OPERATION MANUAL

YT203EV

Yard Tractor

TERBERG BENSCHOP
MANUFACTURER OF SPECIAL VEHICLES

Document: TD2969-07EN
Date: 2025-03

Change history

Version	Description	Chapter
07	Updated: Stickers	2.5
	Updated typeplate	2.6
	Added: Two new symbols of additional heater	4.4
	Added: Charging indicator	5.2.4
	Added: Starting using a jumper cable	9.11.1
06	Added: EBS	6.7
04	Changed: Couple & Uncouple a trailer	6.8.2
03	Changed: Turn indicator	3.6.9
	Changed: Terberg Connect	3.6.10
02	Changed: DIM Description	4

Contents

1 Introduction

1.1 How to use this document

This manual contains important information about the correct and safe use and maintenance of the Terberg Yard tractor. The manual MUST be read thoroughly before using the tractor. The tractor will operate safely if the warnings, notices and instructions provided in this manual are observed.

This manual is not intended to be a technical guide, nor is it intended to make the reader an all-round tractor mechanic. Its purpose is to inform you how to operate and service your tractor so problems can be avoided.
The better you know your tractor, the better the performance you can expect from it.

Terberg shall not be liable for any external equipment that does not form part of the supply contract.

All information markings and symbols on the tractor conform to general operator standards to the best of our knowledge. However, customers should review this document based on their own working requirements and standards.

MANUFACTURER

Visitor address:
Terberg Benschop B.V.
Oranje Nassaustraat 10
NL-3405XK BENSCHOP
The Netherlands.

Phone: +31 348 459 211
E-mail: info@terbergbenschop.nl

Postal address:
P.O. Box 2
NL-3405ZG BENSCHOP
The Netherlands.

Internet address:
www.terbergbenschop.nl

Terberg Benschop B.V. reserves the right to make changes without prior notice.

These are the original instructions. The English language is binding. Request your language if it is missing.

The following information can be found on the tractor. Fill in all data before using the tractor for the first time.

First date of use: .....

Tractor model:.....

VIN: XLW .....

Year of manufacture: .....

Transmission: .....

Front axle:.....

Rear axle: .....

Fifth wheel type:.....

Tyres:.....

1.2 Abbreviations and phrases

DIM:	Driver Information Module (part of the dashboard).
ETRTO:	European Tyre and Rim Technical Organization.
GCW:	Gross Combination Weight.
GVW:	Gross Vehicle Weight.
MSD	Manual Service Disconnect
PVA:	Official report of adoption.
Rolltrailer:	Trailer which is used to transport goods in ports and distribution centres.
SEL	Stored Energy Level
SOC	State Of Charge
Terberg Connect:	A telematic solution for transferring data from vehicle to server.
VIN:	Vehicle Identification Number.
YT203EV:	Yard Tractor 3rd gen. Full Electric.

1.3 General lay-out of the tractor

Pos.	Description
1	HV switch, Right side
2	Charging point.
3	Rear view mirror.
4	Cabin entrance.
5	Trailer connections.
6	Fifth wheel.
7	Lifting frame.
8	Hydraulic oil tank.
9	Battery.
10	Cabin tilting system.
11	HV switch, Left side.
12	Draw bar pin.
13	Low voltage batteries

2 Safety

2.1 General

Important
Read document carefully before use.
Keep for future reference

2.2 Warning and Notice messages in this document

DANGER	
	**Indicates a potentially and imminently hazardous situation which, if not avoided, will result in death or serious injury.** All DANGER notifications will be indicated with this RED symbol.

WARNING	
	**Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.** All WARNING notifications will be indicated with this ORANGE symbol.

CAUTION	
	**Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.** All CAUTION notifications will be indicated with this YELLOW symbol.

NOTICE	
	**Notices will be used to show special procedures or point out important facts. Notices will also designate important information regarding this manual and its use.** All NOTICE notifications will be indicated with this BLUE symbol.

2.3 Instructions for safe use

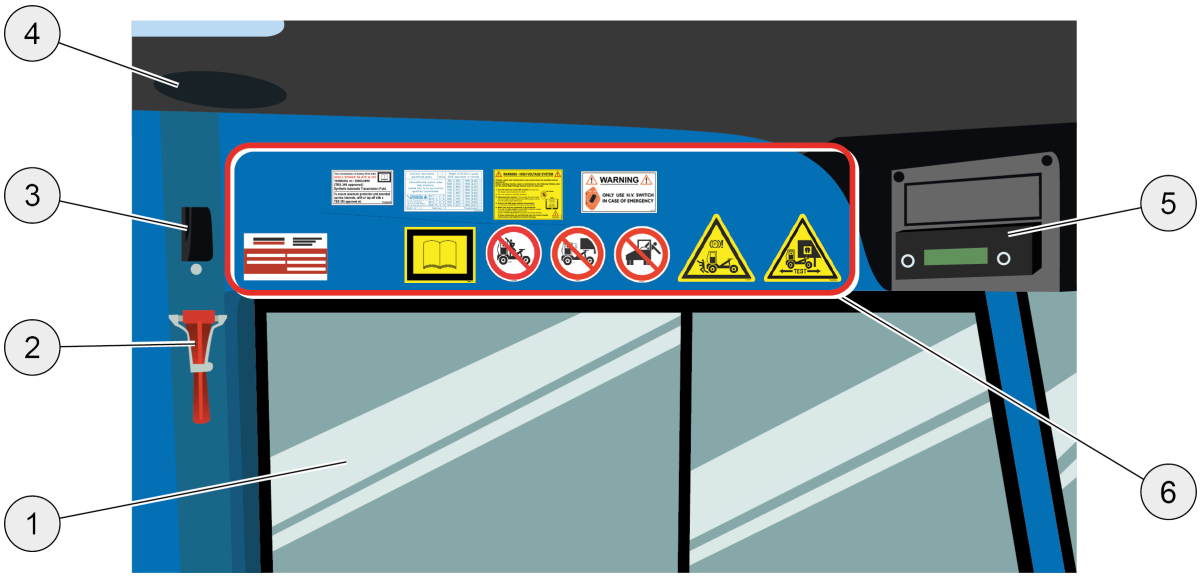
WARNING	
	• **To ensure safe operation of the tractor, read this manual carefully before operating the tractor.** • **The instructions, warnings and messages on the stickers and in the manual must be observed at all times.** • **Always report defects to the manager immediately.**

- Drivers must inspect the tractor visually before commencing work and check the instrument panel immediately after starting and regularly while driving. Instruments must display their normal values. A number of plates showing information about maximum permissible axle and trailer loads are located inside the cabin.
- Depending on the equipment of the tractor and the nature of the work, the training should cover all equipment and all tasks that must be carried out by a driver.
- All drivers must be suitably equipped with full safety clothing and footwear. Terberg Benschop recommends wearing at least safety clothing that enhances driver visibility and safety shoes with steel toe caps and soles.
- Only use the tractor for the intended purpose stated in the manual. Use contrary to the intended purpose can cause danger and / or damage.
- Instructions that do not directly relate to the equipment supplied are intended as recommendations.
- The tractor is only intended for use by authorised and informed persons. (In compliance with the applicable regulations and applicable standards as stated in the European EC Declaration of Conformity.)
- Before each use, inspect for damage, completeness, wear, and check that all moving parts are securely fastened and function reliably. Heavy-duty or heavy-duty construction parts or components can indicate overload. If in doubt about the integral suitability for the intended use, immediately decommission the equipment and have it checked by an expert.
- Never exceed the maximum permitted marked working loads limits.
- The tractor is not intended for passenger transport.
- Do not use the tractor if the identification plate is missing or the working load indication is illegible.

2.4 Safety and warning stickers

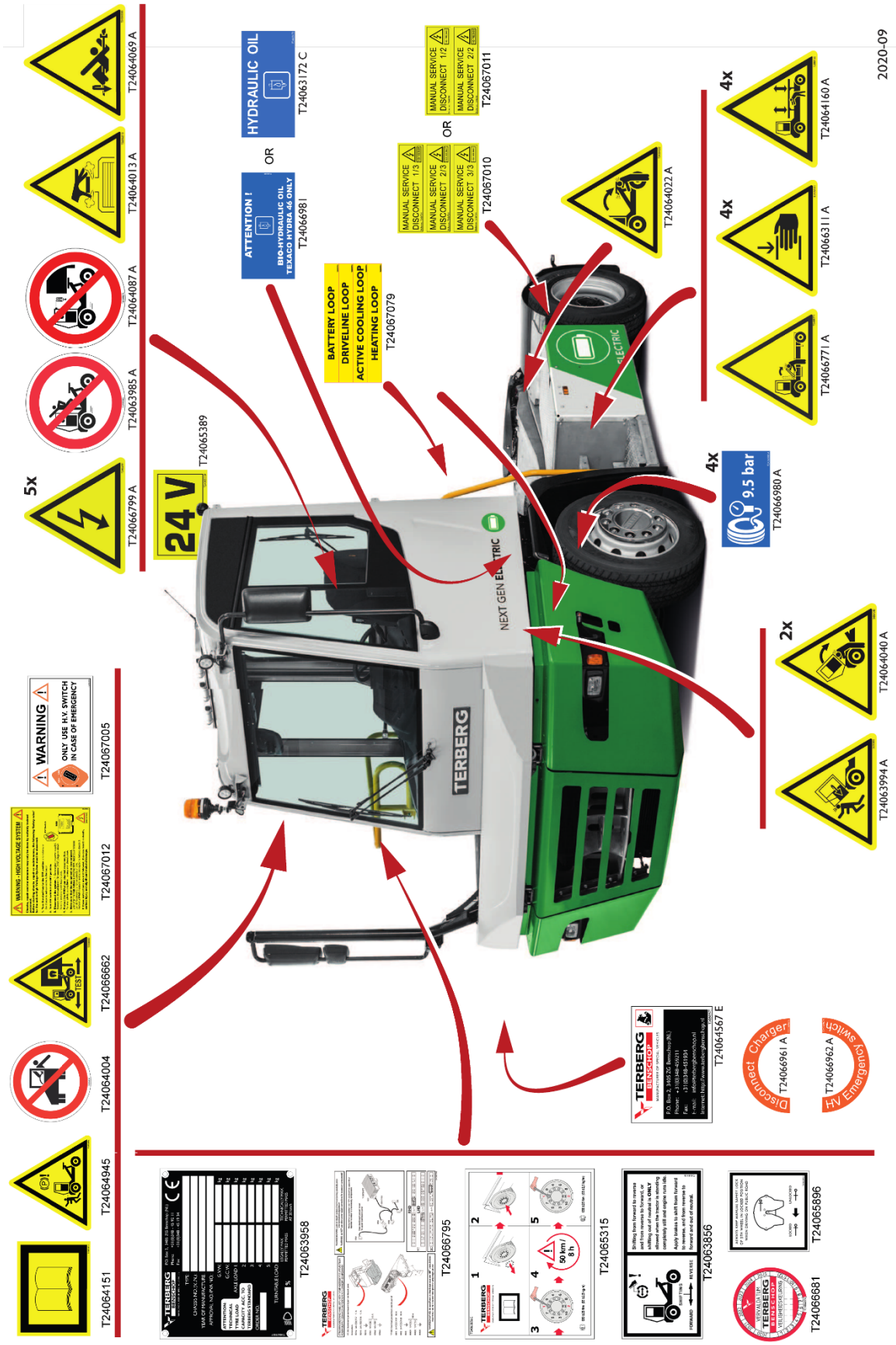
2.4.1 Stickers in the cabin

Always refer to the safety adhesives inside the cabin and on all the other locations on and in the tractor.



Pos.	Type	Description
1	Side window	Side window of the tractor, slide to open and can also be used as an emergency exit.
2	Safety hammer	Safety hammer to smash in the window as an option to escape the tractor in case of emergency.
3	Coat hanger	Hanger clip to store a coat.
4	Speaker	Audio speaker for the tractor's radio system.
5	Radio	
6	Sticker location	Sticker location inside the cabin to point out safety to the driver.

2.5 Stickers on the vehicle



Standing on a moving tractor is prohibited. (T24063985)

Persons should not ride on the tractor.

Leaning out of the cabin while driving is prohibited (T24064004)

Leaning out of the cabin while driving is prohibited.

Do not drive tractor and trailer with disconnected brake hoses. (T24064087)

Driving the tractor with disconnected brake hoses and lighting cables is prohibited.

Never open the cap on the expansion tanks when battery and NT systems are hot(T24064013)

Always allow the systems to cool down before removing the cap on the expansion tanks

Beware of the door that may swing open during tilting of the cabin (T24063994) (Optional side door)

If the side door is not properly locked it can swing open when the cabin is tilted and seriously injure a person.

Do not get under the hydraulic lifting frame (T24064022)

Beware of the lift frame and keep out of its working zone.

Take care when tilting the cabin (T24064040)

If the cabin is tilted, check that it is properly supported before carrying out any maintenance work. Keep clear of the cabin while it is tilting.

Beware of rotating propeller shaft (T24064069)

Keep clear of rotating propeller shafts and ensure that clothing is not hanging loose.

Apply the parking brake before leaving the cabin (T24064945)

Always apply the parking brake before leaving the cabin.

Carry out a pull and push test before attempting to move (T24066662)

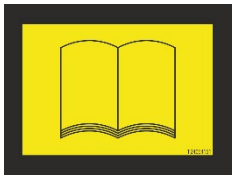
A pull and push test must be carried out before attempting to move any trailer.
The red and green Fifth wheel indicator lights are for indication only.

This tractor is equipped with a 3½" Fifth wheel (T24064096) (optional)

This tractor is equipped with a Fifth wheel with 3½" coupling.
Only trailers equipped with a 3½" king pin may be coupled.

Read the operation manual (T24064151)

Read this manual carefully before using the tractor.



Battery loop / Driveline loop / Active cooling loop / Heating loop (T24067079)

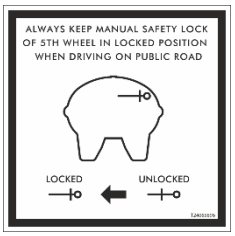
- Designation Battery fluid system.
- Designation Driveline fluid system for component cooling.
- Designation Active cooling loop.
- Designation Heating loop for cabine.

Check torque chassis bolts (T24066995)

Check the chassis bolts torque (180 Nm), as described in the Maintenance manual.

Fifth wheel manual safety lock (T24065896) (optional)

If the tractor is prepared for driving on public roads the Fifth wheel is equipped with a manual safety lock. Always keep the Fifth wheel manual safety lock in locked position when driving on public roads.



Hydraulic oil (T24063172)

Level check point or filling point for hydraulic oil.

Hydraulic Bio oil (T24066981)

Level check point or filling point for hydraulic oil.

Place safety bar (T24066990) (optional)

After tilting the cabin halfway, place the optional safety bar immediately as shown on both stickers.

Only use HV switch in case of emergency (T24067005)

Only use the High Voltage switch in case of emergency.

Disconnect MSD's (T24067011)

Disconnect MSD plugs in case of 2 battery packs, during service.

- Disconnect MSD 1 of 2.
- Disconnect MSD 2 of 2.

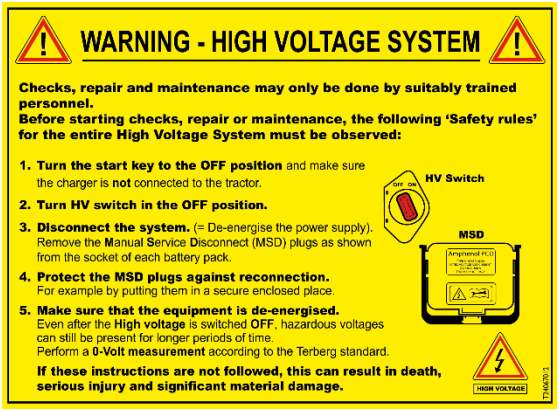
Disconnect MSD's (T24067010) (optional)

Disconnect MSD plugs in case of 3 battery packs, during service.

- Disconnect MSD 1 of 3.
- Disconnect MSD 2 of 3.
- Disconnect MSD 3 of 3.

Warning High Voltage system (T24067012)

Instructions on how to deal with the High Voltage system.



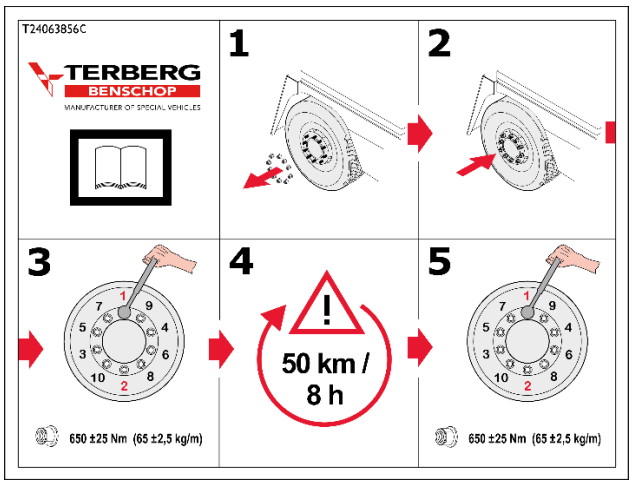
- Checks, repair and maintenance may only be done by suitably trained personnel.
- Before starting checks, repair or maintenance, the following 'Safety rules' for the entire High Voltage System must be observed:

1. Turn the start key to the OFF position and make sure the charger is not connected to the tractor.
2. Turn HV switch to the OFF position.
3. Disconnect the system. (= De-energise the power supply). Remove the Manual Service Disconnect (MSD) plugs as shown from the socket of each battery pack.
4. Protect the MSD plugs against reconnection. For example by putting them in a secure enclosed place.
5. Make sure that the equipment is de-energised. Even after the High Voltage is switched OFF, hazardous voltages can still be present for longer periods of time. Perform a 0-Volt measurement according to the Terberg standard.

If these instructions are not followed, this can result in death, serious injury and/or significant material damage.

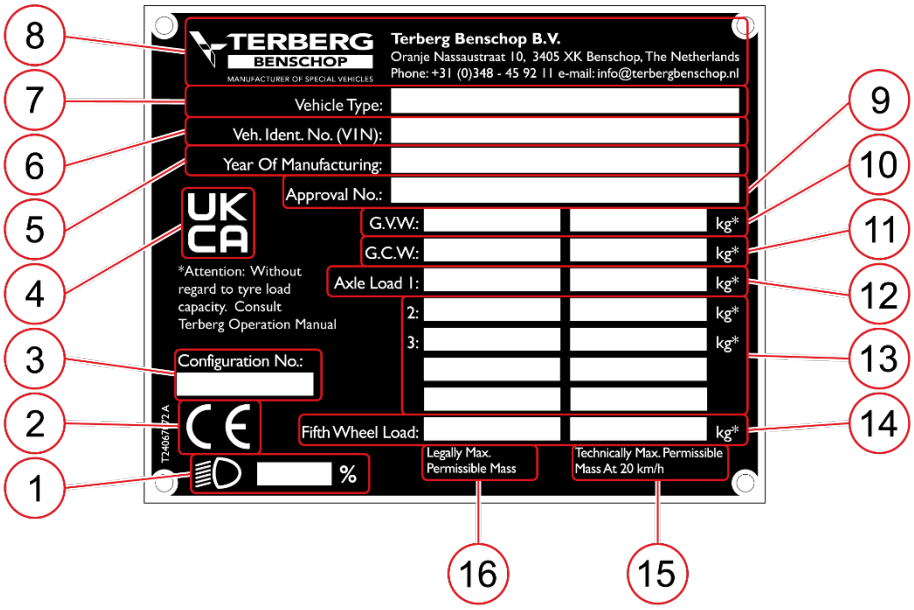
Retighten the wheel nuts after a wheel change (T24063856)

After a wheel change or new tractor delivery, it is mandatory to tighten the wheel nuts in the correct order after a maximum of 50 kilometres or after 8 hours of operation/driving, whichever occurs first.



2.6 Permissible loads

Inside the cabin the vehicle data plate is located with technical information, such as maximum **axle** loads.



Pos.	Type	Description
1	Headlamp inclination	Indication of the downward inclination of the dipped-beam (low beam) headlamps cut-off.
2	CE marking	Marking intended for European Union (EU).
3	Configuration number	Manufacturer's internal number.
4	UKCA marking	Marking intended for United Kingdom (UK).
5	Year of manufacturing	
6	Veh. Ident. No. (VIN)	Vehicle Identification Number.
7	Vehicle Type	
8	Manufacturer	Name and address of the manufacturer.
9	Approval No.	Number of type approval.
10	GVW	Gross Vehicle Weight: Maximum permissible total weight of vehicle at 20 km/h.
11	GCW	Gross Combination Weight: Maximum permissible total weight of the combination of vehicle + trailer(s) at 20 km/h.
12	Axle Load 1	Maximum permissible load on the front axle at 20 km/h.
13	Other axle loads	Maximum permissible load on other axle(s) at 20 km/h.
14	Fifth Wheel Load	Maximum permissible load on the fifth wheel at 20 km/h.
15	Technically Max. Permissible Mass at 20 km/h	Column with maximum masses that are technically allowed at 20 km/h.
16	Legally Max. permissible Mass	Column with legally maximum permissible masses (only filled out if mandatory for use on public road)

2.7 Safety regulations & warnings

(See also the 'WARNING STICKERS' section).

