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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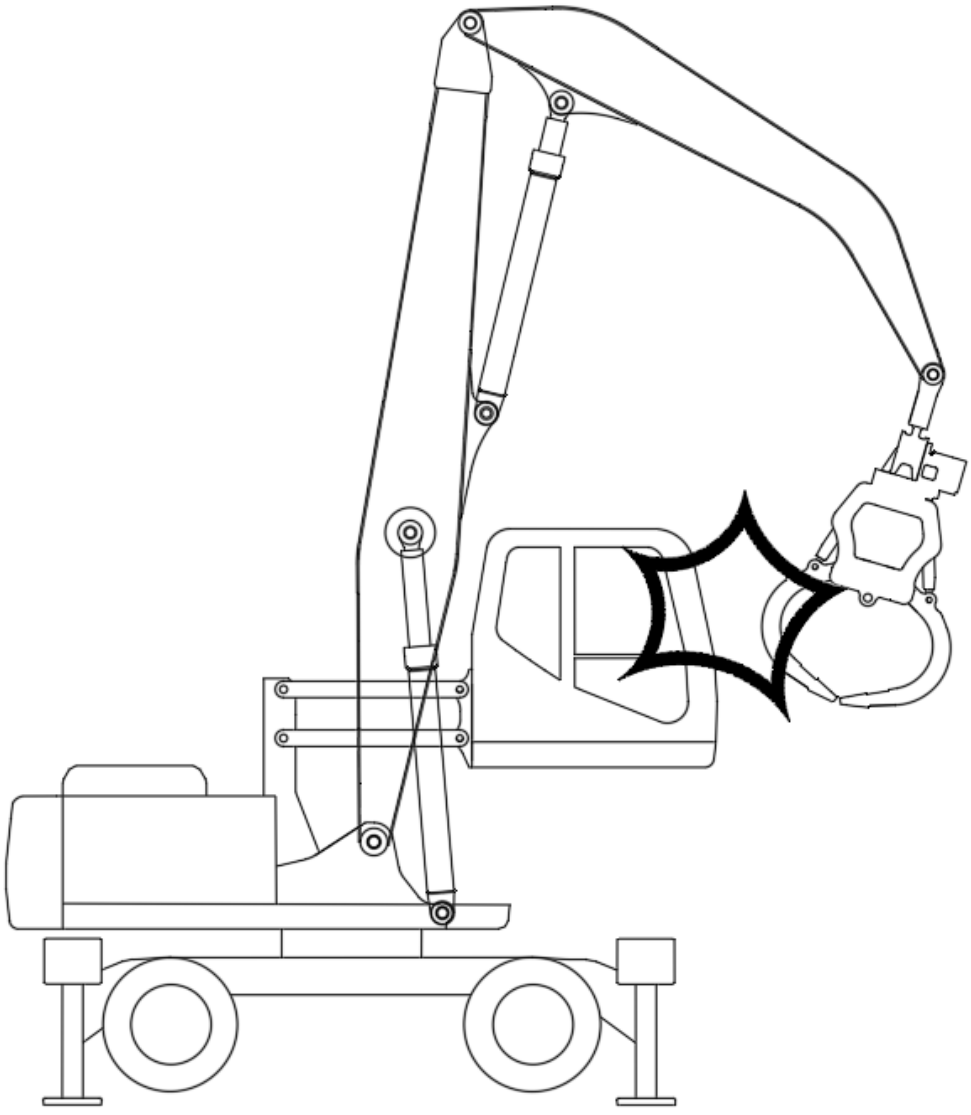
1. Safety

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

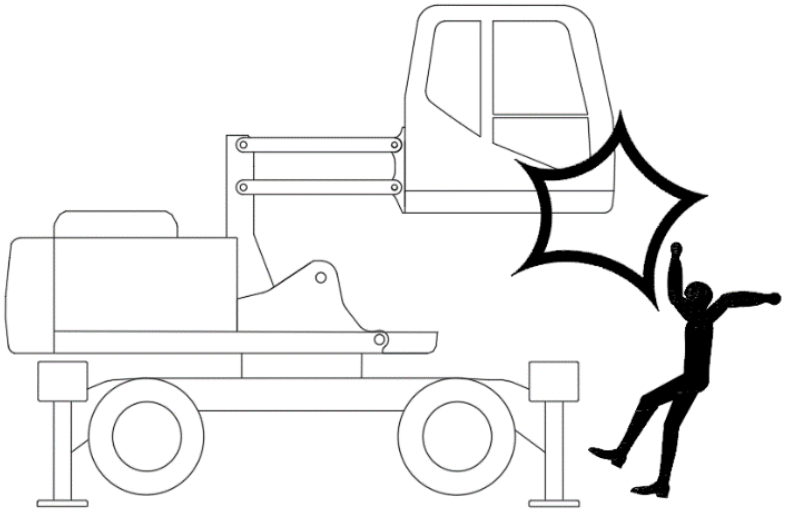
1-2. Hazard Operation

Be careful with operating elevating cabin or front attachment.



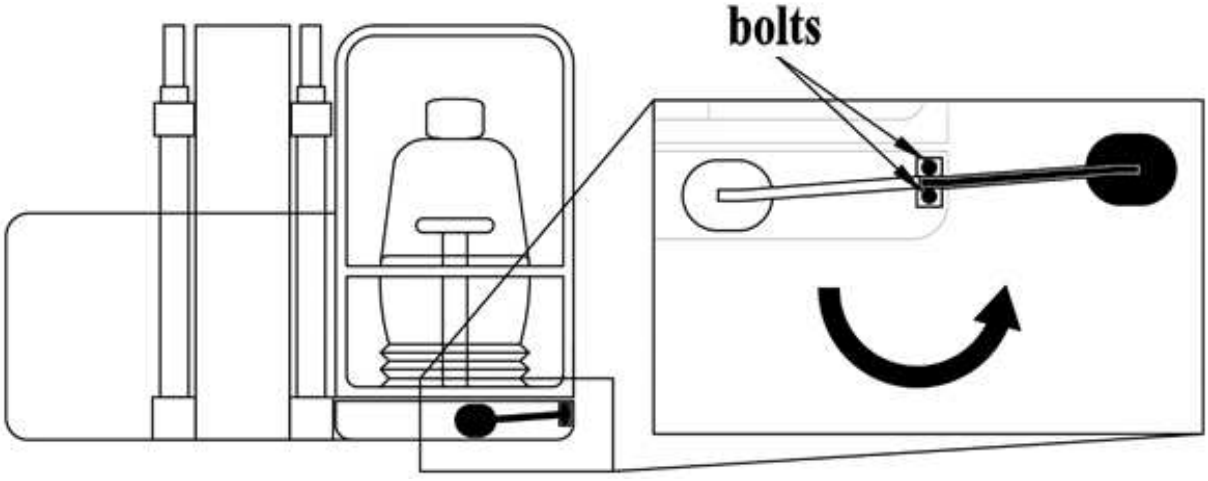
When you operate elevating cabin or front attachment, you should be careful to avoid crash between elevating cabin and front attachment. Serious personal injury or death may result from this crash.

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



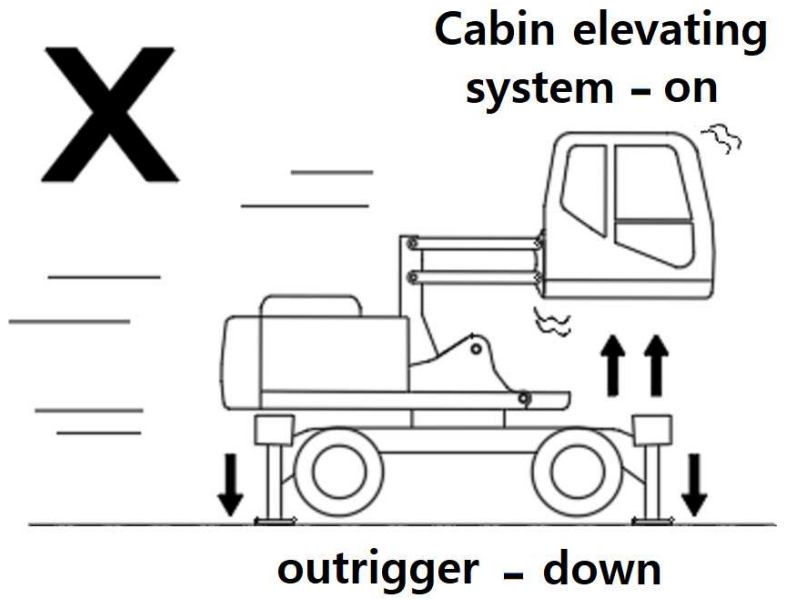
Safety Mirror - Elevating Cabin

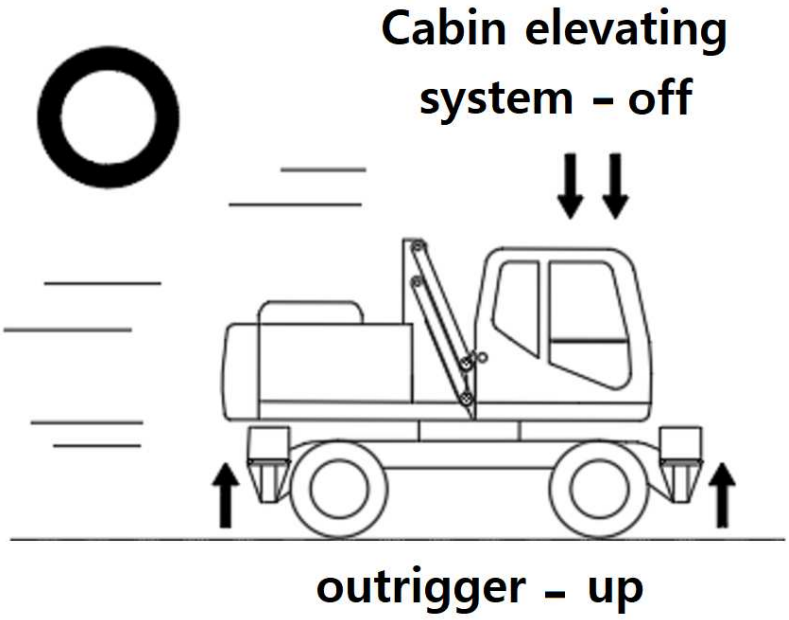
Turn the mirror outward so that you can look under the cabin raised.



