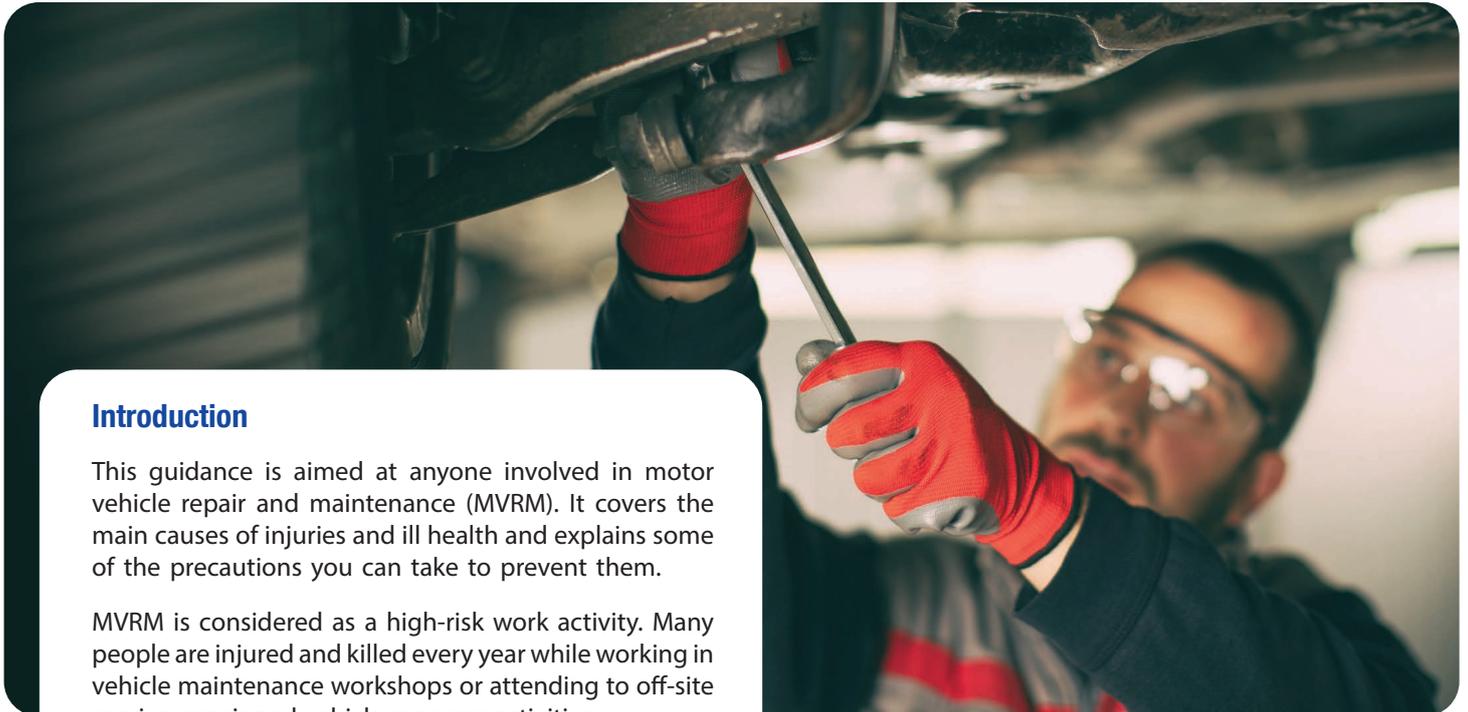


Safe Motor Vehicle Repair and Maintenance

Information Sheet

April 2021



Introduction

This guidance is aimed at anyone involved in motor vehicle repair and maintenance (MVRM). It covers the main causes of injuries and ill health and explains some of the precautions you can take to prevent them.

MVRM is considered as a high-risk work activity. Many people are injured and killed every year while working in vehicle maintenance workshops or attending to off-site service, repair and vehicle recovery activities.

The nature of the work means there is a risk of severe injury or death. Some risks are obvious, such as vehicles falling from hoists or jacks, people being hit by a passing vehicle while carrying out roadside recovery and repairs,

or tyres exploding during inflation. Other risks are less obvious such as the long-term effects of breathing dusts or fumes from fuels, solvents and paints. While there may be many risks associated with this type of work, these risks can be avoided.

