R210W-9SMH (#2329 ~)

Material Handler

This manual was produced by Sun&Shield, Ltd. And some revisions have been made in HD HYUNDAI CONSTRUCTION EQUIPMENT

INTRODUCTION

The intended use of **Material Handler Front** for Wheel or Track Excavators is for scrap and bulk material handling equipped with a grapple, clamshell bucket or magnet. And **Cabin Elevating** are used for improved operating visibility in the work area.

Two-piece Material Handler Fronts provide excellent lift performance and working range.

The purpose of this manual is to give users detail information about the method for assembling, operating, inspection, maintenance and adjustment of **Material Handler Front and Cabin Elevating with Grapple.**

For the safe operation and maintenance of **Material Handler,**

1. Please, be sure to refer to this user manual before operating machine.
2. Please, operate safely by checking environment of worksite and by checking safety rules.

Please, contact HD Hyundai Construction Equipment or HD Hyundai Dealer if you have questions on this manual.

Model	
P/N	
Year of Manufacture	

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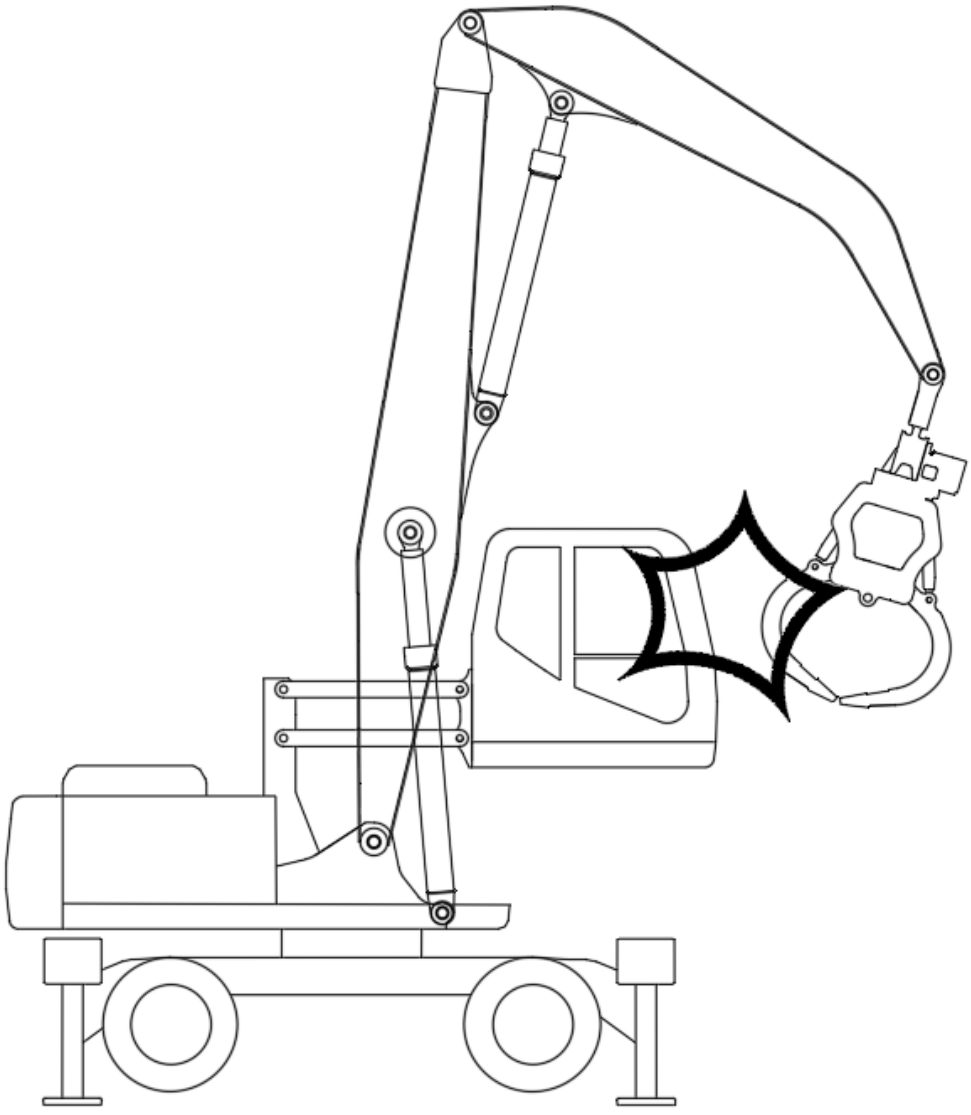
1. Safety

1-1. Operation Cautions

⚠ WARNING!
1. Must check up the working area before operating our equipment. 2. Only operate our equipment on flat place because the working on inclined place causes falling down this equipment. 3. Only operate our equipment inside of allowed operating distance because the working over allowed operating range might cause falling down this equipment. 4. When working with the front of our equipment, operate our equipment as slowly as possible because a sudden change of operating lever might cause falling down this equipment. 5. All rated lift capacities are based on the machine and the load both remaining level at all times. **DO NOT EXCEED THE STATED LIFT CAPACITY.** Lifting loads greater than those shown in the rated capacity table can cause catastrophic equipment failure and/or structural collapse of the machine

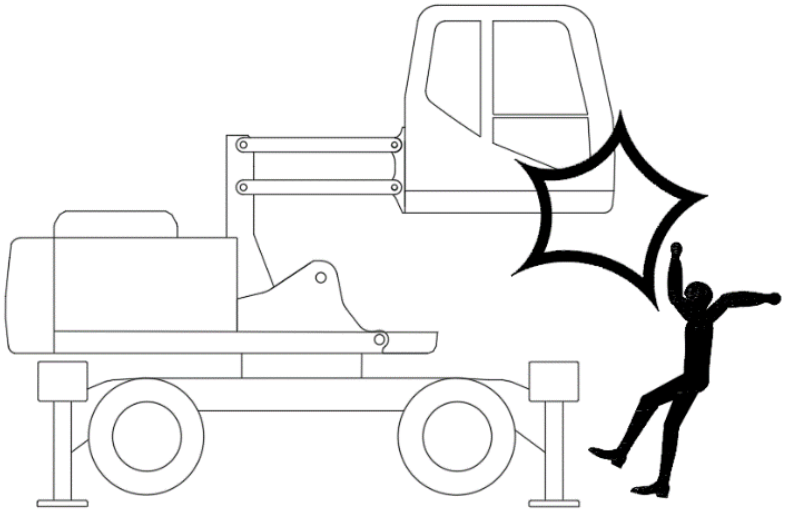
1-2. Hazard Operation

Be careful with operating elevating cabin or front attachment.



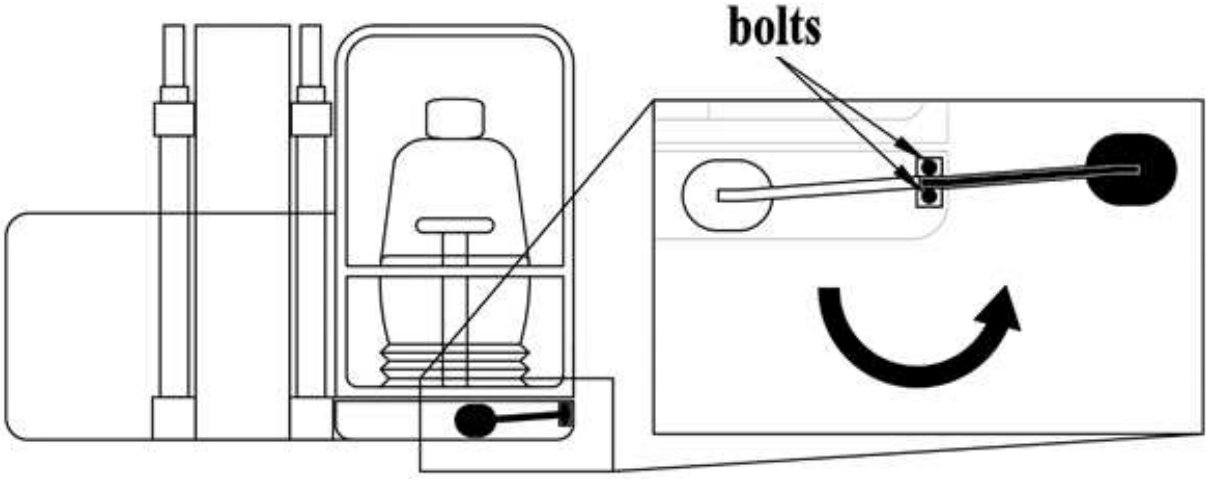
When you operate elevating cabin or front attachment, you should be careful to avoid crash between elevating cabin and front attachment. Serious personal injury or death may result from this crash.

When you operate the elevating cabin, you should check under the cabin raised through the mirror in order to avoid any accident.



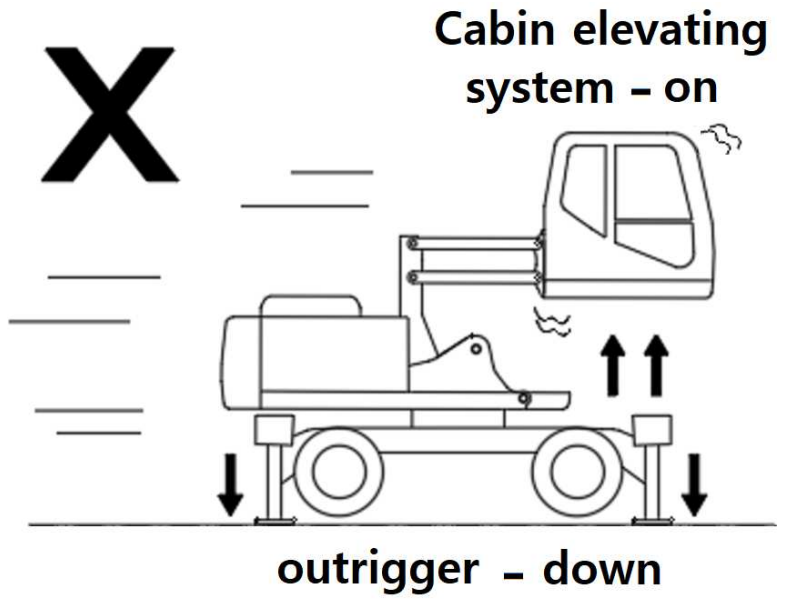
Safety Mirror - Elevating Cabin

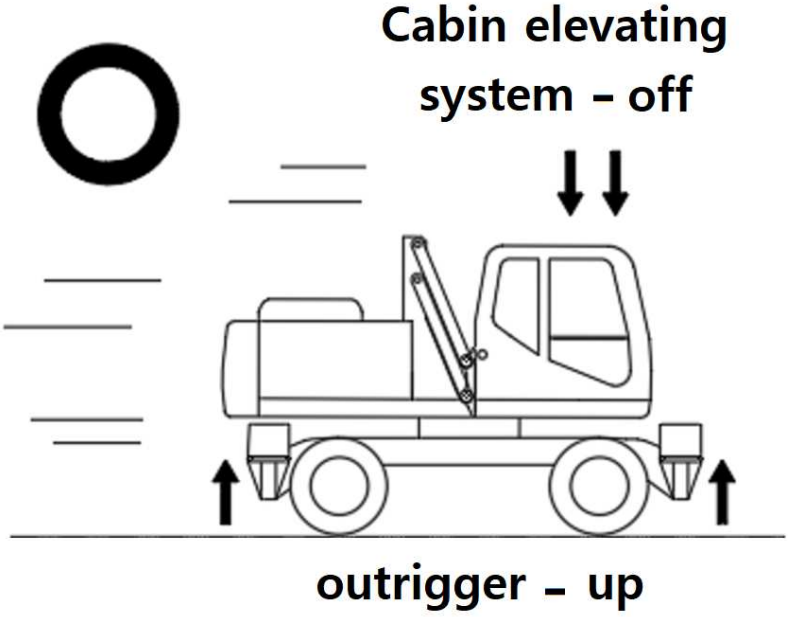
Turn the mirror outward so that you can look under the cabin raised.



Loosen the bolts shown in the picture, then turn the mirror outward and tighten the bolts back.

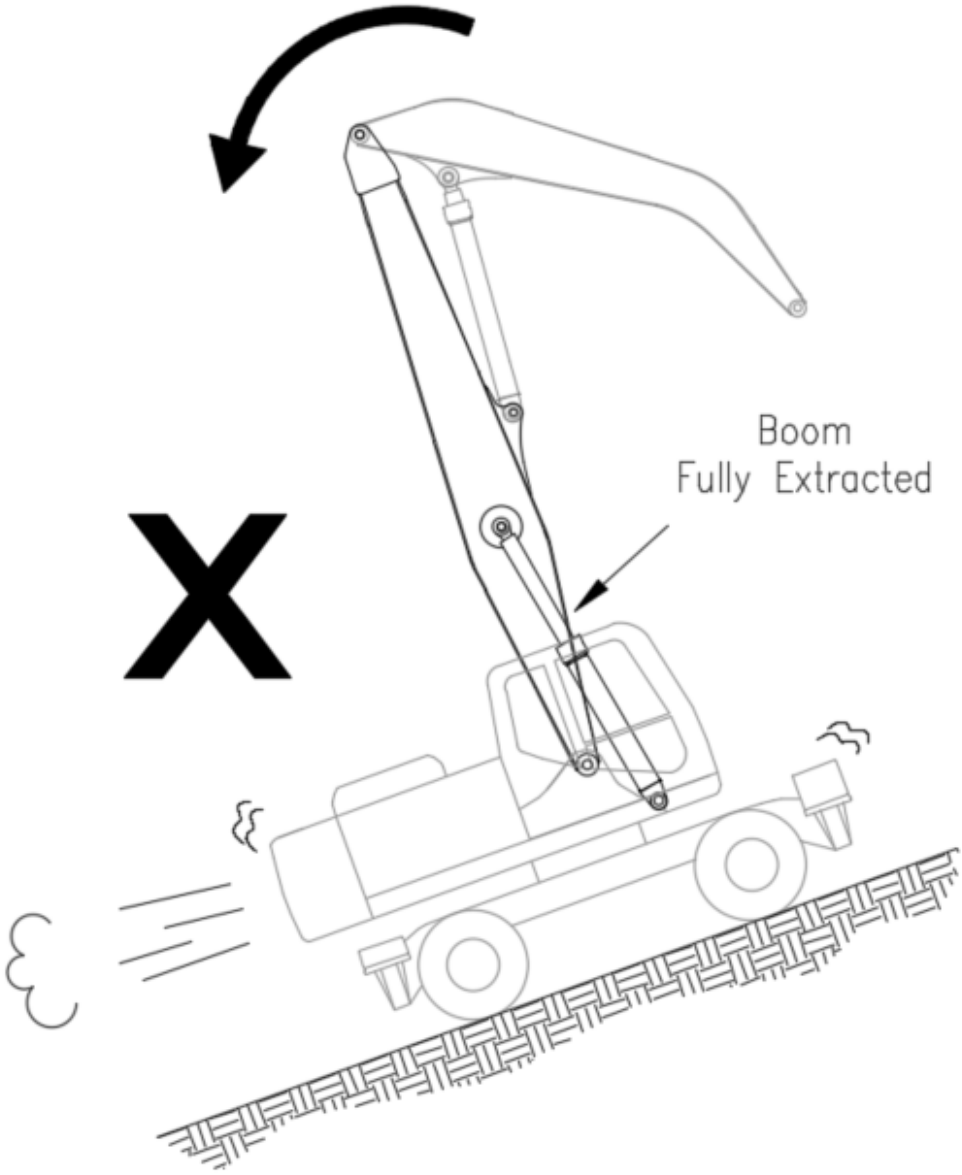
Only drive the machine in a state of Elevating Cabin down and outrigger up.





Do not work or drive on slopes.

On a spot where the sudden changes, travel slowly because the sudden change of the machine gravity may cause tip over.

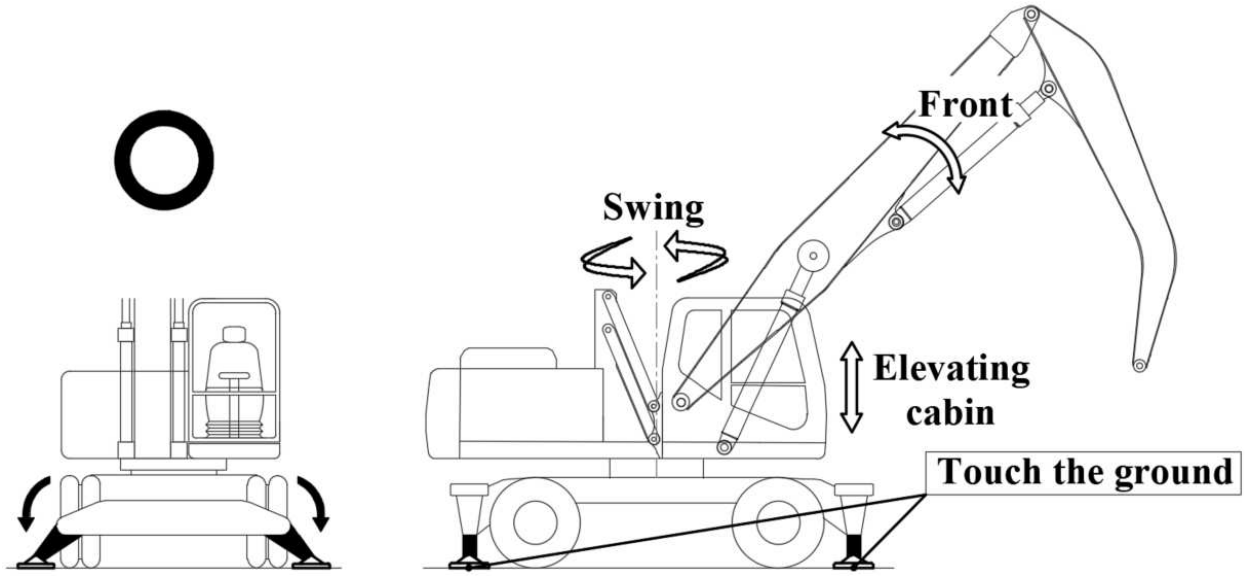


- If you must travel on a slope, any operation other than traveling is prohibited because it may cause tip over.

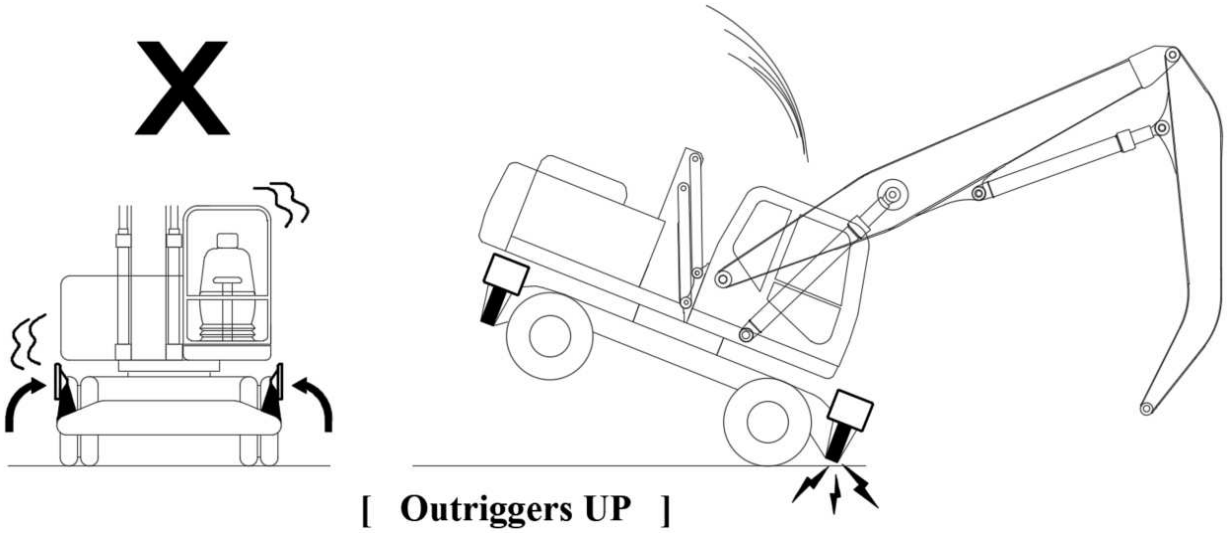
- If you must work on a slope, do not raise the boom to its highest position, as shown. The machine may tip over rearward.

To secure more stability, we recommend the outrigger down when work.

When operating equipment swing, front and elevating cabin, the outriggers should be downed. In case of operating the equipment with lifted outriggers it is tipped and fallen over.

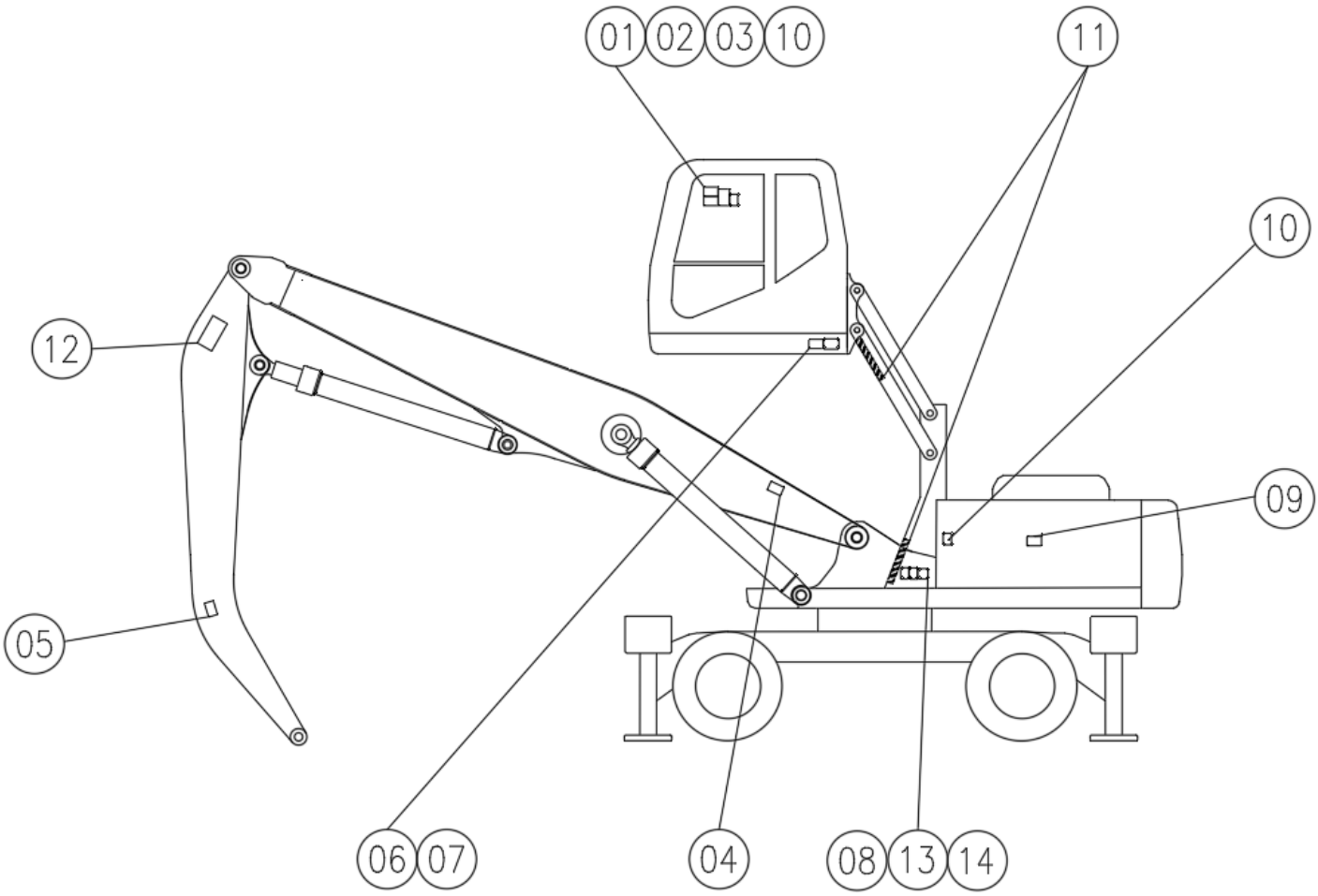


[Outriggers DOWN]

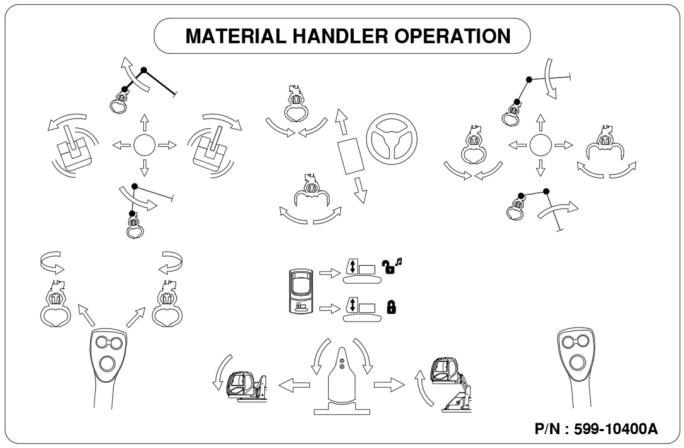


[Outriggers UP]

1-3. Operation Caution Decals

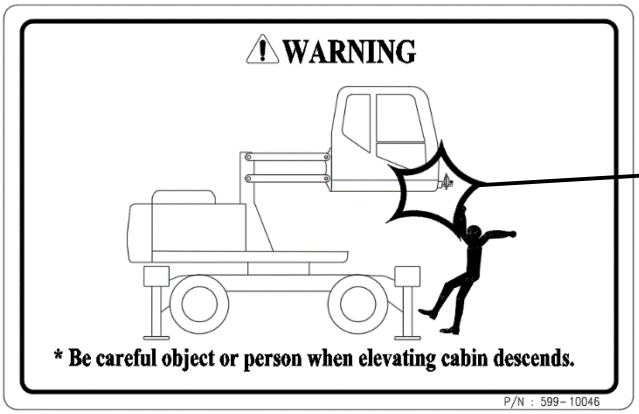


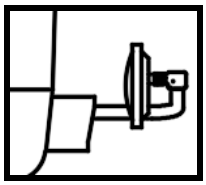
①



Refer to page 『**Operation**』 for details

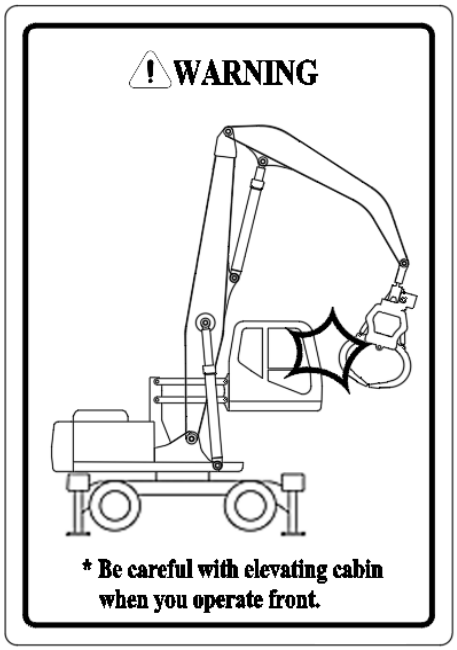
②





When you operate elevating cabin, you should check the mirrors on the bottom to avoid crash between cabin and Lower Equipment.

③

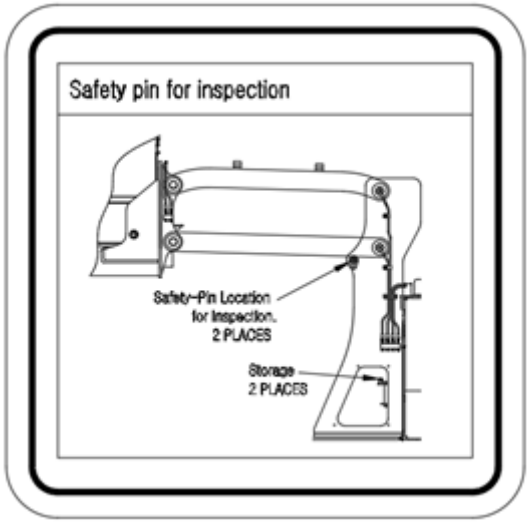


When you operate elevating cabin or front attachment, you should be careful to avoid crash between elevating cabin and front attachment. Serious personal injury or death may result from this crash.

④ ~ ⑦

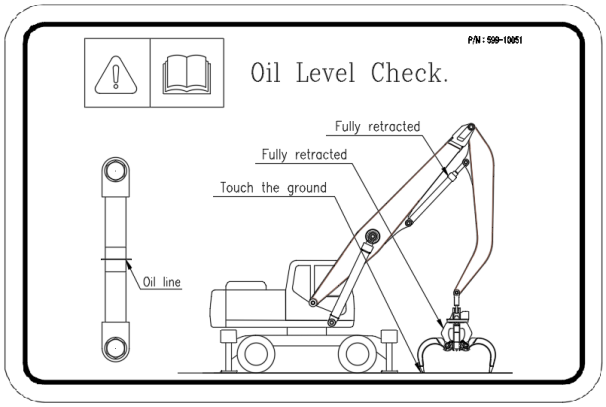
Refer to page 『**Greasing**』 for details.

⑧



Refer to page 『**Safety Pin**』 for details.

⑨

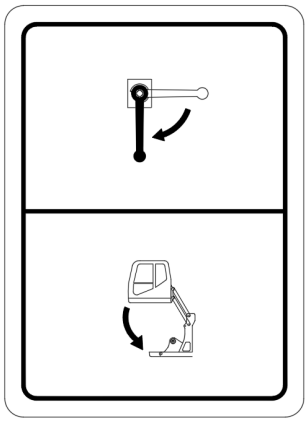


Refer to Page

『Hydraulic Oil Level Check』

for details.

