

1202 series LP Gas Forklift Truck

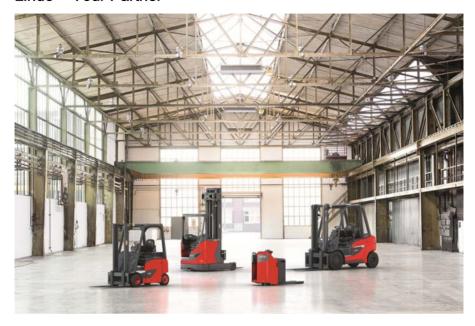
Operating Instructions

H20T/600, H25T, H25T/ 600, H30T, H35T North America

1202 series LP 12028011590 US - 11/2022 - 04



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Linde trucks are sold in North America by:

KION North America Corporation 2450 West 5th North Street Summerville, S.C. 29483 Phone (843) 875-8000 FAX (843) 875-8329



Parts and service

See your Linde dealer for genuine Linde parts (the only factory-authorized replacements), factory-trained service personnel and manuals for your equipment.

Proposition 65

WARNING

This warning is provided pursuant to California Health & Safety Code Sections 25249.5 et. seq.

This product contains and emits chemicals known to the state of California to cause cancer, birth defects and other reproductive harm.

FCC Compliance

This device complies with part 15 of the FCC Rules and Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by KION North America Corporation could void the user's authority to operate the equipment.

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Introduction

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Scope

Scope

This manual contains operating and periodic maintenance instructions as well as specifications for the industrial truck to which it applies. If this manual applies to a trailer or other towed equipment, then operation or maintenance of the towing vehicle is outside the scope of this manual. Important safety rules and descriptions of some operating hazards and how to avoid them are also included. The manual is intended to assist the owner and operators in maximizing safety and efficiency in material handling while achieving maximum product life. It describes how to correctly and safely operate and maintain the truck and all standard variants available at the time of printing. Special designs, special attachments, or other custom modifications carried out by the manufacturer to meet specialized customer reguests are not covered in this manual.

This manual is not a training manual and is not to be used as the basis for formal training. It is intended to supplement such training with information specific to this truck as well as applicable good practices and safety rules which may be general in nature. This manual cannot address every possible hazard or potential accident situation. Ultimately it is the re-

sponsibility of the owner and operator(s) of the equipment to avoid or correct such potential dangers.

To assist in keeping the truck in good operating condition, a separate section devoted to maintenance is included in this manual. This section contains a list of items to be checked daily by the operator. It also has a schedule for maintenance procedures to be performed at regular intervals by those responsible for truck maintenance. All of these procedures are essential for safe operation and maximum. service life of the truck. Scheduled maintenance tasks or repairs must only be performed by qualified forklift technicians. Details and instructions for performing such work are outside the scope of this manual. This information is covered in the applicable service manual available from authorized dealers.

The descriptions and specifications included in this manual were in effect at the time of printing. KION North America Corporation reserves the right to make improvements and changes without notice and without incurring obligation. Please check with your authorized dealer for information on possible updates or revisions.

Obligations of the Equipment Owner

The Occupational Safety and Health Administration (O.S.H.A.) requires employers of industrial truck operators to adhere to a number of regulations regarding operation. These regulations are codified in section 1910.178 of title 29 of the Code of Federal Regulations. This section establishes a number of specific rules pertaining to truck operation, inspection and maintenance, and areas of use. It is up to the owner to ensure that use and maintenance of any powered industrial truck is consistent with these rules.

In addition, 29 CFR 1910.178 describes required operator training in detail. It requires employers to establish and maintain a training program to ensure that all operators of powered industrial trucks are competent and

trained in the safe and proper operation of powered industrial trucks.

Many of the rules set forth in 29 CFR 1910.178 are based on the American National Standards Institute's (ANSI/ITSDF) B56 standards. The owner should be familiar with 29 CFR 1910.178 as well as the ANSI/ITSDF B56 standards. Other federal standards may apply depending on specific industry. Owners should also be aware of any state OSHA rules that may differ from the federal rule. This equipment meets all applicable requirements of the ANSI/ITSDF B56 standards at time of manufacture. 29 CFR 1910.178 prohibits any modifications and/or additions which affect capacity or safe operation of industrial trucks without prior written approval of the



Operator Responsibilities

manufacturer. An owner should consult the authorized dealer if the owner's intended application for a truck is inconsistent with the designated performance characteristics of that truck. KION North America Corporation will not assume, and expressly disclaims, any lia-

bility for injuries or damages arising from or caused by unauthorized modification, removal, disconnection or disengagement of any part from any of its trucks. It is recommended that all replacement parts be of OEM (Original Equipment Manufacturer) origin.

Operator Responsibilities

It is the responsibility of the operator to operate any powered industrial truck in a safe manner. In order to do this, all operators must have completed training in the safe operation of powered industrial trucks. Operators must know and understand all general safety rules as well as any safety information specific to the environment in which they will be working. They must then practice these safe operating procedures whenever using a truck.

In addition, all operators must be familiar with the specific truck they use. Therefore they must be familiar with the procedures for correct and safe operation explained in this manual. They must understand the potential hazards and safety precautions covered in the manual. This manual however, cannot cover all possible hazards. Operators must be able to identify any hazards that may exist or arise in their work environment and know how to avoid or correct them

Finally, operators are responsible for identifying and reporting any truck that is in unsafe condition. They must know how to inspect the truck they operate and they must perform this inspection before placing a truck in service each day. Operators must not operate a truck found to be damaged or malfunctioning.

Proper use

The truck is designed for lifting, transporting and stacking palletized or other stable loads. The maximum load to be lifted is specified on the truck data plate. The truck is not designed or intended to lift personnel.

The truck may be operated outdoors or in buildings only on surfaces that are flat and stable. Transporting of loads (in the lowered position) on inclines and ramps is permitted if the incline surface is flat and stable. Lifting of loads or transport of elevated loads is prohibited on inclines and ramps. If the truck is operated on public roads it must be equipped with

lights and any other devices as required by state or local law. If the truck is to be operated in refrigerated storage areas, it must be equipped with an optional cold storage package suitable for the specific application. (Not available on all models.) A truck must not be operated in any hazardous environment unless the truck carries the designation appropriate for that environment per 29 CFR 1910.178. It is the responsibility of the owner to ensure the safety of all operating areas and surfaces and to restrict the truck to the uses and areas for which it is designed and rated.

Hazard messages

Hazard symbols and messages are placed in this manual and on the truck to provide instructions and identify specific areas where potential hazards exist and special precautions should be taken. Operators must understand the meaning of these symbols and messages.

sages. Damage to the truck, as well as serious injury or death to the operator or others may result if the instructions conveyed by these symbols and messages are not followed.

1 Introduction



Hazard messages

A CAUTION

Indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury.

WARNING

Indicates a potentially hazardous situation which if not avoided could result in death or serious injury.

A DANGER

Indicates an imminently hazardous situation which if not avoided will result in death or serious injury.



Indicates further information presented to ensure clarification of a particular item



ENVIRONMENT NOTE

The information contained herein must be observed, otherwise environmental damage may occur.

Safety

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Before Operation

Before Operation

Before using the truck, inspect the work area. It should be neat, well lit, adequately ventilated, and free from hazardous material. Aisles and roadways should be unobstructed and well marked

Operators must know the UL classification for the truck and use the truck only in permissible areas.

Ensure that there are no loose objects on the truck or in the operator compartment, especially on the floor plate where they could interfere with pedal operation (if equipped) or foot room.

Fire extinguishers and other emergency equipment should be visible and easy to reach. Wear safety equipment when required. Don't smoke in "No Smoking" areas, or while charging batteries or refueling combustion engine trucks.

Never operate the truck with greasy hands. This will make the controls slippery and result in loss of truck control.

Any questions or concerns about safety should be brought to the attention of a supervisor. If an accident should occur, it must be reported immediately.

WARNING

Unauthorized modifications to the truck can result in injury or death.

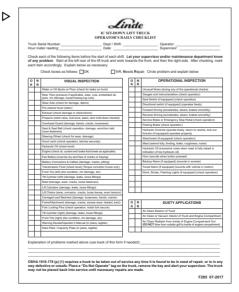
Do not remove, disable or modify any safeguards or other safety devices. These include any alarms, lights, mirrors, overhead guards, and load backrest extensions. If present, an overhead guard is intended to provide protection to the operator from falling objects, but cannot protect from every possible impact.

Operator Daily Checklist

At the beginning of each shift, inspect your truck by using the **Linde Operator's Daily Checklist**. If necessary, refer to the Maintenance section of this manual for details on how to carry out this inspection. Check for damage and maintenance problems. Any necessary repairs must be completed before the truck is operated. In addition to daily inspection, scheduled maintenance is vital to safe operation of the truck. Adhere to the inspection, lubrication and maintenance schedule given in the Maintenance section of this manual.



Any repairs or maintenance to the truck must be performed only by trained and authorized technicians.





Operating position

Operating position

Face the truck when mounting and dismounting. Maintain a three-point contact, one foot and two hands with the truck when mounting or dismounting. Never exit a moving truck.

The normal operating position is defined as being seated on the seat with the seat belt fastened and hands and feet inside the operator's compartment on or near the controls.

A WARNING

Risk of injury!

Operate the truck only when you are in the normal operating position. Always keep hands and feet inside the operators compartment. during operation. Keep hands, feet and legs out of the upright.

Pedestrians

Watch out for pedestrians. Always yield the right-of-way to pedestrians. Do not drive the truck up to anyone standing in front of a rack or fixed object. Do not pass another truck travelling in the same direction at an intersection, blind spot or other dangerous location. Sound the horn at intersections and other locations where vision is obstructed. Always look in the direction of travel.

Never engage in stunt driving or horseplay. Use lights in dark and dim areas. Always ensure that there are no pedestrians in the truck's rear swing area before turning. Watch for pedestrians around the truck.

A DANGER

Risk of injury!

Watch for people in your work area because they may not watch for you, even if you have lights or alarms.

WARNING

Risk of injury!

Do not place yourself between the mast and the body of the truck. Do not use the mast as a ladder. Do not transport personnel at any time. Do not lift personnel using the forks of the truck, or with a work platform. The truck is not designated to lift personnel.

Linde Material Handling Linde

Travel

WARNING

Risk of injury!

Do not walk under raised forks at any time.



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WARNING

Risk of injury!

Do not transport personnel at any time. Do not lift personnel using the forks of the truck, or with a work platform. The truck is not designed to lift personnel.



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Travel

The truck is designed for operation on smooth, dry surfaces such as warehouse and factory floors, loading docks or paved areas. Under all travel conditions operate the truck at a speed that will permit it to be brought to a stop in a safe manner. Avoid running over loose objects on the roadway surface.

A WARNING

Loss of control!

Do not travel at excessive speeds; keep your truck under control at all times.

Travel with the forks near the floor, tilted back to cradle any load whenever possible. Never begin travel before the mast is fully



Lifting and Lowering

lowered and tilted into travel position. Never raise the mast during travel. During travel, always watch for overhead obstructions such as lights, wiring, pipes, sprinkler systems, doorways, etc.

When travelling in reverse, always turn around to face the direction of travel and ensure a direct view in the direction of travel. Do not rely on mirrors when travelling in reverse.

When handling bulky loads that restrict your vision, operate the truck in reverse to improve visibility. Unstable loads are a hazard to you and to your fellow workers. Make certain that all loads are secured and evenly positioned on the forks.

Do not move railroad cars or trailers with this truck, or use it to operate or close railroad car doors.

Lifting and Lowering

Always ensure there is adequate overhead clearance before raising the forks. Before lifting any load or retrieving one from an elevated location, make certain that the load is stable and evenly positioned on the forks. Never lift a load with one fork.

Use extreme care when maneuvering loads into or out of storage locations. Never turn the truck while maneuvering with the forks raised. Always check for mast or carriage hang-up

before manueuvering out of any storage location with or without a load on the forks.

WARNING

Attempting to move the truck if the lift chains become slack can result in injury from carriage free-fall.

Always raise the forks before you move. Watch for slack chain condition. Slack chains indicate that the mast or carriage is hung-up. Do not attempt to repair this yourself, always get a trained mechanic.

Inclines, Ramps, Docks, Elevators

If you must travel on an incline, do so with caution. Do not operate truck on a wet incline.

Keep the forks **upgrade** to maintain control when travelling up or down an incline with a **loaded** truck.

Keep the forks **downgrade** when travelling up or down an incline with an **empty** truck.

A DANGER

Tip-over will occur if you turn while travelling on a ramp or travel at an angle other than straight up or straight down a ramp.

Never turn on an incline or ramp either loaded or unloaded. Travel straight up or straight down.

Be aware that when descending an incline your stopping distance will be greater than when on a level surface. Reduce your speed, and ensure that there is adequate clear space at the bottom of the ramp to stop and turn.

To avoid hazards associated with a dock, you should personally check that the trailer brakes

have been applied, wheel chocks are in place, and that any trailer-to-dock locking systems are being utilized. The impact of moving in and out of a trailer may cause the trailer to creep or move. Confirm that the driver will not move the trailer until you are done.

Do not drive the truck onto an elevator without specific authorization. Verify that the capacity of the elevator exceeds the weight of the truck and the weight of the load. Approach elevators slowly and ensure that the elevator car is level with the floor before entering. Enter elevators squarely with the load end leading. Ensure that no part of the truck or load contacts any part of the elevator other than the floor. Once on the elevator, neutralize the truck controls, shut off the power, and set the brakes. Any other personnel should leave the elevator before the truck is allowed to enter or leave.

Be especially cautious when driving the truck on ramps or bridge plates. Be sure to maintain a safe distance from each edge. Before driving the truck over a ramp or bridge plate,



Avoiding Falls and Tip-overs

verify that its position is secured to prevent movement. Never exceed the rated capacity of a ramp or bridge plate.

Avoiding Falls and Tip-overs

Lift truck tip-overs can cause serious injury or death. Following all safety rules when operating a lift truck is the best way to prevent injury.

- Never exceed the lifting capacity listed on the data plate.
- Extreme caution should be taken when working around docks, dock boards and trailers
- Travel with the load or forks close to the ground and tilted back. Watch for overhead obstructions. Perform all truck movements smoothly and at a speed that will give you time to react in an emergency.
- An unloaded truck can tip over also. Caution must be taken when using an unloaded truck as well as a loaded one.
- · Never travel with mast extended.
- Never turn while travelling on a ramp or incline
- Never travel up or down an incline at an angle to the incline direction. Always travel straight up or straight down any ramp or incline.

Lateral tip-over can occur with a combination of speed and sharpness of turn. This condition of instability is even more likely with an unloaded truck. With the load raised, lateral tip-over can occur while turning and/or braking when travelling in reverse or accelerating and turning while travelling forward. Lateral tip-over can occur loaded or unloaded on a ramp. Longitudinal tip-over can occur with a combination of overloading and load elevated. This condition is even more likely with forward tilt, braking in forward travel, accelerating rearward or mast extended.

▲ WARNING

Jumping from the truck during a tip-over can result in severe injury or death.

If the truck starts to tip over, DO NOT JUMP!

Stay in the seat, hold onto the steering wheel tightly, brace feet, and lean away from the direction of impact.

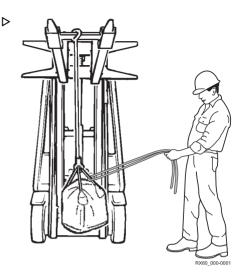


Suspended Loads

Suspended Loads

Traveling with suspended loads on cable or chain can induce swinging.

- · Swinging of loads can cause truck tip over.
- · Avoid suspending loads if possible.
- · If necessary carry suspended loads low.
- Use a partner with a rope or tether to stop swinging.
- · Operate truck slowly.



Parking

When you are finished with the truck, observe proper shutdown procedures.

- · Never park on a grade.
- Always come to a complete stop before leaving truck.
- · Place travel controls in neutral.
- · Lower forks fully to the floor and tilt forward.
- Set parking brake.
- Turn key to OFF position. Remain with the truck until the engine shuts down completely.
- If the operator is more than 25 ft (7.5 m) away from the truck, or out of sight of the truck, the key should be removed.

A DANGER

Exhaust gases can cause serious injury or death if not ventilated.

Do not continuously operate the truck or allow it to idle in any confined space or any place that is not well ventilated.

WARNING

Failure to properly shut down the truck may allow inadvertent movement and result in a collision.

Never park on a grade. Always set the parking brake and turn the key switch off. On single pedal trucks, always place the direction switch in neutral.

▲ WARNING

Improper parking can interfere with emergency response.

Do not block stairways, main passageways or emergency routes. Do not block access to fire or emergency equipment.

Using LP Gas

Using LP Gas

Operating LP Gas-Powered Trucks



▲ WARNING

Compressed LP gas can cause injury or death if mis-handled.

Only trained, authorized personnel should fill or exchange LP gas tanks. Protective clothing such as a face shield, long sleeves, and long gloves (covering the wrist) should be worn.

Do not refill removable LP gas tanks while they are mounted on the truck.

Do not refuel or park LP gas-powered lift trucks in confined areas or near underground entrances, elevator shafts, or other places where LP gas could collect and cause potential danger of an explosion. Ensure that the area around any LP gas-powered truck is well ventilated before switching on the electrical system or starting the engine.

Do not leave the lift truck, for even a short time, near equipment that generates high temperatures. Ovens and furnaces are examples. The heat may raise the pressure of the LP gas in the tank to a dangerous level.

Close the hand wheel valve on the tank when LP gas-powered lift trucks are parked overnight or stored for long periods indoors with

the fuel tank in place. Close valves on empty tanks.



WARNING

LP gas is extremely flammable.

Never use an open flame to check the liquid level in the fuel tank or to check for leaks in the LP gas lines or connection fittings. Use a soap solution whenever checking for leaks.

WARNING

Damaged or dirty LP gas tanks can leak or explode under pressure.

Examine LP gas tanks before filling and before reuse. Look for damage to the valve, liquid gauge, fittings and hand wheels. Check for dents, scrapes or other damage to the pressure vessel and for dirt or debris in the openings.

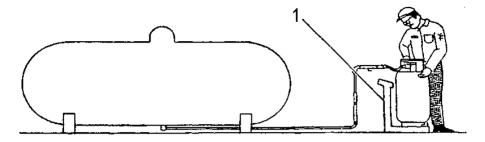
A WARNING

Leaking LP gas is a fire hazard.

Use a soap solution to inspect LP gas lines and connection fittings for leakage after the tank is changed or the lines have disconnected/reconnected for any other reason. All defective or damaged components must be repaired or replaced before using the truck.

Using LP Gas

Refilling LP Gas Tanks



The weight scale method of filling LP gas tanks is highly recommended. This method utilizes a scale (1) to allow precise filling and therefore reduce the chances of overfilling. Accidental discharge of LP gas from overfilling presents a fire hazard and damages the environment

- Only trained, authorized personnel should fill or exchange LP gas tanks. Protective clothing such as a face shield, long sleeves, and long gloves (covering the wrist) should be worn.
- Do not refill removable LP gas cylinders while they are mounted on the truck.
- Make sure you know and understand the proper procedure for refilling an LP Gas tank.
- · Know all fire codes in your area.
- If you have any questions regarding refuelling LP gas tanks, ask your supervisor.
- If problems with filling occur, call the LP gas supplier.
- Store both full and empty tanks according to local fire codes.
- Always observe the law or regulations in your country, state, or province when filling LP gas tanks.

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Safety During Maintenance

Safety During Maintenance

Personnel Qualifications

Only qualified personnel authorized by the owner are permitted to perform maintenance or repair work. All items listed in the Scheduled Maintenance Charts must be performed by qualified forklift technicians only. They must have knowledge and experience sufficient to assess the condition of a forklift truck and the effectiveness of the protective equipment according to established principles for testing forklift trucks. Any evaluation of safety must

be unaffected by operational and economic conditions and must be conducted solely from a safety standpoint.

Daily inspection procedures and simple maintenance checks, e.g. checking the hydraulic oil level or checking the fluid level in the battery, may be performed by operators. This does not require training as described above.

Hazardous Substances

Oils



WARNING

Oils are flammable!

- Always comply with applicable legal regulations.
- Do not allow oil to come into contact with hot engine parts.
- Do not smoke in areas where oils are used or stored.



WARNING

Oils are toxic!

- Avoid skin contact, inhalation, or ingestion.
- If oil mist or vapors have been inhaled, seek fresh air.
- If oil comes into contact with the eyes, flush thoroughly (at least 10 minutes) with water and then seek medical assistance.
- If oil is swallowed, do not induce vomiting. Seek medical assistance immediately.



WARNING

Prolonged intensive contact with the skin can result in loss of natural skin oils and irritate the skin.

- Avoid skin contact.
- Wear protective gloves, long sleeves, and eye protection.
- If oil contacts the skin, wash the affected area with soap and water.
- Change oil-soaked shoes or clothing immediately.

WARNING

Spilled oil presents a risk of slipping, particularly when combined with water.

Immediately treat spilled oil with an oil binding agent, and then dispose of it according to local regulations.



ENVIRONMENT NOTE

All oils are potent contaminants of water.

- Recycle used oil if possible.
- · Always store oil in appropriate containers.
- · Avoid spills.
- Spilled oil should be removed with oil-binding agents at once and disposed of according to local regulations.
- If recycling is not possible, dispose of used oil according to local regulations.



Safety During Maintenance

Pressurized Hydraulic Oil

▲ WARNING

Like other oils, hydraulic oil is flammable, toxic, and a skin irritant

- > Do not allow hydraulic fluid to come into contact with hot motor parts.
- > Avoid inhalation or skin contact of hydraulic oil.
- Refer to the safety information under "Oils".

WARNING

Hydraulic oil is pressurized during operation of the forklift truck and may remain pressurized after shut down. An escaping stream of pressurized hydraulic oil can cause serious injury.

- If pressurized hydraulic oil is found to be escaping from the truck, shut down the truck immediately and have the leak repaired before returning the truck to service.
- Only trained service personnel should attempt to repair any portion of the hydraulic system.
- Do not allow hydraulic fluid to come into contact with the skin.
- Avoid inhaling spray or mist created by escaping hydraulic oil.
- Penetration of pressurized fluids into the skin is particularly dangerous if these fluids escape at high pressure due to leaks in the hydraulic system. In case of such injury, immediate medical assistance is required.
- To help prevent injury, use appropriate personal protective equipment (e.g. protective gloves, long sleeves and industrial goggles).

(L)

ENVIRONMENT NOTE

Hydraulic oil is a potent contaminant of water.

- Recycle used hydraulic oil if possible.
- Always store hydraulic oil in appropriate containers.
- Avoid spills.
- Spilled hydraulic oil should be removed with oil-binding agents at once and disposed of according to local regulations.
- If recycling is not possible, dispose of used hydraulic oil according to local regulations.

Battery Acid



▲ WARNING

Battery acid contains dissolved sulfuric acid. This is toxic.

- > Avoid contact and consumption.
- In case of injury, seek medical advice immediately.



▲ WARNING

Battery acid contains dissolved sulfuric acid. This is corrosive.

- When working with battery acid, always wear protective clothing and eye protection.
- Do not allow any acid to get onto clothing or skin or into the eyes; if this does happen, rinse immediately with plenty of clean water.
- In case of injury, seek medical advice immediately.
- Immediately rinse away spilled battery acid with plenty of water.



ENVIRONMENT NOTE

Dispose of used battery acid according to local regulations.

Linde Material Handling Linde

Safety During Maintenance

Coolant reservoir or radiator

WARNING

Engine coolant can reach high temperatures and pressures and cause severe burns.

Immediately after using the lift truck, the engine coolant is at high temperature and high pressure. Do not remove any radiator or reservoir cap or attempt work on the cooling system under these conditions. Hot water can escape suddenly and cause severe burns.

When checking the coolant level, stop the engine and wait for the engine and radiator to cool down before checking. When removing the radiator cap, turn it slowly to release any internal pressure.

For lift trucks equipped with a subtank or reservoir, check the level in the subtank. When adding water on lift trucks equipped with a subtank, add the water to the subtank.

Always allow the engine to cool before attempting any maintenance or repair on hoses or any other part of the cooling system. Disassembly of cooling system components while hot can allow hot, highly pressurized coolant to escape and cause injury.

Starting Battery

WARNING

Batteries contain dissolved sulfuric acid, which is poisonous and caustic. Batteries also can produce explosive gases.

Remain aware of the following information.

- Wear protective equipment (protective apron and gloves) and protective glasses when working with battery acid. If clothing, skin or eyes come into contact with battery acid, immediately flush the affected areas with water. If acid contacts the eyes, seek medical attention at once. Clean spilled battery acid immediately with large amounts of water.
- Remove any metal rings, bracelets, bands, or other jewelry before working with or near batteries or electrical components.
- Never expose batteries to open flame or sparks.
- Areas in which batteries are stored or charged must be well ventilated to prevent concentration of explosive gases.
- If a battery is charged while installed in the truck, the hood or battery access door must

- remain completely open during the entire charging period.
- Shorting of battery terminals can cause burns, electrical shock, or explosion. Do not allow metal parts to contact the top surface of the battery. Make sure all terminal caps are in place and in good condition.
- Batteries may only be charged, serviced, or changed by properly trained personnel. Always follow all instructions provided by the manufacturers of the battery, charger, and forklift truck.
- When jump starting a vehicle with a discharged battery, make sure the booster battery is the same voltage as the vehicle battery. Do not connect the negative cable from the booster battery to the negative terminal of the discharged battery. Instead connect it to the frame of the vehicle being started to avoid the possibility of sparking near the battery. Make sure all jumper cables remain clear of all moving engine parts throughout the starting process.
- Never attempt to jump start a vehicle with a frozen battery. This can result in an explosion



Safety During Maintenance

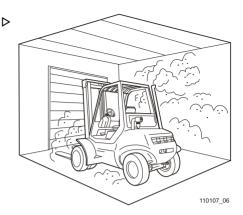
Vehicle exhaust



A DANGER

Risk of injury or death!

Do not leave the engine running where there is poor ventilation. The engine exhaust gas contains carbon monoxide. There is danger that this will cause gas poisoning which may result in serious injury or death.

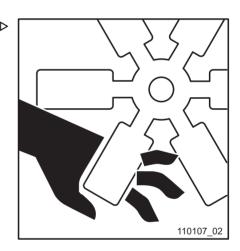


Rotating fan blades



Risk of injury!

It is extremely dangerous if you or any tool touches or gets caught in the fan or fan belt when the fan is rotating. Never touch the fan when it is rotating. Always stop the engine before inspecting rotating parts. When inspecting the areas around rotating parts, do not allow anything to come close which may get caught.



Electric Fan

The engine fan is powered by an electric motor which is controlled by engine temperature.

WARNING

The engine fan may start and operate at any time, even when the engine is off.

Always disconnect the battery before touching or reaching into the fan.

Linde Material Handling Linde

Safety During Maintenance

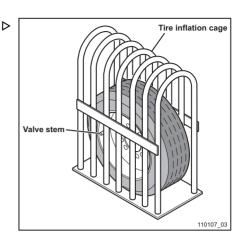
Wheels and Tires

A WARNING

The tire inflation pressure on a forklift truck is several times higher than the pressure on an automobile. Also, multi-piece rim sets can present the hazard of explosive disassembly if not handled properly.

When working with wheels or tires, always observe the following safety rules. Failure to observe these rules could result in severe injury or death.

- When inflating or deflating tires, a suitable safety cage or barrier shall be used.
- Always check for rim damage before inflating tires. Do not add air to tires with cracked or damaged rims. Adding air to tires with damaged rims can cause the rim to break with explosive force. If a damaged rim is discovered, have the wheel removed and repaired by trained and qualified personnel before using the truck.
- When checking tire pressure, place your body in front of the tread face of the tire.
 Do not check from the side face of the tire.
- Always inflate tires to the correct pressure.
 Incorrect tire pressure can cause premature wear or explosive separation of multipiece rim sets.
- Always wear safety glasses when inflating tires to avoid possible eye injury from dust or dirt.
- Only properly trained personnel should replace pneumatic tires on multi-piece rim sets.
- Always use correct procedures when servicing or replacing pneumatic tires on multi-piece rim sets. Failure to use proper procedures can result in explosive separation of the tire and rim set and cause severe injury or death.
- OSHA safety procedures must always be followed. Refer to OSHA 1910.177.
- Do not mix different sizes or tire types, this could affect stability.
- If the procedures listed above are not followed the result could be death or serious injury.





Operator Warning Decals

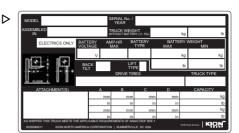
Data plate

The data plate is designed to inform personnel of truck capacity and other important truck specifications. The operator should locate, read, and understand the data plate prior to using the forklift truck.



Risk of tip-over.

Never attempt to lift a load greater than the maximum capacity listed on this plate.



Parking brake warning decal

This decal reminds operators to engage the parking brake lever whenever it is necessary to set the parking brake as it is not automatically applied.



Linde Material Handling Linde

Operator Warning Decals

Operator warning decal

This decal lists a number of fundamental safety points that are crucial to safe operation. Operators must understand these items and remain aware of them during truck operation.

AWARNING

SIT-DOWN RIDER TRUCK OPERATOR WARNINGS

- CHECK YOUR TRUCK The truck should be checked daily before being placed in service. If found to be in need of repair, defective, or in any way unsafe it should be reported immediately to the proper authority and removed from service until restored to a safe operating condition.
- KNOW YOUR TRÜCK Do not operate this truck unless you have been trained and authorized to do so. Read all warnings and instructions in the Operator's manual on this truck; or obtain them from plant Safety Director or the local linde representative.
- KEEP INSIDE Operate truck only when you are in the normal operating position and seated in the operator's seat. Never place any part of your body into the mast structure, between the mast and the truck, or outside the truck. Do
- PROTECT YOURSELF Do not operate truck without overhead guard.
 SEAT BELT MAKE SURE YOUR SEAT BELT IS FASTENED BEFORE.
- SEAT BELT MAKE SURE YOUR SEAT BELT IS FASTENED BEFORE OPERATING THE TRUCK.
- 6. LATERAL TIPOVER Can occur loaded or unloaded by a combination of speed and sharpness of turn. SLOW DOWN BEFORE TURNING. With the mast raised, lateral tipover also can occur by turning and/or braking when moving rearward, turning and/or accelerating forward or turning on an incline or ramp. TRAVEL WITH THE MAST LOWERED. The potential for lateral tipover will be further increased by overloading, excessive rearward tilt or off-center positioning of the load. Don't risk injury or death. Drive smart.
- 7. LONGITUDINAL TIPOVER Can occur by driving with the load down slope on an incline or ramp, overloading, excessive forward tilt or aggressive braking when moving forward or accelerating rearward with the mast elevated. TRAVEL WITH THE MAST LOWERED. Don't risk injury or death. Drive smart.
- LATERAL OR LONGITUDINAL TIPÓVÉR Can occur if the truck is driven over objects on the floor or ground, off the edge of improved surfaces, or into potholes, or by impacting overhead obstacles or collision with other objects. Don't risk injury or death. Drive smart.
- DON'T JUMP OFF If your truck begins to tip over, DON'T JUMP. Hold the steering wheel tightly, brace feet, and lean away from tip. Stay in the seat to avoid being trapped between the truck and the ground.
 HIGH LOADS - Do not handle loads which are higher than the load backrest
- HIGH LOADS Do not handle loads which are higher than the load backrest or load backrest extension unless load is secured so that no part of it could fall backward.
- 11. STABILIZE YOUR LOAD Do not handle unstable or loosely stacked loads. Use special care when handling long, high, or wide loads to avoid losing the load, striking bystanders, or tipping truck.

- 12. CENTER YOUR LOAD When using forks, space forks as far apart as load will permit. Before lifting, be sure load is centered and forks are completely under load.
- 13. NEVER OVERLOAD Do not overload truck. Check capacity plate for load weight and load center information.
- AVOID SUDDEN MOVEMENTS Start, stop, travel, steer, and brake smoothly. Sudden movements can endanger yourself and others.
- 15. LOOK OVERHEAD Elevate forks or other lifting mechanism only to pick up or stack a load. Lift and lower with mast vertical or slightly back NEVER FORWARD. Watch out for obstructions, especially overhead.
- 16. MINIMUM TILT Operate tilting mechanism slowly and smoothly. Do not tilt forward when elevated except to pick up or deposit a load. When stacking use only enough backward tilt to stabilize load.
- 17. EYES AHEAD Travel with load or lifting mechanism as low as possible and tilted back. Always look in direction of travel. Keep a clear view, and when load interferes with visibility, travel with lifting mechanism trailing (except when climbing ramps).
- 18. CÂRE ON RAMPS Use special care when operating on ramps, travel slowly, and do not angle or turn. When truck is loaded, travel with load uphill. When truck is empty, travel with lifting mechanism downhill.
- 19. SLOW DOWN Observe applicable traffic regulations. Yield right-of-way to pedestrians. Slow down & sound horn at cross aisles and whenever vision is obstructed.
- 20. WATCH PEOPLE Do not allow anyone to stand or pass under lifting mechanism directly behind truck or within rear swing area when turning
- 21. WORK PLATFORMS DO NOT LIFT OR CARRY PERSONNEL USING THE FORKS OF THE TRUCK, not even with a work platform. The truck is designed for transporting, warehousing and stacking of material, not personnel.
- 22. SHUT DOWN COMPLETELY Before getting off truck, neutralize travel control, fully lower lifting mechanism and set the parking brake. Shut off power when leaving truck unattended. Block wheels if truck is parked on an incline.
- ENGINE EXHAUST on gas or diesel trucks contains carbon monoxide (CO). Exposure can cause severe injury or death.

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Failure to comply with these warnings will create an unreasonable risk of injury to yourself and others.

Trained operator warning decal

This decal states the requirement that only trained and authorized personnel are to operate truck.



TRAINED AND AUTHORIZED OPERATORS ONLY.

MISUSE OF THIS TRUCK COULD CAUSE INJURY TO YOURSELF OR OTHERS WORKING WITH YOU.

READ INSTRUCTIONS IN OPERATOR'S MANUAL.

0009384608



Never stand or walk under forks ▷ warning decal

This decal warns personnel not to stand or walk on, or under, the forks at any time. This applies to operators as well as all others.



Do not lift personnel warning decal

This decal states that the operator should never use the forks for lifting personnel for any reason. Even if special work platforms for lifting personnel are available, they are not to be used with this truck to lift personnel.



DO NOT LIFT PERSONNEL USING THE FORKS OF THE TRUCK, NOT EVEN WITH A WORK PLATFORM, TRUCK IS DESIGNED FOR TRANSPORTING. WAREHOUSING AND STACKING OF MATERIAL, NOT PERSONNEL.

Crushed fingers warning decal

This decal is placed in areas where parts move close together during normal truck operation. The decal warns personnel to keep hands clear of these areas at all times.





No step warning decal

This decal warns personnel of moving parts that are unsafe to step or stand upon.



 \triangleright

Tip-over warning decal

This decal warns operators that tip-over accidents can be avoided by operating the truck as instructed in the operator's manual. Operators are reminded to fasten the seat belt to minimize the risk of injury if a tip-over does occur. This decal also reminds operators to slow down while turning to avoid tip-over. In case of tip-over, the decal instructs operators to stay in the seat, hold onto the steering wheel tightly, brace feet, and lean away from the direction of impact.

WARNING

Jumping from the truck during a tip-over can result in severe injury or death.

If the truck starts to tip over, DO NOT JUMP!

Stay in the seat, hold onto the steering wheel tightly, brace feet, and lean away from the direction of impact.





LP tank specification plate

This plate lists the sizes of LP tank that are approved for use on the truck.



Back up alarm warning decal

This decal is present if the truck is equipped with a back-up alarm. The decal reminds the operator that the alarm must sound anytime the truck is moving in reverse. It also warns the operator to maintain a clear view in the direction of travel



THIS VEHICLE IS EQUIPPED WITH A BACK-UP ALARM.

ALARM MUST SOUND!

FAILURE TO MAINTAIN A CLEAR VIEW IN THE DIRECTION OF TRAVEL COULD RESULT IN SERIOUS INJURY OR DEATH.

THE OPERATOR IS RESPONSIBLE FOR THE SAFE OPERATION OF THIS VEHICLE.

Hot coolant warning decal

This decal warns personnel not to unscrew the radiator or expansion tank cap while it is under pressure. Scalding could occur due to hot coolant.

AWARNING



 \triangleright

The expansion tank is under pressure! Risk of scalding due to hot coolant.

Unscrew the filler cap slowly and only if the expansion tank is not hot.

0009385648

Hood latch warning decal

This decal warns operators to ensure that the hood latch is fully engaged before operating the truck.



0009385609



Flammable LP warning decal



TRAINED PERSONNEL ONLY!

- CLOSE FUEL VALVE ON TANK WHEN PARKING TRUCK.
 DO NOT STORE TANK OR PARK TRUCK NEAR HEAT OR IGNITION SOURCES.
 AVOID SPARKS OR OPEN FLAMES.
 FOLLOW FILLING AND OPERATING INSTRUCTIONS IN OPERATING MANUAL.
- WHEN CHECKING AND OPERATING INSTRUCTIONS IN OPERATING MANUAL.
 WHEN CHECKING OR FILLING TANK: NO SMOKING, STOP ENGINE, FILL IN DESIGNATED AREA.
 TO PREVENT DAMAGE TO HOSE OR FITTINGS, MAKE SURE PIN EXTENDS THROUGH HOLE
 IN RIM OF TANK.
- FROST OR LPG ODOR INDICATES LEAK INSPECT AND REPAIR IMMEDIATELY. DO NOT START ENGINE

This decal lists important safety rules concerning removable LP fuel tanks. Operators must follow these rules during operation and while changing or filling tanks.

Overview

Linde Material Handling Linde

Technical Description

Technical Description

General

The 1202 LP gas series of forklifts are sitdown IC counterbalanced models (ITA class 5). They are designed for handling loads up to:

4.400 lbs for H20T/600

5.000 lbs for H25T

5.500 lbs for H25T/600

6.000 lbs for H30T

7.000 lbs for H35T

These capacities are nominal values and are based on a 600 mm load center. They may be downrated depending on mast height and/or attachments. Exact capacity limits for individual vehicles are found on the data plate.

Power Train

The power train is a hydrostatic drive system comprised of an engine directly coupled to a variable displacement pump. The engine is a three-cylinder, water cooled, LP gas engine. It powers the truck's hydraulic pumps and varies its speed depending on the load. Engine function is monitored by several sensors.

The engine is cooled via a closed coolant circuit with an expansion tank. Forced circulation lubrication with an oil pump in the oil sump is used for engine lubrication. The combustion air is cleaned by means of a dry air filter with a paper insert.

The drive unit consists of a hydraulic variable displacement pump, two hydraulic fixed displacement wheel motors (assembled as a drive axle unit) and a hydraulic pump for the working and steering hydraulics. The drive direction and speed are regulated via the hydraulic variable displacement pump using two accelerator pedals or, optionally, a single pedal and a direction selector lever. Hydraulic fixed displacement wheel motors at each drive wheel are supplied by the hydraulic variable displacement pump. These motors power the drive wheels.

