Society of Operations Engineers

Good Practice Guide on the use of Axle Stands and Chassis Stands

In partnership with

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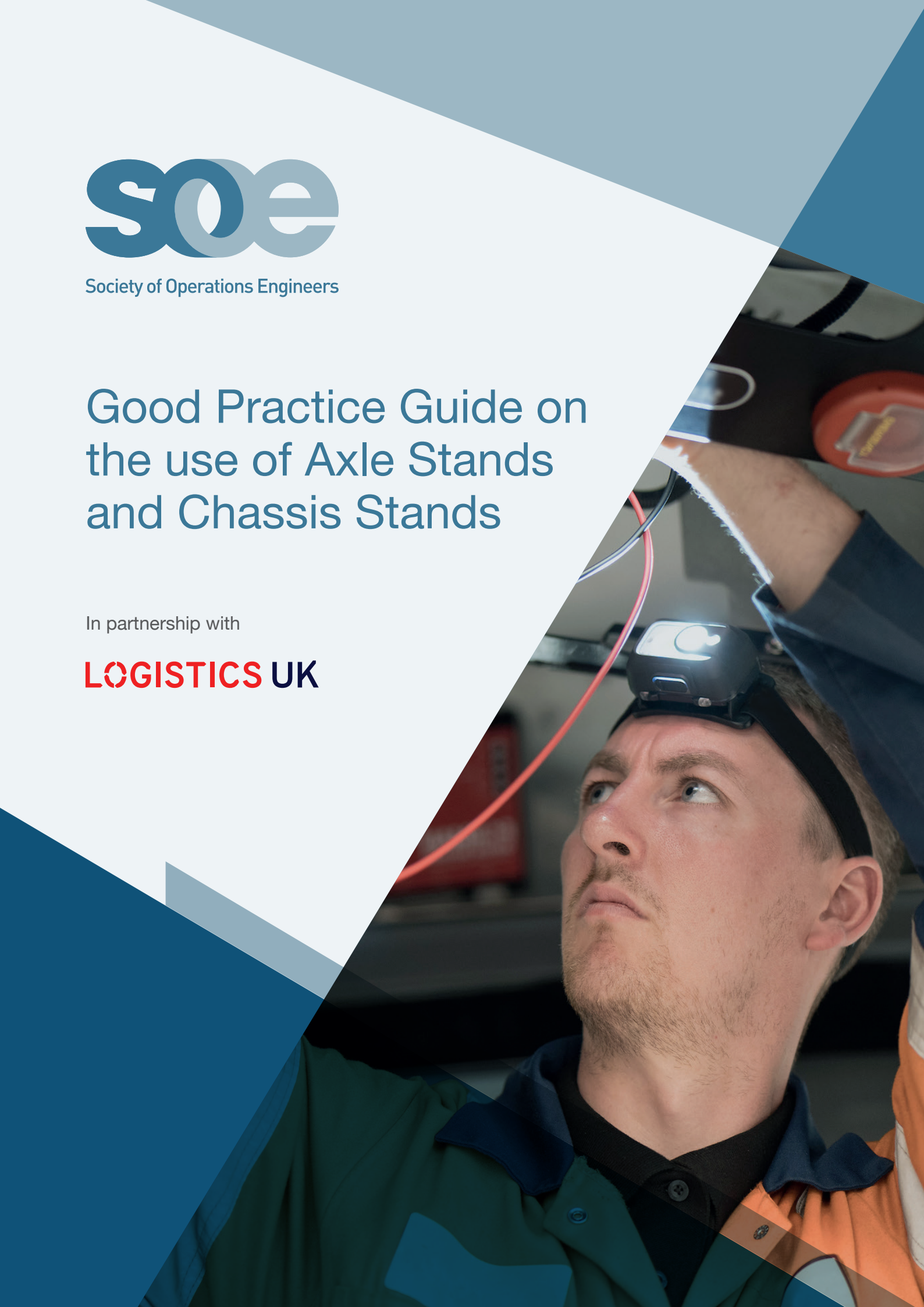

Foreword

Working on vehicles which are supported only by jacks is unacceptable as there is a high risk of collapse. This results in a number of fatal incidents and serious injuries every year. Suitable supports e.g. axle stands should be used.

There are several critical tasks associated with lifting and supporting activities. This seemingly routine but mundane job can be complex when working on a multitude of vehicle types and environments.

The risks involved in lifting and supporting activities increases dramatically if due process is not followed (and adhered to); awareness of the risks is not appreciated and; equipment is not in a fit condition for the activities being undertaken.

The number of vehicle lifting and jacking operations nationally is significant therefore the likelihood of a potentially catastrophic incident is high.

Institute of Road Transport Engineers (IRTE), with others, have produced the guidance document to support and help the industry to manage this risk.

