Eurotrac

T13 WHEEL LOADER
OPERATION MANUAL

Eurotrac

P. de Heus en Zonen Greup B.V.
Stougjesdijk 153
3271 KB Mijnsheerenland
The Netherlands
Tel: +31 (0) 18 66 12 333
E-mail: info@eurotrac.nl

FOREWORD

These operating instructions describe compliance with technical safety regulations, provide operating and specialist staff with the knowledge necessary for safe and hazardless handling, describe servicing and care.

If necessary, the operating instructions should be supplemented by the user/operator with environmental protection instructions and regulations and national accident prevention regulations. The operating instructions belong in the wheel loader at all times. The operating instructions are not a workshop manual and not maintenance instructions. This must be carried out by qualified personnel.

The CE sign declares that the machine is manufactured in conformity with valid EC directives.

1. BASIC INFORMATION

All specifications are with reference to Central European operating conditions and describe their standard functions. Figures may include non-standard and unlisted/unavailable products.
The description, figures, weights and specifications are non-binding and correspond to the status on the date of printing.
Because of the continual development process, we reserve the right to make changes in the design, optics, equipment and technology.
If you need special functions or special designs or attachments, please do not hesitate to contact us. We are at your service for advice and compliance with the framework conditions.
We cannot rule out deviations from figures or dimensions, calculation errors, printing errors or incompleteness in this manual, despite due diligence. We therefore assume no responsibility for the accuracy and completeness of our information. We guarantee the perfect functionality of our products within the context of our general terms and conditions. We do not assume any further guarantees over and above this.
Any liability over and above that in our general terms and conditions is ruled out.

Explanation of the symbols used:

	Note (important general information)
	Danger (possible accident and injury hazard)
	Caution (warnings about possible technical damage)
	Environmental information

The owner is responsible for insurance protection and must clarify whether this included in public liability or whether an extra liability insurance must be acquired.

Notes on using the instructions

- Read these instructions carefully before commissioning.
- Observe all safety instructions.
- Comply with the laws of the employers' liability insurance association (VGB).
- Adhere to the regulations and laws applicable at the site.
- The operating instructions must be available in a clean and tidy condition on the wheel loader.

Different or more extensive use of the wheel loader, for example:

- use as a work platform for lifting or transporting people.
- use for lifting or transporting loads without the equipment intended for this purpose.
- use for towing loads after improper troubleshooting/repair.
- use following a significant modification of the wheel loader, is not intended use.

2. GENERAL SAFETY INSTRUCTIONS

WARNING

Accident hazard. The wheel loaders may only be used with operating permits compliant with road traffic regulations on suitable public areas.

NOTE

Please observe all safety instructions - in particular organizational safety instructions and safety instructions for personnel selection and qualifications are fundamental duties.

- Observe the safety regulations.
- Adhere to the inspection instructions and the operating instructions.
- Only use the wheel loader and the associated attachments as intended and in perfect technical condition.
- Adhere to the allowable operating loads.
- Observe the applicable regulations of the relevant professional association

2.1 Organizational measures

The following safety instructions are intended for the wheel loader's user or operator:

- The operating instructions should always be kept nearby.
- Always observe generally applicable legal and other binding regulations on road traffic, compulsory insurance, environmental protection and accident prevention.
- This applies in particular with regard to the maximum design speed and the allowable gross weight.
- When handling substances hazardous to health, protective clothing must be worn.
- The authorized personnel or the users of the wheel loader must have read the operating instructions, especially section 1. "BASIC INFORMATION", before starting work. This is especially the case for occasional staff. (e.g. servicing)
- Please observe all safety and hazard warnings on the wheel loader and in the operating instructions.
- All safety and hazard warnings on the machine must be completely maintained in a legible condition.
- In the case of safety-relevant modifications to the wheel loader or its operating responses, the wheel loader must be shut down immediately and the fault eliminated.
- No modifications, attachments or conversions to the wheel loader, which impair its safety, may be made without permission from the manufacturer. This also applies to the installation and adjustment of safety equipment and valves, as well as to welding on load-bearing parts.
- Replacement parts, operating resources and ancillary materials must comply with the technical requirements specified by the manufacturer. This is always the case for original spare parts.
- The hydraulic hoses must be replaced at the specified intervals, even if no safety-relevant defects can be identified.
- Deadlines for recurring tests/inspections must be observed.
- The location and operation of fire extinguishers must be made known.
- The operator is solely responsible for requirements and obligations arising from accident prevention regulations, environmental regulations, maximum design speed, the allowable gross weight and the dimensions of the wheel loader, and which do not impact the nature of the wheel loader.

2.2 Personnel selection and qualifications/fundamental duties

- Work on or with the wheel loader may only be carried out by reliable personnel. Observe the minimum allowable age.
- Only use trained and instructed personnel to work with the wheel loader. Staff responsibility for operation, set-up, servicing and repair must be clearly defined. Ensure that only authorized personnel work on the wheel loader.
- The operator must specify the machine driver's responsibilities, including with regard to traffic regulations, and allow the driver to refuse illegal instructions from third parties.
- Personnel still under instruction, guidance or general training may only work with the wheel loader under the permanent supervision of an experienced person.
- Work on the chassis, brake and steering system may only be carried out by trained specialist personnel.
- Work on the machine's electrical systems may only be performed by trained electricians or personnel instructed and supervised by a trained electrician in accordance with regulations.
- Work on hydraulic devices may only be performed by trained personnel with special knowledge and experience of hydraulic engineering.

2.3 Safety instructions for certain phases of operation

The safety instructions are aimed at all personnel deployed to work with and on the wheel loader.

2.3.1 Safety instructions for standard mode

- Refrain from any actions prejudicial to safety.
- Familiarize yourself with the work environment at the deployment site before starting work.
- Take measures to ensure the wheel loader is operated only in a safe and functional operating condition.
- Operate the wheel loader only if all protective and safety devices, e.g. trip-operated safety devices, soundproofing, extractors are in place and serviceable.
- Check the wheel loader for visible external defects at least daily.
- If any changes have occurred (including operating responses), the wheel loader must be immediately shut down and secured and the defects immediately rectified. The same applies to malfunctions.
- Only start and operate the wheel loader from the driver's seat.
- Observe that warning indicators are in accordance with the operating instructions during switching on and off operations.
- Before starting the engine, ensure that nobody is in the wheel loader's danger zone.
- Before starting work/driving, check that the brakes, steering, signaling and lighting equipment are functional.
- Always check that accessories are safely stowed before driving the wheel loader.
- In case of poor visibility and darkness, always switch on the lights.
- When passing through underpasses, gates, tunnels, overhead lines, etc., always ensure that you have sufficient height and width clearance, as well as keeping a sufficient safety distance.
- Always keep sufficient distance to (construction) pits, embankments and the edges of heaped materials.
- Refrain from any kind of operation that affects the stability of the wheel loader. This also includes the duty of information disclosure on the allowable ultimate loads of the corresponding wheel loader attachments. (Ultimate load/allowable operating load are indicated on the type plate)
- Do not cross slopes transversely; attachments and cargo must always be kept close to the ground, especially when going downhill.
- Always adjust the driving speed to suit the conditions on downhill gradients. Never reduce speed on the gradient, but always before the gradient.
- On downhill or uphill slopes, the load must be located on the uphill side.

- When leaving the wheel loader, always secure it against unintentional rolling and unauthorized use. Turn off the engine, apply the handbrake, lower the attachments, remove the key and place the wheel chock in front of the wheels.

2.3.2 Safety instructions for service mode

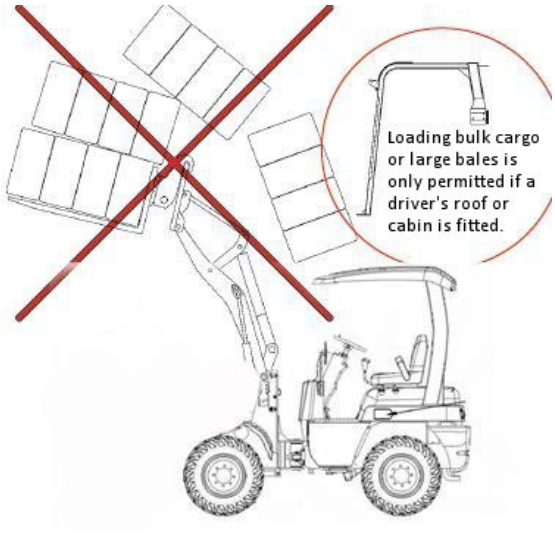
These safety instructions are with reference to special duties in the context of the use of the wheel loader and maintenance activities – as well as troubleshooting during workflow or work relating to the disposal of ancillary materials and operating resources.

- The adjustment, servicing and inspection tasks and deadlines specified in the operating instructions, including information on replacing parts or components, must be observed.
- Adjustment, servicing and inspection tasks, as well as parts replacement, may only be carried out by qualified personnel.
- The operating personnel must be informed before beginning special duties and maintenance works.
- When performing any work related to the operation, conversion or adjustment of the wheel loader and its safety-related equipment, ensure that the switching on and off procedures are carried out in accordance with the operating instructions.
- When carrying out any work relating to servicing, maintenance and repair, observe the operating instructions for maintenance work and the specified deadlines.
- If the wheel loader is completely switched off during servicing and maintenance work, the following must be observed (see 7. "SECURING THE WHEEL LOADER"):
  - Secure the wheel loader against unexpected restarting by removing the ignition key.
  - Attach a warning sign that the wheel loader is being worked on.
  - Only carry out servicing and maintenance work when the wheel loader is parked on a level and solid surface and secured against rolling away and jackknifing.
  - If maintenance work can only be carried out with the attachments raised (= lifting frame), provide a suitable safety support.
- Individual parts and larger assemblies must be carefully attached to lifting equipment and secured during replacement. Only use suitable lifting gear in perfect technical condition and load handling equipment with sufficient load capacity. Nobody may stand or work beneath suspended loads.
- Only experienced personnel may order loads to be lifted and instruct crane operators. The instructor must be within sight of the operator or have voice contact with him.
- When working above head height, designated or other safety-oriented climbing aids and work platforms must be used.
- Do not use machine parts as climbing assistance. Keep all handles, steps, railings, pedestals, platforms and ladders free of dirt, snow and ice.
- The entire wheel loader, in particular connections and unions, must be cleaned of oil, fuel or maintenance products at the beginning of the servicing and maintenance work. Use fiber-free cleaning cloths and no aggressive cleaning agents.
- Before cleaning the wheel loader with water or steam jet (high-pressure cleaner) or other cleaning agents, protect all openings into which no water, steam or cleaning agents may penetrate for safety and functional reasons by covering/taping. Electrical components, the engine's combustion air inlet and outlet openings, and tank openings are particularly vulnerable.
- Screw connections loosened during servicing and maintenance work, and especially oil or fuel lines, must be tightened again prior to recommissioning. Check all lines and unions for tightness and good seating during servicing and maintenance work.
- If safety equipment needs to be removed during set-up, servicing or repair, reassembly and inspection of the safety equipment must be carried out immediately after the work is completed.
- Repairs to protective structures may only be carried out by authorized specialist personnel. If in doubt, protective structures must always be completely renewed.
- Ensure that operating and ancillary materials and replaced parts are disposed of safely without harm to the environment.

2.4 Safety instructions for special hazard types

2.4.1 Transporting general cargo

WARNING



Danger of accident due to falling objects.
Never transport several large bales or boxes at the same time.
Loading large bales or general cargo using wheel loaders without the driver's roof or cabin is prohibited.
Falling objects, large bales or toppling bale stacks can cause serious or lethal injuries.

2.4.2 Electrical energy

- Check the wheel loader's electrical equipment regularly. Defects such as loose plug-in connections or charred cables must be rectified immediately.
- Turn off the wheel loader immediately in case of faults in the electrical system.
- Use only original fuses with the specified amperage.
- Keep the wheel loader sufficiently far away from electrical overhead lines or other electrical cables carrying more than 50 volts. Danger to life. Inform yourself about required safe distances.
- After touching high-voltage lines:
  - do not leave the wheel loader.
  - Drive the wheel loader out of the danger zone.
  - Warn outsiders against approaching and touching the machine.
  - Have the voltage switched off.
  - Leave the wheel loader only when the contacted and damaged cable is safely de-energized.

2.4.3 Gas, dust, vapors, smoke

- The wheel loader may only be operated in sufficiently ventilated rooms due to the diesel engine exhaust fumes. Ensure you have adequate ventilation.
- Comply with the regulations applicable at the respective deployment location.
- Only carry out welding, torch cutting and grinding work if this has been expressly approved. Ensure there is no fire or explosion hazard. Ensure adequate ventilation before welding, torch cutting or grinding, and clean the wheel loader and its surroundings from dust and flammable substances.
- Wear the appropriate personal protective equipment (filter for breathing air, protective suits) if exposed to special hazards, e.g. toxic gases, corrosive vapors, toxic (toxicologically contaminated) machine environment, etc.

2.4.4 Hydraulics, pneumatic system

- Emitted oil spray can cause injuries and fires. Check all pipes, hoses and unions regularly for leaks and external damage. Leaks and damage must be rectified immediately.
- Only depressurized hydraulic and pneumatic systems may be opened. Before starting repair work, depressurize all system sections and pressure lines to be opened. Observe the corresponding notes on the operating instructions.
- Hydraulic and pneumatic lines must be properly routed and fitted. Work may only be carried out by authorized specialist personnel. Pay attention that no connections are swapped. Fittings, length and quality, and in particular the pressure and temperature resistance of hydraulic and pneumatic lines, must meet the requirements.

2.4.5 Noise

- All sound insulation equipment must be in its protective position during operation.
- Protective sound insulation measures against bodily harm must be implemented. (Ear protection)

2.4.6 Oils, greases and other chemical substances

- Observe the applicable safety regulations for the product when handling oils, greases and other chemical substances.
- Take care when handling hot operating resources and ancillary materials – burn or scalding hazard.
- Smoking and naked flames during refueling are prohibited. Fire and explosion hazard.
- Caution, extreme fire and explosion hazard. Do not use gasoline as a mixing agent. Use commercially available winter diesel at low outside temperatures.

2.5 Transporting and towing/recommissioning

- Strictly follow the operating instructions when towing, loading and transporting the wheel loader.
- When towing, keep to the prescribed transport position, the max. permissible speed and the max. permissible distance.
- Only use suitable means of transport and lifting gear with sufficient load capacity.
- When recommissioning, proceed strictly according to the operating instructions.

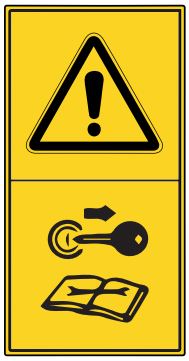
2.6 Final decommissioning/dismantling

- On final decommissioning or dismantling of the machine, all operating resources and ancillary materials must be drained and disposed of without harm to the environment.
- Ensure that the recommissioning is not possible.
- The remaining machine body must be disposed of by suitable, specialized companies/bodies.