The hydraulic variable displacement pump also supplies the working and steering hydraulics.

Hydraulic System

The hydraulic system utilizes fluid pressurized by the variable displacement pump. The hydrostatic pump is gravity fed from a fluid reservoir incorporated into the vehicle frame. Pressurized hydraulic fluid from the pump is routed to a priority valve which distributes flow between the steering system and working hydraulics based on demand. Hydraulic pressure also opposes the brake springs to release the drive axle brakes upon start up and release of parking brake and brake pedal. Working hydraulics are controlled by a proportional hydraulic valve which diverts fluid to power a given hydraulic function when selected by the operator via controls mounted on the armrest. This system enhances smoothness and precision and also allows programmable control over hydraulic function characteristics.

Steering System

The rear-wheel steering system is hydraulically operated and controls the rear wheel angle through a hydraulic cylinder mounted to the steering axle assembly. Positioning of the cylinder is based on steering wheel movement which actuates a proportional valve at the base of the steering column.

Brake System

Hydrostatic and mechanical forms of braking are both present. Hydrostatic braking occurs whenever the drive pedal(s) is (are) released and yields a faster deceleration than simple coasting. Hydrostatic braking alone will provide deceleration rapid enough for any braking situation encountered during normal operation. Since the need during operation for friction-based mechanical braking is nearly zero, virtually no wear to the brake occurs, greatly reducing maintenance requirements. Mechanical braking is not normally used during operation. It's primary use is to function as a parking



Technical Description

brake when the truck is not in use. During operation, the mechanical brake remains available as a supplement to the hydrostatic system, but would become necessary only in the most severe braking situations such as emergency collision avoidance.

Mechanical braking is accomplished through two wet-running multi-disc brake assemblies incorporated into each wheel drive assembly. These brakes are spring activated and hydraulically released. The system is actuated through a foot pedal and parking brake handle, both of which are connected to a brake valve that controls system pressure. Whenever the truck is started, the hydraulic system is pressurized and the brake springs are opposed to release the brake. If the brake pedal is pressed, the hydraulic pressure is reduced by a brake valve in proportion to the amount of pedal movement allowing the brake springs to extend and provide corresponding braking force. When the parking brake is applied (or the pedal fully depressed), the brake valve reduces the pressure completely, allowing full braking force.

Masts

Three styles of masts are available with varying height capabilities - simple, dual, and triple.

The simple mast consists of an inner and outer upright and a fork carriage. A pair of lift cylinders raises and lowers the inner upright during lifting and lowering. Lift chains attached to the fork carriage and anchored to the stationary outer upright are routed over pulleys on the inner upright to raise the carriage. This arrangement results in a telescopic relationship between the carriage and mast uprights.

The dual mast maintains the inner and outer uprights of the simple mast. The carriage

chains however are anchored to the inner upright and routed over an additional lift cylinder dedicated to raising and lowering the fork carriage only. Hydraulic fluid does not power the mast lift cylinders until the free lift cylinder has reached maximum extension. This establishes a free-lift function that allows the fork carriage to move independently to the top of the uprights before they begin to move. Once the uprights begin to move, the carriage remains at the tip of the inner upright throughout the remainder of the lift range. The free-lift function allows lifting through the lower part of the lift range in areas where overhead clearance is limited (such as trailers).

The triple mast maintains the inner and outer uprights of the simple and double masts, but has an intermediate upright added for additional height range. An additional pair of lift chains are routed over pulleys on the intermediate upright to raise the inner upright in the same telescopic relationship as with the simple and double masts. Like the dual mast, the carriage chains are anchored to the inner upright and routed over an additional lift cylinder for a free-lift function.

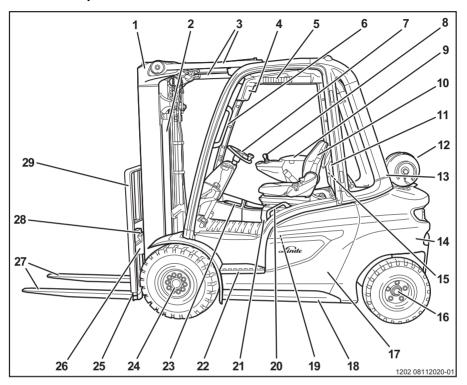
Electrical System

A 12-volt battery-powered electrical system provides current for starting and control functions. The system battery is recharged through an engine-driven alternator. A main control unit processes signals from sensors, interlocks, and operator controls and generates the appropriate release and output signals to truck functions or the operator display unit. A separate engine control unit monitors and adjusts the fuel system and ignition. By connecting a laptop to a computer connection port provided in the wiring harness, vehicle parameters can be set and diagnostic operations performed.



Truck Components

Truck Components





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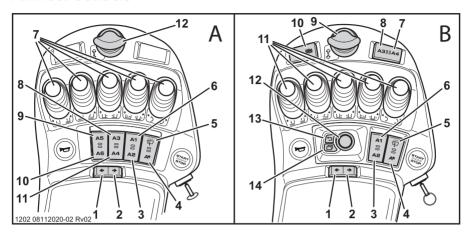
Truck Components

1	Mast	16	Steering axle
2	Lift cylinder	17	Side panelling
3	Tilt cylinder	18	Chassis
4	Display unit	19	Fuses (in the engine compartment)
5	Switch panel	20	Handle for opening the hood
6	Handle for entering and exiting the	21	Hood
	truck	22	Step for entering and exiting the truck
7	Steering wheel	23	Compartment
8	Hydraulic control levers	24	Left-hand drive wheel unit
9	Armrest console	25	Fork locking devices
10	Driver's seat		ŭ
11	Cover for electrical system	26	Fork carriage
	,	27	Forks
12	LP cylinder	28	Fork latch
13	Overhead guard	29	Load backrest
14	Counterweight	20	Load baokiest
15	Fuses (behind the cover)		



Armrest Controls

Armrest Controls



A STANDARD DISPLAY

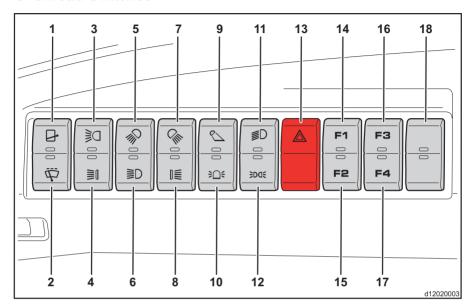
- 1 Left-hand turn signal (optional equipment)
- 2 Right-hand turn signal (optional equipment)
- Push button (A2) for optional equipment
- Push button (A★) for activating combinations of accessory equipment
- 5 Push button for windscreen wiper functions - front windscreen wiper, rear window wiper and roof panel wiper
- 6 Push button (A1) for optional equipment
- 7 Hydraulic control levers
- 8 Push button (A3) for optional equipment
- 9 Push button (A5) for optional equipment
- 10 Push button (A6) for optional equipment
- 11 Push button (A4) for optional equipment
- 12 Direction selector lever (single-pedal trucks only)

В PREMIUM DISPLAY

- 1 Left-hand turn signal (optional equipment)
- 2 Right-hand turn signal (optional equipment)
- 3 Push button (A2) for optional equipment
- Push button (A★) for activating combinations of accessory equipment
- 5 Push button for windscreen wiper functions - front windscreen wiper, rear window wiper and roof panel wiper
- 6 Push button (A1) for optional equipment
- 7 Push button (A4) for optional equipment
- 8 Push button (A3) for optional equipment
- 9 Direction selector lever (single-pedal trucks only)
- 10 Push buttons for electric parking brake (optional equipment)
- 11 Hydraulic control levers
- 12 Rotary-push button for operating the premium display unit
- 13 "Back" button for operating the premium display unit
- 14 "Favorite" button for operating the premium display unit



Overhead Switches

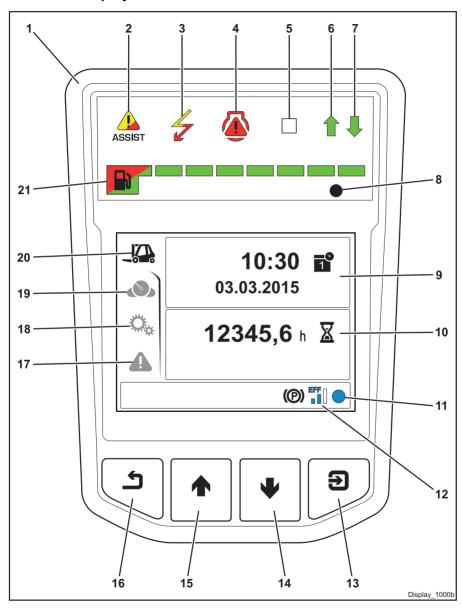


- Push button for windscreen wiper func-
- tions roof panel wiper can be switched on
- Push button for windscreen wiper functions - speed levels
- 3 Push button for working spotlights, positions 5/6
- Push button for front only or front/rear LED 4 light stripes
- 5 Push button for work lights, positions 3/4
- 6 Push button for work lights, positions 1/2
- Push button for work lights, positions 7/8 Push button for rear LED light stripes

- Push button for floor spot lights
- 10 Not used
- Push button for road lights 11
- Push button for parkign lights (lighting when 12 the truck is switched off)
- 13 Switch for hazard warning lights
- Push button (F1) for optional equipment 14
- Push button (F2) for optional equipment 15
- 16 Push button (F3) for optional equipment
- 17 Push button (F4) for optional equipment
- 18 Switch for optional equipment

Standard Display Unit

Standard Display Unit







Standard Display Unit

The display unit (1) is mounted on the top right-hand side of the overhead guard. The display unit is located within the driver's field of vision and is the central information point for all truck functions.

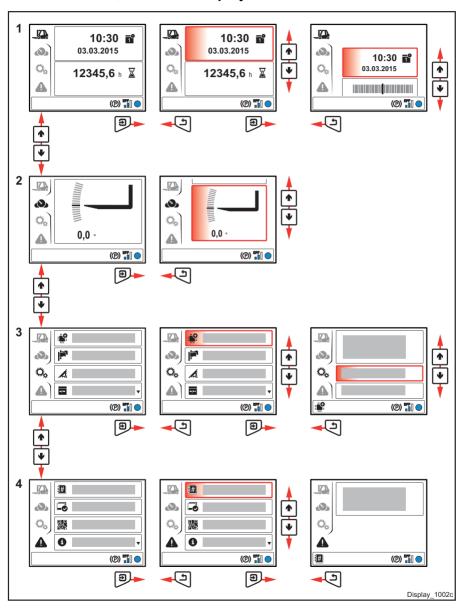
- Display unit
- 2 Warning light for the assistance system (yellow/red)
- 3 Warning light for the truck electrical system (yellow/red)
- Warning light for the gas system (LP trucks 4 only) (red)
- Display not operational
- Forwards drive direction (single-pedal operation) (green)
- 7 Reverse drive direction (single-pedal operation) (green)
- 8 Brightness sensor

- "Time/date" display
- "Operating hours" display with the "Operat-10 ing hours active" symbol flashes (only if the engine is running)
- 11 Function display
- 12 Status bar (information will be displayed via symbols, e.g. "Driving dynamics mode", "Parking brake activated" and "Seat belt not fastened")
- "Confirm" button 13
- "Down" button 14
- 15 "Up" button
- 16 "Back" button
- 17 Malfunctions and information menu
- 18 Settings menu
- 19 Favorites display menu
- 20 Status display menu
- Fuel level display (green/red) 21



Menu Structure, Standard Display Unit

Menu Structure, Standard Display Unit





Menu Structure, Standard Display Unit

➤ Use the ♥, ♠, ② and ⑤ push buttons to select the required displays, settings or malfunctions and information.

1	Status display menu (e.g. time/date, steering angle)
2	Favorites display menu (e.g. tilt angle)
3	Settings menu (e.g. language, units, date format/hour format, date)
4	Malfunctions and information menu (e.g. error code, messages, QR code, status icons)



The **Status display** and the **Favorites display** save the last displayed view and display this view again after the electrical system has been switched back on.



The "Malfunctions and information" symbol is displayed in the following colors depending on the status of the truck:

- "Yellow" means: malfunction or information
- "Red" means: critical malfunction or information
- "+" on the symbol means: multiple malfunctions or items of information

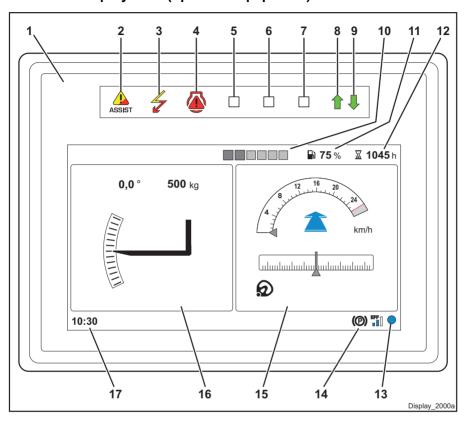


If there are no malfunctions or items of information, the respective "Error code", "Messages" and "Status icons" (displayed only if more than six status icons are active) menu items are hidden.



Premium Display Unit (optional equipment)

Premium Display Unit (optional equipment)





Premium Display Unit (optional equipment)

The display unit (1) is mounted on the top right-hand side of the overhead guard. The display unit is located within the driver's field of vision and is the central information point for all truck functions.

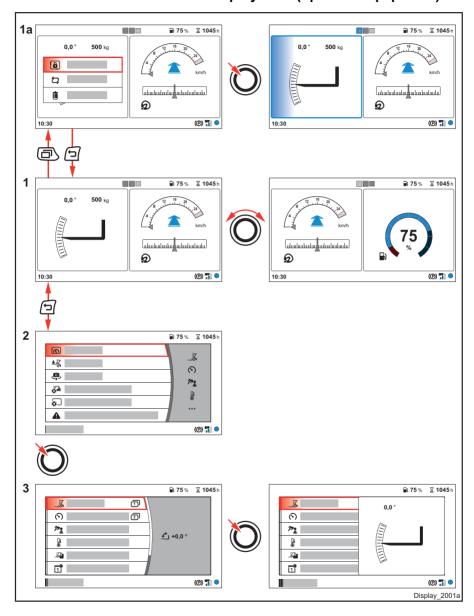
- Display unit
- Warning light for assistance system (special equipment) (yellow/red)
- Warning light for the truck electrical system (yellow/red)
- Warning light for the gas system (LP trucks only) (red)
- 5 Display not operational
- 6 Display not operational
- 7 Display not operational
- 8 Forwards drive direction (single-pedal operation) (green)

- 9 Reverse drive direction (single-pedal operation) (green)
- 10 Navigator for favorites in the display
- 11 Small level display for the fuel level
- 12 Small operating hours display
- 13 Function display
- 14 Status bar (information is displayed via symbols: e.g. "Driving dynamics mode" and "Parking brake activated")
- 15 "Speedometer (incl. steering angle) [driving speed/steering angle]" display
- "Lift mast [tilt angle/load weight (special equipment)]" display
- 17 Small time display



Menu Structure - Premium Display Unit (optional equipment)

Menu Structure - Premium Display Unit (optional equipment)





Menu Structure - Premium Display Unit (optional equipment)



The menu structure is only an example. The menu structure differs depending on the truck equipment.

- ➤ Use the "rotary-push button" ①, the "Back" button and the "Favourite" button to select the desired displays and menus.
 - 1 Displays:
 - Lift mast [tilt angle/load weight (special equipment)] (factory setting)
 - Speedometer (incl. steering angle) [driving speed/steering angle] (factory setting)
 - Fuel indicator [large level display] (factory setting)
 - 1a Favorites: Lock/Unlock/Replace/Remove e.g.:
 - Lock the lift mast [tilt angle/load weight (special equipment)]
 - 2 Main menu:
 - Display
 - Functions (special equipment)
 - Camera image (special equipment)
 - Truck settings
 - System settings
 - Malfunctions and information (if there are no malfunctions or available information, the malfunctions and information menu items are hidden)
 - 3 Selected menu level, e.g. **Display** menu:
 - Lift mast [tilt angle/load weight (special equipment)/lift height (special equipment)]
 - Speedometer (incl. steering angle) [driving speed/steering angle]
 - Drive and lift [load weight (special equipment)/tilt angle/driving speed/steering angle]
 - Temperatures [engine coolant temperature/hydraulic oil temperature]
 - Consumption/odometer (special equipment) [current consumption/average consumption/daily trip/total mileage odometer]
 - Time/date
 - Fuel indicator [large level display for the diesel tank, LPG tank, LPG cylinders or CNG tank1
 - Service interval/operating hours

3 Overview



Menu Structure - Premium Display Unit (optional equipment)



Symbol	Designation	Function
	Status display menu	Selects the status.
	Favorites display menu	Selects favorites.
	Display menu	Selects the display.
	Functions menu	Selects the functions.
	Camera Image menu	Selects the camera image.
	Settings menu	Selects settings.
	Truck settings menu	Selects the truck settings.
*	System settings menu	Selects the system settings.
A	Malfunctions and infor- mation menu	Selects malfunctions and information.
1	Time/date	Standard display unit: time and date display.
1	Time/date	Premium display unit: time and date display.



Symbol	Designation	Function
2	Steering angle	Bar display of the steering angle. (center position ≜ straight-ahead driving)
	Lift mast	Displays the tilt angle/load weight/lift height (optional equipment).
(7)	Speedometer	Displays the driving speed. The driving speed is always displayed as a positive value regardless of the direction of travel.
> €	Drive and Lift	Displays the load weight (optional equipment)/tilt angle/driving speed/steering angle.
X	Operating hours	Displays "Operating hours active". Symbol flashes only if the engine is running.
	Consumption/odometer	Displays the current consumption/average consumption/total distance/daily distance.
	Current consumption	Displays the current consumption.
Ø	Average consumption	Displays the average consumption. Can be reset in the "Settings" menu or using the diagnostic program.
	Daily trip odometer	Displays the distance travelled per day.
	Total mileage odometer	Displays the total distance travelled.
	Temperatures	Displays the engine coolant temperature and hydraulic oil temperature.



Symbol	Designation	Function
	Engine coolant temperature	Displays the engine coolant temperature.
	Hydraulic oil tempera- ture	Displays the hydraulic oil temperature.
	Fuel indicator	Premium display unit: large display of fuel level.
10	Service interval	Displays the service interval.
	Service interval/operating hours	Displays the service interval/operating hours.
	Load weight	Displays the weight of the load being carried (optional equipment).
₹	Tilt angle	Displays the tilt angle.
*	Lift height	Displays the lift height (optional equipment).
1	Lift limits	Selects the lift limits (optional equipment).
•	Lowering limit	Selects the lowering limit (optional equipment).
	Push button assignment	Displays/selects the push button assignment.



Symbol	Designation	Function
AUTO1	Camera auto mode 1	Displays auto mode 1.
AUTO2	Camera auto mode 2	Displays auto mode 2.
REAR	Rear view camera	Displays the rear view camera.
FORK1	Fork carriage camera	Displays the fork carriage camera.
FRONT	Front view camera	Displays the front view camera.
FORK2	Fork arms camera	Displays the fork arms camera.
6	Unlock	Selects Unlock
â	Lock	Selects Lock
	Replace	Selects Replace.
	Remove	Selects Remove.
K 3	Fullscreen	Selects Fullscreen.



Symbol	Designation	Function
	Software update	Selects a software update.
	Edit favorites	Selects Edit Favorites.
	Language	Selects available languages.
	Units	Select the units: • Metric (ISO) units (kg km/h km) or • Imperial units (lbs mph mi) or • Customer-specific units (mixture of metric and imperial using the diagnostic program).
/	Date format and 12/24- hour format	Standard display unit: displays date format and 12/24-hour format. • dd.mm.yyyy/24h or mm/dd/yyyy/12h. • Clock display: am = morning/pm = afternoon.
1	Date	Standard display unit: sets the date.
\Sigma	Time	Standard display unit: sets the time.
1	Date / time	Premium display unit: sets the date, time and 12/24-hour format. • Clock display: am = morning/pm = afternoon.
	Brightness	Adjusts the brightness of the display.
\$	Reset trip odometer	Reset the daily trip odometer.
	Reset consumption average	Resets the average consumption.



Symbol	Designation	Function
\$		Restores the basic settings.
i	System information	System information about the display unit.
(A)	Wireless access	Selects wireless access.
35	Clean the radiator	Selects cleaning the radiator with the support of the fan.
	Driving dynamics	Adjust the driving dynamics.
	Load push operation and shovel operation	Switch load push operation and shovel operation on or off.
(5)	Speed limit	Standard display unit: Displays the speed limit ("reduction in driving speed"). Display for forward and backward travel. The reduction is set using the diagnostic program. Premium display unit: Activates or deactivates the speed limit.
(5,	Speed limit forward	Premium display unit: sets speed limit forward.
(2)	Speed limit backward	Premium display unit: sets speed limit backward.
	Edit button assignment	Configures the freely programmable push buttons on the armrest console and the overhead console.
A*	A★ Linde push button configuration	Configures the functions that can be assigned via the push button.

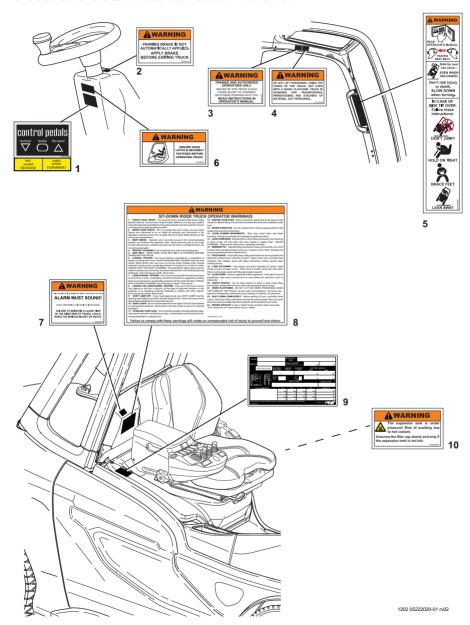


Symbol	Designation	Function
→ (€	Mast vertical	Set the vertical position of the mast.
0.00	Lift height zero point	Sets the lift height zero point.
<u>•</u>	Set lower limit	Sets the lowering limit.
88#	Error code	Displays all error codes. If there are no malfunctions, this symbol is hidden.
	Messages	Displays all messages. If there are no messages, this symbol is hidden.
日本記 おきが 日間日	QR code	Displays a QR code as a collection of all malfunctions and contains additional truck-specific information.
£	Display additional status icons	Standard display unit: Displayed only if more than six status icons are active.
	Contact address authorized dealer	Displays the contact address of the authorized dealer.



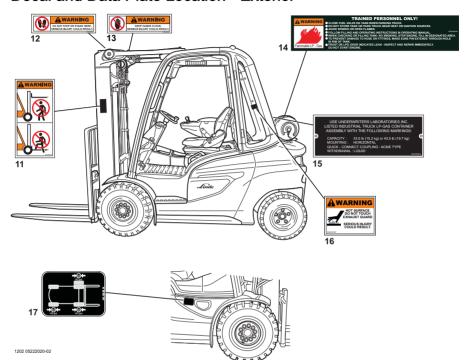
Decal and Data Plate Location - Interior

Decal and Data Plate Location - Interior



Decal and Data Plate Location - Exterior

Decal and Data Plate Location - Exterior

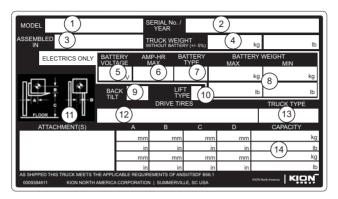


- 1 Decal, Control Pedals (dual-pedal only)
- Warning Decal, Parking Brake
- 3 Warning Decal, Trained & Authorized Operator
- 4 Warning Decal, Do Not Lift Personnel
- 5 Warning Decal, Tip-Over, Sit-Down Rider Truck
- 6 Warning Decal, Hood Latch
- 7 Warning Decal, Backup Alarm
- 8 Warning Decal, Sit-Down Rider

- 9 Data Plate
- 10 Warning Decal, Hot Coolant
- 11 Warning Decal, Personnel/Forks
- 12 Warning Decal, No Step
- 13 Warning Decal, Crushed Fingers (2X)
- 14 Warning Decal, Flammable LP Gas
- 15 Plate, UL Tank Data
- 16 Warning Decal, Hot Surface (upright exhaust only)
- 17 Decal, Air Pressure (Pneumatic tires only)

Data Plate

Data Plate



- MODEL shows the model designation of the truck.
- (2) SERIAL No./Year shows the serial number and year of manufacture of the individual truck.
- (3) ASSEMBLED IN shows the country in which the truck was originally manufactured.
- (4) TRUCK WEIGHT shows the weight of the truck (in pounds and kilograms) with forks. This weight does not include the battery on electric trucks.
- (5) BATTERY VOLTAGE (electric trucks only) – shows the system voltage of the truck.
- (6) AMP-HR MAX (electric trucks only) – shows the maximum current capacity in amp-hrs for any battery to be used in the truck.
- (7) BATTERY TYPE (electric trucks only) shows the required battery designation, as outlined in ANSI B56.1. A battery of the correct designation must be installed in order for the TRUCK TYPE designation to be valid.
- (8) BATTERY WEIGHT (electric trucks only) – shows the allowable weight range (MAX and MIN) for the battery in pounds and kilograms.
- (9) **BACK TILT** shows the maximum angle that the mast can be tilted back.

- (10) LIFT TYPE shows a letter corresponding to the type of mast construction as follows:
 - S for single masts D for double masts T for triple masts Q for quad masts
- (11) (Diagram) illustrates the dimensions A, B, C, and D used in CAPACITY chart (14).
- (12) **DRIVE TIRES** shows the required size and type of drive tire.
- (13) TRUCK TYPE shows the designation of the truck with respect to hazardous environments as outlined in 29CFR1910.178. This designation corresponds to the environment(s) in which the truck is approved for use.
- (14) CAPACITY shows the maximum load weight (in pounds and kilograms) that can be safely lifted for the corresponding devices listed under ATTACHMENT(S). In order to achieve a listed capacity safely, the lift height must be kept within the corresponding value shown in column C and the load center of gravity must be within the corresponding values shown in columns A, B, and D.



Truck Configuration Label

Truck Configuration Label

The truck configuration label is located in the footwell. Information on the label is explained below

1 Data matrix code

2 Serial number

3 Mast specification with:

Mast series – mast version – lift height in

("ohne / CO" = without mast or with approved non-original mast

Mast variant code:

"S" = standard mast

"D" = duplex mast

"T" = triplex mast

4 Not applicable

5 Maximum tilt angle (forwards/backwards)

6 Drive axle tires:

"SE" = super elastic tires

"Luft" = pneumatic tires

"ZW" = twin tires

"Band" = bandage tires

7 Attachment:

"GTR" = fork carriage

"iSS" = integrated sideshifter

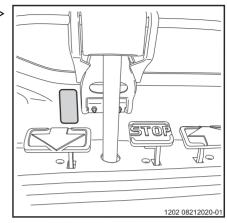
"iZVG" = integrated fork positioner

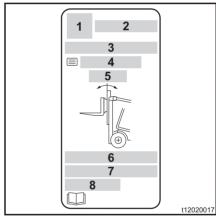
"iZVG View" = integrated fork positioner

with optimized visibility
"ohne / CO" = customized option

8 Restrictions where relevant to the load capacity:

Details regarding reducing the driving speed





(4)

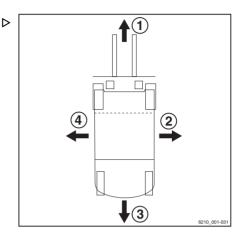
Definition of directions

Definition of directions

(1) Forwards(2) Right(3) Backwards

Directions as seen from the driving position; the load is at the front.

Left



Operation



Initial Commissioning

Initial Commissioning

Unloading and Preparing a New Truck for Operation

When unloading a new truck, it may be necessary or desirable to tow the truck from the delivery vehicle. In this case, the hydraulic brake system must be manually pressurized to release the brakes and allow the truck to roll. See "Towing the Truck".

Before placing a new truck into service, perform the Daily Maintenance Inspection as found in the Maintenance section

The truck can then be operated at full speed immediately upon being placed in service. However, during the first 50 operating hours, avoid subjecting the engine or hydraulic system to high continuous loads.

WARNING

Wheel mounting hardware sometimes requires several cycles of tightening before it fully seats. For this reason, wheel mounting screws or nuts will often work loose in the period immediately following initial tightening.

When placing a new truck into service, the wheel mounting screws or nuts must be checked for tightness every 10 hours until no further loosening is detected. See the procedure for checking wheels and tires in the Maintenance section.



Initial Commissioning

Setting Up the LP Tank Bracket

The truck is delivered from the factory with a 12 mm tank pin installed in the tank bracket. There are two mounting holes for the pin. Ensure the pin is in the correct hole to fit tanks that will be used with the truck. No part of the tank can extend outside the horizontal profile of the truck.

WARNING

The LP tank bracket will be damaged or destroyed and possible injury will result if items are attached to it

Never attach any item or towed load to any part of the LP tank bracket.

LP Level Indicator

The truck is equipped with a level sensing system that provides a continuous display of tank level, similar to a gasoline gauge. This system is intended to work with LP tanks that are full when installed at change-out and not removed until empty or nearly empty.

Whenever the truck is turned on after a new tank is installed, the system automatically detects the change in tank level and initializes to the new level. Any newly installed tank must be at least 50% full, as well as more full than the tank being replaced, in order for the initialization process to occur. If not, the display will not change and it will continue based on the last level of the previous tank, which will not be accurate for the new tank



NOTE

Partially filled tanks greater than 50% may not trigger initialization if, for some reason, the previous tank was removed while it was still more full than the new tank. In this case, performing a reset will allow initialization to occur. See Troubleshooting the LP Level Display System in section 5.

Ensure that any weld seam on the LP tanks being used does not fall directly on the fuel level sensor. The level sensor will not function correctly if it is in contact with a weld seam on the tank. An alternate position is provided for mounting the fuel level sensor if necessary to avoid contact with tank weld seams. The procedure for repositioning the fuel level sensor is given in the service manual.

If problems occur with fuel level accuracy, see Troubleshooting the LP Level Display System in section 5.



NOTE

Certain explosion proof tanks with internal coatings will not work with the sensor.



NOTE

Large variations in temperature between the tank and the sensor can affect the accuracy of the level indication system. If a cold tank (ie from outdoor storage in winter) is installed onto a warm truck, the initial tank level indication will not be immediately accurate. In this case the system will perform a temperature compensation that provides approximate accuracy. Optimum accuracy will occur as the temperatures equalize.



Fuel

Fuel

Changing the LP Gas Tank

WARNING

Serious accidents can occur if LP gas tanks are not properly handled.

Only properly trained personnel may handle LP tanks. To reduce the risk of injury or tank damage, use extreme care during handling.

WARNING

LP gas is highly flammable. Gas ignition can cause serious injury or death.

Do not smoke or use open flame for any purpose while changing LP gas tanks.

WARNING

Pressurized LP gas remaining in fuel lines can cause frost burns.

To reduce the risk of injury, wear protective clothing and use extreme care when disconnecting and reconnecting fuel lines or opening tank valves.

WARNING

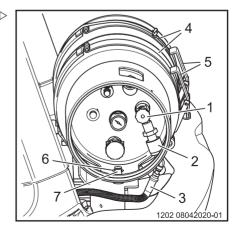
Fuel tanks not intended for use on forklifts can fail and cause explosion or fire.

Use only fuel tanks designed for use on forklift trucks and that meet US Department of Transportation specifications.

➤ With the truck running, firmly close the shutoff valve (1) on the LP gas tank and allow the truck to idle until it shuts down. This will burn the fuel present in the fuel system and reduce the chance of pressurized LP gas remaining in the fuel lines.



The truck may be programmed with a seat switch time-out that stops the engine after the seat is vacated. To ensure the fuel line is emptied, always return to the seat and remain there until the engines stops. This will ensure the engine stops from fuel starvation instead of normal time-out.





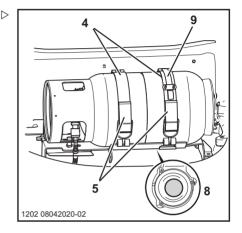
- > Carefully loosen the union nut (2) counterclockwise, and turn it very slowly at first to safely bleed off any pressurized gas.
- > Completely unscrew the union nut.
- > Remove the hose (3).
- > Swing the clips (5) down.
- > Swing the tank straps (4) up.
- > Remove LP gas tank.



A sensor (8) for monitoring the fill level lies underneath the LP gas tank. This system is intended to work with LP tanks that are full when installed at change-out and not removed until empty or nearly empty. Whenever the truck is turned on after a new tank is installed. the system automatically detects the change in tank level and initializes to the new level. Any newly installed tank must be at least 50% full, as well as more full than the tank being replaced, for the initialization process to occur. If not, the display will not change and it will continue based on the last level of the previous tank, which will not be accurate for the new tank

- Partially filled tanks greater than 50% may not trigger initialization if, for some reason, the previous tank was removed while it was still more full than the new tank. In this case, performing a reset will allow initialization to occur. See Troubleshooting the LP Level Indicator in section 6.
- > If necessary, clean the contact surface of the sensor (8) carefully with water or soapy water and a soft cloth.
- > Position the new LP gas tank so that the centering pin (7) fits into the slot (6) in the

This ensures that gas is always drawn from the liquid phase portion in the tank, thereby avoiding malfunction.



4 Operation



Fuel

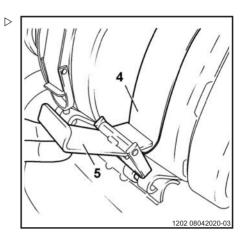
- Starting with the left-hand tank strap, engage the clip (5) in the strap (4) and swing it up. Ensure that the strap has a snug fit to the tank.
- Fit the second tank strap. This strap has a nylon strap (9) attached over it to bring the fuel sensor (8) against the tank as the tank strap (4) is tensioned. Ensure both the tank strap has a snug fit to the tank and that the sensor is snugly against the tank.



NOTE

To adjust the fit, disengage the clips (5) from the strap and thread it in or out of its swivel. Repeat as necessary for the other strap.

- ➤ Reattach the hose (3) to the LP gas tank and secure it with the union nut (2).
- Open the shut-off valve (1) very slowly to check for leaks. If obvious leaking is heard or otherwise detected, close the valve immediately and do not open it again until the problem is corrected.
- Check for leaks with leak spray and a gas detector.



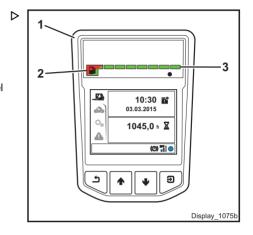
Fuel

Reading LP Level

An ultrasonic sensor monitors the fuel level in the tank. The display unit will display the fuel level of the LP tank installed on the rear of the truck

Standard Display

A few seconds after the ignition is switched on, the fuel level is shown in the display (1) by a row of indicators (2) and (3). When the tank is full, all of the square lights (3) and the "fuel pump" indicator (2) appear green. As fuel is used, the square lights extinguish, starting from the right until only the fuel pump indicator remains green. As the tank nears empty, the fuel pump indicator will turn red. The tank must then be changed.



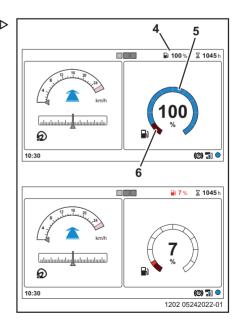
Premium Display (optional equipment)

The fuel level is displayed through a symbol (4) a few seconds after the ignition is switched on. The level is displayed here continuously, but a dedicated window is also available with a detailed fuel graphic (5). The fuel level is displayed as a percentage in both places. The LP tank is full when all nine illuminated fields (5) light up light blue and the illuminated field (6) lights up dark red.

As fuel is consumed, the illuminated fields go out.

When the fuel level becomes low, the illuminated field (6) gradually turns bright red. The symbol (4) will also turn red. Depending on the driving style and ambient temperature, the LP tank must be changed in the next 5–25 minutes.

If the illuminated field (6) lights up completely red, the LP tank is empty. The symbol (4) will flash at this point.



Operation

Operator Compartment

Operator Compartment

Adjusting the Standard Seat

The standard seat may be equipped with an optional lumbar support adjustment and an optional heating system.

WARNING

Adjusting the seat while driving can result in an accident due to loss of control.

Do not adjust the seat during operation.

Seat Position

- > Pull the lever (1) upwards.
- > Move the driver's seat backwards or forwards on the rails to find the most comfortable position for the driver in relation to the steering wheel and the accelerator pedals.
- > Allow the lever (1) to engage.

Backrest Angle Adjustment

- > Push the lever (2) upwards and hold it up.
- > Move the seat backrest forward or back as desired.
- > Release the lever (2).

Seat Suspension Adjustment



The relevant driver's weight must be set when the driver's seat is occupied.

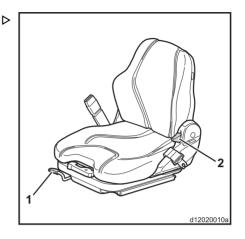
> Check the weight setting in the inspection window (4).

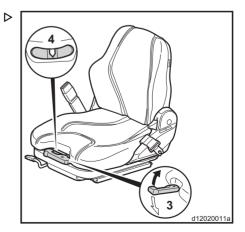
The correct driver's weight has been selected when the arrow is in the center position in the inspection window (4).

Adjust the setting for the driver's weight as necessary.

> Pull out the lever (3).

Move the lever to set the driver's weight for the suspension.







Operator Compartment

- > Move the lever (3) upwards for a heavier weight.
- > Move the lever (3) downwards for a lighter weight.

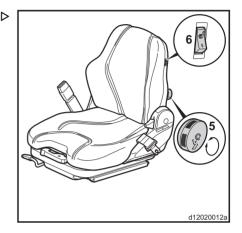
Lumbar Adjustment (optional equipment)



The lumbar support enables the seat backrest contour to be optimally adapted to the driver's body.

> Turn the knob (5) to the left or right.

The extent to which the lower and upper areas of the backrest are curved is adjusted individuallv.

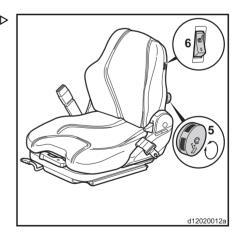


Seat Heating (optional equipment)

- > Push the switch (6) upwards to activate the seat heater.
- > Push the switch (6) downwards to deactivate the seat heater.



The maximum temperature is predefined.



Linde Material Handling Linde

Operator Compartment

Adjusting the Premium Seat (optional equipment)

The premium seat may be identified by the presence of a backrest extension. The premium seat includes a seat heater, however, a seat heating and cooling system is available as an option. An adjustable fore/aft suspension system is also available as an option.

▲ WARNING

Adjusting the seat while driving can result in an accident due to loss of control.

Do not adjust the seat during operation.

