C 401 Hx4
C 501 Hx4

From chassis number 25301092757 to 2530101644, including chassis number 25301091661, 253101092520 and 25301092437.

OPERATOR'S MANUAL

ENGLISH
Original Manual

25.14GB0.01

Revision A

TECHNICAL DOCUMENT

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C 401 Hx4
C 501 Hx4

OPERATOR'S MANUAL

REVISIONS CHART

Revision	Updates	
A	17/06/2022	Original Issue of Manual. Add the engine revolutions and the travel speed derate when: - The saturation level of the particulate filter (DPF) reaches level 3. - The 'High coolant temperature' indicator light comes on. - The 'Diesel engine oil pressure' indicator light comes on. Add requirements for machines being placed on the Great Britain market after Brexit.

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1

INTRODUCTION

CONTENTS INDEX

FOREWORD

This operator's manual has been designed and compiled with the help of engineers and technical service specialists, in order to inform the operator of the different aspects of the machine.

Take the necessary time to thoroughly read and understand this manual, to ensure the machine can be operated and maintained correctly and safely.

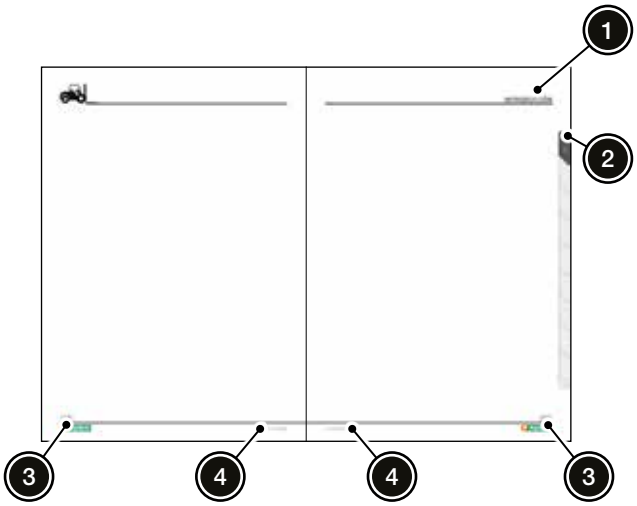
HOW TO USE THIS MANUAL

The general index lists this manual's contents. In addition, each chapter has a detailed index, indicating the page where different contents can be located.

This manual contains information regarding safety, driving, use, transportation, storage and maintenance of the machine.

The pages of each chapter present the following information:

1. Chapter name.
2. Chapter number.
3. Page number.
4. Manual part number.



Page format

Information: *Store this manual in the document case, inside the engine compartment.*

Information: *The machine may optionally have a document holder fitted for manuals, protected by an anti-vandal system.*

Location of the operator's manual

HOW TO USE THIS MANUAL

Machine Identification

This operator's manual covers the following machine models:

- C 401 Hx4
- C 501 Hx4

Given that this operator's manual includes information about different machine models, it is very important that the operator correctly identifies the machine they are operating.

Information: *Knowing the correct machine model affects issues such as safety, operation and maintenance.*

Information: *Throughout the manual, any information which refers exclusively to one machine model is identified with the appropriate label:*

C 401

C 501

4x4

ENGINE WITH PARTICULATE FILTER (DPF)

Information: *This label refers to the engine with particulate filter (DPF).*

ENGINE WITHOUT PARTICULATE FILTER (DPF)

Information: *This label refers to the engine without particulate filter (DPF)*

STANDARD MACHINE

MACHINES WITH AUSTRALIAN FINISH

MACHINES WITH NEW ZEALAND FINISH

ALL MARKETS EXCEPT NEW ZEALAND FINISH

If the information does not have any of these labels, then it refers to all machine models covered by this manual.

Information: *If the information has the following label, then it refers to elements and/or functionalities not included in the standard machine.* **ACCESSORY**

To identify the machine, it is necessary to know the following information:

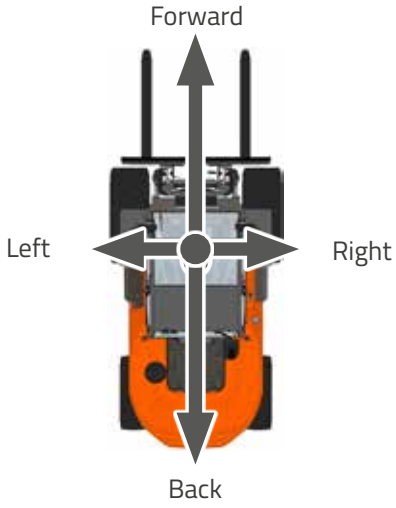
- Machine model: .....
- Date of purchase: .....
- Chassis number (1): .....
- Engine number (2): .....

Information: *The machine model is indicated on the specifications plate. For additional information, see 'Identification Plates and Decals' in Chapter 2.*

HOW TO USE THIS MANUAL

Machine Orientation

Information: *The terms right, left, forward and back, when used in this manual, refer to these positions from the operator's seat looking forward.*



Machine orientation

WARNINGS

⚠ DANGER Indicates a dangerous situation which, if not avoided will result in death or irreversible injury.

⚠ WARNING Indicates a dangerous situation which, if not avoided may result in death or irreversible injury.

⚠ CAUTION Indicates a dangerous situation which, if not avoided may result in moderate o reversible injury.

NOTICE Used to indicate practices not related to physical injury.

Information: *Convenient information to take into account.*

Environment: *Information related to conditions, practices or procedures which may pose a risk to the environment.*

ACRONYMS

Term	Meaning
A/C	Air Conditioning.
DPF	Diesel Particulate Filter.
ECU	Electronic Control Unit.
EGR	Exhaust Gas Recirculation.
EN	European Standard.
PPE	Personal Protection Equipment.

Term	Meaning
FNR	Forward - NEUTRAL - Reverse.
HMI	Human-Machine Interface.
ROPS	Roll Over Protective Structure.
N/A	Not Applicable.
W/N	Without Number.
SAE	Society of Automotive Engineers.

LIABILITY AND WARRANTY

This section provides indications regarding liability and warranties related to the machine and its use.

Information: *AUSA is continually improving its products and reserves the right to make such improvements without incurring any obligation to make changes to machines previously sold. Therefore, claims cannot be made based on the data, illustrations and descriptions set forth in this operator's manual.*

Machines With Built-in Control Units

NOTICE **Risk of injury caused by welding active connections.**

During welding operations, disconnect all the control units' connectors.

NOTICE **Risk of injury caused by faulty components.**

Replace the control units and the defective sensors with new ones. Never repair control units and defective sensors.

NOTICE **Risk of injury caused by early disconnection of the battery.**

Do not disconnect the battery immediately after stopping the engine. Wait at least two minutes before disconnecting the battery.

Spare Parts

To guarantee that the machine maintains the same technical level as on the date it was supplied, only use original AUSA spare parts.

Information: *For additional information regarding spare parts, please contact the official AUSA distributor.*

Fuel

NOTICE **Risk of injury caused by using non-compliant fuel.**

The use of fuel that does not comply with standard EN 590/ASTM D975 does not guarantee the safe operation nor the durability of the different components of the diesel engine.

The use of fuel that does not comply with standard EN 590/ASTM D975 will void the warranty.

Information: *The specifications of the fuel used, as well as its sulphur content, are necessary to meet the compliance requirements in relation to exhaust gas emissions in the place where the machine is used.*

Transportation

The official AUSA distributor is responsible for the transportation of the machine.

Lighting equipment

The use of the machine without lighting equipment is allowed only during daylight hours or in well-lit areas.

EC DECLARATION

In countries where applicable, the machine will be accompanied with the following declaration of conformity:

EU DECLARATION OF CONFORMITY

The manufacturer **AUSA Center, S.L.U**., established on c/ Castelladral, 1, 08243 – Manresa – Barcelona – Spain, declares that the machine assigned below:

Generic denomination:	**SELF-PROPELLED ROUGH-TERRAIN FORKLIFT TRUCK**
Model/Type:	**model**
Serial number:	**chassis**
Year of manufacture:	**year_manufacture**

fulfils all the relevant provisions from the following harmonization legislation from the European Union:

Machinery Directive, 2006/42/EC

Electromagnetic Compatibility Directive 2014/30/EU

Sound level Directives of machinery used outdoors, 2000/14/EC and Regulation (EC) No 219/2009

Directive 2014/53/EU relating to the making available on the market of radio equipment, (when the machine if fitted with a radio equipment for fleet tracking)

based on the following European Standards:

EN ISO 3691-1:2015 – Industrial trucks – Safety requirements and verification – Part 1: Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks.

EN 16307-1:2013+A1:2015 – Industrial trucks – Safety requirements and verification – Part 1: Supplementary requirements for self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks.

EN 12895:2015 – Industrial trucks – Electromagnetic compatibility

The assessment procedure has been carried out in accordance with the provisions relating to non-dangerous machinery in the above mentioned Directives.

Name and address of the person authorized to compile the technical file:

Mr./Mrs.

AUSA Center, S.L.U.

c/ Castelladral 1, 08243 – Manresa – Barcelona

AUSA Center, S.L.U. AUSA 08243 MANRESA

Mr./Mrs.

Manresa, dd/mm/yyyy.

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UKCA DECLARATION

Machines being placed on the Great Britain market after Brexit will be accompanied with the following declaration of conformity:

UK DECLARATION OF CONFORMITY

The manufacturer **AUSA Center, S.L.U.**, established on c/ Castelladral, 1, 08243 – Manresa – Barcelona – Spain, declares, under the sole responsibility, that the machine assigned below:

Generic denomination:	**SELF-PROPELLED ROUGH-TERRAIN FORKLIFT TRUCK**
Model/Type:	**model**
Serial number:	**chassis**
Year of manufacture:	**year_manufacture**

fulfils all the relevant provisions of the following UK Regulations, (and their amendments):

Supply of Machinery (Safety) Regulations 2008
Electromagnetic Compatibility Regulations 2016
Noise Emission in the Environment by Equipment for use Outdoors Regulations 2001
Radio Equipment Regulations 2017, (when the machine if fitted with a radio equipment for fleet tracking)

based on the following UK designated standards:

EN ISO 3691-1:2015/A1:2020 – Industrial trucks – Safety requirements and verification – Part 1: Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks.
EN 16307-1:2020 – Industrial trucks – Safety requirements and verification – Part 1: Supplementary requirements for self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks.
EN 12895:2015+A1:2019 – Industrial trucks – Electromagnetic compatibility

The assessment procedure has been carried out in accordance with the provisions relating to non-dangerous machinery in the above mentioned Regulations.

Name and address of the person authorized to compile the technical file:

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c/ Castelladral 1, 08243 – Manresa – Barcelona

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2

SAFETY INFORMATION

CONTENTS INDEX

Adhere to the safety standards without exception.

- Follow all work safety and hygiene standards, and well as accident prevention standards in all transport, maintenance and repair operations.
- Adhere to all operation, maintenance and repair conditions specified in this manual.

AUSA manufactures their machines in accordance with demands for intrinsic protection, as established in current regulations or standards for countries where the machine is sold, against dangers of any kind, which may present a risk to health or life, whenever the machine is used and maintained in accordance with these regulation or standards.

Any hazard caused by improper use, not in compliance with these instructions or others specifically provided with the machine, will be the responsibility of the operator and not AUSA.

This manual gives instructions on how to use the machine safely, as per the provisions in the 2006/42/EC Machine Safety Directive, the Supply of Machinery (Safety) Regulations 2008, EN ISO 3691 Part 1 and EN 16307 Part 1 safety requirements.

USING THE MACHINE

Intended Use

Information: *Any use other than that intended will be considered improper.*

The machine has been designed and manufactured to lift, handle and transport loads. Use forks or other accessories and equipment manufactured and/or authorised by AUSA to guarantee the safety of both the people and the loads transported.

The machine has not been designed for full-load longdistance transport. Long-distance trips are allowed if they are roundtrips, whithin a delimited area where one way the machine is full and the othe way the machine is empty.

When traveling on public roads, check first the laws that may be applicable where the machine is operated.

'ALL-TERRAIN' STANDARD USE

The machine has been designed to transport and lift loads over floor surfaces that have not been adapted to such operations, which are almost flat, with moderate slopes and small obstacles and, therefore, under unfavourable stability conditions. See *'During Operation'* and *'Driving and Operation on Slopes' in Chapter 2.*

INDUSTRIAL USE ACCESSORY

The machine has been designed to transport and lift loads on firm, flat, horizontal, paved and adapted floor surfaces, ensuring that the optimum stability conditions are met.

USING THE MACHINE

Improper use

information: *Improper use is defined as any use of the machine that does not conform to the criteria and instructions detailed in this manual, or any other uses different to those described in the manual.*

Improper use of the machine may cause serious injury to persons, the machine or the environment.

Below, some of the most frequent and dangerous instances of improper use are listed:

- Transporting suspended loads. In this situation, take all necessary precautions or contact your AUSA official distributor.
- Transporting persons on the lifting mast, forks or any other part that is not the operator's position.
- Failing to comply with the instructions for use and maintenance set out in this manual.
- Exceeded the load limits and the position of its centre of gravity, as indicated in the load charts.

  See *'Working with Loads' in Chapter 4*.
- Working on unstable, unconsolidated ground or on the edge of ditches and trenches.
- Working on floor surfaces with slopes that exceed the recommended operating limits. See *"Safety Measures"* to know the machine stability limits.
- Using accessories and equipment for purposes other than those they are designed for.
- Using accessories and equipment not manufactured or authorised by AUSA.

OPERATOR REQUIREMENTS AND QUALIFICATIONS

Do not use the machine if you have not read and understood this manual, have not completed the corresponding training and have not practised under the supervision of an experienced and qualified operator.

The operator must know and comply with the laws and standards applicable in the workplace where the machine will be operated, including those that require operator training and certification. Compliance with these laws is the responsibility of the user.

To use this machine, the operator must have a valid driving licence suitable for this type of machine. To operate this machine, you should be in good physical and mental condition, have normal reflexes and reaction times, good vision and depth perception, and normal hearing capacity. If you are under any medication that may change your capacity to operate the machine, or if you are under the effects of alcohol or any other toxic substance during your work shift, you must not use the machine.

GENERAL SAFETY INFORMATION

Context	Recommendation
MODIFICATIONS TO THE MACHINE	Any modification which affects the capacity and safety of the machine must be authorised by AUSA or by a responsible manufacturer, modifying, where necessary, the operator's manual and corresponding plates.
	AUSA will not be held responsible for any incidences or accidents caused by the use of non-original spare parts or by repairs carried out by unauthorised workshops.
	In the case of accessories and equipment being assembled on the base frame of the machine by companies not connected to AUSA, all the requirements and limitations of the machine in relation to mass and dimensions, efficiency of the lighting equipment and adjustments thereto, along with the need for protection or additional systems, must be respected in order to guarantee the safety of the machine.
	Any machine modifications may alter the safety conditions and invalidate any declaration supplied in relation to the machine. Contact AUSA for additional information.

Context	Recommendation
MAINTENANCE	Periodic servicing should be performed when using the machine to ensure it meets the functional safety requirements.
DAMAGE	The operator cab must be replaced with a new one if it has suffered permanent damage or deformation.
OPTIONAL ACCESSORIES	The use of accessories may reduce the load capacity of the machine.
	If the machine is equipped with accessories, read carefully the specific instructions manual for each accessory prior to installing or using it. The manuals of all accessories, supplied by their manufacturers, are delivered together with this operator's manual.

DURING REFUELLING

Context	Recommendation
FIRES OR EXPLOSIONS	**Risk of fire or explosion caused by smoking or the presence of fames near fuel vapours.** Fuel vapours are explosive. ▪ Do not smoke or cause flames or sparks in refuelling areas.
	Risk of fire or explosion caused by storing fuel in enclosed areas. Concentrated fuel vapours may cause fires or explosions. ▪ Do not store fuel in enclosed areas.
TOXICITY	**Risk of toxicity caused by contact with fuel.** Fuel is toxic if ingested or if it comes into contact with the skin. ▪ Avoid direct contact of hands and mouth with the fuel. ▪ Never transfer the fuel by sucking it through a tube using your mouth.
	Risk of toxicity caused by vapour inhaling. In high concentrations, the fuel vapours may cause dizziness, lack of concentration and even death in the case of prolonged exposure. ▪ Avoid inhalation of fuel vapours. ▪ If symptoms of dizziness are experienced, seek medical assistance immediately.

Context	Recommendation
PPE	To prevent allergies and other dangerous skin problems when filling with fuel and other fluids, use protective gloves and safety goggles.
TRANSFERRING	**Risk of exposure to explosive vapours caused by refuelling in unsafe areas.** When performing refuelling by transferring fuel from a tank, barrel or drum, slowly open the tank's fuel outlet valve. If the tank or drum does not have an outlet valve, use an electric vacuum pump.
SPILLS	If there is a fuel spill, mark the area with barrier posts and warning tape, spread absorbent material and inform your supervisor. Take the necessary measures to avoid risks until the spilled fuel has been completely removed and the surface is dry.

FOR THE OPERATOR

Context	Recommendation
TRAINING	Before using the machine, read this operator's manual thoroughly and pay attention to all the safety plates and decals installed on the machine. When in doubt, check with your supervisor.
	Operation, maintenance and repair of the machine must only be entrusted to duly-trained personnel, who have the required tools and know the intervention and safety procedures relating to the machine.
MOBILE TELEPHONE	**Risk of accident caused by using mobile phones.** The use of mobile phones is prohibited whilst operating the machine.

Context	Recommendation
PPE	Request the necessary personal protection equipment to carry out the work in a safe and comfortable fashion: ▪ Helmet. ▪ Ear protectors. ▪ Warm clothing. ▪ Reflective equipment. ▪ Safety glasses.
ENTRAPMENT	**Risk of entrapment caused by inadequate clothing.** ▪ Do not operate the machine whilst wearing bracelets, chains, loose clothing, long hair which is not tied back, etc. as they might get caught in the controls, rotating parts, on edges, etc.

MACHINE OPERATION

Context	Recommendation
WORKING IN ENCLOSED ENVIRON-MENTS	**Risk of fire or explosion in enclosed environments.** ▪ Do not operate the machine in areas where there is a risk of fire or explosion, unless it has been prepared for that purpose.
	Risk of toxicity caused by excessive exhaust gases in enclosed areas. If the work is to be carried out in enclosed spaces, make sure that the area is well ventilated in order to prevent the excessive build-up of exhaust fumes. ▪ Stop the engine whenever it is not required.
	Use ventilation systems to remove dust or flammable gases in the work area.
FIRE	**Risk of fire with exhaust gases.** The exhaust gases from the muffler are very hot. ▪ To prevent a fire, do not expose dry grass, mowed grass, oil or any other combustible materials to exhaust gases. ▪ Keep the engine and muffler clean at all times.

Context	Recommendation
BEFORE OPERATION	**Risk of accident caused by lack of visibility.** ▪ Make sure that the work area is well lit to prevent accidents. Do not operate the machine with insufficient lighting.
	Risk of accident caused by obstacles in the area or lack of signalling. ▪ The work area must be in a suitable condition and signposted. ▪ Operate in manoeuvre zones free of obstacles and people.
	Risk of death or serious injury caused by not adjusting the seat belt. ▪ Before operating the machine, correctly fasten and adjust the seat belt.
	Risk of injury caused by not adjusting the seat. ▪ The seat position should be adjusted to the operator's physical build.
	Risk of accident caused by starting the machine without an operator. ▪ If the operator is not seated, do not start the machine, nor operate the controls.

DURING OPERATION

Context	Recommendation
DURING OPERATION	**Risk of accident caused by systematically driving at maximum speed.** Regularly driving the machine at maximum speed may represent a danger to the operator and to his or her surroundings. ▪ The speed of the machine should be adjusted at all times to the work conditions, and to the area where it is being carried out. ▪ When transporting loads, drive at a low speed, in accordance with the terrain conditions.
	Risk of accident caused by obstruction in the controls. ▪ Keep the operator's position/ cab clear of all objects or tools that may move about and might obstruct the controls, or prevent the implementation of a required manoeuvre.
	Risk of serious injury caused by having body parts outside the operator cab. ▪ Keep your hands, feet and, in general, your body inside the operator cab.
	Risk of accident caused by blocked visibility. ▪ Ensure clear forward visibility. ▪ If the load impedes forward vision, travel in reverse exercising caution.
	Risk of fire or explosion caused by contact between the muffler and flammable elements. ▪ Make sure that there are no flammable elements around the muffler.

Context	Recommendation
DURING OPERATION (continued)	**Risk of serious burn injury caused by contact with the muffler.** ▪ Do not touch the muffler, and never be directly exposed to its gases.
	Risk of accident caused by travelling in reverse without checking what is behind. ▪ Before travelling in reverse, check that the manoeuvre will not put at risk either people, the machine itself or nearby objects.
	Risk of accident caused by sudden or excessively brisk movements. ▪ Move the lifting mast and forks smoothly and slowly.
	Risk of accident caused by travelling with the mast raised. ▪ Always drive in the travelling position, that is, with the forks raised not more than 300 mm from the ground and the lifting mast slightly tilting backwards. 
	Risk of accident caused by using a damaged or defective machine. If any anomaly is observed whilst using the machine, it should be reported immediately to a supervisor or to the maintenance service.

DURING OPERATION

Context	Recommendation
DURING OPERATION (continued)	**Risk of accident caused by insufficient ground resistance.** ▪ Check that the resistance of the ground on which you are driving is sufficient for the loaded machine, in particular on access to bridges, embankments, slabs, loading areas, etc. ▪ Depending on the work to be carried out, the operator must determine the existence of hazards that might require adopting special measures.
	Risk of accident caused by driving without due care and attention. Pay full attention to the work. Your safety, as well of that of others, depends on your own caution.
	Risk of accident caused by raising too much dust. ▪ Depending on the ground, try to raise as little dust as possible while driving.
	Risk of accident caused by driving too near other people. ▪ Ensure that there are no persons in the work area of the machine during operation.
	Risk of damage to devices with high electromagnetic sensitivity. ▪ If the machine is used in areas where there are devices that are very sensitive to electromagnetic emissions, make sure that the equipment does not affect the machine.
	Risk of accident caused by transporting excessively-wide objects. ▪ Do not transport objects wider than the machine's width, particularly if the objects are unstable.

Context	Recommendation
DURING OPERATION (continued)	**Risk of accident by transporting objects that may be projected.** ▪ Do not transport objects that may be projected during the machine operation.
	Risk of death or permanent injury caused by standing beneath the forks. ▪ Do not allow other persons to stand underneath the forks after these have been lifted, regardless of whether the forks are carrying a load or not.
	Risk of death or permanent injury caused by standing beneath the lifting mast. ▪ Do not put any part of your body on the lifting mast or between the mast and the machine.
	Risk of death or permanent injury caused by not following driving indications. Loads moved inside installations or closed spaces require a series of minimum forklift operation and pedestrian indications to be followed. ▪ If you are unaware of these indications, talk to your supervisor.
	Risk of lateral roll-over caused by turning at high speeds. The risk of lateral roll-over increases when turning at high speeds, regardless of whether the machine is transporting a load or not. ▪ Do not exceed the maximum permitted speed in each area.
	Risk of accident caused by driving with the load raised. The risk of longitudinal roll-over increases when operating the machine with the load in a high position. ▪ Under no circumstances drive with the load raised.

DURING OPERATION

Context	Recommendation
DURING OPERATION (continued)	**Risk of accidents caused by driving through narrow areas.** ▪ Make sure that openings and doors are large enough for the machine to drive through them. The aisle width must be wide enough to ensure there is a distance greater than or equal to 1 m on both sides of the machine. This distance must be 1.5 m on both sides of the machine in the case of aisles with two directions. ▪ Plan all movements and operations to prevent manoeuvres that are dangerous or unnecessary for the surroundings. Locate suitable traffic routes for operating the machine.

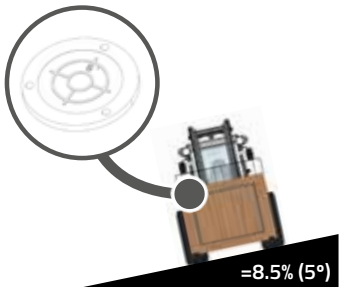
	Risk of death or permanent injury caused by driving in unstable areas.
	▪ Do not operate the machine on objects that could make the machine unstable such as:
	  ▪ Stones.
	  ▪ Boards.
	  ▪ Building waste material.
	  ▪ Logs and waste from felling trees.

	Risk of death or permanent injury from electric shock. ▪ Do not operate the machine near power lines.
	Risk of accident caused by collision with objects below height limits. ▪ While lifting loads, pay special attention to the height of the ceiling, lamps, etc.

Context	Recommendation
DURING OPERATION (continued)	**Risk of accident caused by harsh acceleration or braking.** Harsh acceleration or braking and quick movements on slopes will reduce the machine's stability. Uneven surfaces and moving loads will also have a negative impact on stability. ▪ Do not drive erratically. ▪ Do not perform sudden movements with the tilting mast. ▪ Pay attention to terrain irregularities that may cause loads to shift.
	Risk of accidents caused by driving on unstable terrain. ▪ If the machine needs to be temporarily operated on unstable or loose ground, take the necessary measures to prevent accidents. ▪ Drive slowly, and abort the manoeuvre if it exceeds the 2nd line on the spirit level. See *'Controls' in Chapter 3.* ▪ Activate 4x4 (if equipped) to ensure that all the wheels find traction on the ground.
	Risk of accident caused by driving next to ditches and trenches. ▪ Pay special attention when operating on the edges of trenches or ditches, since the ground could slide down and cause the machine to roll over.

DURING OPERATION

Context	Recommendation
DURING OPERATION (continued)	**Risk of accident caused by insufficient ground resistance.** Special factors, such as rain, snow, loose gravel or soft ground, might require the operation of the machine to be interrupted. ▪ Judge whether the conditions of the terrain allow the machine to be used safely, since it is very dangerous to operate the machine on slopes.
	Risk of accident caused by driving too near other people. The machine operator must be capable of communicating with pedestrians with no obstacles. ▪ In very noisy environments, restrict access to pedestrians walking around the places where the machine is operating.
	The machine is not designed to tow other vehicles. In the inevitable event that this may be necessary, a load should be placed on the forks to ensure traction.