⑩



Refer to Page

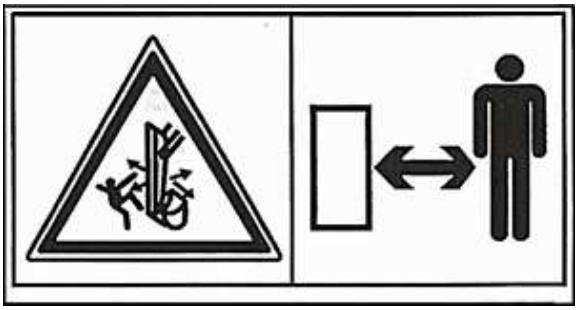
『Emergency Lowering of Elevating Cabin』

for details.

⑪

Elevating cabin Sticker

⑫



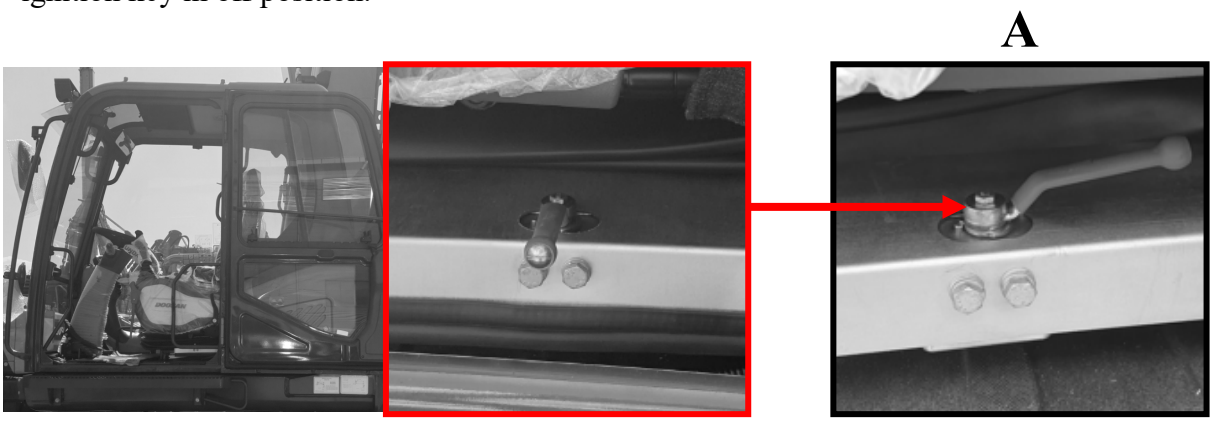
Check the presence of persons or obstacles within the working radius before working on it.

⑬

⑭

1-4. Emergency Lowering of Elevating Cabin

Before lowering any equipment with the engine stopped, clear around the equipment of all bystanders. The cab can be lowered in emergency with the engine shut down and the ignition key in off position.



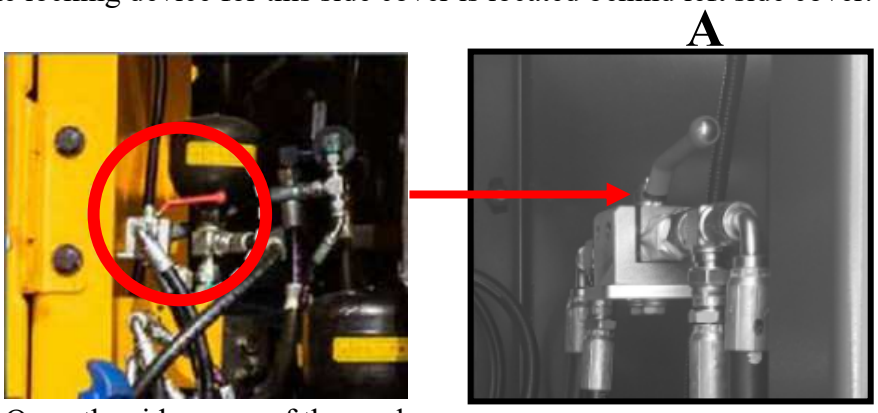
A - Emergency Cabin lowering : Inside the operator station

- Turn the lever (A) beside the rubber mat clockwise. The cabin slowly descending accordingly.
- On descending completed, return the lever to the original position (see above photo).

B - Emergency Cabin lowering : from the outside

If the operator in the cab is not able to lower the cab, it is possible to lower the cab from the outside on the ground.

The locking device for this side cover is located behind left side cover.



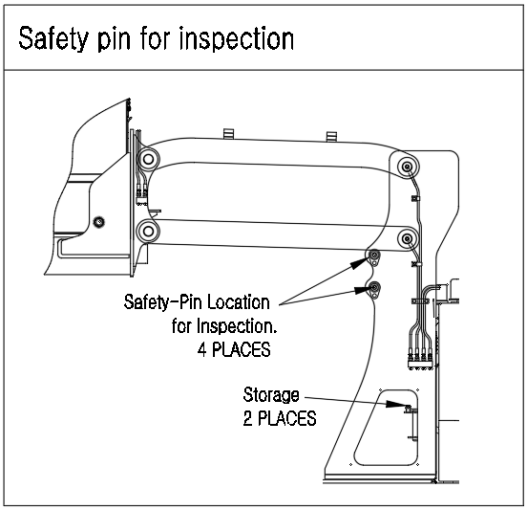
- Open the side cover of the cooler
- Turn the lever (A) until the cab starts lowering.
- When the cab is completely down, return the lever to the original position (see above Photo).

1-5. Safety pin

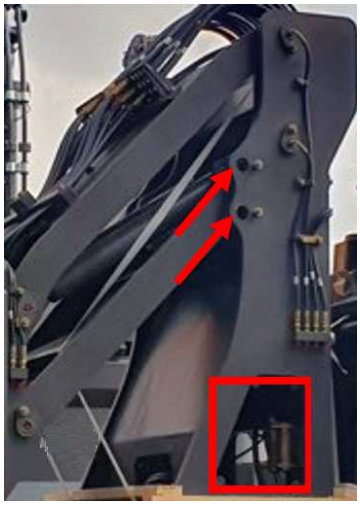
Safety pin is used to be fastened when repairing cabin elevating system.

Whenever inspecting & maintaining cabin elevating system, ensure safety pins are mounted on supporting hole properly.

***Elevated Height : 2.5m**



<LH>



<RH>

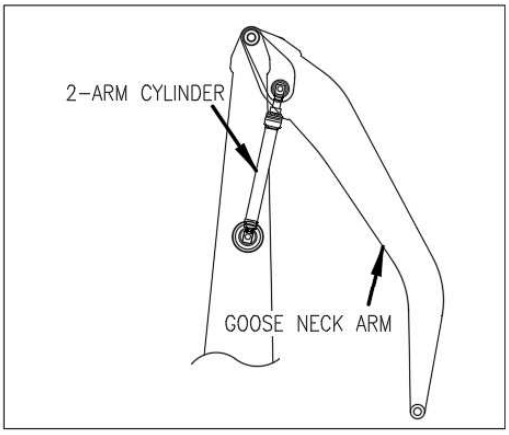
: The position of the safety pin.

: The position of safety pins when inspection of cabin elevating system.

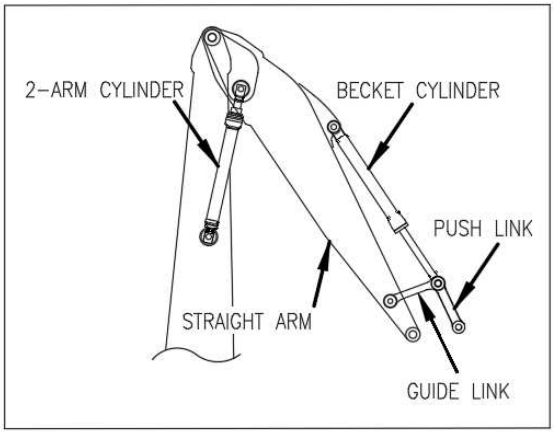
2. Specifications

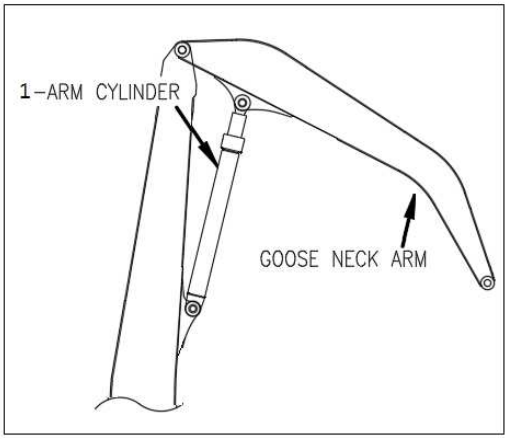
2-1. Names of Each Parts

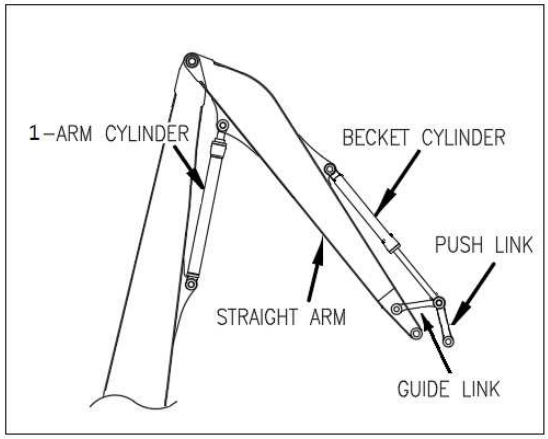
<Goose neck Arm>

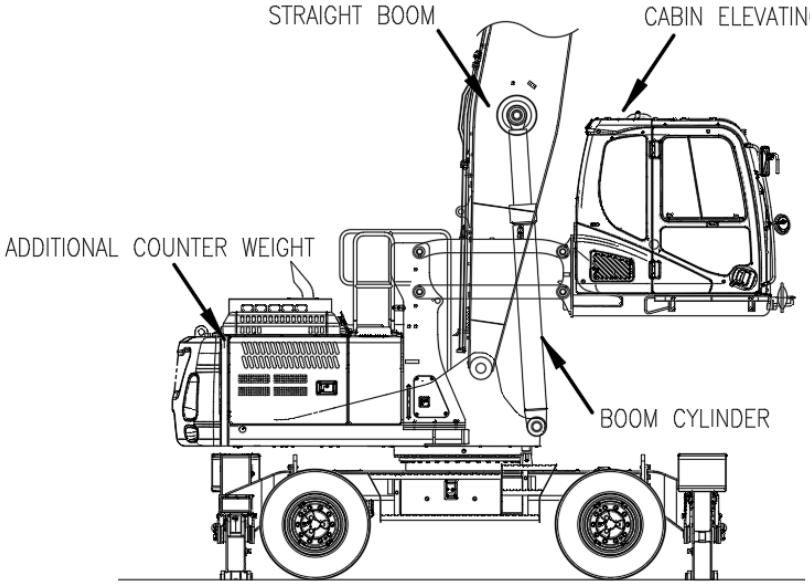


<Straight Arm>



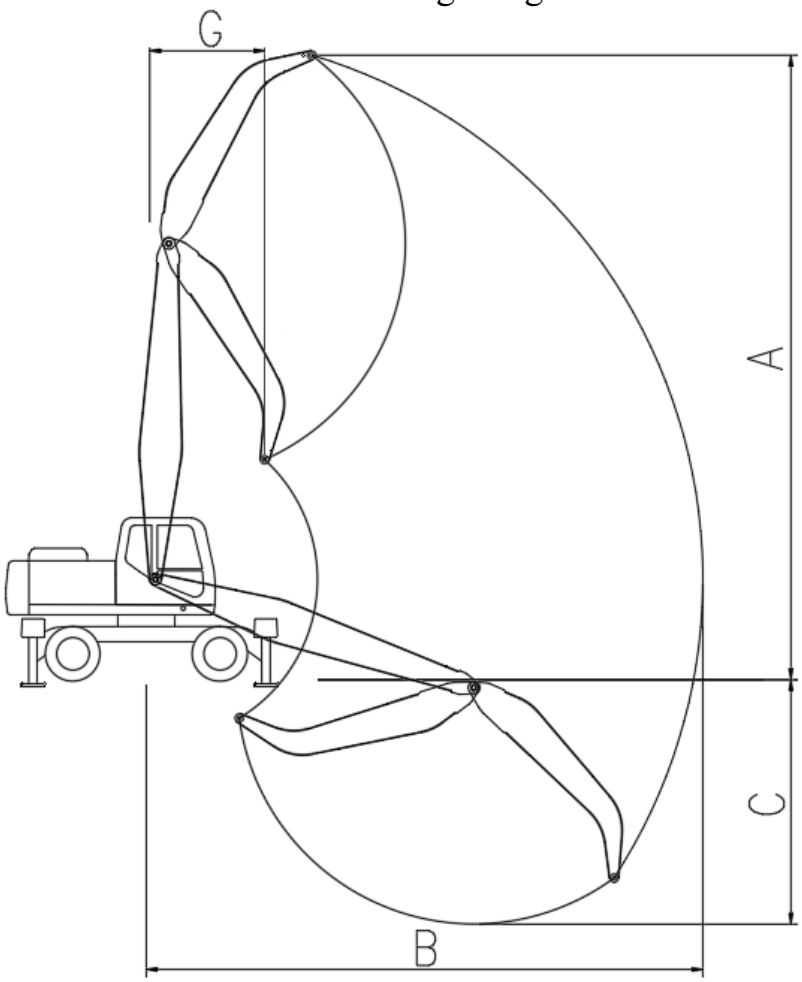




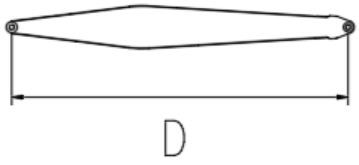


2-2. Specification

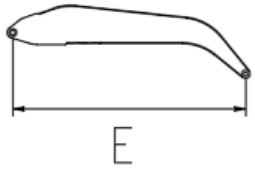
Working Range



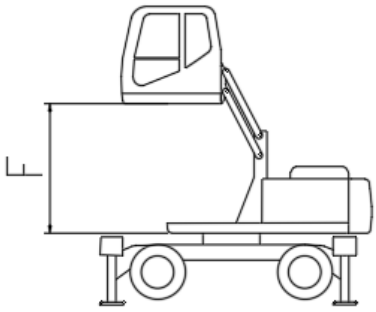
Straight Boom



Goose Neck Arm



Cabin Elevating



R210W-9SMH (SMH21-36-SG & SCE25)

A Max. Pin Height	13.1 m	**D Boom Length**	7.0 m
B Max. Operation Reach	11.8 m	**E Arm Length**	5.0 m
C Max. Working Depth	5.7 m	**F Elevated Height**	2.5 m
G Min Swing Radius	3.1 m		
ACW	1.5 ton		
Lift Capacity at Max. Reach	Front : *3.4 ton / Side : 2.8 ton		
Grade ability	26 (65% Slope)		

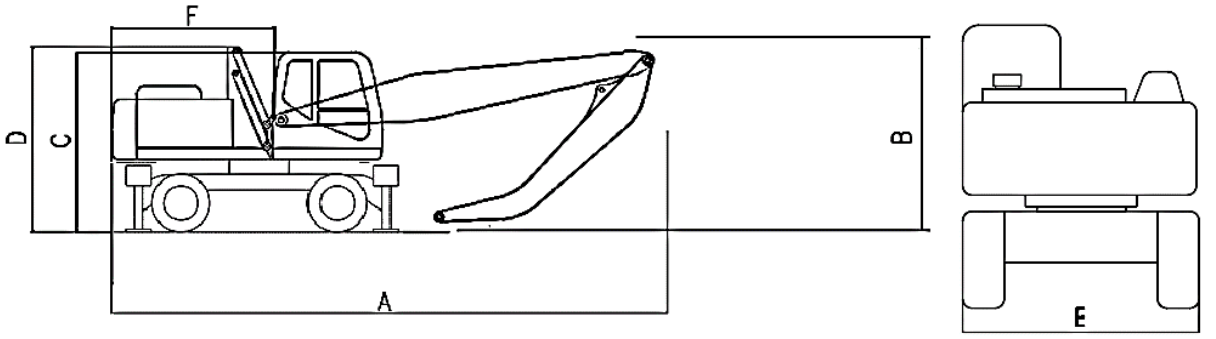
2-3. Component Weight & Transportation Dimension

Component Weight

Item		Unit	Weight(kg)	Remark
Base Machine		kg	18,778	CWT 3,400 kg
Additional Counter Weight		kg	1,500	
Front	Boom	kg	2,310	With arm cylinder
	Arm	kg	1,050	
Total		kg	23,938	Without attachment, Cabin Elevating

Transportation Dimension

unit: mm

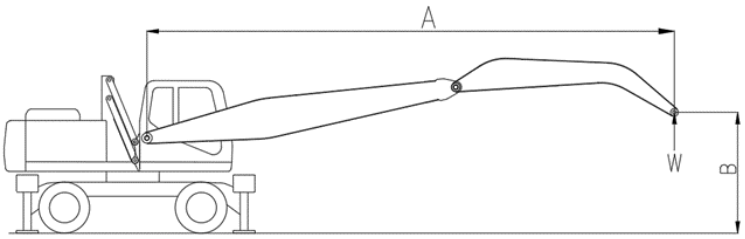


(A)	Overall length – Shipping	10,000
(B)	Overall height (Boom Hose)	4,330
(C)	Overall height (Cabin) – Lowered	3,200
(D)	Overall height (Hand/guard rail)	3,000
(E)	Overall width – Shipping	2,500
(F)	Tail Swing Radius	2,700

Solid Tire (Option)

Size	Rim	O.D	W.D	Load Capacity(kg)		Weight
				Static		
				~25 km/h	0km/h	kg
10.00-20	7.50V	1024	258	5000	7550	161.4

2-4. SAE Lift Capacities



BOOM: 7.0 m

ARM: 5.0 m

OUTRIGGER DOWN

F: RATING OVER FRONT

S: RATING OVER SIDE OR 360°

unit: kgf

A / B	3m F	3m S	4.5m F	4.5m S	6m F	6m S	7.5m F	7.5m S	9m F	9m S
12m					*6040	*6040				
10.5m					*5410	*5410	*5060	*5060		
9m					*5230	*5230	*4850	*4850	*4580	*4580
7.5m					*5360	*5360	*4890	*4890	*4520	*4520
6m					*5770	*5770	*5110	*5110	*4610	4520
4.5m			*7950	*7950	*6420	*6420	*5460	*5460	*4780	4410
3m			*9490	*9490	*7160	*7160	*5840	5620	*4970	4270
1.5m			*10640	*10640	*7760	7470	*6150	5390	*5110	4140
0m			*6100	*6100	*7990	7160	*6270	5210	*5120	4030
-1.5m	*2720	*2720	*6300	*6300	*7760	6990	*6100	5090	*4910	3960
-3m	*4220	*4220	*7450	*7450	*7030	6950	*5560	5060	*4400	3950
-4.5m			*7160	*7160	*5770	*5770	*4560	*4560	*3390	*3390

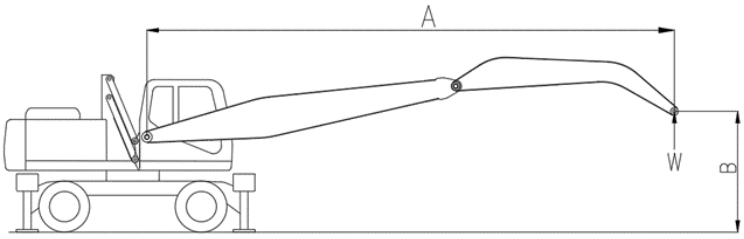
1. Lifting capacity is based on SAE J1097, ISO 10567.

2. Load point is the end pin point of front attachment.

3. Lifting capacity does not exceed 75% of tipping load or 87% of hydraulic capacity.

4. (*) indicates load limited by hydraulic capacity.

2-4. SAE Lift Capacities



BOOM: 7.0 m

ARM: 5.0 m

OUTRIGGER DOWN

F: RATING OVER FRONT

S: RATING OVER SIDE OR 360°

unit: kgf

A / B	10.5m F	10.5m S	12m F	12m S	Max. F	Max. S	Max. Reach(m)
12m					*5970	*5970	@6.285
10.5m					*4970	*4970	@8.235
9m					*4510	4100	@9.562
7.5m	*4230	3500			*4230	3500	@10.507
6m	*4210	3500			*4040	3140	@11.171
4.5m	*4260	3450			*3890	2920	@11.601
3m	*4320	3380			*3760	2800	@11.824
1.5m	*4330	3300			*3620	2760	@11.852
0m	*4220	3240			*3470	2800	@11.686
-1.5m	*3920	3220			*3260	2920	@11.318
-3m	*3210	*3210			*2960	*2960	@10.726
-4.5m					*2490	*2490	@9.87

1. Lifting capacity is based on SAE J1097, ISO 10567.

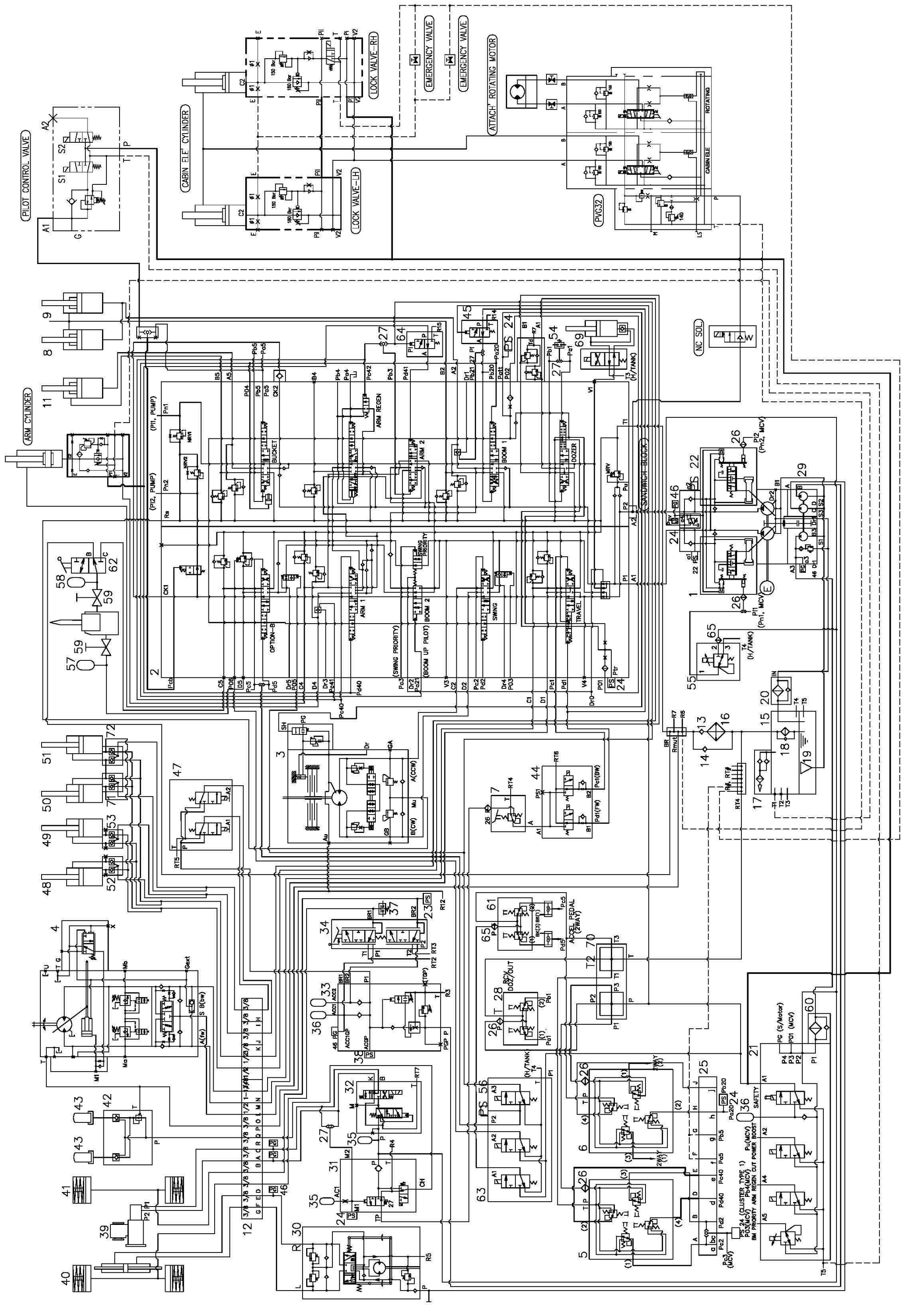
2. Load point is the end pin point of front attachment.

3. Lifting capacity does not exceed 75% of tipping load or 87% of hydraulic capacity.

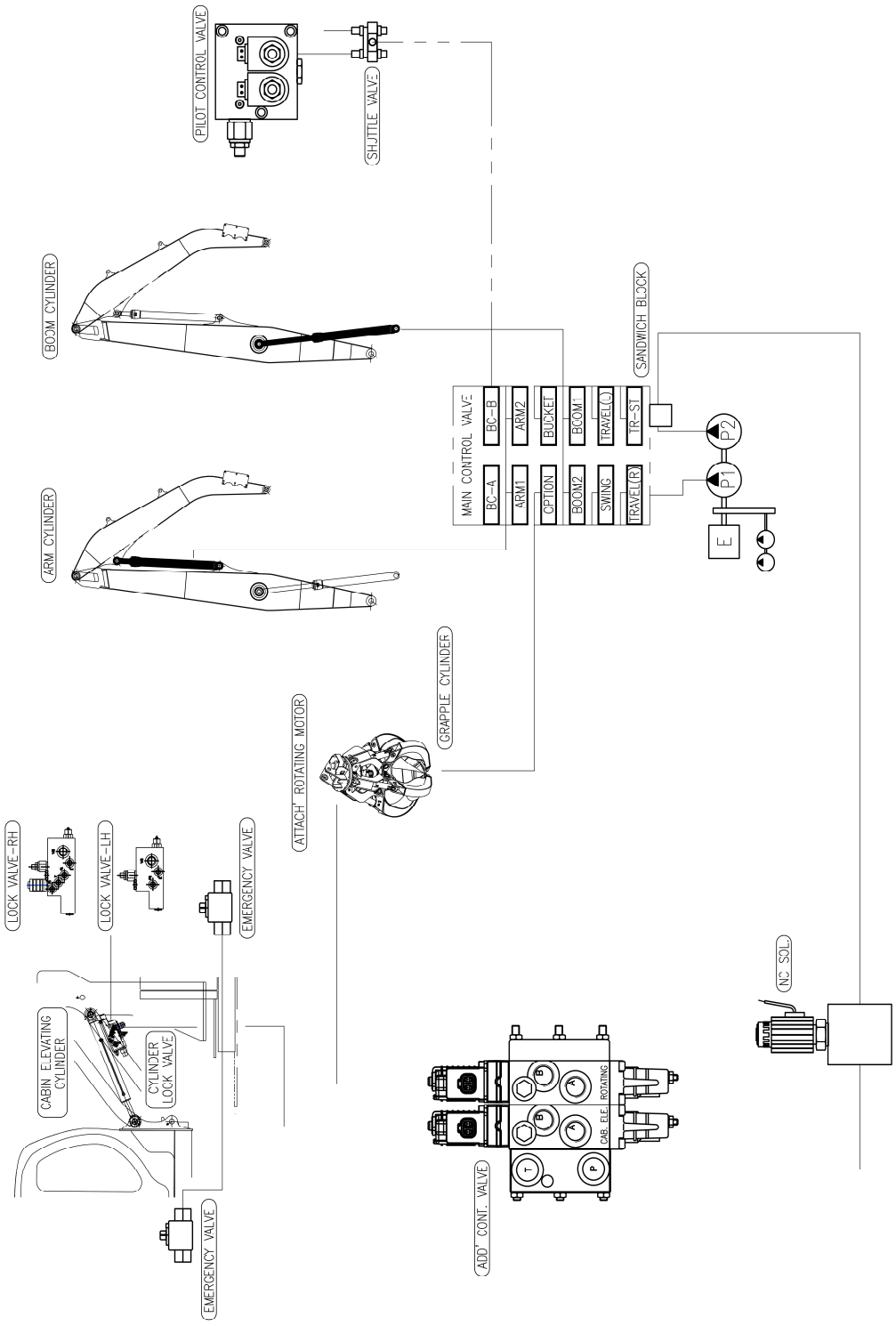
4. (*) indicates load limited by hydraulic capacity.

