110350_HTH1010_US
05/2024

Use and Maintenance Manual

Telescopic handlers

HTH 10.10

Serial number: 00006029

Magni Telescopic Handlers S.r.l.
Via Magellano, 22 - 41013 Castelfranco Emilia (MO) - ITALY
Tel. +39 059 8031000 - Fax +39 059 8638012
www.magnith.com - e-mail: commerciale@magnith.com

Data regarding the manual	
Code	110350_HTH1010
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Date	05/2024

Reference regulatory framework

This Manual has been drafted in compliance with the main reference standards:

Machinery Directive 2006/42/EC;

Standard Family EN 1459 *"Rough-terrain trucks - Safety requirements and verification"*;

Standard UNI 10653 *"Technical documentation – Quality of product technical documentation"*;

Standard UNI 10893 *"Technical documentation of product – Instructions for use – Articulation and exposition of the content"*.

Translation of the original instructions for:

Vehicle model	Trade name	Engine	Emissions regulation	Rated power
HTH 10.10-D/A	***HTH 10.10***	Deutz	Stage IIIA	100 kW
HTH 10.10-D/C	***HTH 10.10***	Deutz	Tier 4f	100 kW
HTH 10.10-D/D	***HTH 10.10***	Deutz	Stage V	100 kW

INDEX

PREFACE

Manufacturer's details

Magni Telescopic Handlers S.r.l.
Via Magellano, 22
41013 Castelfranco Emilia (MO) – ITALY
Tel. +39 059 8031000
Fax. +39 059 8638012
www.magnith.com

Important safety information

Most accidents caused by the use, maintenance and repair of a vehicle are due to failure to observe the most elementary rules of safety and caution. An accident can often be avoided if the potential hazards to which one is exposed are known, and the required precautions are taken. Those working on the vehicle must take the utmost care, have suitable technical skills, knowledge and equipment for carrying out the various operations correctly.

Improper and/or incorrect use, maintenance or repair of these vehicles can lead to serious injury and also death of workers.

Use the vehicles and/or carry out maintenance or repairs on them only after having completely read and understood all the instructions in this use and maintenance Manual.

The precautions and warnings regarding safety are highlighted in this Manual and on the vehicle by means of the informative stickers. Ignoring these warnings can result in serious accidents, or even death for the operator or other persons.

Magni Telescopic Handlers S.r.l. may not be able to foresee all the possible circumstances which can constitute a safety hazard. The warnings contained in this Manual or applied on the vehicle may not be considered as all-inclusive. When adopting procedures, equipment or methods not expressly recommended and when using equipment different to that permitted, it is the operator's responsibility to make sure work is carried out in accordance with the main safety and legal standards.

Moreover, it is necessary to ensure that the vehicles are not rendered hazardous by accidental damage or emergency maintenance carried out without authorisation.

Magni Telescopic Handlers S.r.l. reserves the right to make modifications to the vehicles, their accessories, calibration and other information disclosed at any time without prior notification.

Using the manual

This manual must be considered an integral part of the vehicle, and must accompany it throughout its working life from commissioning to final disposal.

Therefore, it must be stored inside the vehicle, in the space provided or where it will be kept safe from premature deterioration, so that it is always readily available for consultation and in the best possible condition.

If lost and/or damaged, contact the Manufacturer directly for replacement documentation, indicating the manual code or vehicle code/model shown on its identification plate.

This manual has been drawn up by the Manufacturer with the aim of providing all the information necessary for the operator to use the vehicle correctly and safely and carry out routine maintenance on it.

This manual contains all the information necessary for the operator. The operator must use the vehicle for the purposes envisaged and identified in this manual. The information must be read carefully and its contents strictly applied. Failure to comply with this information can lead to risks to the health, safety and welfare of persons and result in damage to property.

The manual reflects the state-of-the-art at the time the product was placed on the market. The Manufacturer reserves the right to make changes, additions or improvements to the Manual, without however resulting in this publication being considered inadequate.

All changes to the documentation are made following a controlled process. The different revisions ensure traceability by associating the manual with the different versions of the product placed on the market.

If the vehicle is fitted with optional accessories, a use and maintenance manual for the following will be provided together with this manual:

- **interchangeable equipment (lifting accessories, fork carriage, platforms, etc.).**
- **special set-ups (elevating cab, electromagnetic braking device, additional heater, etc.)**

The use and maintenance manuals of the interchangeable equipment and special set-ups must be considered as an integral part of the manual; therefore they must be kept safe and consulted using the same methods and with the same care.

People to whom this manual is addressed

This manual is intended for:

- *operator*: a person who has received training and taken a specific theoretical-practical course on use of the vehicle and related equipment,
- *general maintenance* technician: a person trained to carry out routine maintenance work with basic knowledge of mechanics, electricity and hydraulics,
- *specialised maintenance technici*an: a person with the training and qualifications required to carry out routine and extraordinary maintenance work with specific in-depth knowledge of mechanics, electricity and hydraulics.

Symbols used

The symbols used in this Manual comply with standard UNI EN ISO 7010:2012.

Danger indications included in this manual are made easily identifiable by a “warning symbol” flanked by one or more “words of warning”; in addition, there is always a message, in written or illustrated form, underneath the symbol, illustrating the danger and techniques for avoiding it.

Parts of the text that are considerably important or specific operating procedures have been highlighted with the use of the following symbols:

NOTICE

BLUE – WITHOUT safety alert symbol

Used to indicate the presence of a potentially dangerous situation which, if not avoided, can cause damage to property.

ATTENTION

YELLOW – WITH safety alert symbol

Used to indicate the presence of a potentially dangerous situation which, if not avoided, can cause minor or moderate injury.

WARNING

ORANGE – WITH safety alert symbol

Used to indicate the presence of a potentially dangerous situation which, if not avoided, can cause death or serious injury.

DANGER

RED – WITH safety alert symbol

Used to indicate the presence of an imminently dangerous situation which, if not avoided, can cause death or serious injury.

Declaration of initial testing

Magni Telescopic Handlers S.r.l. declares that each vehicle and interchangeable equipment manufactured in its factories, before being placed on the market, has been subjected to inspections and tests in order to certify its compliance with the EU directives to which it is subject.

Following successful testing, Magni Telescopic Handlers S.r.l. issues a CE certificate for each of its vehicles/interchangeable equipment, which must be kept by the owner of the latter for the purposes of legal obligations.

Delivery of the vehicle

Magni Telescopic Handlers S.r.l. delivers the vehicle in compliance with the relevant construction standards and legislation in force depending on the country of use.

All references to standards are referred to in the CE certificate delivered with the vehicle and this Use and Maintenance Manual.

Receipt of the vehicle

If there are any damage, defects or missing items upon receipt of the vehicle, please contact the Sales Department immediately:

Magni Telescopic Handlers S.r.l.

Via Magellano, 22

41013 Castelfranco Emilia (MO) – ITALY

Tel. +39 059 8031000

Fax. +39 059 8638012

www.magnith.com

Assistance

How to request assistance

For all requests for assistance, the customer must contact Magni Telescopic Handlers S.r.l. After-Sales Service or Sales network directly, indicating the data given on the vehicle identification plate and the type of problem encountered.

Spare parts

For any spare parts, the customer can contact Magni Telescopic Handlers S.r.l. After-Sales Service directly, indicating the vehicle model and its serial no., and order the necessary components and/or devices.

EC DECLARATION OF CONFORMITY AND WARRANTY

EC Declaration of Conformity

DICHIARAZIONE "CE" DI CONFORMITA'

secondo Direttiva 2006/42/CE, allegato II, parte 1, lettera A

MAGNI TELESCOPIC HANDLERS

Il sottoscritto Dott. Riccardo Magni, in qualità di Legale Rappresentante della Società,

MAGNI TELESCOPIC HANDLERS S.r.l
Via Magellano 22
41013 Castelfranco Emilia (MO), Italia

quale persona autorizzata a costituire e conservare il Fascicolo Tecnico,

DICHIARA

sotto la propria esclusiva responsabilità,

che la macchina:

Carrello elevatore telescopico

MODELLO:	**HTH 10.10-D/D**
NUMERO DI SERIE:	**XXXXXXXX**
ANNO DI FABBRICAZIONE:	**XXXX**

è conforme alle disposizioni delle seguenti Direttive e loro emendamenti:

2006/42/CE		
D.Lgs. 262/2002		
2005/88/CE		
2000/14/CE procedura applicata secondo allegato V punto 1		
Organismo notificato; **ECO Certification S.p.A.** via Ragazzi del '99 33; 48018 Faenza (RA) Italia		
Organismo notificato n° 0714		
Potenza netta installata	[kW]	**100**
Livello di potenza acustica misurata L_{WA}	[dB(A)]	**104**
Livello di potenza acustica garantita L_{WA}	[dB(A)]	**106**
2014/30/UE		
2014/53/UE		

- e altresì conforme alle seguenti norme armonizzate

  EN 12895:2015+A1:2019 Carrelli industriali - Compatibilità elettromagnetica

MAGNI TELESCOPIC HANDLERS S.r.l
Dott. Riccardo Magni
Legale Rappresentante

MAGNI TELESCOPIC HANDLERS SRL
Via Magellano, 22 - Loc. Cavazzona
41013 Castelfranco Emilia (MO)
C. F. e P. IVA 03353620366
Tel. 059/8630811 - Fax 059/8638012

Castelfranco Emilia (MO), Italia, XX/XX/XXXX

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Warranty

Magni Telescopic Handlers s.r.l. ensures that its new Products (vehicles, interchangeable equipment and spare parts), under normal use and operation, shall be free from defects in material or workmanship for a period of twenty-four (24) months or 2000 hours of operation (vehicles and interchangeable equipment), and twelve (12) months, for spare parts. Each such period shall commence on the date on which Magni Telescopic Handlers S.r.l. delivers the Product to the Buyer, if the Buyer is a distributor of Magni Telescopic Handlers S.r.l. and delivers the Product to the End User. Each such period shall commence on the date of delivery of the Product by the distributor to the End User, but never more than six (6) months from the date of delivery of the Product by Magni Telescopic Handlers to the distributor, through the Magni portal channel. Spare parts mounted on or in a Product under warranty repair will acquire the warranty of the Product itself. The above warranties shall be honoured provided that Magni Telescopic Handlers S.r.l. receives written notice of the defect within thirty (30) days of its discovery, and it is stipulated that the product is stored and operated within the nominal limits and normal use and in strict compliance with the Magni Telescopic Handlers operation and maintenance manual, and the defect does not result in any way from the intervention, inactivity or abuse of the purchaser or third parties. If it cannot be established that the conditions and the above are fulfilled, this warranty will not cover the alleged defect.

If requested by Magni Telescopic Handlers, the defective product shall be returned to Magni Telescopic Handlers, or other premises designated by Magni Telescopic Handlers, for inspection. Magni Telescopic Handlers reserves the right to review product maintenance procedures to determine whether the alleged defect is covered by this warranty. Inspection procedures are required on delivery to validate warranty and workmanship.

Under the terms of this warranty, the obligation and liability of Magni Telescopic Handlers are expressly limited - at the sole discretion of Magni Telescopic Handlers S.r.l. - to the repair or replacement with new or reproduced parts or components, in any part, which Magni Telescopic Handlers S.r.l. finds defective in material or manufacture. Spare parts will be supplied to the buyer in accordance with Magni Telescopic Handlers S.r.l.'s current warranty management procedures.

All products replaced under warranty become the property of Magni Telescopic Handlers S.r.l.

Accessories, assemblies and components included in the products, which are not manufactured by Magni Telescopic Handlers, are subject to the warranty of their respective manufacturers.

This warranty shall be deemed null and void if the parts (including worn parts) used or assembled to the product are not original Magni Telescopic Handlers S.r.l. or if the serial numbers have been altered, made illegible or removed with respect to Magni Telescopic Handlers products or if the product has been tampered with without Magni Telescopic Handlers' prior written consent.

MAGNI TELESCOPIC HANDLERS MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE WHATSOEVER.

No employee or representative is authorised to modify this warranty unless such modification is made in writing and signed by an authorised officer of Magni Telescopic Handlers.

This warranty is intended to be continuous for the specified periods. Magni Telescopic Handlers does not accept interruptions and resumptions of such periods (“stop-and-go”).

Magni Telescopic Handlers S.r.l.'s obligation under this warranty does not include the items listed below under “This warranty does not cover”.

NON-TRANSFERABILITY OF THIS WARRANTY: This warranty is limited to the buyer or, where the purchase is made from a Magni Telescopic Handlers distributor, to the first end-user using the product, and is not assignable or otherwise transferable without the prior written consent of Magni Telescopic Handlers.

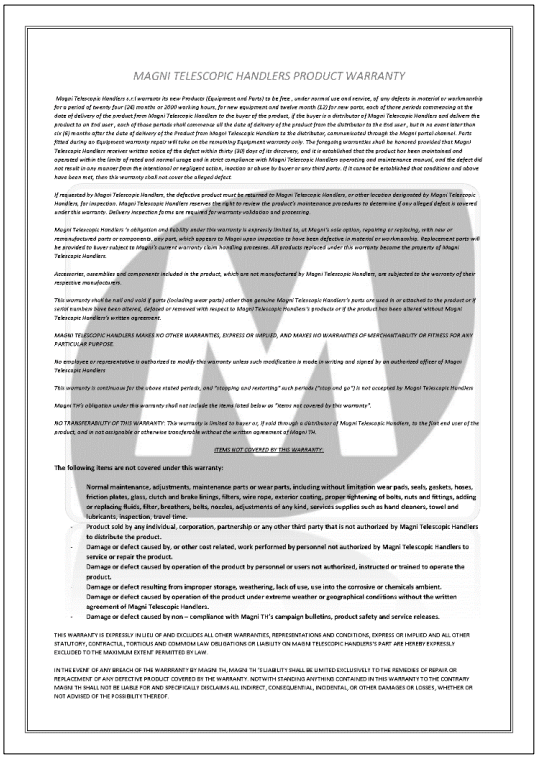
<u>THIS WARRANTY DOES NOT COVER:</u>

- normal maintenance, repair, spare or worn parts, including without limitation bearings, seals, couplings, hoses, clutch plates, glass, clutch and brake linings, filters, rope, outer covering, proper sealing of bolts, nuts and fittings, addition or replacement of fluids, filters, vents, belts, nozzles, adjustments of any kind, supplies and services offered, such as hand cleansers, wipes and lubricants, inspections, travel time.
- Products sold by any person, company, collaborator or any other third party who is not authorised to distribute the product by Magni Telescopic Handlers.
- Damage or defects, or any related costs, resulting from work performed by personnel not authorised to service and repair the product by Magni Telescopic Handlers.

- Damage or defects caused by the use of the product by personnel or operators not authorised, instructed or trained in the use of the product.
- Damage or defects resulting from inappropriate storage, exposure to external agents, non-use, use in an environment with the presence of chemical or corrosive agents.
- Damage or defects caused by using the product in extreme geographical or weather conditions without the prior written consent of Magni Telescopic Handlers.
- Damage or defects caused by non-compliance with Magni Telescopic Handlers' campaign bulletins, product safety and service announcements.

THIS WARRANTY EXPRESSLY SUPERSEDES AND EXCLUDES ALL OTHER WARRANTIES, REPRESENTATIONS AND CONDITIONS, EXPRESS OR IMPLIED, AND ALL OTHER LEGAL, CONTRACTUAL, NON-CONTRACTUAL AND COMMON LAW OBLIGATIONS OR LIABILITIES ON THE PART OF MAGNI TELESCOPIC HANDLERS S.R.L., WHICH ARE HEREBY EXPRESSLY EXCLUDED TO THE FULLEST EXTENT PERMITTED BY LAW.

IN THE EVENT OF ANY BREACH OF WARRANTY BY MAGNI TELESCOPIC HANDLERS, ITS LIABILITY SHALL BE LIMITED EXCLUSIVELY TO THE REMEDIES OF REPAIR OR REPLACEMENT OF ANY DEFECTIVE PRODUCT COVERED BY THE WARRANTY. EXCEPT AS OTHERWISE CONTAINED IN THIS WARRANTY, MAGNI TELESCOPIC HANDLERS DISCLAIMS ALL LIABILITY AND SPECIFICALLY EXCLUDES ANY INDIRECT, CONSEQUENTIAL, INCIDENTAL OR ANY OTHER DAMAGES OR LOSSES WHETHER OR NOT ADVISED OF.



MAGNI TELESCOPIC HANDLERS PRODUCT WARRANTY

Magni Telescopic Handlers s.r.l warrants its new Products (Equipment and Parts) to be free , under normal use and service, of any defects in material or workmanship for a period of twenty four (24) months or 2000 working hours, for new equipment and twelve month (12) for new parts, each of these periods commencing at the date of delivery of the product from Magni Telescopic Handlers to the buyer of the product, if the buyer is a distributor of Magni Telescopic Handlers and delivers the product to an End user, each of those periods shall commence all the date of delivery of the product from the distributor to the End user, but in no event later than six (6) months after the date of delivery of the Product from Magni Telescopic Handlers to the distributor, communicated through the Magni portal channel. Parts fitted during an Equipment warranty repair will take on the remaining Equipment warranty only. The foregoing warranties shall be honored provided that Magni Telescopic Handlers receives written notice of the defect within thirty (30) days of its discovery, and it is established that the product has been maintained and operated within the limits of rated and normal usage and in strict compliance with Magni Telescopic Handlers operating and maintenance manual, and the defect did not result in any manner from the intentional or negligent action, inaction or abuse by buyer or any third party. If it cannot be established that conditions and above have been met, then this warranty shall not cover the alleged defect.

If requested by Magni Telescopic Handlers, the defective product must be returned to Magni Telescopic Handlers, or other location designated by Magni Telescopic Handlers, for inspection. Magni Telescopic Handlers reserves the right to review the product's maintenance procedures to determine if any alleged defect is covered under this warranty. Delivery inspection forms are required for warranty validation and processing.

Magni Telescopic Handlers 's obligation and liability under this warranty is expressly limited to, at Magni's sole option, repairing or replacing, with new or remanufactured parts or components, any part, which appears to Magni upon inspection to have been defective in material or workmanship. Replacement parts will be provided to buyer subject to Magni's current warranty claim handling processes. All products replaced under this warranty become the property of Magni Telescopic Handlers.

Accessories, assemblies and components included in the product, which are not manufactured by Magni Telescopic Handlers, are subjected to the warranty of their respective manufacturers.

This warranty shall be null and void if parts (including wear parts) other than genuine Magni Telescopic Handlers's parts are used in or attached to the product or if serial number have been altered, defaced or removed with respect to Magni Telescopic Handlers 's products or if the product has been altered without Magni Telescopic Handlers's written agreement.

MAGNI TELESCOPIC HANDLERS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, AND MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

No employee or representative is authorized to modify the warranty unless such modification is made in writing and signed by an authorized officer of Magni Telescopic Handlers

This warranty is continuous for the above stated periods, and "stopping and restarting" such periods ("stop and go") is not accepted by Magni Telescopic Handlers

Magni TH's obligation under this warranty shall not include the items listed below as "items not covered by this warranty".

NO TRANSFEREABILITY OF THIS WARRANTY: This warranty is limited to buyer or, if sold through a distributor of Magni Telescopic Handlers, to the first end user of the product, and is not assignable or otherwise transferable without the written agreement of Magni TH.

ITEMS NOT COVERED BY THIS WARRANTY:

The following items are not covered under this warranty:

- Normal maintenance, adjustments, maintenance parts or wear parts, including without limitation wear pads, seals, gaskets, hoses, friction plates, glass, clutch and brake linings, filters, wire rope, exterior coating, proper tightening of bolts, nuts and fittings, adding or replacing fluids, filter, breathers, belts, nozzles, adjustments of any kind, services supplies such as hand cleaners, towel and lubricants, inspection, travel time.
- Product sold by any individual, corporation, partnership or any other third party that is not authorized by Magni Telescopic Handlers to distribute the product.
- Damage or defect caused by, or other cost related, work performed by personnel not authorized by Magni Telescopic Handlers to service or repair the product.
- Damage or defect caused by operation of the product by personnel or users not authorised, instructed or trained to operate the product.
- Damage or defect resulting from improper storage, weathering, lack of use, use into the corrosive or chemicals ambient.
- Damage or defect caused by operation of the product under extreme weather or geographical conditions without the written agreement of Magni Telescopic Handlers.
- Damage or defect caused by non – compliance with Magni TH's campaign bulletins, product safety and service releases.

THIS WARRANTY IS EXPRESSLY IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, REPRESENTATIONS AND CONDITIONS, EXPRESS OR IMPLIED AND ALL OTHER STATUTORY, CONTRACTUL, TORTIOUS AND COMMON LAW OBLIGATIONS OR LIABILITY ON MAGNI TELESCOPIC HANDLERS'S PART ARE HEREBY EXPRESSLY EXCLUDED TO THE MAXIMUM EXTENT PERMITTED BY LAW.

IN THE EVENT OF ANY BREACH OF THE WARRANTY BY MAGNI TH, MAGNI TH 'S LIABILITY SHALL BE LIMITED EXCLUSIVELY TO THE REMEDIES OF REPAIR OR REPLACEMENT OF ANY DEFECTIVE PRODUCT COVERED BY THE WARRANTY. NOTWITH STANDING ANYTHING CONTAINED IN THIS WARRANTY TO THE CONTRARY MAGNI TH SHALL NOT BE LIABLE FOR AND SPECIFICALLY DISCLAIMS ALL INDIRECT, CONSEQUENTIAL, INCIDENTAL, OR OTHER DAMAGES OR LOSSES, WHETHER OR NOT ADVISED OF THE POSSIBILITY THEREOF.

Recall campaigns for product defects

Magni Telescopic Handlers S.r.l., only after ascertaining the nature of the defect found, shall agree with its dealers, resellers and authorised workshops on the method and time of intervention (repair, replacement, modification).

Any work carried out without authorisation, communication sent to/received from Magni Telescopic Handlers S.r.l. or in full autonomy, shall invalidate the warranty on the modified/replaced element and on directly related parts that could be affected by poorly performed work.

GENERAL WARNINGS

NOTICE

Read this manual before using the vehicles covered in it.

WARNING

Vehicles may only be operated and/or repaired by qualified and properly trained and instructed personnel.

DANGER

It is strictly forbidden to use the vehicle in an enclosed area with an explosive atmosphere or where vapours, gases or dusts are created that could make it potentially explosive (as described above), as this telescopic handler does not comply with ATEX ("ATmosphere EXplosive") regulations.

DANGER

All uses of the vehicles and operating procedures not described in this manual are prohibited.

It is strictly forbidden to use the vehicles and their applications otherwise than in accordance with this manual and the nature for which they were designed.

WARNING

Check the condition of the vehicle and interchangeable equipment in use on a daily basis before using them: safety devices, oil leaks, condition of service and safety stickers present.

If there are anomalies and/or damage, make the necessary corrections.

- Do not use the vehicles with wet hands and/or shoes, grease or oil on them.
- If the operator is new to the vehicle, he/she must become familiar with it before using and manoeuvring it in an open area to learn its dimensions as well as the controls and their position.
- Use all appropriate precautions when driving the vehicle:
  - verification of the work area,
  - verification of the weather conditions,
  - signal the movement of the vehicle with an acoustic and light signal,
  - always keep a safe distance from people or things.
- Carefully read the Use and Maintenance Manual of the equipment you intend to use with the vehicle in order to know its specific uses and warnings.

DANGER

Do not operate under the influence of medicinal, alcoholic or narcotic substances that may impair the driver's reflexes.

DANGER

Do not smoke or light naked flames under any circumstances whatsoever. Naked flames in contact with fuel, oil or solvents present on the vehicle or necessary for its maintenance can cause injuries, even fatal.

Inhalation of gases produced by a flame or contact with coolant gas can cause injury to the respiratory airways, even fatal.

DANGER

Do not stand or walk near moving operating vehicles.

DANGER

Do not carry passengers on the vehicle and any equipment connected to it.

DANGER

Do not carry passengers on the vehicle and any equipment connected to it.

Hazards and safety instructions

The persons involved in the operational phases on the construction site must become aware of the potential risks present and the safety measures to be followed.

Appropriate accident-prevention clothing and equipment specific to each type of work must be worn.

ATTENTION

Keep Personal Protective Equipment (PPE) in good condition.

Accident-prevention clothing and equipment must always be in good condition and the right size to perform the assigned task.

Replace immediately in case of damage or incorrect sizes before starting or continuing operations.

In order to carry out site activities correctly, always wear:

- protective footwear with anti-crush toe cap and anti-puncture sole,
- protective gloves,
- appropriate clothing,
- high visibility clothing,
- protective goggles,
- protective helmet for falling objects.

NOTICE

In view of the several processing steps that can occur, be aware in advance of the activities to be performed in order to have the required equipment when needed.

Noise protection

WARNING

Wear hearing protection devices (headphones or earplugs) to protect yourself from excessive and annoying noise.

Prolonged exposure to loud noises can lead to hearing damage or loss.

Crushing hazard

DANGER

Pay attention to mobile and/or moving parts to avoid crushing or dragging.

Prevention of cuts and crushing

Support the equipment adequately before carrying out any kind of work on it. Do not rely on hydraulic jacks for supporting the equipment: these may fall if a pipe breaks or in case of involuntary activation.

Do not try to make any adjustment while the vehicle is in motion or with the engine switched on, unless otherwise specified.

Avoid tampering with the electrical system of the vehicle to try starting the engine. This may cause involuntary movements of the equipment.

Keep at a safe distance while operating the equipment using the control levers. Increase the safety distance if there is a possibility of the moving parts making rapid and sudden movements.

If it is necessary to remove the safety devices fitted on the vehicle to carry out maintenance or repairs, always refit these at the end of operations.

Keep limbs away from the moving fan blades. The fast moving blades are comparable to sharp blades, and can cause serious tears.

Keep small objects away from the moving fan blades. The blades may throw off these objects at high speed, making it dangerous for the safety of persons.

Do not use frayed or bent steel cables. Always wear protective gloves while handling steel cables.

If a pin is tapped with great force, it may come out of its seat suddenly. A pin thrown off with force can cause serious injuries to persons in the vicinity. If tapping on a pin, make sure there is no one in the surrounding area.

WARNING

When removing pins, ensure that you have secured the parts in question to prevent them from falling accidentally and causing damage and injury to property and persons.

Danger from hanging load

DANGER

Pay attention to suspended loads, danger of falling material. Do not approach people when using the vehicle; keep a safe distance.

Danger of burns

DANGER

Do not touch the engine or any components directly connected to it during operation. Allow the engine to cool down before carrying out any maintenance. Before disconnecting any component of the hydraulic or pneumatic circuits, make sure all the residual pressure has been discharged from the circuit.

After operation, the engine coolant is hot and under pressure. Contact with hot water or steam leaks can cause severe burns.

Avoid possible injuries caused by hot water jets. Do not remove the radiator cap until the engine has cooled down. To open, unscrew the cap until it stops. Before removing the cap, discharge all of the pressure.

The oil in the engine, gearboxes and hydraulic system heats up during vehicle operation. The engine, rigid and flexible hoses and other components heat up.

Wait for the components to cool down before starting maintenance or repairs.

Avoid these hazards while repairing or carrying out maintenance on the vehicle by discharging the pressure (with the hydraulic levers on the control valves) before disconnecting or repairing hoses and hydraulic parts.

Before restarting the engine make sure that all fittings are tightened correctly.

Look for any leaks with a piece of cardboard; make sure that your hands and body are protected against pressurised fluids. Protect your eyes with a face shield or safety goggles.

If an accident occurs, immediately seek medical attention. Any fluid injected under the skin must be surgically removed within a few hours to avoid infection.

Danger of battery explosion

DANGER

Keep away from battery poles, sparks, open flames and/or cigarettes.

Do not overturn or tilt the battery to prevent acid leakage.

Do not generate sparks when connecting batteries when charging or connecting with other batteries.

Do not charge batteries at extreme temperatures (too hot or cold) or if they are damaged: they may burst.

When servicing batteries, always wear protective gloves and goggles.

Electrocution hazard

DANGER

All maintenance work and/or adjustments to be performed on live parts must only be carried out by qualified and suitably trained personnel.

Works near power lines

In the case of work to be performed in the presence of power lines, check in advance the availability of adequate safe manoeuvring space.

DANGER

When working close to power lines, maintain the distances specified below:

Voltage (kV)	Distance (m)
≤ 1	3
1 < Un ≤ 30	3.5
30 < Un ≤ 132	5
> 132	7

Source Italian Legislative Decree No. 81/08 Annex IX for ITALY.

For work close to unprotected power lines performed outside Italy, refer to the local regulations.

WARNING

If it is necessary to work close to power lines, organise the work with an operator on the ground who, at a safe distance, can supervise the vehicle's movements and inform the operator in the cab about excessive proximity to power cables.

The vehicle operators must equip themselves with rubber shoes and gloves, cover the vehicle seat with a rubber cover and take care not to touch any part of the chassis with unprotected body parts.

DANGER

In the event of contact of power lines with the vehicle, the operator inside the vehicle must remain inside waiting for the power supply to be interrupted.

Accident prevention in case of thunderstorms with lightning

DANGER

During a thunderstorm with lightning, the operator must move away from the vehicle and keep at a safe distance.

Never try to climb on or get down from the vehicle if lighting strikes in the vicinity. The operator in the cab must stay inside until the thunderstorm and lightning is over.

Risk of slipping

DANGER

During operations carried out on site, the areas around the equipment can contain various kinds of debris and liquids (oil, water, etc.) that can make the ground slippery. Be extremely careful.

Risk of falling, tripping

DANGER

Be extremely careful when climbing up and down the vehicle.

Penetration of fluids

DANGER

Pressurised fluids such as fuel or hydraulic oil can penetrate the skin or eyes, causing serious injury.

The pressure values in the hydraulic circuit may remain high for a long time even after the vehicle is switched off. If not discharged properly, the pressure can cause violent ejection of oil and objects.

Do not disconnect or dismantle any of the hydraulic components if the pressure has not been discharged correctly, as this can lead to serious accidents.

Refer to the maintenance section of this Manual for the methods for discharging the hydraulic pressure correctly.

Pressurised air and water

DANGER

Pressurised water can cause injury to tissues, especially if accompanied by debris. Compressed air can cause injuries. If water or compressed air is used for cleaning operations, wear suitable protective equipment, in particular for sensitive organs like the eyes.

NOTICE

The maximum air pressure for cleaning must be less than 2 bar. The maximum water pressure must be less than 3 bar.

Limiting the ejection of liquids

ATTENTION

It is necessary to deal with the leakage of liquids during the operations carried out on the vehicle. Provide suitable containers for collecting the liquids before acting on any component of the vehicle containing fluids.

Dispose of the liquids used in compliance with the regulatory standards in force in the country in which the vehicle will be used.

Braking system accumulators

DANGER

Take utmost care while performing maintenance on the pressurised accumulators.

In order to remove the accumulators safely, switch off the vehicle and then pump the brake pedal about 35 to 40 times.

Once this has been done, and wearing appropriate PPE (overalls, goggles, gloves), carefully wrap an absorbent cloth around the accumulator coupling and start gently unscrewing it, allowing the oil to slowly bleed out until it runs dry.

When the pressure has been fully discharged, remove the accumulator and replace it.

Storage of hazardous liquids

DANGER

All fuels, most lubricants and some antifreeze liquids are flammable; handle them with care to avoid fire and potential explosion.

WARNING

Keep flammable products away from persons not competent and authorised to handle them.

WARNING

Under no circumstances should substances of a different type be mixed.

DANGER

Due to the toxicity of the chemicals, avoid contact with skin and eyes by wearing suitable PPE.

Information regarding AdBlue®

AdBlue® is a water-soluble non-flammable, non-toxic, colourless, odourless liquid. It may be referred to as “urea” or “DEF” (Diesel Exhaust Fluid).

If AdBlue® comes in contact with painted surfaces or aluminium, wash the areas concerned immediately with water.

ATTENTION

Do not mix AdBlue® with any additive. Mixing additives with AdBlue® can cause serious faults in the plant for post-treatment of exhaust gases.

Any impurity present in AdBlue® can cause malfunctioning of the engine and of the exhaust gases post treatment system. Make sure the AdBlue® is free of impurities. Do not reuse the AdBlue extracted from the system.

This sign is positioned near the AdBlue® tank connector.

AdBlue® and high temperatures

The chemical composition of AdBlue® can change if exposed to temperatures exceeding 50°C (122°F), releasing ammonia vapours.

WARNING

Ammonia vapours are highly toxic and corrosive. Ammonia vapours have a pungent smell, and irritate:

The skin;

The airways;

The eyes.

Do not open the AdBlue tank or any part of its supply circuit while the liquid is hot.

Strictly avoid inhaling ammonia vapours or contact with the eyes and skin.

In case of contact with any part of the body, rinse immediately with water for at least 15 minutes and see a doctor immediately.

AdBlue® and low temperatures

AdBlue® freezes at temperatures below -11°C (12.2°F). In any case, it is possible to use the vehicle below -11°C (12.2°F). AdBlue® crystals are mainly formed in the lines between the engine and silencer. Wash with water to remove these crystals.

Storage and disposal

To store AdBlue®, use only containers made of one or more of the following materials:

Cr-Ni steel according to standards
DIN EN 10088-1 /2 /3;

Mo-Cr-Ni steel according to standard
DIN EN 10088-1 /2 /3;

Polypropylene;

Polyethylene.

Do not use containers made of the following materials:

Aluminium;

Copper;

Copper alloys;

Non-alloy carbon steels;

Galvanised steels.

AdBlue® can corrode these materials and cause severe damage to the exhaust gases post-treatment system.

Dispose of AdBlue® in accordance with the standards in force in the country in which the vehicle is used.

NOTICE

For engines meeting Stage V anti-pollution standards, in order to protect the AdBlue® purification system, wait at least 5 minutes after the engine is switched off before disconnecting the main electrical circuit.

Information regarding asbestos

Magni Telescopic Handlers S.r.l. products and spare parts are asbestos-free. Using non-genuine spare parts can lead to risk of handling products containing asbestos.

Avoid inhaling dusts which may be produced when handling components containing asbestos fibres. Inhaling these dusts can be harmful for health. The non-original components which may contain asbestos are the friction elements of the brakes and clutches, linings and types of gaskets. The asbestos used in these components is generally immersed in resin or sealed in another manner. Normal handling is not hazardous as long as suspended dusts are not produced.

DANGER

If dusts containing asbestos are present, the following precautions must be taken:

Do not use compressed air for cleaning;

Avoid brushing materials containing asbestos;

Avoid grinding materials containing asbestos;

Use wet cleaning methods for parts containing asbestos;

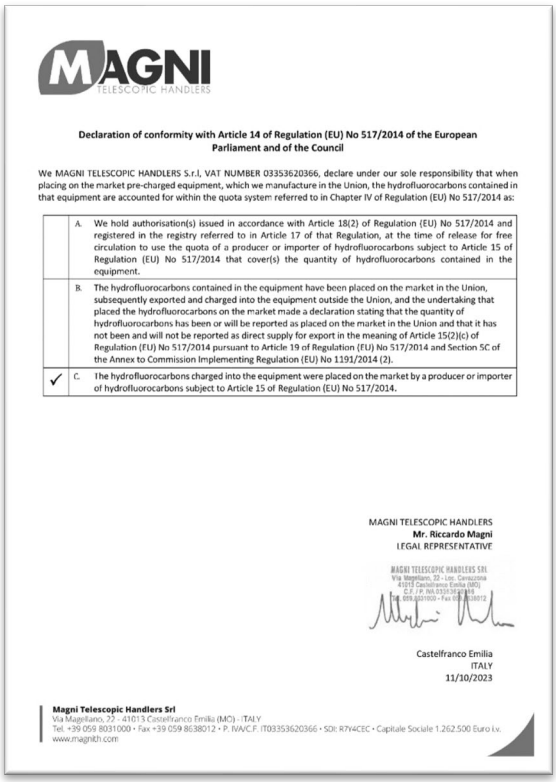
Equip the work area with appropriate air extractors;

If there are no other methods for controlling the dusts, wear a suitable respiratory mask;

Avoid areas where asbestos particles may be present in the air.

Information on air conditioning system in the cab

Vehicles built by Magni Telescopic Handlers S.r.l. equipped with an air conditioning system use R-134a type gas in compliance with point 15 of Annex III of European Regulation No. 517/2014.



MAGNI TELESCOPIC HANDLERS

Declaration of conformity with Article 14 of Regulation (EU) No 517/2014 of the European Parliament and of the Council

We MAGNI TELESCOPIC HANDLERS S.r.l, VAT NUMBER 03353620366, declare under our sole responsibility that when placing on the market pre-charged equipment, which we manufacture in the Union, the hydrofluorocarbons contained in that equipment are accounted for within the quota system referred to in Chapter IV of Regulation (EU) No 517/2014 as:

	A.	We hold authorisation(s) issued in accordance with Article 18(2) of Regulation (EU) No 517/2014 and registered in the registry referred to in Article 17 of that Regulation, at the time of release for free circulation to use the quota of a producer or importer of hydrofluorocarbons subject to Article 15 of Regulation (EU) No 517/2014 that cover(s) the quantity of hydrofluorocarbons contained in the equipment.
	B.	The hydrofluorocarbons contained in the equipment have been placed on the market in the Union, subsequently exported and charged into the equipment outside the Union, and the undertaking that placed the hydrofluorocarbons on the market made a declaration stating that the quantity of hydrofluorocarbons has been or will be reported as placed on the market in the Union and that it has not been and will not be reported as direct supply for export in the meaning of Article 15(2)(c) of Regulation (EU) No 517/2014 pursuant to Article 19 of Regulation (EU) No 517/2014 and Section 5C of the Annex to Commission Implementing Regulation (EU) No 1191/2014 (2).
✓	C.	The hydrofluorocarbons charged into the equipment were placed on the market by a producer or importer of hydrofluorocarbons subject to Article 15 of Regulation (EU) No 517/2014.

MAGNI TELESCOPIC HANDLERS
Mr. Riccardo Magni
LEGAL REPRESENTATIVE

Castelfranco Emilia
ITALY
11/10/2023

Magni Telescopic Handlers Srl
Via Magnifanni, 23 - 41013 Castelfranco Emilia (MO) - ITALY
Tel. +39 059 8031000 • Fax +39 059 8638012 • P. IVA/C.F. IT03353620366 • SDI: R7Y4CEC • Capitale Sociale 1.262.500 Euro i.v.
www.magnith.com

USE OF THE VEHICLE

Correct use

NOTICE

Read this manual before using the vehicles covered in it.

Be aware of all the dangers and warnings described here.

The telescopic handler is a vehicle designed for lifting material (and people with an aerial work platform) that can cause serious damage to the operator(s) and the environment if not used as intended.

Therefore, this vehicle **MUST** only be used for the purposes given in this use and maintenance manual.

Observance of the use, maintenance and repair instructions in this document are essential parts of the intended use.

WARNING

The vehicle MUST only be used by trained and qualified personnel who are aware of and follow the instructions given in this use and maintenance manual.

In some countries, it is compulsory for personnel using the telescopic handler to attend courses in order to obtain a specific licence.

Before starting the vehicle

Visual inspection

To ensure the maximum useful operating life of the vehicle, and maximum efficiency of and in the operating phases, proceed with a thorough visual inspection before every start-up of the vehicle and the working area.

Look around and under the vehicle, checking to make sure there are no loose or missing bolts, no accumulated dirt, leakage of oil, fuel and other liquids, broken or worn parts.

Check the state of the equipment and hydraulic components.

Check the state and wear of the tyres. If necessary, adjust the inflation pressure.

Check the levels of the oil, coolant and fluid.

Check the AdBlue® tank level (if present).

Remove all accumulated dirt and debris. Carry out all the repairs necessary before starting up the vehicle.

Take a view of the work area, check for any obstacles and assess their extent and the best approach to the operational phases.

Clean the windows, headlamp glass and rear-view mirrors.

Adjust the orientation of the rear-view mirrors to best cover the visual area around the vehicle.

Remove dirt residues from the engine, radiator and the various joints on the vehicle (steering hubs, slewing jack, telescopic boom hinges, etc.)

Clean and ensure that steps and grab handles in the cab are dry.

Check the integrity and legibility of all safety and information stickers: replace if not in good conditions.

Check for damage or missing parts.

