

Shunter

Shunter Course: Articulated vehicles

The Health and Safety at Work Act requires employers to provide adequate training, instruction and supervision for employees.

This is especially required where a substantial risk has been identified. This would be the case in the role as a Shunter driver within a site. Obviously a fully qualified LGV driver would have the necessary skills to be able to perform his/her role but it could be argued that they could be lacking in the knowledge covering their responsibilities. As there is no legal requirement for drivers of LGVs driven on company premises to have a full driving licence this course would also satisfy the legal requirements under the HSAWA 74 and PUWER 98.

Shunter course content:

- Health and Safety at Work Act 1974
- Provision and Use of Work Equipment
- Regulations 1998
- Yard safety assessment
- Vehicle and Trailer checks
- Coupling and uncoupling to DSA test standards
- Safe parking of trailers
- Workplace Transport Safety to HSE standards
- Manoeuvring laden and unladen trailers
- Theory test verbal
- Reversing assessment

Our instructors have a wealth of experience in this area, they have all trained novice operators to the DVSA test standard, and they have all shunted vehicles around yards in the working environment. This helps us bring realism to the training environment.

Introduction

Every year people are killed or seriously injured, and property is damaged as a result of vehicle runaway or trailer rollaway situations. These are often the result of drivers not following safe procedures and those,

In control of sites not having suitable monitoring arrangements in place to ensure safe procedures are followed. Research conducted by the Health and Safety Laboratory (HSL) suggests many of these events go unreported.

Under health and safety legislation employers have a responsibility to provide and maintain safe systems of work to ensure the health and safety of both those at work and those who may be affected by their activities such as members of the public. They should ensure there are safe systems of work for coupling and uncoupling vehicle combinations and these are understood by those carrying out the activity. There should also be effective arrangements in place to ensure these systems are being followed. Drivers, including the self-employed, have a responsibility for both their own health and safety and that of other people who could be affected by their actions.

This document is intended to be a guide to assist employers, those who control sites where coupling and uncoupling is undertaken by users of large goods vehicles, managers, self-employed drivers and driver training bodies. It has been

developed by industry as a good practice guide with the aim of reducing the likelihood of a runaway or rollaway incident.

For the purposes of this guide the tractor unit/prime mover is referred to as a truck and the trailer unit is referred to as a trailer. In addition, a runaway is defined as a situation where a truck or truck and trailer combination moves

in an uncontrolled manner during coupling/uncoupling. A rollaway is defined as a situation where a trailer moves in an uncontrolled manner independent of the truck.

The guide focuses on the procedures for the safe coupling and uncoupling and parking of standard semi- trailers.

In addition to these procedures, the guide also contains supplementary safety guidance and advice that should be observed and a section concerning good parking practice.

Good practice coupling/uncoupling driver checklist

- Do not allow others the opportunity to take control of your vehicle, always apply the truck parking brake, stop the engine and remove the keys before leaving the cab
- Never pass, or allow others to pass, under the trailer
- Never place fingers into the fifth wheel jaw
- Wherever possible avoid coupling to a semi-trailer from any position other than straight in line as this can give rise to a situation where excessive force is required, the kingpin may miss the fifth wheel, the trailer may be pushed sideways, and damage could be caused or personal injury could occur
- Always ensure that all safety devices are engaged
- Do not release the fifth wheel with the services connected,
- Do not connect the services unless the kingpin is fully engaged in the fifth wheel jaws
- Never attempt to couple to a trailer when the kingpin is above the height of the fifth wheel
- If the trailer is against a loading dock, and the air suspension height is to be adjusted, pull the trailer forwards a short distance and adjust the height before uncoupling
- Do not attempt to uncouple a trailer unless it is equipped with landing legs
- Ensure that the truck and trailer are designed to work as a combination

- Do not attempt to pull away with the low air pressure warning illuminated or sounding. Always allow the system to become fully charged
- Ensure the parking brake on the trailer has been applied when leaving the coupled vehicle for extended periods, eg overnight

Good practice Good practice means ensuring:

- the ground is firm and level and will support both landing legs
- that, after uncoupling, you check that the landing legs are not sinking into the surface
- you uncouple while in a straight line as this will make coupling easier
- you understand that when in reverse a trailer that is jack- knifed is going nowhere; pull forward and try again
- the trailer will not cause an obstruction or hazard to other traffic
- the trailer will not pose a danger to pedestrians
- the trailer will not contravene any national or local traffic regulations
- you lower the air suspension, if fitted, when the trailer is to be left for extended periods
- the parking brake on the trailer is always applied before it is uncoupled from the truck

Things to avoid

- Using the automatic application of the brakes caused by releasing the supply airline (red) as the parking brake. This is not a fail-safe condition
- Parking trailers on soft ground
- Leaving trailers on an adverse incline, front, rear or sideways
- Creating an obstruction or parking the trailer so it overhangs any vehicle routes or carriageways
- Leaving trailers where coupling may be difficult

Maintenance and repair

Every employer must make sure that work equipment is maintained in an efficient state, in efficient working order and in good repair. This should involve carrying out inspections of vehicles and their associated equipment on a regular basis.

