BEST PRACTISE

GUIDELINES

Safe Use of Telehandlers in the New Zealand Construction Industry

June 2016

TELEHANDLER OWNERS ASSOCIATION OF NEW ZEALAND

Safe Use of Telehandlers In New Zealand Construction

This publication contains a reproduction of "Safe Use of Telehandlers in Construction", published by the Construction Plant-hire Association (CPA), London, UK.

We acknowledge and thank the CPA for allowing the Telehandler Owners Association of New Zealand to use the content of their guidance document.

Note regarding legislative jurisdictions

The CPA document was written to reflect legislation and working practice in the UK. A number of amendments have been made to the CPA document to make it suitable for use in New Zealand. These include section 10.11 and Appendix K. The guidance in these sections is not applicable in the UK.

The CPA document is available from the CPA website at www.cpa.uk.net

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1. Introduction and Summary

This document has been published for the safe use of telehandlers in New Zealand.

Telehandlers (also known as Rough Terrain Telescopic Handlers or Variable Reach Trucks) make a valuable contribution to the construction process by enabling materials to be unloaded from delivery vehicles, transported around construction sites and placed at height (reach). They are versatile machines which can be fitted with a wide range of attachments such as buckets, skips, work platforms and crane jibs. Unfortunately there have been a significant number of accidents involving the use of telehandlers, which have tragically included a number of fatalities.

This document is intended to provide guidance on the management and supervision of the use of telehandlers on construction sites including planning, equipment selection, selection and training of personnel, provision of information, familiarisation, safe use, maintenance, inspection and thorough examination, together with monitoring of the whole process. It is essential that in managing the use of telehandlers, adequate attention is paid to all aspects of the process – selection of the correct equipment for the application, planning its use by suitably qualified people, monitoring the activity and rectification of issues; if any one aspect is ignored the probability of an incident will increase significantly, putting both the machine operator and people in the vicinity at risk.

The document structure starts with principles and moves on to specific requirements and information. This inevitably leads to information on certain topics, such as visibility, appearing in more than one section and is a deliberate strategy to ensure that readers who dip into the document are given adequate information in one place. A topic index had been provided at **Annex H** to facilitate easy navigation of the document.

The advice given in this document is based on the current state of the art of telehandler design. As new designs are developed, this document will be updated to reflect any such changes to the state of the art.

Whilst the document is aimed specifically at the construction industry, its guidance applies to other sectors of industry where telehandlers are used. Where local rules are more onerous than those set out in this document, they take precedence.

The following parts of Section 1.0 are a summary of the main body of the document, giving a brief outline of the items covered. Sections 2 to 13 and the Annexes should be consulted for detailed guidance

1.1 Planning

All operations on construction sites should be planned to ensure that they are carried out safely and that all foreseeable risks have been taken into account. Poor planning is one of the major causes of accidents arising from the use of telehandlers and the responsibility for planning tasks lies with the PCBU who is undertaking that task. The PCBU should ensure that they identify a person who is competent to undertake the planning and give them that duty. The planning process should identify the task to be undertaken, identify the hazards associated with that task, carry out a risk assessment, identify control measures, develop the method to be used (including the selection of appropriate equipment), record the planning in a Task Analysis, communicate the plan to all those involved in the task and review the plan before the job starts.

Where a telehandler is to be used as a crane for lifting suspended loads and travelling with those loads, additional planning is required by a person competent to undertake the task, the Suitably Qualified person taking account of the additional hazards associated with these activities. Details of this process are given in **Annex B**. Additional planning is also required for other non standard lifting operations such as irregular loads, or circumstances, loads with large wind areas, use of integrated work platforms, use of special attachments, use in confined spaces, and use in tight areas where contact with other structures could be hazardous. [1]Please refer to Approved Code of Practise for Cranes and the Approved Code of

Practise for Load Lifting Rigging. The crane safety manual is referenced in this material and should also be considered a valuable resource for this activity.

Note; Please refer to section 10 of this document for examples of some hazards.

1.2 Telehandler 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. It also applies only to use with forks.

Consequently if a telehandler is used in other circumstances such as travelling with loads on the forks, travelling or lifting on slopes or with attachments other than forks or lifting and travelling with suspended loads, the additional risks need to be reassessed.

1.3 *Types of Telehandler*

Telehandlers fall into two main types:-

1.3.1 Non-rotating

These machines comprise a powered wheeled chassis onto which is mounted a telescopic boom, pivoted on the chassis, which can be elevated from below the horizontal to an angle approaching the vertical. The outer end of the boom is fitted with a fork carriage and forks for handling unit loads. Levelling of the forks in the longitudinal plane, as the boom elevation changes, is carried out automatically.

These machines are able to transport loads from one part of a site to another and place the load at height. On construction sites, the wheels are generally fitted with lug grip tyres to enable the chassis to negotiate unpaved ground.

Many telehandlers are fitted with stabilizers which are deployed when the machine is stationary to provide additional stability and enhance the machine's lifting capacity.

1.3.2 Rotating

Rotating telehandlers have all of the features of the non-rotating type with the addition of a rotating or slewing superstructure on which the boom and operator's cab are mounted. These machines also have outriggers fitted at either end of the chassis which enable the entire chassis to be lifted clear of the ground for maximum stability.

The main advantages of these machines over the non-rotating type is compact chassis size, enhanced lifting height, increased stability and ease of placing loads without moving the chassis.

All telehandlers can be fitted with a wide range of attachments such as buckets, skips, work platforms and crane jibs.

1.4 *Selection of Telehandlers and Attachments*

An effective and safe telehandler is one which is well matched to the type and size of load to be carried and lifted, together with the environment in which it is to be used. Attachments for use with telehandlers should be chosen with care to ensure that the combination of telehandler and attachment is both safe and productive. It is essential that all attachments are compatible with the telehandler with which they are to be used. Where necessary and appropriate, the telehandler manufacturer should be consulted when third party attachments are to be used. The selection of the telehandler and any attachments should be part of the planning process.

1.5 *Provision of Information*

The wide variation of designs and the increasing complexity of telehandler technology make it essential that supervisors and operators are supplied with adequate information to enable them to carry out their

duties effectively and safely. Information comes in various forms and from several sources such as telehandler or third party attachment manufacturers.

Telehandler owners must ensure that a robust system is in place to provide adequate up to date information to users and maintenance personnel.[2]\

1.6 Supervisory and Operating Personnel

PCBU must ensure that their worker are competent to work safely with telehandler operations. PCBU must therefore assess the competence of their staff and, where necessary, provide training to achieve the level of competence required. The training needs to reflect the ability and level of responsibility of the individual, degree of complexity of the task and the risks involved.

Any gaps in the knowledge, skills and understanding of competent persons (planning), supervisors and operators must be remedied by suitable training. This may be carried out in-house or by an external training provider. At the end of the training period the trainee must be assessed to ensure that the learning objectives have been met.

Basic telehandler operator training does not include the lifting of suspended loads, the lifting of persons or the use of other attachments. If such tasks are to be carried out the PCBU must ensure that the operator is suitably trained and assessed as competent. In addition basic operator training for non-rotating machines does not cover rotating machines. This can normally be carried out by a local training provider.

Please refer to Annex L for for Telehandler Operator Certifications and courses.

1.7 *Familiarisation*

Telehandlers come in a variety of shapes and sizes with significant differences in operating controls and characteristics. It is therefore essential that operators and supervisors are given adequate familiarisation on an unfamiliar type or model of telehandler or attachment before they begin operations. **The employer of the telehandler user is responsible for ensuring that familiarisation is provided.**

1.8 *Safe Use of Telehandlers*

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

1.8.1 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.

1.8.2 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.

2

Whilst the PCBU has the primary responsibility to ensure adequate segregation and the Supervisor must ensure that it is enforced, it is 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.

1.9 *Review and Monitoring*

It is important that the use of telehandlers is subject to regular review and constant monitoring to ensure that tasks are being carried out as planned, that supervisors and operators have the necessary competences and that planning is effective.

1.10 *Maintenance and Inspection*

The effective maintenance of a telehandler is an essential part of safe operation. As with all machines, a telehandler will wear, deteriorate and can suffer damage over time. The maintenance process, including checks and inspections, monitors, prevents and rectifies this deterioration. It is important that the worker asked to carry out these tasks have the necessary machine-specific training, experience and competence in both periodic and breakdown maintenance.

Telehandlers require the manufacturer’s preventative maintenance instructions to be strictly complied with, if safety is to be maintained in use. Checks and inspections should be carried out taking account of the frequency of use of the telehandler and the environmental conditions in which it works.

Both the user and PCBU of the telehandler, and any attachments used with it, have a responsibility to ensure that they are maintained in a safe working condition. In practice the maintenance, other than pre-use checks, is normally undertaken by the telehandler owner on behalf of the user.

1.11 *Key Points for Operators and Supervisors*

Key points for telehandler operators are given in **Annex G** and key points for supervisors of telehandler operators are given in **Annex H.** These may be reproduced in a convenient form such as pocket cards.

1.12 *Statutory Regulations*

Attention is drawn to the statutory regulations listed in **Annex K**.

1.13 Note

If the telehandler is to be used to carry a suspended load it is considered to be mobile plant and is exempt from the PECPR (exemption dated 12 Dec 2013) however this exemption requires that the mobile plant must have: 1.Lifting points and equipment used for rigging loads certified by a chartered professional engineer.

2. In the case of new and used hydraulic excavators with an operating weight of 7 tonne or more, the following additional conditions apply:

A. The equipment is not to be modified to make it operate as a crane other than the provision of a lifting point.

B. Hose burst protection valves are required after 1 January 2016

C. Operators and ground support personnel are to be adequately trained

D. Operations are to be carried out in accordance with the Approved Code of Practise for Load-Lifting - Rigging

The equipment is to have a loading chart available to oerators.

The PECPR exemption does not change the requirement in the ACOP for Cranes.

If the telehandler is used for suspended loads on a full time basis it is not exempt from the PECPR exemption.

2. 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

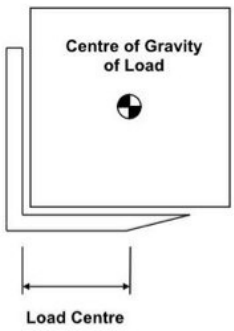
measure of the complexity of a lifting operation taking into account both the complexity of the load and the environment in which it is being lifted (See **Figure B1** in **Annex B**)

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

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**)



[3]**Figure 1 – Load Centre**

[3]

load chart

durable load chart which should be affixed in a prominent position, easily readable by the operator including information on rated and actual capacities (see **Figure 2)**

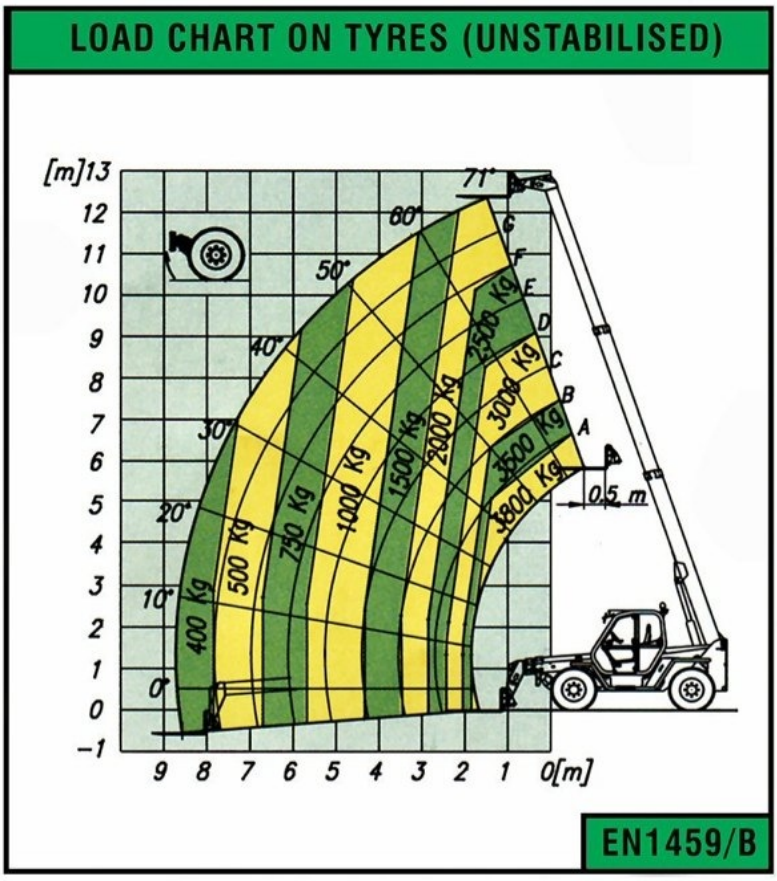


Figure 2 - Example Load Chart

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)

task analysis

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

personnel

competent person - general

person who has such capacity combined with practical skills, theoretical knowledge and experience of the telehandler and the equipment used in the lifting operation as is necessary to carry out the function to which the term relates in each particular context

competent person - lifting of suspended loads

person with the training, practical and theoretical knowledge and experience required to comply with **Annex B**

Lift Supervisor/ dogman / rigger

person who controls the lifting operation, and ensures that it is carried out in accordance with the competent person's safe system of work. New Zealand certificate in cranes; Dogman operations. For full details concerning the qualification may be obtained form the skills organisation by phoning 0508SKILLS(0508754557.)

site management

person or organisation responsible for operations on a construction workplace or part of a construction workplace.

supervisor

person responsible to higher management for the day-to-day performance of individuals or a small group, guiding the group toward its goals, ensuring that all members of the team are safe, productive and resolving problems, within their competence, as they arise

telehandler operator

person who is operating the telehandler

quick hitch

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

NOTE: *Also known as Quickhitches, 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) The crane industry still work with SWL in NZ, in addition to "working load centre" (WLL).*

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

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

rotating boom

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

fulcrum point

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 should not be used for planned tasks on construction sites unless a specific SOP/ Task Analysis has been written and training has been completed.

workplace

means a place where work is being carried out, or is customarily carried out, for a business or undertaking and includes any place where a worker goes, or is like to be while at work.

Figure 3 - Parts of a Non-rotating Telehandler

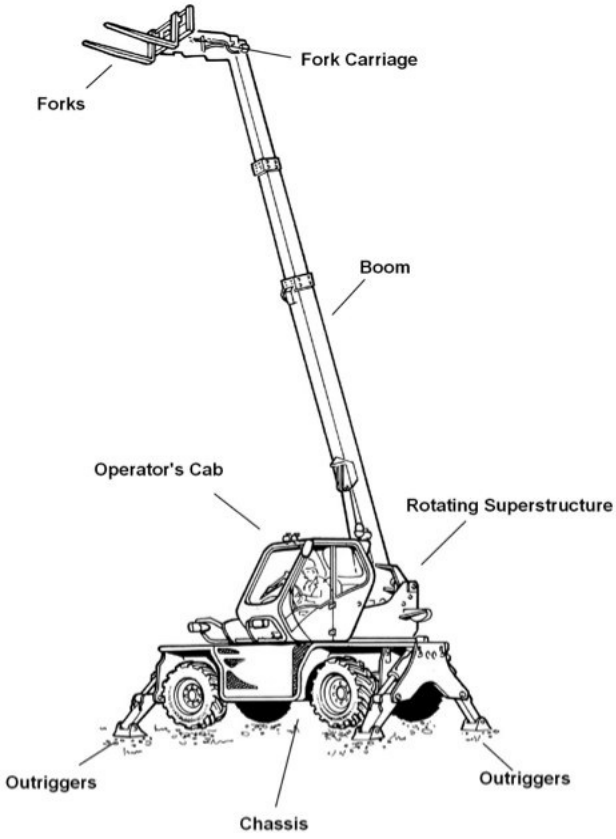


Figure 4 - Parts of a Rotating Telehandler

3. Planning (Management and Coordination)

All operations on the workplace should be planned to ensure that they are carried out safely and that all reasonably foreseeable risks have been taken into account. Poor planning is one of the major causes of accidents arising from the use of telehandlers.

3.1 *Responsibility for planning*

The responsibility for planning tasks lies with the PCBU who is undertaking the task. The PCBU should ensure that they identify a person who is competent to undertake the planning and give them that duty. The attributes and selection of this person are detailed in **8.2.1.**

3.2 *Identifying the task to be undertaken*

As the first stage in the planning process, the task to be undertaken should be clearly identified, together with the location and sequence. Part of this process is ensuring that the most suitable equipment is chosen for the task.

3.3 *Identifying the hazards associated with the task*

A PCBU, in managing risks to health and safety, must identify hazards that could give rise to reasonably foreseeable risks to health and safety. These might be associated with the location and environment where the work is to be carried out, the type of telehandler, any attachment, the type of load, the location of the pick up and put down points, the travel route or the people associated with the task or located in the vicinity. This process should also consider the effect of other operations being carried out in the vicinity and the need for co-ordination.

3.4 *Carrying out a risk assessment*

Having identified the hazards associated with the task, a risk assessment should be carried out to identify who might be harmed, the chance of them being harmed and the consequences of any harm. This assessment should be recorded. An example of a risk assessment is given in **Annex A**

3.5 *Identifying control measures*

Once the risk assessment has highlighted the risks involved in the task, the procedures and measures required to control them should be identified. Consideration should also be given to the suitability of a telehandler for the task to be undertaken or whether another more suitable type of equipment should be used.

