# CHAPTER 5 STARTING AND OPERATING PROCEDURES

## 1. BEFORE OPERATING THE TRUCK

The truck operator must read and understand the information in this Operator's Manual and must be trained and authorized before operating the lift truck.

⚠ **Inappropriate operation of the lift truck is very dangerous. Safe operation is the responsibility of the operator.**

⚠ **Do not start or operate the truck, or any of its functions or attachments, from any place other than the designated operator's position.**

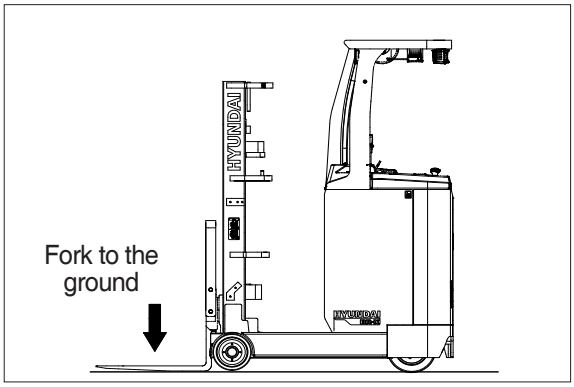
⚠ **Inspect your lift truck before operating at the start of each shift. Before putting your truck to operating, check the operation of the controls and all systems.**

⚠ **Protect yourself. Do not operate truck without a DRIVER'S OVERHEAD GUARD unless conditions prevent its use. Do not remove overhead guard unless specifically authorized. Use special care if operation without this safety device is required.**

## 2. STARTING FROM A SAFE CONDITION

The following matters must be checked before operating the lift truck.

1) Whether the truck is parked in a safe location,
2) Whether the forks are fully lowered to the floor or ground,
3) Whether you are familiar with how all the controls function,



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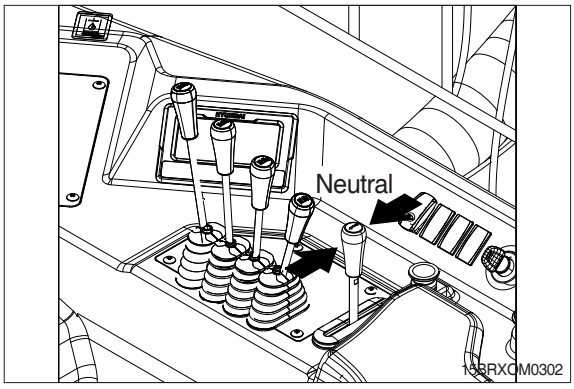
4) Check that all levers are in NEUTRAL or in the appropriate position to have no issue when starting the engine, and that the truck has received its daily inspection and ready and safe to operate.
5) Put the gear selector lever in the NEUTRAL position before starting. The truck must be started only when in the NEUTRAL position.



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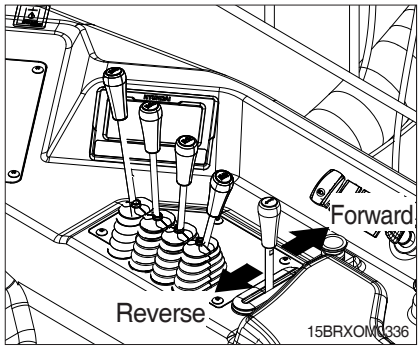
## 3. BEFORE OPERATING THE TRUCK

Check the aforementioned requirements, and make sure that the forward and reverse levers are on NEUTRAL position before operating the truck.

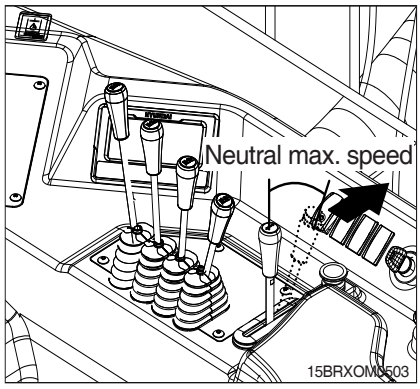
### 1) TRAVELING

(1) Press the brake pedal completely to operate the forward and reverse lever slowly in the forward or backward direction.

