

HW250 MH

Material Handler & Orange Grapple

This manual contains 2 contents as Material Handler and Orange Grapple.

Material Handler

(HW250 MH)

This manual was produced by Sun&Shield, Ltd. and some revisions have been
made in 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. **Material Handler Front** is 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**

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 Hyundai Construction Equipment or 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



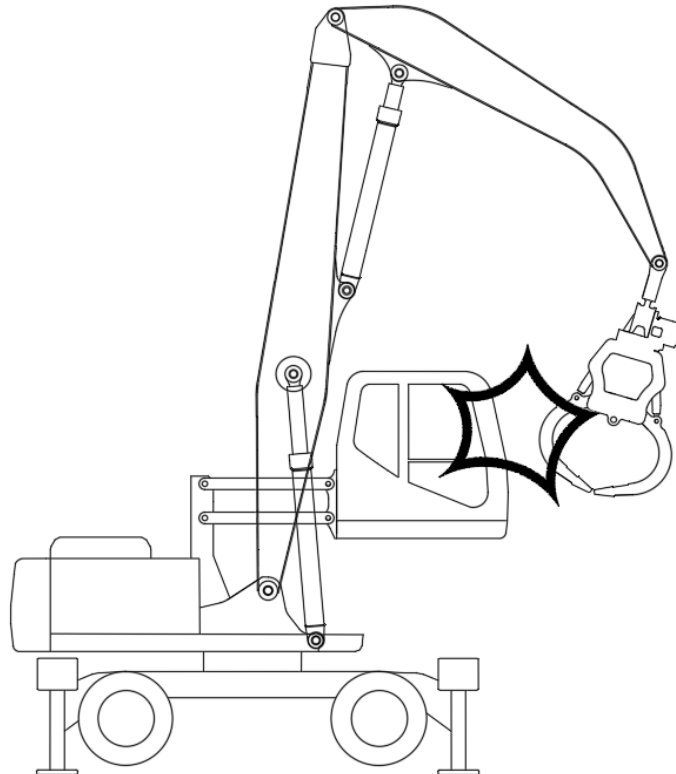
WARNING!

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

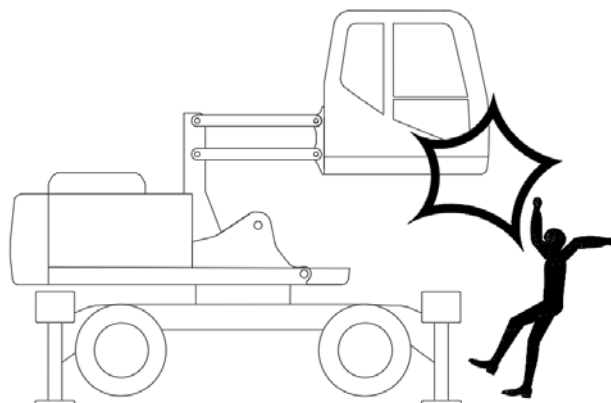
1-2. Front Attachment Operation Caution

Be careful with operating elevating cabin or front attachment.

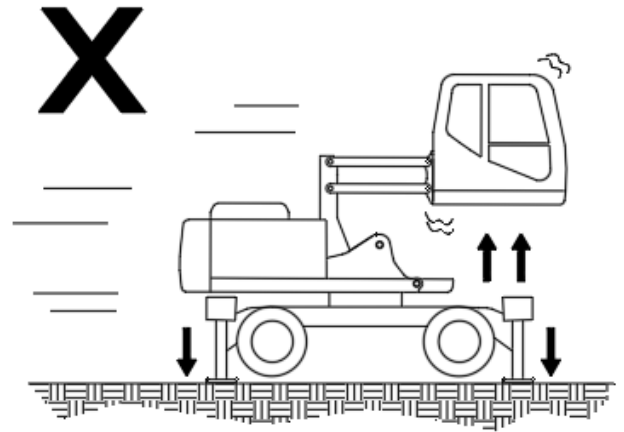
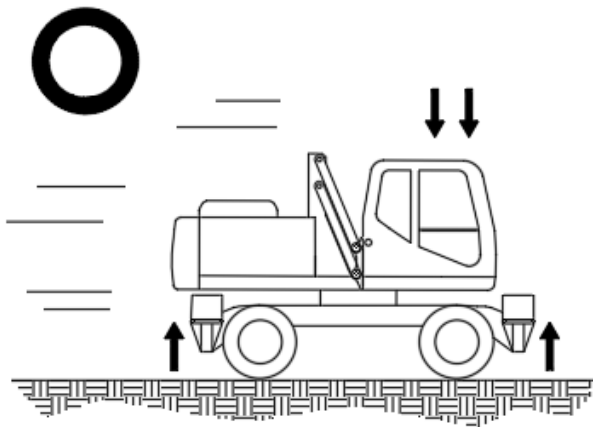
When you operate elevating cabin or front attachment, you should be careful to avoid crash between elevating cabin and front attachment. Serious personal injury or death may result from this crash.



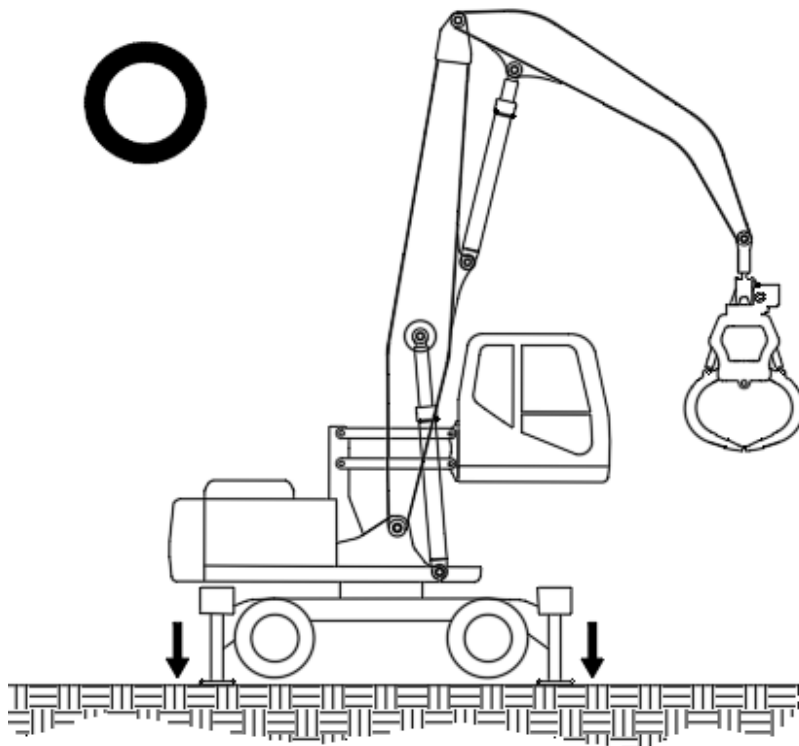
Be careful object or person when elevating cabin descends.



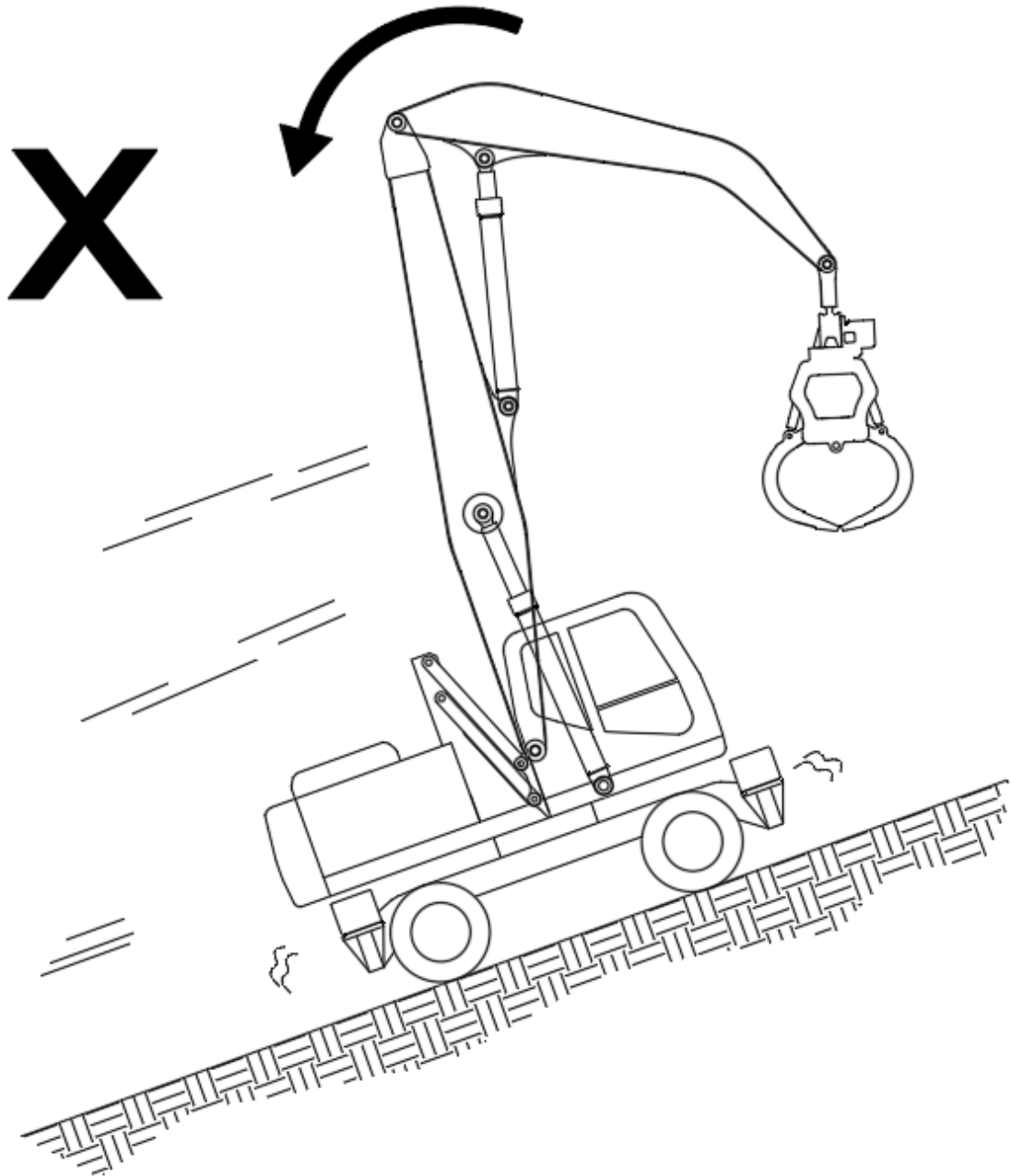
Only drive the machine in a state of Elevating Cabin down and outrigger up.



Only Work the machine in a state.

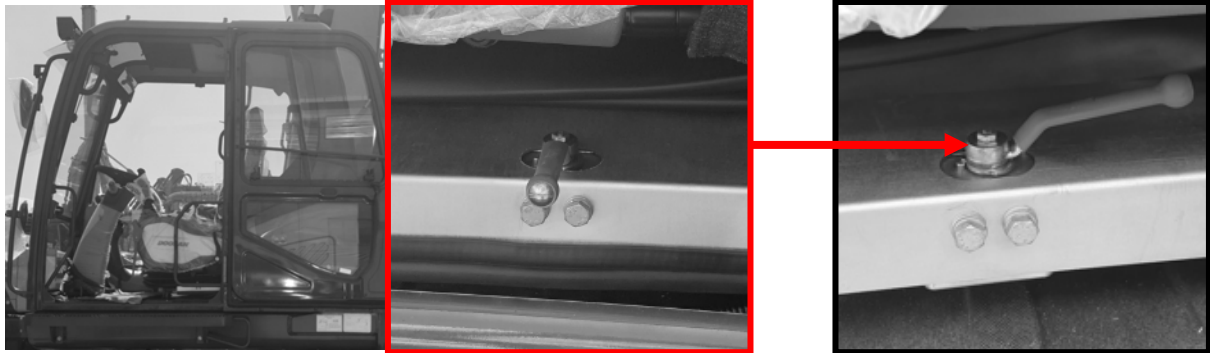


If equipment is used in a slope, the equipment should not be operated since the equipment is overturned.



1-3. Emergency Lowering of Elevating Cabin

Before lowering any equipment with the engine stopped, clear around the equipment of all bystanders.



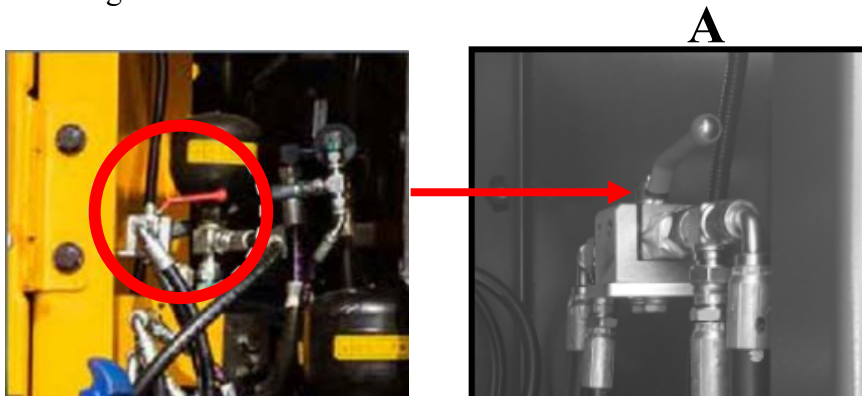
A - Emergency Cabin lowering : Inside the operator station

- 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.



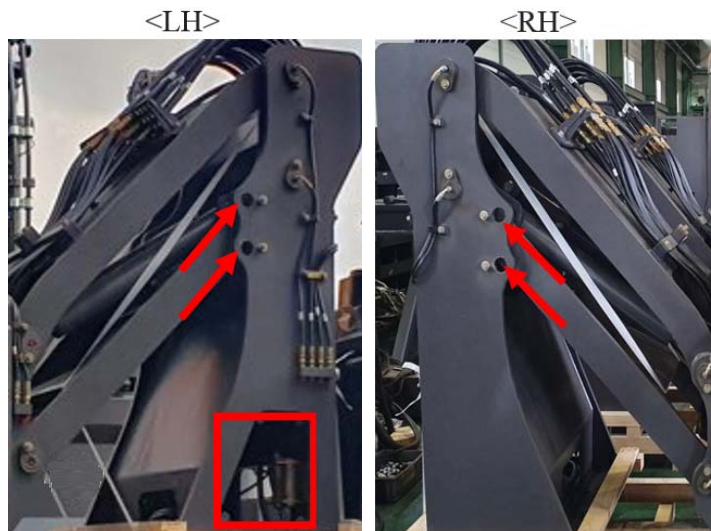
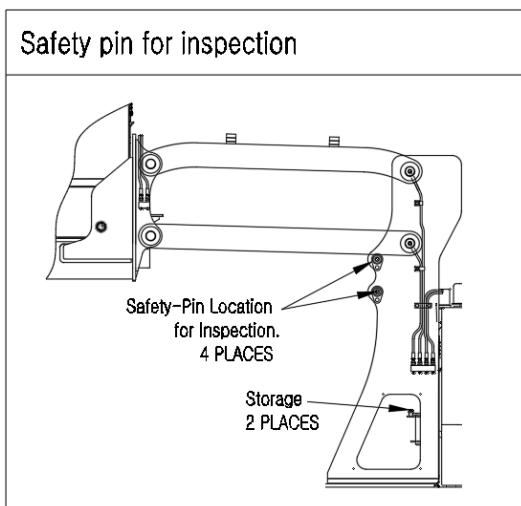
- Open the side cover of the cooler
- Turn the lever (A) until the cab starts lowering.
- When the cab is completely down, return the lever to the original position, see above Photo.

1-4. Safety pin

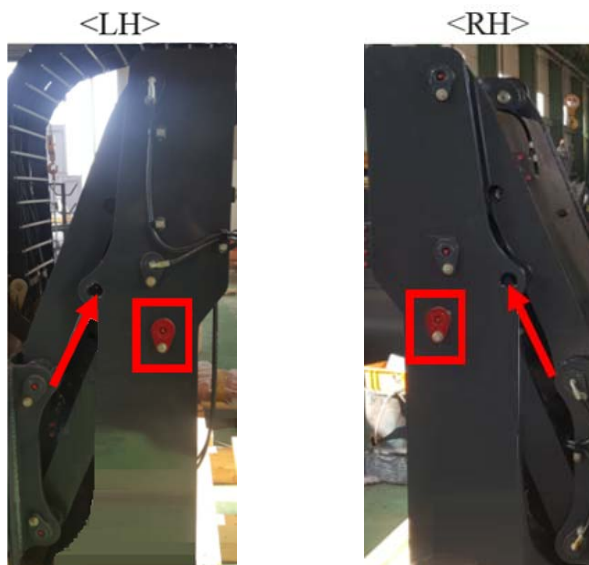
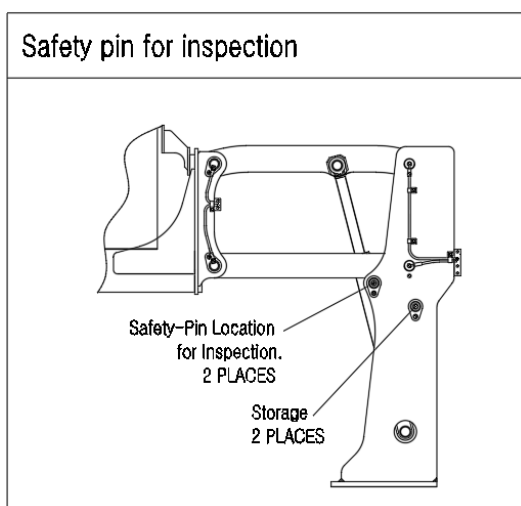
Safety pin is used to be fastened when repairing cabin elevating system.

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

***Elevated Height : 2.5m**



***Elevated Height : 2.0m**



 : The position of the safety pin.

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

1-5. Safety Bar (Option, Europe only)

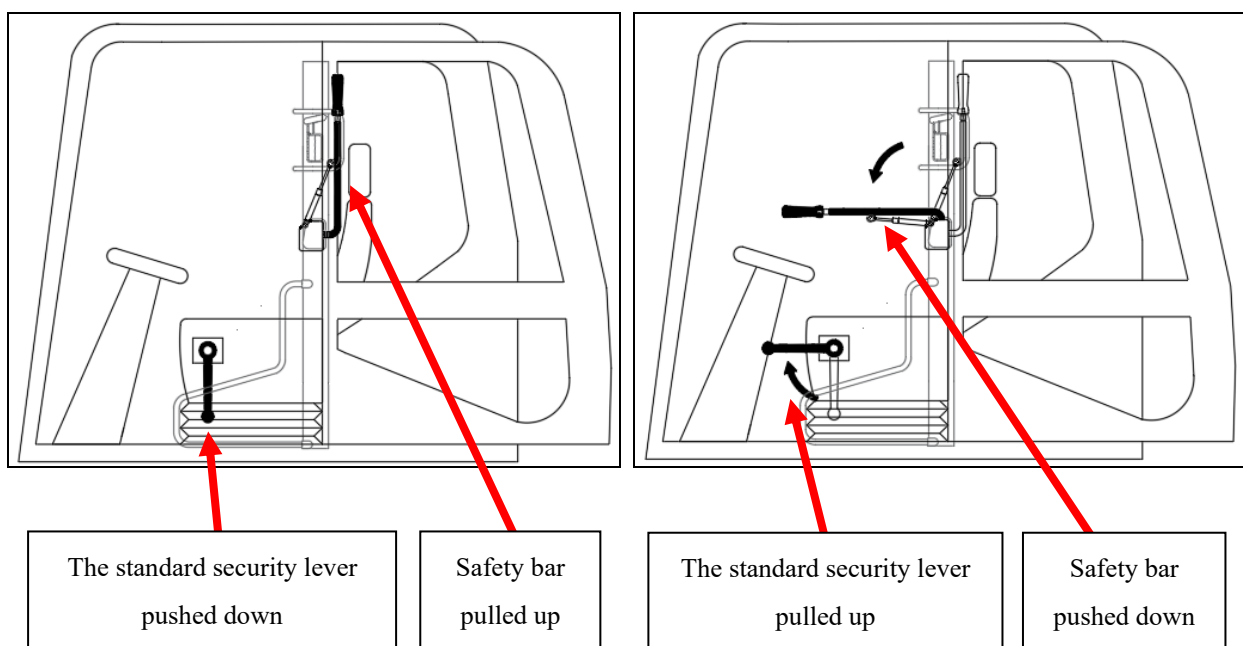
System to prevent from falling out from the cabin.

The machine is provided with an additional system to prevent the operator falling from the cabin when the cabin is not in the lowered position.

This prevention system is located on the left side of the cabin, and consists of Safety bar which functions together with the standard security lever. (see the Standard manual)

When the Safety bar of the elevated cabin is pushed down and the standard security lever is pulled up, the machine functions normally.

The two levers must be placed horizontally for the machine to operate.



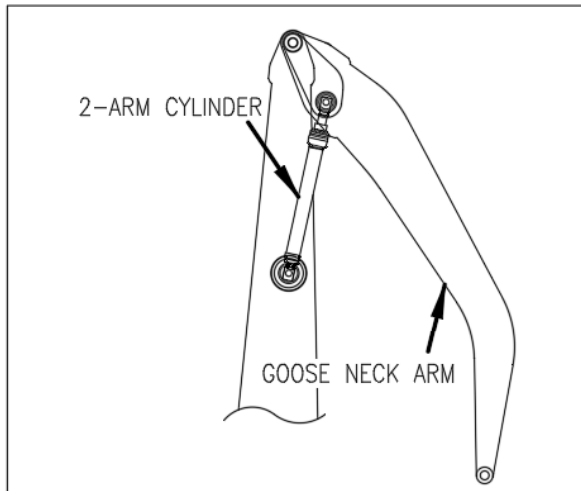
If either of the two levers is not engaged, no functions will be activated.

If the operator has to escape the cockpit for urgent reasons while the cabin is raised, the operator must unlock the guard at their own risk and peril, by pushing down the standard security lever.

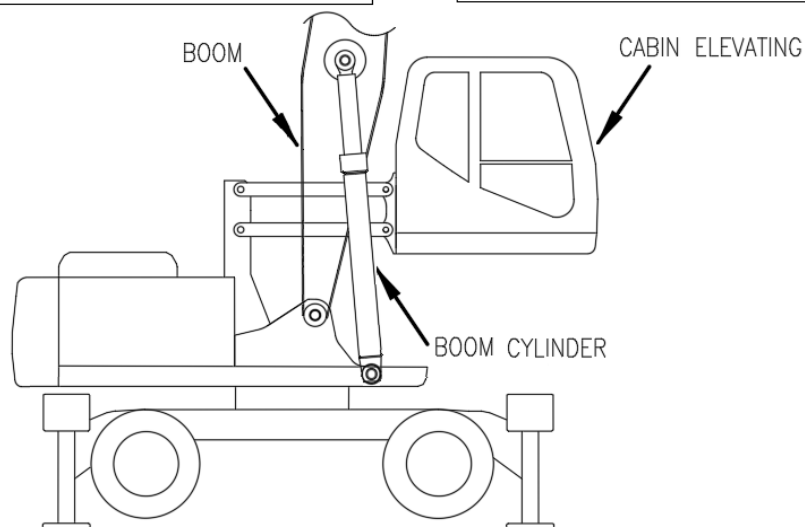
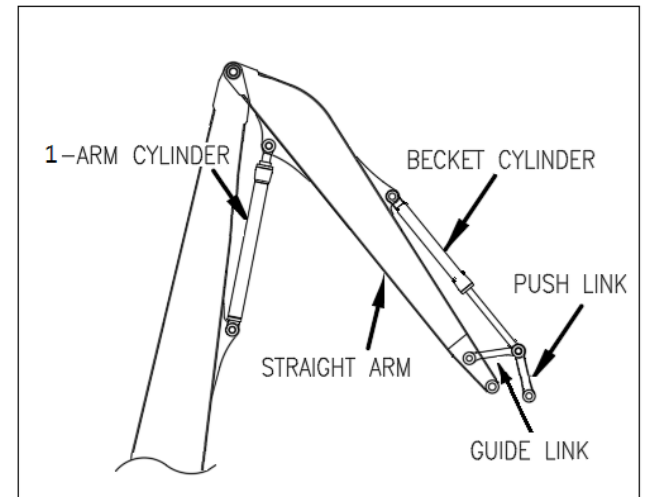
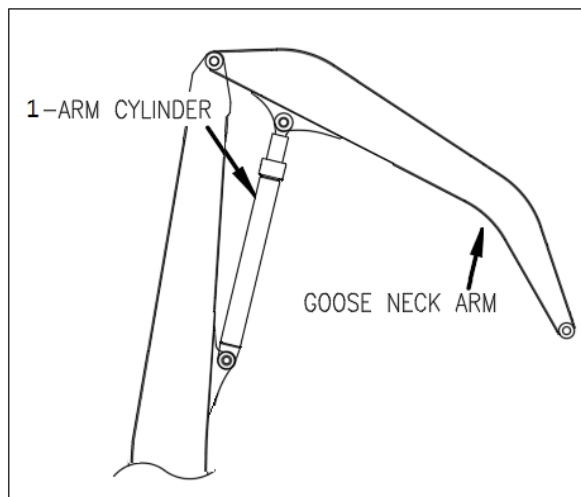
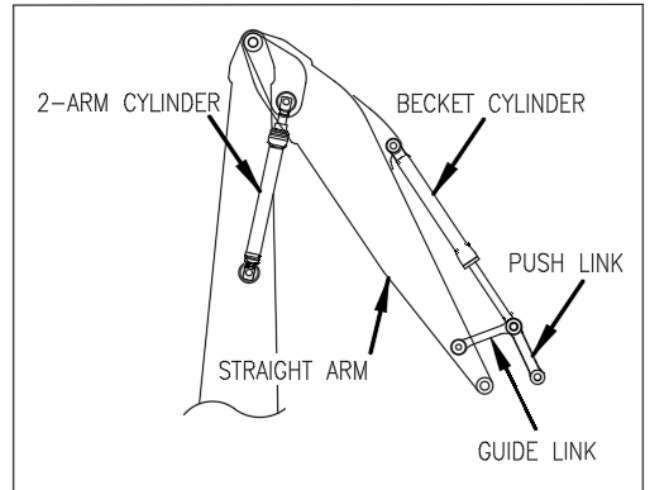
2. Specification

2-1. The Names of Each Part

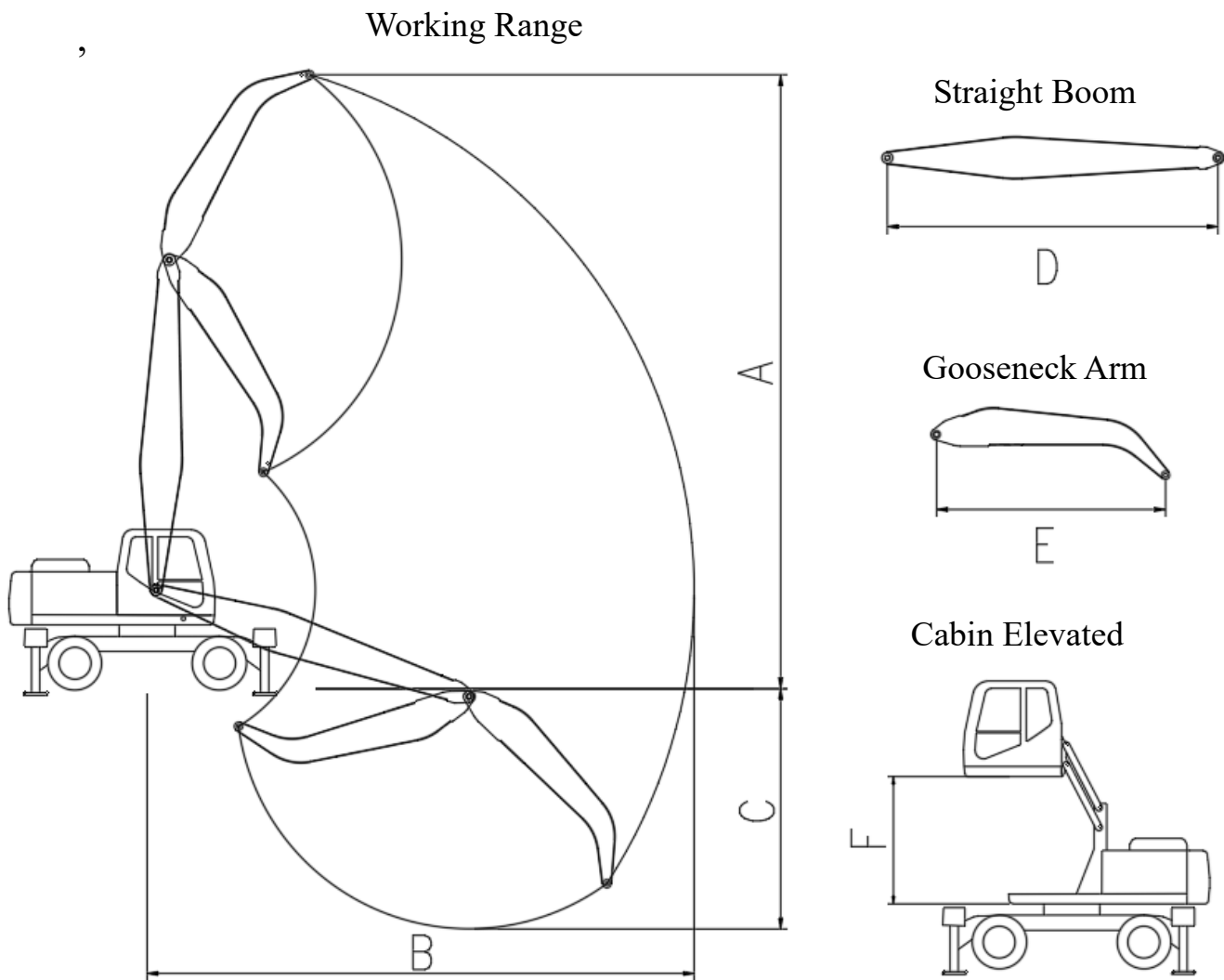
<Goose neck Arm>



<Straight Arm>



2-2. Specification



HW250 HM (SMH21-36-DG & SCE25)

Max. Pin Height (A)	12.1 m	Boom Length (D)	6.5 m
Max. Operation Reach (B)	10.7 m	Arm Length (E)	4.5 m
Max. Working Depth (C)	4.7 m	Elevated Height (F)	2.5 m
Additional Counter Weight	1.0 ton		
Lift Capacity at Max. Reach	Front : #3.4 ton / Side : 2.9 ton		

2-3. Component Weight & Transportation Dimension

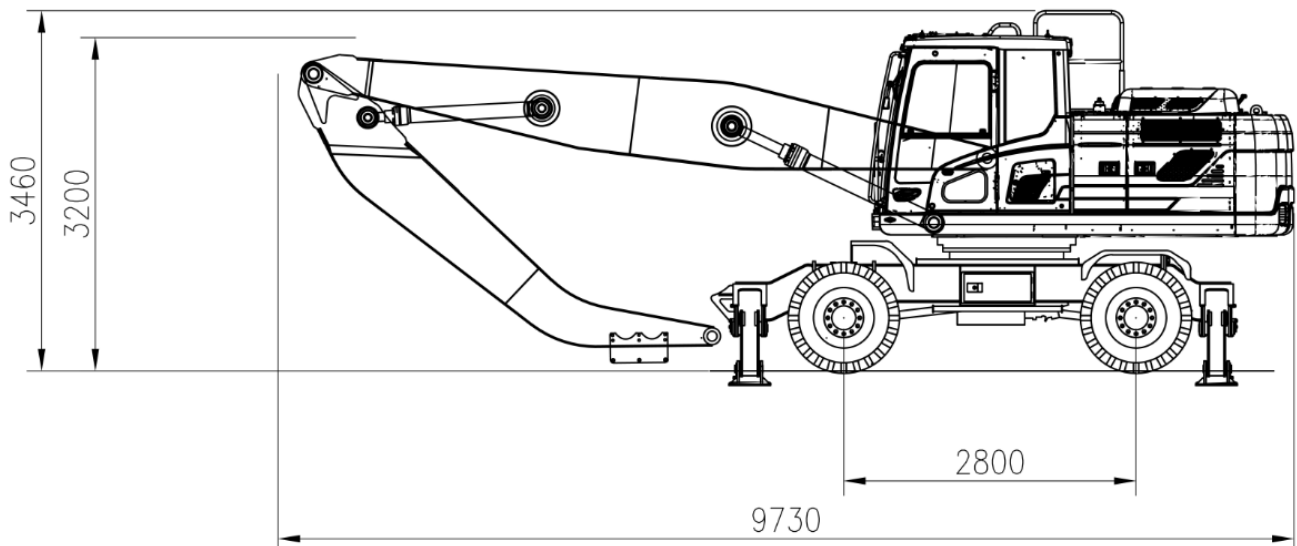
- Component Weight

Item	Unit	Weight	Remark
Upper Structure	kg	6,481.9	Without Counter Weight
Lower Structure	kg	8,641.8	
Counter Weight	kg	4,112.8	
Additional Counter Weight	kg	1,000	
Hydraulic Cabin Elevating	kg	2,060	
Boom	kg	1,830	Without cylinder
Boom cylinder	kg	388.6	2 EA
Arm cylinder	kg	290	2 EA
Arm	kg	1,248	
Orange Grapple	kg	1,460	
Total	kg	27,513.1	

- Transportation Dimension

Overall width : 3,340mm

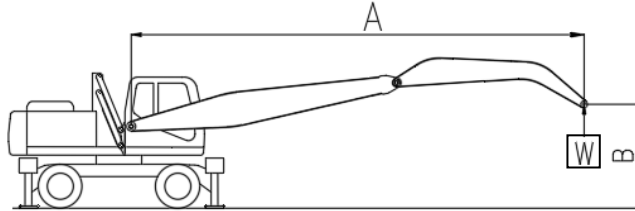
unit: mm



2-4. SAE Lift Capacities

BOOM: 6.5m

ARM: 4.5m



F: RATING OVER FRONT

S: RATING OVER SIDE OR 360°

unit: kgf

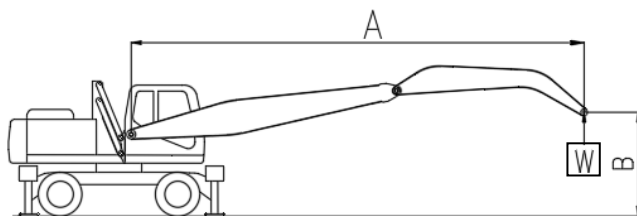
A B	1m F	1m S	2m F	2m S	3m F	3m S	4m F	4m S
12m								
11m								
10m								
9m								
8m								
7m								
6m								
5m							#7350	#7350
4m					#10926	#10926	#8412	#8412
3m							#9543	#9543
2m							#10432	#10432
1m							#10038	#10038
0m					#5017	#5017	#8450	#8450
-1m					#5655	#5655	#8283	#8283
-2m					#6352	#6352	#8600	#8600

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.



