

Telescopic handler

Note: It is recommended that you read the Supporting Information page before you read this factsheet.

Preparation and fitting attachments *(Preparation)*

- Telescopic handlers (known as telehandlers) are one of the commonest machines to be used within the construction and allied sectors, as well as within other sectors such as agriculture. All come equipped with an extended telescopic boom that allows loads to be lifted, carried and placed at height and reach.
- As with all plant and equipment, thorough pre-use checks must be undertaken, following manufacturers' requirements. This information is usually found within the operator's manual, which should be kept with the machine.
- Checks on the forks are one of the many checks that should be undertaken. The forks are prone to wear, particularly through misuse. Wear mainly occurs at the heel or back end of the forks. This is a potential weak area and one or both forks may eventually bend or break, so wear must be measured against manufacturer's specifications.
- Where the operator notices a fault or is unsure whether the machine is safe to use, any fault or defect must be reported immediately with the telehandler placed out of service in the meantime.
- Using a machine with a defect, such as a leaking hydraulic ram on the carriage tilt mechanism, could become rapidly worse during use and, although an operator may decide that the fault is minor and the telehandler can be used, they may not be sufficiently qualified or experienced to make that judgement.
- Incidents have occurred with telehandlers where the tyres, particularly the front set, are of different sizes or of different load-bearing capacities. This is usually because the tyres have been changed due to wear or damage, but they have not been replaced with the correct types. Different sized front tyres mean the telehandler may not be level when picking and placing loads and at height, the risk of instability can increase.
- Telehandlers can use a wide variety of attachments, including lifting hooks, sweeper brushes and buckets. Before any attachment is fitted, especially where the load centre of the machine is increased such as the fitting of a lifting jib, the load chart that is relevant to the attachment must be available for the operator to use.
- Where a specific load chart does not exist, such as the fitting of a bucket, then the weight of the attachment must be known and deducted from the lifting capacity for the working reach and height.
- The majority of telehandlers come equipped with a quick release-type carriage which allows attachments to be easily attached and removed. The operator must have been trained on both fitting and using the attachment type, as well as on the particular coupler type. After the attachment is fitted and before it is used, the operator must exit the cab to visually and physically check that all the locking pins are correctly fitted and secure.

Working safely and with others *(Working safely)*

- Telehandler operations do occur within congested and confined areas where other machines, vehicles and people are moving. The operator must be aware of their movements when operating the machine.
- Statistics show that collisions with pedestrians form a large part of forklift-related incidents. Where pedestrians need to share the same route as telehandlers, or any plant or vehicle, then a segregated walkway for pedestrians needs to be provided.
- Reversing a telehandler is hazardous, particularly as the cab is offset, and a partially raised boom can restrict side and rear vision. The operator must ensure that the route they intend to take is clear of people and vehicles before they move.
- When reversing, operators should in this sequence check all mirrors first, then look over both shoulders before moving, and then maintain all-round vision, looking particularly in the direction of travel. Operators should not just rely on using the mirrors but physically look all round all the time as well as in the direction of travel.

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- Good vision is essential when placing loads at height but rain or even very bright, sunny conditions can greatly reduce visibility for which assistance should be used as necessary.
- When a telescopic handler is travelling in the workplace, it must go at an appropriate speed for the conditions and environment, to allow the operator time to react to situations, such as slowing down if a pedestrian crosses the path of the telehandler.
- If the operator brakes sharply, there is the additional danger apart, from possible collision, in that any load could slide from the forks.
- Telehandlers operate in a variety of places which can contain overhead hazards such as power lines. The boom must be kept well clear of any overhead power lines. Guidance issued by the energy networks utilities indicates what minimum distances must be kept from overhead power lines and the higher the voltage in the power line, the greater the distance that must be kept. This is to reduce the danger of arcing if the boom is close to but not actually touching the power line.
- Operators do regularly need to leave the operating seat to, for example, make adjustments to the forks for different types of loads. In all cases, the telehandler's handbrake must be applied and the engine switched off before the operator leaves their seat.
- It has been known for a transmission or operating lever to be inadvertently knocked into drive when the operator exits their seat, causing unintended machine movement.

Stability

- The overturning of telehandlers is a regular occurrence and is a result of the machine becoming unstable due to a wide range of reasons. Operators need to understand the conditions that can cause instability, both longitudinally (front and rear) and laterally (sideways).
- Before any load is carried, the operator must check the manufacturer's maximum rated capacity, the lifting capacity relative to height and reach, the load centre that applies and where any de-rating must be undertaken.
- Where a large load is to be carried and the centre of gravity of that load exceeds the machine's load centre, then the carrying capacity must be reduced.
- Longitudinal stability of a telehandler is maintained by the counterbalance effect of the weight of the machine towards the rear overcoming the weight of the load on the forks. Increasing the weight on the forks or extending the boom reduces the counterbalance effect, making the machine less stable.
- If a load is being lifted or placed where the telehandler is facing downhill on a slope, the load overcomes the counterbalance effect due to a movement of the telehandler's centre of gravity, and this could cause longitudinal instability and the forklift at risk of tipping forward.
- Raising a load can further affect stability. If a load is raised to full height, the machine's centre of gravity moves both rearwards and upwards. If a load is lifted when the telehandler is leaning sideways, the machine is less stable and the higher the load is lifted, the greater the risk of the telehandler turning over sideways.
- No loads should be lifted unless the telehandler is level and the ground firm, able to support the weight of the telehandler and load. When stabilisers are fitted and used, they can sink into soft ground, further causing instability.
- Travelling with a raised boom is hazardous, and greatly increases instability, particularly on uneven ground and also when turning left or right, even if a turn is undertaken gently and on level ground.
- Where a load needs to be placed at height, the forklift must be on firm level ground and facing the placing point prior to raising the load.
- Travelling up and down slopes requires care and certain requirements need to be followed. In the first instance, the operator needs to know the maximum gradient of the slope the telehandler can be travelled on and the direction of travel, which can differ depending on whether it is carrying a load or is unladen.
- In principle, if the telehandler is carrying a load up an incline then it would normally be driven forward up the slope and reversed down the slope. If it is unladen, the opposite applies – the telehandler is reversed up the slope and driven down the slope. When driving up a slope with a load, the carriage needs to be slightly tilted back and the forks and load kept just clear of the ground but as low as possible.