NOTICE	
	• Read this manual carefully before using the tractor and always follow the safety and maintenance instructions.

2.7.1 Before driving off

- Check vehicle lighting.
- Always apply the parking brake before leaving the cabin.
- Keep doors and windows closed to minimize the sound level inside the cabin and to minimize the power usage for the heater and air conditioning.
- The air conditioning will only operate efficiently if all cabin windows and doors are closed.
- Keep the cabin floor free from loose objects and clean to prevent slipping, tipping and falling.
- Ensure that a clear field of vision is always maintained.
- Always wear the seat belt during operation.
- Always connect the trailer's brake hoses and lighting cables before driving off with a coupled trailer.
- Check visually that the tyres on the tractor and trailer are not damaged and inflated correctly.

2.7.2 While driving

- Always make sure that you are in driving position; in the driver's seat with the seat belt buckled up.
- Ensure that maximum permissible loads and speeds are not exceeded.
- Keep trailer height to a minimum, but high enough to provide sufficient clearance under the trailer and the load.
- Use the (optional) sun visor to prevent blinding by sunlight.

2.7.3 While driving on ramps

- Ensure that ramps offer sufficient traction before driving onto them.
- While driving on ramps, always keep the Fifth wheel as low as possible and be aware of restrictions imposed by the maximum permissible loads.
- Ramp speed should never exceed a fast walking pace.
- Drive steadily on ramps, avoid abrupt braking and acceleration.
- Do not stop on ramps.
- If you have to stop, move off again slowly and steadily.
- Parking the tractor with a loaded trailer is prohibited on ramps.

2.7.4 Other warnings

- The tractor must not be used for carrying passengers, either in the cabin or on the trailer, other than on the passenger seat (optional).
- Always use at least two points of contact when walking/working on the tractor to eliminate the risk of slipping or falling.
- In the event of steering pump failure, the tractor will remain steerable, but the steering will be noticeably much heavier.
- If possible, always keep both hands on the steering wheel.
- Keep clear of the Fifth wheel lifting system at all times.
- Always close and secure the protection plates and (lift-) covers before driving.
- Lift covers must remain easily accessible.
- Keep away from any hot components. (e.g., An inverter)
- If you have to lean out of the window, do so with great care because of passing vehicles and other moving objects.
- All leaks must be reported, and fluids be disposed of in accordance with local environmental requirements.
- All oil-related products are flammable and must be kept away from hot components.
- Keep body parts and loose articles away from operating controls.
- Be aware that a high-pressure water jet can pass through rubber seals.
- The usage of high-pressure cleaning water jets is prohibited on all electronic components, drive-line components, seals, covers, doors, windows, roof or any other area sensible for water intrusion.
- The parking brake must not be applied while the tractor is moving.
- However, the parking brake must be used as an emergency brake if the tractor's service brakes fail.
- The terminal tractor must be maintained by trained personnel in accordance with the manufacturer’s instructions.

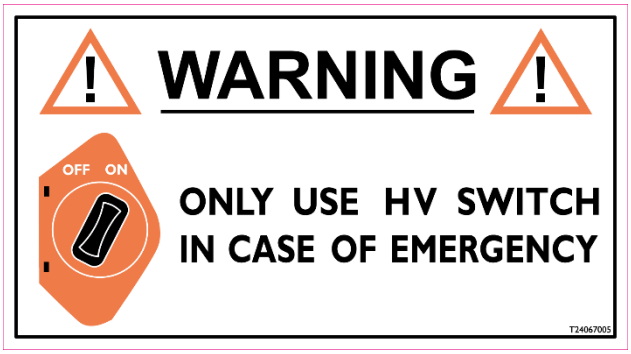
2.7.5 Emergency procedures

This section describes the procedures for the driver / operator when an emergency situation occurs.

HV switch/Emergency switch

WARNING	
	• **The emergency switch will switch OFF the high voltage circuit only. The low voltage circuit (24 V) remains active.** • **Make sure that the situation is safe before you set the switch to the ON position again.**

- Switch OFF this High Voltage switch in case of emergency.



Emergency exit from the cabin

In the event of an emergency, you must be prepared to exit the tractor in the safest possible manner.

- Drivers must be familiar with the methods of exiting their cabin.
- Doors must never be locked during operation; it must be possible to enter or exit the cabin quickly in the event of an emergency.

Possible exit points are:

- Via the driver's door.
- Via the side window.
- Via the side windows by breaking the glass with the life hammer.
- Via the roof hatch (optional).

Emergency steering

In the event of a stopped motor or significant loss of hydraulic power, stop the tractor as soon as possible. Loss of power will result in failure of power steering.

Tyre failure

In the event of tyre failure, the driver must brace himself with both hands on the steering wheel. Try to control the tractor and stop immediately.

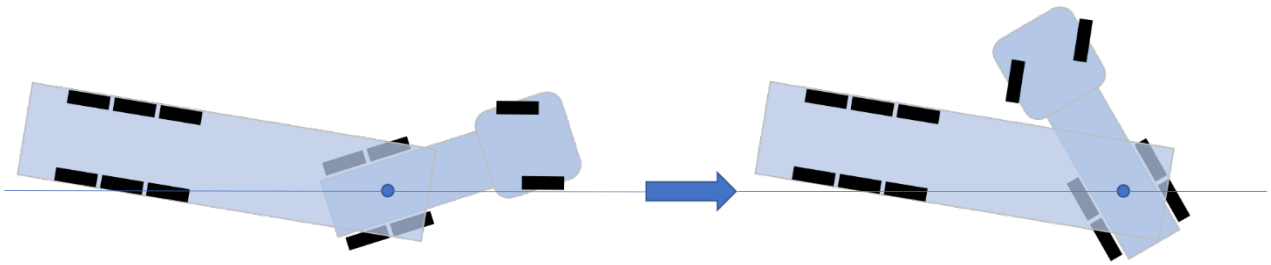
Fire

In the event of smoke or fire the tractor must be stopped immediately. Apply the parking brake, turn the power off and exit the tractor as soon as possible. All drivers must be familiar with procedures and site requirements in the event of fire.

2.7.6 Jack-knifing

Jack-knifing is the description of a trailer that 'overtakes' the tractor in an uncontrolled manner. In most jack-knifing situations, the trailer and the tractor unit form a very sharp angle, which makes control of the vehicle assembly impossible.

Jack-knifing is very dangerous and should always be prevented by driving carefully and always connecting the air hoses of the tractor to the trailer so that the trailer has its own brakes.



Skidding Jack-knifing

Skidding means that a trailer starts to move sideways and the driver moves the tractor into that direction to prevent Jack-knifing.

Jack-knifing means that the driver has not been able to correct a trailer that started to move sideways. The trailer takes over the direction, the driver cannot correct for the total movement nor direction of the vehicle combination.

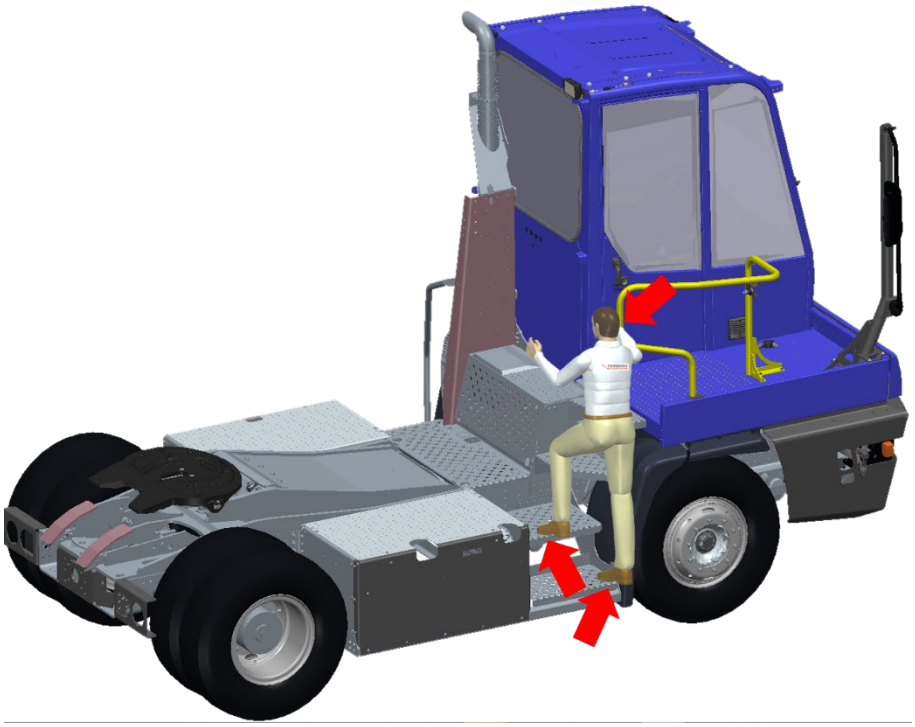
3 Cabin and operating components

The cabin is the workplace of the driver and contains many switches and other devices to operate the tractor properly.

DANGER	
	**Carefully read the following chapters before driving or operating the tractor.**

3.1 Enter and leave the tractor

To ensure maximum safety, always take additional care when entering or leaving the tractor. Use the handrails to ensure that at least two points of contact are always maintained. Only the handrails and steps that are provided should be used to enter or leave the tractor.



A seat is provided in the cabin for one driver. When driving and operating the tractor, the driver should be on the seat with both hands on the steering wheel or the controls and wear the safety seat belt.

Passenger seat (optional):

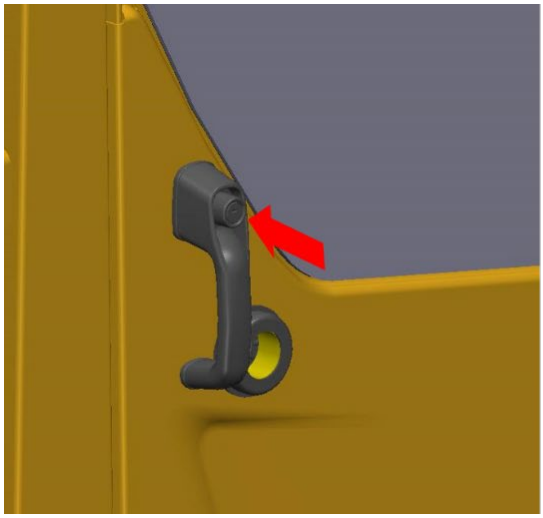
The cabin can be equipped with a fold-down seat including a seat belt.

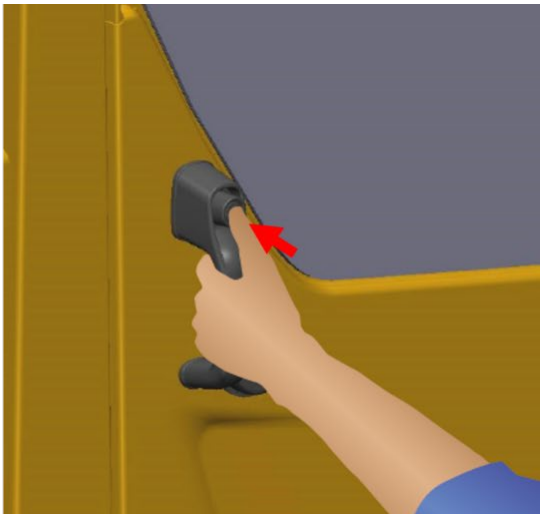
WARNING	
	• **Take additional care when entering the tractor to avoid personal injury.** • **Be careful when the steps and decking are slippery.** • **Use at least two and where possible three points of contact when walking/working on the tractor to eliminate the risk of slipping or falling.**

3.1.1 Open and close the door

To increase safety at work, Terberg recommends the door to be closed at all times during operation.

To open and close the door from the outside

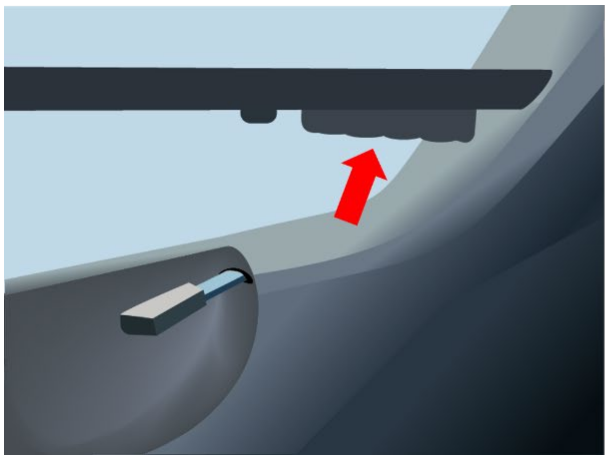


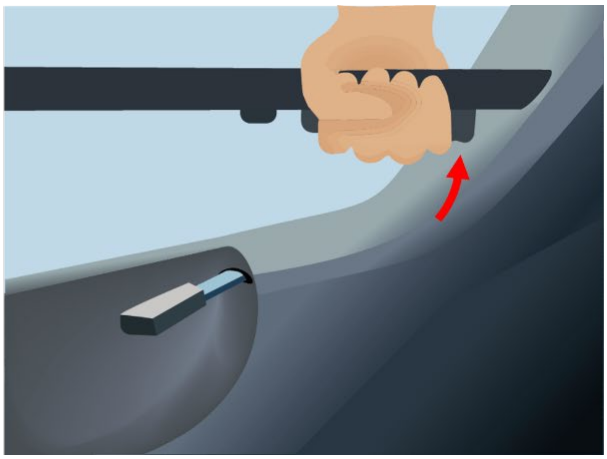


Open: Hold the door handle and press the knob with your thumb, then pull the handle towards you, the door will open.

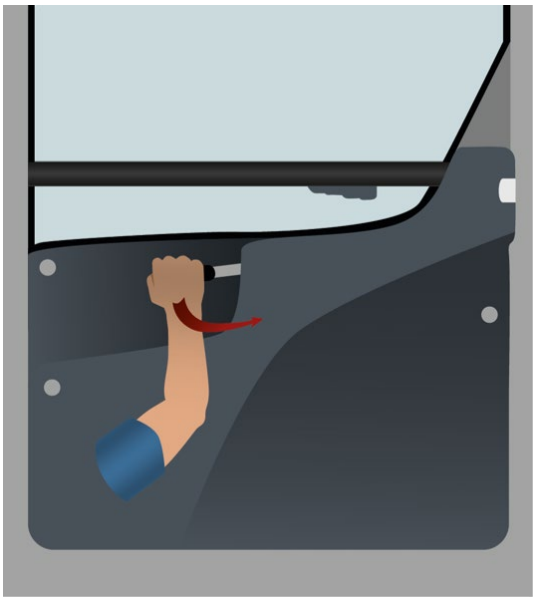
Close: Hold the handle and firmly push the door until it is closed.

To open and close the door from the inside





Open: Squeeze the handle and open the door to leave the tractor.



Close: pull the horizontal bar to close the door.

3.1.2 Release the door from the storm anchor

Release: pull the lever inside the door and the door will become loose from the storm anchor.

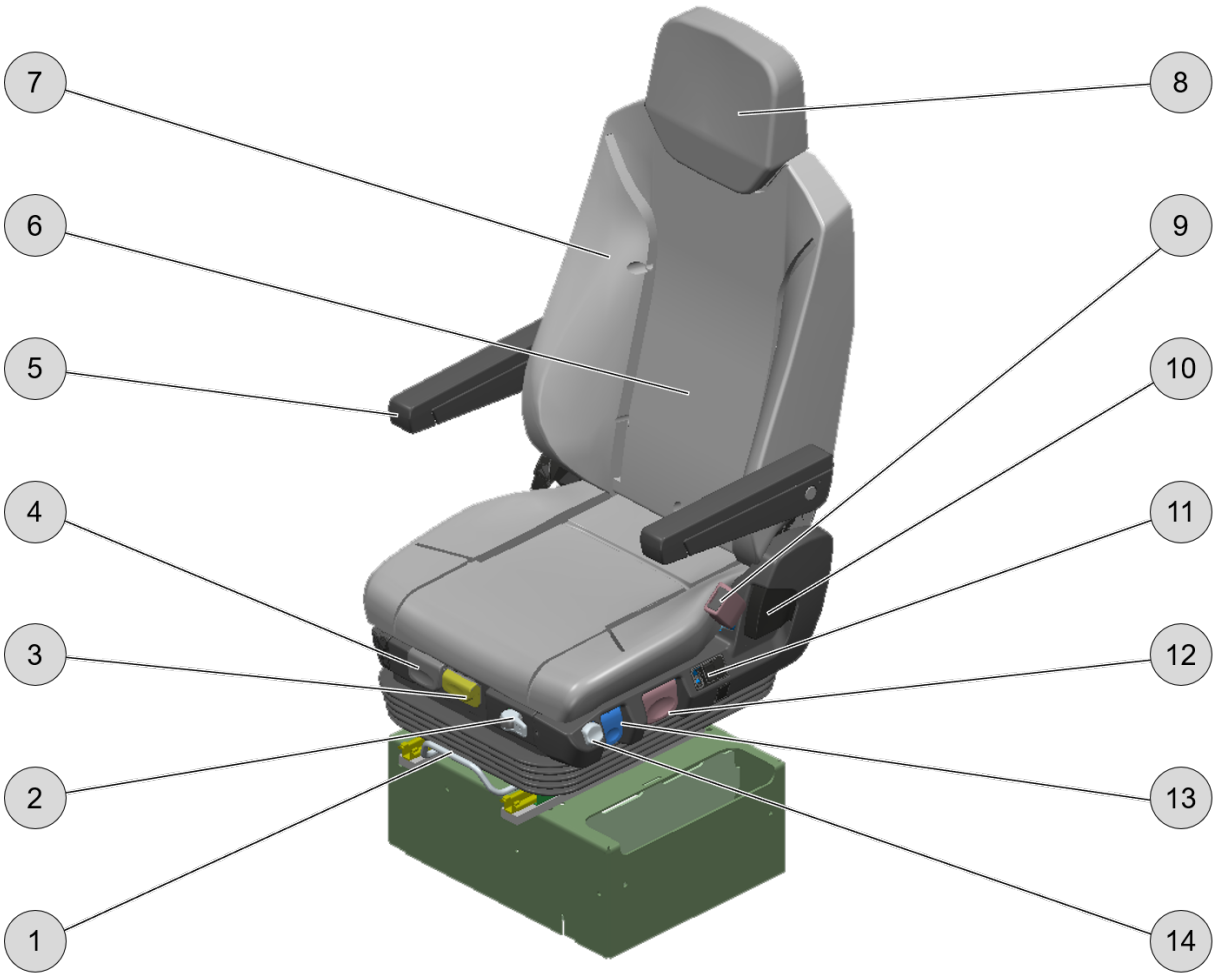
WARNING	
	• **Keep all objects and body parts clear of the door. Be careful of your hands and body parts while closing or opening the door.** • **Do not open the door while the tractor is moving.** • **Be careful not to bump your head while entering the cabin.**

3.2 Driver's seat - ISRI

Correct adjustment of the driver’s seat is important for operation, safety and comfort. The seat should be adjusted to the driver’s personal requirements before driving off.

Do not adjust the seat while the tractor is moving, only when the tractor is stationary and the parking brake has been applied. Always wear the seat belt provided.

Seat controls ISRI 6860



Pos.	Type	Description
1	Forward/backward adjustment	Lift the handle and move the entire seat forwards and backwards. Release to lock the position.
2	Horizontal suspension	Lever to the: Right: suspension released. Left: suspension locked.
3	Seat cushion adjustment	Pull the lever and move the seat cushion forward and backward. Release the lever to lock the seat horizontal movement.
4	Tilt adjustment	Pull lever and adjust the tilt by applying or releasing weight on the front of the seat cushion area.
5	Arm rest	Armrest fixed to the seat and can be reclined.
6	Back rest	Adjustable back rest.
7	Side support	
8	Head rest	Adjustable headrest.

Pos.	Type	Description
9	Buckle	Buckle to insert the safety seat belt.
10	Reclining	Control to move the backrest forward and backward.
11	Lumbar support	Switches that control the air pressure for lumbar support.
12	Height adjustment	Lever that controls the height of the seat.
13	Shock absorber	Dampens the air suspended seat, adjustable to driver specific comfort demands.
14	Lower seat	Switch that releases the air suspension and lowers the seat for easy exit and entrance.

Note that certain features shown are optional and depend on the chosen seat variant.

3.2.1 Seat adjustments

The following descriptions give information about the seat adjustment controls (ISRI seat).

Seat height adjustment

The upper legs must be almost horizontal with the feet flat on the floor. Your upper legs must be properly supported by the seat.

Seat length adjustment

The seat length should be adjusted in such way that there is a gap of 10 cm (about the thickness of a fist) between the seat and the back of the knees.

Seat distance adjustment

Press the acceleration pedal gently and then adjust the seat distance to a preferred/desired position.

NOTICE

- The legs must not be fully stretched when the accelerator or brake pedals are fully depressed.

Adjust the back rest / Steering wheel

Press your shoulder against the back rest and hold your arm fully stretched on the steering wheel at 12 o'clock. Adjust the back rest to the preferred positions and maintain good visibility. When this adjustment is finished your shoulder must still be against the back rest and your arm must be fully stretched at 12 o'clock on the steering wheel. The back-rest angle must be between 95 and 115 degrees. If this is not the case, repeat step 3 so that you get an angle of between 95 and 115 degrees.