Seat Position

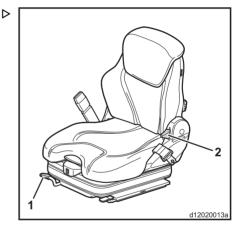
- > Pull the lever (1) upwards.
- Move the driver's seat backwards or forwards on the rails to find the most comfortable position for the driver in relation to the steering wheel and the accelerator pedals.
- > Allow the lever (1) to engage.

Backrest Angle Adjustment

- > Push the lever (2) upwards and hold it in place.
- Move the seat backrest forwards or backwards until a comfortable seat position for the driver is found.
- Release the lever (2).

Seat Suspension Adjustment

Seat suspension is automatically adjusted to the driver's weight whenever the electrical system is switched on and the seat is occupied.





Seat Depth Adjustment

> Pull the lever (3) upwards.

The seat surface can be moved to the desired position by sliding the seat surface forwards or backwards

Seat Height Adjustment

Adjust the seat height as required.

- > Push the lever (4) upwards to move the seat upwards.
- > Push the lever (4) downwards to move the seat downwards.

Backrest Extension Adjustment

> Push the backrest extension (5) in or pull it out for individual adjustment.

Lumbar Adjustment



The lumbar support enables the seat backrest contour to be optimally adapted to the driver's body.

> Press the push button (6).

The extent to which the upper area of the backrest is curved is adjusted individually.

> Press the push button (7).

The extent to which the lower area of the backrest is curved is adjusted individually.

Seat Heating

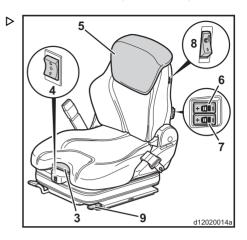
If the seat is equipped with the optional temperature control system, the switch (8) will not be present. (See below.)

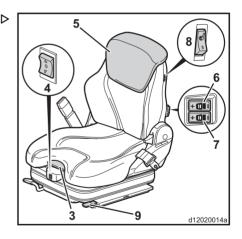
- > Push the switch (8) upwards to activate the seat heater.
- > Push the switch (8) downwards to deactivate the seat heater.



NOTE

The maximum temperature is predefined.







Activating the Horizontal Suspension (optional equipment)

The horizontal suspension system is intended to absorb horizontal (forward/reverse) impact forces in certain rough-duty applications.

- > Push the lever (9) to the left to activate the horizontal suspension.
- > Push the lever (9) to the right and allow it to engage to block the horizontal suspension.

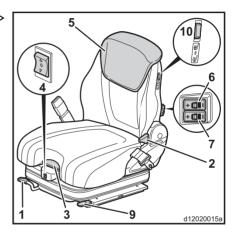
Adjusting the Temperature Control System (optional equipment) →

The premium seat may be equipped with a temperature control system instead of the basic seat heater. In this case, the switch (10) will be present.

- > Push the switch (10) upwards to activate the seat heater.
- > Push the switch (10) to the centre position to deactivate the seat heater
- ➤ Push the switch (10) downwards to activate the seat cooling.
- ➤ Push the switch (10) to the center position to deactivate the seat cooling.

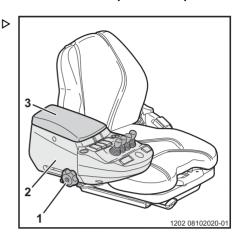


The maximum temperature is predefined.



Armrest Adjustment

- ➤ Occupy the driver's seat and loosen the clamping screw (1).
- Move the armrest console (2) upwards/downwards and forwards/backwards until the arm rest pad (3) is comfortably positioned and the hydraulic control levers can be easily reached.
- > Tighten the clamping screw (1).





Seat Belt

A WARNING

Failure to properly wear the seat belt can result in death or serious injury in the event of an accident.

Always wear the seat belt when operating the truck.

WARNING

A malfunctioning or damaged seat belt can result in death or serious injury in the event of an accident.

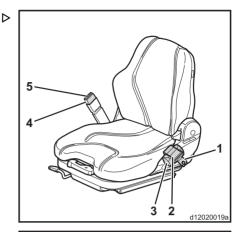
Ensure that the belt always operates correctly. It must not become twisted, trapped or tangled up. The catch and belt retractor must be protected from dirt, damage, or foreign objects. A damaged or frayed seat belt must be repaired or replaced before operating the truck.

The automatic locking mechanism will prevent the belt from being pulled out of the retractor whenever the truck is on a steep slope. To release the locking mechanism, carefully move the truck so that it is no longer positioned at an angle.

While using the vehicle (e.g. driving, operating lift mast etc.), adopt a sitting position as far back as possible so that the driver's back rests against the seat back. The automatic locking mechanism of the belt retractor offers sufficient freedom of movement on the seat for normal use of the fork-lift truck

Buckle monitoring

The truck controller monitors the status of the buckle as well as the sequence in which it is fastened at start-up. If the truck is driven without the seat belt fastened, a tone sounds at speeds above 2.5 mph (4 km/hr). The truck may be further configured with a speed restriction (all the way to zero) if the seat belt is not fastened in the proper sequence. To satisfy the sequence requirement, the seat switch must be activated (driver seated) and the electrical system switched on before the seat belt is fastened. Otherwise the truck will be restricted to the programmed speed.







Fastening the seat belt

- Pull the seat belt (2) smoothly from the retractor (3) on the left.
- > Position belt over lap, not over stomach.
- ➤ Ensure that buckle (1) snaps into place in the receiver (4).
- Check seat belt tension.
- Observe the display unit. The seat belt indicator (6) in the status bar should go out when the seat belt is correctly fastened.

The seat belt must fit close to the body.

Releasing the seat belt

- ➤ While holding the buckle, press red button (5) on the receiver(4).
- Hold onto the buckle (1) and slowly allow it to retract into the retractor (3). Do not allow the buckle to snap uncontrolled against the retractor housing.



NOTE

If the belt snaps rapidly into the retractor housing, the automatic locking mechanism may lock the belt with the buckle against the housing. This will prevent the belt from being pulled out with normal force. To free the belt, pull it strenuously until slight movement is detected, then release it slowly. This should unlock the belt and allow it to be withdrawn normally from the retractor housing.



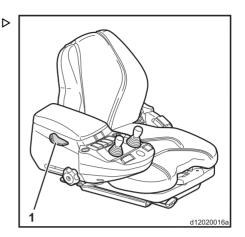
Swivel Seat (optional equipment)

A swivel seat is available as an option for optimal ergonomics in applications requiring extended periods of reverse operation. If equipped, this option allows the seat position to be rotated slightly. Trucks with this option will have a locking lever (1) on the armrest.

A WARNING

Adjusting the swivel seat position while driving can result in an accident due to loss of control.

Do not operate the truck unless the swivel seat is locked into position. Do not adjust the seat during operation. Always return the seat to the straight-ahead position before commencing forward travel.



Rotating the Seat

> Lift the locking lever (1) upwards.

The swivel mechanism is unlocked and allows the seat to be rotated to the right.

- > Allow the locking bolt to snap audibly into place.
- Repeat the above procedure to return the seat to the straight-ahead position.



Steering Column Adjustment

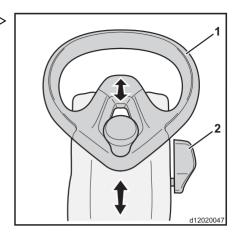
WARNING

Driving with the tilt angle locking knob loose can cause a collision due to loss of control.

Adjust the steering column tilt angle only when the vehicle is stationary.

The angle of the steering column can be adjusted to suit the operator. In addition, a height adjustment is available as an option. Both adjustments are made with the locking knob (2).

- > Loosen the locking knob (2) by turning it counter-clockwise.
- ➤ Push the steering wheel (1) forward or pull it back into the desired position.
- If the truck is equipped with the optional height adjustment, pull upward or push downward axially on the steering wheel until the desired height is reached.
- Tighten the locking knob by turning it clockwise.



Linde Material Handling Linde

Display Unit

Display Unit

System Startup

Switching on the display unit

After the electrical system is switched on, the display unit (1) performs the following actions:

- Self-testing of the lights: All displays (2) light up for approx. 2 seconds.
- Display (3) displays the number of operating hours for approx. 5 seconds (example: 1045,0 h)
- Display (4) displays the remaining operating hours (example: 1000 h) and operating days (example: 365 d) until the next service for approx. 5 seconds



The displays (3) and (4) can be changed using the diagnostic program:

- Time span of displays: 2 to 10 seconds
- · Displayed only when a service is required
- Display not active

The display then switches to the status display (5) (factory setting).

Status display (5):

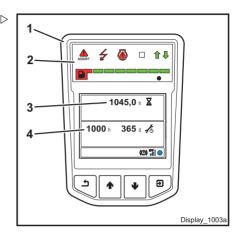
- · Time/date (6) (factory setting)
- Operating hours (7) (factory setting)

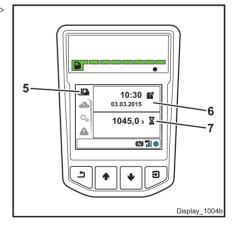
See the section entitled "Starting and stopping the internal combustion engine" for details on the following procedure.



NOTE

The display saves the last displayed view and displays this again after the electrical system has been switched back on.







"Service interval" indicator

"Service interval" message

If the symbol (8) appears with the message "Service interval" (9), service work must be performed in the near future in accordance with the preset service interval.

> To switch off the "Service interval" message, press the button (10).

The due service work must be performed. Contact your service partner.

"Service interval exceeded" message

If the symbol (8) appears with the message "Service interval exceeded" (9), the preset service interval has been exceeded

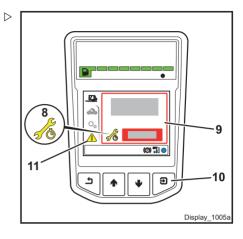
> To switch off the "Service interval exceeded" message, press the button (10).

The due service work must be performed immediately. Contact your service partner.



The message must be confirmed when it first appears and then the first time that the engine is started per day. Each subsequent time the engine is started on the same day, the message is displayed for 30 seconds.

The relevant text message can be displayed via the "Notifications" menu item in the Malfunctions and information menu (11).



Linde Material Handling Linde

Display Unit

Control buttons

The display unit has four control buttons.

Briefly press the "Back" button to perform the following action:

· Move back one level

Press and hold down the "Back" button to perform the following action:

· Move back to the status display menu

♠ Up button (2)

Briefly press the "Up" button to perform the following action:

· Move up by one row

Down button (3)

Briefly press the "Down" button to perform the following action:

· Move down by one row

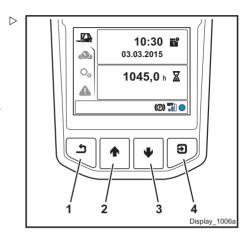
○ Confirm button (4)

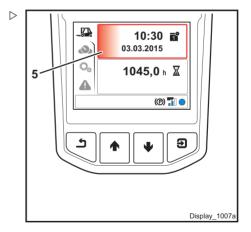
Briefly press the "Confirm" button to perform the following actions:

- Activate the menu item (5) shown on the display (marked in red)
- · Confirm entry
- · Confirm the message



Button tones are deactivated as default in the factory settings. They can be activated using the diagnostic program.







Status Menu

- ➤ Press the **1** button.
- ➤ Use the ♥ or ♠ buttons to select the upper or lower status display(1).
- ➤ Press the **1** button.
- ➤ Use the ♥ or ♠ buttons to select the desired status display.
- > Press the 1 button to confirm.

The following status displays can be selected:

- · Time/date (factory setting)
- · Steering angle
- · Driving speed
- · Steering angle/driving speed
- · Service interval
- · Operating hours (factory setting)
- Current consumption/average consumption
- · Engine coolant temperature
- · Hydraulic oil temperature
- Tilt angle/load weight (optional equipment)
- · Lift height (optional equipment)
- · Daily trip/total mileage odometer
- · Freely programmable buttons on the armrest console and overhead console (special equipment)



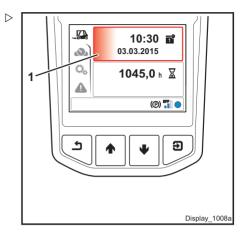
NOTE

The Status display saves the last displayed view and displays this view again after the electrical system has been switched back on.



NOTE

If a value of 0° is displayed for the tilt angle. the fork arms are not necessarily horizontal. Deviations may occur due to uneven ground, use of the truck on slopes, deflection in the mast and fork arms caused by heavy loads, tire wear or tire deflection



Linde Material Handling Linde

Display Unit

Favorites Menu

- > Press the button.
- ➤ Use the **\P** or **\P** buttons to select the desired favourites display (1).
- > Press the 1 button to confirm.

The following favourites can be selected:

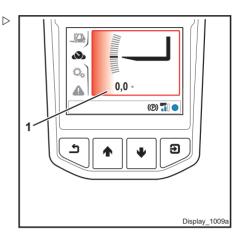
- · Steering angle/time/operating hours
- · Steering angle/time/driving speed
- · Driving speed/steering angle
- Steering angle/tilt angle/load weight (special equipment)
- Tilt angle (factory setting)/load weight (special equipment)



The **Favorites display** saves the last displayed view and displays this view again after the electrical system has been switched back on.



If a value of 0° is displayed for the **tilt angle**, the fork arms are not necessarily horizontal. Deviations may occur due to uneven ground, use of the truck on slopes, deflection in the mast and fork arms caused by heavy loads, tire wear or tire deflection.



Settings Menu

Software Update



Contact the operating company/fleet manager to carry out a software update.

➤ Press the **1** button.

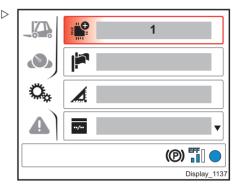
The "Software update" menu item (1) is selected.

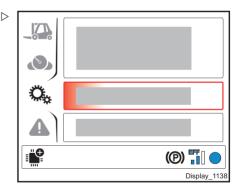
➤ Press the **1** button.



The "Software update" symbol appears at the bottom left of the display.

- ➤ Use the ♥ and ♠ buttons to choose between different options (if an update is available) or "Back" (cancel the process).
- > Push the **1** button to confirm your selection.





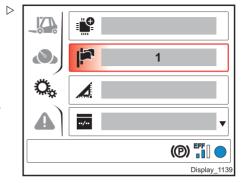


Setting the Language

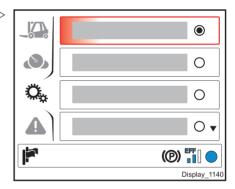
- ➤ Press the button and then press the button to select the "Language" (1) menu item.
- ➤ Press the **1** button.



The "Language" symbol appears at the bottom left of the display.



- ➤ Use the **\P** or **\P** buttons to select the desired language.
- ➤ Press the **3** button to confirm.



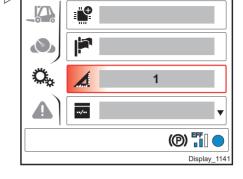


Setting the Units

- ➤ Press the → button and then press the → button to select the "Units" (1) menu item.
- > Press the 1 button.



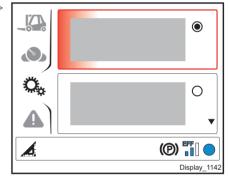
The "Units" symbol appears at the bottom left of the display.



- ➤ Use the ♥ or ♠ buttons to select the desired units.
- > Press the 1 button to confirm.



A custom combination of units can be specified via the diagnostic program.





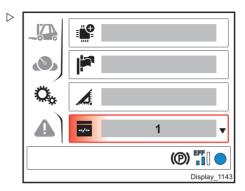
Setting the Date and Hour Format

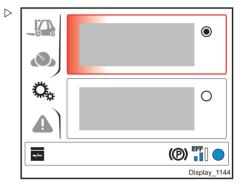
- ➤ Press the button and then press the button to select the "Date format" (1) menu item.
- ➤ Press the **1** button.



The "Date format" symbol appears at the bottom left of the display.

- ➤ Use the ♥ or ♠ buttons to select the desired date and hour format.
- ➤ Press the **3** button to confirm.





Setting the Date

- ➤ Press the → button then press the → button to select the "Date" (1) menu item.
- ➤ Press the **3** button.

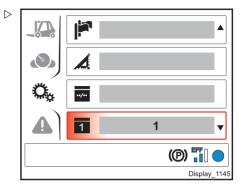


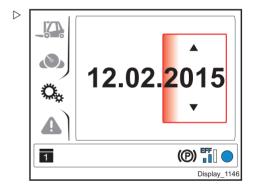
The "Date" symbol appears at the bottom left of the display.

- ➤ Use the **\P** or **\P** buttons to select the desired day.
- ➤ Press the **1** button.
- ➤ Use the ♥ or ♠ buttons to select the desired month.
- ➤ Press the **3** button.
- ➤ Use the **Ψ** or **♠** buttons to select the desired year.
- > Press the 1 button to confirm.



To toggle between the year, month and day, press the **೨** or **3** button.







Adjusting the Time

- ➤ Press the → button then press the → button to select the "Time" (1) menu item.
- > Press the button.



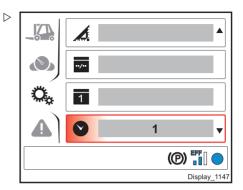
The "Time" symbol appears at the bottom left of the display.

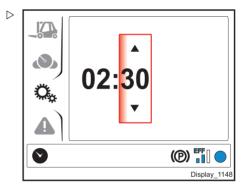
➤ Use the ♥ or ♠ buttons to select the desired hour

- ➤ Press the **1** button.
- ➤ Use the ♥ or ♠ buttons to select the desired minutes
- > Press the 1 button to confirm.



To toggle between minutes and hours, press the Δ or Δ button.





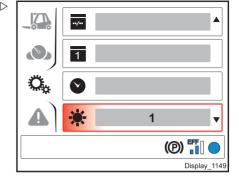


Adjusting the Display Brightness

- ➤ Press the button then press the button to select the "Brightness" (1) menu item.
- ➤ Press the **3** button.



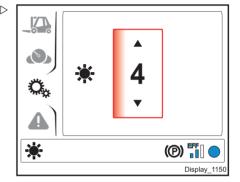
The "Brightness" symbol appears at the bottom left of the display.



- ➤ Use the ♥ or ♠ buttons to select the desired brightness.
- > Press the 1 button to confirm.



The brightness of the display is also regulated by a light sensor. This means that the display remains at a level of brightness comfortable for the human eye even under pronounced changes in lighting (e.g. when driving into the hall).





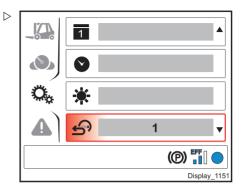
Resetting the Trip Odometer

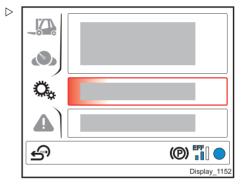
- ➤ Press the button and then press the button to select the "Reset trip odometer" (1) menu item.
- ➤ Press the **1** button.



The "Reset trip odometer" symbol is displayed at the bottom left of the display.

- ➤ Press the **3** button to confirm your selection





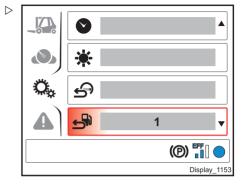


Resetting the Consumption Average

- ➤ Press the button then press the button to select the "Reset Consumption Average" (1) menu item.
- ➤ Press the **1** button.

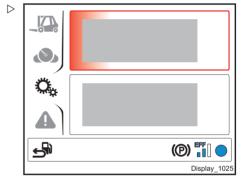


The "Reset Consumption Average" symbol appears at the bottom left of the display.



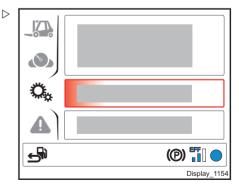
Variant 1

- ➤ Use the and buttons to choose between "Reset Consumption Average" or "Back" (cancel the process).
- ➤ Push the **3** button to confirm your selection.



Variant 2

- ➤ Use the and buttons to choose between "Reset" or "Back" (cancel the process).
- ➤ Press the **3** button to confirm your selection



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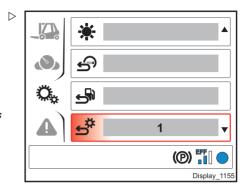
Display Unit

Restoring Factory Settings

- ➤ Press the button and then press the button to select the "Restore factory settings" (1) menu item.
- ➤ Press the **1** button.

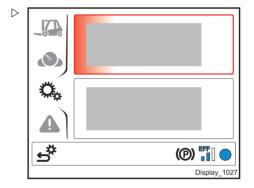


The "Restore factory settings" symbol appears at the bottom left of the display.



Variant 1

- ➤ Use the and buttons to choose between "Restore factory settings" or "Back" (cancel the process).
- ➤ Press the **3** button to confirm your selection



Variant 2

- ➤ Use the

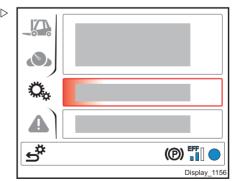
 and

 buttons to choose
 between "Restore" or "Back" (cancel the
 process).
- ➤ Push the **②** button to confirm your selection



The "factory settings" are:

- Units: kg | km/h | km
- Date format: dd/mm/yyyy/24h
- · Language: German
- · Brightness: 4



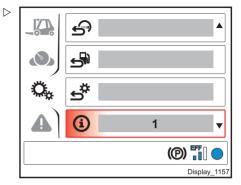


System Information

- ➤ Press the button then press the button to select the "System information" (1) menu item.
- ➤ Press the **1** button.

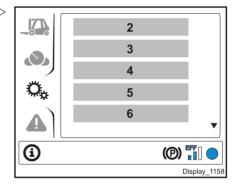


The "System information" symbol appears at the bottom left of the display.



The "System information" menu item displays the following information:

- Part number of the display unit (2)
- Software version (SW)/hardware version (HW) of the display unit (3)
- Serial number of the display unit (4)
- Serial number (5)
- Licencing (6)
- ➤ To finish, push the **1** button.



Linde Material Handling

Display Unit

Wireless Access (optional equipment)

When wireless access is activated, a connection is established between the truck and an external management system.



Contact the operating company/fleet manager to activate wireless access.

- ➤ Press the button and then press the button to select the "Wireless access" (1) menu item.
- ➤ Press the **3** button.

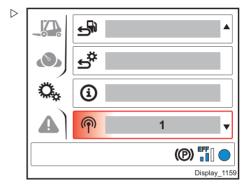


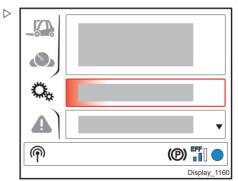
The "Wireless access" symbol appears at the bottom left of the display.

- ➤ Push the **3** button to confirm your selection



To deactivate wireless access, confirm the corresponding selection.







Cleaning the Radiator

- ➤ Press the button and then press the button to select the "Clean radiator" (1) menu item.
- ➤ Press the **1** button.



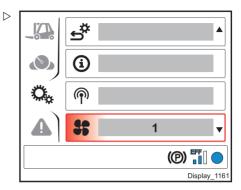
The "Clean radiator" symbol appears at the bottom left of the display.

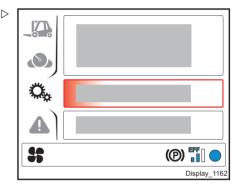
- ➤ Use the

 and

 buttons to choose between "Start" or "Back" (cancel the process).
- ➤ Press the **3** button to confirm your selection

For more information about this process, refer to the section entitled "Cleaning the radiator and checking the radiator for leak tightness".





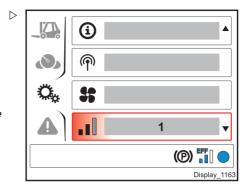


Driving Dynamics

- ➤ Press the button and then press the button to select the "Driving dynamics" (1) menu item.
- ➤ Press the **1** button.



The "Driving dynamics" symbol appears at the bottom left of the display.



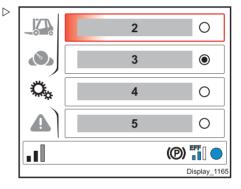
The "Driving dynamics" menu item displays the following information:

- Economy (2)
- Efficiency (3) (factory setting)
- Performance (4)
- Custom (5)
- ➤ Use the and buttons to select the desired "Driving dynamics".
- ➤ Press the **3** button to confirm your selection.



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Adjusting the driving dynamics can be deactivated or activated via the diagnostic program.



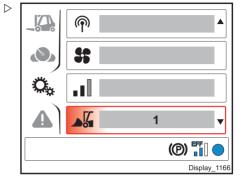


Load Push/Shovel Operation (optional equipment)

- > Press the button and then press the button to select the "Shovel operation" (1) menu item.
- ➤ Press the **1** button.



The "Shovel operation" symbol appears at the bottom left of the display.



Variant 1

- ➤ Use the **Ψ** and **♠** buttons to choose between "Off" or "On"
- ➤ Push the

 button to confirm your selection.

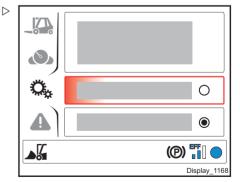
For more information about this process, refer to the section entitled "Load push operation and shovel operation".

\bigcirc ((P) 🚻 Display 1035a

Variant 2

- ➤ Use the **Ψ** and **♠** buttons to choose between "Off" or "On".
- > Push the 1 button to confirm your selection.
- Push the back button <u>1</u>.

For more information about this process, refer to the section entitled "Load push operation and shovel operation".



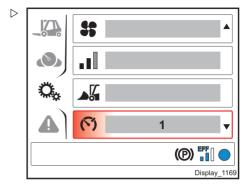


Speed Limit

- ➤ Press the button then press the button to select the "Speed limit" (1) menu item.
- > Press the button.



The "Speed limit" symbol appears at the bottom left of the display.

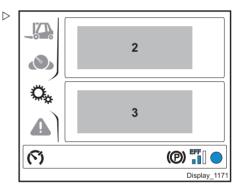


The "reduction in the driving speed" that has been set for forward travel (2) and reverse travel (3) is displayed here.



The "Speed limit" is set using the diagnostic program.

- ➤ To finish, press the **3** button.



Editing Button Assignment (optional equipment)

- ➤ Press the button and then press the button to select the "Edit button assignment" (1) menu item.
- ➤ Press the **1** button.



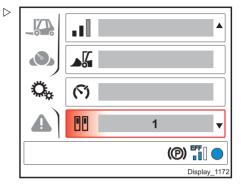
The "Push button assignment" symbol appears at the bottom left of the display.

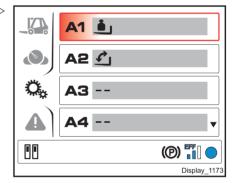
- ➤ Use the **\P** and **\P** buttons to select the desired push button.
- ➤ Press the **3** button.

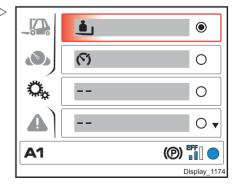


The symbol indicating the selected push button is displayed at the bottom left of the display.

- ➤ Use the **Ψ** and **♠** buttons to select the desired function.
- ➤ Press the **3** button to confirm your selection







Linde Material Handling Linde

Display Unit

Configuring the A★Button (optional equipment)

Use the "A★ button configuration" (1) to configure the available functions (e.g. lighting).

- ➤ Press the button and then press the button to select the "A★ button configuration" (1) menu item.
- ➤ Press the **1** button.



The "A★ button" symbol is displayed at the bottom left of the display.

- ➤ Use the ♥ or ♠ buttons to select the required function.
- Press the button to confirm the required function.



To jump between the functions, press the relevant button: $(\mathbf{1}, \mathbf{\Psi}, \mathbf{\Lambda})$ and $(\mathbf{2})$.

➤ Use the or buttons to select the required configuration.

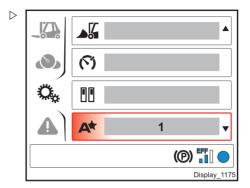
Configuration options

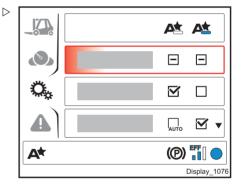
- · Status maintained (2)
- · Function activated (3)
- Function deactivated (4)
- · Automatic mode (5)

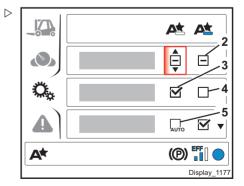


Not all of the configuration options can be selected, depending on the function.

- Press the button to confirm the required configuration.
- ➤ Use the ♥ or ♠ buttons to select the second required configuration.









- ➤ Press the **1** button to confirm the second required configuration.

For more information, refer to the section entitled "A★ button".

Unde Material Handling Linde

Display Unit

Mast Vertical

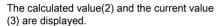
The tilt angle display can be calibrated using the "Mast vertical" (1) function.

Push the **3** button then push the **4** button to select the "Mast vertical" (1) menu item.

➤ Press the **1** button.



The "Mast vertical" symbol appears at the bottom left of the display.



- ➤ Use the

 and

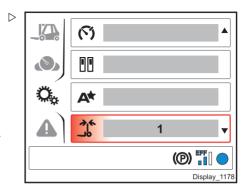
 buttons to choose between "Calibrate" or "Back" (cancel the process).
- ➤ Press the **3** button to confirm your selection

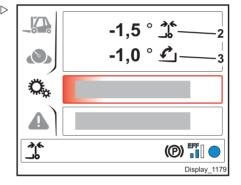
Performing the calibration procedure

- ➤ Apply the parking brake as described in the "Parking brake" section.
- > Start the engine.
- > Move the lift mast to a vertical position.
- > Select the corresponding option to start the calibration procedure.



The value for calibration is limited to $\pm 2^{\circ}$.



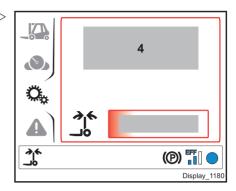




After calibration has been completed, the message "Calibration successful" (4) appears.



If calibration was not successful, repeat.



Linde Material Handling

Display Unit

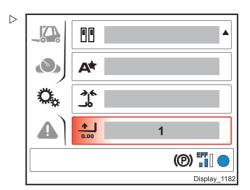
Setting the Lift Height Zero Point (optional equipment)

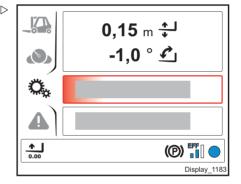
- ➤ Press the ⑤ button and then press the ♥ button to select the "Lift height zero point" (1) menu item.
- ➤ Press the **1** button.



The "Lift height zero point" symbol is displayed at the bottom left of the display.

- ➤ Use the **Ψ** and **↑** buttons to choose between "Set" or "Back" (cancel the process).
- ➤ Push the **3** button to confirm your selection.







Malfunction and Information Menu

- > Press the 1 button.
- > Select the desired menu item using the \ or **h** buttons.

If malfunctions or items of information are present, each of the following menu items can be selected:

- · Error code (1)
- Messages (2)
- · Status icons (4): indicated by a symbol (6) and displayed only if more than six status icons are active

Menu item that can always be selected:

- QR code (3)
- · Service partner contact address (5)



The symbol for the selected menu item is shown at the bottom left of the display.

> Press the button to confirm.

[i] NOTE

If there are multiple messages, scroll through the messages using the \(\psi \) or \(\hat{\hat{h}} \) buttons.

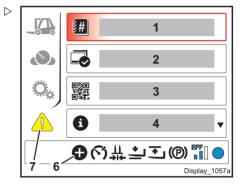
Push the back button <a>_.

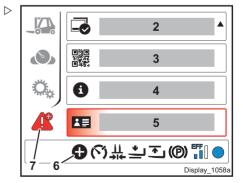
The symbol (7) is displayed in the following colours depending on the status of the truck:

- · "Yellow" means: malfunction or information
- · "Red" means: critical malfunction or information
- "+" on the symbol (7) means: multiple malfunctions or items of information



Invalid values or error values are displayed as **"__**"







Premium Display Unit (optional equipment)

Premium Display Unit (optional equipment)

System Startup

Switching on the display unit

After the electrical system is switched on, the display unit (1) performs the following actions:

- Self-testing of the lights: All displays (2) light up for approx. 2 seconds.
- Display (3) displays the number of operating hours for approx. 5 seconds (example: 1045,0 h)
- Display (4) displays the remaining operating hours (example: 1000 h) and operating days (example: 365 d) until the next service for approx. 5 seconds



The displays (3) and (4) can be changed using the diagnostic program:

- · Time span of displays: 2 to 10 seconds
- · Displayed only when a service is required
- Display not active

Subsequently, the display switches to the usual display. \triangleright

Display:

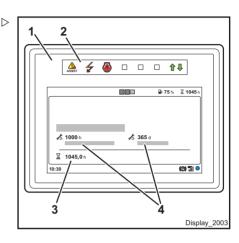
- Lift mast [tilt angle] (3)
- Speedometer (incl. steering angle) [driving speed/steering angle] (4)

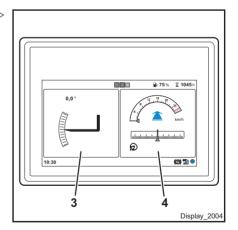
See the section entitled "Starting and stopping the internal combustion engine" for details of how to proceed.



NOTE

The display saves the last displayed view and displays this again after the electrical system has been switched back on.







"Service interval" indicator

"Service interval" message

If the symbol (5) appears with the message "Service interval", service work must be performed in the near future in accordance with the preset service interval.

➤ To switch off the "Service interval" message, press the rotary-push button ②.

The servicing work that is due must be performed. Contact your service partner.

"Service interval exceeded" message

If the symbol (5) appears with the message "Service interval exceeded", the preset service interval has been exceeded

To switch off the "Service interval exceeded" message, press the rotary-push button
O.

The servicing work that is due must be performed immediately. Contact your service partner.



NOTE

The message must be confirmed when it first appears and then the first time that the engine is started per day. Each subsequent time the engine is started on the same day, the message is displayed for 30 seconds.

The relevant text message can be displayed via the "Notifications" menu item in the Malfunctions and information menu.



Linde Material Handling Linde

Premium Display Unit (optional equipment)

Operating Controls

The rotary-push button and two control buttons are required to operate the display unit.

O Rotary-push button (1)

Briefly press the "rotary-push button" to perform the following actions:

- · Dock, remove, clear or replace favorites
- · Select the highlighted menu level
- · Select/activate the highlighted menu item
- · Switch on or off, activate or start functions
- · Confirm an entry
- Jump back to the menu level from the display menu
- Activate the camera full screen (special equipment)
- · Confirm a message

Press and hold down the "rotary-push button" to perform the following action:

• Open the context menu at the bottom menu level (optional in the "Functions" menu)

Turn the "rotary-push button" to the right or left to perform the following actions:

- · Scroll between displays
- · Scroll between menu items
- · Scroll through the context menu
- Select/change settings (e.g. digits, numeric values and brightness)

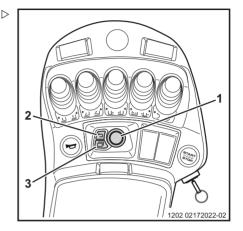
Back button (2)

Briefly press the "Back" button to perform the following action:

- · Jump to the main menu
- · Exit the main menu
- Jump from the bottom menu level back to the next higher menu level
- Jump back to the menu level from the display menu
- Jump back to the menu level from the context menu
- Deactivate the camera full screen (special equipment)

Press and hold down the "Back" button to perform the following action:

- Variant 1: Jump to the first position in the main menu
- Variant 2: Jump to the displays





Favorite button (3)

Briefly press the "Favorite" button to perform the following action:

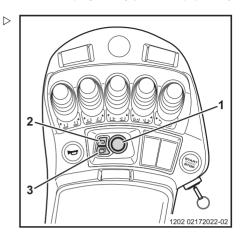
· Open the context menu for favorites

Press and hold down the "Favorite" button to perform the following action:

Add the selected display, function or camera (special equipment) as a favorite in the display



Button tones are deactivated by default in the factory settings. They can be activated using the diagnostic program.





Displaying Favorites

Users can carry out the following actions for favorites:

- · Lock or Unlock
- Replace
- Remove
- Fdit
- Activate, deactivate or change the camera fullscreen (special equipment)



To cancel a selected operation, press the button.

Locking a favorite

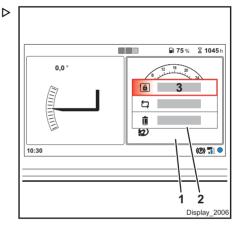


Only favorites in the "Display" menu area can be locked. In addition, only one display can be locked at a time (two displays cannot be locked simultaneously). The left or right display screen can be used.

- > Select display (1) by turning the rotary-push button **O**.
- ➤ Press the □ button.

The context menu (2) for the favorites is opened.

> Press the rotary-push button (2) to confirm the "Lock" selection (3).





The display (1) is locked. The navigator (4) turns blue



Locking a display means that the display (1) will stay in position when scrolling through the other displays.

Unlocking a favorite



A locked favorite can no longer be selected. The favorite must therefore be unlocked using the context menu on the adjacent display.

Press the button <a>¬.

The context menu (2) for the favorites is opened.

> Press the rotary-push button (1) to confirm the "Unlock" selection (3).

1045 h 0.0° alaalaalaalaa aalaalaalaala (P) 📆 🕤 🔵 10:30 Display 2007

Replacing a favorite



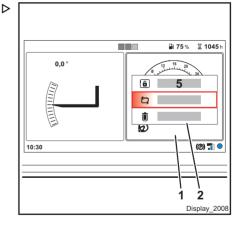
NOTE

The "Tilt angle/Load weight" and "Push button assignment" display (optional equipment) cannot be replaced.

- > Select display (1) by turning the rotary-push button **O**.
- ➤ Press the button ¬.

The context menu (2) for the favorites is opened.

> Turn the rotary-push button (1) to the relevant position and press it to confirm the "Replace" selection (5).





The main menu (6) is opened.

> Turn the rotary-push button (1) to the relevant position and press it to confirm the "Display" (7), "Functions (optional equipment)" or "Camera image (optional equipment)" selection.

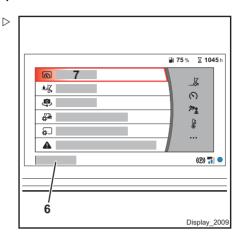


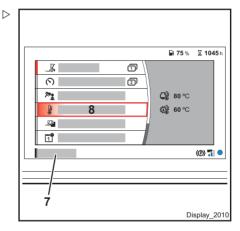
Only the "Display", "Functions" or "Camera Image" menu areas can be selected. (The "Functions" and "Camera Image" menus are optional equipment.) Two of the same favorites cannot be displayed. The "Camera Image" menu area cannot be selected if a favorite (e.g. "Rear view camera") from this menu area is already being displayed.

The first menu level, e.g. "Display" (7) is opened.

> Turn the rotary-push button (1) to the relevant position and press it to confirm the selection, e.g. "Temperatures" (8).

The display (1) is replaced according to the selection. A confirmation message appears on the display unit.





Removing a favorite



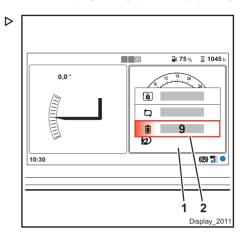
The "Tilt angle/Load weight" and "Push button assignment" displays (optional equipment) cannot be removed

> Select display (1) by turning the rotary-push button **O**.

The context menu (2) for the favorites is opened.

