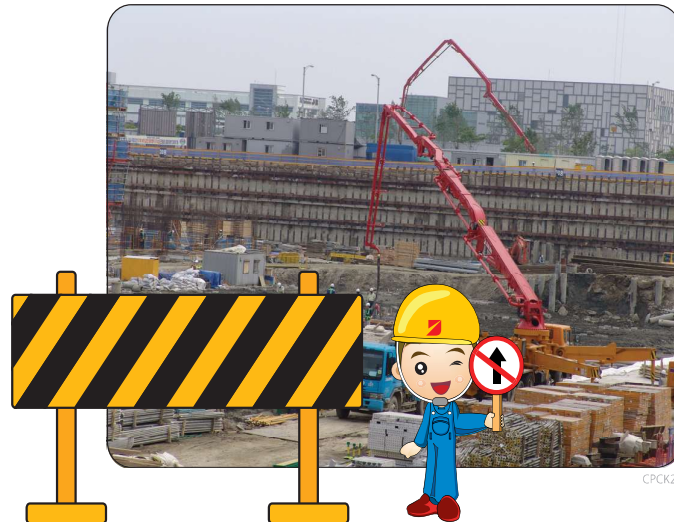




## 1.4 Safety rules for machine setting

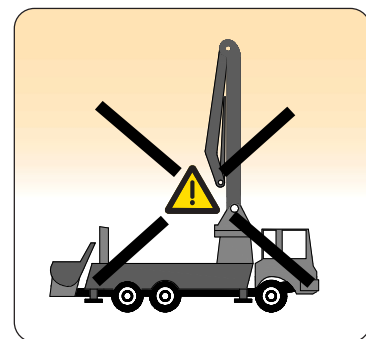
### 1.4.1 CAUTION Job Site condition for Machine Setting

- The operator should handle the machine with the good view from the job site environment to secure the view.
- Block the way between the job site and public place if the machine is necessary to be worked on the public place.
- Be sure that you should wear the personal protective equipments all the time. (helmet, goggles, mask, gloves etc.)
- Do not give the permission to people who are not related with working to access the job site.



### 1.4.2 CAUTION Important Safety Rules during the Machine Setting

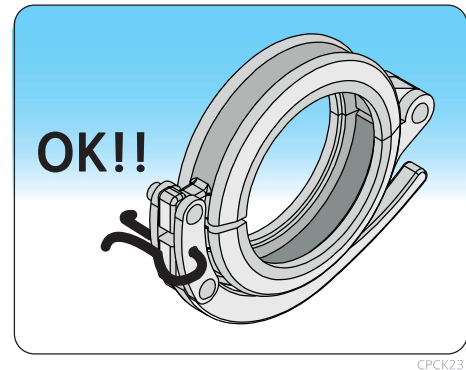
- Do not unfold the boom unless the Outriggers are set completely.
- Extension hose with components must be tied by the safety chain completely.





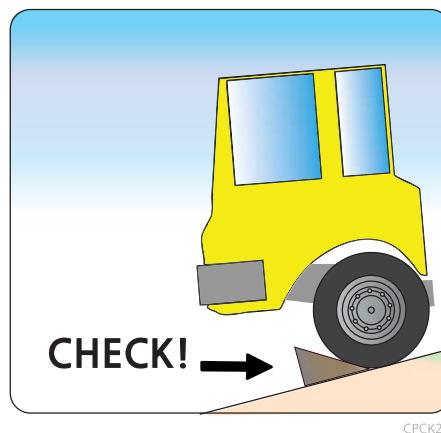
### 1.4.3 **CAUTION** Inspection of Coupling Connection

- Put the pin for locking to not be coupling open during pumping.
- Check the connection of boom and chassis before working.
- Be sure that the delivery lines and coupling hoses are connected perfectly.



