GEA

THE GARAGE EQUIPMENT ASSOCIATION

The Safe Operation of Vehicle Lifts

Contents

All content is provided as safety advice and is not intended to replace the lift manufacturer's operating instructions.

Illustrations: Chris Staple
Pick-up point diagrams reproduced by permission of: Autodata

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Welcome:

If there's one thing we take for granted in the motor trade, it's the safe operation and reliability of a Vehicle Inspection Lift. We place vehicles on and off, raise them up and lower them down all day long and have total trust in the equipment. This is probably because vehicle lifts:

- Have fully automatic safety locks
- Have built-in safety devices
- Have been designed and built to meet European standards
- Have been installed following BS7980
- Are regularly maintained
- Are periodically thoroughly examined by a competent person.

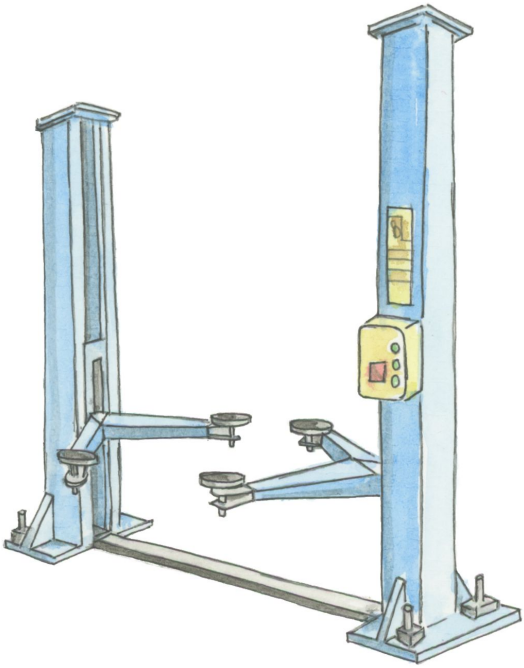
Sadly however, the UK motor trade suffers from a few accidents each year, accidents that are often caused by incorrect operation of the lift, poor loading of the vehicle, poor installation or neglected lift maintenance.

This guide will helpfully provide you with valuable information regarding how to make an informed purchase, how to safely operate and position vehicles on a lift and how to comply with the UK's regulations concerning maintenance and thorough examination.

1 = C, 2 = C, 3 = A, 4 = A, 5 = B, 6 = C

Lifts in the UK - 2-Post Lifts

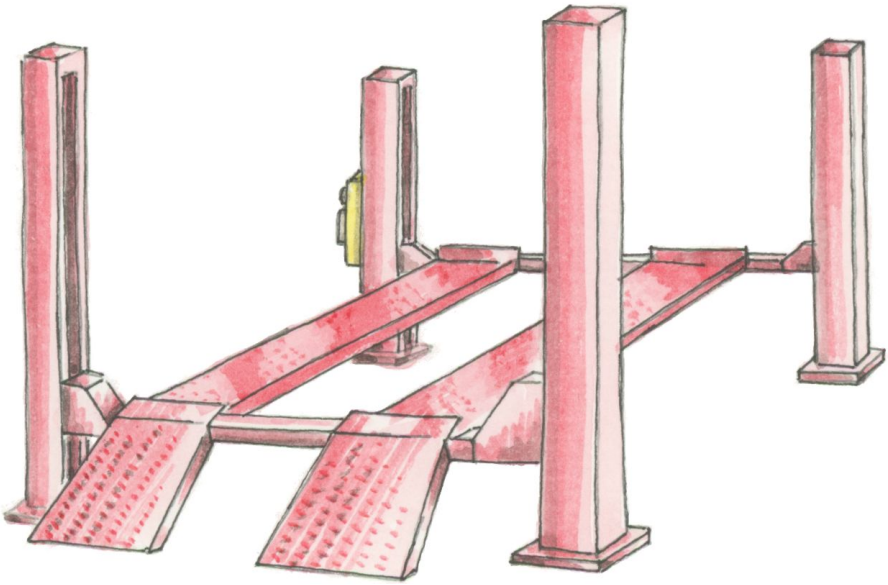
The majority of light vehicle lifts sold today in the UK are 2-post surface mounted types, 40% of these having a drive over base frame between the posts and the remaining 60% having a clear floor area between posts. Some will use hydraulics to raise the post mounted swing arms and others, known as screw lifts, use a rotating screw and nuts.



Because all of the vehicle's wheels are unrestricted when raised, these lifts make good service lifts and take-up little workshop floor area when not in use.

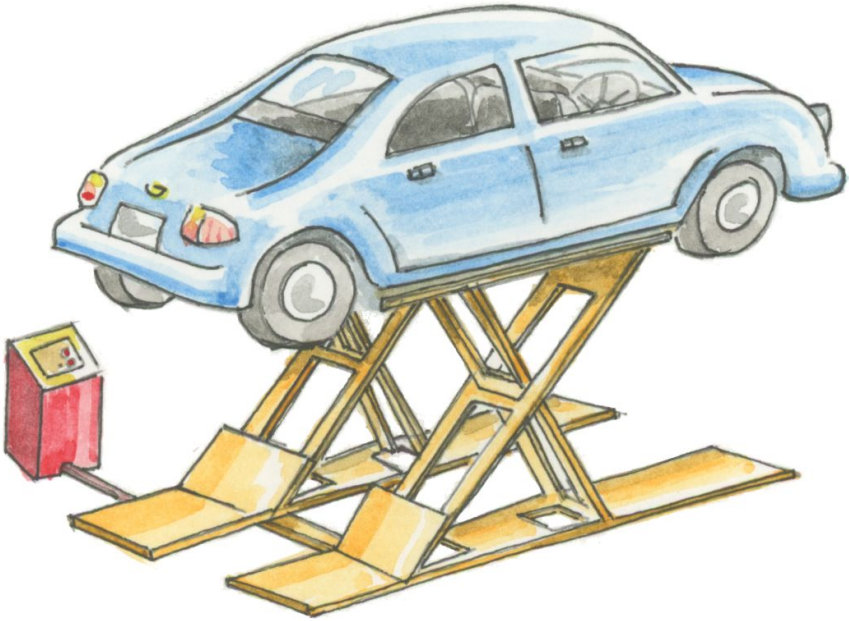
4-Post Platform Lifts

Because this lift allows for quick drive-on drive-off vehicle loading and keeps the suspension compressed when raising the vehicle, it has become known as the inspection lift and is used by many MOT stations. When used for servicing light vehicles it's becoming second in popularity to the 2-post lift. 4-post lifts can have high lifting capacities so are popular in Commercial Vehicle (CV) workshops.

