



# **DIECI**

## **USE AND MAINTENANCE MANUAL**

### **Icarus Dynamic** *Kubota Stage V*



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#### **CAUTION**

A copy of the following manual must always be available to the operator on the vehicle.



**USE AND MAINTENANCE MANUAL**

Issued by	Document code	Issue date	Review date	Prepared by
Technical Documentation	DOCMA0000137 - Rev. 0.4	09/2021	06/2023	Technical Documentation

Original instructions for:

	VEHICLE MODEL	BRAND	EMISSION STANDARDS	NOMINAL POWER	HOMOLOGATION	AREA	SECTOR
MFG3523	ICARUS 40.14 DYNAMIC - GD	Kubota	Stage V	85.1 kW (114 HP)	AFM279	CEUSA	CONSTRUCTION
MFH3701	ICARUS 45.17 DYNAMIC - GD	Kubota	Stage V	85.1 kW (114 HP)	AFL279	CEUSA	CONSTRUCTION
MFM3901	ICARUS 60.18 DYNAMIC - GD	Kubota	Stage V	85.1 kW (114 HP)	-	CEUSA	CONSTRUCTION

### Standards

This manual is prepared in Italian in accordance with the provisions indicated in the following Standards:

- EN1459-1
- ISO 3600:2015
- ISO 6750:2005
- M.D. 2006/42/EC

Dear Customer,

congratulations and thank you for choosing **DIECI**.

This Use and Maintenance Manual has been written to help you fully appreciate the quality of **DIECI** products.

We strongly recommend that you read this manual in its entirety before using the vehicle.

It contains information, advice and important warnings that will help you to fully take advantage of the technical capabilities of your **DIECI** products.

You will learn about its features and special practical information in addition to information about its maintenance, driver and operation safety to help maintain your **DIECI** products over time.

We are confident that you will be happy with your new purchase and we remain at your disposal should you have any further queries.

Sincerely,

**Sales Management**

[www.dieci.com](http://www.dieci.com)



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## 1.1 General information

Each vehicle is provided with:

- Copy of this manual
- A copy of the use and maintenance manual of the engine prepared by the manufacturer
- A copy of the use and maintenance manual for each device or equipment which is installed on this vehicle.

These manuals are written by the respective product suppliers and reproduced accurately and in full by Dieci with their specific authorization: they can be enhanced with further specifications drawn up by DIECI s.r.l..



### WARNING

All documentation provided is an integral and essential part of the product and must be kept at the disposal of the users; they must carefully read what is written in the above mentioned documentation before using it.



### DANGER

Improper, incorrect or unreasonable use of the vehicle or accessory installed on it is not allowed as also any action altering its structure or operation is not allowed.



### NOTE

**Reproduction of all or part of the contents of this manual and any multimedia attachment.**

Dieci s.r.l. will protect the ownership rights of these materials.



### CAUTION

A copy of this manual must always be available to the operator on the vehicle.

This vehicle has been designed and built as a self-propelled vehicle with operator's seat, wheels, designed for use on paved or natural ground and on uneven ground.

It consists of a main support structure suitable to support the extensible boom.

The head of the boom can be fitted with forks or other equipment only if approved by DIECI or only if the manufacturer of the equipment declares that its use conforms with the type of vehicle.

When used normally, the vehicle performs loads lifting and positioning by extending/ retracting, lifting/lowering the boom.

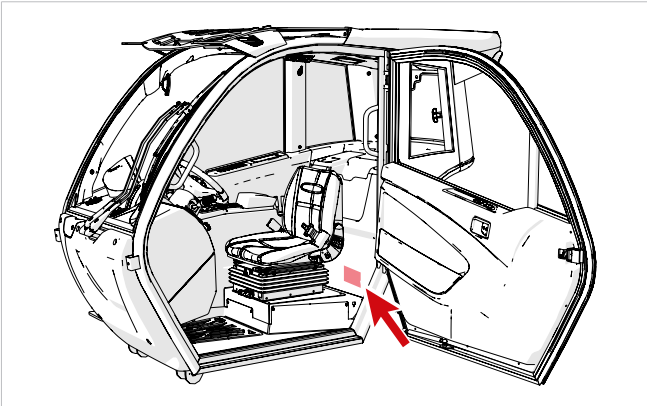


### WARNING

**Any other use is considered contrary to the intended use by DIECI s.r.l. which, therefore, can not be responsible for damage to objects and the vehicle itself, or injury to persons that might derive from misuse.**

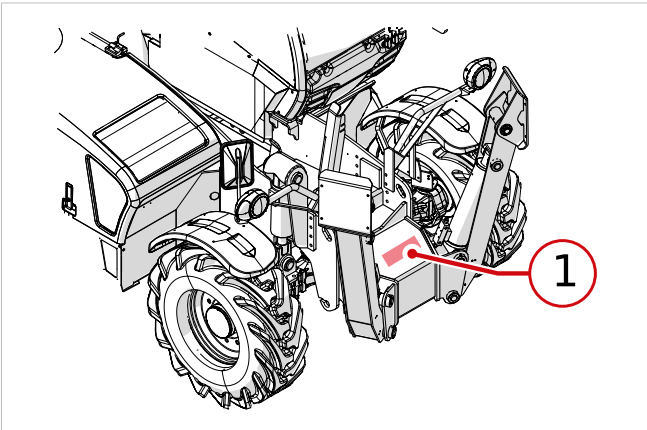
For other inspections, or complaints to agencies, refer to the applicable local legislation in the country of use of the vehicle.

## 1.2 Identification of the vehicle

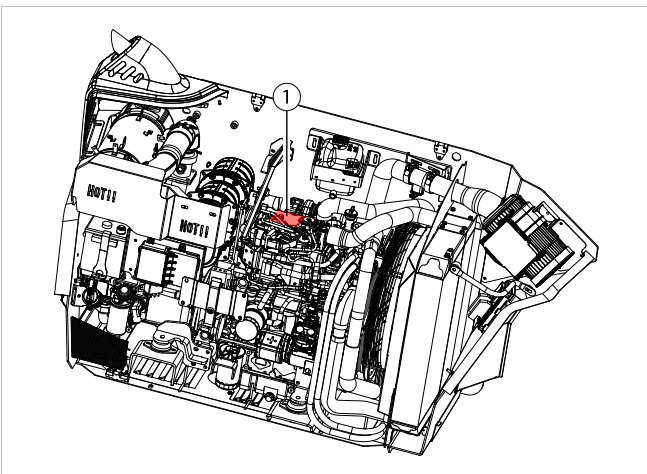


Vehicle model .....

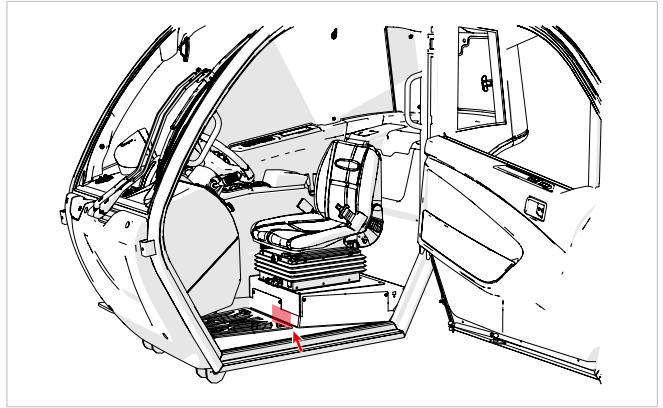
Year .....



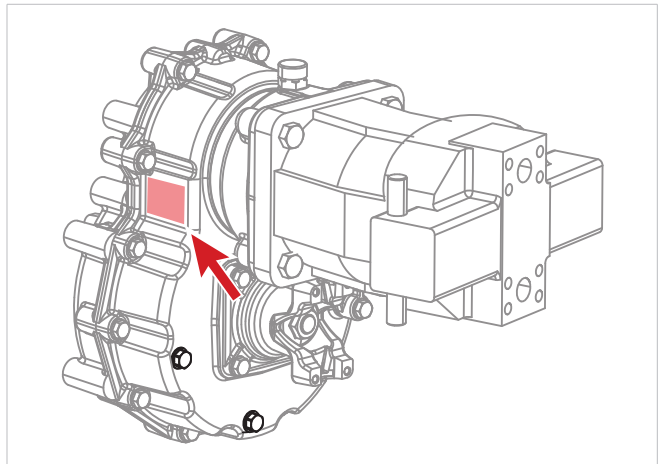
Serial number of the chassis .....



Serial number of the engine .....



Serial number of the cab .....



Serial number of the transmission gearbox .....

Owner / Operator .....

Address of the Dealer or Agent .....

Delivery date .....

Warranty expiry date .....

EQUIPMENT CODE	SERIAL NUMBER	YEAR

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## 2.1 Manual structure

This manual is an integral part of the official documentation of the Vehicle, Equipment and Tool. It must be carefully stored and be available to the managers, the users and personnel in charge of maintenance.

- Specialized maintenance technician: trained and educated person to perform routine and extraordinary maintenance interventions with in-depth and specific mechanical, electrical and hydraulic knowledge, normally sent or authorized by Dieci s.r.l. or the dealer.

## 2.2 Purpose and content

This manual is an integral part of the official documentation and is aimed at supplying the Operator with all the information required concerning technical aspects, operation and safety during the entire lifespan of the vehicle or equipment.



### CAUTION

This manual should be read carefully before the first use or before maintenance.



### NOTE

If in doubt on the correct understanding of the instructions, contact the Manufacturer for clarifications.



### CAUTION

The users must not carry out operations reserved for maintenance technicians or qualified technicians. The Manufacturer is not liable for damage deriving from the non-compliance with this prohibition.

### 2.4.1 Training

This manual gives the users all technical data on the vehicle or on the equipment, the presence and type of control and safety devices and the presence and meaning of the safety stickers and labels.

All vehicle or equipment users must have all necessary information, training and education in relation to the correct use conditions of the means and foreseeable anomalous risks.

The information, training and educating must be implemented upon introduction of new work equipment and for each work equipment available to users.

## 2.3 Preservation

The instruction manual must be kept near the equipment available to the Users (in the cab or on the equipment where set up) inside a dedicated envelope, protected from liquids and anything that might make it illegible.

If the manual becomes creased and/or gets, even partially, damaged or illegible or in case of loss of the manual, it must be replaced immediately by contacting the Dieci Technical Assistance Service, giving the details of the manual found on the first page of the manual.



### NOTE

Ensure to respect the current laws and Standards in the selling country of the vehicle with regard to information, training and educating of personnel to use the vehicle and its equipment.

The employer is obliged to inform personnel on the following topics related to safety during use:

- Risk of injury
- Vehicle and equipment safety devices set up for operator safety
- Individual safety devices set up for operator safety
- General accident-prevention rules and/or foreseen by international directives
- Accident-prevention rules of Legislation of the Country where the vehicle or the equipment is intended for use

The operator, before starting the work, must know the characteristics of the vehicle and equipment and must have fully read this Use and Maintenance Manual.

## 2.4 Recipients

This manual is addressed to the following persons:

- Operator: instructed person, trained with specific theoretical-practical course concerning use of the vehicle or equipment
- Generic maintenance technician: person instructed and trained to perform routine maintenance interventions with basic mechanical, electrical and hydraulic knowledge.