### 1.4.4 **CAUTION** In Case of set the Machine on the Slope

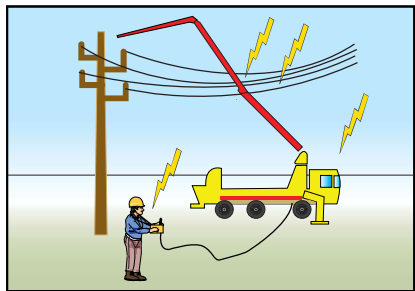
- When the machine is needed to be set on the slop, put the wedge under the each wheels and hold the hand brake as. well as the parking brake. then extend the O/R for setting.
- The wedges would not be supported the truck because the material of the wedge is not stable. In this case the machine may be slipped forward to lower position. Be sure that must put the wedges under the wheels before set the O/R.





#### 1.4.5 **CAUTION** Keep Safety Clearance Against High Voltage electric Wire

- Be sure that you must keep the safety distance as below.
- The boom must be distant from the electric wire.
- The electric wire nearby the O/R is very dangerous. Do not set the O/R nearby the electric wire.
- The machine could be out of control by the magnetic field from the electric wire.
- Keep the minimum clearance as below.

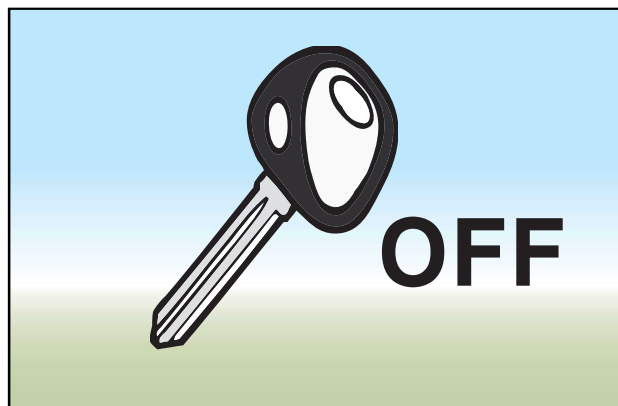


Rated voltage	Safety clearance
0 - 1KV	1m (3ft)
1KV - 110KV	3m (10ft)
110KV - 220KV	4m (14ft)
220KV - 400KV	5m (17ft)
Unknown rated voltage	5m (17ft)

CPCE78

#### 1.4.6 **CAUTION** Lock the Doors of the Truck during Setting

- Be sure that you should switch off as well as lock the truck doors. Even you leave the machine in a minute, be sure to switch off all the time.
- If you check that somebody is inside of the truck, Push the emergency switch down to prevent an accident.

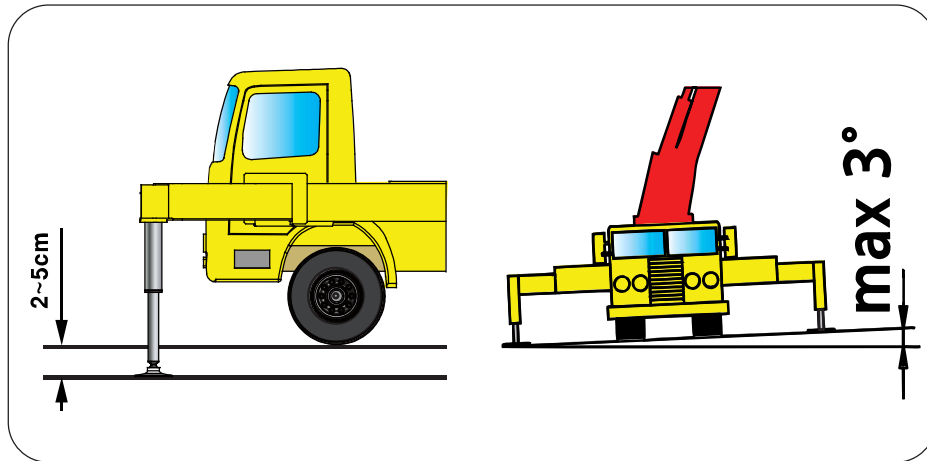


CPBE26



#### 1.4.7 **CAUTION** Allowable Angle of Outrigger Setting

- Extend outriggers with the front tires lifted within 5cm the ground.  
Rear tires could touch the ground slightly under condition that machine weight is not loaded on the tires.
- The machine must be kept vertical position. And maximum side allowable degree of an angle should not be set more than 3 degrees.



