



## Operator Safety: Counterbalance Trucks

### Introduction

Every year there are over 8,000 reportable fork truck related accidents. These can result in death or serious injury, damage to equipment and costs to employers and society in general. Fines for health and safety offences involving fork trucks can be huge

The main causes of lift truck related accidents are;

- Lack of operator training
- Inadequate premises
- Poor maintenance

It is the responsibility of employers to assess their fork truck operations and introduce safe working procedures to reduce & limit the risks as far as possible.

Safe procedures will include operator-training, procedures for the control of pedestrians and traffic and the implementation of proper maintenance procedures.

Managers and supervisors should be trained in safe operating procedures and have enough experience in the operation to be able to recognise incorrect operations, poor practices and identify training needs.

Employers, operators, users, purchases and hirers should note that these guidance notes in no way replaces manufacturers'/suppliers' operating and maintenance instructions for individual equipment and cannot be used to fulfil the duty on employers and suppliers to provide information on safe operation and maintenance required by the Provision and Use of Work Equipment Regulations 1998 (PUWER).

These guidance notes are divided into two sections:

- Section 1 advice for operators
- Section 2 advice for employers

### Section 1. Advice for Operators

You have a duty under law to operate your truck with care and comply with your employer's instructions and rules.

It is the duty of every employee to take reasonable care of the health and safety himself and of any other person who may be affected by his acts or omissions at work.

All operations should be carried out in a safe manner and with due regard to other workers including pedestrians.

Before you begin work:

- You should be qualified, trained and authorised to operate this particular truck for this particular task?



- Can the task be carried out safely?
- Is the truck suitable for the land, the task and the operating area?
- Have you carried out the inspection and maintenance checks specified by Ace Handling, your employer and the manufacturer?
- Is the truck in a safe and usable condition?
- Are you feeling in good health and free from the effects of drugs or alcohol?

If the answer to any of the above is no, contact your supervisor and do not start working.

### General Safety Features

- Controls must be clearly marked.
- Manufacturers' maintenance and operating instructions must be complied with.
- Capacity must be marked on the rating plate. Capacity depends on rated capacity, lift height and load centre and should NEVER be exceeded.
- The counterweight provides stability and should not be changed or altered. For electric counterbalance trucks the correct batteries must be used otherwise stability will be affected. Tyre pressures must be maintained in accordance with manufacturers' instructions.
- Parts which can cause injury must be guarded. Guards and protective devices must never be removed or tampered with.
- Safety devices and alarms must never be disabled.
- Seat belts are provided for your safety and should normally be worn at all times when the truck is in motion.

### Care and Maintenance

Daily safety checks should be carried out before use and include the following:

- General condition
- Tyres • Steering
- Hydraulics
- Warning devices
- Hand and foot brakes
- Lights • Masts and attachments
- Hour meter
- Safety guards • Forks • Audible alarms
- Lift alarms

Checks should also include the following:

For diesel and LPG trucks

- Fuel
- Oil levels
- Air cleaner
- Water level
- Fan belt
- Clutch



- Inching pedal

#### For electric trucks

- Battery electrolyte level
- Cleanliness of battery
- Cable connections

Report any problems or malfunctions and withdraw the truck from service.

#### Maintenance Hazards Specific Truck Types

##### Battery Operated Trucks

- Batteries should be handled and charged in accordance with your employer's instructions and the manufacturer's guidance. Close attention to the instructions is necessary particularly regarding whether lids should be removed during charging and the safe use of the charging equipment.
- Battery electrolyte is acid based and is corrosive. Employer's instructions and risk assessments should be consulted, and the correct personal protective equipment should be used at all times.
- The battery charging process can produce hydrogen, which can form an explosive atmosphere.
- Batteries can be heavy and bulky and there is a risk of spilling the contents. Manual handling assessments should be consulted and safe handling procedures should be followed.
- The charger should be switched off before disconnecting it from the battery to reduce the risk of sparks. • The correct batteries should always be used, as they affect the stability of the truck. • Battery charging should only be carried out in an authorised area.

##### LPG Trucks

- Recharge and change cylinders only in a designated well-ventilated area, away from sources of ignition and pits or ducts where gas may collect.
- Employer's guidance and the manufacturer's instructions for recharging or changing cylinders should be followed

##### Diesel Trucks

- Refuel only in designated areas
- Spillages should be reported and attended to immediately

ALL "No Smoking" & "No Naked Lights" rules must be strictly obeyed.

