

Field Assembly Instruction

BULLDOZER

D155A-6

SERIAL NUMBERS 85001 and up

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.

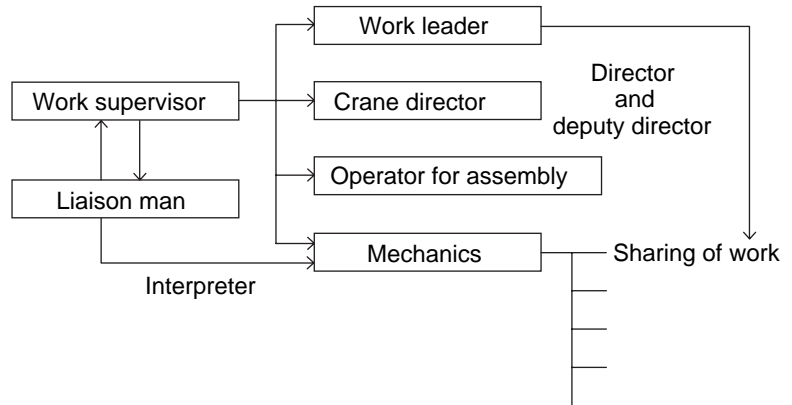
Many units are large in size and heavy in weight and may be handled in a dangerous place or posture and many workers may have to work together to sling them with cranes.

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.

(Instruction system)



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

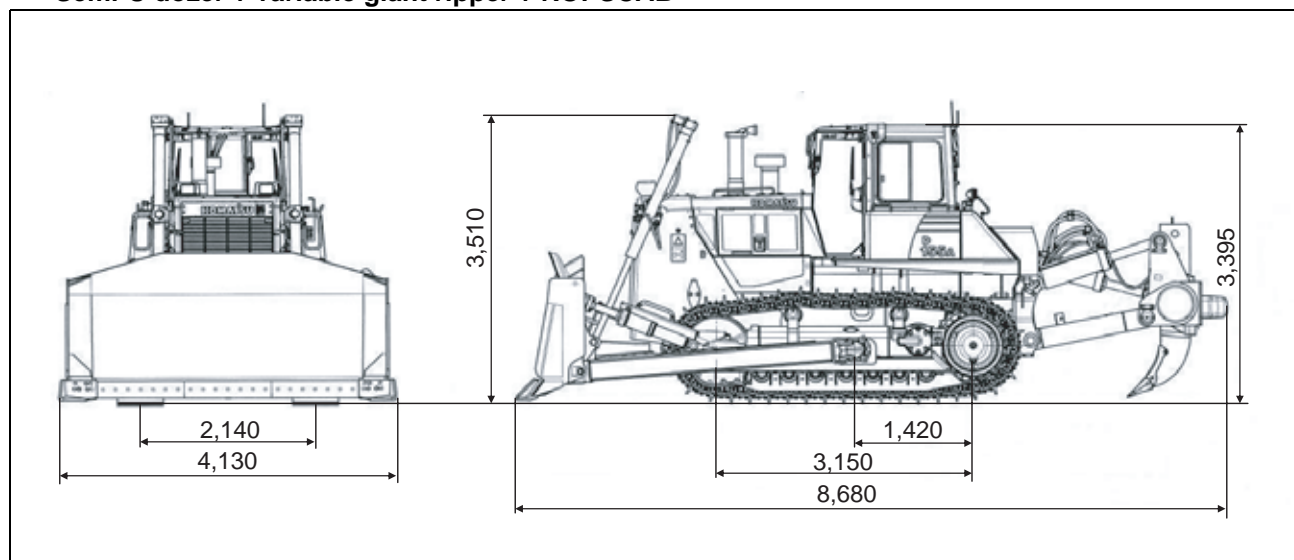
Specifications	1
Precautions for field assembly.....	3
Assembly procedure, necessary equipment, and schedule	4
Layout of kit	5
Style for transportation	6
List of tools for field assembling	11
Tightening torque	12
Coating materials	16
A. Assembly procedure	
A-1 Unloading and installing tractor.....	20
A-2 Installing track shoes.....	21
A-3 Assembly of blade.....	22
A-4 Installation of blade lift cylinder	28
A-5 Installation of blade	30
A-6 Installation of ripper assembly.....	32
A-7 Adjusting track tension	43
A-8 Check fuel, coolant and lubricants	45
A-9 Lubricating.....	47
A-10 Bleeding air from hydraulic cylinders	50
A-11 Installation of additional working lamps.....	51
S. Reference material (Installed when delivered)	
S-1 Installation of operator's cab	54
S-2 Installation of KOMTRAX parts	70
S-3 Installation of KOMTRAX antenna	76
S-4 Installation of fire extinguisher.....	78
M. Check and maintenance procedures after completion of assembly	
M-1 Testing and adjusting operator's cab.....	82
M-2 Replacement of return filter (Standard filter to flushing filter)	92
M-3 Flushing of hydraulic circuit, and bleeding air from hydraulic cylinders (Part 1)	94
M-4 Replacement of return filter (Flushing filter to standard filter)	95
M-5 Bleeding air from hydraulic cylinders (Part 2)	97
Field assembly inspection report	

Specifications

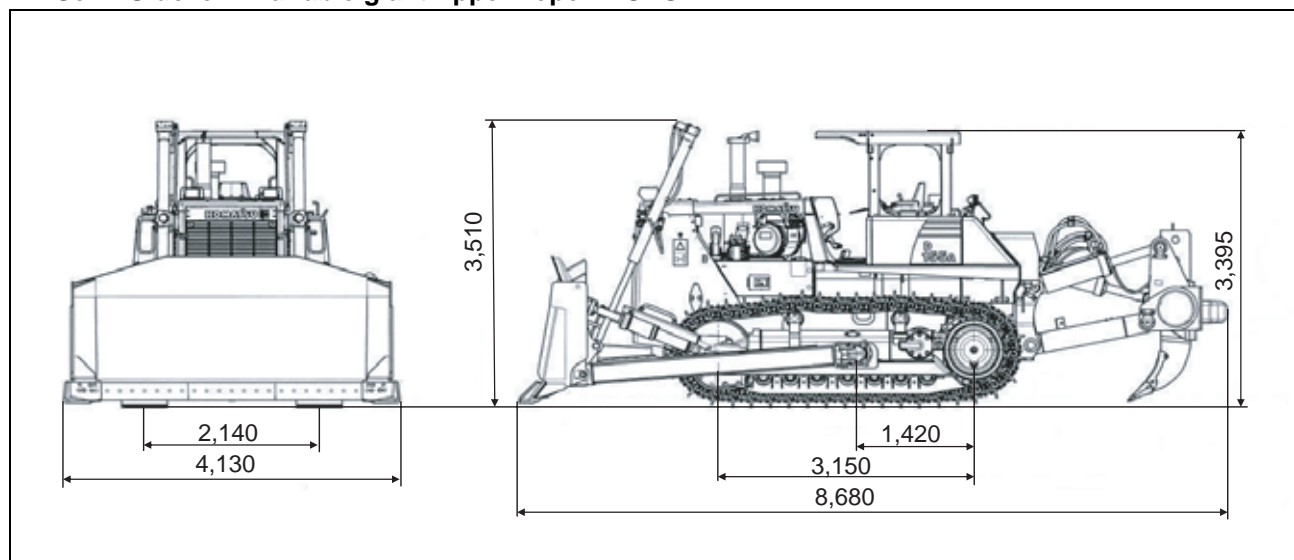
1. Semi-U dozer + Giant ripper

Item	Unit	ROPSCAB	Open ROPS
Operating weight (excluding operator's weight)	kg	417,000	41,100
Blade weight (including cylinders)	kg	5,620	
Ripper weight (including cylinders)	kg	3,380	
Engine model	—	KOMATSU SAA6D140E-5 Diesel engine	
Rated engine output	kW/rpm {PS/rpm}	243/1,900 {325/1,900}	
Length of track on ground	mm	3,150	
Width of gauge	mm	2,140	
Overall length	mm	8,680	
Overall height (with ROPS, cab)	mm	3,510	
Overall width (width of blade)	mm	4,130	
Travel speed (1st/2nd/3rd (low)/3rd)	Forward	km/h	3.9/5.7/7.5/11.4
	Reverse	km/h	4.7/6.8/9.2/13.7

- **Semi-U dozer + variable giant ripper + ROPSCAB**



- **Semi-U dozer + variable giant ripper+ open ROPS**

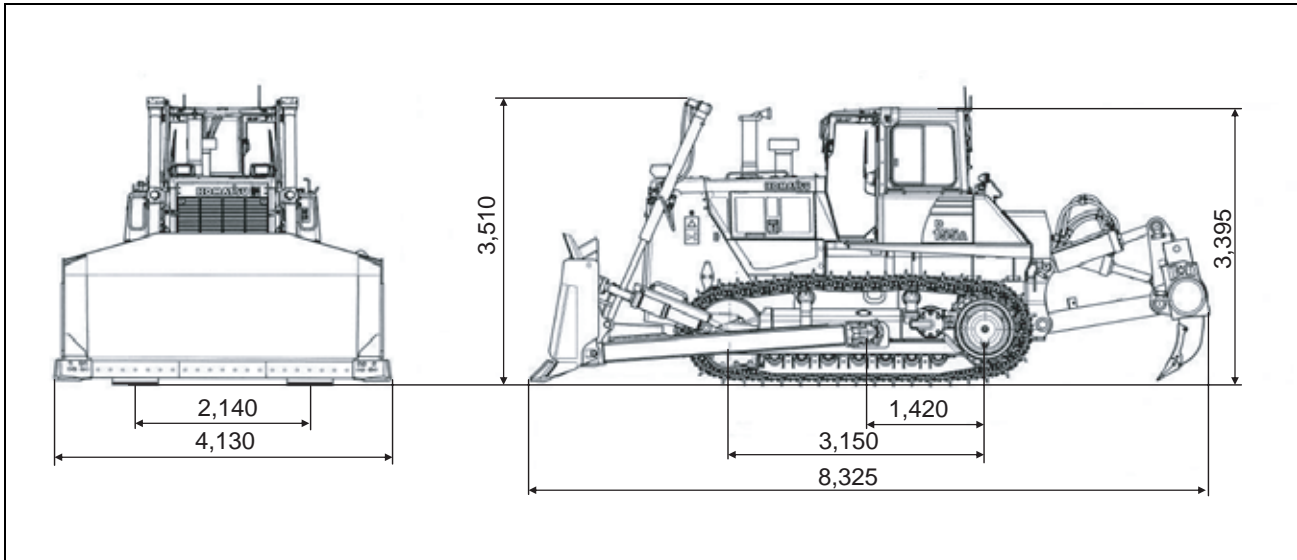


Specifications

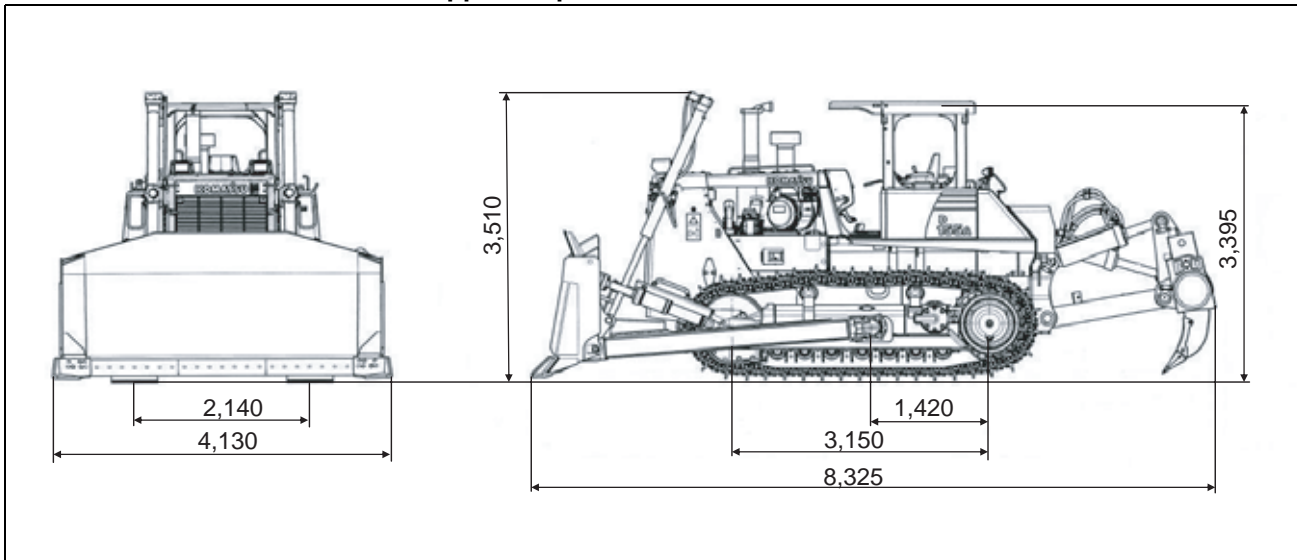
2. Semi-U dozer + multi ripper

Item		Unit	ROPSCAB	Open ROPS
Operating weight (excluding operator's weight)		kg	42,100	41,500
Blade weight (including cylinders)		kg	5,620	
Ripper weight (including cylinders)		kg	3,760	
Engine model		—	KOMATSU SAA6D140E-5 Diesel engine	
Rated engine output		kW/rpm {HP/rpm}	243/1,900 {325/1,900}	
Length of track on ground		mm	3,150	
Width of gauge		mm	2,140	
Overall length		mm	8,325	
Overall height (with ROPS, cab)		mm	3,510	
Overall width (width of blade)		mm	4,130	
Travel speed (1st/2nd/3rd (low)/3rd)	Forward	km/h	3.9/5.7/7.5/11.4	
	Reverse	km/h	4.7/6.8/9.2/13.7	

• Semi-U dozer + variable multi ripper + ROPSCAB



• Semi-U dozer + variable multi ripper + Open ROPS



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

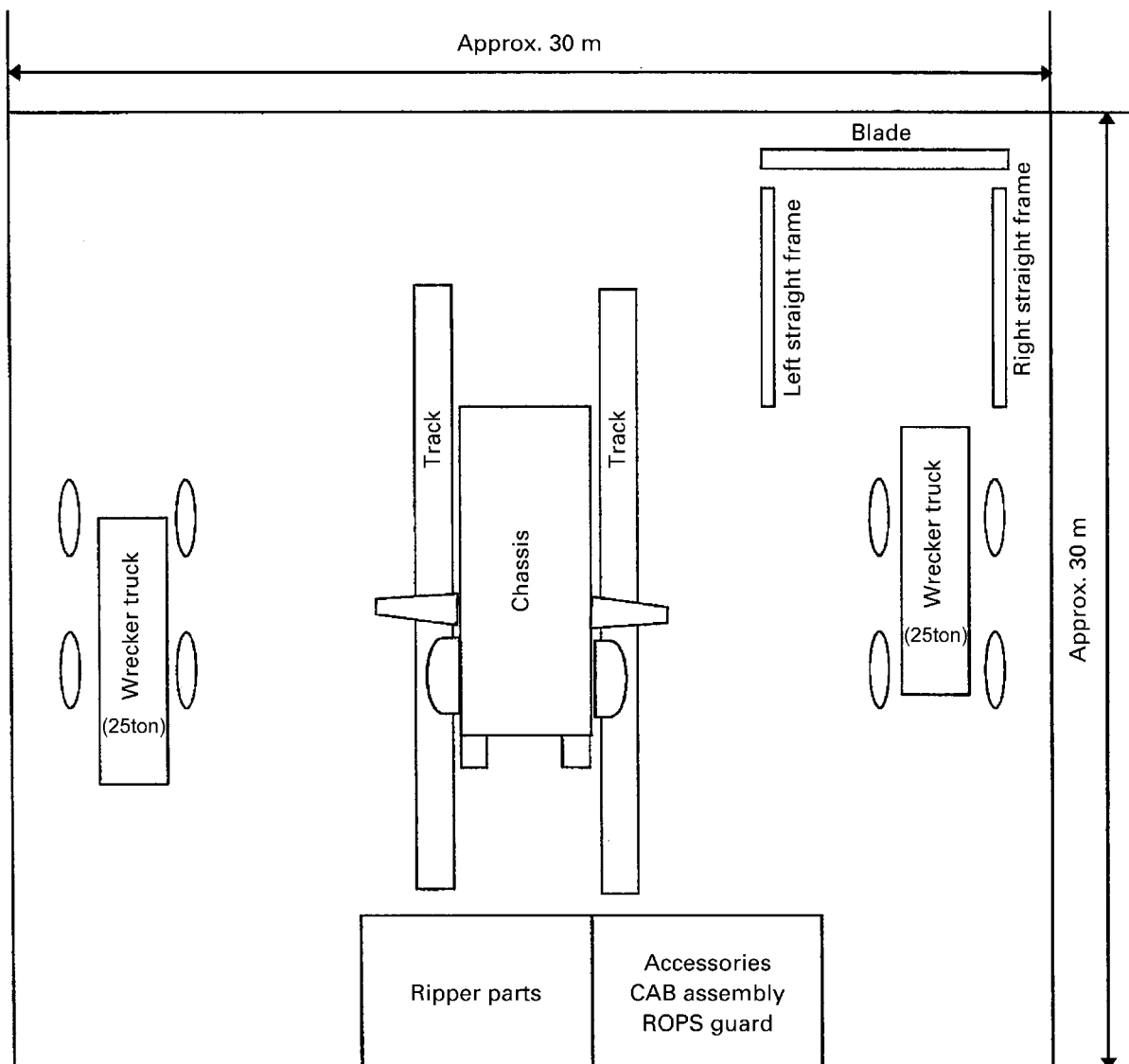
- ★ Any change of the schedule caused by weather is not included.
- ★ Special field work shall be arranged separately.

Schedule

	1st day						2nd day					
	8:00	10:00	12:00	14:00	16:00	18:00	8:00	10:00	12:00	14:00	16:00	18:00
Trailer must arrive at field before 8:00	Unloading trailer → → Installing tracks → → Assembling blade sub-assembly → Installing blade						→ Installing ripper → Inspection → Washing, touching up User delivery					
Wrecker	25 ton x 2 units						10 ton x 1 unit					
Working hours	8H						6H					
Number of workers	3 workers						3 workers					
Total man-hours	24H						18H					
							Grand total					
							42H					

Layout of kit

- When selecting the work field, see "Before assembling in field".
- The dimensions in the drawings are reference dimensions for installation in the following space (30 m x 30 m).
- If a wider work field is available, the shown dimensions should be increased.

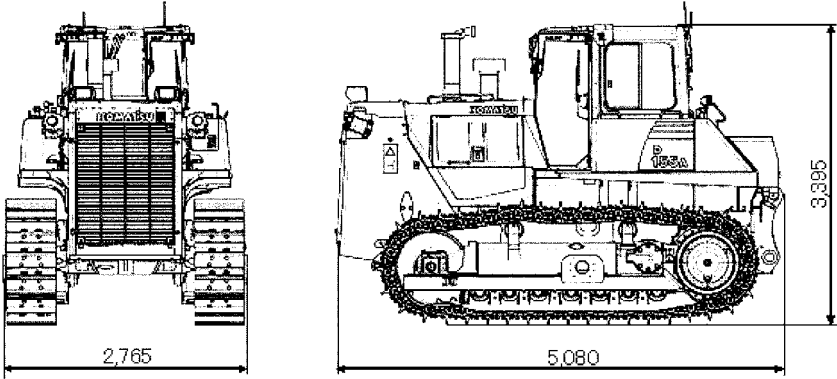


Style for transportation

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

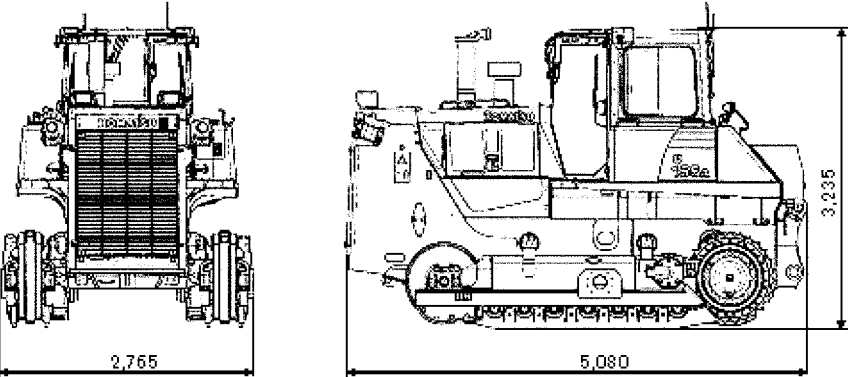
■ **Style of each kit.**

- **Tractor (Body + track frame) (With truck)**



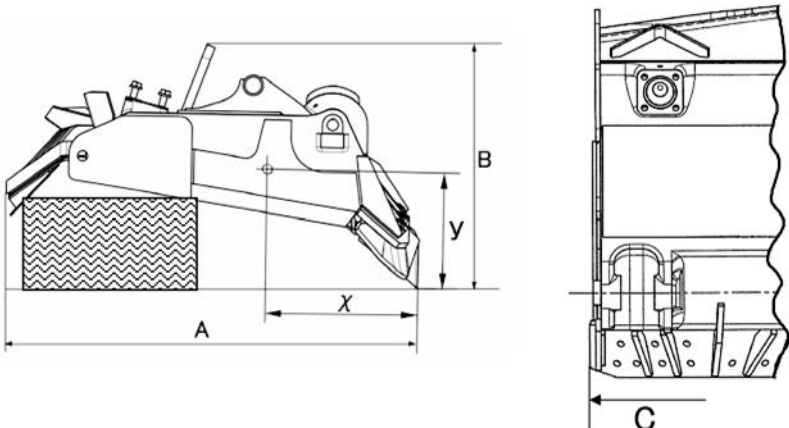
A	Overall length (mm)	5,080
B	Overall height (mm)	3,395
C	Overall width (mm)	2,765
Weight (kg)		31,900

- **Tractor (Body + track frame) (Without truck)**



A	Overall length (mm)	5,080
B	Overall height (mm)	3,395
C	Overall width (mm)	2,765
Weight (kg)		26,900

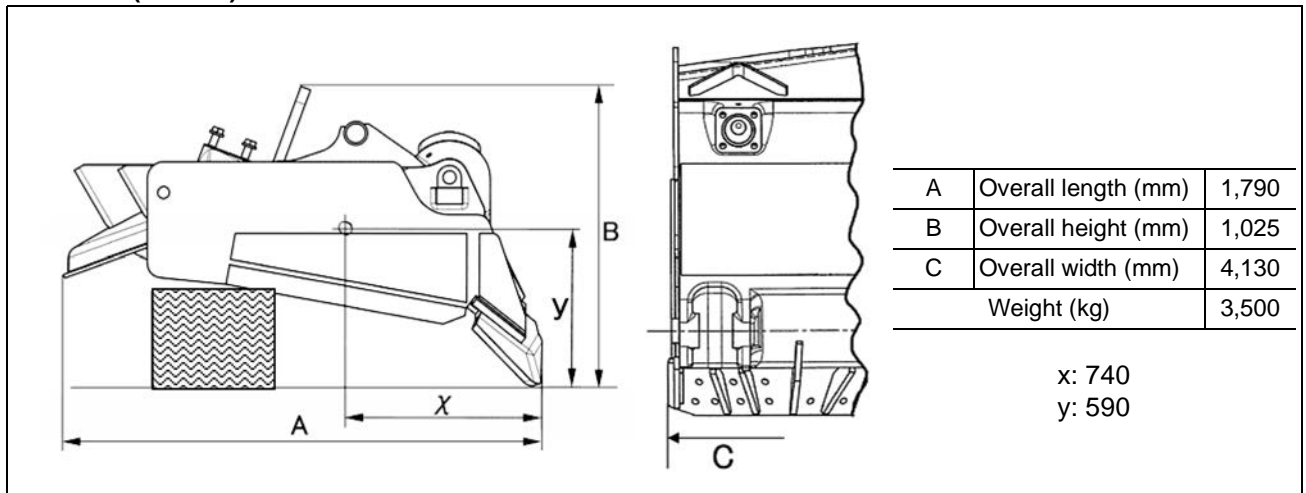
- **Work equipment**
(1) **Blade (Sigma)**



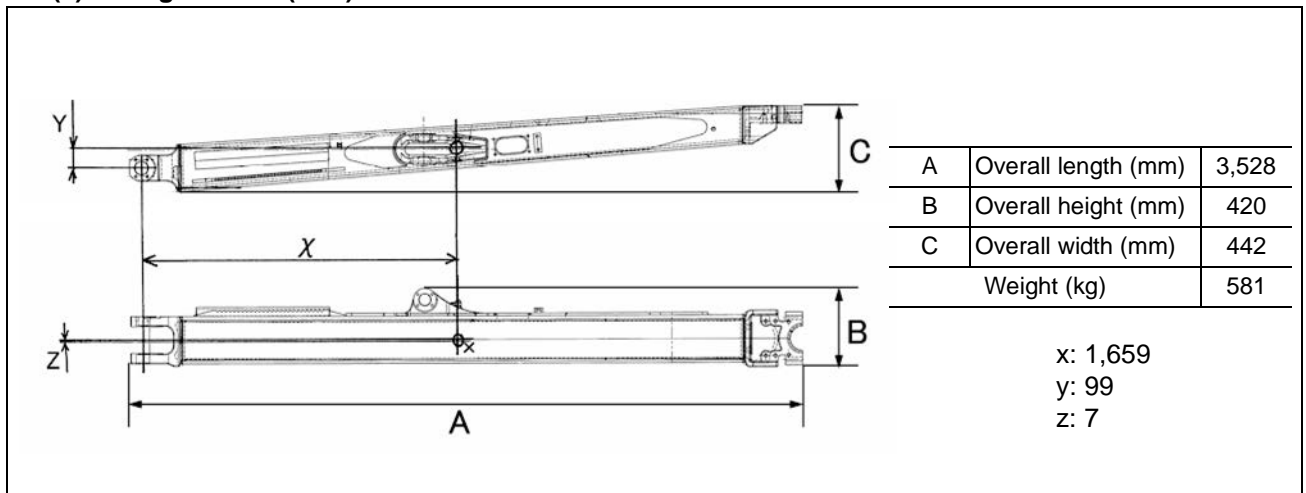
A	Overall length (mm)	1,840
B	Overall height (mm)	1,130
C	Overall width (mm)	4,055
Weight (kg)		3,200

x: 670
 y: 497

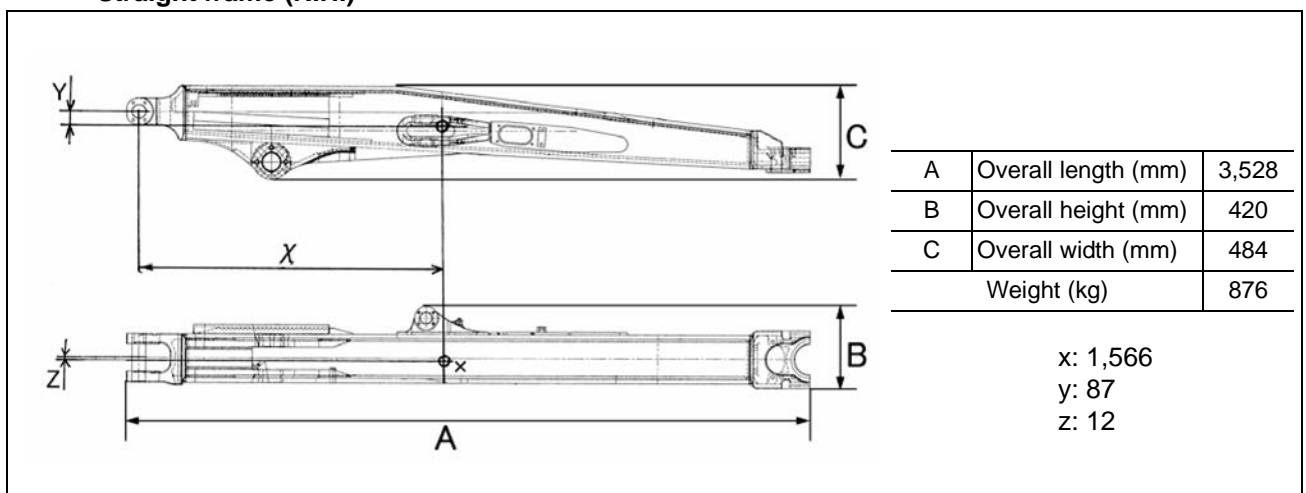
• Blade (semi-U)



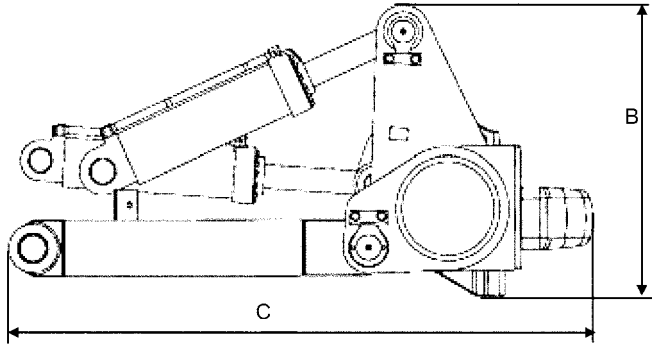
(2) Straight frame (L.H.)



Straight frame (R.H.)