Inspections usually take the form of daily driver checks where the vehicle is inspected before being driven for the first time each day and regular preventive (planned) inspections based on manufacturer's guidelines.

Drivers carrying out daily checks should be trained in how to carry out these checks and they should be monitored to ensure the checks are carried out properly. Inspecting the trailer parking brake valve and any devices in the cab of the truck linked to preventing a runaway, for example an audible alarm, should form part of a driver's daily checks and any maintenance programme.

Equally important is the need for a simple reporting system. This will help to ensure any problems identified during the inspections are quickly actioned.

Coupling

- Check the parking brake on the trailer is applied

Do not walk under the trailer

- Inspect the fifth wheel and locking devices on the truck, the kingpin and rubbing plate on the trailer for any signs of damage.

- Assuming everything is in order move to the next stage.
- Should any damage be apparent do not continue but seek assistance
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- Slowly reverse the truck in a straight line towards the front of the trailer.
- Stop when the bottom of the fifth wheel ramps are level with the front of the trailer.
- Apply the truck parking brake, stop the engine, and remove the keys

Check and, if necessary, adjust the trailer coupling height relative to the fifth wheel, which is normally designed to accept the kingpin just below its parallel height.

Refer to the manufacturer's instructions for the correct procedure.

Height adjustment may be achieved by extending or retracting the trailer landing legs.

Changing the truck height, if it is equipped with air suspension, is an alternative solution.

If this process is not carried out correctly the kingpin can pass over the fifth wheel into a dangerous position behind the cab or rest on top of the fifth wheel.

- Slowly reverse the truck under the trailer until the fifth wheel jaws engage.
- At this point there are two further checks which are required to be undertaken to ensure that the fifth wheel jaws have correctly engaged
- The first check is to select a low forward gear and, with the trailer parking brake still applied, slowly pull forward and perform a 'snatch test' . Repeat the snatch test to confirm the jaws have locked.
- Apply the truck parking brake, stop the engine and remove the keys

- The second check is to carry out a visual inspection to verify that the kingpin is correctly located in the jaws and that the fifth wheel release handle is in the correct locked position.
 - Fit the security device often referred to as the 'dog clip' and/or any other safety device provided.
 - *If the security device does not fully engage, pull the release handle to disengage the jaws and slowly move truck away from the trailer then repeat the fifth wheel coupling procedure*
 - Connect the service airline (yellow) and electrical connections.
 - Connect the supply airline (red) and wait for a few seconds in case of any unexpected movement.
 - *If the trailer moves, immediately disconnect the supply airline (red) and check that the parking brake on the truck and trailer have been applied.*
- Wind up the landing legs and stow the handle.

Attach the rear number plate and ensure that any air suspension control is set to the ride position.

Release the trailer parking brake, wait a few seconds and if the vehicle starts to move immediately pull out the trailer parking brake valve.

Before use, the driver must carry out a walk around check of the combination to check that everything is in order and roadworthy.

It is also the responsibility of the driver to check that the in-cab height indicator is set correctly.

• **Uncoupling**

- Park the combination in a straight line. Apply the truck parking brake stop the engine and remove the keys
- Apply the parking brake on the trailer.

Remove the trailer number plate and place in the stowage position provided or in the cab

- Lower the landing legs until they are in contact with the ground.
- Disconnect all of the air and electrical connections.
- When disconnecting the airlines, grip the connections firmly as they may kick back when released due to air pressure in the line
- Ensure connections are placed in the dummy stowage positions provided or secure them on the catwalk in such manner that water and dirt cannot enter the connections
- Remove the security device then pull the release handle to disengage the fifth wheel jaws.
- Slowly draw the truck approximately 300mm forward so that the fifth wheel is still under the rubbing plate.
- Apply the truck parking brake
- Lower the rear axle air suspension to drop the fifth wheel away from the trailer to prevent the truck rising suddenly as the trailer weight is removed from the fifth wheel.

