CHAPTER 1 SAFETY HINTS

1. DAILY INSPECTION

At the beginning of each shift, inspect your truck and fill out a check, maintenance and lubrication table.

Check for damage and maintenance problems.

Have repairs made before you operate the truck.

Do not make repairs yourself. Lift truck mechanics are trained professionals.

2. DO'S AND DON'TS

Do watch for pedestrians.

Do wear safety equipment when required.

Don't mix drugs or alcohol with your job.

Don't block safety or emergency equipment.

Don't smoke in NO SMOKING areas or when refueling.

Don't operate the truck outdoors in rainy day.

Do not charge battery in indoor environment where ventilation is not performed.

Do not leave the truck outdoor in rainy day.

Protect electronic systems from spray of water during washing the truck with water.

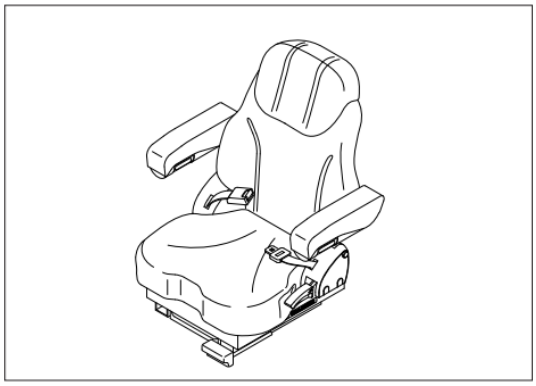
⚠ Unauthorized modification

Modifying the truck without authorization of the company may cause safety accident. Contact the dealer of HD HYUNDAI before attempting modifying the truck.

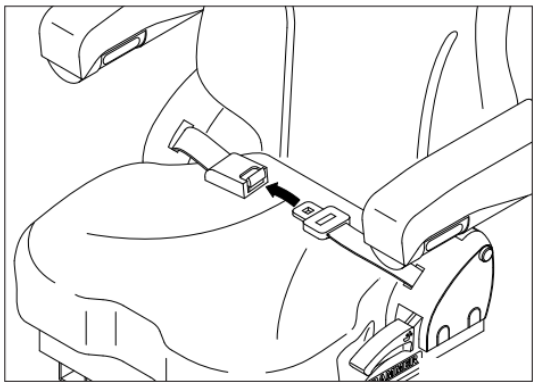
HD HYUNDAI should not be responsible any injury or damage caused by unauthorized modification.

3. SEAT BELTS

⚠ **Always buckle up for the truck equipped with safety belt.**

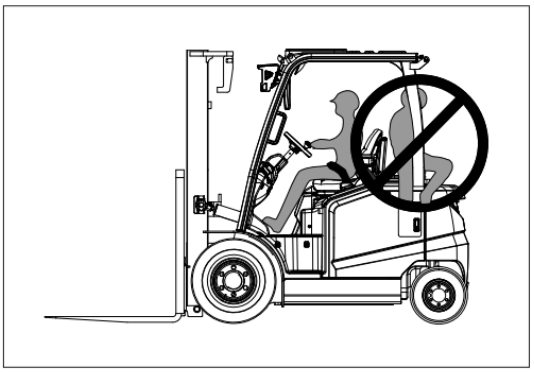


⚠ **Seat belts can reduce injuries.**



4. NO RIDERS

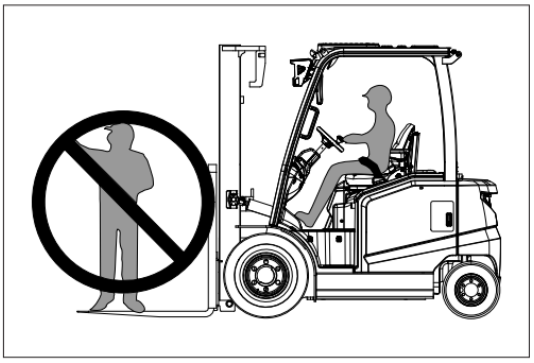
3. The operator is the only one who should be on a truck.



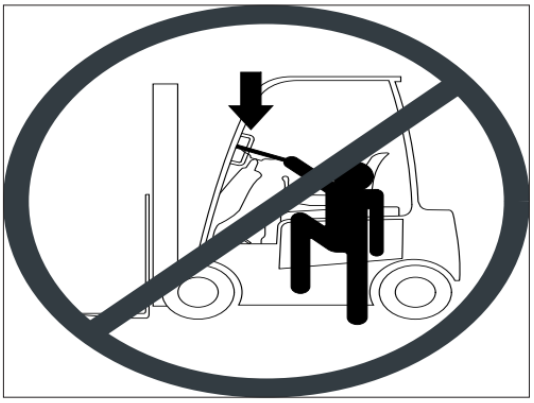
⚠ **No riders other than operator**

Any rider other than operator may be struck by object, or fell down off the truck.

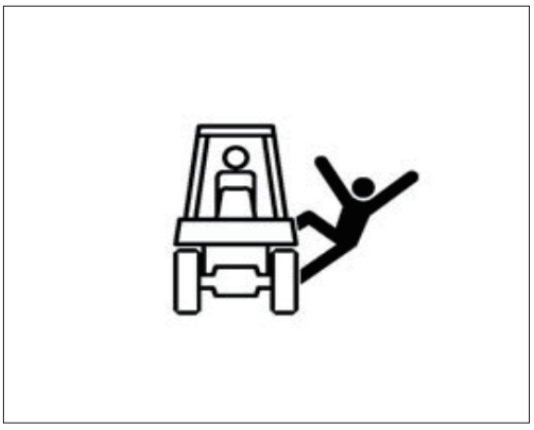
4. Never let anyone step on the forks.



5. Do not hold the steering wheel when you get on or off the truck, but use the handle mounted on the struck only. Excessive loads on the steering wheel may cause structural deformation or safety trouble.

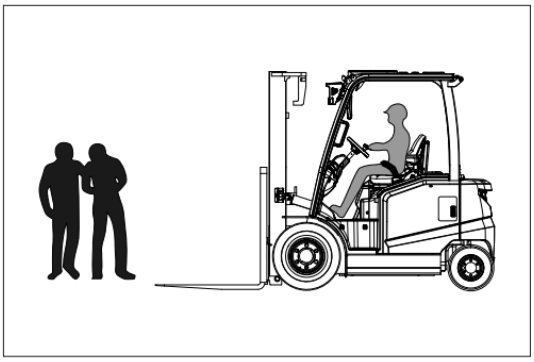


6. Do not jump on or off the truck. Do not get on or off the truck while the truck operates. Get on or off the truck with the handle or step mounted the truck. Keep the handle or the step free from foreign substances such as mud or oil, and always keep them clean.
   Wear slippery-preventing footwear.