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

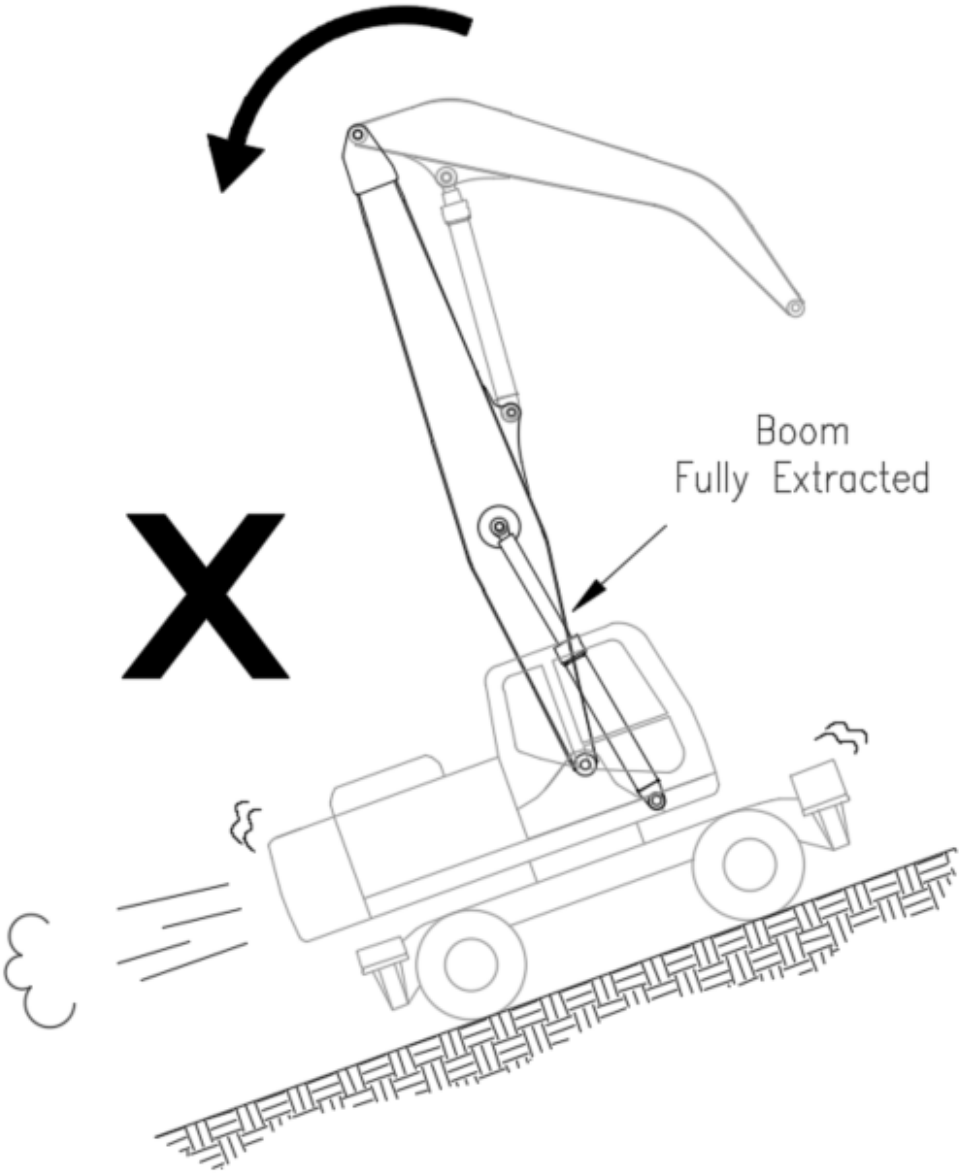
Only drive the machine in a state of Elevating Cabin down and outrigger up.





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.

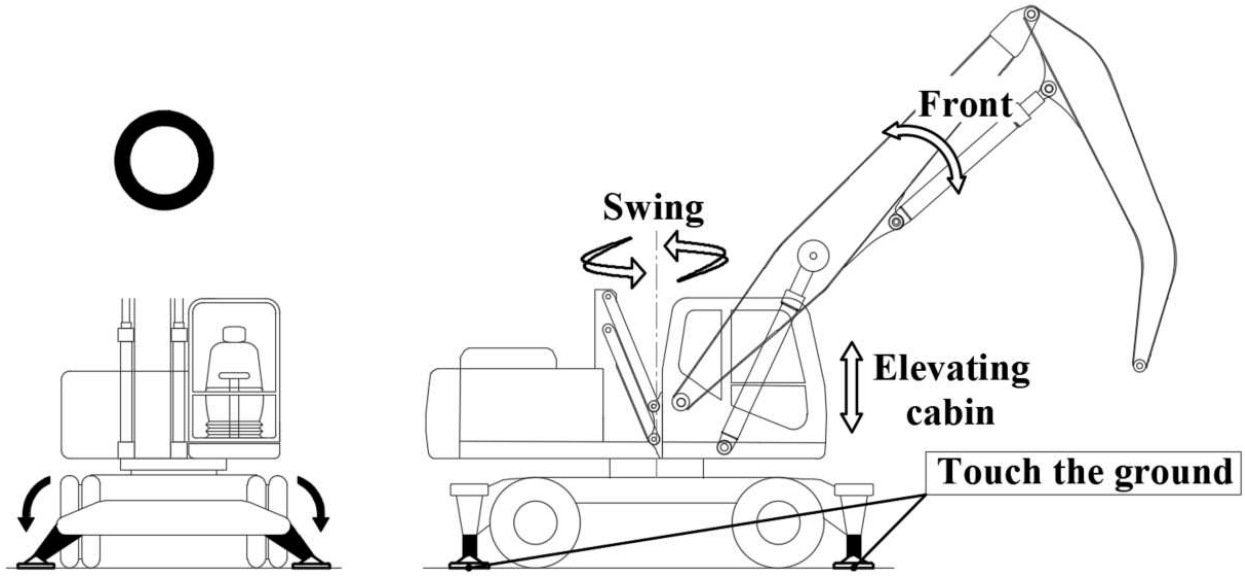


- If you must travel on a slope, any operation other than traveling is prohibited because it may cause tip over.

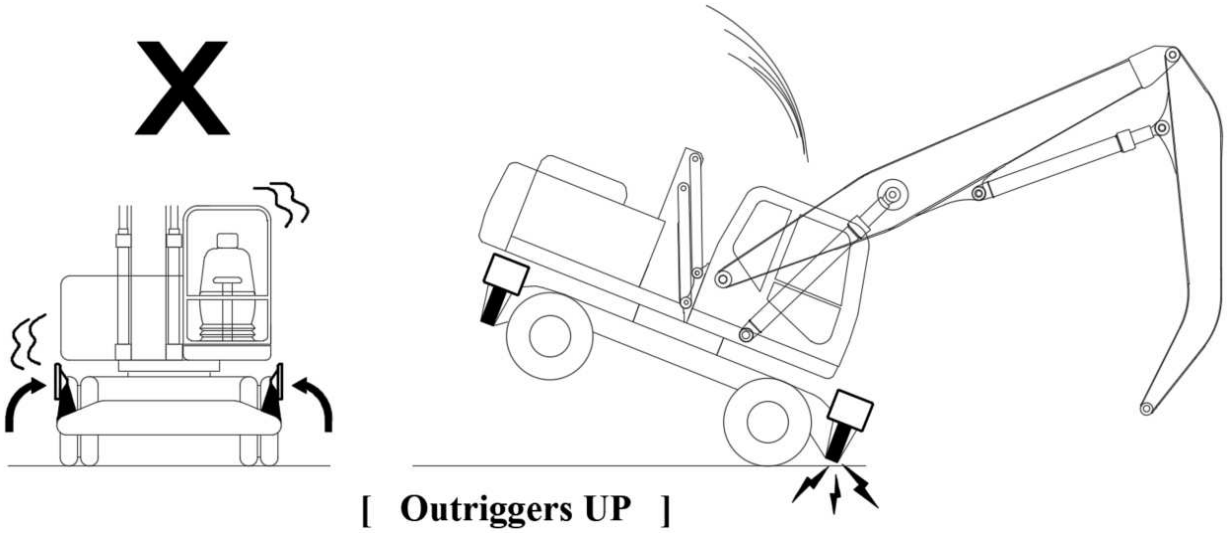
- If you must work on a slope, do not raise the boom to its highest position, as shown. The machine may tip over rearward.

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.

