	103 {10.5}
Approx. 16	32	128 – 186 {13.0 – 19.0}	157 {16.0}
Approx. 20	36	177 – 245 {18.0 – 25.0}	216 {22.0}

Note : When connecting hoses, take care not to twist them.

Coating materials

★ The recommended coating materials such as adhesives, gasket sealants and greases used for disassembly and assembly are listed below.
★ For coating materials not listed below, use the equivalent of products shown in this list.

Category	Komatsu code	Part No.	Q'ty	Container	Main applications, features
Adhesives	LT-1A	790-129-9030	150 g	Tube	• Used to prevent rubber gaskets, rubber cushions, and cock plug from coming out.
	LT-1B	790-129-9050	20 g (2 pcs.)	Polyethylene container	• Used in places requiring an immediately effective, strong adhesive. Used for plastics (except polyethylene, polyprophylene, tetrafluoroethlene and vinyl chloride), rubber, metal and non-metal.
	LT-2	09940-00030	50 g	Polyethylene container	• Features: Resistance to heat and chemicals • Used for anti-loosening and sealant purpose for bolts and plugs.
	LT-3	790-129-9060 (Set of adhesive and hardening agent)	Adhesive: 1 kg Hardening agent: 500 g	Can	• Used as adhesive or sealant for metal, glass and plastic.
	LT-4	790-129-9040	250 g	Polyethylene container	• Used as sealant for machined holes.
	Holtz MH 705	790-126-9120	75 g	Tube	• Used as heat-resisting sealant for repairing engine.
	Three bond 1735	790-129-9140	50 g	Polyethylene container	• Quick hardening type adhesive • Cure time: within 5 sec. to 3 min. • Used mainly for adhesion of metals, rubbers, plastics and woods.
	Aron-alpha 201	790-129-9130	2 g	Polyethylene container	• Quick hardening type adhesive • Quick cure type (max. strength after 30 minutes) • Used mainly for adhesion of rubbers, plastics and metals.
	Loctite 648-50	79A-129-9110	50 cc	Polyethylene container	• Resistance to heat, chemicals • Used at joint portions subject to high temperatures.
Gasket sealant	LG-1	790-129-9010	200 g	Tube	• Used as adhesive or sealant for gaskets and packing of power train case, etc.
	LG-5	790-129-9080	1 kg	Can	• Used as sealant for various threads, pipe joints, flanges. • Used as sealant for tapered plugs, elbows, nipples of hydraulic piping.
	LG-6	790-129-9020	200 g	Tube	• Features: Silicon based, resistance to heat, cold • Used as sealant for flange surface, tread. • Used as sealant for oil pan, final drive case, etc.
	LG-7	790-129-9070	1 kg	Tube	• Features: Silicon based, quick hardening type • Used as sealant for flywheel housing, intake manifold, oil pan, thermostat housing, etc.
	Three bond 1211	790-129-9090	100 g	Tube	• Used as heat-resisting aealant for repairing engine.

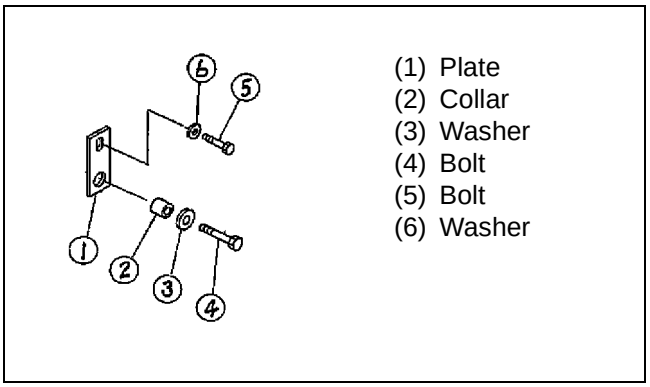
Category	Komatsu code	Part No.	Q'ty	Container	Main applications, features
Molybdenum disulphide lubricant	LM-G	09940-00051	60 g	Can	• Used as lubricant for sliding portion (to prevent from squeaking).
	LM-P	09940-00040	200 g	Tube	• Used to prevent seizure or scuffling of the thread when press fitting or shrink fitting. • Used as lubricant for linkage, bearings, etc.
Grease	G2-LI	SYG2-400LI SYG2-350LI SYG2-400LI-A SYG2-160LI SYGA-160CNLI	Various	Various	• General purpose type
	G2-CA	SYG2-400CA SYG2-350CA SYG2-400CA-A SYG2-160CA SYGA-160CNCA	Various	Various	• Used for normal temperature, light load bearing at places in contact with water or steam.
	Molybdenum disulphide grease LM-G (G2-M)	SYG2-400M SYG2-400M-A SYGA-16CNM	400 g × 10 400 g × 20 16 kg	Bellows type Bellows type Can	• Used for heavy load portion
	Hyper White Grease G2-T G0-T (*) *: For use in cold district	SYG2-400T-A SYG2-16CNT SYG0-400T-A (*) SYG0-16CNT (*)	400 g 16 kg	Bellows type Can	• Seizure resistance and heat resistance higher than molybdenum disulfide grease • Since this grease is white, it does not stand out against machine body.
	Biogrease G2B G2-BT (*) *: For high temperature and large load	SYG2-400B SYGA-16CNB SYG2-400BT (*) SYGA-16CNBT (*)	400 g 16 kg	Bellows type Can	• Since this grease is decomposed by bacteria in short period, it has less effects on microorganisms, animals, and plants.

A. Assembly

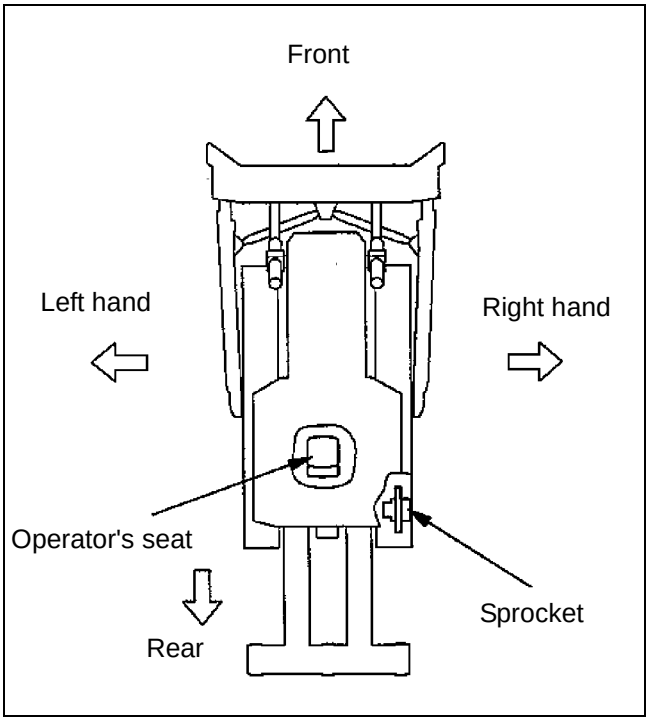
Remarks

1. In the "drawings" in this manual, parts and places are indicated by ①, ②, ③ ---, but indicated by (1), (2), (3) --- in the tables and texts.

Example:



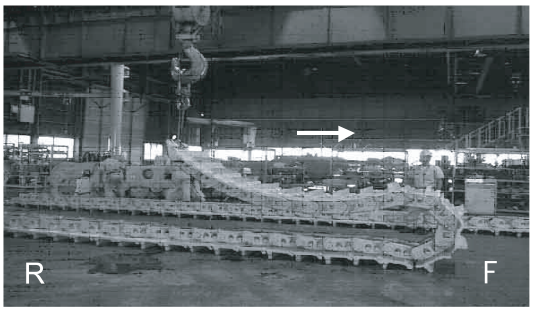
2. In some places of this manual, the words of front, rear, right hand and left hand of machine are used. Those words indicate the directions seen from the operator's seat with the sprocket at the rear as shown below, unless otherwise specified.

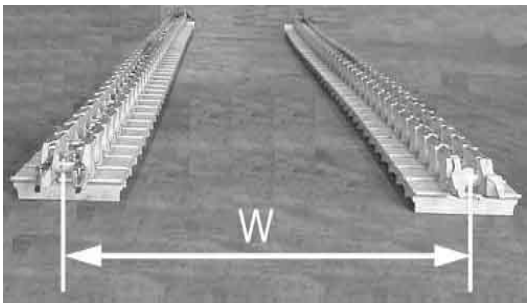


Assembly process No.	Installation of chassis (1/2)
A-1	

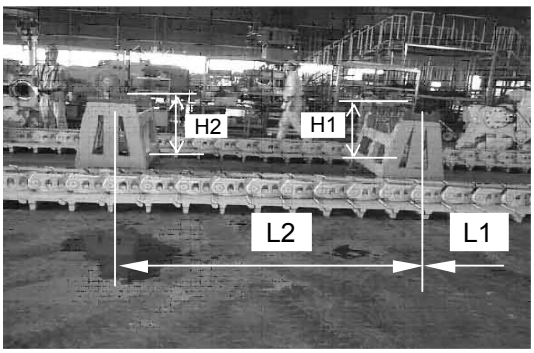
1. Installation of track shoe
   - Spread the track assemblies in parallel on a level place.
   - ★ Distance between track shoe centers (W): 2,260 mm
   - ★ Check the front and rear (F and R) ends of track shoes.

     Weight of 1 track shoe (Shoe width: 610): 3,400 kg





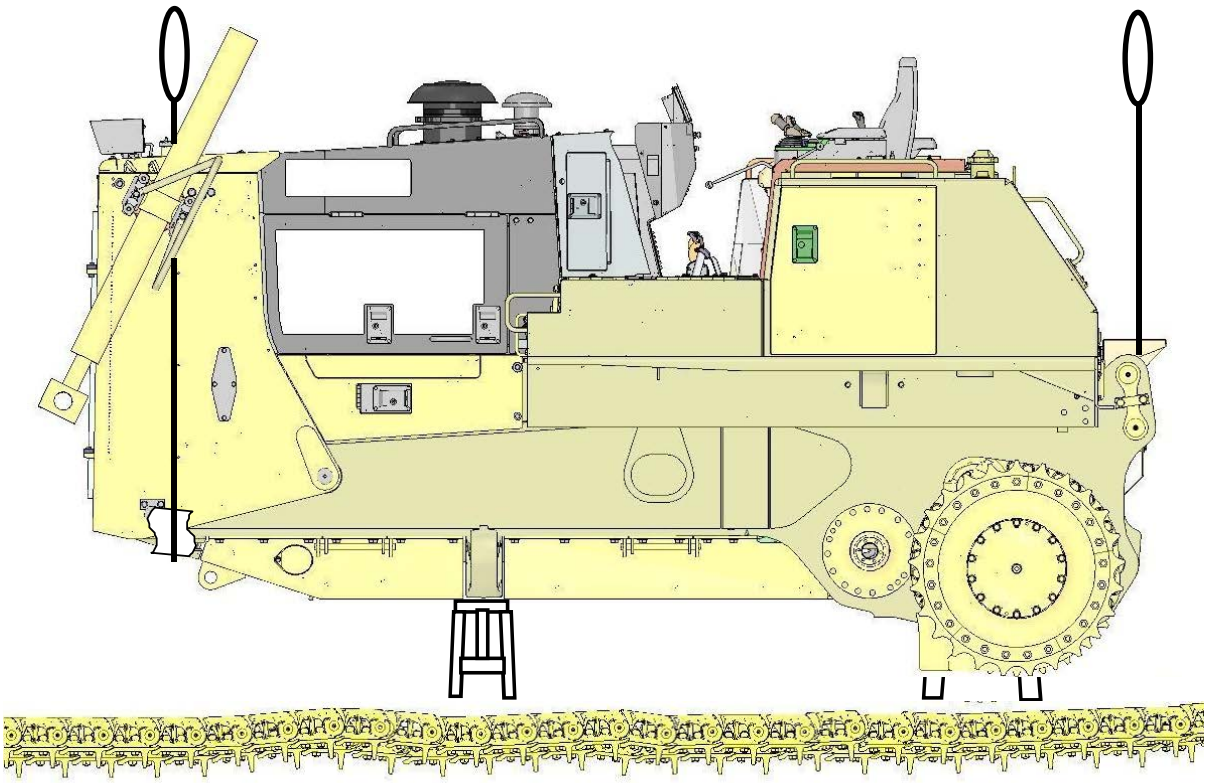
2. Installation of stand
   - ★ The heights of both front and rear stands must be about 900 mm (See the sketches of the tools).
   - Install the front stand at 2,500 mm (L1) from the front end of the track shoe.
   - Set the distance between the front and rear stands (L2) to 2,400 mm.



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	ø20 × 2,000 mm wire	2	25-ton crane	2
			Stands (front and rear)	2
	Other remarks			

Assembly process No.	Installation of chassis (2/2)
A-1	

3. Unloading of chassis
   Using 2 25-ton cranes, sling the chassis.
   Weight of tractor (chassis): 20,850 kg



★ Sling the rear section by the right and left ripper lift cylinder pins.
★ Put pads to the radiator guard corners on the front side to protect the wires.
Connect wires 30 mm in diameter with shackles and install them around the guard.

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	ø30 × 5,000 mm wire	2	25-ton crane	2
	ø20 × 5,000 mm wire	2		
	SA60 shackle	1		
	Other remarks			

Assembly process No.	Installation of track frame (1/7)
A-2	

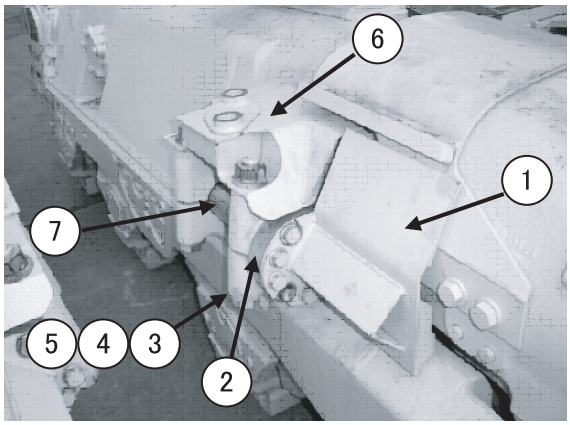
1. Removal of accessory parts of right and left track frames
   Weight of track frame (1 unit): 5,090 kg

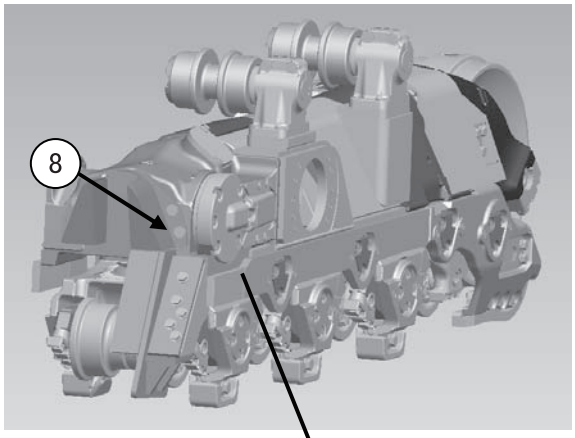
(Single tilt specification)

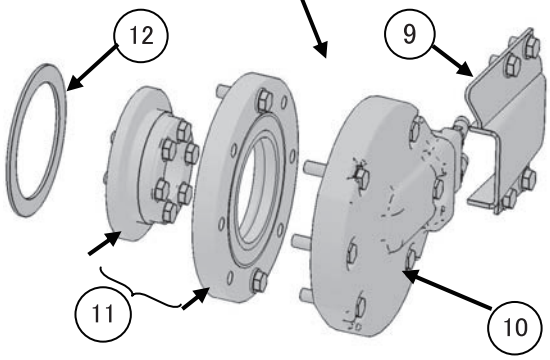
No.		Part No.	Part name	Q'ty
1		17M-50-61240	Left cover	1
		17M-50-61250	Right cover	1
2		17M-50-41181	Left cover	1
		17M-50-41192	Right cover	1
3		206-45-52120	Bolt	4
4		01643-32780	Washer	8
5		01580-02722	Nut	4
6		17M-50-61260	Left cover	1
		17M-50-61270	Right cover	1
7		17M-50-41140	Shaft	2
8		17M-30-51350	Cover	2
9		17M-30-61270	Left cover	1
		17M-30-61290	Right cover	1
10		17M-50-42140	Left cover	1
		17M-50-41212	Right cover	1
11	Left	17M-50-22130	Left washer	1
	Right	17M-50-42170	Right washer	1
		17M-50-42160	Right washer	1
		17M-50-25140	Seal	1
		17M-50-22240	Seal	1
12		17M-50-22230	Spacer	2

(Dual tilt specification) No. 1 – 8 shown above are common.

9		17M-30-61280	Left cover	1
		17M-30-61290	Right cover	1
10		17M-50-41212	Cover	2
11	Left	17M-50-42160	Washer	1
		17M-50-42170	Washer	1
		17M-50-25140	Seal	1
		17M-50-22240	Seal	1
	Right	17M-50-42160	Washer	1
		17M-50-42170	Washer	1
		17M-50-25140	Seal	1
		17M-50-22240	Seal	1





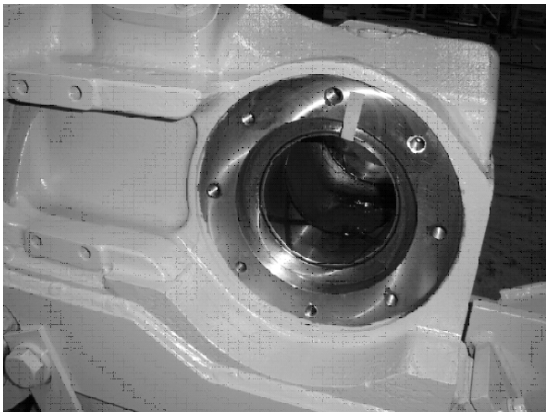


* Washer + Seal assembly for other than left of single-tilt model

Precautions	Necessary tools		Necessary equipment	
☆ Loosen split flange coupling bolt (3) and nut (5) of the equalizer bar side pin so that mudguard (6) is installed temporarily.	Name	Q'ty	Name	Q'ty
			25-ton crane	1
	Other remarks			

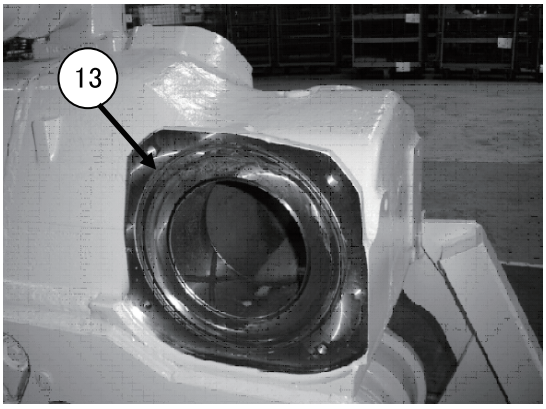
Assembly process No.	Installation of track frame (2/7)
A-2	

2. Clean the inside of the pivot shaft case.
   Apply grease to the inside of the bushing so that the track frame will slide smoothly along the pivot shaft when it is installed.



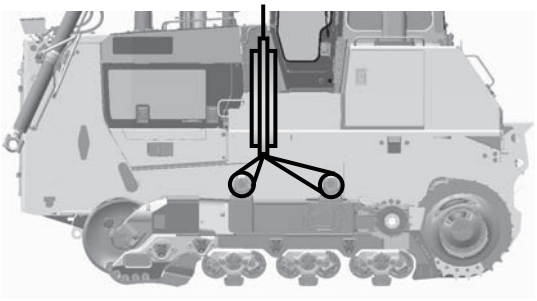
3. Apply grease to the groove to stick the O-ring and then fit the O-ring.

No.	Part No.	Part name	Q'ty
13	07000-15280	O-ring	2



4. Using the special sling, insert the track frame assembly along the pivot shaft.

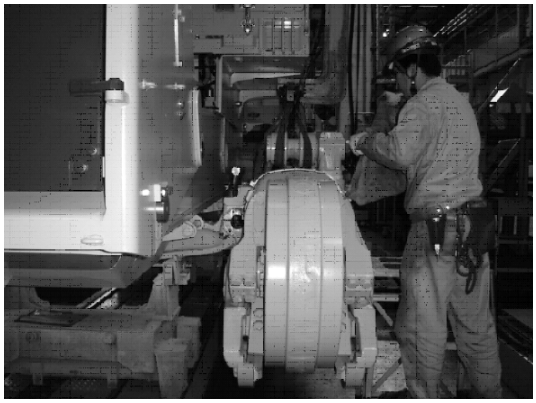
★ For details of the track frame sling, see the attached sketches of the tools.



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
			25-ton crane	1
			Special sling	1
	Other remarks			

Assembly process No.	Installation of track frame (3/7)
A-2	

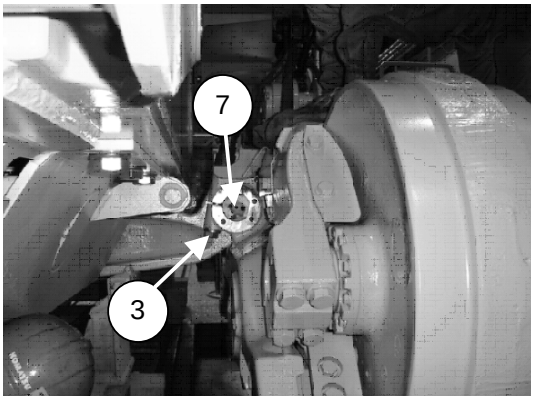
5. Set the hole for the equalizer bar side pin.



6. Insert shaft (7) with the stamp of "UP" up and tighten split flange coupling bolt (3).

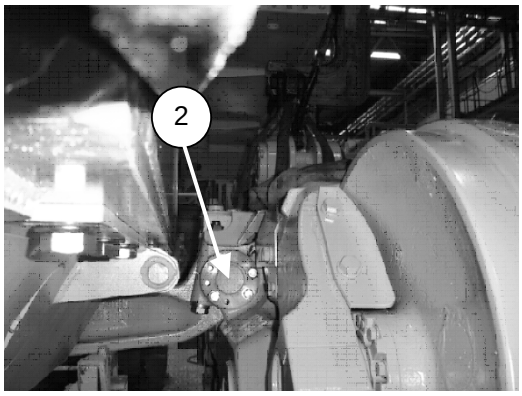
Tightening torque for coupling bolt: 1,180 – 1,470 Nm {120 – 150 kgm}

★ When the bolt or nut is tightened, the mating nut or bolt is turned, too. To prevent this, secure the mating part with a spanner and apply the specified torque accurately.



7. Install shaft cover (2) and connect the side pin grease tube.

Tightening torque for mounting bolt: 235 – 285 Nm {23.5 – 29.5 kgm}

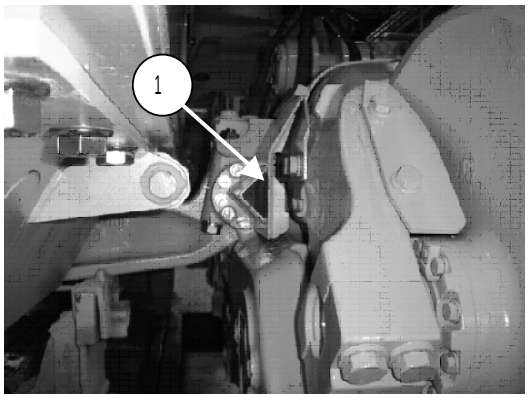


Precautions	Necessary tools		Necessary equipment	
☆ After installing 1 track frame, support it with hydraulic jacks, wooden blocks, etc. so that it will not slant when the crane is removed.	Name	Q'ty	Name	Q'ty
	Torque wrench	–		
	L200 extension	1		
	Other remarks			

Assembly process No.	Installation of track frame (4/7)
A-2	

8. Install side pin cover (1).

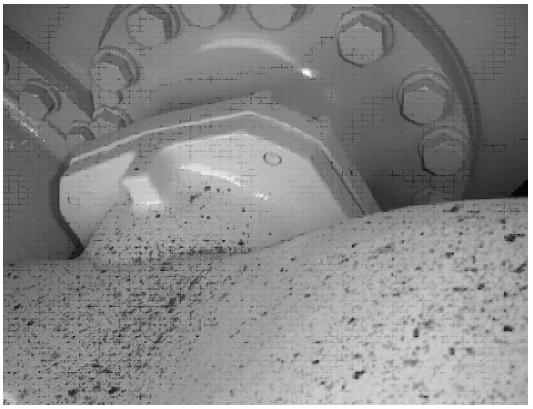
Tightening torque for mounting bolt:
235 – 285 Nm {23.5 – 29.5 kgm}



9. Installation of twist seal flange

★ While keeping the chassis and track frame horizontally so that the twist seal will not be twisted, install the cover.

Tightening torque for mounting bolt:
235 – 285 Nm {23.5 – 29.5 kgm}



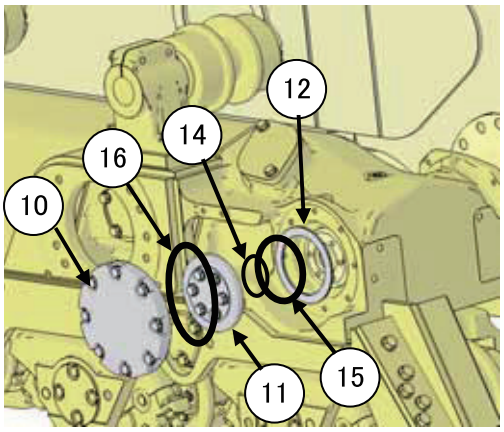
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Torque wrench	–		
	L200 extension	1		
	Other remarks			

Assembly process No.	Installation of track frame (5/7)
A-2	

10. Installation of left track frame shaft end cover
(Single dozer specification)
(1) Set O-ring (15) and spacer (12) to the pivot shaft end and then set O-ring (14) to washer (11) and install them.

No.	Part No.	Part name	Q'ty
14	07000-02075	O-ring	1
15	07000-12135	O-ring	2

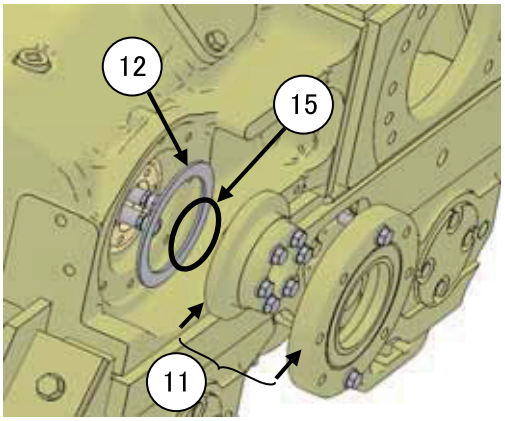
Tightening torque for mounting bolt:
235 – 285 Nm {23.5 – 29.5 kgm}



(2) Set O-ring (16) to shaft end cover (10) and install them.

No.	Part No.	Part name	Q'ty
16	07000-15220	O-ring	1

Tightening torque for mounting bolt:
235 – 285 Nm {23.5 – 29.5 kgm}



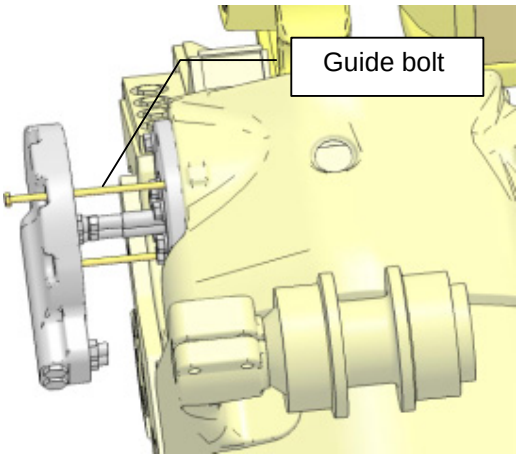
11. Installation of right track frame shaft end cover
(1) Set O-ring (15) and spacer (12) to the pivot shaft end and install inside washer (11) with the 6 bolts.

Tightening torque for mounting bolt:
235 – 285 Nm {23.5 – 29.5 kgm}

(2) Install outside washer (11) with the 2 bolts (01010-81670) at the top and bottom.
(3) Set 2 guide bolts to the shaft end cover to secure the space for tightening the hoses and connect the 2 tilt hoses.

Tightening torque for mounting bolt:
84 – 132 Nm {8.5 – 13.5 kgm}

★ Bottom side (Red band): Upper
Head side (Colorless): Lower

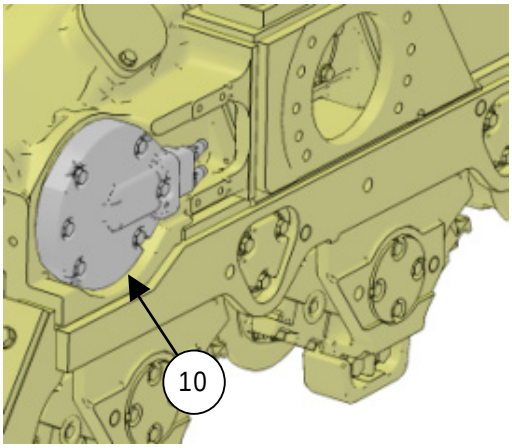


Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Torque wrench	–	Guide bolt M16, P2, L150	2
	Other remarks			

Assembly process No.	Installation of track frame (6/7)
A-2	

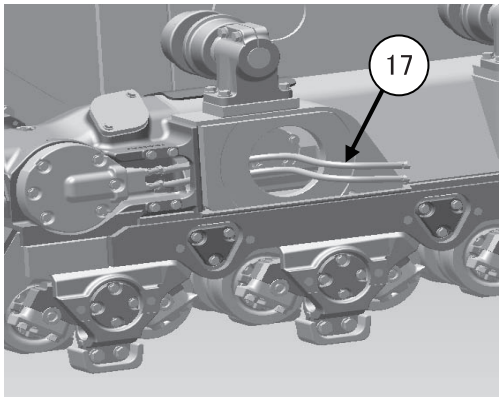
(4) Installation of shaft end cover (10)

Tightening torque for mounting bolt:
235 – 285 Nm {23.5 – 29.5 kgm}



12. Install tilt hoses (17).
(For single tilt specification)

No.	Part No.	Part name	Q'ty
17	17M-71-42220	Hose (upper) with red band	1
	17M-71-42231	Hose (lower)	1



(For dual tilt specification)

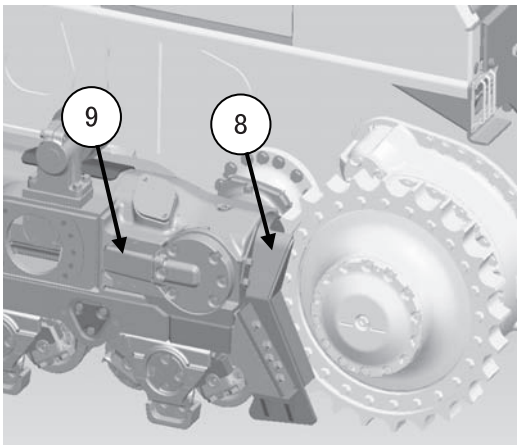
No.		Part No.	Part name	Q'ty
17	Right	17M-71-42220	Hose (upper) with red band	1
		17M-71-42231	Hose (lower)	1
	Left	17M-71-42210	Hose (upper) with blue band	1
		17M-71-42231	Hose (lower)	1

Tightening torque for hose:
84 – 132 Nm {8.5 – 13.5 kgm}

13. Installation of sprocket mudguards (8) (right and left) and left cover (9)

Tightening torque for mudguard (8) mounting bolt: 455 – 565 Nm {46.5 – 58 kgm}

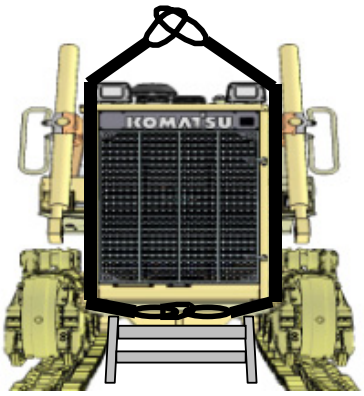
Tightening torque for left cover (9) mounting bolt: 235 – 285 Nm {23.5 – 29.5 kgm}



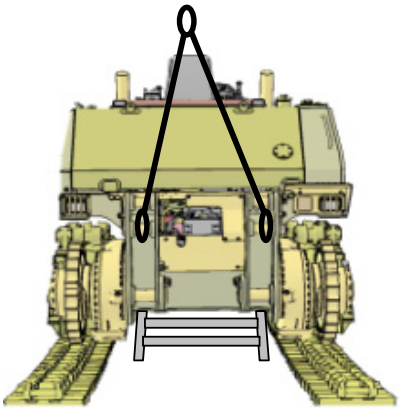
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Torque wrench	–		
	Other remarks			

Assembly process No.	Installation of track frame (7/7)
A-2	

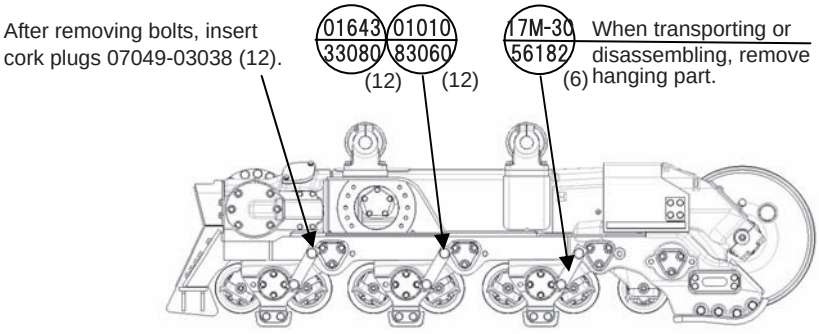
14. Lowering chassis
    (1) Sling and pull out the front section of the chassis and place it on the tracks.