#### Rules for Operators General Safety and Operation

- Never indulge in horseplay with forklift trucks. Deaths, serious crush injuries and falls have frequently been caused by irresponsible acts.
- Never drive a truck if you are either under the influence of alcohol or drugs.
- Never carry out unauthorised repairs or modifications.
- Keys should only be issued to qualified drivers who should retain them until the end of the shift. Never leave the key in an unattended truck.



- When mounting and dismounting, use the steps provided and ensure that the truck is securely parked.
- Travel with the forks within 150mm of the ground and the mast tilted slightly back.
- Drive on the left unless it is safer to drive in the middle for visibility or clearance, or site rules and procedures specify otherwise. Obey site rules and take particular care where there are pedestrians.
- Do not lift loads on defective pallets.
- Never enter any area unless the floor loading is sufficient
- Keep all of your body inside the truck
- Seat belts where fitted must be used.
- Always look in the direction of travel. When loaded, travel down or up slopes with the forks facing uphill. When unloaded, travel up or down slopes with the forks facing downhill. Special instructions are needed when using portable ramps etc. Never try to turn where there is insufficient space or where there is an incline.
- Sound the horn at blind spots and corners. Stop before doorways and sound the horn before proceeding.
- Avoid sharp turns or heavy braking.
- Do not run over cables or pipes unless they are suitably protected. Check the suitability and security of bridge plates before driving over them.
- Do not enter lifts or vehicles without authority and always check capacity.
- Trucks should not be used to carry persons unless they are specifically adapted for that purpose.
- When leaving the truck even if just for a few minutes, make sure that the forks are down, the handbrake is on and the engine is out of gear. If the truck is to be out of your sight, stop the engine and remove the key. Do not park your truck where it will block access routes or fire escapes, and always park on level ground.
- At the end of work the truck should be parked in the parking area with the forks lowered, the engine switched off, and the gears left in neutral. Electric truck batteries should be disconnected, gas truck gas taps should be turned off and keys should be returned for safekeeping.
- Do not park on a slope. Where this is unavoidable, chock the wheels.
- Always park with the wheels straight and the handbrake on.

#### Protection of Personnel

- Always proceed with caution and comply with site rules, signs and traffic controls.
- Always give priority to pedestrians.
- Make sure you can see in the direction of travel at all times, if necessary use reverse travel. Use banksmen for operating in congested or busy areas.
- When your load obscures forward vision do not reverse up slopes, proceed forwards and use a banksman.
- Be aware of rear-end swing when turning.
- Never let an unauthorised person drive your truck.



- Always follow key control procedures, and leave your truck in a safe state when not in use.

### Stability

- Never exceed the rated capacity of the truck. Refer to the capacity plate to ensure that the truck will not be overloaded or become unstable.
- Distribute the load evenly.
- Never lift a load using only one fork.
- Keep the forks low and the mast tilted back slightly when travelling.
- Keep load uphill when driving up and down slopes, even if you have to reverse.
- Cross railway tracks and kerbs diagonally.
- Go slowly when turning, especially on bumpy or uneven surfaces.
- Do not angle or turn on slopes and always travel slowly.
- Take care on wet or slippery surfaces.

### Safe Handling of Loads

- Assess the weight and suitability of the load.
- Ensure that it is evenly and securely supported.
- Do not pick up a load if someone is standing close to it.
- Before lifting the load, make sure the headroom is adequate and that objects which could fall from the load will not be dislodged.
- Do not pick up loads, which can divide into separate parts.
- Do not allow people to walk under loads.
- Do not move loads that seem unstable.
- When using timber pallets follow safe working practices.
- Never lift loads on damaged pallets.
- Never discharge a load by stopping suddenly.
- Do not carry loads that block visibility unless it is safe to reverse or you have a banksman.
- When operating with the load raised move at creep speed.
- Special care will be required when unloading trailers, stacking pallets, and when lifting stacking or nesting around objects.
- Care must be taken when handling freely suspended loads, as these can swing and cause damage or tip over. De-rate the capacity of the fork truck.
- Wide loads must be adequately supported to minimise the effect on sideways stability.
- Partly filled liquid containers can cause damage and tip over and should be moved smoothly and carried close to the ground.
- Tandem lifting using two trucks for difficult or awkward loads can be dangerous and should only be used when there is no practicable alternative. More than two fork trucks should never be used. A proper assessment of the loads on each truck should be made. Tandem lifting should be supervised by a competent person who can direct each operator by clearly recognisable signals. Before lifting, the competent person should make sure that the load is equally distributed between both trucks and is firmly secured.



## Attachments

Fitting attachments may alter the characteristics of the truck and will usually mean de-rating the truck to reduce its capacity. De-rating should only be carried out by a qualified person and should be in accordance with the manufacturer's instructions where possible. Attachments themselves have a weight and this reduces the capacity of the truck. The effect of this additional weight should always be remembered.

