



SKILLS BOOTCAMP IN PLANT OPERATIONS

Learner Workbook: Forward Tipping Dumper

OUR COMMITMENT TO IMPLEMENTING AN INDUSTRY LEADING OPERATED PLANT MODEL

We hope that you enjoy your training with us and that you get the maximum benefit possible out of the course that you have registered for.

Learner success is at the core of our delivery strategy. Our commitment to high quality training delivery supports the industry-wide need to develop the future generation of plant operators.

In addition to being approved by the Department for Education (DfE) to deliver the skills bootcamp programme, we are an accredited training provider, registered with the two main plant operator card schemes in the construction plant training sector, namely CPCS and NPORS.

All trainers and testers are highly experienced in their field and are registered with either of the two accreditation schemes, some are registered with both.

WHAT CAN YOU EXPECT DURING YOUR TRAINING?

You can expect the highest level of training and testing, delivered by experienced, and highly competent trainers and testers. We ensure that our people maintain their high standards through robust internal and external quality assurance measures. We provide an inclusive approach to our training delivery model to ensure our courses are accessible where possible.

For more information about the Skills Bootcamp in Plant Operations, visit our website:
www.flanneryplant.com/plant-operator-training

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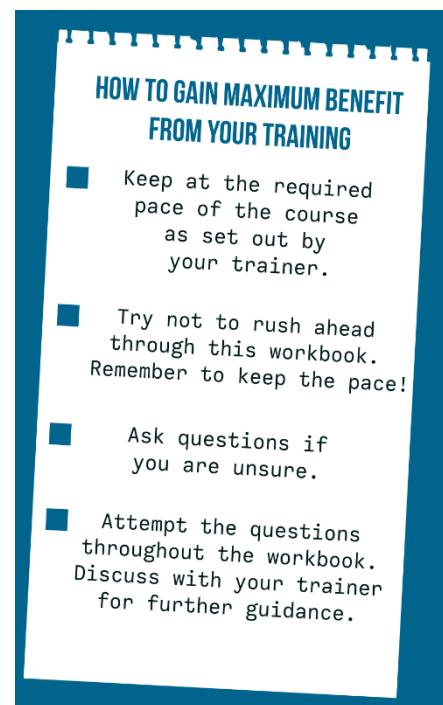
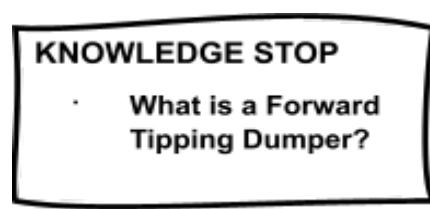
HOW TO USE THIS GUIDE

This guide has been produced to help you through the course and helps to reinforce the learning that you will receive throughout the course.

Throughout the workbook you will come across **QR codes** which you can scan using your android or IOS smartphone. These will lead you to additional content including videos and additional reading materials.

You will also find some **Notepads** and **OperateSafe** stops with some helpful reminders. To your right is a notepad with some ways to gain maximum benefit from your training.

Throughout the workbook, you will find **KNOWLEDGE STOP's**. This is your chance to put your learning to the test.



ALWAYS REMEMBER TO OperateSAFE

Throughout the workbook, you will come across OperateSAFE safety reminders. OperateSAFE is an example of a company wide Health & Safety campaign which is championed by Flannery Plant Hire. It is a campaign aimed at driving health and safety awareness and engagement across the business and industry wide. Other companies will champion their own internal and external health and safety campaigns which we encourage you to familiarize yourself with when starting at a new job.

The OperateSAFE safety reminders throughout the workbook aim to highlight key safety messages to our learners. Scan the QR code here to view the OperateSafe introduction video.

LITERACY – NUMERACY – ICT

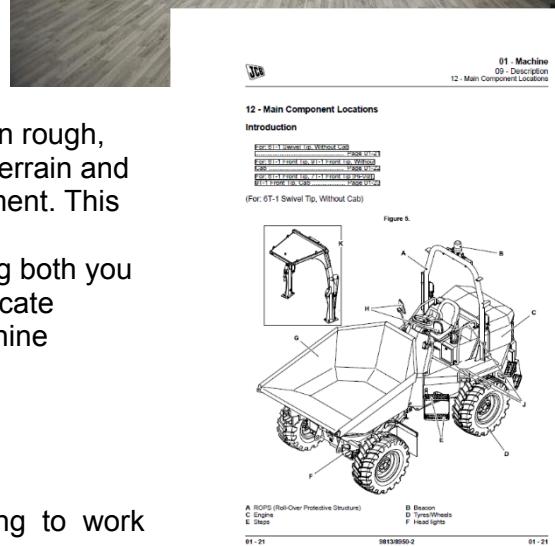
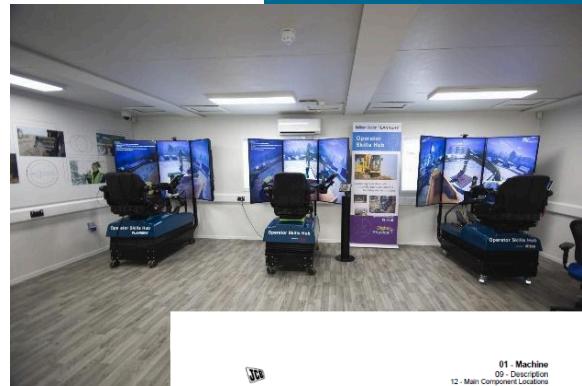
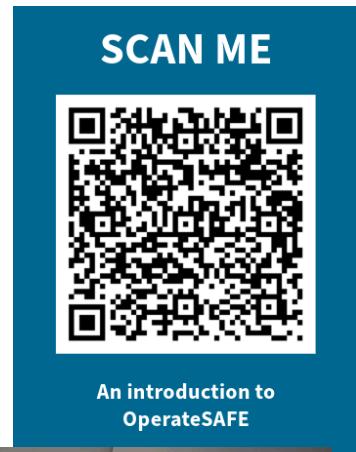
English, Mathematics and ICT are embedded into the content. You will be required to extract information from the operator manual, conduct simple calculations of bucket capacities and read digital screens in the cab of the machine or using one of our training simulators.

INTRODUCTION TO THE FORWARD TIPPING DUMPER

A Forward Tipping Dumper (FTD) is commonly used on construction sites. It is used to transport large quantities of materials across a site, usually on rough, undulating terrain. Its ability to handle a mixture of terrain and carry large loads makes it a flexible piece of equipment. This course will equip you with the knowledge, skills and confidence to operate the machine safely, protecting both you and those around you. This course offers two certificate options: operating either a tracked or wheeled machine depending on your needs.

The course objectives are as follows:

- Understand the relevant legislation relating to work activities.
- Comply with the manufacturer's instructions, using the operator's handbook and other information sources.
- Identify the hazards associated with plant or machinery operations and put the appropriate control measures in place.
- Identify the machine components and operator controls.
- Perform pre-shift and operational checks.
- Prepare the forward tipping dumper for site and road travel.



- Drive over various types of terrain.
- Manoeuvre in confined areas.
- Complete a range of loading procedures.
- Discharge loads into trenches or over edges
- Explain the procedures for loading and unloading on and off a transporter.
- Shut down machinery safely and secure it at the end of the operation.

N.B. All content delivered on this course meets the requirements set out in the National Occupational Standards for this machine type

CONSTRUCTION SITE OPERATIONS

Construction sites are busy places and present many dangers. During this course you will be taught how to act responsibly on site, how to identify **common hazards** and how to operate your machine safely and efficiently on site to reduce to as low as possible the risks to you and others.

**Always Remember to
OperateSAFE**

Always put safety first and STOP any activity that could lead to harm to yourself or others. Always seek assistance and OperateSAFE.

SCAN ME



OperateSAFE: Stop Work
and Speak Up

KNOWLEDGE STOP

- List 4 main hazards that are commonly found on a construction site.
- A dumper is classified by a manufacturer as a six-tonne dumper. What does this mean?