    (2) Sling the rear section, pull out the stand, and place the chassis on the track link.



16. After lowering the chassis from the stand, remove the hanging plate and insert cork plugs in the bolt holes.



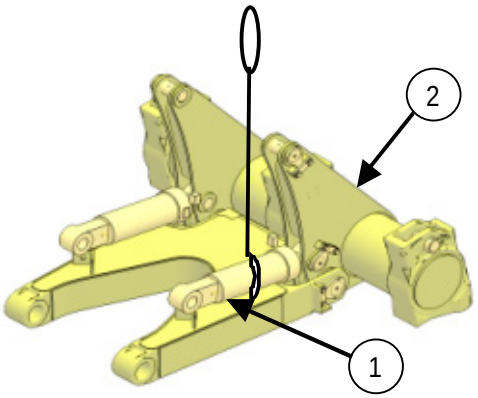
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Installation of ripper (1/7)
A-3	

- The multi-shank ripper is used as an example for the following explanation. The installation procedure for the giant ripper is basically the same as the following.

1. Remove lift cylinder (1) installed during transportation.

   Lift cylinder assembly: 185 kg

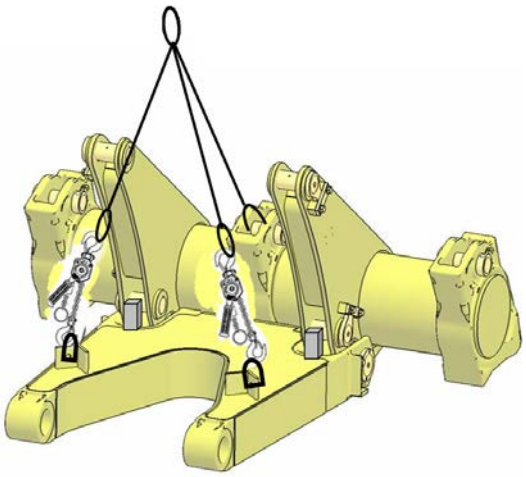


2. Using 2 lever blocks, adjust arm and beam assembly (2) to a level.

   Arm: 730 kg (Multi-shank ripper)

   Beam: 1,586 kg

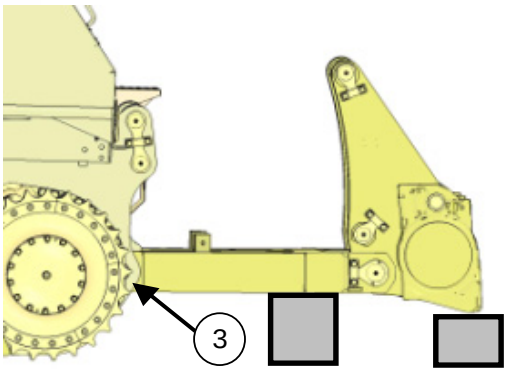
★ Be sure to put a piece of wood between the arm and beam so that their relative positions will not change when they are slung.



3. Position the arm and beam assembly on the chassis, insert pin (3), and fix the pin with the lock plate.

   Tightening torque for plate fixing bolt: 455 – 565 Nm {46.5 – 58 kgm}

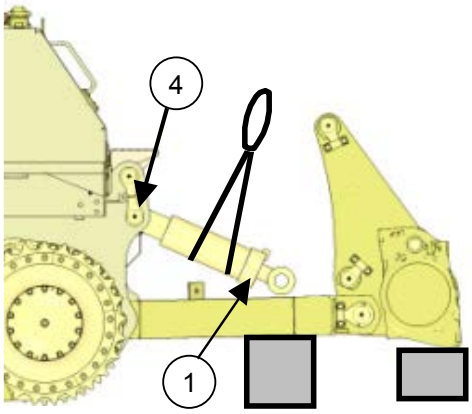
★ Set blocks under the arm and beam assembly so that the arm will be horizontal and the beam will be vertical.



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	1.5-ton lever block	2	25-ton crane	1
	SD22 shackle	2	300 × 400 wooden block	2
	ø20 × 5,000 wire	1		
	ø20 × 2,000 wire	2		
	25 mm wide, 3,000 mm long nylon sling	2		
	Torque wrench	–		
	Sledge hammer	1		
	Other remarks			

Assembly process No.	Installation of ripper (2/7)
A-3	

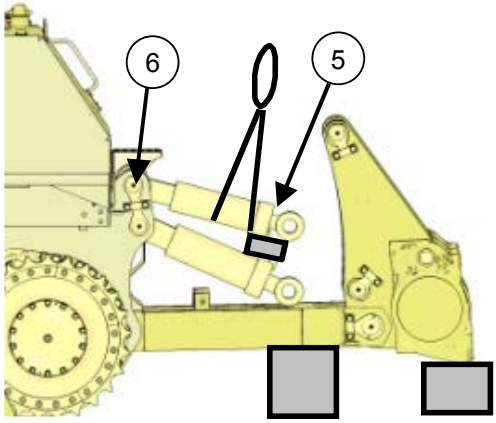
4. Sling and position lift cylinder assembly (1), insert pin (4), and lower the rod end to the arm top. (Right and left)



5. Sling tilt cylinder assembly (5), insert pin (6), and fix it with lock plate. (Right and left)

Lift cylinder assembly: 185 kg

Tightening torque for plate fixing bolt: 455 – 565 Nm {46.5 – 58 kgm}

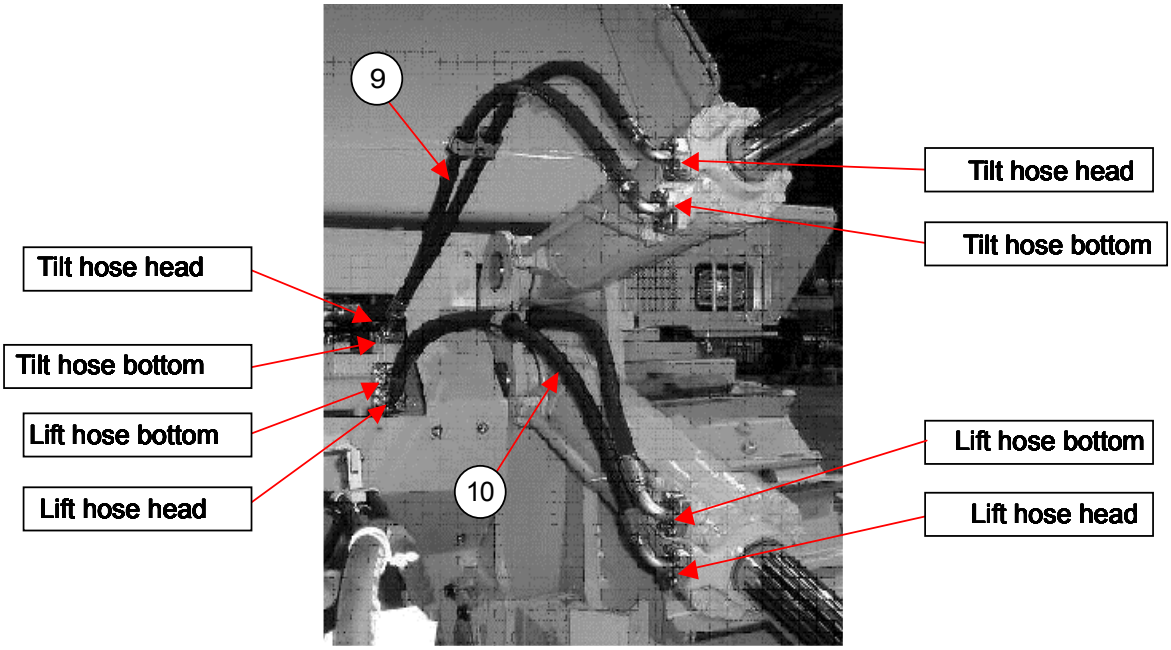


★ After installing the tilt cylinder, lower its rod to the lift cylinder with a wooden block between them.

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	25 mm wide, 3,000 mm long nylon sling	2	25-ton crane	1
	Torque wrench	–		
	Other remarks			

Assembly process No.	Installation of ripper (3/7)
A-3	

6. Installation of piping

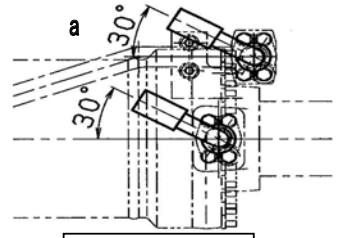


(1) Connect lift cylinder hoses (10).
At this time, set the angle between each hose adapter and cylinder to "a" (30 degrees).

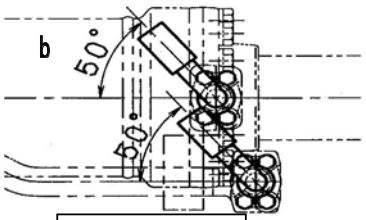
★ Lift cylinder hoses
L.H 17M-61-46110 1,100 mm
R.H 17M-61-46120 1,100 mm

(2) Connect tilt cylinder hoses (9).
At this time, set the angle between each hose adapter and cylinder to "b" (50 degrees).

★ Tilt cylinder hoses
L.H 17M-61-46130 1,250 mm
R.H 17M-61-46140 1,250 mm



Ripper lift piping

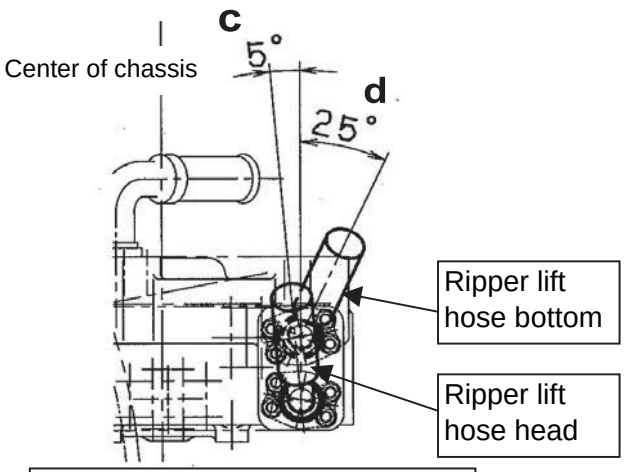


Ripper tilt piping

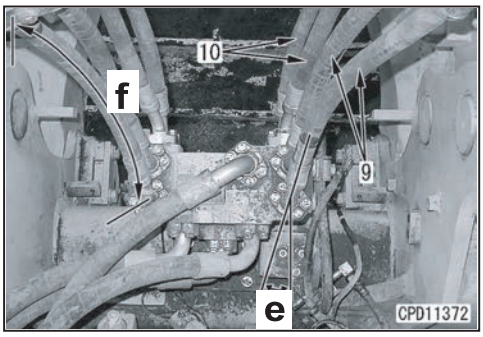
Precautions	Necessary tools		Necessary equipment	
When removing the piping plugs, take care of oil which will spout because of the residual pressure.	Name	Q'ty	Name	Q'ty
	L200 extension	1		
	Torque wrench	–		
	Other remarks			

Assembly process No.	Installation of ripper (4/7)
A-3	

(3) Connect each lift cylinder hose (10) to the block at the rear of the chassis and set the angle between its adapter and chassis to "c" (5 degrees) or "d" (25 degrees).

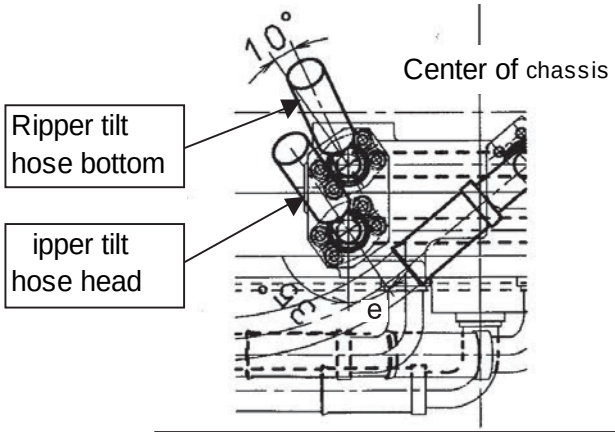


Ripper lift piping (Seen from rear)



Ripper piping seen from above

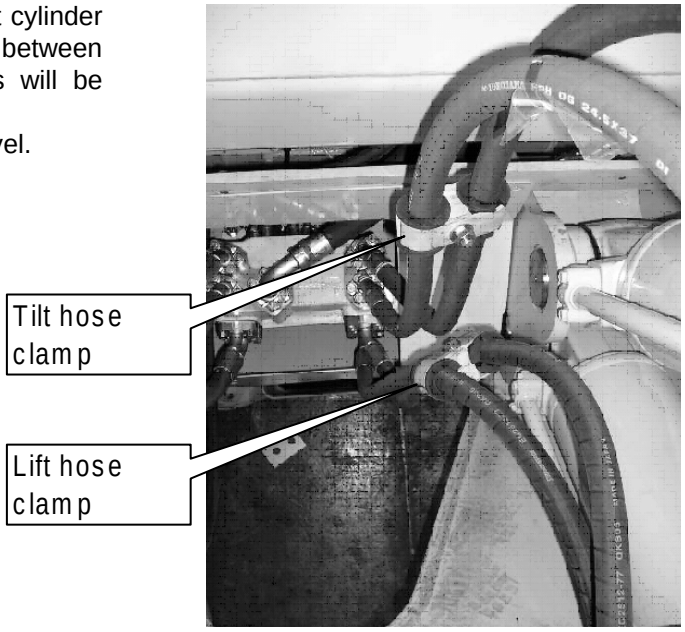
(4) Connect each tilt cylinder hose (9) to the block at the rear of the chassis and set the angle between its adapter and chassis to "e" (35 degrees).



Ripper tilt piping (Seen from above)

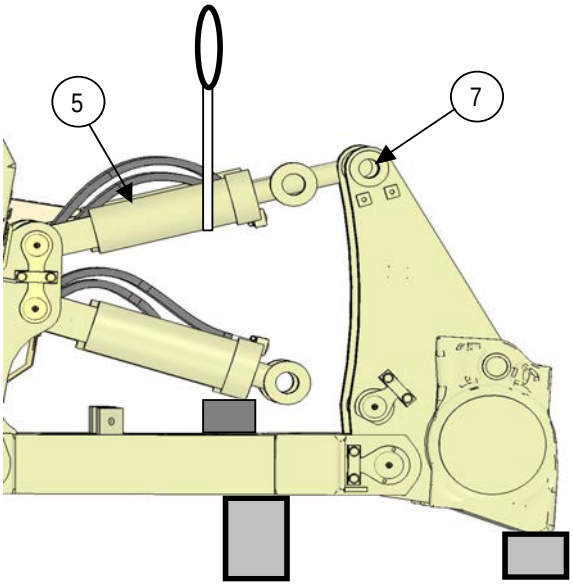
Assembly process No.	Installation of ripper (5/7)
A-3	

(5) Connect the lift cylinder hoses and tilt cylinder hoses so that distance "f" (see 4/7) between their adapters and the hose clamps will be respectively 500 mm and 560 mm.
At this time, fix the hose clamp to a level.



7. Sling tilt cylinder assembly (5) temporarily, start the engine, extend the piston rod, match the pin holes, insert pin (7), and fix the pin with lock plate. (Right and left)

Tightening torque for plate fixing bolt:
455 – 565 Nm {46.5 – 58 kgm}



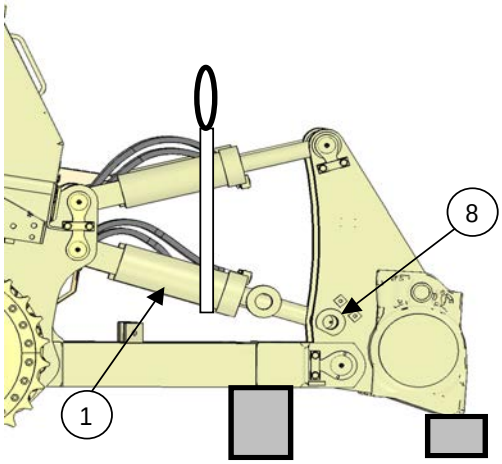
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	25 mm wide, 3,000 mm long nylon sling	1		
	Sledge hammer	1		
	Torque wrench	–		
	Other remarks			

Assembly process No.	Installation of ripper (6/7)
A-3	

8. Sling lift cylinder assembly (1) temporarily, start the engine, extend the piston rod, match the pin holes, insert pin (8), and fix the pin with lock plate. (Right and left)

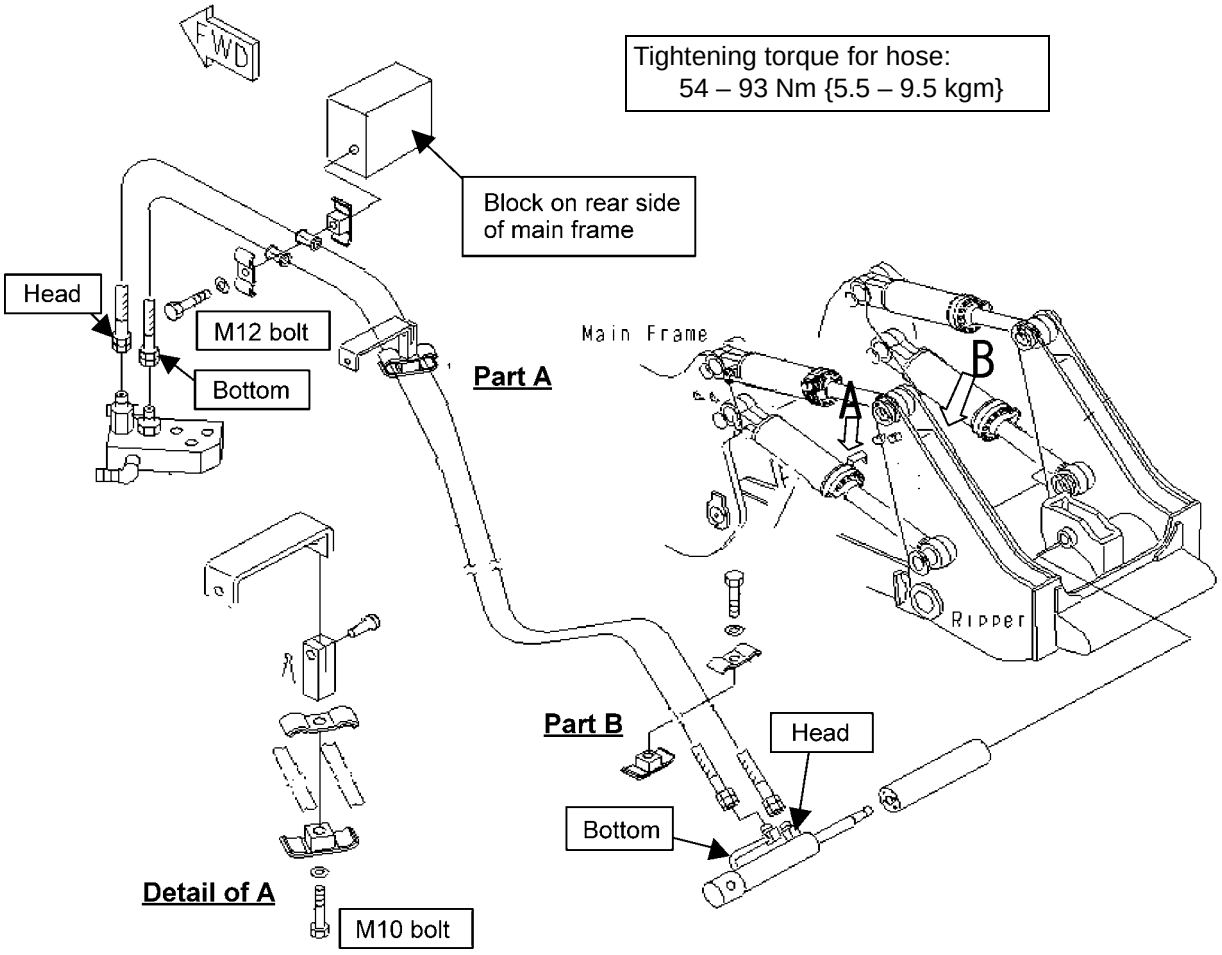
   Tightening torque for plate fixing bolt:
   455 – 565 Nm {46.5 – 58 kgm}

   - Supply grease.
     For details, see "A-13. Greasing each part".



9. Connection of pin puller cylinder piping (giant ripper)

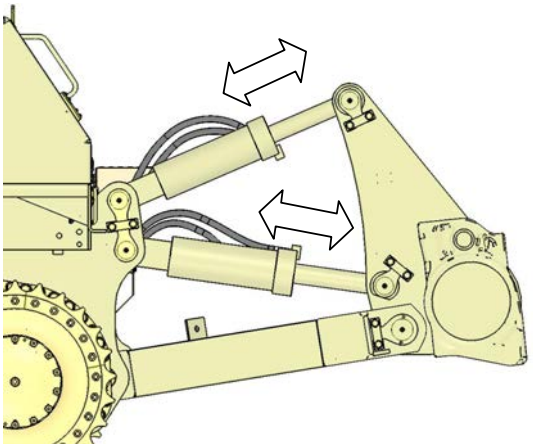
Tightening torque for hose:
54 – 93 Nm {5.5 – 9.5 kgm}



Assembly process No.	Installation of ripper (7/7)
A-3	

10. Bleeding air from cylinders
    Bleed air from the hydraulic circuit according to the following procedure.

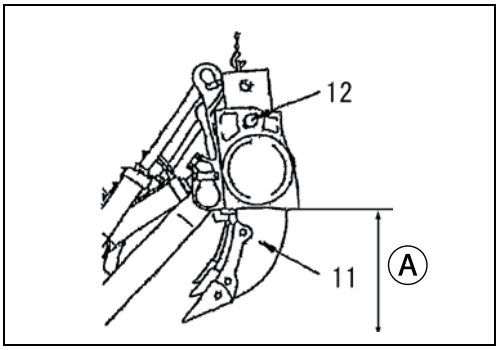
    (1) Run the engine at low idle.
    (2) Bleed air from the lift cylinder first.
    Move the cylinder to about 100 mm before each stroke end 4 – 5 times. (Do not relieve the oil at each stroke end.)
    (3) Move the cylinder to each stroke end 3 – 4 times.
    (4) Lower the shank point to the ground and check that the hydraulic oil level is proper. If the oil level is low, add new oil according to the Operation and Maintenance Manual.
    (5) When bleeding air, check that each cylinder hose moves freely and oil does not leak through each joint.



11. Installation of shank assembly
    (1) Start the engine and set the shank in the maximum raising and tilt-in position.
    (2) Pass a wire through the shank mounting hole of the beam and sling shank (11) and secure it with pin (12).

    Shank: 350 kg

    ★ When the shank assembly is installed, the dimension under the beam (A) must be larger than the overall length of the shank.
    If the dimension under the beam is not sufficient, dig a hole in the ground or move the machine to a place where the necessary dimension is secured after installing the tracks, and then install the shank.

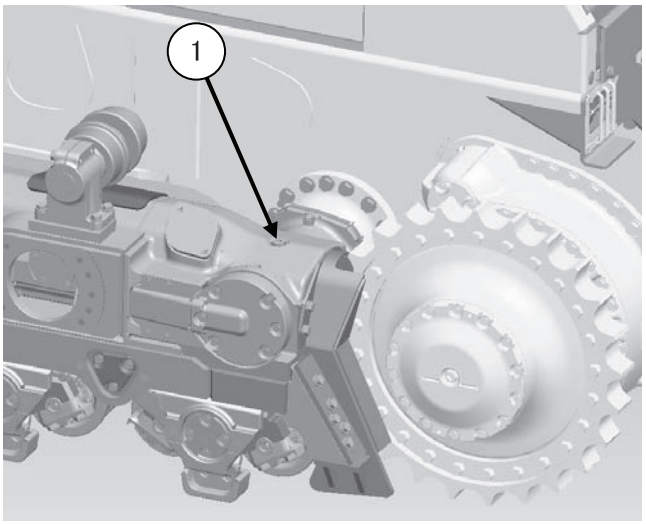


Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	ø12 × 2,000 wire	1	25-ton crane	1
	Other remarks			

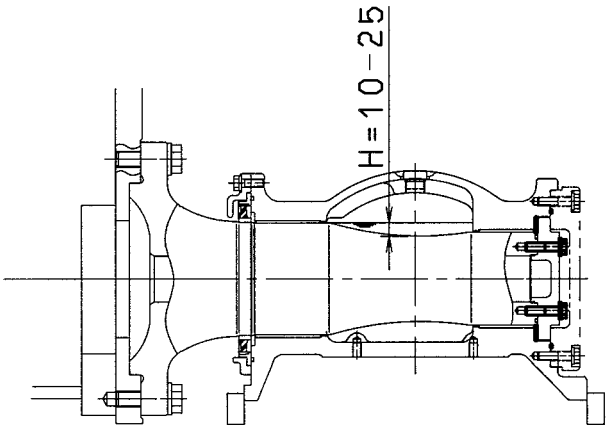
Assembly process No.	Adding oil to pivot chamber
A-4	

1. Remove plug (1) and add oil to the pivot shaft.

★ Pivot shaft oil chamber:
10 ℓ/each side (EO30)



★ Pivot shaft oil level
H = 10 – 25 mm



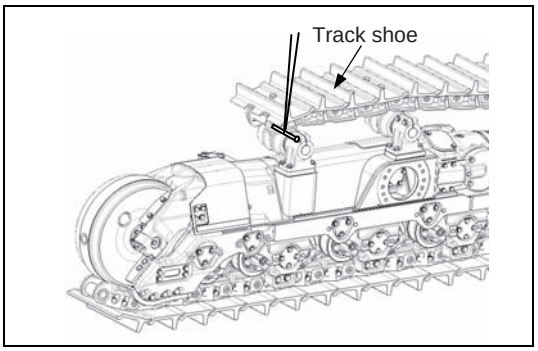
2. Install plug (1).
Tightening torque: 127.5 – 176.5 Nm {13 – 18 kgm}

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Torque wrench	–		1
	Other remarks			

Assembly process No.	Installation of track shoes
A-5	

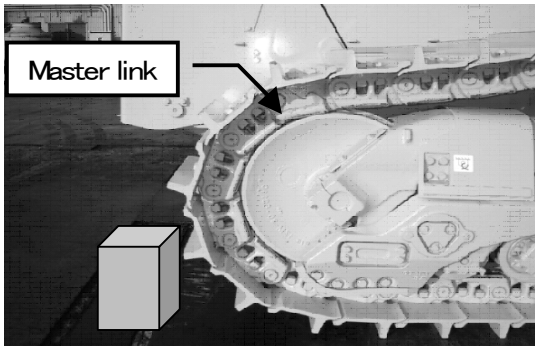
1. Put blocks (400 mm) under the track shoe grousers on the front side of the machine.

2. Lift up the end of the track shoes (master links) on the rear side of the machine and mesh them with the sprocket teeth and move the machine slowly forward to install the track shoes.



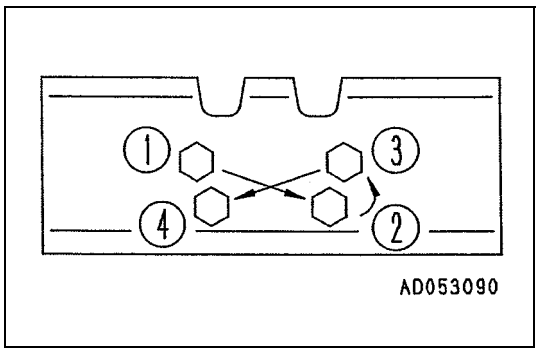
3. Mesh the master links and clamp them and shoe plates with the bolts.

   ★ Place the master link at the upper part of idler.
   ★ Tighten the all 4 shoe bolts with the fingers until the contact surfaces of the master link are fitted.
   ★ If the shoe bolts are tightened forcibly before the contact surfaces of the master link are fitted, the threads of them and master link may be damaged.



4. Tighten the shoe bolts for the master link in the order shown at right.

   ★ Apply anti-seizure agent LM-P to the threads of the bolts, threads of the links, and hexagon seats.
   ★ Tightening method
   1) First, tighten to torque of 490 ± 49 Nm {50 ± 5 kgm}.
   2) Make a match mark on the hexagon part of the bolt (the position at which the bolt starts turning).
   3) Make a match mark on the bolt tightening socket and set it to the match mark on the bolt.
   4) Tighten the bolt with a large-sized impact wrench until the angle between the match marks is 180 ± 10 degrees.



   ★ Install the other side of track shoe in the order shown above.

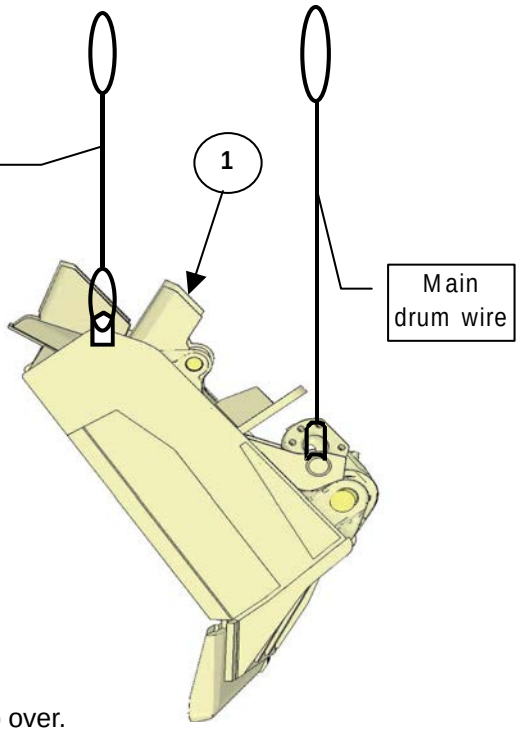
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	ø20 × 5,000 wire	1	25-ton crane	2
	Torque wrench	–	300 × 400 wooden block	1
	Other remarks			

Assembly process No.	Assembly of blade (For Semi-U-dozer • U-dozer) (1/6)
A-6	

1. Operate the auxiliary drum and main drum simultaneously to raise blade (1) upright from the transportation position.

   Weight of blade: 4,000 kg

   ★ Wash off paint and rust preventive oil from each pin hole and ball joint.

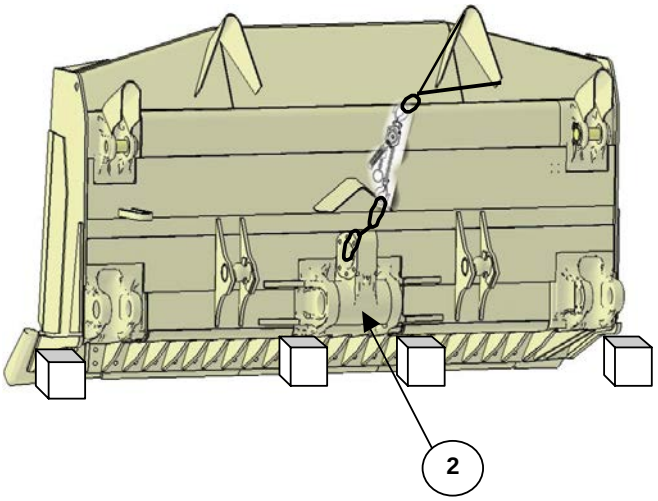


2. Set wooden blocks securely so that the blade will not tip over.

   (1) Put wooden blocks to 2 places under the center link bracket.

   (2) Put wooden blocks under the straight frames on both sides.

3. Keep center link (2) up with the lever block.



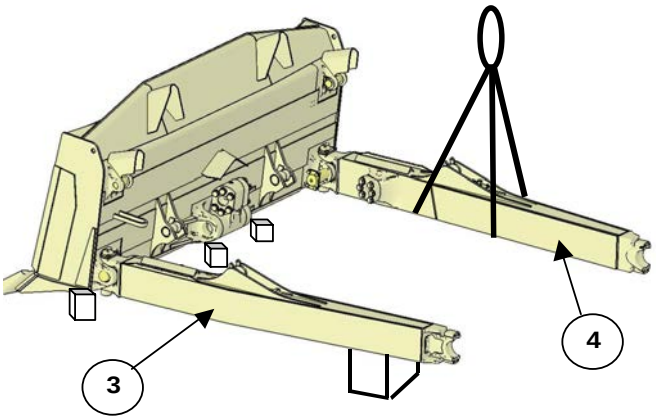
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	ø20 × 6,000 wire	4	25-ton crane	1
	SD22 shackle	2		
	300 × 400 wooden block	4		
	1.5-ton lever block	1		
	M16 eyebolt	1		
	Other remarks			

Assembly process No.	Assembly of blade (For Semi-U-dozer • U-dozer) (2/6)
A-6	

4. Position right and left straight frames (3) and (4) to the holes of the blade, insert the side pins, and secure the pins with the lock plates.