Context	Recommendation
DRIVING AND OPERATION ON SLOPES	**Risk of accident caused by operating on very steep slopes.** ▪ Do not operate on slopes which exceed the recommended gradient. ▪ Respect the machine's stability limits:    

DURING OPERATION

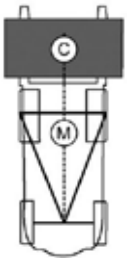
Context	Recommendation

DRIVING AND OPERATION ON SLOPES (continued)	**Risk of accident caused by transversal driving on a slope.**
	▪ When accessing a slope, always place the machine on a straight line.
	▪ Avoid driving in transversal direction.
	▪ For transversal driving:
	  ▪ Change position on horizontal ground.
	  ▪ Then, enter the slope in a straight line.

	Risk of accident caused by driving on slopes without due care and attention. A slope within the recommended gradeability does not mean that manoeuvres can be carried out on it in absolute safety under any load, terrain or handling conditions. ▪ Pay special attention when working on slopes; move slowly and avoid diagonally orientation.
	Risk of accident with a load on ascending slopes greater than 5.2%. ▪ Loads must be transported in the ascending direction, with the mast forward and on slopes with a gradient below 5.2% (3°), that is, not exceeding the 1st line on the spirit level. ▪ See *'Controls' in Chapter 3.*
	Risk of accident caused by changing direction carrying a load on slopes with a gradient greater than 8.5%. ▪ When moving a load requiring different changes in direction, always carry out the manoeuvres on slopes with a gradient below 8.5% (5°), that is, do not exceed the 2nd line on the spirit level. ▪ See *'Controls' in Chapter 3.*

Context	Recommendation
DRIVING AND OPERATION ON SLOPES (continued)	**Risk of accident without a load when descending slopes with the lifting mast backwards.** ▪ When operating without a load, move in the descending direction with the mast forward.
	Risk of accidents caused by driving on slopes with unstable terrain. ▪ Only access inclines where the ground is stable, as the machine may slide (even on low-gradient slopes) on grass, brush, damp metal surfaces, frozen ground, snow, etc.
	Risk of accidents caused by skidding on slopes with stony or wet terrain. The machine may skid sideways on stony ground, and may lose stability on ground that is uneven. The presence of surface stones and humidity may impair the traction and stability of the machine.
	Risk of accidents caused by the machine rolling over on slopes with soft ground. On soft ground, the machine may sink and the wheels become buried. This increases the machine's angle (maximum slope and maximum lateral inclination), which may cause it to tip over.
	Risk of accident by moving the mast when operating on slopes. When operating on slopes, neither rise the mast nor move the forks sideways.
	Risk of accident caused by stopping the engine on a slope. ▪ If the engine stops during an operation on a slope, put the travel selector (FNR) in NEUTRAL and restart the engine.

DURING OPERATION

Context	Recommendation
MACHINE LOADS	**Risk of accident caused by transporting people.** ▪ Apart from the operator, do not carry other people on the machine. ▪ Transporting persons on the forks is prohibited.
	Risk of accident caused by transporting unstable loads. ▪ Do not transport unstable, loose or excessively large loads.
	Risk of accident caused by lifting loads on unstable terrain or on a slope. ▪ When lifting loads, especially when working close to the maximum height of the mast, make sure that the machine is on stable terrain and as horizontal as possible.
	Risk of accident caused by changes in the centre of gravity. Take into account the stability triangle to prevent the transported loads from being dropped.  ▪ Do not handle loads that shift the centre of gravity beyond the stability triangle. The centre of gravity of the load (C) and machine (M) must remain within the limits of this imaginary triangle.

Context	Recommendation
MACHINE LOADS (continued)	**Risk of accident caused by exceeding the allowed load for accessories.** The combination of the machine's weight and the weight of the accessory reduces the nominal load. ▪ Check the admissible load of accessories before using them.
	Risk of accident caused by overloading the machine. Overloading the machine makes it unstable, hard to handle and may cause the vehicle to tip over or some components to break. ▪ Always ensure that the maximum authorised weight of the machine is not exceeded, nor the maximum weight per axle. See *'Technical Specifications Table' in Chapter 7*. ▪ Carry out manoeuvres gently, especially when changing direction on slippery ground.
	Risk of accident caused by incorrect loading and distribution of the material. Handling, stability and braking distance are affected when the machine is loaded. ▪ Always place the load as low as possible to reduce the effects of a high centre of gravity. ▪ After picking-up a load always center the sideshift prior to traveling.
	Risk of accident caused by driving with a load at high speed. ▪ Drive at slow speed and in accordance with the ground conditions when transporting a load.

DURING OPERATION

Context	Recommendation
MACHINE LOADS (continued)	**Risk of accident caused by driving with an excess load or with the load over the permitted height.** ▪ Do not exceed the maximum weight and height detailed in the load diagrams. See *'Working with Loads' in Chapter 4*.
	Risk of accident caused by driving with an unbalanced load. ▪ Maintain equilibrium between the load and the machine to handle loads safely and ensuring these are stable at all times. ▪ Please, refer to the load charts to check the exact values of the weight that can be transported, and the centre of gravity for the admissible weight on the machine. *See 'Working with Loads' in Chapter 4.*
	Risk of accident caused by changes in the centre of gravity when increasing the speed. The equilibrium conditions of the machine-load change when driving the machine and increasing its speed. ▪ Pay full attention to ensure the centre of gravity is within the specifications of the load chart. ▪ See *'Working with Loads' in Chapter 4*.
	Risk of accident caused by driving with the load raised. ▪ Do not operate the machine with the load raised, since the machine will become unstable due to a change in the centre of gravity.

Context	Recommendation
TOWING A TOW LOAD	Drive carefully and at a reduced speed. If the trailer is not fitted with an inertia brake, make sure that the braking capacity is sufficient for both the machine mass and the trailer.
	▪ Towing loads have restrictions when driving on public roads. When in doubt, check with the local authorities. See *'Towing' in Chapter 6.*
ON PUBLIC ROADS	**Risk of accident caused by driving on public roads without the rotating beacon.** ▪ When the machine is operating on a public road, activate the rotating beacon.
	Risk of accident caused by driving without caution on public roads. ▪ When driving on public roads, adhere to the current applicable aws is mandatory. In some countries, the transport of any kind of loads is not allowed while traveling on public roads. Consult the laws that may be applicable where the machine is operated. ▪ When approaching a crossroads with poor visibility, slow down, sound your horn and move forward slowly, in accordance with the amount of visibility available. ▪ Give way to any pedestrians you might come across while driving.
	To drive the machine on public roads, all necessary approvals and licences must be obtained in accordance with the current legislation of the country where the machine is used, also incorporating the signalling and safety elements included in the legislation.

DURING MAINTENANCE

Context	Recommendation
TRAINING	Maintenance, repair, adjustment, assembly or removal tasks of the machine elements can only be carried out by people who have familiarised themselves with the operator's manual. It is recommended that written confirmation is obtained from those individuals that state they are familiar with maintenance processes.
	Be environmentally friendly. When changing oil, fluids, tyres, batteries, etc., take the used materials to the corresponding recycling centres.
	Those persons that carry out repairs, assembly, disassembly or adjustment tasks should follow the instructions contained in this manual or, where applicable, the instructions supplied separately by AUSA.
	Always keep the machine well maintained. Specialised personnel should be assigned to this job and provided with the necessary tools and appropriate instructions. Only authorised personnel are permitted to carry out maintenance and repair operations.
MACHINE STOPPED	**Risk of death or serious injury caused by maintenance tasks performed in unsafe conditions.** ▪ Unless this is absolutely necessary, all work on the machine should be carried out with the engine off, the lifting mast without a load, and all the immobilising and locking devices engaged.
	Risk of poisoning in poorly-ventilated areas. If the engine of the machine is on, in an area with insufficient ventilation or in an enclosed area, there is a risk of poisoning from fumes.

Context	Recommendation
BEFORE MAINTENANCE WORK	**Risk of serious burns caused by hot coolant pulverisation.** If the coolant is hot, opening the coolant expansion tank can spray hot coolant out. ▪ Before carrying out any work on the engine cooling system, wait 30 minutes for the temperature of the coolant to drop sufficiently in order that the radiator cap or the coolant reservoir cap can be removed safely.
	Fit the safety prop before working on the machine while the cab is lifted. See *'Access for Maintenance' in Chapter 8.*
IDENTIFICATION PLATES AND DECALS	The plates and decals, instructions and warnings attached to the machine must be kept in a perfectly legible condition.
TOWING THE MACHINE DUE TO MALFUNCTION	Before performing the towing operation, follow the instructions given in *'Towing', in Chapter 6*.
	If the machine needs to be towed, use a tow bar whenever possible or, if none is available, a cable that is strong enough for the job. In all cases, anchor the bar or cable to the points indicated by AUSA. See '*Towing', in Chapter 6*.
	Perform the towing manoeuvre at a speed no greater than 2 km/h, for a distance of less than 1 km. When driving a towed machine, pay attention to the position of your hands on the steering wheel, so that no damage is caused by wheel whiplash movements.
	Ensure that the towing vehicle has sufficient towing and braking capability to be able to perform the towing operation.

DURING MAINTENANCE

Context	Recommendation
HOISTING AND ANCHORING THE MACHINE DUE TO MALFUNCTION	During transportation of the machine due to malfunction, the user assumes responsibility for choosing the method of transportation as well as the appropriate anchoring system, ensuring that the equipment used is capable of supporting the weight of the machine being transported, and that all instructions and warnings detailed in this manual are adhered to, in addition to consulting and complying with current transport legislation in force for each country. See *'Transporting on the Bed of a Vehicle' in Chapter 6*.
	The process of hoisting the machine for manipulation or inspection must be performed at the points indicated on the machine for that purpose. Before the hoisting operation, follow the instructions in *'Loading with a Crane' in Chapter 6.*
ELECTRICITY	**Risk of short circuit caused by contact with unprotected battery terminals.** Unprotected battery terminals can cause a short circuit when accidentally making contact with some tools, parts, etc. ▪ Protect the battery terminals when performing maintenance tasks.
	Risk of damage to electrical and electronic components caused by electrical welding on the machine. Before carrying out any electrical welding work on the machine, remove the electric and electronic equipment and disconnect the positive terminal of the battery, in order to avoid possible damage to the installations.

Context	Recommendation
WHEELS	When changing a tyre, make sure that it is fitted with the tread pattern facing the right way.
	When replacing the tyres, also ensure their interchangeability; follow the tyre manufacturer's safety instructions.
	For safety reasons, split wheels must not be used (those made of two rims bolted together).
AFTER MAINTENANCE WORK	Once the adjustment or maintenance tasks are completed, place all protection devices in their original position.
HYDRAULICS	Before disconnecting the hydraulic hoses, identify or mark them so that they may be reconnected correctly later.
	Risk of spraying from fluids. ▪ Before disconnecting fluid systems, make sure there is no pressure in the systems and take precautions to avoid unexpected spraying. ▪ See *'Depressurising the Hydraulic Circuit' in Chapter 8.*
	Risk of fire and explosion caused by using flames for inspecting fluids. Never use a naked flame to check fluid levels and leaks.

DANGEROUS AREAS AROUND THE MACHINE

During operation and use, there are dangerous areas around the machine.

Dangerous areas are determined as follows:

- Front and side of the machine: 2 m.
- Back of the machine: 2 m.
- Load sides: 2 m.

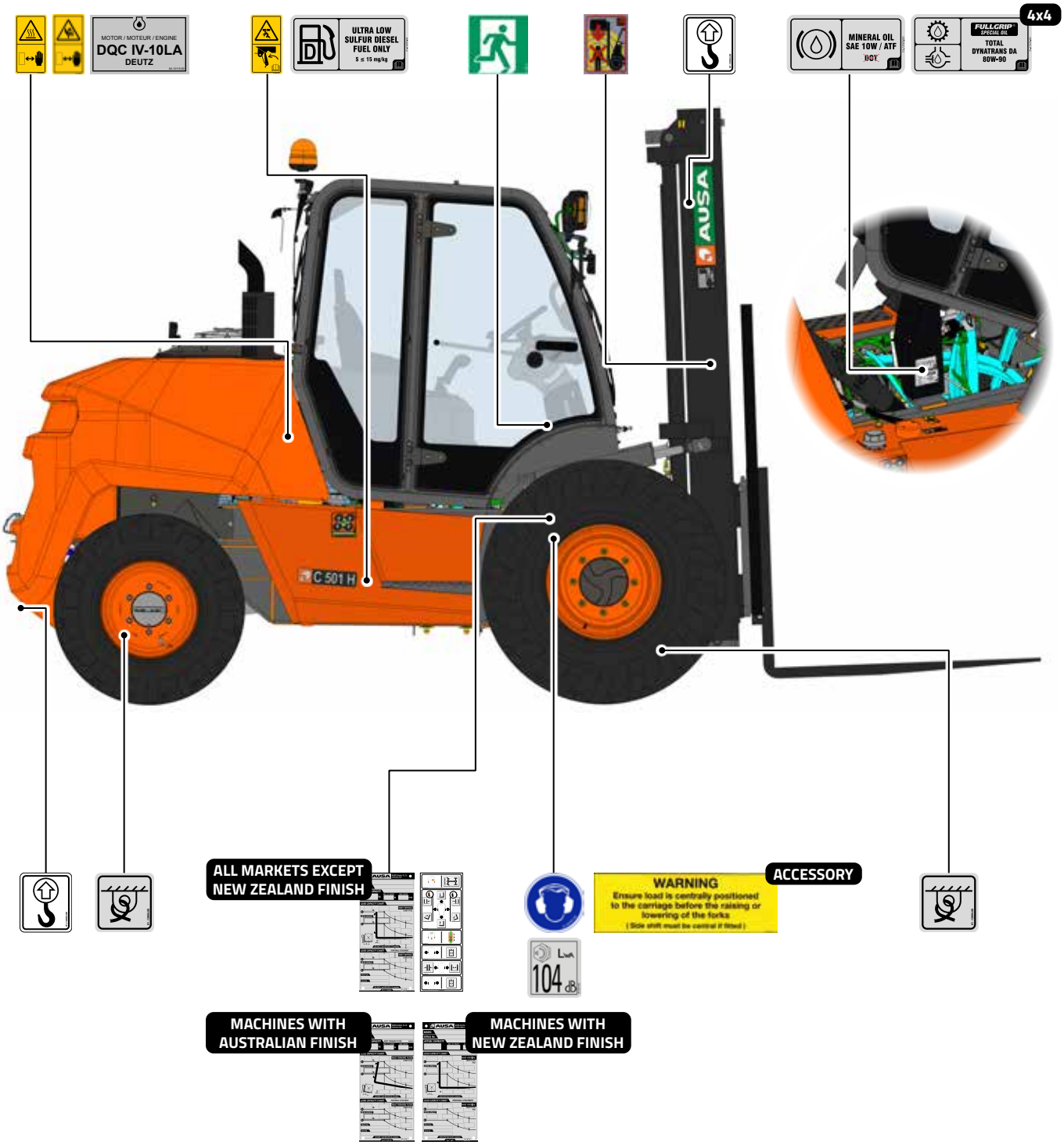
Stop the machine and avoid using it if there are people within these dangerous areas, or whenever someone could enter them imminently.

⚠ WARNING **Risk of accident caused by people being within the dangerous areas**

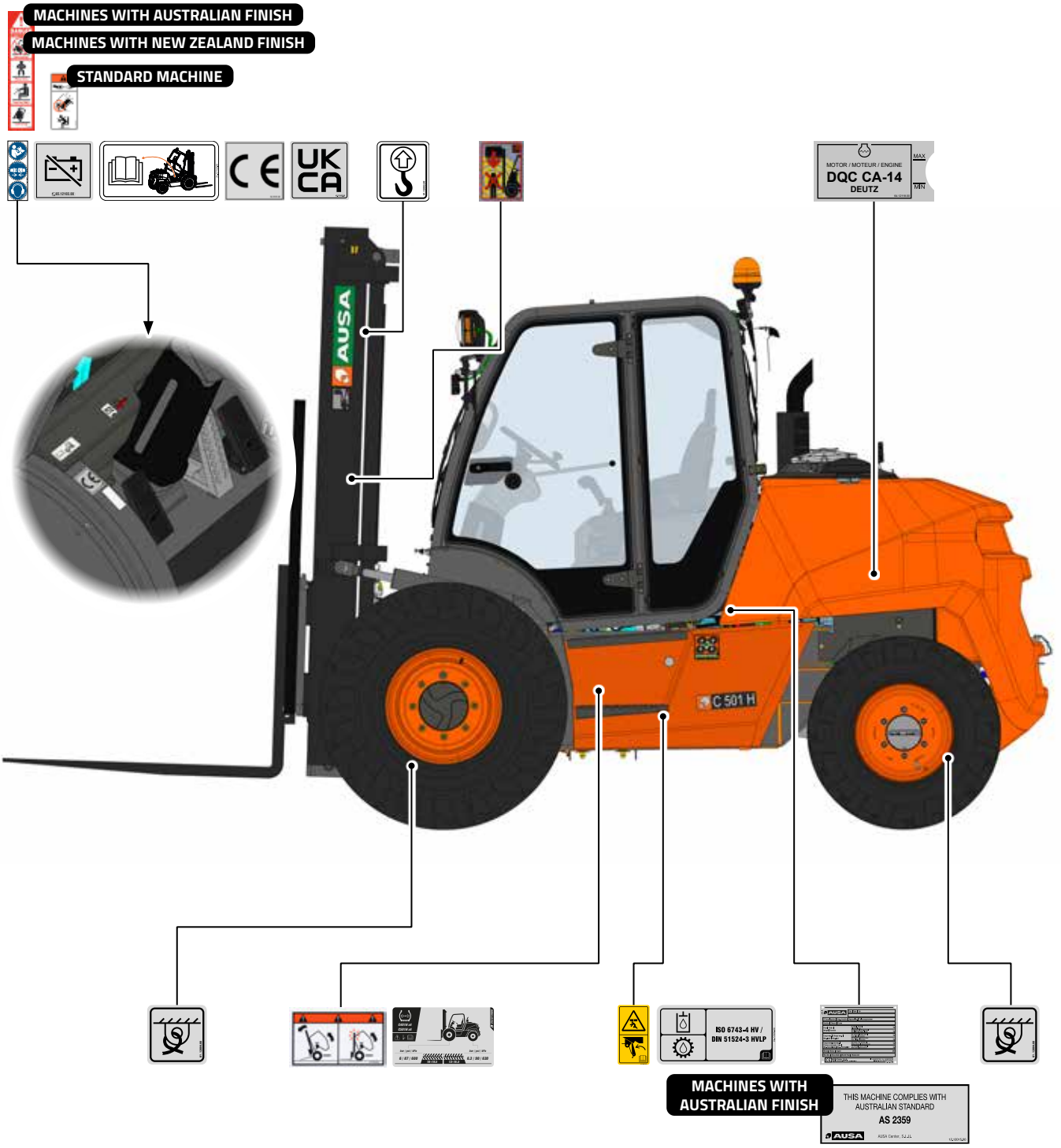
Warn anyone located around the machine to keep away from dangerous areas while it is in operation.

Dangerous Areas Around the Machine.

IDENTIFICATION PLATES AND DECALS

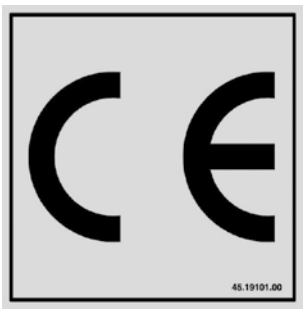


IDENTIFICATION PLATES AND DECALS



IDENTIFICATION PLATES AND DECALS

Plate	Description
	Warn staff not stand underneath the forks.
	Provide information about the operation of the joystick and the functionality of each component.
	Warn staff and provide information about the safety prop for maintenance purposes.
	Provide information about the location of the battery cut-off.

Plate	Description
	EC marking indication (except machines being placed on non-EU market).
	UKCA marking indication (only machines being placed on the Great Britain market after Brexit).
	Warn staff and provide information about the machine rolling over: **STANDARD MACHINE** ▪ Fasten your seat belt. ▪ Do not jump. ▪ Grasp the steering wheel firmly. ▪ Press your feet firmly on the floor of the cab. ▪ Keep as far away as possible from the point of impact.
	Warn staff and provide information about the machine rolling over: **MACHINES WITH AUSTRALIAN FINISH** **MACHINES WITH NEW ZEALAND FINISH** ▪ Do not jump. ▪ Press your feet firmly on the floor of the cab. ▪ Grasp the steering wheel firmly. ▪ Keep as far away as possible from the point of impact.

IDENTIFICATION PLATES AND DECALS

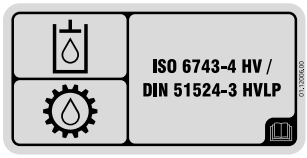
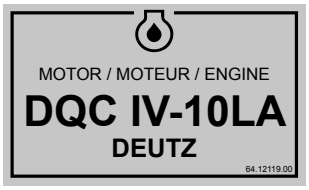
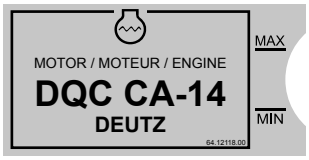
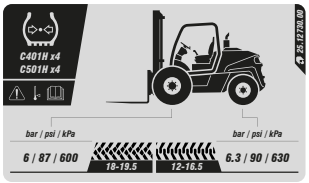
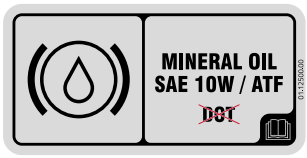
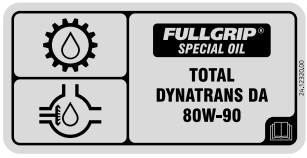
Plate	Description
	Provide information about the type of hydraulic oil and refers to the operator's manual.
	Provide information about the type of engine oil.
	Provide information about the coolant liquid and its maximum and minimum level.
	Provide information about the inflation pressure of the tyres.

Plate	Description
	Provide information about the fuel specifications and refers to the operator's manual.
	Provide information about the type of brake fluid and refers to the operator's manual.
	Provide information about the type of oil for the 4x4 connection / disconnection system and refers to the operator's manual. 4x4
	Warn staff and provide information regarding proximity to high-temperature areas.

IDENTIFICATION PLATES AND DECALS

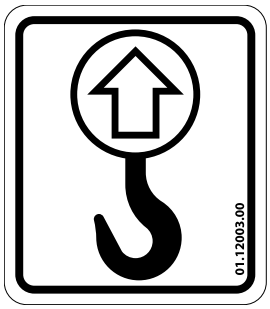
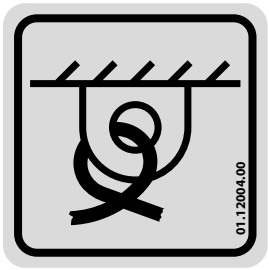
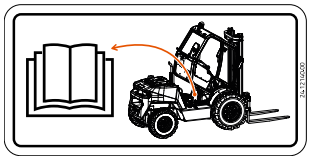
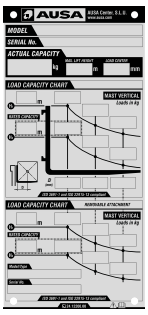
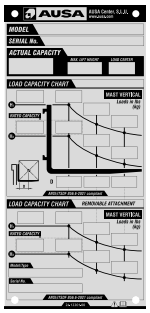
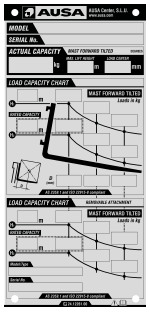
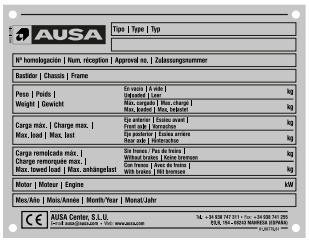
Plate	Description
	Provide information about the location of the hoisting points where the slings or chains are to be attached when lifting the machine.
	Provide information about the location of the anchoring points where the slings or chains are to be attached when anchoring the machine to a platform for transportation.
	Provide the information about where this operator's manual is kept.
	Load charts. **ALL MARKETS EXCEPT NEW ZEALAND FINISH**

Plate	Description
	Load charts. **MACHINES WITH NEW ZEALAND FINISH**
	Load charts. **MACHINES WITH AUSTRALIAN FINISH**
	Machine identification plate.
	Provide information about to: ▪ Read and understand the operator's manual. ▪ Fasten your seat belt. ▪ Use of ear protectors.

IDENTIFICATION PLATES AND DECALS

Plate	Description
	Provide information about the guaranteed acoustic power in the workplace environment where the machine operates.
	Warn staff and provide information about the counterweight cover for maintenance purposes.
	Warn staff and provide information about opening the cab for maintenance purposes.
	Provide information about the emergency exit in the event of an accident. **ACCESSORY**

Plate	Description
	Australian Standard. **MACHINES WITH AUSTRALIAN FINISH**
	Load centering. **ACCESSORY**

3

OVERVIEW

CONTENTS INDEX

OVERVIEW

The machine has been designed to transport or handle loads with the help of specific accessories, according to the type of task.