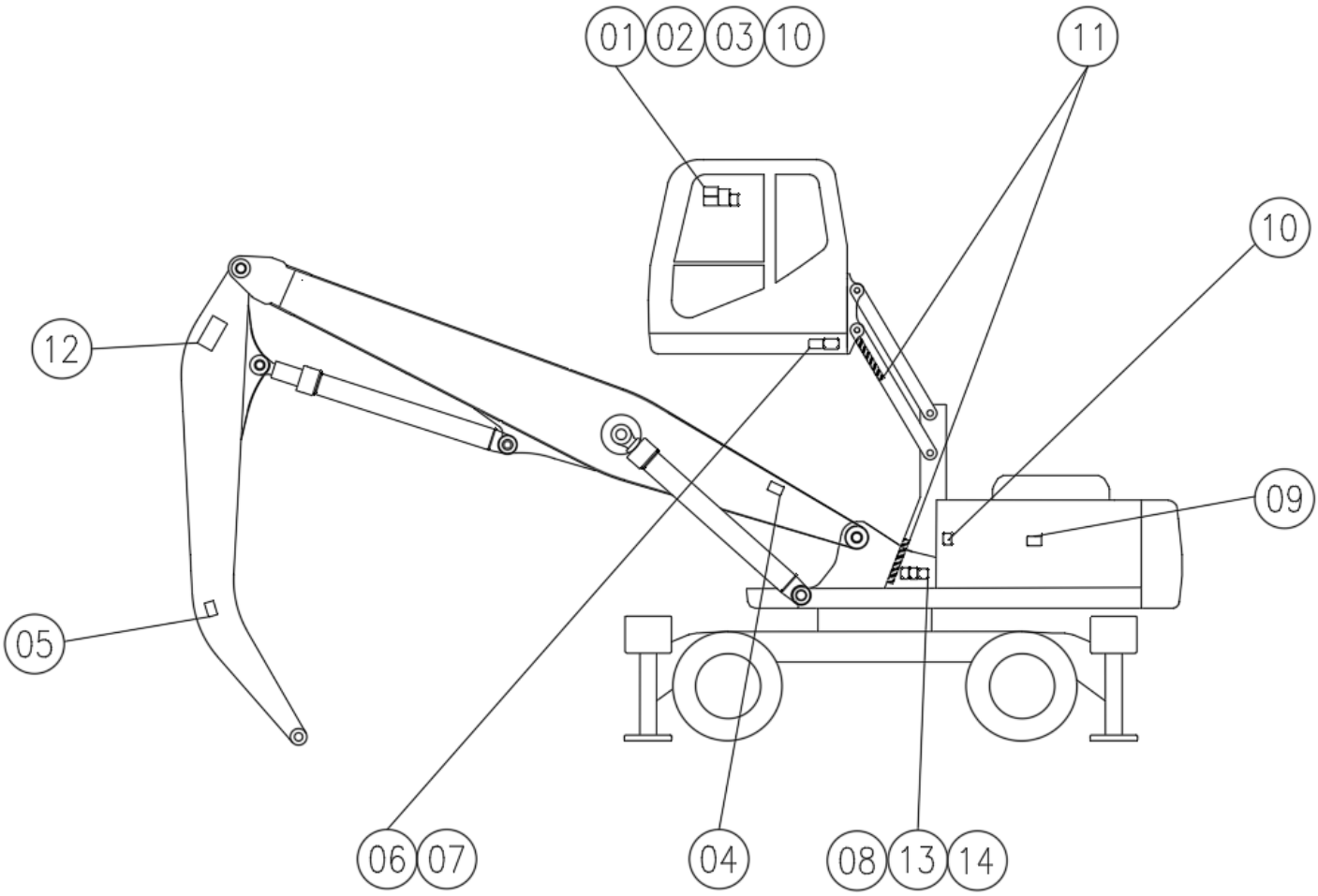


[Outriggers DOWN]

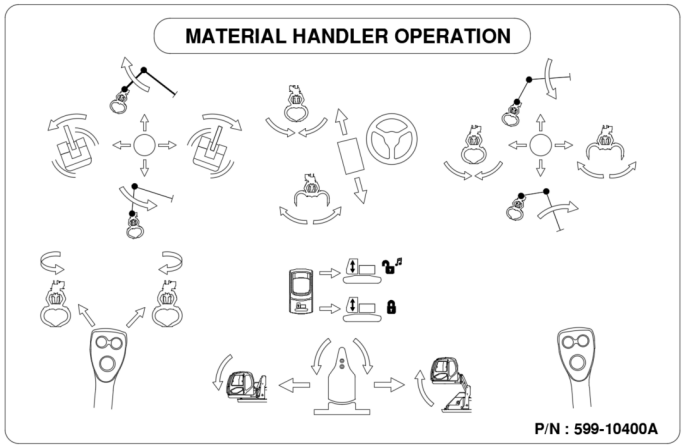


[Outriggers UP]

1-3. Operation Caution Decals

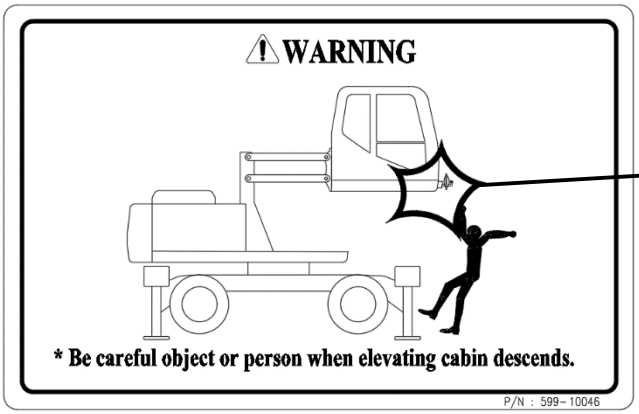


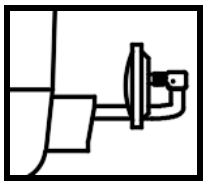
①



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

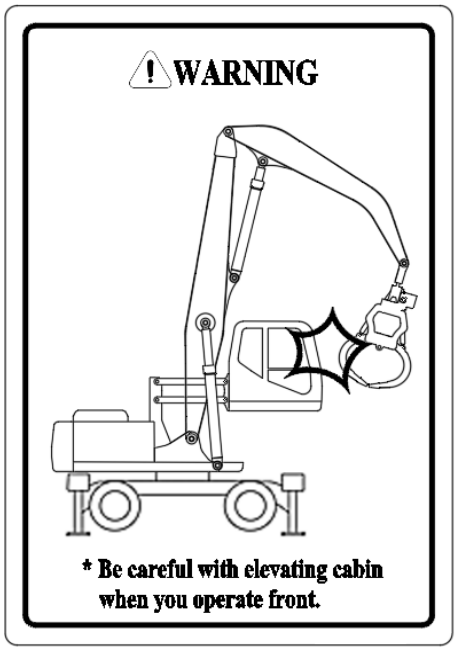
②





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

③

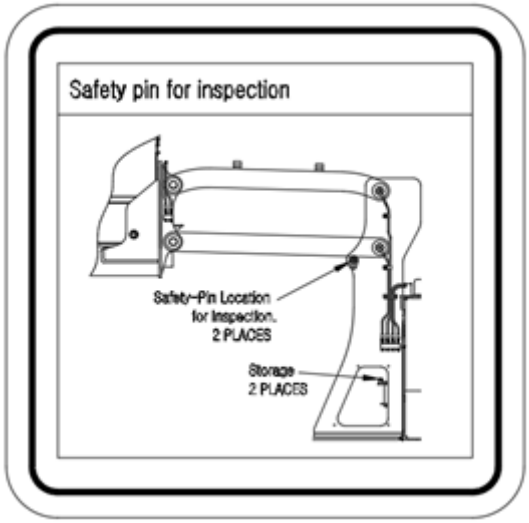


When you operate elevating cabin or front attachment, you should be careful to avoid crash between elevating cabin and front attachment. Serious personal injury or death may result from this crash.

④ ~ ⑦

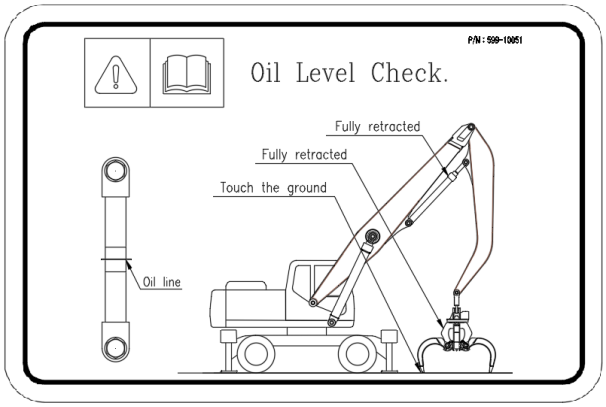
Refer to page『**Greasing**』for details.

⑧



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

⑨

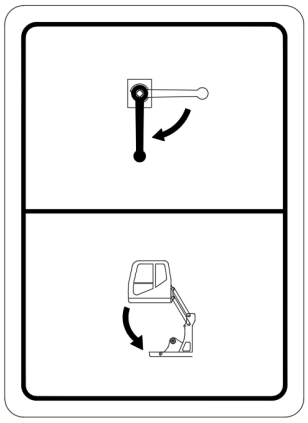


Refer to Page

『Hydraulic Oil Level Check』

for details.

⑩



Refer to Page

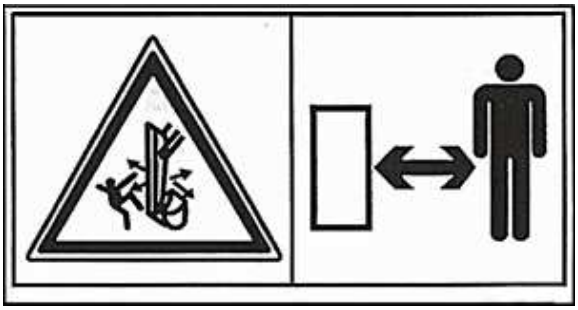
『Emergency Lowering of Elevating Cabin』

for details.

⑪

Elevating cabin Sticker

⑫



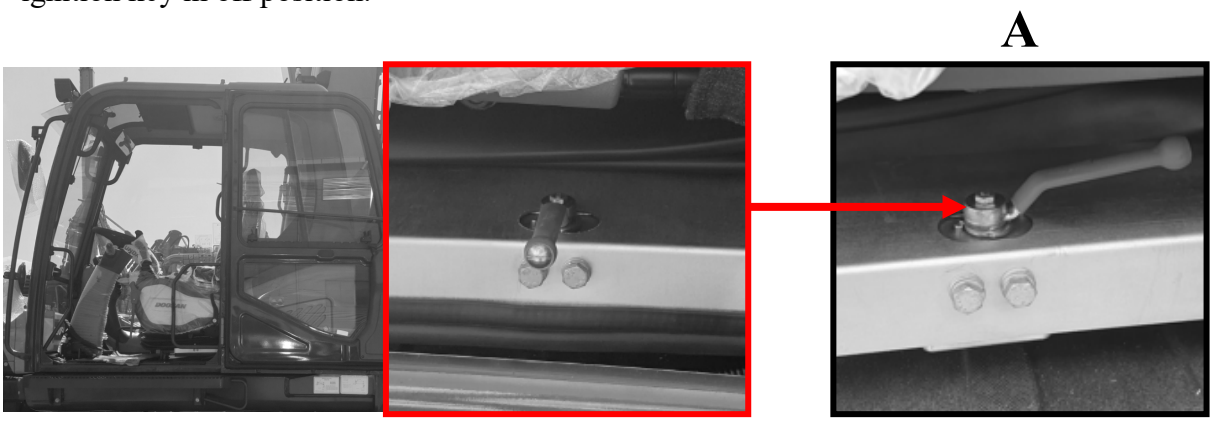
Check the presence of persons or obstacles within the working radius before working on it.

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.