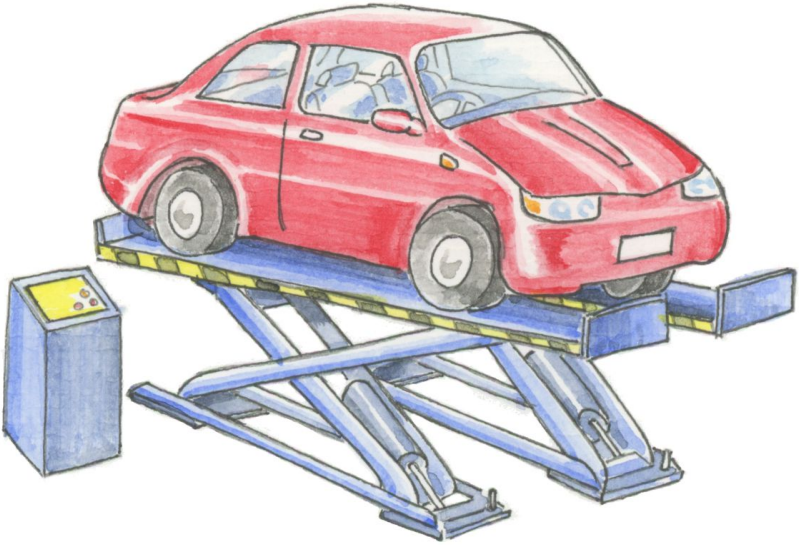


Scissor Lifts

Scissor lifts come in 2 forms; they can have short platforms, which work by placing the load on the vehicle's body, the sill area for example, these are known as short body scissor lifts and are normally used when servicing light vehicles.



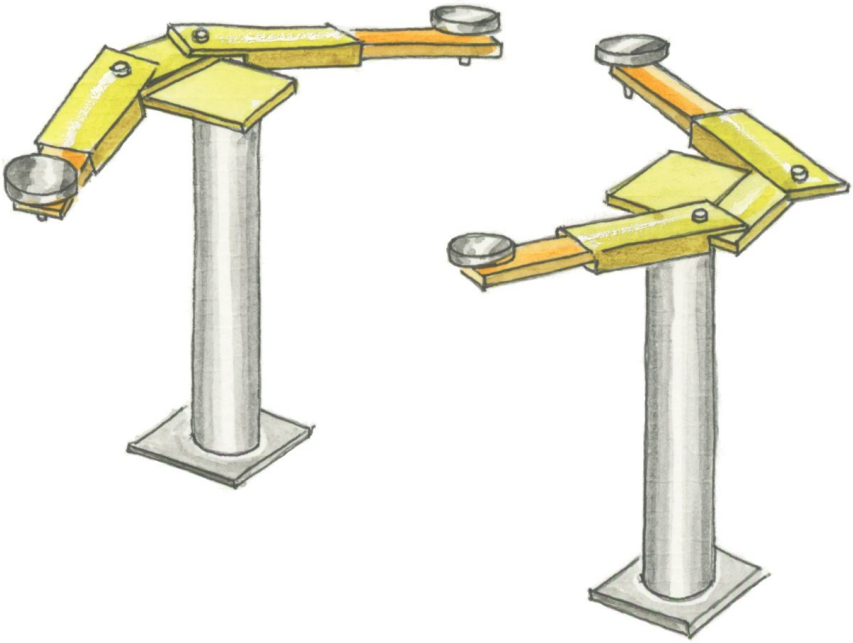
Some scissor lifts have a full drive-on platform; these drive-on platform types are becoming popular in MOT Vehicle Testing Stations and make excellent inspection lifts. Larger platform scissor lifts are also popular in Heavy Goods Vehicle (HGV) and Public Service Vehicle (PSV) workshops.



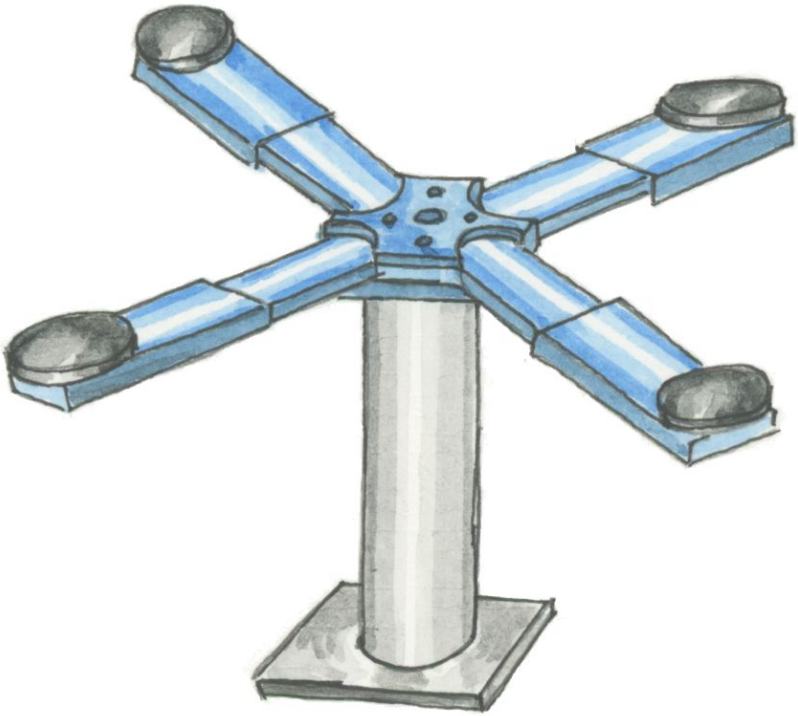
In-Ground Lifts

These lifts use hydraulic cylinders that are sunk into the workshop floor. They make very good service lifts and take up little floor area. They are normally used for servicing light vehicles, but with 2-larger cylinders, which locate beneath the axles can be used for working with heavier vehicles such as HGV and PSV.

Some in-ground lifts have 2 cylinders.