3.6 *Developing the method to be used*

Having identified the hazards, evaluated the risks and worked out the control measures required to carry out the task safely, these components should be developed into a coherent plan. This should include consultation with those who will be undertaking or be affected by the task. Any contingency measures and emergency procedures should be included in the plan/

3.7 *Recording the planning in a Task Analysis*

Once the plan has been developed it should be recorded in a Task Analysis (Lift Plan). The length and detail of this document depends on the complexity of the task to be undertaken and on the risks involved. The Task Analysis should include the following information:

- Project;
- Location;
- Date of issue, revision number and approval sign off;
- Equipment and load description;
- Load stability before, during and after the lifting operation, including checks to be undertaken;
- Pick-up and delivery points;
- Sequence of operations;
- Ground and operational area – assessed and passed as suitable for the lifting and travelling operations to be undertaken;
- Requirements for Exclusion Zones and any sequencing of other activities to maintain safe areas;
- Arrangements for adequate supervision of operations;
- Names of personnel involved in the lifting operation;
- Training for operator, Dogman Rigger, lifting supervisor;

- Authorisation of operator and supervisor;
- Communicate safe method of work;
- Contingency planning;
- Arrangements for ensuring that equipment provided is maintained and fit for purpose as per manufactures reccomendations;
- Weights of Loads
- Lift and Placement Locations
- Simultaneous Operations
- Underground Services
- Weather Conditions
- Agreed methods of communication

An example of typical requirements included in a Task Analysis is given in **Annex A.**

NOTE: *For basic telehandler operations the task analysis may be incorporated in Task Analysiss covering trade specific tasks. It must however adequately address the above points.*

3.8 Communicating the planned safe system of work to all persons involved

One of the most important aspects of successful planning is to ensure that the contents of the planned safe system of work are communicated effectively to, and between, all parties involved, taking account of language differences. Arrangements should be made to ensure that copies of any Task Analysis are given and explained to the appropriate people (including the PCBU) and that others involved in the job are fully briefed. Similarly any changes to the plan should be communicated to all parties.

Confirmation of the plan being communicated should be obtained and recorded.

It is essential that part of the communication process includes co-ordination with other activities that may impinge on the task to be undertaken.

3.9 *Reviewing the plan before the job starts*

Immediately before a job starts the specified method should be checked to see if any aspect of the job has changed and the effect that these changes could have on the safety of the operation. If any modifications to the plan are required these should be communicated effectively to all those involved. The Suitably qualified person should amend the Task Analysis and initial any significant changes.

3.10 *The Use of Telehandlers With Attachments Other Than Forks*

Telehandlers are generally used with forks for handling of unit loads. They may however be used with other attachments such as buckets, skips, work platforms and crane jibs, when permitted by the telehandler manufacturer. Care should be taken to ensure that the persons both fitting and using the attachments are competent to do so. The fitting of an attachment may alter the characteristics of the telehandler. (See **5.3**)

In every case the use of the telehandler and attachment must be planned in accordance with **3.1** to **3.8**. The lifting of suspended loads and the lifting of persons are covered in **10.6 and 10.7**

Operators must be trained in the use of attachments and familiarised with each specific attachments (**See 9.0**)

3.11 *Lifting and Travelling with Suspended Loads*

Where telehandlers are used for lifting suspended loads and travelling with those loads the planning process must take account of the additional hazards associated with these activities. As telehandlers are not primarily for lifting suspended loads the first step should be to ensure that a telehandler is the most suitable equipment for carrying out the task.

Unlike a mobile crane, tower crane or lorry loader a non rotating telehandler cannot lift a load over a point without the operator simultaneously raising and extending the boom to keep the suspension point stationary on the horizontal plane. Similarly if the load is to be moved to either side of the telehandler centreline the whole machine has to be moved on its wheels, rather than using the slew motion of a crane. These restrictions may prevent precision lifting operations with small clearances being carried out safely. In such circumstances the use of alternative lifting equipment should be strongly considered

3.12 *Further guidance*

- **Annex K**

4. 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 hazards of which the operator must be aware.

4.1 *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 preset 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**.

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. See **Figure 6**

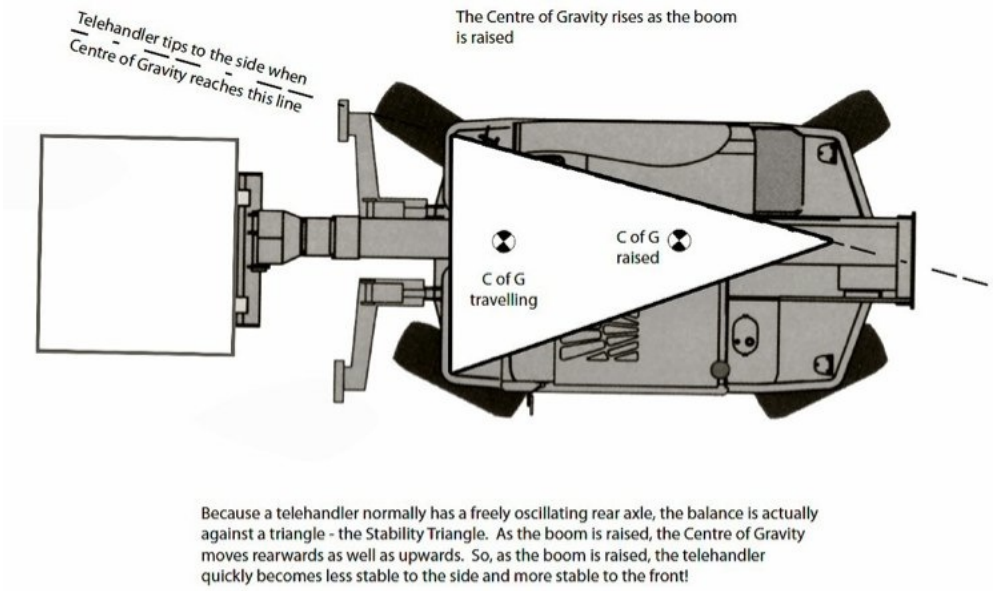


Figure 6 - Typical Stability Triangle for Non-rotating Boom Telehandlers

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

Figure 7 - 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.

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.

For further information see **10.6**

Figure 8 - Consequence of Instability

4.2 *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.

Tyre maintenance, repair and replacement are dealt with in more detail in **11.10.6**

4.3 *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 preset 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, however there is no requirement to retrofit on older machines.

4.4 *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 and because of the potential of the pendulum effect. The 'pendulum effect' is where a load is moved on the end of a rope attached to a boom or gantry structure.As the load moves out of vertical an equal reaction by the boom or gantry structure is required to hold the load vertical or it will swing back the opposite way as a pendulum would creating a 'pendulum effect'. It introduces an extra risk that must be assessed.

If the workplace 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 re-selection 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

4.5 *Suspended Loads*

Incident history confirms that travelling with a suspended load is a hazardous operation.

All lifting of and travelling with suspended loads must be planned and recorded in a task analysis (lift plan).

Planning should be carried out using information provided by the telehandler manufacturer on the limitations of lifting and/or travelling with suspended loads. If this information is not available, lifting and/or travelling with suspended loads must not be carried out. In this case alternative equipment or alternative methods should be considered.

4.5.1 Lifting suspended loads

Telehandlers are often used to place suspended loads into position. The standard rating of a telehandler is for lifting unit loads on the forks; consequently the standard load chart will not be valid for lifting suspended loads due to different load centres and the effect of any side slope.

From 2010 newly manufactured machines should be fitted with a longitudinal load moment control (refer to operator's manual), and indication will be provided to the operator regarding longitudinal stability when stationary and the operator will be prevented from operating the machine outside of the limits determined by the manufacturer. Such machines may provide additional safety when lifting suspended loads.

There are two main operating configurations (duties) when lifting suspended loads with a telehandler:-

- Lifting a suspended load with the telehandler stationary and supported on stabilizers

or

- Lifting a suspended load with the telehandler stationary, free on wheels

NOTE: *It is strongly recommended that where stabilizers are fitted, they are always used when lifting suspended loads.*

As both operating configurations (duties) are specific applications of use of the telehandler, the standard load charts for lifting unit loads on the forks do not apply and specific load charts for each configuration must be used. **Figure 11** shows example load charts for a machine with a hook fitted to the forks for lifting suspended loads and **Figure 12** shows example load charts for the same machine fitted with a jib**.** In both cases, charts are given for the stabilisers deployed and raised conditions. Comparing the two example charts in **Table 1** shows firstly, that lifting with the stabilisers raised results in a significant reduction in lifting capacity and maximum hook height, and secondly, that different attachments have very different rated capacities, reinforcing the point that the telehandler must only be used in the operating configurations for which a load chart is provided by the telehandler manufacturer. For example, if the telehandler manufacturer has only provided a load chart for lifting a suspended load with the telehandler stationary with stabilisers deployed, the machine should not be used for lifting a suspended load free on wheels with the stabilisers raised.

Where a load chart for the required configuration (duty) is not available, the telehandler manufacturer should be approached for advice.

NOTE: *When lifting a suspended load the weight of the load must include the weight of the lifting accessories (slings, shackles etc.) used to attach the load to the lifting attachment on the forks or carriage.*

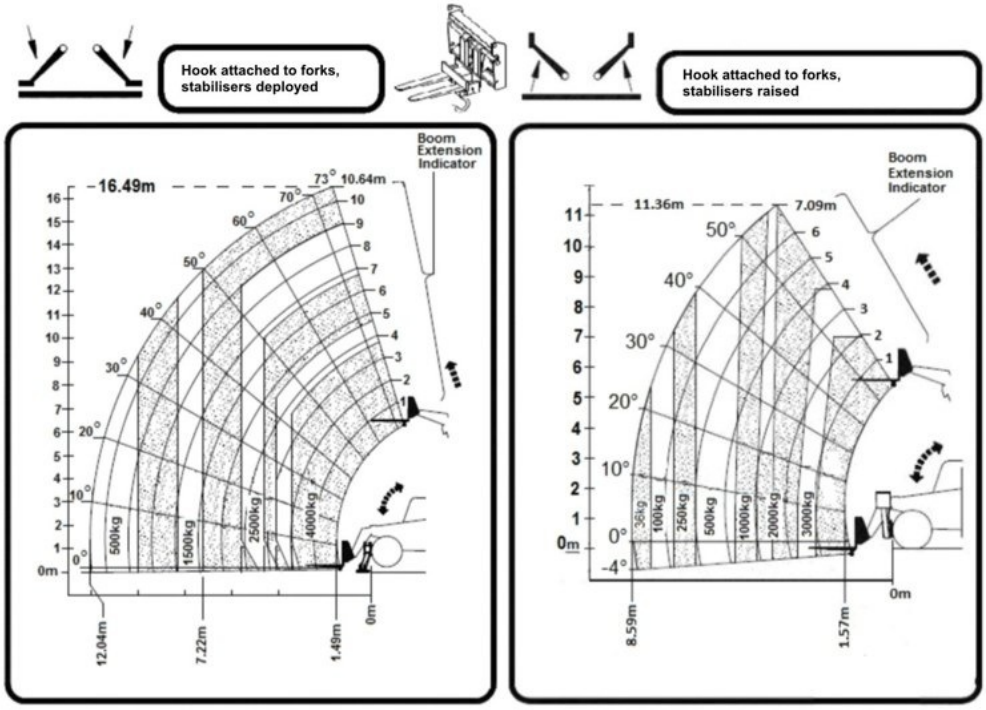


Figure 11 - Example Load Chart For Hook Located on Forks

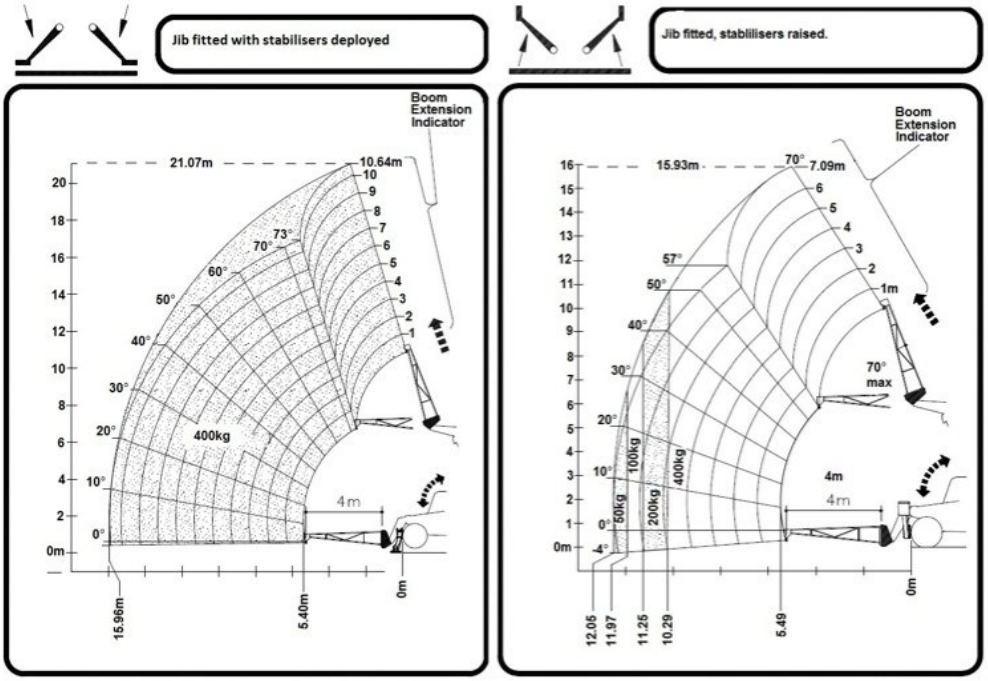


Figure 12 – Example Load Chart For a Jib

Load Chart		*Attachment*	*Stabilisers*	*Rated Capacity @ 6m Radius*	*Max Hook Height*
Figure 1	Right Hand	Fork mounted hook	Raised	500kg	9m
	Left Hand		Deployed	2000kg	14m
Figure 2	Right Hand	4m jib	Raised	400kg	15m
	Left Hand		Deployed	400kg	19.5m

Table 1 - Example Load Chart Comparison

4.5.2 Travelling with suspended loads

Travelling with a suspended load involves travelling with the boom raised from the normal transport position, with additional dynamic forces due to swinging of the suspended load (See **Figure 10**).

If information for travelling with a suspended load is provided by the manufacturer (See **Figure 13**) and the activity is permitted by the site, the following points should be adhered to:-

1. The boom and load should be kept as low to the ground as practicable (load 300-500mm above the ground). To facilitate this the correct length of chains, slings etc. should be selected;
2. If necessary the boom should be extended from fully retracted position by the minimum amount required to ensure that the load does not interfere with the front of the telehandler chassis. It is essential that the load radius remains within that allowed by the load chart for the magnitude of the load being lifted;
3. Visibility may well be reduced and planning should identify appropriate control measures, such as a dogman / rigger to guide the operator;
4. Any load swing must be minimised by delicate use of controls and slow travel speeds;
5. Operators should take care when braking and / or turning as this creates dynamic forces transmitted to the boom, thereby reducing stability;
6. Dogman / rigger and other personnel should never walk in front of the telehandler to steady a swinging load as it is very easy to trip, fall and be crushed by the telehandler wheels;
7. The machine should travel extremely slowly and never above walking pace;
8. The operator must follow the manufacturer's instructions for travelling on slopes and inclines. It is essential that they do not attempt to climb, descend or cross inclines in excess of manufacturer's limiting values, as this significantly increases the likelihood of overturning;
9. Lightweight but bulky items like roof trusses pose a special risk. Although relatively light, they are physically large, leading to large dynamic forces and are significantly affected by the wind. Physical restrictions on-site may require the boom to be elevated in order to clear fixed obstructions. Any carrying and placing of such items with a telehandler carries significant extra risk that must be addressed by the site risk assessment;

10. Care must be taken to avoid overhead obstructions including overhead power lines.

Further information on travelling with suspended loads, travelling on inclines, slope and gradients and overhead power lines is given in Sections **10.4, 10.9 and 10.6.2**

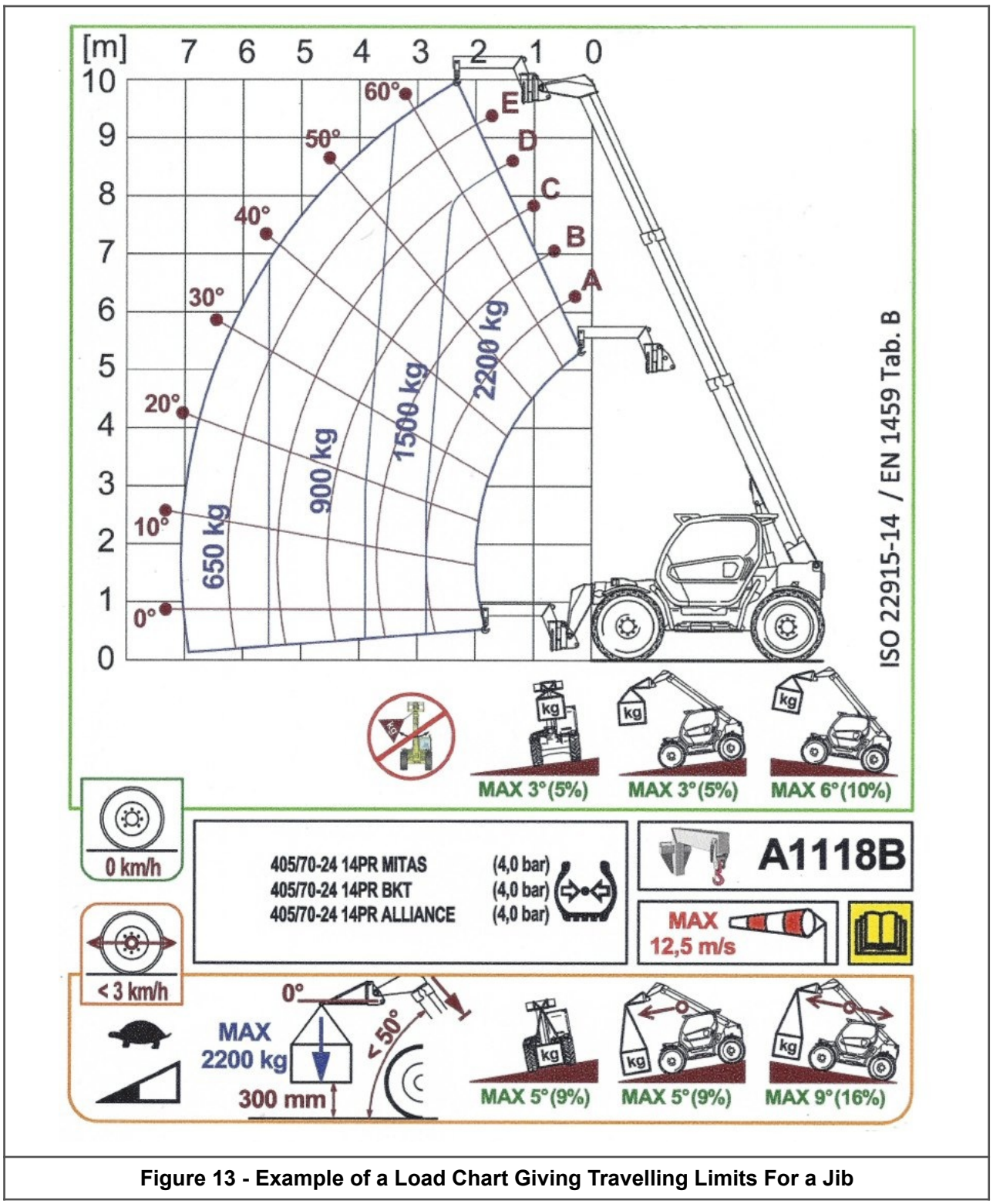


Figure 13 - Example of a Load Chart Giving Travelling Limits For a Jib

	
A damaged racing car was being removed from the track at the 2013 Canadian Grand Prix. The car had been lifted as a suspended load, using a telehandler and a marshal was escorting and steadying the load. The marshal dropped his two way radio, bent down to pick it up, tripped, fell and was run over by the telehandler. He later died from his injuries	*A telehandler was travelling with a large shutter suspended from the carriage when the machine tipped in a forward direction. The telehandler boom was at an unnecessarily high angle and the load was outside the height/radius permitted by the load chart.*

4.6 *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. The great majority of telehandlers feature a side-mounted cab, with the boom mounted centrally or to the right of the machine chassis. The operator's view around the machine, when normally seated is obstructed or 'masked' by the cab pillars and any other part of the structure that is in the way. Certain parts of the loading cycle will place the boom in the operator's line of sight and consequently prevent a clear view.