Depending on the load that the machine is designed to withstand, there are two types:

- 4 tons. **C 401**
- 5 tons. **C 501**

The machine moves thanks to a hydrostatic-transmission system driven by a diesel engine which can have a particulate filter (DPF). **PARTICULATE FILTER (DPF)**

In addition, the machine features 4-wheel steering. **4x4**

Machine Parts

Item	Part
1	Operator cab
2	Counterweight
3	Diesel engine
4	Lifting mast
5	Forks

Information: *The cab enclosure is optional.* **ACCESSORY**

Machine Parts

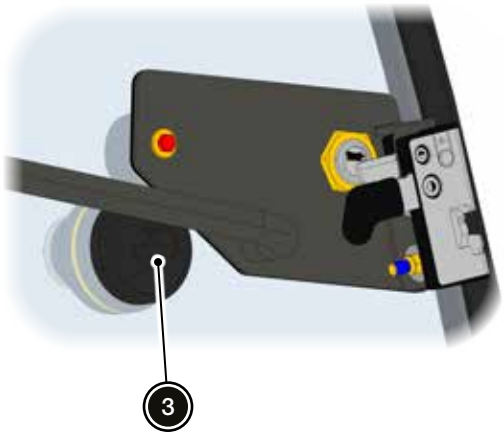
OPERATOR'S POSITION

Doors ACCESSORY

FROM THE OUTSIDE

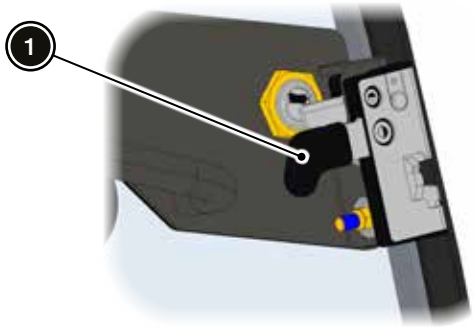
Open the door using the lever (1) and fold open the door until it reaches the opening limit (2).

To close the door, release it by pressing the button (3).



FROM THE INSIDE

Use the lever (1) to unlock the door.



Getting In and Out of the Machine

⚠ WARNING **Risk of serious injury when grabbing or pulling the steering wheel getting in and out of the machine.**

- ➤ Get in and out of the operator's position without activating any part in the process.
- ➤ Never grab or jerk the steering wheel to get in and out of the machine.

⚠ WARNING **Risk of accident caused by using the machine with dirt or dampness on the hands or the soles of shoes.**

- ➤ Always check that your hands and the soles of your shoes are clean and dry before getting in/out of the machine.

OPERATOR'S POSITION

The machine has steps (1) and handles (2) to help the climb in and out of the machine.

Seat Belt

⚠ DANGER Risk of death or serious injury caused by using the machine without the seat belt.

The seat belt is an important element of the safety system. If the seat belt is not fastened and the machine rolls over, the operator may suffer serious injury or death as a result of being crushed.

➤ Always fasten the seat belt before operating the machine.

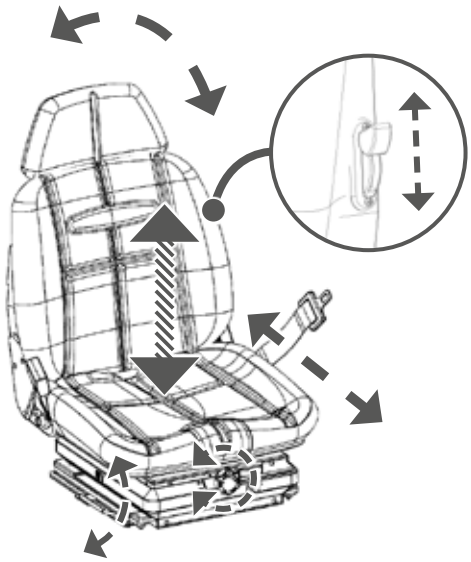
Information: *If the machine is parked on a steep slope, the seat belt roller may lock.*

The machine's seat belt is the roll-up type.

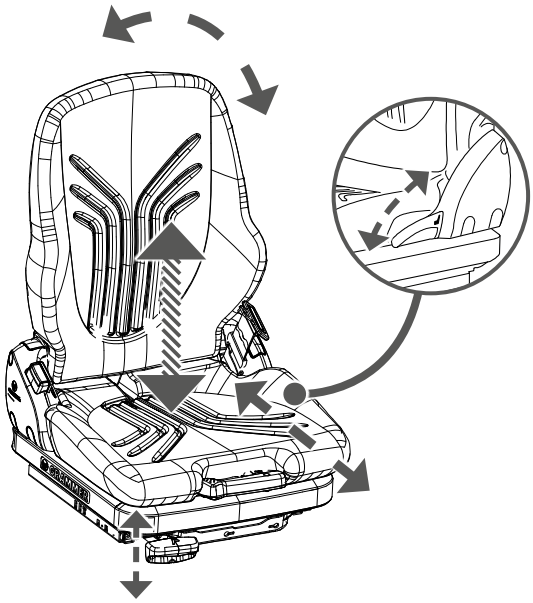
Seat Belt

OPERATOR'S POSITION

Seat Adjustment



ACCESSORY

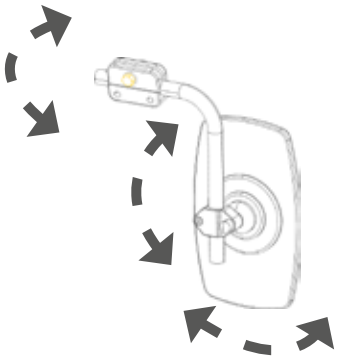


Adjust the Position and Suspension of the Seat

Information: *The seat's suspension reduces impacts to the operator. For additional information on the vibration levels, see 'Technical Features Table' in Chapter 7.*

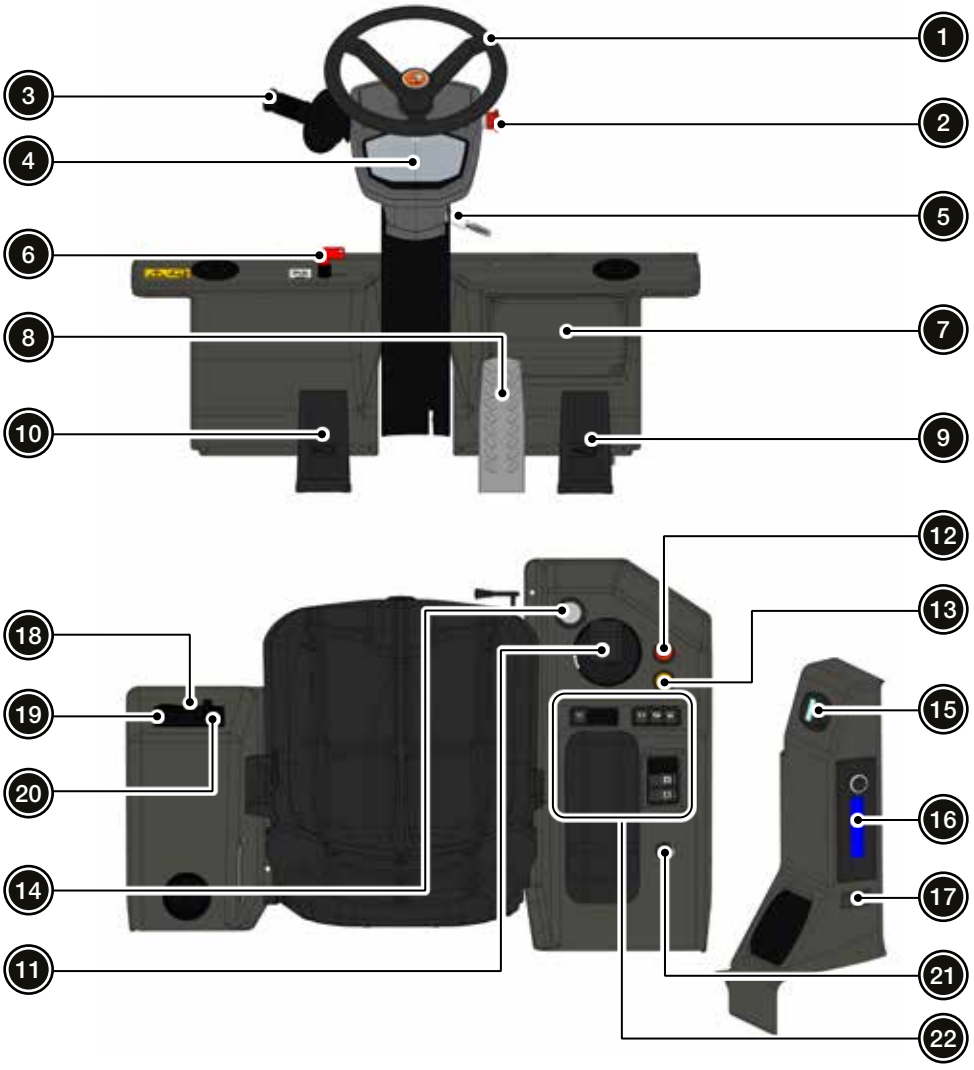
Adjust the Rear-View Mirrors

Information: *Objects in rear-view mirrors are closer than they appear.*



Adjust the Position of the Rear-View Mirrors

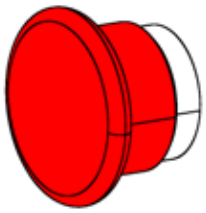
CONTROLS



Control Panel

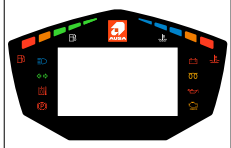
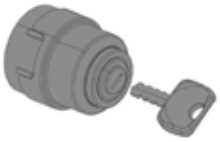
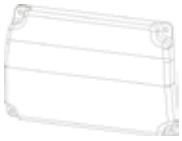
Information: *All switches are backlit, so that they can be easily identified in low-light conditions.*

CONTROLS

Item	Part	Figure	Description
1	Steering wheel		Use the steering wheel to steer the machine, turning the wheels on the rear shaft to the right and left.
2	Emergency push button		Use the button to stop the diesel engine in case of emergency. ▪ Press to activate emergency stop. ▪ To deactivate emergency stop, rearm the button by turning it anticlockwise. ***Information:*** *Before starting the machine again, identify the cause of the emergency stop.* **⚠ WARNING** **Risk of accident caused by activating the emergency push-button with the machine moving.** Regardless of the driving speed of the machine, the parking brake is applied automatically.

3	Multifunction switch
	ACCESSORY
			The malfunction switch controls the following elements of the machine:
			▪ Horn: to sound the horn, press the end of the switch.
			▪ Indicators: push the lever forward or back to activate one indicator or the other.
			▪ Windscreen wipers: to switch between the two wiper speeds, turn the switch on its axis:
			  ▪ No function (J).
			  ▪ Deactivated and return to start (0).
			  ▪ Slow speed (I).
			  ▪ Fast speed (II).
			▪ Windscreen washer: to activate the water pump, press the switch.
			▪ Lighting equipment: To switch between the two types of lights, turn the switch on its axis:
			  ▪ Lights off.
			  ▪ Sidelights.
			  ▪ Low beam.
			▪ To activate the high-beam headlights, push the lever.
			▪ Lights flash: to flash the lights, pull the lever.

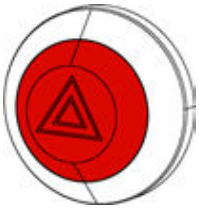
CONTROLS

Item	Part	Figure	Description
4	HMI display		See *'HMI Display'*.
5	Ignition switch		The ignition switch has four positions: ▪ Parking (P). ▪ Stop (0). ▪ Ignition (I). ▪ Start (II). ***Information:*** *The PARKING (P) position has been designed so that the machine can be parked, with the sidelights on and the key removed from the ignition. This is not possible in the STOP (0) position.* *When the PARKING (P) position is selected, the sidelights come on automatically, regardless of the position of the multi-function switch* **ACCESSORY**. *An intermittent audible warning is also activated to remind the operator that the lights are on and the battery might run out.*
6	Battery disconnecting device		See *'Disconnecting the Battery' in Chapter 4.*
7	Fuse box		See *'Fuses' in Chapter 5.*
8	Brake pedal		Use the pedal to activate the brakes proportionally. ***Information:*** *The parking brake is applied automatically when the machine comes to a stop (zero speed).* **4x4** *The 4x4 FullGrip® is activated when you press the brake pedal.*

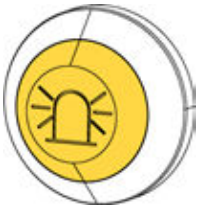
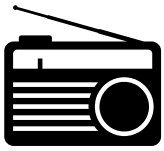
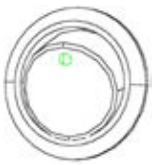
CONTROLS

Item	Part	Figure	Description
9	Accelerator pedal		Use the pedal to increase the diesel engine revolutions. When the pedal is released, the revolutions return to idle speed.
10	Pedal inching		Use the pedal to move the machine slowly during approach manoeuvres, regardless of the diesel engine revolutions. **4x4** When the inching pedal is fully pressed, the parking brake is applied.
11	Joystick		The joystick controls the following machine functions: ***Information:*** *The operator must be sitting to enable the travel selector (FNR) and the movements of the lifting mast.* *These functions are disabled 3 seconds after the operator gets off the seat.* ▪ Travel selector (FNR). The direction of travel is chosen by a switch located on the lower part of the joystick handle. The selected direction of travel is displayed on the upper part of the joystick and the HMI display: ▪ FORWARD: Forward arrow. ▪ NEUTRAL: Arrows off. ▪ REVERSE: Back arrow. ***Information:*** *See "Machine Orientation" in Chapter 1.* ***Information:*** *The maximum speed of the machine in reverse travel is limited to 15 km/h or 9.3 mph (depending on the configuration).*

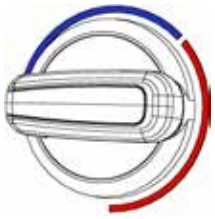
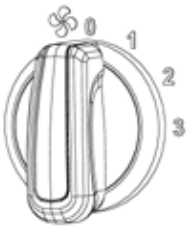
CONTROLS

Item	Part	Figure	Description
11	Joystick (continued)		▪ Movements of the lifting mast. ▪ Forward/back: Use this movement to raise or lower the lifting mast. ▪ Left/right: Use this movement to incline the lifting mast. ▪ Left/right + orange push-button on the left: Use this movement to side shift the fork carriage. ▪ Left/right + orange push-button on the right: Use this movement for the fourth hydraulic line **ACCESSORY**, whose quick connection sockets are located to the left of the mast.  ▪ Diagnostics on the HMI display. Yellow button located on the lower part of the joystick handle. ***Information:*** *Only for technical assistance service. See 'Diagnostics Display' in Chapter 5.* ▪ 4x4 FullGrip® **4x4** Switch between 4x4 and 4x2 traction using the red switch on the lower part of the joystick handle. To activate the 4x4 FullGrip® function, the machine's speed must be less than 10 km/h or 6.2 mph (depending on the configuration), and it will be limited to this value whilst operating in this mode. ***Information:*** *The 4x4 FullGrip® function will be deactivated by default when the engine is started.*
12	Hazard lights switch **ACCESSORY**		The emergency lights switch is used to turn the hazard lights on (the indicators come on simultaneously). While it is activated, the switch flashes.

CONTROLS

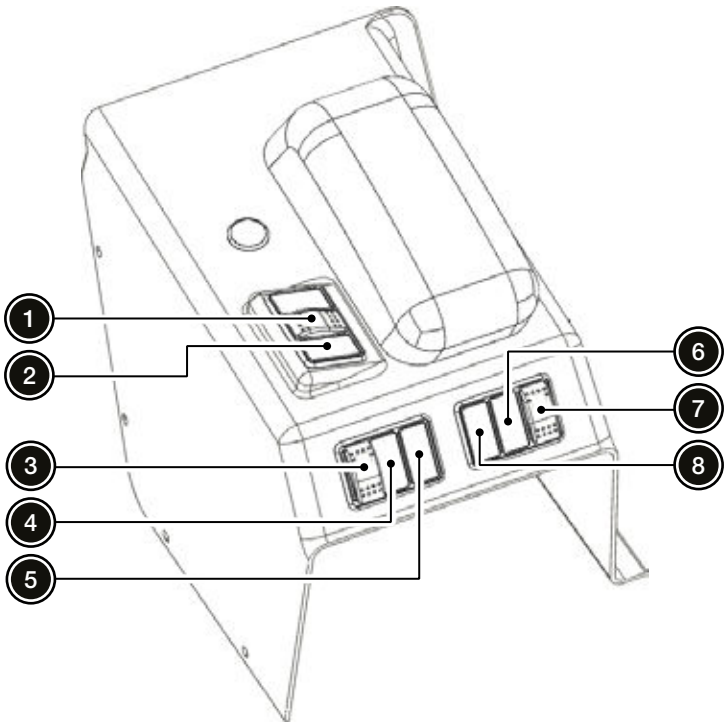
Item	Part	Figure	Description
13	Rotating beacon switch		The rotating beacon switch turns on the rotating beacon. While it is applied, the light remains on.
14	Spirit level		The spirit level allows the operator to check the inclination of the machine at all times and avoid exceeding the operation limits, as specified in *'During Operation', in Chapter 2.* ***Information:*** *There are 2 marks for 3rd and 5th separated from each other.*
15	Courtesy light switch **ACCESSORY**		Use the switch to activate the courtesy light; it has three positions: ▪ Deactivated. ▪ Activated when the doors are opened. ▪ Activated at all times.
16	Radio **ACCESSORY**		***Information:*** *For more information about the operation of the device, please refer to the manufacturer's manual supplied with this operator manual.*
17	Rear windscreen wiper switch **ACCESSORY**		Use the switch to activate the rear windscreen wiper. The switch has three positions: ▪ Deactivated and return to start. ▪ On. While it is applied, the switch remains on. ▪ Windscreen wiper. The water pump is activated when it is pressed.
18	Air conditioning switch **ACCESSORY**		Use the switch to activate the air conditioning. The switch has two positions: ▪ On. The switch light will remain on while it is active. ▪ Off. ***Information:*** *The 'Fan inside the cab' (20) must be activated and the 'Heating temperature control' (19) must be in the 'cold' position for the air-conditioning system to operate.*

CONTROLS

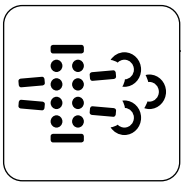
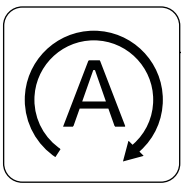
Item	Part	Figure	Description
19	Heating temperature control **ACCESSORY**		Used to control the heating / air-conditioning temperature; it can be adjusted from cold to hot.
20	Switch for the fan inside the cab **ACCESSORY**		Use the switch to control the cab's interior fan. The switch has four positions: ▪ Fan deactivated (0). ▪ First fan speed (1). ▪ Second fan speed (2). ▪ Third fan speed (3).
21	12 V Power socket **ACCESSORY**		Power socket that supplies 12 V. ***Information:*** *Maximum power: 120 W.*
22	Side button panel		See *'Side button panel'*.

CONTROLS

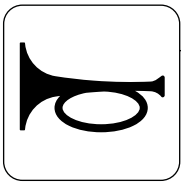
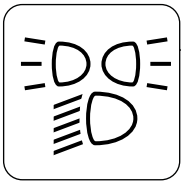
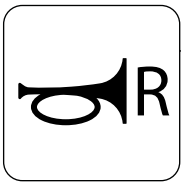
Side Button Panel



Side Button Panel

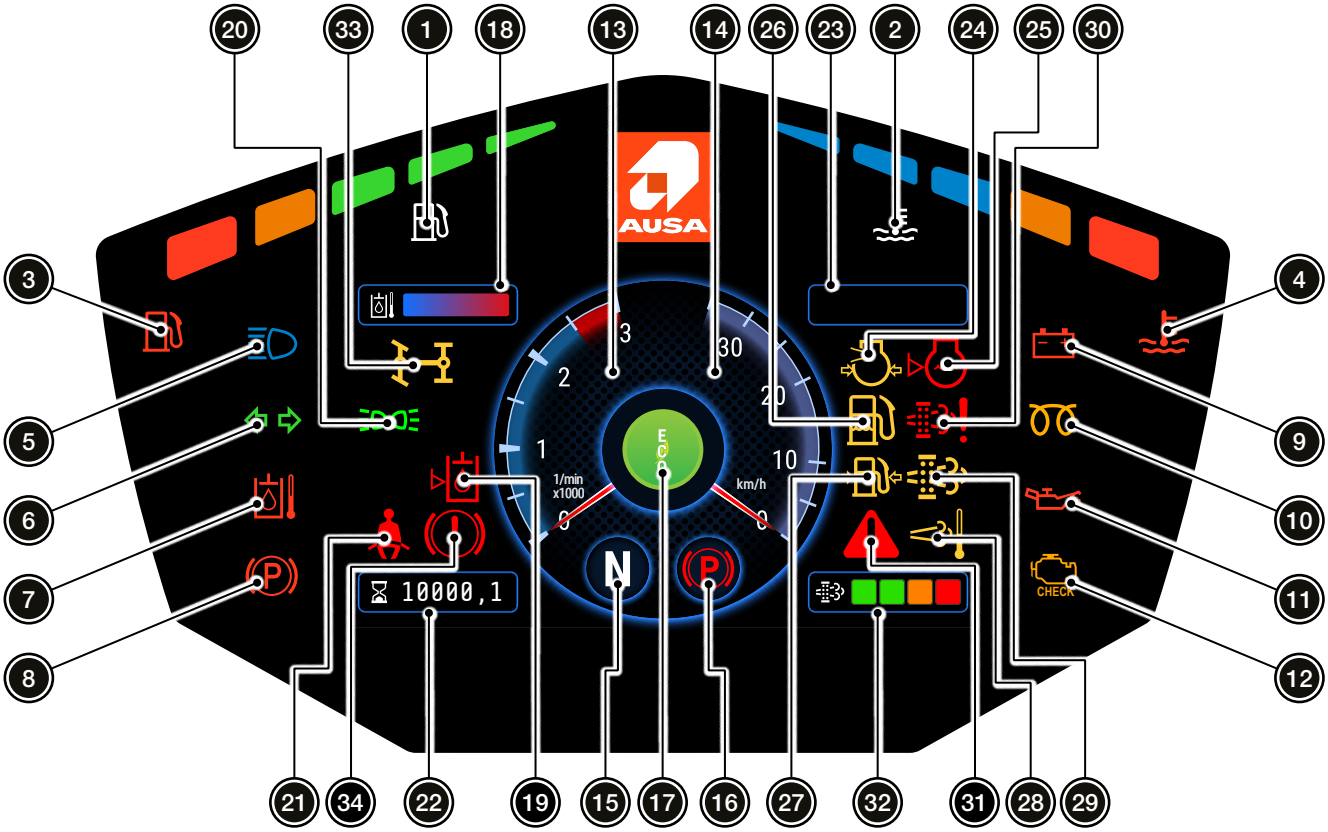
Item	Part	Figure	Description
1	Push button for particulate filter (DPF) regeneration with the machine stationary **PARTICULATE FILTER (DPF)**		Use the button to start the particulate filter (DPF) regeneration function with the machine stationary. See *'Regeneration with the Machine Stationary' in Chapter 5*.
2	Smart-Stop Button **ACCESSORY**		See *'Smart-Stop' in Chapter 9*.

CONTROLS

Item	Part	Figure	Description
3	Horn button		Use the switch to activate the horn.
4	Work lights switch **ACCESSORY**		Use the switch to activate the work lights; it has two positions: ▪ Off. ▪ On. While they are on, the light remains on. ***Information:*** *The sidelights come on automatically when the work lights are switched on.*
5	Lighting system switch **ACCESSORY**		Use the switch to activate the lighting equipment; it has three positions: ▪ Off. ▪ Sidelights. ▪ Low beam. While it is applied, the switch remains on.
6	Joystick lock switch **ACCESSORY**		The switch locks the movement of the joystick; it has two positions: ▪ Unlocked. ▪ Locked. While it is locked, the switch remains on.
7	Reverse travel alarm switch **ACCESSORY**		The switch is used to deactivate the reverse travel alarm, as long as the lighting system is on; it has two positions: ▪ On. ▪ Off. While the warning is off, the switch remains lit.
8	Parking brake switch		Use the switch to activate the parking brake; it has two positions: ▪ Off. ▪ On. While it is applied, the light remains on.

CONTROLS

HMI Display



HMI Display **PARTICULATE FILTER (DPF)**

CONTROLS

Item	Part	Figure	Description
1	Fuel level		The indicator shows the fuel level in the tank. If it is too low, the *'Low fuel level'* indicator comes on (3).
2	Coolant temperature		The indicator shows the coolant temperature. If it is too high, the *'High coolant temperature'* indicator comes on (4).
3	Low fuel level		The indicator comes on when the fuel level in the tank is too low, and it flashes when it reaches a critical level. Refuel following the indications in *'Refuelling' in Chapter 4*.
4	High coolant temperature		The indicator comes on when the temperature of the coolant is too high. When the engine is running, there appears a flashing warning icon in the centre of the display, and a continuous audible warning sounds. The maximum travel speed derates to 2 Km/h and the engine revolutions derate to 1,500 rpm. If this happens, proceed as instructed in *"Engine Overheating" in Chapter 5*. ***Information:*** *Once the problem that causes the indicator turns on, the engine should be stopped and started again to restore the machine's normal performance.*
5	High-beam headlights		The indicator comes on when the high-beam headlights are on.
6	Indicators		The indicator flashes when the indicators are on. When the flashing is too fast, this indicates that a light is not operating correctly.
7	High hydraulic oil temperature		The indicator comes on when the temperature of the hydraulic oil is too high. When the engine is running, there appears a flashing warning icon in the centre of the display, and a continuous audible warning sounds. Clean the radiators following the indications in *'Basic Maintenance every 50 Hours' in Chapter 8*.
8	Parking brake		The indicator comes on when the parking brake is applied. ***Information:*** *The parking brake is automatically applied when the operator leaves the machine with the engine running.*

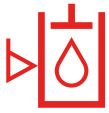
CONTROLS

Item	Part	Figure	Description
9	Battery charge		The indicator comes on when the battery is not being charged. Contact the official AUSA distributor.
10	Cold start system		The indicator comes on when the cold start system is in operation. Start the engine when this indicator light has switched off.
11	Diesel engine oil pressure		The indicator comes on with low diesel-engine oil pressure. When the engine is running, there appears a flashing warning icon in the centre of the display, and a continuous audible warning sounds. The maximum travel speed derates to 2 Km/h and the engine revolutions derate to 1,650 rpm. Stop the engine immediately and refill, following the indications in *"Refilling engine oil" in Chapter 8*. ***Information:*** *Once the problem that causes the indicator turns on, the engine should be stopped and started again to restore the machine's normal performance.* ***Information:*** *This indicator does not come on when the ignition switch is in the IGNITION position and the engine is off.*
12	Check engine malfunction		The indicator comes on when it detects an engine fault. Contact the official AUSA distributor.
13	Tachometer		The indicator shows the engine revs in rpm, and it indicates the safe operational interval. See *'ECO mode'* to check the engine rpm limit.
14	Speedometer		The indicator shows the speed of the machine in km/h or mph (depending on the configuration). See *'ECO mode'* to check the engine speed limit.

