

# Vehicle lifts —

## Part 2: Specification for mobile lifts

# Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Mechanical Handling Standards Policy Committee (MHE/-) to Technical Committee MHE/12, upon which the following bodies were represented:

- Associated Offices Technical Committee
- Association of Loading and Elevating Equipment Manufacturers
- British Ports Federation and the National Association of Ports Employers
- British Railways Board
- British Telecommunications plc
- Construction Plant (Hire Association)
- Department of Health and Social Security
- Department of Trade and Industry [Mechanical Engineering and Manufacturing Technology Division (MMT)]
- Electricity Supply Industry in England and Wales
- Federation of Wire Rope Manufacturers of Great Britain
- Garage Equipment Association
- Health and Safety Executive
- International Powered Access Federation
- London Regional Transport

This British Standard, having been prepared under the direction of the Mechanical Handling Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 30 November 1989

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## Foreword

This Part of BS AU 161 has been prepared under the direction of the Mechanical Handling Standards Policy Committee after consultation with the Automobile Standards Policy Committee, as a result of requests from industry, and has been based on proposals from the Garage Equipment Association. With the publication of this Part of BS AU 161 the 1973 edition of BS AU 161, which dealt with both fixed and mobile vehicle lifts, is withdrawn.

Part 1 of this British Standard relates to fixed vehicle lifts whilst this Part relates to mobile vehicle lifts.

This Part of this standard sets out various performance requirements that are intended to ensure that mobile vehicle lifts have an adequate performance and are safe in operation.

In particular, it is intended that inadvertent operation of the lifts will be prevented by the use of the “dead man” type of control, which requires a positive action by the operator to lower the lift. Particular attention is drawn to the fact that heavy vehicles (above 3 t) should be manually chocked, because experience has shown that once such vehicles are set in motion, their motion cannot be successfully arrested by the automatic chocks provided.

In order to help users operate their lifts safely, recommendations for the commissioning, maintenance and examination, and on the safe use of mobile vehicle lifts in service have been included in Appendix B, Appendix C and Appendix D, respectively.

Users of this Part of BS AU 161 should note that it is the responsibility of the designer, manufacturer, supplier and user of mobile vehicle lifts to comply with relevant statutory requirements. Advice should be sought from the Health and Safety Executive or from the Environmental Health Officer of the appropriate local authority.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

### Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 14, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

## 1 Scope

This Part of BS AU 161 specifies requirements for the performance and safety of mobile vehicle lifts.

The following equipment is not covered by this standard:

- a) fixed vehicle lifts specified in BS AU 161-1a;
- b) lifts or hoists for the transference of vehicles, goods or persons from one level to another;
- c) lifts intended for multi-level parking purposes;
- d) lifts as defined in the Factories Act 1961 sections 22, 23 and 25 and the Offices, Shops and Railway Premises (Hoists and Lifts) Regulations 1968;
- e) trolley jacks, including those specified in BS AU 154.

Recommendations for the commissioning, maintenance, examination and safe use in service of mobile vehicle lifts are given in Appendix B, Appendix C and Appendix D.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

## 2 Definitions

For the purposes of this Part of BS AU 161 the following definitions apply.

### 2.1

#### mobile vehicle lift

a single lifting unit or a group of inter-connected lifting units designed to raise an entire vehicle to a height not exceeding 2 m above ground or floor level for the purposes of examining, working on or cleaning the vehicle. When unladen such devices are mobile but are prevented from moving horizontally when laden

NOTE 1 Mobile vehicle lifts are of the wheel, axle, or frame supporting type and:

- a) of the single or multiple actuator type;
- b) of the fork or arm lifting type, hereafter referred to as "fork type";
- c) of the runway or platform lifting type, hereafter referred to as "runway type";
- d) of any combination of a) to c).

NOTE 2 Mobile vehicle lifts are powered by the following methods:

- a) hydraulic;
- b) pneumatic;
- c) mechanical;
- d) electrical;
- e) manual;
- f) or any combination of a) to e).

