

# Preventing Falls and Falling Loads from Tail Lifts

Produced by IRTE, a professional sector of SOE





SOE (Society of Operations Engineers) is a professional membership organisation representing some 17,000 individuals and companies in engineering. It supports and encourages members throughout their careers and is committed to their ongoing growth and personal development.

Through a network of trustees, industry partners and members, SOE promotes best practice in operational and health and safety initiatives. SOE offers members continuing professional development and support throughout their careers, providing definitive recognition for both achievement and status. The organisation is a Licensed Member of EC<sup>UK</sup> and can nominate members for EC<sup>UK</sup> registration at EngTech, IEng and CEng levels.

SOE represents the Professional Sectors IRTE, IPlantE and BES and developed the technician-licensing scheme, irtec.

## IRTE

IRTE (Institute of Road Transport Engineers), one of the most respected names in UK transport, has always been recognised as an impartial voice of the industry.

IRTE publishes an industry-leading technical journal, *Transport Engineer*, every month. *Transport Engineer* is renowned for its incisive coverage of key issues, authoritative reporting, news analysis and informed comment.

IRTE also hosts regular technical seminars and forums and works alongside the DfT to promote efficiency and best practice. Recent events include trips and falls from vehicles, truck operation, fuel efficiency and the Road Safety Act. IRTE's technical committee also produces regular industry guidance on key topics.

Recent published guides include *A Best Practice Guide towards Tachograph Systems Compliance*, *Roadworthiness: Industry Best Practice, Coupling or Uncoupling & Parking of Large Goods Vehicle Trailers* and *Tail Lift – Specification Guide for Road Vehicles*.

IRTE members come from a wide variety of transport-related roles. These include workshop managers, fleet engineers, transport managers, company directors, apprentices and technicians in the light and heavy goods vehicle and bus and coach sectors.

If you are interested in becoming involved with the IRTE Technical Committee, please contact Ian Chisholm, Head of Membership and Technical Services, on 020 7630 1111 or email [ian.chisholm@soe.org.uk](mailto:ian.chisholm@soe.org.uk).

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## Preface

Each year, approximately 50% of all tail lift accidents reported are attributed to people falling from, or slipping on, tail lifts or from being struck by a falling load. This guide has been produced by the members of a Tail Lift Users Group, which included tail lift operators, manufacturers and HSE, to provide guidance for the prevention of falls and falling loads from tail lifts. This would include load security, personnel security (slips, trips and falls), but not include the integrity of the load, or the Personal Protective Equipment of the personnel. This guide has been developed to supplement the existing Health and Safety literature currently available.



**Typical example of column lift with runner mounted 3 position gates**

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## Selection

Careful consideration should be given to matching the appropriate tail lift to the task it is required to perform and this should form part of your risk assessment<sup>11</sup>. Selection includes not only initial specification but also matching the equipment to the task. Further information on the selection of tail lifts is provided in the Society of Operations Engineers Specification Guide for Road Vehicles<sup>9</sup> and in Appendix 2.

The selection of fall prevention equipment should be applicable to all tail lift types and these can be broadly categorised as:

- Column Lift
- Cantilever Lift
- Tuck under Lift
- Retractable Lift.

It should be recognised that these lift types can be used for both goods and personnel, the fall prevention devices should be selected to suit the operational requirements and must be applied in all cases.

It is recommended that all open sides of a raised platform should be suitably equipped to protect against falls. This would be one way of fulfilling your responsibilities under the Work At Height Regulations 2005.

Fall prevention equipment for operator and goods can be placed into several categories as listed below. Wherever possible these should form a fixed part of the tail lift, but can be detachable where its operation makes fixed equipment impractical.

- Safety gates (fixed, folding or detachable)
- Roll stops (integrated into the platform, or an addition to the platform edges)
- Ancillary equipment such as flaps, bridge plates, run up ramps that are able to be deployed as load restraint
- Safety chains/straps
- Slip resistant surfaces.

Worked examples of the equipment listed above can be found in Appendix 1.

A Selection Check Sheet is included in Appendix 2.

The main standard covering tail lifts is EN 1756-1:2001+A1:2008 Tail lifts. Platform lifts for mounting on wheeled vehicles. Safety requirements. Tail lifts for goods.

# Training

Provision should be made for suitable and sufficient operator training (including agency/ temporary and part time staff) in all aspects of tail lift use, including the appropriate safe system of work.

The training should include the following key areas:

- Safe operation of the tail lift
- Manual handling hazards associated with type of tail lift, load, associated equipment and environmental conditions
- Position for the operator when operating the lift - covering solo operation and multiple operators
- Parking and position of vehicle when using a lift
- Understanding the risks of falls from height – personnel/goods and third parties
- The correct use of the fall prevention equipment (fall prevention should be a specific item within the training programme/documentation)
- Pre User Checks.

As always the training delivered must be fully documented and include dates and signatures. Further details covering this subject can be found in Managing work to avoid fall from vehicles<sup>6</sup> and HS(G) 136 Workplace Transport safety<sup>14</sup>.



**Typical example of a column tail lift with fixed safety handrails**

## Pre-user checks

In addition to the standard pre-user checks that must be carried out in relation to the operation and safe use of the tail lift, it is essential that fall prevention equipment and the condition of the platform surface are included within this process. The tail lift operator and/or the person carrying out the pre user check should be deemed competent for these inspections. Such inspections are covered by the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER). More information on the Regulations can be found in the Approved Code of Practice L113 – safe use of lifting equipment <sup>13</sup>.

Documented training should be given to ensure and prove competence. Pre-user checks should be recorded on a specific document which should be retained as appropriate.

If defects are identified on the pre-user check, these should be reported to a designated person to ensure that appropriate repairs are carried out within acceptable timescales, so that the equipment is only ever used in a safe condition.

Defect reports and documentation supporting their rectification should be retained as appropriate.



