

LAMANVA TRAINING CENTRE

Forward Tipping Dumper



TRAINING MANUAL

Health and Safety at Work act 1974

Employees Duties:

- Take reasonable care for **themselves** and **others** who may be affected by their actions.
- **Co-operate** with the **Employer**
- Do **not interfere** with **Health** and **Safety issues**.

Good timekeeping, being polite, being safe and doing a good job are all ways of ensuring repeat business with a client or principal contractor.

Employers Duties:

- To **Provide** and **maintain** plant that is **safe** and without risk.
- Provide a safe place of work with safe access and egress.
- To provide adequate welfare facilities.
- To provide adequate information, instruction, training and supervision

Health and Safety Legislation places the responsibility for the safety at work on everyone on the premises or site.

The levels of sanctions that can be applied (by employers and Judicial bodies) to plant operators who do not comply with, or follow legislation and regulations are **verbal warning, written warning, dismissal, prosecution**.

With the outcomes of prosecution being **case dismissal, fine** or **imprisonment**.

In general plant operators are regarded as 'safety-critical' workers which means that have Significant health & safety Consequences on themselves and others.

Provision & Use of Work Equipment Regulations 1998 (PUWER 98)

Work equipment must be suitable for the purpose for which it is used.

This applies not only to complex machinery, but simple items such as hand tools

Work equipment must be maintained in a safe condition. This will require control systems to be in place to check on the condition of work equipment and take corrective action as required.

Users must be given **information, instruction and training** as appropriate. What is appropriate depends on the risk associated with the equipment and the level of competence required to keep those risks at an acceptable level. Workplace risk assessments highlight the hazards and level of risk.

Controls and their functions must be easily identifiable. The aim is to ensure that the wrong controls are not used by mistake.

Machines must be capable of being isolated from the power source.

This may be a simple function (e.g. on/off) or a high voltage source that requires special arrangements for isolation

Machines must be stable in use; machines have been known to fall over. ROPS & FOPS, (Rolling over Protective Structures) & (Falling object Protective Structures) this is to provide **some protection** to the operator in the event of the machine **over turning** or from small falling objects.

Equipment must be capable of being maintained safely. Accidents occur during maintenance thus the risks encountered during such maintenance must be reduced.

Risk assessment

A risk assessment must be carried out before work starts by a competent person, because a hazard is a situation where there is a potential threat (or risk) to life, health, property or the environment.

The purpose of a risk assessment is to IDENTIFY and PLACE control measures on hazards. In general when starting work on a new site you will undergo a site induction which includes:- Access and egress, accident reporting, confined spaces, buried services, contamination, welfare facilities, electricity, emergency procedures, reporting structure, lifting operations, working from/at height, reporting procedures, reporting structures, restricted/prohibited areas, safety signs and signals, site layout, waste disposal, smoking, toilet, traffic routes etc.

Method Statements

The purpose of a Method Statement when on site is to document given specific instructions on how to SAFELY perform a work-related task and it is the plant operator's responsibility to COMPLY with the method statement.

Introduction to Dumpers

Dumpers are purpose built, highly manoeuvrable machines designed for transporting various materials on and about building and construction sites SAFELY and EFFICIENTLY. They work well in a variety of ground conditions ranging from paved roads to rough and muddy sites.

Dumpers are a type of machine where the skip or body is in front of the driver, whereas Dump trucks have the body behind the driver. Dumpers will therefore drive forwards into position to discharge the load. Dump trucks have to reverse into position.

Dumper capacities range from about 0.5 tonnes up to 10 tonnes classification by the manufacturer as the maximum carrying capacity of the dumper. Most dumpers are wheeled units but there are some crawler tracked dumpers available which are especially suited to working in poor site conditions.

There are three main types of dumper, General purpose skip, Rotating (Swivel) skip and high tip.

Swivel skip dumpers can be extremely useful where there is insufficient manoeuvring (confined area) room and for discharging materials into a trench on the move for

backfilling purposes, when working in a confined space be aware of fumes, noise, limited visibility, proximity hazards, and excessive manoeuvring.

High tip dumpers are very useful for tipping into skips or loading into hoppers, however the high centre of gravity can cause the machine to tip over if not on level ground.

Care should be taken as most forward tipping dumpers have articulated steering, this when steered sharply creates a crushing zone and when close to a building if you turn sharply the steering pushes the wheels out and could cause the machine to hit the building. The steering is controlled by hydraulic rams driven by an engine- driven pump, so when the engine is stopped there is no power to the steering; the articulation also allows the wheels to follow the terrain on uneven ground and provides traction.