Attachments can be mounted on the fork arms or directly onto the carriage. In all cases they should be securely fastened and not foul the operation of the mast.

Attachments must not be used for tasks for which they are not designed, and should always be used with care, by operators who are trained in their use.

Instructions for the use of the attachments should be followed at all times.

At the start of each shift, the security of the attachment should be checked and any defects reported. The attachment should not be used until the faults have been rectified.

## Working Platforms

Where trucks are used to lift working platforms, special care is necessary.

Only specially designed and guarded platforms should be used, and they should have been suitably examined and inspected.

The parking brake should be applied and the transmissions should be in neutral before the platform is lifted.

The mast should be kept vertical throughout the process and side shift forks should be kept in the central position. These controls should be locked so that they cannot be accidentally operated.

Where practicable, the controls for lifting and lowering the platform should be fitted to the platform. Where the raising and lowering of the platform is controlled from the truck, the driver should be in constant attendance.

The HSE recommend that only fork trucks of 1-ton basic capacity and above should be used for carrying a personnel platform.

Always de-rate the capacity by at least 50% when carrying personnel, before allowing for the weight of the personnel platform. If in doubt seek further guidance.



## Stacking and De-stacking

### To Stack

- Stacking and de-stacking should not be attempted on inclines as the stack may be unstable and the truck could also overturn.
- If the fork tips extend beyond the load make sure that they do not come into contact with other loads in the stack.
- Loads should be carried against the back of the forks or the load backrest rest.
- The fork spread should be adjusted to suit the load.
- Assess the weight of the load and its centre of gravity.
- Make sure that the load does not exceed the capacity of the truck.
- Approach the stack with the load low and the mast tilted back.
- Slow down at the face of the stack, stop and apply the parking brake.
- Reduce the backward tilt to the minimum necessary to stabilise the load.
- Look up and check for obstructions and raise the load to the required stacking height.
- When the load is clear of the top of the stack, move slowly forwards, taking care not to dislodge loads on adjacent stacks.
- When the load is over the stack, stop, apply the parking brake and bring the mast to the vertical position.
- Lower the load slowly and smoothly onto the stack.
- Once the load is securely stacked, lower the fork arms until they are free of the pallet.
- Make sure that the way is clear and withdraw carefully keeping a lookout to the front and rear. A slight tilt of the fork arms may be of assistance.
- When clear of the stack, apply the parking brake, lower the form arms to the travel position, tilt back slightly, check that the way is clear before releasing the parking brake and driving away.

### To De-Stack

- Halt at the face of the stack and apply the parking brake.
- Bring the mast to a vertical position.
- Adjust the fork width to suit the load and ensure that the weight of the load is within the capacity of the fork truck.
- Look up and raise the forks to a position permitting clear entry for the forks.
- Insert the forks by driving slowly forward until the heels of the fork arms touch the load or the pallet.
- Apply the parking brake
- Lift the load clear of the stack and tilt the mast back just enough to stabilise the load
- When the load is clear of the stack, check that the way is clear, release the handbrake and move slowly backwards until the load and forks are clear of the stack. Take care not to dislodge other items from the stack.
- Apply the parking brake



- Lower the load smoothly into the travelling position applying further backward tilt. Make sure that the way is clear before releasing the handbrake and moving off.

### Use of Trucks on Public Roads

There are legal restrictions on use of fork trucks on the highway. For precise information, your employer should contact the DVLA.

- Check with your employer before venturing out onto public roads.
- For use on public roads, trucks should be suitably taxed and insured, and should have suitable lights. The operator should hold a Category B driver's licence. A HGV licence is not required.
- There are limits on age, depending on the size of the load.
- When travelling along the highway unloaded, the forks should be removed, withdrawn or folded, or suitably highlighted to warn other road users.

### Use in Potentially Explosive Areas

Extreme care is required when using trucks in confined spaces and in areas where there is a risk of explosion because of flammable vapour, dust or gas concentrations.

Petrol and LPG trucks should not be used in confined spaces or in potentially explosive atmospheres.

Electric trucks must be protected to the required standard.

Where diesel trucks are used in explosive atmospheres, the electrical system and hot surfaces must be protected and the exhaust must be fitted with a spark guard. There must be provision to prevent intake of the explosive atmosphere into the engine.

A detailed risk assessment of the potential hazards must be carried out and, if necessary, only flame protected fork trucks should be used.

## Section 2. Advice for Employers

### Legal Requirements

As an employer, you have a duty under the Health and Safety at Work Act 1974 to ensure as far as reasonably practicable, the health and safety of your employees and others while at work.