2.7 Safety decals used

WARNING

Never remove the safety decals. Damaged decals must be replaced. New decals can be ordered through the wheel loader dealer.



Left decal: Danger.
Read and understand the operating instructions before using the wheel loader.

Right decal: Danger.
Remove the ignition key prior to all servicing and repair work.
Observe the operating instructions for servicing and repair work.

Caution, danger of death.
Never remain within the unsecured danger zone.
Do not remain within the wheel loader's danger zone during operation. Do not step beneath the raised lifting frame.

Caution, danger of death.
Never remain within the unsecured danger zone.
Caution. Moving parts can cause serious injuries.
Keep a sufficiently safe distance.
Do not step beneath the raised lifting frame.

Danger.
Risk of injury by moving parts. Never open protective devices with the engine running.

Caution.
Radiator is pressurized.
Burn hazard. Never open the radiator cap without training.

Observe the operating instructions for servicing and repair work.

Caution, danger of death.
Never remain within the wheel loader's articulated zone.
Caution. This can lead to very serious injuries.
Keep a sufficiently safe distance.

Lubrication point/lubricate daily.

Diesel tank.
Only use approved fuels.

NOTE

Use the yellow rotating warning beacon according to legal regulations.

2.8 Safety equipment

2.8.1 Fire extinguishers

A fire extinguisher can be installed in the driver's cabin beside the driver's seat. (Optional equipment)

2.8.2 Rotating warning beacon

Optional equipment.

2.8.3 Lowering brake valves on lifting and tipping ram

Optional equipment.

CAUTION

For wheel loaders with lowering brake valves, the lifting frame may only be lowered, and the residual pressure released, by trained personnel as described in section 6. "DISCHARGING RESIDUAL PRESSURE IN HYDRAULIC SYSTEM" of these operating instructions.

The lowering brake valves prevent uncontrolled lowering of the lifting frame in the event of sudden pressure drop in the hydraulic system.

2.8.4 Reversing warning signal

Optional equipment.

A warning sound is issued when in reverse gear. The sound aims to warn people who are near the wheel loader when reversing.

2.8.5 Battery isolator switch

The battery isolator switch is on the left behind the seat. The entire electrical system can be quickly disconnected from the battery in an emergency using this switch. Always turn off the battery overnight to prevent possible damage.

2.8.6 Safety belt

CAUTION

Use the safety belt at all times when working with the wheel loader.
The wheel loader is equipped with a safety belt on the driver's seat.

3. OPERATION AND HANDLING

3.1 Before commissioning

CAUTION

Read the instructions before commissioning. Only operate the wheel loader from the driver's seat. Observe the safety regulations. Get instruction from qualified personnel before using the wheel loader for the first time. Carry out the first road tests on a large area. Check the condition of the wheel loader before starting work. Prior to recommissioning after a long period of non-use, have the wheel loader inspected by qualified personnel.

3.1.1 Fueling

WARNING

Lower the lifting frame and turn the engine off for fueling. Fire hazard – diesel fuel is flammable! Do not smoke, avoid fire and naked flames when fueling. Do not use gasoline. Use diesel fuel only. Gasoline mixing is prohibited. Diesel fuel is harmful to health. Wear suitable gloves. In case of accidents with fuel, inform the responsible persons immediately.

The diesel tank is located on the right side of the wheel loader. Refuel the wheel loader using a funnel with a flexible shaft.

CAUTION

Only use clean and high-quality commercial diesel fuel to operate the wheel loader. If possible, use a fine filter in the filling line.

Diesel fuel is environmentally hazardous. Avoid uncontrolled release into the environment. Leaked, overflowed or spilled fuel must be absorbed immediately with binders and disposed of in an environmentally compatible manner. If fuel is released into the environment, inform the responsible persons immediately.

The diesel tank and the filler neck are located on the right side of the wheel loader.

- Lock the fuel cap using the key supplied (optional extra).
- Unscrew the filler neck cap.
- Refuel the wheel loader through the filler neck into the tank.
- Close the tank cap carefully after refueling.

3.1.2 Entering

WARNING

Accident hazard due to defects! Do not work with the wheel loader if its operational safety is endangered by defects. Defects must be immediately rectified. Check that all protective devices are present and effective before each use. Accident hazard due to damaged tires. Check the tires before starting work. Accident hazard due to jamming or slipping. Remove or attach loose items located on the driver's cab. Keep the control elements clean. Observe the daily servicing schedule.

Checks before entering

- Check for cleanliness and damage.
- Check the condition and cleanliness of hand-holds and running boards.
- Check that all safety-relevant components are present and functioning.
- Check that linkages, rams, pivot pins and radiator are clean.
- Check all screws, joints and pivot pins for tightness.
- Check that all signs are present and in good condition.
- Check the wheel loader for oil, fuel and coolant leaks.

Check

- Engine oil level
- Hydraulic oil level
- Coolant level
- Fuel level
- Check the condition of the tires, e.g. for lacerations or signs of wear. Check the tire pressure. Ensure that the tires are correctly inflated (see Tire air pressure table.)
- Ensure that the engine covers, and the fuel and hydraulic oil tank caps are present and tightened.

Entering

WARNING

Accident hazard due to slipping when entering! Check the condition and cleanliness of the hand-holds and running boards. Use the fitted hand-holds and running boards. Always enter and exit with your face towards the wheel loader.

3.1.3 Adjusting the driver's seat

WARNING

Accident hazard due to distraction! Do not adjust the driver's seat while driving, only when the wheel loader is at a standstill.

You can adjust the driver's seat according to your individual height and posture requirements. This prevents tension and fatigue during work.
Adjust the seat so that you can comfortably reach the lever and pedals while your back is against the backrest.
The following seat settings are possible:

1. **Fore/aft adjustment**: Pull the locking lever to adjust the seat fore and aft position. After adjustment the locking lever must lock into the required position. After locking, the driver's seat should no longer move.
2. **Backrest adjustment**: Pull the locking lever to adjust the backrest. Now slide the seat forwards or backwards until the desired backrest angle is achieved. The locking lever must lock into the required position.
   After locking, the backrest should no longer move.

3.1.4 Steering column adjustment

WARNING

Accident hazard due to distraction! Do not adjust the driver's seat while driving, only when the wheel loader is at a standstill.

You can adjust the longitudinal position of the steering column and thereby adapt it to your individual height and posture requirements.

1. Loosen the adjusting lever by rotating.
2. Adjust the steering column to your needs.
3. Firmly tighten the adjusting lever.

3.1.5 Safety belt

WARNING

Risk of injury! Always wear the safety belt when working. Do not apply the safety belt over the top of solid or fragile objects (e.g. glasses, keyring). Inspect the belt and the buckle before use. Replace the belt and the buckle immediately if damaged.

NOTE

Ensure that the belt is neither too tight nor too loose.

Applying

1. Sit in the driver's seat so that your entire back is in contact with the backrest.
2. Pull the belt across your pelvis.
3. Snap the safety tab into the buckle.

Removing

Press the red button on the buckle.

3.2 Commissioning

WARNING

Accident hazard! Do not use the wheel loader when the entire lighting system or individual functions are not operational.

NOTE

Equipment fault messages are indicated by the illuminated warning and indicator lights. All toggle switches are switched on by switching downwards.

3.2.1 Lighting system

The lever activates 2 functions – lights and indicators. Check the lights, indicators and horn before beginning every journey.

3.2.2 Work spotlight (optional extra)

WARNING

Accident hazard due to dazzled road users! Do not drive with the work spotlight switched on on public highways.

The wheel loader is equipped with work spotlights front and rear. The work spotlights are switched on and off using the toggle switch below the steering wheel.

3.2.3 Before starting the engine

WARNING

Risk of injury! Check that nobody is on or near the wheel loader. Risk of injury due to slipping. Keep the controls of the wheel loader clean and dry, otherwise you may slip and loose control of the wheel loader.
Accident hazard due to falling or loose, rolling objects. Remove or attach any loose items.
Accidents hazard due to poor visibility. Accident hazard due to missing protective devices. Ensure that all protective devices are fitted and that all tools have been removed (following repairs) and the hood is closed.

1. Before starting the engine, carry out the "checks before entering" (see 3.1.2 "Entering").
2. Adjust the driver's seat and the steering column to your requirements.
3. Apply the safety belt.

3.2.4 Starting the engine

WARNING

Risk of injury! Check that no one is in the wheel loader's danger zone.
Do not use flammable starting aids (for example, start pilot).
Accident hazard! Only start the wheel loader from the driver's seat.

NOTE

Ensure that the drive is in the neutral position (central position).

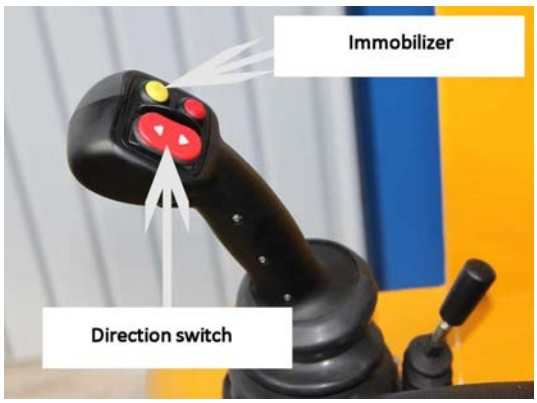
CAUTION

Due to the higher viscosity in the hydraulic system and the engine oil circuit at temperatures below 0 °C, severe damage may be caused if the speed is increased immediately.
Allow the engine to run at low speed for some time at temperatures below 0 °C.
The lower the outside temperatures, the longer the warm-up phases.
Under no circumstances should the engine be started by towing the wheel loader. The hydraulic system may be damaged.
If the warning lights do not go out while the engine is running, stop the engine immediately.
Ensure that the fault is rectified immediately. Do not use the wheel loader before the fault has been rectified.
Do not stop the engine suddenly from full load, but allow it to idle for 3 more minutes to equalize the temperature before you turn off the engine.

Description of starting procedure

Start the wheel loader's engine using the ignition key.

1. Press the foot gas pedal.
2. Starting:
   - Insert the key – position 0 = no operating voltage.
   - Turn the key anti-clockwise against the spring pressure until the preheat monitor lamp lights up
     Position -1 = preheating (the preheater lamp indicates preheating)
   - Turn the key further clockwise against the spring pressure – position 2 = start (it should be noted that on T13 wheel loaders with a 2-stage drive, the yellow button for drive position selection and immobilizer must protrude).
   - Release the key as soon as the engine starts – the key returns to position 1 – indicator lamps extinguish
3. Check that all indicator lamps have extinguished and rectify any defects before moving off with the wheel loader.



If the engine doesn't start

CAUTION

It is not possible to start the engine by towing the wheel loader. The hydraulic system may be damaged.

- Attempt to start no more than 20 seconds continuously
- Wait one minute.
- Repeat the starting process.
- If the engine does not start after two attempts, find the cause by referring to the fault table ("Fault finding and troubleshooting") or contact a specialist workshop.

3.3 Driving

3.3.1 Preparing to drive on public highways

CAUTION

Before starting the journey, ensure that the machine complies with the relevant local regulations and has a valid operating license. The machine may not be moved on public highways and spaces without an operating license. Pallet forks must be removed before driving on public highways. In addition, on the left side of the loader, the first name, family name and the place of residence of the owner, or the company name and company address, must be clearly indicated in indelible writing. The operator is responsible for insurance cover.

1. Secure the attachment: ensure that the bucket is emptied and lowered in transport position. On some models, the bucket may not be carried on the wheel loader on public highways. Inform yourself before starting the journey.
2. Check the lighting system and if necessary the function of the rotating beacon. Turn off the work spotlight.
3. Bring all hydraulic control valves to the 0 position and lock the lifting frame joystick against accidental operation. The joystick is brought into the locked position by pushing down firmly. It is then no longer possible to move the joystick. Pulling up firmly unlocks the joystick.
4. Apply the safety belt.
5. Ensure that you can move away safely.

3.3.2 Driving

WARNING

Accident hazard due to wheel loader tipping!
Keep the lifting frame lowered during transport. Adjust your speed to suit the respective tasks and conditions. The wheel loader must be under your control at all times when driving.
Pay attention to people and obstructions in the danger zone.

3.3.3 Direction switch

WARNING

Accident hazard due to improper operation of the direction switch!
Never operate the direction switch while driving. The wheel loader immediately travels in the opposite direction without warning. Use the switch only according to the instructions. Only change the direction of travel and the gears when the loader is stationary. Caution when driving in snow and ice – the driving speed must be greatly reduced in adverse weather conditions.
When driving downhill, never reduce driving speed on the gradient, but always before the gradient. Do not rest your feet on the brake inching pedal.
Check the "driving lock" regularly. Stop the journey immediately if you notice a malfunction in the drive, steering or brakes. Only bring the wheel loader back into operation after the fault has been rectified.

3.3.4 Differential lock

WARNING

The Eurotrac T13 is equipped with a differential lock (locks all 4 wheels). It may only be used on very soft ground when the wheel loader is bogged in.
The lock may not be used on a solid surface. Severe axle damage occurs even when steering on solid ground with the differential lock engaged.

NOTE

If the wheel loader is equipped with the "reversing warning signal" optional extra, a warning tone sounds when the reverse gear is engaged. The sound aims to warn people who are near the wheel loader when reversing.

The wheel loader's direction of travel is switched using the left rocker switch (direction switch) on the joystick.

- Central position: Driving switch is in neutral.
- Front position: The wheel loader drives forwards.
- Rear position: The wheel loader drives backwards.
- Eurotrac T13 immobilizer. The uppermost pressure switch to the right of the direction switch is an immobilizer (yellow button). It must be operated every time the engine is started. The wheel loader can only be driven after pressing the immobilizer.
- This pressure switch (yellow) must point to the outside when the engine is started.

3.3.5 Moving away with the wheel loader

Release the parking brake by stepping on the pedal (W11 / Figure 1) or lower the parking brake (W12 and W13 / Figure 2) once the engine has warmed up. The wheel loader is ready to drive.

Select the direction of travel using the direction switch. You can now drive.

- Press the gas pedal. The wheel loader moves. The wheel loader's driving speed is proportional to the engine revolutions.
- Low engine speed = low driving speed
- High engine speed = high driving speed
- You can select between 2 drive positions (red switch W12/W13 hare or snail)

3.3.6 Braking and stopping

- To stop, step on the brake inching pedal until the wheel loader stops.
- Switch the driving switch to neutral.
- Apply the parking brake by pulling the parking brake.
- Additionally secure the wheel loader (see 2. "GENERAL SAFETY INSTRUCTIONS".)

3.3.7 Changing the direction of travel

WARNING

Accident hazard due to improper operation of the direction switch!
Never operate the direction switch while driving. The wheel loader immediately travels in the opposite direction without warning. Use the switch only according to instructions.

NOTE

It is not necessary to press the inching pedal right down every time you change direction.

1. Decrease the driving speed until the wheel loader stops.
2. Push the direction switch in the other direction.
3. Press the gas pedal until the wheel loader starts to move.