### 2.2

#### multiple unit mobile vehicle lift

a group of inter-connected lifting units designed to raise an entire vehicle under control from one lifting unit (see Figure 1)

### 2.3

#### single unit mobile vehicle lift

a single lifting unit designed to raise an entire vehicle (see Figure 2)

### 2.4

#### tilting mobile vehicle lift

a single lifting unit which enables an entire vehicle to be elevated in an angled attitude

### 2.5

#### design load

the load that a mobile vehicle lift complying with the requirements of this standard has been designed to carry (see clause 7)

### 2.6

#### safe working load

the load for which a mobile vehicle lift has been certified (see 6.4)

### 2.7

#### maximum design pressure

the hydraulic or pneumatic pressure corresponding to the design load

### 2.8

#### competent person

a designated person, qualified by knowledge and practical experience and with the necessary instructions to enable the required examinations to be carried out

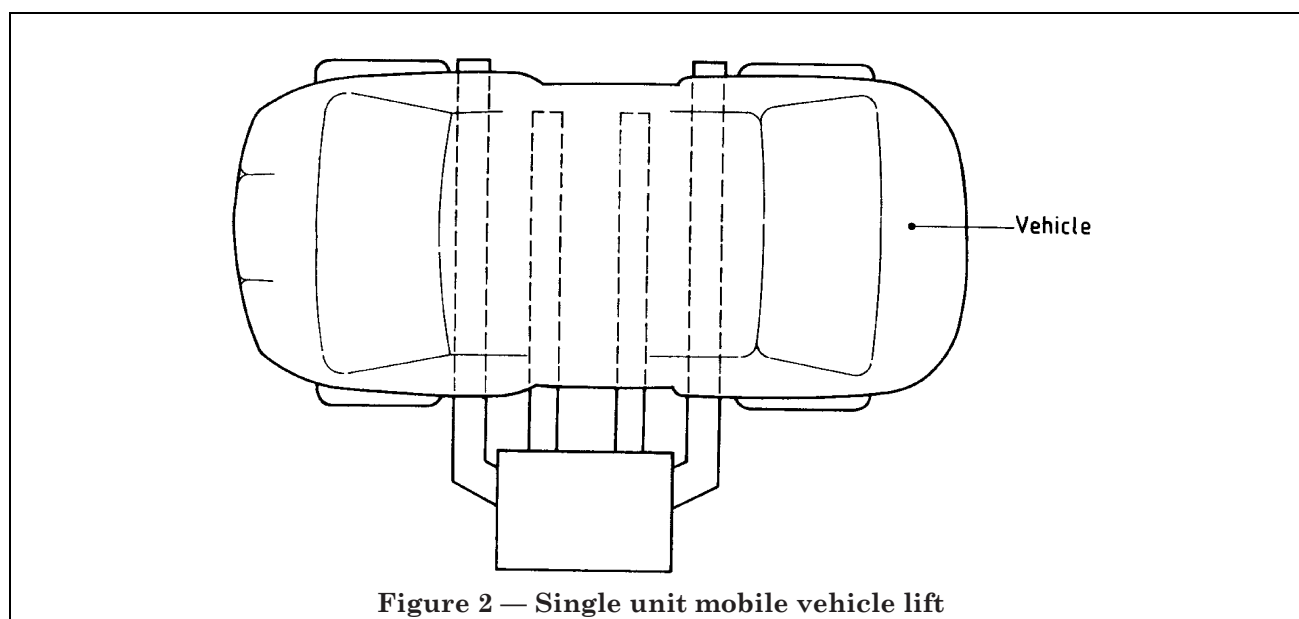
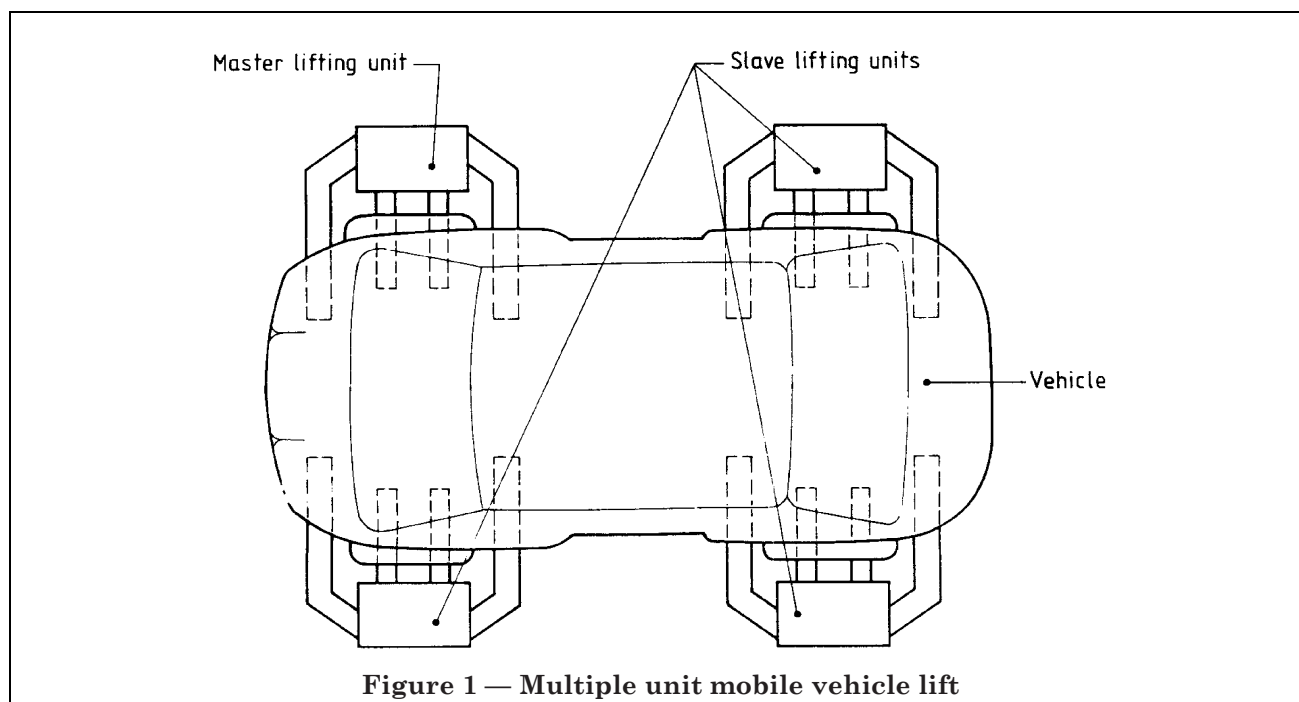
## 3 General requirements