CPCK27

#### 1.4.8 **CAUTION** Procedure in Bad Weather

- wind

Return the boom to the driving position in the event of storms or bad weather

- booms with a vertical reach of 42 m more may only be operated in wind forces up to wind speed 61 km/h
- booms with a vertical reach of less than 42 m may only be operated in wind forces up to wind speed 74 km/h.

Wind speeds in accordance with the Beaufort scale are average wind speeds measured over a period of 10 minutes.

Higher speed gusts of wind may occur briefly during the measuring period.

Higher wind speeds jeopardize stability and safety of the structural elements.

There is a risk of lightning strike in a thunderstorm.



construction sites generally have wind speed measuring equipment, so that you can ask about the any speed at any time.

If no wind speed measuring equipment is available, you can ask the nearest meteorological office

what the wind speed is, or estimate the wind speed is, or estimate the wind speed using the following rule of thumb.

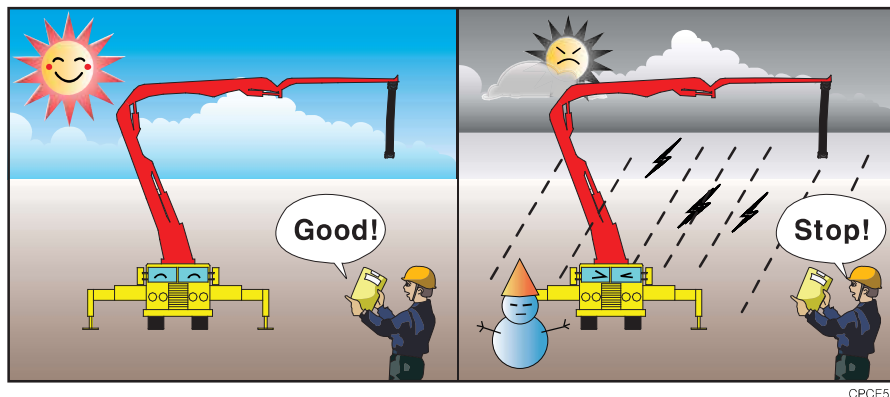
- In winds of force 61 km/h and greater, green leaves break from trees and there is a perceptible hindrance to walking in the open.
- In winds of force 74 km/h and greater, small branches break from trees and walking outside is made significantly more difficult.

### • Concreting in cold weather

The boom must not be used in temperatures below minus 15 °C (+5 °C) unless the manufacturer has given express approval.

There is a danger of damage to the steel (brittle fracture) and the seals throughout the system at such extreme minus temperatures.

In addition, such minus temperatures should be considered the realistic lower limit for concrete placement, as it is no longer possible to prepare concrete such that it can achieve its strength without the use of special additives.