BOOM: 6.5m

ARM: 4.5m

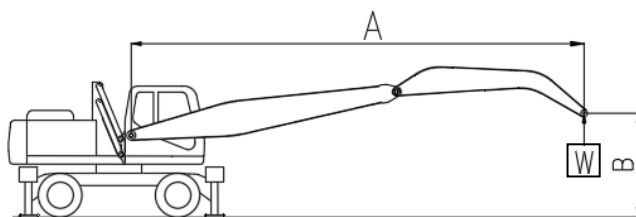
F: RATING OVER FRONT

S: RATING OVER SIDE OR 360°

unit: kgf

B \ A	5m F	5m S	6m F	6m S	7m F	7m S	8m F	8m S
12m								
11m	#5838	#5838						
10m	#5539	#5539	#5139	#5139	#4245	#4245		
9m	#5340	#5340	#4956	#4956	#4662	#4662	#4009	#4009
8m	#5322	#5322	#4924	#4924	#4604	#4604	#4345	#4345
7m	#5476	#5476	#5020	#5020	#4649	#4649	#4343	#4343
6m	#5806	#5806	#5233	#5233	#4778	#4778	#4409	#4409
5m	#6301	#6301	#5542	#5542	#4973	#4973	#4522	#4522
4m	#6913	#6913	#5920	#5920	#5207	#5207	#4662	#4662
3m	#7560	#7560	#6313	#6313	#5447	#5447	#4803	4764
2m	#8100	#8100	#6640	#6640	#5648	#5648	#4917	4634
1m	#8403	#8403	#6844	#6844	#5769	5512	#4973	4516
0m	#8425	#8425	#6875	6751	#5775	5378	#4940	4420
-1m	#8140	#8140	#6705	6632	#5631	5285	#4787	4354
-2m	#7583	#7583	#6314	#6314	#5308	5235	#4484	4323

- 1.Lifting capacity is based on SAE J1097, ISO 10567.
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- 4.(#) indicates load limited by hydraulic capacity.



BOOM: 6.5m

ARM: 4.5m

F: RATING OVER FRONT

S: RATING OVER SIDE OR 360°

unit: kgf

A \ B	9m F	9m S	10m F	10m S	Max. F	Max. S	Max. Reach(m)
12m					#5450	#5450	@3.78
11m					#4298	#4298	@5.83
10m					#3805	#3805	@7.17
9m					#3529	#3529	@8.17
8m					#3365	#3365	@8.94
7m	#4088	#4088			#3270	#3270	@9.54
6m	#4100	#4100	#3259	#3259	#3225	#3225	@10.01
5m	#4153	4117	#3828	3425	#3222	3214	@10.36
4m	#4224	4037	#3845	3381	#3255	3056	@10.59
3m	#4295	3950	#3857	3326	#3325	2955	@10.73
2m	#4342	3862	#3845	3271	#3435	2903	@10.78
1m	#4340	3782	#3785	3222	#3350	2897	@10.73
0m	#4263	3718	#3645	3185	#3243	2938	@10.58
-1m	#4077	3676	#3382	3168	#3109	3033	@10.33
-2m	#3742	3664			#2933	#2933	@9.98

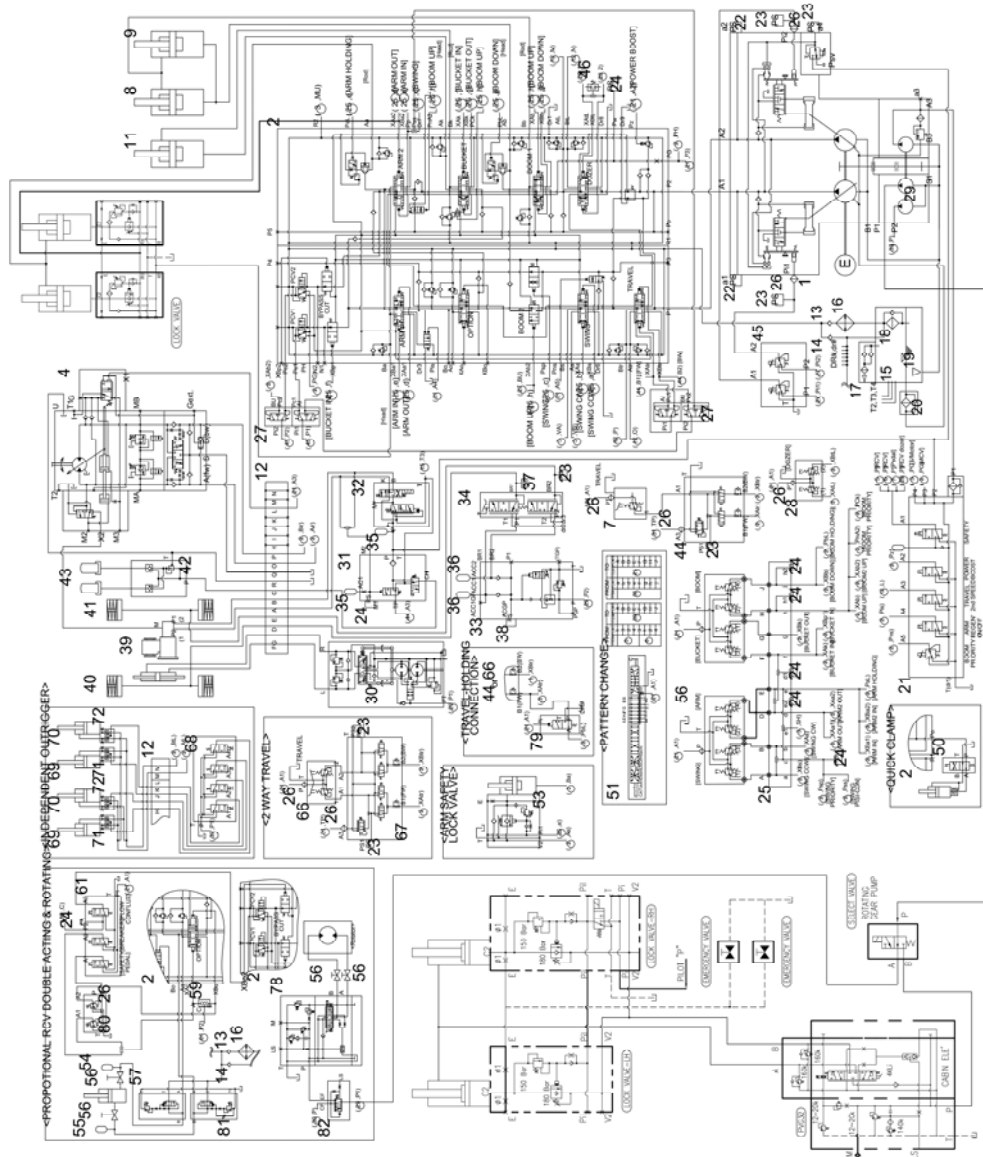
1.Lifting capacity is based on SAE J1097, ISO 10567.

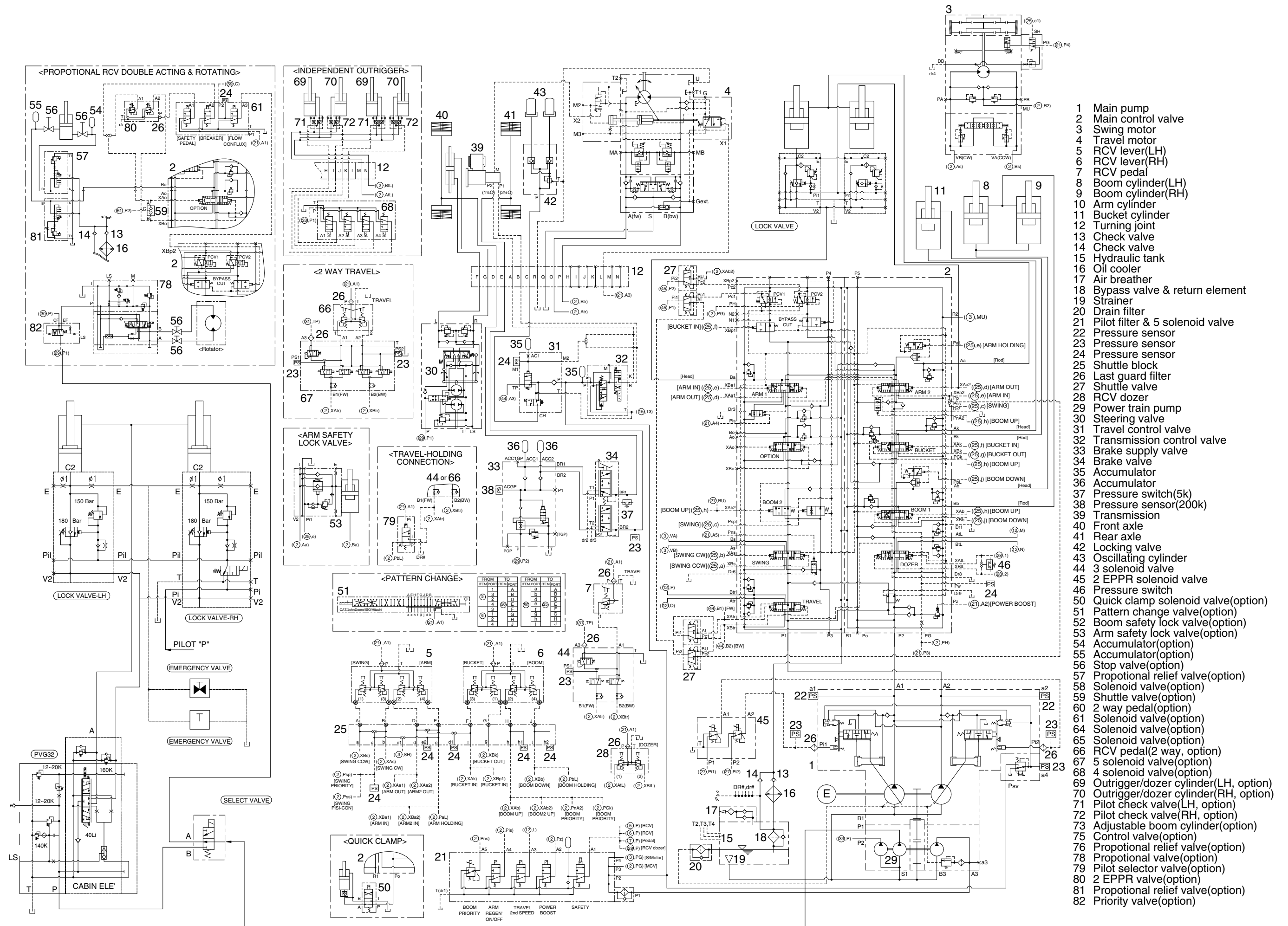
2.Load point is the end pin point of front attachment.

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

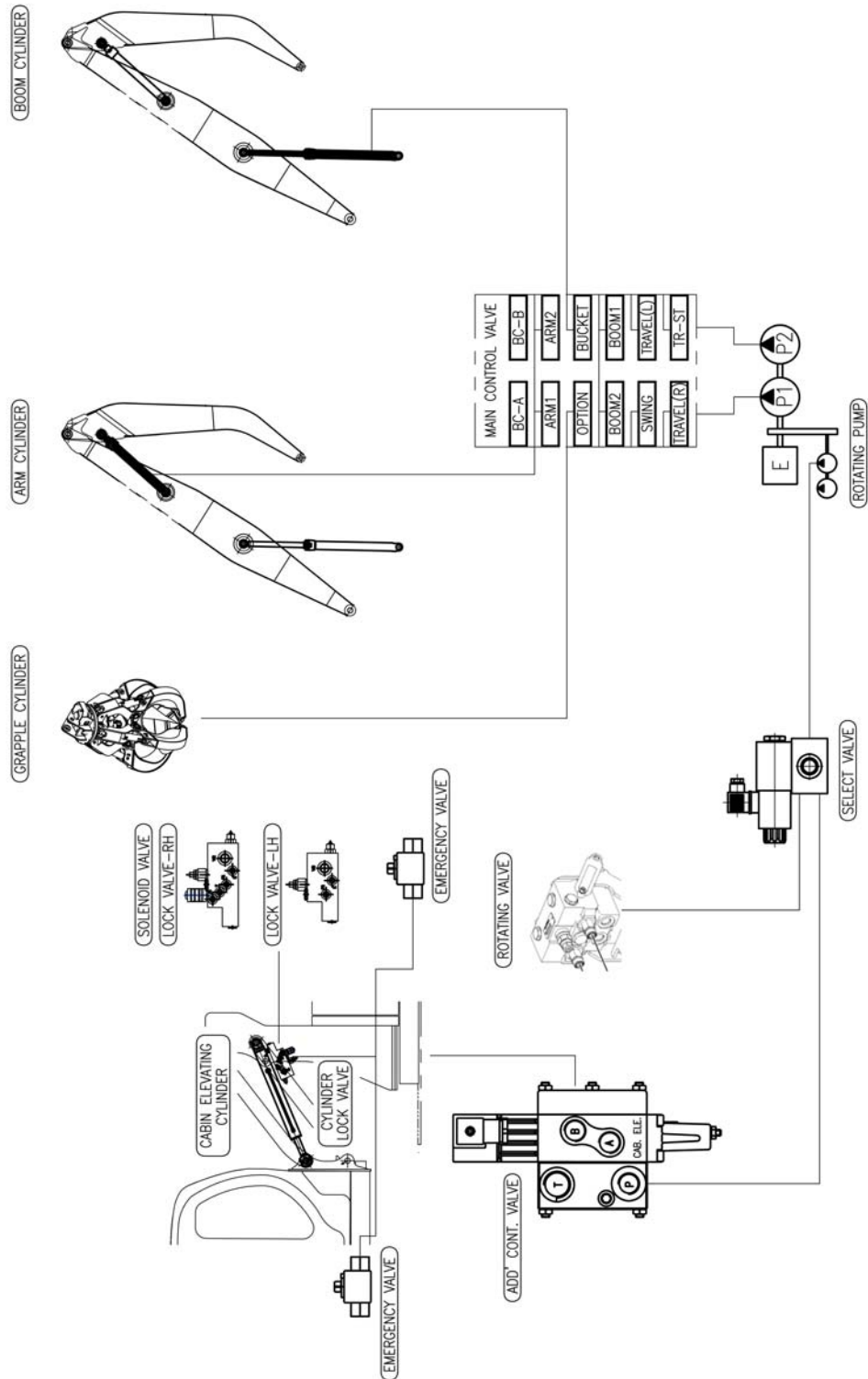
4.(#) indicates load limited by hydraulic capacity.

3-1. Hydraulic Circuit Diagram

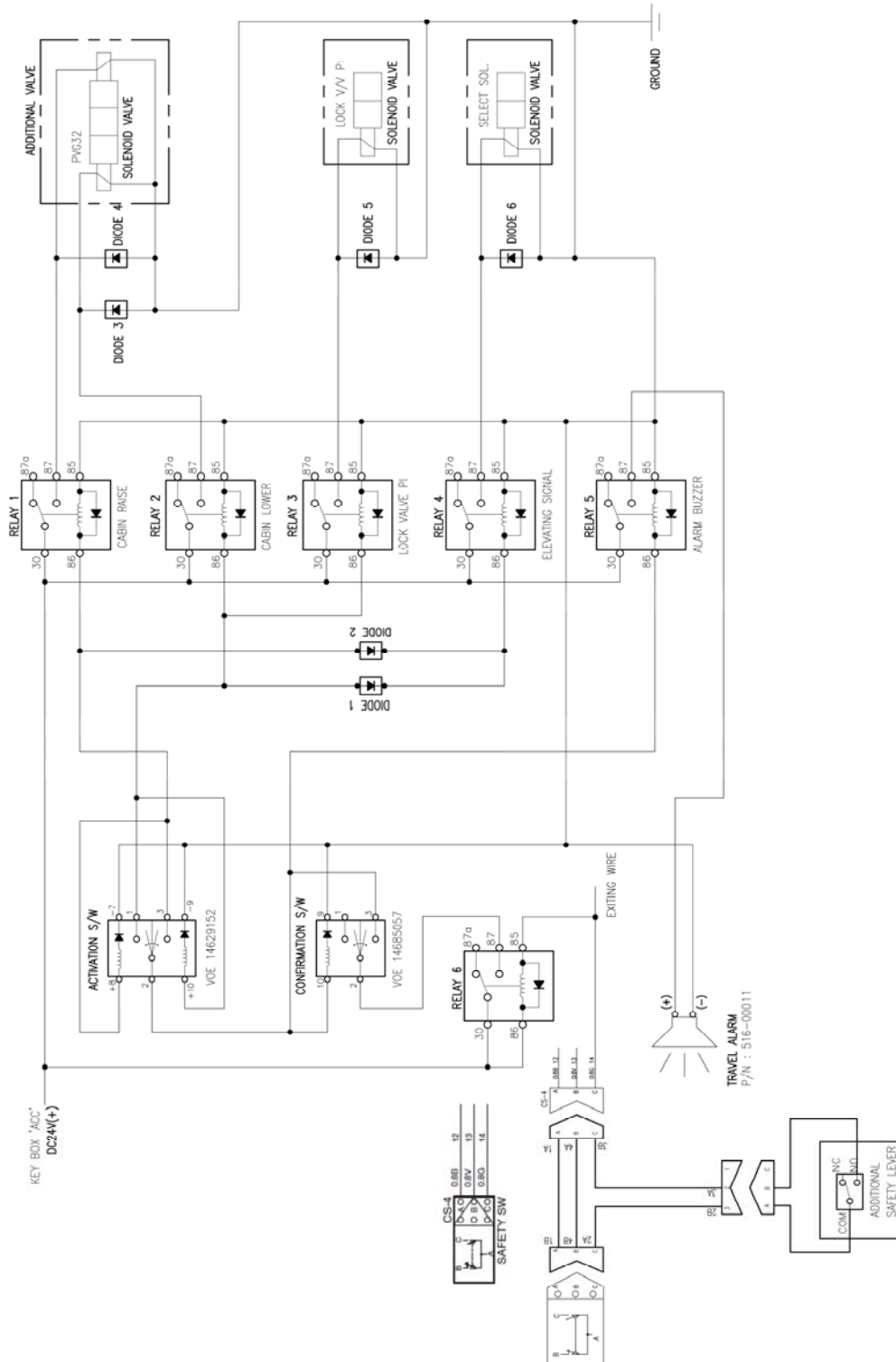




3-2. Hydraulic Parts Installation



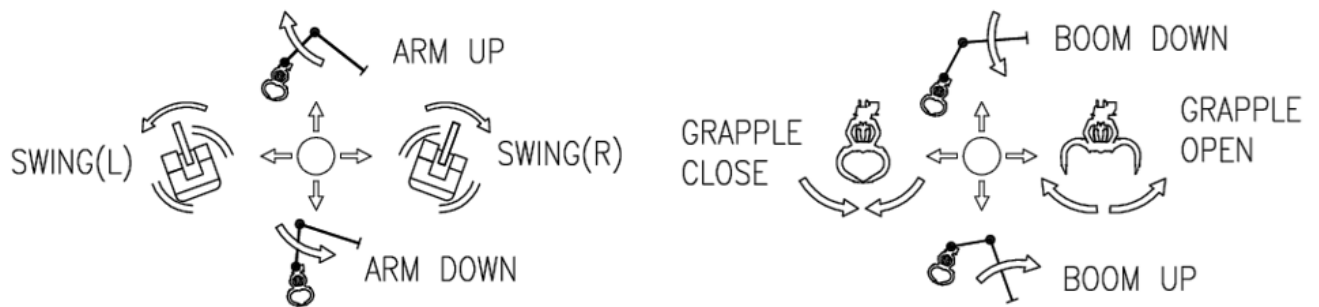
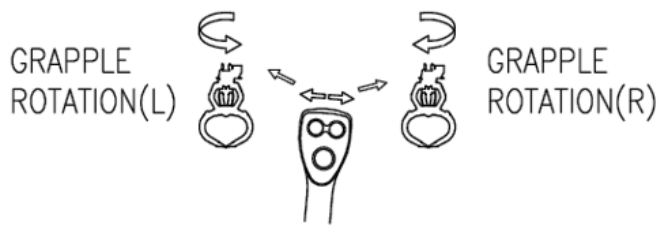
3-3. Electric Circuit Diagram



4. Operation

4-1. Control Devices for Operation

- Joystick



- Buttons



4-2. Cabin Elevating Operation



Elevating cab switch

Confirmation
Switch



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

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

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.**

5. Maintenance

5-1. Greasing

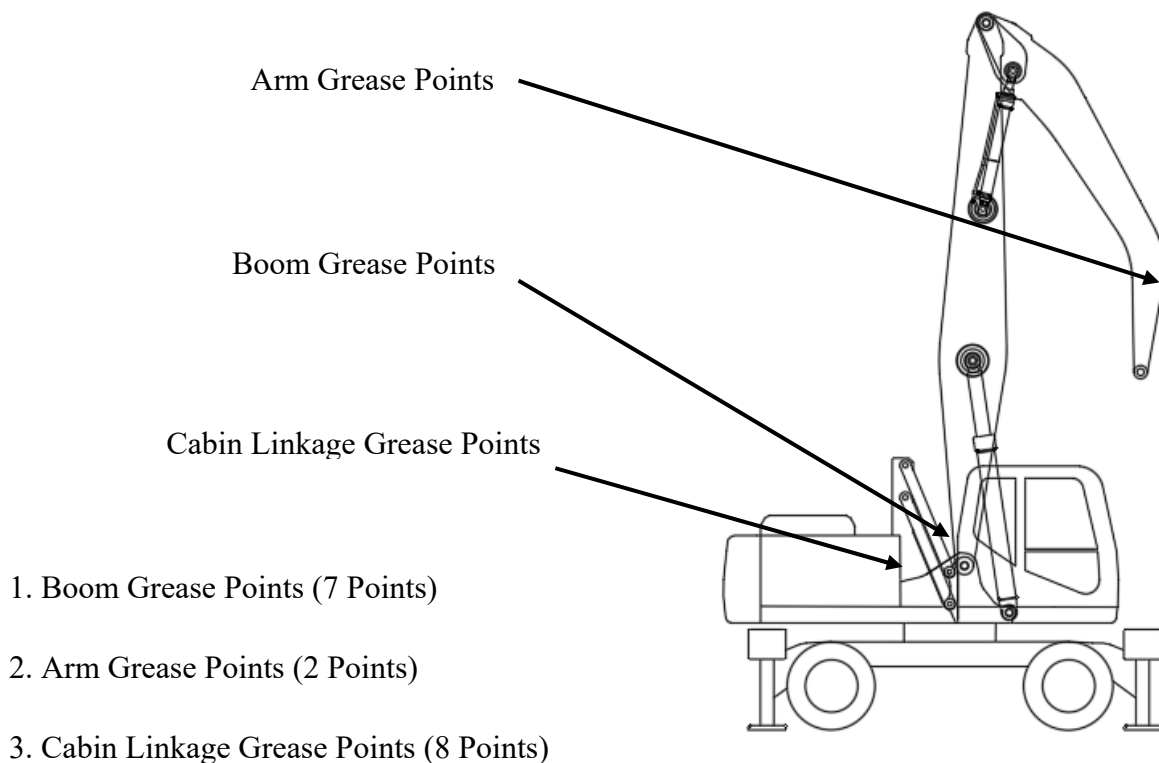
50 HOUR/WEEKLY SERVICE

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

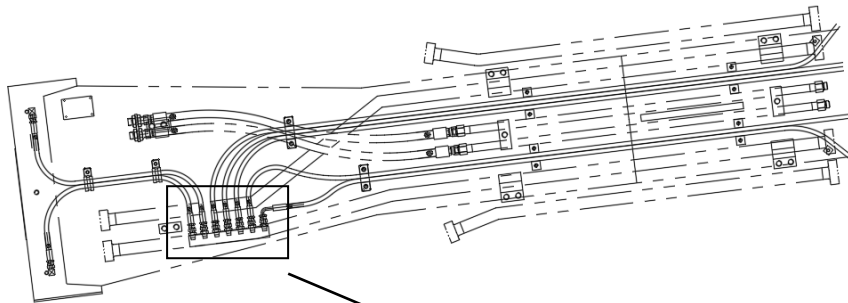
Grease every 10 hours for first 100 hours and every 50 hours thereafter.

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

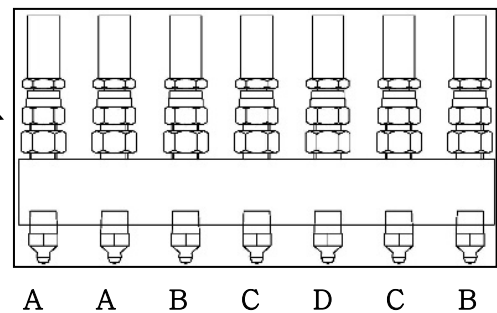
- Position machine as shown below and lower the front attachment on the ground and stop the engine
- Press the grease fitting and inject grease gun on the marked point
- After injection, clean off the old grease that has been purged



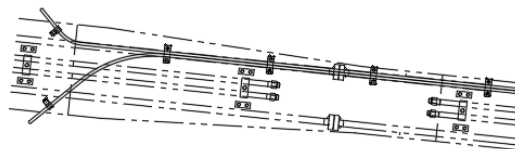
1. Boom Grease Points (7 Points)



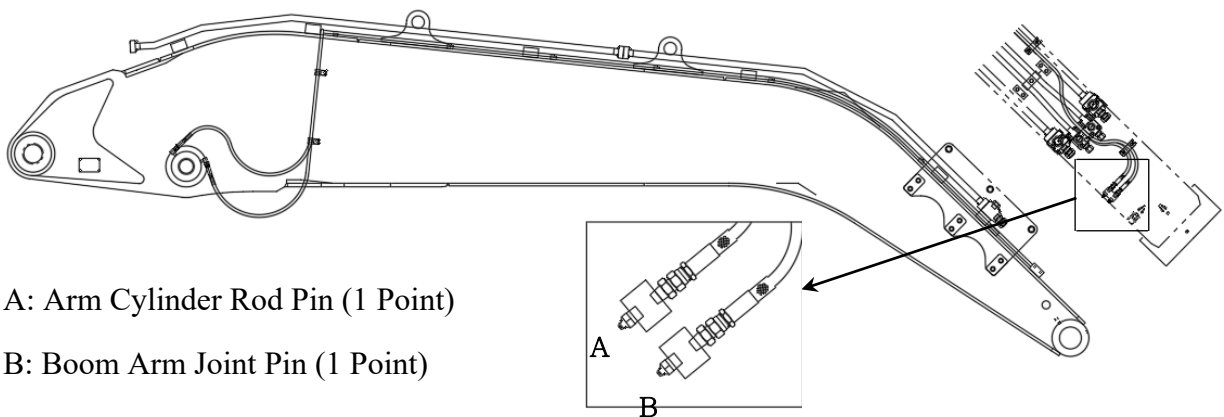
- A : Boom Foot Pin (2Points)
B : Boom Cylinder Rod Pin (2Points)
C : Arm Cylinder Bore Pin (2Point)
D : Boom Arm Joint Pin (1 Point)



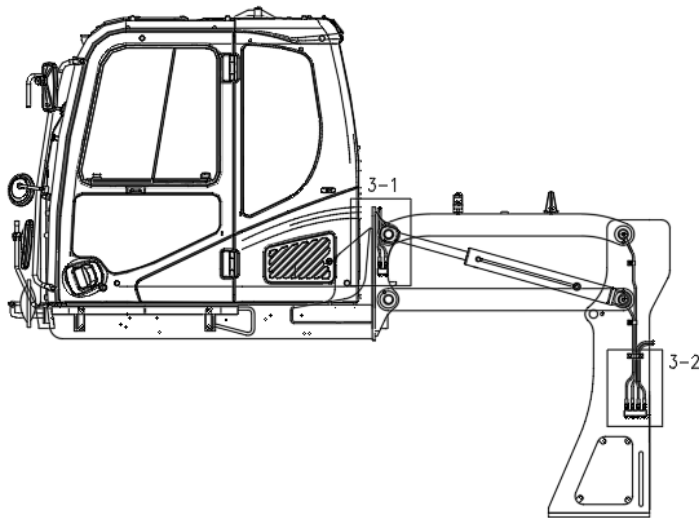
2. Arm Grease Points (2 Points)



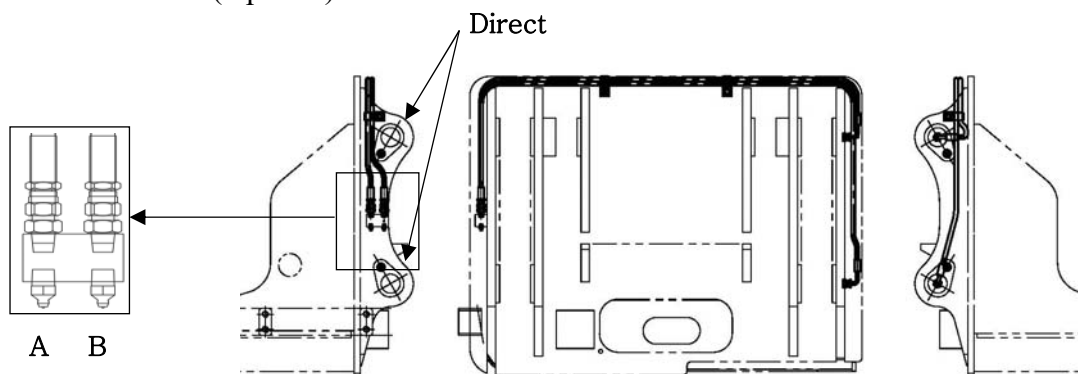
- A: Arm Cylinder Rod Pin (1 Point)
B: Boom Arm Joint Pin (1 Point)



3. Cabin Linkage Grease Points (8 Points)



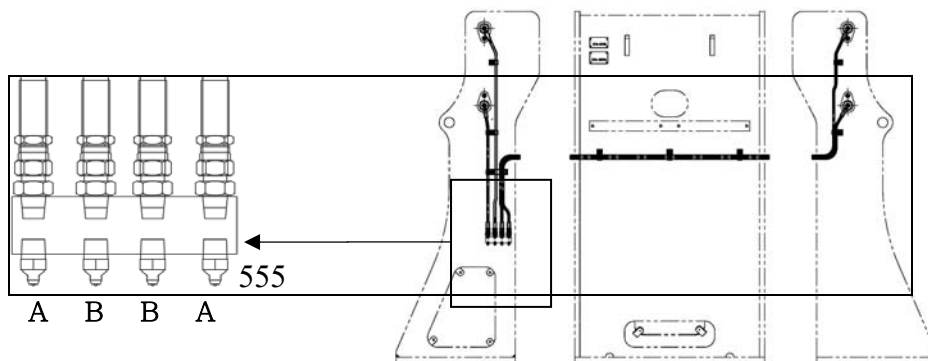
3-1. Bed Frame Grease (4 points)



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)

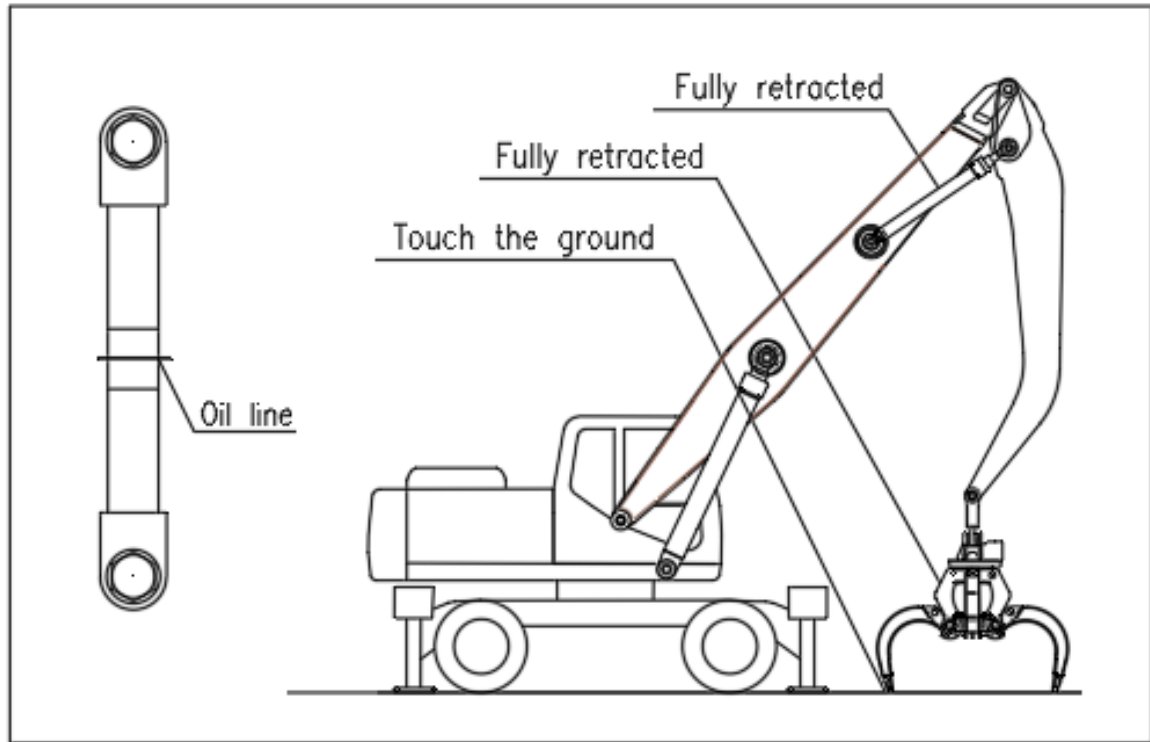


A : Support Frame & Guide Link Joint Pin (2 Points)

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 the Hyundai Construction Equipment or Hyundai dealer.