Check the correct functioning of all joints.

Before starting the engine, check the level of all the fluids: engine oil, transmission oil, hydraulic oil, coolant, fuel, urea.

Check under the vehicle for oil, fuel or coolant leaks.

Check the tightness of the wheel bolts.

Check the condition of the tyres and the inflation pressure.

Make sure all the hoods are closed and all guards are installed correctly on the vehicle.

WARNING

It is forbidden to start work with the vehicle or equipment not in perfect condition.

Concomitant work phases

In the presence of other operating vehicles in the same work area, call a meeting to organise the operational phases.

Assess the presence of a suitably trained signalman to coordinate manoeuvres in the vicinity of several vehicles.

Ensure that the operators in the cab are familiar with the indications given by the signalman on the ground.

Reasonably foreseeable misuse

During daily work, it can happen that the vehicle may be used incorrectly or the instructions in this manual may not be followed.

ATTENTION

Experience has taught us that there may be some indications of reasonably foreseeable misuse of the telescopic handler.

The various types of telescopic handler misuse are strictly forbidden by the manufacturer.

Below is a list of reasonably foreseeable, potentially dangerous situations of misuse:

- the accidental loss of control of the vehicle by the operator;
- the behaviour resulting from a lack of concentration or carelessness by the operator, which does not stem from a desire to misuse the vehicle;
- operating the vehicle on sloping ground without following the guidelines described in the relevant section of this manual;
- the instinctive, unforeseeable reaction of an operator in the event of a malfunction, accident or breakdown while using the vehicle;
- the operator using the vehicle with the feeling that the protection devices are only a hindrance to the operations to be carried out;
- the behaviour resulting from the adoption of the “law of least effort” while carrying out a task with the vehicle;
- the behaviour resulting from external pressure on the operator to keep the vehicle in operation under all circumstances, even potentially dangerous ones;
- the predictable behaviour of certain categories of people such as: adolescents, trainees, apprentices, disabled people, etc.;
- operators tempted to use the vehicle for a bet, for competitions, etc.

WARNING

It is absolutely forbidden to carry passengers other than the driver in the vehicle: they may obstruct the view and hinder the driving manoeuvres of the regularly seated operator.

WARNING

It is absolutely forbidden to transport people in the presence of a passenger platform, even if it is regularly coupled and certified.

The platform may only be used when the vehicle is parked on a flat surface and the parking brake is engaged.

Incorrect use

WARNING

It is strictly forbidden to use the vehicles without adequate knowledge of them.

WARNING

It is strictly forbidden to use the vehicle as a ram to demolish structures: Magni Telescopic Handlers are not designed to withstand and support such stresses.

WARNING

It is strictly forbidden to lift material and persons without the use of specific interchangeable equipment: it is forbidden to tie straps directly onto the telescopic boom or quick-fit coupling.

WARNING

It is absolutely forbidden to carry passengers other than the driver in the vehicle: they may obstruct the view and hinder the driving manoeuvres of the regularly seated operator.

Safety devices

WARNING

Before using the vehicle, ensure that all safety devices are visible and working properly.

Should you find any anomalies in the safety devices, stop working until the fault has been repaired (Contact your dealer or Magni Telescopic Handlers S.r.l. Support Service).

Check that the symbols and safety stickers are clearly legible.

For your own safety and that of others, do not disable or alter operation of the safety devices.

WARNING

When using equipment with electrical or hydraulic connections, these must always be connected properly to the vehicle with the respective connectors.

Failure to connect them stops the safety devices from working correctly, with a risk of damage to property and people and a risk of overturning the vehicle.

The main checks for the equipment safety devices are recommended by the manufacturer with time schedules and must be indicated on the Inspection Register attached to this manual or in the manual of the equipment.

These checks ensure that the safety devices work correctly.

Safety devices on the vehicle

Below is a list of the main safety devices on the vehicle:

- ROPS-FOPS certified cab
- Emergency light
  (red beacon on top of the cab)
- Emergency stop button in the cab
- Safety symbols and stickers on the vehicle
- Driver's seat microswitch
  (operator seated correctly)
- Dead Man's Joystick Button
  (manoeuvre enabling button)
- Seat belt, driver's seat
- Emergency exit
  (door side glass and back window in cab)
- Parking brake button **(P)**
- Hazard lights button
- Emergency hydraulic pump
- Quick-fit coupling shear pin
- Work area Control System
- Load Control System (LMI)
- Fire extinguishers (depending on equipment)

A detailed description of the safety devices listed can be found in the relevant sections of this manual.

Roll-Over Protective Structure (ROPS), Falling Objects Protective Structure (FOPS)

The cab structure is designed, tested and certified (**Level II**) ROPS/FOPS. The certification label is applied in the upper part inside the cab.

WARNING

Any alteration of the structure can weaken and put the operator at risk.

The protection offered by ROPS/FOPS structures will be affected in case of structural damage.

Avoid structural repair or modification of the ROPS/FOPS structure. These operations will make the structure different from the original, and cause invalidation of the certification.

Sound pressure level

The sound pressure level perceived by the operator inside the cab is less than 80 dB. This level was measured on a standard vehicle. The measuring procedure used is described in detail in the following standards:

EN 12053

ISO 11201

Sound power level

The level of acoustic power emitted (guaranteed) is indicated inside the cab for each model according to the applied engine. The measurement was carried out according to Directive 2000/14/EC subsequently modified by Directive 2005/88/EC.

Vibration level

Hands and arms are subjected to an average weighted acceleration level less than 5 m/s^2.

The entire body is subjected to an average weighted acceleration level less than 1 m/s^2.

These levels are measured on a standard vehicle. The measuring procedure used is described in detail in the following standards:

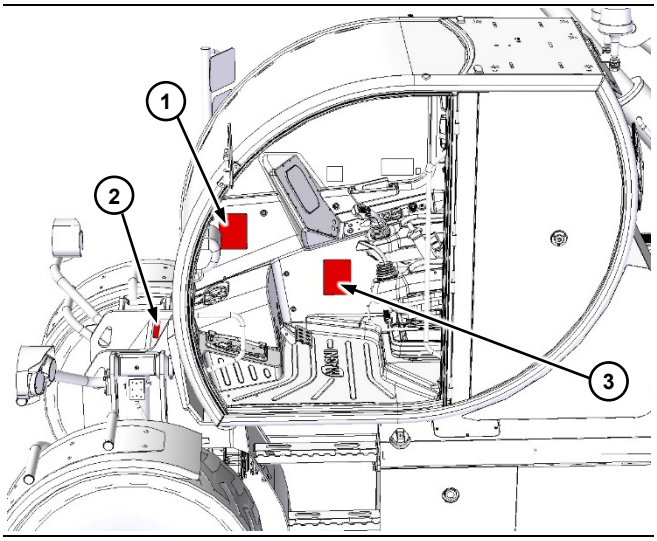
ISO 2631-1:2014

UNI EN ISO 5349-1:2004

UNI EN 13059:2008

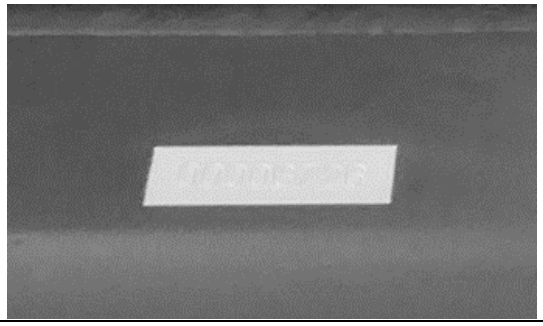
VEHICLE'S IDENTIFICATION ELEMENTS

Vehicle plates and marking

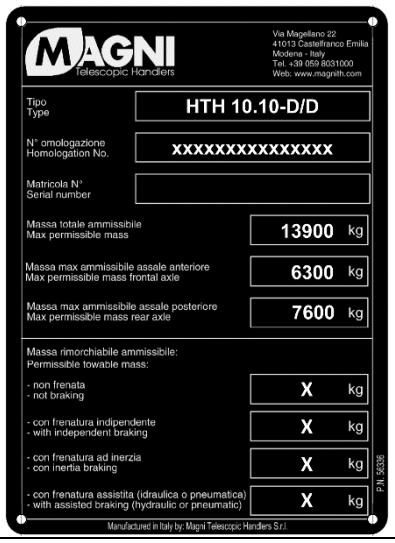


① The manufacturer's plate with the vehicle's identification data is located in the cab at the front right, next to the steering wheel.

② The serial code marking is located in the front section of the boom compartment.

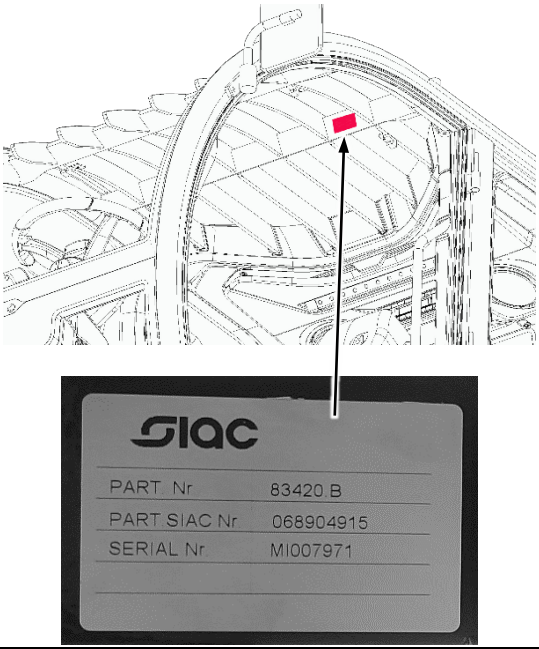


③ The road use certification data plate is located in the cab in the bottom right-hand corner, next to the driver's seat.



Cab identification plate

The cab identification plate is located on the upper crossbar, to the left of the driver.



Engine identification plate

The engine identification plate is applied on the upper part of the cover.

Transmission pump identification plate

The data plate of the transmission pump is located on the pump itself inside the engine compartment.

Service pump identification plate

The service pump identification plate is affixed to the pump inside the engine compartment.

Gear pump identification plate

The gear pump identification plate is affixed to the pump inside the engine compartment, as shown above.

Transmission motor identification plate

The name plate of the transmission motor is located on the motor itself, which is positioned on the front axle of the vehicle. To access it, lie down under the vehicle between the two axles near the right front wheel.

Axles identification plate

The axles (front and rear) identification plate is affixed on the top of the differential.

WARNING

Do not remove/damage the plates on the vehicle and its components. The absence of a plate can have an impact on the correct identification of the vehicle/components with consequences in terms of:

- **warranty**
- **certification**
- **safety**

TECHNICAL PRODUCT INFORMATION

Glossary

Front:

area in front of the operator correctly seated in the cab while the vehicle is travelling forward.

Back:

side behind the operator correctly seated in the cab while the vehicle is travelling forward.

Right side:

side to the right of the operator correctly seated in the cab while the vehicle is travelling forward.

Left side:

side to the left of the operator correctly seated in the cab while the vehicle is moving forward.

Works vehicle / vehicle / telescopic handler:

self-propelled vehicle intended for operation on roads or construction sites equipped with special interchangeable equipment.

Interchangeable equipment:

device which, when assembled with the works vehicle, allows the latter to work in a specific way.

Features of the vehicle

This telehandler model is equipped with the following standard elements:

- 4-wheel drive and steering of equal size;
- Limited slip differential on axle;
- Swing lock on rear axle;
- Steering alignment indicator;
- Porthole device with block for dangerous movements;
- Easy selection of interchangeable equipment;
- Telescopic boom limit switch;
- Two-way hydraulic supply at the boom end;
- Two-speed travel speed;
- Road lights;
- Work lights;
- Airtight driver's cab with heating, demisting, ventilation and air conditioning, soundproofed and ROPS / FOPS certified;
- Front, rear and top window wipers;
- Adjustable seat;
- Adjustable steering wheel;
- Service alarms;
- Digital display;
- Working area limit control;
- Joystick for hydraulic controls;
- Hydraulic movements with proportional control valve;
- Radio with media player;
- Two-speed operation;
- Lockable fuel cap;
- Front/top windscreen protection grid.

Optional accessories

Below is a list of accessories available for your vehicle model that can be installed at the time of your order or later by contacting your local dealer (if the vehicle is properly preset):

- Cameras for perimeter view
- Standard radio control;
- Complete tow hook;
- Double hydraulic output at the boom head;
- Engine coolant heater;
- Hydraulic oil heater;
- Complete right spare wheel;
- Complete left spare wheel;
- Road use (subject to country-specific certification);
- Boom suspension;
- Air suspension seat;
- Heated seat 24V;
- 24V heated rear view mirrors;
- DAB Radio;
- 110V/220 Volt plug at boom end;
- Pair of LED headlights on the top-front of the cab;
- Pair of LED headlights on the top-rear of the cab;
- Pair of LED boom lights;
- Nordic climate package;
- Hydraulic equipment lock at the telescopic boom end;
- External battery disconnect switch;
- Protective grilles for cab windows;
- Wheel chocks.

NOTICE

The list of optional accessories is subject to change without notice.

Interchangeable equipment

- Fork attachment plate
- Lifting hook
- Lattice-encased boom with lifting hook
- Hydraulic winch
- Aerial work platform for passenger transport
- Bucket for concrete
- Bucket for light material
- Debris bucket
- Wheel handling gripper

NOTICE

The list of interchangeable equipment is subject to change without notice.

ATTENTION

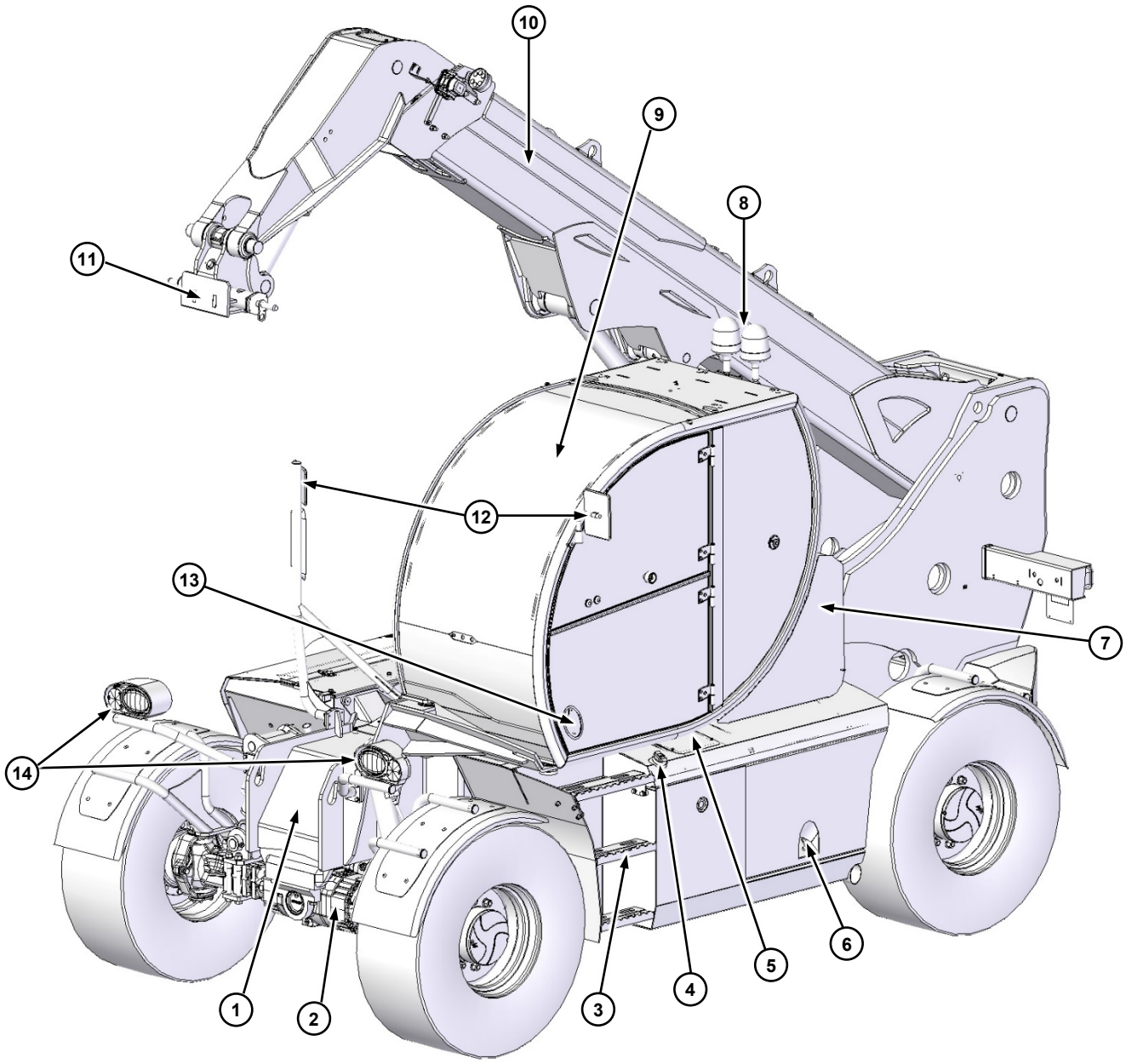
All interchangeable equipment not manufactured by Magni Telescopic Handlers S.r.l., in order to be connected to its vehicles, must mandatorily have test clearance and approval from Magni Telescopic Handlers S.r.l..

WARNING

The use of unauthorised equipment by Magni Telescopic Handlers S.r.l. entails full liability on the part of the operator in terms of damage to property and injury to persons.

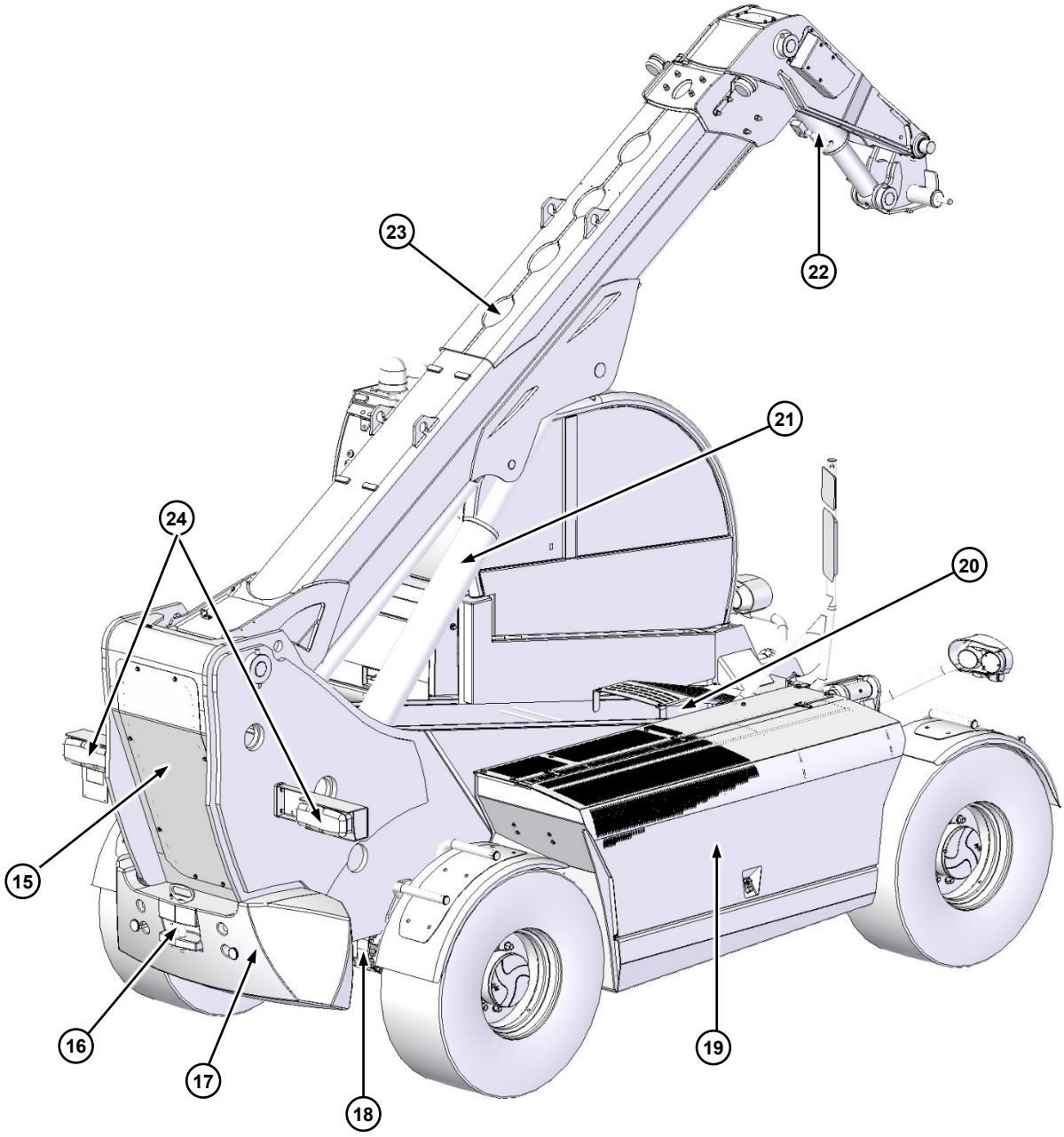
General description of the vehicle

Front/left side



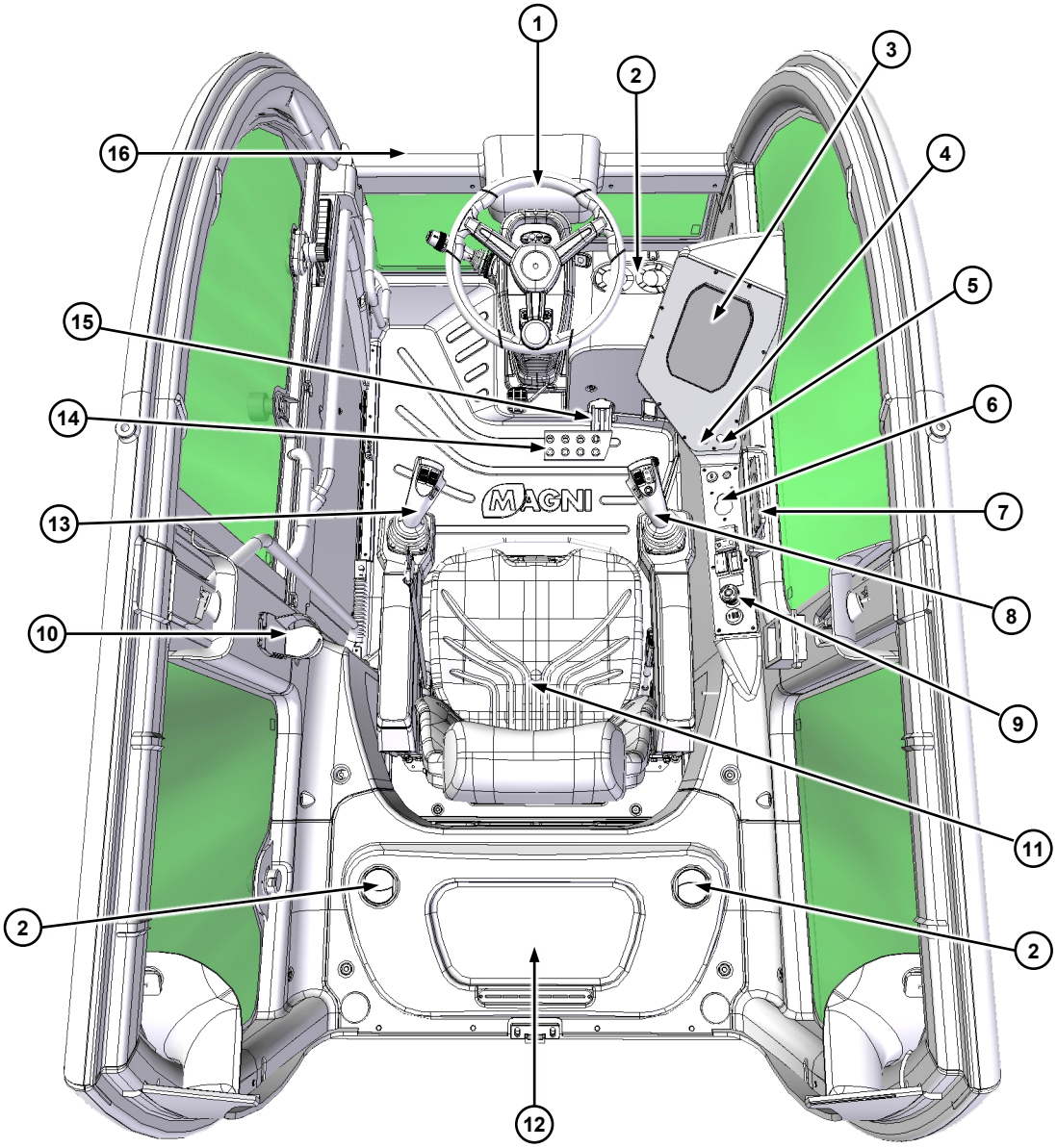
1	Chassis	2	Front axle
3	Cab access ladder	4	Diesel tank
5	Hydraulic service oil tank	6	Electrical system technical compartment, slewing variable-reach truck and/or AdBlue tank
7	Electrical /hydraulic system technical compartment / cab air filter	8	Manoeuvre/alarm signal lights
9	Driving and manoeuvring cab	10	Telescopic boom
11	Interchangeable equipment quick-fit coupling	12	Rear view mirrors
13	Cab access door	14	Slewing variable-reach truck front lighting devices

Rear/right side



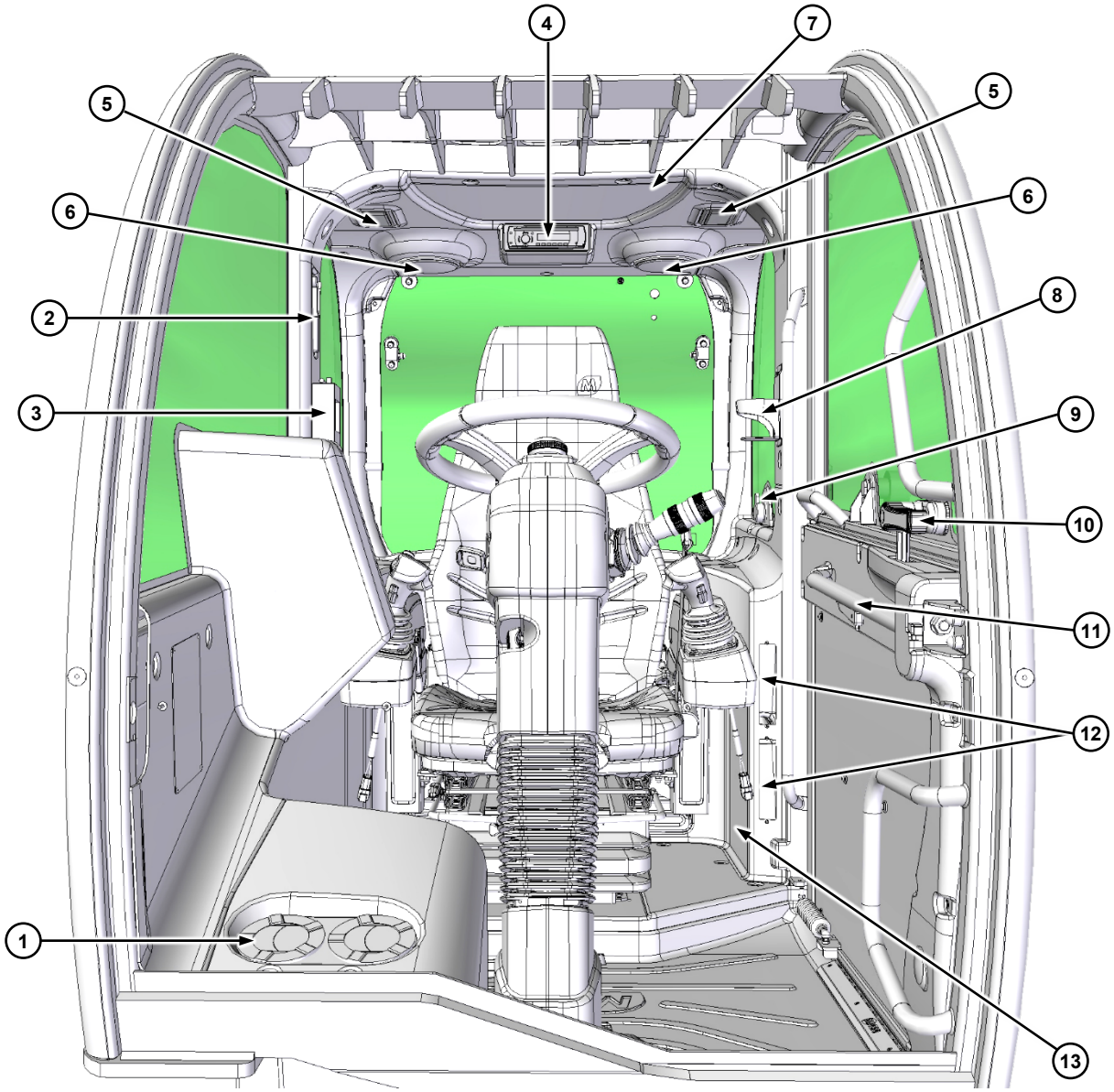
15	Hydraulic hose compartment	16	Tow hook
17	Counterweight	18	Rear axle
19	Engine compartment	20	Battery compartment
21	Boom lifting jack	22	Boom head quick-fit coupling slewing jack
23	Boom extension jack	24	Slewing variable-reach truck rear lighting devices

Cab interior (plan view)



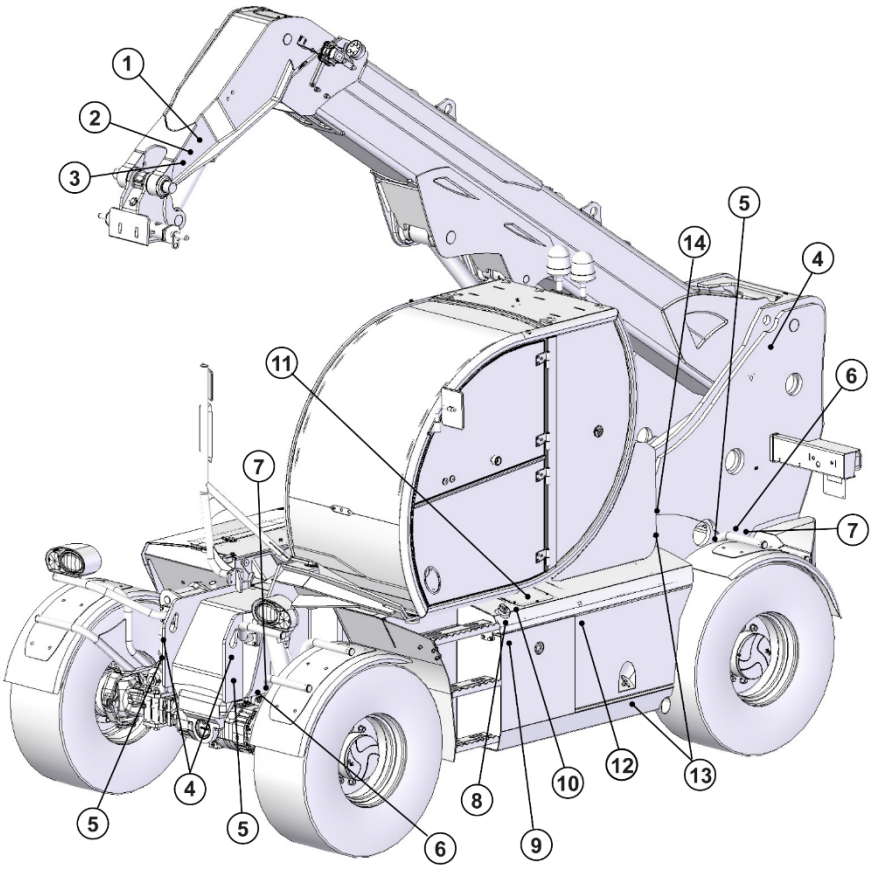
1	Steering wheel	2	Air vents
3	Multiple function display	4	Porthole limiter override key
5	Wired radio override key on aerial work platform	6	Multiple function manipulator
7	Document/device pocket	8	Right joystick
9	Control dashboard	10	Beverage holder
11	Seat with headrest	12	Seat for radio control (when not used)
13	Left joystick	14	Brake pedal
15	Accelerator pedal	16	Air blower for the windscreen

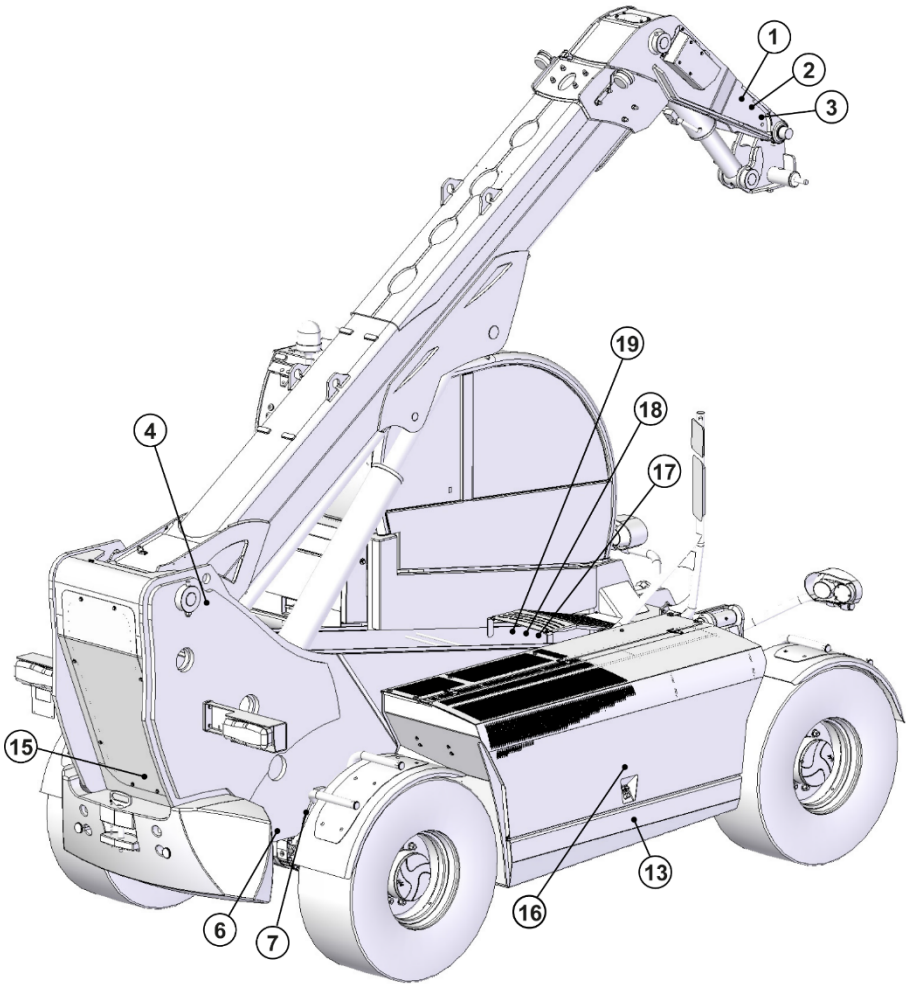
Cab interior (front view)



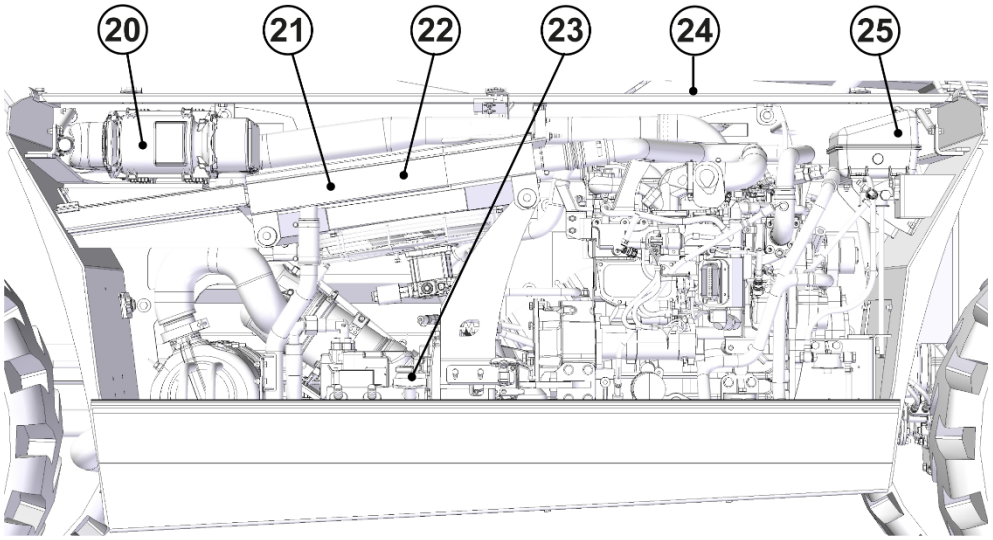
1	Air vents	2	Rear window breaker hammer seat for emergency exit
3	Emergency key seat with safety glass breaker hammer	4	Vehicle radio
5	Ceiling lights	6	Loudspeakers
7	Sunshade	8	Beverage holder
9	Knob for releasing the door upper portion open lock from cab	10	Door upper portion opening lever
11	Hatch opening lever	12	Air vents
13	Battery charger housing for radio control		

Safety labels

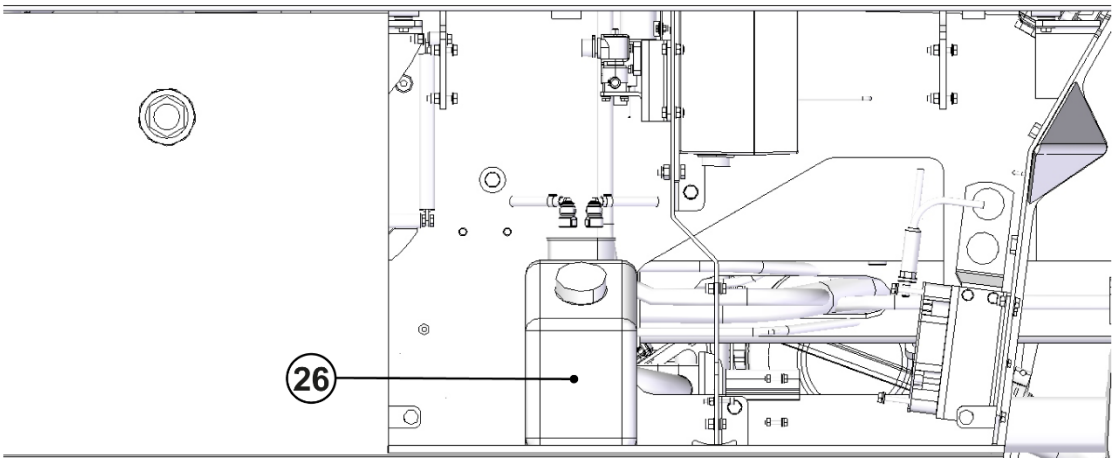




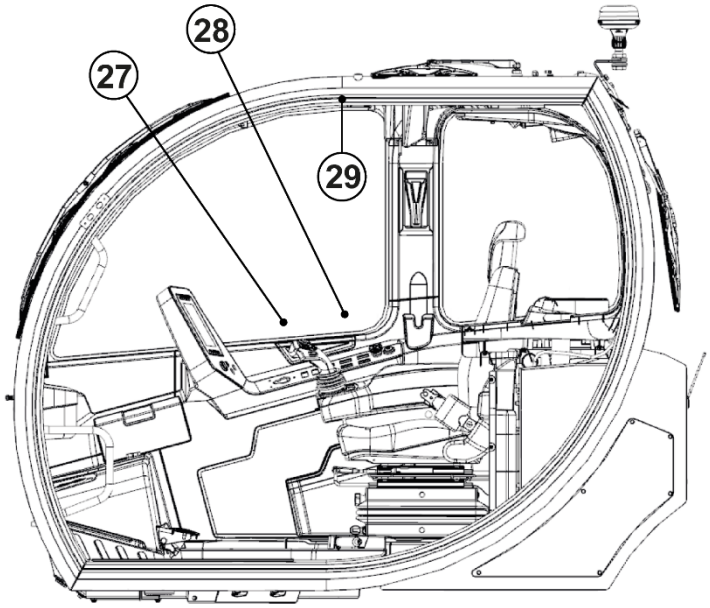
Engine compartment

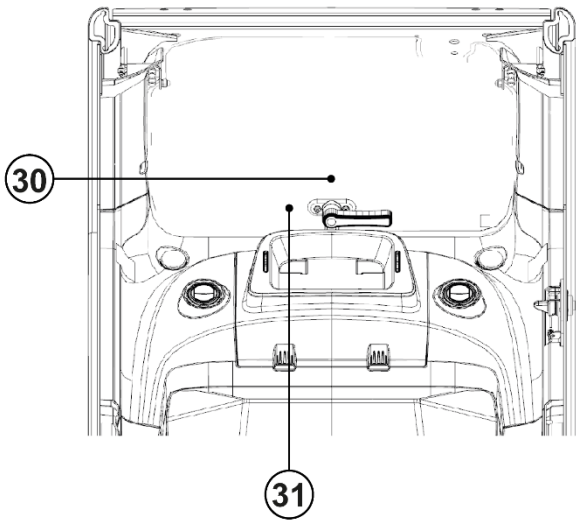


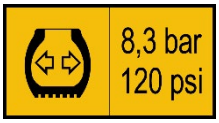
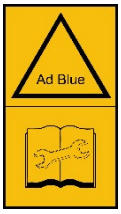
Service compartment

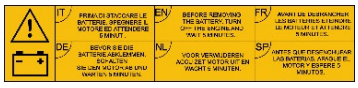


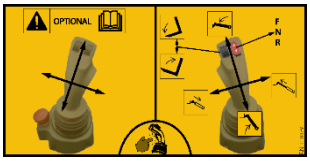
Cab





Ref.	*Sticker*	*Code MAGNI*	*Description*
1		13478	No standing under the interchangeable equipment sticker
2		13483	No climbing on the interchangeable equipment sticker
3		13467	Danger warning sticker: objects falling from above
4		13476	Lifting point information sticker
5		13475	Attachment/anchor point information sticker
6		27069	Wheel tightening torque information sticker
7		27065	Tyre pressure information sticker
8		13460	Diesel filler cap information sticker
9		13484	Warning sticker: do not sit on vehicle mudguards
10		43221	Information sticker ULTRA LOW SULFUR DIESEL FUEL ONLY (only for D/D [Stage V] engines)
11		13474	Hydraulic oil filler cap information sticker
12		10761	AdBlue filler cap information sticker (only for D/D [Stage V] engines)

Ref.	*Sticker*	*Code MAGNI*	*Description*
13		20504	Danger warning sticker: crushing hands
14		13488	Information sticker on the presence of batteries, consult the manual
15		15309	Danger/information sticker “Do not use a steam cleaner on boom pipes”
16		13463	Danger warning sticker: engine
17		13466	Danger warning sticker: contact with high pressure fluids
18		34427	Danger warning sticker: electrocution
19		46534	Danger warning sticker: battery fumes
20		13468	Danger warning sticker: air filter
21		24310	Multilingual danger warning sticker: turn off the engine and wait before removing the battery
22		13464	Danger warning sticker: cooling fan
23		21325	Danger warning sticker: turn off the engine and wait before removing the battery
24		13462	Danger warning sticker: contact with hot surfaces
25		13461	Danger warning sticker: coolant cap

Ref.	*Sticker*	*Code MAGNI*	*Description*
26		43141	Sticker on AdBlue tank / DEF ONLY (only for D/D [Stage V] engines)
27		62866	Automatic parking brake information sticker in the cab, see manual
28		110879	Cab control information sticker (only present on vehicles for the US market) (see manual)
29		11071	Sticker for FOPS - ROPS certified cab
30		27038	LWA 106 dB noise sticker
31		70784	Emergency exit sign sticker on rear window

NOTICE

To request commercial stickers (e.g. stickers depicting logos, vehicle models, etc.) please take note of the relevant codes and refer to the Magni Telescopic Handlers Spare Parts Department.

