A23

Skid Steer Loaders

General safety information for technical test

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Health and Safety at Work Act 1974 –

Designed to protect people and the environment from work

place activities. It places certain duties and responsibilities on employers, employees, self-employed people, designers and manufactures.

Employers Responsibilities - must ensure workplaces under their control are safe and free from hazards. Ensure the safety of employees, self-employed, visitors, trespassers and the general public who could be affected by the work. Everything they provide for use, tools, plant and equipment must be fit for purpose, safe to use and the personnel trained to use it

Employees Responsibilities- must take care of themselves and others who may be affected by their acts or omissions. Co-operate with their employer. Do not tamper with or interfere with or misuse anything provided for safety

Failure to Comply with Legislation- could result in loss of you job and all the financial implications that can bring but it could also result in prosecution. The severity of the breach of legislation and any accidents or incidents related will dictate what type of court proceedings you could face. If you have fulfilled your legal requirements and can provide proof of this in court, then you would likely be found Not Guilty but if you were found guilty you could face a prison sentence or a substantial fine

To fully understand the above Act specific training and guidance is required

Method Statement- detailed description of how to carry out a job safely and efficiently. All involved in the work must be briefed on its contents. Workers must follow the Method statement unless they fell it is not suitable then they should stop and report it and have the method statement amended. Method Statement must only be amended by competent people

Risk Assessment- is a legal requirement before work starts. It is a detailed assessment of the risk involved in doing and job and provides information on how to reduce the risk level down to an acceptable level.

Hazards - this is anything which can cause harm to people plant or equipment.

- **Excavations or Trenches or Edges–** risk of collapse. The minimum distance to keep away from open excavations is at least the depth of the trench i.e. if its 2m deep you stay 2 m back

- **Sideways Rollovers Can Happen-** When the Excavator is driven across steep slope, driving too close to excavations or edges, working or lifting cross track, overloading, lifting full loading buckets at full reach

- **Working at Height-** any place you can fall from and be injured is considered working at height. The top of a mound, climbing into or out of a machine. Standing by the edge of an excavation
- **Slopes-** wherever possible the weight always faces uphill i.e. empty dumper skips face downhill and loaded
  skips face uphill. Extreme care should be taken if working across a slope. Avoid turning on slopes if possible

- **Overhead Cables-** the minimum distance to be maintained form overhead cables mounted on wooden poles is 9m from the greatest reach of the machine and 15m from cables on metal pylons. Electricity can arc or jump a gap.

- **Confined Spaces-** anywhere there is restriction on operating area can be considered a confined space. There is a greater risk of accident or damage. The minimum distance which should be maintained between a fixed obstacle and the machine is 600mm (this is deemed to be the smallest distance a person can go through without being injured). If this distance can't be maintained, then the area should be fenced off and signs erected. Fumes, dust, noise, lack of visibility and insufficient room to manoeuvre are all hazards associated with confined areas

- **Plant Operations –** are regarded as "Safety Critical Operations" because of the potential risk of an accident. Plant Operators can cause harm to themselves or other people if they carry out an unsafe act.
- **Pedestrian Areas-** care should be taken when operating in pedestrian areas. A safe route for pedestrians should be provided with suitable signage and lighting. Enough room for material storage and vehicle movements is required. Noise, dust and fume levels should be reduced where possible. Required permits, method statements and risk assessments should be in place.

LOLER - Lifting Operations and Lifting Equipment Regs

This is an amendment to a European regulation. It deals with all aspects of lifting and has specific requirements including.

- Trained people and competent people doing the job
- Plant and equipment tested and certified
- Work planed and supervised
- **SWL** Clearly marked on all equipment
- **Thorough Examination** All plant used for lifting must be examined and certified by a competent person. If the plant is used for lifting personnel, then it must be tested every 6 months if it is not used for lifting personnel it is every 12 months. The purpose of the Thorough Examination is to check for structural damage as well as defective operation

Lifting Accessories- Must be suitable for the job, be tested and certified, be in good condition.