If the dumper is not being used then switch off the engine, lower revs when driving round, keeping to the same tracks and having a well-maintained vehicle are all ways to minimise the impact on the environment.

Daily Checks

Pre start Checks: Using the operators manual

First walk round the dumper checking for any damage to the machine making sure there are no leaks or damage, making sure the tyres are at the correct pressure they are not damaged or have a deep cut in the side wall which could cause the tyre to deflate. Check that all the lights are in good condition and clean. Check that the ROPS (Roll Over Protective Structure) is in good condition with the pins and clips secured and in place.

Engine compartment check:

- Engine oil level
- Hydraulic oil level
- Coolant level
- Fuel level
- Brake fluid level
- Air filter indicator

Running Checks

Get onto the dumper and put on the safety belt and adjust seat as needed. Start the engine and let it warm up for about 2 to 5 minutes. Check that all the lights and the horn is working, check that the skip, steering, braking and movement of the dumper is in good working order, so the dumper is able to carry out its task safely and efficiently.

Safety:

When checking the oil level always wear gloves, this can prevent skin diseases and prevent contamination of oil onto operating controls and cab.

If topping up the hydraulic system make sure you have a clean can with a funnel with a filter in, clean around the filler cap so no dirt can get into the system.

If the engine is hot do not remove the radiator or expansion tank cap because the system is pressurised and could cause hot water/ steam to come out and burn the operator.

General Safety

Always use skip safety strut or support when carrying out any work under or near a raised skip.

Ensure you are trained to operate the plant & equipment, Qualifications & Certificates offer credibility, proof of skills, employment prospects and promotional prospects.

Always read the operators manual, the manual should be on the machine or easy access to it if you need to find something out. Other personnel that may need to use the manual are supervisors, planners, and maintenance staff, low loader drivers, if removed replace as soon as possible.

Always face the machine using three points of contact (two feet and one hand at all times) when climbing on or off. **Never jump.**

A hard hat on construction sites must always be worn unless you are sitting in an enclosed cab that meets the falling objects protective structure (FOBS) criteria.

Wear the seat belt if fitted as in the event of a roll over keeps the operator within the confines of the operating seat which *may* MINIMISE injury by not being flung around.

Do not carry passengers on the machine unless a seat is provided.

Be aware of people entering the working area of the machine.

Do not stay on the dumper when being loaded as the machine or material could hit you

Never leave machine unattended with the engine running.

Do not overload the skip of the dumper because this could cause the dumper to get stuck, tip over, get damaged or obscure the operator's vision.

When travelling near open trenches make sure the dumper is more than the depth of the trench away (2m trench, stay 2m away) because if not it could cause the sides of the trench to collapse.



The distance you must be away from the powerlines will be determined by the voltage of the electrical lines. This can be determined by its support, if it's on wooden posts or metal pylons. This is important because certain weather conditions electric can arc (jump).

Operations

Positioning for loading

To position a dumper to be loaded by a mechanical loader (e.g. an excavator) the operator should drive the dumper forwards towards the loader until it is in the correct position indicated by the excavator driver stop & apply the handbrake, switch off the engine and take out the keys, dismount, and stand in a safe position.

Ensure the dumper is not overloaded this is the responsibility of the dumper operator.

Stability

Possible causes of making the dumper tip over

- Driving to fast
- Turning to sharply
- Uneven load
- Overloaded
- To steep slopes or driving across slopes
- Uneven ground/ trenches, pot holes in the ground
- Soft ground

Soft, wet clay/ground

This could cause the dumper to lose grip, slide and even turn over

The dumper have raised lugs on the tyres, this is to help with grip for movement, braking and steering. If the lugs are worn this could reduce the grip for movement, braking and steering.

If the dumper is to carry a wide load, ensure the load is secured and stable, travel route checked prior to travelling and if needed get a banksman to guide you.

The dumper has the engine at the rear to act as a counterbalance when the skip of the dumper is loaded.

Most forward tipping dumpers have an articulated chassis that swivels or pivots in the centre. One pivot plane or angle (looking from the top) provides steering (articulation) and the other one looking from the front provides the dumper to keep traction on uneven ground (oscillation).

Travelling on slopes

As a general rule a dumper should travel on slopes with the heaviest part of the machine up hill.