Lifting loads and using attachments *(Working tasks)*

- Before any load is lifted, the operators need to know the weight of the load and to what height and reach the load can be safely lifted, which is provided by the load capacity chart. Regularly reaching the telehandler's maximum lifting capacity for the desired reach and height increases the risk of overloading and making it unstable.
- The weight of any load is determined by its size and density – for example, a pack of house bricks will be heavier than a same-sized pack of aerated breeze type blocks – meaning that operators can't estimate the weight of a load by size, height, width and length alone.
- The operator must also be able to judge the load centre of the load (the point where the load is in balance), and compare to the telehandler's load centre as indicated in the load charts.
- In most cases, the load centre of a telehandler is usually 500mm from the face of the forks, although some are rated at 600mm. If the centre of gravity of the load is more than the machine's load centre, the carrying capacity must be reduced for the reach and height.
- Telehandlers with a higher lifting capacity and/or operating reach come equipped with a set of front-mounted stabilisers. These provide additional longitudinal or forward stability by increasing the effect of the counterbalance.
- Load charts indicating the maximum load that can be lifted to a given height and reach differ for stabiliser use and non-stabiliser use, and operators need to ensure the correct chart is used and read.
- When the stabilisers are used, the ground must be firm enough to support the weight of the machine and load as one or both stabilisers sinking can cause instability.
- All telehandlers are fitted, as a minimum, with a load moment indicator which indicates the machine's stability when a load is being lifted. It informs the operator when the machine is becoming longitudinally unstable by providing a visual and audible warning when the machine is both approaching and exceeds safe pre-set limits.
- The majority of load moment indicators do not indicate that it is safe to pick up and place any load or how much a load weighs.
- Before a load is lifted, the telehandler and load need to be level to prevent damage to the load or supporting pallet where the forks are not level. Forks should be spaced so that they are equivalent, or of equal width, from the telehandler's centre line and spaced so that a load is fully supported, particularly if it is on a wooden pallet. Fork spacing's that are too wide or narrow can mean an unsupported or unstable load.
- When placing loads at height, loading out towers should be used instead of placing loads directly onto a scaffold. This is in order to minimise any shock loading, which can overload the scaffold structure.
- During all lifting and placing operations, the handbrake must be applied each time the machine is stopped and hydraulic functions used. Where operators have relied on holding the machine using the footbrake, incidents have occurred as the telehandler has moved when the operator hasn't applied enough brake pressure. Even a slight movement can cause an incident.
- Carrying and travelling with suspended load can be hazardous and, as with all telehandler operations, must be properly planned by a competent person (lift planner) and the forklift set up accordingly in compliance with manufacturer's instructions.
- Travelling with suspended loads can further restrict forward vision, for which measures must be taken such as travelling in reverse and with suitable assistance.
- The effect of any load swing can cause the telehandler to exceed safe limits caused by travelling and turning too quickly. External factors such as the effects of the wind on loads having a large surface area can also cause load swing and instability.
- Load handlers or slinger/signalers, if used are in danger of being struck by the moving machine for which the lift planner must devise safe systems of work for all operations.

Sample questions

The following questions are based on the text within this factsheet and indicate how the questions and answers are structured. Based on the factsheet, there is only one correct answer. The correct answer to each question is indicated at the end of this factsheet.

Q1. Using a telescopic handler that is too small for the range of jobs that need to be carried out increase the likelihood of what?



The machine lifting beyond its capacity



The running costs of the projects



Fatigue of the boom and carriage



Fatigue of the operator

Q2. As well as the function and suitability of an attachment, what else needs to be checked before use?



Where it is to be stored after use



The additional fuel requirements



That the operator has been trained and familiarised on the attachment



That the boom wear pads can support the weight of the attachment

Study checklist

This checklist aims to act as a study aid to ensure that the reader has identified and understood the relevant parts of this factsheet.

Do you know?

1. Why faults considered minor by the operator should be checked by an expert.
2. What particular checks need to be made to the forks.
3. What the consequences could be if using a forklift where the front tyres are of a different size or type.
4. How the fitting of attachments can affect the machine and what information is needed.
5. What procedures must be followed when fitting attachments to a quick release-type carriage.
6. Why full vision must be made before reversing a telehandler.
7. Why minimum distances need to be kept from overhead power lines.
8. What the procedures are when exiting the seat and cab of the telehandler.
9. Why the weight of loads must be known and what the load centre of the load and the machine is.
10. What determines the weight of a load that can be lifted.
11. What the difference is between longitudinal and lateral stability.
12. What factors can cause the instability of a telehandler.
13. How the use of the stabilisers can increase the lifting potential.
14. What the hazards are when carrying a suspended load from the forks.
15. How the counterbalance of the forklift affects the load that can be lifted.
16. What information the load moments indicator provides to the operator.
17. What the consequences are if steering, braking and driving are undertaken too quickly or harshly.
18. Why loads should not be placed directly onto scaffolding.

Answers to sample questions: Q1: A and Q2: C