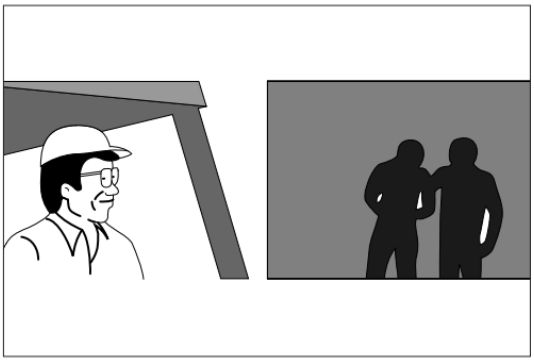


5. PEDESTRIANS

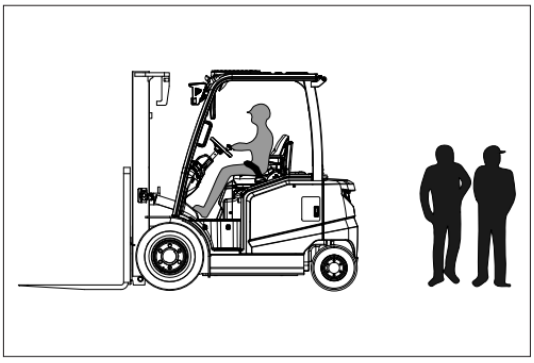
1. Watch where you are going. Look in the direction of travel. Pedestrians may use the same roadway you do. Sound your horn at all intersections or blind spots.



2. Watch for people in your work area even if your truck has warning lights or alarms. People may not watch for you.

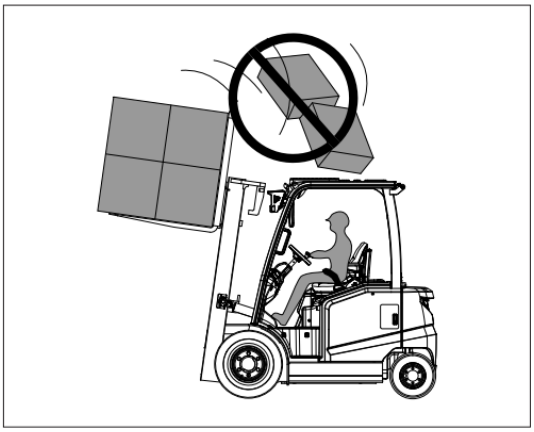


3. Watch for people standing back, even when you parking.



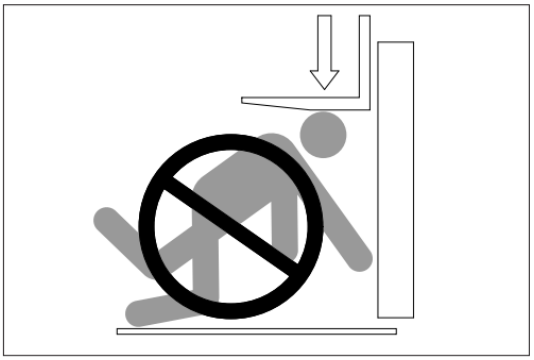
6. OPERATOR PROTECTION

1. Keep yourself under the overhead guard while operating.
2. Always keep your body on the seat within the confines of the truck.

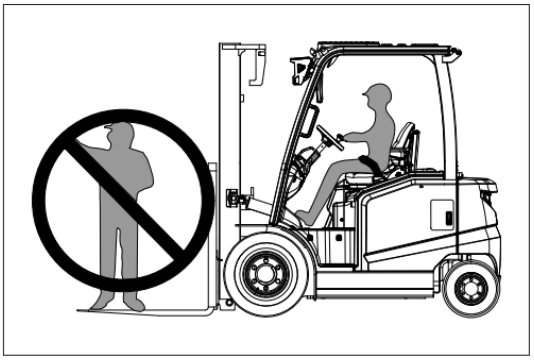


7. FORK SAFETY

Never allow anyone to walk under raised forks.

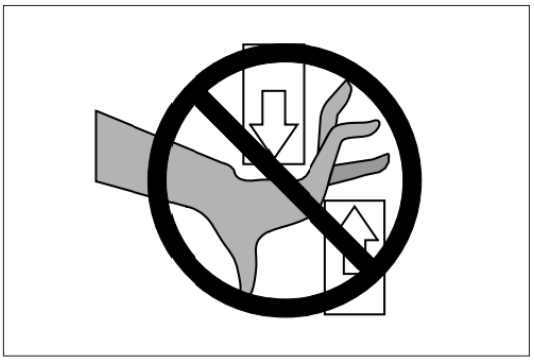


Do not use the folks of the truck as an elevator for work at high place.

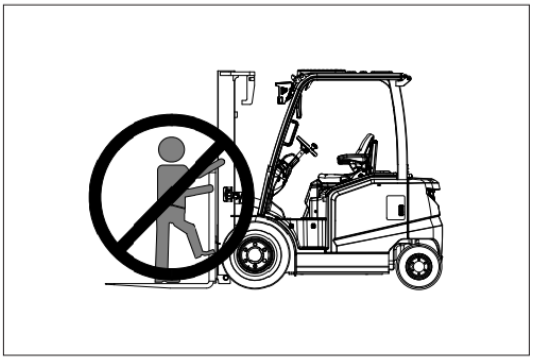


8. PINCH POINTS

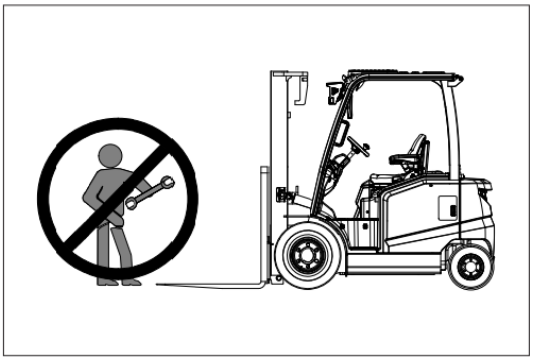
⚠ Keep hands, feet and legs out of the mast.



⚠ Don't use the mast as a ladder.



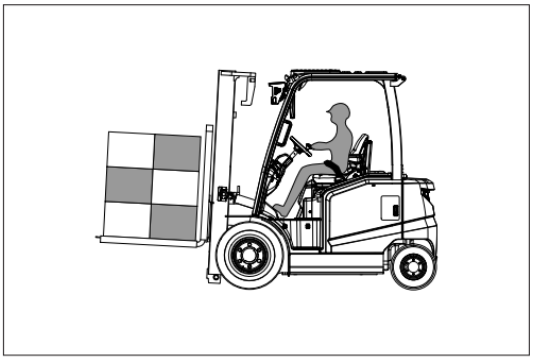
⚠ Never try to repair the mast, carriage, or attachment by yourself. Always get a trained mechanic.