> Turn the rotary-push button (1) to the relevant position and press it to confirm the "Remove" selection (9).

The display (1) is removed according to the selection



Saving a favorite



🚺 NOTE

A minimum of two and a maximum of six displays can be selected as favorites.

Press the button <a> \bullet.

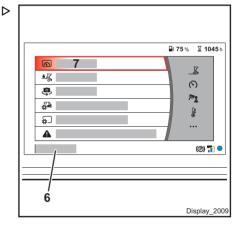
The main menu (6) is opened.

> Turn the rotary-push button (1) to the relevant position and press it to confirm the "Display" (7), "Functions (optional equipment)" or "Camera image (optional equipment)" selection.



NOTE

Favorites can only be saved in the "Display". "Functions" or "Camera Image" menu areas. (The "Functions" and "Camera Image" menus are optional equipment.) Two of the same favorites cannot be displayed. Only one favorite can be saved to the "Camera Image" menu area if no other favorite (e.g. "Rear view camera") has been saved.





The first menu level, e.g. "Display" (7) is opened.

➤ Turn the rotary-push button

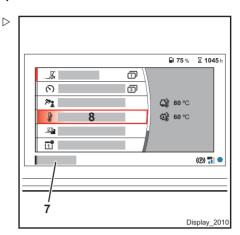
according to the desired display, e.g. "Temperatures" (8).

Saving a favorite instantly

> Press and hold the button.

According to your selection, the display is instantly saved as a favorite. A confirmation message appears on the display unit.

> To return to the displays, press the button twice.



Saving a favorite via the context menu

> Briefly press the button.

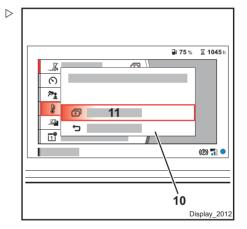
The context menu (10) for the favorites is opened.

Turn the rotary-push button **()** to select "Save" or "Back" (cancel the process).

➤ Press the rotary-push button ② to confirm the "Save" selection (11).

According to your selection, the display is saved as a favorite. A confirmation message appears on the display unit.

To return to the displays, press the button twice.





Editing Favorites

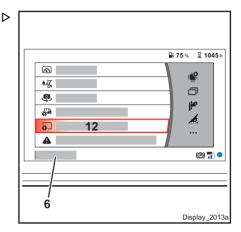


The "Tilt angle/load weight" (optional equipment) display cannot be edited.

> Press the button 5.

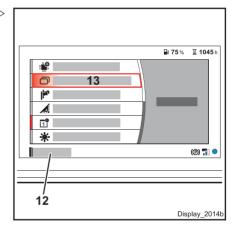
The main menu (6) is opened.

> Turn the rotary-push button (1) to the relevant position and press it to confirm the "System settings" selection (12).



The first menu level "System settings" (12) is opened.

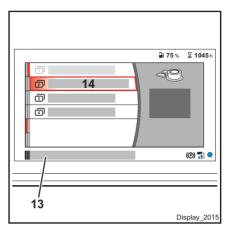
> Turn the rotary-push button (1) to the relevant position and press it to confirm the "Edit Favorites" selection (13).



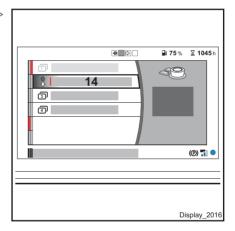


The second menu level "Edit Favorites" (13) is \triangleright opened.

➤ Press the rotary-push button ② to confirm the selection, e.g. Edit second favorite (14).



- ➤ Turn the rotary-push button ② according to the desired sequence.
- ➤ Press the rotary-push button ② to confirm the desired sequence.
- > To return to the displays, press the button three times.





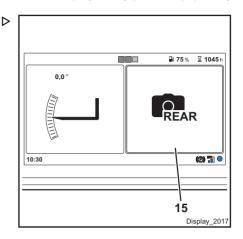
Activating the camera fullscreen (optional equipment)

➤ Turn the rotary-push button ② to select the display, e.g. "Rear view camera" (15).

Activating fullscreen instantly

> Press the rotary-push button **(O)**.

The fullscreen mode of the display, e.g. "Rear view camera" is activated.

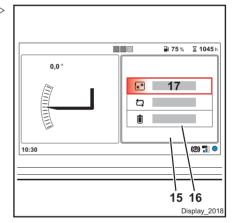


Activating fullscreen via the context menu

- ➤ Turn the rotary-push button ② to select the display, e.g. "Rear view camera" (15).
- ➤ Briefly press the ☐ button.

The context menu (16) for the favorites is opened.

➤ Press the rotary-push button ② to confirm the "Fullscreen" selection (17).



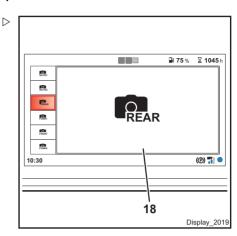


The fullscreen mode (18) of the display, e.g. "Rear view camera", is activated.

Deactivating the camera fullscreen (optional equipment)

> Press the button 5.

The fullscreen mode of the display, e.g. "Rear view camera", is deactivated.



Changing the camera fullscreen (optional equipment)

- > Activating the camera fullscreen.
- ➤ Turn the rotary-push button ℚ according to the desired display, e.g. from "Rear view camera" to "Auto mode 1".

The "Auto mode 1" fullscreen appears on the display.

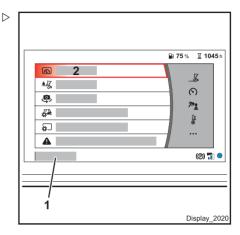


Display Menu

➤ Push the 🗂 button.

The main menu (1) is opened.

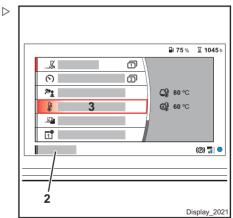
➤ Press the rotary-push button ② to confirm the "Display" (2) selection.



The first menu level "Display" (2) is opened.

- ➤ Turn the rotary-push button

 according to the desired display, e.g. "Temperatures" (3).
- ➤ Press the rotary-push button ② to confirm the "Temperatures" (3) selection.





The second menu level, e.g. "Temperatures" (4) is opened.

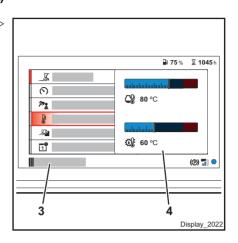
> To return to the displays, press the button three times

The following displays can be selected:

- Tilt angle/load weight (optional equipment)]
- Speedometer (incl. steering angle) [driving speed/steering angle]
- Drive and lift [tilt angle/driving speed/steering angle]
- Temperatures [coolant temperature/hydraulic oil temperature]
- Consumption/odometer [current consumption/average consumption/daily trip/total mileage odometer]
- · Time/date
- · Fuel indicator [large level display]
- · Service interval/operating hours



If a value of 0° is displayed for the **tilt angle**, the fork arms are not necessarily horizontal. Deviations may occur due to uneven ground, use of the truck on slopes, bends in the lift mast and fork arms caused by heavy loads, tire wear or tire deflection.





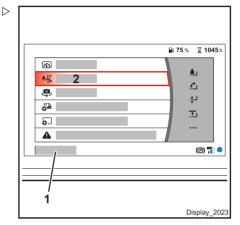
Functions Menu (optional equipment)

The Functions menu allows setting/calibration associated with certain optional functions.

> Press the button ____.

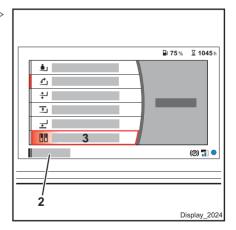
The main menu (1) is opened.

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Functions" selection (2).



The first menu level "Functions" (2) is opened. ▷

- ➤ Turn the rotary-push button ℚ according to the desired display, e.g. "Push button assignment" (3).
- ➤ Press the rotary-push button ② to confirm the "Push button assignment" selection (3).



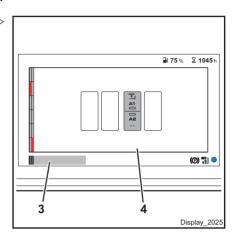


The second menu level, e.g. "Push button assignment" (4) is opened.

> To return to the displays, press the button three times.

The following optional functions can be selected if installed:

- Load weighing [load weight/weigh load/ zeroing]
- Tilt angle preselector multiple
- · Lift height preselector multiple
- · Lift limits multiple
- · Lowering limit variable
- Push button assignment (Editing the assignment is done in the Truck Settings menu.)





Camera Image Menu (optional equipment)



NOTE

The camera images support the driver in handling the truck. The responsibility and control for operating the truck in a safe manner always lies with the driver.

The camera images are used to detect other trucks, people and objects.

Drivers must become familiar with the camera images before starting work.

WARNING

Risk of accident!

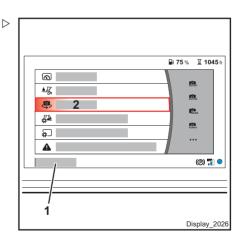
If a camera position is changed or if a camera is damaged, the camera image is no longer guaranteed.

The driver must always check the area shown on the display unit by making direct visual contact.

➤ Push the 🗂 button.

The main menu (1) is opened.

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Camera image" selection (2).

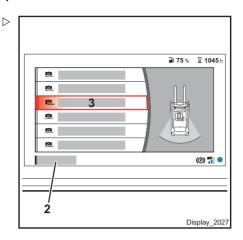




The first menu level "Camera image" (2) is opened.

- ➤ Turn the rotary-push button

 according to the desired display, e.g. "Rear view camera" (3).
- ➤ Press the rotary-push button ② to confirm the "Rear view camera" selection (3).



The second menu level, e.g. "Rear view camera" (4) is opened.

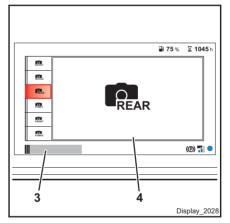
To return to the displays, press the button three times.

Depending on camera option installed, the following camera images can be selected:

- Auto mode 1
- Auto mode 2
- · Rear view camera
- · Fork carriage camera
- · Front view camera
- · Fork arms camera

i NOTE

- The "Auto mode 1" and "Auto mode 2" camera images can be customized using the diagnostic program. Contact your service partner.
- In "Auto mode 1", the cameras are switched on depending on the direction of travel.
- In "Auto mode 2", the cameras are switched on depending on the direction of travel and the lift height.



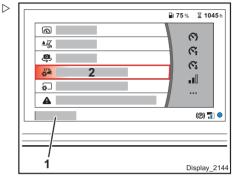


Truck Settings Menu Selecting the Truck Settings Menu

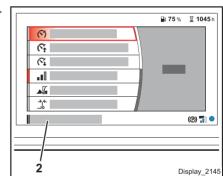
➤ Press the 🗂 button.

The main menu (1) is opened.

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Truck settings" selection (2).



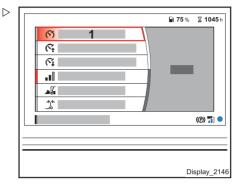
The first menu level "Truck settings" (2) is opened.





Setting the Speed Limit (optional equipment)

➤ Press the rotary-push button ② to confirm the "Speed limit" selection (1).

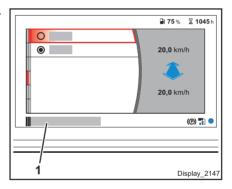


The second menu level "Speed limit" (1) is opened.

➤ Turn the rotary-push button

to the relevant position and press it to confirm the "ON" or "OFF" selection.

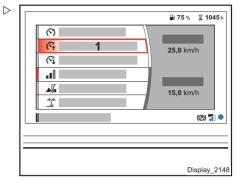
For more information about this process, refer to the section entitled "Reducing the driving speed".





Setting the Speed Limit - Forward (optional equipment)

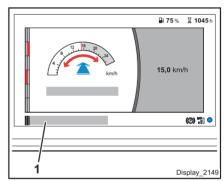
➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Speed limit forward" selection (1).



The second menu level "Speed limit forward" (1) is opened.

➤ Turn the rotary-push button

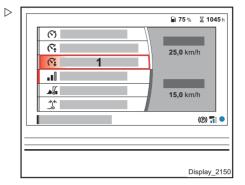
to the relevant position and press it to confirm the desired driving speed.





Setting the Speed Limit - Reverse (optional equipment)

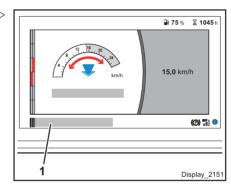
➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Speed limit backward" selection (1).



The second menu level "Speed limit backward" (1) is opened.

➤ Turn the rotary-push button

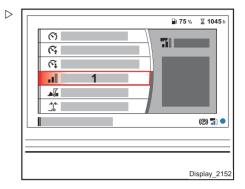
to the relevant position and press it to confirm the desired driving speed.





Adjusting the Driving Dynamics

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Driving dynamics" selection (1).



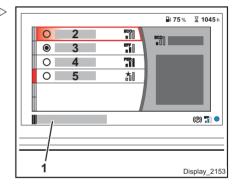
The second menu level "Driving dynamics" (1) is opened and the following items are displayed:

- Economy (2)
- · Efficiency (3) (factory setting)
- · Performance (4)
- · Custom (5)
- ➤ Turn the rotary-push button

 to the relevant position and press it to confirm the desired driving dynamics.



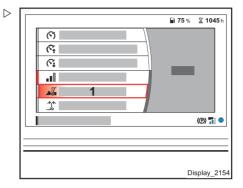
Adjusting the driving dynamics can be disabled or enabled via the diagnostic program.





Load Push/Shovel Operation (optional equipment)

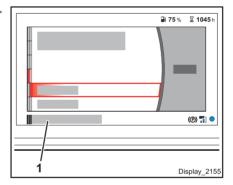
➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Shovel operation" selection (1).



The second menu level "Shovel operation" (1) \triangleright is opened.

➤ Turn the rotary-push button ② to the relevant position and press it to confirm the "Back" selection (cancel the process) or "Activate" selection.

For more information about this process, refer to the section entitled "Load push/shovel operation".

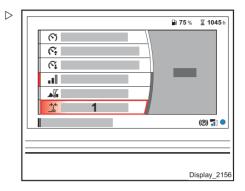




Mast Vertical

➤ Turn the rotary-push button

to the relevant position and press it to confirm the "Mast vertical" selection (1).



The second menu level "Mast vertical" (1) is opened.

The calculated value (2) and the current value (3) are displayed.

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Back" selection (cancel the process) or the "Start calibration procedure" selection.

Performing the calibration procedure

- ➤ Apply the parking brake as described in the "Parking brake" section.
- > Start the engine.
- > Move the lift mast to a vertical position.
- ➤ Select the corresponding option to start the calibration procedure.

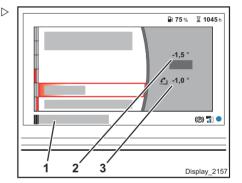


The value for calibration is limited to $\pm 2^{\circ}$.

After calibration has been completed, the "Calibration successful" message appears.



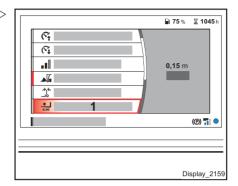
If calibration was not successful, repeat the procedure.





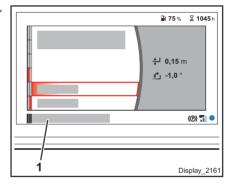
Setting the Lift Height Zero Point (optional equipment)

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Lift height zero point" selection (1).



The second menu level "Lift height zero point" > (1) is opened.

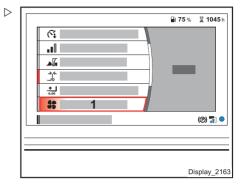
➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Back" selection (cancel the process) or the "Set" selection.





Cleaning the Radiator

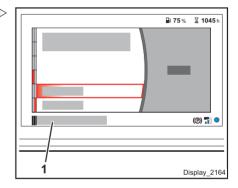
➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Clean radiator" selection (1).



The second menu level "Clean radiator" (1) is \triangleright opened.

➤ Turn the rotary-push button ② to the relevant position and press it to confirm the "Back" selection (cancel the process) or "Activate" selection.

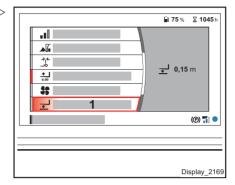
For more information about this process, refer to the section entitled "Cleaning the radiator and checking the radiator for leak tightness".





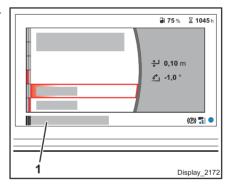
Setting the Lowering Limit (optional equipment)

➤ Turn the rotary-push button **②** to the relevant position and press it to confirm the "Set lower limit" selection (1).



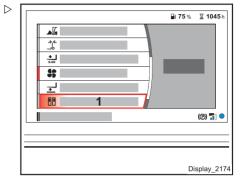
The second menu level "Set lower limit" (1) is opened.

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Back" selection (cancel the process) or the "Set" selection.



Editing Button Assignment (optional equipment)

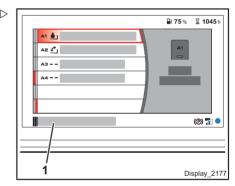
➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Edit button assignment" selection (1).



The second menu level "Edit button assignment" (1) is opened.

➤ Turn the rotary-push button

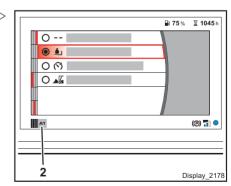
to the relevant position and press it to confirm the desired push button.



The third menu level (2) is opened.

➤ Turn the rotary-push button

to the relevant position and press it to confirm the desired selection

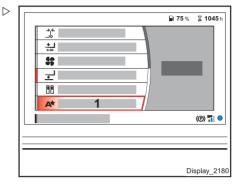




Configuring the A★ Button (optional equipment)

Use the "A★ button configuration" (1) to configure the available functions (e.g. lighting).

➤ Turn the rotary-push button
 to the relevant position and press it to confirm the "A★ button configuration" selection (1).



The second menu level "A★ button configuration" (1) is opened.

➤ Turn the rotary-push button

to the relevant position and press it to confirm the required selection and configuration.

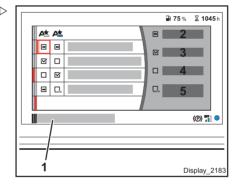
Configuration options

- · Status maintained (2)
- · Function activated (3)
- · Function deactivated (4)
- · Automatic mode (5)

i NOTE

Not all of the configuration options can be selected, depending on the function.

Press the button to confirm the selection and configuration.



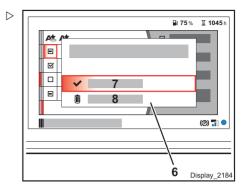


The context menu (6) opens.

Turn the rotary-push button **(**) to select "Save" (7) or "Discard" (8).

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the required selection.

For more information, refer to the section entitled "A★ button".



Exiting the Truck Settings Menu

> To return to the displays, press the button twice.



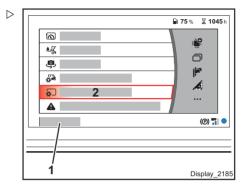
System Settings Menu

Selecting the System Settings Menu

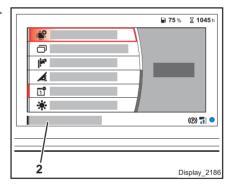
> Press the button.

The main menu (1) is opened.

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "System settings" selection (2).



The first menu level "System settings" (2) is opened.



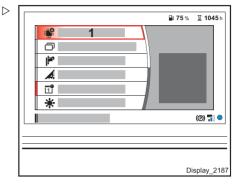
Software Update



NOTE

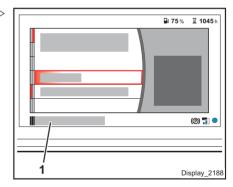
Contact the operating company/fleet manager to carry out a software update.

> Push the rotary-push button (10) to confirm the "Software update" (1) selection.



The second menu level "Software update" (1) is opened.

> Turn the rotary-push button (1) to the relevant position and press it to confirm the "Back" selection (cancel the process) or to choose between different options (if an update is available).

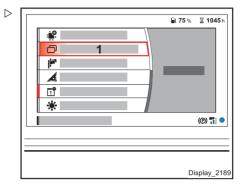




Editing Favorites

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Edit Favorites" selection (1).

See the section entitled "Displaying favorites" and the subsection entitled "Editing favorites" for details of how to proceed.

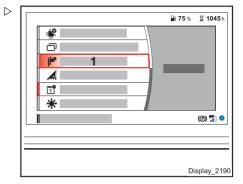




Setting the Language

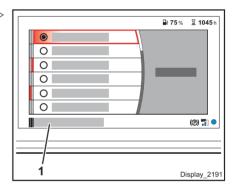
➤ Turn the rotary-push button

to the relevant position and press it to confirm the "Language" selection (1).



The second menu level "Language" (1) is opened.

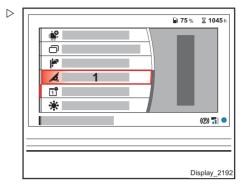
➤ Turn the rotary-push button ⊚ to the relevant position and press it to confirm the desired language.





Setting the Units

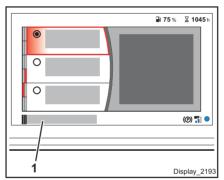
➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Units" selection (1).



The second menu level "Units" (1) is opened.

➤ Turn the rotary-push button

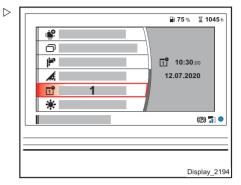
to the relevant position and press it to confirm the desired units.





Setting the Time and Date

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Time/date" selection (1).



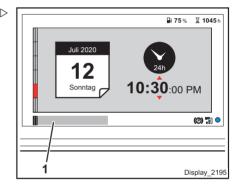
The second menu level "Time/date" (1) is opened.

➤ Turn the rotary-push button

to the relevant position and press it to confirm the desired time/date.



To jump between seconds, minutes, hours, 12/24 hour format, day and month/year, press the button or the rotary-push button .



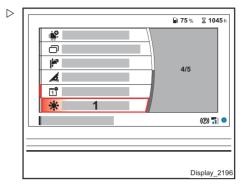
136



Premium Display Unit (optional equipment)

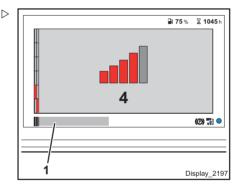
Adjusting the Display Brightness

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Brightness" selection (1).



The second menu level "Brightness" (1) is opened.

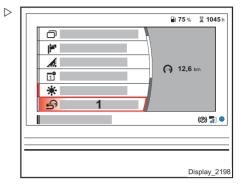
➤ Turn the rotary-push button ⊚ to the relevant position and press it to confirm the desired brightness.





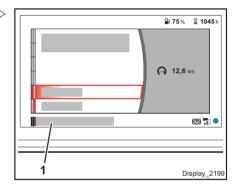
Resetting the Trip Odometer

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Reset trip odometer" selection (1).



The second menu level "Reset trip odometer" (1) is opened.

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Back" selection (cancel the process) or the "Reset consumption" selection.

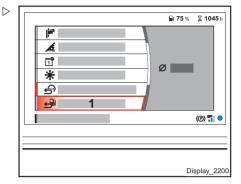




Resetting the Consumption Average

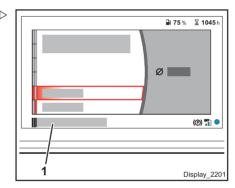
➤ Turn the rotary-push button

to the relevant position and press it to confirm the "Reset consumption average" selection (1).



The second menu level "Reset consumption average" (1) is opened.

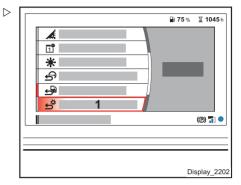
➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Back" selection (cancel the process) or the "Reset consumption" selection.





Restoring Factory Settings

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Restore factory settings" selection (1).



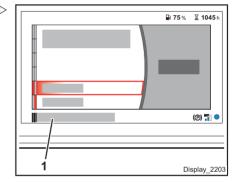
The second menu level "Restore factory settings" (1) is opened.

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Back" selection (cancel the process) or the "Reset consumption" selection.



The "factory settings" are:

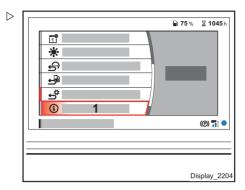
- Units: kg | km/h | km
- · Date format: dd/mm/yyyy/24h
- · Language: German
- · Brightness: 4





System Information

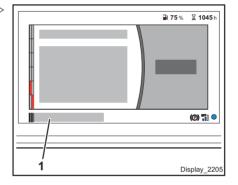
➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "System information" selection (1).



The second menu level "System information" (1) is opened.

The "System information" menu item displays the following information:

- · Part number of the display unit
- · Serial number
- Hardware version (HW)/user interface version (HMI)/software version (SW) of the display unit





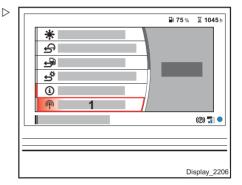
Wireless Access (optional equipment)

When wireless access is activated, a connection is established between the truck and an external management system.



Contact the operating company/fleet manager to activate wireless access.

➤ Turn the rotary-push button ℚ to the relevant position and push it to confirm the "Wireless access" (1) selection.



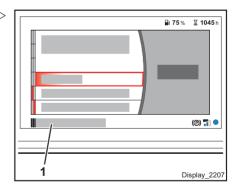
The second menu level "Wireless access" (1) is opened.

➤ Turn the rotary-push button

to the relevant position and press it to confirm the
"Back" selection (cancel the process) or to
choose between different options.



To deactivate wireless access, confirm the corresponding selection.





Premium Display Unit (optional equipment)

Exiting the System Settings Menu

> To return to the displays, press the 🗂 button twice.

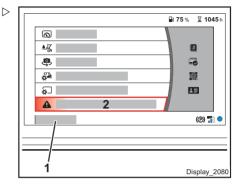


Malfunctions and Information Menu

➤ Push button 🗀.

The main menu (1) is opened.

➤ Turn the rotary-push button ℚ to the relevant position and press it to confirm the "Malfunctions and information" selection (2).



The first menu level "Malfunctions and information" (2) opens.

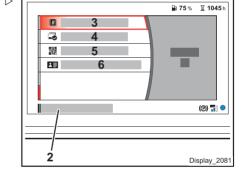
If malfunctions or items of information are present, each of the following menu items can be selected:

- · Error code (3)
- · Messages (4)

Menu item that can always be selected:

- QR code (5)
- Service partner contact address (6)
- ➤ Turn the rotary-push button

 to the relevant position and press it to confirm the desired selection.



i NOTE

If several messages are present, you can scroll through them by turning the rotary-push button \bigcirc .

> To return to the displays, push the button two or three times.

Linde Material Handling Linde

Premium Display Unit (optional equipment)

Armrest Buttons and Soft Keys

The push buttons A1 to A4, F1 to F4 and S1 to S8 (1) on the premium display unit can be used to switch the available functions on and off

The push buttons S1 to S8 are only available as a display in the premium display unit. Therefore, no buttons are installed in the overhead console or in the armrest console.

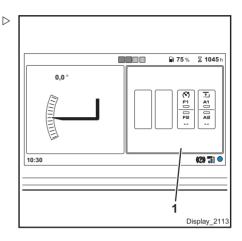
Switching on

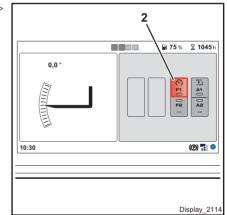
- ➤ Select the display of the push button assignment (1) by turning the rotary-push button

 (0).
- > Press the rotary-push button O.
- > Select the required function by turning the rotary-push button **(O)**.

Example: Reducing the driving speed (2).

> Press the rotary-push button O.







The LED (3) illuminates in green and the symbol (4) appears in the status bar. In the example: The "Reducing the driving speed" function is switched on.

> To return to the displays, press the 🔁 button.

Switching off

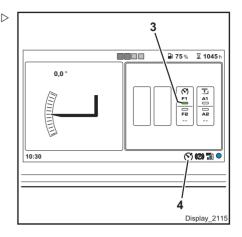
- ➤ Select the display of the push button assignment (1) by turning the rotary-push button
 (a).
- > Press the rotary-push button O.
- > Select the required function by turning the rotary-push button **②**.

Example: Reducing the driving speed (2).

> Press the rotary-push button O.

The LED (3) goes out and the symbol (4) is no longer displayed. In the example: The "Reducing the driving speed" function is switched off.

> To return to the displays, press the button.



Operation

Engine Starting and Shut-down

Starting the engine



A DANGER

The engine exhaust contains carbon monoxide (CO). Exposure to concentrated CO will cause injury or death.

Do not allow the engine to run in unventilated areas.



Where possible, avoid frequently starting and stopping the engine over short periods of time. since this prevents the internal combustion engine reaching operating temperature. Frequent cold starts increase wear.



NOTE

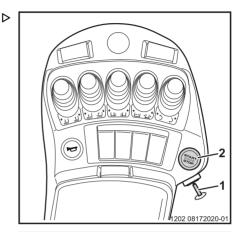
When outside temperatures are below 50 °F (10°C), allow the engine to run for at least 1-2 minutes between starting up and switching off to prevent the LP gas system from malfunctioning. In cold climate conditions, leave the vehicle in a warm area if possible. LP gas requires temperatures above 41°F (5C) for evaporation sufficient to start the engine.

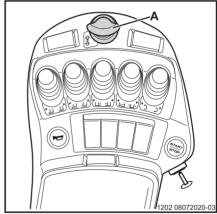
- > Open the shut-off valve on the LP gas tank slowly and carefully in a counter-clockwise direction
- > Sit on the seat.
- > On single pedal trucks only, place the directional lever (A) in the neutral position.
- > Actuate the parking brake.



The engine cannot be started unless the parking brake is applied and the accelerator pedal(s) and hydraulic levers are released.

> Insert the ignition key (1) into the ignition switch and turn it clockwise. For trucks equipped with access control systems, a knob will be present in position (1). In this case, turn the knob clockwise and swipe the







fob or card over the input unit or enter a valid PIN. These systems are explained on the following pages.

The electrical system is switched on.

> Observe the display unit and confirm parking brake symbol (3) is present.

After the electrical system is switched on, the display unit performs the following actions:

- · Self-testing of the lights
- · Displays the remaining operating time until the next service
- · Fuel level in the LP gas tank will appear after a few seconds

These are described further in the "System start-up" section of the chapter entitled "Display unit"

- > Fasten the seat belt.
- Press and hold the Start/Stop button (2) until the engine starts.
- > Release the Start/Stop button immediately after the engine starts.

WARNING

The engine will run for a programmed period if the driver's seat is vacated. During this time, the truck will be free to roll if the parking brake is not applied.

Always apply the parking brake before leaving the driver's seat.



Engine speed is controlled automatically, depending on load.



NOTE

Do not allow the engine to warm up at idling speed. When the truck is loaded, drive the truck at a brisk speed. The engine will quickly reach its operating temperature.

If the engine fails to start

> Release the Start/Stop button and wait for at least one minute. Then press the button again.





Always wait at least one minute between starting attempts. If the engine will not start after the third attempt, see Troubleshooting in section 5.

WARNING

Failure to start could indicate a problem with the fuel system. A malfunctioning fuel system can allow LP gas to leak and cause a risk of explosion.

If the truck will not start, the manual valve on the LP gas tank should be closed immediately. The fuel system should then be checked by a qualified technician

Restarting after a stall

If the engine stalls, the message: "Cannot start engine. Please wait." and the "Do not start the engine" symbol (4) will appear in the display.

If a stall occurs, the drive unit will be locked in the braking position and will prevent the engine from being immediately restarted. It will then be necessary to wait approximately 30 - 60 seconds for hydraulic pressure to equalize before restarting the engine.

- Leave the ignition switched on until the symbol goes out.
- Press the confirm button (5) on the display to clear the "Cannot start engine. Please wait." message. For trucks equipped with the optional premium display, press the knob (6) to clear the message.
- > Then try to restart.

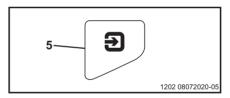
Shutting down the engine

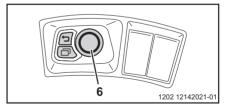


Do not switch off the engine when under full load.

- Release the drive pedal.
- > On single pedal trucks only, place the directional lever (A) in the neutral position.
- Apply the parking brake.
- > Press the Start/Stop button (2).









- > Wait for the engine to stop.
- > Turn the ignition key (1) to the off position.
- For trucks equipped with access control systems, turn the knob (located in position 1) to the off position. The engine may also be stopped by swiping the fob or card over the input unit or keving in a valid PIN.
- For trucks without an access control system, remove the ignition key (1) when leaving the truck.

WARNING

LP gas is heavier than air. It collects at floor level, in work pits and other depressions in the ground where it may produce hazardous explosive mixtures of gas and air.

Any area in which the truck is parked must be well ventilated.



NOTE

The engine will shut off automatically after a time delay whenever the driver's seat is vacated.

Gas Valve Malfunction

The fuel system normally allows the engine to run for up to 20 seconds after switch-off in order to burn gas remaining in the fuel line downstream of the shut-off solenoid. This runon time is usually less than 10 seconds. During this brief run-on time, controls (pedals, levers) should not be operated. The driver must remain with the truck until the engine stops. If the engine runs on for more than 20 seconds, there is a fault in the automatic shut-off function in the fuel system. Fault symbol (7) will appear in the display. In this case, the driver should close the manual shut-off valve on the LP tank immediately and wait until the engine stops. The source of the fault must be determined and corrected before operating the truck.



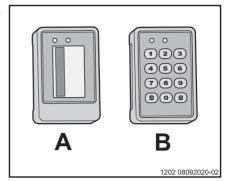


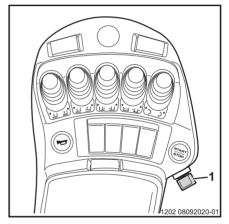
Access Control Systems (option- ▷ al equipment)

An access control system may be present. Use of the system is incorporated into the engine starting and shut-down procedures. The truck is available with two types of access control other than a conventional ignition key:

- RFID access (A)
- · PIN code access (B)

If one of these systems is present, the corresponding access control unit (A) or (B) will be mounted to the right-hand overhead guard leg and the ignition key switch is replaced with a knob (1). The procedures below will enable the access control system. Refer to the Engine Starting and Shut-down section to start or shut down the engine.





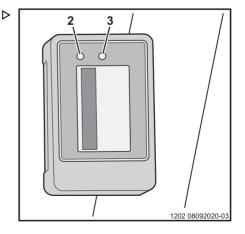
RFID Access

A card or fob containing an RFID chip is used to enable engine starting.

- > Ensure that the parking brake is applied and drive pedals are released. For single pedal trucks, the direction selector must be in neutral.
- > Ensure the knob (1) is turned to its clockwise position.

The system will change from stand-by mode to log-in mode The two LED's (2) and (3) will flash green alternately to confirm this.

> Pass the card or fob over the face of the unit





Both LED's will stop flashing and remain green continuously. The engine may now be started

Continue the engine starting process according to the procedure in the Engine Starting and Shut-down section.



NOTE

If an invalid RFID is used, the LED's will flash red. After a delay time, the input unit reverts to login mode and both LEDs alternately flash green. The delay time increases each time an invalid card is used.

PIN Code Access

A 5 to 8 digit PIN code is used to log in and enable engine starting.

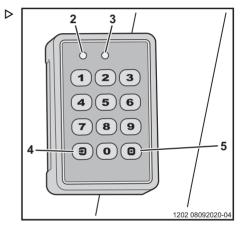
- > Ensure the knob (1) is turned to its clockwise position.
- Ensure that the parking brake is applied and drive pedals are released. For single pedal trucks, the direction selector must be in neutral.
- > Enter the first digit of a valid PIN or press either of the function buttons (reset (4) or log-in/out button (5)).

The system will change from stand-by mode to log-in mode The two LED's (2) and (3) will flash green alternately to confirm this.

➤ Enter the remaining PIN digits (or the entire PIN if no number key has been used yet.)

Both LED's will stop flashing and remain green continuously. The engine may now be started.

Continue the engine starting process according to the procedure in the Engine Starting and Shut-down section.





Operation



NOTE

If an incorrect PIN is entered, the LED's will flash red. After a delay time, the input unit reverts to login mode and both LEDs alternately flash green. The delay time increases each time an incorrect PIN is entered. If. a mistake occurs when entering the PIN, the PIN entry process may be aborted by pushing the Reset button (4).

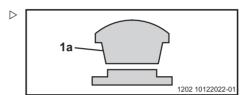
Switch Error

If the knob (1) has not been turned on, the symbol (1a) will appear in the status bar and a corresponding message will appear in the display.

Restarting

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With both types of access systems, the truck may be restarted within a time delay. If the truck does not start properly the first time, the starting procedure can be repeated until the knob (1) is returned to the off position and a time delay expires. Log-out will occur automatically after the time delay. This also applies to restarting after intentional shutdown.





Driving - Dual Pedal Version

A WARNING

Operators must be familiar with all safety procedures that apply to forklift operation before driving.

Read and understand all safety information in Section 2 before operating the truck.

- > Start the engine.
- Elevate the forks slightly and tilt the mast back
- > Ensure that the parking brake is released.

Forward Travel

Carefully press the right-hand drive pedal (1). Truck speed depends on how far the pedal is pressed.

i NOTE

Quick flooring of the accelerator pedal will have no effect as the maximum acceleration rate is controlled automatically.

If the pedal is released, the hydrostatic drive system will automatically slow the truck.

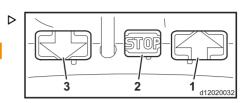
Reverse Travel

> Carefully press the left-hand drive pedal (3).

Control of speed and braking in reverse is the same as for forward motion

Changing Direction

- Release the actuated drive pedal. The drive system will dynamically brake the truck and begin slowing it depending on how fast the pedal is released.
- Press the drive pedal for the opposite direction of travel. The truck will accelerate in the new direction.
- The drive pedals can be operated from forward to reverse travel directly while the truck is still moving. If this is done, the drive system will brake the truck to a standstill at the same rate as above, and then accelerate in the new direction.



4 c

Operation



Operation

During travel, keep both feet on the drive pedals for optimum speed control.

Stopping

Release the actuated drive pedal. The drive system will dynamically brake the truck and bring it to rest. Easing off the drive pedal will give responsive, controlled braking. Complete release of the drive pedal will provide maximum hydrostatic braking. If quicker stopping is required (as in emergencies), depress the brake pedal (2).



NOTE

Hard braking with the brake pedal can stall the engine. If this occurs, the drive unit will be stalled in the braking position and will prevent the engine from being immediately restarted. It will then be necessary to wait approximately 30 - 60 seconds for hydraulic pressure to equalize before restarting the engine. A message will appear in the display unit. See "Engine Starting and Shutdown" in this chapter for more information.

- When it is necessary to stop momentarily on gradients during upgrade travel, leave both feet on the pedals and equalize any drive slippage by depressing the appropriate pedal slightly. Depress and hold the brake pedal (2) during longer stops.
- Always apply the parking brake when leaving the truck.

