



Safe Use of Telehandlers In Construction

Safe Use of Telehandlers

Two of the most significant hazards associated with telehandler operation are lateral stability

and visibility.

Lateral stability

As a load on the forks of a telehandler is lifted, the centre of gravity of the whole machine rises. This does not matter if the machine is level: if however the machine is on a cross slope, the centre of gravity will move towards the tipping line as the load is raised with a risk of overturning. This effect is exacerbated when the telehandler is driven with a raised load. Lateral stability is also an issue when lifting and travelling with suspended loads as the load may swing, adding to potential instability.

Visibility

Restricted visibility when the boom is raised or when large loads are carried, plus poor segregation have been identified as a major cause of accidents involving pedestrians and telehandlers. Telehandlers are often fitted with aids to improve visibility and the operator's awareness of people in the vicinity of the telehandler. These aids should be in good working

order and properly adjusted. It is the operator's responsibility to check the condition of all secondary aids to visibility and **NOT TO USE THE MACHINE** if they are not present or not working correctly. It is the Supervisor's responsibility to fully support the operator in this action.

Whilst the Principal Contractor has the primary responsibility to ensure adequate segregation and the Supervisor must ensure that it is enforced, it remains the operators responsibility to look around and check for the absence of pedestrians before moving and whilst manoeuvring and travelling. If the operator cannot see clearly, they should seek assistance or leave the cab to look around to confirm it is safe to continue the procedure.

Wherever possible pedestrians should be segregated from moving vehicles, including telehandlers. Visibility aids and operator vigilance are valuable control measures, but segregation should always take priority.

Thought should also be given to the operator's ability to keep the load in view at all times, particularly with high reach telehandlers where the operator may have difficulty in judging distance at height.

Definitions

attachment

bucket or other device which can be easily attached to the boom of a telehandler, either directly or via a quick hitch

de-stacking

removing loads (generally palletised), from a vertical stack

duties

configurations in which the telehandler can be used and the rated capacity for that configuration (i.e. lifting unit loads on forks or lifting suspended loads with stabilizers deployed)

fork arm extensions

manual or hydraulic extensions to increase the length of fork arms and used to reach loads in deep racking or to handle extra depth loads.

lifting operation complexity

measure of the complexity of a lifting operation taking into account both the complexity of the load and the environment in which it is being lifted (See **Figure B1** in **Annex B**)

lifting attachment

hook or jib which can be easily attached to the boom of the telehandler, either directly or via a quick hitch, to facilitate the lifting of suspended loads

quick hitch

device to facilitate the efficient connection and removal of attachments to telehandlers

NOTE: Also known as *Quick hitches, Quick Couplers or Attachment Brackets (Quick fastening)* **rated capacity of telehandler**

load that the telehandler is designed to lift for a given operating condition (e.g. configuration, position of the load)

NOTE: The *rated capacity* was formerly known as “safe working load” (SWL) **rough terrain telescopic handler (RTTH)** see telehandler

stability

longitudinal stability

stability of the telehandler along the centre line of the machine. i.e. the tendency to tip forwards or backwards

lateral stability

stability of the telehandler at right angles to the centre line of the machine. i.e. the tendency to tip sideways

stability triangle

diagrammatic representation of the tipping lines for a non-rotating boom telehandler

stabilizer

aid to the supporting structure connected to the base of the telehandler to provide stability, without lifting the chassis from the ground

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stacking

placing loads, generally palletised, on top of each other in a vertical stack

side-shift carriage

fork carriage enabling horizontal sideways movement of the fork arms to allow precise positioning.

telehandler

non-rotating boom

a wheeled, counterbalanced, powered truck which embodies a variable reach lifting mechanism consisting of a telescopic elevating boom, normally equipped with a fork carrier at its expanding end

NOTE: Also known as *Rough Terrain Telescopic Handler (RTTH)* or *Variable Reach Trucks (VRT)* rotating boom

a wheeled, counterbalanced, powered truck which embodies a variable reach lifting mechanism consisting of a telescopic elevating boom mounted on a rotating turret, normally equipped with a fork carrier at its extending end

thorough examination

examination by a competent person in such depth and detail as the competent person considers necessary to enable them to determine whether the equipment being examined is safe to continue in use

NOTE: *The thorough examination is not part of the maintenance regime for the equipment but additionally provides owners with information which could be used to determine the effectiveness of the regime.*

tipping line

the horizontal line about which a telehandler will rotate, should it overturn

undercutting

lifting with the tip of the forks situated under the outer edge of the load to enable the load to be placed adjacent to a wall

working platform

platform attached to the boom of a telehandler to provide a safe means of access for persons working at height

integrated working platform

attachment with controls that are linked to and isolate the telehandler controls so that in normal use, only a person in the platform can control the lift height of the platform and machine movements

non-integrated working platform

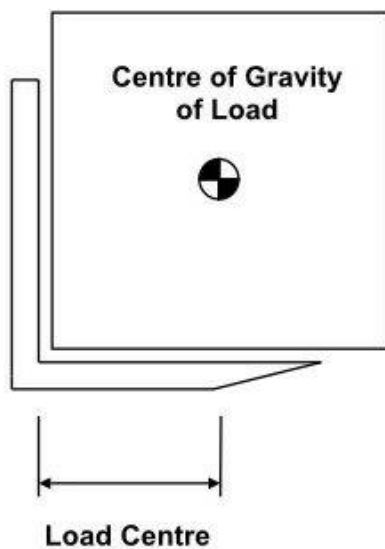
attachment for use in conjunction with a telehandler to elevate people so they can work at height, but they have no controls in the platform that allow a person in the platform to control the lift height of the platform or move the chassis; i.e. all telehandler and working platform movements are controlled by the telehandler operator