Typical example of cassette/cantilever lift with folding 'P' gates

## Environment

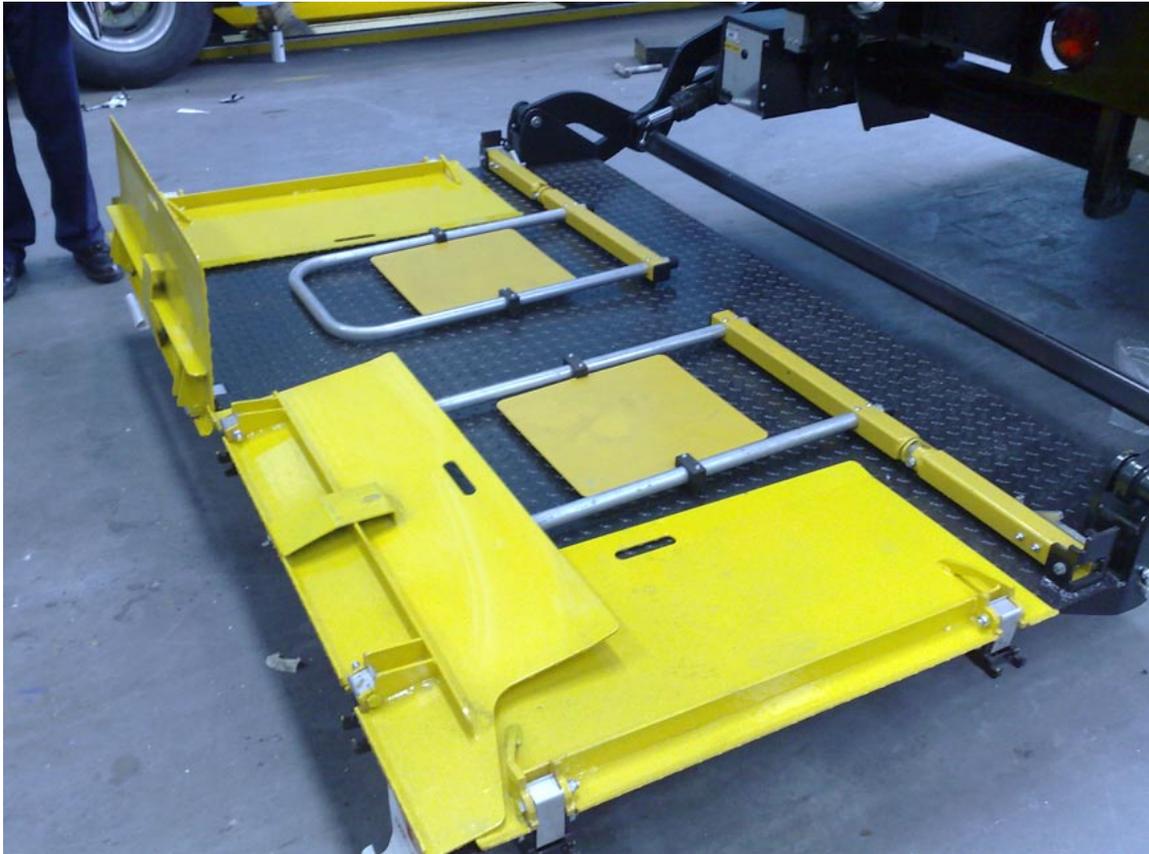
Environmental conditions can adversely affect the safe operation of the tail lift and fall protection equipment detailed above. The environment should be considered throughout the risk assessment, selection and training process.

Examples of environmental issues to consider would include:

- Weather
- Location of delivery point (e.g. High St, warehouse yard)
- Gradient
- Slip resistance of lift surface and operator footwear<sup>5,7,8</sup>.

## Cleaning/housekeeping

The operators should be aware that they are responsible for ensuring any spillage that may prevent the safe use of the tail lift and fall prevention equipment, or reduce the slip resistance of the platform surface, should be removed before the equipment is used (using the appropriate risk assessment and safe systems of work).



Typical example of a slide away tail lift with folding 'p' gates and 3 way folding ramps

## Associated equipment

As with the careful selection of the tail lift equipment, equal care should be given to the selection of all ancillary equipment that can be used on the platform forming part of the load or mechanical handling devices used by the operator, e.g.

- Pallets
- Roll Cages<sup>8, 10</sup>
- Pallet Trucks<sup>15</sup>
- Sack Barrows
- Dock Levellers.

Further information can be found within the references.

## Management responsibilities

Along with all the accepted responsibilities contained within LOLER and the Provision and Use of Work Equipment Regulations 1998 (PUWER)<sup>12</sup>, equal importance must be given to fall prevention equipment provision, use, training, maintenance and thorough examination. Further information can be found in the operator's handbook supplied with the tail lift, guides from the Society of Engineers<sup>9</sup>, and HS(G) 136 - Workplace Transport Safety<sup>14</sup>.

## Rental vehicles

The selection criteria detailed above must be applied to the procurement of rental vehicles. Appropriate training must be carried out and operators made aware of any differences between equipment types. Pre-user checks may need to be amended, but must be carried out.

## Retro fit

The decision to undertake retro fitting should be governed by the outcome of risk assessments. Cost of retro fitting, while important, must not overcome the outcome of the appropriate risk assessments. It is recommended that retro fitting of fall protective equipment is carried out in conjunction with the equipment manufacturer, wherever possible, and should meet the requirements contained within this guide.