3. Circuit Diagram

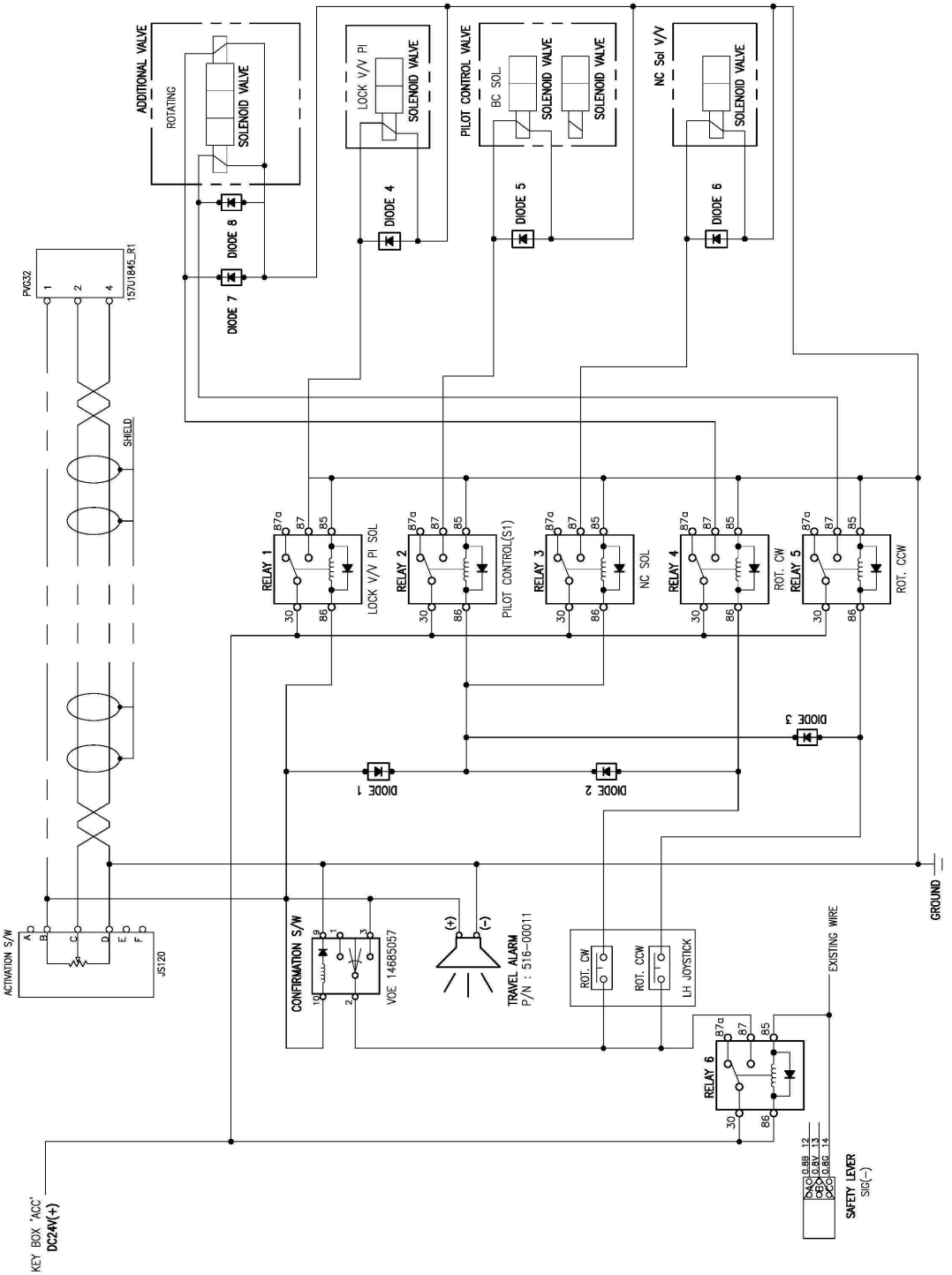
3-1. Hydraulic Circuit Diagram



3-2. Hydraulic Parts Installation

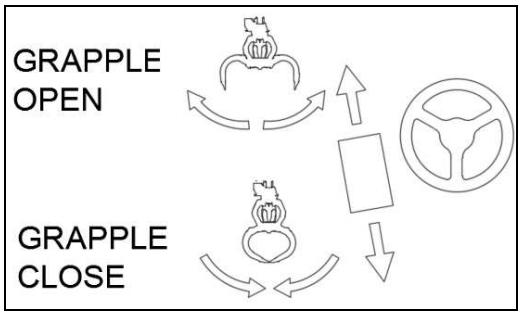


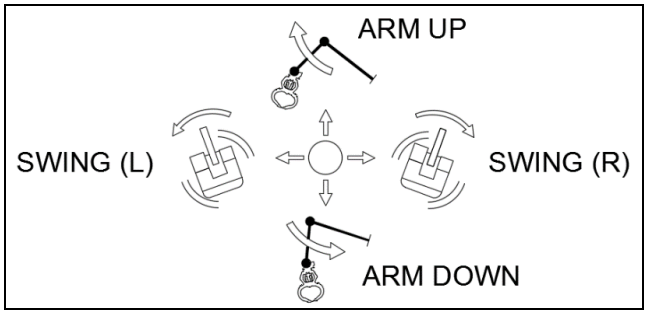
3-3. Electric Circuit Diagram

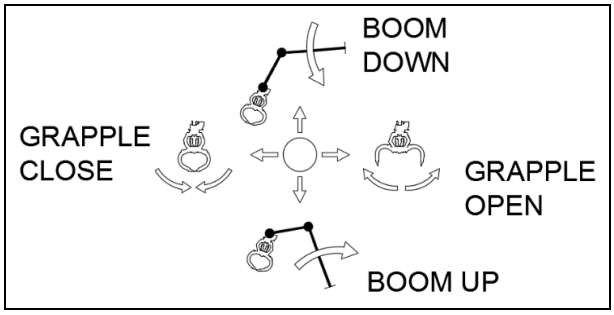


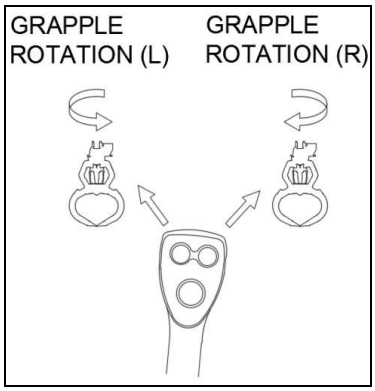
4. Operation

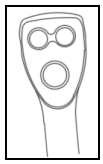
4-1. Control Devices for Operation

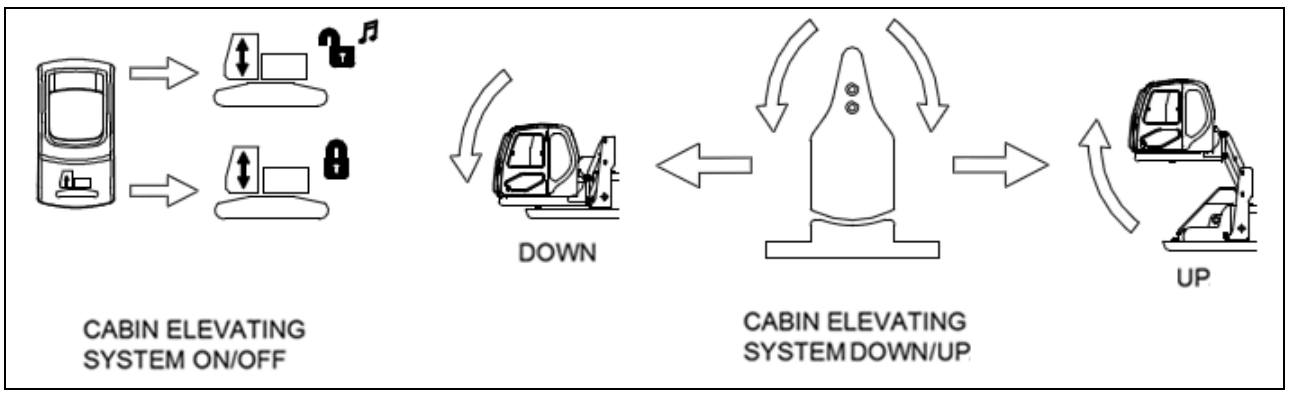












4-2. Cabin Elevating Operation

Confirmation Switch

Activation Switch

The "Activation switch" is allow to adjust the "cabin up & down speed" at the same time as the cabin up & down operation according to the pressure level on the switch.

Lifting the operator station.

1. Close the door and fasten the seat belt.
2. Lock the pilot cutoff lever.
3. Start the engine.
4. Lower the stabilizers and ensure the machine stability.

Turn the confirmation switch on (and buzzer starts).

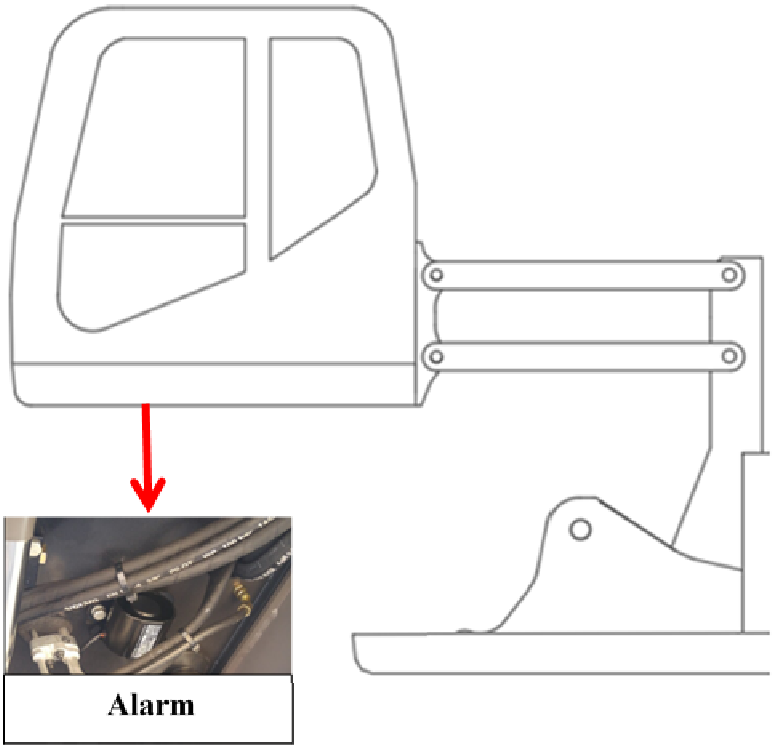
5. Press and hold cabin elevating switch forward.
6. When the station arrives intended height, release the elevating switch.
7. Turn the confirmation switch off (and buzzer stops).

Lowering the operator station

1. Close the door and fasten the seat belt.
2. Lock the pilot cutoff lever.
3. Lower the stabilizers and ensure the machine stability.
4. Turn the confirmation switch on (and buzzer starts).
5. Press and hold cabin elevating switch downward.
6. After lowering completed, release the elevating switch.
7. Turn the confirmation switch off (and buzzer stops).

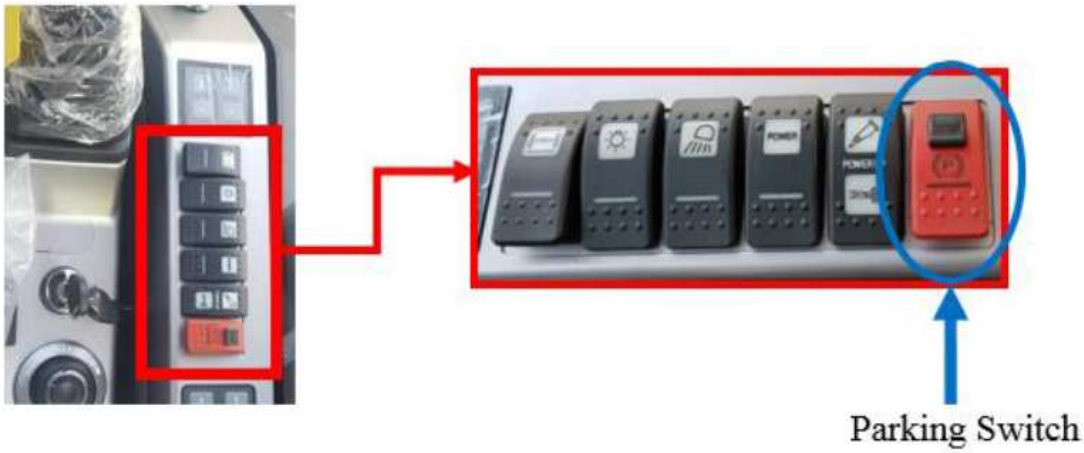
- When you operate elevating cabin, you should check the mirrors on the bottom to avoid crash between cabin and Lower Equipment.

Alarm of Confirmation switch



Cabin can be elevated by running both confirmation switch activation switch to prevent any accidental operation. At the same time, safety alarm is activated from the press of the confirmation switch to alert operator and people around the machine.

Wheel – Parking Switch



When you lower the cabin, please turn off the parking switch.

5. Maintenance

5-1. Greasing

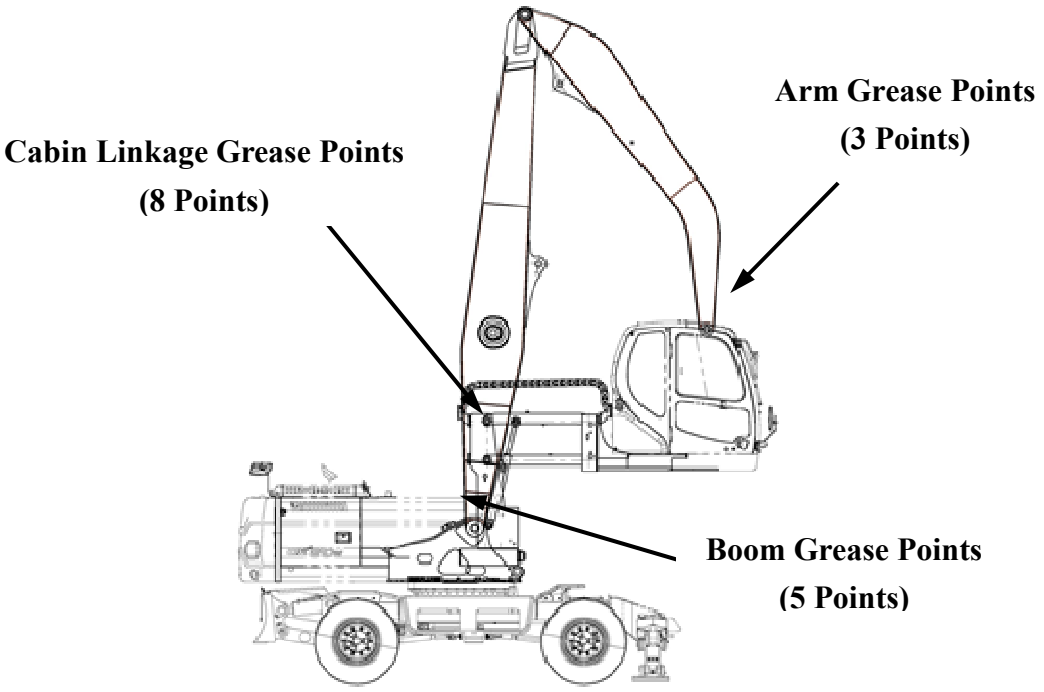
50HOUR/WEEKLY SERVICE

- PERFORM ALL 10 HOUR/DALIY SERVICE CHECKS
- GREASE BOOM, ARM AND FRONT ATTACHMENT PINS

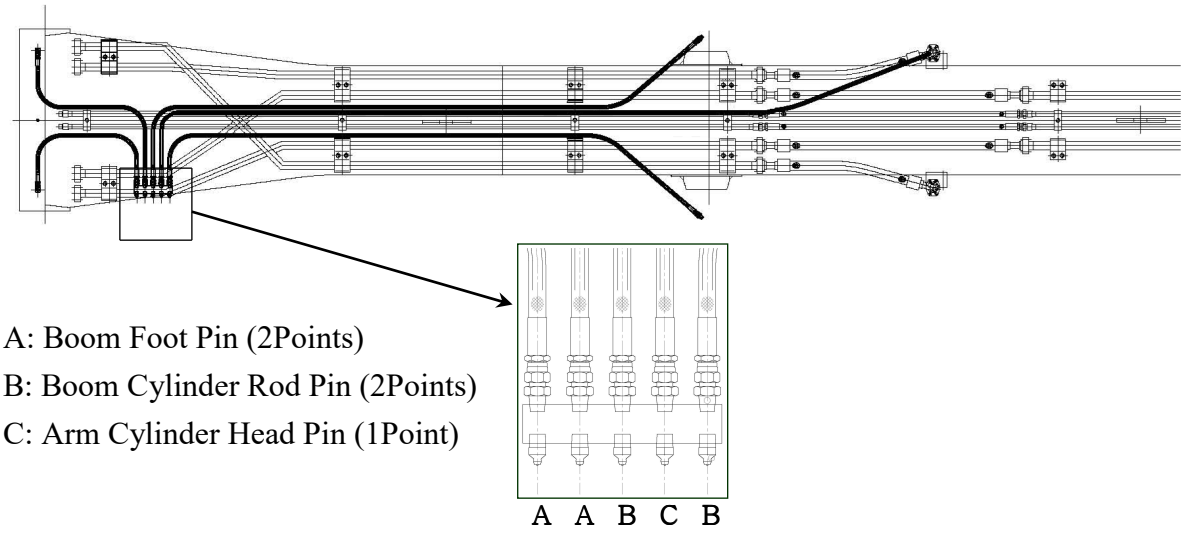
Grease every 10 hours for first 100 hours and every 50 hours thereafter.

NOTE: If the equipment has been run in water, the front attachment should be greased on a 10 hour/Daily basis.

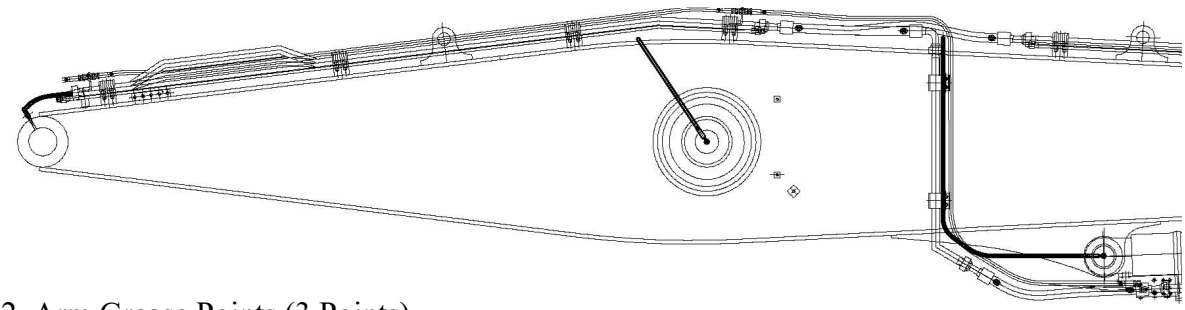
- Position machine as shown below and lower the front attachment on the ground and stop the engine
- Press the grease fitting and inject grease gun on the marked point
- After injection, clean off the old grease that has been purged



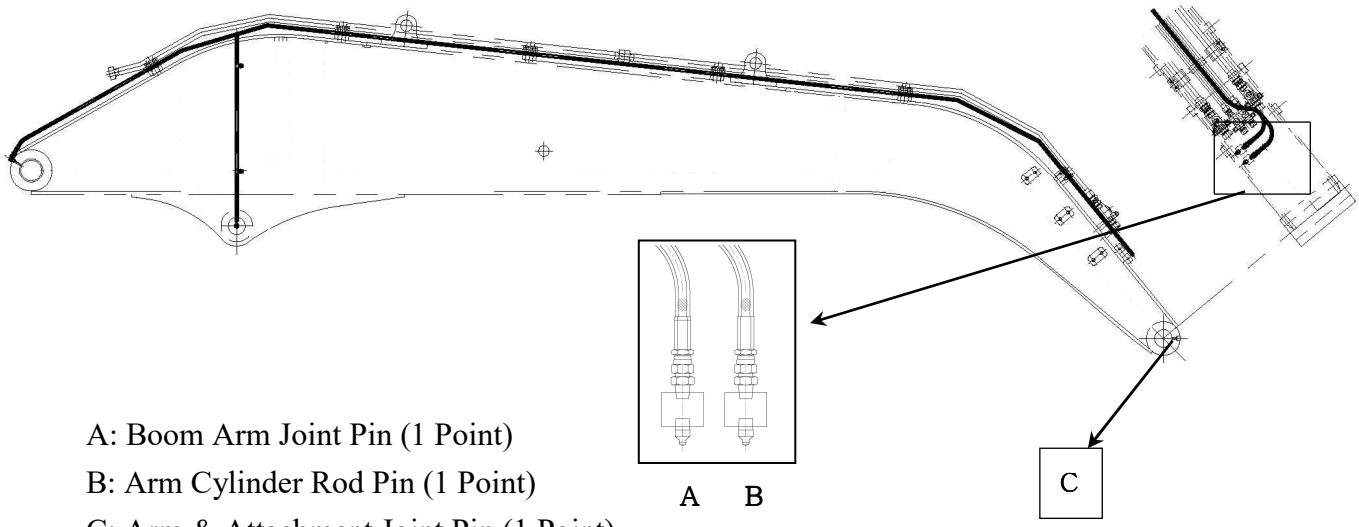
1. Boom Grease Points (5 Points)



A: Boom Foot Pin (2Points)
B: Boom Cylinder Rod Pin (2Points)
C: Arm Cylinder Head Pin (1Point)

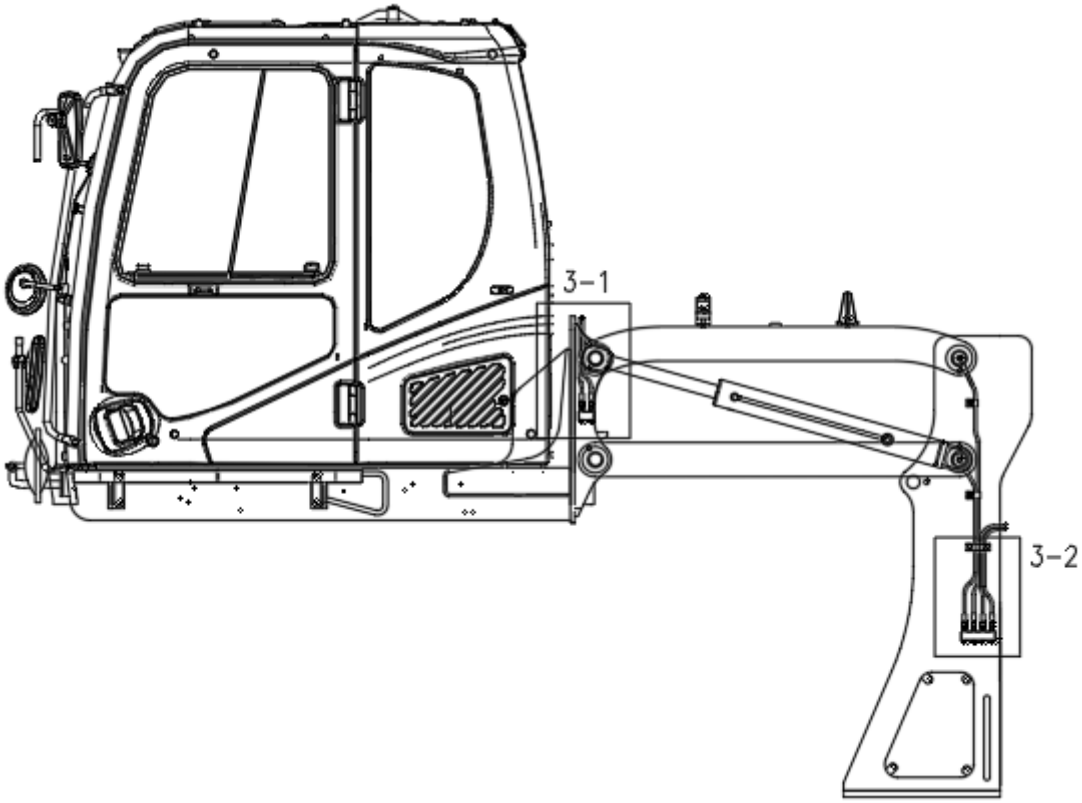


2. Arm Grease Points (3 Points)

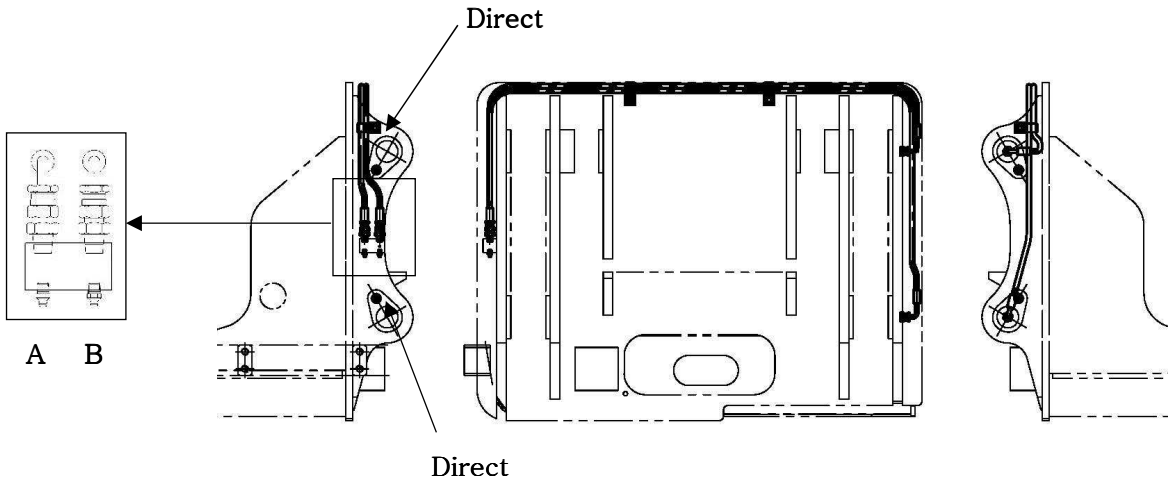


A: Boom Arm Joint Pin (1 Point)
B: Arm Cylinder Rod Pin (1 Point)
C: Arm & Attachment Joint Pin (1 Point)

3. Cabin Linkage Grease Points (8 Points)



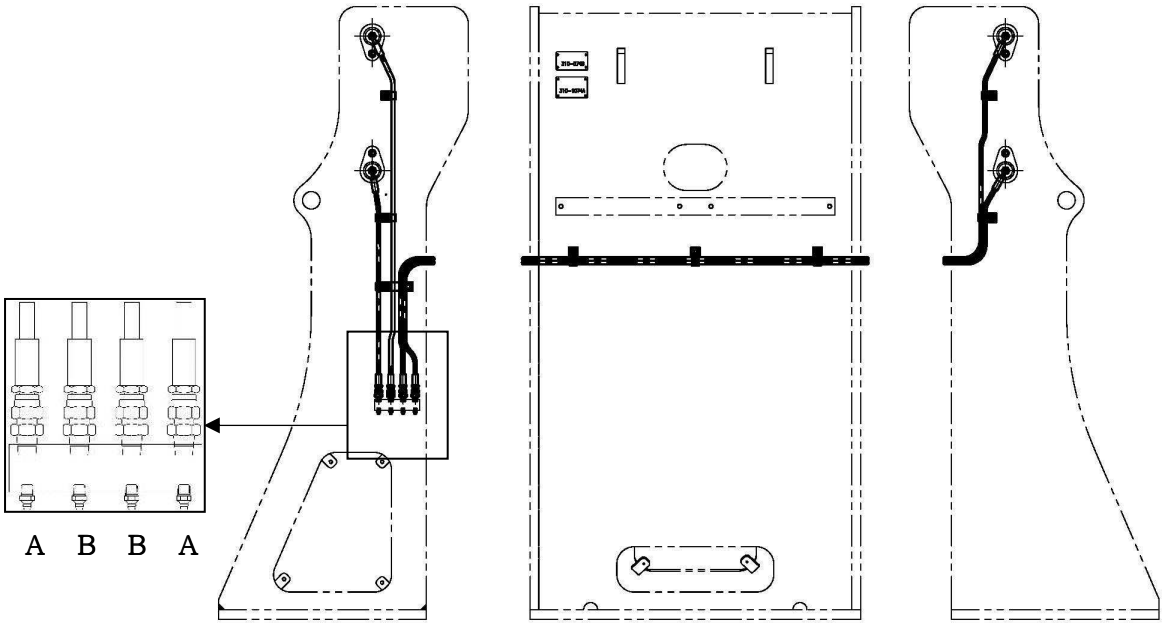
3-1. Bed Frame Grease (4 points)



A : Bed Frame & Cabin Link Joint Pin (1 Point)

B : Bed Frame & Guide Link Joint Pin (1 Point)

3-2. Support Frame Grease (4 points)

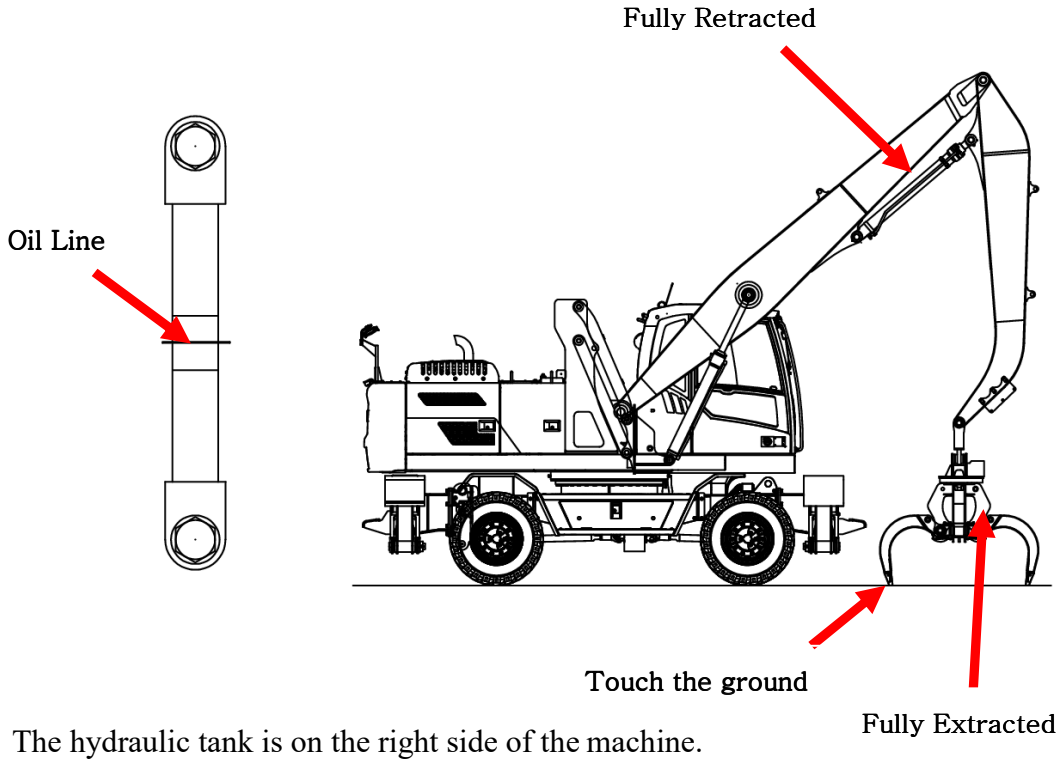


A : Support Frame & Guide Link Joint Pin (2 Points)

B : Support Frame & Cabin Link Joint Pin (2 Points)

5-2. Hydraulic Oil Level Check

1) Posture for hydraulic system oil level check



The hydraulic tank is on the right side of the machine.