Non-integrated platforms attachments must not be used for planned tasks on construction sites

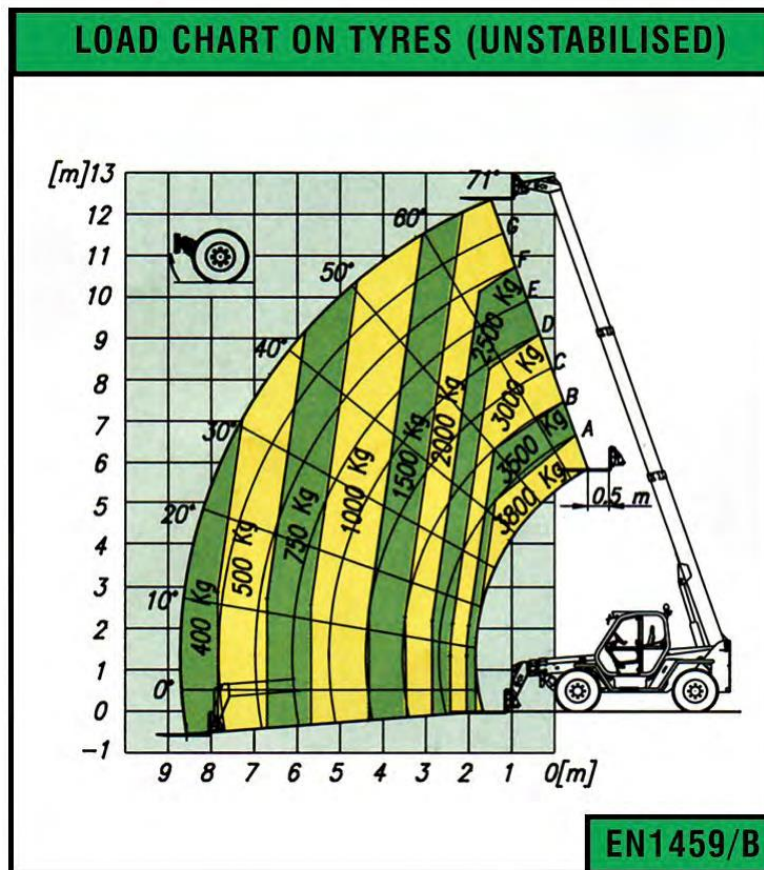
load centre

the distance from the centre of gravity of the load to the front face of the fork shank (vertical member) (See **Figure 1**)

Figure 1 – Load Centre



load chart durable load chart which should be affixed in a prominent position, easily readable by the operator including information on



Example Load Chart

longitudinal load moment indicator (LLMI)

device that warns the operator of a change to the load handling geometry which would increase the longitudinal load moment, beyond pre-determined limit(s)

longitudinal load moment control (LLMC)