Typical example of a column lift with 3 sided fall protection and 3 way folding ramps

## References and further information

1. Falls from Vehicles case studies  
<http://www.hse.gov.uk/fallsfromvehicles/casestudies.htm>
2. Preventing Falls From Vehicles - An industry guide – Freight Transport Association  
<http://www2.fta.co.uk/information/otherissues/workplacesafety/falls.pdf>
3. HSL Research Report – rr437 - The underlying causes of falls from vehicles associated with slip and trip hazards on steps and floors.  
<http://www.hse.gov.uk/research/rrpdf/rr437.pdf>
4. Access  
<http://www.hse.gov.uk/fallsfromvehicles/access.htm>
5. Footwear  
Selecting the right footwear to avoid falls from vehicles  
<http://www.hse.gov.uk/fallsfromvehicles/footwear.htm>
6. Managing work to avoid fall from vehicles  
<http://www.hse.gov.uk/fallsfromvehicles/wpt05.pdf>
7. Slips and Trips  
<http://www.hse.gov.uk/slips/research.htm>
8. Research Reports  
  
A study of the slip characteristics of metal flooring materials  
<http://www.hse.gov.uk/research/rrpdf/rr534.pdf>  
  
Safety of roll containers  
<http://www.hse.gov.uk/research/rrpdf/rr009.pdf>
9. Tail Lifts  
  
Guides from The Society of Operations Engineers  
<http://www.soe.org.uk/publications/guides.html>  
  
Tail Lift – Specification Guide for Road Vehicles  
Tail Lift Operators – a simple guide

## References and further information

### 10. Manual handling

Manual handling Assessment

<http://www.hse.gov.uk/pubns/indg383.pdf>

Roll cages and wheeled racks in the food and drink industries: Reducing manual handling injuries

<http://www.hse.gov.uk/pubns/fis33.pdf>

### 11. Five steps to risk assessment

<http://www.hse.gov.uk/pubns/indg163.pdf>

### 12. L22 – Safe use of work equipment – Provision and use of Work Equipment Regulations 1998 – ISBN 978 – 0 7176-6295-1.

### 13. L113 – safe use of lifting equipment – Lifting Operations and Lifting Equipment Regulations 1998 – ISBN 0-7176-1628-2.

### 14. HS(G) 136 - Workplace Transport Safety – ISBN 0-7176-6154-7.

### 15. HS(G) 6 – Safety in working with lift trucks – ISBN 07176-1781-5.

### 16. Information sheet WPT06 – Delivering safely: Co-operating to prevent workplace vehicle accidents

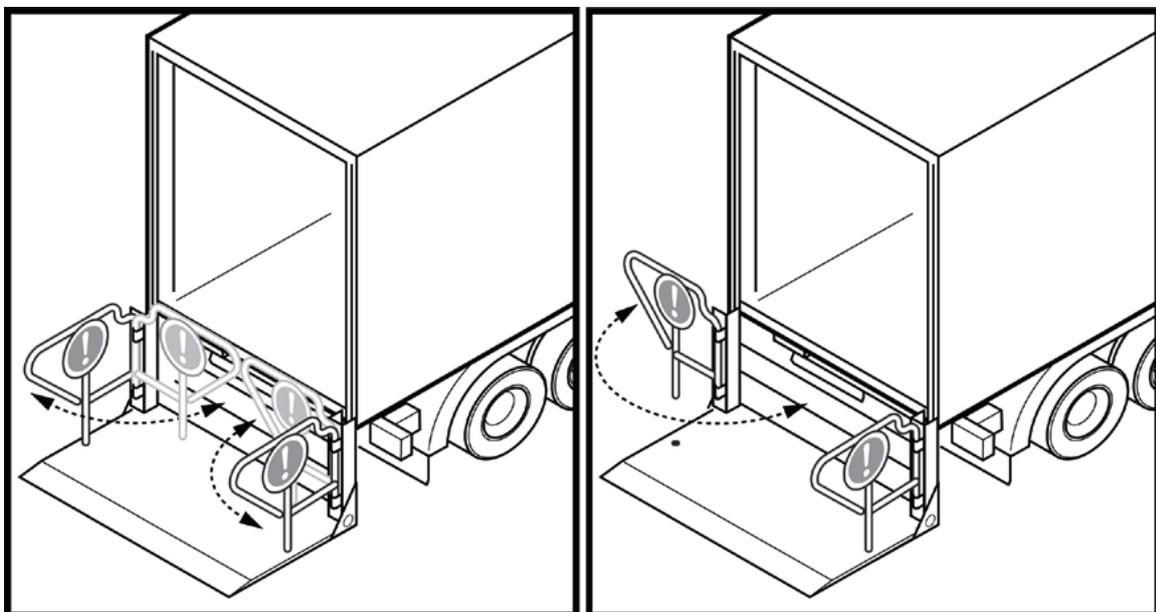
<http://www.hse.gov.uk/pubns/wpt06.pdf>

## Appendix 1 - Fall protection

The following list shows methods of protecting against falls from height. The list is not exhaustive and other methods may be used which achieve an equivalent level of safety.

For illustrative purposes, different methods are shown on different types of tail lift mechanism. The methods are not intended to be exclusive to that type and in most cases can be transferred from one type to another. It is intended that handrails or guards be deployed before the platform is used for (un)loading or for access.

