

Original instructions

LPG forklift truck





CE

4214 4215 4216

60048011601 EN - 08/2020

first in intralogistics

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Rules for the operating company of industrial trucks

In addition to these operating instructions, a code of practice containing additional information for the operating companies of industrial trucks is also available.

This guide provides information for handling industrial trucks:

- Information on how to select suitable industrial trucks for a particular area of application
- Prerequisites for the safe operation of industrial trucks
- · Information on the use of industrial trucks
- Information on transport, initial commissioning and storage of industrial trucks

Internet address and QR code

The information can be accessed at any time by pasting the address **https://m.still.de/vdma** in a web browser or by scanning the QR code.







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1

Introduction

Truck data

Truck data

We recommend that you record all basic forklift truck data in the following table so that it is available if required by the sales network or authorised service centre.

Туре	
Serial number	
Date of delivery	



Intended use

The industrial truck may only be used as permitted.

The industrial truck is used for moving and lifting the loads indicated on the capacity rating plate.

Damages and defects

Damages and other defects to industrial trucks or to attachments must be reported to the Supervisor immediately. Industrial trucks and attachments which are not safe to operate may not be used until they have been properly repaired.

Safety installations and switches may not be removed or rendered unusable. Specified settings may only be changed with the approval of the manufacturer.

Danger areas

Danger areas are those areas in which persons are in danger as a result of the movements of industrial trucks, their operating equipment, their load carrying devices (e.g. their attachments) or the loaded goods. This also includes the area which can be reached by falling goods or lowering or falling operating equipment and devices.

People must not stand in the danger area of an industrial truck.

Working areas

Only the areas approved by the operating company or its representative may be used for transportation purposes. Loads may only be deposited or stored at the intended places.

In operating areas with magnetic fields that have a magnetic flux density greater than 5 mT, unintentional truck and lift mast movements cannot be entirely excluded under unfavourable circumstances. Components developed especially for use in such operating areas must be used.

Driving routes

Driving routes shall be sufficiently paved, level and free of objects. Drain channels and railways crossings, etc., shall be levelled and, if necessary, covered with ramps in such a way that they can be driven over without bumps as far as possible.

Industrial trucks shall only be used on routes without sharp curves, excessive slopes and gates which are too narrow or too low.

Inclines used by industrial trucks shall not exceed the limits specified by the manufacturer and must have an adequately rough surface. Level and smooth transitions at the upper and lower end shall prevent the load from touching the floor or causing damages to the chassis.

The admissible area and point load of driving lanes or routes may not be exceeded. There shall be an adequate clearance between the highest parts of industrial trucks or the load and the fixed parts of the surrounding areas.

The EU Directive 89/654/EEC (Minimum Regulations for Health and Safety at Work) shall be observed. The respective national regulations apply for non-EU countries.

Danger points on driving lanes or routes shall be secured or marked by the customary road traffic signs and by additional warning signs, if necessary.

When driving on public roads, the corresponding regulations must be observed, as well as country-specific restrictions for winter road conditions.

Fire protection

The operating company is responsible for adequate fire protection in the vicinity of the industrial truck. Depending on the form of use, it is responsible for additional fire protection on the industrial truck. Enquiries should be directed to the responsible supervisory authority in case of doubt.



Impermissible use

Attachments

Attachments shall only be used as permitted. The driver shall be instructed in the handling of attachments.

The attachment operating instructions are enclosed for trucks that are delivered from the factory with an attachment. Before commissioning a truck with an attachment, you must check that loads are handled securely. Depending on the type of attachment, it may be necessary to make adjustments, e.g. pressure settings or adjusting stops and operating speeds. See the attachment operating instructions for the corresponding instructions.

If attachments are not supplied with the industrial truck, the specifications of the industrial truck manufacturer and the attachment manufacturer must be observed.

The attachments and the connection of power supplies for powered attachments may only be made by specialists in accordance with the specifications of the manufacturer. The proper functioning of the attachments shall be checked after each installation before initial use. The permissible carrying capacity of the attachments and the permitted load of the industrial truck (carrying capacity and load moment) combined with the attachments shall not be exceeded., refer to additional capacity rating plate.

Modifications, in particular attachments or conversions, are not permitted to be made to the industrial truck without the manufacturer's approval.

Trailers

Industrial trucks may only be used to tow trailers if they are intended for this purpose by the manufacturer and if they are fitted with the appropriate trailer coupling. The maximum towed load specified in the operating instructions for unbraked or braked trailers must not be exceeded.

The towing industrial truck must be operated in such away that safe driving and braking of the towed vehicle is ensured for all driving movements.

Impermissible use

The operating company or driver, and not the manufacturer, is liable for any hazards caused by improper use.



Please observe the definition of the following responsible persons: "operating company" and "driver".

Use for purposes other than those described in these operating instructions is prohibited.



There is a risk of fatal injury from falling off the truck while it is moving!

 It is prohibited to carry passengers on the truck.



The truck may not be operated in areas where there is a risk of fire, explosion or corrosion, or in areas that are particularly dusty.

Stacking or unstacking is not permissible on inclined surfaces or ramps.

Description of use and climatic conditions

Normal use

- Indoor and outdoor use.
- Ambient temperature in tropical and Nordic regions ranging from -20°C to +40°C.
- Use at up to 2000 metres above sea level.

Modifications to the truck

Unauthorised truck modification is not permitted.

Only in the event that the truck manufacturer is no longer in business and there is no successor in the interest to the business, may the user arrange for a modification or alteration to a powered industrial truck, provided, however, that the user

 arranges for the modification or alteration to be designed, tested and implemented by an engineer(s) expert in industrial trucks and their safety,

Symbols used

The terms DANGER, WARNING, CAUTION, NOTE and ENVIRONMENT NOTE are used in these operating instructions. They are intended to draw attention to specific dangers or unusual information that needs to be highlighted:

A DANGER

Means that failure to comply can risk the lives of others and/or cause major damage to equipment.

Special uses (applies to trucks with special equipment)

- Ambient temperature in tropical regions up to +40°C.
- Cold store version reaches -32°C
- maintains a permanent record of the design, test(s) and implementation of the modification or alteration,
- approves and makes appropriate changes to the capacity plate(s), decals, tags and instruction handbook, and
- affixes a permanent and readily visible label to the truck stating the manner in which the truck has been modified or altered, together with the date of the modification or alteration and the name and address of the organization that accomplished those tasks.

A WARNING

Means that failure to comply can result in the risk of serious physical injury and/or major damage to equipment.

A CAUTION

Means that failure to comply can result in the risk of major damage to equipment or destruction.



CE labelling

This means that particular attention must be paid to the specific technical meaning because this may not be obvious, even to a specialist.



The instructions listed here must be complied with otherwise environmental damage may result.

CE labelling

The manufacturer uses CE labelling to indicate that the truck complies with the standards and regulations valid at the time of marketing. This is confirmed by the issued EC declaration of conformity. The CE labelling is attached to the nameplate.

An independent structural change or addition to the truck can compromise safety, thus invalidating the EC declaration of conformity.

The EC declaration of conformity must be carefully stored and made available to the responsible authorities.



A CAUTION

This label is found on the truck in the areas where particular care and attention are required from the operator.

Refer to the appropriate section in these operating instructions.

For your safety, additional symbols are also used. Please take these different symbols into consideration.





EMC – Electromagnetic compatibility

Electromagnetic compatibility (EMC) is a key quality feature of the truck.

EMC involves

- limiting the emission of electromagnetic interference to a level that ensures the troublefree operation of other equipment in the environment.
- ensuring sufficient resistance to external electromagnetic interference so as to guarantee proper operation at the planned usage location under the electromagnetic interference conditions to be expected there.

An EMC test thus firstly measures the electromagnetic interference emitted by the truck and secondly checks it for sufficient resistance to electromagnetic interference with reference to the planned usage location . A number of electrical measures are taken to ensure the electromagnetic compatibility of the truck .

A CAUTION

The EMC regulations for the truck must be observed.

When replacing truck components the protective EMC components must be installed and connected again.



EC declaration of conformity in accordance with Machinery Directive

EC declaration of conformity in accordance with Machinery Directive

EC / EU declaration of conformity STILL GmbH Berzeliusstraße 10 D-22113 Hamburg We declare herewith that the machine Industrial truck model: Forklift Truck Model: See EC declaration of conformity Serial No . See EC declaration of conformity conforms to EC Machinery Directive 2006/42/EC in the latest valid version and to EMC Directive 2014/30/EU in the latest valid version, as determined for industrial trucks in the harmonised standard EN 12895: 2015. In addition we declare, that radio equipment, if any, installed in this machine, conforms to RED Directive 2014/53/EU in the latest version. This declaration of conformity is issued under the sole responsibility of the manufacturer. Person authorised to compile the technical file in accordance with the named directives. See EC declaration of conformity In addition, we hereby declare that the equipment conforms to the requirements of the Directive for Noise Emissions 2000/14/EC. The conformity was verified by the conformity assessment procedure described in Annex V. Measured sound power level LWA: dB Guaranteed sound power level I WA · dB Hamburg, (date) See EC declaration of conformity See EC declaration of conformity



Quality Director

R&D Manager

2

Safety

Definition of terms used for responsible persons

Operating company

The operating company is the natural or legal person or group who operates the truck or on whose authority the truck is used.

The operating company must ensure that the truck is only used for its proper purpose and in compliance with the safety regulations set out in these operating instructions.

The operating company must ensure that all users read and understand the safety information.

The operating company is responsible for the scheduling and correct performance of regular safety checks.

We recommend that the national performance specifications are adhered to.

Specialist

A qualified person is defined as a service engineer or a person who fulfils the following requirements:

- A completed vocational qualification that demonstrably proves their professional expertise. This proof should consist of a vocational qualification or a similar document.
- Professional experience indicating that the qualified person has gained practical experience of industrial trucks over a proven period during their career During this time, this person has become familiar with a wide range of symptoms that require checks to

Competent person

A competent person is a specialist in the field of industrial trucks who has:

- Successfully completed training, as at least a service engineer for industrial trucks
- Many years of professional experience with industrial trucks
- Knowledge of the accident prevention regulations
- Knowledge of the relevant national technical regulations

be carried out, such as based on the results of a hazard assessment or a daily inspection

 Recent professional involvement in the field of the industrial truck test in question and an appropriate further qualification are essential. The qualified person must have experience of carrying out the test in question or of carrying out similar tests. Moreover, this person must be aware of the latest technological developments regarding the industrial truck to be tested and the risk being assessed

The competent person is able to assess the condition of industrial trucks in terms of health and safety.

Drivers

This truck may only be driven by suitable persons who are at least 18 years of age, have been trained in driving, have demonstrated their skills in driving and handling loads to the



operating company or an authorised representative, and have been specifically instructed to drive the truck. Specific knowledge of the truck to be operated is also required.

The training requirements under §3 of the Health and Safety at Work Act and §9 of the plant safety regulations are deemed to have been satisfied if the driver has been trained in accordance with BGG (General Employers' Liability Insurance Association Act) 925. Observe the national regulations for your country.

Driver rights, duties and rules of behaviour

The driver must be trained in his rights and duties.

The driver must be granted the required rights.

The driver must wear protective equipment (protection suit, safety footwear, safety helmet, industrial goggles and gloves) that is appropriate for the conditions, the job and the load to be lifted. Solid footwear should be worn to ensure safe driving and braking.

The driver must be familiar with the operating instructions and have access to them at all times.

The driver must:

- have read and understood the operating manual
- have familiarised himself with safe operation of the truck
- be physically and mentally able to drive the truck safely

A DANGER

The use of drugs, alcohol or medications that affect reactions impair the ability to drive the truck!

Individuals under the influence of the aforementioned substances are not permitted to perform work of any kind on or with the truck.

Prohibition of use by unauthorised persons

The driver is responsible for the truck during working hours. He must not allow unauthorised persons to operate the truck.

When leaving the truck, the driver must secure it against unauthorised use, e.g. by pulling out the key.



Safety regulations

Safety guidelines

It is essential that operating personnel and repair personnel observe the" rules for the proper use of industrial trucks" enclosed with these operating instructions.

Examples of those listed are:

· Operating industrial trucks

- · Driving licence
- · Driveways and working areas
- Rights, duties and rules of behaviour for the driver
- Special operating areas
- Information regarding setting off, driving and braking
- · Information for maintenance and repair
- · Regular tests
- · Disposal of greases, oils and batteries

The operating company or the person it has commissioned must ensure that the driver understands all safety information and that all guidelines and safety regulations are observed.

During training, the driver must familiarise themselves with the following:

- The operating conditions of the working areas
- The specific technical characteristics of the industrial truck
- · The operation of attachments

Practise driving, control and steering operations with an unloaded truck until they are completely mastered. Only then can a loaded industrial truck be used for practice.

Safety information

A DANGER

The industrial truck must not be used by unauthorised persons.

Only trained persons and those authorised for operation may have access to the industrial truck.

A DANGER

Safety systems (e.g. the seat switch) are there for safety.

Safety systems must never be disabled, regardless of the kind.

A DANGER

Any additional bores or welding to the overhead guard will compromise its rigidity.

It is therefore strictly prohibited to drill holes in the overhead guard or to weld to it.

A CAUTION

Welding operations on other parts of the vehicle can cause damage to the electronics.

Therefore, before performing any welding, always disconnect the battery and all connections to the electronic control units.

A CAUTION

Different functions are supported by gas springs. Gas springs are under a high internal pressure of up to 300 bar.

They must only be removed when not under compression and must not be opened without instructions. Any kind of damage, lateral forces, buckling, temperatures in excess of 80° C and heavy contamination must be avoided under all circumstances.

Damaged or defective gas springs must be replaced immediately.

Contact your service partner.

WARNING

In trucks with an accumulator, serious injuries can occur if the accumulator is not properly handled.

Before starting work on the accumulator it must be depressurised.

Contact your service partner.



Safety regulations



🛦 WARNING

Depending on the duration of use and operating time, components carrying exhaust gases and exhaust air may become hot.

Protective equipment must therefore be worn.

🛦 WARNING

The areas in which the truck is operated must be adequately lit.

If it is insufficiently lit, working spotlights must be installed to ensure that the driver can see properly.

🛦 WARNING

Health risk due to non-ionising radiation from retrofitted devices (e.g. radio transmitter).

Always ensure that the manufacturer's instructions are observed and that no persons with active or nonactive implantable medical devices are harmed.

If non-ionising radiation is present, affix a warning sign within the driver's field of vision.

Exhaust gases

A CAUTION

Risk to health from exhaust gases! Exhaust gases from internal combustion engines are harmful to your health. In particular, the soot particles contained in the diesel exhaust gas can cause cancer. Letting the combustion engine idle runs a risk of poisoning from the CO, CH and NO_x components contained in the exhaust gas

Modern exhaust gas treatment systems (e.g. catalytic converters, particle filters or comparable systems) can clean exhaust gases in a way that reduces the health hazard and risk of poisoning when operating the truck.

- Observe the national laws and regulations when using trucks with an internal combustion engine in entirely or partially enclosed working areas.
- Always ensure sufficient ventilation.

Various pieces of special equipment are connected to the special "speed reduction" function. This is simply an assistance function, on which the driver must not solely rely during operation.

The driver is always responsible for safe operation.

A CAUTION

If drivers have active medical equipment, e. g. pace makers or hearing aids, these may be impaired.

Check with a doctor or the medical equipment manufacturer whether the equipment is sufficiently protected against electromagnetic interference.



If your truck is equipped with a fire extinguisher, make sure that you familiarise yourself with it in case of an emergency. Handling information is provided on the fire extinguisher.



Ground condition for using the truck

Ground condition for using the truck

In order for the truck to be used, suitable ground must have the following characteristics:

- · Even and level
- Hard
- Sturdy
- Free of obstacles
- · Properly prepared for the purpose

Safety Regulations Relative to Forklift Use

- The operator must familiarize himself with the forklift to be able to better describe any defects and assist maintenance personnel. The operator, trained and authorized to use the forklift, must be familiar with the controls and performances of the forklift.
- Any defect (squeaking, leaks, etc.) must be promptly reported because, if neglected, it could cause more serious failures/defects.
- Carry out the inspections indicated in the chapter on "Daily Inspections".



Report any oil and/or battery fluid leaks: they are dangerous and highly polluting.

A CAUTION

If you notice a burning smell, stop the forklift and turn off the engine, then disconnect the battery.



Residual dangers, residual risks

Despite careful working and compliance with standards and regulations, the occurrence of other risks when using the truck cannot be entirely excluded.

The truck and all other system components comply with current safety requirements. Nevertheless, even when the truck is used for its proper purpose and all instructions are followed, some residual risk cannot be excluded.

Even beyond the narrow danger areas of the truck itself, a residual risk cannot be excluded. Persons in this area around the truck must exercise a heightened degree of awareness, so that they can react immediately in the event of any malfunction, incident or breakdown etc.

A WARNING

All persons that are in the vicinity of the truck must be instructed regarding these risks that arise through use of the truck.

In addition, we draw attention to the safety regulations in these operating instructions.

Risks can include:

- Escape of consumables due to leakages, rupture of lines and containers etc.
- Risk of accident when driving over difficult ground such as gradients, smooth or irregular surfaces, or with poor visibility etc.
- Falling, tripping etc. when moving on the truck, especially in wet weather, with leaking consumables or on icy surfaces
- Fire and explosion risks due to batteries and electrical voltages
- Human error resulting from failure to observe the safety regulations,
- Unrepaired damage or defective and worn components,
- · Insufficient maintenance and testing
- Use of incorrect consumables
- Exceeding test intervals

The manufacturer is not held responsible for accidents involving the truck caused by the

failure of the operating company to comply with these regulations either intentionally or carelessly.