WARNING

Failure to apply the parking brake can result in unintended vehicle movement. The parking brake is not automatically applied when the truck is stopped with the engine running. If the truck is left idling without the parking brake applied, it will roll if it is left on a gradient or if it is pushed or struck by another vehicle

If it is necessary to exit the truck with the engine running (for example to perform some brief action in close vicinity to the truck such as opening a gate, unhitching a trailer, etc.), always apply the parking brake. Shut down the engine and apply the parking brake if making a longer stop.



Starting on an Incline

- > Use one foot to press the brake pedal (2) all the way down.
- > Release the parking brake.
- > Slowly release the brake pedal half way.
- ➤ Use the other foot to actuate the appropriate drive pedal (1) or (3).
- > Release the brake pedal completely.

Unde Material Handling Linde

Operation

Driving - Single Pedal Version (optional equipment)

WARNING

Operators must be familiar with all safety procedures that apply to forklift operation before driving.

Read and understand all safety information in Section 2 before operating the truck.



NOTE

The truck will not travel unless the seat is occupied. If the seat becomes unoccupied while the engine is running, the directional lever (1) must be returned to the neutral position, then to the desired drive direction again after the seat is occupied, before the truck will move.

- > Start the engine.
- Elevate the forks slightly and tilt the mast back.
- > Ensure that the parking brake is released.

Forward Travel

- > Move the directional lever (1) forwards.
- Verify that the forward direction symbol (4) appears in the display.



NOTE

If the engine was started with a direction already selected, the directional lever must be moved to neutral then to the desired drive direction before the truck will move.

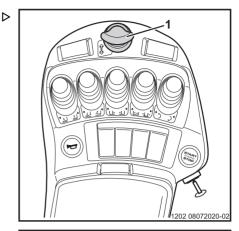
Carefully press drive pedal (3). Truck speed depends on how far the pedal is pressed.

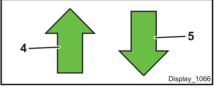


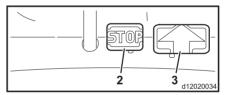
NOTE

Quick flooring of the accelerator pedal will have no effect as the maximum acceleration rate is controlled automatically.

If the pedal is released, the hydrostatic drive system will automatically slow the truck.









Reverse Travel

- > Move the directional lever (1) backwards.
- > Verify that the reverse direction symbol (5) appears in the display.
- > Carefully press drive pedal (3).

Control of speed and braking in reverse is the same as for forward motion

Changing Direction

- > Release the drive pedal. The drive system will dynamically brake the truck and begin slowing it depending on how fast the pedal is released.
- > Move the directional control lever through neutral to the opposite direction of travel.
- > Press the drive pedal again. The truck will accelerate in the new direction
- > If desired, the lever can be moved without releasing the drive pedal and/or while the truck is still moving. If this is done, the drive system will brake the truck to a standstill at the same rate as above, and then accelerate the truck in the new direction without having to release the pedal.

Stopping

> Release the drive pedal. The drive system will dynamically brake the truck and bring it to rest. Easing off the drive pedal will give responsive, controlled braking. Complete release of the drive pedal will provide maximum hydrostatic braking. If quicker stopping is required (as in emergencies), depress the brake pedal (2).

4

Operation



Operation



NOTE

Hard braking with the brake pedal can stall the engine. If this occurs, the drive unit will be stalled in the braking position and will prevent the engine from being immediately restarted. It will then be necessary to wait approximately 30 - 60 seconds for hydraulic pressure to equalize before restarting the engine. A message will appear in the display unit. See "Engine Starting and Shutdown" in this chapter for more information.

- When it is necessary to stop momentarily on gradients during upgrade travel, equalize any drive slippage by depressing the drive pedal slightly. Depress and hold the brake pedal (2) during longer stops.
- Always apply the parking brake when leaving the truck.

WARNING

Failure to apply the parking brake can result in unintended vehicle movement. The parking brake is not automatically applied when the truck is stopped with the engine running. If the truck is left idling without the parking brake applied, it will roll if it is left on a gradient or if it is pushed or struck by another vehicle.

If it is necessary to exit the truck with the engine running (for example to perform some brief action in close vicinity to the truck such as opening a gate, unhitching a trailer, etc.), always apply the parking brake. Shut down the engine and apply the parking brake if making a longer stop.

Starting on an Incline

- Use the right foot to press the brake pedal (2) all the way down.
- > Release the parking brake.
- Slowly release the brake pedal half way.
- Use the left foot to actuate the drive pedal (3).
- > Release the brake pedal completely.



Travel Speed Reduction (optional equipment)

The following types of speed reduction are available:

- · via mast switch
- · via push button
- · via radar (indoor/outdoor)
- · via the optional premium display

If the symbol (1) lights up in the status bar on the display unit, the reduction in the driving speed is enabled.



NOTE

The reduction in the driving speed is an assistance system and helps the driver to handle the truck. The responsibility and control for safe operation and for maintaining the required driving speed always lie with the driver.

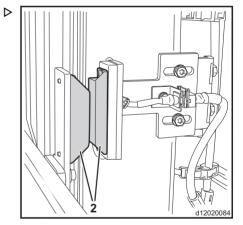


Operating via a switch on the lift mast Function

The reduction in the driving speed is linked to a defined lift height. The required lift height is detected by means of a switch (2) fitted on the lift mast.

Switching on

The reduction in the driving speed is enabled via the switch (2) if the preset lift height is exceeded.



The symbol (1) is displayed in the status bar on the display unit. The reduction in the driving speed is switched on.

Switching off

The reduction in the driving speed is disabled if the lift height falls below the preset lift height.

The symbol (1) is no longer displayed. The reduction in the driving speed is switched off.

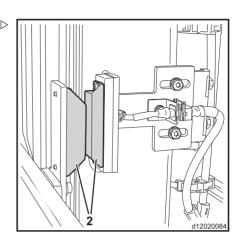


Daily testing

> Check the switch (2) for contamination and damage before starting each shift. Clean as required.

If any damage is detected, have the switch replaced.

> Check for correct function: When the preset lift height is exceeded, the driving speed must be limited.



Operating via a push button



NOTE

The operating procedure using the relevant push button in the armrest console or in the switch panel is described here by way of example. The assignment of the push buttons can be changed. See the "Settings menu" section in the chapter entitled "Standard display unit" or the "Truck settings" section in the chapter entitled "Comfort display unit".

The reduction in the driving speed is enabled via the push button (3).

> Briefly push the push button (3).

The push button assignment is indicated by the symbol (1) on the display unit.

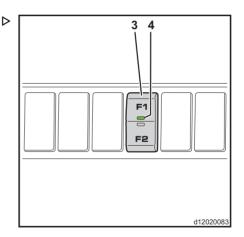


If the push button assignment is already shown on the display unit, the reduction in the driving speed can be switched on immediately via the push button (3).

Switching on

> Briefly push the push button (3).

The LED (4) illuminates in green. The reduction in the driving speed is switched on.







The symbol (1) is displayed in the status bar on the display unit.

Switching off

> Briefly push the push button (3).

The LED (4) goes out and the symbol (1) is no longer displayed. The reduction in the driving speed is switched off.



NOTE

The function for reducing the driving speed can also be switched on or off directly using the rotary-push button in conjunction with the comfort display unit. Further information regarding the sequence is described in the chapter entitled "Driver's compartment" in the section entitled "Push buttons on the comfort display unit".

Operating via a radar sensor (Speed-Assist)

The radar sensor (5) is used to reduce the maximum speed automatically when the truck moves from an outdoor area to an indoor area



The national regulations for using radar sensors must be observed without fail. For this reason, the operating company must perform a risk assessment before using the radar sensor.

Function

The radar sensor (5) monitors the area above the truck using a club-shaped radar beam.

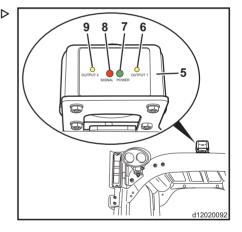
If an object such as the ceiling of a hall is detected, the maximum driving speed is reduced to a set value.

As soon as no objects are detected, the reduction in the driving speed is cancelled.

Reflections on walls may also lead to a reduction in the driving speed.

If the distance between an object and the radar sensor is less than 1 m, the function of the







radar sensor may be restricted under certain circumstances



NOTE

In the event of a fault, the maximum speed of the truck remains reduced. Contact your service partner.

Daily testing

Check the housing of the radar sensor (5) for contamination and damage before starting each shift. Clean as required.

If any damage is detected, have the radar sensor replaced.

Check for correct function: When driving from an outdoor area into an indoor area, the driving speed must be reduced.

Settings

The following settings can be configured by your service partner:

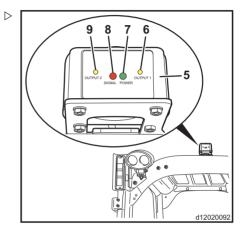
- Range of the radar sensor between 2 m and 24 m
- Sensitivity of the sensor: At a higher sensitivity, smaller objects are detected
- Delay time (entry: up to 3 s; exit: up to 0.75 s)
- Contact your service partner.

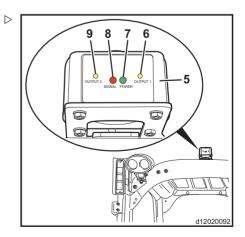
LED indicators on the radar sensor

If the supply voltage is present, the green "Power" LED (7) lights up.

If an object is detected by the radar sensor, the red "Signal" LED (8) flashes depending on the signal strength of the radar beam.

If no object is detected by the radar sensor, the yellow "Output" LEDs (6) and (9) light up.

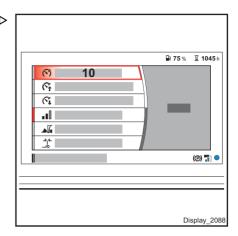






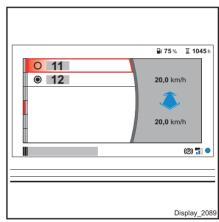
Operating via the premium display unit Switching on

> Select the "Speed limit" (10) menu item on the display unit.

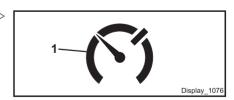


- ➤ Either "On" (11) or "Off" (12) can be select- ▷ ed.
- > Select "On" (11).

The speed limit is switched on.



The symbol (1) is displayed in the status bar on the display unit.

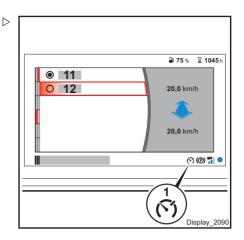




Switching off

- > Select the "Speed limit" (10) menu item on the display unit.
- ➤ Either "On" (11) or "Off" (12) can be selected.
- > Select "Off" (12).

The symbol (1) is no longer displayed. The speed limit is switched off.





Steering System

The hydrostatic steering assistance is available whenever the engine is running. Turning the steering wheel will steer the truck via the rear wheels. The steering will still function when the engine is off, but significantly more force is required at the steering wheel.

> Turn the steering wheel clockwise to turn the truck to the right. Turn the steering wheel counter-clockwise to turn the truck to the left





Operation

Braking

The truck has two forms of braking available. They are hydrostatic braking and mechanical braking. Hydrostatic braking is provided by the hydrostatic drive unit and automatically occurs to slow the truck whenever a drive pedal is released. Mechanical braking is provided by brake discs in the drive axle. Normally the mechanical brake is only used as a parking brake. During hard application of the brake pedal (such as emergency stopping), the mechanical brake will also engage to supplement hydrostatic braking.

Hydrostatic Braking

Hydrostatic braking is adequate for all braking required during normal operation. It is controlled proportionately depending on how fast the drive pedal is released. Slowly easing off the drive pedal will give a gentle deceleration. If the drive pedal is suddenly and completely released, then maximum hydrostatic braking will occur, giving aggressive deceleration. Depressing the drive pedal opposite that of current vehicle motion (on dual pedal trucks) or moving the direction selector to the direction opposite current motion (on single pedal trucks), will also give maximum hydrostatic braking.

Mechanical Braking

The primary use of the mechanical brake is to provide a parking brake when the truck is stationary. The mechanical brake is applied by spring forces acting on the brake discs. When the truck engine is started and the parking brake handle is released, hydraulic pressure is used to overcome the spring force and release the brake.

When the truck is in operation, all normal braking requirements can be handled by the hydrostatic drive unit. The mechanical brake however, will be applied if the brake pedal is pressed all the way down. Such hard braking should only be necessary in an emergency. When the brake pedal is pressed all the way down, a mechanical linkage actuates the brake valve so that all hydraulic holding



pressure is released at the brake springs. The mechanical brake is then fully applied.



Hard mechanical braking may stall the engine. If this occurs, the drive unit will be stalled in the braking position and will prevent the engine from being immediately restarted. It will then be necessary to wait approximately 30 -60 seconds for hydraulic pressure to equalize before restarting the engine. A message will appear in the display unit. See "Engine Starting and Shutdown" in this chapter for more information.

The parking brake is actuated through a cable from the handle to the brake valve. When the parking brake is applied, all hydraulic holding pressure is removed from the brake springs, allowing them to fully apply the mechanical brake.

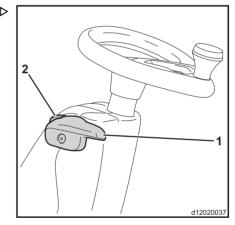
Applying the Parking Brake

> Turn the parking brake handle (1) fully counter-clockwise to the position shown.

The release button (2) will lock and the "P" symbol (3) will appear in the status bar of the display unit.

Releasing the parking brake

> Press down slightly on the parking brake handle (1) to unload the release button (2). Press the release button and allow the handle to return to the released (vertical) position. Verify that the "P" symbol (3) in the display unit disappears.







Operation

WARNING

Failure to apply the parking brake can result in unintended vehicle movement. The parking brake is not automatically applied when the truck is stopped with the engine running. If the truck is left idling without the parking brake applied, it will roll if it is left on a gradient or if it is pushed or struck by another vehicle.

If it is necessary to exit the truck with the engine running (for example to perform some brief action in close vicinity to the truck such as opening a gate, unhitching a trailer, etc.), always apply the parking brake. Shut down the engine and apply the parking brake if making a longer stop.



Horn

The horn is used as a warning signal, e.g. at blind spots and junctions.

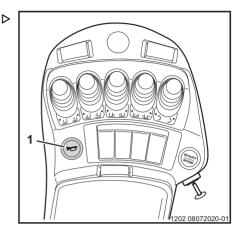
> Press the horn button (1) on the armrest to sound the horn.

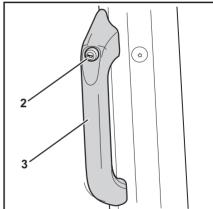
Additional Horn Locations (optional equipment)

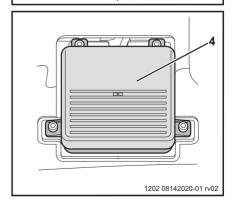
For use while reversing, an auxiliary horn button (2) is available as an option at a handle (3) on the right rear overhead guard leg.

Single-pedal trucks may have an optional footoperated horn button (4) on the floor plate.

> Press any of these horn buttons to sound the horn.







Hydraulic Controls

WARNING

Operators must be familiar with all safety procedures that apply to forklift operation before operating hydraulic functions.

Read and understand all safety information in Section 2 before operating the truck.

All trucks are equipped with lift and tilt. In addition up to three additional functions may be installed.

Actuating levers should always be operated smoothly. Function speed is proportional to lever movement. When released, levers automatically return to the neutral position.

> Note the function symbols on the control lever decals.



NOTE

The lifting system will only function with the truck switched on and the operator's seat occupied.

Raising the mast

Pull actuating lever (1) backward.

Lowering the mast

> Push actuating lever (1) forward.

Tilting the mast forwards

> Push actuating lever (2) forward.

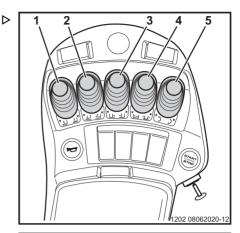
Tilting the mast backwards.

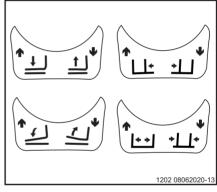
> Pull actuating lever (2) backward.

Attachments (optional equipment)

Third-, fourth-, and fifth-function attachments can be fitted to the truck as optional equipment (e.g. sideshifter, clamps etc.). In this case additional actuating levers (3, 4, 5) are provided.

Many different attachment types are possible. Note the symbols on the lever decals.





Operating the sideshifter or other thirdfunction (optional equipment)

> Push actuating lever (3) forward.

Sideshifter moves to the left. (Third-function other than sideshifter operates according to the symbol arrows on the lever decal.)

> Pull actuating lever (3) backward.

Sideshifter moves to the right. (Third-function other than sideshifter operates according to the symbol arrows on the lever decal.)

Operating the fourth- or fifth-function (optional equipment)

For a clamp or similar attachment equipped with a locking lever, the lever must be unlocked before it will operate the attachment. See the Operating a Clamp below.

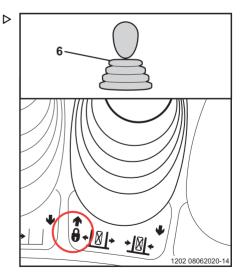
Move actuating lever (4) or (5) forward or backward

The fourth- or fifth-function operates according to the symbol arrows on the lever decal.

Operating a Clamp (or other locked lev- > er attachment)

For a clamp or similar attachment that holds a load by exerting pressure on it, a locking lever is used. Such a lever will be identified by a padlock symbol (red circle) on the lever decal. The lever must be unlocked before it will open the attachment. The locking condition is intended to prevent accidental operation of the attachment.

To unlock the lever, push it forward at least 40% and release it. The lever will be unlocked for approximately one second and symbol (6) will appear in the status bar of the display unit. Moving the lever forward will then open the attachment. If the lever is not moved to open the attachment within this time, it will lock again.



4

Operation



Operation

Load Assistance System

All models are equipped with the load assistance system. This system reduces the risk of tipping and increases the stability of the truck by actively intervening in the lifting and tilting movements if a critical load-dependent situation is detected. In addition, there is the option to intervene in the driving speed.



NOTE

Messages providing assistance may appear on the display unit during operation.

▲ WARNING

Stability risk.

If the warning light for the assistance system (1) appears in the display unit, the mast must be lowered or tilted back to alleviate the critical situation.



NOTE

Assistance systems are only designed to offer a supporting function and do not guarantee safety. The responsibility for operating the truck in a safe manner always lies with the driver. Even in the event of a potential malfunction, the driver must have full control of the truck at all times.

Assistance System Functions

- "Overload protection"
- "Lifting and tilting limitation"
- "Load-dependant reduction of driving speed" (optional)

Description of "overload protection"

"Overload protection" reduces the lifting speed in critical load situations, to the extent of stopping the movement if necessary. This function is active throughout the entire lift range.

Effect on the truck:

To prevent the truck from tipping over, the overload protection intervenes in the lifting movement if the load is too great. The lifting movement is reduced or stopped regardless of the lift height and tilt angle.



For a multi-stage lift mast, the overload protection intervenes with a more pronounced effect above the first stage of the lift mast so that an excessive load cannot be raised beyond this first stage.

During the intervention, the red warning light for the assistance system (1) flashes. In addition, the buzzer sounds.

The intervention will persist until the load is reduced

Operation after triggering:

Lowering is possible at any time without restriction.

> Lower the fork carriage.

The red warning light for the assistance system (1) goes out.

> Reduce the load in accordance with the capacity rating plate.



If lifting was stopped, the load can be raised out of a critical area for approx. one second. To do this, move the joystick to the neutral position. Repeat the process as many times as necessary.

Description of "lifting and tilting limita-

"Lifting and tilting limitation" reduces the lifting and tilting speed in critical situations that could cause the truck to tip over. For a standard lift mast, the lifting and tilting limitation is active above a preset lift height (between 1.80 m and 2.20 m). For duplex or triplex lift masts, the lifting and tilting limitation function is active above the first stage of the lift mast.







NOTE

If the truck is switched off immediately after an intervention or with a load support raised above the preset lift height (internal combustion engine off), the load-dependent assistance system may fail if the truck is switched on again. Therefore, after switching the truck on, perform a lifting procedure without any load to above the preset lift height or to above the first stage of the lift mast.

Effect on the truck:

To prevent the truck from tipping over, the lifting and tilting limitation function intervenes in the lifting and tilting speed if the load is too great. Depending on the raised load, the lift height and the tilt angle, the lifting and tilting speed is reduced or stopped.



Loading:	Functions		
Level I	 The message is shown on the display unit. The yellow warning light for the assistance system (1) lights up. Reduction in the lifting speed. Reduction in the tilting speed. The buzzer sounds briefly. 		
Level II	 The message is shown on the display unit. The red warning light for the assistance system (1) lights up. Reduction in the lifting speed. Creep speed when tilting forwards. The buzzer sounds at short intervals. 		
Level III	- The message is shown on the display unit. - The red warning light for the assistance system (1) lights up. - Creep speed when lifting. - The forwards tilting speed is reduced to a stop. - The buzzer sounds at short intervals.		

Operation after triggering:

After triggering, leave the critical area:

> Move the joystick to the neutral position.

The buzzer is silenced. The warning light for the assistance system (1) continues to flash.

> Leave the critical area by slowly tilting backwards and lowering the load.

The warning light for the assistance system (1) goes out.

> Move the joystick to the neutral position.





Reduce the load in accordance with the capacity rating plate.

Description of "load-dependent reduction of driving speed" (optional)

"Load-dependent reduction of driving speed" reduces the driving speed in critical situations that could cause the truck to tip over.

This function can be activated by the service partner using the diagnostic program and adjusted according to the type of application.

Effect on the truck:

The driving speed of the truck is reduced, depending on the raised load. In this case, the message "Reduction of driving speed due to high load" is displayed. In addition, the symbol (2) is displayed in the status bar.





🚺 NOTE

Only the driving speed of the truck is reduced. The acceleration and deceleration properties remain unchanged.

Operation after triggering:

The truck can still be operated at a reduced driving speed according to the specifications that are saved in the controller.



NOTE

If the function fails, the driving speed is permanently limited to the lowest value. Contact your service partner.

Malfunctions

Possible malfunctions are described in the "Malfunction displays" section.

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Operation

Fork Position Adjustment

WARNING

Incorrect fork position can result in an unstable or unbalanced load.

Always position the forks so that the center of gravity of the load is centered between the forks. Both forks must be the same distance from the centerline of the truck.

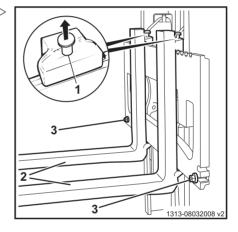
The base of the latch pin knob is bevelled to facilitate the locking and unlocking process.

- > Lift the forks slightly off the floor.
- > Lift the fork latch pin knob (1) and twist it to hold the latch pin up.
- Slide the fork arms (2) inwards or outwards until the latch pins align with the position notches that best fit the load.
- Lift and twist the knob and allow it to spring back down along its bevelled edge and seat fully. Ensure that each latch pin is engaged securely in a notch on the fork carriage. If the knob will not go back down, then the fork is not aligned with a notch or the bevelled edge is not twisted into the correct position. Wiggle the fork slightly if necessary until the latch pin seats fully.
- Ensure fork retainers (3) are in place at the outer sides of the carriage. On trucks with a load backrest, the mounting hardware typically provides the retention.

WARNING

Forks must be retained at the outer edges of the fork carriage.

On trucks without a load backrest, separate retainers (3) must be installed on both sides.





Load Push/Shovel Operation (optional equipment)

If the symbol (1) lights up in the status bar on the display unit, the load push/shovel feature is enabled.

This feature provides increased engine speeds through the lower end of the throttle range. This results in a higher stall speed necessary when pushing loads with blade or shovel attachments



i NOTE

Extreme loading of the engine leads to a slight delay in executing the working hydraulics due to the associated engine speed decrease. Where the engine is loaded for an extended period, the joystick must be switched to the neutral position in order to release the working hydraulics again.

If equipped, this feature may be activated through the display unit. See the corresponding display unit section for the procedure.

It is also possible to configure the truck so that this feature is engaged, activated, and switched off via successive pressing of a dedicated button switch in the overhead switch panel.





Tilt Memory (optional equipment)

The tilt memory option allows the mast to be rapidly and consistently tilted to a pre-set angle.

Whenever tilt memory is active, symbol (1) on the display will illuminate.

Control of tilt memory is assigned at the factory to button switch A4 (2) on the armrest. This assignment may be changed in the field per customer wishes.



NOTE

To ensure safety, the tilt memory function does not automatically tilt the mast. Instead it automatically **stops** the tilting motion when the pre-set angle is reached. Tilt motion must still be initiated and maintained by the operator using the tilt lever as during normal tilting. Tilt motion is therefore under operator control at all times.

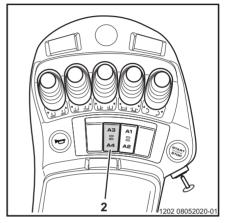
Setting the Tilt Reference Angle

The tilt angle sensor allows any mast angle to be stored into the system memory as the pre-set reference angle.

- > Tilt the mast to the desired angle.
- Press the A4 button briefly to engage the tilt memory function. This step is unnecessary if the function is already engaged (A4 LED is green and symbol (1) visible in the status bar of the display).
- Press and hold the A4 button. The LED will turn yellow. Hold the button until an audible tone is heard and the message "Value saved" appears in the display.

The angle of tilt is now stored in the system memory.







WARNING

The tilt reference angle is set relative to the vehicle. The tilt of the mast in relation to the ground depends on various factors such as tire wear, tire inflation pressure (if applicable), load, and unevenness and gradient of the ground.

Do not rely on the same pre-set angle for all conditions.

Operation with Tilt Memory

▲ WARNING

The tilt memory feature is designed to increase efficiency and reduce operator fatigue during repetitive operations only. The operator always has the responsibility to ensure correct tilt angle.

Do not rely on the same pre-set angle for all conditions.

Three modes of operation are available depending on how the truck is programmed. The function of the A4 button will vary accordingly. The mode is programmed in the diagnostic software.

- Single use tilt memory is not active until the A4 button is pressed. The button must be pressed each time tilt memory assistance is desired.
- Continuous use tilt memory can be engaged continuously with the A4 button to allow repeated use, or turned off completely when not needed.
- Permanent use tilt memory is always active.



NOTE

On trucks equipped with the optional premium display, the A4 button can also be activated virtually in the display using the rotary knob. Further information regarding the sequence is described in the section entitled Push buttons in the premium display unit.

Single Use

With this mode, the tilt memory system becomes available for a single use by pressing the A4 button. Once the reference angle is reached, the system will deactivate. The A4 button must be pressed again for any subsequent use.



Operation

- Briefly depress the A4 button. The LED in the button will appear green and the symbol (1) will appear in the display. The tilt memory function is now active. Do not hold the button down or the reference angle will be reset.
- Operate the tilt lever in the direction of the pre-set reference angle. When the mast reaches the pre-set reference angle, tilting will stop automatically and an audible tone will sound.
- Release the tilt lever. The tilt memory function is deactivated and the green LED in the button and the display symbol will go out.
- The mast can now be tilted normally with the tilt lever.
- Briefly depress the A4 button again to reactivate the tilt memory function as required.

Continuous Use

With this mode, the tilt memory system may toggled on or off as desired by pressing the A4 button. The system will remain on and will not deactivate until the A4 button is pressed again.

- Briefly depress the A4 button. The LED in the button will appear green and the symbol (1) will appear in the display. The tilt memory function is now active. Do not hold the button down or the reference angle will be reset.
- Operate the tilt lever in the direction of the pre-set reference angle. When the mast reaches the pre-set reference angle, tilting will stop automatically and an audible tone will sound
- Release the tilt lever. The tilt memory function remains active. The LED in the button will remain green and the symbol (1) will remain present in the display. The mast can be tilted in the opposite direction and back again up to the stored reference angle.
- If tilting past the stored reference angle becomes necessary, press the A4 button to turn the system off. The mast will now tilt through its entire mechanical range.

Permanent Use



With this mode, the tilt memory system is active whenever the truck is on. The mast will always stop at the pre-set reference angle during tilting.

4

Operation



Operation

Load Weight Indication (optional equipment)

If the truck is equipped with this option, the weight of the load being carried can be displayed on the display unit.

To ensure an accurate measurement, the following requirements must be met:

- The truck must be on a flat, level surface and must be at a standstill
- · The mast must be in a vertical position
- The fork carriage must not be raised more than 5.5 feet (1.70 m) above the ground The load weight indicator does not show reliable values at heights above this.
- Before the measurement, the load must be lowered by 4 inches (10 cm).
- · The raised load must be stationary



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NOTE

Reliable display of the load weight cannot be guaranteed for light loads of less than 220 lbs (100 kg).



Operation with Standard Display Unit

Control of load weight indication is assigned at the factory to button switch A6 (1) on the armrest

- ➤ Lift the load
- > Lower the load by 4 inches (10 cm).
- > Select the load weight indicator on the display.
- > Briefly press the A6 button (1).

The load weight (example: 450 kg) is shown on the display (2) for a duration of five seconds.

Zero Adjustment:

Using the zero adjustment feature, the current load weight can be set to zero. This can be used to identify deviations from a known reference weight or establish the tare weight of containers

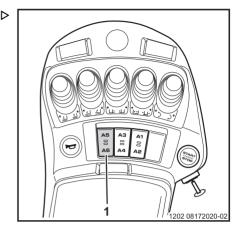
- Lift the load.
- > Lower the load by 4 inches (10 cm).
- > Select the load weight indicator on the dis-
- > Press and hold the A6 button (1).

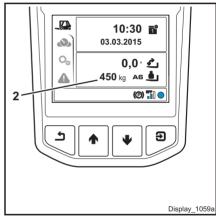
The zero value is saved. In addition, the buzzer sounds.

The load weight indicator shows a value of 0 kg.



The zero value remains saved even when the truck is switched off and switched back on.





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Operation

Operation with Premium Display Unit (optional equipment)

Control of load weight indication is assigned at the factory to button switch A2 (4) on the armrest. This assignment may be changed in the field per customer wishes. The push button assignment is indicated by the load weight indicator symbol (3) on the display.

- > Lift the load.
- > Lower the load by 4 inches (10 cm).
- > Briefly press the A2 button (4).

The load weight (example: 450 kg) is shown on the display (5) for a duration of five seconds.

Zero adjustment:

Using the zero adjustment feature, the currently determined load weight can be set to zero.

- ➤ Lift the load
- > Lower the load by 4 inches (10 cm).
- > Press and hold the A2 button (4).

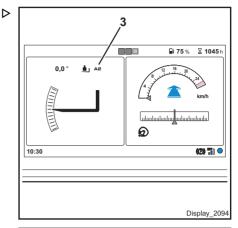
The zero value is saved. In addition, the buzzer sounds

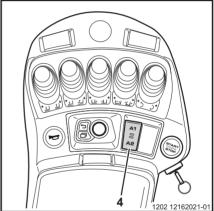
The load weight indicator shows a value of **0 kg**.

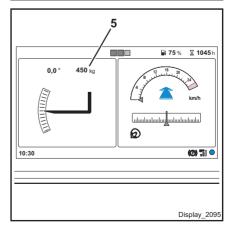


NOTE

The zero value remains saved even when the truck is switched off and switched back on.











The A2 button can also be activated virtually in the display using the rotary knob. Further information regarding the sequence is described in the section entitled Push buttons in the premium display unit.



Fork Wear Protection (optional equipment)

Fork wear protection is available as an option. There are two basic variants - mechanical or electrical

Fork Wear Protection- Mechanical Variant

With this option, a mechanical stop is installed and the lowering height of the mast is always limited by the dimensions of the stop.

Fork Wear Protection - Electrical Variant

This feature relies on a switch installed on the mast to limit lowering of the fork carriage so that forks do not contact the floor. This feature is available with three different modes of operation:

- · Always active with override the feature is always enabled, but can be overridden as needed using the F2 button on the overhead guard switch panel.
- · Selectable on/off- the entire feature can be enabled or disabled as required using the F2 button on the overhead guard switch panel.
- · Permanently active the feature is always enabled and cannot be overridden.

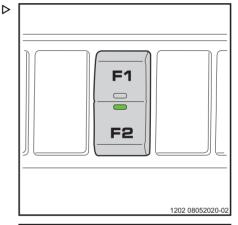
The mode is programmed in the diagnostic software.

When the forks are lowered to the limit, the message "Lowering limit reached" appears in the display. The confirm button 2 on the display is used to clear the message. For trucks equipped with the optional premium display, the rotary knob is pushed to clear the message.

WARNING

The fork wear protection system is a convenience feature only. It does not relieve the operator of the responsibility to ensure fork position is correct for any given task.

Always ensure fork position is correct for any given task.







Always Active with Override

If the truck is programmed with this mode, the carriage will always stop at the level determined by the mast switch. When the truck is started, LED in the F2 button will appear green. The fork wear protection symbol (1) will appear in the status bar of the display. This indicates that fork wear protection is enabled.

If it is necessary to lower the forks further, the system can be temporarily overridden as follows:

> Briefly press the F2 button.

The LED in the F2 button and the fork wear protection symbol in the status bar of the display will both go out. The system is now overridden and the forks may be lowered further. The system will automatically enable again afterwards.

Selectable On/Off

If the truck is programmed with this mode, the feature can be toggled on or off using the F2 button. When the feature is on, the LED in the F2 button will appear green and the fork wear protection symbol (1) will appear in the status bar of the display. The carriage will then stop at the level determined by the mast switch.

Further lowering is possible only by switching the system off via the F2 button. The green LED in the button and symbol in the display will go out. The system will then remain off until turned on again with the F2 button.

Permanently Active

If the truck is programmed with this mode, the carriage cannot be lowered below the level determined by the mast switch.



Hydraulic Depressurization System (optional equipment)

If this system is present, the truck's auxiliary hydraulic functions can be immediately depressurized. This is convenient for applications where hydraulic attachments are changed often. This system can not depressurize the lift or tilt circuits

▲ WARNING

Pressurized hydraulic oil can cause severe injury.

Always use care when disconnecting hydraulic components. Disconnect slowly in case unexpected pressure is present.

- To activate the depressurization system, make sure the engine is off and turn the key to the on position without starting the engine.
- Move the control lever of the function to be depressurized fully in both directions. If both auxiliary functions are to be depressurized, both levers must be moved fully in both directions. Repeat the movement several times
- > To restore hydraulic function, turn the key off and then start the engine normally.



Quick-disconnect Couplings for Auxiliary Hydraulics (optional equipment)

WARNING

Attachments alter the load capacity and stability of the truck.

Attachments that are not supplied with the truck must only be used if their use does not exceed load capacity and stability. Contact your authorized dealer if necessary to confirm attachment safety.

WARNING

Pressurized hydraulic oil can cause severe injury.

Always use care when disconnecting hydraulic components. Disconnect slowly in case unexpected pressure is present.

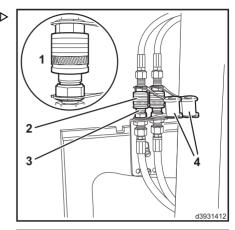
Quick-disconnect couplings (1) must only be used in conjunction with the depressurisation system.

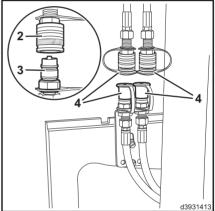
Disconnection

- ➤ Depressurise the hydraulic lines as described in the "Depressurisation" section.
- ➤ Thoroughly clean the quick-release couplings (1) and protective caps (4).
- ➤ Pull back the collar (2) and remove the fitting from the plug (3).
- Install the protective caps onto the loose couplings.

Reconnection

- > Thoroughly clean the couplings and remove the protective caps (4).
- ➤ Pull back the collar (2) and push the fitting onto the plug (3).
- Secure the protective caps.







Operation

Lighting (optional equipment)

Lighting is generally controlled with button switches in the overhead guard switch panel.



The arrangement of the individual push buttons on the console on the top right-hand side of the overhead guard may vary, depending on the version. Observe the switch symbols.

The truck is available with the following types of lighting options:

- · Work lights
- · LED light strips
- · Floor spot lights
- · Interior lighting
- · Road lights

Switch-Off Delay

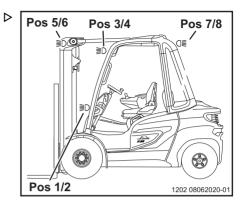
A switch-off delay for lighting may be configured in the truck diagnostic software. In this case, selected lighting (if left on) will remain on for the pre-set time after the engine is shut down. The specific lighting affected and the delay period (from 5 to 60 seconds) are chosen and set through the programming interface.

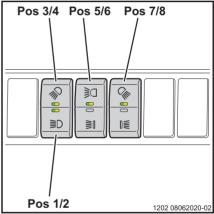


Work Lights

Work lights may be installed as options in the positions shown. They are controlled by the corresponding button switches in the overhead guard switch panel. The buttons can be used to switch the lights into one of three status conditions. As the button is pressed successive times, it will cycle through the three conditions. An LED in the button will change color with each condition.

- · On LED appears green; work lights are switched on
- · Auto LED appears yellow; work lights switch on depending on drive direction
- · Off LED off; work lights off



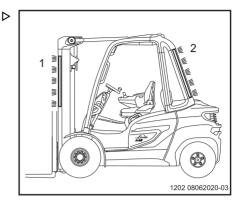


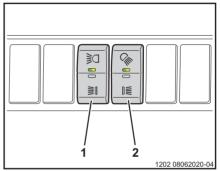


LED Light Strips

Front/rear LED light strips may be installed in pairs on the mast (1) and/or the rear overhead guard legs (2) as shown. They are controlled by the corresponding button switches (1) or (2) in the overhead guard switch panel. The buttons can be used to switch the lights into one of three status conditions. As the button is pressed successive times, it will cycle through the three conditions. An LED in the button will change color with each condition.

- On LED appears green; light strips are switched on
- Auto LED appears yellow; light strips switch on depending on drive direction
- · Off LED off; light strips off





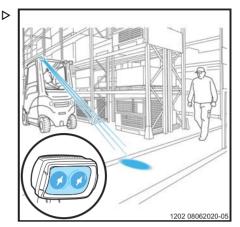


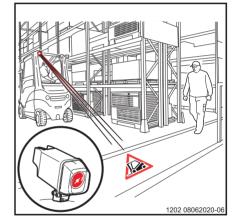
Floor Spot Lights

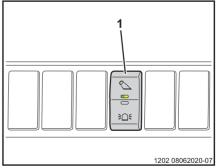
Floor spot lights are available to provide a visual signal to alert others that the truck is in their vicinity. Several models of these lights are available to cast certain spot colors or images onto the floor. These lights may be configured to work whenever the truck is on, whenever a certain direction (forward or reverse) is selected, or they may be configured to operate via a button switch in the overhead guard switch panel.

If a button is used, it will have the floor spot symbol (1). This button will switch the lights into one of three status conditions. As the button is pressed successive times, it will cycle through the three conditions. An LED in the button will change color with each condition.