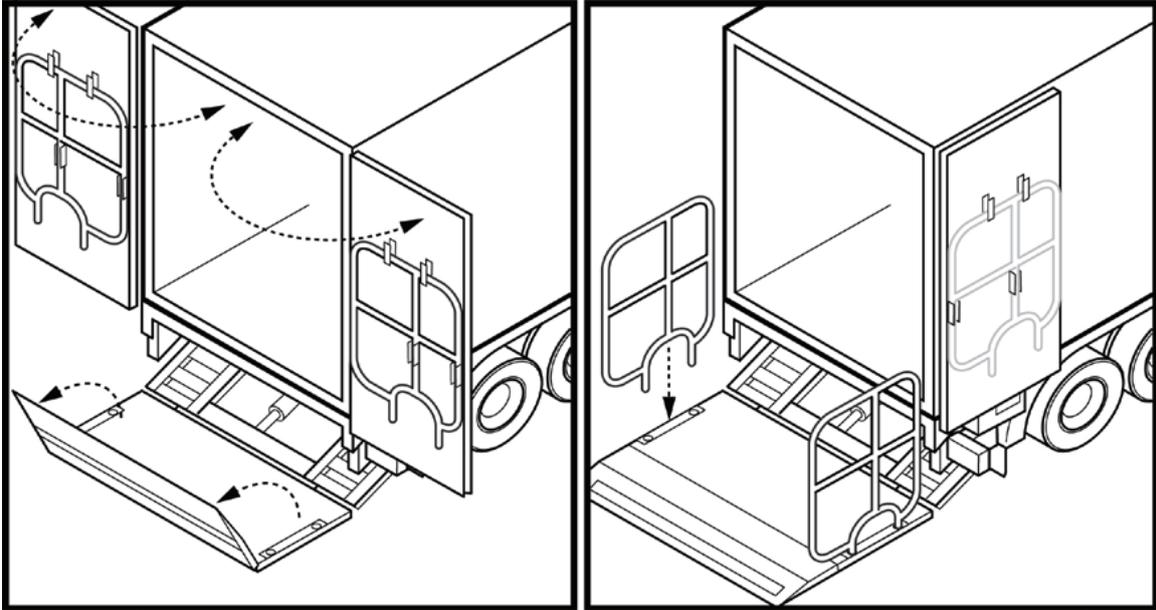
### Runner Mounted Handrails – permitting side (un)loading



The handrails may be turned through 90° or 180°.

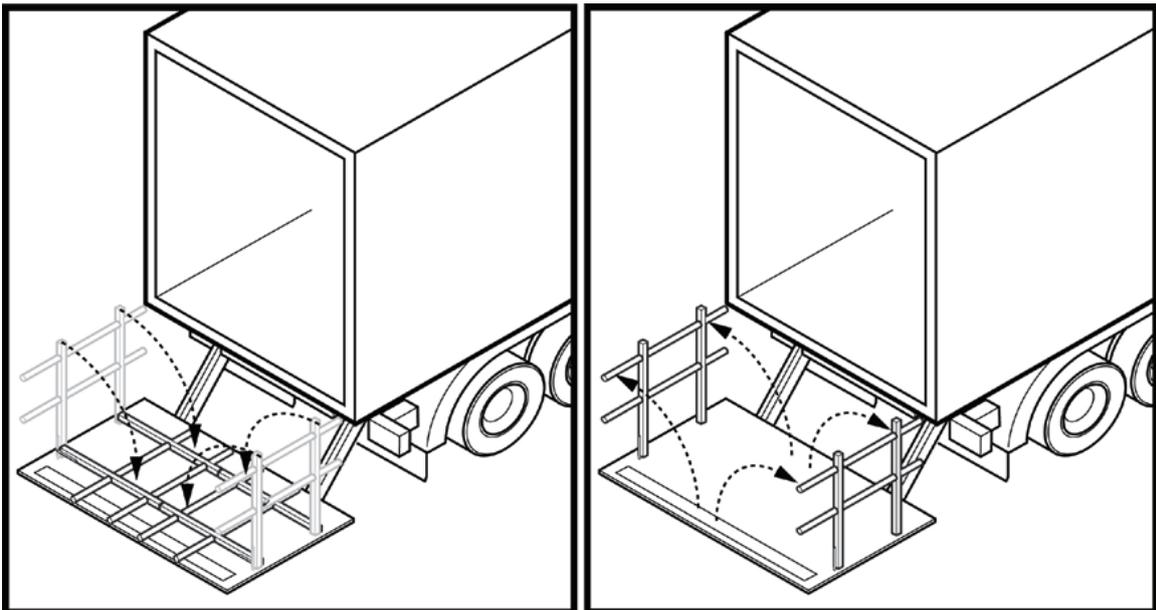
## Appendix 1 - Fall protection

### Drop-in Interlocked Handrails – not permitting side (un)loading



The platform can be deployed from a stowed position without the handrails in place. The lifting and lowering of the fully deployed platform is prevented until the handrails are in place.

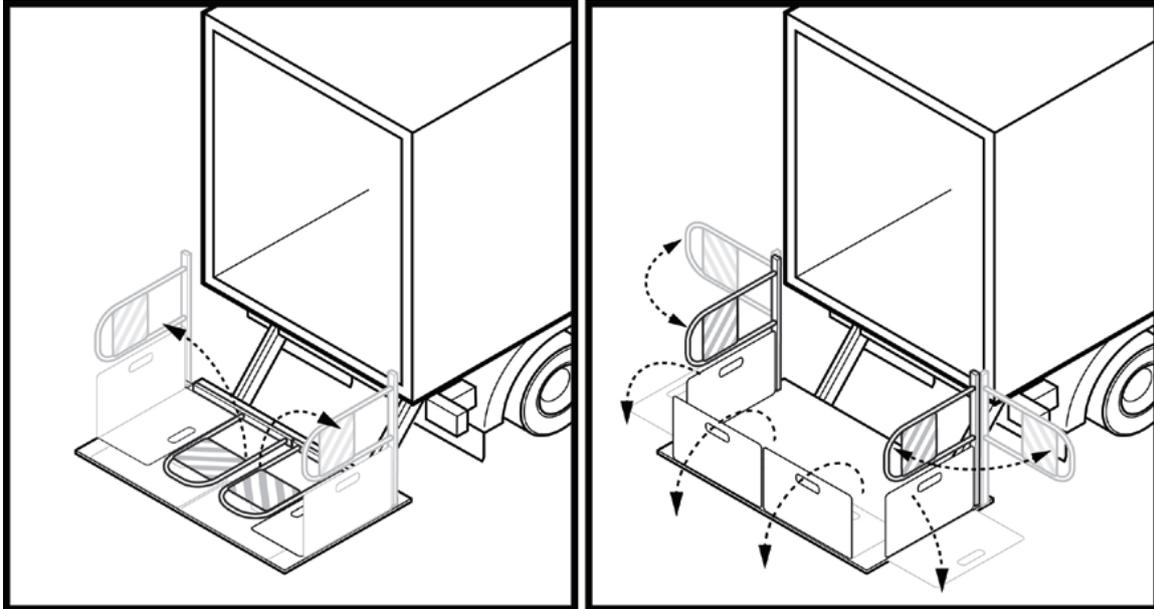
### Platform Mounted Handrails – not permitting side (un)loading



The handrails are permanently attached to the platform.