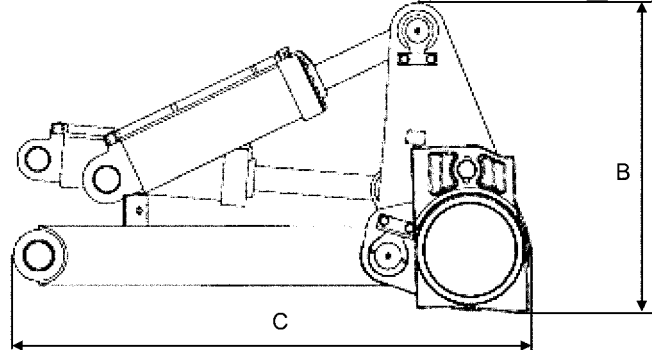
(3) Ripper Ass'y (Giant ripper)



B	Overall height (mm)	1,275
C	Overall width (mm)	2,530
Weight (kg)		3,380

*A overall length : See the below

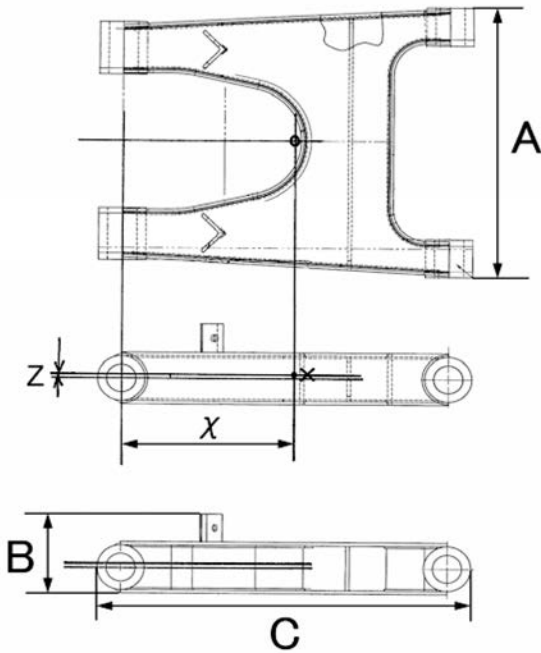
Ripper Ass'y (Multi ripper)



B	Overall height (mm)	1,250
C	Overall width (mm)	2,150
Weight (kg)		3,760

*A overall length : See the below

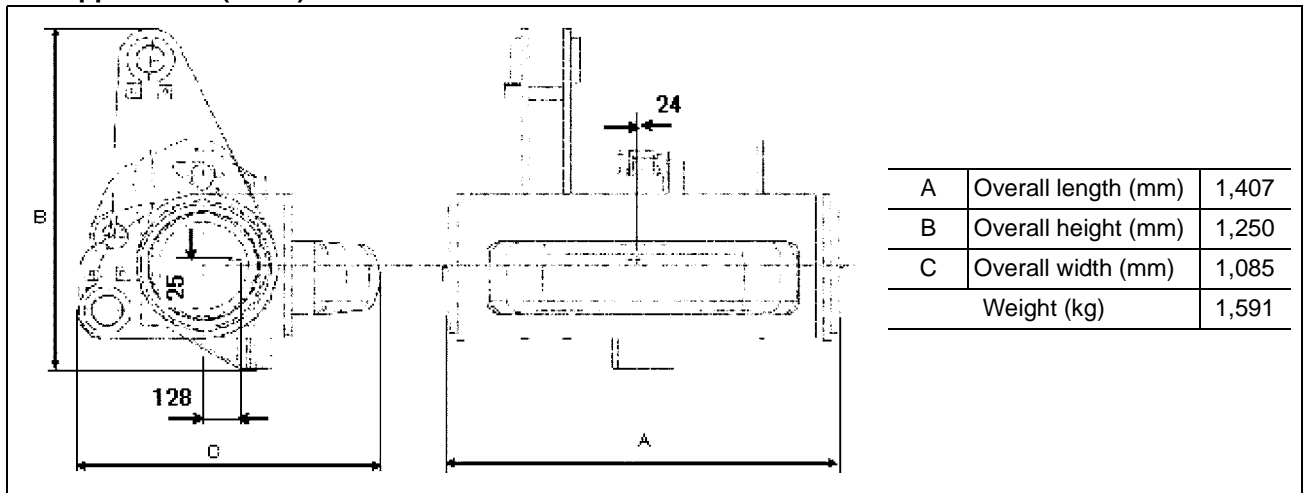
• Ripper arm



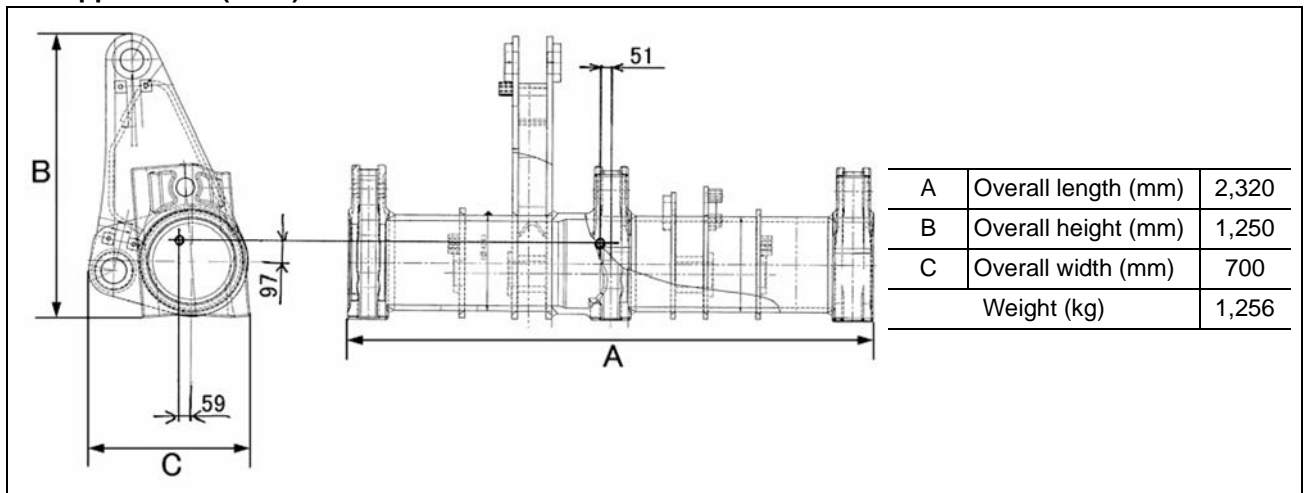
A	Overall length (mm)	1,269
B	Overall height (mm)	372
C	Overall width (mm)	1,660
Weight (kg)		670

x: 768
y: 12

• Ripper beam (Giant)

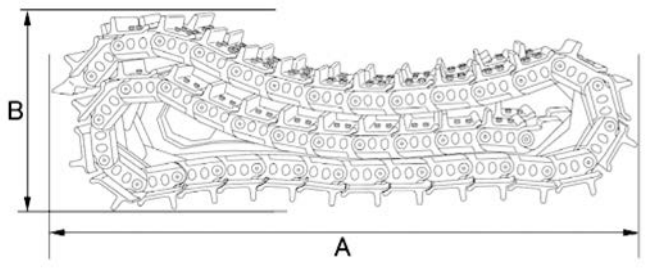


• Ripper beam (Multi)



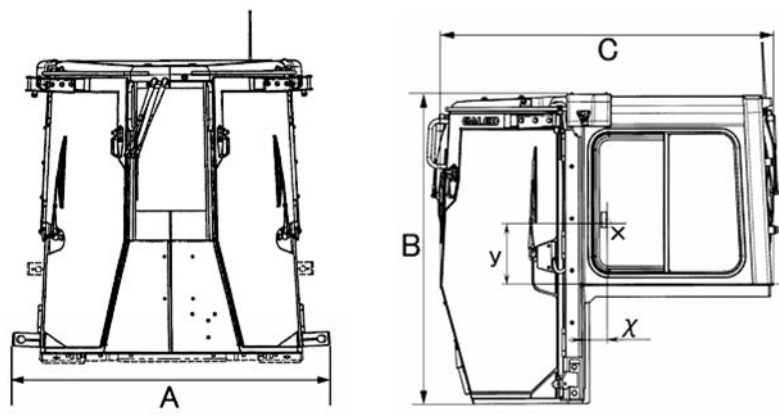
Style for transportation

- Track shoe



Shoe width	560	660
A (mm)	3,450	
B (mm)	1,060	
Weight (kg)	2,485 × 2	2,720 × 2

- Cab



A	Overall length (mm)	1,755
B	Overall height (mm)	1,635
C	Overall width (mm)	1,735
Weight (kg)		728

x: 121.3
y: 324.4

List of tools for field assembling

No.	Tool names	Specifications	Q'ty.	Remarks
1	Engine compressor	Komatsu, 0.74 MPa {7.5kg/cm ² } Class	1	
2	Crane truck	245 kN {25 ton}	2	
3	Grease pump	Air type	1	
4	Stepladder	5 -stepped, 1500 mm	1	
5	Impact wrench	KW10P (for M10)	1	M10 mm and smaller bolts
6		KW12PI (For M12)	1	M12 mm bolt
7		KW20P (For M14 – M20)	1	M14 mm to M20 mm bolts
8		KW45FS (Spline)	1	M24 mm and larger bolt
9	Socket for KW45FS	Spline x 50 mm	1	For blade, center arm
10		Spline x 41 mm	1	
11	Socket for KW20P	□19 x 24 mm	1	
12		□19 x 27 mm	1	
13		□19 x 30 mm	1	
14		□19 x 36 mm	1	
15	Extension	Spline x L300	1	
16	Air hose	50 m	1	
17	4-time wrench	25.4, 19	1	
18	Socket for 4-time wrench	□25.4 x 50 mm	1	
19		□25.4 x 41 mm	1	
20	Torque wrench	412 Nm {42 kgm} – □19 mm	1	
21		834 Nm {85 kgm} – □25.4 mm	1	
22		4118 Nm {420 kgm} – □38.1 mm	1	
23	Standard tool	Socket, spanner, wrench	2 set	
24	Sledge hammer	10 P	1	
25	Bar	1 m	2	
26	Hydraulic jack	196 kN {20 ton}	1	
27		98 kN {10 ton}	1	
28	Tap	M27 x P2	1	For master link
29		M24 x P3	1	
30		M30 x P3	1	For blade, center arm
31	Waste oil pan	Large, small	2 each	
32	Wooden block	550 x 400 mm	1	
33		300 x 400 mm	4	
34	Wire	ø10 x 3 m	2	
35		ø20 x 5 m	2	
36		ø25 x 5 m	4	
37		ø30 x 5 m	4	For body
38	Shackle	3 ton	3	
39		8 ton	2	
40		20 ton	2	
41	Nylon sling	50 mm wide x 3 m	2	
42	Lever block	14.7 – 29.4 kN {1.5 – 3 ton}	2	
43	Eyebolt	M12	2	
44	Detergent liquid	Brake cleaner	10	
45	Hydraulic oil	EO-10	100 ℓ	
46	Grease	G2-LI	20 kg	
47	Repair paint	Natural yellow	5	
48		Black gray	5	
49		Glass cleaner	1	
50	Thread tightener	Silicon	200 g	For cab
51	Waste cloth	Bundle	20 kg	For cleaning

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

- The thread diameter is the nominal diameter. For example, 16 mm is expressed as M16 and 26 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).
- The bolt length is dimension c in Fig. 1.
- 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.
- Tightening torque is expressed as ○○○ – ◎◎◎ or ○○○ ± ▽▽. If the target tightening torque is set, expression of ○○○ ± ▽▽ is applied.

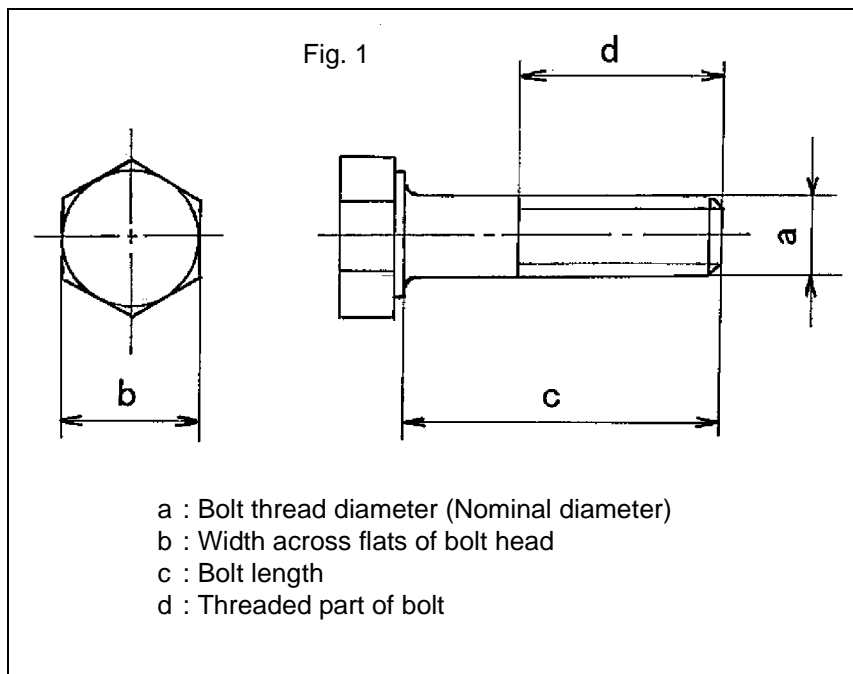


Table 1 Tightening torque for bolts not specified in text

Unit: Nm {kgm}

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

Tightening torque

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}

Nominal size \ Material of female thread	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}

Nominal size \ Material of female thread	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 features and applications
Adhesive	LT-1A	790-129-9030	150 g	Tube	<ul style="list-style-type: none"> • Used to prevent rubber gaskets, rubber cushions, and cork plugs from coming out.
	LT-1B	790-129-9050	20 g (2 pcs.)	Polyethylene container	<ul style="list-style-type: none"> • Used for plastic (except polyethylene, polypropylene, tetrafluoroethylene and vinyl chloride), rubber, metal, and non-metal parts which require immediate and strong adhesion.
	LT-2	09940-00030	50 g	Polyethylene container	<ul style="list-style-type: none"> • Features: Resistance to heat and chemicals. • Used to fix and seal bolts and plugs.
	LT-3	790-129-9060 (Set of adhesive and hardener)	Adhesive: 1 kg Hardener: 500 g	Can	<ul style="list-style-type: none"> • Used to stick and seal metal, glass, and plastics.
	LT-4	790-129-9040	250 g	Polyethylene container	<ul style="list-style-type: none"> • Used to seal plugs.
	Holtz MH 705	790-129-9120	75 g	Tube	<ul style="list-style-type: none"> • Heat-resistant seal used to repair engines.
	ThreeBond 1735	790-129-9140	50 g	Polyethylene container	<ul style="list-style-type: none"> • Quick-setting adhesive. • Setting time: Within 5 sec. to 3 min. • Used mainly to stick metals, rubbers, plastics, and woods.
	Aron-alpha 201	790-129-9130	2 g	Polyethylene container	<ul style="list-style-type: none"> • Quick-setting adhesive. • Quick-setting type. (max. strength is obtained after 30 minutes) • Used mainly to stick rubbers, plastics, and metals.
	Loctite 648-50	79A-129-9110	50 cc	Polyethylene container	<ul style="list-style-type: none"> • Features: Resistance to heat and chemicals. • Used for fitted portions used at high temperatures.
Gasket sealant	LG-1	790-129-9010	200 g	Tube	<ul style="list-style-type: none"> • Used to stick or seal gaskets and packings of power train case, etc.
	LG-5	790-129-9080	1 kg	Polyethylene container	<ul style="list-style-type: none"> • Used to seal various threaded portions, pipe joints, and flanges. • Used to seal tapered plugs, elbows, and nipples of hydraulic piping.
	LG-6	790-129-9020	200 g	Tube	<ul style="list-style-type: none"> • Features: Silicon-based heat and cold-resistant sealant. • Used to seal flange surfaces and threaded portions. • Used to seal oil pan, final drive case, etc.
	LG-7	790-129-9070	1 kg	Tube	<ul style="list-style-type: none"> • Features: Silicon-based quick-setting sealant. • Used to seal flywheel housing, intake manifold, oil pan, thermostat housing, etc.
	ThreeBond 1211	790-129-9090	100 g	Tube	<ul style="list-style-type: none"> • Gasket sealant used to repair engine.
	ThreeBond 1207B	419-15-18131	100 g	Tube	<ul style="list-style-type: none"> • Features: Silicon-based, heat and cold-resistant, vibration-resistant, impact-resistant sealant. • Used to seal transfer case, etc.

Category	Komatsu code	Part No.	Q'ty	Container	Main features and applications
Lubricant with molybdenum disulfide	LM-G	09940-00051	60 g	Can	<ul style="list-style-type: none"> To be used as lubricant (anti squeaking) for sliding part.
	LM-P	09940-00040	200 g	Tube	<ul style="list-style-type: none"> To be used for press fit, shrink fit and preventing scratching or seizure of thread. To be used as lubricant for linkage and bearing etc..
Grease	G2-LI	SYG2-400LI SYG2-350LI SYG2-400LI-A SYG2-160LI SYG2-160CNLI	Various kinds	Various kinds	<ul style="list-style-type: none"> Versatile type
	G2-CA	SYG2-400CA SYG2-350CA SYG2-400CA-A SYG2-160CA SYG2-160CNCA	Various kinds	Various kinds	<ul style="list-style-type: none"> To be used for the place where the bearing designed for normal temperature and low load condition is used and contacts water and steam.
	Grease with molybdenum disulphide LM-G(G2-M)	SYG2-400M SYG2-400M-A SYGA-16CNM	400 g x 10 400 g x 20 16 kg	Bellows type Can	<ul style="list-style-type: none"> Used for parts under heavy load. Caution: <ul style="list-style-type: none"> Do not use this grease for ball bearings such as swing circle bearing. Apply this grease to work equipment pins only when installing but do not use it after then.
	Hyper white grease G2-T G0-T(*) *: For cold region	SYG2-400T-A SYG2-16CNT SYG0-400T-A (*) SYG0-16CNT (*)	400 g 16 kg	Bellows type Can	<ul style="list-style-type: none"> Higher anti seizure and heat resistance than grease with molybdenum disulphide Body dirt is not distinctive due to white color.
	Biological grease G2-B G2-BT(*) *: For heat resistance and heavy load	SYG2-400B SYGA-16CNB SYG2-400BT (*) SYGA-16CNBT (*)	400 g 16 kg	Bellows type Can	<ul style="list-style-type: none"> To be shortly dissolved by a bacteria in nature so that the influence to microorganism and animals and plants is suppressed to the minimum.
Primer	Sunstar primer for painting plane 580 super	417-926-3910	20 ml	Glass container	For adhesion of cab glass <ul style="list-style-type: none"> To be used as primer for cab side. (Term of validity: 4 months after manufacturing) To be used as primer for glass side. (Term of validity: 4 months after manufacturing) To be used as primer for painting plane of cab side. (Term of validity: 4 months after manufacturing) To be used as primer for black ceramic coated plane of glass side and polycarbonate hard coat plane. (Term of validity: 4 months after manufacturing) To be used as primer for sash (Alumite surface treatment) (Term of validity: 4 months after manufacturing)
	Sunstar primer for glass 580 super		20 ml	Glass container	
	Sunstar primer for painting plane 435-95	22M-54-27230	20 ml	Glass container	
	Sunstar primer for glass 435-41	22M-54-27240	150 ml	Steel can	
	Sunstar primer for sash GP-402	22M-54-27250	20 ml	Glass container	

Coating materials

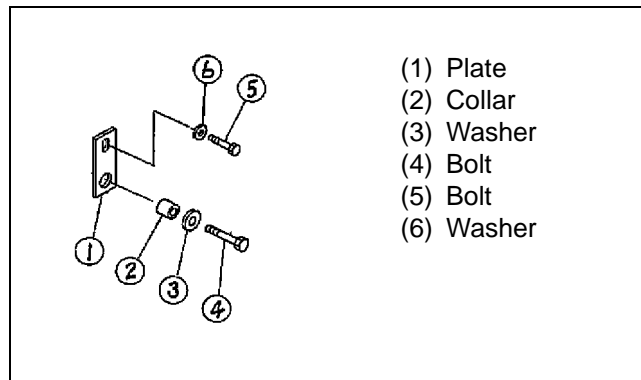
Category	Komatsu code	Part No.	Q'ty	Container	Main features and applications
Adhesive compound	Sunstar penguin seal 580 super "S" or "W"	417-926-3910	320 ml	Polyethylene container	For adhesion of cab glass <ul style="list-style-type: none"> • "S" and "W" are used as glass adhesive compound in high temperature (April -October) and in low temperature (October -April) respectively. (Term of validity: 4 months after manufacturing) • To be used as glass adhesive compound. (Term of validity: 6 months after manufacturing) • To be used as glass adhesive compound. (Term of validity: 6 months after manufacturing) • To be used as seal for joints of glass. (Term of validity: 4 months after manufacturing) • To be used for seal of front window. (Term of validity: 6 months after manufacturing) • To be used as seal for joints of glass. semi-transparent white seal (Term of validity: 12 months after manufacturing)
	Sika Ltd, Japan Sika Flex 256HV	20Y-54-39850	310 ml	Polyethylene container	
	Sunstar pengiun super 560	22M-54-27210	320 ml	ECOCART (special container)	
Coating compound	Sunstar pengiun seal No. 2505	417-926-3920	320 ml	Polyethylene container	
	Sekisui silicone sealant	20Y-54-55130	333 ml	Polyethylene container	
	GE Toshiba Silicones Tosseal 381	22M-54-27220	333 ml	Cartridge	
Paint	Natural yellow	SYPA-U03SPNY	–		Spray can
	Black gray	SYPA-U03SPBG	–		Spray can

A. Assembly

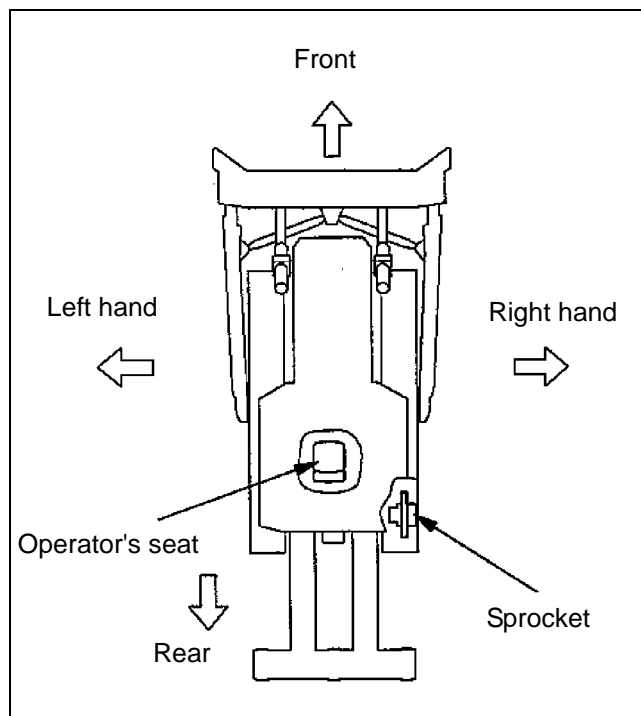
Remarks

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.



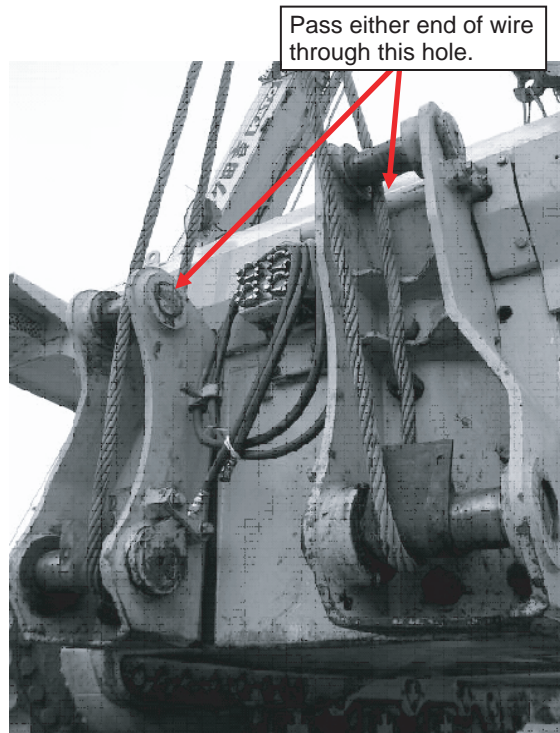
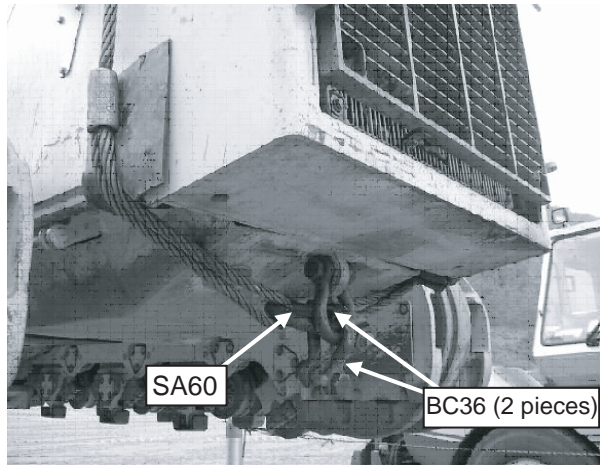
Assembly process No.	Unloading and installing tractor
A-1	

1. Front: Install shackles to the towing hook of the undercover at the front of the tractor and install wires to the right and left sides.

 Front slinging weight: 15.1 ton

2. Rear: Install wires to the right and left ripper cylinder pins.

 Rear slinging weight: 16.8 ton



Precautions	Necessary tools		Necessary equipment	
When installing wires, put rubber pads or steel pads under them and take extreme care not to damage the covers and piping.	Name	Q'ty	Name	Q'ty
	ø30 x 5,000 wire	4	25 t crane	2
	SA60 shackle	1		
	BC36 shackle	1		
Other remarks				



Assembly process No.

A-2

Installing track shoes

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.



Shoe bolt:

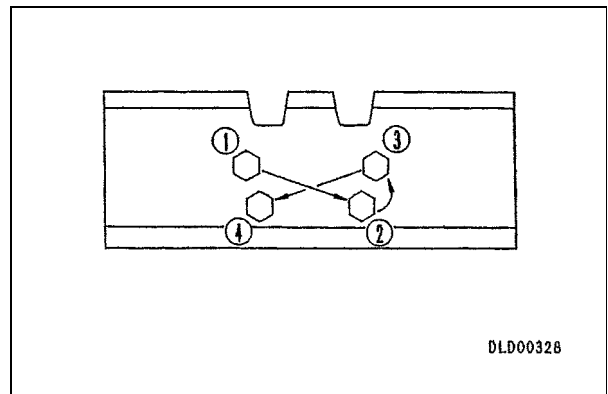
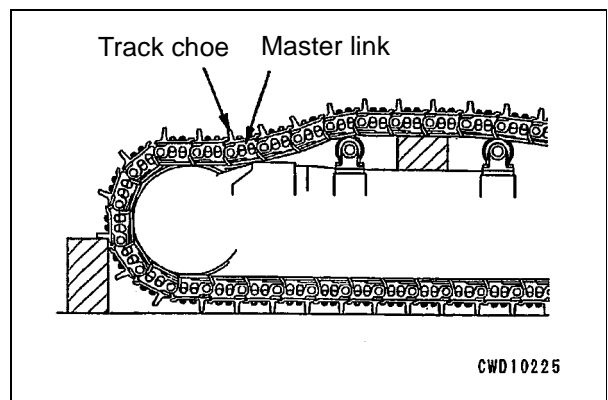
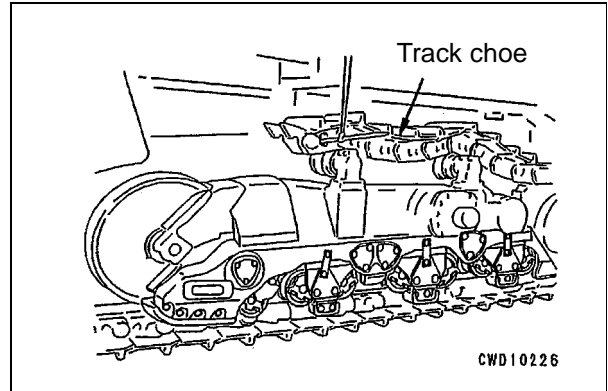
**Anti-seizure agent LM-P
(Maruzen Morimax No. 2 or equivalent)**



Shoe bolt:

1st time: $590 \pm 60 \text{ Nm}$ { $60 \pm 6 \text{ kgm}$ }
2nd thime: Retighten by $180^\circ \pm 10^\circ$.

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

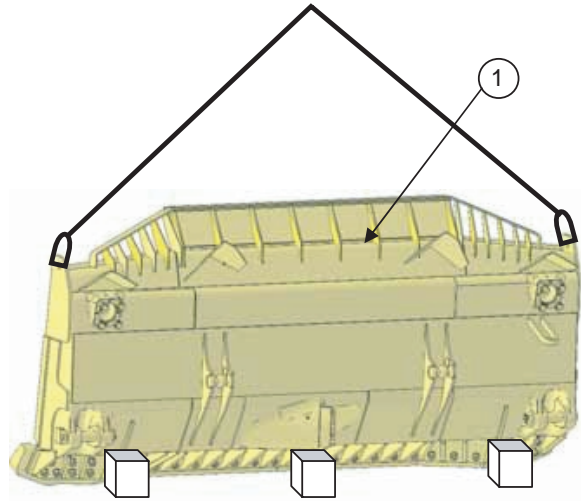


Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Other remarks				

Assembly process No.	Assembly of blade (1/6)
A-3	

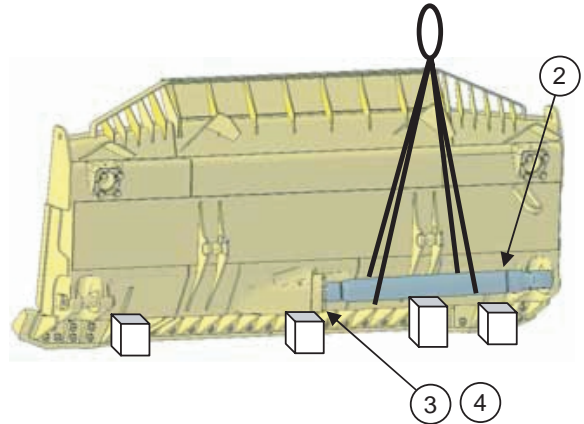
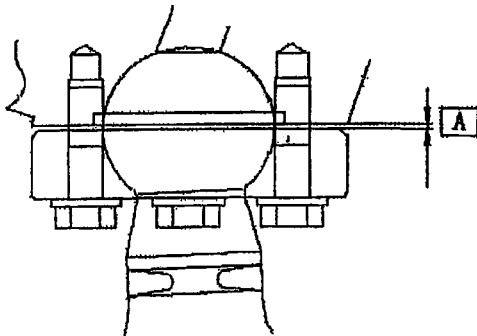
1. Sling blade (1), place wooden blocks and a hydraulic jack under it, and set it stably and securely.

Weight of blade : 3,200 kg (SIGMADOZER)
3,500 kg (Semi U)



2. Scratch the paint off the ball joint and clean the ball joint.

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



- ★ Standard thickness of shim: 4.5 mm
Weight of center arm: 250 kg

(3)	Part No. of bolt	01011 – 83335
(4)	Part No. of washer	01643 – 33380
	Length of bolt	135 mm
	Tightening torque	1,961 – 2,451.7 Nm {200 – 250 kgm}

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

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	ø20 × 5,000 wire	2	25 t crane	1
	BC36 shackle	2		
	300 × 400 wooden block	4		
	50 × 3,000 nylon sling	2		
	KW45F impact wrench	1		
	SP extension, L300	1		
	M50 SP socket	1		
	Other remarks			

Assembly process No.


A-3

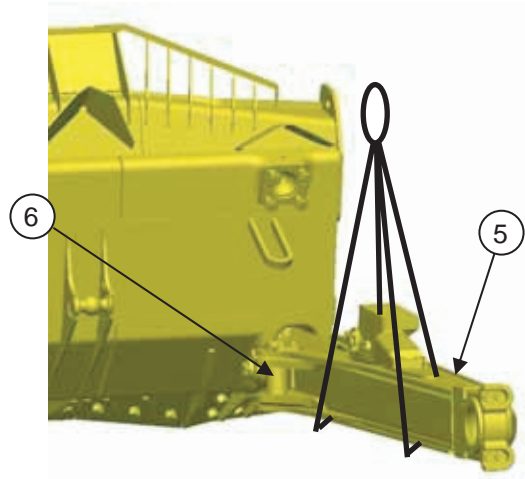
Assembly of blade (2/6)

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

Weight of straight frame: 876 kg


Lock plate mounting bolt

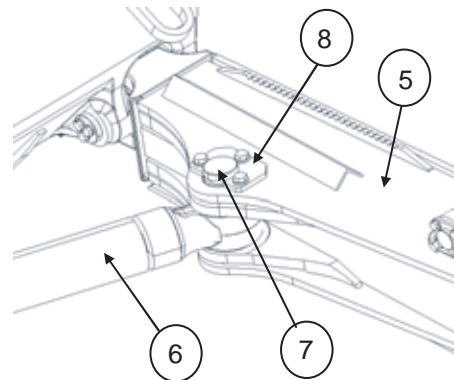
 Tightening torque: 235 – 285 Nm
{23.5 – 29.5 kgm}



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

Lock plate mounting bolt

 Tightening torque: 455 – 565 Nm
{46.5 – 58 kgm}




Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	50 x 3,000 nylon sling	2	25 t crane	1
	KW20P impact wrench	1		
	M24 socket	1		
	M30 socket	1		
Other remarks				

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

6. Install brace (9) with pin (10) and fix them with the lock plate. (Right side of machine)

Lock plate mounting bolt

 Tightening torque: 153 – 190 Nm {15.5 – 19.5 kgm}

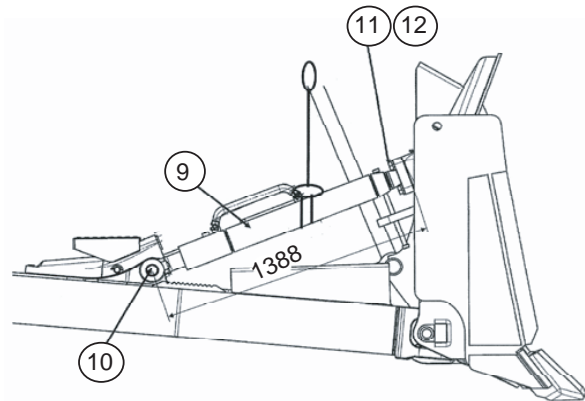
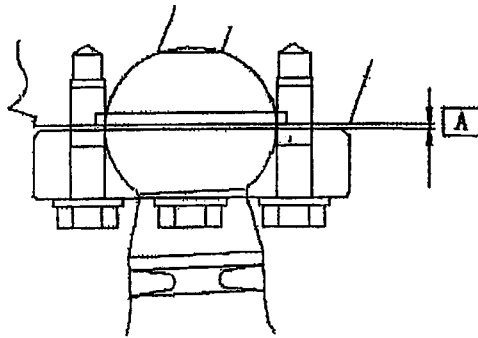
7. Sling brace (9) and tighten cap mounting bolts (11) and (12) temporarily without inserting a shim (to eliminate the clearance on the ball joint in the axial direction), and then insert shims so that dimension A will be + 0.2 to 0.5 mm.

(Secure a clearance of 0.2 – 0.5 mm on the ball joint in the axial direction.)

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

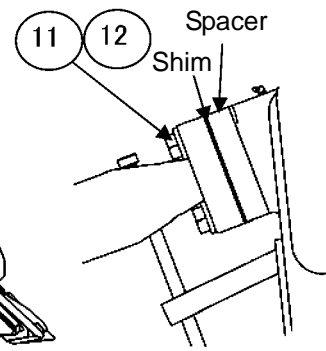
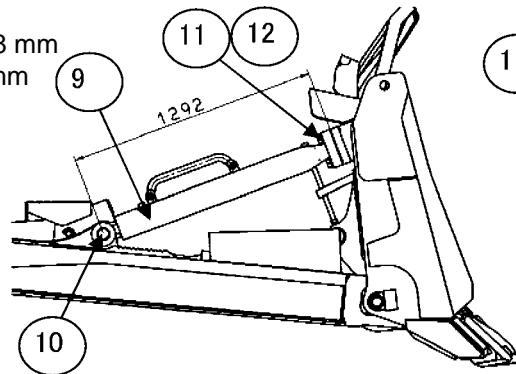
(11)	Part No. of bolt	01011 – 62700
(12)	Part No. of washer	01643 – 32780
	Length of bolt	100 mm
	Tightening torque	{118 – 147 kgm}

Semi-U
<Single tilt>



Sigadozer
<Single tilt>

- ★ Standard brace length : 1.388 mm
- ★ Standard shim thickness : 4.3 mm



Dual tilt (Semi-U dozer and Sigadozer)			Single tilt (Sigadozer)		
11	Part No. of bolt	01011 - 62700	11-1	Part No. of bolt	01011-62740
12	Part No. of washer	01643 - 32780	12	Part No. of washer	01643 - 32780
	Length of bolt	100 mm		Length of bolt	100 mm
	Tightening torque	120 – 150 kgm		Tightening torque	120 – 150 kgm

Necessary tools		Necessary equipment	
Name	Q'ty	Name	Q'ty
50 x 3,000 nylon sling	1	25 t crane	1
KW45F impact wrench	1		
SP extension, L300	1		
KW20P impact wrench	1		
M41 SP socket	1		
M22 socket	1		

Other remarks


Assembly process No.