(2) The truck will move in the forward or backward direction.



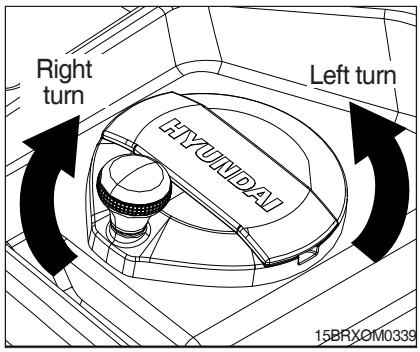

(3) The speed is changed from minimum to maximum according to the degree of tilting the forward and reverse lever.
The truck is slowly accelerated without vibration even on rapid operation of the lever, so fine operation is possible conveniently.




### 2) CHANGE IN DRIVING DIRECTION

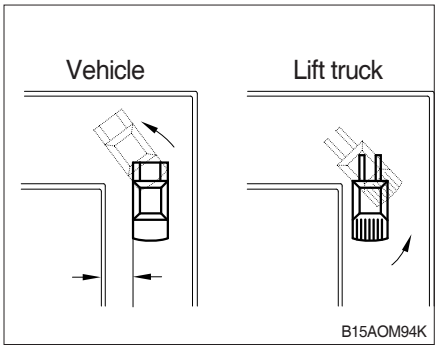
(1) Hold the handle knob with the left hand ot change the direction.

(2) Steering of the lift truck is enabled through the rear wheels, so caution is required when changing the direction.




(3) As the truck uses rear wheel steering, the truck rotates to the inside when moving forward, and also to the outside when moving backward.

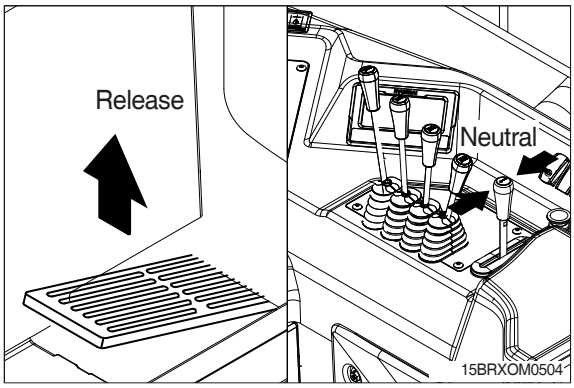
(4) Care should be exercised to prevent collision of the rear end of the truck with the surrounding when turning direction.



### 3) STOP AND PARKING

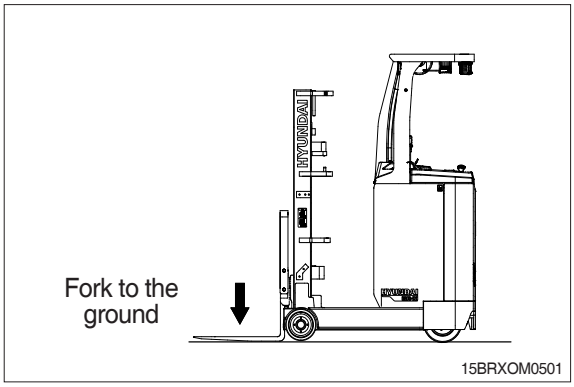
(1) Forward and reverse levers are positioned in NEUTRAL to reduce the truck speed, and the foot is released slowly from the brake pedal to stop the truck smoothly.