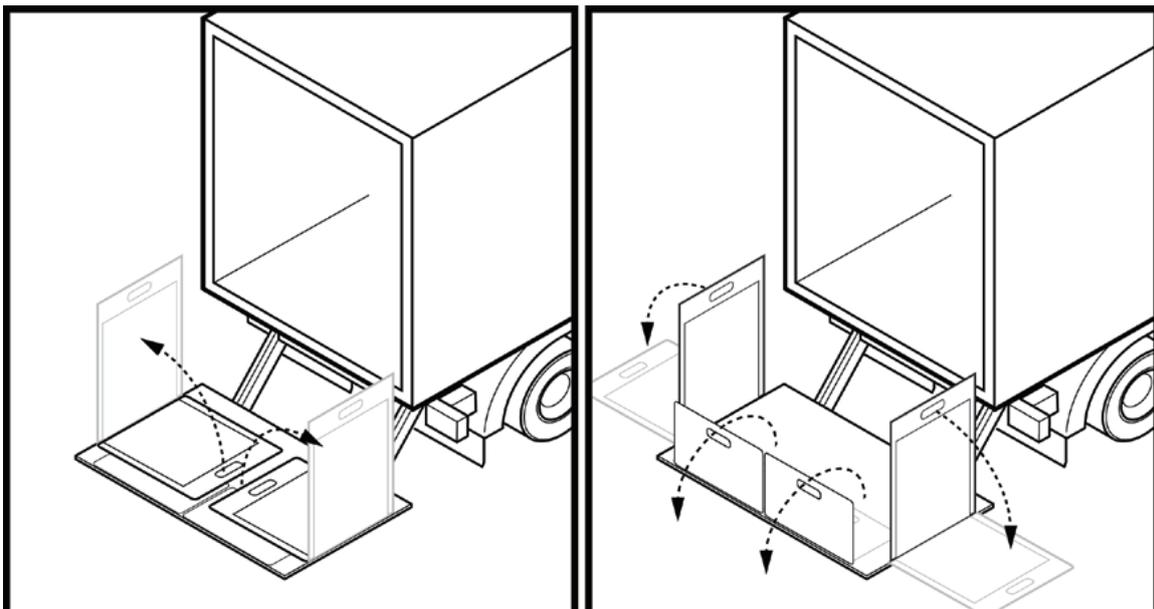
## Appendix 1 - Fall protection

### Platform Mounted Handrails - permitting side (un)loading



The handrails are attached to the platform and may be turned through 90° or 180°.

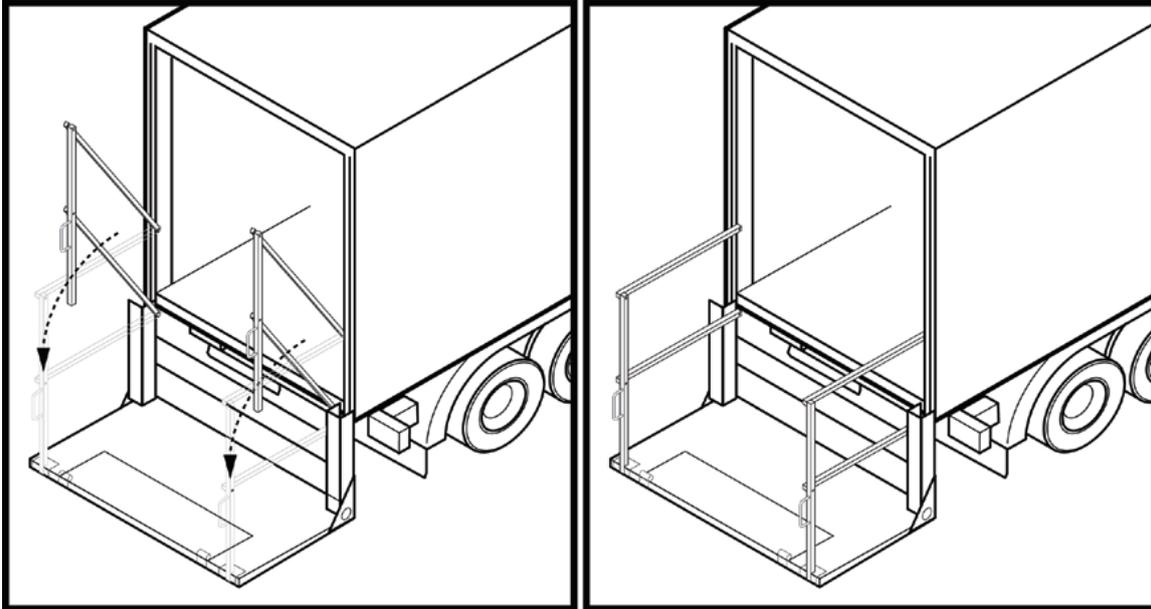
### Platform Mounted Guards - permitting side (un)loading



The guard can also act as a side (un)loading ramp.