Nick Elliott, SOE IRTE Professional Sector Chair

Introduction

This guide is intended to provide good practice guidance to technicians, operators and users of vehicle lifting and supporting equipment. It is aimed at the prevention of fatalities, injury or damage incidents associated with maintenance and repair of commercial vehicles, trailers, passenger carrying vehicles, wheeled plant, and equipment.

Raising and/or supporting of vehicles and trailers in a safe and secure manner in any environment; workshop, yard, site, roadside is paramount. The safety and wellbeing of the technician and anyone in the vicinity requires an established understanding of risk with adopted safe practices.

The areas of risk include:

- Not applying the vehicle handbrake
- Not using appropriate wheel chocks (IRTE Wheel Chock Best Practice Guide)
- Removal of wheels
- Removal of suspension components
- Collapse or failure of air suspension components (sudden collapse)
- Removal of axles
- Removal of leaf springs
- Chassis work
- Removal of stabiliser components
- Removal of large components that alter centre of gravity of the lifted vehicle.
- Contaminated mating surfaces between the jacking point and stand saddle (e.g. grease, wax, oil)

This list is not all encompassing.

The guide focuses on the ‘selection and use’ of axle and chassis stands, of which there are many types, in lifting and supporting operations. The principles of this guide can be considered in any other lifting activity. It also refers to assessment and additional safety measures to prevent fatality, injury, failure, or damage.

There is a need for axle stands and chassis stands to reduce and manage risk, main reasons for use include:

- Safety to the technician and others in the vicinity
- Stability of the vehicle or trailer during work activities
- Ease of working

This guide does not cover vehicle lifts and hoists however it does make brief reference to them in terms of being used as a lifting device.

Training and competence are key to the use of such equipment and processes must be in place to ensure that it is always used properly and is in a fit for purpose condition.

It is recognised within the industry that wood and other materials are used regularly to support lifting equipment or support and stabilise vehicles once lifted. The use of wood or other materials comes with inherent risk which should be fully reviewed and mitigated as part of a risk assessment. This guidance does not refer to the use of wood or other materials.

In this guidance document reference to technicians also means any person who is involved in the lifting and supporting activity.

Safety Factors

Current Risk Assessments (RAS) must be in place prior to lifting and supporting tasks as well as the necessity for the technician to be trained and competent to undertake ‘ongoing’ dynamic risk assessment during the tasks.

The Safe System of Work (SSOW) should include the following items:

- Training and competence to undertake the dynamic risk assessment and lifting and supporting tasks
- Supports
- The environment
- Flat level surface
- Hard standing the chosen jacking point

Supports (e.g. axle stands) should be used at all times when vehicles and towed machinery are lifted/jacked up and work under or around it is required to be done.

The environment and workplace play a major part of the assessment, taking into consideration jacking points and ground condition.

Flat level ground such as hardstanding/compacted ground should be used for lifting and supporting. Where this isn’t possible then spreader plates/pads should be used to ensure security of the imposed load from the vehicle. Where the vehicle is not located on suitable ground (e.g. uneven, sloping, undulating, potholed and unconsolidated etc.) it may be beneficial to move or tow the vehicle to a safer more appropriate location where possible or practical to do so.

Hard standing in a workshop, yard, warehouse etc needs to be suitable for the jack, axle stand or chassis jack base to be steady and able to withstand the weight of the vehicle. Wheel chocks should be used to prevent any movement of the vehicle on the ground or platform during the lifting process.

The chosen jacking point on the vehicle needs to be suitable as a point of contact for the jack or stand. Some vehicles and trailers have a designated jacking point that should be used as they are designed for point contact and are able to withstand such forces. The mating surfaces of the jacking point and saddle should be clean; free from lubricants such as grease, wax or oil coating.

Summary of safety factors:

- Current RAS
- Dynamic risk assessment
- Trained and competent – to assess risk and undertake the task following Safe System Of Work (SSOW)
- Serviceable and suitable equipment
- Suitable environment – ground and weather conditions
- Spreader plates used when necessary
- Suitable Wheel Chocks should be used (IRTE Wheel Chock Best Practice Guidance)

Conditions and Situation

These are an important element of any risk assessment along with those points already highlighted.

A workshop environment must consider all the following factors and conditions in risk assessments. Away from workshop facilities will require the technician to consider these in their dynamic risk assessment.

A vehicle that is loaded and requires removal of a wheel for example to replace a wheel or tyre will likely be able to be point lifted in the appropriate area (close to the axle tube end near the hub assembly) by a jack. This is provided the ground surface is sound and level and the jack is suitable and rated for this purpose.