1. Park machine on firm and level ground. Lower attachment on ground as shown in Figure.

2. Lower outriggers and dozer blade to ground, to displace oil into hydraulic oil tank.

3. Set parking brake switch to “I” (APPLIED) position.

4. Move engine speed to “LOW IDLE”.

5. Move safety lever to “LOCK” position

6. Troubleshooting

Trouble	Probable Cause
Poor hydraulic system performance	Hydraulic oil not at operating temperature.
	Engine speed too low.
	Reservoir low on oil
	Restrictions in lines
	Cooling circuit, pump control system and/or pilot control circuit defective.
	Internal leakage (control blocks, valves or power units.)
	Pressure lines twisted or kinked
	Spool not in full stroke.
	Relief valve defective, or out of adjustment.
	Worn cylinders.
	Defective hydraulic pump.
Jerky motion of power cylinders	Piston rod bent
	Piston sticking
	Inside diameter of cylinder tube partially increased or scored
	Air in control circuit
	Oil too cold
	Valve spool sticking, centering springs defective
	Pump and/or engine control system defective
	Valve of power circuit defective
Noisy operation	Incorrect lubricant or oil level too low
	Bearings scored or damaged.
	Sun gear teeth excessively worn or damaged
	Bearings of planetary pinions worn

In the event of equipment failure stop all work, move the equipment to a safe place, and contact HD Hyundai Construction Equipment or HD Hyundai Dealer.

Version: 2.3

ORANGE GRAPPLE

(R210W-9SMH #2329 ~)

Introduction

The use of the **Orange Grapple** is loading and unloading metal scrap, industrial waste and garbage. It has excellent working ability for continuous operation and for hazardous waste areas and is specially designed for Excavator or Material Handler.

This manual is provided to users for detail information about assembling, operating, fueling, inspection, maintenance and adjustment of the **Orange Grapple**.

For the safe operation and maintenance of the **Orange Grapple**,

1. Please read this manual carefully and familiarize yourself with information.
2. Please check environment of worksite and safety rules for safe operation.

Please contact HD Hyundai Construction Equipment or HD Hyundai Dealer if you have questions on this manual.

Model	
P/N	
Year of Manufacture	

Contents

Contents

1. Safety

1.1. Safety assurance

This manual describes the basic items related to safety. 'Caution' mark is attached where safety shall be ensured.

1.2. Symbol mark of "Safety Caution"

This symbol mark indicates 『Safety Caution』. Please pay attention to safety when you identify this mark in the nameplate of caution or this manual. Safe operation and proper management is recommended by taking preventive measures according to the descriptions.

1.3. Safety Alert Symbol

The words 『DANGER』 『WARNING』 and 『CAUTION』 used in this manual and on decals on the machine indicate degree of risk of hazards or unsafe practices. All three degrees of risk indicate that safety is involved. Observe precautions indicated whenever you see the Safety Alert "Triangle", no matter which signal word appears next to the "Exclamation Point" symbol.

『DANGER』 indicates imminent hazard of a situation that, if not avoided, is very likely to cause death or extremely serious injury.

『WARNING』 indicates potential of a hazardous situation that, if not avoided, could result in serious injury or death.

『CAUTION』 indicates potential of a hazardous situation that, if not avoided, could result in minor or moderate injury.

1.4. Cautions for basic items

Read this manual and nameplate for caution on the Orange Grapple, and fully understand it.

- The Orange Grapple shall be maintained so that it always has normal state.
- It is not permitted to any modifications on Orange Grapple.
- The functions and durability of Orange Grapple will be decreased if safety is not ensured.
- Special attention shall be paid to safety-related matters other than those described in this manual.

1) Prohibition of modification of Orange Grapple

Any modification made without authorization or written approval from HD Hyundai Construction Equipment can create a safety hazard, for which the machine owner must be held responsible. If you need any modifications, please consult HD Hyundai Construction Equipment.

2) Caution for handling oil

- Oil is dangerous because it is inflammable.
- Do not place heat or fire near the oil.
- High-inflammable oil must be kept away from flames.
- Do not stock dust-cloth which is stained with oil because there is potential to occur spontaneous combustion.

3) Burn prevention

- Inspection or maintenance work must be performed when the machine is fully cooled after turning engine off.
- Pay full attention not to have burn with hot oil.
- High-pressure hoses, pipes and etc become hot.

4) Furnishing fire-fighting equipment

- Prepare for the possible damages or fires.
- An emergency medical kit and a fire extinguisher must be equipped. Particularly, you must have a full knowledge of a fire extinguisher.
- Memorize the emergency telephone number of emergency hospital, emergency vehicle, fire house and so on.

5) Injury due to attachment and work tools

- Be careful that body such as hands, arms is not inserted into movable parts such as gaps between work attachment and machine and between work attachment and cylinder.
- Serious injury may occur if the gap is changed by the moves of work attachment.

6) Windows must be closed when operating the machine

When operation, people other than necessary operator must be separated from the site where drop and scattering from the machine may occur.

7) Assure safety at the work site

- Check whether there are risks at the worksite before starting work.
- Determine optimum safe work method after checking working conditions at the worksite.
- If there is slope at the worksite, make machine flat before starting work.

8) Fire protection

- Remove any the inflammables around the machine.
- Check the leakage of hydraulic oil.
- Be assure where the extinguisher and how to use it.

9) Collision of front attachment shall be prevented

- If the machine is in any limited place of overhead, make sure that there is adequate overhead clearance for differ front.

10) Ensuring sufficient sight

- Be careful when working in dark area, use the additional working lamp if the light is insufficient from the machine.

11) Machine stop

- Park the machine on flat and hard place.

12) Cautions when checking or repairing hydraulic parts

- Park the machine where plat and stable place.
- Down the bucket on the ground and stop engine.
- Right after working, waiting and repairing until devices temperature down.
- If you hurry to start repair within the machine still hot and remaining pressure, there will be serious damaged with burning or outburst of hot oil.
- Get rid of the pressure from hydraulic oil tank before repairing the hydraulic devices.
- Get rid of the pressure from hydraulic circuit with fully operate joystick lever on several time.
- Must be careful, when disconnect the hydraulic lines, plugs or fittings. Keep your face at a distance from the possible leakage point.

13) Warning indication during checking or repairing

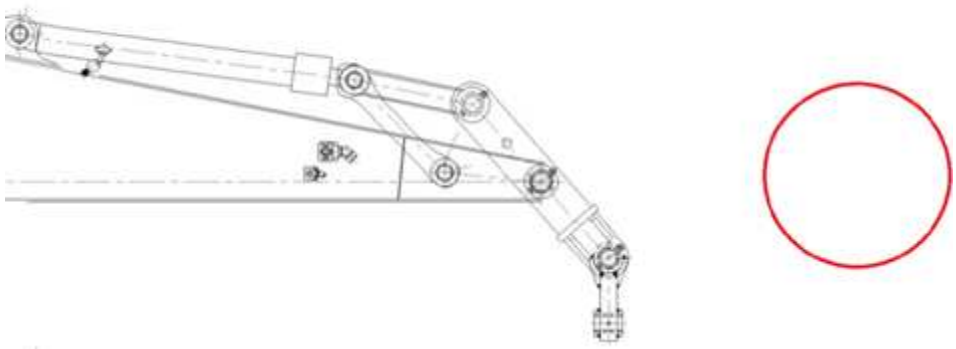
- Put the sign of “checking” or “repairing” on the operating room or the operating lever to prevent somebody operates during the repairing.

14) Use of proper tool

15) Stop the machine when checking or repairing it

16) B type connector (Option)

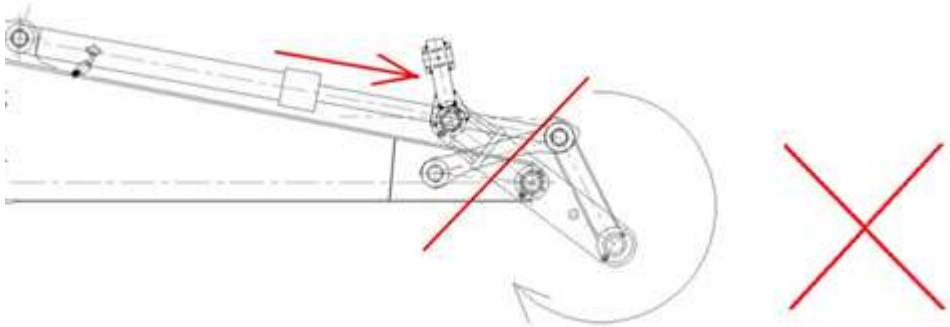
When working with B-type connector, an operator should work in the following position.



If you work in a position other than the allowable, it is possible to occur an interference between arm and connector.

- When working with orange grapple (B-type connector), an operator should be care about the interference with arm.

If you pull out the bucket cylinder, there could be damage and collision as follows.



2. Specification

2-1 General Specification

ITEM	UNIT	SPECIFICATION
CAPACITY	CBM(m^3)	0.5
WEIGHT	kg (lb)	1,547 (3410)

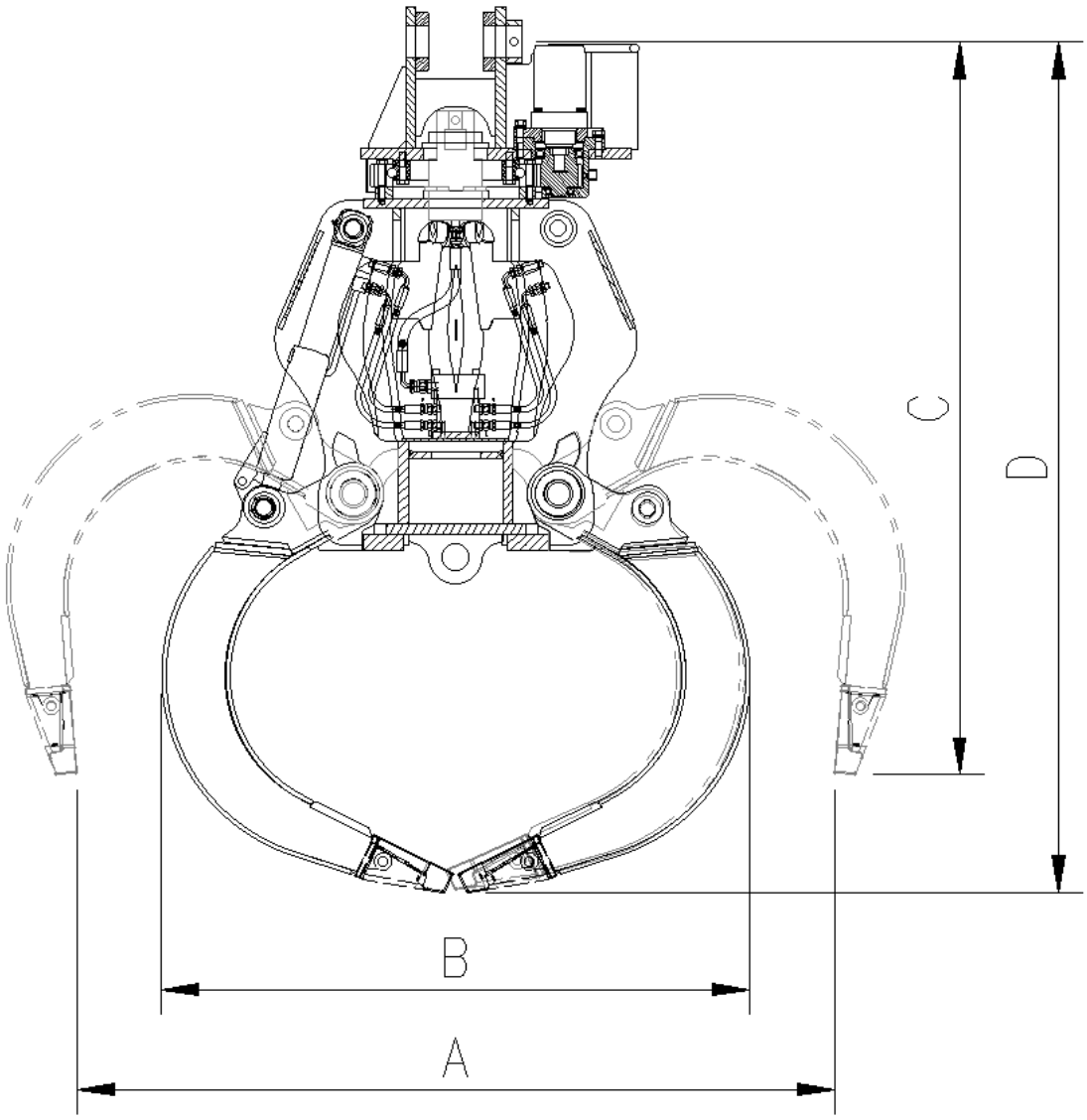
2-2. Hydraulic Cylinder

ITEM	UNIT	SPECIFICATION
CLOSED LENGTH	mm	490
STROKE	mm	235
BORE DIAMETER	mm	Ø65

*** Please note the following to prevent damage due to sudden pressure rise inside the cylinder.**

- After the initial installation and repeat the purging air procedures of the cylinder.
- When repeating the initial purging air procedures more than 5 times, care must be taken to ensure that the relief valve pressure of the cylinder does not reach the maximum pressure.

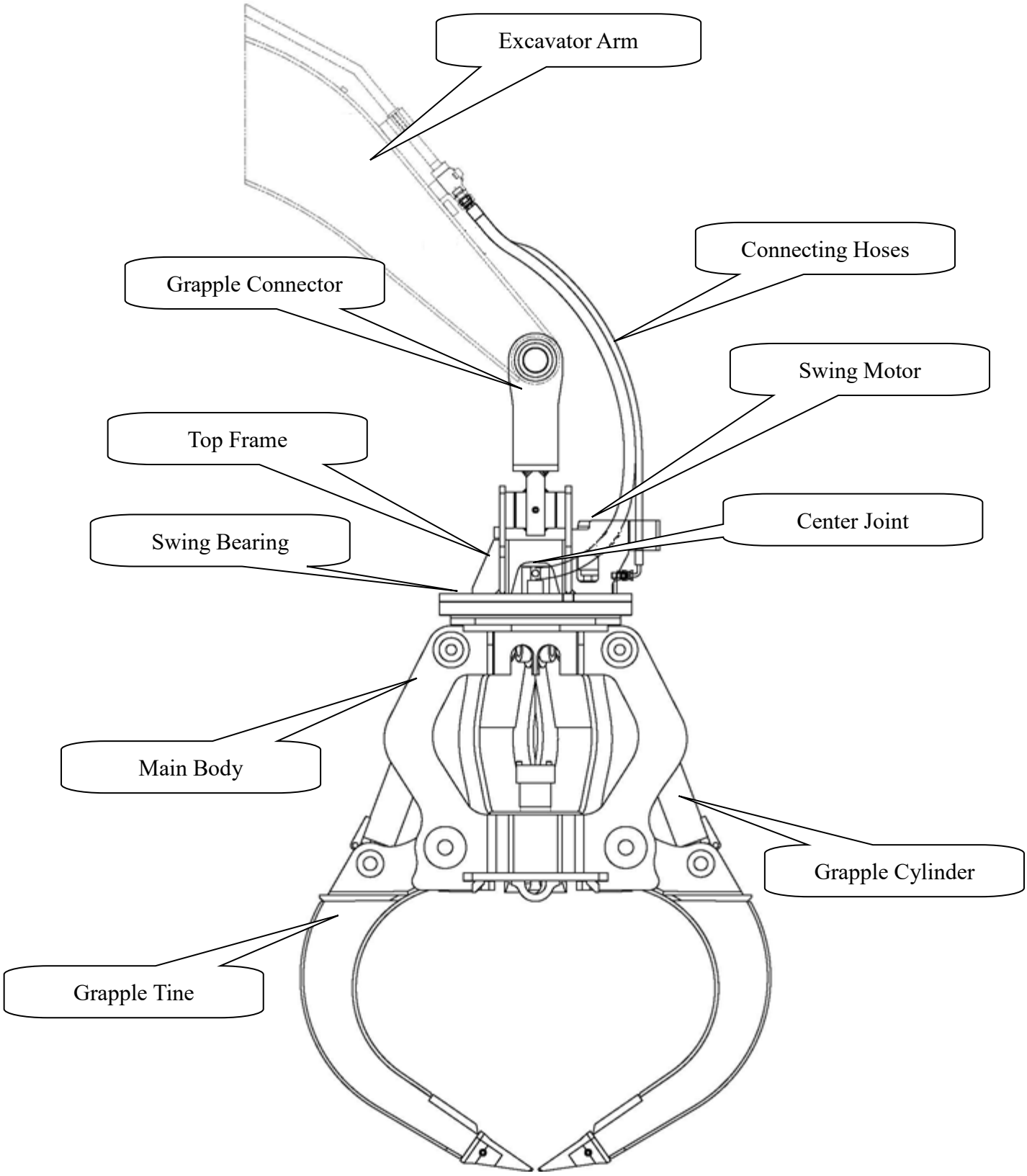
2-3. Dimensions



MODEL	UNIT	SPECIFICATION
A	mm	Ø1846
B	mm	Ø1434
C	mm	1785
D	mm	2072

3. Structure & Installation

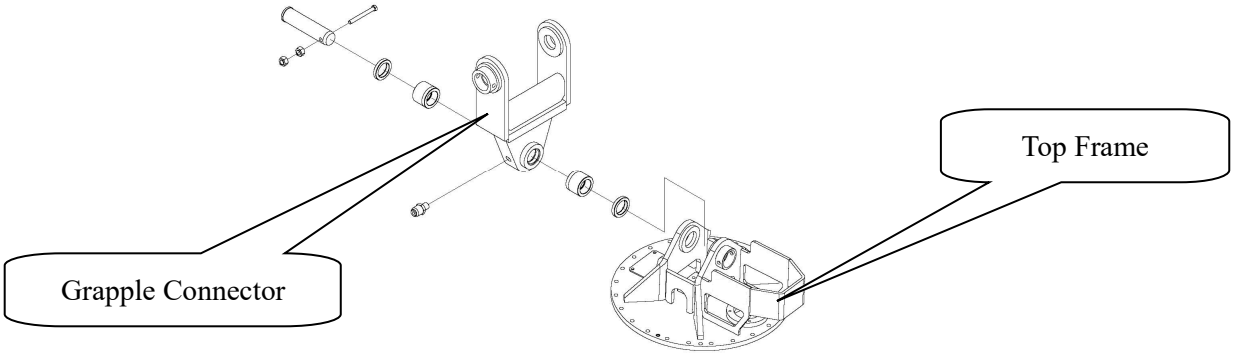
3.1 Names of Each Part



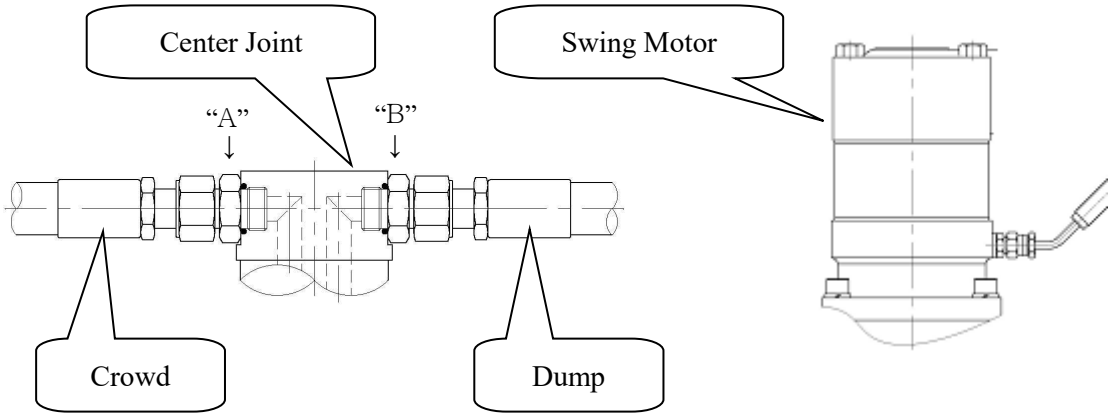
3.2 Installation to Arm

1) Preparation of Installation

- Attach Grapple Connector to Top Frame.



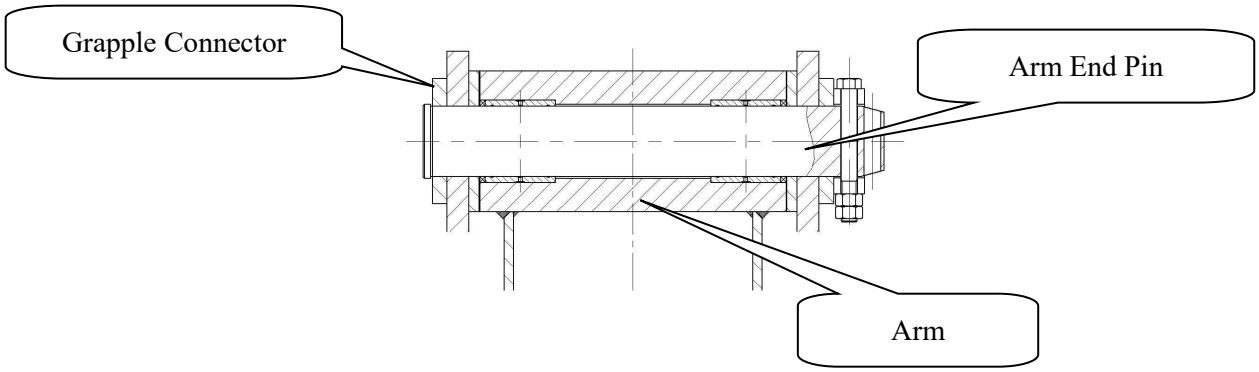
- Connect hoses to Center joint and Swing motor



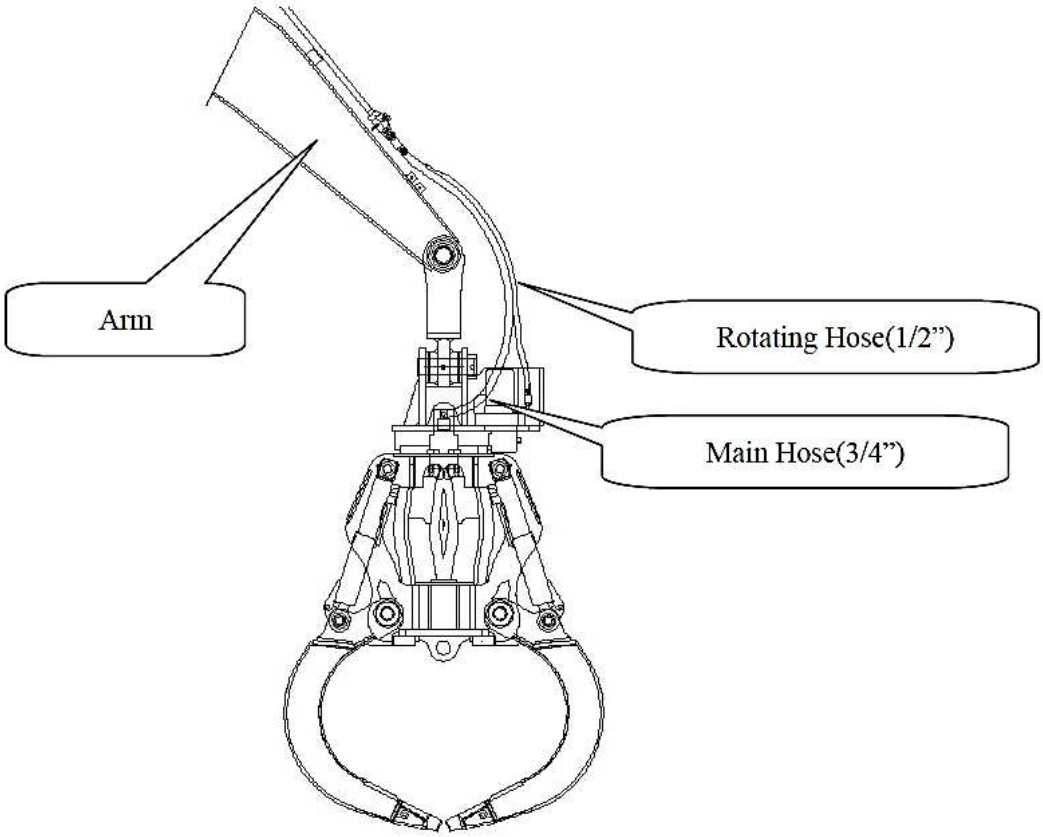
Warning

Pay attention to the "A" and "B" directions. When the direction changes, no digging force is generated.

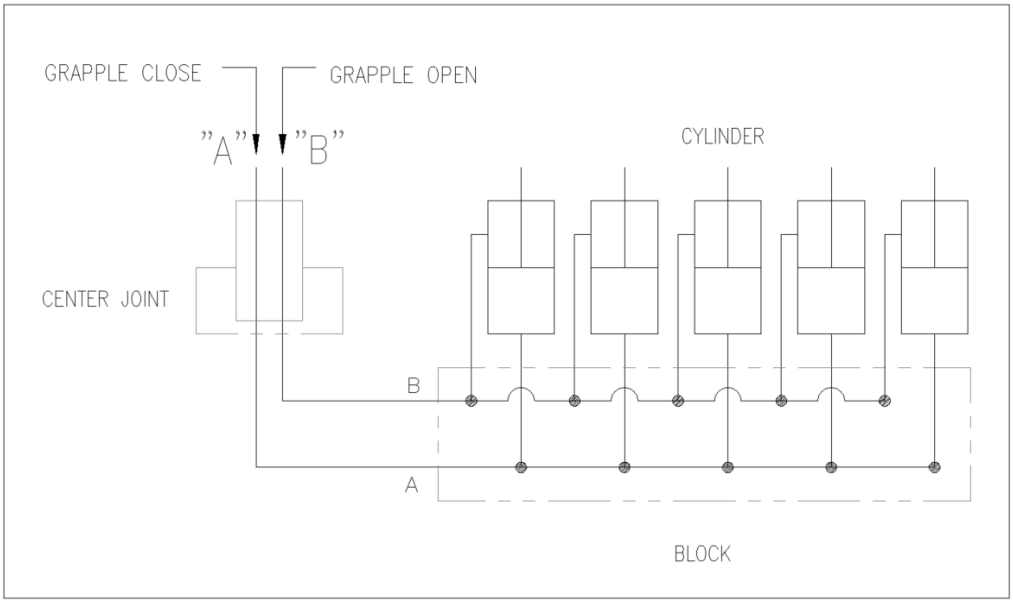
2) Connect the Grapple Connector to Arm with Arm End Pin.



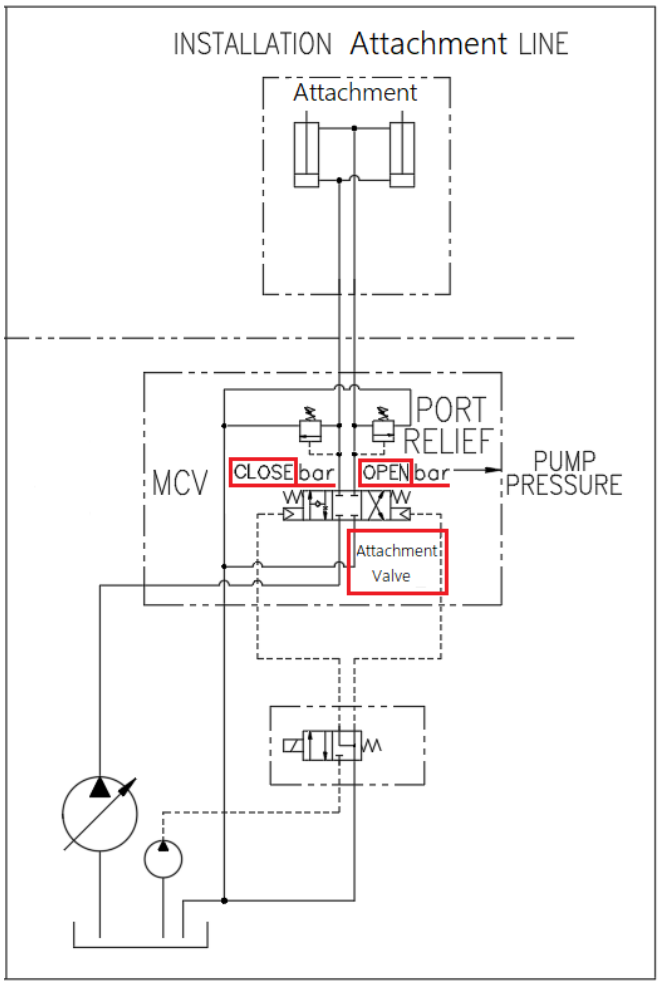
3) Connect hydraulic hoses to arm



4) Hydraulic circuit diagram



4. Port Relief valves in Main Control Valve Setting



SOG	CYLINDER		MOTOR
	CLOSE	OPEN	
RELIEF PRESSURE bar	290	210	70
WORKING FLOW Litter/min	120	60	16

Item		unit	SPECIFICATION
Relief valve set - Grapple Line at Main Pump	Open	Mpa (bar)	21 (210)
	Close	Mpa (bar)	29 (290)
Grapple Speed	Open	(sec)	(2.0)
	Close	(sec)	(2.0)

* **Main Control Valve can be different depending on the Base Machine.**

- Adjust the set pressure of the hydraulic relief valve on the base machine to match the value shown in the Table above.
- Adjust the oil flow rate of the hydraulic pump on the base machine so that Grapple open / close speed does not become faster than the speed shown in the Table above.
- These details are for guidance only and may be changed for improvement without prior notice.

5. Check and Maintenance

Only the person who was authorized or trained by our company can repair and maintain the orange grapple.

5.1 General Items

Perfect checking and maintenance make machine's functionalities fully operational and extend a length of machine's life.
Particularly, pay a special attention to the following items when operating the machine.