SAFE WORKING PRACTICES RELEVANT TO THE ROLE OF THE FORWARD TIPPING DUMPER OPERATOR

Preparing for work	Conduct all pre – operational checks in accordance with manufacturers and legislative requirements.
Travelling and maneuvering	Travel and maneuver the forward tipping dumper safely across varying terrain and inclines.
Setting up for work	Conduct all necessary safety checks at the loading and discharging areas.
Working tasks	<ul style="list-style-type: none"> • Receive loads from other machines safely. • Ensure load integrity and security. • Tip safely into excavations or over edges. • Completing work • The environmental considerations of machine use • Loading/ unloading procedures for machine transportation.
Shutting Down	Carry out all end of work and shut down procedures.

KNOWLEDGE STOP

- List 5 effects of hazards:

HEALTH AND SAFETY AT WORK ACT 1974

The Health and Safety at Work Act 1974 is designed to protect people and the environment from workplace activities. It places certain duties and responsibilities on employers, employees, self-employed, designers and manufacturers.

SCAN ME

Health and Safety Law

What you need to know



All workers have a right to work in places where risks to their health and safety are properly controlled. Health and safety is about stopping you getting hurt at work or ill through work. Your employer is responsible for health and safety, but you must help.

What employers must do for you

KNOWLEDGE STOP

- What does the Health & Safety at Work etc. Act 1974 require employers to do, specifically regarding plant?

- List the 3 main duties placed on employees under the Health and Safety at Work act 1974:



PROVISION & USE OF WORK EQUIPMENT REGULATIONS 1998 (PUWER 98)

Work equipment is any machinery, appliance, apparatus, tool or installation for use at work (whether exclusively or not). This includes equipment which employees provide for their own use at work. The scope of work equipment is therefore extremely wide.



Health and Safety Executive

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HSE > [Equipment and machinery](#) > Provision and Use of Work Equipment Regulations 1998 (PUWER)

← Equipment and machinery
Overview
Inspection of work equipment
Maintenance of work equipment
Training and competence
Mobile work equipment

Provision and Use of Work Equipment Regulations 1998 (PUWER)

These Regulations, often abbreviated to PUWER, place duties on people and companies who own, operate or have control over work equipment. PUWER also places responsibilities on businesses and organisations whose employees use work equipment, whether owned by them or not.

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 to ensure it is correctly installed and does not subsequently deteriorate
- used only by people who have received adequate information, instruction and training
- accompanied by suitable health and safety measures, such as protective devices and controls. These will normally include guarding, emergency stop devices, adequate means of isolation from sources of energy, clearly visible markings and warning devices
- used in accordance with specific requirements, for mobile work equipment and power presses

Some work equipment is subject to other health and safety legislation in addition to PUWER. For example, lifting equipment must also meet the requirements of LOLER, pressure equipment must meet the Pressure Equipment Directive, and certain mobile work equipment must meet the requirements of the MWR Directive.

Machines must be stable when in use; machines have been known to fall over. ROPS (Roll Over Protective Structures) & FOPS (Falling Object Protective Structures) must be in place to provide **some protection** to the operator in the event of the machine **overturning** 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.

ADDITIONAL LEGISLATION AND GUIDANCE:

Management of Health and Safety at Work Regulations (MHSWR)

Construction (Design and Management) Regulations (CDM)

Vibration at Work Regulations

Road Traffic Act

HSG 114 – The safe use of vehicles on construction sites

HSG 46 – Guide for small contractors

Plant Safety Group – Safe use of dumper

Control of Substances Hazardous to Health Regulations

The Control of Noise Regulations

RISK ASSESSMENTS AND METHOD STATEMENTS

Employers are required by law to protect your employees, and others, from harm.

Under the Management of Health and Safety at Work Regulations 1999, the minimum you must do is:

- Identify what could cause injury or illness in your business (hazards)
- Decide how likely it is that someone could be harmed and how seriously (the risk)

SCAN ME



RISK ASSESSMENT VIDEO

Take action to eliminate the hazard, or if this isn't possible, control the risk.

The purpose of a **Method Statement** when on site is to document given specific instructions on how to **SAFELY** perform a work-related task.

It is the plant operator's responsibility to **COMPLY** with the **Method Statement**.

HAZARDS AND RISK ASSESSMENTS

Where there is a potential threat (or risk) to life, health, property or

KNOWLEDGE STOP

- What is the purpose of a risk assessment?

SOCIAL RESPONSIBILITIES

In general plant operators are regarded as 'safety-critical' workers, which means their actions with the machine can have significant health & safety consequences for themselves and others.

It is essential that all personnel involved in the planning, supervision and carrying out of mobile plant operations are adequately trained and competent for their role.

**Always Remember to
OperateSAFE**

SITE INDUCTION

- Access and egress
- Safety signs and signals



If you are asked or told to do something that you feel or know is unsafe - or feel that the safety of others is being compromised - you must report this to your site supervisor.

SCAN ME



OperateSAFE: Inductions,
Housekeeping and
Adhering to Safety

- Accident reporting
- Emergency procedures
- Reporting structure
- PPE/RPE requirements
- Confined spaces
- Buried services
- Contamination
- Electricity

When starting work on a new site you will undergo a site induction. Familiarise yourself with some of the subject areas that will be included in a site induction.



- Traffic Routes
- Restricted/prohibited areas
- Smoking policy



As a '**safety critical**' worker, plant operators are required to:

- ✓ Only use site plant or equipment if you are trained, competent and have been authorised to do so.
- ✓ Only authorised operators should hold vehicle keys.
- ✓ You are required to work safely, efficiently and comply with the method statement.
- ✓ Be punctual and co-operate with other workers – this can contribute towards repeat business with the client or principal contractor.

Operators should also be trained in the safe operation of the specific machine that they are required to operate, which will include:

- Layout and operation of the controls.
- Stability limits.
- Daily checks and how to do them safely.

Always use the operator's manual for the machine you are operating. This includes safety information, maintenance and information on operation.