   Weight of straight frame: 864 kg

   Tightening torque for lock plate fixing bolt: 147 – 309 Nm {15 – 31.5 kgm}



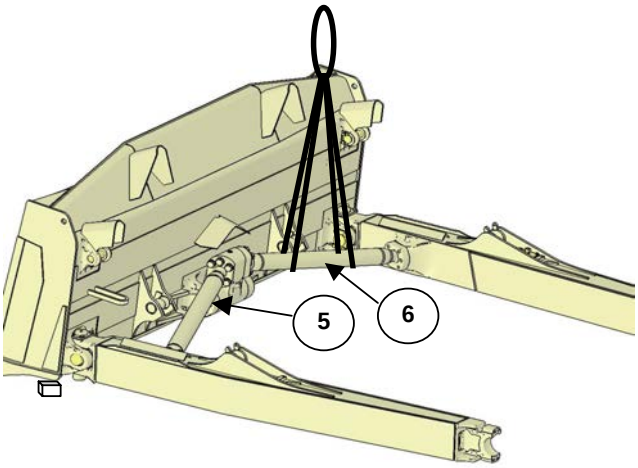
- If the straight frames slant to the right or left, the joints will not enter the brackets. Accordingly, take care when slinging.
- Set the straight frames a little widened so that you can install the arm rods easily.
- Set the straight frames to a level with wooden blocks so that you can install the tilt cylinder easily.

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	50 mm wide, 3,000 mm long nylon sling	2	25-ton crane	1
	300 × 400 wooden block	2		
	Torque wrench	–		
	Other remarks			

Assembly process No.	Assembly of blade (For Semi-U-dozer • U-dozer) (3/6)
A-6	

5. Sling center arms (5) and (6) and tighten the cap mounting bolts temporarily without inserting the any shim to eliminate the clearance in the axial direction of the ball joints.
   Insert the shim of dimension A + 0.2 to 0.5 mm (Secure the clearance in the axial direction of the ball joint) for each ball joint.
   Tighten the bolts to the specified torque and check that the ball joint moves smoothly.

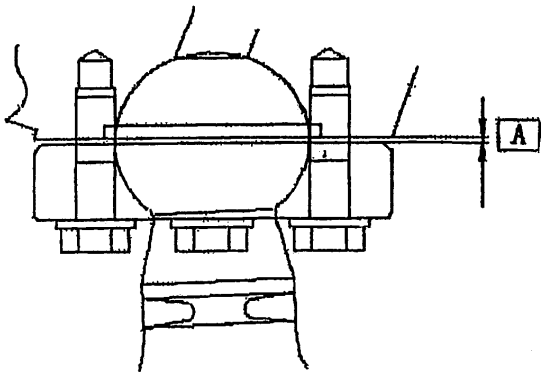
★ Perform the above adjustment for all of the 4 ball joints.



Weight of center arm: 142 kg

Tightening torque for cap mounting bolt:
883 – 1,470 Nm {90 – 150 kgm}

Part No. of shim	Thickness (mm)
17M-71-31330	0.5
17M-71-31340	1.0
17M-71-31350	2.3



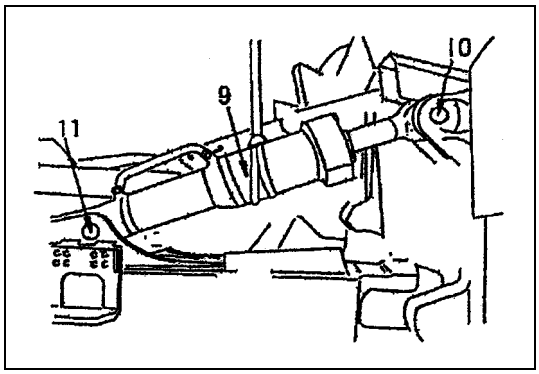
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	50 mm wide, 3,000 mm long nylon sling	2	25-ton crane	1
	Torque wrench	–		
	Other remarks			

Assembly process No.	Assembly of blade (For Semi-U-dozer • U-dozer) (4/6)
A-6	

6. Sling tilt cylinder (9) temporarily and insert pins (10) and (11) and secure them with the lock plates.

   Weight of tilt cylinder: 230 kg

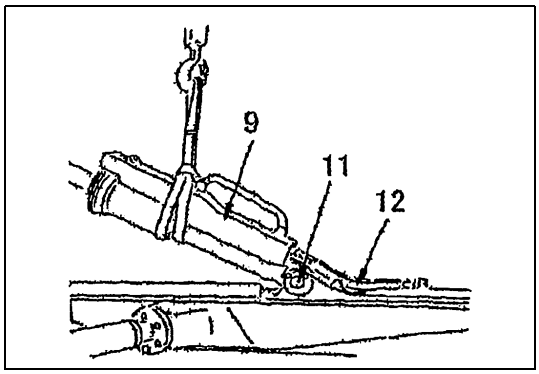
   Mounting bolt tightening torque
   157 – 196 Nm {16 – 20 kgm}



7. Install tilt cylinder hoses (12).

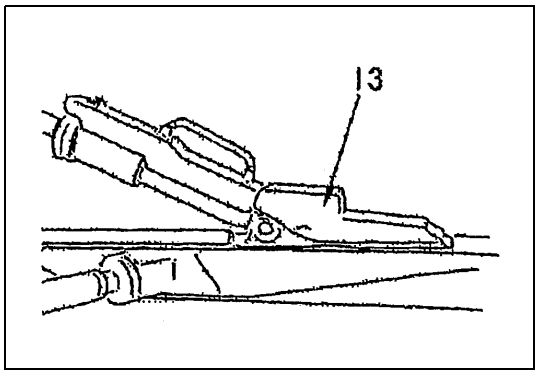
   ★ 17M-71-42421, #05-size hose
   Length: 400 mm

   Hose tightening torque
   128 – 186 Nm {13.0 – 19.0 kgm}



8. Install right frame hose cover (13).

   Mounting bolt tightening torque
   235 – 285 Nm {23.5 – 29.5 kgm}

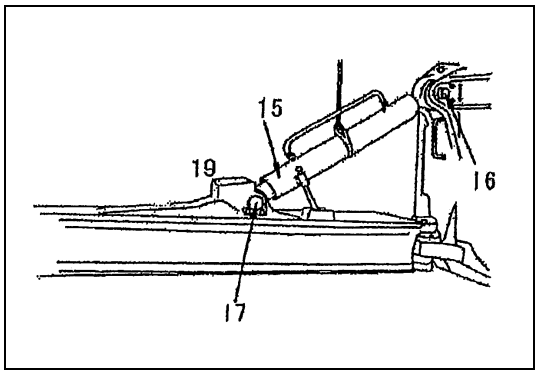


Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	50 mm wide, 3,000 mm long nylon sling	1	25-ton crane	1
	Sledge hammer	1		
	Torque wrench	–		
	Other remarks			

Assembly process No.	Assembly of blade (For Semi-U-dozer • U-dozer) (5/6)
A-6	

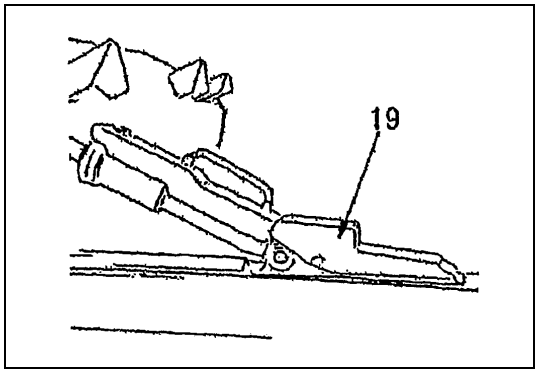
9. Sling tilt brace (15) temporarily and insert pins (16) and (17) and secure them with the lock plates.
   ★ Standard brace length: 1,480 mm

   Mounting bolt tightening torque
   235 – 285 Nm {23.5 – 29.5 kgm}



10. Install step cover (19).

    Mounting bolt tightening torque
    235 – 285 Nm {23.5 – 29.5 kgm}



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	50 mm wide, 3,000 mm long nylon sling	1		
	Sledge hammer	1		
	Torque wrench	–		
	Other remarks			

Assembly process No.	Assembly of blade (For Semi-U-dozer • U-dozer) (6/6)
A-6	

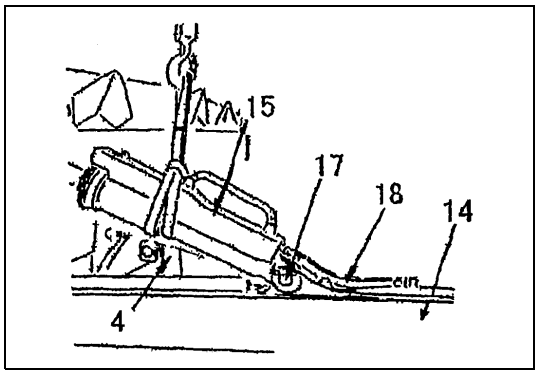
[For dual tilt blade specification]

11. Sling the tilt cylinder temporarily and insert pins (16) and (17) and secure them with the lock plates.

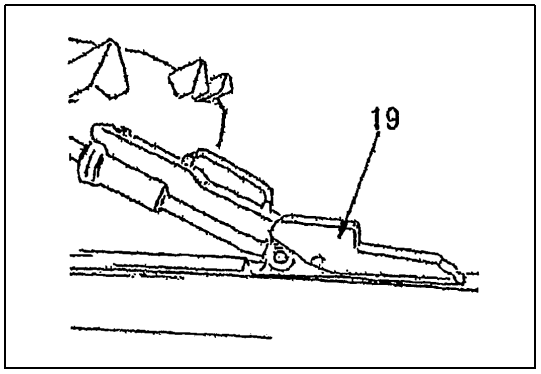
    Weight of tilt cylinder: 230 kg

    (1) Install tilt cylinder hoses (18).

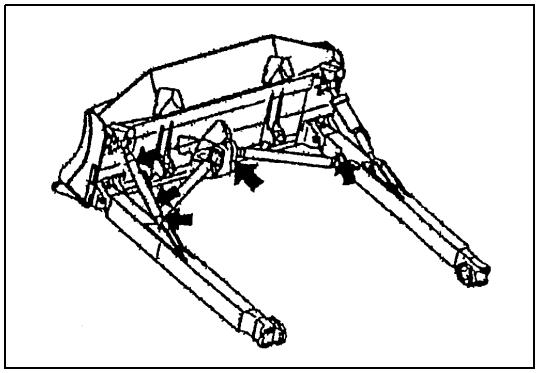
    Hose tightening torque
    128 – 186 Nm {13.0 – 19.0 kgm}



    (2) Install right frame cover (19).



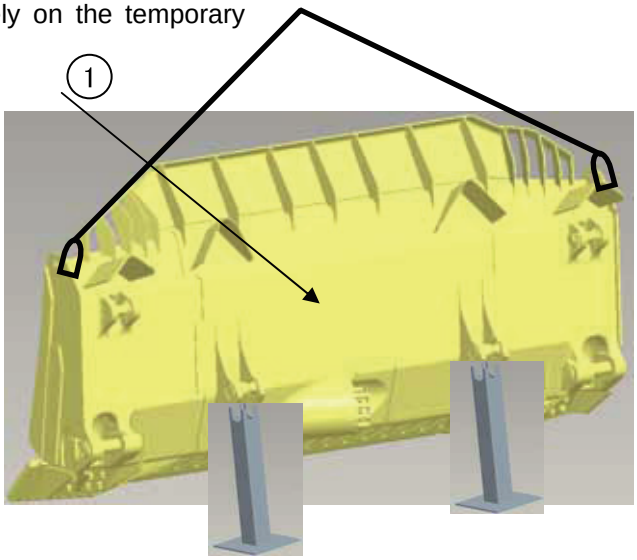
12. After finishing assembly, apply sufficient amount of grease to the parts shown in the figure at right.
    Each part of work equipment: Grease (G2-LI)



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	50 mm wide, 3,000 mm long nylon sling	2	25-ton crane	1
	Torque wrench	–		
	Other remarks			

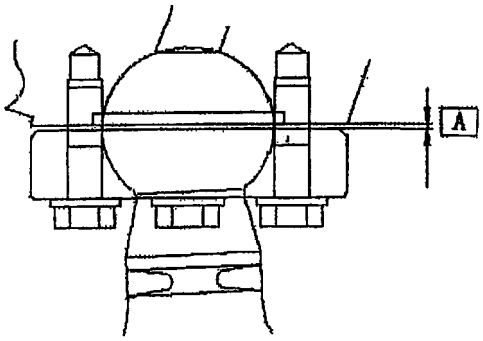
Assembly process No.	Assembly of blade (For Sigmadozer) (1/6)
A-7	

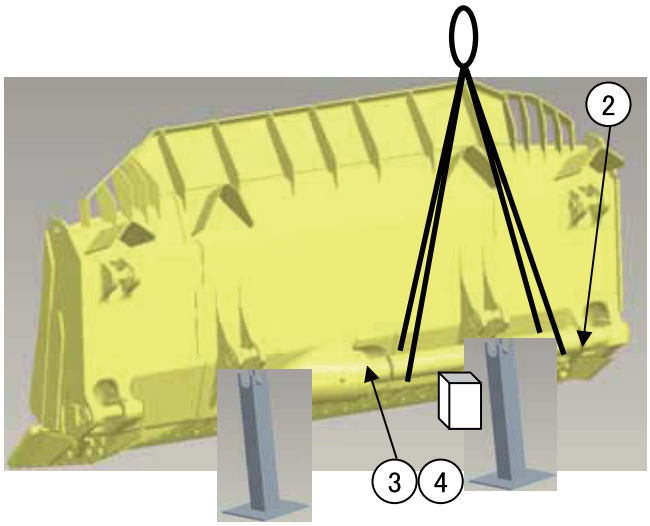
1. Sling blade (1) and set it stably and securely on the temporary blade stand.
   Weight of blade: 5,000 kg



2. Remove the paint from each pin hole and ball joint and clean.

3. Sling center arm (2) and tighten cap mounting bolts (3) temporarily without inserting a shim (eliminate the axial clearance in the ball joint) and then insert shim (4) of thickness of dimension A + 0.2 to 0.5 mm. (Secure axial clearance of 0.2 to 0.5 mm in the ball joint.)
   Tighten the bolt to the specified torque and check that the ball joint moves smoothly.





★ Standard shim thickness: 4.5 mm
Center arm weight: 280 kg

Tightening torque for mounting bolt
1,960 – 2,450 Nm {200 – 250 kgm}

★ Set wooden blocks of the height of the straight frame under the center arm.

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	ø20 × 6,000 wire	2	25-ton crane	1
	BC36 shackle	2		
	300 × 400 wooden block	4		
	50 mm wide, 3,000 mm long nylon sling	2		
	L300 SP extension	1		
	Torque wrench	–		
	Temporary blade stand	2		
	Other remarks			

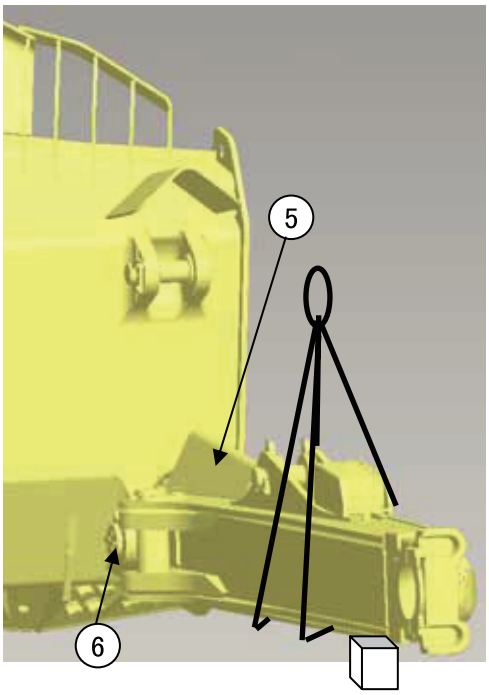
Assembly process No.	Assembly of blade (For Sigmadozer) (2/6)
A-7	

4. Sling right straight frame (5), position it to the hole on the blade side, install pin (6), and fix it with the lock plate.

   Weight of right straight frame assembly: 1,450 kg

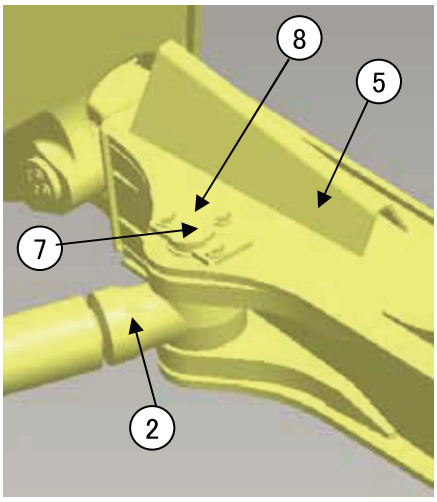
   Tightening torque for lock plate mounting bolt
   235 – 285 Nm {23.5 – 29.5 kgm}

   ★ Set a wooden block under the straight frame.
   ★ If the pin rotates when tightening the bolt of pin (6), install the blade to the chassis, then push down the blade on the ground, and tighten the bolt.



5. Install right straight frame (5) and center arm (2) with pin (7) and fix it with lock plate (8).

   Tightening torque for lock plate mounting bolt:
   785 – 980 Nm {80 – 100 kgm}

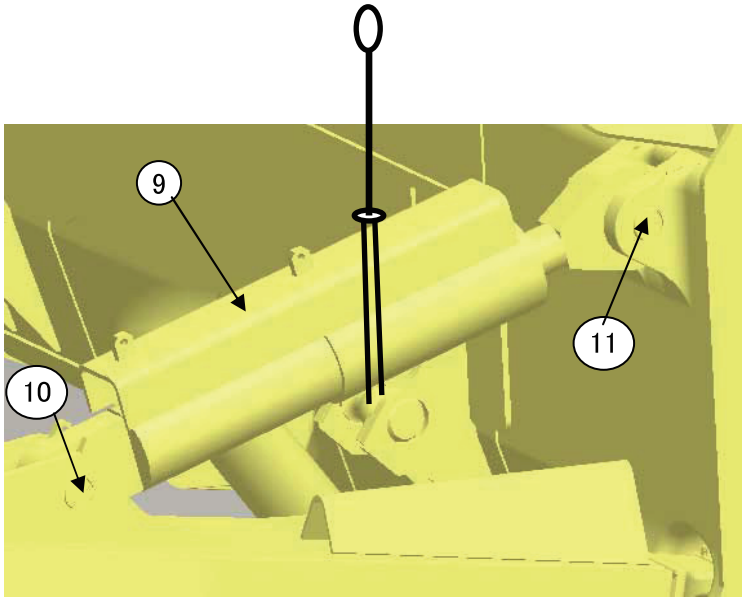


Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	50 mm wide, 3,000 mm long nylon sling	2	25-ton crane	1
	Torque wrench	–		
	300 × 400 wooden block	1		
	Other remarks			

Assembly process No.	Assembly of blade (For Sigmadozer) (3/6)
A-7	

6. Sling right tilt cylinder (9), install pins (10) and (11), and fix them with the lock plates.

   Tightening torque for lock plate mounting bolt:
   235 – 285 Nm {23.5 – 29.5 kgm}



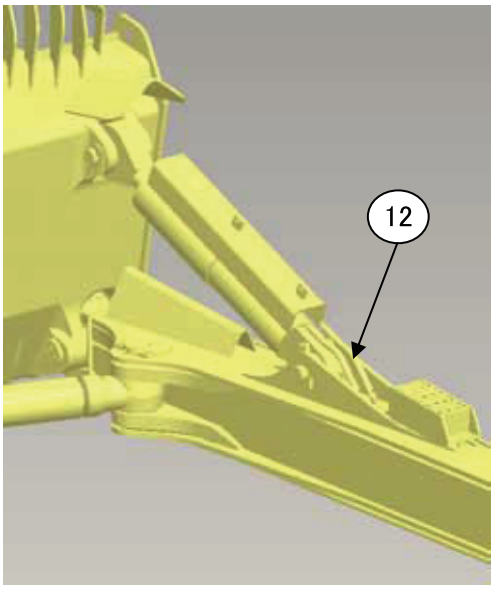
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	50 mm wide, 3,000 mm long nylon sling	1	25-ton crane	1
	L300 SP extension	1		
	Torque wrench	–		
	Sledge hammer	1		
	Other remarks			

Assembly process No.	Assembly of blade (For Sigmadozer) (4/6)
A-7	

7. Connect right pitch cylinder hoses (12).

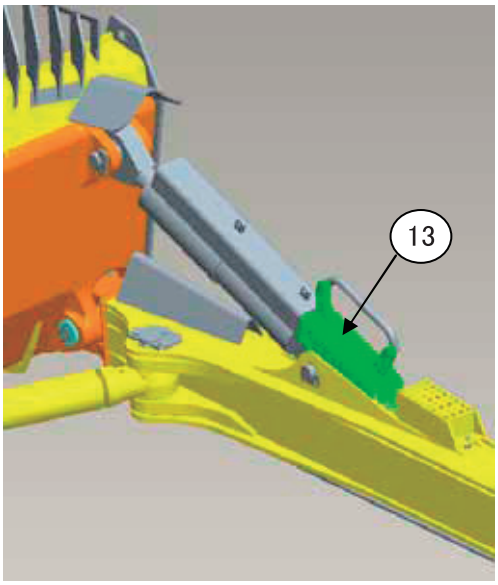
★ 17M-71-48640, #05 size hose, Length: 440 mm

Tightening torque for hose
128 – 186 Nm {13 – 19 kgm}



8. Install right frame cover (13).

Tightening torque for cover mounting bolt
235 – 285 Nm {23.5 – 29.5 kgm}



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Torque wrench	–		
	Other remarks			

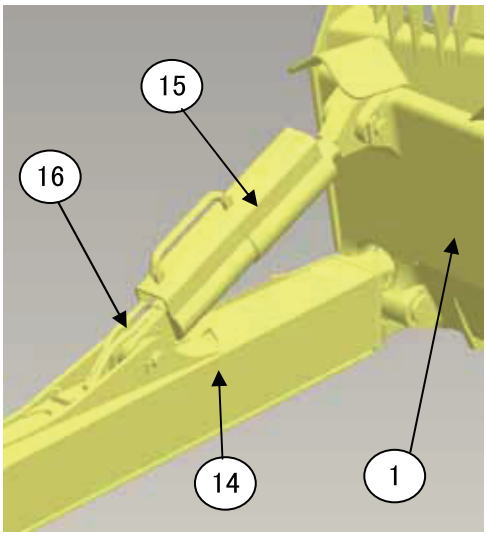
Assembly process No.	Assembly of blade (For Sigmadozer) (5/6)
A-7	

9. Install left straight frame (14) and blade (1) similarly to the procedure in step 4 above.

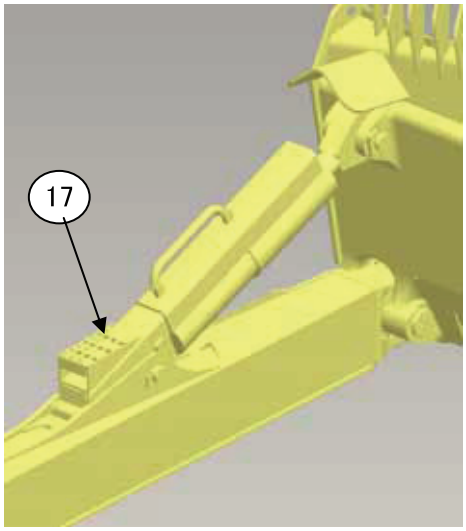
   Weight of left straight frame assembly: 1,000 kg

10. Install tilt cylinder (15) similarly to the procedure in step 6 above.
    (Part (15) is the brace in the single tilt specification.)

11. Install tilt cylinder hoses (16) similarly to the procedure in step 7 above.
    (Do not install these hoses in the single tilt specification.)



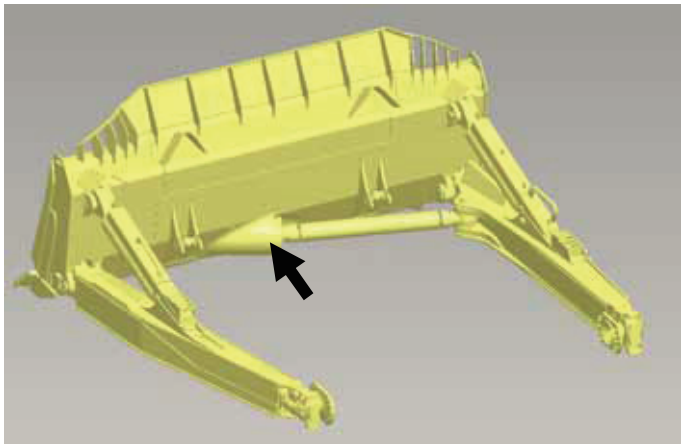
12. Install cover (17) similarly to the procedure in step 8 above.

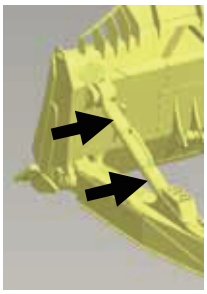


Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	50 mm wide, 3,000 mm long nylon sling	2	25-ton crane	1
	Torque wrench	–		
	Sledge hammer	1		
	300 × 400 wooden block	1		
	Other remarks			

Assembly process No.	Assembly of blade (For Sigmadozer) (6/6)
A-7	

13. After finishing assembly, grease each part in the figure below sufficiently.
    Each part of work equipment: Grease (G2-LI)





Grease brace in single tilt specification, too.

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

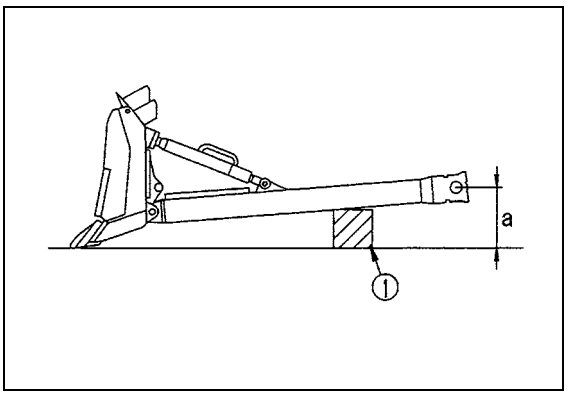
Assembly process No.	Installation of blade (1/5)
A-8	

1. Installation of blade assembly

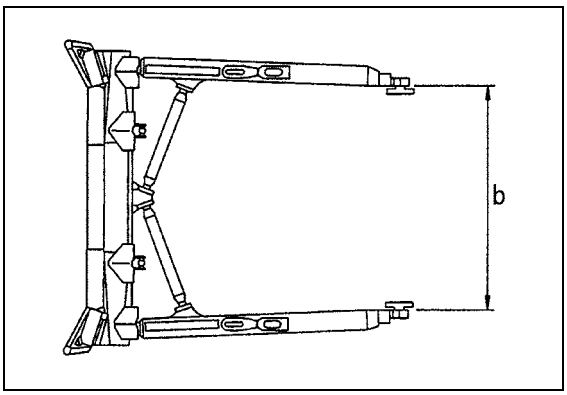
1-1. Adjust height "a" and width "b" of the right and left straight frames to the following dimensions with wooden block (1).

Full U dozer • Semi U dozer

★Height "a" of trunnion: Approx. 860 mm

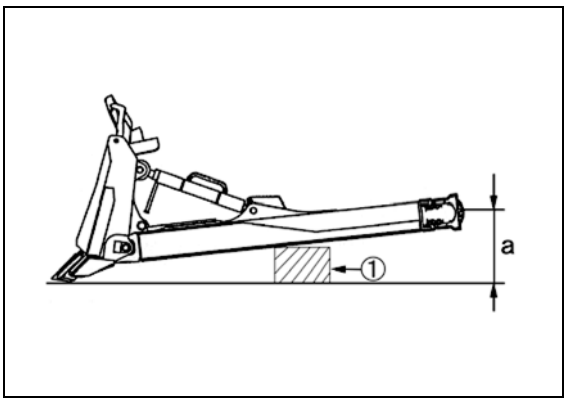


★ Width "b" of frame: Approx. 2,930 mm

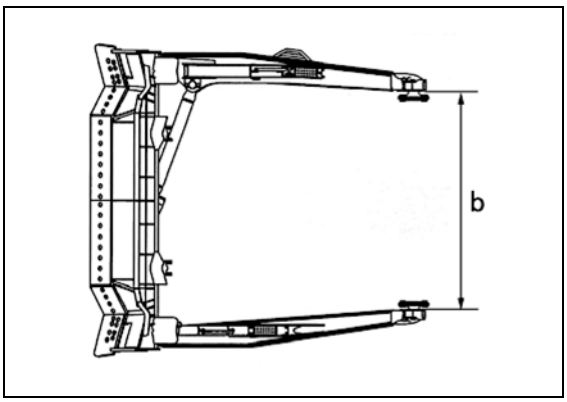


Sigma dozer

★Height "a" of trunnion: Approx. 860 mm



★ Width "b" of frame: Approx. 3,140 mm



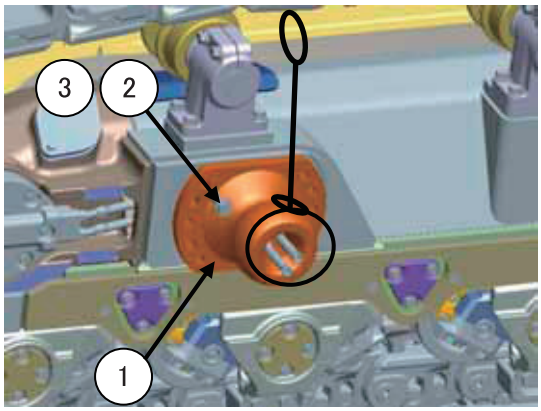
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	25 mm wide, 3,000 mm long nylon sling	1	25-ton crane	1
	Torque wrench	–		
	Other remarks			

Assembly process No.	Installation of blade (2/5)
A-8	

2. Connect right and left trunnions (1) and (4) to the track frame with bolts (2) and washers (3).

   ★ Weight of trunnion: 57 kg (left), 71 kg (right)
   Tightening torque for mounting bolt:
   785 – 980 Nm {80 – 100 kgm}

   ★ Install the right trunnion, while passing the tilt hose through its hole.
   (Apply this method to the right and left trunnions of the dual tilt specification.)

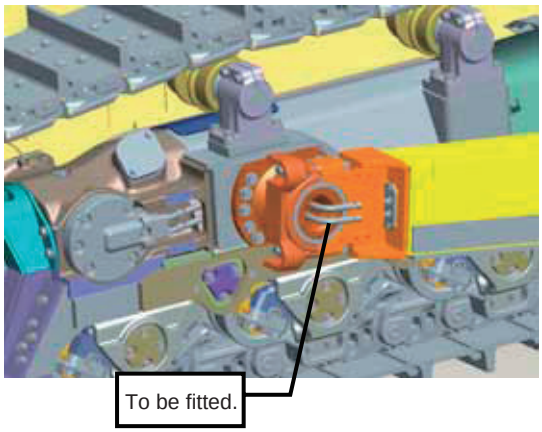


	Semi-U tilt dozer, U-tilt dozer			Sigma dozer		
No.	Part No.	Part name	Q'ty	Part No.	Part name	Q'ty
1	17M-71-41370	Trunnion (left)	1	17M-71-41370 (Ball of diameter 195)	Trunnion (left)	1
2	01010-82470	Bolt	20	01010-82470	Bolt	20
3	01643-32460	Washer	20	01643-32460	Washer	20
4	17M-71-41370	Trunnion (right)	1	17M-71-48590 (Ball of diameter 225)	Trunnion (right)	1

3. Scratch the paint off the ball joint of the trunnion and clean the ball joint.

4. Start the engine and move the machine forward slowly to connect the blade assembly to the tractor by the balls of the right and left trunnions. Apply grease to the balls of the trunnions and install the caps.

   Tightening torque for cap mounting bolt:
   610 – 765 Nm {62.5 – 78 kgm}



Precautions	Necessary tools		Necessary equipment	
★ Check that the spherical part of each trunnion is fitted closely and then tighten the cap bolts.	Name	Q'ty	Name	Q'ty
	Torque wrench	–		
	Other remarks			

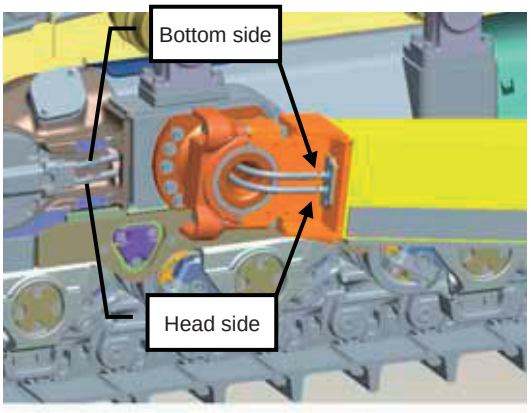
Assembly process No.	Installation of blade (3/5)
A-8	

5. Connect the 2 tilt hoses to each trunnion.

★ Connect the bottom-side hose (with red band) to the upper nipple.