3.3.8 Stopping and parking

WARNING

Accident hazard due to people remaining in the danger zone!
Ensure that there are no persons in the wheel loader's danger zone when you stop or park the wheel loader. Park the wheel loader only in designated areas protected against fire.
Remove the key and place the wheel chock in front of the wheels.

NOTE

Secure the wheel loader when stopping and parking as described in section 7. "SECURING THE WHEEL LOADER".

3.4 Work mode

WARNING

Read and observe the "General safety instructions"!
Accident hazard due to people remaining in the danger zone. Ensure that no persons are located in the wheel loader's danger zone.
Check the functioning of the control elements before starting work.
Accident hazard due to incorrect attachments. Use only attachments approved by Eurotrac.
Before starting work, inspect the attachments for damage, tight fit and correct locking on the lifting frame.
Accident hazard due to sudden, uncontrolled lifting frame movement. Before starting work, with the parking brake applied, run through all lifting frame functions several times as far as they will travel, to eliminate any vacuum in the hydraulic rams.
In case of failure of the power supply (failure of the engine, driving or working hydraulics), immediately lower the lifting frame to the ground and relieve pressure on the control circuits and hydraulic lines. Read 5. "MEASURES IF THE ENERGY SUPPLY FAILS".

3.4.1 Before starting work

- Examine the wheel loader any obvious defects before starting any work.
- Check the functions of the control elements.
- Check the function of the brakes and warning devices.
- Report any defects identified to the supervisor and at shift change to the replacement driver.
- Before entering, carry out the "Checks before entering" (see 3.1.2 "Entering").

3.4.2 Folding roll bar (optional extra)

WARNING

Risk of injury due to wheel loader tipping!
Always lock the roll bar in the protection position, as far as the working conditions permit. Only fold the stirrup away if absolutely necessary to perform the current task (e.g., if you need to drive through low gates).

Fold the roll bar backwards if the working conditions require it:

1. remove the screws. The modular protective roof must be dismantled in order to fold the roll bar.
2. Fold the roll bar backwards until the locking button snaps into place in the holder or screw in the screw provided with bolts.

Fold the roll bar back in reverse order if the folded position is no longer necessary. Tighten the locknuts on the screws so they will not loosen by themselves.

3.4.3 Joystick for lifting frame

WARNING

Accident hazard due to wheel loader tipping! Keep the lifting frame lowered during transport.

Accident hazard due to uncontrolled lifting frame movement! Only operate the lifting frame and attachment from the driver's seat.
Always work calmly and cautiously. Hectic and rapid operation leads to accidents.
Always lower the lifting frame during interruptions and at the end of the shift.

Lifting frame movements are controlled by the joystick. The joystick is located to the right of the driver's seat.

Lifting frame

- Move the joystick backwards: the lifting frame rises.
- Move the joystick forwards: the lifting frame lowers.
- Move the joystick 2 step forwards:
  the lifting frame is now in the floating position (optional extra).

Attachment

- Move the joystick left: the attachment tips inwards.
- Move the joystick right: the attachment tips outwards.

Telescopic arm

- Press the top pushbutton (See picture):
  The telescopic arm extends
- Press the lower pushbutton (See picture):
  The telescopic arm retracts.

3.4.4 Joystick for ancillary hydraulics

WARNING

Hazard due to hydraulic system overheating! Ensure that the ancillary hydraulics joystick is always in the "zero position" when the ancillary hydraulics are not required. Lock the ancillary hydraulics joystick when it is not required. (To do this, press the joystick down firmly until it locks into place. To unlock, you must pull the joystick back up firmly.) Avoid soiling. Ensure that the hydraulic connections are clean.

The additional hydraulics on the front arm: press the ancillary hydraulics button and move the joystick to the left and right. The ancillary hydraulics can be very precisely controlled. Take care to use the joystick carefully.

- Push the joystick to the left (and simultaneously press the ancillary hydraulics button):
  The left connection is the pressure side, the right is the return.
- Push the joystick to the right (and simultaneously press the ancillary hydraulics button):
  the right connection is the pressure side, the left is the return.

This may vary from model to model. Please always check this before using the wheel loader with optional equipment.

Ancillary hydraulics
This can be operated using an additional lever with changeover valve. Let yourself be instructed by qualified personnel and complete this manual here.

3.4.5 Lifting frame locking and joystick for ancillary hydraulics

WARNING

Danger due to unintentional lifting frame activation when driving on the road. Always lock the lifting frame by applying the lock before driving on the road. Always lock the lifting frame before leaving the wheel loader. Only release the lock when you are sat in the driver's seat and start to work.

NOTE

The lifting frame and the control lever for the ancillary hydraulics can be secured with a lock against unintentional activation. If you have activated the lock, it is not possible to operate the lifting frame or ancillary hydraulics. The lifting frame and ancillary hydraulics lock is not indicated by indicator lights, it can be recognized by the position of the control lever.

Use the lifting frame's operating lever (joystick).

- Press the operating lever (joystick) down: lock is switched on

Check if the lock is correctly activated.

- Pull the operating lever (joystick) upwards: lock is switched off.

3.4.6 Replacing attachments

These instructions describe exclusively the use of the following attachments:

- Lightweight goods bucket
- Pallet forks

If you want to use additional attachments for your wheel loader, observe the following points:
If other attachments are used, the operating instructions of these attachments must be observed.

NOTE

The manufacturer assumes no liability for modifications made without the manufacturer's approval.

CAUTION

Use only attachments approved by the manufacturer for your wheel loader. The manufacturer and the distributing dealer assume no liability when using other attachments. Avoid overloading the wheel loader. Do not use excessively large buckets for heavy loads. Contact a specialist if new hydraulic hoses need to be installed for a new attachment. Only qualified personnel may install hydraulic hoses. A variety of high pressure hoses are used. When ordering for the first time, pay attention to the DIN designation on the hose or fitting. Observe the safety instructions for replacing attachments.

1. Read the operating instructions for the relevant attachment before installation, commissioning or servicing.
2. Consult the manufacturer or a dealer and obtain approval for the conversion if the hydraulic system needs to be converted for the use of an attachment (for example, without pressure).
3. Select the attachment to use to suit the work to be carried out.
4. Practice using the attachment before you work with it for the first time. Familiarize yourself with all functions and operating elements before use.

WARNING

Accident hazard due to incorrect attachments! Only use attachments approved for your wheel loader.
Non-approved attachments may overload the wheel loader. This can lead to instability of the wheel loader.

Accident hazard due to wheel loader tipping! The wheel loader's weight distribution alters when the tools are under load. The approved operating loads may not be exceeded.
Only drive with the lifting frame lowered. When loading, adapt the driving speed to suit the material being loaded and the environmental conditions. Risk of injury due to hydraulic oil jet escaping under pressure (e.g. damaged hydraulic hoses). Seek medical attention immediately if oil gets in the skin or eyes. Accident hazard due to people remaining in the danger zone. Ensure that no persons are located in the wheel loader's danger zone.

Accident hazard due to the uncoupled attachment tipping. Attachments may only be replaced by personnel with sufficient expertise – in the absence of expertise, thorough training must be given by experienced personnel.

Risk of injury due to damaged attachments! Do not use damaged attachments.
Before starting work, always inspect the attachments for damage, tight fit and correct locking. Do not work with damaged attachments/attachment locks. Only perform work on attachments if the wheel loader is secured as described in section 7. "SECURING THE WHEEL LOADER".

CAUTION

Non-approved attachments may overload the wheel loader. This can lead to damage to the wheel loader.
The wheel loader is equipped with a hydraulic or mechanical quick-change system for the various attachments. This allows the wheel loader operator to quickly and easily couple and uncouple attachments from the driver's seat.

Coupling attachments

Special accessories!

WARNING

Accident hazard due to people remaining in the danger zone!
Ensure that no persons are located in the wheel loader's danger zone. Accident hazard due to unintentional releasing of the hydraulic lock. Always check correct locking of the locking bolt and the ancillary hydraulics connections. Risk of injury due to hydraulic oil jet escaping under pressure (e.g. damaged hydraulic hoses). Seek medical attention immediately if oil gets in the skin or eyes.

Operation and handling

CAUTION

Avoid soiling. Ensure that the hydraulic connections are clean.

Hydraulic oil is harmful to the environment. Avoid uncontrolled release into the environment.

1. Approach the attachment with the wheel loader.
2. Place the locating bolt beneath the locating hook.
3. Raise the lifting frame and tip it against the attachment.
4. Extend the locking bolt using the quick-change device lever. (With a hydraulic quick-change device)
5. Check that the bolts are located in the locking holes.
6. Unit with hydraulic function:
   - Switch off the engine.
   - Switch on the ignition.
   - Press the ancillary hydraulics button and move the joystick several times in both directions. This depressurizes the ancillary hydraulics lines.
7. Insert the quick-release couplings from the attachment into the corresponding connections of the ancillary hydraulics on the lifting frame.
8. Check the attachment's hydraulic system and the ancillary hydraulics system's quick-release coupling for leaks. Carefully move the attachment.

Uncoupling attachments

WARNING

Accident hazard due to people remaining in the danger zone!
Ensure that no persons are located in the wheel loader's danger zone. Accident hazard due to the uncoupled attachment tipping. Close attachments with movable parts. Ensure that the attachment is resting on the ground. If necessary, support the attachment with the correct supports. Place the attachment on solid and level ground only.

1. Lower the attachment.
2. Unit with hydraulic function:
   - Switch off the engine.
   - Switch on the ignition.
   - Press the ancillary hydraulics button and move the joystick several times in both directions. This depressurizes the ancillary hydraulics lines.
3. Pull the quick-release couplings apart.
4. Attach the protective caps.
5. Place the hydraulic hoses over the attachment.
6. Retract the locking bolt using the quick-change device lever.
7. Lower the lifting frame and tip it away from the attachment. This releases the locating bolts from the locating hook.
8. Reverse the wheel loader away when the locating hooks are released.

3.4.7 Front bucket

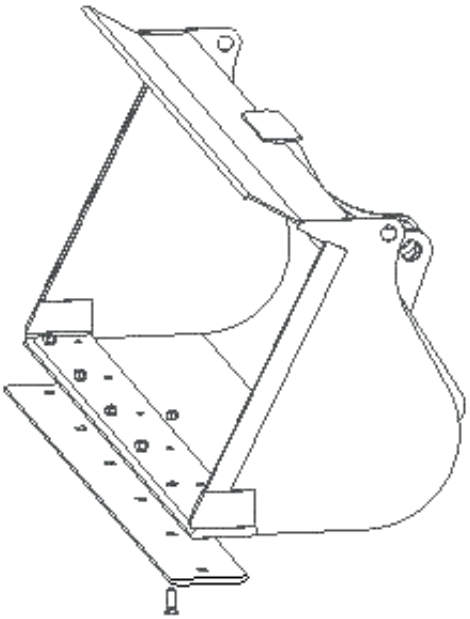
NOTE

The lightweight goods bucket is used with light materials, such as cereals, corn and concentrates.
The soil bucket is used for heavy materials, e.g. gravel, sand, soil and rock.

CAUTION

Avoid overloading! Observe the max. permissible operating load.
Operate the control lever carefully.

Function
The lightweight goods bucket/soil bucket are intended for loosening, collecting, transporting and placing materials.



Attaching the front bucket
Read "Coupling attachments".

Control elements
Operate the front bucket using the lifting frame control lever.

Operation

NOTE

Practice handling the front bucket before working with it for the first time.
When tilting the bucket to load vehicles, two movements may be carried out simultaneously if necessary, e.g. lifting and dumping or lowering and tipping. To do this, you must superimpose the movement on the control lever.

Level indicator (optional extra)

NOTE

When using various attachments, you can place a mark on the guide tube for each attachment. You can then quickly adjust the level indicator when replacing attachments.

Observe the level indicator to better estimate the tilting position of the attachment from the driver's seat.

Adjusting the level indicator

1. Bring the attachment parallel to the ground.
2. Release the hook by rotating anti-clockwise.
3. Move the guide tube so that the indicator bar connects to the end of the guide tube.
4. Set the lever by turning it clockwise.
5. Now you can align the attachment according to the indicator position while working.

Working with the front bucket

NOTE

When driving into the goods to be loaded, use a driving speed to suit the type of goods and the given conditions. Ensure that excessive wheel slip does not occur. Tire wear and fuel consumption increase unnecessarily and the wheel loader's power is not fully utilized.

Loading

To pick up loose material, lower the front bucket so that it is parallel to the ground and drive into the goods to be loaded. The driving speed depends on the type of goods and the given working conditions.
Now raise the lifting frame slightly so that the front axle of the wheel loader is under load. This avoids excessive wheel slip. You can also manually limit the wheel slip by inching.
When the front bucket is full, tilt it. You can now drive to the unloading point with the filled bucket.
Drive straight up to the unloading point and lift the bucket just before the unloading point.
If material which the front bucket can only penetrate with difficulty is to be loaded, you can use the control lever to generate an up and down movement at the bucket's cutting edge. This facilitates penetration of the bucket into the material.

Excavation work

Soft ground: To excavate soft material, lower the front bucket to the ground and tilt it forward far enough to create a digging angle. If you now drive the wheel loader forwards, the cutting edge of the bucket penetrates into the ground. Now flatten the tilt angle in order to remove as even a layer as possible and avoid excessive wheel slip.

Hard ground: To excavate hard material, lower the front bucket to the ground and tilt it forward far enough to create a digging angle. If you now move forwards with the wheel loader, push the bucket down slightly so that it can penetrate the ground.
If the cutting edge of the bucket penetrates into the ground, flatten the tilt angle. Use the control lever to move the cutting edge up and down.

3.4.8 Measures when the wheel loader tips over

CAUTION

Danger of engine damage!
Immediately switch off the engine if the wheel loader is extremely inclined or tips over due to improper or careless operation.
Do not start the engine when the wheel loader is upright again. Notify a specialist workshop. The engine must be inspected by trained personnel and cleared for further operation.

Danger of environmental harm!
Bring the wheel loader into an upright position as quickly as possible to prevent oil or fuel escaping.
Leaked oil or fuel must be absorbed immediately with a binder and disposed of in an environmentally compatible manner, separate from other waste.

3.4.9 Precautionary measures for different weather conditions

For high ambient temperatures
Take the following precautions at high temperatures to avoid damaging the wheel loader:

- Check the cooling system regularly:
  - Keep the water and oil cooler clean
  - Always ensure the correct coolant level
  - Use the right coolant mixture
  - Check the cooling system regularly for leaks
  - Check the fan belt regularly for condition and tension
- Use engine lubricating oil of the correct viscosity class
- Check the engine air filter regularly.

For low ambient temperatures

WARNING

Accident hazard due to changing ground conditions!
Snow, mud and ice can lead to accidents. Accident hazard due to poor visibility. Free the cab windows of ice before starting work.

NOTE

At particularly low temperatures, i.e. –18 °C or less, an additional starting aid may be required. Examples include fuel, oil and coolant heaters and additional batteries.
Let the dealer advise you.