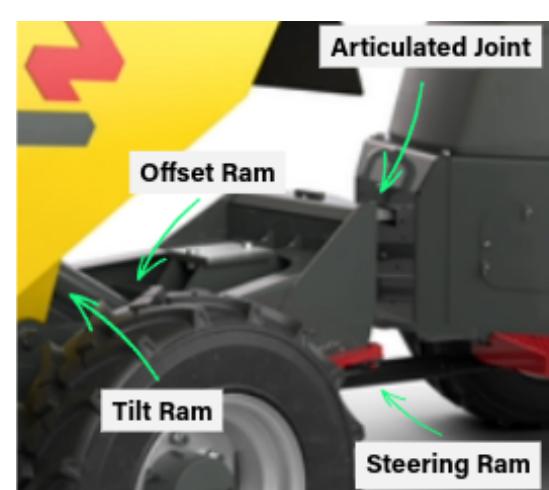
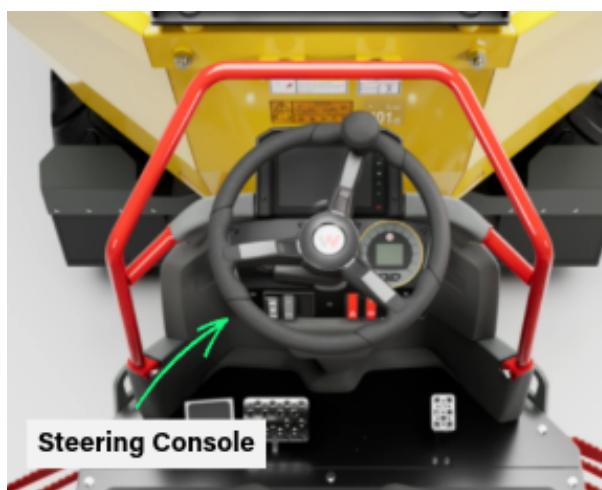
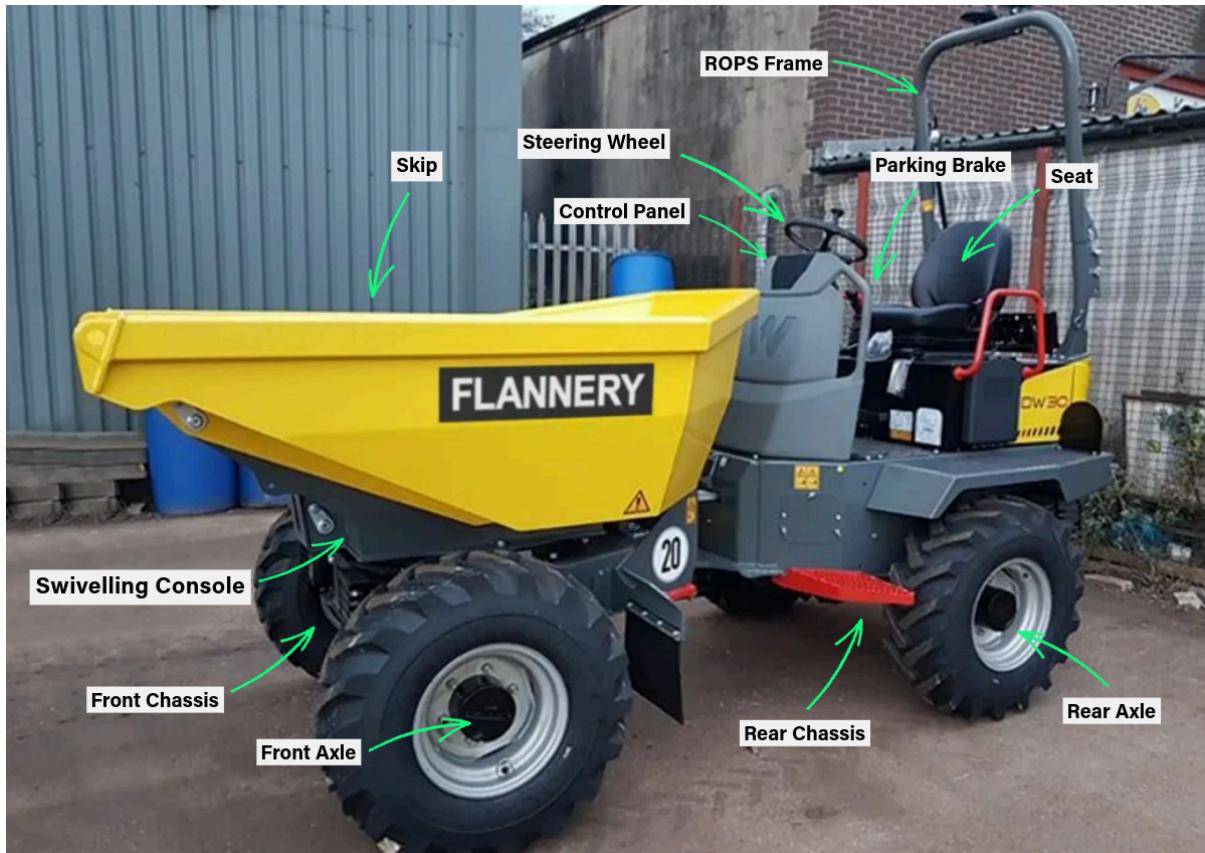
Good timekeeping, being polite, being safe and doing a good job are all ways of ensuring repeat business with a client or principle contractor.

Additional Sources of Information

- Codes of Practice
- Site plans / drawings
- Risk assessments and method statements
- COSHH Regulations
- Safety data sheets
- Load / tare sheets
- Inspection and reporting forms / procedures

KNOWLEDGE STOP ■

- List SIX typical subject areas that should be covered in a site induction.
- Why are plant operators generally regarded as safety critical workers?
- List THREE ways that a plant operator can contribute towards repeat business with the client or principal contractor.
- The function or job role of a dumper driver, when transporting materials, is to?
- How can a qualification or card benefit a plant operator?

MAJOR COMPONENTS OF A FORWARD TIPPING DUMPER

DIFFERENT TYPES OF DUMPER & SKIPS

Straight Skip Cabbed Dumper



Straight Skip Dumper



Rotating Seat (Straight Skip) Cabbed Dumper



Hi-Tip Skip Loader



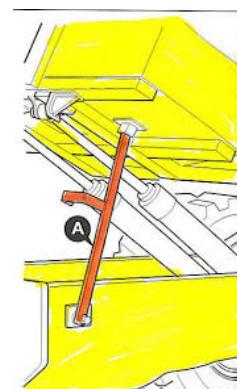
PRINCIPAL COMPONENTS OF THE MACHINE

Power Unit – Oils	Always wear gloves when checking engine oil to prevent skin disease and contamination of oil onto the operating controls and the cab.
Hydraulic System	Always ensure the filler cap area is clean and pressure in the system is released before removing the cap. Always use a clean container when filling the system to prevent contamination.
Fuel System	Where possible, plant should be filled up at the end of your shift to prevent condensation building up in the tank.
Cooling System	Cooling systems are normally pressurised and removing the cap can allow hot water to escape with the potential for causing SEVERE burns.
Roll Over Protective Structure	ROPS provides some protection to the operating position (as far as is reasonably practicable) in the event of an overturn.
Falling Object Protective Structures	Where there is the risk of people operating mobile work equipment being struck by falling material, falling object protective structures (FOPS) or a manufacturer's strengthened cab must be fitted to stop any falling material

	striking the operator. When sitting in an enclosed cab that meets FOPS criteria, a hard hat does not need to be worn.
Restraining Systems	Seat belts must be worn even when the cab door is closed. This is because in the event of a roll over (as far as reasonably practical), it will keep the operator within the confines of the operating seat which may minimise injury.
Tyres	Raised lugs on tyres provide traction / grip for moving, steering and braking in soft mud. If tyres are worn, traction and grip will be severely affected.

**Always Remember to
OperateSAFE**

Never rely solely on the hydraulics when working under raised components. Use safety props/struts. (Always refer to the manufacturer's instructions)



KNOWLEDGE STOP ■

- Can you identify at least one component you would be checking in the following images?

- If an operator has to top-up the hydraulic oil, state two precautions that ensure cleanliness of the system.

- Why should the machine be re-fuelled at the end of the day?

- Name THREE purposes of the raised lugs on tyres and what can happen to a dumper if the lugs are severely worn?

KNOWLEDGE STOP

- In what situation does a hard hat not need to be worn when operating plant machinery?
 - Why must the seat belt be worn, even with the cab door closed?
 - What is the purpose of a roll or ROPS frame?
 - Most site dumpers have the engine at the rear. State the main reason for this.

PRE-OPERATIONAL CHECKS IN ACCORDANCE WITH MANUFACTURERS AND LEGISLATIVE REQUIREMENTS

The Health and Safety at Work Act 1974 states that employees must take reasonable care of **themselves** and **others** who may be affected by their actions.

It is a requirement to check that the machine is safe to use prior to using it.

The following items must be checked prior to use:

SCAN ME



Dual View Dumper
Pre-Operational Checks

ITEMS/COMPONENTS TO BE CHECKED

Axle oil, Engine oil, Transmission oil, Hydraulic oil, Coolant level, Fuel level, Grease, Air cleaner, Brake oil, Wheel nuts, Tyre pressure, Fan belt.

RUNNING CHECKS

Foot brake, Parking brake, Steering, Electrics, Horn, Reverse alarm, Flashing beacons, Lights, Tipping lever, Raise/ lower skip, Rotate skip.



Figure 1. Check Engine Levels



Figure 2. Check the Chassis



Figure 3. Check hydraulic hoses

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Always ensure that you wear the full PPE required for the site that you are working on.

- ✓ Head protection
- ✓ Foot protection
- ✓ High-visibility clothing
- ✓ Weather-appropriate clothing
- ✓ Hearing protection
- ✓ Eye protection
- ✓ Gloves



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WEARING THE CORRECT
PPE VIDEO

**Always Remember to
OperateSAFE**

Always wear gloves when carrying out pre-use checks and maintenance on the machine.