[Work on dual tilt specification machine]

- Connect the bottom hose of the left trunnion marked blue to the upper nipple.



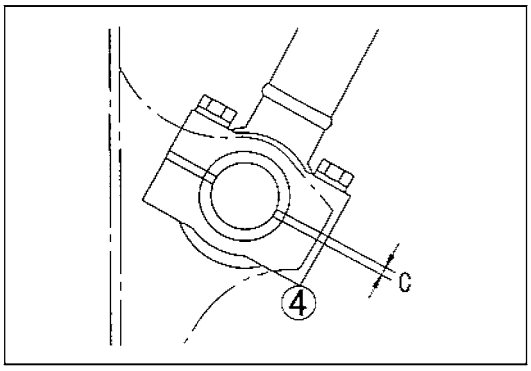
6. Sling the blade lift cylinder temporarily and start the engine. Extending the piston rod slowly, connect it to the blade assembly by cap (4) at its end.

   When fixing the cap, tighten the mounting bolts of cap (4) temporarily (eliminate the clearance in the axial direction of the ball joint) without inserting any shim and measure dimension "c".

   Insert shims having the thickness of dimension "c" + 0.2 to 0.5 mm. (Secure clearance of 0.2 to 0.5 mm in the axial direction of the ball joint.)

   Tighten the bolts to the specified torque and check that the ball joint moves smoothly.

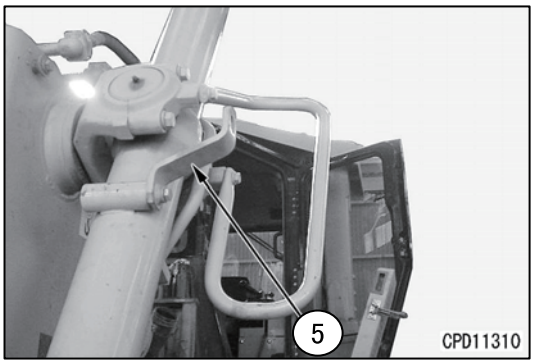
   Tightening torque for cap mounting bolt:
   455 – 565 Nm {46.5 – 58 kgm}



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Torque wrench	–		
	Other remarks			

Assembly process No.	Installation of blade (4/5)
A-8	

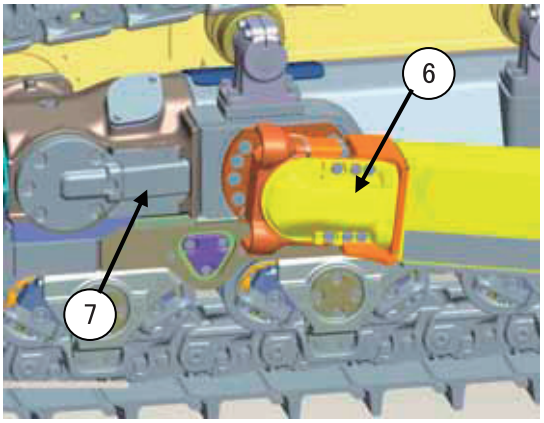
7. Move the blade lift cylinder retainer (5) from the fixing position for transportation to the position for operation. (Right and left)
   ★ Install the lift cylinders one by one.



8. Check the blade tilt operation. If the result is normal, install right and left trunnion covers (6) and track frame hose covers (7).

   Tightening torque for trunnion cover bolt:
   235 – 285 Nm {23.5 – 29.5 kgm}

   Tightening torque for hose cover bolt:
   235 – 285 Nm {23.5 – 29.5 kgm}



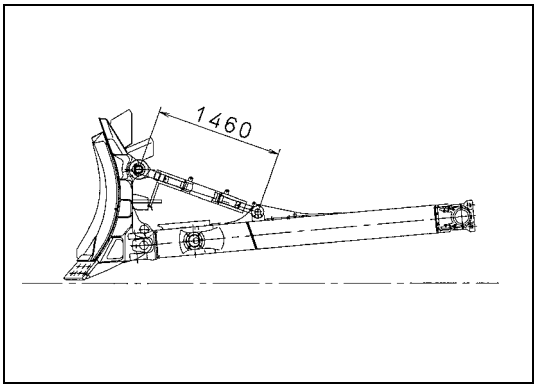
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Torque wrench	–		
	Other remarks			

Assembly process No.	Installation of blade (5/5)
A-8	

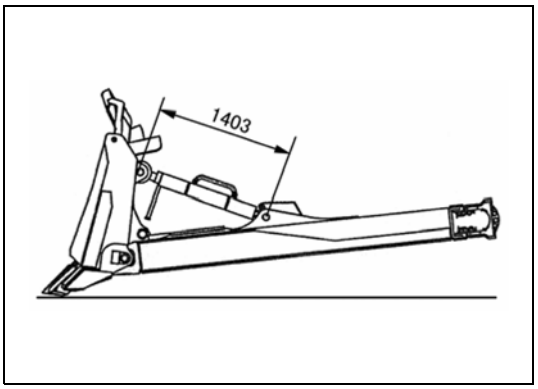
9. Supply oil and check the operation.
   - Bleed air from the cylinder. (For details, see Bleeding air from cylinders.)
   - Add oil through the oil filler to the specified level. Run the engine to circulate the oil through the system. Then, check the oil level again. Check that the tilting, dumping, and pitching (dual tilt) directions are normal.
   - Adjust the tilting amount of the blade.

10. Adjust the standard brace length for the single tilt specification.

    Full U dozer • Semi U dozer : 1,460 mm



    Sigma dozer : 1,403 mm



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Installation of operator's cab (1/12)
A-9	

★ Remove the power supply wiring harness for the cab (Refer Fig. 10) and install it again after assembling the cab.

1. Installation of open lock striker
   Install right and left open lock striker mounting brackets (1) and (2) with bolts (3) and washers (4) as shown in Fig. 1.
   ★ Strikers (5), nuts (6), washers (7), stopper rubbers (8), and nuts (9) are installed to the bracket when delivered.
   After mounting the operator's cab on the chassis, check the inspection items.

2. Installation of cab mounting L-plate
   Install indoor L-plate (10) and outdoor L-plate (11) temporarily with bolts (12) and washers (13) as shown in Fig. 2. (3 pieces on each side)
   Before installing the cab, loosen bolts (12).

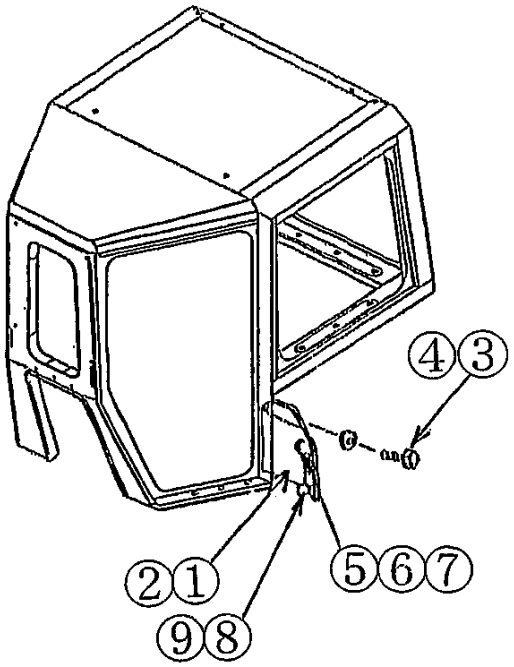


Fig. 1

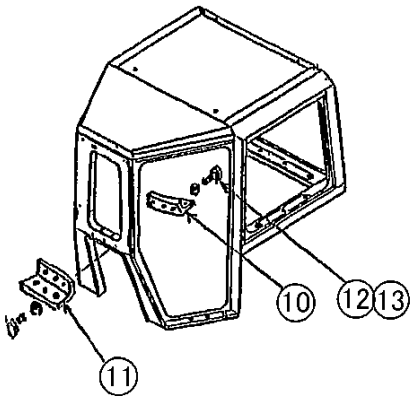


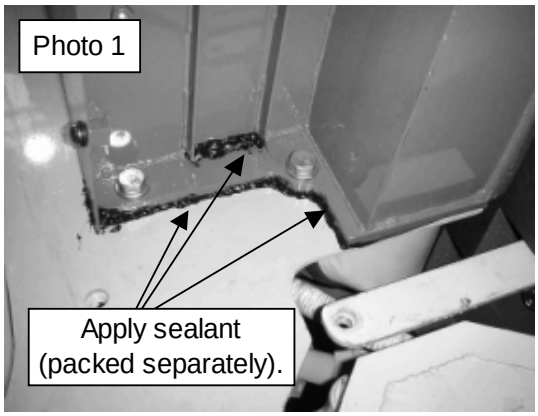
Fig. 2

No.	Part No.	Q'ty
13	01643-71232	12
12	01010-D1230	12
11	198-Z11-3581	1
10	198-Z11-3571	1
9	01580-01210	2
8	09453-00002	2
7	01643-31032	8
6	01580-11008	8
5	14X-911-1921	2
4	01643-71232	10
3	01010-D1230	10
2	198-Z11-3351	1
1	198-Z11-3341	1

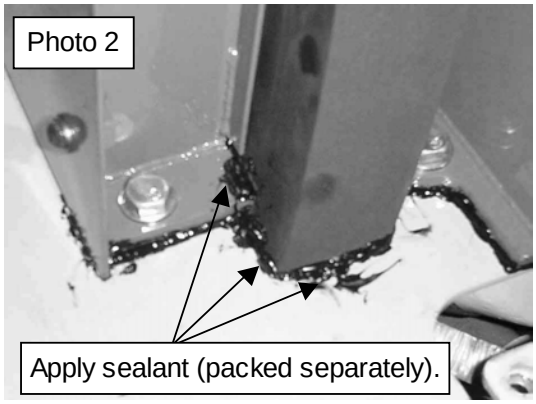
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Installation of operator's cab (2/12)
A-9	

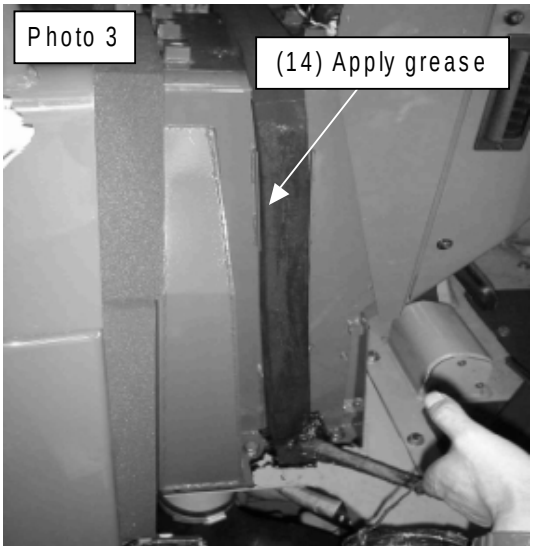
3. Installation of seals to dashboard bracket
   (1) Apply the sealant to the joints of the dashboard bracket and floor as shown in Photo 1.



   (2) Fit seal (14) to the guide plate of the dashboard bracket and apply liquid sealant (55) as shown in Photo 2.



   (3) Apply grease (G2-LI) to the outside of the seal (14) (cab and sealing face) as shown in Photo 3.



Remark: Before lowering the cab, apply grease so that the cab will slip well and the seal will not be moved or deformed.

Assembly process No.	Installation of operator's cab (3/12)
A-9	

4. Installation of seals of operator's cab mating faces
   (1) Sling the operator's cab assembly.
   ★ Sling the operator's cab to stick the seal to its mating faces.
   Operator's cab assembly: 455 kg

   (2) Remove dirt, oil, and grease from the seal sticking faces.

   (3) Remove the release paper from seals (15), (16), and (17), and then stick the seals, referring to Fig. 4 on the next page.

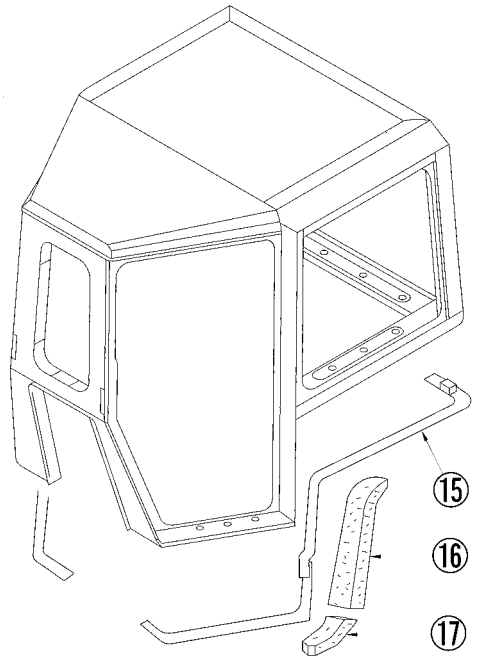


Fig. 3

No.	Part No.	Q'ty
17	198-Z11-7430	2
16	198-Z11-7420	2
15	14X-911-5911	5
14	198-Z11-3540	1

Precautions	Necessary tools		Necessary equipment	
Since the seals are longer than the necessary length, cut them properly when sticking.	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Installation of operator's cab (4/12)
A-9	

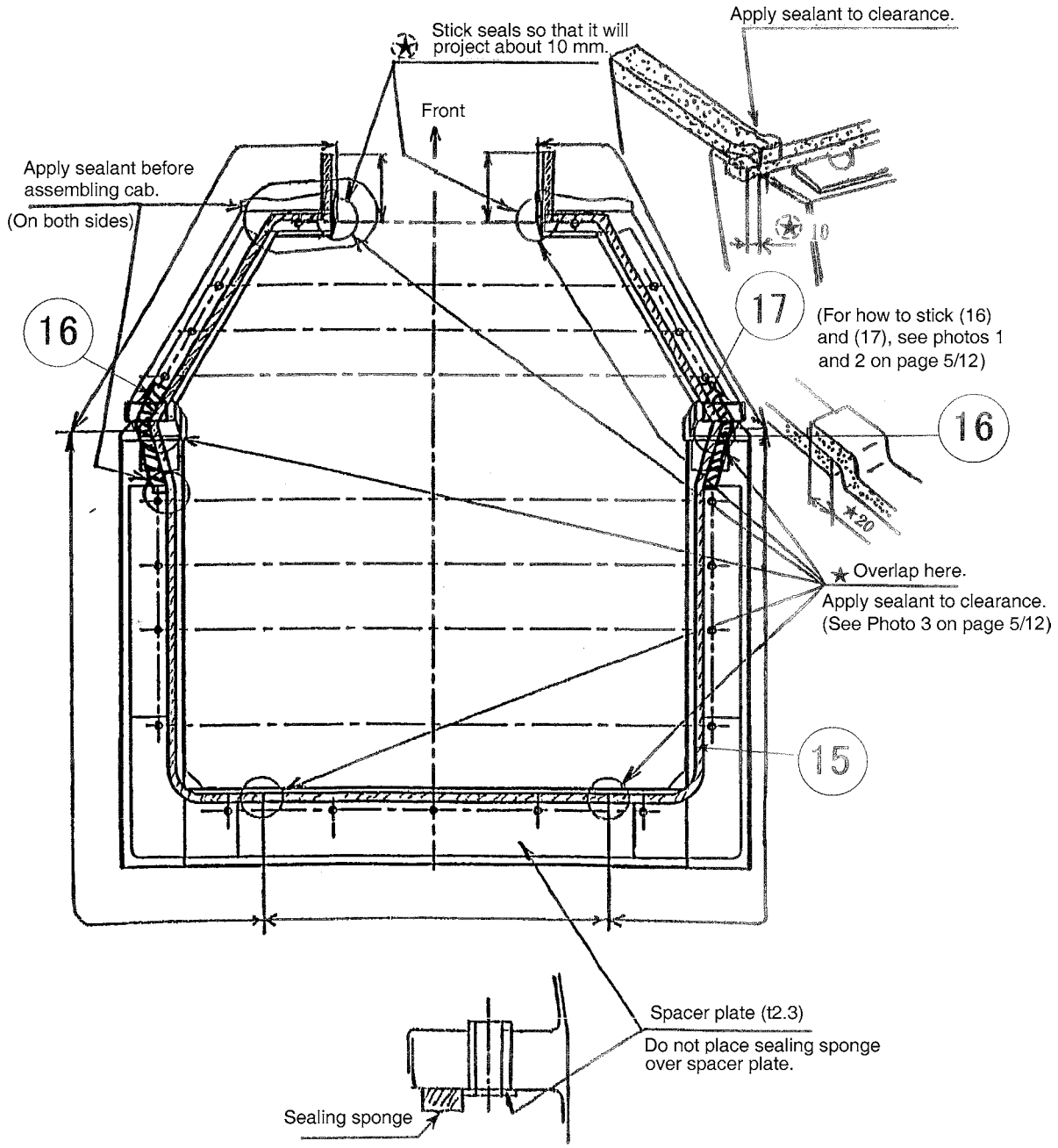


Fig. 4 How to stick seals (View from bottom of operator's cab)

Assembly process No.	Installation of operator’s cab (5/12)
A-9	

Photo 1

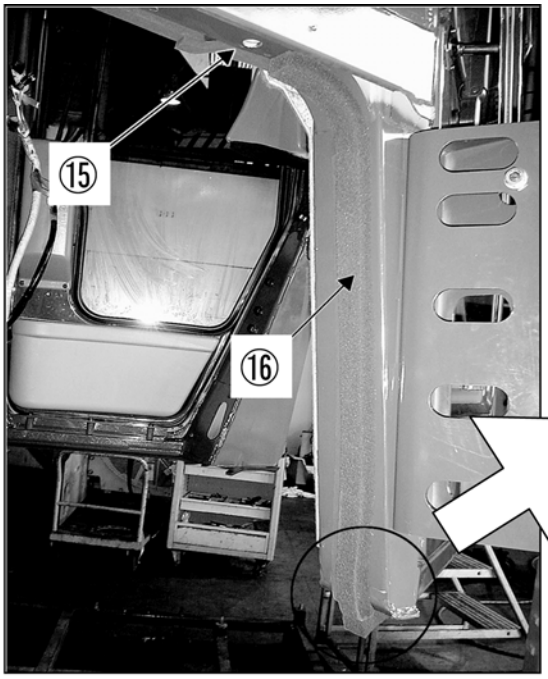


Photo 2

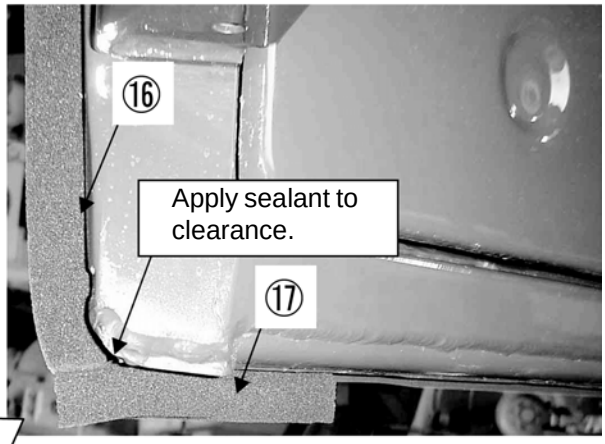
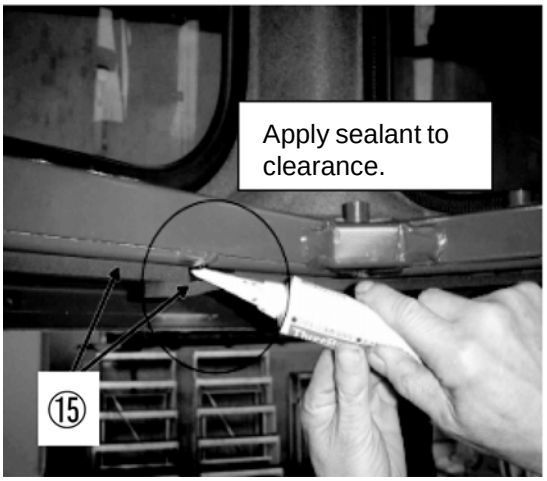


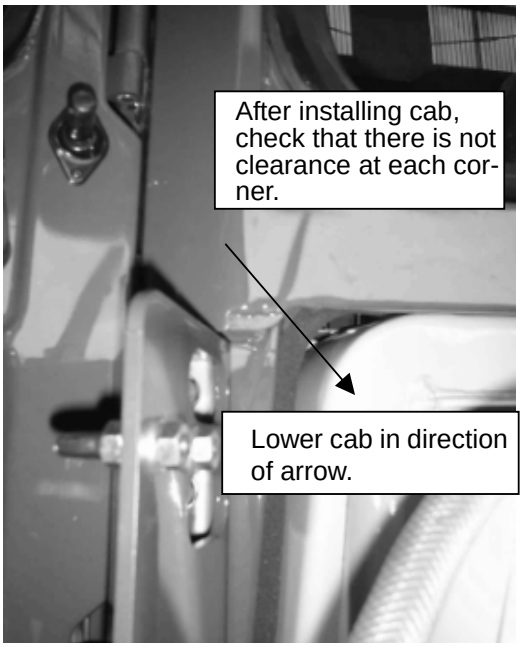
Photo 3



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Installation of operator's cab (6/12)
A-9	

5. Installation of operator's cab
   (1) Lower the operator's cab assembly slowly onto the floor frame.
      ★ Lower the operator's cab carefully since the reaction force of the sealing sponge is large.
      ★ Take care not to move or damage the seals.
      ★ Check that the seal of the air conditioner duct on the cab side is fitted tightly to the air conditioner duct on the dashboard side.
      ★ Lower the operator's cab carefully since the clearance between the air conditioner duct on the cab side and monitor is narrow.
   (2) Tighten bolts (18) and (20) and washers (19) temporarily. (See Fig. 10)
      ★ Note that the bolt length and washer at the door are different.
   (3) Check that there is not clearance in the joint (a) of the seal and floor frame.
   (4) As a result of check step (3) above, if there is clearance, reinstall the operator's cab. If the clearance is narrow, however, seal it with sealant (55).



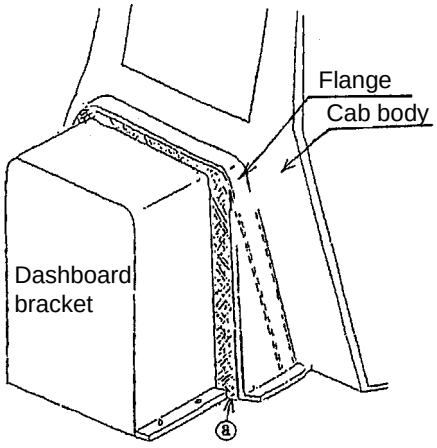
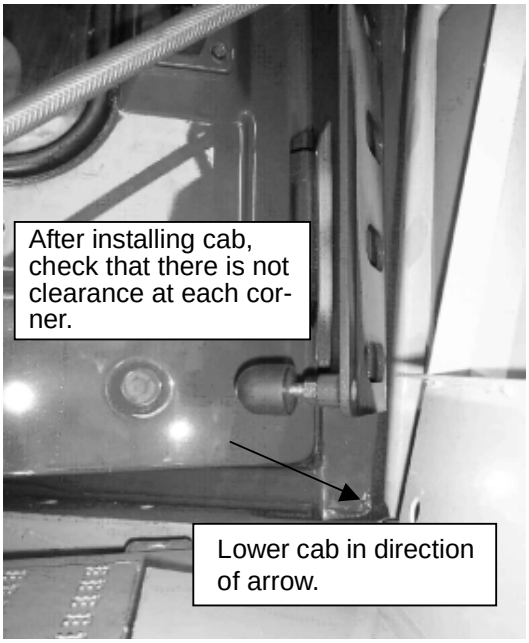


Fig. 5



No.	Part No.	Q'ty
55	198-Z11-3960	1
20	01010-81245	6
19	124-54-26540	21
18	01010-81275	15

Assembly process No.	Installation of operator's cab (7/12)
A-9	

(5) Check that the clearance between the air conditioner duct on the cab side and monitor is even on the right and left sides.
At the same time, check that the air conditioner duct seal on the cab side is fitted to faces C on the right and left sides of the air conditioner duct on the dashboard side and it is not moved to the right or left.

(6) If the clearance between the air conditioner duct on the cab side and monitor is not even, loosen the air conditioner duct mounting screws on the cab side and move the air conditioner duct so that the clearance will be even.
If the duct on the cab side or air conditioner side is moved to the right or left, adjust it similarly.

(7) Permanently tighten bolts (18) and (20) which were tightened temporarily in step (2) above.

(8) Permanently tighten mounting bolts (12) of L-plates (10) and (11) which were installed temporarily in step (2) above.

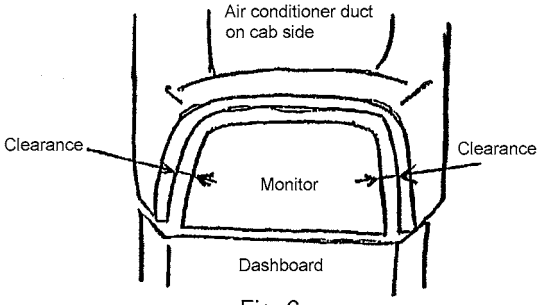


Fig. 6

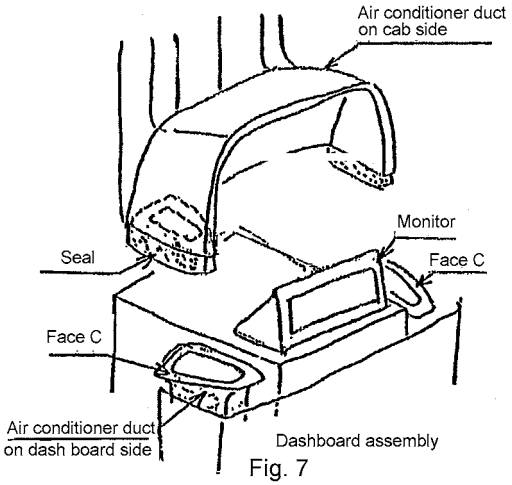


Fig. 7

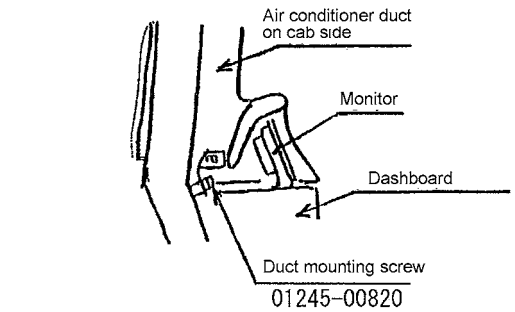
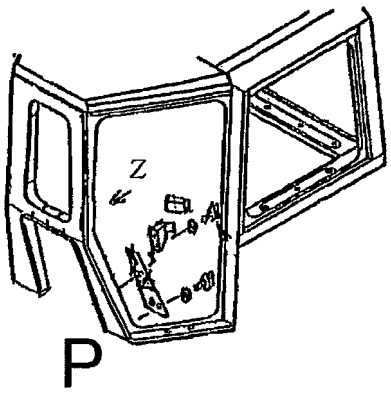


Fig. 8

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Installation of operator's cab (8/12)
A-9	

(9) Install plates (21) with bolts (22) and washers (23). (2 pieces on each side)
(10) Install right and left foot rests (24) and (25) with bolts (26) and washers (27). (2 pieces on each side)
(11) Install pedal caps (28) to the foot rests.



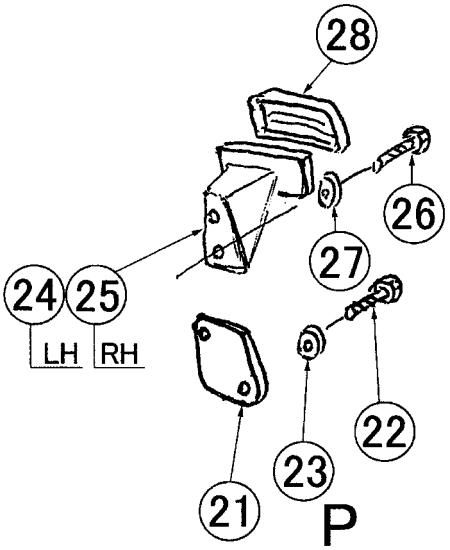


Fig. 9

28	203-43-56450	2
27	01643-71232	4
26	01010-D1230	4
25	14X-911-5721	1
24	14X-911-5711	1
23	01643-71232	4
22	01010-D1230	4
21	198-Z11-2961	2
No.	Part No.	Q'ty

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Installation of operator's cab (9/12)
A-9	

(12) Referring to Fig. 10, bind the windshield washer hoses, windshield washer connector, and cab power supply wiring harnesses with strings. Pass them through holes (A) and (B), and then connect the wiring harnesses on the chassis side from the decorative cover above the left fender.

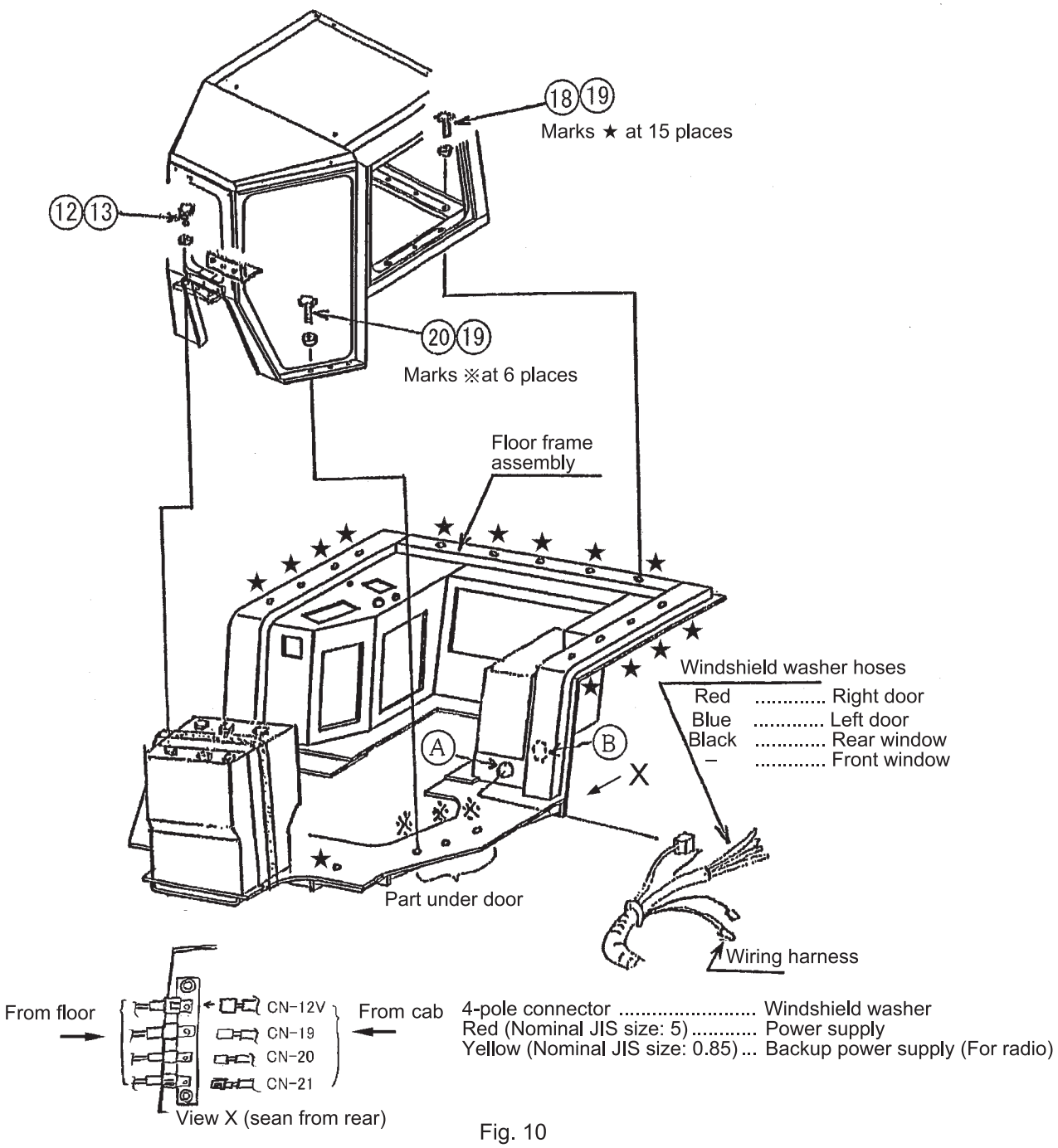
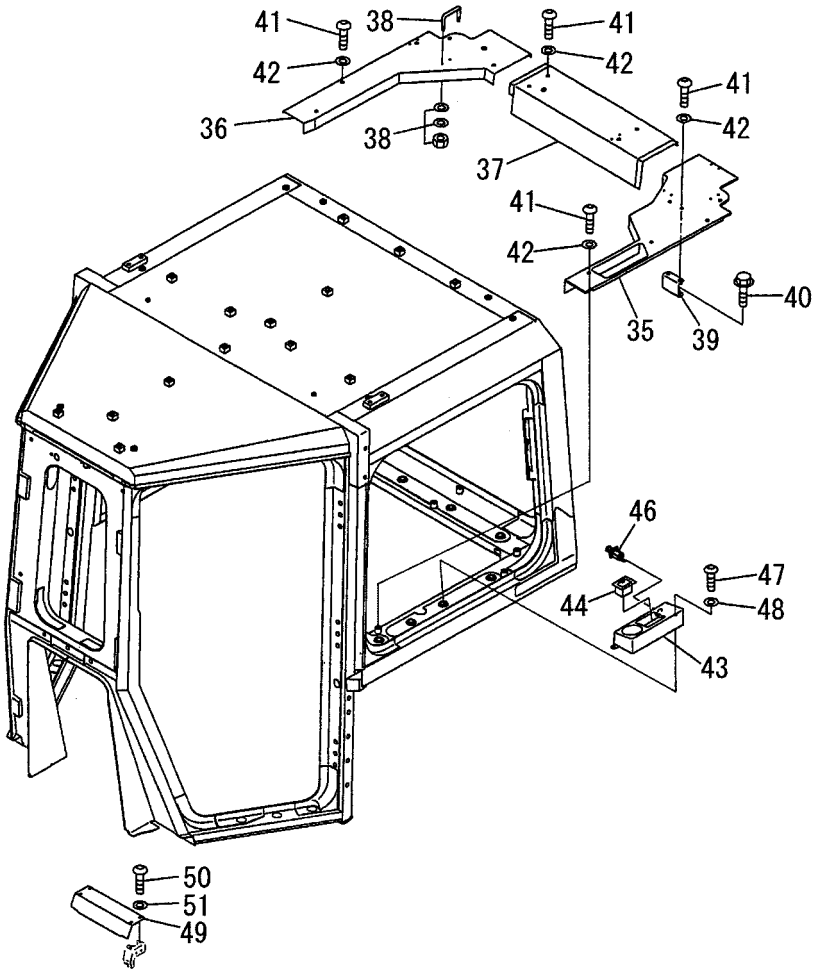


Fig. 10

★ After connecting the hoses and connectors, fit the grommet on the wiring harness side securely.