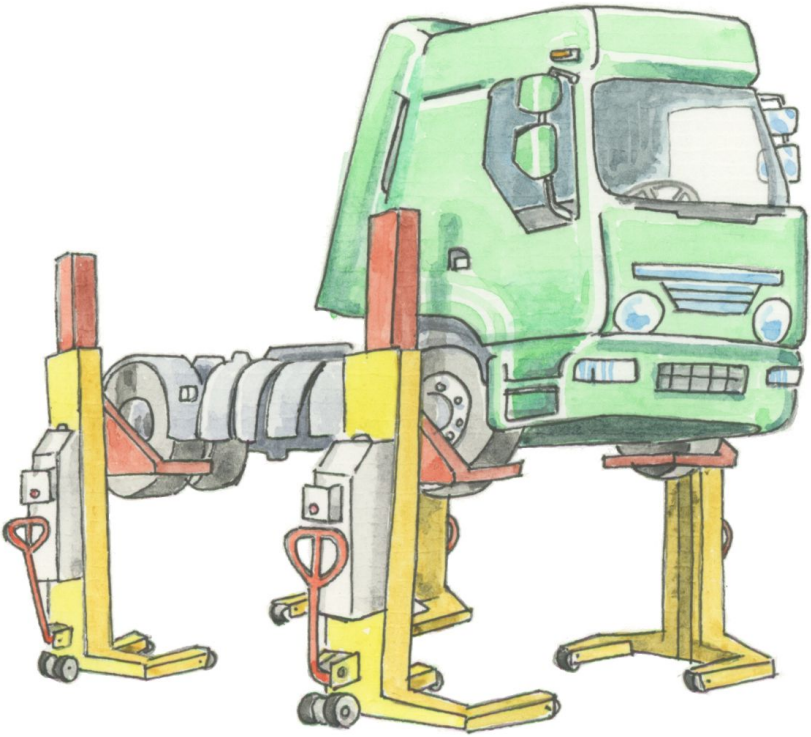


Others use a single cylinder, with 4 support arms.



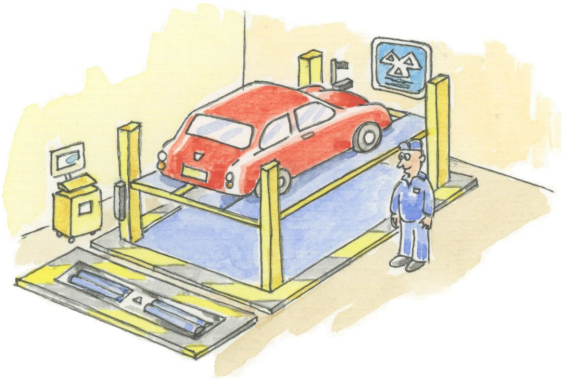
Mobile Column Lifts:

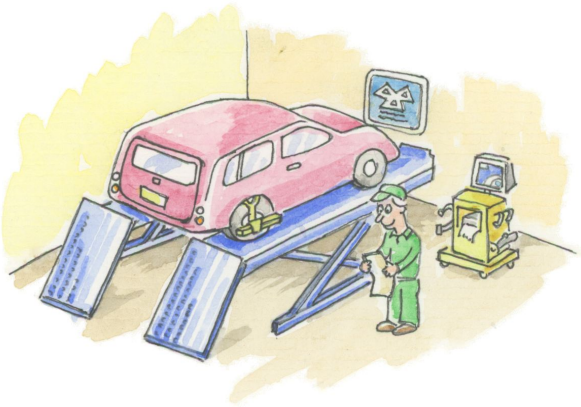
These lifts are very popular with Commercial Vehicle workshops and are unique in the fact that they require little installation work. They are used in sets of 4 or maybe 6 and lift the vehicle directly by supporting its wheels.



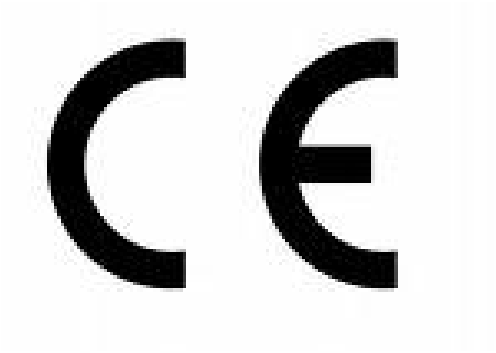
Lifts used in the UK for MOT:

Lifts used for MOT must meet VOSA's minimum size requirements for the class of vehicle to be tested and be of a platform type. For advice on this please ask a GEA member. A full list of members who supply MOT equipment can be found on the GEA website: www.gea.co.uk





Purchasing a vehicle lift:



CE Mark

All machinery sold within the European Community must meet Directive 2006/42/EC, otherwise known as the "Machinery Directive". Most products and some lifting equipment, such as engine hoists and jacks can be certified that they meet the directive by the equipment's manufacturer, agent or supplier.

However Annex 4 of the Directive requires that vehicle lifts used for the servicing of vehicles must have an EC type–examination by a Notified Body.

The Notified Body will check that the vehicle lift either satisfies the Essential Health and Safety Requirements (EHSRs) of the Directive or that the lift manufacturer has followed the requirements of BSEN1493 in their entirety.

On completion of the conformity assessment process the manufacturer, agent or supplier should prepare a Declaration of Conformity and apply a CE mark to the equipment. The Declaration should include details of the Notified Body (4 digit identification number) who has undertaken the EC type-examination and the assessment method, either EN1493 or the EHSRs.

Sound advice:

Always ask to see proof that the lift you are thinking of purchasing has been CE marked and is certified by one of the so called “Notified Bodies” Doing so will ensure that the CE mark is genuine and that the lift has been manufactured to European standards. All certificates will contain both the name and number of the Notified Body and a certification number.

Please Note: All genuine Notified Bodies must be based in Europe.

Installation:

When it comes to vehicle lifts, the installation work is as important as the manufacturing process. However, this work is often conducted by an installation and maintenance company and may be out of the direct control of the lift manufacturer. All lifts, apart from mobile column lifts, rely on correct installation; therefore the British Standards Institute (BSI) has produced a standard for vehicle lift installation known as BS 7980:2003+A1: 2012, which has become the lift engineer's bible.

Sound advice:

Always have your lift installed by a GEA Accredited Lift Engineer who understands all the regulations and standards and follows the correct guidance and procedures provided by the lift manufacturer.

Rules and Regulations:

So you have purchased a CE marked lift and have had it installed correctly … however, because the lift is to be used in the workplace, the garage proprietor will also be required to meet two UK Regulations, known as the Lifting Operations and Lifting Equipment Regulation (LOLER) and the Provision and Use of Work Equipment Regulations (PUWER). LOLER calls for a thorough examination of work equipment and PUWER mandates regular maintenance of that equipment.