⚠ **When the brake pedal is released rapidly during the operation of the forward and reverse driving lever, the load may fall off or cause danger to the driver due to rapid braking, so caution is required.**

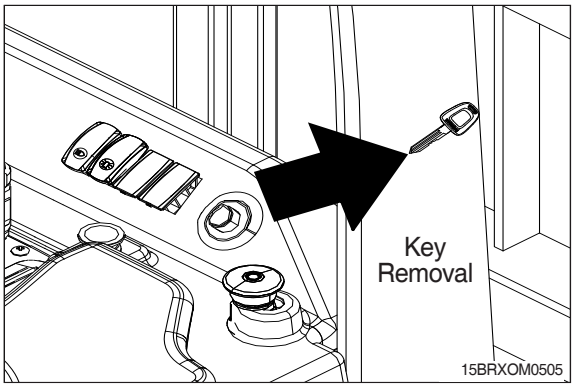



(2) Position the forward and reverse driving lever to NEUTRAL after stopping the truck.

When parking the truck, release the foot from the brake pedal, and check whether the forward and reverse driving lever is in NEUTRAL to lower the fork to the ground.

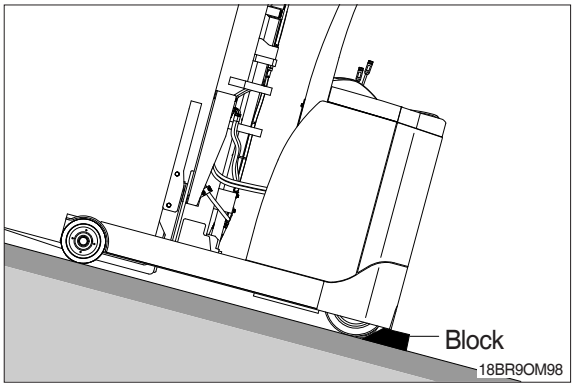



(3) Key must be removed when the truck is not operating.




(4) If possible, do not park the truck on the slope. When parking the truck on the slope, fix the wheels with the block, and check for safety.

⚠ **Special caution is required as the load can fall off or the truck can tip over due to rapid braking or changing directions on the slope.**



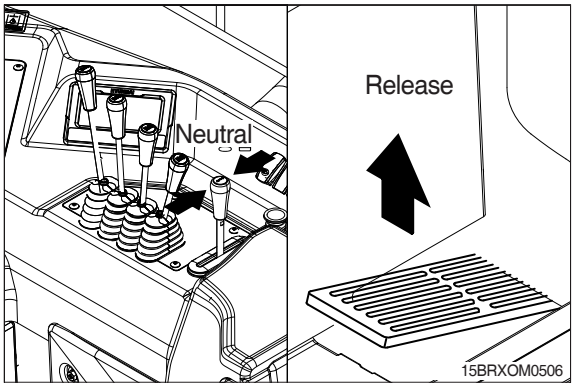
## 4. SPEED ADJUSTMENT

The driving speed is changed from minimum to maximum according to the adjustment of the tilt on the forward and reverse driving lever.

## 5. BRAKE OPERATION

First, put the gear selector lever in NEUTRAL.
Remove the foot slowly from the brake pedal until the lift truck is stopped.

**⚠ If possible, stop the truck slowly.**
**If the truck skips by sudden stop, main parts may be damaged, load may fall, or the truck may tip over.**




## 6. PLUGGING

1) It is allowed to change direction by making use of plugging without applying the brake.
When operating the forward or the reverse lever in the opposite direction during travel, the truck slowly stops, and then starts driving in the opposite direction.

2) It is possible to adjust distance of change of direction with the forward and reverse levers.
The distance of changing direction becomes shorter proportional to the strength of pushing the forward and reverse levers.

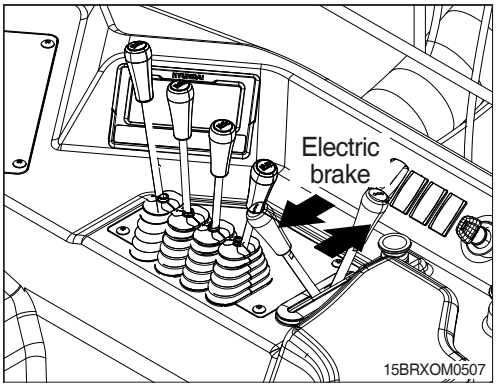
**⚠ Accidents may occur from sudden change in direction due to the load falling or moving, so special caution is required when using the plugging.**

### 3) ELECTRIC BRAKE

(1) Electric brake is applied when the forward and reverse levers are operated in the direction opposite to travel.