Assembly process No.	Installation of operator's cab (10/12)
A-9	

6. Installing the internal decorative parts and accessories
   (1) Install the handle (38) to the floor edge covers (35), (36) and (37).
   (2) Install the bracket (39) to the floor frame using bolts (40). (Use 2 bolts.)
   (3) Install the floor edge covers to each of which the handle was installed according to the above Paragraph (1) to their positions using the screws (41) and washers (42). (Use a total of 13 units each.)
   (4) Install the box (43) using the screws (47) and washers (48).
   (Use 2 units each of the screws and washers.)
   ★ The ashtray (44), socket assembly (45) (see Fig. 12) and the cigarette lighter (46) are already installed to the box before its shipment from the factory.



No.	Part No.	Q'ty
51	01643-70623	4
50	01245-00616	4
49	195-54-68282	2
48	01643-70823	2
47	01245-00820	2
46	20Y-06-23472	1
44	20G-54-13420	1
43	198-Z11-7490	1
42	01643-70823	13
41	01245-00820	13
40	01435-30825	2
39	198-Z11-3990	1
38	198-Z11-2850	6
37	198-Z11-2892	1
36	198-Z11-2882	1
35	198-Z11-2872	1

Fig. 11

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Installation of operator's cab (11/12)
A-9	

(5) Install the cover (49) using the screw (50) and washer (51).
(Use 4 units each of the screws and washers on one side.)

(6) Install the floor mats (52) and (53).

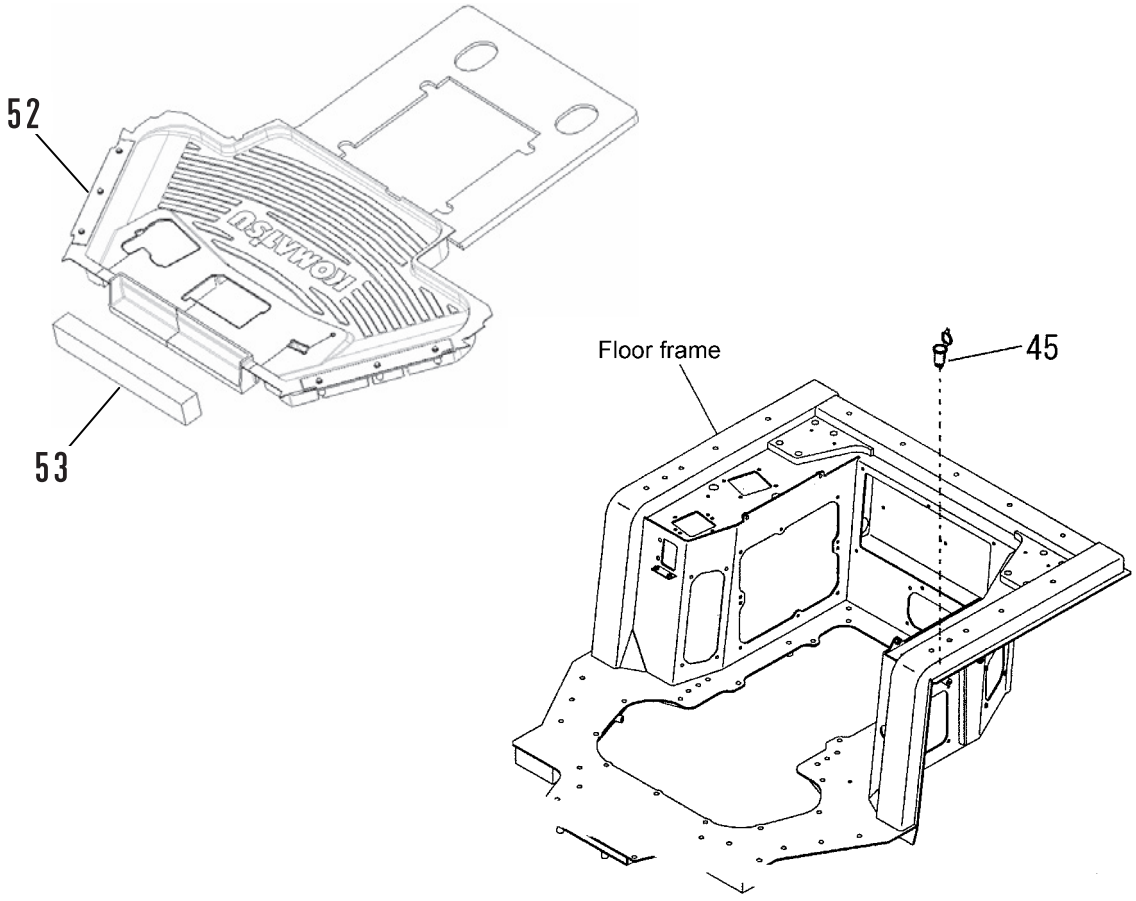


Fig. 12

No.	Part No.	Q'ty
53	195-54-68891	1
52	195-54-68971	1
45	198-Z11-6890	1

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Installation of operator's cab (12/12)
A-9	

7. Change of antenna mounting angle
   When delivered, the antenna is directed down for packing and transportation of the operator's cab (Fig. 13). After mounting the operator's cab, set the antenna at the correct angle (Fig. 14).

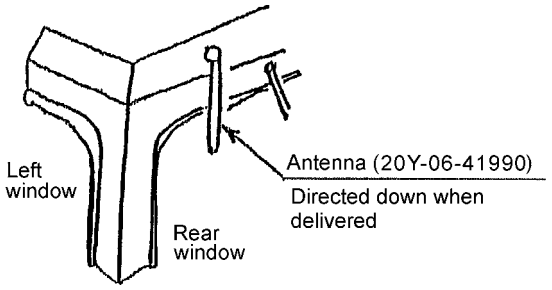


Fig. 13

- Loosen the wing bolt at part (b) near the antenna mounting part and direct the antenna up. Then, tighten the wing bolt.

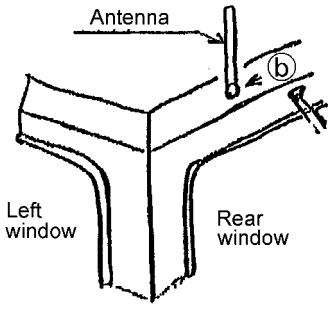


Fig. 14

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

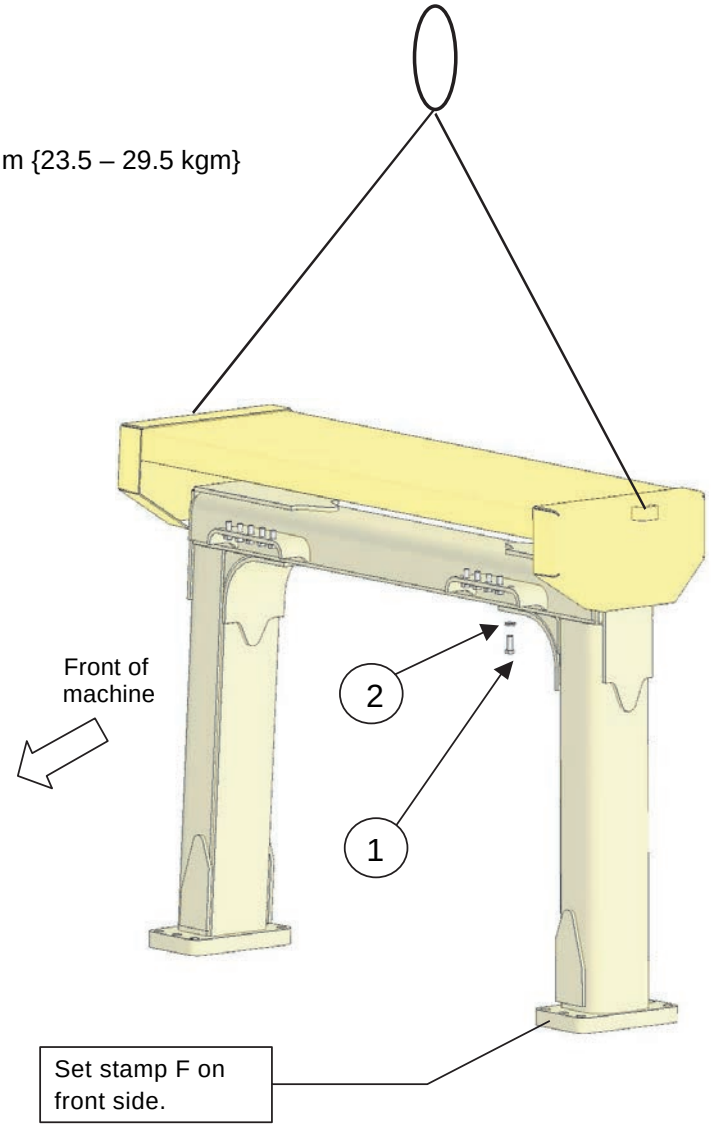
Assembly process No.	Installation of ROPS (1/2)
A-10	

1. Installation of roof to ROPS

   Roof: 80 kg

   ROPS: 500 kg

   Mounting bolt (1): 235 – 285 Nm {23.5 – 29.5 kgm}



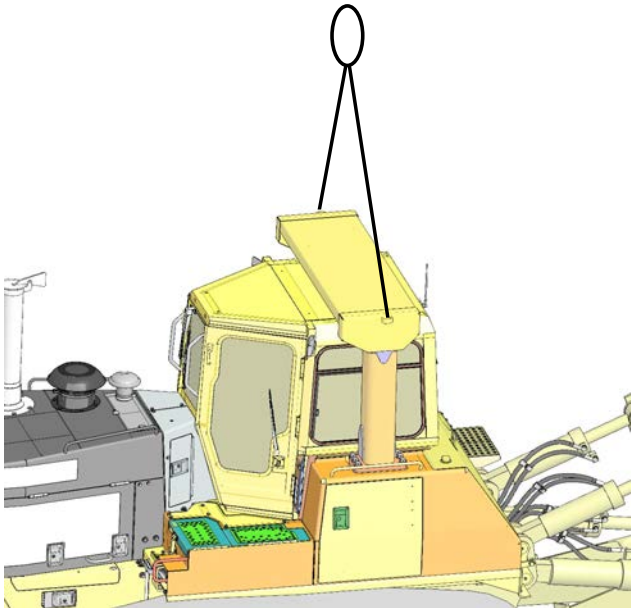
2	01643-31645	20
1	01010-81640	20
No.	Part No.	Q'ty

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Torque wrench (60 kgm)	1	25-ton crane	1
	ø12 × 2,000 wire	2		
	Other remarks			

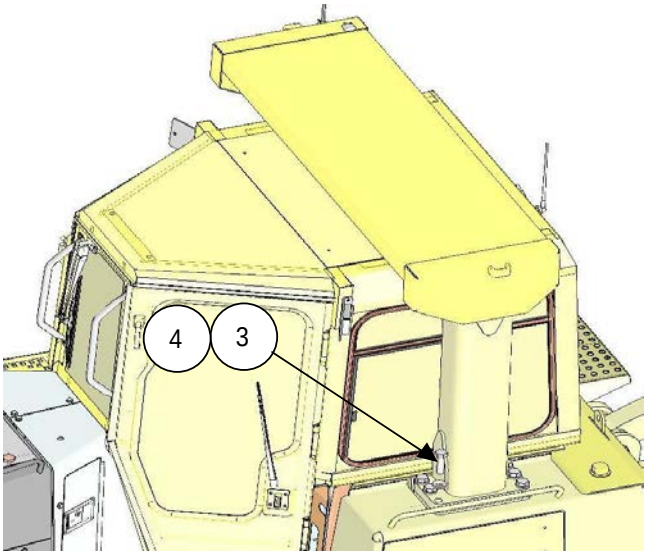
Assembly process No.	Installation of ROPS (2/2)
A-10	

2. Sling the ROPS with the crane and set it to the installing position.

   ROPS assembly: 580 kg



3. Mounting bolt (3)
   Tightening torque:
   1,323 ± 147 Nm {135 ± 15 kgm}



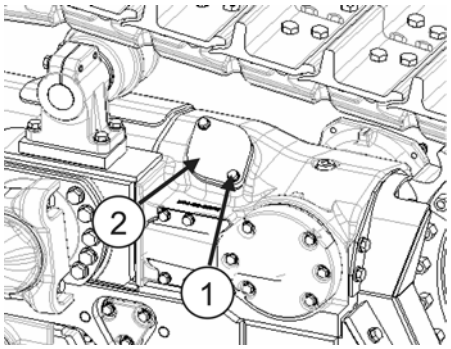
4	01643-32780	12
3	01010-82795	12
No.	Part No.	Q'ty

Precautions	Necessary tools		Necessary equipment	
Tightening torque safety characteristics of ROPS mounting bolt	Name	Q'ty	Name	Q'ty
	Torque wrench (210 kgm)	1		
	ø12 × 2,000 wire	2		
	Other remarks			

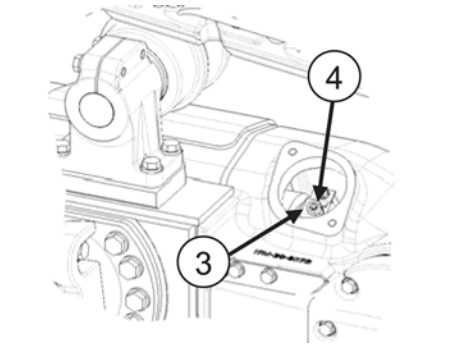
Assembly process No.	Check of track tension (1/2)
A-11	

Adjusting

- When increasing tension
  1. First remove the bolts (1) and then remove the cover (2).
  2. Pump in grease through the grease fitting (3) with a grease pump.
  3. To check that the correct tension has been achieved, move the machine backwards and forwards.
  4. Check the track tension again, and if the tension is not correct, adjust it again.



- When loosening tension [Reference]
  1. Remove both bolts (1), then remove cover (2).
  2. Loosen plug (4) gradually to release the grease.
  3. Turn plug (4) a maximum of one turn.
  4. If the grease does not come out smoothly, move the machine backwards and forwards a short distance.
  5. Tighten plug (4).
  6. To check that the correct tension has been achieved, move the machine backwards and forwards.
  7. Check the track tension again, and if the tension is not correct, adjust it again.

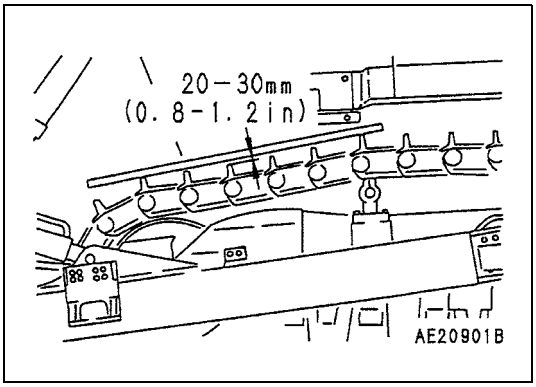


Precautions	Necessary tools		Necessary equipment	
• There is danger of plug (4) flying out under the high internal pressure of the grease. Never loosen plug (4) more than 1 turn. Never loosen any part other than plug (4). Never put your face in the mounting direction of plug (4). If the track tension cannot be loosened with the procedure given here, please contact your Komatsu distributor. • When removing cover (2), be careful not to let any dirt get inside. • There is a safety label stuck to the back of cover (2). Be careful not to damage the safety label.	Name	Q'ty	Name	Q'ty
	Other remarks			

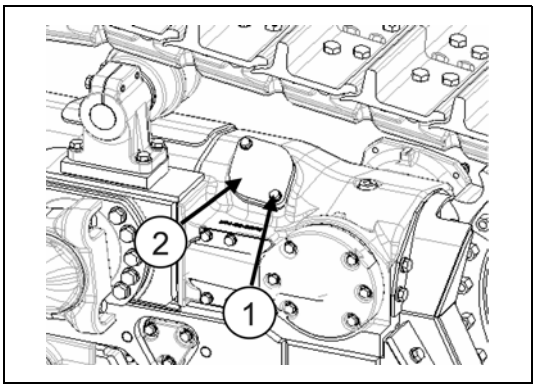
Assembly process No.	Check of track tension (2/2)
A-11	

Inspection

Stop the machine on level ground (stop with the transmission in FORWARD without applying the brake). Then place a straight bar on the track shoes between the carrier roller and the idler as shown in the figure, and measure the clearance between the bar and the grouser at the midpoint. If the clearance is 20 to 30 mm (0.79 to 1.18 in), the tension is standard. If the track tension is not at the standard value, adjust it in the following manner.



- Install bolt (1) and cover (2).



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Check of oil and coolant levels (1/2)
A-12	

★ For details of the notes (Note. 1, 2, 3, 4) in the table, see the Operation and Maintenance Manual.
The details refer to an Operation and Maintenance Manual about Recommended Komatsu fluids again.

Reservoir	Fluid Type	Ambient Temperature, degrees Celsius -22 -4 14 32 50 68 86 104 122°F -30 -20 -10 0 10 20 30 40 50°C	Recommended Komatsu Fluids
Engine oil pan	Engine oil (Note.1)		Komatsu EOS0W30
			Komatsu EOS5W40
			Komatsu EO10W30-DH
			Komatsu EO15W40-DH
			Komatsu EO30-DH
Power train oil pan (incl. Transmission,torque converter and bevel gear case)	Powertrain oil (Note.2)		TO10
			TO30
Final drive case (each) Damper case	Powertrain oil		TO30
Hydraulic system	Powertrain oil		TO10
	Hydraulic oil		HO46-HM
	Engine oil		Komatsu EO10W30-DH
			Komatsu EO15W40-DH
Grease fitting	Hyper grease (Note.3)		G2-T,G2-TE
	Lithium EP grease		G2-LI
Cooling system	Supercoolant AF-NAC (Note.4)		AF-NAC
Fuel tank	Diesel fuel		ASTM Grade No.1-D S15 ASTM Grade No.1-D S500
			ASTM Grade No.2-D S15 ASTM Grade No.2-D S500

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Check of oil and coolant levels (2/2)
A-12	

		Engine oil pan	Power train oil pan (incl. transmission, torque converter and bevel gear cases)	Damper case	Final drive case (each)	Hydraulic system	Fuel tank	Cooling sytem
Specified amount	Liter	55	150	1.5	40	270	840	110
	US gal	14.53	39.63	0.40	10.57	71.33	221.93	29.06
Refill capacity	Liter	50	90	1.5	40	130	–	–
	US gal	13.21	23.78	0.40	10.57	34.35	–	–

For coolant ratio to water, investigate past minimum temperature and decide it according to the following Mixing Proportion Table. In this case, regard temperatures about 10°C lower than the actual temperatures as the minimum temperature in the table.

Mixing Proportion Table of Water and Coolant

Minimum temperatures (°C) / Mixing amounts (ℓ)	-10 and above	-15	-20	-25	-30	-35	-40
Coolant	33	39.6	45.1	50.6	55	59.4	63.8
Water	77	70.4	64.9	59.4	55	50.6	46.2

Warning

The coolant is inflammable. So, keep it away from fire.

Use tap water as the cooling water.

We recommend you to control mixing ration with an antifreeze concentration meter.

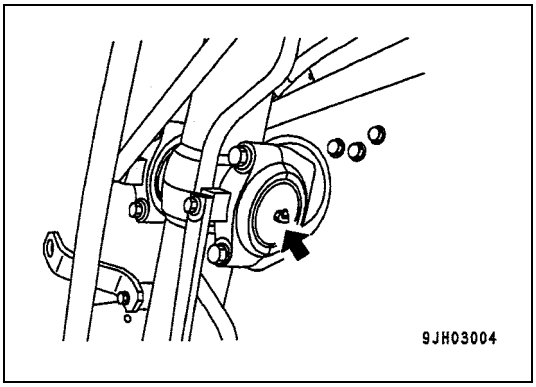
Warning

When removing the drain plug, use care not to be drenched by coolant mixing water.

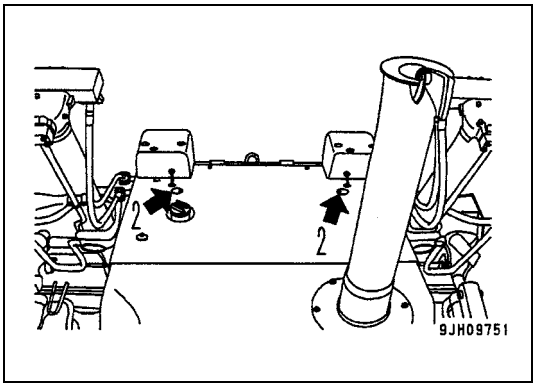
Precautions	Necessary tools		Necessary equipment	
If any oil level or coolant level is low, add oil or coolant.	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Lubricating (1/4)
A-13	

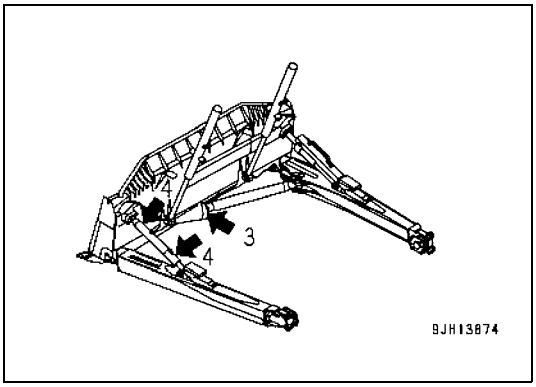
1. Blade lift cylinder support yoke (4 places)



2. Blade lift cylinder support shaft (2 places)



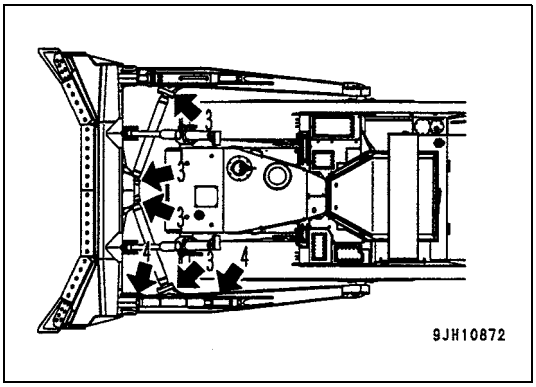
Sigmadozer
3. Blade arm ball joint (1 place)
4. Brace screw (2 places)



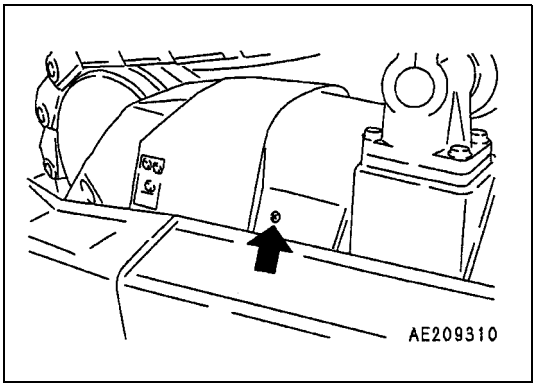
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Lubricating (2/4)
A-13	

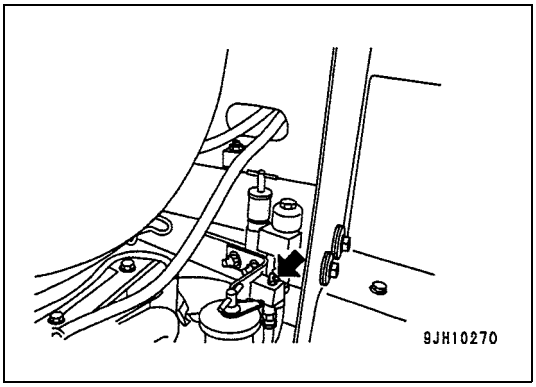
Semi-U dozer • U dozer
3. Blade arm ball joint (4 places)
4. Brace screw (2 places)



5. Egualizer bar side shaft (2 places)



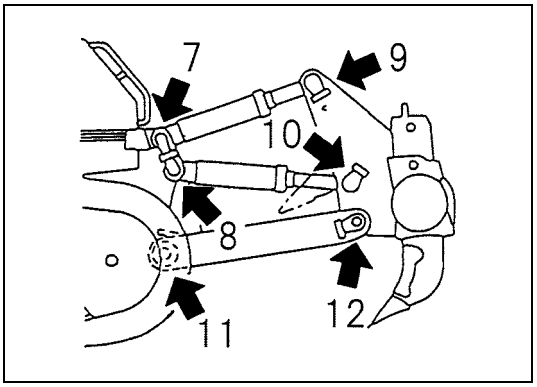
6. Egualizer bar center shaft (1 place)



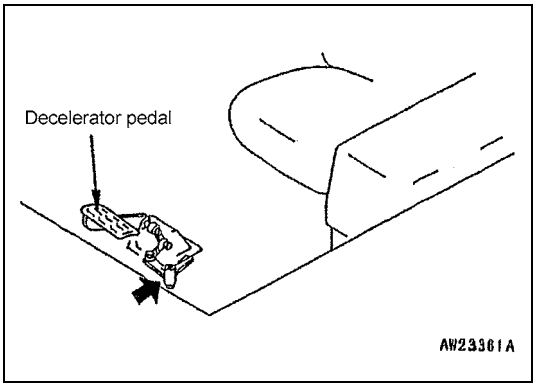
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Lubricating (3/4)
A-13	

7. Ripper tilt cylinder bottom pin (2 places)
8. Ripper lift cylinder bottom pin (2 places)
9. Ripper tilt cylinder rod end pin (2 places)
10. Ripper lift cylinder rod end pin (2 places)
11. Ripper arm pin (Front side) (2 places)
12. Ripper arm pin (Rear side) (2 places)



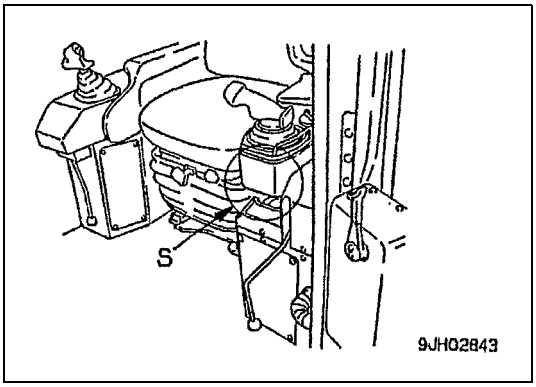
13. Decelerator pedal shaft (1 place)

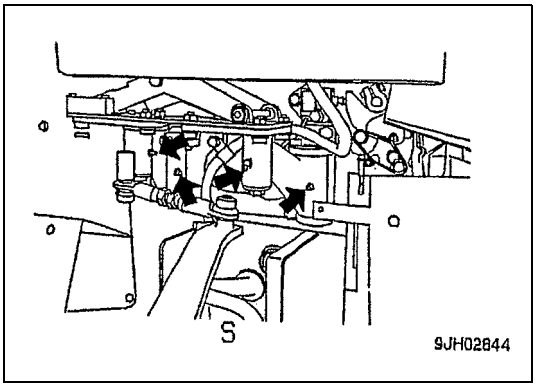


Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

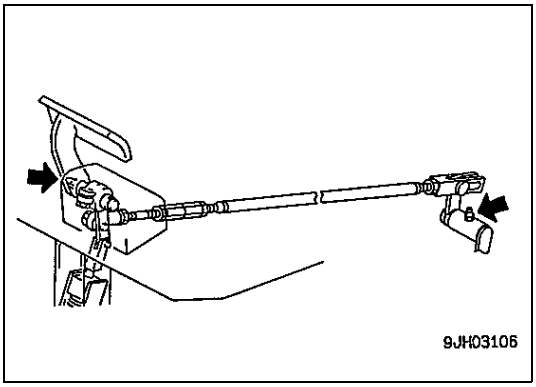
Assembly process No.	Lubricating (4/4)
A-13	

14. Steering, forward-reverse lever rotation link (4 places)





15. Brake pedal (1 place)
Brake rod lever (1 place)



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Bleeding air from hydraulic cylinders
A-14	

★ After disassembling for transportation, changing the oil in the hydraulic tank, or removing the hydraulic cylinders or work equipment piping, bleed the air from the hydraulic circuit as follows.

1. Blade lift cylinder (with piston valve)
   1) Start the engine and run at low idling for approx. 5 minutes.

   2) With the engine at low idling, extend and retract the cylinder four or five times without operating it to the end of its stroke.

      ★ Operate the piston rod to approx. 100 mm form the end of the stroke; do not releive the circuit under any circumstances.

   3) Keeping the engine at low idling, retract the cylinder to a point approx. 100 mm before the end of the stroke, then use fine control (at least 10 seconds) to retract the cylinder to the end of its stroke. While operating the lever, hold it in this position for 3 minutes.

   4) With the engine at high idling, retract the cylinder to a point approx. 100 mm before the end of the stroke, then use fine control (at least 10 seconds) to retract the cylinder to the end of its stroke. While operating the lever, hold it in this position for 1 minute.

2. Blade tilt cylinder (without piston valve)
   1) Start the engine and run at low idling for approx. 5 minutes.

   2) With the engine at low idling, raise and lower the blade four or five times without operating the cylinder to the end of its stroke.

      ★ Operate the piston rod to approx. 100 mm form the end of the stroke; do not relieve the circuit under any circumstances.

   3) Repeat this operation with the engine at full throttle, then run the engine at low idling and operate the piston rod to the end of its stroke to relieve the circuit.