2.4.2 Training



**CAUTION**

The operator in charge of using the vehicle or equipment must have attended a suitable theoretical-practical course lasting as long as indicated by legal prescriptions in the Country where the vehicle or equipment is used.

Training must at least include the following subjects:

- Use and limits of the operation and emergency controls of the equipment and of the vehicle on which the equipment is mounted
- Knowledge and awareness of the Use and Maintenance Manual and of the control marks, of the instructions and of the warnings applied on the vehicle
- Knowledge and understanding of the Standard on this equipment, including the educating aimed at recognizing and avoiding potential dangers at work
- Knowledge of the mechanical operation of the vehicle sufficient for recognizing a real or potential failure
- Hints on constructive particulars of the vehicles and on static and dynamic stability concepts
- Correct use of the vehicle procedures in safe conditions with regard to the work area and the load to be handled/lifted, capacity and guide notions
- Knowledge and use of the PPE to be worn during use of the vehicle and of the equipment
- Knowledge and execution of the routine maintenance to be carried out

Training must be carried out under the supervision of a qualified person in an open area and free from obstacles. At the end of this practice, the trainee must be able to safely use the equipment, and the vehicle on which it is installed.

The operator must also be trained on the responsibility and authority of not using the vehicle or equipment in case of failure or presence of unsafe conditions, and request further information from the Manufacturer or authorized dealer.

2.4.3 Qualification

The vehicle and equipment are intended for professional use; their use must therefore be entrusted to qualified figures, in particular:

- Being of adult age
- Be physically and psychically suitable to carry out particularly difficult technical work
- Have been adequately trained on the use and maintenance of the vehicle and equipment
- Have been judged suitable by the employer to carry out the work entrusted to them

- Are able to understand and interpret the manual and the safety requirements
- Know the emergency procedures and their activation
- Have the ability of activating the specific type of vehicle or equipment
- Are familiar with the specific standards of the case
- Have understood the operational procedures defined by the Manufacturer of the vehicle or equipment

2.5 Classification of dangers

Carefully read the safety regulations given and follow all recommended precautions in order to avoid potential risks and safeguard your health and safety.

The symbols listed below are inserted to highlight situations which Dieci has considers particularly important.

If in doubt, contact your agent or dealer.



**DANGER**

It indicates an imminently hazardous situation which, if not avoided, could result in death or serious injury.



**WARNING**

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



**CAUTION**

It indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.



**CAUTION**

Used without the safety warning symbol it indicates a potentially hazardous situation which, if not avoided, could result in property damage.



**NOTE**

It indicates information or a company policy that relates directly or indirectly to personnel safety or to property protection.



**NOTE**

Indicates an optional accessory or attachment.

## 2.6 Vehicle general warnings

Every vehicle or equipment comes with a copy of its own manual.



### CAUTION

Reproduction of all or part of the contents of this manual or of the multimedia attachment, if any, is prohibited.

Dieci s.r.l. will protect the ownership rights of these materials.

It is compulsory to read and understand this manual before using the vehicle or various equipment and to carefully follow the indications therein. The instructions for use, maintenance and repair described in this handbook must be followed if the vehicle is to be considered as being operated in accordance with the manufacturer's intended uses.



### NOTE

DIECI S.r.l. DIECI s.r.l. reserves the right to carry out possible modifications to vehicles or equipment for technical or commercial reasons without prior notice.

- A copy of the use and maintenance manual relative to vehicle parts or equipment of the respective suppliers can be supplied. These manuals are written by the respective product suppliers and reproduced accurately and in full by Dieci s.r.l. with their specific authorisation: they can be enhanced with further specifications drawn up by Dieci s.r.l..
- This Use and Maintenance manual is also provided by the Dealer upon delivery of the vehicle, in order to make sure that these instructions are read and correctly understood. Should you have trouble understanding any part of this manual, do not hesitate to contact your nearest Dealer for clarification.
- All documentation provided constitutes an integral and important part of the product and must always be available to users.
- The instructions for use, maintenance and repair described in this handbook must be followed if the vehicle is to be considered as being operated in accordance with the manufacturer's intended uses.
- This manual assumes that the health and safety standards in the work place, in force in the place of use of the vehicle and of the equipment, are complied with.

- This Use and Maintenance Manual in the user's language, must be carefully stored on the vehicle at all times in an accessible and well known place to all users. If the manual becomes creased and/or, even partially, damaged or illegible or in case of loss of the manual, it must be replaced immediately by contacting the DIECI Technical Assistance Service, giving the details of the manual found in the "Introduction" chapter.

- Improper, incorrect, or irrational use of the vehicle or the equipment with which it is supplied as well as modification to its physical structure or operation is prohibited. A different use is strictly prohibited and relieves DIECI S.r.l. from responsibility for damage caused to persons, things or animals.

- DIECI S.r.l. is not liable for damage caused by negligent use of this vehicle or the equipment even if said damage is not a result of intentional improper use. Everything possible has been done during the design and construction phases of vehicles and equipment to make your job as safe as possible. Due caution, however, is indispensable and there is no better rule to prevent accidents.

- To correctly use the components and vehicle controls recalled in the following pages, refer to the specific use and maintenance manual of the vehicle.

- If the vehicle or the equipment must be used in particularly severe conditions (for example: In dusty environments or worksites, on argillaceous or muddy terrain), we advise consulting your nearest dealer for specific instructions. Failure to observe these instructions may result in the vehicle's guarantee being voided.



### WARNING

For your safety and the safety of others, do not change the structure or adjustment of the various components of the vehicle or equipment.



### NOTE

The right and left positions indicated in this manual refer to the view of the operator sitting in the driver's seat (looking forwards).

## 2.7 Equipment general warnings



### WARNING

**Only Equipment CE certified by the relative manufacturer can be used on Dieci vehicles, as well as equipment approved or falling within the technical limits set out by Dieci S.r.l.**

Before commissioning any kind of accessory make sure about its compatibility with the operating vehicle and about the calibration of the safety system related to the accessory used.

Dieci S.r.l. liability shall not be involved if equipment use or modifications do not comply with the above mentioned requirements.

## 2.8 Intended use

The vehicle or equipment described in this document must be used only for the purposes set out in this Use and Maintenance manual.

Adherence to and strict compliance with the terms of use, repair and maintenance, as specified by the Manufacturer, are essential elements covered by the intended use.



### WARNING

The vehicle and equipment must be used ONLY by trained and qualified personnel who is aware of the information contained in this Manual.

## 2.9 Contraindications for use

The vehicle or equipment must NOT be used:

- For recipients other than those listed in the "Recipients" chapter
- For uses other than those mentioned in this manual
- In environmental conditions other than those listed in chapter "Environmental Conditions"
- In use on the road, use the vehicle only if in possession of a valid driver's license in accordance with the regulations in force in the country of use
- Do not use the movable hydraulic parts of the vehicle to lift persons (except with special man baskets)



### NOTE

For any other use of the vehicle or equipment, other than those mentioned above, the Manufacturer will reserve the right to revise the terms of the warranty.

## 2.10 Declaration of first test

Manufacturer's declaration of first test

Dieci s.r.l. declares that each vehicle and equipment manufactured at its plants, before placing on the market, have been subjected to static and dynamic tests designed to verify proper operation and compliance with EU directives to which it is subject.

At the conclusion of the tests performed, the CE certification of the tested vehicle will be issued.

Each Dieci S.r.l. product with CE marking is provided with the related certificate, which must be kept by the rightful owner according to the requirements of law.

## 2.11 Liability

- The vehicles and equipment are built according to the EC Directives in force at the time of sale;
- Failure to follow the instructions for use and safety or the use of the vehicle in good working order can not cause accidents criminal offence;
- The manufacturer is not liable for damage caused to persons, animals or property resulting from improper use of the vehicle or equipment or from unauthorized structural changes, applications, and transformations;
- The Manufacturer also reserves the right to make any changes to the vehicle or equipment for any technical and commercial requirement without notice.

## 2.12 Manufacturer

Dieci s.r.l.

Via E. Majorana, 2/4

42027 Montecchio Emilia (RE) ITALY

Tax Code 01283560686 VAT No. 01682740350

Tel. +39 0522 869611 - Fax +39 0522 869744

email: info@dieci.com

## 2.13 Vehicle identification label

The identification label shows the main identification data of the vehicle.



### NOTE

Refer to the "Identification" chapter of the vehicle use and maintenance manual to know the position of the label in the cab.

**Dieci S.r.l.**  
T1a

1 → e??\*167/2013\*????? → 2  
 3 → ZNV????????? → 4  
 5 → A-1: ?????? kg  
 A-2: ?????? kg

	6 T-1	7 T-2	8 T-3
9 B-1	????? kg	????? kg	????? kg
10 B-2	????? kg	????? kg	????? kg
11 B-3	????? kg	????? kg	????? kg
12 B-4	????? kg	????? kg	????? kg

**DIECI** 13 Type:   Made in Italy  
 Via Ettore Majorana 2-4 42027 MONTECCHIO EMILIA (RE) - ITALY 14 Year:

1	Homologation number	.....
2	Chassis number	.....
3	Maximum mass	.....
4	Front axle maximum mass (First axle)	.....
5	Rear axle maximum mass (Second axle)	.....
6	Drawbar trailer	.....
7	Rigid drawbar trailer	.....
8	Central axle trailer	.....
9	Not braked	.....
10	Inertia braking	.....
11	Hydraulic braking (double and single flow)	.....
12	Pneumatic braking	.....
13	Type	.....
14	Year	.....

**DIECI** Via Ettore Majorana 2-4 MONTECCHIO EMILIA (RE) - ITALY

1 Tipo:

2 Numero di omologazione:

3 Numero d'identificazione:

4 Massa totale ammissibile:  kg

5 Carico ammissibile sull'asse anteriore:  kg

6 Carico ammissibile sull'asse posteriore:  kg

7 Massa rimorchiabile ammissibile

8 - Massa rimorchiabile non frenata  kg

9 - Massa rimorchiabile con frenatura indipendente  kg

10 - Massa rimorchiabile con frenatura ad inerzia  kg

10 - Massa rimorchiabile con frenatura assistita (idraulica e pneumatica)  kg

11 Massa totale a vuoto:  kg

12 Potenza:  kW

13 Anno di costruzione:

Made in Italy

1	Type	.....
2	Homologation number	.....
3	Identification number	.....
4	Total permissible mass (kg)	.....
5	Permissible load on the front axle (kg)	.....
6	Permissible load on the rear axle (kg)	.....
7	Unbraked towable mass (kg)	.....
8	Mass towable with independent braking (kg)	.....
9	Mass towable with inertia braking (kg)	.....
10	Mass towable with assisted braking (hydraulic and pneumatic) (kg)	.....
11	Total unladen mass (kg)	.....
12	Power	.....
13	Year of construction	.....

<b>DIECI</b>		Via Ettore Majorana 2-4 MONTECCHIO EMILIA (RE) - ITALY	
1	Tipo:	<input type="text"/>	Made in Italy
2	Numero di omologazione:	<input type="text"/>	
3	Numero d'identificazione:	<input type="text"/>	
4	Massa totale ammissibile:	<input type="text"/>	kg
5	Carico ammissibile sull'asse anteriore:	<input type="text"/>	kg
6	Carico ammissibile sull'asse posteriore:	<input type="text"/>	kg
7	Massa rimorchiabile ammissibile:	<input type="text"/>	
8	Massa totale a vuoto:	<input type="text"/>	kg
9	Potenza:	<input type="text"/>	kW
10	Anno di costruzione:	<input type="text"/>	<input type="text"/>

<b>1</b>	Type	.....
<b>2</b>	Homologation number	.....
<b>3</b>	Identification number	.....
<b>4</b>	Total permissible mass (kg)	.....
<b>5</b>	Permissible load on the front axle (kg)	.....
<b>6</b>	Permissible load on the rear axle (kg)	.....
<b>7</b>	Permissible towable mass (kg)	.....
<b>8</b>	Total unladen mass (kg)	.....
<b>9</b>	Power	.....
<b>10</b>	Year of construction	.....