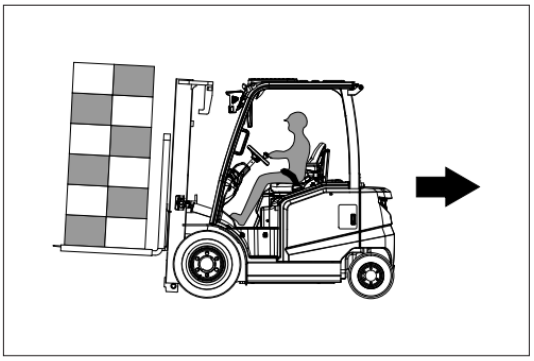
9. TRAVEL

1. Travel with the load near the floor/ground, with mast tilted back to cradle the load whenever possible.

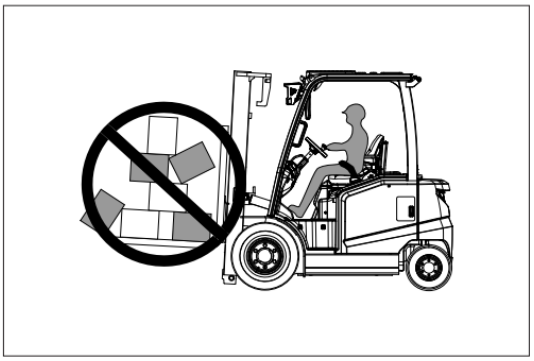
⚠ **Never lift or lower the load when the truck is in motion.**



2. When handling bulky loads that restrict your vision operate your truck in reverse to improve visibility.
   Be sure to pivot in the seat to give maximum visibility.



3. Unstable loads are a hazard to you and to your fellow workers. Always make certain that the load is well stacked and evenly positioned across both forks. Never attempt to lift a load with only one fork.

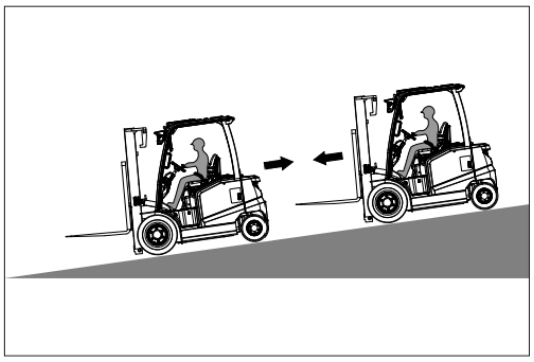


10. GRADES, RAMPS, SLOPES AND INCLINES

⚠ **Never turn on a grade, either loaded or unloaded.**

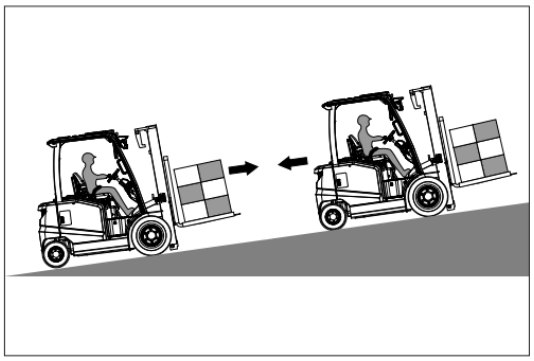
1. **Unloaded**

   Forks downgrade



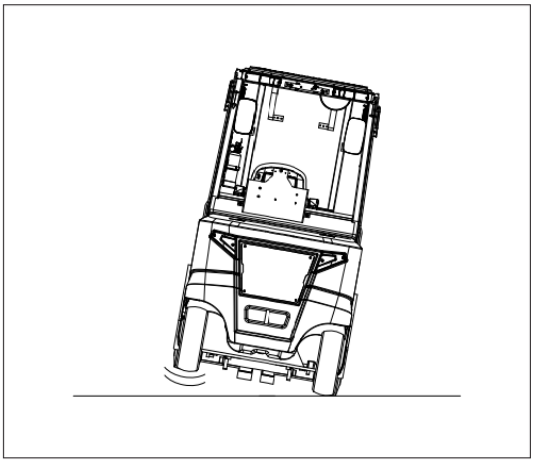
2. **Loaded**

   Forks upgrade



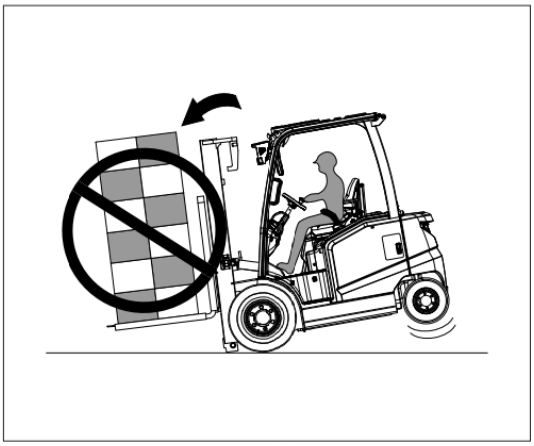
11. TIP OVER

1. LATERAL TIP OVER



1) Lateral tip over can occur with a combination of speed and sharpness of turn. This combination will exceed the stability of the truck. This condition is even more likely with an unloaded truck.
2) With the load or mast raised, lateral tip over can occur while turning and/or braking when traveling in reverse or accelerating and turning while traveling forward.
3) Lateral tip over can occur loaded or unloaded by turning on an incline or ramp.

2. LONGITUDINAL TIP OVER



1) Longitudinal tip over can occur with combination of overloading and load elevated also with capacity load and elevated. This combination will exceed the stability of the truck. This condition is even more likely with excessive forward tilt, braking in forward travel or accelerating rearward.
2) Longitudinal tip over can occur by driving with the load down slope on a steep grade.

Lateral and longitudinal tip over can occur if the truck is driven over objects on the floor or ground, off the edge of improved surfaces, or into potholes in the road surface, or by running into overhead objects or collisions.

An off-dock type of tip over can occur if the truck is steered too close to the dock edge, driven off the edge of the dock or ramp, or if the highway truck or trailer rolls away from the dock or is driven away during loading.