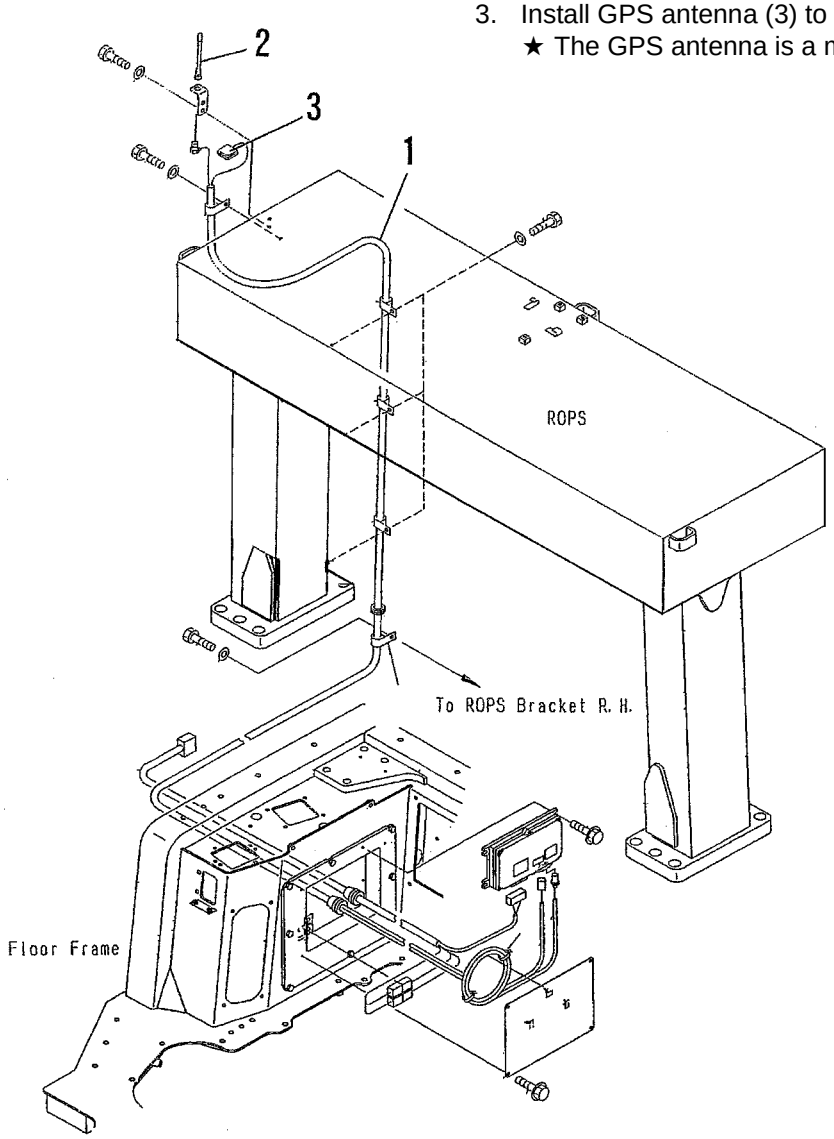
   ⚠ If from the beginning the engine is run at full throttle, or the cylinders are operated to the end of their stroke, the piston packing may be damaged, so never operate in this way.

   ⚠ Check the oil level, and add oil to the specified level if necessary.

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Installation of KOMTRAX antenna
A-15	

1. Install antenna cable (1) to the ROPS guard and roof.
2. Install communication antenna (2).
   ★ Threaded portion: Adhesive (LT-2).
3. Install GPS antenna (3) to the top of the ROPS roof.
   ★ The GPS antenna is a magnet.

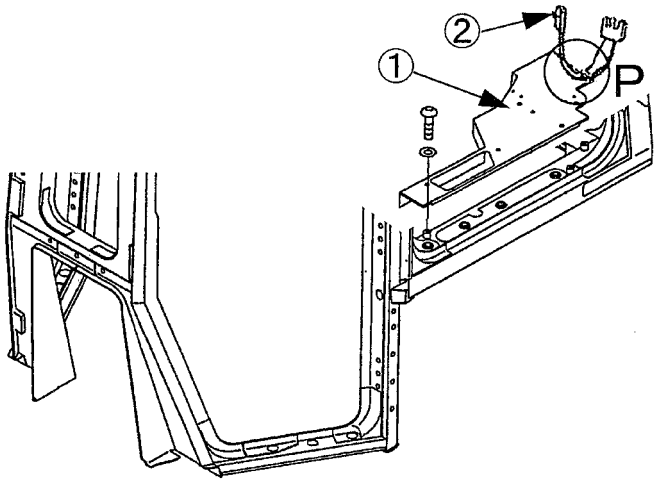


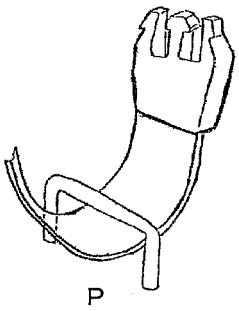
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Installation of lunchbox band (if equipped) (1/2)
A-16	

Note) When performing the following procedure, refer to A-9 Installing operator's cab (10/12), installing the internal decoration parts.

1. After installing plate (1) to the operator's cab, pass the band through the rear U-hook as shown below.



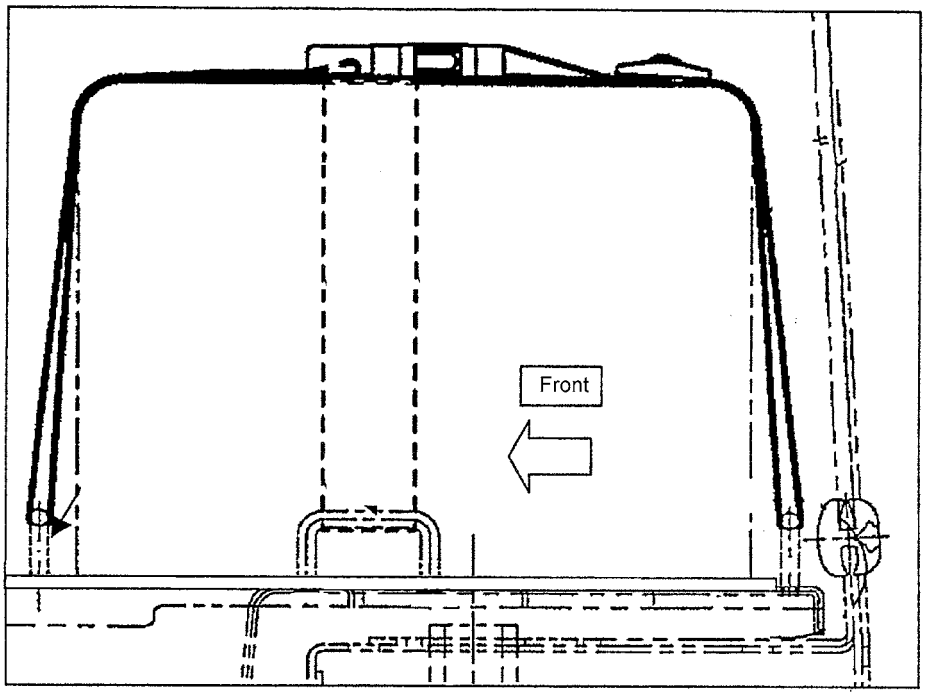


2	198-911-7340	2
1	198-Z11-6170	1
No.	Part No.	Q'ty

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Installation of lunchbox band (if equipped) (2/2)
A-16	

2. Install the band as shown below.

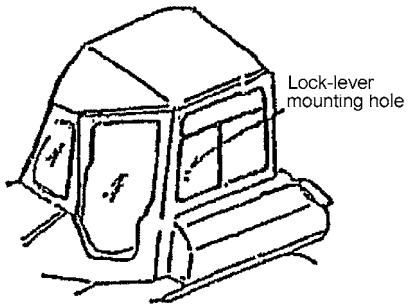


Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

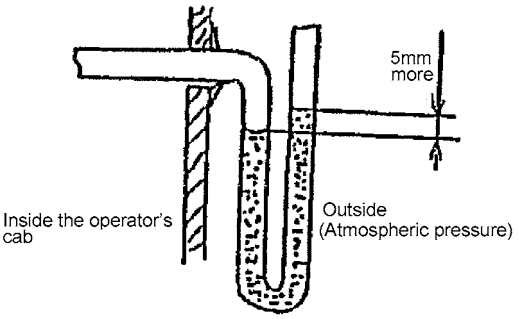
M. Check and maintenance procedures after completion of assembly

Assembly process No.	Check and adjustment of operator's cab (1/6)
M-1	

1. Inspecting the coating
   (1) Check and make sure the bolt heads loosened and re-tightened for the disassembly, and reassembly work are properly coated without peeling off.
   (2) Check and make sure the coating being provided over the sealed section between the floor frame and the tank and the coating over the borders between the covers and the chassis structures are not dislocated.
   ★ When coating at any place is found peeling off or not too neat, apply touch-up painting to remedy the coating failures.



2. Pressurizing tests
   (1) Measure the internal pressure of the operator's cab.
   ★ Determination criteria : Measurement value ≧5 mmAg
   Test conditions : Run the engine at full speed.
   Blower : HI
   Inside/Outside air changeover lever : Outside-air position
   ★ When the above criterion is not being satisfied, check if the blind plug is inserted to the prescribed position of the control box or if any place else is not airtight.

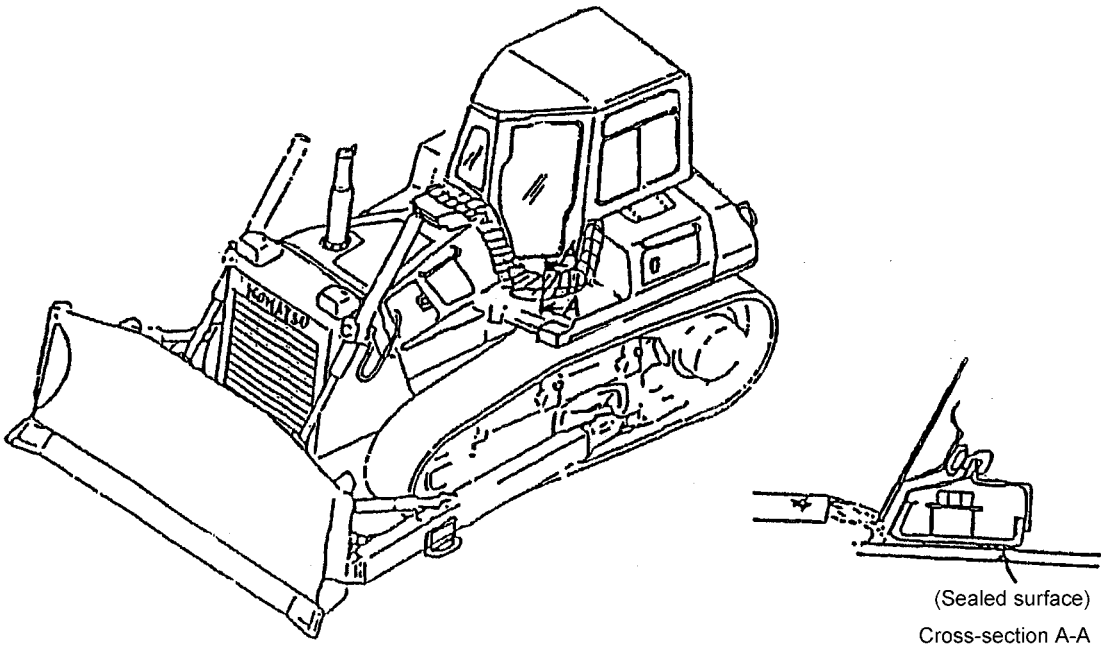


   (2) Outlined below is a simplified method for the internal pressure measurement of the operator's cab:
   a) Prepare a transparent vinyl hose (of an outer diameter of 10 mm and 3,000 mm long).
   b) Pour water into the hose bore for about a half of the hose length.
   c) Remove the sliding windshield lock lever located on the side panel of the operator's cab to insert one end of the vinyl hose before fastening an adjacent part of the hose to the top end of the back seat using packing tape.
   d) Seal the gap occurring between the lock-lever hose and the outer periphery of the hose.
   e) Match the water levels of the beginning part and the ending part of the water column inside the transparent vinyl hose at the outside of the operator's cab.
   f) Start the engine and run it at full speed to read the difference between the two water levels.

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Check and adjustment of operator's cab (2/6)
M-1	

3. Shower test for water-tightness
   (1) Close all the opening sections of the operator's cab.
   (2) Prepare to pour water of a flow of about 5 gal. (about 19 ℓ)/min. through a water hose.
   (3) Pour water to the area around the hatched section in Fig. below for about 10 minutes. When doing this, it is not necessary to use pressurized water.
   (4) Pour water horizontally to the sealed surface according to the "Cross-section A-A".
   (5) Carefully check the area around the dashboard, in particular.
   ★ When any water leakage is found, apply due caulking before re-checking the section if the water leakage still occurs.



Cross-section A-A

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Check and adjustment of operator's cab (3/6)
M-1	

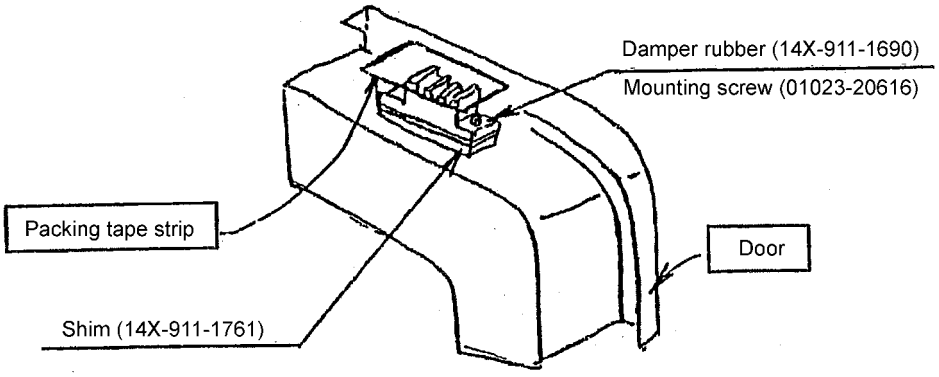
4. Checking the door lock
   Check the correlation between the operator's cab structure and the door when the door is opened and closed. When anything is found abnormal, make due adjustment to correct it.

4.1 Checking the current statuses

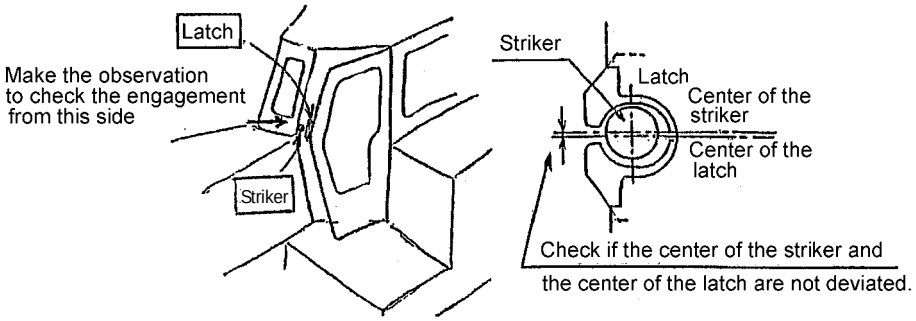
(1) Check the mounted elevation of the damper rubber. (Located at 4 places per a side and check them on both L.H and R.H sides.)
Applying a packing tape strip over the contact surfaces of the damper rubber, open and close the door for 2 to 3 times. After finishing this opening and closing cycles of the door, check the contact surface of the packing tape with the operator's cab structure.

Normal: The back surface of the packing tape comes in light contact the operator's cab structure when the door is being closed.

Abnormal: The back surface of the packing tape does not come in contact with the operator's cab structure when the door is being closed, or if the two sections come in a harsh contact such as peeling off the applied packing tape.



(2) Check the correlation between the door latch and the striker (on both L.H and R.H side).
Moving the door toward the closing direction, observe the engaging state between the latch and the striker.



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Check and adjustment of operator's cab (4/6)
M-1	

4.2 Adjustments

(1) Adjusting the elevation of the damper rubber

When adjusting the elevation of the damper rubber, supplement or reduce the shims being inserted below the damper rubber to adjust the elevation of the damper rubber properly.

(2) Adjusting the correlation between the latch and the striker

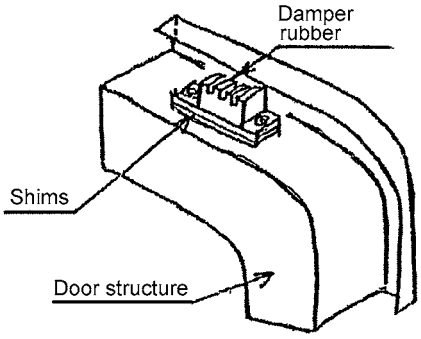
(a) Loosening the striker mounting bolts to a temporarily tightened state, open and close the door 2 to 3 times to align the centers of the latch and the striker.

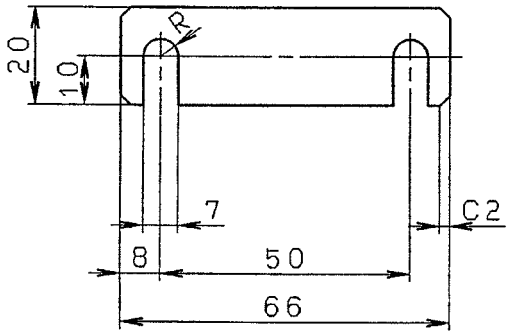
(b) Check the engaging state between the latch and the striker.

(c) Tighten the striker mounting bolts back to their original tightened state.

(d) Try to open and close the door to see if the door lock can be released smoothly. When the door lock cannot be released smoothly (when the turning effort to move the knob feels too heavy), repeat the adjustment all over again.

★ Appropriate knob turning effort: 68.6 ± 19.6 N {7 ± 2 kgf}





The shape of the shim
(14x-911-1761)

(3) Apply grease (G2-LI) over the latch surface.

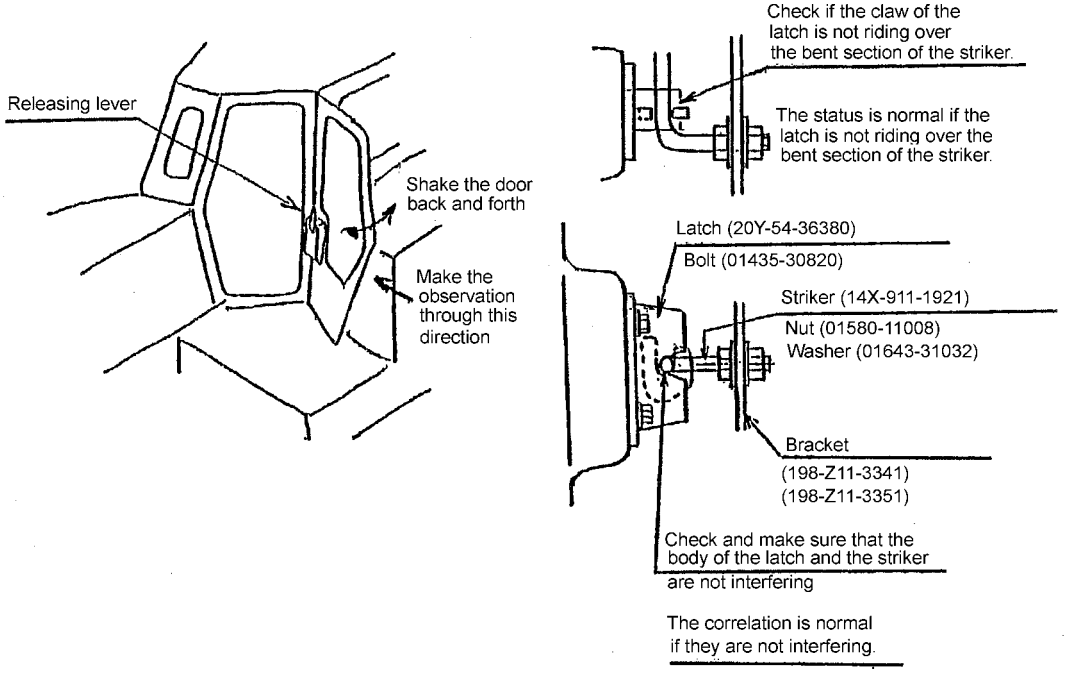
Precautions	Necessary tools		Necessary equipment	
When the grease adhering over the latch surface dries out, the turning effort for the knob will become heavier. Therefore, apply grease sufficiently in order not to allow it to become dried up.	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Check and adjustment of operator's cab (5/6)
M-1	

5. Checking the open-locked state of the door
   Check the correlation between the operator's cab structure and the door when the door is in open-locked state. When anything is found abnormal, make due adjustment to correct it.

5.1 Checking the current statuses

(1) Check the correlation between the open-lock latch and the striker. (Check them on both L.H and R.H sides.)
Move the door toward the opening direction to observe the engaging state between the latch and the striker.



(2) Check the mounted elevation of the stopper rubber. (At 2 places each on one side. Check them on both L.H and R.H sides.)
   (a) Shaking the door back and forth in open-locked state, check for rattling.
   (b) Check if the turning effort for the releasing lever is too heavy.

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

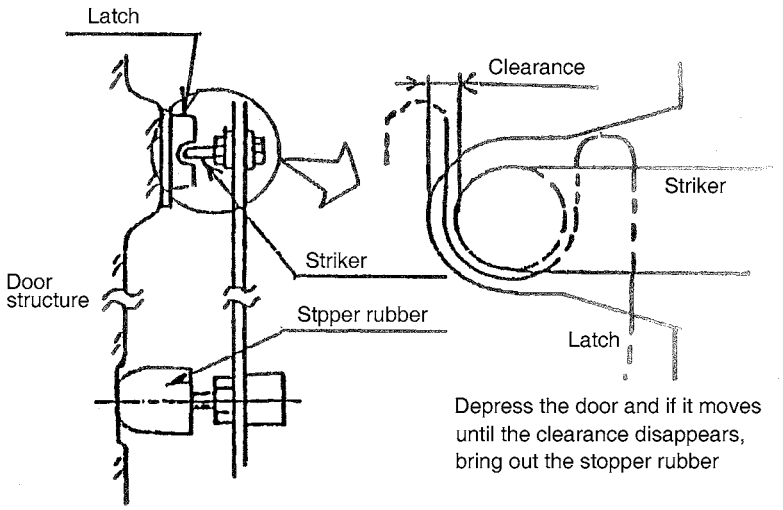
Assembly process No.	Check and adjustment of operator's cab (6/6)
M-1	

5.2 Adjustments

(1) Adjusting the correlation between the latch and the striker

Loosen the striker mounting nut and adjust the position of the striker so that it does not interfere with the latch nor the overriding over the bent section occurs before tightening the nut back to its original state.

When the interference cannot be corrected by the adjustment on the striker side, loosen the latch side mounting bolts to make the adjustment from the latch side.



(2) Adjusting the elevation of the stopper rubber

(a) Loosen the stopper rubber fastening nut.

(b) When rattling exists, bring out the stopper rubber until the clearance disappears.
However, in case the lock is hard to engage for the turning effort for the releasing lever is too heavy, bring back the stopper rubber within the range where rattling of the door does not occur.

(c) Tighten the fasting nut back to the original state.

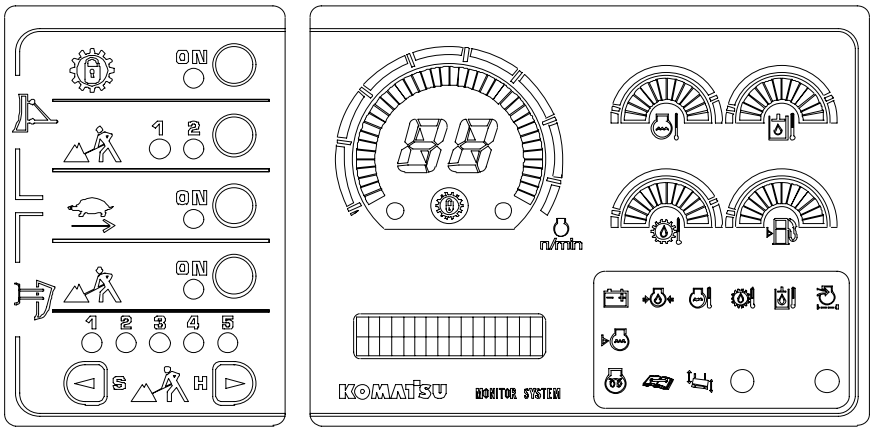
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Other remarks			

Assembly process No.	Inspection of machine monitor (1/12)
M-2	

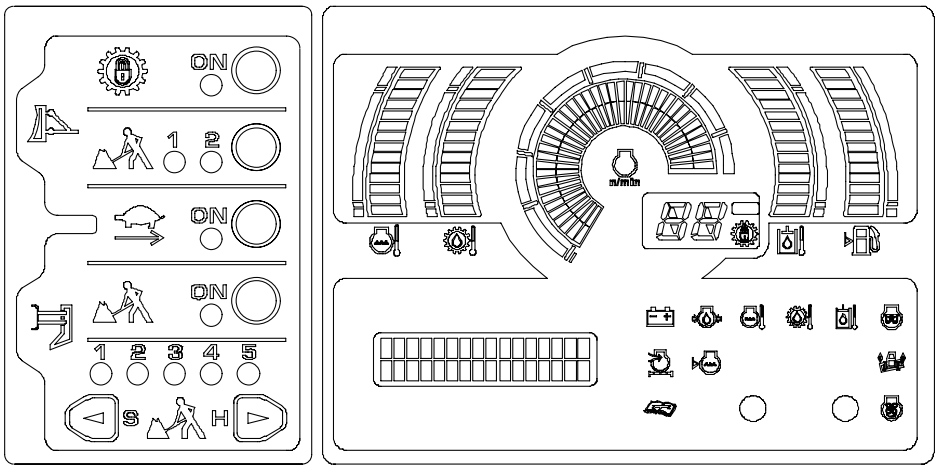
Machine monitor

There are the following 2 designs in the machine monitor, the functions of which are the same.

Serial No. • – 30131



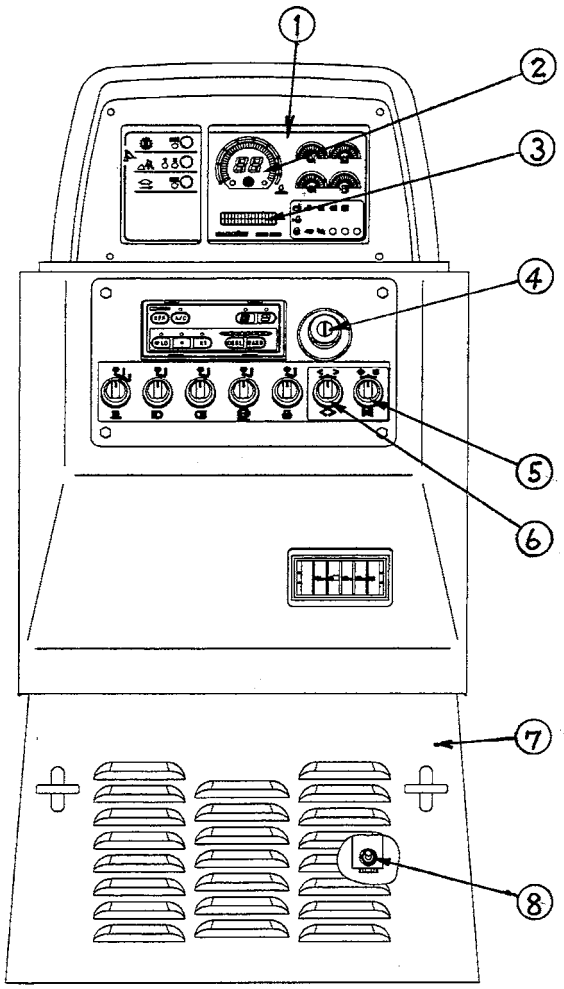
Serial No. 30132 and up



Assembly process No.	Inspection of machine monitor (2/12)
M-2	

Check that the "machine monitor" on the front panel can be set in the "service mode" with its special function and the "failure codes" can be displayed normally in that mode.

Fig. 1 Front panel



(1) Machine monitor
(2) Upper display unit
- Gear speed is displayed on this unit in normal mode (operator mode).

(3) Lower display unit (Multi-information unit)
- Transmission shift mode and service meter are displayed on this unit in normal mode (operator mode).

(4) Starting switch
(5) Buzzer cancel switch
(6) Information switch
(7) Lower cover
(8) Service switch

Note: The "Service mode" is used in "Initialization of VHMS controller" of the VHMS specification described later in "Attached material 2". Accordingly, understand the operating procedure thoroughly.

Assembly process No.	Inspection of machine monitor (3/12)
M-2	

1) Setting in "Service mode"

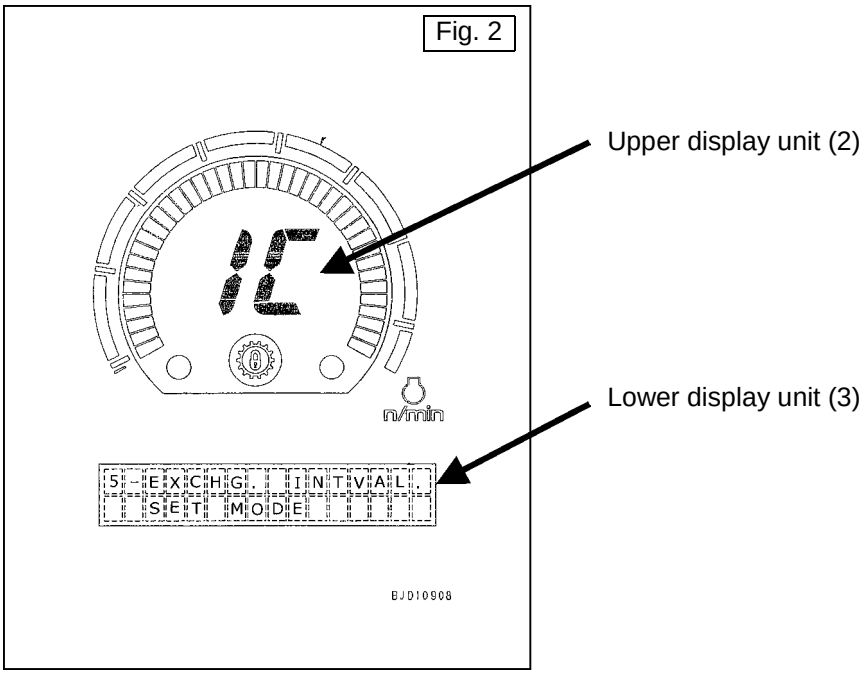
1.1) Remove cover (7) under the front panel so that you can operate service switch (8).

1.2) Turn starting switch (4) "ON".

1.3) While pressing service switch (8), turn and hold buzzer cancel switch (5) toward the [◇] mark for 3 seconds, and P, N, F2, R2, etc. displayed on upper display unit (2) of machine monitor (1) changes to 1C, 55, etc. (See Fig. 2)

★ If 1C, 55, etc. is displayed, the machine monitor is set in the "service mode". 1C and 55 are service mode codes among the 8 of 1C, EE, bE, Cb, Ld, 5R, dR and 55. For details of the service mode codes, see "Testing and adjusting volume" of the shop manual.

Fig. 2



2) Display check of "Failure code"
In the service mode, a trouble that occurred in the machine can be displayed by a classification code named the "Failure code" on lower display unit (3) of machine monitor (1). With this function, the operator can grasp the cause of the trouble precisely and repair the machine quickly.

The "Failure codes" are classified into the electrical system failure codes and mechanical system failure codes, which are displayed on lower display unit (3) by setting the service mode code of upper display unit (2) to "EE (Electrical system failure code display mode)" or "bE (Mechanical system failure code display mode)".

Assembly process No.	Inspection of machine monitor (4/12)
M-2	

2.1) Check of "Electrical system failure code display mode"

-1) Set upper display unit (2) in the service mode and turn information switch (6) toward the > mark or < mark to display service mode code "EE". (See Fig. 3)

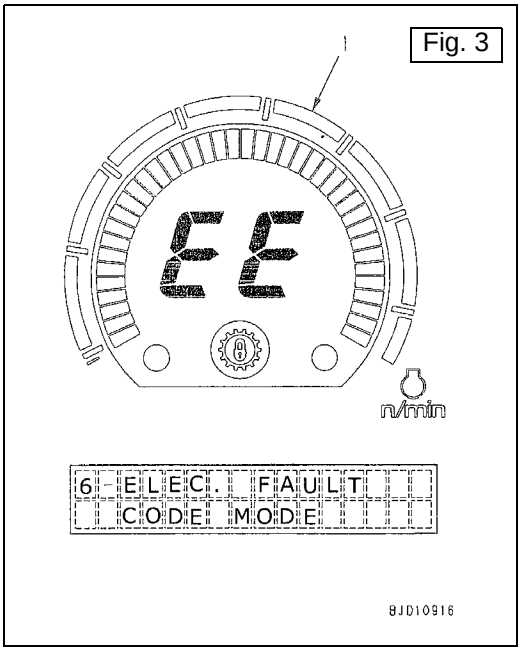
Remark: Operation of information switch (6)
- Toward > mark: Next code
- Toward < mark: Previous code

-2) After service mode code "EE" is displayed, turn buzzer cancel switch (5) to the ◇ mark to settle "EE".

-3) If "EE" is settled, the "failure code" of the electrical system is displayed on lower display unit (3).

-4) For the contents of display on lower display unit (3), see step 2.3).

Fig. 3



2.2) Check of "Mechanical system failure code display mode"

-1) Turn buzzer cancel switch (5) to the ■ mark to cancel the "EE" mode.