Stability

The stability of the truck has been tested to the latest technological standards and is guaranteed provided that the truck is used properly and according to its intended purpose. These standards only take into account the dynamic and static tipping forces that can arise during specified use in accordance with the operating rules and intended purpose. However, the danger of exceeding the moment of tilt due to improper use or incorrect operation and losing stability can never be excluded.

The loss of stability can be avoided or minimised by the following actions:

- Always secure the load against slipping, e.g. by lashing.
- Always transport unstable loads in suitable containers.
- Always drive slowly when cornering.
- Drive with the load lowered.
- Even with sideshifts, align the load as centrally as possible with the truck and transport in this position.
- Avoid turning and diagonally driving across slopes or gradients.
- Never have the load facing downhill when travelling on slopes or gradients.
- Pick up only loads of the approved width.
- Always take great care when transporting suspended loads.
- Do not drive over ramp edges or steps.



Safety regulations when driving

Driving conduct

The driver must follow the public rules of the road when driving in company traffic.

The speed must be appropriate to the local conditions.

For example, the driver must drive slowly around corners, in tight passageways, when driving through swing-doors, at blind spots, or on uneven surfaces.

The driver must always maintain a safe braking distance from vehicles and persons in front, and must always have the truck under control. Stopping suddenly, turning quickly and overtaking at dangerous or blind spots must be avoided.

 Initial driving practice must be carried out in an empty space or on a clear roadway.

The following are forbidden during driving:

- Allowing arms and legs to hang outside the truck
- Leaning the body over the outer contour of the truck
- · Climbing out of the truck
- · Moving the driver's seat
- · Adjusting the steering column
- · Releasing the seat belt
- · Disabling the restraint system
- Raising the load higher than 300 mm above the ground (with the exception of manoeuvring processes during the placement into stock/removal from stock of loads)
- Using electronic devices, for example radios, mobile phones etc.

WARNING

The use of multimedia and communication equipment as well as playing these devices at an excessive volume during travel or when handling loads can affect the operator's attention. There is a risk of accident!

- Do not use devices during travel or when handling loads.
- Set the volume so that warning signals can still be heard.

A WARNING

In areas where use of mobile phones is prohibited, use of a mobile phone or radio telephone is not permitted.

Switch off the devices.

Visibility when driving

The driver must look in the drive direction and have a sufficient view of the driving lane.

Particularly for reverse travel, the driver must be sure that the driving lane is clear.

When transporting goods that impair visibility, the driver must drive the truck in reverse.

If this is not possible, a second person acting as a guide must walk in front of the truck.

In this case the driver must only move at walking pace and with extra care. The truck must be stopped immediately if eye contact with the guide is lost.

Rear-view mirrors are only to be used for observing the road area behind the truck and not for reverse travel. If visual aids (mirror, monitor) are necessary to achieve sufficient visibility, it is necessary to practise using them. For reverse travel using visual aids, extra care should be taken.

When using attachments, special conditions apply; see the chapter entitled "Fitting attachments".

Any glass (variant, e.g. windscreen) and mirrors must always be clean and free of ice.



Safety regulations in case of accidental lateral tipping

If as a result of incorrect manoeuvring the truck appears to be tipping over sideways, carefully follow the instructions below:

a) Do not leave the forklift truck.

b) Tilt your head forward and move your body in the opposite direction to which the forklift is tipping. c) Remain firmly seated, grip the steering wheel and dig your heels in. Wait until the truck has reached a stable position before leaving the truck.

Commissioning of LPG-fuelled trucks

A - For use with "fixed bottle" that can be filled by the user

In order to comply the safety requirements of the ISO 3691 standard, the bottle must be equipped with at least the following:

- Manual shut-off tap;
- · Valve (2) as indicated in the previous point;
- · Overpressure valve;
- Device for indicating the maximum level;

and it must be subjected to the tests provided for by the regulations in force in the country in which the truck is used.

This specific variant must be requested from the manufacturer at the time the truck is ordered; if the set-up occurs at a later time, however, it is essential to use the original kit and carry out the assembly as provided for by the manufacturer.

B - For use with a "removable bottle"

The bottle must be:

- Compliant with the requirements of ISO 3691 (valve (2) as indicated previously, manual shut-off cock);
- Suitable for safe use on vehicles designed as indicated above;
- Compliant with the requirements regarding containers under pressure currently in force in the country in which the truck is used;
- Subjected to any tests provided for by the requirements referred to above;
- Accompanied by an appropriate card certifying its origin.

When making the connection, check the compatibility of the pipe/bottle fittings and use appropriate adapters if necessary.

The person commissioning the truck is completely responsible for complying with the requirements stated in points A and B above. In this regard, it is advisable to always consult specialists in the sector for the validation of the equipment. It is advisable to use a removable bottle equipped with overpressure valve.

The manufacturer assumes no responsibility for:

- · Use of non-compliant tanks;
- Incorrect installation of the same;
- Commissioning of the truck without having satisfied the safety regulations and laws in force in the country in which the truck is used.

A DANGER

The leakage of liquid gas may cause freeze burns and/or explosions. This can occur particularly in the case of gas leaks from the system or when the engine doesn't start or is difficult to start. Thus if these anomalies should occur, it is strictly prohibited to perform work on the gas system and it is strictly prohibited to use the truck.



General safety rules for liquid gas

A DANGER

LPG is highly flammable due to its volatility. Furthermore, since it has a specific weight higher than that of air (approximately twice the value), if the gas

General safety rules for liquid gas

The term "liquid gas" refers to BUTANE or PROPANE or mixtures of BUTANE/ PROPANE supplied in bottles or particular tanks and used for the propulsion of internalcombustion engines.

The LPG quality must comply with the requirements of **DIN 51622** as a minimum. The quality is optimum when the LPG complies with the requirements of **EN 589** (automotive gas).

A DANGER

Risk of explosion! LPG is heavier than air; it diffuses on the ground and spreads over large areas.

- Trucks with LPG systems must only be parked in sufficiently well-ventilated areas above ground level.
- They must not be parked near entrances to rooms below ground level.
- Sufficient space must be left around trucks that have been parked; such areas must not include cellar openings or cellar access points, pits or similar cavities, drains without liquid seals, ventilation shafts and light wells or combustible material.

DANGER

Risk of fire! Whenever LPG escapes, it immediately becomes gaseous and therefore produces a potentially explosive atmosphere. The vapours are heavier than air and diffuse on the ground. Vapours spread over large areas and can cause fires and reignition.

LPG trucks and LPG cylinders must only be operated and parked or stored in well-ventilated areas. leaks it remains suspended near the ground, thus increasing the resulting hazard. It is prohibited to park or leave the truck in closed and/or underground environments.

A DANGER

Risk of explosion!

- Do not smoke during maintenance work on LPG systems, and make sure that there are no open flames, stoves, lanterns or similar items located in the vicinity.
- Use only anti-static-treated tools that do not produce sparks.
- Anti-static clothing and footwear are recommended.

Condition of the LPG cylinders

A DANGER

LPG cylinders must not protrude beyond the edges of the truck body because collisions with objects or other trucks could cause them to be damaged. There is a risk of explosion!

 Only use LPG cylinders that have been approved for operation of the LPG system.

Duties of the employer and the worker

The employer or the manager of the plant where the liquid gas-powered industrial trucks are used must ensure that these trucks are used and maintained by suitably trained personnel only. The liquid gas-powered truck can be put into service only after having checked that it is in good condition.

The employer must provide company instructions for the industrial trucks used, written in a simple and understandable format and containing all the information necessary for safe use of these trucks within the company activities. All the operators and maintenance personnel must be familiar with these instructions, and the instructions must always be available and strictly followed in the workplace.



A - During use

 Before loosening the pipe fittings or hoses, the truck must be switched off and the bottle tap must be closed. The closure nuts on the bottles should be loosened slowly and only partially at first, otherwise the gas under pressure in the piping may escape violently.

A CAUTION

Possible injury from frostbite!

Liquid gas in contact with the skin causes freeze burns!

- When a removable gas bottle (i.e., cylinders) is installed, it must be assembled onto the truck in a horizontal position with the threaded fitting of the tap facing downwards. During assembly and disassembly, close the tap with the respective threaded plug (supplied with the bottle). Before connecting the gas bottle, check that the fittings are compatible with the pipe. After disassembly of the empty bottle, the threaded plug (supplied with the bottle) should be screwed back on.
- The tap must be opened slowly! The opening and closing of the tap must be carried out without the aid of any tools in order to avoid the risk of explosions due to sparks.

A CAUTION

In case of fires involving liquid gas, only dry or gaseous carbon dioxide fire extinguishers should be used!

- Gas bottles which are not leak-tight must not be used, but should instead be immediately emptied outdoors, taking all the necessary safety precautions, and then marked with the legend "DEFECTIVE". If damaged bottles have been supplied, immediately notify the distributor or its representative (dealer, etc.) of the damage, in writing if possible. In any event, never use a damaged bottle.
- The entire liquid gas system must be checked frequently to ensure that it works safely, paying particularly attention to the tightness of all its parts. It is prohibited to use the truck when the liquid gas system is

not airtight. To check the tightness of the system, use soapy water, Nekal solution or other foaming agents. It is prohibited to inspect the liquid gas system with an open flame.

- Ensure that the engine is adjusted so as to produce only a minimum quantity of noxious gases in the exhaust.
- Frozen parts of the system must be thawed out only with hot water, hot sandbags or the like. Open flames, incandescent objects etc. may cause explosions.
- When any single part of the system is being replaced, the manufacturer's installation instructions must be followed. The tap of the bottle must be closed during these operations.
- The conditions of the electrical systems of liquid gas-powered trucks should be monitored constantly. In case of leaks in the gasconducting parts of the system, sparks from the electrical components may cause explosions. After a liquid gas-powered truck has been shut down for a lengthy period, the garage must be thoroughly aerated before starting up the truck or its electrical system.
- Trucks with LPG engines must only be used in closed or partially closed areas once it has been guaranteed that the area in question is sufficiently well-ventilated. This precaution prevents the accumulation of dangerous concentrations of harmful gases.
- Liquid gas-powered fork lift trucks may be parked only in well-ventilated garages which are not underground. They must not be parked near cellar entrances or ditches or similar cavities, or near openings of drainage canals or open sewers, near air shafts, stairwells or places where flammable materials are stored.
- During work in the repair shops, the tap of the bottle must be closed and the gas bottles should be protected against heat. Work requiring the use of a flame, particularly for welding or cutting, must not be carried out near gas bottles. Gas bottles, even when empty, must not be stored in the shops.
- In case of explosions, even if no accidents have been caused, inform the relevant authorities in compliance with the current requirements in the country in which the truck is used.
- The replacement of gas containers (replacing empty bottles with full bottles) is allowed



Exercise caution when handling gas springs and accumulators

in the garages only when sufficient ventilation is guaranteed (no hazardous concentration of explosive gases).

B — storage of gas containers

- Refer to all the national or local requirements and regulations on the treatment and storage of full, portable and closed containers for compressed, liquefied and dissolved gases under pressure. For example, it is prohibited to store pressure containers: in underground areas; in stairwells, passageways and antechambers, above all in confined areas, yards or passages or near such; in the safety exits; in garages; in the workplace. Comply with all the general requirements for use and storage of containers under pressure provided for by the laws in force.
- Electric inspection lamps used in these areas must be equipped with an airtight chamber and sturdy protective grating.

- Garages, warehouses and repair shops must be well-ventilated. It should be noted that liquid gases are heavier than air and thus accumulate near the ground, in work pits and in other depressions in the ground, where they may form explosive mixtures of gas and air
- Keep containers away from ignition sources and heat sources.
- · Protect containers against sunlight.
- Lock containers when stored, and keep out of the reach of children.

Exercise caution when handling gas springs and accumulators

WARNING

Gas springs are under high pressure. Improper removal results in an elevated risk of injury.

For ease of operation, various functions on the truck can be supported by gas springs. Gas springs are complex components that are subject to high internal pressures (up to 300 bar). They may under no circumstances be opened unless instructed to do so, and may be installed only when not under pressure. If required, the authorised service centre will depressurise the gas spring in accordance with the regulations before removal. Gas springs must be depressurised before recycling.

- Avoid damage, lateral forces, buckling, temperatures over 80°C and heavy contamination.
- Damaged or defective gas springs must be changed immediately.
- Contact the authorised service centre.

A WARNING

Accumulators are under high pressure. Improper installation of an accumulator results in an elevated risk of injury.

Before starting work on the accumulator it must be depressurised.

- Contact the authorised service centre.



Safety regulations for handling consumables

Permissible consumables

A DANGER

Failure to observe the safety regulations relating to consumables may result in a risk of injury, death or damage to the environment.

 Observe the safety regulations when handling such materials.

The permissible materials required for operation can be found in the supply table in the chapter entitled "Maintenance".



Safety regulations for handling consumables

Oils



Oils are flammable!

- Follow the statutory regulations.
- Do not allow oils to come into contact with hot engine parts.
- No smoking, fires or naked flames!



Oils are toxic!

- Avoid contact and consumption.
- If vapour or fumes are inhaled, move to fresh air immediately.
- In the event of contact with the eyes, rinse thoroughly (for at least 10 minutes) with water and then consult an eye specialist.
- If swallowed, do not induce vomiting. Seek immediate medical attention.



A WARNING

Prolonged intensive contact with the skin can result in dryness and irritate the skin!

- Avoid contact and consumption.
- Wear protective gloves.
- After any contact, wash the skin with soap and water, and then apply a skin care product.
- Immediately change soaked clothing and shoes.

There is a risk of slipping on spilled oil, particularly when combined with water!

 Spilt oil should be removed immediately with oilbinding agents and disposed of according to the regulations.

ENVIRONMENT NOTE

Oil is a water-polluting substance!

- Always store oil in containers that comply with the applicable regulations.
- · Avoid spilling oils.
- Spilt oil should be removed immediately with oil-binding agents and disposed of according to the regulations.
- Dispose of old oils according to the regulations.



Hydraulic fluid



These fluids are pressurised during operation of the truck and are hazardous to your health.

- Do not spill the fluids.
- Follow the statutory regulations.
- Do not allow the fluids to come into contact with hot engine parts.



WARNING

These fluids are pressurised during operation of the truck and are hazardous to your health.

- Do not allow the fluids to come into contact with the skin.
- Avoid inhaling spray.
- Penetration of pressurised 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 avoid injury, use appropriate personal protective equipment (e.g. protective gloves, industrial goggles, skin protection and skin care products).

😫 ENVIRONMENT NOTE

Hydraulic fluid is a water-polluting substance.

- Always store hydraulic fluid in containers that comply with regulations
- · Avoid spills
- Spilt hydraulic fluid should be removed immediately with oil-binding agents and disposed of according to the regulations
- Dispose of old hydraulic fluid according to the regulations





Safety regulations for handling consumables

Battery acid



WARNING

Battery acid contains dissolved sulphuric acid. This is toxic.

- Avoid touching or swallowing the battery acid at all costs.
- In case of injury, seek medical advice immediately.



A WARNING

Battery acid contains dissolved sulphuric acid. This is corrosive.

- When working with battery acid, use appropriate PSA (rubber gloves, apron, protection goggles).
- When working with battery acid, never wear a watch or jewellery.
- 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 spilt battery acid with plenty of water.
- Follow the statutory regulations.



ENVIRONMENT NOTE

 Dispose of used battery acid in line with the applicable regulations.

Disposal of consumables

🕸 ENVIRONMENT NOTE

Materials that accumulate during repair, maintenance and cleaning must be collected properly and disposed of in accordance with the national regulations for the country in which the truck is being used. Work must only be carried out in areas designated for the purpose. Care must be taken to minimise any environmental pollution.

- Soak up any spilt fluids such as hydraulic oil, brake fluid or gearbox oil using an oilbinding agent.
- Neutralise any spilt battery acid immediately.
- Always observe national regulations concerning the disposal of used oil.



2

Environmental considerations

Disposal of components and batteries

The truck is composed of different materials. If components or batteries need to be replaced and disposed of, they must be:

- · disposed of,
- · treated or
- recycled in accordance with regional and national regulations.

The documentation provided by the battery manufacturer must be observed when disposing of batteries.



ENVIRONMENT NOTE

We recommend working with a waste management company for disposal purposes.



Safety instructions for the LPG system

Packaging

During delivery of the truck, certain parts are packaged to provide protection during transport. This packaging must be removed completely prior to initial start-up.



The packaging material must be disposed of properly after delivery of the truck.

Safety instructions for the LPG system

We wishes you a long use of your LPG truck with maximum safety.

A WARNING

When LP gas leaks out, there is an immediate danger of explosion resulting in the risk of burns.

This is particularly the case when:

- leaks occur on the LPG system,
- the engine does not start or starts poorly.

For this reason it is absolutely:

- forbidden to remove the evaporator cap (1), ▷ and have the cap (1) installed by qualified dealer staff, if missing,
- forbidden to manipulate the LPG system in any way if any malfunctions occur,
- forbidden to continue to operate the truck if any malfunctions occur.




Safety information on the LPG system



In the event of an LPG leak, there is a risk of explosion and fire at any time. If LPG starts to leak and the engine fails to start or a starting malfunction occurs, the risk of explosion or fire is especially serious.