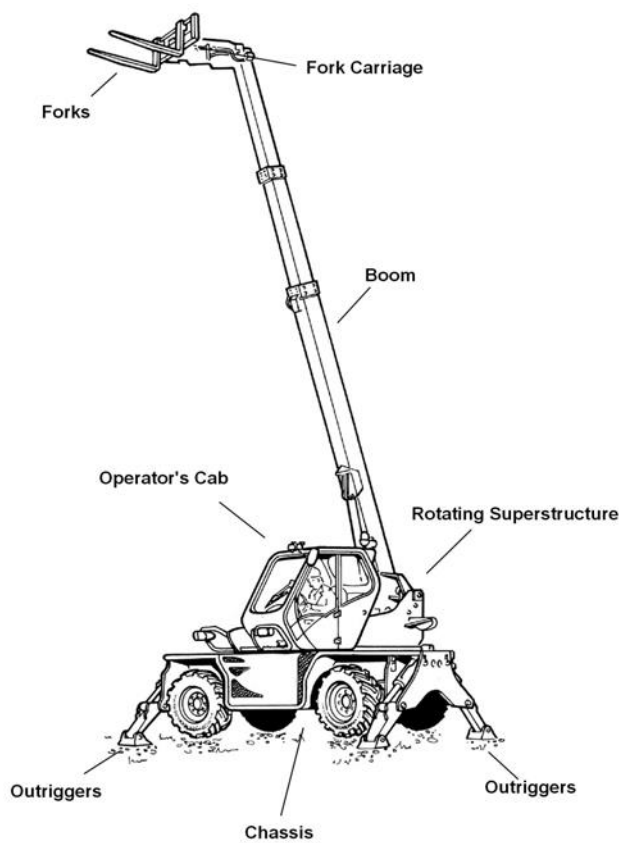
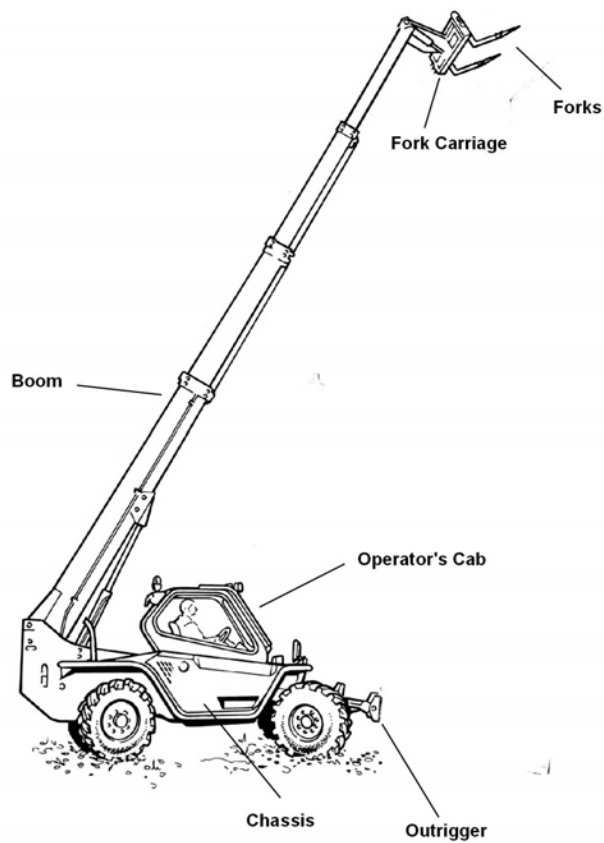
device that prevents the operator changing the load handling geometry in direction(s) which would increase the longitudinal load moment, beyond the allowable limit(s)

method statement

document produced to describe the safe system for the use of a telehandler

outrigger

device to increase the stability of the telehandler by increasing the supporting base and lifting the chassis clear of the ground



Telehandler Principles

For safe operation of telehandlers it is vital to have an understanding of their design criteria, expected use and limitations. Use outside of those areas is adding extra hazard of which the operator must be aware.

Design Principles

Telehandlers are generally designed to European Standard BS EN1459. The scope of this Standard very clearly states that it applies only when the telehandler is stationary and lifting on substantially flat, level and compacted ground or travelling with a load. It also applies only to use with forks. Consequently if a telehandler is used in other circumstances such as travelling or lifting on slopes or with attachments other than forks, the additional risks need to be reassessed.

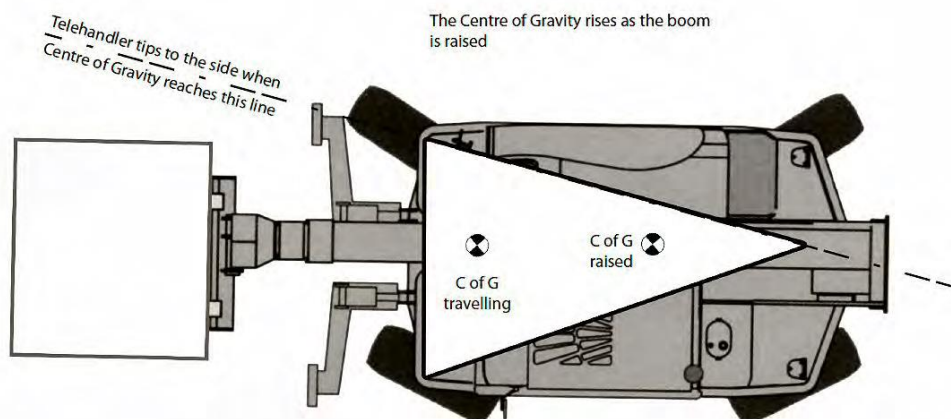
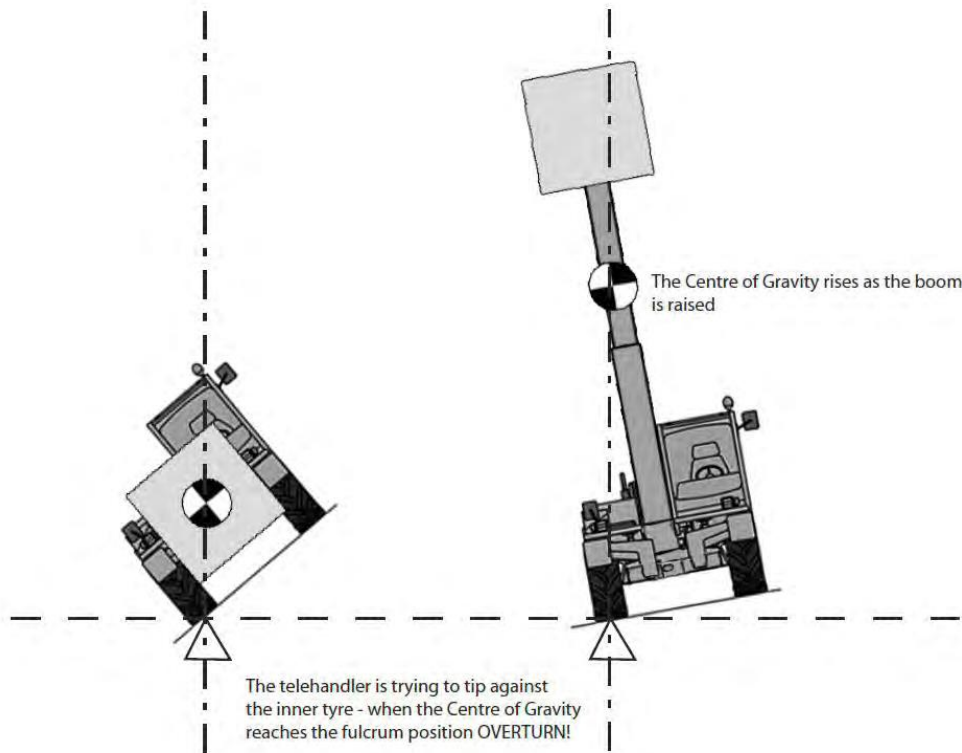
As part of the test process to ensure conformance with the Standard, telehandlers are placed on a platform, which must be tilted to present angles to assess stability. Across the slope, and with rated maximum load at full lift height*, this angle is only 7°. Most telehandler operators and supervisors, when asked, estimate that it is in the region of 25°- 30°, which is a significant over estimate.