Specific regulations, which you must obey, include the Management of Health and Safety regulations, the Workplace Health Safety and Welfare Regulations, The Provision and Use of Work Equipment Regulations, the Lifting Operations and Lifting Equipment Regulations, the Noise at Work Regulations, The Personal Protective Equipment Regulations and the Control of Substances Hazardous to Health Regulations. These all place duties on employers and employees.





Guidance is produced by the Health and Safety Commission, the Health and Safety Executive and industry bodies. This guidance should be consulted in conjunction with the Regulations to ensure that you are complying with the law.

## Truck Selection

Equipment provided for use at work should be suitable for the task. For fork trucks, this would include consideration of the work place environment, the loads to be lifted, the capacity of the truck and any requirements for additional attachments or special operations.

General safety features to consider when selecting and operating trucks would include:

- Manufacturers and suppliers' maintenance and operating instructions must be provided and complied with.
- Operating controls must be clearly marked and the truck's capacity must be marked in the rating plate. Capacity depends on the rated capacity, the lift height and the load centre.
- The counterweight provides stability and should not be changed or altered unless specified by the manufacturer.
- For electric counterbalance trucks the correct batteries must be used otherwise stability will be affected.
- Overhead guards should be fitted on all counterbalance fork trucks.
- A load backrest guard should be fitted where there is a risk of small objects falling onto the operator and causing injury.
- Parts which can cause injury must be guarded if they can be reached by the operator.
- Lights should be fitted for visibility and consideration should be given to fitting a yellow flashing warning light to the truck.
- The operator's seat should be properly secured, designed and kept in good repair to provide comfort, prevent fatigue and minimise vibration.
- A securely mounted operator restraint should be fitted and used in accordance with the Provision and Use of Work Equipment Regulations (1998).

## Supply of Information

Suitable and sufficient information on operating and maintenance is provided by Ace Handling, and should be passed on by the employer to the employees. Using this information, the employer should assess the risks involved in the operation and maintenance processes and the methods and procedures used to reduce them.

## Training

Employers must ensure that all employees who use the equipment are suitably trained in the risks involved and the correct procedures, to reduce the risks to the lowest reasonably practicable level.



It is a requirement that all operators who drive fork trucks are suitably trained and certificated. Training can be supplied by Ace Handling that complies with the Approved Code of Practice for Rider Operated Lift Trucks.

Training is split into three parts: basic training, specific job training and familiarisation training. Training alone will not ensure competence. Supervision and follow up will be required to maintain a safe working environment.

Basic training is carried out off the job and is linked to a particular type of truck. If a different type of truck is to be used at a later stage, conversion training will be required. Basic training covers the risks and safe operating procedures for the truck and for associated hazards such as refuelling.

Specific training includes operating principles specifically suited to the equipment to be used and the work, which will be done such as loading particular types of vehicles, handling loads, and materials of the type found in the work place.

Familiarisation training should be carried out on the job under normal working conditions and will include site layout, emergency procedures and particular features, which cannot be taught off the job. Close supervision is necessary until the training is complete. Familiarisation training should be carried out again when the equipment is in use or the nature of the work or workplace changes.

Training should include the safe use of restraint systems and other safety equipment. If appropriate it should also include special guidance on when seat belts may not need to be worn.

No person should be employed to operate a lift truck unless basic testing and training have been completed. Where new employees claim that they have been trained previously, employers should look for evidence of training and ensure the suitability of the training for the equipment, which is to be operated. Further training will be necessary before the employee can work without supervision.

Refresher training will be necessary where there is a change in the working conditions or where people have not used trucks for some time. Conversion training can be used to extend the types of trucks that operators can drive.

Employers must keep a record of those have received training and the type of training and truck.

#### Operator Selection

Operators, must be at least 17 years of age, should be carefully selected and should have a mature and responsible attitude to their work. When driving on a public road, for trucks over 3.5 tonnes the operator must be 18, and for trucks over 7.5 tonnes the operator must be over 21.



It may be necessary to carry out selection training to avoid wasting time and resources training unsuitable people.

Reasonable intelligence and mental and physical fitness are required. Reasonable eyesight is necessary and the ability to hear warning sirens and alarms is important. Epilepsy should not bar people from selection, provided that they are medically fit to drive a car. Disabled people should not be automatically excluded, but their competence and capacity in an emergency should be considered.

Drug and alcohol dependents should not be selected.

#### Authorisation

Authorisation should be in writing and should only be given for the type of truck for which the three stages of training have been given. It may be issued on an individual basis or kept centrally by the employer. Authorisation should include date of authorisation, type of truck authorised and any special conditions or exclusions which are in place. Authorisation should only be given for a specified period and should be withdrawn where operators fail to comply with operating procedures and rules.