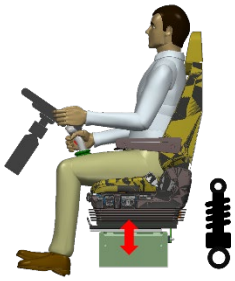
Steering wheel adjustment (optional)

Adjusting the steering wheel is done with the lever on the left side of the steering column.
Pull the lever up to adjust the height of the steering wheel. Push the lever down to adjust the angle of the steering wheel.

Adjust the lumbar cushions (ISRI)

Use the 2 buttons (11) to inflate / deflate the 2 lumbar support cushions until your lower back is gently supported.

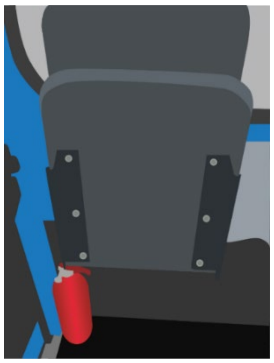
Adjust the shock absorber (ISRI)



Use the shock absorber button (13) to adjust the seat damping force to provide appropriate comfort for different road conditions. Pull the lever to increase the damping force and push it to decrease the damping.

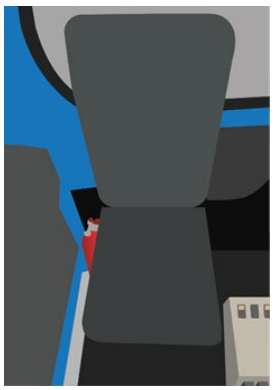
3.3 Passenger seat (optional)

As an option, a passenger seat can be installed in the cabin.



- To enable the passenger seat, it must be retracted downwards from the vertical position.

Follow the procedures below to use the passenger seat.



3.3.1 Before using the passenger seat:

- Make sure the tractor is at a complete standstill with applied parking brake.
- Let the passenger enter the cabin and use the seat belt provided.
- Close the door.

3.4 Seat belt

The driver's seat is equipped with a two-point or a three-point (optional) seat belt. The passenger seat (optional) is always equipped with a two-point seat belt. The seat belt is a component which, together with the seat and cabin structure, forms a safety system that has been developed to provide the best protection. Always wear the seat belt while seated.

3.4.1 Use the seatbelt

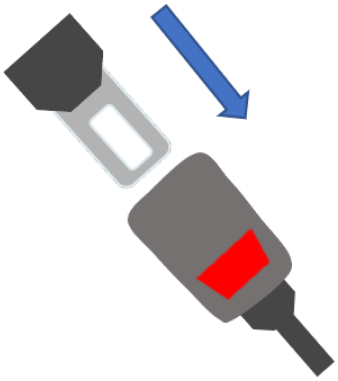
Pull the belt carefully over the shoulder and/or hips. Check that it is not tangled or twisted. Secure it by sliding the metal tongue into the buckle. A click indicates that the belt is locked. Check the lock by giving it a short tug.

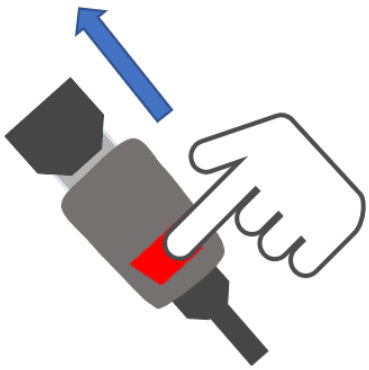
Tighten the belt somewhat by allowing it to retract until the belt is aligned along the body.
For maximum protection, avoid wearing the seat belt over voluminous clothing.

3.4.2 Release the seat belt

To release the seat belt, grasp the belt and press the red button on the buckle. Gently guide the belt with your hand and allow it to retract fully.

The belt will lock when the belt is stressed / pulled quickly.





Fasten and unfasten the seat belt.

NOTICE
• The belt is intended for one person only. • Do not draw the belt over sharp edges. • Periodically check the attachments and fittings as well as the condition of the belt itself. • Clean the belt with water. If detergent is necessary, use only a detergent that will not affect the belt material.

WARNING
• **Always wear the seat belt while seated to ensure maximum protection.** • **The seat belt should be replaced after a collision or an accident, even if it has no visible damage or noticeable defects.** • **Do not modify, repair or dismantle the seat belt, the seat or the attachments.**

The cabin complies to the requirements for roll-over protection structure.

- In case of a roll-over, the driver must remain at his seat.
- Only the seat belt will hold the driver at the seat during roll-over.
- In case of a collision (when the tractor is stationary or driving) the seat belt will hold the driver at the seat.

3.5 Radio (optional)

Check that the radio is working correctly and is tuned to the correct frequency/channel for the site, before driving off.
Never adjust the radio while driving. For more detailed information, see the radio manufacturer's operating manual.

WARNING
DO NOT adjust the radio volume too high - this will expose the driver to excessive noise and may lead to loss of hearing over a period of time.

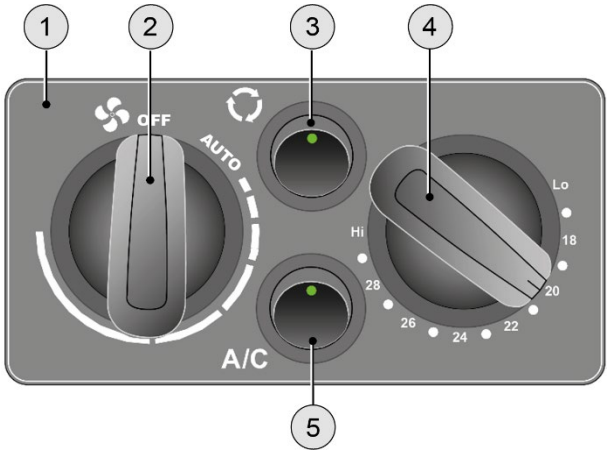
Cabin heater vents

The direction of the air flow can be controlled by the air outlets to the left and right of the instrument panel.

- The air outlets can be turned and the flaps can be adjusted to different angles.
- By closing the outlets more air flow is directed to the defroster outlets, which are directed at the windows. This can be used to increase demisting or to get an indirect air flow.

3.6 Cabin temperature and airflow control

The operation of the climate and airflow control in the cabin is done with a Heater/AC panel on the right hand side of the dashboard.



Pos.	Type	Description
1	Panel.	Operating panel for heater, airflow & airco.
2	Rotary Control knob.	Knob for automatic temp. control & blower speed.
3	Recirculation switch.	Switch for the air recirculation.
4	Rotary temperature knob.	Knob for the temperature setpoint adjustment.
5	A/C Switch.	Switch to activate the air conditioning manually.

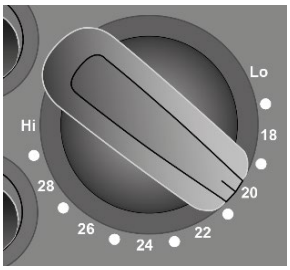
3.6.1 Blower /Auto control

Use the rotary knob to select the desired fan speed.

- Turn the rotary knob in position ‘Auto’: Automatic temperature control for the cabin, in combination with temp. adjustment.
- Turn the knob further clockwise to switch OFF Auto mode and to manually select the desired fan speed from min. to 100%.
- Turn the knob in position OFF to switch OFF the blower and Auto mode.

WARNING	
	• **DO NOT adjust the temperature in the cabin too high, this can lead to loss of concentration.**

3.6.2 Temperature adjustment



Use the rotary knob to select the desired cabin interior temperature:

- Turn the knob until it indicates the desired temperature.

3.6.3 Air conditioning control

- Press the A/C button to activate the air conditioning function. The green LED will illuminate.

3.6.4 Tips for operation

Hot climate

1. Turn on the air conditioning by pressing the A/C switch.
2. Turn the heating control to LO.
3. Press the circulation control switch, the LED on the switch is on.
4. Turn the blower control to maximum speed.

When the desired cabin temperature has been reached, increase the fresh air content by placing the air circulation control in the **fresh** position. Adjust the heating control and the blower speed as required.

Moderate climate

1. Switch off the air conditioning and turn the temperature control to the desired temperature.
2. Make sure that the circulation control is in the **fresh** position, the LED on the switch is off.
3. Adjust the blower as required.

High humidity and demisting

Although the ambient temperature could be in the comfort zone, air humidity might reach unacceptable levels. The air conditioning system can also be used as a dehumidifier.

1. Switch the air conditioning on.
2. Switch the circulation control to the **fresh** position.
3. Turn the blower control to medium speed.
4. Adjust the temperature control as required.

Cold climate

1. Switch off the air conditioning.
2. Turn the temperature control to maximum**.**
3. Switch the circulation control to the **recirculation** position for 5 - 10 minutes to ensure rapid heating.
4. Turn the blower control to maximum speed.

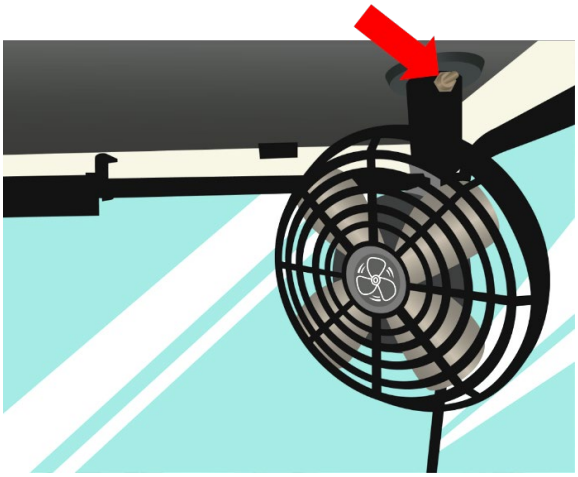
When the desired cabin temperature has been reached, increase the fresh air content by placing the air circulation control in the **fresh** position.
Adjust the temperature control and the blower speed as required.

3.6.5 Air blower (optional)

This type of air blower is additional to the ventilation blower that is underneath the dash panel. In some situations, there are two of these additional ventilators installed in the cabin of the tractor.
Air flow speed is adjusted by moving the switch (indicated by the arrow) at the foot of the fan.

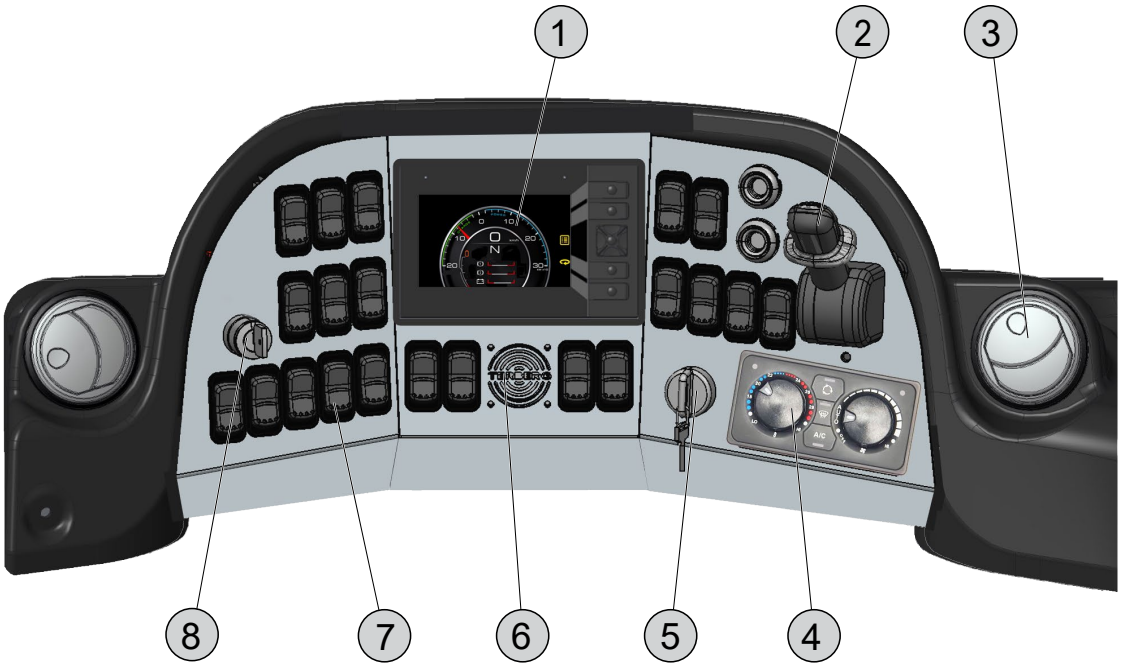
The switch has three air flow positions.

- **0** = Blower off.
- **I** = Blower runs at lowest speed.
- **II** = Blower runs at highest speed.



3.6.6 Instruments and controls

The following illustrations are examples of possible dashboard configurations. Dashboard configurations can be different depending on customer's request.



Pos.	Type	Description
1	DIM	Driver Information Module: Main operational information about the tractor will be on this screen.
2	Lever	Parking brake lever.
3	Air vent	Fully adjustable air ventilation nozzle.
4	ECC Panel	Electronic Climate Control panel (optional).
5	Power switch	Power switch.
6	Speaker	Speaker for audible alarms.
7	Switches	Area where many switches are located, See § 3.7.
8	Key switch	The key switch is optional.

3.6.7 Parking brake lever

The parking brake lever operates the parking brake of the tractor.
When the lever is in the:

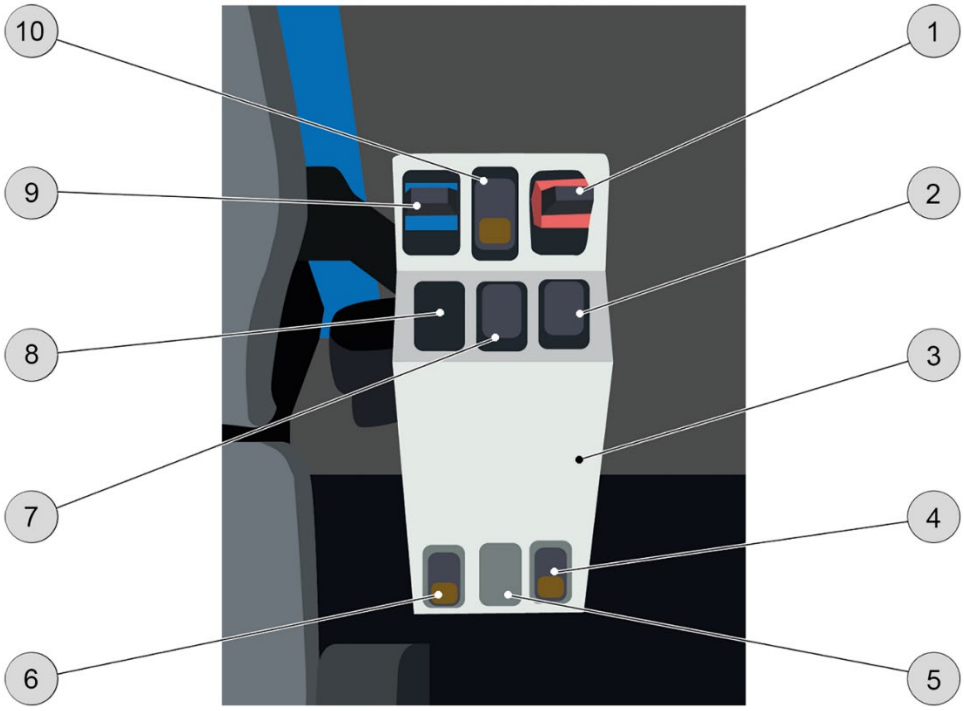
- UP position: parking brake not active.
- DOWN position: parking brake is active; the vehicle cannot move.

Parking brake tell-tale

When the parking brake is applied, a warning light illuminates and remains illuminated until the parking brake is released.
The parking brake can only be released when the pressure in the brake system is high enough.

When the parking brake is applied and the trailer air hoses and cables are connected, the trailer brakes are also applied. (Only with EG braking system).

3.6.8 Driver operating console



Pos.	Type	Description
1	Fingertip control	Hydraulic lifting of the Fifth wheel: Push forward = lower the Fifth wheel. Pull backwards = raise the Fifth wheel.
2	Switch	Remote Fifth wheel operation: Fifth wheel release button.
3	Housing	Switch control housing for Fifth wheel lift control and transmission control.
4	Switch	Free to fill in/not designated (depending on configuration).
5	Switch	Free to fill in/not designated (depending on configuration).
6	Working lights	Rear working lights On / Off
7	Switch	Free to fill in/not designated (depending on configuration).
8	Switch	Remote Fifth wheel operation. (depending on configuration).
9	Gear lever	Transmission control: Push forward = select forward gear. Pull backwards = select reverse gear. Push / pull to middle position: neutral.
10	Switch	Switch to lower the rear air suspension.

Lowering and raising of the Fifth wheel is proportional, the speed is dependent on the stroke of the fingertip lever.

3.6.9 Combined turn indicator, main/dipped beam, flash, horn and wipers stalk.

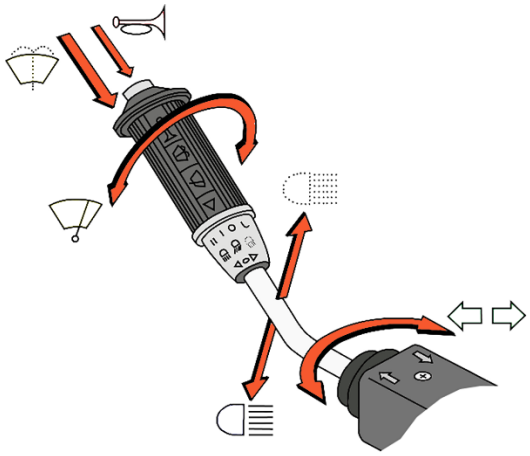
The turn indicator lever is fitted on the left side of the steering column and operates several functions.

CAUTION

- **Do a check on the turn indicators before driving, make sure they work properly.**
- **Only use the horn to alert other people in case of dangerous situations.**

Low beam and high beam

Push the lever downwards to switch from low beam to high beam.
The lever will stay in this position until it is moved back manually.
The low beam must be switched on first to use the high beam.



Flash the high beam

Pull the lever upwards to flash the main beam lights. The lever is spring loaded and will return to its normal position automatically when released.

Horn

Press the button at the end of the lever to activate the horn.

Turn indicators:

Left: pull the lever back to operate the left-hand turn indicator lights.
Right: push the lever forward to operate the right-hand turn indicator lights.

Front wiper, washer, wiper interval switch:

The turning function of the knob on the lever activates the front windscreen wiper in the following way:
J = Interval (optional).
0 = Off.
I = Speed 1.
II = Speed 2 (optional).
Pressing the ring at the end of the handle operates the windscreen washer(s).

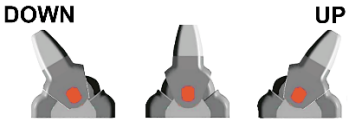
NOTICE

- The shown combined indicator stalk is for the LHD (Left Hand Drive) situation.
- When it concerns an RHD (Right Hand Drive) tractor, the indicator stalk is on the right side of the steering column.

Fifth wheel height control

The lift frame is connected to the tractor's hydraulic system. Adjust the height of the Fifth wheel by using this lever.

- Move the lever towards DOWN to lower the Fifth wheel.
- Move the lever towards UP to raise the Fifth wheel.



WARNING

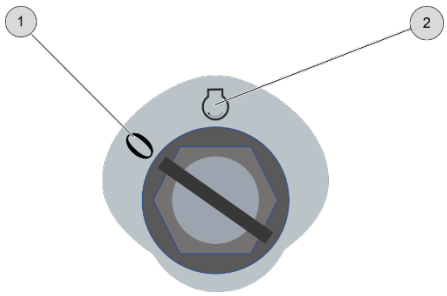
- **It is important to keep the Fifth wheel as low as possible when driving on steep hills, to prevent loss of vehicle stability.**
- **Servicing the Fifth wheel or the lifting system may only be carried out if goosenecks or trailers are not attached and when the lift frame has been properly supported.**
- **Keep clear of the underside of trailers or lifting systems during coupling.**
- **Ensure there is sufficient ground clearance and top clearance during driving.**

NOTICE

- Terberg cannot be held liable for any external equipment other than that included as part of the supply contract.

Power key switch (optional)

The power key has 2 positions:
0= Off.
1= Drive (Power on).

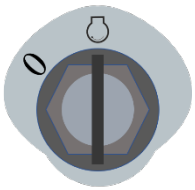


A power switch can be installed instead of the power key. This has the same positions and functionality as the power key, the only difference being that the switch cannot be removed, where the key can.

Start procedure:

- Gear lever in neutral position.
- Parking brake or service brake is applied.

OFF



ON

WARNING	
	• **Do not attempt to drive the tractor when any of the warning lights are still illuminated.** • **Release the parking brake before driving off.** • **Do not turn or push the power key switch to the "Off" position while driving, this will lead to loss of control of the tractor.**

3.6.10 Terberg Connect (optional)

Using PIN Code:

5. Place the ignition in the ON position.

- Enter the correct PIN-code within 30 seconds
- Confirm with the green confirmation key ✓.
- The green LED illuminates. (Authorisation is OK).
- Start the tractor.