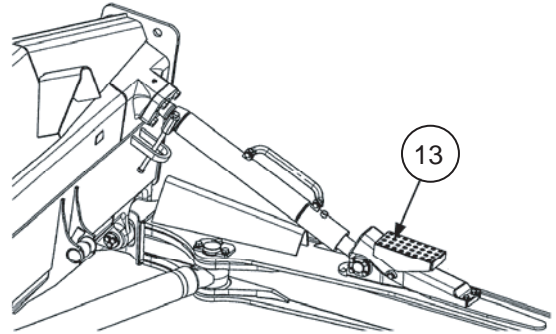
A-3

Assembly of blade (4/6)

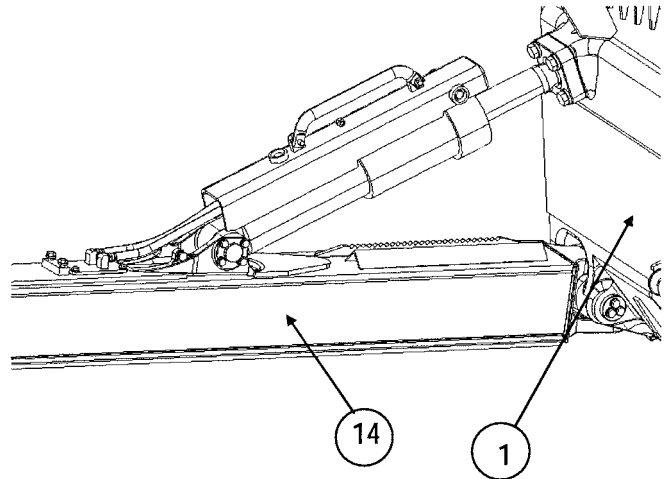
8. Install right frame cover (13).
 ★ 4 bolts of M16 size

Cover mounting bolt

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



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



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	KW20P impact wrench	1	25 t crane	1
	M24 socket	1		
Other remarks				

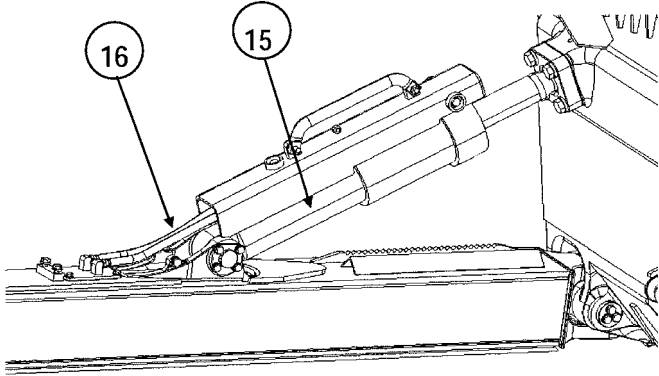
Assembly process No.	Assembly of blade (5/6)
A-3	

10. Install tilt cylinder (15) according to the procedure in step 6, 7 above.

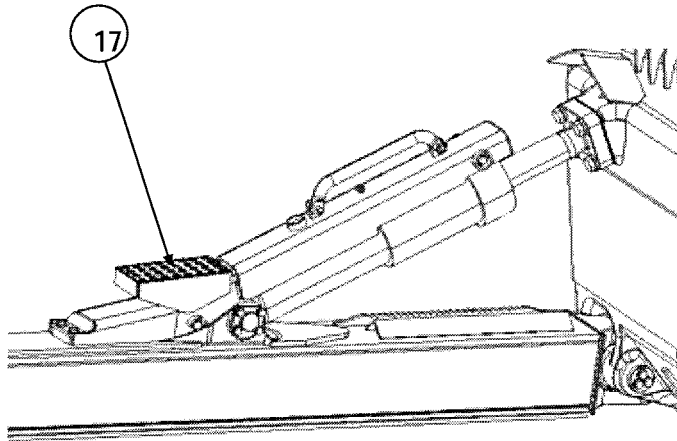
11. Connect tilt cylinder hose (16).

- 17A-71-45870 #04 size hose, Length: 1,320 mm
- 17A-71-45880 #04 size hose, Length: 935 mm

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



12. Install tilt cylinder cover (17) according to the procedures in steps 8 above.



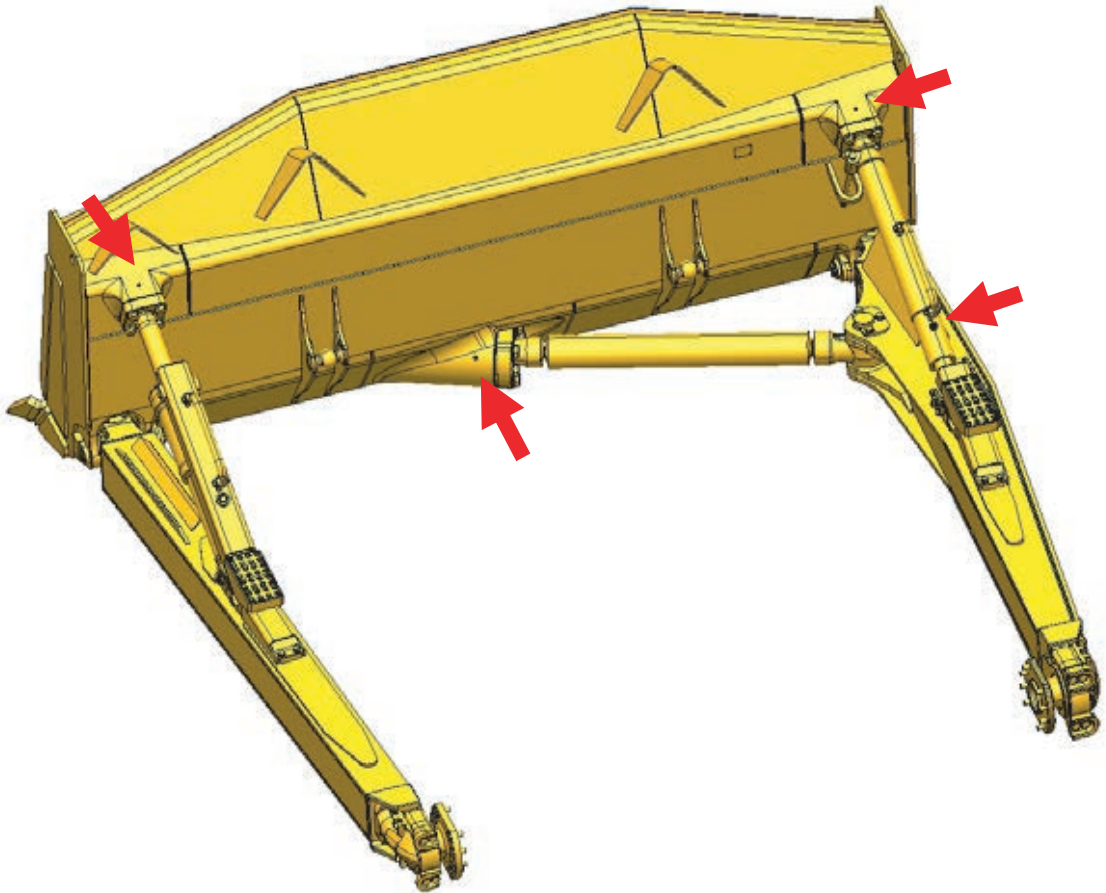
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	50 x 3,000 nylon sling	2	25 t crane	1
	KW20P impact wrench	1		
	M24 socket	1		
	M30 socket	1		
	Spanner 27 mm in width across flats	2		
Other remarks				

Assembly process No.

A-3

Assembly of blade (6/6)

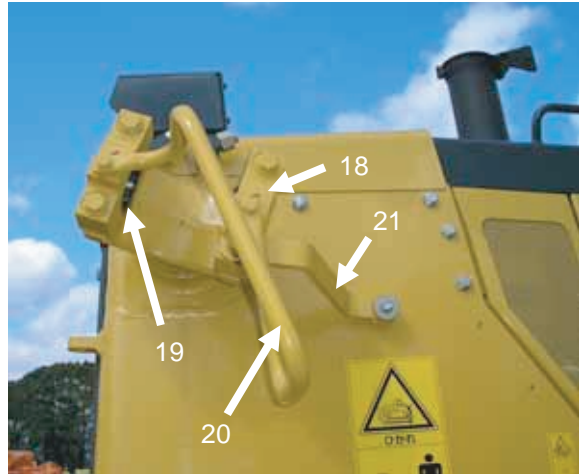
13. After assembling the blade, apply sufficient grease to the parts shown in the figure at right.
Each part of blade: Grease (G2-LI)



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

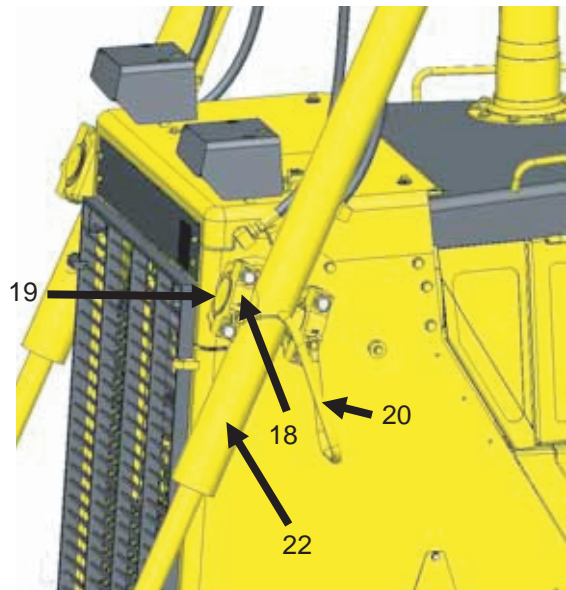
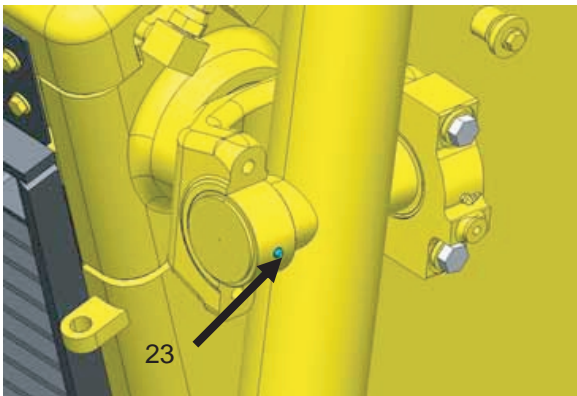
Assembly process No.	Installation of blade lift cylinder (1/2)
A-4	

1. Remove yoke cap (18), bushing (19), grip (20) and yoke fixer (21).



2. Installation of cylinder

- Install cylinder (22), bushing (19) and cap (18).
At this time, align greasing pin (23) with the cap hole.



- ★ Weight of cylinder
Left : 182 kg
Right : 182 kg
- Cap mounting bolt

Part No. of bolt	01010 – 82095 4 pieces on each side
Part No. of washer	01643 – 32060 4 pieces on each side
Length of bolt	95 mm
Tightening torque	456 – 568.8 Nm {46.5 – 58 kgm}

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	50 x 3,000 nylon sling	1	25 t crane	1
	KW12PI impact wrench	1		
	KW20P impact wrench	1		
	M19 socket	1		
	M30 socket	1		
Other remarks				

Assembly process No.

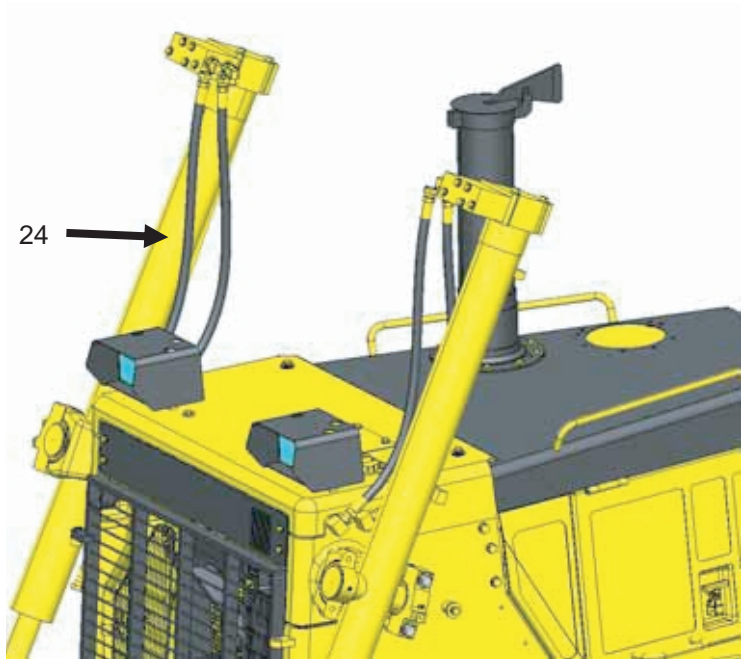
A-4

Installation of blade lift cylinder (2/2)

3. Install grip (20).

4. Connect blade lift cylinder hose (24).
 - 02756-00612 #06 size hose, Length: 1,200 mm, 4 pieces

Tightening torque of hose: 177 – 245 Nm {18 – 25 kgm}

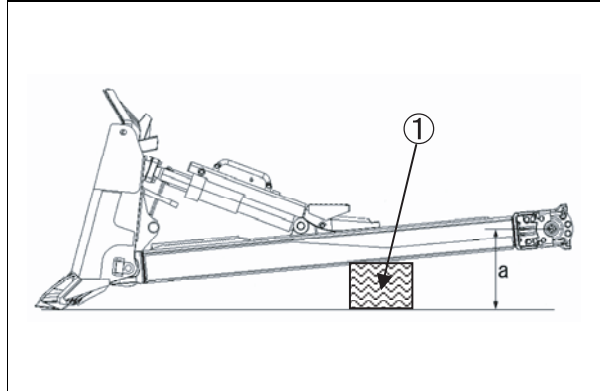


Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Other remarks				

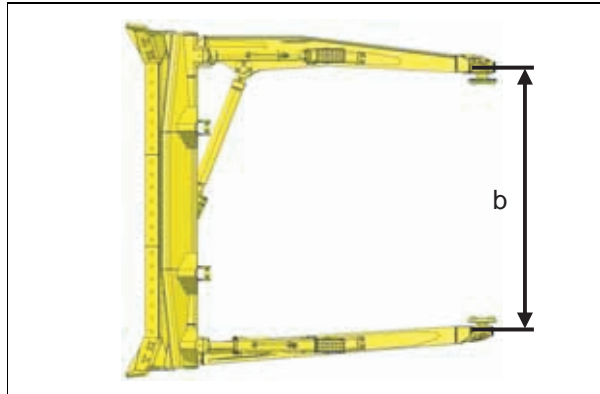
Assembly process No.	Installation of blade (1/2)
A-5	

Installation of blade assembly

- Adjust height "a" and width "b" of the right and left straight frames to the following dimensions with wooden block (1).
 - ★ Height "a" of trunnion: Approx. 571 mm
 - ★ Width "b" of frame: Approx. 3,053 m



- Connect the right and left trunnions to the track frame.
 - If any paint is left on the trunnion mounting face, remove it.
 - ★ Weight of trunnion: Right side; 45 kg
Left side ; 30 kg
 - ★ Size of bolt: M24 x 8 pieces, 2 places



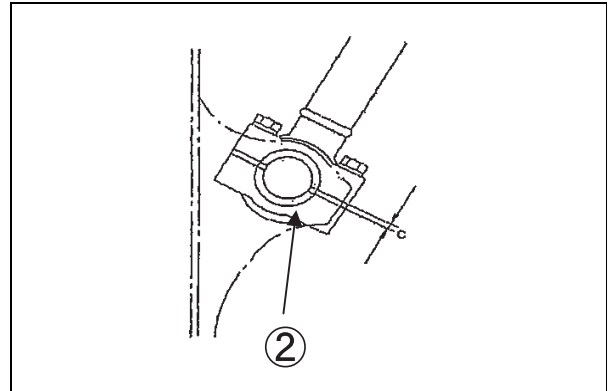
- Scratch the paint off the ball joint of the trunnion and clean the ball joint.
- Start the engine and move the machine forward slowly to connect the blade assembly to the tractor by the balls of the right and left trunnions. Apply grease to the balls of the trunnions.
 - ★ Bolt size: M22 x 4 pieces, 2 places

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	KW45F impact wrench	1	300 x 400 wooden block	2
	KW20P impact wrench	1		
	Socket 36 mm in SP width across flats	1		
	Socket 27 mm in width across flats	1		
	Socket 30 mm in width across flats	1		
	Socket 32 mm in width across flats	1		
	Socket 27 mm in width across flats	1		
Other remarks				

5. Sling the blade lift cylinder temporarily and start the engine. Extending the piston rod slowly, connect it to the blade assembly by cap (2) at its end.

When fixing the cap, tighten the mounting bolts of cap (2) 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.

- ★ Bolts size: M18 × 4 pieces, 2 places
- ★ Standard shim thickness: 4 mm



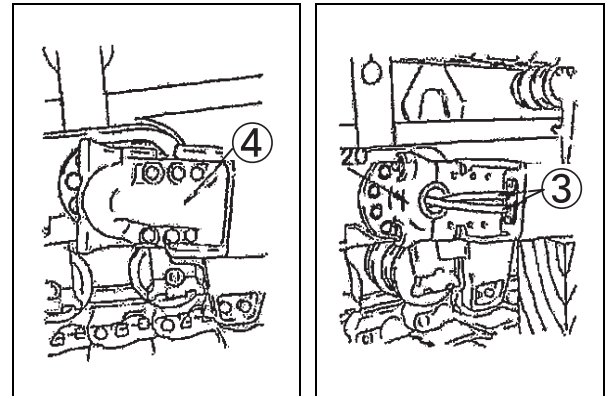
6. Connect tilt hoses (3) of the trunnions. Connect the hoses having red marks to the upper nipples.

7. Install both trunnion caps (4).

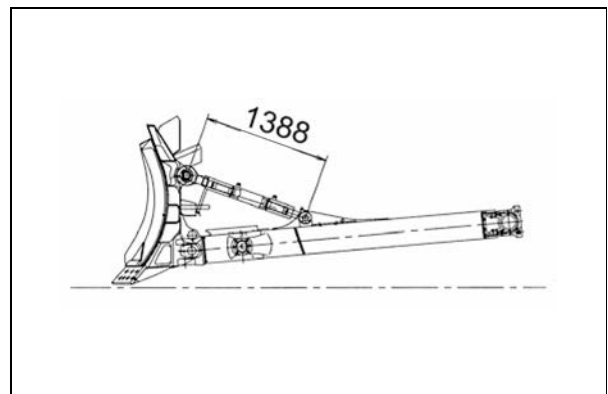
- ★ Bolt size: M20 × 6 pieces, 2 places

8. Supply oil (to the hydraulic tank) 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 directions are normal.
- Adjust the tilting amount of the blade.



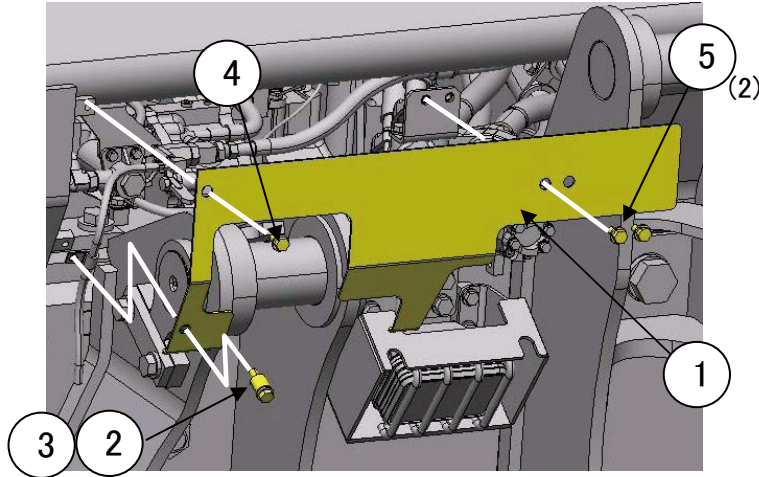
9. Adjust the standard length of the blade to 1,388 mm.



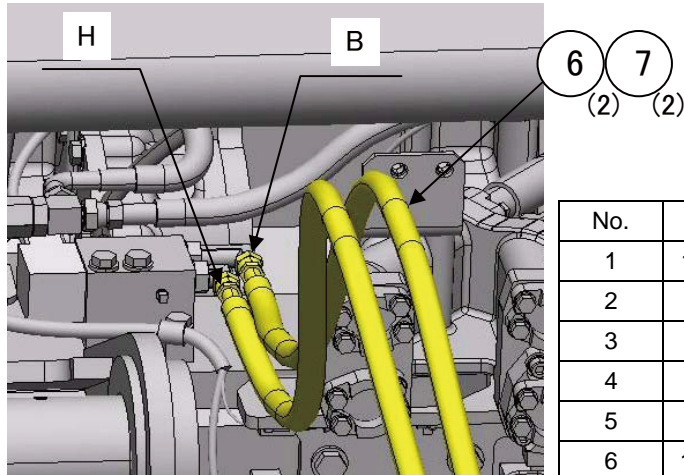
Assembly process No.	Installation of ripper assembly (1/11)
A-6	

- ★ The giant ripper is used as a model in this assembly manual. The multi-shank ripper is different from the giant ripper only in the following parts.
- 1) Weight of ripper assembly
 - 2) Number of shanks: 3
 - 3) Pin puller cylinder and piping for it are not necessary.

1. Installation of pin puller piping
 - 1) Remove the rear cover.



- 2) Remove the piping plugs and install the hose.



No.	Part No.	Q'TY
1	17A-54-44211	1
2	195-33-11220	1
3	01024-81250	1
4	01024-81225	1
5	01024-81235	2
6	17A-61-41432	2
7	02896-11009	2

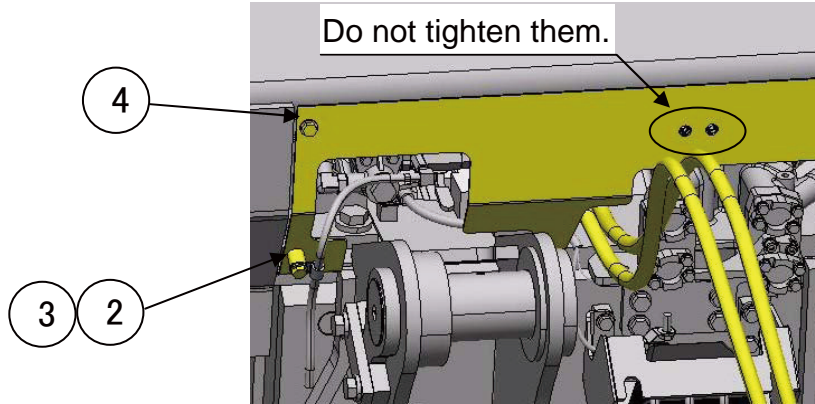
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
★ Keep the removed piping plugs since they are necessary for the next transportation	Socket 19 mm in width across flats	1		
	Small impact wrench	1		
	Spanner 24 mm in width across	1		
	Spanner 22 mm in width across	1		
Other remarks				

Assembly process No.

A-6

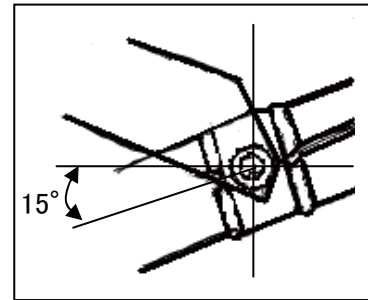
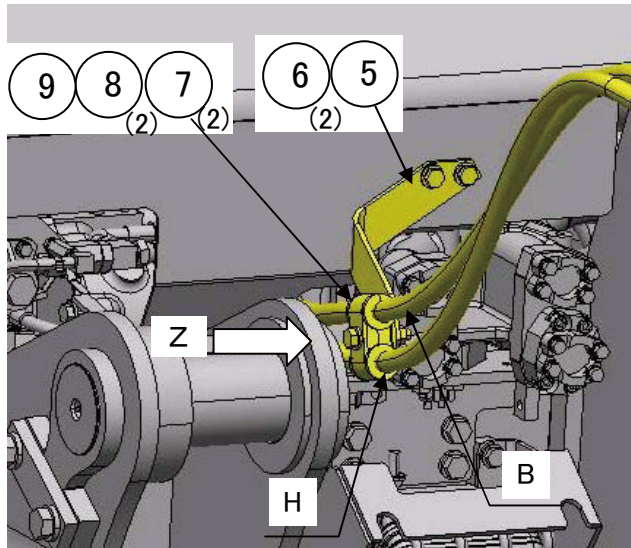
Installation of ripper assembly (2/11)

3) Install the rear cover.



4) Installation of piping bracket and clamp

Install with (B) side up and (H) side down.



View Z

No.	Part No.	Q'TY
2	195-33-11220	1
3	01024-81250	1
4	01024-81225	1
5	17A-61-41420	1
6	01024-81235	2
7	07094-30315	2
8	07095-00317	2
9	01024-81060	1

Precautions

Necessary tools


Necessary equipment

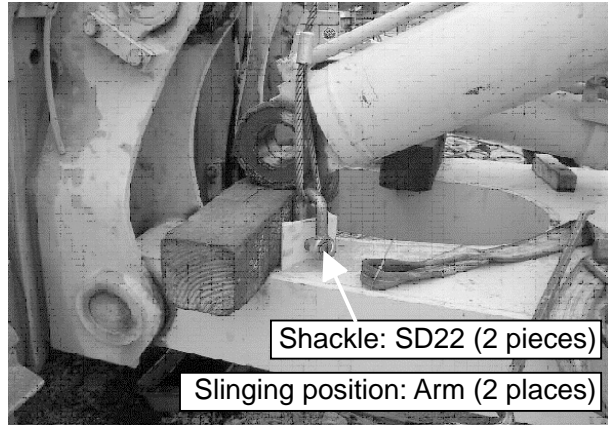
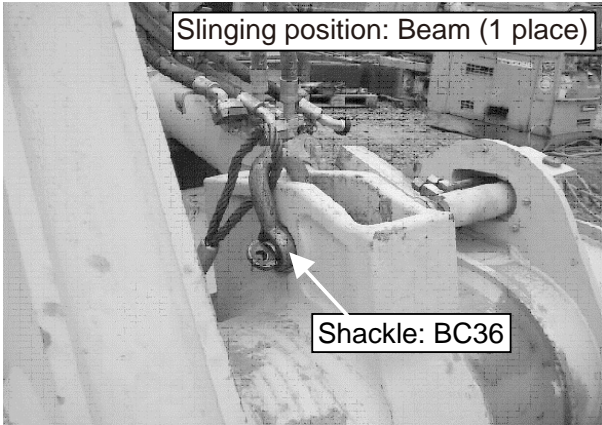
Name	Q'ty	Name	Q'ty
Socket 17 mm in width across flats	1		
Socket 19 mm in width across flats	1		
Small size impact wrench	1		

Other remarks

Assembly process No.	Installation of ripper assembly (3/11)
A-6	

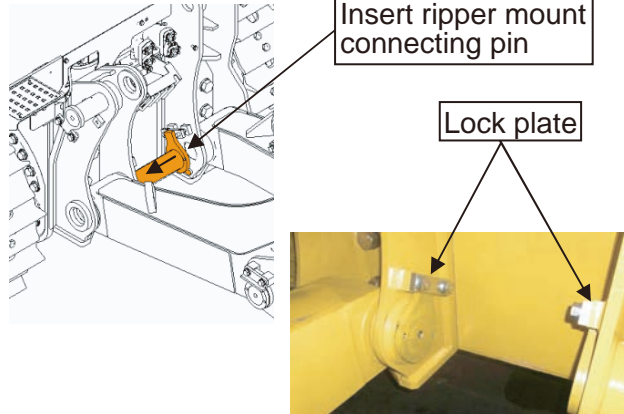
2. Slinging ripper assembly (by 3 points)
Install shackles to beam (1 place) and arm (2 places) and install wires to them.

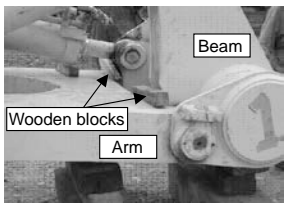
 Weight of ripper assembly
Giant: 2.9 ton
Multi-shank: 3.4 ton



3. Connecting ripper arm
Sling the ripper assembly, set the pin holes of the arm and mount bracket to each other, insert the pin, and fix the pin with the lock plate.

Part No. of bolt	01011-82040 (2 pieces each on right and left sides)
Part No. of washer	01643-32060 (2 pieces each on right and left sides)
Length of bolt	40 mm
Socket to be used	30 mm
Tightening torque	455 – 565 Nm {46.5 – 58 kgm}



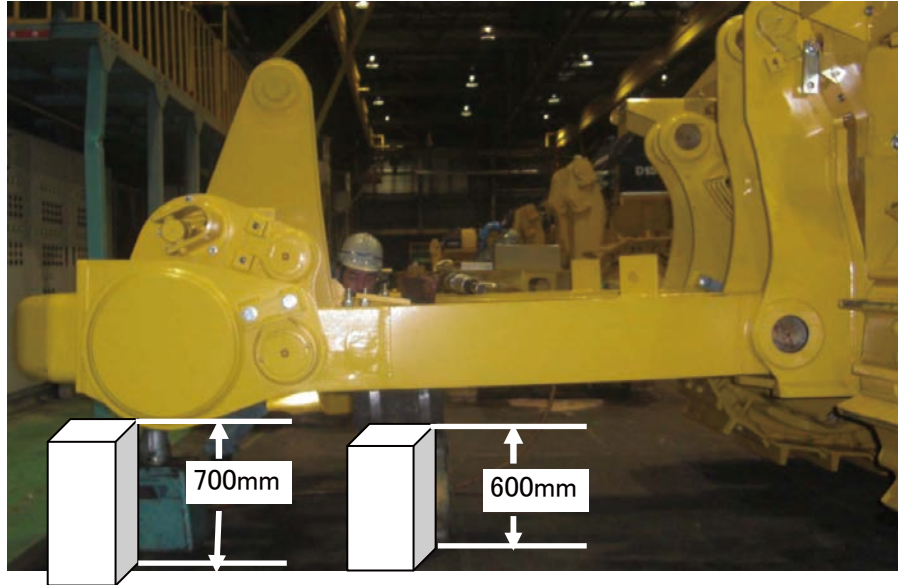
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Be sure to put wooden blocks between the arm and beam to prevent their relative positions from changing when they are slung. 	Ø12 × 2,000mm wire	3	25 t crane	1
	SD22 Shackle	2	100 mm wooden block	2
	BC36 Shackle	1		
	1.5 t lever block	1		
Other remarks				

Assembly process No.

A-6

Installation of ripper assembly (4/11)

4. Set wooden blocks under the rear part of the arm and beam. Lower the crane and put the ripper assembly on the wooden blocks.



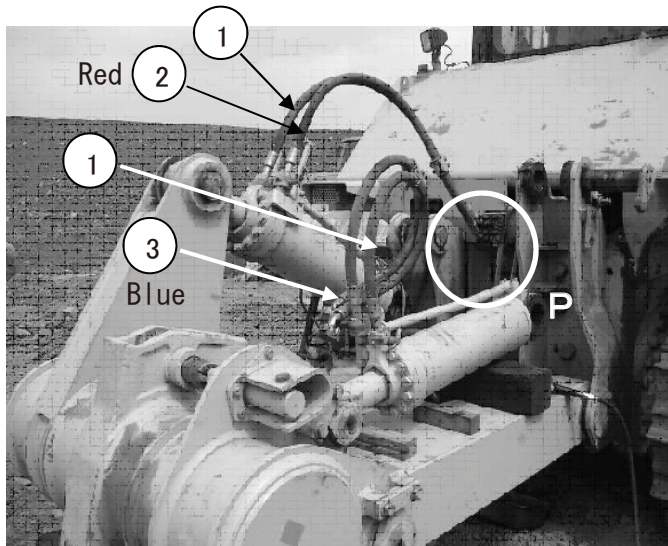
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Socket 30 mm in width across flats	1	25 t crane	1
	Sledge hammer (10P)	1	600 mm wooden block	1
	Bar	1	700 mm wooden block	1
	Medium size impact wrench	1		
Other remarks				

Assembly process No.

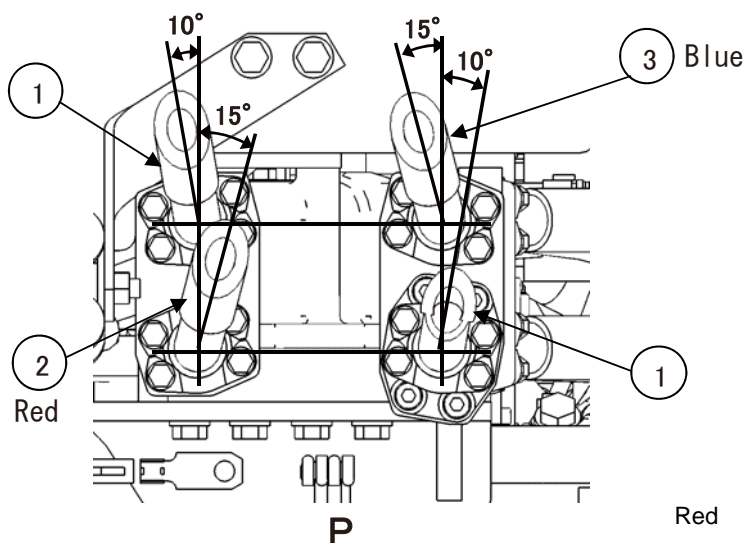
A-6

Installation of ripper assembly (5/11)

5. Installation of piping
 Connect ripper cylinder hoses (1) to (3).



★ For connection to the block at the rear of the machine, see the detail of part P.



No.	Loose supply items	Q'TY
1	07120-01016	2
2	17A-61-51850	1
3	17A-61-51860	1
4	O-ring	8

Red
Blue

Precautions

There may be pressure in the piping. Accordingly, when removing the oil stopper of each port, loosen it gradually to release the pressure.

Necessary tools

Name	Q'ty
L150 extension	1
Socket 14 mm in width across flats	1
Small oil receiving pan	1
Small size impact wrench	1

Necessary equipment

Name	Q'ty

Other remarks

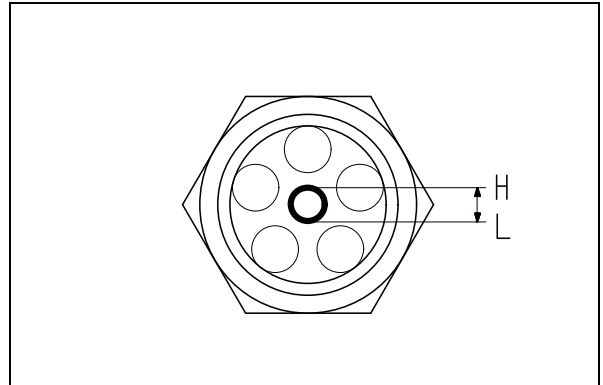
Assembly process No.