FEATURES OF THE VEHICLE

Vehicle features and main safety devices

The telescopic handler consists of the following main components:

- Chassis made of two steel sheets and reinforcing crossbars made of high-strength alloy steel.
- Oscillating levelling steering front axle.
- Oscillating swinging steering rear axle.
- Right compartment of the slewing variable-reach truck for diesel engine, cooling system and engine equipment.
- Left compartment of the slewing variable-reach truck for diesel tank, hydraulic oil tank, urea tank (for models equipped with Stage V emission-compliant engines), electrical compartment / vehicle control units.
- Left side vehicle compartment (behind cab) for electrical system (ECU).
- Batteries located in the centre of the chassis.
- Hydrostatic transmission. Hydrostatic pump located on the engine power take-off and hydraulic motor connected to the front axle gearbox (connection cardan shaft from front axle to rear axle, 4WD).
- Telescopic boom pivoted at the rear of the chassis and raised and extended by means of double-acting hydraulic jacks and transmission of movement to the extensions with chains (for models equipped with them). At the end of the main boom there is a mechanical device (quick-fit coupling for interchangeable equipment) that can be moved by means of hydraulic jacks for swinging.
- Cab complete with all controls for driving/moving the handler, electrical/electronic devices, HVAC system (where present), heating/cooling system, adjustable seat and steering column, vehicle radio, FOPS-ROPS certified safety cell according to EN 1459 requirements.
- Street lighting and emergency signalling devices.

WARNING

Before using the vehicle, ensure that all safety devices are visible and working properly. Should you find any anomalies in the safety devices, stop working until the fault has been repaired (Contact your dealer or Magni Telescopic Handlers Support Service).

Check that the symbols and safety stickers are clearly legible. For your own safety and that of others, do not disable or alter operation of the safety devices.

Vehicle cab

The cab structure is designed, tested and certified (**Level II**) ROPS/FOPS.

Climbing on to or climbing down from the vehicle

Access to the inside of the cab after opening the door by means of the lock-protected handle with key, located in the lower portion of the door, pulling it outwards.

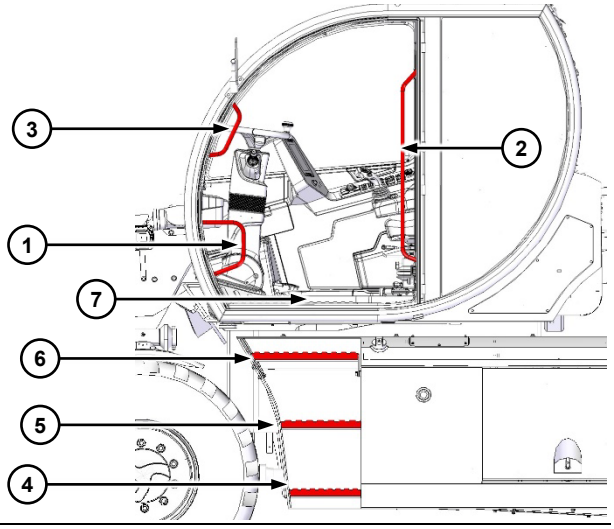
NOTICE

Always use the steps and handles on the slewing variable-reach truck frame and cab to climb on to or down from the vehicle.

Before climbing on to or climbing down from the vehicle, clean all steps and handles thoroughly. Damaged steps or handles must be repaired immediately.

Do not climb on or down from the vehicle with your back to it.

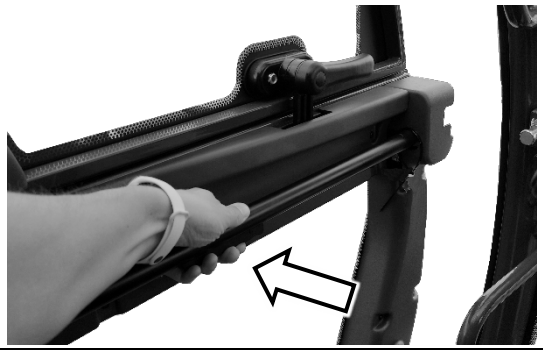
Always use three gripping points when climbing up or down: two hands gripping the handles and one foot on a step, or two feet on the steps and one hand gripping the handle.



To get in the cab correctly, follow the sequence below:

- grasp the two handles ① and ② located inside the cab;
- go on the steps ④, ⑤ and ⑥;
- with your left hand grasp the handle ⑥, always keeping your grip on the handle ② with your right hand;
- enter the cab by crossing the threshold ⑦.

To open the door from inside the cab, press the lever on the handrail as shown below, then push the door outwards.



To get out of the cab correctly, follow the sequence below:

- grasp the two handles ③ and ② located inside the cab;
- cross the threshold ⑦ of the cab;
- get off the steps ⑥, ⑤ and ④;
- with your left hand grasp the handle ①. always keeping your right hand on the handle ②.

WARNING

Do not climb on or down when the vehicle is in motion.

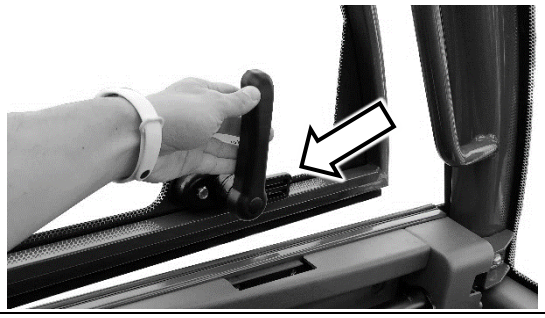
Do not climb on or down from the vehicle carrying tools or other objects. Load the tools required before climbing on the vehicle. Unload the tools from the vehicle using a rope to lower these to the ground.

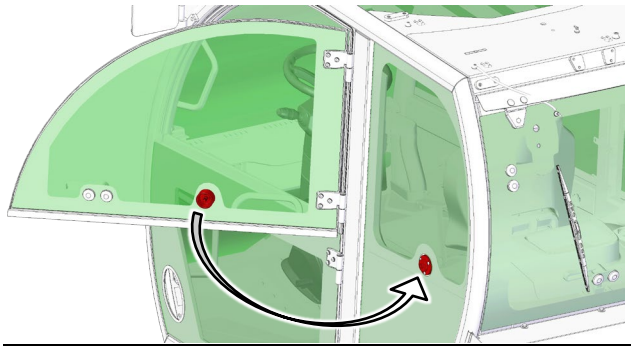
ATTENTION

Do not use any of the vehicle's control devices (joystick or steering wheel) as a handhold for getting in or out of the cab: these are not designed for such purpose and could be damaged, even causing the operator to fall.

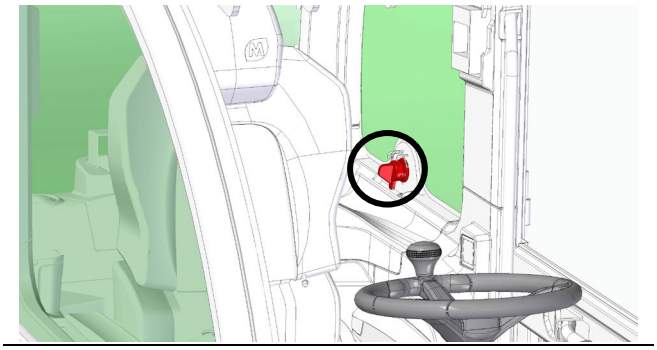
Door window

To open the upper part of the cab door, act on the "**L**" lever by turning it upwards. Then, once released, push the half-door, accompanying it as far as it will go to the lock on the rear window.





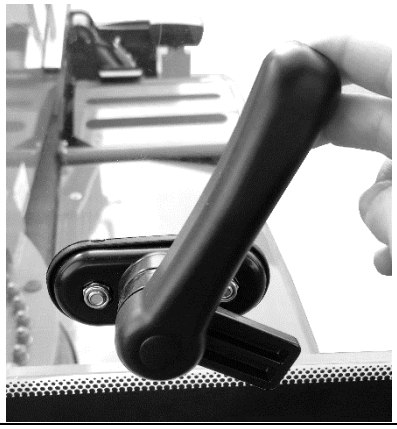
To unlock the half door, turn the knob on the left rear window behind the driver's seat.



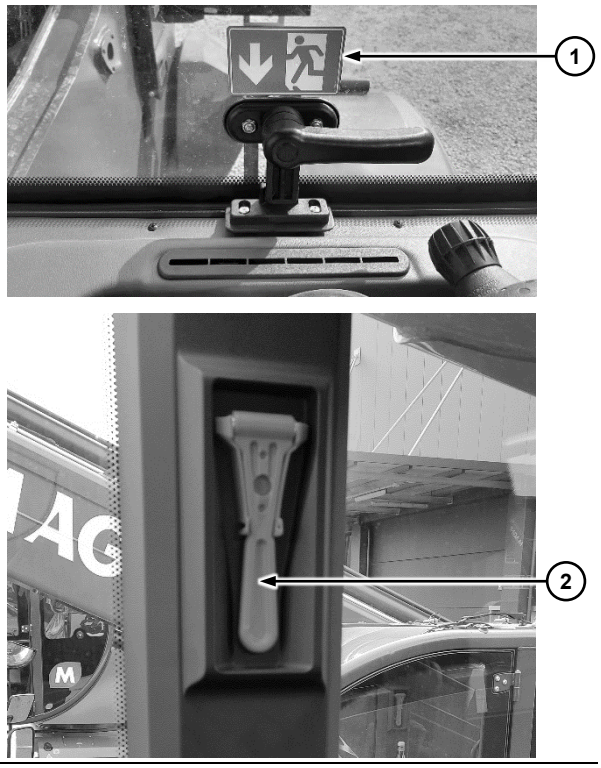
Rear window

To open the rear window, act on the handle at its base by turning it to the left; the rear window opens automatically by means of gas springs.

To close it, grasp the handle by pulling it towards the inside of the cab and lock it by turning it to the right.



Emergency exit



The rear window also serves as an **emergency exit**, as recalled by a special sticker ①. To open it, follow the procedure described above. If it is not possible to exit through the rear window, there is a **RED hammer** ② on the right door jamb of the cab; this must be used (in the event of an emergency) to break the glass of the cab to facilitate the driver's exit.

NOTICE

Contact your dealer to have the glass replaced.

Driver's seat

NOTICE

The vehicle's driver's seat not only accommodates the driver of the vehicle in the most comfortable way possible thanks to the adjustment possibilities listed below, it also has the function to enable manoeuvre of the vehicle itself both in terms of translation and general movement when handling loads with a telescopic boom: incorrect seating, detected by presence sensors, inhibits all movements by signalling the error on the multiple function display.

“SEAT MICROSWITCH”

Adjustments

1- lever for longitudinal adjustment of the entire seat block: act on the appropriate lever to release the translation of the entire seat to and from the driving pedals; once the correct position has been found, release the lever;

2- safety belt with retractor: always fasten the safety belt before starting any operation with the vehicle;

ATTENTION

Always check the fabric of the safety belt, the buckle and winder, every time before using the vehicle.

Replace the seat belt or components found to be worn or damaged.

3- backrest inclination adjustment lever: lift the lever to unlock the backrest and adjust its inclination; once the correct position has been found, release the lever; the backrest also provides a folded position above the seat to give access to the rear portion of the cab;

4- lumbar cushion adjustment knob: use the knob to adjust the depth of the lumbar portion of the backrest;

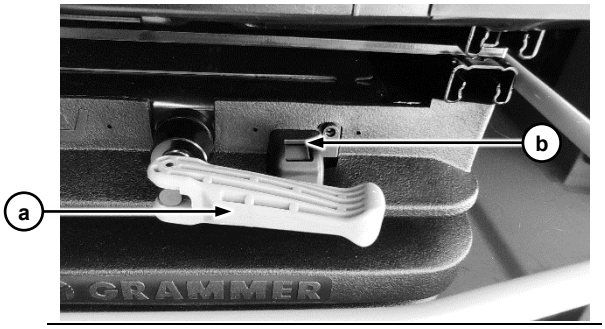
5- seatbelt lock: once the seatbelt is fastened, press the red button on the top to release it;

6- longitudinal seat adjustment lever: act on the lever to adjust the distance of the seat surface from the backrest; once the correct position has been found, release the lever;

7- armrest and peripheral distance adjustment lever; act on the lever to adjust the distance of the armrests and joysticks from the seat/backrest; once the correct position has been found, release the lever;

8- seat tilt adjustment lever: pressed with the seat unloaded, raises the front part of the seat; pressed with the operator regularly seated, unlocks the position; release the lever to the desired tilt size;

9- pneumatic seat suspension adjustment;



Act on the lever ⓐ, turning it, to load or unload the pressure on the spring until the indicator ⓑ shows the value of the driver's weight: it is advisable to adjust the air spring when the seat is unloaded to make the operation easier.

Seat belt

The seat belt is provided with an automatic winding system. The system is blocked automatically if the belt is pulled violently.

WARNING

Do not use extensions for the seat belt.

The automatic winder may not work properly, causing accidents, sometimes fatal.

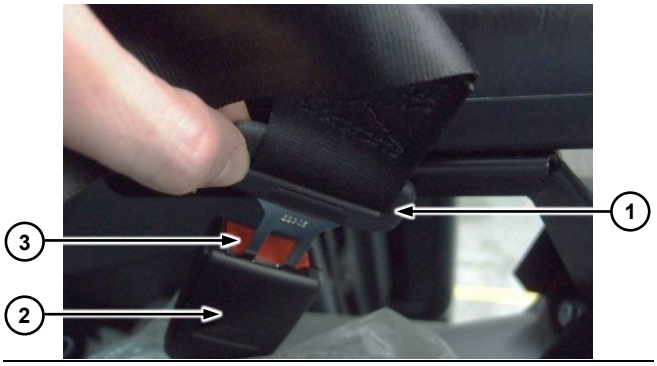
If necessary, consult your dealer to have a longer seat belt fitted.

Always check the fabric of the safety belt, the buckle and winder, every time before using the vehicle.

Replace the seat belt or components found to be worn or damaged.

Fasten the seat belt

Pull the seat belt out of the winder with a slow fluid movement to prevent automatic blocking.



Insert tab ① in buckle ② and press till the locking mechanism clicks into place.

Check to make sure the tab is locked by pulling it gently.

Unfasten the seat belt

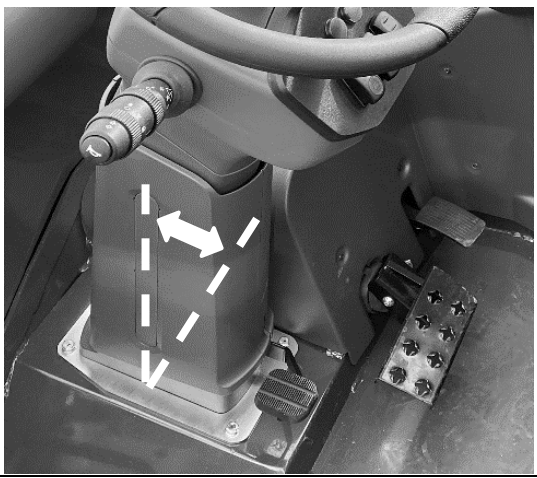
Push the red button ③ on the buckle.

Hold the tab with one hand while the seat belt is rewound automatically.

Steering column

The steering column is designed to offer various adjustment possibilities, its position can be adjusted in inclination and depth. The correct position of the steering wheel depends on individual preferences:

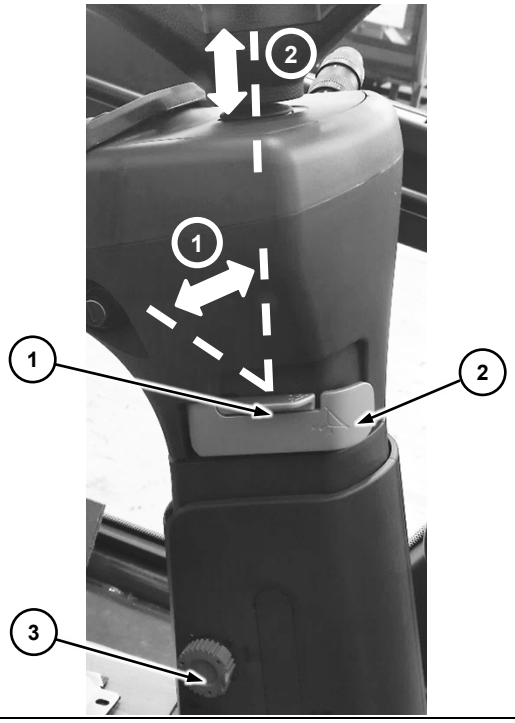
- It must be possible to reach the steering wheel without detaching the shoulders or back from the backrest;
- The arms must be bent at right angles when gripping the steering wheel;
- The joysticks must not obstruct rotation of the steering wheel while driving, in any manner whatsoever;
- The position of the steering wheel must not obstruct the movements of the joysticks, in any manner whatsoever.



To adjust the inclination of the lower part of the steering column, while correctly seated in the driver's seat, press the pedal shown in the photo and pull the steering wheel towards you; once you have found the correct position, release the pedal.

To adjust the inclination of the upper part of the column and the telescopic depth of the steering wheel, use the levers on the right-hand side, below the ignition key.

Lift the upper lever ① upwards to adjust the inclination of the upper part of the column, turn the lower lever ② outwards to adjust the telescopic depth of the steering wheel; when the correct configurations have been found, reposition the levers.



Also on the right-hand side, under the two adjustment levers of the steering column, there is a connector ③ for checking the diagnostics of the entire vehicle.

Air vents

The air vents let conditioned air into the cab.

They are situated in front of the driver, behind the seat, and on the left jamb.

Each air vent can be individually opened and closed and is used to adjust the direction of the air flow.

Vehicle radio

The vehicle radio is present on the rear covering of the cab behind the operator’s head.

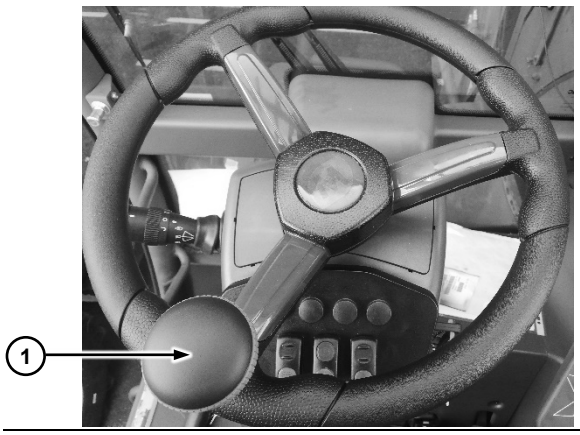
The speakers are present between the driver’s seat and the rear window.

The vehicle stereo is supplied as standard with the vehicle. However, any other radio can be fitted with dimensions 1-DIN in accordance with standard ISO 7736.

For the working of the radio installed, refer to the Instruction Manual included in the package.

Controls

Steering wheel



Use the steering wheel to guide the movement of the vehicle. A knob ① is provided so that you can drive with one hand and keep the other free to operate other controls.

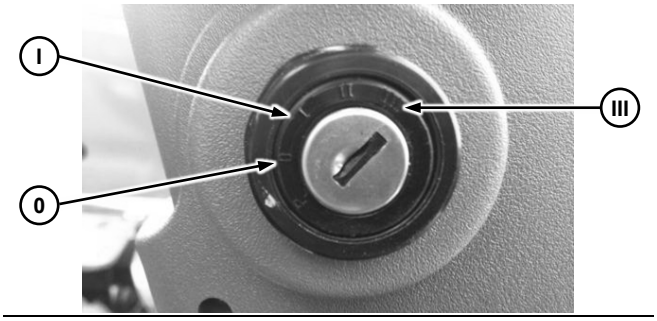
Do not use the knob for driving on public roads. In these situations, keep both hands on the steering wheel to have better control of the vehicle.

There are three steering modes:

- Two-wheel steering
- Four-wheel steering with concurrent axis
- Four-wheel steering with parallel axis

To select the steering mode, this function must be activated on the main page of the multiple function display. Refer to the relevant paragraph in this manual for this procedure.

Ignition switch



The ignition switch is situated on the right-hand side of the steering column. The switch has three active positions:

0: engine stop;

I: main electric contact closure;

III: starter motor contact.

Switch positions **P** and **II** are deactivated.

Multiple function selector

The lever on the left of the steering wheel controls the direction indicators, light switch, windscreen wipers (front/upper/rear) and horn.

Direction indicators

To activate the direction indicators:

- right: push the lever forwards,
- left: pull the lever backwards.

The direction indicators are deactivated when the lever is in the central position.

Horn

To use the horn, press the button on the tip of the lever.

NOTICE

Do not use the horn in densely populated spaces or where expressly banned by means of signs.

The horn emits a short warning if connected with a radio control (optional).

Lights switch

To activate the lights, rotate the specific ring:

- **O** : turned off,
- : road lights on,
- : low beams on.

To activate the high beams :

- move the lever down for continuous activation,
- apply a slight traction towards the steering wheel to activate the high beams. The lever will return immediately to the neutral position when released.

Horn

To use the horn, press the button on the tip of the lever.

Do not use the horn in densely populated spaces or where expressly banned by means of signs.

NOTICE

The horn emits a short warning if connected with a radio control (optional).

Windscreen Wipers/Washers

The vehicle has three windscreen wipers. The wiper on the rear window is activated separately, while those on the upper window and windshield can only be activated simultaneously.

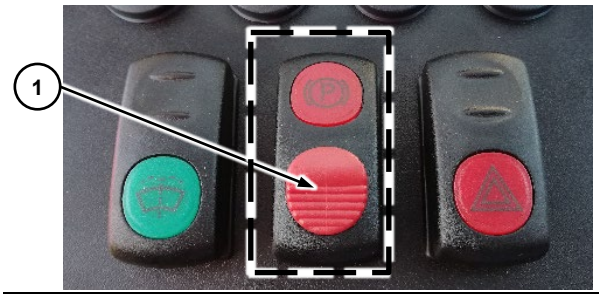
Controls:

- **O**: all windscreen wipers deactivated;
- **I**: activates intermittent movement of the front and upper windscreen wipers;
- **II**: activates continuous movement of the front and upper windscreen wipers;
- **J**: activates the rear windscreen wiper.

To activate the washer liquid supply on all the nozzles, press the bottom part of the green button ① on the left of the steering column under the steering wheel.

Parking brake

Manual function



The switch for manually engaging/disengaging the parking brake is under the steering wheel in the centre of the steering column.

Press the lower part of the switch near the release lever to engage the parking brake. Check to make sure the indicator light of the same button and on the page of the multiple function display lights up.

To disengage the parking brake, sit normally on the seat with the engine running and the reverse gear in the 'Neutral' position; move the release lever forward and, at the same time, press the upper part of the button with the indicator light.

With the parking brake in manual mode, travel is inhibited: when engaging the gear to move the vehicle, the specific warning banner appears on the display.

NOTICE

Automatic emergency cut-in.

If, while the vehicle is in motion, the microswitch on the driver's seat detects that the operator is not in the properly seated position (due to illness or a technical problem) and is activated, the vehicle is automatically brought to a standstill and the parking brake is engaged.

To resume driving, once the correct position on the driver's seat has been resumed or the technical fault has been resolved, put the “FNR” reverse gear in Neutral, engage and

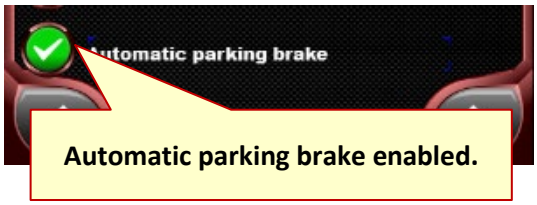
disengage the parking brake with the button on the steering column (to signal to the vehicle's control units that the fault has been resolved), then select the desired direction of travel with the FNR button.

Automatic function

When it is selected and can be managed on the relevant password page 1B of the multiple function panel, this function automatically engages the parking brake whenever the vehicle stops and disengages automatically when the accelerator pedal is pressed with the forward/reverse gear engaged.

The automatic function can be enabled or disabled under these conditions:

- vehicle switched on, stationary with reverse gear in Neutral and operator properly seated in the driver's seat,
- parking brake button pressed/activated,
- access the level 1B password page and then enable / disable the automatic parking brake function.



NOTICE

If the above-mentioned conditions are not met, the system does not accept the change of mode and pressing the button on the display does not change the configuration; check that the conditions are met.

Depending on the function set, the parking brake warning light on the main page of the multiple function display will be **red** when it is in *manual mode* and **yellow** when it is in *automatic mode*.

Manual function

Automatic function

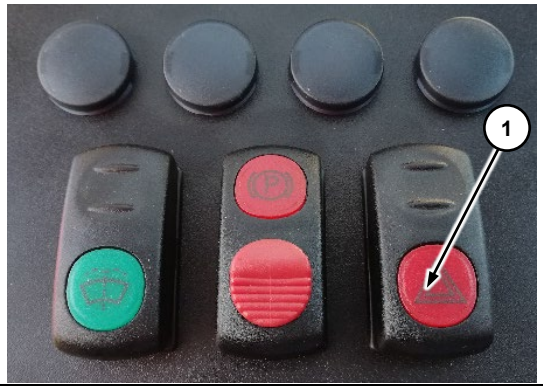
NOTICE

Automatic emergency cut-in.

Even with the parking brake in automatic mode, while the vehicle is in motion, the microswitch on the driver's seat detects that the operator is not in the properly seated position (due to illness or a technical problem) and is activated, the vehicle is automatically brought to a standstill and the parking brake is engaged.

To resume driving, once the correct position on the driver's seat has been resumed or the technical fault has been resolved, put the "FNR" reverse gear in Neutral, engage and disengage the parking brake with the button on the steering column (to signal to the vehicle's control units that the fault has been resolved), then select the desired direction of travel with the FNR button.

Hazard lights

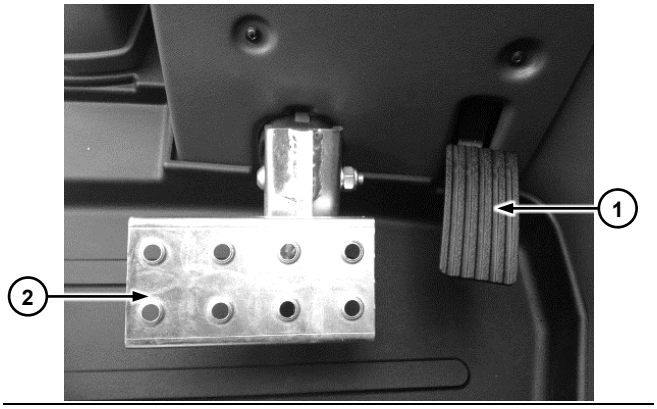


The switch for activation of the hazard lights ① is on the right-hand side of the steering column, under the steering wheel.

Pressing the lower part of it will switch on the emergency light and the hazard lights simultaneously.

Deactivate the hazard lights by pressing the upper part of the same switch.

Pedals



Accelerator pedal

Press the accelerator pedal ① to increase the engine speed.

Release the accelerator pedal ① to decrease the engine speed.

Brake pedal (inching)

Press the brake pedal ② to slow down and/or stop the vehicle.

In the first 20 mm of travel, the service brake pedal functions as an *inching* pedal similar to the operation of a clutch, allowing the simultaneous depressing of the accelerator pedal to increase engine revs even at minimal speeds.

This increase in engine speed allows maximum power of the engine and consequently maximum lifting performance.

Armrests

Beside the seat on both sides are two armrests and joysticks to control the vehicle's hydraulic functions.

These armrests can be raised alongside the seat backrest to facilitate maintenance on the cab (the right one) and to facilitate getting out of the cab (the left one).

Joystick

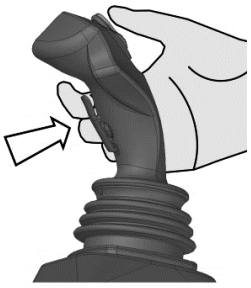
The vehicle is equipped with two joysticks near the driver's seat arm rests.

The joysticks proportionally control the main hydraulic movements of the vehicle. Depending on the pressure exerted on them, the action given will be performed with the corresponding intensity.

ATTENTION

To impart commands using the joysticks, keep the confirmation button on the joysticks and indicated below pressed.

Not pressing the confirmation button prevents accidental movements of the vehicle.

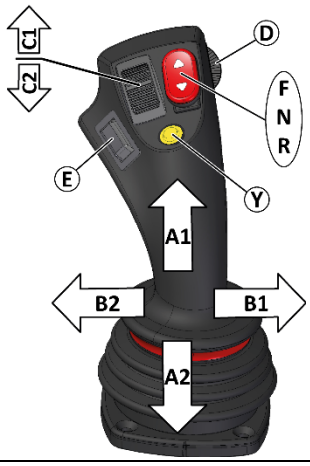


The joystick commands are inhibited if the operator is not seated correctly in his seat.

The anomalies described above are shown by means of visual signals on the multiple function display next to the seat.

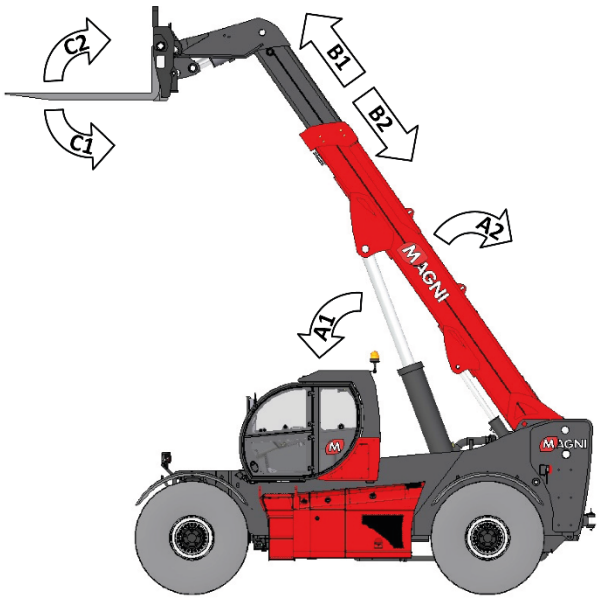
"PRESS DEAD MAN'S JOYSTICK"

Right joystick



FNR: the red-coloured rocker switch on the top of the joystick activates the vehicle's drive converter**:**

- in the centre the transmission is in **NEUTRAL**,
- when pushed forwards the **forward movement** transmission is activated,
- pressing reverse activates the **reverse gear** at the same time as the external warning buzzer, reversing lights and camera video (when present) on the control display.



A1: moving the joystick forward lowers the telescopic boom;

A2: moving the joystick backward lifts the telescopic boom;

B1: moving the joystick to the right extends the telescopic boom;

B2: moving the joystick to the left retracts the telescopic boom.

C1: rotating the roller forward retracts the slewing jack and rotates the equipment downward;

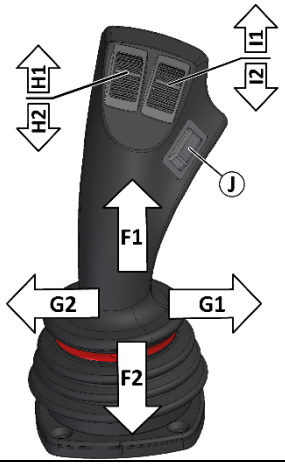
C2: rotating the roller backward extends the slewing jack and rotates the equipment upward.

D: moving the side roller, the standard hydraulic outlets on the boom head are controlled, which enable specific functions of the equipment, mounted if preset. Roller disabled for this vehicle model. Please refer to the specific operating manual of the equipment coupled with this vehicle to find out about its functions.

E: this button controls the optional additional hydraulic outlets at the head of the telescopic boom. Button disabled for this vehicle model. Please refer to the specific operating manual of the equipment coupled with this vehicle to find out about its functions.

Y: the yellow button, pressed together with the movement of roller **D**, enables the optional hydraulic outlets at the head of the telescopic boom. Button disabled for this vehicle model. Please refer to the specific operating manual of the equipment coupled with this vehicle to find out about its functions.

Left joystick

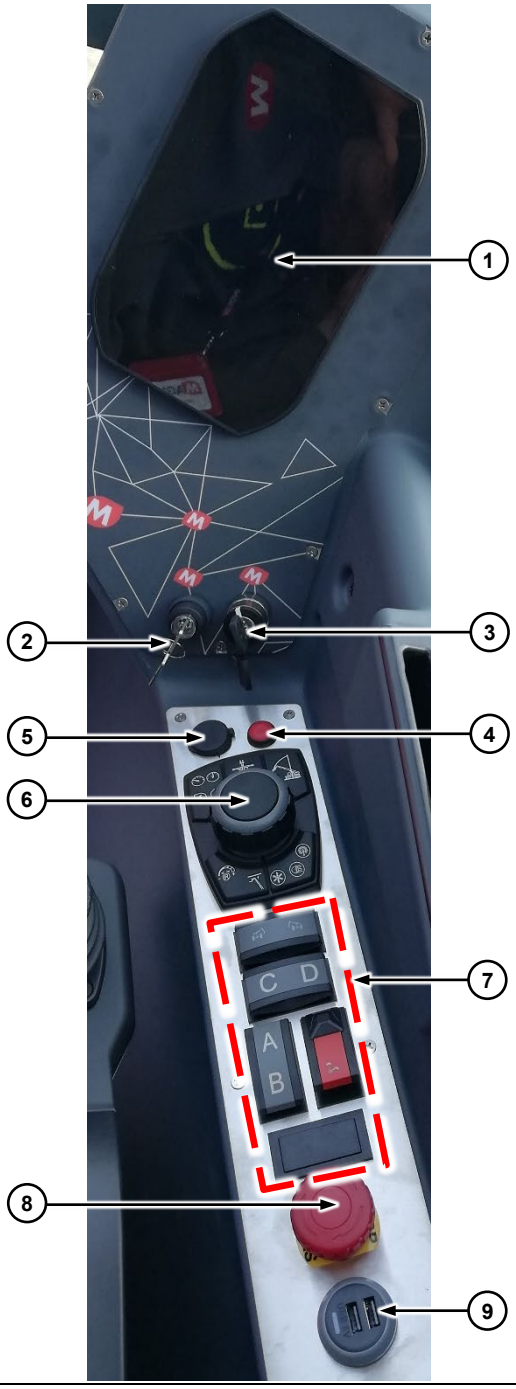


The movements, called (**F - G**), given with the left joystick on the two axes and those of the two rollers, called (**H - I**), at the top of the joystick, together with the manoeuvre enabling button, activate the accessory movement functions for the interchangeable equipment coupled with this vehicle.

For details on their operation, please refer to the Use and Maintenance Manual of the specific interchangeable equipment.

The button called (**J**) controls the optional additional hydraulic outlets at the head of the telescopic boom. Button disabled for this vehicle model. Please refer to the specific operating manual of the equipment coupled with this vehicle to find out about its functions.

Control dashboard



① - multiple function display;

② - safety system limit override key;

③ - key for aerial work platform radio control wiring override;

④ - button for aerial work platform radio control wiring override;

⑤ - USB socket with function for dialogue with the vehicle;

⑥ - multiple function manipulator;

⑦ - service buttons;

⑧ - emergency button;

⑨ - USB sockets for charging electronic devices.

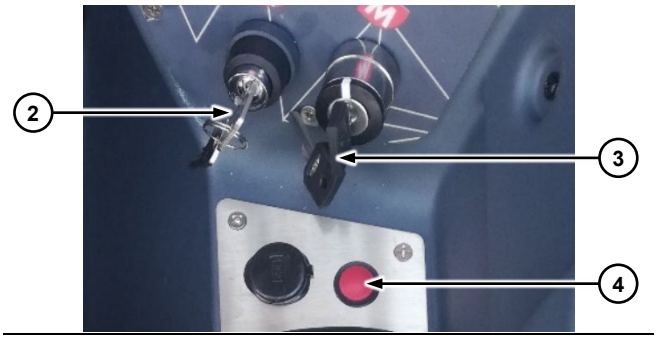
Exclusion of the safety systems

WARNING

Exclusion of the safety systems accompanied by inappropriate movements can cause the vehicle to tilt over, with risk of accidents and death.

Do not try to exclude the safety systems to increase the load capacity of the vehicle.

Take the key with the metal grip from the safety keys cabinet in the cab after breaking the glass using the hammer provided.