If you enter a wrong PIN code, the red LED will flash 3 times.

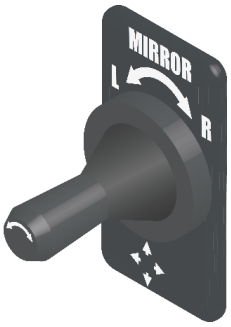
6. Press the red cancellation key ✗.

Wait 10 seconds before trying again.

Using RFID card:

1. Place the ignition in the ON position.
2. Hold the RF ID card in front of reader.
3. A beep indicates the ID is accepted.
   The green LED illuminates.
4. Start the tractor.

3.6.11 Electric mirror control (optional)



To control the electrically adjustable mirrors, a small joystick is installed.
How to adjust the mirrors:

1. Select the mirror that needs to be adjusted by turning the joystick:
   Clockwise right side mirror.
   Anticlockwise left side mirror
2. Move the joystick up, down, left or right to adjust the mirror in the corresponding direction.

WARNING	
	• **An object seen in the mirrors might be closer than it seems.** • **Adjust the outside mirrors before driving the vehicle.**

3.7 Switches

This overview explains the icons of all different switches that can (as standard or option) be used in the YT tractor model.

3.7.1 Rear wiper - speed 1 & 2 (optional)

This three-position switch controls the rear wiper speed 1 and 2.
The first position activates wiper speed 1 and the second position activates wiper speed 2.

3.7.2 Rear wiper - interval (optional)

This three-position switch controls the interval wiper speed 1 and 2.

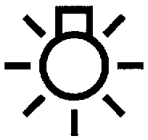
3.7.3 Rear fog light (optional)

Switch the dipped beam on first and then press this switch to switch on the rear fog light.
Note: If you leave the switch on, the fog light will not come on automatically when the vehicle lighting switch is turned off and on again.
To switch the fog light on, the rear fog light switch must be switched on again after the vehicle lighting switch has been switched on.
Also, if the power has been switched off, the fog light resets and must be separately operated to switch on the fog light again.

3.7.4 Work light (optional)

The work light switch operates the work light at the front and /or at the rear of the tractor. It is possible that more than one work light switch is installed. If this is the case, check visually which work light corresponds to which switch.

3.7.5 Vehicle lighting



This three-position switch controls the vehicle lighting:

- In the first position the lighting is off.
- The second position will switch on the parking lights, whether the power is on or off.
  If the power key is on, all parking lights will be switched on by position 1.
  If the power key is off and the parking lights are switched on, they can be selected more specifically with the turn indicator lever:

Lever neutral:	All parking lights off.
Lever left:	Left-hand parking lights on.
Lever right:	Right-hand parking lights on.

- The third position of the vehicle lighting switch operates the dipped beam.
- The daytime running lights will automatically switch on when the power of the vehicle is on.

3.7.6 Rotating beacon

Turn on the rotating beacon by pressing this switch.

3.7.7 Hazard warning lights

By pressing this switch, the hazard warning lights are activated. This means that both the left and right turn indicators operate simultaneously.
Use this feature when you are forced to stop or park the tractor in any abnormal place to ensure that other vehicles notice the tractor.
The hazard warning lights can be operated whether the power key is on or off.
If the turn indicators on one or both sides of the vehicle start flashing more rapidly, then there is a problem with the turn indicators. Drive to a safe place and check what is wrong. Contact the workshop if necessary.

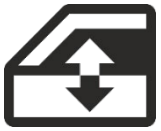
3.7.8 Mirror heating (optional)

This switch activates the electric heating of the outside mirrors.
It can be used to demist and de-ice the outside mirrors.
Activate mirror heating only when demisting/de-icing is necessary.
Continued operation after complete demisting/de-icing can damage the system.

3.7.9 Rear window heating (optional)

Activate the rear window heating by pressing this switch. It can be used to demist and de-ice the rear window.
Activate rear window heating only when demisting/de-icing is necessary. Continued operation after complete demisting/de-icing can damage the system..

3.7.10 Electric window (optional)



Operation of the electric windows:

- To open the window: press the switch DOWN.
- To close the window: press the switch UP.

The electric window is equipped with “comfort control”, if the switch is held down for more than one second, the window will automatically continue lowering until it reaches its end stop.

CAUTION	
	• **Keep body parts away from the window and its surroundings when closing it.**

3.7.11 Reverse warning buzzer (optional)

Push this switch to deactivate the reverse warning. The switch is spring loaded and the choice of overruling the reversing buzzer must always be properly assessed by the responsible driver/operator. If there is no urgent need to overrule the reversing buzzer, do not do it!

When the reversing buzzer is deactivated by the driver/operator, a message and a red tell-tale comes on in the DIM.

This situation will remain as it is during the operation of the tractor. The functionality of the reversing buzzer will be switched back on again when:

- The driver/operator pushes the reversing switch again.
- The power has been switched off and on.

DANGER	
	• **Do not deactivate the buzzer for any longer than absolutely necessary.** • **Take extreme caution when driving the tractor without the reversing buzzer, as other road users will not receive an audible warning.** • **The operator is responsible for the safe use of this vehicle.**

3.7.12 Rear axle differential lock (optional)

There are three possibilities:

- Axles that are equipped with a built-in differential lock.
- Axles that have an automatic differential lock and, in these situations, there is no switch available, the locking and unlocking will be done automatically.
- Axles that are equipped with a limited slip differential instead of a lock.

If a switch is fitted on the dashboard:

The rear axle differential divides the traction power between the wheels on the left and the right side of the vehicle and enables the wheels to rotate independently from each other. This is necessary to make turns and reduce tyre wear and mechanical overload on the drive train, it ensures optimal traction.
The rear axle differential can be locked with the rear axle differential lock switch on the dashboard.
When this is done the wheels both left and right are connected rigidly and therefore a loss of traction on one side of the tractor will not result is a complete loss of traction of the wheel(s) on the other side.
Only use the rear axle differential lock when driving straight ahead on a slippery road. Always try to avoid sharp turns when the tractor is loaded and when anti-skid equipment is fitted (e.g., snow chains).

Engage the rear axle differential lock:

1. Ensure that the vehicle is at a complete standstill.
2. Move the gear lever to Neutral.
3. Press and hold the rear axle differential lock switch.
4. The rear axle differential lock will be activated.

NOTICE	
	If the warning light does not come on continuously after a moment, drive the tractor slowly until the light comes on continuously. Applying a little steering might be necessary.

Disengage the rear axle differential lock:

1. Ensure that the vehicle is at a complete standstill.
2. Move the gear lever to Neutral.
3. Release the rear axle differential lock switch.
4. The rear axle differential lock warning light goes off. The rear axle differential lock has been disengaged.

NOTICE	
	If the warning light does not go off after a moment, drive the tractor slowly until the light extinguishes. Applying a little steering might be necessary or driving backwards and forwards

WARNING

- **Only use the rear axle differential lock in slippery conditions.**
- **Do not use the rear axle differential lock when the tractor is loaded or when anti-skid equipment is fitted.**
- **Drive carefully once the rear axle differential lock has been engaged.**
- **Never turn sharp corners on firm ground with the rear axle differential lock engaged.**

3.7.13 Air suspension pressure release (optional)

When the Fifth wheel lifting system is set to its lowest position, releasing air from the air suspension will lower the Fifth wheel even further.
This may be necessary when low trailer/trestle systems are handled.

- Air can be released from the rear axle air suspension by pressing the switch.
- When the switch is released, the air bellows will fill with air again, raising the rear end of the tractor.
- The height adjustment of the air suspension will take control and maintain proper drive height.

WARNING

- **Make sure the vehicle is stationary before releasing air from the air suspension.**

3.7.14 Fifth wheel height override (optional)

This switch has a universal function depending on the owner's requirements.
Functions can be as follows:

1. To override the Fifth wheel height restriction.
2. To override a customer-specified option.

WARNING

- **Do not use the override switch for any longer than necessary.**
- **Do not drive with an excessively raised trailer.**

3.7.15 Fifth wheel unlock

Press the switch 'Fifth wheel remote unlock' to unlock the Fifth wheel. Do so only when the vehicle is at a complete standstill.

- If two switches with the same symbol (optional) are installed, then both switches must be pressed simultaneously to unlock the Fifth wheel.
- The Fifth wheel can only be unlocked when the vehicle is almost at a standstill.
- If the Fifth wheel is still mechanically locked after pressing the switch, try to put the vehicle in Neutral to eliminate any friction force at the Fifth wheel and the king pin.

WARNING	
	• **Make sure that the tractor is at a complete standstill before you unlock the Fifth wheel.** • **Before uncoupling the trailer from the Fifth wheel, ensure that the trailer is secured with the trailer brake or with chocks under the tyres.** • **Before uncoupling the trailer from the Fifth wheel, ensure that the trailer connections (airlines and electrical connections) between trailer and vehicle are disconnected.** • **Make sure that the front-end of the trailer is sufficiently supported, either by trailer legs or alternative supports.**

3.7.16 Additional hydraulics (optional)

In general, this switch controls the additional hydraulics that operate any vehicle Power Take Off (PTO).

3.7.17 Additional horn (optional)

This switch controls the additional horn on the vehicle or the trailer.

3.7.18 Central greasing system (optional)

- The central greasing system is indicated on the dashboard by a light or a symbol. The type of indication depends on the central greasing system that is installed.
- In most cases the lamp shows the status and fault codes of the greasing system by means of flashing codes.
- Normally when the power is set to the ON position, the lamp flashes to indicate the default duty cycle of the system.
- When a greasing cycle is executed, when the cartridge is (almost) empty or when there is an error, this will also be indicated. (See the central greasing manual for detailed information).

4 Driver Information Module (DIM) description

The DIM is part of the dashboard and shows essential information for the driver. The dashboard symbols list will help you to recognise common, safety and warning indicators. The list may vary per vehicle.

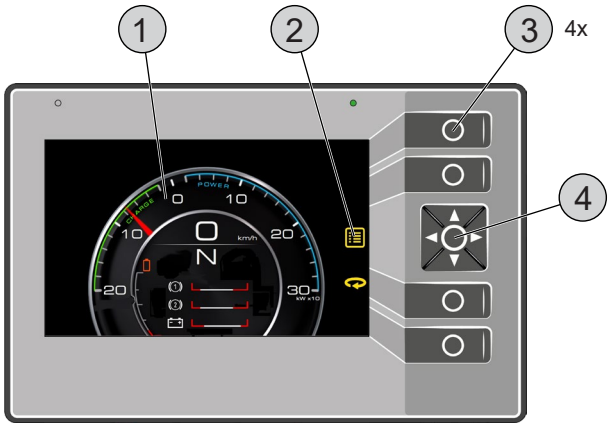
- The DIM is an information management tool that visually tracks data, errors and metrics to warn the driver and to monitor the vehicle and specific processes.
- The data is customised to meet the specific needs of a vehicle or company.

4.1 Operating components

WARNING

- **Only use the DIM menu when the vehicle is stopped and the parking brake has been applied.**

The DIM is a digital dashboard that helps drivers to remain safe on the road by letting them know something needs attention. The dashboard symbols guide will help you to recognise common, safety and warning indicators.



NOTICE

The screen is not a touch screen.

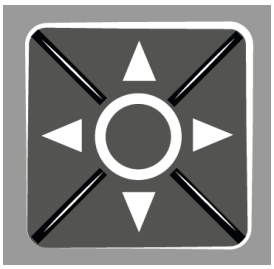
Use the buttons on the right side to navigate through the menu's

- LED display (1).
- Screen selection icons (2).
  These icons are shown to the left of the selection keys..
  A new screen can be displayed if you press the related selection key.
- Selection keys (3).
  With these four keys you can select/enter the regarding screen icons at the right side of the display. The key is backlit when the function is available.
- Navigation key (4).
  This is a group of 4 independent arrow keys including ENTER key in the middle. The middle is backlit.
  With the enter key you also can select the screen icon beside the navigation key-group.

Audible signals

The DIM always gives a notification warning or critical sound signal when the driver needs to be notified of an error code or important change in the condition of the vehicle.

4.1.1 Navigation key



- △ Move Up.
- ▷ Move Right.
- ▽ Move Down.
- ◁ Move Left.
- ○ Enter key. To select a function, a value or the icon beside the key-group.

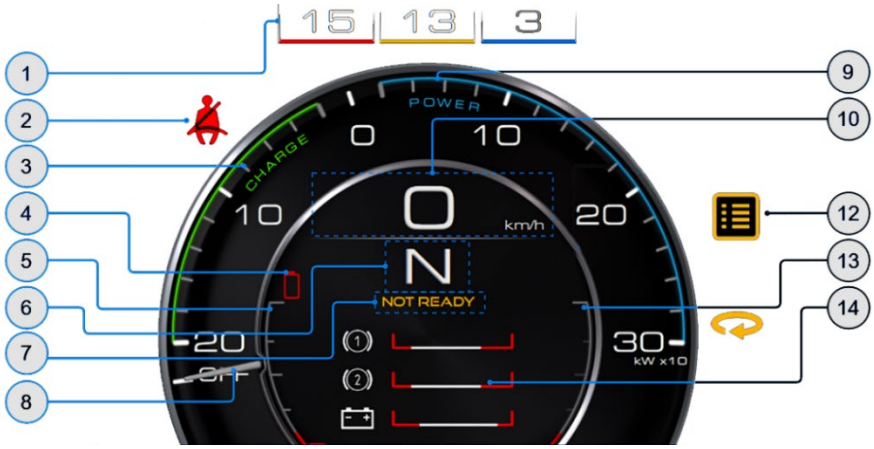
4.2 Dashboard symbol list

During tractor operation, the DIM shows a variety of symbols like:

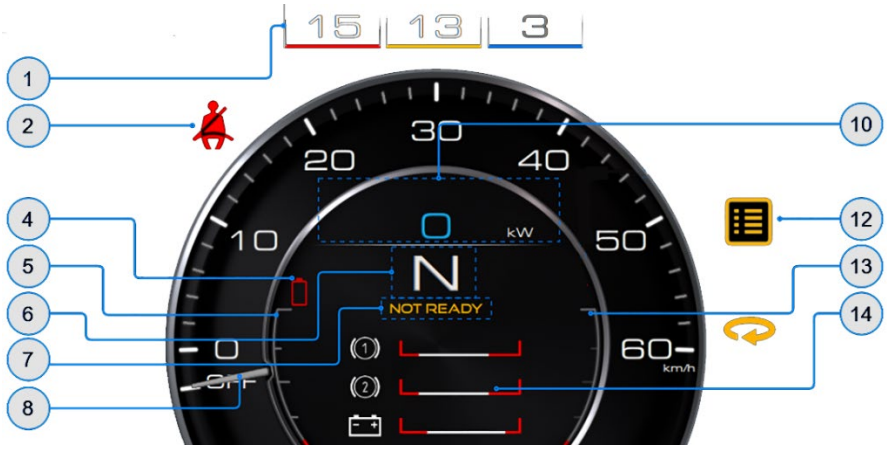
- Warning symbols.
- Safety symbols.
- Lighting indicators.
- Vehicle status symbols.
- Advanced feature symbols and indicators.

All symbols, icons and tell-tales are listed in § 4.4.

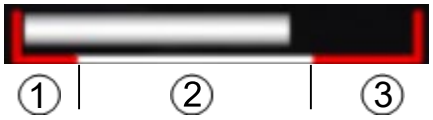
Screen: Digital speed and analogue power



Screen: Digital power and analogue speed



Pos.	Info	Pos.	Info
1	Pop ups.	8	Power needle / Speed needle.
2	Tell-tales.	9	Power consuming area.
3	Regeneration / Charge area.	10	Digital speed/Digital kW consumption.
4	State Of Charge (SOC) level icon.	12	Menu buttons.
5	SOC level bar.	13	Hydrogen level bar (when fitted)
6	Vehicle direction indication N-F-R.	14	Specific views (carousel).
7	All vehicle systems Ready indication.		

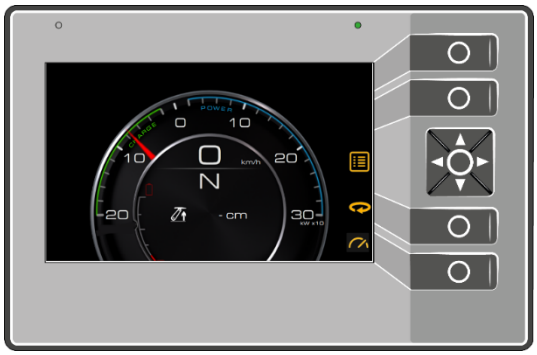


1. Value is too low, bar is red
2. Work area
3. Value too high, bar is red

4.3 Operation of the DIM

NOTICE	
	Some DIM functions require a password. There are 3 required access levels: • None. • Customer. • Distributor.

4.3.1 Initialisation and Start screen



When you turn ON the power switch, the DIM will initialise.

After initialisation, the DIM shows the Terberg logo, followed by the start screen.

- The start screen shows information like: speed (km/h) and vehicle information that requires attention.

In this chapter is described how you can change the predefined display view

4.3.2 Screen navigation icons

Five screen navigation icons can appear at right side of the display.
Three of them are shown in the figure.

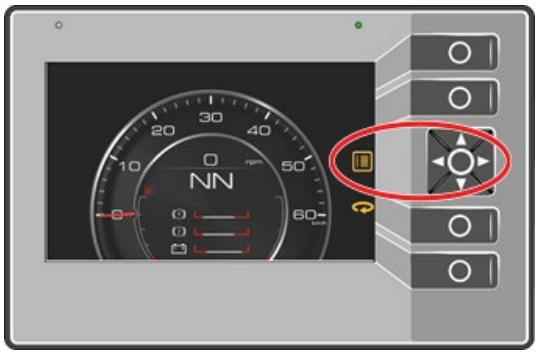
- If screen navigation icons are not visible, then you press the Enter key.

Press the selection key beside an icon to show the function.

Five screen navigation icons

■ **Apply**	Accept change.	
■ **Go back**	Go to the previous screen.	
■ **Menu**	Open menu screen.	
■ **Carousel**	Select a sub-screen for your desired extra info.	
■ **Dashboard**	Return to the main dashboard screen.	

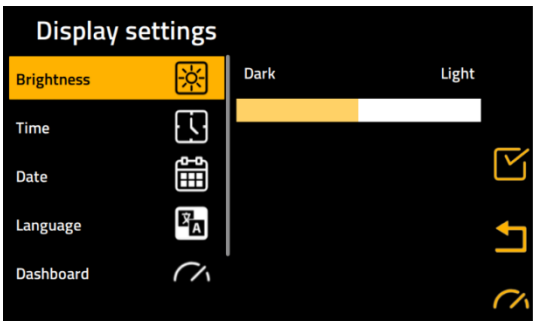
4.3.3 Display settings



- Use the enter key of the navigation button to select icon ‘Menu’ as shown.
- Select ‘Display settings’.

The next screen appears.

The driver can adjust screen settings in this menu, no password required.
Settings e.g., Language, Date Time and so on.



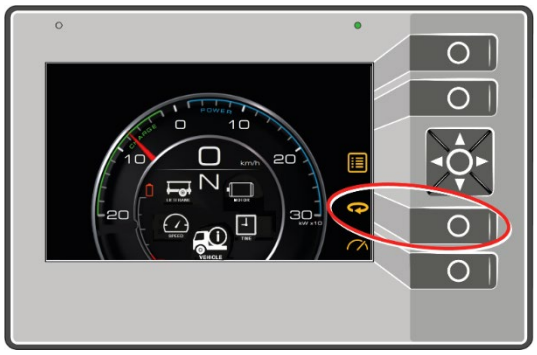
In this screen you can adjust the following items:

- Brightness.
- Time.
- Date.
- Language.
- Dashboard settings.
- Day / Night mode.
- Units.

Use navigation key to adjust and to enter the desired settings.

- At the right side of the display, new corresponding screen navigation icons are shown.
- Always enter new adjustments with the ‘Apply’ icon /button or choose another function to go back.

4.3.4 Specific view selection function



Carousel function:

With this function you can choose a sub-screen for a specific topic, like:

- Vehicle.
- Speed.
- Motor.
- Time (and date etc.).
- NO info

This list can vary per vehicle type.

Method:

- Press the function key, related to the ‘carousel’ icon two times.
- Press the enter key.

Use the navigation keys to rotate the carousel until you have selected the desired topic.
The lowest and boldest icon will be the active one, in this case ‘Vehicle’.

4.3.5 Specific view screens

A few ‘Specific view’ screens are shown below.

- In each screen you can get more technical information about the chosen topic. Use the screen navigation icons / buttons in the desired screen to display more detailed information.

Specific view ‘Vehicle’

This screen displays information about the brakes and the battery.

Select ‘Menu’ to choose another screen for more information.

Specific screen ‘Motor’

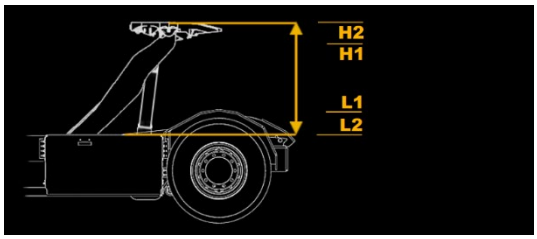
This screen shows:

- Traction motor rotations per minute.
- Voltage.
- Amperage.