- On LED appears green; floor spot light is switched on
- Auto LED appears yellow; floor spot light switches on depending on drive direction
- · Off LED off; floor spot light is off







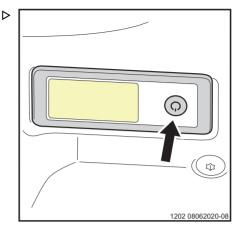


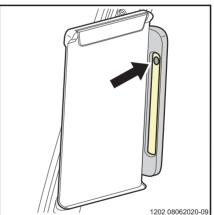
Interior Lighting

The truck may be equipped with a cab light and/or an illuminated clip board holder. These items have control buttons (arrow) built into them. As the button is pushed successively, it will cycle the light from off to on to dim and back off again.



If the truck is equipped with doors and configured with door monitoring, the button on the cab light will switch the light between on, off, and automatic with door opening. In this last case, the light will come on when the door is opened and dim when the door is closed.







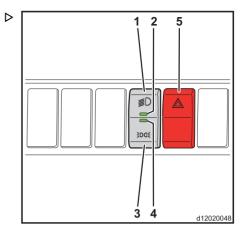
Road Lights

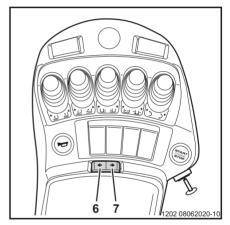
A road light package is available for trucks that may require operation in areas with other types of vehicular or public traffic. This package includes headlights/tail lights/ brake lights, side (parking) lights, turn signals, and hazard lights.

Button (1) will turn on the head lights/ tail lights/ brake lights and the side lights. LED's (2) and (4) will appear green. Pressing button (3) a second time will switch the headlights off and leave the remaining lights on.

Button (5) will engage the hazard lights. The turn signal indicator will flash in the display.

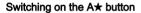
Switch positions (6) and (7) will engage the left or right turn signal respectively. The turn signal indicator will flash in the display.





A★ Button (optional equipment)

The A★ button (1) allows rapid activation of a number of truck functions with one switch. Two preset combinations of functions (e.g. lights) and status (e.g. on, off, unchanged, auto) are available. One combination is active with the white LED. The other with the blue LED. This switch is used to conveniently activate a number of functions that are routinely used in a certain status without having to switch them independently. Combinations are configured via the display unit. See the section for the corresponding display unit for the configuration procedure.



➤ Push the A★ button (1) one or two times.

The LED (2) illuminates in white (first push) or blue (second push).

The selected functions are switched on and off

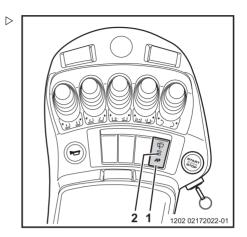
Switching off the A★ button

 On the armrest console or on the switch panel, push the corresponding button for any active function. The status is "off" and the LED (2) goes out.

Functions for the A★ Button

The following functions are available:

- Dipped beam
- · Working spotlights, position 1/2
- · Working spotlights, position 3/4
- Working spotlights, position 5/6
- Working spotlights, position 7/8
- · Front LED light stripes
- · Rear LED light stripes
- · Front/rear LED light stripes
- · Rotating beacon
- · Flashing beacon
- BlueSpotTM
- TruckSpotTM
- · Warning lines
- · Windscreen wiper functions
- · Roof panel wiper
- · Reducing the driving speed
- Lift limits basic





- Lowering limitation basic
- Tilt angle preselection basic
- Forks wear protection



Cabin (optional equipment)

An enclosed cabin with side doors, and front, rear, and top glass is available as an option. A climate control system is available as a further option. Front, rear, and top glass are also available separately. A washer/wiper system is available as a further option.

Opening the left-hand cab door

- > Pull the lever (1) backwards.
- Open the cab door outwards.

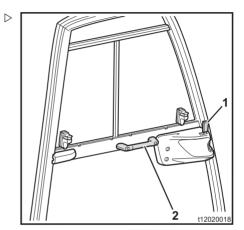
Closing the left-hand cab door



NOTE

To make it easier to close the cab door, open the side window slightly.

Using the handle (2), close the cab door all the way to the point that the interlock engages.

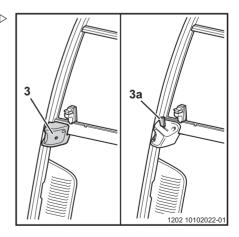


Opening the right-hand cab door

- ➤ Early version: Open the interlock by pushing a suitable object into the bore (3).
- > Later version: Pull the lever (3a) backwards.
- Open the cab door outwards.

Closing the right-hand cab door

From the outside, close the cab door all the way to the point that the lock engages.





Opening/closing the front side window

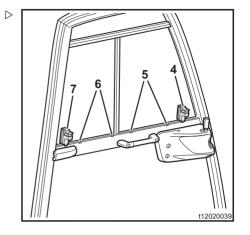
- > Push the interlock (4) upwards.
- Press and hold down the interlock and slide the side window into the required position so that it engages in one of the grooves (5).

Follow the same procedure to close the side window

Opening/closing the rear side window

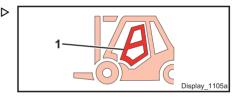
- > Push the interlock (7) upwards.
- Press and hold down the interlock and slide the side window into the required position so that it engages in one of the grooves (6).

Follow the same procedure to close the side window.



Door Interlock (optional equipment)

The truck may have a door interlock feature. If so the symbol (1) will appear in the status bar of the display if the door is open with the truck switched on. A tone will sound during driving and the truck will be limited to creep speed or the truck may be prevented from driving completely depending on the configuration.



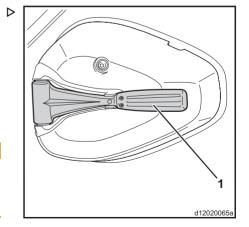
Emergency Exit via Rear Window

On trucks equipped with rear glazing (including full cabin models), an operator may be unable to exit the truck to the side in the event the truck becomes immobilized in a confined space such as narrow aisles. If danger is imminent, an emergency hammer (1) is provided to break the glass and allow escape through the rear window.

WARNING

Risk of injury from glass.

Shield eyes when using the emergency hammer. Proceed carefully afterwards to avoid laceration from glass remnants.



Linde Material Handling Linde

Operation

Wiper/Washer System (optional equipment)

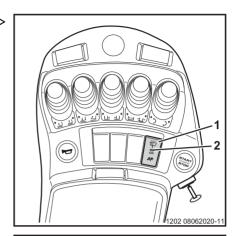
Wiper/washer systems are available for the front, rear, or roof glass, if installed.

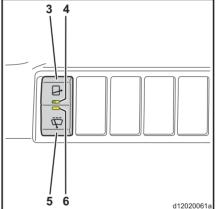
The wiper washer system is controlled using buttons in the armrest and the overhead guard switch panel. Front/rear wiper on/off is controlled with button (1) in the armrest. Roof glass wiper operation can be engaged or disengaged separately with the button (3). The LED's (2) and (4) will appear green when the corresponding system is operating. On some models, the roof wiper will not operate unless the front/rear wipers are also operating.

The truck may be configured so that roof wiper operation can be locked in by pressing the button (3) while the front/rear wipers are off. The LED (4) will then appear yellow. This will lock the roof wiper with the front/rear wipers so that all will start or stop using only the button (1). The LED (4) will toggle from yellow to green as button (1) is pressed. Press button (3) again to unlock the roof wiper from the front/rear wipers.

Wiper Speed

The wipers will operate according to the selected speed level and the travel status of the truck (forward, stationary, or reverse). The various wiper speed combinations are explained in the table. The speed level is selected with button (5). Briefly press the button (5) and observe the display unit to scroll through the three speed levels. Any of the three speed levels can be selected as default by pressing and holding the button (5). The LED (6) will appear yellow. The default speed level will automatically be active whenever the system is turned on.







Overview of the speed levels

	Forward travel	Stationary	Reverse travel
	Front windscreen wiper: intermittent mode, long intervals	Front windscreen wip- er: intermittent mode, long intervals	Front windscreen wiper: off
Speed level 1	Rear window wiper: off	Rear window wiper: off	Rear window wiper: intermittent mode, long intervals
	Roof panel wiper: intermittent mode, long intervals	Roof panel wiper: intermittent mode, long intervals	Roof panel wiper: intermittent mode, long intervals
	Front windscreen wiper: intermittent mode, short intervals	Front windscreen wip- er: intermittent mode, short intervals	Front windscreen wiper: intermittent mode, long intervals
Speed level 2	Rear window wiper: intermittent mode, long intervals	Rear window wiper: intermittent mode, long intervals	Rear window wiper: intermittent mode, short intervals
	Roof panel wiper: intermittent mode, short intervals	Roof panel wiper: intermittent mode, short intervals	Roof panel wiper: intermittent mode, short intervals
	-		
	Front windscreen wiper: continuous mode	Front windscreen wip- er: continuous mode	Front windscreen wiper: intermittent mode, short intervals
Speed level 3	Rear window wiper: intermittent mode, short intervals	Rear window wiper: intermittent mode, short intervals	Rear window wiper: continuous mode
	Roof panel wiper: continuous mode	Roof panel wiper: continuous mode	Roof panel wiper: continuous mode

Washer System

Front/rear washers are activated by pressing and holding the button (1). The roof glass washer is activated by pressing and holding the button (3). For either system, the washer pump will operate as long as the button is held up to a maximum of 20 seconds.

Linde Material Handling Linde

Operation

Heating and Air Conditioning (optional equipment)

If the truck is equipped with an enclosed cabin, a heating system is available as a further option. If the heater is present, an air conditioning system is available as a further option. Trucks equipped with heating only will not have the switch (4) and marking (5).

Heating System

Use the knob (1) for temperature control (more or less heat).

Use the knob (2) to adjust the blower speed.

Use the knob (3) to divert the heated air to the windows or the foot well.

Additionally, heated air will be available at the nozzle (6).

To defrost the windows, turn the knob (3) counter-clockwise. Open the outlet nozzle (6) and the left and right cabin vents (not shown) and direct their fins towards the windows.

Air Conditioning

The engine must be running and the blower switched on with knob (2) before the air conditioning will operate.

Press the button (4) to engage the air conditioning. Use knob (1) for temperature control.

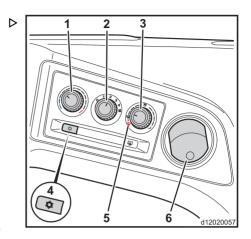
Blower speed and air flow are adjusted as with the heating system.

To defrost the windows, turn the knob (3) counter-clockwise to position (5). The blower speed will automatically increase to maximum. Open the outlet nozzle (6) and the left and right cabin vents (not shown) and direct their fins towards the windows.



NOTE

To prevent a musty odor from developing, run the blower for ten minutes after switching off the air conditioning to dry any water remaining on the evaporator.







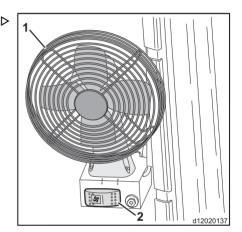
The condenser fans on the roof will operate periodically.



The air conditioning system should be operated at least ten minutes every four weeks to maintain lubrication on the compressor bearings.

Fan (optional equipment)

A cooling fan (1) for the operator is available as an option. The standard location for the fan is the front right-hand leg of the overhead guard. Use toggle switch (2) to turn the fan on or off.



Linde Material Handling Linde

Operation

Sockets (optional equipment)

12-V Socket

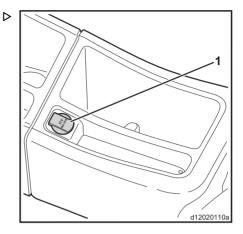
If equipped, the 12-V socket (1) will be installed in the right-hand compartment.

The following power outputs are protected:

· Nominal voltage: 12 V

· Current strength: maximum 10 A

• Power consumption: maximum 120 W



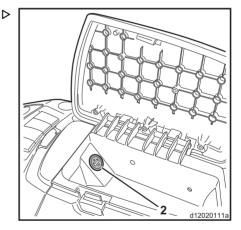
USB Socket

If equipped, the USB socket (2) will be installed in the compartment of the armrest console.

The following power outputs are protected:

Nominal voltage: 5 V

· Current strength: maximum 1.5 A





Towing Loads

The towing pin can be used to secure light loads for occasional towing by the forklift truck

Towed load capacity is limited by the maximum rated towing force listed in section 6. No load may be towed that exceeds the maximum towing force, regardless of weight. Contact the factory for towed weight capacity if necessary.

A CAUTION

Exceeding the maximum rated towing force can damage the truck.

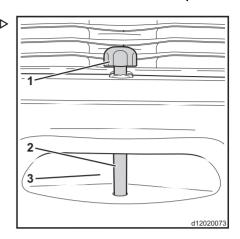
Refer to the specifications in section 6 for the maximum towing force. Do not tow any type of load that will exceed the maximum towing force. This specification only applies to loads towed on level surfaces (+/- 1%). If towing on gradients is required, contact the factory for load specifications.

WARNING

Incorrect attachment of towed loads can damage the truck and cause serious injury.

Never attach a load to any part of the truck other than the towing pin.

- > Push down slightly on the handle (1) and turn it to release the towing pin (2).
- > Lift the towing pin up with the handle.
- > Insert the tongue of the towed load into the coupling space (3).
- > Allow the towing pin to drop back into place through the tongue of the towed load. Ensure that the towing pin engages its lower bore.
- > Push down on the handle and turn to lock it into position.
- > Reverse the above procedure to uncouple loads from the truck.



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Additional Procedures

Additional Procedures

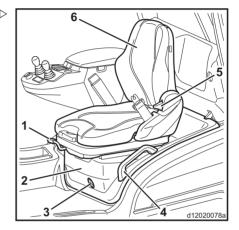
Opening and Closing the Hood

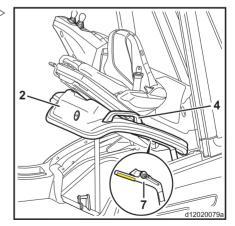
Opening the Hood

- Move the steering column all the way forwards and clamp it in place.
- > Rotate the steering wheel so its knob is at the top.
- ➤ Pull the lever (1) upward and push the driver's seat all the way forward.
- Release the lever (1) and allow it to engage.
- On trucks with rear glass, it is necessary to tilt the backrest forward. Support the backrest (6) with one hand and pull the lever (5) upward. Allow the backrest to fold all the way forward (under spring pressure) and release the lever (5).
- Press a flat head screwdriver or similar object into the slot (3) to release the hood latch while pressing the hood (2) downward slightly to unload the latch.
- Use the handle (4) to lift the hood to the first engagement position of the locking lever (7).



The hood can be opened further if necessary. Before opening the hood further, the armrest console must first be moved all the way down.

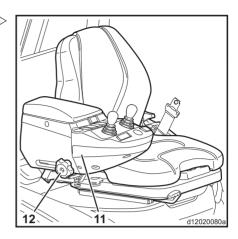






- ➤ Loosen the clamping screw (12) in the armrest console (11) and push the armrest console all the way down.
- > Tighten the clamping screw (12).

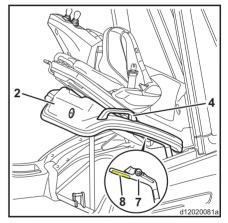
If a rear window is installed, the longitudinal adjustment of the armrest console must also be set to the middle. This is also controlled with clamping screw (12).



- ➤ Press upward on the yellow portion (8)of the locking lever (7).
- > Lift the hood to the next engagement position of the locking lever.



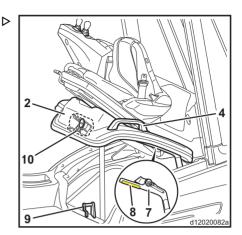
The locking lever (7) will hold the hood open in either position.





Closing the Hood

- ➤ Lift upward on the hood slightly using the handle (4) to unload the locking lever (7) and press upward on the yellow portion (8) of the locking lever to release it.
- Slowly press the hood down until it is past both of the locking lever engagement positions.
- > Release the lever.
- > Ensure all personnel are clear of the hood.
- ➤ Press down firmly on the hood until the latch (10) engages the hook (9).

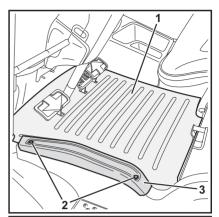


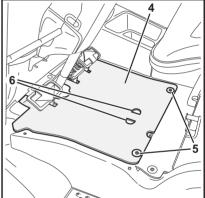


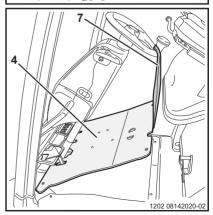
Opening the Floor Plate

Some service procedures require access to the area beneath the floor plate. The floor plate is equipped with a nylon strap to support it in an open position for convenience. \triangleright

- > Open the hood.
- ➤ Remove screws (2) and remove the trim strip (3).
- > Remove the floor mat (1).
- > Remove the mounting screws (5).
- ➤ Grasp the cutouts (6) and lift the rear edge of the floor plate up.
- ➤ Place the support strap (7) around the knob on the steering wheel.
- ➤ The floor plate may be lifted out completely if necessary.







Linde Material Handling Linde

Additional Procedures

Manual Lowering of Fork Carriage

If a malfunction occurs in the hydraulic system, the fork carriage can be lowered manually.

For this purpose, a manual lowering screw (2) is located on the control valve block (1).



▲ DANGER

Injury or death will occur if personnel are beneath the fork arms during the manual lowering process.

All personnel must remain clear of the area beneath the fork arms while the fork carriage is being manually lowered.

Always leave the wrench on the screw(2) throughout the manual lowering process to enable lowering to be quickly interrupted at any time.

The manual lowering screw is accessible with or without the floor plate in place. If the floor plate is in place, the screw is accessible through a cutout.

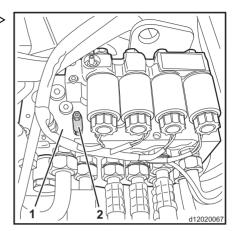
- If the floor plate is in place, remove the floor mat.
- Using an 8 mm socket, slowly turn the threaded stud (2) approximately 2 turns counter-clockwise. The carriage will begin to lower slowly. Do not unscrew the stud more than two complete turns. Unscrewing the stud further will not increase the lowering speed.

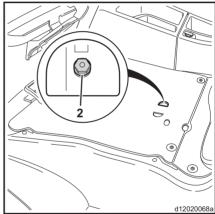
A CAUTION

If the lowering stud (2) is unscrewed too much, it will come completely out under pressure. If the stud comes out, it is impossible to re-install it against the flow of escaping hydraulic oil. If this occurs, the carriage will still not lower any faster, but hydraulic oil will be lost in an uncontrolled manner.

Do not unscrew the stud more than two complete turns.

After the carriage has lowered to the desired position, screw the threaded stud (2) back in clockwise and tighten to 11.1 ft-lb (15 Nm). This must be done or the lift function will not operate.







Tilt Sensor Override

If the tilt angle sensor malfunctions, the mast may be tilted by continuous cycling of the tilt lever. The truck will be limited to creep speed if such a malfunction occurs

Move the tilt lever in the desired direction. The tilt function will operate for one second. Repeat this motion as many times as necessary until the mast is at the desired angle.

4 Operation



Additional Procedures

Towing the Truck

Overview

If the truck must be towed, the following procedures must be performed before the truck will roll:

- Put the hydrostatic unit in towing mode.
 This is done by opening the short-circuit valve to bypass the drive motor in the hydrostatic unit.
- Override the brake springs in the drive axle to release the mechanical brake. This is done by manually pressurizing the mechanical brake in the drive axle.

These procedures are explained below.

WARNING

Braking the truck will no longer be possible. The parking brake will not operate either.

Towing the truck requires a towing vehicle with sufficient tractive power and braking force for the truck mass. Towing must be carried out using a fixed connection (towing bar).



NOTE

The power-assisted steering will not function if the engine will not run. Increased effort will then be required for steering.

▲ CAUTION

The hydrostatic drive unit will turn during towing, however there is no lubrication to the hydrostatic pump unit unless the engine is running.

Do not tow the truck for long distances. Doing so will damage the hydrostatic drive unit.

Before Towing

- Remove any load from the forks and lower the mast to a point where the forks will not drag during towing. If necessary, remove the forks.
- Attach towing vehicle (ensure sufficient tractive power and braking force) to the towing pin of the truck using a towing bar.

Opening the Short-Circuit Valve

- > Open the hood.
- Locate the short circuit valve stud (2) and lock nut (1) on the left-hand side of the hydrostatic unit
- Clean any collected grease and dirt from the stud and lock nut so they will easily turn independently of each other.
- Use an 8 mm wrench to hold the stud (2) stationary and loosen the lock nut (1) with a 19 mm wrench.
- > Unscrew the stud two full turns.
- Hold the stud against additional turning and lock it in this open position with the lock nut. Tighten the lock nut to 37 ft-lbs (50 Nm).

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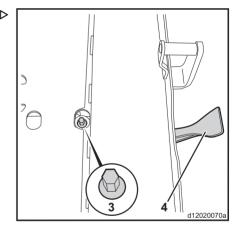
Loosening the multi-disc brake

The brake valve is located under the floor plate on the left-hand side of the truck chassis.

- ➤ Lift or remove the floor mat
- ➤ Insert an 8 mm socket through the bore in the floor plate and screw in the threaded stud (3) clockwise. Tighten the stud to 22 ft-lbs (30 Nm).
- Pump the lever (4) back and forth until a clear increase in resistance is felt (approximately 50 strokes). At this point the brake is released.
- ➤ Install the floor mat
- Close the hood.
- > Tow the truck. Avoid pressing the brake pedal or the release pressure will be lost. In this case the brake will have to be released again using the lever (4).



The brake will remain released for approximately 25 minutes due to leakage in the brake valve. If necessary, the brake must then be released again using the lever (4).





After Towing

After all towing is complete, secure the truck with chocks. The towing procedures must be reversed before operating the truck:

- · Relieve the pressure in the braking system.
- The hydrostatic unit must be taken out of towing mode by closing the short-circuit valve.
- Braking function must be restored at the brake valve.

Relieving Braking Pressure

To relieve the pressure holding the brake open, step on the brake pedal.

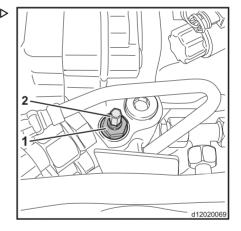
Closing the Short-Circuit Valve

- > Open the hood.
- Hold the short circuit valve stud stationary and loosen the lock nut (1). Back the lock nut well off of the surface of the hydrostatic unit.



If the lock nut is not backed away enough it can interfere with proper seating of the stud. If the stud is not fully seated and tightened, drive performance will be altered.

- Hold the lock nut stationary so that the stud (2) can turn independently of the lock nut. Tighten the stud to 15⁺³ ft-lbs (20⁺⁵ Nm).
- After the stud is tightened, run the lock nut down to hold the stud position. Tighten the lock nut to 37 ft-lbs (50 Nm).





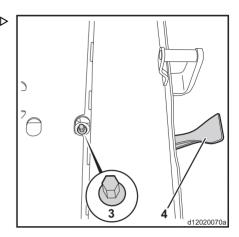
Restoring Braking

- > Lift or remove the floor mat.
- Unscrew the threaded stud (3) anti-clockwise as far as its stop. Tighten to 7.5 ft-lbs (10 Nm) against the stop.
- > Install the floor mat.
- > Apply the parking brake.
- Confirm correct operation of the brake. Start the engine. With the engine running, the truck should be free to roll only when the parking brake is released.

A WARNING

The forklift truck must not be driven if the mechanical brake system is defective or not fully restored.

Always confirm correct operation of the mechanical brake after restoring braking at the brake valve. The truck must not be driven until proper braking ability is confirmed.



Operation



Loading/transportation

Loading/transportation Securing the Truck for Transport

This procedure explains the attachment of equipment to the truck for the purpose of securing it for ground transport by tractor-trailer or other vehicle. Securing the truck for transport must be performed by personnel experienced in rigging loads for transport.

WARNING

Transport vehicles, loading ramps, or other equipment of insufficient capacity can fail and cause severe injury or death.

Ensure that the transport vehicle as well as any loading ramps or other equipment has sufficient capacity to carry the weight of the truck. Refer to the truck data plate for truck weight.

Ensure that all surfaces on which the truck will be driven or carried can support the wheel load of the truck. Contact the factory for wheel load values if necessary.

WARNING

If the truck is to be driven onto the transport vehicle, the operator must be familiar with all safety procedures that apply to forklift operation before driving. Be aware that the truck has rear steering and that the rear end will move out during a turn. Failure to carefully monitor truck position while turning could cause the truck to fall during the loading process.

Read and understand all safety information in Section 2 before driving the truck onto a transport vehicle. Remain aware of truck position at all times especially if turning. If possible, align the truck with the transport vehicle so that it can be driven straight onto it without turning. Drive very slowly during the entire loading process.

Preparation

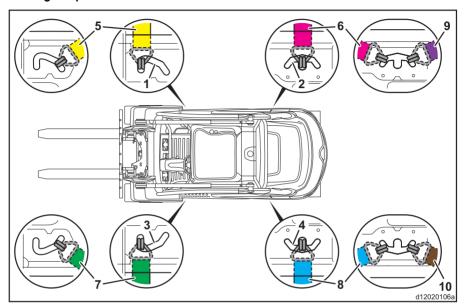
- > Once the truck is in position, lower the mast completely.
- > Apply the parking brake.
- > For LP trucks, remove the LP tank from the truck

The truck has four slots in the underside of the chassis for use with lashing straps that have hooks at their ends. These slots are used with



method 1 below. If straps with hooks are not available, method 2 may be used.

Lashing Strap Placement - Method 1



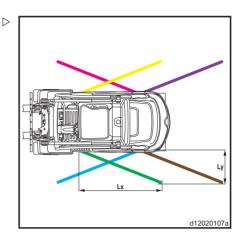
The truck has four slots (1 to 4) cut into the underside of the chassis. The slots are designed to accept lashing straps that have hooks at their ends.

- Insert the hooks of lashing straps (5), (6), (7) and (8) into the slots at a right angle to the truck
- Engage the lashing strap hooks by turning them in the tensioning direction. This will prevent the hooks from accidentally slipping out of the slots.
- For trucks with the optional raised driver's compartment, also insert the lashing straps (9) and (10) into the holding fixtures at a right angle to the truck.

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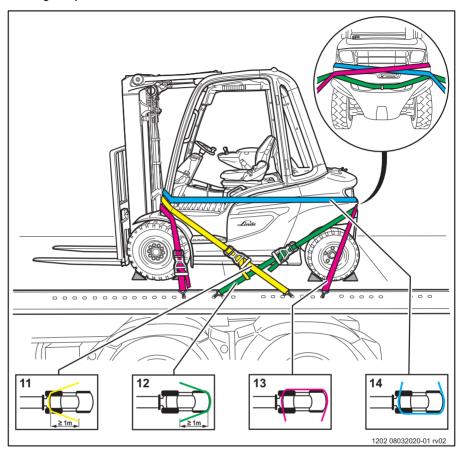


- Attach the lashing straps to the transport vehicle. Ensure that the distance Lx is between 60 inches and 72 inches (1500 mm to 1800 mm) and the distance Ly is between 28 inches and 32 inches (700 mm to 800 mm).
- Ensure that all lashing straps or tie-downs are tight and securely attached to the transport vehicle.
- > Chock the wheels.





Lashing Strap Placement - Method 2



- > Position lashing straps around the truck as shown.
- Pass the strap in position (12) behind the towing pin. Ensure that the towing pin is fully inserted through both of its bores in the counterweight.
- Ensure that all lashing straps or tie-downs are tight and securely attached to the transport vehicle.
- > Chock the wheels.

Linde Material Handling Linde

Loading/transportation

Hoisting the Truck

This section explains the attachment of lifting equipment to the truck for the purpose of hoisting it. Many methods of rigging to a crane or hoist are possible. Explanation of such methods as well as operation of lifting equipment is outside the scope of this manual. Both the attachment of lifting equipment to the truck and the hoisting operation itself must be performed by personnel experienced in rigging.

WARNING

Lifting equipment of insufficient capacity can fail and cause severe injury or death.

Ensure that all lifting slings, hardware, or other equipment has sufficient capacity to carry the weight of the truck. Refer to the truck data plate for truck weight.

Two lifting eyes (1) on the lift mast and two lifting eyes (2) on the counterweight are available as an option for crane loading.

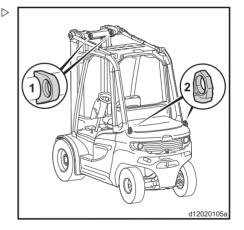
Lifting Eyes

WARNING

Improper use can result in damage to the lifting eyes. Damaged or worn lifting eyes can fail and cause severe injury or death.

Follow the guidelines below to avoid damage to the lifting eyes.

- Do not use the lifting eyes to tow the truck or to lash the truck for transportation purposes.
- Do not use the lifting eyes on the lift mast to lift the lift mast, e.g. for service work.
- Following noteworthy incidents, such as the lifting eyes colliding with objects, crane loading must not be carried out. The lifting eyes must be checked by an authorised technician.
- Bent or damaged lifting eyes must be repaired or replaced only by an authorised technician
- Do not allow the lifting eyes to come into contact with aggressive chemicals, acids or their vapours.





Preparatory tasks

Park the truck securely. To do so:

- Remove the load from the fork arms or attachment.
- Completely lower the load support.
- > Move the lift mast to a vertical position.
- Apply the parking brake as described in the "Parking brake" section.
- > Stop the engine.
- Remove any loose objects from the driver's cab.
- Close the cab doors securely.
- > Determine the loading weight.

The loading weight is the sum of the

- · Tare weight of the truck
- · Tare weight of the attachment, if fitted

Attaching Slings

- Crane loading using lifting eyes is only permitted using equipment specifically intended for lifting.
- Slings must lead vertically upwards from the lifting eyes.
- A compensating device must be used to avoid uneven load distribution. The compensating device must distribute the load of the truck symmetrically to the left and right at the front and rear (e.g. an H-shaped load beam with compensating rocker on the lifting gear).
- Check the lifting eyes for damage: secure positioning, heavy corrosion, wear and deformation

M WARNING

Damaged, worn, or loose lifting eyes can fail and cause severe injury or death.

Do not hoist the truck if problems with a lifting eye are found. Have the lifting eyes repaired or replaced before hoisting the truck.

Adjust the lifting gear to the distances between the lifting eyes on the truck.



- Adjust the length of the slings from the horizontally suspended lifting gear to the position of the lifting eyes.
- > Always attach the slings to all four lifting eyes on the truck.

When connecting the slings, make sure that there are no points at which hands could be crushed, trapped, cut or impacted.

Slings must be free to move in the lifting eye.

Make sure that all safety locks on the crane and lifting gear are closed.

Hoisting the Truck

Adjust the slings and lifting device so that they will not contact the overhead guard during the lifting process.

A WARNING

The overhead guard will be damaged if it is contacted by lifting equipment that is under tension from lifting. This can result in later failure of the overhead quard and the risk of severe injury or death.

Ensure that no part of any lifting equipment contacts the overhead guard during lifting.

> Slowly perform a test lift.



NOTE

Permissible angle of the slings to the vertical:

 All slings must remain within a maximum (x) and (y) angle of ±10° from the vertical reference point.

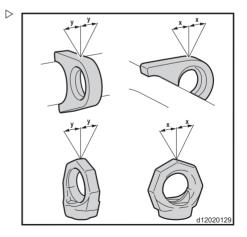
All four wheels must leave the ground at the same time and the truck must be horizontal when suspended.

- If necessary, adjust the alignment of the lifting gear.
- > Slowly lift the truck and set it down again.

Servicing work on the lifting eyes

Servicing work every 1000 operating hours but at least every 12 months:

Check the lifting eyes on the lift mast for wear.





> Check that the lifting eyes on the counterweight are secure and check for wear.

4 Operation



Loading/transportation

Maintenance



Personnel Qualifications

Personnel Qualifications

Only qualified personnel authorized by the owner are permitted to perform maintenance or repair work. All items listed in the Scheduled Maintenance Charts must be performed by qualified forklift technicians only. They must have knowledge and experience sufficient to assess the condition of a forklift truck and the effectiveness of the protective equipment according to established principles for testing forklift trucks. Any evaluation of safety must

be unaffected by operational and economic conditions and must be conducted solely from a safety standpoint.

Daily inspection procedures and simple maintenance checks, e.g. checking the hydraulic oil level or checking the fluid level in the battery, may be performed by operators. This does not require training as described above.



Cleaning

Cleaning

Cleaning the Truck

The need for cleaning depends on use of the truck. If highly aggressive media are involved, e.g. salt water, fertilizer, chemicals, cement etc., thorough cleaning is required after finishing the work assignment.

Hot steam or cleaning materials with a powerful degreasing effect should only be used with great caution as this will affect the grease filling of bearings with lifetime lubrication, causing it to escape. As re-lubrication is not possible, the bearings will be irreparably damaged.

When using compressed air for cleaning, remove stubborn soiling with cold cleaner.

During cleaning pay special attention to cooling fins on drive axles or electric motors. On motors or other electric components, remove caked deposits from cooling fins and heat sinks with a cloth

Clean all oil filler openings and the surrounding areas. Always clean grease fittings prior to greasing.

Run the truck immediately after cleaning to aid in drying and check operation.

Cleaning the Lift Chains

If the lift chains are so dirty that lubricant penetration is not assured, the chains must be cleaned.

A WARNING

Lift chains are safety elements. Incorrect cleaning materials can damage them.

Do not use cold/chemical cleaners or fluids that are corrosive or contain acid or chlorine. Note the manufacturer's safety information. When cleaning with a steam jet, do not use additives.

- > Place a collection vessel under the mast.
- Clean lift chains with a paraffin derivative such as petroleum ether.

▲ CAUTION

Never wash truck when switched on.

Switch the truck off before any cleaning operations.

▲ CAUTION

When cleaning with a water jet (high-pressure or steam cleaner etc.), it should not be applied directly to the area of the drive unit, electric and electronic components, connector plugs or insulating material. Water should not be used for cleaning in the area of the central electrical system and switch console.

If this is unavoidable, the parts concerned should be covered up beforehand or only cleaned with a dry cloth or clean compressed air.



NOTE

If the truck is equipped with a sideshifter, its top and bottom bearings should be greased after the truck is washed. Use lubricating grease complying with the recommendations for working materials.

- Immediately after cleaning, dry the chains with compressed air to remove any water remaining on the surface and in the chain joints. Flex the chains while drying to ensure thorough moisture removal.
- Immediately apply chain lubricant to the chains. Flex the chains while applying the chain lubricant to ensure lubricant penetration



NOTE

Lift chains on trucks used in the food industry must be lubricated with an oil approved for the food industry.



Operator Inspection and Maintenance

Daily Inspection Overview

The following inspection tasks in this section should be carried out by the operator or designated service personnel before each shift or at least daily. This inspection is not part of the regularly scheduled maintenance listed elsewhere in this chapter and is not intended to replace any of it. Regularly scheduled maintenance must be performed by a qualified forklift technician at the intervals indicated.

If any problem affecting safety is noted, it must be repaired immediately by a trained forklift technician. The truck must not be operated until such repairs are complete. This list does not cover attachments or other truck modifications not manufactured by Linde. Refer to the respective manufacturer's documentation for maintenance information pertaining to such items.

▲ WARNING

To prevent accidents during maintenance activities, the truck must be secured against unintentional movement or start-up. Before beginning any maintenance, the mast should be fully lowered, the parking brake should be on and the key switch turned off. The truck must remain in this state throughout the maintenance process except for individual maintenance activities that specifically require otherwise.



Daily Inspection Checklist

		IC SIT-DOWN OPERATOR'S DA			
ruc	k S	erial Number: Dept / Shift:			Operator:
ou	r me	erial Number: Dept / Shift: _ eter reading: Date:			Supervisor:
f a	ny p	each of the following items before the start of each shift problem. Start at the left rear of the lift truck and work im accordingly. Explain below as necessary. Check boxes as follows: OK NR, I	toward	ds th	
o K	N R	VISUAL INSPECTION	O K	N R	OPERATIONAL INSPECTION
		Water or Oil Spots on Floor (check for leaks on truck)			Unusual Noise (during any of the operational checks)
T		Rear Tires (pressure if applicable, wear, cuts, embedded ob-			Gauges and Instrumentation (check operation)
		jects, rim damage, loose/missing lug nuts)			Seat Switch (if equipped) (check operation)
		Steer Axle (check for damage, debris)			Directional switch (if equipped) (operates freely)
_		Pre-cleaner bowl (clean)			Forward Driving (accelerates, steers, brakes smoothly)
		Exhaust (check damage or obstructions)			Reverse Driving (accelerates, steers, brakes smoothly)
_		Propane (relief valve, fuel level, leaks, tank hold-down bracket)			Service Brake or Emergency Stop Pedal (check operation)
_		Overhead Guard (damage, bends, cracks, looseness)			Parking Brake (check operation)
		Seat & Seat Belt (check operation, damage, wom/torn belt, loose fasteners)			Hydraulic Controls (operate freely, return to neutral, lock-out function (if equipped) operates properly)
		Steering Wheel (check for wear, damage)			Attachment (if equipped) (check operation)
		Hood Latch (check operation, latches securely)			Mast (extend fully, binding, leaks, roughness, noise)
_		Hydraulic Oil (check level)			Hydraulic Oil (excessive noise when mast is fully raised is
_		Engine (check oil, coolant and brake fluid levels as applicable)	-	_	indication of low hydraulic oil) Horn (sounds when button pressed)
		Fan Belt(s) (must be dry and free of cracks or fraying) Battery Connectors & Cables (damage, cracks, pitting)	-		Backup Alarm (if equipped) (sounds in reverse)
-		Transmission Fluid (check level) (Torque converter trucks only)	_	\vdash	Travel Alarm (if equipped) (sounds with vehicle in motion)
-		Front Tire (left) (tire condition, rim damage, etc)	-	_	
_		Tilt Cylinder (left) (damage, leaks, loose fittings)			Work, Strobe, Flashing Lights (if equipped) (check operation)
+		Mast (damage, wear, cracks, loose fasteners)		_	
-		Lift Cylinders (damage, leaks, loose fittings)			
-		Lift Chains (wear, corrosion, cracks, loose leaves, even tension)			
+		Carriage/Load Backrest (damage, looseness, bends, cracks)			
-		Forks/Attachment (damage, cracks, excess wear, twisted, bent)	О	N	DUSTY APPLICATIONS
-		Fork Locking Pins (check operation, holds fork secure)	ĸ	R	
۲		Tilt Cylinder (right) (damage, leaks, loose fittings)			Air Clean Exterior of Truck
-		Front Tire (right) (tire condition, rim damage, etc)			Air Clean or Vacuum Interior of Truck and Engine Compartment
_		Warning Decals/Operator's Manual (in place, legible)			Air Clean Radiator from Inside of Engine Compartment Out
_		Data Plate / Capacity Plate (in place, legible)	-	_	(DO NOT blow from outside grill to inside of engine compartment
		Data Flato / Capacity Flato (iii placo, logislo)			

OSHA 1910.178 (p) (1) requires a truck to be taken out of service any time it is found to be in need of repair, or is in any way defective or unsafe. Place a "Do Not Operate" tag on the truck, remove the key and alert your supervisor. The truck

may not be placed back into service until necessary repairs are made.