A-6

Installation of ripper assembly (6/11)

6. Installation of tilt cylinder

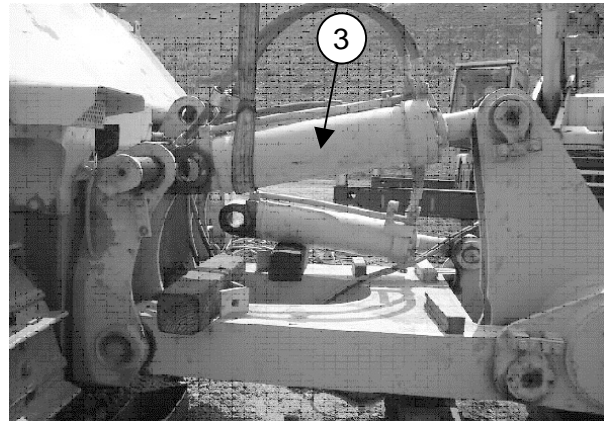
- 1) Check the oil level in the hydraulic tank.
(Check that the oil level is above "L" of the sight gauge. If it is below "L", add oil.)



- 2) While slinging cylinder (3), extend it gradually to set the pin hole.

 Tilt cylinder: 252 kg

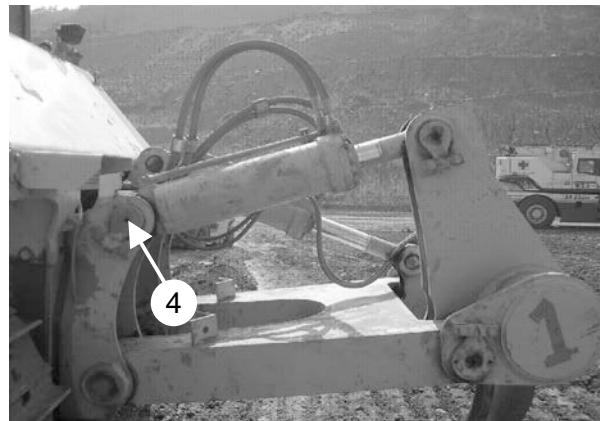
- ★ When extending the cylinder, start and run the engine at low idle, and operate the ripper lever.
 - Extend the cylinder slowly.



- 3) Check the oil level in the hydraulic tank.
(Check that the oil level is between (L) and (H) position of the sight gauge. If insufficient, refill oil.)
(Oil quantity in ripper tilt cylinder: Approx. 18 ℓ)

- 4) Insert pin (4) and fix it with the lock plate.

Part No. of bolt	01011-82040 (2 pieces)
Part No. of washer	01643-32060
Length of bolt	40 mm
Socket to be used	30 mm
Tightening torque	455 – 565 Nm {46.5 – 58 kgm}

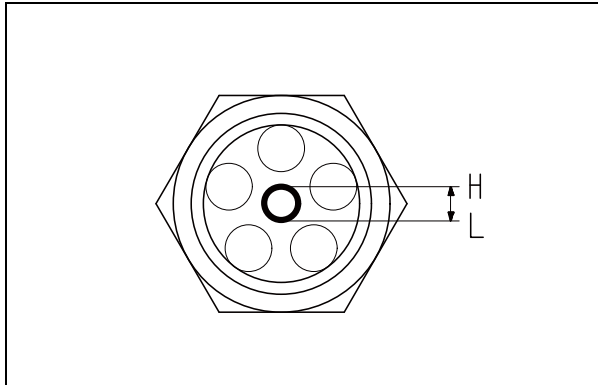


Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
<ul style="list-style-type: none"> • If the engine is operated at high idle or the cylinders are moved to the stroke end from the first of the air bleeding operation, the piston packing may be damaged. Accordingly, never do so. • Check the oil level each time and add oil if it is low. If the hydraulic oil level is low, the pumps may be damaged by cavitation. (If cavitation occurs, abnormal sound such as rasp comes out.) 	Nylon sling	1	25 t crane	1
	Socket 30 mm in width across flats	1		
	Sledge hammer (10P)	1		
	Bar	1		
Other remarks				

Assembly process No.	Installation of ripper assembly (7/11)
A-6	

7. Installation of lift cylinder

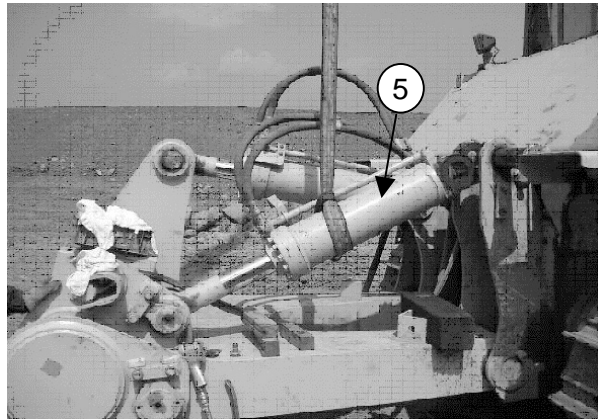
- 1) Check the oil level in the hydraulic tank.
(Check that the oil level is above "L" of the sight gauge. If it is below "L", add oil.)



- 2) While slinging cylinder (5), extend it gradually to set the pin hole.

Lift cylinder: 184 kg

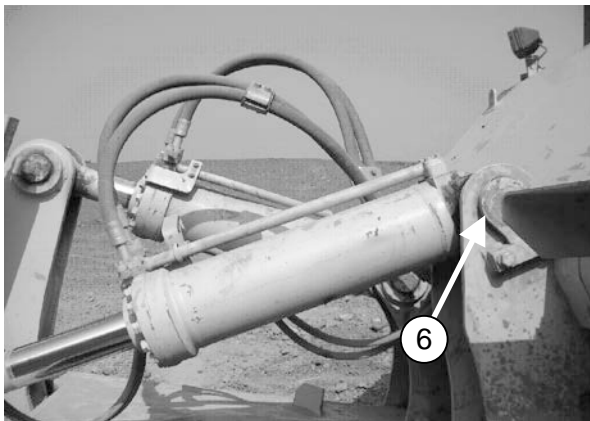
- ★ When extending the cylinder, start and run the engine at low idle, and operate the ripper lever.
 - Extend the cylinder slowly.



- 3) Check the oil level in the hydraulic tank.
(Check that the oil level is between (L) and (H) position of the sight gauge. If insufficient, refill oil.)
(Oil quantity in ripper lift cylinder: Approx. 14 ℓ)

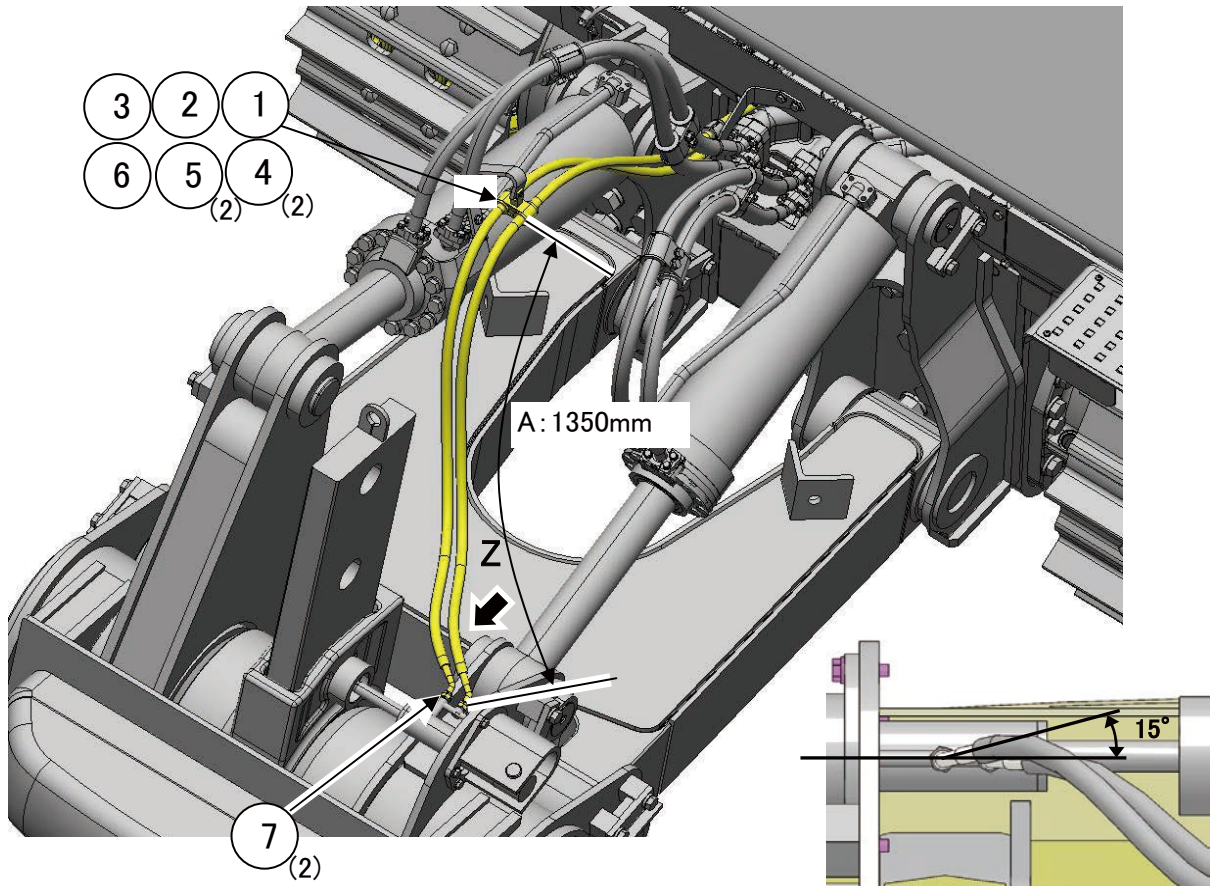
- 4) Insert pin (6) and fix it with the lock plate.

Part No. of bolt	01011-82040 (2 pieces)
Part No. of washer	01643-32060
Length of bolt	40 mm
Socket to be used	30 mm
Tightening torque	455 – 565 Nm {46.5 – 58 kgm}



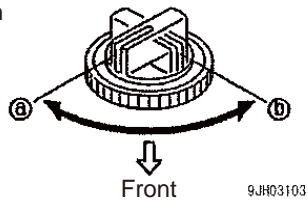
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
<ul style="list-style-type: none"> • If the engine is operated at high idle or the cylinders are moved to the stroke end from the first of the air bleeding operation, the piston packing may be damaged. Accordingly, never do so. • Check the oil level each time and add oil if it is low. If the hydraulic oil level is low, the pumps may be damaged by cavitation. (If cavitation occurs, abnormal sound such as rasp comes out.) 	Nylon sling	1	25 t crane	1
	Socket 30 mm in width across flats	1		
	Sledge hammer (10P)	1		
	Bar	1		
Other remarks				

8. Installation of pin puller piping



After installing the hose, confirm the operating direction of the pin-puller switch.

- (a) Pin extraction
- (b) Pin retraction

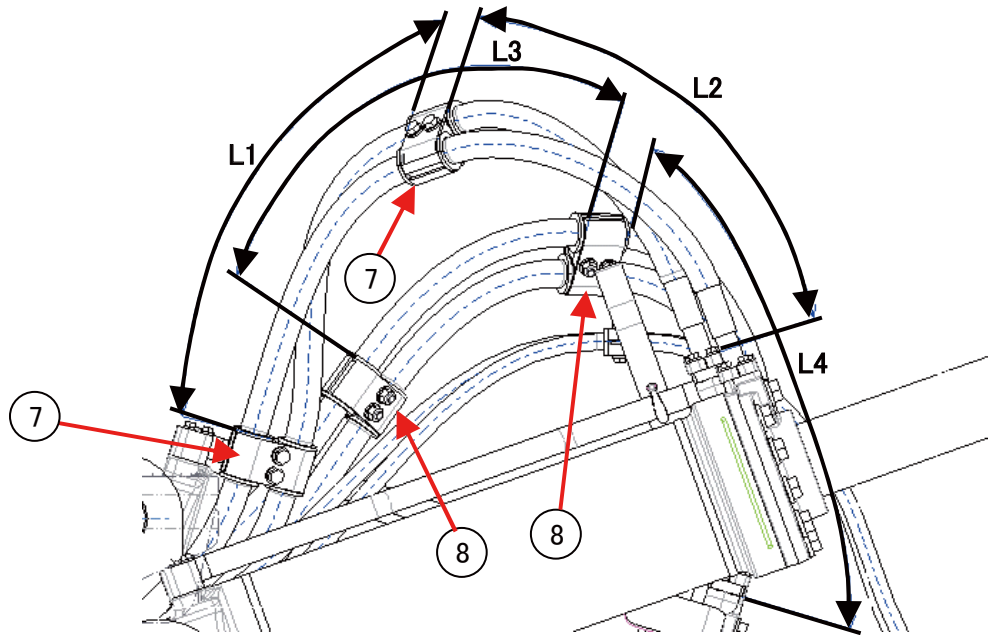


No.	Part No.	Q'ty
1	144-947-2850	1
2	04205-11028	1
3	04050-13015	1
4	07094-30315	2
5	07095-00317	2
6	01024-81060	1
7	02896-11009	2

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

Assembly process No.	Installation of ripper assembly (9/11)
A-6	

9. Installation of piping clamps
- 1) Install two tilt cylinder hose clamps (7) (L1: 520 mm, L2: 540 mm).
(Align the position of the white tape.)
 - 2) Install two lift cylinder hose clamps (8) (L3: 380 mm, L4: 590 mm).
(Align the position of the white tape.)



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	Socket 19 mm in width across flats	1		
	Small size impact wrench	1		
Other remarks				

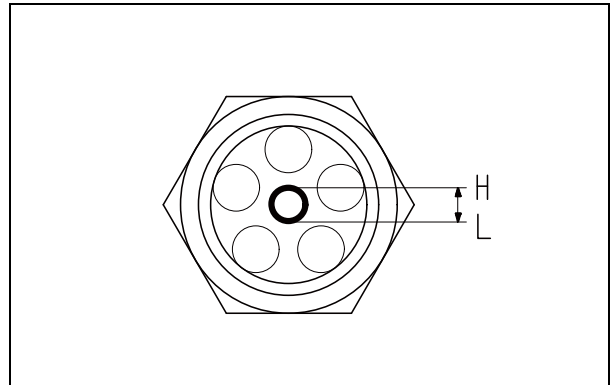
10. Cheking oil level in hydraulic tanck and bleeding air

10-1. Bleed air from lift cylinder and tilt cylinder

★ When operating the hydraulic cylinder at the first time after assembling it, bleed the air from the hydraulic circuit as follows.

When checking the hydraulic oil level, see "11. Oil level check position".

- 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.)



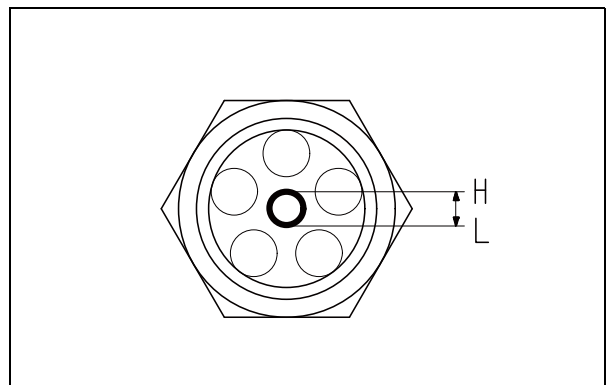
- 2) Start the engine and run at low idle for approx. 5 minutes.
- 3) While running the engine at low idle, extend and retract the cylinder for 5 minutes.
However, do not move the cylinder to the stroke end.
★ Operate the piston rod to approx. 100 mm from the end of the stroke; do not relieve the circuit under any circumstances.
- 4) 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.

⚠ 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.

10-2. After bleeding 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.)
★ If another cylinder is to be installed, perform this operation at the last.



Assembly process No.	Installation of ripper assembly (11/11)
A-6	

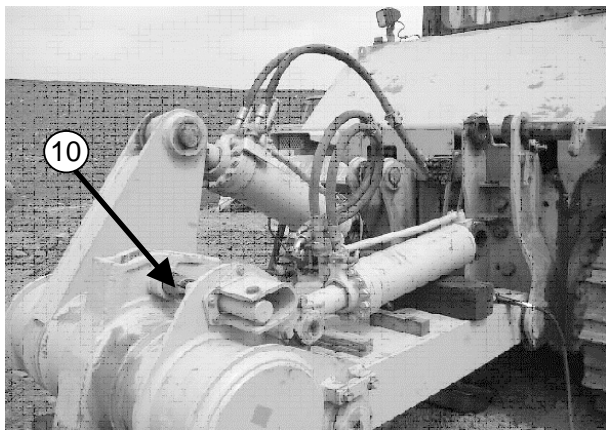
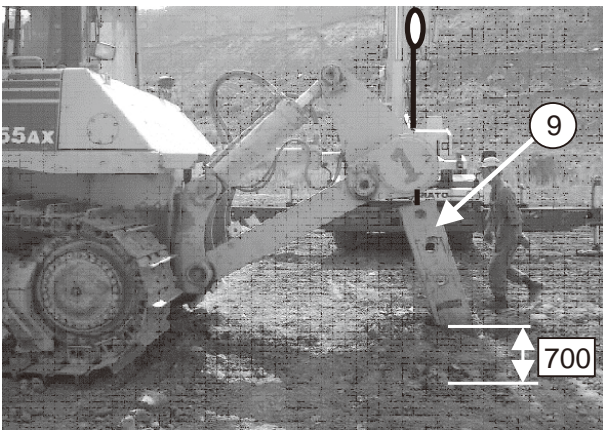
11. Installation of shank assembly

- 1) Start the engine, raise the ripper assembly to the maximum, and set the beam horizontally.
- 2) Raise the rear of the machine body to 700 mm or move the machine to a pit where there is a clearance of at least 700 mm under the ground level.
- 3) Pass a wire through the shank mounting hole of the ripper beam and sling shank (9) and fix it with pin (10).



Weight of shank assembly
 Giant: 475 kg
 Multi-shank: 285 kg

★ Pull out and insert the pin with the pin puller switch.



Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
<ul style="list-style-type: none"> • If the engine is operated at high idle or the cylinders are moved to the stroke end from the first of the air bleeding operation, the piston packing may be damaged. Accordingly, never do so. • Check the oil level each time and add oil if it is low. If the hydraulic oil level is low, the pumps may be damaged by cavitation. (If cavitation occurs, abnormal sound such as rasp comes out.) 	∅10 × 3,000 mm wire	2		
	SD12 shackle	2		
Other remarks				

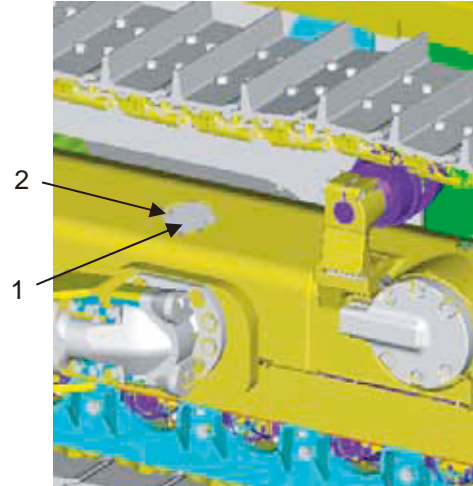
Assembly process No.

A-7

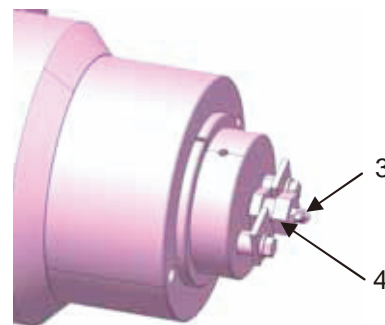
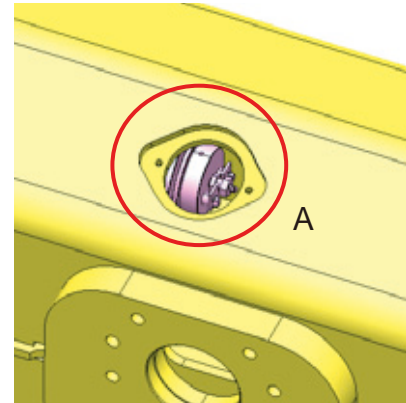
Adjusting track tension (1/2)

Adjusting

- Increasing tension
 1. Remove both bolts (2) and cover (1).
 2. Add grease through grease fitting (3) with the grease pump.
 3. Move the machine forward and backward to check that the track tension is proper.
 4. Check the track tension again. If it is not proper, adjust it again.



- Decreasing tension
 1. Remove both bolts (2) and cover (1).
 2. Loosen plug (4) little by little to discharge grease.
 3. Do not loosen plug (4) more than 1 turn.
 4. If grease is not discharged well, move the machine forward and backward a little.
 5. Tighten plug (4).
 6. Move the machine forward and backward to check that the track tension is proper.
 7. Check the track tension again. If it is not proper, adjust it again.

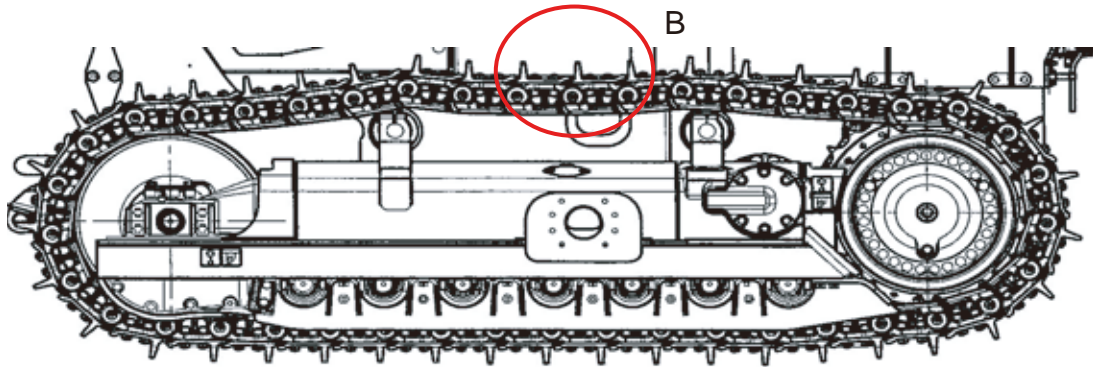
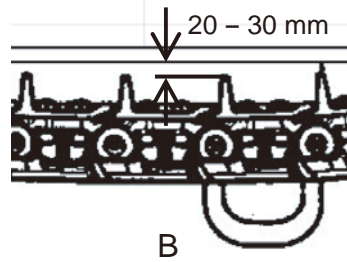


Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
<ul style="list-style-type: none"> • Do not loosen plug (4) more than 1 turn. If it is loosened more, it may jump out because of the internal high-pressure grease. At this time, do not loosen any part other than plug (4). Do not direct your face toward plug (4) in its installing direction. If the track tension cannot be decreased by the above procedure, ask your Komatsu distributor for repair. • When removing cover (1), take care that dirt and sand will not enter. • Take care not to damage the safety label stuck to the reverse side of cover (1). 				
Other remarks				

Assembly process No.	Adjusting track tension (2/2)
A-7	

Testing

Stop the machine on a level ground (Move the machine forward and stop it without applying the brake). Place a straight bar over the front and rear carrier rollers as shown in the figure at right and measure the clearance between the bar and grouser at the center. If the clearance is 20 - 30 mm, the track tension is in the standard range. If it is not in the standard range, adjust it as explained above.



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

Assembly process No.

A-8

Check fuel, coolant and lubricants (1/2)

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

Assembly process No.	Check fuel, coolant and lubricants (2/2)
A-8	

		Engine oil pan	Damper case	Power train case	Final drive case (each)	Hydraulic system (With blade, without ripper)	Cooling system (including sub-tank)	Fuel tank
Specified capacity	Liters	45	1.5	105	31	240	82	625
	US gal	11.89	0.40	27.74	8.19	63.41	21.66	165
Refill capacity	Liters	37	1.5	70	31	85	–	–
	US gal	9.78	0.40	18.49	8.19	22.46	–	–

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)	-10	-15	-20	-25	-30
	Mixing amounts (ℓ)				
Coolant	39	46.7	53.2	59.7	65
Water	91	83.3	76.8	70.3	65

⚠ Waring

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 mater.

⚠ Waring

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

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

Assembly process No.

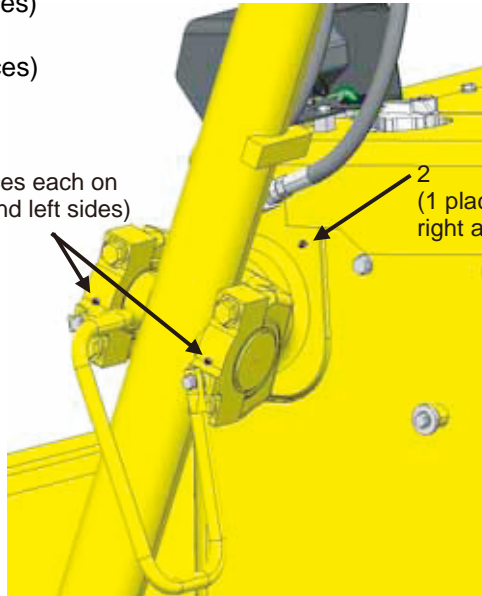
A-9

Lubricating (1/3)

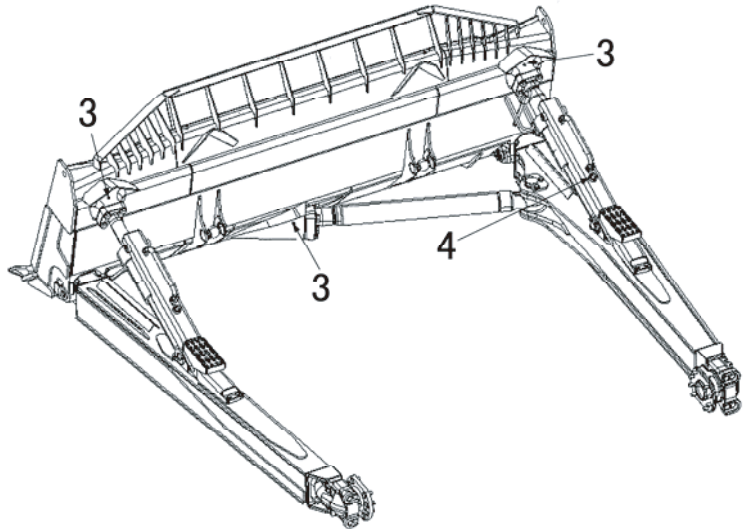
- 1. Blade lift cylinder support yoke (4 places)
- 2. Blade lift cylinder support shaft (2 places)

1
(2 places each on
right and left sides)

2
(1 place each on
right and left sides)

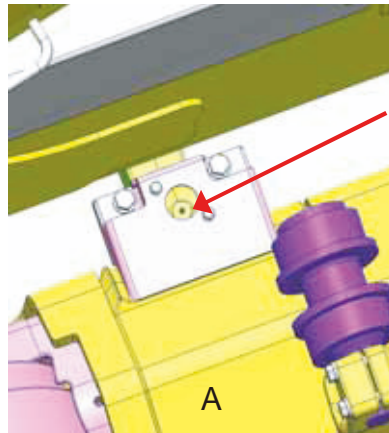
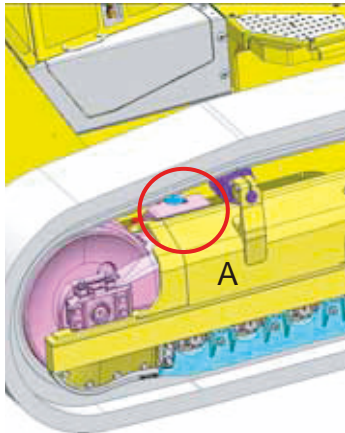


- 3. Blade ball joint (3 places)
- 4. Brace screw (1 place)



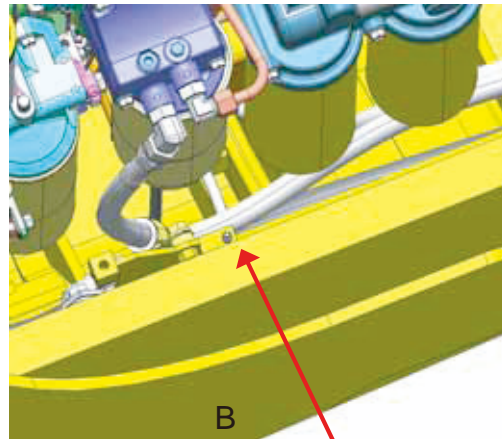
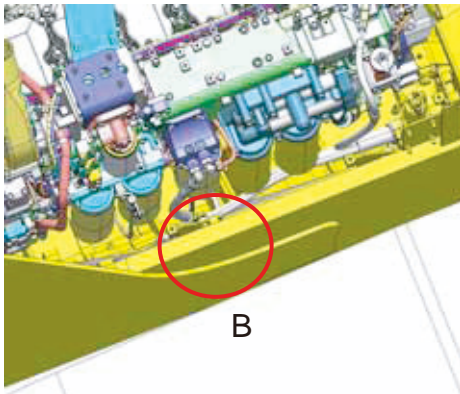
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Other remarks				

5. Equalizer bar side shaft (2 places)



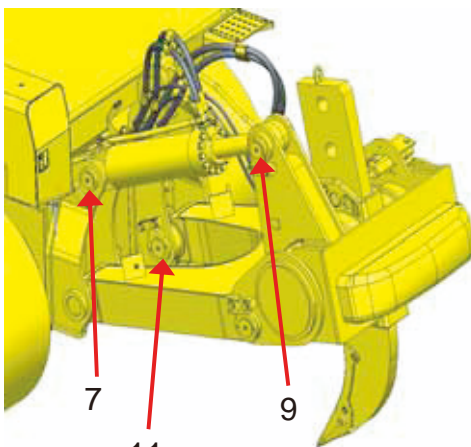
5
(1 place each on
right and left sides)

6. Equalizer bar center shaft (1 place)

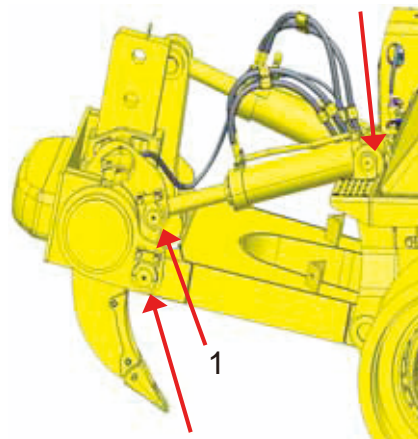


6
(1 place)

- 7. Ripper tilt cylinder bottom pin (1 place)
- 8. Ripper lift cylinder bottom pin (1 place)
- 9. Ripper tilt cylinder rod end pin (1 place)
- 10. Ripper lift cylinder rod end pin (1 place)
- 11. Ripper arm pin (Front side) (2 places)
- 12. Ripper arm pin (Rear side) (2 places)



11
(1 place each on
right and left sides)



12
(1 place each on
right and left sides)

Assembly process No.

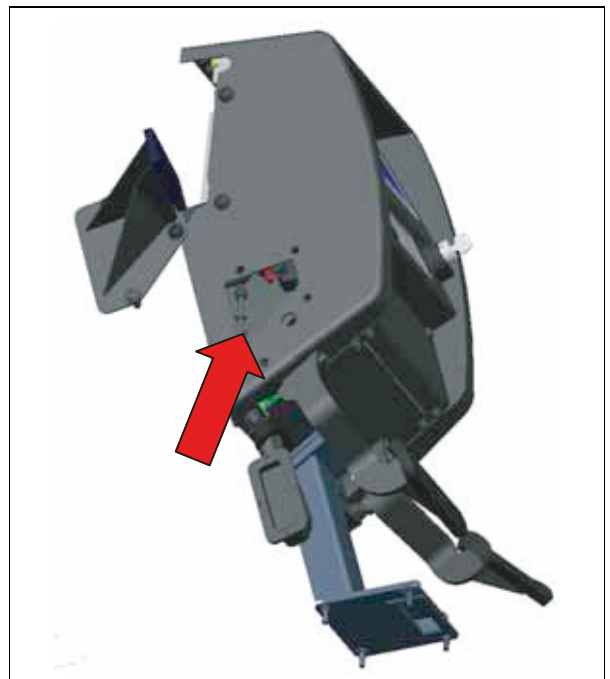
A-9

Lubricating (3/3)

13. Decelerator pedal shaft (1 place)



14. Brake pedal shaft (1 place)



Assembly process No.	Bleeding air from hydraulic cylinders
A-10	


★ After disassembling for transpotatiton, changing the oil in the hydraulic tank, or removing 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 relieve 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 the cylinder in this position for 3 minute.
- 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 the cylinder in this position for 1 minutes.

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, the 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.