⚠ **The conditions listed above can be further he conditions listed above can be further aggravated by overloading, excessive tilt, or off-center loads.**

⚠ **Lift truck tip over can cause serious injury or death if the operator is trapped between the truck and the ground.**

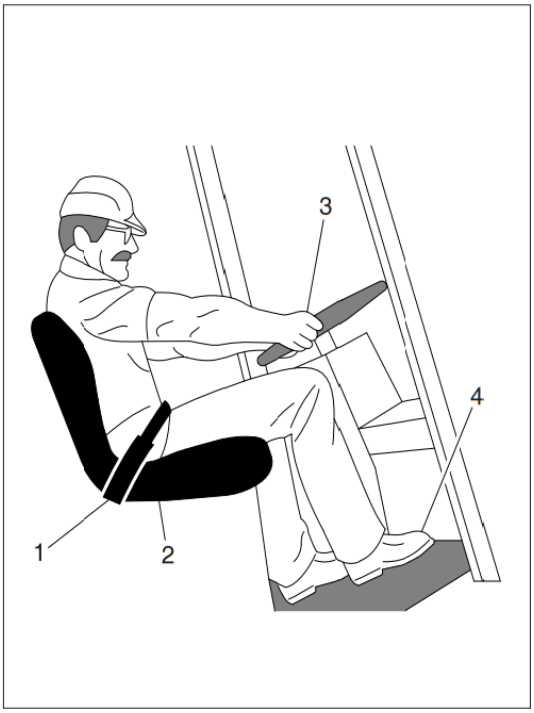
3. WHAT TO DO IN CASE OF A TIP OVER

⚠ **If your truck starts to tip over, do not f your truck starts to tip over, do not jump off the truck.**

⚠ **Brace yourself as illustrated right.**

1) Make sure your seat belt is fastened securely, if the truck is equipped with seat belt.
2) Stay in your seat.
3) Grip the wheel with the both hands.
4) Brace your feet.

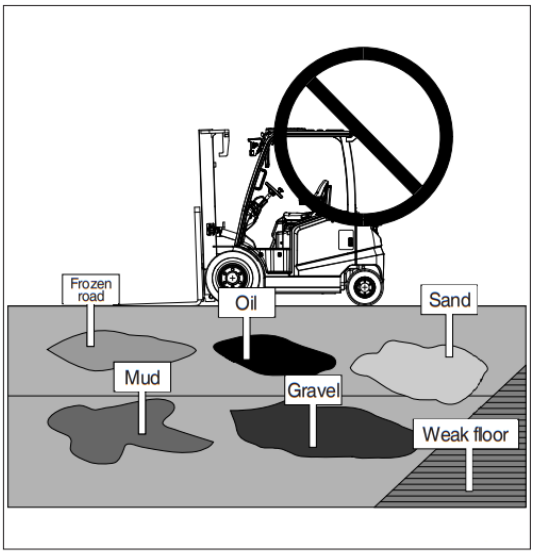
⚠ **Your chances for survival in a tip-over are better if you stay with the truck, in your seat.**



12. SURFACE AND CAPACITY

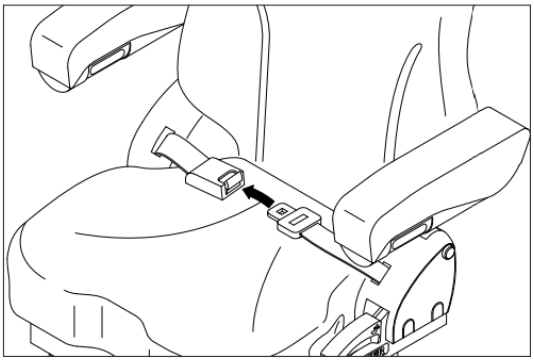
Avoid these conditions. They can cause a truck to tip over or lose traction for braking or driving.

⚠ **Know the weight of your truck and load. Especially when using elevators, know the capacity of the elevator you intend to use. Do not overload.**



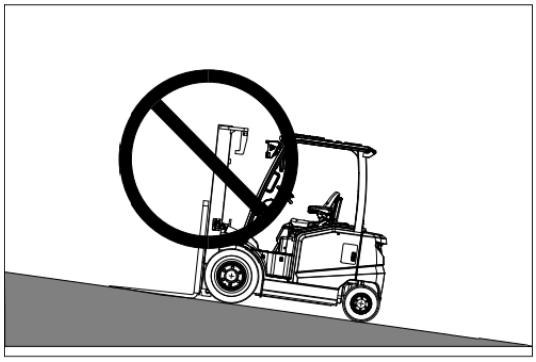
TIPOVER

⚠ **Seat belts can reduce injuries. ALWAYS BUCKLE IT UP.**

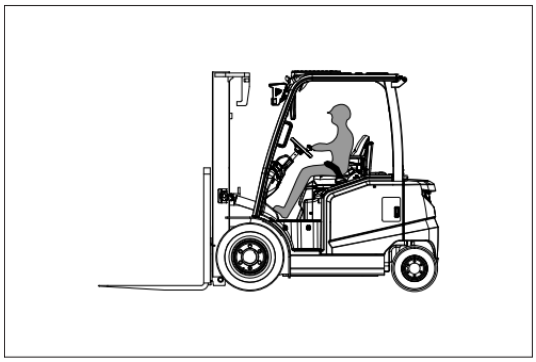


13. PARKING

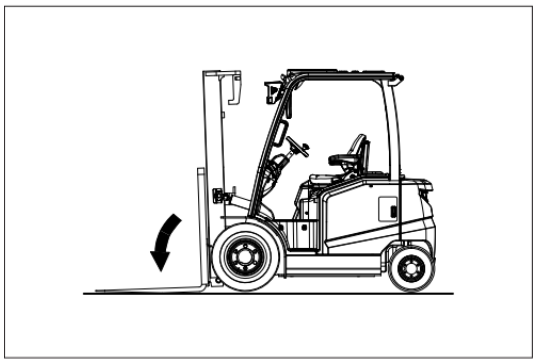
1. Never park on a grade.



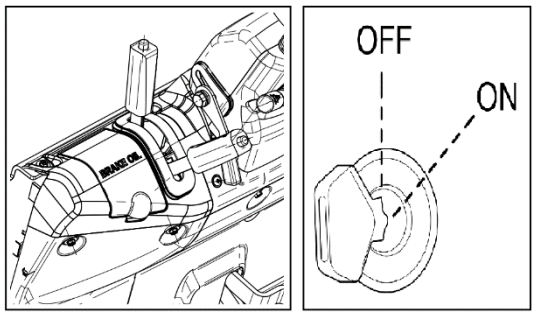
2. Always come to a complete stop before leaving the truck. Be sure the travel control is in NEUTRAL.



3. Lower forks fully to the floor and tilt mast forward.



4. Put the parking brake switch in LOCK position.
   Position 1: Lock
   Position 2: Release
5. Turn start key to OFF position.