(2) When the forward and reverse levers are pushed continuously, the equipment moves in the opposite direction after electric braking.

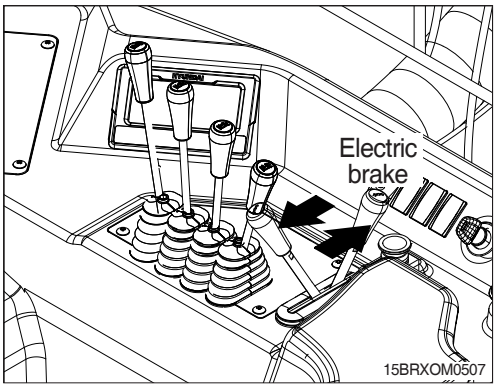
(3) Use of electric brake is prohibited when driving the truck on a downhill. Caution is required when using the elctric brake to prevent the damage of loads.



### 4) POWER GENERATION FUNCTION OF THE BRAKE

(1) The motor performs the power generator function when the brake is applied, and electricity is sent to the battery.

(2) When the direction of the forward and reverse levers are changed, power generation from braking is started in the standard set by the braking current. The braking effect is proportional to the position of the forward and reverse levers. The set braking power in the minimum acceleration position is 50%, and increased to 100% in the maximum acceleration position.



## 7. OPERATING SAFELY

**※ Safe operation is the responsibility of the operator.**

1) Watch the surroundings of the location for driving. Drive only when sufficient amount of view is secured.

(1) Before driving, check for any obstacles or pedestrians around the working space.

**⚠ Especially, special caution is required on the upper space that is not clearly visible when seated on the truck. Watch for falling objects. If the load blocks your view, drive backwards, except up slopes.**

(2) Do not allow anyone to stand or pass under the load or raised forks. Warning light and sound do not guarantee the safety Safety of the pedestrians are top priority in the workplace.

(3) Sound horn at intersections and wherever vision is obstructed.
Do not operate the truck when there are workers in front of the working material.

2) Take caution on the following matters to protect the operator and the pedestrians.

(1) Operate the truck only from the designated operator's position. Stay within the confines of the lift truck profile dimensions. The overhead guard protects the driver from falling objects.

**※ The overhead guard protects the driver from falling objects, but all impact occurred from the upper part are not protected, so caution is still required when handling the load even when the overhead guard is mounted.**

**⚠ Keep clean of the mast and lift mechanism. Never reach into or put hands, arms, legs, or head into or through the working devices such as the carriage, lift chain and mask, and around the related parts. Never put any part of your body between the mast and the truck. Don't use the mast as a ladder. Keep all persons clear of the load and mast mechanism while attempting to handle a load.**

**3) NO RIDERS**

(1) No one should ride on the truck other than the operator. The operator is the only one who should be on the truck.

4) The lift truck must be operated only when it can be controlled completely.

(1) Do not operate the truck when the operator is not in the proper position.

(2) Never operate a lift truck when your hands and feet are wet or greasy.

(3) Always pick the smoothest travel route for your lift truck. Remove any obstacles with concerns of collision, or those that can cause the truck to be off the course or tip over. If these conditions are unavoidable, slow down and carefully drive past them. Slow down when the surface is wet or unsafe.

(4) Rapid operation of the truck can cause the truck to tip over. Start, stop and operation of the attachment must be performed as smooth as possible.

(5) Operate the truck in the speed to stop safely even when occurring with emergencies.

(6) The fork carriage must be tilted back and lifted in the minimum height to avoid any obstacles on the surface during travel. The vehicle safety is reduced when the load is lifted high, so do not lift the load too high except when loading.

5) Take caution on the following matters on the slope.