**NOTE: The procedure is somewhat more complicated than this in reality*

With the rated load in the travelling position the minimum tilt platform angle required is somewhat greater at 26 degrees. However, it is clear that raising the mass of the boom and/or load greatly decreases stability as shown in **Figure 5**.

- Lateral Stability

Because telehandlers normally have freely oscillating rear axles, the tipping lines form a triangle, rather than the rectangle of machines supported on outriggers such as rotating boom telehandlers and mobile cranes. This has the effect of reducing lateral stability, particularly with the boom raised.



Because a telehandler normally has a freely oscillating rear axle, the balance is actually against a triangle - the Stability Triangle. As the boom is raised, the Centre of Gravity moves rearwards as well as upwards. So, as the boom is raised, the telehandler quickly becomes less stable to the side and more stable to the front!

- Typical Stability Triangle for Non-rotating Boom Telehandlers

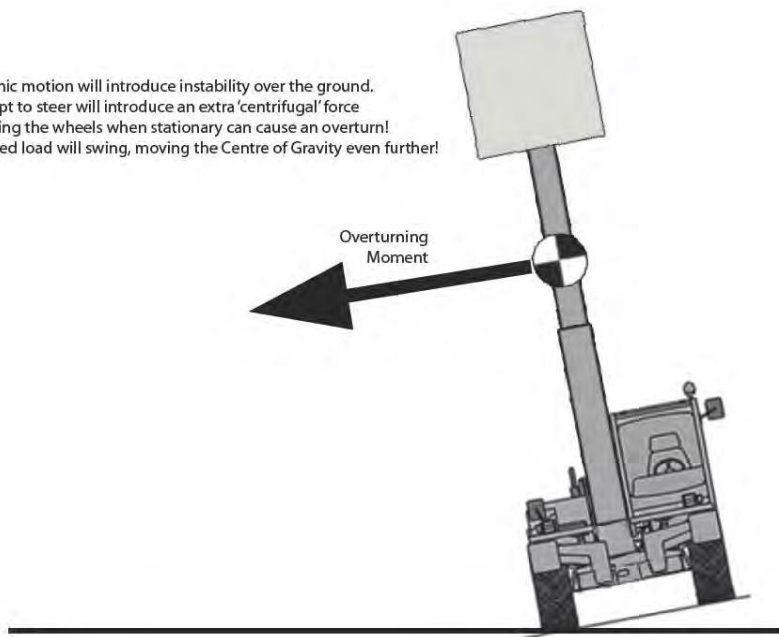
Figure 7 below shows how telehandler stability is affected by travelling.

- Dynamic Stability

All the stability tests carried out on telehandlers during their design and development are performed with a standard load which consists of a cube with 1 metre sides. Using a load with physically larger dimensions,

or which is not homogeneous, presents extra risks that must be assessed.

Any dynamic motion will introduce instability over the ground.
Any attempt to steer will introduce an extra 'centrifugal' force
Even steering the wheels when stationary can cause an overturn!
A suspended load will swing, moving the Centre of Gravity even further!



To maintain stability a telehandler:

- • Should only be used on firm ground that resists sinking of the wheels or stabilisers (if fitted);
- • Should lift vertically, either being on level ground or using a frame levelling feature;
- • Should be stationary with the brake applied, for all "normal" lifts;
- • May be less stable with a different shaped load;
- • Should only be used by a trained, certificated and competent operator.



