

Health and Safety Executive		Sector Information Minute	
Manufacturing		SIM 03/2005/05	
Cancellation Date	15/04/2009	Open Government Status	Fully Open
Version No & Date	1: 15/04/2005	Author Unit/Section	Manufacturing

Target Audience:
All HSE staff
LA EHOs

RISK OF VEHICLES FALLING OFF TWO-POST VEHICLE LIFTS IN MOTOR VEHICLE REPAIR (MVR)

This SIM alerts Enforcing Authorities to the risks of vehicles falling from 2-post lifts where arm locking systems are either missing or have ceased to work and provides advice for inspectors on the action to be taken when such lifts are found. It also includes an industry agreed plan to ensure the fitting of arm locking systems to all lifts by 1 January 2007.

INTRODUCTION

1 Vehicle lifts are in common use throughout the motor vehicle repair (MVR) industry, including tyre and exhaust fitting centres. This SIM alerts inspectors to the risk of vehicles falling from two-post lifts where arm locking systems are either not fitted or are defective, particularly where the mounting pads on the carrying arms' vehicle pick-up plates are missing, badly worn or contaminated by oil or grease. Other causes of vehicles falling from two-post lifts are also discussed.

2 This advice has been issued following the investigations of two recent accidents, one fatal and the other very serious, in which vehicles falling off two-post lifts struck mechanics working below. In one case, the arm locking system was defective and the other, the fatal accident, involved a lift manufactured before 1983 without arm locking.

3 The contents of this SIM have been discussed and agreed with the Safety Assessment Federation (SAFed) and, through the [MVR Forum](#), with representatives from the MVR industry.

BACKGROUND

4 There are many types of vehicle lifts incorporating different means of hoisting. The most common have two or four posts, but other designs for example single-, three- or six-post; scissor etc, can be found in service.

5 Two-post vehicle lifts typically comprise two upright columns, a master or powered column plus an auxiliary or slave, both fitted with a pair of (vehicle)

carrying arms. These arms are pivoted at the column and their lengths adjustable, usually by telescopic means, though some are articulated. At the free end of each carrying arm there is an adjustable pick-up plate fitted with a rubber mounting pad.

ARM LOCKING SYSTEMS

6 BS AU 161-1b:1983 was the first British Standard to recommend carrying arms to be fitted with automatic mechanical locking systems that prevented the arms from moving inadvertently. Subsequent Standards, including the more recent BS EN 1493:1999 *Vehicle lifts*, have specified arm locking systems for all two-post lifts.

7 Arm locking systems work on the principle of permitting the carrying arms to rotate when they are within approx. 100mm of the ground. Once they have been raised above this height, the arms are locked at whatever angle they have been set. Locking is generally mechanical using either interlocking sliding gear segments, or a sliding boss that engages on a fine-toothed spline, or a split nut operating on threaded rods.

8 The absence of an effective arm locking system could result in the vehicle falling off the lift. For example, if one arm moves or is knocked out of the way then the action of the vehicle tipping downwards could result in the other arms being displaced and the vehicle falling. Movement could arise during the removal of major components from a raised vehicle, as this will affect its weight distribution on the arms.

9 There are other factors that could lead to uncontrolled arm movement. For example, missing or worn rubber mounting pads on the vehicle pick up plates at the ends of the carrying arms, or a build up of oil or grease on the pads, will affect the friction between the surfaces in contact. Any work on the vehicle, either directly (eg undoing a bolt or removing the engine) or indirectly (eg using a jack to lift a component back into position) could generate strong forces which, in turn, could result in slippage, rocking or other movement of the vehicle.

OTHER CAUSES OF FALLING VEHICLES

10 The Sector is aware of another recent incident where the absence of end stops on the telescoping arms was the cause of a vehicle falling off a two-post lift.

THOROUGH EXAMINATION OF VEHICLE LIFTS

11 Vehicle inspection lifts are subject to the requirements of the Lifting Operations and Lifting Equipment Regulations (LOLER). For most lifts, a 6-monthly period for thorough examination is appropriate because mechanics/other persons are either raised in vehicles or work beneath raised vehicles.