CAUTION

Due to the higher viscosity in the hydraulic system and the engine oil circuit at temperatures below 0 °C, severe damage may be caused if the speed is increased immediately.

Allow the engine to run at low speed for some time at temperatures below 0 °C. The lower the outside temperatures, the longer the warm-up phases.
Observe the hydraulic system filter's pressure indicator.
Do not connect two batteries in series to produce a starting voltage of 24 V.

Take the following precautions at low temperatures to avoid damaging the wheel loader and make starting easier:

- Use the right coolant mixture.
- Use engine lubricating oil of the correct viscosity class.
- Use a low-temperature diesel fuel.
- Top up the fuel tank at the end of the shift.
- Make sure that the battery is always fully charged.
- Install cold-start aid (see note above.).

3.5 Optional extras

Hydro connection additionally via additional control unit
The function is activated using an additional control lever to the right of the driver's seat.
Additional hydraulic connections can be operated using this function. The function is necessary if the standard hydraulic connections are not sufficient for specific attachments.

Non-pressurized return
Some attachments require a non-pressurized return.
The connection for the non-pressurized return is located on the front left of the loading arm. The connection is designed in such a way that it cannot be confused with the normal ancillary hydraulics connections.

Hydro connection additionally via changeover valve (optional extra)
The function is activated using the switch on the multifunction lever.
Additional hydraulic connections can be operated via the multifunction lever using this function. The function is necessary if the standard hydraulic connections are not sufficient for specific attachments. You can operate the standard hydraulic connections using the ancillary hydraulics control lever and the ancillary hydraulic connections using the multifunction lever.
The changeover valve is switched as described in "Changeover valve transfers tipping/dumping function to ancillary hydraulics".

Changeover valve transfers tipping/dumping function to ancillary hydraulics
The function is activated using the switch on the multifunction lever.
This function allows you to switch operation of the hydraulic connections to the multifunction lever. You then do not need to release the multifunction lever to operate the ancillary hydraulics.

Switching the changeover valve:

- Press the button:
  - The "tipping" function operates the left hydraulic connection.
  - The "dumping" function operates the right hydraulic connection.
- Release the button:
  - The "tipping" function tips the attachment inwards.
  - The "dumping" function tips the attachment outwards.

4. TOWING AND TRANSPORTING

4.1 Towing

WARNING

Only tow the wheel loader when the steering and brakes are functioning and it cannot be transported any other way. Only tow the wheel loader with a tow bar or a tow rope. No persons may remain in the tow bar or tow rope's danger zone while the wheel loader is being towed. The tow bar or tow rope may not be damaged and the ultimate load must be at least three times the tensile force exerted by the towing vehicle. The towing vehicle must have sufficient pulling power. The driver of the towing vehicle and the driver of the wheel loader must agree on procedure and proceed with caution.
After towing the wheel loader, always secure it against rolling off and unauthorized use.

CAUTION

Risk of hydraulic system damage due to overheating.
Only tow the wheel loader as far as is necessary to allow recovery from the danger zone, but a maximum of 500 meters. The towing speed may not exceed 5 km/h.
Use transportation equipment for longer distances or repair the wheel loader in-situ.

Towing equipment

CAUTION

The towing equipment may not be used to tow loads.

Short-circuiting the drive

WARNING

Accident hazard due to driver's seat tipping. Only tow the wheel loader when the driver's seat is secured. The drive must be short-circuited by qualified personnel. The wheel loader may not be towed without short-circuiting the drive.

4.2 Transporting

CAUTION

Only load and transport the wheel loader if all safety regulations are met.
Only trained personnel may load and transport the wheel loader. The carrier always bears the responsibility for loading and transporting.

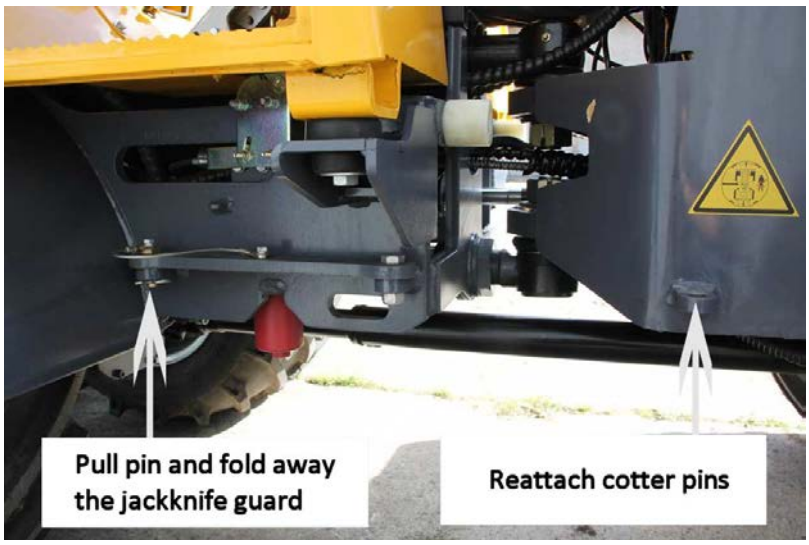
Blocking the articulated joint

CAUTION

Always block the articulated joint before the wheel loader is lashed to transportation equipment.
Do not move the steering with the articulated joint blocked. After transportation, first remove the jackknife guard. The jackknife guard is attached to the front of the vehicle with bolts and secured with cotter pins.

1. Drive the wheel loader until it is straight.
2. Remove the cotter pins.
3. Reposition the jackknife guard.
4. Secure the jackknife guard using the cotter pins.

Release the blocking in reverse order.



Loading the wheel loader on a transport vehicle

WARNING

Accident hazard due to incorrect loading.
Clean the wheel loader of coarse soiling before loading and transporting. Use transportation equipment of appropriate load bearing capacity. (Observe the wheel loader's service weight.)
Accident hazard due to falling or slipping when loading the wheel loader. Caution when loading and transporting in snow and ice.

Independently driving onto transportation equipment

WARNING

Accident hazard due to incorrect loading.
Use only sufficiently dimensioned and undamaged loading ramps (observe the wheel loader's service weight.).
Keep the transport surface and the loading ramps free of any oil or grease.
Secure the wheel loader after driving onto the transportation equipment as described in section 7. "SECURING THE WHEEL LOADER". Block the articulated joint with the jackknife guard.

Lashing the wheel loader

WARNING

Accident hazard due to incorrect loading.
Always block the articulated joint before the wheel loader is lashed to transportation equipment. Use chocks to prevent the wheel loader from slipping or rolling away. Lash the wheel loader only at the attachment points provided for this purpose. Use only lashing equipment with sufficient load bearing capacity.

Use the towing points and the attachment points at the top of the front end and all other marked lashing points as attachment points for lashing the wheel loader. Additional lashing points on the undercarriage can be used.

5. MEASURES IF THE ENERGY SUPPLY FAILS

WARNING

Accident hazard due to uncontrolled lifting frame movement.
If there is a failure of the power supply to the wheel loader, e.g. failure of the engine, the drive hydraulics or the work hydraulics, the lifting frame should be lowered immediately and carefully to the ground and the individual control circuits of the work hydraulics relieved of residual pressure by operating the levers. For wheel loaders with lowering brake valves, the lifting frame may only be lowered, and the residual pressure released, by trained personnel as described in section 6. "DISCHARGING RESIDUAL PRESSURE IN HYDRAULIC SYSTEM".

6. DISCHARGING RESIDUAL PRESSURE IN HYDRAULIC SYSTEM

WARNING

Caution, risk of injury.
A fine hydraulic jet under high pressure can penetrate the skin. See a doctor immediately if oil gets in the eyes or skin. Open only depressurized hydraulic systems. Even when a wheel loader with the lifting frame completely lowered and the engine stopped is parked on a horizontal surface, there may be considerable residual pressure in parts of the hydraulic system. Residual pressure discharges gradually. If a hydraulic system needs to be opened immediately after shutdown, you must first depressurize the system.

Opening the lowering brake valves

CAUTION

The lowering brake valves may only be opened by trained specialist personnel.
Following servicing/repair, the lowering brake valves must be closed again or returned to their original condition.
For wheel loaders with lowering brake valves on lifting and tilting rams, the valves must be opened.

1. Undo the nut.
2. Unscrew the screw until the lifting frame lowers slowly. If the lifting frame cannot be lowered afterwards due to friction or insufficient mass, you must assist the process using a cable winch or lashing straps.
3. Refit the screw as soon as the lifting frame is fully lowered and retighten the nut. In the case of machines with electrically operated lowering brake valves on the lifting and tilting rams, the ignition must be switched on in the event of engine or hydraulic failure and the unlocking switch must be activated so that the working equipment can be lowered to the ground.

7. SECURING THE WHEEL LOADER

The wheel loader must be secured against rolling on non-level and slightly sloping terrain using chocks.

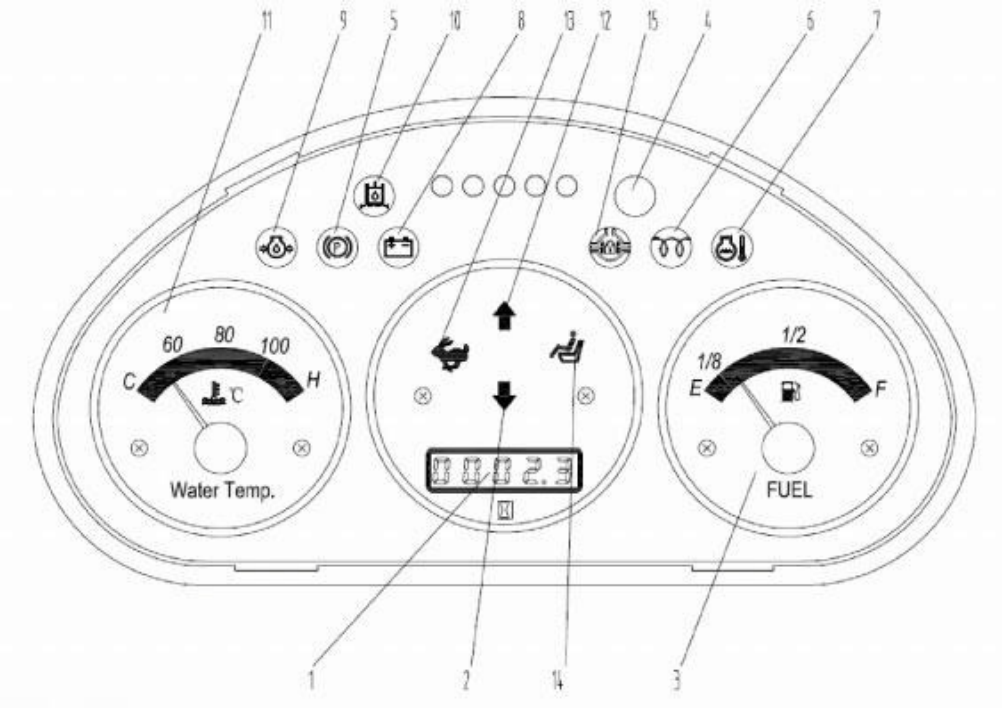
CAUTION

The following instructions apply to stopping and parking the wheel loader after daily operation, transportation and for all servicing, inspection and repair works.

- Place the wheel loader on a stable, level and dry surface.
- Lower the lifting frame to the ground.
- Apply the parking brake and stop the engine.
- Turn off all electrical switches.
- Depressurize all control circuits and set all levers to the zero position.
- If necessary, secure the wheel loader with a chock.
- Clean the wheel loader from the coarse dirt.
- Perform a visual inspection for leaks: the hydraulic system, the cooling system, the fuel system.
- Visually inspect for damage to the wheel loader, in particular the tires, attachments and attachment locks.
- Fill the fuel tank and check the other operating resources.
- Secure the wheel loader against unauthorized use: Remove the ignition key.
- Lock the windows, doors, fuel tank cap and hood.

8. DATA AND SPECIFICATIONS

8.1 Displays on the instrument panel (cockpit)



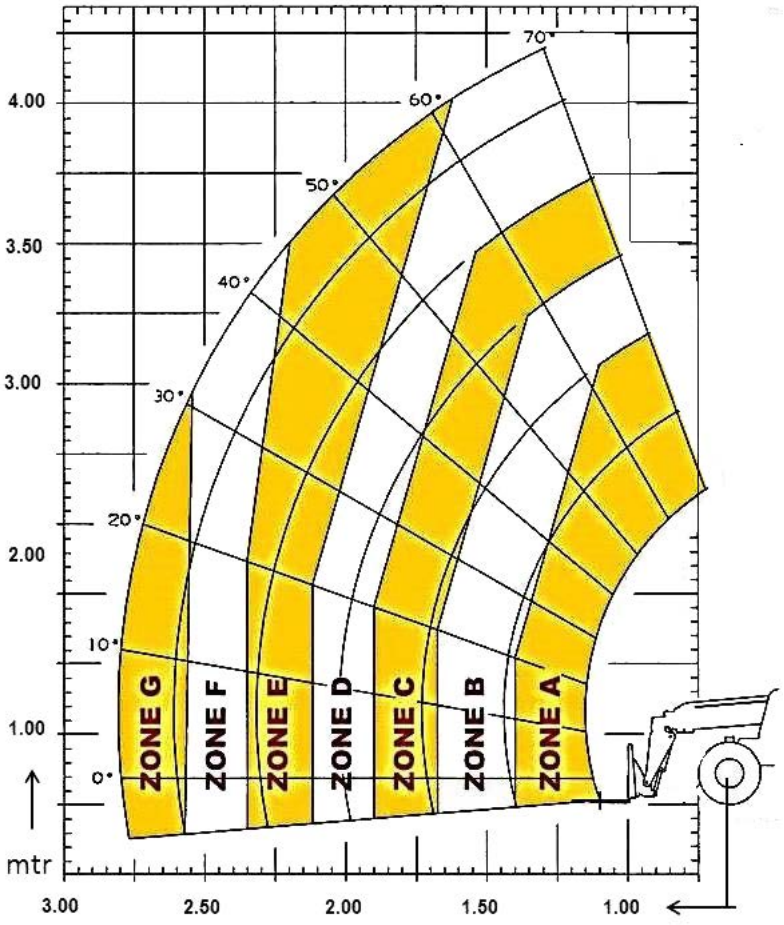
1.	Service hours counter	7.	Alarm/high engine water temperature	13.	Fast drive position indicator (hare)
2.	Reverse travel indicator	8.	Battery charge, voltage meter	14.	Seat lock indicator
3.	Fuel gage	9.	Engine oil pressure alarm	15.	Differential lock
4.	Right/spare (W13), rotate	10.	Hydraulic oil block		
5.	Parking brake indicator	11.	Engine temperature gage		
6.	Preheat indicator	12.	Forward drive indicator		