(1) Driving in a straight direction in the uphill or downhill. Do not turn or drive at an angle across an incline or ramp. Do not attempt to operate on grades in excess of those specified and/or recommended by the manufacturer.

(2) When the truck is loaded, travel with the load upward.
When the truck is empty, travel with lifting mechanism (mast) downward.

(3) Apply the brake at all times when traveling down the slope.

6) Practice safe driving when operating the lift truck.

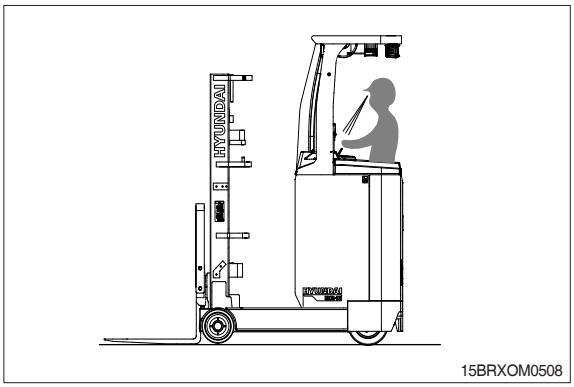
(1) Careful driving and operation is your responsibility. Be completely familiar with all the safe driving and load handling techniques in this Operator's Manual.

(2) Use common sense. Drive carefully; do not indulge in stunt driving or horseplay. Follow the traffic rules. Watch for people and hazards. Slow down, be in full control of your lift truck at all times.

(3) Follow the instructions in this manual to avoid damage to your truck or the possibility of injury to yourself of others.

(4) During your work, observe all functions of your lift truck. This allows you to immediately recognize a problem or irregularity that could affect the safe operation of your truck. Periodically check the gauges and warning indicator lights in the cluster to be sure they indicate a normal condition. If an abnormal condition appears bring the truck to a safe condition and safe location, shut off the starting switch immediately and report the problem.

**⚠ Do not continue to operate a truck that has a malfunction. Stop and have it fixed immediately.**



## 8. LOAD HANDLING

### 1) LOAD HANDLING

Handle only loads that are within the truck rated capacity as shown on the nameplate.
This rating specifies the maximum load that should be lifted.
However, other factors such as special load handling attachments, load having a high center of gravity, or uneven terrain may dictate that the safe working load be less than the rated capacity. Under these conditions, the operator must reduce the load carried so that the lift truck remains stable. Handle only stable or safely arranged loads. Do not handle loads made up of loose, unevenly stacked, or unstable items that can easily shift and fall. Take the time to stack correctly and handle loose items. Center the load on the forks.

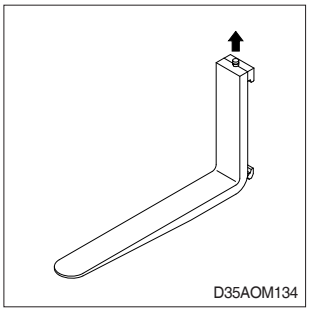
Do not lift items that have risk of falling.
Do not handle loads that are higher than the fork carriage because the load may back backward.
Place the load close to the backrest. Load placed on the end of the fork may result in unstable lift truck. The load must be tilted back after loading.
Operate the lift and tilt controls slowly and smoothly. Do not tilt the mast forward except when lifting or lowering the load.

**⚠ Slack chains will damage the rail or carriage. Raise the mast before you move. If the mast malfunctions in any way or becomes stuck in a raised position, operate the lift control to eliminate any slack chains by raising the carriage. Do not go under a raised mast or forks to attempt repair. To not climb up the mast or on the truck.**

Remember your truck is designed to carry loads forward of the front wheels so that the weight of the load is counterbalanced by the weight of the truck.

The farther the load is carried from the pivot point (center of front wheels), the less the weight on the steer wheels (rear wheels). Therefore, the load must be placed closest to the front wheels for transfer.
The permissible load indicated on the nameplate is in the standard of the average weight per unit volume and center of gravity located in fixed distance from the fork surface. If the weight of the actual load to be handled is not evenly distributed, put the heaviest part closest to the carriage.