Older designs of telehandler use a high mounting for the rear of the boom, making view to the right front quarter almost impossible. This led to the practice of driving with the boom raised to allow the operator to see underneath it. Newer designs of telehandlers have low profile booms that drop below the eye line when in the transport position. Supervisors should always query the practice of driving with the boom raised as it increases the extra risk of dynamic instability.

NOTE: *Masking is the blocking of parts of the operators field of vision by obstructions such as the load or parts of the telehandler structure.*

It should not be forgotten that the most effective way of preventing accidents between pedestrians and telehandlers is to segregate vehicle and pedestrians. See 10.3.1

Operators should always ensure by appropriate means, prior to commencing a task, that personnel are clear of the area immediately adjacent to the machine. This may involve getting out of the cab and walking around the machine.

Operator visibility is aided by clean cab windows. Window cleanliness should form part of the operator's pre-use checks.

4.7 *Selecting Visibility Aids*

Manufacturers will supply machines with sufficient visual aids.Where additional or particular risks are present on a site, or application, and following a risk assessment, it may be necessary to add additional aids. In general users will need to consider the following factors when choosing appropriate visibility aids:

- ***Vehicle speed and stopping performance***: visibility aids must be able to allow the operator to respond to a hazard in good time to prevent impact.
- ***Site conditions***: the type of visibility aid fitted to the equipment should be appropriate for the site's conditions. In certain circumstances, users will prefer to use colour CCTV because of the improved contrast it provides against certain backgrounds.
- ***Lighting conditions****:* Vehicle lighting systems may compensate for low ambient light.

Human factors*:* The aids should be selected and fitted to maximise the operator's chances of perceiving danger. Too many aids may confuse an operator and render them ineffective. The positioning of monitors and mirrors should take into account the operators normal operating position for the relevant direction of travel and minimise the number of different locations an operator needs to look. Where frequent, repetitive operations are performed (such as loading from a stockpile) the risk of the operator failing to use a vision aid increases and it may be beneficial to provide additional automatic sensing systems. Some additional aids may also be appropriate for ergonomic reasons, e.g. to reduce the need for the operator to frequently look over their shoulder.

4.7.1 Wide Angle Convex Mirrors

Convex mirrors can provide additional visibility along the sides of vehicles and of areas to the rear into which the vehicle can manoeuvre. They are used on telehandlers to view the areas to the sides, rearward of their fixing and if fitted at the pivot point immediately in front of the rear of the vehicle to enable the operator to check that those areas are clear before moving off.

When selecting and mounting convex mirrors, users will need to consider that the image provided by a convex mirror is distorted and that the more convex the mirror the greater the distortion. This may increase estimates of distance, leading to unsafe situations. Images can also be disrupted if vibrations from the vehicle transmitted through the mirror mountings cause excessive shake in a mirror. These two effects can result in a particular mirror installation becoming ineffective.

4.7.2 Closed Circuit Television

CCTV systems, i.e. a CCTV camera and monitor, can be positioned to allow the operator to see into various blind spots. The camera lens is chosen to provide the required angle of view,. The camera should be located in a position that reduces the possibility of damage from mud, debris, or collisions. If possible the monitor should be fitted at the same height as, and in line with, the external mirrors without obstructing forward vision. This will reduce the number of different locations that an operator needs to view. The monitor should be on all of the time not just switched on when in the vehicle is reversing. They can be detachable to stop vandalism and theft.

CCTV systems may need to be capable of coping with low, bright and changing light conditions, such as glare which should be assessed e.g. when CCTV is being considered for cabs with large areas of glass. The CCTV system may need automatic adjustment and shielding to prevent glare, and brightness control when it is used at night or additional, or alternative aids, may also be required.

A 17m telehandler was lifting steel columns from a nearby laydown area and positioning them for erection. Whilst manoeuvring with the boom section extended to give sufficient ground clearance, the telehandler tilted to one side causing the machine to overturn. The telehandler came to rest when the extended boom penetrated through an adjacent building roof. At the time of the incident, the vehicle was traversing an excessive slope of approximately 1:6 (9.5°, 16.5%). The accident was caused by inappropriate use of the telehandler for this task.

5 . Types of Telehandler and Attachments

Telehandlers fall into two broad categories:–

5.1 *Non Rotating*

These machines comprise a powered wheeled chassis on to which is mounted a telescopic boom, pivoted on the chassis, which can be elevated from below the horizontal to an angle approaching the vertical. The outer end of the boom is fitted with a fork carriage and forks for handling unit loads. Levelling of the forks in the longitudinal plane, as the boom elevation changes, is carried out automatically.

These machines are able to transport loads from one part of a site to another and place the load at height. On construction sites, the wheels are generally fitted with lug grip tyres to enable the chassis to negotiate unpaved ground. Various drive and steering configurations are available such as two-wheeled drive, four-wheeled drive, pivot steer, rear-wheel steering and four-wheeled steering.

Many telehandlers are fitted with stabilizers which are deployed when the machine is stationary to provide additional stability and enhance the machine's lifting capacity.

Telehandlers are often fitted with a feature which allows the chassis to be levelled laterally, where appropriate, before the boom is raised, when the machine is standing on uneven ground.

A typical example is shown in **Figure 15**

Figure 15 - Typical Non-rotating Telehandler

5.2 *Rotating Telehandlers*

Rotating telehandlers have all of the features of the non rotating type with the addition of a rotating or slewing superstructure on which the boom and operators cab are mounted. These machines also have outriggers fitted at either end of the chassis which enable the entire chassis to be lifted clear of the ground for maximum stability.

The main advantages of these machines over the non-rotating type is compact chassis size, enhanced lifting height, increased stability and ease of placing loads without moving the chassis.

Figure 16 - Typical Rotating Telehandler

A typical example is shown in **Figure 16**

5.3 *Telehandler Attachments*

Telehandlers are very versatile machines which, in addition to lifting of unit loads on forks, can be fitted with a wide range of attachments such as:-

- Sideshift Forks
- Sweepers
- Block Grabs
- Tipping Skips
- Crane Hooks
- Crane Jibs
- Buckets - General purpose and material handling
- Integrated & non integrated Access Platforms

It is essential that all attachments are compatible with the telehandler with which they are to be used. Where necessary and appropriate, the telehandler manufacturer should be consulted where third party attachments are to be used.

5.4 *Quick Hitches*

Some telehandlers are fitted with "quick hitches" or "quick couplers" which enable attachments to be changed easily and rapidly. They fall into two types:-

5.4.1 Mechanical Quick Hitch

With the mechanical quick hitch, the hitch is engaged with the attachment, using the boom functions combined with fork carriage tilt. Once the quick hitch and attachment are engaged, a locking pin(s) is/are inserted and secured with a retaining pin.

5.4.2 Hydraulic Quick Hitch

The hydraulic quick hitch is engaged in the same manner as the mechanical quick hitch but the locking pin(s) is/are engaged hydraulically using the controls in the telehandler cab

Both types of quick hitch can allow the attachment to become detached from the quick hitch if the manual locking pin is left out or the hydraulic locking pin fails to engage fully. There have been several serious injuries caused by falling attachments and misuse.

It is essential that operators get out of the cab to physically ensure that all quick hitches are securely locked before starting work with a newly attached attachment.

5.5 Further Guidance

Annex K

6. Selection of Telehandlers and Attachments

6.1 *Selection of Telehandlers*

An effective and safe telehandler is one which is well matched to the type and size of load to be carried and lifted, together with the environment in which it is to be used. The selection process should at least take into account the following points:-

- Is the site of adequate size for the use of telehandlers?
- Is a telehandler an appropriate machine for this application?
- What are the weight, dimensions and characteristics of both the telehandler and the load(s) to be lifted?
- What are the radii and height of lift required?
- How far will the loads have to be carried and over what sort of terrain?
- What are the number, frequency and types of lifting operation?
- What space is available for telehandler access, deployment, operation and stowage, including the space required for correct deployment of stabilizers?
- Is there a need for attachments such as buckets, work platforms or lifting hooks?
- What is the effect of the operating environment on the telehandler and vice versa?
- Is there a need for the telehandler to travel on public roads?
- Is operator selection a criterion for machine selection?
- What is the source of the telehandler - user's own fleet, hired in or purchased?
- Will the operator have adequate visibility for the location in which it will be used?
- Is a telehandler still an appropriate machine for this application?

The selection of the telehandler and any attachments should be part of the planning process (See **3.0**)

6.2 Selection of Attachments

Attachments for use with telehandlers should be chosen with care to ensure that the combination of telehandler and attachment is both safe and productive. The selection process should at least take into account the following points:-

- Which make and model of telehandler is the attachment going to be fitted to?
- What task is the attachment required for?
- Which type of attachment is best suited to the application?
- Is the attachment approved for use on that machine?
- Is the attachment compatible with the telehandler?
- Are load charts and user instructions available for the use of the attachment on the specific telehandler?
- Is the telehandler operator both familiar with and suitably qualified to operate the attachment?
- Does the operator require additional training and/or familiarisation?
- Who will be carrying out fitting and removal of the attachment and are they competent to do so?
- Are there particular hazards associated with the location and/or the task to be carried out?
- Will the attachment be sourced from the telehandler manufacturer, from an attachments manufacturer or from a third party?
- Will the attachment be sourced from the telehandler owner's own stock?

Will the attachment be used for the lifting of suspended loads? See **3.11**, **4.5**, **8.4**, **10.9** and **Annex B**.

7. Provision of Information

7.1 *Introduction*

The wide variation of designs and the increasing complexity of telehandler technology make it essential that supervisors and operators are supplied with adequate information to enable them to carry out their duties effectively and safely. Information comes in various forms and from several sources, including telehandler and attachment manufacturers.

PCBU's who own telehandlers must ensure that a robust system is in place to provide adequate up to date information to users and maintenance personnel. This may be achieved in a number of ways including:-

- Provision of paper manuals using a system which will ensure frequent updating is taking place;
- Provision of electronic manuals using a system which will ensure frequent updating is taking place;
- A central technical information function which can be contacted for up to date information whenever maintenance is taking place.

NOTE: *It is essential that a system is in place to ensure that manual updates, safety alerts and other information are communicated speedily to those who need to know.*

7.2 Manufacturer's Information

Information supplied by the telehandler manufacturer will be the main source of instructions and specifications for using and maintaining telehandlers. The primary document will be the operator's handbook for the specific telehandler model (and in some cases serial number), supplemented by the maintenance manual and technical information bulletins. Care should be taken to ensure that the information is up to date and relevant to the telehandler that is being used and maintained.

Manufacturer's manuals are not always complete and in the case where a particular task is not covered, the manufacturer or supplier must be contacted for information **BEFORE** the task is undertaken.

A written copy of the operators handbook should be in each machine and available for the operator at all times.

7.3 *Instruction Labels*

Most telehandlers manufacturers provide short form instructions on adhesive labels fitted to the telehandler's cab in a position where they can be clearly seen by the operator. Care should be taken to ensure that the instruction labels are current and in good condition. Load charts such as those shown in **Figure 17** must be provided in the cab in easy view of the operator. These are often in the form of "flip over" charts giving the rated capacity at varying radii for loads carried on forks and a variety of attachments. Information formats vary from manufacturer to manufacturer and operators must be fully familiar with the information for the specific machine they are operating. The condition of all labels should be part of the daily checks and damaged or illegible labels replaced.

Figure 17 – Typical Load Charts

7.4 *In-House Technical Information*

PCBU's who own telehandlers will have their own technical information dealing with specific issues relating to the machines in their fleet. This can be a useful source of information for personnel but care should be taken to ensure that information is current, and that all out of date information has been withdrawn.

7.5 *Machine History*

The history of the repairs and maintenance carried out to a telehandler is often very helpful when trying to diagnose faults and repeated failures. Maintenance personnel should be encouraged to contact their manager or supervisor to request relevant machine history details when appropriate.

7.6 *Information Formats*

Paper information such as manuals and bulletins is rapidly being replaced by electronic formats such as CD-ROM and website downloads. This has the advantage that physical storage space is kept to a minimum and in the case of website downloads, information should be up to date at the point of access. However the use of electronic display devices, such as laptop computers, during maintenance is not always easy or practical. Information may therefore have to be printed out for use on site, in which case, care should be taken that for any subsequent use the data is still current and relevant.

7.7 *Management of Information*

Information should be managed effectively if it is to be of maximum benefit to those involved in the maintenance process. Outdated information can at best waste time and at worst may well affect safety. It is therefore essential that PCBU's carrying out maintenance on telehandlers ensure that they have robust systems and procedures to ensure that maintenance personnel are supplied with adequate information that is both up to date and accurate.

8. Planning, Supervisory and Operating Personnel

8.1 *General Work Related Competence for Telehandler Operations*

An often used definition of a competent person is *"a person who has such practical and theoretical knowledge, experience and capacity as is necessary to safely carry out the task to which the term relates in each particular context"*. A person who is competent to carry out one task will not necessarily be competent to carry out another with the same equipment. For exam-

ple an operator who is competent to lift and place unit loads may not be competent to work with suspended loads.

PCBU's must ensure that their workers are suitably qualified to work safely with telehandler operations. PCBU's must therefore assess the competence of their workers and, where necessary, provide training to achieve the level of competence required. The training needs to reflect the ability and level of responsibility of the individual, degree of complexity of the task and the risks involved.

PCBU's have a duty to both ensure the health of their workers and to ensure that any worker is fit to undertake the tasks they are required to carry out by ongoing assessment.

8.2 Attributes and Selection

It is essential that planning, supervisory and operating workers involved with the selection, and use of telehandlers have the necessary attributes to ensure that they will be able to carry out their duties both effectively and safely. The necessary attributes for planning, supervisory and operating workers are set out below.

8.2.1 Competent Workers (planning) Attributes

Competent Workers carrying out planning of the use of telehandlers should know and understand:

- The principles of telehandler operation;
- What the telehandler can and cannot be used for;
- The hazards associated with telehandler operation including;
    - overturning
    - electrocution – contacting overhead power lines
    - colliding with pedestrians
    - crushes and trapping
    - falling loads
    - falling from height (when lifting people)
    - loss of control
    - insecure attachments

- The checks and inspections that are required on a daily and weekly basis;
- What can happen if the telehandler is poorly maintained;
- How to attach and detach an attachment in the prescribed manner;
- How to carry out checks to ensure the attachment has been correctly engaged;
- That all work must be carried out to a Task Analysis and that the Task Analysis is a description of the safe system of work developed from a risk assessment of the task to be undertaken;
- That accidents and incidents are mainly caused by incorrect planning and use;
- The increased risks when telehandlers are being operated in the vicinity of other people and ensure/maintain an exclusion zone wherever possible;
- Their responsibilities under the Health and Safety at Work Act.
- Duties of workers, while at work a worker must;

A) Take Reasonable care for his or her own safety

B) Take reasonable care that his or her acts or omissions do not adversely affect the health and safety of other persons,

C) Comply, as far as the worker is reasonably able, with any reasonable instruction that is given by the PCBU to allow the PCBU to comply with this act or regulations,

D) Co-operate with any reasonable policy or procedure of the PCBU relating to health or safety at the workplace that has been notified to workers.

Competent Persons should be able to:

- Carry out a risk assessment of the work to be carried out;
- Develop a safe system of work based on the outcomes of the risk assessment;
- Record the safe system of work in a Task Analysis;
- Carry out an effective observation and know what to look for;
- Communicate effectively with supervisors, operators and managers;
- Recognise bad practice and unsafe behaviour;
- Develop good working relationships;
- Raise health and safety standards;
- Display consistency and be persistent;

Raise and address issues confidently and not be afraid of conflict.

8.2.2 Supervisor Attributes

Supervisors should know and understand:

- The principles of telehandler operation;
- What the telehandler can and cannot be used for;
- The hazards associated with telehandler operation including;
    - overturning
    - electrocution – contacting overhead power lines
    - colliding with pedestrians
    - crushes and trapping
    - falling loads
    - falling from height (when lifting people)
    - loss of control
    - insecure attachments
- The checks and inspections that are required on a daily and weekly basis;
- What can happen if the telehandler is poorly maintained;
- How to attach and detach an attachment in the prescribed manner;
- How to carry out checks to ensure the attachment has been correctly engaged;
- That work must be carried out to the Task Analysis unless it is unsafe to do so in which case work must stop;
- That accidents and incidents are mainly caused by incorrect planning and use;

- The Requirements when using attachments for lifting a suspended load.
- The increased risks when telehandlers are being operated in the vicinity of other people and ensure/maintain an exclusion zone wherever possible;
- Their responsibilities under the Health and Safety at Work Act.
- Duties of workers, while at work a worker must;

A) Take Reasonable care for his or her own safety

B) Take reasonable care that his or her acts or omissions do not adversely affect the health and safety of other persons,

C) Comply, as far as the worker is reasonably able, with any reasonable instruction that is given by the PCBU to allow the PCBU to comply with this act or regulations,

D) Co-operate with any reasonable policy or procedure of the PCBU relating to health or safety at the workplace that has been notified to workers.