SAFELY GET ON AND OFF THE FORWARD TIPPING DUMPER

- ✓ Face the machine using the specific steps and handrails provided.
- ✓ Maintain 3 points of contact wherever possible.
- ✓ Ensure the steps and handrails are clean and clear of debris in your daily checks.
- ✓ Ensure the ground you are stepping out onto or walking on is firm and clear of obstructions before exiting the cab.

SCAN ME



HSE WORKING AT HEIGHT



**Wearing the correct boots can eliminate injuries.
Ensure they are laced up fully and worn correctly.**



PREPARE AND CONFIGURE THE FORWARD TIPPING DUMPER FOR SITE TRAVEL

- ✓ Engine cover – secured.
- ✓ Check parking brake – on.
- ✓ Check controls are neutralised.
- ✓ Adjust seat for comfort / reach.

SCAN ME



OperateSAFE: Care,
Respect and Driving

- ✓ Adjust steering column as appropriate.
- ✓ Wear seatbelt – adjust as required.
- ✓ Foot brake – pressure.

Always Remember to
OperateSAFE

Abide by site rules
regarding speed
limits and one-way
systems



KNOWLEDGE STOP ■

- When should the machine safety strut be used?

- Why must the seatbelt be worn at all times?

- If the operator has to top-up hydraulic oil, state TWO precautions to ensure cleanliness of the system:

KNOWLEDGE STOP ■

- Using the Operator's Manual, state the cold-starting procedure for the machine:

- If checking the oil level using a dipstick, why must gloves me worn?

- Using the Operator's Manual, state the figure for tyres' operating pressure:

VISIBILITY AIDS

Always ensure that all mirrors / cameras are correctly fitted, unbroken, clean, and correctly adjusted.

Check that ALL mirrors are clean and correctly positioned to provide you with a clear, unobstructed view behind the dumper.



Figure 1. Check Mirrors.



Figure 2. Check Camera and Radar Detection System if fitted.



Figure 3. Dependent on the environment the machine will be working, always ensure the lights are in good order and correctly working.

PEDESTRIANISED AREAS

If you are setting up to work in pedestrianised areas, always take the following into consideration.

- Always ensure physical segregation of pedestrians from machines and the work
- Machine movements
- Noise
- Fumes



PEOPLE PLANT INTERFACE

- Where possible, operators must face the direction of travel.
- All visual aids must be in clean and in good working order.
- Plant and pedestrian routes should be clearly marked/defined.
- Machines must be parked and isolated if personnel approach.
- Remove the keys when the machine is left unattended.
- Follow site procedures to indicate it is safe to approach.

**Always Remember to
OperateSAFE**

If you lose visibility
of your banksman,
STOP the machine
immediately.

TRAVELLING ON A PUBLIC HIGHWAY

When travelling on the public highway, the machine must adhere to the following requirements by law:

- ✓ The dumper must be registered and taxed as a “special vehicle”
- ✓ The dumper must have vehicle insurance
- ✓ If the dumper can exceed 20 mph it must have a horn in good working condition
- ✓ If it can exceed 25 mph it must have a speedometer in good working condition
- ✓ It must have brakes that enable it to stop
- ✓ It must have lights and indicators

The operator must:

- ✓ Hold a full UK or approved car license (Category B)

- ✓ Be a minimum of 18 years old for vehicles between 3.5T and 7.5T
- ✓ Be a minimum of 21 years old for vehicles exceeding 7.5T (MAM)

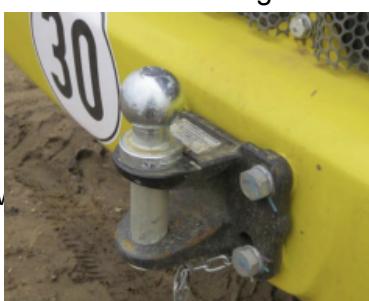
TOWING EQUIPMENT WITH A DUMPER – ENHANCED TRAINING

Some dumpers have the capability to tow equipment such as small bowsers and compressors. As dumpers are not specifically designed for towing purposes, other methods should be explored before deciding on this purpose.

Towing with a dumper requires enhanced training, in addition to the training delivered within the Skills Bootcamp programme. To assist with your knowledge and understanding of this 'safety critical' activity, below outlines some key safety information when towing with a dumper.

Should you be asked to tow equipment, you must consider the following points:

- ✓ All options have been considered and there no other more suitable machine is available.
- ✓ Towing activities are authorised by the manufacturer of the dumper to be used.
- ✓ The equipment to be towed does not exceed the specification set by the manufacturer in terms of the weight of the equipment and the downward load imposed on the towing point.
- ✓ The towing bracket is compatible with the towing eye on the equipment to be towed.
- ✓ You have been trained and are competent to carry out towing activities.
- ✓ The correct towing pin for the towing bracket is used and that the safety pin is located correctly in the towing pin.
- ✓ Towing balls come in a variety of sizes and where the size of ball differs from the towed equipment's towing hitch, there is a danger that the hitch can dislodge from the ball and the towed equipment become detached from the dumper.
- ✓ The manufacturers handbook should be consulted to ensure a full understanding of the towing restrictions placed by the manufacturer. It should be noted that manufacturers requirements differ between different models from the same manufacturer.
- ✓ The towing ability of the dumper may depend on whether the trailer is fitted with an overrun brake or is non-braked. Using an overweight non-braked trailer could cause loss of control during the braking activity.



Learner W

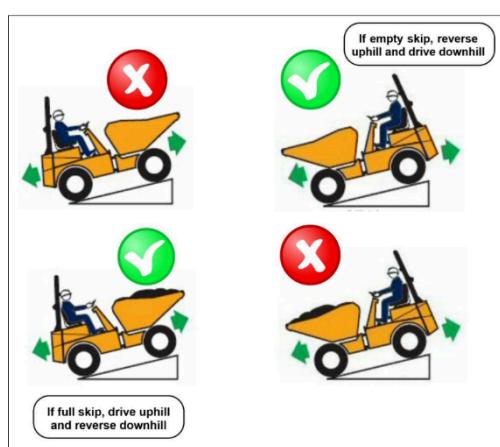


KNOWLEDGE STOP

- If the machine is being travelled or working on the public highway, including adjacent pavements and verges, the Road Traffic Act applies.
- What type of license and which class should the operator hold?
- What is the minimum age allowed?
- If setting up to work in a pedestrianised area, state 3 factors that need to be taken into account?

TRAVEL AND MANOEUVRE THE DUMPER

When travelling and manoeuvring the dumper, it is important to ensure machine stability to reduce the risk of the dumper becoming stuck or tipping over.



FACTORS THAT COULD CAUSE THE MACHINE TO BECOME STUCK OR TIP

- Travelling along slopes.
- Turning on slopes.
- Ground failure.
- Uneven loads in the skip.
- Travelling too fast on corners.
- Uneven ground.
- Driving with the skip in the air.
- Soft tyres.

**Always Remember to
OperateSAFE**

The general rule is to travel the heaviest part of the machine UPHILL. Always refer to the operators manual for correct positioning on inclines/slopes.

KNOWLEDGE STOP

- Give four reasons that may cause the dumper to tip over sideways during travel.
 - Manufacturers must give recommendations on how to travel a dumper up and down inclines. If this information is not known first hand, what is the general rule about travelling up and down slopes?
 - How is it possible that a dumper can still tip over when travelling on a gentle gradient, even if it is not overloaded or not being driven at excessive speed?
 - What may happen if the load is tipped onto a downward slope?
 - If considering to use the dumper to transport a wide load, what needs to be taken into account?

