

Good Practice Guide - Lifting and Travelling with Suspended Loads using Telehandlers



A 17m telehandler was lifting steel columns from a nearby lay-down 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.

Lifting and travelling with suspended loads is not the primary purpose of telehandlers. When selecting equipment for this activity the first step should be to ensure that a telehandler is suitable for carrying out the task safely. Where other equipment is more suitable, it should be used.

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. This note covers in brief the particular issues associated with lifting of and/or travelling with suspended loads using telehandlers. A more detailed explanation of the general safe use of telehandlers can be found in the Strategic Forum for Construction Plant Safety Group *Good Practice Guide on the Safe Use of Telehandlers in Construction*, which may be downloaded free of charge from the Construction Plant-hire Association's website at www.cpa.uk.net. The contents of this document will be incorporated into the next revision of the *Good Practice Guide on the Safe Use of Telehandlers in Construction* and this document will also be included as an Annex.

The particular issues associated with using telehandlers to lift suspended loads are:-

1.0 Planning

All lifting operations should be planned by a competent person (often referred to as the appointed person) who must ensure that the planning for each task includes the following:-

- Identifying the task to be undertaken;
- Selection of appropriate lifting equipment and lifting accessories;
- 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 Method Statement (Lift Plan);
- Communicating the plan to all persons involved;
- Reviewing the plan before the tasks starts and incorporating any changing circumstances.

Further details on the planning of the lifting of suspended loads are given in **Annex B** of the *Good Practice Guide on the Safe Use of Telehandlers in Construction*.

2.0 Operator Training

Basic telehandler operator training does not include lifting or travelling with suspended loads. If these tasks are to be carried out the employer 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.

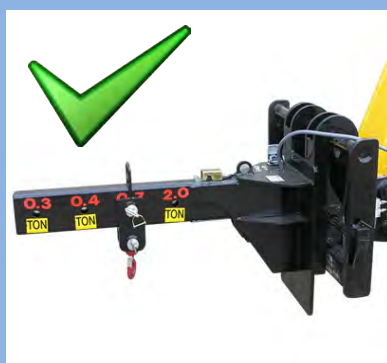
3.0 Lifting suspended loads

Suspended loads should never be attached to chains or slings over the forks or carriage. Only a properly designed, tested, thoroughly examined and fitted attachment should be used to carry a suspended load. Insecurely attached lifting accessories are a frequent cause of accidents, including fatalities, when lifting and travelling with suspended loads.

Without the appropriate load chart for the specific attachment a telehandler should not be used for lifting suspended loads. Travelling with suspended loads should only be undertaken in accordance with the manufacturer's instructions and where necessary, consultation with the manufacturer.



Sling Slipped over Fork



Carriage Mounted Lifting Point



Fork Mounted Lifting Point

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 1** shows example load charts for a machine with a hook fitted to the forks for lifting suspended loads and **Figure 2** 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 may 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.