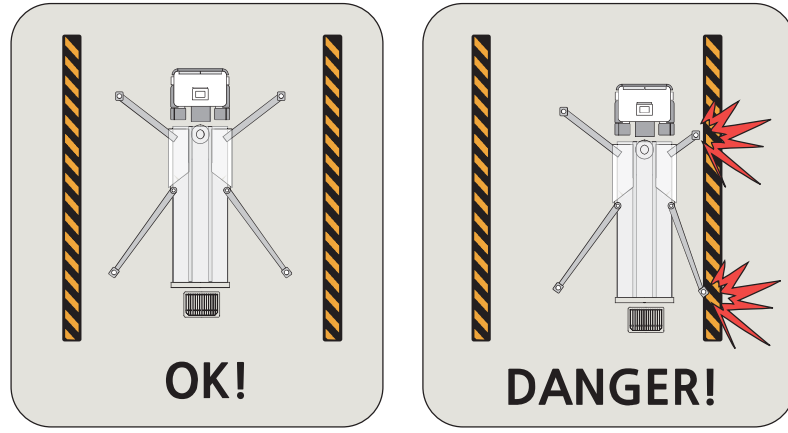


CPCE57

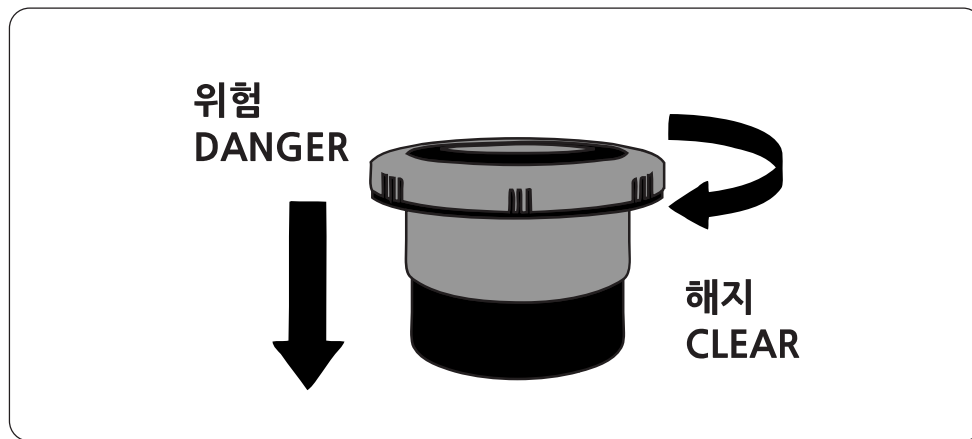


### 1.4.9 **CAUTION** Safety Rules of Outrigger Setting

- Be sure the proper clearance for extend the O/R.



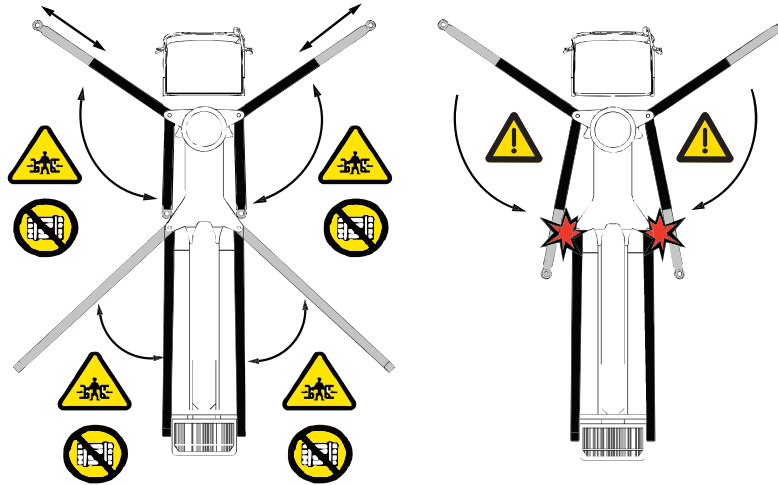
- The range of turning the O/R for setting must be checked before operation, and be careful that until finished the setting whether something is inside of the operation range or not.
- If somebody approach to the dangerous area, press the emergency stop switch immediately to stop the machine.



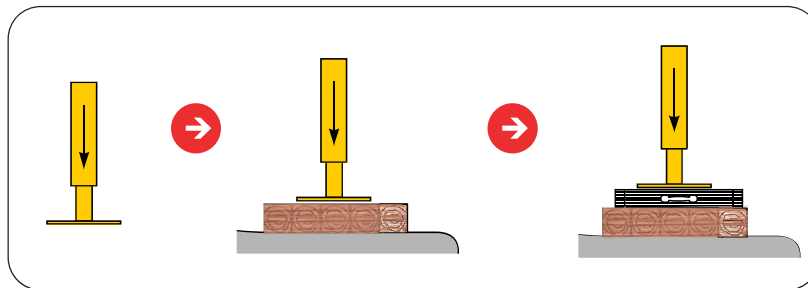


## 1. SAFETY RULES

- Turn the O/R completely and extend them until the end of extension distance.