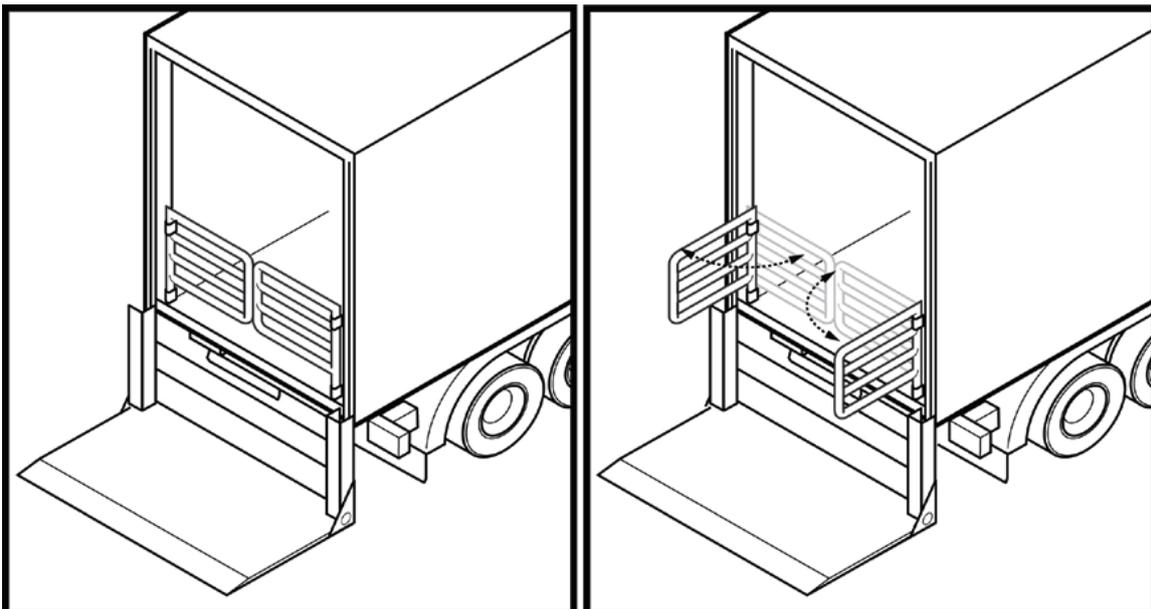
## Appendix 1 - Fall protection

### Runner Mounted Parallelogram Handrails – Two-side protection - permitting side (un)loading.



Parallelogram handrails attached to a runner and designed to drop into slots on platform. After platform has been fully lowered, handrail on delivery side can be raised to enable side unloading.

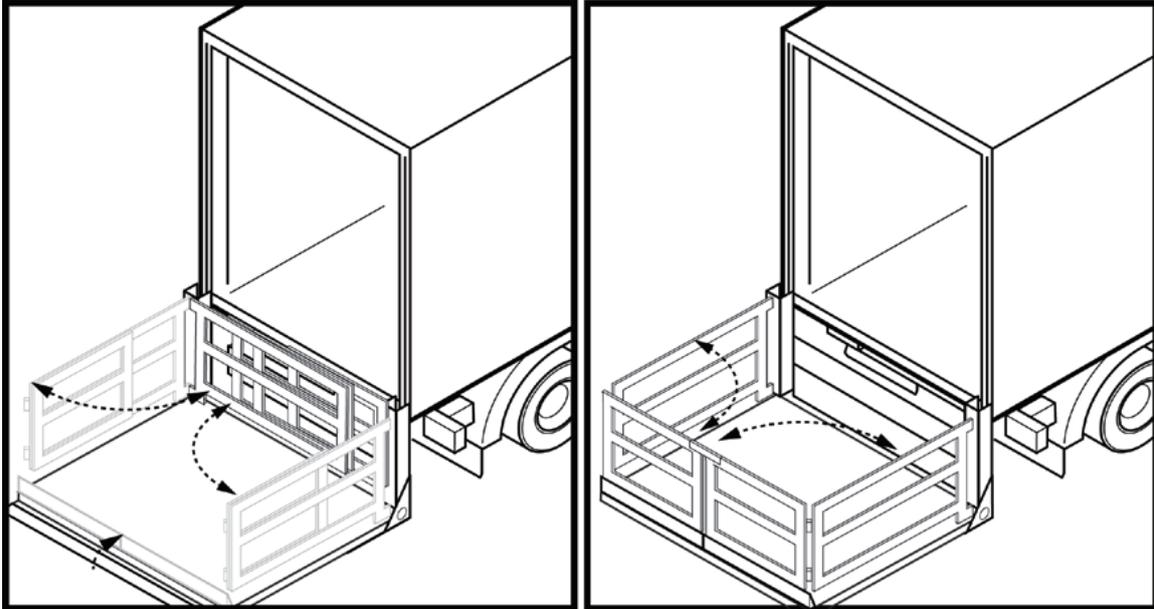
### Corner Post Mounted Handrails – Two-side protection – not permitting side (un)loading.