Specific screen ‘Fifth wheel’

This screen shows the status of the Fifth wheel:

- Fifth wheel height [cm] (1).
- Fifth wheel load [t] (2).



Fifth wheel height control

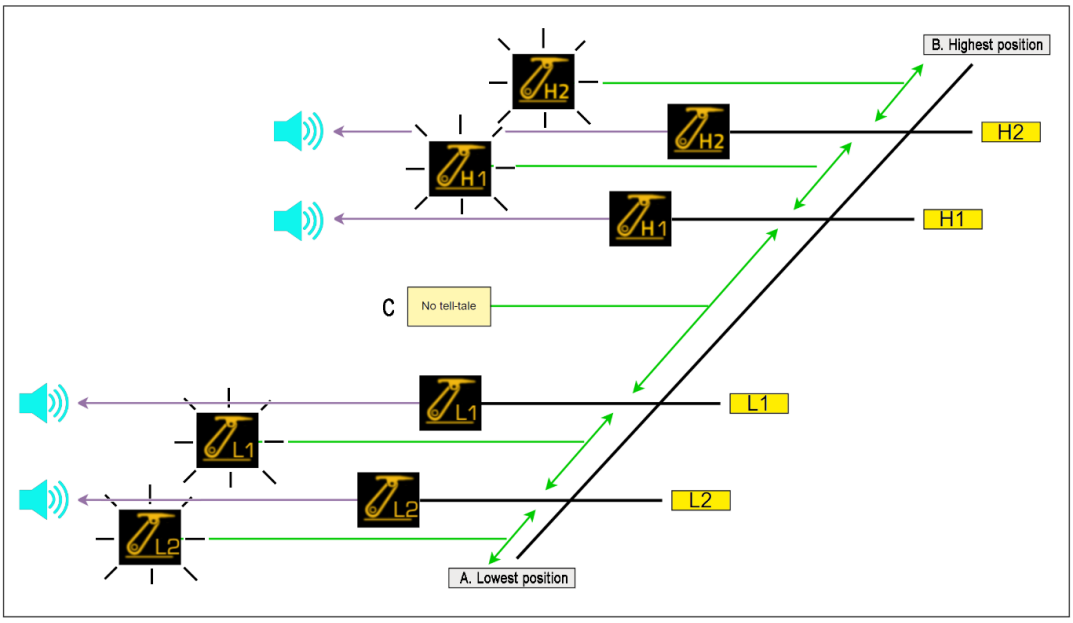
A service technician can enter four fixed Fifth wheel height positions:

- Two low positions L1, L2.
- Two high positions H1, H2.

The tell-tale related to the entered specific Fifth wheel height shows in the DIM screen, as shown in the next figure.
An acoustic signal will also sound when an entered position is reached.

The relevant tell-tale shows “ON”, or flashes, corresponding to the situation as shown in the next diagram.

Height position Fifth wheel icon shown in the DIM screen (ON or flashing)



A. Lowest position B. Highest position. C. No tell-tale.

Important info messages and warnings (Pop-up messages)

If an error occurs, e.g. a temperature gets too high during the working process, then a blue, yellow or red text frame comes on in the display.

Three types of messages:

- Critical warnings (Red)
- Warnings (Yellow)
- Info messages (Blue)

Critical Pop-up warning

In this case a red Critical pop-up warning message comes on.

'Contact Workshop Immediately'.

The driver can open this message for more information.

Pop-up function:

- Open Pop-up message 

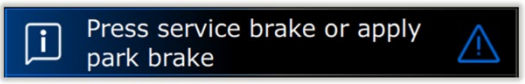
Pop-up warning opened

In this screen a Fifth wheel pop-up warning is opened.

- Fifth wheel height error.
  More information is shown.

Pop-up function:

- Close Pop-up message 



Pop-up counters and bars

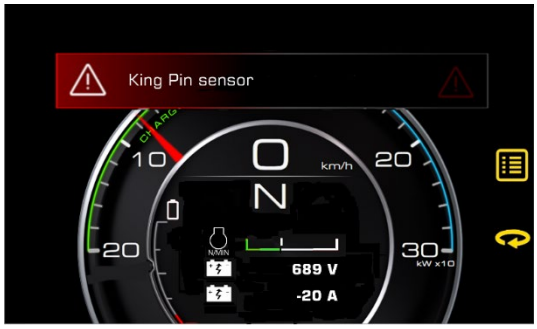
At system start, all valid pop-ups will be shown in the DIM as header bars (for a short time).

Navigation in pop-up screens

- Left – right: go through levels.

Up - Down

- Go through pop-ups in a level.



Important error messages

If an error occurs, then a warning message comes on in the display.

In this case a king pin error occurs.

- Select ‘Menu’.

A new screen comes on in which you can find the exact problem.

4.3.6 Fifth wheel height calibration

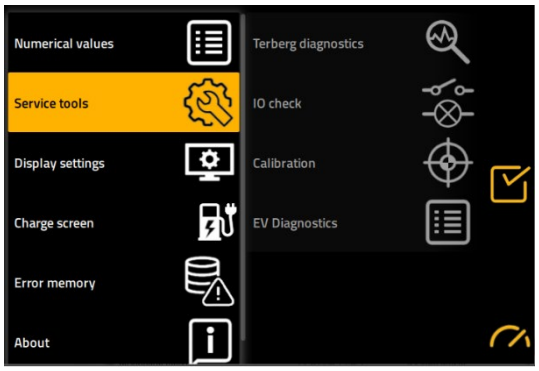
NOTICE

- The represented height of the Fifth wheel is the height from top of chassis to top of Fifth wheel.
- The calibration action can only be done one time in the DIM screen, otherwise leave the DIM screen and re-open again to make a new calibration.
- When opening the calibration menu, there is always a pop up message with info about the calibration process.

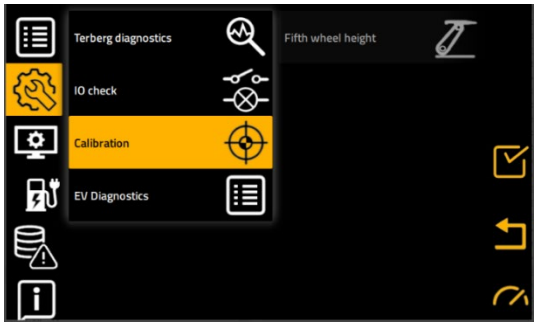
NOTICE

A level 1 password is required

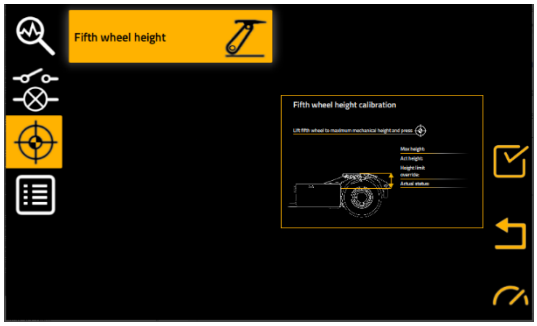
- Select Menu.



- Navigate to Service tools.
- Press the enter key to select apply

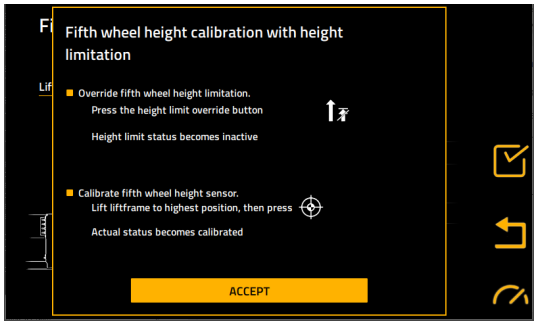


- Navigate to calibration.
- Press the enter key to select apply

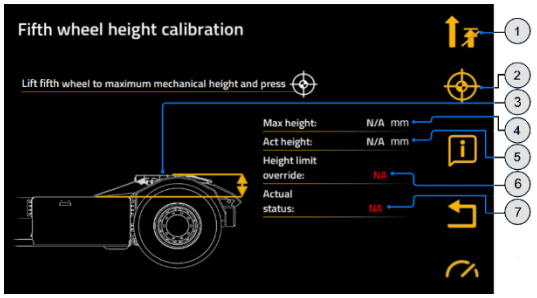


- Select ‘Fifth wheel height’.
- Press the enter key to select apply

- Use the Up and Down keys on the navigation button to enter the Level 1 password.
- Press the enter key to unlock the screen.



- Read the instructions on the screen.
- Press the enter key to select apply



Screen when Fifth wheel height limitation installed

1. Override Fifth wheel limitation.
2. Calibration activation.
3. Actual height of the Fifth wheel.
4. Max. possible mechanical height.
5. Actual height Fifth wheel.
6. Override active (if fitted).
7. Calibration status (if fitted).

NOTICE	
	• When a Fifth wheel height limitation is installed it can only be overridden by holding the OVERRIDE button, when the calibration procedure is finished, make sure to lower the lift frame below its limited value. • Only press the CALIBRATION button at the highest mechanical position. Otherwise there is no reliable representation of the height.

Start calibration

1. Lift the Fifth wheel to the maximum height.
   Press and hold the OVERRIDE button to raise the Fifth wheel beyond a set height limitation (where fitted).
2. Make sure that the Max height and Act height are equal.
3. Press the button: calibration
4. The Fifth wheel height is now calibrated.

Press the button: dashboard to return to the main dashboard screen, or the Go back button to return to the Settings menu.

NOTICE	
	The maximum mechanical height can be noticed when the hydraulic pump hits its maximum pressure limit, this is noticed by a louder pump sound.

NOTICE	
	The DIM is still in level 1 password mode after calibration. Switch the power off and on again to reset the password mode

4.3.7 Power usage

The power usage of the vehicle is shown on the DIM. Instead of speed, the driver can now see the amount of power which is used to propel the vehicle with or without load.

Blue area

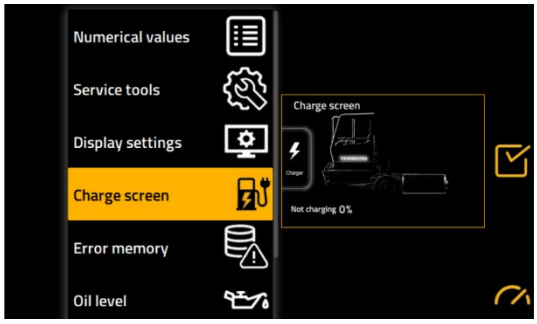
The blue area on the right shows the power which comes from the batteries and flows through the vehicle, both the normal power usage for lighting etc. as well as for the traction motor.

Green area

The green area is the amount of power which is returned to the battery pack when the vehicle is slowing down. This is called the regenerative braking of the vehicle and starts as soon as the accelerator pedal is released. The motor which normally drives

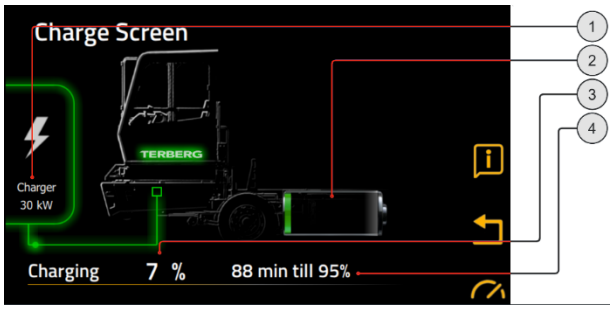
the vehicle when the accelerator pedal is pressed, now functions as a generator to charge the batteries.
When the driver of the vehicle gets more experience in driving electrical, he or she can prevent brake wear this way.

4.3.8 Select charge screens



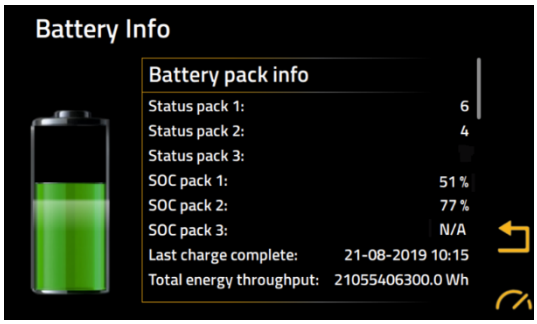
- For info about the battery pack navigate via the Menu to ‘Charge screen’ as shown in this figure.

Charge screen



1. Current in kW supplied by the charger.
2. Visual representation of the SOC level.
3. Current SOC level in Percentages.
4. Estimated time until 95% charged.

Main screen for battery info

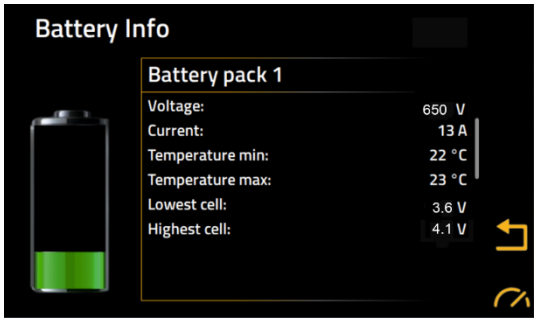


This specific battery pack views show:

- Main info of each battery pack.
- Date of the last charge complete.
- Total energy used out of all battery packs.

Use the UP and DOWN buttons to navigate through the screen of each battery pack.

Detailed battery info



This screen shows detailed information for the regarding battery pack, in this case battery pack 1.

Other functions and features

- Function and features may vary per vehicle. Each important function or feature has its own DIM screens, pop-up frames and commands.
- For detailed technical information, contact your Terberg dealer.

4.3.9 Illumination

The display is backlit when the power is on.
The buttons are backlit when the vehicle lighting is switched on.

4.3.10 Password-protected functions

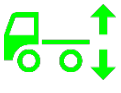
Some screens require a password to gain access. In that case, the following screen shows after selecting the protected function. Menus can have several access levels.

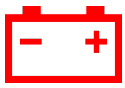
There are 3 password levels:

1. Customer.
2. Distributor.
3. Factory.

Use the navigation key to enter and confirm the password.

4.4 Display Symbol overview

Icon	Colour	Description	Notes
	Red	Indicate the status of a three-point seat belt (belt with single shoulder harness).	Reminder to fasten your seat belt. Always wear the seat belt while driving to ensure maximum protection.
	Green	Fifth wheel locked correctly	The Fifth wheel is connected to the trailer. Always perform the Push-Pull test.
	Red	Fifth wheel not locked correctly.	The Fifth wheel is not correctly locked, or the kingpin is not detected. Driving with a trailer attached is prohibited! Check the trailer connection before driving.
	Red	Parking Brake applied.	If this light comes on the vehicle must be stopped. Before driving off the parking brake must be disengaged, and the indicator must be off.
	White	Brake circuit 1	
	White	Brake circuit 2	
	Yellow	Air suspension pressure rear axle released (optional).	This comes on when the air is released out of the rear air suspension. Do not drive in this situation, it is only for coupling a low trailer.

Icon	Colour	Description	Notes
	Green	Parking lights on.	Informs the driver that the parking lights are switched on.
	Green	Low beam on.	
	Blue	Main beam on.	
	White	Work light active.	
	Yellow	Fifth wheel high or low limit override.	**H2** Max height, no override possible.
			H1 Height limitation, override possible.
			L1 Lower limitation, override possible.
			L2 Min height, no override possible.
	Red	Continuously = Inverter not ready. Flashing = Battery Save Active.	This warning light shows when the motor is not running. If the light comes on while the motor is running, there could be a fault in the inverter circuit. Have the vehicle checked by authorised service personnel. If the light is flashing, the battery level is too low. The vehicle lighting and some services (heating, etc.) are deactivated.
	Yellow	HV Battery warning	State of charge level is low. Reduced vehicle speed.
	Red	HV Battery error	State of charge level is too low. Charging required.
	Green	Charging plug connected	
	Yellow	Brake pads worn.	Have the brake pads inspected by authorised service personnel.
	Yellow	Loss of power steering.	Illuminates when there is a loss of hydraulic power.

Icon	Colour	Description	Notes
	Red	Hydraulic system error	Power steering is not active. Contact the workshop.
	Red	Reverse driving buzzer switched off.	
	Green	Left turn indicator active.	
	Green	Right turn indicator active.	
	Green	Additional electric heater is activated.	
	Red	When the heater switch is turned on, and the heat request is low, the telltale is red. Indicating the switch is active, but the heater is not actually turned on	

5 Charging the HV batteries

Pos.	Type	Description
1	Emergency button	Emergency shut off button..
2	Indicator panel	Indicator panel which informs the user about the status.
3	Cable	High power cable.
4	Plug	Connection plug Type 2 / Combo 2. Protocol CCS2.0

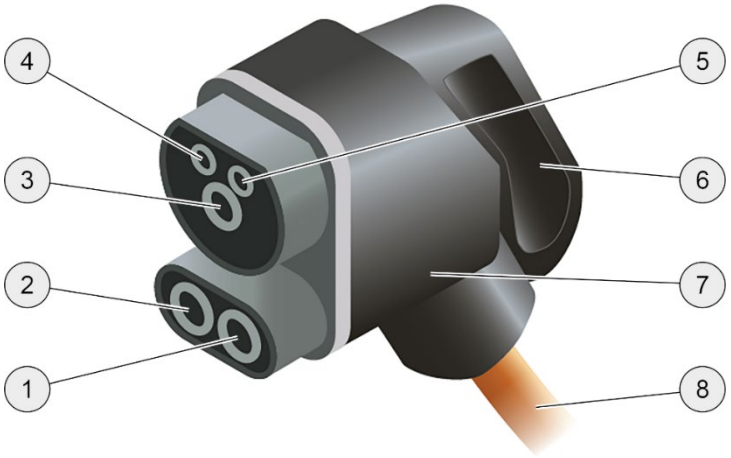
5.1 Charging while driving, regenerative braking

The ‘brake-energy’ will be converted by the traction motor, which then operate as a generator. The electro-generating properties of this system will charge the battery pack during ‘regenerative braking’.

5.2 Cable charging

DC stands for Direct Current. There is a direct voltage on the two main DC pins available for fast charging.

5.2.1 Charging Connector



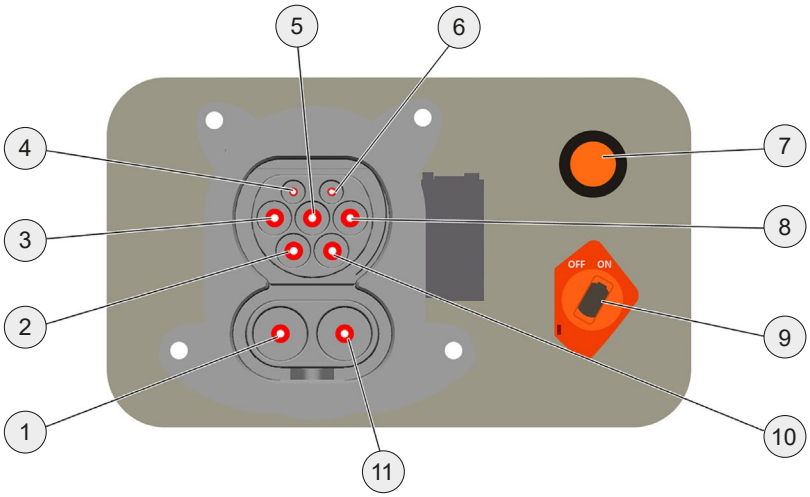
Pos.	Type	Description
1	DC -	The negative terminal pin of the HV Direct Current charging possibility.
2	DC +	The positive terminal pin of the HV Direct Current charging possibility.
3	PE / Ground	Protective Grounding: the ground/earth pin of the connector which is in place as a safety facility.
4	CP	Communication Pin: the communication protocol runs over this pin.
5	PP	Pins Present: the connector is inserted and locked properly; charging could now start.
6	Handle	Connector handle to push/pull the connector in the charge port of the vehicle.
7	Connector body	Connector body with safe isolation properties.
8	HV Cable	High Voltage connection cable.

The charging connector must be gently but firmly pushed into the charging port of the vehicle which is located in the right front bumper.

- Terberg uses the CCS2.0 protocol
- Minimum required charge voltage is 800 VDC
- Combo 2 DC connectors (Max. 150 kW) charging power.

The Type 2 connector is used for AC charging and/or low power AC charging, the Combo 2 connector is used for DC charging.

5.2.2 Charge port



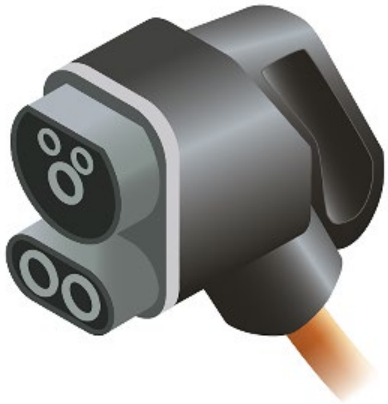
Pos.	Type	Description
1	DC -	The negative terminal pin of the Direct Current charging possibility.
2	L2 (NOT USED)	Line 2 = Line number 2 of the three phase Alternating Current charging possibility.
3	L1 (NOT USED)	Line 1 = Line number 1 of the three phase Alternating Current charging possibility.
4	PP	Pins Present: the connector is inserted and locked properly; charging could now start.
5	PE	Protective Earthing: the ground/earth pin of the connector which is in place as a safety facility.
6	CP	Communication pin: the communication protocol runs over this pin.
7	Disconnect button	This is the button to unlock the charging connector. The unlocking consists of: - Mechanical unlock of the connector. - Electrical check, stop of charging.
8	N (NOT USED)	Neutral, the pin that takes the return current of the charging phases.
9	HV Safety switch	Emergency switch for interrupting of the High Voltage electrical connection.
10	L3 (NOT USED)	Line 3 = Line number 3 of the three phase Alternating Current charging possibility.
11	DC +	The positive terminal pin of the Direct Current charging possibility.