Version: 2.4

Orange Grapple

(HW250 MH)

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

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

Model	
P/N	
Year of Manufacture	

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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 Hyundai Construction Equipment can create a safety hazard, for which the machine owner must be held responsible. If you need any modifications, please consult 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.

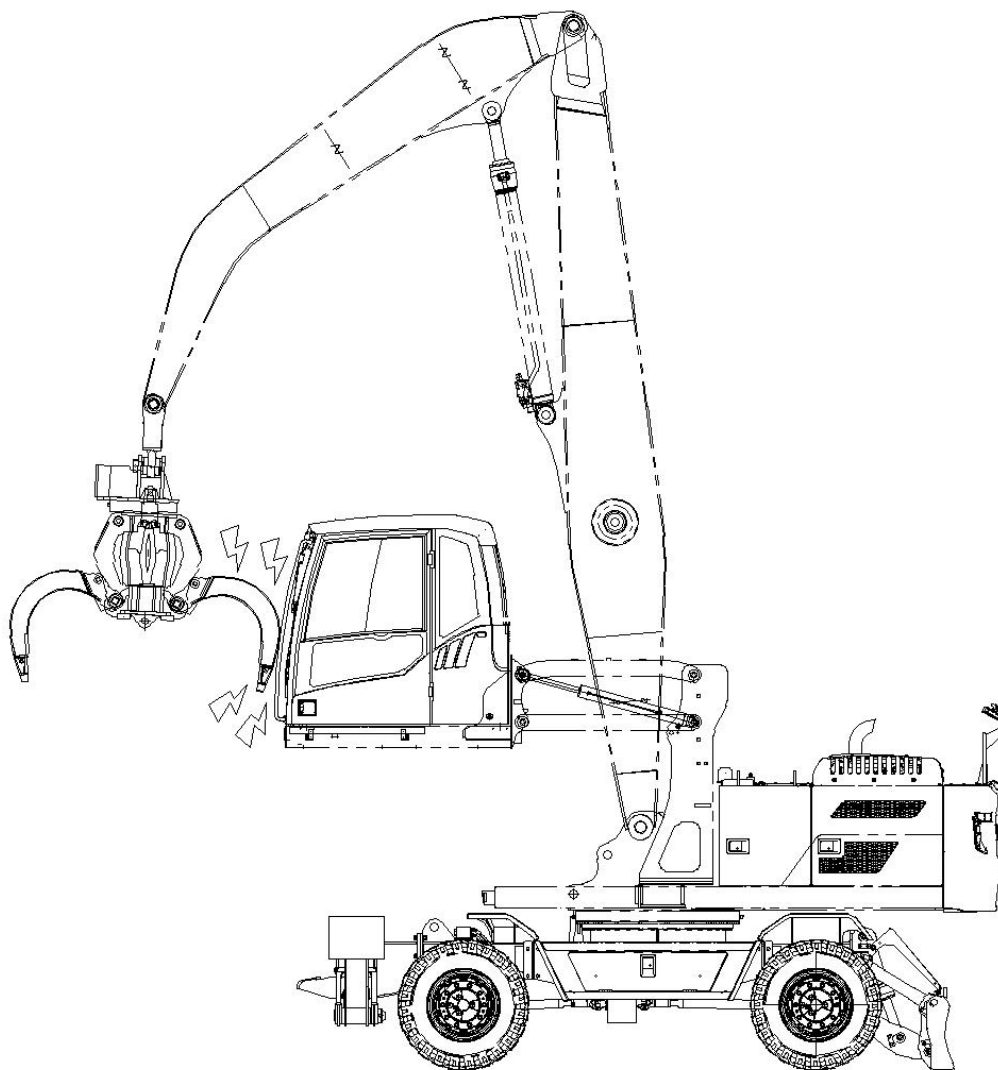
13) Warning indication during checking or repairing

- 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

1.5. Hazard Operation



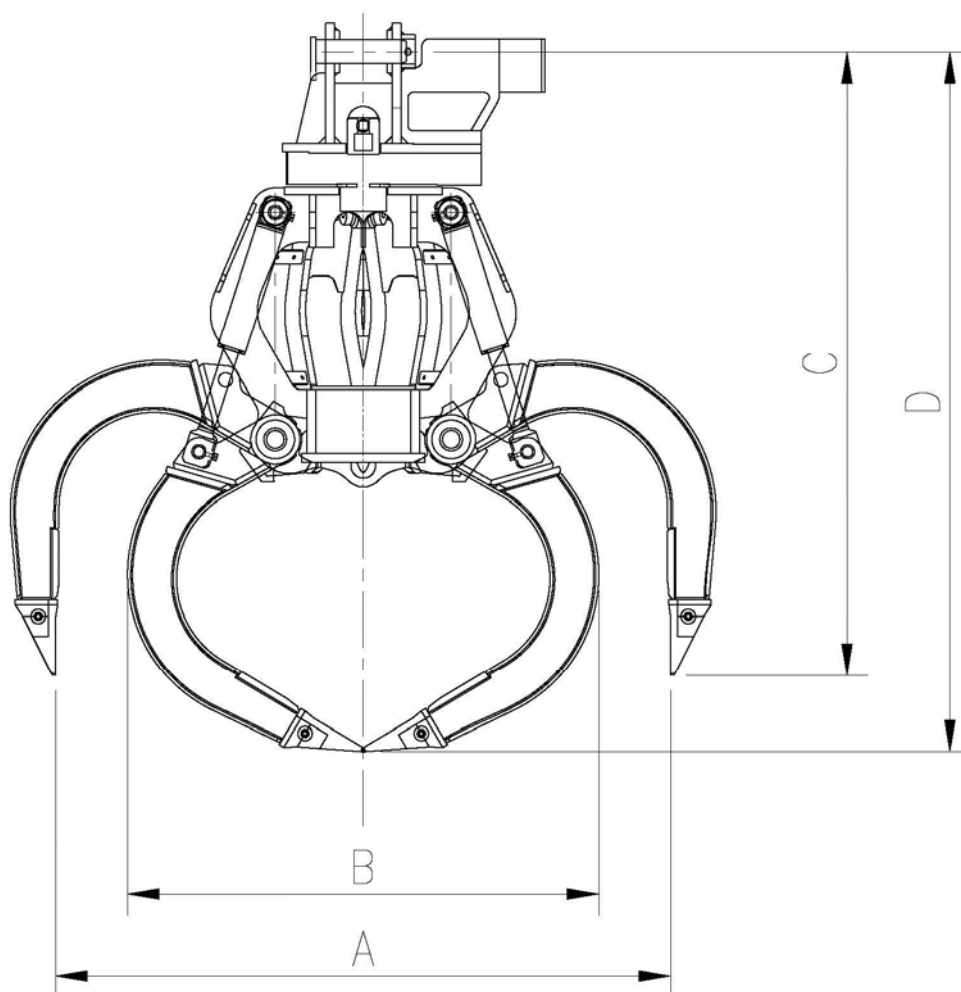
Be careful not to hit each other when moving ATTACHMENT and CABIN on the front. Also, make sure that OUTTRIGGER and DOZER are firmly attached to the ground before you make a complaint. Otherwise, equipment is likely to overturn.

2. Specification

2-1. Hydraulic Cylinder

ITEM	UNIT	SPECIFICATION
MAX. OPERATING PRESSURE	kgf/cm ²	280
CLOSED LENGTH	Mm	490
STROKE	mm	235
BORE DIAMETER	mm	Ø65

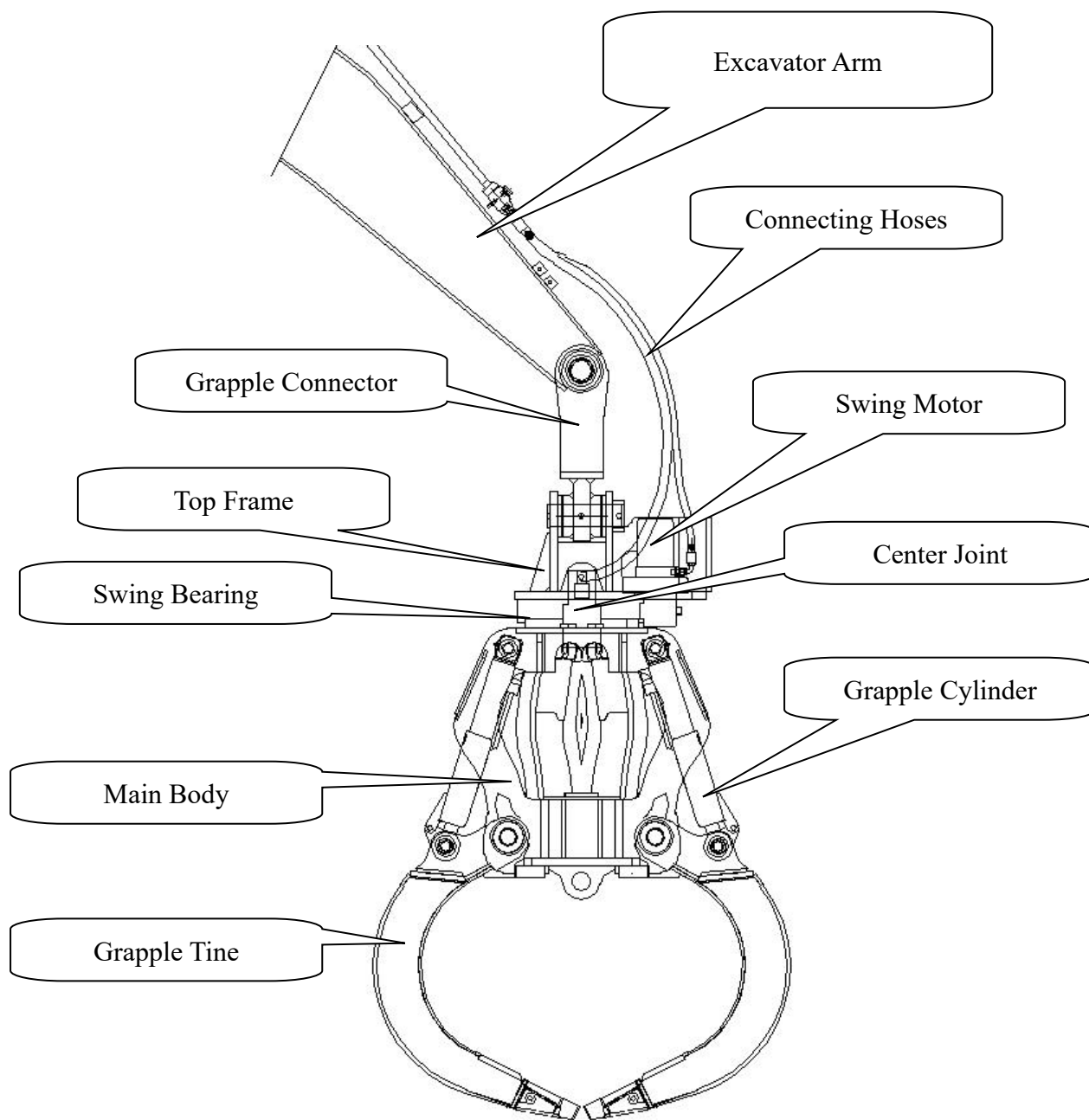
2-2. Dimensions



MODEL	UNIT	SPECIFICATION
A	mm	1,933
B	mm	1,526
C	mm	1,806
D	mm	2,119
EXCAVATOR CLASS	ton	15~20

3. Structure & Installation

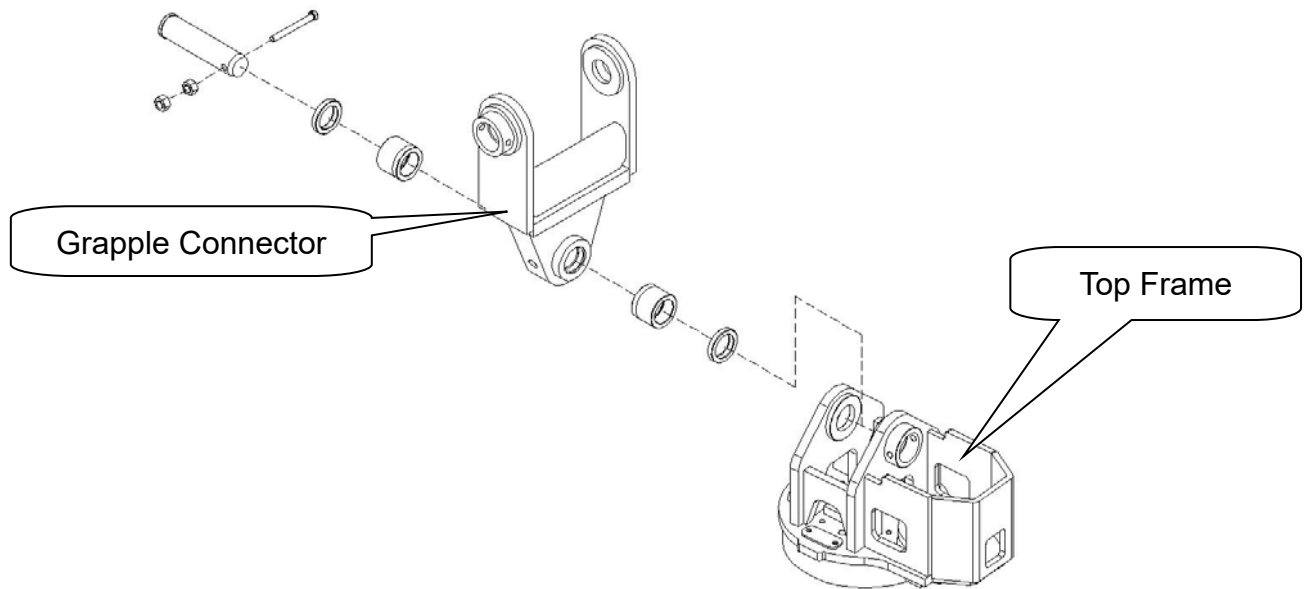
3.1 Names of Each Part



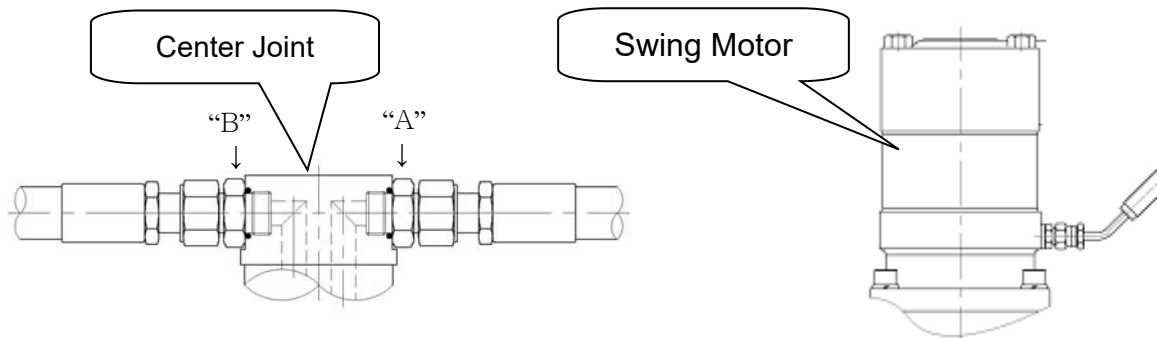
3.2 Installation to Arm

1) Preparation of Installation

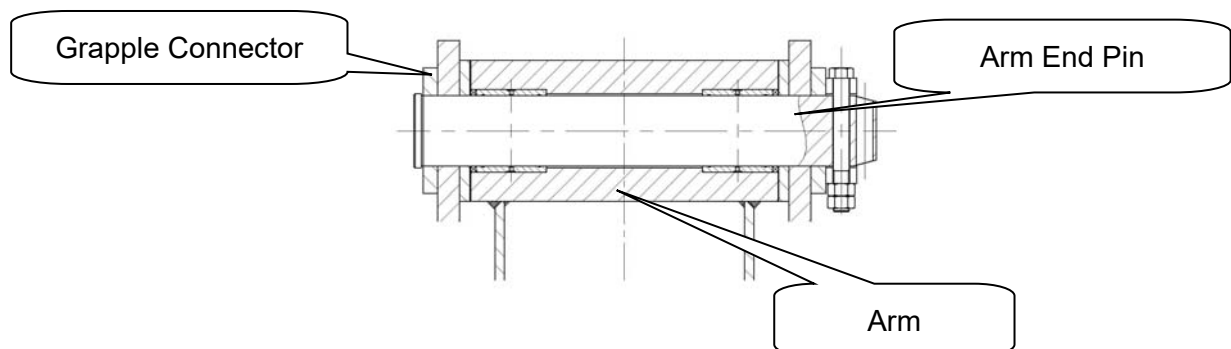
- Attach Grapple Connector to Top Frame.



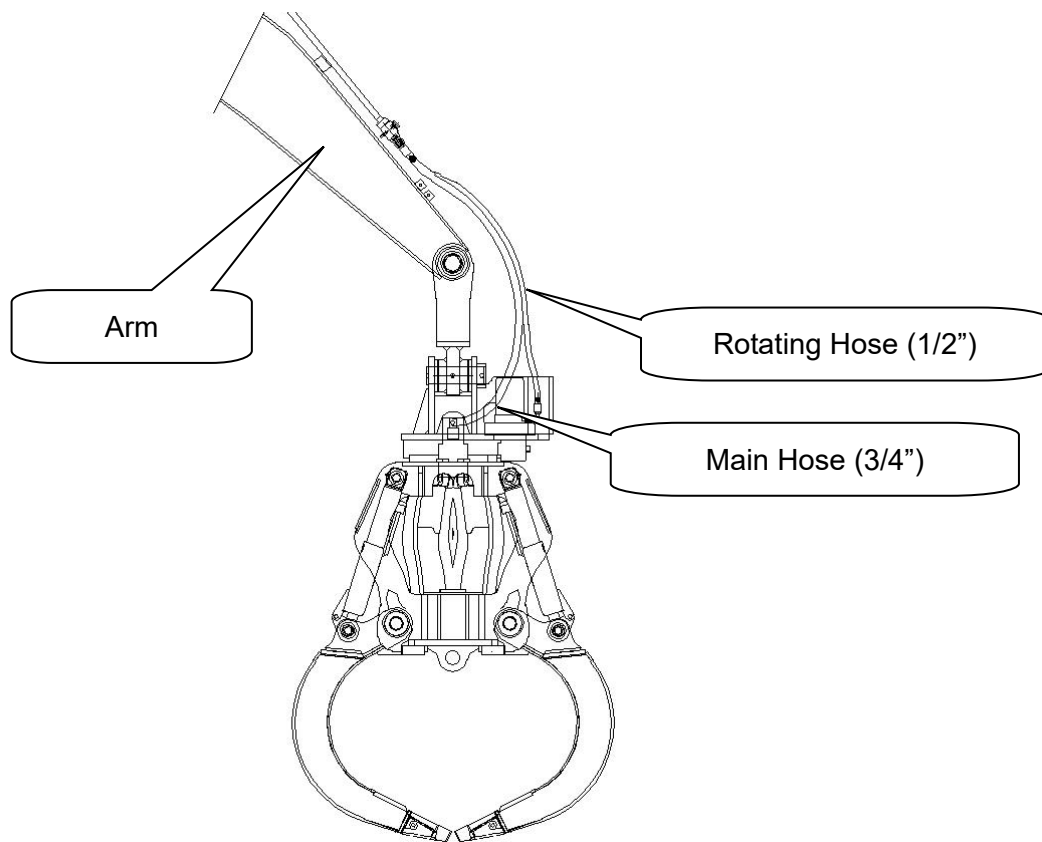
- Connect hoses to Center joint and Swing motor



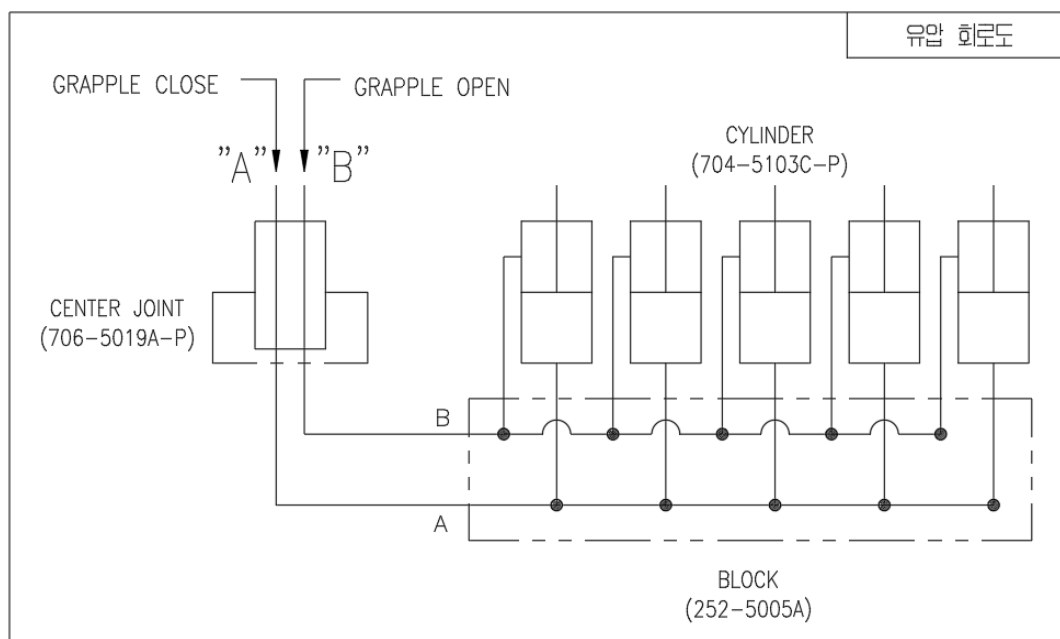
2) Connect the Grapple Connector to Arm with Arm End Pin.



3) Connect hydraulic hoses to arm



4) Hydraulic circuit diagram



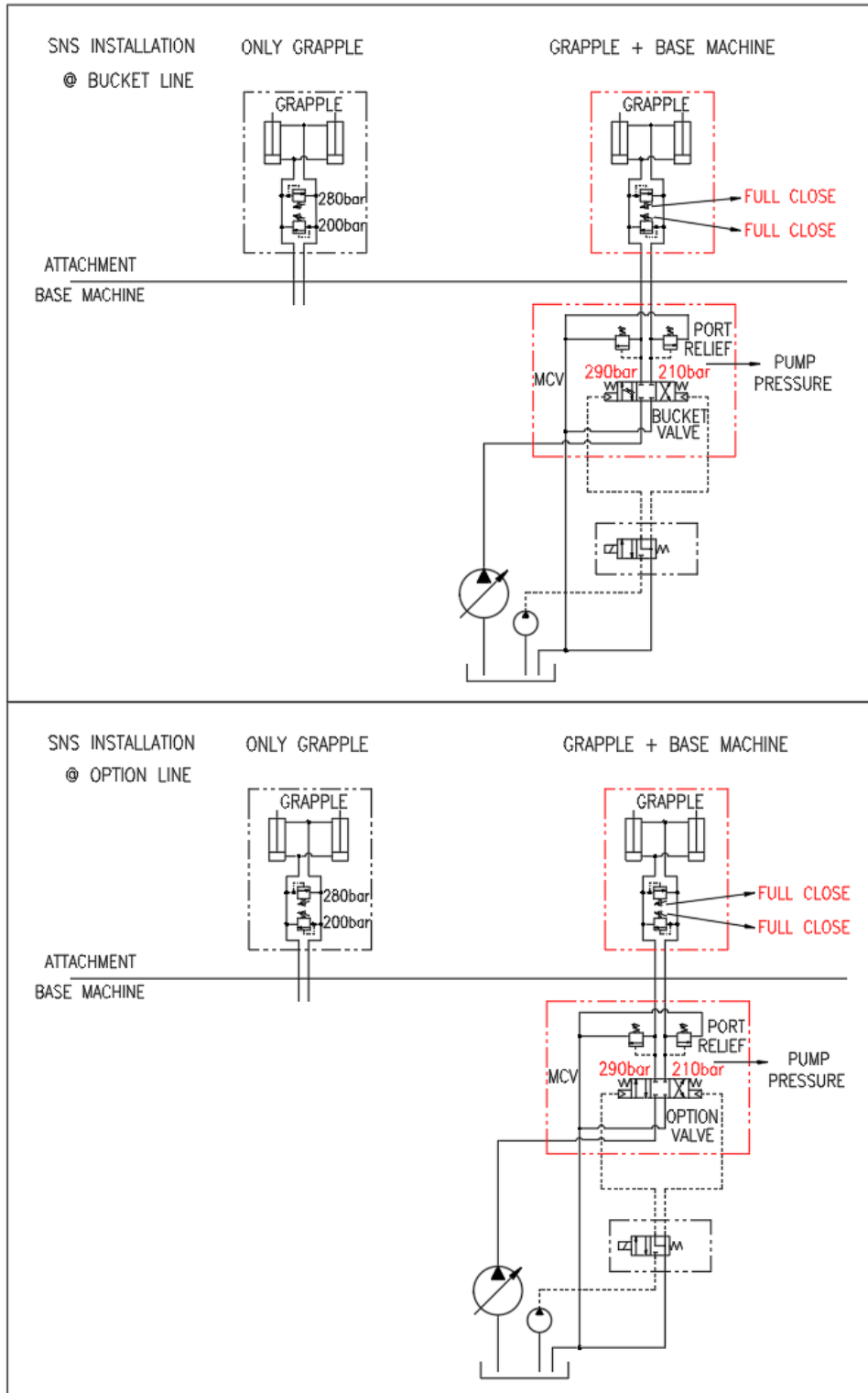
5) Pressure setting of the relief valve

After installing attachment (Grapple or bucket),

As shown in the attached picture, fully close the relief valve on the attachment (Grapple or bucket),

And Check the port relief valve of the MCV and bucket pressure set check on the monitor display in the cabin.

※ MCV can be different depending on the Base Machine.



4. Check and Maintenance

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

4.1 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.

4.2 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.*

4.3 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*

4.4 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 Hyundai Construction Equipment or Hyundai dealer..

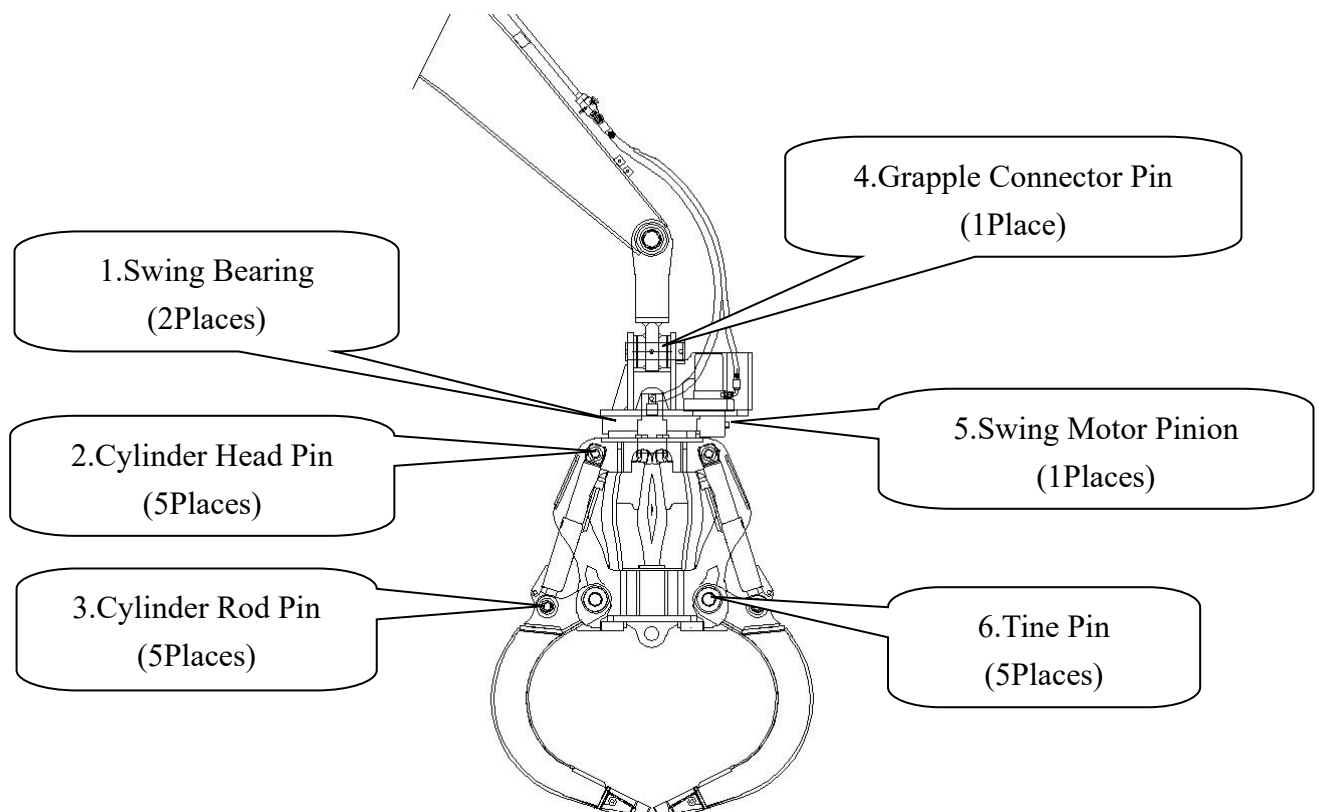
4.5 Locations where greases are to be inserted

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.*

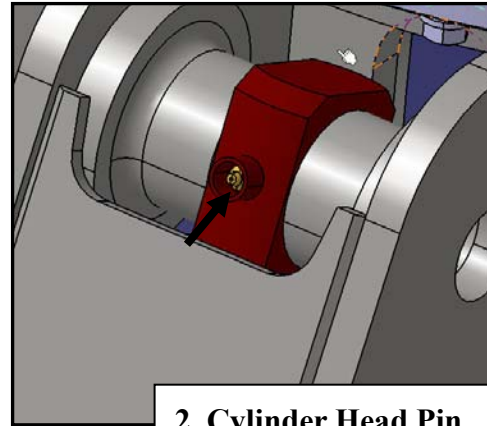
3) *Wash out clearly the old grease coming out after inserting new grease.*



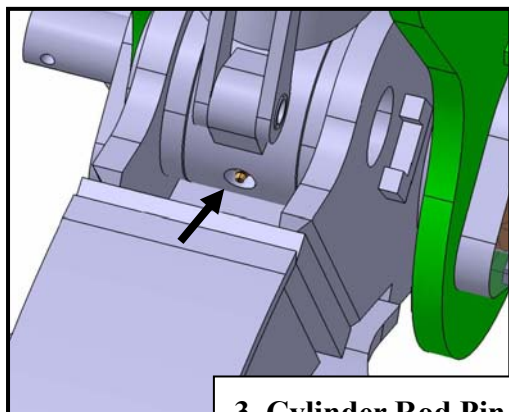
Location of Nipples for Greasing



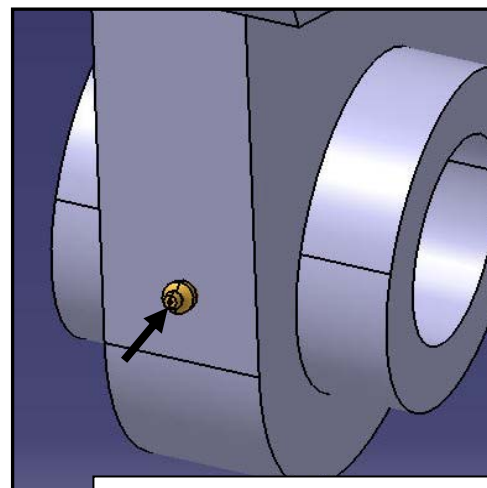
1. Swing Bearing



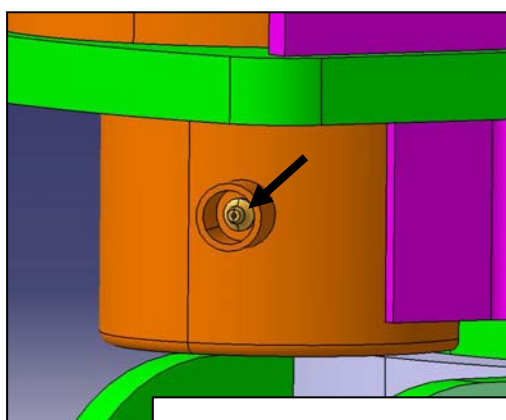
2. Cylinder Head Pin



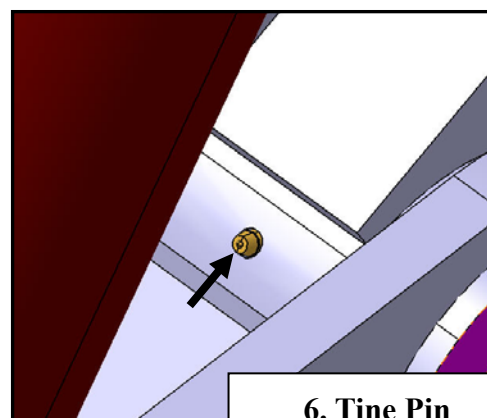
3. Cylinder Rod Pin



4. Grapple Connector Pin



5. Swing Motor Pinion



6. Tine Pin

5. Operation and Caution

5.1 Operation for new attachment

The orange grapple is required that the operator follow these two steps 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.