A-11

Installation of additional working lamps (1/2)

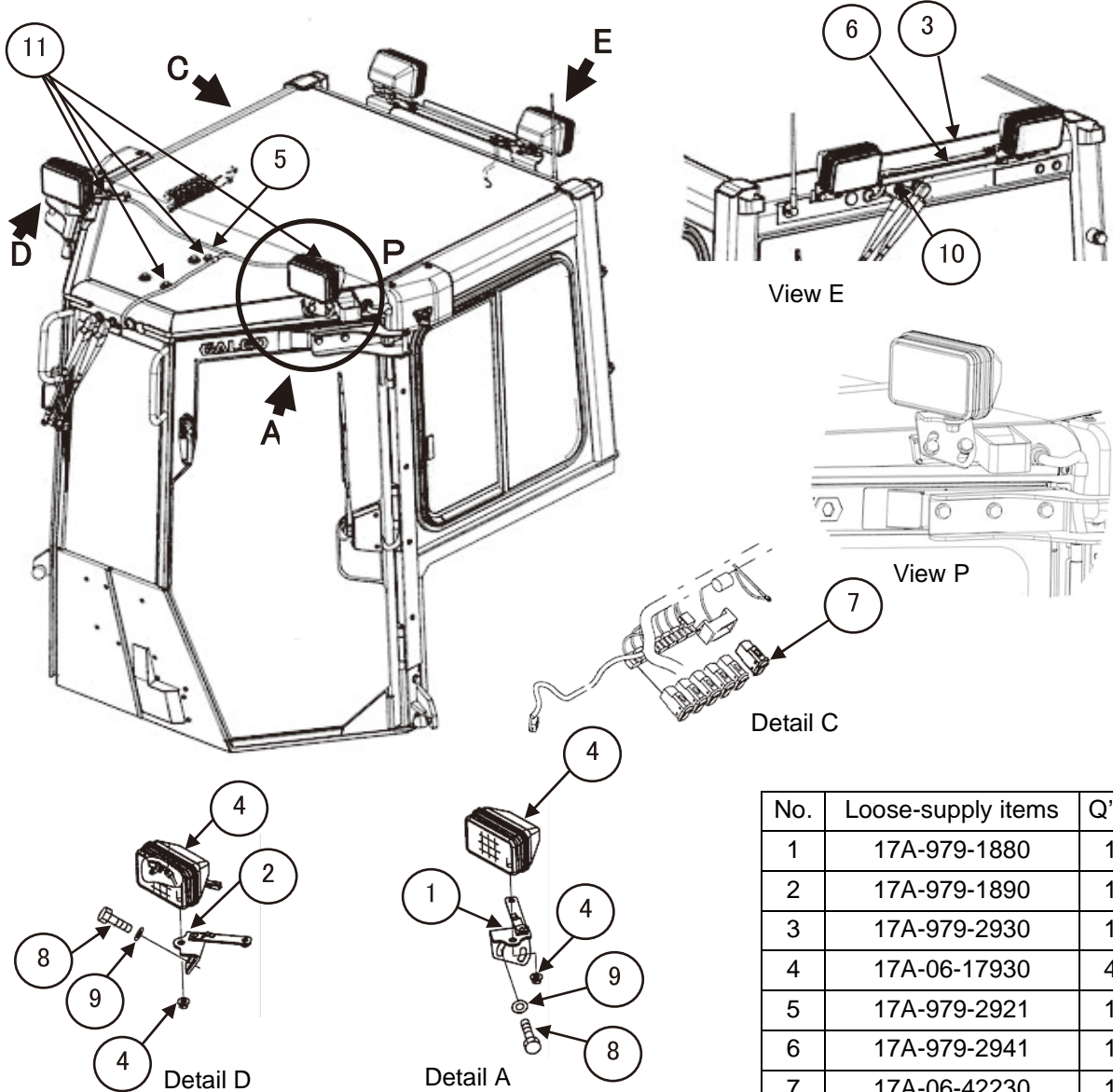


Fig. 1 of additional working lamp

No.	Loose-supply items	Q'ty
1	17A-979-1880	1
2	17A-979-1890	1
3	17A-979-2930	1
4	17A-06-17930	4
5	17A-979-2921	1
6	17A-979-2941	1
7	17A-06-42230	1
8	01024-D1225	12
9	01643-71232	12
10	205-977-7310	1
11	04434-51012	4

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Seal around the grommets with caulking material	Caulking material	1		
Other remarks				

Assembly process No.	Installation of additional working lamps (2/2)
A-11	

Procedure

1. Remove the grommets from the front and rear of the cab and take out the additional lamp connectors.
 (Connector at front of cab: CN-18)
 (Connector at rear of cab: CN-1)
2. Connect connector CN-18 of wiring harness (5) to connector CN-18 at the front of the cab. Connect connector CN-1 of wiring harness (7) to connector CN-1 at the rear of the cab. Seal around the grommets with caulking material.
3. Install brackets (1), (2), and (6) to the cab with bolt (9).
4. Install lamps (4) to brackets (1), (2), and (6) temporarily.
5. Install the connectors of wiring harnesses (5) and (7) to the clamps of brackets (1), (2), and (6), and then connect them to the connectors of lamps (4).
6. Fix wiring harnesses (5) and (7) with clips (10) and (9).
7. Remove the switch panel cover at the right upper part in the cab, take out cab wiring harness connector CN-10, and connect lamp switch (8).
8. Turn the key switch ON, and then turn lamp switch (8) ON and check that the lamps are lighted.
9. Adjust the radiating directions of lamps (4) and tighten the locknuts to 22 – 25 Nm {2.24 – 2.55 kgm}.

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

S. Reference material (Installed when delivered)

Assembly process No.	Installation of operator's cab (1/16)
S-1	

★ When installing the KOMTRAX, install the KOMTRAX parts before installing the cab. (See S-2.)

1. Removal of dashboard

- Remove bolts (B) and bracket (A) of dashboard wiring harness connector (CN-DSH).
- Remove screw (C) and separate the connector.
- Remove bolt (D) which is fixing clip (J) and remove the clip.
- Remove bolts (F) and washers (G) and lift off bracket (E) and dashboard assembly together. (Weight: 84 kg)
- Keep the removed parts carefully since they will be reused to transport the machine.
- Remove bolt (H) and separate the dashboard and bracket (E).

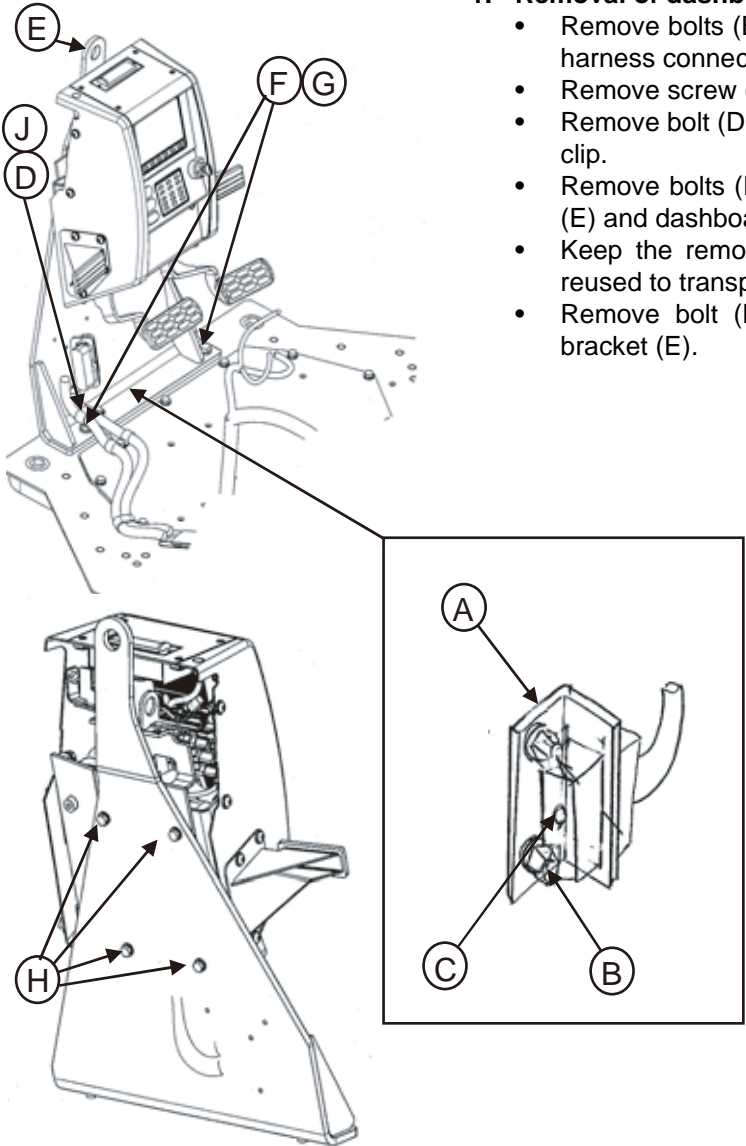
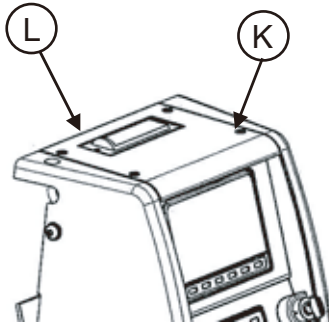


Fig. 1 Removal of dashboard assembly

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
	KW10P impact wrench	1		
	Socket 17 mm in width across flats	1		
Other remarks				



2. Removal of dashboard

- Remove screws (K) (4 pieces) and cover (L).
- Install the dashboard to the cab and fix it with bolts (1) (8 pieces).
- Fix the wiring harness bracket (A) with bolts (B).
- Fix cover (L) with screws (K) (4 pieces).

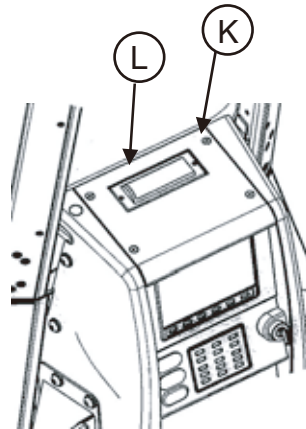
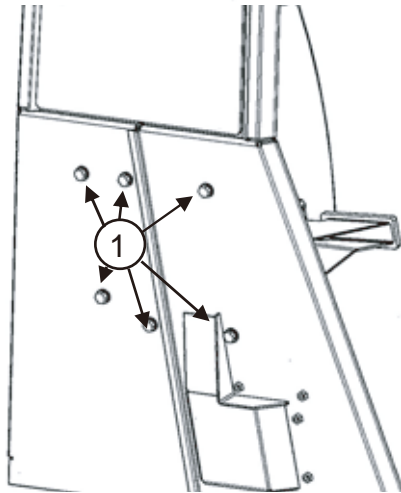
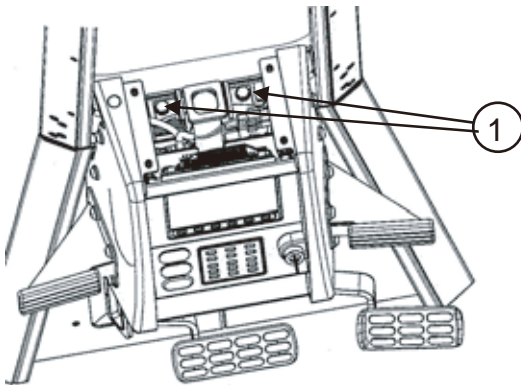


Fig. 2 Installation of dashboard assembly to cab

No.	Loose-supply items	Q'ty
1	01024-81030	8

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

Assembly process No.	Installation of operator's cab (3/16)
S-1	

3. Installation of open lock stopper

- Install the right and left open lock stopper brackets with bolts (4) and washers (5) as shown in Fig. 3. (2 pieces on each side)
- Fix wiring harness bracket (A) with bolt (B).
- Fix stopper rubber (6) with nut (7).

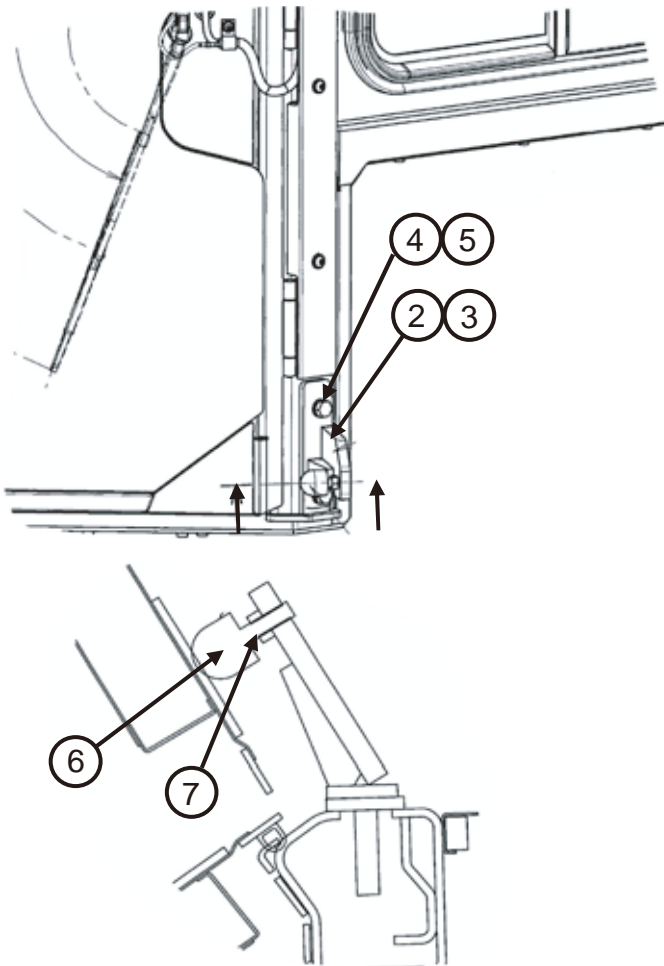


Fig. 3 Installation of open lock stopper

No.	Loose-supply items	Q'ty
2	17A-979-3480	1
3	17A-979-3490	1
4	198-54-42260	4
5	01643-71645	4
6	17A-Z11-3591	2
7	01580-11210	2

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

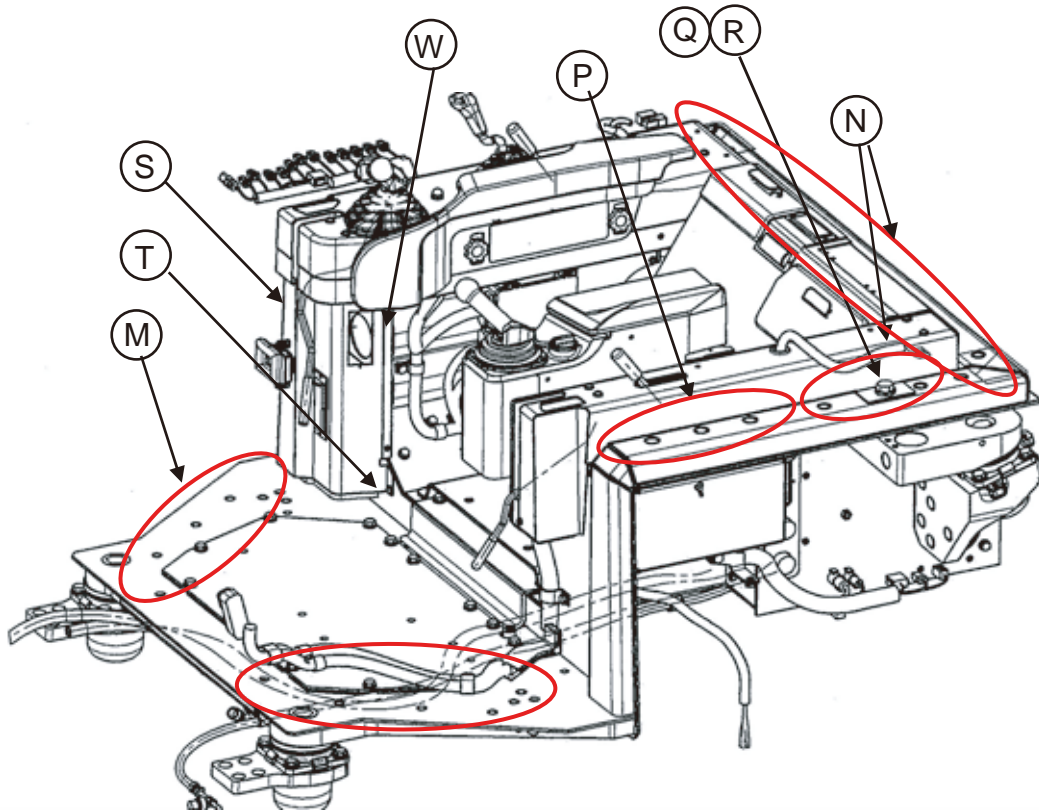
Assembly process No.

S-1

Installation of operator's cab (4/16)

4. Prepare the floor.

- Corks (M) for M16 tap (12 pieces), corks (N) for M20 tap (15 pieces), and corks (P) for M24 tap (6 pieces).
- Remove bolt (Q) and ground surface protector plate (R).
- Remove mounting bolts (T) (3 pieces) of duct (S), loosen band (W), and remove duct (S).




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

Assembly process No.	Installation of operator's cab (5/16)
S-1	

5. Installation of seals to joints of operator's cab

(1) Sling the operator's cab assembly.

 Cab assembly: 737 kg

(2) Remove dirt and oil from the seal sticking surfaces.

(3) Remove the release paper from seals (8) and stick the seals as shown in Fig. 5.

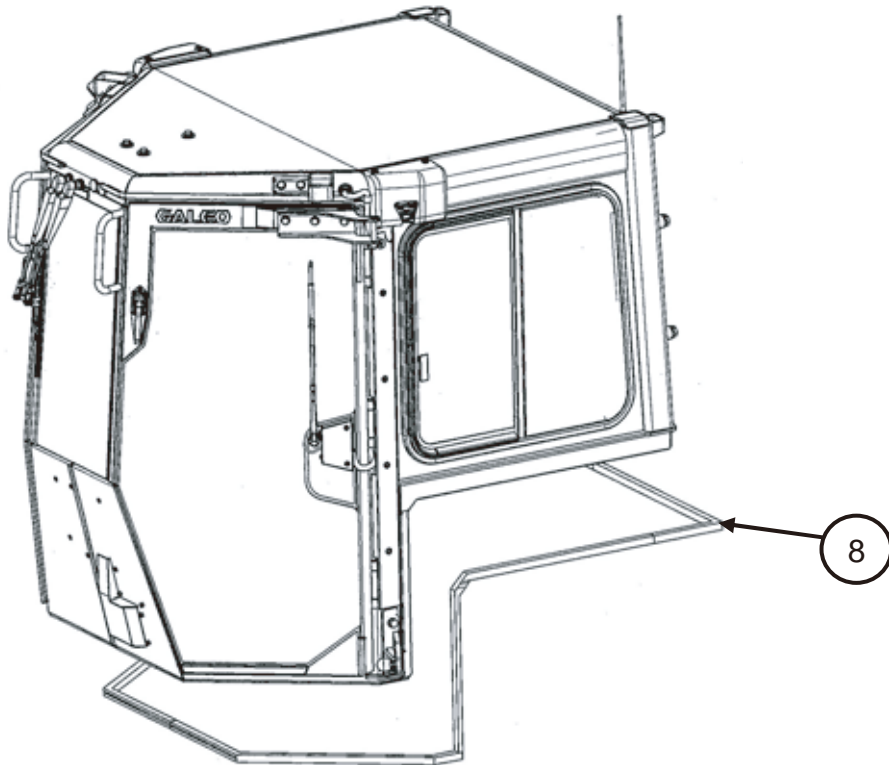


Fig. 4 Installation of seals to joints of operator's cab

No.	Loose-supply items	Q'ty
8	17A-979-3480	5

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Since the seals are rather long, cut them properly when using.				
Other remarks				

Assembly process No.

S-1

Installation of operator's cab (6/16)

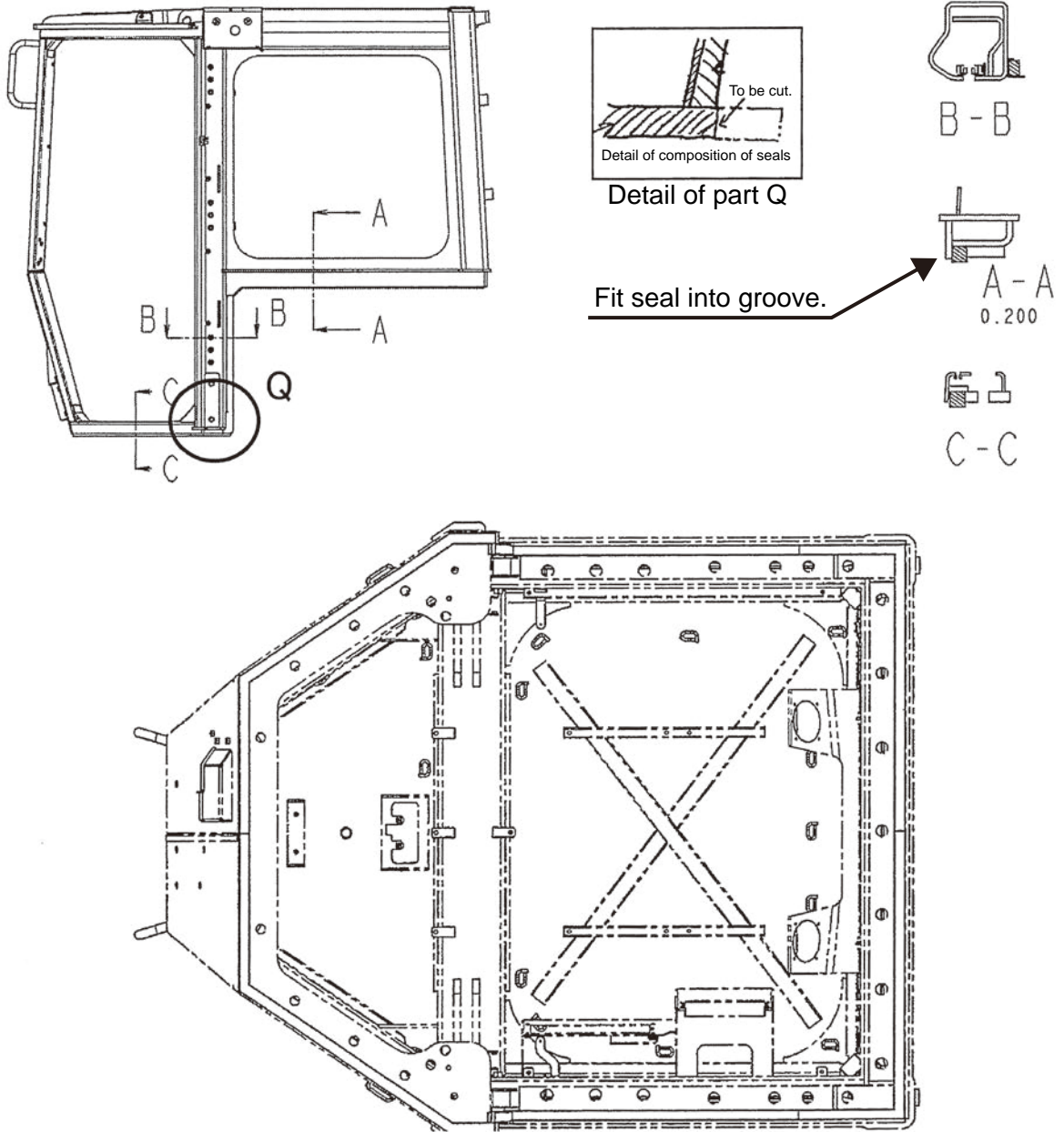


Fig. 5 Sticking of seals

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
When sticking the seals, eliminate clearance in each joint.				
Other remarks				

Assembly process No.	Installation of operator's cab (7/16)
S-1	

6. Removal of covers

(1) Remove the B-pillar cover.

- Remove bolts (AB) in the cap of handle (AB) (1 pieces each on the right and left sides) and remove handle (AB).
★ At this time, collar (Z) comes off, too. Take care not to drop it.
- Remove bolt (Y) and B-pillar covers (U) and (V).
★ At this time, collar (W) and washer (X) come off, too. Take care not to drop them.

(2) Remove the C-pillar cover.

- Remove screws (AF) (2 pieces each on the right and left sides), clips (AD), and C-pillar cover (AC).

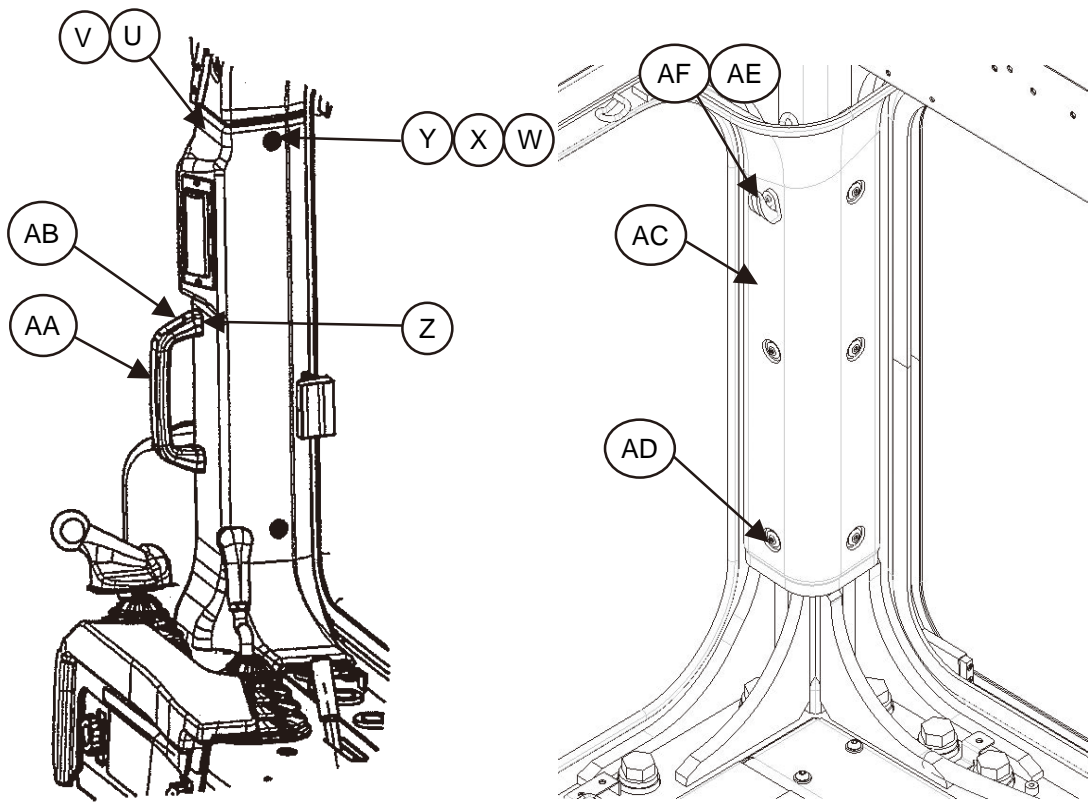
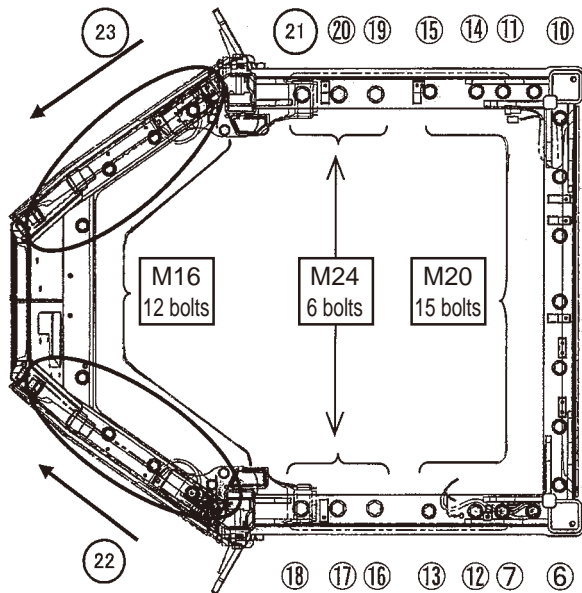


Fig. 6 B-pillar cover

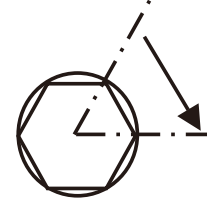
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Take care not to lose the removed parts since they will be installed again after the cab and floor are connected.				
Other remarks				

7. Installation of operator's cab

- Lower the operator's cab assembly onto the floor frame slowly.
 - ★ Set the lock lever in the lower position.
 - ★ Take care that the cover and cap will not interfere with each other since the clearance between them is narrow.
 - ★ Take care that wiring harnesses and hoses will not be pinched between the cab and floor frame.
- Tighten the bolts in the order shown in Fig. 7. (Snug torque)
Tighten the bolts on the front side in the order indicated by the arrows.
- Tighten bolts (1) - (21) with an impact wrench or a torque wrench further by 60°.
- Tighten bolts (22) and (23) until they are settled perfectly.



Tighten to 294 Nm {30 kgm}, and then tighten further by 60°.



Either impact wrench or torque wrench may be used to retighten bolts.

Fig. 7 Cab mounting bolts

Torque		
M16	279 ± 27.9 Nm	
Snug torque		
Retightening		
M20	294 ± 29.4 Nm	60° ± 10°
M24	294 ± 29.4 Nm	60° ± 10°

No.	Loose-supply items	Q'ty
9	01010-81655	12
10	01643-31645	12
11	01011-82020	15
12	01643-32060	15
13	01011-82425	6
14	01643-32460	6

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Use the separate check sheet to check the tightening torque and retightening. When using an impact wrench near a glass, put cowhide or thick cloth between the impact wrench and glass so that the impact wrench will not touch the glass directly.	KW20P impact wrench	1		
	KW3800 impact wrench	1		
	Long M24 socket	1		
	Long M30 socket	1		
	Long M36 socket	1		
	200 mm joint	1		
	KW4500 im act wrench	1		
	Other remarks			

Assembly process No.	Installation of operator's cab (9/16)
S-1	

Position for tightening bolt



M20

Long M20 socket is used in this picture.



M24

Long M24 socket is used in this picture.



M16

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

Assembly process No.

S-1

Installation of operator's cab (10/16)

Position for angle-tightening bolt

Tightening with hand



Impact wrench



Tools in this picture
M20/M24 with extension of 145 mm and
socket (standard) of spline type

Tools used for tightening with hand
M20/M24 with extension of 200 mm and
long socket (100 mm long)

Assembly process No.	Installation of operator's cab (11/16)
S-1	

8. Installation of covers

(1) Reassemble the B-pillar cover. (Reassembly of cover removed in step 5)

- Install B-pillar covers (U) and (V) with bolt (Y), collar (W), and washer (X).
- Install handles (AA) (1 pieces each on the right and left sides) with bolts (AB).
- ★ At this time, set collar (Z) on the handle seat as it was.

(2) Reassemble the C-pillar cover. (Reassembly of cover removed in step 6)

- Install C-pillar cover (AC) with clips (AD).
- Install coat hook (AE) with screw (AF).

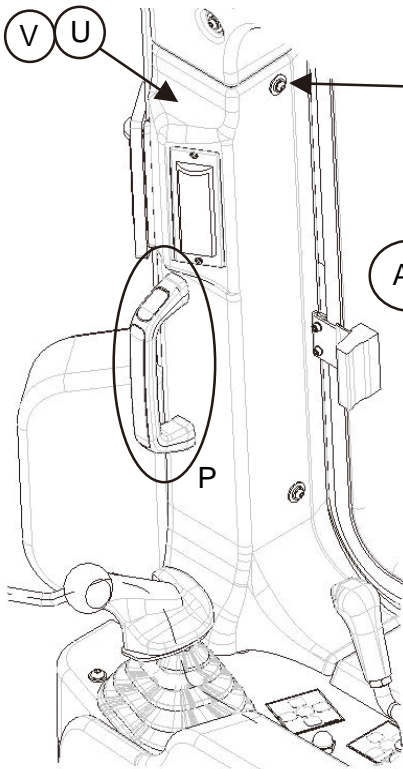


Fig. 8 B-pillar cover

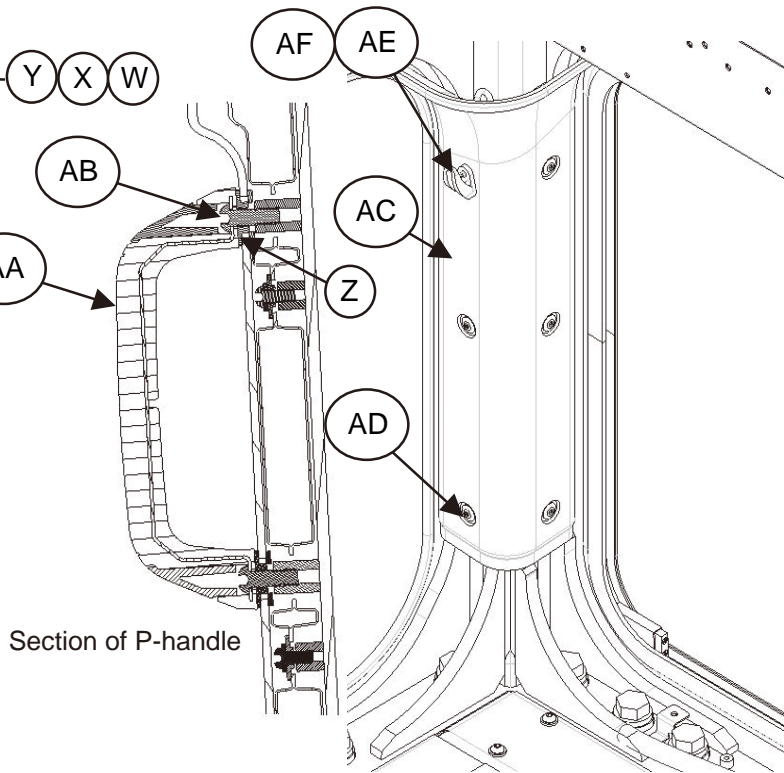


Fig. 9 C-pillar cover

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Take care not to lose the removed parts since they will be installed again after the cab and floor are connected.				
Other remarks				

Assembly process No.

S-1

Installation of operator's cab (12/16)

9. Installation of floor ducts

Install floor ducts (15) – (19) as shown in Fig. 10.