WARNING	
	• **Make sure that the charging cable, connector and charging inlet are not damaged, dirty or wet.** • **Do not use charging equipment that is in bad condition.** • **Do not clean the charging inlet by yourself if it is dirty. Always contact an authorised Terberg Service Organisation.**

Number (7) is the orange coloured push button to release the connector from the vehicle's charge port, only when the charge cycle is interrupted and paused.
The unlocking consists of:

- Mechanical unlock of the connector.
- Electrical stop of charging.
- Remove the charging connector and store it on the charge cabinet.

5.2.3 Start charging



DANGER	
	• **Do not disassemble, remove or replace any high voltage components. The high voltage system has no serviceable parts.** • **High voltage cables are typically coloured orange for easy identification.** • **Read and follow the messages on all labels that are on the vehicle.**

The following conditions must be met to start charging the traction batteries:

- The vehicle must be at complete standstill.
- The parking brake must be applied.
- Make sure that the charging cable is properly connected to the charging station or power outlet.
- For charging, remove both the upper and the lower cover.
- Align the connector with the charging inlet and push the connector fully into the charging inlet.
- The connector is locked in position by a locking pin and the vehicle makes itself ready for charging. Start the charging process on the charging station.

NOTICE

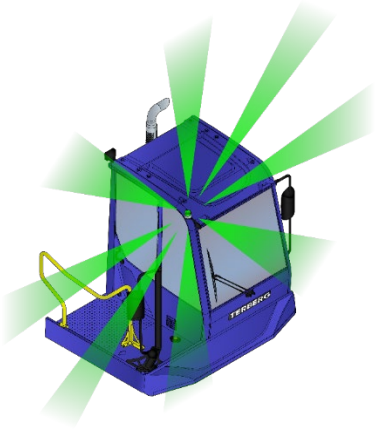
It can take up to 60 seconds for the vehicle to prepare for charging.

- During charging, it is normal that the connector and the charging inlet become warm.
- If you think that the connector or the charging inlet is significantly warmer than normal, stop the charging immediately and contact an authorised Terberg Service Organisation.

The charge of the batteries can be monitored on the DIM.

5.2.4 Charging indicator

- When the charging plug is connected to the vehicle, the charging light blinks at 5 Hz (5 times per second).
- When charging is active, the charging light blinks at 1 Hz (1 time per second).
- When the Stored Energy Level (SEL) is 80% or higher, or the charging session is finished, the charging light stays on.
- When charging is finished and the ignition is off, the vehicle turns off after a few seconds and the charging light turns off. If the ignition is on and charging is finished, the charging light stays on.



5.2.5 Stop charging

- Press the stop button either on the vehicle side and charging side.
- The locking pin inside the connector will release the connector.
- Pull the connector from the charging inlet.
- Store the connector in a safe place on the charging station.
- Put back the covers on the charging ports.
- The vehicle is ready for use.

WARNING

- **Make sure that the cover is securely fastened and that it fully covers the charging inlet.**
- **Always protect the charging inlet from dirt and water.**

5.2.6 Optimising range

Use has a large impact on how long a charge of the batteries will last. To optimise the operating range of your vehicle, follow the recommendations stated here.

NOTICE	
	• The main principle for optimising range is to drive smoothly.

Brake gently

Brake as gently as possible, if needed at all since the vehicle slows down on battery regeneration too.
Plan ahead so that you release the accelerator pedal over a longer distance instead of making a short, hard braking. When needed, during a gentle braking, only the auxiliary brake is used and the braking energy is recuperated to charge the batteries.

NOTICE	
	• If you brake harder, the service brakes are used and the braking energy is wasted as heat.

Increase speed smoothly

Accelerate as smooth as possible when you want to increase the speed. Try to prevent going into the red area of the power meter and energy will be saved.
The most energy-efficient way to increase the speed is to take advantage of downhill slopes or other natural or circumstantial situations. Whenever possible, prevent increasing the speed when going uphill.

Go uphill steadily

Climb uphill slopes and ramps with a steady speed and prevent accelerating.
Try to prevent going into the red area of the power meter and energy will be saved.

Allow the speed to drop

If a top is followed by a downhill slope, you can save energy by allowing the vehicle to slow down as it approaches the top and then using the downhill to increase the speed again. The more you allow the speed to drop when approaching a top, the more energy will be saved.

Recuperate energy when going downhill

When driving in downhill slopes or ramps, take the opportunity to recuperate energy by braking gently over a longer distance.

Plug in when you park

When you park the vehicle for more than a few hours, connect the charging cable and leave it to top up the capacity.
When your vehicle is parked, it continually monitors and maintains the condition of the traction batteries and other important components. For instance: if the temperature of the traction batteries gets too low, the logics of the control system will detect this and starts the system for heating the traction batteries.

When you leave the vehicle with the charging cable connected, then, it can use the power from the socket for the conditioning and your vehicle will be ready for work when you return after the night/weekend.

5.3 Before driving

Consider these driving advices for the best return in economy and environment.

- Check / do the following before driving off:
- Check for leakage of the pneumatic braking system (audible check)
- Check the DIM for warning lights.

WARNING	
	• **Never drive off in a vehicle with active warning lights and/or a leakage of the pneumatic braking system!**

- Check the wheel mounting and tyre pressure of all wheels.
- Check the battery capacity (Driver Information Module).
- Check the coolant level of the HV traction system (sight glasses behind the cabin).
- Adjust driving position (seating, steering column)
- Adjust the mirrors.

5.3.1 Activating the drive motor

Activate the drive motor in the following order:

1. Ensure the parking brake is applied.
2. Ensure the gear lever is in neutral.
3. Turn the power key to the **first** position.
4. Wait until the DIM shows the instrument panel.
5. Press the brake pedal and release the parking brake.
6. Select the driving direction (F or R).

The tractor activates the drive motor and is ready for driving when the brake is released.

5.3.2 Deactivating the drive motor

Deactivate the drive motor in the following order:

1. Stop the vehicle.
2. Select neutral.
3. Apply the parking brake.
4. Turn the power key to the **“0”** position.

5.3.3 Shifting/changing gears

The YT203EV is equipped with an electromotor for traction. This means that there is no gearbox in the vehicle.

- The Forward gear selection activates the electric motor in forward rotation.
- The Reverse gear selection activates the electric motor in backwards rotation.
- The Neutral gear selection disconnects the power for the electric motor for the drive line.

DANGER

- **Always keep the vehicle brake active when the vehicle is in Neutral. When the brake is not pressed, use the parking brake.**

6 Driving the vehicle

6.1 Drive instructions

The driver must adhere to safe driving instructions at all times.

6.2 Drive safe and durable

To ensure safe and durable operation of the tractor, Terberg provides the following driving instructions which the driver must read before driving the tractor.

- Always wear the seatbelt when driving the tractor.
- Check, after starting and regularly while driving, that the instruments display their normal values.
- Brake as smooth as possible to avoid excessive wear of the brake components.
- Always connect the air-lines to prevent jack-knifing under heavy braking.
- Always connect the electrical connections for tractor lighting on the trailer.
- For stability of the combination keep trailer height to a minimum, but high enough to provide sufficient ground clearance.
- Keep the cornering speed low when driving with high loads.
- Try not to turn when the front wheels are obstructed by a curb or other object. The power steering and tyres can be damaged.
- Use the differential lock only when driving straight ahead on slippery roads.
- Always apply the parking brake when parking the tractor.

6.3 Drive economic

High energy costs and concern for the environment mean that the tractor should be driven as economically as possible.
Driving the tractor correctly can have a significant effect on energy consumption and operational life. Always try to brake in a regenerative way.

Observing the instructions below will ensure that your tractor is used economically:

- Ensure tyre pressures are correct.
- Do not drive at excessive speed.

6.4 Start the vehicle

Start the vehicle in the following order, if applicable make sure start inhibiter is activated/ used:

1. Ensure the parking brake is applied.
2. Ensure the gear lever is in neutral.
3. Turn the power key to the **first** position.

- Wait until the DIM shows the instrument panel.

6.5 Stop the motor

Stop the motor in the following order:

1. Stop the tractor, while holding the brake pedal depressed.
2. Select neutral.
3. Apply the parking brake and keep pressing the brake pedal.
4. Turn the power key to the **“0”** position.

6.6 Gear selection

NOTICE

The tractor can only be put in drive (D) or reverse (R) when:

- The driver is seated.
- The driver depresses the brake pedal.
- The park brake is released.

6.6.1 Shift from neutral (N) to drive (D) or reverse (R)

- Depress the brake pedal.
- Release the parking brake.
- Do not press the accelerator pedal.
- Shift into drive (D) or reverse (R) with the gear lever.
- The chosen direction is indicated on the DIM, the tractor is ready for driving off.
- Gently release the brakes as the tractor tends to drive off.
- Press the accelerator pedal for (further) acceleration.

6.6.2 Shift from drive or reverse (D or R) to neutral (N)

- Depress the brake pedal.
- Make sure that the tractor is standing completely still.
- Do not press the accelerator pedal.
- Shift from drive (D) or reverse (R) to neutral (N) with the gear lever.
- If the N is indicated on the DIM, the motor is in neutral. Keep applying the brakes or apply the parking brake.

6.6.3 Shift from drive (D) to reverse (R) and vice versa

- Depress the brake pedal.
- Make sure that the tractor is standing completely still.
- Do not press the accelerator pedal.
- Shift the into reverse (R) with the gear lever.
- The chosen direction is indicated on the DIM, the tractor is ready for driving off.
- Gently release the brakes as the tractor tends to drive off.
- Press the accelerator pedal for (further) acceleration.

WARNING

- **To avoid unexpected tractor movement, always apply the brakes of the tractor, keep the accelerator pedal released, before changing gear.**

6.7 EBS

This vehicle is equipped with EBS (Electronic Braking System). The EBS is specifically tailored to the vehicle and provides more control over brake pressure, independently from brake pedal input. This allows the vehicle to brake faster, optimizes the performance of the ABS system and increases the general safety of the vehicle.

WARNING	
	The EBS increases the vehicle's active safety. The EBS is not able to prevent consequences resulting from not maintaining appropriate distance to preceding vehicles or cornering at excessive speeds. It also cannot guarantee winter capability (cannot provide an effect like snow chains).

6.7.1 Functions and acronyms

6.7.1.1 Electronic Brake Force Control

This function adjusts the necessary brake force the slow the vehicle down, taking into consideration the weight of the vehicle. This makes sure the "brake feel" stays optimal regardless of combination weight.

6.7.1.2 Antilock Braking System (ABS)

This function prevents the wheels from locking up during braking to maintain control over steering. It will prevent skidding and keep the vehicle steerable and reduces the risk of jack-knifing.

6.7.1.3 Brake Assistant

This function assists the driver in case of an emergency stop. Full brake force is applied quicker than the driver can achieve with normal pedal movement, reducing time in the first phase of hard braking.

6.7.1.4 Automatic Traction Control (ATC)

This function prevents the driven wheels from spinning to keep the vehicle stable and increase traction during acceleration.

6.7.1.5 Drag Torque Control (DTC)

When coasting on slippery surfaces this function prevents the wheels from locking up due to engine inertia. This is achieved by applying torque to the driven axle to keep the wheels rolling.

6.7.1.6 Off-road Mode

This mode can be selected to increase traction in off-road conditions, like snow and deep mud.

6.7.1.7 Tilt Prevention

Prevents the rear wheels from lifting under heavy braking by reducing brake force on the front axle.

6.7.2 Operation

The EBS operates automatically. The Electronic Control Unit (ECU) uses the brake pedal position and several other conditions to calculate the required pneumatic brake pressure.

6.7.2.1 TC Switch – offroad mode

A switch is installed on the dashboard to give the driver some control over the functioning of the Traction Control system by engaging offroad mode.

6.7.2.2 Short pressing the TC Switch

Pressing this switch once engages offroad mode. When offroad mode is engaged, the Traction Control system allows more slip to increase traction in offroad conditions, like snow and deep mud. The yellow offroad symbol will illuminate on the driver display.

Turn offroad mode off by pressing the TC Switch once.

CAUTION	
	Keep the offroad mode off during normal operation. Partly turning off traction control makes the driven wheels of the vehicle more prone to slipping.

6.7.2.3 Roller bench test mode

Long pressing the TC Switch engages the roller test bench mode. This disengages the ABS, Traction Control, Drag Torque Control and Electronic Brake Force Control. Roller bench test mode is only for testing purposes and should not be used during normal operation.

The following warning message appears on the display:

The yellow EBS symbol will illuminate in the display

Turn the roller test bench mode off again by pressing the TC Switch once.

WARNING	
	Engaging roller test bench mode disengages several critical safety features. Roller test bench mode is intended for testing purposes only. Do not keep roller test bench mode engaged during normal operation.

6.7.3 Display symbols

Before and during operation, the operational efficiency of the essential EBS components is permanently monitored by an electronic monitoring system. The red and yellow lamps light when the ignition is turned to the "ON" position. The lights turn off after some seconds. If the red and yellow lamps do not turn off, this is an indication that the EBS has a malfunction and needs to be checked by authorised service personnel.

Symbol	Colour	Description
	Yellow	Illuminates while the ABS is actively intervening. If this stays illuminated, it indicates that there is a problem with the EBS system. Have the vehicle checked by authorised service-personnel.
	Red	Critical EBS error. It is imperative that the EBS is checked by authorised service-personnel.
	Yellow	Illuminates while off road mode is engaged.
	Yellow	Illuminates while the Traction Control system is actively intervening.

6.8 Tractor-trailer (un)coupling

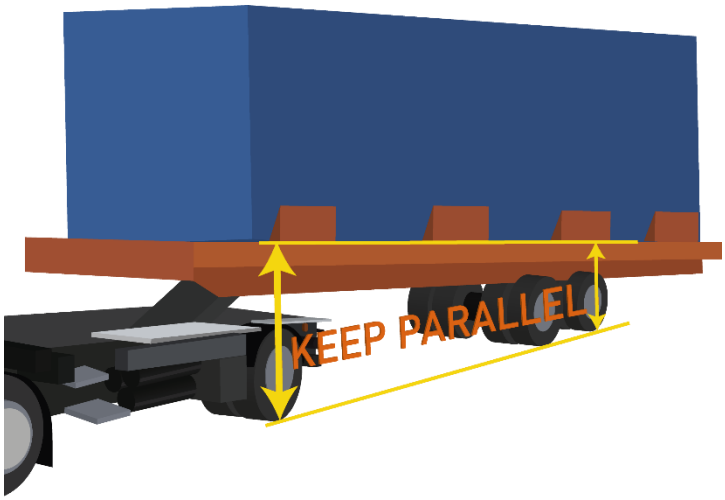
6.8.1 Use of the lifting system of the Fifth wheel

The tractor has a lifting system for its Fifth wheel, due to ergonomic reasons for the driver. Optionally a fixed Fifth wheel is available. The system can lift trailers of different heights, so the driver does not have to manually retract the supporting legs of the trailer.

The lifting system is part of the tractor's hydraulic system. The Fifth wheel can be adjusted to any desired height using the control lever on the driver operating console.

- Move the lever forward to lower the Fifth wheel.
- Move the lever back to raise the Fifth wheel.

The Fifth wheel must be raised sufficiently to ensure the trailer is parallel with the surface (as shown in picture). This to ensure that load distribution is optimal, and stresses in the combination are kept to a minimum. When driving with load on the lift frame, make sure it is raised by around 5 cm at least.



When driving on uneven ground, obstacles, ramps etc. the trailer can be raised to keep it sufficiently clear from the ground. Always keep it lowest possible (parallel to the surface it drives on), which ensures the best stability.

A horizontal trailer makes loading/unloading also easier. During loading/unloading of the trailer, it is for the Terberg tractor not necessary to lower the trailer legs to the ground. It is a local operational decision wherever this is required or not.

6.8.2 Couple a trailer

- Bring the upper surface of the fifth wheel to the same height as the lower side of the trailer's wear plate.
- Reverse the tractor carefully until the fifth wheel locks.
- The fifth wheel locks automatically when the king pin is properly seated in the fifth wheel.
- Ensure the green indicator light illuminates.
- If this is not the case, correct coupling has not been achieved. Try to connect again until the green indicator light illuminates.
- Perform a push – pull test (see next section) to ensure the trailer is coupled properly.
- Activate the parking brake and confirm it is engaged.
- Connect and engage air lines and electrical connections between the trailer and vehicle as required.

6.8.3 Perform Push-Pull test

When the green warning light is switched on, the driver cannot rely on that information solely. To safely move the trailer, the driver must first perform a Push Pull test.

A pull and push test can be done on a trailer equipped with parking brakes or on a trailer with sufficient weight on the trailer legs.

Method:

- Couple the trailer using the fifth wheel.
- Do not connect the trailer brake hoses and do not lift the Fifth wheel.
- Apply forward gear and "pull gently" (without sliding the trailer legs over the ground) to confirm the Fifth wheel is properly locked.
- Check the green light on the DIM. If it illuminates, then drive the tractor backwards slowly and carefully.

This test proves that the trailer is mechanically connected to the tractor unit. The air hoses can now be connected and the trailer can now be moved.

WARNING	
	• **Check the king pin size before connecting the trailer to the Fifth wheel. If a king pin is not the correct size, it could result in a damaged trailer or Fifth wheel.** • **The driver must ensure that the king pin is correctly locked in place, either by visual inspection or by carrying out a pull and push test to confirm that correct locking has taken place.** • **The tractor must not be used until all the above conditions are checked.**

6.8.4 Uncouple a trailer

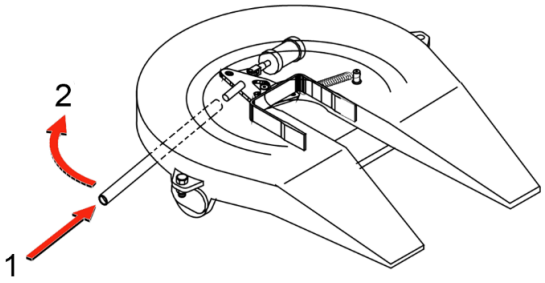
1. Find a suitable parking place and stop.
2. Lower the fifth wheel until the trailer front supports are on the ground.
3. Activate the parking brake and confirm it is engaged.
4. Disengage and disconnect air lines and electrical connections between the trailer and vehicle.
5. Deactivate the parking brake and confirm it is released.
6. Depress fifth wheel unlock buttons to unlock the fifth wheel, then drive the tractor forward.

NOTICE

- Check that there is no load on the fifth wheel and ensure that the fifth wheel locking mechanism is not under tension.

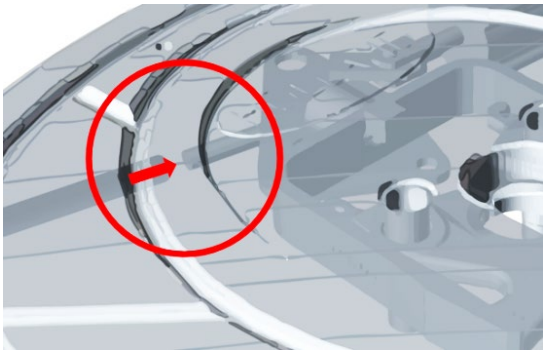
When unlocking is **not** possible with the switch, you can unlock the fifth wheel by manually:

- Use the cabin lift bar (stored on the left side of the driver's seat) to unlock the fifth wheel by hand.



Procedure:

1. Take the lift bar, intended for cabin tilting and put it onto the little bar, which is welded on the cam plate under the fifth wheel as shown.
2. Pull the lift bar forwards. The fifth wheel unlocks.

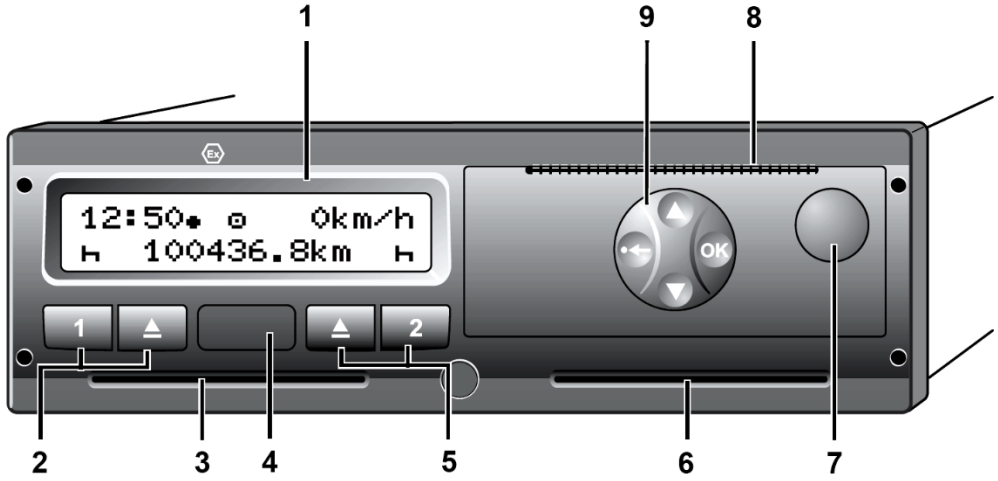


WARNING

- **Before uncoupling the trailer from the Fifth wheel, ensure that the trailer is secured with the trailer brake or with chocks under the tyres.**
- **Before uncoupling the trailer from the Fifth wheel, ensure that the trailer connections (airlines and electrical connections) between trailer and tractor are disconnected.**

7 Digital tachograph (option)

Tractors can be equipped with a digital tachograph. A concise guide is described below to enable you to operate the device. For further information please refer to the tachograph's user manual.