5.2 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.

6. Troubleshooting

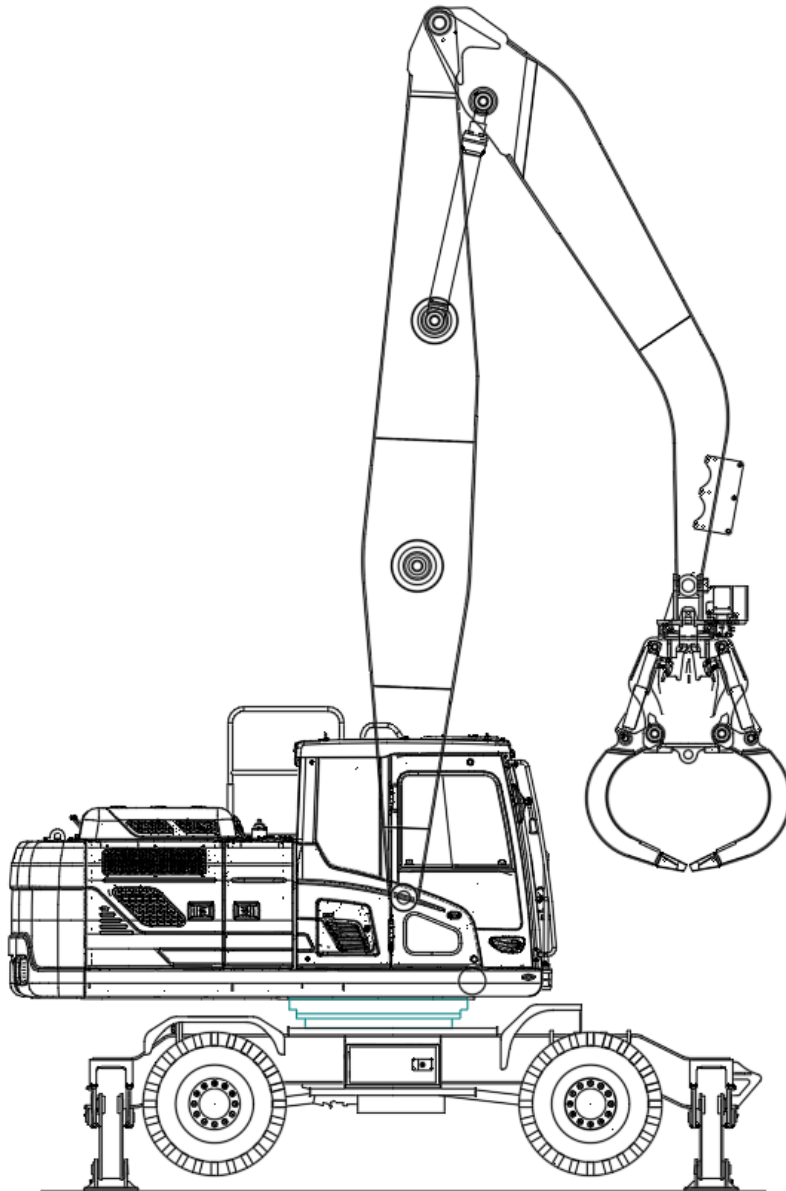
Trouble	Probable cause	Remedy
The grapple does not work	Make-up check hydraulic line leaking	Repair or replace as required.
	Relief pressure too low	Reset pressure.
	Hydraulic pump failed	Contact your dealer.
	Low hydraulic oil level	Add hydraulic oil as required.
The grapple has poor power	Relief pressure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

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

Parts List

HW250 MH

(SMH21-36-DG & SCE25)



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ARM PIPING	-----	C060
ARM LOCK VALVE PIPING	-----	C060a
ARM GREASE PIPING	-----	C060b
GREASE PIPING (ELEVATED CABIN)	-----	C170

D. Hydraulic Component

ARM CYLINDER	-----	D080
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G. Structure System

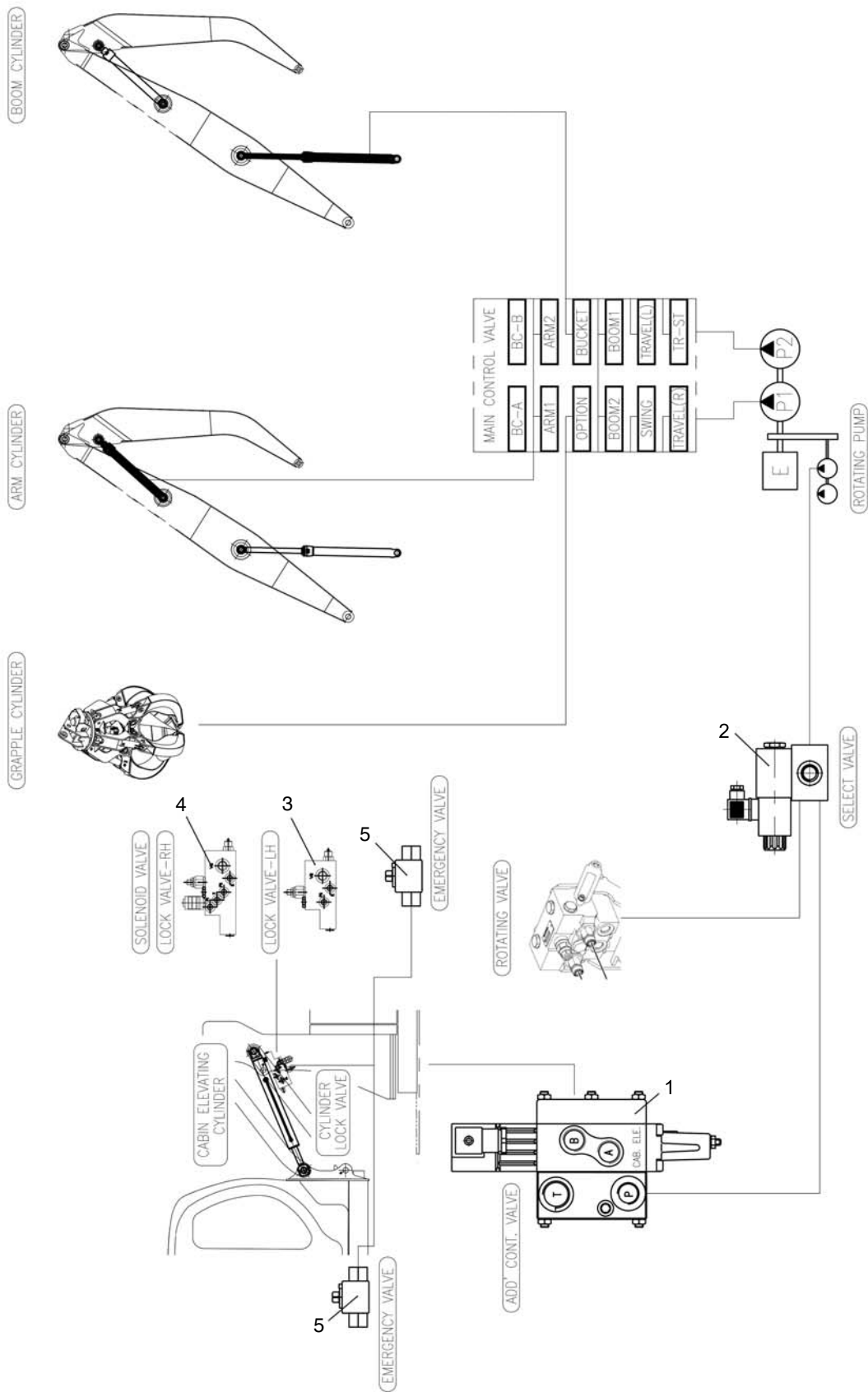
CABIN ELEVATING ASSEMBLY	-----	G010
CABIN ELEVATING CYLINDER SEAL KIT	-----	G010a
SAFETY LEVER ASSEMBLY (EU ONLY)	-----	G010b
SIDE BUMPER ASSEMBLY	-----	G040
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FRONT STEP ASSEMBLY	-----	G060
SIDE STEP ASSEMBLY	-----	G060m

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ORANGE GRAPPLE ASSEMBLY	-----	H030a

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COVER ASSEMBLY	- - - - -H030g
PIPING	- - - - -H030h
CONNECTOR ASSEMBLY	- - - - -H030i

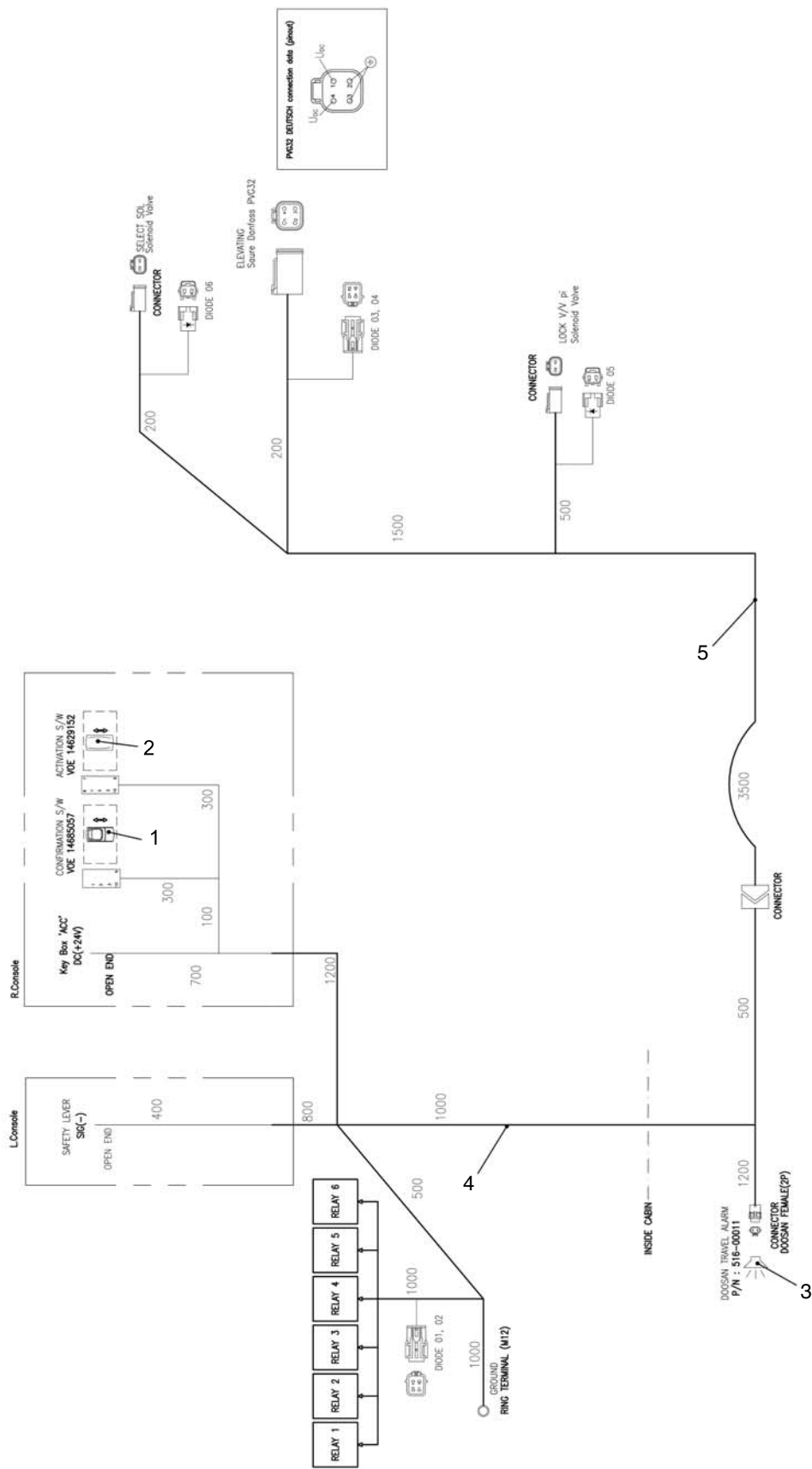
HYDRAULIC PARTS INSTALLATION



HYDRAULIC PARTS INSTALLATION

HW250 MH

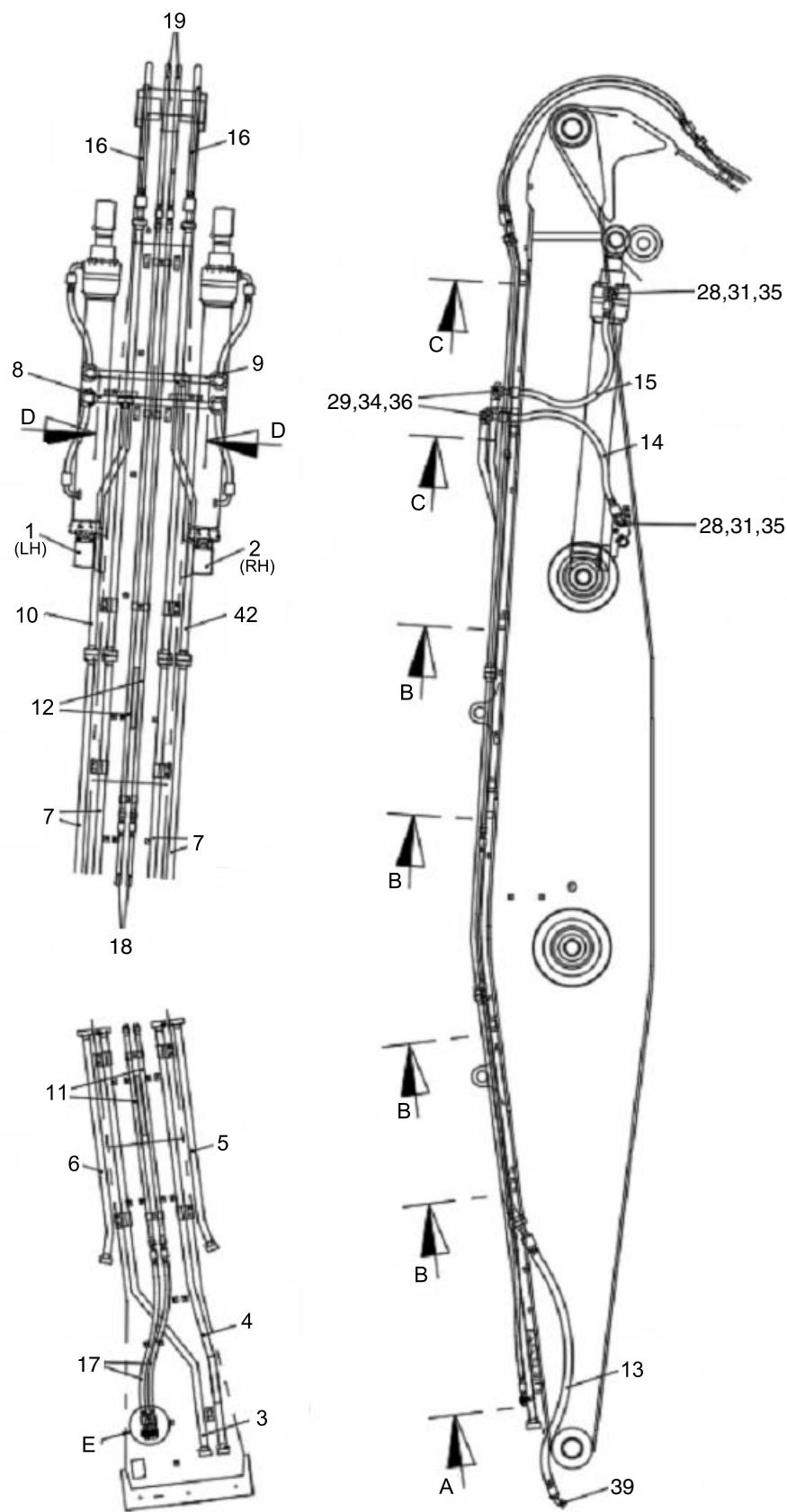
ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-00955	VALVE-ADD	1			
2	XKDA-01193	VALVE-SHUTTLE	1			
3	XKDA-01194	VALVE-LOCK LH	1			
4	XKDA-01195	VALVE-LOCK RH	1			
5	XKDA-01221	VALVE-EMERGENCY 1	2			



WIRE HARNESS ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-00945	SWITCH	1			
2	XKDA-01197	SWITCH-ACTIVATION	1			
3	XKDA-01198	ALARM-TRAVEL	1			
4	XKDA-01199	HARNESS-INSIDE CABIN	1			
5	XKDA-01200	HARNESS-OUTSIDE CABIN	1			



BOOM PIPING

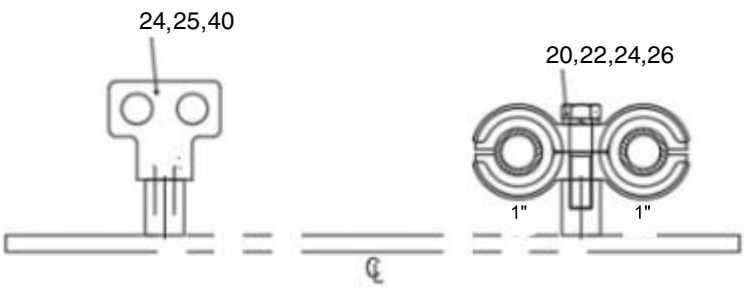
HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA- 00999	CYLINDER ASSY-ARM LH	1			
2	XKDA- 01000	CYLINDER ASSY-ARM RH	1			
3	XKDA- 01001	PIPE	1			
4	XKDA- 01002	PIPE	1			
5	XKDA- 01003	PIPE	1			
6	XKDA- 01004	PIPE	1			
7	XKDA- 01005	PIPE	4			
8	XKDA- 01006	PIPE	1			
9	XKDA- 01007	PIPE	1			
10	XKDA- 01008	PIPE	1			
11	XKDA- 01009	PIPE	2			
12	XKDA- 01010	PIPE	2			
13	XKDA- 01011	HOSE	2			L=1460
14	XKDA- 01012	HOSE	2			L=1010
15	XKDA- 01013	HOSE	2			L=1040
16	XKDA- 01014	HOSE	2			L=1590
17	XKDA- 01015	HOSE	2			L=930
18	XKDA- 01016	HOSE	2			L=810
19	XKDA- 01017	HOSE	2			L=1750
20	XKDA- 00328	PAD- RUBBER	26			
21	XKDA- 00781	CLAMP	16			
22	XKDA- 01018	CLAMP	18			
23	XKDA- 00035	CLAMP-PIPE	6			
24	XKDA- 00048	WASHER -SPRING	42			
25	XKDA- 00101	BOLT-HEX	2			
26	XKDA- 00783	BOLT-HEX	36			
27	XKDA- 01019	BOLT-HEX	4			
28	XKDA- 01020	O - RING	4			
29	XKDA- 00649	O - RING	18			
30	XKDA- 00336	O - RING	12			
31	XKDA- 01021	BOLT-SOCKET	16			
32	XKDA- 00053	BOLT-SOCKET	24			
33	XKDA- 00074	BOLT-SOCKET	32			
34	XKDA- 01022	BOLT-SOCKET	16			
35	XKDA- 01023	FLANGE-SPLIT	8			6000psi
36	XKDA- 00650	FLANGE	8			6000psi
37	XKDA- 00790	FLANGE	12			5000psi
38	XKDA- 00851	ADAPTER	2			
39	XKDA- 00339	O - RING	2			
40	XKDA- 01024	BRACKET	1			

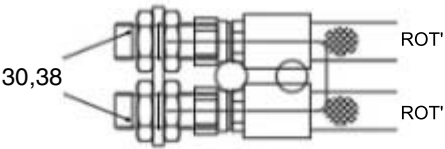
BOOM PIPING

HW250 MH

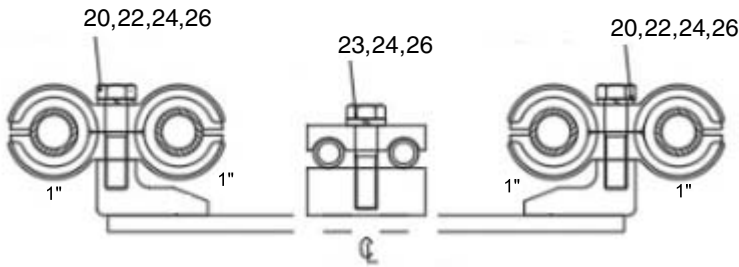
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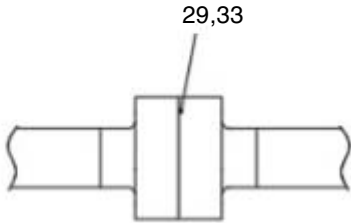
SECTION A



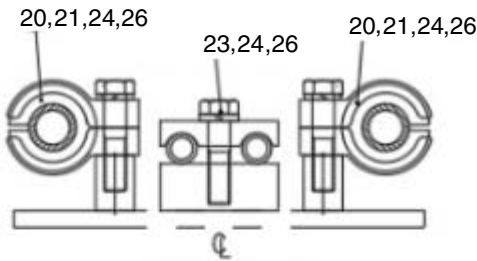
DETAIL E



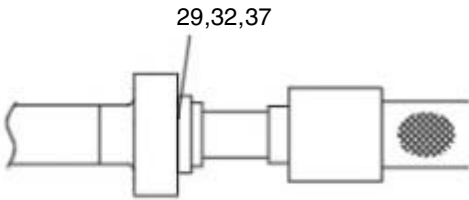
SECTION B



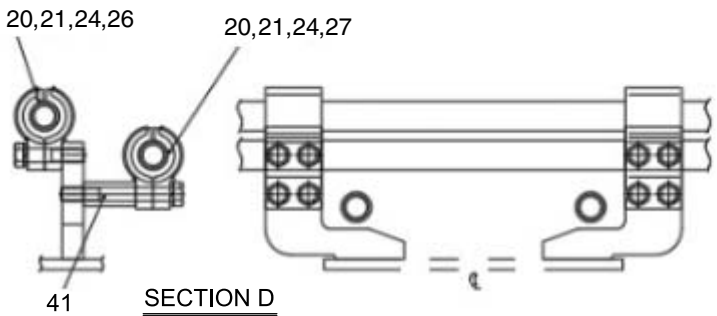
1" PIPE + 1" PIPE
61code



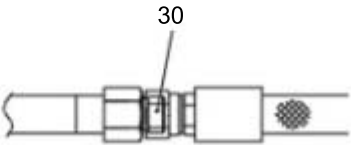
SECTION C



1" PIPE + 1" HOSE
61code



SECTION D



1/2" PIPE + 1/2" HOSE

BOOM PIPING

HW250 MH

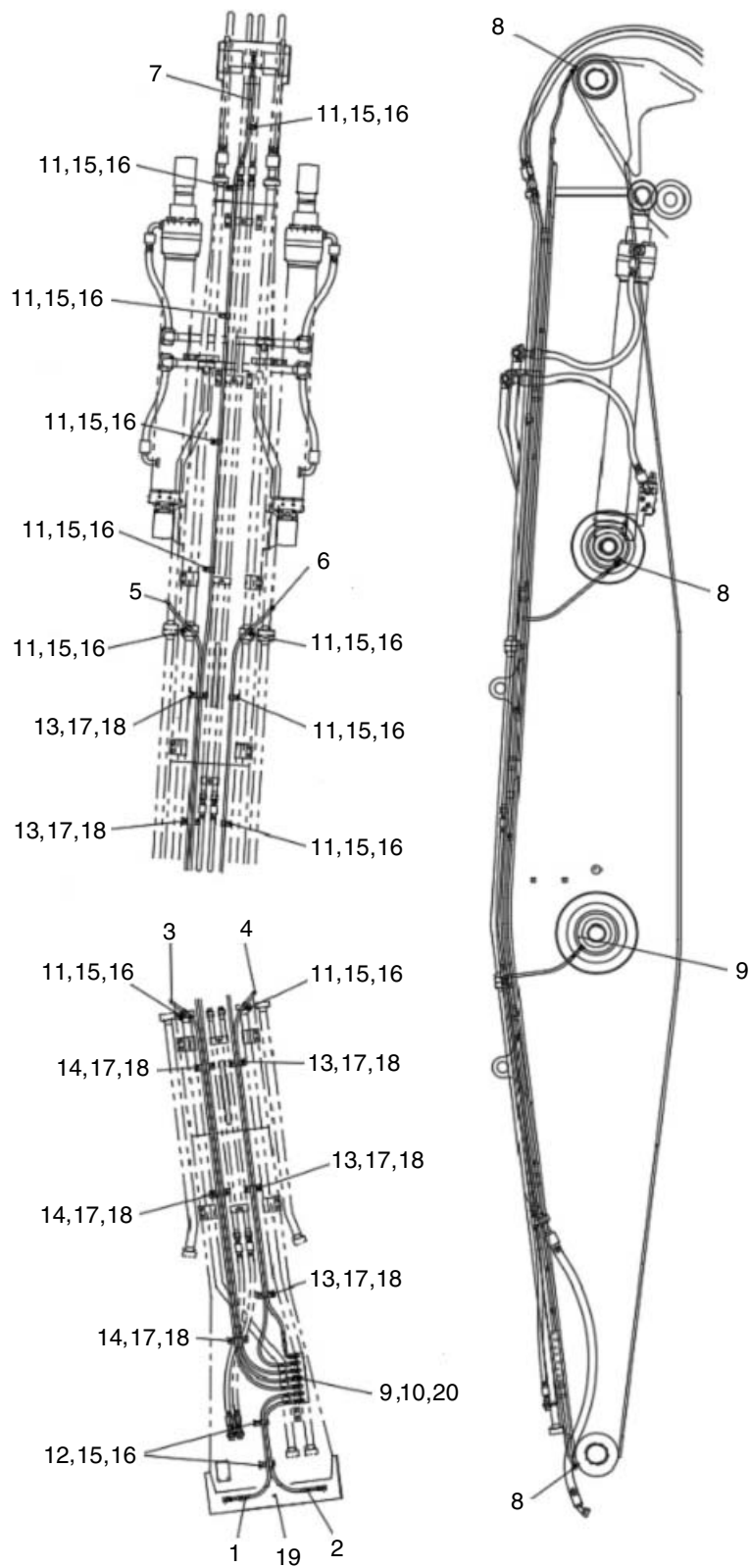
ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-00999	CYLINDER ASSY-ARM LH	1			
2	XKDA-01000	CYLINDER ASSY-ARM RH	1			
3	XKDA-01001	PIPE	1			
4	XKDA-01002	PIPE	1			
5	XKDA-01003	PIPE	1			
6	XKDA-01004	PIPE	1			
7	XKDA-01005	PIPE	4			
8	XKDA-01006	PIPE	1			
9	XKDA-01007	PIPE	1			
10	XKDA-01008	PIPE	1			
11	XKDA-01009	PIPE	2			
12	XKDA-01010	PIPE	2			
13	XKDA-01011	HOSE	2			L=1460
14	XKDA-01012	HOSE	2			L=1010
15	XKDA-01013	HOSE	2			L=1040
16	XKDA-01014	HOSE	2			L=1590
17	XKDA-01015	HOSE	2			L=930
18	XKDA-01016	HOSE	2			L=810
19	XKDA-01017	HOSE	2			L=1750
20	XKDA-00328	PAD- RUBBER	26			
21	XKDA-00781	CLAMP	16			
22	XKDA-01018	CLAMP	18			
23	XKDA-00035	CLAMP-PIPE	6			
24	XKDA-00048	WASHER -SPRING	42			
25	XKDA-00101	BOLT-HEX	2			
26	XKDA-00783	BOLT-HEX	36			
27	XKDA-01019	BOLT-HEX	4			
28	XKDA-01020	O - RING	4			
29	XKDA-00649	O - RING	18			
30	XKDA-00336	O - RING	12			
31	XKDA-01021	BOLT-SOCKET	16			
32	XKDA-00053	BOLT-SOCKET	24			
33	XKDA-00074	BOLT-SOCKET	32			
34	XKDA-01022	BOLT-SOCKET	16			
35	XKDA-01023	FLANGE-SPLIT	8			6000psi
36	XKDA-00650	FLANGE	8			6000psi
37	XKDA-00790	FLANGE	12			5000psi
38	XKDA-00851	ADAPTER	2			
39	XKDA-00339	O - RING	2			
40	XKDA-01024	BRACKET	1			

BOOM PIPING

HW250 MH

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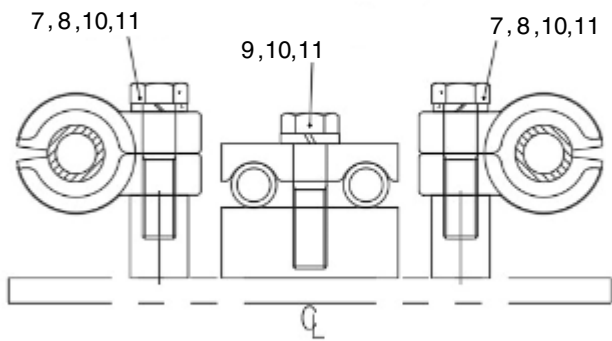
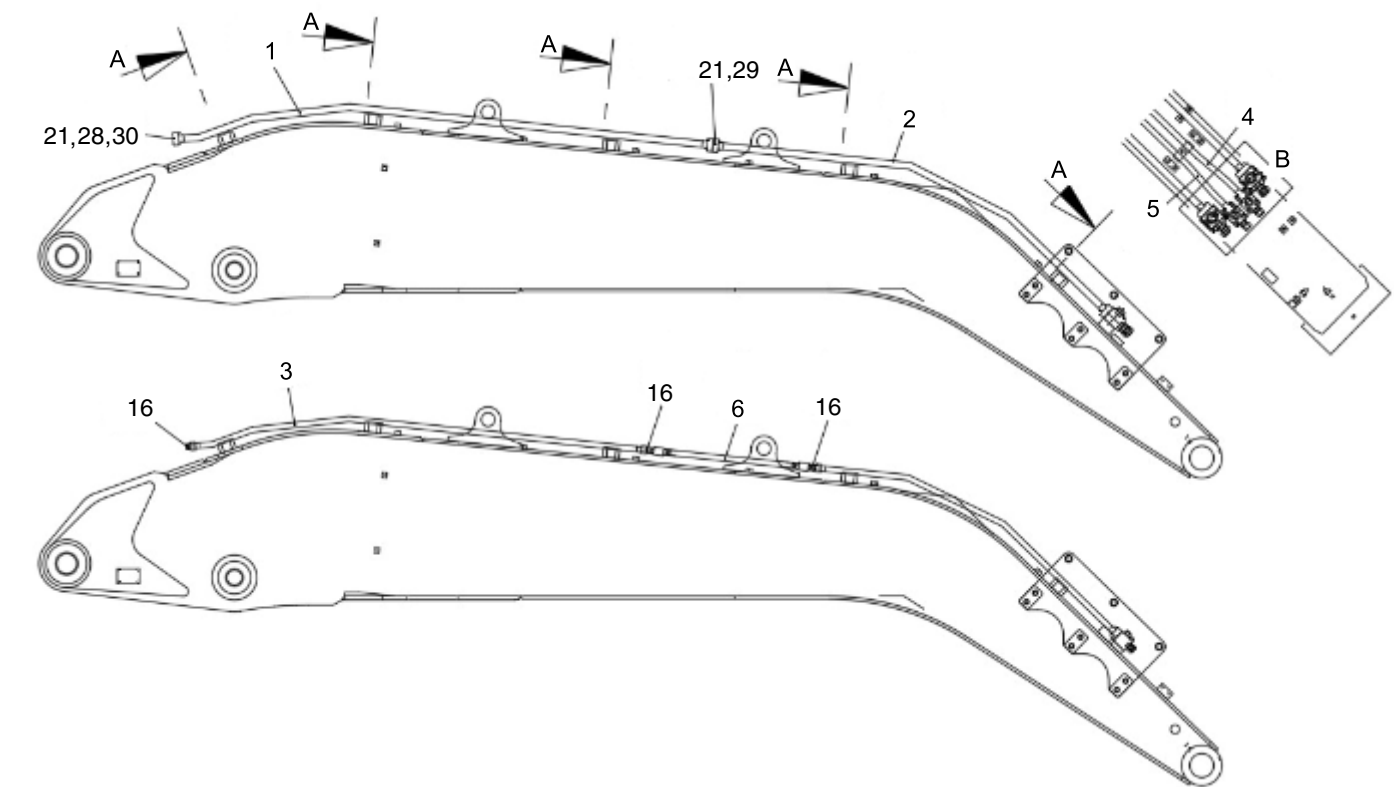
BOOM GREASE PIPING



