Order
Picking Truck

A lift truck different from the others
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A LIFT TRUCK WITH A RISING OPERATOR STATION

Known as an order picking truck, this lift truck equipped with a rising operator station is designed for the manual preparation of orders at heights, generally from the pallet racks and shelves.

This type of lift truck can operate in very narrow aisles of less than 1.8 m (6 ft), but is not normally designed for manoeuvres on slopes.

The operator’s station can reach lift heights of 12 m (40 ft), or even higher, for order picking and stock replenishment. The heights reached are significant.

Moving in translation and elevation with his load, the operator works in a standing position. The speed is reduced during height displacements.

Depending on the model, the order picking truck can have different lifting capacities depending on various lift height ranges.

An order picking truck equipped with longer outriggers generally has a greater lifting capacity.

1.1 A different work organization

In contrast with the tasks performed with other lift trucks whose load, palleted or not, does not vary, here the operator begins his work empty and manually picks the articles that he accumulates at different elevations as he does his order picking.
THE OPERATOR’S PLATFORM

This is the platform on which the operator stands to drive the lift truck (operator’s station), from which he performs order picking in a quantity usually less than one pallet.

The operator’s platform must:
1. include an overhead guard,
2. be covered with a non-slip surface,
3. be protected by one or more side guards that are easily raised and folded if the operator is exposed to a risk of falling during order picking.

The wood pallet on which the articles are placed must:
– be in good condition,
– be used only for placing the merchandise,
– be solidly held by a clamp.

The operator should not move around on the pallet.

A standard wood pallet measures 1220 mm x 1016 mm (48 in x 40 in). Its load centre is set at 600 mm (24 in).

The pallet clamp has to grip pallets with stringers of varied thickness in order to accommodate different pallet formats. The pallet must be level with this gripping device; otherwise, instability will be produced, since the pallet will be supported only by the lift truck forks.

The load capacity is indicated on the lift truck’s capacity plate.

The articles placed on the pallet must be properly distributed according to the manufacturer’s guidelines to prevent them from falling and decentring the load, thus reducing the load capacity.
2.1 Pallets

There are two categories of pallets in general use: expendable pallets and reusable pallets.

- **Expendable pallets (or single-use pallets)** are intended for a single use only. They are therefore part of the packaging. These pallets are inexpensive and frequently manufactured from poor quality wood, from pressed wood, cardboard or expanded polystyrene.

- Single-use pallets should not be used with an order picking truck.

- **Reusable pallets**, in contrast to expendable pallets, have several use cycles. Stronger and better finished, their average lifetime is from five to six years.

**Reusable pallets** should be favoured for manoeuvres with an order picking truck. In addition to being in good condition and solid, they must be compatible with the lift truck and the load transported.

2.2 Other equipment for order picking from the operator’s station

Order picking truck using a cart for order picking
THE ADDITIONAL PLATFORM

Not intended for lifting people, the additional platform is an order picking platform that is installed or removed without having to dismantle part of the hoist system.

Its dimensions can vary.

The platform is generally made of non-slip metal and has two openings for inserting the forks of the lift truck to lift it. It is locked or otherwise permanently attached to the lift truck.

It is heavier and its load centre is farther away than that of a standard wood pallet, i.e., 600 mm (24 in). As a result, the lift truck’s load capacity will be reduced by as much as 50%.

An order picking truck must be equipped with a second capacity plate indicating the reduced load capacities when an additional platform is used.

Its load capacity is calculated by the lift truck manufacturer based on a centred distribution of the loads on the additional platform.
### 3.1 Different lift height ranges

The load capacity is based on different lift height ranges defined on the capacity plate by the lift truck manufacturer. It decreases with increased height of the operator’s station and could then be exceeded **without any article being added, simply by raising the operator’s station**.

Without an operator station height indicator, it is impossible for the operator to comply with the load capacities.

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### 3.2 Order picking on the additional platform

The operator usually begins placing the articles at the end of the additional platform and gradually approaches his operating station. As a result, the weight may not be well distributed on the platform. The actual weight of the loads thus accumulated can then be underestimated.

Under these conditions, it is often difficult, and even impossible, for the lift truck operator to comply with the capacity shown on the additional platform’s capacity plate installed by the lift truck manufacturer.