The Effect of Tyres on Stability

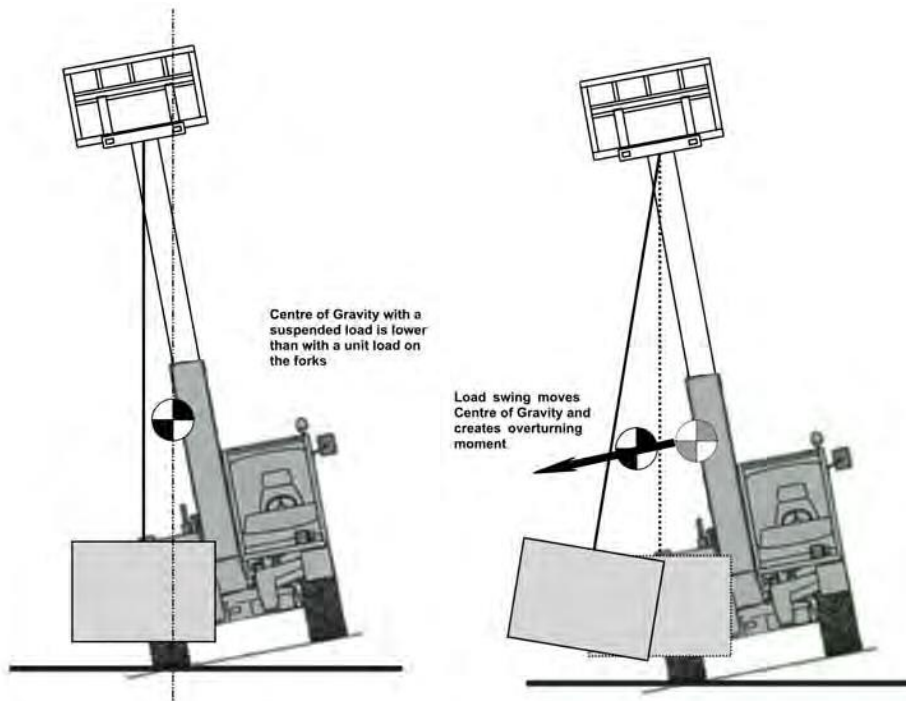
Tyres play a vital part in the stability of telehandlers. Stability and load carrying capacity can be adversely affected by issues such as:-

- • Incorrect tyre pressure;
- • Differences in diameter of tyres on the same axle due to differential wear;
- • Incorrect ply rating;
- • Use of tyres which are not of the required performance specification;
- • Tyres with identical nominal sizes being of different physical size;
- • Poor tyre repairs.

- ***Load Moment Indicators***

- From the first designs in the mid 1970s, telehandlers have been fitted with a device that monitors the tendency of the telehandler to tip over in the forward direction. The correct name is a Longitudinal Load Moment Indicator or LLMI.

- It's vital to understand the functioning and, particularly, the limitations of this device. First, and most important, **it is not a Safe Load Indicator!**
- The LLMI works by sensing the load upon the back axle. As the load on the forks is increased, or the boom extended, the load moment (load x distance) increases and the rear axle becomes 'lighter'. At a present value, the LLMI sounds and shows a warning. However the LLMI only senses forward stability, not rearward or lateral stability and it is essential that operators understand this limitation.
- Some manufacturers have linked this with a control device, which blocks further de-stabilising motion when the stability limit is approached. In this case, the device is called a Longitudinal Load Moment Control or LLMC. These are fitted on **new** telehandlers manufactured after September 2010, however there is no requirement to retrofit on older machines.
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- ***Driving with the Boom Raised***
- Telehandlers should always be driven with the boom lowered to ensure that the centre of gravity of the machine and the load is as low as possible. Driving with the boom raised should never be considered as "normal" practice, for all of the above reasons. It introduces an extra risk that must be assessed.
- If the site is so restricted that manoeuvring is impossible without raising the boom, site management should re-assess the use of a telehandler at all or, at least, consider reselection of the machine chosen.
- In the past, operators have raised the boom in order to see under it. The modern design of telehandler makes this unnecessary and regular driving of a telehandler with the boom raised should **ALWAYS** be challenged by supervisors.



- Figure 9 - Lateral Stability for Suspended Loads
- Figure 10 - Dynamic Stability for Suspended Loads

Visibility

Visibility of Persons in the Vicinity of the Telehandler

Restricted visibility when the boom is raised or when large loads are carried, plus poor segregation have been identified as a major cause of accidents involving pedestrians and telehandlers. Telehandlers are often fitted with aids to improve visibility and the operator's awareness of people in the vicinity of the telehandler. These aids should be in good working order and properly adjusted. It is the operator's responsibility to check the condition of all secondary aids to visibility and **NOT TO USE THE MACHINE** if they are not present or not working correctly. It is the Supervisor's responsibility to fully support the operator in this action.

Some parts of a telehandler work cycle present particular challenges. A suspended load, for example, will clearly block some forward view, but the raised boom may also obscure the view to the side. If a telehandler is to lift suspended loads on site, the physical dimensions of the loads and their effect upon visibility must form part of the Risk Assessment.