If there is a malfunction, carrying out any operation in the LPG system or continuing to operate the forklift truck is prohibited.



A DANGER

Using twin LPG cylinders may carry a risk of explosion.

If an additional safety valve has been installed, please only use replacement cylinders made of aluminium or mixed materials.

Emissions

The values specified apply to a standard truck (compare the specifications in the "VDI datasheet" chapter). Different tyres, lift masts, additional units etc. may produce different values.

Noise emissions

The values were determined based on measuring procedures from the standard EN 12053 "Safety of industrial trucks. Test methods for measuring noise emissions" based on EN12001 and EN ISO 3744 and the requirements of EN ISO 4871.

This machine emits the following sound pressure level:

Continuous sound pressure level in the driver's compartment

	LpAZ	Measurement uncertainty KpA
RCG20	80 dB	2.4dB

The values were determined in the test cycle on an identical machine from the weighted values for operating statuses and idling.

However, the indicated noise levels at the truck cannot be used to determine the noise emissions at workplaces according to the most recent version of Directive 2003/10/EC (daily personal noise pollution). If required, these noise emissions must be determined di-

rectly at the workplaces under the actual conditions present (further sources of noise, particular application conditions, sound reflections) by the operating company.

Please note the definition of "operating company" in the sense of responsible persons!

Vibrations

The vibrations of the machine have been determined on an identical machine in accordance with the standards DIN EN 13059 "Safety of industrial trucks - Test methods for measuring vibration" and DIN EN 12096 "Mechanical vibration - Declaration and verification of vibration emission values".

Frequency-weighted effective value of acceleration on the seat

The following value is valid for all truck models:

	Driver's seat	Measurement uncertainty
RCG20	Seat < 1.2 m/s2	0.3 m/s2

Tests have indicated that the amplitude of the hand and arm vibrations on the steering wheel or the operating devices in trucks is less than 2.5 m/s2. There are therefore no



Emissions

measurement guidelines for these measurements.

The personal vibration load on the driver over a working day must be determined by the operating company at the actual place of use in accordance with Directive 2002/44/EC, in order to consider all additional influences, such as driving route, intensity of use etc. are considered.



Please note the definition of "operating company" in the sense of responsible persons!



Safety tests

Carrying out regular safety inspections on the LPG system

Technical safety inspection of the LPG system

The operating company must commission a competent person to check the LPG system. Observe the national regulations in the relevant country! In Germany, check the system in accordance with § 37 of the employers' liability association regulations BGV D34 entitled "Accident prevention regulation for the use of LPG".

Please observe the definition of the following responsible persons: "operating company" and "competent person".

The LPG system must be checked:

- Recurring in regular intervals, but at least once per year
- After repair work that may affect operational safety
- After changes that may affect operational safety
- After breaks in operation of more than one year.

The following will be checked: proper condition, the possibility of leakages, function, installation and the functionality of the safety devices.

The results from the inspection must be recorded in an inspection document in accordance with BGG 936 (observe the applicable national regulations). The results must be retained until the next inspection. The inspection documents must be available for viewing by the authorities at any time.

The type and scope of tests may differ according to the country. Any differing legal provisions in the respective country of operation must be observed when using trucks with an LPG system.



Safety tests

The operating company is responsible for ensuring any defects are remedied without delay. In the event of defects, notify the authorised service centre.



3

Information about the truck

General forklift view

General forklift view

General front view



- Fork arms 1-
- 2-3-4-5-Mast
- Front wheels
- Driver's Seat
- Overhead guard

- Tilt cylinder Forward 6-
- А-D-
 - Right
- I-S-Backwards
 - Left



General forklift view

General rear view



- 1-
- 2-3-4-5-
- Rear wheels Rear weight Rear lights Trailer coupling Overhead guard

- 6-7-8-9-Mast
- Steering wheel
- Control panel Engine bonnet Exhaust pipe
- 10-



Instrumentation and controls

Instrumentation and controls

Overview of the driver's compartment



- Steering wheel 1
- 2 3 4 5 6 Parking brake pedal
- Accelerator pedal
- Brake pedal
- Inching pedal Seat

- Direction selection lever 7 8
 - A4 paper holder
- Lighting and direction indicator switch Operating lever Display unit 9
- 10
- 11 12
 - Cup holder



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Instrumentation and controls

Display unit



- LPG truck)
- 2 Seat indicator light
- 3 Indicator light for "glow plug preheating" (not applied for LPG truck)
- 4 Neutral Position indicator
- "Torque Converter Oil Temperature" indica-5 tor light
- 6 "Parking brake" indicator light
- 7 "Clogged air filter" indicator light
- 8 "Engine oil pressure" indicator light

- applied for LPG truck)
- 10 "DPF regeneration disabled" indicator light(Red light) (not applied for LPG truck)
- "Battery charging" indicator light 11
- "Engine error light" indicator light(Red light) 12
- 13 DPF regeneration indicator light/Exhaust temperature warning light(Yellow light) (not applied for LPG truck)
- "DPF regeneration request" indicator 14 light(Yellow light) (not applied for LPG truck)



Truck identification

Chassis number

The truck serial number is stamped on the lower crossmember of the chassis at the driver's step plate

Production number

⊳

The production number is used to identify the truck. It can be found on the nameplate and must be referred to in all technical questions.

The production number contains the following coded information:

- (1) Production location
- (2) Model
- (3) Year of manufacture
- (4) Sequential number





Nameplate



- 1 Type
- 2 Production number
- 3 Year of manufacture
- 4 Tare weight in kg
- 5 Max. permissible battery weight in kg (for electric forklift trucks only)
- 6 Min. permissible battery weight in kg (for electric forklift trucks only)
- 7 Ballast weight in kg (for electric forklift trucks only)

The truck can be identified from the information on the nameplate.

- 8 Refer to the technical data listed in these operating instructions for more detailed information
- 9 CE labelling
- 10 Nominal drive power in kW
- 11 Battery voltage in V
- 12 Rated capacity in kg



The information for the battery weights (5, 6) and the ballast weight(7)only applies to electric forklift trucks.

Engine plate

Engine rating plate

The engine type(A) and engine number (B) and performance data are stamped on the engine plate.

The engine type and number must be stated when purchasing spare parts.

The rating plate (C)is fixed to the cylinder head cover or crankshaft case.



Engine serial number plate

Engine serial number (D)is stamped onto the crankcase (arrow) and onto the rating plate.





Three-way catalytic converter plate >

The serial number of the exhaust aftertreatment components are stamped on the rating plates.





Location of the decals

Location of the decals





Location of the decals



- 1 Warning sign: Mast safety warning
- 2 Decal information: Capacity rating plate
- 3 Decal information: Filling in gasoline (option)
- 4 Manufacturer's name
- 5 CE label
- 6 Decal information: Caution / Dismantle the wheel according to the instruction
- 7 Decal information: Caution / Fasten the wheel instruction
- 8 Decal information: Caution / Read the operating instruction
- 9 Decal information: Suspend indication
- 10 Decal information: Hydraulic oil tank
- 11 Decal information: Caution / No watering
- 12 Decal information: Adding coolant
- 13 Warning sign: Hood roll hand warning

- 14 Warning sign: Danger due to overheating of radiator
- 15 Warning sign: Danger due to shearing / Danger to the driver's head with engine hood not fully closed.
- 16 Sound pressure level
- 17 Warning sign: Read the operating instruction for lifting by lifting gear attachment point
- 18 Warning sign: Preventing water into the electrical parts
- 19 Warning sign: Prick hand warning
- 20 Nameplate
- 21/22 Model information
- 23 Decal information: driving warning
- 24 Manufacturer's name
- 25 Warning LPG







4

Use and Operation

Truck transport and lifting

Use a truck or flatbed trailer to carry the forklift truck

The truck is normally transported by road and rail complete with lift mast. If the truck's dimensions exceed the max. clearance size allowed, it is transported with mast disassembled.

The forklift must be secured to the transport means during transport using appropriate restraint systems .

- Lower the lift mast completely.
- Tilt the lift mast forward.

The fork arms must be resting on the ground.

- Apply the parking brake as described in chapter entitled"Parking brake".
- Use two wedges to block each of the front and rear wheels to prevent rolling.
- Use ropes to secure the forklift truck on the truck.

A CAUTION

Also use ropes to secure the mast in the case that the mast shall be disassembled during the transport.



Environmental conditions for transport and storage

The forklift truck must be protected from the effects of the weather during transport and



storage. In salty environments, appropriate protection must be provided.

Loading and unloading the truck

Use an inclined plane or a movable platform to load and unload the truck. If the truck is not operational, lift as described below.

A DANGER

Use a crane with a suitable lifting capacity for the weight of the truck, indicated on its data plate. The lifting operations must be performed by qualified personnel. DO NOTstand within the crane's radius of action or under the raised truck. Use NON MET-ALLIC slings. Make sure that the lifting capacity of the slings is suitable for the weight of the truck.

To raise the truck it is necessary to remove the LPG bottle and associated support.

A DANGER

DO NOT SMOKE in the vicinity of the truck when removing the bottle and putting it back.

To remove the LPG bottle, proceed as follows:

- Open the bottle cover(1) by releasing the lever locks(2).
- Close the bottle valve(3).
- Disconnect the LPG system supply pipe(4) from the bottle valve or safety valve.
- Remove the bottle(5).
- Unscrew the screws(6) and remove the bottle support.





Lifting the truck with a crane

A DANGER

When lifting the truck with a crane, there is a risk of accident and fatal injury if personnel are in the working area of the crane.

When using a crane to lift the truck, pay particular attention to ensure that no personnel are in the vicinity of the crane. Comply with the load capacity rating marked on the crane nameplate. Never walk under a suspended load!

A CAUTION

Use a spreader and crane with sufficient load capacity to lift the truck. For the weight of the truck, see the manufacturer's nameplate.

Before lifting the truck, fasten the slings to the given lifting points. These lifting points are not specifically marked on the truck.

- Lower the lift mast completely, and tilt it fully backwards.
- Remove the two rubber grommets(7) from the openings in the counterweight.
- Remove the counterweight grid(6).
- Attach a sling (2) (able to at least bear the weight of the forklift truck), enter from the original area of counterweight grid(7),come out from the two openings in the counterweight.
- Attach two shackles (5) to the two openings in the upper beam of the outer lift mast.
- Attach a sling (3) (able to at least bear the weight of the forklift truck) to the two shackles.
- Prevent the slings from rubbing against any sharp edges on the truck.
- Attach the ends of all the slings to the crane hook (1).





Use and Operation

A CAUTION

After hanging the slings from the lifting hook, the safety lock (4) must be fastened. The slings must not touch the overhead guard or any other installed equipment when the truck is being lifted.

A DANGER

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 guard and the risk of severe injury or death. Ensure that no part of any lifting equipment contacts the overhead guard during lifting.

Commissioning the truck

A CAUTION

Do not use the forklift truck before it has been commissioned by a service engineer authorized by the manufacturer.

A CAUTION

The forklift truck may be commissioned only by a service engineer authorized by the manufacturer.



Remaining ready for operation

Pre-shift checks

Carrying out the following checks as part of your daily routine will help to keep the forklift truck in good condition. These checks are supplemental and do not replace periodic maintenance work.

i NOTE

If, when carrying out the daily checks, you discover a defect or you are unsure whether the truck will function properly, do not use the truck and contact the technical service department.



Checking the cap on the high-pressure relief valve on the outside of the LPG system

 Check that the cap (1) on the high-pressure relief valve is in place and intact. Check the cap (1) for any damage, holes or wear that may impair the correct operation of the valve.

A DANGER

If the cap is missing or damaged, gas may escape uncontrollably.

In such cases, do not put the truck into operation. Close the bottle immediately and contact the authorised service centre.



Daily checks before use

The following checks must be performed on a daily basis in order to keep your truck in good condition and to operate safely. These checks supplement and do not replace the scheduled maintenance operations.

- Check the correct position and fastening, intactness and operation of the various safety components installed on the truck.
- Make sure that "seat switch" is working correctly.
- Check that the brakes work correctly, checking their travel and efficiency.
- Check the tyre pressure and wear conditions.
- Visually inspect wheels for correct tightness.
- Make sure that the lights work correctly (if applicable).
- · Visually check that the chains are taut.
- Make sure that the start/stop key works correctly.
- Check that the fork arms are in good condition;
- Check that the fork arm control levers work correctly
- Check lubricating oil level and refill when necessary.



- Check engine coolant level and fill in if necessary.
- Check the cooling system for leaks and correct function
- Check engine for tightness (visually check for leakage).
- Exhaust system including exhaust aftertreatment components for leaks
- · Check brake oil level.
- · Check the fuel level and clips
- · Check transmission oil level.
- · Check axle oil level.

A CAUTION

DO NOT use the truck, but call the technical service department, if you notice any malfunctions or if you have any doubts about its correct operation.



Seat belt status and performance checks

A DANGER

For safety reasons, the condition and protective ability of the seat belt must be checked on a daily basis.

Do not operate the vehicle with the seat belt removed.

 Check the condition of the belt: pull the seat ▷ belt(1) all the way out of the retractor(2) and check the seat belt for damage.

A CAUTION

The seat belt must be replaced if it is cracked, worn or has been damaged in an accident.

- Carefully check the connection between the seat belt and the seat.
- Carefully check the connection between the seat and the panel cover below.

Only when the driver sits on the seat, the forklift can be operated.

- Push the lever (1)on the front left-hand side ▷ of the engine bonnet upwards with your left hand.
- Open the bonnet and raise it around 30°.

The bonnet is held up by the gas spring.







 Try to pull the belt. The automatic blocking mechanism must not allow the belt (1) to come out of the retractor (2).

A CAUTION

A warning sound will be activated when the operator leaves the seat without parking brake applied. The signal will sound even if the truck has been switched off and the key removed.



Checking the condition of the tyres

Superelastic tyres

Superelastic tyres must be changed before the profile reaches the maximum wear allowed. The maximum wear of the tyre manufacturer is indicated by a line on the side (1) along the circumference of the tyre.

A DANGER

If the forklift truck is used on wet or slippery surfaces, replace the tyres before the thickness of the tread drops below 1 mm.





Check the wheel nuts for correct condition

 Visually check the markings in the wheel nuts and rims are correctly attached, retighten with torque spanner if necessary.

Tightening torque:

Front tyres (M14x1.5) : 181 N.m±10%

Rear tyres (M12X1.25): 113 N.m±10%

 Visually check if the column is deformed or whether the hole for the rim is larger, retighten with torque spanner if yes. Replace the rim when there is serious deformation.



- If the markings are difficult to recognize, check if there is any gap (As the arrows show) between the joint face of the rims and nuts. Retighten with torque spanner if gap exits.
- Check the wheels and rims for wear and deformation, change the tyres if there is any deformation.





 \triangleright

Check the condition and operation of chain

 Check load chains for any distortion before operation.



- Stop using the forklift immediately when the hinge pins of chain rotate before operation.
- Lift and lower the lifting mast without load for one round to check the operation of lifting chain for any abnormal sound or block.





 Contact your service center if chains are suffering abnormal force.



 Keep the chains clean, ensure no excessive ▷ dust exits; Immediately lubricate the chains with specified chain spay if chain surfaces are dry.

If the truck is used in the food industry, please use lubricating grease in place of spray.

 During operation or maintenance, stop using the forklift if there is any crack of chain plate.



Check the coolant level

A DANGER

Risk of burns. When the engine is hot, the radiator is under pressure and hot coolant can spray out if the radiator cap is unscrewed.

 Check coolant level when the engine is cold and switched off. Only open the cap when cool!



A CAUTION

Risk of engine damage! If there is cooling fluid missing, this indicates leakages in the cooling system.

Check the cooling system for leaks, such as from leaking hose clips.

- Remove the radiator water tank cover.



- Open the cooling system cap (1)carefully.
- Check whether the radiator is filled to the top with coolant.

To perform this check, the truck must be parked on a level surface.

- If necessary, add coolant in line with the specifications given in the chapter entitled "Supply table".
- Screw the radiator cap (1) back on securely.
- Frequently check the coolant level in the radiator tank.
- Make sure the coolant level is sufficient.
- Replenish it if there is insufficient coolant in the radiator tank.





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 \triangleright

Check the engine oil level

Lack of lubricating oil or overfilling lead to engine damage. The lubricating oil level may only be checked when the engine is horizontal and switched off. Only check lubricating oil level whilst warm, 5 minutes after shutting down.

A WARNING

Be careful with hot lubricating oil. Danger of scalding!

Do not pull out the dipstick while the engine is running. Danger of injury!

- Open the bonnet.
- Pull out the lubricating oil dipstick (1)and wipe off with a lint-free, clean cloth.
- Insert the lubricating oil dipstick(1) as far as it goes.
- Remove the lubricating oil dipstick and read the lubricating oil level.
- The lubricating oil level must always be between MIN- and MAX-1 markings! If necessary, fill up to MAX-marking.
- Fully re-insert the dipstick.





- Close the bonnet.

A CAUTION

Risk of engine damage!

Insufficient engine lubrication can cause engine damage. An insufficient oil level or the use of engine oil with different specifications can lead to the failure of engine lubrication.

- - Only use engine oil in line with the supply table.



Check the brake fluid level

- Turn off the power to the forklift truck.
- Check the brake oil container. The brake fluid level must be above the minimum mark. Unscrew the cap of the brake oil container and add more brake fluid as necessary to avoid brake failure. Please refer to recommendations to ensure that the correct brake fluid is used.