To ensure a prompt and efficient service when ordering parts or when requesting information or technical clarification always specify the identification details.

Therefore we recommend to note the data relating to the accessory in your possession in order to safely and quickly identify them in the future, in case of need.

## 2.14 Certification and CE marking

The vehicle and related equipment are manufactured in accordance with the relevant EU directives and applicable at the time of its release on the market.

The analysis of all the essential safety health and requirements was carried out during the design and construction in order to verify the applicability and the consequent compliance. Where the analysis has detected an initial lack of conformity, the problems were corrected with appropriate solutions in order to satisfy these requirements.

Here following is shown a facsimile of the certification attached to the vehicle.



**DECLARATION OF CONFORMITY**



(Directive on Machinery 2006/42/CE, annex II, part A – EMC Directive 2014/30/UE, annex IV)

**Product model:** \*\*\*\*\*

**Name and address of the manufacturer:** DIECI S.r.l., Via E. Majorana, 2-4- 42027 Montecchio Emilia (RE), Italia

**This declaration of conformity is issued under the sole responsibility of the manufacturer.**

**Object of the declaration:**

The Telescopic Handler Type \*\*\* \*\* (\*\*\*\*\* ) Serial No ZNV\*\*\*\*\*

**The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:**

- Machinery Directive - **2006/42/CE**
- Electromagnetic compatibility" Directive - **2014/30/UE**
- Noise emission" Directive - **2000/14/CE** procedura allegato VIII

**The notified body Dir.2000/14/CE:** NB 0477 – EUROFINS Product Testing Italy srl - Via Cuorgnè 21, 10156 Torino

**Additional information:**

**Signed for and on behalf of:**  
Mr. ENNIO MANGHI  
to DIECI S.r.l. - Via E. Majorana, 2-4 - 42027 Montecchio Emilia (RE), Italia

Net installed power: \*\* kW

Level of acoustic power measured:  $L_{WA} = 10^* \text{ dB}_{(A)}$   
**Level of acoustic power guaranteed:**  $L_{WA} = 10^* \text{ dB}_{(A)}$ .

CE marks plate on the machine.

Montecchio Emilia, \*\*,\*\*,20\*\*

**DIECI SRL**  
Via E. Majorana, 2 -4  
Montecchio Emilia (RE)  
An Administrator  
Ennio Manghi



**Dieci Srl**  
Via E. Majorana, 2-4 • 42027 Montecchio Emilia • (Reggio Emilia) ITALY  
Tel. ++39 0522 869611 - Fax ++39 0522 869798 (Reception) - Fax ++39 0522 869797 (Amm.ne)  
**www.dieci.com** • E-mail: info@dieci.com

Cap. Soc. Int. Vers. € 10.000.000,00 Reg. Impr. R.E. N. 01283560686 R.E.A. R.E. N. 204278 - C.F. 01283560686 • P.I. 01682740350



## 2.15 Units of measurement and abbreviations used

DECIMAL METRIC SYSTEM (IS)		ENGLISH IMPERIAL SYSTEM (IMP)	
NAME	SYMBOL	NAME	SYMBOL
<b>SURFACE</b>			
square metre	m <sup>2</sup>	square foot	ft <sup>2</sup>
<b>ELECTRICITY</b>			
Ampere	A	Ampere	A
Volt	V	Volt	V
<b>FORCE</b>			
kiloNewton	kN	kiloNewton	kN
Newton	N	Newton	N
<b>FORCE FOR LENGTH - TORQUE</b>			
Newton-meters	N·m	pounds-inch	lb·in
<b>SURFACE FORCE - PRESSURE</b>			
kilopascal	kPa	pound/square inch	psi
<b>ROTATION FREQUENCY</b>			
Revolutions per minute	rpm	Revolutions per minute	rpm
<b>LENGTH</b>			
kilometre	km	mile	mi
metre	M	FOOT	ft
centimetre	cm	inch	in
millimetre	mm	inch	in
<b>GROUND</b>			
kilogram	kg	pound	lb
ton	T	pound	lb
<b>POWER</b>			
kilowatt	kW	horse power	HP
Watt	W	Watt	W
<b>TEMPERATURE</b>			
Celsius degrees	°C	Fahrenheit degrees	°F
<b>SPEED</b>			
kilometres per hour	km/h	miles per hour	mph
meters/second	m/s	feet/second	ft/s
<b>VOLUME</b>			
cubic metre	M <sup>3</sup>	cubic yard	yd <sup>3</sup>
		cubic inch	in <sup>3</sup>
litre	L	UK gallon	UK gal
<b>TIME</b>			
hour	H	hour	H
minute	Min	minute	Min
second	S	second	S
<b>VOLUME PER TIME</b>			
cubic metre per minute	m <sup>3</sup> /min	cubic foot per minute	ft <sup>3</sup> /min
litre per minute	l/min	UK gallon per minute	UK gal <sup>3</sup> /min
<b>SOUND POWER AND ACOUSTIC PRESSURE</b>			
decibel	dB	decibel	dB



## 3.1 Exclusions from the guarantee

The guarantee does not include:

- All consumables and those subject to normal wear and tear (e.g. batteries, clutch/brake discs, lubricants, filters, belts, fuel...);
- All consumables such as oil and liquids;
- Damages and/or breakages deriving from failure to comply with/implement the operations recommended in the periodic maintenance programs illustrated in the "Use and maintenance manual";
- Damage caused by incorrect repair carried out by unauthorised workshops/personnel;
- Damages for lack of production and/or loss of the product;
- Costs for the rental of a replacement vehicle during the vehicle standstill period for repairs under warranty;
- Breakage of all types of glass, windows (doors, rear window, windscreen).

## 3.2 Delivery and installation

The dealer has the obligation to perform a set of operations when the vehicle is delivered to the customer. These include a complete check to ensure that the vehicle can immediately operate, an explanation on the safety regulations and a detailed explanation on the instructions contained in the "Use and maintenance" booklet regarding use of vehicle controls, the vehicle maintenance, starting up and stop operations and the use of all the parts. All people who use the vehicle must participate in the training.

For the period of coverage of your vehicle, check the terms in the guarantee certificate.

The warranty consists in the restoration of the efficiency of parts that are unusable or inefficient due to factory defects through their replacement with original spare parts or through no-charge repair; the costs of transport/travel of the vehicle from the final customer to the dealer/importer and/or to its authorised workshops are excluded, and vice versa.

The warranty is valid only if the vehicle has been used correctly according to the manufacturer's instructions and has not been tampered with, and is immediately terminated if modifications and/or repairs to the vehicle are carried out by personnel not authorised by DIECI S.r.l..

The warranty also expires in the following cases:

- Failure to comply with, and carry out, the maintenance schedules and mandatory services prescribed by the manufacturer;
- Changes made without the manufacturer's consent;
- Repairs or maintenance carried out with non-original spare parts;
- Incorrect use of the vehicle;

- Carelessness, accidents, late notification of the defect, improper use of the vehicle, damage caused by prolonged use of the vehicle in conditions of declared failure;
- Improper use of equipment or their incorrect assembly;
- Use of lubricants/fuel with specifications other than those prescribed and recommended by Dieci S.r.l.

Dieci S.r.l. is not liable for damage to the vehicle caused by incorrect use or malfunctions of other equipment connected to the vehicle.

The warranty covers only damages and/or malfunctions of the vehicle without the user being able to claim damages for production losses, for presumed or proven damage to equipment connected to the vehicle itself.

## 3.3 Warranty: duration

Dieci S.r.l. guarantees its products for 12 months or 1500 hours from the date of delivery to the customer user or to the Dealer/Distributor.

If the vehicle is stored for long periods by the Dealer/Distributor at the time of sale to the customer, the Service Centre will reserve the right to verify warranty activation.

## 3.4 Warranty: commencement

The warranty is valid from the date the vehicle is shipped from the factory (sales to Distributors or Dealers). When delivery is handled by the Distributor or Dealer Dieci s.r.l. reserves the right to verify that the guarantee start date corresponds to the shipping or delivery date on the transport document of the product being guaranteed, and/or to the invoice date, and can request original copies of these documents.

## 3.5 Warranty: activation

The warranty is automatically valid from the date the vehicle leaves the factory (sale to Distributors or Dealers).

## 3.6 Warranty procedure

The correct use of the vehicle, associated with regular maintenance, can do much to prevent breakdowns. If, however, malfunctions should occur during the warranty period, the following procedure is recommended:



- Immediately inform the dealer from whom the vehicle was purchased, indicating the model and serial number. The end customer has the obligation to report any flaw or defect regarding the vehicle no later than 8 days from its discovery, under penalty of cancellation of the warranty;
- Give your dealer as much information as possible. So he can know the number of hours of service performed, the type of work you are doing and the symptoms of the problem.

Remember that normal maintenance operations, such as brakes/clutch setting up and adjustment, as well as the supply of materials used for servicing (oil, filters, fuel and antifreeze) are not covered by warranty.

## 3.7 Maintenance campaigns for faulty products

The replacement procedures of parts acknowledged to be faulty will be agreed upon by Dieci s.r.l and its distributors/dealers/authorized workshops.

These intervention campaigns can be followed directly by Dieci s.r.l. suppliers, who are responsible for supplying the components to be replaced (interventions authorized by Dieci s.r.l.).

The above interventions will be preceded by written communication from Dieci s.r.l. to its purchasers.

Only Dieci s.r.l can decide the intervention method (repair, replacement or modification).

## 3.8 Warranty: service request

### 3.8.1 Warranty: claim

The claim of the faulty part must be made by the Customer, Dealer, Distributor or Authorized workshop and must be sent directly to Dieci s.r.l. Customer Service within 8 days from when it is noted.

The claim must include a clear description of the defect and precise references to the vehicle and equipment (type, model, and serial number). This information can be found on the places indicated in the USE AND MAINTENANCE MANUAL.

### 3.8.2 Obligation of vehicle downtime

If there is a risk that the defect may jeopardize safety and accident prevention or may cause further damage, the vehicle or the equipment must not be used until it has been repaired and tested.

Any change made on the vehicle or equipment involves a reassessment of conformity with the Machinery Directive 2006/42/EC. This procedure also applies in the case of repairs with non-original parts.

In the event of any dispute, exclusive jurisdiction will be held by the Court of Reggio Emilia - ITALY.

## 3.9 Non-activation, failure to grant, termination

### 3.9.1 Warranty: failure to grant

The warranty is not granted:

- If the defect is not reported as described and within the established time limit.
- If the customer does not comply with Dieci S.r.l. request to return the faulty parts replaced during the repairs.
- If the customer has not complied with the obligation to stop using the vehicle after making a claim, limited to damages caused by noncompliance.