14. LIFTING, JACK-UP AND BLOCKING

⚠ **Lifting or jack-up of heavy equipment such as lift truck may cause risk. Pay special attention to the work.**

1. **Safe parking**

   Before working on the truck:

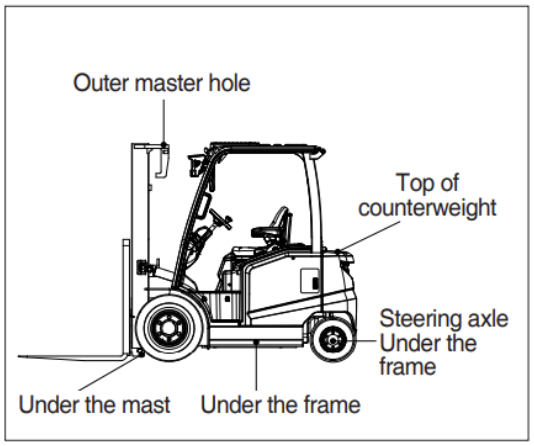
   1) Park the truck on flat and hard surface such as concrete floor free from cracks or breaking.
   2) Erect the mast vertical, and fully lower the forks or the attachment.
   3) Put all of controls in NEURAL, and turn the start key to OFF position, and then withdraw the key.
   4) Apply the parking brake, and keep the tires stationary with blocks.

⚠ **Defective truck may cause accident. All of tools and lifting devices should be kept intact, and satisfy loading standard. Affix OSHA decal, if required. Defective tools may cause serious injury to human being.**

2. **Positions of lifting, fixing and jack-up**

   See the figure for fixing sections of the truck during work of lifting, fixing and jack-up. Fully understand lifting, fixing and jack-up procedures of each functional part of the truck, and perform the procedures precisely and safely.

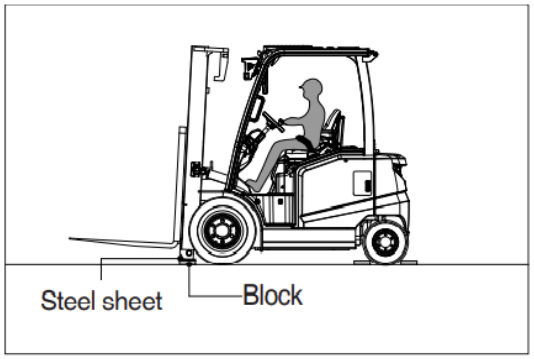
⚠ **Do not use the overhead guard as a fixing section when lifting. Serious accident or damage to truck may be caused.**



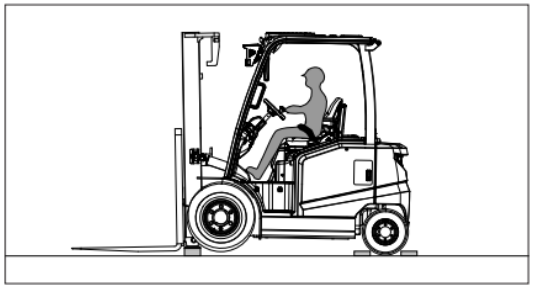
3. **Lifting driving wheel**

   The mast is used as a lever for lifting driving wheel for preventing safety accidents resulted from sudden operation of driving wheel.

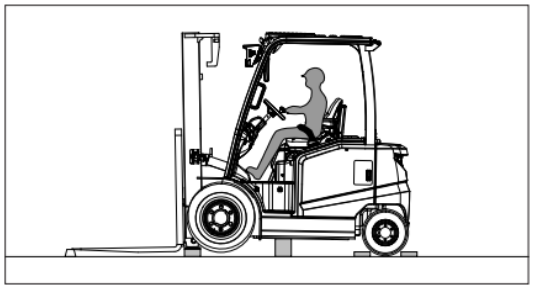
   1) As described in Safety Parking, park the truck safely, and install blocks on the rear wheels (steering wheels).
   2) Make sure that the pin bolt for mast mounting is securely fastened.
   3) Turn the key switch to ON position to start the truck. Fully incline the mast rearward, and adjust the mast height to install block on the end of the mast.
   4) Place hard wooden block of thickness of 100 mm the front bottom of each mast rail, and then install steel sheet of thickness of 3-6 mm onto the wooden block.



5) Incline the mast frontward to the largest extent. Then, driving wheel is lifted from the ground. Release the tilt lever, and turn the engine off.



6) Install block on the slip wheel cradle on the bottom of the frame of the rear driving wheel, or on the bottom of the driving wheel. Check safety distance between the driving wheel, the bottom, and block when block is used.



※ **When the forks are lifted from the ground as shown on the figure, affix a tag alarming tip-over risk on the end of a fork to prevent safety accident.**

7) Check the truck for stable conditions. Make sure that the blocks are securely fixed below the frame bottom before driving or working on the truck.
8) Lower the driving wheel on the ground, and remove the blocks in the reverse order of the procedures above.

4. Lifting with crane

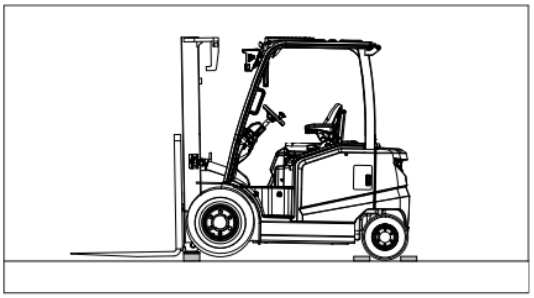
If there is proper device available, make use of a crane to lift the front of the truck, and then place the wheel cradle under the wheel, or install block under the frame.

△ **Carefully check if the truck is kept balanced when lifting it. The truck may tip over to the left or the right. Support the side of the truck or the overhead guard, or use the guide to prevent tip over.**

1) As described in Safety Parking, park the truck safely, and install blocks on the rear wheels (steering wheels).
2) Make sure that the pin bolt for mast mounting is securely fastened.
3) Tie the outer master rains with two chains respectively to lift the front of the truck by making use of the mast.

⚠ **Make sure that capacity of the chain or the crane is sufficient for lifting the truck before lifting the truck. See the data plate of the truck.**

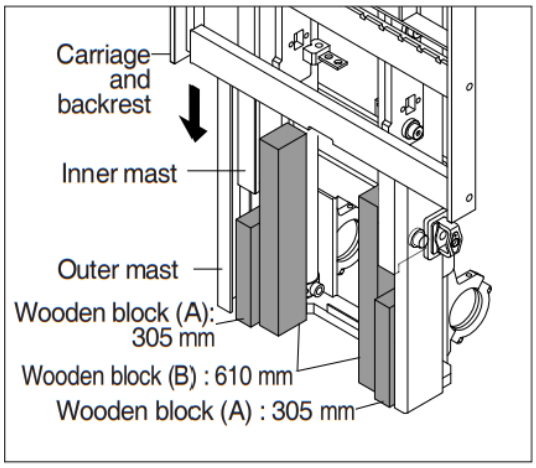
4) Slowly lift the truck, and then lower the truck onto blocks under the frame.
5) Once maintenance is complete, perform the lifting procedures in reverse order to safely lower the truck. Care should be exercised to prevent tools or other devices left under the wheels.