If a telehandler is used to load or unload a truck, the partially raised boom will obstruct view to the forward offside and may block the wing mirror giving visibility to the rear offside. The safest way of using a telehandler to load/offload is to keep the machine stationary and use the telescopic facility of the boom, rather than using the wheels. The driver of the truck should remain in a designated safe location for such operations.

Whilst the Principal Contractor has the primary responsibility to ensure adequate segregation and the Supervisor must ensure that it is enforced, it remains the operator's responsibility to look around and check for the absence of pedestrians before moving and whilst manoeuvring and travelling. If the operator cannot see clearly, they should seek assistance or leave the cab to look around to confirm it is safe to continue the procedure.

Advice on the selection of visibility aids is given in **4.6**.

NOTE: *The offside is the right hand side of the telehandler when facing forward*

Visibility of the Load Being Lifted

The vertical reach of telehandlers is increasing all the time and at the time of writing is up to 22m. As a consequence, the operator will not always be able to keep the load in full view and may have difficulty in judging the distance of the load from the landing/pick-up point or any obstructions. This issue should be taken into account when planning telehandler operations and consideration given to whether or not a telehandler is the most suitable machine for placing loads at great heights.

Where it is clear that the operator is not able to keep the load in full view or will have difficulty in judging the distance of the load from the landing/pick-up point or any obstructions, a signaller should be provided.

If a signaller is used, consideration should be given to the means of signalling i.e. hand signals or portable radio.

Some telehandlers allow the use of remote controls for boom functions which may mean that the operator can keep the load in view at all times.

There are however several potential disadvantages that must be taken into account in planning the lifting operations:-

- • The telehandler operator may well be at risk of tripping and falling when trying to move around the site over uneven ground whilst concentrating on controlling the telehandler. Pedestrian operated telehandlers should only be controlled whilst the operator is stationary;
- • The operator may not have a good view of the load and any obstructions, consequently the operator must always have the telehandler boom and load in sight at all times, unless working under the direction of a signaller who has a clear view of the load and load path.

Stability of the Load

When using a telehandler for loading or unloading a vehicle or stack, care must be taken to ensure that the load on the vehicle or stack is stable. Unless the correct sequence of loading or unloading is followed there is risk of the load becoming unstable with the potential for injury to persons in the vicinity. Loading should always be carried out with unloading in mind. Vehicles should always be loaded from the front or as directed by the vehicle driver, working from side to side and distributing the load evenly. Unloading should be carried out by reversing this sequence. When loading uncoupled articulated trailers, the first part of the load should be placed over the rear axle before loading from the front of the trailer.

Care should also be taken to ensure that the part of the load on the vehicle or stack is not dislodged by contact with the telehandler carriage, forks or other attachments. During loading and unloading measures such as exclusion zones or barriers, should be put in place to ensure that personnel are kept clear of falling loads.

Before lifting a load it should be assessed to ensure that it will be stable and secure during lifting. The forks should always be evenly spaced on either side of the centre of gravity of the load. Long or irregularly shaped loads may have a centre of gravity which is close to the edges of the forks and may well result in the load falling during lifting. Long loads can be easier to control where a wider fork carriage is used (See **Figure 19**)

and personnel should be kept clear of the load. They should **NOT** be asked to steady the load!

The practice of “undercutting” where the load is lifted on the ends of the forks, rather than back at the heel, closest to the fork carriage, is often used when the load is to be placed adjacent to a wall or another item. This practice will reduce the rated capacity of the telehandler and may affect the stability of the load as its centre of gravity may be near or beyond the end of the forks.

Key Points for Telehandler Operators

- You have personal and legal responsibility to use all telehandlers safely. Serious misuse of telehandlers may well be treated as gross misconduct which could well lead to dismissal or individual prosecution;
- If it is not safe to start work - **Inform your supervisor**;
- If it is not safe to carry on working - **Stop and inform your supervisor**;
- Always follow the telehandler or attachment manufacturer’s instructions
- The lifting of suspended loads with telehandlers and travelling with those loads, is generally more hazardous than lifting unit loads on the forks of a telehandler. The CPA publishes specific guidance on this topic at www.cpa.uk.net

1. 1.0 Before Starting

- 1.1 Ensure that you are trained and authorised to operate telehandlers and have been familiarised with the specific make and model of telehandler you are to operate, including driving on the public highway (if applicable);
- 1.2 Verify with your supervisor that the telehandler has a current thorough examination report and has been suitably maintained;
- 1.3 Always carry out daily checks, including safety devices, before starting your shift;
- 1.4 Report all defects to your supervisor;
- 1.5 Ensure you have been briefed by your supervisor on the task, hazards, control measures (including designated exclusion zones) and site conditions that may affect the safe operation of the telehandler;

7. 1.6 Ensure that you are comfortable with carrying out the task;
8. 1.7 Ensure you have had authorisation from your supervisor to carry out the task;
9. 1.8 If it is not safe to start work - **Inform your supervisor.**