8.2 Specifications and performance (table)

Model	W11	W11 (Industry)	W12	W13	T13
Motor data					
Manufacturer	Kubota				
Engine type	D1105-E3B	D1105-TE3B	V1505-E3B	V2403-E3B	V2403-E3B
Cylinders	3		4		
Max. power (kW)	18.5 kW/ 3000 rpm	24.5kW/ 3000 rpm	26.5 kW/ 3000 rpm	36.5 kW/ 2600 rpm	36.5 kW/ 2600 rpm
Cooling	Water				
Electrical system					
Weld wire as close to the ground as possible. Operative voltage (V)	12V				
Battery (Ah)	60Ah			72Ah	
Generator (A)	40A		60A	40A	65A
Weights					
Tare weight (standard)	1700		2280	3300	3400
Max. lifting force (kg)	1100		1750	2780	2100
Tipping loads with bucket (ISO8313)					
Lifting/wheel loader straight (kg)	850		1200	2000	1520 - 990
Lifting/wheel loader bent (kg)	550		800	1500	1400 - 780
Vehicle data					
Speed (km/h)	0-12		2-stage hydrostat (0-11/0-20)	2-stage hydrostat (0-11/0-20)	
Fuel tank capacity (L)	26		55	60	
Hydraulic oil tank capacity (L)	40		36	80	
Hydraulic system					
Drive hydraulics					
Output (l/min)	84		102	88.4	102
Service pressure (bar)	300		380	380	400
Work hydraulics					
Output (l/min)	32		45	52	
Pressure (bar)	180		180	185	210

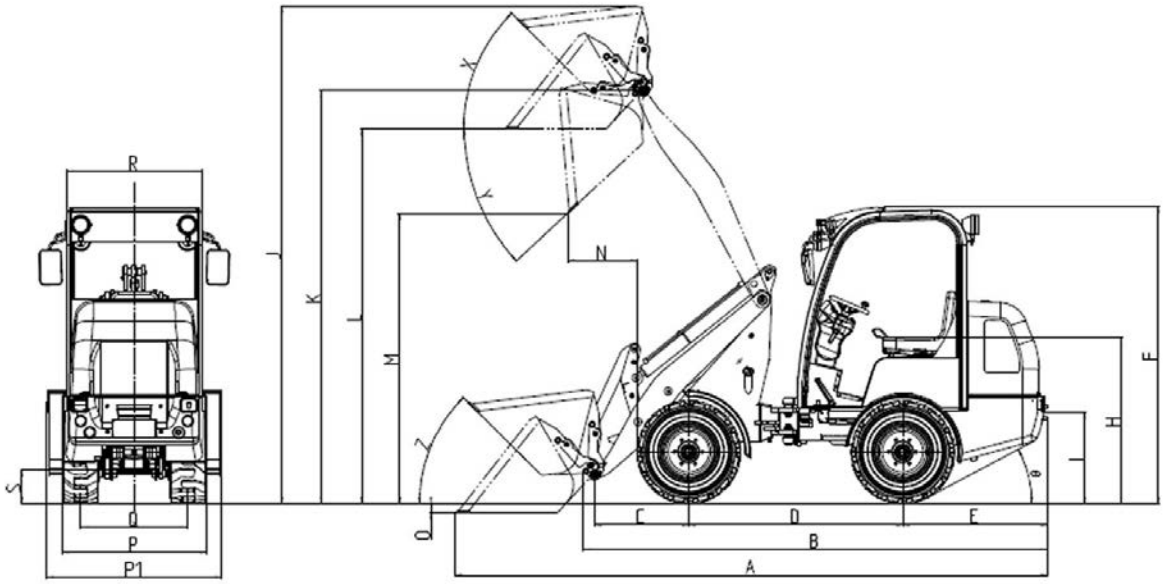
8.3 Power at pallet fork and bucket

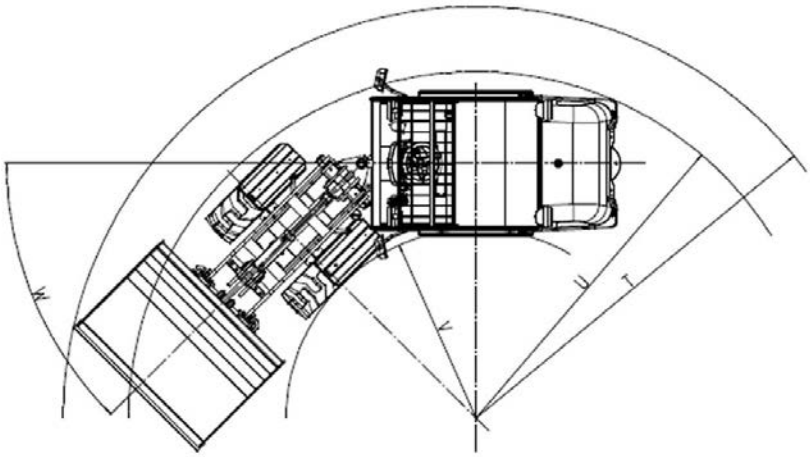
Wheel loader straight (not in articulated zone)



Zone	Max. load (kg)	
	Fork	Bucket
A	1400	1520
B	1230	1340
C	1080	1180
D	890	970
E	750	820
F	690	760
G	580	680

9. DIMENSIONS





Dimensions

Number	W11	W12	W13
A	3660	4620	5100
B	2890	3600	3890
C	425	704	740
D	1375	1600	1860
E	950	1083	1230
F	2175	2225	2270
H	1118	1249	1250
J	3370	3728	3780
I	2930	3100	3230
L Bucket	2700	2810	2930
L Pallet forks	2800	2890	3000
M	2130	2177	2480
N	525	517	540
O	60	65	65
P Industrial tires	/	1120	1140 or 1340 (reversible rims)
P Wide tires	1103	1400	1600
Q	763	802	1040
R	820	1010	1140
S	90	225	410
T	2040	3085	2635
U	2125	2597	2320 (industrial tires: 1140)
V	1110	1450	1200
W	45°	45°	45°
X	55°	45°	45°
Y	43°	43°	43°

10. SERVICING AND INSPECTION

10.1 General safety instructions for servicing and inspection operating instructions

- Perform servicing and inspection work only if you have read and understood the operating instructions.
- Observe the general safety instructions and all warnings attached to the wheel loader.
- The operating instructions describe the work to be carried out. However, the description of work processes only gives the necessary advice to experienced specialists.
- Keep the operating instructions with the wheel loader at all times.

Personnel

- The servicing and inspection personnel must have expertise in the servicing and inspection tasks to be performed on the wheel loader.
- Only perform servicing and inspection works wearing appropriate working clothes and personal protective equipment.
- Wear ear protection in the event of noise.

Securing the wheel loader and attachments

- Only perform servicing and inspection work if the wheel loader is secured as described in section 10. "SERVICING AND INSPECTION".
- Caution, risk of injury. A raised lifting frame can suddenly lower and cause serious head injuries. If it is essential to work beneath a raised lifting frame to carry out servicing and inspection work, the lifting frame must be secured using a suitable support.
- Position attachments on the ground so that no movement can occur when loosening mechanical or hydraulic connections.
- When working in the articulated area, secure the articulated joint with the jackknife guard.
- Secure equipment or components that are to be attached or removed, or their mounting position modified, against unintentional movement, slipping or falling by means of suitable lifting gear, suspension or support devices.
- Clean treads and handles from dirt to maintain a safe grip.

Tools

Only work with functioning and suitable hand tools.

Cleaning work

- Clean units in the working area before starting work. The choice of cleaning agent depends on the material of the parts to be cleaned. Rubber and electrical components may not be cleaned with solvents or steam. Water can cause short circuits in the electrical system and create new hazards. Do not use cleaning agents that develop harmful or highly flammable vapors. Avoid skin contact with cleaning agents. Wear gloves.

Handling flammable liquids

- Do not smoke when handling flammable liquids and avoid fire or naked flames.
- Do not extinguish fires on the wheel loader or burning liquids with water. Use suitable extinguishing agents, such as powder, carbon dioxide or foam fire extinguishers.
- Always call the fire department in case of fire.

Handling fuels, oils and greases

- Caution. Scalding hazard due to hot lubricating or hydraulic oil.
- Avoid skin and eye contact with oils and greases. Wear gloves and safety goggles.
- Do not use fuels and solvents to clean your skin.
- Rectify oil and fuel leaks immediately.
- Do not harm the environment. Do not allow oils or oily wastes to enter the ground or water bodies.
- Leaked oil or fuel must be absorbed immediately using a binder and disposed of in an environmentally compatible manner, separate from other waste.
- Even biodegradable, "environmentally friendly" oil must muss be disposed of separately, the same as any other oil.

Residual pressure in the hydraulic system

- Caution, risk of injury. A fine hydraulic oil jet under high pressure can penetrate the skin. See a doctor immediately if oil gets in the eyes or skin.
- Open only depressurized hydraulic systems.
- Even when a wheel loader with the lifting frame completely lowered and the engine stopped is parked on a horizontal surface, there may be considerable residual pressure in parts of the hydraulic system.
- Residual pressure discharges gradually. If a hydraulic system needs to be opened immediately after shutdown, you must first depressurize the system.
- For wheel loaders with lowering brake valves on lifting and/or tilting rams, the valves must be opened to lower the lifting frame as described in section 6. "DISCHARGING RESIDUAL PRESSURE IN HYDRAULIC SYSTEM".

Unions, pipes, hydraulic hoses

- Have leaks in the systems rectified immediately.
- Caution, risk of injury. A fine hydraulic oil jet under high pressure can penetrate the skin. See a doctor immediately if oil gets in the eyes or skin.
- Do not use your hands to search for leaks. Use a piece of paper or cardboard to detect oil sprays.
- Do not repair damaged pipes and hydraulic hoses, but replace them with new ones immediately, even if only moisture is visible.

Engine exhaust gases

- Caution, risk of poisoning. Engine exhaust gases are harmful to health. Do not inhale engine exhaust gases.
- If carrying out servicing and inspection work in enclosed spaces, extract the exhaust gases using an extractor unit and ventilate the room well.

Batteries

- Caution, explosion hazard. Batteries emit explosive gases. Avoid smoking, fire or naked flames near batteries.
- Caution, explosion hazard. Do not place any tools on the battery – short circuit hazard. If the terminals are short-circuited sparks are produced which ignite escaping gases.
- Caution, risk of injury. Battery acid is corrosive. Prevent battery acid contact with the skin, eyes, mouth and clothing. Wear gloves and safety goggles. In case of contact with battery acid, rinse the contaminated area immediately with copious amounts of clear water. See a doctor.
- Always remove jewelry and metal watches before working on the battery or the electrical system.
- Dispose of waste batteries in an environmentally compatible manner and separate from other waste.

Electrical system

- Always disconnect the battery in the correct sequence.
  - Disconnecting: First the negative terminal, then the positive terminal.
  - Connecting: First the positive terminal, then the negative terminal.
- Always disconnect the battery before working on the electrical system if tools, spare parts, etc., may come into contact with electrical components or contacts.
- Always disconnect the battery before welding.

After servicing

- After completing servicing and inspection work, replace all protective devices.
- Do not start the engine until you have stopped working on the wheel loader and there are no people left in the danger zone.
- Only start the engine from the driver's seat.
- After completing servicing and inspection work, carry out a functional test with the wheel loader.

10.2 Servicing and inspection intervals

Daily servicing	
Clean the machine	Visual inspection compliant with accident prevention regulations
Clean air filter	Examine for general damage
Check coolant level and condition	Check engine oil level and condition
Inspect for engine leaks	Check hydraulic oil level
Check hydraulic system	Check brake fluid
Check tire pressure and condition	Check all screws are fitted tightly
Check wheel nuts	Check brake system functioning
Check windscreen washer system and water level	Check seatbelt
Check instruments and indicator lights and audible warning devices	Check electrical system
Check foot brake	Check hydraulic steering
Check hydraulic equipment functioning	Check attachments
Check exhaust for defects and excessive smoke development	Greasing as in lubrication schedule
Lubricate tools	

Weekly maintenance	
Clean fuel filter pre-separator (if fitted)	Check axles for leaks
Check hydraulic oil and water cooler for leaks and soiling	Check the exterior condition of the cooler and hoses
Check fan belt tension and condition	Check battery acid level
Check attachments	Check the hydraulic ram piston rods
Check routing of hoses and pipes	Check air filter hose
Electrical cable routing (abrasion/damage)	Lubricate all levers
Lubricate all winch cables and hinges	Tighten all screws
Pay special attention to the engine mountings and axle mountings	Carry out the general safety checks

The following inspection intervals apply. Failure to comply with these intervals will void the warranty

NOTE

The servicing work listed in the inspection schedule should be carried out according to which interval is first, i.e. if either the number of service hours is reached or the time specified in the schedule has expired. You receive the book "Proof of inspection" together with your Eurotrac. The inspections carried out must be entered here.

CAUTION

The servicing and inspection personnel must have expertise in the servicing and inspection tasks to be performed on the wheel loader. Observe the engine operating instructions.

	Intervals 50 h/ 100 h/ 150 h/ etc.	Intervals 400 h/ 800 h/ 1200 h/ etc.	Intervals 800 h/ 1600 h/ 2400 h/ etc.	Intervals every 2000 h	Intervals every 3000 h
ENGINE					
Replace primary fuel filter		x			
Replace fuel filter		x			
Clean fuel tank			x		
Check fan belt tension		x			
Clean the cooler internally			x		
Clean the cooler externally	x				
Check coolant level	x				
Check coolant concentration	x (50 h only)				
Coolant hose fastenings (after first 50 h)	x (50 h only)				
Replace oil and filter (after first 50 h) at least annually	x (50 h only)				
Clean air filter (if needed)	x				
Replace air filter element		x			
Replace safety element			x		
Check air filter element clips and clamps (after first 50 h)	x (50 h only)	x			
Check valve play (after first 50 h)		x		x	
Check idle speed			x		
Check injector nozzles		x			x
Visual inspection for leaks		x			
Check engine mountings		x			
Check exhaust system	x (50 h only)	x			
Axles					
Check oil level		x			
Replace oil (after first 50 h) at least annually	x (50 h only)		x		
Check axle mountings	x		x		

	Intervals 50 h/ 100 h/ 150 h/ etc.	Intervals 400 h/ 800 h/ 1200 h/ etc.	Intervals 800 h/ 1600 h/ 2400 h/ etc.	Intervals every 2000 h	Intervals every 3000 h
Electrical system					
General inspection of lighting and electrical systems		x			
Inspect generator and starter motor			x		
Check battery acid level		x			
Check cables for damage and abrasion		x	x		
Clean battery clamps (at least annually)			x		
Brakes					
Check hoses and pipes		x			
Visual inspection of all assemblies		x			
Check parking brake function	x				
Hydraulic system					
Replace pressure filter (after first 50 h)	x (50 h only)		x		
Replace oil and clean tank (after first 50 h)	x (50 h only)		x		
Return filter (after first 50 h)	x (50 h only)		x		
Replace vent valve			x		
Check oil level	x		x		
Check the working hydraulics pressure and adjust if necessary (pressure limiter valve)	x (50 h only)		x		
Check hydraulic connections	x				
Check hydraulic pump and motor mountings	x (50 h only)	x			
Hydraulic ram piston rods	x				
Wheels					
Check air pressure	x				
Tighten wheel nuts (after first 10 h)			x		
General visual inspection for damage	x				
General examinations					
Accident prevention regulations	x				
Lighting	x				
Leaks, etc.	x				
Lubrication on all levers, Bowden cables and hinges	x				
Check instruments, indicator and warning systems	x				
Check hood locks	x				
Check hydraulic connections	x				

ADDITIONALLY EVERY 2 YEARS

Engine
Replace coolant
Replace coolant hoses and clamps
Replace fuel hoses and clamps

Brakes
Replace brake fluid
Replace brake hoses

ADDITIONALLY EVERY 6 YEARS

Hydraulics
Replace all hydraulic hoses

10.3 Lubrication schedule

The wheel loader must be lubricated regularly.
All lubrication points must be carefully lubricated at least every 8 working hours.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10.4 Cleaning the wheel loader

WARNING

Accident and injury hazard. Daily cleaning is necessary to keep the wheel loader in a safe and technically perfect condition. Pay special attentions to hand-holds, running boards and operating controls.