Maintenance is defined as a combination of all technical, administrative and managerial actions during the life cycle of an item intended to retain it in, or restore it to, a state in which it can perform the required function¹.

MVRM activities include:

- Inspection
- Testing
- Measurement
- Replacement
- Adjustment
- Repair
- Fault detection
- Replacement of parts
- Servicing

Making sure that work vehicles are properly maintained involves:

- identifying a person(s) responsible,
- planning for the servicing and repair of vehicles,
- monitoring the condition of vehicles on a daily basis,
- vehicle users reporting any problems during use, in line with established procedures (for example vehicle fault report form),
- getting staff to carry out daily and weekly vehicle pre use checks,
- instructing, informing and training staff on maintenance arrangements for their vehicles, and
- making sure that vehicles owned by drivers themselves are also properly maintained and serviced regularly.

Why is MVRM important?

MVRM influences the safety and health of workers in two ways.

- 1 Regular maintenance correctly planned and carried out is essential to keep vehicles safe and reliable.
- 2 Maintenance has to be performed in a safe way, with appropriate protection of maintenance workers and other people present in the workplace.



¹ I.S. EN 13306:2017 Maintenance - Maintenance Terminology (NSAI)

There are two different types of MVRM:

- **Corrective** (or reactive) maintenance is carried out to restore a vehicle from a failed state to a working state (for example repair or replacement of broken components). This is also known as 'reactive maintenance' because the action is started when an unexpected failure occurs.
- **Preventive** maintenance is carried out at set intervals, or to set criteria, to reduce the chances of failure or the reduced functioning of the vehicle. In this case, actions are scheduled and planned in order to control the wear and tear that can lead to failure of a system (for example replacement, lubrication, cleaning or inspection).

Studies show that most MVRM injuries happen during corrective maintenance operations, so it is better if maintenance is planned and pre-organised as much as possible.

Maintenance activities, or the lack of them, can have serious impacts on safety and health, not only for the workers carrying out the activity, but also on others, as shown in the following examples:

- Lack of maintenance may not only shorten the lifespan of a vehicle, but can also cause incidents, for example unrepaired damage to brakes may cause a forklift accident, injuring the driver and people nearby.
- Poor quality or incomplete maintenance can cause safety problems, for example using the wrong parts for replacement or repair may result in serious injuries to other workers, as well as damage to the vehicle.
- An injury may occur during the maintenance process, for example workers performing maintenance on a vehicle could be injured if the vehicle unexpectedly moves; they may be exposed to dangerous substances; be hit or caught by a moving part, or be at risk of developing a musculoskeletal injury.

MVRM should only be carried out by a person who is trained and competent to do it.



Vehicle maintenance hazards

Workers can be exposed to a variety of hazards when carrying out maintenance on vehicles.

They can be:

- **physical** (noise, vibrations, excessive heat and cold, radiation, exposure to high voltage electricity, high physical workload),
- **chemical and biological** (welding, exposure to hazardous substances or dusts), or
- **psychosocial** (poor work organisation).

Musculoskeletal injuries are the most common type reported for MVRM workshops. These injuries result from workers handling heavy or awkward objects, heavy lifting, and working in sustained awkward postures for lengthy periods of time. Slips, trips and falls are the second highest cause of injury, usually from floors in poor condition. The changing industry, introducing electric and hybrid vehicles, presents new hazards associated with working with, and storing, electric energy.

Some examples of deaths associated with MVRM in recent years are:

- jack failure, car fell on mechanic,
- tyre fitter was struck by split rim assembly while inflating tyre,
- operator working under an unsupported tipper truck body was crushed when the hydraulic mechanism failed, and
- visitor to the workshop fell into an open inspection pit.

The process of making sure MVRM activities are safe should start at the design and planning stage, before maintenance work begins.

After MVRM operations are completed, special checks (inspections and tests) should be completed to make sure that maintenance has been properly carried out and that new risks have not been created. During the whole process, it is important that there is good maintenance management to make sure that maintenance is coordinated, scheduled and performed correctly as planned. When completed, the workplace and equipment should be left in a safe condition for continued operation.