12 An examination of adverse Thorough Examination reports has revealed that where arm locking systems are inoperable the defect has been categorised as 'A' ie repairs required immediately or in a specified time. A

category 'A' defect has also been specified if all the mounting pads have been found to be missing, but only a 'B' (other defects) or 'C' (other observations) when only one has been missing or badly worn.

ADVICE FOR INSPECTORS

13 HSG 67 Health and safety in Motor Vehicle Repair (first published in 1990) recommends that –

'Careful attention should be paid to manufacturers' recommendations when using two-post hoists - vehicle chassis, sub-frame and jacking points should be in good condition; support arm pads should be set to the correct height before the vehicle is raised. The weight distribution of the vehicle being lifted and the effect of the removal of major components should be constantly evaluated.'

14 BS 7980:2003 Code of Practice for Vehicle lifts—Installation, maintenance, thorough examination and safe use makes recommendations about adapting pre-1983 vehicle lifts ie manufactured prior to CE Marking, to ensure that they **do not pose unacceptable risks to people's health and safety** (section 9, 'Existing Equipment'). In particular, the Standard recommends the retrospective fitting of five attachments/devices, including arm locking devices, to all lifts to **reduce the risk of accidents**. The HSE was involved in the preparation of BS 7980:2003 and, in the Foreword, commends its use to those who have duties under the Health and Safety at Work etc Act 1974.

15 It has been estimated that there are about 250 – 300 pre-1983 two-post lifts without arm locking systems still in use in the UK today, some being operated alongside later models fitted with an effective system.

16 The pre-1983 lift involved in the fatal accident in paragraph 2 was thought to have been manufactured by Bendix-Westinghouse. This company, like the other manufacturers of similar lifts at that time, are no longer in existence and kits for retrofitting arm locking systems are not generally available. According to one industry expert, the cost of adapting these older models could exceed the purchase cost of a new two-post lift.

17 In view of the unacceptable risks to operators, mechanics and others in the MVR industry, the presence and maintenance of an effective arm locking system is crucial in ensuring that these lifts can be used safely. Therefore, the HSE has agreed with key industry representatives that by 1 January 2007 all two-post lifts should be fitted with effective arm locking devices.

18 Until they are fitted, users of these lifts should ensure that –

- 1) mechanics and technicians have been trained and instructed in the correct positioning, balancing and supporting of vehicles on the carrying arms and mounting pads, and of their importance in reducing the risk of falling vehicles; and

- 2) the condition of the pads is checked daily before use, and the pads and other safety devices eg end stops on the telescopic arms, are properly maintained; and
- 3) where required by the risk assessment, additional independent means for supporting the vehicle are provided and used.

19 Where already fitted, employers should check the arm locking system regularly to ensure its effectiveness. In addition (i) and (ii) in paragraph 18 will also be important in ensuring that raised vehicles can be worked on safely.

ENFORCEMENT MANAGEMENT MODEL (EMM)

20 Until 31 December 2006, where inspectors can provide evidence of the absence or inadequacy of the controls listed in [paragraph 18](#), including supervision and monitoring, SG (Mechanical Engineering) and Manufacturing Sector will support the issue of an Improvement Notice. Where users have failed to act on a Category 'A' defect on an adverse report of Thorough Examination, a Prohibition Notice will be supported.

21 From 1 January 2007, the SG and Sector believe that it is reasonably practicable to have fitted arm locking devices or replaced older lifts, and where a risk exists, will support the prohibition of two-post lifts that are not fitted with arm locking systems, whether or not the additional steps specified in [paragraph 18](#) have been taken.

22 To strengthen the SG's/Sector's case, it would be helpful if inspectors would send to the Manufacturing Sector details of any incidents involving vehicles falling off two-post lifts, especially where no arm locking device is fitted or the device is defective.

FURTHER INFORMATION

23 The risks were discussed at the May 2004 and February 2005 meetings of the [MVR Forum](#) and information has been added to the [MVR website](#). A Press Release will be issued by the Sector for publication in MVR industry magazines and journals.

24 If Inspectors require further information or technical support concerning this issue, they should contact their local Specialist Group (SG) in the first instance, LA EHOs through their Enforcement Liaison Officer (ELO). Additional advice can be obtained from the Manufacturing Sector.

Date of first issue: 15/04/2005