Do not harm the environment. Only clean the wheel loader at a suitable location where the wastewater can be collected in an environmentally friendly manner. Collect contaminated wastewater and dispose of it in an environmentally friendly manner.

CAUTION

Do not clean sensitive electrical components (instrument box, generator, compact plugs, multi-function lever, radiator, etc.) with a high pressure washer.

NOTE

As long as it is new (in the first three months), only clean the wheel loader with a sponge. Because the paint in the substrate is not yet fully hardened, the paint may be damaged when cleaning with a high-pressure cleaner. When cleaning the wheel loader with a high-pressure cleaner:

Water pressure max. 130 bar. /water temperature 80 °C maximum.

When cleaning, do not hold the nozzle of the pressure washer too close to the decals and other delicate parts, so that nothing is damaged.

CAUTION

When cleaning the wheel loader, pay special attention to its underside. No mud should be allowed to accumulate on the engine and gearbox. Ensure that the radiator is thoroughly clean all over. Do not damage the radiator fins when cleaning the radiator with a high pressure cleaner.
Always cover the air filter's intake manifold before washing the engine.

10.5 General safety checks

CAUTION

Rectify any damage identified during the safety check immediately. Damaged parts must be repaired or replaced immediately.

The wheel loader may only be used after the damage has been professionally repaired.
Check:

- All steel parts for damage and loosened screw connections, especially the protective structure;
- The condition of the seatbelt;
- The quick-change system for the attachments;
- That all pivot pins are in the correct position and secured by their locking device;
- That running board and hand-holds are OK and fit correctly;
- Cabin glass for breaks and cracks;
- The condition of the rear light and lighting, including the work spotlight;
- The tires for damage and penetrating sharp objects;
- The condition of all warning and instruction decals.

10.6 Specifications and fill volumes

NOTE

When filling with oil, filling to the markings on the dipsticks or the inspection screws is mandatory.

Engine		
MODEL	**Capacity**	**Specification**
D1105-E3B/D1105-T-E3B	5.1 L	15W-40 API CF-4/SG to D2
V1505-E3B/V1505-T-E3B	6.7 L	15W-40 API CF-4/SG to D2
V 2403-M-DI-E3B	9.5 L	15W-40 API CF-4/SG to D2
Cooling		
TYPE SPECIFICATION	ANTI-FREEZE -35 °	
W11	11 L	
W12	13 L	
W13	15 L	
T13	15 L	
Hydraulics		
TYPE SPECIFICATION	CALTEX HDZ-46	
W11	66 L	
W12	50 L	
W13	80 L	
T13	80 L	
Axis		
TYPE SPECIFICATION	GL85W90 GL5 GEAR OIL	
W11	2 L	
W12	7.5 L	
W13	12 L	
T13	12 L	
Fuel tank		
TYPE SPECIFICATION	Diesel fuel	
W11	26 L	
W12	42 L	
W13	60 L	
T13	60 L	

CAUTION

Only perform servicing and inspection work if the wheel loader is secured as described in section 10. "SERVICING AND INSPECTION".

NOTE

In order to better carry out servicing and inspection work, it is possible to tip the driver's seat forwards.

10.7 Servicing

10.7.1 Tipping the driver's seat

CAUTION

Remove all tools and objects from the engine and from the engine compartment before tilting the driver's seat.

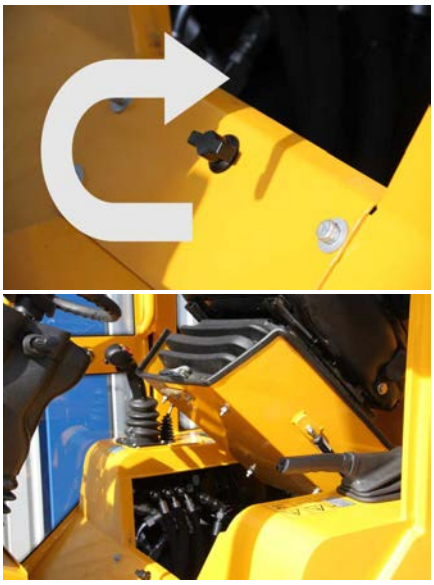
WARNING

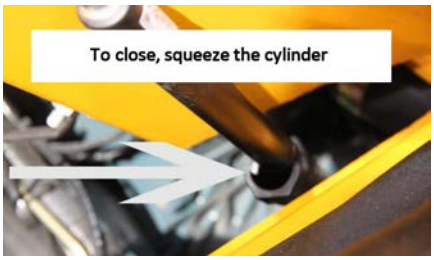
Risk of injury due to moving parts. Do not tilt the driver's seat while the engine is running.
Risk of injury due to unintentional tipping of the driver's seat.

NOTE

If necessary, the driver's seat must be pushed forward slightly on the forward/backward adjustment.

1. Remove loose objects from the driver's seat.
2. Ensure there is enough space to the right of the loader.
3. Release the driver's seat lock. This can only be folded over to the front.





10.7.2 Servicing the engine

WARNING

Risk of injury from hot and moving parts.
Never open the driver's seat with the engine running. Allow the engine to cool or use the protective gloves.

CAUTION

Service the engine in line with the inspections intervals given in these operating instructions and pay special attention to the engine's operating instructions.

Check the engine oil level

CAUTION

The oil level should never fall below the "Minimum" mark on the dipstick.
When filling with oil, the "Maximum" mark on the dipstick must never be exceeded.

1. Park the wheel loader on a horizontal surface and apply the parking brake.
2. Lower the lifting frame completely.
3. Switch off the engine.
4. Wait one minute.
5. Open the hood.
6. Remove the dipstick (left engine side).
7. Wipe the dipstick with a clean, fiber-free cloth.
8. Replace the dipstick.
9. Remove the dipstick again.
10. Check the oil level. The oil level must be between the "Minimum" and "Maximum" marks.
11. After checking the oil level, replace the dipstick.

Topping up engine oil
Use the correct oil (see 10.6 "Specifications and fill volumes").

Do not harm the environment. Collect old engine oil and dispose of it in an environmentally friendly manner.

If the oil level is below the "Maximum" mark, the oil must be topped up:

1. Open the oil filler neck.
2. Top up engine oil.
3. Check the oil level.
4. Top up the engine oil until the oil level is at "Maximum".
5. Close the oil filler neck.

WARNING

Scalding hazard due to hot engine oil.

Do not harm the environment. Collect old engine oil and dispose of it in an environmentally friendly manner.

NOTE

Use a sufficiently dimensioned drip tray to collect the old engine oil and use the correct oil (see 10.6 "Specifications and fill volumes".)

1. Bring the engine to operating temperature.
2. Park the loader on a horizontal surface and apply the parking brake.
3. Lower the lifting frame completely.
4. Switch off the engine.
5. Place a sufficiently dimensioned drip tray beneath the drain plug.
6. Unscrew the drain plug and screw on the hose provided. The oil now drains from the engine.

When the engine oil has drained

1. Replace the engine oil filter (see "Replace the engine oil filter").
2. Unscrew the hose provided and screw on the drain plug.
3. Open the oil filler neck.
4. Fill engine oil into the oil filler neck until the oil level reaches the "Maximum" mark.
5. Start the engine and allow it to idle until the engine oil pressure control light goes off
6. Check the oil level and top up if necessary.
7. Close the oil filler neck.
8. Dispose of the old engine oil in an environmentally compatible manner.

Replace the engine oil filter

WARNING

Scalding hazard due to hot engine oil.

NOTE

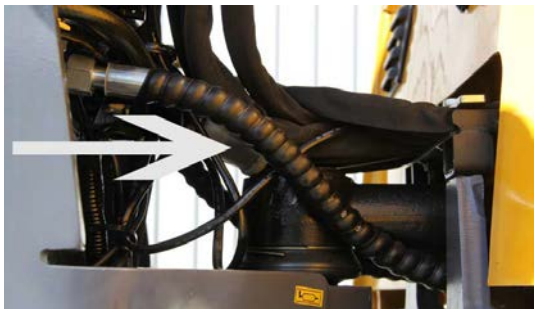
The engine oil filter has a bypass valve that opens if the filter is blocked.

The engine oil filter is located on the right side of the engine.

1. Open the hood
2. Place a drip tray to catch escaping oil beneath the engine oil filter.
3. Unscrew the engine oil filter.
4. Clean the sealing face on the filter body.
5. Oil the rubber seal slightly on the new engine oil filter.
6. Screw on the new engine oil filter until the rubber seal is properly seated.
7. Tighten the new engine oil filter a further half turn by hand.
8. Check the oil level and top up to the "Maximum" mark if necessary.
9. Close the hood
10. Dispose of the old engine oil filter in an environmentally compatible manner.

10.7.3 Servicing the fuel system

The fuel flows through a prefilter from the tank. The prefilter is located in the articulated area.



CAUTION

Service the fuel system according to the inspection intervals specified in these operating instructions.
Use only clean and high quality diesel fuel. Do not use gasoline.

WARNING

Risk of injury from hot and moving parts.
Never open the driver's seat with the engine running. Explosion and fire hazard. Do not smoke when handling fuel and avoid fire or naked flames. Do not mix gasoline into the diesel fuel.

NOTE

Always replace all fuel filters at the same time.

Do not harm the environment. Collect escaping fuel and dispose of it in an environmentally friendly manner.

Primary fuel filter replacement

1. Place a drip tray beneath the primary fuel filter
2. Undo the screw.
3. Remove the primary fuel filter.
4. Clean the sealing faces on the filter body and the filter cover.
5. Replace the seals. Wet the new seals with diesel and ensure that they are correctly seated.
6. Replace the primary fuel filter.
7. Replace the filter cover,
8. Tighten the screw.
9. Bleed the fuel system.

Venting the fuel system

1. Fill the fuel tank.
2. Operate the bleed pump until the fuel flows in the return.
3. The engine is ready to start.

10.7.4 Servicing the air filter system

The wheel loader is equipped with a dry air filter for filtering the engine intake air. The air filter is located above the diesel engine.

CAUTION

Service the air filter according to the inspection intervals specified in these operating instructions.
Engine damage may occur if the engine draws in unfiltered air. Never run the engine when parts of the air intake system have been removed. Renew damaged air filters immediately.

WARNING

Risk of injury from hot and moving parts. Allow the engine to cool or use the protective gloves.

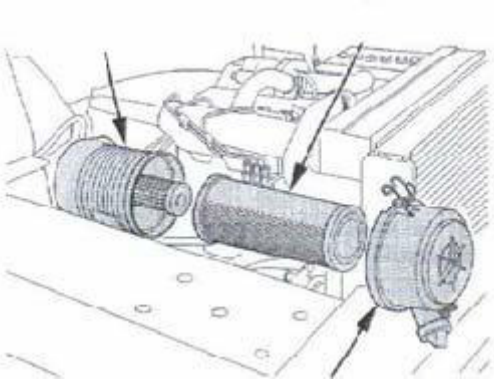
Check/clean/replace primary air filter element

CAUTION

Clean or replace the primary filter element during the inspections.

1. Loosen the fastenings on the cover and remove the cover.
2. Pull out the primary filter element. The safety filter element is not removed.
3. Visually inspect the suction line between the filter and the engine for leaks and correct fit. The suction line may not display external damage.
4. Clean the primary filter element (knock it slightly and blow it out with compressed air from inside to outside). If the primary filter element is too dirty or damaged, renew it.

A new or cleaned primary filter element is fitted in reverse order.



Check/replace safety air filter (not on all models)

CAUTION

Replace the safety filter as required, but always after the fifth primary filter cleaning. If it becomes apparent when servicing the dry air filter that a servicing error has occurred or the primary filter element is damaged, the safety filter element must be replaced.

1. Loosen the three fasteners on the cover.
2. Remove the cover.
3. Pull out the primary filter element.
4. Pull out the safety filter element.
5. Fit a new safety filter element.

Re-assemble in the reverse order.

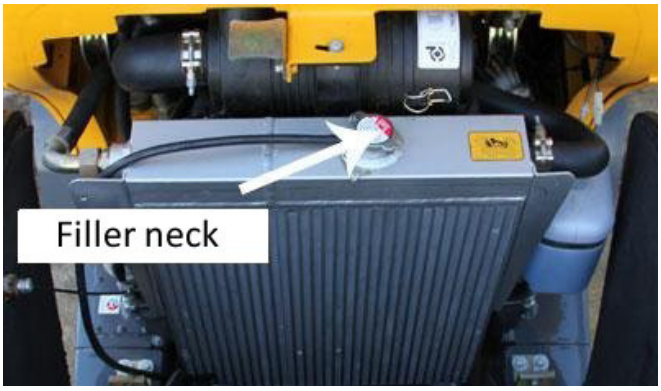
10.7.5 Servicing the cooling system

WARNING

Scalding hazard due to hot coolant. Never open the cooling system when the engine is hot or under pressure. Allow the engine to cool or use the protective gloves.

CAUTION

Service the cooling system according to the inspection intervals specified in these operating instructions.
Turn off the engine immediately if the temperature indicator on the dashboard lights up. If the temperature indicator lights up, the engine or the hydraulic oil, or both, have become too hot.
The hydraulic oil cooler is located in the rear of the wheel loader behind the engine radiator. The engine radiator is mounted behind the diesel engine. It is accessible by opening the hood. The temperature indicator light is connected to two temperature sensors, one located on the engine and one on the hydraulic oil tank. To determine whether the engine oil or the hydraulic oil (or both) has become too hot, disconnect the cable from one of the two temperature sensors.



WARNING

Scalding hazard due to hot coolant.
Never open the cooling system (filler neck) when the engine is hot or under pressure.

Should the wheel loader overheat during long road trips or high ambient temperatures, check the following:

Do not harm the environment. Collect escaping fuel and dispose of it in an environmentally friendly manner.

- Is there enough coolant in the cooler and is the coolant mix correct?
- Is the fan belt tensioned and in good condition?
- Are the coolers completely clean throughout?
- Does the fan work?