So before using the vehicle lift for the first time, it's the garage owner/employer's responsibility to make sure that the vehicle lift has undergone a load test and a thorough examination by a competent person. This checks that the installation of the lift is satisfactory and is safe to use … it's similar to having a registered gas fitter check out your cooker or heating system before using it.

Once in use LOLER also states that the lift must be periodically thoroughly examined (See LOLER reg.9 for full details) and PUWER states that it should also be maintained properly. Detailed guidance on maintenance is provided in BS 7980:2003+A1:2012, however, we have provided a simple guide:

Maintenance and inspection guide:

Daily Inspection:

Technicians using the lift for the first time that day should inspect any chains and wire ropes for damage and lack of adjustment, hydraulic equipment and hoses for leaks, support pads for wear and arm locking systems for correct operation. Only if all checks are tolerable should the lift be used.

Monthly Inspection (Advisory BS 7980):

On a monthly basis the operator or agent should check that all ropes, chains, rollers and carriage pins are lubricated, all floor anchor bolts are checked for tightness and screw and nut lubrication systems are topped up with the correct lubricant.

Six Monthly Maintenance Inspections:

A full service of the vehicle lift by a competent person every six months is advised by the Health and Safety Executive (HSE), BS7980 and the GEA.

Twelve Monthly Maintenance Inspections:

A full annual service of the vehicle lift by a competent person is compulsory under PUWER Reg.5.

Periodic Thorough Examination:

If a person is elevated inside a vehicle on a vehicle lift, LOLER requires the lift to be thoroughly examined every six months. Additionally, as people routinely work beneath a vehicle raised on a vehicle lift, a risk assessment of that work should conclude that six months between thorough examinations is appropriate. This period is usually specified by the competent person carrying out the examinations, and is the period recommended by BS 7980:2003+A1:2012

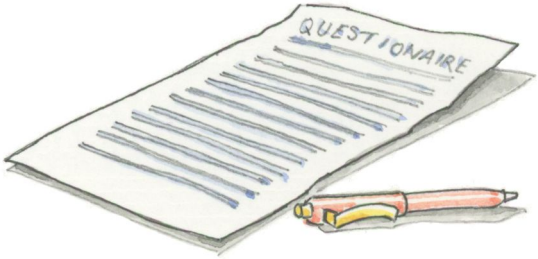
Important note: Thorough Examinations do not replace the need to service and maintain the lift - Just as a vehicle passing its MOT does not replace the need for regular servicing.

Training:

Before allowing your employees to operate the lift they must understand the information provided in all manuals supplied by the lift manufacturer and be fully trained in its operation. The training can normally be provided by the lift manufacturer or the supplier of the equipment.

This guide can also be used as a generic training aid to provide knowledge on the general principle of using different types of vehicle lift, but it's not intended to replace the operator's manual or specific product training.

To help you to access an individual's comprehension of this guide you will find a knowledge questionnaire on page 41. Please photocopy it, ask your employees to read this guide and then complete the questionnaire.



The correct answers can be found on page 3. It's also advisable to keep a training record for each individual employee.

Basic safety advice for all types of vehicle lift:

- Never overload your lift; the Safe Working Load (SWL) must be displayed on the lift. If it's missing or illegible, contact your service company for advice.

- Never allow people to stand on or under the vehicle while the lift is being operated.

- Never climb onto the vehicle lift or the vehicle itself when the lift is raised.

- In the event of a malfunction or when work is finished, always fully lower the vehicle lift and disconnect the power using the mains switch.

- When welding is being undertaken to vehicles on the lift, arrange proper earth continuity.

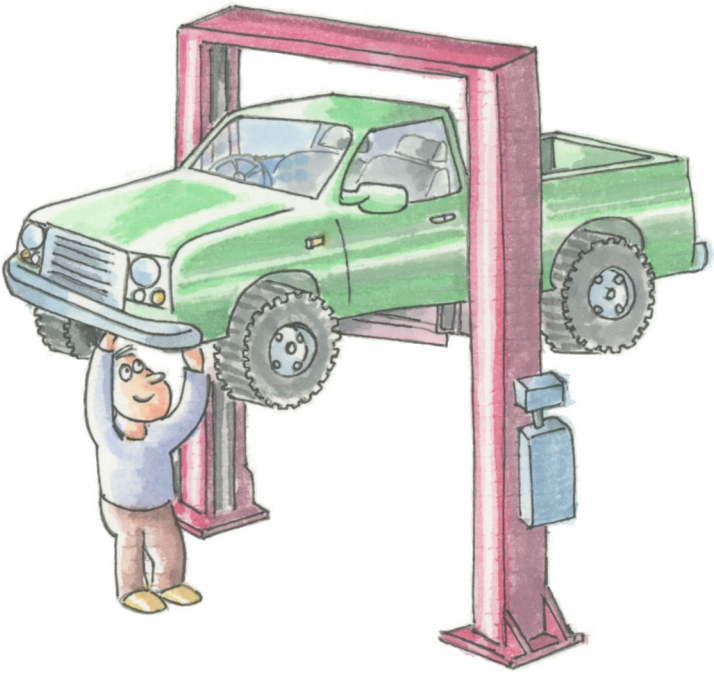
- Do not work on or with equipment if you are unsure of its safe condition.

- Do not use 1 or 2 of the 4 lifting arms on a 2 post lift to raise part of a vehicle.

- Do not override any safety devices in order to operate the lift.

Advice on safe everyday use of single column or 2 post lifts:

Lifts that raise the vehicle via lifting arms that are placed directly beneath the vehicle's body are the most commonly used within the UK. These can be column type lifts, which are constructed of a single hydraulic column that's installed in the ground or you could say set into the floor, or the more common 2-post lift, which as its name suggests, utilises two floor mounted posts with two horizontal telescopic-lifting-arms per post.



Positioning the vehicle:

Correctly positioning the vehicle on the lifting arms is most important when using 2-post or single column lifts.

The first priority before lifting is to identify the vehicle's "centre of gravity". For most rear-wheel drive cars this lies in the area that's just behind the front seats, however, for front-wheel drive vehicles it's further forward. Knowing this will help you to position the vehicle so that its weight is evenly balanced on the lift.

To achieve balance you will need to extend or shorten the telescopic arms, however, remember that the longer you make an arm, the lower its capacity will be. It's also poor practice to work with 2 fully extended arms and 2 at their shortest, so always place the vehicle so that it's balanced on the lift. If working with an arm fully extended, always check to see how much the lift's capacity has reduced. The operating instructions supplied with the lift will make this clear.