Lift Plan Is a detailed description of how tons carry out a lift. An Appointed person produces the Lift plan, a lift supervisor implements the plan and supervises the job

Contract Lift With a contract lift the crane company provide the lift plan, the equipment, the personnel and the insurance. They are in control of every aspect of the lift and assume responsibility for the lift

LOLER Register Operators should complete the LOLER register weekly. Pre-use inspections should be carried out as per the Manufactures instructions. Recorded in the daily/weekly inspection sheet and any defects recorded

To fully understand LOLER specific training and guidance is required

PUWER – Provision And Use Of Work Equipment Regs

This is an amendment to a European regulation. It deals with the use of plant and equipment and has specific requirements including

- **Restraint Systems-** seat belts must be worn at all times to prevent injury in the event of the vehicle overturning
- **ROPS (Roll over Protection Structure) -**prevent injury in the event of the vehicle overturning
- **FOPS- (Falling Object Protection Structure)** prevents injury from falling debris**.** If fitted to a vehicle then you do not need to wear the hard hat inside
- **Training and Instruction-** you must receive adequate instruction and training on any equipment before you can operate it
- **Fit for Purpose-** work equipment must be fit for purpose and safe to use
- **Information- Operators Manuals** and other information relating to the safe use of equipment must be with the equipment. This is to allow operators to check and gain necessary information

To fully understand PUWER specific training and guidance is required

Environmental issues-

- **Refuelling-** should only be done in a designated area. Clean containers and funnels should be used. Any spillage should be cleared up using suitable equipment. Waste should be disposed of in designated bins.

- **Condensation-** the machine should be refuelled at the end of the shift to prevent condensation building up in the tank as the machine cools down
- **Reducing Environmental Damage** Operate safely, operate efficiently. Tip materials in designated places, don't mix materials, switch off when not in use, don't overfill when refuelling, check tyre pressures, report leaks or damage, clear up spillage, dispose of waste in designated bins. Follow method statements and COSHH assessments
- **Designated Routes-** should be adhered too. This will avoid damaging unspoilt ground, or completed work, or unnecessary contact will other plant or people
- Skid Steers are heavy plant with low ground clearance and could get stuck or overturn if taken off the designated route

Types of Machines and Attachments -

Wheeled or tracked models available the wheeled version is more popular in this country. Versatile machine machines which can be used with a variety of different attachments and in different applications

Steering- Skid steers have ridged chassis, Steering is provided by hydraulic oil pumped to the final drives, the drive on each side of the machine is separate and by slowing down the speed on one side and increasing the speed to the other side the machine can be steered. This type of steering known as skid steer allows the machine to turn 360º on the spot this is achieved by having the wheels on one side of the machine in forward travel and the other side in reverse travel. This makes the machine very manoeuvrable, but can be difficult to operate without practice and experience

Standard bucket-general purpose loading. Bucket sizes are calculated in volume by cubic meters or yards

Rock Bucket- Quarry work, hard wearing

Toe-tip buckets- loading high vehicles provide extra height

Fork Attachments- Increase the length of the machine and can make it harder to manoeuvre you must know the weight of the load and the load centre to ensure it can be lifted safely load centre is the distance from the heel of the fork to the centre of gravity of the load

Pre-Use Inspections.

- Plant should be checked according to the manufacture's specifications.
- The checks should be recorded in the defect book or daily check sheet.
- Any defects should be reported
- Suitable PPE should be worn when carrying out the prestart checks to
- prevent skin disease and contaminating the controls
- Engine oil, Hydraulic oil, Transmission oil, Coolant, Brake fluid,
- Tyres and the condition of the skid steer loader should be checked