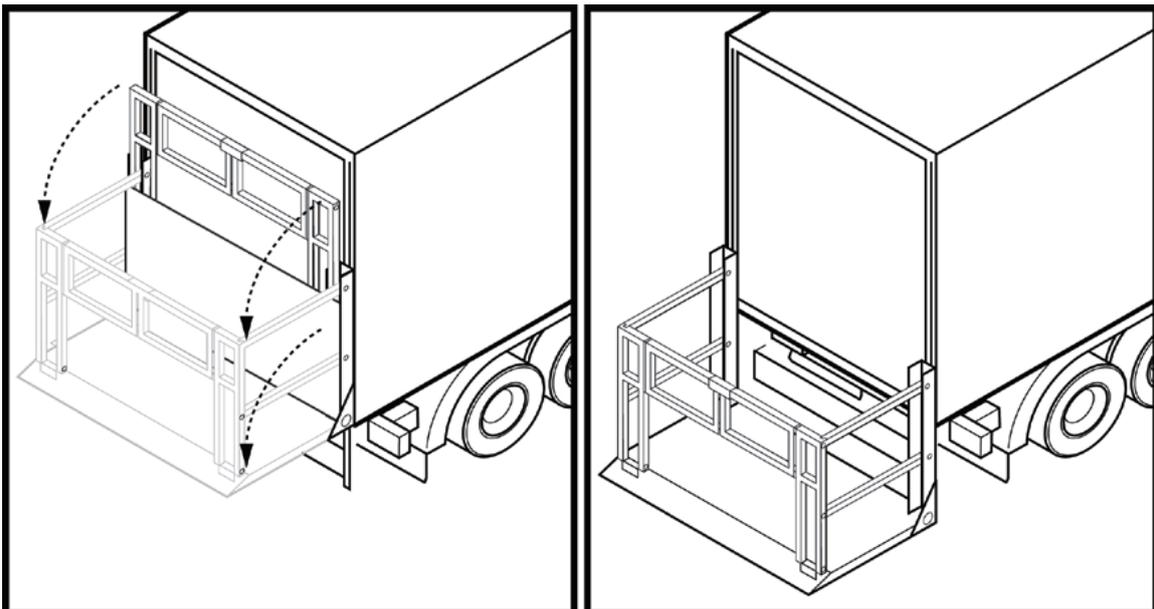
Handrails attached to corner posts of vehicle and designed to be set in either lateral or longitudinal orientation. Handrails are slotted so that each handrail has to be lifted before it can be swung into position.

## Appendix 1 - Fall protection

### Runner Mounted Handrails – Three-side protection - not permitting side (un)loading



### Runner Mounted Parallelogram Handrails – Three-side protection - not permitting side (un)loading.



## Appendix 2 - Commercial vehicle handrail selection

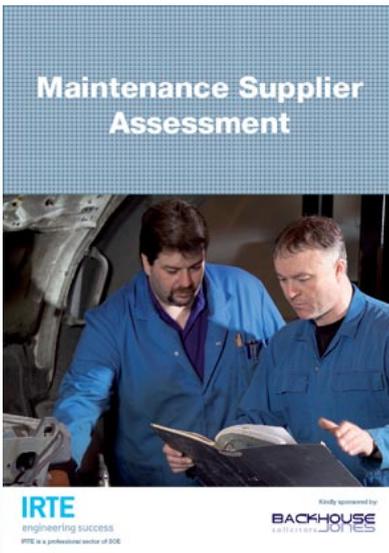
| Handrail Type |              |         |                 | Lift Type |           |            |             |
|---------------|--------------|---------|-----------------|-----------|-----------|------------|-------------|
|               |              |         |                 | Column    | Tuck away | Cantilever | Retractable |
| Runner        | Appendix 1.1 | Side    | unloading       | Yes       | No        | No         | No          |
| Drop In       | Appendix 1.2 | No Side |                 | Yes       | Yes       | Yes        | Yes         |
| Platform      | Appendix 1.3 | No Side | unloading       | Yes       | No        | Yes        | Yes         |
| Platform      | Appendix 1.4 | Side    | unloading       | Yes       | No        | Yes        | Yes         |
| Platform      | Appendix 1.5 | Side    | unloading ramps | Yes       | No        | No         | No          |
| Runner        | Appendix 1.6 | No Side | sides           | Yes       | No        | No         | No          |
| Corner        | Appendix 1.7 | No Side |                 | Yes       | Yes       | Yes        | Yes         |
| Runner        | Appendix 1.8 | No Side | platform        | Yes       | No        | No         | No          |
| Runner        | Appendix 1.9 | No Side | mounted         | Yes       | No        | No         | No          |

### Note:

It may be possible to retrofit certain gate types to existing lifts depending on dimensions and geometry, but advice should be taken from the lift manufacturer.

Some of the No's above could be Yes's, but would require a more complex technical design solution.

## IRTE publications

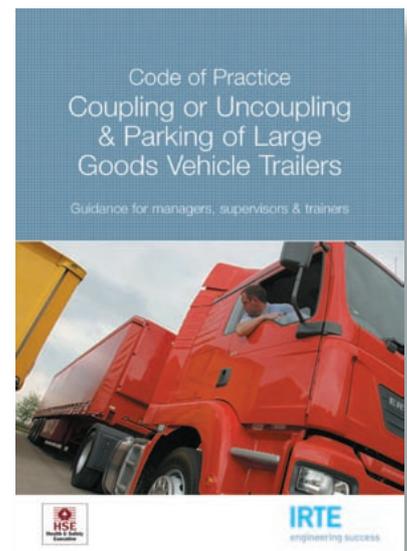


### Maintenance Supplier Assessment

The IRTE's maintenance supplier assessment guide is aimed at those who contract out the maintenance of their fleet. It advises on best practice procedures to ensure the maintenance facilities of workshops used are adequate for the type and number of vehicles undergoing work.

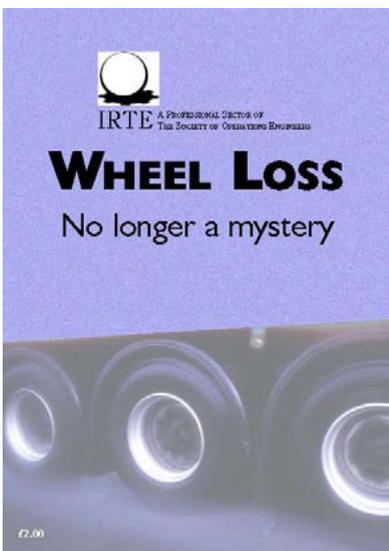
### Coupling or Uncoupling and Parking of Large Goods Vehicle Trailers

The IRTE code of practice is aimed at managers, supervisors and trainers but has good advice for everyone who has responsibility for the safety of large goods vehicle and drivers.