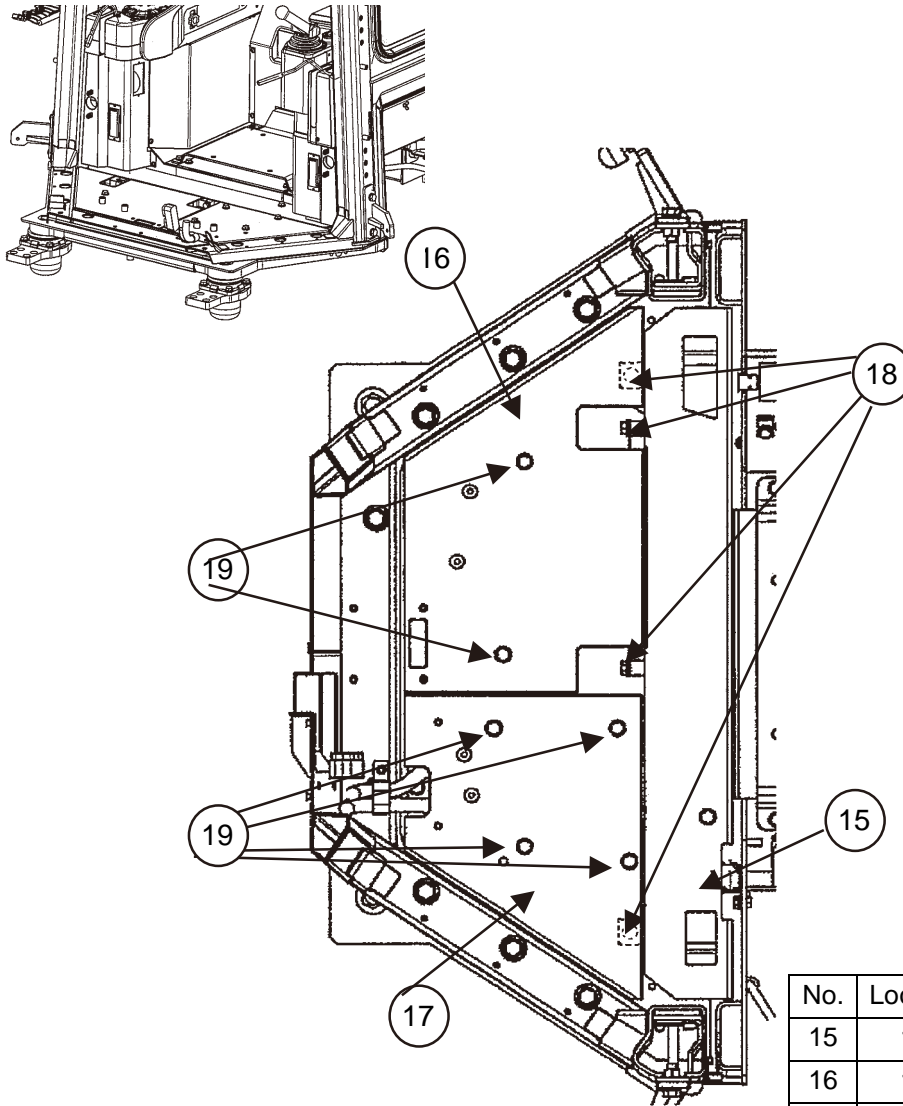


Fig. 10 Installation of floor ducts

No.	Loose-supply items	Q'ty
15	17A-54-46182	1
16	17A-54-45851	1
17	17A-54-46842	1
18	01024-81225	4
19	01024-81260	6

Precautions

Necessary tools

Necessary equipment

Name

Q'ty

Name

Q'ty

Other remarks

Assembly process No.	Installation of operator's cab (13/16)
S-1	

10. Connection of wiring harnesses and washer hoses

- (1) Connect the dashboard wiring harness.
 - Fix connector (CN-DSH) with bolt (C) (removed in step 1).
 Tightening torque: $2.83 \pm 0.28 \text{ Nm}$ { $0.289 \pm 0.029 \text{ kgm}$ }
 - Fix connector bracket (A) with bolts (B) (2 pieces).
- (2) Fix wiring harness cover (20) with bolts (21) (4 pieces) and washers (22) (4 pieces).
 - Fix connector bracket (A) with bolts (B) (removed in step 1).
- (3) Fix duct (23) with bolts (24) (4 pieces) and washers (25) (4 pieces).

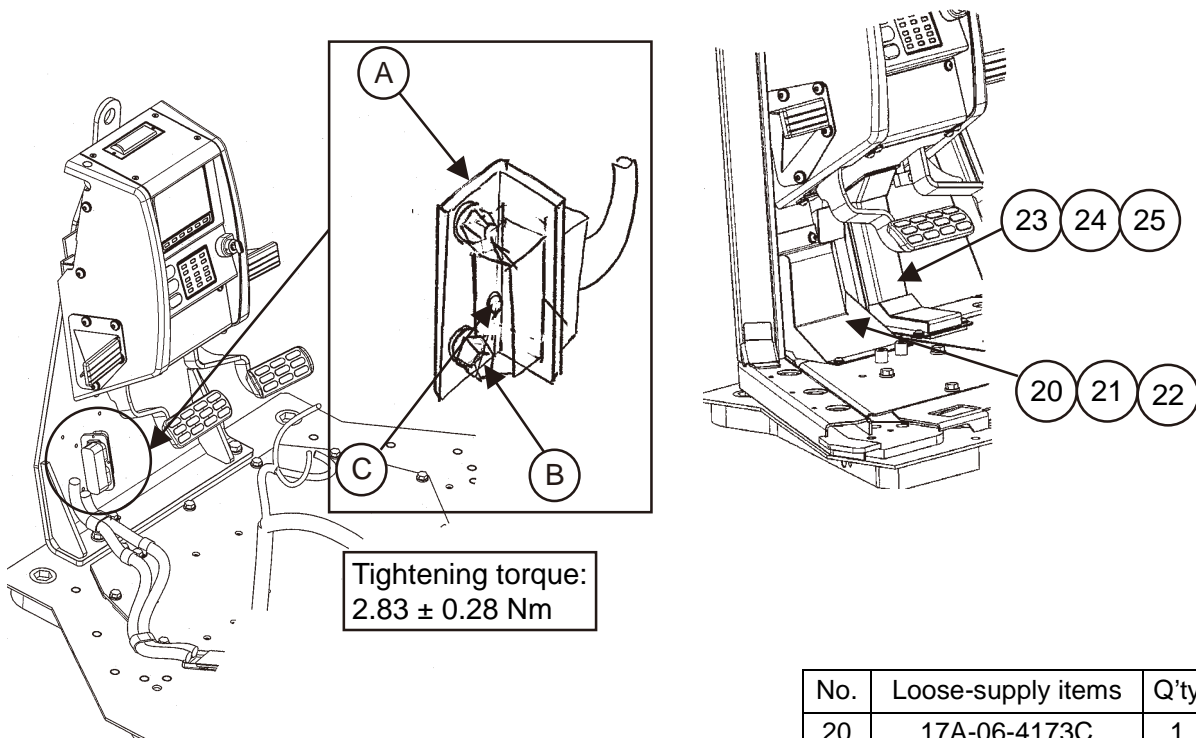


Fig. 11 Connection of wiring harnesses and hoses

No.	Loose-supply items	Q'ty
20	17A-06-4173C	1
21	01245-00816	4
22	01643-70823	4
23	17A-979-247D	1
24	01245-00825	4
25	01643-70823	4

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Insert each connector until it clicks.				
Other remarks				

Assembly process No.

S-1

Installation of operator's cab (14/16)

(4) Connect cab wiring harness connectors (CN-CBPW and CN-WST).

- Fix the connectors to the clip of bracket (26).
- Fix bracket (26) with bolts (27) and washers (28).

(5) Connect the washer hoses.

- ★ Connect the hoses having marks of the same colors to each other.

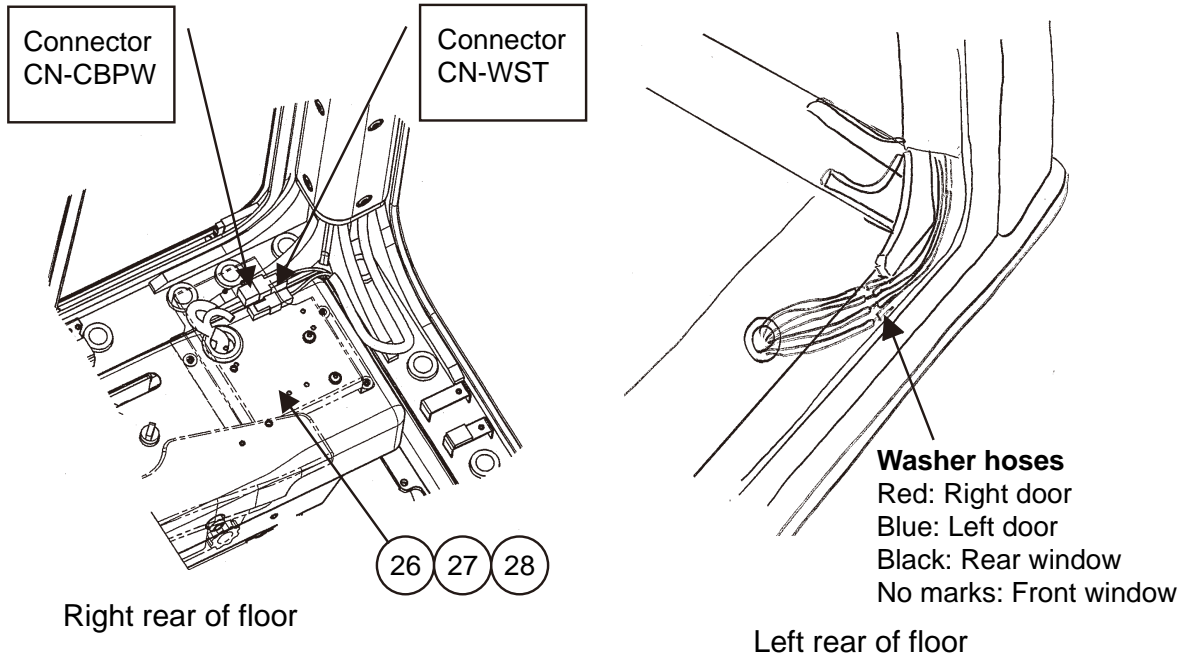


Fig. 12 Connection of wiring harnesses and hoses

No.	Loose-supply items	Q'ty
26	17A-979-279A	1
27	01245-00620	4
28	17A-Z11-2813	4

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Insert each connector until it clicks.				
Other remarks				

Assembly process No.	Installation of operator's cab (15/16)
S-1	

11. Installation of floor right and left ducts and covers

- (1) Install right duct (S). (Carry out installation in the reverse order to removal.)
 - Connect right duct (S) and hose removed in step 1 with band (W).
 - Fix right duct (S) with bolts (T) (3 pieces) and washers (X) (3 pieces) (removed in step 1).
- (2) Fix left duct (29) with bolts (31) (3 pieces) and washers (32) (3 pieces).
- (3) Fix left cover (30) with bolts (31) (4 pieces) and washers (32) (4 pieces).
- (4) Fix L-plates (54) (2 pieces) with bolts (31) (4 pieces) and washers (32) (4 pieces).

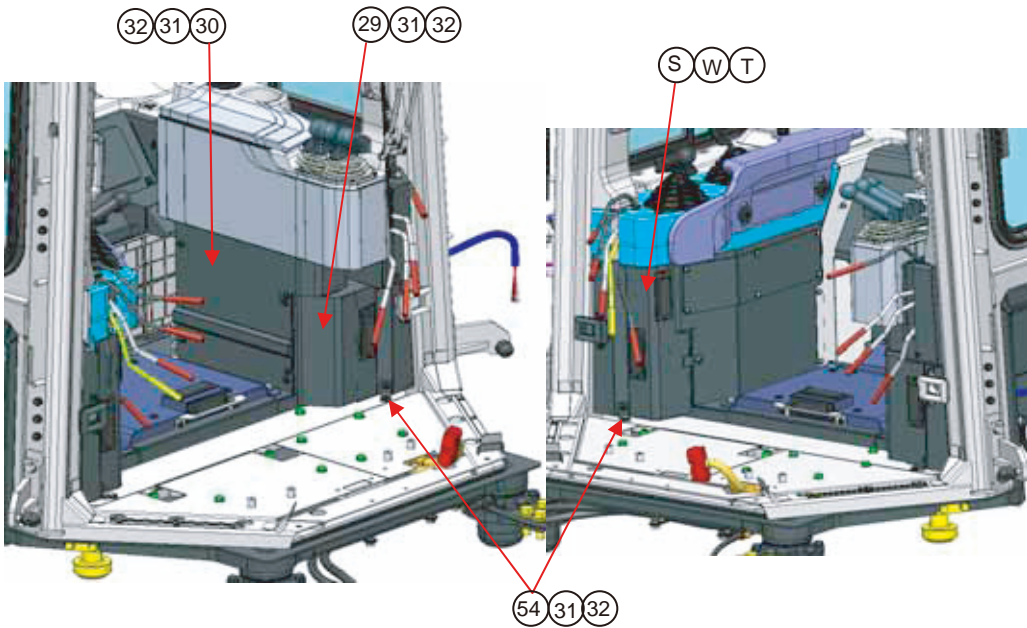


Fig. 13 Installation of floor covers and ducts

No.	Loose-supply items	Q'ty
29	17A-54-46223	1
30	17A-54-46351	1
31	01245-00820	15
32	01643-70823	15
33	17A-979-2120	2

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

12. Installation of interior parts

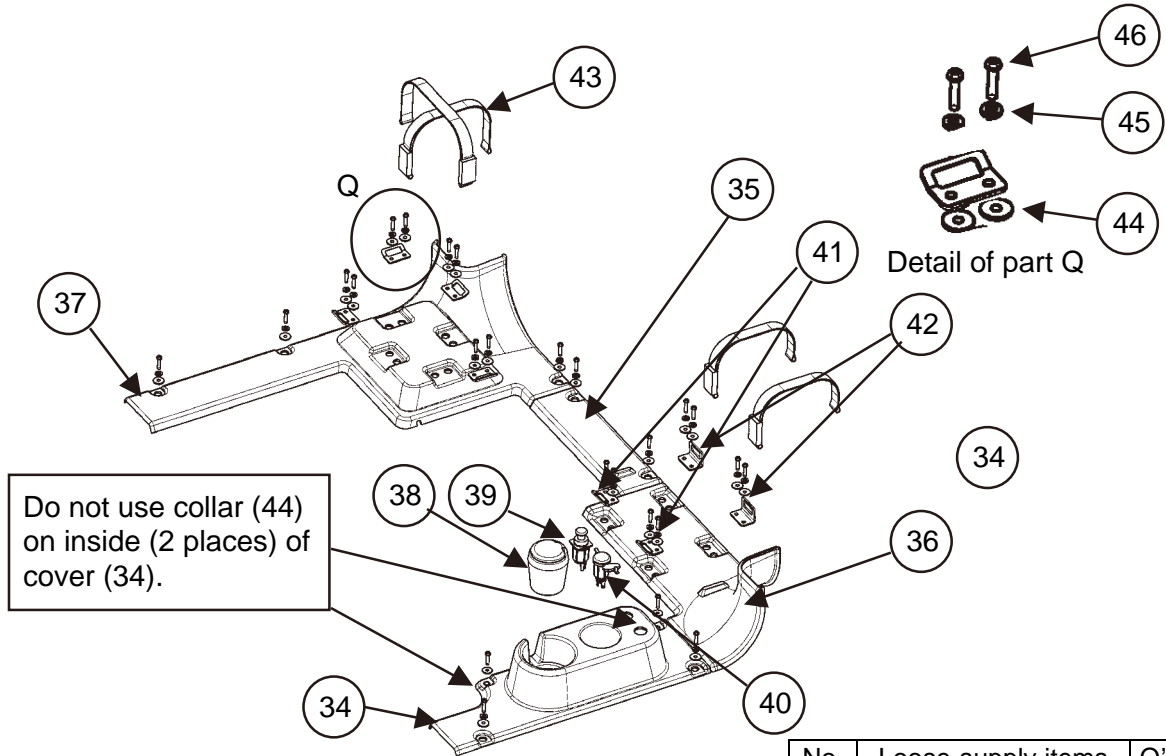


Fig. 14 Installation of floor garnish

- (1) Fix rear cover (35) with collars (44) (2 pieces), washers (46) (2 pieces), and bolts (45) (2 pieces).
- (2) Install cigarette lighter (39) and 12V outlet (40) to left Connect connector (CN-CIG) to cigarette lighter (39) and connect connector (CN-ACC) to 12V outlet (40).
Connect ACC1 to the + side of the 12V outlet and connect ACC2 to the - side.
- (3) Install the cover as shown in Fig. 13.

No.	Loose-supply items	Q'ty
34	17A-979-2751	1
35	17A-979-2781	1
36	17A-979-2761	1
37	17A-979-2771	1
38	20Y-43-41491	1
39	20Y-06-23472	1
40	198-Z11-6890	1
41	17A-979-1650	6
42	17A-979-1660	2
43	198-911-7350	4
44	12Y-978-2660	23
45	01643-70623	25
46	01245-00625	25

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

Assembly process No.	Installation of KOMTRAX parts (1/6)
S-2	

Preparation for installing KOMTRAX parts (Carry out before S-1 Installation of operator's cab)

(1) Installation of modem

- Fix modem (1) to the right side of the floor with bolts (2) as shown in Fig. 1.

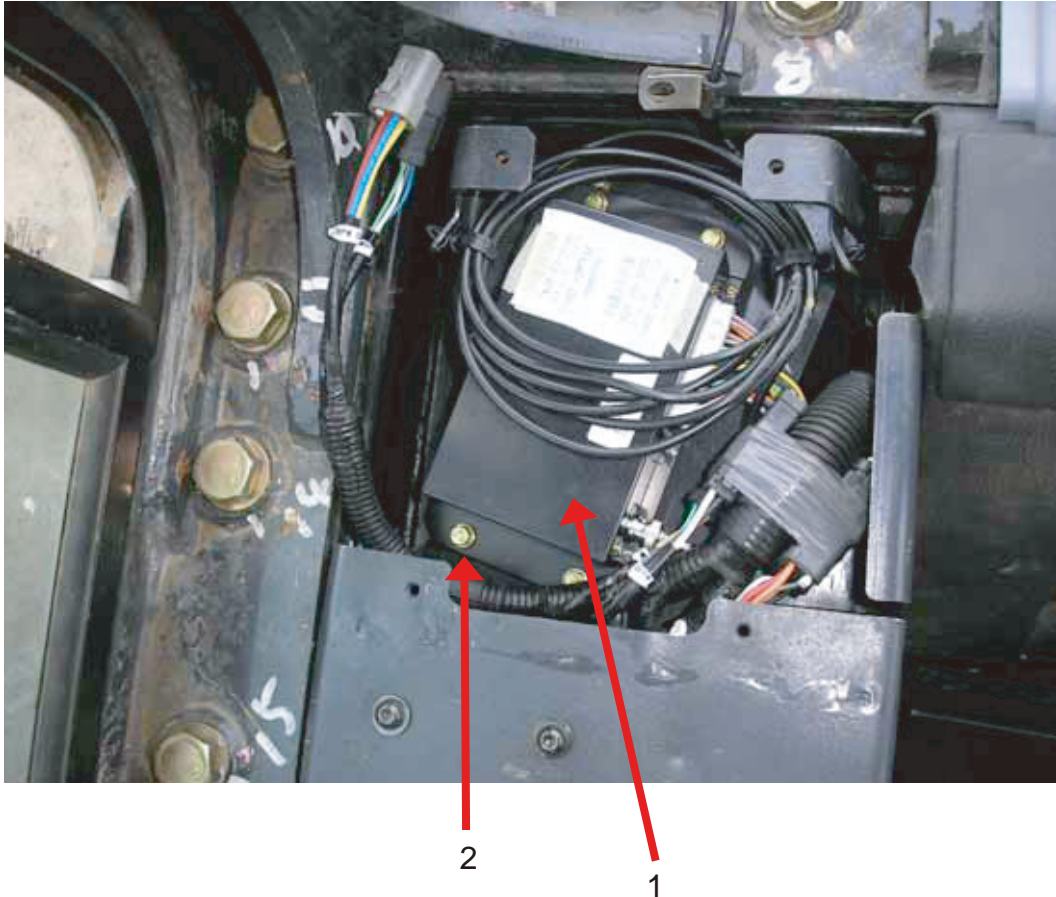


Fig. 1 Installation of modem

No.	Loose-supply items	Q'ty
1	7826-23-3001	1
2	01435-00614	4

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

Assembly process No.

S-2

Installation of KOMTRAX parts (2/6)

Preparation for installing KOMTRAX parts (Carry out before A-6 Installation of operator's cab)

(2) Removal of interior parts from ceiling

- Remove B-pillar covers (D) (right and left).
- Remove mirror (A) and room lamp (C).
- Remove switch panel (F).
- Remove radio (G).
- Remove speaker (H).
- Remove C-pillar garnish (I) (right and left).
- Remove the A-pillar cover (right and left).
- Remove the A-clip and ceiling interior parts (B) and (E).

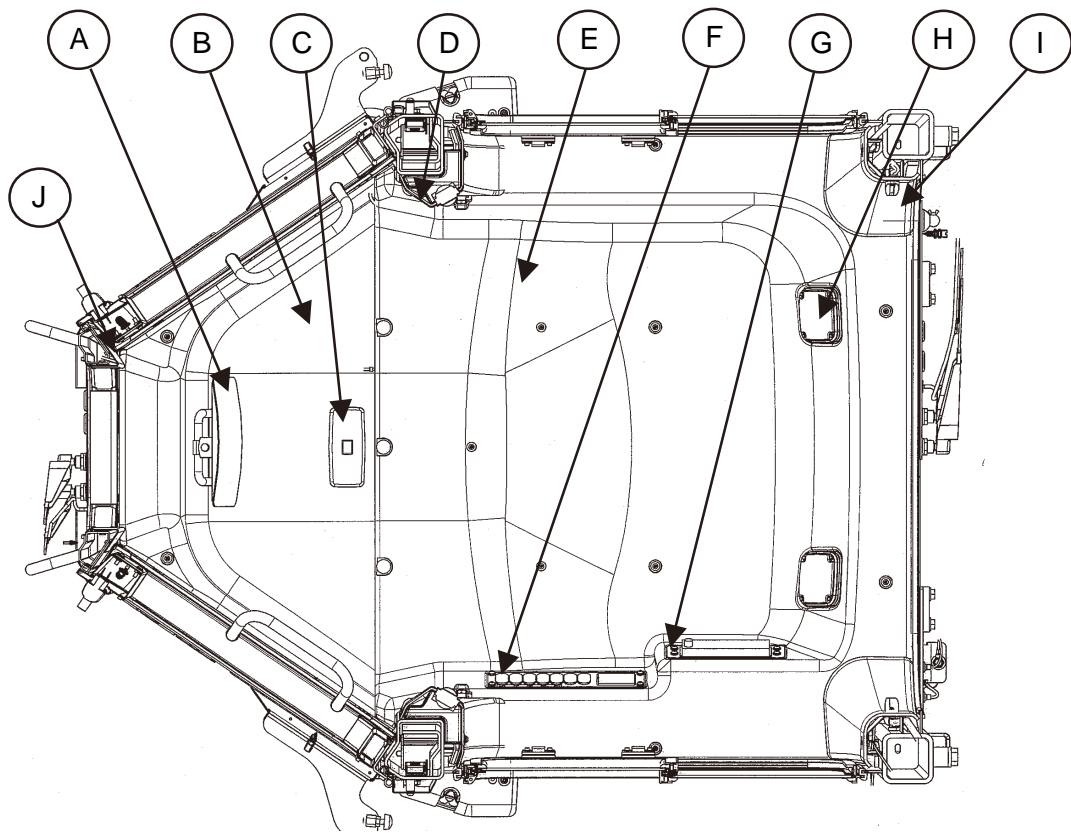


Fig. 2 Removal of interior parts

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

Installation of KOMTRAX parts (3/6)

(3) Installation of antenna

Referring to Fig. 3, remove the cap. (Discard the removed cap.)

- Referring to the detailed view in Fig. 3, remove the paint in the hatched area.

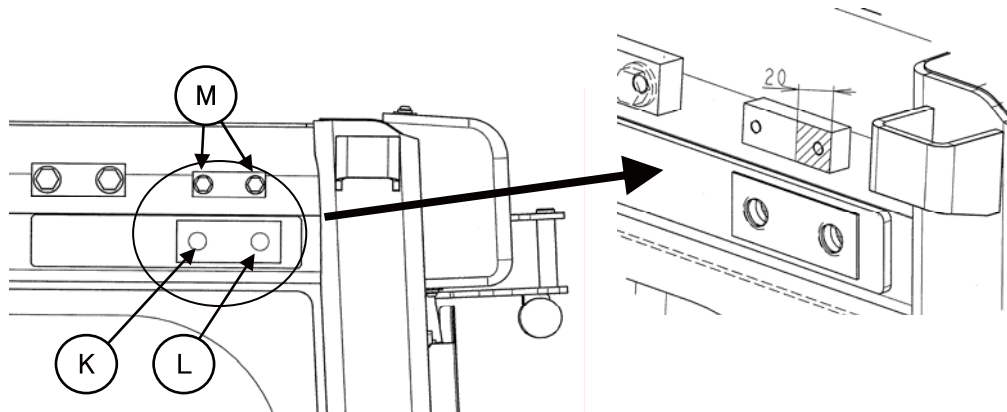


Fig. 3 Removal of cap

- Pass wiring harness (5) through hole (K) and pass GPS wiring harness (6) through hole (L). Install grommet (10) to bracket (9).
- Referring to Fig. 4, install antenna (4) to bracket (9). Install GPS (6) to the top of bracket (9).
- Fix bracket (9) to (M) with bolt and washer (8).
- Connect wiring harness (5) to antenna (4).

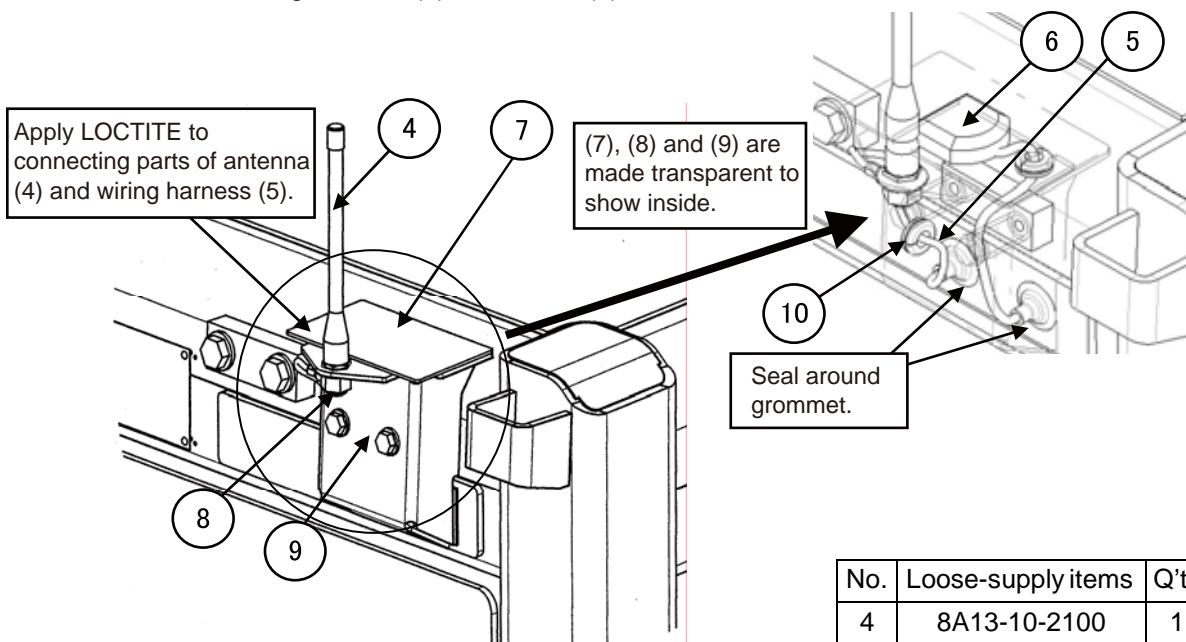


Fig. 4 Installation of antenna

No.	Loose-supply items	Q'ty
4	8A13-10-2100	1
5	8A13-10-2200	1
6	8A13-10-4300	1
7	17A-979-3970	1
8	01024-D0850	2
9	17A-979-3960	1
10	175-06-81610	2

Assembly process No.

S-2

Installation of KOMTRAX parts (4/6)

- Install the antenna to the ceiling as shown in Fig. 5.

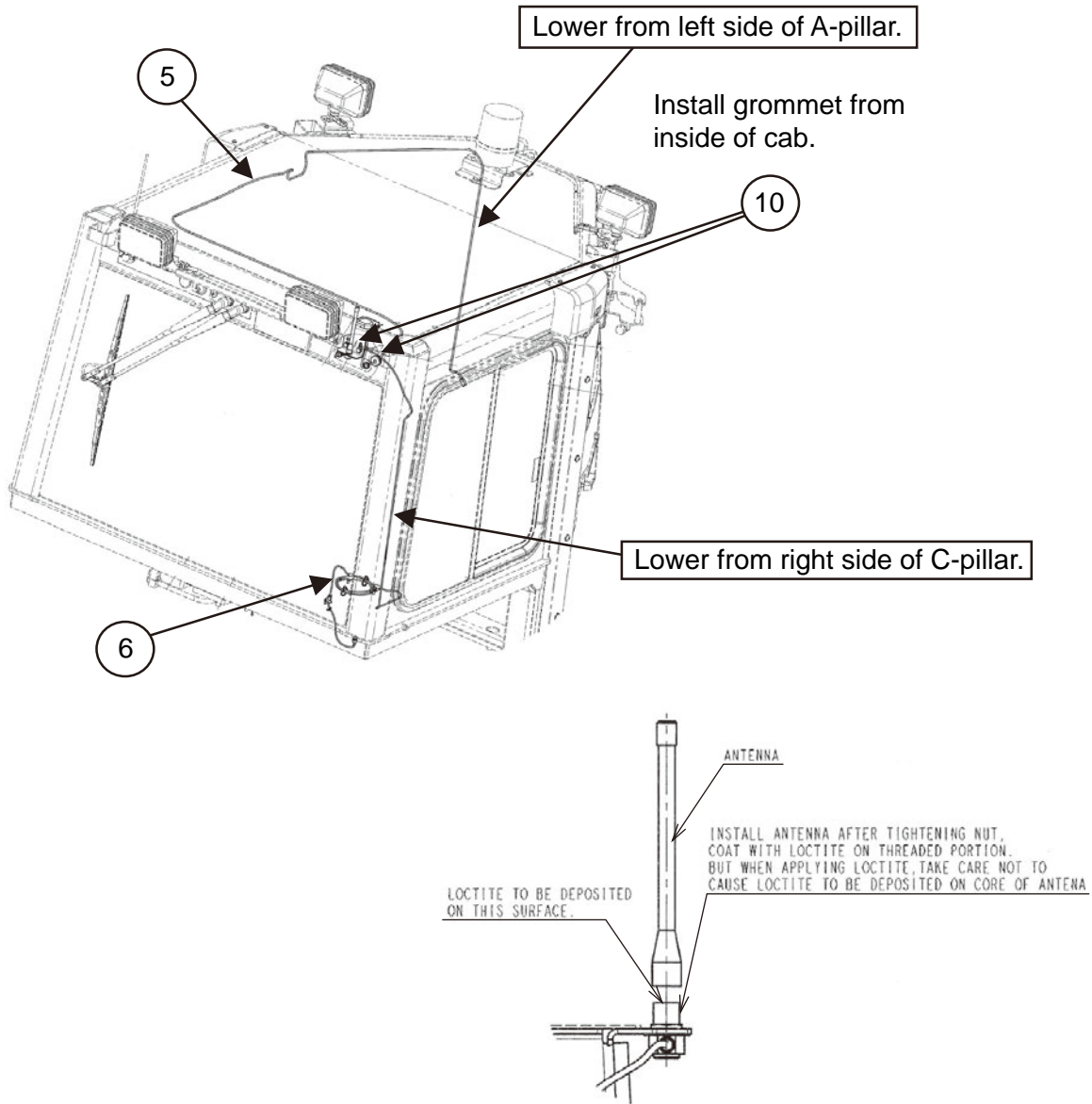


Fig. 5 Route of wiring harness

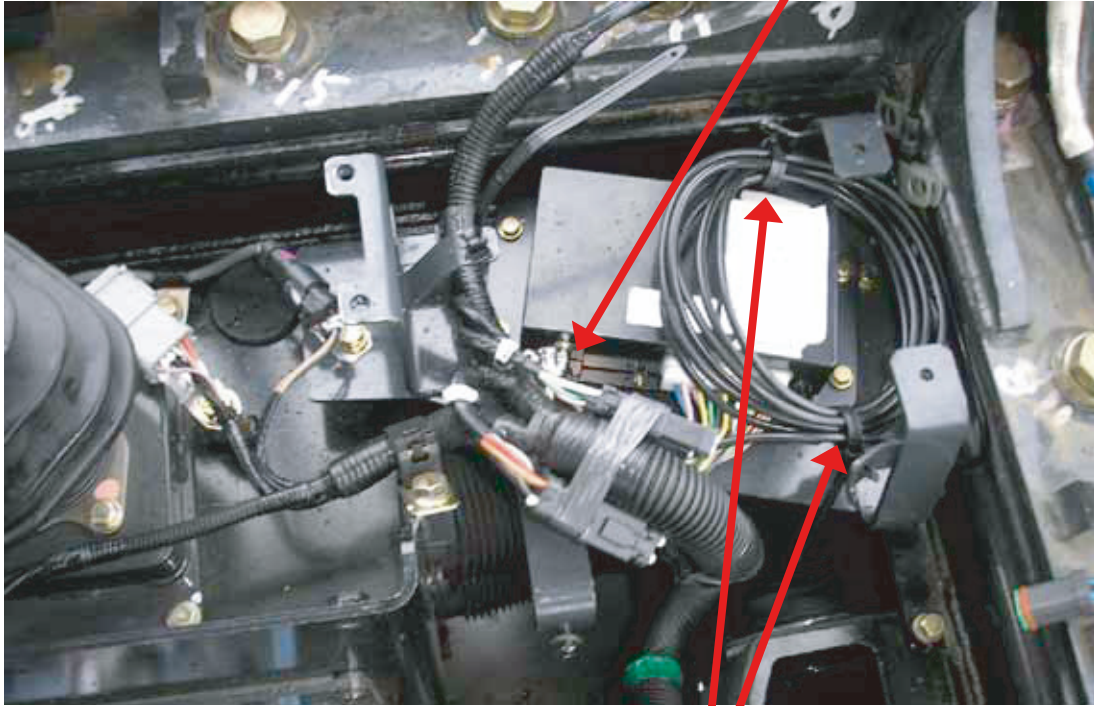
No.	Loose-supply items	Q'ty
10	175-06-81610	2

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

Assembly process No.	Installation of KOMTRAX parts (5/6)
S-2	

- Install the wiring harness to the modem as shown in Fig. 6.