### 3.9.2 Warranty: termination

The warranty is terminated:

- If the buyer does not fulfil contractual payment obligations.
- If damage has been caused by carelessness, negligence, or by use of the vehicle for purposes not in compliance with specifications provided in the use and maintenance manual (incorrect manoeuvres, overloading, use of incorrect fuel, poor maintenance, disregard for warning indicator instruments etc.)
- If the defect is a result of applications, equipment, modifications or repairs not authorized by DIECI S.r.l. or carried out using poor quality parts. (For this reason, we recommend always using original spare parts).



### NOTE

Refer to the "MAINTENANCE" paragraph for information regarding recommended routine maintenance.

## 3.10 Final terms

In none of the cases regarding non-activation of the warranty, it not being granted or being terminated, the buyer cannot request the cancellation of the contract, or compensation, or an extension of the guarantee.

Any guarantee conditions other than those listed above must be agreed upon in writing and signed by both parties.

Unless agreed upon in writing by both parties; Dieci S.r.l. does not pay compensation for any type of claim caused by vehicle downtime, such as:

- Replaced or rented vehicles or equipment
- Labour
- Loss of profit

## 4.1 General warnings

The instructions for use, maintenance and repair described in this handbook must be followed if the vehicle is to be considered as being operated in accordance with the manufacturer's intended uses.



### DANGER

**THE VEHICLES AND EQUIPMENT MAY NOT BE MODIFIED WITHOUT PERMISSION OF THE MANUFACTURER.**

For your safety and the safety of others, do not change the structure or adjustment of the various components of the vehicle or equipment. The same applies to the deactivation or modification of the safety devices present. Any changes made to the vehicle or equipment, holds Dieci s.r.l harmless from any liability arising from damage or injury.

Every vehicle or equipment must be used, serviced or repaired only by persons who have received training in advance on the vehicle and on its safety regulations, in addition to being authorised to use the vehicle or equipment itself.



### NOTE

**The user must always observe the general safety regulations as well as those for accident prevention, such as traffic rules if the vehicle is used on public roads (according to the regulations in force in the country of use).**

**DO NOT USE THE VEHICLE OR THE ACCESSORIES IF YOU ARE UNDER THE EFFECT OF ALCOHOL, DRUGS OR IF YOU HAVE TAKEN MEDICINES THAT MAY MAKE YOU DROWSY OR MAY ALTER YOUR REFLEX AND REACTION TIME.**

Dieci s.r.l is not liable for damage caused by negligent use of this vehicle or the accessory even if said damage is not a result of intentional improper use. Everything possible has been done during the design and construction phases of vehicles and equipment to make your job as safe as possible. Due caution, however, is indispensable and there is no better rule to prevent accidents.



### DANGER

**THE VEHICLES OR EQUIPMENT IN QUESTION ARE NOT SET-UP FOR USE IN ENVIRONMENTS OR SITES EXPOSED TO THE PRESENCE OF EXPLOSIVE GASES, THUS USE IN THESE PLACES IS PROHIBITED.**

To operate in these environments, the Manufacturer must be contacted so that the necessary modifications can be made to the vehicle and/or equipment.

All functions and procedures concerning the operation and mounting of the vehicle or its equipment that are not described in this manual are strictly FORBIDDEN.



### WARNING

Read all of the safety stickers on the vehicle and on the equipment and observe all regulations printed on these stickers before starting up, running or refuelling the vehicle or before carrying out maintenance work. Immediately replace damaged, lost or illegible stickers. Clean them when they are covered by mud, concrete or debris.

- Do not use the vehicle or equipment without having first read and understood all parts of this manual, and without having attended an adequate training course.
- Do not use the vehicle or equipment when hands or shoes are wet or dirty with grease or greasy substances.
- Verify that all safety devices function before using the vehicle or the equipment. The operator must always maintain control of the vehicle and equipment state and operation.
- Use the audible warning device or other signals to alert people in the area before starting up the vehicle.
- Inspect check instruments immediately after start up, while the engine is hot and at regular intervals during use, in order to promptly recognise and resolve any malfunctions.
- Do not use the vehicle or equipment if a danger label or a maintenance in progress label is placed inside the cab.
- Do not carry passengers on the vehicle or in the driver's cab or on any other part of the vehicle (including man basket).
- It is prohibited to use the mobile hydraulic parts of the vehicle the lift people except when using the man baskets with relative personal protective equipment for the operator inside.

- Regardless of the user's experience, become familiar with the position and function of all controls and instruments in a work area free from obstacles and persons, before operating the vehicle or the equipment.
- Carry out all the described safety checks before resuming operations.
- While the vehicle is running, always keep light signals on. These serve to warn people that the vehicle is about to move.
- Always keep the safety distance adequate for the type of work and persons or objects in the work area. Always look in the travel direction and maintain good road visibility.
- Adjust movement speed based on the load carried and the type of ground; remain at low speeds to reduce the risk of the vehicle tipping over or losing the load.
- Do not drive with the brake pedal pressed.
- Do not use the vehicle force of impact to carry out tasks. These vehicles are not designed for said use; therefore, such use may cause vehicle overturning, damage, the breakage of components and attachments, or serious personal injury for the user.
- Always operate with the engine bonnet closed.
- Do not operate with the vehicle protective parts removed.
- When working in a congested area, designate one person to signal and coordinate the work zone.
- Make sure that everyone follows the directions given by the person in charge of signalling.
- Make sure to use signals that conform with the provisions in force in the country of use of the vehicle.
- For additional information with regard to the presence of a person in charge of signalling, consult the "Signals to multiple vehicles" chapter.
- When working alongside excavations or on the edge of the road or soft ground, keep at a safe distance as the vehicle may overturn.
- Designate a person on the ground to be in charge of signalling.
- Remember that after strong rains, the use of explosives or an earthquake, the ground is more fragile.
- When working on the upper part or inside buildings or other structures, verify their capacity and stability before starting operations. The risk of collapse exists and can cause serious injuries or damage.
- Working on a slope may be dangerous. The conditions of the terrain may vary according to climatic conditions (e.g. rain, snow, ice). Therefore, pay careful attention to the conditions of the terrain on which the vehicle is being used; the use of low speeds is recommended.
- Drive slowly on grass, leaves or wet steel slabs. Even when operating on slight slopes the vehicle may slip or lose balance with risk of tipping.
- Tipping conditions of the vehicle can vary depending on the features of the ground, environmental conditions and the type of work. Complying with all the safety instructions contained in this manual reduces risks for the vehicle and the operator in most operating conditions provided herein.
- It is forbidden to use the tractor if there is any risk of tipping that is not covered herein, as this manual contains an incomplete list.

## 4.2 Safety indications



### CAUTION

Carefully observe and follow all safety signals on the vehicle and on the equipment and read all safety messages in this manual.

- The safety messages in this chapter illustrate the basic safety procedures of the vehicles and equipment.
- The safety signals must be installed, maintained and replaced when necessary.
- If a safety signal or this manual is damaged or missing, order a replacement from the DIECI dealer in the same way in which spare parts are ordered (be sure to communicate the model and serial number of the vehicle or equipment when placing the order).
- Learn how to correctly and safely operate the vehicle and the equipment and their relative controls.
- Allow only trained, qualified and authorized personnel to operate the vehicle and installed equipment.
- Keep the vehicle, equipment and accessories in appropriate working conditions.
- Unauthorized modifications to the vehicle, to the equipment or accessories can jeopardize their operation and/or safety and influence their lifespan.
- In case of doubt, contact the manager before proceeding to operate or carry out maintenance work on the vehicle or on the equipment.

## 4.3 Personal protective equipment

In some cases, when working in particularly uncomfortable environments, adequate clothing or equipment must be worn.

It is mandatory for the operator, before starting to work, to learn from the safety manager or the site manager which are the possible risks of the work and which accident prevention clothes he must wear.



### CAUTION

**Always use PPE that is appropriate for the type of work to be performed.**

The Personal Protective Equipment used by the operators can have different characteristics, depending on the type of construction site and risks present in the work place.

**Keep the personal protective equipment in good conditions.**

Accident prevention clothes must always be intact and in good condition. Damaged clothing cannot ensure adequate protection. Do not wear damaged clothing; always replace damaged or torn clothing before operating the vehicle.



### DANGER

#### Danger of crushing

Pay attention to moving parts to avoid danger of crushing or dragging of the lower and upper limbs. Avoid wearing jewellery or pendants that might be trapped in moving parts.

Long hair must be tied back to avoid it being caught in moving parts.

Do not wear loose clothing, chains, belts or other accessories that may be caught in the control levers or in other parts of the vehicle or equipment.

### 4.3.2 Protect yourself against noise

Prolonged exposure to loud noise can damage your hearing or may cause hearing loss.

ICON	REFERENCE	DESCRIPTION
	ISO7010: M003	Wear hearing protection



### CAUTION

Always wear anti-noise earmuffs or earplugs to protect yourself from excessive and irritating noise.

### 4.3.1 Protective clothing

ICON	REFERENCE	DESCRIPTION
	ISO7010: M004	Wear protective goggles
	ISO7010: M008	Wear safety shoes
	ISO7010: M009	Wear protective gloves
	ISO7010: M015	Wear high visibility clothing
	ISO7010: M013	Wear a protective mask (for work in dusty environments)
	ISO7010: M017	Use a protective breathing apparatus (for work with dangerous substances)
	ISO7010: M018	Wear a safety harness

### 4.3.3 Protections against objects falling from height

ICON	REFERENCE	DESCRIPTION
	ISO7010: M014	Wear a helmet




### DANGER



#### Danger of falling objects

Use of a safety helmet is required if there is a risk of falling objects.

#### 4.3.4 Protect yourself from flying fragments

ICON	REFERENCE	DESCRIPTION
	ISO7010: M013	Wear a face shield



### WARNING

During operation in certain conditions, particles of material may be ejected. In such conditions, it is a good idea to wear protective goggles and clear the area of those people not in possession of such goggles.

## 4.4 Preparing for accidents

- Always be prepared in the event of a fire or an accident.
- Keep a fire extinguisher and first aid kit at hand. (Not supplied by the manufacturer, "optional accessories").
- Carry out periodic inspections to ensure that the first aid kit contains all necessary items; replenish content if necessary.
- To properly use the extinguisher, carefully read the instructions located on the extinguisher.
- Carry out periodic inspections and maintenance (six monthly) to ensure that the extinguisher is ready for use at any given moment.
- Create priority procedures to deal with fires or accidents.
- Keep emergency telephone numbers (doctors, ambulance, hospital and fire brigade) clearly visible and near the telephone.
- Adequately trained and educated personnel must be present for managing emergencies with adequate theoretical-practical course carried out on site.

Below are some First Aid procedures that can be activated in case of accident following use of the vehicle or equipment object of this use and maintenance manual.

These procedures may be useful in an emergency for the users or other operators present near-by, during use and various life phases of the vehicle or of the equipment (transport, installation, use, maintenance, adjustment, etc.).

#### 4.4.1 First Aider Tasks

1. Activate first aid (emergency call).
2. Evaluate the victim and, if necessary, support vital functions.
3. Stop an external haemorrhage.
4. Protect wounds and burns.
5. Protect the victim against further damages.
6. Do not perform unnecessary or damaging actions, such as giving beverages, moving the victim, reducing dislocations and/or fractures, etc.

#### 4.4.2 Emergency call

Good first aid intervention also depends on the timely arrival of rescuers (emergency medical support) to the place of the emergency.