Check coolant level/top up coolant

CAUTION

The coolant must consist of equal parts of water and antifreeze.
This mixture ensures an optimal ratio between cooling performance and corrosion protection. Do not fill up coolant quickly when the entire volume needs to be filled, e.g. when replacing the coolant. Fill a maximum of 5 l/min. If the cooling system is filled too quickly, this may result in air bubbles in the cooling system, leading to engine overheating.

WARNING

Scalding hazard due to hot coolant. Never open the cooling system when the engine is hot or under pressure. Regularly check the coolant level. If you look into the coolant opening from above, the radiator fins must be covered with liquid. Ensure that sufficient antifreeze is always added to the coolant, even in summer, because the antifreeze also prevents internal corrosion of the radiator and engine.

Check antifreeze mixture

CAUTION

Replace the coolant every 2 years.
The coolant must consist of equal parts of water and antifreeze. This mixture ensures an optimal ratio between cooling performance and corrosion protection. Do not fill up coolant quickly when the entire volume needs to be filled, e.g. when replacing the coolant. Fill a maximum of 5 l/min. If the cooling system is filled too quickly, this may result in air bubbles in the cooling system, leading to engine overheating.

The antifreeze prevents coolant freezing at temperatures below zero and protects the engine block and radiator against internal corrosion. Under normal conditions, a frost protection level of -20 °C to -30 °C is sufficient. You can determine the antifreeze content with the aid of a commercially available antifreeze tester.

Replacing the coolant

1. Park the loader on a horizontal surface and apply the parking brake.
2. Lower the lifting frame completely.
3. Switch off the engine.
4. Place a sufficiently dimensioned drip tray beneath the lower radiator hose.
5. Open the radiator cap.
6. Loosen the lower radiator hose (undo the hose clip and remove the hose).

When the coolant has drained:

1. Replace the lower radiator hose properly.
2. Mix new coolant equally between clean tap water and new antifreeze.
3. Fill the new coolant into the radiator opening until the radiator fins are covered with coolant.
4. Close the radiator cap.
5. Check the coolant level again after half an hour of operation.

Cleaning the cooling system

Clean soiled coolers with compressed air. You can also clean heavily soiled coolers with water under high pressure.
Clean:

- The engine radiator
- The hydraulic oil cooler
- The generator (with compressed air only)

CAUTION

The higher the dust content in the air, the more frequently all coolers must be checked and cleaned.
Always cover the air filter's intake manifold before cleaning. Do not damage the radiator fins when cleaning the radiator. Carefully straighten bent cooler fins.

Do not harm the environment.
Only clean the wheel loader at a suitable location where the wastewater can be collected in an environmentally friendly manner.
Collect contaminated wastewater and dispose of it in an environmentally friendly manner.

10.7.6 Servicing the hydraulic system

WARNING

Risk of injury due to moving parts.
Never tip the driver's seat with the engine running. Scalding hazard due to hot hydraulic oil. Risk of injury due to hydraulic oil escaping under pressure. A fine hydraulic oil jet under high pressure can penetrate the skin. See a doctor immediately if oil gets in the eyes or skin. Open only depressurized hydraulic systems. Even when a wheel loader with the lifting frame completely lowered and the engine stopped is parked on a horizontal surface, there may be considerable residual pressure in parts of the hydraulic system. The residual pressure discharges gradually. If a hydraulic system needs to be opened immediately after shutdown, the system must first be depressurized as described in section 6. "DISCHARGING RESIDUAL PRESSURE IN HYDRAULIC SYSTEM".

CAUTION

Service the hydraulic system according to the inspection intervals specified in these operating instructions.
When carrying out servicing work on the hydraulic system, pay attention to utmost cleanliness. Contamination of hydraulic oil by dirt or water can lead to premature wear or failure of the entire system.

Hydraulic oil cooler

The hydraulic oil cooler is located in the rear of the wheel loader. If the wheel loader becomes too hot during long road trips or high ambient temperatures, check that the radiator is thoroughly clean throughout and that the fan is working.

Ventilation filter/hydraulic oil filler neck (not on all models)

NOTE

Renew the ventilation filter after 1000 service hours.

The ventilation filter is located on the hydraulic oil tank. It ensures that the hydraulic tank is ventilated when the hydraulic oil level fluctuates. The ventilation filter contains a filter element that prevents the ingress of dust and dirt and the leakage of oil droplets. There is a valve in the ventilation filter which keeps the tank pressure at approx. 0.5 bar. This pressure escapes when the hydraulic oil filler neck is opened.

Check the hydraulic oil level
The hydraulic oil tank is located to the left at the rear of the machine.

CAUTION

The oil level should never fall below the "Minimum" mark on the oil measuring glass.
When filling with oil, the "Maximum" mark on the oil measuring glass must never be exceeded. Oil clouding means there is water or air in the system that can damage the hydraulic pump. Contact trained personnel to rectify the fault. Do not drive with the wheel loader before the fault has been rectified.

1. Park the wheel loader on a horizontal surface and apply the parking brake.
2. Lower the lifting frame completely.
3. Switch off the engine.
4. Wait one minute.
5. Check the oil level in the hydraulic tank.

Top up the hydraulic oil

NOTE

Use the correct oil type.
Carefully open the hydraulic oil filler neck to allow the pressure in the tank to dissipate.

If the oil level is below the "Maximum" mark, the oil must be topped up:

1. Open the hydraulic oil filler neck.
2. Refill hydraulic oil.
3. Check the hydraulic oil level.
4. Top up the hydraulic oil until the oil level is at "Maximum".
5. Close the hydraulic oil filler neck.

Do not harm the environment. Collect old hydraulic oil and dispose of it in an environmentally friendly manner.

Hydraulic oil replacement

WARNING

Scalding hazard due to hot hydraulic oil.
Use a sufficiently dimensioned drip tray to collect the old hydraulic oil and use the correct oil (see 10.6 "Specifications and fill volumes".)

1. Park the loader on a horizontal surface and apply the parking brake.
2. Lower the lifting frame completely.
3. Switch off the engine.
4. Depressurize the hydraulic system.
5. Place a sufficiently dimensioned drip tray beneath the hydraulic tank drain plug.
6. Unscrew the plug.

When the hydraulic oil has drained

1. Remove the filter element.
2. Clean the tank bottom and inside of the tank with hydraulic or flushing oil through the opening.
3. Replace the return filter element.
4. Refit the plug.
5. Fill hydraulic oil into the hydraulic oil filler neck until the oil level reaches the "Maximum" mark.
6. Close the hydraulic oil filler neck.
7. Bleed the hydraulic system.
8. Check the hydraulic oil level and top up if necessary.
9. Dispose of the old hydraulic oil in an environmentally compatible manner.

Replace the hydraulic filter element

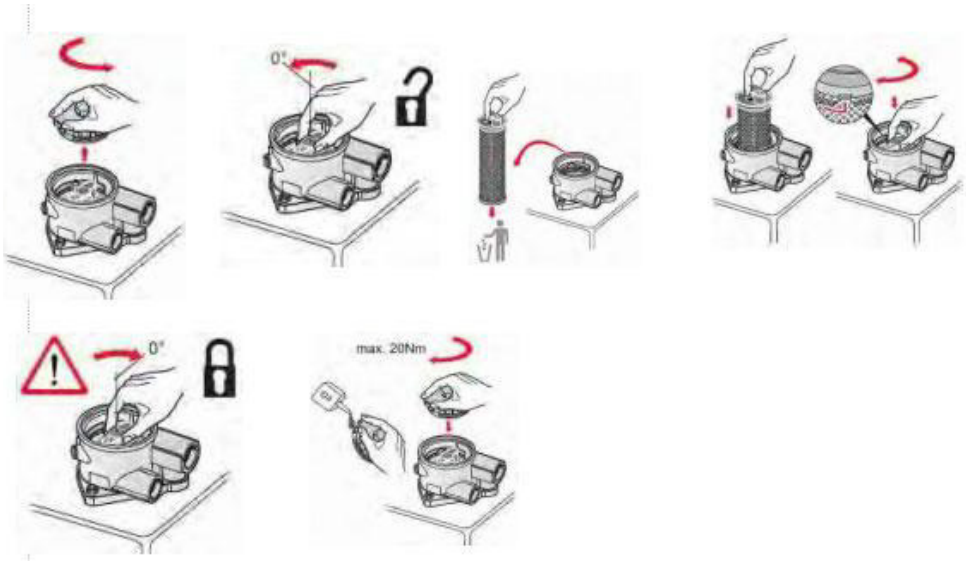
WARNING

Replace the filter element during the inspections.

Allow the pressure in the hydraulic oil tank to dissipate by opening the hydraulic oil filler neck before unscrewing the filter casing cover. Otherwise oil is forced out of the filter casing and may enter the environment. Dispose of the old filter element and escaped hydraulic oil in an environmentally compatible manner.

1. Park the loader on a horizontal surface and apply the parking brake.
2. Lower the lifting frame completely.
3. Switch off the engine.
4. Depressurize the hydraulic system.
5. Unscrew the filler casing cover.
6. Remove the filter element.
7. Fit a new filter element.

8. Check the seal. Replace the seal.
9. Refit the filler casing cover.
10. Close the hydraulic oil filler neck.
11. Bleed the hydraulic system.
12. Check the hydraulic oil level and top up hydraulic oil if necessary.



Bleeding the hydraulic system

WARNING

Danger of uncontrolled movements of the wheel loader and the lifting frame.
The hydraulic system must be bled after every hydraulic oil change, return filter element replacement, malfunction of the hydraulic system, repairs or extended downtimes. Only bleed the hydraulic system from the driver's seat. Accident hazard due to people remaining in the danger zone. Ensure that no persons are located in the wheel loader's danger zone during bleeding.

1. Check the oil level in the hydraulic oil tank. Top up hydraulic oil if necessary.
2. Start the engine and let it run at idle speed for a few minutes.
3. Retract and extend the piston rods of all hydraulic rams several times.
4. With the engine running, turn the steering wheel to both sides through the complete steering angle until steering is smooth and noiseless.
5. Check the oil level in the hydraulic oil tank after bleeding. Top up hydraulic oil if necessary.

10.7.7 Servicing the axles

CAUTION

Service the gearbox and axles according to the inspection intervals specified in these operating instructions.

NOTE

Inspection, filling and drain screws are located in the same positions on the front and rear axles.

Check axle oil level W11 and W12 (W13/T13 please ask separately.)

The complete axle has a common oil system. The transfer case has a common oil system. You can check the oil level at the differential housing and at the transfer case.

1. Park the loader on a horizontal surface and apply the parking brake.
2. Lower the lifting frame completely.
3. Switch off the engine.
4. Unscrew the Allen screws.
5. The transmission oil must be at the lower edge of the filler opening.
6. Top up the transmission oil if necessary.
7. Refit the Allen screw.

Do not harm the environment. Collect old transmission oil and dispose of it in an environmentally friendly manner.

Axle oil replacement

WARNING

Scalding hazard due to hot transmission oil.
Use a sufficiently dimensioned drip tray to collect the old transmission oil and use the correct oil type. The transmission oil is viscous. Replace the axle oil when it is warm and open the fill screw; it then drains faster.

1. Park the loader on a horizontal surface and apply the parking brake.
2. Lower the lifting frame completely.
3. Switch off the engine.
4. Place a sufficiently dimensioned drip tray beneath the transfer case drain plug.
5. Unscrew the Allen screws; the transmission oil then drains faster.

When the transmission oil has drained

1. Refit the Allen screws.
2. Fill new transmission oil through the filler opening.
3. The transmission oil must be at the lower edge of the filler opening.
4. Refit the Allen screws.
5. Check the oil level at the transfer gear case and differential case again after half an hour of operation and top up the transmission oil if necessary.

10.7.8 Brake servicing

The wheel loader is equipped with a foot and parking brake. The foot and parking brake consists of a drum brake with a cable pull. The foot brake is operated by a hand brake lever.

- Check the brakes daily before starting any journey.
- Check the brake fluid level. This must always be filled to max.
- Check the entire system for liquid leaks.
- Check the functionality of the parking brake daily.

WARNING

Accident hazard due to defective brakes.
Defective brakes can cause fatal accidents. Do not drive with defective brakes. Only work with the wheel loader after rectifying faults. Work on the brake system may only be carried out by trained specialist personnel. Have the brake system inspected regularly by trained and experienced personnel during inspections. When parking the wheel loader, secure the wheel loader additionally with brake blocks or brake wedges.

10.7.9 Servicing tires and wheels

WARNING

Danger to life/injury hazard.
Improperly fitted tires and wheels may lead to fatal accidents. Work on wheels and tires may only be carried out by personnel trained for such work. Welding or torch cutting on the rims is prohibited. Renew damaged rims.

CAUTION

Differing wheel or tire sizes can cause damage to the wheel loader's differential gears.
Only fit wheels or tires from the same manufacturer, of the same size and the same state of wear on the wheel loader.

Inflating tires

These instructions refer to inflation in case of air pressure loss. Observe the air pressure prescribed for the wheel loader's tire size (see "Tire air pressure table"). In the event of complete loss of air pressure, this work may only be carried out by trained specialist personnel with the appropriate equipment.

CAUTION

Use only filling units with a calibrated pressure gage to inflate the tires.
Ensure that no persons are located in the danger zone while inflating tires.

1. Park the loader on a horizontal surface and apply the parking brake.
2. Lower the lifting frame completely.
3. Switch off the engine.
4. Remove the dust cap on the tire valve.
5. Place the filling unit's compressed air nozzle on the tire valve so that it fits tightly.
6. Inflate the tire to the prescribed pressure.
7. Remove the filling unit's compressed air nozzle from the tire valve.
8. Replace the dust cap on the tire valve.

Tire air pressure table		
Tires	**PR**	**Air pressure (bar)**
W11 tires	26 x 12-12AS	Nominal pressure is 3.0 bar
W12 tires	10-16.5 NHS	Nominal pressure is 5.2 bar
	31x15.5-15AS	Nominal pressure is 4.8 bar
W13 tires	11.5/80-15.3AS	Nominal pressure is 5.2 bar
T13 tires	11.5/80-15.3 AS,	Nominal pressure is 5.2 bar
	15.0/50-17 AS	Nominal pressure is 3.6 bar
	19.0/45-17 AS	Nominal pressure is 3.7 bar

Wheel replacement

WARNING

Danger to life/injury hazard.
To replace the tires, place the wheel loader on a level surface on firm ground. Use only a safe, suitable jack with sufficient lifting capacity (observe the wheel loader's service weight).

CAUTION

Always tighten wheel nuts using a torque wrench and to the specified tightening torque.
Always tighten opposite wheel nuts in alternation. After replacing the wheel, check the wheel nut tightening torque every two hours until it no longer changes.

NOTE

Observe the tire profiles, so that the greatest force of the wheel loader is exerted when driving forwards.
Take the tightening torques from the table below:

	Front wheels	Rear wheels
Wheel nuts	180 Nm	180 Nm

1. Park the loader on a horizontal surface and apply the parking brake.
2. Lower the lifting frame completely.
3. Switch off the engine.
4. Place the jack under the axle next to the wheel to be changed. Make sure that the loader cannot slip off.
5. Loosen the wheel nuts.
6. Lift the jack only so far that the wheel is clear of the ground.
7. Unscrew the wheel nuts and remove the wheel.
8. Fit the new wheel and the wheel nuts.
9. Tighten the wheel nuts.
10. Lower the jack again.
11. Alternately tighten the opposite wheel bolts to the specified torque.