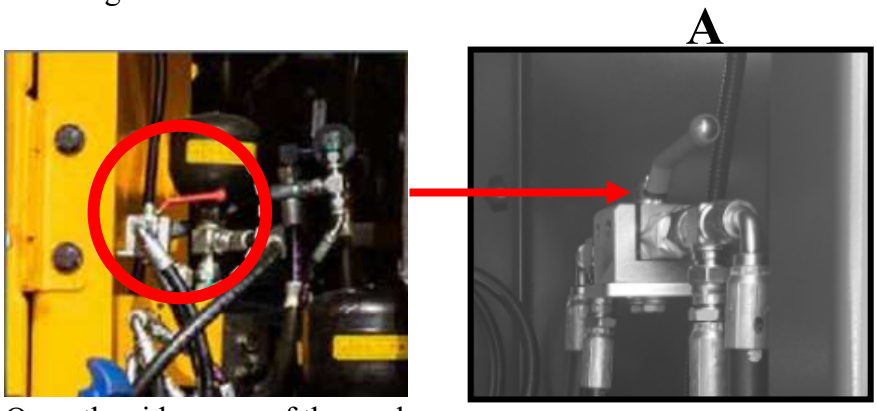
A - Emergency Cabin lowering : Inside the operator station

- 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.



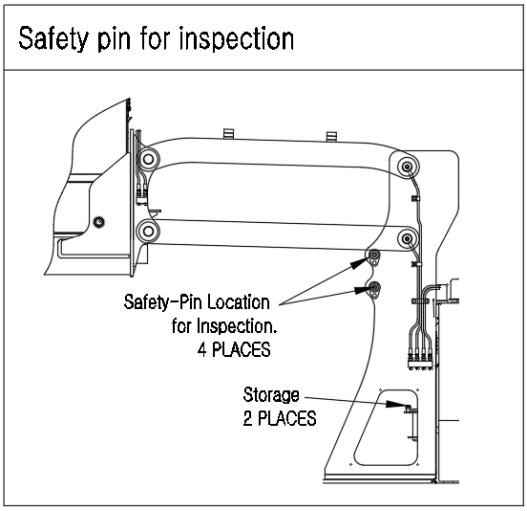
- Open the side cover of the cooler
- Turn the lever (A) until the cab starts lowering.
- When the cab is completely down, return the lever to the original position (see above Photo).

1-5. Safety pin

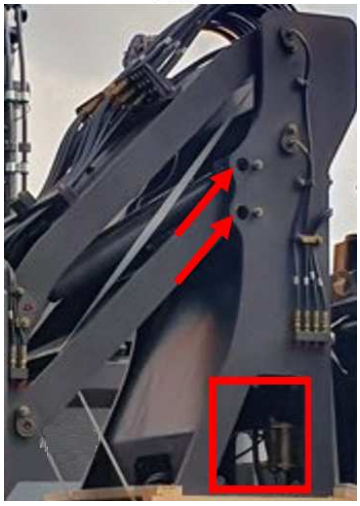
Safety pin is used to be fastened when repairing cabin elevating system.

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

***Elevated Height : 2.5m**



<LH>



<RH>

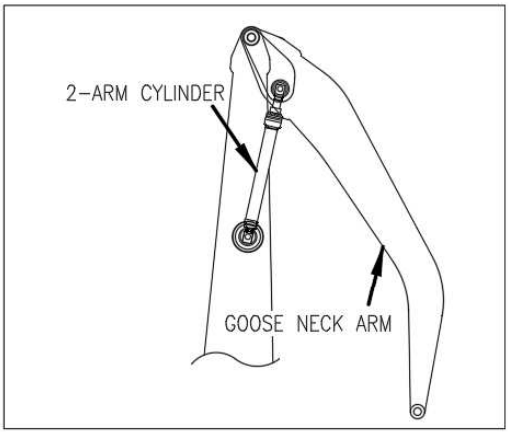
: The position of the safety pin.

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

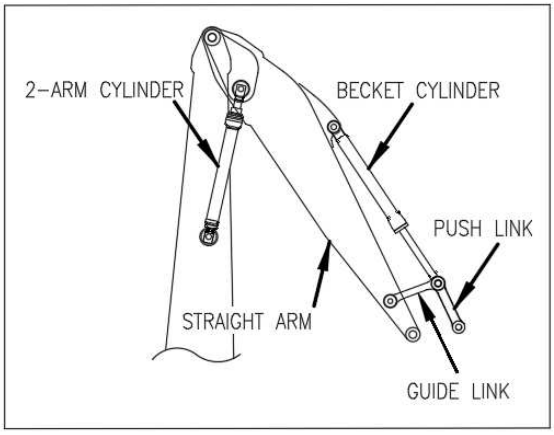
2. Specifications

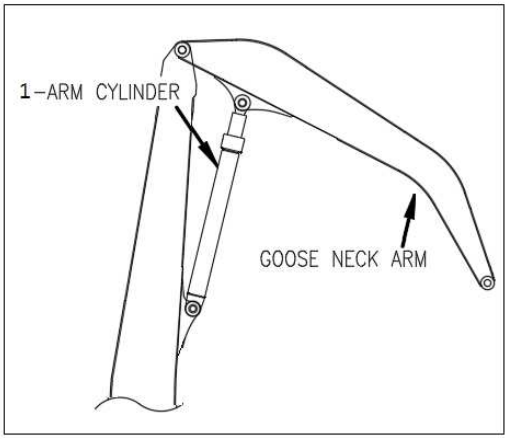
2-1. Names of Each Parts

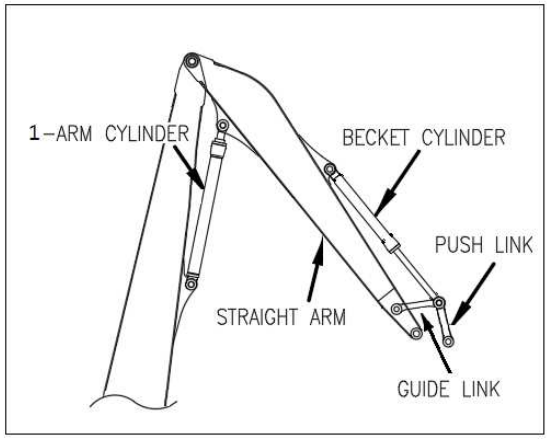
<Goose neck Arm>

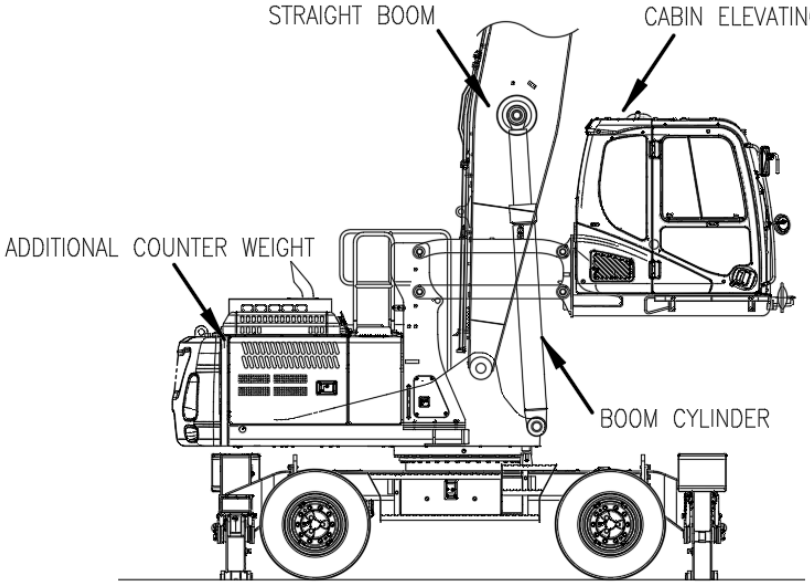


<Straight Arm>



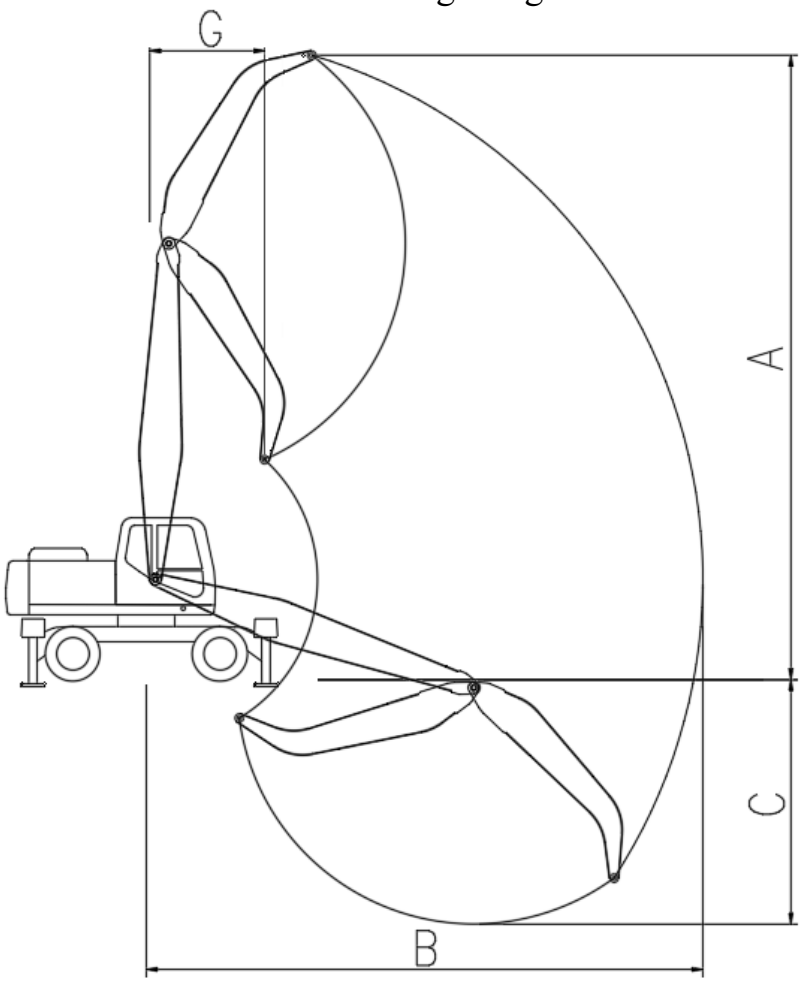




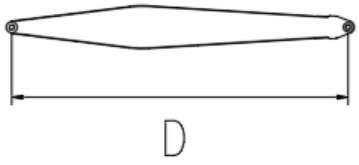


2-2. Specification

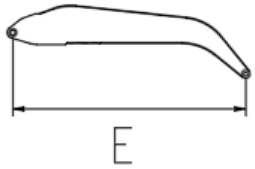
Working Range



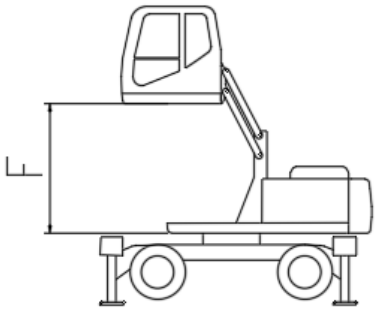
Straight Boom



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)		