1) Operating devices, gauges and etc are normal?
2) Are there any abnormalities in appearance? Are there any strange noise, heat generation, and etc?
3) Are there any loose of bolts or nuts?
4) Are there any damages, wears and disassemblies of structures or components?
5) Is the operation of each part OK?

If disorders are found during checking or operation, please grasp the reason and repair them immediately.
If the reason is unclear or hydraulic parts have problems, please contact us.

5.2 Directions when checking or having maintenance

1) Pay close attention to safety
2) Make a plan suitable for the operating condition or environment so that the checks and repairs are executed effectively
3) Use proper lubricating oil
4) Use parts approved by the manufacturer
5) Any changes or modifications of the machine are not permitted.

5.3 Preparations before starting repair

Before starting repairs described in this manual, the machine should be stopped as follows, except otherwise described.
1) Orange Grapple should be placed on the safe place.
2) Make 'Lock' status by raising control stand of machine
3) A message label of 'No start-up" should be attached on the control lever

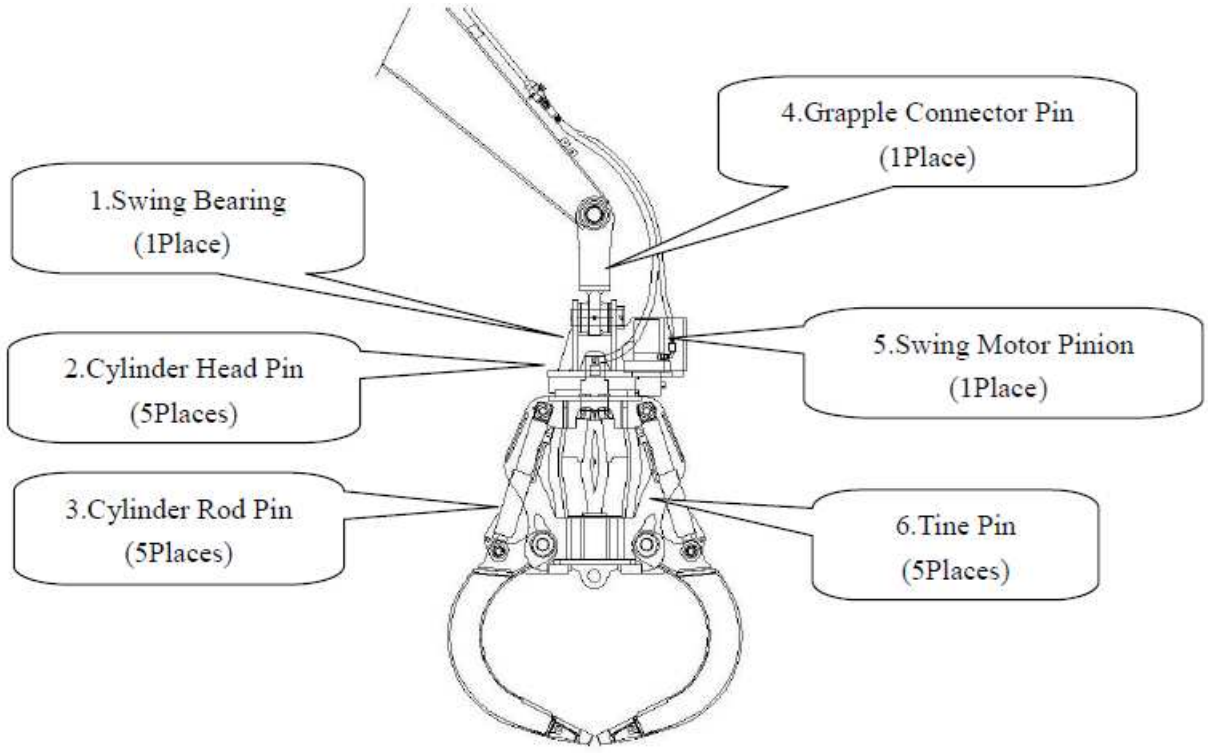
5.4 Regular replacement of important parts

The machine should be inspected regularly to secure safety when working or operating.
Furthermore, particularly the following parts related to fire should be replaced regularly for higher safety. These parts, if particular abnormalities are not found after used for specific period, should be replaced with the new ones to keep their full functionalities, since wear, heat deterioration and fatigue in these parts are to be occurred and their degree of damage is hard to be decided only by regular maintenance. Furthermore, when the deformations, cracks or so on in the hose clamps are occurred at the hose connections, clamps should be replaced simultaneously. O-RINGs and GASKETs are recommended to be replaced together with the hose.
For the replacement of important parts, please contact HD Hyundai Construction Equipment or HD Hyundai Dealer.

5.5 Locations where greases are to be inserted

They should be inserted at every 50 hours (If during initial 100 hours, it should be inserted everyday)

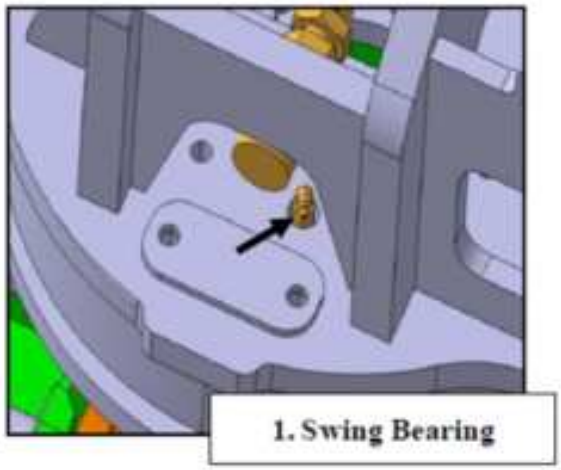
1) Pose the machine according to following figures, and then lower the front attachment on the ground and stop the engine.
2) Push the grease fittings indicated in the following figures by using grease gun.
3) Wash out clearly the old grease coming out after inserting new grease.



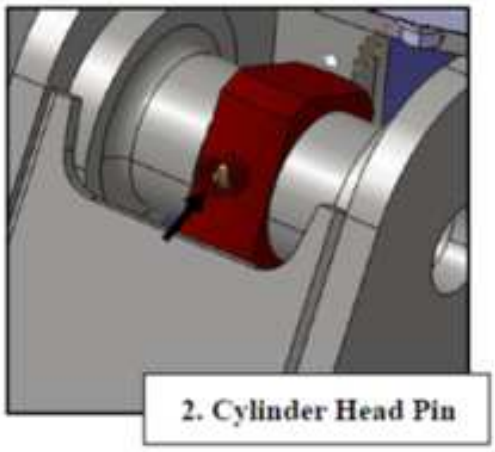
Location of Nipples for Greasing

Warning

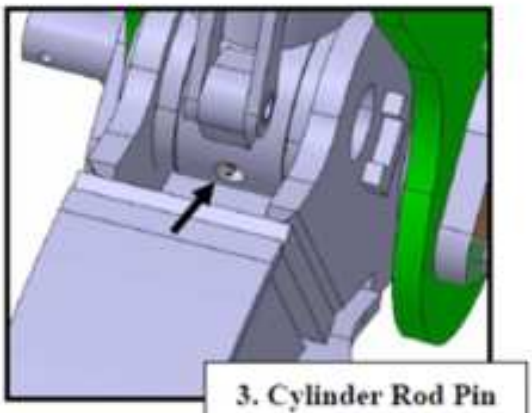
Depending on the type of equipment, the quantity of teeth and the direction of grease would be different. For details, refer to the parts list in this manual.



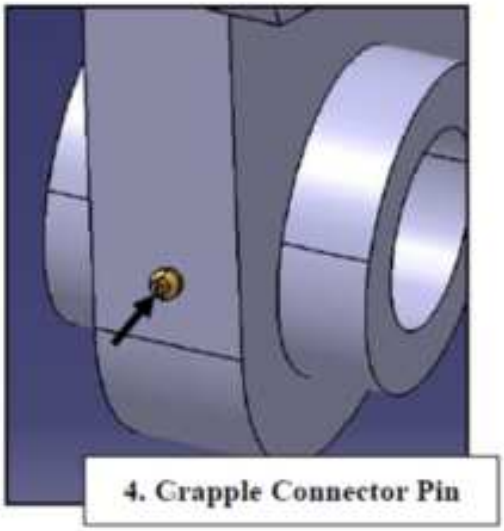
1. Swing Bearing



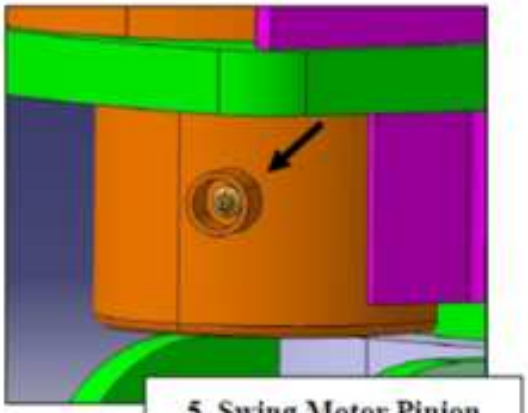
2. Cylinder Head Pin



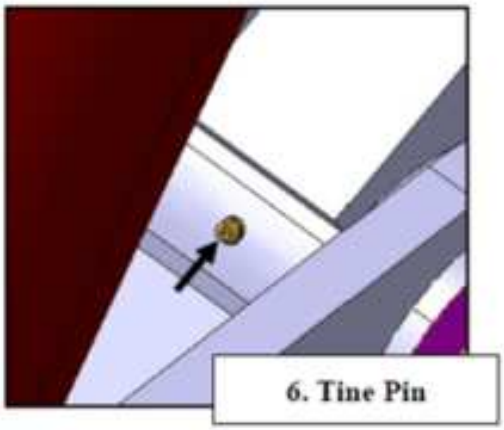
3. Cylinder Rod Pin



4. Grapple Connector Pin



5. Swing Motor Pinion



6. Tine Pin

6. Operation and Caution

6.1 Operation for new attachment

The orange grapple is required that the operator follow these two stops during initial break-in period. Failure to follow these two steps may result in damage to the equipment or reduced performance.

OPERATION HOUR	LOAD
FIRST 50 HOURS	Maintain about 80% load of full capacity(Engine RPM: 80% of rated RPM)
AFTER 50 HOURS	Full load

Note:

1. *Check daily for leakage of hydraulic oil.*
2. *Inspect all lubricants daily and add as required.*
3. *During operation, monitor all instruments and gauges from time to time.*
4. *Operate unit at 80% load until engine and all other components are at operating temperature.*
5. *Check that equipment is working normally during operation.*
6. *After assemble the orange grapple, fully remove air inside hydraulic line.*

6.2 Operating precautions

1) Before starting work

① Keep attention when working where there is a possibility of falling objects.
② Check the operating of orange grapple is normal or not.
③ Check any leakage of coolant or oil.

2) During work

① Make sure nothing remain inside machine working range.
② These are unique noise of the orange grapple not in trouble.
-. There is sharp noise sometime when the actuator break-in working. These sounds are cracking sounds from relief valves when sudden start or stop.
③ Add more additional counter weight when the stability of machine is not normal during the work. (Make an inquiry to our office when modify the machine.)

3) After work

① Check any leakage, any damage on hoses or pipes and loosening of bolt/nut etc.
② Check hydraulic level from the tank.
③ Keep clean the machine.

7. Troubleshooting

Trouble	Probable cause	Remedy
The grapple does not work	Make-up check hydraulic line leaking	Repair or replace as required.
	Relief pressure too low	Reset pressure.
	Hydraulic pump failed	Contact your dealer.
	Low hydraulic oil level	Add hydraulic oil as required.
The grapple has poor power	Relief pressure too low.	Reset pressure.
	Low hydraulic oil level.	Add hydraulic oil as required.
	Hydraulic pump faulty.	Contact your dealer.
The grapple speed is too low	Make-up check hydraulic line leaking	Repair or replace as required.

PARTS MANUAL

COMFORT INTELLIGENCE™

MATERIAL HANDLER

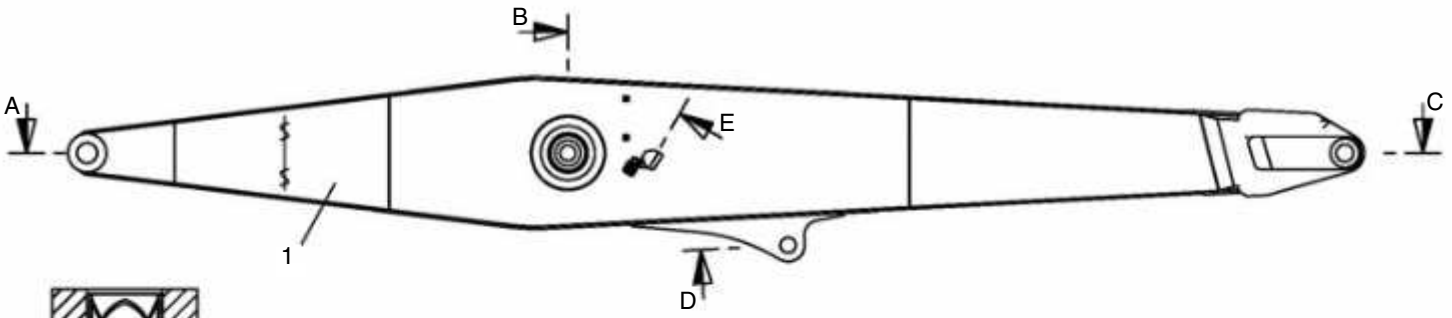
R210W-9SMH(#2329~)

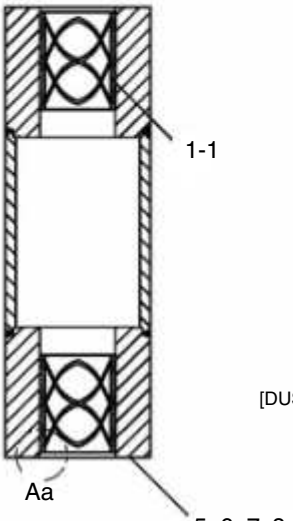
HD HYUNDAI CONSTRUCTION EQUIPMENT

CONTENTS

Material Handler

BOOM ASSY

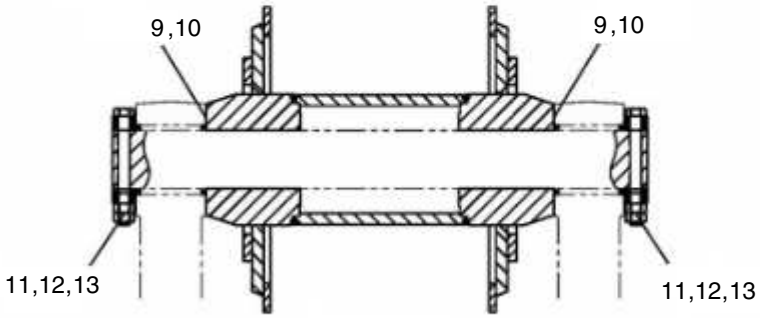




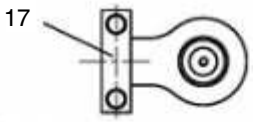
SECTION A

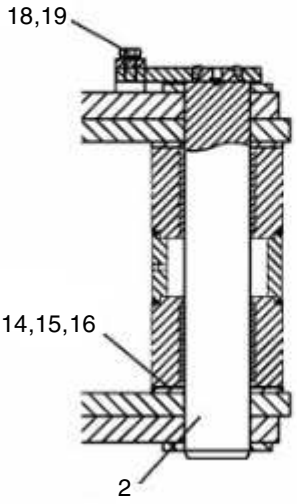
DETAIL Aa

[DUST SEAL DIRECTION]



SECTION B





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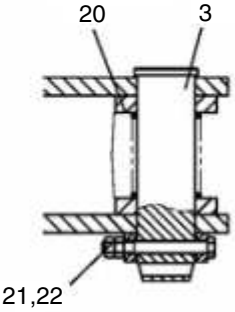
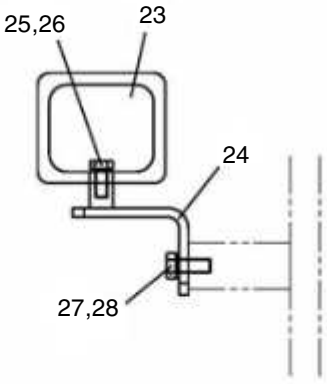


SECTION D



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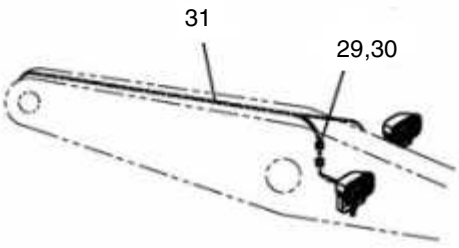
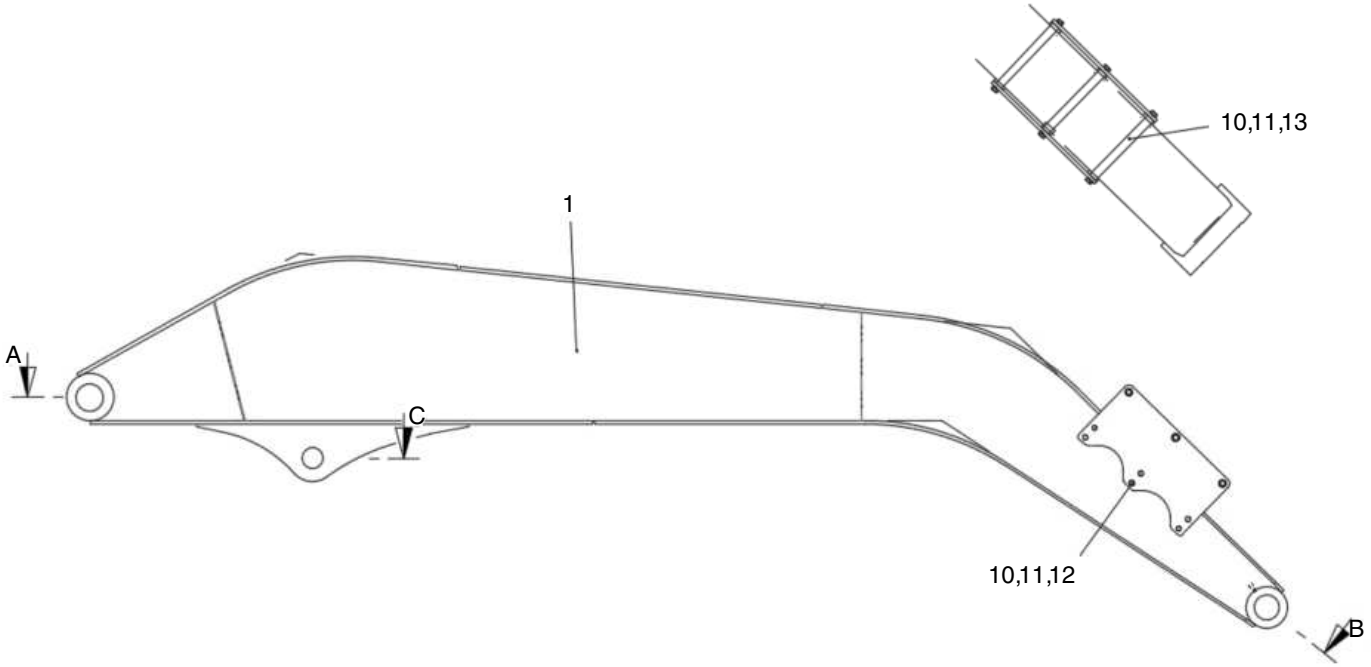


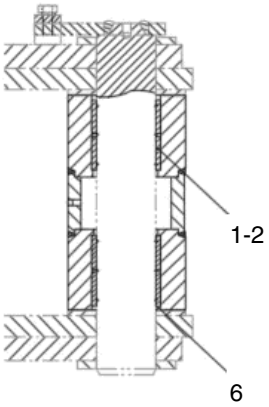
BOOM ASSY

R210W-9SMH(#2329-)

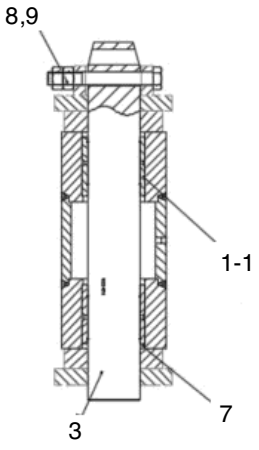
ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01664	BOOM ASSY	1	0 - 0		
1	XKDA-01665	. BOOM ASSY-MACH	1	0 - 0		
1-1	XKDA-00971	.. BUSHING	2	0 - 0		
2	XKDA-01666	. PIN	1	0 - 0		L=538
3	XKDA-01667	. PIN	1	0 - 0		L=293
4	XKDA-00121	. SEAL-DUST	2	0 - 0		
5	S993-090200	. SHIM-POLYMER 2.0	2	0 - 0		
6	S991-090200	. SHIM-POLYMER 1.0	1	0 - 0		
7	S994-090200	. SHIM-POLYMER 2.5	1	0 - 0		
8	S992-090200	. SHIM-POLYMER 1.5	1	0 - 0		
9	S993-080140	. SHIM-POLYMER 2.0	4	0 - 0		
10	S991-080140	. SHIM-POLYMER 1.0	2	0 - 0		
11	61Q6-00320	. STOPPER-PIN	2	0 - 0		
12	S017-161606	. BOLT-HEX	2	0 - 0		
13	S205-161006	. NUT-HEX	4	0 - 0		
14	XKDA-01668	. SHIM	2	0 - 0		1.6t
15	XKDA-01669	. SHIM	2	0 - 0		1.3t
16	XKDA-01670	. SHIM	2	0 - 0		1t
17	XKDA-01671	. STOPPER	1	0 - 0		
18	XKDA-00101	. BOLT-HEX	2	0 - 0		
19	XKDA-00048	. WASHER-SPRING	2	0 - 0		
20	XKDA-01672	. SHIM	2	0 - 0		1t
21	XKDA-00690	. BOLT-HEX	1	0 - 0		
22	XKDA-00899	. NUT	2	0 - 0		
23	21QB-60700	. LAMP ASSY-WORK	2	0 - 0		
24	XKDA-00982	. BRACKET	2	0 - 0		
25	XKDA-00900	. BOLT-HEX	2	0 - 0		
26	XKDA-00050	. WASHER-SPRING	2	0 - 0		
27	XKDA-00746	. BOLT-HEX	2	0 - 0		
28	XKDA-00049	. WASHER-SPRING	2	0 - 0		
29	XKDA-00411	. CLIP	4	0 - 0		
30	XKDA-01624	. BOLT-HEX	4	0 - 0		
31	XKDA-01673	. HARNESS-WORKING LAMP	1	0 - 0		

ARM ASSY

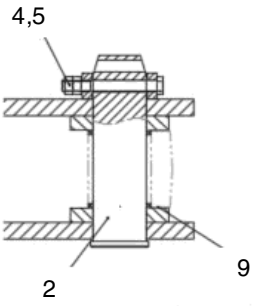




SECTION A



SECTION B



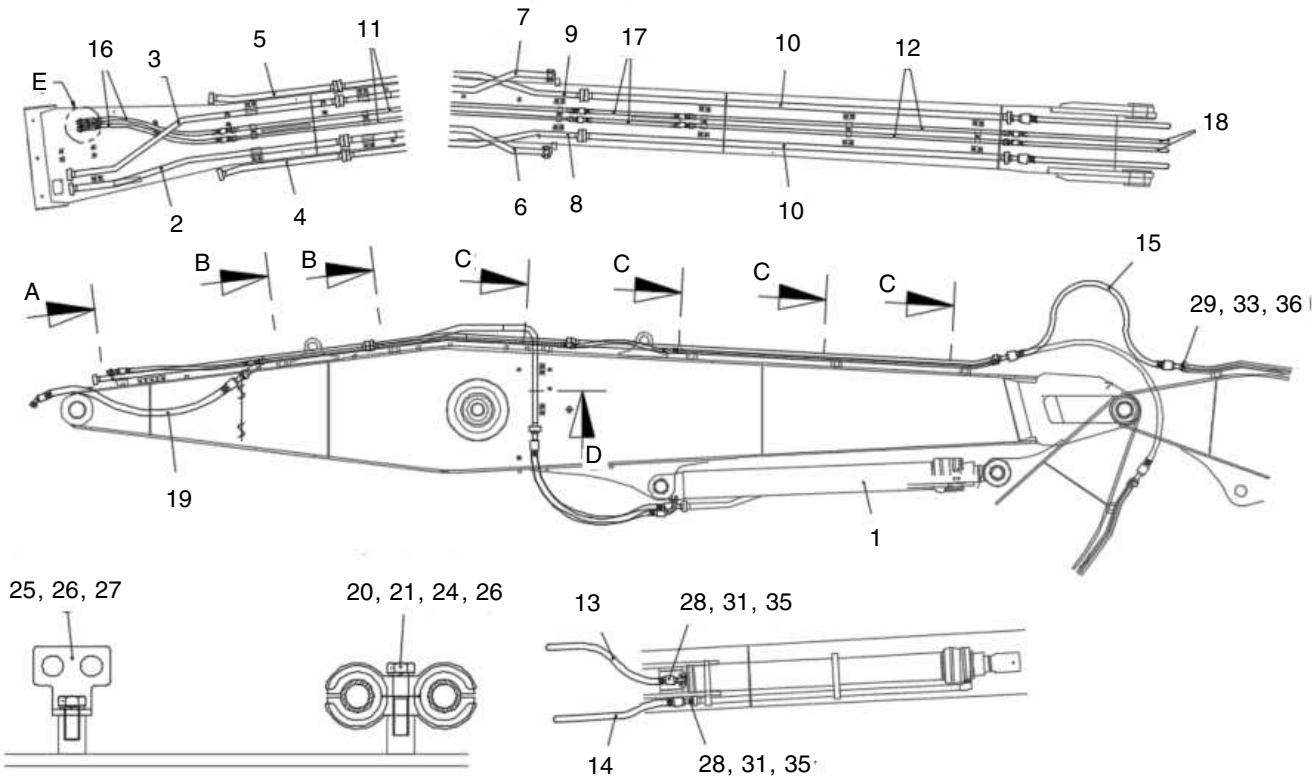
SECTION C

ARM ASSY

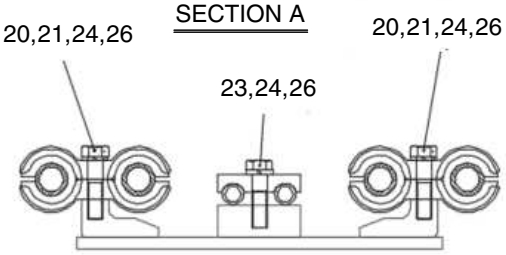
R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01674	ARM ASSY	1	0 - 0		
1	XKDA-01675	. ARM ASSY-MACH	1	0 - 0		
1-1	XKDA-01676	.. BUSHING	2	0 - 0		
1-2	XKDA-01677	.. BUSHING	2	0 - 0		
2	XKDA-01678	. PIN	1	0 - 0		L=293
3	XKDA-01679	. PIN	1	0 - 0		L=548
4	XKDA-00690	. BOLT-HEX	1	0 - 0		
5	XKDA-00899	. NUT	2	0 - 0		
6	XKDA-00121	. SEAL-DUST	2	0 - 0		
7	XKDA-00120	. SEAL-DUST	2	0 - 0		
8	XKDA-01680	. BOLT-HEX	1	0 - 0		
9	XKDA-00093	. NUT	2	0 - 0		
10	XKDA-00902	. BOLT-HEX	18	0 - 0		
11	XKDA-00048	. WASHER-SPRING	18	0 - 0		
12	XKDA-00994	. COVER	2	0 - 0		
13	XKDA-00995	. BAR	3	0 - 0		

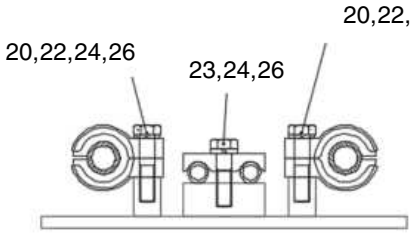
BOOM PIPING ASSY



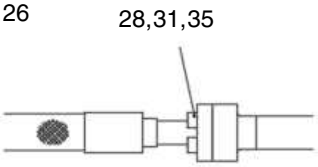
SECTION A



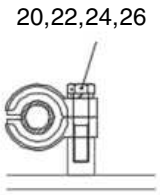
SECTION B
(2 PLACES)



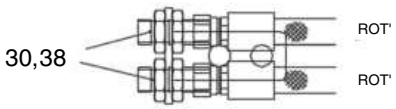
SECTION C
(4 PLACES)



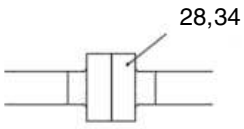
1"HOSE & 1" PIPE
(6 PLACES)



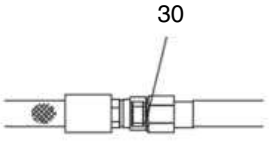
SECTION D
(2 PLACES)



DETAIL E



1"HOSE & 1" PIPE
(6 PLACES)