### Code of Practice Coupling or Uncoupling & Parking of Large Goods Vehicle Trailers

Guidance for managers, supervisors & trainers



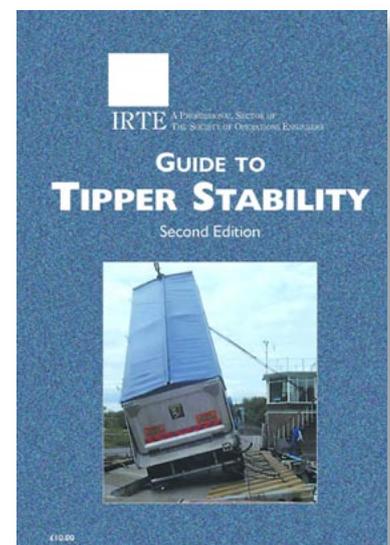
### 'Wheel Loss - No Longer a Mystery' booklet

This guide explains the mechanisms of wheel loss and provides helpful best practice guidance to assist those specifying and maintaining commercial vehicles to reduce wheel loss incidents.

### IRTE Guide to Tipper Stability

Essential guidance for those wishing to implement best practice when operating tipping vehicles or tipper trailers.

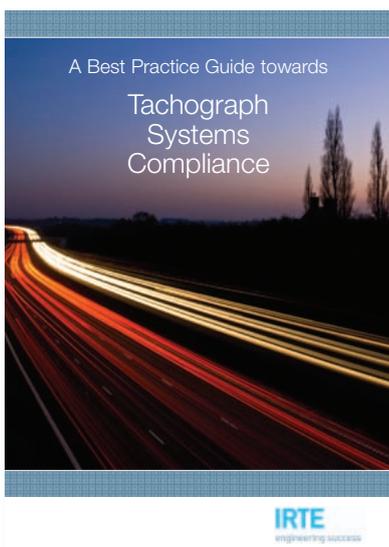
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### GUIDE TO TIPPER STABILITY Second Edition

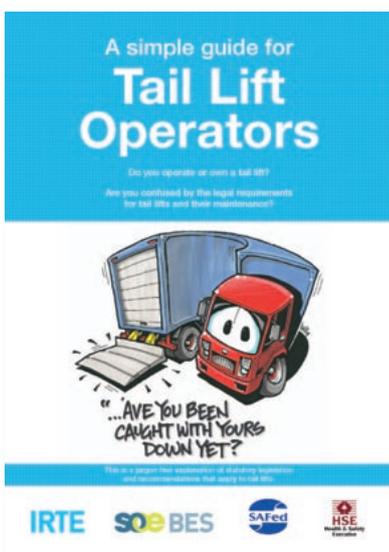


# IRTE publications



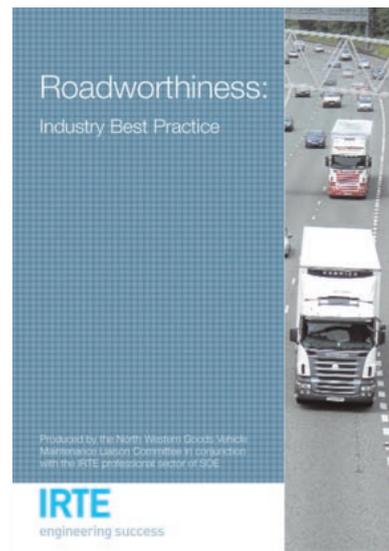
## Tachograph Systems Compliance

In this indispensable guide, Senior Tachograph Consultant, Gordon J F Humphreys, explains what firms need to do to protect their Operator's Licence.



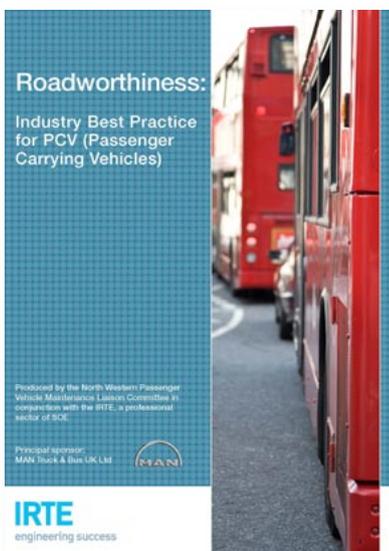
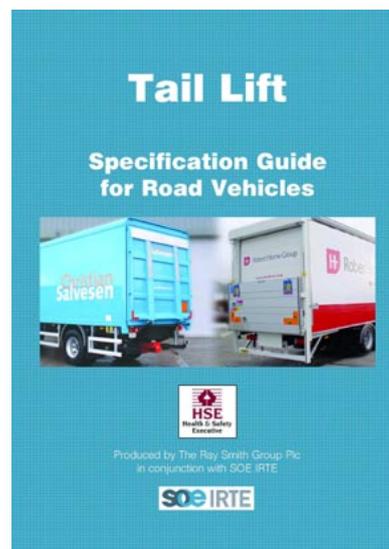
## Roadworthiness Guide

This guide is intended to assist vehicle operators and managers, regardless of fleet size to improve their vehicle maintenance controls and standards.



## A simple guide for Tail Lift Operators

This guide provides some basic information and highlights the user's legal responsibilities in the use, maintenance and examination of tail lifts.



## Tail Lift - Specification Guide for Road Vehicles

Guidance for manufacturers, specifiers, installers, suppliers and users of tail lifts as to the safety issues associated with tail lift installations.

## Roadworthiness: Industry Best Practice for PCV (Passenger Carrying Vehicles)

Produced with leading industry bodies, this guide gives advice on best practice so all passenger carrying vehicle operators can improve their vehicle maintenance controls and standards.

**IRTE would like to thank the working group who produced this guide and the manufacturers and organisations who support its contents.**

Tony Whitehouse  
Simon Eskriett and Ian Forman  
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Richard Catley  
Calvin Miles

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