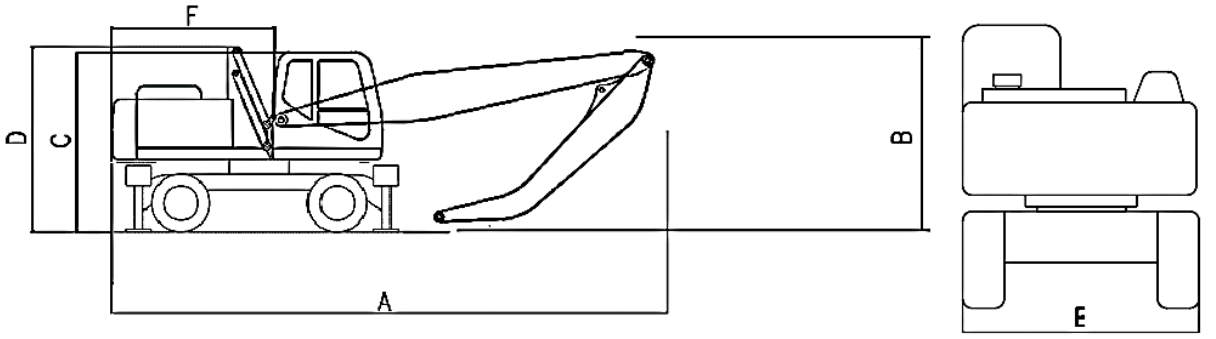
2-3. Component Weight & Transportation Dimension

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

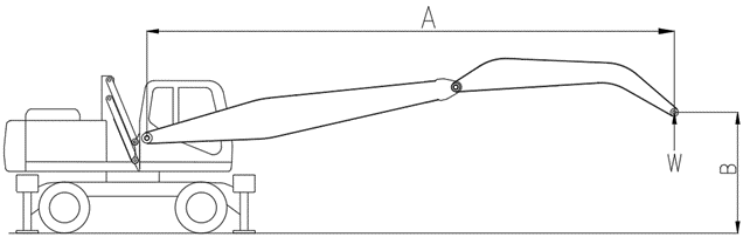


(A)	Overall length – Shipping	10,000
(B)	Overall height (Boom Hose)	4,330
(C)	Overall height (Cabin) – Lowered	3,200
(D)	Overall height (Hand/guard rail)	3,000
(E)	Overall width – Shipping	2,500
(F)	Tail Swing Radius	2,700

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

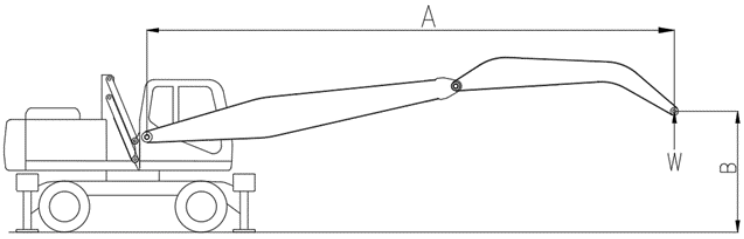
1. Lifting capacity is based on SAE J1097, ISO 10567.

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.

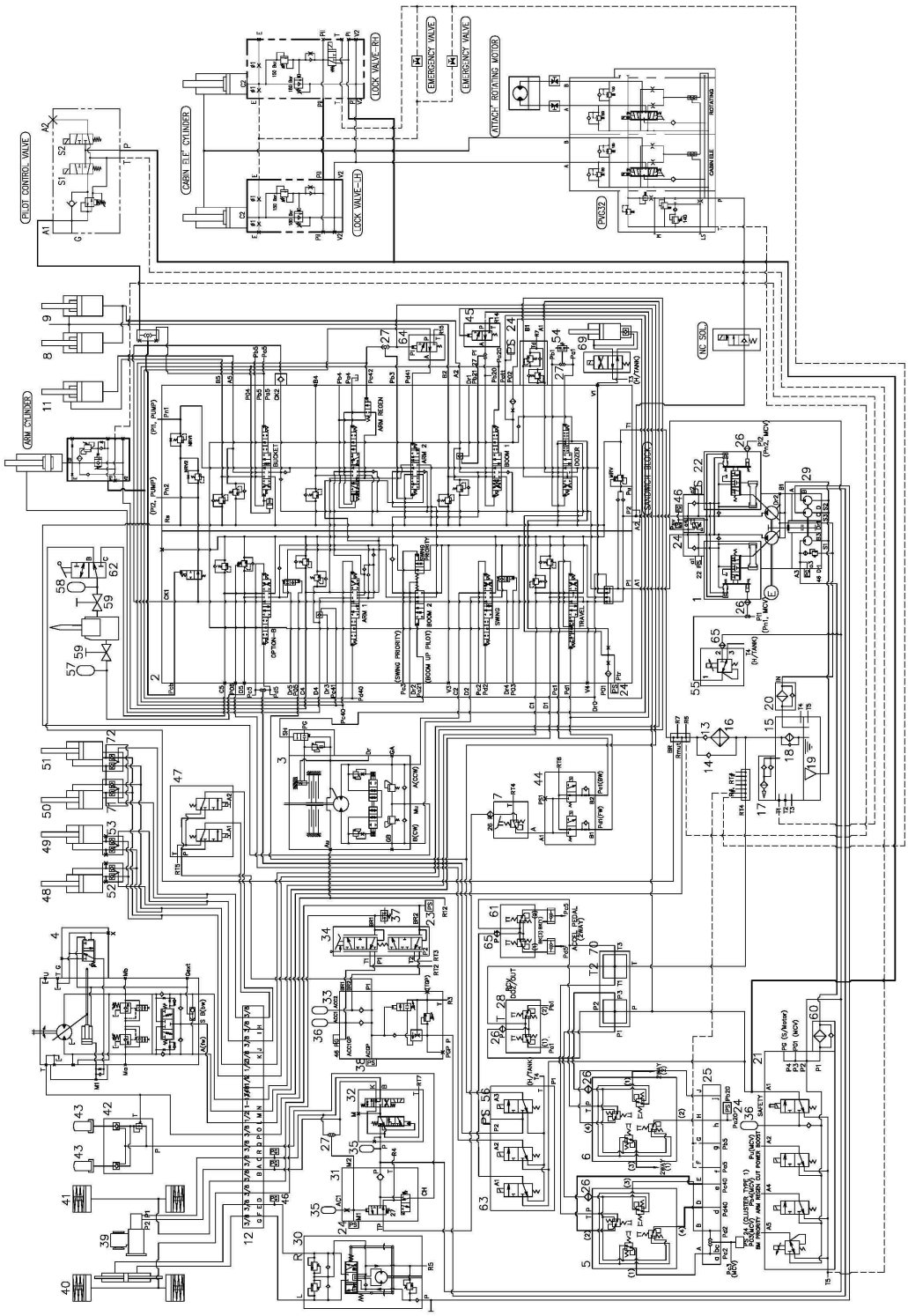
2. Load point is the end pin point of front attachment.

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

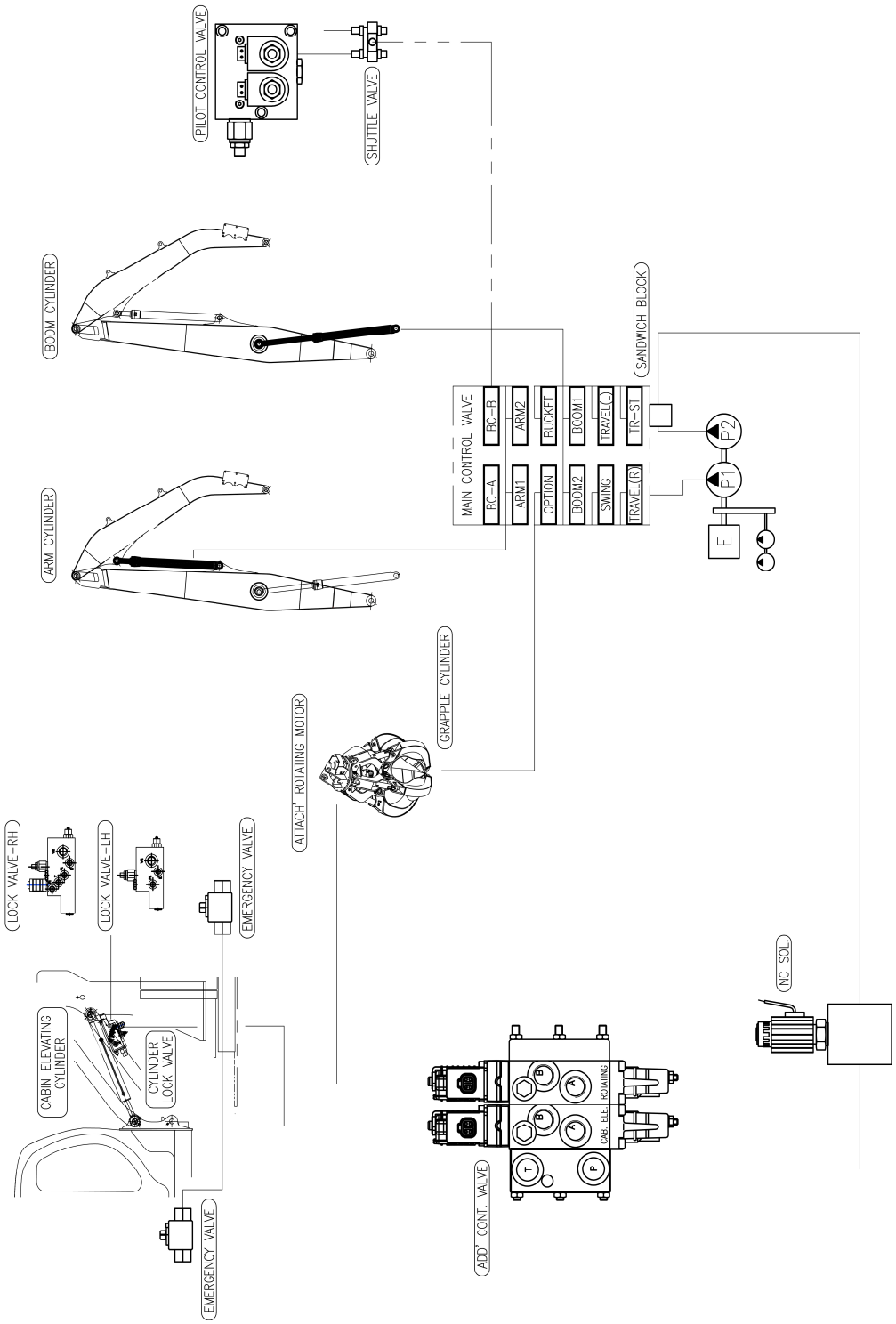
4. (*) indicates load limited by hydraulic capacity.