Additional safety measures that may need to be considered or be required, for example:

- Park brake is applied as appropriate
- Vehicle security – prevent others from entering or moving the vehicle
- Care should be taken, to retain maximum stability, by only lifting from the ground what is necessary to complete the task i.e. one: side, axle, or wheel
- If the ground is considered unsuitable in its present condition added support to the vehicle chassis and the lifting device footing needs to be provided prior to continuing
- Ultimately if the ground condition cannot be improved to an extent that it becomes sufficiently suitable then the vehicle should be moved to a safer place

Additional conditions that may need to be considered or be required, for example:

- Weather conditions
- In circumstances where additional risk would become present should the vehicle be moved?
- Removal of large components that change the centre of gravity of the vehicle and has the potential to render it unstable
- Vehicle load

On all the above scenarios, axle stands, and wheel chocks must be in place to minimise any risk to vehicle stability and movement.

Responsibilities

Regardless of who conducts the work, they must have:

- An awareness of the risk associated with the activity
- Training in and be deemed competent to undertake the activity
- The correct tools for the job
- Training and competence to perform and act upon the site dynamic risk assesment

Training must be reviewed and refreshed on a regular basis and recorded. Periodic toolbox talks are a helpful method to refresh training. Training should also be refreshed following any incidents or near misses.

In all cases the technicians carrying out the work must be familiar with suitable vehicle type jacking and lifting processes. Their knowledge of safety and risk must be understood and formally recorded.

The employers are required to ensure that suitable equipment is available for the range of tasks that are performed.

Technicians must ensure all equipment is appropriate for the task. This equipment must be in sound and serviceable condition and used properly within design limits and as intended. Regular review checks are integral to forming part of the process of ensuring safe practice, these checks must include equipment checks and assessment of the individual's competence.

Risk Assessments

These must be conducted, logged, and reviewed regularly. Technicians must be aware of the risk assessment and apply the output of it, e.g. Safe System of Work (SSOW).

Equipment Management Process

As part of the workshop procedures and management, all lifting and supporting equipment must be subject to regular inspection, maintenance, fitness for use and purpose checks.

> Lifting equipment

- Lifting equipment including jacks require thorough examination according to Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) on at least a 12 monthly basis
- Lifting accessories require thorough examination on at least a 6 monthly basis
- Examinations must be completed by a trained and competent person

The frequency and severity of use may determine the frequency of additional audit checks. Examples being:

- Daily pre-use checks
- In-house monthly/weekly checks

Equipment which is outside its inspection period or requiring repair must be taken out of use. Colour coding of items helps to visually identify which equipment may be used.

The outcome of these inspections and any repairs must be recorded, and records retained.

> Support equipment

Provision and Use of Work Equipment Regulations 1998 (PUWER) requires that equipment provided for use at work is suitable for the intended use, safe for use, maintained in a safe condition and inspected.

The frequency and severity of use may determine the frequency of inspection and audit checks. Examples being:

- Daily pre-use checks
- In-house monthly/weekly checks
- Annual checks

Equipment which is outside its inspection period or requiring repair must be taken out of use. Colour coding of items helps to visually identify which equipment may be used.

The outcome of these inspections and any repairs must be recorded, and records retained.

Before use the technician must confirm the equipment is fit for purpose and being used within the limits of design and intended use.

The technician is also responsible for the day-to-day use and must quarantine equipment that is suspect or in need of repair. The following are examples of defects that will prohibit use until repair or replacement is arranged:

- Fluid leaks
- Missing or damaged locking pins
- Inoperative or damaged ratchets
- Deformed bracketry
- Fractures
- Excessive wear

Equipment that is deemed unfit must be labelled as such, removed from service, and disposed of if unrepairable.

Equipment Capabilities/Limitations

All lifting and supporting equipment will have a designed Safe Working Load (SWL) or rated capacity which must not be exceeded.

The SWL or rated capacity must be displayed on the equipment allowing instant recognition as to the design load by the user.

> Types of stands (this list is not exhaustive)

- Chassis stands
- Axle stands
- Pit stands

> Types of jacks (this list is not exhaustive)

- Bottle jacks
- Scissor lifts/jacks
- Screw jacks
- Trolley jacks
- Toe jacks
- Pit mounted commercial jacks
- Vehicle lift jacking beam
- Lift mounted commercial jacks
- Floor running pit jack
- Air bags designed for lifting vehicles

> Annex

Further guidance

BS 7980 2003+A1-2012 Vehicle lifts – Installation maintenance thorough examination and safe use – Code of practice

INDG434 Working safely under motor vehicles being repaired

L113 Safe use of lifting equipment Lifting Operations and Lifting Equipment Regulations 1998 2nd edition amdt 2018 Approved Code of Practice (LOLER)

L22 Safe use of work equipment 4th edition Provision and Use of Work Equipment Regulations 1998 Approved Code of Practice (PUWER)

HSG261 Health and safety in motor vehicle repair and associated industries 2009 amended in 2011

IRTE Wheel Chock Best Practice Guide

Management of Health and Safety at Work Regulations 1999

Notes

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Society of Operations Engineers

Society of Operations Engineers
22 Greencoat Place, London SW1P 1PR
t: +44 (0) 20 7630 1111
e: info@soe.org.uk
w: soe.org.uk

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LOGISTICS UK