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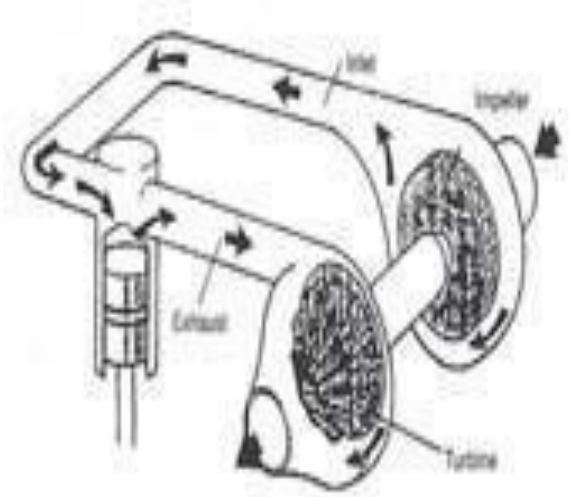
Checks will vary depending on make and model always read the operator's manual

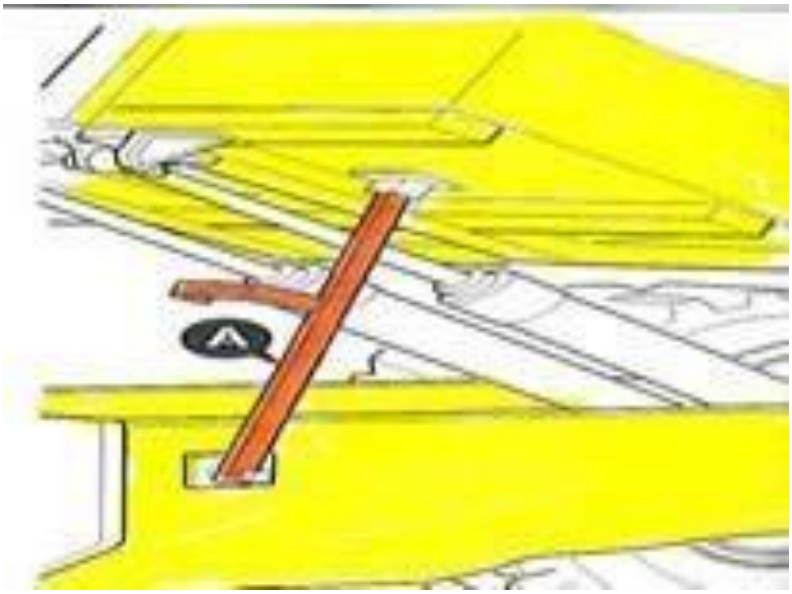
- If topping up with oil always do so in the designated area, use clean funnels and jugs or containers and clean around filler cap to prevent dirt entering the system
- Most Skid Steers are fitted with a radiator to keep the engine cool. This is a pressurized system which pumps water around the engine keeping temperature down. Do not open a hot radiator or filler cap as the hot liquid inside will be released under pressure and could scald or burn

- Some engines are fitted with turbochargers- Exhaust gases from the engine drive a turbine at very high speed. The turbine is connected to an impeller which's forces air under pressure into the induction manifold. This increases the efficiency of the engine. The turbo can run for a considerable time after the engine has stopped. The turbo is lubricated from the engine lubrication system. It is important to let the engine idle for a minimum of one to two minutes before switching off otherwise the turbo could suffer a loss of oil and seize up. (See operators manual for exact procedure)



Turbocharger

- If operator maintenance or servicing requires the operator to work beneath the raised attachment, then the loader arm safety strut must be used to prevent the attachment falling down and crushing the operator



- **Mirrors-** it is essential to maintain good all-round observation when operating the Skid Steer. To assist some machines are fitted with a variety of mirrors, they must be adjusted properly, secure, clean and free from damage

- **Cameras-** most large construction plant are fitted with reversing cameras to increase the field of vision; they provide vision in areas not covered by the mirrors and can also be fitted with volume allowing the operator to hear warning instructions. The disadvantage of cameras they can be hit when reversing, get dirty, and are affected by the glare of the sun

Quick Coupler Systems- (Quick Hitch) – are designed to allow the fast and efficient changing of attachments. Although they improve performance and efficiency, they have been involved in many serious and fatal accidents in recent years. The systems themselves are safe to use but if not used properly or not maintained properly they will fail and this unfortunately tend to have severe consequences. Couplers can be fitted to Excavators, Shovels, Forklifts, Skid steers and other plant. The Quick couplers fall into 3 main categories