SAFETY INNOVATION IN FOCUS: ROTATING SEAT DUMPER

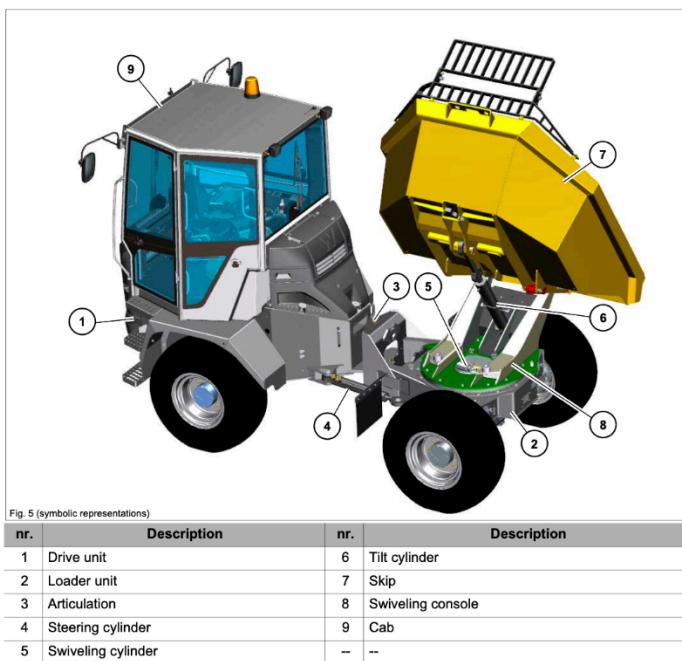
SCAN ME



Dual View Dumper
Pre-Operational Checks

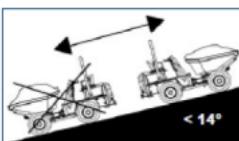
When operating a rotating seat dumper, you can change the seat and console position to allow the operator the best viewpoint while travelling, manoeuvring and operating the machine. The entire operating platform rotates 180 degrees.

You may have viewed the pre-operational checks video earlier in this workbook, but please scan the QR code to view again.



When on level/undulating ground, the operator can have the skip at the rear when travelling for better visibility.

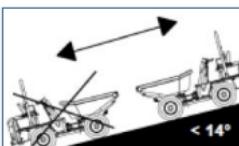
Operator must ensure they face the skip when being loaded and when tipping a load.



Machine travel on slopes with a loaded skip

Always select low travel mode prior to travelling up, down or across slopes which are within manufacturers guidelines.

When performing machine travel on slopes with a loaded skip, the heavy end of the machine must always face uphill whichever the travel direction.



Machine travel on slopes with an unloaded skip

When performing machine travel on slopes with an unloaded skip, the heavy end of the machine must always face up i.e. the engine end, whichever the travel direction.



Machine travel across a slope

Never travel across a slope with a greater angle of 14 degrees. If the machine is loaded, the load could shift causing instability.

Jun

KNOWLEDGE STOP

- When travelling on wet clay, what effect does this have on the dumper?

- What problems and hazards can soft ground cause to a loaded dumper?

- What is the meaning of this hand signal (being demonstrated by the tester)?

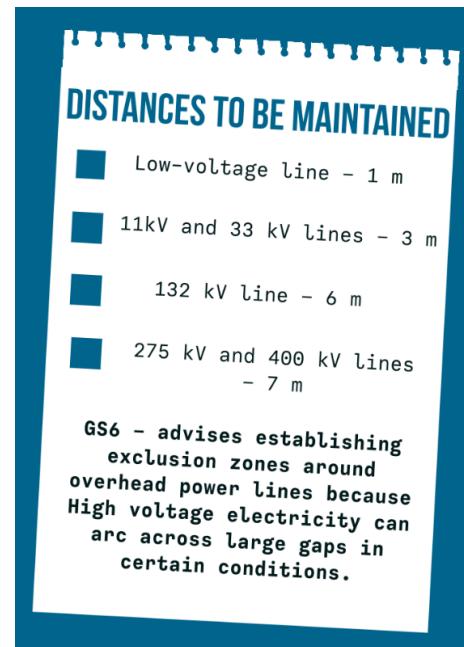
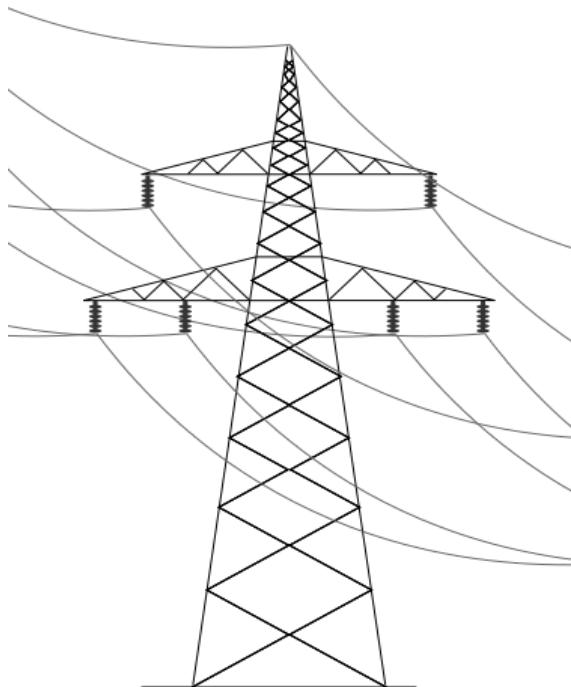
- What allows the wheels to follow the contours of the ground when travelling on uneven ground?

- How is it possible that a dumper can still tip over when travelling on a gentle gradient, even if it is not overloaded and not being driven at excessive speed?

TRAVEL AND MANOEUVRE IN AREAS OF RESTRICTED SPACE Overhead Services

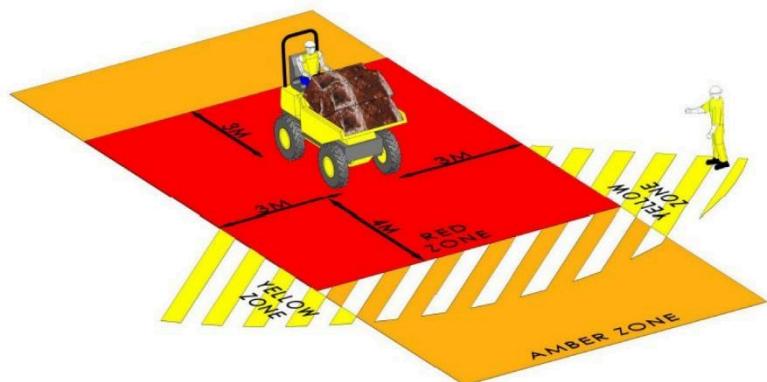
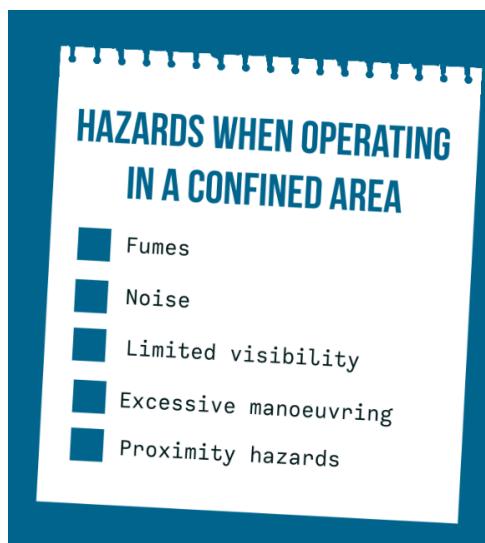
It is important that all work near to overhead lines is properly planned and managed to reduce the risk of accidents.

The Health and Safety Executive publication 'Avoiding danger from overhead power lines' (**GS6**) gives valuable information and guidance on how to safely plan and set up work near to overhead power lines.



High voltage electricity can arc across large gaps in certain conditions.

OPERATING IN CONFINED AREAS



**VISIBILITY**

Check ahead and behind machine before operation

Be aware of low-visibility areas when operating

Before operating, sound the horn to warn people in the immediate area

**CRUSH ZONE**

Stay clear of articulation area when the engine is running

Never operate the machine's controls when standing on either side of machine

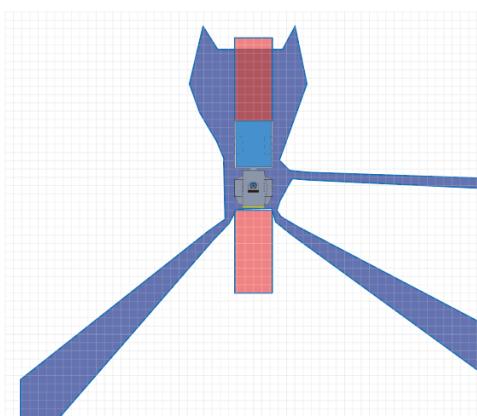
KNOWLEDGE STOP

- What determines the minimum distances that any part of plant and machinery has to be kept from over head electricity lines and explain why a distance should be kept?