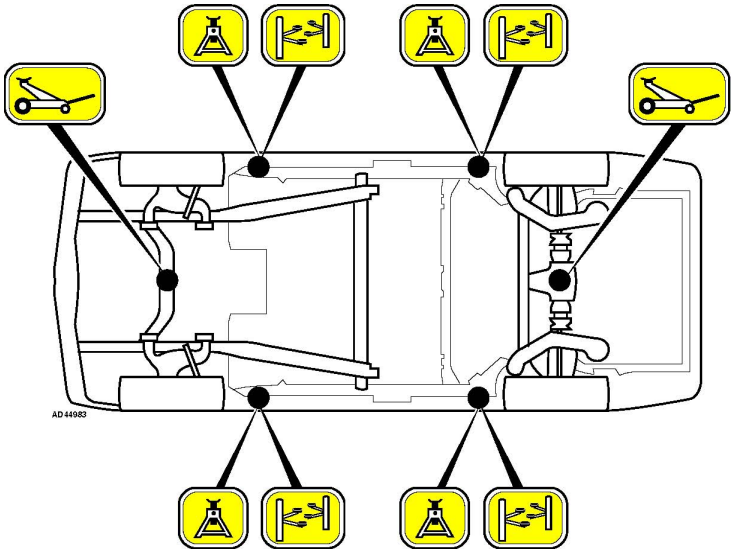
The lifting arms will have rubberised pads attached to them, which are height adjustable and should be adjusted so that the vehicle is lifted in a level plain. If pad extensions are needed, only those approved by the lift manufacturer should be used. **Do not use blocks of wood**.

As well as trying to keep the vehicle as level as possible, it's also important to evenly distribute the weight of the vehicle over all 4 of the arms and pads.

Another crucial decision will be which part of the vehicle's chassis you should align the pad against; this is critical as it will need to safely support the vehicle's weight.

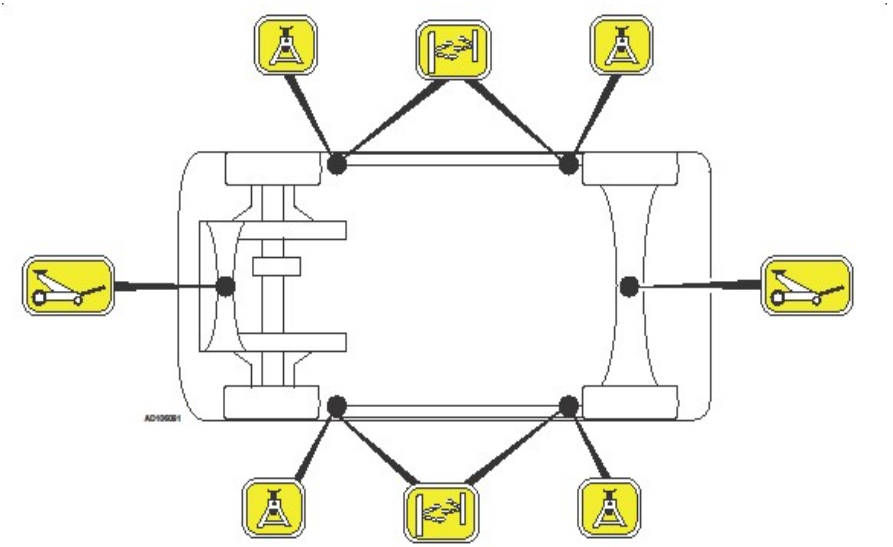
All vehicle manufacturers issue guidelines on this, they are known as "the vehicle manufacturer's recommended lifting points" and they must always be used.

Recommended jacking and lifting points on a typical rear-wheel drive vehicle:



Please note: These drawings are basic examples; full descriptions for all vehicles are available from vehicle data publishers.

Recommended jacking and lifting points on a typical front- wheel drive vehicle:

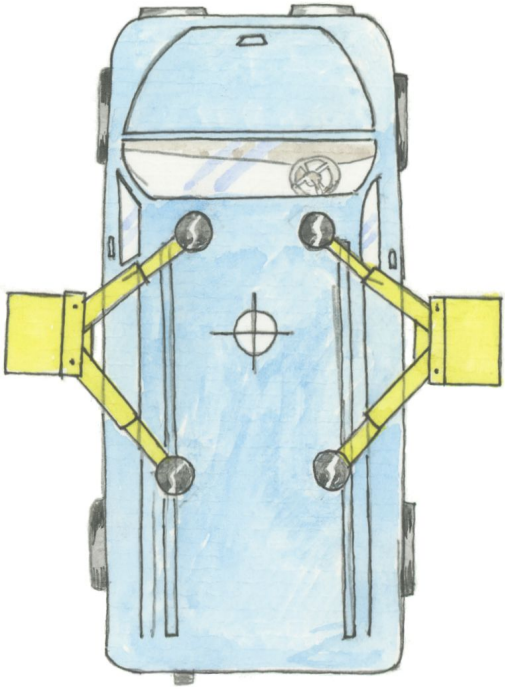


Please note: These drawings are basic examples; full descriptions for all vehicles are available from vehicle data publishers.

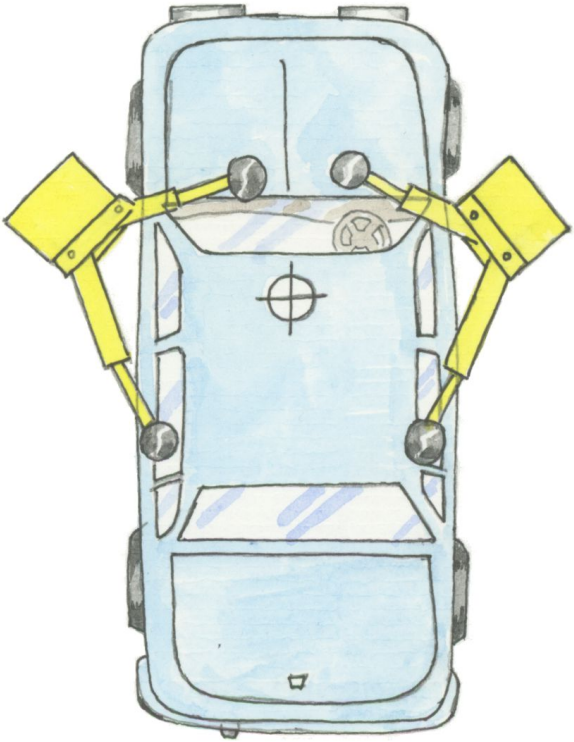
Symmetric and Asymmetric

There are two types of 2-post lift available; these are known as the Symmetric and the Asymmetric type of lift.