CONTROLS

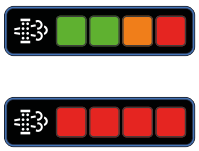
Item	Part	Figure	Description
15	Forward NEUTRAL Reverse		The indicators show the direction of travel selected: ▪ FORWARD: Forward arrow. ▪ NEUTRAL: "N". ▪ REVERSE: Back arrow. ***Information:*** *The arrow lights on the top part of the joystick handle only indicate the selector position.* In order to see the FORWARD/REVERSE arrows on the HMI display, the following conditions must be met: ▪ Parking brake released. ▪ Operator seated on the seat. Otherwise, the indicator displayed is NEUTRAL, regardless of the selection. ***Information:*** *If the parking brake is released, or the operator leaves the machine after a direction of travel has been selected, the indicators will alternately flash NEUTRAL and the direction of travel, indicating that NEUTRAL should be selected to activate the travel selector again.*
16	Parking brake		The indicator shows that the parking brake is applied; it has two operating modes: ▪ Red: The parking brake has been applied by the operator. ▪ Green: The parking brake has been automatically applied by the machine (hill-holder function). ***Information:*** *The parking brake is automatically applied when the operator leaves the machine with the engine running.*
17	ECO Mode		The indicator shows that the machine automatically activates the ECO mode. The rpms can reach 1,800 rpms until the machine reaches the maximum speed. In this moment the revolutions will drop to 1,700 rpms and the ECO mode will be activated automatically. The ECO mode remains active until the speed is lower than 18 km/h or 11.2 mph (depending on the configuration). At this point the ECO mode deactivates automatically and the revolutions can reach again 1,800 rpm.
18	Hydraulic oil temperature		The indicator displays the temperature of the hydraulic oil. If it is too high, the *"High hydraulic oil temperature"* indicator comes on (7).

CONTROLS

Item	Part	Figure	Description
19	Low hydraulic oil level		The indicator comes on when the oil level of the hydraulic oil tank is too low. When the engine is running, there appears a flashing warning icon in the centre of the display, and a continuous audible warning sounds. Refill the hydraulic oil following the instructions in *'Refilling hydraulic oil' in Chapter 8*.
20	Activated lighting system **ACCESSORY**		The indicator comes on when the sidelights are on.
21	Seat belt		The indicator comes on when the presence of the operator is detected on the seat and the seat belt is not fastened. When driving at more than 3 km/h or 1.8 mph (depending on the configuration) without the seat belt fastened, there appears a flashing warning icon in the centre of the display, and an intermittent audible warning sounds. Below this speed, there is no flashing warning icon or audible warning.
22	Hours of service		The indicator shows the period of time the operator has been using the machine.
23	Smart-Stop **ACCESSORY**		The indicator shows the Smart-Stop state. Its operation is explained in *'Smart-Stop' in Chapter 9*.
24	Air filter clogged		The indicator comes on when there is a blockage in the air filter. Follow the procedure described in *'Cleaning or Changing the Air Filter' in Chapter 8*.
	Inlet air temperature		The indicator comes on when the temperature of the inlet air is too high. Contact the official AUSA distributor.
25	Coolant level		The indicator comes on when the coolant level is too low. When the engine is running, there appears a flashing warning icon in the centre of the display, and a continuous audible warning sounds. Refill following the indications in *'Refilling Coolant' in Chapter 8*.
26	Water in the fuel		The indicator comes on when there is water in the fuel. When the engine is running, there appears a flashing warning icon in the centre of the display. Follow the instructions in *'Emptying Water from the Fuel Prefilter' in Chapter 8*.

Item	Part	Figure	Description
27	Low fuel pressure		The indicator comes on when the fuel pressure in the engine is too low. When the engine is running, there appears a flashing warning icon in the centre of the display. ***Information:*** *If the fuel pressure is too low, the starter motor may not turn over and the machine will not start.* Contact the official AUSA distributor.
28	High exhaust gas temperature **PARTICULATE FILTER (DPF)**		The indicator lights up (fixed light) during the regeneration of the particulate filter (DPF) process with the machine stationary. See *'Regeneration with the Machine Stationary' in Chapter 5*.
29	Regeneration required with the machine stationary **PARTICULATE FILTER (DPF)**		The indicator lights up (flashing light) when the regeneration of the particulate filter (DPF) needs to be performed with the machine stationary. See *'Regeneration with the machine stationary' in Chapter 5*.
30	EGR Malfunction **PARTICULATE FILTER (DPF)**		The indicator comes on when it detects a malfunction in the EGR valve. Contact the official AUSA distributor.
	Required maintenance **PARTICULATE FILTER (DPF)**		The indicator lights up to indicate that the particulate filter (DPF) requires maintenance (cleaning or replacement). When the engine is running, there appears a flashing warning icon with the message 'DPF ASH CLEANING REQUIRED' in the centre of the display, and a continuous audible warning sounds. Contact the official AUSA distributor.
31	Warning		The indicator lights up red or yellow (depending on importance) to emphasise a system's warning condition.

CONTROLS

Item	Part	Figure	Description
32	Saturation indicator **PARTICULATE FILTER (DPF)**		The indicator shows the saturation level of the particulate filter (DPF). ▪ Green icon (1): Normal operation. ▪ Green icon (2): Automatic regeneration in progress. ▪ Orange icon: Particulate filter (DPF) regeneration required with the machine stationary. The *'Regeneration required with the machine stationary'* indicator lights up (flashing light). If the *'Warning'* indicator also lights up yellow (fixed light), an audible warning sounds , the maximum travel speed derates to 2 Km/h and the engine revolutions derate to 1,500 rpm, this means that the particulate filter (DPF) urgently requires regeneration with the machine stationary. See *'Regeneration with the Machine Stationary' in Chapter 5*. ▪ Red icon: Particulate filter (DPF) regeneration required with service tool. The indicator *'Regeneration required with the machine stationary' lights up* (rapidly flashing light). In addition, the *'Warning'* indicator lights up red (flashing light) and an audible warning sounds. The maximum travel speed derates to 2 Km/h and the engine revolutions derate to 1,500 rpm. Contact the official AUSA distributor. ▪ All icons red (flashing light): The particulate filter (DPF) needs to be replaced. The *'Regeneration required with the machine parked'* indicator light will be lit (fixed light). In addition, the *'Warning'* indicator lights up red (flashing light) and an audible warning sounds. The maximum travel speed derates to 2 Km/h and the engine revolutions derate to 1,500 rpm. Contact the official AUSA distributor. ***Information:*** *Once the necessary actions have been carried out to restore the saturation level of the particulate filter (DPF), the engine should be stopped and started again to restore the machine's normal performance.*
33	4x4 FullGrip® function **4x4**		The indicator lights up when activating the 4x4 FullGrip® function, and also an audible warning sounds twice. The indicator flashes when the 4x4 FullGrip® function is activated.
34	Brake fluid level **ACCESSORY**		The indicator comes on when the brake fluid level is too low. See *'Refilling Brake Fluid' in Chapter 8*.

4

OPERATING THE MACHINE

CONTENTS INDEX

Information: *The engine performance depends on the following factors:*

- *Fuel temperature.*
- *Air temperature.*
- *Relative humidity in the air.*
- *Altitude.*

The higher these values, the lower the engine performance, as the power it can supply is reduced.

DAY-TO-DAY OPERATIONS

Start of the Shift

Before working with the machine, complete the corresponding maintenance tasks described in *'Basic Maintenance every 8 Hours' in Chapter 8.*

During the Shift

Listed below are some recommendations that should be taken into account when operating the machine:

- When continuous and repetitive movements with the load are required, try to cover the shortest possible distances with the loads, provided that the circumstances allow for this.

Environment: *Making less movements will save on fuel and also cut down on gas emissions.*

- In the case of very intense work, check the HMI display at regular intervals to ensure that the machine is operating within the normal parameters.

NOTICE **Risk of damaging the engine due to overheating.**

It is of vital importance to control the machine's parameters during operation, in particular, when operating at extreme temperatures, since the engine will be operating under very harsh conditions.

- The loads must be lifted and lowered with the lifting mast in the vertical position. Tilt the mast forward only at the unloading point.
- The forward or backward tilt of the lifting mast is very useful to handle loads, but it is vital to take into account how the tilt angle affects the centre of gravity of the load-machine at all times.

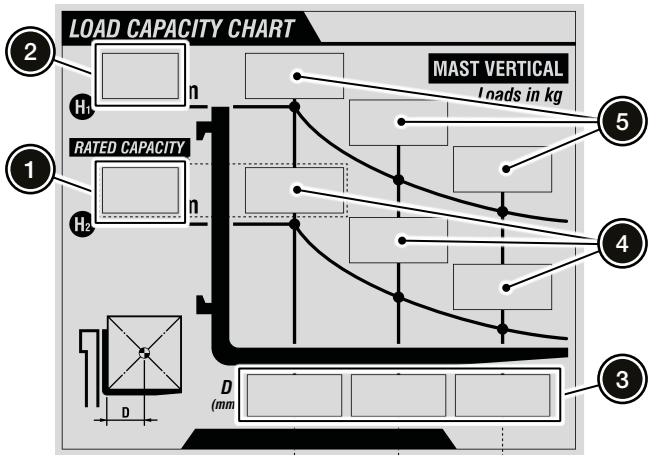
DAY-TO-DAY OPERATIONS

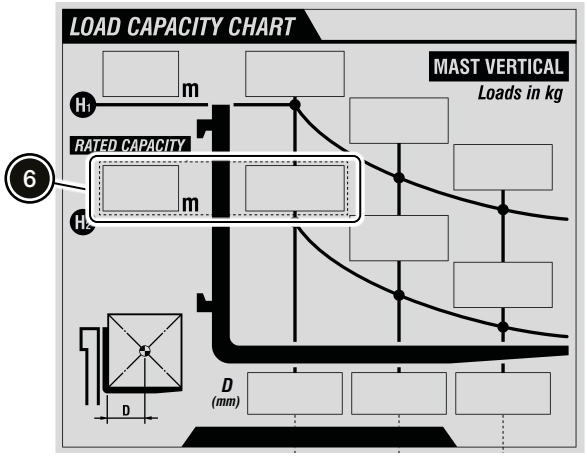
Working with Loads

LOAD CHARTS

The load charts are essential when operating the machine, since they indicate the relationship between the maximum mass to lift and the distance to its centre of gravity with respect to the lifting mast. These charts show the following information:

- Standard lifting height (1).
- Maximum lifting height (2).
- Distance of the load's centre of gravity to the fork heel (3).
- Nominal load (4) at the standard height (1), according to the distance of its centre of gravity (3).
- Nominal load (5) at the maximum height (2), according to the distance of its centre of gravity (3).

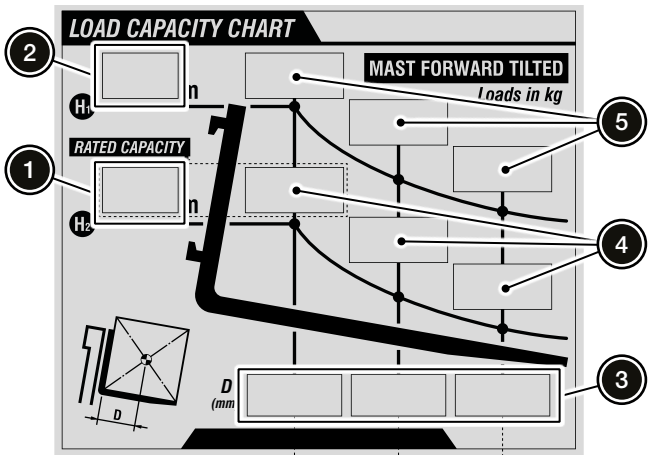


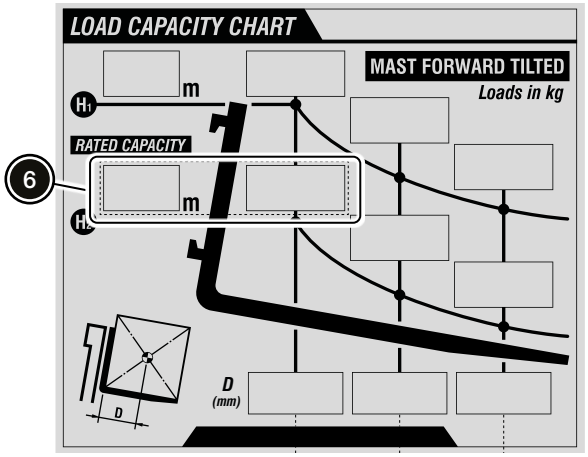


Information: *The bigger the distance between the load's centre of gravity and the lifting mast, the lower the machine's loading capacity.*

In addition, these charts indicate the machine's nominal loading capacity (6).

LOAD CHARTS MACHINES WITH AUSTRALIAN FINISH





DAY-TO-DAY OPERATIONS

Dimensions and Operating Range of the Machine

The machine's dimensions and operating ranges must be taken into account when operating the machine to ensure that all operations are carried out safely.

Cota	C 401 H x4	C 501 H x4
Dimensions (mm)		
A	2,350	
B	280	
C	290	
D	1,760	
E	2,010	
F	4,410	
G	3,210	
I	120	
J	50	
K	720	
L	4,610	
M	640	
N	2,050	
O	1,200	
P	6,430	
S	1,660	
Dimensions (°)		
Q	10	
R	10	

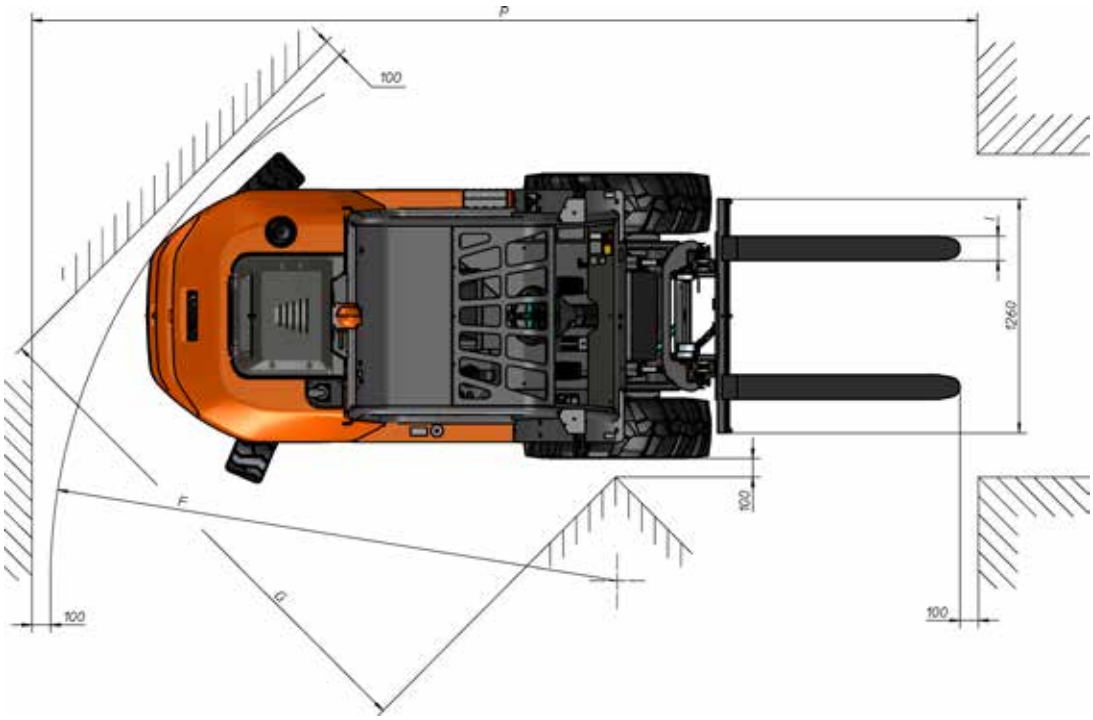
C 401

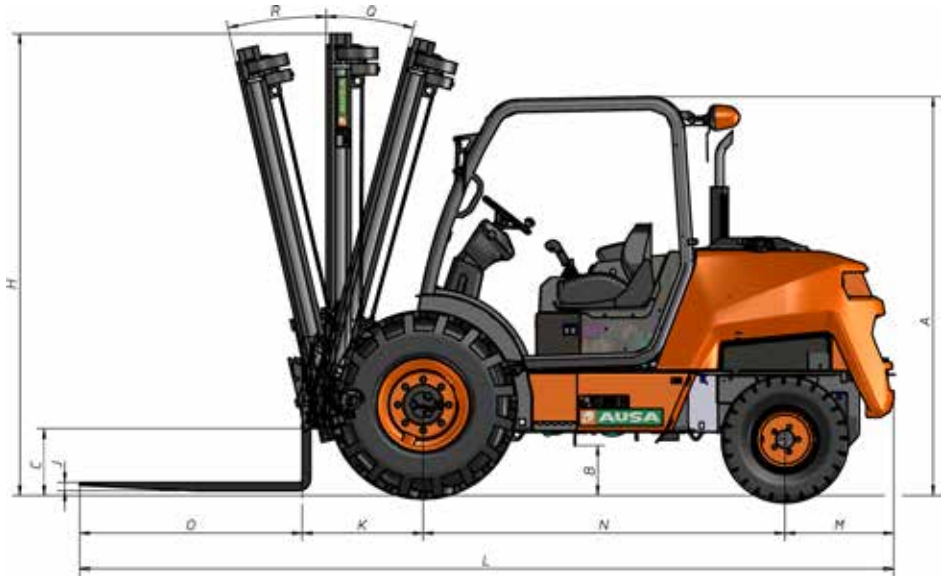
Type of mast	Maximum lift (mm)	H Retracted mast height (mm)	Extended mast height (mm)	Free lift (mm)	Load at maximum height @ 500 mm (kg) All-terrain use
Duplex mast (Std.)	3,700	2,770	4,600	100	4,000
Triplex mast	4,250	2,370	5,280	1,390	N/D
Triplex mast	5,450	2,770	6,480	1,790	N/D

C 501

Type of mast	Maximum lift (mm)	H Retracted mast height (mm)	Extended mast height (mm)	Free lift (mm)	Load at maximum height @ 500 mm (kg) All-terrain use
Duplex mast (Std.)	3,700	2,770	4,600	100	5,000
Triplex mast	4,250	2,370	5,280	1,390	4,250
Triplex mast	5,450	2,770	6,480	1,790	2,500

DAY-TO-DAY OPERATIONS





Dimensions and Operating Range of the Machine

Fork Protector ACCESSORY

This machine can be equipped with a magnetic fork protector, as per the public roads circulation regulations in certain countries.

REMOVAL

Pull the fork protector (1) covering the forks tips and hold the fork protector on the front of the cabin.

INSTALLATION

Pull the fork protector (1) from the front of the cabin and place the fork protector on the forks tips to cover them.

Parking and Stopping the Engine

⚠ WARNING Risk of accident caused by parking or performing maintenance tasks on uneven ground.

- ➤ Park the machine on level ground, both at the end of the shift and when performing maintenance tasks.
- ➤ Place chocks under the wheels in accordance with Standard DIN 76051, suitable for the size of the wheels and the machine weight. See *'Technical Specifications Table' in Chapter 7*.

At the end of a shift, or simply when parking the machine and stopping the engine, follow these steps:

1. Perform a smooth stop, releasing the throttle pedal and gradually stepping on the brake pedal.

NOTICE If the machine has been operating at full load, keep the engine idling for at least one minute, to cool down.

2. Park the machine in areas specifically designated for this purpose, and not where it prevents people from passing or blocks exits or access to stairways or emergency equipment.
3. Lower the mast until the forks or the accessory/implement rest on the ground.
4. Put all controls in their neutral position.
5. Put the travel selector (FNR) in the NEUTRAL position.
6. Apply the parking brake.

NOTICE When leaving the machine, ALWAYS apply the parking brake, regardless of whether or not the ignition is activated or whether the engine is running or stopped.

7. Stop the engine by turning the key to the STOP position.

DAY-TO-DAY OPERATIONS

8. Remove the key from the ignition switch.

NOTICE **Risk from unauthorised use of the machine, as a result of leaving the key in the ignition.**

➤ When leaving the machine, never leave the key in the ignition.

Information: *When parking the machine and stopping the engine, do not activate the emergency push button.*

9. Remove the rotating beacon (1) inside the operator cab and cover the hole with the protective rubber plug (2).

Information: *If the machine is equipped with a closed cab* **ACCESSORY**, *store the rotating beacon inside the cab.*

10. Lock all mechanisms which impede use of the machine by unauthorised personnel.

11. Disconnect the battery following the procedure described in '*Disconnecting the Battery*'.

Starting the Engine

⚠ WARNING **Risk of death or serious injuries by starting the machine without safety measures.**

Before starting the engine:

➤ Sit down in the operator's position/cab and fasten the seatbelt.

➤ Apply the parking brake.

➤ Set the travel selector (FNR) in NEUTRAL position.

1. Make sure that battery cut-off switch is in the ON position. See *'Disconnecting the Battery'.*

2. Make sure that emergency push button is activated.

3. Insert the key in the ignition and turn it to the IGNITION position.

Information: *Wait until the cold start system indicator light switches off.*

4. Turn the key to the START position. The engine will start. Once started, let go of the key, which will return to the ignition position.

NOTICE **Risk of engine damage caused by maintaining the start position for too long.**

Do not keep the key in the START position for longer than 15 seconds. If the engine does not start, repeat the previous steps, waiting for 30 seconds between each attempt.

NOTICE **Risk of damaging the engine due to lack of lubrication.**

At low temperatures, increase the revs gradually so that the engine achieves a good level of lubrication.

Information: *If the machine features safety devices to start the engine* **ACCESSORY**, *the sequence is as follows:*

1. *Sit down in the operator's position.*
2. *Fasten your seat belt.*
3. *Start the engine.*

The operator can turn the key to the IGNITION position at any time and this does not require the sequence to be followed.

Information: *If the machine is equipped with a GPS with an ignition disabler system* **ACCESSORY**, *the GPS should be activated in order to start the engine.*

Refuelling

⚠ WARNING **Risk of fire or explosion caused by refuelling in enclosed areas.**

➤ Refuel the machine in a well-ventilated area and with the engine off.

⚠ WARNING **Risk of fire or explosion caused by smoking during refuelling.**

➤ Never smoke during refuelling.

NOTICE **Risk of damaging the engine caused by using the wrong fuel.**

The fuel must meet the specifications set forth in *'Fuel' in Chapter 1* and *'Fuel Specifications' in Chapter 8*.

➤ Never mix gasoline or alcohol with the fuel.

➤ Do not use fuel mixtures with oils, other fuels or additives not specified by AUSA.

1. Bring the machine near the fuel pump so that the hose reaches the tank intake comfortably.
2. Activate the parking brake.
3. Turn off the lights ACCESSORY and stop the engine.

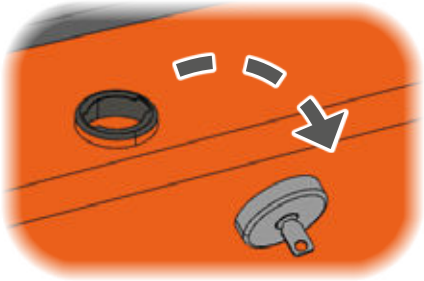
Information: *If the pump has an earth-connection point for vehicles, connect it to a non-insulated metallic point on the machine.*

4. Access the fuel tank.
5. Clean the area near the fuel tank cap (1) to prevent dirt, water or other substance from falling into the tank during the refuelling procedures.

6. Turn the fuel tank cap anticlockwise to remove it, and insert the pump hose.

NOTICE **Risk of general damage caused by high pressure in the tank.**

If any internal pressure is perceived (whistling sound heard when removing the fuel tank cap), contact an authorised AUSA distributor before operating the machine.



7. Fill up the tank, ensuring that its maximum capacity is not exceeded.

⚠ WARNING **Risk of fire or explosion caused by fuel spillage.**

➤ Avoid spilling fuel outside the tank. Immediately clean any spillage, and dry the surface thoroughly.

NOTICE **Risk of spilling fuel caused by refuelling at high temperatures.**

➤ Never refuel before exposing the machine to high temperatures, since there might be fuel spillages through the vent.

8. Once the tank has been filled, remove the pump hose.
9. Place the cap and turn it clockwise until it stops.

SPECIAL OPERATIONS

Running-in the Engine

NOTICE **Risk of damaging the engine during the running-in period.**

Long accelerations at full throttle, maintaining a high cruising speed and overheating are detrimental to the engine during the running-in period.

The machine's engine requires a running-in period of 50 hours before it is able to operate at full load.

Throughout the running-in period, do not press the throttle pedal down more than ¾ during normal operation of the machine.

NOTICE **Risk of damaging the machine if an initial inspection is not carried out.**

Once the 50 hours or 30 days running-in period is over, it will be necessary to have the machine serviced at an authorised AUSA dealer.

Tow Bars

Information: *The tow bar on this machine is for towing the machine in case of a breakdown. It is not for towing trailers. See 'Towing', in Chapter 6.*

1. Remove the safety catch (1) and pull the counterweight pin (2).

2. Place the pin through the counterweight and the towing device. Lock the pin with the safety catch.

SPECIAL OPERATIONS

Transmission Bypass Function

The transmission bypass function is used to enable the machine to be towed, as described in *'Towing' in Chapter 6*.