Also, the operator must take into consideration his own weight when he moves around on the additional platform.

The total off-centre loads (called “lever effect”), combined with the lift height of the operator’s station and the weight of the operator on the additional platform, lead to an underestimation of the effect of the load on the stability of the lift truck, even when the total weight is below the specified capacity limit.
The following factors can place the operator in a situation where the maximum specified load capacities are exceeded:

\[
\text{Total of the off-centre loads (lever effect) } \times \text{lift height} \times \text{weight of the operator on the additional platform} = \text{underestimation of the load effect}
\]

The consequences for an operator working at significant heights could be dramatic if the lift truck overturns due to instability as a result of this underestimated load effect. Under these conditions, it is essential that the operator manage precisely the total weight on the additional platform.
REGULATIONS

The Regulation respecting occupational health and safety (ROHS) stipulates:

- A lift truck shall conform to ASME B56.1-1993 Safety Standard for Low Lift and High Lift Trucks (section 256),
- Every operator of a fork lift truck must be at least 16 years old (section 256.2),
- A fork lift truck must be operated only by an operator who has undergone training including a practical component and a theoretical component on the activities related to the lift truck used (section 256.3),
- When a worker is lifted by means of a lift truck, the operator must wear a compliant safety harness (sections 261, 347 and 348).
RECOMMENDATIONS

5.1 General rules

- Ensure that the order picking truck has a second capacity plate that takes into consideration the weight of the additional platform.
- Train the operator in the interpretation of the capacity plates on the lift truck and on the different additional platforms.
- Supervise the fall protection procedures (wearing of the mandatory safety harness).
- When pedestrians are present, stanchion off the work area of the order picking truck.
- Travel on ground free of debris.
- Initiate a turn only when the operator’s station is lowered.
- Implement measures for complying with the maximum permitted load capacities at all times, since sudden braking and changes in direction can result in off-centring of the load and even in overturning of the fork lift truck.
- Ensure that no pallet or merchandise extends excessively over the edge of the pallet rack, thus hindering upward and downward movements.
- Verify that the design of the additional platform prevents the risk of falls: for example, presence of guardrails on the open sides. Articles must never rest on the guardrails, unless they are designed for this purpose.

Wearing of safety harness
Operator: Régis Côté

Stanchioned off work area
Operator: Mario Reeves

Item hindering movements

Order picking truck with an additional platform equipped with a guardrail on the open sides when it is used in wide aisles
5.2 Work organization

- Identify the weight of the articles before they are picked by the operator.
- Organize the articles in the pallet rack as follows:
  - at the top: the lightest articles,
  - at the bottom: the heaviest articles.
- Plan article picking by taking into account:
  - their total weight on the additional platform,
  - their location in the pallet rack.
- Ensure that the operator controls the total load on the additional platform: it must never exceed the maximum capacity indicated on the capacity plate.

Two principles come into play here:
- As order picking progresses, the greater the total weight on the additional platform,
- The higher the operator’s station, the lower the lift truck’s load capacity.

Question

Throughout the order picking operation, the operator must take into account the total weight of the articles collected and consider the lever effect created by loads that are off-centre on the additional platform.

In this case, the operator must not pick up the next article because he will exceed the lift truck’s capacity when he raises his operating station above 570 cm.

To decide whether he can raise his operating station or not, he must ask himself the following question:

“Will I exceed the maximum permitted capacity if I pick up the next load, considering its weight and its height location in the pallet rack?”

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A preventive device: a load effect indicator

A device exists that informs the operator about the total weight on the additional platform. The lift height and the lever effect (total off-centre loads) are taken into consideration. When the operator reaches a lift height where the load capacity is at the point of exceeding the maximum permitted limit, he is informed of this by an audible and visual warning.

This device is compatible with the order picking truck and informs the operator about the change in the total load on the additional platform during order picking, considering:

- the lever effect produced by the arrangement of the articles on the additional platform,
- the various lift height ranges, and
- his own weight when he goes onto the additional platform.
Longer outriggers

Manufacturers offer order picking trucks with longer outriggers. This allows order picking at a greater lift height and provides better protection against overturning.

Order picking truck with longer outriggers

Context favouring better lift truck stability

Conditions offering an excellent stability of the order picker
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