- **Manual-** no hydraulic system fitted, and it is activated by hand. Locking devices to prevent accidental release is almost always a safety pin and clip. Safety Pin must be fitted, and it is the operator's responsibility to ensure it is. (This type is the most common on skid steers)

- **Semi-Automatic** – the functions of the coupler are activated from the cab i.e., hydraulic ram opens and releases the attachment and is then closed to secure a new attachment. Locking device is manually activated at the coupler and is mostly a safety pin and clip but can vary according to manufactures. The Operator is responsible for ensuring the attachment is secure on the machine and the locking device Activated. This type of Hitch is no longer supplied and fitted to new machines in this country, but is still widely used on older machines

- **Automatic** – All functions are carried out from the cab including the secondary locking systems it is the operator's responsibility to ensure it is used correctly as per the manufactures instructions
- **Pre use inspection of the Hitch-**

1. Check for any sign of damage to the coupler
2. Any cracks or wear which might reduce the strength
3. Check for signs of oil leaks
4. Remove any build-up of material which might be hiding defects or damage
5. Ensure locking device is activated or in the correct position
6. Correct size and weight of attachments are used
7. Check for excessive play which will allow too much movement of the attachment and may make it difficult to use efficiently or safely
8. The Coupler is tested and certified

Plant Stability

Travelling or operating the machine affects the stability.

Overloading the machine, travelling across slopes, carrying uneven loads, turning at speed, poor tyre pressure, too close to excavations can all lead to instability and possible overturning.

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Never travel the machine without an attachment fitted as the machine is less stable and could tip backwards

• Travelling on soft ground

Care should be taken when travelling on wet or soft ground as the machine may sink or tip over

- **Centre of gravity-** is the point of balance of a load or of the machine. The higher a load is lifted the higher the centre of gravity of the machine goes. This can affect the stability of the machine. As the load moves forward (i.e. as a Tele-handler booms out or a Skid Steer raises the loader arms) the centre of gravity moves forward this could cause the machine to tip up if the machine is over loaded or not operated on suitable ground.

- **Tyres-** tyre condition can affect stability. The lugs or tread on a tyre provide grip assist steering and help with breaking. Worn or bald tyres can cause skidding or sliding, make it difficult to steer and are more susceptible to puncture. A damaged tyre could burst which would result in a loss of control and a possible accident

Loading the bucket -

- Always approach the load squarely to ensure a full bucket and an even load, which will maintain the shovels stability and increase efficiency
- Avoid wheel spin as this causes excessive tyre wear and reduces efficiency, many shovels are fitted with limited slip axels to help reduce wheel spin

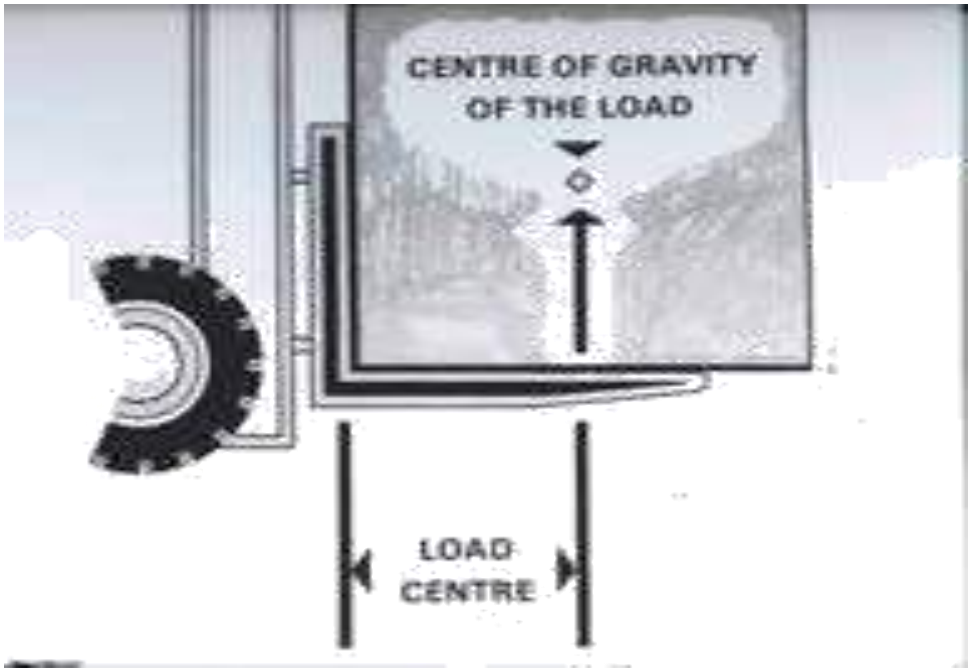
Always drag down high faces to prevent dangerous overhangs forming • To ensure a full bucket when loading lift the shovel slowly as you push in then crowd the bucket