ACTIVATION

1. Stop the engine.
2. Access the hydrostatic system pump.

3. Use a 22 mm spanner to loosen the nuts (1) on each one of the two valves, rotating them two turns in the anti-clockwise direction.

NOTICE **Risk of leakage due to being too loose.**

- ➤ Do not turn the nuts more than three turns to prevent leaks.

DEACTIVATION

NOTICE **Risk of lack of traction caused by not turning off the transmission bypass function.**

- ➤ Deactivate the transmission bypass function immediately after towing.
- ➤ Tighten the nuts (1) to a torque of **70 Nm**.

Disconnecting the Battery

NOTICE **Risk of damage to components when working on the electrical system with the battery connected.**

- ➤ Disconnect the battery before performing any maintenance task on the electrical system.
- ➤ Do not disconnect the battery immediately after stopping the machine's engine. Wait 2 minutes before doing so.

Information: *It is good practice to disconnect the battery if the machine is not going to be used for more than 4 days.*

Access the operator's position and turn the battery cut-off device.

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EMERGENCY OR BREAKDOWN SITUATIONS

CONTENTS INDEX

EMERGENCY START

If the engine cannot start due to a flat battery, another 12 V booster battery can be used together with the corresponding jump leads to connect the two batteries. Proceed as described below:

⚠ WARNING Risk of explosion caused by a battery being charged with devices other than a 12 V battery.

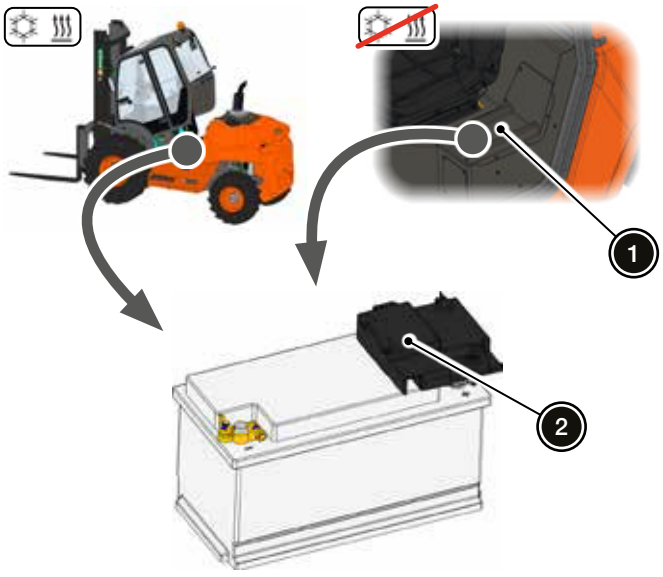
Other charging devices (battery chargers, etc.) could cause the battery to explode or damage the electrical system.

➤ Only use 12 V batteries.

NOTICE Risk of electrical damaged caused by contact between a vehicle and the machine.

When using a battery from another vehicle, try to prevent the vehicle from touching the machine.

1. Access the battery:
   - If the machine is equipped with a heating and/or air-conditioning system, ACCESSORY the operator cab must be lifted.
   - Remove the cover (1) inside the operator cab if the machine is not equipped with a heating and/or air-conditioning system.

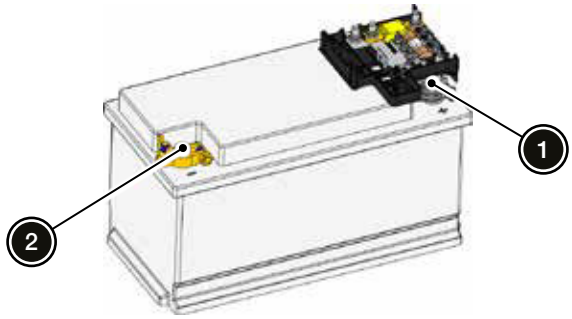


2. Disassemble the cover (2) of the positive terminal.
3. Connect the terminals from the auxiliary battery to the terminals of the machine's battery.

NOTICE Risk of electrical damage caused by mistaking the terminals.

➤ Connect the positive terminal from the auxiliary battery to the positive terminal of the machine's battery (1).

➤ Connect the negative terminal from the auxiliary battery to the negative terminal of the machine's battery (2).



4. Start the machine's engine normally, following the indications given in *'Starting the Engine' in Chapter 4*.
5. Disconnect the cables from the terminals.

NOTICE Risk of electrical damage caused by mistaking the terminals.

➤ Disconnect the negative terminals first, and then the positive ones.

ENGINE OVERHEAT

⚠ WARNING Risk of burns caused by a hot radiator.

The radiator can get very hot.

➤ Put gloves on before handling it.

If the coolant temperature indicator comes on when the machine is in operation, proceed as follows:

1. Reduce the speed, keeping the machine moving so that air circulates through the radiator.
2. If the indicator is still on after one minute, stop the machine. Put the travel selector (FNR) in NEUTRAL, apply the parking brake and stop the engine.
3. Wait for the engine to cool down, and perform the following checks:

- Inspect the radiator coolant fins and clean them following the procedure described in *'Basic Maintenance Every 50 Hours' in Chapter 8*.
- Check the coolant level and, if it is below the minimum, refill the tank following the procedure in *'Refilling Coolant' in Chapter 8*.

UNLOCKING THE BRAKES

⚠ DANGER Risk of death or serious injury caused by unlocking the brakes without chocks on the wheels.

➤ Before unlocking the brakes, place chocks on the wheels in accordance with Standard DIN 76051, suitable for the size of the wheels and the machine weight, to prevent unwanted movements of the machine that might cause severe injuries or even death as a result of crushing. See *'Technical Specifications Table' in Chapter 7.*

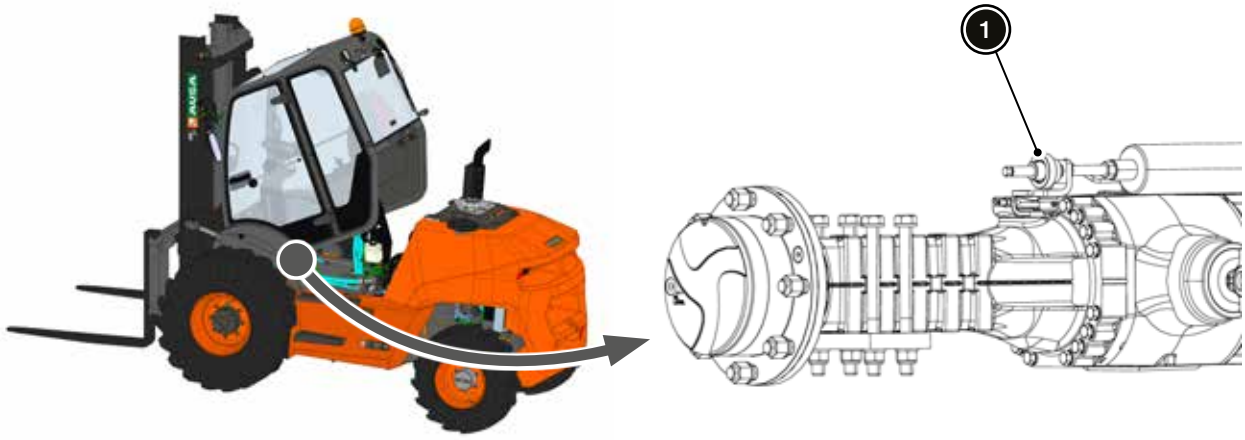
⚠ WARNING Risk of accident caused by using the machine without brakes.

➤ Lock the brakes before starting the machine again.

UNLOCKING THE BRAKES

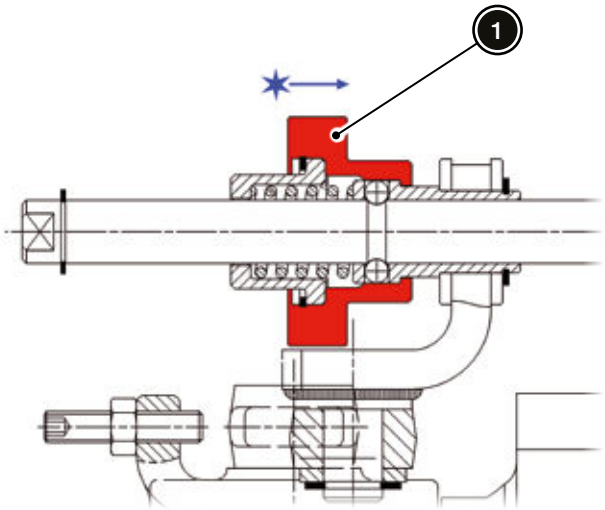
To unlock the parking brake, proceed as follows:

1. Stop the machine's engine and remove the key from the ignition.
2. Access the front axle and locate the brake cylinder ring (1) located on the top left side



UNLOCKING THE BRAKES

3. Using a Nylon hammer lightly hit the ring (1) from left to right, until it is released from its housing.



LOCKING THE BRAKES

To lock the parking brake again, proceed as follows:

1. Start the machine's engine and apply/release the parking brake. The brake cylinder ring (1) moves to its housing.

PARTICULATE FILTER (DPF) REGENERATION PARTICULATE FILTER (DPF)

Depending on the saturation level of the particulate filter (DPF), the machine regenerates it automatically during operation or requires the operator to intervene in the regeneration with the machine stationary.

Information: *Under certain conditions, such as short operation times or low engine load, the system might require the operator to intervene in order to regenerate the particulate filter (DPF).*

Nevertheless, the machine will mandatorily request a regeneration of the particulate filter (DPF) with the machine stationary every 550 hours or every 1050 hours, depending on the machine's manufacturing date.

Regeneration During Operation

The saturation indicator of the particulate filter (DPF) is at the green level, which indicates that automatic regeneration is possible. This process is carried out under certain operating conditions.

Regeneration With the Machine Stationary

The saturation indicator of the particulate filter (DPF) is at the orange level. The *'Regeneration required with the machine stationary'* indicator lights up (flashing light).

The particulate filter (DPF) requires the operator to intervene in order to perform the regeneration with the machine stationary.

If the *'Warning'* indicator also lights up yellow (fixed light), an audible warning sounds the maximum travel speed derates to 2 Km/h and the engine revolutions derate to 1,500 rpm, this means that the particulate filter (DPF) urgently requires regeneration with the machine stationary.

⚠ DANGER Risk of death or serious injury cause by carbon monoxide inhalation in enclosed spaces.

Exhaust gases contain carbon monoxide, a colourless, odourless gas which is toxic. Inhaling it may prove fatal.

- ➤ To prevent poisoning caused by inhalation of the engine exhaust toxic gases, perform the regeneration process in a well-ventilated area.
- ➤ It is recommended to carry out the regeneration procedure with the machine stationary outdoors.

PARTICULATE FILTER (DPF) REGENERATION PARTICULATE FILTER (DPF)

⚠ WARNING Risk of fire or explosion caused by performing the regeneration near flammable materials or substances.

During the regeneration process, exhaust gases reach extreme temperatures, which may cause fires if directed at flammable substances or materials.

- ➤ Do not park the machine on flammable surfaces that might catch fire when in contact with exhaust gases.
- ➤ It is advisable to place a metal plate to avoid damages to the surface where the gases are directed (cement, asphalt, painted surfaces, etc.).

In order to carry out the regeneration process with the machine stationary, proceed as described below:

1. Start the engine and keep it idling.

NOTICE Risk of interrupting the regeneration process due to a change in conditions.

Do not apply any load to the engine. Do not activate the hydraulics, do not step on the accelerator or turn the steering wheel.

2. Apply the parking brake.
3. Press the regeneration button with the machine stationary for 3 seconds, and then release to initiate the regeneration process.

Information: *The engine increases revolutions automatically.*

The 'High exhaust gas temperature' indicator lights up (fixed light).

The 'Regeneration required with the machine parked' indicator light will be lit (fixed light).

The coolant temperature must be over 60 °C

The regeneration process takes around 30-35 minutes, and finishes when the engine returns to idle.

If any of these conditions change during the process, the regeneration procedure is interrupted.

Mandatory Machine Stationary Regeneration Every 550 or 1050 Hours

In the event of reaching 550 hours or 1050 service hours (depending on the machine's manufacturing date) since the last stationary regeneration, the machine will request a mandatory stationary regeneration.

The particulate filter (DPF) saturation indicator is at the green level. The *'Regeneration required with the machine stationary'* indicator lights up (flashing light).

Information: *Carry out a parked regeneration as soon as possible. Otherwise, the 'Warning' indicator light up yellow color (fixed light), the 'Check engine malfunction' indicator comes on, an audible warning sounds, the maximum travel speed is limited to 2 km/h and the engine speed is limited to 1500 rpm to request an urgent regeneration with the machine stationary.*

If the 'Warning' indicator red color finally light up (flashing light), contact the official AUSA dealer for a regeneration with the service tool.

ROLL OVER

If the machine rolls over, take into account the following recommendations to avoid being trapped between the machine and the ground:

- When the machine is in operation, stay inside the protective area of the cab at all times.
- Grasp the steering wheel firmly.
- Place your feet firmly on the floor of the operator cab.
- Try to keep as far away from the point of impact as possible.

After securing the area and ensuring the well-being of the affected operator, place the machine again on its four wheels.

NOTICE **Risk of serious damage to the machine caused by starting it after a roll-over.**

Once the normal position has been restored, do not attempt to start the machine without first contacting the official AUSA distributor.

IMMERSION

NOTICE **Risk of serious damage to the machine.**

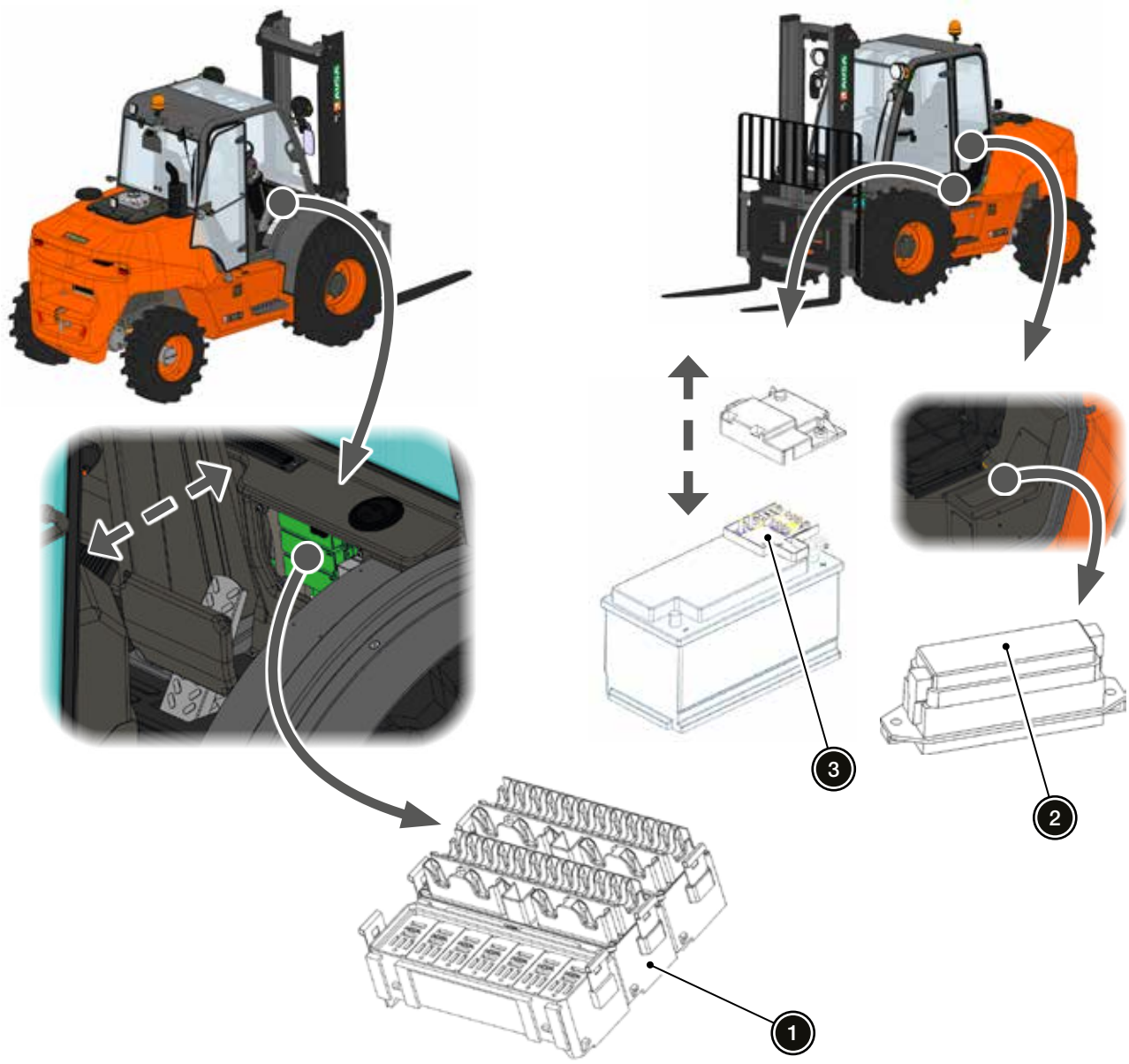
- ➤ Do not attempt to start the machine's engine. Immersion can cause serious damage to the engine.
- ➤ Contact the official AUSA distributor.

FIRE

The following table indicates the effectiveness of each extinguishing agent depending on the fire source.

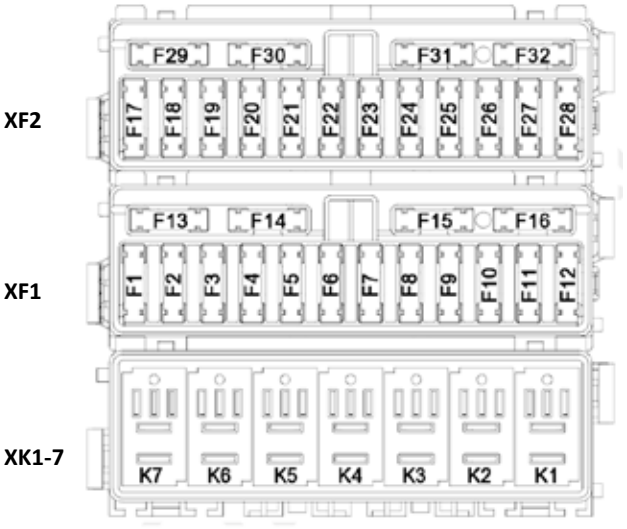
Extinguishing agent	Type of fire				
	A	B	C	D	E
	Solids that create embers	Liquids or liquefiable solids	Gases	Metals	Presence of electrical voltage over 25 V
Water spray	Excellent	Acceptable for non-water-soluble liquid fuels (gasoil, oil, etc.).	Null	Null	Dangerous
Water jet	Good	Null	Null	Null	Very dangerous
Carbon dioxide (CO_2)	Acceptable Can be used for small fires Does not extinguish embers	Acceptable Can be used for small fires	Null	Null	Good
Foam	Good	Good Do not use water-soluble liquids	Null	Null	Dangerous
Normal dry powder (BC)	Acceptable Can be used for very small fires Does not extinguish embers	Good	Good	Null	Good
Multipurpose dry powder (anti-reignition) (ABC)	Good	Good	Good	Null	Good for voltages below 1,000 V; do not use with higher voltages
Special dry powder for metals	Null	Null	Null	Good	Null
Halon substitutes (FM200, NAF SIII, INERGEN, etc.)	Acceptable Can be used for small fires	Acceptable Can be used for small fires	Null	Null	Good

FUSES



Location of the Fuse Boxes

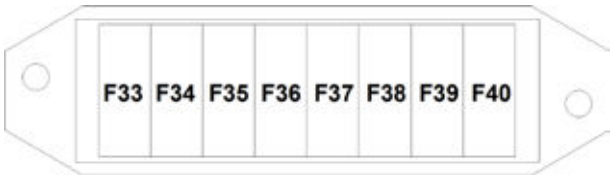
FUSES



Fuse Box 1

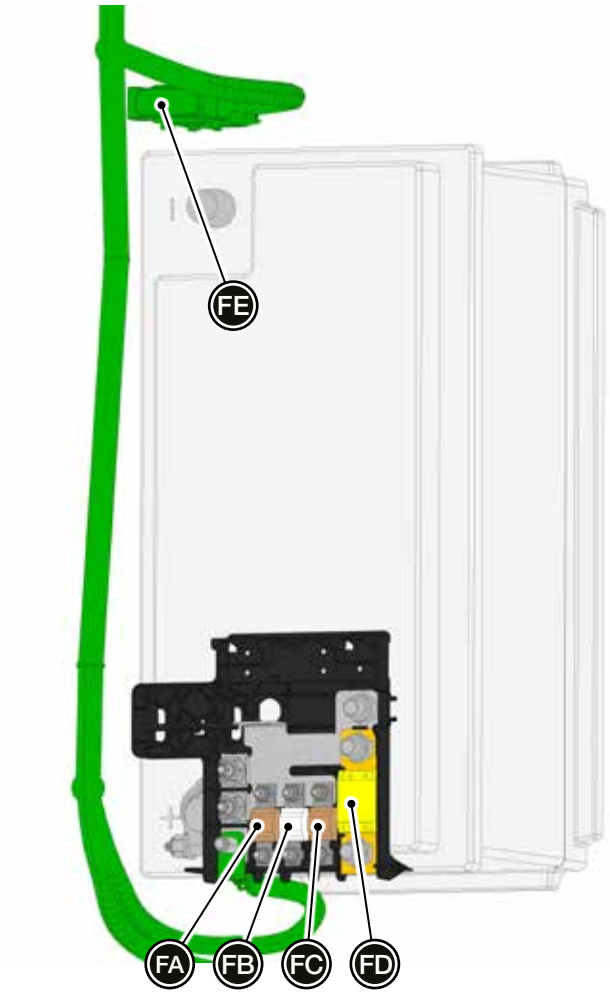
Fuse	Intensity (A)	Description
F1	5	▪ +15 engine ECU
F2	5	▪ Parking brake ▪ Travel selector (FNR)
F3	15	▪ Rotating beacon ▪ Horn button
F4	5	▪ Push button for particulate filter (DPF) regeneration with the machine stationary
F5	7.5	▪ Joystick
F6	20	▪ Machine functions ECU
F7	15	▪ Front windscreen wiper ▪ Rear windscreen wiper
F8	10	▪ Sidelights ▪ Work lights ▪ Indicator lights switches
F9	5	▪ Diagnostics ▪ Air-conditioning system power relay ▪ Inclinometer
F10	7.5	▪ Hazard lights ▪ Brake lights ▪ 4x4 FullGrip® function solenoid valve **4x4**
F11	15	▪ Low beam headlights + high beam headlights
F12	1	▪ GPS
F13	5	Not used
F14	5	▪ Front right sidelights ▪ Rear left sidelights ▪ Registration plate light
F15	5	▪ Front left sidelights ▪ Rear right sidelights ▪ Reverse travel alarm disable switch
F16	5	▪ +50 engine ECU
F17	5	▪ +50 HMI display
F18	5	▪ Seat sensor ▪ Seat belt sensor
F19	7.5	▪ Hazard lights
F20	7.5	▪ Ignition switch
F21	30	Not used
F22	30	Not used
F23	1	▪ GPS
F24	20	▪ Courtesy light ▪ Radio
F25	5	▪ HMI display
F26	20	▪ Radio
F27	15	▪ Transmission ECU
F28	15	▪ 12 V socket
F29	5	▪ Smart-Stop enable button ▪ Battery sensor
F30	-	Not used
F31	-	Not used
F32	-	Not used
K1	Micro-relay	▪ Low beam headlight relay
K2	Micro-relay	▪ High beam headlight relay
K3	Micro-relay	▪ Engine start signal relay
K4	Micro-relay	Not used
K5	Micro-relay	Not used
K6	Micro-relay	Not used
K7	Micro-relay	Not used

FUSES



Fuse Box 2 **ACCESSORY**

Fuse	Intensity (A)	Description
F33	15	▪ A/C fan speed switch
F34	1	▪ Temperature regulator
F35	5	▪ A/C Switch
F36	20	▪ A/C Condenser relay
F37	5	▪ A/C Compressor relay
F38	-	Not used
F39	-	Not used
F40	-	Not used



Fuse Box 3

Fuse	Intensity (A)	Description
FA	30	▪ Starter motor
FB	80	▪ Main
FC	30	▪ Fuel pump and ECU supply, diesel engine
FD	100	▪ Cold start system
FE	40	▪ AC Fuse - Heating **ACCESSORY**

DIAGNOSTICS DISPLAY

Always access the diagnostics menu following the advice of the official AUSA distributor.

To access the machine's diagnostics display, proceed as described below in less than 10 seconds:

1. Insert the key in the ignition and turn it to the IGNITION position.
2. Parking brake switch activated.
3. Fully depress the throttle pedal.
4. Press the yellow button located on the lower part of the joystick for one second.

Once the diagnostic display has been accessed, navigate the different displays using the yellow button located on the lower part of the joystick.

Information: *It is possible to start the engine and drive the machine while the system is on the diagnostic display, provided the usual conditions of use are met.*

To exit the diagnostics display, turn the ignition switch to STOP.

ENGINE FAULTS

When the engine's electronic management system detects a malfunction, it switches on the *'Check engine malfunction'* indicator light. See *"HMI display" in Chapter 3.*

Information: *Depending on the seriousness of the malfunction detected, the engine may continue to operate with certain limitations. In these cases, the 'Check engine malfunction' indicator remains lit or flashes to indicate a serious system error.*

NOTICE **Risk of engine damage due to engine malfunction.**

Contact the official AUSA distributor for a system diagnosis.

6

TRANSPORTATION, WAREHOUSE STORING AND END OF USEFUL LIFE

CONTENTS INDEX

TRANSPORTING THE MACHINE

Information: *To hold and hoist the machine, its accessories and accumulated materials, only use fixing and lifting devices which have been classified and approved by the ISO 15818 standard.*

Use edge protectors to avoid damaging the machine and the fixing and lifting systems.