If there is a large loss of brake fluid, please contact your authorised dealer.

A DANGER

Do not allow dust to get into the brake oil container. Even a small amount of dust may have bad effect on normal braking.

Check the small vent hole in the brake oil container frequently to make sure that it is not clogged with dust.





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Transmission oil level inspection procedure



Check the transmission level with the transmission in neutral, the oil hot (at least 40°C) and with the truck on level ground.

- Ensure the forklift truck is stopped on a level surface.
- Remove the bottom plate.
- Run the truck in neutral for 3-5 minutes.
- Take out the dipstick(1) and wipe with a clean cloth.
- Fully reinsert the dipstick.
- Take out the dipstick. The oil level should be between the upper and lower marks on the dipstick scale. If necessary, add transmission oil via the oil inlet.
- Fully reinsert the dipstick.

A DANGER

Take care not to touch moving parts during this operation.

Checking the drive axle gearbox oil \triangleright

- Unscrew the oil plug at the oil level aperture (1).
- Check the gear shaft oil level to ensure it is near the observation aperture position(around 15mm).
- If necessary, fill the drive axle with gear oil until oil flows out of the oil level aperture.

Please refer to the chapter on replacing the drive axle gearbox oil for steps to take when adding gear oil.







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Change the LP-gas tank

Checking the hydraulic oil level

ENVIRONMENT NOTE

Please follow the instructions for handling/ disposal of fluids and lubricants.

The oil level should only be checked with the lift mast vertical and the fork carriage lowered.

- Apply the parking brake.
- Open the engine cover.
- Screw the oil cap with dipstick.
- Use a clean cloth to dry the dipstick(1)
- The oil level should be between the upper and lower markings on the dipstick.

WARNING

The hydraulic oil must be checked while the engine is stopped and the forklift is in horizontal level,

- When required, fill the hydraulic oil up to the upper marking.
- Re-fit the oil dipstick.
- Safely refit the engine cover.



Change the LP-gas tank

A WARNING

The inspection intervals mandated by the pressure vessel regulations must be adhered to. The last inspection date marked on the LPG tank is the expiry date. LPG tank with an expired inspection date must not be taken into operation.



Observe the safety regulations for LP-gas vehicles. Gas tank may only be changed by trained staff.



Change the LP-gas tank

WARNING

Do not smoke when changing gas tank and extinguish all naked lights and fires.

Change LP-gas tank only in well-ventilated spaces and not in the vicinity of pits.

Shut off the engine and heater with combustion chamber, if installed, and allow them to cool down.

A CAUTION

When the LPG hose is disconnected, a small amount of gas leaks out. This gas can cause freezing of the skin,. Always put on protective gloves.

- Don't stop the engine.
- Close the shut off valve (1) on the gas tank ▷ tightly.
- Until the engine nature stop without fuel and then stop engine by turn the switch key.
- Loosen the union nut (2) carefully a little bit and only for a short time (pressure reduction).

i NOTE

The union nut has a left-hand thread.

 Unscrew the union nut fully and remove the hose.





Change the LP-gas tank

- Pull the bolt (1) and fixure.
- Open the clip (3).



- Swing the top section of the bottle holder
 (2) up .
- Replace the empty gas tank need two persons .

Secure the LPG bottle in the holder so that the connecting fitting of the shutoff valve on the gas bottle faces towards the bottom.

Replacement bottles according to GB 17259-2009,

CAPACITY

- Replacement bottle : 15 kg
- Reconnect the hose as specified.
- Check for leaks with leakage spray according to the inspection and maintenance instructions.





 \triangleright
Fill the LPG tank*

A WARNING

Before connecting the filling pistol, check that the LPgas tank or the instruments are not defective and that the safety inspection of the tank has not yet expired.

The inspection intervals mandated in the pressure vessel regulations must be observed under all circumstances.

The last inspection date marked on the LPG bottle is the expiry date. LPG bottles with an expired inspection date must not be taken into operation.

Do not fill the tank if serious defects are found or the inspection date has expired.

- Observe the safety regulations for the use of LP-gas and the safety instructions of the LPG station.
- The LPG tank may only be filled by qualified persons.

WARNING

No smoking and no naked lights and fires when filling LPG tanks.

A CAUTION

While removing the filling pistol a small quantity of gas streams out. As this can cause frostbite, always put on protective gloves.

We recommend to top up gas before beginning work, as long as the truck is still cold. If temperatures differ much between the supply tank in the open and the tank on the truck it may be possible that the supply pressure of the pump is not sufficient to fill the tank completely.

A WARNING

When LP-gas leaks out, there is an immediate danger of explosion, resulting in the risk of burns.



Fill the LPG tank*

Fill the LPG tank*

- Stop the engine and, if needed, the heater and combustionchamber.
- Put on protective gloves.
- Close the shutoff valve (1).
- Remove the cap from the filler valve (4).
- Open the shutoff valve (3)
- Check the filling pistol thread for cleanliness.
- Connect the filling pistol to the filler valve (4).
- Open the main shutoff valve of the LPG station and operate the pump motor or filling pistol until the valve installed in the tank stops the filling.

Capacity : approx. 35,0 litres

- Release the filling pistol control immediately and terminate the filling procedure.
- Turn off the pump motor and the main shutoff valve at the LPG station.

A CAUTION

The LP-gas tank may only be filled until the metering valve shuts off and not according to the reading on the fuel level gauge (2).

- Carefully remove the pistol from the filler valve (4).
- Screw the cap on the filler valve.

A CAUTION

If problems or special incidents occur during the filling procedure, notify the responsible persons and have the faults corrected.

- Perform a leak test with leakage spray according to the inspection and maintenance instructions.
- * Option





Fuel- LPG(liquefied gases)

The operational safety and durability of the engine can only be guaranteed if liquid gases are used in accordance with the following specifications:

- EN 589 (EU)
- DIN 51622
- ASTM D 1835 (US)
- GB 19159 (China)

Minimum propane content (C₃-hydrocarbons):20%

The warranty is excluded when using other liquid gases which do not meet the requirements of this operation manual. The certification measurements for compliance with the legal emission limit values are carried out with the test fuels specified in the laws. These correspond to the liquid gases described in this operating manual according to EN 589 and ASTM D 1835.

The respective fuels prescribed by law must be used to comply with the national emission regulations (e.g. sulphur content).

Please contact your DEUTZ partner or visit www.deutz.com

Winter operation with liquefied gases

Special demands are placed on the cold behaviour (vapour pressure) for winter operation. In this case, corresponding liquid gases with a high to very high propane content (C_3 -hydrocarbons) must be used.



Engine coolant - Specifications

A DANGER

Scald hazard !

- NEVER remove the radiator cap if the engine is hot. Steam and hot engine coolant will spurt out and seriously burn you. Allow the engine to cool down before you attempt to remove the radiator cap.
- Securely tighten the radiator cap after you check the radiator. Steam can spurt our during engine operation if the cap is loose.
- ALWAYS check the level of engine coolant by observing the reserve tank.
- Failure to comply will result in death or serious injury.

A WARNING

Burn hazard !

- Wait until the engine cools before you drain the engine coolant. Hot engine coolant may splash and burn you.
- Failure to comply will result in death or serious injury.



A CAUTION

Coolant hazard !

- Wear eye protection and rubber gloves when you handle Long Life or Extended Life engine coolant. If contact with the eyes or skin should occur, wash with clean water.
- Failure to comply may result in minor or moderate injury.

- Only use the engine coolant specified. Other engine coolants may affect warranty coverage, cause an internal build up of rust and scale and / or shorten engine life.
- Prevent dirt and debris from contaminating engine coolant. Carefully clean the radiator cap and the surrounding area before you remove the cap.
- NEVER mix different types of engine coolants. This may adversely affect the properties of the engine coolant.

Engine coolant specifications

Use a Long Life Coolant (LLC) or an Extended Life Coolant (ELC) that meets or exceeds the following guidelines and specifications.

Alternative engine coolant

If an Extended or Long Life Coolant is not available, alternatively ,you may use an ethylene glycol or propylene glycol based conventional coolant (green).

Notes:

- 1 ALWAYS use a mix of coolant and water.NEVER use water only.
- 2 Mix coolant and water per the mixing instructions on the coolant container.
- 3 Water quality is important to coolant performance. We recommends that soft, distilled, or demineralized water be used to mix with coolants.
- 4 NEVER mix extended or long life coolants and conventional (green) coolants.
- 5 NEVER mix different types and / or colors of extended life coolants.
- 6 Replace the coolant according to "Scheduled maintenance."

Additional technical coolant specifications:

- ASTM D6210,D4985 (US)
- JIS K-2234 (Japan)
- SAE J814C, J1941, J1034 or J2036 (International)



Using the truck

Opening the tap of the gas bottle or gas tank

A DANGER

After the truck has been shut down in a closed room for a lengthy period, ventilate the room well before turning on the electrical system.

Slowly and carefully open the tap of the gas bottle or gas tank.

A DANGER

The opening and closing of the tap must be carried out without the aid of any tools in order to avoid the risk of explosions due to sparks.

Opening the gas cylinder or LPG tank* shutoff valve

A WARNING

If the truck has been parked in an enclosed space for a long time, ventilatewell before switching on the electrical system.

 Slowly open the shutoff valve (1) of the liquefied gas cylinder or the LPG tank with caution.





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Climbing on/off the forklift

After performing the daily checks, carry out the following operations to use the truck.

A CAUTION

Always face the vehicle when dismounting the forklift, in order to prevent injury to the legs and back.

Do not grip the steering wheel or joysticks when climbing on /off the forklift.

- First place your left foot on the step(1). Grip the handrail (2)or overhead guard beam and climb on the truck from the left-hand side.
- Use the step and handrail or overhead guard beam to climb off from the left-hand side.



A CAUTION

Do not climb on or off the truck from the right hand side unless it is an emergency.

Adjustment of the driver's seat

⊳

A CAUTION

Slide the driver's seat to find the best operating position relative to the steering wheel, the accelerator and braking pedals, and the joystick.

Before starting the truck and whenever changing drivers, adjust the seat to match the driver's weight and make sure that the settings have all engaged properly. Do not place any objects in the driver's rotation range.



Remaining in a sitting position for long periods of time puts a great amount of pressure on the spine. Make sure this pressure is reduced by bending forwards frequently.





Moving the driver's seat

- Lift the lever(1)and hold.
- Push the driver's seat into the desired position.
- Release the lever.
- Ensure that the driver's seat is securely engaged.

Adjusting the seat backrest

Do not put pressure on the seat backrest while engaging it.

- Turn the knob(2)clockwise.
- Move the backrest forwards and backwards until the driver finds the best sitting position.
- Release the knob.

Adjusting the seat suspension



The driver's seat can be adjusted to suit the weight of the individual driver. In order to achieve the best seat suspension setting, the driver should perform the adjustment whilst sitting on the seat.

 Adjust the suspension to your individual comfort using the adjusting knob (3).

Fastening the seat belt



A DANGER

Even when using an approved restraint system, there is some residual risk that the driver might be injured if the truck tips over.

This risk of injury can be reduced through the combined use of the restraint system and the seat belt.

In addition, the seat belt protects against the consequences of rear-end collisions and falling off a ramp.

 We therefore recommend that you also use the seat belt.



A DANGER

Only bracket doors or full cabs with closed, sturdy doors constitute a driver restraint system. PVC doors (weather protection) are not a restraint system!

If the doors are open or have been removed, you must use an alternative suitable restraint system (e.g. a seat belt)!

Fastening the seat belt

⊳

A DANGER

Risk to life when driving without a seat belt!

If the truck tips over or crashes into an obstacle and the driver is not wearing his seat belt, he can be hurled out of the truck. The driver could slide under the truck or collide with an obstacle. There is a risk to life!

- Fasten the seat belt before every trip
- Do not twist the seat belt when fastening it
- Only use the seat belt to secure one person
- Have any malfunctions repaired by the STILL service centre
- Smoothly pull the seat belt out of the belt retractor(2) and fasten over the thighs with a close fit to the body.

Sit as far back as possible so that your back is leaning against the seat backrest. The automatic blocking mechanism permits sufficient freedom of movement on the seat.

- Insert the buckle (3)into the seat belt socket (1).
- Check the tension of the seat belt. The belt should fit closely around your body.

Fastening on a steep slope

The automatic blocking mechanism prevents the belt from being extended whenever the truck is on a steep gradient. It is no longer possible to pull the seat belt out of the belt retractor.

- Move away carefully on the slope.





- Fasten the seat belt.

Releasing the seat belt

- Push the red button (4) on the buckle (1).
- Manually guide the belt tongue slowly back to the retractor.

Do not allow the seat belt to retract too quickly. The automatic blocking mechanism may be triggered if the belt tongue strikes the housing. It will then no longer be possible to pull the seat belt out with the usual force.

- Using increased force, pull the seat belt around 10-15 mm out of the retractor to disengage the blocking mechanism.
- Slowly allow the seat belt to retract again.
- Protect the seat belt from dirt (for example, by covering it).

Malfunction due to cold weather conditions

 If the buckle or belt retractor is frozen, thaw them out and dry them thoroughly to prevent recurrence.

A CAUTION

Do not subject buckle or belt retractor to excessive heat when thawing out.

 Do not use air warmer than 60 °C when thawing out!





Adjusting the steering column

⊳

A DANGER

Only adjust the steering column when the truck is stationary.

Angle adjustment

- Pull down the handle(1) clockwise.
- Move the steering column into the required position.
- Pull back the handle anti-clockwise to its original position.

Ignition device

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The forklift can only be started if the reversing lever is in the centre position (neutral).

The ignition key has three positions:

Position "0"

 Key removal position (no circuit powered except for horn, stop lights; seat and ISO PCB)

Position "I"

· All circuits are powered

Position "II"

· Engine starting position

Start-up

 To start the engine, insert the key, turn it to position "II" and release it as soon as the engine starts (the key will go back to position "I").







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Lighting and turn indicator switch

The turn indicator and the lighting are active if the ignition key is in position "I".



Direction indicators

- When the lever (1) is moved into position "R", the right indicator light lights up.
- When the lever (1) is moved into position "L", the left indicator light lights up.

R	Turn Right
Ν	Neutral
L	Turn Left

\triangleright





Lighting

- The lighting is switched on by turning knob
 (3) on the lever:
- Turning the knob to the first click switches on the clearance lights;
- Turning the knob until the second click switches on the clearance lights, front head-lights, and also rear lights.



Lamp switch	0(OFF)	1st	2nd
Clearance lamp	OFF	ON	ON
Front headlights	OFF	OFF	ON
Rear combination lights	OFF	OFF	ON

Warning horn;

The horn allows the driver to draw attention to his and his truck's presence if necessary.

 Press the button (1) in the centre of the steering wheel to actuate the horn.





Direction selection lever

Direction selection lever (1) is used to select the required drive direction of the truck or to switch the drive mode to idling. The direction selection lever offers three different positions:

- FORWARDS direction selection lever pushed forwards into position "A"
- NEUTRAL direction selection lever in centre position between "FORWARDS" and "REVERSE"
- REVERSE direction selection lever pulled backwards into position "B"



Start the engine

- Sit in the driver's seat and fasten the seat belt. Ensure that the cab doors or the driver restraint system installed on the truck is closed.
- Ensure that the direction selection lever (if present) is in the central position (neutral).
- Insert the switch key (1) and turn it to position "II". Release the switch key as soon as the engine starts.

If the engine does not start, stop the starting procedure and try again later. Wait at least one minute between start attempts in order to avoid running down the battery. If the engine still does not start after three attempts, do not try to start the engine again. Instead, contact your authorised service centre.





Using the truck

A DANGER

Risk to health from exhaust gases! Exhaust gases from internal combustion engines are harmful to your health. In particular, the soot particles contained in the diesel exhaust gas can cause cancer. Letting the engine idle poses a risk of poisoning from the CO, CH and NO_x components contained in the exhaust gas.

Modern exhaust gas treatment systems (e.g. catalytic converters, particle filters or comparable systems) can clean exhaust gases in a way that reduces the health hazard and risk of poisoning when operating the truck.

- Observe the national laws and regulations when using trucks with an internal combustion engine in entirely or partially enclosed working areas.
- Always ensure sufficient ventilation.

A DANGER

Risk to health from exhaust gases!

Do not leave the truck with the engine running in order to warm up the engine. Warm up the engine by using the truck at a low speed for a few minutes.

Driving

A CAUTION

When using mirrors, ensure that the rear-view mirror is only used for monitoring the traffic behind the vehicle. Reverse travel is therefore only permitted when looking directly behind you.

A CAUTION

Always tilt the mast backwards and lower the fork arms to the ground around 30cm.

A CAUTION

Check the safety around the forklift and sound the horn before starting the truck.



The drive functions of the truck are only activated when the driver's seat is occupied.



- Sit in the driver's seat and fasten the safety belt.
- Release the parking brake (1) , and the cor- responding LED(2) will turn off.
- Start the engine.



 Move direction selection lever (3) in the required drive direction: (A) FORWARDS, (B) BACKWARDS.





Gently press the accelerator pedal(4) to set ▷ off.



Changing direction of travel

- To change direction, release the accelerator ▷ pedal (1).
- Press the service brake pedal (2) until the truck comes to a complete stop.





 Move the lever (3) in the opposite direction of travel: (A) FORWARDS, (B) BACK-WARDS; then press the accelerator pedal (1).