3. Circuit Diagram

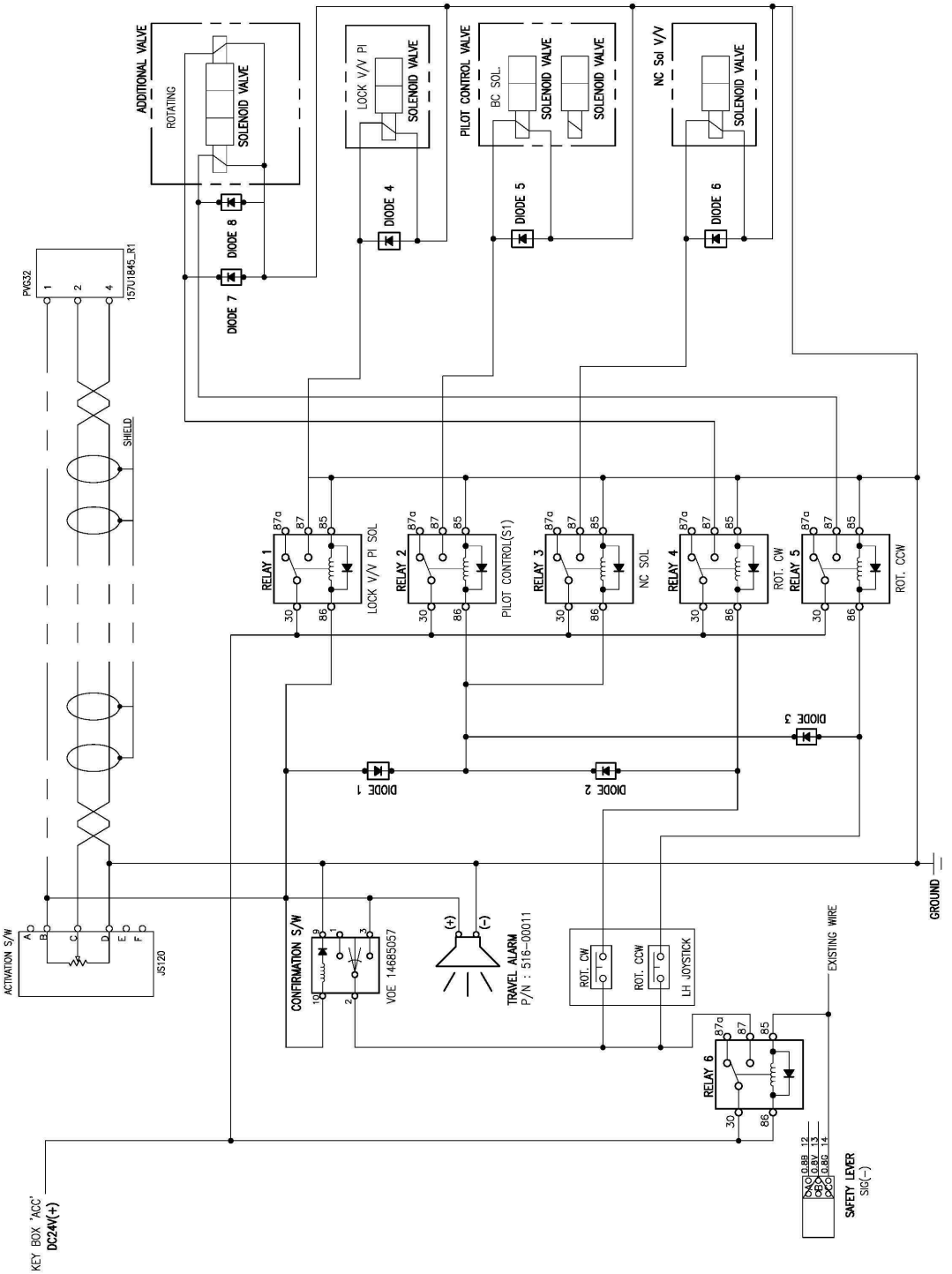
3-1. Hydraulic Circuit Diagram



3-2. Hydraulic Parts Installation

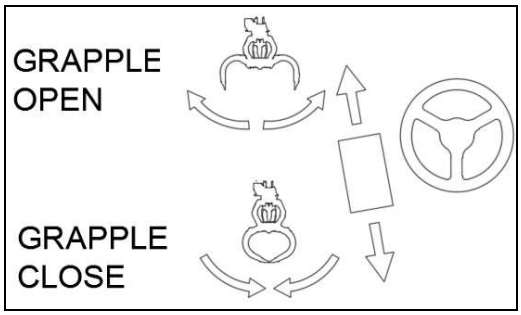


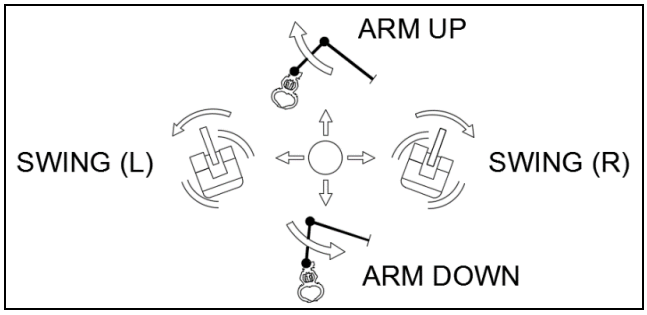
3-3. Electric Circuit Diagram

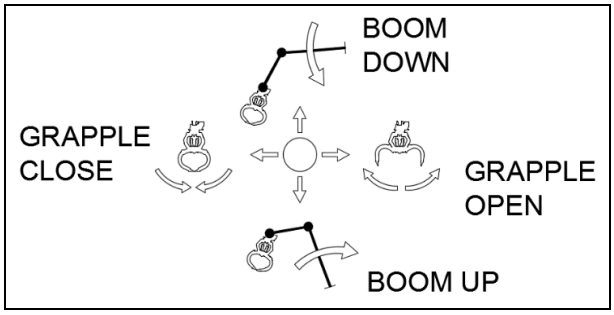


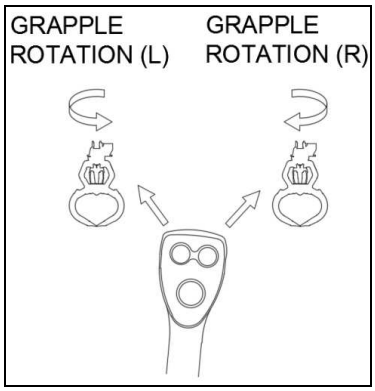
4. Operation

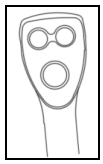
4-1. Control Devices for Operation

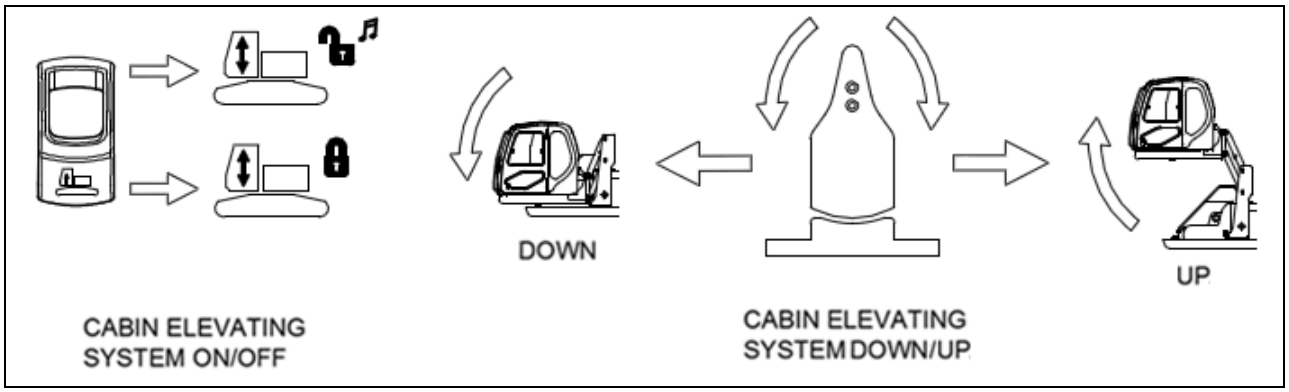












4-2. Cabin Elevating Operation

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).

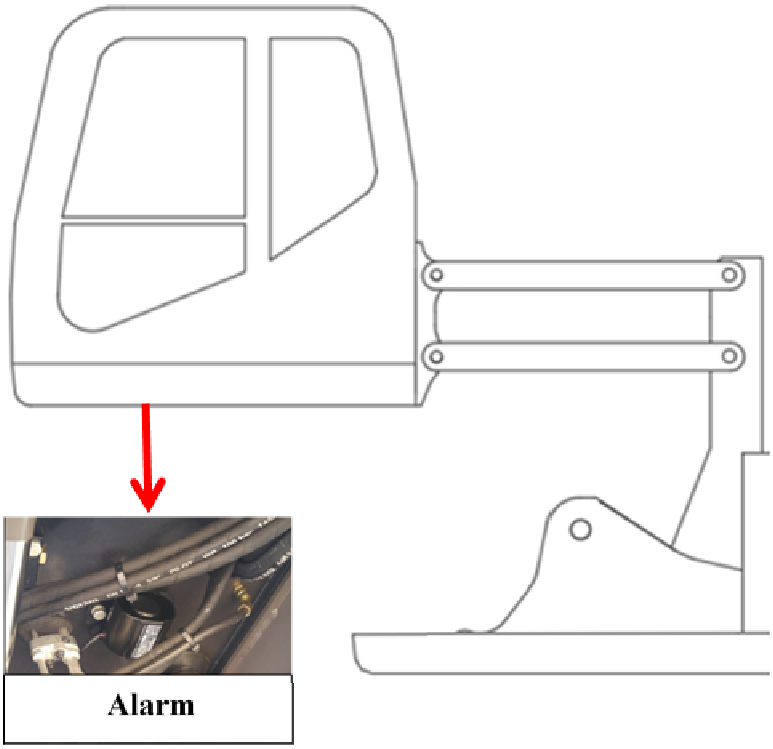
5. Press and hold cabin elevating switch forward.
6. When the station arrives intended height, release the elevating switch.
7. Turn the confirmation switch off (and buzzer stops).