This is why the first aider in charge of calling the emergency must precisely indicate:

- Address of where the accident or illness took place.
- Number of injured or ill persons.
- The possible cause of the event.
- The state of the vital functions of the injured party, specifying whether the same is conscious or not and breathes normally or not.

At the end of the call it is recommended to:

- Give own details, indicating a telephone number where to be contacted.
- Wait for rescuers in an easily accessible and visible location.

#### 4.4.3 Traumas

##### **Distortions, dislocations and fractures:**

Immobilize the joints in the position after the trauma, using bandages or splints, supporting the analgesic position of the injured party without attempting dangerous manoeuvres. Apply the cold (with bag of ice or other systems). In case of exposed fracture, cover the wound using a sterile gauze pad, after having pressed at a distance on the specific points the relative haemorrhage.

##### **Contusions, crushing:**

In case of contusions and/or crushing of ends of the upper and lower limbs (fingers, hand, feet, etc.) it is advised to immediately place the limb underneath running water (cold) and apply ice. Also check for wounds and/or cuts in the hit area and, if necessary, disinfect with the due precautions.



4.4.4 Haemorrhages

It is necessary to press the fingers on the haemorrhage point with sterile gauze pad, lifting the limb and eventually compress upstream of the haemorrhage with tourniquet. Wear protective gloves in case of contact with body fluids.

**Treating superficial wounds:**

Carefully expose and clean the wound, disinfect it with physiological solution, medicate it covering it with sterile gauze pads. Bandage avoiding excessive tightening to allow good circulation.

**Treating deep wounds:**

It is a priority to protect yourself against the risk of infection using gloves and splash shield; stop the haemorrhage by direct pressure or using other pressure points until it stops or the arrival of the ambulance. Call the medical emergency number, informing them that you are padding an arterial haemorrhage.

Treat the wound only after the haemorrhage is under control.



**CAUTION**

Do not use cotton wool, methylated spirit, antibiotic powder to disinfect the wound.

4.5 Preventing fires and accidents

4.5.1 Risks of fires



**DANGER**



**Danger of fire**



It is forbidden to smoke or use naked flames during use and maintenance operation of the vehicle and equipment.

**Do not operate the vehicle or equipment without the following safety conditions:**



**DANGER**

Fuel, oil and lubricant leaks can trigger fires and cause serious injuries.

- Ensure that there are no flammable liquids leaking.
- To avoid oil or diesel leaks, make sure that there are no loose or missing clamps, no twisted flexible pipes or that rub up against each other.
- Do not bend any pipes under pressure.
- Never install damaged pipes.
- Do not weld piping or pipes containing inflammable liquids.

- Do not use a torch head to cut piping or pipes containing inflammable liquids.



**DANGER**

Short circuits may cause fires.

- Ensure that there are no short circuits.
- Clean and interrupt all electrical connections.
- Check before each work shift that there are no loose, twisted, hardened or damaged electrical cables.



**DANGER**

Fuel, oil, grease, waste, deposits or accumulated dust or other components can cause a fire.

- Remove inflammable materials.
- Prevent fires by inspecting and cleaning the vehicle at every shift, by immediately removing inflammable components.
- Check the ignition switch: in the event of fire, failure to switch off the engine will obstruct the work of the Fire Brigade.
- Do not use naphtha, petrol or inflammable liquids to clean parts of the vehicle. Only use non-flammable detergents.



**DANGER**

Safely handle dangerous liquids

- Handle fuel with care, it is easily inflammable. If fuel is ignited, there may be an explosion and/or a fire.
- Do not refuel the vehicle while smoking and in presence of naked flames or sparks.
- Always stop the engine before refuelling the vehicle.
- Fill up the tank outside.
- All fuels, most lubricants and some anti-freezes are inflammable.
- Preserve the flammable fluids away from fire hazards.
- Do not burn or drill pressurized containers.
- Do not keep cloths soaked with lubricant; they may cause fires and spontaneous combustions.

4.5.2 Risks of inhaling gas



**DANGER**

**Exhaust engine gases are toxic and can cause damages to your health.**

If it is necessary to work in closed spaces, ensure it is sufficiently ventilated and equip the vehicle with special purifiers.

### 4.5.3 Risks of batteries exploding



#### DANGER

The gas of the batteries may explode.

- Keep any sparks, open flames or lit cigarettes away from the upper part of the battery.
- Never place a metal object between the clamps to check the battery charge. Use a voltmeter or a densimeter.
- Do not create sparks in the battery connection during recharging phases or starting the engine with auxiliary battery.
- Do not charge the batteries if they are extremely cold, extremely hot or damages as they might explode.
- The ideal temperature for the recharging of the batteries is 16 °C (60.8 °F).
- The electrolyte in the batteries is an extremely corrosive acid.
- Should the battery explode, the electrolyte may be sprayed in the eyes with the possibility of causing blindness.
- Ensure to be wearing protective goggles when carrying out maintenance on the batteries.
- Do not overturn or tilt the battery as acid could come out.

### 4.5.4 Residual risks



#### DANGER

**Damage may be caused by entanglement in moving parts.**

Keep away from moving parts.



#### DANGER

**Avoid burns.**

Stay away from hot parts.

#### Jets of hot fluids:

After operation, the engine cooling liquid is hot and under pressure. Contact with hot water or steam may cause serious burns.

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

#### Hot surfaces and fluids:

The engine, reduction gears and hydraulic system oil heat up during vehicle use. The engine, rigid and flexible pipes and other components heat up.

Wait until all components cool down before beginning maintenance or repair work.



#### DANGER

**Caution with pressurized fluids.**

Fluids such as fuel or hydraulic oil under pressure can penetrate the skin and eyes causing serious injuries.

Avoid these dangers while repairing or carrying out maintenance on the vehicle, discharging the pressures (using the hydraulic levers of the distributors) before disconnecting or repairing pipes and hydraulic parts.

Before restarting the engine, ensure that all fittings have been correctly tightened.

Use a piece of cardboard to check for any leaks; make sure your hands and body are adequately protected against pressurized fluids. Wear a face mask or accident-prevention goggles to protect your eyes.

Should there be an accident, seek medical attention immediately. Any fluids that penetrate the skin must be removed surgically within a few hours to avoid infections.



#### DANGER

**Electrocution**

All maintenance and/or adjustment operation on live parts must be carried out only and exclusively by qualified and adequately trained personnel.



#### DANGER

**Risk of slipping.**

During on-site operations, the areas around the equipment may have debris and liquid (oil, water, etc.) that might make the floor slippery. Pay the utmost attention.



#### DANGER

**Risk of falling, tripping.**

Pay the utmost attention when climbing in and out from the vehicle.



#### DANGER

**Crushing of hands and feet.**

The presence of moving parts during operation can cause risks for the ground operators. During vehicle movements, carefully check no unauthorized person is within the required moving area.



**4.5.5 Contact with dangerous substances**

- Wear the necessary protective clothing.
- Refer to the safety data sheet of the product used and take appropriate precautionary measures when using the product.
- Avoid contact with skin and eyes
- In case of contact with eyes: rinse them thoroughly with plenty of water for a few minutes keeping the eyelids open and seek medical attention.
- Should any fluid come into contact with skin, wash the area carefully, remove contaminated clothing, and when skin is dry, apply moisturising cream. Consult a doctor if necessary
- In the event of inhalation, move away from the contaminated area and go to a well-ventilated location. Consult a doctor in the event of respiratory problems.
- If swallowed: immediately contact a doctor, showing the label or container. Do not induce vomiting to avoid the risk of inhalation via respiratory passageways.

**Comply with the following precautions to store dangerous liquids:**

- All inflammable fluids must be stored in special containers, and the content of the containers must be clearly indicated. Containers must be tightly sealed.
- Store inflammable fluids in well-ventilated locations, far away from heat sources, sparks and open flames.
- Keep containers closed and covered. Other substances (e.g. foodstuffs) must not be present in this location.
- Always fill up the tank outside.
- Be careful of fumes and steam which may be formed by chemical products. Avoid inhalation.
- Do not breathe in fuel fumes.
- Ensure that these chemical products do not spill or flow into the ground, sewers or puddles. If necessary, inform the competent local authorities.
- In the event of a fire, use carbon dioxide, dry chemical powder, foam, sprayed water, sand, earth. Use jets of water to cool down surfaces exposed to the fire.
- Verify that there are no leaks of inflammable liquid (fuel, oil, grease, general lubrication leaks) in the storage containers.

**4.6 Storing dangerous liquids**



**DANGER**

**Flammable material danger.**

All fuels, most lubricants and some anti-freezes are inflammable.

Handle fuel with care, it is easily inflammable. If fuel is ignited, there may be an explosion and/or a fire.



**NOTE**

Refer to the safety data sheet of the product for additional precautions and warnings that are to be adopted.



**WARNING**

All fluids must be kept out of the reach of children and incompetent persons.

Different types of substances must not be stored or mixed together.



**DANGER**

**All chemicals are generally very harmful to health.**

Avoid contact with skin and eyes by wearing appropriate protective clothing; do not swallow.



**DANGER**



**It is forbidden to smoke and have open flames**



It is forbidden to smoke or to use naked flames near fuels.

## 4.7 Warnings for safe working

### 4.7.1 Ensuring the vehicle is clean

- Clean the windows, lights and wing mirrors (if installed).
- Clean dirt and waste away from the engine, articulations and radiator
- Make sure the cab steps and the handle are clean and dry
- Clean all safety stickers and manoeuvring instructions. Replace any stickers that are illegible or missing



#### WARNING

If the vehicle or equipment is not in perfect working order its operation is strictly prohibited.



#### NOTE

For the cleaning procedures, refer to the "CLEANING" chapter.

### 4.7.2 Checking for damage

- Make sure that there are no damaged or missing parts.
- Make sure that all articulated pins are properly fastened.
- Make sure that there are no signs of possible cracks or flaws or other damage to the windows (if installed).
- Make sure that there are no oil, fuel or cooling liquid leaks underneath the vehicle.
- Make sure that the wheel bolts are properly tightened.



#### WARNING

If the vehicle or equipment is not in perfect working order its operation is strictly prohibited.

### 4.7.3 Start working with the vehicle

Regardless of their level of driving experience, operators must familiarize themselves with the position and function of all controls and instruments before operating the vehicle.

- Before using the vehicle, check location of personnel.
- While the vehicle is running, always keep light signals on. These serves to warn people that the vehicle is about to move.
- When working in a congested area, have another person present for signalling.
- When manoeuvring the vehicle, pay attention to bulky vehicle parts. There are parts that jut out from the cab.

- Never use controls for purposes different than those for which they were created for; e.g. to climb on or off from the vehicle or hang clothing, etc...
- Only use the vehicle from the driver's position.
- The vehicle may move suddenly if started up without following the correct procedure, thus, creating the risk of personal injury.
- Start up the engine from the driver's seat only.
- Never start the engine by causing a short circuit between the terminals of the starter motor.
- Before starting the engine, make sure all control levers are in a neutral position.

### 4.7.4 Passengers transportation

Only the operator must be on board the vehicle, passengers are not admitted.

Passengers may obstruct the operator's view, causing an unsafe operation of the vehicle.



#### WARNING

Carrying people on or lifting people up with the vehicle is strictly prohibited unless the vehicle is equipped with an elevation work platform and has a special certificate of conformity regarding the transport of people.

It is strictly forbidden to transport persons inside the basket while the vehicle is moving even in the presence of elevation work platform and certificate of conformity. It is compulsory to use the man basket only with the parking brake engaged and the outriggers lowered (if present).