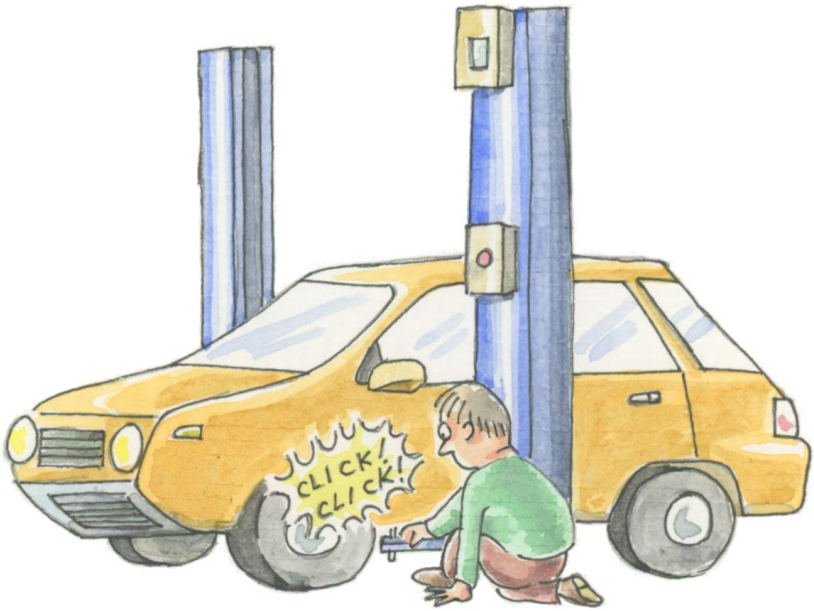
Symmetric lifts are designed so that the posts face each other and are normally used for lifting larger vehicles, such as small commercials. The doors of such vehicles are normally positioned forward allowing the lift operator to park the vehicle centrally between the posts and open the door.



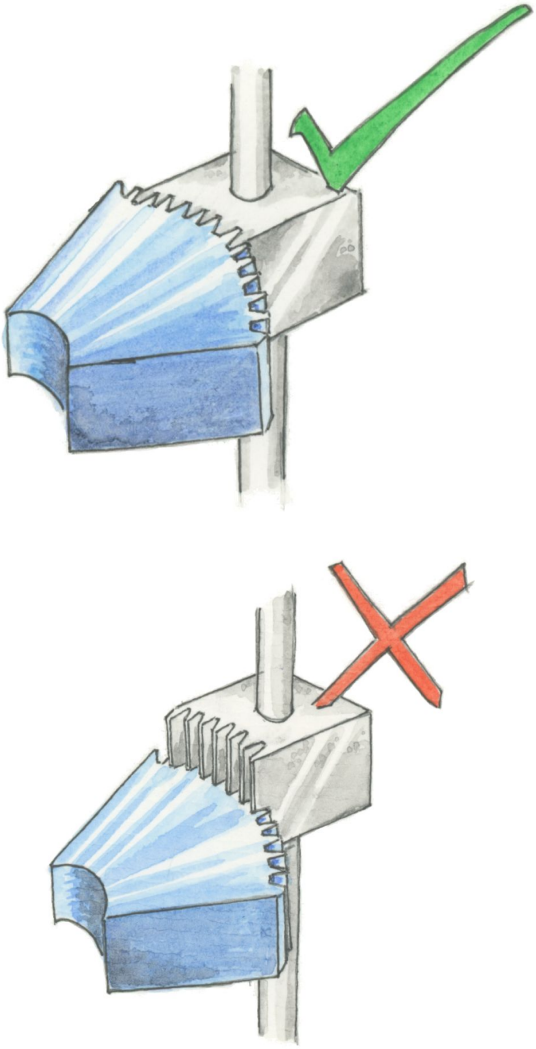
Asymmetric lifts are designed so that the posts are angled, facing slightly away from each other and are normally used for lighter vehicles, such as cars. Car doors are normally positioned slightly further towards the middle of the vehicle. Setting the posts so they face backwards at an angle allows the lift arms to be positioned away from the centre line of the posts. This allows the lift operator to park the vehicle in a position which enables easy opening of the vehicle's door.



Being sure that the vehicle is balanced, level and stable is very important on any 2-post lift, however, there's one last thing to check. It's extremely important when using lifts incorporating lifting arms that the arms lock in place once they are raised. An automatic system built into the lift's arms, allows the arms to be freely positioned when they are low, but once raised to more than 300mm above the ground should lock preventing sideways movement of the arm.



Correct operation of the automatic locking system and well maintained lifting pads are crucial for safe operation of a 2 or single post lift.



Once the vehicle is elevated it's also critical that the balance point is maintained, this seems obvious to most technicians, but a good number of vehicles continue to fall off lifts simply because a major component has been removed from the vehicle. Removing the transmission from a front wheel drive vehicle is the most common cause, with some units weighing over 70 kg; this can cause a large shift to the vehicle's centre of gravity, thus making the vehicle unsteady on the lift. Consequently, if you have to remove major components it makes sense to use additional props to support the vehicle.

Correct loading procedure for symmetrical two post vehicle lifts

- Drive the vehicle centrally between the lift posts and park the vehicle so that both posts are in line with the vehicle's centre point.

- Position the lifting arms under the vehicle so that each lifting pad is correctly positioned under the recommended lifting point.

- Raise lift arms until one lift arm pad touches a lifting point on the vehicle.

- To ensure a level lift, the height of the remaining pads should be adjusted to ensure that each is in contact with each of the vehicle lifting points. **Please note:** if lifting pad extensions are needed, only use those approved by the lift manufacturer.

- Raise the lift's arms to take the weight of the vehicle (wheels just off the workshop floor).

- Make a further visual check of the position of lifting pads and check that all 4 of the arm locking devices have fully engaged.

- When satisfied that the pad positions are correct and the arm locks are engaged, rock the vehicle as a final check for stability.

- The vehicle can now be fully raised.

Correct loading procedure for asymmetrical two post vehicle lifts

- Drive the vehicle centrally between the lift posts and park the vehicle so that both posts are in line with the vehicles steering wheel.

- Position the lifting arms under the vehicle so that each lifting pad is correctly positioned under the recommended lifting point.