On the Bed of a Vehicle

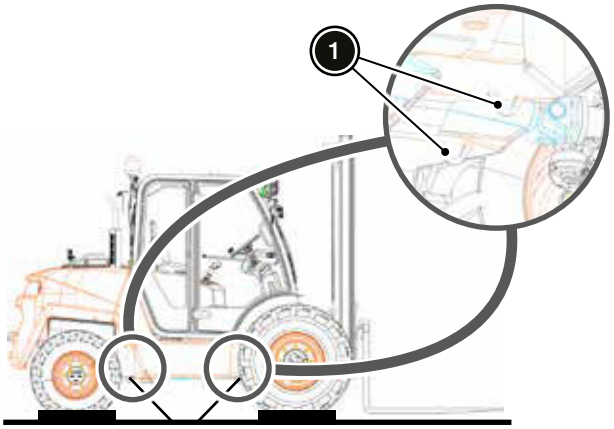
⚠ WARNING **Risk of accident caused by using unsuitable fixing devices.**

➤ When fixing the machine to the transportation vehicle platform, use a system which is sufficiently robust.

Information: *Take into account the ADR Regulation requirements that may be applicable, according to UN No. 3528, and any other safety instructions from the country where the machine is being used.*

Adhere to the following instructions when the machine has to be transported on the bed of another vehicle:

- When driving the machine, correctly fasten the seat belt.
- Have the minimum level of fuel in the tank. Empty the fuel tank following the procedure described in *SAC.R.03 Emptying the Fuel Tank in the Advanced Maintenance Manual*.
- Raise and lower the machine carefully using the loading ramps.
- Stop the engine and remove the key from the ignition.
- Apply the parking brake.
- Apply chocks to the wheels and attach them to the truck bed.
- Anchor the machine firmly to the bed using slings or other fastening system on the rear wheels and at the points (1) designed for that purpose, to prevent any kind of movement.



Loading Using a Crane

⚠ DANGER **Risk of death or serious injury from crushing.**

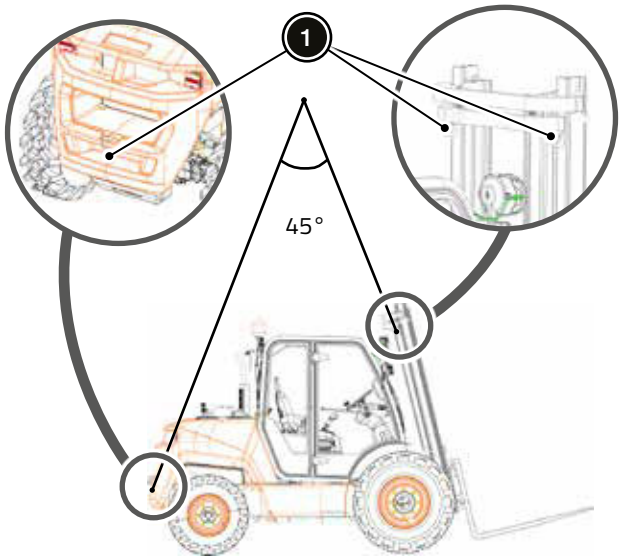
➤ When hoisting the machine, there must be no one on top or within a 5 m radius around the machine.

⚠ DANGER **Risk of death or serious injury caused by hoisting the machine without horizontal guides.**

➤ Lift the machine in the most horizontal position possible, using guide ropes or other systems to keep the machine from turning or pivoting.

When the machine is loaded using a crane, follow the indications below:

- Attach the cable or the sling at the points (1) on the machine designed for that purpose.



TRANSPORTING THE MACHINE

⚠ DANGER Risk of death or serious injury caused by hoisting the machine with unsuitable fixing devices.

➤ Both the crane and the cables or slings must have sufficient capacity to lift the machine.

- Tilt the mast fully backwards.
- The cable or sling must have the suitable length for the front sling tilt angle to be approximately the same as that of the mast.
- Before hoisting the machine, check that the cable or sling is firmly hooked.
- Undertake this operation with no load on the machine, and on flat and horizontal ground.

Towing

⚠ CAUTION Risk of burns caused by high temperature components from the hydrostatic group.

During and after the machine towing process, the hydrostatic group components might be hot

➤ Use a set of gloves that protect against heat hazards, with contact heat resistance as per Standard EN 407:2020.

NOTICE Risk of serious damage to transmission components.

➤ It is only advisable to tow the machine if there is a fault, and when there is no other alternative, as this process might seriously damage the hydrostatic transmission.

➤ Whenever possible, it is recommended to repair the fault on site.

NOTICE Risk of damage from collision.

➤ Use a solid towbar to avoid collisions.

➤ Make sure that the parking brake is released.

NOTICE Risk of damage to transmission components.

High-speed and long-distance towing might trigger heat generation and poor lubrication, which may damage the transmission components.

➤ Tow the machine slowly and over short distances.

➤ Recommended towing speed: below 2 km/h.

➤ Recommended towing distance: less than 1 km.

NOTICE Risk of damage to components caused by a misuse of the transmission bypass function.

Proceed with the transmission bypass function following the steps set forth in 'Transmission Bypass Function' in Chapter 4.

NOTICE Risk of damage to brake components.

Unlock the brakes following the procedure described in *'Unlocking the Brakes' in Chapter 5*.

STORAGE

NOTICE **Risk of damage caused by lack of maintenance during the storage period.**

- ➤ During the storage period, maintenance tasks on the machine must still be performed.
- ➤ Pay special attention to the level of the fluids and the elements that might age (tyres, weather strips, rubber gaskets, etc.).

NOTICE **Risk of damage caused by lack of specific preparation after the storage period.**

Before using the machine after the storage period, contact your official AUSA distributor to proceed with the necessary specific preparations.

If the machine is not going to be used for a long time, it should be stored following the recommendations below:

- Carefully, clean the machine. Carefully, dry all its parts with pressurised air.
- Proceed with a complete lubrication and polish of the machine.
- Perform a general inspection and replace all worn or damaged parts.
- Paint all worn or damaged parts.
- Disassemble the battery, grease the terminals with Vaseline and store it in a dry place. If it is going to be used temporarily, for other purposes, check its load level periodically.
- Store the machine in a covered, well-ventilated place.
- Start the engine once a month and let it run until it reaches the operating temperature (70-80 °C).
- In temperatures below -20 °C, empty the coolant circuit. See *REF.R.01 in the Advanced Maintenance Manual*.

END OF USEFUL LIFE

Machine

Environment: *When the machine reaches the end of its useful life, it must be decommissioned and scrapped by specialised companies, in accordance with applicable regulations in the country where the machine is being disposed.*

Batteries

Environment: *As there is lead and sulphuric acid in the batteries, they must be disposed of in accordance with applicable environmental regulations in the country where the machine is being used. Dispose of them as soon as possible.*

Environment: *Store the batteries to be disposed of in a dry, isolated place. Avoid leaving the batteries on the floor; place them on wooden pallets and cover them.*

Environment: *Make sure that the battery is dry, and that all its caps are closed. If it is necessary to leave a battery to dry in an open area, apply Vaseline to the terminals.*

Environment: *Label the battery to be disposed of, indicating that its use is prohibited.*

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7

TECHNICAL INFORMATION

CONTENTS INDEX

TECHNICAL SPECIFICATIONS TABLE

Feature	Unit	C 401 Hx4	C 501 Hx4
Specifications and weights			
Loading capacity to 500 mm	kg	4,000	-
Loading capacity to 600 mm	kg	3,700	5,000
Weights	-	-	
▪ Unladen weight (TARA)(*)	kg	6,935	7,670
▪ Maximum technical admissible mass	kg	-	11,600
▪ Maximum authorised mass (**)	kg	11,161	13,350
▪ Maximum technical admissible mass at the front axle	kg	9,600	11,500
▪ Maximum technical admissible mass at the rear axle	kg	1,561	4,900
▪ Maximum towing mass	-	-	
▪ Trailer without brakes	kg	-	
▪ Trailer with brakes	kg	-	
Max. speed	kg/h	20 (forward travel) 15 (reverse travel)	
Gradeability	%	35	
Operating temperature	° C	-15 to 40	
Fuel tank capacity	l	117	
Transmission			
Type	-	Hydrostatic	
▪ Maximum service pressure	bar	420	
▪ Forward / Backward selector	-	Electro - hydraulic using switch under the joystick.	
▪ Number of speeds	-	Constant speed regulation.	
Drive pump	-	Variable flow, automatically-regulated, axial pistons pump.	
Drive motor	-	Variable flow, axial pistons engine.	
Front axle	-	Rigid with limited-slip differential and hub reduction.	
Rear axle	-	Steering and differential	
Traction	-	4x4 (8)	
Front tyres (std) (9)	-	18-19.5	
▪ Inflation pressures	bar	6	
Combinations of load codes and speed, minimum acceptable (7)	-	169 A4 (160 B - 162 A8)	
Rear tyres (std) (9)	-	12-16.5	
▪ Inflation pressures	bar	6.3	
Combinations of load codes and speed, minimum acceptable (7)	-	140 A4 (135 A6 - 131 A8)	

TECHNICAL SPECIFICATIONS TABLE

Feature	Unit	C 401 Hx4	C 501 Hx4
Lifting mast			
Fork carriage	-	FEM III	FEM IV
Carriage width	mm	1,660	
Lifting speed	-	-	
▪ Without a load		-	
▪ Maximum rpm	m/s	0.39	0.39
▪ Idle	m/s	0.14	0.14
▪ With load		-	
▪ Maximum rpm	m/s	0.23	0.23
▪ Idle	m/s	0.23	0.23
Lowering speed	-	-	
▪ Without a load		-	
▪ Maximum rpm	m/s	0.38	0.38
▪ Idle	m/s	0.38	0.38
▪ With load		-	
▪ Maximum rpm	m/s	0.51	0.51
▪ Idle	m/s	0.51	0.51
Engine			
Make	-	Deutz	
Model	-	TD 3.6	
Power (SAE J1995)	kW	55.4	
Maximum operating speed	rpm	1,800	
Maximum torque (SAE J1995)	N·m@rpm	330@1,600	340@1,500
No. cylinders	-	4	
Emissions	-	EPA/CARB Tier 4 Final	EPA/CARB Tier 4 + EU Stage V
Fuel consumption (1)	l/h	-	
CO_2 (1)	kg/h	-	
Cooling system	-	Water/oil mixed radiator	
Steering			
Type	-	Hydraulic, with two-ways acting cylinder on the rear axle.	

TECHNICAL SPECIFICATIONS TABLE

Feature	Unit	C 401 Hx4	C 501 Hx4
Hydraulic system			
Hydraulic tank capacity	l	114	
Main hydraulic pump	-	Double, geared, attached to the hydrostatic pump.	
▪ Displacement	cc/rev	30	
▪ Flow rate (max. rpm)	l/min	59	
▪ Max. working pressure	bar	235	
Steering hydraulic pump	-	Double, geared, attached to the hydrostatic pump.	
▪ Displacement	cc/rev	14.6	
▪ Flow rate (max. rpm)	l/min	29	
▪ Max. working pressure	bar	175	
Control valve	-	Single block, with 2 spools with electrical locking system and selector solenoid valve.	
Electrical equipment			
Starter motor	Kw	3.2	
Alternator and regulator	A	95	
Battery	V	12	
	Ah	100	
	A	800	
Brakes			
Service	-	Totally-enclosed, multiplate, oil-immersed discs. Hydraulic action.	
Parking	-	In the front axle. Sealed, multi-disc, with spring drive (negative) and electro-hydraulic release.	

TECHNICAL SPECIFICATIONS TABLE

Feature	Unit	C 401 Hx4	C 501 Hx4
Sound levels			
A-weighted sound power level measured in the environment LwA (2)	dB(A)	104	
A-weighted sound power level guaranteed in the environment LwA (4)	dB(A)	104	
Uncertainty factor KpA (4)	dB(A)	2.5	
A-weighted sound power level in the operator's position LpA (open cab) (3)	dB(A)	-	
A-weighted sound power level in the operator's position LpA (closed cab) (3)	dB(A)	83	
Vibration levels			
Average acceleration value of the whole body (5)	m/s^2	< 0.5	
Average acceleration value on the boom-hand (6)	m/s^2	< 2.5	

Legend of the table

(*) These data may vary depending on the accessories installed on the machine.
(**) Driving on public roads.
(1) Test according to the VDI2198 standard. EN 16796-2:2017 Standard.
(2) According to Directive 2000/14/EC and Noise Emission in the Environment by Equipment for use Outdoors Regulations 2001.
(3) According to EN 12053.
(4) According to ISO 4871.
(5) According to EN 13059 (Directive 2000/44/EC).
(6) According to ISO 5349-2 (Directive 2000/44/EC).
(7) Combinations with lower load rates and higher speed rates might be valid and equivalent, according to the specifications established by the technical manual of the E.T.R.T.O.
(8) AUSA FullGrip® SYSTEM is a permanent and multi-disc 4x4 traction system, which can be connected hydraulically with a button found under the joystick.
(9) Tyre specifications optional.

8

MACHINE MAINTENANCE

CONTENTS INDEX

Information: *In accordance with legislation governing Work Equipment (Directives 2009/104/EEC and/or RD1215/97) or applicable legislation, inspections of the main systems of the machine must be carried out, and the results of such inspections must be recorded on the forms provided by the Work Authorities of each country.*

The aim of maintenance operations is to achieve an optimum performance and extend the useful life of the machine.

In order to achieve these objectives, the machine must be kept in good condition, and safe, harmless working routines must be performed.

There are two types of maintenance tasks:

- **BASIC MAINTENANCE**

  These are the procedures that AUSA considers that may be carried out by the operator of the machine.

  See *'Basic Maintenance Plan'.*

- **ADVANCED MAINTENANCE**

  It is recommended that these procedures are carried out by the official AUSA dealer.

  See *'Advanced Maintenance Plan'.*

PRELIMINARY CONSIDERATIONS

⚠ DANGER **Risk of death or serious injury caused by maintenance tasks performed without adhering to the safety conditions.**

Carry out all repairs and maintenance tasks under the following conditions:

- ➤ Machine unloaded.
- ➤ Lifting mast must be fully tilting forwards and the forks lowered.
- ➤ Travel selector (FNR) in NEUTRAL.
- ➤ Block the wheels with chocks in accordance with Standard DIN 76051, suitable for the size of the wheels and the machine weight. See *'Technical Specifications Table' in Chapter 7*.
- ➤ Unless otherwise specified, do not start the engine during maintenance operations.

⚠ WARNING **Preparation before performing tasks on the electrical system.**

- ➤ Before performing any tasks on the electrical system, disconnect the battery following the indications specified in *'Disconnecting the battery' in Chapter 4*.

NOTICE **Risk of damage caused by open lines or hoses.**

- ➤ Plug any open line or hose immediately to avoid oil spillage and prevent foreign bodies from entering the circuit.

NOTICE **Risk of damage caused by cleaning with unsuitable fabrics.**

- ➤ Clean using only lint-free fabrics.
- ➤ Keep the work area clean during maintenance operations.

Manipulating Fluids

⚠ WARNING **Risk of electric shock caused by extinguishing a fire with water.**

- ➤ In the event of a fire, use fire extinguishers with dry carbon dioxide or foam. Do not use water.

See *'Fire' in Chapter 5*.

⚠ CAUTION **Risk of skin irritation caused by exposure to fluids.**

Prolonged skin contact with fluids may cause irritation.

- ➤ Use rubber gloves and protective goggles.
- ➤ After handling fluids, wash your hands thoroughly with water and soap.

NOTICE **Risk of mistaking fluids due to incorrect labelling during storage.**

Store the fluids in a locked area, and always identify them with labels.

Consider applicable local legislation in relation to the storage of chemical products and/or flammable liquids.

PRELIMINARY CONSIDERATIONS

Information: *In the event of accidental spillage, use sand or an approved absorbing powder. Then, scrape the compound and dispose of it as a chemical substance.*

Environment: *In the event of leaks, take all the necessary precaution to contain them and reduce their impact.*

Keep used fluids in special containers for their subsequent disposal at specialised collection points.

- **CONTACT WITH THE EYES**

  Rinse thoroughly with running water. If eye irritation persists, visit the nearest healthcare centre.

- **INGESTION**

  Do not induce vomiting, and visit the nearest healthcare centre.

- **EXCESSIVE AND/OR PROLONGED SKIN CONTACT**

  Wash with water and soap.

ACCESS FOR MAINTENANCE

Operator Cab

The operator cab will be lifted according to the procedure described below to access specific components under the cab that require maintenance:

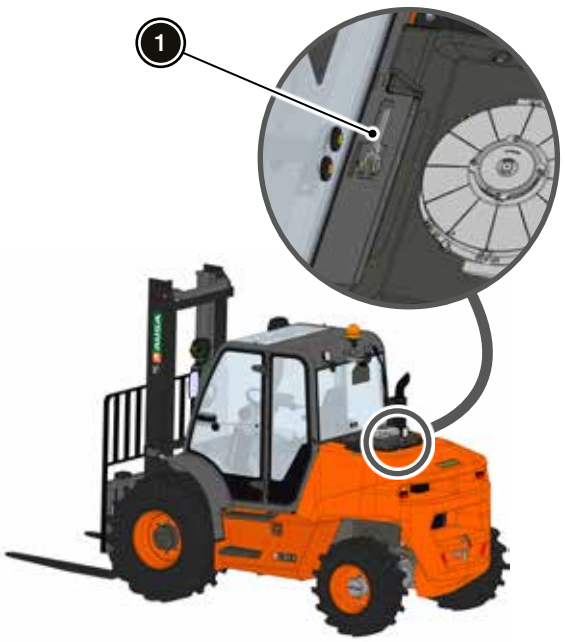
NOTICE **Risk of damage in the cab.**

Before lifting the operator cab, fold the lifting mast forwards.

1. Pull from the lever (1).

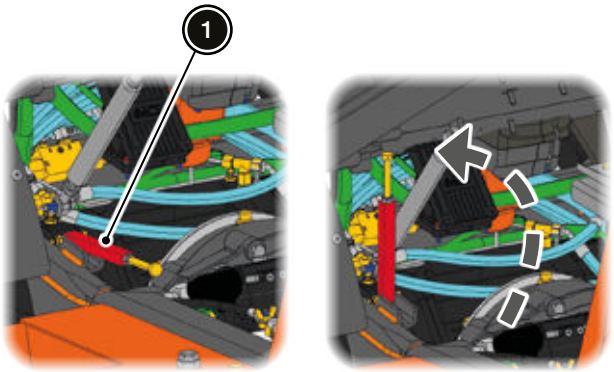
Information: *In machines with a closed cab, we recommend opening and securing the doors before the cab is lifted.*

Open and secure the doors before lowering the cab. **ACCESSORY**



2. Lift the operator cab.

3. Attach the safety prop (1).



⚠ DANGER **Risk of crushing caused by accidentally lowering the cab.**

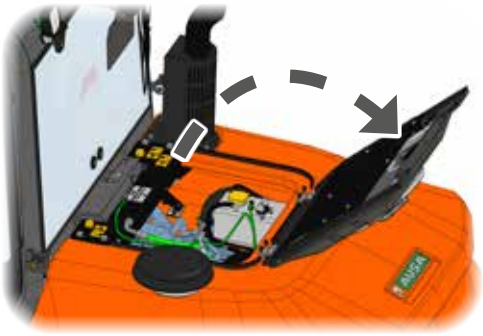
➤ When the cab is raised, place the safety prop so that it does not close suddenly.

ACCESS FOR MAINTENANCE

Counterweight Cover

The machine has a counterweight cover that can be removed to access the engine components for maintenance.

Information: *The operator cab must be lifted before the counterweight cover can be accessed.*



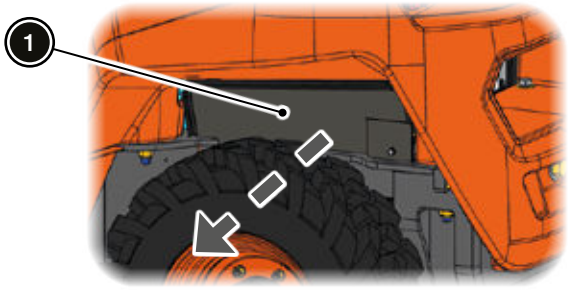
⚠ WARNING Risk of crushing caused by accidentally closing the cover.

- ➤ When the counterweight cover has been lifted, take the necessary precautions to ensure it is not closed suddenly by a gust of wind.

Information: *If the machine is fitted with an air-conditioning system* **ACCESSORY**, *the cover will have a gas strut.*

Wheel Space Cover

The machine has a cover on each wheel space that can be removed to access all engine components for maintenance.

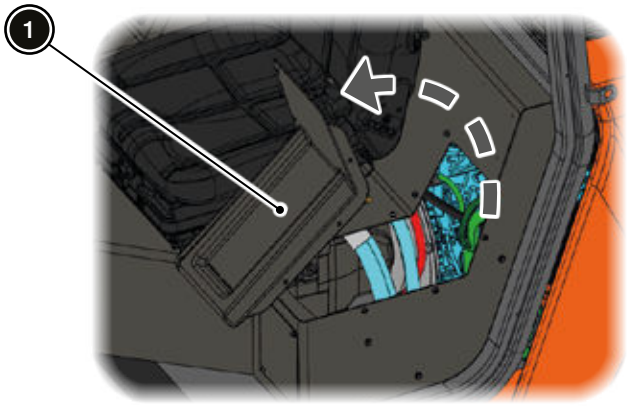


Information: *To remove each wheel space cover, remove the three screws with a 13 mm spanner.*

Battery Cover

Information: *Only those machines that DO NOT have heating and/or air-conditioning systems will have a battery access.*

The machine has a removable cover (1) inside the operator cab that can be removed to access the battery without having to lift the cab.

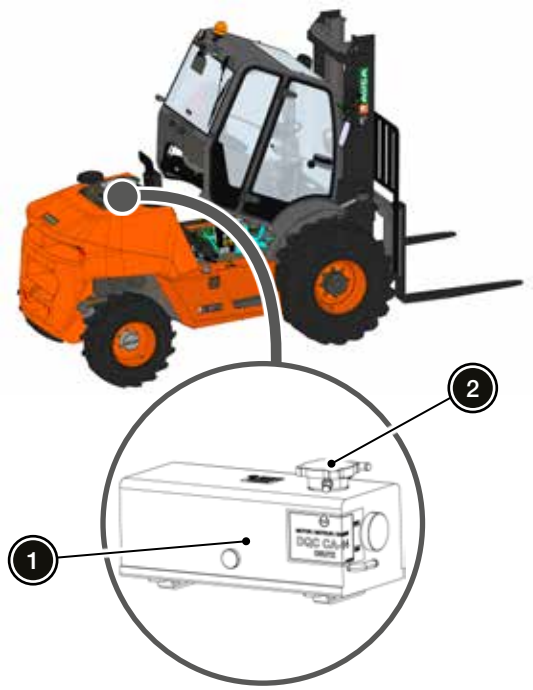


Information: *To remove the battery cover, remove the eight bolts with a 4 mm Allen key.*

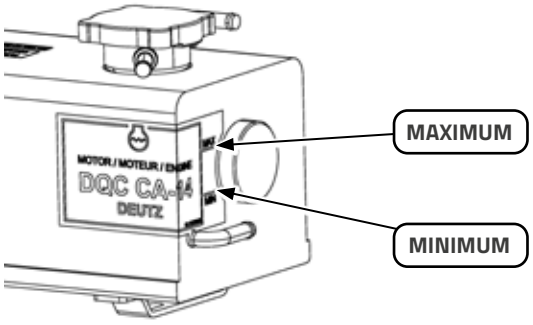
CORRECTIONS, ADJUSTMENTS OR REPLACEMENTS

Refilling Coolant

1. Lift the operator cab to access the coolant tank (1).
2. Remove the coolant tank cap (2).



3. Fill the tank with coolant until it is between the minimum and maximum level.



4. Install the coolant tank cap, and lower the operator cab.

Refilling Engine Oil

NOTICE **Risk of damaging the particulate filter (DPF) due to high oil level.** PARTICULATE FILTER (DPF)

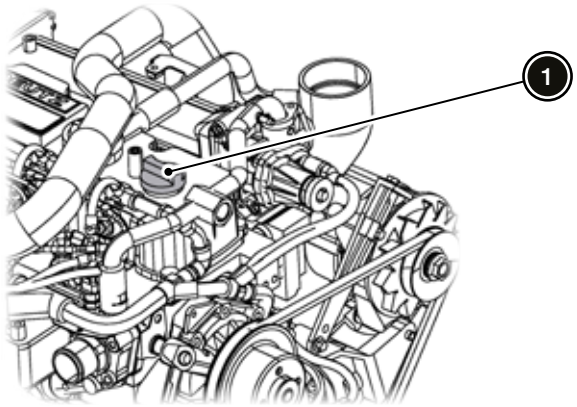
Part of the fuel might get mixed with the engine oil during the particulate filter (DPF) regeneration process. This may cause the oil to dilute and increasing quantity.

If the oil level increases over the maximum mark on the dipstick, this means that the oil has diluted excessively, and may cause malfunction.

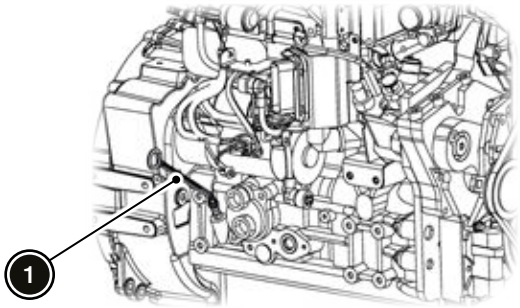
- ➤ If this happens, change the oil immediately following the procedure described in the Advanced Maintenance Manual.
- ➤ If the DPF regeneration interval is of 5 hours or less, change the oil as soon as possible.

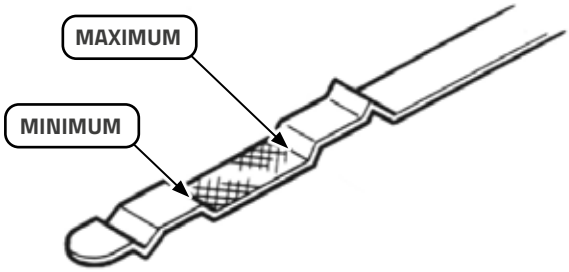
1. Open the counterweight cover to access the engine compartment.