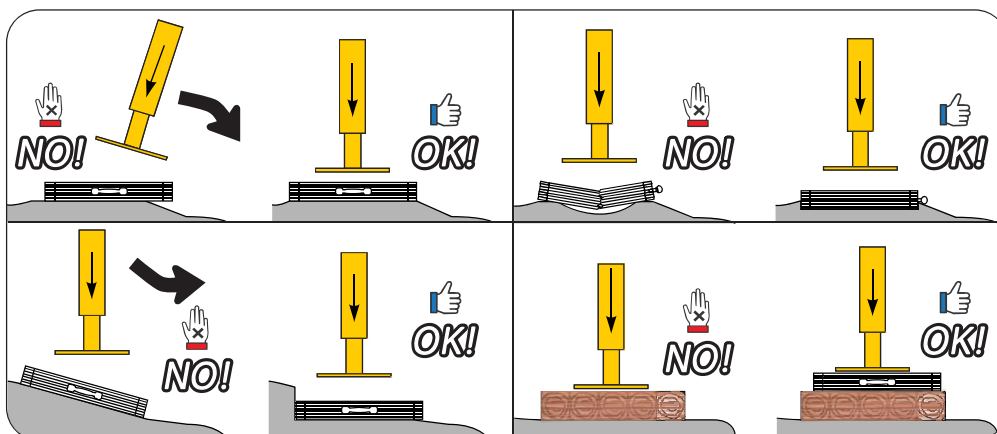


- The machine must be set on hardened ground by using the support plates. If the allowable load weight per unit area is exceeded, widen the load area by using the support plates. Support plates should be removed the grease or oil as well as the ice for the machine to not be slipped.



CPCK33

- The slope or the holes, channels could be collapsed down by the pressure of O/R. secure the proper distance against those area for safety.

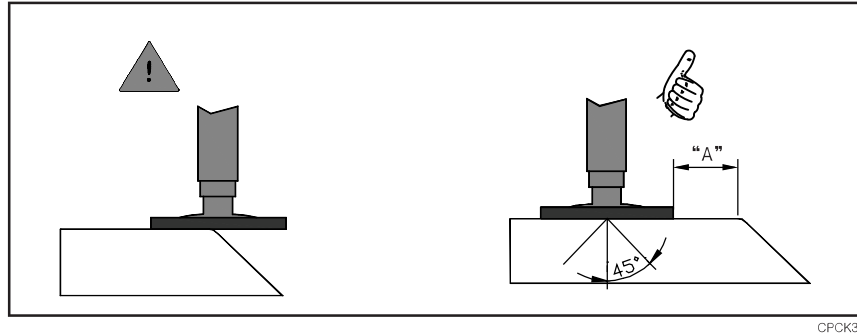


CPCK34



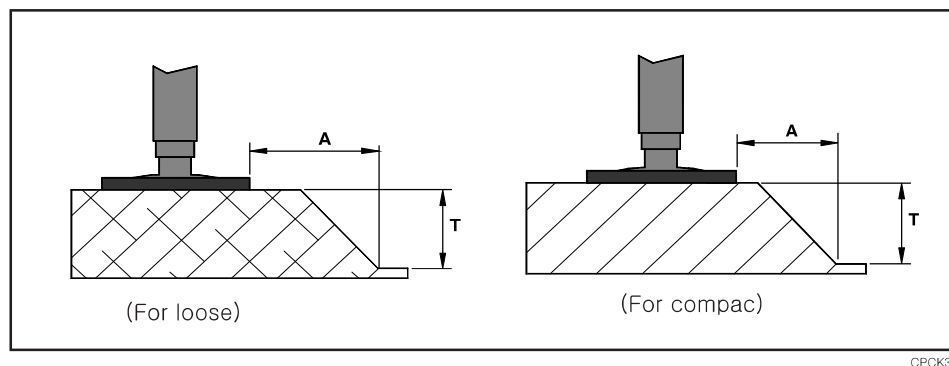
#### 1.4.10 CAUTION Minimum clearance form pits

- The support force diffuses through the ground in a conical pattern at an angle of  $45^\circ$  this imaginary cone shall not exit at the wall of a pit.