**4.7.5 Electrical system protection**

A burnt fuse must be replaced with another fuse of the same type, amperage and class.

Other types of procedures are not allowed, even if temporary. Do not connect or remove clamps, fuses, or connectors when the vehicle is switched on or electrically powered.

Any intervention on the electric system must take place with the vehicle not powered electrically. Restore the power supply only after the intervention has been concluded. Remount the lids and protections.

- Use the battery isolation switch to cut off power to the vehicle.
- Cut off power by means of the battery isolation switch even before replacing the vehicle battery.
- In the event that a connector is damaged or is no longer inserted in its housing, replace it immediately in order to avoid short circuits or sparks.

Damaged, pinched or burnt cables must be replaced immediately even if damage is only to the sheathing or outer insulation.






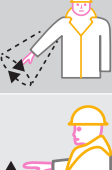



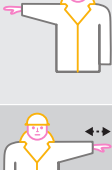


- Never carry out or interrupt any connection on the load circuit, including connections on the battery, with the engine running.
- Never ground (earth) short circuit any charging component.
- Do not use an auxiliary battery with nominal voltage exceeding 12 volt.
- Make sure the polarity is correct when putting in the battery or when using an auxiliary battery when starting the vehicle with cables. Follow the use and maintenance instructions of the manual when starting up the vehicle with cables.

**4.7.6 Signals to multiple vehicles**

When working requiring more vehicles, give signals normally known to all employed personnel. Designate one person to signal and coordinate the work area.

**Before operating make sure that:**

- The user and signaller are aware of the hand signals to be able to interact between them
- Everyone follows the directions given by the person in charge of signalling
- The signaller must be easily identified by the user of the vehicle
- The signaller must wear or hold one or more adequate recognition elements, like: jacket, helmet, sleeves, bracelets, signal paddles
- The recognition elements must be bright coloured, preferably of a single colour, and reserved exclusively for the signaller.

MOVEMENT	MEANING	DESCRIPTION
	Start - Caution - Order taking	The two arms are open horizontally, the palm of the hands forward
	Stop - Interruption - End of motion	The right arm is stretched upwards, with palm of right hand forward
	Danger - Stop - Emergency stop	Both arms stretched upwards
	End of operations	The two hands are joint at height of chest
	Lift	The right arm, stretched upwards, with palm of right hand forward, makes a circle
	Lower	The right arm, stretched downwards, with palm of the hand towards the body, makes a circle
	Vertical distance	The hands, one on top of the other, indicate the distance
	Horizontal distance	The hands, one next to the other, indicate the distance
	Forward	Both arms are folded, the palms of the hands backwards and the forearms make slow movements towards the body
	Move back	Both arms are folded, the palms of the hands forward and the forearms make slow movements away from the body
	To the right compared to operator	The right arm, stretched horizontally, with palm of right hand downwards, slowly makes small movements towards the direction where to move
	To the left compared to operator	The left arm, stretched horizontally, with palm of left hand downwards, slowly makes small movements towards the direction where to move

MOVEMENT	MEANING	DESCRIPTION
-	Quick motion	The conventional signals used to indicate movements are quickly made
-	Slow motion	The conventional signals used to indicate movements are made very slowly

#### 4.7.7 Working with the danger of falling masses and objects

When working in areas where there is a risk of falling, bouncing or interference from objects capable of hitting the operator or entering the cab:

- Always close the windows.
- Always ensure that other operators near-by are at a safe distance and cannot be hit by bouncing or falling objects.
- Never carry out work operations under an overhang; this could give way and fall onto the vehicle.
  
- When working from the cab:
  - Mount suitable safety panels to protect the operator.
  
- Always close the windows.
- Pay careful attention to crumbling walls, landslides, falling material or objects from the installed equipment, that may hit the cab, the protective structure or windows, causing damages to the vehicle and to the operator.
- Do not excessively weigh down or fill the installed equipment or transport loads that may come out or fall on the ground.
- When working from the man basket:
  - Install optionals on the basket such as the roof to provide additional protection to the operators.



#### **DANGER**

##### **Danger of falling objects**

Use of a safety helmet is required if there is a risk of falling objects.

#### 4.7.8 Working near electrical lines

Before working near overhead electrical lines, check that the safety distance is sufficient, in compliance with the current Standard in the country of use. In any case, never work near electrical lines at distances shorter than those in the table below or at the minimum distances indicated by the Standards in force in the country of use of the vehicle and of the equipment.

Damp ground may increase the risk of electrocution.

Operating or parking the vehicle too close to electrical cables leads to increased risk of being struck by lightning or being seriously injured.

Designate someone on the ground to signal when too close to electrical cables.

Do not allow anyone near the vehicle when working in the vicinity of electrical cables. To prepare for any possible emergency situation, wear rubber shoes and gloves, cover the seat with a rubber piece of fabric and take care not to touch the chassis with any unprotected body parts.



#### **DANGER**

##### **High voltage danger**

Should the vehicle or the equipment installed on it collide with an electrical cable, the user, to avoid electrocution, must remain inside the driver's cab until certain that the electrical power supply has been properly disconnected.

If operating close to overhead electrical lines, check the safety distance in the table below, reported in the Italian Legislative Decree 81/08 Enclosure IX. The table is valid if the vehicle is used on Italian territory. However, refer to the Standards in force in the country of use of the vehicle and equipment.

UN (KV)	DISTANCE
≤ 1	3 m (9.84 ft)
1 < Un ≤ 30	3.5 m (11.48 ft)
30 < Un ≤ 132	5 m (16.40 ft)
> 132	7 m (22.96 ft)

#### 4.7.9 Working under the snow

Snow can hide obstacles and objects, and cover holes, dug-out areas and ditches, therefore, proceed with caution.



#### WARNING

Operation of the vehicle if the quantity of snow does not allow for clear distinction of obstacles and possible dangers along the path, is strictly prohibited.

- Take care when clearing snow and do not venture off the main road; that which is hidden at the sides of the road may cause vehicle overturning or damage to various components.
- Surfaces covered by snow or ice are extremely dangerous. Operate with caution, reducing vehicle speed as much as possible and engaging levers slowly.
- Operate with caution. If the vehicle should sink into the snow, it may overturn or remain buried. Do not venture from the road and avoid remaining entrapped or buried under heaps of snow.
- Extra care should be taken, when working on icy terrain. The ice will melt as the temperature rises and the ground will become slippery.
- Use caution in the presence of electrical cables, ditches, or freshly excavated or worked ground.
- Make sure not to cause risk to others in the area when backing up the vehicle.
- Always check the space around the vehicle before carrying out any manoeuvres



#### NOTE

If working the vehicle at temperatures below -10°C (14°F), empty and refill the tank using lubricants, fuel or cooling liquids suitable for such temperatures.



#### NOTE

There are accessories that can be used to facilitate working with ice or snow, contact your dealer or agent.

#### 4.7.10 Working with scarce lighting



#### CAUTION

**The standard illumination of the vehicle is not suitable in working conditions with poor visibility or for use at night.**

The vehicle can only be used with sufficient lighting in the work area.



#### NOTE

There are several ways to improve visibility in conditions of poor lighting. Contact your DIECI local dealer.

#### 4.7.11 Working in closed areas or dangerous atmospheres

**It is FORBIDDEN to use the vehicle in:**

- Suitably ventilated closed spaces, that are nevertheless not compatible for the use of equipment with running endothermic engines.
- Spaces with dangerous or explosive atmospheres.
- Protected environments such as refineries.



#### CAUTION

**The vehicle must be appropriately modified and certified to work in environments with an explosive atmosphere.**

The vehicle can only be used in a tunnel if it has been declared suitable for these environments.

#### 4.7.12 Reduce vibrations

Consider the following recommendations to reduce the vibration exposure of the operator:

- Always use the appropriate equipment for the job to be carried out.
- The driver's seat must be properly adjusted to suit the operator needs. Inspect and if required repair the suspensions and the regulation mechanisms of the seat.
- Make sure that the vehicle is kept efficient, perform vehicle maintenance as prescribed in this manual.
- Steer, accelerate, brake, shift gears, move the tool in a non-abrupt way.
- During transfers adjust the speed of the vehicle to minimize the level of vibrations. Reduce speed to avoid the risk of jolting. Transport the vehicle in the event of significant distance between job sites.

- Maintain the workplace in good condition, remove stones and obstacles, fill depressions or holes etc.
- To avoid back pain problems, use the vehicle only in good health.
- Take breaks so as to reduce the time of sitting in the same posture.
- Do not exit the cab or go out of the vehicle with a jerk.
- Avoid to lift and move loads repeatedly.
- Further recommendations to reduce vibration when working with man basket:
  - Use the controls smoothly.
  - Do not make any sudden movements on the man basket.
  - The vibrations generated by the vehicle are not a source of risk when using the basket.

## 4.8 Working in windy conditions

Wind speed variation can cause a number of problems including the loss of vehicle stability, load oscillation, and a decrease in visibility due to dust, leaves, etc.

Adverse factors to vehicle use are:

- Location of the work site, the aerodynamic effect of buildings, trees and other structures influence wind speed.
- The height of the extended boom: the higher the boom is raised vertically, the higher wind speed becomes.
- Load bulk area: the more space the load occupies, the more the wind force is felt.

### Strong wind

DIECI telehandlers can be used up to a wind speed of 45 Km/h, equal to 12.5 m/s (No.6 on the Beaufort scale) measured on the ground.

At 10°C temperature, wind with a speed of 32 Km/h it seems that exposed parts of the body have a temperature of 0°C. The higher you climb the faster the wind speed and the more the sensation of pressure drop increases.



### WARNING

#### Strong wind danger

In the presence of strong winds (no.5 Beaufort scale) never lift loads with surfaces exceeding 1 m<sup>2</sup>.

Below you can find the graph of the Beaufort scale for an indication of the wind speed with which you are working and when to suspend operations, if wind speed should exceed determined values.

BEAUFORT WIND SCALE			
No.	Definition	Indicators	Speed (m/s)
0	Calm	Smoke rises vertically	0- 0.2
1	Light air	Smoke drift wind direction	0.3 - 1.5
2	Light breeze	Wind felt on exposed skin. Leaves rustle; vanes begin to move	1.6 - 3
3	Gentle breeze	Leaves and small twigs constantly moving; light flags extended	44684
4	Moderate breeze	Dust and loose paper raised. Small branches begin to move	44778
5	Fresh breeze	Small trees in leaf begin to sway; glassy water, small waves form	44873
6	Strong breeze	Large branches in motion. Whistling heard in electrical cables. Umbrella use becomes difficult	41944
7	Strong wind	Whole trees in motion. Effort needed to walk against the wind	14 - 17
8	Fresh gale	Some twigs broken from trees. Cars veer on road	17 - 21
9	Strong gale	Slight damage to buildings (falling chimneys and tiles)	21 - 24

## 4.9 Assessing the consistency of the work ground

The ground on which the vehicle can be positioned must be able to support the vehicle and its maximum bearing capacity.



### DANGER

#### Danger of tipping

The sinking of the vehicle base support may cause the vehicle tilting.



### CAUTION

**Contact a qualified technician to assess the consistency of the ground according to the regulations in the country of use of the vehicle.**

Request in any case the advice of a qualified technician to know whether in the workplace, there are hidden cavities (pipes, wells, old tanks, basements, manure, etc...).