Insert the key in ②. Press the key and turn it clockwise while holding it in position to automatically activate the acoustic alarm and steady red warning light on the top of the cab to warn of the potentially hazardous situation for those working in the area near the vehicle.

Perform all the necessary movements to solve the emergency and restore the vehicle to safety conditions.

Remove the key and put it back in its container. Replace the glass that was broken earlier.

Exclusion of safety systems for the lifting platform

Take the key with the plastic grip from the safety keys cabinet in the cab after breaking the glass using the hammer provided.

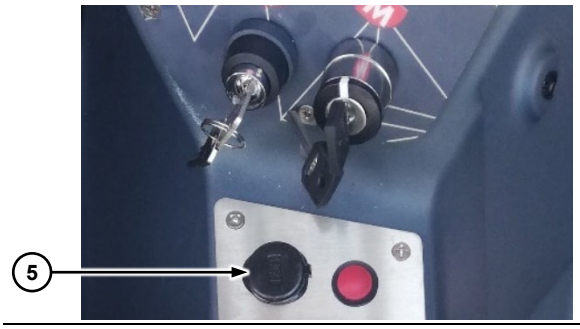
Insert the key in ③. Press and turn the key clockwise, holding it in position.

Use the same hand to press and hold down button ④.

Perform all the necessary movements to solve the emergency and restore the vehicle to safety conditions.

Remove the key and put it back in its container. Replace the glass that was broken earlier.

USB socket

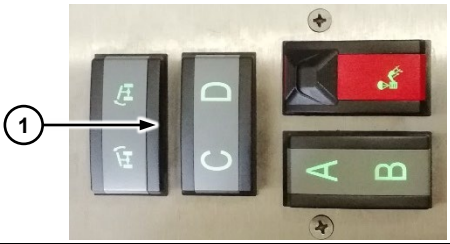


There is a USB socket ⑤ beneath the multiple function display. It only has a dialogue function with the software installed on the vehicle, so that it can be quickly updated.

Levelling on wheels

Levelling on tyres can be carried out by pressing the switch ① indicated on the dashboard, only under the following conditions:

- inclination of the telescopic boom in relation to the horizontal axis less than or equal to 30°.



- To level the vehicle manually press the switch on the control dashboard to the right of the driver's seat.

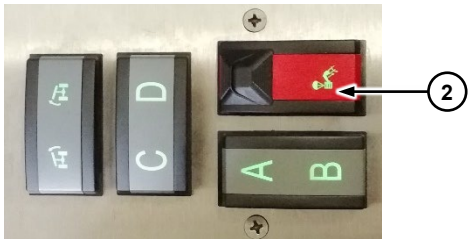
  Pressing the switch on the right portion will cause the vehicle chassis to incline to the right.

  Pressing the switch on the left portion will cause the vehicle chassis to incline to the left.

- The outcome of the levelling can be checked by means of electronic level gauge: if the vehicle is levelled correctly, the green indicator will be in the centre of the level.

Emergency hydraulic circuit

To activate the emergency hydraulic circuit, press the red switch ②, shown below, located on the dashboard to the right of the driver's seat.



If there is a fault in the engine, hydraulic power can be obtained from an auxiliary motor pump.

The auxiliary pump makes it possible to perform emergency hydraulic movements, to bring the suspended equipment back to the ground or ensure safety of any operators present on the lifting platform.

The operativity of the emergency hydraulic circuit has a maximum duration of 30 seconds.

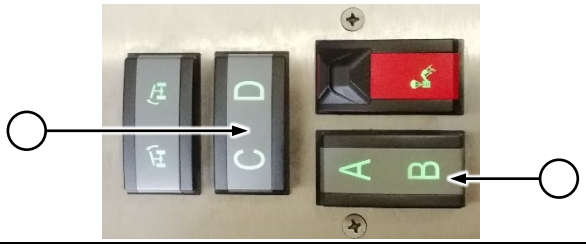
NOTICE

Do not use the emergency pump unless there is a malfunctioning of the hydraulic system.

Unnecessary prolonged use of the emergency pump will cause the level of the battery charge of the vehicle to be used up rapidly.

A/B and C/D buttons

At the front of the dashboard are two buttons that can have several functions for handling the interchangeable equipment coupled to this vehicle, as shown in the image below.



Additional functions can be activated by pressing these buttons, which can be programmed according to the interchangeable equipment coupled to the vehicle and/or the specific needs of the customer.

For details on their operation, please refer to the Use and Maintenance Manual of the specific interchangeable equipment.

Service buttons

NOTICE

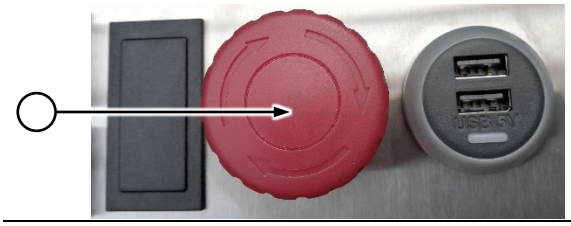
The buttons under the manipulator can vary in quantity, functions and arrangement depending on the vehicle model and its configuration.

NOTICE

With the “automatic page” function active in the multiple function display, when any button is pressed that commands the vehicle movements, the information page related to the activated movement is displayed, regardless of the page displayed in that moment.

Emergency stop button

At the rear of the dashboard is a button for stopping the vehicle in emergency mode.



DANGER

Press the emergency stop button to stop the engine and interrupt all vehicle movements.

The emergency stop button must be reset after use. If it is not reset the vehicle cannot be restarted.

To reset the emergency stop button turn it clockwise.

Double USB socket

A dual USB socket is located at the rear of the dashboard.

This dual USB socket has accessory functions for the vehicle operator (mobile device charging: tablets, smartphones, etc.).

Multiple function manipulator

The joypad consists of a central controller and five quick-selection buttons that show on the display respectively:

1- main page: with all information about the vehicle in running order;

2- stabilisers page: (not enabled for this vehicle model);

3- load check page with all information concerning the working configuration and active load tables;

4- commands page containing all optional vehicle functions;

5- LIMITS page containing configurable parameters for safe use of the vehicle.

As the manipulator rotates, its function is to move the command selection area, coloured blue, in the displayed page; to activate or deactivate the chosen command, press the manipulator.

NOTICE

More details on the multiple functional display pages in the dedicated section.

Multiple function display

WARNING

Using the multiple function display while driving the vehicle can cause serious accidents.

It is advisable to limit the use of the multiple function display while driving to the minimum possible extent to allow prompt identification and avoid obstacles along the vehicle route.

This Chapter contains information regarding the methods of use of the multiple function display and an overview of the information provided for the operator.

For functions connected to the buttons present on the various pages, consult the operating techniques described in the successive chapters.

The information and controls provided for the operator by the multiple function display are divided into a number of pages. The pages are, in turn, divided into four groups:

- Control and command pages;
- On-board diagnostics pages;
- Password pages;
- Alarms page.

The pages concerning operation of the vehicle are (in the order of appearance):

- Accessory confirmation page;
- Main page;
- Load control page;
- Controls page;
- Limits page.

Browsing through the pages

Each page is divided into a number of sections. The current section is highlighted on the multiple function display in electric blue, as shown above.

Each section may contain one or more buttons. Each button when pressed will take on a number of configurations, differentiated by the colour:

 Button not pressed and not selected

 Button not pressed and selected

 Button pressed and not selected

 Button pressed and selected

 Button not active

A button is not active when it belongs to a sector different from the current one or cannot be selected for the telescopic handler model being used.

During the working of the vehicle the page most relevant to the current action is selected automatically. In particular:

- When the forward or reverse gear is engaged, the multiple function display automatically shows the main page;
- When hydraulic movements of the telescopic boom are performed, the multiple function display automatically shows the load control page.

In case of two simultaneous actions, like the movement of the telescopic handler on wheels and the movement of the boom, the load control page is given priority.

It is possible to browse through the pages of the multiple function display manually. To do so, use the four arrows present at the corners of the screen:

 Moving between the control / command pages and the on board diagnostics pages

 Access to the alarms page

 Moving to the next page

 Return to the previous page

Pressing on any button on the screen will activate or deactivate the connected function.

Accessory confirmation page

This page is displayed every time the sensor at the head of the telescopic boom detects new interchangeable equipment. This page cannot be selected manually.

Below the **MAGNI** logo, the name of the equipment identified by the control system is shown in the centre of the screen. A graphic representation for rapid identification is also provided.

Identification of the accessory fitted or absence of the accessory can be confirmed in this screen page by pressing on the GREEN icon.

In the case of missing or incorrect identification of the accessory, press the RED button for lack of confirmation; it is however possible to use the vehicle, but the functions and load capacity will be limited for safety reasons; **contact MAGNI TELESCOPIC HANDLERS S.r.l. Assistance Service**.

The number of hours before the next scheduled maintenance is shown at the bottom of the page.

Main page

The main page groups together the main information of the vehicle in the driving on wheels configuration. For all the models the multiple function display shows, at the top: the daily time and working hours of the telescopic handler, the speed selection button and the reset button.

Drive speed

The two-speed hydrostatic transmission works according to two modes:

- "Tortoise" mode;
- "Hare" mode.

The buttons for selection of these modes are present at the top of the main page:

 Tortoise → hare button

 Hare → tortoise button

 Reset button

The hare and tortoise buttons occupy the same position on the multiple function display. The current operating mode is highlighted by the symbol on the button.

In "tortoise" mode, the transmission allows the vehicle to move at low speed. Use this mode for precision movements and to move the load.

In "hare" mode the transmission uses both speeds and makes it possible to reach maximum speed. Use this mode for travelling on roads or for rapid movements in the work area.

To switch from "hare" mode to "tortoise" mode, press the hare → tortoise button. To switch from "tortoise" mode to "hare" mode, press the tortoise → hare button.

You can switch between the two modes only under the following conditions:

- ***vehicle stopped;***
- ***brake pedal pressed;***
- ***gear selector in NEUTRAL position.***

If necessary and/or only if the gear is not engaged, it is possible to force a change from one mode to another by pressing the "reset" button.

Graduated indicators

Depending on the type of engine used, the digital indicators show the engine oil pressure, the engine rpm counter and coolant temperature for D5 (all emission classes) and -D/A (Stage 3A) engines as shown in the image below,

the AdBlue® liquid level, the engine rpm counter and coolant temperature for -D/D (Stage V) engine as shown in the image below.

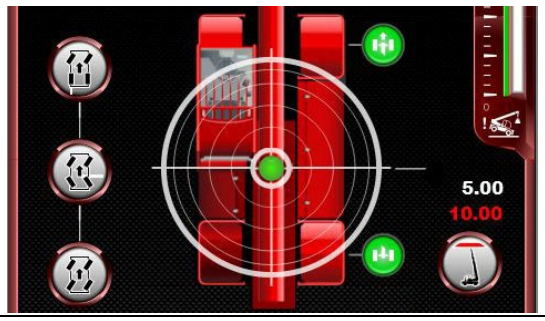
Indicator lights

- Fuel tank in reserve
- Diesel engine oil pressure alarm
- Diesel engine temperature alarm
- Hydraulic motor oil filter clogging alarm
- Water/fuel separator filter clogging alarm
- SCR Alarm
- Hydraulic oil temperature alarm
- Hydraulic oil tank filter clogging alarm
- Batteries flat alarm
- Diesel engine suction filter clogging alarm
- AdBlue® tank in reserve (on models with urea tank)
- Generic diesel engine alarm
- Serious diesel engine alarm
- Generic transmission alarm
- Generic hydraulic system alarm
- Parking brake on
- Service brake system alarm
- Generic electrical system alarm
- Telescopic boom shock absorber activated
- AdBlue® level alarm for D/D (Stage V) engine
- AdBlue® level alarm for D/D (Stage V) engine
- Front wheels alignment
- Rear wheels alignment
- Rear axle lock applied

Road Mode Button

On the right-hand side of the Main Page, in countries that require it, there is a Road Mode button. When the button is pressed, a limitation in the maximum angle for the telescopic boom of 23° is set in order to comply with the requirements for driving on public roads.

Steering modes



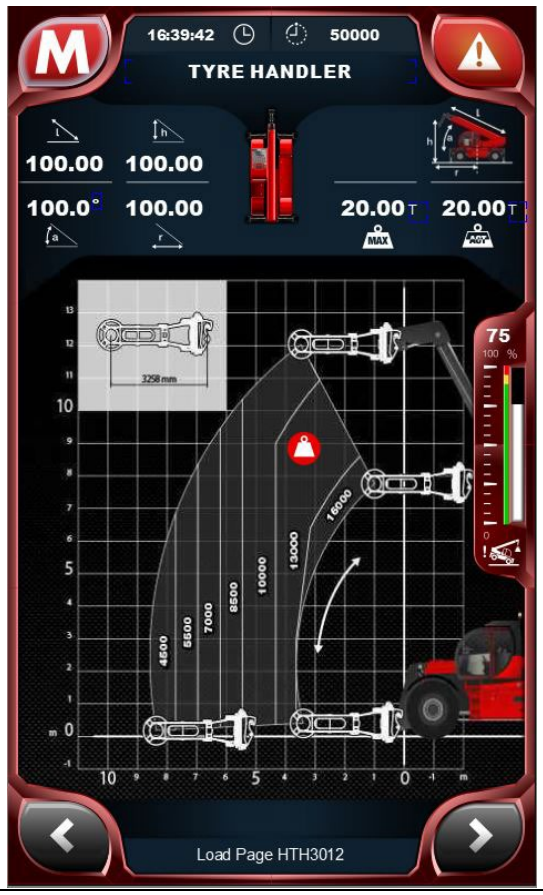
Three different steering modes can be selected by pressing the buttons on the left-hand side of the main page on the multiple function display:

	Two-wheel steering
	Four-wheel steering with concurrent axis
	Four-wheel steering with parallel axis

To change the steering modes:

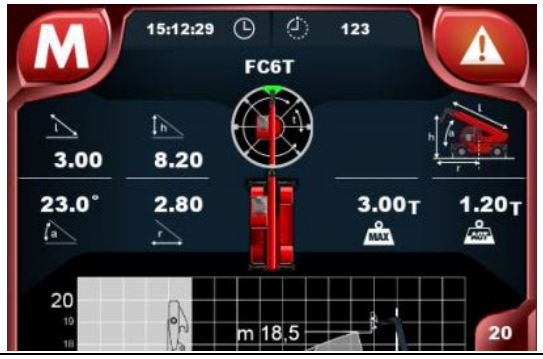
- stop the vehicle;
- display the main page of the multiple function display;
- align the wheels of both axles until the green indicators light up;
- press the button concerned for the required steering mode.

Load check page



The load control page contains information regarding the configuration of the telescopic boom and equipment fitted.

Configuration of boom



The section at the top of the load control page contains information regarding the boom configuration. The data shown in the image above and organised from left to right, top to bottom, are:

- Telescopic boom extension length;
- Height off the ground of the accessory's centre of gravity;
- Layout for rapid interpretation of information;
- Telescopic boom angle in relation to the horizontal;
- Distance of the boom head from the front wheel;
- Maximum permitted load for current configuration of the boom;
- Actual load.

Interactive load chart

The interactive load chart is seen at the centre of the multiple function display. In the top left-hand corner a schematic drawing of the equipment detected is displayed for rapid identification.

The vehicle control system automatically selects the appropriate load chart on the basis of the three parameters measured:

- Type of equipment fitted at the top of the boom, detected automatically by means of the transponder;
- Resting on the ground.

The position of the load on the chart is identified by the following icon:

 Load position identification icon

The icon moves on the chart in relation to the position of the boom.

Load percentage (SWL)

On the right-hand side of the page a graduated indicator displays the ratio, expressed in percentage, of the load acting on the equipment and the maximum permitted load.

The load percentage indicator is present on all the control and command pages on the right side of the screen.

The load percentage indicator in combination with the load chart provides complete clear information regarding the operating conditions of the vehicle.

GREEN – Percentage of the load lifted below 80% of the maximum permissible load in the given configuration.

YELLOW - Percentage of load lifted between 80% and 90% of the maximum permissible load in the given configuration.

RED - Percentage of the lifted load exceeding 90% of the maximum permissible load in the given configuration.

When a value of 100 is reached, the control system blocks aggravating movements with the simultaneous appearance of a visual and audible warning.

Limits page

The “limits page” is used to set limitations on vehicle movements should it be necessary to operate more safely; the limitations concern:

	The maximum lifting height of the telescopic boom
	The hydraulic oil flow rate at boom head - OPTIONAL use
	The swinging speed
	The telescopic boom lifting speed
	The telescopic boom lowering speed
	The telescopic boom extension speed
	The telescopic boom retraction speed

Working height limitation (Electronic roof)

To set the working height limitation (e.g. indoor work), follow this procedure:

- position the telescopic boom with attached equipment and load at the maximum height for safe operation;
- press and hold the button ① until the value ② is the same as indicated by the graphics ③ (actual boom height measured by the software), whereupon the control system is set to the desired value;
- to enable/disable the height limitation function, press the button ④.

 function disabled

 function enabled

To set a new maximum height, reposition the boom at the desired height and repeat the above steps.

Adjustment of the speed of the hydraulic movements

To adjust the speeds of the hydraulic movements, use the buttons at the bottom of the limits page. Up to 4 configurations/users can be stored with the numeric keypad displayed to the right of the adjustment buttons.

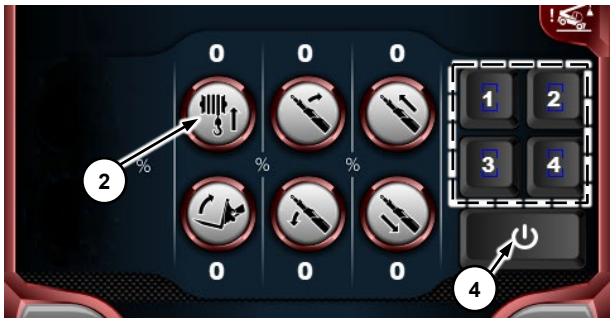
NOTICE

The numbers ① above and below the buttons identifying the adjustment action indicate the movement speed as a percentage (%):

- **100**: full movement speed as set by the factory;
- **0**: no movement speed = vehicle locked;

so setting decreasing values slows down the movement.

Hydraulic movement speed limitation activation procedure



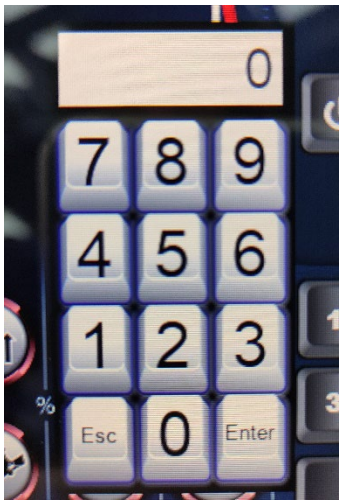
First of all, one of the four program buttons (**1**, **2**, **3**, **4**) must be selected: the selection is highlighted by the colour of the chosen number changing from black (off) to blue (selected).

If the vehicle is brand new, all six parameters are set at **0**.

Select the movements one by one and set the desired value:

- Press the icon of the function to be set, e.g. ②, with confirmation of selection identified by the colour changing to blue.

- Press the percentage number ③ next to the selected icon to display the numeric keypad, then type in the desired movement speed and press **ENTER**,



- Deselect the function to which the value was given (the button must return to grey); the set value remains visible, then move on to the next one.

Once **all** six parameters have been set, make them operational by selecting the on button ④:

 Function disabled

 Function enabled

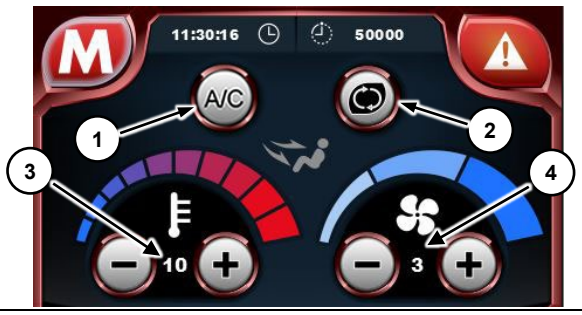
NOTICE

To switch off all limitations, press the button ④.

Controls page

The controls page contains information and controls regarding the cab conditioning system and control buttons for the work lights, boom suspension and radio control.

Air conditioning



The controls for the cab air conditioning system are at the top of the controls page.

Press button ① to activate or deactivate the air conditioning.

To adjust the temperature of the air coming out of the air vents use the + and - buttons under the air temperature indicator ③.

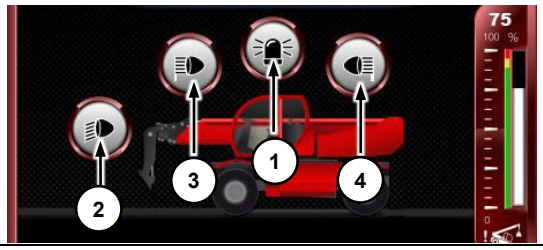
To adjust the air flow from the vents use the + and - buttons under the air flow rate indicator ④.

In case of contamination of the outside air, recirculation of the internal air can be activated. To activate or deactivate internal air recirculation press button ②.

NOTICE

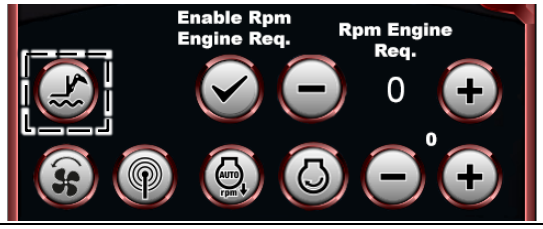
The indicators do not express the temperature or flow rate values but only reference numeric values.

Work lights



Button ① activates the orange beacon that indicates that the vehicle is in motion. Buttons ②, ③ and ④ activate the lights at the top of the boom, those on the front of the cab and those at the rear of the cab, respectively.

Telescopic boom suspension (optional)



This button is present if the optional concerned is present on the telescopic handler being used. The telescopic boom suspension is designed for operating the vehicle on uneven ground with loads raised.

To use this function the following conditions must be respected:

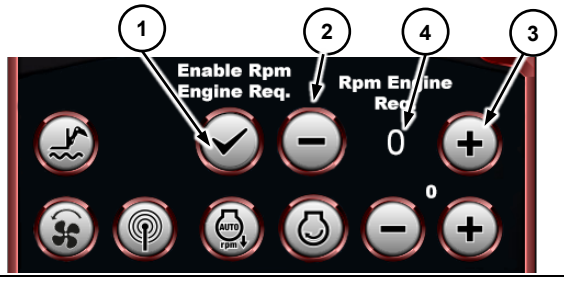
- vehicle on wheels;
- telescopic boom height from the ground less than 3 metres.

To activate / deactivate the telescopic boom suspension, press the button on the controls page shown above. Wait for the relevant indicator to light up or be switched off on the main page of the multiple function display to confirm the required selection.

The boom suspension only works in the presence of the aforementioned conditions: if said requirements are not satisfied during a movement, the function is automatically disabled; if, with the telescopic handler

moving, the parameters required fall within the envisaged limits, the boom suspension is automatically reactivated. When the telescopic handler stops, the function is deactivated; to reactivate it repeat the procedure described above.

Engine rpm control

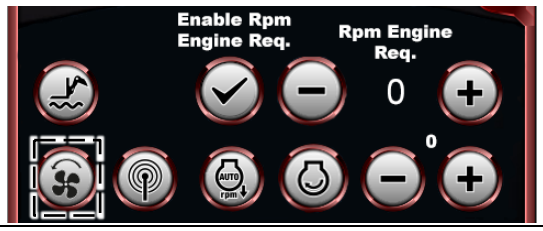


Select button ① to activate the setting of a minimum required engine rpm - in particular, to control a specific hydraulic function - and then use the buttons ② and ③ to set this speed.

For example, if a value of 2000 rpm is selected and the joystick is used to control a hydraulic function, the engine immediately goes to 2000 rpm; and when the hydraulic function is interrupted, the engine remains at this preset rpm for 30 seconds and then returns to the standard minimum speed.

The value ④ shows the rpm set with the buttons ② and ③.

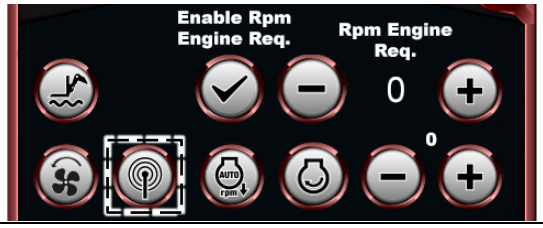
Cooling fan inversion



Select this function to reverse the direction of rotation of the fan: this makes it possible to blow air outside the engine compartment to clean the aeration surfaces by removing accidental deposits of material potentially harmful for the equipment.

The inversion sequence provides 2 minutes of air suction and 1 minute of expulsion at cyclic intervals of 20 seconds of fan speed slowdown in order to protect the fan's mechanism.

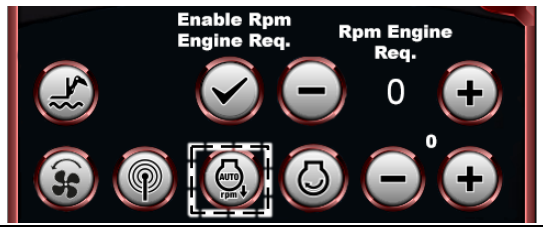
Activation of radio control



To operate the telescopic handler externally using radio control the receiver connection present on the vehicle must be activated by pressing the button shown above.

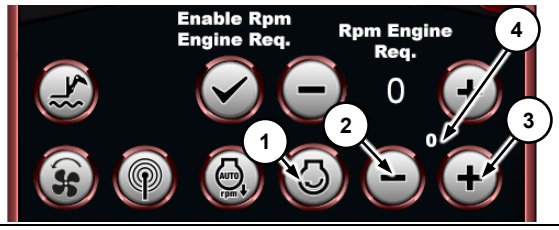
To use the radio control (OPTIONAL) refer to the relevant Use and Maintenance Manual.

Checking the engine rpm



The button indicated is used to activate or deactivate the engine speed electronic control function: if selected, as soon as a hydraulic movement is imparted to a telescopic handler component, the engine automatically increases the speed, in a proportional manner, to provide force to the services pump and consequently facilitate the movement imparted.

Auxiliary continuous function



This selection ① makes it possible to activate, for a certain accessory, the continuous movement of one of its element such as a mixer bucket, adjusting the operating speed by means of the buttons concerned, ② and ③.

Value ④ is the flow % as regards the maximum flow rate.

PASSWORD sub-level page

ATTENTION

To use the password-protected pages correctly, contact MAGNI TELESCOPIC HANDLERS S.r.l. After-Sales Service.

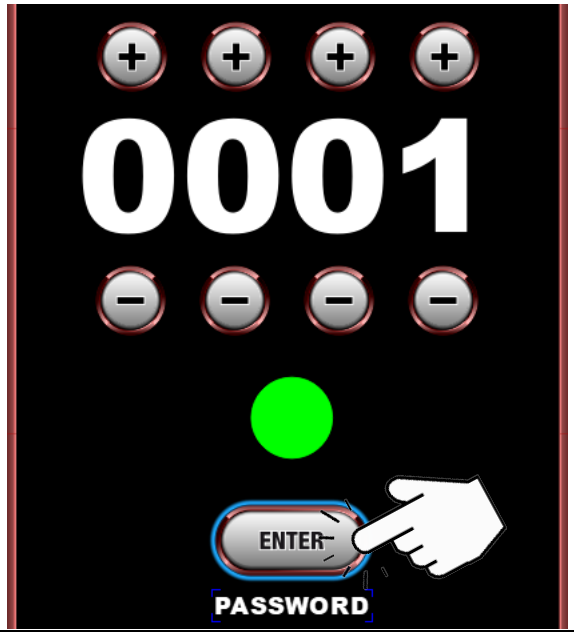
The multiple function display conceals password-protected pages at various levels, showing vehicle control parameters accessible according to the permissions granted by MAGNI TELESCOPIC HANDLERS.

The pages examined in this manual are the "**1**" and "**1B**" level pages; to access these pages, press the MAGNI logo in the top left-hand corner.

This opens the "Diagnostics List" page containing all the diagnostic pages available on the vehicle: to consult this list in more detail, refer to the "Service Manual" provided by Magni Telescopic Handlers Assistance Service.

Continue with the procedure for accessing password-protected pages by pressing the specific "PASSWORD" button.

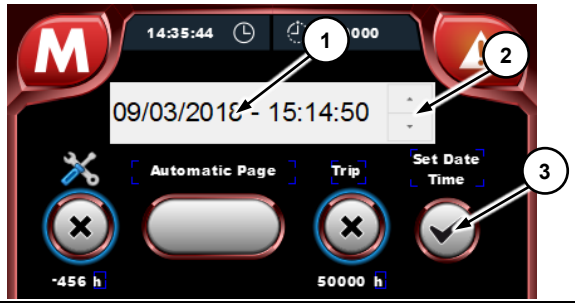
Press the button indicated until **"1"** appears, then press the **ENTER** button.



This opens the level "**1**" password-protected page.

Level 1 password page

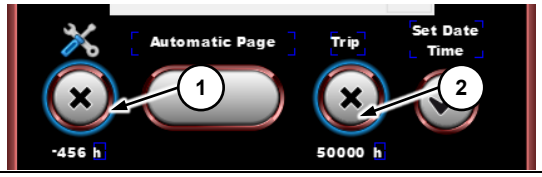
Time/date setting



To change the date/time, press the specific area ① to select the desired field (day/month/year – hours / minutes).

Change the value by pressing the ^ / ˅ buttons ②, then press the confirmation button ③.

Hour counter



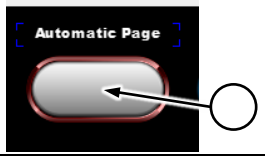
The left hour counter ① indicates the hours remaining until the next maintenance operation: when selected, it restarts the countdown to the following maintenance operation set at 500 hours.

The right “Trip” hour counter ② indicates the partial hours of vehicle use; if this button is pressed, it resets the count to zero, which is a useful function for rental purposes.

NOTICE

This reset does not affect the count of the vehicle's total hours of life.

Automatic page switching of the multiple function display



When selected, and coloured blue, this button enables automatic page switching on the multiple function display: depending on the command given to the vehicle, the corresponding page is displayed.

PIN / Password

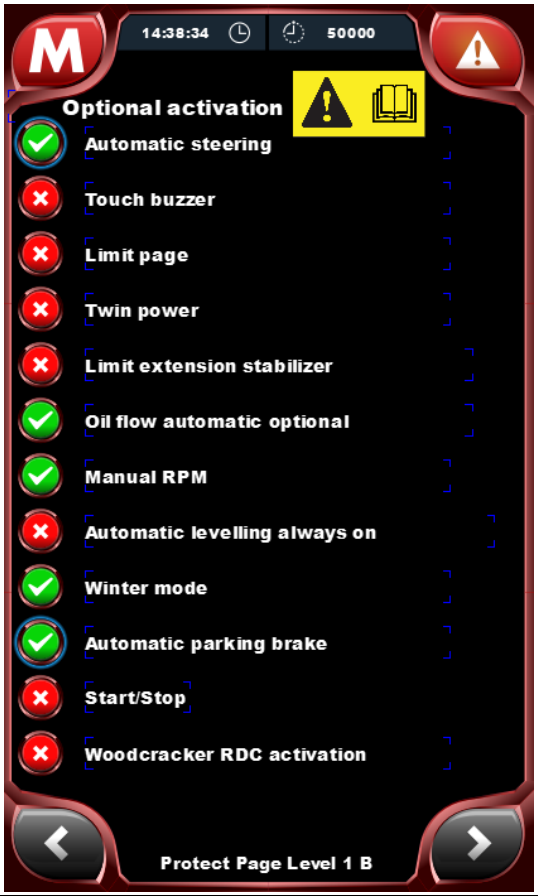
The middle section of the page is used to set numeric values for starting the vehicle (PIN) with an anti-theft function and customisation of the access code for password pages (PSW) different from the factory-set ones.

To set new values, press the **+** or **-** buttons next to each digit; once the desired numeric value is obtained, press the specific PIN or PASSWORD confirmation button.

Display language selection

In this section of the multiple function display, the message language can be changed by selecting the flag icon for the desired language.

Level 1B password page



This page can be opened from the Level 1 page by pressing the scroll button in the bottom right-hand corner.

In this level, the functions listed (variable depending on the vehicle set-up at the time of the purchase order) can be enabled or disabled.

For a detailed description of the functions on this vehicle model, see the Service Manual.

Air vents

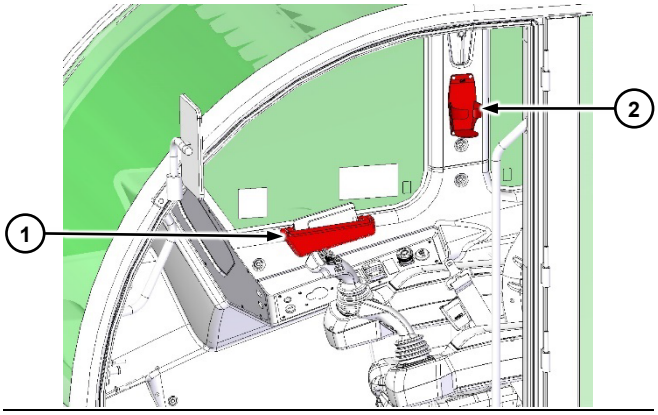
In the cab, there are air vents adjustable in orientation located in front of the driver to the right of the steering column on the hat rack located behind the seat, and at the base of the entry door pillar; they are all adjustable in air flow and temperature in the Commands page of the multiple function display, as described above.

There is also a windscreen-specific air diffuser located in the crossbar that incorporates the front windscreen wiper.

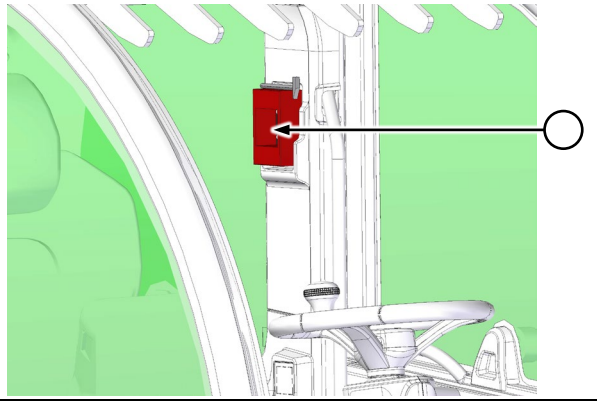
Service compartments for the vehicle driver

In the cab, there are service compartments to the right of the driver's seat:

- document/mobile/tablet pocket ①,
- beverage holder ③.



Safety keys container



The container for the keys used for disconnecting the safety systems is fitted on the left jamb inside the driver's cab.

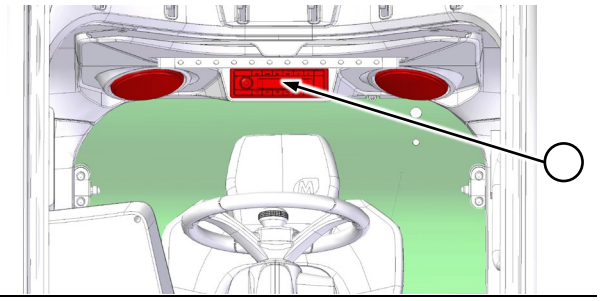
The container contains two keys:

- key for exclusion of the porthole protection safety systems, with metallic grip;
- key for exclusion of the lift platform safety systems (optional), with plastic grip.

Should it become necessary to use the keys enclosed inside, take the hammer located above the container and break the protective glass.

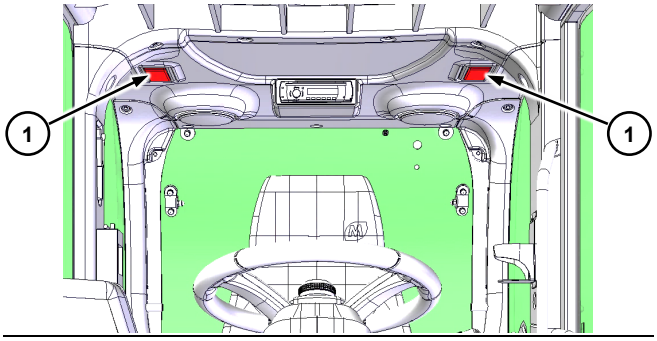
Once the safety procedure is complete, replace the key(s) and restore the protective glass.

Vehicle radio



The vehicle radio is present on the rear covering of the cab behind the operator's head. The speakers are present between the driver's seat and the rear window. The radio is included in the standard vehicle supply. For operation of the radio installed, refer to the Instruction Manual included in the package delivered with the vehicle.

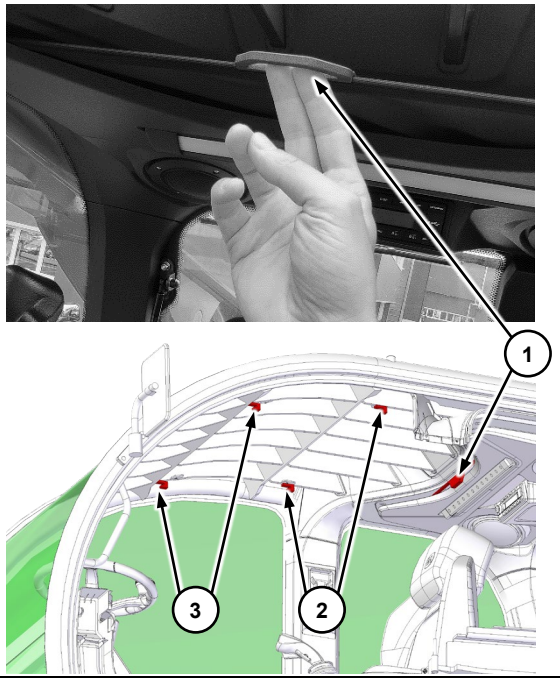
Ceiling lights



There are two ceiling lights ① on the cab roof on either side of the driver's seat, which can be individually operated with the switch at the front of each one.

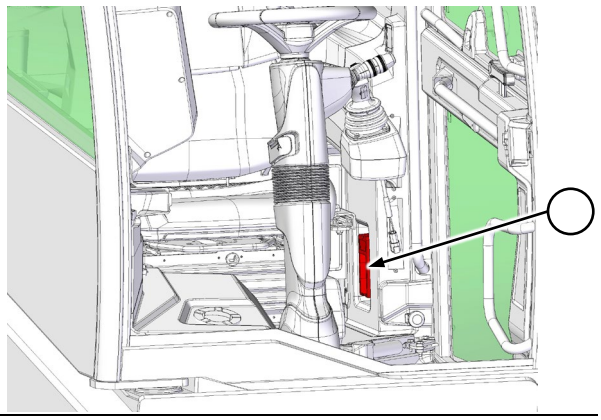
Sunshade

Positioned above the driver's seat is the retractable sunshade ①: this, when grasped by the handle, can be pulled out of its seat and extended in two different stages, ② and ③, depending on the driver's needs.



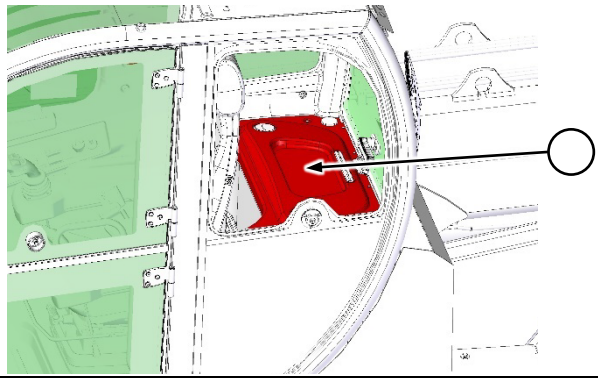
Radio control battery charger

In the lower portion of the left-hand pillar of the cab is the battery charger for the radio control (when present in the vehicle).