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).

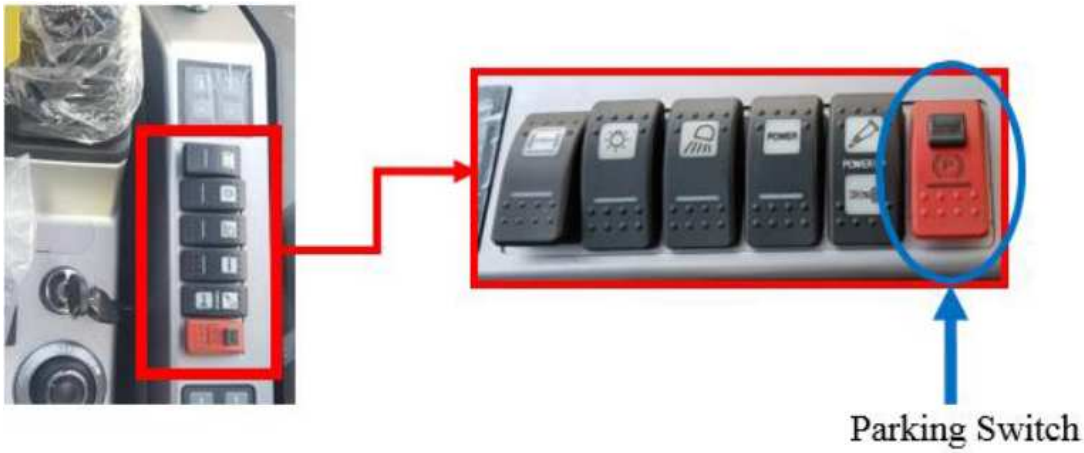
- When you operate elevating cabin, you should check the mirrors on the bottom to avoid crash between cabin and Lower Equipment.

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

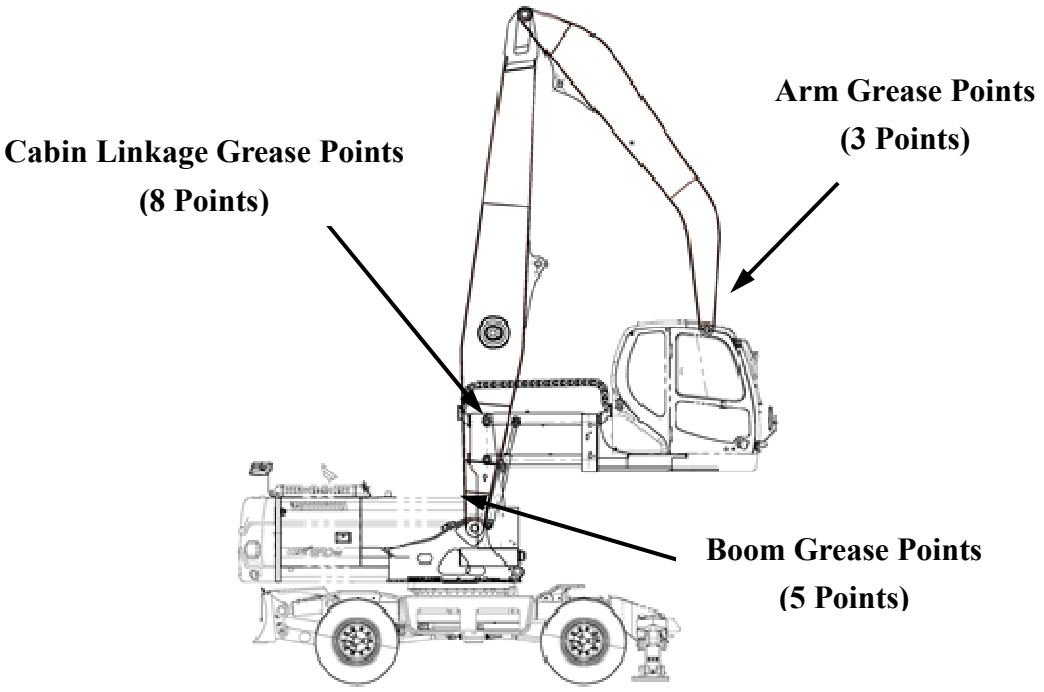
50HOUR/WEEKLY SERVICE

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

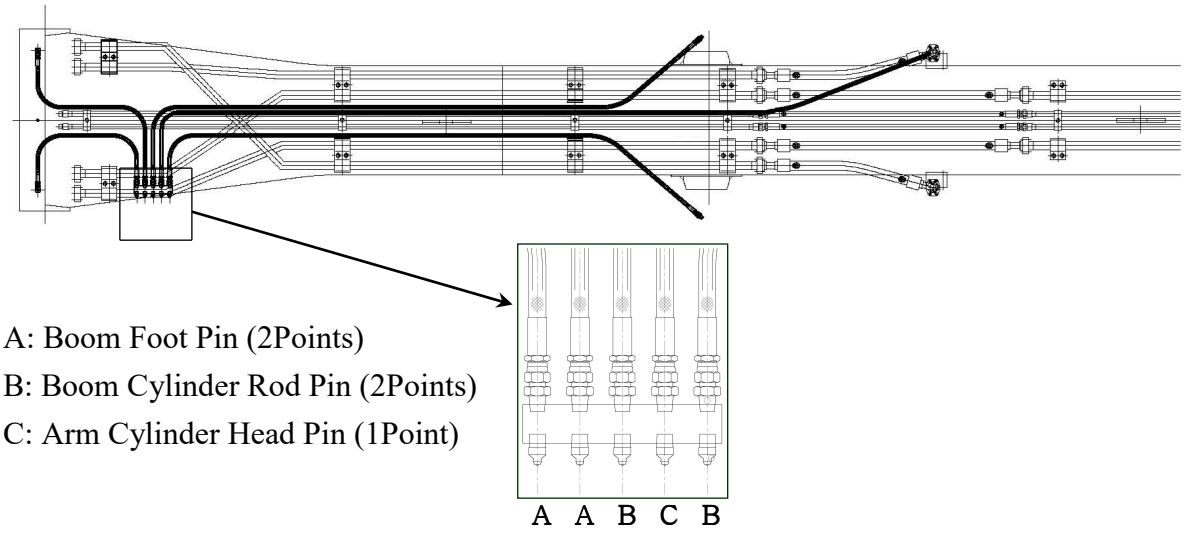
Grease every 10 hours for first 100 hours and every 50 hours thereafter.

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

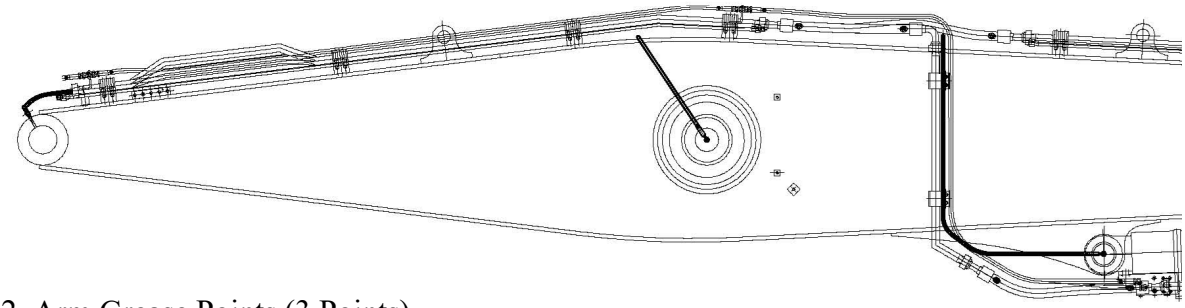
- Position machine as shown below and lower the front attachment on the ground and stop the engine
- Press the grease fitting and inject grease gun on the marked point
- After injection, clean off the old grease that has been purged



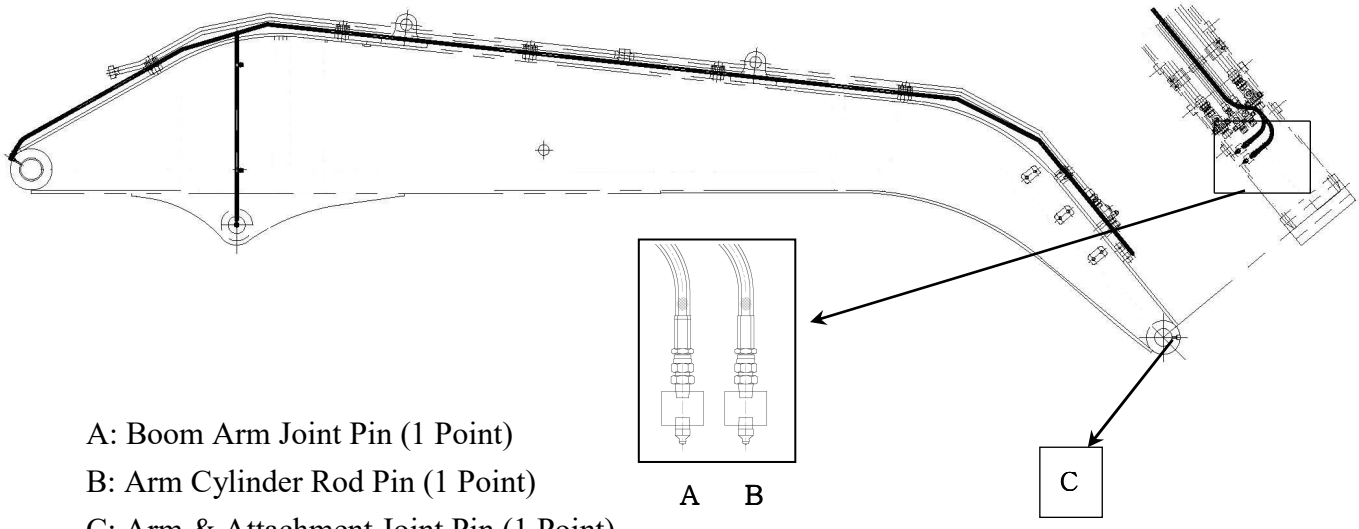
1. Boom Grease Points (5 Points)