5. Lifting and fastening the mast

These procedures are for safe accessing to functional parts near the driving axle from the front of the truck. The figure illustrates disassembled mast

2-Layer standard mast

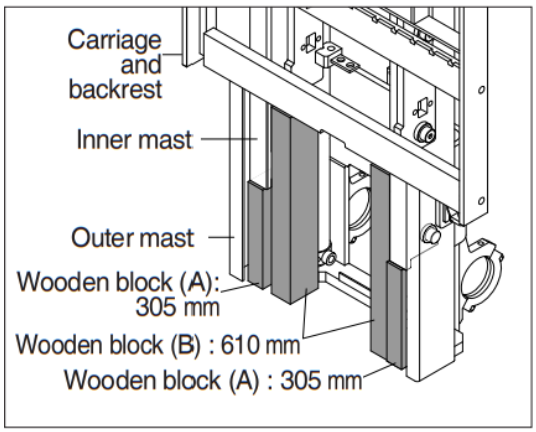


1) It is not required to dismantle the forks.
2) Part the lift truck safely.
3) Install blocks on the front and the rear of the driving wheel.
4) Move supporting blocks near the mast rail before lifting the mast.
5) Use wooden blocks of length of 305 mm (A) and 610 mm (B) on both of the standard masts.

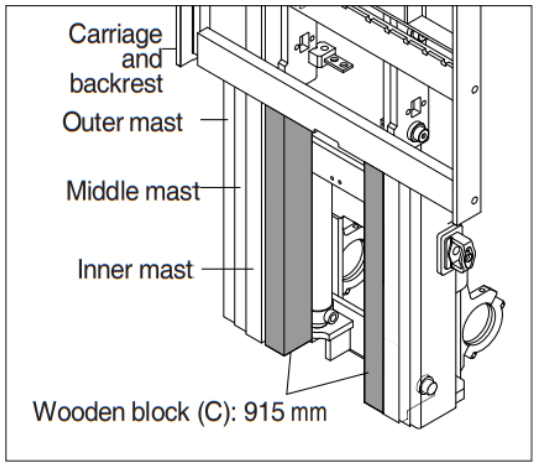
※ **Support the inner mast and the carriage simultaneously on the standard masts.**

※ **Ascending speed of the carriage of the standard mast is faster than the inner mast by 3 times.**

6) Start the engine, and ascend the mast and the carriage.
7) As for the standard mast, support the inner mast with a block (A), and the carriage with a block (B), and then lower the inner mast and the carriage simultaneously until they are safely seated.



3-Layer free mast



8) Use wooden blocks of length of 915 mm (C) on the both sides of the 3-layer free mast.

※ **Support the carriage only on the 3-layer free mast.**

9) Start the engine, and ascend the carriage.
10) As for 3-layer free mast, support the mast with block (C) on inside, and then descend the mast until the carriage is safely seated.

⚠ **The middle-mast and the inner mast of the 3-layer free mast do not ascend until the carriage reaches the height of free ascending.**

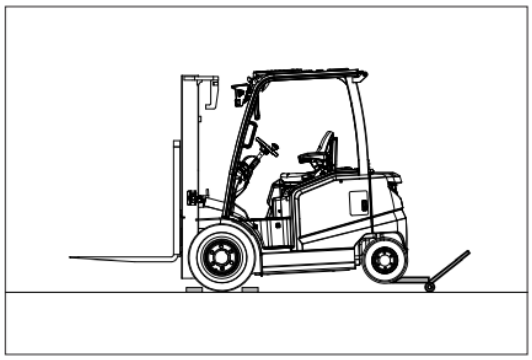
11) Perform the aforementioned procedures in reverse order to remove the wooden blocks.

6. Lifting rear of the truck

It is possible to lift the rear of the truck by installing blocks on the center of the front or the rear steering axle, or on the center of the frame of the steering axle mount, or jacking up them.

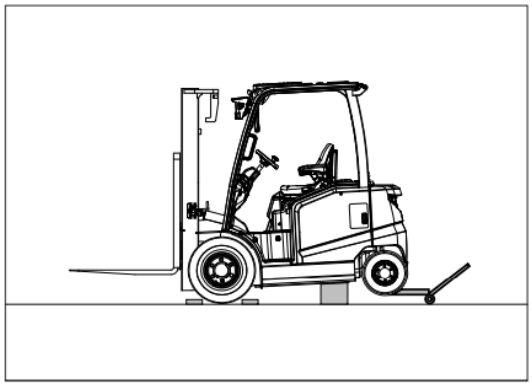
See the data plate for the weight of the truck.

1) Safely park the truck, and install blocks on front and rear of the driving wheel.
2) Install floor jack on the center between two wheels of steering axle-mounted frame.



※ **If there is no space sufficient for installing the jack under the frame, move the truck over the seam to secure required space.**

3) Lift the truck to the least height for allowing maintenance.
4) Install blocks under the main side structure of the frame on the both sides of the truck. Install block on the front as near the counterweight and the rear wheel as possible to ensure max. stability of the truck.
5) Install blocks in same number on both sides of the truck to keep the block balanced for operation.
   Lower the truck on the blocks, and remove the jack.



△ **Make sure that blocks are safely installed before beginning maintenance.**

6) Once maintenance is complete, perform the aforementioned procedures in reverse order to lower the rear of the truck on the ground. Lower sides of the truck by 50 mm at a time alternately.
   - ☐ Place jack under the frame bottom to lift the truck.
   - ☐ Carefully remove blocks, and lower the truck.
   - ☐ Remove jack and blocks from the driving wheel.

7. Lifting entire truck

See the data plate for the weight of the truck.

1) Safely park the truck, and fully lower the mast.
2) Park the truck on board, if required, to expand gap from the ground.

⚠ **Lateral tip over - Make sure that the mast is sufficiently lowered, and keep difference between lifted side and the opposite side within 50 mm when lifting one side of the truck to prevent lateral tip over.**

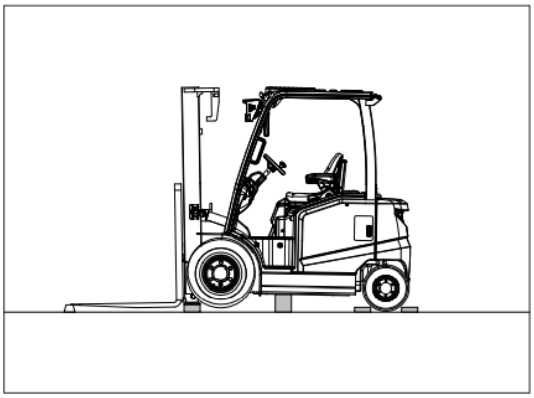
Longitudinal tip over - If the axle and the mast are removed during installing blocks on the truck, the truck may tip over rearward by the weight of the counterweight. It is, therefore, required to remove both of the mast and the counterweight before lifting the truck to remove the axle. The steering axle should be fixed with block to fix the rear of the truck.