The forklift truck will now accelerate in the new drive direction.

A DANGER

Using operating lever to directly reverse the operating direction of the forklift truck during operation is strictly prohibited. Reversing direction during operation will result in damage to the forklift truck.



Driving brake pedal and inching pedal

We recommend that the driver familiarizes himself with the efficacy of the braking apparatus when the forklift truck is not carrying a load. Operate the forklift truck slowly on an uncrowded road surface to test travelling functions.

Driving brake pedal

Press the brake pedal(2)to slow or stop the truck. At the same time, the brake lights come on.

Inching pedal

- If the inching pedal (1) is depressed, the engine is disengaged at the beginning of the pedal travel. The service brake begins to grip when the pedal is depressed further.
- Small, precise movements of the truck are possible when you actuate the inching pedal (1) lightly if the accelerator pedal is actuated as well. Actuate the pedal (1) in order to move the truck gradually, even if the engine is running at full capacity.





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Operating the service brake

Braking and stopping

A DANGER

At speeds that are too high, there is a danger that the truck could slip or overturn!

The braking distance of the truck depends on the weather conditions and the level of contamination on the roadway. Note that the basic braking distance increases with the square of the speed.

- Adapt your driving and braking style to suit the weather conditions and the level of contamination on the roadway.
- Always choose a driving speed that will provide a sufficient stopping distance.
- Take the foot off the accelerator pedal (1).
- Press the brake pedal (2) until the truck is stationary.
- Actuate the parking brake to keep the forklift truck braked.

Procedure in the event of failure of the service brake

- Bring the truck to a standstill by actuating the parking brake and park it securely.
- Do not operate the truck again until the service brake has been repaired and is functional.





Parking brake

The parking brake must be actuated every time the driver exits the truck.

- To actuate the parking brake, press the parking brake pedal(1) with foot. The corresponding indicator light on the display unit illuminates.

- Pull the locking switch(2) to release the parking brake pedal,

If the driver exits the truck without actuating the parking brake, a warning signal sounds. This signal even sounds if the truck has already been switched off and the ignition and stop key has been removed.

Closing the gas cylinder or LPG tank* shutoff valve

- Close the gas cylinder or LPGtank shut off valve (1) tightly immediately after stopping the engine.
- Remove the key when you leave the truck.
- When it is freezing park the truck as far as possible in closed rooms, e.g. garages, because liquefied petrol gas evaporates sufficiently at temperatures over -5 °C (propane), respectively +5 °C (propane/butane) to start the engine.

A CAUTION

Do not park the truck in halls or garages in the immediate vicinity of equipment radiating heator near heaters.







Using the truck

Lifting system and attachments

Lifting system and attachments

Operating the lifting device

A DANGER

When the lifting device or any attachments are moving, there is a danger the driver will be caught between the lifting device and the forklift truck.

Therefore, the driver must not be located at or enter in between the lifting device and the forklift truck. The lifting device and attachments may only be used for their specified uses. The driver must receive training related to the operation of the lifting system and attachments. Keep in mind the maximum lift height.

 Take note of the switching symbols with ar rows.

Operation of the control lever must be slow and steady. Lifting, lowering and tilting speeds depend on the range of motion of the control level. The control lever will automatically return to neutral when released.



Lifting the fork carriage

A DANGER

If any danger occurs when raising the lift mast, immediately stop raising the fork arms.

- Push the control lever (1) back.

Lower the fork carriage

- Push the control lever (1) forward.

Tilting the lift mast forward

- Push the control lever (2) forward.





Lifting system and attachments

Tilting the lift mast backward

- Push the control lever (2) back.

When transporting a load, tilt the lift mast backwards for better stability.

Operating attachments

Attachments are optional pieces of equipment installed on the forklift truck: (such as sideshift forks, rotators, clips, etc.). Please do not exceed the working pressure of attachments during operation, and ensure that operation is in compliance with datasheets. One or two additional control levers can be installed to operate attachments.

Below is a description of attachment operations. The forklift truck can be configured with different operating levers.

Take note of the switching symbols with arrows





Lifting system and attachments

Sideways movement

In order to prevent damage, do not operate in a sideways direction when the fork arms are on the ground.

- Push the control lever (3) forwards and move to the left.
- Push the control lever (3) backwards and move to the right.

Operating fixtures

- Push the control lever (4) forwards to open the jig.
- Push the control lever (4) backwards to clamp the jig.





Handling loads

Safety regulations when handing loads

The safety regulations for handling loads are shown in the following sections.

A DANGER

There is a risk to life caused by falling loads or if parts of the truck are being lowered.

- Never walk or stand underneath suspended loads or raised fork arms.
- Never exceed the maximum load indicated on the capacity rating plate. Otherwise stability cannot be guaranteed!

A DANGER

Risk of accident from falling or crushing!

- Do not step onto the forks.
- Do not lift people.
- Never grab or climb on moving parts of the truck.

A DANGER

Risk of accident from a falling load!

- When transporting small items, attach a load safety guard (variant) to prevent the load from falling on the driver.
- Use a closed roof covering (variant) in addition.

Load centre distance and load capacity

Before lifting goods, the relationship between the weight, load centre of gravity distance and maximum lift height of the goods must be understood.





Load centre distance refers to the distance between the vertical plane of the fork arms and the centre of gravity of the loads(1).

The centre of gravity of a load is not necessarily located at the central point of the load itself. The load capacity refers to the weight of goods able to be lifted to a specified height within a given load centre distance.



Capacity Chart

A DANGER

The parameters in the load diagram and on the labels apply to compact, uniform loads. These load limits must not be exceeded. Exceeding the load limits will affect the stability of the forklift truck and the strength of the lift mast.

Refer to the CAPACITY CHART before lifting goods. If attachments are fitted, refer to the load rating label for the attachment.

Truck model: RCG20 with single tyre

Load centre: 500 mm

Lift height: ≤4800mm

In this case, the maximum load capacity is: 2000 kg

- Before loading, make sure that the dimensions and weight of the load are within the approved standard specified in the "Technical Datasheet" chapter and on the load rating plate.
- Before operating an attachment, read the load capacity data plate on the attachment.





Before lifting a load

Before lifting a load, check the load capacity chart on the engine cover.

The maximum capacity is determined by the lifting height and the load centre distance.

Check the load capacity limits and contact your authorised dealer before transporting:

- off-centre or swinging loads
- loads with the mast tilted forwards or the load not near the ground
- loads beyond the centre of gravity
- before operating attachments
- loads at wind force 6 and higher

Transporting pallets

As a rule, loads (e.g. pallets) must be transported individually. Transporting multiple loads at the same time is only permitted:

- · when instructed by the supervisor and
- when the technical requirements have been met.

The driver must ensure proper condition of the load. Only safely and carefully positioned loads may be transported.





Danger area

The danger area is the area in which people are at risk due to the movements of the truck, its working equipment, its load-carrying equipment (e.g. attachments) or the load. Also included are the areas where loads could fall or working equipment could fall or be lowered.





A DANGER

Risk of injury!

Do not step on the fork.



A DANGER

Risk of injury!

Do not step under the raised forks.

A DANGER

People may be injured in the danger area of the truck!

The danger area of the truck must be completely clear of all personnel, except the driver in his normal operating position. If persons fail to leave the danger area despite warnings:

- Cease work with the truck immediately.
- Secure the truck against use by unauthorised parties.

A DANGER

Danger of death from falling loads!

- Never walk or stand underneath suspended loads.

Transporting suspended loads

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Before transporting suspended loads, consult the national regulatory authorities (in Germany, the employer's liability insurance associations).

National regulations may place restrictions on these operations. Contact the relevant authorities.

A DANGER

Suspended loads that begin to swing can result in the following risks:

- Impaired braking and steering action
- Tipping over the load wheels or drive wheels
- Tipping the truck at right angles to the direction of travel





- · Risk of crushing of guide persons
- · Reduced visibility.

A DANGER

Loss of stability.

Slipping or swinging suspended loads can lead to a loss of stability and cause the truck to tip over.

 When transporting suspended loads, observe the following instructions

Instructions for transporting suspended loads:

- Swinging loads must be prevented by using the proper driving speed and driving style (careful steering, braking)
- Hanging loads must be hooked on to the truck in such a way that the harness cannot shift or release unintentionally and cannot be damaged
- When transporting suspended loads, suitable devices (e.g. guy wires or supporting poles) must be available so that accompanying persons can guide suspended loads and prevent the loads from swinging
- Take particular care to ensure that there is no one in the drive direction in the driving lane
- If, despite this, the load begins to swing, ensure that no person is placed at risk

A DANGER

Risk of accidents!

When transporting hanging loads, never perform or end driving and load movements abruptly.

Never drive on slopes with a suspended load.

Transporting containers holding fluids as hanging loads is not permitted.



Adjusting the fork arm distance

Raise the knob (2) and rotate it by 90°.



- Adjust the fork arms (1) according to the dimensions of the load to be lifted.
- Ensure that an equal distance is maintained from both fork arms to the centre line of the fork carriage.
- Ensure that the fork arms are locked in one of the grooves on the fork carriage using the knob (2).

A CAUTION

For greater load stability, the distance between the two fork arms must be as large as possible while remaining consistent with the lifting points of the load, so that the load centre of gravity is between the fork arms.

A CAUTION

For greater load stability, the position of the fork arms must be as symmetrical as possible with respect to the centre of the fork carriage.





Picking up a load

A DANGER

The truck may tip over if the load is too heavy.

Before picking up the load, check that the dimensions and weight of the load lie within the permitted range for the truck. This information can be found on the capacity rating plate.

A DANGER

There is a risk to life caused by a falling load or if parts of the truck are being lowered.

- Never walk or stand underneath suspended loads or raised fork arms.
- Never exceed the maximum load values specified on the capacity rating plate. Otherwise, stability cannot be guaranteed.
- Only store pallets that do not exceed the specified maximum size. Damaged loading equipment and incorrectly formed loads must not be stored.
- Attach or secure the load to the lifting accessory so that the load cannot move or fall.
- Store the load so that the specified aisle width is not reduced by protruding parts.
- Drive carefully towards the racking.





- Position the forks.
- Set the lift mast to vertical.
- Lift the fork carriage to the stacking height.

A DANGER

Risk of accident due to changed moment of tilt!

If a truck is operated with a forwards tilt (variant) of more than 3°, there is a greater risk of the load slipping when the load is raised or lowered. The load centre of gravity and the moment of tilt change when the load slips. The truck may tip forwards.

- Only tilt the lift mast forwards with a raised lifting accessory when it is directly above the stack.
- When the lift mast is tilted forward, take particular care to ensure that the truck does not tip forwards and that the load does not slip.

A CAUTION

Component damage possible!

When inserting the fork into the racking, ensure that the racking and load are not damaged.

 Insert the fork as far under the load as possible using the brake Inching pedal. Stop the truck using the service brake as soon as the fork back is resting against the load. The load centre of gravity must be midway between the fork arms.







 Lift the fork carriage until the load is resting entirely on the fork.

The lifting speed can be increased by adjusting the engine speed. Refer to the chapter entitled "Increasing the lifting speed".

A DANGER

Risk of accident!

- Beware of any people in the danger area.

A CAUTION

Component damage possible!

- Ensure that the roadway behind you is clear.
- Move backwards carefully and slowly until the load is clear of the racking. Brake gently.

A DANGER

Never tilt the lift mast with a raised load due to the risk of tipping!

- Lower the load before tilting the lift mast.
- Lower the load while maintaining ground clearance.







 Tilt the lift mast backwards. The load can now be transported.



Increasing the lifting speed

- Fully depress the brake Inching pedal (1) and hold it down. The drive wheels are now uncoupled from the engine.
- Pull the "lift" operating lever as far back as possible. The truck begins to lift.
- Depress the accelerator pedal (2) to increase the engine speed. This action increases the lifting speed. In this way, the lifting speed can be controlled using the accelerator pedal.





Transporting loads



Observe the information in the chapter entitled "Safety regulations when driving".

A DANGER

The higher a load is lifted, the less stable it becomes. The truck can tip over or the load can fall, increasing the risk of accident!

Driving with a raised load and the lift mast tilted forward is not permitted.

- Only drive with the load lowered.
- Lower the load until ground clearance is reached (not over 300 mm).
- Only drive with the lift mast tilted backwards.
- Drive slowly and carefully round corners!

Observe the information in the chapter entitled "Steering".

- Always accelerate and brake gently!

Observe the information in the chapter entitled "Operating the service brake".







Never drive with a load protruding to the side (e.g. with the sideshift)!



Driving on ascending and descend- \triangleright ing gradients

A DANGER

Danger to life!

Driving on ascending and descending gradients carries special dangers!

- Always follow the instructions below.
- On ascending and descending gradients, the load must be carried facing uphill.
- It is only permitted to drive on ascending and descending gradients that are marked as traffic routes and that can be used safely.
- Ensure that the ground to be traversed is clean and provides a good grip.
- Do not turn on ascending and descending gradients.
- Do not drive onto or along ascending and descending gradients at an angle.
- Do not park the truck on ascending or descending gradients.
- In case of emergency, secure the truck with wedges so that the truck does not roll away.





 Reduce the driving speed on descending gradients.

It is not permitted to drive on long ascending and descending gradients greater than 15% due to the specified minimum braking and stability values.

 Before driving on ascending and descending gradients greater than 15%, consult the authorised service centre.

The process of placing loads into stock and removing loads from stock while on an ascending or descending gradient is not permitted!

 Always place loads into stock and remove loads from stock on a horizontal plane.

Driving on lifts

The driver may only use this truck on lifts with a sufficient rated capacity and for which the operating company has been granted authorisation.

A DANGER

There is a risk to life if you are crushed or run over by the truck.

- There must be no personnel already in the lift when the truck is driven into the lift.
- Personnel are only permitted to enter the lift once the truck is secure, and must exit the lift before the truck is driven out.





Handling loads

Determining the actual total weight

- Park the truck securely.
- Determine the unit weights by reading the truck nameplate and, if necessary, the attachment (variant) nameplate and, if necessary, by weighing the load to be lifted.
- Add the determined unit weights to obtain the actual total weight of the truck:

Tare weight (1)

- + Ballast weight (variant) (2)
- + Attachment net weight (variant)
- + Weight of the load to be lifted
- + 100 kg allowance for driver
- = Actual total weight
- Drive the truck with the forks forwards into the lift without touching the shaft walls.
- Park the truck securely in the lift to prevent uncontrolled movements of the load or the truck.

Driving on loading bridges

A DANGER

Risk of accident if the truck crashes!

Steering movements can cause the tail end to veer off the loading bridge towards the edge. This may cause the truck to crash.

The lorry driver and the truck driver must agree on the lorry's departure time.

- Before driving across a loading bridge, ensure that it is properly attached and secured and has a sufficient load capacity (lorry, bridge etc.).
- Drive slowly and with care on the loading bridge.
- Ensure that the vehicle onto which you will be driving is secured to prevent it from shifting and that it can support the load of the truck.







4
Determining the actual total weight

- Park the truck securely.
- Determine the unit weights by reading the truck nameplate and, if necessary, the attachment (variant) nameplate and, if necessary, by weighing the load to be lifted.
- Add the determined unit weights to obtain the actual total weight of the truck:

Tare weight (1)

- + Ballast weight (variant) (2)
- + Attachment net weight (variant)
- + Weight of the load to be lifted
- + 100 kg allowance for driver
- = Actual total weight



Setting down loads

A DANGER

Risk of accident due to changed moment of tilt!

Please note that the lift mast can be tilted far enough forwards with a raised load to cause the truck to tip over. The load centre of gravity and the moment of tilt both change when the load slips. The truck may tip forwards.

- Only tilt the lift mast forwards with a raised lifting accessory when it is directly above the stack.
- When the lift mast is tilted forwards, take particular care to ensure that the truck does not tip forwards and that the load does not slip.

If the truck is to be used to place a raised load in storage with the lift mast tilted forwards, e.g. in a rack with sloping racking channels, an additional load capacity diagram must be created because the stability will be affected. Please contact the authorised service centre.



Handling loads

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Handling loads

WARNING

Risk of accident from a falling load!

If the fork or the load remains suspended during lowering, the load may fall.

- When removing a load from storage, move the truck far enough back so that the load and the fork can be lowered freely.
- Drive up to the stack with the load lowered in accordance with regulations.
- Set the lift mast to vertical.
- Lift the load to the stacking height.
- Drive the truck carefully into the stack. Use the brake Inching pedal at the same time



- Lower the load until it rests securely on the racking.
- Look behind!
- Move the truck back until the fork arms can be lowered without touching the stack.
- Lower the fork to the ground clearance position.
- Tilt the lift mast backwards and drive away.





Towed load

A DANGER

There is an increased risk of accident when using a trailer.

Using a trailer changes the truck handling characteristics. When towing, operate the truck such that the trailer train can be safely driven and braked at all times. The maximum permissible speed when towing is 5 km/h.

- Do not exceed the permissible speed of 5 km/h.
- Do not couple the truck in front of rail vehicles.
- The truck must not be used to push any kind of trolley.
- It must be possible to drive and brake at all times.

A CAUTION

Risk of damage to components!

The maximum towed load for occasional towing is the rated capacity specified on the nameplate. Overloading can lead to component damage on the truck. The sum of the actual towed load and the actual load on the fork must not exceed the rated capacity. If the existing towed load corresponds to the rated capacity of the truck, no load may be transported on the fork at the same time. The load can be distributed between the fork and the trailer.