SAFETY INNOVATION IN FOCUS: HUMAN DETECTION SYSTEMS

The Spillard Human Detection System identifies only human form through deep intelligent mapping. **It aims to:**

- ✓ Warn operators and pedestrians of potential risks of collision.
- ✓ Improve operators all around awareness of their surroundings.
- ✓ Detect human form whilst ignoring ever changing backgrounds.
- ✓ Reduce risk whilst improving the operator and pedestrian interaction.



The human detection system is an aid to safety only.

It must be used in addition to the site's safe system of work.



Safety Shield AI Collision Avoidance Technology

Safety Shield is an advanced AI human form recognition safety system. The system cleverly integrates AI human form recognition (HFR) with strategically placed HD cameras.

The in-cab LED visual and audio alert warns the driver of a pedestrian in proximity.

An additional module can be fitted for an external alarm and Digital Thumbs Up LED display to allow site personal to approach the machine safely and from the correct direction.

The Safety Shield system scans and detects all objects around it, but the smart technology will only alert the operator to pedestrians and vulnerable site personnel entering the danger recognition zones. By filtering out objects other than humans, the Safety Shield system reduces unnecessary distractions for the plant operator.

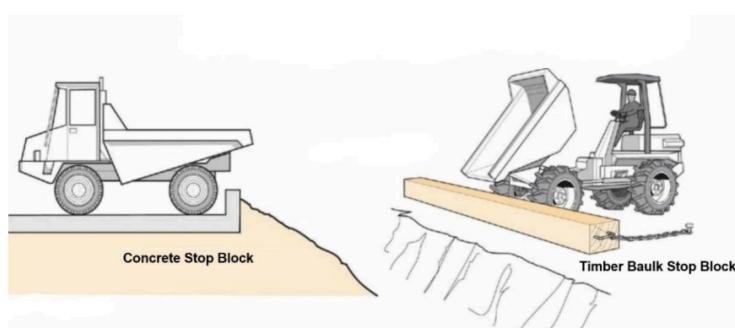


KNOWLEDGE STOP

- When operating in a confined area or space, name three hazards that can occur.
- When working in a confined area or space what danger can be present on articulated dumpers in regard to steering?

CONDUCT ALL NECESSARY SAFETY CHECKS AT THE LOADING AND DISCHARGING AREA

Prior to setting up for work, the operator must conduct safety checks at the work area to identify any potential hazards.

**ENSURE LOAD INTEGRITY/ SECURITY**

Prior to transporting the load, the following actions must be taken:

CHECKS WHEN TIPPING INTO A NEW TRENCH

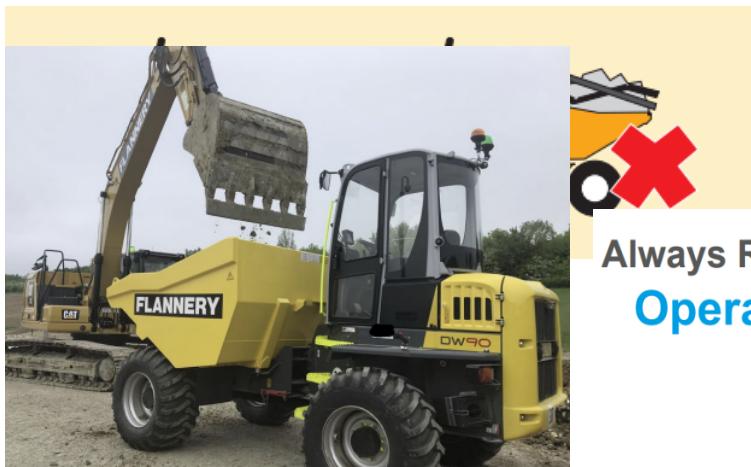
- Trench edge collapse/shoring requirements
- Check for hazards
- Authorisation to tip
- Trench is clear of people
- Access/egress routes

CHECKS BEFORE RECEIVING A LOAD

- Terrain should be level and of firm ground

- Ensure the load is secured and stable.
- Check your travel route.
- Arrange assistance for observation and visibility.
- Never overload the skip. Overloading obscures the operator's view and significantly reduces visibility. This increases the hazards associated with the people, plant interface.

It is the dumper operator responsibility to determine maximum load. Always refer to the manufacturer's guidelines.



Always Remember to
OperateSAFE

Stand in a safe place out of the working radius in clear view of the operator when being loaded.

LOADING, TRANSPORTING AND DISCHARGING DIFFERENT MATERIALS

Denser materials: may overload your tyres and may stick to the body when tipping. You may need to tip at different locations.

Semi-Fluid materials: may spill during travel.

Spoil: this material should be segregated for re-use on or off-site, where possible. It must be placed a minimum distance of the depth of the trench away from the excavation to prevent collapse.

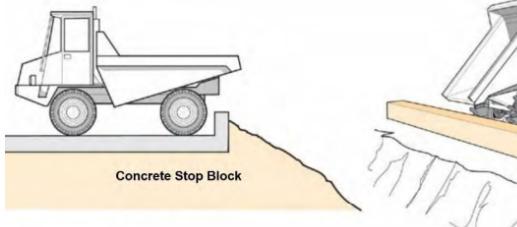
KNOWLEDGE STOP

- What is the minimum distance allowed near open trenches when travelling with a dumper and explain why?
 - Who should determine the maximum load that should be placed into the skip of the dumper?

DISCHARGING LOADS

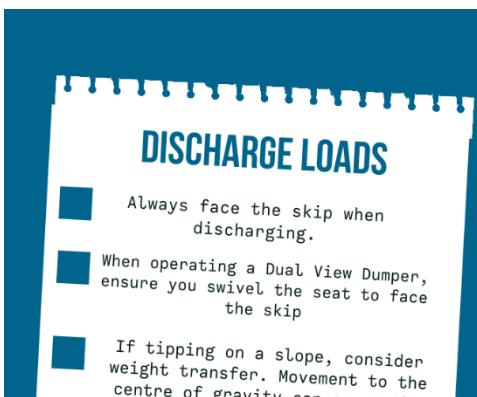
A banksman should be used if deemed necessary in the risk assessment. Cameras are there as a visual aid when approaching the tipping area / stop block.

Stop blocks are used to indicate the stopping point of the dumper and to prevent the machine from overrunning into the trench.



Always Remember to **OperateSAFE**

Ground conditions and proximity hazards including overhead obstructions should be checked prior to tipping.



When operating high tip dumpers, extra care must be taken. The high centre of gravity can cause the machine to tip over if it is not on firm level ground.

KNOWLEDGE STOP

- State **TWO** requirements of using a stop block or earth bank (berm) at a trench discharging point:

- Give **TWO** reasons why a dumper operator should have an understanding of the type of spoil being transported:

- Operators should lower the skip fully before driving away, particularly on swivel skips. Give **TWO** consequences if this is not carried out?

- Why do high tip dumpers need particular care when tipping?

- Name **THREE** problems that could occur if the skip is overloaded with a dense/compacted material:

KNOWLEDGE STOP

- The operator is asked to tip material into a new trench. State **FIVE** different requirements that must be considered or implemented before tipping commences?

- When forward tipping a load, the centre of gravity of the machine changes.
 - What effect does this have on the dumper?

 - State **TWO** actions to avoid accidents.

- Discharging loads whilst moving is not considered best practice. Why would this be?

- Whenever possible, who should decide the position of the dumper when being loaded?

- Give two reasons for using a swivel skip dumper over a conventional forward tipping skip?