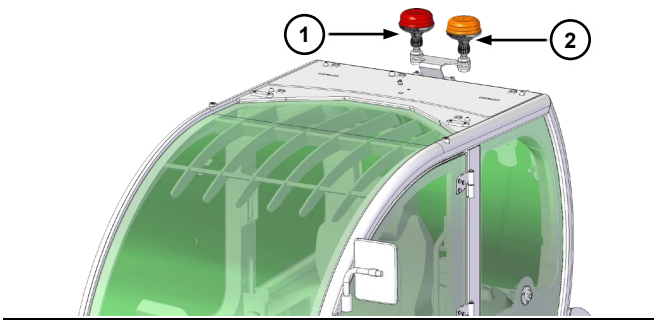
Radio control housing

Behind the driver's seat is a hat rack with a slot for storing the radio control when not in use.



OUTER ELEMENTS

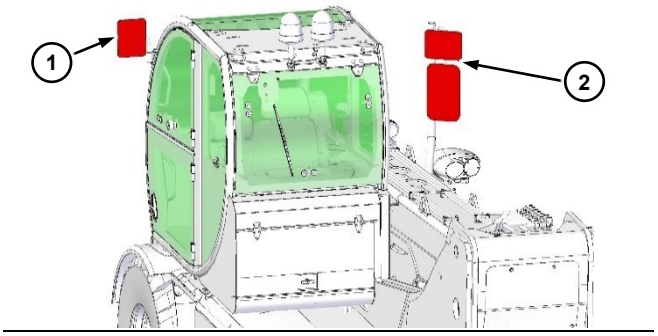
Work and emergency lights



Above the cab there are:

- the red beacon ① which is activated when the limiting working conditions are reached and warns people outside of a possible dangerous situation;
- the orange beacon ② with the function of signalling a moving vehicle and activated from the multiple function display, as described above.

Rear view mirrors



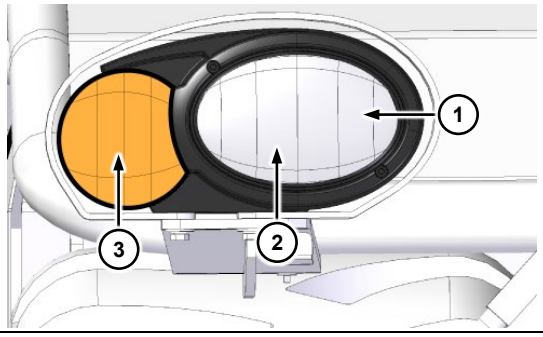
The vehicle is equipped as standard with three rear-view mirrors: one on the left ①, installed directly on the cab, and two on the right ② installed on a support structure bolted to the right side of the vehicle chassis.

The rear view mirrors on the right make it possible to simultaneously display the rear area and the area of the ground adjacent to the side of the vehicle.

ATTENTION

Adjust the rear view mirrors before operating the vehicle to give the operator maximum visibility of the area adjacent to the vehicle.

Headlights

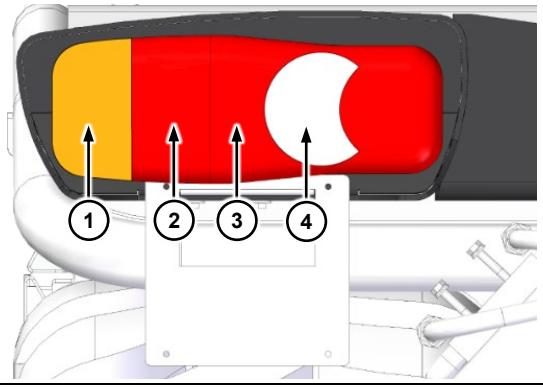


The headlights consist of the following lights:

- Position light ①,
- Low/high beam ②,
- Direction indicator ③.

Selection is controlled by means of the light switch lever on the steering column in the cab.

Tail lights

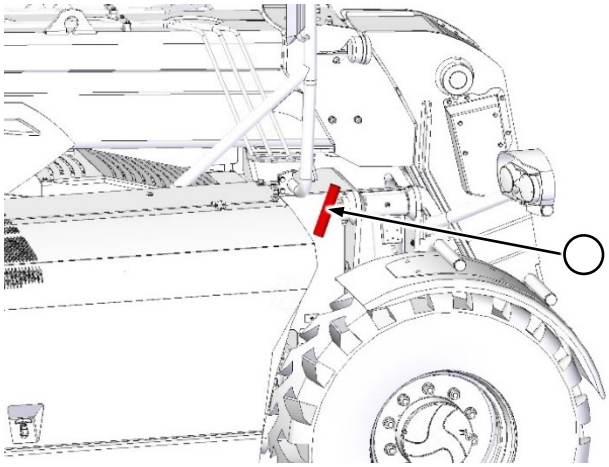


The tail lights unit consists of the following lights:

- Direction indicator ①;
- Stop light ②;
- Position light ③; (+ licence plate light for left light cluster);
- Reversing light ④.

The selection for road lights and direction indicators is controlled by the light switch lever on the steering column in the cab. The STOP light is activated by pressing the brake pedal of the vehicle; the reversing light is activated by means of the FNR button on the right joystick in the cab.

Shear pin housing for interchangeable equipment



The housing of the shear pin for the quick-fit coupling of the equipment is present in the front part of the vehicle chassis near the right mudguard.

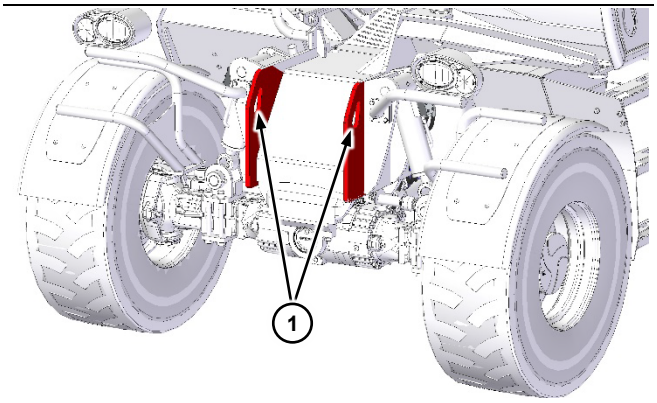
ATTENTION

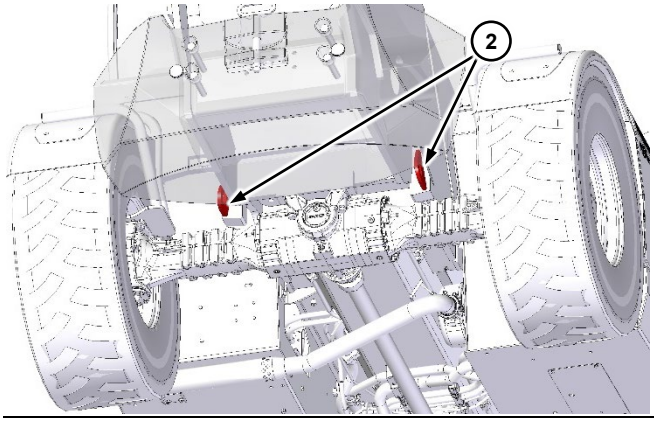
The shear pin must also be on the vehicle so as to be available when required.

Always fit the shear pin in its housing when not in use.

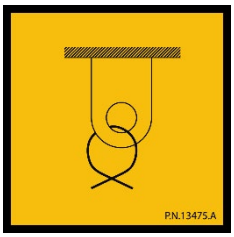
If placed in an unsuitable part, the shear pin may get jammed between the moving parts of the vehicle, causing serious problems.

Anchor points





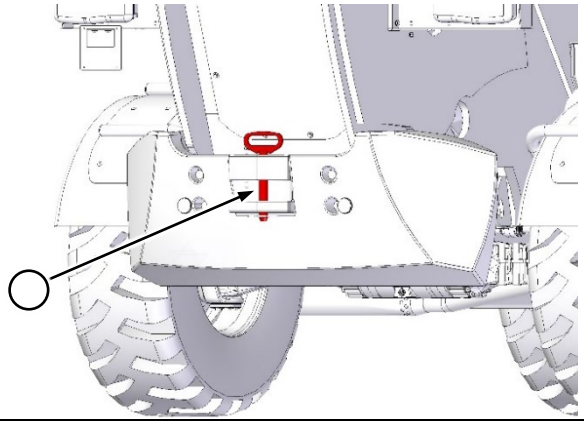
The vehicle is provided with four anchoring points, in the front part of the chassis ① and in the rear part ②, all marked by a specific sticker:



WARNING

Unless otherwise indicated in this Manual, never fix anchoring devices to other parts of the vehicle.

Tow hook



The vehicle is provided with a tow hook positioned in the rear part of the chassis.

When using the hook, ensure that the pin is properly secured by the attached steel chain-bound safety cotter pin.

WARNING

Do not connect towing devices other than the tow hook as anchoring points to parts of the vehicle.

WARNING

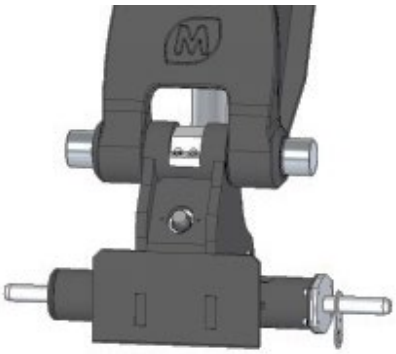
The towing operations must always be carried out by personnel appropriately trained in compliance with the laws in force.

Quick-fit coupling for the equipment

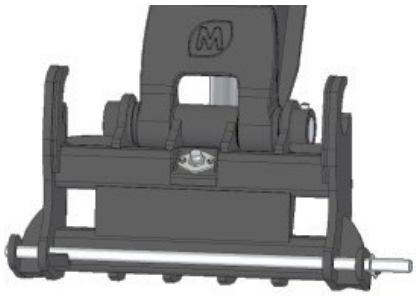
The vehicle is equipped with an interface, hereafter referred to as a *quick-fit coupling*, to be combined with interchangeable equipment with specific functions: fork attachment plates, winches, lifting hooks, aerial work platforms, etc.

This quick-fit coupling, depending on the end customer's specifications, can be of two types: **"I"** or **"U"**.

"I" and "U" couplings



The "**I**" coupling (with Magni Telescopic Handlers patent) is designed to be more rigid, more compact, in comparison with those of competitors and is designed solely for equipment designed and produced by Magni Telescopic Handlers S.r.l. (or under licence) with a similar coupling.



The "**U**" coupling is designed to be fitted with equipment designed and constructed by Magni Telescopic Handlers Srl with a similar coupling, just as it can also be fitted with equipment designed and constructed by other manufacturers (e.g. Manitou Costruzioni Industriali), subject to checking and approval of installation conformity by Magni Telescopic Handlers S.r.l.

OPERATING TECHNIQUES

Before using the vehicle

NOTICE

Take note of what is already contained in the *"Correct Use"* and *"Reasonably Foreseeable Misuse"* sections.

ATTENTION

Operators using the vehicle must be trained and must be familiar with all its working aspects. The operator must obtain a licence or certificate if required by the regulatory standards in force. If the vehicle is used on public roads, a regular driving licence is required in accordance with the laws in force.

Always shut the cab door. Lock the windows and/or door open or closed. Clean all windows to ensure perfect visibility.

Check the condition of the seat belt and fixing points. Replace all visibly damaged and worn parts. Replace the entire safety belt after 3 years irrespective of wear. Do not use extensions.

Before starting the engine, check the level of all the fluids: engine oil, transmission oil, hydraulic oil, coolant, fuel, urea (if present).

Check under the vehicle for oil, fuel or coolant leaks.

Make sure all the hoods are closed and all guards are installed correctly on the vehicle.

Adjust the seat so that the pedals can be pressed completely while sitting correctly. Adjust the steering column inclination to ensure a comfortable posture and easy access to all the controls.

Make sure the lighting on board is adequate for the working conditions, and that all the lights are working correctly.

Check to make sure the horn, signalling lights and all the alarm devices work correctly.

Adjust the orientation of the rear-view mirrors to best cover the visual area around the vehicle.

Check the state and wear of the tyres. If necessary, adjust the inflation pressure.

Work area

WARNING

Before each operational phase check that the ground where you are working is capable of supporting the weight of the vehicle and the maximum load-bearing capacity according to the equipment installed.

ATTENTION

Check the specific manual of the interchangeable equipment in use for any special requirements.

Weather conditions

Always check the weather conditions before and during work phases: if visibility is poor, suspend work.

In the event of thunderstorms with lightning, suspend work.

Using the vehicle in windy conditions

The variation in wind speed can lead to many problems such as loss of vehicle stability, swinging load, reduced visibility due to rising earth, dust, leaves, etc.

Unfavourable factors for vehicle use are:

- Location of the site: the aerodynamic effect of buildings, trees and other structures can lead to an increase in wind speed.
- The height of the extended boom: the higher it extends vertically, the more the wind speed is perceived.
- The load area: the more area the load occupies, the more it is affected by the wind force.

Near gale

Magni telescopic handlers can be used up to a wind speed of 36 km/h equal to 10 m/s (5 on the Beaufort scale) measured on the ground.

Wind-Chill effect

At a temperature of 10°C (50°F), a wind speed of 32 km/h (8.9 m/s) makes the exposed parts of the body feel a temperature of 0°C (32°F).

The higher you climb, the more the wind speed increases and the more the feeling of a drop in temperature increases.

WARNING

In the presence of strong wind (6 on the Beaufort scale) never lift loads with a surface area of more than 1 m².

Below is a table of the Beaufort scale in order to be able to roughly determine the wind speed and assess the possible suspension of work.

Climatic conditions of use

It is recommended to always take into account the climatic and atmospheric conditions of the place of vehicle use.

The vehicle is designed for use in different temperature, humidity and altitude conditions. However, it is still advisable to observe the values given in the technical tables (*Environmental Data*).

For use in extreme cold conditions, it is necessary to install a few additional devices to help with start-up (e.g. coolant, fuel, engine oil and/or hydraulic oil heater, higher capacity batteries, etc.).

Contact your dealer or after-sales service for technical support in this regard.

Always take into account the climatic and atmospheric conditions of the place of use.

Using the vehicle in snowy conditions

WARNING

Be careful to use the vehicle and proceed with great caution in the event of snow falling and/or snow on the ground as it hides obstacles, buries objects, it can cover holes / excavations / ditches, etc.

It is strictly forbidden to operate if the amount of snow is such that the obstacles and dangers along the route cannot be clearly distinguished.

In case of snow be very careful not to move away from the roadside; anything buried along the edge of the road could cause the vehicle to overturn or damage some components.

Surfaces covered with snow or ice are extremely dangerous, operate with great caution and reduce the vehicle speed as much as possible.

In case of snow operate with great caution, if the vehicle sinks into the snow there is a risk that it may overturn or remain buried and/or trapped.

Be very careful when moving on icy ground; as the temperature increases, the base becomes loose and slippery.

BEAUFORT WIND FORCE SCALE					
force	**speed (km/h)**	**speed (mi/h)**	**speed (m/s)**	**wind type**	**wind effects**
0	0 - 1	0 - 1	> 0.3	calm	smoke rises vertically
1	1 - 5	1 - 4	0.3 - 1.5	light air	wind causes smoke to drift
2	6 - 11	5 - 7	1.6 - 3.3	light breeze	the leaves move
3	12 - 19	8 - 11	3.4 - 5.4	gentle breeze	leaves and twigs constantly agitated
4	20 - 28	12 - 18	5.5 - 7.9	moderate breeze	the wind raises dust, dry leaves, small tree branches constantly moving
5	29 - 38	19 - 24	8 - 10.7	fresh breeze	small trees in leaf begin to sway
6	39 - 49	25 - 31	10.8 - 13.8	strong breeze	large branches constantly moving, hissing between the telegraph wires
7	50 - 61	32 - 38	13.9 - 17.1	near gale	entire trees moving, difficulty in walking against the wind
8	62 - 74	39 - 46	17.2 - 20.7	gale	broken branches, walking against the wind is impossible
9	75 - 88	47 - 54	20.8 - 24.4	strong gale	chimneys and tiles blown away
10	89 - 102	55 - 63	24.5 - 28.4	storm	seldom experienced on land, trees uprooted, considerable damage to dwellings
11	103 - 117	64 - 73	28.5 - 32.6	violent storm	rare, severe devastation
12	beyond 118	74 +	32.7 +	hurricane	destruction of buildings, constructions etc..

Road circulation

WARNING

Check, before proceeding on public roads open to traffic, that the vehicle is properly approved for the country in which it is to be used.

The circulation on the road with accessory mounted in the head of the boom is allowed only if expressly indicated in the technical attachment of the road approval.

Please contact the Magni Telescopic Handlers Assistance Service for more information.

WARNING

In the event of regular type approval, check that the vehicle in use has all the specifications set out in the relevant registration certificate and is operated in accordance with the prescriptions therein.

While driving on roads, only use the mode with two steering wheels.

Travel with the telescopic boom completely retracted and lowered as far as possible.

Make sure that the quick-fit coupling is high enough from the ground.

Parking the vehicle

Always park the vehicle on a flat surface.

Always apply the parking brake.

Put the reverse gear in neutral (**N**).

Position suitable wheel chocks.

Switch the engine off.

Do not leave loads suspended.

Do not park the vehicle with a load hanging from the equipment.

If the vehicle is to remain parked for a long period, protect it from atmospheric agents.

Before stopping the engine let it run at minimum for a few minutes. Immediately stopping the engine after it has been working under load can cause overheating and premature wear of some of the components.

Retract the telescopic boom and lower it.

Before leaving the vehicle, check all the locks:

- engine compartment;
- fuel cap;
- cab door;
- additional lockable equipment.

For long-term stops, turn the battery cut-off switch in the engine compartment to switch off the main circuit. This will prevent a short circuit and damage to the batteries and will preserve the charge from abnormal power draws.

NOTICE

For engines meeting Stage V anti-pollution standards, wait at least 5 minutes after the engine is switched off before disconnecting the main electrical circuit.

This compliance preserves the after-treatment system operating with the urea-based additive (AdBlue®).

Install a waterproof covering to protect the vehicle from atmospheric agents if it is to remain unused for a long period.

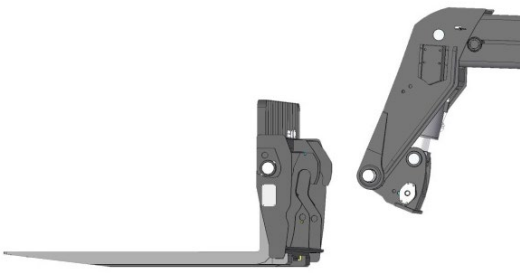
Interchangeable equipment installation

WARNING

If fitted incorrectly, an attachment can suddenly detach from the vehicle during operation. This can cause injury or even death.

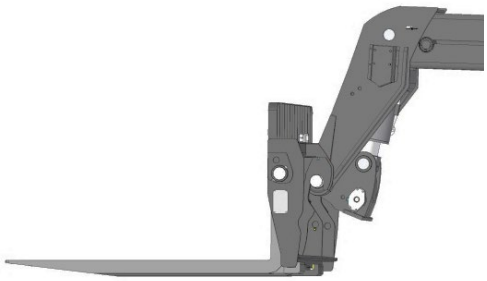
Do not operate the vehicle without the shear pin fitted in the quick-fit coupling.

Position the attachment on a stable level surface. Make sure there is sufficient space for operation. Check the attachment to make sure it is clean and intact before fitting it.

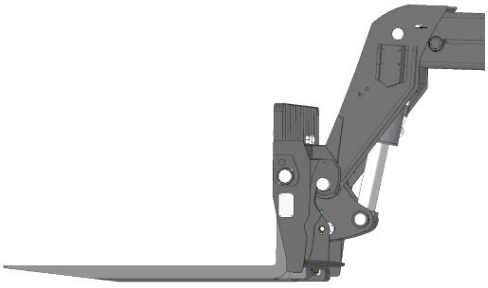


Bring the vehicle perpendicular to the equipment with the boom completely retracted and lowered. Retract the slewing jack to make hooking easier.

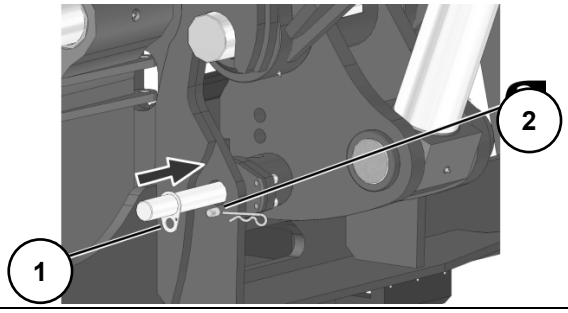
Stop the vehicle with the quick-fit coupling about a metre away from the equipment. Move the reverse gear lever to the neutral position and apply the parking brake.



Extend the telescopic boom slowly, checking the alignment until the quick-fit coupling is engaged, then raise it to fit the accessory. Raise the equipment by a few centimetres off the ground to ensure the elements fit in perfectly.



Rotate the quick-fit coupling until fully coupled with the accessory.



Take the shear pin ① from its housing on the vehicle chassis and insert it in all the way, taking care to align the hole. Complete the procedure by inserting the cotter pin ② in the hole to prevent the shear pin from coming loose accidentally.

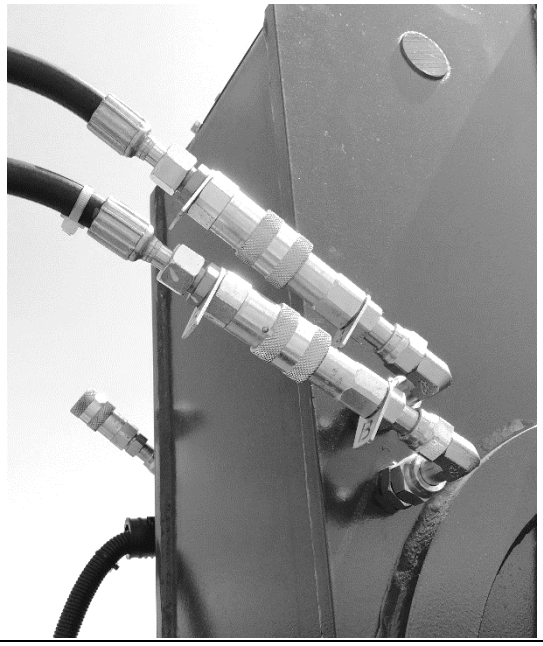
DANGER

It is forbidden to operate without the locking pin secured with interchangeable equipment installed.

DANGER

In the event of problems during coupling due to deformations of the equipment structures or the shear pin, it is strictly forbidden to proceed with the use of the vehicle and the equipment itself until the problem is resolved.

In the case of interchangeable equipment requiring hydraulic and/or electrical functions, connect the respective connectors to those at the head of the telescopic boom.



WARNING

The hydraulic connections are marked with metal labels: respect the couplings. Incorrect coupling can cause malfunctioning of the equipment by reversing the commands given.

Equipment confirmation

Magni Telescopic Handlers are equipped with an RFID (Radio Frequency Identification) equipment recognition sensor installed in the centre of the quick-fit coupling: this system allows the vehicle's software to recognise, at the instant of coupling, the type and model of equipment present at the head of the boom.

Correct recognition enables in-cab or specific load chart with relevant working areas and operating limits.

Confirmation of the equipment is done via a request on the multiple function display by means of an active banner: the example above shows the recognition of a fork attachment plate with a capacity of 6t; if the equipment on the boom head is correct, the pairing must be confirmed by pressing button **"✓"** ①.

ATTENTION

In the event of non-recognition or incorrect recognition, press button "X" ②: in this condition the vehicle is operational with limited functions (NO TOOLS) for the handling of unrecognised equipment in the construction site area only.

Check the condition of the RFID sensor at the head of the boom and the respective tag mounted on the unrecognised equipment.

DANGER

It is strictly forbidden to work with equipment that is not recognised by the vehicle software while operating with the limit disabling key active.

Removing the equipment

Position the vehicle on a stable level surface. Make sure there is sufficient space for operation. Move the reverse gear lever to the neutral position and apply the parking brake.

Remove the cotter pin and remove the shear pin. Fit the shear pin in its housing on the vehicle chassis.

Lower the telescopic boom and rest the equipment gently on the ground. Rotate the quick-fit coupling downwards to make it easy to detach the equipment.

Lower the telescopic boom to separate the vehicle from the interchangeable equipment. Retract the boom completely to separate the quick-fit coupling from the equipment.

Clean the equipment thoroughly. Grease all the pins and movable parts to protect them from corrosion and wear. Remove excess grease to prevent accumulation of dirt.

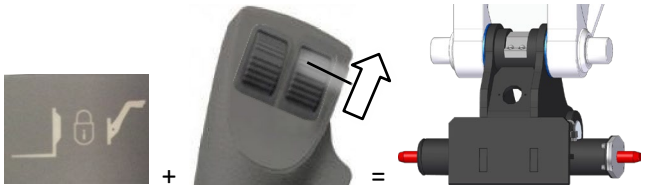
Always keep the equipment protected from atmospheric agents. Rest the equipment on a support raised off the ground and protect it with a waterproof cover if necessary.

Hydraulic shear pin

With this configuration, a hydraulic jack inside the quick-fit coupling locks the interchangeable equipment. This operation can be managed from the cab without climbing down to insert the shear pin.

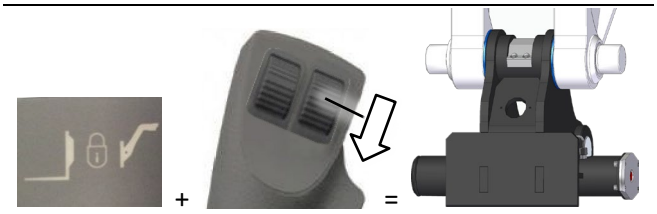
For vehicles equipped with hydraulic shear pin, regardless of whether it is an “I” or “U” model, there is a specific actuation button with dedicated graphics on the dashboard to the right of the driver’s seat.

To lock the equipment, when quick-fit coupling and interchangeable equipment have been correctly coupled, press the dedicated button on the dashboard and operate the left joystick hydraulic command by rotating the indicated roller forward.



Pin open → equipment locked

To unlock the equipment, press the dedicated button on the dashboard and operate the left joystick hydraulic command by rotating the roller backward.



Pin closed → equipment unlocked

List of compatible accessories

- Winch
- Bucket (e.g. for concrete)
- Jib
- Lattice boom with winch
- Hook
- Waste buckets
- People carrier aerial work platform
- Clamp (with different applications)
- Fork attachment plate

These accessories are approved for use on the telescopic handler models mentioned in this manual. Do not use accessories that are not approved by the manufacturer. Contact your dealer for more information on approved accessories.

NOTICE

The list of compatible equipment is subject to change without notice.

Approved equipment

WARNING

The use of interchangeable equipment not approved on the vehicle by Magni Telescopic Handlers S.r.l. may result in injury or death.

Before installing interchangeable equipment on the vehicle, make sure it has been approved by Magni Telescopic Handlers S.r.l., and that the corresponding load charts are present in the vehicle management software.

The code of the interchangeable equipment manufactured by Magni Telescopic Handlers S.r.l. is stamped on its identification plate. To establish whether interchangeable equipment is approved, contact the dealer or the Support Service directly.

Some interchangeable equipment produced by companies other than Magni Telescopic Handlers S.r.l. can be adapted for fitting on the vehicles described in this Manual. Contact your dealer to know if your interchangeable equipment can be adapted for assembly on your vehicle.

If the interchangeable equipment is suitable and before proceeding, the equipment and the vehicle must be sent to the dealer for the required modifications and tests. A document confirming proof of the combination will be issued at the end of the procedure.

ATTENTION

It is forbidden to use interchangeable equipment without the EC Declaration of Conformity and the Use and Maintenance Manual. It is also forbidden to use any interchangeable equipment on your vehicle if the EC Declaration of Conformity does not confirm its compatibility.

Handling of loads

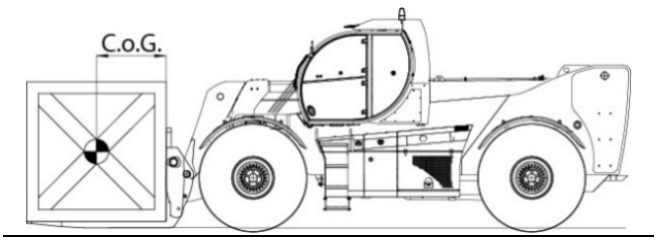
During load handling operations always display the load control page to keep the percentage indicator and load chart under control.

DANGER

If the load status indicator is in alarm, make only the unloading movements in the following order:

- **retract the telescopic boom as far as possible;**
- **lift the telescopic boom if necessary;**
- **lower the boom to deposit the load.**
- **never try to extend the telescopic boom when the load indicator shows an alarm signal.**

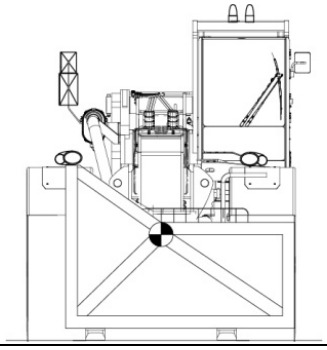
Centre of gravity of the load



Never try to lift loads heavier than the rated capacity of the vehicle.

Before lifting a load, it is necessary to know its weight and the relative centre of gravity position. The longitudinal position of the centre of gravity varies according to the type of interchangeable equipment attached to the vehicle.

Refer to the technical specifications in the interchangeable equipment's user manual to know the centre of gravity used.



In case of irregular loads, determine the centre of gravity in the transverse direction to the vehicle before making any movement.

For loads with mobile centre of gravity, such as tanks containing liquids, it is necessary to take into account the load oscillations and take utmost caution in handling to avoid excessive shifting of the centre of gravity.

Picking up a load from the ground with fork attachment plate

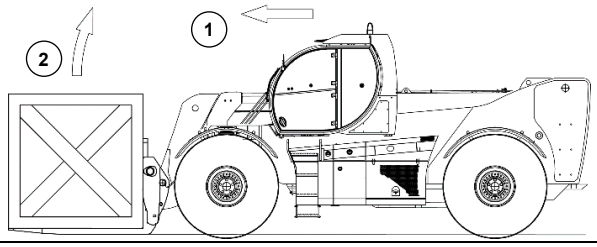
DANGER

During manual adjustment of the forks or other parts of the interchangeable equipment there is a crushing hazard for the limbs. This can lead to serious injuries.

Be extremely careful when handling the load.

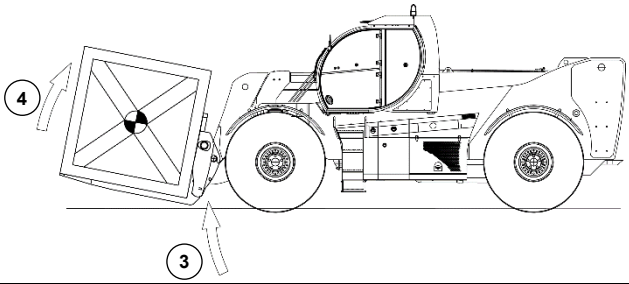
Position the vehicle perpendicular to the designated load.

Manually adjust the width of the forks so that these can be inserted in the openings in the pallet at the base of the load. If there is no pallet, assess the width of the blades to give the load maximum stability.



Incline the quick-fit coupling ① so that the forks are not in the horizontal position. Approach the load ② slowly with the boom lowered and insert the forks under it.

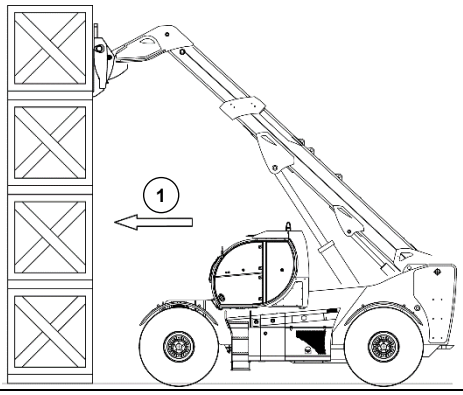
Apply the parking brake and set the reverse gear lever in the neutral position.



Lift the load slightly ③ and incline the quick-fit coupling upwards ④ to make the load stable. Take care to avoid modifying the load balance negatively (tipping forward).

Taking a load from a height with the vehicle on tyres with fork attachment plate

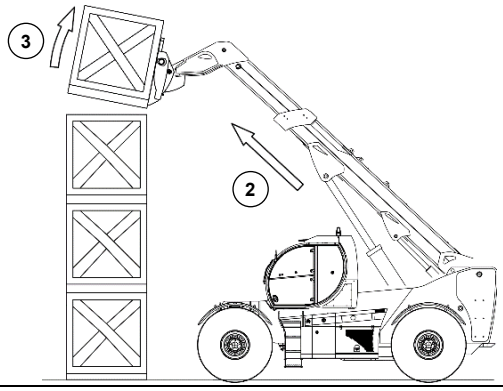
Put the vehicle perpendicular to the designated load. Make sure the forks pass under the load and are properly adjusted to the load.



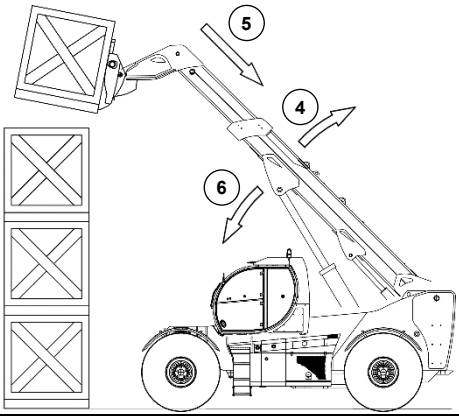
Bring the vehicle near the load ① slowly with the forks in the horizontal position. Move carefully to insert the forks under the load.

The forks must enter the pockets of the pallet all the way with precision. Take care to avoid knocking against the load.

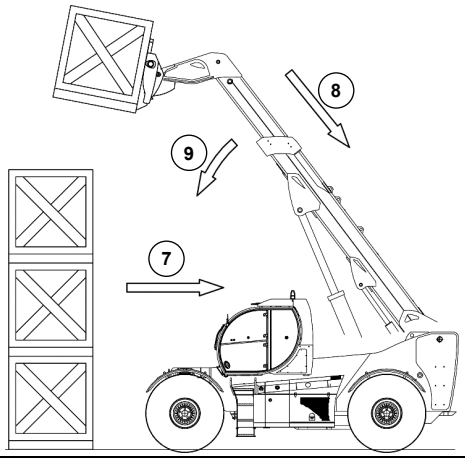
Apply the parking brake and set the reverse gear lever in the neutral position.



Lift the load ② slightly and incline the quick-fit coupling upwards ③ to make the load stable, taking care to avoid modifying the balance negatively.

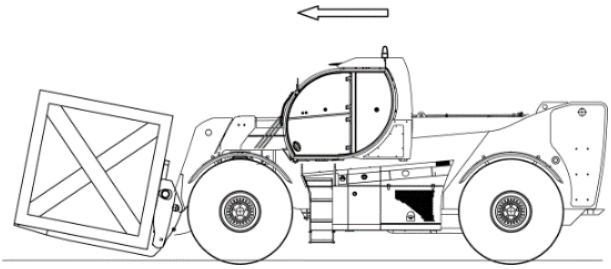


If possible, lower the load without moving the forklift truck. Lift the boom to move the load away ④, retract the telescopic boom ⑤ and lower it to bring the load to the transport position ⑥.



If the load cannot be lowered without shifting the vehicle, move gently in reverse ⑦ and with utmost care to move the load away. Retract the telescopic boom ⑧ and lower it ⑨ to bring the load to the transport position.

Bring the load to the transport position

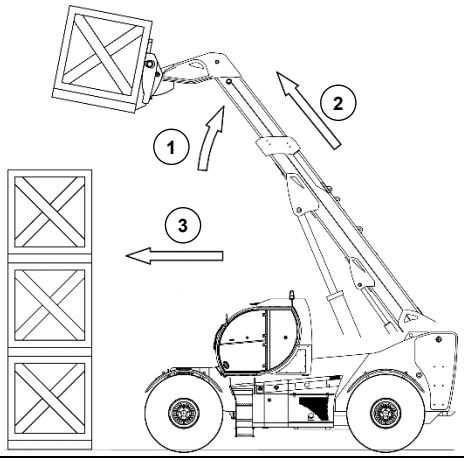


Every time reference is made to the “transport position” in this Manual, it means the configuration of the vehicle is as described below:

- Telescopic boom completely retracted;
- Quick-fit coupling rotated slightly upwards;
- Telescopic boom lowered in such a way as to keep the load approx. 300 mm off the ground.

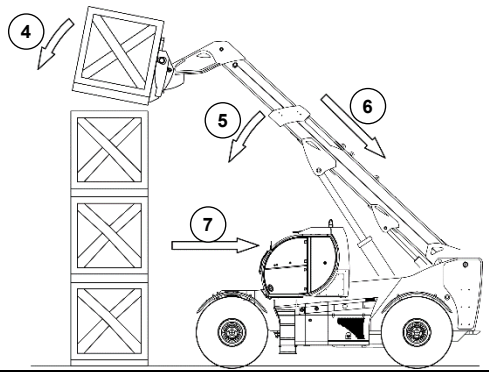
For specific cases, the transport configuration is indicated in the “Pick & Carry” chart in the relevant section of the Interchangeable Equipment’s Use and Maintenance Manual.

Placing a load at a height with the vehicle on tyres



After picking up the load, lift ① and extend ② the telescopic boom to position the load above the area in which it is to be deposited. Move the telescopic handler close to the area where it is to be deposited ③.

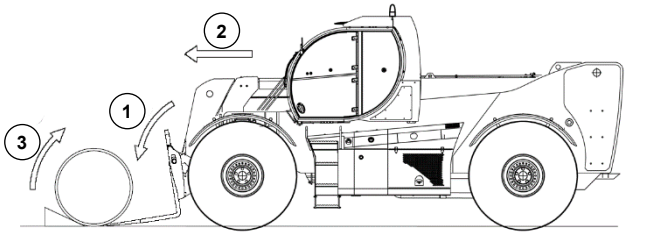
Apply the parking brake and set the reverse gear lever in the neutral position.



Rotate the quick-fit coupling downwards ④ to position the load horizontally. Lower ⑤ and retract ⑥ the boom with slow movements to release the load in its place.

Release the parking brake and set the reverse gear lever in reverse. Release the forks lowering the telescopic boom slightly and moving slowly in reverse ⑦.

Picking up a cylindrical load without pallet with fork attachment plate



Position the vehicle at right angles to the load. Approach the load with the telescopic boom completely lowered and retracted. Apply the parking brake and set the reverse gear lever in neutral. Incline the quick-fit coupling downwards ①. Extend the telescopic boom slowly ② and at the same time rotate the quick-fit coupling upwards to insert the forks under the load ③.

If the operation is found to be difficult, insert a chock behind the load, to prevent it from shifting while the forks are being inserted.

Moving the centre of gravity

Before picking up a load, it is necessary to know its mass and centre of gravity.

The position of the centre of gravity is indicated on the dimensional drawings and on the load charts in the Use and Maintenance Manuals of the individual accessories.

During operation, the telescopic handler is subjected to a number of stresses that can affect its stability and therefore its safety.

The objective of greater operational safety is achieved by complying with the balancing principle, which entails operating without compromising the longitudinal and transverse balance of the telescopic handler, in order to prevent the causes that may cause it to overturn.

For loads with a movable centre of gravity (e.g. liquids), possible variations in the centre of gravity must be taken into account to determine the load volume to be handled.

DANGER

It is forbidden to handle a load exceeding the actual capacity specified on the corresponding load chart in the Use and Maintenance Manual of the individual accessory used.

Operate with the utmost caution and care to limit such variations as much as possible.

Visibility

When driving the vehicle, it is mandatory to remain particularly vigilant especially in its immediate vicinity due to the possible presence of people, animals, obstacles, etc.

Here are a few useful recommendations to have, and maintain, good visibility around the vehicle:

- Make sure you always have a good view from the cab (clean windows, sufficient lighting, rear view mirror adjusted, etc.).
- Always try to have a good view of the route, with direct vision and indirect vision (using the panoramic rear view mirrors) to check for the possible presence of people, animals, holes, obstacles, changes in slope, etc.
- Visibility, on the right side, may be reduced when raising the boom, so make sure you have a good view of the route before raising the boom and proceeding with operations.
- If visibility while driving is insufficient, ask for the support of a person on the ground to provide signals.
- The telescopic handler's signalling systems and lights must be suitable for its conditions of use. The vehicle's standard lighting might not be enough for use in environments that are poorly lit or at night.