- Check the load distribution and adjust it to correspond to the rated capacity.
- Observe the permissible rigidity value of the tow coupling.

A CAUTION

Risk of damage to components!

The maximum towed load only applies when towing unbraked trailers on a level surface (maximum deviation +/-1%) and on firm ground. The towed load must be reduced if towing on gradients. If necessary, notify the authorised service centre of the application conditions. The service centre will provide the required data.

- Inform the authorised service centre.



Risk of damage to components!

A support load is not permitted.

Do not use trailers with tillers supported by the tow coupling.





Towed load

4

Forklift towing

This truck is suitable for the occasional towing of trailers. If the truck is equipped with a towing device, this occasional towing must not exceed 2% of the daily operating time. If the truck is to be used for towing on a more regular basis, the manufacturer should be consulted.

Forklift towing

The forklift can be towed, in case of breakdown, using the tow coupling (1) Before towing models with reversing lever on the steering wheel, check that this lever (2) is in the central position.

A CAUTION

During the towing operation, the operator must be on board the forklift in order to perform the steering and braking operations and the engine must be running.





Leaving the truck

 Before leaving the truck, lower the fork arms to the ground.



Secure the truck by applying the parking brake(1).



 Switch off the truck by turning the ignition and stop key to position "0" and then pull out the ignition and stop key.

A DANGER

Never switch the forklift truck off by turning the ignition and stop key while the forklift truck is still moving.

A DANGER

NEVER leave the forklift truck without having first applied the parking brake(1) and removed the key. NEVER park the truck on a gradient or slope. The truck may only be parked on a slope in emergency situations. In this case, suitable wheel chocks must be positioned under the front wheels.

The truck has a warning sound that is activated when the truck is parked but the parking brake has not been applied. The signal will sound even if the truck has been switched off and the key removed.





Cleaning

Cleaning

Cleaning the truck

- Park the truck securely.
- Switch the electrical system off before cleaning.



There is a risk of injury due to falling when climbing onto the truck!

When climbing onto the truck, you can get stuck or slip on components and fall. Higher points on the truck should only be accessed using the appropriate equipment.

- Strictly adhere to the following steps.
- Use only the steps provided to climb onto the truck.
- Use equipment such as stepladders or platforms to reach inaccessible areas.

Washing the truck exterior

A CAUTION

There is a risk of short circuit if water penetrates the electrical system!

- Strictly adhere to the following steps.
- Prior to cleaning, switch off the power supply to the electrical system.
- Do not spray electrical components and the covers on these components directly with water.

WARNING

Failure to follow these instructions could result in damaged components!

The engine must be switched off during washing. Water should not be used to clean the area around the central electrical system; instead, only clean with a dry cloth or clean compressed air.



Cleaning

WARNING

Excessive water pressure or water and steam that are too hot can damage truck components.

- Strictly adhere to the following steps.
- Only use high-pressure cleaners with a maximum output power of 50 bar and at a maximum temperature of 85°C.
- When using high-pressure cleaners, make sure there is a distance of at least 20 cm between the nozzle and the object being cleaned.
- Do not aim the cleaning jet directly at adhesive labels or information signs.



A DANGER

Risk of fire! Deposits/accumulations of combustible materials may ignite in the vicinity of hot components (e.g. exhaust pipes).

- Strictly adhere to the following steps.

- Regularly remove all deposits/accumulations of foreign materials in the vicinity of hot components.
- Do not place combustible materials in the engine compartment.



A DANGER

Risk of fire! Flammable fluids can be ignited by hot components on the truck.

- Strictly adhere to the following steps.
- Do not use flammable fluids for cleaning.
- Observe the manufacturer's guidelines for working with cleaning materials

A CAUTION

Abrasive cleaning materials can damage component surfaces!

Using abrasive cleaning materials that are unsuitable for plastics may dissolve plastic parts or make them brittle. The screen on the display operating unit may become cloudy.

 The procedures outlined below must be followed in all cases.



4

Cleaning

- Clean plastic parts only with cleaning materials intended for plastic parts.
- Observe the manufacturer's guidelines for working with cleaning materials

A CAUTION

Excessive water pressure or water and steam that are too hot can damage truck components.

- The procedures outlined below must be followed in all cases.
- Clean the truck exterior with water-soluble cleaning materials and water (water jet, sponge, cloth).
- Clean all walk-in areas, the oil filling openings and their surroundings, and the lubricating nipples before lubricating.

Please note: The more often the truck is cleaned, the more frequently it must be lubricated.

Cleaning the electrical system

\triangleright

A CAUTION

Cleaning electrical system parts with water can damage the electrical system.

- Cleaning electrical system parts with water is forbidden!
- Use dry cleaning materials in accordance with the manufacturer's specifications.
- Do not remove covers etc.
- Clean the electrical system parts with a metal-free brush and blow the dust off with low-pressure compressed air.





Lubricate the lift mast and chains with chain spray

If there is excessive dust on the chain affecting the ability of the lubricant to permeate the chain, the lifting chain must be cleaned.

- Place an oil collecting trough under the lift mast
- Carry out cleaning with an alkyl derivative such as an industrial diesel fuel cleaning agent (please comply with the manufacturer's safety instructions).
- Additives may not be used if using a steam nozzle.
- Immediately blow the chain dry after cleaning to remove water both on the chain surface and inside the hinge pins. Move the chain several times during the blow-drying process.
- Immediately apply chain spray and keep the chain moving while doing so.

The lifting chains are a safety component. The use of cold cleaning agents, chemical cleaning agents, corrosive liquids or liquids containing acid or chlorine will cause direct damage to the chains.





Cleaning

After washing

- Carefully dry the truck (e.g. with compressed air).
- Sit in the driver's seat and start up the truck in accordance with the regulations.

A CAUTION

Risk of short circuits!

 If any moisture has penetrated into the electrical system despite the precautionary measures taken, the system must first be dried using compressed air.





General information

This chapter contains information about "temporary decommissioning" and "permanent decommissioning".

Measures to be implemented when decommissioning

The following tasks must be carried out if the truck is not used for an extended period:

- Clean the truck as described in the chapter entitled "Cleaning the forklift truck" and park the truck in a dust-free, dry, frost-free and well-ventilated area.
- Lift the fork carriage to the stop several times.
- Tilt the lift mast forwards and backwards several times and, if fitted, move attachment repeatedly.
- Lower the fork carriage. To relieve the strain on the load chains, lower the fork carriage onto a suitable supporting surface, e.g. a pallet.
- Check hydraulic oil level and top up if required.
- Apply a thin layer of oil or lubricating grease to all unpainted parts as corrosion protection.
- Lubricate all lubrication points listed in the chapter entitled "Summary table of maintenance operations".
- Spray all exposed electrical contacts on the battery with a suitable contact spray.
- Remove the battery and store it in a dry and frost-free room.
- Regularly check the charge state of the battery and recharge if necessary.
- Jack up the truck so that the tyres are not touching the ground. This will prevent permanent deformation of the tyres.
- Fill the fuel tank.



- Preserve the engine as specified by the engine manufacturer.
- Cover the truck with a cover that is **NOT** made of plastic.
- If the truck is to be decommissioned for longer periods, contact the authorised service centre to find out about additional measures.

Recommissioning after storage

If the truck has been in storage for longer than six months, it must be carefully checked before being recommissioned. As in the annual inspection, this check should also include all safety items for the truck.

- Clean the truck thoroughly; see the chapter entitled "Cleaning".
- Oil joints and controls.
- Check battery condition and acid density; recharge if necessary.
- Restore engine to normal condition according to regulations of engine manufacturer.
- Check engine oil for condensed water and change if necessary
- Check hydraulic oil for condensation water; change if necessary.
- Carry out the checks and tasks that are to be performed before daily use.
- Put the truck into operation.

During commissioning, the following must be checked in particular:

- · Drive, control, steering
- Brakes (service brake, parking brake)
- Lifting system (load-carrying equipment, load chains, mounting)

For further information, see the truck workshop manual or contact the authorised service centre.



Permanent decommissioning (scrapping)

The forklift truck must be scrapped in compliance with local regulations. In the event of queries regarding the scrapping of forklift trucks in accordance with regulations, contact the authorised sales network or the recycling companies authorised for scrapping.

NOTE ENVIRONMENT NOTE

In particular, batteries, fluids (oils, fuels, lubricants etc.), electrical and electronic components and rubber components must be disposed of in compliance with specific local regulations for each type of material.





5

Maintenance

General information

General information

To keep the forklift truck in a good operating condition, the repair work specified on the following pages must be carried out regularly, at the indicated intervals, and using the consumable material designed for the purpose. A written record must be kept of all work that has been carried out. This is the only way of guaranteeing validity of the warranty.

A CAUTION

Any upcoming maintenance and repair work must be carried out by authorised service engineers in order to guarantee that the truck remains in a good, safe operating condition and that it fulfils all technical specifications.

A CAUTION

The intervals for the various maintenance tasks to be carried out on a regular basis must be shortened accordingly if the truck is used in particularly severe conditions, such as:

- In dusty environments
- At temperatures below zero
- For particularly heavy-duty work

To determine the amended maintenance intervals, please contact your authorised service centre.



Please contact your authorised service centre for a maintenance contract that is appropriate for your forklift truck.





Personnel qualifications

Only qualified and authorised personnel are allowed to perform maintenance work. Regular safety checks and checks after unusual incidents must be performed by a competent person. The competent person must conduct their evaluation and assessment from a safety standpoint, unaffected by operational and economic conditions. The competent person must have sufficient knowledge and experience to be able to assess the condition of a truck and the effectiveness of the protective devices in accordance with technical conventions and the principles for testing trucks.

Maintenance work without special qualifications

Simple maintenance work, such as checking the hydraulic oil level, may be carried out by untrained personnel. A qualification such as those held by a competent person is not required to carry out this work. The required tasks are described in the chapter entitled "Remaining ready for operation".

Preliminary maintenance operations

Carry out the following steps before performing maintenance operations:

- Park the truck in an area where it does not obstruct other trucks.
- Park the truck on a flat surface and secure it with wheel chocks behind the wheels to prevent it from rolling away unintentionally.
- Seal off the area where you are performing the maintenance.
- · Lower the fork arms to the ground.
- · Apply the parking brake.
- Turn off the forklift truck, and remove the ignition and stop key.



Preliminary maintenance operations

A DANGER

Risk of severe electric shock.

Disconnect the negative connecting terminal from the battery before performing any work on the electrical system.



Maintenance — 500 hours

At operating hours									Carried		
500		1500		2500		3500		4500		out	
5500		6500		7500		8500		9500		1	×
Chassis, b	odyw	ork and fitti	ngs	-							
Check the	chass	is for crack	s								
Check the	overh	ead guard/o	cab ar	nd panes of	glass	for damage)				
Check the	contro	ols, switche	s and	joints for da	amage	e, and apply	greas	se and oil			
Check the driver's seat for correct function and for damage											
Check that the seat belt is in good condition and functions correctly											
Tyres and wheels											
Check that the wheels are securely attached and check the tightening torques of the wheel nuts								of the			
Check the tyres for wear and check the air pressure if necessary											
Check the wheels for damage											
Internal combustion engine											
Change the engine oil and filter											
Check the cooling system for leaks and correct function											
Check the coolant and top up if necessary											
Replace th	ne air f	ilter insert									
Fuel syste	m										
Change th	e fuel	filter									
Check the	fuel li	nes and clip	S								
LPG syste	em										
Check the and check	LPG s	system for c aks using le	lamag ak de	je, check th tection spra	at the y	screw joint	s are :	securely sea	ated,		
Steering a	nd ste	ering axle									
Lubricate t	the rea	ar wheel bea	arings								
Lubricate t	the ste	ering axle a	and ch	eck for leal	ĸs						
Brake											
Check the oil level of the brake system											
Hydraulics											
Check hydraulic system for condition, correct function and leaks											



At operating hours									Carried	
500		1500		2500	3500		4500		out	
5500		6500		7500	8500		9500		✓	×
Lift mast										
Check load	l chair	ns for dama	ge an	d wear, adjust	and lubricate	the loa	ad chains			
Check mast bearings for damage, and lubricate. Check the tightening torque										
Check mast profiles for damage and wear. Lubricate the mast profiles										



Maintenance — 1000 hours/annually

At operating h	ours				Carri	ed	
1000	2000	4000	5000	7000	out		
8000	10000	11000	13000	14000	 ✓ 	×	
Chassis, body	work and fittings						
Check chassis	for cracks						
Check overhea	ad guard/cab and	panes of glass f	or damage				
Check controls	s, switches and joi	nts for damage,	and apply great	se and oil			
Check driver's	seat for correct fu	nction and for d	amage				
Variant: Check the dual pedal for damage and correct function, and lubricate							
Check that the seat belt is in good condition and functions correctly							
Tyres and who	eels						
Check that the wheel nuts	wheels are secur	ely attached an	d check the tight	tening torques of the	•		
Check tyres for wear and check the air pressure if necessary							
Check wheels for damage							
Torque converter							
Change the gearbox oil for the torque converter							
Replace the gearbox oil filter for converter gear							
Drive axle							
Change the ax	de oil						
Internal comb	ustion engine						
Change the er	ngine oil and filter						
Check the con	dition of the intern	al combustion e	ngine (visual in	spection)			
Check the exh	aust system for lea	aks					
Adjust the valv	ve clearance/rocke	r lever					
Check the coo	ling system for lea	ks and correct	unction				
Check the coo	lant and top up if r	necessary					
Replace the be	elt						
Replace the air filter insert							
Fuel system							
Change the fu	el filter						
Check the fuel lines and clips							
LPG system							



At operating hours									Carried					
1000		2000		4000		5000		7000		out				
8000		10000		11000		13000		14000		✓ ×				
Check the L	.PG s	system for o	lamag	e, check th	at the	screw joint	s are s	securely sea	ated,					
and check to		iks using le	ak dei	tection spra	y									
Check the h	igh-p	oressure rel	iet val	ves (1.7 ba	r) and	solenoid sl	nut-off	valve						
Change the	LPG	filter												
Overhaul the	e eva	aporator/pre	essure	regulator,	replac	e the sticke	r							
Check the C	CO co	ontent in the	e exha	ust gas										
Check that t	the d	uration of e	ngine	run-on befo	ore the	e engine sto	ps is	acceptable						
Steering														
Steering axel lubricate														
Brake														
Check and adjust the service brake														
Check and adjust parking brake														
Check the oil level of the brake system														
Change the brake oil														
Electrical system														
Check the fuses														
Check lighting and indicator lights														
Check all po	ower	cable conn	ection	s										
Hydraulics														
Check the cleaks	ondit	ion of the h	iydrau	lic system,	and c	heck for cor	rect fu	unction and						
Replace the	filter	· cartridge f	or the	hydraulic o	il									
Check that t	the h	ydraulics bl	ocking	g function (I	solatio	on valve) is	worki	ng correctly						
Change the	hydr	aulic oil eve	ery 20	00 hours.										
Lift mast														
Check the lo	oad c	hains for d	amage	e and wear.	Adjus	st and lubric	ate th	e load chair	าร					
Check the mast bearings for damage. Lubricate the mast bearings and check the tightening torque							ne							
Check the m	nast j	profiles for	damag	ge and wea	r. Lub	ricate the m	iast pi	ofiles						
Check lift cy	linde	ers and con	nectio	ns for dama	age ar	nd leaks								
Check the guide pulleys for damage and wear														
Check the s	uppo	ort rollers ar	nd cha	in rollers fo	r dam	age and we	ar ba	rrier						



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At operating hours									Carried		
1000		2000		4000		5000		7000		out	
8000		10000		11000		13000		14000		1	×
Check the	tilt cyl	inders and	conne	ctions for d	amag	e and leaks					
Check the	fork c	arriage for o	damag	e and wear	-						
Check the fork arm interlock for damage and that is working correctly											
Check that there is a safety screw on the fork carriage or on the attachment											
Check the fork arms for wear											
Lubricate the rolling tracks and fork carriage runners											
Special eq	uipme	ent									
Heating sy	stem:	Check the	fresh a	air filter							
Heating system: Check for damage; observe the manufacturer's maintenance in- structions							า-				
Check the attachments for wear and damage; observe the manufacturer's maintenance instructions						te-					
Check the trailer coupling for wear and damage; observe the manufacturer's mainte nance instructions							ainte-				



Maintenance - 3000 hours

At operating hours								Carried out	
3000	6000		9000		12000		15000	√	×
Chassis, bodyw	ork and fitti	ngs							
Check chassis f	or cracks								
Check overhead	l guard/cab	and p	anes of glas	ss for	damage				
Check controls, switches and joints for damage, and apply grease and oil									
Check driver's s	eat for corre	ct fun	ction and fo	or dan	nage				
Variant: Check t	he dual ped	al for	damage an	d corr	ect function	, and	lubricate		
Check that the seat belt is in good condition and functions correctly									
Tyres and wheels									
Check that the wheels are securely attached and check the tightening torques of the wheel nuts									
Check tyres for wear and check the air pressure if necessary									
Check wheels for damage									
Torque converter									
Change the gearbox oil for the torque converter									
Replace the gearbox oil filter for converter gear									
Drive axle									
Drive axle: Cheo	ck mounting,	chec	k for leaks,	and c	lean cooling	g fins			
Check the axle of	oil level, and	chan	ge the axle	oil					
Internal combus	stion engine								
Change the eng	ine oil and tl	ne en	gine oil filte	r					
Check the condi	tion of the ir	nterna	l combustio	n eng	ine (visual i	nspec	tion)		
Check the exhan	ust system f	or lea	ks						
Adjust the valve	clearance/r	ocker	lever						
Check the coolir	ng system fo	r leak	s and corre	ct fun	ction				
Check the coola	nt and top u	p if ne	ecessary						
Change the coolant									
Replace the belt	t								
Replace the air filter element									
Fuel system									
Change the fuel filter									