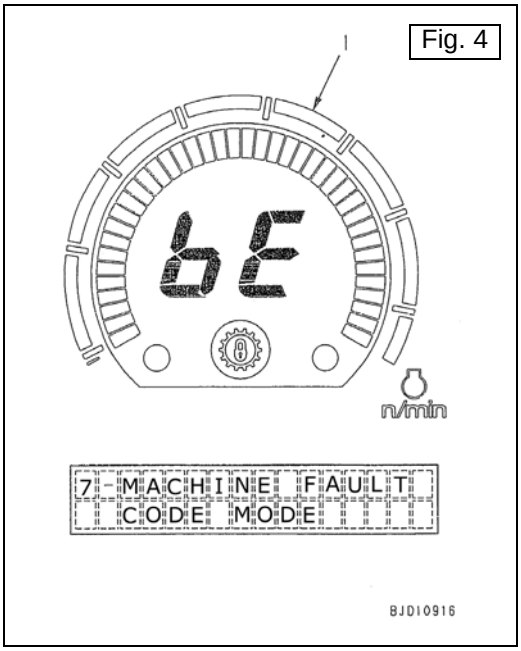
-2) Turn information switch (6) toward the > mark or < mark to display service mode code "bE". (See Fig. 4)

-3) Turn buzzer cancel switch (5) to the ◇ mark to settle "bE".

-4) If "bE" is settled, the "failure code" of the mechanical system is displayed on lower display unit (3).

-5) For the contents of display on lower display unit (3), see step 2.3).

Fig. 4



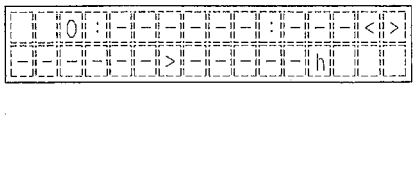
Assembly process No.	Inspection of machine monitor (5/12)
M-2	

2.3) Contents of display on lower display unit

The "failure codes" of both "EE (Electrical system failure code display mode)" and "bE (Mechanical system failure code display mode" are displayed in the same format on lower display unit (3) as shown below.

-1) When the assembly work is completed, no past trouble is recorded and no trouble is detected currently, thus the display is as shown in Fig. 5 in both modes.

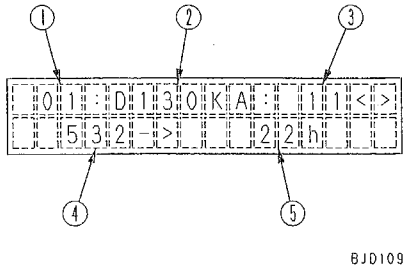
Fig. 5



-2) After the machine is started, if a trouble occurs or a past trouble is recorded, the display is as shown in Fig. 6 in both modes.

(1): Record No. (up to 20 Nos.)
(2): Failure code (Code of trouble occurring at present blinks)
(3): Number of occurrence up to now
(4): Elapsed time by service meter after first occurrence
(5): Elapsed time by service meter after last occurrence

Fig. 6



2.4) Failure code

As described above, the "failure codes" are classified and displayed into the "electrical system failure codes" and "mechanical system failure codes". For the details of each code, see "Testing and adjusting volume" or "Troubleshooting volume" of the shop manual.

The major "failure codes" are listed on the following pages.

Assembly process No.	Inspection of machine monitor (6/12)
M-2	

Failure codes list (Related to machine controller)

code	Message	call	act	lamp	buzzer
1380MW	Lock up clutch: Slip	NOCALL	E00	OFF	OFF
1500L0	Transmission clutch: Abnormal	CALL	E03	ON	ON
15E0MW	Transmission clutch: Slip	NOCALL	E00	OFF	OFF
15SAL1	Forward clutch: Fill high	CALL	E03	ON	ON
15SALH	Forward clutch: Fill low	CALL	E03	ON	ON
15SBL1	Reverse clutch: Fill high	CALL	E03	ON	ON
15SBLH	Reverse clutch: Fill low	CALL	E03	ON	ON
15SEL1	Speed 1st clutch: Fill high	CALL	E03	ON	ON
15SELH	Speed 1st clutch: Fill low	CALL	E03	ON	ON
15SFL1	Speed 2nd clutch: Fill high	CALL	E03	ON	ON
15SFLH	Speed 2nd clutch: Fill low	CALL	E03	ON	ON
15SGL1	Speed 3rd clutch: Fill high	CALL	E03	ON	ON
15SGLH	Speed 3rd clutch: Fill low	CALL	E03	ON	ON
1800MW	P/T clutch: Slip	NOCALL	E02	ON	ON
2201L1	Right clutch: Fill high	CALL	E04	ON	ON
2201LH	Right clutch: Fill low	CALL	E04	ON	ON
2202L1	Left clutch: Fill high	CALL	E04	ON	ON
2202LH	Left clutch: Fill low	CALL	E04	ON	ON
2300NR	Brake thermal load	NOCALL	E00	OFF	OFF
2301L1	Right brake: Fill high	CALL	E04	ON	ON
2301LH	Right brake: Fill low	CALL	E04	ON	ON
2301NR	Right steering brake thermal load	NOCALL	E00	OFF	OFF
2302L1	Left brake: Fill high	CALL	E04	ON	ON
2302LH	Left brake: Fill low	CALL	E04	ON	ON
2302NR	Left steering brake thermal load	NOCALL	E00	OFF	OFF
AA10NX	Air Cleaner Clogging	NOCALL	E00	ON	ON
AB00MA	Battery Charge Abnormal	NOCALL	E00	ON	OFF
B@BAZG	Eng Oil Press Low	NOCALL	E00	ON	ON
B@BAZK	Eng Oil Level Low	NOCALL	E00	ON	ON
B@BCNS	Eng Water Overheat	NOCALL	E00	ON	ON
B@BCZK	Eng Water level Low	NOCALL	E00	ON	ON
B@BFZK	Fuel Level Low	NOCALL	E00	ON	ON
B@CENS	T/C Oil Overheat	NOCALL	E00	ON	ON
B@CHZG	Power train oil pressure lowering (HSS)	NOCALL	E00	ON	ON
B@HANS	Hyd Oil Overheat	NOCALL	E00	ON	ON
B@HAZK	Hyd Oil Level Low	NOCALL	E00	ON	ON
D110KA	Battery relay: Disconnection	NOCALL	E00	OFF	OFF
D110KB	Battery relay: Drive Short Circuit	NOCALL	E00	OFF	OFF
D130KA	Neutral Relay: Disconnection	NOCALL	E02	ON	ON
D130KB	Neutral Relay: Short Circuit	NOCALL	E02	ON	ON

Assembly process No.	Inspection of machine monitor (7/12)
M-2	

code	Message	call	act	lamp	buzzer
D161KA	Back-up alarm relay: Disconnection	NOCALL	E01	OFF	OFF
D161KB	Back-up alarm relay: Short circuit	NOCALL	E01	OFF	OFF
D182KZ	Preheating relay	NOCALL	E01	OFF	OFF
D190KA	ACC signal relay: Disconnection	NOCALL	E00	OFF	OFF
D190KB	ACC signal relay: Short circuit	NOCALL	E00	OFF	OFF
DAFRKR	CAN Disconnection	CALL	E03	ON	ON
DAQ0KT	T/M non-volatile sum check: Abnormality	NOCALL	E01	OFF	OFF
DAQ1KK	T/M main power supply voltage: Abnormal	CALL	E04	ON	ON
DAQ2KK	T/M load power supply voltage: Abnormality	CALL	E04	ON	ON
DAQ5KK	T/M sensor 5V power supply: Abnormality (For POT)	CALL	E03	ON	ON
DAQ6KK	T/M sensor 24V power supply: Abnormality	NOCALL	E01	OFF	OFF
DAQ7KK	T/M sensor 5V power supply: Abnormality	CALL	E03	ON	ON
DAQ9KQ	T/M model select memory value check: Abnormality	CALL	E04	ON	ON
DAQRKR	RTCDB abnormality	CALL	E03	ON	ON
DAQSKR	S-net abnormality	NOCALL	E01	OFF	OFF
DB2RKR	CAN Disconnection	CALL	E03	ON	ON
DB30KT	S/T non-volatile sum check: Abnormality	NOCALL	E01	OFF	OFF
DB31KK	S/T main power supply voltage: Abnormality	CALL	E04	ON	ON
DB32KK	S/T load power supply voltage: Abnormality	CALL	E04	ON	ON
DB35KK	S/T sensor 5V power supply: Abnormality (For POT)	CALL	E03	ON	ON
DB36KK	S/T sensor 24V power supply: Abnormality	CALL	E03	ON	ON
DB37KK	S/T sensor 5V power supply: Abnormality	CALL	E03	ON	ON
DB39KQ	S/T model select memory value check: Abnormality	CALL	E04	ON	ON
DB3RKR	RTCDB abnormality S/T	CALL	E03	ON	ON
DB3SKR	S-net abnormality S/T	NOCALL	E01	OFF	OFF
DD12KA	Shift up Sw: Disconnection	NOCALL	E02	ON	ON
DD12KB	Shift up Sw: Short circuit	NOCALL	E02	ON	ON
DD13KA	Shift down Sw: Disconnection	NOCALL	E02	ON	ON
DD13KB	Shift down Sw: Short circuit	NOCALL	E02	ON	ON
DD14KA	Parking lever Sw: Disconnection	CALL	E03	ON	ON
DD14KB	Parking lever Sw: Short circuit	CALL	E03	ON	ON
DDB9KA	Reverse Sw2	CALL	E03	ON	ON
DDB9KB	Reverse Sw1	CALL	E03	ON	ON
DDB9L4	Reverse Sw1 inconsistency	CALL	E03	ON	ON
DDK3KA	Forward Sw2	CALL	E03	ON	ON
DDK3KB	Forward Sw1	CALL	E03	ON	ON
DDK3L4	Forward Sw1 inconsistency	CALL	E03	ON	ON
DDK5KA	Shift Sw2	NOCALL	E02	ON	ON
DDK5KB	Shift Sw1	NOCALL	E02	ON	ON
DDN1LD	PPC lift raise oil pressure Sw	NOCALL	E00	OFF	OFF
DDN2LD	PPC tilt right oil pressure Sw	NOCALL	E02	ON	ON
DDN3LD	PPC tilt left oil pressure Sw	NOCALL	E02	ON	ON

Assembly process No.	Inspection of machine monitor (8/12)
M-2	

code	Message	call	act	lamp	buzzer
DDN7KA	WEQ Knob Sw (down): Disconnection	NOCALL	E02	ON	ON
DDN7KB	WEQ Knob Sw (down): Short circuit	NOCALL	E02	ON	ON
DDN9KA	WEQ Knob Sw (up): Disconnection	NOCALL	E01	OFF	OFF
DDN9KB	WEQ Knob Sw (up): Short circuit	NOCALL	E01	OFF	OFF
DDNALD	PPC lift raise full oil pressure Sw	NOCALL	E00	OFF	OFF
DDNBLD	PPC ripper raise oil pressure Sw	NOCALL	E00	OFF	OFF
DDNCLD	PPC ripper lower oil pressure Sw	NOCALL	E00	OFF	OFF
DDNDLD	PPC ripper tilt oil pressure Sw	NOCALL	E00	OFF	OFF
DDNELD	PPC ripper tilt back oil pressure Sw	NOCALL	E00	OFF	OFF
DDNFLD	PPC lift lower full oil pressure Sw	NOCALL	E00	OFF	OFF
DDQ2KA	Travel lock Sw2	CALL	E03	ON	ON
DDQ2KB	Travel lock Sw1	CALL	E03	ON	ON
DDQ2L4	Parking lever Sw: Signal mismatch	CALL	E03	ON	ON
DDT5KA	Travel neutral Sw2	CALL	E04	ON	ON
DDT5KB	Travel neutral Swl	CALL	E04	ON	ON
DDT5KQ	Lever specification selection error	CALL	E04	ON	ON
DGS1KX	Hydraulic oil temperature sensor	NOCALL	E00	OFF	OFF
DGT1KA	T/C oil temp sensor : Abnormal	NOCALL	E01	OFF	OFF
DGT1KX	T/C oil temp sensor : Abnormal	NOCALL	E01	OFF	OFF
DH21KA	WEQ presure sensor disconnection	NOCALL	E01	OFF	OFF
DH21KB	WEQ presure sensor shortcircuit	NOCALL	E01	OFF	OFF
DH22KA	Hydraulic oil pressure 1(L,F) sensor 2	NOCALL	E00	OFF	OFF
DH22KB	Hydraulic oil pressure 1(L,F) sensor 1	NOCALL	E00	OFF	OFF
DHH3KA	HSS pump oil pressure sensor A disconnection	CALL	E03	ON	ON
DHH3KB	HSS pump oil pressure sensor A disconnection short circuit	CALL	E03	ON	ON
DHH4KA	HSS pump oil pressure sensor B disconnection	CALL	E03	ON	ON
DHH4KB	HSS pump oil pressure sensor B disconnection short circuit	CALL	E03	ON	ON
DK10KA	Fuel control dial abnormality	CALL	E03	ON	ON
DK10KB	Fuel control dial abnormality	CALL	E03	ON	ON
DK10KX	Fuel control Dial; Out of normal range	CALL	E03	ON	ON
DK30KA	ST lever 1: Disconnection	CALL	E03	ON	ON
DK30KB	ST lever 1: Short circuit	CALL	E03	ON	ON
DK30KX	ST lever 1: Out of normal range	CALL	E04	ON	ON
DK30KZ	ST lever: Disconnection or short circuit	CALL	E04	ON	ON
DK30L8	ST lever: Signal mismatch	CALL	E03	ON	ON
DK31KA	ST lever 2: Disconnection	CALL	E03	ON	ON
DK31KB	ST lever 2: Short circuit	CALL	E03	ON	ON
SK40KA	Brake potentiometer: Disconnection	CALL	E03	ON	ON
DK40KB	Brake potentiometer: Short circuit	CALL	E03	ON	ON
DK55KX	FR lever: Out of normal range	CALL	E04	ON	ON
DK55KZ	FR lever: Disconnection or short circuit	CALL	E04	ON	ON
SK55L8	FR lever: Signal mismatch	CALL	E03	ON	ON

Assembly process No.	Inspection of machine monitor (9/12)
M-2	

code	Message	call	act	lamp	buzzer
DK56KA	FR lever 1: Disconnection	CALL	E03	ON	ON
DK56KB	FR lever 1: Short circuit	CALL	E03	ON	ON
DK57KA	FR lever 2: Disconnection	CALL	E03	ON	ON
DK57KB	FR lever 2: Short circuit	CALL	E03	ON	ON
DK60KA	Acceleration sensor: Disconnection	NOCALL	E01	OFF	OFF
DK60KB	Acceleration sensor: Short circuit	NOCALL	E01	OFF	OFF
DKH1KA	Pitch angle sensor: Disconnection	CALL	E03	ON	ON
DKH1KB	Pitch angle sensor: Short circuit	CALL	E03	ON	ON
DKH1KX	Pitch angle sensor T/M	CALL	E01	OFF	OFF
DLT3KA	T/M out-speed sensor: Disconnection	NOCALL	E01	OFF	OFF
DLT3KB	T/M out-speed sensor: Abnormal	NOCALL	E01	OFF	OFF
DV00KB	Buzzer: Short circuit	NOCALL	E02	ON	OFF
DW59KA	Dual tilt selection solenoid 2	NOCALL	E01	OFF	OFF
DW59KB	Dual tilt selection solenoid 1	NOCALL	E01	OFF	OFF
DW59KY	Dual tilt selection solenoid h-short	NOCALL	E01	OFF	OFF
DW5AKA	Pitch selection solenoid 2	NOCALL	E02	ON	ON
DW5AKB	Pitch selection solenoid 1	NOCALL	E02	ON	ON
DW5AKY	Pitch selection solenoid h-short	NOCALL	E02	ON	ON
DW7BKA	Fan rev EPC: Disconnection	NOCALL	E01	OFF	OFF
DW7BKB	Fan rev EPC: Short circuit	NOCALL	E01	OFF	OFF
DW7BKY	Fan reverse solenoid h-short	NOCALL	E02	ON	ON
DWN2KA	HSS pump A disconnection	CALL	E03	ON	ON
DWN2KB	HSS pump A short circuit	CALL	E03	ON	ON
DWN2KY	HSS pump A short circuit	CALL	E04	ON	ON
DWN3KA	SSP solenoid 2	CALL	E04	ON	ON
DWN3KB	SSP solenoid 1	CALL	E04	ON	ON
DWN3KY	SSP solenoid h-short	CALL	E04	ON	ON
DWN4KA	Motor free solenoid 2	NOCALL	E01	OFF	OFF
DWN4KB	Motor free solenoid 1	NOCALL	E01	OFF	OFF
DWN5KA	Fan control solenoid 2	NOCALL	E01	OFF	OFF
DWN5KB	Fan control solenoid 1	NOCALL	E01	OFF	OFF
DWN5KY	Fan control solenoid h-short	NOCALL	E02	ON	ON
DXH1KA	Lock-up ECMV: Disconnection	NOCALL	E01	OFF	OFF
DXH1KB	Lock-up ECMV: Short circuit	NOCALL	E01	OFF	OFF
DXH1KY	Lock-up ECMV: Short circuit	CALL	E03	ON	ON
DXH4KA	1st clutch ECMV: Disconnection	CALL	E03	ON	ON
DXH4KB	1st clutch ECMV: Short circuit	CALL	E03	ON	ON
DXH4KY	1st clutch ECMV: Short circuit	CALL	E03	ON	ON
DXH5KA	2nd clutch ECMV: Disconnection	CALL	E03	ON	ON
DXH5KB	2nd clutch ECMV: Short circuit	CALL	E03	ON	ON
DXH5KY	2nd clutch ECMV: Short circuit	CALL	E03	ON	ON
DXH6KA	3rd clutch ECM; Disconnection	CALL	E03	ON	ON

Assembly process No.	Inspection of machine monitor (10/12)
M-2	

code	Message	call	act	lamp	buzzer
DXH6KB	3rd clutch ECMV: Short circuit	CALL	E03	ON	ON
DXH6KY	3rd clutch ECMV: Short circuit	CALL	E03	ON	ON
DXH7KA	R clutch ECMV: Disconnection	CALL	E03	ON	ON
DXH7KB	R clutch ECMV: Short circuit	CALL	E03	ON	ON
DXH7KY	R clutch ECMV: Short circuit	CALL	E03	ON	ON
DXH8KA	F clutch ECMV: Disconnection	CALL	E03	ON	ON
DXH8KB	F clutch ECMV: Short circuit	CALL	E03	ON	ON
DXH8KY	F clutch ECMV: Short circuit	CALL	E03	ON	ON
DXH9KA	Right clutch ECMV: Disconnection	CALL	E03	ON	ON
DXH9KB	Right clutch ECM: Short circuit	CALL	E03	ON	ON
DXH9KY	Right clutch ECMV: h-short	CALL	E04	ON	ON
DXHAKA	Left clutch ECMV: Disconnection	CALL	E03	ON	ON
DXHAKB	Left clutch ECMV: Short circuit	CALL	E03	ON	ON
DXHAKY	Left clutch ECMV: h-short	CALL	E04	ON	ON
DXHBKA	Right brake ECMV: Disconnection	CALL	E04	ON	ON
DXHBKB	Right brake ECMV: Short circuit	CALL	E04	ON	ON
DXHBKY	Right brake ECMV: Short circuit	CALL	E04	ON	ON
DXHCKA	Left brake ECMV: Disconnection	CALL	E04	ON	ON
DXHCKB	Left brake ECMV: Short circuit	CALL	E04	ON	ON
DXHCKY	Left brake ECMV: Short circuit	CALL	E04	ON	ON

Assembly process No.	Inspection of machine monitor (11/12)
M-2	

Error codes list (Related to engine controller)

code	Massage	call	act	lamp	buzzer
B@BAZG	Eng Oil Press. Low Speed Derate	NOCALL	E00	OFF	OFF
B@BAZG	Eng Oil Press. Low Torque Derate	NOCALL	E00	OFF	OFF
B@BCNS	Eng Water Overheat	NOCALL	E00	OFF	OFF
B@BEBF		NOCALL	E00	OFF	OFF
CA111	EMC Critical Internal Failure	CALL	E04	ON	ON
CA115	Eng Ne and Bkup Speed Sens Error	CALL	E04	ON	ON
CA122	Chg Air Press Sensor High Error	CALL	E03	ON	ON
CA1228	EGR Valve Servo Error 1	NOCALL	E02	ON	ON
CA123	Chg Air Press Sensor Low Error	CALL	E03	ON	ON
CA1257	Harness Key Error	CALL	E03	ON	ON
CA131	Throttle Sensor High Error	CALL	E03	ON	ON
CA132	Throttle Sensor Low Error	CALL	E03	ON	ON
CA135	Eng Oil Press Sensor High Error	NOCALL	E02	ON	ON
CA141	Eng Oil Press Sensor Low Error	NOCALL	E02	ON	ON
CA144	Coolant Temp Sens High Error	NOCALL	E02	ON	ON
CA145	Coolant Temp Sens Low Error	NOCALL	E02	ON	ON
CA153	Chg Air Temp Sensor High Error	NOCALL	E01	OFF	OFF
CA154	Chg Air Temp Sensor Low Error	NOCALL	E01	OFF	OFF
CA155	Chg Air Temp High Speed Derate	CALL	E03	ON	ON
CA1625	EGR Valve Servo Error 2	CALL	E03	ON	ON
CA1626	BP Valve Sol Current High Error	CALL	E03	ON	ON
CA1627	BP Valve Sol Current Low Error	CALL	E03	ON	ON
CA1628	Bypass Valve Servo Error 1	NOCALL	E02	ON	ON
CA1629	Bypass Valve Servo Error 2	CALL	E03	ON	ON
CA1631	BP Valve Pos Sens High Error	CALL	E03	ON	ON
CA1632	BP Valve Pos Sens Low Error	CALL	E03	ON	ON
CA1633	KOMNET Datalink Timeout Error	CALL	E03	ON	ON
CA1642	EGR Inlet Press Sens Low Error	NOCALL	E01	OFF	OFF
CA1653	EGR Inlet Press Sens High Error	NOCALL	E01	OFF	OFF
CA187	Sens Supply 2 Volt Low Error	CALL	E03	ON	ON
CA212	Eng Oil Temp Sensor High Error	NOCALL	E01	OFF	OFF
CA213	Eng Oil Temp Sensor Low Error	NOCALL	E01	OFF	OFF
CA2185	Throt Sens Sup Volt High Error	CALL	E03	ON	ON
CA2186	Throt Sens Sup Volt Low Error	CALL	E03	ON	ON
CA221	Ambient Press Sens High Error	CALL	E03	ON	ON
CA222	Ambient Press Sens Low Error	CALL	E03	ON	ON
CA2249	Rail Press Very Low Error	CALL	E03	ON	ON
CA2265	Fuel Feed Pump Open Error	NOCALL	E00	OFF	OFF
CA2266	Fuel Feed Pump Short Error	NOCALL	E00	OFF	OFF
CA227	Sens Supply 2 Volt High Error	CALL	E03	ON	ON
CA2271	EGR Valve Pos Sens High Error	CALL	E03	ON	ON
CA2272	EGR Valve Pos Sens Low Error	CALL	E03	ON	ON
CA2311	IMV Solenoid Error	CALL	E03	ON	ON
CA234	Eng Overspeed	NOCALL	E00	OFF	OFF
CA2351	EGR Valve Sol Current High Error	CALL	E03	ON	ON

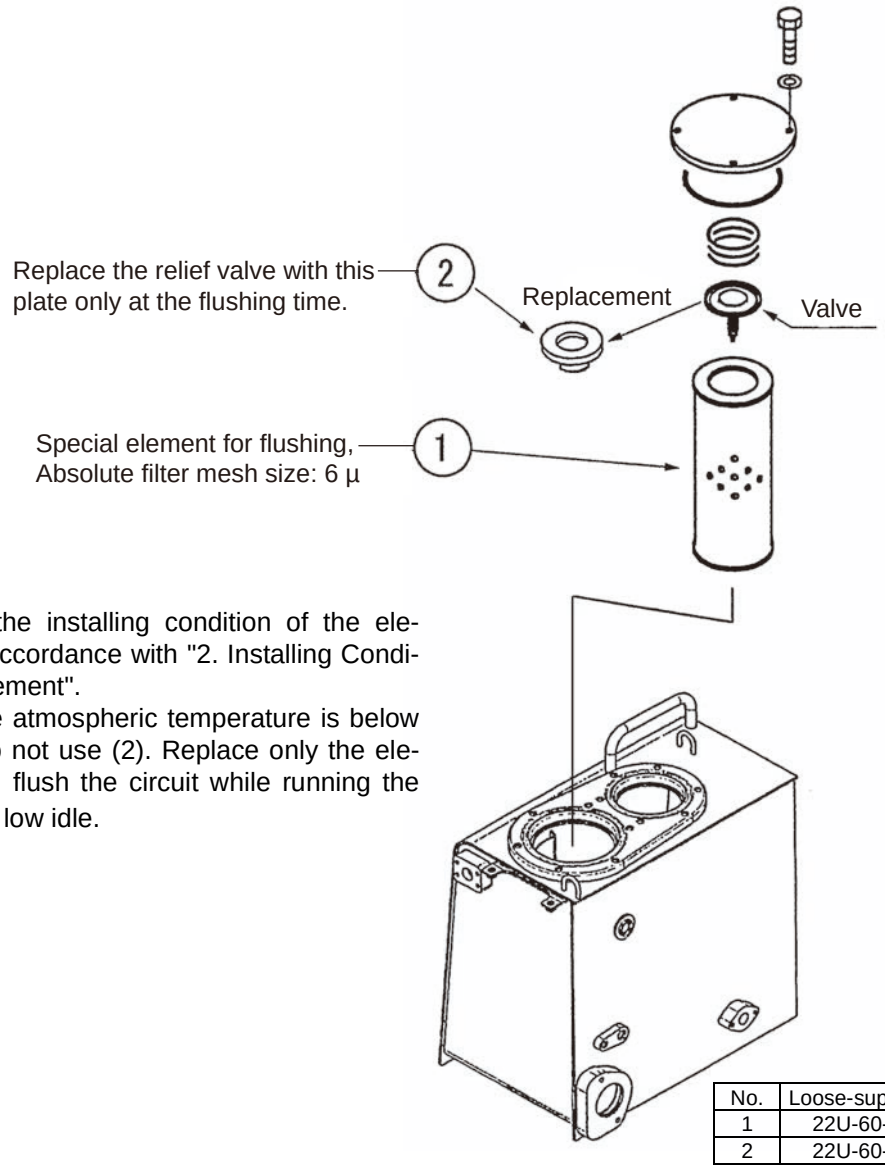
Assembly process No.	Inspection of machine monitor (12/12)
M-2	

code	Massage	call	act	lamp	buzzer
CA2352	EGR Valve Sol Current Low Error	CALL	E03	ON	ON
CA238	Ne Speed Sens Supply Volt Error	CALL	E03	ON	ON
CA2555	Grid Htr Relay Volt High Error	NOCALL	E01	OFF	OFF
CA2556	Grid Htr Relay Volt Low Error	NOCALL	E01	OFF	OFF
CA263	Fuel Temp Sensor High Error	NOCALL	E01	OFF	OFF
CA265	Fuel Temp Sensor Low Error	NOCALL	E01	OFF	OFF
CA271	IMV Short Error	CALL	E03	ON	ON
CA271	PCV1 Short Error	CALL	E03	ON	ON
CA272	IMV Open Error	CALL	E03	ON	ON
CA272	PCV1 Open Error	CALL	E03	ON	ON
CA273	PCV2 Short Error	CALL	E03	ON	ON
CA274	PCV2 Open Error	CALL	E03	ON	ON
CA281	Pump Press Balance Error	CALL	E03	ON	ON
CA322	Inj #1(L#1) Open/Short Error	CALL	E03	ON	ON
CA323	Inj #5(L#5) Open/Short Error	CALL	E03	ON	ON
CA324	Inj #3(L#3) Open/Short Error	CALL	E03	ON	ON
CA325	Inj #6(L#6) Open/Short Error	CALL	E03	ON	ON
CA331	Inj #2(L#2) Open/Short Error	CALL	E03	ON	ON
CA332	Inj #4(L#4) Open/Short Error	CALL	E03	ON	ON
CA342	Calibration Code Incompatibility	CALL	E04	ON	ON
CA351	Injectors Drive Circuit Error	CALL	E03	ON	ON
CA352	Sens Supply 1 Volt Low Error	CALL	E03	ON	ON
CA386	Sens Supply 1 Volt High Error	CALL	E03	ON	ON
CA428	Water in Fuel Sensor High Error	NOCALL	E01	OFF	OFF
CA429	Water in Fuel Sensor Low Error	NOCALL	E01	OFF	OFF
CA431	Idle Validation Sw Error	NOCALL	E00	OFF	OFF
CA432	Idle Validation Process Error	NOCALL	E00	OFF	OFF
CA435	Eng Oil Press Sw Error	NOCALL	E00	OFF	OFF
CA441	Battery Voltage Low Error	CALL	E04	ON	ON
CA442	Battery Voltage High Error	CALL	E04	ON	ON
CA449	Rail Press Very High Error	CALL	E03	ON	ON
CA451	Rail Press Sensor High Error	CALL	E03	ON	ON
CA452	Rail Press Sensor Low Error	CALL	E03	ON	ON
CA488	Chg Air Temp High Torque Derate	CALL	E03	ON	ON
CA553	Rail Press High Error	NOCALL	E02	ON	ON
CA554	Rail Press Sensor In Range Error	CALL	E03	ON	ON
CA559	Rail Press Low Error	NOCALL	E02	ON	ON
CA689	Eng Ne Speed Sensor Error	CALL	E03	ON	ON
CA691	Intake Air Temp Sensor High Error	NOCALL	E01	OFF	OFF
CA692	Intake Air Temp Sensor Low Error	NOCALL	E01	OFF	OFF
CA731	Eng Bkup Speed Sens Phase Error	CALL	E03	ON	ON
CA757	All Continuous Data Lost Error	CALL	E04	ON	ON
CA778	Eng Bkup Speed Sensor Error	CALL	E03	ON	ON
CA781	CEN Communication Error	CALL	E03	ON	ON

Assembly process No.	Replacement of return filter (Standard filter to flushing filter) (1/2)
M-3	

1. The return filter element for hydraulic oil is replaced with the special elements (1) and plate (2) for flushing as follows.

★ When replacing the elements, take out the element slowly so that refuses adhered to the element do not fall inside. Also, take out refuses by hand from the case.



★ Confirm the installing condition of the element in accordance with "2. Installing Condition of Element".

★ When the atmospheric temperature is below -15°C, do not use (2). Replace only the element and flush the circuit while running the engine at low idle.

No.	Loose-supply items	Q'ty
1	22U-60-21370	1
2	22U-60-21380	1

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Store the removed standard element (207-60-71182) and valve (20Y-60-31131) in order because they are used again after flushing.	Socket 19 mm in width across	1		
	Small size impact wrench	1		
	Others			

Assembly process No.	Replacement of return filter (Standard filter to flushing filter) (2/2)
M-3	

2. State of inserted element

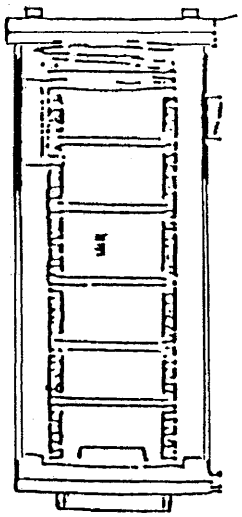


Fig. 1 Correct state

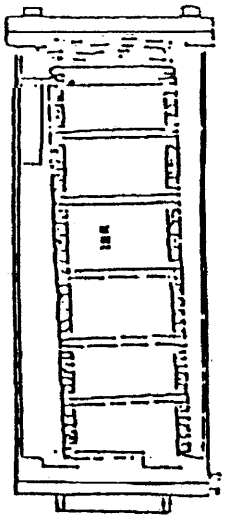


Fig. 2 Incorrect state

Caution:
Do not insert the element so that it stands on the step at the bottom of the case as shown in Fig. 2.
When the filter case is filled with oil, it is difficult to check if the element is inserted correctly, so turn the element by hand after inserting it in the case. When it turns smoothly, it is considered to be inserted correctly.

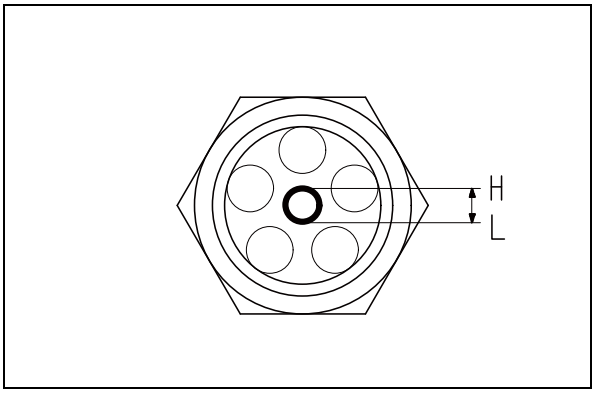
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Others			

Assembly process No.	Flushing of hydraulic circuit, and bleeding air from hydraulic cylinders (Part 1)
M-4	

After the assembly work is completed, flush the hydraulic circuit and bleed air from the hydraulic cylinders.

★ When performing the assembly process No. M-3 to M-6, the assembly process No. A-14 "Bleeding air from hydraulic cylinders" can be neglected. However, the air bleeding mentioned in assembly process No. A-8 "Installation of blade" and A-3 "Installation of ripper" must be performed.
★ Never run the engine at high idle to avoid the damage to the flushing elements.
★ If from the beginning the engine is run at full throttle, or the cylinders are operated to the end of their stroke, the piston packing may be damaged, so never operate in this way.
★ Check the oil level, and add oil to the specified level if necessary.