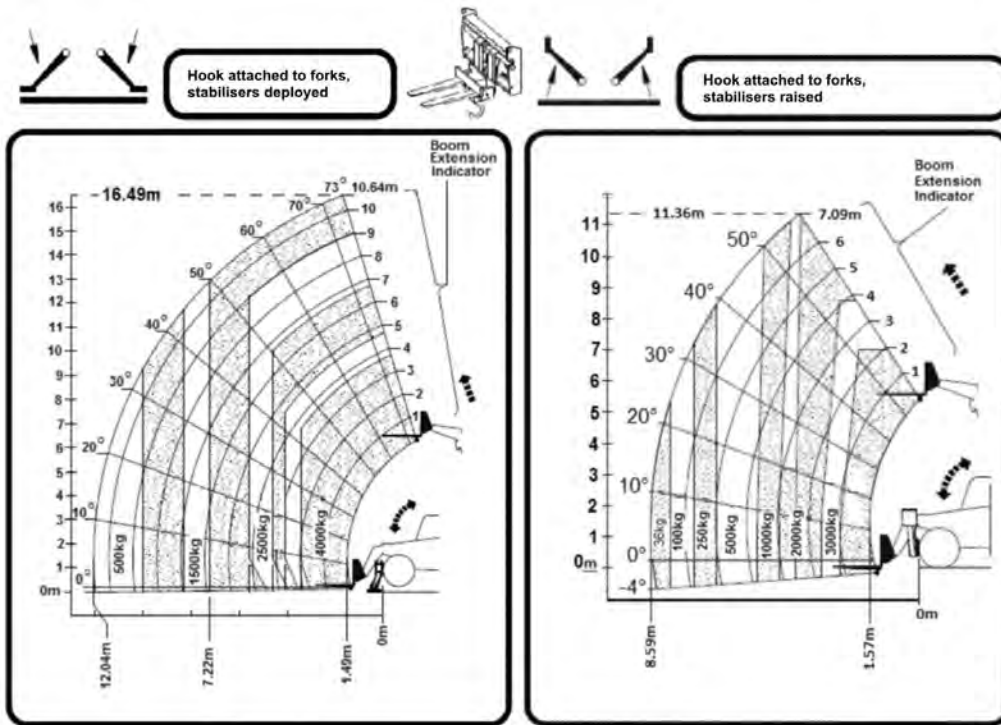


Figure 1 - Example Load Chart For Hook Located on Forks

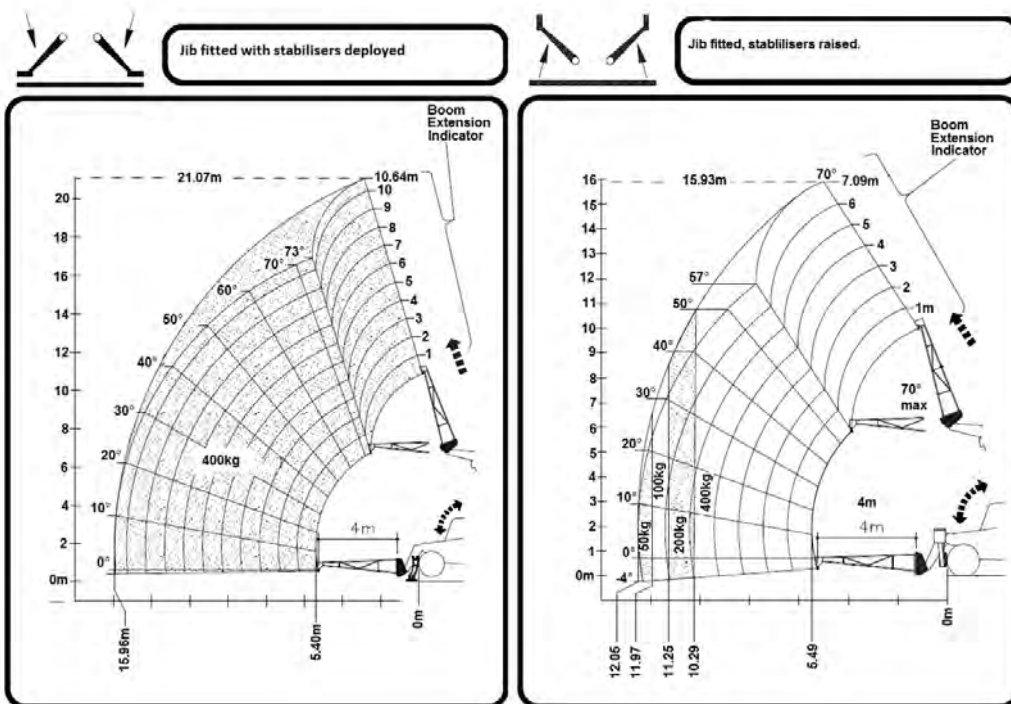


Figure 2 – Example Load Chart For Jib

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

4.0 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.

If information for travelling with a suspended load is provided by the manufacturer 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 marshaller 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. Slinger/signallers 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 should 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 should 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 **10.5**, **10.9** and **10.7.3** of the *Good Practice Guide on the Safe Use of Telehandlers in Construction*.

5.0 Maintenance and Inspection

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. Requirements for the maintenance and inspection of telehandlers are covered in detail in Section **12** of the *Good Practice Guide on the Safe Use of Telehandlers in Construction*.

6.0 Thorough Examination

The Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) require that all lifting equipment is thoroughly examined by a competent person at specified intervals. Requirements for the thorough examination of telehandlers are covered in detail in Section **13** of the *Good Practice Guide on the Safe Use of Telehandlers in Construction*.

A more detailed explanation of the issues covered in this document, together with the general safe use of telehandlers, can be found in the Strategic Forum for Construction Plant Safety Group *Good Practice Guide on the Safe Use of Telehandlers in Construction*, which may be downloaded free of charge from the Construction Plant-hire Association's website at www.cpa.uk.net

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