- You must maintain the minimum clearance "A" even if the pit is not deep and the ground has a very x cone shall not capacity.
- The minimum clearance "A" for machines.
  - up to 12TON permissible gross weight is 1M,
  - over 12TON permissible gross weight is 2M.

#### 1.4.11 CAUTION Safety clearance form pits



- Maintain an additional safety clearance A

The safety clearance A

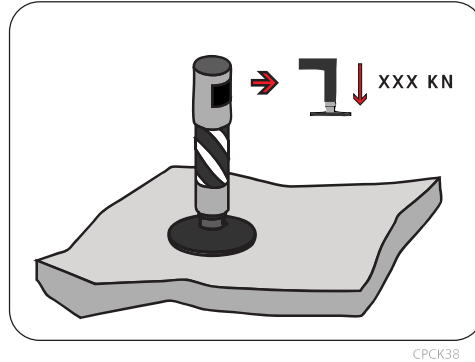
- For loose, back filled ground is  $A \geq 2 \times \text{pit depth } T$ .
- For compact, non-friable ground is  $A \geq 1 \times \text{pit depth } T$ .





#### 1.4.12 CAUTION Outrigger Max. Load Support Weight

- Maximum O/R bearing pressure is shown on the O/R.



- Be sure that the job site maximum allowable bearing pressure by check it with job site inspector.
- If the result of the calculation for bearing square, It should be smaller than job site value.
- Calculate the max. bearing pressure by below formula

$$\text{Max. Load Support Weight} = \frac{\text{Machine bearing force}}{\text{Indication square}}$$

CPCE38


- In accordance with up calculation, requirement allowable pressure of the bearing square is bigger. For this reason, the support plate must be put in between the ground and the O/R.



### 1.4.13 CAUTION Outrigger Min. Support Square Calculation List

- Calculate the minimum ground square by using the below diagram.




Conversion :  $100 \text{ KN/m}^2 = 100,000 \text{ N/m}^2$

Support forces in (KN) ( see support leg )	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400						
↓ Permissible pressure per unit area KN/m²	Lengths of timber in ( width x length cm )																				
Natural soil 100	71	84	112	138	166	<div> Supporting ground is not suited for supports.</div>															
Asphalt 200			84	104	126											147	166				
Hardcore 250				84	89											117	132	150	166		
Clayey.coarse clay 300					84											96	112	126	138	154	166
Mixed stone 350																84	96	106	120	132	144
Layered gravel 400							84	94	104	115	126	135	147	156	166						
500								74	84	91	98	109	117	126	132						
750												73	77	84	89						
Rock 1000																					

CPCE39

EX) Min. ground square calculation

- Condition
  - The ground which were hardened by the macadam.
  - The allowable pressure of the soil is 250 KN
  - In case of the an O/R loaded force is 150KN
- Result : Support plate for O/R must be bigger than 89cm as below diagram.