2. Remove the engine oil filling cap (1).



3. Fill with oil until it is between the minimum and maximum level on the dipstick (1).





Information: *Use a funnel to avoid oil spills.*

4. Install the engine oil filling cap.
5. Close the counterweight cover.

Refilling Hydraulic Oil

1. Place the machine on a horizontal surface.
2. Activate the parking brake.
3. Turn off the lights ACCESSORY and stop the engine.
4. Lift the operator cab to access the hydraulic oil tank filling inlet.

5. Clean the area around the hydraulic oil tank cap (1) to prevent accumulated dirt, water or other substances from entering the tank during refilling.
6. Unscrew and remove the hydraulic oil tank cap (1) with a 17 mm Allen key.

CORRECTIONS, ADJUSTMENTS OR REPLACEMENTS

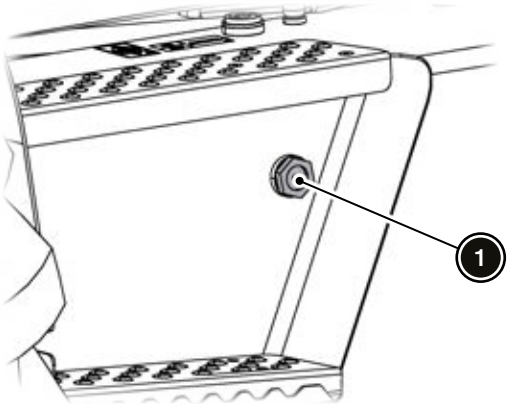
7. Fill up the tank, ensuring that its maximum capacity is not exceeded. To do so, check that the level is at the centre of the mark (1).

NOTICE **Risk of an erroneous check.**

When checking the oil level, set the lifting mast in the vertical position and lower the forks.

Information: *Avoid spilling oil outside the tank. Immediately clean any spillage, and dry the surface thoroughly.*

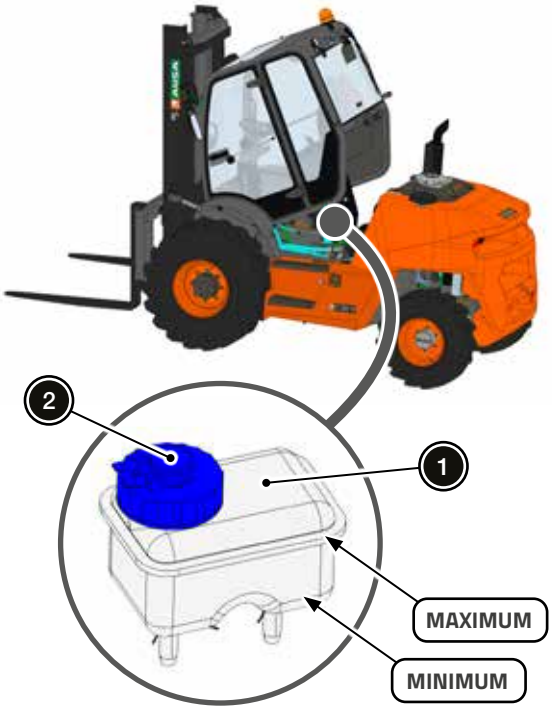
Use a funnel to avoid oil spills.



8. Install the tank cap to a torque of **10 Nm.**
9. Lower the operator cab.

Refilling Brake Fluid

1. Lift the operator cab to access the brake fluid tank (1).
2. Remove the tank cap (2).



3. Fill the tank with brake fluid up to the maximum mark, avoiding spills.
4. Install the tank cap and lower the operator cab.

CORRECTIONS, ADJUSTMENTS OR REPLACEMENTS

Changing or Cleaning the Air Filter

⚠ WARNING **Risk of injury caused by working on the machine with the engine on.**

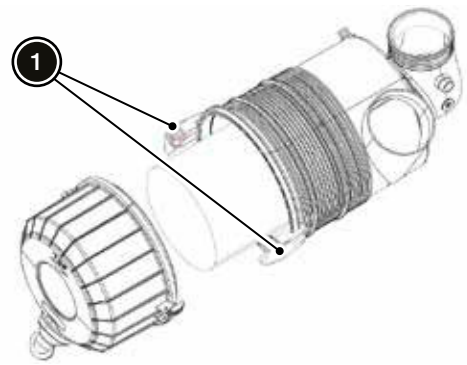
➤ Before carrying out any task on the machine, ensure that the engine is off and the keys are removed from the ignition.

⚠ CAUTION **Risk of burns caused by contact with engine surfaces.**

➤ Allow the engine to cool down for 30 minutes to avoid the risk of burns.

1. Lift the operator cab to access the air filter.

2. Pull the clamps (1) to remove the filter cover.



3. Clean the filter cover with pressurised air or water.

NOTICE **Risk of damaging the particulate filter due to excessive air pressure.**

➤ The cleaning air pressure must not exceed 5 bar.

4. Extract the external filter (1) and clean it with pressurised air.

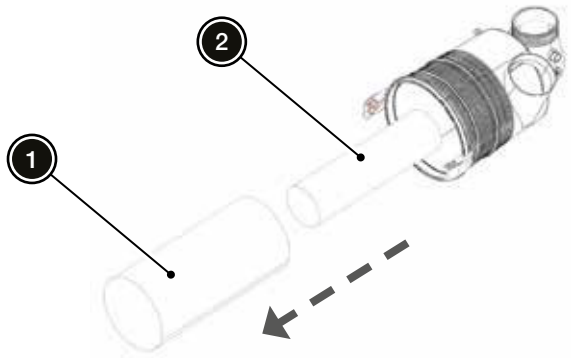
NOTICE **Risk of damaging the engine caused by using damaged filters.**

➤ If there are signs of damage on the external filter, replace it with a new one.

5. Extract the internal air filter (2).

NOTICE **Risk of damaging the air filter caused by using pressurised air.**

➤ Do not clean the internal air filter with pressurised air. If necessary, replace the filter with a new one.



6. Clean inside the filter housing.

NOTICE **Risk of foreign objects entering the suction line.**

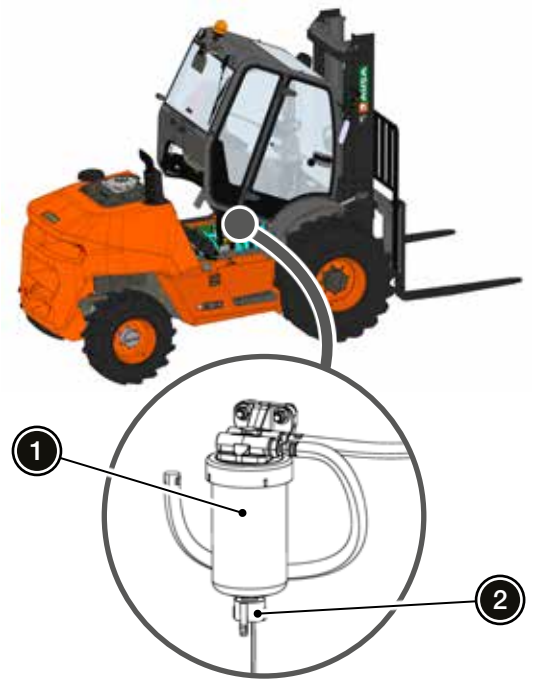
➤ Exercise special caution when cleaning the housing with pressurised air, and prevent foreign objects from entering the suction line.

7. Put the internal air filter (2) back into its position inside the housing.
8. Put the external air filter (1) back into its position inside the housing.
9. Install the filter cover and secure it using the clamps.
10. Lower the operator cab.

CORRECTIONS, ADJUSTMENTS OR REPLACEMENTS

Emptying Water From the Fuel Prefilter.

1. Lift the operator cab to access the fuel prefilter (1).



NOTICE **Risk of staining the floor with spillages.**

➤ Place a container under the filter to collect spills.

2. Loosen the drain screw (2) in the prefilter.
3. Wait for all the water to come out.
4. Tighten the prefilter drain screw to a torque of **1.6 ± 0.3 Nm**.
5. Lower the operator cab.

Depressurising the Hydraulic Circuit

⚠ WARNING **Risk of damage caused by spraying fluids.**

➤ Before carrying out repairs or maintenance tasks on the hydraulic circuit, it needs to be depressurised.

1. Make sure that the machine is stationary on a levelled surface.
2. Make sure that the lifting mast is in the vertical position and with the forks lowered, both in the standby position.
3. Insert the key in the ignition and turn it to the IGNITION position.

Information: *Turn the ignition to the contact position, but do not start the engine.*

4. Move the joystick twice in each direction:
   - Forward.
   - Reverse.
   - Left.
   - Right.

CORRECTIONS, ADJUSTMENTS OR REPLACEMENTS

Inspecting or Changing Cab Filters ACCESSORY

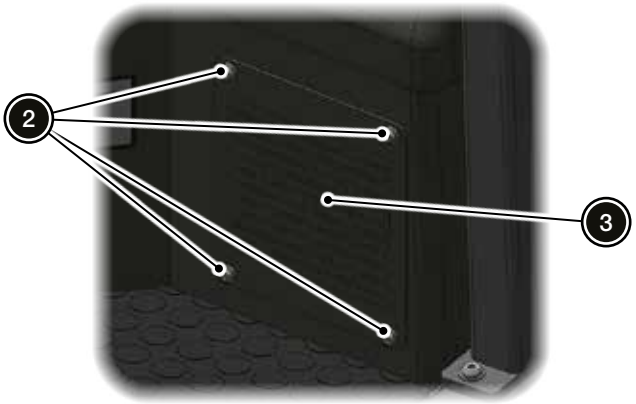
The machine cab has two air filters (1).

NOTICE Cleaning the filters is not recommended, as they an be damaged and lose their properties.

Information: *How often this task should be carried out depends on the type of terrain where the machine operates.*

The inspection or replacement procedure is as follows:

1. Access the corresponding filter.
   - Cab interior filter: Open the door.
   - Exterior filter: Remove the cab interior filter to access.
2. To remove the filter grille (2), remove the four screws (1) with a 4 mm hex key.



3. Remove the filters and replace them with new ones.

Information: *To reinstall the filters, follow the instructions in reverse order.*

FLUIDS AND LUBRICANTS

NOTICE **Risk of damage caused by low fluid levels.**

Always verify the container labels of fluids and lubricants, to ensure that they meet all the required specifications.

Fluid or lubricant	Specifications	Observations	Capacity
Fuel	▪ Diesel EN 590 ▪ Diesel ASTM D975	See *'Fuel Specifications'.*	117 litres
Engine oil (standard)	▪ Deutz DQC IV-10LA ▪ SAE 10W40	See *'Engine oil'.*	8 litres
Engine coolant	Deutz DQC CA-14	See *'Engine Coolant'.*	15 litres
Hydraulic circuit oil (standard)	▪ ISO VG-32 (ambient temperature below 10 °C) ▪ ISO VG-46 (ambient temperature between 10 °C and 40 °C) (1) ▪ ISO VG-68 (ambient temperature above 40 °C)	ISO 6743/4-HV DIN-51524 Part 3 HVLP.	115 litres
Hydraulic circuit oil (optional)	▪ ISO HLP-32 (ambient temperature below 10 °C) ▪ ISO HLP-46 (ambient temperature between 10 °C and 40 °C) (1) ▪ ISO HLP-68 (ambient temperature above 40 °C)	Synthetic and biodegradable.	115 litres
Transfer case oil (4x4 FullGrip® models) 4x4	SAE 80W90 oil for transmissions, according to API GL5 LS / MIL-L-2105D	See *'Transfer case oil 4x4 FullGrip®'.*	2.75 litres
Front-axle differential oil	▪ API GL-4 (UTTO) ▪ J20/C ▪ MF M1143 ▪ API GL-4 / GL-5	In all cases, use oil with LS additive.	7.3 litres
Front axle wheel reduction oil			0.85 litres
Rear axle differential oil	▪ API GL-4 (UTTO) ▪ J20/C ▪ MF M1143 ▪ API GL-4 / GL-5 (SAE 80W-90)	-	3.6 litres
Rear axle wheel reduction oil			0.35 litres
Brake fluid	SAE 10W OIL or ATF liquid	See *'Brake fluid'.*	1 litre
Calcium grease for grease points	Consistency NLGI-3	-	-

Legend of the table

(1) The machine leaves the factory with ISO VG-46 / ISO HLP-46 oil for the hydraulic circuit.

FLUIDS AND LUBRICANTS

Fuel Specifications

- Use only of diesel EN 590 or ASTM D975 fuels.
- Do not use fuels with a sulphur content above 0.0015% (15 ppm).
- Apart from being necessary in order to meet approval requirements, a low sulphur level is also compulsory in areas regulated by US EPA. In these cases, use No.2-D S15 diesel fuel as per the following criterion:
  - As an alternative to No.2-D.
  - As an alternative to No.1-D for ambient temperatures below -10 °C.

Information: *No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service (SAE J313).*

- Fuel cetane rating:
  - Minimum recommended: 45.
  - A rating over 50 is recommended, especially in ambient temperatures below -20 °C or altitudes over 1,500 m.

Engine Oil

DEUTZ recommends only using DEUTZ oils for its engines.

Check the list of approved oils in https://www.deutzuk.com/service/parts-and-liquids/parts-and-liquids/operating-liquids/oils

Transfer Case Oil, 4x4 FullGrip® Model 4x4

Information: *AUSA recommends TOTAL DYNATRANS DA 80W-90.*

Brake Fluid

NOTICE **Risk of damage to the brake system caused by using unsuitable fluids.**

- ➤ To avoid serious damage in the brake system, do not use fluids other than the recommended one. When refilling, do not mix different fluids.
- ➤ Do not use, under any circumstances, synthetic DOT 4 brake fluid, according to SAE J1703.

Engine Coolant

Information: *The preparation of the cooling system mixture is made with a system protective agent as per DEUTZ DQC CA-14, adding water.*

To ensure the correct operation of the engine's cooling system, the water used for preparing the coolant must meet the following requirements:

Parameter	Minimum	Maximum	ASTM
pH	6.5	8.5	D1293
Chlorine (Cl)	-	100 mg/L	D512 D4327
Sulphate (SO_4)	-	100 mg/L	D516
Total hardness ($CaCO_3$)	-	3.56 mmol/L	D1126
	-	356 mg/L	D1126
	-	20.0 °dGH	-
	-	25.0 °e	-
	-	35.6 °fH	-

Depending on the ambient temperature where the machine is going to operate, prepare the coolant mixture following the recommendations below:

Protective agent percentage	Water percentage	Minimum protection temperature
35% (minimum)	65%	-22 °C
40%	60%	-28 °C
45%	55%	-35 °C
50% (maximum)	50%	-41 °C

FLUIDS AND LUBRICANTS

The machine leaves the factory with coolant with anti-foaming additives and inhibitors, to prevent corrosion of the casting, steel, weldings and mainly of the aluminium and light alloys. The coolant has the following properties:

- Concentration of glycol or similar compound: 50%
- Freeze point (temperature at which the first crystals appear): -35 ~ -37%
- Boiling point:
  - At atmospheric pressure: 107 ~ 110°C
  - In pressurised circuit: 143 ~ 145°C
- Complies with the following standards:
  - UNE-26.361 - 88
  - INTA 157413
  - BRITISH STANDARD 6580
  - AFNOR NFR 15601
  - ASTM D 3306, D 4985
  - SAE J 1034
  - VWTL-774
  - DEUTZ DQC CA-14

Information: *The machine leaves the factory with a coolant concentration of 50-50%.*

GENERAL MAINTENANCE CHART

I: Inspect, check, clean, lubricate, replace if necessary **C:** Clean **L:** Lubricate **R:** Replace	EVERY							
	Basic		Advanced					
	8 h.	50 h.	Initial inspection (50 h)	250 h.	500 h.	1,000 h.	1,500 h.	3,000 h.
Mechanic Anchor Points								
Check looking for abnormal noises / vibrations [4]				I				
Engine (MTR)								
Oil	I				R			
Oil filter					R			
Alternator belt	I		I[9]		I[9]	R[2]		
Engine mounts	I							
Saturation level of the particulate filter (DPF)	I							
Exhaust manifold						I		
Fuel Supply System (SAC)								
Fuel level	I							
Air filter element	I/C				R[1]			
Cab air filters **ACCESSORY**	I				R[1]			
Air filter intake hose	I						R[2]	
Fuel prefilter		C[10]	R	R[1]				
Fuel filter						R[1]		
Fuel hoses and clamps							R[2]	
Cooling System (REF)								
Coolant	I				I[17]		R	
Radiator hoses and clamps				I			R[2]	
Condition of the fan blades	I							
Radiator	I	C						
Electric System (ELE)								
Battery	I			I[5]			R	
Electric components [7]	I							
Electric wiring and its connections	I							
Control panel [6]	I							
Service hourmeter	I							
Fuses	I							
Travel selector (FNR)	I							
Lighting and signalling equipment **ACCESSORY**	I/C							

GENERAL MAINTENANCE CHART

I: Inspect, check, clean, lubricate, replace if necessary **C:** Clean **L:** Lubricate **R:** Replace	EVERY							
	Basic		Advanced					
	8 h.	50 h.	Initial inspection (50 h)	250 h.	500 h.	1,000 h.	1,500 h.	3,000 h.
Hydraulic Circuit (HDR)								
Hydraulic oil	I					R		
Tank inner filter oil strainer						C		
Hydraulic oil filter cartridge			R			R		
Mast movements	I							
Steering movements	I							
Steering cylinder	I							
Mast cylinder	I							
Hydraulic hoses and connections								R(3)
Transmission (TRN)								
Transfer box oil			R		I	R		
Differentials and hub reductions oil			R(15)		I	R		
Front axle fixing screws					I			
Wheels lug nuts fastening		I(13)						
Universal joint fixing nuts (4x4)					I			
Tyre pressure and wear	I							
Brakes (FRN)								
Brake fluid	I						R(2)	
Brake pedal	I							
Parking brake	I(16)							
Greasing Points								
See the section *'Greasing Points'*		L						

GENERAL MAINTENANCE CHART

I: Inspect, check, clean, lubricate, replace if necessary **C:** Clean **L:** Lubricate **R:** Replace	EVERY							
	Basic		Advanced					
	8 h.	50 h.	Initial inspection (50 h)	250 h.	500 h.	1,000 h.	1,500 h.	3,000 h.
Bodywork / Chassis (CHS)								
Operator's position [12]	I/C							
Operation of the pedals	I							
Seat and its mounting rails	I							
Seatbelt. [8]	I							
Plates and decals	I/C							
Cab	I							
Mast	I					I[11]		
Mast top and lower end					I			
Forks						I[14]		
Safety prop on the operator cab, its fastening elements and support points.	I							
Existence the manuals in the document holder	I							
Protectors, covers, caps and plugs, safety stops, locks, lights and piloto lights **ACCESSORY**	I							
Counterweight fastening					I			
Air Conditioning (AAC)								
Charge of the R134a refrigerant a **ACCESSORY**						I		
Thermostat of the R134a refrigerant **ACCESSORY**							I	
Air-conditioning belt **ACCESSORY**			I[9]	I[9]		R[2]		
Air-conditioning evaporator **ACCESSORY**				C				
Air-conditioning pressure switch **ACCESSORY**							I	
Accessories								
Maintenance	I							

GENERAL MAINTENANCE CHART

Legend of the table

(1) Or every year, whichever comes first.
(2) Or every two years, whichever comes first.
(3) Or every six years, whichever comes first.
(4) Engine, transmission, exhaust system, hydraulic system , counterweight, mobile parts, chassis.
(5) External damages, electrolyte loss, rusty posts.
(6) Push buttons, switches, selectors, indicators.
(7) Acoustic reverse travel alarm, horn, rotating beacon, emergency push button.
(8) - The buckle enters and exits the slot easily.
- The buckle does not come out of the slot without pressing the unlocking button.
- The anchor points of the different seatbelt elements are firmly attached.
- The belt has no cuts or frayed parts.
- Good condition of the seams.
- The operator presence and seatbelt fastened sensors must work properly.
(9) Checking the tension.
(10) Drain the water.
(11) Inspect the mast profiles, its chains, the fork carriage plate, the fork carriage, the side shift and the state of the forks.
(12) Seat, cab floor, access steps and handles.
(13) Tightening torque: **650 ± 100 Nm** (Front wheels) / **470 ± 20 Nm** (Rear wheels).
(14) Inspection according to ISO 5057.
(15) Although AUSA recommends to perform the oil change during the first 50 hours maintenance check, axles manufacturer allows the oil change at 150 hours and no later than 200 hours.
(16) With the parking brake applied, the machine's wheels must remain locked.
(17) Concentration of the additive.

BASIC MAINTENANCE PLAN

⚠ WARNING **Risk of accident or damage due to lack of maintenance.**

All these tasks are essential for the correct and safe operation of the machine.

As part of the basic maintenance plan, carry out the following tasks:

- Basic maintenance every 8 hours.
- Basic maintenance every 50 hours.

NOTICE **Risk of serious engine damage caused by operating the machine with imperfections.**

➤ Contact the official AUSA distributor if any parts are loose, detached or damaged, or if there are vibrations, noises, etc.

ADVANCE MAINTENANCE PLAN

⚠ WARNING **Risk of accident or damage due to lack of maintenance.**

All these basic and advanced maintenance tasks are essential for the correct and safe operation of the machine.

➤ The machine must be inspected by the official AUSA distributor.

As part of the advanced maintenance plan, carry out the following tasks:

- Advance maintenance first 50 hours.
- Advanced maintenance every 250 hours.
- Advanced maintenance every 500 hours.
- Advanced maintenance every 1000 hours.
- Advanced maintenance every 1500 hours.
- Advanced maintenance every 3000 hours.

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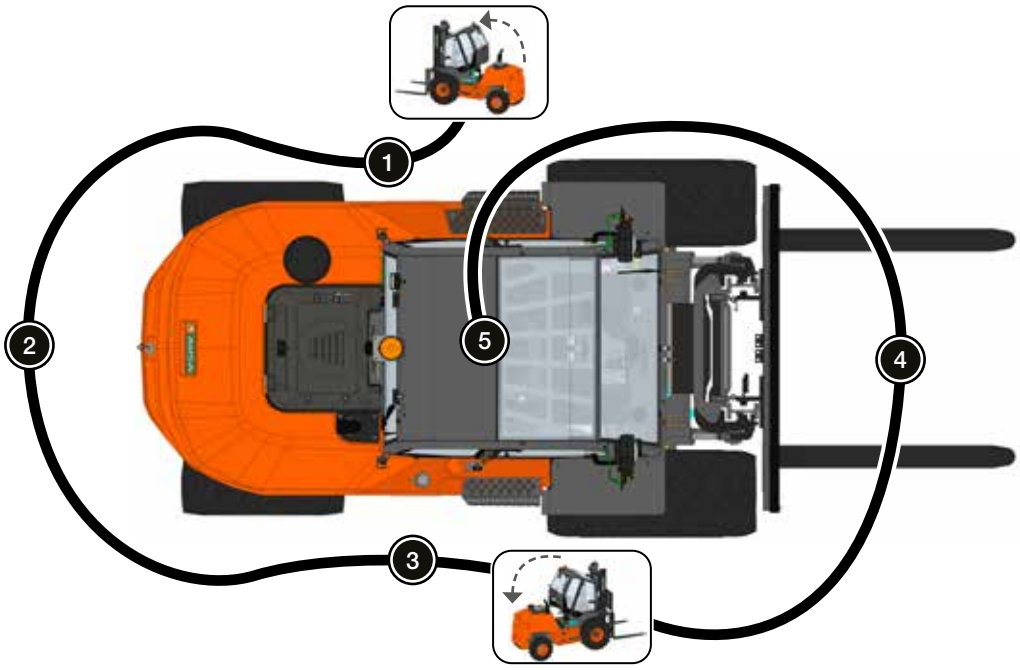
AT THE BEGINNING OF THE SHIFT

NOTICE **Risk of serious engine damage caused by operating it with anomalies.**

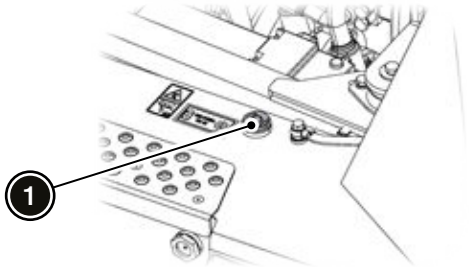
➤ If any anomaly is detected during the daily inspection, contact the official AUSA distributor.

Before using the machine, check the following. To make the daily inspection more efficient, it is recommended to follow the sequence below:

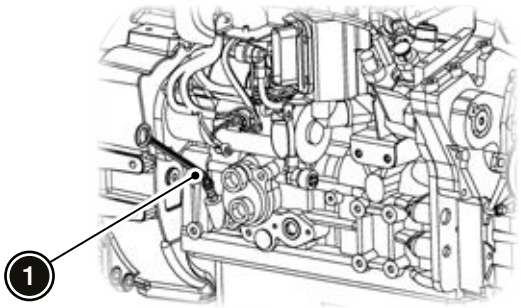
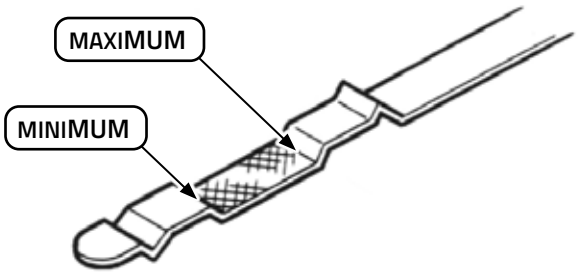


Position	Task	Description
General	If the machine includes accessories, carry out their appropriate maintenance operations. ACCESSORY	The maintenance tasks for optional elements are described in *Chapter 9*.
	Check the following components for leaks: ▪ Engine. ▪ Transmission. ▪ Hydraulic system. ▪ Cooling system. ▪ Brake system. ▪ Exhaust system. ▪ Air conditioning system. ACCESSORY	**NOTICE** **Risk of damaging the machine due to damaged hoses or tubes** Replace immediately any damaged hose or tube. The replacement components must always have the same characteristics as the original ones. If the path of a hose or tube is modified, pay special attention to their acceptable radii for the hose or tube, in order to avoid bottleneck effects. ▪ Sleeves and clamps. ▪ Hoses. ▪ Couplings. ▪ Fluid stains on the floor or on any part of the machine.