1. **2.0 During Use**

2. 2.1 Ensure that you understand the telehandler's limitations on the rating plate and load charts. Never overload the telehandler;
3. 2.2 Know your site – be aware of slopes, ground conditions, visibility, pedestrians and other potential hazards that may affect the safe operation of the telehandler;
4. 2.3 Wear your seat belt at all times to reduce the risk of injury should the telehandler overturn. **It could save your life!**
5. 2.4 Ensure you are familiar with using and changing any attachments you use. You must understand the attachment's effect on the telehandler's actual capacity and the need for any derating;
6. 2.5 Ensure you comply with the legal requirements for driving your telehandler on the public highway;
7. 2.6 If it is not safe to carry on working - **Stop and inform your supervisor.**

1. **3.0 After Use**

2. 3.1 When leaving the telehandler cab, park on level ground, lower the boom/attachments, apply the parking brake, leave the transmission in neutral, switch off and take the ignition keys out;
3. 3.2 Get in and out of the cab safely.

Key Points for Telehandler Operators - Lifting and Travelling with Suspended Loads

- • You have personal and legal responsibility to use all telehandlers safely. Serious misuse of telehandlers may well be treated as gross misconduct which could well lead to dismissal or individual prosecution;
- • If it is not safe to start work - **Inform your supervisor;**
- • If it is not safe to carry on working - **Stop and inform your supervisor;**
- • Always follow the telehandler or attachment manufacturer's instructions.

1. **1.0 Before Starting**
2. 1.1 Ensure that you are trained and authorised to operate telehandlers when lifting and travelling with suspended loads and have been familiarised with the specific make and model of telehandler you are to operate, including driving on the public highway (if applicable);
3. 1.2 Verify with your supervisor that the telehandler, lifting attachments and lifting accessories have a current thorough examination report and has been suitably maintained;
4. 1.3 Always carry out daily checks, including safety devices and lifting accessories , before starting your shift;
5. 1.4 Report all defects to your supervisor;
6. 1.5 Ensure you have been briefed by your supervisor on the task, hazards, control measures (including designated exclusion zones) and site conditions that may affect the safe operation of the telehandler. You should be given a copy of the lift plan or method statement for the task;
7. 1.6 Ensure that you are comfortable with carrying out the task;
8. 1.7 Ensure you have had authorisation from your supervisor to carry out the task;
9. 1.8 If you have a slinger/signaller assisting you, inform them that they must stay clear of the moving path of your machine, maintain regular eye contact with you and work to an agreed code of signals;.
10. 1.9 If it is not safe to start work - **Inform your supervisor.**

1. **2.0 During Use**
2. 2.1 Ensure that you understand the telehandler's limitations on the rating plate and the specific load charts for lifting suspended loads. Never overload the telehandler;
3. 2.2 Know your site – be aware of slopes, ground conditions, visibility, pedestrians and other potential hazards that may affect the safe operation of the telehandler;
4. 2.3 Drive slowly and carefully when travelling with a suspended load;
5. 2.4 Only travel on slopes if allowed by the manufacturer and ensure that you take extreme care when travelling on slopes with a suspended load;
6. 2.5 Wear your seat belt at all times to reduce the risk of injury should the telehandler overturn. **It could save your life!**

7. 2.6 Ensure you are familiar with using and changing any attachments you use. You must understand the attachment's effect on the telehandler's actual capacity and the need for any derating;
8. 2.7 Maintain regular eye contact with your slinger/signaller and stop your machine immediately if you lose sight of them;
9. 2.8 Ensure you comply with the legal requirements for driving your telehandler on the public highway;
- 10.2.9 If it is not safe to carry on working - **Stop and inform your supervisor.**

1. **3.0 After Use**

2. 3.1 When leaving the telehandler cab, park on level ground, lower the boom/attachments, remove lifting accessories, apply the parking brake, leave the transmission in neutral, switch off and take the ignition keys out;
3. 3.2 Get in and out of the cab safely.



General safety information for technical test

This is for guidance purposes only and does not relate directly to specific technical test questions. It should only be used as a refresher or as part of a training course and not in place of training. These notes are provided free for your use only and should not be reproduced or sold to another party.

Health and Safety at Work Act 1974 –

Designed to protect people and the environment from work

place activities. It places certain duties and responsibilities on employers, employees, self employed people, designers and manufactures.

- **Employers Responsibilities** - must ensure workplaces under their control are safe and free from hazards. Ensure the safety of employees, self employed, visitors,

trespassers and the general public who could be affected by the work. Everything they provide for use, tools, plant and equipment must be fit for purpose, safe to use and the personnel trained to use it

- **Employees Responsibilities-** must take care of themselves and others who may be affected by their acts or omissions. Co-operate with their employer. Do not tamper with or interfere with or misuse anything provided for safety
- **Failure to Comply with Legislation-** could result in loss of you job and all the financial implications that can bring but it could also result in prosecution. The severity of the breach of legislation and any accidents or incidents related will dictate what type of court proceedings you could face. If you have fulfilled your legal requirements and can provide proof of this in court then you would likely be found Not Guilty but if you were found guilty you could face a prison sentence or a substantial fine

To fully understand the above Act specific training and guidance is required

Method Statement- detailed description of how to carry out a job safely and efficiently. All involved in the work must be briefed on its contents. Workers must follow the Method statement unless they felt it is not suitable then they should stop and report it and have the method statement amended. Method Statement must only be amended by competent people

Risk Assessment- is a legal requirement before work starts. It is a detailed assessment of the risk involved in doing and job and provides information on how to reduce the risk level down to an acceptable level.