Supervisors should be able to:

- Carry out an effective observation and know what to look for;
- Communicate effectively with operators and line managers;
- Recognise bad practice and unsafe behaviour;
- Develop good working relationships;
- Raise health and safety standards;
- Display consistency and be persistent;
- Raise and address issues confidently and not be afraid of conflict.

8.2.3 Operator Attributes

Operators should know and understand:

- The principles of telehandler operation;
- What the telehandler can and cannot be used for;
- The hazards associated with telehandler operation including:
    - overturning
    - electrocution – contacting overhead power lines
    - colliding with pedestrians
    - crushes and trapping
    - falling loads
    - falling from height (when lifting people)
    - loss of control
    - insecure attachments
- What can happen if the telehandler is poorly maintained;

- They must physically leave the cab and check any attachment or quick-hitch before work commences or recommences following fitment;
- That they must organise their work in accordance with the Task Analysis (generic or task specific), including coordination with others who may be affected, and follow the Task Analysis unless it is unsafe to do so, in which case work must stop;
- That they must report all unsafe working practices and faults with their machine to their supervisor;
- That poor planning, operation, training, maintenance, supervision or working environment, (or a combination thereof), are major contributory factors to accidents/ incidents;
- The increased risks when telehandlers are being operated in the vicinity of other people and ensure/maintain an exclusion zone wherever possible;
- The organisational procedures and requirements that they need to follow;
- The need for familiarisation training before operating new or unfamiliar types of telehandler and/or attachment.
- The requirements when using a telehandler for lifting suspended loads.

- Their responsibilities under the Health and Safety Working act 2015
- Their limitations in organising their work or operating the machine in any given environment.

Operators should be able to:

- Communicate effectively with other workers and line managers;
- Interpret relevant information and follow given instructions;
- Organise the work activity or part of the work activity with others;
- Select and/or request resources and additional equipment required
- Carry out the checks and pre-use inspections that are required on a daily and/or weekly basis as required;
- Attach and detach an attachment in the prescribed manner;
- Carry out checks to ensure the attachment has been correctly engaged;
- Operate the telehandler according to manufacturer's requirements and safe working practices;
- Raise and address issues confidently and not be afraid of conflict or of stopping work when necessary to ensure safety.

8.3 *Assessment of Training Needs*

As part of workers selection an assessment should be made of the extent of training which is needed for an individual, bearing in mind that this could be influenced by any previous training and experience. When supervisors or operators are recruited it is essential that PCBU's check that their qualifications and experience relate to the job they are to do. Where the type of telehandler to be used is outside the PCBU's previous experience, additional training must be provided. In any event, some further job specific training is likely to be necessary.

8.4 *Training*

Any gaps in the knowledge, skills and understanding of competent persons (planning), supervisors and operators must be remedied by suitable and sufficient training. This may be carried out in-house or by an external training provider. At the end of the training period the trainee must be assessed to ensure that the training objectives have been met.

Basic telehandler operator training does not include lifting or travelling with suspended loads. If these tasks are to be carried out the PCBU must ensure that the operator is suitably trained and assessed as competent. As the majority of basic training courses only deal with fork-mounted unit loads, only training providers who can demonstrate having appropriate expertise of suspended loads and lifting operations with telehandlers or mobile cranes should be selected, with learning programmes based on skill standards set by the requisite industry. Any training should include an appropriate element of slinging and signalling and from NZQA unit standard 3789

Basic telehandler operating training does not include the lifting of suspended loads, the lifting of persons or the use of other attachments. If such tasks are to be carried out the PCBU must ensure that the operator is suitably trained and assessed as competent. This can normally be carried out by the local training provider.

Please refer to Annex L Telehandler Operator certification and Endorsements.

8.5 *Assessment*

PCBU's should ensure that personnel are assessed against appropriate standards to establish that they are competent to carry out the tasks they are required to undertake. This applies equally to personnel completing training and those experienced workers who have been recently recruited.

Assessment should contain both practical elements to demonstrate the skills and standards achieved and the answering of questions to demonstrate relevant underpinning knowledge. The assessment should be carried out by appropriately competent and authorised assessors.

9. Familiarisation

Telehandlers and attachments come in a variety of shapes and sizes with significant differences in operating controls and characteristics. It is therefore essential that operators and supervisors are given adequate familiarisation on an unfamiliar type or model of telehandler and/or attachment before they begin operations. **The PCBU who owns**

the telehandler operator is responsible for ensuring that familiarisation is provided.

Familiarisation may be carried out by:-

- an experienced person employed by the PCBU who owns the telehandler or;
- a representative of the telehandler or attachment manufacturer or supplier or;
- any other competent and authorised person.

The person giving familiarisation should have been assessed by a suitably trained person to ensure that they are competent to do so.

All familiarisation should be recorded by both the provider and the employer of the operator.

Familiarisation for the operator of a telehandler should include the following:-

- Layout and use of controls;
- Identification of specific areas of risk whilst using specific telehandler and/or attachment;
- Machine specific safe working procedures for connection and disconnection of attachments;
- Machine specific visual inspections of the telehandler or attachment;
- Machine specific "pre start checks" and basic maintenance requirements as recommended by the manufacturer.

An example check list for carrying out familiarisation is shown in **Annex E**

9.1 *Further guidance*

Further guidance on familiarisation is given in:

-
- **Annex K**

10. Safe Use of Telehandlers

10.1 *General*

The safe operation of a telehandler starts with workplace management. The decision to buy or provide a specific telehandler may well have been made as a corporate decision, or the equipment hired in, but it is the workplace management who are ultimately responsible for it being put to into use. The site management must therefore ensure

that the operation to be carried out has been effectively planned (See **Section 3.0**) taking into consideration all the safety issues which can arise, even where these are as a result of reasonable foreseeable risks. The following points highlight some of the potential issues:-

- It is essential that workers are given sufficient training and information to enable them to know how to operate and check the telehandler. The operator also needs to be authorised, preferably in writing. This is essential to reduce foreseeable risks/
- Only those people who are authorised to use a telehandler and are familiarised with that machine should actually use it. Consequently there is a requirement for robust arrangements to ensure that access to telehandlers is controlled and monitored. This may be means such as recorded key issue or the fitment of immobilisers;
- As all equipment on a telehandler is subject to wear and deterioration and can suffer damage, it is important that the telehandler and any attachments are adequately inspected and maintained to avoid increased risk of failure of the machine or any attachment;
- Fatalities involving telehandlers have been associated with travelling or manoeuvring, where a worker has been struck or crushed by the telehandler, or with lifting operations where workers have been struck by a falling load. Incidents also occur when telehandlers are used to manipulate or support loads in confined areas whilst others are either working on or supporting the load. *Workers* , including the operator, have also been fatally injured by overturning machine both whilst travelling and during lifting operations (See **10.10**). The workplace management needs to make sure no-one is required to be beneath the forks or attachment at any time.

10.2 *Supervision*

To ensure that unsafe acts are minimised it is essential that supervision is effective. The supervisor therefore needs to:

- Check that the Task Analysis is being worked to;
- Check that the method is as safe as possible;
- Check that people are kept clear of hazardous areas;
- Check that telehandlers are being used correctly;
- Check that tasks are only carried out by suitably qualified personnel;
- Challenge unsafe practices;
- Record and arrange for the repair of any damage they see or have reported to them;
- Have the authority and ability to stop a task if they feel it is unsafe;
- Report and record unsafe behaviour (including near misses). There is a duty to report near misses, see HSW Act Notifiable events.

10.3 *Visibility*

10.3.1 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 workers 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 other persons responsibility to fully support the operator in this action and PCBU's duty.

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 driver safe zone for such operations.

Whilst the PCBU has the primary responsibility to ensure adequate segregation and the Supervisor must ensure that it is enforced, it is 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*

10.3.2 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 dogman should be provided.

If a dogman / rigger is used, consideration should be given to the means of signalling i.e. hand signals or portable radio. For further guidance please refer to the Cane Safety Manual or the Approved Code of Practise for Cranes.

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. Specifically working with remotes, they should engage emergency stop while undertaking any task other than controlling the machine, such as rigging.
- 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 dogman / rigger who has a clear view of the load and load path.

10.4 *Site Conditions*

PCBU's have legal obligations under the Health & Safety at Work Act to plan and control the operation of telehandlers on site. Operators and contractors need to be made aware of site hazards which could affect the safe use of telehandlers and of site rules which limit where they may be used.

Particular attention should be paid to:

10.4.1 Traffic Management

Sites should be arranged so that wherever possible other persons and vehicles are adequately separated by establishing:-

- Pedestrian only areas from which vehicles are completely excluded;
- Safe designated pedestrian routes to work locations;
- Vehicle only areas, especially where space is limited or traffic is heavy:
- Safe vehicle routes around the site.

10.4.2 Ground Conditions

Adequate assessment of ground conditions is essential to the safe use of telehandlers. For further guidance please refer to Crane Safety Manual.

10.4.3 Site Housekeeping

Areas where a telehandler may be used should be kept free of rubbish such as bricks, pallets, timber, etc. Such debris can significantly affect the safe operation of a telehandler.

10.4.4 Roads, Access Ways and Entrances

Consolidated roads, free from potholes, should be provided at the earliest possible stage of site development to minimise the need to travel on uneven or unstable terrain. Where off road operation is unavoidable, operators should be made aware of identifying hazards that could givers to reasonably foreseeable risks. These include loss of steering control/direction, loss of traction and braking – even on level surfaces, hidden obstacles, visibility (mud coating mirrors) and loads fouling the ground.

10.4.5 Operating on Public Roads

When operating a telehandler on Public Roads the following rules should be followed the telehandler and operator must be compliant with the New Zealand rules and hold relevant New Zealand Licensee.

Please refer to Annex L for further guidance on this.

Figure 18 - Example of a Load Chart Giving Travelling Limits For Loads on Forks

10.5 *Weight of the Load to be Lifted*

The operator of a telehandler should always be provided with the accurate weight of the load to be lifted. This can be ascertained from:-

- The manufacturer's data plate;
- Markings on the load;
- Manufacturer's data sheets or instructions;
- Drawings;
- Shipping documents;
- Weighing the load.
- Calculating the weight

10.6 *Loading/Unloading*

10.6.1 Stability of the Telehandler

The stability of telehandlers and their loads are affected by the conditions of the ground including underground services, manhole and telecommunication covers.on which they must stand when loading or unloading. Warning: manhole covers are frequently covered in dirt and may be buried.

When determining the area to be used for the unloading of lorries and the storage of materials, care should be taken to ensure the ground is consolidated and substantially level, within the manufacturers instructions. The area provided must be large enough that the telehandler will not need to make tight turns with an elevated load.

A telehandler may be used for loading/unloading operations in areas which are not substantially level if they are used within their design capabilities. Where the achievement of a substantially level loading/unloading area is not reasonably practicable a risk assessment will be necessary.

10.6.2 Loading Towers and Scaffolds

When lifting loads up to scaffolding, the load should always be landed on the scaffolding or a loading tower before unloading to avoid spillage of the load or injury to personnel on the scaffolding. The scaffolding or designed loading tower should be of suitable load bearing capacity.

Ensure that the telehandler frame is level so that the forks are parallel to the surface of the scaffolding or loading tower. Workers should not be on the loading platform when material is being placed or removed.

10.6.3 Overhead Power Lines

Where a telehandler is in the vicinity of overhead power lines a minimum distance of 4 metres should be maintained at all times between the load on the telehandler or any point of the telehandler and the power lines. For further guidance please refer to chart NZECP34.

10.7 *Fitting of Attachments*

When fitting attachments to a telehandler the following points should be observed:-

- The attachment should be compatible, approved for use with the telehandler and provided with machine specific load charts;
- Particular care should be taken when using fork extensions as these will tend to move the load centre out from the fork carriage, altering the rated capacity of the machine and increasing the load on the fork carriage levelling system;
- The operator should be familiar with the attachment process for the specific make and model of telehandler;
- Care should be taken to ensure that hydraulic hoses are depressurised before they are disconnected;
- Before raising the telehandler boom and attachment the operator should ensure that any locking device (this will depend on the type and make of quick hitch) is in place and secure. This will generally involve the operator getting out of the cab, after applying the brake, to physically ensure that the quick hitch is securely locked before starting work with a newly attached attachment.

10.8 *Misuse of Attachments*

It is essential that attachments fitted to telehandlers are **ONLY** used for purposes for which they have been designed.

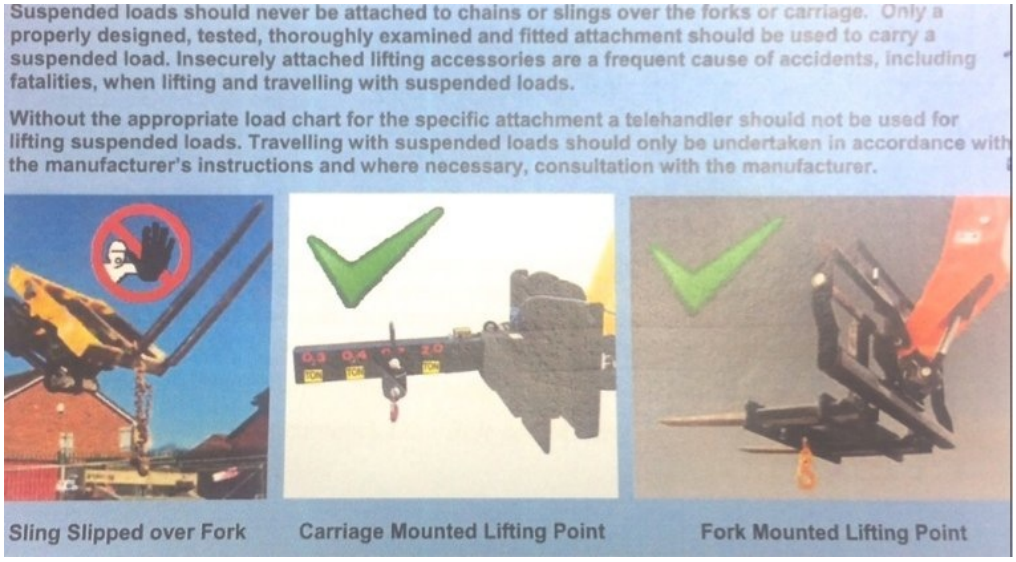
An example of misuse is where a bucket fitted to a telehandler was used to drive in a fence post. The fencepost failed and the bucket released from its attachment point, crushed the person guiding the post, who subsequently died.

10.9 *Use of Lifting Hooks or Crane Jibs for Suspended Loads*

Many telehandlers can be fitted with a lifting hook or crane jib for lifting suspended loads (See **Figures 23, 24 & 25**), however before carrying out lifting of suspended loads the operation should be reviewed to ensure that a telehandler is the most appropriate piece of lifting equipment for the task.

The lifting of suspended loads should always be carried out with a telehandler that is fitted with a suitable lifting hook or attachment.

Any lifting hook or crane jib should be marked with a Rated Capacity (Safe Working Load) which must not be exceeded; the Rated Capacity of the hook may be less than the Rated Capacity of the telehandler or vice versa. It is important that the lower of the two values is used to determine the Rated Capacity of the combination. When working out the total weight of the load to be lifted the weight of the lifting hook or crane jib and any lifting accessories (shackles, slings etc.) must be taken into account. Telehandler manufacturers supplying lifting hooks and crane jibs for their own machines will provide attachment/machine combination specific load charts where suspended loads are being lifted and carried. This is intended to eliminate the risk of overload or overturn due to displacement of the load through travelling, boom movements or the effect of wind. Extreme care should be taken when travelling with a suspended load as any movement of the load will alter the load radius and may affect the stability of the telehandler (See **4.5** and **Figure 22**).



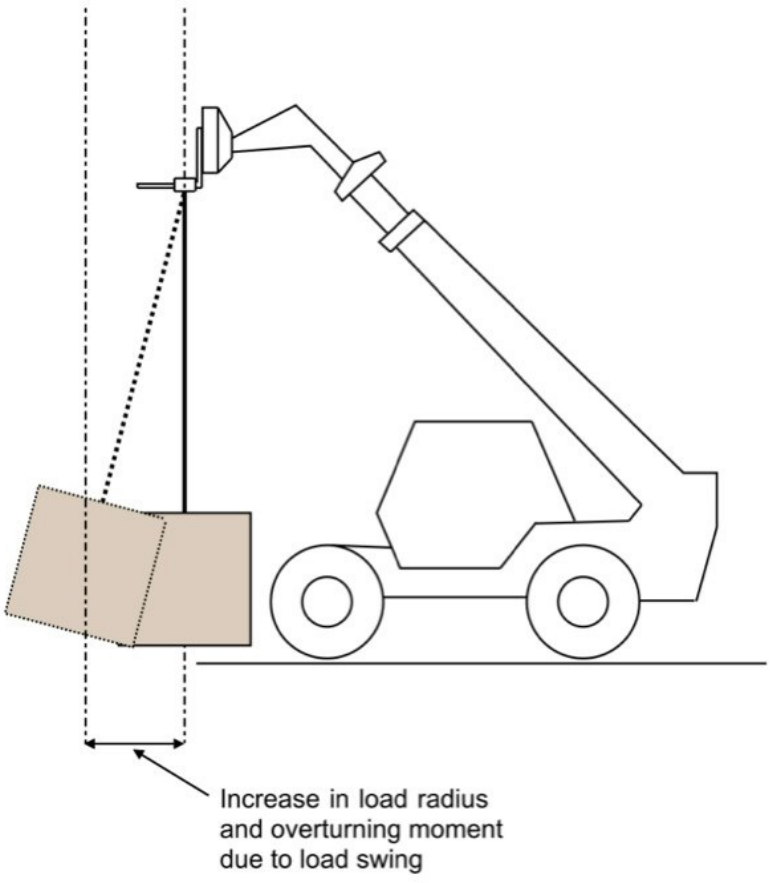


Figure 22 - Effect of suspended load swing when travelling

Figure 23 - Jib

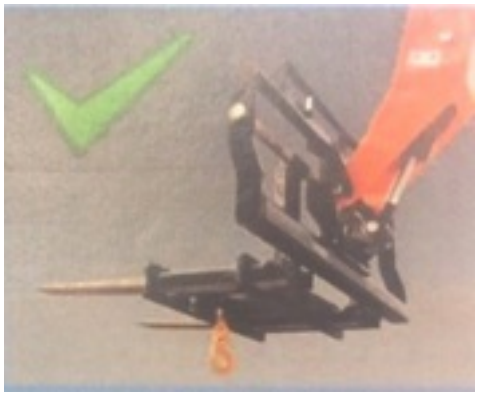


Figure 24 - Fork Mounted Lifting Hook

Figure 25 - Jib With Integral Winch

10.10 *Use of Telehandlers for the Lifting of Persons*

Telehandlers are primarily intended for lifting materials and not people. However, they can be used with working platforms to allow people to work at height. It is generally accepted that, in conjunction with a telehandler, an integrated working platform (See **Figure 26**) provides a higher level of safety than a non-integrated type (See **Figure 27**) and should be used for the lifting of persons on construction sites, where a Mobile Elevating Work Platform (MEWP) is not available.