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Check for fluid leakage

Check the entire truck as well as the surface beneath it for signs of fluid leakage.

Check overhead guard

Check the condition of the overhead guard for deformity, looseness, or other obvious damage.

Any safety glass incorporated into the overhead guard must be checked for chips or cracks. If any such damage to the glass is found, the truck must be taken out of service until the glass is replaced.

Check hydraulic cylinders

Inspect lift, tilt, and any attachment cylinders for damage or leakage.

Check lift chains

Inspect the mast lift chains for broken link plates, broken or deformed pins, rust, and stiffness. Inspect the chain anchor and hardware for damage as well.

Check fork carriage

Inspect the forks, carriage and load backrest for deformity, cracks, or other damage. Check fork latch pins for correct operation. (Trucks equipped with a fork positioner will not have fork latch pins.)

Check the steering axle

Check for any debris entangled or wrapped around the steer wheels and remove it.

Check the steering cylinder for leakage at its seals and fittings.



Check engine oil level

- > Park the truck on level ground.
- > Open the hood.
- > Withdraw the oil dipstick (2) from its tube.
- > Wipe the dipstick with a clean cloth.
- Re-insert the dipstick fully and remove it again. The oil level must be between the two marks on the dipstick.
- If necessary to add oil, remove filler cap (1) from the filler opening. Pour oil into the opening until the level reaches the upper mark on the dipstick.



The volume difference between the two marks is approximately 1.0 qt (1.0 l).

WARNING

Engine oil is flammable.

Do not allow engine oil to contact hot engine components. Use care when adding oil to avoid spilling.

A CAUTION

Incorrect oil can damage the engine.

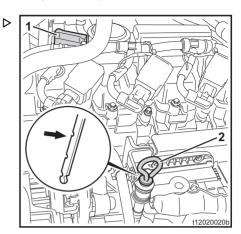
Use only oil that meets the specifications given in the Fluid and Lubricant Specifications section.

A CAUTION

Overfilling the engine with oil can cause engine damage.

Do not overfill the engine with oil. Drain excess engine oil if necessary.

➤ After adding oil, replace the filler cap and turn to tighten it.





Check coolant level

- > Open the hood.
- Observe the expansion tank (1) in the left rear of the engine compartment. The coolant level must be between the marks (3) when the engine is cold. It must be at or slightly below the upper mark when the engine is at operating temperature. If the level is too low, coolant must be added.

WARNING

If heat is still present in the cooling system, the expansion tank could be under pressure and its contents will be hot. Removing the expansion tank cap while the system is still warm can result in serious burns due to hot, pressurized coolant.

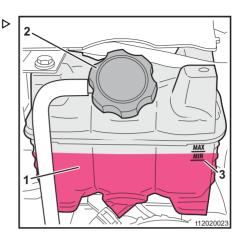
Do not attempt to add coolant while the engine is still hot. Always carefully feel the temperature of the expansion tank before removing its cap Remove the cap only when the tank is cool.

A CAUTION

Incorrect coolant types will not give maximum engine protection.

Use only coolant that meets the specifications given in the Fluid and Lubricant Specifications section. If coolant is not pre-mixed, mix with water according to the chart in the Fluid and Lubricant Specifications section.

- If necessary to add coolant, remove the cap (2) from the expansion tank (1) and add coolant until the level reaches the upper mark.
- > Allow some time for the level to stabilize after adding coolant.
- Once the coolant level has stabilized at or just below the upper mark, replace the cap on the expansion tank. Operate the engine and continue to monitor the level. If the level drops, allow the engine to cool and then add fluid to restore the level. Continue monitoring/filling until the level stabilizes at or just below the upper mark with the engine running.
- Close the hood.







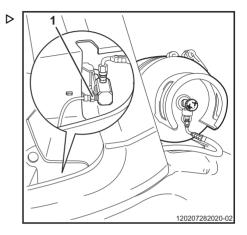
NOTE

Some loss of coolant over time is normal If the level must be continuously replenished then the cooling system must be checked for leaks

Check fuel line

A high pressure relief valve (1) is located at the left-hand rear leg of the overhead guard. This valve protects the fuel system from excessive gas pressure. It will vent LP gas if an overpressure condition occurs.

> Visually check the line and all connections between the valve and the LP tank. Also remain alert for the smell of LP gas during this check. If damage or wear is apparent to the line it must be repaired before operation. If the odor of LP gas is detected, close the manual valve at the LP tank immediately. The truck must not be operated until the cause is determined and corrected



Check engine fan

The engine fan is powered by an electric motor which is controlled by engine temperature.

WARNING

The engine fan may start and operate at any time, even when the engine is off.

Always disconnect the battery before touching or reaching into the fan.

Inspect the fan for damage and cleanliness. Remove any debris or deposits of grease or dirt. Check especially for long pieces of debris wrapped around the fan shaft and remove if found. Debris around the fan shaft, such as fibers or plastic, can damage the shaft seal and destroy the fan.

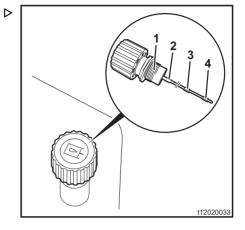


Check hydraulic oil level

- > Park the truck on level ground.
- > Lower the fork carriage completely.
- > A dipstick (2) is attached to the underside of the breather filter cap (1) on the hydraulic oil tank. Unscrew the cap and withdraw the dipstick from the tank.
- > Wipe the dipstick with a clean cloth.

The dipstick has two level segments built into it. These segments correspond to the mast type installed on the truck as follows:

Mast Type	Dipstick seg- ment
Masts with lift stroke (h3) less than 189 inches (4805 mm)	4 (lower segment)
Masts with lift stroke (h3) greater than or equal to 189 inches (4805 mm)	3 (upper seg- ment)





Refer to the Mast Heights section in Chapter 6 to identify masts installed on specific trucks.

- > Insert the dipstick back into the tank tube and screw the breather cap in fully.
- > Remove it again and observe the oil level. It should be between the upper and lower edges of the appropriate segment. If necessary, add hydraulic oil through the dipstick tube until the level is correct.

WARNING

Hydraulic oil is flammable.

Do not allow hydraulic oil to contact hot engine components. Use care when adding oil to avoid spilling.

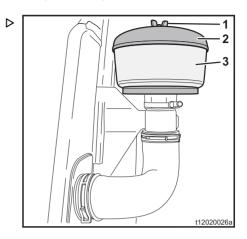
> Reinstall the dipstick when finished and tighten the breather cap.



Check pre-filter bowl (optional equipment)

Trucks equipped with the optional high-mounted pre-filter have a transparent filter bowl at the top left rear of the overhead guard. Visually check the bowl to determine the amount of collected dust. The bowl should never be allowed to become more that half full. In dusty environments, it may need to be checked and emptied more than once per day.

To empty the bowl, unscrew the wing nut (1) and remove the cover (2). Lift the bowl (3) off of its supporting collar and empty it into a suitable waste container. When finished, refit the bowl and cover and install the wing nut.



Anti-static strap (optional equipment)

An anti-static strap is typically installed on trucks with non-marking tires that are more prone to static electricity build-up. An anti-static strap may also be installed on trucks that operate in certain applications regardless of tires. If equipped, inspect the anti-static strap for wear or damage. The strap must maintain continuous contact with the driving surface. If any wear or damage preventing this contact is present, the strap must be replaced. Also check that the strap mounting is secure. Correct as required.

Check decal condition

Inspect all decals and the data/capacity plate for condition and legibility. Decal locations are given in the Overview section of this manual. Refer to the decal descriptions in the Safety section of this manual if necessary. Any damaged or unreadable decals must be replaced.



Check wheels and tires

WARNING

Uneven wear or excessive damage to the tires can reduce stability as well as brake performance. On pneumatic tires, this can also result from insufficient air pressure as well. Reduced stability can cause tip-over. Reduced brake performance can cause collisions.

Have worn or damaged tires changed immediately. Ensure pneumatic tires have the correct inflation pressure.

A WARNING

This truck may be equipped with pneumatic tires. If handled incorrectly, pneumatic tires on heavy equipment present an explosion hazard due to high inflation pressures.

Pneumatic tires must only be inflated or changed by personnel trained in handling pneumatic heavy equipment tires and then only when the proper protective equipment is used. Always deflate tires before wheel or tire removal or disassembly. Always use protective equipment when inflating tires.

Tires

All tires must be inspected for damage and excessive wear. On pneumatic tires, the inflation pressure must also be checked.

Wear Limits

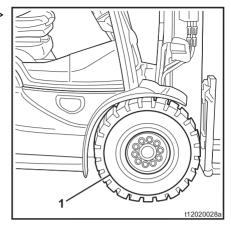
For solid treaded tires, the upper edge of the wear mark (1) is the maximum limit for wear and re-grooving.

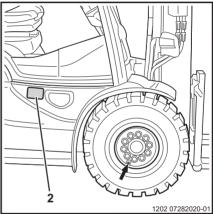
Inflation Pressure

If the truck is equipped with pneumatic tires, their pressure must be checked with a gauge. Tires must be inflated to the correct pressure. For trucks equipped with pneumatic tires, correct pressures are listed on the decal (2) on the right-hand side of the truck.

Wheel Fasteners

Check wheel mounting hardware for looseness. This is especially important if a wheel has recently been removed and reinstalled for repairs, replacement, or any other reason. Have any loose wheel mounting hardware







tightened to the following torque before operation.

▲ WARNING

Wheel mounting hardware sometimes requires several cycles of tightening before it fully seats. For this reason, wheel mounting screws or nuts will often work loose in the period immediately following initial tightening.

Whenever a wheel is removed and replaced for any reason, the wheel mounting screws or nuts must be checked for tightness every 10 hours thereafter until no further loosening is detected.

	Fastener torque
Front wheels	314 ft-lbs (425 Nm)
Rear wheels	314 ft-lbs (425 Nm)

Check the seat and seat belt

Check the seat condition and mounting. Verify that seat mounting hardware is tight and that the seat is stable.

Pull the seat belt completely out and inspect it for fraying or damage. Buckle the belt and check that the buckle holds securely and that it releases easily and completely when the release button is pressed. With the truck on a horizontal surface, quickly pull the belt out of its retractor and verify that the locking mechanism prevents rapid extension.

WARNING

A malfunctioning or defective seat belt can result in injury or death in case of accident.

Do not use the truck if the seat belt is defective. If any defect in the function of the seat or seat belt is noticed, the truck must be removed from service until the cause is corrected.

The seat belt must be replaced after an accident. For seat belts integrated into the driver's seat, the seat and its fastening must also be checked by trained technicians after an accident.

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Operator Inspection and Maintenance

Check control lever bellows

Inspect the flexible bellows on each hydraulic control lever for correct position and condition. Torn or otherwise damaged bellows must be replaced.

Operational checks

Before returning the truck to service, conduct an operational check of the following items:

- Parking brake (must hold on 15% grade with maximum load)
- · Seat switch
- Multi-function display/battery discharge indicator
- · Working lights
- Horn
- · Forward and reverse travel
- · Back-up alarm if equipped
- Service brake
- Mast, tilt, and any other hydraulic functions (operate through complete range of motion)
- Fuel level

A CAUTION

Excessive noise during hydraulic function operation indicates low hydraulic fluid.

This condition must be checked and corrected immediately to avoid damage to the hydraulic pump.



Routine Lubrication and Inspection

Routine Lubrication and Inspection Intervals

The items in this section must be performed based on usage and environment. They do not need to be performed daily but may require completion more frequently than the major scheduled maintenance intervals. These intervals can often be based on maintenance experience by those familiar with equipment in the given environment. Intervals given herein for specific items however must not be exceeded in any case. Your Linde dealer will be able to provide application-specific interval recommendations if required.

Inspect V-Ribbed Belt

The V-ribbed belt drives the alternator. If it is loose or damaged it will affect alternator performance.

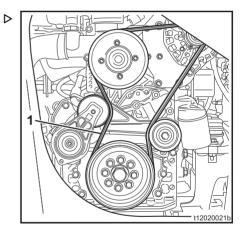
- Open the hood.
- > Remove the right-hand side panel.
- ➤ Check the V-ribbed belt (1) for excessive wear, fraved edges, cracks across the belt and traces of oil.

The V-ribbed belt must be replaced if it is damaged.



A special tool is required to change the belt.

- > Install the side panel.
- Close the hood.





Cleaning the Radiator

The radiator fins (1) should be cleaned periodically to remove trapped dirt or debris. The truck control system provides a radiator cleaning function that runs the engine fan at maximum speed to assist in cleaning. The radiator may be cleaned with or without the use of this function, however the procedures differ. Each is outlined below

WARNING

The engine fan may start and run at any time, regardless of whether the cleaning mode is active or not.

Always remain clear of the engine fan when working in the engine compartment.

A CAUTION

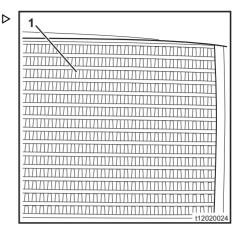
The alternator will be damaged by moisture penetra-

Always protect the alternator from direct contract with any stream of high pressure water.

- > Park the truck and allow the engine to cool.
- > If the truck is equipped with the optional removable radiator screen, remove it and clean it separately.
- Remove the rear panelling.
- > Remove the side panels.
- Open the hood.

Cleaning Without Using the Engine Fan

- ➤ Blow out the radiator fins (1) from outside (behind the truck) using compressed air.
- > If necessary, spray the radiator fins with a commercially available cold cleaning solvent and allow it to work for ten minutes.
- > Spray the radiator fins from outside (behind the truck) with a direct water jet until the radiator is clean





Cleaning With Engine Fan Assistance



- · The starter battery must be fully charged.
- The fan can be activated to support radiator cleaning even while the engine is running.
- · The fan cannot be activated for radiator cleaning if the engine is hot. The "Unable to carry out radiator cleaning" display appears on the display unit.

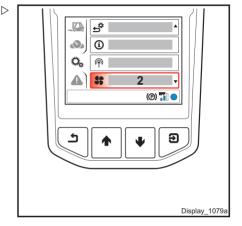
Fan Control (Standard Display Unit)

- > Apply the parking brake.
- > Switch on the electrical system.
- > Select the "Clean the radiator" (2) menu item in the display unit.



NOTE

The "Clean the radiator" symbol appears at the bottom left of the display.

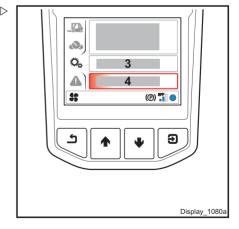


It is possible to select either "Back" (3) (cancels the process) or "Start" (4).

> Select "Start" (4).

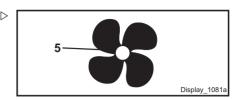
The "Radiator cleaning active" message appears on the display unit.

The fan is activated and runs for three minutes at maximum speed.



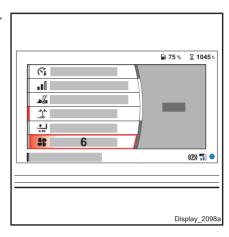


During this time, the symbol (5) is displayed in \triangleright the status bar on the display unit.



Fan Control (Premium Display Unit)

- > Apply the parking brake.
- > Switch on the electrical system.
- > Select the "Clean the radiator" (6) menu item in the display unit.

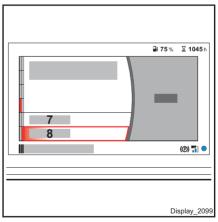


It is possible to select either "Back" (7) (cancel $\,\triangleright\,$ the process) or "Activate" (8).

> Select "Activate" (8).

The "Radiator cleaning active" message appears on the display unit.

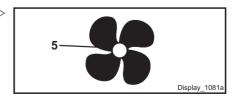
The fan is activated and runs for three minutes at maximum speed.



During this time, the symbol (5) is displayed in \triangleright the status bar on the display unit.

Cleaning Procedure

> Start the fan using the above procedure.





The fan can be switched off in an emergency by switching the electrical system off and on again.

- > Blow out the radiator fins (1) from outside (behind the truck) using compressed air.
- If necessary, spray the radiator fins with a commercially available cold cleaning solvent after the fan has stopped. Allow it to work for ten minutes before switching on the fan again.
- > Switch on the fan again (if not still running).
- > Spray the radiator (1) from the counterweight side with a direct water jet until the radiator is clean

Automatic Fan Switch-off

After three minutes, the fan is automatically switched off and "Radiator cleaning successful" appears on the display. The symbol (5) goes out.



The fan may overrun if the engine is warm.

Deactivating the Fan Early

Standard Display Unit

- > To switch off the "Radiator cleaning active" message, push the button (9).
- > Select the "Clean radiator" (2) menu item in the display unit.



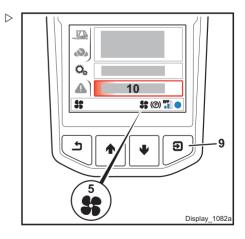
NOTE

The "Clean the radiator" symbol appears at the bottom left of the display.

> Select "Stop" (cancel the process) (10).

The "Radiator cleaning cancelled" message appears on the display unit. The symbol (5) is no longer displayed in the status bar.



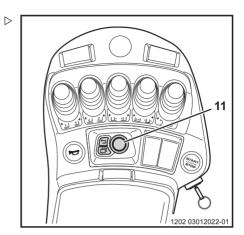


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Routine Lubrication and Inspection

Premium Display Unit

- ➤ To switch off the "Radiator cleaning active" message, push the rotary-push button (11).
- > Select the "Clean radiator" (6) menu item in the display unit.

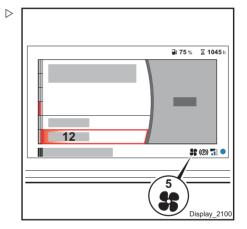


> Select "Deactivate" (cancel the process) (12).

The "Radiator cleaning cancelled" message appears on the display unit. The symbol (5) is no longer displayed in the status bar.

After Cleaning

- Rinse any dislodged dirt from inside the engine compartment with a water jet.
- To prevent rust formation, start the engine immediately and allow it to reach operating temperature to evaporate residual moisture.
- Check the connection screw joints, coolant hoses and pipe lines on the radiator for leak tightness.
- Replace any damaged hoses and re-tighten the hose clips.
- > Install the rear panelling.
- > Install the side panels.
- > Close the hood.

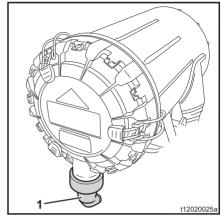




Check Air Filter Discharge Valve ▷

The engine air filter is equipped with a flexible discharge valve to evacuate dust as it accumulates. The valve is largely maintenance-free, but may occasionally require manual operation for complete cleaning, especially in very dusty environments.

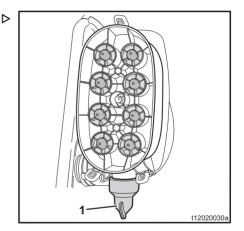
- > Open the hood.
- Squeeze the valve (1) and remove the dust residue.
- > If the valve is damaged, replace it.
- Close the hood



Check Multi-Cyclone Air Filter Discharge (optional equipment)

If the truck is equipped with the optional multi-cyclone air filter, it will be mounted to the inside of the left rear overhead guard leg. The filter is equipped with a flexible discharge valve to evacuate dust as it accumulates. The valve is largely maintenance-free, but may occasionally require manual operation for complete cleaning, especially in very dusty environments.

- > Squeeze the valve (1) and remove the dust residue.
- > If the valve is damaged, replace it.





Hydraulic Tank Pressure Valve **Testing**

The breather filter (1) for the hydraulic tank is equipped with a bleeder valve that permits a slight over-pressure in the tank. The filter must be seated securely on the tank for the test to be effective. Check tightness if necessary before testing.

- Start the engine.
- > Extend the lift mast to the stop and lower it again; repeat this step several times.
- > Switch off the engine.
- Open the hood.
- > Release the breather filter by slowly unscrewing the dipstick assembly.

It must be possible to hear air escaping from the tank.

> If air cannot be heard escaping, the breather filter must be replaced.

Steering Axle Lubrication

Check for any debris entangled or wrapped around the steer wheels and remove it.

Check the steering cylinder for leakage at its seals and fittings.

Clean the steering axle thoroughly.

Lubricate the tie rod bearings and stub axle bearings at their grease fittings. Frequency of tie rod and axle bearing lubrication will vary depending on severity of the application. At a minimum, this lubrication must occur at least every 500 hours. The rear of the truck should be supported on jacks to unload steer axle bearings during lubrication. This will allow more effective penetration of the grease.

Lubricate Operator Compartment Components

Check and lubricate as necessary the following points in the operator compartment:







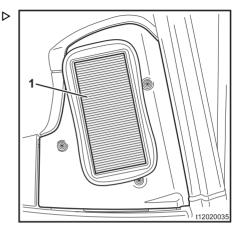
- · Driver's seat guide rails
- · Hood hinge bolts
- Windshield wiper bearings (if equipped)
- · Cabin door latches and hinges (if equipped)
- Hood latch



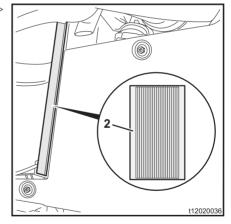
Check HVAC System (optional equipment)

Check HVAC Filters

- > Open the right-hand driver's door and prevent the door from closing.
- > Remove the filter (1) and clean or replace.
- > Reinstall the filter.



- > Remove the filter (2) and clean or replace.
- > Reinstall the filter.



Maintaining the Air Conditioning

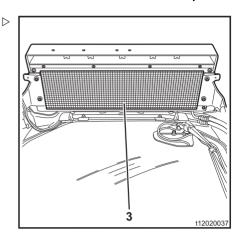
The following maintenance work must be carried out at the beginning, middle and end of a season:



> Clean the condenser (3).

The condenser fins must be cleaned gently without applying high levels of pressure. Otherwise, the fins will be damaged and impair the air flow.

> Check the belt tension on the compressor and check the condition of the belt.





Check and Lubricate Lift Chains

Single masts have two carriage chains, one on each side of the mast. Double masts have a single carriage chain over the primary cylinder. Triple masts have a carriage chain over the primary cylinder as well as a mast chain on each side for the inner upright.

Lift Chain Length Inspection

As chains operate, clearances will gradually open in the chain pins and the chain will elongate. As long as total elongation is less than 3 percent of original chain length, the chain may be used, but the working length of the chain may need to be adjusted at the chain anchors to compensate for the wear. Chain length should be checked every 500 hours.

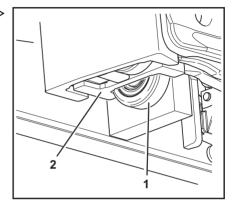
The inspection is performed at the base of the mast with the mast fully lowered. Chain wear will result in an increasingly lower carriage roller position (and inner upright rollers on triple masts). When the mast is fully lowered, rollers may protrude from the bottom of their channel. Carriage rollers (1) or inner upright rollers (3) (for triple masts) can protrude up to a maximum of half the roller diameter. If roller protrusion is approaching this limit, then the chains must be adjusted to compensate for chain wear. This procedure is covered in the service manual.

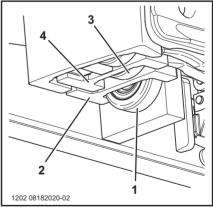
WARNING

Chain adjustment must never be used to compensate for chains worn to their limit. If chains are approaching their wear limit, they must be replaced.

Always measure lift chain wear whenever chains appear to require adjustment.

- > Fully lower the mast and tilt it back.
- > Switch off the truck, remove the key (if applicable) and set the parking brake.
- ➤ Measure protrusion of carriage roller (1) relative to inner upright (2).
- On triple masts, also measure protrusion of inner upright roller (3) relative to intermediate upright (4).







Model		Protrusion limit
1.120,000,1120	3.1 in (80 mm)	1.5 in (40 mm)
H25/600, H30, H35 (1533 series masts)	3.5 in (90 mm)	1.75 in (45 mm)

Lift Chain Lubrication



Lift chains on trucks used in the food industry must be lubricated with an oil approved for the food industry.

> Apply Linde chain spray to each chain and guide surfaces. This should be done every 500 hours or as necessary to maintain a light film of lubricant on the chains at all times

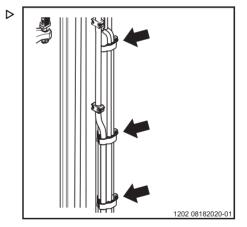
Check Reeving Hose Preload (optional equipment)

Preload tension must be maintained in any section of hose which operates over a sheave. Proper tension is necessary to prevent hoses from jumping the sheave. The reeving hoses should be preloaded 0.2 - 0.4 in (5-10 mm) per meter of original length.

> Loosen the retaining clips, tension the hoses to obtain the required preload, and then secure the clips. Start at the top and work excess slack toward the chassis



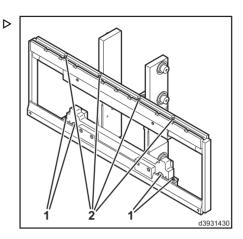
For double or triple masts, set preload for hoses over the primary cylinder using the clip on the rear side of the cylinder before setting preload at the mast hoses.





Lubricating the Sideshifter (optional equipment)

- > Check cylinders and fittings for leakage and have repairs made as necessary.
- > Clean the sideshifter according to the section "Cleaning the Truck".
- Check hydraulic hoses for abrasion.
- > Adjust the forks so that the lower grease fittings (1) and the grease fittings on the top rail (2) are accessible.
- > Lower the mast fully so the forks are resting on the ground to unload the sideshifter bearings.
- > Lubricate the sideshifter at all of the grease fittings.



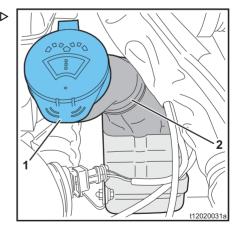
NOTE

The sideshifter must always be lubricated after any cleaning.

Check Washer Fluid Level (optional equipment)

If the truck is equipped with an optional wiper/washer system for any glazing, then the washer fluid level will need to be replenished occasionally.

- > Open the hood.
- > Open the filler cap (1) on the filler neck (2) in the left-hand side of the engine compartment.
- > Top up with washer fluid until the washer fluid is visible in the filling opening.
- Close the filler cap.
- Close the hood.





Scheduled Maintenance

Scheduled Maintenance

General Maintenance Information

This section contains all information required to determine when the truck must be serviced and what must be done. This information is presented as scheduled maintenance charts on the following pages. Be sure to perform maintenance within the time limit given in the maintenance charts. Proper and timely maintenance is essential to obtain the full operability, performance and service life from the truck, and is a prerequisite for any warranty claims.

Maintenance Intervals

Maintenance intervals are based on operating hours but are also subject to the maximum intervals (based on years in service) listed at the top of each chart.

All lubrication and service intervals must be reduced for dusty conditions, large temperature fluctuations or intensive use.

Scheduled Maintenance Charts

The scheduled maintenance charts provide a list of maintenance tasks and associated time intervals at which they must be carried out. Tasks listed under successive intervals are not cumulative; only the additional tasks required are listed under successive intervals.

Use only high-quality lubricants or other materials meeting the specifications listed in Fluid and Lubricant Specifications. All work must be performed only by qualified forklift technicians. Custom-fitted equipment is not covered by the scheduled maintenance charts. If such equipment is installed, refer to the manufacturer's documentation for maintenance requirements.



Scheduled Maintenance

Scheduled Maintenance Chart

Maintenance every 1000 hours, but at least every 3 years (Exceptions in parentheses)

Internal combustion engine

Replace the engine oil and the engine oil filter (every 12 months minimum regardless of operating hours)

Replace the gas filter

Check the LPG system for damage and leak tightness

Visually inspect the condition of the engine support and engine mount, and check that they are securely attached

Check the condition of the V-ribbed belt

Clean the radiator and check it for leak tightness

Check the coolant concentration

Replace the cartridge in the air filter

Check the dust discharge valve on the air filter

Replace the cartridge in the multi-cyclone air filter

Check the dust discharge valve on the multi-cyclone air filter

Check the leak tightness of the intake lines and of the exhaust lines

Running gear and drive train

Check the mounting of the axle clamp

Visually inspect the mounting of the hydraulic pump on the engine

Check the wheels for damage, foreign objects and wear

Check the condition of the antistatic strap (if equipped)

Check the mounting of the steering axle

Lubricate the steering axle

Check that the parking brake is working correctly

Chassis and bodywork

Visually inspect the mounting of the chassis/counterweight

Check and lubricate the bearing points and joints

Check lifting eyes (if equipped) for wear and tightness

Driver's compartment

Check the condition of the seat belt and check that it is working correctly

Service the heating system and air conditioning

Electrics/electronics

Check the condition of the electrical connections and check that they are securely attached

Check the condition of the starter battery

Check the axle load sensor

Check the load pressure sensor

Check the lift height sensor

Hydraulics

Check the oil level in the hydraulic system



Scheduled Maintenance

Maintenance every 1000 hours, but at least every 3 years (Exceptions in parentheses)

Check that the bleeder valve on the hydraulic tank is working correctly

Check the hydraulic system for leak tightness

Check the mounting of the tilt cylinders

Check the pre-load of the hose lines

Lifting system

Check the condition of the lift cylinder, lifting chain, chain rollers and end stops, and check that they are correctly mounted and working correctly

Check the mounting of the lift mast

Clean the lifting chain and apply chain spray

Adjust the lifting chain

Check the fork arms and fork arm locking devices

Check and lubricate the sideshift (if equipped)

Check and lubricate the fork positioner (if equipped)

Additional maintenance every 3000 hours, but at least every 3 years (Exceptions in parentheses)

Internal combustion engine

Replace the spark plugs

Mount the evaporator using a new repair kit or replace the evaporator

Replace the pressure hoses in the gas system

Change the safety cartridge in the air filter

Running gear and drive train

Check the mounting of the drive wheel unit (only once after 3000 hours)

Check the bearings of the drive axle for wear

Check the side stops of the drive axle

Electrics/electronics

Check the swivel bearing of the tilt angle sensor

Calibrate the axle load sensor

Calibrate the load pressure sensor

Hydraulics

Replace all filters in the hydraulic system

Lifting system

Check the sideshift for wear (if equipped)

Check the fork positioner for wear (if equipped)

5 Maintenance



Scheduled Maintenance

Additional maintenance every 6000 hours, but at least every 3 years (Exceptions in parentheses)

Internal combustion engine

Replace the V-ribbed belt, guide pulley and tensioning pulley

Hydraulics

Change the oil in the hydraulic system

Additional maintenance every 10,000 hours, but at least every 5 years (Exceptions in parentheses)

Internal combustion engine

Replace the engine coolant

Final tasks

Carry out a functional test, including a test drive

Attach the service sticker



Fluids and Lubricants

Fluids and Lubricants

Capacities

Assembly	Fluid or Lubricant	Capacity
Engine	Engine oil	With filter change: approx. 6.6 qts (6.3 l)
Fuel tank (removable)	LP gas	33.5 lb (15.2 kg) or 43.5 lb (19.7 kg) tanks
Cooling system	Coolant (antifreeze mix- ture)	Without heating system: approx. 11.1 qts (10.5 l)
		With heating system: approx. 12.2 qts (11.5 l)
Hydraulic system	Hydraulic oil	Lift height up to 4805 mm: Approx. 43.3 qts (41.0 l)
		Lift height from 4805 mm to 8105 mm: Approx. 51.8 qts (49.0 l)
Air conditioning	Refrigerant	370 oz (1050 g)

Fuel

To achieve optimum performance and reliability, high quality HD-5 LP fuel must be used.

Fluid and Lubricant Specifications



ENVIRONMENT NOTE

Lubricants and coolants can contaminate drinking water and have other harmful effects on the environment. Do not allow these substances to get into sewage or storm water systems or seep into the ground. Used fluids must be disposed of in accordance with all applicable laws and regulations.

Engine Oil

Since a good engine oil is a prerequisite for problem-free operation and a long service life for the engine, always use a high-quality engine oil both when topping up and when changing the oil.

Only engine oils that conform to the following are approved for use in the Deutz engine:

- Comparable quality classes according to Deutz TR 0199-99-1217 (latest edition)



NOTE

API or ACEA oils are only permitted if they conform to the aforementioned Deutz lubricating oil quality class for the engine.



NOTE

No additional lubricants or additives of any sort should be mixed with the engine oil.

The truck leaves the factory filled with a highquality engine oil with a viscosity of 10W-40.

Due to their limited viscosity range, singlegrade oils should generally not be used all year round. These oils should be used only in extreme climate zones



Fluids and Lubricants

The ambient temperature in the area where the truck is used is the determining factor when selecting the correct viscosity class. A viscosity that is too high can cause difficulties in starting; a viscosity that is too low can provide insufficient lubrication and cause a high rate of lubricating oil consumption. At ambient temperatures below -40°F (-40°C), the lubricating oil must be pre-heated. Depending on the ambient temperature, the following current viscosity classes are recommended:



When the engine is running, not only is some of the engine oil for piston lubrication burnt off ("consumed"), but the temperature stress and the fuel combustion products that enter the oil lead to "wear", especially affecting chemical additives in the oil. For this reason, the entire quantity of engine oil must be replaced at specified intervals.

Adverse operating conditions and/or low fuel quality can reduce engine oil life. In this case, the oil change interval listed in the scheduled maintenance charts may need to be reduced.

The longest allowable oil change interval for engine oil is one year, i.e. oil must be changed at least once every year regardless of operating hours.

Hydraulic Oil



NOTE

The working temperature is the critical factor to be considered when selecting the correct oil for hydrostatic drive units. The recommendations for oils given below can only serve as guide values.

Original equipment specification

The following grade of hydraulic oil is supplied from the factory as original equipment:

ISO-L-HM 68 as per ISO 6743-4

Other hydraulic oil grades are acceptable based on operating temperature range as follows:

Standard (mean continuous oil temperature 140 °F (60C) to 176 °F (80C))
ISO-L-HM 68 as per ISO 6743-4 (this grade is supplied from factory)

Heavy duty (mean continuous oil temperature over 176 °F (80C)) ISO-L-HM 100 as per ISO 6743-4



NOTE

Operation across one or more of the above ranges can be covered by one of the following multi-grade hydraulic oil (ie oils having a high viscosity index).

ISO-L-HV 68 as per ISO 6743-4

A CAUTION

If incorrect hydraulic oils are used or mixed, damage to hydraulic components can result.

Use only oils meeting the above specifications.

Bio-hydraulic oil

Highly biodegradable hydraulic fluid

Panolin HLP Synth 46

▲ CAUTION

Bio-oils must not be mixed with mineral oils.

No recommendations for other fluids from other manufacturers can be made at the present time.



NOTE

If in doubt, we recommend obtaining the advice of your authorised service partner. Recommendations made by representatives from the mineral oil industry must also be discussed with your service partner. Manufacturer's approval only exists for the oils specified above. Mixing with or using other hydraulic fluids may result in costly damage.



Fluids and Lubricants

Lubricating Grease

Linde heavy-duty grease, lithium-saponified with EP agents and MoS2. Designation in accordance with DIN 51825-KPF 2N-20 (see spare parts catalogue for order no.).

Mixing with soap-based types of lubricating grease other than lithium-saponified is not permitted

Chain Spray

Use a high-quality commercially available penetrating chain spray specifically intended for forklift mast chains. Chains may also be lubricated with SAE 30 motor oil

Battery Grease

Acid-free lubricating grease (battery grease).

Refrigerant for Air Conditioning

R 134a

Coolant



Refer to the coolant specifications! Products from different product groups (A and B) may not be mixed with each other.

Use only a coolant additive that complies with Deutz DQC CB-14, VW standard TL 774-F (G12+) or a coolant additive in the same product groups in accordance with the latest edition of Deutz TR 0199-99-1228.



NOTE

Different coolant additives (Deutz TR with VW standard) must never be mixed. Products from product group A and B must also not be mixed, in accordance with Deutz TR. After repairs, however, when the coolant has been drained off and only residual quantities remain in the engine, products from product group A can be mixed with a coolant additive in accordance with DQC CB-14. Avoid mixing products from product group B with coolant additives to the VW standard

Coolant additive "TL 774-F (G12+)" is added at the factory.

A maximum of 60% coolant additive can be used.

Temperature	Coolant additive	Potable water
-13°F (-25C)	40 %	60 %
-22°F (-30C)	45%	55 %
-31°F (-35C)	50 %	50 %
-40°F (-40C)	60 %	40 %



If potable water is not available, distilled water must be used.

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Troubleshooting

Troubleshooting

Fuses

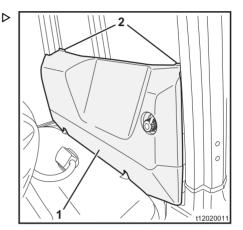
Fuses are located in the following groups:

- · Control Fuses (behind the seat)
- Chassis Fuses (engine compartment right)
- Engine Fuses (engine compartment left)
- · HVAC Fuses (optional equipment)

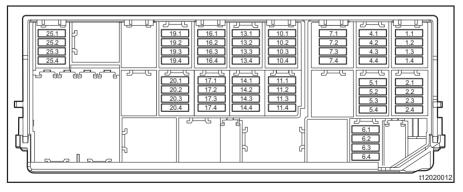
Control Fuses

These are located in a plastic fuse box on the right-hand side of the compartment behind the seat. The cover (1) behind the seat must be removed to access these fuses.

- Slide the driver's seat as far forwards as possible and fold the seat backrest forwards.
- Release the cover (1) by pulling the cover tabs (2) out of the latches, folding the cover forwards slightly and then removing it.
- Gently press the upper part of the two clips on the fuse box cover and lift it off.