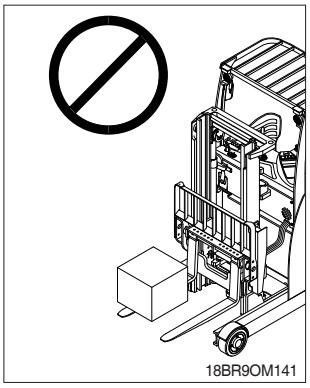
## 2) ADJUSTING THE LOAD FORKS



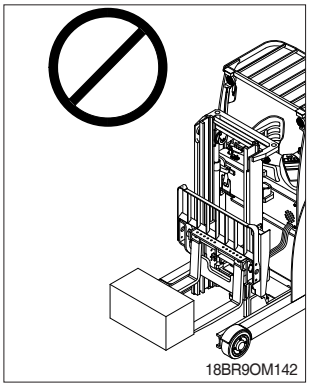

The load forks are adjustable on the hanger or the carriage. Forks should be spaced as far apart as the load will allow. Both forks should always be the same distance from the center of the fork carriage for ensure stability. To adjust the forks, raise the carriage slightly, and tilt the mast fully forward to reduce friction and make the fork slide easier. Then, unlock the fork locking pins. Position the forks by pushing them away from you. Secure the fork locking pins.

**⚠ Make sure the load backrest or fork retaining bolts are fasten securely in place.**

## 3) CAUTION ON FORK LOADING




(1) Do not elevate the load with one forks.
Lifting the load with one side of the fork can result in load tip over, and casualties may be occurred.
When excessive load is applied to one side of the fork, the fork may be deformed to occur with height difference between the forks.




(2) Do not elevate the load with the ends of the forks.
This can cause height difference between both fork tips due to overload in the end of the forks resulted from farther center of gravity of load.
The load should be loaded at least over 2/3 of fork length.

### 4) TRAVELING WITH LOAD

Transfer the load or cargo in the low position as possible and tilted back. Never travel with the load or carriage raised (elevated) in a high position. Do not lift the load high except when loading or unloading.

Follow all traffic rules, and check other vehicles, pedestrians and safety distance. Always look in the direction of travel. Keep a clear view of the path of travel and when the load blocks your visibility travel in reverse with load trailing (Except when climbing an incline).

Rapid operation shall not be performed when carrying the load. Start, stop, travel and steer, etc. smoothly. Steer clear of bumps, holes, and loose materials or debris on the ground.
Lifting and tilting must be performed slowly and smoothly. Changing the direction must also be performed slowly. Cross railroad tracks slowly and at an angle wherever possible.

Use special care when handling and traveling with long, high, or wide loads-to avoid losing the load, striking bystanders or obstructions, or tipping the truck. Watch clearances around the truck and load as you travel. Raise the forks or attachment only to pick up or stack a load. Look out for obstructions, especially overhead.

Be aware that exaggerated tail swing, when turning while traveling forward, is a characteristic of lift trucks that are steered by the rear wheels. Check for obstacles on the rear side when changing directions.

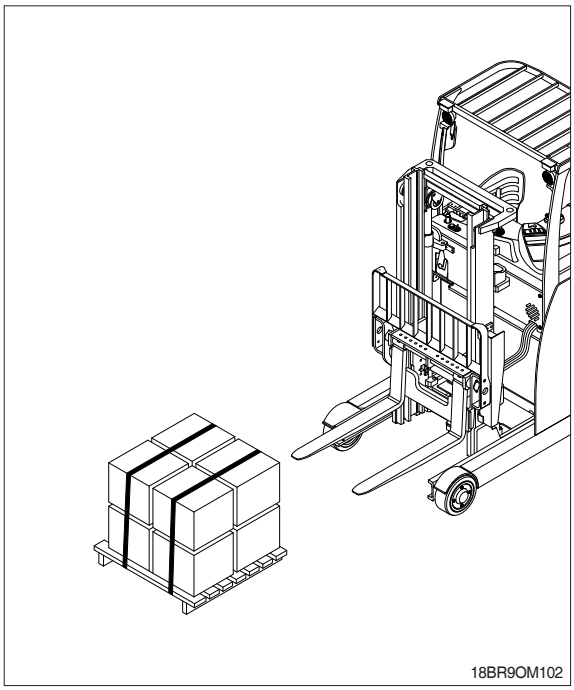
Stability of the lift truck must be considered at all times. When optional working devices are used, extra care should be taken in securing, manipulating, positioning, and transporting the load. Because working devices generally add extra weight and complexity to the truck, operate trucks equipped with attachments as partially-loaded trucks when not handling load.