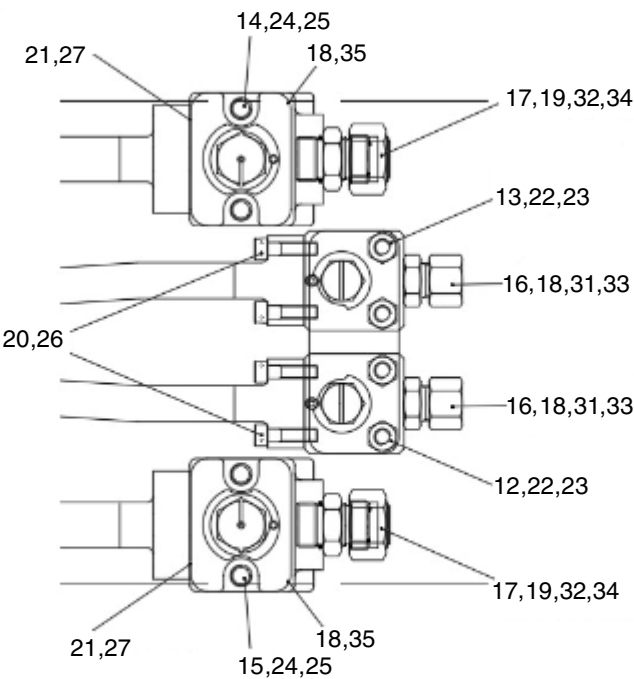
BOOM GREASE PIPING

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA- 01064	HOSE	1			L=780
2	XKDA- 01065	HOSE	1			L=740
3	XKDA- 01066	HOSE	1			L=2490
4	XKDA- 01067	HOSE	1			L=2180
5	XKDA- 01068	HOSE	1			L=4290
6	XKDA- 01069	HOSE	1			L=4170
7	XKDA- 01070	HOSE	1			L=6300
8	XKDA- 00159	ELBOW	5			
9	XKDA- 00160	ADAPTER	9			
10	XKDA- 00124	FITTING - GREASE	7			
11	XKDA- 00411	CLIP	11			
12	XKDA- 00412	CLIP	2			
13	XKDA- 01071	PLATE	5			
14	XKDA- 01072	PLATE	3			
15	XKDA- 00841	BOLT -HEX	13			
16	XKDA- 00171	WASHER -SPRING	13			
17	XKDA- 00090	BOLT -HEX	16			
18	XKDA- 00050	WASHER -SPRING	16			
19	XKDA- 00161	SCREW -SET	1			
20	XKDA- 01073	CAP- GREASE NIPPLE	7			



SECTION A



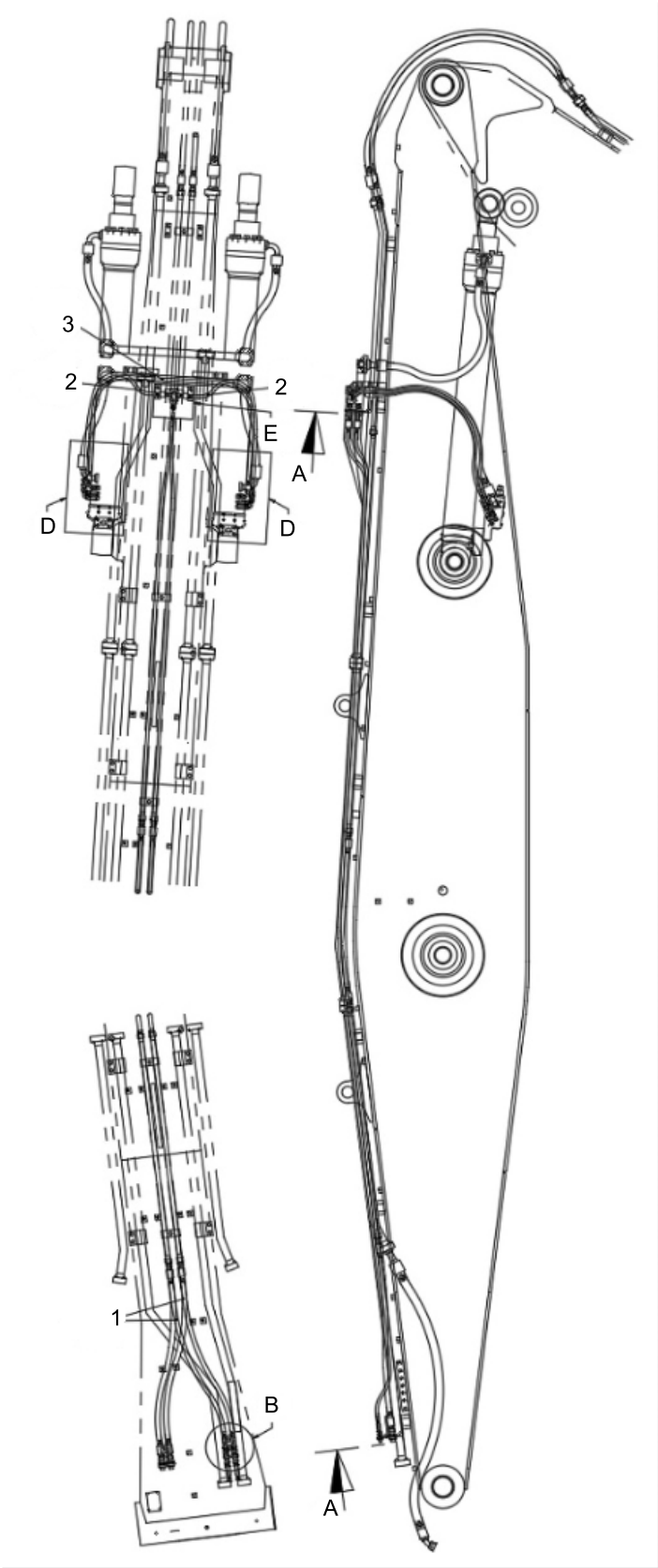
DETAIL B

ARM PIPING

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01032	PIPE	2			
2	XKDA-01033	PIPE	2			
3	XKDA-01034	PIPE	2			
4	XKDA-01035	PIPE	1			
5	XKDA-01036	PIPE	1			
6	XKDA-01037	HOSE	2			L=680
7	XKDA-01038	SEAL - RUBBER	10			
8	XKDA-01039	CLAMP-PIPE	20			
9	XKDA-00035	CLAMP-PIPE	5			
10	XKDA-00048	WASHER-SPRING	25			
11	XKDA-00783	BOLT-HEX	25			
12	XKDA-00416	VALVE-STOP RH	1			
13	XKDA-00389	VALVE-STOP LH	1			
14	XKDA-01040	VALVE-STOP LH	1			
15	XKDA-01041	VALVE-STOP RH	1			
16	XKDA-00336	O - RING	8			
17	XKDA-01042	O - RING	2			
18	XKDA-00066	O - RING	4			
19	XKDA-00591	O - RING	2			
20	XKDA-00814	O - RING	2			
21	XKDA-01020	O - RING	6			
22	XKDA-00050	WASHER-SPRING	4			
23	XKDA-00811	BOLT-HEX	4			
24	XKDA-00049	WASHER-SPRING	4			
25	XKDA-00812	BOLT-SOCKET	4			
26	XKDA-00813	BOLT-SOCKET	8			
27	XKDA-01021	BOLT-SOCKET	8			
28	XKDA-00053	BOLT-SOCKET	8			
29	XKDA-01043	BOLT-SOCKET	8			
30	XKDA-01044	FLANGE-SPLIT	4			5000psi
31	XKDA-01045	ADAPTER	2			
32	XKDA-01046	ADAPTER	2			
33	XKDA-01047	CAP	2			
34	XKDA-01048	CAP	2			
35	XKDA-01049	PLUG	2			

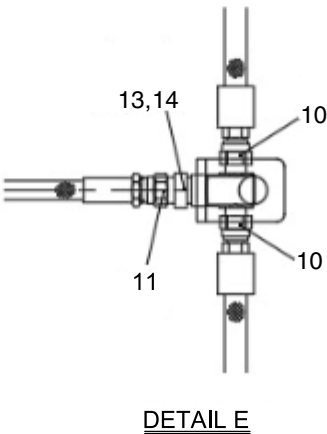
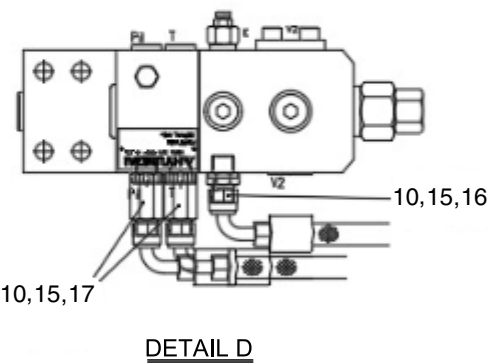
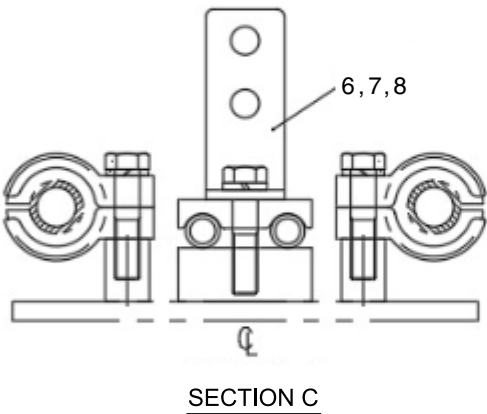
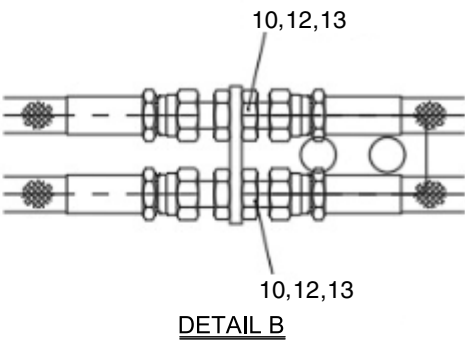
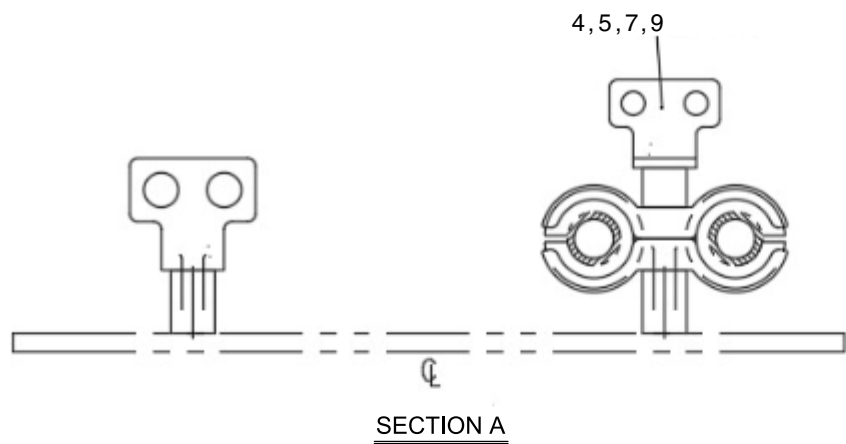
ARM LOCK VALVE PIPING (1/2)



ARM LOCK VALVE PIPING

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01051	HOSE	2			L=4850
2	XKDA-01052	HOSE	4			L=1550
3	XKDA-01053	HOSE	1			L=3050
4	XKDA-01054	SPACER	1			
5	XKDA-01055	BRACKET	1			
6	XKDA-01056	BRACKET	1			
7	XKDA-00048	WASHER-SPRING	3			
8	XKDA-00043	BOLT-DACRO	1			
9	XKDA-00044	BOLT-DACRO	2			
10	XKDA-01057	O - RING	14			
11	XKDA-00335	O - RING	2			
12	XKDA-01058	ADAPTER	2			
13	XKDA-01059	NUT	6			
14	XKDA-01060	TEE	2			
15	XKAG-00135	O - RING	6			
16	XKDA-01061	ADAPTER	2			
17	XKDA-01062	ADAPTER - LONG	4			

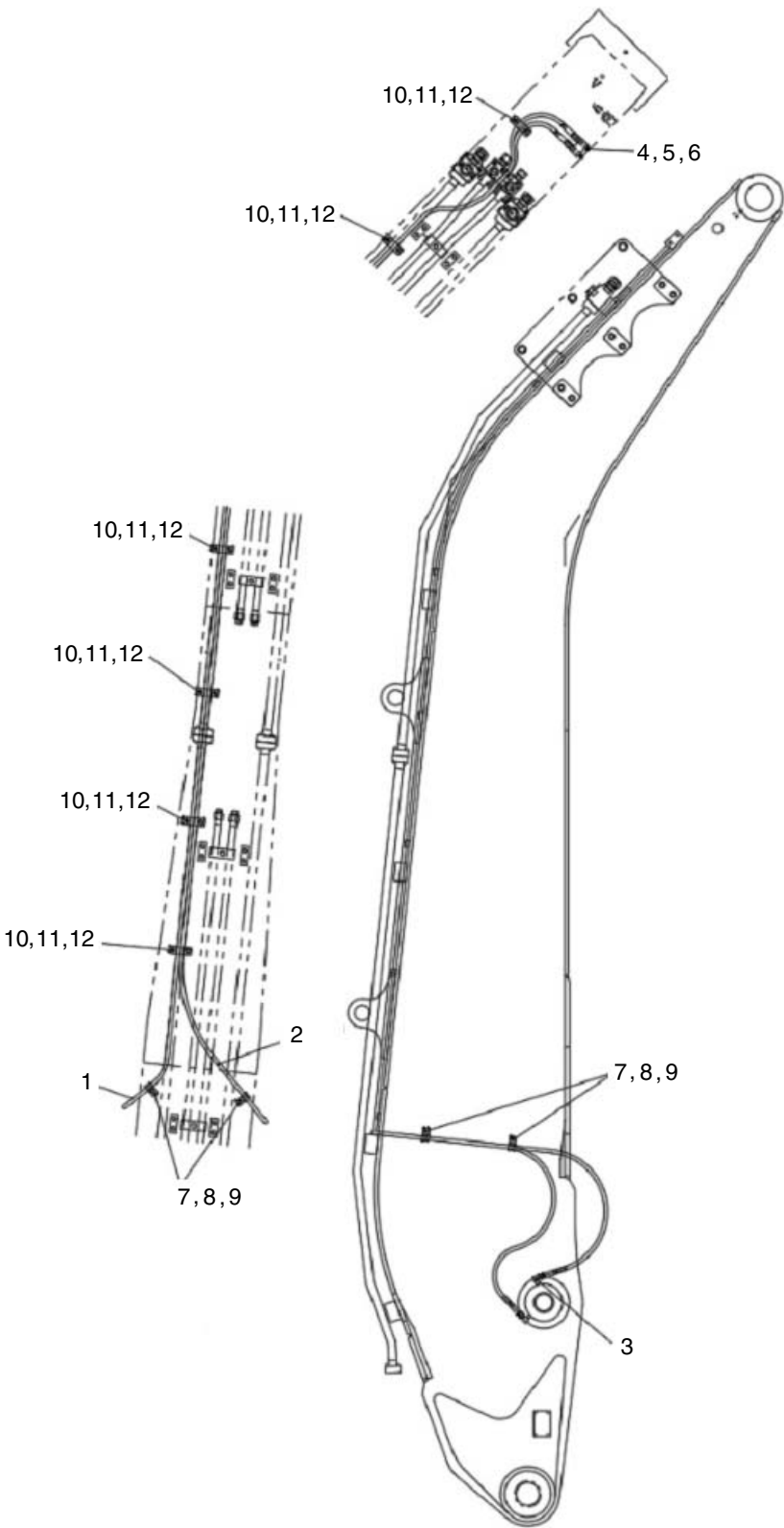


ARM LOCK VALVE PIPING

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01051	HOSE	2			L=4850
2	XKDA-01052	HOSE	4			L=1550
3	XKDA-01053	HOSE	1			L=3050
4	XKDA-01054	SPACER	1			
5	XKDA-01055	BRACKET	1			
6	XKDA-01056	BRACKET	1			
7	XKDA-00048	WASHER-SPRING	3			
8	XKDA-00043	BOLT-DACRO	1			
9	XKDA-00044	BOLT-DACRO	2			
10	XKDA-01057	O - RING	14			
11	XKDA-00335	O - RING	2			
12	XKDA-01058	ADAPTER	2			
13	XKDA-01059	NUT	6			
14	XKDA-01060	TEE	2			
15	XKAG-00135	O - RING	6			
16	XKDA-01061	ADAPTER	2			
17	XKDA-01062	ADAPTER - LONG	4			

ARM GREASE PIPING



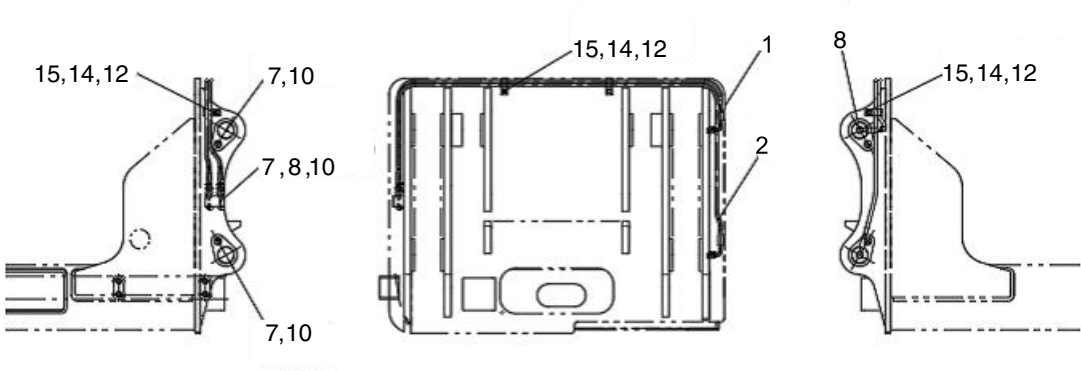
ARM GREASE PIPING

HW250 MH

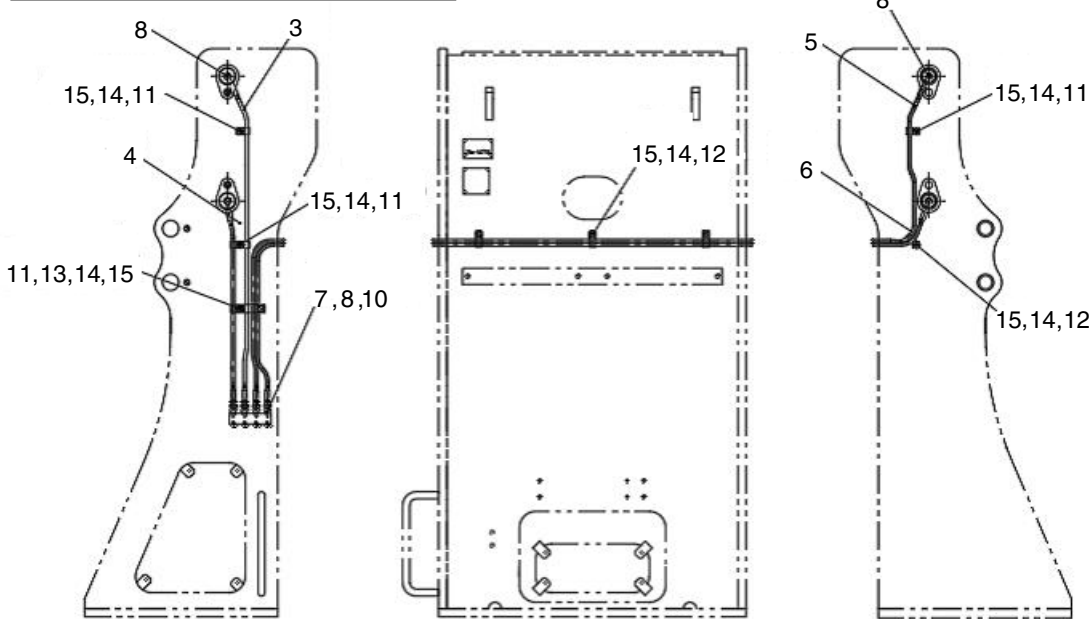
ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01075	HOSE	1			L=4950
2	XKDA-01076	HOSE	1			L=5100
3	XKDA-00159	ELBOW	2			
4	XKDA-00160	ADAPTER	2			
5	XKDA-00124	FITTING - GREASE	2			
6	XKDA-01073	CAP- GREASE NIPPLE	2			
7	XKDA-00411	CLIP	6			
8	XKDA-00841	BOLT-HEX	6			
9	XKDA-01071	PLATE	6			
10	XKDA-00171	WASHER-SPRING	6			
11	XKDA-00090	BOLT-HEX	12			
12	XKDA-00050	WASHER-SPRING	12			

GREASE PIPING (ELEVATED CABIN)

1. GREASE PIPING (BED FRAME)



2. GREASE PIPING (SUPPORT FRAME)

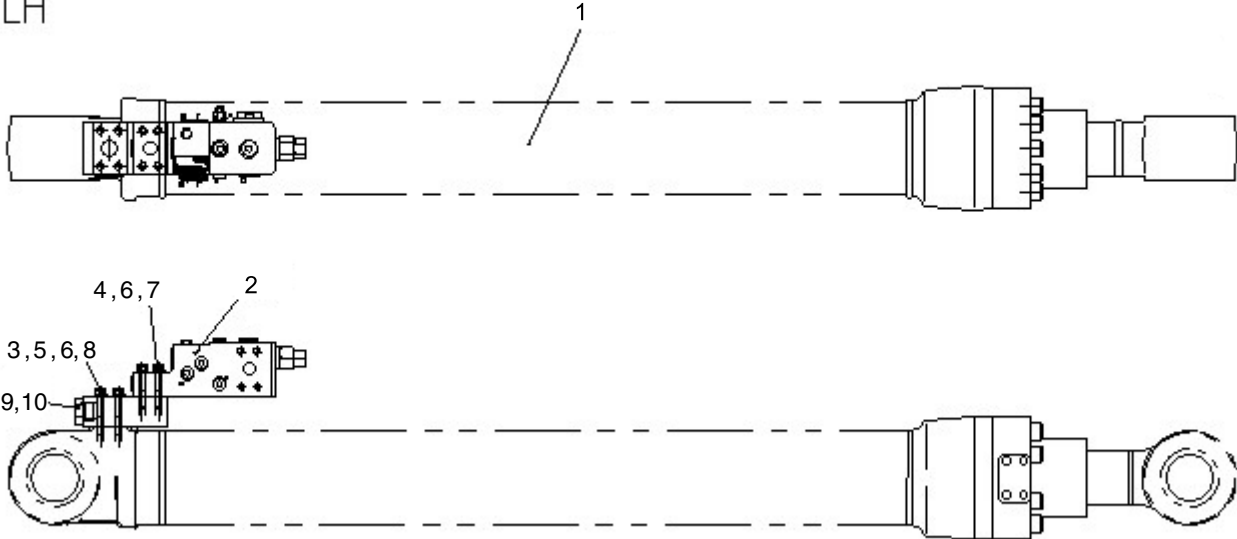


GREASE PIPING (ELEVATED CABIN)

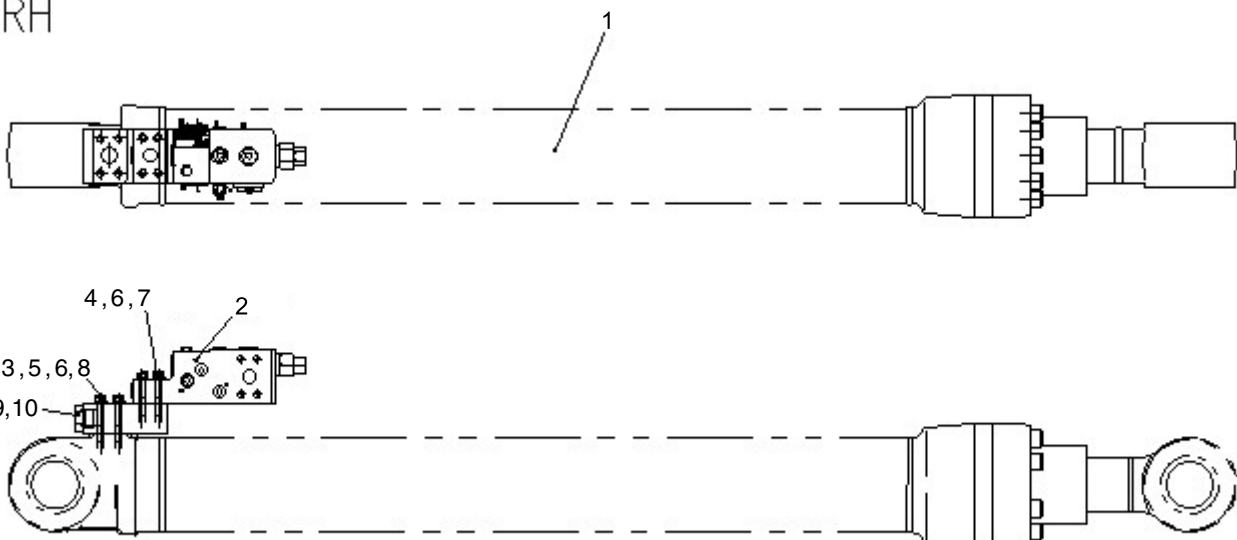
HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01129	HOSE- GREASE	1			L=1400L
2	XKDA-01130	HOSE- GREASE	1			L=1800L
3	XKDA-01131	HOSE- GREASE	1			L=1050L
4	XKDA-01132	HOSE- GREASE	1			L=670L
5	XKDA-01067	HOSE	1			L=2180L
6	XKDA-01133	HOSE- GREASE	1			L=1810L
7	XKDA-01073	CAP- GREASE NIPPLE	8			
8	XKDA-01134	ADAPTER	12			
10	XKDA-00124	FITTING - GREASE	8			
11	XKDA-00411	CLIP	5			
12	XKDA-01135	BAND- CLIP	8			
13	XKDA-01136	CLAMP- HOSE	1			
14	XKDA-01137	BOLT- HEX	13			
15	XKDA-01138	WASHER- SPRING	13			

LH



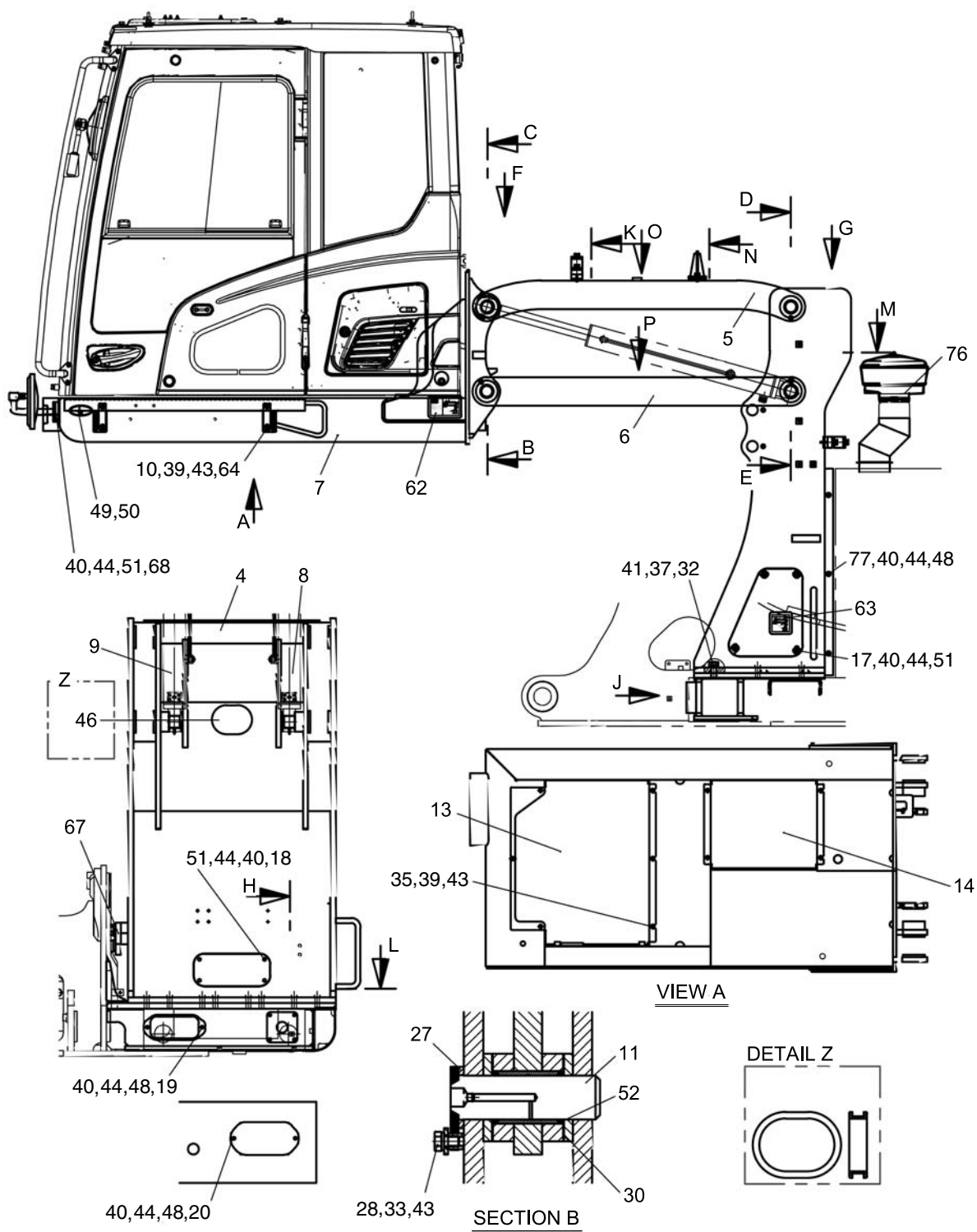
RH



ARM CYLINDER

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*1	XKDA- 00999	CYLINDER ASSY-ARM LH	1			
*2	XKDA- 01000	CYLINDER ASSY-ARM RH	1			
1	31K4- 52150E	CYLINDER ASSY-ARM	1			
2	31Q4- 55031GG	VALVE-SAFETY LOCK	1			
3	XKDA- 01027	BLOCK	1			
4	XKDA- 01028	BOLT-SOCKET	4			
5	XKDA- 01029	BOLT-SOCKET	4			
6	XKDA- 00050	WASHER-SPRING	8			
7	XKDA- 01020	O - RING	1			
8	XKDA- 00649	O - RING	1			
9	XKDA- 01030	PLUG	1			
10	XKDA- 00591	O - RING	1			



CABIN ELEVATING ASSEMBLY

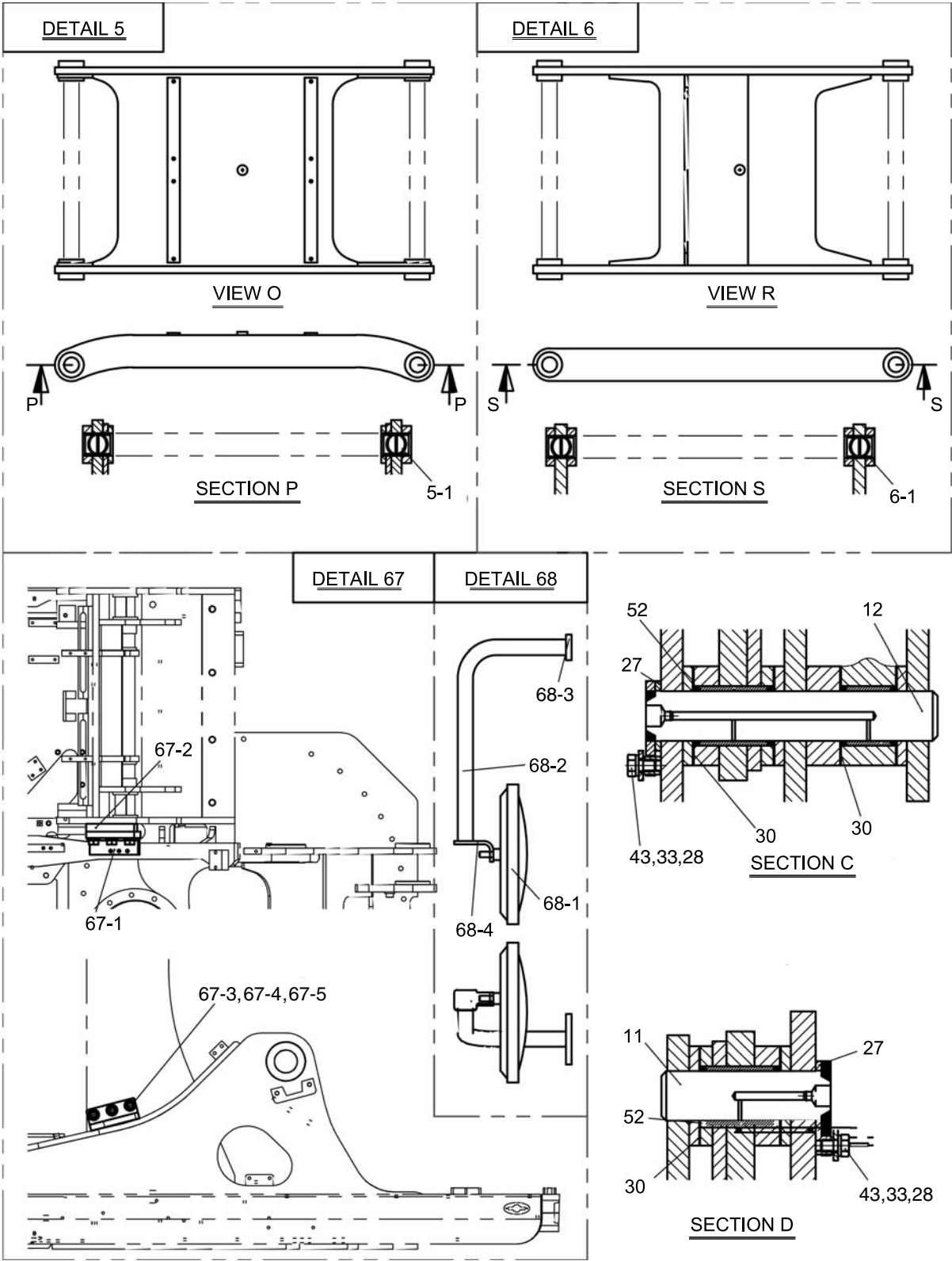
HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
4	XKDA-01078	SUPPORT-SEAT FRAME	1			
5	XKDA-01079	LINK- CABIN	1			
5-1	XKDA-01080	. BUSHING	4			
6	XKDA-01081	LINK- GUIDE	1			
6-1	XKDA-01080	. BUSHING	4			
7	XKDA-01201	FRAME- BED	1			
8	XKDA-01202	CYLINDER- CABIN	1			
9	XKDA-01203	CYLINDER- CABIN	1			
10	XKDA-01204	STEP ASSY-SIDE	1			
11	XKDA-01205	PIN- GREASE	6			
12	XKDA-01206	PIN- GREASE	4			
13	XKDA-01207	COVER- UNDER 1	1			
14	XKDA-01208	COVER- UNDER 2	1			
17	XKDA-01209	COVER-SIDE 1	1			
18	XKDA-01210	COVER- FRONT	1			
19	XKDA-01211	COVER-SUPPORT	1			
20	XKDA-01212	COVER-SUPPORT	1			
22	XKDA-01213	BRACKET-PVG	1			
23	XKDA-01214	PIPE-STOPPER	1			
24	XKDA-01215	BRACKET-STOPPER	1			
25	XKDA-01216	STOPPER	1			
27	XKDA-01217	SPACER-PIN	10			
28	XKDA-01218	WASHER	10			
29	XKDA-01219	SHIM- 1.0	5			
30	XKDA-01220	SHIM- 1.0	20			
32	XKDA-01082	BOLT-HEX	12			
33	XKDA-01083	BOLT-HEX	10			
35	XKDA-00746	BOLT-HEX	16			
36	XKDA-00783	BOLT-HEX	1			
37	XKDA-01084	WASHER-PLAIN	12			
38	XKDA-00699	WASHER-PLAIN	1			
39	XKDA-00692	WASHER-PLAIN	32			
40	XKDA-00697	WASHER-PLAIN	31			
41	XKDA-01085	WASHER-SPRING	12			
42	XKDA-00048	WASHER-SPRING	1			
43	XKDA-00049	WASHER-SPRING	42			
44	XKDA-00050	WASHER-SPRING	31			
45	XKDA-00124	FITTING- GREASE	2			
46	XKDA-01086	GROMMET	1			
47	XKDA-01087	SPACER-STOPPER	4			