Control fuse arrangement



- 1.1 Control unit for the truck movements/battery sensor (terminal 30) (F6), 15 A
- 1.2 Control unit for the on-board power supply (terminal 30) (F7), 15 A
- 1.3 Control unit for the armrest / start/stop push button (terminal 30) (F8), 5 A
- 1.4 Control unit for the truck movements, terminal 30g (F26), 10 A



- 21 Sensor system of the truck (F17), 15 A
- 2.2 Adaptor connector for supplying power to the lift mast X22 (F19), 15 A
- 2.3 Adaptor connector for supplying power to the lift mast X24 (F20), 10 A
- 24 Adaptor connector for supplying power to the lift mast X24 (F21), 20 A
- 4.1 Control unit for the truck movements (terminal 15) (F10), 10 A
- 4.2 Control unit for the on-board power supply/CAN amplifier for the lift mast (terminal 15) (F11), 5 A
- 4.3 Control unit for the armrest (terminal 15) (F12), 10 A
- 4.4 Automation interface/sensor for rear area monitoring (8F2)*, 5 A
- 5 1 Horn (4F1), 15 A
- 5.2 Disconnection point for the armrest (F22). 5 A
- 5.3 Operating unit for the heating system/air conditioning (9F10)*, 5 A
- Control unit for active noise suppression 5.4 (7F1)*, 5 A
- 6 1 12-V socket (9F9)*, 15 A
- Active noise suppression (9F11)*, 10 A 6.2
- 6.3 Control unit for the electric steering (3F1)*,
- 6.4 Interface for rear area monitoring (terminal 30) (8F1)*, 10 A Key switch (F30), 25 A
- 7 1
- 72 Relay for enabling the driver's seat (9F6), 25 A
- 7.3 Relay for enabling the truck (1F1), 25 A (up to H21202Y07284) or Interface for rear area monitoring (terminal 15) (8F3)*, 5 A (from H21202Y07285)
- 7.4 Not assigned
- 10.1 Control unit for the washer system (9F1)*,
- 10.2 Control unit for the lighting (5F1)*, 25 A
- Control unit for work lighting 1 (5F2)*, 25 A 10.3
- 10.4 Control unit for work lighting 2 (5F3)*, 25 A
- 11.1 Linde diagnostics (F14), 5 Å
- 11.2 Standard display unit or comfort display unit (6F1), 5 A

- 11.3 Interior lighting / push button or switch on the overhead console (5F5), 5 A
- 11.4 Radar sensor (interior/exterior) (F18)*, 5 A
- 13.1 Back-up fuse for the truck sensor system (terminal 22) (F15), 25 A
- 13.2 Back-up fuse for adaptor to the lift mast (terminal 22) (F16), 25 A
- 13.3 Control unit for work lighting 3 (5F4)*, 15 A
- 13.4 Control unit for the external management system (F23)*, 10 A
- 14.1 Relay for terminal 22 (F13), 5 A
- 14.2 Control unit for the communication unit (6F2)*, 10 A
- Power supply for the external access system 14.3 connect: CAN (F28)*, 5 A
- 14 4 External management system/communication unit (CDX module) (F29)*. 5 A
- 16.1 Front windscreen wiper motor (9F2)*. 15 A
- Roof windscreen wiper motor (9F3)*, 7.5 A 16.2
- 16.3 Rear windscreen wiper motor (9F4)*, 7.5 A
- 16.4 Rear window heating (9F5)*, 25 A
- 17.1 Analogue/DAB+ digital radio (terminal 30) (9F7)*, 10 A
- 17.2 Analogue/DAB+ digital radio (terminal 15) (9F8)*, 5 A
- 17.3 Connection assembly for the additional display (terminal 30) (6F3)*, 10 A
- Connection assembly for the additional dis-17.4 play (terminal 15) (6F4)*, 10 A
- Red/blue strip light (4F3)*, 5 A 19.1
- Clipboard board light/fan in operator com-19.2 partment (5F7)*, 5 A
- Buzzer for reverse travel, optional variant 19.3 (4F2)*, 5 A
- 19.4 Interface for the camera system (9F13)*. 5 A
- 20.1 Not assigned
- Control unit for parking heater (9F14)*, 20 A 20.2
- Operating device for parking heater (9F15)*, 20.3
- 20.4 Fan for parking heater (9F16)*, 20 A
- 25.1 Trailer connector for brake light (5F8)*, 5 A
- 25.2 Not assigned 25.3 Not assigned
- 25.4 Not assigned

^{*} Optional equipment

Chassis Fuses

> Open the cover for the fuse box in the engine compartment on the right-hand side.

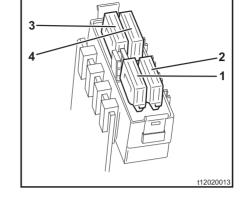
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Assignment of the current circuits:

- · Main fuse (1) for the entire electrical system (F1), 40 A
- Fuse (2) for the fan motor (F2), 60 A
- Fuse (3) for the voltage divider, terminal 30 (F4), 70 A
- . Fuse (4) for the HVAC system (F5), 60 A (if equipped)



Additional fuses for the optional HVAC system are located in the cabin. They are covered helow

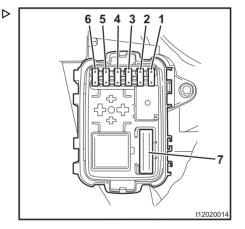


Engine System Fuses

- Open the hood.
- > Open the cover of the fuse box in the engine compartment on the left-hand side.

Assignment of the current circuits:

- . Fuse (1) for the engine control unit (terminal 30) (0F1), 15 A
- . Fuse (2) for the engine control unit (terminal 15) and Deutz diagnostic connector and the shut-off valve on the gas tank (0F7), 5 A
- Fuse (3) for the pressure regulating valve (0F8), 15 A
- Fuse (4) for the starter motor (0F10), 25 A
- · Fuse (5) for the sensor system and shut-off valve on the evaporator (0F11), 10 A
- Fuse (6) for the ignition system (0F2), 20 A
- Main fuse (7) for the engine (F3), 30 A





HVAC Fuses (optional equipment)

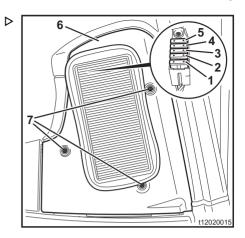
> Open the right-hand cabin door and prevent the door from closing.

The fuses for the heating system and for the air conditioning are behind side cover (6).

Unscrew the screws (7) and remove the cover (6) to access the fuses.

Assignment of the current circuits:

- Fuse (1) for the blower motor (9F15), 25 A
- Fuse (2) for the operating unit for the heating system (9F16), 5 A; or the operating unit for the air conditioning (9F16), 15 A
- Fuse (3) for fan motor 2 (9F18), 15 A
- Fuse (4) for fan motor 3 (9F19), 15 A
- Fuse (5) for fan motor 1 (9F17), 15 A



Diagnostic Connector

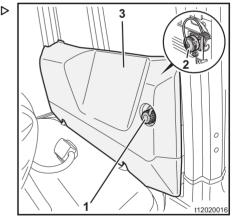
The diagnostic connectors (1) and (2) provide an interface with diagnostic software on a laptop computer. The software allows review/editing of performance parameters, truck diagnostics, engine diagnostics, and resetting of maintenance intervals.

To use a laptop computer, a diagnostic cable must be connected from the computer to the diagnostic connector.



NOTE

The engine diagnostic connector (2) is accessible once the cover (3) for the electrical system has been removed.



Jump Starting

When the truck battery is discharged, a jumpstart battery can be used with a jumper cable to start the truck. The following must be taken into consideration when doing this:

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Troubleshooting

- Both batteries must have the same nominal voltage.
- The capacity (Ah) of the current-giving battery must not be significantly lower than the capacity of the discharged battery.
- Use jumper cables with a sufficient crosssection and insulated pole clips.

WARNING

Attempting to jump start a frozen battery can cause the battery to explode.

Never attempt to jump start a frozen battery. Always ensure that any battery to be jump started is not frozen. If necessary, remove the battery and take it into a warm area to thaw.

- Switch off all truck electrical equipment (lighting, operator fans).
- > Open the hood.
- Connect one end of the positive cable (1) to the positive terminal (+) of the discharged truck battery (2).
- Connect the other end of the positive cable (1) to the positive terminal (+) of the source battery (5).
- Connect one end of the negative cable (4) to the negative terminal (-) of the source battery (5).

WARNING

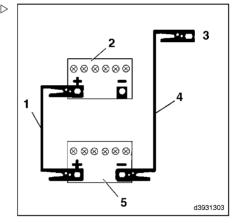
The last jumper cable connection can cause sparks which could ignite explosive gases near the battery and cause severe injury.

Always save the negative connection for last and make the final negative connection to a point as far away from the battery as possible.

Connect the other end of the negative cable (4) to any large metal component securely connected to the engine block or to the engine block itself (3). This last connection point should be as far away from the discharged battery (2) as possible.



If the source battery is housed in another vehicle, start that vehicle's engine and allow it to idle.





> Attempt to start the engine.

If the engine does not start immediately, release the key after 10 seconds and try again after approximately 30 seconds.

- Once the engine is running, disconnect the negative cable (4) from the engine block (3) first. Then disconnect it from the source battery (5).
- Disconnect the positive cable (1) from the source battery (5) first, then from the discharged battery (2).

Fault Code Explanations

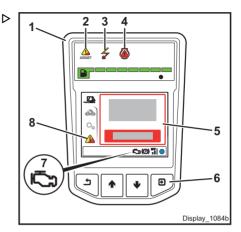
Standard Display Unit

A CAUTION

Damage to or destruction of truck components!

If one of the following indicator lights illuminates in the display unit (1) or a message is displayed (5) and the buzzer sounds during operation, a malfunction has occurred.

- > The engine must be switched off immediately and the malfunction must be rectified.
- > To switch off the buzzer or the message. press the button (6).



(2) Fault in the load-dependent assistance system (color: red)	
Function	Remedy
Lights up if there is an error in the load-dependant assistance system. The error code is stored in the "Malfunctions and information" menu (8).	Contact authorized service personnel.



Lifting and tilting movements or the driving speed may be restricted in the event of a malfunction of the assistance system.

(3) Warning light for the truck electrics (color: yellow or red)	
Function	Remedy
- Lights up when there is an electrical fault The error code is stored in the "Malfunctions and information" menu (8) The truck moves at creep speed or is at a standstill.	Contact authorized service personnel.



(4) Warning light for the gas system (color: red)		
Function	Remedy	
- Lights up and the message "Close the gas shut-off valve. Contact your service partner." is displayed if a fault is detected in the gas shortage shut-down device The error code is stored in the "Malfunctions and information" menu (8).	Close the gas shut-off valve on the gas cylinder or on the gas tank, and wait until the engine stops running. Do not continue to operate the truck. Contact authorized service personnel.	

(7) Engine malfunction symbol		
Function	Remedy	
- Lights up if a malfunction occurs in the engine or in the engine control unit.	Resolve the malfunction. If the problem persists, contact authorized service personnel.	
- Flashes if a critical malfunction occurs in the engine or in the engine control unit.	Resolve the malfunction. If the problem persists, contact authorized service personnel.	



The "Engine protection" function can be switched off using the diagnostic program. Contact authorized service personnel.

Malfunctions and Information menu (8):

In addition, the following can be displayed in the "Malfunctions and information" menu (8):

- . In the "Error code" menu item: the error code for the malfunction that has occurred.
- · In the "Error lights" menu item: a text message about the malfunction that has occurred.

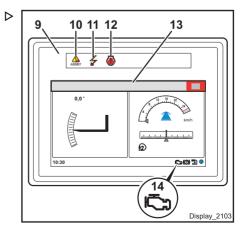
Premium Display Unit

A CAUTION

Damage to or destruction of truck components!

If one of the following indicator lights illuminates in the display unit (9) or a message is displayed (13) and the buzzer sounds during operation, a malfunction has occurred.

- > The engine must be switched off immediately and the malfunction must be rectified.
- > To switch off the buzzer or the message. press the rotary-push button O.



Maintenance



Troubleshooting

(10) Fault in the load-dependent assistance system (color: red)	
Function	Remedy
Lights up if there is an error in the load-dependant assistance system. The error code is stored in the "Malfunctions and information" menu.	Contact authorized service personnel.



Lifting and tilting movements or the driving speed may be restricted in the event of a malfunction of the assistance system.

(11) Warning light for the truck electrics (color: yellow or red)		
Function	Remedy	
 Lights up when there is an electrical fault. The error code is stored in the "Malfunctions and information" menu. The truck moves at creep speed or is at a standstill. 	Contact authorized service personnel.	

(12) Warning light for the gas system (color: red)		
Function	Remedy	
- Lights up and the message "Close the gas shut-off valve. Contact your service partner." is displayed if a fault is detected in the gas shortage shut-down device The error code is stored in the "Malfunctions and information" menu.	Close the gas shut-off valve on the gas cylinder or on the gas tank, and wait until the engine stops running. Do not continue to operate the truck. Contact authorized service personnel.	

(14) Engine malfunction symbol		
Function	Remedy	
- Lights up if a malfunction occurs in the engine or in the engine control unit.	Resolve the malfunction. If the problem persists, contact authorized service personnel.	
- Flashes if a critical malfunction occurs in the engine or in the engine control unit.	Resolve the malfunction. If the problem persists, contact authorized service personnel.	



The "Engine protection" function can be switched off using the diagnostic program. Contact authorized service personnel.



Malfunctions and Information Menu (15):

In addition, the following can be displayed in the "Malfunctions and information" menu (15):

- In the "Error code" menu item: the error code for the malfunction that has occurred.
- In the "Error lights" menu item: a text message about the malfunction that has occurred

Status Icons (16):

To further assist you, the status icons (16) are displayed. The information indicated by these icons includes:

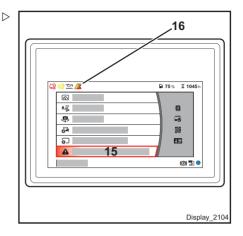
- · Engine coolant temperature
- · Hydraulic oil temperature
- · Engine oil filling level
- Warning symbol with + (displayed if more than four status icons are active)



If more than four status icons are active, the other icons can be displayed via the text message in the "Messages" menu item.

The icons are displayed in the following colors depending on the status of the truck:

- "No color" means: minor malfunction or information
- "Yellow" means: malfunction or information
- "Red" means: critical malfunction or information





Troubleshooting Chart - Engine

Engine will not turn over.		
Possible cause	Remedy	
Battery dead. (Truck may be jump started.)	Have battery inspected and charged or replaced by authorized service personnel.	
Poor connections at battery cables.	Have battery cable connections inspected, cleaned, and tightened by authorized service personnel.	
Defective main fuse (F1).	Have electrical system inspected by authorized service personnel to determine cause.	
Defective starter relay.	Have starter relay inspected and repaired by authorized service personnel.	
Damaged or defective starter.	Have starter inspected and repaired by authorized service personnel.	
Defective brake switch.	Have brake switch inspected and repaired by authorized service personnel.	
Defective key switch	Have key switch inspected and repaired by authorized service personnel.	

Engine fails to start	
Possible cause	Remedy
Manual shut-off valve on LP tank is closed.	Open manual valve on LP tank.
LP tank empty.	Install a new tank of LP gas.
LP tank incorrectly installed.	Ensure LP tank is correctly installed so that tank locating pin is properly engaged.
Temperature of the LP gas in the tank is too low.	Warm the gas system and lines with hot water. Do not use naked flame or hot air.
Fuel line obstructed.	Have fuel line inspected and cleaned by authorized service personnel.
Gas shut-off valve does not open.	Have shut-off valve inspected and repaired by authorized service personnel.
LP filter clogged.	Change LP filter.
Ignition wiring wet (condensation).	Thoroughly dry the ignition wiring.
Spark plugs or cables loose or defective.	Have ignition components inspected and repaired by authorized service personnel.
Engine fuses (ignition coils,O2 sensors, LP shut-off valve) defective.	Have electrical system inspected by authorized service personnel to determine cause.
Defective crankshaft speed sensor.	Have crankshaft speed sensor inspected and repaired by authorized service personnel.
Defective ignition transformer.	Have ignition transformer inspected and repaired by authorized service personnel.
Defective evaporator or mixer.	Have fuel system inspected and repaired by authorized service personnel.



Engine fails to start	
Possible cause	Remedy
Spark plugs oily due to worn/damaged piston rings or pistons.	Have authorized service personnel test compression.
Main controller (LTC) or engine controller defective.	Have controller inspected and repaired by authorized service personnel.

Engine starts but does not idle smoothly.	
Possible cause	Remedy
LP tank is defective.	Install a new LP tank.
Engine oil level too high.	Drain oil until level is correct.
Vacuum leak at Intake manifold.	Have intake manifold inspected and repaired by authorized service personnel.
Spark plugs or cables loose or defective.	Have ignition components inspected and repaired by authorized service personnel.
Defective evaporator or mixer.	Have fuel system inspected and repaired by authorized service personnel.
Low compression.	Have authorized service personnel test compression.

Engine overheats, radiator water temperature indicator lights up in the indicator unit. Switch off engine immediately.	
Possible cause	Remedy
Insufficient coolant in cooling system.	Add coolant of proper specification until the correct level is achieved. Have truck inspected for leakage.
Radiator fins obstructed by dirt.	Clean the radiator and hydraulic oil cooler.
Gas/air mixture too lean due to defective O2 sensor.	Have O2 sensor inspected and repaired by authorized service personnel.
Gas/air mixture too lean due to defective mixer.	Have mixer inspected and repaired by authorized service personnel.

Engine will not run smoothly.	
Possible cause	Remedy
LP tank is defective.	Install a new LP tank.
Spark plugs or cables loose or defective.	Clean spark plugs, check gap between electrodes, change spark plugs if necessary.
Wiring connectors to control unit or ignition transformer defective (insulation breakdown).	Have wiring inspected and repaired by authorized service personnel.
Vacuum leak at Intake manifold.	Check intake manifold mounting and connections for tightness.
Gas supply insufficient or obstructed.	Have fuel system inspected and repaired by authorized service personnel.



Engine will not run smoothly.	
Possible cause	Remedy
Defective ignition transformer.	Have ignition transformer inspected and repaired by authorized service personnel.
Defective evaporator or mixer.	Have fuel system inspected and repaired by authorized service personnel.
Low compression.	Have authorized service personnel test compression.

Engine pings or knocks under load.	
Possible cause	Remedy
Engine overheated.	See: Engine overheats.
Unsuitable LP fuel.	Use LP of proper specification.

Engine oil pressure too low. Switch off engine immediately.	
Possible cause	Remedy
Insufficient oil.	Add engine oil of proper specification until the correct level is achieved. Have truck inspected for leakage.
Oil pump failure.	Have oil pump inspected and repaired by authorized service personnel.



Troubleshooting Chart - Hydraulic System

Abnormal noise.	
Possible cause	Remedy
Clogged suction filter.	Change the filter.
Insufficient hydraulic oil.	Add hydraulic oil of proper specification until the correct level is achieved. Have truck inspected for leakage.
Loose suction lines, oil foams.	Have the suction lines inspected and repaired by authorized service personnel. Check the hy- draulic oil, top up if necessary.
Damage to the hydraulic pump; air intake due to defective seals.	Have the hydraulic pump and system inspected and repaired by authorized service personnel.
Incorrect hydraulic oil type.	Change the hydraulic oil. Use only oil meeting specifications given in "Fluid and Lubricant Specifications".
Defective drive axle differential.	Have the drive axle inspected and repaired by authorized service personnel.

Hydraulic oil too hot; temperature warning is displayed.	
Possible cause	Remedy
Insufficient hydraulic oil	Add hydraulic oil of proper specification until the correct level is achieved. Have truck inspected for leakage.
Hydraulic oil cooler fins obstructed by dirt.	Clean the radiator and hydraulic oil cooler.
Internal damage to pump or valves	Have the hydrostatic drive unit inspected and repaired by authorized service personnel.

Sluggish drive or working hydraulic performance.	
Possible cause	Remedy
Insufficient hydraulic oil.	Add hydraulic oil of proper specification until the correct level is achieved. Have truck inspected for leakage.
Clogged suction filter. (Especially if noise is also heard)	Change the filter.
Hydraulic oil too thin resulting in power loss due to internal leakage.	Change the hydraulic oil. Use only oil meeting specifications given in "Fluid and Lubricant Specifications."
Leakage due to loose or damaged hydraulic line, hose, or fitting.	Have all lines inspected and repaired by authorized service personnel.
Hydraulic oil temperature too high.	See "Hydraulic oil too hot; temperature warning is displayed".
Defective brake valve.	Have the brake valve inspected and repaired by authorized service personnel.



Sluggish drive or working hydraulic performance.	
Possible cause	Remedy
Pressure relief valve or feed pressure valves are seizing.	Have the hydrostatic drive unit inspected and repaired by authorized service personnel.
Pump faulty, leakage loss, pressure valves will not shut, valve seat damaged.	Have the hydrostatic drive unit inspected and repaired by authorized service personnel.

Lift operation is sluggish or erratic.	
Possible cause	Remedy
Insufficient hydraulic oil.	Add hydraulic oil of proper specification until the correct level is achieved. Have truck inspected for leakage.
Binding at lift or tilt cylinders. Cylinders show friction marks.	Have the cylinders inspected and repaired by authorized service personnel.
Lift mast will not extend fully or sinks slightly.	Top up hydraulic oil. Bleed the cylinder.

Mast does not extend fully.	
Possible cause	Remedy
Insufficient hydraulic oil.	Add hydraulic oil of proper specification until the correct level is achieved. Have truck inspected for leakage.
Air in lift cylinders. (Mast may also drift downwards).	Have lift cylinders bled by authorized service personnel.
Binding at lift cylinders. Cylinders show friction marks.	Have the cylinders inspected and repaired by authorized service personnel.
Binding or damage in mast components.	Have the mast inspected and repaired by authorized service personnel.



Troubleshooting the LP Level Display System

If the LP level indicator reads inaccurately after a new tank is installed, check the following items:

- LP tanks must be at least 50% full when first installed onto the truck. If the tank is less than 50% full, then the system will not initialize to the new tank. Instead it will continue to display the last level from the old tank and continue based on this. This will make the display inaccurate during use of new tank.
- Ensure that the temperature of the tank and that of the sensor are close. Large variations in temperature between the tank and the sensor can affect the accuracy of the level indication system. If a cold tank (ie from outdoor storage in winter) is installed onto a warm truck, the initial tank level indication will not be immediately accurate. In this case the system will perform a temperature compensation that provides approximate accuracy. Optimum accuracy will occur as the temperatures equalize.
- The sensor must be clean. Clean with soap and water if necessary.
- Ensure that the tank is positioned correctly in the bracket and properly engages the sensor. The tank straps should be adjusted so that the tank preloads the sensor between 5/16 inch (8 mm) and 9/16 inch (14 mm). Looking from the side, the centerline of the tank diameter should be within about 1/8 inch (3 mm) of the centerline of the sensor. If the tank is offset from the center of the sensor, it will press one side of the sensor button further than the other and hold it at an angle. This will prevent accurate measurement.
- Ensure that a weld seam on the tank is not positioned against the sensor.
- Ensure that the tank diameter is at least close to that of tanks that have been used previously without problem. The sensor is calibrated based on a consistent tank diameter. In rare cases the sensor may need to be recalibrated. Contact an authorized dealer
- The tank change-out procedure must be performed with the truck parked on a lev-

- el surface. If this was not done, park the truck on a level surface and turn the ignition switch all the way to the off position for 30 seconds.
- In addition to being at least 50% full, a newly installed tank must contain more fuel than the previous tank had in it when it was removed. The previous value is always stored in the system memory. Initialization will only occur if a newly detected level is greater than the stored one. If not, then the system will not initialize and the display will not be accurate. As long as full tanks are installed at change-out and not removed until nearly empty, this will not be an issue. If for some reason, a nearly full tank is removed and replaced with one that is less full (but still greater than 50%), the system will not initialize. In this case, the display can be reset to allow initialization with the new partially filled tank. The reset process erases the display memory for the previous value and sets it to zero (empty). This allows the partially filled tank to meet the condition that it is greater than the previous value. Perform a reset any time problems occur using tanks that are not completely full. Follow the procedure below to reset the display.

Resetting the Level Display

Perform the following steps to reset the LP level indication system:

- > Park the truck on a level surface.
- Make sure the tank is at least 50% full. Reset will not work if the tank is less than 50% full
- Turn the key switch to its first position (electrical system on).
- Disconnect harness connector X14 located in the rear of the engine compartment on the left side. This is a thin white connector with a single brown wire.
- Reconnect X14 after two seconds.
- ➤ The system may require up to 10 minutes to generate an accurate reading after reset.

5 Maintenance



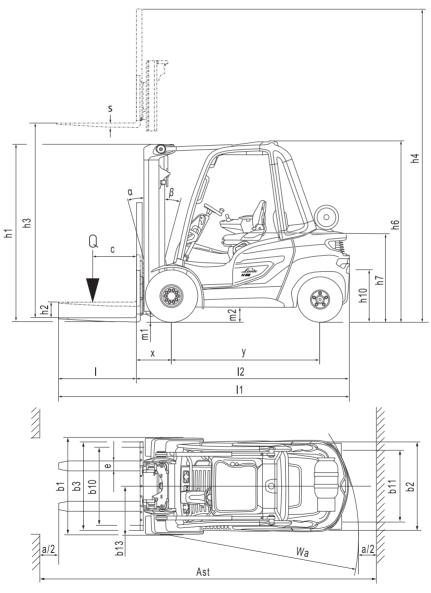
Troubleshooting

Specifications



Specifications

Specifications





General		
Manufacturer		Linde
	H20/600	H20T/600
	H25	H25T
Manufacturer's model designation	H25/600	H25T/600
	H30	H30T
	H35	H35T
Fuel		LP gas
Operation		Seated
	H20/600	4400 lbs (2000 kg)
	H25	4950 lbs (2250 kg)
Nominal load capacity (Q)	H25/600	5500 lbs (2500 kg)
	H30	5960 lbs (2710 kg)
	H35	6975 lbs (3170 kg)
Load center of gravity (c)	All models	24 in (nominal) (600 mm)
	H20/600, H25	16.4 in (416.5 mm)
Load distance (x)	H25/600	17.9 in (455.5 mm)
• •	H30	17.7 in (448.5 mm)
	H35	17.9 in (453.5 mm)
	H20/600	73.4 in (1865 mm)
Wheelbase (y)	H25, H25/600	75 in (1905 mm)
	H30	76 in (1930 mm)
	H35	77.4 in (1965 mm)

Weight	
Net weight	Refer to vehicle data plate

Wheels, chassis frame			
Tires: solid rubber, super elastic, pneumatic, polyurethane		SE	
Front tire size	H20/600, H25	225/75-10 (23x9-10)	
	H25/600, H30, H35	250/75-12 (27x10-12)	
Rear tire size	H20/600, H25	6.50-10	
	H25/600, H30, H35	225/75-10 (23x9-10)	
Number of front/rear wheels (x = driven)	All models	2x / 2	

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Wheels, chassis frame		
Track width, front ¹ (b ₁₀)	H20/600, H25	38.3 in (972 mm)
	H25/600, H30, H35	39.7 in (1008 mm)
Track width, rear (b ₁₁)	All models	37.8 in (961 mm)

Basic dimensions				
Lift mast / fork carriage tilt, forwards / backwards (α/β)	All models	See mast heights table		
Height with lift mast retracted (h ₁)	All models	See mast heights table		
Free lift (h ₂)	All models	See mast heights table		
Lift (h ₃)	All models	See mast heights table		
Height with lift mast extended (h ₄)	All models	See mast heights table		
Height of overhead guard (cab) (h ₆)	H20/600, H25	89.6 in (2275 mm)		
neight of overhead guard (cab) (h ₆)	H25/600, H30, H35	91.4 in (2322 mm)		
Seat height/standing height (h ₇)	H20/600, H25	42.3 in (1074 mm)		
Seat neighbstanding neight (117)	H25/600, H30, H35	44.1 in (1119 mm)		
	H20/600, H25	22.5 in (621 mm)		
Coupling height (h ₁₀)	H25/600	26.3 in (668 mm)		
	H30, H35	25.3 in (643 mm)		
	H20/600	144.1 in (3659 mm)		
	H25	145.6 in (3699 mm)		
Overall length ² (I ₁)	H25/600	147.2 in (3738 mm)		
	H30	147.9 in (3756 mm)		
	H35	149.5 in (3796 mm)		
	H20/600	104.7 in (2659 mm)		
	H25	106.3 in (2699 mm)		
Length including fork back (I ₂)	H25/600	107.8 in (2738 mm)		
	H30	108.5 in (2756 mm)		
	H35	110.1 in (2796 mm)		
Overall width (h. /h.)	H20/600, H25	46.5 in / 58.4 in (1180/1482 mm)		
Overall width (b ₁ /b ₂)	H25/600, H30, H35	49.5 in / 62.6 in (1256/1590 mm)		
Fork arm dimensions ² (s/e/l)	H20/600, H25, H25/600	1.75 x 4.0 x 48 in (45 x 101 x 1219 mm)		



Basic dimensions				
	H30, H35	1.75 x 5.0 x 48 in (45 x 127 x 1219 mm)		
Fork carriage according to ISO 2328, class / form A, B	H20/600, H25, H25/600	2 A		
	H30, H35	3 A		
Fork carriage width (b ₃)	All models	45.3 in (1150 mm)		
Ground clearance with load below lift mast (m ₁)	All models	≈ 4.8 in (≈122 mm)		
Cround eleganous at the middle of the wheelbook (m.)	H20/600, H25	≈ 5.1 in (≈130 mm)		
Ground clearance at the middle of the wheelbase (m ₂)	H25/600, H30, H35	≈ 6.9 in (≈176 mm)		
	H20/600	109.8 in (2790 mm)		
A: 1 : 101 /A > 6	H25	111.5 in (2832 mm)		
Aisle width (A _{st}) for any load width inside of b ₁₃ on each side. (Must add load length and desired clearance (a).)	H25/600	113.1 in (2871 mm)		
side. (Must add load leffgill and desired clearance (a).)	H30	113.8 in (2890 mm)		
	H35	115.5 in (2932 mm)		
	H20/600	93.4 in (2373 mm)		
	H25	95.1 in (2415 mm)		
Turning radius (W _a)	H25/600	95.1 in (2415 mm)		
	H30	96.1 in (2441 mm)		
	H35	97.6 in (2478 mm)		
	H20/600	25.4 in (645 mm)		
	H25	25.9 in (659 mm)		
Smallest pivot point distance (b ₁₃)	H25/600	25.9 in (659 mm)		
	H30	26.3 in (668 mm)		
	H35	26.8 in (680 mm)		

Performance data		
Driving speed with/without load	All models	13.7/13.7 mph (22/22 km/h)
	H20/600, H25	104/108 ft/min (0.53/0.55 m/s)
Lifting speed with/without load	H25/600, H30	104/110 ft/min (0.53/0.56 m/s)
	H35	88.6/110 ft/min (0.45/0.56 m/s)
Lowering speed with/without load	All models	110/110 ft/min (0.56/0.56 m/s)
Tractive force with/without load	H20/600	3,272.8/3,167.3 lbs (14,558/14,089 N)

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Performance data		
	H25	3,242.9/3,221.7 lbs (14,425/14,331 N)
	H25/600	4,434.8/3,678.8 lbs (19,727/16,364 N)
	H30	4,405.8/3,796.1 lbs (19,598/16,886 N)
	H35	4,368.7/3,983.8 lbs (19,433/17,721 N)
	H20/600	28.0/34.0 %
	H25	24.0/31.0 %
Climbing capability with / without load	H25/600	32.0/33.0 %
	H30	27.0/30.0 %
	H35	27.0/30.0 %
	H20/600	5.4/4.7 s
	H25	5.6/4.7 s
Acceleration with/without load	H25/600	5.8/5.0 s
	H30	5.8/5.0 s
	H35	5.9/5.0 s
Service brake	All models	Hydrostatic

Drive/engine			
Engine manufacturer/model	All models	Deutz G 2.2 L3	
Engine newer rating in accordance with ICO 1595	H20/600, H25	48.8 hp (36.4 kW)	
Engine power rating in accordance with ISO 1585	H25/600, H30, H35	53.6 hp (40 kW)	
Nominal speed	H20/600, H25	2300 rpm	
Nominal speed	H25/600, H30, H35	2600 rpm	
Number of cylinders/displacement	All models	3 / 133.8 cu in (2194 cm ³)	

Other				
Type of traction controller	All models	Hydrostatic/continuous- ly variable		
Working pressure for attachments	H20/600	2900 psi (200 bar)		
	H25	3335 psi (230 bar)		
	H25/600	2900 psi (200 bar)		
	H30	3,262.5 psi (225 bar)		
	H35	3,552.5 psi (245 bar)		



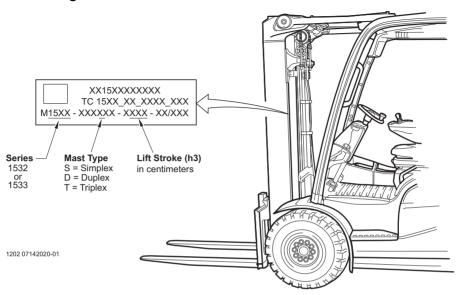
Other		
Oil volume for attachments	All models	13.2 gal/min (50 l/min)
Noise level at the driver's ear	All models	79 dB(A)
Tow coupling, type/model	All models	DIN 15170-H

Note 1. Track width changes with tire/wheel variants.

Note 2. Other fork lengths are available as options.



Mast Heights



Single, Double, Triple Masts

Mast heights are listed by lift stroke h3. This number is found in the mast identification code as shown above. Note that it is given in centimeters in the code, so a zero must be added to match the table below. Mast height dimensions in inches are rounded. Metric mast height dimensions (mm) are design values. Masts listed are standard offerings. Other sizes may be installed as options.

Mast heights - Simple - H20/600, H25 models (1532 Series masts)					
Lift stroke (h3)	Free lift stroke (h2)	Mast height, fully low- ered (h1) See Note 1.	Extended height (h4) (with 48 inch LBR and 1.75 inch fork heel)	Tilt angle forward / back See Note 2.	
127.2 in (3230 mm)	N/A	87.1 in (2212 mm)	177.0 in (4495 mm)	5 deg / 8 deg	
135.0 in (3430 mm)	N/A	91.0 in (2312 mm)	184.9 in (4695 mm)	5 deg / 8 deg	
158.7 in (4030 mm)	N/A	102.8 in (2612 mm)	208.5 in (5295 mm)	5 deg / 8 deg	



Mast heights - Double - H20/600, H25 models (1532 Series masts)					
Lift stroke (h3)	Free lift stroke (h2)	Mast height, fully low- ered (h1)	Extended height (h4) (with 48 inch LBR and 1.75 inch fork heel)	Tilt angle forward / back See Note 2.	
126.0 in (3200 mm)	58.8 in	86.0 in	175.8 in	5 deg /	
	(1494 mm)	(2184 mm)	(4465 mm)	5 deg	
133.9 in (3400 mm)	62.8 in	89.9 in	183.7 in	5 deg /	
	(1594 mm)	(2284 mm)	(4665 mm)	5 deg	
161.4 in (4100 mm)	76.5 in	103.7 in	211.2 in	5 deg /	
	(1844 mm)	(2634 mm)	(5365 mm)	5 deg	

Mast heights - Triple - H20/600, H25 models (1532 Series masts)					
Lift stroke (h3)	Free lift stroke (h2)	Mast height, fully low- ered (h1)	Extended height (h4) (with 48 inch LBR and 1.75 inch fork heel)	Tilt angle forward / back See Note 2.	
181.5 in (4610 mm)	56.8 in	84.0 in	231.3 in	5 deg /	
	(1444 mm)	(2134 mm)	(5875 mm)	5 deg	
187.4 in (4760 mm)	58.8 in	86.0 in	237.1 in	5 deg /	
	(1494 mm)	(2184 mm)	(6025 mm)	5 deg	
193.3 in (4910 mm)	60.8 in	88.0 in	243.1 in	5 deg /	
	(1544 mm)	(2234 mm)	(6175 mm)	5 deg	
199.2 in (5060 mm)	62.8 in	89.9	249.0 in	5 deg /	
	(1594 mm)	(2284 mm)	(6325 mm)	5 deg	
218.9 in (5560 mm)	70.6 in	97.8 in	268.7 in	5 deg /	
	(1794 mm)	(2484 mm)	(6825 mm)	5 deg	
236.6 in (6010 mm)	76.5 in	103.7 in	286.4 in	5 deg /	
	(1944 mm)	(2634 mm)	(7275 mm)	5 deg	

Mast heights - Simple - H25/600, H30, H35 models (1533 Series masts)					
Lift stroke (h3)	Free lift stroke (h2)	Mast height, fully low- ered (h1) See Note 1.	Extended height (h4) (with 48 inch LBR and 1.75 inch fork heel)	Tilt angle forward / back See Note 2.	
125.8 in (3195 mm)	N/A	86.6 in (2199 mm)	175.6 in (4460 mm)	5 deg / 8 deg	



Mast heights - Simple - H25/600, H30, H35 models (1533 Series masts)					
137.6 in (3495 mm) N/A 92.5 in (2349 mm) 187.4 in (4760 mm) 5 deg (4760 mm) 8 de					
161.2 in (4095 mm)	N/A	104.2 in (2649 mm)	211.2 in (5360 mm)	5 deg / 8 deg	

Mast heights - Double - H25/600, H30, H35 models (1533 Series masts)					
Lift stroke (h3)	Free lift stroke (h2)	Mast height, fully low- ered (h1)	Extended height (h4) (with 48 inch LBR and 1.75 inch fork heel)	Tilt angle forward / back See Note 2.	
128.5 in (3265 mm)	56.9 in	87.3 in	178.3 in	5 deg /	
	(1444 mm)	(2217 mm)	(4530 mm)	5 deg	
132.5 in (3365 mm)	58.8 in	89.3 in	182.3 in	5 deg /	
	(1494 mm)	(2267 mm)	(4630 mm)	5 deg	
148.2 in (3765 mm)	66.7 in	97.1 in	198.0 in	5 deg /	
	(1694 mm)	(2467 mm)	(5030 mm)	5 deg	
160.0 in (4065 mm)	72.6 in	103.0 in	209.8 in	5 deg /	
	(1844 mm)	(2617 mm)	(5330 mm)	5 deg	

Mast heights - Triple - H25/600, H30, H35 models (1533 Series masts)					
Lift stroke (h3)	Free lift stroke (h2)	Mast height, fully low- ered (h1)	Extended height (h4) (with 48 inch LBR and 1.75 inch fork heel)	Tilt angle forward / back See Note 2.	
184.3 in (4680 mm)	54.9 in	85.2 in	234.1 in	5 deg /	
	(1394 mm)	(2165 mm)	(5945 mm)	5 deg	
190.2 in (4830 mm)	56.9 in	87.2 in	237.2 in	5 deg /	
	(1444 mm)	(2215 mm)	(6095 mm)	5 deg	
196.1 in (4980 mm)	58.8 in	89.2 in	245.9 in	5 deg /	
	(1494 mm)	(2265 mm)	(6245 mm)	5 deg	
202.0 in (5130 mm)	60.8 in	91.1 in	251.8 in	5 deg /	
	(1544 mm)	(2315 mm)	(6395 mm)	5 deg	
209.8 in (5330 mm)	64.7 in	95.1 in	259.6 in	5 deg /	
	(1644 mm)	(2415 mm)	(6545 mm)	5 deg	
215.7 in (5480 mm)	66.7 in	97.0 in	265.5 in	5 deg /	
	(1694 mm)	(2465 mm)	(6745 mm)	5 deg	



Mast heights - Triple - H25/600, H30, H35 models (1533 Series masts)					
233.5 in (5930 mm) 72.6 in 103.0 in 283.3 in 5 deg / (1844 mm) (2615 mm) (7195 mm) 5 deg					
253.1 in (6430 mm)	80.5 in (2044 mm)	110.8 in (2815 mm)	302.9 in (7695 mm)	5 deg / 5 deg	

Note 1. Since forks must be raised slightly to travel and there is no free-lift on a simple mast, this value will increase slightly for travel.

Note 2. Other tilt angles are available as options.



Mast Heights



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