Hazards - this is anything which can cause harm to people plant or equipment.

- **Excavations or Trenches or Edges–** risk of collapse. The minimum distance to keep away from open excavations is at least the depth of the trench i.e. if its 2m deep you stay 2 m back



- **Sideways Rollovers Can Happen-** When the Excavator is driven across steep slope, driving too close to excavations or edges, working or lifting cross track, overloading, lifting full loading buckets at full reach

- **Working at Height-** any place you can fall from and be injured is considered working at height. The top of a mound, climbing into or out of a machine. Standing by the edge of an excavation
- **Slopes-** where ever possible the weight always faces up hill i.e. empty dumper skips face downhill and loaded skips face uphill. Extreme care should be taken if working across a slope. Avoid turning on slopes if possible
- **Overhead Cables-** the minimum distance to be maintained from overhead cables mounted on wooden poles is 9m from the greatest reach of the machine and 15m from cables on metal pylons. Electricity can arc or jump a gap.
- **Confined Spaces-** any where there is restriction on operating area can be considered a confined space. There is a greater risk of accident or damage. The minimum distance which should be maintained between a fixed obstacle and the machine is 600mm (this is deemed to be the smallest distance a person can go through without being injured). If this distance can't be maintained then the area should be fenced off and signs erected. Fumes, dust, noise, lack of visibility and insufficient room to manoeuvre are all hazards associated with confined areas
- **Plant Operations** – are regarded as “Safety Critical Operations” because of the potential risk of an accident. Plant Operators can cause harm to themselves or other people if they carry out an unsafe act.
- **Pedestrian Areas-** care should be taken when operating in pedestrian areas. A safe route for pedestrians should be provided with suitable signage and lighting. Enough room for material storage and vehicle movements is required. Noise, dust and fume levels should be reduced where possible. Required permits, method statements and risk assessments should be in place.

LOLER - Lifting Operations and Lifting Equipment Regs

This is an amendment to a European regulation. It deals with all aspects of lifting and has specific requirements including.

- Trained people and competent people doing the job
- Plant and equipment tested and certified
- Work planned and supervised
- **SWL** Clearly marked on all equipment
- **Thorough Examination** All plant used for lifting must be examined and certified by a competent person. If the plant is used for lifting personnel then it must be tested every 6 months if it is not used for lifting personnel then it is every 12 months. The purpose of the Thorough Examination is to check for structural damage as well as defective operation
 - **Lifting Accessories-** Must be suitable for the job, be tested and certified, be in good condition.

- **Lift Plan** Is a detailed description of how tons carry out a lift. An Appointed person produces the Lift plan, a lift supervisor implements the plan and supervises the job
- **Contract Lift** With a contract lift the crane company provide the lift plan, the equipment, the personnel and the insurance. They are in control of every aspect of the lift and assume responsibility for the lift
- **LOLER Register** Operators should complete the LOLER register weekly. Pre-use inspections should be carried out as per the Manufactures instructions. Recorded in the daily/weekly inspection sheet and any defects recorded
To fully understand LOLER specific training and guidance is required

PUPER – Provision And Use Of Work Equipment Regs

This is an amendment to a European regulation. It deals with the use of plant and equipment and has specific requirements including

- **Restraint Systems-** seat belts must be worn at all times to prevent injury in the event of the vehicle overturning
- **ROPS (Roll over Protection Structure)** -prevent injury in the event of the vehicle overturning
- **FOPS- (Falling Object Protection Structure)** prevents injury from falling debris. If fitted to a vehicle then you do not need to wear the hard hat inside
- **Training and Instruction-** you must receive adequate instruction and training on any equipment before you can operate it
- **Fit for Purpose-** work equipment must be fit for purpose and safe to use
- **Information- Operators Manuals** and other information relating to the safe use of equipment must be with the equipment. This is to allow operators to check and gain necessary information

To fully understand PUPER specific training and guidance is required

Environmental issues-

- **Refuelling-** should only be done in a designated area. Clean containers and funnels should be used. Any spillage should be cleared up using suitable equipment. Waste should be disposed off in designated bins.
- **Condensation-** the machine should be refuelled at the end of the shift to prevent condensation building up in the tank as the machine cools down
- **Reducing Environmental Damage** Operate safely, operate efficiently. Tip materials in designated places, don't mix materials, switch off when not in use, don't overfill when refuelling, check tyre pressures, report leaks or damage, clear up spillage, dispose of waste in designated bins. Follow method statements and COSHH assessments
- **Designated Routes-** should be adhered too. This will avoid damaging unspoilt ground, or completed work, or unnecessary contact will other plant or people