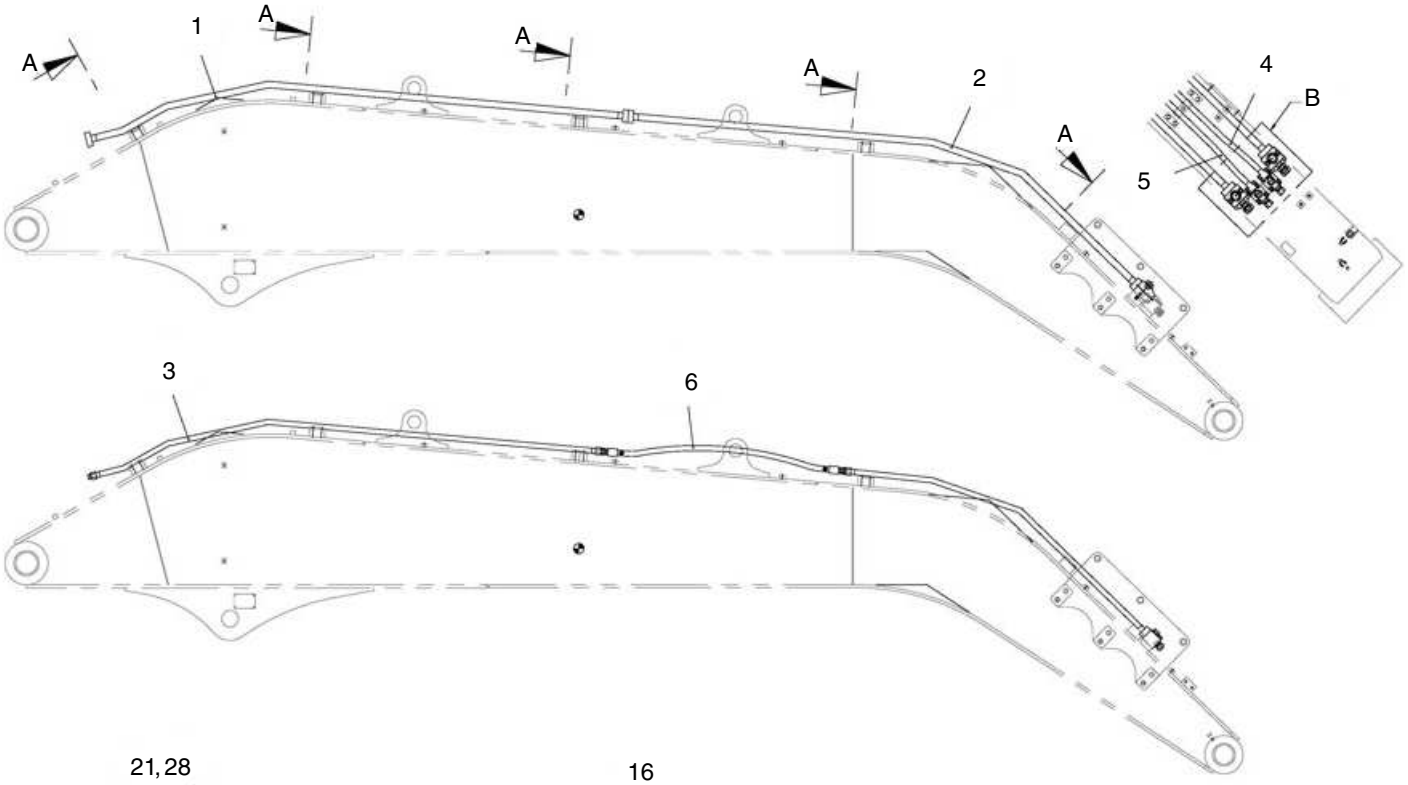
1/2"HOSE & 1/2" PIPE
(10 PLACES)

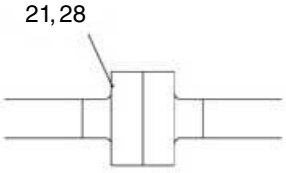
BOOM PIPING ASSY

R210W-9SMH(#2329-)

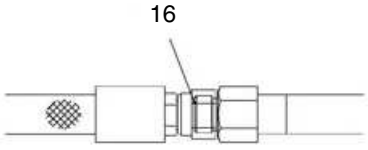
ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01681	PIPING-BOOM	1	0 - 0		
1	XKDA-01682	. CYLINDER-ARM	1	0 - 0		
2	XKDA-01683	. PIPE	1	0 - 0		
3	XKDA-01684	. PIPE	1	0 - 0		
4	XKDA-01685	. PIPE	1	0 - 0		
5	XKDA-01686	. PIPE	1	0 - 0		
6	XKDA-01687	. PIPE	1	0 - 0		
7	XKDA-01688	. PIPE	1	0 - 0		
8	XKDA-01689	. PIPE	1	0 - 0		
9	XKDA-01690	. PIPE	1	0 - 0		
10	XKDA-01691	. PIPE	2	0 - 0		
11	XKDA-01692	. PIPE	2	0 - 0		
12	XKDA-01693	. PIPE	2	0 - 0		
13	XKDA-01694	. HOSE	1	0 - 0		L=1350
14	XKDA-01695	. HOSE	1	0 - 0		L=1330
15	XKDA-01696	. HOSE	2	0 - 0		L=1710
16	XKDA-01015	. HOSE	2	0 - 0		L=930
17	XKDA-01697	. HOSE	2	0 - 0		L=730
18	XKDA-01698	. HOSE	2	0 - 0		L=1750
19	XKDA-01699	. HOSE	2	0 - 0		L=1430
20	XKDA-00328	. PAD-RUBBER	22	0 - 0		
21	XKDA-01018	. CLAMP	10	0 - 0		
22	XKDA-00781	. CLAMP	24	0 - 0		
23	XKDA-00035	. CLAMP-PIPE	6	0 - 0		
24	XKDA-00783	. BOLT-HEX	40	0 - 0		
25	XKDA-00101	. BOLT-HEX	2	0 - 0		
26	XKDA-00048	. WASHER-SPRING	42	0 - 0		
27	XKDA-01024	. BRACKET	1	0 - 0		
28	XKDA-00649	. O-RING	12	0 - 0		
29	XKDA-01020	. O-RING	2	0 - 0		
30	XKDA-00336	. O-RING	14	0 - 0		
31	XKDA-00790	. FLANGE	16	0 - 0		
33	XKDA-01044	. FLANGE-SPLIT	4	0 - 0		
34	XKDA-00074	. BOLT-SOCKET	24	0 - 0		
35	XKDA-00053	. BOLT-SOCKET	32	0 - 0		
36	XKDA-01021	. BOLT-SOCKET	8	0 - 0		
38	XKDA-00851	. ADAPTER	2	0 - 0		

ARM PIPING ASSY (1/2)





3/4"HOSE & 3/4" PIPE
(1 PLACES)



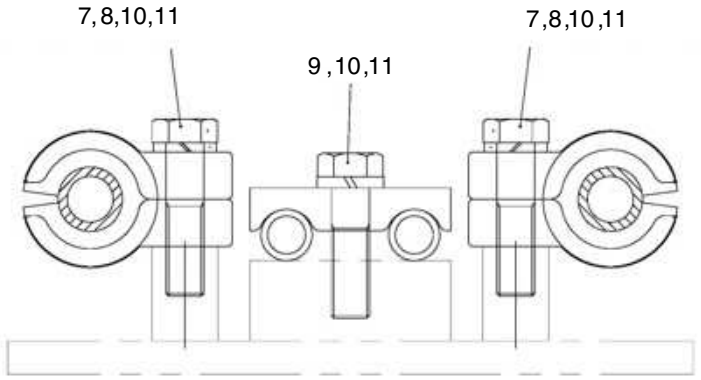
1/2"HOSE & 1/2" PIPE
(4 PLACES)

ARM PIPING ASSY (1/2)

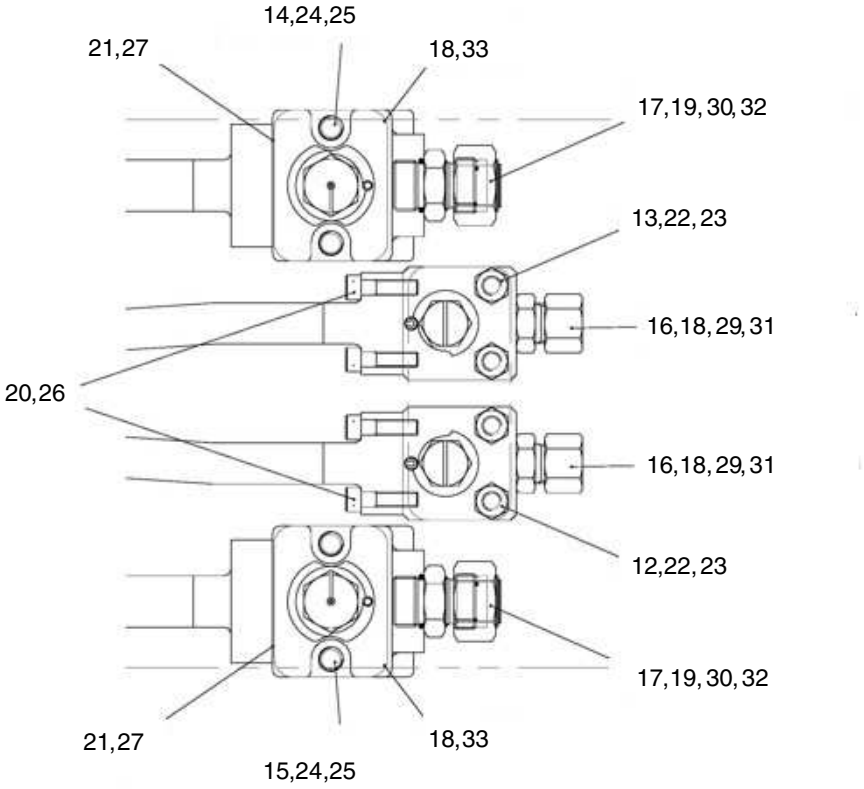
R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01700	PIPING-ARM	1	0 - 0		
1	XKDA-01701	. PIPE	2	0 - 0		
2	XKDA-01702	. PIPE	2	0 - 0		
3	XKDA-01703	. PIPE	2	0 - 0		
4	XKDA-01704	. PIPE	1	0 - 0		
5	XKDA-01705	. PIPE	1	0 - 0		
6	XKDA-01697	. HOSE	2	0 - 0		L=730
7	XKDA-01038	. SEAL-RUBBER	10	0 - 0		
8	XKDA-01039	. CLAMP-PIPE	20	0 - 0		
9	XKDA-00035	. CLAMP-PIPE	5	0 - 0		
10	XKDA-00048	. WASHER-SPRING	25	0 - 0		
11	XKDA-00783	. BOLT-HEX	25	0 - 0		
12	XKDA-00416	. VALVE-STOP RH	1	0 - 0		
13	XKDA-00389	. VALVE-STOP LH	1	0 - 0		
14	XKDA-01040	. VALVE-STOP LH	1	0 - 0		
15	XKDA-01041	. VALVE-STOP RH	1	0 - 0		
16	XKDA-00336	. O-RING	6	0 - 0		
17	XKDA-01042	. O-RING	2	0 - 0		
18	XKDA-00066	. O-RING	4	0 - 0		
19	XKDA-00591	. O-RING	2	0 - 0		
20	XKDA-00814	. O-RING	2	0 - 0		
21	XKDA-01020	. O-RING	4	0 - 0		
22	XKDA-00050	. WASHER-SPRING	4	0 - 0		
23	XKDA-00811	. BOLT-HEX	4	0 - 0		
24	XKDA-00049	. WASHER-SPRING	4	0 - 0		
25	XKDA-00812	. BOLT-SOCKET	4	0 - 0		
26	XKDA-00813	. BOLT-SOCKET	8	0 - 0		
27	XKDA-01021	. BOLT-SOCKET	8	0 - 0		
28	XKDA-01043	. BOLT-SOCKET	8	0 - 0		
29	XKDA-01045	. ADAPTER	2	0 - 0		
30	XKDA-01046	. ADAPTER	2	0 - 0		
31	XKDA-01047	. CAP	2	0 - 0		
32	XKDA-01048	. CAP	2	0 - 0		
33	XKDA-01049	. PLUG	2	0 - 0		

ARM PIPING ASSY (2/2)



SECTION A
(5 PLACES)



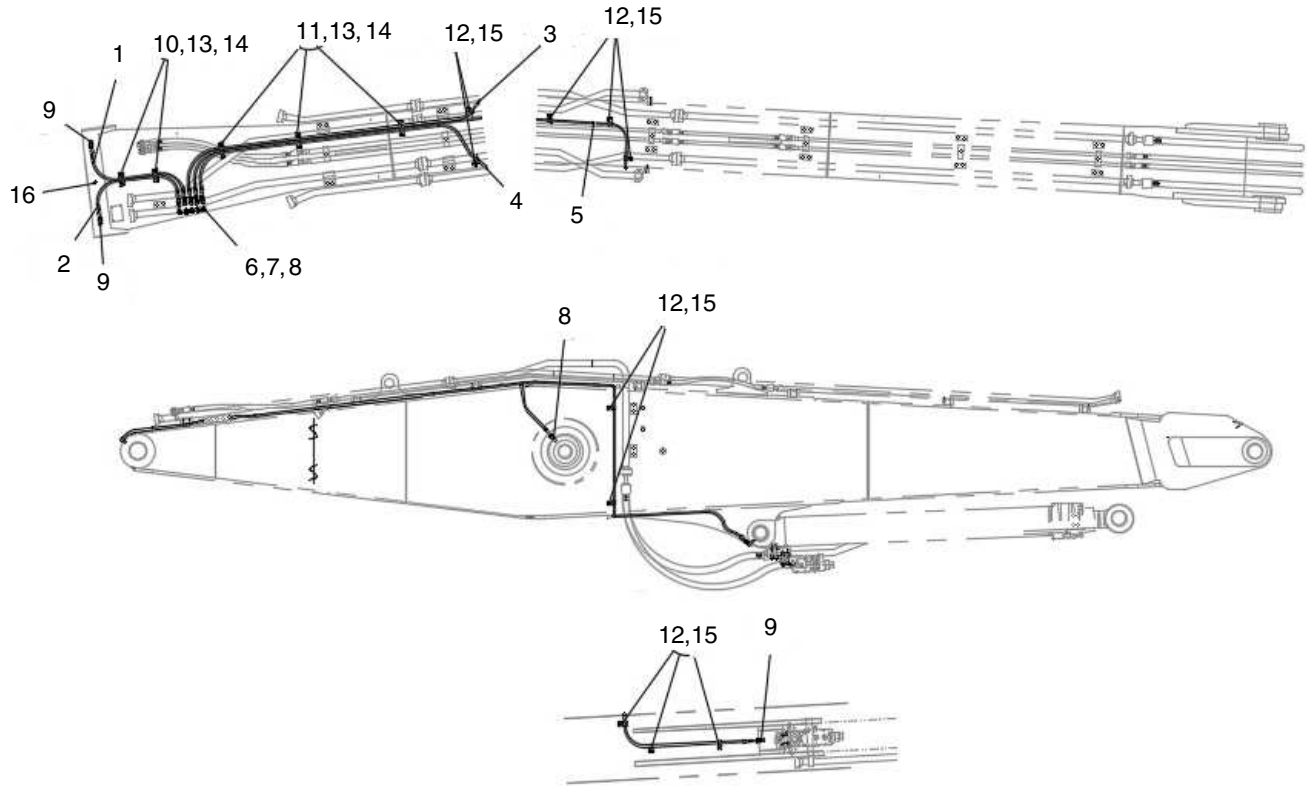
DETAIL B

ARM PIPING ASSY (2/2)

R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01700	PIPING-ARM	1	0 - 0		
1	XKDA-01701	. PIPE	2	0 - 0		
2	XKDA-01702	. PIPE	2	0 - 0		
3	XKDA-01703	. PIPE	2	0 - 0		
4	XKDA-01704	. PIPE	1	0 - 0		
5	XKDA-01705	. PIPE	1	0 - 0		
6	XKDA-01697	. HOSE	2	0 - 0		L=730
7	XKDA-01038	. SEAL-RUBBER	10	0 - 0		
8	XKDA-01039	. CLAMP-PIPE	20	0 - 0		
9	XKDA-00035	. CLAMP-PIPE	5	0 - 0		
10	XKDA-00048	. WASHER-SPRING	25	0 - 0		
11	XKDA-00783	. BOLT-HEX	25	0 - 0		
12	XKDA-00416	. VALVE-STOP RH	1	0 - 0		
13	XKDA-00389	. VALVE-STOP LH	1	0 - 0		
14	XKDA-01040	. VALVE-STOP LH	1	0 - 0		
15	XKDA-01041	. VALVE-STOP RH	1	0 - 0		
16	XKDA-00336	. O-RING	6	0 - 0		
17	XKDA-01042	. O-RING	2	0 - 0		
18	XKDA-00066	. O-RING	4	0 - 0		
19	XKDA-00591	. O-RING	2	0 - 0		
20	XKDA-00814	. O-RING	2	0 - 0		
21	XKDA-01020	. O-RING	4	0 - 0		
22	XKDA-00050	. WASHER-SPRING	4	0 - 0		
23	XKDA-00811	. BOLT-HEX	4	0 - 0		
24	XKDA-00049	. WASHER-SPRING	4	0 - 0		
25	XKDA-00812	. BOLT-SOCKET	4	0 - 0		
26	XKDA-00813	. BOLT-SOCKET	8	0 - 0		
27	XKDA-01021	. BOLT-SOCKET	8	0 - 0		
28	XKDA-01043	. BOLT-SOCKET	8	0 - 0		
29	XKDA-01045	. ADAPTER	2	0 - 0		
30	XKDA-01046	. ADAPTER	2	0 - 0		
31	XKDA-01047	. CAP	2	0 - 0		
32	XKDA-01048	. CAP	2	0 - 0		
33	XKDA-01049	. PLUG	2	0 - 0		

BOOM GREASE PIPING

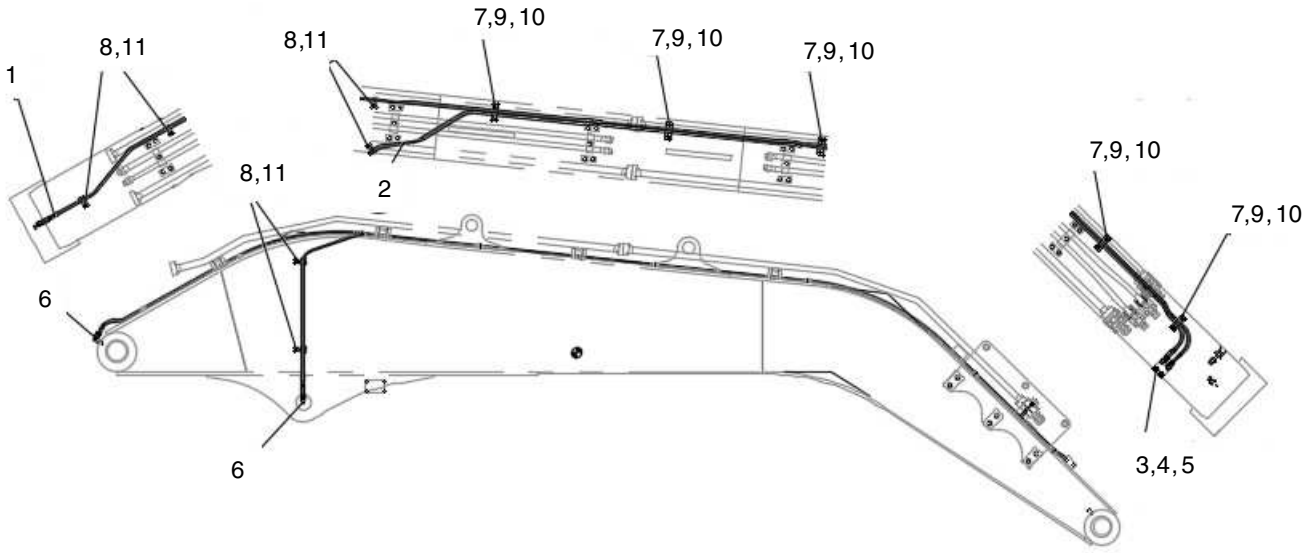


BOOM GREASE PIPING

R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01706	PIPING-BOOM GREASE	1	0 - 0		
1	XKDA-01707	. HOSE	1	0 - 0		L=820
2	XKDA-01708	. HOSE	1	0 - 0		L=770
3	XKDA-01709	. HOSE	1	0 - 0		L=2380
4	XKDA-01710	. HOSE	1	0 - 0		L=2420
5	XKDA-01711	. HOSE	1	0 - 0		L=4700
6	XKDA-00124	. FITTING-GREASE	5	0 - 0		
7	XKDA-01073	. CAP-GREASE NIPPLE	5	0 - 0		
8	XKDA-00160	. ADAPTER	7	0 - 0		
9	XKDA-00159	. ELBOW	3	0 - 0		
10	XKDA-01071	. PLATE	2	0 - 0		
11	XKDA-01072	. PLATE	3	0 - 0		
12	XKDA-01712	. CLIP	10	0 - 0		
13	XKDA-00090	. BOLT-HEX	10	0 - 0		
14	XKDA-00050	. WASHER-SPRING	10	0 - 0		
15	XKDA-01624	. BOLT-HEX	10	0 - 0		
16	XKDA-00161	. SCREW-SET	1	0 - 0		

ARM GREASE PIPING

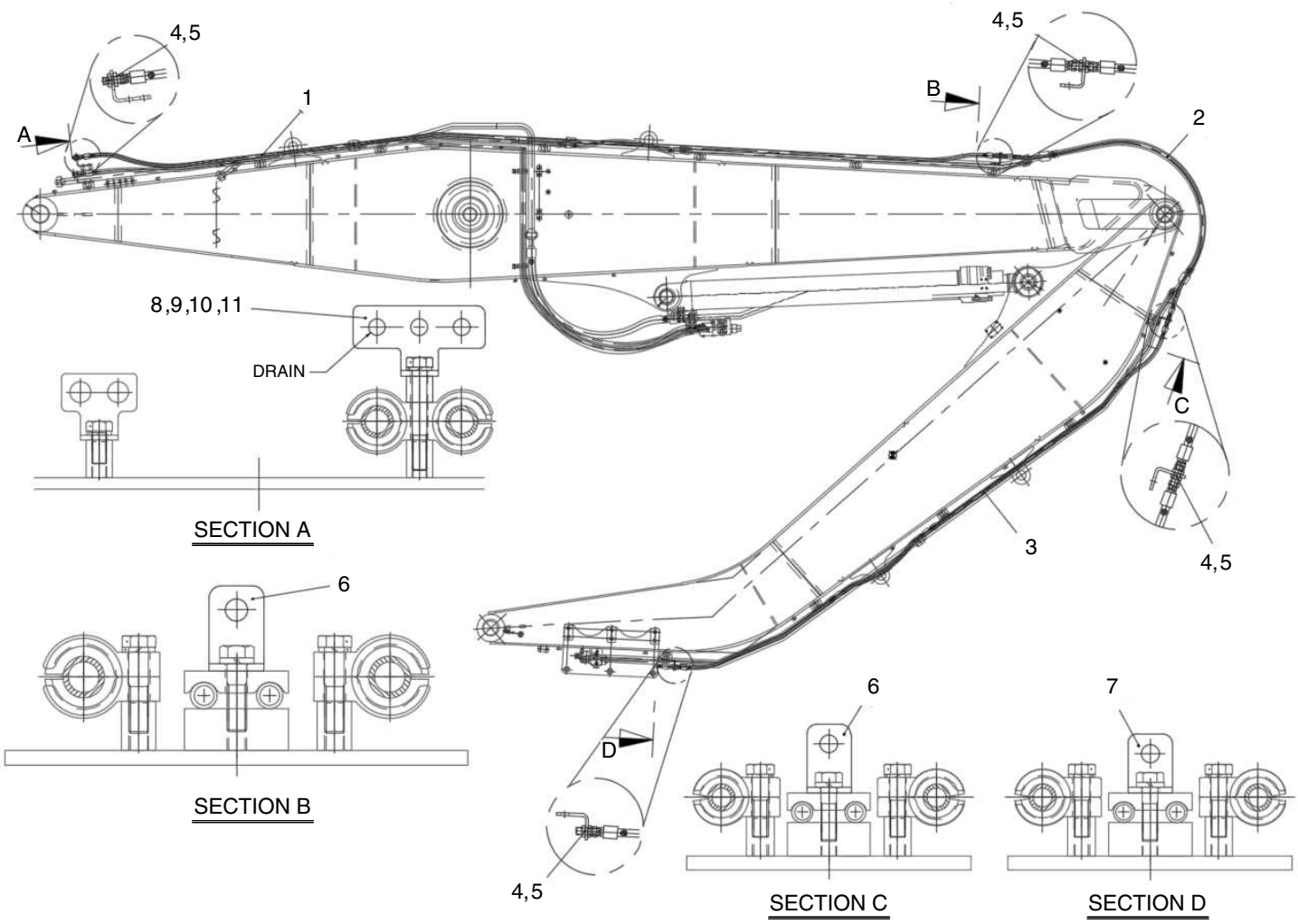


ARM GREASE PIPING

R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01713	PIPING-ARM GREASE	1	0 - 0		
1	XKDA-01076	. HOSE	1	0 - 0		L=5100
2	XKDA-01714	. HOSE	1	0 - 0		L=4680
3	XKDA-00124	. FITTING-GREASE	2	0 - 0		
4	XKDA-01073	. CAP-GREASE NIPPLE	2	0 - 0		
5	XKDA-00160	. ADAPTER	2	0 - 0		
6	XKDA-00159	. ELBOW	2	0 - 0		
7	XKDA-01071	. PLATE	5	0 - 0		
8	XKDA-01712	. CLIP	6	0 - 0		
9	XKDA-00090	. BOLT-HEX	10	0 - 0		
10	XKDA-00050	. WASHER-SPRING	10	0 - 0		
11	XKDA-01624	. BOLT-HEX	6	0 - 0		

DRAIN PIPING

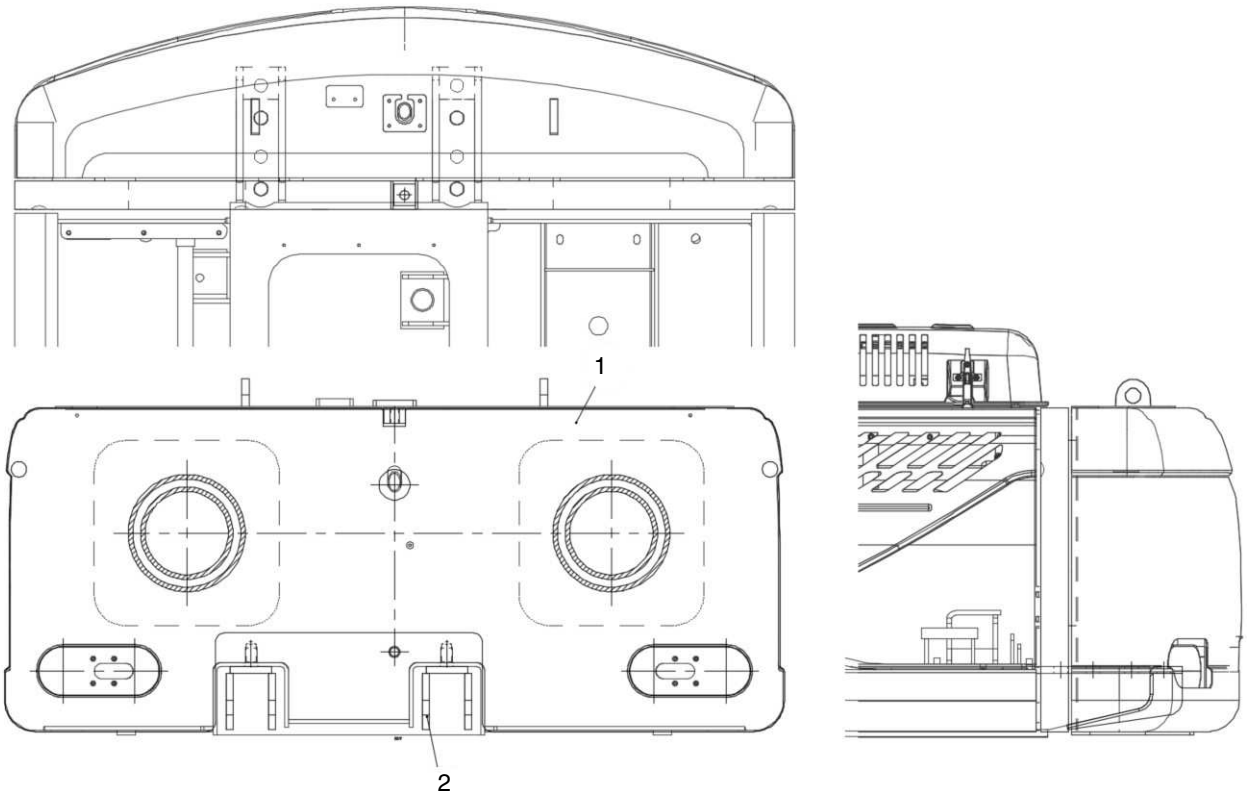


DRAIN PIPING

R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01715	PIPING-DRAIN	1	0 - 0		
1	XKDA-01716	. HOSE	1	0 - 0		L=5350
2	XKDA-01717	. HOSE	1	0 - 0		L=2030
3	XKDA-01718	. HOSE	1	0 - 0		L=3570
4	XKDA-00335	. O-RING	8	0 - 0		
5	XKDA-00238	. ADAPTER-BULK	4	0 - 0		
6	XKDA-01719	. BRACKET	2	0 - 0		
7	XKDA-01720	. BRACKET	1	0 - 0		
8	XKDA-01721	. BRACKET	1	0 - 0		
9	XKDA-00850	. SPACER	1	0 - 0		
10	XKDA-00048	. WASHER-SPRING	2	0 - 0		
11	XKDA-00044	. BOLT-DACRO	2	0 - 0		