It is essential to put in place appropriate risk assessment procedures and adequate injury prevention control measures for MVRM operations to make sure workers are kept safe.

Vehicle maintenance risk management

Risk assessment is a cornerstone of MVRM risk management. Employers, including the self-employed, must carry out a risk assessment at their place of work. A written record of that risk assessment must form part of the Safety Statement which details how health and safety is going to be managed within the business. The Safety Statement should also contain policies and clear procedures to explain how safety, health and welfare in the workplace will be managed and supported. It should detail the names or job titles of those responsible for putting it all into practice.

Risk Assessment is simply looking closely at the workplace, or your work activities, to see what could cause harm/hazards to you, your employees, and others (for example visitors, customers, suppliers, sales representatives). The most appropriate control measures to minimise the risk of injury from each hazard should then be determined and recorded. There is a broad range of health and safety issues to consider when conducting risk assessments for MVRM.

Some issues are common across the industry, such as working under vehicles, fire and explosion, noise and vibration, manual handling and ergonomics, electrical safety, and general organisation of health and safety. But MVRM also involves a lot of job specific issues. The environment in which the maintenance is being carried out must also be considered whether it be in a workshop, at the roadside or involving on-site recovery.

Injuries and ill health can be caused by short- and long-term exposure to chemical substances, dusts, fumes, fuel, oils, glues, paints and sealants, all of which are common in MVRM. Dermatitis is a common condition among MVRM workers. Symptoms can be so severe that sufferers have to leave the industry. There is also evidence to suggest that used engine oils can cause skin cancer.



New hazards are appearing all the time, such as those arising from working with electric powered vehicles.

The first step in conducting a vehicle maintenance risk assessment is **identifying all the hazards**. This can be done by:

- walking around the work areas and recording anything that may cause harm,
- talking to workers to learn from their knowledge/experience and listening to their concerns and opinions about health and safety issues,
- referring to the accident records to learn causes of previous accidents or near misses, and
- researching published material from manufacturers and suppliers, trade associations, regulatory bodies, etc. to see what recommendations they make in relation to particular MVRM activities (see suggested further information at end of document).

The second step is **completing the risk assessment**. The purpose of this step is to consider who could be harmed, how likely it is for that harm to happen and how bad would the harm be. The chance of the harm happening together with the severity of the harm will determine the amount of effort needed to try to prevent it from happening.

The third, very important, step in putting the risk assessment into practice is to **set out the control measures and what actions need to be taken**. It is necessary to record what actions, if any, are already in place to control each risk and consider whether the risk is adequately controlled or is there a need to do anything more. If new control measures are needed then it is sensible to identify and document who is responsible for putting them in place, and when they need to be completed.

It may be possible at this stage to remove hazards completely, which would remove the need for on-going controls. An example of this would be to make physical changes such as improving the layout of the workplace or replacing a skin-irritating chemical for a non-skin-irritating one.

The completed risk assessments should be discussed with employees, including supervisors and their team members, to encourage buy-in from everyone concerned. The risk assessments should be reviewed regularly to see that they are still effective. In particular, they should be reviewed whenever there are any significant changes such as new chemical products, new workers, new work equipment or work activities.

Some practical ways to control MVRM hazards:

Risk area	Risk	Suggested control measures
Use of jacks (or trolley jacks) to lift or support vehicles	Trapped workers could suffer serious or fatal crush injuries caused by the failure of jacks.	<ul style="list-style-type: none"> Scheduled routine inspection and maintenance should be carried out to make sure jacks are in good working order. Never work beneath a vehicle supported only by a jack or jacks. Use the correct jack for the load, applied to the correct jacking point, as identified by the vehicle manufacturer. Never rely on a jack as the sole support if work is to take place beneath the vehicle or if more than one axle is raised. It should be supplemented with appropriate stands, and the wheels of the vehicle still in contact with the ground should be chocked. Only use jacks on firm, level ground. Provide training in the use of jacks. Supervisor to regularly check that axle stands and chocks are being used.
Slips and trips and falls	Workers or visitors could slip/trip and fall, resulting in injury and long periods off work.	<ul style="list-style-type: none"> Keep the workshop, walkways and showroom floors in good condition, and free from tripping and slipping hazards. Workers to wear slip-resistant footwear. Keep workplace tidy – Clear tools, used items and airlines away after use. Provide non-slip floor surfaces. Clean up spillages immediately and repair flooring damage. Carry out routine inspections to make sure floors and walkways are kept in good condition.
Vehicle movements	Serious or fatal injuries to both employees and customers if struck or crushed by vehicles reversing or moving unintentionally.	<ul style="list-style-type: none"> Provide separate and safe “reverse parking” for customers. Restrict access to workshop to workers only. Provide separate marked pedestrian walkways and traffic routes so vehicles and pedestrians are kept apart. Vehicles are only ever started from the driver’s seat with both feet inside and the gear disengaged. Develop a plan of the work area – identifying parking and loading areas and directions of travel.
Electrocution	Serious or fatal injury to workers, or the risk of fire, as a result of faulty or damaged electrical equipment, particularly in wet or potentially explosive areas.	<ul style="list-style-type: none"> Make sure electrical equipment is installed and maintained correctly. Minimise the use of portable mains-voltage equipment and visually check and test it regularly. Use air-tools or cordless or low-voltage (110 v or 50 v) equipment wherever possible. Have electrical installation and equipment tested regularly by a competent person.
Vehicle lifts and lifting tables	Serious and fatal injury if a lift fails or lifted vehicle falls onto a worker	<ul style="list-style-type: none"> Vehicle lifts are thoroughly examined by a competent person every 12 months. Visual pre-use checks are carried out before beginning of each day or shift. The vehicle is braked, and chocks or end stops are used to prevent a vehicle rolling off the lift. A schedule of all lifting equipment is drawn up.

Some practical ways to control MVRM hazards: (Continued)

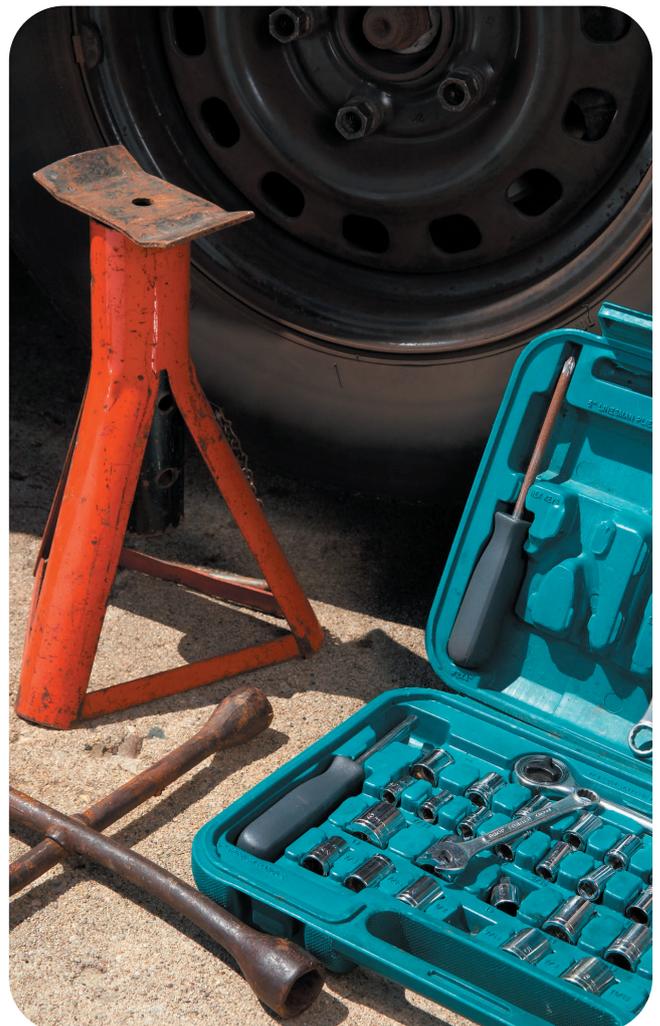
Risk area	Risk	Suggested control measures
Fire and explosion	Serious burns and fatal injury to anyone in the workshop. Property damage causing injury to workers.	<ul style="list-style-type: none"> • Store all flammable liquids in a sealed off secure area. • Use a fuel retriever/adaptor when draining petrol from tanks and lines, and the vehicle and the retriever are both earthed. • Fit flashback arresters to both the fuel and oxygen gas cylinder regulators. • Provide a secure, ventilated outside storage unit for gas cylinders.
Use of chemicals and dangerous substances	Respiratory illnesses Skin diseases Burns to skin and eyes Exposure could lead to cancer in some cases	<ul style="list-style-type: none"> • Read labels and safety data sheets and follow instructions for use. • Store chemicals and fuels safely. • Use in well ventilated areas. • Wear required personal protective equipment for eyes, skin and breathing. • Clean up spillages with spill kit. • Provide emergency equipment.