### 3.1 Factor of safety

**3.1.1 General.** Each mobile vehicle lift shall be capable of statically supporting an applied load of 50 % above the design load without permanent deflection or failure of any part. In the case of wheel-supporting mobile vehicle lifts, the runways shall be capable of supporting a static load of 50 % above the design load specified for each wheelbase shown on the marking plate.

A type test of the mobile vehicle lift with an applied load of 50 % above the design load shall be carried out by the manufacturer (see 6.1).

**3.1.2 Mechanical parts.** Load-bearing mechanical parts not referred to elsewhere in 3.1 shall not be stressed to more than one-third of the ultimate tensile strength of the material. Where any mechanical part is subjected to shock loading the static factor of safety shall be not less than 6 : 1 based upon the ultimate tensile strength.



Where high yield steels which comply with BS 4360 are used for frames and other structural parts the safety factors used shall be 2 : 1 based on yield strength for static loads and 4 : 1 based on yield strength for shock loads.

**3.1.3 Wire rope.** Each wire rope shall be capable of supporting its design load with a factor of safety of not less than 6 : 1, based on the minimum breaking load of the rope. Sheaves and drums shall be provided with adequate rope retainers.

**NOTE** The minimum breaking loads for wire ropes are given in BS 302-2.

Each rope shall be issued with the required statutory report.

**3.1.4 Chains.** Each chain shall comply with BS 5594 and shall be capable of supporting its design load with a factor of safety of not less than 6 : 1, based on the calculated breaking load of the chain specified in BS 5594.

Each chain shall be issued with the required statutory report.