At operating hours									Carri out	ed
3000		6000		9000		12000		15000	√	×
Check the fu	el lir	nes and clip	s							
LPG system										
Check the LPG system for damage, check that the screw joints are securely seated and check for leaks using leak detection spray										
Check the hi	gh-p	pressure rel	ief val	ves (1.7 ba	r) and	solenoid sł	nut-off	valve		
Change the LPG filter										
Overhaul the evaporator/pressure regulator, replace the sticker										
Check the CO content in the exhaust gas										
Check that the duration of engine run-on before the engine stops is acceptable										
Steering and	l ste	ering axle								
Lubricate the	e rea	ar wheel bea	arings							
Lubricate the steering axle and check for leaks										
Brake										
Check and adjust the service brake										
Check and adjust parking brake										
Check the oil level of the brake system										
Change the	orak	e oil								
Electrical sy	sten	n								
Check the fu	ses									
Check lightir	ig ai	nd indicator	lights							
Check all po	wer	cable conn	ection	s						
Hydraulics										
Check hydra	ulic	system for	condi	ion, correct	funct	ion and leal	s			
Replace the	filte	r cartridge f	or the	hydraulic o	oil					
Check that th	ne h	ydraulics bl	ockinę	g function (I	solatio	on valve) is	worki	ng correctly		
Lift mast										
Check the lo	ad c	hains for da	amage	e and wear.	Adjus	st and lubric	ate th	e load chains		
Check the m the tightening	ast g tor	bearings for que	r dam	age, and lu	bricate	e the mast b	earin	gs and check		
Check the m	ast	profiles for	dama	ge and wea	r, and	lubricate th	e ma	st profiles		
Check lift cylinders and connections for damage and leaks										
Check guide pulleys for damage and wear										



At operating hours								Carried out	
3000	6000	900)	12000		15000		 ✓ 	x
Check support	rollers and ch	ain rollers for c	amage	and wear					
Check tilt cylin	ders and conn	ections for dan	nage ai	nd leaks					
Check fork carriage for damage and wear									
Check fork arm interlock for damage and that it is working correctly									
Check that there is a safety screw on the fork carriage or on the attachment									
Check fork arms for wear and deformation									
Lubricate the rolling tracks and fork carriage runners									
Special equip	ment								
Heating syster	n: Check the fr	esh air filter							
Heating system: Check for damage; observe the manufacturer's maintenance in- structions							n-		
Check attachments for wear and damage; observe manufacturer's maintenance in- structions							e in-		
Check trailer coupling for wear and damage; observe manufacturer's maintenance instructions									



Supply table

Unit Recommended Quan- tity		Operating material	Specifications	
Engine	9L	Engine oil	400MGX SAE15W-40 API CJ-4	
Hydraulic transmission gear	9L	Transmission oil	Dexron III	
	35L for mast below (in- clude) 4500mm mast	Hvdraulic oil	≥-5°C:L-HM46	
Hydraulic system	35L for mast exceed- ing 4500mm mast		≥-5°C:L-HM46	
	35L for mast below (in- clude) 4500mm mast		≥-20°C:L-HV32 (For cold storage use)	
	35L for mast exceed- ing 4500mm mast		≥-20°C:L-HV32(For cold storage use)	
Braking system	0.3L	Brake fluid	DOT-3	
Bearings, lubricating grease fittings	0.05KG	Lubricating grease	NLGL 2# lithium grease	
			-15°C~+49°C: GL-5-85W/90	
Drive axle	6L	Gear oil	-25°C~ +49°C:GL-5-80W/90 (For cold storage use)	
Cooling system	9L	Coolant/water	PD-2A	
Fuel		LP Gas	See section "Fuel-Specifications"	

A WARNING

Use of products with specifications lower than those set out in the table could cause damage to the truck not covered by the warranty.



Opening the bonnet

WARNING

Risk of injury!

Switch off the engine before opening the bonnet!

A CAUTION

When opening the bonnet, the driver's seat may be damaged if it is not in its forward most position.

Slide the driver's seat all the way forwards.

A CAUTION

- Move the steering column (1) as far forwards as possible and secure; see section entitled "Adjusting the steering column".
- Slide the driver's seat (2) all the way forward; see section entitled "Adjustment of the driver's seat".





 Push the lever (3)on the engine bonnet upwards with your left hand.

WARNING

Risk of injury from the bonnet lowering! The bonnet is fitted with a gas spring that holds the bonnet in the open position. When additional load is present, for example heavy objects, strong wind or other persons, the bonnet can lower suddenly. Cold weather and ageing can also reduce the performance of the gas spring and cause the bonnet to lower.

- If the force of the gas spring is deteriorating, replace the gas spring.
- To replace the gas spring, contact the authorised service centre.



Closing the bonnet

WARNING

When closing the bonnet, there is a risk of crushing!

When closing the bonnet, nothing must come between the bonnet and the edge of the chassis.

- Do not grasp any edges. Always close the bonnet by grasping one of the handles in each hand.
- Press the red button(4).
- Pull down the bonnet until the lock audibly engages.
- Slide the driver's seat all the way forward; see section entitled "Adjustment of the driver's seat".
- Move the steering column as far forwards as possible and secure; see section entitled "Adjusting the steering column".





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Installing and removing the bottom plate

Removing the bottom plate

A CAUTION

Risk of short circuit if cables are damaged!

- Check the connection cables for damage.
- When removing and reinstalling the bottom plate, make sure that the connecting cables are not damaged.

The bottom plate has a recess into which the operator can insert their fingers in order to lift it. The recess is beneath the rubber mat.

The accelerator pedal is attached to the bottom plate and is removed with the bottom plate. The connecting plug for the accelerator is located underneath the bottom plate.

- Open the bonnet.
- Remove the rubber mat (1).
- Raise the bottom plate slightly.
- Pull out the bottom plate under the brake pedal and set it down upright.
- Remove the floor plate and place it in a secure location.

Installing the bottom plate

WARNING

Risk of crushing between the bottom plate and the frame edge!

If limbs or objects are between the bottom plate and frame edge when the bottom plate is closed, they can be crushed.

- Make sure that, when you close the bottom plate, there is nothing between the bottom plate and the frame edge.
- Set down the bottom plate upright in the foot well.
- Position the bottom plate at the front.





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- Carefully guide the bottom plate down and close.
- Insert the rubber mat.
- Close the bonnet.



Maintenance service

Maintenance service

Changing the engine oil

WARNING

Danger of burn injury!

If it is necessary to bleed the engine oil when the oil is still hot, avoid contact with the oil and wear eye protection to avoid burn injuries.

Failure to comply with regulations may result in death or serious injury.

A CAUTION

Only use designated oil. Other types of oil may affect quality of use and shorten the service life of the engine or internal parts.

Avoid contamination of the engine by dirt or dust. Before removing the oil cap, carefully clean the oil cap/ dipstick and surrounding areas.

Avoid mixing different brands of oil. Mixing different brands of oil will seriously affect lubrication.

Avoid overfilling. Overfilling may result in white smoke, over speed or internal damage.

A CAUTION

Please pay attention to environmental protection. Dispose of used oil according to related laws and regulations. Failure to comply with laws and regulations will result in serious damage to the environment.

Comply with EPA guidelines or government measures for the correct handling of hazardous materials (such as oil, diesel and engine coolant).

Irresponsible handling of hazardous materials, such as dumping hazardous waste into water channels, on the ground, into groundwater or drainage ditches, is prohibited.

Drain the oil using the following steps:

- Ensure that the engine is in a horizontal position.
- Start the engine and run until it reaches operating temperature.
- Stop the engine.



Maintenance service

- Remove the oil cap(1) to ventilate the crankcase. This is beneficial for bleeding the oil.
- Place an oil pan under the engine to collect the used oil.



 Remove the oil drain plug(2) and allow the oil to flow into the collection container.
 When the oil has been drained completely, replace the oil drainage plug

Component	Tightening torque
Drain plug	55 N.m

- Dispose of the used oil properly.

Filling up with engine oil

 Ensure that the engine is in a horizontal position.





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Maintenance service

- Remove the oil cap(1).
- Add our recommended genuine oil by dividing it into several portions for replenishment.
- Wait for about 1 ~ 2 minutes and then check the engine oil level.
- Check whether the oil is between the upper limit and the lower limit of the oil level gauge.
- Repeat the above process until the engine oil level reaches the appropriate level.
- Tighten the oil cap by hand. Over-tightening may damage the cap.

A CAUTION

- Be careful not to let outer substances flow into the engine when replenishing engine oil.
- Exceeding the upper limit of the oil level gauge may cause engine faults. If you have exceeded the upper limit of the oil gauge, drain it until the engine oil level is indicated between the upper limit and the lower limit of the oil level gauge.
- Do not use unspecified engine oil additives.

Replacing the engine oil filter

- Remove the oil filter (1).
- Disassemble oil filter (1) with the filter wrench.

A CAUTION

Oil in the filter may run down while detaching the oil filter. Be careful not to contaminate the other parts by using a cloth when detaching the filter. After replacing the oil filter, wipe clean any other parts which the oil has touched.

- Clean the mounting surface of the engine oil filter.



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- Lightly spread engine oil over the seal of the new oil filter.
- Temporarily assemble the new oil filter by rotating it by hand.
- Assemble the oil filter with the filter wrench until the gasket is touching and tighten. Tighten torque: 10N.m ~ 12 N·m.

Please refer to the engine spare parts manual to find the part number of usable engine oil filters.

 Fill the engine with engine oil according to the detailed instructions in "Filling up with engine oil".



General genuine coolant: 1 year or 1,200 hours.

Genuine LCC coolant: 3 years or 6,000 hours.

A DANGER

- Never open the radiator cap while the engine is overheated. If the radiator cap is opened while the engine is overheated, hot water will spurt out and may cause serious burns. Open the radiator cap after ensuring that the engine has been cooled sufficiently.
- Mark and separately manage the containers for storing coolant from beverage containers to avoid confusion. If coolant is ingested, see a doctor immediately.

A CAUTION

Be careful not to get coolant on any belts or electric apparatus when replacing the coolant.

Emptying the cooling system

- Make sure that engine and radiator are cooled.
- Place suitable collecting containers underneath.





Maintenance service

Maintenance service

 Remove the locking screw (1)in the crankcase.

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- Drain the coolant and cleanse the tank ...
- Insert the locking screw (1)with a new sealing ring.
- Close cooler locking cap.

Fill and ventilate cooling system

A DANGER

Danger of scalding from hot coolant! Cooling system under pressure! Only open the cap when cool!

- Open the cooling system cap (2)carefully.
- Loosen the cooler venting screw if necessary.
- Fill coolant up to the max. mark or filling limit.
- Switch on any available heating and set to the highest level so that the heating circuit is filled and vented.
- Close cooler locking cap.
- Run engine up to operating temperature (opening temperature of the thermostat).
- Shut down engine until engine is cooled.
- Check coolant level in the cooled engine and top up to the MAX mark or filling level on the compensation tank if necessary.

Use recommended genuine antifreeze entitled "Engine coolant- Specifications"



RC60040015




A CAUTION

- Do not mix antifreezes from different manufacturers.
- Do not mix the coolant with different concentrations.
- Do not add antitrust which is not recommended by us.
- As insufficient coolant concentration may cause corrosion or freezing, on the other hand, an excessive concentration may degrade the cooling performance. Mix coolant with 40% antifreeze and 3-5% additives (DCA4) to prevent corrosion.

After replenishing coolant, check the coolant level of the supplementary tank for at least two or three days.

🕸 ENVIRONMENT NOTE

Discard exchanged coolant according to the regulations set forth by the relevant authorities. Disposing of exchanged coolant into the ground, sewers, drains, rivers, or the sea will cause serious environmental pollution. Violation of regulations regarding discard of engine oil without observing the handling regulations, will be punished.

Cleaning the radiator, checking for leaks

- Park the truck securely.
- Open the bonnet.



- Clean the radiator (1).
- Clean the radiator fins using a suitable brush and blow them out using compressed air (max. 2 bar).

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 Check the radiator and coolant hoses for leaks and tighten the clips if necessary.

A CAUTION

Risk of engine damage!

If the cooling fluid level is low, this indicates a leak in the cooling system.

- Check whether the leakage has been eliminated.
- If not, notify the authorised service centre.
- Close the bonnet.

Clean the air filter

Clogged filter inserts may have an adverse impact on engine performance. Make sure to periodically clean the air filter insert.

- Loosen the clip(2) and remove the air filter head cover(1).
- Pull out the air filter(3)
- Remove dust from the filter by blowing outward through the filter using compressed air (5). Remove dust using minimum air pressure in order to avoiding damaging the insert.

A CAUTION

Flying object hazard!

Wear eye protection when carrying out maintenance on the engine and using compressed air or pressurised water jets, in order to prevent dust, flying debris, compressed air or pressurised water or gas from damaging your eyes.

Failure to follow this instruction may result in injury.

- Clean the air filter element every 200 hours.





 If the filter insert is damaged, heavily soiled ▷ or oily, replace it with a new insert.

A CAUTION

The air filter insert requires more frequent cleaning when the engine is running in dusty environments.

- Clean the inside of the air filter head cover (1).
- Fit the filter(3)in the air filter housing(4).
- Refit the air filter cover, and tighten the air filter head cover onto the air filter housing.



Change the air filter

- Open the bonnet.
- Press down the latch(5)
- Push forward the bracket(6).
- Loosen the clip(2) and remove the filter cover(1).





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- Pull out the air filter (3)

i NOTE

Clean the inside of the air filter head cover(1).

- Ensure that the filter is not damaged during installation and that it is installed in the correct direction.
- Install the filter insert back into the air filter housing(4).
- Reinstall the air filter cover.



Make sure to replace the air filter insert every 500 hours.





Check the belt and replace the belt

Check the belt drive

A CAUTION

Only carry out work on the belt drive with the engine at a standstill After repairs: Check that all protective equipment is mounted and all tools have been removed from the engine.

- Check the entire belt drive visually for damage.
- Renew damaged parts.
- Remount protective devices if necessary.
- Pay attention to correct fit of new belts, check the tension after running for 15 minutes.

Replace V-rib belt

- Press tensioning roller with socket wrench in the direction of the arrow until a retaining pin can be fixed in the assembly bore. The V-ribbed belt is now tension free.
- First pull the V-ribbed belt off the smallest roller or off the tensioning roller.
- Mount new V-ribbed belt.
- Retain tensioning pulley using the pin wrench and remove the holding pin.
- Tension V-ribbed belt using the tensioning roller and socket wrench. Check whether the V-ribbed belt is correctly in its guide.

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- 1 Tension pulley
- 2 Retaining pin
- 3 Assembly bore



Maintenance service



Check the belt tension

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- Lower indicator arm (1)into the measuring device.
- Place guide (3)between two belt pulleys on the V-belt (2). The stop must be at the side.
- Press the button (4)at right angles to the Vbelt (2)evenly until you hear or feel the spring snap in.
- Lift the measuring device carefully without altering the position of the indicator arm (1)).
- Read the measured value at the point of intersection (arrow), scale (5)and indicator arm (1).
- Retighten and repeat the measurement if necessary.

Changing the hydraulic transmission crude oil filter

ENVIRONMENT NOTE

Please follow the instructions for disposal of fluids and lubricants.

Place a container under the crude oil filter to collect oil flowing out of the transmission.

- Remove the floorplate.
- Unscrew the fastening screws and washers on the crude oil filter.
- Slowly pull out the crude oil filter so that the oil flows into the container.
- Unscrew the crude oil filter from the oil filter seat.





- Unscrew the fastening nut on the crude oil filter; then remove the filter insert.
- Replace it with a new crude oil filter insert.
 Fit the filter insert followed by the bottom cover onto the filter spindle; then tighten the nut.
- Refit the crude oil filter to the gearbox using the fastening screws.
- Refit the floorplate.



Replacing the fine hydraulic transmission oil filter

ENVIRONMENT NOTE

Please handle liquids and lubricating oil in accordance with instructions.

If transmission oil flows out, a collection container should be placed underneath the fine oil filter.

- Remove the bottom plate.
- Unscrew the fine oil filter(1) from the hydraulic transmission.
- Install a new fine oil filter until tightly secured.
- Reinstall the bottom plate.





Changing the oil of the hydraulic transmission

ENVIRONMENT NOTE

Observe precautions for handling fuel and lubricants

- Place a container under the right side of the truck chassis.
- Remove the floorplate.
- Unscrew the oil drain plug (2).
- Fully drain the oil of the gearbox transmission gear.
- Wipe the drain plug area clean.
- Refit the drain plug and washer.

Properly dispose of the waste hydraulic oil.

- Unscrew the filler cap (1).
- Add transmission oil through a filler pipe.
- Use the dipstick to check the transmission oil level, which should reach the upper mark on the dipstick.
- Reinstall the floorplate.
- Start the engine and run it in neutral for a while. After the engine stops running, recheck the oil level, which should be between the upper and lower marks on the dipstick. Also check the leak resistance of the oil tank.



The filler cap also functions as a vent cap.