What you need to know about the load-

The weight of the Load to prevent overloading
Factors which affect the weight of the load- Shape and size, Type of material and density, Wet or Dry (water can add up to 25% to the weight of a load, Hollow or Solid, Full or Empty, Moving parts or liquid Load which could a change of weight distribution during a lift

Gross weight- is the weight of the load plus packaging, the pallet,
any lifting accessories used in the list

- Is the material contaminated- ensuring you wear correct PPE
- Type of material- ensuring you handle it correctly
- Is it liquid- might slosh around when moving and affect stability?
- Is it sharp edged- spillage might cause tyre damage
- Loose or dusty might require eye protection or respiratory protection
- Centre of gravity of the load, the point of balance of the load



The Load Centre- is the distance between the Heel of the forks and the centre of the load

Travelling with a load -

- Check all around the Skid Steer is clear
- Ensure the seat belt is worn **(Seat belt** will secure operator to the seat and reduce potential injury in the event of overturning and the safety bar is in place
- Engage gear
- Sound horn to warn others in area
- Look all around to ensure its clear then release handbrake and move off
- Travel at a speed suitable for the load and the conditions
- Never operate overloaded
- Travel with the load at the correct height (low and fully crowded)
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- Take care when travelling on slopes (see next section for Guidance)
- Ensure route is clear and free from personnel, plant, overhead cables and obstructions, uneven ground and excavations or trenches
- **Overloading** can affect your vision, cause spillage, tyre damage, can cause overturning, put strain on the Telescopic Handlers hydraulic when lifting, and cause structural damage

Operating on a slope -

- **The heavy end should always be up the hill to maintain stability**

Empty Buckets always face DOWNHILL and loaded Buckets always face UPHILL

- Avoid driving across a slope as there is an increased risk of overturning
- Avoid landing loads downhill- the centre of gravity moves forward as the load is extended and this could cause the Forklift to tip

- Take care when discharging materials down a slope as the material could start to roll and become a hazard. If the material is sticky and fails to come out of the bucket the increased centre of gravity along with the slope could cause the machine to tip forwards

Checks before Loading and unloading Vehicles

- Vehicle is on level solid ground
- Vehicle is secure, handbrake
- Vehicle is capable of taking the weight
- Lorry bed is in good condition and wide enough to take the load

- The working area is Large enough to manoeuvre in and free from overhead obstructions
- No pedestrians or other traffic
- Access to stockpiles is clear
- The area is well lit for night work
- No potholes etc

Loading the Dump Truck or other rear tipping vehicles

- **Position the shovel bucket where you require the Vehicle and allow the vehicle to reverse** underneath