- Now pull clear of the trailer and stop and reset the truck air suspension to the ride position.
- If the truck has mechanical suspension, stop when the trailer is clear of the fifth wheel
- Apply the truck parking brake, stop the engine and remove the keys
- Before leaving the trailer, walk around it and check that it is in a safe condition
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Truck and trailer braking systems explained

Truck and trailer braking systems are complex. In order to avoid problems during coupling and uncoupling a basic understanding of how the various components operate is important.

It is important that drivers understand how to operate the trailer parking brake correctly.

This section explains how a typical braking system operates on a truck and trailer. It should be noted, however, that due to the variety of vehicle systems and specifications other systems may operate differently.

Air and electrical connections between truck and trailer

Modern trucks have two air lines which supply the trailer with air.

The first is the supply airline (red) and the second is the service airline (yellow).

The service airline (yellow) and supply airline (red) operate in conjunction with one another and provide additional safety functions, one of which is to ensure controlled trailer braking should the service airline fail.

The supply airline (red) has two functions.

The first is to supply air to the trailer air tanks.

The second is to control the emergency trailer brakes.

In the event of a loss of air pressure, for example if the trailer becomes detached or the supply airline is broken, the trailer emergency brakes will activate.

When the driver applies the vehicle brakes during normal driving conditions, air is supplied to the trailer through the service airline (yellow) and the trailer brakes are applied.

Trailer parking brake valve

The parking brake fitted to a trailer typically features a valve with a push/pull button. Pulling the button *out* applies the trailer parking brakes; pushing the button *in* releases the parking brakes.

The trailer parking brake valve must be applied at all times when a trailer is uncoupled from the truck.

Trailer shunt valve

The disconnection of the supply airline (red) triggers the automatic braking system. Where fitted, the trailer shunt valve can cancel the automatic emergency braking system by pushing the button in on the valve.

With the trailer parking brake valve button pushed *in* (the release position), and the shunt valve button pushed *in*, the service braking system and spring parking braking system are released.

This function allows maintenance and manoeuvring to be undertaken.

It is important to remember that the trailer is not 'braked' when manoeuvring with the shunt button pushed in and the shunt valve and trailer parking brake valve buttons must be pulled out again when the manoeuvring process is complete.

Trailer spring brake assemblies

A typical air brake assembly fitted to a trailer consists of two sections. One section provides the actuation of the service brakes when supplied with air under braking (and also the emergency braking function which is explained further below), and the other is the parking brake section which houses a large mechanical spring assembly.

Under normal driving conditions, the supply airline (red) supplies air to the spring brake section of the brake actuator assembly and compresses the parking brake spring holding off the parking brake.

When the driver applies the service brake, air enters the service brake chamber and applies the service brake.

During the uncoupling process, when the supply airline (red) is disconnected, the emergency function of the trailer braking system applies air into the service brake chamber and applies the service brake under the emergency trailer braking function.

This results in the application of the trailer brakes. However, the parking brake chamber remains charged with air and the parking brake mechanical spring remains compressed. Under this condition, the parking brake function is not activated. Only when the trailer parking brake valve button is pulled *out* into the park position and the air, which is holding off the mechanical spring brake is exhausted, will the trailer parking brake be applied correctly.

On most standard trailers, disconnecting the supply airline alone will result in the trailer brakes being applied but not the trailer parking brake.

Where fitted, trailer parking brakes must be used unless there are circumstances where the application of the brake may increase the risk of injury to those involved in coupling and uncoupling.

Although the emergency function applying the service brake will apply the trailer brakes when uncoupled, the trailer brakes will be released when the trailer is recoupled.

If the truck and trailer have not coupled correctly or the handbrake on the truck has not been applied, this will result in the uncontrolled movement (a runaway) of the truck and trailer combination when the supply airline (red) is connected.

Truck and trailer parking brakes

Parking brakes on trucks and trailers work independently of one another. It is important, therefore, that both parking brakes are applied during coupling and uncoupling.

Trailer electrical connections

The electrical connections used between trucks and trailers may include the following combinations.

- Normal lighting connector
- Supplementary lighting connector

- 7 pin connection for braking systems – ABS/EBS
- 5 pin lighting connector

Summary of key points

- Trucks and trailers have separate parking brakes
- Identify the location of the trailer parking brake valve and ensure it is applied before commencing the coupling procedure
- Both the truck and trailer parking brake must be applied correctly
- The trailer parking brake valve must always be applied to uncoupled trailers
- Disconnecting the supply airline (red) alone will NOT activate the trailer parking brake
- • If the shunt valve is used for manoeuvring purposes extreme care must be taken during any manoeuvring. The shunt valve and trailer parking brake valve must be pulled out again when the manoeuvring process is complete
- • All air lines and electrical cables must be correctly connected before moving a truck and trailer combination