CABIN ELEVATING ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
48	XKDA-01088	BOLT-HEX	13			
49	XKDA-01089	COVER-SIGNAL LAMP	1			
50	XKDA-01090	SCREW-W/WASHER	2			
51	XKDA-00900	BOLT-HEX	18			
52	XKDA-00449	SEAL-DUST	24			
53	XKDA-01091	BRACKET-CONNECTOR	1			
54	XKDA-01092	BOLT-HEX	4			
55	XKDA-01093	BOLT-HEX	6			
57	XKDA-01094	PLATE	2			
58	XKDA-01095	PLATE	2			
59	XKDA-01096	PLATE	2			
60	XKDA-01097	PAD	8			
62	XKDA-01098	STICKER	1			
63	XKDA-01099	STICKER	1			
64	XKDA-00091	BOLT-HEX	6			
65	XKDA-01100	PAD	8			
66	XKDA-01101	PLATE-PIN STRAGE	1			
67	XKDA-01102	BRACKET-ANTI VIBRATION	1			
67-1	XKDA-01103	. PLATE ASSY	1			
67-2	XKDA-01104	. SEAT-SCREW	1			
67-3	XKDA-01082	. BOLT-HEX	3			
67-4	XKDA-01084	. WASHER-PLAIN	3			
67-5	XKDA-01085	. WASHER-SPRING	3			
68	XKDA-01105	BRACKET-MIRROR	1			
68-1	XKDA-01106	. MIRROR	1			
68-2	XKDA-01107	. PIPE	1			
68-3	XKDA-01108	. PLATE	1			
68-4	XKDA-01109	. PLATE	1			
70	XKDA-01110	BRACKET ASSY	2			
71	XKDA-01111	BRACKET-CONNECTOR	1			
72	XKDA-01112	PLATE ASSY	1			
73	XKDA-01113	PLATE	1			
74	XKDA-01114	BOLT-HEX	1			
75	XKDA-01115	BOLT-HEX	1			
76	XKDA-01116	CONNECTOR-PRE CLEANER	1			
77	XKDA-01117	COVER ASSY	1			
*1	XKDA-01118	SEAL KIT-CYLINDER	1			SEE G010a
*2	XKDA-01119	SEAL KIT-CYLINDER	1			SEE G010a



CABIN ELEVATING ASSEMBLY

HW250 MH

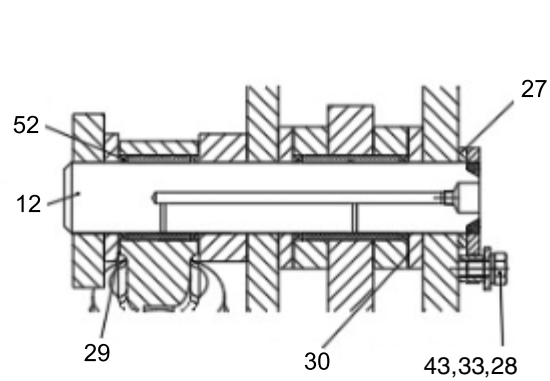
ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
4	XKDA-01078	SUPPORT-SEAT FRAME	1			
5	XKDA-01079	LINK- CABIN	1			
5-1	XKDA-01080	. BUSHING	4			
6	XKDA-01081	LINK- GUIDE	1			
6-1	XKDA-01080	. BUSHING	4			
7	XKDA-01201	FRAME- BED	1			
8	XKDA-01202	CYLINDER- CABIN	1			
9	XKDA-01203	CYLINDER- CABIN	1			
10	XKDA-01204	STEP ASSY-SIDE	1			
11	XKDA-01205	PIN- GREASE	6			
12	XKDA-01206	PIN- GREASE	4			
13	XKDA-01207	COVER- UNDER 1	1			
14	XKDA-01208	COVER- UNDER 2	1			
17	XKDA-01209	COVER-SIDE 1	1			
18	XKDA-01210	COVER- FRONT	1			
19	XKDA-01211	COVER-SUPPORT	1			
20	XKDA-01212	COVER-SUPPORT	1			
22	XKDA-01213	BRACKET-PVG	1			
23	XKDA-01214	PIPE-STOPPER	1			
24	XKDA-01215	BRACKET-STOPPER	1			
25	XKDA-01216	STOPPER	1			
27	XKDA-01217	SPACER-PIN	10			
28	XKDA-01218	WASHER	10			
29	XKDA-01219	SHIM- 1.0	5			
30	XKDA-01220	SHIM- 1.0	20			
32	XKDA-01082	BOLT-HEX	12			
33	XKDA-01083	BOLT-HEX	10			
35	XKDA-00746	BOLT-HEX	16			
36	XKDA-00783	BOLT-HEX	1			
37	XKDA-01084	WASHER-PLAIN	12			
38	XKDA-00699	WASHER-PLAIN	1			
39	XKDA-00692	WASHER-PLAIN	32			
40	XKDA-00697	WASHER-PLAIN	31			
41	XKDA-01085	WASHER-SPRING	12			
42	XKDA-00048	WASHER-SPRING	1			
43	XKDA-00049	WASHER-SPRING	42			
44	XKDA-00050	WASHER-SPRING	31			
45	XKDA-00124	FITTING- GREASE	2			
46	XKDA-01086	GROMMET	1			
47	XKDA-01087	SPACER-STOPPER	4			

CABIN ELEVATING ASSEMBLY

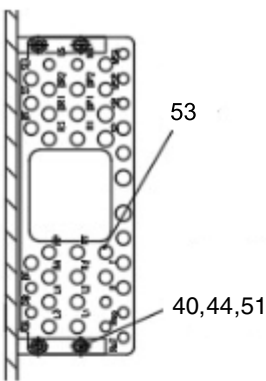
HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
48	XKDA-01088	BOLT-HEX	13			
49	XKDA-01089	COVER-SIGNAL LAMP	1			
50	XKDA-01090	SCREW-W/WASHER	2			
51	XKDA-00900	BOLT-HEX	18			
52	XKDA-00449	SEAL-DUST	24			
53	XKDA-01091	BRACKET-CONNECTOR	1			
54	XKDA-01092	BOLT-HEX	4			
55	XKDA-01093	BOLT-HEX	6			
57	XKDA-01094	PLATE	2			
58	XKDA-01095	PLATE	2			
59	XKDA-01096	PLATE	2			
60	XKDA-01097	PAD	8			
62	XKDA-01098	STICKER	1			
63	XKDA-01099	STICKER	1			
64	XKDA-00091	BOLT-HEX	6			
65	XKDA-01100	PAD	8			
66	XKDA-01101	PLATE-PIN STRAGE	1			
67	XKDA-01102	BRACKET-ANTI VIBRATION	1			
67-1	XKDA-01103	. PLATE ASSY	1			
67-2	XKDA-01104	. SEAT-SCREW	1			
67-3	XKDA-01082	. BOLT-HEX	3			
67-4	XKDA-01084	. WASHER-PLAIN	3			
67-5	XKDA-01085	. WASHER-SPRING	3			
68	XKDA-01105	BRACKET-MIRROR	1			
68-1	XKDA-01106	. MIRROR	1			
68-2	XKDA-01107	. PIPE	1			
68-3	XKDA-01108	. PLATE	1			
68-4	XKDA-01109	. PLATE	1			
70	XKDA-01110	BRACKET ASSY	2			
71	XKDA-01111	BRACKET-CONNECTOR	1			
72	XKDA-01112	PLATE ASSY	1			
73	XKDA-01113	PLATE	1			
74	XKDA-01114	BOLT-HEX	1			
75	XKDA-01115	BOLT-HEX	1			
76	XKDA-01116	CONNECTOR-PRE CLEANER	1			
77	XKDA-01117	COVER ASSY	1			
*1	XKDA-01118	SEAL KIT-CYLINDER	1			SEE G010a
*2	XKDA-01119	SEAL KIT-CYLINDER	1			SEE G010a

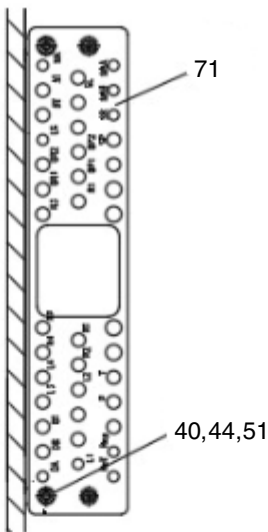
CABIN ELEVATING ASSEMBLY (3/3)



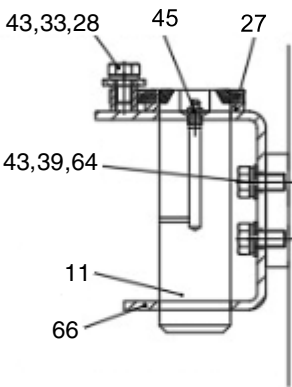
SECTION E



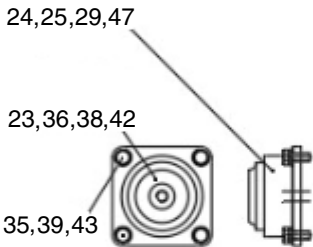
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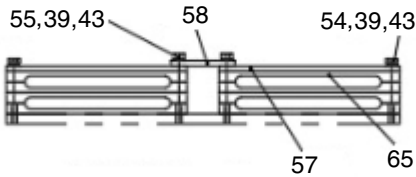
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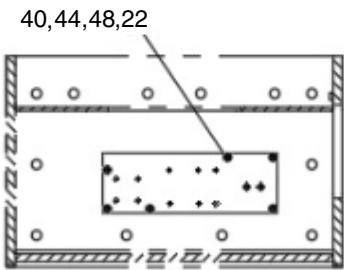
SECTION H



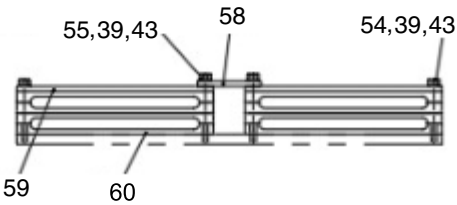
VIEW J



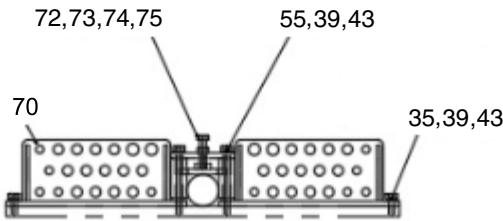
SECTION K



SECTION L



SECTION M



SECTION N

CABIN ELEVATING ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
4	XKDA-01078	SUPPORT-SEAT FRAME	1			
5	XKDA-01079	LINK- CABIN	1			
5-1	XKDA-01080	. BUSHING	4			
6	XKDA-01081	LINK- GUIDE	1			
6-1	XKDA-01080	. BUSHING	4			
7	XKDA-01201	FRAME- BED	1			
8	XKDA-01202	CYLINDER- CABIN	1			
9	XKDA-01203	CYLINDER- CABIN	1			
10	XKDA-01204	STEP ASSY-SIDE	1			
11	XKDA-01205	PIN- GREASE	6			
12	XKDA-01206	PIN- GREASE	4			
13	XKDA-01207	COVER- UNDER 1	1			
14	XKDA-01208	COVER- UNDER 2	1			
17	XKDA-01209	COVER-SIDE 1	1			
18	XKDA-01210	COVER- FRONT	1			
19	XKDA-01211	COVER-SUPPORT	1			
20	XKDA-01212	COVER-SUPPORT	1			
22	XKDA-01213	BRACKET-PVG	1			
23	XKDA-01214	PIPE-STOPPER	1			
24	XKDA-01215	BRACKET-STOPPER	1			
25	XKDA-01216	STOPPER	1			
27	XKDA-01217	SPACER-PIN	10			
28	XKDA-01218	WASHER	10			
29	XKDA-01219	SHIM- 1.0	5			
30	XKDA-01220	SHIM- 1.0	20			
32	XKDA-01082	BOLT-HEX	12			
33	XKDA-01083	BOLT-HEX	10			
35	XKDA-00746	BOLT-HEX	16			
36	XKDA-00783	BOLT-HEX	1			
37	XKDA-01084	WASHER-PLAIN	12			
38	XKDA-00699	WASHER-PLAIN	1			
39	XKDA-00692	WASHER-PLAIN	32			
40	XKDA-00697	WASHER-PLAIN	31			
41	XKDA-01085	WASHER-SPRING	12			
42	XKDA-00048	WASHER-SPRING	1			
43	XKDA-00049	WASHER-SPRING	42			
44	XKDA-00050	WASHER-SPRING	31			
45	XKDA-00124	FITTING- GREASE	2			
46	XKDA-01086	GROMMET	1			
47	XKDA-01087	SPACER-STOPPER	4			

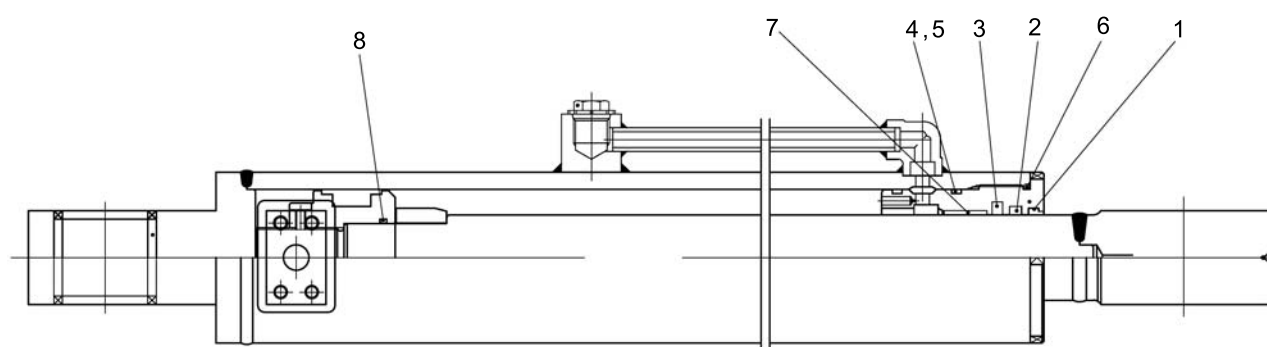
CABIN ELEVATING ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
48	XKDA-01088	BOLT-HEX	13			
49	XKDA-01089	COVER-SIGNAL LAMP	1			
50	XKDA-01090	SCREW-W/WASHER	2			
51	XKDA-00900	BOLT-HEX	18			
52	XKDA-00449	SEAL-DUST	24			
53	XKDA-01091	BRACKET-CONNECTOR	1			
54	XKDA-01092	BOLT-HEX	4			
55	XKDA-01093	BOLT-HEX	6			
57	XKDA-01094	PLATE	2			
58	XKDA-01095	PLATE	2			
59	XKDA-01096	PLATE	2			
60	XKDA-01097	PAD	8			
62	XKDA-01098	STICKER	1			
63	XKDA-01099	STICKER	1			
64	XKDA-00091	BOLT-HEX	6			
65	XKDA-01100	PAD	8			
66	XKDA-01101	PLATE-PIN STRAGE	1			
67	XKDA-01102	BRACKET-ANTI VIBRATION	1			
67-1	XKDA-01103	. PLATE ASSY	1			
67-2	XKDA-01104	. SEAT-SCREW	1			
67-3	XKDA-01082	. BOLT-HEX	3			
67-4	XKDA-01084	. WASHER-PLAIN	3			
67-5	XKDA-01085	. WASHER-SPRING	3			
68	XKDA-01105	BRACKET-MIRROR	1			
68-1	XKDA-01106	. MIRROR	1			
68-2	XKDA-01107	. PIPE	1			
68-3	XKDA-01108	. PLATE	1			
68-4	XKDA-01109	. PLATE	1			
70	XKDA-01110	BRACKET ASSY	2			
71	XKDA-01111	BRACKET-CONNECTOR	1			
72	XKDA-01112	PLATE ASSY	1			
73	XKDA-01113	PLATE	1			
74	XKDA-01114	BOLT-HEX	1			
75	XKDA-01115	BOLT-HEX	1			
76	XKDA-01116	CONNECTOR-PRE CLEANER	1			
77	XKDA-01117	COVER ASSY	1			
*1	XKDA-01509	SEAL KIT	1			SEE G010a
*2	XKDA-01510	SEAL KIT	1			SEE G010a

HW250 MH

CABIN ELEVATING CYLINDER SEAL KIT

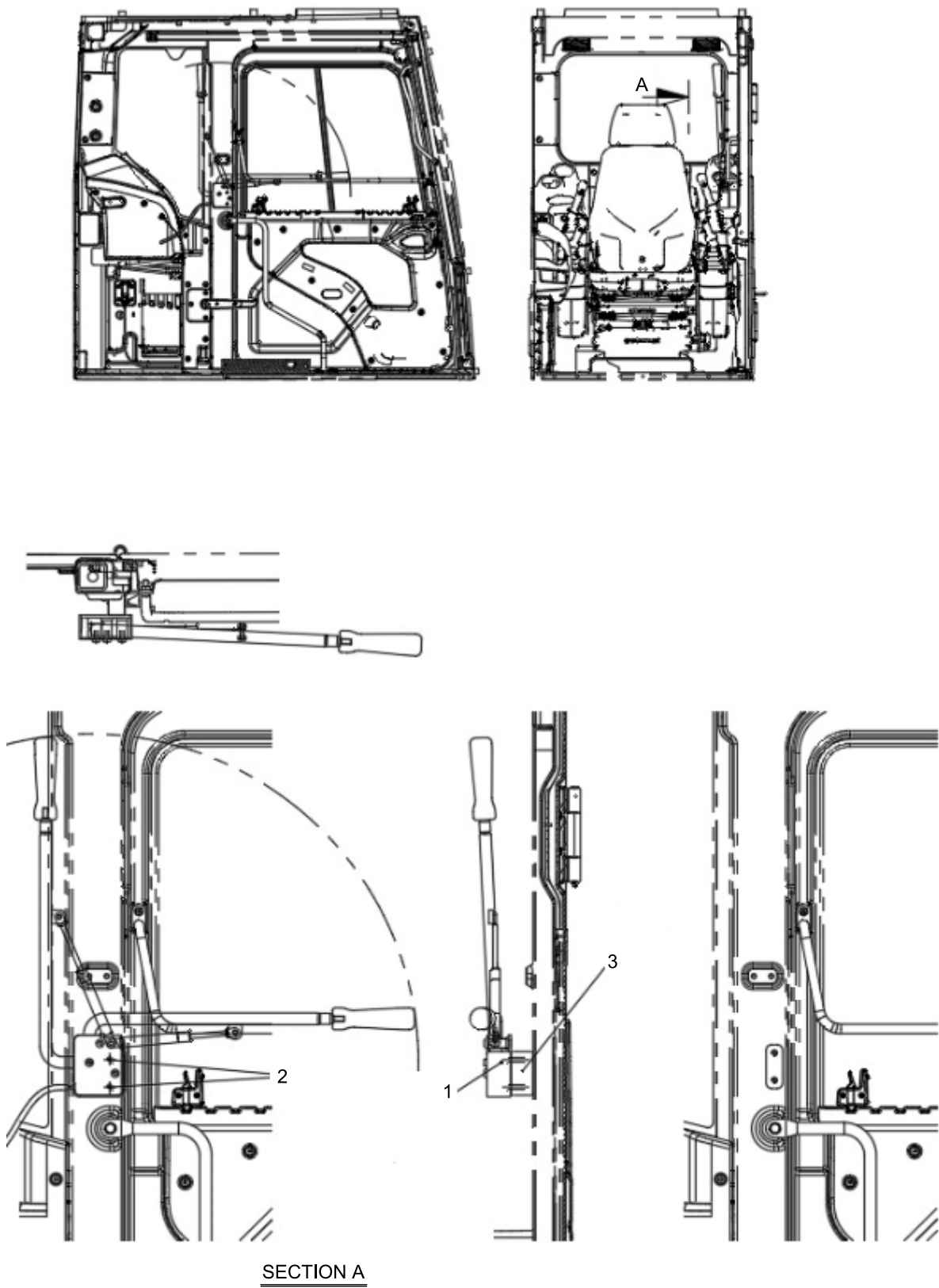


G010a

CABIN ELEVATING CYLINDER SEAL KIT

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*1	XKDA-01509	SEAL KIT	1			
*2	XKDA-01510	SEAL KIT	1			
1	XKDA-01120	WIPER-DUST	1			
2	XKDA-01121	PACKING-U	1			
3	XKDA-01122	SEAL-STEP	2			
4	XKDA-01123	O-RING	2			
5	XKDA-01124	RING-BACK UP	2			
6	XKDA-01125	O-RING	2			
7	XKDA-01126	BUSHING-DU	6			
8	XKDA-01127	FLANGE-COMPACT	6			

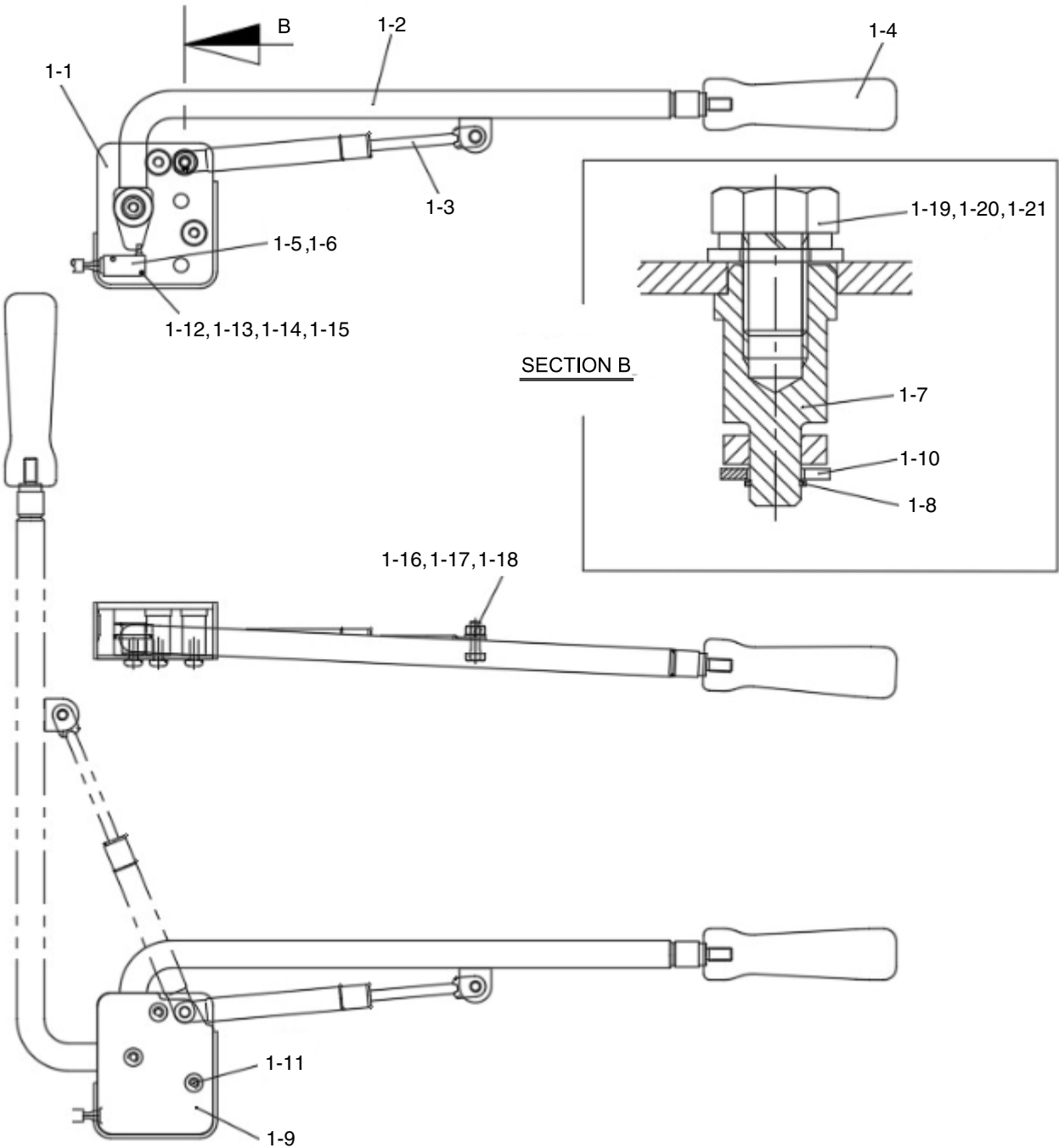


SAFETY LEVER ASSEMBLY (EU ONLY)

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01140	LEVER ASSY-SAFETY	1			EUROPE ONLY
1-1	XKDA-01141	. SUPPORT	1			
1-2	XKDA-01142	. LEVER-SAFETY	1			
1-3	XKDA-01143	. GASSPRING	1			
1-4	XKDA-01144	. KNOB	1			
1-5	XKDA-01145	. SWITCH-PILOT CUT OFF	1			
1-6	XKDA-01146	. SPACER	1			
1-7	XKDA-01147	. PIN	1			
1-8	XKDA-01148	. RING-SNAP	1			
1-9	XKDA-01149	. COVER	1			
1-10	XKDA-01150	. WASHER-PLAIN	1			
1-11	XKDA-01151	. BOLT-SOCKET	3			
1-12	XKDA-01152	. SCREW	2			
1-13	XKDA-01153	. WASHER-SPRING	2			
1-14	XKDA-01154	. WASHER-PLAIN	2			
1-15	XKDA-01155	. NUT	2			
1-16	XKDA-01156	. BOLT	1			
1-17	XKDA-00923	. WASHER-SPRING	1			
1-18	XKDA-00173	. NUT-HEX	1			
1-19	XKDA-01157	. BOLT	1			
1-20	XKDA-00050	. WASHER-SPRING	1			EUROPE ONLY EUROPE ONLY
1-21	XKDA-00697	. WASHER-PLAIN	1			
2	XKDA-00696	BOLT-HEX	2			
3	XKDA-01158	SEAT-PLATE	1			

DETAIL ITEM 1

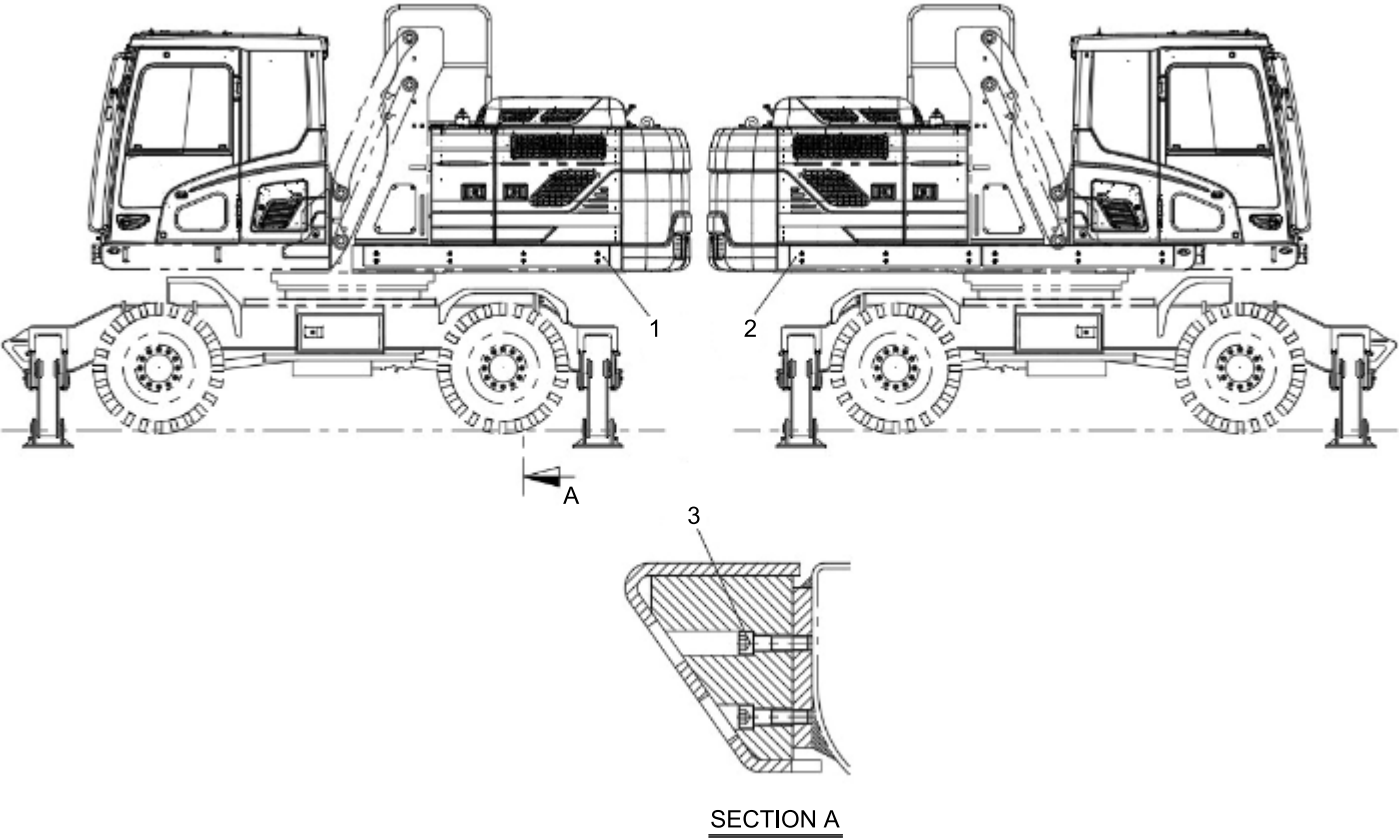


SAFETY LEVER ASSEMBLY (EU ONLY)

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01140	LEVER ASSY-SAFETY	1			EUROPE ONLY
1-1	XKDA-01141	. SUPPORT	1			
1-2	XKDA-01142	. LEVER-SAFETY	1			
1-3	XKDA-01143	. GASSPRING	1			
1-4	XKDA-01144	. KNOB	1			
1-5	XKDA-01145	. SWITCH-PILOT CUT OFF	1			
1-6	XKDA-01146	. SPACER	1			
1-7	XKDA-01147	. PIN	1			
1-8	XKDA-01148	. RING-SNAP	1			
1-9	XKDA-01149	. COVER	1			
1-10	XKDA-01150	. WASHER-PLAIN	1			
1-11	XKDA-01151	. BOLT-SOCKET	3			
1-12	XKDA-01152	. SCREW	2			
1-13	XKDA-01153	. WASHER-SPRING	2			
1-14	XKDA-01154	. WASHER-PLAIN	2			
1-15	XKDA-01155	. NUT	2			
1-16	XKDA-01156	. BOLT	1			
1-17	XKDA-00923	. WASHER-SPRING	1			
1-18	XKDA-00173	. NUT-HEX	1			
1-19	XKDA-01157	. BOLT	1			
1-20	XKDA-00050	. WASHER-SPRING	1			EUROPE ONLY EUROPE ONLY
1-21	XKDA-00697	. WASHER-PLAIN	1			
2	XKDA-00696	BOLT-HEX	2			
3	XKDA-01158	SEAT-PLATE	1			