ENVIRONMENTAL CONSIDERATIONS OF MACHINE USE

The main types of pollution associated with construction operations are:

- Air pollution
- Water pollution
- Noise pollution

There are various pollution prevention strategies that can be used.

Operators can minimise their effect on the environment by using the machine efficiently:

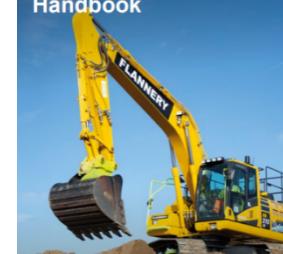
- Lower engine speeds where possible.
- Ensure there is no spillage of fluids.
- Keep the machine well maintained.
- Ensure prior planning of the work task.

SCAN ME



FLANNERY.

Fuel Saver
Handbook



KNOWLEDGE STOP

- **Name three ways in which an operator can minimise their impact on the environment whilst using the machine:**

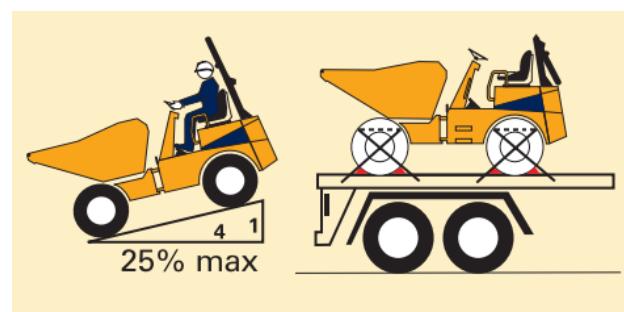
LOADING/ UNLOADING PROCEDURES FOR MACHINE TRANSPORTATION

The transporter driver is responsible for loading operations. The following checks should be made before loading commences:

- ✓ Ground support
- ✓ Ramp condition
- ✓ Overhead and other hazards
- ✓ Positioning on trailer
- ✓ Direction of travel

The following process should be followed when loading the transporter:

- ✓ Remove any dirt or debris from the trailer.
- ✓ Check parking brake.
- ✓ Check trailer bodywork for signs of damage.
- ✓ Position loading ramps securely on the transporter.
- ✓ Stop the engine and secure the machine.
- ✓ Chock wheels to prevent movement.
- ✓ Engage chassis locking bar.
- ✓ Secure to the trailer.
- ✓ Ensure legal load (height/weight of trailer)



Exclusion zone

Always ensure an exclusion zone is in place prior to commencing the loading activity. In areas of no space restrictions, the exclusion zone must:

- Always be clear of personnel.
- Should have a minimum clearance of at least the height of the highest point of the machine.
- Sites with space restrictions will require a risk assessment and driver briefing of the site-specific measures and procedures (e.g. motorways with restricted space).

**Always Remember to
OperateSAFE**

Where possible, use three points of contact to access and egress the machine and/or the transporter bed. Ensure you use the steps/ handrails provided.

KNOWLEDGE STOP

- If the operator has loaded the machine onto a transporter / trailer on behalf of a driver, what checks must be carried out before they leave the cab?

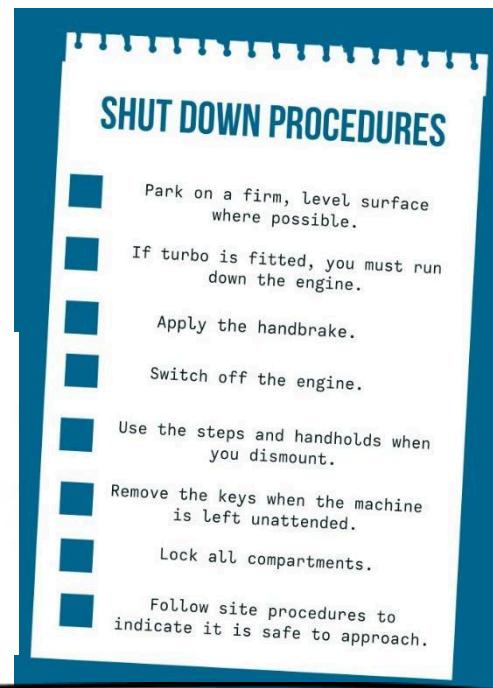
- The operator has been asked to drive the machine onto a transporter / trailer.
- Who is responsible for the loading operation?

- State four actions that the operator must consider before loading commences.

END OF WORK AND SHUT DOWN PROCEDURES

When parking the machine at the end of the work period, you must follow the full shut down procedure.

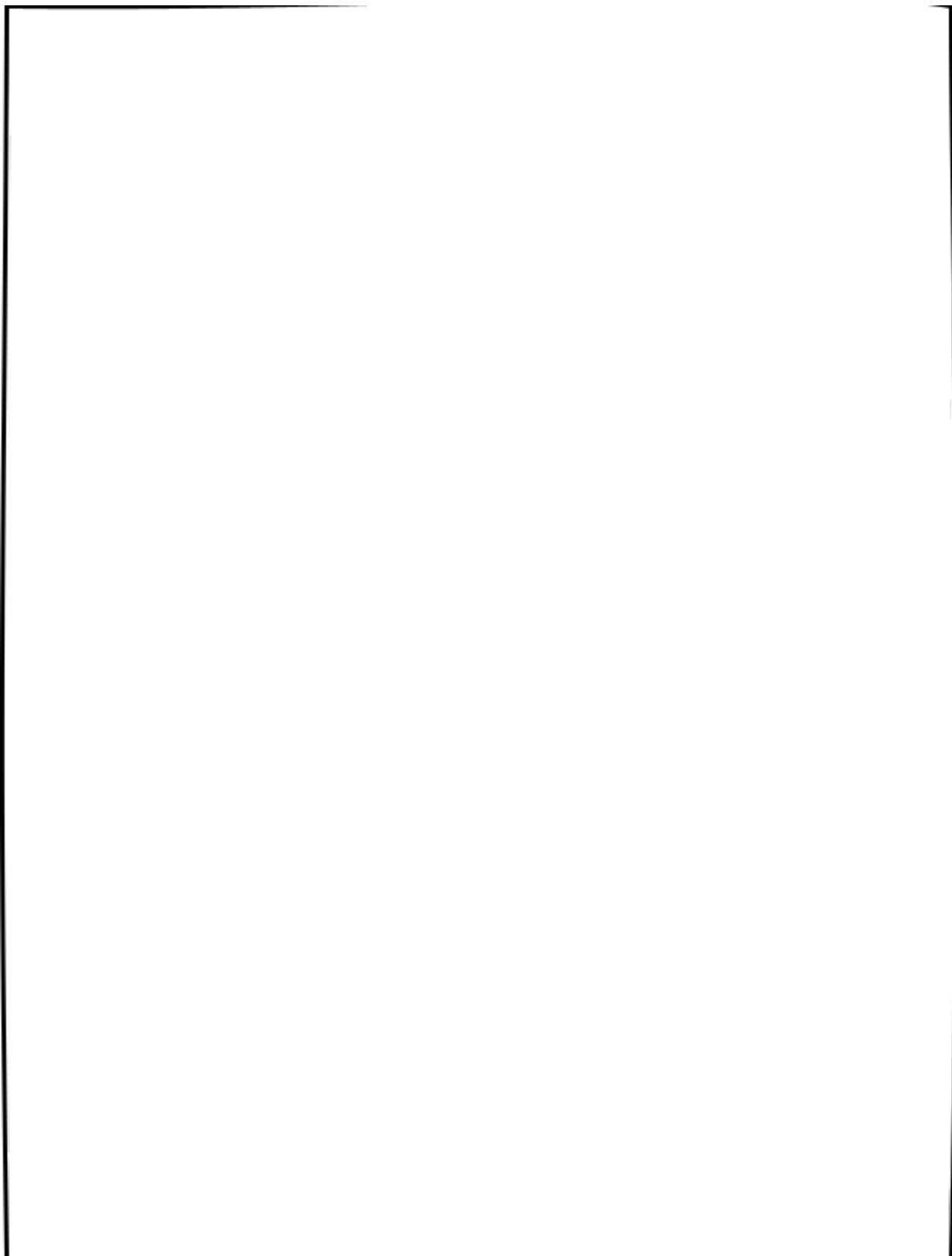
Consider where you park your machine. **DO NOT** park your machine on site roads, pedestrian routes, soft/wet/steep ground, blocking access / egress routes from buildings.