### NOTE

Refer to the "Technical data" chapter in the manual of the vehicle, to know the maximum load that each wheel or outrigger (if any) can apply on the ground while using the vehicle.



### DANGER

**When loading or unloading goods, the vehicle must always be in a horizontal position.**

Avoid loading or unloading operations if the vehicle is slanted.



## 4.10 Moving safely



### NOTE

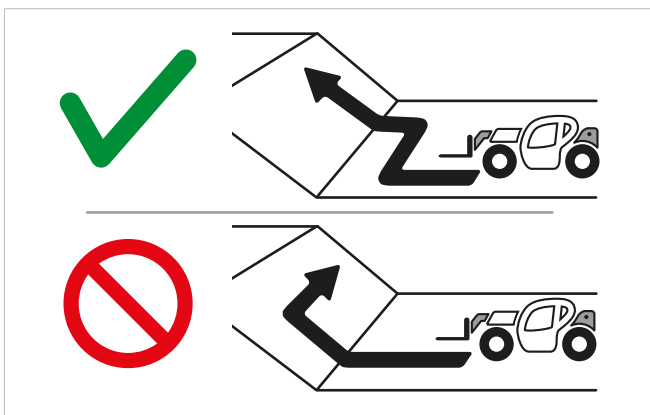
The following operations are standard for any type of installed equipment; however, refer to any warnings present in the equipment manual.



### WARNING

In the event of scarce visibility, have a person operate on the ground for signalling.

Do not lift or lower the loads when the vehicle is in motion.



Operating on sloped terrain can cause overturning or sliding. Move forward and brake gradually and take all necessary cautions.

Always move in a straight line to go up or down a slope. Moving transversally or along the slope is extremely dangerous (see figure).

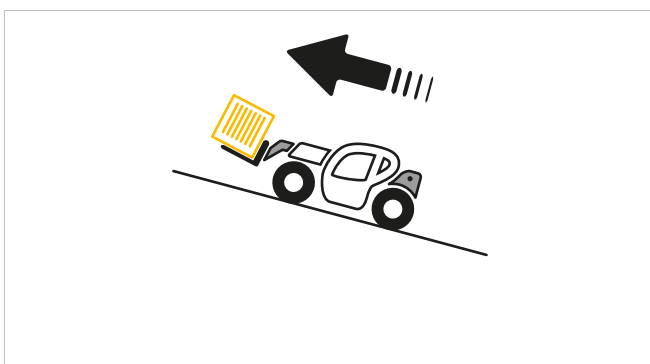
Always use the parking brake when setting down or lifting a load on a slope.



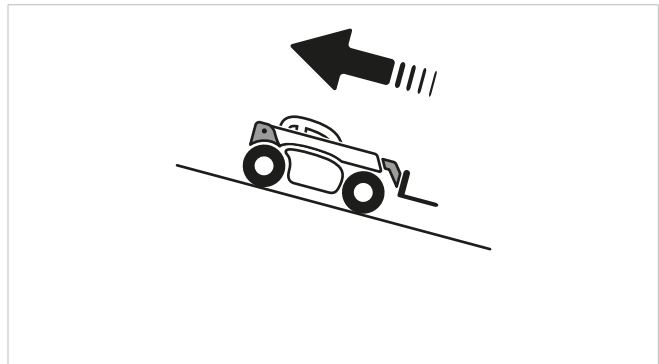
### WARNING

**Check the vehicle is levelled before using the boom on sloped ground.**

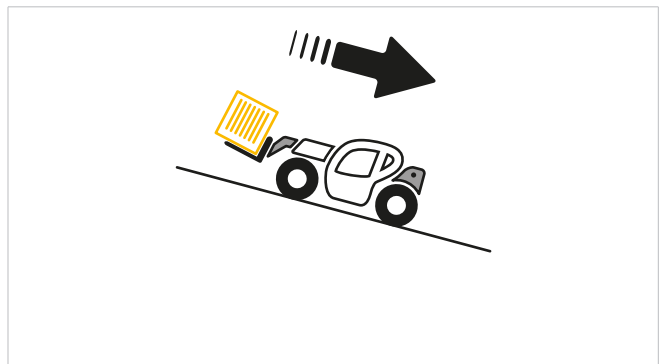
Do not stop and leave the vehicle parked on a slope exceeding 15%, even with the parking brake engaged.



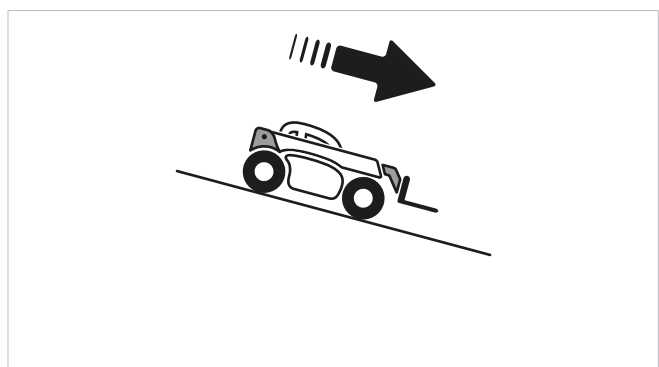
- In the event of having to travel uphill while transporting a load, operate always maintaining the load towards the top of the uphill (see figure).



- When having to drive uphill without a load, operate with the vehicle facing downhill (see figure).



- When having to drive downhill while transporting a load, operate with the load facing uphill (see figure).



- When having to drive downhill without a load, operate with the vehicle facing downhill (see figure).



## 4.11 General warnings for moving the load

Always adhere to safety regulations; always transport balanced, properly arranged load to prevent the risk of tipping.

### CAUTION

**It is strictly prohibited to work without the respective load charts for the equipment and the vehicle.**

When using this vehicle, carefully follow the load charts of the vehicle with the equipment mounted at that moment.

Do not attempt to carry out operations which exceed the capacity of the assembled equipment or of the vehicle.

Do not modify the structure and vehicle stability in any way by trying to add counterweights, whichever artifact is used.

Always ensure the pallet, the boxes and other supports for the load are in good conditions and adequate to the load to be lifted; the sudden collapse of a rack of material is often caused by a faulty pallet.

#### Do not move the load with boom lifted or extended.

- Handle the vehicle with the boom raised only in exceptional circumstances. In these circumstances, operate with due prudence, reduce speed as much as possible and brake delicately. Make sure that visibility is always sufficient and ask an operator on the ground to guide you for the operations.
- Reduce the speed as much as possible and brake gently during handling operations.

### WARNING

Do not handle loads while the vehicle is moving.

Avoid passing over unstable objects. Remove dangerous, unstable objects instead of passing over or around them. Also avoid holes and ditches that might make the load jolt.

Before turning, slow down as much as possible, and monitor the load.

Do not change direction abruptly or at high speed.

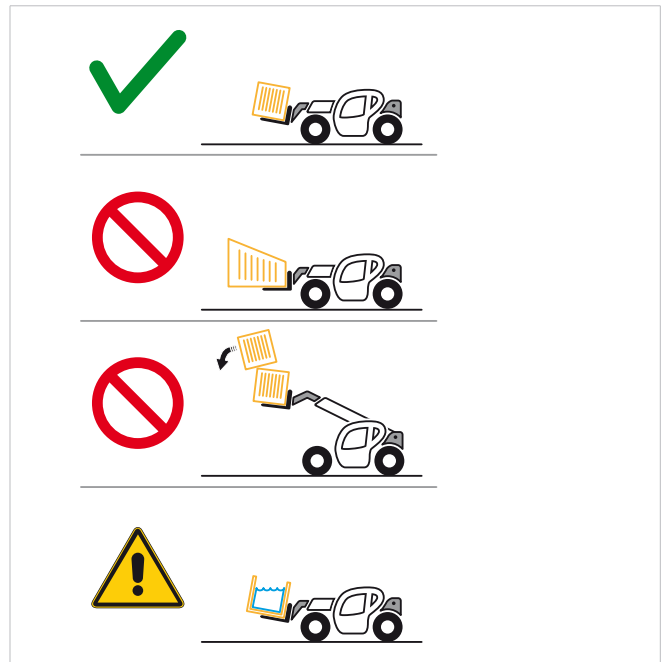
Remember that hydraulic steering is very sensitive to steering wheel movements; steer gradually and avoid sudden movements.

Slow down before turning.

Pay attention to the side space, in particular if transporting wide loads. If possible, keep to the centre of the passage to avoid equipment or personnel from obstructing your path.

### WARNING

Handle loads with care, at low speed and without sudden or jolting movements, above all if they are carried at great heights.



- Always ensure good visibility in the work area, including direct vision and visibility using wing mirrors in order to check for the presence of people, animals, obstacles, holes and changes in slope etc.
- Decrease the working speed of the vehicle in case of rain, fog, snow or in any case where visibility is reduced.
- If visibility on the right side is limited during boom operation, before lifting the load, ensure that the work area is clear and make note of the position of any possible obstacles and irregularities in the terrain.
- Always make sure there is good visibility (clean windows, clean mirrors, clean lights that work properly, etc.).
- Maintain control of the vehicle and its speed in all circumstances. The speed of the loaded vehicle must never exceed 10.0 Km/h (6.21 mph). If the load exceeds the maximum allowed load by 50%, vehicle speed must be reduced to 5.0 Km/h (3.11 mph).
- Do not drive in reverse for long distances.
- Brake gradually; avoid braking abruptly.
- Always maintain the safe distance from other vehicles in order to have sufficient space to brake in every condition.



## CAUTION

Before lifting loads, operators must be familiar with the weight of the load and its centre of gravity.

- Transport the load as close as possible to the ground. Keep the load low, at a height from the ground of 300 mm. Never move with the load lifted more than necessary.
- The load charts are valid for centres of gravity of standard loads. For particular loads, contact your dealer.
- Pay the utmost attention during transport of loads with variable centre of gravity (e.g. Liquids). Operate with caution in order to limit such variations and to prevent the risk of vehicle overturning.
- Always ensure the moved load is correctly balanced and cannot fall on the ground. The loss of the load or part of it can entail a danger of damage to things and persons
- Pay the utmost attention to objects that may fall. Ensure there are no unstable objects on the upper part of the load.



## WARNING

**Never lift a load when the vehicle is on a sloped surface. When on a sloped surface, pay attention to the conditions of the ground. When working with the vehicle on a sloped surface with the load high, a jolt or a hole is sufficient to make the vehicle overturn.**

Do not move the boom if the vehicle is located on terrain with a slope greater than 2° (3.5%).

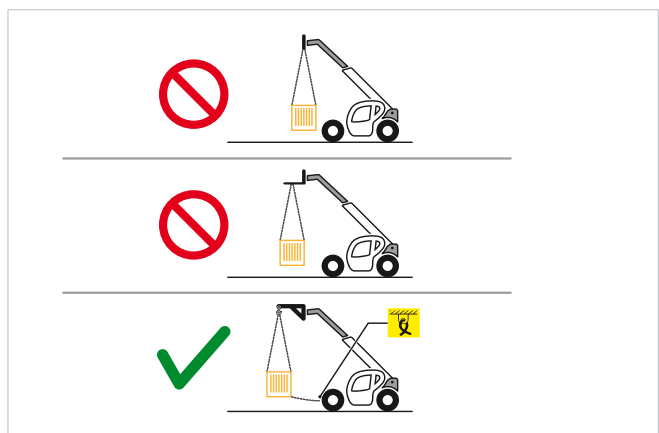
## 4.12 Use of cables, ropes and slings



### DANGER

**It is strictly forbidden to lift or move load fastening ropes or chains only to the vehicle's attachment holding plate, to forks or to any other equipment not designed for this purpose.**

Various equipment set-up for lifting, provided with suitable hooks for the use of cables, chains and straps are available. For further information contact your DIECI dealer.