Traversing over sloping ground

WARNING

Working with the vehicle on sloping ground can cause overturning or slipping. Move forward and brake gently taking the necessary precautions.

Always move in a straight line to climb up or down a slope.

Always use the parking brake when placing or lifting a load on a slope.

DANGER

Do not move crosswise or horizontally along the slope: risk of tipping over.

When travelling on sloping routes, whether uphill or downhill, turn the lifting accessory downstream for empty movements and upstream for movements with a load.

It is strictly forbidden to move with the load facing downstream on a downhill slope, because it would seriously compromise the stability of the load and of the vehicle itself.

If you must go down the slope with a load, do so in reverse gear with the load positioned upstream.

If you must go up the slope with a load, do so in forward gear with the load positioned upstream.

Please contact your dealer or the Magni Telescopic Handlers Service Department for technical support.

TRANSPORT INFORMATION

Shipping the vehicle

Make sure the total weight of the vehicle and transport vehicle comply with the standards and regulations in force in the countries along the route.

Ensure that the road chosen has vertical and horizontal margins suitable for the transport vehicle with the vehicle loaded on it.

Before loading the vehicle, remove all slippery material from the transport vehicle, railway carriage or loading ramp.

Before loading the vehicle, always block the wheels of the transport vehicle or railway carriage with chocks.

The boom must be completely stowed and lowered, until the quick-fit coupling or equipment come to rest on the transport vehicle.

The dimensions and weights for shipping a standard vehicle are shown in this Use and Maintenance Manual in the technical specifications.

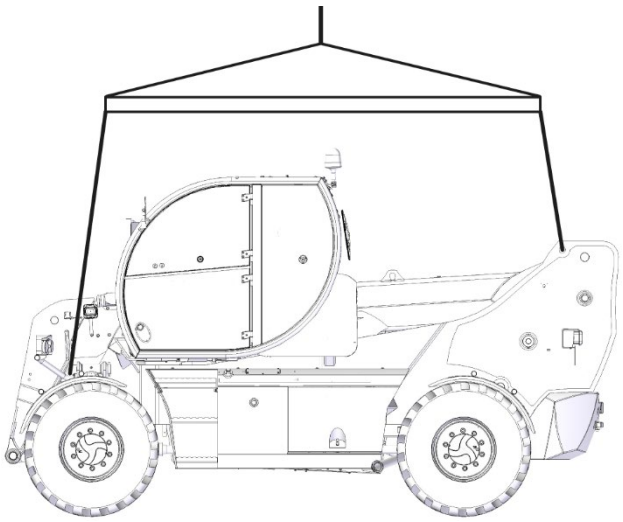
Lifting the vehicle

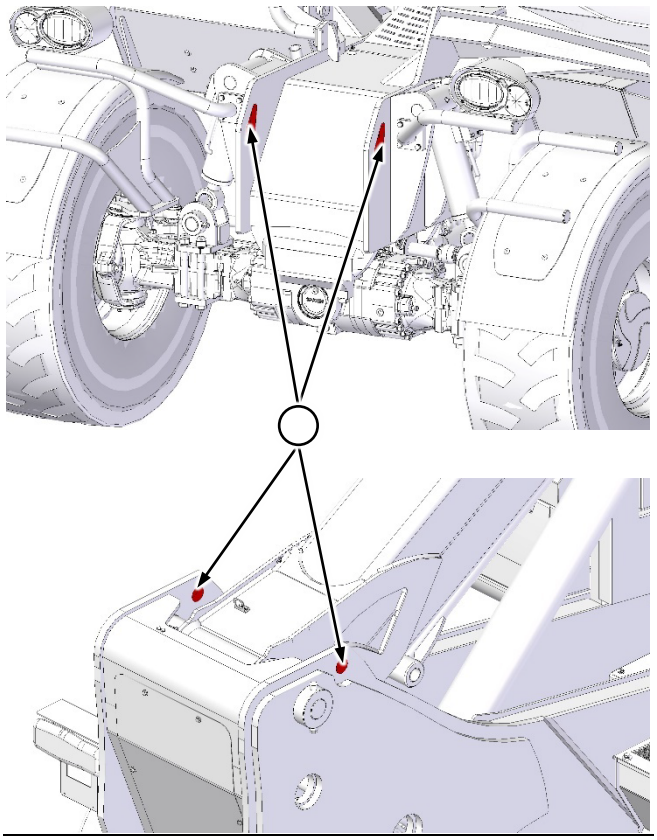
DANGER

Always check the condition of lifting elements such as ropes and chains.

Check that the lifting equipment has adequate capacity to lift the vehicle.

The weight and dimensions of the vehicle can be found in the specific section "*Technical Data*".

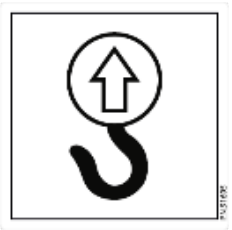




The configuration of the lifting devices must be such as to avoid damage to the vehicle. Insert the lifting hooks into the points ① (front) and ② (rear) as indicated above. The four designated points are marked with the following symbol.

NOTICE

These instructions are referred to on the vehicle with a special warning sticker.



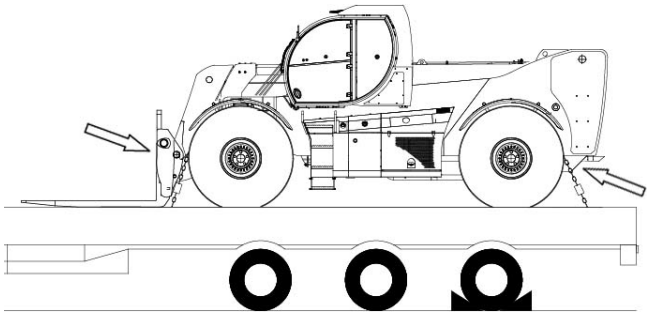
Anchoring the vehicle for transportation

DANGER

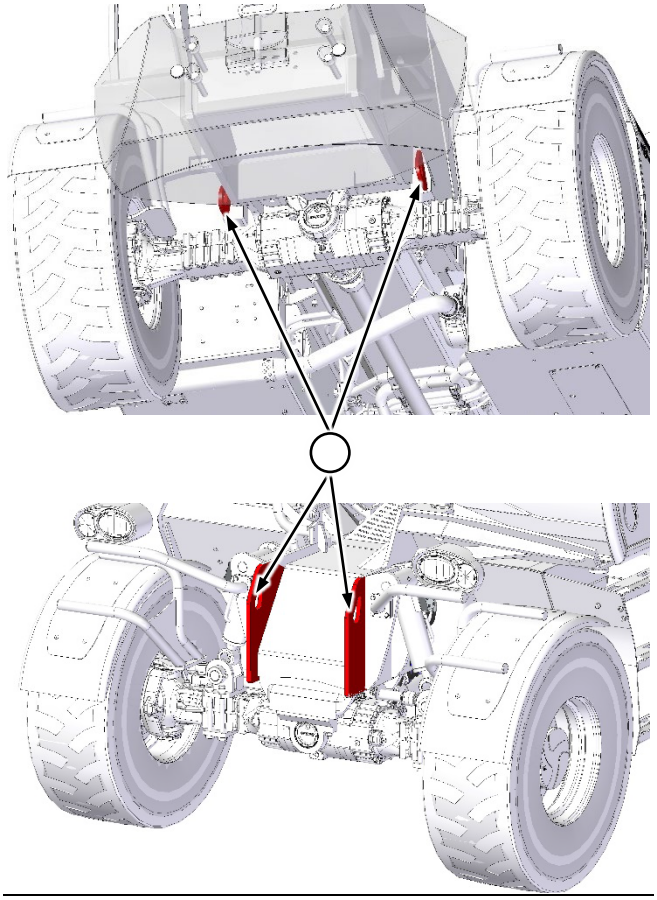
Always check the condition of anchoring elements such as ropes and chains.

Check that the transport equipment has adequate capacity to transport the vehicle.

The weight and dimensions of the vehicle can be found in the specific section "*Technical Data*".



Install anchoring devices approved for the weight of the vehicle with equipment. Fix the anchoring devices at the four points indicated.



Block the front and rear wheels of the vehicle with wedges. Insert the chocks from both sides of each tyre.

Apply the parking brake and set the reverse gear in neutral.

Make sure the boom is completely retracted. Make sure the boom is lowered and the equipment rests on the surface of the transport vehicle.

Stop the engine and remove the ignition key from the switch. Get out of the vehicle and close all windows, doors and compartments.

If in doubt, contact your dealer for information and assistance.

NOTICE

The vehicle's anchorage points are marked on the vehicle by special warning stickers.

Towing the vehicle

DANGER

Towing the vehicle is a very delicate manoeuvre that can create high risks for the operators involved in the operation.

We recommend performing repairs on site.

WARNING

Towing the vehicle with an incorrect procedure can cause accidents, even very serious ones.

Follow the instructions given below to tow the vehicle correctly.

Before disengaging the negative brake manually, block the vehicle to prevent its movement.

Tow a vehicle only for short distances and in any case not exceeding 500 m (1640 ft) at speed not higher than 5 km/h (3.1 mph). If the vehicle is to be transported for longer distances and at higher speeds, use a suitable transport vehicle.

Before towing the vehicle, retract and lower the telescopic boom completely and remove the load.

Do not use chains or cables for towing the vehicle.

It is mandatory to tow the vehicle using a rigid towing bar compatible with the mass to be towed.

Make sure the rigid towing bar is in good condition and has a nominal carrying capacity 1.5 times the weight of the vehicle to be towed.

Switch on the hazard lights.

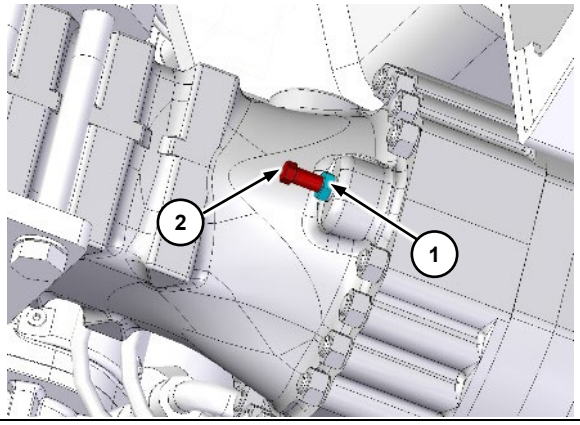
Mechanical brake release

Below are the instructions for mechanical release of the braking system following a hydraulic fault.

WARNING

Before carrying out any operation on brake release, it is mandatory to place chocks under the vehicle's wheels to prevent its accidental movements.

Go under the vehicle near the front axle. Completely unscrew the lock nut ① then fully screw the adjusting screw ② to disengage the negative control brake. Repeat the procedure on all four screws on the front axle and those on the rear axle.



DANGER

When this operation has been carried out, the vehicle is no longer braked.

Pay attention!

Manual positioning of the reverse gear in neutral

Below are the instructions for mechanical release of the reverse gear following a hydraulic fault.

WARNING

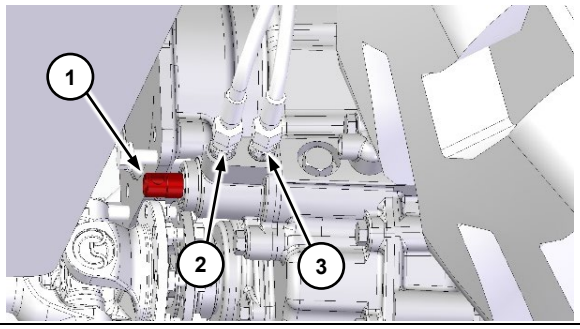
Before putting the gear into Neutral, it is mandatory to place chocks under the vehicle's wheels to prevent their accidental movements.

Move under the vehicle near the front axle from the right side of the cardan shaft.

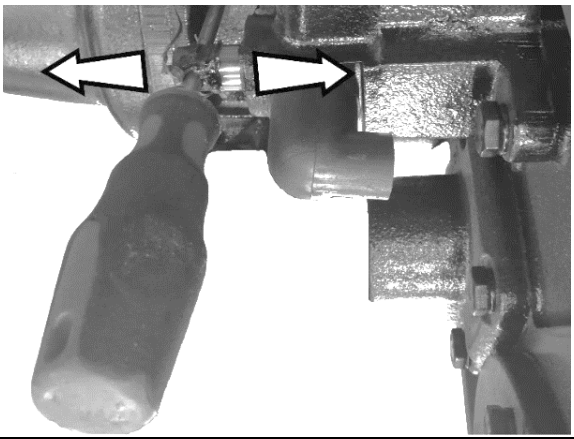
Identify the hydrostatic transmission and hydraulic actuator of the reverse gear ①.

Disconnect the fittings ② and ③ from the actuator and plug the end of the pipes with two suitably sized screw caps.

Move the actuator rod ① using a tool and insert it into the proper slot to gain leverage.



You will hear a click when moving from fully open to fully closed: this position identifies the engagement of the reverse gear in Neutral.



DANGER

When this operation has been carried out, the transmission is disengaged.

Pay attention!

MAINTENANCE

General information

Vehicle in maintenance position

Before carrying out any maintenance operations, follow the instructions below:

- Park the vehicle on level, non-yielding ground.
- Apply the parking brake.
- Remove connected equipment and handing loads.
- Lower and retract the telescopic boom.
- If it is necessary to work with the boom raised, secure it with suitable securing systems.
- Switch off the engine and remove the ignition key from the control panel.
- Disconnect the electrical circuit by means of the battery cut-off switch.
- Let all thermal components cool down.
- Apply the “Maintenance in progress” sign.

Tightening torques

ATTENTION

Unsuitable bolts or those of incorrect size can cause damage, faults and injuries.

Take care to avoid mixing metric nuts and bolts with nuts and bolts in inches.

The tightening torques shown in the following tables are meant as general reference. Exceptions are indicated on a case by case basis.

Before fitting any component, make sure it is as good as new. Bolts and threads must not be worn or damaged. The threads must not have burrs or be chipped.

The components must not be rusty or corroded. Clean the components with a non-corrosive detergent. Do not grease the threads of the bolts unless otherwise specified.

Metric nuts and bolts

Ø	Tightening torque		
	8.8	**10.9**	**12.9**
M5	6 Nm	8.5 Nm	10 Nm
M6	10 Nm	14 Nm	17 Nm
M8	25 Nm	35 Nm	41 Nm
M10	49 Nm	69 Nm	83 Nm
M12	86 Nm	120 Nm	145 Nm
M14	135 Nm	190 Nm	230 Nm
M16	210 Nm	295 Nm	355 Nm
M20	410 Nm	580 Nm	690 Nm
M22	550 Nm	780 Nm	930 Nm
M24	710 Nm	1000 Nm	1200 Nm
M27	1050 Nm	1500 Nm	1800 Nm
M30	1450 Nm	2000 Nm	2400 Nm
M33	1950 Nm	2700 Nm	3300 Nm
M36	2500 Nm	3500 Nm	4200 Nm

WARNING

In particular conditions involving repeated screw and/or bolt replacements, check the condition of the threads with special 'pass-through' pads.

Pipe clamps

For first assembly on a new pipe:

Width	**Tightening torque**
7.9 mm (0.31 in)	0.9 ± 0.2 Nm
13.5 mm (0.53 in)	4.5 ± 0.5 Nm
15.9 mm (0.62 in)	7.5 ± 0.5 Nm

For a second assembly:

Width	**Tightening torque**
7.9 mm (0.31 in)	0.7 ± 0.2 Nm
13.5 mm (0.53 in)	3.0 ± 0.5 Nm
15.9 mm (0.62 in)	4.5 ± 0.5 Nm

Tyres

NOTICE

Only use tyres approved by Magni Telescopic Handlers S.r.l.

ATTENTION

Use a quick-fit coupling and keep behind the tread when inflating the tyres.

Appropriate equipment and training are necessary to avoid excessive inflation.

Inadequate procedures can cause a tyre to burst or breakage of a rim.

Before inflating a tyre, install it on the vehicle or on a device to hold it steady.

Standard inflation pressures

The inflation pressures given in the Technical Product Information section are those for cold inflation and standard shipment of Magni vehicles, and may vary depending on the conditions of use. For more information, contact the tyres supplier.

Do not fill tyres with foam. Tyres filled with foam can damage certain components of the vehicle. Using tyres filled with foam can invalidate the warranty.

Sealing liquid can be inserted into the tyres, if the maximum weight of the vehicle is not exceeded. If the maximum weight of the vehicle is exceeded the warranty and the certification of certain components and structures may be cancelled.

Tyres inflated in the workshop (approx. 18°C (64.4°F) to 21°C (70°F)) will be deflated if the vehicle works at temperatures below zero. Adjust the pressure of the tyres in case of environmental temperatures less than 0°C (32°F).

ATTENTION

Periodically check that the inflation value is correct, also according to sensitive climatic variations and/or working environments, as given in this manual, on the sticker applied near each wheel under the mudguard or, if it is missing, contact Magni Telescopic Handlers S.r.l. Support Service.

Inflation with air

Adjust the tyre inflation apparatus regulator to not more than 0.5 bar more than the inflation pressure.

NOTICE

In case of doubt regarding the inflation pressure for fitted tyres, contact your dealer.

Inflating with nitrogen

WARNING

Special equipment and training are necessary for inflating tyres with nitrogen. Non-conforming procedures can lead to bursting of a tyre or breakage of a rim, with serious consequences, sometimes even mortal.

The pressure inside a filled nitrogen cylinder is about 150 bar. If not used correctly, the inflation equipment can explode causing serious injuries or even death.

It is advisable to use dry nitrogen for inflating tyres and adjusting pressures. Nitrogen is an inert gas and reduces risk of explosion.

Nitrogen reduces rusting of the wheel, deterioration, and rusting of the rims. Adjust the tyre inflation apparatus regulator to not more than 1.4 bar more than the inflation pressure. Use the same inflation pressure as that with air.

Replacing the wheels

NOTICE

Only use tyres approved by Magni Telescopic Handlers.

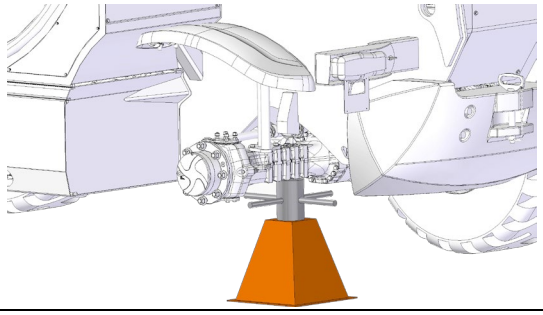
ATTENTION

Make sure that the surface of the work area is compact and of sufficient consistency to withstand the load placed on it.

If working in an area with loose soil, place plates under the handlers and winch supports to prevent them from sinking.

Put the vehicle in the parking position on a flat surface and apply the parking brake.

To change a wheel, use a lifting jack and secure the vehicle on suitable stands adequately dimensioned for the load to be borne.



With the vehicle raised, remove the nuts and replace the affected wheel.

WARNING

Movement or falling of the vehicle placed on winch supports can result in serious injury or even death.

WARNING

Pay the utmost attention to movement of the wheel after unfastening the nuts: accidental falling of the wheel can cause serious injuries to the person carrying out this maintenance.

To facilitate handling and replacement, we recommend the use of a telescopic handler with forks (or one equipped with a wheel clamp) to support the weight of the wheel and prevent it from accidentally falling off the axle.

Refasten the nuts removed earlier and tighten them in a criss-cross pattern using the tightening torque indicated in this manual and marked on the vehicle near the axles.

When done, lift the vehicle off the winch support, remove it and lower the vehicle to the ground.

Washing

ATTENTION

When cleaning the vehicle, avoid the direct use of high pressure water jets on all visible main electrical and hydraulic elements. (E.g. under the cab, on the telescopic boom head, inside the rear cab compartment, on the back of the vehicle, on the valve transducers and on all microswitches in general, etc.).

Liquids, lubricants and spare parts

List of liquids and lubricants recommended for routine maintenance

Compartment	**Type**	**Strength**	**Operating temperature (min/max)**	**Quantity**
Fuel tank	Diesel	-	-	195 l 51.5 U.S. gal
AdBlue® tank (only for D/D [Stage V] engines)	AdBlue®	ISO 22241-1		10 l 2.65 U.S. gal
Cooling circuit	List of liquids recommended by DEUTZ specifications “DQC CA-14”	50%/50%*	-41°C -41.8°F	20 l 5.3 U.S. gal
		35%/65%*	-22°C -7.6°F	
Engine sump	List of oils recommended by DEUTZ specifications “DQC III LA” / “DCQ IV LA”	SAE 5W30	-27°C/+30°C -16.6°F/+86°F	9 l 2.3 U.S. gal
		SAE 10W40	-20°C/+40°C -4°F/+104°F	
Front axle gear	Oil	SAE 85W90	-27°C/+77°C -4°F/170.6°F	2.8 l 0.74 U.S. gal
Front/rear axles differentials	Oil	SAE 85W90	-27°C/+77°C -4°F/170.6°F	11 l 2.9 U.S. gal
Wheel reduction gears	Oil	SAE 85W90	-27°C/+77°C -4°F/170.6°F	1.6 l 0.42 U.S. gal
Hydraulic oil tank	Oil	ISO 46	-15°C/+130°C 5°F/266°F	190 l 50.2 U.S. gal
Greasing points	Grease	NGLI 2	-30°C/+120°C -22°F/248°F	as requ.
Boom sliding	Grease	PTFE NLGI 2	-20°C/+150°C -4°F/+302°F	as requ.

* The percentages correspond, in the order, to the composition of the antifreeze+distilled water mixture:

- 50%/50% means a mixture in equal parts;
- 35%/65% corresponds to a mixture of 35% antifreeze and 65% distilled water.

List of spare parts for routine maintenance

Type of spare part	Description	Quantity	Magni Code
External cab air filter	Filter cartridge	1	09371
Internal cab air filter	Filter cartridge	1	15291
Engine air filter	Primary filter cartridge	1	24069
Engine air filter	Safety filter cartridge	1	12684
Hydraulic oil tank bleed	Bleed cap	1	12734
Engine transmission belt	Belt	1	34631
Compressor transmission belt	Belt	1	24230*
Fuel filter	Filter cartridge	1	24309
Fuel pre-filter	Filter cartridge	1	24293
Engine oil filter	Filter cartridge	1	24289
AdBlue pump filter	Filter cartridge	1	33204**
Hydraulic transmission oil filter (delivery/suction)	Filter cartridge	1	23094

* Only for models with air conditioning kit installed.

** Only for Stage V engines equipped with SCR catalytic converter.

NOTE: Always check the codes of listed spare parts with your Magni Telescopic Handlers dealer.

Maintenance Schedule

ATTENTION

Read and understand all the warnings and instructions before starting any maintenance operation.

Before carrying out any maintenance, make sure all the scheduled actions have been carried out as planned.

In cases where the vehicle operates in particularly harsh environmental conditions (e.g.: quarries, desert areas, dusty and / or sandy areas) plan to halve the maintenance intervals indicated below.

As required

Transmission belt – replacement

AdBlue® filter

Fuel tank – refuelling

Windscreen washer liquid tank - filling

Every 10 hours of operation or daily

Engine oil - check

Coolant - check

Telescopic boom sliding blocks – check

Liquid leaks – check

Emergency hydraulic pump - operation test

Wheels - check the tyre pressure

Every 50 hours of operation or every 2 weeks

Transmission shaft – lubrication of universal joints

Hydraulic oil - check

Telescopic boom sliding blocks – lubrication

Telescopic boom pins – lubrication

Fuel prefilter – discharge water

Wheels – check tightness of nuts

Every 250 hours of operation or every 3 months

Transmission belt - check

Two-speed reduction gear oil – check

Wheel reduction gear oil – check

Steering elements – lubrication

Every 500 hours of operation or every 6 months

Differentials oil - check

Hydraulic oil filter – replacement (suction)

Hydraulic oil filter – replacement (drainage)

Engine oil and filter – replacement

Engine radiator – cleaning

Engine pipes - inspection

Every 1000 hours of operation or every year

Fuel filter – replacement

AdBlue® filter – replacement

Air filter – replacement of primary cartridge

Fuel prefilter – replacement

Differentials oil - change

Two-speed reduction gear oil – change

Wheel reduction gears oil – change

Telescopic boom sliding blocks – adjust the play

Fuel tank – clean

Every 1500 hours of operation

Fuel filter – clean mesh element

Fuel prefilter – replacement

Every 2000 hours of operation or every 2 years

Hydraulic oil - change

Air filter – replacement of safety cartridge

Coolant - change

Maintenance items

Safety information

Before carrying out any maintenance, please read the Safety and Warnings section in this manual in detail.

A summary of the symbols used with a brief description is given again:


GENERIC DANGER


DANGER OF BURNS


DANGER OF CRUSHING


DANGER FROM HANGING LOAD


ELECTRICITY


RISK OF INTOXICATION


BATTERIES


FLAMMABLE MATERIAL


PRESSURISED FLUIDS


MOVING PARTS


RISK OF SLIPPING


RISK OF FALLING, TRIPPING


NO SMOKING OR LIGHTING UP ANY KIND OF NAKED FLAME

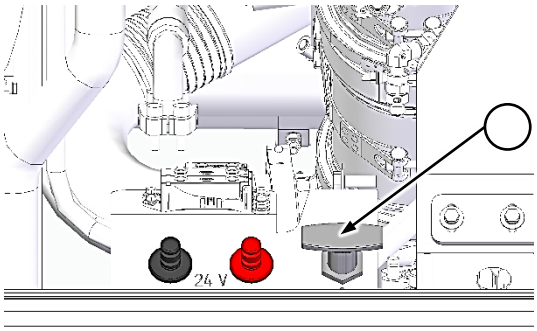
All maintenance must be carried out by personnel who have been instructed, trained and have the necessary technical skills to work safely.

DANGER

Maintenance carried out by untrained operators without the appropriate technical skills can lead to serious health risks and even death.

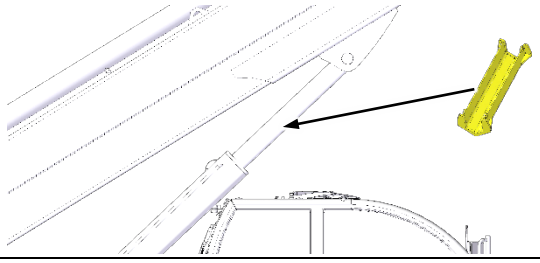
Battery disconnect switch

Before starting any maintenance operations, switch the engine off and disconnect electric voltage by turning the battery disconnect switch in the engine compartment.

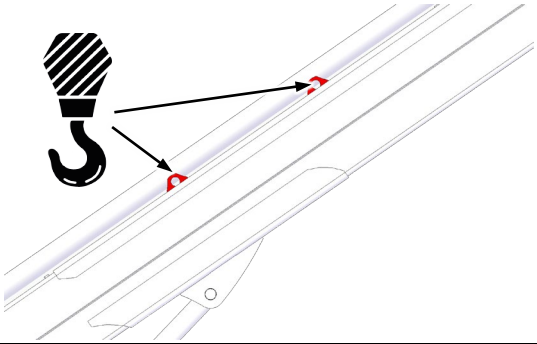


Maintenance under the telescopic boom

The vehicle is equipped with a mechanical safety device (yellow) to be applied to the lifting cylinder rod that prevents its closing if maintenance needs to be carried out under the telescopic boom.



It is also possible to secure the telescopic boom to the overhead crane using the 4 eyebolts on its structure.



Maintenance in areas not accessible from the ground

For maintenance on areas/parts of the vehicle that are not accessible from the ground, it is recommended not to climb on it but to use alternative systems such as ladders with platforms (EN 131-7).

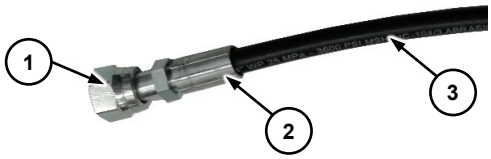
DANGER

The maintenance item carried out on areas/parts of the vehicle that are not accessible from the ground without the use of appropriate safety devices and equipment can lead to serious health risks and even death.

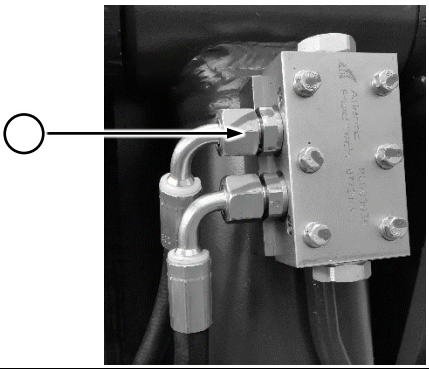
Hydraulic hoses

Inspection

Check the condition of the hydraulic hoses on the vehicle for a visual inspection and ensure that there are no leaks from the connectors ①, fittings ② or along the hose ③.



If a fault is found in any of the points indicated above, replace the hose and check the condition of the seals on the part the hose screws onto (connector, valve, hose).



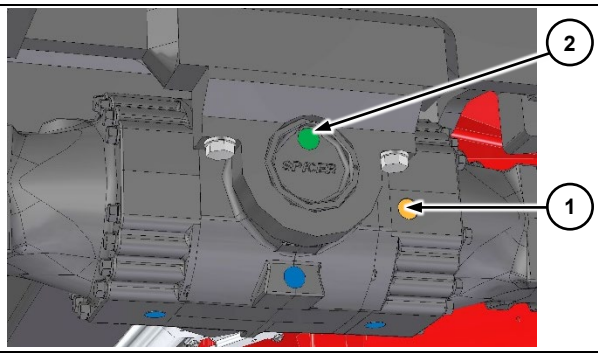
Differentials oil

Maintenance for the axle differentials (front and rear) is as follows.

Inspection

Set the vehicle on a flat surface in the parking position. Make sure no one approaches the work area.

Go to the front axle.



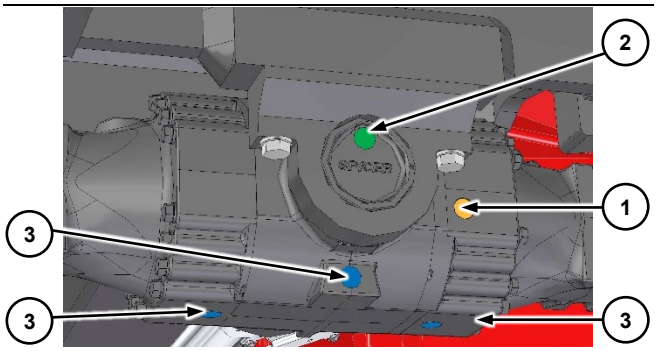
Remove level cap ①. The oil must flow out through the opening.

If necessary, remove the filler cap ②. Add oil to the correct level. Close level cap ①, and then filler cap ②. Clean the axle surfaces.

Replacement

Set the vehicle on a flat surface in the parking position. Make sure no one approaches the work area.

Place suitably sized containers under the front axle.



Remove the three drainage caps of the differential ③. Wait for the oil to drain completely out of the differential. To speed up the operation, remove filler cap ②.

WARNING

Do not dispose of used oil in the environment, but take it to the appropriate storage and disposal sites.

Refit caps ③ and tighten adequately. Remove level cap ①.

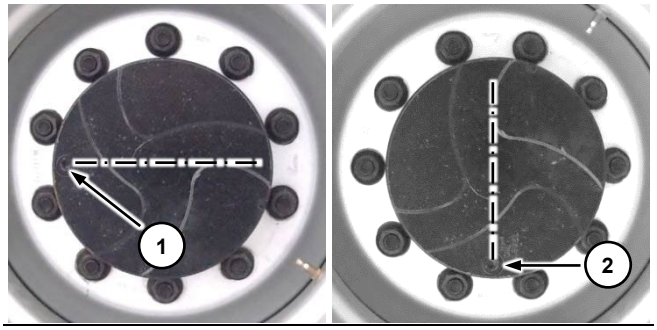
Pour fresh oil of the correct type (refer to the Liquids and Lubricants table in this manual) through hole ②.

Fill in stages and check the flow of oil through level hole ①.

When the correct level is reached, refit level cap ① and filler cap ②.

Repeat the above operations for the rear axle too.

Wheel reduction gears oil



Checking

Set the vehicle on a flat surface in the parking position. Turn the reduction gear cap in the horizontal position ①. Remove the cap. The oil level is correct when the oil flows out through the filler hole. If necessary, top up with oil to the correct level. Refit the cap. Repeat this operation for each wheel.

Replacement

Set the vehicle on a flat surface in the parking position. Place a suitably sized container under the reduction gear. Turn the reduction gear cap in position ②. Remove the cap and wait for the oil to drain out completely.

Turn the reduction gear cap in position ①.

Pour oil through the hole to the correct level.

Refit the cap.

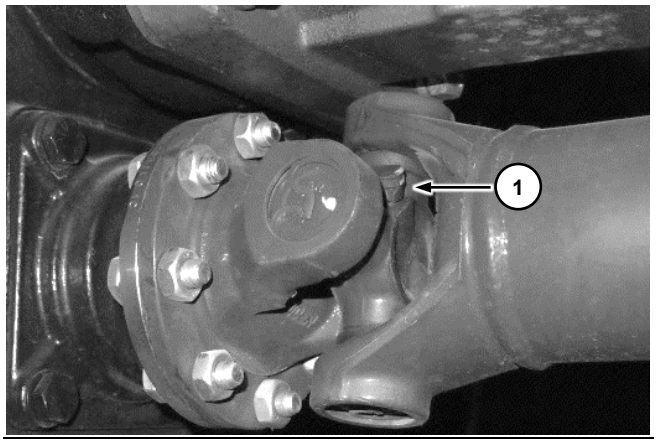
Repeat this operation for each wheel.

WARNING

Do not dispose of used oil in the environment, but take it to the appropriate storage and disposal sites.

Transmission shaft

Lubrication of universal joints

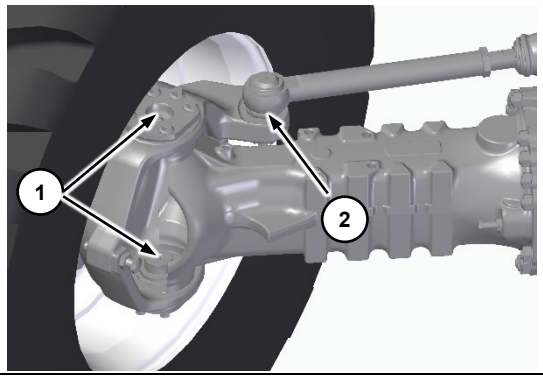


Set the vehicle on a flat surface in the parking position. Make sure no one approaches the work area.

Lubricate the universal joints by injecting grease into the grease nipples ①. Repeat for all the transmission shaft joints. Remove the excess grease.

Steering elements

Lubrication



Set the vehicle in the parking position. Make sure no one approaches the work area.

Lubricate the wheels rotation pins ① by injecting grease in the grease nipples provided for the purpose. Remove the excess grease. Lubricate the ball joint ② injecting grease in the grease nipples provided for the purpose. Remove the excess grease.

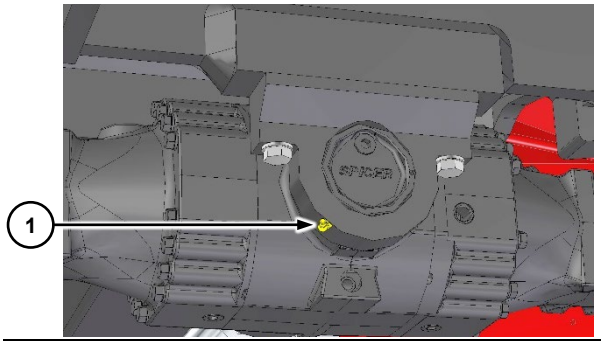
Repeat the operations for each wheel.

Axles

Lubrication of oscillation bushes

Set the vehicle in the parking position.

Make sure no one approaches the work area.



Stand near the front axle oscillation bushes.

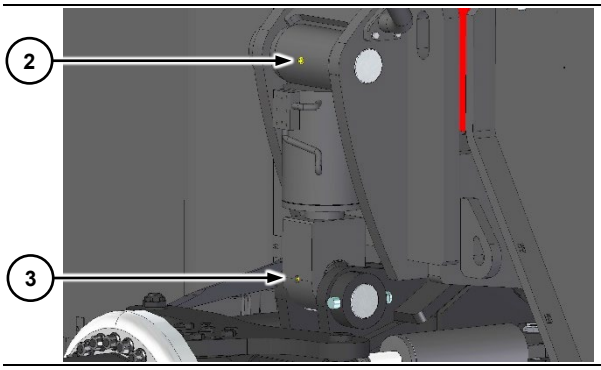
Inject grease in the grease nipples ① present on both sides of the axle (front and rear).

Repeat the lubrication for the rear axle.

Greasing the levelling jacks (every 50h/2 weeks)

Set the vehicle in the parking position with the wheels aligned with its longitudinal axis and the engine switched off.

Make sure no one approaches the work area.



Go to the front axle.

Lubricate the pins by injecting grease in the grease nipples ② on the bottom ③ and rod sides.

Transmission belt

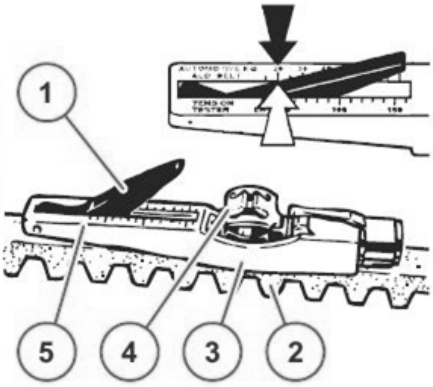
ATTENTION

Work on the transmission belt only with the engine stopped!

Accidental start up of the engine during intervention on the transmission belts can cause serious accidents.

After repairs, make sure all the protection devices have been refitted and that no tool has been forgotten on the engine.

Checking the belt tension



To check the tension of the belts, lower the arm of indicator ① in the tester.

Place the guide ③ between two pulleys on the V-belt ②. At this point, the stop must be on the side.

Press button ④ in the right corner with respect to V-belt ② uniformly until the spring clicks audibly.

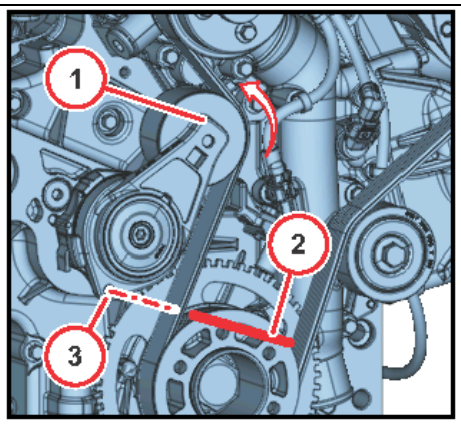
Lift the tester gently, without modifying the position of the indicator arm ①.

Read the value measured on the intersection point (arrow), scale ⑤ and indicator arm ①.

Correct the tension if necessary and repeat the measurement.

The belt tension tester can be ordered through the Customer Service.

Replacement



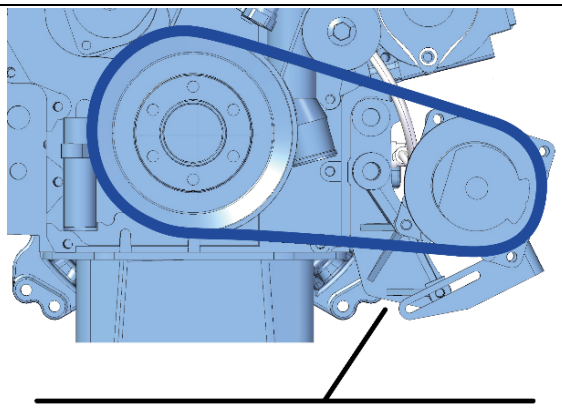
① idler roller

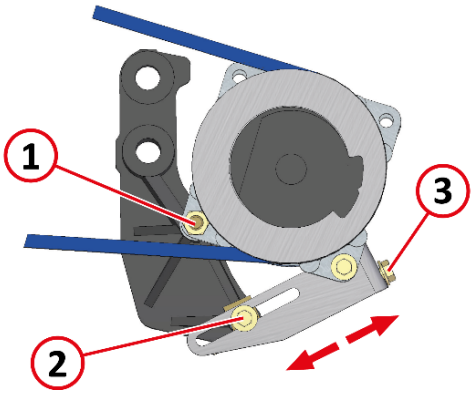
② sealing pin

③ assembly hole

- Push the idler roller ① with the socket spanner in the direction of the arrow until a sealing pin ② can be secured in the assembly hole ③.
- The ribbed V-belt is now tension-free.
- First, remove the ribbed V-belt from the smaller roller and the idler roller.
- Apply the new ribbed V-belt (refer to the spare parts table in this manual).
- Hold the idler roller with a socket spanner and remove the sealing pin.
- Re-tighten the ribbed V-belt using the idler roller and spanner.
- Check that the ribbed V-belt rests properly in its guide.