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

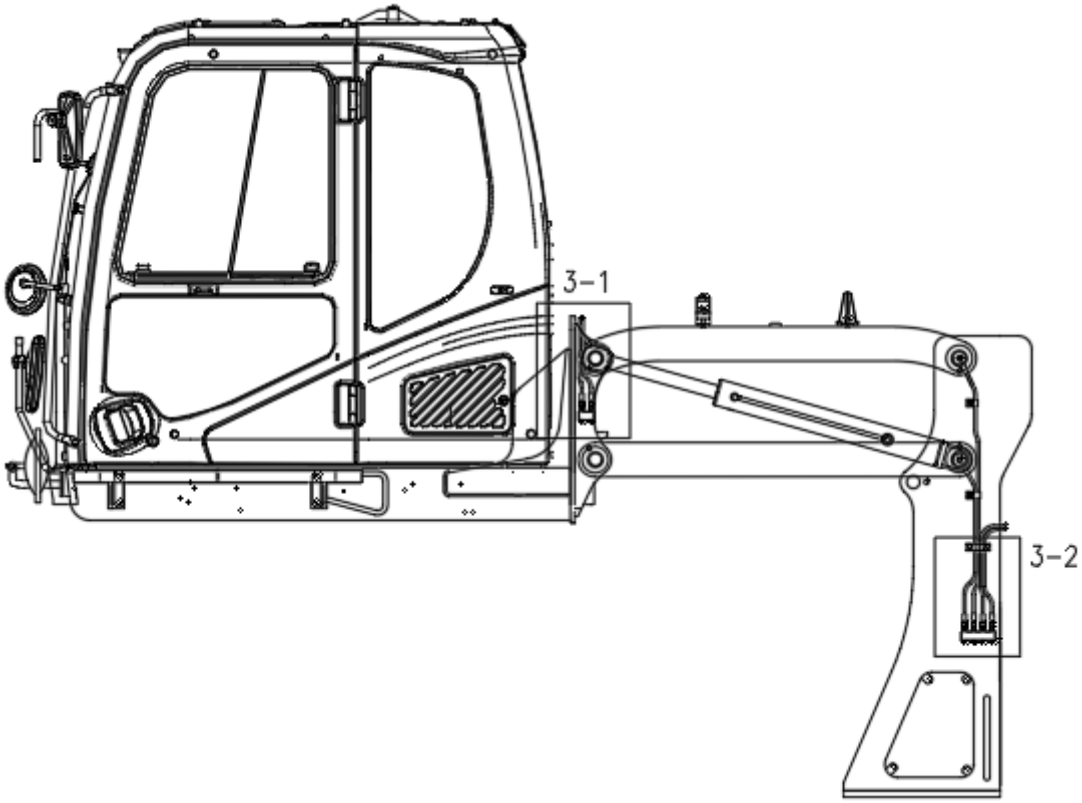


2. Arm Grease Points (3 Points)

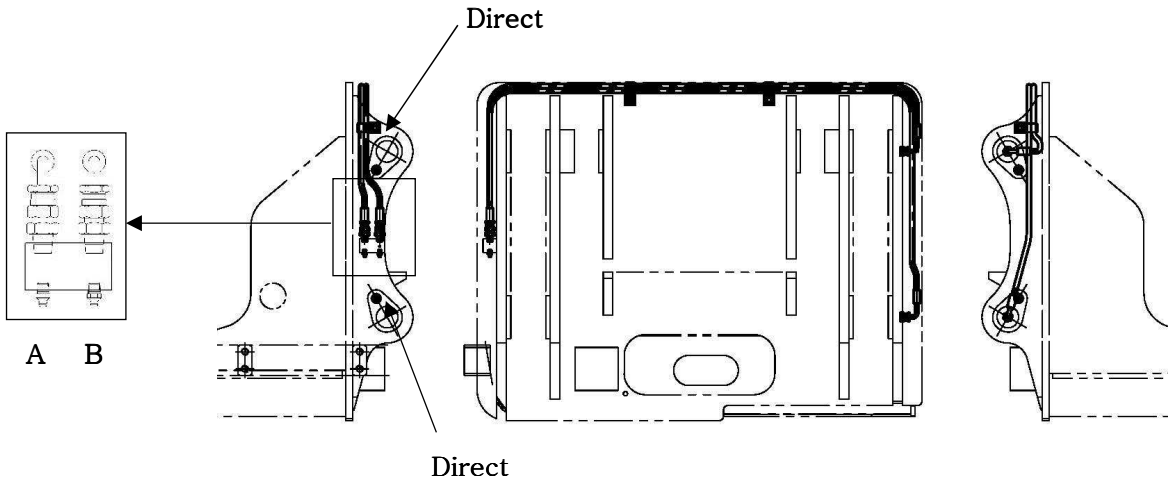


A: Boom Arm Joint Pin (1 Point)
B: Arm Cylinder Rod Pin (1 Point)
C: Arm & Attachment Joint Pin (1 Point)

3. Cabin Linkage Grease Points (8 Points)



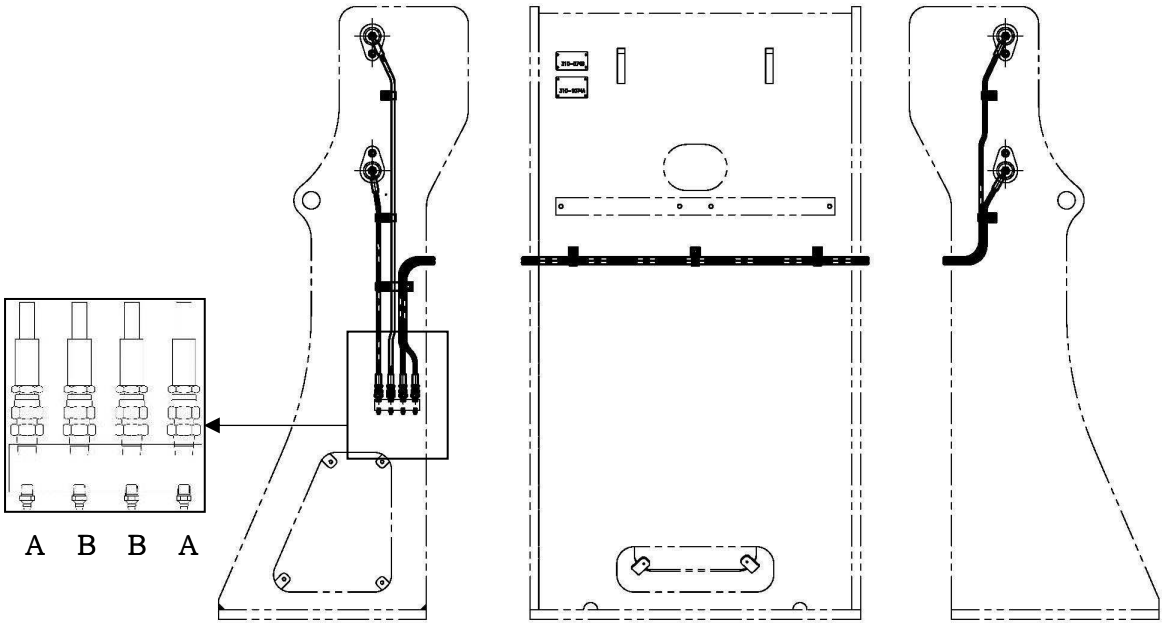
3-1. Bed Frame Grease (4 points)



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)

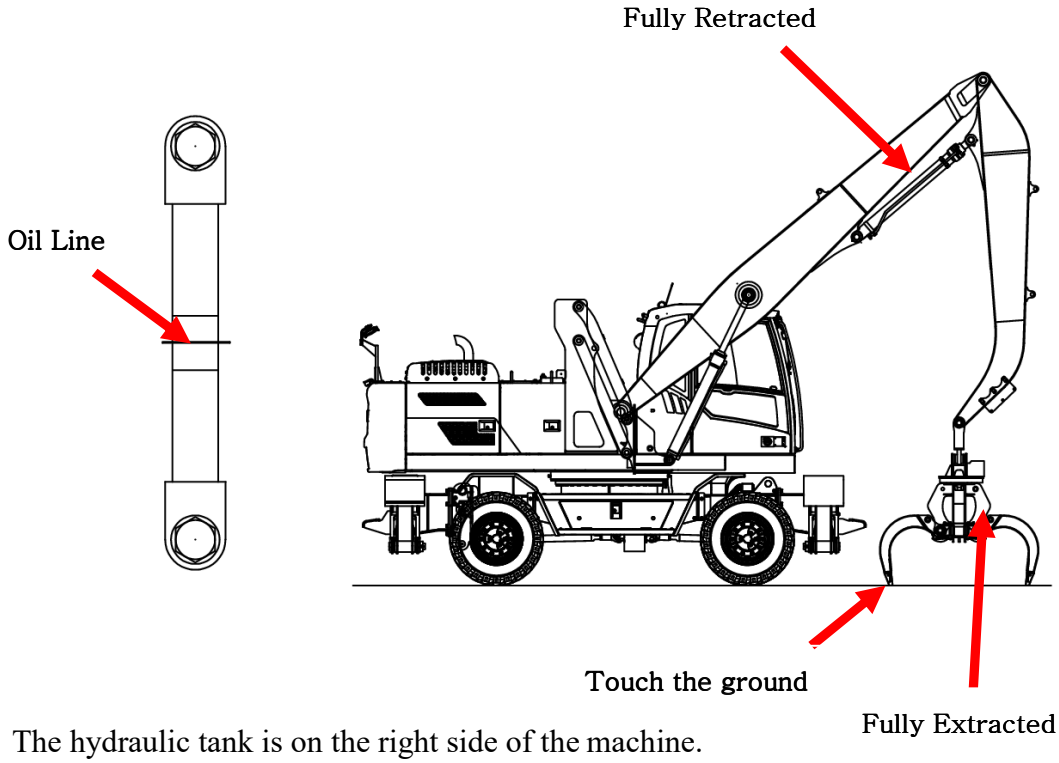


A : Support Frame & Guide Link Joint Pin (2 Points)

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.