The hazards and control measures listed in the table above are **non-exhaustive samples**, but it includes some of the more common hazards in MVRM. The table above provides examples of suggested control measures to prevent injuries from typical hazards. There are many techniques and systems available, and an employer should select one that works best for them. Guidance is available from a variety of sources that may help employers fulfil their risk assessment obligations, including:

- industry and trade associations,
- suppliers' and manufacturers' advice and recommendations,
- unions,
- insurers, and
- regulatory and standards bodies.

Employers should consult any relevant material when addressing hazards and risks to help determine the best control options for their specific situation. Links to some of these sources are provided below.

Log on to <https://www.besmart.ie/> to access the HSA free online safety statement and risk assessment resource for the following business types; Car servicing, Garage, Motor vehicle repair, Panel beater, Tyre centre, Vehicle accessories installation, Vehicle body shop, Vehicle crash repair.



Further Information

- 1 Specific risk assessments on <https://www.besmart.ie/> for Car servicing, Garage, Motor vehicle repair, Panel beater, Tyre centre, Vehicle accessories installation, Vehicle body shop, Vehicle crash repair.
- 2 Health and Safety Authority Vehicle Maintenance https://www.hsa.ie/eng/Vehicles_at_Work/Transport_and_Storage/Vehicle_Maintenance/
- 3 Health and Safety Authority Chemicals e-learning <https://hsalearning.ie/mod/page/view.php?id=37>
4. Health and Safety Authority Safe Working with Diesel Engine Exhaust information sheet https://hsa.ie/eng/Publications_and_Forms/Publications/Chemical_and_Hazardous_Substances/Diesel_Exhaust_Info_Sheet.pdf
- 5 Health and Safety Authority Safety Alerts https://www.hsa.ie/eng/Safety_Alerts
- 6 Aviva Guidance on working safely with electric and hybrid vehicles <https://www.avivabroker.ie/wp-content/uploads/B267-lps-driver-electric-hybrid-vehicle-awareness.pdf>
- 7 <https://osha.europa.eu/en/tools-and-publications/publications/factsheets>
- 8 Health and safety in motor vehicle repair and associated industries – Health and Safety Executive, UK <http://www.hse.gov.uk/pubns/priced/hsg261.pdf>
- 9 Health and Safety Executive UK. Working safely under motor vehicles being repaired. <https://www.hse.gov.uk/pubns/indg434.pdf>
- 10 Health and Safety Executive UK. Reducing ill health and accidents in motor vehicle repair. <https://www.hse.gov.uk/pubns/indg356.htm>
- 11 Automotive Workshop Safety, Worksafe Victoria, Australia <https://www.worksafe.vic.gov.au/automotive>
- 12 Standard – IS EN31010:2010 Risk Management – Risk Assessment Techniques available from the National Standards Authority of Ireland.
- 12 Health and Safety Authority Manual Handling https://www.hsa.ie/eng/Workplace_Health/Manual_Handling_Display_Screen_Equipment/



Further Information and Guidance:

Visit our website at www.hsa.ie, telephone our contact centre on **1890 289 389** or email wcu@hsa.ie
Use BeSMART, our free online risk assessment tool at www.besmart.ie
Check out our range of free online courses at www.hsalearning.ie