It is same to reverse order, also. When removing the counterweight while installing block on the truck, the truck may tip over forward by the weight of the axle.

3) Install jack on the bottom of the side frame near the center of the truck.

※ **Correctly install jack on the bottom of the main side frame. Do not install jack on the bottom of the fuel tank or the hydraulic oil tank.**

4) Lift in one direction at a time alternately in opposite direction up to 150 mm for maintenance work.



5) Install block on each position with jack installed on the bottom of the side frame. Install blocks near the steering wheel, and driving wheel to keep stable conditions to the largest extent.
6) When only one jack is used, put the truck on blocks, and then move the jack to the opposite side to work. Repeat individual lifting procedures.
7) Use blocks of same size to keep level.

△ **Correctly install jack on the bottom of the main side frame. Do not install jack on the bottom of the fuel tank or the hydraulic oil tank.**

8) Once maintenance is complete, perform the lifting procedures in reverse order to safely lower the truck. Carefully remove blocks one after another alternately between two directions. Care should be exercised to prevent tools or other devices left under the wheels.

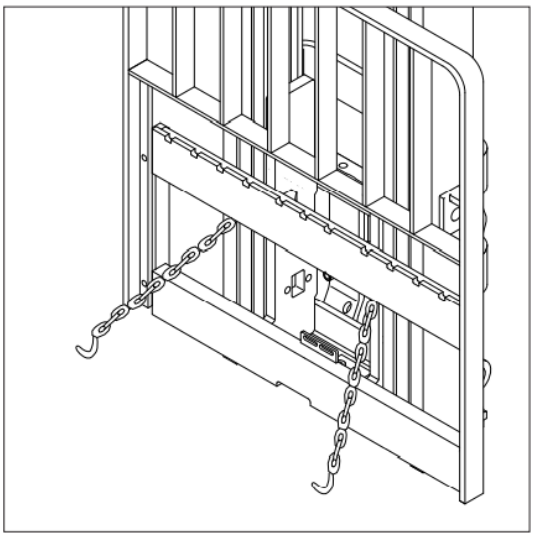
※ **A number of seams may be required to install under tires dependent upon the height of jack when removing the jack.**

8. How to fasten the truck when shipping

1) Front of truck
   ① Mast and carriage mounted
      ☐ Fully lower the carriage.
      ☐ Install tie-down (e.g., chain) between the carriage and the fork bar.
   ② Mast and carriage not mounted
      ☐ a. Install chain over the floor plate of the truck,

   ※ **Use clad chain, or install protective film on contact point between chain and the truck to protect the truck from damage by chain.**

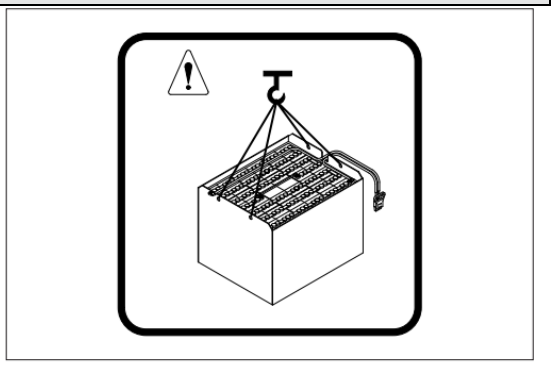
2) Rear of truck
   Install chain through the pocket hole on the bottom of the counterweight.



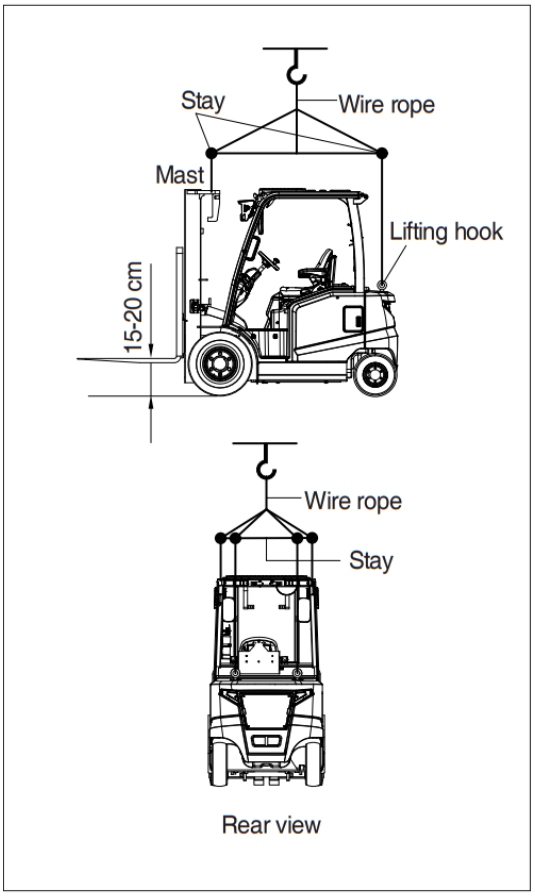
15. LIFTING OF LIFT TRUCK

1. Check the weight, the full length, the full width, and the full height before lifting the truck.

⚠ **The battery should be removed before lifting the lift truck. Please see Page 99 of safe battery exchange.**



2. Use wire rope and stay of sufficient length to prevent contact with the lift truck when lifting.
3. Protect the truck from damage caused by contact of wire rope with the truck, and insert rubber sheet between rope and the truck, and fabricate additional lifting stay to protect the truck.
4. Position a crane at adequate place.
5. Install wire rope and stay as shown on the right figure.



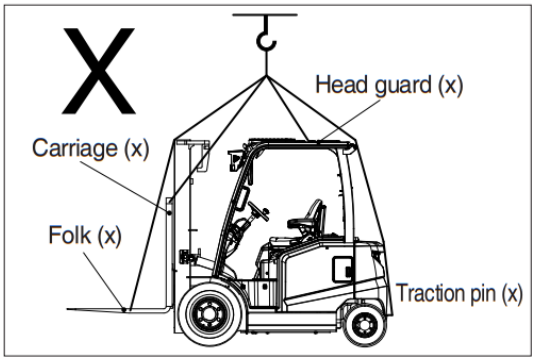
⚠ **Use wire rope and other lifting device free from damage or degradation, and with sufficient strength.**

⚠ **Wrong method of lifting or role hanging causes movement of the lift truck during lifting to result in personal injury or truck damage.**

⚠ **Do not apply rapid loads on lifting wire rope and other devices.**

⚠ **Prevent access of people under the lift truck during lifting, and to surroundings of the truck.**