7.1 Start of shift

1. Turn the power on. **(7)**
2. Insert the Driver Card into the left-hand slot **(3).**
3. Answer the questions that appear on the screen (**1**) (e.g., activities before inserting your card and from which country you are leaving) using the Menu buttons (**9**).
4. Select the ‘Operational’ activity by pressing the Driver 1 Activity button (**2-left**).
5. The tachograph is ready for use.

7.2 End of shift

1. Select the ‘Rest period’ activity by pressing the Driver Activity button (**2-left**).
2. Press the eject button (**2-right**).
3. Answer the questions that appear on the screen (**1**) (e.g., in which country have you arrived and do you want to print the details of the shift) using the Menu buttons (**9**).
4. Take the Driver Card out of the left-hand slot (**3**).
5. Turn the power off.

7.3 Possible activities

Operational – e.g., while driving.

Available – e.g., while riding as a co-driver.

Resting – e.g., while resting or taking a break.

Other – e.g., while inspecting or servicing the tractor.

NOTICE

- The start and end times of shifts are stored as GMT (Greenwich Mean Time). Make sure your local time is converted correctly.
- Always carry an additional printer roll inside the tractor; if you lose or damage your Driver Card, you will have to make printouts to record your shifts.
- When inserting two Driver Cards at the same time, make sure that the driver's card is in the left-hand slot (3). This because the tachograph will automatically switch Driver 1 to ‘Operational’ when the tractor is moving.

8 Periodic checks and adjustments

Refer to the separate paragraphs for maintenance, performed by the driver/operator.

8.1 The driver's responsibility

Daily maintenance requires the driver to take a few minutes each day to check several important items to ensure proper operation of the tractor. These few minutes are intended both for the driver's safety and for safety of fellow road users. It is also a way of checking that all the operating systems are in good condition before starting the day's work. If topping up a system is necessary, use only the approved liquids. The following items must be checked:

- Battery pack coolant level.
- E-motor coolant level.
- Hydraulic oil level.
- Fifth wheel.
- Air tanks and dryers.
- Instruments and lights.
- Wheels and tyres (tyre pressure).
- Driver’s seat and mirrors.
- Wind screen washer level.

CAUTION

- **The maintenance in this manual is for a daily operation only. For a more comprehensive service refer to the Terberg Maintenance manual.**

8.2 Coolant level battery packs

Check that the coolant level is between the minimum and maximum marks on the expansion tanks at the rear of the cabin. If topping up is necessary, fill the system with the type of coolant that is required.

WARNING	
	• **When the battery coolant level is low, contact a Terberg Service. There could be an internal leakage in the battery pack that is very dangerous!** • **Coolant is toxic. Hands must ALWAYS be washed after handling coolant.** • **Dispose of coolant in the proper manner.**

Always allow the systems to cool down before removing the expansion tank caps.

8.3 Hydraulic level

Before checking the oil level, check the hydraulic oil hoses, connections and cylinders for leaks. The oil level must be halfway up the sight glass when the lifting system is in its lowest position. If the oil level is too low, top it up with the same type of oil that is already in the system. Add oil through the top of the return on the hydraulic oil filter. Keep everything clean during filling and only add clean oil. Collected oil must not be thrown back into the tank due to possible contamination. Removing the filter cover and adding oil must be carried out when the motor is switched off to eliminate the risk of oil spillage.
For more detailed information refer to the Terberg maintenance manual for electrical vehicles.

NOTICE	
	• Make sure that the lifting system is in its lowest position when you check the oil level. • Use the same type of hydraulic oil as already used in the hydraulic system. • Avoid under all circumstances dirt and dust entering the oil reservoir. • Work cleanly, use clean oil and clean cans for oil filling.

8.4 Fifth wheel

Check that the Fifth wheel is well greased to eliminate wear.
Keep the Fifth wheel sensors clean. They must be clean and in good condition to ensure correct operation. Clean the sensors with a lint-free cloth if necessary.

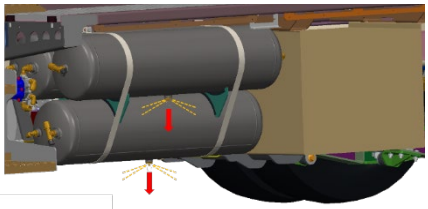
WARNING	
	• **Stay away of an operating Fifth wheel. Body parts could become trapped in the Fifth wheel or between the Fifth wheel and the tractor chassis.**

8.5 Air tanks and air dryer

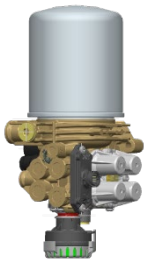
Air tanks contain compressed air, delivered by an electrical air compressor. The air is taken in from the environment and then treated for quality, so it does not damage or wear out the air system components.
For that reason, an air dryer is installed but, in some cases, the moisture in the compressed air cannot be dried completely and must be let off.

To do so, there is a water drain valve installed at the bottom of each air tank.

- The automatic valves are triggered every time the brake is applied. Do a check of both types of valves in accordance with the Terberg maintenance manual.



An air dryer extracts water from the tractor's air circuits.
The air dryer is maintenance free for the driver.



WARNING	
	• **Water in the air circuits will shorten the lifetime of the air circuit components and can result in failure of brake components.**

8.6 Instruments and lighting

Check all lights and instruments before driving.

8.7 Driver's seat and mirrors

Adjust the seat and mirrors to the correct positions before driving.

8.8 Windscreen washers

Check the fluid level and top up if required. The reservoir is located on the side of the cabin plate.

- In the summer, add screen cleaner to the water reservoir to keep the windscreen free of greasy deposits and insects.
- In the winter, use water mixed with special screen wash anti-freeze.

8.9 Wheels and tyres

Do a check on the condition and pressure of the wheels and tyres every week.

- Make sure that the wheel nuts are tightened to the correct torque.
- Remove foreign objects (e.g., stones) from the tyre treads.

WARNING	
	**Note that the following situation about tyres can cause accidents or failures:** • **Damaged tyres.** • **Tyres with insufficient tread.** • **Tyres subjected to excessive loads.** • **Tyres that are not correctly inflated.**

Terberg provides tyres to meet standard specifications. Depending on the application and customer demands the actual tyre specification may vary from the standard. It is the customer's responsibility to ensure that tyres meet the working requirements of the tractor.

8.10 Tyre pressure and wheel load

Every tyre displays information concerning its permissible load (load index) and speed (speed rating). The load index (e.g. **152/147**) is a code for the maximum permissible load at the speed indicated by the speed rating (e.g. letter **K**).
The first number in the load index indicates the index for single mounting, the second for dual mounting.
The tyre pressure should normally be 8 - 10 bar at nominal carrying capacity, depending on the tyre specification and load condition. However, many Terberg tractor applications require a higher tyre pressure than nominal due to load conditions.
Make sure that the tyre inflation meets the requirements as specified below. The pressure for the tyre's load index is shown on the tyre sidewall.
Speed rating (located on the tyre sidewall):

Rating	Speed
F	80km/h
G	90 km/h
J	100 km/h
K	110 km/h
L	120 km/h
M	130 km/h

CAUTION

According to the ETRTO Standards Manual:

- **'In any case, it is recommended to avoid the maximum permissible load capacity if the resulting inflation pressure is higher than 1000 kPa (10 bar)'.**
- **In that situation, either the load must be reduced accordingly, or the tyre and rim manufacturers must be consulted.**
- **The load carrying capacity of tyres in dual fitments is twice the load carrying capacity in single up to 40 km/h.**
- **Bonus loads will not be permitted for speeds of 40 km/h and above if the wheel axles are rigidly fixed to the body of the tractor.**

The relationship between load index and the maximum permissible tyre load is shown in the table below.

Load index and load per tyre in kg					
Load index	**Load kg**	**Load index**	**Load kg**	**Load index**	**Load kg**
140	2500	160	4500	180	8000
141	2575	161	4625	181	8250

Load index and load per tyre in kg					
Load index	**Load kg**	**Load index**	**Load kg**	**Load index**	**Load kg**
142	2650	162	4750	182	8500
143	2725	163	4875	183	8750
144	2800	164	5000	184	9000
145	2900	165	5150	185	9250
146	3000	166	5300	186	9500
147	3075	167	5450	187	9750
148	3150	168	5600	188	10000
149	3250	169	5800	189	10300
150	3350	170	6000	190	10600
151	3450	171	6150	191	10900
152	3550	172	6300	192	11200
153	3650	173	6500	193	11500
154	3750	174	6700	194	11800
155	3875	175	6900	195	12150
156	4000	176	7100	196	12500
157	4125	177	7300	197	12850
158	4250	178	7500	198	13200
159	4375	179	7750	199	13600

For speeds lower than those indicated by the speed rating, the carrying capacity can be multiplied by factor D*, shown in the table below.

The tyre pressure must also be multiplied by factor L* to compensate for the higher carrying capacity, also shown in the following table.

When the wheel load exceeds the nominal rating, the tyre pressure must be increased by factor **L*** in accordance with the following table.

Only valid for Speed rating*: F - G - J - K - L - M		
Tractor speed	**Carrying capacity**	**Air pressure**
	D*	**L***
50	1.12	1.08
40	1.15	1.10
30	1.25	1.13
25	1.35	1.17
20	1.50	1.21
15	1.65	1.25
10	1.80	1.30
5	2.10	1.40
0	2.50	1.40

D* = carrying capacity multiplication factor.
L* = tyre pressure multiplication factor.

9 Repair and Maintenance

CAUTION	
	• **The maintenance in this manual is for a daily operation only. For a more comprehensive service read the Terberg Maintenance manual.**

9.1 Cabin tilting

You can tilt the cabin manually or electrically (where fitted).

WARNING	
	• **Before tilting the cabin, make sure that no persons are present in front, inside or under the cabin or on the tractor.** • **Ensure that there is adequate clearance above and in front of the tractor before tilting.** • **If maintenance requires the cabin to be tilted halfway, always use a strut for additional cabin support to maintain safety.** • **Always install an additional strut under the cabin when it is resting on the blocking pin.**

Before tilting the cabin:

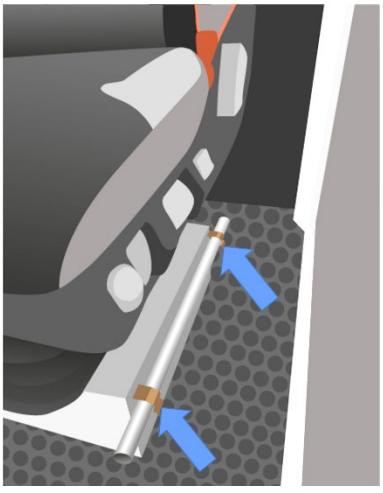
- Unlock all extra locking devices which prevent the cabin to tilt. (Optional).
- Turn OFF the vehicle.
- Apply the parking brake.
- Move the gear lever to neutral.
- Remove loose objects in the cabin that could cause damage.
- The windscreen washer reservoir is properly closed.
- Close the cabin door properly.

Some models are equipped with an additional steel strut to support the cabin when it has been tilted. This red strut is located next to the driver's seat.

Pump rod

You need a pump rod to operate the hydraulic pump manually.
This rod is stored inside the cabin, on the left side of the driver's seat.

- Remove the pump rod by gently pulling it from the two metal clips (blue arrows).
- After usage place the rod back into its storage position.



WARNING

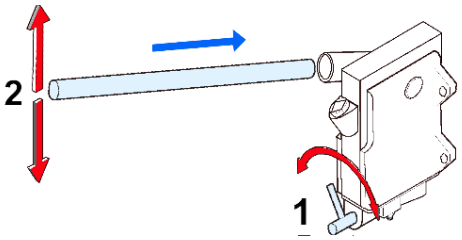
- **Always lock the extra locking devices properly, otherwise the construction may be liable to tilt during maintenance or repairing. This can result in serious injury to persons or equipment.**
- **Ensure that the cabin is fully tilted before carrying out any work under the cabin (the cabin must be tilted beyond its balance position).**
- **Always use the safety locking bar if maintenance must be carried out under the cabin when the cabin has not reached its balance position. Place and lock the locking bar correctly, see the instruction stickers on the vehicle frame.**
- **Use a secondary safety locking bar if you work beneath the cabin for prolonged periods.**

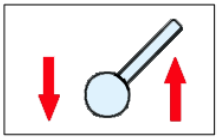
NOTICE

- If the oil pressure in the cabin tilting system fails to increase after pumping, then this is probably caused by air in the system.

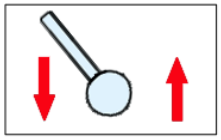
9.1.1 To tilt the cabin manually, with hydraulic hand pump

- Turn lever (1) on the hydraulic pump to the UP position, 1/4 turn clockwise to the stop (arrow UP).
- Use pump rod (2) to pump the cabin fully upwards until it has reached its maximum tilt angle.





To return the cabin to its normal position

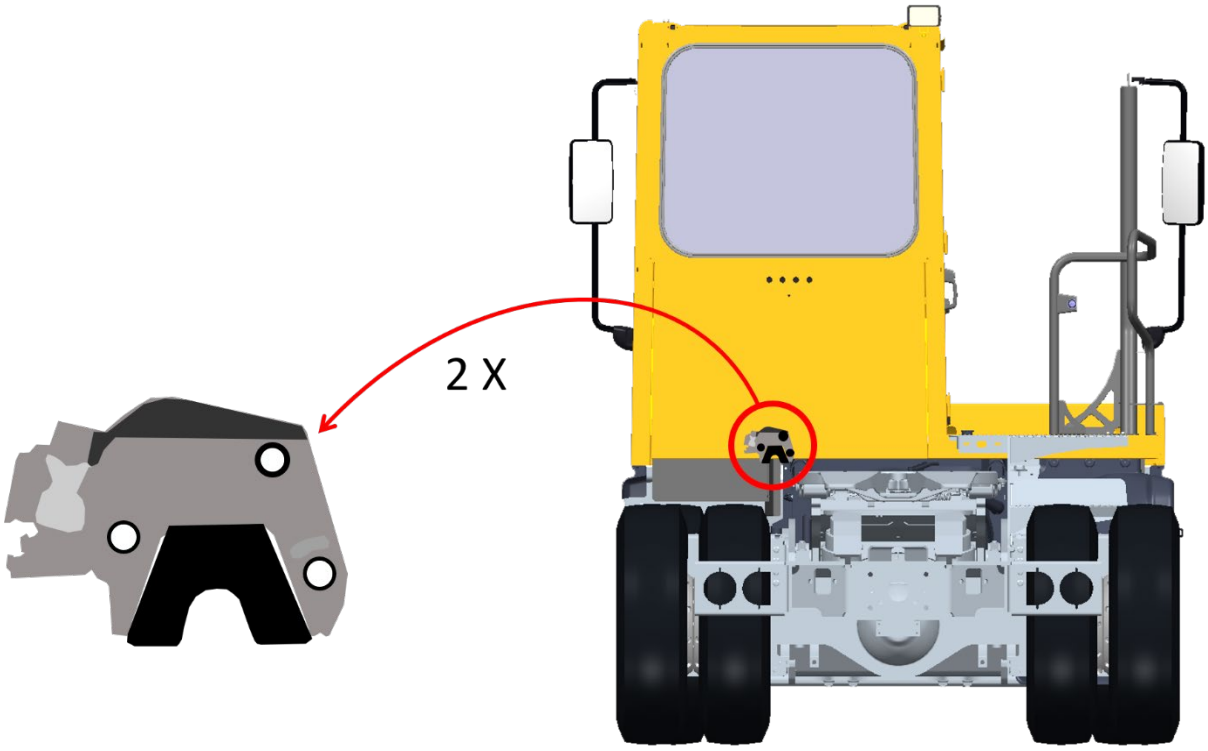


- Turn the direction lever anti-clockwise to the ‘down’ position (indicated by an arrow pointing down).
- Carry out a final check to ensure that no loose objects (e.g., tools) have been left under the cabin.
- Insert the cabin tilt bar into the hole on the left of the tilt pump and pump the cabin backward to its lowest position.
- Keep pumping until resistance is felt, (= cabin tilt cylinder fully retracted).
- If using the electrical cabin tilting system then this the moment that the cabin pump sound changes.
- Leave the direction lever in the ‘down’ position and store the tilt bar in the cabin.

WARNING

- **Stay away of the cabin when it moves to its lowest position.**
- **The push button for electric cabin tilting must be accessed via the chassis to eliminate any injury.**

Cabin safety lock



Below the driver seat, under the cabin, there are two locks that keep the cabin in place when the tractor is in operation.

- Whenever the cabin must be tilted, the two locks must first be unlocked. This will automatically proceed when the hydraulic pressure in the tilting circuit is built up.
- Before the actual cabin tilting starts, the two locks will be hydraulically unlocked first. Always tilt the cabin fully forward, the cabin is then in a safe position (it cannot fall back).
- If for whatever reason a full tilt of the cabin is not desired, you can stop at any time. The cabin is then however not in a safe position and needs to be supported in case any work needs to be done underneath the cabin/around the vehicle.
- When the cabin locks are unlocked, the DIM will notice the driver by means of a tell-tale. Whenever the cabin is tilted back but not locked properly, this tell-tale will stay on and inform the driver.

WARNING

- **When the cabin is not properly locked into its safety locks (2x) and the power is switched on, the driver will be informed by a pop-up tell-tale on the DIM.**
- **It is prohibited to drive the tractor when the safety locks are not properly engaged.**
- **The driver must contact maintenance personnel immediately if the cabin is not locked properly.**

9.1.2 To tilt the cabin electrically (Option)

The procedure for electrical cabin tilting and lowering is different from the manual.

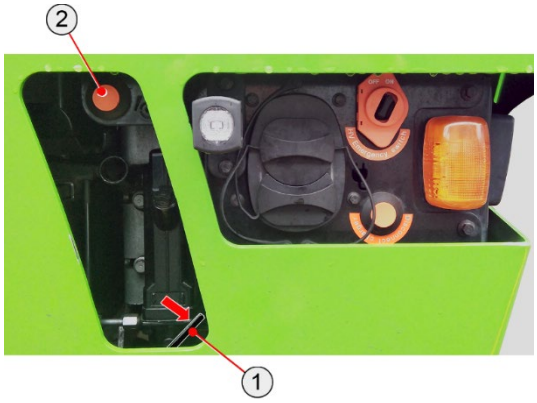
WARNING

- **Always read and understand paragraph 9.1 before you tilt the cabin electrically.**
- **Ensure the cabin is fully tilted before carrying out any work underneath it.**

NOTICE

- The electric/hydraulic tilt system works only when the electrical main switch is set to the ON position.

Procedure:



- Move the lever (1) to the UP position, about 1/4 turn clockwise to the stop (arrow).
- Press push button (2) to operate the system electrically. The cabin will rise.

The system can still be operated manually by pumping the cabin with the manual hydraulic pump, using the pump rod.

- Pump the cabin until it has reached its maximum UP position.

Secure the cabin with the locking bar, use a 6 mm retaining pin or bolt.

9.2 Tractor cleaning

Regular and correctly performed cleaning maintains the value of your tractor and prevents corrosion and paint damage. Remember to wash more often in winter conditions or other dirty driving conditions.

- Think about the environment and use washing facilities that take care of waste from washing in an environmentally sound manner.
- Use environmentally friendly cleaning agents as much as possible.

- Wastewater from cleaning the tractor contains chemicals and pollutants that are bad for the environment. Use a facility where the wastewater is collected.

WARNING	
	• **Do not wash the tractor if any electrical connectors in the traction voltage system are not fully connected or if the Tractor is disassembled in any other way.** • **Before you wash the Tractor, make sure that the cover for the charging inlet is securely fastened and that it fully covers the charging inlet.**

9.3 High pressure washing

Be careful when cleaning the vehicle with a high pressure cleaner. If water and dirt penetrates into components it can cause damage over time.