Connect to modem (1).



11

Fig. 6 Route of wiring harness (Right rear of floor)

No.	Loose-supply items	Q'ty
11	20Y-06-21460	2

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

Assembly process No.

S-2

Installation of KOMTRAX parts (6/6)

- Remove cover (N) and connect connector (P) and wiring harness (5) in it.
- Install the cover (N) again.
- Install the covers removed in step (2) in the reverse order to removal.

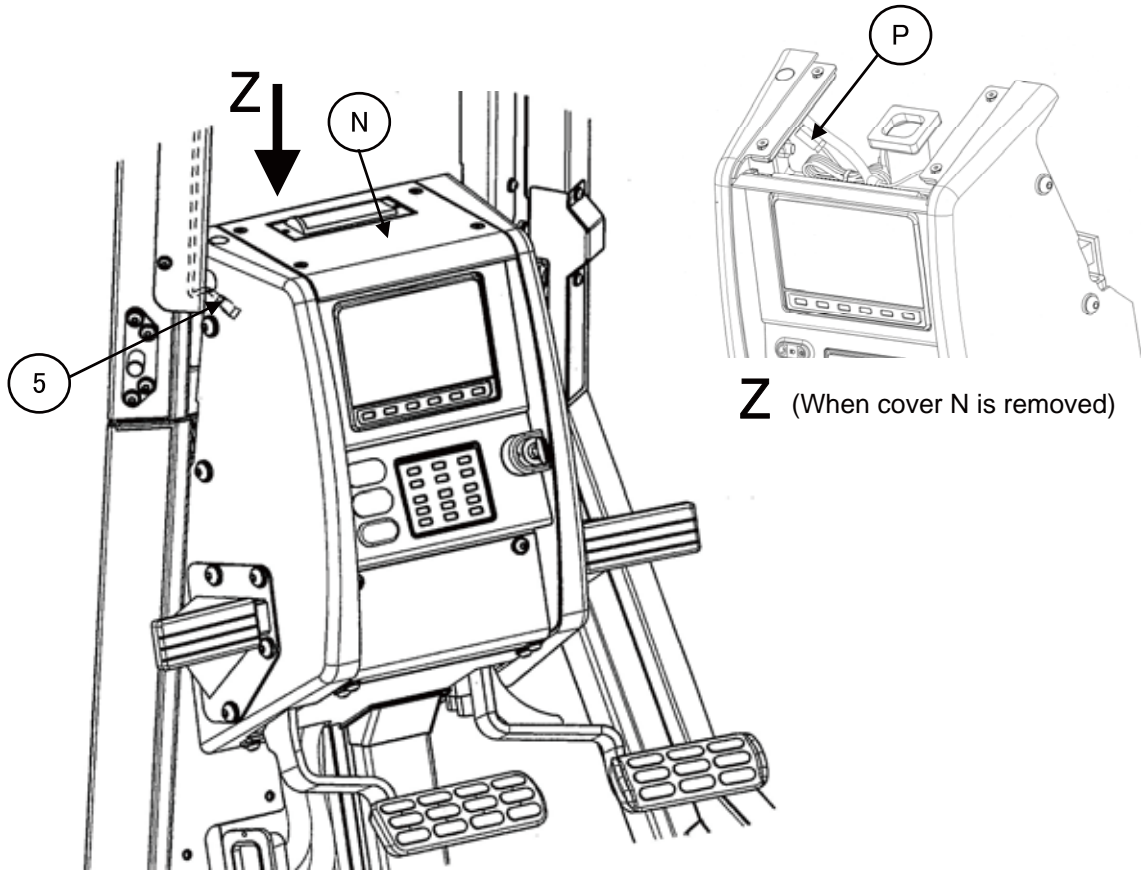


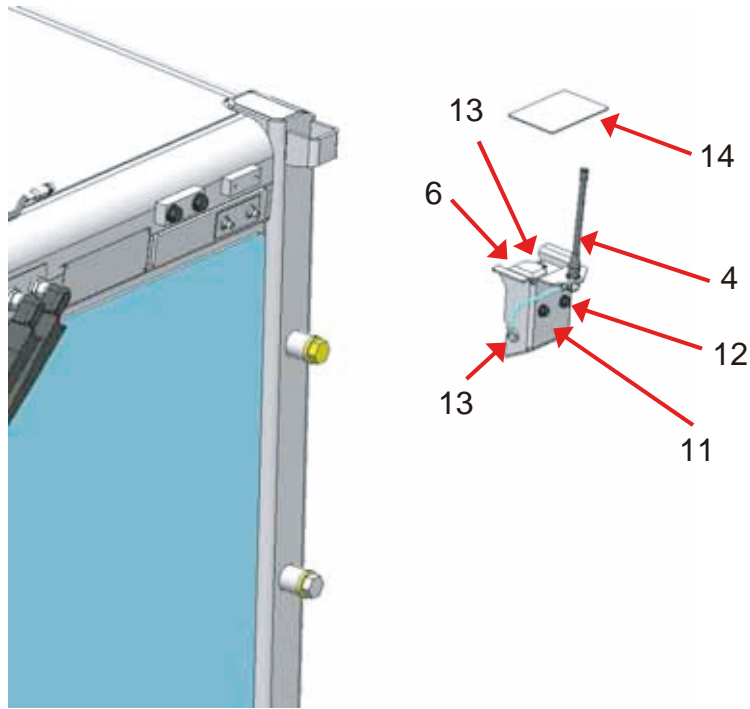
Fig. 7 Route of wiring harness (Dashboard)

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

Assembly process No.	Installation of KOMTRAX antenna
S-3	

1. Install communication antenna (4).
2. Install GPS antenna (6) to the right rear of the cab.

- ★ The GPS antenna is a magnet.
- ★ Stick cover (14) with both-sided adhesive tapes.



No.	Loose-supply items	Q'ty
11	17A-979-3960	1
12	01024-D0850	2
13	175-06-81610	2
14	17A-979-3970	1

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

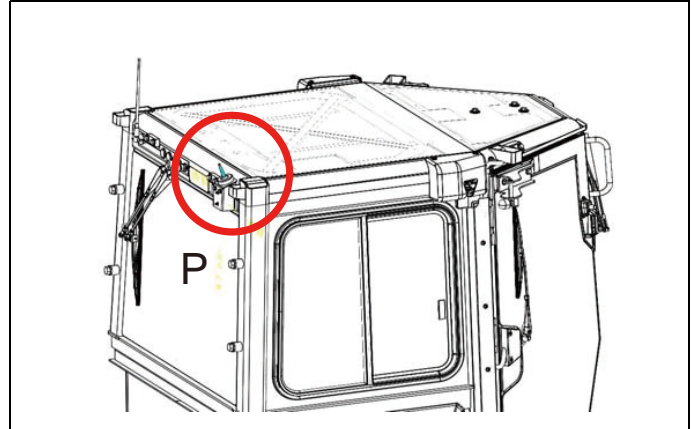
Assembly process No.

S-3

Installation of KOMTRAX antenna (GPRS specification)

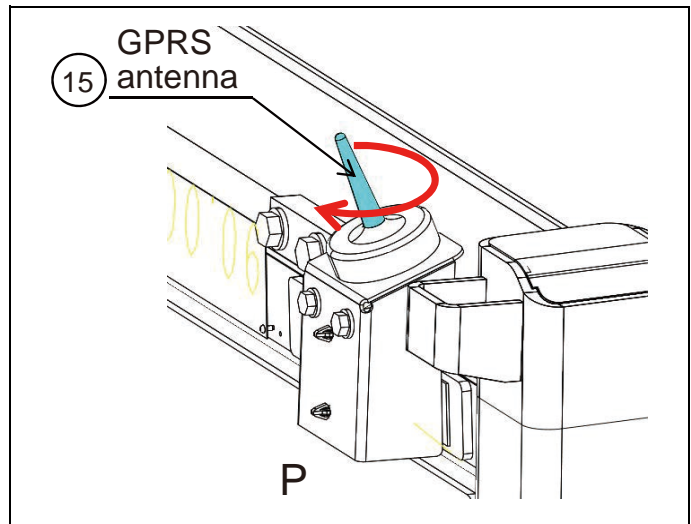
For GPRS specification

1. Install the GPRS antenna (15).



Install the antenna by rotating it with your hand as shown in the figure below.

Part No. of antenna: 8A13-10-3120
 <Reference>
 Tightening torque:
 1 to 2 Nm (0.1 to 0.2 kgm)

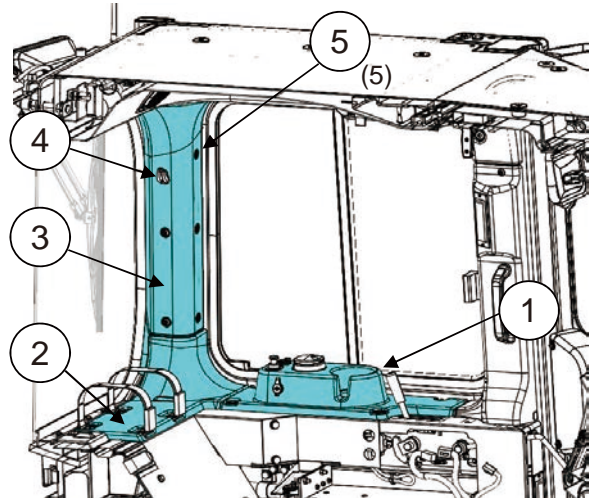


No.	Loose-supply items	Q'ty
15	8A13-10-3120	1

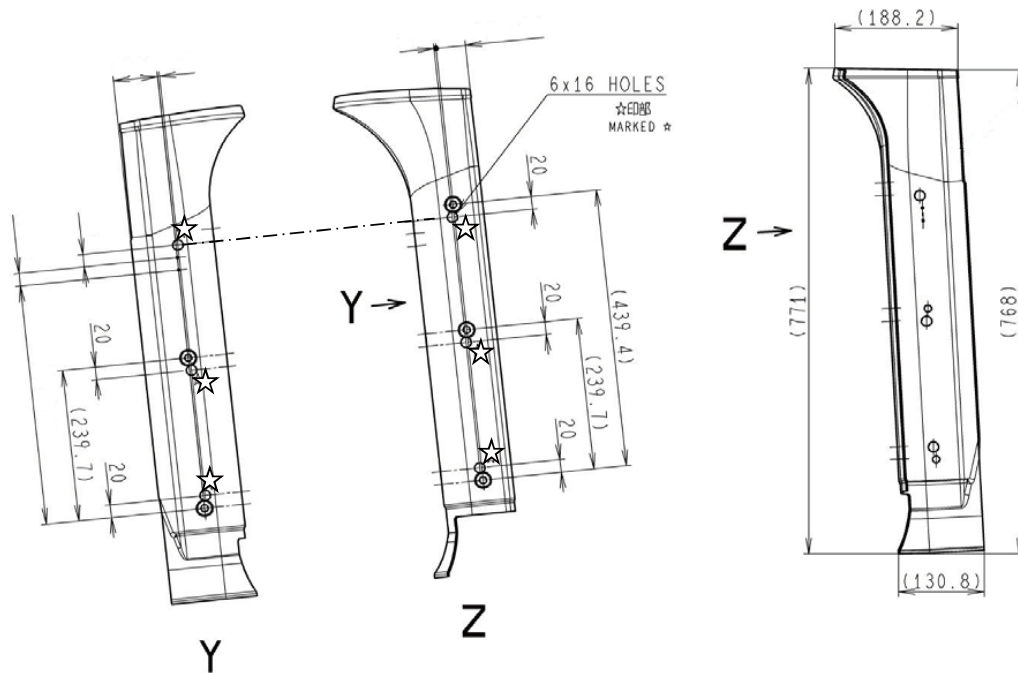
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Other remarks				

Assembly process No.	Installation of fire extinguisher (1/2)
S-4	

1. Remove covers (1) and (2).
2. Remove cover (3).
 - ★ Do not reuse coat hook (4) and clips (5).



3. Make holes on cover (3) as shown in the figure below. (6 places)
(Make the holes by using a screwdriver or a knife)



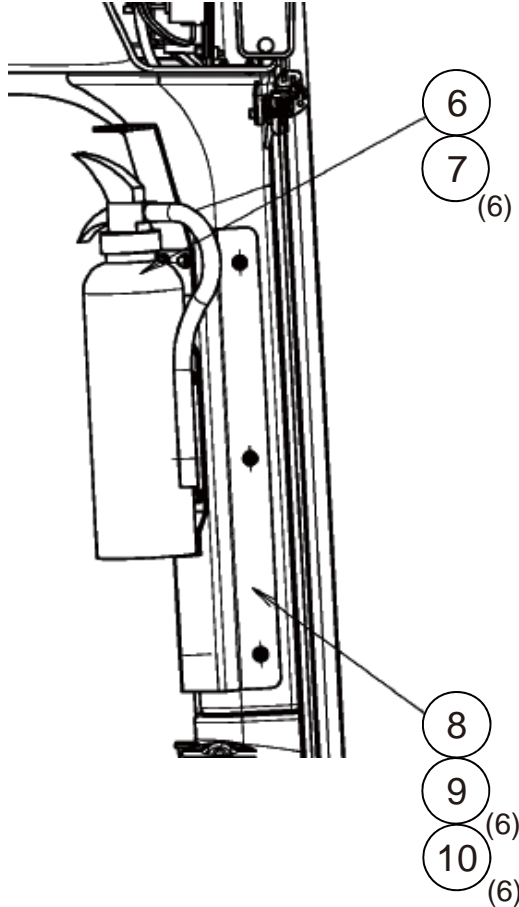
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Other remarks				

Assembly process No.

S-4

Installation of fire extinguisher (2/2)

4. Install covers (1), (2), and (3) as they were.
 - ★ Do not install coat hook (4) and clips (5) (5 places).
5. Install fire extinguisher (6) as shown in the figure below.



No.	Loose-supply items	Q'ty
English	6 09495-40010	1
Chinese	6 09495-90010	1
Arabic	6 09495-11010	1
Indonesian	6 09495-31010	1
French	6 09495-50010	1
Persian	6 09495-12010	1
Portuguese	6 09495-80010	1
	7 01024-D0620	6
	8 17A-979-1770	1
	9 01245-00625	6
	10 01643-70823	6

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.	Testing and adjusting operator's cab (1/10)
M-1	

1. Adjusting door duct

- Loosen the duct mounting bolts and fix the duct to the rear end temporarily.
- Close the door.
 - ★ Do not leave the door half-open but close it securely.
- Loosen the mounting bolts and adjust the distance between the seal fitting surface of the duct and the seal contacting surface of the door to 14 mm.
 - ★ Adjust the clearance evenly at the top and bottom.

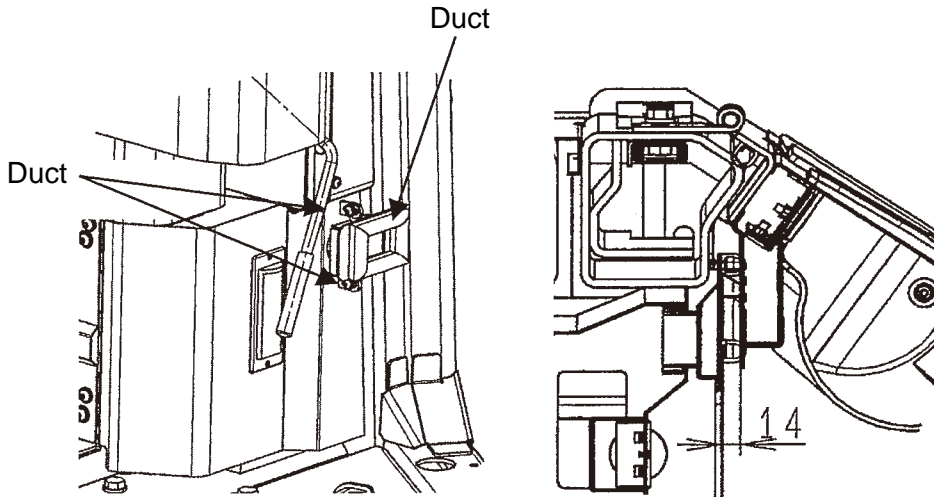


Fig. 1 Door duct

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

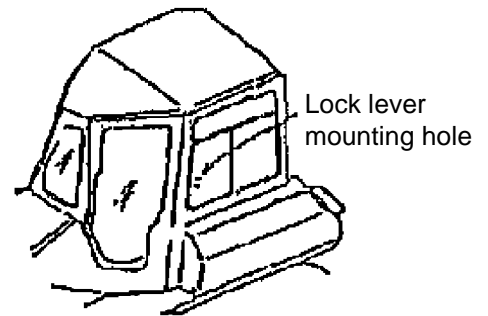
Assembly process No.

M-1

Testing and adjusting operator's cab (2/10)

2. Testing painting

- (1) Check that the paint of the removed and installed bolt heads is not flaked off.
- (2) Check that the painted surfaces are not shifted at the sealed part between the floor frame and tank and the joints of the covers and chassis.
- ★ If the appearance is bad, apply the paint again.



3. Pressurizing test

- (1) Measure the internal pressure of the cab.
 - ★ Criterion: Measured value ≥ 8 mmAq
 - ★ Testing condition: Run engine at full throttle.
 - ★ Fan motor speed: Fan 100 % speed mode
 - ★ Blower speed: High
 - ★ Fresh/Recirculation mode: Fresh air IN mode

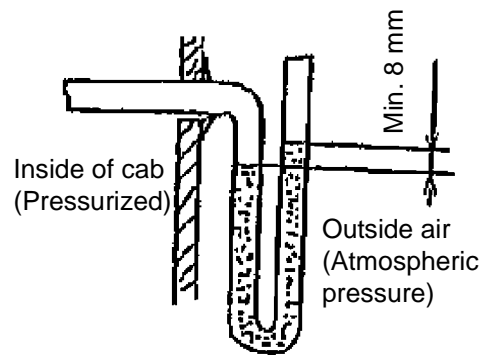


Fig. 2

- (2) A simple method of measuring the internal pressure is as follows.
 - a) Prepare a transparent vinyl hose. (Outside diameter: 10 mm, Length: 3,000 mm)
 - b) Pour water in the hose up to about half.
 - c) Remove the lock lever of the slide glass on the side of the cab and put either end of the vinyl hose in the cab and secure it to the top of the back seat with a tape.
 - d) Seal the hole of the lock lever with a tape.
 - e) Set the water level in the vinyl hose out of the cab to that in the cab.
 - f) Run the engine at full throttle with fan 100 % speed and measure the water level difference.

For the fan 100 % speed operation, see the Shop Manual.

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

Assembly process No.	Testing and adjusting operator's cab (3/10)
M-1	

4. Shower test

- (1) Close all the openings of the cab.
 - (2) Supply water at the rate of 5 gal/min (about 19 liters/min) through a hose.
 - (3) Pour water around the hatched parts in the following figure.
Do not apply pressure at this time.
 - (4) Pour water to the sealed surface horizontally as shown in section A-A.
 - (5) In particular, check around the dashboard carefully.
- ★ If water leaks, caulk the leaking part and test it again.

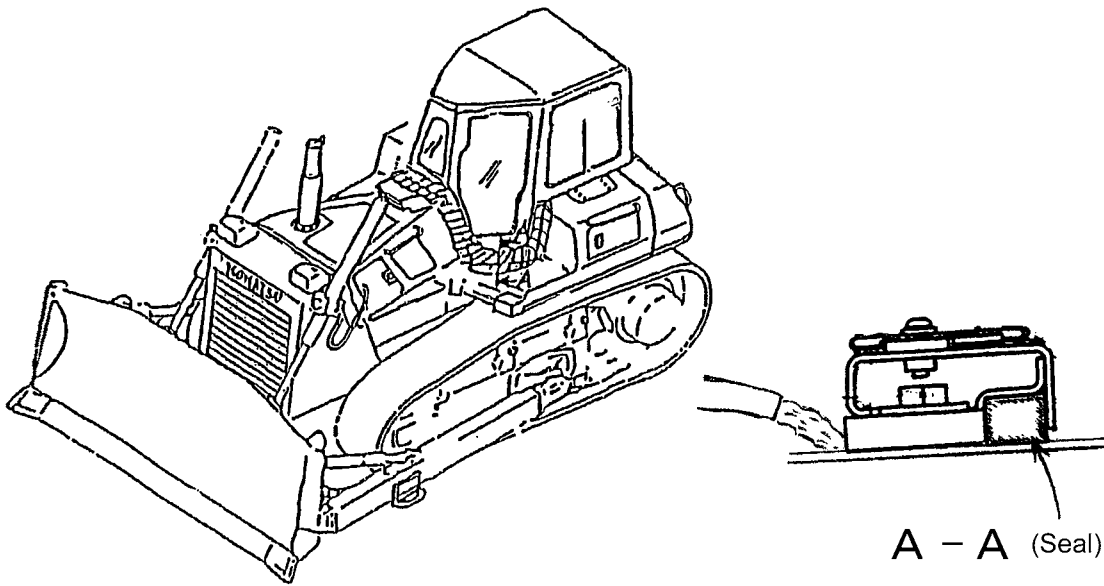


Fig. 3

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

Assembly process No.

M-1

Testing and adjusting operator's cab (4/10)

5. Testing door lock

Close the door and check the relationship between the operator's cab and door. If there is any fault, repair it.

5-1. Check of condition

- (1) Check the installed height of the damper rubber. (Check both sides, 2 pieces on each.)
 Stick an adhesive tape to the contact face of the damper rubber and open and close the door 2 – 3 times. Then, check the contact face of the adhesive tape against the operator's cab.
 Normal: When the door is closed, the damper rubber comes in contact lightly.
 Abnormal: When the door is closed, the damper rubber does not come in contact or comes in contact so strongly that the adhesive tape is removed.

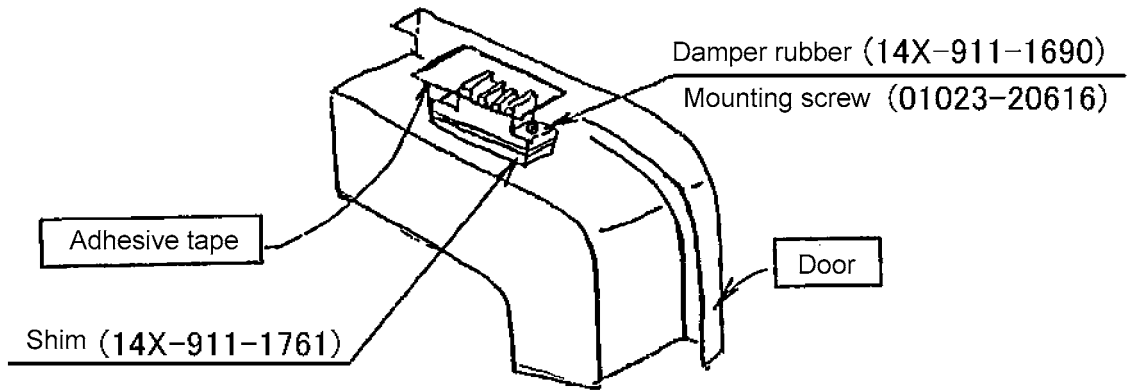


Fig. 4

- (2) Check the relationship between the door latch and striker (on both sides).
 Close the door and check the engaging condition of the latch and striker.

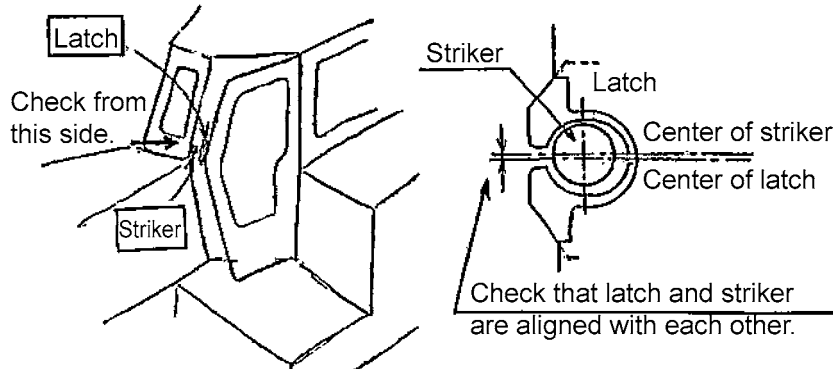


Fig. 5

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

Assembly process No.	Testing and adjusting operator's cab (5/10)
M-1	

5-2.Adjusting

(1) Adjusting height of damper rubber

Increase or decrease of the shims under the damper rubber to adjust the height of the damper rubber properly.

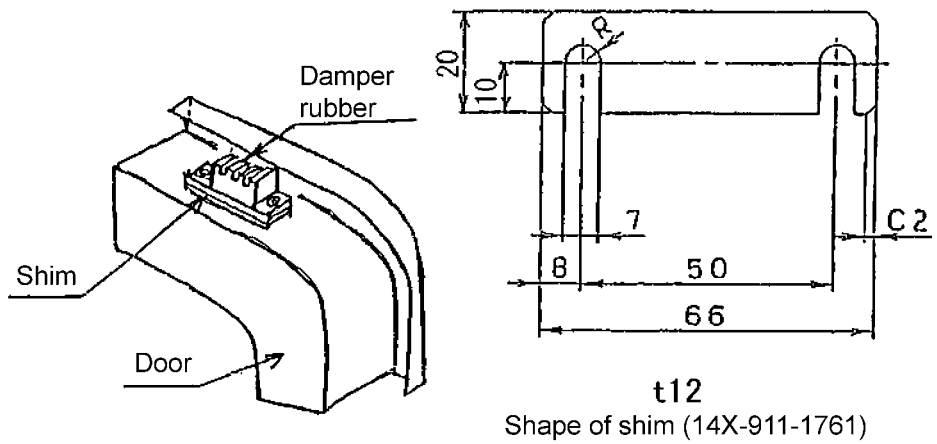


Fig. 6

(2) Adjusting latch and striker

- a) Tighten the mounting bolt of the striker temporarily and open and close the door 2 – 3 times to align the latch and striker with each other.
- b) Check the engaging condition of the latch and striker.
- c) Tighten the mounting bolt of the striker permanently.
- d) Open and close the door and check that it is locked and unlocked smoothly. If the door is not locked and unlocked smoothly (If the knob is heavy), perform the adjustment procedure from the first.
 - ★ Operating effort of knob: $49 \pm 19.6 \text{ N}$ { $5 \pm 2 \text{ kg}$ }

(3) Apply grease (G2-LI) to the latch.

Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
If the latch is not grease, the knob becomes heavy. Accordingly, apply grease sufficiently.				
Other remarks				

Assembly process No.	Testing and adjusting operator's cab (6/10)
M-1	

6. Testing open lock

Lock the door open and check the relationship between the operator's cab and door. If there is any fault, repair it.

6-1. Check of condition

- (1) Check the relationship between the open lock latch and striker. (Both sides).
Open the door and check the engaging condition of the latch and striker.

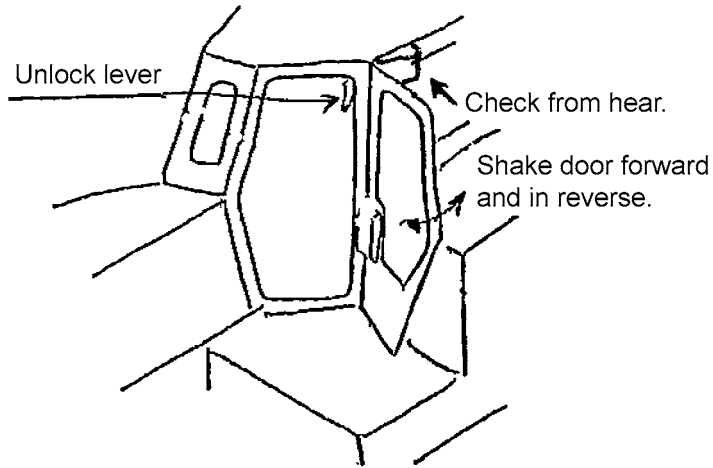


Fig. 7

- (2) Check the installed height of the stopper rubber. (Check both sides, 2 pieces on each.)
 - a) Lock the door open and move it in the forward and reverse directions to see if it has any play.
 - b) Check tha the operating effort of the unlock lever is not heavy.

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

Assembly process No.

M-1

Testing and adjusting operator's cab (7/10)

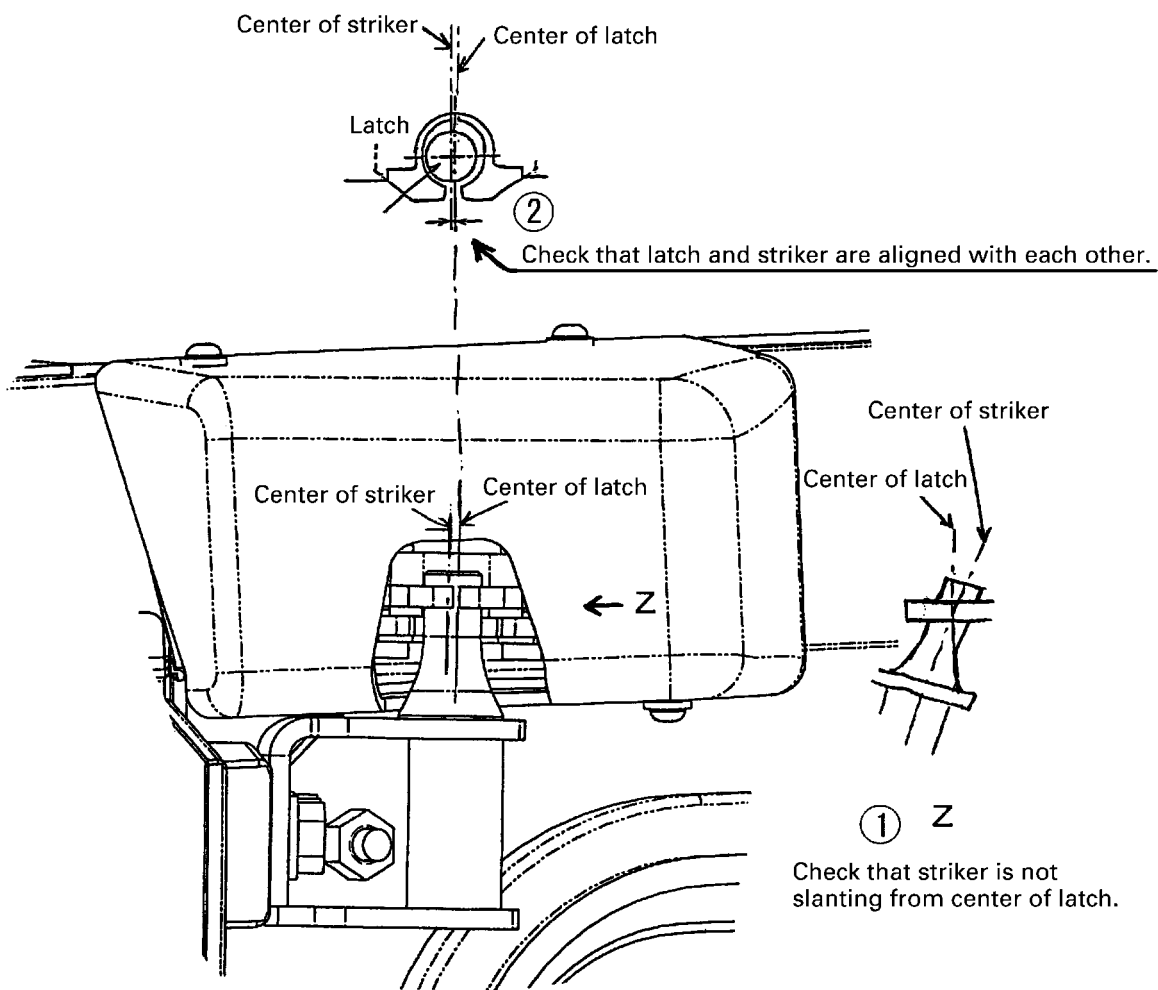


Fig. 8

Precautions

Necessary tools

Necessary equipment

Name

Q'ty

Name

Q'ty

Other remarks

Assembly process No.

M-1

Testing and adjusting operator's cab (8/10)

6-2. Adjusting

(1) Adjusting latch and striker

- a) If the striker is slanting from the center of the latch, loosen the striker mounting bolt, align the striker with the latch, and then tighten the striker mounting bolt.