Note: This approach of using non-integrated platform attachments only applies in New Zealand.

Non-integrated platform attachments should not be used for planned tasks on construction sites unless a specific SOP/ Task Analysis has been written and training has been completed.

Non-Integrated Work Platforms

Figure 26 - Integrated Work Platform

10.11 *Wearing of Seatbelts*

Telehandler cabs are provided with seat belts to restrain the operator and reduce the risk of serious injury in the event of the machine overturning.

A survey of reported telehandler accidents in the UK carried out by the Health and Safety Executive shows that in seven years there have been at least 72 lateral overturns of telehandlers. In three cases the operator was killed by being ejected from the cab and crushed; in a further two cases the operator was ejected from the cab and received serious crushing injuries. Had three of these operators been wearing their seat belts they would in all probability have lived.

It is vital that operators of telehandlers wear the seat belt provided at all times – it could save their lives

10.12 *Leaving the Telehandler*

When leaving the cab of the telehandler for any reason, the operator should switch off the engine. After operations have been completed, the telehandler should be stored in a safe place, on level ground where possible, with the handbrake engaged, the boom and fork arms / handling attachment lowered to the ground, the key removed and the cab locked. The key should be stored in safe place.

11. Maintenance and Inspection

11.1 *General*

The effective maintenance of a telehandler is an essential part of safe operation. As with all machines a telehandler wears, deteriorates and can suffer damage over time. The maintenance process, including checks and inspections, monitors, prevents and rectifies this deterioration. It is important that the personnel asked to carry out these tasks have the necessary machine-specific training, experience and competence in both periodic and breakdown maintenance.

Both the user and the PCBU who owns the telehandler, and any attachments used with it, have a responsibility to ensure that they are maintained in a safe working condition.

Telehandlers require the manufacturer's preventative maintenance instructions to be strictly complied with, if safety is to be maintained in use. Checks and inspections

should be carried out taking account of the frequency of use of the telehandler and the environmental conditions in which it regularly works. If the operator is considered to be competent to carry out routine pre-use and weekly checks, they may be authorised to do so.

The PCBU of the person carrying out these checks should ensure that the machine is taken out of use for the period of time required to carry them out. Also, the PCBU or authorized person carrying out the checks should ensure that a safe system of work is in place to prevent workers from being exposed to risk, for example from the inadvertent operation of the equipment.

Basic checks and inspections should be carried out in accordance with company instructions and the manufacturer's recommendations:

- Daily Pre-use Checks - these are carried out at the start of every shift (or day) and include checks for damage and correct functioning of the telehandler (See list in **Annex F**).

These checks and inspections should be recorded

If there is a defect that affects the safe operation of the telehandler it must be reported and the machine taken out of service immediately. If it does not affect the immediate safe operation of the telehandler the defect should be reported to the supervisor so that repairs may be carried out in a timely manner.

11.2 *Reporting of Defects*

There must be provision for the operator(s) of telehandlers to make written reports of defects or observations immediately they are identified.

Once the defect / observation has been responded to and cleared this should then be recorded with supporting information on the original defect report.

The *'un-cleared'* and *'cleared'* reports should be securely lodged within the telehandler owning company's maintenance management system and must be made accessible on demand to the operators of the telehandler as well as other authorised bodies.

11.3 *Precautions*

Extreme care must be taken when carrying out maintenance procedures on telehandlers. If work has to be carried out under a raised boom suitable scotches or supports must be put in place before access is gained.

Care should be taken when working on the hydraulic system to ensure that hydraulic systems are depressurised. Even with the telehandler's engine switched off the hydraulic system may still be pressurised, consequently the replacement or repair of hydraulic hoses or fittings should be approached with extreme caution.

if it is not reasonable practicable to eliminate the risk, the PCBU must minimise the risk by, so far as is reasonably practicable, providing supports or other devices to be placed or used under the raised object so that the object cannot fall or be lowered while a worker or other person is under it.

11.4 *Modifications*

Telehandlers should not be modified without the express written permission of the telehandler manufacturer. Unauthorised modifications will affect the warranty, invalidate the CE marking and may compromise safety.

11.5 *Scheduled Lubrication*

Operators may be required to carry out lubrication of certain items, such as the greasing of sliding parts, at specified intervals. They should only undertake such tasks if they are competent to do so and should be provided with the necessary equipment and instructions to carry this out safely.

11.6 *Scheduled Maintenance*

It is the responsibility of the workplace management to ensure that all telehandlers are adequately maintained in efficient working order and in a state of good repair.

A scheduled preventative maintenance program helps to meet these requirements. The frequency at which the maintenance activities are carried out must take into account the machine usage and the working environment. A record of maintenance should be kept for each telehandler.

Where a telehandler is hired out on the basis that the supplying PCBU is responsible for carrying out maintenance, the receiving PCBU should inform the hirer, at the start of the hire, that their maintenance staff will require access to the machine at specified intervals. The hirer should be advised of the frequency and length of time required for maintenance operations.

11.7 *Maintenance Records*

Comprehensive maintenance records are essential to the safe, efficient and economical operation of telehandler. They provide a complete “cradle to grave” history of the individual telehandler giving the following benefits:-

- evidence of adequate maintenance as part of the management system;
- establishing breakdown trends over time and providing information for the review of maintenance frequency;
- identification of component failure trends for feedback to the manufacturer;
- evidence of adequate maintenance to the Enforcing Authorities in the event of an incident;
- enabling the performance of the telehandler to be reviewed over time to inform future purchases.

11.8 *Maintenance Record Format*

Maintenance records can be kept in either paper or electronic format. Paper records are often easier to update as the input will often be in paper format such as inspection reports or work sheets. Electronic records are however more secure against loss and damage, and the data is more readily analysed. There are many maintenance record software packages on the market but care should be taken when considering purchase to ensure that the system is flexible enough to accommodate changes in types of input and output.

11.9 *Replacement Components*

Replacement components should be in accordance with the telehandler manufacturer's specifications.

11.10 *Tyre Maintenance, Repair and Replacement*

This section applies to pneumatic tyres only. Foam filled tyres are not user serviceable.

11.10.1 Tyre Pressure Check

- Tyre pressures should be marked on the telehandler chassis adjacent to each wheel;

  NOTE: *Type pressure may be given in different units - pounds per square inch (psi), bar or kilo Pascals (kPa). Conversion factors are given in* ***Table 4***
- Pressures should be checked daily when the tyres are cold;
- Tyre pressures should be the same for all tyres on the telehandler and should be within +5% -0% of the manufacturers specified pressure, unless a different tolerance is specified by the manufacturer;

  NOTE: *Research undertaken by a major telehandler manufacturer indicates that 5% reduction in tyre pressure below the manufacturer's specified value, can result in a 30% reduction in rated capacity at certain points on the load/height/radius curve.*
- Tyre pressure gauges should be of known accuracy (within +/- 1%)
- Remote tyre pressure monitoring systems are available. Before fitting third party monitoring systems it is advisable to consult the telehandler manufacturer.
- Where a tyre is found to be significantly under pressure, no attempt should be made to re-inflate it and return the machine to use. It is essential that the cause is investigated by a competent tyre specialist, as this may well be an indication of imminent tyre failure.
- Where tyres are frequently found to be under pressure the cause should be investigated by a competent tyre specialist, as this may well be an indication of potential tyre failure

	psi	**bar**	**kPa**
psi	1	0.0689	6.89
bar	14.5	1	100
kPa	0.145	0.01	1

Table 4 - Pressure Conversion Factors

11.10.2

- Air should be added, if required, inflating to the pressure specified in the manufacturer's manual;
- Before starting inflation a personnel exclusion zone of at least 6m around the machine should be established by the use of barriers, cones etc. (See **Figure 22**);
- Personnel inflating tyres should stand a minimum of 3 metres away from the tyre and outside the likely explosion trajectory to avoid injury in the event of a failure. This will require at least 3m of airline between the nozzle and airline trigger mechanism (See **Figure 22**);

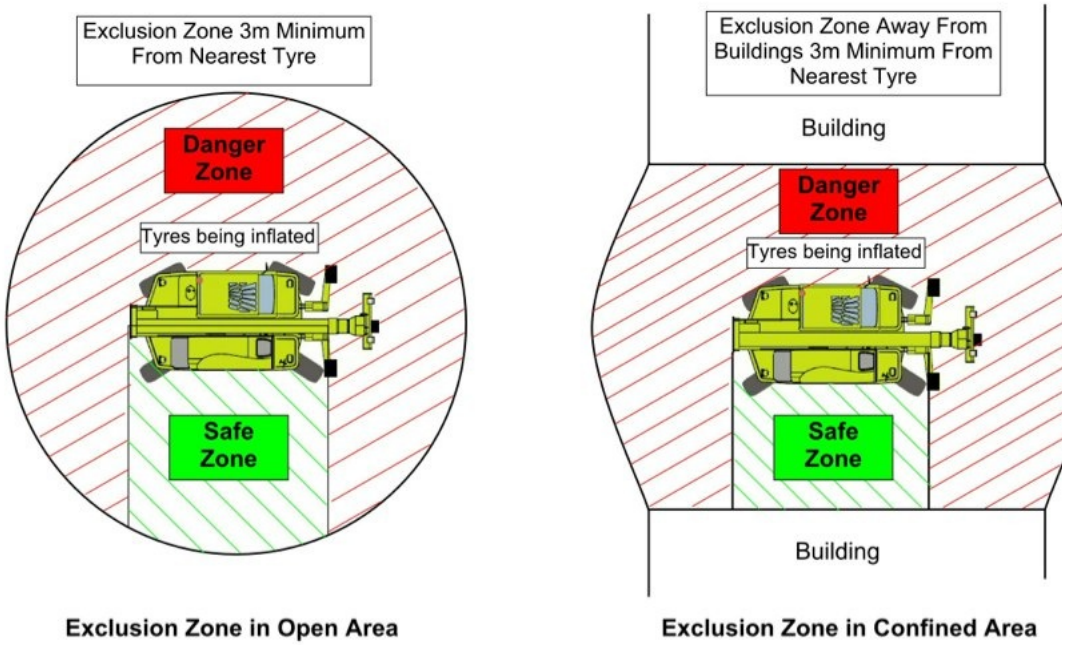


Figure 28 - Tyre Inflation Safe Zones and Exclusion Zones

- Personnel should ensure that they stand on the other side of the telehandler when inflating (See **Figure 28**);
- Tyre valves should be checked to ensure that they are not leaking. Valve stem caps should always be replaced.

A Real Life Example of Tyre Issues

A telehandler operator had been checking the tyre pressures on his machine. Having completed the checks, he was walking away from the machine and one of the tyres exploded. Subsequent investigation revealed that the tyre, which had recently been replaced, was 14 ply with a 3.5 tonne load, rating rather than the manufacturer's specification of 16 ply with a 6 tonne rating.

The contractor also found that the tyre had been ordered from their approved supplier by asking for a tyre for a model XXX telehandler, without any mention of ply or load rating. A subsequent check of other machines found that 30% were fitted with incorrect tyres.

11.10.3 Tyre Damage

All tyres should be inspected daily as follows:-

- The tread and side walls should be checked for bulges and separation;

- The tread and side walls should be checked for cuts;

When any cut, rip or tear is discovered that exposes sidewall or tread area cords in a pneumatic tyre, steps should be taken to remove the tyre from service immediately. Arrangements must be made for replacement of the tyre or tyre and wheel assembly.

11.10.4 Tyre Repairs

In the course of a tyre's life, a tyre may be subject to an enormous amount of use and damaged in many ways. Tyres which require repair OR which appear to require repair, should be removed from the associated wheel and thoroughly inspected because a penetrating object could damage the inside of the carcass, or excessive deflection could cause dislocation of the carcass cords. The repairs should be **permanent,** allowing the tyre to operate at its original speed, load and inflation pressure.

11.10.5 Liquid Tyre Sealants

A liquid tyre sealant or gel introduced into inner tubes or tubeless tyres will help improve the air retention properties of a tyre due to punctures or slow leaks. It is, however, essential that the operator carries out a visual inspection of the tyres at the beginning of each working period. Any noticeable defects in a tyre will require the tyre to be removed from the wheel and thoroughly inspected by a competent tyre specialist for any internal damage. *NOTE : Due to the varying nature of the chemical compositions of different tyre sealants, care should be taken when selecting a suitable tyre sealant for the task the machine is being asked to perform.*

11.10.6 Tyre Replacement

Telehandler manufacturers generally list a range of approved tyres in the parts manual for a specific machine. If not using tyres from this list the replacement tyres must have the following characteristics:

- Same physical size as the original
- Equal or greater ply and load rating as the original;
- Tyre tread contact width equal or greater than original;
- Equivalent performance specification.

It is essential that either the telehandler manufacturer or a competent tyre specialist is consulted.

Unless specifically approved by the telehandler manufacturer, foam filled or ballast filled tyre assemblies must not be replaced with pneumatic tyres.

When a tyre is being replaced, it is essential that the condition of the other tyres on the machine is assessed by a competent tyre specialist and appropriate action taken. This may include moving part worn tyres around to ensure that the telehandler is substantially level when standing on a flat level surface.

If tyres on opposite sides of the telehandler are different sizes the boom will not be vertical when the machine is standing on level ground. This will cause the combined centre of gravity of the telehandler and load to move sideways, which may lead to instability.

11.10.7 Wheel Replacement

It is essential that replacement wheels have the same diameter, width and offset dimensions as the originals.

An Example of Issues with Tyre Specification

Because tyres deflect/distort under load they have a significant effect on telehandler stability and load carrying capacity.

Although tyres made by different manufacturers may be of the same specification in terms of nominal size, ply rating and load speed ratings, their deflection, distortion under load and physical size may vary significantly. When testing one particular 16 ply tyre, a telehandler manufacturer found that the performance was no better than a 12 ply tyre from a different manufacturer. Tests have also shown that if telehandler users replace tyres with ones of the same size and ply rating that are not of the same performance specification, the capacity can be reduced by up to 30%. This is worse at the limits of the load chart and can potentially result in the telehandler becoming unstable.

11.11 *Actions in the Event of Defects and Breakdowns*

All defects that make the telehandler unsafe for use should be recorded and reported immediately to both the telehandler owner and site's appropriate representative (such as service manager, site manager, or supervisor), and the telehandler should be taken out of service. Steps should be taken to ensure that the telehandler cannot be used before repairs have been completed. All other defects should be recorded and reported as soon as possible.

It is essential that repairs or adjustments are only carried out by authorised persons. Once any defects and breakdowns have been rectified, the person carrying out the work should sign the defect report to indicate that rectification has taken place.

11.12 *Further Guidance*

Further detailed guidance on the thorough examination of telehandlers is given in:-

- Annex K

Annex A – Example Risk Assessment and Task Analysis for Non-suspended Loads

Project : Hogwarts Academy		***Contractor:*** Wizard Builders Limited	
Task: Lifting of palletised loads		***Telehandler Make and Model:*** Spellbound 175	
Risk Assessment/ Task Analysis Compiled By: H Potter	***Date:*** 06:01:2011	***Rev.*** A	

Risk Assessment

NOTE: *This risk assessment has been undertaken on the basis that the telehandler is operated by an operator who has proof of competence, which should include proof of training, proof of familiarisation on the telehandler to be used and adequate experience of the task to be undertaken.*

Operation /Issue	***Hazard***	***Risk***	***Control Measures Eliminate or Minimise Risk***	***Residual Risk***
People in area	Struck by: • Telehandler boom • Telehandler chassis • Moving load	High	• Public excluded from secure site • Segregate telehandler and personnel where possible • Ensure telehandler has adequate vision aids • If necessary establish effective exclusion zone in conjunction with Principal Contractor • All personnel to wear high visibility clothing • Ensure personnel are fully briefed on need to keep clear of load during lifting and telehandler during travelling • Ensure telehandler is made secure from unauthorised access or operation	Low
Telehandler stability	Ground unable to support telehandler	Med	• Establish presence of voids/underground services with Principal Contractor • Assess ground and establish if there is a requirement for stabilizer mats • If required, Supervisor to check that mats supplied match those specified in Task Analysis	Low
	Telehandler overloaded	High	• Ensure weight of load is known and accurate • Telehandler operator to have proof of competence	Low
	Telehandler failure	Med	• Ensure telehandler has been adequately maintained, pre-use checks carried out and has current report of thorough examination	Low
Movement of load	Load or telehandler structure collides with overhead obstacles	Med	• Route to be planned and overhead obstacles marked with goal posts and signs • Boom to remain as low as practicable at all times • Operator and banksman to be advised of any overhead risks	Low
	Load collides with other plant - cranes, excavators etc	High	• Establish effective exclusion zone • Ensure that the safe systems of work for other plant in the vicinity address this hazard	Low
	Telehandler boom comes within arcing distance of overhead lines	High	• Establish presence or otherwise of overhead lines. • If present arrange for isolation or position telehandler boom/load outside minimum safe approach distance	Low
	Loose parts on load may fall	High	• Inspect load for lose objects prior to lift and secure/ remove loose items • All personnel to wear hard hats	Low

Project : Hogwarts Academy		***Contractor:*** Wizard Builders Limited	
Task: Lifting of palletised loads		***Telehandler Make and Model:*** Spellbound 175	
Risk Assessment/ Task Analysis Compiled By: H Potter		***Date:*** 06:01:2011	***Rev.*** A

Risk Assessment

NOTE: *This risk assessment has been undertaken on the basis that the telehandler is operated by an operator who has proof of competence, which should include proof of training, proof of familiarisation on the telehandler to be used and adequate experience of the task to be undertaken.*

	Load may fall on person	High	• Ensure telehandler has been adequately maintained, has current report of thorough examination and that pre-use checks are carried out • Inspect load for lose objects prior to lift and secure/ remove loose items • Ensure that as parts of a load are removed from transport that remaining part of load does not become unstable	Low
Environmental conditions	Telehandler becomes unstable when lifting loads with large wind area.	High	• Wind speed to be checked with hand held anemometer by Supervisor before lift starts. Lift to be aborted if wind speed exceeds 15 mph	Low

Task Analysis

Item	***Requirement***
1.	The supervisor must ensure that the telehandler to be used has been maintained and has a current report of thorough examination coving both the machine and any attachments.
2.	The supervisor must ensure that the operator has proof of competence, which should include proof of training, proof of familiarisation on the telehandler to be used and adequate experience of the task to be undertaken.
3.	The supervisor must carry out a toolbox take before work starts covering the task to be carried out, personnel involved, work area, risks, exclusion zones and procedures.
4.	At the start of each day or shift the operator should carry out the pre-use checks specified in the manufacture's operating instructions.
5.	Seat belts must be worn at all times.
6.	The telehandler's brakes should be applied and the engine be switched off before the operator leaves the cab. Before any personnel approach the telehandler to secure loads etc the operator must ensure that the telehandler is made safe i.e. brake applied and engine switched off.