Renewal of authorisation should only be given where the employer is satisfied with the operator's continuing competence.

#### Care and Maintenance

Maintenance requirements and safe working procedures should be based on the manufacturer's instructions and the employer's risk assessment. Those carrying out maintenance work should be competent and suitably trained.

The requirements of the COSHH regulations should be complied with for hazardous substances present during the maintenance and use of fork trucks. There are health risks associated with mineral based oil products, cleaning solutions and battery acid. These should be assessed, and appropriate protection measures should be devised and included as part of safe procedures. Personal protective equipment may be necessary and would include, as a minimum, gloves and safety glasses.

#### Inspection and Examination

Operators should be trained in daily maintenance checks and inspection routines.

To comply with the requirements of the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER), fork trucks and other lifting equipment must be the subject of a Thorough Examination by a competent person at the correct intervals.

- All such equipment must have a Thorough Examination by a competent person at least every 12 months. Fork trucks that operate at an intensity greater than a single shift and/or those which operate in a harsh environment may require more frequent Thorough Examination.



- Regardless of the frequency with which people are lifted, any truck, which may be used to lift persons, either as part of its design or by using a cage attachment, must have a Thorough Examination by a competent person at least once every 6 months.
- The results of Thorough Examinations must be recorded on a document, which complies with Reg. 10 of the LOLER Regulations.

### Organising the Operating Area

A risk assessment should be carried out to identify the risks within the workplace and the fork truck operation. Traffic routes and control, obstructions and dangers, and the risks to pedestrians should be identified. The safe operation of trucks and other vehicles including identification of suitable loading, storage and maintenance areas, floor loading capacity, and stacking facilities should be considered. The following list includes some specific points which may need to be assessed or included as part of a safe system of work:

- Traffic flow and segregation, including the use of traffic signs and signals and one-way systems to reduce risks in areas where traffic will meet.
- Segregation of pedestrians and vehicles. Prohibit pedestrians from the work area where possible. Where this is not possible, barriers, pedestrian crossings and give way markings and signs should be used. The use of audible warning devices may be considered, but background noise and the numbers of trucks operating should be taken into account. Where risks can't be otherwise controlled, use of high visibility clothing should be considered.
- If possible, excessive reversing distances should be reduced by re-designing the task, process or the workplace.
- Roads, gangways and aisles should have sufficient width and heights to allow loads to pass in safety. Where sharp bends or obstructions can't be removed they should be protected by barriers and highlighted with black and yellow stripes.
- Transparent curtains and doors can be used to increase safety. The edges of inspection pits and loading bays should be marked and fitted with barriers where possible.
- Overhead power lines should be of sufficient height and suitably protected, traffic routes should be organised so that it is not possible to come near to power cable.
- Surfaces should be as level and firm as possible and gradients should be as smooth as possible. Potholes and loose materials present a hazard. Gradients should not exceed those given in the manufacturer's instructions for the truck. Road humps are not suitable and should be avoided where lift trucks are operating, unless gaps are provided to allow fork trucks to operate safely.
- Lighting inside and outside the building should be adequate, particularly at junctions and crossings, near buildings and plant, in pedestrian areas and in areas where trucks will pass into the building from outside. Lighting should be arranged to avoid glare.



- Parking should be secure or supervised and separated from operating areas and areas where refuelling or battery charging takes place. Keys should be kept under control.
- Exposure to noise should be considered and should take into account the background noise in the workplace, the noise produced by the truck, and the number of trucks, which are working in the area. Reduction of noise at source should be employed as a first measure, and trucks should be chosen accordingly.
- Ventilation in the work place should be sufficient to prevent the build up of fumes and the consequential risk to health and risks of explosion or ignition. It is important that the air and exhaust filters of diesel trucks are checked and maintained correctly.
- Fuelling areas should be carefully sited so that they are away from buildings, working and parking areas, sources of ignition, vents, pits and ducts. 'NO SMOKING' and 'NO NAKED LIGHTS' signs should be placed in the area.
- Battery charging should only take place in a clearly marked area away from sources of ignition and away from transit parking and work areas. The area should be cool, well ventilated and signed 'NO SMOKING' and 'NO NAKED LIGHTS'. The truck, battery and charger should comply with the provisions of the Electricity at Work Regulations.
- The employer should provide appropriate personal protective equipment suitable for the hazards in the work environment. Operators should wear head protection where there is a risk of head injury. If, as a result of a risk assessment, it is determined that seat restraints may not be worn in certain operating areas then suitable signs may be used to indicate those areas where restraints must be used.