Replacing the compressor belt (when necessary)





① fastening pin

② belt tensioner adjustment pin

③ compressor belt tension adjusting screw

- Loosen the nut ① to allow the compressor unit to tilt;
- Slightly loosen the pin ② in order to slide the adjustment block in the slot;
- Tighten the adjusting screw ③ by tilting the compressor unit downwards, bringing it closer to the flywheel, until the belt is tension-free;
- Remove the toothed belt from the compressor roller and engine flywheel;
- Fit the new toothed belt (refer to the spare parts table in this manual);
- Unscrewing the adjusting screw ③ causes the compressor to tilt upwards away from the flywheel, re-tensioning the toothed belt;
- When the desired tension is reached, tighten the pin ②;
- Then tighten the nut of the fastening pin on the engine bracket ①.

Engine Oil

WARNING

Do not operate with the engine running!

Do not smoke or use naked flames!

Danger of burns!

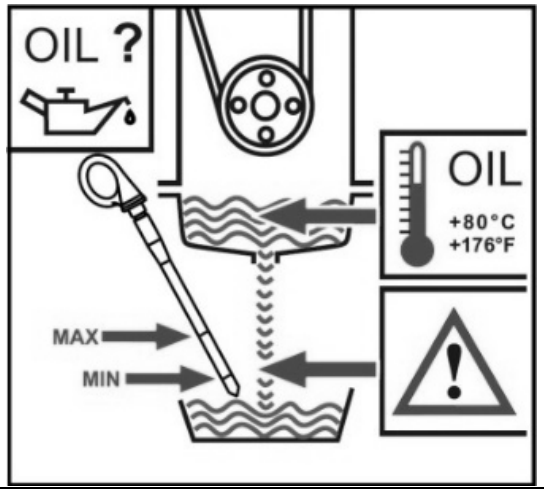
Replace every 500 hours.

During operations on the lubricant oil system, ensure utmost cleanliness. Thoroughly clean the area around the components involved from time to time.

Dry the damp parts with air jets. For handling lubricant oils follow the safety directives and specific local standards.

Dispose of the leaked lubricant oil and the filter elements. Do not let the used lubricant oil spread in the ground. Run a test cycle after every intervention.

At the same time, ensure sealing and pressure of the lubricant oil and then check its level.



An insufficient and/or excessive lubricant oil level can damage the engine. Check the oil level only with the engine horizontal and stopped. Check the lubricant oil level only while it is warm, 5 minutes after the engine is switched off. Do not remove the oil level rod with the engine running. Danger of burns.

Checking the engine oil level

Remove the rod and wipe it clean with a cloth, do not leave fibres.

Insert the oil rod up to the stop then remove it and read the lubricant oil level.

The level must always between the MIN and MAX notches. Top up to the MAX notch if necessary.

Changing the engine oil

Replace every 500 hours or at the same time as engine oil replacement.

Heat the engine until the oil temperature reaches > 80°C (176°F).

Park the vehicle on a horizontal surface and stop the engine.

Place a container under the drain screw, unscrew the latter and drain out the lubricant oil.

WARNING

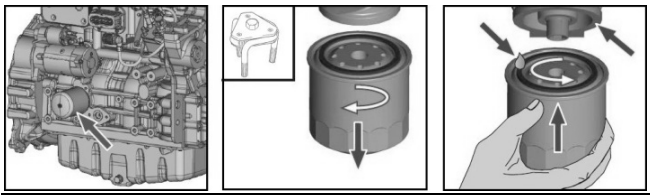
Do not dispose of used oil in the environment, but take it to the appropriate storage and disposal sites.

After draining, reposition the screw with a new sealing ring and tighten by applying a 55 Nm torque.

Pour lubricant oil, warm the engine to a temperature > 80°C (176°F) and check the lubricant oil level.

Top up, if necessary.

Replacing the lubrication oil cartridge



Loosen the filter using the tool and unscrew it.

Collect the lubricant oil that flows out.

Wipe the surface of the filter-holder with a clean cloth that does not leave lint.

Oil the original DEUTZ filter cartridge seal slightly.

Manually screw the new filter tightening it by applying a 10-12 Nm torque.

Fuel prefilter

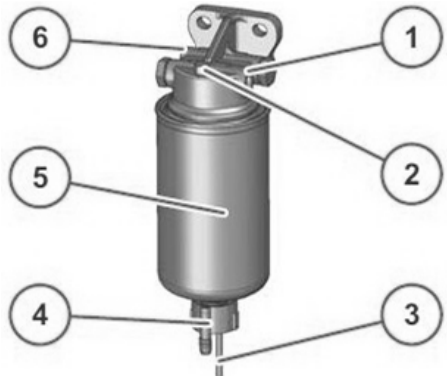
WARNING

FLAMMABLE MATERIAL

Fuel is flammable and can cause severe burns and death.

Do not smoke or use naked flames while working on the fuel line.

Clean the engine parts and engine compartment to remove all traces of fuel to prevent risk of fire.



① pump fuel supply - ② bleed screw - ③ electric connection for the water level sensor - ④ drainage cap - ⑤ filter cartridge - ⑥ fuel tank inlet

Replace every 1000 hours

Emptying the water container

Stop the engine.

Place a suitable container.

Electrical connection.

Disconnect the cables.

Loosen the drainage screw.

Drain the liquid until the pure diesel fuel starts flowing out.

Fit the drainage cap by applying a tightening torque of 1.6±0.3 Nm.

Connect the cables.

Replacing the fuel filter cartridge

Stop the engine.

Block the fuel intake to the engine (if the tank is positioned at the top).

Place a suitable container.

Electrical connection.

Disconnect the cables.

Unscrew the drainage cap and drain out the liquid.

Remove the filter element.

Wipe the surface of the new filter cartridge and the opposite side of the filter head to remove dirt.

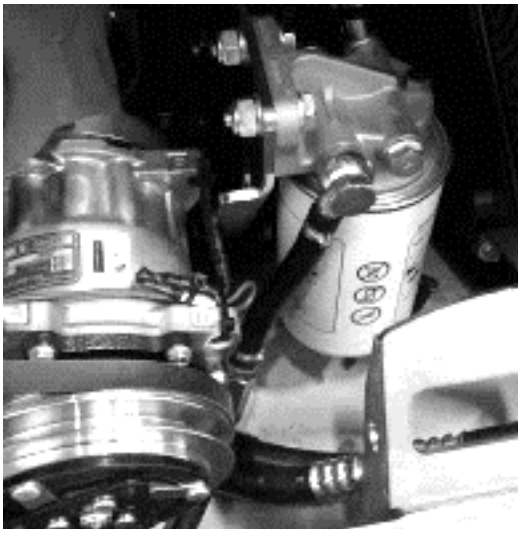
Slightly dampen the surfaces of the filter cartridge with fuel and re-screw the filter head clockwise (17-18 Nm).

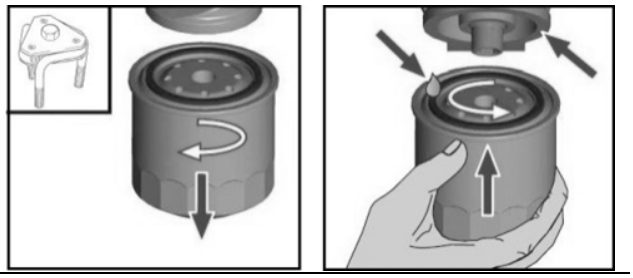
Fit the drainage cap by applying a tightening torque of 1.6±0.3 Nm.

Connect the cables.

Open the fuel cock and bleed the system (see “Bleeding the fuel system”).

Fuel filter





Replace every 1000 hours

Loosen the filter using the tool and unscrew it.

Collect the fuel that flows out.

Wipe the surface of the filter-holder with a clean cloth that does not leave lint.

Oil the original DEUTZ filter cartridge seal slightly.

Manually screw the new filter tight.

Tighten the clamps of the anti-twisting safety (optional).

Bleed the fuel supply system.

Bleed the fuel supply system

The fuel supply system is bled by means of the fuel delivery electric pump.

To make sure fault messages are not generated, try not to start up during the bleeding process.

This process is carried out as follows.

Switched on.

The fuel delivery electronic pump is activated for 20 seconds to bleed the fuel supply system and generate the necessary fuel pressure. Wait for the fuel delivery electric pump to be deactivated from the control unit.

Switched off.

Repeat the process at least twice until the fuel supply system bleeding is complete.

AdBlue® filter

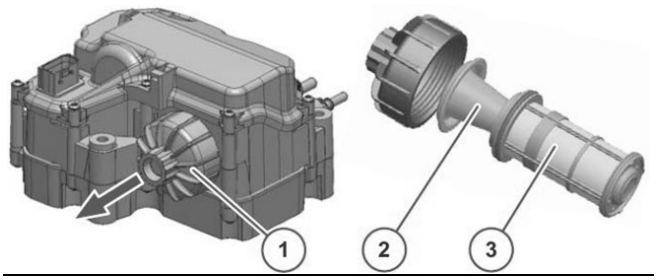
RISK OF INTOXICATION

The ammonia in AdBlue® is highly toxic and corrosive, and in contact with tissues can cause serious burns or even death.

Wear protective clothing and goggles to avoid contact with the tissues. In case of contact with tissues, rinse thoroughly with plenty of water and get medical care.

Before working on the AdBlue® supply system, read the safety information given in the section “information regarding AdBlue®”.

Replacement



① cover, ② compensator, ③ filter cartridge.

Replace every 1000 hours

Proceed with replacement of the filter cartridge of the AdBlue® supply pump by following the indications given:

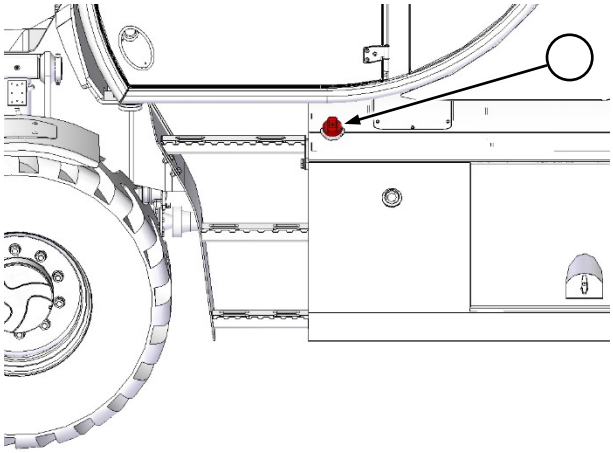
- switch the engine off;
- disconnect the electric terminals;
- place a suitably sized container under the pump and filter to hold the liquid flowing out;
- remove the cover using a 27 mm hex head wrench;
- remove the compensator and filter element completely;
- replace the filter element and refit it together with the compensator;
- fit the cover by applying a 22±2.5 Nm tightening torque;
- reconnect the electrical system;
- start the engine.

NOTICE

For engines meeting Stage V anti-pollution standards, in order to protect the AdBlue® purification system, wait at least 5 minutes after the engine is switched off before disconnecting the main electrical circuit.

Fuel tank

Refuelling



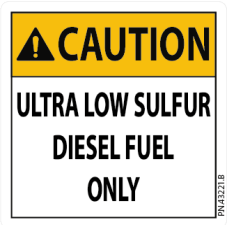
Set the vehicle in the parking position. Switch the engine off.

Unlock the fuel tank filler cap located on the left side of the vehicle slewing variable-reach truck, using the appropriate key. Unscrew the tank cap by turning it anticlockwise.

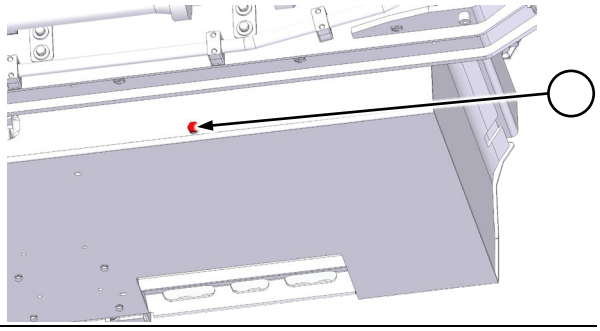
Refuel using suitable fuel. Screw the fuel cap in and lock using a wrench.

ATTENTION

For drive units complying to Stage V regulatory standards use only fuels with low sulphur content, as indicated on the label positioned on the side of the tank filler opening.



Cleaning



To facilitate the operation, put the vehicle in the parking position on a flat surface and switch it off.

Place a suitable sized container under the fuel tank near drainage cap, then remove the filler cap.

Unscrew the drainage cap and drain out the tank completely.

Pour 10 litres of clean fuel into the tank to rinse out impurities that may be present at the bottom by draining it out.

Close and tighten the drainage cap. Fill the tank with clean fuel. Check to make sure there are no leaks.

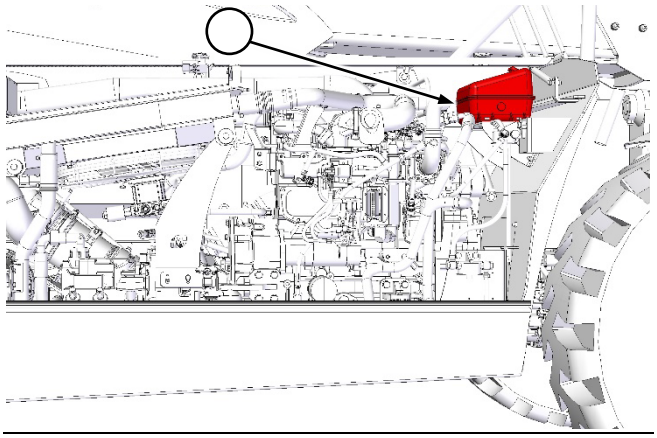
Coolant

WARNING

The coolant is pressurised and at high temperature with the engine switched on. When the cap is removed, the liquid may flow out violently and cause serious burns.

Make sure the engine is cold before working on the cooling system.

Checking



Set the vehicle in the parking position.

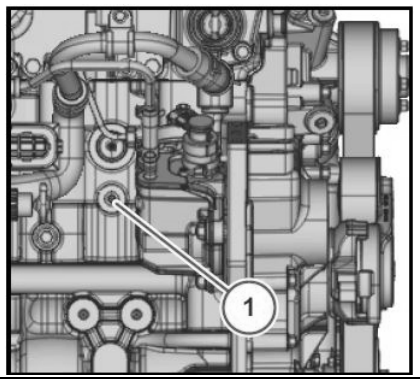
Check the level in the expansion tank on the top right inside the engine compartment. The level is correct when it is half-way on the inspection window.

Open the tank, check the coolant additive concentration ratio using the instrument concerned (e.g. hydrometer, refractometer).

If necessary, top up with a suitable mixture depending on the use.

Refit the cap and make sure it is tightened properly. Run the engine to bring it to the required temperature. Switch off the engine and check for leaks in the circuit.

Bleeding the cooling system



Replace the coolant every 2 years to eliminate any corrosion of cooling components.

Set the vehicle in the parking position.

Remove the radiator cap carefully to release the residual pressure.

Place a suitably sized container under the drainage cap to collect the coolant flowing out.

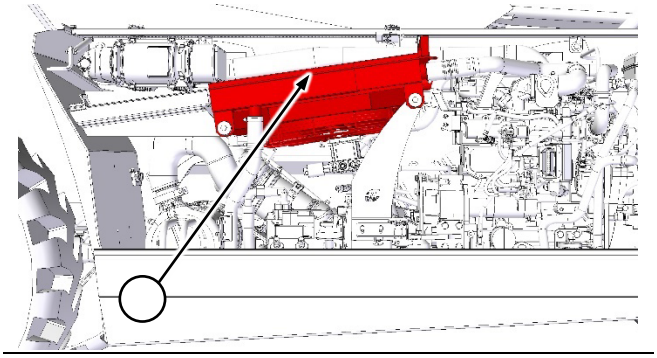
Remove screw ① and drain out the coolant. If the screw is not accessible, drain through the engine oil radiator (coolant duct).

Refit the screw by applying mastic.

Refit the radiator cap.

Engine radiator

Cleaning



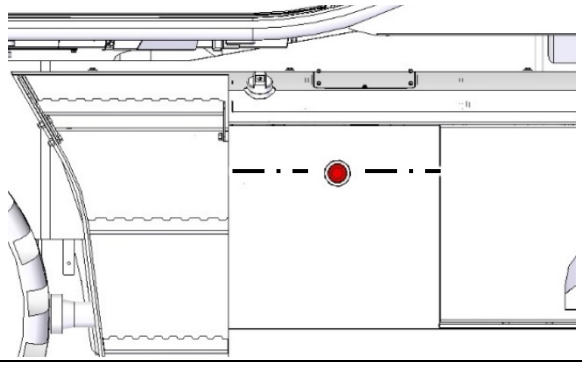
To remove dust and debris from the radiator mass, compressed air, pressurised water or steam can be used. However, it is preferable to use compressed air.

NOTICE

When using pressurised water, keep the high pressure jet cleaning nozzles at a distance of at least 50 cm from the radiator mass. Bringing the nozzle too close to the radiator mass can lead to risk of damaging the radiator.

Hydraulic oil

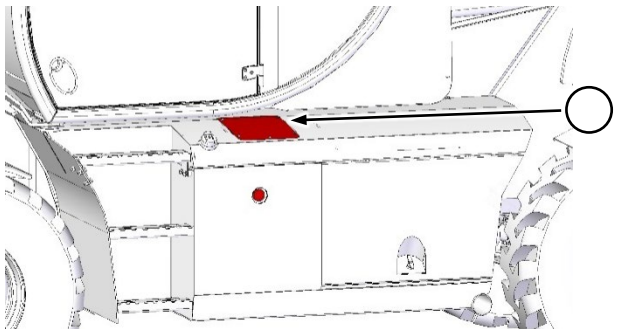
Checking



The hydraulic oil tank is located on the left side of the vehicle carriage, next to the cab access ladder.

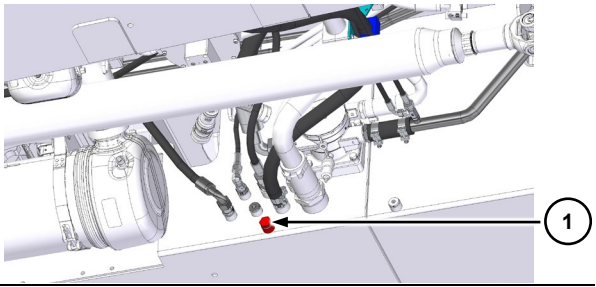
Check the hydraulic oil level through the inspection window present on the side of the tank.

The oil level is correct if it is halfway on the window, as shown by the dashes in the figure.



If necessary, add oil by accessing the cap located under the tank cover. Pour oil of suitable strength up to the correct level. Refit the cap and tighten it manually.

Replacement



Go under the vehicle to access the tanks drainage caps.

Place a suitably sized container under the drainage cap ①. Unscrew the cap and drain out the oil. To speed up the operation, also unscrew the filler cap.

Refit drainage cap ① and fill the tank with fresh fluid. Close the filler cap.

Start the engine. Check to make sure there is space to extend the telescopic boom completely. Raise and lower the boom a number of times. Extend and retract the boom a number of times.

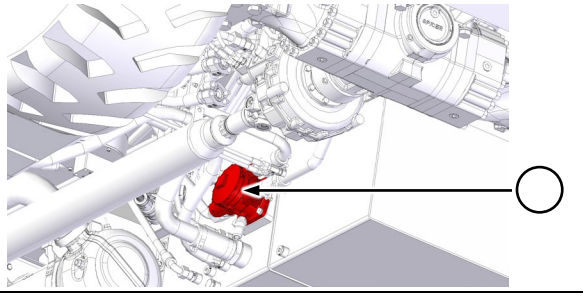
With the boom in the transport position, drive the vehicle carefully forwards. Steer the vehicle to the right and left.

Park the vehicle and check the oil level. Add oil if necessary.

Hydraulic oil filter

ATTENTION

The vehicle uses a single filter for hydraulic oil: the filter placed on the inside of the hydraulic tank has the combined function for oil at the suction as well as return.



Park the vehicle on a flat surface and switch off the engine; open the bonnet and clean the filter housing and surrounding areas to prevent dirt from entering the circuit. Unscrew the cap.

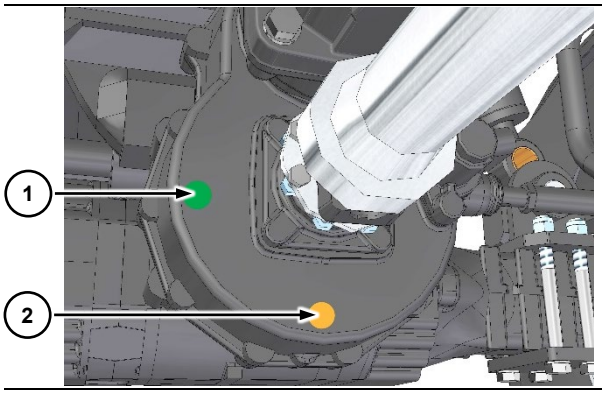
Replacement of the filter cartridge does not necessary involve drainage of the tank: the filter housing has a special closure system. When it is being removed, the oil present inside the filter normally flows out.

Remove the filter cartridge and dispose of according to the regulatory standards in force. Insert a new filter cartridge of the same type.

Refit the filter cover. Start up the engine and check for leaks.

Check for a drop in the oil level through the window present on the tank: if required, top up with the quantity necessary to reach the correct level.

Two-speed reduction gear oil



Checking

Set the vehicle in the parking position. Make sure no one approaches the work area.

Remove the cap ①. Check the oil level: the level is correct if it reaches the base of the hole. Add oil if necessary.

Refit and tighten cap ①.

Replacement

Place a suitably sized container under the two-speed reduction gear.

Remove the cap ①. Remove the magnetic drainage cap ②. Wait for the oil to drain out completely.

Clean the magnetic cap ② to remove iron filings, then refit and tighten it.

Fill the reduction gear with oil through hole ① up to the prescribed level. Refit and tighten cap ①.

Engine air filter

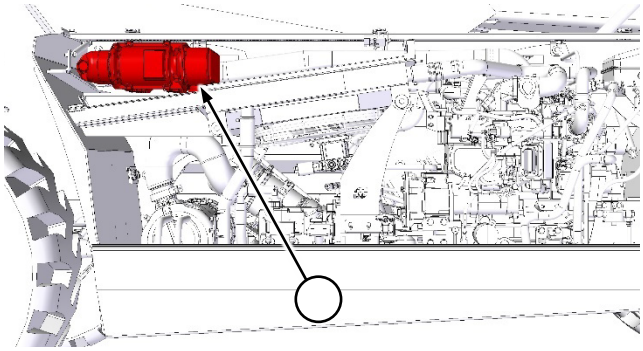
The efficiency and life of the engine depend greatly on the quality of air taken in. A dirty or damaged air filter can seriously affect the correct working of the engine and increase the possibility of a failure.

Replace the air filters strictly according to the schedule indicated in this Manual. Do not try to wash dirty filters.

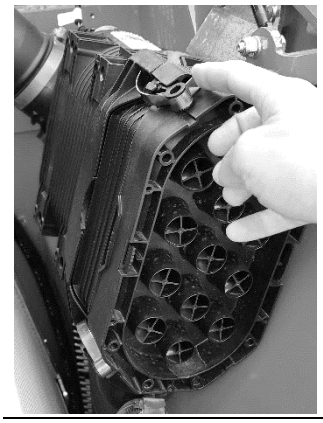
If the vehicle is expected to be used in environments with a lot of dust or high concentrations of contaminating or polluting agents in the air, halve the time interval between one filter replacement and the next.

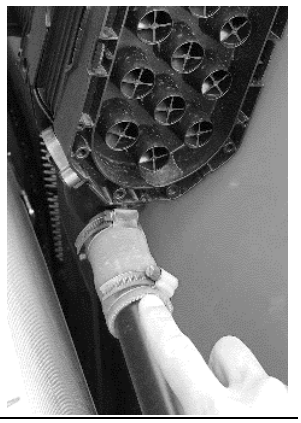
Replacing the primary cartridge

To access the filter box, open the engine compartment and locate the air filter cartridge, which is positioned at the top left as shown in the image.

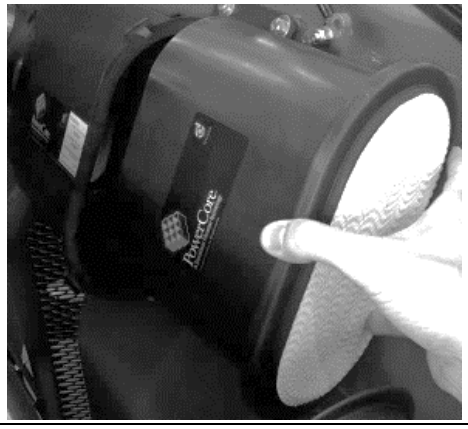


Release the 4 cover retainers and loosen the sleeve closing clamp underneath to facilitate removal and remove the front filter cover.





Grip the filter housing and remove it from its seat.

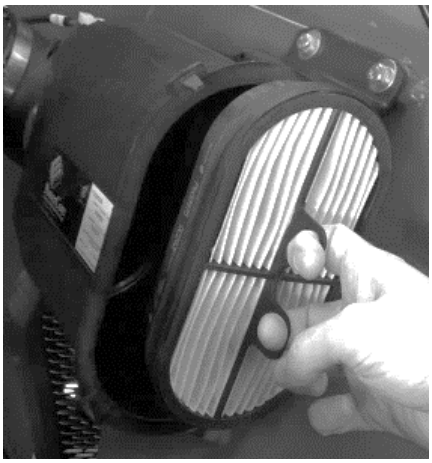


Wipe thoroughly inside the filter housing with a damp cloth. Avoid the use of aggressive solvents or products as these can damage the safety filter or the filter housing.

Install a new filter element. Make sure the filter element is inserted properly in its seat. If installation is difficult, grease the rubber gasket slightly with silicone grease.

Replacing the safety cartridge

Carry out the primary filter removal procedure described earlier.



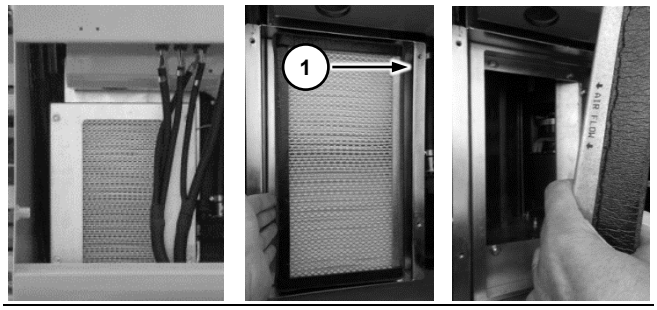
Hold the filter element with two fingers in the holes and pull to separate it from its seat.

Wipe thoroughly inside the filter housing with a damp cloth. Avoid the use of aggressive solvents or chemicals as they can damage safety of the filter housing.

Install a new filter element. Lightly grease the outer gasket of the new filter element with silicone grease.

Cab air filter

Replacement



Open the compartment in the rear part of the cab to access the filter housing.

Unscrew the four screws ① and remove the filter holder frame.

Remove the air filter and replace it with a new one of the same type.

For reassembly repeat the above operations in reverse order. Check the correct direction of assembly before fitting the holder frame.

Telescopic boom sliding blocks

Checking

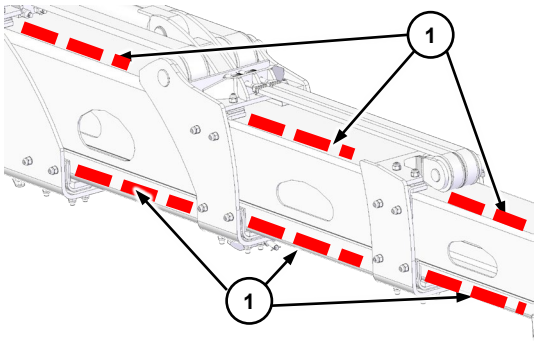
Set the vehicle in the parking position. Extend the telescopic boom completely.

Check to make sure the boom movement is smooth. Ensure that there are no abnormal vibrations, unusual noises, and no part of the boom gets heated due to friction during the movement.

Check for the presence of a sufficient layer of grease on the sliding surfaces and on the sliding blocks.

Lubrication

Position the vehicle on a flat surface in a large enough area. Put the telescopic boom in the horizontal position and extend it fully.



Thoroughly clean all the sliding surfaces ① in contact with the sliding blocks.

Using a brush or roller, apply a thin layer of grease on the sliding surfaces of the sliding blocks ① on all four sides of the extensions. Repeat this operation for each extension.

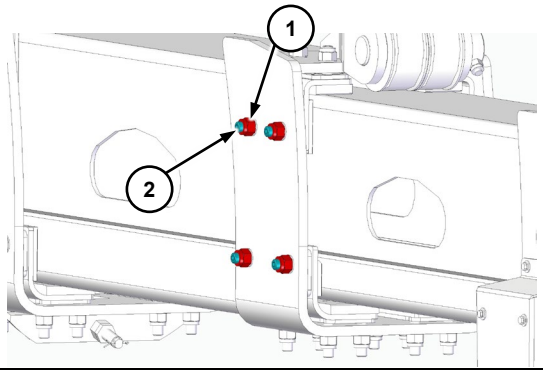
Retract and extend the telescopic boom a number of times to distribute the grease uniformly.

Remove excess grease to prevent accumulation of dirt.

Adjusting the play

Position the vehicle on a flat surface in a large enough area. Remove any equipment from the quick-fit coupling and move the telescopic boom into the horizontal position. Retract the telescopic boom almost completely.

Move to the front of the boom and identify the sliding blocks as shown below.



Loosen the lock nuts ① of the upper and side sliding blocks at the top of the boom. Screw all the grub screws ② all the way without tightening them, then unscrew them all by half a turn.

Repeat the adjustment operation for the lower and side sliding blocks at the bottom of the boom.

Tighten each lock nut holding the relative screw firm. Tightening torque: **100 Nm**.

Try to adjust the sliding blocks in such a way that all the screws ② protrude to the same extent.

Always try to adjust the sliding blocks symmetrically, to facilitate boom extension centring.

After completing the operations try to extend and retract the boom to check the boom movement is smooth.

If the movement of the boom is not smooth, repeat the adjustments, unscrewing the screws ② by one complete turn instead of by half a turn.

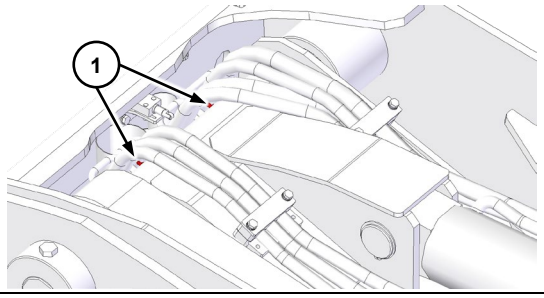
Contact your dealer for any clarification or for assistance if the sliding blocks are worn and need to be replaced.

Telescopic boom pins

Lubricate the pins of the movable parts of the telescopic boom at regular intervals. Lack of lubrication can cause seizure of the pins in their seats.

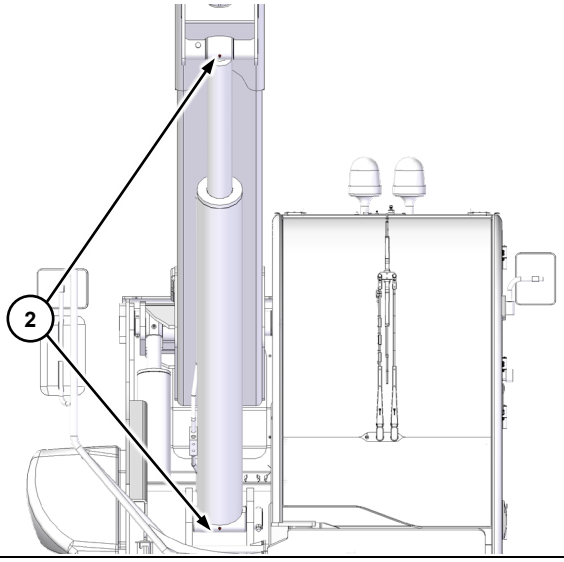
Wipe excess grease to prevent accumulation of dirt.

Lubrication of boom pin



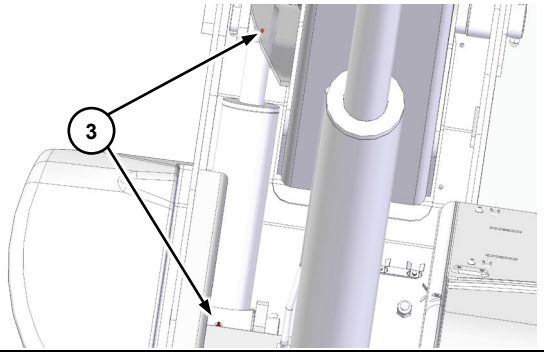
Lubricate the hinge pin by injecting grease in both grease nipples ① present on the telescopic boom.

Lubrication of lift cylinder pins



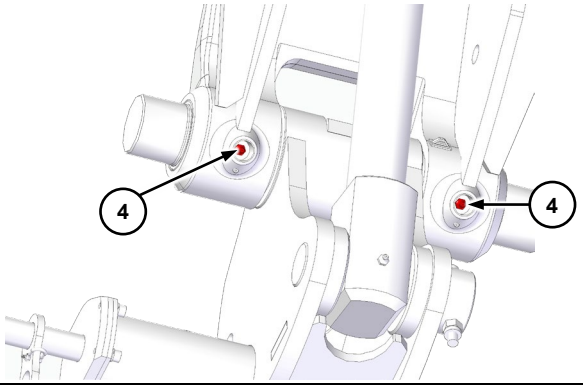
Lubricate pins ② of the lift cylinder. To make access to the grease nipples easier, lift the telescopic boom completely.

Lubrication of compensation cylinder pins



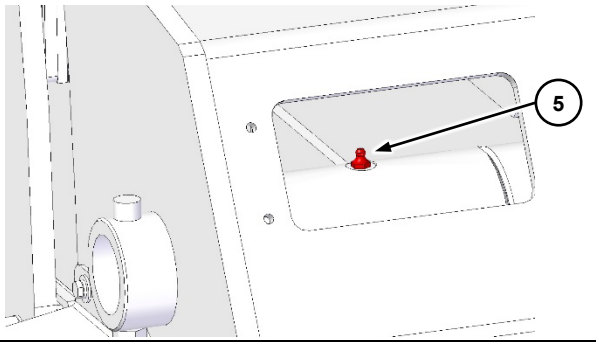
Lubricate pins ③ of the compensation cylinder. To make access to the grease nipples easier, lift the telescopic boom completely.

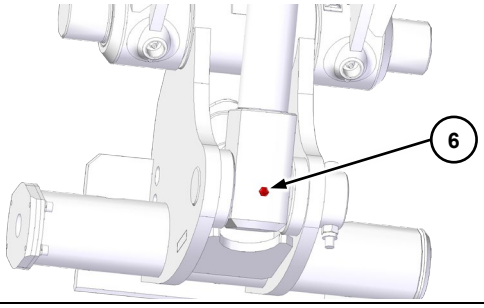
Lubrication of quick-fit coupling pin



Lubricate the pin of quick-fit coupling ④ through the grease nipples.

Lubrication of slewing cylinder pins

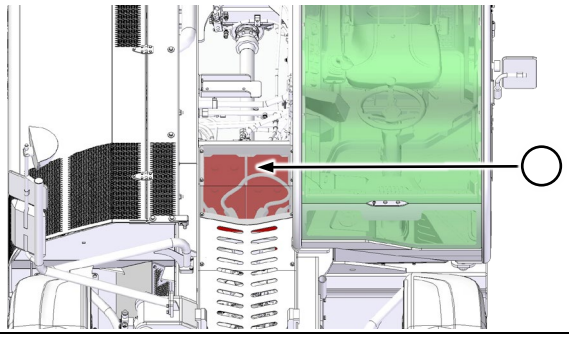




Lubricate pivots ⑤ and ⑥ of the slewing cylinder using the grease nipples on the top and base of the cylinder: for the top grease nipple, remove the cover at the top of the last extension at the top of the telescopic boom.

Batteries

The batteries are located in the central part of the vehicle chassis and protected by casing; to access them, fully raise the telescopic boom, lock it in position as described at the beginning of this section, and remove the casing.



DANGER

Batteries contain acid and corrosive substances and must be handled with care.

Wear protective equipment, such as gloves and goggles.

In case of contact with the eyes and/or skin, immediately rinse the affected body part and seek medical attention.

DANGER

Batteries contain highly polluting substances that must not be disposed of into the environment.

For used or damaged batteries, it is mandatory to follow the correct disposal procedures.

DANGER

Do not charge damaged batteries.

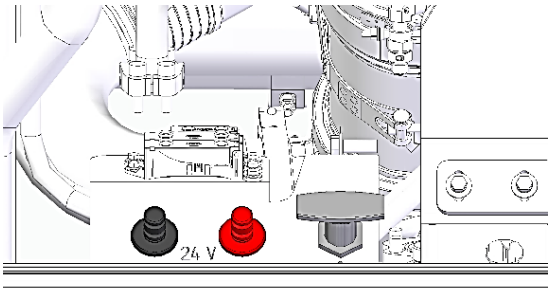
Do not place sources of sparks or open flames near batteries: high risk of flammability and explosion.

Do not charge batteries when hot.

- Handle batteries with care: do not overturn or tilt them to avoid leakage of the liquids they contain.
- Use a voltmeter or densimeter to check their status of charge.
- Do not generate sparks with the cable terminals during charge.
- Check that the plugs are correctly fitted and tightened.
- In conditions of low use resulting in their total discharge, they must be charged with a suitable instrument or replaced. Do not attempt to charge them with the car alternator.
- Before any work, activate the battery disconnect switch to cut off power supply to the vehicle.

NOTICE

For a quick restart of the vehicle in low battery voltage conditions, it is possible to use the two (positive and negative) poles located near the battery disconnect switch inside the engine compartment without directly accessing the battery compartment.

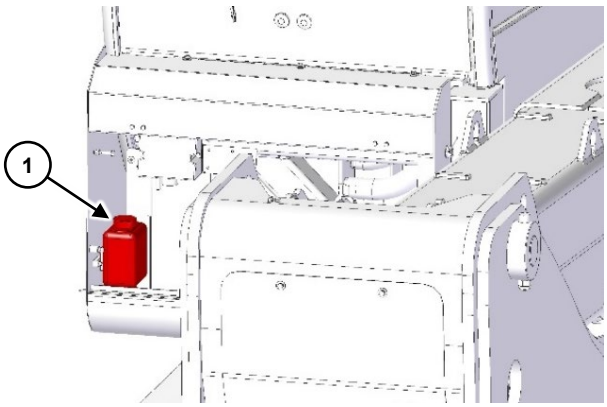


Windscreen washer liquid tank

Filling

Open the door of the compartment at the back of the cab by turning the handle to access the windscreen washer liquid tank, which is located to the left of the compartment, as shown below.

Unscrew the cap ① by turning it anti-clockwise and fill the tank with windscreen washer liquid, leaving about 1 cm between the liquid level and the edge.