WARNING	

	• **Do not point the high-pressure water beam at:**
	  • **a radiator, you can damage the cooling fins of the radiator.**
	  • **seals of hydraulic cylinders.**
	  • **seals of the drive line components.**
	  • **electrical equipment.**
	  • **traction batteries**
	  • **orange coloured cables.**
	  • **the electrical central cover seals.**
	  • **air breathers.**
	  • **oil reservoirs.**
	  • **universal joint crosses**
	  • **support bearings.**
	  • **siding interfaces.**
	  • **joints.**
	  • **seals.**
	  • **connectors**
	• **Always protect venting spots from inlet of water.**

9.3.1 Settings of the high pressure cleaner

Curing of the paint takes time. The first 3 months after vehicle delivery the high pressure settings must be set to low pressure and low temperature. Refer to the table that follows:

Setting	Vehicle delivered	
	less than 3 months ago	more than 3 months ago
Pressure max [bar]	60	100
Temperature max [°C]	15	60
Cleaning with:	Neutral detergent	

WARNING	
	• **Do not wash the vehicle if any electrical connectors in the traction voltage system are not fully connected** • **Do not wash the vehicle when it is disassembled** • **Make sure that the cover for the charging inlet is securely fastened and that it fully covers the charging inlet before you start washing.**

Tyres and air suspension bellows can be cleaned with a high-pressure washer, but do not use pulsating high pressure as it can damage them. The damage is not visible but may eventually cause tyres or bellows to rupture.

NOTICE	
	• Minimum distance between the high-pressure nozzle and the washing surface: • Approximately 100 cm with a round, concentrated jet. • Approximately 50 cm with a flat, widespread jet.

9.4 Washing of the cabin

The Tractor should be washed as soon as it is dirty. Especially in winter when road salt and moisture can cause corrosion.
The following points must be observed to prevent paint damage and to achieve good results when washing.

Washing procedure

Use a pressurised washer primarily. For dirt that cannot be removed using this method, try to remove with a brush or sponge and cleaning agent of the type best suited for the type of dirt.
You risk scratching the paint using brush-washing without high-pressure washing beforehand or by brush washers that are poorly maintained (worn, dirty brushes etc).

Washing detergent

Prevent using strong alkaline agents (pH >12). Rinse with plenty of cold water before chemicals are applied if the temperature is above 30 °C. Wash small areas and then rinse clean so that long exposure times or drying chemicals is prevented.

WARNING	
	• **Do not wash the Tractor if any electrical connectors in the traction voltage system are not fully connected or if the Tractor is disassembled in any other way.** • **Before you wash the Tractor, make sure that the cover for the charging inlet is securely fastened and that it fully covers the charging inlet.** • **When washing the windscreen, ensure that the windscreen wipers are switched off. Otherwise there is a risk of fingers being trapped by the wiper blades.** • **Never spray water directly onto the traction batteries or other components in the traction voltage system.** • **Also, do not spray water directly onto seals, gaskets or electric equipment (such as cables or connectors) in the 24 V system.**

- Be careful with high-pressure cleaning of joints, axles and other moving parts where water and dirt can enter.
- Prevent flushing away lubricant. If you notice that lubricant (grease) is washed away, immediately re-lubricate the location.
- After washing the Tractor must be lubricated unless a central greasing system is installed. Test the brakes immediately after washing.

Polish and wax

Over time the cabin paint may appear slightly worn out and may have lost the shining appearance. This process can be slowed down to a minimum by regularly waxing the cabin.
If the cabin paint deteriorates then use a mild form of polishing agent. Consider the recommendations from the manufacturer of the products as well as the following general rules.

- First wash the Tractor in accordance with the above and allow it to dry. Then use a polishing agent or deep cleaning agent with only a small amount of abrasive components.
- Wax with a liquid wax. Only use clean cloths/rags, etc. Work over the paint surface applying moderate pressure.

Interior care

To maintain the condition of the interior and a good work environment the inside of the Tractor must be cleaned regularly.
A well-maintained interior also helps to maintain the value of the Tractor.

- Remember that stains are always a lot easier to remove immediately, before they have had time to dry out.

9.5 Washing upholstery

Textiles

First vacuum clean to remove loose dirt. Then use a foam cleaning agent to lift away remaining dirt. Prevent scrubbing with hard brushes.

- When all the textile surfaces are treated, let them dry overnight. Vacuum clean thoroughly to remove the dry foam and remaining dirt.

- For the seats, beds and textile mats, water and a synthetic washing agent can be used. However, never use water or water-based cleaning agents on the headlining and wall panels.

Vinyl

Water and a synthetic washing agent can be used.

Headlining and wall panels

Never use water or water-based cleaning agents.

Seat belt

Water and a synthetic washing agent can be used.

Floor mats and floor upholstery

Vacuum clean and brush clean. Wash with water occasionally, especially during the winter.

9.6 Remove stains

Treat stains as quickly as possible because the longer the stain is untreated, the more difficult it will be to remove it.

Textiles

- Remove loose particles of stains. Pick up as much as possible with dry rags. Vacuum clean around the stain so that dirt around the stain is not dissolved.
- Treat the stain from the outside inwards towards the middle, with stain remover. Dry off parts of the stain that are dissolved. Treat the stain again and dry off dissolved parts. Continue until the whole stain is removed.
- Be very careful with the amount of stain remover, to prevent the stain dissolving and becoming larger.

Vinyl

Never scrape or rub. Never use strong solvents such as petrol, white spirit or alcohol.

9.7 Maintenance of steel rims

Rims are often exposed to different types of dirt such as road dirt, oil, asphalt, tar and brake dust. To protect the rims from discolouration, oxidisation and unnecessary wear, regular maintenance is required.

- For additional protection, a protective wax must be used, e.g. when driving through slush, on salted roads or in environments close to the sea..
- Damage to the rim's paint must be remedied immediately to prevent corrosion.
- Clean the rims regularly. First flush with water, preferably using a high-pressure washer. Use a brush or sponge to clean the rim.
- For tough dirt, an alkaline cleaning agent (pH>7) may be used.

9.8 Change wiper blades

1. Lift the wiper arms from the windscreen.
2. Unlock the plastic retaining clip.
3. Move away the washer nozzle if it is in the way.
4. Pull the wiper blade away from the wiper arm.
5. Fit a new wiper blade to the wiper arm.

9.9 Paintwork damage

Paint is an important part of the Tractor's rust protection and should therefore be checked regularly for damage. Paint damage requires immediate treatment to

prevent corrosion. The most common types of paint damage, and the damage you can repair yourself, include the following:

- Minor paint damage and scratches.
- Wear on e.g., wing edges and door thresholds.

NOTICE	
	• When touching up, the Tractor should be well cleaned and dry and have a temperature above +15 °C.

9.9.1 Touch up small paint damage

Tools and materials:

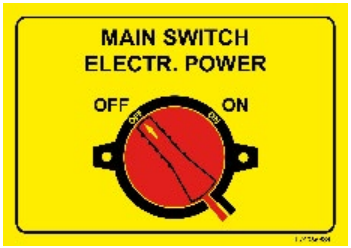
- Rust remover (cold phosphating agent) - tube or can.
- Undercoat - can.
- Spray paint or touch-up pen. The top of the pen contains abrasive paste for aftertreatment.
- Penknife or similar.
- Brush.

NOTICE	
	• If the damage has not reached to the underlying metal and a damaged paint layer is still present, the paint can be applied directly after light scraping to remove any dirt.

9.9.2 Underlying metal damaged:

- Scrape off any rust or dirt, down to bare metal.
- Sandpaper the edges of the paint with sandpaper.
- Apply some sort of rust remover, wear Personal Protection Equipment (PPE).
- Stir the primer well and apply several coats using a fine brush.
- When the undercoat has dried, apply the topcoat with a brush.
- Make sure the paint is stirred well and apply several thin coats and allow to dry between applications.
- Wait for a few hours, and then apply finishing treatment.

9.10 Main switch



The main switches are located; near the 24 V battery pack underneath the cabin, and in the front right bumper. The switches will only be used by service technicians.

- It is mandatory to use the main switch to connect or disconnect the power supply to the rest of the tractor.
- The motor will only start when the main switch is set to the ON position.
- Note that the main switch is lockable in OFF position for safety reasons.

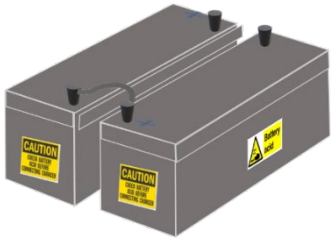
DANGER	
	• **If you set the main switch to the OFF position, the electrical system will still partially contain electrical energy for approximately 10 minutes!**

CAUTION	
	• **Never disconnect the battery terminals to disconnect electrical power from the tractor.** • **Do not set the main switch to the OFF position when the motor is running!** • **Never touch any of the orange HV cables or connectors, this is for qualified workshop personnel only!**

WARNING	
	• **Open the cover in case of an emergency only! As soon as the switch is set to the OFF position all the electronics are disconnected and the motor is stopped.** • **When any of the switches is activated, several fault codes may be set.** • **Make sure that the situation is safe before you set the switch to the ON position again.**

9.11 Low voltage batteries

The low voltage batteries are maintenance free and for the driver a restricted area.



DANGER	
	• **The negative (-) lead should always be disconnected first and connected last, e.g., when changing a battery. This avoids the risk of short circuits.**

WARNING

- **Explosive gases can be released from a battery during charging.**
- **Do not expose cell vents to an open flame (risk of explosion).**
- **Remove all the screw caps from batteries before charging.**
- **Charge batteries in a well-ventilated area.**
- **Batteries contain sulphuric acid. In the event of contact with the skin or eyes, wash with copious amounts of water.**
- **Danger: electrical voltage.**

9.11.1 Starting using a jumper cable

Using an emergency vehicle

WARNING

- **Before connecting the jumper cables, the power supply must be switched off using the main switches as described previously.**

1. Connect the positive (+) cable to the low voltage batteries.
2. Connect the positive (+) cable to the support vehicle.
3. Connect the negative (-) cable to the vehicle's ground.
   (Do not connect the cable directly to the low voltage battery terminal).
4. Connect the negative (-) cable to the support vehicle.
5. Turn the power back on using the main switches.

- **The negative (-) lead should always be disconnected first and connected last, e.g., when changing a battery. This avoids the risk of short circuits.**

Using an external power source

- **Before connecting the jumper cables, the power supply must be switched off using the main switches as described previously.**

1. Connect the positive (+) cable from the external power source to the low voltage batteries.
2. Connect the negative (-) cable to the vehicle's ground
   (Do not connect the cable directly to the low voltage battery terminal).
3. Turn the power back on using the main switches.

- **The negative (-) lead should always be disconnected first and connected last, e.g., when changing a battery. This avoids the risk of short circuits.**

Using a Brad Harrison, Rhema or Nato connector (optional)

The vehicle can be equipped with an auxiliary connector for starting and charging the 24V system.

- **Before inserting the connector, the power supply must be switched off using the main switches as described previously.**

1. Connect the Brad Harrison, Rhema or Nato connector.
2. Turn the power back on using the main switches.

9.12 Fuses, relays and converter

Always replace a fuse or circuit breaker with one of the correct rating.

WARNING

Never fit a fuse with a higher rating.

- **If a fuse blows repeatedly, establish the cause before fitting a new fuse.**
- **Any faults should be identified and rectified before resetting automatic (thermal) fuses.**

The fuses are installed on the printed circuit board (PCB) that can be accessed from the inside of the tractor, behind the service cover. The functions and ratings of the fuses are listed below, including their position number on the PCB.

Fuses SF1 – SF12 are spares. The wiring diagram indicates where they are to be used and, if so, their purpose.

Other fuses that are not shown in this list can be found on the wiring diagram.

9.12.1 Fuses

Fuses for lights, low voltage supplies etc.

Pos.	Amp. [A]	Function
F1	5	Full beam light left.
F2	5	Full beam light right.
F3	5	Dipped beam light right.
F4	5	Dipped beam light left / Supp. sw. fog light rear.
F5	10	LEFT - Parking light / Side Marker / License pl. Illum. / Pos. l. rear / Tail l. rear / Lighting tr. conn. / Lighting roof / Lighting spare.
F6	10	RIGHT-Parking light / Side marker / Lighting Sw. / Dashboard Illum. / Pos. l. rear. / Tail l. rear / Lighting tr. conn. / Lighting roof.
F7	10	Reversing / Fog Light (KL15).
F8	15	Trailer connector (KL15).
F9	15	Wiper front (KL15).

Pos.	Amp. [A]	Function
F10	15	Wiper rear (KL15).
F11	10	X07 / Radio / Supp. sw. work l. rear (KL15).
F12	10	Upper dashboard/ Sw. Mirror Adj./Spare Switches (KL15).
F13	20	Electrical window (KL15).
F14	5	Heating control (KL15).
F16	2	ECU YTxx3 CC2 (KL30AR).
F17	2	ECU YTxx3 CC2 (KL30AR).
F18	15	ECU YTxx3 CC2 (KL30AR).
F19	10	Display (KL30AR).
F20	15	ECU YTxx3 CC2 (KL30AR).
F21	15	ECU YTxx3 CC2 (KL30AR).
F22	10	ECU YTxx3 CC2 (KL30AR).
F26	5	Sensor supply 2 (KL15).
F27	5	Hazard sw. / Display / Air suspension / Differential lock / Combi switch / Switch lighting (KL15).
F28	5	Sensor supply 3 (KL15).
F29	5	Sensor supply 1
F30	5	Diagnostic (KL15).
F37	5	Supply switch hazard / Lighting / power / Combi sw. (KL30).
F38	5	Diagnostic (KL30).
F39	10	Reverse / Work light / Horn (KL30).
F40	10	X07 / Interior light (KL30).
F41	15	D+ (KL30).
F42	10	Supply direction indicator trailer (KL30).
F43	1	Supply Voltage Reference 5V (KL15).
F44	15	Brake light (KL30).
F45	10	Working light(s) cabin (KL30).
F46	10	Beacon (KL30).
F47	30	Electrical Cab tilting (KL30).
SF1	max 15	Spare fuse 1 (KL15).
SF2	max 15	Spare fuse 2 (KL15).
SF3	max 15	Spare fuse 3 (KL15).
SF4	max 15	Spare fuse 4 (KL15).
SF5	max 15	Spare fuse 5 (KL15).
SF6	max 15	Spare fuse 6 (KL15).
SF7	max 15	Spare fuse 7 (KL15).
SF8	max 15	Spare fuse 8 (KL15).
SF9	max 15	Spare fuse 9 (KL15).
SF10	max 15	Spare fuse 10 (KL30).
SF11	max 15	Spare fuse 11 (KL30).
SF12	max 15	Spare fuse 12 (KL30).

EV Fuses KL30 EV (-A56-1)

Pos.	Amp. [A]	Function
F201	15	ECU EVCC2 (KL30).
F202	15	ECU EVCC2 (KL30).
F203	20	EBS (KL30).
F204	Max 15	NA.
F205	30	Drive oil pump (KL30).
F206	15	ECU EVCC2 (KL30).
F207	15	ECU EVCC2 (KL30).
F208	10	Lenze DC/DC (KL30).
F209	10	ECU Inlet (KL3).
F210	7.5	ECU EVCC2 (KL30).

Pos.	Amp. [A]	Function
F211	5	Hydraulic inverter (KL30).
F212	15	HVAC blower (KL30).
F213	5	Drive EST (KL30).
F214	10	Drive inverter (KL30).
F215	5	Drive EST (KL30).
F216	7.5	Diagnosis EV (KL30).

EV Fuses KL15 EV (-A56-2)

Pos.	Amp. [A]	Function
F201	7.5	Diagnosis EV (KL15).
F202	5	Power box 1 (KL15).
F203	2	ECU Inlet / Emergency sw (KL15).
F204	10	PDB (KL15).
F205	10	Sensors cool. / Compr (KL15).
F206	10	Lenze DC/DC (KL30).
F207	10	BMS 24 V (KL 15)
F208	Max 15	NA.
F209	2	EBS (KL15).
F210	Max 7.5	NA.
F211	5	HVAC Control (KL215).
F212	5	Hydraulic inverter (KL15).
F213	5	Power box 1 (KL15).
F214	5	Power box 1 (KL15).
F215	Max 7.5	NA.
F216	7.5	TMS Main relay (KL15).

EV TMS Fuses

Pos.	Amp. [A]	Function
A53.F1	25	Pump, 500 W, NT-Loop E-Motor, E-Motor-Inv.
A53.F2	25	Pump, 500 W, NT-Loop HVH, Battery-Chiller, Cabin.
A53.F3	25	Pump, 500 W, NT-Loop Air Compress, DC/DC, Hyd-Motor, Hyd-Motor Inv.
A53.F4	25	Pump, 500 W, BL-Loop Battery.
A53.F5	10	PLC, I/O Supply.
A53.F6	10	PLC, I/O Supply.
A53.F7	10	PLC, I/O Supply.
A53.F8	10	PLC, I/O Supply.
A53.F9	5	PLC, Logic supply
A53.F10	10	24 V-Distribution-Box, Supply for Motor valves, 12V DC/DC-Converter.
A53.F11	5	24 V-Distribution-Box, Supply for Temperature and Pressure Sensors.
A53. F12-16	-	NA.

9.12.2 Relays and converter

Pos.	Function
K01	Relay D+.
K02	Relay motor cab tilting.
K03	Relay main supply KL15.
K04A	Relay heating SCR hose 1.
K04B	Relay heating SCR hose 2.
K04C	Relay heating SCR hose 3.
K07	Relay beacon.
K09	Relay brake lights.
K10CF	Relay working light(s) cabin front.
K10CR	Relay working light(s) rear.
K11	Relay horn.
K12	Relay reversing lights.
K13	Relay full beam lights.
K16	Relay parking light(s) left.

Pos.	Function
K17	Relay parking light(s) right.
K18	Relay dipped beam lights.
K50	Relay spare.
K53	Relay fog light(s).
K54	Relay supply motor pump unit SCR.
K55DL	Relay supply SCR sensors.
K55DR	Relay direction indicator trailer left.
K56	Relay direction indicator trailer right.
K58	Relay air conditioning.
K62	Relay working light(s) / reversing light(s).
K63	Relay spare.
A29F	Relay interval windscreen wiper front.
A29R	Relay interval windscreen wiper rear.
A36	Flasher unit Temperature.
U08	Converter 5 V.

9.13 Head light

In terms of maintenance, the exchange of a light bulb can be done by the driver. For other, more complex repairs of replacements, the driver must contact the Terberg Service organization.

Light bulb changing

Never touch the glass of a new light bulb with your bare hands as grease, acid, oil and other impurities can vaporize due to heat from the lamp and can damage the reflector.

Head light alignment

After replacement of the head lights, any work carried out to the tractor's suspension or when bulbs have been changed, it is recommended to check the head light settings.
The data plate inside the cabin shows the correct inclination of the lighting cut-off line for an unloaded tractor.

The alignment can be checked in 2 ways:

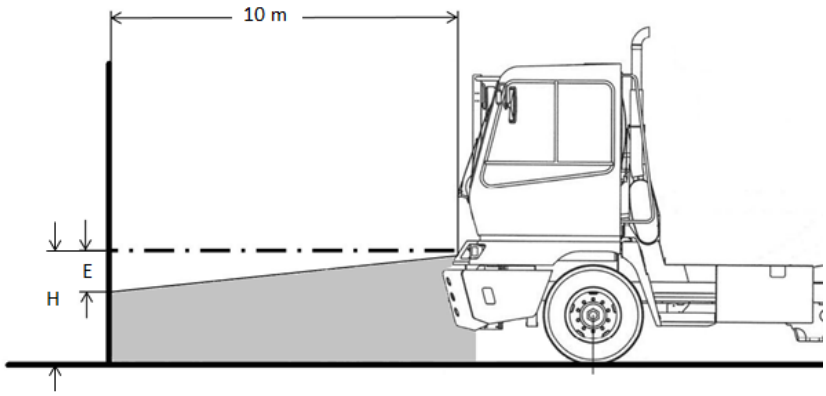
1. The most accurate method is by means of a workshop beam setter.
2. By some measurements, as follows:

- Check that the tyres are inflated as specified and position the unloaded tractor on a level surface in front of a light-coloured wall at a distance of 10 m.
- Switch on the dipped beams. Measure the vertical distance of the centre of the lamp units to the ground (=H) and mark this height on the wall.
- Check the data plate, located inside the cabin for the correct inclination of the lighting cut-off line (e.g., 1.5 %).
- Measure the distance in cm, the cut-off line inclines on the wall (= E).
- If necessary, adjust the head lamps and repeat the procedure.

The percentage as stated on the data plate multiplied by 10 is the distance E.

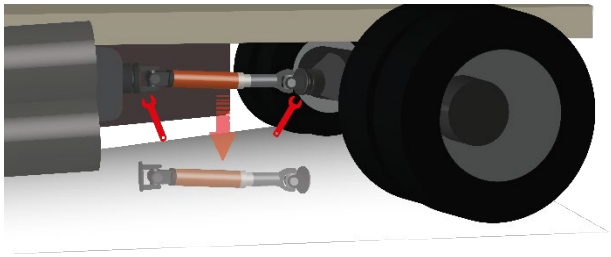
For instance:

Inclination on the data plate = 1.5 % → E = 1.5 x 10 = 15 cm.



9.14 Towing or pushing

- Before towing more than 5 km/h, always remove the drive shaft of the towed vehicle, if not, the motor of the YT203EV will start to work as a generator.



WARNING	
	• **Make sure to lock the steering axle in the straight-ahead position.**

NOTICE	
	• When the vehicle is being towed, there must always be a driver in that vehicle. • The steering forces will be very high and the steering speed consequently will be very low.