### 5) PICKING UP AND MOVING LOADS

When lifting the load from the floor, approach the load slowly to have the truck positioned carefully in front of the load, and the fork is adjusted according to the pallet handling the load. It must be adjusted as wide as possible for stability and balance.

Before lifting the load, check that the load is positioned in the center, and that the fork is supporting the bottom of the load completely.

Fork length should be at least 2/3 of load length. To enable the fork to enter and exit the pallet freely, use the lift and tilt functions to set the exact height and angle. Afterwards, move forward until the forks are squarely and completely under the load.




※ **Be sure that the forks do not extend beyond the load, causing damage or tipping of other adjacent loads or materials behind the load being moved.**

If the forks are longer than the load, move the tips partially under the load without extending beyond the load. Raise the load to clear the ground. Back out several inches, or whatever distance is necessary, then set the load down and move forward until the load is positioned against the carriage.

Then raise the load to traveling height and tilt fully back to travel (Except for loads that must be transported as level as possible).

### 6) UNLOADING

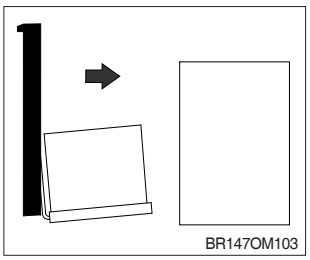
To deposit a load on the floor after being moved into the correct position, tilt the mast forward to a vertical position and lower the load.

If required for adjusting the fork height and to remove the fork smoothly from the load or the pallet, tilt the mast slightly to the front.

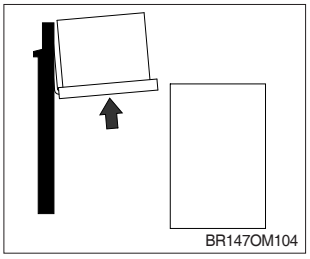
After removing the fork carefully and completely from the load, lift the fork 150~200㎜ from the floor, and tilt back completely for travel.

## 7) STACKING

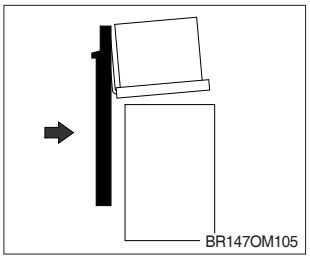
### (1) To load the cargo on top of the stack



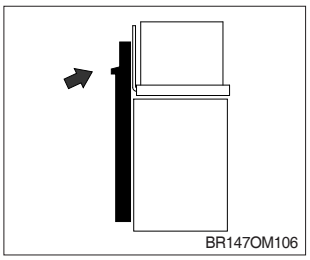

① Approach slowly and align the lift truck and load squarely with the stack.



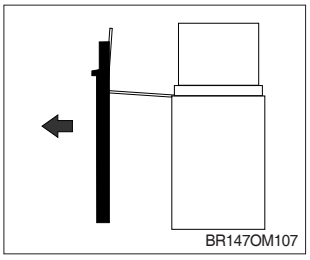

② Raise the load as the lift truck nears the stack.




③ Move forward slowly until the load almost touches the stack. The leading edge and sides of the load pallet should line up with the near edge and side of the load or rack on which you are stacking.