Changing the drive axle gearbox oil \triangleright

Emptying the gear oil

- Ensure the forklift truck is stopped on a level surface.
- Unscrew the plug of the oil filler port(1) so that the gear oil is easier to discharge.
- Place a container under the drive axle gearbox to collect the waste transmission oil.
- Remove the plug(3) and drain the gear oil.
 After all of the gear oil has been discharged from the gearbox, refit the plug.

ENVIRONMENT NOTE

Appropriately dispose of used gear oil.

Filling gear oil

- Unscrew the plugs of the oil filler port(1) and oil level hole(2).
- Fill the gearbox with new gear oil, until oil flows out of the oil level hole.

- The high viscosity of gear oil means that it takes time for new oil to fill the gaps in the gearing. It is therefore preferable to use a pressurised filling tool; otherwise the filling process will take a relatively long time.
 Even when oil flows out of the filler port, this does not mean that the oil level is full; wait 5-8 minutes until the gear oil fills the gaps in the gearing.
- Use gear oil in accordance with the referred instructions only.
- Refit the plugs of the filler port and oil level hole.





Wheel replacement procedure

Rear wheel replacement procedure

- Turn off the truck and perform the preliminary maintenance operations.
- Partially loosen the wheel fastening nuts (1).
- Raise the back of the truck by jack and arrange supports (2) under the ballast.
- Lower the truck so that it rests on the supports.
- Completely unscrew the nuts (1) and pull off the wheel.
- Fit the new wheel, positioning it in such a way that any inflation valve is always on the outside.
- Tighten the fastening nuts, following the three-stage sequence indicated in the relevant paragraph:
- Tighten the nuts slightly so that the wheel rests well on the hub.
- Tighten the nuts to 50% of the prescribed torque.
- Raise the truck to free the supports.
- Remove the supports.
- Lower the truck to the ground.
- Tighten the wheel nuts to full torque (see corresponding paragraph).
- When changing wheels with tyres, inflate to the prescribed pressure.





Front wheel change

- Lift the fork arms to at least 1 m above the ground.
- Turn off the truck and perform the preliminary maintenance operations.
- Partially loosen the wheel fastening nuts (1).
- Insert a jack under the fixed stand of the lift or under the chassis frame on the side where the wheel is to be replaced.
- Block the rear wheels with wedges in order to avoid accidental movements of the truck in the reverse direction.
- Lift the front end of the truck with the jack and arrange supports (2) on the side of the wheel to be replaced.
- Lower the truck resting it on stable and solid supports (2). Be careful not to rest it on the cylinder feed pipes.
- Completely unscrew the nuts (1) and pull off the wheel.
- Fit the new wheel, positioning it in such a way that any inflation valve is always on the outside.
- Tighten the fastening nuts, following the three-stage sequence indicated in the relevant paragraph:
- Tighten the nuts slightly so that the wheel rests well on the hub.
- Tighten the nuts to 50% of the prescribed torque.
- Raise the truck off the supports (2).
- Remove the supports (2).
- Lower the truck to the ground.
- Tighten the wheel nuts to full torque (see corresponding paragraph).
- When changing wheels with tyres, inflate to the prescribed pressure.





Change brake system liquid

ENVIRONMENT NOTE

Please handle liquids and lubricating oil in accordance with instructions.

please contact your authorised dealer for drain and change brake system liquid.

Capacity: approximately 0.3L.

A CAUTION

Use a mistake and mixed with the brake liquid can cause the brake system seal unit rusty, even to the extent the brake out of order , serious consequences and so on.

Fill up the hydraulic oil

- Unscrew the oil cap (1)assembly.
- Fill up with hydraulic oil through the oil inlet.
- Use the dipstick to check the oil level. The oil level should reach the upper marking on the dipstick.
- Close the bonnet.
- Start the engine and run it for a while.
 Check the oil level again. Check the seals.



Checking the hydraulic oil level

ENVIRONMENT NOTE

Please follow the instructions for handling/ disposal of fluids and lubricants.



NOTE

The oil level should only be checked with the lift mast vertical and the fork carriage lowered.

- Apply the parking brake.
- Open the engine cover.
- Screw the oil cap with dipstick.
- Use a clean cloth to dry the dipstick(1)
- The oil level should be between the upper and lower markings on the dipstick.

WARNING

The hydraulic oil must be checked while the engine is stopped and the forklift is in horizontal level,

- When required, fill the hydraulic oil up to the upper marking.
- Re-fit the oil dipstick.
- Safely refit the engine cover.



Changing the suction filter



ENVIRONMENT NOTE

Please follow the instructions for disposal of fluids and lubricants.

NOTE

The hydraulic oil will flow out. Place an oil pan under the filter.

- Open the engine cover.
- Remove the pedal pad and bracket.
- Slacken off the fastening bolts and washers on the cover assembly, then remove the cover assembly.
- Slowly pull out the cover assembly so that the oil flows back into the tank.



- Unscrew the suction filter (1) from the cover ▷ assembly.
- Screw in the new intake filter until tightened.
- Refit the cover assembly to the frame using the fastening screws.
- Refit the bracket and pedal pad.
- Refit the engine cover.



Replacing the breather filter

ENVIRONMENT NOTE

Please handle liquids and lubricating oil in accordance with instructions.

- Open the bonnet.
- Unscrew the breather filter (2) and dipstick and remove.
- Remove the dipstick and balls on the dipstick base from the breather filter and mount onto the new the breather filter.
- Screw the breather filter and dipstick back into position.
- Close the bonnet.

NOTE

Respirators may need to be replaced more frequently in dusty environments.





6

Technical datasheet

Dimensions

Dimensions





VDI Datasheet for RCG15

i NOTE

This VDI data sheet specifies only the technical values of the truck version with standard equipment. Different tyres, lift masts, additional units etc. may produce different values.

Characteristics		
Manufacturer		STILL
Model		RCG15
Power type : Electric-Diesel-Petrol-LPG-Network Power (Electric)		LPG
Operation Type:Hand-stand on-Driver seated		Seated
Load Capacity	Q (kg)	1500
Load centre of gravity distance	c (mm)	500
Axle centre to fork face	x (mm)	435
Wheel Base	y (mm)	1500
Weights		
Service Weight	Kg	3095
Axle loading, laden front/rear	Kg	3800/800
Axle loading, unladen front/rear	Kg	1080/2020
Wheels, chassis frame		
Tyres:SE-Super elastic PN-Pneumatic		SE
Front Tyres Size		6.50-10-14PR
Rear Tyres Size		5.00-8-10PR
Front Track Width	b10 [mm]	940
Rear Track Width	b11 [mm]	920
Dimension and overall sizes		
Mast lift, forward/backward	α/β	6°/12°
Mast Minimum Overall Height	h1 [mm]	2002
Free lift	h2 [mm]	128
Lift height	h3 [mm]	3000
Mast Maximum Overall Height	h4 [mm]	4040
Overhead Guard Height	h6 [mm]	2085
Seat Height	h7 [mm]	1140
Drawbar Height	h10 [mm]	220
Overall Length	l1 (mm)	3282
Length to Face of Forks	l2 (mm)	2362
Overall Width	b1 [mm]	1140
Fork Arm Dimensions	s/e/l (mm)	35/120/1070
Fork Carriage in Compliance with ISO 2328 Class/ Form A,B		II A



Fork Carriage Width	b3 (mm)	1040
Ground Clearance below Mast(laden)	m1 (mm)	110
Ground Clearance at Centre of Wheelbase(laden)	m2 (mm)	105
Working aisle width with pallet 1000 x 1200 cross- ways****	Ast (mm)	3795
Working aisle width with pallet 800 x 1200 cross- ways****	Ast (mm)	3995
Turning Radius	Wa (mm)	2160
Turning Point Minimum Distance from the Truck Center Line	b13 (mm)	601
Performance data		
Driving speed (with/without load)	km/h	16/16
Lifting speed (with/without load)	m/s	0.55/0.61
Lowering speed (with/without load)	m/s	0.48/0.43
Drawbar Pull Tractive Effort (at 2km/h) with/without load	KN	16/10
Gradeability (at 2km/h) laden/unladen	%	20/20
Acceleration time, laden/unladen	S	4.8/4.3
Service Brake		Mechanical/Hydraulic
Engine		
Engine Type		Deutz G2.2
Engine Power in compliance with ISO 1585	kW	40
Rated Number of Revolutions	rpm/min	2600
Cylinder Number/Displacement	cm ³	3/2200
Emission level according to EU-regulation 2016/1628		Stage V
Fuel consumption according to VDI 2198-2019 (EN16796)	l/h	2.8
Vehicle electrical system voltage	V	12
Others		
Drive Control Type		Electron hydraulic tor- que convertor
Operating pressure for attachments	bar	165
Oil volume for attachments	l/min	23
Sound pressure level at the driver's seat EN12053	dB (A)	80
Sound power level during the workcycle EN12053	dB (A)	100
Full had united to a sector the sector EN400F0		
Full body vibration acceleration acc to EIV13059	m/s2	1.2



VDI Datasheet for RCG18

i NOTE

This VDI data sheet specifies only the technical values of the truck version with standard equipment. Different tyres, lift masts, additional units etc. may produce different values.

Characteristics		
Manufacturer		STILL
Model		RCG18
Power type : Electric-Diesel-Petrol-LPG-Network Power (Electric)		LPG
Operation Type:Hand-stand on-Driver seated		Seated
Load Capacity	Q (kg)	1800
Load centre of gravity distance	c (mm)	500
Axle centre to fork face	x (mm)	435
Wheel Base	y (mm)	1500
Weights		
Service Weight	Kg	3255
Axle loading, laden front/rear	Kg	4370/680
Axle loading, unladen front/rear	Kg	1320/1930
Wheels, chassis frame		
Tyres:SE-Super elastic PN-Pneumatic		SE
Front Tyres Size		6.50-10-14PR
Rear Tyres Size		5.00-8-10PR
Front Track Width	b10 [mm]	940
Rear Track Width	b11 [mm]	920
Dimension and overall sizes		
Mast lift, forward/backward	α/β	6°/12°
Mast Minimum Overall Height	h1 [mm]	2002
Free lift	h2 [mm]	128
Lift height	h3 [mm]	3000
Mast Maximum Overall Height	h4 [mm]	4040
Overhead Guard Height	h6 [mm]	2085
Seat Height	h7 [mm]	1140
Drawbar Height	h10 [mm]	220
Overall Length	l1 (mm)	3316
Length to Face of Forks	l2 (mm)	2396
Overall Width	b1 [mm]	1140
Fork Arm Dimensions	s/e/l (mm)	35/120/1070
Fork Carriage in Compliance with ISO 2328 Class/ Form A,B		II A



Fork Carriage Width	b3 (mm)	1040
Ground Clearance below Mast(laden)	m1 (mm)	110
Ground Clearance at Centre of Wheelbase(laden)	m2 (mm)	105
Working aisle width with pallet 1000 x 1200 cross- ways****	Ast (mm)	3815
Working aisle width with pallet 800 x 1200 cross- ways****	Ast (mm)	4015
Turning Radius	Wa (mm)	2180
Turning Point Minimum Distance from the Truck Center Line	b13 (mm)	601
Performance data		
Driving speed (with/without load)	km/h	16/16
Lifting speed (with/without load)	m/s	0.55/0.61
Lowering speed (with/without load)	m/s	0.48/0.43
Drawbar Pull Tractive Effort (at 2km/h) with/without load	KN	16/10
Gradeability (at 2km/h) laden/unladen	%	20/20
Acceleration time, laden/unladen	S	4.8/4.3
Service Brake		Mechanical/Hydraulic
Engine		
Engine Type		Deutz G2.2
Engine Power in compliance with ISO 1585	kW	40
Rated Number of Revolutions	rpm/min	2600
Cylinder Number/Displacement	cm ³	3/2200
Emission level according to EU-regulation 2016/1628		Stage V
Fuel consumption according to VDI 2198-2019 (EN16796)	kg/h	2.9
Vehicle electrical system voltage	V	12
Others		
Drive Control Type		Electron hydraulic tor- que convertor
Operating pressure for attachments	bar	165
Oil volume for attachments	l/min	23
Sound pressure level at the driver's seat EN12053	dB (A)	80
Sound power level during the workcycle EN12053	dB (A)	100
Full body vibration acceleration acc to EN13059	m/c2	1.2
	111/32	1.2



VDI Datasheet for RCG20

i NOTE

This VDI data sheet specifies only the technical values of the truck version with standard equipment. Different tyres, lift masts, additional units etc. may produce different values.

Characteristics		
Manufacturer		STILL
Model		RCG20
Power type : Electric-Diesel-Petrol-LPG-Network Power (Electric)		LPG
Operation Type:Hand-stand on-Driver seated		Seated
Load Capacity	Q (kg)	2000
Load centre of gravity distance	c (mm)	500
Axle centre to fork face	x (mm)	435
Wheel Base	y (mm)	1500
Weights		
Service Weight	Kg	3360
Axle loading, laden front/rear	Kg	4500/840
Axle loading, unladen front/rear	Kg	1280/2080
Wheels, chassis frame		
Tyres:SE-Super elastic PN-Pneumatic		SE
Front Tyres Size		6.50-10-14PR
Rear Tyres Size		5.00-8-10PR
Front Track Width	b10 [mm]	940
Rear Track Width	b11 [mm]	920
Dimension and overall sizes		
Mast lift, forward/backward	α/β	6°/12°
Mast Minimum Overall Height	h1 [mm]	2002
Free lift	h2 [mm]	128
Lift height	h3 [mm]	3000
Mast Maximum Overall Height	h4 [mm]	4040
Overhead Guard Height	h6 [mm]	2085
Seat Height	h7 [mm]	1140
Drawbar Height	h10 [mm]	220
Overall Length	l1 (mm)	3490
Length to Face of Forks	l2 (mm)	2420
Overall Width	b1 [mm]	1140
Fork Arm Dimensions	s/e/l (mm)	40/122/1070
Fork Carriage in Compliance with ISO 2328 Class/ Form A,B		II A



Fork Carriage Width	b3 (mm)	1040
Ground Clearance below Mast(laden)	m1 (mm)	110
Ground Clearance at Centre of Wheelbase(laden)	m2 (mm)	105
Working aisle width with pallet 1000 x 1200 cross- ways****	Ast (mm)	3835
Working aisle width with pallet 800 x 1200 cross- ways****	Ast (mm)	4035
Turning Radius	Wa (mm)	2200
Turning Point Minimum Distance from the Truck Cen- ter Line	b13 (mm)	601
Performance data		
Driving speed (with/without load)	km/h	16/16
Lifting speed (with/without load)	m/s	0.55/0.61
Lowering speed (with/without load)	m/s	0.48/0.43
Drawbar Pull Tractive Effort (at 2km/h) with/without load	KN	16/10
Gradeability (at 2km/h) laden/unladen	%	20/20
Acceleration time, laden/unladen	S	4.8/4.3
Service Brake		Mechanical/Hydraulic
Engine		
Engine Type		Deutz G2.2
Engine Power in compliance with ISO 1585	kW	40
Rated Number of Revolutions	rpm/min	2600
Cylinder Number/Displacement	cm ³	3/2200
Emission level according to EU-regulation 2016/1628		Stage V
Fuel consumption according to VDI 2198-2019 (EN16796)	kg/h	3
Vehicle electrical system voltage	V	12
Others		
Drive Control Type		Electron hydraulic tor- que convertor
Operating pressure for attachments	bar	165
Oil volume for attachments	l/min	23
Sound pressure level at the driver's seat EN12053	dB (A)	80
Sound power level during the workcycle EN12053	dB (A)	100
Full body vibration acceleration acc to EN13059		
I un body vibration acceleration acc to ETV13033	m/s2	1.2



Mast specifications

Mast specifications

		Rated capacity		height		free-lift height		mast an-	
mast type	max.hei ght	max.hei load center 500m		0mm	closed	height	without	with	gle
		1.5T	1.8T	2.0T	height	with carriage	carriage	carriage	front/ back
VM	3000	1500	1800	2000	2002	4041	128	128	6/12
Stand-	3300	1500	1800	2000	2152	4341	128	128	0/12
ard	4000	1500	1800	2000	2552	5041	128	128	6/8
wide-	4500	1500	1800	2000	2802	5541	128	128	6/6
view	5000	1500	1800	2000	3052	6041	128	128	3/6
VFM Full free	3000	1500	1800	2000	2002	4041	1411	1001	6/12
	3500	1500	1800	2000	2152	4541	1561	1151	
duplex	4000	1500	1800	2000	2552	5041	1961	1551	6/8
	4350	1500	1800	2000	2102	5391	1489	1101	
	4500	1500	1800	2000	2152	5541	1539	1151	
VFHM Full free triplex	4700	1500	1800	2000	2217	5741	1604	1216	6/6
	4800	1500	1800	2000	2252	5841	1639	1251	
	5000	1386	1686	1886	2395	6041	1782	1394	
	5400	1100	1400	1600	2595	6441	1982	1594	
	5500	1024	1324	1524	2629	6541	2016	1628	3/6
	6000	722	1022	1172	2862	7041	2249	1861	





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Original instructions

LPG forklift truck



CE

RCG15 RCG18 RCG20

4214 4215 4216

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Diagrams

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Electric schematic diagram for DEUTZ G2.2 engine—with ISO3691 function

Electric schematic diagram for DEUTZ G2.2 engine-with ISO3691 function





Hydraulic diagram







Hydraulic diagram

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