AT THE BEGINNING OF THE SHIFT

Position	Task	Description
General	Check the condition of plates and decals.	See *'Identification Plates and Decals' in Chapter 2*.
	Verify that the following parts are in good condition: ▪ Protectors. ▪ Covers. ▪ Caps and plugs. ▪ Safety stops. ▪ Locks. ▪ Lights and pilot lights **ACCESSORY**	N/A
	Check the tyre pressure and wear.	See *Chapter 7*.
1	Check the hydraulic oil level (1) and, if necessary, refill the tank.	See *'Refilling Hydraulic Oil'*. 
	Check the condition of the operator cab and all cab locks and locking elements.	N/A
	Check the condition of the safety prop on the operator cab, its fastening elements and support points.	N/A
	Check the condition of the air filter element. Clean it if necessary.	See *'Changing or cleaning the air filter'.*
	Check the condition of the air filter intake pipe.	Check for abrasions or cracked rubber. Check that the flanges are attached properly.
	Check the condition of alternator belt.	N/A
	Check the condition of the engine mounts.	N/A
	Check the condition of the electrical installation, the battery, the fuses and their connections.	N/A
	Check the condition of the fan blades.	Check for abrasions or missing parts.

AT THE BEGINNING OF THE SHIFT

Position	Task	Description
1	Check the engine oil level (1).	 This should be between the minimum and maximum marks. If necessary, refill following the indications in *'Refilling Engine Oil'*. 
	Check the condition of the cab filters. **ACCESSORY**	See *'Inspecting or Changing Cab Filters'*.
2	Verify the condition of the following elements: ▪ Pilot lights. ▪ Towing hitch (bolt and fastening pin). ▪ Registration plate. ▪ Registration plate light. **ACCESSORY**	N/A
	Verify the condition and cleanliness of the radiator. Clean it if necessary.	See *'At the End of the Shift'*.
	Check the steering cylinder for damage, cracks, oil leaks or other defects.	N/A

AT THE BEGINNING OF THE SHIFT

Position	Task	Description
3	Check the level of the following fluids and, if necessary, refill the tank. ▪ Coolant. ▪ Fuel. ▪ Brake fluid.	**⚠ WARNING Risk of fire or explosion.** ➤ Do not smoke while handling fuel. ➤ Always refuel with the engine stopped. ▪ See *'Refilling Coolant'.* ▪ See *'Refuelling' in Chapter 4.* ▪ See *'Refilling Brake Fluid'.*
	Check that the manuals are in the document holder.	N/A
	Check the condition of the engine mounts.	N/A
4	Check the lifting mast elements for damage, cracks, oil leaks or other defects.	▪ Guides. ▪ Chains. ▪ Cylinders. ▪ Fork carriage. ▪ Forks.
5	Check the operator cab for damage, cracks or other defects.	▪ Steps and handles to access the operator's position. ▪ Structural damage.
	Check the condition of the seat and its mounting brackets. Clean it if necessary.	N/A
	Check the seat belt sensor.	▪ Check that the buckle enters and exits the slot easily. ▪ Check that, once engaged, the buckle does not come out of the slot without pressing the unlocking button. ▪ Verify that the anchor points of the different seat belt elements are firmly attached. ▪ Check that the belt has no cuts or frayed parts. ▪ Check the good condition of the seams. ▪ Check the correct operation of the sensor.

AT THE BEGINNING OF THE SHIFT

Position	Task	Description
5	Check the service hours counter to know whether it is necessary to perform advanced maintenance tasks.	The frequency for these types of tasks is as follows: ▪ 250 hours. ▪ 500 hours. ▪ 1,000 hours. ▪ 1,500 hours. ▪ 3,000 hours.
	Verify the correct operation of the lighting and signalling equipment. **ACCESSORY**	N/A
	Check the control panel.	Check the correct operation of the following elements: ▪ Buttons. ▪ Switches. ▪ Selectors. ▪ Indicators. ***Information:*** *Check the 'Check engine malfunction' indicator.*
	Verify the operation of the reverse travel alarm disabler.	Check that, when travelling in reverse, the audible warning sounds normally.
	Check the correct operation of the horn.	N/A
	Verify that the rotating beacon works properly.	N/A
	Check the operation of the emergency push button.	With the engine on, press the emergency push button to check that it triggers a complete stop of the machine.
	Check the operation of the NEUTRAL position of the travel selector (FNR).	With the travel selector (FNR) in NEUTRAL and the engine on, verify that, when pressing the accelerator, the machine does not move forwards nor backwards.
	Check the operation of the parking brake.	With the parking brake applied, the machine's wheels must remain locked.

AT THE BEGINNING OF THE SHIFT

Position	Task	Description

5	Check the machine elements.	▪ Turn the steering wheel until it stops in both directions, and check that it moves freely, with no stiff points.
		▪ Check that the steering wheel does not have free play.
		▪ Press the pedals several times to ensure that they move freely and that, when released, they return to their original position.
		▪ Start the machine's engine, advance slowly and press the brake pedal to check its correct operation.
		▪ Move the lifting mast with the joystick to ensure that it works properly.
		▪ Raise and lower.
		  ▪ Tilt forwards and backwards.
		  ▪ Move sideways, left and right.
		  ▪ Auxiliary hydraulic connection. ACCESSORY
		▪ Verify that the travel selector (FNR) operates correctly in its three positions:
		  ▪ Forward.
		  ▪ NEUTRAL.
		  ▪ Reverse.

AT THE END OF THE SHIFT

NOTICE **Risk of damage caused by corrosion in salt water areas.**

- ➤ If the machine is used in salt water areas (beaches, etc.) or muddy areas, rinse with clean water and keep the lights clean.
- ➤ Lubrication and protection of metallic parts is highly recommended.

At the end of the shift, clean the machine so that dirt does not cause premature wear of the components, and it does not affect their correct operation.

NOTICE **Risk of damage caused by corrosion of damaged painted parts.**

- ➤ Repaint the damaged painted parts to prevent them from corroding.

⚠ WARNING **Risk of burns caused by contact with flammable substances.**

If volatile and easily flammable aerosols or corrosion protection products are used, take the following recommendations into account:

- ➤ Try to ventilate the area sufficiently.
- ➤ Do not smoke, nor use fire or open flames.

Environment: *To prevent harm to the environment, only clean the machine at a wash station provided for such purposes, or in a washing bay.*

⚠ WARNING **Risk of skin damage or burns caused by using abrasive or flammable cleaning products.**

- ➤ Clean with neutral soap. Do not use abrasive or flammable cleaning products.

NOTICE **Risk of machine damage caused by using abrasive cleaning products.**

Choosing incorrect cleaning products or utensils can damage machine components.

- ➤ Do not use degreasing agents, solvents, acetone, etc. to clean plastic parts.

NOTICE **Risk of machine damage caused by high-pressure water spray.**

When washing, do not direct pressurised water spray towards the following components:

- ➤ Suction intake (air filter).
- ➤ Battery.
- ➤ Cab filters. **ACCESSORY**
- ➤ Alternator.
- ➤ Control panel.
- ➤ Other electrical equipment which might get damaged.

AT THE END OF THE SHIFT

Task	Description
Cleaning the lights and signals. ACCESSORY	N/A
Clean the operator's position.	▪ Seat. **NOTICE** **Risk of damage to the fabric caused by cleaning with chemical products.** ➤ Keep the seat belt clean. Coarse dirt damages the operation of the lock and the roller. ➤ The seat belt must only be cleaned when it is fastened, using a mild soap solution. Do not clean it with chemical products, as they might damage the fabric. ▪ Cab floor. ▪ Glasses. ACCESSORY ▪ Access steps. ▪ Handles.
Cleaning the air filter	Check the condition of the air filter. If necessary, clean the filter following the procedure described in *'Changing or cleaning the air filter'.*
Check or change the cab air filters. ACCESSORY	Check the condition of the filters and, where necessary, change them following the procedure described in *'Inspecting or Changing Cab filters'*.
Cleaning all identification plates and decals.	N/A
Check the saturation condition of the particulate filter (DPF). PARTICULATE FILTER (DPF)	If necessary, perform a manual regeneration. See *'Particulate filter (DPF) regeneration' in Chapter 5*.

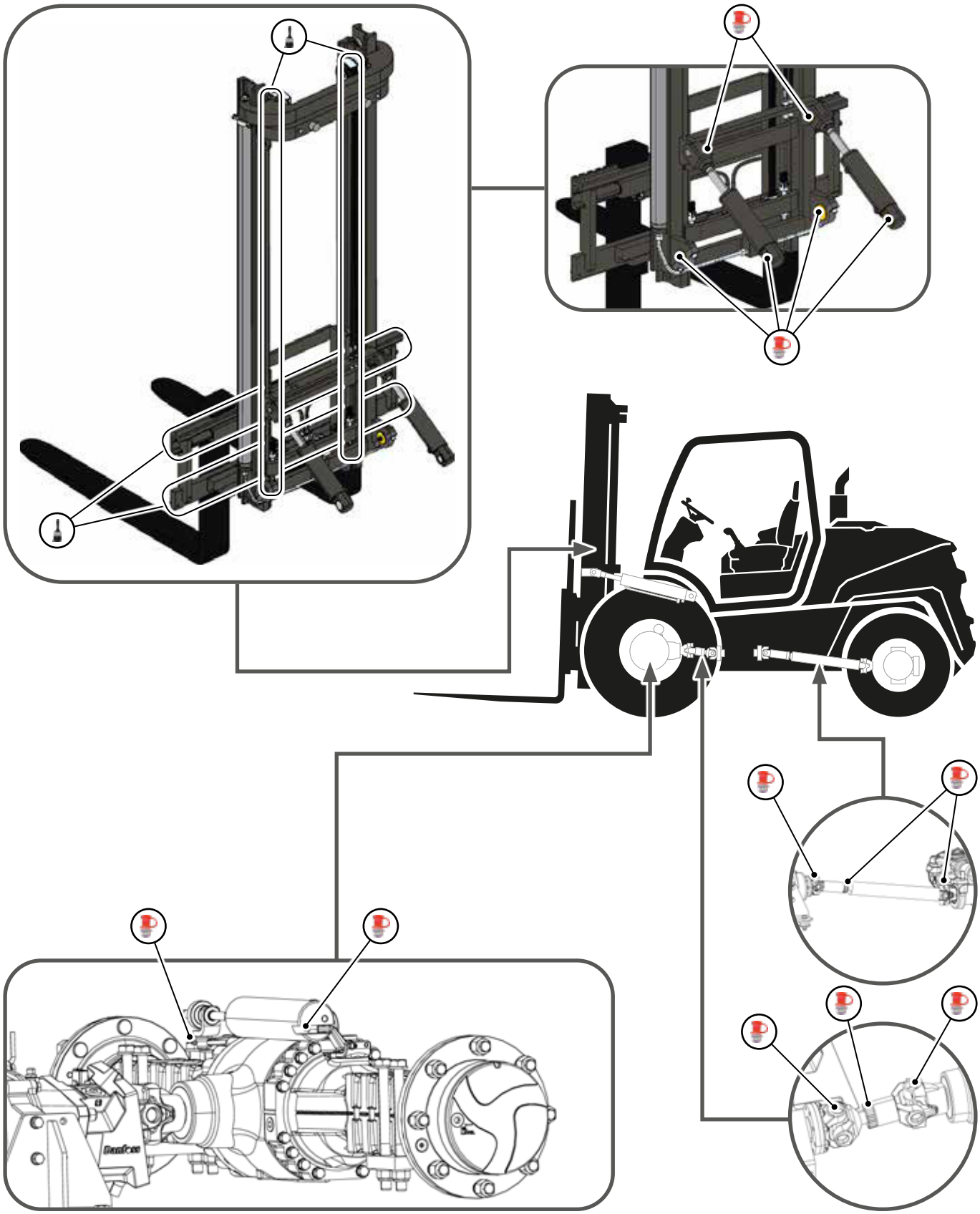
AT THE BEGINNING OF THE SHIFT

NOTICE **Risk of serious engine damage caused by operating it with anomalies.**

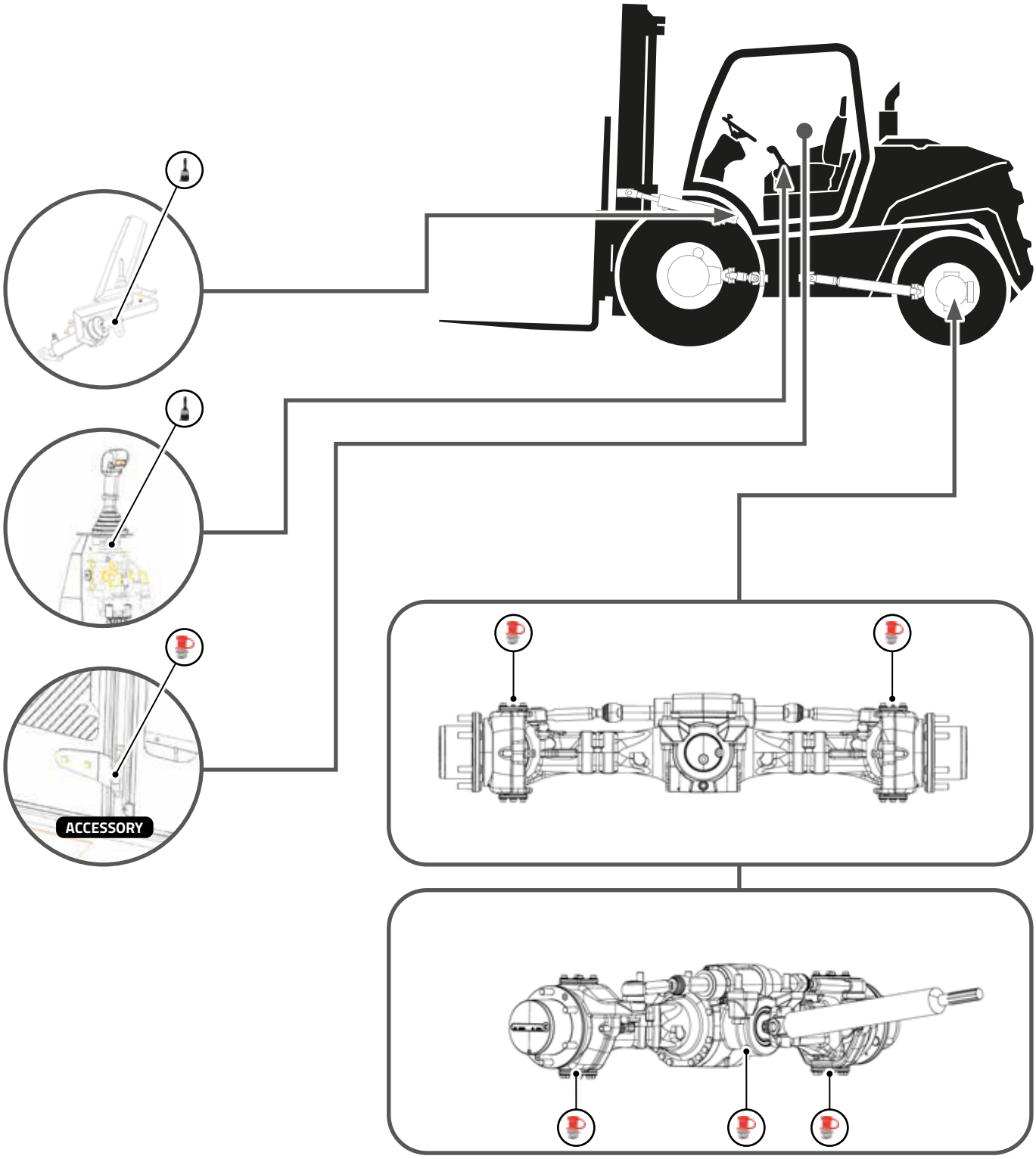
➤ If any anomaly is detected during the daily inspection, contact the official AUSA distributor.

Every 50 hours, and before using the machine, carry out the following checks, together with those related to basic maintenance every 8 hours:

<table>
<tr><th>Task</th><th colspan="2">Description</th></tr>
<tr><td>If the machine includes accessories, carry out their appropriate maintenance operations. ACCESSORY</td><td colspan="2">The maintenance tasks for optional elements are described in Chapter 9.</td></tr>
<tr><td rowspan="3">Retighten the fastening nuts on the wheels.</td><td colspan="2">Tightening torque (Nm)</td></tr>
<tr><td>Front wheels</td><td>Rear wheels</td></tr>
<tr><td>650 ± 100</td><td>470 ± 20</td></tr>
<tr><td>Lubricating all grease points.</td><td colspan="2">The greasing points are indicated with the following icons in the figure below:
  Greasing point with greasing unit.
  Greasing area, greased with a brush.</td></tr>
</table>



BASIC MAINTENANCE EVERY 50 HOURS



AT THE END OF THE SHIFT

Task	Description
Clean the radiator.	**⚠ CAUTION Risk of burns caused by contact with the radiator.** ➤ Allow the radiators to cool down before cleaning. **⚠ CAUTION Risk of skin irritation caused by contact with residues from the radiator.** ➤ Use gloves to remove external residues from the radiator. ***NOTICE* Risk of damaging the radiator fins with high-pressure water.** ➤ Do not use high-pressure water to clean the radiator fins, as this might damage them. ➤ Direct the water spray parallel to the radiator fins. Clean the radiator fins with a low-pressure water hose.

INITIAL INSPECTION

A general inspection of the machine's main components should be completed within the first 50 hours or 30 days of the machine's operation (whichever comes first).

To carry out this inspection, it is necessary to perform the following maintenance tasks, together with those related to basic maintenance every 50 hours:

Task	Description
Changing the hydraulic oil filter cartridge.	See *HDR.R.02 in the Advanced Maintenance Manual.*
Checking the tension of the alternator belt.	See *MTR.R.02 in the Advanced Maintenance Manual.*
Check the air-conditioning belt tension. **ACCESSORY**	*See MTR.R.03 in the Advanced Maintenance Manual.*
Changing the fuel prefilter.	See *SAC.R.02 in the Advanced Maintenance Manual.*
Changing the oil from the differentials and the hub reductions. (1)	See *TRN.R.01 in the Advanced Maintenance Manual.*
Changing the oil from the transfer box.	See *TRN.R.02 in the Advanced Maintenance Manual.*

(1) Although AUSA recommends an oil change during the check after the initial 50 hours, the axle manufacturer allows for this change to be made after 100 hours and within no more than 250 hours.

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ADVANCE MAINTENANCE EVERY 250 HOURS

Every 250 hours, the following maintenance tests should be performed, together with those related to:

- basic maintenance every 8 hours.
- basic maintenance every 50 hours.

Task	Description
If the machine includes accessories, carry out their appropriate maintenance operations. **ACCESSORY**	The maintenance tasks for optional elements are described in *Chapter 9*.
Checking all mechanic anchor points.	Check that there are no abnormal noises or vibrations in the following items: ▪ Engine. ▪ Transmission. ▪ Exhaust system. ▪ Hydraulic system. ▪ Counterweight. ▪ Mobile parts. ▪ Chassis.
Check the air-conditioning belt tension. **ACCESSORY**	See *MTR.R.03 in the Advanced Maintenance Manual*.
Clean the air-conditioning evaporator. **ACCESSORY**	Clean with air. Maximum pressure: 3 bar.
Check the battery connections.	▪ Inspect the battery to confirm that there is no external damage. ▪ Check that there has not been electrolyte loss. ▪ If there is rust on the terminals, clean them and apply dielectric grease or Vaseline.
Changing the fuel prefilter. (2)	See *SAC.R.02 in the Advanced Maintenance Manual*.
Checking the radiator hoses and clamps.	N/A

(2) Or yearly, whichever comes first.

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ADVANCE MAINTENANCE EVERY 500 HOURS

Every 500 hours, the following maintenance tests should be performed, together with those related to:

- basic maintenance every 8 hours.
- basic maintenance every 50 hours.
- advanced maintenance every 250 hours.

Task	Description
Changing the engine oil and oil filter.	See *MTR.R.01 in the Advanced Maintenance Manual.*
Changing the air filter. [2]	See *'Changing or Cleaning the Air Filter'.*
Change the cab air filters. [2] **ACCESSORY**	See *'Inspecting or Changing Cab Filters'.*
Check the axles differential and wheel reduction oil level.	See *TRN.R.01 in the Advanced Maintenance Manual.*
Check the transfer box oil level.	See *TRN.R.02 in the Advanced Maintenance Manual.*
Checking the tension of the alternator belt.	See *MTR.R.02 in the Advanced Maintenance Manual.*
Check the coolant (concentration of the additive).	See *'Fluids and Lubricants'.*
Inspecting the tightness of the universal joint fixing nuts. **4x4**	N/A
Check the counterweight fixing screws.	N/A
Check the front axle fixing screws	N/A
Check the mast upper and lower end stops	N/A

[2] Or yearly, whichever comes first.

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ADVANCE MAINTENANCE EVERY 1,000 HOURS

Every 1,000 hours, the following maintenance tasks should be performed, together with those related to:

- basic maintenance every 8 hours.
- basic maintenance every 50 hours.
- advanced maintenance every 250 hours.
- advanced maintenance every 500 hours.

Task	Description
Changing the alternator belt. [3]	See *MTR.R.02 in the Advanced Maintenance Manual.*
Change the air-conditioning belt. [3] **ACCESSORY**	See *MTR.R.03 in the Advanced Maintenance Manual.*
Check charge of the R134a refrigerant for cooling systems. [2] **ACCESSORY**	See *'Fluids and Lubricants'.*
Changing the hydraulic oil and cleaning the oil filter.	See *HDR.R.01 in the Advanced Maintenance Manual.*
Changing the hydraulic oil filter cartridge.	See *HDR.R.02 in the Advanced Maintenance Manual.*
Changing the oil from the transfer box.	See *TRN.R.02 in the Advanced Maintenance Manual.*
Changing the fuel filter. [2]	See *SAC.R.01 in the Advanced Maintenance Manual.*
Changing the oil from the differentials and the hub reductions.	See *TRN.R.01 in the Advanced Maintenance Manual.*
Checking the exhaust manifold. [2]	Cracks, gas leaks, anchors or damage.
Inspect the mast profiles and the fork carriage plate.	N/A
Inspect the mast chains.	N/A
Inspect the fork carriage and the side shift.	N/A
Inspect the state of the forks. [2]	Check for signs of wear, cracks, height differences, permanent bends, angles, point damage / wear, side fold of the hooks and the state of the locking mechanisms. The supplied information is detailed in the ISO 5057 standard.

[2] Or yearly, whichever comes first.
[3] Or biannually, whichever comes first.

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ADVANCE MAINTENANCE EVERY 1,500 HOURS

Every 1,500 hours, the following maintenance tasks should be performed, together with those related to:

- basic maintenance every 8 hours.
- basic maintenance every 50 hours.
- advanced maintenance every 250 hours.
- advanced maintenance every 500 hours.

Task	Description
Changing the coolant fluid.	See *REF.R.01 in the Advanced Maintenance Manual.*
Changing the air-filter intake hose. [3]	N/A
Changing the radiator hoses and clamps. [3]	N/A
Changing the fuel hoses and clamps. [3]	N/A
Changing the brake fluid. [3]	N/A
Changing the battery.	N/A
Check the air-conditioning pressure switch. [3] **ACCESSORY**	N/A
Check the thermostat of the R134a refrigerant for cooling systems. [3] **ACCESSORY**	N/A

[3] Or biannually, whichever comes first

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ADVANCE MAINTENANCE EVERY 3,000 HOURS

Every 3,000 hours, the following maintenance tasks should be performed, together with those related to:

- basic maintenance every 8 hours.
- basic maintenance every 50 hours.
- advanced maintenance every 250 hours.
- advanced maintenance every 500 hours.
- advanced maintenance every 1,000 hours.
- advanced maintenance every 1,500 hours.

Task	Description
Changing the hydraulic hoses and connections. (4)	N/A

(4) Or every six years, whichever comes first.

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9

ACCESSORIES

CONTENTS INDEX

LIST OF MACHINE ACCESSORIES

The machine may include the following accessories.

Information: *For additional information, consult the official AUSA dealer.*

Driving position
Semi-closed cab with front, rear and upper windscreens.
Closed cab with heating.
Closed cab with heating and air conditioning.
Masts
3.70 m reinforced duplex Mast for wide load handling.
4.25 m triplex mast with free lift of 1.39 m and full visibility with central double cylinder.
5.45 m triplex mast with free lift of 1.79 m and full visibility with central double cylinder.
Safety
Joystick lock.
Lighting and driving
Approved lighting system with LED daylight.
Front and rear LED working lights.
Germany circulation regulation (Approved lighting system, decal plate 20 km/h and fork guard and wheel chocks).
Comfort
Extra confort seat, fully adjustable.
Advanced equipment
AUSAnow with start disabling.
AUSAnow without start disabling.
Dual ID: PIN Keypad (AUSAnow Mandatory).

Accessories
Reverse travel acoustic warning disable switch (Mandatory with approved lighting system).
Nordic countries (high-capacity battery, coolant and low temperature oils).
Car radio (only with closed cabin).
Waterproof document holder.
4th valve. Pre-installed hydraulic inlet for two-way action control (available for all masts).
Custom paint (orange parts only).
Air filter with cyclone pre-filter.
Forks
1,660 mm load rest
Transport
Photos for customs.
Mast with additional tilt for transport.
Destination country finishes
Germany finishes.
French finishes.
Parts
Standard front (1u.) and rear (1u.) spare wheel).
1,000 h maintenance kit.

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