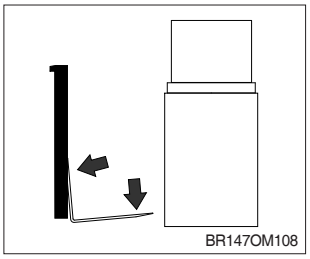



④ Stop close to the stack and further lift the load high enough to clear the top of the stack. Position the load slowly on the proper position. Use care not to damage or move adjacent loads.




⑤ When the load is positioned exactly with the stack on the bottom, tilt down the mast vertically to release the load accurately on top of the stack.

⑥ Lower the forks slightly to clear the load pallet. Tilt the forks forward slightly, if necessary.




⑦ Check your travel path, then carefully back away until the forks are clear of the stack. Stop and lower the forks to the travel position (150~200 mm above the ground), then tilt back the mast.

### (2) To move a load from a stack

Approach the stack slowly, with the truck lined up squarely with the load. Position the mast vertically, and lift the fork to the exact height to match the load pallet. Adjust fork angle as necessary to fit squarely under the load.

The fork must not come outside the load.
It can damage or tip over other load and object near the rear side of the load for movement. If the forks are longer than the load, move the tips partially under the load without extending beyond the load.
Raise the load to clear the ground. Back out several inches, then set the load down and move forward until the front face of the forks contacts the load.

Take caution on not damaging due to the fork having in contact with the object.
Tilt back the mast sufficiently within the range of lifting the load from the stack, and stop the mast vertically to lift the load slowly.

At this point, apply the minimum back tilt that will stabilize the load.
Check your travel path, slowly back up until clear of the stack, stop, and then lower the load to the travel position (150-200 mm off the ground). Except for having to travel horizontally, tilt the mast back completely for travel. Be sure the load is back flush against the carriage or front face of the forks.

**※ Certain loads must be transported as level as possible.**

## 9. SHUT DOWN PROCEDURE

**※ Get off the truck when the truck is in safe state.**

1) Follow the safety rules stated below when getting off or parking the truck.

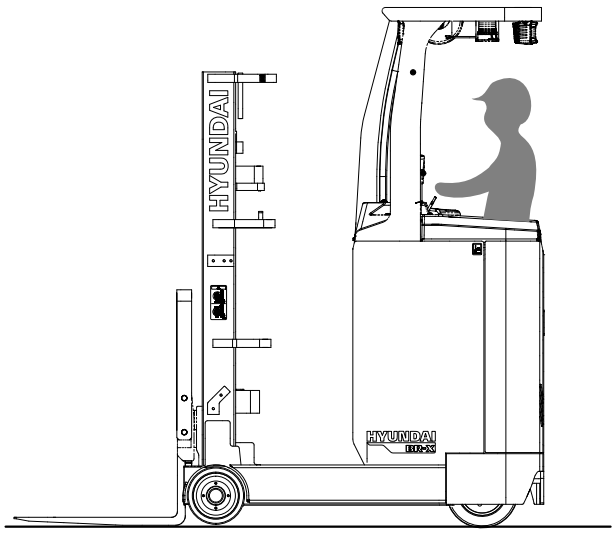
(1) Park the truck in a safe location such as the edge of the road without vehicle passage.
(2) Do not park the truck on the slope.
(3) Do not park the truck on the location that intrudes with the use of emergency road and equipment, and also stairs and firefighting equipment.

**2) BEFORE LEAVING THE OPERATOR'S POSITION**

(1) The lift truck must be stopped completely.
(2) Put the gear selector lever in NEUTRAL.
(3) Lower the lifting mechanism-carriage and forks or attachment fully to the ground.

**3) WHEN LEAVING THE TRUCK**

(1) Tilt the mast forward until the forks are level and flat on the ground. Let the engine run at idle speed.
(2) Turn the start switch to the OFF position and remove the key.
(3) Install the support on the wheels in the slope with issues on moving the truck to a safe location.

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