



## **NATIONAL RIGGING ADVISORY GROUP GUIDANCE SHEET - SUPERLIFTS -**

The following companies or associations endorse this NRAG Guidance



the worldwide voice of entertainment technologies

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## **Material Handling Machines**

### **Foreword**

Genie Industries' Superlifts (Contractor lifts) were designed for supporting ducting during installation. In the early 1980s entertainment industry pioneers found an alternative use for these to provide ground support for trusses. Since then, Genie and other manufacturers have recognised the entertainment industry as another application for their products, some even being sold as entertainment-industry specific.

For the purposes of this document 'Lifts' are defined as mobile, manual winch-operated machines with telescopic sectional masts intended for use in lifting production equipment above head height.

The advantages of these Lifts are their portability, speed of deployment and ability to lift up to 300kg loads manually to a height of around 7m without need of any overhead support.

Their disadvantages include their predisposition to being damaged in handling or transit. All rely on a sound, level base and vertical mast for stability.

Lifts are often used because suspension alternatives are assumed to be absent, unnecessary or too costly. The most appropriate method for lifting and holding a load must always be determined by a competent person to ensure correct installation and to provide a safe system of work.

### **Use**

The provision and use of Lifts is covered by the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER 1998).

LOLER 1998 requires every employer to ensure that every lifting operation involving lifting equipment is properly planned by a competent person, appropriately supervised and carried out in a safe manner.

This demands that:

- A risk assessment and method statement / lift plan exists for the activity,
- The manufacturer's guidance is followed,
- All the people involved are competent for the task in hand, (that is having the skills, knowledge & experience relevant to their role and the particular circumstances of the lift)

The competent person appointed to control the lift should plan it so it can be undertaken safely, including risk assessment, equipment specification, instructions/supervision, checks/inspections, organisation & control. A straight truss on two Lifts is a much simpler lifting operation to plan than a box truss on four or more Lifts, & the more complex the lift & environment the more sophisticated & detailed the planning needs to be.

The competency of the person supervising the lift is equally important, & there can be great benefit in combining this role with that of the person appointed to plan the lift. Where this is not the case, the Supervisor must be acutely aware of their own limitations when following the Lift Plan & stop work to refer any questions or significant on-site changes to the competent person who planned the lift.

### **When operating Lifts there must always be:**

1. One person in charge of the lifting operation who has a clear view of the load to be lifted/lowered,
2. One operator per Lift
3. Sufficient 'spotters' for any features out of view of the person controlling the lift (obstructions to lift etc)
4. Clear communication which is understood by all prior to & during the lift - anyone can "STOP" the lift.

If a Lift will not raise its load without significant effort, the operation must be halted and the reason for the resistance identified and corrected.

### **Entertainment industry use**

Unless specifically designed for such use, the load should not be supported by a Lift except when building or striking a structure. The method statement should state whether and how, once lifted, the load should be supported by suitable means and that process reversed at the strike of the structure.

Floor surfaces supporting Lifts must be capable of supporting the point loads that Lifts impose. Staging units, rostra, risers, timber floors etc., must be checked as being adequate by a competent person prior to being used to support Lifts.

Factors such as air pressure loading may need to be considered even where the venue is "indoors", as in some venues the opening of a dock door or running of air management plant can create significant loads, especially where large surface areas are involved such as drapes, screens and the like. Relevant details should be included in the Lift Plan.

Groups of Lifts are sometimes used to lift a single load such as a lighting grid, truss or scenic structure during installation & removal; however it should be a last resort when no alternative means of lifting is feasible.

Where a load is being lifted with a group of Lifts, it is impossible to calculate the load on each because the structure becomes 'statically indeterminate'. Therefore the load carried by each Lift should be assumed to be variable and to account for this the competent person planning the lift should consider specifying an appropriate degree of redundancy, by increasing the factor of safety of the whole system combined with careful placement of Lifts, such that should one Lift fail to offer support the adjacent Lift(s) would not become overloaded and the load would not change position or deflect significantly.

### **The Lift Plan should include:**

- Risk Assessment, Method statement & other supporting information such as drawings, schedules etc
- Details of who is responsible for Planning, Supervising and carrying out the lift
- Details of the redundancy applied to prevent individual Lifts being overloaded, and how it is monitored / maintained throughout the lifting and lowering operation.
- Lifts being sited at appropriate positions to adequately support the structure and provide stability at all times throughout the lift, and to maintain the desired aspect of the load to reduce load transfer between Lifts throughout the lifting or lowering operation.
- Details of reductions in SWL as a result of the position of the load centre on the forks

Supporting loads with a combination of chain hoists and Lifts should be avoided (e.g. chain hoist at one end of a truss and a lift at the other).

Securing the load to prevent the load slipping is good practice, however, strapping the load too tightly to the forks can apply a twisting action which when translated to the mast can compromise stability of the Lift and potentially destabilise the entire group and the load they carry. A Competent Person should determine the appropriate method of restraint.

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## **Use of Lifts outdoors**

Outdoor use is beyond the scope of this document. It is likely there may be a far safer alternative. The complexities of outdoor use cannot be overemphasised and if planning to use Lifts outdoors, first check that the Lift is designed for such use and you have the manufacturer's instructions.

The Lift Plan should be drawn up by a competent person(s) who may be a consulting engineer, staging company, rigging company or combination of all three.