10.7.10 Servicing the electrical system

CAUTION

Do not clean sensitive electrical components (instrument box, generator, compact plugs, multi-function lever, etc.) with a high pressure washer.
Do not touch light bulbs and headlamp reflectors with your fingers.

CAUTION

Always disconnect the battery before working on the electrical system if tools, spare parts, etc., may come into contact with electrical components or contacts.

NOTE

Have faults in the electrical system repaired by trained specialist personnel.

Fuse allocations
The electrical circuits are protected by a variety of different fuses The fuses are located in the fuse box beneath the driver's seat

Do not harm the environment. Collect old transmission oil and dispose of it in an environmentally friendly manner.

CAUTION

Check the fuses in case of electrical failures.
If a fuse blows, identify and rectify the cause before replacing the fuse. Only replace defective fuses with fuses of the same capacity.

Battery

WARNING

Explosion hazard.
Batteries emit explosive gases. Avoid smoking, fire or naked flames near batteries. Do not place any tools on the battery – short circuit hazard. If the terminals are short-circuited sparks are produced which ignite escaping gases.

Risk of injury.
Battery acid is corrosive. Prevent battery acid contact with the skin, eyes, mouth and clothing. Wear gloves and safety goggles. If you come into contact with battery acid, immediately rinse the contaminated area with plenty of clear water. See a doctor.
The batteries have a rated voltage of 12 volts, the battery capacity is 77 Ah. The battery is located beneath the wheel loader's driver's seat. It is accessible by tilting the seat.

Servicing the battery

- Always keep the battery terminals and the connecting cable clamps clean and lubricate them with corrosion protection grease.
- Check weekly the battery acid level weekly.
- If necessary, add distilled water to the battery.
- Ensure that the cover of the positive terminal is always present and closed.

Check battery acid level

WARNING

Risk of injury due to moving parts.
Never open the hood with the engine running.

NOTE

Check weekly the battery acid level weekly. Only add distilled water to the battery.

1. Park the loader on a horizontal surface and apply the parking brake.
2. Lower the lifting frame completely.
3. Switch off the engine.
4. Tilt the driver's seat forwards.
5. The battery acid level is visible through the battery casing. The outside of the battery casing has MIN/MAX markings. The battery acid level must always be within these markings.
6. If this is not the case, top up the distilled water.

Topping up distilled water

1. Open the battery plugs.
2. Top up the distilled water in each of the six battery cells through the openings as far as the MAX marking.
3. Reseal the battery cells with the plugs.

Connecting and disconnecting the battery/battery replacement

WARNING

Risk of injury due to moving parts.
Never open the hood with the engine running. Always disconnect the battery in the correct sequence.

- Disconnecting: First the negative terminal and then the positive terminal.
- Connecting: First the positive terminal and then the negative terminal.

Removing the battery

1. Park the loader on a horizontal surface and apply the parking brake.
2. Lower the lifting frame completely.
3. Switch off the engine.
4. Before disconnecting the battery, switch off all electrical loads (and the battery isolator switch) and remove the ignition key.
5. Unscrew the towing equipment ring nuts.
6. Open the rear panel.
7. Unscrew the cable from the negative terminal.
8. Unscrew the cable from the positive terminal.
9. Unscrew the battery holder.
10. Take the battery by its handles and lift it out.

The battery is installed in reverse order.

10.8 Starting aids/external start

WARNING

Explosion hazard.
Batteries emit explosive gases. Avoid smoking, fire or naked flames near batteries. Short-circuit hazard. Ensure that the external machine and the wheel loader do not touch each other. Do not externally start the wheel loader if the battery is defective or frozen. Do not connect two batteries in series. Use only booster batteries with the same voltage. Only use tested jumper cables with insulated terminal tongs and sufficient cable cross-section. Locate the jumper cables so that they can not be caught by rotating engine parts.

Before using a starting aid, check that the wheel loader battery is functional:

1. Switch off all electrical loads on the wheel loader.
2. Switch the ignition key to position 1 (operation). The warning lights should now be on.
3. If the warning lights do not go on, the battery is defective. In this case, the wheel loader may not be started. Install a functional battery.

Preparation

1. Switch off all electrical loads on the wheel loader.
2. Switch the ignition key to position 0.
3. Move the external machine (charged battery) to the wheel loader so that they do not touch, but you can reach the batteries with the jumper cable.
4. Switch off all electrical loads on the external machine and switch off the engine.

Connect the jumper cables (in the correct sequence)

1. Connect the red jumper cable to the positive terminal of the drained battery.
2. Connect the red jumper cable to the positive terminal of the charged battery.
3. Connect the black jumper cable to the negative terminal of the charged battery.
4. Connect the black jumper cable to the negative terminal of the drained battery.

Start the engines

1. Start the engine on the external machine and allow it to run at increased speed.
2. Start the wheel loader's engine.
3. If the wheel loader's engine does not start after 15 seconds, wait one minute before making a new attempt.
4. If the engine starts, allow both engines to run at idle speed for a further two minutes with the jumper cables connected.

Disconnect the jumper cables (in the correct sequence)

1. First, disconnect the black jumper cable from the negative terminal of the drained battery and then from the negative terminal of the charged battery.
2. Disconnect the red jumper cable from the positive terminal of the charged battery first, and then from the positive terminal of the drained battery.

10.9 Decommissioning and recommissioning the wheel loader

The specified measures refer to decommissioning and recommissioning the wheel loader for extended periods.

NOTE

Observe the engine operating instructions.

Decommissioning the wheel loader

- Park the wheel loader as described in section 10. "SERVICING AND INSPECTION".
- Block the articulated joint.
- Jack up such that the tires no longer touch the ground.
- Release the parking brake.
- Lower the lifting frame completely.
- Carry out the "Discharging residual pressure in hydraulic system" and put the control lever in the 0 position.
- Spray bare metal parts of the wheel loader (e.g.: the piston rods of the hydraulic rams, if they are not retracted) with anticorrosive agent.
- Preserve the engine.

Preserve the engine

- Clean the engine using a high-pressure cleaner at a suitable location.
- Bring the engine to operating temperature.
- Drain the engine oil and dispose of it in an environmentally compatible manner.
- Fill the engine with anticorrosive oil.
- Drain the fuel tank.
- Produce a mixture of 90% fuel and 10% anticorrosive oil and top up the fuel tank.
- Allow the engine to idle for 10 minutes, then turn it off.
- Turn over the engine several times by hand to aid cylinder and combustion chamber preservation.
- Remove the fan belt and place it in airtight and light-tight storage.
- Spray the running surfaces of the pulleys with anticorrosive agent.
- Seal off the engine intake and exhaust ports.

Battery storage

- Remove the battery.
- Clean the battery.
- Charge the battery.
- Store the battery in a dry and well ventilated room at approx. 20 °C.
- Check the battery acid level monthly.
- Recharge the battery before reuse.

Recommissioning the wheel loader

- Remove the engine preservation.
- Install the battery.
- Check the tire pressures.
- Remove the preservation of the piston rods on the hydraulic rams.
- Lower the loader.
- Check the electrical system functioning.
- Unblock the articulated joint.
- Bleed the hydraulic system.
- Check steering and brake functioning.

Remove engine preservation

- Remove the sealing from the engine intake and exhaust ports.
- Remove the anticorrosive agent from the pulleys.
- Fit the fan belt.
- Drain the preservation oil and fill with engine oil.
- Start the engine.
- Check the V-belt tension after the first two hours of operation.

11. FAULT FINDING AND TROUBLESHOOTING

Fault	Possible cause	Remedy
Engine does not start	Empty fuel tank	Fill tank and vent the fuel system if necessary
	Fuel filter or prefilter (experience says prefilter) clogged, paraffin precipitation	Replace fuel filter or prefilter, winter diesel
	Release magnet on the engine does not pick up	Check fuses
	Leaking fuel line	Tighten all unions and clamps
	Starting speed too low	Check battery and charge, check battery clamps for good fit
Engine running, wheel loader does not move	Hand brake applied	Release hand brake
	Immobilizer not deactivated	See 3.3.2 "Driving".
	Inch cartridge is not in 0 position	Check the inch cartridge and return spring and repair if necessary
	Magnets on the drive pump without power	Check fuses, have workshop check the multifunction lever and electronics
Engine overheats	Radiator/oil cooler on the engine is soiled	Clean
	Coolant level too low	Fill
	Thermostat jammed	Have it replaced by a workshop
	Fan belt loose	Tension fan belt
	Oil level too low or too high	Correct oil level
Hydraulic system overheats	Hydraulic oil cooler soiled	Clean
	Fan belt loose	Tension fan belt
	Hydraulic oil level too low	Top up the hydraulic oil
	Overloaded	Load machine less, take a break
Machine has insufficient power	Clogged air filter	Replace
	Incorrect fuel type	Replace fuel
	Inching jams	Examine, repair
	Engine speed too low	Adjust

12. SAFETY INSTRUCTIONS FOR REPAIRS

NOTE

The "Safety instructions for repairs" section does not consist of instructions for repair, but instead of safety instructions which, in addition to the generally applicable safety regulations for repair work, point out hazards that may arise during repair work, and instructions intended to prevent damage to the wheel loader when carrying out repairs. Specific instructions for repairs are not included in these operating instructions.

12.1 General safety regulations for repairs

Operating instructions
Perform repair work only if you have read and understood the operating instructions.

Pay special attention to
- The general safety instructions.
- The general safety instructions for servicing and inspection
- All warning and information signs attached to the wheel loader.
- That the description of work processes only gives the necessary advice to experienced specialists.
- That the operating instructions must be kept with the wheel loader at all times.

Repair staff
- The repair staff must have expertise and experience in repairing either this, or similar, wheel loaders.
- If expertise is lacking, thorough training must be provided by experienced personnel.

Blocking the joint protection
- When carrying out repair work in the articulated area, always secure the articulated joint with the jackknife guard.
- Remove the guard after completing repair work.

Sealed pressurized units
Do not open sealed pressurized units (e.g. Pressure accumulators), but always replace them completely.

Removing components
- Burn/scald hazard due to hot parts or liquids. Do not remove components on wheel loaders at operating temperature.
- Depressurize pipes, hoses, rams, radiators, hydraulic tanks, pressure vessels and other systems or units before starting work.
- Renew defective components on time.
- Clean components carefully before removal.
- Mark dismantled components in the correct sequence to avoid errors during assembly.
- When removing a component, carefully seal exposed connections, open bores and casings to prevent dirt from entering.

Do not remove lead seals or sealing wax

- It is forbidden to change the rated pressures of pressure limiting valves without the express permission of the manufacturer.
- Lead seals and sealing wax on the engine, pressure limiting valves and pressure accumulators may not be damaged or removed.

After repair

- Cover all blank machine parts with protective varnish to avoid corrosion damage.
- Refit the cabin fixing screws once the repair work is completed.
- Reinstall all guards, covers, noise and vibration insulation after completion.
- Check the function of the wheel loader, in particular the repaired components in trial operation. Ensure that no persons are in the danger zone.
- Only return the wheel loader to operation if it functions properly in all areas.

12.2 Engine

- Only perform repair work if the wheel loader is secured as described in section 12. "SAFETY INSTRUCTIONS FOR REPAIRS".
- Risk of injury from rotating parts and hot parts Allow the engine to cool after turning off.
- Only inspect the fan belt when the engine is off.

12.3 Welding

- Welding work may only be carried out by trained personnel
- Welding work may only be carried out on vessels that contain, or have contained, substances that are flammable, capable of promoting fires, are explosive or which develop harmful vapors, gases, mists or dusts during welding operations by persons assigned to this work under the supervision of a qualified expert. If there are problems or questions, ask.

Before welding on the wheel loader

- Disconnect the battery as described in these operating instructions.
- Disconnect the positive terminal (clamp B+) on the generator.
- Switch the battery isolator switch (if fitted) to OFF.
- Protect disconnected terminals and connections against short-circuits.
- Attach the welding current clamp in the immediate vicinity of the welding point. The welding current may not flow through gears, bolts, joints or hydraulic rams.

After welding

- Reconnect all electrical connections and check their function.
- Reconnect the battery as described in the operating instructions.

12.4 Hydraulic system

- Prior to carrying out repair work on the hydraulic system, depressurize the system as described in section 6. "DISCHARGING RESIDUAL PRESSURE IN HYDRAULIC SYSTEM".
- Replace damaged and leaking hydraulic lines and hoses with new ones. Do not use used hoses.
- Hydraulic hoses must be renewed after a service life of six years.
- Dispose of spilled oil and oily waste in an environmentally compatible manner.
- Observe the general safety instructions for servicing and inspection

12.5 Brakes

- Repair work on brakes may only be carried out by personnel trained to work on brake systems.
- The use of brake fluid other than that specified by the manufacturer is prohibited.
- Observe the notes on health hazards and environmental protection when working with brake fluids.
- Only carry out repair work on brakes if the wheel loader is secured as described in section 12. "SAFETY INSTRUCTIONS FOR REPAIRS".

13. FINAL MOTHBALLING OF THE WHEEL LOADER/ DECOMMISSIONING

Do not harm the environment. Do not allow oils or oily wastes to enter the ground or water bodies. Dispose of the different materials, and operating and ancillary materials, separately and in an environmentally compatible manner.

If the wheel loader is no longer going to be used for its intended use, ensure that it is mothballed or decommissioned and disposed of in accordance with the applicable regulations.

Before disposal

- Comply with all applicable safety regulations relevant to wheel loader decommissioning.
- Make sure that the wheel loader cannot be operated between decommissioning and further disposal.
- Ensure that no environmentally hazardous operating and ancillary materials escape and that the machine presents no further hazards at the parking location.
- Secure the wheel loader against unauthorized use. Close and lock all openings (doors, windows, hood) and secure the wheel loader as described in section 13. "FINAL MOTHBALLING OF THE WHEEL LOADER/ DECOMMISSIONING".
- Attach all safety guards.
- Repair leaks in engine, tanks and hydraulic system.
- Remove the battery.
- Store the wheel loader at a location secured against access by unauthorized persons.

Disposal

- Downstream recycling of the wheel loader must comply with current best practice in force at the time of recycling and comply with accident prevention regulations.
- All parts must be disposed of in the designated locations, depending on the material.
- Pay attention to material separation during recycling.
- Pay attention to environmentally compatible disposal of operating and ancillary materials.

14. APPENDIX

14.1 Ordering spare parts

CAUTION

Only use original spare parts for the wheel loader.
Order at info@eurotrac.nl or Tel: +31 (0)186 612 333

Enter your wheel loader's most important data here, so you can quickly look up the most important data when ordering spare parts.

Wheel loader type	
Vehicle Identification Number	
Engine type	
Engine no.	
Delivery date	