⚠ **It is recommended to fabricate adequate for field situations of truck lifting.**



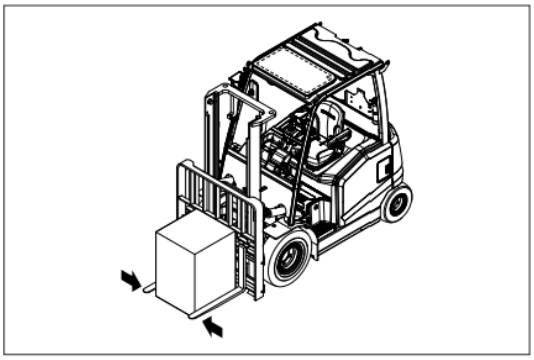
⚠ **Do not install wire rope at unsafe positions such as fork, carriage, head guard, and traction pin. Injury of operator or severe damage to truck may be caused.**

⚠ **If you have any trouble for lifting, please call the service center.**

⚠ **Lifting of the lift truck should safely be done upon instructions of skilled engineer.**

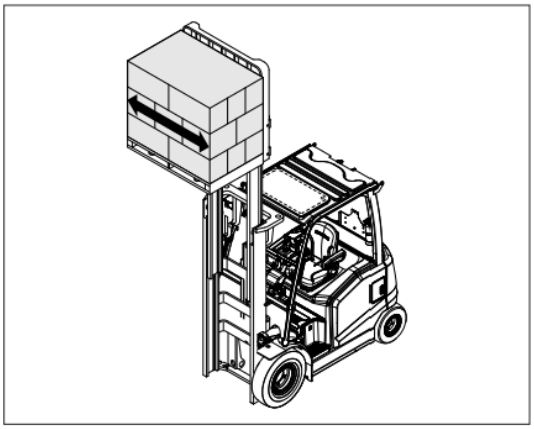
16. SIDE SHIFT AND PORK POSITIONER (OPT)

⚠ **Do not handle loads held between forks.**



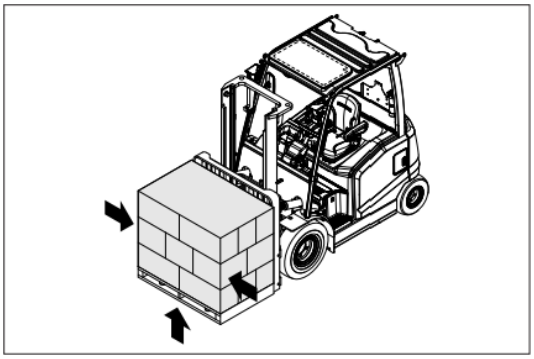
⚠ **Do not operate attachment or drive the truck while loads are ascended.**

When the side shift suddenly operates in this situation, stability is seriously lost, and the truck may excessively pivot.

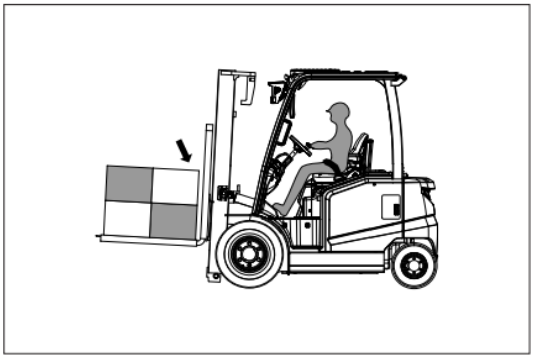


⚠ **Avoid overload or unbalanced loading.**

When applying the side shift, load cargo on the forks in accordance with the specified loading capacity indicated on the name plate. Unbalanced loading may increase loads to deteriorate stability of the truck.



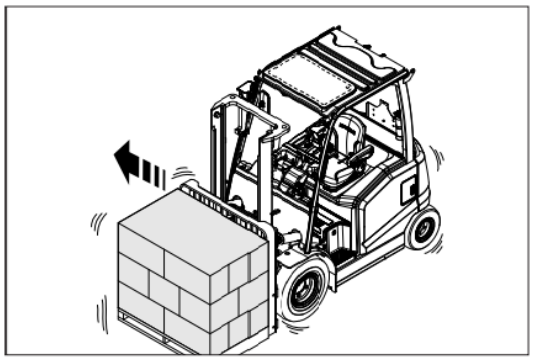
⚠ **Do not load cargo higher than the backrest.**



If auxiliary device such as load table is not mounted on the forks, do not operate the side shift.

Do not drive the lift truck while moving with cargo loaded on the side shift.

When moving with cargo loaded on the side shift, weight imbalance may cause fall of cargo, or tip over of the lift truck.

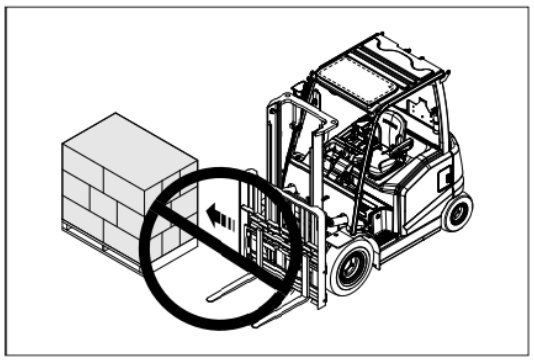


⚠ Unbalanced load may cause tip over of the lift truck.

When cargo is loaded on the side shift before driving, make sure that the side shift is kept at NEUTRAL position.

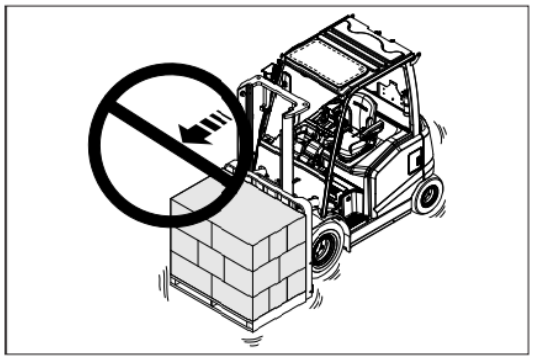
The side shift loaded with cargo should slowly be operated to prevent fall of cargo or tip over of the lift truck.

Do not move cargo by pushing or pulling it with the side shift. Cargo damage or personal injury may occur.



When moving the lift truck with the side shift loaded with cargo, and lifting or lowering cargo with the side shift not on NEUTRAL position, unbalanced weight may cause tip over of the lift truck.

Cargo should be kept on NEUTRAL position when loading cargo on the side shift, or ascending or descending the side shift.



Neither load cargo on the fork positioner, nor operate the folk positioner with the fork arms kept on the ground.

⚠ **While operating the fork positioner, do not move the lever suddenly or fast. Cargo may fall.**