- Raise lift arms until one lift arm pad touches a lifting point on the vehicle.

- To ensure a level lift, the height of the remaining pads should be adjusted to ensure that each is in contact with each of the vehicle lifting points. **Please note:** if lifting pad extensions are needed, only use those approved by the lift manufacturer.

- Raise the lift's arms to take the weight of the vehicle (wheels just off the workshop floor).

- Make a further visual check of the position of lifting pads and check that all 4 of the arm locking devices have fully engaged.

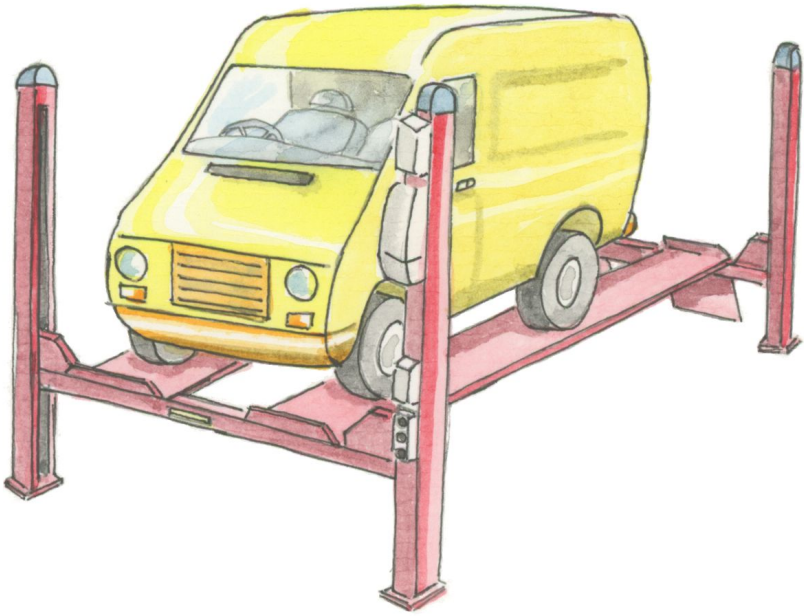
- When satisfied that the pad positions are correct and the arm locks are engaged, rock the vehicle as a final check for stability.

- The vehicle can now be fully raised.

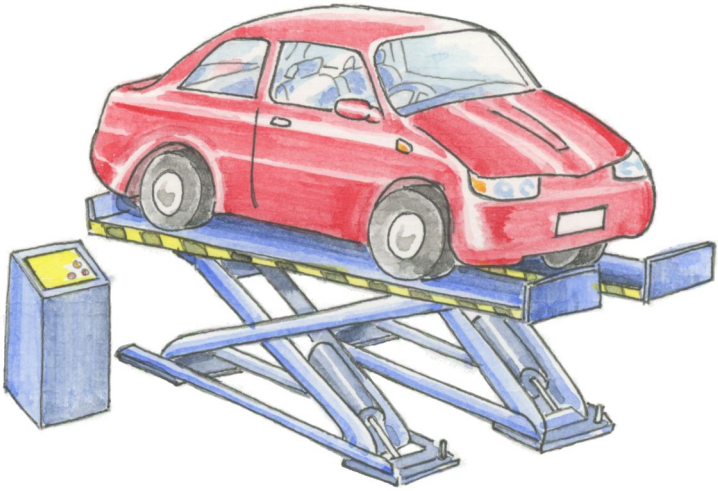
Advice on safe everyday use of Platform lifts:

Platform lifts sold in the UK are normally 4-post or scissor type. Positioning a vehicle on a platform lift is relatively easy; however, care should be taken to position the vehicle centrally so that its near-side and off-side wheels are evenly positioned in the centre and not overhanging the edge of the platform.

Platform 4-Post



Platform Scissor:



One of the biggest hazards with platform lifts may be vehicles rolling off them. The lifting platform should have anti-roll end-stops at the front and rear of the platform; the ones at the rear, or drive on end, are automatically put in position when the lift is raised. However these can fail, so always check that the so-called “auto chocks” have engaged properly, if not, lower the vehicle immediately. The front stops are fixed and should not be removed from the platform under any circumstances. It’s always best to use manual chocks as well as these will prevent the vehicle from rolling along the platform during service work.

With platform lifts, when a short wheel-base vehicle is being raised, load distribution can become a problem. Therefore always check the lift’s operating manual to make sure you are spreading the load correctly.

Correct loading procedure when using platform vehicle lifts

- Ensure that the lift's platform is completely lowered and resting on the floor.
- Drive the vehicle centrally between the posts onto the lift platforms (ensure vehicle is positioned centrally).
- Place chocks behind vehicle wheels if required.
- Raise the lift's platforms to the required height.
- Check that the auto chocks have engaged.
- Engage wheel free system if required (where fitted).
- When the wheel free system is being used the lift platforms should be lowered, leaving the vehicle independently supported by the wheel free system.
- To disengage the wheel free system, raise lift platforms until they fully support the vehicle. The wheel free system should then release automatically.
- Before lowering the lift ensure the workshop floor around the lift area is clear of any obstructions and feet are clear of the lift.

Advice on safe everyday use of Mobile Column Lifts:

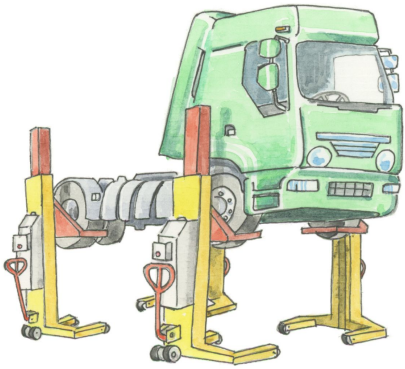
Mobile column lifts are not installed; they are fully mobile, so care must be taken when positioning them. Therefore only correctly trained operators should use and operate these vehicle lifts. Mobile vehicle lifts are available with different lifting capacities and power supplies, i.e. cabled or battery powered.

Mobile vehicle lifts must always be used on a level, hard surface - concrete is best not tarmac. They normally engage with the vehicle's wheels using forks, so take care that the fork is the correct size for the tyre diameter, it's also worth checking that the tyre pressure is correct.
If used outside the workshop and open to the weather, consideration needs to be taken with regards to the wind and rain. If in doubt consult the lift manufacture for advice.

Mobile column lifts are normally used in groups depending on the number of road wheels and weight of the vehicle. Great care must be taken to ensure the safe working load of the vehicle lift columns are not overloaded, especially across any individual axle.