ADDITIONAL COUNTER WEIGHT ASSY

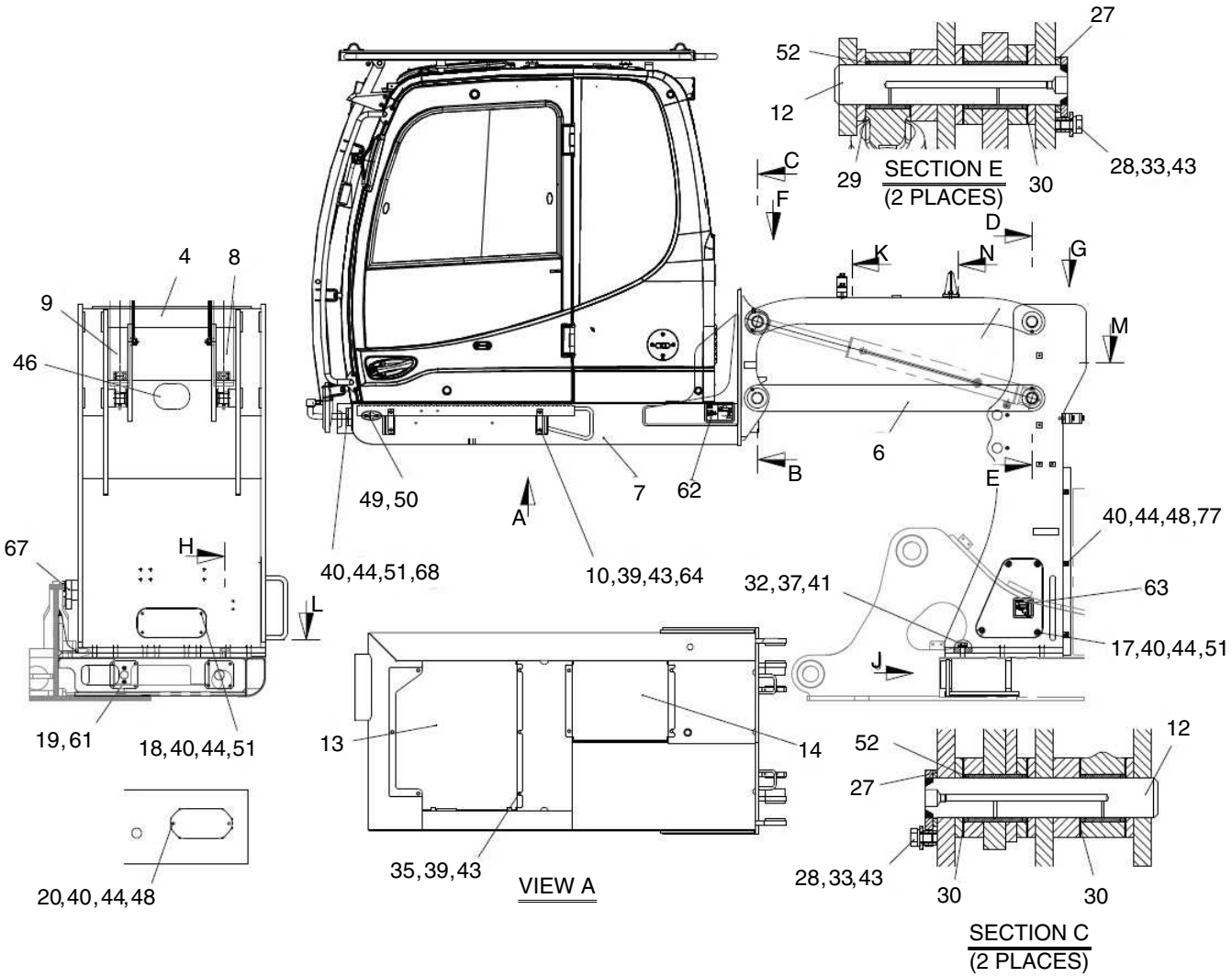


ADDITIONAL COUNTER WEIGHT ASSY

R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01722	COUNTERWEIGHT ASSY	1	0 - 0		
1	XKDA-01723	. COUNTERWEIGHT	1	0 - 0		
2	XKDA-01724	. FRAME-TAIL	1	0 - 0		

CABIN ELEVATING ASSY (1/3)

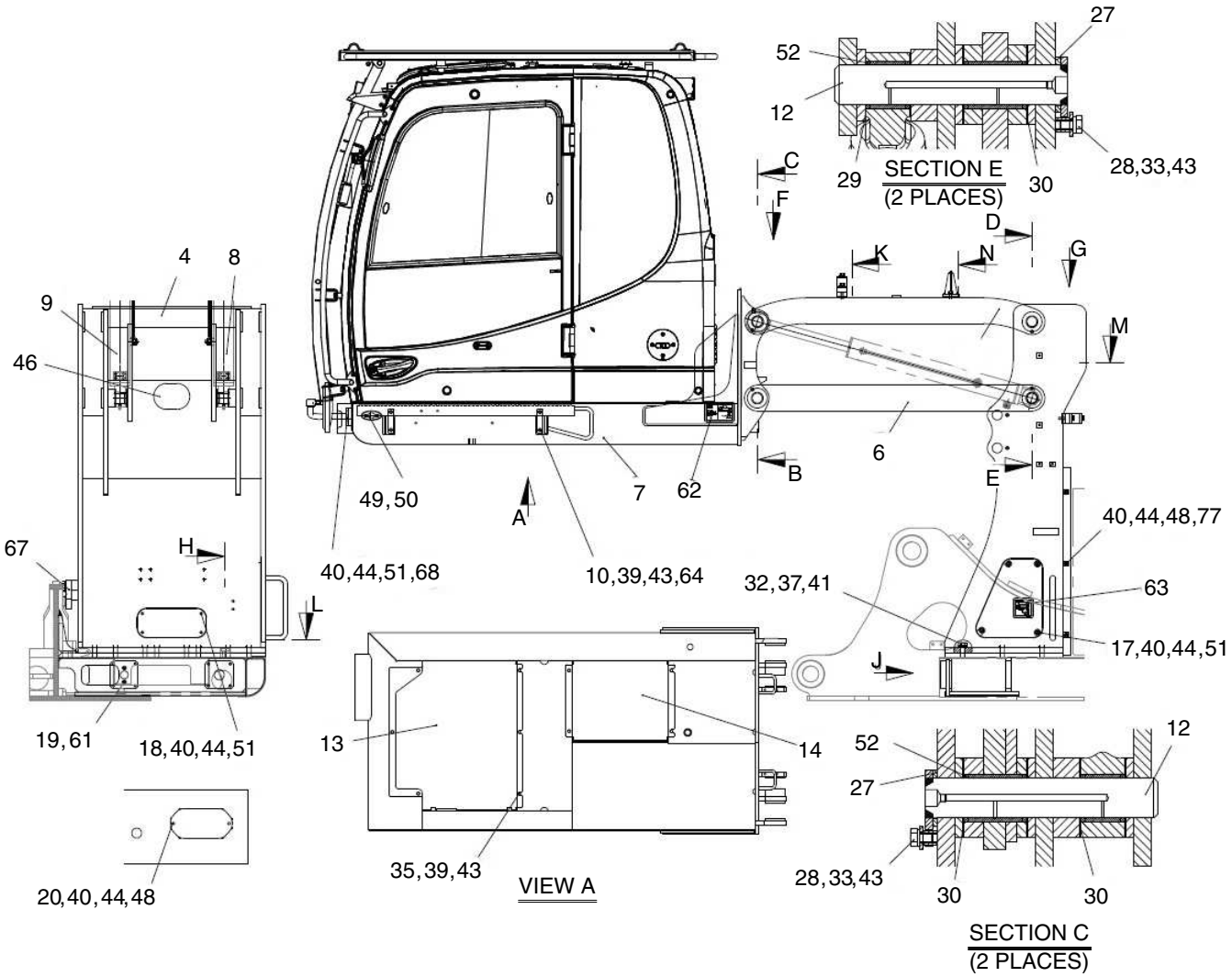


CABIN ELEVATING ASSY (1/3)

R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
47	XKDA-01087	. SPACER-STOPPER	4	0 - 0		6t
48	XKDA-01088	. BOLT-HEX	11	0 - 0		
49	XKDA-01089	. COVER-SIGNAL LAMP	1	0 - 0		
50	S131-031416	. SCREW-W/WASHER	2	0 - 0		
51	XKDA-00900	. BOLT-HEX	18	0 - 0		
52	XKDA-00449	. SEAL-DUST	24	0 - 0		
53	XKDA-01642	. BRACKET-CONNECTOR	1	0 - 0		
54	XKDA-01092	. BOLT-HEX	4	0 - 0		
55	XKDA-01093	. BOLT-HEX	6	0 - 0		
57	XKDA-01094	. PLATE	2	0 - 0		
58	XKDA-01095	. PLATE	2	0 - 0		
59	XKDA-01096	. PLATE	2	0 - 0		
60	XKDA-01097	. PAD	8	0 - 0		
61	XKDA-01643	. BOLT-SOCKET	2	0 - 0		
62	XKDA-01098	. STICKER	1	0 - 0		
63	XKDA-01099	. STICKER	1	0 - 0		
64	XKDA-00091	. BOLT-HEX	6	0 - 0		
65	XKDA-01100	. PAD	8	0 - 0		
66	XKDA-01101	. PLATE-PIN STRAGE	1	0 - 0		
67	XKDA-01730	. BRACKET-ANTI VIBRATION	1	0 - 0		
67-1	XKDA-01731	.. PLATE ASSY	1	0 - 0		
67-2	XKDA-01732	.. SEAT-SCREW	1	0 - 0		
67-3	XKDA-01082	.. BOLT-HEX	2	0 - 0		
67-4	XKDA-01085	.. WASHER-SPRING	2	0 - 0		
67-5	XKDA-01084	.. WASHER-PLAIN	2	0 - 0		
68	XKDA-01105	. BRACKET-MIRROR	1	0 - 0		
68-1	72K4-42910	.. MIRROR ASSY	1	0 - 0		
68-2	XKDA-01107	.. PIPE	1	0 - 0		
70	XKDA-01110	.. BRACKET ASSY	2	0 - 0		
71	XKDA-01648	.. BRACKET-CONNECTOR	1	0 - 0		
72	XKDA-01112	.. PLATE ASSY	1	0 - 0		
73	XKDA-01113	.. PLATE	1	0 - 0		
74	XKDA-01114	.. BOLT-HEX	1	0 - 0		
75	XKDA-01115	.. BOLT-HEX	1	0 - 0		
77	XKDA-01733	.. COVER ASSY	1	0 - 0		
*1	XKDA-01613	. SEAL KIT	1	0 - 0		
*2	XKDA-01615	. SEAL KIT	1	0 - 0		

CABIN ELEVATING ASSY (1/3)

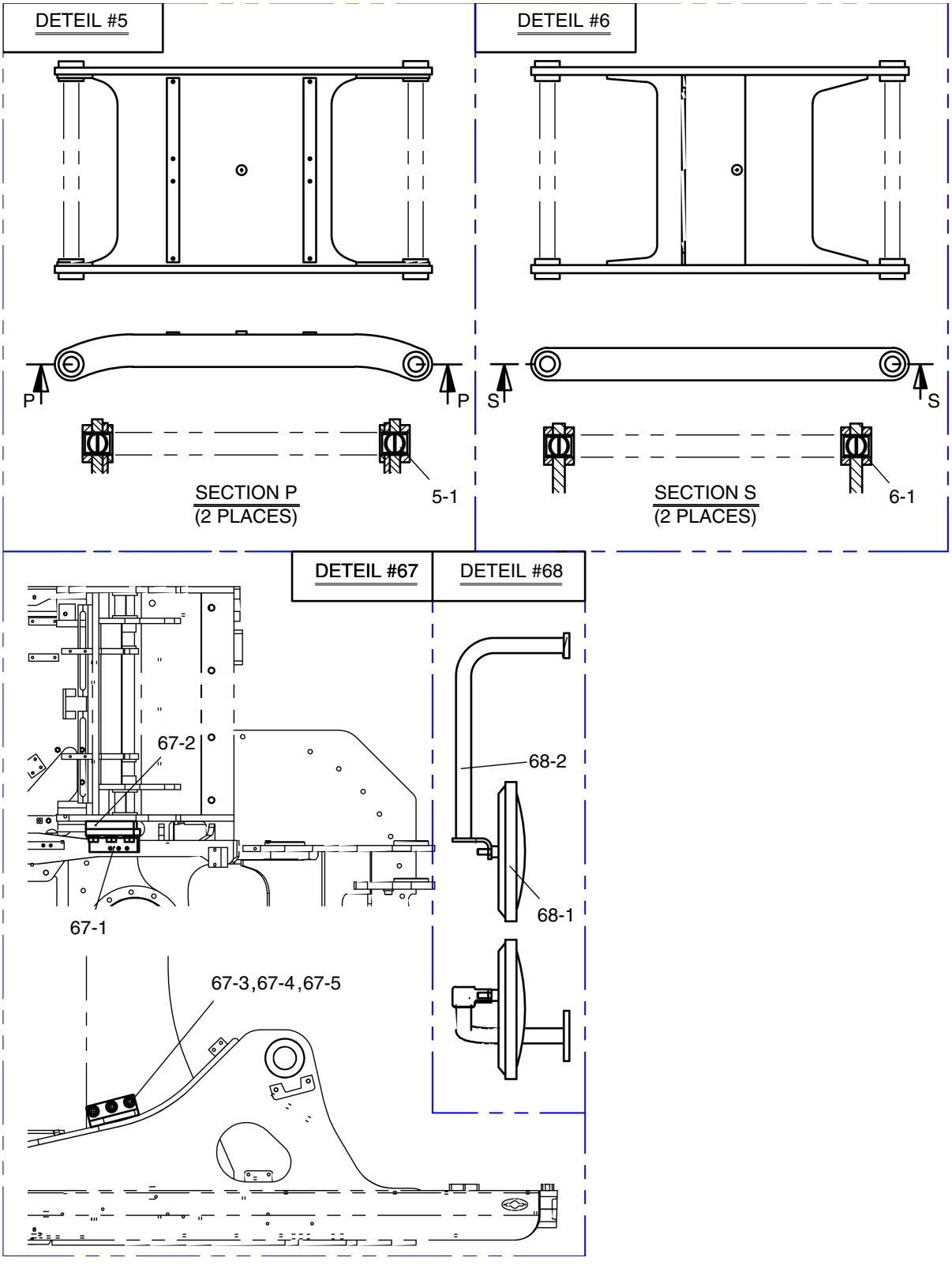


CABIN ELEVATING ASSY (1/3)

R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01725	CABIN ASSY-ELEVATING	1	0 - 0		
4	XKDA-01726	. SUPPORT-SEAT FRAME	1	0 - 0		
5	XKDA-01636	. LINK-CABIN	1	0 - 0		
5-1	XKDA-01080	.. BUSHING	4	0 - 0		
6	XKDA-01637	. LINK-GUIDE	1	0 - 0		
6-1	XKDA-01080	.. BUSHING	4	0 - 0		
7	XKDA-01727	. FRAME-BED	1	0 - 0		
8	XKDA-01612	. CYLINDER-ELEVATED CABIN	1	0 - 0		
9	XKDA-01614	. CYLINDER-ELEVATED CABIN	1	0 - 0		
10	XKDA-01204	. STEP ASSY-SIDE	1	0 - 0		
11	XKDA-01205	. PIN-GREASE	6	0 - 0		
12	XKDA-01206	. PIN-GREASE	4	0 - 0		
13	XKDA-01728	. COVER-UNDER 1	1	0 - 0		
14	XKDA-01729	. COVER-UNDER 2	1	0 - 0		
17	XKDA-01209	. COVER-SIDE 1	1	0 - 0		
18	XKDA-01210	. COVER-FRONT	1	0 - 0		
19	XKDA-01618	. STOPPER	1	0 - 0		
20	XKDA-01212	. COVER-SUPPORT	1	0 - 0		
22	XKDA-01213	. BRACKET-PVG	1	0 - 0		
23	XKDA-01214	. PIPE-STOPPER	2	0 - 0		
24	XKDA-01215	. BRACKET-STOPPER	2	0 - 0		
25	XKDA-01216	. STOPPER	2	0 - 0		
27	XKDA-01641	. SPACER-PIN	10	0 - 0		
28	XKDA-01218	. WASHER	10	0 - 0		
29	XKDA-01219	. SHIM-1.0	14	0 - 0		1t
30	XKDA-01220	. SHIM-1.0	20	0 - 0		1t
32	XKDA-01082	. BOLT-HEX	12	0 - 0		
33	XKDA-01083	. BOLT-HEX	10	0 - 0		
35	XKDA-00746	. BOLT-HEX	20	0 - 0		
36	XKDA-00783	. BOLT-HEX	2	0 - 0		
37	XKDA-01084	. WASHER-PLAIN	12	0 - 0		
38	XKDA-00699	. WASHER-PLAIN	2	0 - 0		
39	XKDA-00692	. WASHER-PLAIN	36	0 - 0		
40	XKDA-00697	. WASHER-PLAIN	29	0 - 0		
41	XKDA-01085	. WASHER-SPRING	12	0 - 0		
42	XKDA-00048	. WASHER-SPRING	2	0 - 0		
43	XKDA-00049	. WASHER-SPRING	46	0 - 0		
44	XKDA-00050	. WASHER-SPRING	29	0 - 0		
45	XKDA-00124	. FITTING-GREASE	2	0 - 0		
46	XKDA-01086	. GROMMET	1	0 - 0		

CABIN ELEVATING ASSY (2/3)

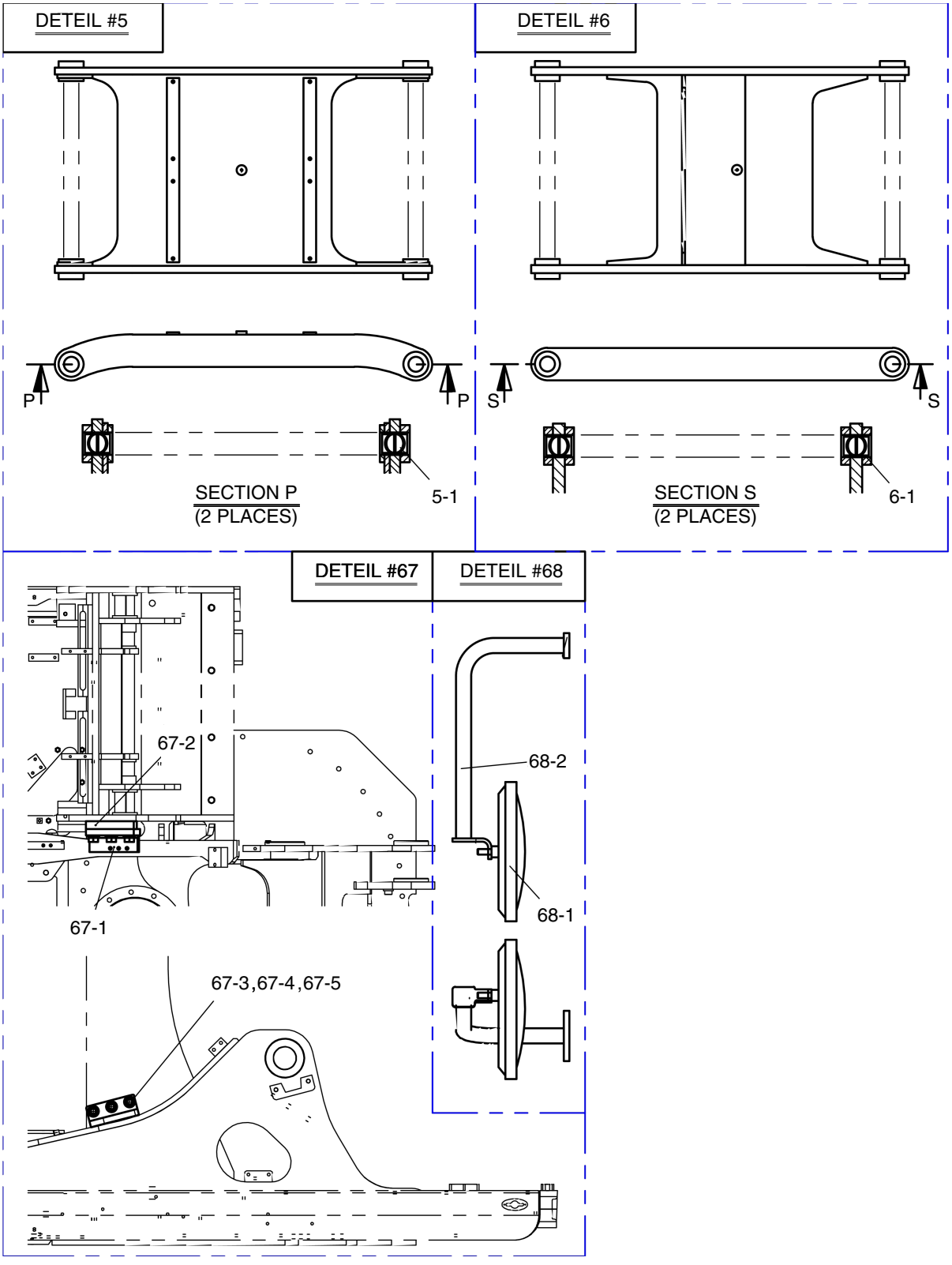


CABIN ELEVATING ASSY (2/3)

R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01725	CABIN ASSY-ELEVATING	1	0 - 0		
4	XKDA-01726	. SUPPORT-SEAT FRAME	1	0 - 0		
5	XKDA-01636	. LINK-CABIN	1	0 - 0		
5-1	XKDA-01080	.. BUSHING	4	0 - 0		
6	XKDA-01637	. LINK-GUIDE	1	0 - 0		
6-1	XKDA-01080	.. BUSHING	4	0 - 0		
7	XKDA-01727	. FRAME-BED	1	0 - 0		
8	XKDA-01612	. CYLINDER-ELEVATED CABIN	1	0 - 0		
9	XKDA-01614	. CYLINDER-ELEVATED CABIN	1	0 - 0		
10	XKDA-01204	. STEP ASSY-SIDE	1	0 - 0		
11	XKDA-01205	. PIN-GREASE	6	0 - 0		
12	XKDA-01206	. PIN-GREASE	4	0 - 0		
13	XKDA-01728	. COVER-UNDER 1	1	0 - 0		
14	XKDA-01729	. COVER-UNDER 2	1	0 - 0		
17	XKDA-01209	. COVER-SIDE 1	1	0 - 0		
18	XKDA-01210	. COVER-FRONT	1	0 - 0		
19	XKDA-01618	. STOPPER	1	0 - 0		
20	XKDA-01212	. COVER-SUPPORT	1	0 - 0		
22	XKDA-01213	. BRACKET-PVG	1	0 - 0		
23	XKDA-01214	. PIPE-STOPPER	2	0 - 0		
24	XKDA-01215	. BRACKET-STOPPER	2	0 - 0		
25	XKDA-01216	. STOPPER	2	0 - 0		
27	XKDA-01641	. SPACER-PIN	10	0 - 0		
28	XKDA-01218	. WASHER	10	0 - 0		
29	XKDA-01219	. SHIM-1.0	14	0 - 0		1t
30	XKDA-01220	. SHIM-1.0	20	0 - 0		1t
32	XKDA-01082	. BOLT-HEX	12	0 - 0		
33	XKDA-01083	. BOLT-HEX	10	0 - 0		
35	XKDA-00746	. BOLT-HEX	20	0 - 0		
36	XKDA-00783	. BOLT-HEX	2	0 - 0		
37	XKDA-01084	. WASHER-PLAIN	12	0 - 0		
38	XKDA-00699	. WASHER-PLAIN	2	0 - 0		
39	XKDA-00692	. WASHER-PLAIN	36	0 - 0		
40	XKDA-00697	. WASHER-PLAIN	29	0 - 0		
41	XKDA-01085	. WASHER-SPRING	12	0 - 0		
42	XKDA-00048	. WASHER-SPRING	2	0 - 0		
43	XKDA-00049	. WASHER-SPRING	46	0 - 0		
44	XKDA-00050	. WASHER-SPRING	29	0 - 0		
45	XKDA-00124	. FITTING-GREASE	2	0 - 0		
46	XKDA-01086	. GROMMET	1	0 - 0		

CABIN ELEVATING ASSY (2/3)

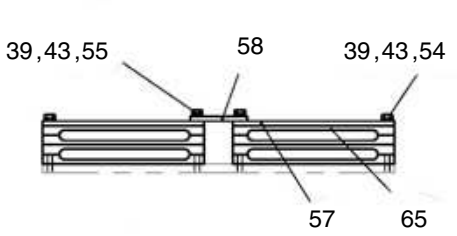


CABIN ELEVATING ASSY (2/3)

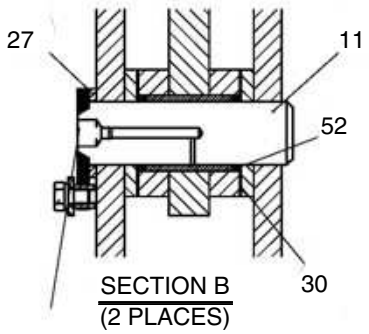
R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
47	XKDA-01087	. SPACER-STOPPER	4	0 - 0		6t
48	XKDA-01088	. BOLT-HEX	11	0 - 0		
49	XKDA-01089	. COVER-SIGNAL LAMP	1	0 - 0		
50	S131-031416	. SCREW-W/WASHER	2	0 - 0		
51	XKDA-00900	. BOLT-HEX	18	0 - 0		
52	XKDA-00449	. SEAL-DUST	24	0 - 0		
53	XKDA-01642	. BRACKET-CONNECTOR	1	0 - 0		
54	XKDA-01092	. BOLT-HEX	4	0 - 0		
55	XKDA-01093	. BOLT-HEX	6	0 - 0		
57	XKDA-01094	. PLATE	2	0 - 0		
58	XKDA-01095	. PLATE	2	0 - 0		
59	XKDA-01096	. PLATE	2	0 - 0		
60	XKDA-01097	. PAD	8	0 - 0		
61	XKDA-01643	. BOLT-SOCKET	2	0 - 0		
62	XKDA-01098	. STICKER	1	0 - 0		
63	XKDA-01099	. STICKER	1	0 - 0		
64	XKDA-00091	. BOLT-HEX	6	0 - 0		
65	XKDA-01100	. PAD	8	0 - 0		
66	XKDA-01101	. PLATE-PIN STRAGE	1	0 - 0		
67	XKDA-01730	. BRACKET-ANTI VIBRATION	1	0 - 0		
67-1	XKDA-01731	.. PLATE ASSY	1	0 - 0		
67-2	XKDA-01732	.. SEAT-SCREW	1	0 - 0		
67-3	XKDA-01082	.. BOLT-HEX	2	0 - 0		
67-4	XKDA-01085	.. WASHER-SPRING	2	0 - 0		
67-5	XKDA-01084	.. WASHER-PLAIN	2	0 - 0		
68	XKDA-01105	. BRACKET-MIRROR	1	0 - 0		
68-1	72K4-42910	.. MIRROR ASSY	1	0 - 0		
68-2	XKDA-01107	.. PIPE	1	0 - 0		
70	XKDA-01110	.. BRACKET ASSY	2	0 - 0		
71	XKDA-01648	.. BRACKET-CONNECTOR	1	0 - 0		
72	XKDA-01112	.. PLATE ASSY	1	0 - 0		
73	XKDA-01113	.. PLATE	1	0 - 0		
74	XKDA-01114	.. BOLT-HEX	1	0 - 0		
75	XKDA-01115	.. BOLT-HEX	1	0 - 0		
77	XKDA-01733	.. COVER ASSY	1	0 - 0		
*1	XKDA-01613	. SEAL KIT	1	0 - 0		
*2	XKDA-01615	. SEAL KIT	1	0 - 0		

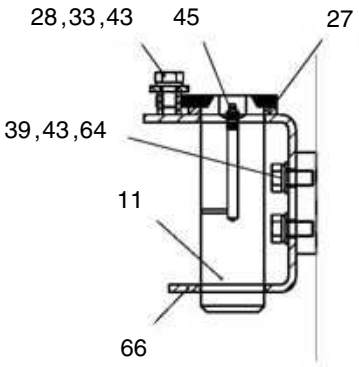
CABIN ELEVATING ASSY (3/3)



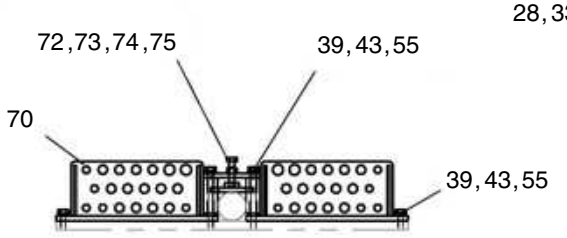
SECTION K



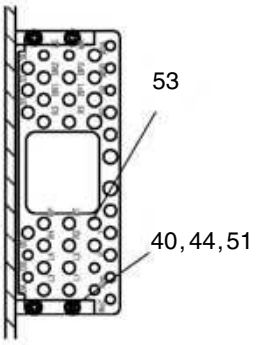
SECTION B
(2 PLACES)



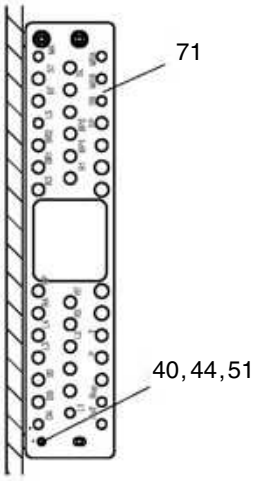
SECTION H



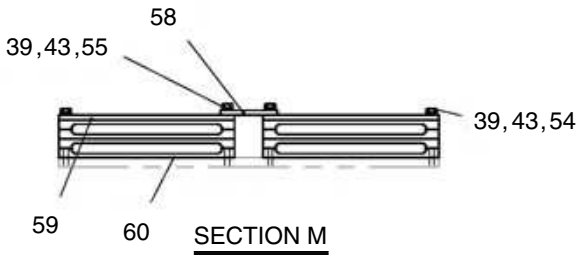
SECTION N



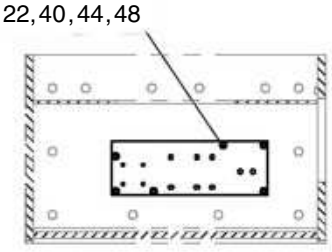
VIEW F



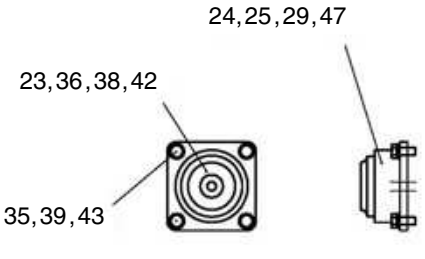
SECTION G



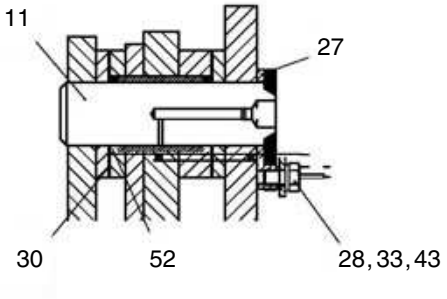
SECTION M



SECTION L



VIEW J
(2 PLACES)