SIDE BUMPER ASSEMBLY

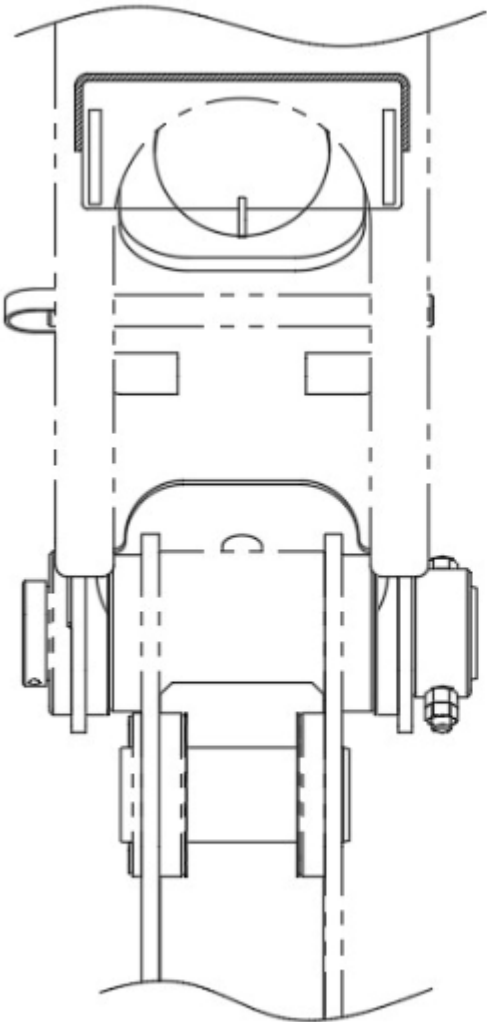
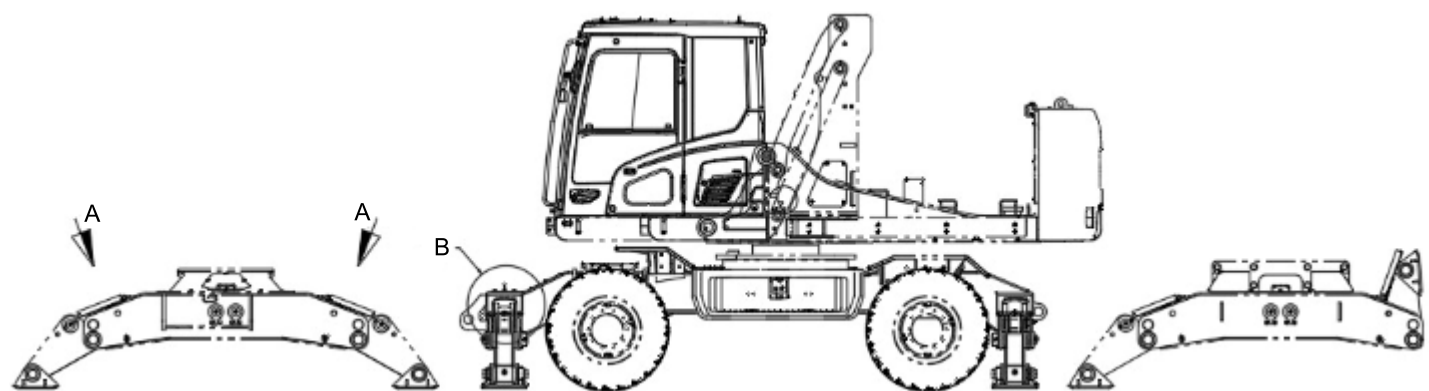


SIDE BUMPER ASSEMBLY

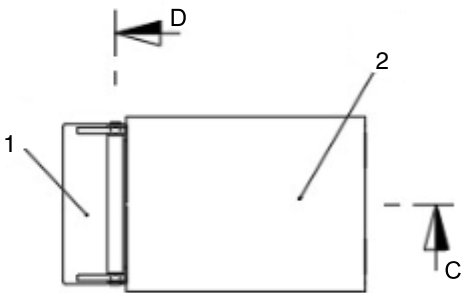
HW250 MH

[illegible]

OUTRIGGER COVER ASSEMBLY (1/2)



DETAIL B



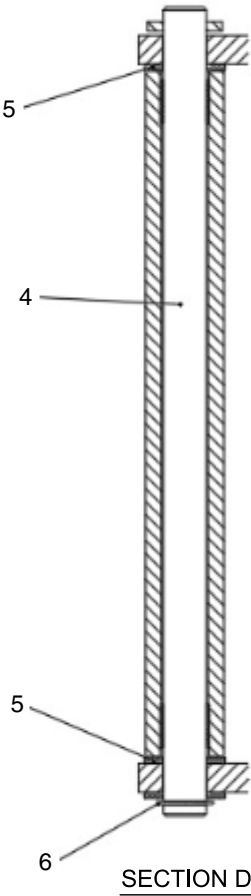
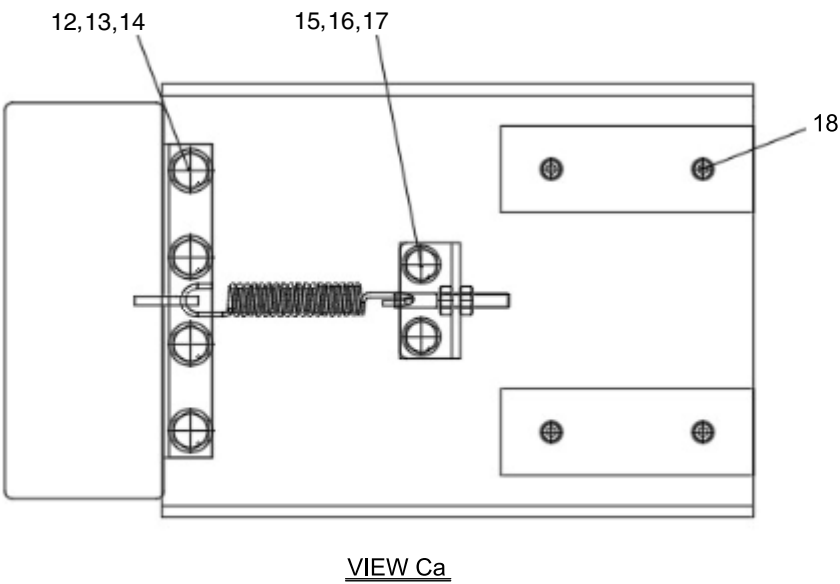
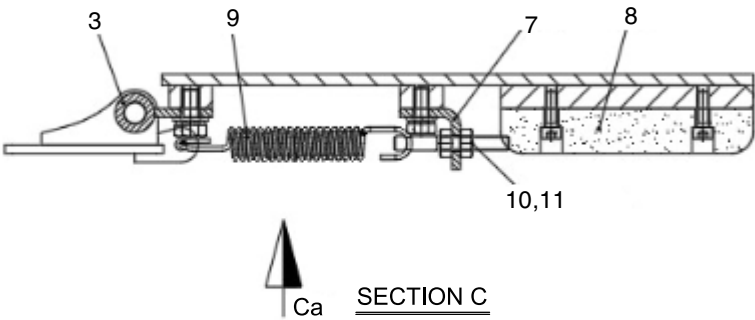
DETAIL A

OUTRIGGER COVER ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01163	PLATE ASSY-HINGE	4			
2	XKDA-01164	PLATE ASSY-LINK	4			
3	XKDA-01165	COVER ASSY	4			
4	XKDA-01166	PIN ASSY	4			
5	XKDA-01167	SHIM-2.0	12			
6	XKDA-01168	RING-SNAP	4			
7	XKDA-01169	BRACKET	4			
8	XKDA-01170	PAD	8			
9	XKDA-01171	SPRING	4			
10	XKDA-01172	BOLT-STUD	4			
11	XKDA-01173	NUT-HEX	8			
12	XKDA-01174	BOLT-HEX	16			
13	XKDA-01175	WASHER-PLAIN	16			
14	XKDA-01176	WASHER-SPRING	16			
15	XKDA-01177	BOLT-HEX	8			
16	XKDA-01178	WASHER-PLAIN	8			
17	XKDA-01179	WASHER-SPRING	8			
18	XKDA-01180	BOLT-SOCKET	16			

OUTRIGGER COVER ASSEMBLY (2/2)

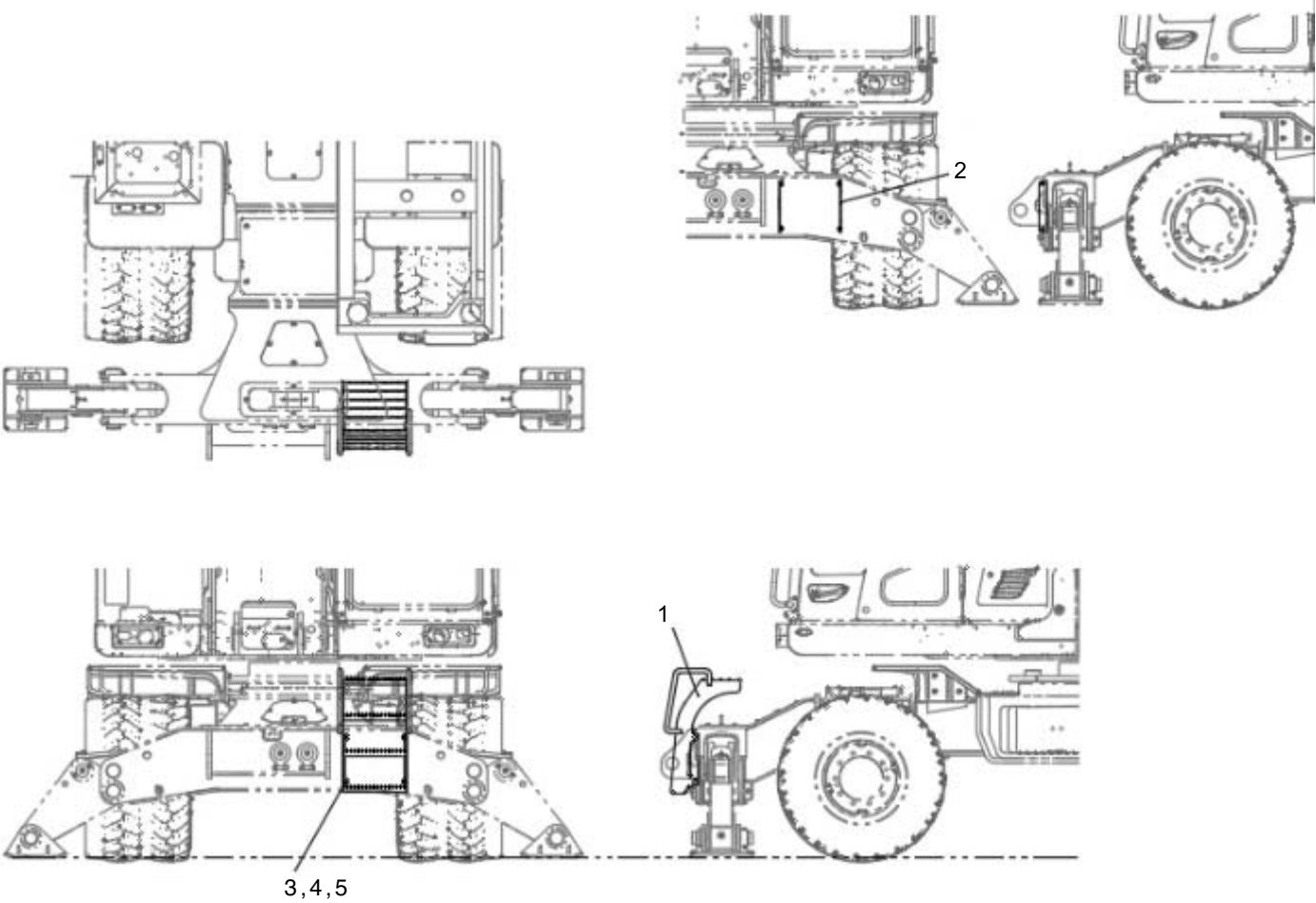


OUTRIGGER COVER ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01163	PLATE ASSY-HINGE	4			
2	XKDA-01164	PLATE ASSY-LINK	4			
3	XKDA-01165	COVER ASSY	4			
4	XKDA-01166	PIN ASSY	4			
5	XKDA-01167	SHIM-2.0	12			
6	XKDA-01168	RING-SNAP	4			
7	XKDA-01169	BRACKET	4			
8	XKDA-01170	PAD	8			
9	XKDA-01171	SPRING	4			
10	XKDA-01172	BOLT-STUD	4			
11	XKDA-01173	NUT-HEX	8			
12	XKDA-01174	BOLT-HEX	16			
13	XKDA-01175	WASHER-PLAIN	16			
14	XKDA-01176	WASHER-SPRING	16			
15	XKDA-01177	BOLT-HEX	8			
16	XKDA-01178	WASHER-PLAIN	8			
17	XKDA-01179	WASHER-SPRING	8			
18	XKDA-01180	BOLT-SOCKET	16			

FRONT STEP ASSEMBLY



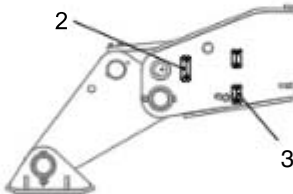
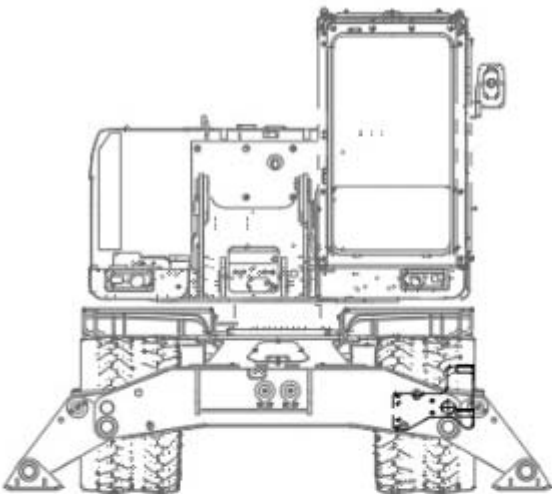
FRONT STEP ASSEMBLY

HW250 MH

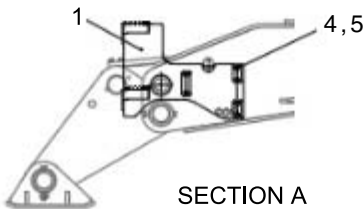
ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01182	STEP- FRONT	1			
2	XKDA-01183	PLATE	2			
3	XKDA-01184	BOLT-HEX	4			
4	XKDA-01185	WASHER-PLAIN	4			
5	XKDA-01186	WASHER-SPRING	4			

HW250 MH

SIDE STEP ASSEMBLY



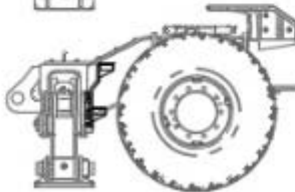
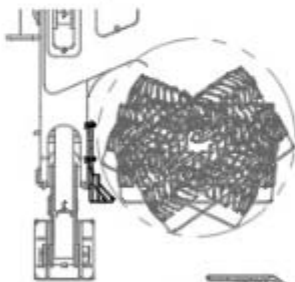
SECTION A



SECTION A



A



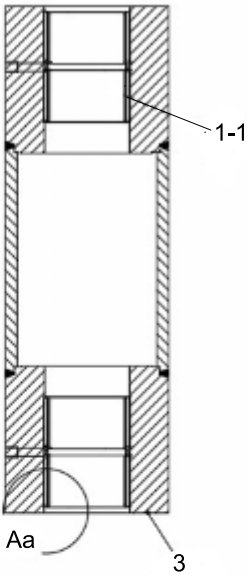
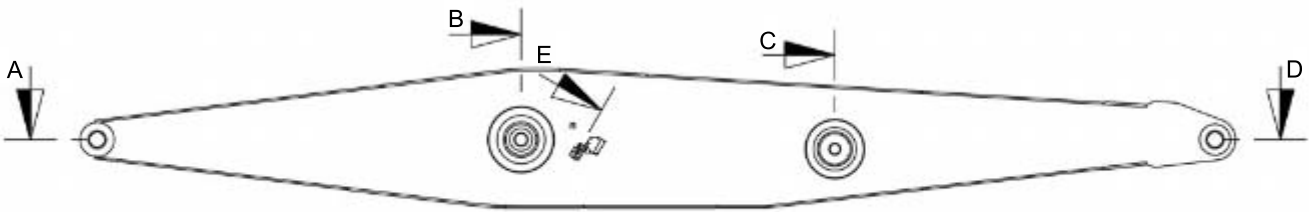
G060m

SIDE STEP ASSEMBLY

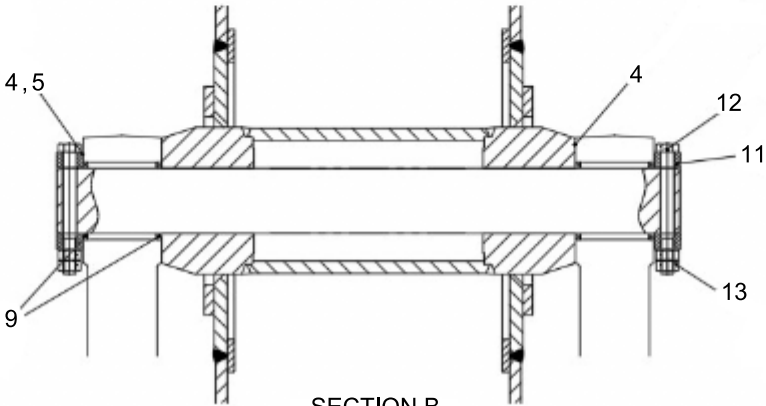
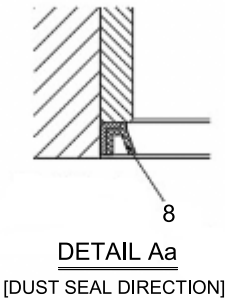
HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01188	STEP-SIDE	1			
2	XKDA-01189	SEAT-SCREW	1			
3	XKDA-01190	SEAT-SCREW	2			
4	XKDA-01191	BOLT	6			
5	XKDA-01186	WASHER-SPRING	6			

BOOM ASSEMBLY (1/2)



SECTION A



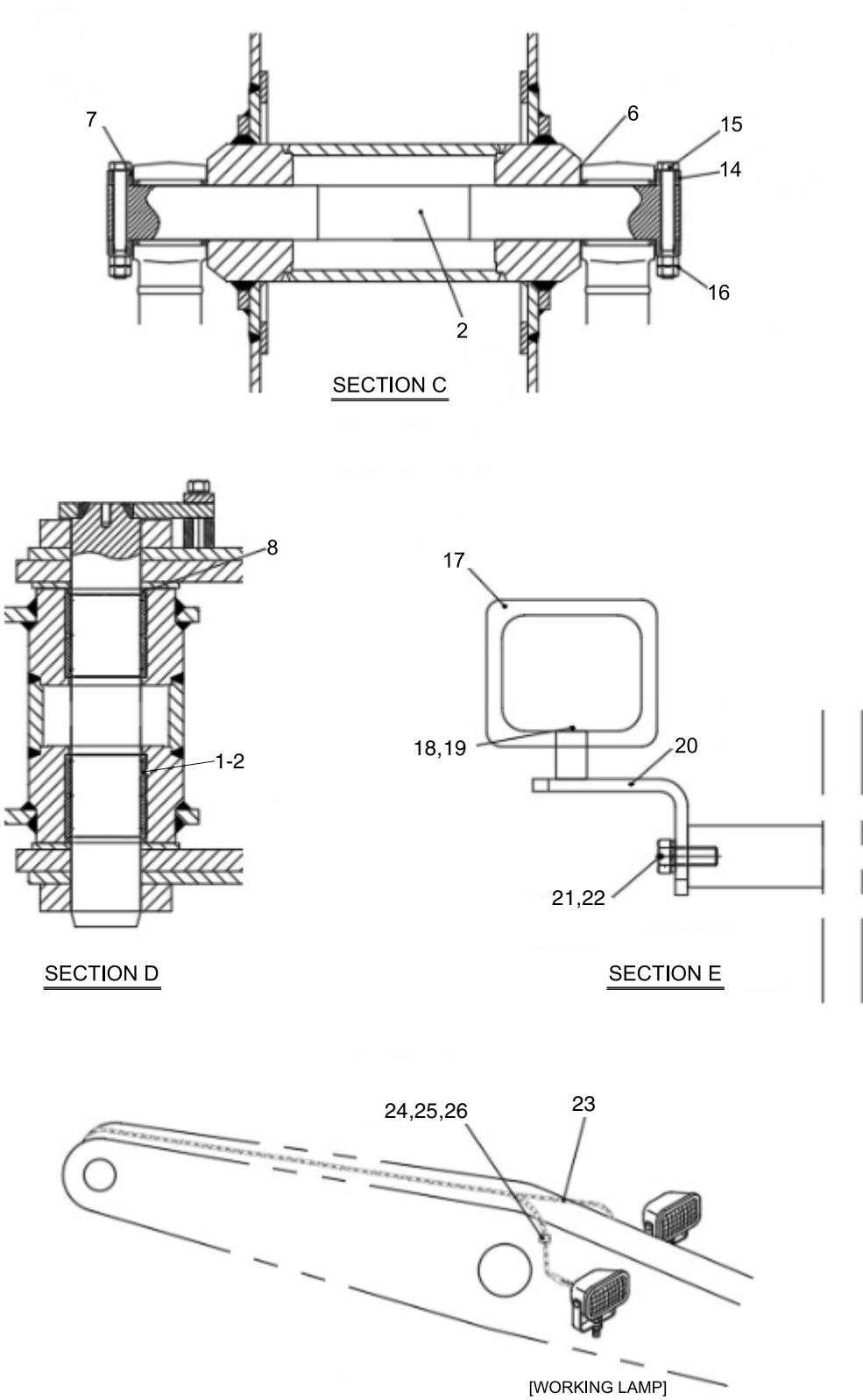
SECTION B

BOOM ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA- 00969	BOOM ASSY	1			
1-1	XKDA- 00971	. BUSHING	2			
1-2	XKDA- 00184	. BUSHING	2			
2	XKDA- 00972	PIN	1			
3	XKDA- 00973	SHIM- 1.0	2			
4	S993- 080140	SHIM-POLYMER 2.0	4			
5	S991- 080140	SHIM-POLYMER 1.0	2			
6	XKDA- 00974	SHIM- 1.0	2			
7	XKDA- 00975	SHIM- 1.0	4			
8	XKDA- 00976	SEAL-DUST	4			
9	XKDA- 00977	SEAL-DUST	4			
11	61Q6- 00320	STOPPER-PIN	2			
12	S017- 161606	BOLT-HEX	2			
13	S205- 16100B	NUT-HEX	4			
14	XKDA- 00978	STOPPER	2			
15	XKDA- 00979	BOLT-HEX	2			
16	XKDA- 00980	NUT-HEX	4			
17	XKDA- 00981	LAMP- WORKING	2			
18	XKDA- 00900	BOLT-HEX	2			
19	XKDA- 00050	WASHER-SPRING	2			
20	XKDA- 00982	BRACKET	2			
21	XKDA- 00746	BOLT-HEX	2			
22	XKDA- 00049	WASHER-SPRING	2			
23	XKDA- 00983	HARNESS- WIRE	1			
24	XKDA- 00411	CLIP	2			
25	XKDA- 00841	BOLT-HEX	2			
26	XKDA- 00171	WASHER-SPRING	2			

BOOM ASSEMBLY (2/2)

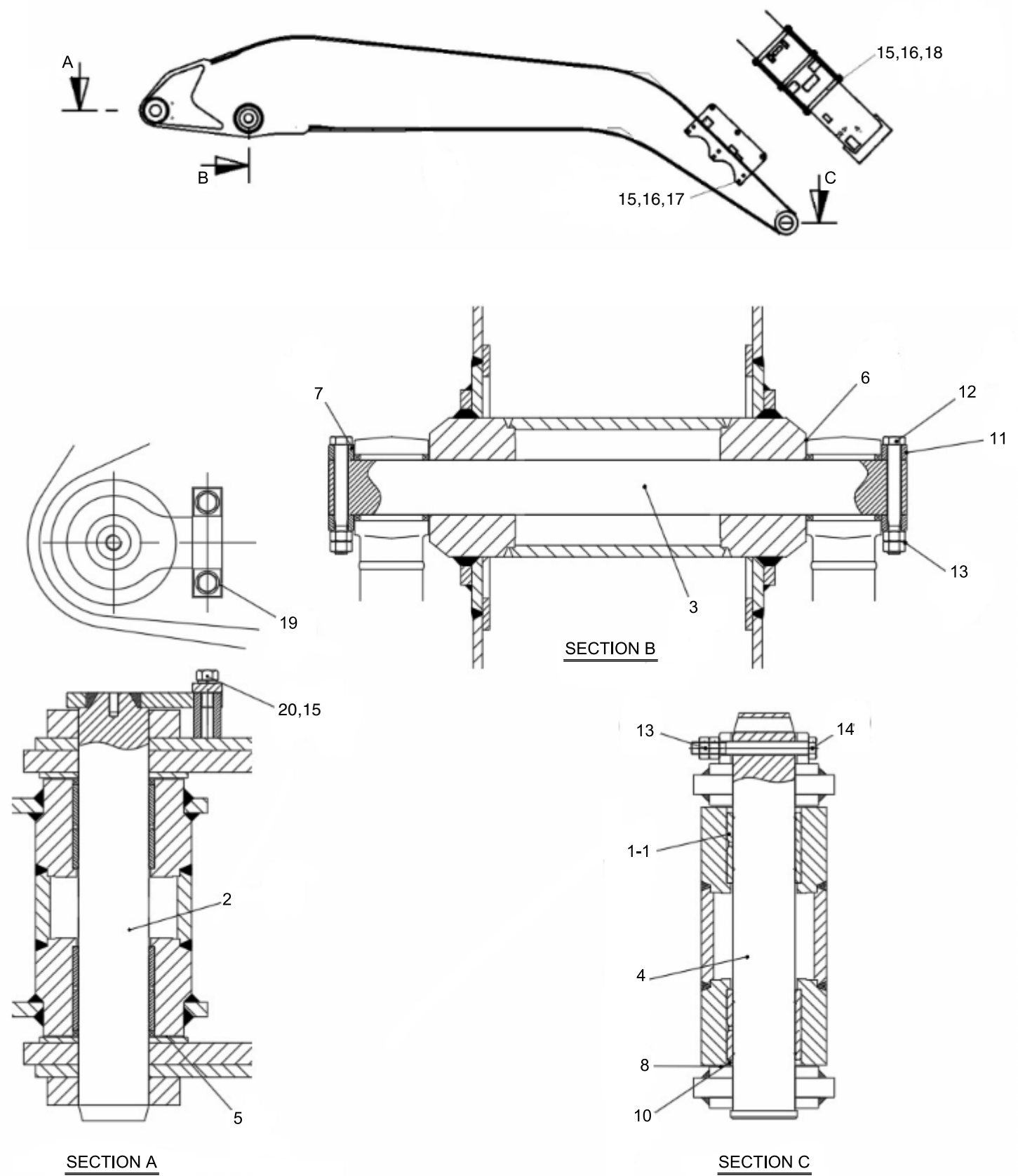


BOOM ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA- 00969	BOOM ASSY	1			
1-1	XKDA- 00971	. BUSHING	2			
1-2	XKDA- 00184	. BUSHING	2			
2	XKDA- 00972	PIN	1			
3	XKDA- 00973	SHIM- 1.0	2			
4	S993- 080140	SHIM-POLYMER 2.0	4			
5	S991- 080140	SHIM-POLYMER 1.0	2			
6	XKDA- 00974	SHIM- 1.0	2			
7	XKDA- 00975	SHIM- 1.0	4			
8	XKDA- 00976	SEAL-DUST	4			
9	XKDA- 00977	SEAL-DUST	4			
11	61Q6- 00320	STOPPER-PIN	2			
12	S017- 161606	BOLT-HEX	2			
13	S205- 16100B	NUT-HEX	4			
14	XKDA- 00978	STOPPER	2			
15	XKDA- 00979	BOLT-HEX	2			
16	XKDA- 00980	NUT-HEX	4			
17	XKDA- 00981	LAMP- WORKING	2			
18	XKDA- 00900	BOLT-HEX	2			
19	XKDA- 00050	WASHER-SPRING	2			
20	XKDA- 00982	BRACKET	2			
21	XKDA- 00746	BOLT-HEX	2			
22	XKDA- 00049	WASHER-SPRING	2			
23	XKDA- 00983	HARNESS- WIRE	1			
24	XKDA- 00411	CLIP	2			
25	XKDA- 00841	BOLT-HEX	2			
26	XKDA- 00171	WASHER-SPRING	2			

ARM ASSEMBLY

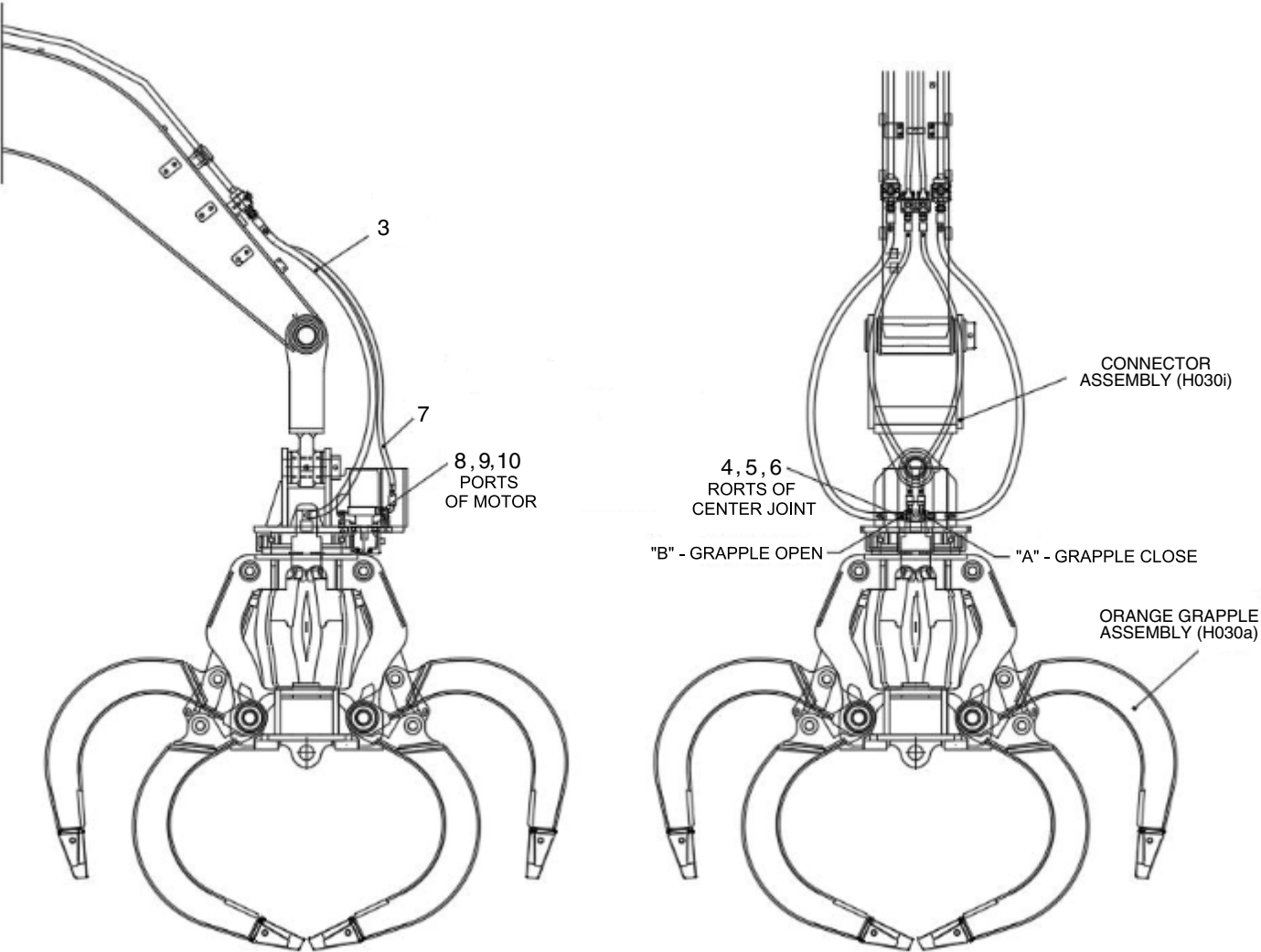


ARM ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
*	XKDA- 00984	ARM ASSY	1			
1-1	XKDA- 00986	. BUSHING	2			
2	XKDA- 00987	PIN-JOINT	1			
3	XKDA- 00972	PIN	1			
4	XKDA- 00988	PIN	1			
5	XKDA- 00989	SHIM- 1.0	2			
6	XKDA- 00974	SHIM- 1.0	2			
7	XKDA- 00975	SHIM- 1.0	2			
8	XKDA- 00990	SHIM- 1.0	4			
10	XKDA- 00120	SEAL-DUST	2			
11	XKDA- 00978	STOPPER	2			
12	XKDA- 00979	BOLT-HEX	2			
13	XKDA- 00991	NUT-HEX	6			
14	XKDA- 00992	BOLT-HEX	1			
15	XKDA- 00048	WASHER-SPRING	20			
16	XKDA- 00993	BOLT-HEX	18			
17	XKDA- 00994	COVER	2			
18	XKDA- 00995	BAR	3			
19	XKDA- 00996	PLATE-STOPPER	1			
20	XKDA- 00997	BOLT-HEX	2			