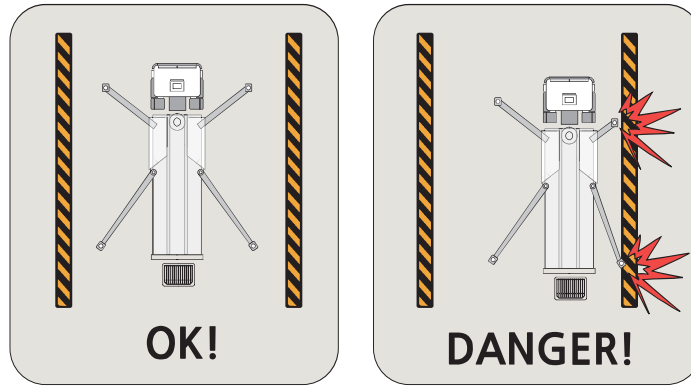
Support forces in (kN) ( see support leg ) 	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400						
 Permissible pressure per unit area kN/m²	Lengths of timber in ( width x length cm )																				
Natural soil 100	71	84	112	138	166	<div> Supporting ground is not suited for supports.</div>															
Asphalt 200			84	104	126											147	166				
Hardcore 250				84	89											117	132	150	166		
Clayey.coarse clay 300					84											96	112	126	138	154	166
Mixed stone 350																84	96	106	120	132	144
Layered gravel 400	Support blocks without						84	94	104	115	126	135	147	156	166						
500	additional timbers.							74	84	91	98	109	117	126	132						
750													73	77	84	89					
Rock 1000																					

CPCE40



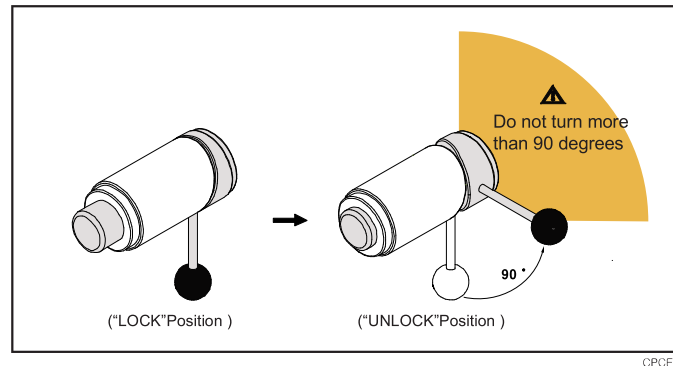
#### 1.4.14 **CAUTION** Safety rules for outriggers setting

- Secure enough outriggers setting area firstly and then operate outriggers. Operator should check outriggers setting area and if booms are folded completely then extend outriggers safely.



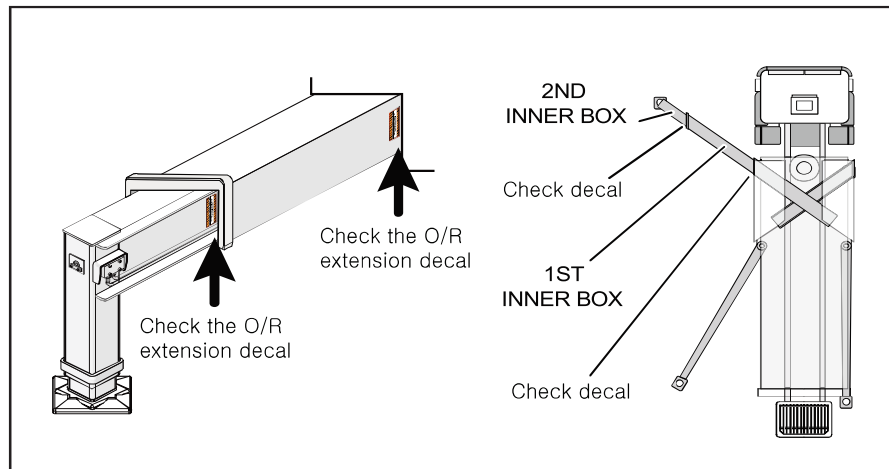
CPCK27

- Firstly release outriggers levers for "LOCK" by turning the lever 90 degrees (do not turn more the lever than 90 degrees) and then extend outriggers.
- After outriggers extension, be sure to check if levers are "LOCK" position.



CPCE29

When extending outriggers, all outriggers should be extended until <O/R extension decal location> as below.



CPCE30