7.	The operator should plan the route and final destination of the load, making sure the route is clear of all obstacles, that there are no width or height issues with the load or telehandler and that the final destination is a safe and suitable place for the load. If the route involves travelling or working on slopes, the manufacturer's operators instructions should be consulted before traversing gradients and cross slopes.
8.	Before lifting a load the operator should get out and inspect the load - check for warning signs, centre of gravity, loose materials on the load or anything anchoring the load.
9.	Before lifting the load the operator should check ground conditions to make sure it is suitable for them to drive and use stabilisers on. Spreader mats should be used if the ground conditions or weight of the load make it necessary to do so.
10.	The operator should then lift the load approximately 150mm (6 inches) and check the load position, weight and balance.
11.	The load should then be secured, strapped down or fastened where necessary.
12.	Before setting off, the boom should be telescoped in as far as possible and the load lowered as close to the ground as possible to increase stability whilst travelling.
13.	If the load obscures the operator's view when travelling, a banksman should be used. A banksman should also be used when reversing.
14.	Before placing the load in the final position the operators should check the ground conditions (See Item 9).
15.	If the operator is unable to clearly see the load's final position, a qualified banksman should be used to signal to the operator when landing the load.
16.	When lifting operation has been completed, the telehandler should be stored in a safe place, on level ground where possible, with the handbrake engaged, the boom and fork arms / handling attachment lowered to the ground, the key removed and the cab locked. The key should be stored in safe place and not left in machine.
17.	When using extension forks the safe working limit should be reduced as the standard Rated Capacity chart will not give the correct information as it is only applies to loads on standard length forks. Information on the rated capacity of extended forks can be found in the manufacturer' operating instructions.
18.	If the operator is unsure of any aspect of the lifting operation they must immediately stop and consult their supervisor

Annex B - Planning of the Lifting of Suspended Loads

All lifting operations should be <u>planned</u> to ensure that they are carried out safely and that all reasonably foreseeable risks have been taken into account. Poor planning is one of the major causes of accidents arising from lifting operations. Refer to Annex __ hierarchy of Control

The siting, setting up and use of a telehandler for lifting suspended loads requires careful planning if all these activities are to be carried out safely and efficiently. One person with sufficient training, practical and theoretical knowledge and experience should be appointed to be responsible for planning and supervising the tasks. This person is known as the *"Competent Person"*.

The Lift Supervisor must ensure that the planning for each task includes the following:-

- Identifying the task to be undertaken;
- Selection of appropriate lifting equipment
- Identifying the hazards associated with the task;
- Carrying out a risk assessment;
- Identifying control measures;
- Developing the method to be used;
- Recording the planning in a Task Analysis (including any contingency activities for rescue);
- Communicating the plan to all persons involved;
- Reviewing the plan before the tasks starts and incorporating any changing circumstances.

- Please refer to Annex L Telehandler Operator Certifications & Endorsements.

B.1 Lift Categories

To enable lifts to be planned, supervised and carried out effectively, three categories of lift are detailed below. The category into which a particular lift will fall depends on the assessment of the hazards associated with both the environment in which the lift is to be carried out and those associated with the load and lifting equipment. As can be seen from **Figure B1**, increases in either or both environmental or load complexity (the *"Complexity Index"*) will lead to the lift being allocated a higher category. Having identified the hazards associated with a particular lift, a hierarchy of control measures should be applied to eliminate or control those hazards.

The case study at **B.1.4** shows examples of where the same basic lifting task will fall into different lift categories depending on differing environmental or load complexities.

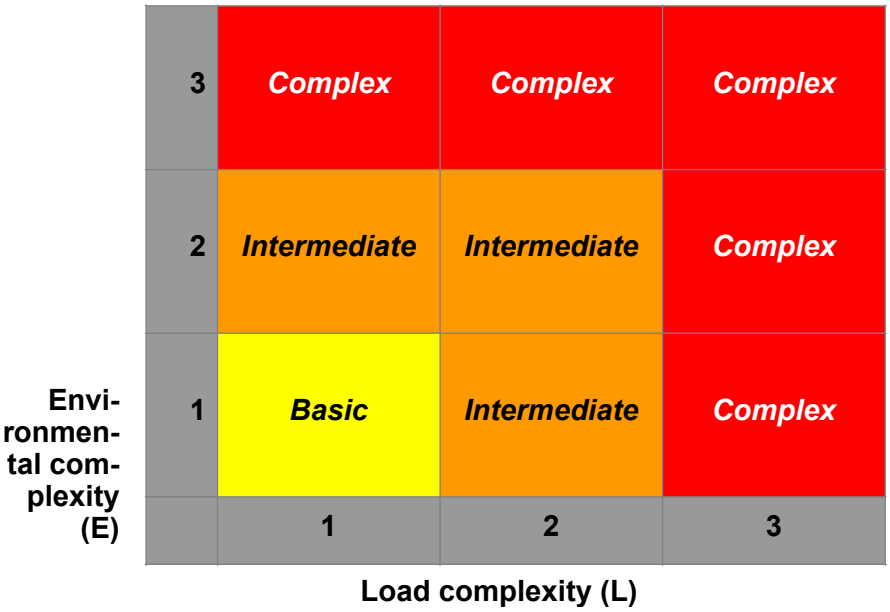


Figure B1 – Relationship between Complexity Index and Lift Category

B.1.1 Basic lift

For a basic lift the duties of the Suitably qualified person should include the following.

a) Establishing the complexity of the lifting operation, including load and environmental complexity:-

- Load complexity will include characteristics such as weight, centre of gravity and presence of suitable lifting points. This can be established by a reliable source of information, measuring and weighing the load, or calculation;

  NOTE: *Where the weight of the load cannot be accurately established the notional weight must be multiplied by an appropriate factor (typically 1.5) to allow for possible inaccuracies.*

- Consideration of environmental hazards at the location of the operation will include the access and egress required for the telehandler and the suitability of the ground to take the loads imposed by the telehandler during preparation for the lift and during the lift itself;

b) Selection of the telehandler, based on the load characteristics, including weight of the load and any lifting accessories; the maximum height of lift and the maximum radius required. The rated capacity of the telehandler should be specified by the manufacturer/installer in the information for use supplied with the telehandler. Ensuring that the telehandler is not operated in wind speeds in excess of those given in the instruction manual for the telehandler. The wind area of the load should also be taken into account to ensure that its movement in the wind does not present a hazard;

c) Selecting appropriate lifting accessories, including their method of attachment to the load, configuration and any protection used to prevent damage;

d) Ensuring that lifting accessories have been inspected and checked before use. And currently in certification.

e) Ensuring that a system for reporting and rectifying defects is in place;

f) Designating a suitable person to check the lifting accessories and any lifting points that are provided on the load to ensure they are free from any obvious defect before attaching the load to the telehandler;

g) Ensuring that the outcomes of the planning process are recorded in a risk assessment and task analysis.***NOTE:*** *In many instances a basic lift may be covered by a generic risk assessment and a generic task analysis provided that no additional hazards are identified on site*

h) Selecting and defining the roles of the members of the lifting team. In many instances it may be possible to combine some of the roles of members of the lifting team;

i) Briefing all workers involved in the lifting operation to ensure that the safe system of work described in the task analysis is understood. All workers involved in the lifting operation should be instructed to seek advice from the Suitably qualified worker if any change is required to the lifting operation, or if any doubts about safety arise. If one or more handlines / taglines are required to give more control of the load, the Suitably qualified Person should designate persons to handle the lines;

j) Checking, if numerous loads are to be lifted over a long period that no changes are required in the safe system of work;

k) Ensuring that there is a lifting supervisor with NZQA standard 3789 designated to direct personnel and that the operation is carried out in accordance with the Task Analysis.

The Suitably qualified person and crane supervisor should be aware of the limits of their knowledge and experience concerning lifting operations, and when conditions exceed these limits, further advice should be sought. Person should also hold unit standard 3789.

Examples of possible limits;

- Multiple Crane Lift
- Complex Load
- Unknown Centre of gravity.

2. <u>Intermediate lift</u>

For an intermediate lift the duties of the Competent Person should include the following, in addition to the duties listed in **B.1.1**

.

a) Duty to identify all hazards in the operating area, including any areas required for access or setting up of the telehandler; A PCBU, in managing risks to health and safety, must identify hazards that could give rise to reasonably foreseeable risks to health and safety.

NOTE: *This may involve the Suitably qualified person visiting site if there are any concerns about the detail and quality of the information with which the Suitably qualified person has been provided;*

b) Ensuring that a site/task specific risk assessment and task analysis, detailing control measures for the identified risks, is prepared;

c) Liaison with any other worker or authority, as required to overcome any hazard, by including any necessary corrective action or special measures in the safe system of work;

d) Determining any requirement for personnel in addition to the telehandler operator, such as a dedicated rigger dogman or lift supervisor.

e) Consideration of the effect of the lifting operation on surrounding property or workers and other persons. This should lead to arranging for appropriate action to minimize any adverse effects, and to giving appropriate notice to all persons concerned. Consideration may need to be given to an alternate tool to complete the lift.

B.1.3 Complex lift

For a complex lift the duties of the suitably qualified person should include the following, in addition to the duties listed in **B.1.1** and **B.1.2**:

a) Identifying all hazards in the operating area, including any areas required for access or setting up of the telehandler. This will require the Suitably qualified Person to visit the location of the planned lifting operation as part of the planning process; Duty to identify hazards, A PCBU, in managing risks to health and safety, must identify hazards that could give rise to reasonably foreseeable risks to health and safety

b) Liaison with any other person or authority, as required to overcome any hazard, by including any necessary corrective action or special measures in the safe system of work;

c) Ensuring that the task analysis includes the exact sequence of operations when lifting the load;

d) Preparing a sufficiently detailed and dimensioned drawing of the site, telehandler and the load, identifying the load path, pick up and set down areas, together with the position of any hazards in the area. The information provided should be sufficient to enable the operator to position the telehandler accurately;

e) Consideration may need to be given to an alternate tool to complete the lift;

It is good practice for the Suitably qualified person to be present on the site during a complex lift.

B.1.4 Case Study

The case study in **Figure B2** illustrates the way in which both the complexity of the load being lifted and the environment in which the lift is taking place affect the overall complexity of the lift. The case study takes a typical lifting operation carried out by a telehandler, the lifting of timber roof trusses. Three different situations are evaluated with examples of the hazards encountered and the control measures required to eliminate or minimise those hazards to an acceptable level. It should be noted that this is an example only and does not identify all the hazards that may be present in a given circumstance.

B.2 Identifying the task to be undertaken

As the first stage in the planning process, the task to be undertaken should be clearly identified, together with the location and sequence.

B.3 Site surveys

The planning of a lift using a telehandler may involve a site survey, carried out by the Suitably Qualified person or their representative. This involves visiting the workplace where the task is to be carried out so that both the task and any hazards involved can be identified. For simple tasks the remainder of the planning process may be completed at the same time, whilst for more complicated jobs the person carrying out the survey may need to complete the process off site. The survey should include assessment of ground conditions.

B.4 Identifying the hazards associated with the task

The hazards associated with the task should be identified. These might be associated with the workplace where the work is to be carried out, the nature of the telehandler, load to be lifted or the workers associated with the task or located in the vicinity. Please refer to Annex C for more guidance.

B.5 Carrying out a risk assessment

Duty to maintain effective control measure. A PCBu who implements a control measure to eliminate or minimise risks to health and safety must ensure that the control measure is effective, and is maintained so that it remains effective, including by ensuring that the control measure is and continues to be, fit for purpose, suitable for the nature and duration of the work and is installed, set up and used correctly.

For further guidance and an example of a 'risk assesment' please refer to annex C, and Annex K Hierarchy of Control measure.

B.6 Identifying control measures

Once the risk assessment has highlighted the risks involved in the task, the procedures and measures required to control them should be identified. Refer to Annex K Hierarchy of control measure.

B.7 Developing the method to be used

Having identified the hazards, evaluated the risks and worked out the control measures required to carry out the task safely; these components should be developed into a coherent plan. Any contingency measures and rescue procedures should be included in the plan.

B.8 Selection of telehandler and lifting accessories

When selecting a telehandler for a particular task the following points should be considered:-

- The weight, dimensions and characteristics of the loader and the loads to be lifted ;
- The operation, speed, radii, height of lift and areas of movement;
- The number, frequency and types of lifting operation;
- The space available for telehandler access, deployment, operation and stowage including the space required for correct deployment of stabilizers;
- The control position which will be most suitable for the lifting operation. The control position should be selected to ensure that the operator has an adequate view of the load path is adequately protected from crushing hazards;
- The need for motion limiting devices such as slewing arc or height limiters;
- The effect of the operating environment on the telehandler.

Figure B2 - Illustrative Telehandler Case Study

Example Activity – Lifting of Timber Roof Trusses with a Telehandler

Situation 1	Trusses being lifted off delivery vehicle and placed on an adjacent set down area on a secure site with no pedestrian access or other environmental hazards		
Environment - 1	***Load -*** 1	***Example Hazards***	***Example Control Measures***
Lift Categorisation - Basic		Overturning of telehandler or failure through overloading of the telehandler attachment or lifting accessory	Accurately assess weight and max radius of load Selection of telehandler and lifting accessories
		Overturning of telehandler through ground bearing failure	Assessment of ground conditions and use of appropriate out rigger pads
Lifting Team • Suitably qualified person prepares generic RA & MS • Operator takes role of Lift Supervisor, Dogman Rigger /Signaller and Operator		***Planning Requirements*** • Generic Risk Assessment and Task Analysis • Onsite review of RA and MS by Lift Supervisor	

Situation 2	Trusses being lifted off the delivery vehicle and placed directly on to the roof structure with personnel standing on the roof at height.		
Environment - 2	***Load -*** 1	***Example Hazards***	***Example Control Measures***
Lift Categorisation - Intermediate		Overturning of telehandler or failure through overloading of the telehandler attachment or lifting accessory	Accurately assess weight and max radius of load Selection of telehandler and lifting accessories
		Overturning of telehandler through ground bearing failure	Assessment of ground conditions and use of appropriate out rigger pads
		Crushing or striking of personnel on roof structure	Dogman / Rigger situated adjacent to landing area with agreed system of signalling (radio if line of sight obscured) crane signals
		Overhead lines - electric shock	Isolate power lines
		Never lift over anyone	Control path of the load using tag lines

Lifting Team	***Planning Requirements***
• Suitably Qualified person prepares task and/or site specific RA & MS • Operator takes role of Lift Supervisor and Operator • Separate dogman rigger required on the roof	• Task and/or site specific Risk Assessment and Task Analysis • Onsite review of RA and MS by the Lift Supervisor

Situation 3	Trusses being lifted off the delivery vehicle in a busy suburban street and placed directly on to the roof structure out of line of site of the operator and with personnel standing on the roof at height	
Environment - 3	***Load -*** 1	***Example Hazards***	***Example Control Measures***
Lift Categorisation - Complex		Overturning of telehandler or failure through overloading of the telehandler attachment or lifting accessory	Accurately assess weight and max radius of load Selection of telehandler and lifting accessories
		Overturning of telehandler through ground bearing failure	Assessment of ground conditions and use of appropriate spreader plates
		Crushing or striking of personnel on roof structure	Dogman/ Rigger/signaller situated adjacent to landing area with agreed system of signalling (radio if line of sight obscured)
		Lifting near and over persons	Control path of the load using tag lines
		Injury of members of public in street.	Segregation of public from working area
		Collision with passing traffic	Implement traffic management plan
Lifting Team • Suitably qualified person prepares site specific RA & MS • Separate Lift Supervisor oversees lifting operation • Operator takes role of Operator only • Separate Dogman Rigger/signaller required on roof • Temporary traffic management operative (if required)		***Planning Requirements*** • Site specific Risk Assessment and Task Analysis • Onsite review of RA and MS by the Lift Supervisor • Traffic management scheme	

B.9 Recording the planning in a Task Analysis

Once the plan has been developed it should be recorded in a Task Analysis. The length and detail of this document depends on the complexity of the task to be undertaken and on the risks involved. A simple low risk job such as a routine delivery and unloading of bulk materials or blocks to site might only require the use of a brief generic task analysis, whilst a more complex and high risk job such delivering, unloading, and assembling and lifting into position of a loading platform on a construction site would require a more detailed job specific task anaysis. The Task Analysis covering all planned lifting on a site is often referred to as the *"lift plan"*. The task analysis should include a *"lifting schedule"* listing each type of item to be lifted together with the following information:

- Daily check of machine is completed,
- lift within rated capacity
- Item description;
- Weight;
- Dimensions;
- Lifting points/method;
- Type of lifting accessories to be used and configuration;
- Pick up and landing locations referenced to the site plan.

An example of a lifting schedule is shown in **Annex D** and an example of a Task Analysis in **Annex B.**

B.10 Communicating the plan to all persons involved

One of the most important aspects of successful planning is to ensure that the contents of the plan are communicated effectively to and between all parties involved, taking account of language differences. Arrangements should be made to ensure that copies of any Task Analysiss are given to the appropriate people and that others involved in the job are fully briefed. Similarly any changes to the plan should be communicated to all parties.