ORANGE GRAPPLE INSTALLATION

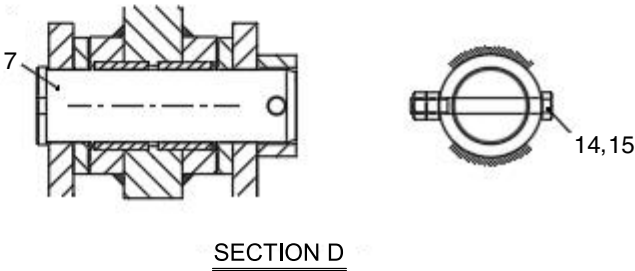
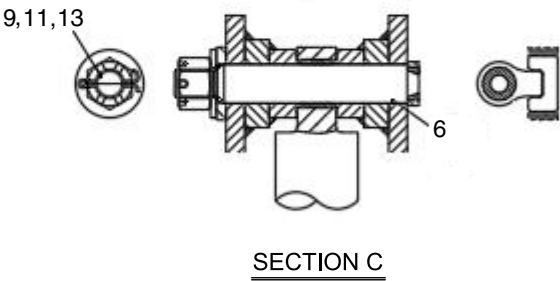
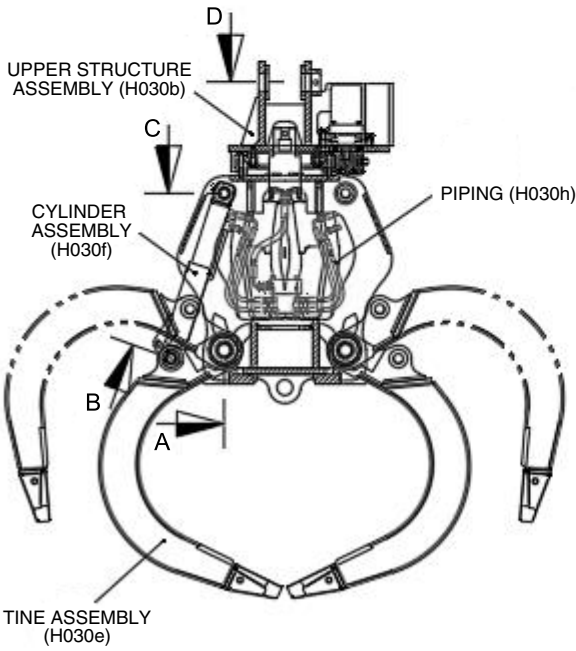
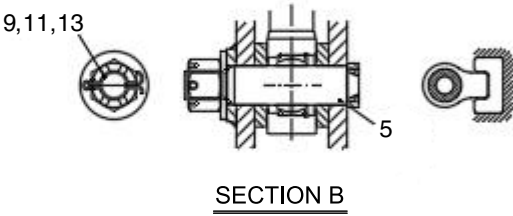
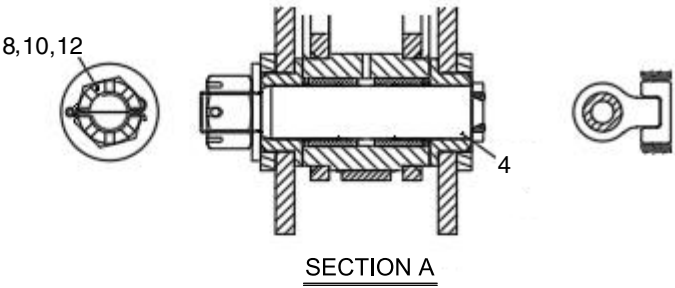
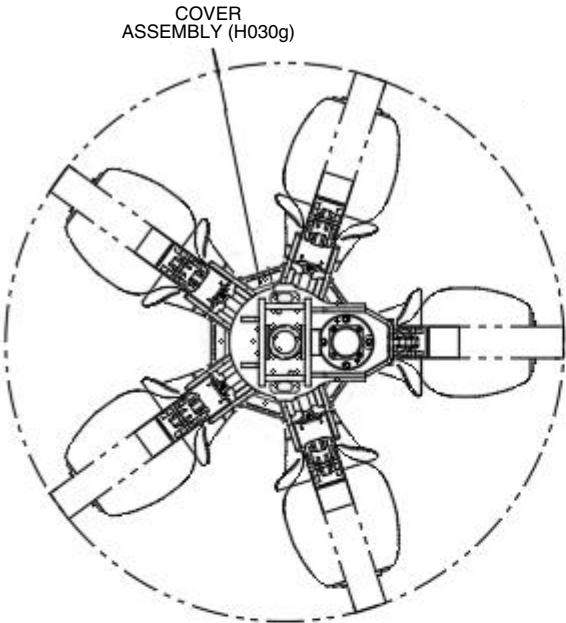


ORANGE GRAPPLE INSTALLATION

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
3	XKDA-01225	HOSE	2			
4	XKDA-01046	ADAPTER	2			
5	XKDA-01226	O - RING	2			
6	XKDA-01227	O - RING	2			
7	XKDA-01228	HOSE	2			
8	XKDA-01229	ADAPTER	2			
9	XKDA-00340	SEAL - BOND	2			
10	XKDA-01230	O - RING	2			

ORANGE GRAPPLE ASSEMBLY

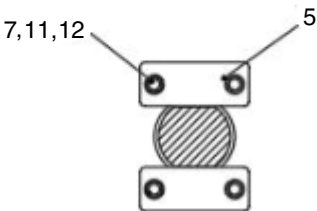
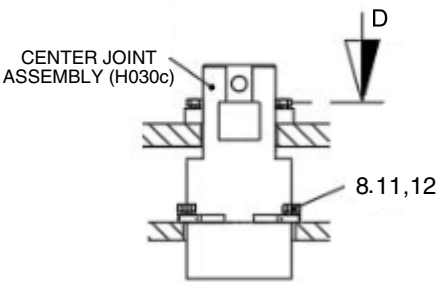
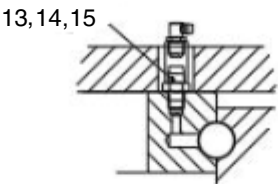
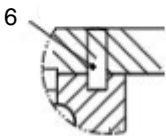
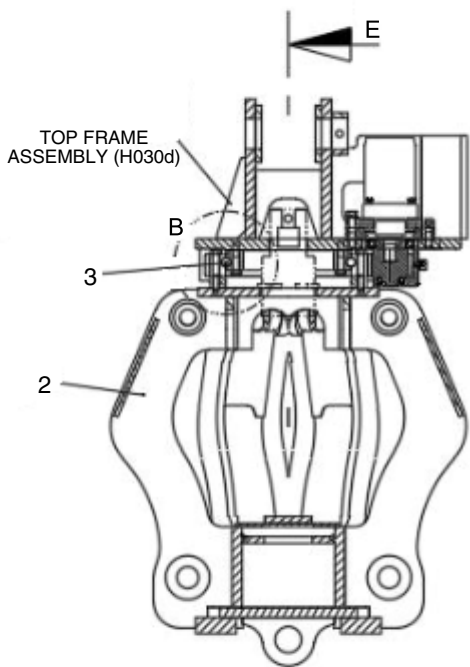
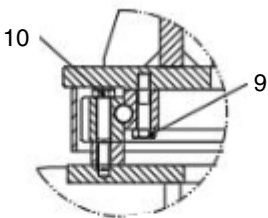
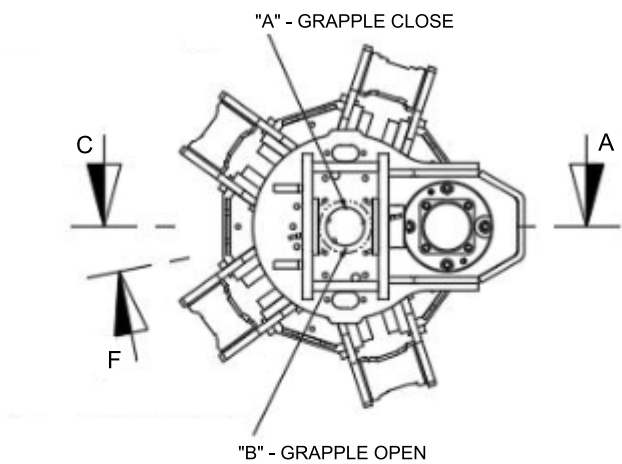


ORANGE GRAPPLE ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
4	XKDA-01234	PIN ASSY	5			
5	XKDA-01235	PIN ASSY	5			
6	XKDA-01236	PIN ASSY	5			
7	XKDA-01237	PIN - CONNECTOR	1			
8	XKDA-01238	WASHER -HARD	5			
9	XKDA-01239	WASHER -HARD	10			
10	XKDA-01240	NUT - CASTLE	5			
11	XKDA-01241	NUT - CASTLE	10			
12	XKDA-01242	PIN -SPLIT	5			
13	XKDA-01243	PIN -SPLIT	10			
14	XKDA-01244	BOLT-HEX	1			
15	XKDA-01245	NUT-HEX	2			

UPPER STRUCTURE ASSEMBLY



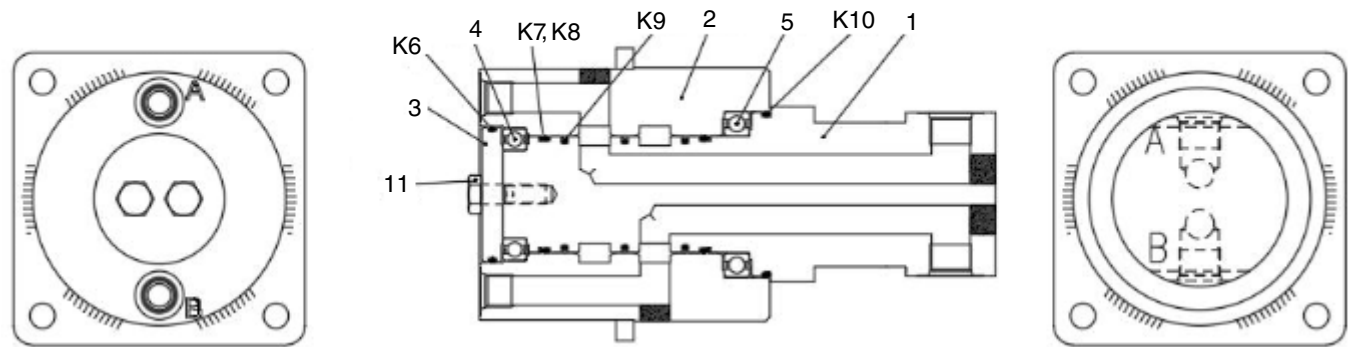
UPPER STRUCTURE ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
2	XKDA-01249	BODY-MAIN	1			
3	XKDA-01250	BEARING-SWING	1			
5	XKDA-01252	STOPPER	2			
6	XKDA-01253	PIN	2			
7	XKDA-01254	BOLT-HEX	4			
8	XKDA-01255	BOLT-HEX	4			
9	XKDA-01256	BOLT-HEX	14			
10	XKDA-01257	BOLT-HEX	12			
11	XKDA-01258	WASHER-PLAIN	8			
12	XKDA-01259	WASHER-SPRING	8			
13	XKDA-00124	FITTING-GREASE	2			
14	XKDA-01260	ADAPTER	2			
15	XKDA-01261	BOLT-SOCKET	2			

HW250 MH

CENTER JOINT ASSEMBLY



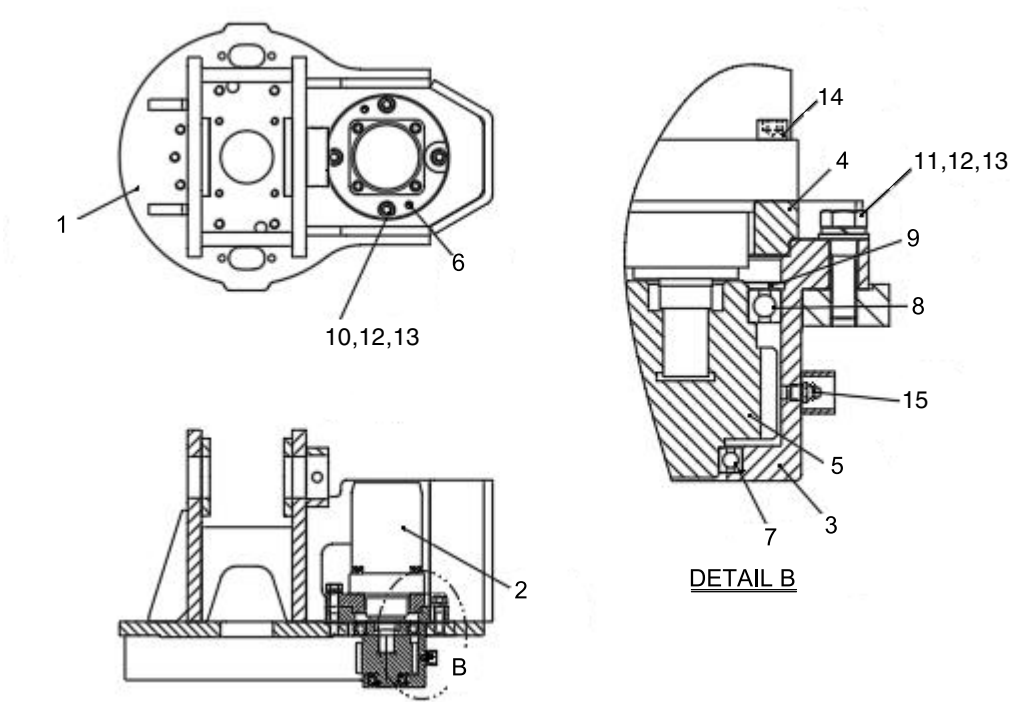
H030c

CENTER JOINT ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01262	ROTOR	1			
2	XKDA-01263	HOUSING	1			
3	XKDA-01264	COVER	1			
4	XKDA-01265	BEARING - BALL	1			
5	XKDA-01266	BEARING - BALL	1			
K6	XKDA-01267	O - RING	1			
K7	XKDA-01268	O - RING	2			
K8	XKDA-01269	RING - BACK UP	2			
K9	XKDA-01270	SEAL - ROTOMATIC	3			
K10	XKDA-01271	O - RING	1			
11	XKDA-01272	BOLT-HEX	2			
K	XKDA-01273	SEAL KIT	1			

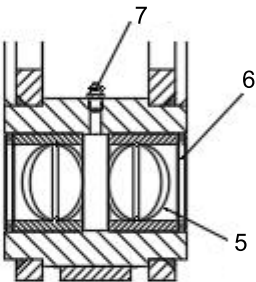
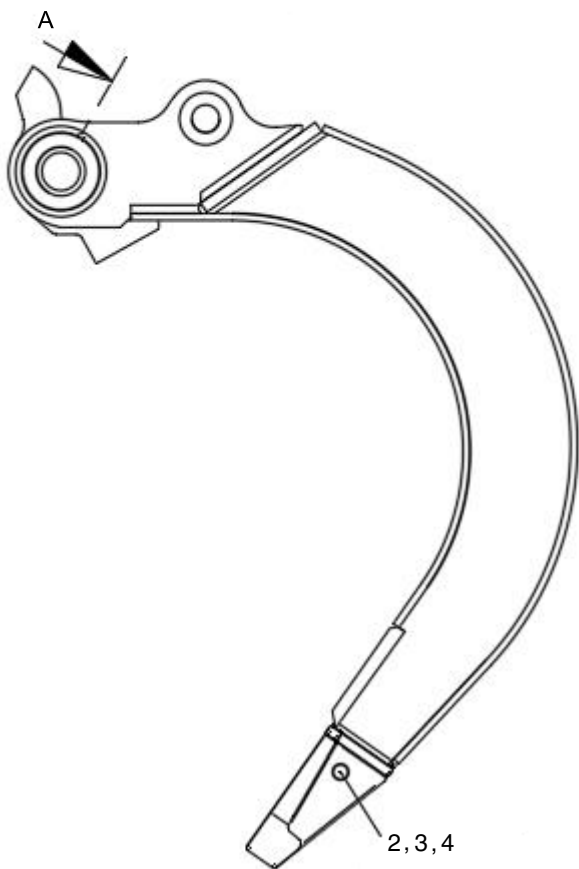
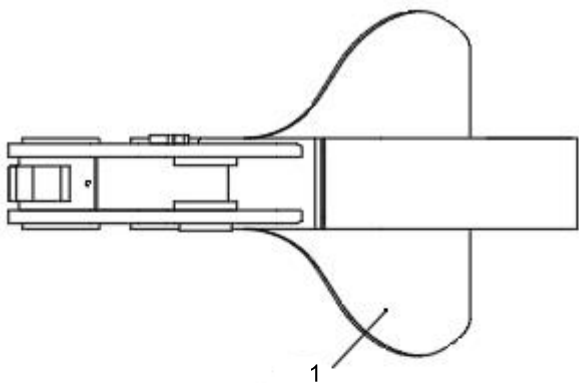
TOP FRAME ASSEMBLY



TOP FRAME ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01274	FRAME-TOP	1			
2	XKDA-01275	MOTOR-SWING	1			
3	XKDA-01276	HOUSING-PINION	1			
4	XKDA-01277	SPACER	1			
5	XKDA-01278	PINION	1			
6	XKDA-01279	PIN	2			
7	XKDA-01280	BEARING	1			
8	XKDA-01281	BEARING	1			
9	XKDA-01282	RING-SNAP	1			
10	XKDA-01283	BOLT-HEX	3			
11	XKDA-01284	BOLT-HEX	1			
12	XKDA-01285	WASHER-SPRING	4			
13	XKDA-01286	WASHER-PLAIN	4			
14	XKDA-01287	BOLT-SOCKET	4			
15	XKDA-00124	FITTING-GREASE	1			



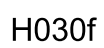
SECTION A

TINE ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01288	GRAPPLE	1			
2	XKDA-01289	TOOTH	1			
3	XKDA-01290	PIN - TOOTH	1			
4	XKDA-01291	RETAINER	1			
5	XKDA-01292	BUSHING	2			
6	XKDA-01293	SEAL -DUST	2			
7	XKDA-00124	FITTING - GREASE	1			

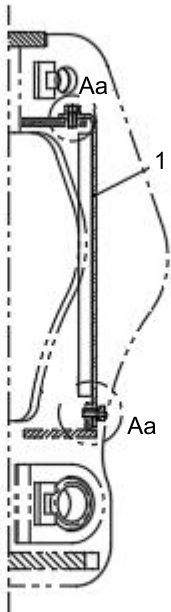
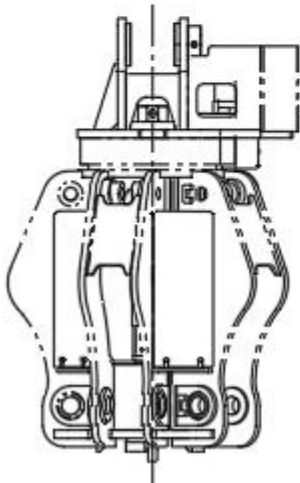
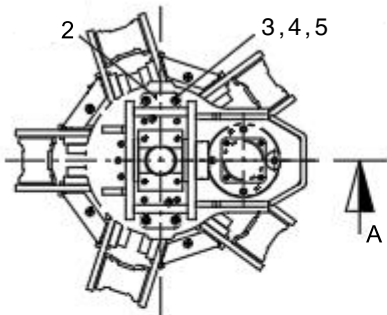
CYLINDER ASSEMBLY



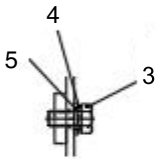
CYLINDER ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01294	TUBE ASSY- CYL	1			
2	XKDA-01295	ROD ASSY- CYL	1			
3	XKDA-01296	PISTON- CYL	1			
4	XKDA-01297	COVER- ROD	1			
K5	XKDA-01298	RING- WEAR	1			
K6	XKDA-01299	SEAL- PISTON	1			
K7	XKDA-01300	O- RING	1			
K8	XKDA-01301	O- RING	1			
K9	XKDA-01302	RING- BACK UP	1			
K10	XKDA-01303	BUSHING- DU	1			
K11	XKDA-01304	SEAL- STEP	1			
K12	XKDA-01305	PACKING- U	1			
K13	XKDA-01306	O- RING	1			
K14	XKDA-01307	WIPER- DUST	1			
15	XKDA-01308	SCREW- SET	1			
16	XKDA-01309	BUSHING- STEEL	1			
17	XKDA-01310	BEARING- SPHERICAL	2			
18	XKDA-01311	RING- SNAP	2			
19	XKDA-01312	CAP- DUST	2			
20	XKDA-01313	COVER- SHIELD	1			
21	XKDA-01314	BOLT- HEX	1			
22	XKDA-01315	WASHER- S	1			
23	XKDA-01316	WASHER- P	2			
24	XKDA-01317	BOLT- HEX	1			
25	XKDA-01318	PAD	1			
26	XKDA-01319	PIPE	2			
K	XKDA-01320	SEAL KIT	1			



SECTION A

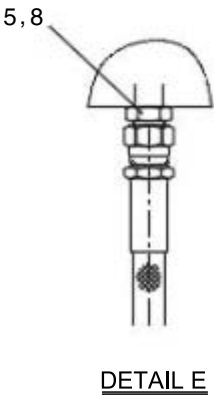
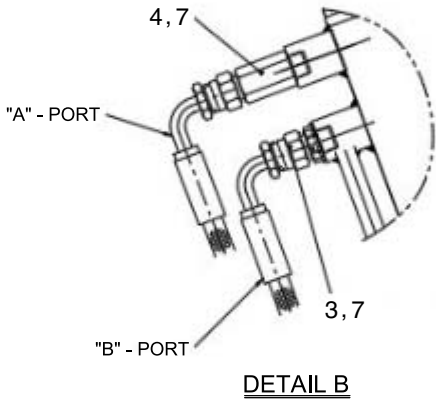
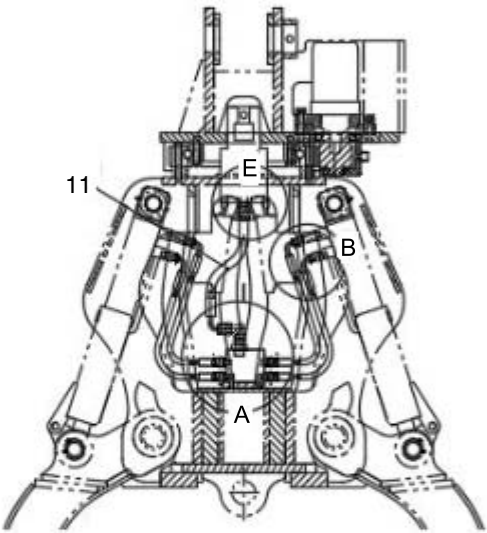
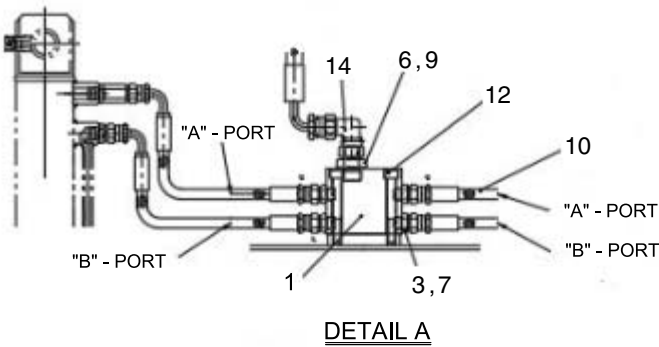
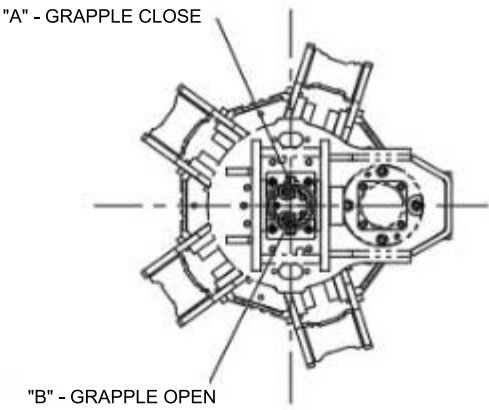


DETAIL Aa

COVER ASSEMBLY

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01258	WASHER-PLAIN	19			
2	XKDA-01259	WASHER-SPRING	19			
3	XKDA-01321	COVER-INSIDE	5			
4	XKDA-01322	COVER-TOP	2			
5	XKDA-01323	BOLT-HEX	19			

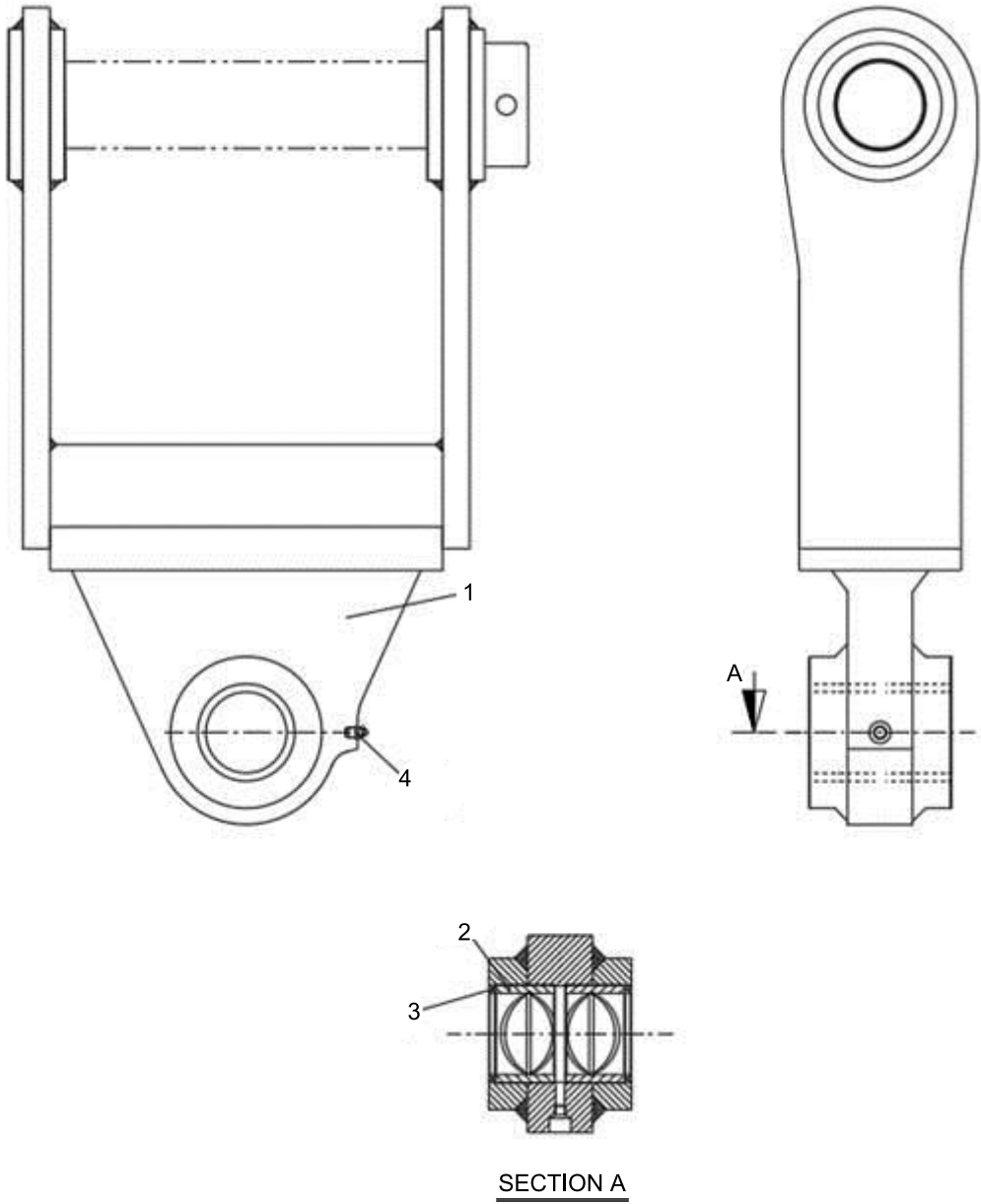


PIPING

HW250 MH

ITEM	PART NO	DESCRIPTION	QTY	SERIAL NO	ITC	REMARK
1	XKDA-01226	O - RING	2			
3	XKDA-01324	BLOCK-BRANCH	1			
4	XKDA-01325	ADAPTER	15			
5	XKDA-00065	ADAPTER	2			
6	XKDA-01326	ADAPTER	5			
7	XKDA-01327	ADAPTER	2			
8	XKDA-01328	O - RING	20			
9	XKDA-01329	O - RING	2			
10	XKDA-01330	HOSE	10			
11	XKDA-01331	HOSE	2			
12	XKDA-01332	BOLT-SOCKET	3			
14	XKDA-01333	ELBOW-SWIVEL	2			

CONNECTOR ASSEMBLY



CONNECTOR ASSEMBLY

HW250 MH

[illegible]

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61Q6-00320	H010	11	XKDA-00124	H030b	13	XKDA-00781	C040	21
S017-161606	H010	12	XKDA-00124	H030d	15	XKDA-00783	C040	26
S205-16100B	H010	13	XKDA-00124	H030e	7	XKDA-00783	C060	11
S991-080140	H010	5	XKDA-00124	H030i	1	XKDA-00783	G010	36
S993-080140	H010	4	XKDA-00159	C040a	8	XKDA-00790	C040	37
XKAG-00135	C060a	15	XKDA-00159	C060b	3	XKDA-00811	C060	23
XKDA-00035	C040	23	XKDA-00160	C040a	9	XKDA-00812	C060	25
XKDA-00035	C060	9	XKDA-00160	C060b	4	XKDA-00813	C060	26
XKDA-00043	C060a	8	XKDA-00161	C040a	19	XKDA-00814	C060	20
XKDA-00044	C060a	9	XKDA-00171	C040a	16	XKDA-00841	C040a	15
XKDA-00048	C040	24	XKDA-00171	C060b	10	XKDA-00841	C060b	8
XKDA-00048	C060	10	XKDA-00171	H010	26	XKDA-00841	H010	25
XKDA-00048	C060a	7	XKDA-00173	G010b	1-18	XKDA-00851	C040	38
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XKDA-00049	G010	43	XKDA-00336	C040	30	XKDA-00945	B010a	1
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XKDA-00050	C040a	18	XKDA-00339	C040	39	XKDA-00969	H010	*
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XKDA-00050	G010	44	XKDA-00411	C060b	7	XKDA-00973	H010	3
XKDA-00050	G010b	1-20	XKDA-00411	C170	11	XKDA-00974	H010	6
XKDA-00050	H010	19	XKDA-00411	H010	24	XKDA-00974	H020	6
XKDA-00053	C040	32	XKDA-00412	C040a	12	XKDA-00975	H010	7
XKDA-00053	C060	28	XKDA-00416	C060	12	XKDA-00975	H020	7
XKDA-00055	G040	3	XKDA-00449	G010	52	XKDA-00976	H010	8
XKDA-00065	H030h	5	XKDA-00591	C060	19	XKDA-00977	H010	9
XKDA-00066	C060	18	XKDA-00591	D080	10	XKDA-00978	H010	14
XKDA-00074	C040	33	XKDA-00649	C040	29	XKDA-00978	H020	11
XKDA-00090	C040a	17	XKDA-00649	D080	8	XKDA-00979	H010	15
XKDA-00090	C060b	11	XKDA-00650	C040	36	XKDA-00979	H020	12
XKDA-00091	G010	64	XKDA-00692	G010	39	XKDA-00980	H010	16
XKDA-00101	C040	25	XKDA-00696	G010b	2	XKDA-00981	H010	17
XKDA-00120	H020	10	XKDA-00697	G010	40	XKDA-00982	H010	20
XKDA-00124	C040a	10	XKDA-00697	G010b	1-21	XKDA-00983	H010	23
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XKDA - 00988	H020	4	XKDA - 01024	C040	40	XKDA - 01066	C040a	3
XKDA - 00989	H020	5	XKDA - 01025	C040	41	XKDA - 01067	C040a	4
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XKDA - 01003	C040	5	XKDA - 01041	C060	15	XKDA - 01080	G010	5 - 1
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XKDA - 01020	C060	21	XKDA - 01059	C060a	13	XKDA - 01094	G010	57
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XKDA - 01116	G010	76	XKDA - 01156	G010b	1 - 16	XKDA - 01201	G010	7
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XKDA - 01118	G010a	*1	XKDA - 01160	G040	1	XKDA - 01204	G010	10
XKDA - 01119	G010	*2	XKDA - 01161	G040	2	XKDA - 01205	G010	11
XKDA - 01119	G010a	*2	XKDA - 01163	G050b	1	XKDA - 01206	G010	12
XKDA - 01120	G010a	1	XKDA - 01164	G050b	2	XKDA - 01207	G010	13
XKDA - 01121	G010a	2	XKDA - 01165	G050b	3	XKDA - 01208	G010	14
XKDA - 01122	G010a	3	XKDA - 01166	G050b	4	XKDA - 01209	G010	17
XKDA - 01123	G010a	4	XKDA - 01167	G050b	5	XKDA - 01210	G010	18
XKDA - 01124	G010a	5	XKDA - 01168	G050b	6	XKDA - 01211	G010	19
XKDA - 01125	G010a	6	XKDA - 01169	G050b	7	XKDA - 01212	G010	20
XKDA - 01126	G010a	7	XKDA - 01170	G050b	8	XKDA - 01213	G010	22
XKDA - 01127	G010a	8	XKDA - 01171	G050b	9	XKDA - 01214	G010	23
XKDA - 01129	C170	1	XKDA - 01172	G050b	10	XKDA - 01215	G010	24
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XKDA - 01131	C170	3	XKDA - 01174	G050b	12	XKDA - 01217	G010	27
XKDA - 01132	C170	4	XKDA - 01175	G050b	13	XKDA - 01218	G010	28
XKDA - 01133	C170	6	XKDA - 01176	G050b	14	XKDA - 01219	G010	29
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XKDA - 01135	C170	12	XKDA - 01178	G050b	16	XKDA - 01221	B010	5
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