Mobile columns must be synchronised with each other to ensure they remain level during their operation. The operator must keep a watchful eye during operation to ensure they are going up and down together - if not stop operation and contact the manufacturer immediately.

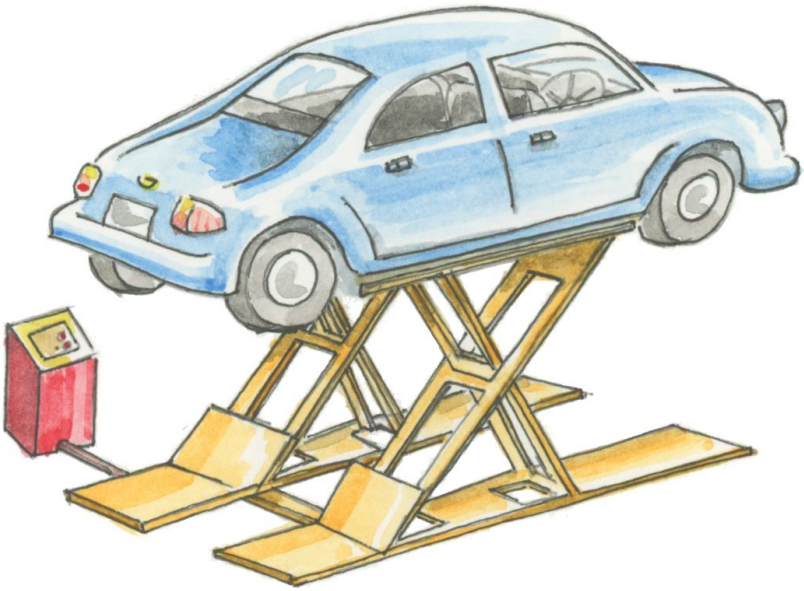
If cabled versions of mobile vehicle lifts are used then extra care must be taken with regards to the cables, which are a trip hazard and care must be taken when walking around the workshop. Lift cables must never be driven over and the power must always be turned off when the lifts are not being operated i.e. lifting or lowering button pressed.



Basic rules of Mobile Column Lifts

- Remember that column lifts operate in pairs.
- Make sure there is no danger of instability.
- Only use the column lifts on a sufficiently strong, hard and level floor surface.
- If the vehicle is fitted with air suspension, disable it before lifting to avoid causing any change to track width and/or its wheelbase.
- Never stand on or under the vehicle while the mobile column lifts are being operated.
- Always be certain that the mobile column lifts are in the safety lock position before working beneath the vehicle. (This function may be automatic, follow manufacturer's guidelines).

Advice on safe everyday use of short platform scissor lifts:



Short platform lifts are designed to lift a vehicle by supporting its chassis, in a similar way to a 2-post lift. However, instead of using arms and pads, a short platform scissor lift utilises 2-platforms on which rubber/plastic lifting blocks are positioned.

These lifts can be installed so that the lifting platforms are flush with the floor, often called “In Ground”, or they can be surface mounted to sit on the top of the workshop floor.

Some “in ground” lifts are designed to park flush with the floor and should be raised out of the floor into the lifting position before any load is applied.

This type of lift is often misused with the load being applied before the platform has been raised out from the park position (flush with the floor) into the lifting position.

Please note: Always consult the operator’s manual to check the correct procedure before applying load to the parked platform of a flush in-ground short platform scissor lift.

Correct loading procedure when using a short platform scissor lift

- Drive the vehicle onto scissor lift (ensure that the load is evenly distributed).
- Use platform extensions if required for lifting long wheelbase vehicles.
- Place the rubber lifting blocks on the lift platforms directly below the vehicle correct lifting points. **Note: blocks supplied by the lift manufacturer are the only ones to be used with this type of lift.**
- Raise the platforms to approximately 150-mm to allow for the correct positioning of the lifting blocks.
- Raise platforms to take the weight of the vehicle (wheels just off the workshop floor).
- Make a further visual check of the position of the lifting blocks
- When satisfied with correct block positions, rock the vehicle as a final check for stability.
- Once all of these checks have been performed to the satisfaction of the lift operator, the lift may be raised safely to the required working height.

When is a lift not a lift?

When it's a jack - There are a number of jacking devices on the market that raise the vehicle by engaging with the vehicle's wheel. They look like small mobile column lifts, but they are not a lift at all, they are a jack. This means that they are not manufactured to the same standards as a lift, so when using these devices, axle stands should always be positioned under the vehicle before starting to work on, or under it.

Who is the GEA?

The Garage Equipment Association (GEA) is an independent trade association. We don't sell garage equipment, but our members do. Each GEA member agrees to follow the GEA code of conduct, which provides reassurance to you the garage owner.

If you need help choosing a lift, planning your workshop or in finding an accredited installation and service engineer, please visit the GEA website where you will find a list of GEA members who employ accredited engineers.

WWW.GEA.CO.UK

Questions:

1. **How often should an operator of a vehicle lift inspect hydraulic equipment and hoses for leaks, support pads for wear and arm locking systems for correct operation?**

   a) Every 6-months.

   b) Every week.

   c) Every day.

2. **Lifts that pick-up on the vehicle's body use rubberised pick-up pads, how often should they be replaced?**

   a) Once per year.

   b) When they become wet.

   c) At any sign of cracking, oil contamination or of metal showing through the rubber.

3. **Which one of the following statements is correct?**

   a) Monthly, the operator or agent should check that all ropes, chains, rollers and carriage pins are lubricated and all floor anchor bolts are checked for tightness.
   b) Yearly, the operator or agent should check that all ropes, chains, rollers and carriage pins are lubricated and all floor anchor bolts are checked for tightness.
   c) The operator should not check that all ropes, chains, rollers and carriage pins are lubricated and all floor anchor bolts are checked for tightness.

4. **Which one of the following statements is correct?**

   a) Never allow people to stand on or under the vehicle while the lift is being operated.

b) When a person is standing under a lift, operate the lift in slow mode only

c) Only operate the lift when another person is standing directly under it.

5. What information must be fixed to the lift and be readily visible:

a) Date of the last inspection.

b) The rated load of the lift (SWL).

c) Date of installation.

6. Before fully raising a vehicle using a 2-post lift, what precautions must be undertaken by the operator?

a) Check that the platform roll-off ramps are operating correctly.

b) Check that the underside inspection lamps are operating correctly.

c) Check that the arm locking devices are operating correctly.

Answers:

The answers can be found at the bottom of page-3.