1. Flushing of fan circuit



1) Check the oil level in the hydraulic tank.
(Check that the oil level is between "L" and "H" of the sight gauge. If it is not between "L" and "H", add oil.)

2) Start the engine and run it for approximately 10 minutes at low idle.
3) Then run the engine for approximately 30 minutes in 1,000 to 1,200 rpm.
4) Check the oil level in the hydraulic tank.
(Check that the oil level is between "L" and "H" of the sight gauge. If it is not between "L" and "H", add oil.)

2. Bleeding air and flushing of cylinder with piston valve (blade lift cylinder)

1) While running the engine at low idle, extend and retract the cylinder for 5 minutes.
However, do not move the cylinder to the stroke end.
★ Operate the piston rod to approx. 100 mm from the end of the stroke; do not relieve the circuit under any circumstances.

2) Keeping the engine at low idle, retract the cylinder to a point approx. 100 mm before the end of the stroke, then use fine control (at least 10 seconds) to retract the cylinder to the end of its stroke. While operating the lever, hold the cylinder in this position for 3 minutes.

3. Bleeding air and flushing of cylinder without piston valve (Blade tilt cylinder, ripper lift cylinder, ripper tilt cylinder)

1) Check the oil level in the hydraulic tank.
(Check that the oil level is between "L" and "H" of the sight gauge. If it is not between "L" and "H", add oil.)

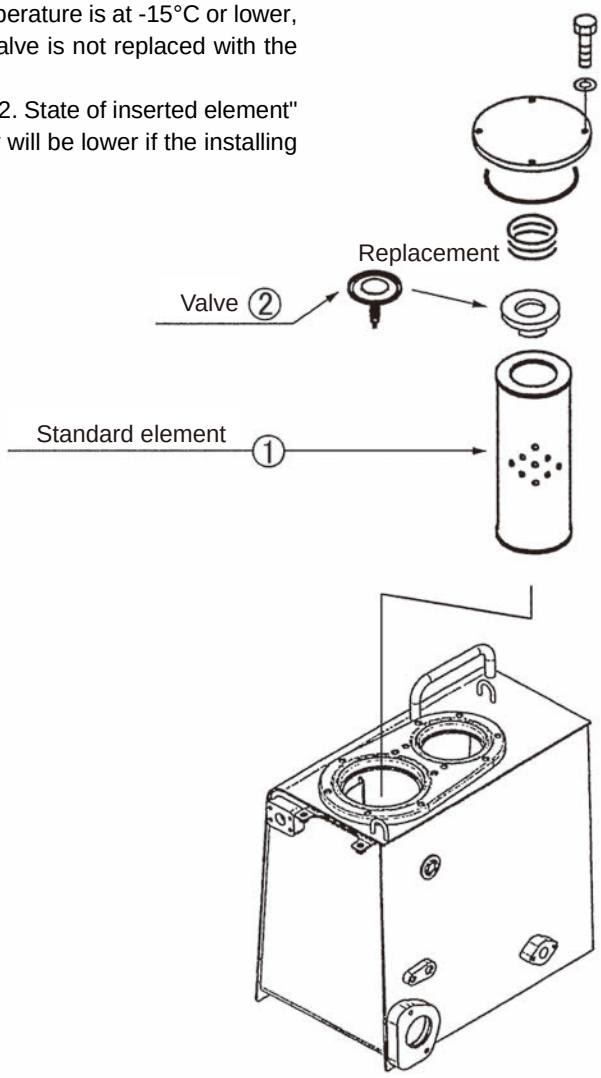
2) While running the engine at low idle, extend and retract the cylinder for 5 minutes.
However, do not move the cylinder to the stroke end.
★ Operate the piston rod to approx. 100 mm from the end of the stroke; do not relieve the circuit under any circumstances.

Assembly process No.	Replacement of return filter (Flushing filter to standard filter) (1/2)
M-5	

1. Reinstall the removed return filter element (1) and valve (2).

★ When replacing the elements, take out the element slowly so that refuses adhered to the element do not fall inside. Also, take out refuses by hand from the case.

★ When atmospheric temperature is at -15°C or lower, pay attention that the valve is not replaced with the plate.
★ Keep accordance with "2. State of inserted element" as the element capacity will be lower if the installing condition is wrong.



Precautions	Necessary tools		Necessary equipment	
• Scrap the used flushing element. Keep accordance with the local laws for scraping. • Replaced plate is reusable, so it is recommended to store it for the next flushing work.	Name	Q'ty	Name	Q'ty
	Others			

Assembly process No.	Replacement of return filter (Flushing filter to standard filter) (2/2)
M-5	

2. State of inserted element

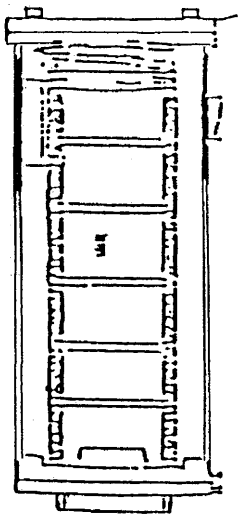


Fig. 1 Correct state

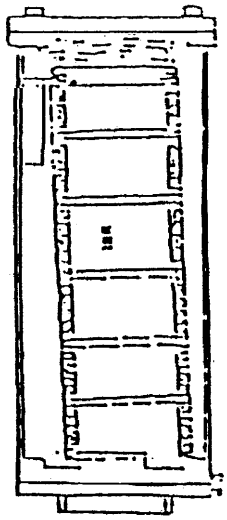


Fig. 2 Incorrect state

Caution:
Do not insert the element so that it stands on the step at the bottom of the case as shown in Fig. 2.
When the filter case is filled with oil, it is difficult to check if the element is inserted correctly, so turn the element by hand after inserting it in the case. When it turns smoothly, it is considered to be inserted correctly.

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Others			

Assembly process No.	Bleeding air from hydraulic cylinders (Part 2)
M-6	

1. Bleeding air from cylinder with piston valve (Blade lift cylinder)

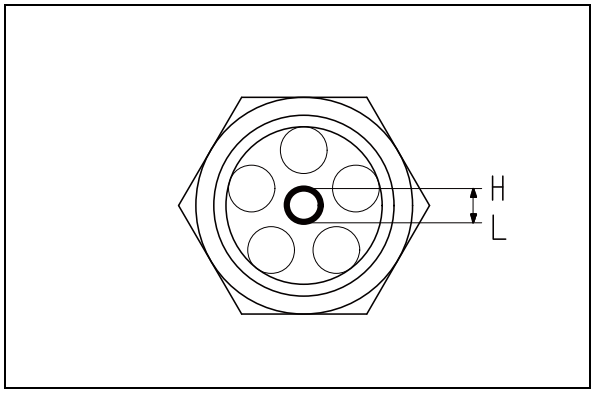
   1) With the engine at high idle, retract the cylinder to a point approx. 100 mm before the end of the stroke, then use fine control (at least 10 seconds) to retract the cylinder to the end of its stroke. While operating the lever, hold the cylinder in this position for 1 minute.

2. Bleeding air from cylinder without piston valve (Blade tilt cylinder, ripper lift cylinder, ripper tilt cylinder)

   1) While running the engine at high idle, repeat this operation for 5 minutes. Then run the engine at low idle and operate the piston rod to the end of its stroke to relieve the circuit.

3. After bleeding the air, leave the engine stopped for 1 hour.

   1) After leaving for 1 hour, check the oil level in the hydraulic tank.
   (Check that the oil level is between "L" and "H" of the sight gauge. If it is not between "L" and "H", add oil.)



⚠ Check the oil level, and add oil to the specified level if necessary.

KOMATSU

Report No._____

Field assembly inspection report

After completion of assembling a machine, make inspections according to these check sheets for assuring machine performance and quality.

Model-Type	Machine Serial No.	User Unit No.	Engine Model	Engine Serial No.
D275AX-5E0			SAA6D140E-5	

Service Meter Reading	Date of Inspection
Location of Machine at Inspection	
Distributor's Name	

Specification				
Blade	U	Semi U	SIGMA (Dual	Single)
Ripper or counterweight	VGR.	VMR.	CW (	)
Shoe width	610 mm	710 mm	760 mm	
Others				

Customer's Name	Address:	Signature:	Delivery Report No. attached
		Date:	

Inspector's Comments:

Inspector's Name:	KOMATSU USE ONLY :
Title	C. Sheet Receiving Date :
Signature:	By :
	Remark:

Check sheets filling instructions:

1. Use following indexes for entry of judgement

☑..... Normal
☒..... Abnormal
☒ ..... Correction made on abnormal point
☒..... Not applied

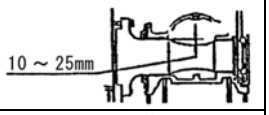
2. Enter actually measured values in parenthese, [ ].

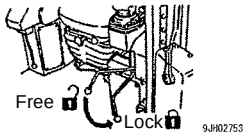
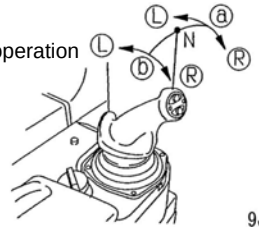
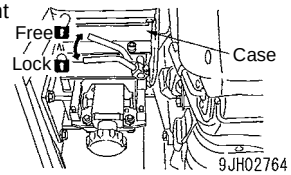
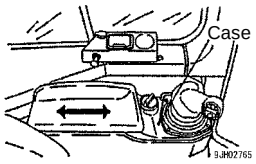
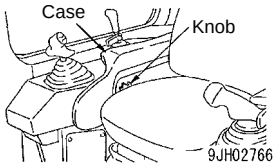
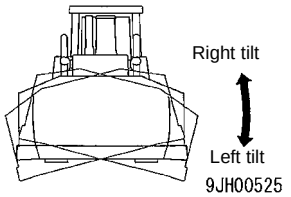
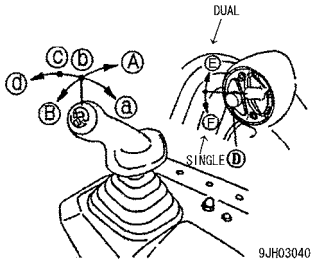
Notes:

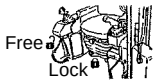
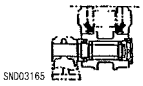
(1) Criteria are based on the standards when the machine is shipped out of the factory.

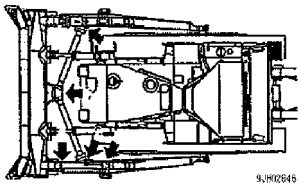
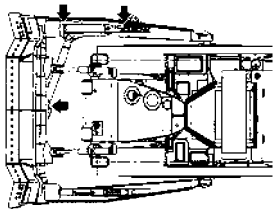
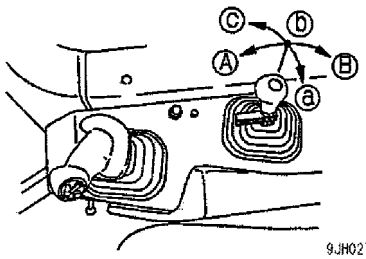
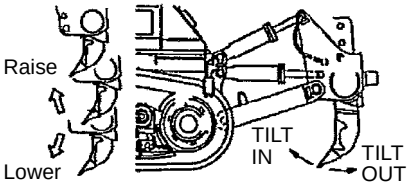
SUBMITTANCE OF THIS REPORT (AND CHECK SHEETS) TO KOMATSU IS ONE OF THE CONDITIONS OF WARRANTY VALIDATION, COPY FOR KOMATSU SHALL BE FORWARDED TO THE KOMATSU REGIONAL OFFICE TOGETHER WITH THE COPY OF DELIVERY SERVICE REPORT.

Printed in Japan

Category	Inspection item			Inspection	Criteria	
Battery	Check of electrolyte level Check of battery unit				Must be between L and H. Must be free from grease, looseness of terminals, and cracking.	
Water and oil level	Radiator water level				Above the bottom of strainer net	Radiator  9XD03149
	Reserve tank water level				Low to Full	
	Antifreeze% 65 58 50 41 30 °C -50 -40 -30 -20 -10	Refer to Operation & Maintenance Manual			Must be contained.	
	Engine oil level				(H + L) / 2 to H + 10	Engine: Stopped
	Power train oil level				(H + L) / 2 to H + 10	Engine: Stopped
	Damper case oil level				(H + L) / 2 to H + 10	Engine: Stopped
	Hydraulic tank oil level • Between H - L  SXD03150				H to L sight gauge	Pitch back on the ground. Ripper point on the ground. (Shank must be vertical.) Stop the engine.
	Final drive oil level		LH		H to H-20	See operation manual. Stop the engine.
			RH			
	Pivot shaft oil level  10 ~ 25mm		LH		H + 10 to H + 25 from shaft end	See operation manual.
			RH			
	Recoil spring oil level  SXD03152 70~80		LH		H = 70 to 80	See operation manual.
			RH			
	Use the diagram below for reference, and check if the electrolyte reaches the bottom of the sleeve.  Filter port Sleeve Upper Lower				Correct level  Tool low 	The electrolyte level is up to the bottom of the sleeve, so the surface tension causes the surface to rise and the plate appears to be warped. The electrolyte level is not up to the bottom of the sleeve, so the plate appears normal.
	Window washer tank water level		LH		Full	
	Fuel tank				Full	
Inspection	Horn				Must be of no beat sound or sound deterioration.	
	Backup alarm (Starting engine)				Backup alarm must sound when the T/M lever is at the back position.	
	Monitor display				Monitor must be turned on with buzzer sound, then go off after 3 seconds. After that all gauge lamps must come on.	
	Operation of service meter (Engine: Low idling)				No error code indicated in the service meter. Before engine start, meter must not operate when the key switch turned on.	
	Charge lamp (Engine: Low idling)				Must not light up when all electrical equipment are turned on.	
	Lamp ON (Head lamp, tail lamp and work lamp)				Must light up when turned on.	
	Main corrosion resistor cock.				Must be fully open.	
	Sub corrosion resistor cock.				Must be fully open.	
	Heater hose cock.				Must be fully open.	
	Controller error code indication (make sure that error does not recur)				Clear error code after confirming it.	
	Air bleeding of the hydraulic cylinder 1. Start and run the engine for 5 minutes at low idling. 2. With the engine at low idling, extract and retract the cylinder 4 to 5 times without bringing it to the stroke end. 3. With the engine at high idling, stop the cylinder at 100 mm before the stroke end. Then slowly bring it to the stroke end. Hold it at the position for 1 minute.				Perform air bleeding of the hydraulic cylinder.	

Cate-gory	Inspection item	Inspec-tion	Criteria
Function/ operation	Check of auto shift-down function (When stalled)		Auto shift-down function must not work when stalled.
	Effect of parking brake lever 		When parking brake lever is in FREE position, engine must not start. Travel and gear shifting must be prohibited when locked.
	Operability of travel lever • Gear shifting operation • Travel direction change operation • Steering operation (To each direction) Play when lever is in “N” position. 		Must be free from hitch and abnormal sound. Must not come off notch. Must be free from hitch and abnormal sound. Must return smoothly. Max. 10 mm
	Check of the gear speed indication on the monitor panel. • Must be able to be shifted to any position with the engine at low idling and the brake turned on.		N, F1, F2, F3, R1, R2 and R3 are all indicated. Must be of no indication error.
	Check of longitudinal adjustment of steering lever box • Adjustment of 10 steps • Check of lock lever of box (Upper and lower)   		Must be adjustable. Must not move after locking.
	Check of the lockup operation With the T/M lever at the “N” position, engine idling must change from low to high, then to low again.		Lockup must be turned ON and OFF. (When lockup is turned ON, symbol lamp must light up.) High idling : L/U indicator ON Low idling : L/U indicator OFF
	Check of the deceleration pedal operation • Set the fuel dial to high idle position. • Check the deceleration RPM		Must work smoothly. Must be contained play at high idle. 800 – 950 rpm
	Check of the fuel dial operation		Must move smoothly.
	Check of tilting directions 		Blade must move to left. Blade must move to right.
Dual	Check of dual tilt and pitch direction Check of tilt direction 		
	Pitch back		Blade must move backward. (D) + (B)
	Pitch dump		Blade must move forward. (D) + (A)
	LH dual tilt		Blade must move to left (both cylinders move) (E) + (B)
	RH dual tilt		Blade must move to right (both cylinders move) (E) + (A)
	LH tilt		Blade must move to left (right cylinder moves) (B) + (F)
	RH tilt		Blade must move to right (left cylinder moves) (A) + (F)

Category	Inspection item		Inspection	Criteria
Work equipment	Clearance between straight frame and track	Left mm		Difference between right and left must be 30 mm or less (when measured on flat ground). Move the blade up and down and stop it at 100 mm above ground, then measure.
		Right mm		
	Check of the safety lever lock function 			No actuator must work when the safety lock lever is at ON position (Lever can move but work equipment must not move)
	Check of the blade lever floating Check of the blade lever floating notch release			Must be of no hydraulic drift (Engine: Low idling) Engine stops at floating, then notch must be released.
	Check of the quick drop valve operation • Quick dropping of the blade from top position.			At the engine full, set the blade lever at down position. When the lever is set at the N position after the blade drops by 1000 mm, it must stop.
	Main relief valve function (Engine: Low idling)			Must be bridged with the blade and the ripper (Chassis)
	Check of the accumulator function (blade, ripper)			Must function immediately after the engine stops then drop from the top to the ground.
	Blade cylinder oil leakage • Leakage from U-packing, damaged rod, quick drop valve, tube, flange or dust seal	LH		Must be none.
		RH		
	Tilt cylinder/pitch cylinder oil leakage • Leakage from U-packing, damaged rod, quick drop valve, tube, flange or dust seal	LH		Must be none.
		RH		
	End bit, cutting edge mounting bolt			Must be tightened.
	Blade and bit stopper contact 1. End bit 2. Stopper 			Must be contacted (partial contact is acceptable)
Ground peripherals	Track tension adjustment • With the gear at F1 and the engine at low idling, travel on flat place for about 10 m, and when the grouser comes over the first carrier roller, stop the machine by depressing the brake pedal.	LH	8 – 35 mm	Tense a string or a bar between the first carrier roller and the idler to measure distance between the string (bar) and the grouser. Max. 20 mm
		RH	8 – 35 mm	
	Carrier roller alignment • Travel on flat place with the gear at F1 and R1 for about 10 m, repeatedly about 3 or 4 times, then gradually apply brake to stop.	LH		Flanges must be free from contact with links at all times. 
		RH		
	Undercarriage oil leakage • Leakage from idler, carrier roller, bogie, pivot shaft, adjustment cylinder, and lubricated track (plug, seal)	LH		Must be none.
		RH		
Cabin	Beat noise inside the cabin, beat noise of the outer cover			Must be none.
	Space between S/T lever and the cabin at forward travel + left steering with the S/T lever at the front position.			Must be 40 mm or more.
	Opening/closing and locking effect of the cabin doors.			Must work smoothly to securely lock the doors by door-locking or key-locking.
	Cabin door-open lock release lever			Lever must operate smoothly and unlock securely. (Unlock: Door is pushed out of stopper rubber section.)
	Opening/closing and locking effect of the left/right side slide glass			Must work smoothly to securely lock.
	Lighting of the room lamp			Must come on/go off by turning the switch on/off.
	Operation of the window wiper and the window washer			Must be on/off by turning the switch on/off. Wiper: Must operate smoothly (without beat noise)
	Operation of the radio and cassette system (Volume, tuning, AM/FM switching, cassette)			Must operate correctly
	Operation of the cigar lighter Ash tray installation			Must be red-heated. Must be installed.
	Power supply of 12 V (Accessory socket, etc.) • Check by connecting the ratio unit			Power of 12 V must be supplied.
	Operation of the air conditioner			Cold and warm air must be able to be switched by monitor operation. Air flow amount must be able to be adjusted (Hi, Mid or Lo)
	Air flow amount must be able to be adjusted (Hi, Mid or Lo) • Louver must be smoothly switched (Left/right of monitor panel)			Air comes out from each blowout port.

<table>
<tr><th>Cate-gory</th><th>Inspection item</th><th>Inspec-tion</th><th colspan="2">Criteria</th></tr>
<tr><td rowspan="8">Lubrication</td><td rowspan="8">Portions to be lubricated
• Equalizer bar side pin shaft
• Equalizer bar center pin shaft
• Blade lift cylinder support shaft and yoke
• Brace center pin
• Blade oblique arm ball joint</td><td></td><td>Q'ty</td><td rowspan="8">Example: When U-blade is used
 
9JH02645</td></tr>
<tr><td></td><td>2</td></tr>
<tr><td></td><td>2</td></tr>
<tr><td></td><td>6</td></tr>
<tr><td></td><td>1</td></tr>
<tr><td></td><td>3</td></tr>
<tr><td></td><td>2</td></tr>
<tr><td></td><td></td></tr>
<tr><td rowspan="8">Portions to be lubricated
• Equalizer bar side pin shaft
• Equalizer bar center pin shaft
• Blade lift cylinder support shaft and yoke
• Brace center pin
• Blade oblique arm ball joint</td><td></td><td>Q'ty</td><td rowspan="8">Example: When Sigmadozer is used
  </td></tr>
<tr><td></td><td>2</td></tr>
<tr><td></td><td>1</td></tr>
<tr><td></td><td>6</td></tr>
<tr><td></td><td>1</td></tr>
<tr><td></td><td>2</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td rowspan="19">Ripper</td><td rowspan="10">Check of ripper direction
 
9JH02739
(a) Raise
(c) Lower
(A) Tilt in
(B) Tilt out</td><td></td><td colspan="2" rowspan="10"> 
Raise
Lower
TILT IN
TILT OUT</td></tr>
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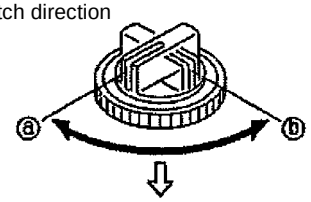
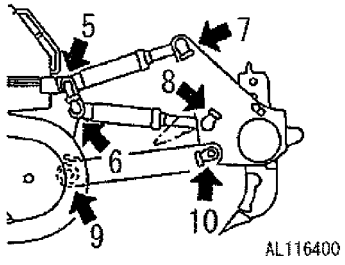
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td rowspan="3">Ripper lift cylinder oil leakage
• U-packing, damaged rod, tube, flange, dust seal loosing</td><td></td><td colspan="2" rowspan="3">Must be none</td></tr>
<tr><td>LH</td><td></td></tr>
<tr><td>RH</td><td></td></tr>
<tr><td rowspan="3">Ripper tilt cylinder oil leakage
• U-packing, damaged rod, tube, flange, dust seal loos-ing</td><td></td><td colspan="2" rowspan="3">Must be of no contact.</td></tr>
<tr><td>LH</td><td></td></tr>
<tr><td>RH</td><td></td></tr>
<tr><td rowspan="2">Contact with the hose at ripper operation
(Entire operation area must be checked)</td><td></td><td colspan="2" rowspan="2">Must be of no contact.</td></tr>
<tr><td></td></tr>
<tr><td>Creak of the ripper link pin</td><td></td><td colspan="2">Must be of no creak.</td></tr>
<tr><td rowspan="2">Check of the pin puller switch direction
(a): Pin out
(b): Pin in
 
Machine front 9JH03103</td><td></td><td colspan="2" rowspan="2">Must be the same as the pin puller cylinder operation direction.</td></tr>
<tr><td></td></tr>
<tr><td rowspan="2">Check of the pin puller cylinder hose clamp position
(Entire operation area must be checked)</td><td></td><td colspan="2" rowspan="2">Must be of no contact.
Must be of no excess hose tension.</td></tr>
<tr><td></td></tr>
<tr><td rowspan="2">Pin puller cylinder oil leakage
• Leakage from U-packing, damaged rod, tube of flange</td><td></td><td colspan="2" rowspan="2">Must be none</td></tr>
<tr><td></td></tr>
<tr><td rowspan="2">Check of ripper lubricated hose installation</td><td>LH</td><td></td><td colspan="2" rowspan="2">Must be of no contact or no excess bend.</td></tr>
<tr><td>RH</td><td></td></tr>
</table>

Cate-gory	Inspection item	Inspec-tion	Criteria	
Ripper	Portions to be lubricated		Q'ty	Must be lubricated (right and left)
	• Ripper lift cylinder head (8)		2	
	• Ripper lift cylinder bottom (6)		2	
	• Ripper tilt cylinder head (7)		2	
	• Ripper tilt cylinder bottom (5)		2	
	• Ripper arm pin (front) (9)		2	
	• Ripper arm pin (rear) (10)		2	
			2	
				
KOMTRAX	Check of cable between KOMTRAX controller and antenna			Must be installed to controller and antenna side correctly.
	Check of KOMTRAX Communication			Must be of no abnormality according to the service mode of shop manual.

Engine speed

Category	Item	Condition	Unit	Standard	Result
Engine	Engine speed	Run engine at low idling (low speed).	rpm	650 – 750	
		Run engine at high idling (at full throttle).	rpm	1950 – 2000	
		Set decelerator at low speed.	rpm	850 – 950	
		Stall torque converter. *	rpm	1570 – 1670	
		Stall torque converter and relieve ripper. *	rpm	1530 – 1630	
		Select economy mode (1), run engine at full throttle, and set transmission in N.	rpm	1750 – 1850	
		Select economy mode (2), run engine at full throttle, and set transmission in N.	rpm	1450 – 1550	
	Engine speed (Only SSC specification)	Select SSC mode (1), run engine at full throttle, and set transmission in N.	rpm	1600 – 1700	
		Select SSC mode (2), run engine at full throttle, and set transmission in N.	rpm	1530 – 1630	
		Select SSC mode (3), run engine at full throttle, and set transmission in N.	rpm	1430 – 1530	
		Select SSC mode (4), run engine at full throttle, and set transmission in N.	rpm	1330 – 1430	
		Select SSC mode (5), run engine at full throttle, and set transmission in N.	rpm	1230 – 1330	

* Measure stall speed 1 segment before red range of torque converter oil temperature gauge.
Measure with ID "0530" in adjustment mode of monitor.

Hydraulic pressure

Torque converter	Inlet pressure	Run engine at full throttle and set transmission in N.		MPa {kg/cm²}	0.49 – 0.98 {5 – 10}	
		Run engine at low speed and set transmission in N.		MPa {kg/cm²}	Max. 0.19 {Max. 2}	
	Outlet pressure	Run engine at full throttle and set transmission in N.		MPa {kg/cm²}	0.39 – 0.59 {4 – 6}	
		Run engine at low speed and set transmission in N.		MPa {kg/cm²}	Max. 0.19 {Max. 2}	
	Stator clutch pressure	Run engine at low speed and set transmission in N.		MPa {kg/cm²}	2.45 – 2.85 {25 – 29}	
Transmission	Main relief pressure	Run engine at full throttle and set transmission in N.		MPa {kg/cm²}	2.94 – 3.33 {30.0 – 34.0}	
	Brake pressure	Run engine at full throttle and set transmission in N.	Release pedal.	MPa {kg/cm²}	2.94 – 3.33 {30.0 – 34.0}	
		Run engine at low speed and set transmission in N.		MPa {kg/cm²}	2.65 – 3.04 {27 – 31}	
		Run engine at full throttle and set transmission in N.	Press pedal to stroke end.	MPa {kg/cm²}	0 {0}	
		Run engine at low speed and set transmission in N.		MPa {kg/cm²}	0 {0}	
Oil pressure	HSS relief pressure	Run engine at full throttle and set transmission in N.		MPa {kg/cm²}	Max. 3.92 {Max. 40}	
		Run engine at low speed and set transmission in N.		MPa {kg/cm²}	Max. 3.92 {Max. 40}	
		Run engine at full throttle and set transmission in N.	Turn to left stroke end.	MPa {kg/cm²}	38.2 – 41.7 {390 – 425}	
			Turn to right stroke end.	MPa {kg/cm²}	38.2 – 41.7 {390 – 425}	
	Control basic pressure (HSS, PPC, fan)	Run engine at full throttle and set transmission in N.		MPa {kg/cm²}	3.43 – 4.12 {35 – 42}	
	Work equipment pump relief pressure	Run engine at full throttle and relieve ripper by raising it.		MPa {kg/cm²}	25.9 – 28.9 {265 – 295}	
		Run engine at low speed and relieve ripper by raising it.		MPa {kg/cm²}	25.0 – 27.9 {255 – 285}	
	HSS charge pressure	Run engine at full throttle and set lever in neutral.		MPa {kg/cm²}	2.65 – 3.43 {27 – 35}	

Work equipment speed

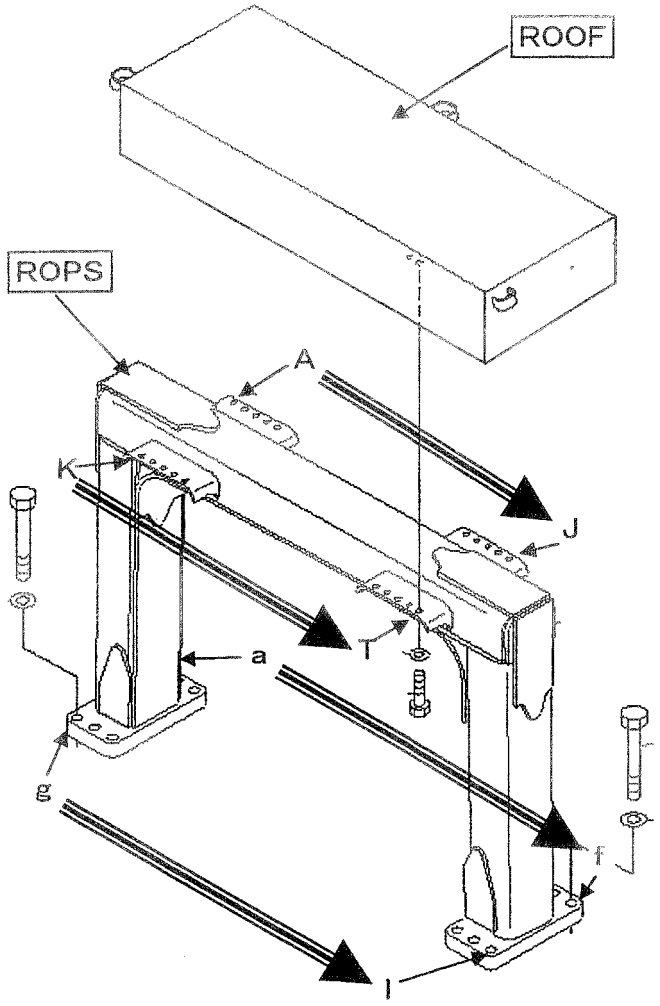
Cate-gory	Item	Condition		Unit	Standard	Result
	Blade lift	RAISE	Run engine at full throttle.	sec	3.0 – 4.0	
		LOWER	Run engine at full throttle.	sec	1 – 1.5	
	Blade tilt	LEFT tilt	Run engine at full throttle.	sec	2.5 – 3.5	
		RIGHT tilt	Run engine at full throttle.	sec	2.5 – 3.5	
	Ripper lift (Use lowest pin hole)	RAISE	Run engine at full throttle.	sec	2.5 – 3.5	
		LOWER	Run engine at full throttle.	sec	3.0 – 4.0	
	Ripper tilt	Tilt IN	Run engine at full throttle.	sec	4.0 – 5.0	
		Tilt BACK	Run engine at full throttle.	sec	3.0 – 4.0	
	Pitch (Dual tilt specification)	DUMP	Run engine at full throttle.	sec	2.5 – 3.5	
		BACK	Run engine at full throttle.	sec	2.0 – 3.0	
	Single tilt (Dual tilt specification)	LEFT tilt	Run engine at full throttle.	sec	2.5 – 3.5	
		RIGHT tilt	Run engine at full throttle.	sec	2.5 – 3.5	
	Dual tilt (Dual tilt specification)	LEFT tilt	Run engine at full throttle.	sec	2.5 – 3.5	
		RIGHT tilt	Run engine at full throttle.	sec	2.5 – 3.5	

Hydraulic drift of work equipment

	Blade lift	Cutting edge height: 500 – 800 mm.	mm/min	150/15	
	Ripper lift	Ripper point height: 300 – 600 mm.	mm/min	80/15	

Check sheet for tightening torque for bolts of ROPS and roof

Sketch



Record

1. Tightening torque of roof
   From right to left of machine rear A – J
   From right to left of machine front K – T
   (rear 10 + front 10, total 20)

Location	Record	Standard tightening torque
A		245 – 309 Nm {25.0 – 31.5 kgm}
B		
C		
D		
E		
F		
G		
H		
I		
J		
K		
L		
M		
N		
O		
P		
Q		
R		
S		
T		

2. Tightening torque of ROPS
   From right to left of machine rear a – f
   From right to left of machine front g – l
   (rear 6 + front 6, total 12)

Location	Record	Standard tightening torque
a		1177 – 1471 Nm {120 – 150 kgm}
b		
c		
d		
e		
f		
g		
h		
i		
j		
k		
l		