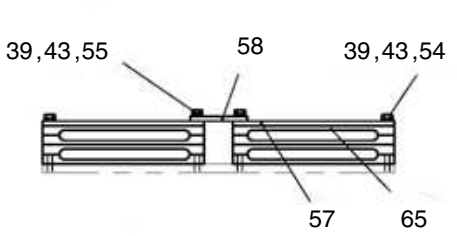
SECTION D
(2 PLACES)

CABIN ELEVATING ASSY (3/3)

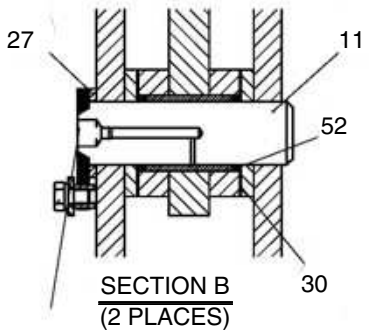
R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01725	CABIN ASSY-ELEVATING	1	0 - 0		
4	XKDA-01726	. SUPPORT-SEAT FRAME	1	0 - 0		
5	XKDA-01636	. LINK-CABIN	1	0 - 0		
5-1	XKDA-01080	.. BUSHING	4	0 - 0		
6	XKDA-01637	. LINK-GUIDE	1	0 - 0		
6-1	XKDA-01080	.. BUSHING	4	0 - 0		
7	XKDA-01727	. FRAME-BED	1	0 - 0		
8	XKDA-01612	. CYLINDER-ELEVATED CABIN	1	0 - 0		
9	XKDA-01614	. CYLINDER-ELEVATED CABIN	1	0 - 0		
10	XKDA-01204	. STEP ASSY-SIDE	1	0 - 0		
11	XKDA-01205	. PIN-GREASE	6	0 - 0		
12	XKDA-01206	. PIN-GREASE	4	0 - 0		
13	XKDA-01728	. COVER-UNDER 1	1	0 - 0		
14	XKDA-01729	. COVER-UNDER 2	1	0 - 0		
17	XKDA-01209	. COVER-SIDE 1	1	0 - 0		
18	XKDA-01210	. COVER-FRONT	1	0 - 0		
19	XKDA-01618	. STOPPER	1	0 - 0		
20	XKDA-01212	. COVER-SUPPORT	1	0 - 0		
22	XKDA-01213	. BRACKET-PVG	1	0 - 0		
23	XKDA-01214	. PIPE-STOPPER	2	0 - 0		
24	XKDA-01215	. BRACKET-STOPPER	2	0 - 0		
25	XKDA-01216	. STOPPER	2	0 - 0		
27	XKDA-01641	. SPACER-PIN	10	0 - 0		
28	XKDA-01218	. WASHER	10	0 - 0		
29	XKDA-01219	. SHIM-1.0	14	0 - 0		1t
30	XKDA-01220	. SHIM-1.0	20	0 - 0		1t
32	XKDA-01082	. BOLT-HEX	12	0 - 0		
33	XKDA-01083	. BOLT-HEX	10	0 - 0		
35	XKDA-00746	. BOLT-HEX	20	0 - 0		
36	XKDA-00783	. BOLT-HEX	2	0 - 0		
37	XKDA-01084	. WASHER-PLAIN	12	0 - 0		
38	XKDA-00699	. WASHER-PLAIN	2	0 - 0		
39	XKDA-00692	. WASHER-PLAIN	36	0 - 0		
40	XKDA-00697	. WASHER-PLAIN	29	0 - 0		
41	XKDA-01085	. WASHER-SPRING	12	0 - 0		
42	XKDA-00048	. WASHER-SPRING	2	0 - 0		
43	XKDA-00049	. WASHER-SPRING	46	0 - 0		
44	XKDA-00050	. WASHER-SPRING	29	0 - 0		
45	XKDA-00124	. FITTING-GREASE	2	0 - 0		
46	XKDA-01086	. GROMMET	1	0 - 0		

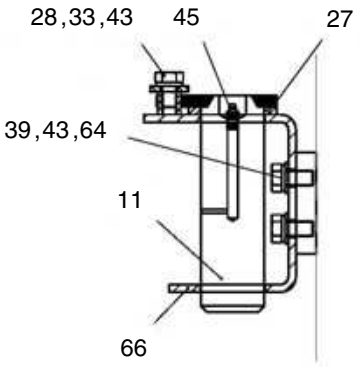
CABIN ELEVATING ASSY (3/3)



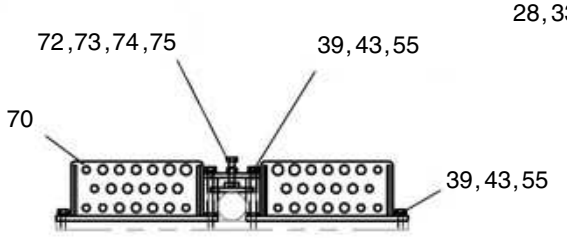
SECTION K



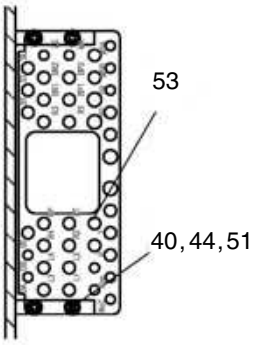
SECTION B
(2 PLACES)



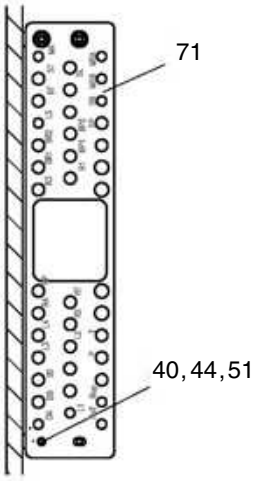
SECTION H



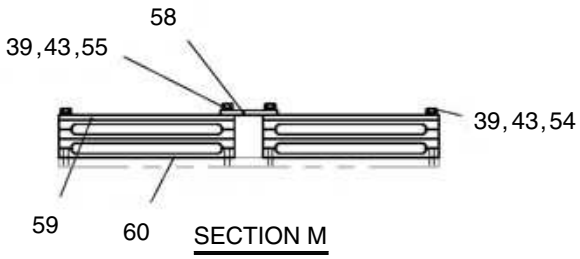
SECTION N



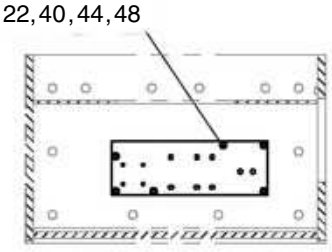
VIEW F



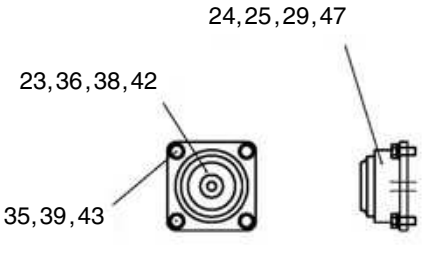
SECTION G



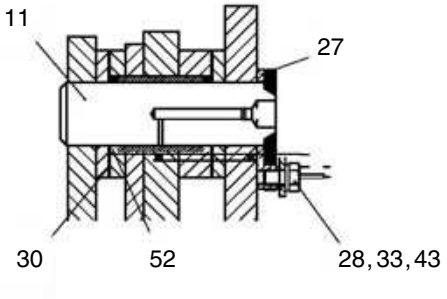
SECTION M



SECTION L



VIEW J
(2 PLACES)



SECTION D
(2 PLACES)

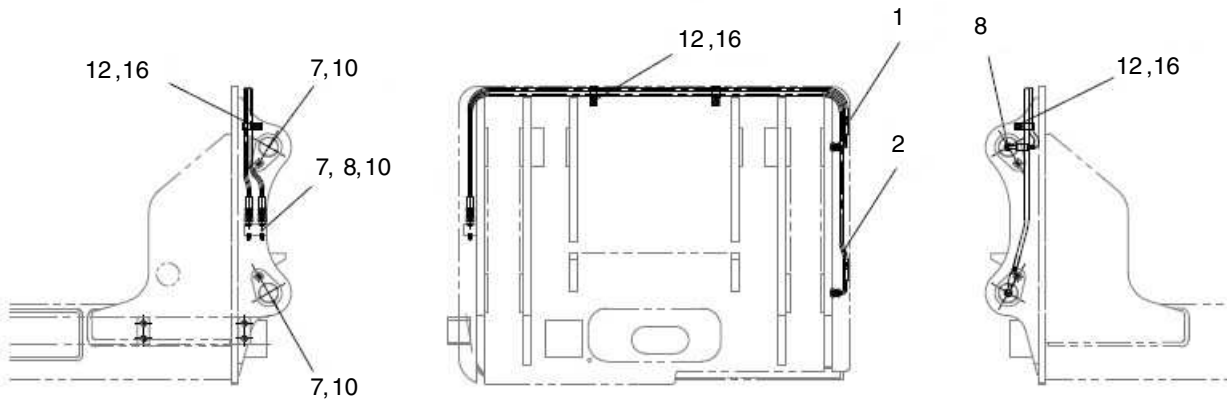
CABIN ELEVATING ASSY (3/3)

R210W-9SMH(#2329-)

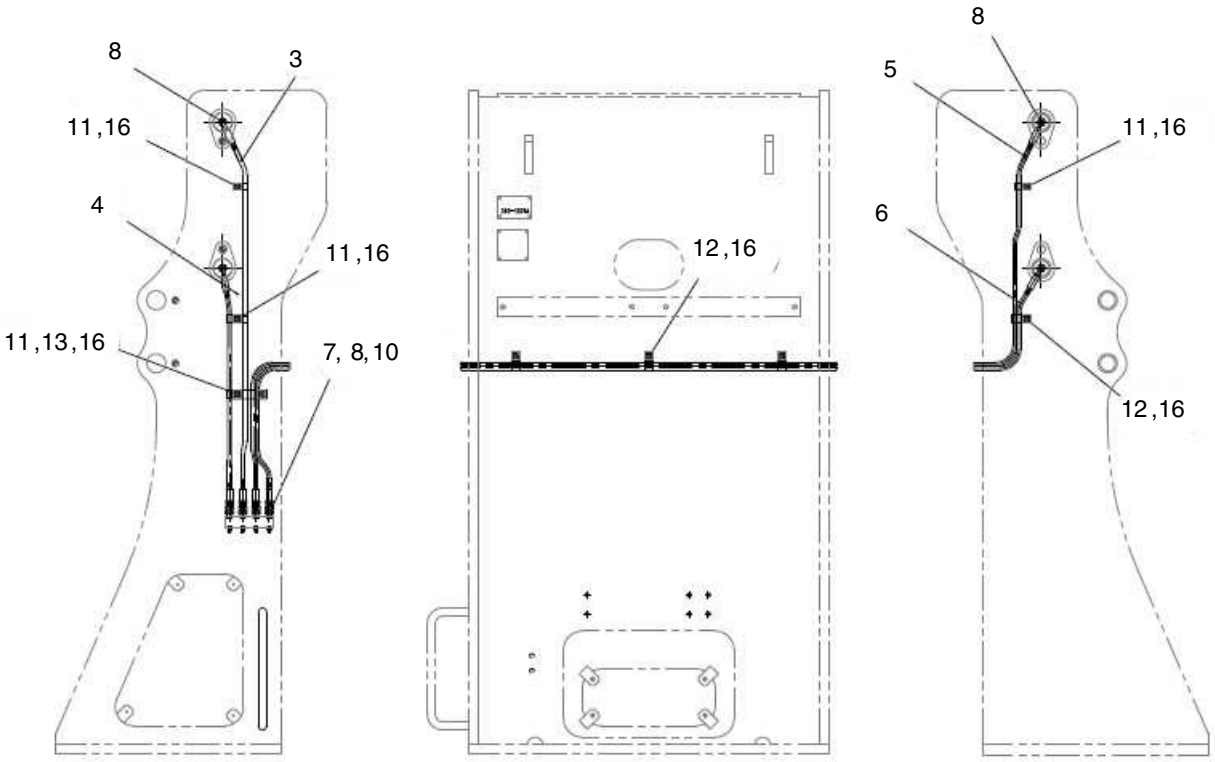
ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
47	XKDA-01087	. SPACER-STOPPER	4	0 - 0		6t
48	XKDA-01088	. BOLT-HEX	11	0 - 0		
49	XKDA-01089	. COVER-SIGNAL LAMP	1	0 - 0		
50	S131-031416	. SCREW-W/WASHER	2	0 - 0		
51	XKDA-00900	. BOLT-HEX	18	0 - 0		
52	XKDA-00449	. SEAL-DUST	24	0 - 0		
53	XKDA-01642	. BRACKET-CONNECTOR	1	0 - 0		
54	XKDA-01092	. BOLT-HEX	4	0 - 0		
55	XKDA-01093	. BOLT-HEX	6	0 - 0		
57	XKDA-01094	. PLATE	2	0 - 0		
58	XKDA-01095	. PLATE	2	0 - 0		
59	XKDA-01096	. PLATE	2	0 - 0		
60	XKDA-01097	. PAD	8	0 - 0		
61	XKDA-01643	. BOLT-SOCKET	2	0 - 0		
62	XKDA-01098	. STICKER	1	0 - 0		
63	XKDA-01099	. STICKER	1	0 - 0		
64	XKDA-00091	. BOLT-HEX	6	0 - 0		
65	XKDA-01100	. PAD	8	0 - 0		
66	XKDA-01101	. PLATE-PIN STRAGE	1	0 - 0		
67	XKDA-01730	. BRACKET-ANTI VIBRATION	1	0 - 0		
67-1	XKDA-01731	.. PLATE ASSY	1	0 - 0		
67-2	XKDA-01732	.. SEAT-SCREW	1	0 - 0		
67-3	XKDA-01082	.. BOLT-HEX	2	0 - 0		
67-4	XKDA-01085	.. WASHER-SPRING	2	0 - 0		
67-5	XKDA-01084	.. WASHER-PLAIN	2	0 - 0		
68	XKDA-01105	. BRACKET-MIRROR	1	0 - 0		
68-1	72K4-42910	.. MIRROR ASSY	1	0 - 0		
68-2	XKDA-01107	.. PIPE	1	0 - 0		
70	XKDA-01110	.. BRACKET ASSY	2	0 - 0		
71	XKDA-01648	.. BRACKET-CONNECTOR	1	0 - 0		
72	XKDA-01112	.. PLATE ASSY	1	0 - 0		
73	XKDA-01113	.. PLATE	1	0 - 0		
74	XKDA-01114	.. BOLT-HEX	1	0 - 0		
75	XKDA-01115	.. BOLT-HEX	1	0 - 0		
77	XKDA-01733	.. COVER ASSY	1	0 - 0		
*1	XKDA-01613	. SEAL KIT	1	0 - 0		
*2	XKDA-01615	. SEAL KIT	1	0 - 0		

CABIN GREASE PIPING

1. GREASE PIPNG : BED REAME



2. GREASE PIPNG : SUPPORT FRAME

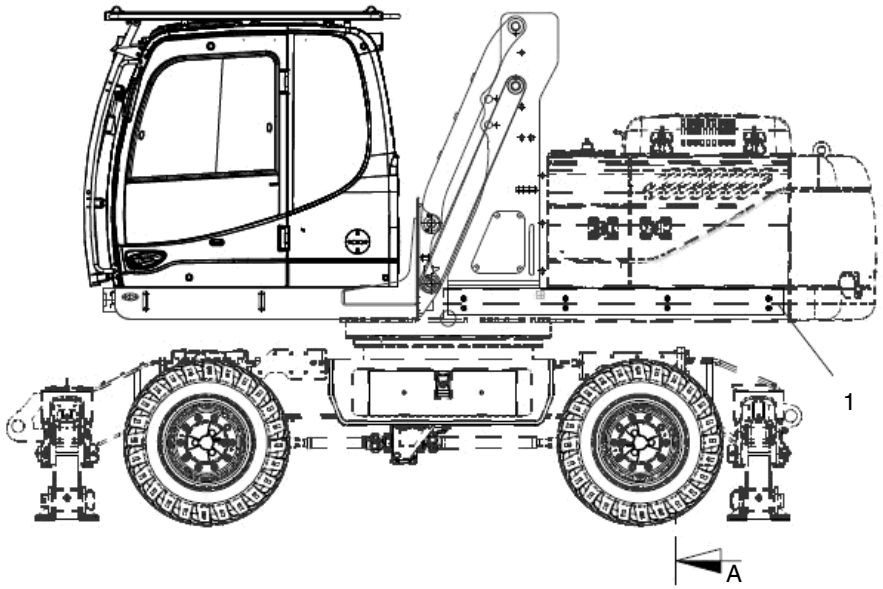


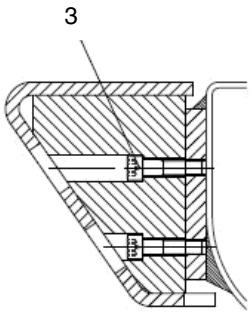
CABIN GREASE PIPING

R210W-9SMH(#2329-)

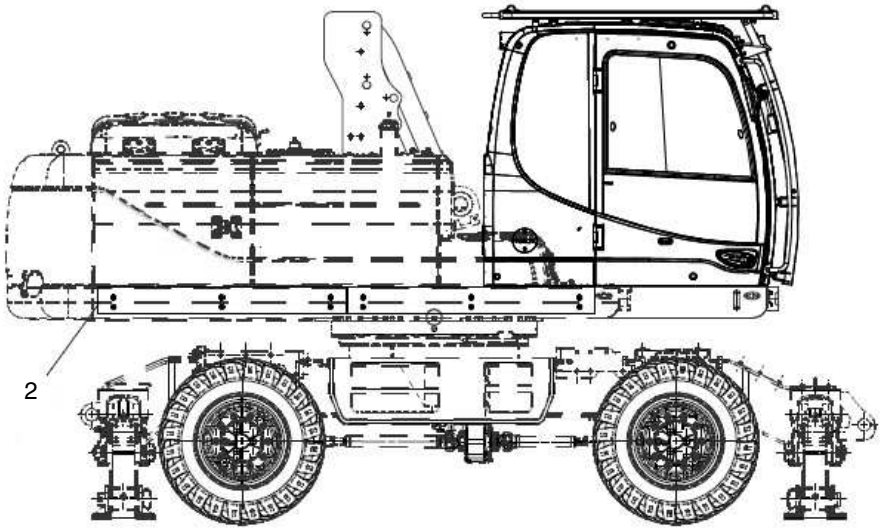
ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01734	PIPING KIT-CABIN LINK GREASE	1	0 - 0		
1	XKDA-01735	. HOSE-GREASE	1	0 - 0		L=1600L
2	XKDA-01736	. HOSE-GREASE	1	0 - 0		L=2000L
3	XKDA-01131	. HOSE-GREASE	1	0 - 0		L=1050L
4	XKDA-01132	. HOSE-GREASE	1	0 - 0		L=670L
5	XKDA-01067	. HOSE	1	0 - 0		L=2180L
6	XKDA-01133	. HOSE-GREASE	1	0 - 0		L=1810L
7	XKDA-01073	. CAP-GREASE NIPPLE	8	0 - 0		
8	XKDA-01134	. ADAPTER	12	0 - 0		
10	XKDA-00124	. FITTING-GREASE	8	0 - 0		
11	XKDA-00411	. CLIP	5	0 - 0		
12	XKDA-01135	. BAND-CLIP	8	0 - 0		
13	XKDA-01136	. CLAMP-HOSE	1	0 - 0		
16	XKDA-01624	. BOLT-HEX	13	0 - 0		

SIDE BUMPER ASSY





SECTION A
(10 PLACES)

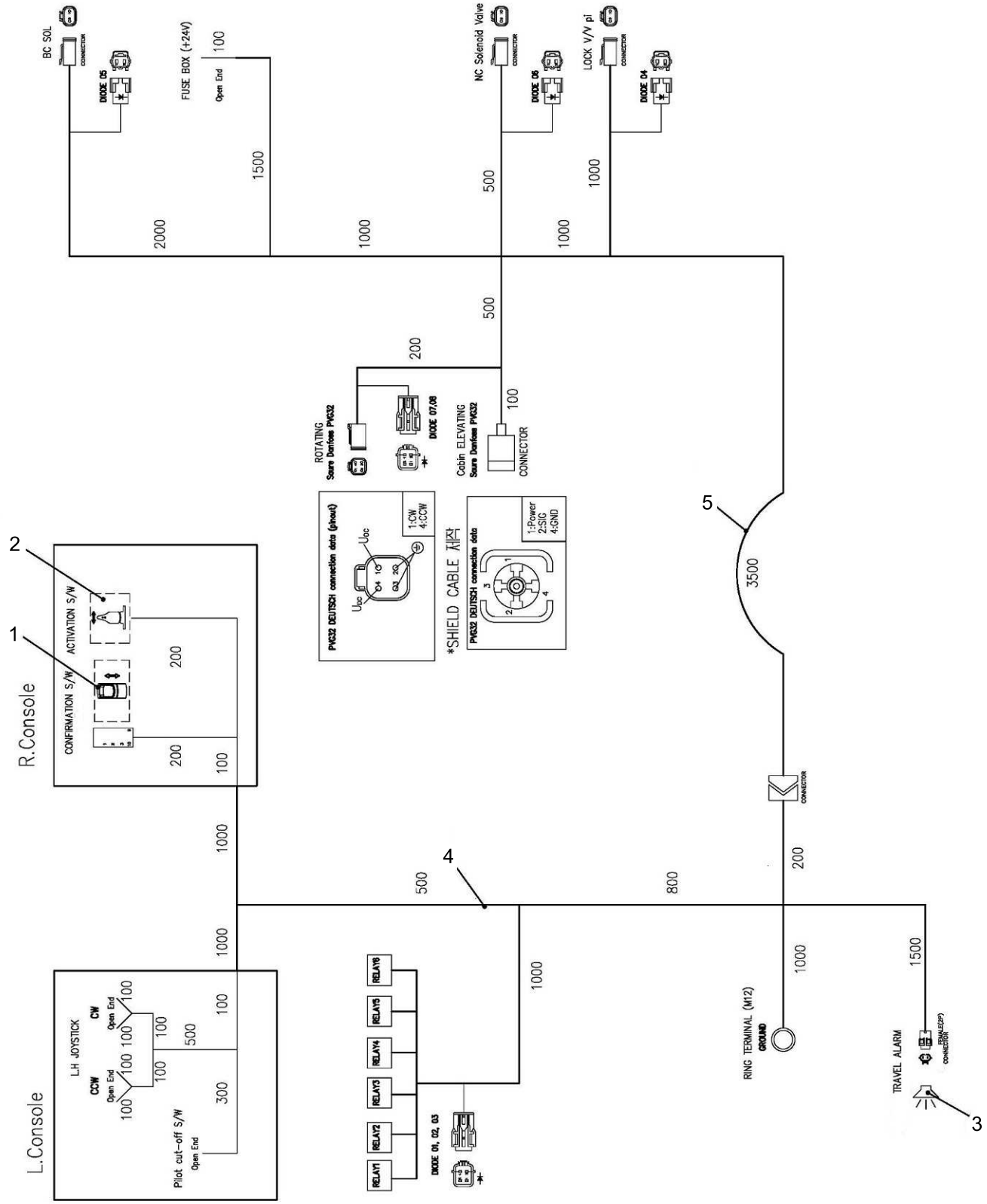


SIDE BUMPER ASSY

R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01737	BUMPER ASSY-SIDE	1	0 - 0		
1	XKDA-01738	. BUMPER-LH	1	0 - 0		2618mm
2	XKDA-01739	. BUMPER-RH	2	0 - 0		1600mm
3	XKDA-00055	. BOLT-SOCKET	20	0 - 0		

WIRE HARNESS ASSEMBLY

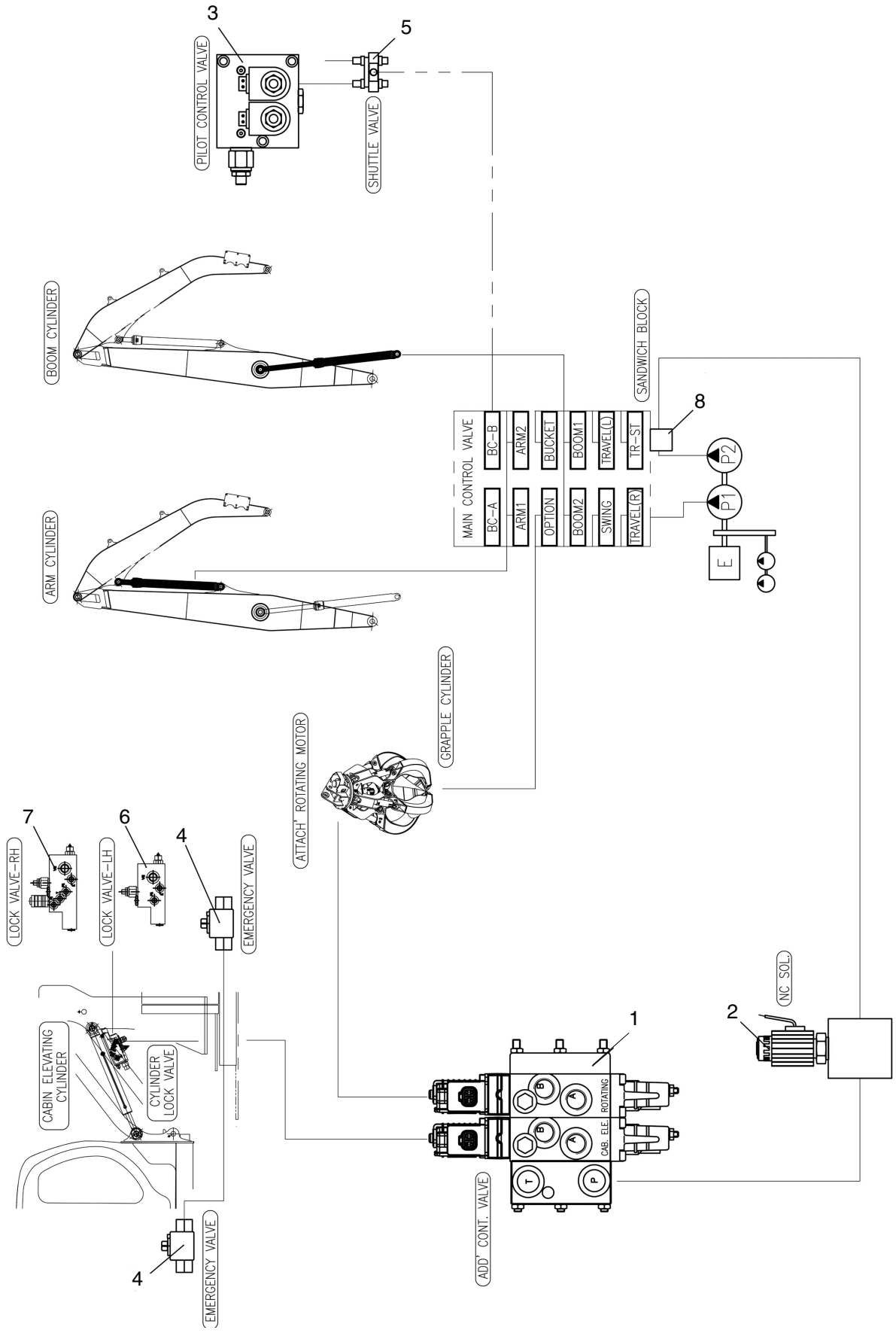


WIRE HARNESS ASSY

R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01627	HARNESS ASSY-WIRE	1	0 - 0		
1	XKDA-00945	. SWITCH	1	0 - 0		
2	XKDA-01197	. SWITCH-ACTIVATION	1	0 - 0		
3	XKDA-01198	. ALARM-TRAVEL	1	0 - 0		
4	XKDA-01532	. HARNESS-INSIDE CABIN	1	0 - 0		
5	XKDA-01533	. HARNESS-OUTSIDE CABIN	1	0 - 0		

HYDRAULIC PARTS INSTALLATION



HYDRAULIC PARTS INSTALLATION

R210W-9SMH(#2329-)

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA-01527	HARNESS ASSY-WIRE	1	0 - 0		
1	XKDA-01528	. VALVE-CONTROL	1	0 - 0		
2	XKDA-00956	. VALVE-SOLENOID	1	0 - 0		
3	XKDA-00957	. VALVE-CONTROL	1	0 - 0		
4	XKDA-01221	. VALVE-EMERGENCY 1	2	0 - 0		
5	XKDA-00958	. VALVE-SHUTTLE	1	0 - 0		
6	XKDA-01529	. VALVE-LOCK LH	1	0 - 0		
7	XKDA-01530	. VALVE-LOCK RH	1	0 - 0		
8	XKDA-01531	. BLOCK-SANDWICH	1	0 - 0		

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NUMERICAL PART INDEX

NUMERICAL PART INDEX

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XKDA-01101	S092	66	XKDA-01209	S090	17	XKDA-01612	S094	8
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XKDA-01105	S090	68	XKDA-01209	S094	17	XKDA-01613	S092	*1
XKDA-01105	S092	68	XKDA-01210	S090	18	XKDA-01613	S094	*1
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XKDA-01107	S094	68-2	XKDA-01212	S092	20	XKDA-01615	S090	*2
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XKDA-01112	S090	72	XKDA-01213	S094	22	XKDA-01618	S092	19
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XKDA-01115	S094	75	XKDA-01218	S092	28	XKDA-01637	S092	6
XKDA-01131	S100	3	XKDA-01218	S094	28	XKDA-01637	S094	6
XKDA-01132	S100	4	XKDA-01219	S090	29	XKDA-01641	S090	27
XKDA-01133	S100	6	XKDA-01219	S092	29	XKDA-01641	S092	27
XKDA-01134	S100	8	XKDA-01219	S094	29	XKDA-01641	S094	27
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