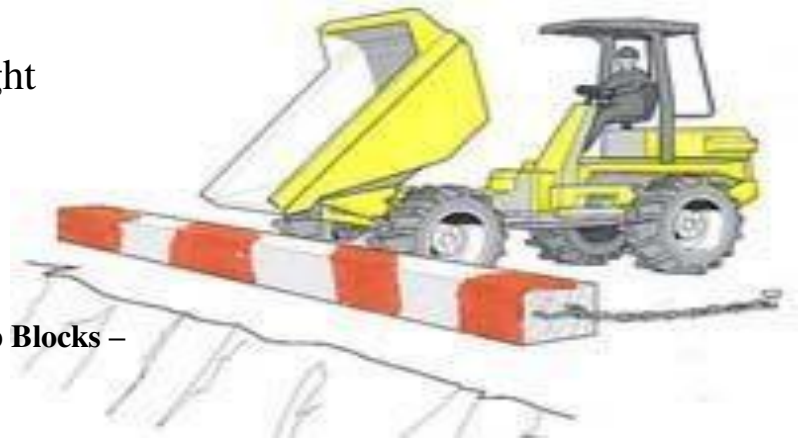
- **Sound Horn to indicate vehicle is in the correct position**
- **Never load over cab**
- **Do not overload the Dump Truck**
- **Ensure the Dump truck/vehicle driver stay inside the cab during loading**
- **Always clear up any spillage as you go**
- **The Dump Truck/vehicle should be positioned 45º to 60º to the stockpile**
- **Care must be taken when doing high tipping if the machine is not fitted with self levelling as the material will be tipped backwards out of the bucket and into the cab as the loader arm reach full height**

Discharging the Load into a Trench –

Make sure tipping area is firm and level.

Always use stop blocks or bund

Right



- **Stop Blocks –**

- provide a physical barrier to help prevent the dumper rolling into the trench when tipping.

The also help the operator to see where the edge of the excavation is

Wrong

Always use stop blocks or earth
beam banks when discharging materials into the trench

- Use a banks man if available.
- Use low gear when approaching the tipping point
- Handbrake on and out of gear
- Ensure there is no one in the trench
- Ensure any services are propped and secure
- Ensure the side of the trench can support the Loading Shovel •
- Ensure it is the correct material
- Tip slowly.
- Lower body bucket to the travel position before pulling away.

Discharging the Load into a Bin or Hopper

- Make sure tipping area is firm and level.
- Ensure it is the correct material
- Use low gear when approaching the tipping point

- Handbrake on and out of gear
- Tip slowly and do not over fill the Bins.
- Maintain good observation during the loading operation
- Always clear up any spillage
- Avoid cross contamination of the materials especially in batching plants etc.
- Lower body bucket to the travel position before pulling away

Stockpiling materials and forming Ramps

- Compact the stockpile as it is formed

  Keep a clear ramp and clear any spillage

  Form a beam at the top to prevent overrun

- The Ramp should be wide enough to allow safe travel,
- firm and compacted, and the angle of the ramp must be,
- suitable for the machine used- (see operators manual)
- Keep the bucket low when discharging material to reduce dust levels

Parking The Loading Skid steer -

- Park on level ground
- Do not block entrances or exits
- Do not park on soft or wet ground
- Do not block pedestrian routes
- Do not leave on stockpiles or close to trenches
- Handbrake on and out of gear
- Lower Attachment to ground
- Allow engine to idle for 1-2 minutes before switching off to allow turbo to slow down. Failure to do this could damage the turbo
- Release hydraulic pressure
- Remove key and isolate to prevent unauthorized use

Travelling the machine on the Public Highway

- Machine must be clean
- Taxed and insured
- Tyres, brakes and lights (lights set in travel position) meeting road legal standards
- Number plate
- Forks set in the travel position

- Machine must be set in two-wheel steer
- Mirrors set and clean
- Operator must hold the correct Full UK Driving license category B, and be over 18 for Loading Shovels up to 7.5 t and be over 21 for Loading Shovels over 7.5 t
- <u>Carriage of Loads-</u> if the loading shovel is used to transport a load down the public highway then the operation becomes “carriage of good” and the forklift becomes a goods carrying vehicle and requires the relevant insurance and taxation

Transporting the machine -

- The transporter driver is responsible for the loading operations
- A level area with sufficient room to manoeuvre should be selected
- No overhead obstructions
- The machine should be clean
- The transporter should be suitable and in good condition
- The ramps should be adjusted to suit the machine
- The operator's manual should be consulted to find the loading procedures
- A banks man should be used
- The area should be free of people and other plant