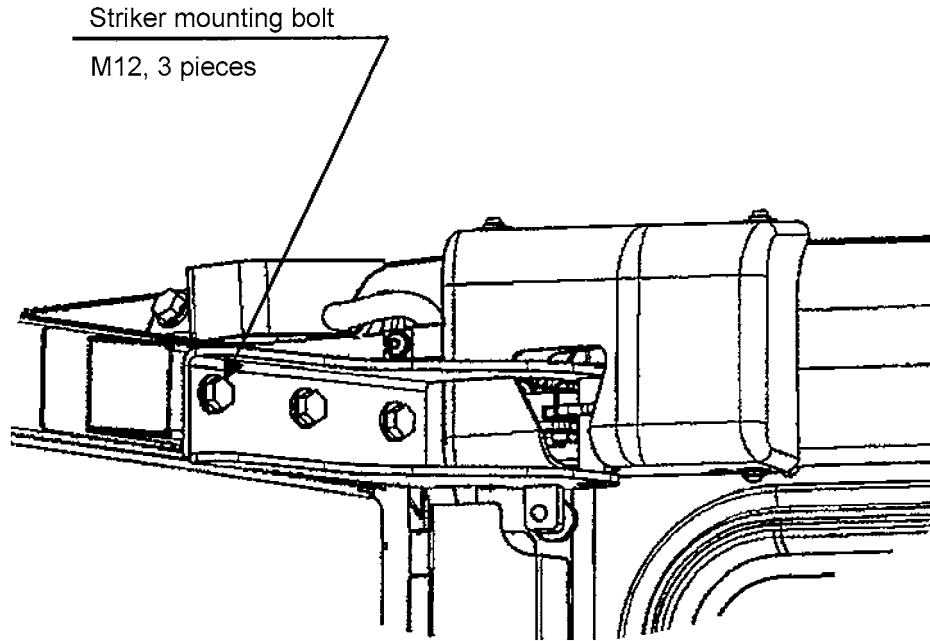


Fig. 9

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

Testing and adjusting operator's cab (9/10)

- (2) Adjusting installed height of stopper rubber (2 places, upper and lower) Fig. 9, Fig. 10
- a) Loosen the locknut of the stopper rubber.
 - b) If there is any play, project the stopper rubber until the play is eliminated.
If the door is not locked easily or the unlock lever is heavy, return the stopper rubber in the range that the door does not have any play.
 - c) Tighten the locknut.

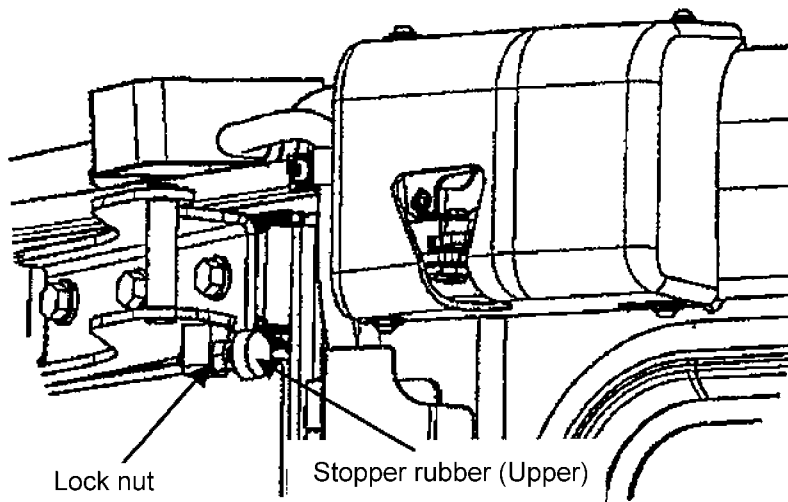


Fig. 10

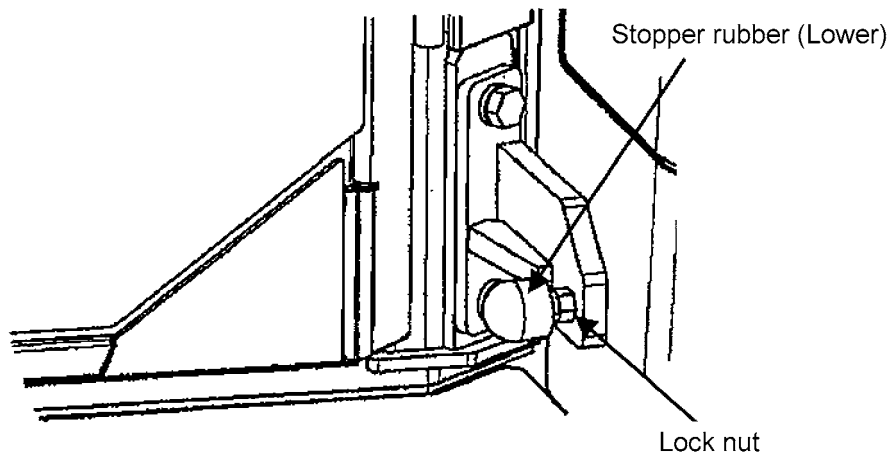


Fig. 11

Assembly process No.

M-1

Testing and adjusting operator's cab (10/10)

7. Check of clearance between hood and cab

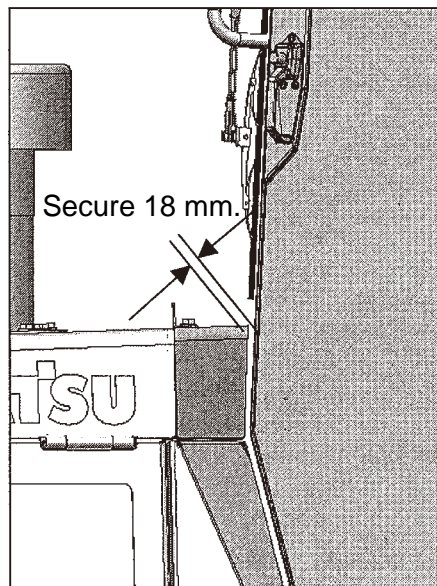
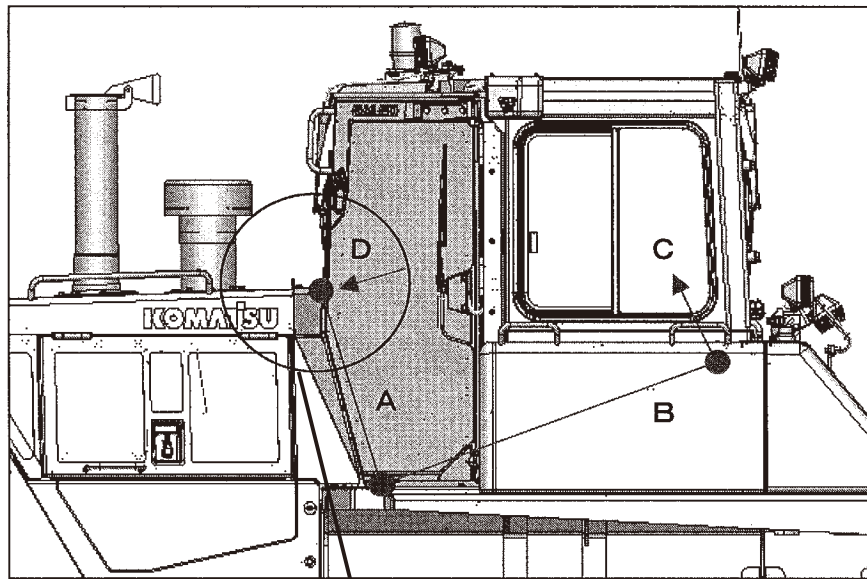
A: Distance between front leg and clearance to be checked: 961 mm

B: Distance between front and rear mounts: 1,560 mm

C: Max. stroke of cab mount: 7 mm (When riding over) (On drawing: 13 mm)

Max. rocking distance of cab $D = A / B \times C = 4.3 \text{ mm}$

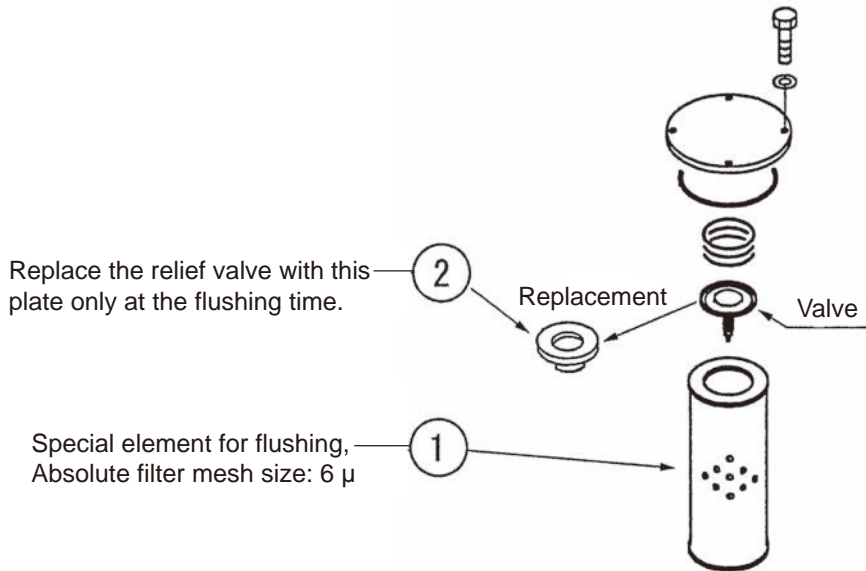
If the standard clearance is 18 mm, a clearance of at least 13.7 mm (18 mm – 4.3 mm) is secured.



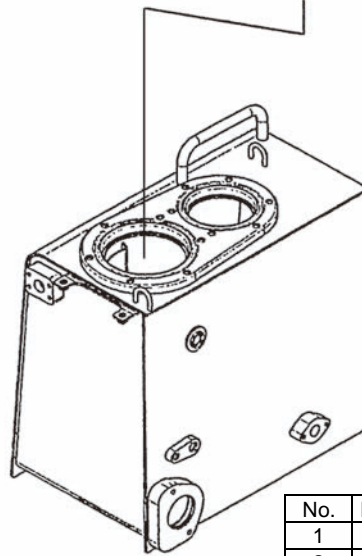
Assembly process No.	Replacement of return filter (Standard filter to flushing filter) (1/2)
M-2	

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 flats	1		
	Small size impact wrench	1		
Other remarks				

Assembly process No.

M-2

Replacement of return filter (Standard filter to flushing filter) (2/2)

2. State of inserted element

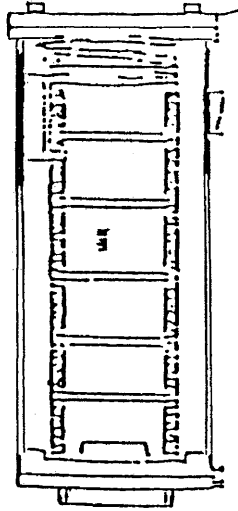


Fig. 1 Correct state

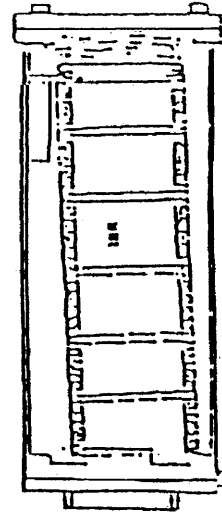


Fig. 2 Incorrect state

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
Other remarks				

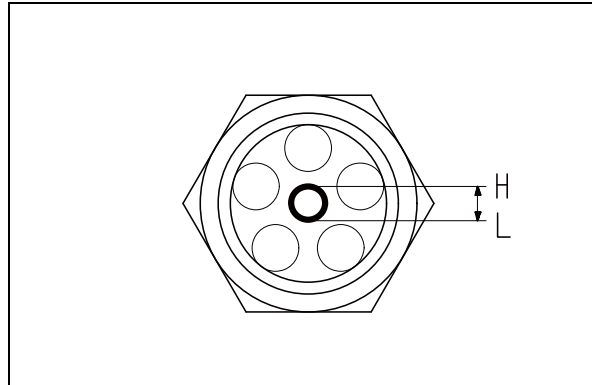
Assembly process No.	Flushing of hydraulic circuit, and bleeding air from hydraulic cylinders (Part 1)
M-3	

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

- ★ When performing the assembly process No. M-2 to M-5, the assembly process No. A-10 "Bleeding air from hydraulic cylinders" can be neglected. However, the air bleeding mentioned in assembly process No. A-5 "Installation of blade" and A-6 "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.

M-4

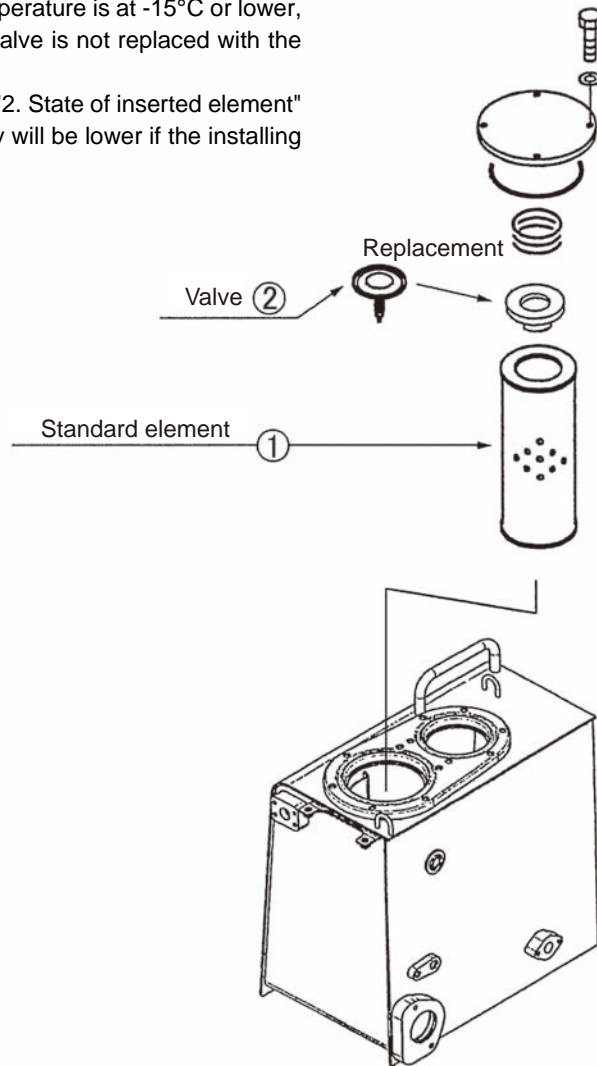
Replacement of return filter (Flushing filter to standard filter) (1/2)

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	
	Name	Q'ty	Name	Q'ty
<ul style="list-style-type: none"> 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. 				
Other remarks				

Assembly process No.	Replacement of return filter (Flushing filter to standard filter) (2/2)
M-4	

2. State of inserted element

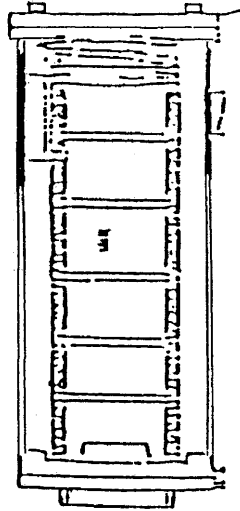


Fig. 1 Correct state

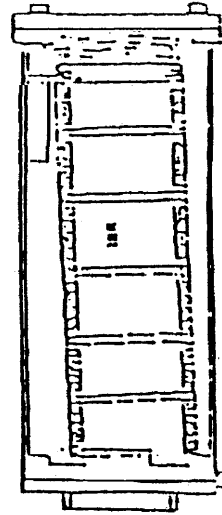


Fig. 2 Incorrect state

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.

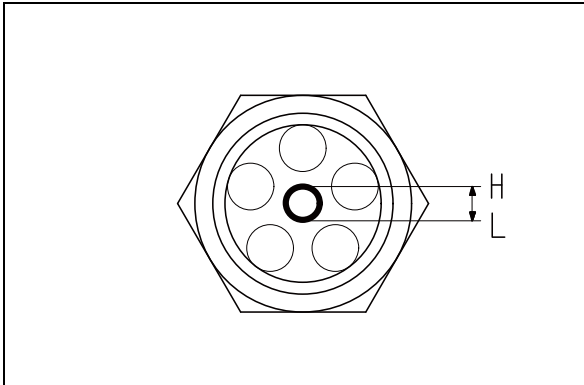
Precautions	Necessary tools		Necessary equipment	
	Name	Q'ty	Name	Q'ty
Other remarks				

Assembly process No.

M-5

Bleeding air from hydraulic cylinders (Part 2)

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.

Field assembly inspection report

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

Model-Type D155A-6	Machine Serial No.	User Unit No.	Engine Model SAA6D140E-5	Engine Serial No.
Service Meter Reading	Date of Inspection		Specification	
Location of Machine at Inspection	Blade	Semi U.	SIGMA	(Dual Single)
	Ripper or counterweight	VGR.	VMR.	CW ()
Distributor's Name	Shoe width	560 mm (22")	610 mm (24")	660 mm (26") 710 mm (28")
	Others			

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

Inspector's Comments:

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

Check sheets filling instructions:

1. Use following indexes for entry of judgement

..... Normal

..... Abnormal

..... Correction made on abnormal point

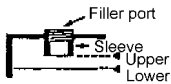


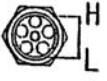
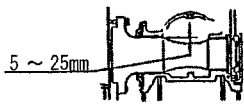
..... Not applied

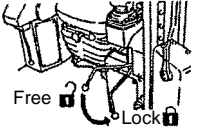
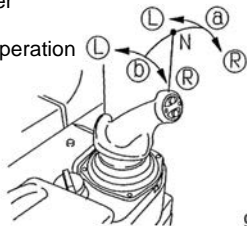
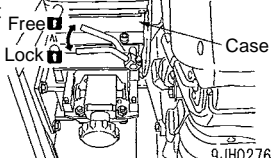
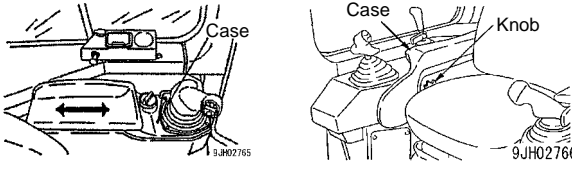
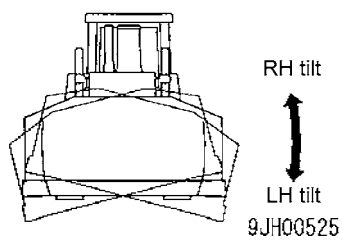
2. Enter actually measured values in parentheses, [].

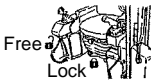
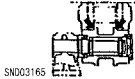
Notes:

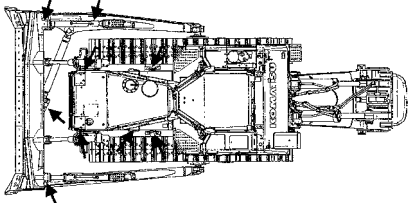
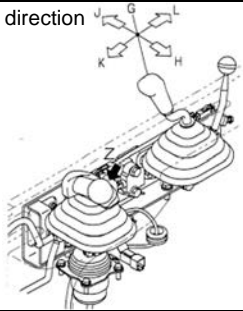
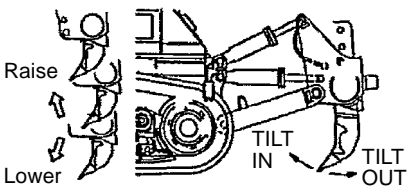
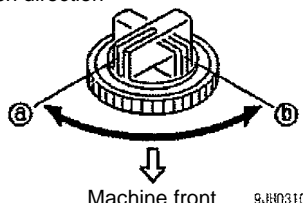
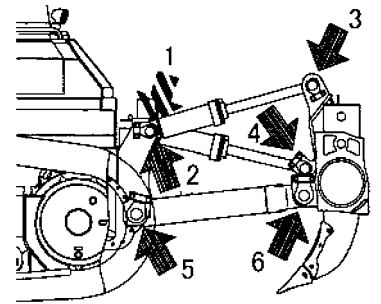
(1) Criteria are based on the standards when the machine is shipped out of the factory.

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.

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	Use the diagram below for reference, and check if the electrolyte reaches the bottom of the sleeve. 		<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>Correct leve</p>  </div> <div> <p>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.</p> </div> </div> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="margin-right: 20px;"> <p>Tool low</p>  </div> <div> <p>The electrolyte level is not up to the bottom of the sleeve, so the plate appears normal.</p> </div> </div>		
	Main radiator water level		Abnormal the bottom of strainer net		
	Reserve tank water level		Low to Full		
	Antifreeze% 65 58 50 41 30 °C -50 -40 -30 -20 -10	See operation manual		Must be contained.	
	Engine oil level	Refer to Operation & Maintenance Manual		(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  5 ~ 25mm	LH		H + 5 to H + 25 from shaft end	See operation manual.	
	RH				
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, than go off after 3 seconds. After that all gauge lamps must come on.		
	Charge lamp (Engine: Low idling)		Must not light up when all electrical equipment are turned on.		
	Lamp ON (Heated lamp, tail lamp and work lamp)		Must light up when turned on.		
	Main corrosion resistor cock.		Must be fully open.		
	Heater hose cock.		Must be fully open. (Fully open in summer)		
	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.		

Category	Inspection item	Inspection	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  9JH02753		When parking brake lever is in FREE position, engine must not start. Travel and gear shifting must be prohibited when locked.
	Operability of the travel lever <ul style="list-style-type: none"> • Gear shifting operation • Travel direction change operation • Steering operation (To each direction) Play when lever is in "N" position  9JH02733		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. <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Adjustment of steps • Check of lock lever of box (Upper and lower)  9JH02764  9JH02766		Must be adjustable. Must not move after locking.
	Check of the deceleration pedal operation <ul style="list-style-type: none"> • Set the fuel dial to high idle position. • Check the deceleration RPM 		Must work smoothly. Must be contained play at high idle. 850 – 900 rpm
	Check of the fuel dial operation		Must move smoothly.
Work equipment	Check of tilt direction  9JH00525		Blade must move left Blade must move right

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 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 OL	LH	RH	Must be none.
	• Leakage from U-packing, damaged rod, quick drop valve, tube, flange or dust seal			
Tilt cylinder OL	LH	RH	Must be none.	
• Leakage from U-packing, damaged rod, quick drop valve, tube, flange or dust seal				
Ground peripherals	Track tension adjustment	LH	20 – 30 mm	Place a thread or a bar over the 1st and 2nd carrier rollers and measure the distance between the thread or bar and grouser. (Difference between the right and left must not exceed 20 mm.)
	• 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.	RH	20 – 30 mm	
	Carrier roller alignment	LH		Flanges must be free from contact with links at all times. 
• 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.	RH			
Undercarriage OL	LH	RH	Must be none.	
Cabin	Beat noise inside the cabin, beat noise of the outer cover			Must be none.
	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			Must work smoothly to securely lock.
	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.

Category	Inspection item	Inspection	Criteria														
Lubrication	Portions to be lubricated <ul style="list-style-type: none"> • 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 • Brace screw 		Q'ty	Example: When U-blade is used													
			2														
			1														
			6														
			1														
			2														
Ripper	Check of ripper direction  <table border="1" data-bbox="694 593 893 728"> <tr><td>(H)</td><td>Raise ripper</td></tr> <tr><td>(J)</td><td>Lower ripper</td></tr> <tr><td>(K)</td><td>Tilt in</td></tr> <tr><td>(L)</td><td>Tilt out</td></tr> </table>	(H)	Raise ripper	(J)	Lower ripper	(K)	Tilt in	(L)	Tilt out								
	(H)	Raise ripper															
	(J)	Lower ripper															
	(K)	Tilt in															
	(L)	Tilt out															
	Ripper lift cylinder OL <ul style="list-style-type: none"> • U-packing, damaged rod, tube, flange, dust seal loosening <table border="1" data-bbox="837 896 893 963"> <tr><td>LH</td><td></td></tr> <tr><td>RH</td><td></td></tr> </table>	LH		RH			Must be none										
	LH																
	RH																
	Ripper tilt cylinder OL <ul style="list-style-type: none"> • U-packing, damaged rod, tube, flange, dust seal loosening <table border="1" data-bbox="837 996 893 1064"> <tr><td>LH</td><td></td></tr> <tr><td>RH</td><td></td></tr> </table>	LH		RH			Must be of no contact.										
	LH																
	RH																
Contact with the hose at ripper operation (Entire operation area must be checked)		Must be of no contact.															
Creak of the ripper link pin		Must be of no creak.															
Check of the pin puller switch direction (a): Pin out (b): Pin in  <p style="text-align: center;">Machine front 9.4H03103</p>		Must be the same as the pin puller cylinder operation direction.															
Check of the pin puller cylinder hose clamp position (Entire operation area must be checked)		Must be of no contact Must be of no excess hose tension.															
Pin puller cylinder OL <ul style="list-style-type: none"> • Leakage from U-packing, damaged rod, tube of flange 		Must be none															
Check of ripper lubricated hose installation <table border="1" data-bbox="837 1579 893 1646"> <tr><td>LH</td><td></td></tr> <tr><td>RH</td><td></td></tr> </table>	LH		RH			Must be of no contact or no excess bend.											
LH																	
RH																	
Portions to be lubricated <ul style="list-style-type: none"> • Ripper lift cylinder head (4) • Ripper lift cylinder bottom (2) • Ripper tilt cylinder head (3) • Ripper tilt cylinder bottom (1) • Ripper arm pin (front) (5) • Ripper arm pin (rear) (6) 		<table border="1"> <tr><td>Q'ty</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr><td>2</td><td></td></tr> <tr><td>2</td><td></td></tr> </table>	Q'ty		1		1		1		1		2		2		Must be lubricated (right and left) 
Q'ty																	
1																	
1																	
1																	
1																	
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 (P mode)	Low idling (low speed).		Power train oil temperature: 80 °C	rpm	740 ± 25
		High idling (at full throttle). Transmission: N			rpm	1575 ± 25
		Deceleration slow			rpm	875 ± 25
		Torque converter stall			rpm	1665 ± 50
		T/C stall + ripper relief			rpm	1630 ± 50

Hydraulic pressure

Category	Item	Condition		Unit	Standard	Result
Torque converter	Inlet pressure	Engine full, Transmission: N		Power train oil temperature: 80 °C	Mpa	Max. 0.98
					{kg/cm ² }	Max. 10
	Outlet pressure	Engine full, Transmission: N			Mpa	0.29 ± 0.69
Transmission	Main relief pressure	Engine full, Transmission: N		Power train oil temperature: 80 °C	Mpa	3.04 – 3.34
					{kg/cm ² }	31 – 34
	Brake pressure	Engine full, Transmission: N, Pedal released			Mpa	2.94 – 3.53
					{kg/cm ² }	30 – 34
		Engine full, Transmission: N, Pedal depressed			Mpa	0
					{kg/cm ² }	0
Clutch pressure	Engine full, Transmission: N		Mpa	2.35 – 2.55		
			{kg/cm ² }	24 – 26		
Oil pressure	PPC pressure	Engine full, Transmission: N		Power train oil temperature: 50 °C	Mpa	3.71 – 4.01
					{kg/cm ² }	37.9 – 40.9
	Work equipment pump relief pressure	Engine full, Ripper lift relief			Mpa	25.9 – 28.9
				{kg/cm ² }	265 – 295	

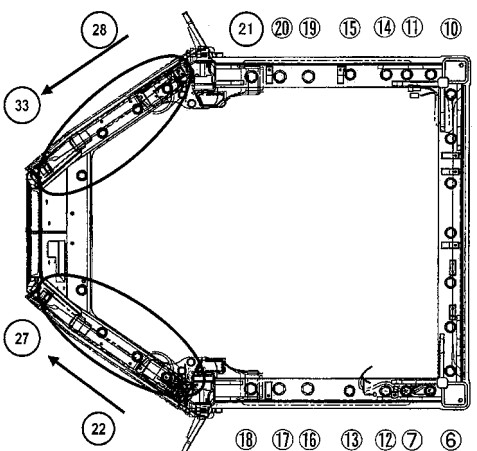
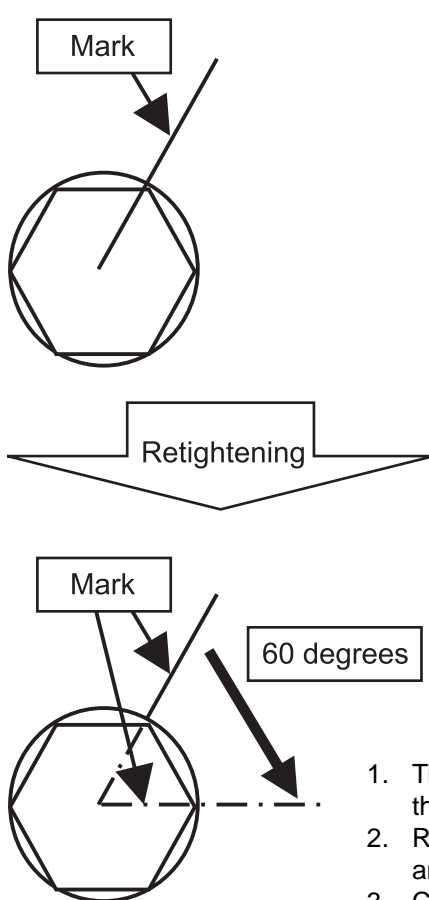
Work equipment speed

Category	Item	Condition		Unit	Standard	Result
	Blade lift	Raise	Engine full	Power train oil temperature: 50 °C	sec	2.5 – 3.5
		Lower	Engine full		sec	1.0 – 1.7
	Blade tilt	L.H. tilt	Engine full		sec	1.8 – 2.8
		R.H. tilt	Engine full		sec	1.8 – 2.8
	Ripper lift (VMR/VGR)	Raise	Engine full		sec	1.2 – 2.2 / 1.3 – 2.3
		Lower	Engine full		sec	1.2 – 2.2 / 1.5 – 2.5
	Ripper tilt (VMR/VGR)	Tilt in	Engine full		sec	4.5 – 5.5 / 4.5 – 5.5
		Tilt back	Engine full		sec	3.3 – 4.3 / 3.3 – 4.3
	Hydraulic drift (Blade)	Cutting edge height 800 mm		mm/min	150 / 15	
	Hydraulic drift (Ripper)	Ripper point height 600 mm		mm/min	80 / 15	
		Push left		mm	30 – 50	

Pedal stroke, depressing force (Reference: Cab installed)

Category	Item	Condition		Unit	Standard	Result
	Brake pedal stroke, depressing force	Low idle		mm	69 – 89	
		Low idle	Pedal depressed to stroke end	kg	34 – 50	
	Decelerator pedal stroke, depressing force	Low idle		mm	35 – 65	
		Low idle		kg	4 – 6	

Check sheet for tightening torque for bolts of cab

Sketch	Record																																																																																																									
<p>• Locations of bolts</p>  <p>Bolts size 1 to 15 : M20 16 to 21 : M24 22 to 33 : M16</p> <p>• Method of checking retightening</p>  <p>1. Tighten to specified torque, then make marks. 2. Retighten to specified angle (60 degrees). 3. Check that marks are 60 degrees off each other as shown at left.</p>	<p>• Check the torque at each No. shown at left and enter the measured torque in the following torque recording box.</p> <p>• As for the M20 and M24 (1 – 21) bolts, tighten them to the specified torque first, then retighten them and check the retightening work and then record the measured torque. (Check the box.)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Location</th> <th style="width: 15%;">Record of torque</th> <th style="width: 15%;">Check of retightening</th> <th style="width: 60%;">Standard tightening torque/retightening</th> </tr> </thead> <tbody> <tr><td>1</td><td></td><td></td><td rowspan="21">Torque: 294 ± 29.4 Nm (30 kgm) Retightening angle: 60 ± 10 degrees</td></tr> <tr><td>2</td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td></tr> <tr><td>11</td><td></td><td></td></tr> <tr><td>12</td><td></td><td></td></tr> <tr><td>13</td><td></td><td></td></tr> <tr><td>14</td><td></td><td></td></tr> <tr><td>15</td><td></td><td></td></tr> <tr><td>16</td><td></td><td></td></tr> <tr><td>17</td><td></td><td></td></tr> <tr><td>18</td><td></td><td></td></tr> <tr><td>19</td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td></tr> <tr><td>21</td><td></td><td></td></tr> <tr><td>22</td><td></td><td style="background-color: #cccccc;"></td><td rowspan="12">Torque: 297 ± 27.9 Nm (28.5 kgm)</td></tr> <tr><td>23</td><td></td><td style="background-color: #cccccc;"></td></tr> <tr><td>24</td><td></td><td style="background-color: #cccccc;"></td></tr> <tr><td>25</td><td></td><td style="background-color: #cccccc;"></td></tr> <tr><td>26</td><td></td><td style="background-color: #cccccc;"></td></tr> <tr><td>27</td><td></td><td style="background-color: #cccccc;"></td></tr> <tr><td>28</td><td></td><td style="background-color: #cccccc;"></td></tr> <tr><td>29</td><td></td><td style="background-color: #cccccc;"></td></tr> <tr><td>30</td><td></td><td style="background-color: #cccccc;"></td></tr> <tr><td>31</td><td></td><td style="background-color: #cccccc;"></td></tr> <tr><td>32</td><td></td><td style="background-color: #cccccc;"></td></tr> <tr><td>33</td><td></td><td style="background-color: #cccccc;"></td></tr> </tbody> </table>	Location	Record of torque	Check of retightening	Standard tightening torque/retightening	1			Torque: 294 ± 29.4 Nm (30 kgm) Retightening angle: 60 ± 10 degrees	2			3			4			5			6			7			8			9			10			11			12			13			14			15			16			17			18			19			20			21			22			Torque: 297 ± 27.9 Nm (28.5 kgm)	23			24			25			26			27			28			29			30			31			32			33		
Location	Record of torque	Check of retightening	Standard tightening torque/retightening																																																																																																							
1			Torque: 294 ± 29.4 Nm (30 kgm) Retightening angle: 60 ± 10 degrees																																																																																																							
2																																																																																																										
3																																																																																																										
4																																																																																																										
5																																																																																																										
6																																																																																																										
7																																																																																																										
8																																																																																																										
9																																																																																																										
10																																																																																																										
11																																																																																																										
12																																																																																																										
13																																																																																																										
14																																																																																																										
15																																																																																																										
16																																																																																																										
17																																																																																																										
18																																																																																																										
19																																																																																																										
20																																																																																																										
21																																																																																																										
22			Torque: 297 ± 27.9 Nm (28.5 kgm)																																																																																																							
23																																																																																																										
24																																																																																																										
25																																																																																																										
26																																																																																																										
27																																																																																																										
28																																																																																																										
29																																																																																																										
30																																																																																																										
31																																																																																																										
32																																																																																																										
33																																																																																																										