B.11 Reviewing the plan before the job starts

Immediately before a job starts, the risk assessment and method should be reviewed to check if any aspect of the job has changed and the effect that these changes could have on the safety of the operation. If any modifications to the plan are required these should be communicated to all those involved. The Suitably qualified person should amend the Task Analysis (lift plan) and initial any significant changes

Annex C – Example of a Risk Assessment and Task Analysis for Lifting Suspended Loads with a Telehandler

1. Task to be Undertaken (Example only)

Lifting of steelwork for installation on Building M6 between gridlines Ck and Cm, to be carried out by Steel-up-Quick Ltd.

2. Basic Information (Example only)

Customer Details	Customer	MegaCity Retail Ltd
	Site	Building M6, Stratford, SE6 5PQ
	Contact	Andy Builder
	Contact Number	07234 56789
	Date of Lifting Operation	02.04.10
Load Information	Load	Prefabricated steel column sections
	Weight of load	728kg
	Load dimensions	3.4 long x 0.305 wide x 0.305 high
	Lifting point	Hole in end of web for shackle
	Maximum radius of lift	5.8 m
	Maximum height of lift	6.8m (top of upper column)
Telehandler Information	Telehandler make	Merlo
	Telehandler model	P38.14 + P38.14 Plus
	Stabilizer configuration	Front (2.42m extension)
	Maximum stabilizer load	5.8 tonne
	SWL at maximum Radius of lift	SWL at Maximum height of lift
Site Conditions	Access to lift area	Metalled site road
	Ground conditions	Firm clay – Can moulded by strong finger pressure
	Voids underground	None - Based on information from Principal Contractor
	Underground services	None - Based on information from Principal Contractor
	Public interface	None – Secured construction site
	Overhead lines	None observed during site visit
PCBU	Name:	Signature:

3. **Identification of Hazards** (Example only)

a. People in area struck by:
- Telehandler boom
- Telehandler chassis
- Moving load

b. Telehandler stability:
- Ground unable to support telehandler
- Telehandler overloaded
- Telehandler failure

c. Movement of load:
- Load collides with structure
- Load collides with other plant - cranes, excavators etc
- Load/telehandler boom comes within arcing distance of overhead lines
- Persons hand crushed/trapped by load

d. Suspended load:
- Load may fall on person
- Loose parts on load may fall

e. Working at Height:
- Person falling from height when attaching or removing slings from load

f. Environmental conditions:
- High wind causes load to collide with fixed object
- Telehandler becomes unstable

4. ***Risk Assessment*** *(Example Only)*

Operation/ Issue	***Hazard***	***Risk***	***Control Measures to Avoid or Minimise Risk***	***Residual Risk***
People in area	Struck by: • Telehandler boom • Telehandler chassis • Moving load	High	• Public excluded from secure site • Establish effective exclusion zone in conjunction with Principal Contractor • All personnel to wear high visibility clothing • Ensure lifting team are fully briefed on need to keep clear of load during lifting and telehandler during travelling	Low

Operation/ Issue	***Hazard***	***Risk***	***Control Measures to Avoid or Minimise Risk***	***Residual Risk***
Telehandler stability	Ground unable to support telehandler	Med	• Establish presence of voids/underground services with Principal Contractor • Assess ground and establish if there is a requirement for outrigger pads. • If required, Crane Supervisor to check that pads supplied match those specified in Task Analysis	Low
	Telehandler overloaded	High	• Ensure weight of load is known and accurate • Telehandler operator to have valid NZ qualification.	Low
	Telehandler failure	Med	• Ensure telehandler has been adequately maintained and has current report of thorough examination.	Low
Movement of load	Load collides with structure	Med	• Tag line to be attached to load to control rotation	Low
	Load collides with other plant - cranes, excavators etc	High	• Establish effective exclusion zone in conjunction with Principal Contractor	Low
	Telehandler boom comes within arcing distance of overhead lines	High	• Establish presence or otherwise of overhead lines. • If present arrange for isolation or position telehandler boom/load outside minimum safe approach distance	Low
	Persons hand crushed/ trapped by load	Med	• Tag line to be used • Gloves to be worn • All slinging to be completed by Dogman Rigger with valid NZ qualification.	Low
Suspended load	Load may fall on person	High	• Ensure telehandler has been adequately maintained, has current report of thorough examination and that pre-use checks are carried out. • Ensure lifting accessories with adequate capacity have been selected, that they are adequately maintained, have current report of thorough examination and that pre-use checks are carried out.	Low
	Loose parts on load may fall	High	• Inspect load for loose objects prior to lift and secure/remove loose items. • All personnel to wear hard hats.	Low
Working at Height	Person falling from height when attaching or removing slings from load	High	• Delivery vehicle to be provided with ladder for access/egress. • Access to steelwork and fall protection arrangements as steelwork installation Task Analysis.	Low

Operation/ Issue	***Hazard***	***Risk***	***Control Measures to Avoid or Minimise Risk***	***Residual Risk***
Environmental conditions	High wind causes load to collide with fixed object	High	Wind speed to be checked with hand held anemometer by Crane Supervisor before lift starts. Lift to be aborted if wind speed exceeds 9m/s..	Low
	Telehandler becomes unstable	High		Low

5. **Category of Lift** (Example only)

Load Complexity	1
Environmental Complexity	2
Lift Category	Intermediate

6. **Lifting Team** (Example only)

Role	***Name***	**NZ Qualification Numbers**	***Mobile Phone***
Competent Person/ Suitably Qualified Person	Keith Carter		07234 56789
Crane Supervisor	Dwayne Joseph		07234 56788
Telehandler Operator	Graham Dillaway		07234 56787
Dogman /signaller	Dwayne Joseph		N/A

7. **Equipment** (Example only)

Equipment	***Specification***	***Maintenance Records***	***TE Report***
Telehandler	Merlo P38.14 + P38.14 Plus, fitted with lifting hook attachment. See **Fig 1.** Rated Capacity 1500kg @ 5.8m radius and 9.8m height	Current and with machine	Current and with machine

Lifting Accessories	1 No 1.5m long single leg 8mm chain sling WLL 2000kg	Current and on site	Current and on site
	4 No small bow shackle. WLL 3 tonne	Current and on site	Current and on site
Stabilizer Spreaders	Not required	N/A	N/A
Tagline	10mm diameter Polypropylene Rope	Pre use check	N/A
Short Access Ladder	Youngman Lorry Ladder	Current and with delivery vehicle	N/A

8. **Procedure** (Example only)

   a. Suitably Qualified Person must ensure that Principal Contractor and Crane Supervisor are in possession of latest revision of Task Analysis. If the suitably qualified person is not attending site for the lifting operation they must brief the Crane Supervisor;

   b. Arrive on site and liaise with Principal Contractor;

   c. Inspect lifting area to ensure that nothing has changed since last site visit;

   d. Suitably Qualified person to brief Lifting Team on contents of Task Analysis. Crane Supervisor, Operator and Dogman/Signaller to sign Task Analysis to acknowledge receipt and understanding of briefing. If Suitably qualified persons not on site, briefing to be undertaken by Crane Supervisor;

   e. Establish exclusion zone in conjunction with Principal Contractor to exclude both personnel, other cranes and overhead plant;

   f. Remove forks and install lifting hook to fork carriage;

   g. Position telehandler as shown on attached Drawing No. SC-GBA-M6-00-TE-W-00001;

   h. Attach single leg chain sling to telehandler hook

   i. Carry out “dry run” to ensure that telehandler hook can reach required height and radius;

   j. Travel telehandler to delivery vehicle;

   k. Attach shackle to first column;

   l. Attach sling to telehandler lifting hook and load;

   m. Ensure all personnel are clear of the load;

   n. Lift load from delivery vehicle;

   o. Ensure all personnel are clear of the telehandler and the suspended load;

   p. Transport to set up position ensuring that load is kept just clear of ground at minimum radius.

q. Position telehandler as shown on attached Drawing No. SC-GBA-M6-00-TE-W-00001 and deploy stabilisers;

r. Attach tag line to load;

s. Ensure all personnel are clear of load;

t. Lift load to position and lower under direction of Dogman/Signaller, controlling load swing with tag line;

u. Steel erectors to install column and release sling;

v. Retract boom;

w. Repeat for further three columns;

x. Steel erectors to recover shackles;

y. Remove exclusion zone in conjunction with Principal Contractor.

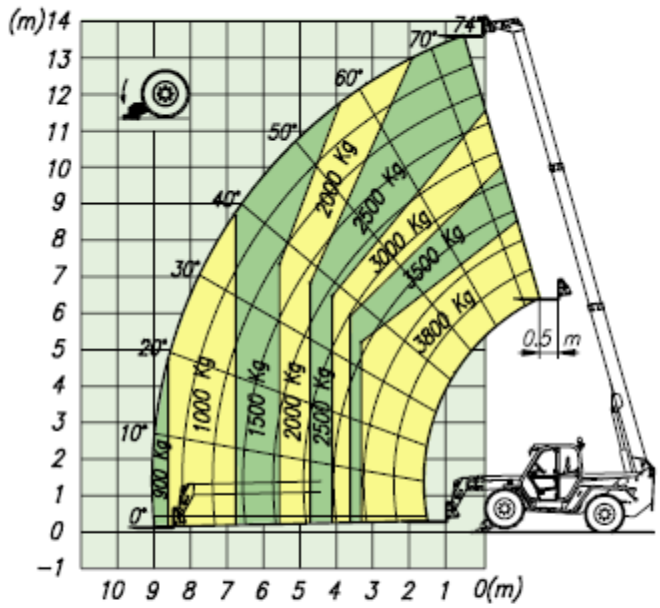
9. **Revision Status and Distribution of Task Analysis** (Example only)

Issue Date	01.02.10	
Revision	Rev 2	
Distribution	*Competent Person*	Keith Carter
	Crane Supervisor	Dwayne Joseph
	Site Representative	Andy Builder

10. **Signatures** (Example only)

		Name & Signature
***Competent Person* / Suitably Qualified Person**	I have prepared this Task Analysis and authorise the Lifting Team to proceed with the lifting operation in compliance with this document. Any changes to the specified procedure must be approved by me before the lifting operation begins	K Carter
Crane Supervisor	I have been briefed on this Task Analysis by the Competent Person / suitably qualified person . I have checked that the lifting plan reflects the situation on site and the details are correct. I have briefed the contents of the Task Analysis to the other members of the Lifting Team	D Joseph
Dogman / Rigger/ Signaller	I have been briefed on and understand the Task Analysis for this lifting operation.	D Joseph
Telehandler Operator	I have been briefed on and understand the Task Analysis for this lifting operation.	G Dillaway
Site Representative	I confirm that I have been briefed on and understand the Task Analysis for this lifting operation. I also confirm that the ground on which the Telehandler will stand can accept the stabilizer loads provided to me by Steel-up-Quick.	A Builder

P 38.14 + P 38.14 PLUS on stabilisers



EN 1459/B

P 38.14 + P 38.14 PLUS on tyres

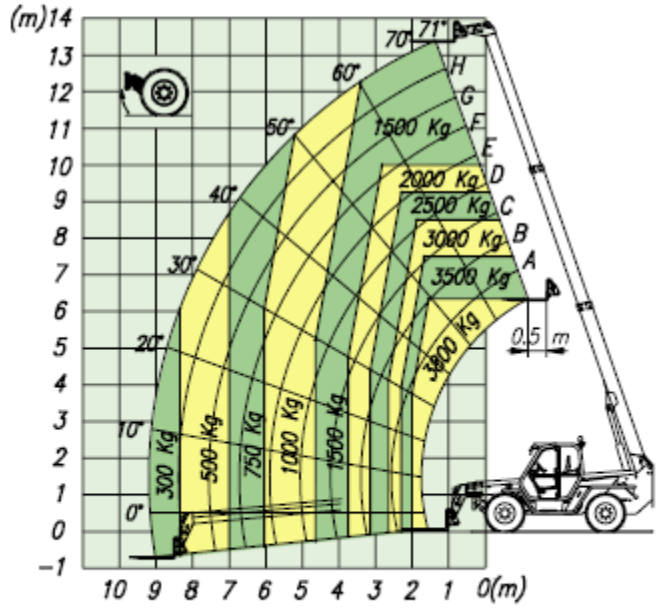


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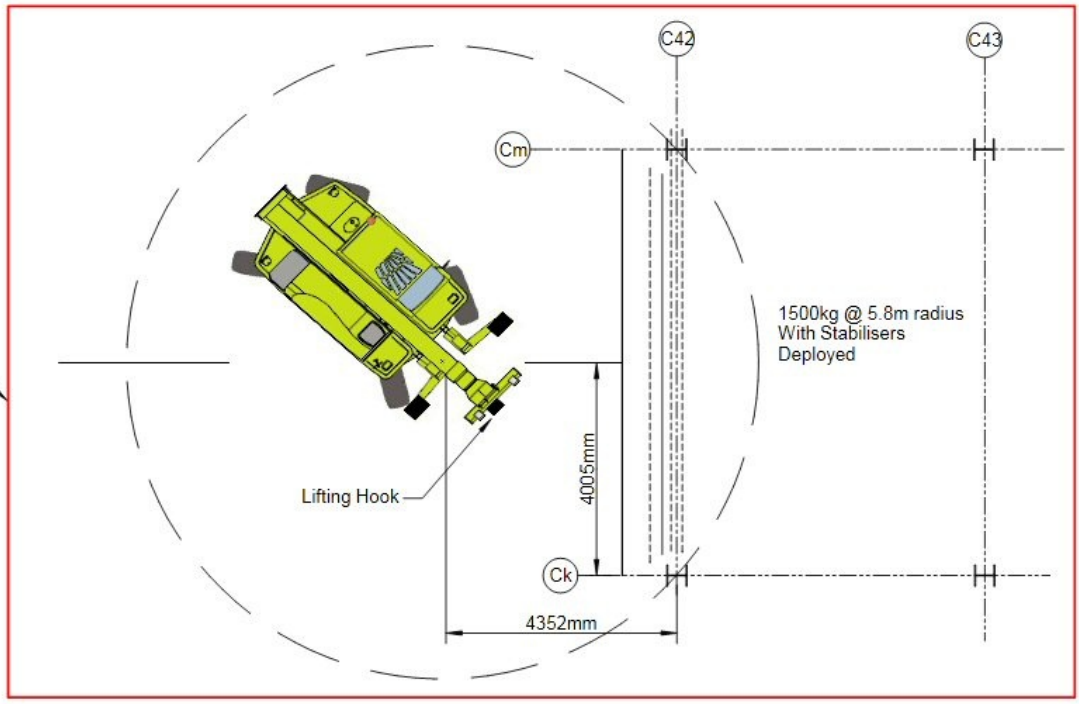
Figure C1 - Lifting Hook



Max Load Radius	5.8m
Rated Capacity @ Max Radius With Stabilisers Deployed	1500kg
Max Lift Height	6.4 m

Steel-up-Quick Ltd
Coketown - SE8 4HN
Tel : 01932 272408 Fax : 01932 272484

Title	Column Installation
Drawn By	A Draftsman
Date	01/04/09
Project	MegaCity Retail
Scale(s)	1:100
Drg No	SC-GBA-M6-00-TE-W-00001
Rev	P0

Annex D – Example of a Lifting Schedule

Lifting Schedule									
Site Location	Canal Street, Bury	***Employing Organisation***	BBH Construction	***Competent Person/ Suitably qualified***	C Crane	***Contact Telephone No***	123 456 7890		
Item to be Lifted	***Item Weight***	***Picked From***	***Transported To***	***Max Lift Radius***	***Max Lift Height***	***Lift Category***	***Lifting Accessories***		***Comments***
							Type	***SWL***	***Weight***	
Crofters Brick Pack (500 pack)	1400 kg	Compound	Grid A12	5.5 m	12 m	Basic	Forks	2000 kg	180 kg	Use net to prevent falling objects
Durox Superbloc 125 (100 pack)	1100 kg	Compound	Grid B20	5 m	14 m	Basic	Forks	2000 kg	180 kg	Use net to prevent falling objects
Roof Truss K480 (5 pack)	500 kg	Delivery Vehicle	Compound	6 m	8 m	Basic	2 No Violet web slings 2m long	1400 kg	4 kg	Crane jib
Roof Truss K480 (Single)	100 kg	Compound	Grid D10	10 m	10 m	Intermediate	2 No Violet web sling 2m long	1400 kg	4 kg	Crane jib + Separate Dogman/ Rigger/signaller required on roof
Floor Beams 4m (10 pack)	800 kg	Delivery Vehicle	Compound	4 m	8 m	Basic	Forks	2000 kg	180 kg	Exclusion zone
Finishing Plaster (10 bag pack)	300 kg	Compound	Grid A6	6 m	14 m	Basic	Forks	2000 kg	180 kg	Use net to prevent falling objects

Annex E – Example of a Checklist for Familiarisation

Telehandler Familiarisation Handover Checklist	**No.**

Issuing Depot:		**Date:**	
Handover By:		**Fleet No.**	
Machine Type:			
Customer:			
Operation of controls	✓	**Fluid levels**	✓
Gear Selection		Fuel	
Forward and reverse selection		Hydraulic oil	
Steering mode selector		Engine oil	
Boom reach raised		Batteries	
Boom reach lowered		Transmission/powertrain	
Boom reach out		Coolant	
Boom reach in		Screen wash reservoir	
Carriage tilt		Brake system reservoir	
Stabiliser legs		**Documentation/equipment**	
Chassis levelling operation		Manufacturer's operating manual	
LLMI/LLMC unit test		Load charts	
Brake pedal		Thorough examination certificate	
Horn		Operator's record book	
Wiper		EC conformity certificate	
Lights		Grease gun/tyre pressure gauge	
Third service control		**Comments**	
Stop button			
Engine isolation switch and key			
Handbrake			
I, the undersigned, acknowledge that I have been familiarised with the above controls and checks.			
Name (print)		Signature	
Company		Date	

NOTE: *Familiarisation is also required for telehandler attachments*

Annex F – Example of a Daily (pre-use) Check List

Operator's Telehandler Pre-Use Check Sheet

Operator's Name:	***Date:***
Telehandler Make:	***Model:***
Motive Power:	***Attach-ments:***
Operator's Signa-ture:	

	Item	***OK (✓)***	***N/A (✓)***	***Defect Reported***
Visual Pre - start Check or "walk-around."				
1.	Verify location of handbook and confirm machine has a current report of Thorough Examination			
2.	General condition and cleanliness, including cab			
3.	Evidence of any oil leaks (include hydraulic cylinders, fittings, valves and wheel hubs)			
4.	Fork carriage, (deformed arms, back rest damage, distortion)			
5.	Attachments, (completeness, damage, decals, rated capacity, fastenings)			
6.	Quick hitch fittings (if applicable)			
7.	Pin security			
8.	Wheels (bent rims and nut security) & tyres (worn tread, cuts and damage to side walls and tread)			
9.	Tyre pressure (check using gauge)			
10.	Hydraulic hose and pipe condition and security			
11.	Cab condition, ROPS/FOPS mounting			
12.	Cab windows, including roof section, to be clean.			