KNOWLEDGE STOP

- Where should the operator manual for the machine be kept and why?
- Apart from the operator, who else may need to use the machine's operator manual?
- Larger dumpers use a turbo-charge engine.
 - What is the normal procedure before switching off the machine?

Additional Notes



GLOSSARY OF TERMS

TERM	DEFINITION
Forward Tipping Dumper	A construction machine designed to carry and unload loose material by tipping its skip forward over the front wheels.
Access	To be able to get to a place.
Actuating	Cause (a machine or device) to operate.
Articulated	Having two or more sections connected by a flexible joint.
Backfilling	The process of filling in excavated areas with transported material.
Banksman	A person who guides the machine operator during movement, especially in confined spaces and when reversing.
Beacon	A flashing safety light mounted on the ROPS/top of cab to alert others when the machine is in operation.
Blind Spots	Areas around the dumper not visible to the operator, requiring caution.
Boom	The main arm attached to a 360's body that supports the dipper and bucket.
Brake Test	A routine check to ensure the dumper's braking system is functioning correctly and safely before operation, typically performed at the start of a shift.
Bucket	The attachment on a 360 used for digging, grading, trenching or loading duties.
Cabbed Dumper	Dumper fitted with an enclosed operator cab, providing protection from weather and site conditions.
Cab / Operator's Cab	The compartment where the operator sits to control the machine, often equipped with joysticks and pedals.
Centre of Gravity	Balance point of a load.
Chassis	The main framework of the machine to which all components are mounted.
Check Valves	Valve monitoring pressure of the system.
Collapse	The sudden failure of the sides or walls of an excavation, causing soil or materials to cave in.
Consequences	The effect, result, or outcome of something occurring earlier
Contour	To change the shape of a surface, making some parts higher and some parts lower
Counterbalance	A weight that balances another weight.
Crush Zone	An area where a person could be crushed between moving parts of machinery or between a moving part and a stationary object.
Cut and Fill	A process involving the removal (cut) and redistribution (fill) of earth to level ground.
Deadman	The Deadman lever is a safety control mechanism on a machine that must be placed in the isolated (neutral or safe) position to disable machine movement before anyone approaches the machine.
Differential Lock	A feature that locks the drive axles for better traction on slippery or uneven terrain.
Discharging	The process of unloading material from the skip.
Edge Protection	A safety system or stop block installed at the edge of elevated work areas to prevent people, materials, or equipment from falling.
Egress	To be able to leave a place.
Exclusion Zone	A designated area where access is restricted due to potential hazards, such as heavy machinery, or dangerous operations.
Expansion Tank	Prevents the system from becoming over-pressurised as the coolant heats up and expands.
F.O.P.S.	Falling Object Protective Structure - a safety feature built into the cab or canopy of the machine designed to protect the operator from falling objects, such as rocks, debris, or materials from above.

Front Axle	Supports the front wheels, often provides steering capability, and transmits drive power depending on the dumper's drivetrain.
GPS	Helps ensure precise digging by providing real-time location data, allowing operators to excavate to the correct depth and dimensions without manual measuring.
Gradients	Slopes.
Human Form Recognition (HFR)	Technology used to detect the presence of people around the machine.
Hydraulics	The system of pressurised fluid used to power and control the movement of the machine's key components.
Hydraulic Rams	Cylinders that lift the skip to tip and discharge material.
Inclines	Slopes, gradient.
Isolation Procedure	Locking out the machine to prevent accidental start-up during maintenance or inspection.
Laden Skip	The dumper's skip when it is fully loaded with material ready for transport or unloading.
Load Capacity	The maximum weight of material the dumper is designed and rated to carry safely in its dump body.
Loading	Filling the skip with soil, rubble, or other materials, usually by a loader or excavator.
Loading Area/Zone	The designated area where excavators or loaders load material into the FTD.
Load Integrity	The condition in which a load remains stable, secure, and contained during transport, ensuring it does not shift, spill, or exceed the limits of the vehicle.
Load Limits	Maintaining balance when tipping, especially on slopes or uneven ground.
Load Security	Ensuring that material is safely contained within the body and not overloaded.
Hauling	Transporting material (e.g., soil, aggregates, spoil) from a loading area to a tipping area.
Manoeuvre	To move or control the machine. This involves adjusting the machine's direction, speed, or position for tasks.
Material Handling	Moving bulk materials, like soil, gravel, or sand, from one place to another.
Muck Shifting	The process of moving large volumes of earth or spoil from one area of a site to another.
Oscillating	To move repeatedly from side to side or up and down between two points.
Overloaded	The machine carries more weight than its maximum safe payload, risking damage and unsafe operation.
People, Plant Interface	The interaction between workers (people) and machinery (plant).
Pressurised	If a container, etc. is pressurised, the air pressure inside it is higher than the air pressure outside it.
Rear Axle	Located at the back of the vehicle, the rear axle supports the rear wheels, carries part of the load's weight, and provides drive power to help propel the dumper across the site.
Red Zone	Area around the machine that is high-risk.
Restraining Systems	Seat belt.
Reversing Alarm	A loud alert sound to warn others when the machine is reversing.
Risk Assessment	The process of identifying hazards in the workplace.
R.O.P.S.	Rollover Protective Structure – a safety feature in cabs to protect the operator in case of a rollover.
Rotating Seat Dumper	A type of forward tipping dumper where the operator's seat and controls can rotate.
Safety Critical	Actions with the machine can have significant health & safety consequences.

Safety Strut / Prop	A strong rod, usually made from metal that helps support raised components (i.e. skip/ booms)
Skip/ Bucket	The container that holds the load; tips forward to discharge material.
Shoring	To make a trench stronger by supporting it
Slew / Slewing	The rotation of the upper structure (cab and boom) of an excavator on its undercarriage.
Spoil	Waste material such as soil or rubble excavated from the ground and transported by FTD.
Spoil Removal	Removing excavated material (soil, rocks, etc.) from the site.
Straight Skip Dumper	type of forward tipping dumper with a fixed, non-rotating skip that tips forward to unload material directly in front of the vehicle.
Stockpiling	Depositing material in designated piles for later use or removal.
Stop Blocks	Concrete barriers or blocks used to prevent vehicle access.
Sub-base	A layer of material placed on top of the ground to provide a stable foundation.
Swing Radius	The area around an excavator that the upper structure can reach when rotating.
Swivel Skip Dumper	A forward tipping dumper with a skip that can rotate, allowing the operator to tip material to the side for easier unloading in tight or uneven spaces.
Telematics	Remote monitoring systems used for tracking machine performance, location, and maintenance needs.
Tipping	Unloading material by tipping the skip forward over the front wheels.
Tipping Area/Zone	The area where the dump body is raised to unload material.
Tipping Stability	The safe practice of tipping only on level, compacted ground to avoid overturning.
Towing	The act of pulling or hauling another vehicle, trailer, or equipment using the dumper, usually by attaching a tow bar or hitch.
Terrain	The physical characteristics and surface conditions of the ground, including its slope, texture, hardness, and obstacles, which affect how machinery and workers move and operate.
Traction	Grip.
Traffic Management Plan	A site-specific layout that controls plant movement to prevent collisions.
Transmission	The system that transfers engine power to the wheels.
Trenches	Narrow, deep excavations made in the ground, typically used for laying pipes, cables, drainage systems, or foundations.
Undercarriage	Includes the wheels, axles, suspension, frame, and related components that support the machine, provide stability, and enable it to move and carry loads safely across site.
Unladen Skip	The dumper's skip when it is empty and not carrying any load.
Visibility Aids	Mirrors, cameras, or alarms to assist the operator's awareness of surroundings.