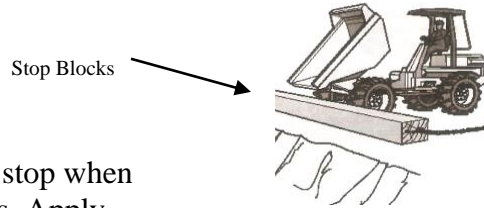
Unladen – reverse up, drive forward down



Laden – drive forwards up, reverse down

Tipping Loads

Before tipping a load into the trench/ excavation, check that the trench is clear and that no one is in the trench, check the route, what material is to go into the trench, authorised to tip and if needed a banksman. Make sure there are stop blocks secured to the ground in front of the trench, this is to stop the operator from driving the dumper into the trench and also indicates where to tip the load.



Drive dumper up to the trench slowly, stop when both front wheels touch the stop blocks. Apply handbrake and put into neutral. Operate the tip lever to tip the skip forward. Partially reverse the dumper (to clear skip). Stop apply handbrake and put into neutral before lowering the skip.

When forward tipping a load, the centre of gravity of the machine changes, the weight is transferred to the front of the skip so tip slowly on level ground (whenever possible).

Before driving away from the tipping area make sure the skip is fully down because it could make the machine tip over, hit overhead obstructions or obscure the operator vision.

Discharging loads on the move is not considered best practice as the machine can become unstable on uneven ground.

If a load is tipped downhill, this could make the machine unstable and tip forwards as well as the load running down the slope.

Operating in pedestrian areas

Before working in a pedestrianised area make sure there is an alternative route for the pedestrians with signs and barriers. Considering the machines movements, fumes and noise.

Different Materials

Operators should have an understanding of the types of material they are transporting because of the weight of different materials, if material is contaminated or if the material moves around (liquid) making the material move to one side in the skip of the dumper when going round corners.

Shut down procedures

On completion of the working day make sure the dumper is refuelled to prevent condensation building up in the tank.

- Park dumper in a safe place
- Handbrake on and in neutral
- Let engine cool down before switching off engine
- Remove key, lock door and isolate the machine
- Climb off machine (facing dumper 3 points of contact)
- Walk round the machine checking for any damage

Large dumpers have turbo charged engines and need to be run down for several minutes before switching off the engine. If this is not carried out it could damage and shorten the life of the turbo.

Do not park the dumper on pedestrian walkways, near trenches, emergency exits or on slopes

Highways

If the machine is being travelled or working on a public highway the road traffic act applies:

- UK driving licence, class B
- Aged 18 years for vehicles between 3.5 and 7.5 tonne
- Aged 21 years for machines exceeding 7.5 tonne

Loading and Unloading from a Transporter

Before loading or unloading check:

- The transporter is capable of taking the weight of the machine
- Firm, level ground for the transporter
- Safe area round the transporter (no personnel walking round)
- No overhead power lines
- Dumper is clean with an empty skip
- Ramps of the transporter are in line with the wheels of the dumper
- Banksman to guide operator on

The loading operations is the responsibility of the transporter driver but if the operator is to load the dumper on behalf of the transporter driver, they must make sure the dumper is in the agreed position on the bed of the transporter, with the handbrake on, in neutral, keys out, door locked and safety pins in.

Signals (BS7121)



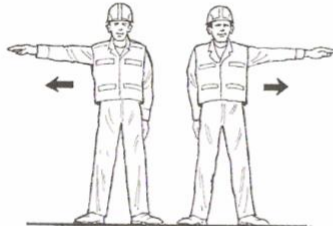
Operations start
(Follow my instructions)



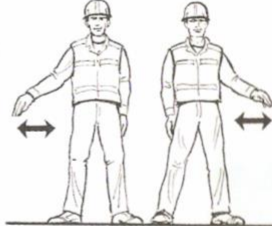
Emergency stop
Wave hands to and fro



Stop



Travel in direction indicated



Slew in direction indicated



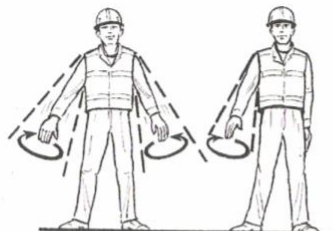
Come to me
Wave hands beckoning palms upwards



Move away from me
Wave hands pushing away palms downwards



Operations cease
or
Cease to follow my instructions



Slowly lower load or attachment



Lower load or attachment



Inch load
Clench and unclench fingers to signal 'inch the load'



Slowly raise load or attachment

Signal with one hand - the other hand on your head



Extend dipper
Wave hands beckoning



Retract dipper
Wave hands pushing away



Dipper up



Dipper down