	Item	*OK (✓)*	*N/A (✓)*	*Defect Reported*
13.	Cracked/unauthorised welding			
14.	Guards, cowlings and fasteners			
15.	Decals/labels, including manufacturer's rating plate			
16.	Fire extinguisher (in-date, charged?)			
17.	Manufacturer safety bars			
18.	Mirrors / CCTV			

Physical Check of lubricants etc, (wearing gloves)				
19.	Engine oil			
20.	Transmission oil			
21.	Coolant			
22.	Batteries			
23.	Brake fluid			
24.	Hydraulic oil			
25.	Air filter indicator			
26.	Fan belt deflection			
27.	Fuel			
28.	Visual check of all engine components			
Running Checks				
29.	All controls for correct function			
30.	All gauges and instruments including horn and hour meter			
31.	All lights/indicators including beacon			
32.	Heater, defroster and wipers for correct function			
33.	Verify seat position and seat belt function			
34.	Any unusual noises			

35.	Service brakes			
36.	Verify all steering modes			
37.	Stabilisers/outriggers/chassis tilt/360 rotation. (as appropriate)			
38.	Parking brake test			
39.	Load charts			
40.	LLMI			
41.	LLMC (if fitted)			
42	All warning devices must be operational			
NOTE: *All pre-use checks must be carried out in accordance with the specific instructions published in the relevant manufacturer's operating handbook*				

Criteria Statement for use with Pre-use Check Sheet	
Item	***Criteria***
Fork arms (or attachment)	Visual checks on fork arms (or other attachment) to ensure that they are undamaged, not distorted and are securely attached to the carriage plate.
Carriage-plate (including Quick-hitch)	A visual check on the carriage plate to ensure that it is in good condition, not distorted and that any quick-hitch fittings are in good condition and correctly latched.
Telescopic boom	A visual check to ensure that there is no obvious damage or distortion, that all warning decals are clear and in place and, where there are visible hydraulic hoses and pipes, that they are undamaged and free to track the boom. A working check might come later.
Hydraulics (pipes, union, hoses)	A visual check on all other hydraulic pipes, unions and hoses to ensure that there is no damage, leakage or distortion likely to lead to breaks, etc. where visible, a check on hydraulic rams to ensure that there is no rust or scoring likely to lead to leakage past seals, etc.
Wheels & tyres	A visual check to ensure that all wheel nuts are present without signs of "working", that there is no leakage from hubs, that no foreign bodies have become trapped in the wheel mechanism, that types are in good condition with no chunking, splits or signs of apparent structural breakdown. This could include a periodic check on tyre pressures.
External condition (including mirrors)	This would be a general walk around to note any surface damage, light lenses damaged, mirrors in place and adjusted, decals clearly displayed, etc. Also included would be any moveable panel being secured
CCTV equipment	If the machine is fitted with CCTV, is it in position, undamaged and clean. A working check might come later.
Cab & cab doors / windows	An inspection of all cab windows and door for cleanliness and any evidence of damage, cab door lock effective and secure, and with particular attention on the window alongside the main boom to be in position, secure, clean and undamaged.

Operating cab	This check is about the floor of the cab and the access to it including mounting steps, rubber mats, exclusion bellows, etc, and clearing any rubbish, mud, stones, paper, refreshment refuse, etc that could block the full operation of any of the controls.
Operator's seat & restraint	This is a check on the seat itself, its condition and adjustability, and any presence microswitch control that might be installed. Also included would be the condition of the restraint system and its fastenings, as necessary including the inertia lock.
Rated Capacity Plate/Load Charts	Once in the seat, the operator can check the load charts and rated capacity information for condition, content and clarity.
Starting procedure	The operator can then insert the key and start the start-up procedure, making sure that the machine will start correctly.
Warning lights and instruments	Once started up, the operator can then check warning lights, hour meters, instruments for correct operation and any fault codes being shown.
Lights & beacons	A round check of all lights and beacons for operation.
Audible warnings	A round check of all audible warning systems.
Hydraulic controls	The operator should operate all hydraulic controls over their full range, noting any obvious defects, rough operation, ability to reach full extension, which will (a) show that the system is fully operational and (b) lubricate the whole system. Any evidence of rubbing, scoring, leakage or other damage should be recorded.
Load Moment Indicator/Control	The operation of the longitudinal load moment indicator or control can be checked during the above process.
Axle weight sensors	The operation of any load sensors on the rear axle could also be checked at the same time.
Stabilisers (if applicable)	Where stabilisers are fitted, they should be checked to ensure that feet are not distorted or missing, that they are secure and correctly stowed. It may also be possible to ensure that rams are in good condition and that hydraulic seals are not leaking. A full working check should be performed.
Slew turntable (if applicable)	If fitted, the slewing operation can be checked to ensure that it is fully operational and that there are no obvious defects.
Drive & braking (All systems)	The operator should check all brake systems in both travel directions and that drive is satisfactorily delivered in all modes.
Steering (All modes)	Finally, the steering should be operated, while the machine is moving in both directions, over its full steering lock in all modes (i.e. front-wheel, four-wheel and crab-steer).

Annex G – 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.

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 road. (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;

1.6 Ensure that you are comfortable with carrying out the task;

1.7 Ensure you have had authorisation from your supervisor to carry out the task;

1.8 If it is not safe to start work - **Inform your supervisor.**

2.0 During Use

2.1 Ensure that you understand the telehandler's limitations on the rating plate and load charts. Never overload the telehandler;

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;

2.3 Wear your seat belt at all times to reduce the risk of injury should the telehandler overturn. **It could save your life!**

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;

2.5 Ensure you comply with the legal requirements for driving your telehandler on the public highway;

2.6 If it is not safe to carry on working - **Stop and inform your supervisor.**

3.0 After Use

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;

3.2 Get in and out of the cab safely.

Annex H - Key Points for Supervisors of Telehandler Operators

- You have personal and legal responsibility to ensure that all telehandlers are used safely. Serious misuse of telehandlers may well be treated as gross misconduct which could well lead to dismissal or individual prosecution;
- Ensure that the operator knows that if it is not safe to start work - **They must inform you;**
- Ensure that the operator knows that if it is not safe to carry on working - **They must stop and inform you;**
- Ensure that the telehandler or attachment manufacturer's instructions are always followed.
- 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.

1.0 Before Starting

1.1 Ensure that the telehandler has a current thorough examination report and has been suitably maintained;

1.2 Ensure that the operator is trained to operate telehandlers and has been familiarised with the specific make and model of telehandler they are to operate, including driving on the public highway (if applicable);

1.3 Confirm that daily checks, including safety devices, are carried out before the start of each shift and that all defects are recorded and rectified;

1.4 Assess site conditions and check that there is adequate segregation of pedestrians and plant/vehicles in place;

1.5 Ensure you have briefed the operator on the task, hazards, control measures and site conditions that may affect the safe operation of the telehandler;

1.6 Confirm that the operator is comfortable with carrying out the task;

1.7 Ensure you have authorised the operator to carry out the task.

2.0 During Use

2.1 Confirm that the operator understands the telehandler's limitations on the rating plate and load charts, and that they should never overload the telehandler;

2.2 Ensure that the operator is familiar with the site and that they are aware of slopes, ground conditions, visibility, pedestrians and other potential hazards that may affect the safe operation of the telehandler;

2.3 Carry out regular spot checks on telehandlers working on site to monitor for safe working practices;

2.4 Check that the operator wears the seat belt to reduce the risk of injury should the telehandler overturn. **It could save their life!**

2.5 Confirm that the operator is familiar with using and changing any attachments;

2.6 Ensure that where the telehandler is driven on the public highway, all legal requirements are met.

3.0 After Use

3.1 Check that when leaving the telehandler cab the operator - parks on level ground, lowers the boom/attachments, applies the parking brake, leaves the transmission in neutral, switches off and takes the ignition keys out.

Annex I - Key Points for Supervisors of Telehandler Operators - Lifting and Travelling with Suspended Loads

- You have personal and legal responsibility to ensure that all telehandlers are used safely. Serious misuse of telehandlers may well be treated as gross misconduct which could well lead to dismissal or individual prosecution;
- Ensure that the operator knows that if it is not safe to start work - **They must inform you;**
- Ensure that the operator knows that if it is not safe to carry on working - **They must stop and inform you;**
- Ensure that the telehandler or attachment manufacturer's instructions are always followed.

1.0 Before Starting

1.1 Ensure that the telehandler, lifting attachments and lifting accessories have a current thorough examination report and have been suitably maintained;

1.2 Ensure that the operator is trained to operate telehandlers when lifting and travelling with suspended loads and has been familiarised with the specific make and model of telehandler they are to operate, including driving on the public highway (if applicable);

1.3 Confirm that daily checks, including safety devices and lifting accessories, are carried out before the start of each shift and that all defects are recorded and rectified;

1.4 Assess site conditions and check that there is adequate segregation of pedestrians and plant/ vehicles in place;

1.5 Find out if the telehandler is allowed to travel on slopes with a suspended load. If it is establish the maximum permitted gradient and ensure that you inform the operator;

1.6 Ensure you have briefed the operator on the task, hazards, control measures (including designated exclusion zones) and site conditions that may affect the safe operation of the telehandler. You should give the operator a copy of the lift plan or Task Analysis for the task;;

1.7 Confirm that the operator is comfortable with carrying out the task;

1.8 Ensure you have authorised the operator to carry out the task.

1.9 If a Dogman / Rigger/signaller is being used, ensure that they are fully briefed to stay clear of the machine's moving path at all times, maintain regular eye contact with the operator and work to an agreed code of signals.

2.0 During Use

2.1 Confirm that the operator understands the telehandler's limitations on the rating plate and the specific load chart for lifting suspended loads, and that they should never overload the telehandler;

2.2 Ensure that the operator is familiar with the site and that they are aware of slopes, ground conditions, visibility, pedestrians and other potential hazards that may affect the safe operation of the telehandler, including the need for extreme care when travelling on slopes with a suspended load;

2.3 Carry out regular spot checks on telehandlers working on site to monitor for safe working practices;

2.4 Check that the operator wears the seat belt to reduce the risk of injury should the telehandler overturn. **It could save their life!**

2.5 Confirm that the operator is familiar with using and changing any attachments;

2.6 Ensure that the operator knows that they must maintain regular eye contact with the Dogman/ Rigger/signaller and stop their machine immediately if they lose sight of them;

2.7 Ensure that where the telehandler is driven on the public highway, all legal requirements are met.

3.0 After Use

3.1 Check that when leaving the telehandler cab the operator - parks on level ground, lowers the boom/attachments, applies the parking brake, leaves the transmission in neutral, switches off and takes the ignition keys out.

Annex J - Example of a Safe Operating Procedure (SOP) for non-integrated safety cages.

Hazard:

1) **Falls while Working from Mancage.**
2) **Hitting overhead obstructions. Solid Structures, Power lines etc.**
3) **Machine and work platform tipping over - falls, crushing.**

1. Preparation.

1.1 Ensure:

1.1.1 That the telehandler is approved for Work Platform use and that it is:

- In good condition and is smooth and reliable in operation.
- The lift, extension, tilt rams, and stabiliser leg rams are fitted with emergency check valves to prevent collapse in the event of a piping failure.
- That a clearly visible **Work Platform Load Chart** is fitted to the telehandler. The Work Platform Load Chart allowable loads are 1/3 the factory telehandler safe fork loads, with the stabiliser legs down.
- Allowance may be made for the mass of the fork tynes which are taken off the machine when the mancage is attached.
- Load Chart requires an Engineers approval.

1.1.2 That the Work Platform is approved by an Engineer as complying with AS2359.2 or similar standard. It must be clearly labelled with this approval which must include its Tare Mass and Maximum Safe Load.

1.1.3 The work platform must not protrude further forward than 1000mm from the telehandler attachment points

1.1.4 The work platform must not be wider than 2m and must be centrally loaded.

1.1.5 The Work Platform must be fitted with a Workplace Operational Instruction Label

1.2 The operator must ensure:

1.2.1 They are aware of their responsibilities and the hazards of operating the telehandler as an Elevating Work Platform.

1.2.2 That the Work Platform occupants are aware of their responsibilities and the hazards that exist.

1.2.3 The Work Platform is approved and that it is secured correctly - safety bar and safety latch.

1.2.4 The telehandler has been given a daily visual inspection, its fluid levels are correct, tyres are correctly inflated, and that the controls are working smoothly and correctly.

1. 2.5 Only those essential for the work are to be permitted in the area, and that hard-hats and fluorescent clothing is worn.

1.2.6 That the Work Platform occupants check and wear full body harnesses and that they are correctly attached to the Work Platform.

1.2.7 The Operator must determine the load in the Work Platform does not exceed the Work Platform's Safe Working Load.

1.2.8 The operator must determine the total mass on the telehandler coupling.

Work Platform Total Mass = Work Platform Tare Mass + Load in Work Platform.

1.2.9 The operator must use the telehandlers Work Platform Load Chart to determine the travel limits for the Work Platform at its Total Mass.

2.0 Operation. The operator must ensure:

2.1 The machine is set up on flat and stable ground.

2.2 The machine is positioned so that the work platform can reach its desired position using elevation, and the telescopic reach of the boom alone. The occupants enter the work platform once the telehandler is in position and its Stabiliser legs are deployed.

2.3 That clear communications between the operator and the work platform occupants is established and maintained throughout the work process

2.4 Before elevating personnel the telehandler must have its stabiliser legs deployed, be in Neutral, and have the park brake activated.

2.5 The operator remains with the machine so that they are able to move the platform as and when required.

2.6 The operator must follow the directions of the work platform occupants, and only move the work platform at their request. All movements must be slow and smooth. Do not tilt the platform forward or rearward.

2.7 The work platform must operate within the limits of the telehandlers Work Platform Load Chart. If the work area is outside of the extension or angle limits of the telehandlers Work Platform Load Chart, then the work platform must be lowered and the telehandler repositioned.

2.7 Side shift, if available, is not to be used, the work platform is to remain in the central position.

3.0 Operation. The Occupants must ensure:

3.1 Do not over load the platform. The telehandler Operator needs to know the weight in the Work Platform. If the load changes, make sure the Operator is aware.

3.2 That the Work Platform is accessed at ground level only.

3.3 That the occupants are wearing approved safety harness and lanyards and are correctly attached to the Work Platform before being elevated.

3.4 That the occupant's feet remain on the Work Platform floor. Standing or sitting on the handrails or using planks or ladders to gain extra reach is forbidden.

3.5 That work platforms are centrally loaded at all times.

3.6 The occupants and operator are aware of any overhead hazards.
When approaching possible crush or pinch points, the occupants are to crouch below the side railings. Only when it has been confirmed with the operator that the positioning is complete, should the occupants stand.

Annex K - Hierarchy of Control Measures

1. This regulation applies if it is not reasonably practicable for a PCBU to eliminate risks to health and safety in accordance with section 30(1)(a) of the Act.
2. A PCBU must, to minimise risks to health and safety, implement control measure in accordance wiht this regulation.
3. The PCBU must minimise risks to health and safety, so far as is reasonably practicable, by taking 1 or more of the following actions that is most appropriate and effective taking in to account the nature of the risk:

a) Substituting (wholly or partly) the hazard giving rise to the risk with something that gives rise to a lesser risk:

b) Isolating the hazard giving rise to the risk to prevent any person coming into contact with it:

c) Implementing engineering controls.

4. If a risk then remains, the PCBU must minimise the remaining risk, so far as is reasonably practicable, by implementing administrative controls.
5. If a risk then remains, the PCBU must minimise the remaining risk by ensuring the provision and use of a suitable person/s.

Annex L - Telehandler Operator certifications & Endorsements

1. **OSH Forklift & telehandler Drivers Certification covers unit standards 10851, 10852**

2. NZTA Endorsement ‘F’.

Enables driving of the machine on a public road, unit standard 18496.

3. ‘ W’ - Wheels Endorsement, uit standard 16701.

4. Telehandler Unit Standard 23637.

Annex M- Further Information and Guidance

Legislation

Health and Safety at Work Act 2015.
Health and Safety at Work (General Risk and Workplace Management) Regulations 2016.
Health and Safety at Work (Worker Engagement, participation and Representation) Regulations 2016
Health and Safety Reform Bill 2014
Land Transport Act 1998.
Health and Safety in Employment (Pressure Equipment, Cranes, and Passenger Ropeways) Regulations 1999 (SR 1999/128)
Heavy Motor Vehicle Regulations 1974 (SR 1974/218)
Land Transport (Driver Licensing and Driver Testing Fees) Regulations 1999 (SR 1999/93)
Land Transport (Motor Vehicle Registration and Licensing) Regulations 2011 (SR 2011/79)
Australian Standard 1418
New Zealand Crane Safety manual

Approved Codes of Practice

Approved Code of Practice for Cranes
Approved Code of Practice for training operators and instructors of powered industrial lift trucks (forklifts).
Approved Code of Practice -Operator protective structures on self-propelled mobile mechanical plant
Approved Code of Practice for Load-Lifting Rigging
Approved Code of Practice for Power-operated elevating work platforms

Guidelines

Best Practice Guidelines for Working at Height
Best Practice Guidelines for Mobile Elevating Work Platforms
Crane Safety for Construction Site Managers/Supervisors (Fact Sheet)
Keeping safe around moving plant (Fact Sheet)
Safe Use of Telehandlers In Construction (Construction Plant-hire Association UK, June 2013)

Annex N - Topic Index