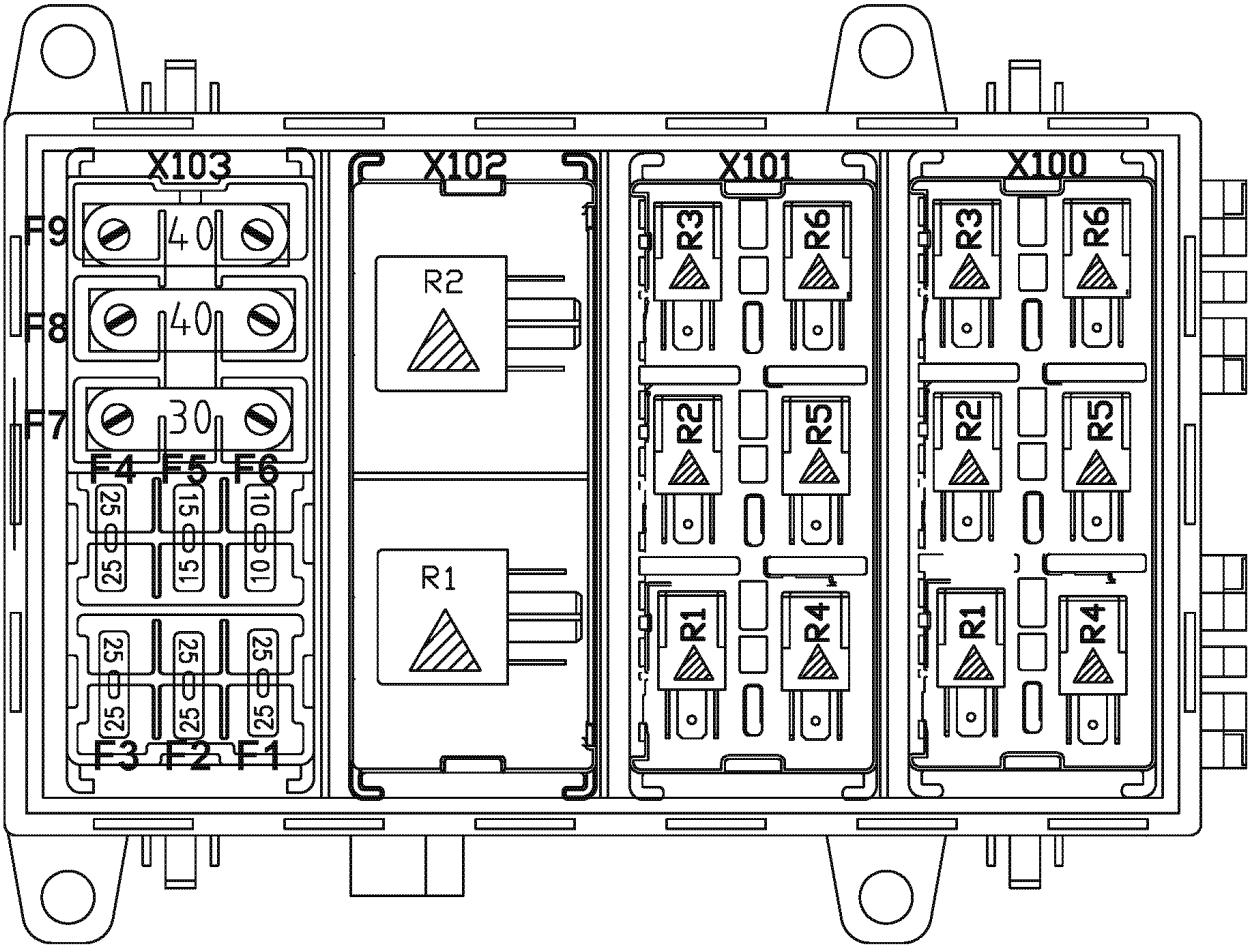


Screw the cap back on clockwise ①and tighten it.

Close the compartment door turning and locking the handle.

FUSE SECTION

Fusebox in chassis compartment



X100	Relay size	Colour	Function
R1	10/15 Amp.	green	Front windscreen wiper intermittence function relay
R2	10/15 Amp.	green	Windscreen wiper intermittence/continuity exchange relay
R3	10/15 Amp.	green	Front windscreen wiper 1° speed relay
R4	10/15 Amp.	green	Upper windscreen wiper 1° speed relay
R5	10/15 Amp.	green	Rear windscreen wiper 1° speed relay
R6	10/15 Amp.	green	NOT PRESENT

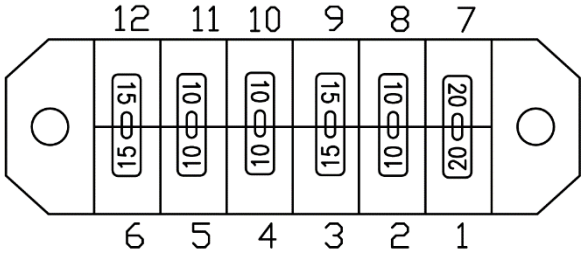
X101	Relay size	Colour	Function
R1	10/15 Amp.	green	Tap opening
R2	10/15 Amp.	green	Tap closing
R3	10/15 Amp.	green	Boom head work lights
R4	10/15 Amp.	green	Vehicle radio power supply
R5	10/15 Amp.	green	Right front low beam
R6	10/15 Amp.	green	Left front low beam

X102	Relay size	Colour	Function
R1	20/30 Amp.	black	Start-up 50 signal
R2	20/30 Amp.	black	Hydraulic oil radiator fans

Fuse holder 1

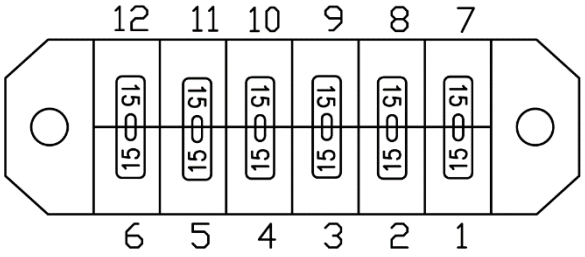
X103	Fuse	Colour	Function
F1	ATO 25A	nut brown	+15 turret control unit
F2	ATO 25A	nut brown	+15 forklift truck control unit
F3	ATO 25A	nut brown	Fuel filter
F4	ATO 15A	blue	+15 vehicle radio
F5	ATO 15A	blue	+30 vehicle radio
F6	ATO 10A	red	+30 cigarette lighter
F7	MAXI 30A	green	+30 engine
F8	MAXI 40A	orange	+30 engine control unit
F9	MAXI 40A	orange	Oil radiator fans

X105



F6 F5 F4 F3 F2 F1

X106



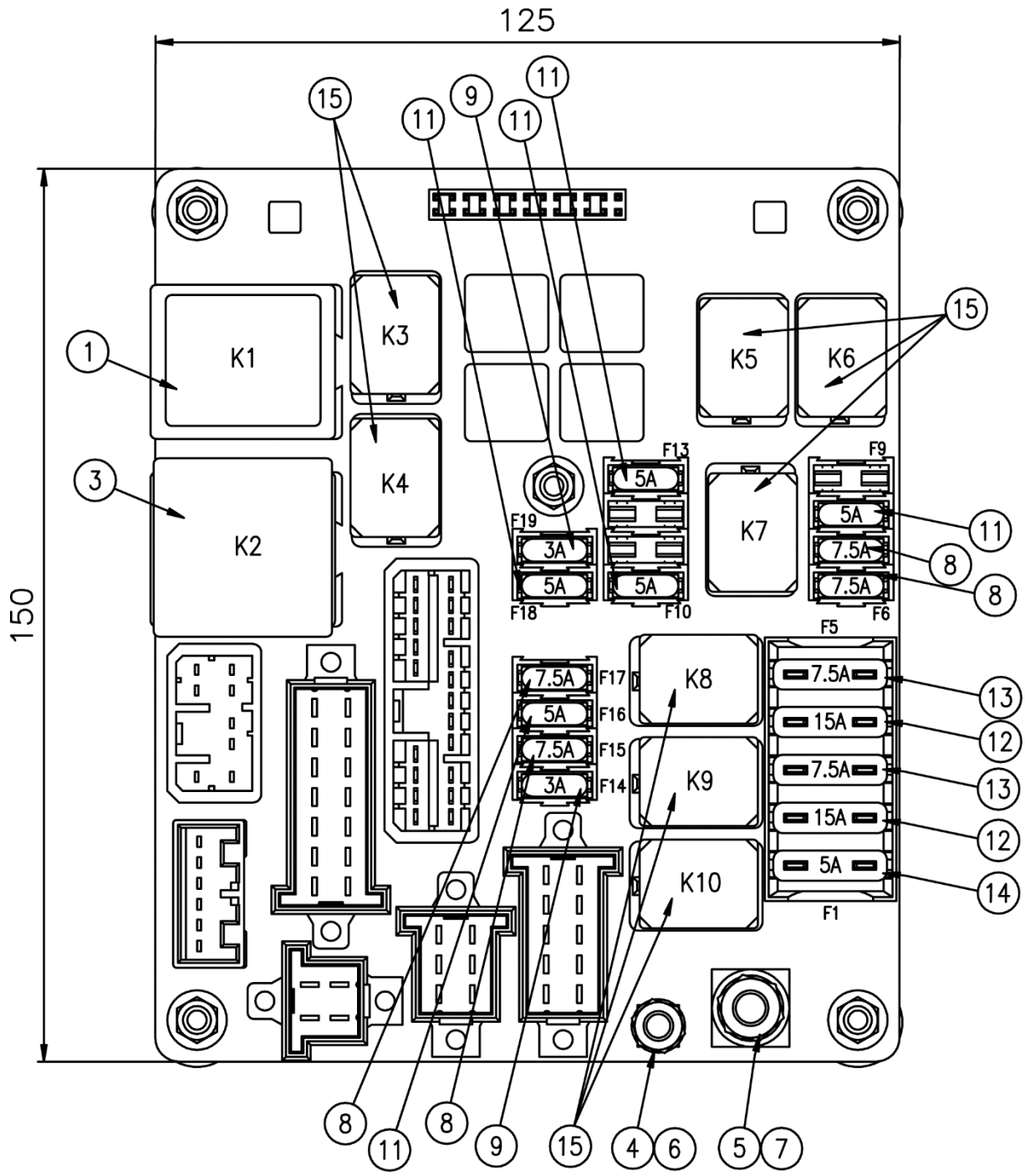
F6 F5 F4 F3 F2 F1

Fuse holder 2

X105	**Fuse**	**Colour**	**Function**
F1	ATO 20A	yellow	+30 DC/DC converter
F2	ATO 10A	red	+30LD forklift truck control unit
F3	ATO 15A	blue	+15 Autec radio control
F4	ATO 10A	red	+15 Grayhill joystick
F5	ATO 10A	red	+15 engine control unit
F6	ATO 15A	blue	+15 porthole control unit

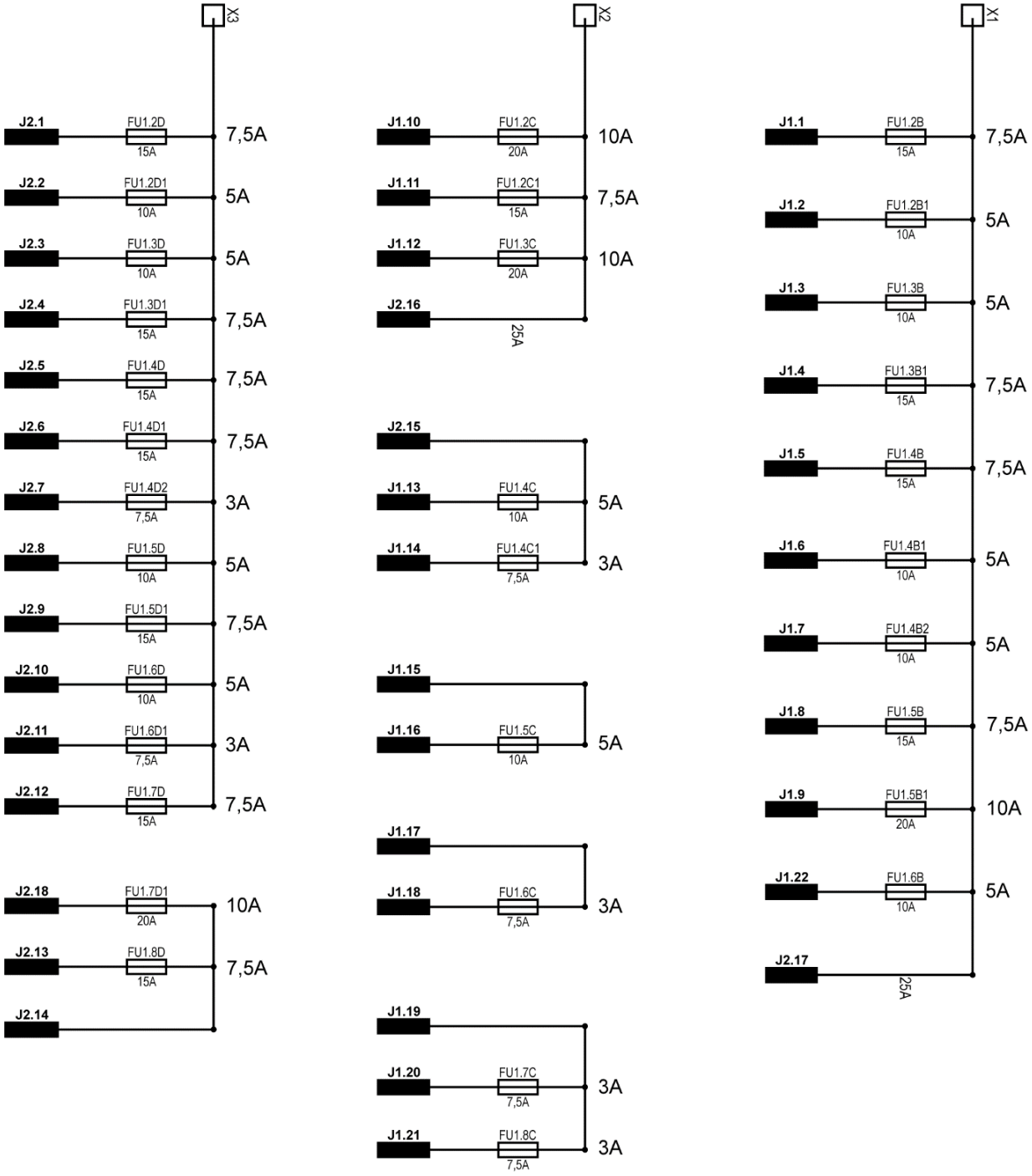
Fuse holder 3

X106	**Fuse**	**Colour**	**Function**
F1	ATO 15A	blue	+15 fan slave control unit LQ
F2	ATO 15A	blue	+15 boom head control unit
F3	ATO 15A	blue	+15 Bosch Rexroth control unit
F4	ATO 15A	blue	+15 light switch
F5	ATO 15A	blue	+15 pneumatic seat
F6	ATO 15A	blue	NOT PRESENT



QPL	Fuse	Colour	Function
F1	ATO 5A	nut brown	+15 left side road lights
F2	ATO 15A	blue	+15 front windscreen wiper
F3	ATO 7.5A	brown	+15 right side high beams
F4	ATO 15A	blue	+15 boom head work lights
F5	ATO 7.5A	brown	+15 left side high beams
F6	MINI 7.5 A	brown	+15 reversing lights
F7	MINI 7.5 A	brown	+15 stop lights

QPL	Fuse	Colour	Function
F8	MINI 5 A	nut brown	+15 right side road lights
F9	-		NOT CONNECTED
F10	MINI 5 A	nut brown	NOT CONNECTED
F11	-		NOT CONNECTED
F12	-		NOT CONNECTED
F13	MINI 5 A	nut brown	NOT CONNECTED
F14	MINI 3 A	purple	+30 ADM3/CPC4
F15	MINI 7.5 A	brown	+30 timer
F16	MINI 5 A	nut brown	NOT CONNECTED
F17	MINI 7.5 A	brown	+30 alternator
F18	MINI 5 A	nut brown	+15 service
F19	MINI 3 A	purple	+15 Bosch Rexroth diagnostics connector
Intermitt.	-		Hazard lights
PP relay	-		Parking brake solenoid valve
K3	-		Low beams control
K4	-		Road lights control
K5	-		Right rear road light
	-		Right front road light
K6	-		Stop lights
K7	-		Reversing lights
K8	-		Left front high beam
K9			Right front high beam
K10	-		Left front road light
	-		Left rear light indicator
	-		Left rear road light
K11	-		Parking brake feedback
K12	-		Engine override indicator (DO NOT USE)
K13	-		Air recirculation closing relay
K14	-		Air recirculation opening relay



Press-fit	***Press-fit interference***		
	Fuse	**Colour**	**Function**
FU1.2D	MINI 7.5 A	nut brown	+15 turret control unit
FU1.2D1	MINI 5 A	blue	NOT CONNECTED
FU1.3D	MINI 5 A	brown	NOT CONNECTED
FU1.3D1	MINI 7.5 A	blue	+15 Forklift truck control unit LQ
FU1.4D	MINI 7.5 A	brown	NOT CONNECTED
FU1.4D1	MINI 7.5 A	brown	NOT CONNECTED
FU1.4D2	MINI 3 A	brown	NOT CONNECTED

Press-fit	*Press-fit interference*		
	Fuse	**Colour**	**Function**
FU1.5D	MINI 5 A	nut brown	NOT CONNECTED
FU1.5D1	MINI 7.5 A		+15 boom movements distributor
FU1.6D	MINI 5 A	nut brown	NOT CONNECTED
FU1.6D1	MINI 3 A		NOT CONNECTED
FU1.7D	MINI 7.5 A		+15 compensation cylinder pressure transducer
			+15 compensation cylinder pressure transducer
			+15 lifting cylinder pressure transducer
			+15 lifting cylinder pressure transducer
			+15 safety devices control unit
			+15 boom winder
FU1.7D1	ATO 10A		+15 turret control unit LD
FU1.8D	ATO 7.5A		+30 hazard lights/ceiling light
FU1.2C	ATO 10A		+15 A/C trinary pressure switch
FU1.2C1	MINI 7.5 A		NOT CONNECTED
FU1.3C	ATO 10A		+15 hazard lights intermittence
FU1.4C	MINI 5 A		+15 OBD2 diagnostics
FU1.4C1	MINI 3 A		NOT CONNECTED
FU1.5C	MINI 5 A		Operator display power supply
FU1.6C	MINI 3 A		NOT CONNECTED
FU1.7C	MINI 3 A		NOT CONNECTED
FU1.8C	MINI 3 A		NOT CONNECTED
FU1.2B	MINI 7.5 A		+15 rear windscreen wiper
FU1.2B1	MINI 5 A		+15 gear stalk switch
FU1.3B	MINI 5 A		+15 right side low beams
FU1.3B1	MINI 7.5 A		+15 upper windscreen wiper
FU1.4B	MINI 7.5 A		
FU1.4B1	MINI 5 A		+15 left side low beams
FU1.4B2	MINI 5 A		
FU1.5B	MINI 7.5 A		+15 switch functions
			+15 switch functions
			+15 switch functions
FU1.5B1	ATO 10A		+15 setups
	ATO 10A		+5Vdc for Water Tap
FU1.6B	MINI 5 A		+15 alternator

TROUBLESHOOTING

Engine – does not switch on or switching on is difficult (no fumes at exhaust)

Cause	*Solution*
No fuel in tank	Refuel.
Ignition switch defective	Check the opening and closing of the electric connection.
Fuel filter clogged	Bleed the water separator or replace the filter.
Fuel priming pump defective	Check to make sure the pump provides the flow rate suitable for the high pressure pump. Check the electrical connections.
Air in the fuel	Check the absence of air returning to the circuit.
Fuel dirty or non-conforming	SWITCH THE ENGINE OFF. Replace the fuel filters. Run the engine with correct fuel.
Suction or discharge system obstructed	Visually inspect the suction and discharge and remove any obstructions present. Replace the air filter if necessary.
Fuel return line blocked	Check to make sure the line is clear and connected to the upper part of the tank.
Fault in one or more injectors	Check the electrical connections.
ECU or sensors fault	Check the electrical connections.

Engine – does not turn when started up or moves slowly

Cause	**Solution**
Electrical circuit elements loose or worn	Clean and carry out the necessary maintenance.
Battery flat	Check the voltage using a multimeter. Check the working of the alternator.
Solenoid or starter motor fault	Replace the starter motor.
Starter motor working but the engine does not rotate	Remove the starter motor and check the state of the gears and spring.

Engine – starts up but switches off immediately

Cause	***Solution***
No fuel in tank	Refuel.
Starter motor charged	Check the presence of external loads due to faulty auxiliaries.
Suction or discharge system obstructed	Visually inspect the suction and discharge and remove any obstructions present. Replace the air filter if necessary.
Fuel priming pump defective	Check to make sure the pump provides the flow rate suitable for the high pressure pump. Check the electrical connections.
Fuel frozen	Use fuels suitable for low temperatures.
Air in the fuel	Check the absence of air returning to the circuit.
Fuel dirty or non-conforming	SWITCH THE ENGINE OFF. Replace the fuel filters. Run the engine with correct fuel.
Fuel supply obstructed	Check for blockage along the line. Check the state of the filters and replace if necessary.
Fuel return line blocked	Check to make sure the line is clear and connected to the upper part of the tank.
ECU or sensors fault	Check the electrical connections.

Engine – irregular operation

Cause	***Solution***
Engine cold, or coolant temperature sensor fault	Check the sensor electrical connection. Check the working of the sensor.
Leakage in fuel circuit	Replace the defective connections. DO NOT try to carry out repairs.
Air in the fuel	Check the absence of air returning to the circuit.
Fuel priming pump defective	Check to make sure the pump provides the flow rate suitable for the high pressure pump. Check the electrical connections.
Fuel supply obstructed	Check for blockage along the line. Check the state of the filters and replace if necessary.
Fuel dirty or non-conforming	SWITCH THE ENGINE OFF. Replace the fuel filters. Run the engine with correct fuel.
Incorrect adjustment of valve play	Correct the adjustment.
Compression not good in one or more cylinders	Check the compression ratio.
ECU or sensors fault	Check the electrical connections.

Engine – excessive noise

Cause	***Solution***
Slipping of transmission belt, tension insufficient or excessive	Check the belt tensioner and inspect the belt. Make sure the pulley rotation is not hindered.
Coolant temperature sensor fault	Check the sensor electrical connection. Check the working of the sensor.
Fuel dirty or non-conforming	SWITCH THE ENGINE OFF. Replace the fuel filters. Run the engine with correct fuel.
Incorrect adjustment of valve play	Correct the adjustment. Make sure the rod and equaliser mechanism is not damaged or worn.
Noise coming from engine block	Contact your dealer urgently.

Engine – reduced power

Cause	***Solution***
No fuel in tank	Refuel.
Oil level not correct	Check the level.
Engine overload	Check the presence of overloads due to faulty auxiliary parts.
Fuel dirty or non-conforming	SWITCH THE ENGINE OFF. Replace the fuel filters. Run the engine with correct fuel.
Fault in turbocompressor	Contact your dealer.
Leakage in fuel circuit	Replace the defective connections. DO NOT try to carry out repairs.
Fuel supply obstructed	Check for blockage along the line. Check the state of the filters and replace if necessary.
Air in the fuel	Check the absence of air returning to the circuit.
Fuel priming pump defective	Check to make sure the pump provides the flow rate suitable for the high pressure pump. Check the electrical connections.
Suction or discharge system obstructed	Visually inspect the suction and discharge and remove any obstructions present. Replace the air filter if necessary.
Fault in one or more injectors	Check the electrical connections.
Leaks in manifolds or in turbocompressor	Check and correct leaks in the manifolds.
Too many sealing washers installed under the injectors	Remove the excess sealing washers.
Incorrect adjustment of valve play	Correct the adjustment.
Compression not good in one or more cylinders	Check the compression ratio.

Engine – does not reach the maximum rpm

Cause	***Solution***
Speedometer defective	Check the engine speed using a manual speedometer. Correct if necessary.
Engine overload	Check the presence of overloads due to faulty auxiliary parts.
Fuel dirty or non-conforming	SWITCH THE ENGINE OFF. Replace the fuel filters. Run the engine with correct fuel.
Wastegate valve actuator diaphragm cracked	Repair or replace the turbocompressor.
Leakage in fuel circuit	Replace the defective connections. DO NOT try to carry out repairs.
Fuel supply obstructed	Check for blockage along the line. Check the state of the filters and replace if necessary.
Fuel priming pump defective	Check to make sure the pump provides the flow rate suitable for the high pressure pump. Check the electrical connections.
Fault in one or more injectors	Check the electrical connections.
Fuel high pressure pump fault	Contact your dealer.

Engine – excessive vibrations

Cause	***Solution***
Oil level excessive	Check the level.
Fan damaged or auxiliaries fault	Replace the defective components.
Fan hub damaged	Check and replace the hub.
Engine supports loose or damaged	Tighten the loose supports and replace those that are damaged.
Incorrect adjustment of valve play	Correct the adjustment.
Compression not good in one or more cylinders	Check the compression ratio.
Alternator bearing worn	Check/replace the alternator.

Engine – black fumes at the exhaust

Cause	*Solution*
Suction or discharge system obstructed	Visually inspect the suction and discharge, and remove any obstructions present. Replace the air filter if necessary.
Leaks between the turbocompressor and suction manifold	Inspect and repair the leaks.
Intercooler defective	Check the radiator mass.
Leaks from discharge manifolds or from turbocompressor	Repair the leaks from the gaskets. Check for cracks in the connections.
Wastegate valve fault	Replace the valve.
Turbocompressor fault	Replace.
Fault in one or more injectors	Check the electrical connections.
Compression not good in one or more cylinders, fumes with load mainly at average and low speeds	Contact your dealer.

Engine - white fumes at the exhaust

Cause	*Solution*
Fuel dirty or non-conforming	SWITCH THE ENGINE OFF. Replace the fuel filters. Run the engine with correct fuel.
Oil level not correct	Check the level.
Diesel and hydraulic oil in engine casing	If the oil is contaminated, check the gaskets at the power take-offs. Drain oil, clean and refill with fresh oil.
Leaks from seals in the valve seats – evident after long periods at minimum speed followed by sudden acceleration	Contact your dealer.
Fault in one or more injectors	Check the electrical connections.
Piston belts not sealed – blue fumes at all speeds	Contact your dealer.

Fuel – excessive consumption

Cause	***Solution***
Additional loads on the engine	Check/repair the auxiliaries and equipment of the telescopic handler.
Fuel leaks	Check for leaks near the tank, fuel line, filters and priming pump. DO NOT try to repair the defective piping.
Control unit defective	Contact your dealer.
Fault in one or more injectors	Check the electrical connections.
Incorrect adjustment of valve play	Correct the adjustment.

Fuel/oil – leaks from the drainage

Cause	***Solution***
Turbocompressor lubrication line obstructed	Check and clean the piping.
Leaks from discharge manifolds or from turbocompressor	Repair the leaks from the gaskets. Check for cracks in the connections.
Leaks from the valve guides	Contact your dealer.
Control unit defective	Contact your dealer.
Fault in one or more injectors	Check the electrical connections.

Lubricant – excessive consumption

Cause	***Solution***
Oil leaks	Check the engine for leaks.
Lubricant specifications unsuitable	Make sure a suitable lubricant is used. Check contamination by fuel.
Leaks in cooling system	Check for the presence of lubricating oil in the coolant.
Leaks from turbocompressor in the suction or discharge system	Check for leaks.
Leaks from the valve guides	Contact your dealer.
Cylinders worn or damaged	Contact your dealer.

Lubricant - contamination

Cause	*Solution*
Oily deposit in lubricant	Change the oil and filters. If operating in particularly heavy duty conditions, increase the maintenance frequency. Make sure a suitable lubricant is used.
Fuel in lubricant oil, engine temperature very low	Avoid leaving the engine running at low speed for too long.

Lubricant - pressure excessively low

Cause	*Solution*
Oil level not correct	Check the level.
Lubricant specifications unsuitable	Make sure a suitable lubricant is used. Check contamination by fuel.
Pressure gauge fault	Check for correct operation.
Oil filter clogged	Change the oil and filters. If operating in particularly heavy duty conditions, increase the maintenance frequency. Make sure a suitable lubricant is used.
The oil priming pump pressure limiter valve is blocked in the open position	Contact your dealer.
The oil pump pressure limiter valve is blocked in the open position	Contact your dealer.
Oil pump worn	Contact your dealer.

Lubricant – excessive pressure

Cause	*Solution*
Lubricant specifications unsuitable	Make sure a suitable lubricant is used. Check contamination by fuel.
Pressure gauge fault	Check for correct operation.
The oil pump pressure limiter valve is blocked in the closed position	Contact your dealer.

Coolant - leaks

Cause	***Solution***
Coolant level not correct	Check the level.
Liquid leaks from radiator	Check the radiator, hoses and piping for leaks.
Liquid leaks from engine	Check the engine for leaks from gaskets, pipes or unions. Make sure all the clamps are tightened properly and in good condition.
Leaks from the head gasket	Contact your dealer.
Engine head cracked or shows porosity	Contact your dealer.
Leaks from lubricant passages in the base	Contact your dealer.

Coolant - overheating

Cause	***Solution***
Coolant level not correct (low)	Check the level.
Radiator grille obstructed	Clean the radiator grille.
Air flow to radiator insufficient or obstructed	Check/repair the fan.
Belt tension insufficient	Check the tension.
Radiator pipe crushed, obstructed or cracked	Check/replace the defective pipe.
Oil level not correct (high)	Check the level.
Radiator cap defective	Replace the radiator cap.
Excessive concentration of antifreeze	Drain part of the circuit and fill with distilled water.
Temperature sensor defective	Check the accuracy of the sensor.
Thermostat faulty or missing	Check/replace the thermostat.
Coolant pump faulty	Check/replace the pump.
Passage of liquid through the radiator, head or engine block obstructed	Wash the plant with distilled water and fill with fresh coolant.

Coolant – not at required temperature

Cause	***Solution***
Temperature sensor defective	Check the accuracy of the sensor.
Thermostat defective (blocked open)	Check/replace the thermostat.
Liquid not circulating near the temperature sensor	Check/clean the liquid passages.

VEHICLE STORAGE

Leaving the vehicle unused for long periods

If the vehicle is to be left unused for more than 30 days, carry out certain operations to keep it in good condition and maintain a high level of service.

Leaving the vehicle unused for less than 12 months

Park the vehicle in a well ventilated area, free of humidity and protected from atmospheric agents. Make sure the environmental temperature in the area does not fall below -10°C (50°F).

Clean the vehicle thoroughly. Remove all traces of rust or corrosion. Touch up the paint layer in the areas concerned.

Change the engine oil and the filter if the oil is more than 12 months old or after 300 hours of service after the last change.

Charge the batteries. Check the level of electrolyte before and after charging. Disconnect the negative pole after the charging.

Check the coolant level and top up if necessary.

Check the pressure in the AdBlue® circuit pressure accumulator.

Drain water from the fuel prefilter with water/fuel separator.

Close the drainage pipe and the air intake in the filter casing with rags soaked in oil.

Loosen the belt tensioner device in the transmission belt. Do not dismantle the transmission belt completely.

Leaving the vehicle unused for less than 36 months

If the vehicle is to be left unused for more than 12 months and less than 36 months, certain protective measures must be adopted in addition to those required for leaving the vehicle unused for less than 12 months.

Fill the fuel tank completely. Run the engine for 15 – 30 minutes at not more than 900 rpm.

Disconnect the suction manifolds from the top of the engine. Press the start button present on each engine briefly and at the same time pour about 15 cc of oil in each cylinder.

Pour about 5cc of oil in the volumetric compressor on the suction side.

Refit all the components and tighten the fixing screws applying the correct tightening torque.

Reusing the vehicle

Clean the fuel tank. Refuel.

Replace the fuel prefilter and filter.

Check the coolant level. If topping up is necessary, take a sample of the liquid and check the composition. Add distilled water or pure liquid to adjust the composition.

Check the battery charge. Charge if necessary. Check the level of electrolyte before and after charging. Again connect the negative pole to the batteries. Check the electrical system to make sure it is working correctly.

Check the condition of the transmission belt. Replace if necessary. Restore the working of the belt tensioner device.

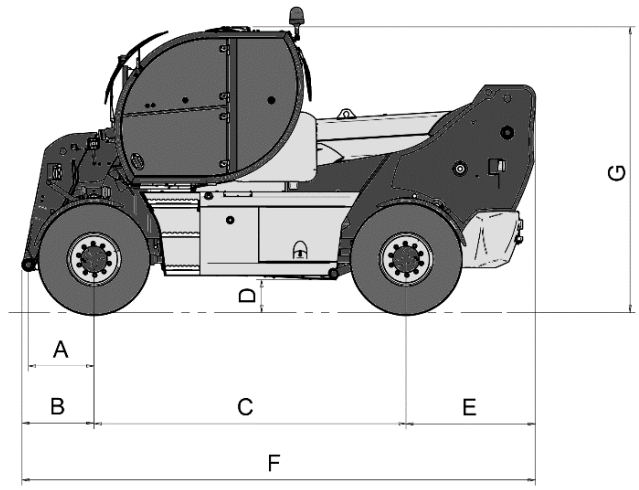
Start up the engine and let it run for 15 – 30 minutes at not more than 900 rpm. Keep the oil pressure, water temperature and oil temperature indicators under observation.

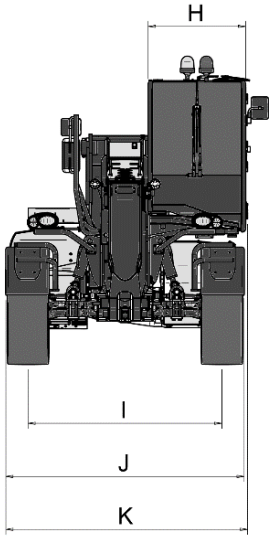
Check the oil level in the axles, in the wheel reduction gears and in the gearbox.

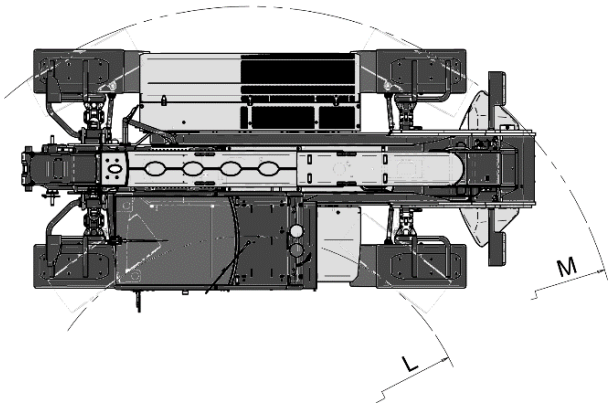
Dismantling and disposal of the vehicle

When the vehicle is out of service, the reference standards will have changed. The procedures for dismantling and scrapping the vehicle vary according to the regulatory standards in force in the country in which it is used. For information regarding dismantling and scrapping the vehicle, contact your dealer for updates regarding the directives in force.

DIMENSIONS







	HTH 10.10
A	690 mm / 27.17”
B	760 mm / 29.92”
C	3300 mm / 129.92”
D	350 mm / 13.78”
E	1370 mm / 53.94"
F	5430 mm / 213.78"
G	3020 mm / 118.90"
H	1030 mm / 40.55"
I	2050 mm / 80.71"
J	2520 mm / 99.21"
K	2560 mm / 100.79"
L	R 2360 mm / R 92.91”
M	R 3930 mm / R 154.72”

TECHNICAL DATA

Performances

Model	HTH 10.10		
	100 kW (-D/A) - Stage IIIA	**100 kW (-D/C) – Tier 4f**	**100 kW (-D/D) - Stage V**
MAXIMUM SPEED	40 Km/h / 25 mph	40 Km/h / 25 mph	40 Km/h / 25 mph
STANDARD LIFTING HEIGHT (*)	9.5 m / 31.2 ft		
MAXIMUM RATED CAPACITY (**)	10.000 kg / 22,000 lb		
MASS IN RUNNING ORDER (without accessory)	13.200 kg / 29,100 lb		
MASS DISTRIBUTION ON FRONT AXLE	4.700 kg / 10,400 lb		
MASS DISTRIBUTION ON REAR AXLE	8.500 kg / 18,700 lb		

(*) ***With interchangeable fork carriage equipment***

(**) ***To find out the actual load capacity according to the conditions of use of the vehicle, refer to the specific use and maintenance manual of the connected equipment***

ENGINE: DEUTZ (Stage IIIA / Tier 4f / Stage V)

Model	**HTH 10.10**		
	100 kW (-D/A) - Stage IIIA	**100 kW (-D/C) – Tier 4f**	**100 kW (-D/D) - Stage V**
ENGINE SERIES	DEUTZ TCD 3.6 L4		
THERMODYNAMIC CYCLE	Diesel 4 strokes		
ARCHITECTURE	In-line 4		
VALVES	16 valves		
POWER SUPPLY	Turbocompressed with intercooler		
DISPLACEMENT	3,620 cc		
COOLING	With liquid		
MAXIMUM POWER	100 Kw / 136 HP at 2200 rpm	100 Kw / 136 HP at 2200 rpm	100 Kw / 136 HP at 2200 rpm
MAXIMUM TORQUE	500 Nm at 1600 rpm	500 Nm at 1600 rpm	500 Nm at 1600 rpm
RATED SPEED AT MINIMUM	850 rpm	850 rpm	850 rpm

Transmission

Model	**HTH 10.10 100 kW (-D /A) — 100 kW (-D/C) — 100 kW (-D/D)**
TYPE	Hydrostatic with Danfoss electronic control
MAXIMUM PRESSURE	450 bar
NO. OF FORWARD/REVERSE GEARS	2
REVERSE GEAR	Electro-hydraulic

Hydraulic System

Model	**HTH 10.10 100 kW (-D /A) — 100 kW (-D/C) — 100 kW (-D/D)**
PUMP	with variable displacement pistons
FLOW RATE (at 2600 rpm)	156 l/min
MAXIMUM PRESSURE	400 bar
DISPLACEMENT	60 cc

Electrical System

Model	**HTH 10.10 100 kW (-D /A) — 100 kW (-D/C) — 100 kW (-D/D)**
MASS	Negative
BATTERIES	2 12 V – 150 A batteries
ALTERNATOR	28V – 80A
START-UP	24 V

Braking System

Model	**HTH 10.10 100 kW (-D /A) — 100 kW (-D/C) — 100 kW (-D/D)**
TYPE	Multiple disc in oil bath
SERVICE BRAKE	Pedal-operated servo-assisted, action on front and rear wheels
PARKING BRAKE	Hydraulic negative action on front axle

Axles

Model	**HTH 10.10 100 kW (-D /A) — 100 kW (-D/C) — 100 kW (-D/D)**
FRONT AXLE	Steering and levelling
REAR AXLE	Steering and tilting
WHEEL HUB REDUCERS	Epicyclic
TYRES	18 R x22.5

Tyres

Measurement	Characteristics	Make	Inflation pressure	Rim size
18 R 22.5 (445/65 R 22,5)	AGP23 169F	Aeolus	8.30 bar (0.83 Mpa) (120 psi)	14.00 x 22.5

Environmental data

Parameter	***Values***
OPERATING TEMPERATURE	from -20°C to +45°C (from -4°F to +113°F)
STORAGE TEMPERATURE	from -25°C to +50°C (from -13°F to +122°F)
HUMIDITY	from 20% to 95%
ALTITUDE	< 2500 m (< 8200 ft)

REFERENCE INFORMATION

Telehandler serial number: ……..

Engine serial number: ……..

Year of production: ……..

Notes: ……..

……

……

……

……

Dealer name Magni Telescopic Handlers S.r.l.: ……..

Dealer's address: ……

Attach your business card or enter your dealer information here

Reference person of sales department (Name) ……..

(Telephone) ……

(E-mail) ……

Reference person for rental (Name) ……..

(Telephone) ……

(E-mail) ……..

Service Contact (Name) ……..

(Telephone) ……

(E-mail) ……

Contact for spare parts (Name) ……..

(Telephone) ……

(E-mail) ……

REGISTER OF CHANGE OF OWNERSHIP

Register of change of ownership

on _____

The ownership of the vehicle identified in this Register has been transferred to:

Company _____

with headquarters in street/no. _____

Post Code/City _____, province_____

represented by Mr. _____

It is hereby declared that, at the time of preparation of this document, the technical, dimensional and functional features of the vehicle described in this Register conform to those indicated at the beginning by the Manufacturer and that changes, if any, have been recorded.

Furthermore, we declare that the transfer has been reported to the relevant Bodies (local INAIL).

The dealer _____

The buyer _____

Register of change of ownership

on _____

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Company _____

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The buyer _____