To keep the suspended load from swaying while being handled, the load can be fixed to the anchoring eyebolts of the vehicle while being transported.

## 4.13 Road travel

### 4.13.1 Road travel warnings



#### CAUTION

Before starting the road travel make sure to observe the relevant laws and regulations in the country of use.

The road travel requirements are shown on the Vehicle Registration Document.

Low beam lights must be on even during the day and in streets where there is no obligation to use visual and lighting signalling devices.

Ensure correct operation and cleaning of headlights, direction lights and windscreen wipers.



#### WARNING

**Check the correct position of the wing mirrors.**

The objects seen through the wing mirror are closer than they appear.

When driving on the road and/or on a slope it is necessary to be very careful to the engine rpm. A high number of rpm can lead to mechanical failures. Keep under control the engine rpm and speed.

Pay particular attention to loading docks, trenches, scaffolding and land recently excavated or filled.



#### CAUTION

When driving downhill on icy or slippery grounds, engage the slow mechanical gear (turtle).

### 4.13.2 Road travel instructions

- Level the vehicle so that the wheel axles are aligned with the chassis (if present).
- Ensure that all outriggers have been perfectly retracted and raised (if present).
- Close the telescopic boom completely.
- Lower the telescopic boom completely and then raise it slightly to about 20-30 cm from the ground.

- Check the correct operation of the lights before moving on roads. Check that the rotating light for slow vehicle signalling is installed and running; keep the rotating light in operation both at day and at night.
- Perform the wheels alignment, so that they are perfectly aligned with the vehicle chassis.

- **It is mandatory** to arrange the steering as reported in the Vehicle Registration Document and lock the selector lever with the dedicated device.
- Make sure that the amount of fuel is sufficient.
- Assemble all the accessories required for road circulation depending on the country in which the vehicle is operating.
- Install an overhanging load signal panel on the boom head before the entering onto the road.

- Always evaluate the road to be travelled, taking account of suspended structures (e.g. bridges, underpasses, etc.) that could be damaged by the vehicle.

- In some countries it is mandatory to place wheel chocks under the tyres when the vehicle is stopped.

- Make sure that your vehicle is in compliance with local legislation in reference to the presence of the license plate when travelling on the road both at day and at night.



#### WARNING

Road transfer with equipment assembled to the fork holding plate is not allowed except those accepted by the legal authority of the country where the vehicle operates.

**It is not allowed to travel on public roads with loaded vehicle.**

Comply with the maximum permissible mass written on the vehicle registration document.

## 4.14 Momentary stop



### CAUTION

If it is necessary to leave the driving position, follow the steps in the "Parking the vehicle" paragraph.



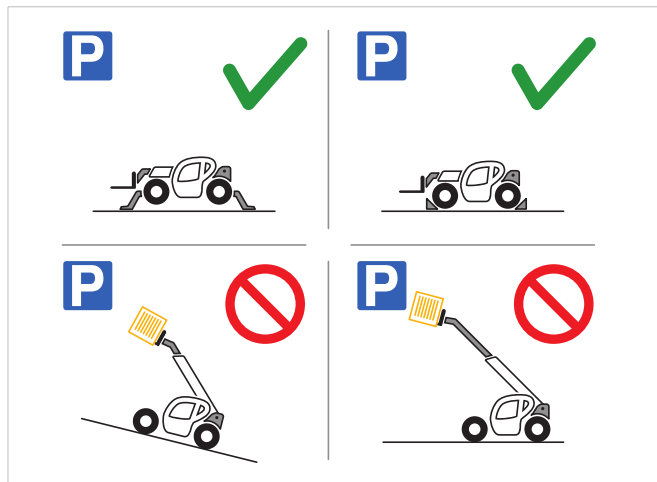
### WARNING

Never move away from the vehicle, leaving the engine running or the ignition key on the vehicle.

Do not stop and leave the vehicle parked on a slope exceeding 15%, even with the parking brake engaged.

- Gradually release the accelerator pedal.
- Stop the vehicle on even ground.
- Engage the parking brake
- Bring the movement selection lever to "N".
- During the running-in of the vehicle (50 h), do not keep the diesel engine at minimum revs for too long.

## 4.15 Parking the vehicle



Never leave in any case the vehicle parked with a raised load.

- Always park on flat, firm and level ground, where there is no risk of falling rocks, landslides or flooding.
- Lower outriggers to the ground (if present).
- Retract the boom completely and lower it to the ground.
- Engage the parking brake
- Bring the movement selection lever to "N".
- Run the engine at idle speed for some seconds before turning it off, in order to allow the engine cooling.
- Turn the ignition key to the engine stop position.
- Remove the key from the ignition switch.
- Lock the hydraulic controls with the special devices (if present).
- Close the windows and lock them with the handles.
- Close the cab door by key.
- Place wedges under the wheels.
- Make sure that the vehicle is parked so as not to impede its movement and at least 5 meters away from the railroad tracks.



### WARNING

Do not stop and leave the vehicle parked on a slope exceeding 15%, even with the parking brake engaged.

## 4.16 Starting and stopping the vehicle

### 4.16.1 General warnings regarding starting up the vehicle



#### WARNING

Do not use the vehicle without having first read and understood all parts of this manual, and without having attended an adequate training course.

- Before starting the engine, make sure all control levers are in a neutral position, the parking brake is engaged, the engine bonnet is closed and that there is nobody in the area surrounding the vehicle.
- The vehicle can only be started up or manoeuvred when the operator is seated in the driver's seat, with the seat belt fastened and adjusted.
- The vehicle may move suddenly if started up without following the correct procedure, thus, creating the risk of damage.
- Never start the engine by causing a short circuit between the terminals of the starter motor.
- Never start-up the engine by pushing or pulling the vehicle. This could seriously harm people or cause serious damage to the vehicle.
- Be careful when using auxiliary batteries as the gas contained in these may explode, causing serious damage. Follow the instructions provided in the "Emergency procedures" chapter, "Start-up using auxiliary batteries" paragraph to start the engine using auxiliary batteries. An incorrect procedure can cause serious damage to the electrical/electronic system, the vehicle could move suddenly, the battery could explode and damage could be caused to objects and/or people.
- Do not start the engine or touch the levers of the vehicle if a danger sticker or a maintenance in progress sign is placed inside the cab.

### 4.16.2 Inspections prior to starting-up

#### 4.16.2.1 Inspecting the vehicle

Carefully inspect your vehicle every day or before every shift.

Carry out the following inspections and operating checks:

- Parking brake efficiency
- Intact condition of the tyres
- Type of tyre suitable for the type of work ground
- Engine oil level (check and top-up, if necessary)
- Hydraulic oil level (check and top-up, if necessary)
- Air filter clogging indicator (check and clean, if necessary)
- Tyre inflation and pressure (check)
- Fuel level (check)
- Signalling and warning devices (check)
- Steering efficiency
- Service brake efficiency
- Tightness of all nuts and bolts
- Lighting
- Direction indicators
- Emergency Lights
- Switches
- Indicator lights
- Windscreen wipers
- Reverse buzzer/alarm
- Position and condition of wing mirrors



#### DANGER

**Immediately stop using the vehicle in case of malfunctions or if it does not comply with safety standards.**

Contact an authorized DIECI workshop if the vehicle shows malfunctions. Refer to the "Maintenance" chapter for information regarding routine maintenance.



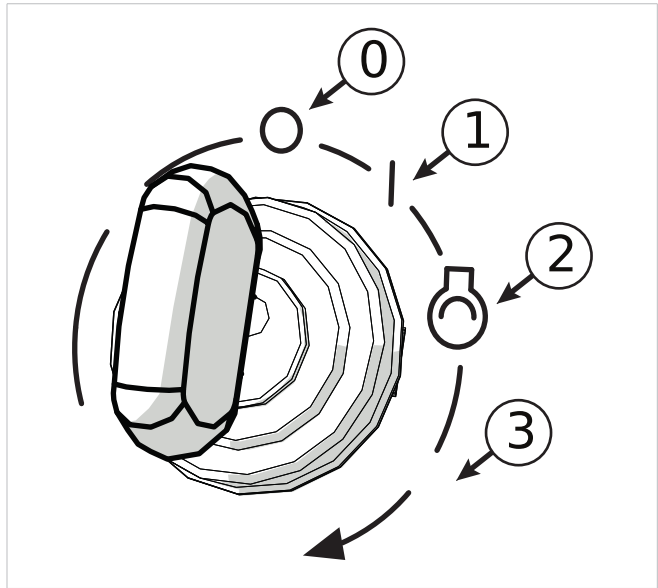
#### NOTE

A thorough inspection is required if the vehicle is not used for a prolonged period of time. A detailed description of the operations is provided in the "Vehicle storage" chapter

#### 4.16.2.2 Inspecting the work area

- Examine the work area when working at the edge of an excavation or on soft ground as the vehicle could overturn.
- Examine the conformation and condition of the terrain of the work area before beginning to operate.
- Keep the vehicle well away from the edge of the excavation and the side of the road.
- When working on a slope or near the roadside, have another person present for signalling.
- Pay utmost attention when working on icy ground. The ice will melt as the temperature rises and the ground will become slippery.
- Check for any overhead electrical lines or underground pipes.
- Do not work in places at risk of landslides or falling rocks.
- Take due precautions to prevent any unauthorized persons from entering the working area.
- When moving through or operating in shallow water or soft ground, verify the shape and the conditions of the land, the water depth and flow rate before beginning the operation.

#### 4.16.3 Starting-up the engine



**Proceed as follows to start-up the engine of the vehicle:**

1. Press the parking brake switch.
2. Bring the movement selection lever to neutral.
3. Remain seated in the driver's seat.
4. Turn the ignition key clockwise to position "1".

With the key in this position:

- The control panel and dashboard will be powered
- An audible warning device will be activated, indicating that the key has been inserted. This audible warning device also serves to warn any persons in the surrounding area that the vehicle has been started up.
- A check-up of the instrumentation will be performed with all the indicators lighting up for about 5 seconds. Only the following lights must remain switched on at the end of the check-up:
  - Engine oil pressure warning light
  - Battery charge indicator light
  - General alarm warning light
  - Intermittent buzzer
  - Other indicators of activated functions (e.g.: Parking brake, gears engaged, etc.)



#### **WARNING**

**If other indicators remain on signalling malfunctions or if one of the previous conditions does not occur, do NOT start-up the engine and refer to the "Maintenance" chapter or contact the DIECI service centre.**

- Turn the ignition key to position "3" to start-up the engine. Release the starter within 5 seconds.

- Release the key once the engine has started. The indicators related to the engine oil pressure and battery charge must go off once the engine is started up.
- If the engine does not start within 5 seconds, try again at regular 15 second intervals to prevent overloading the starter motor.

#### 4.16.4 Warm-up after starting-up

During the first few minutes of use, keep the speed slow in order to warm up the engine and hydraulic oil.



### WARNING

**Serious damage can be caused to the engine and the hydraulic system if the engine reaches high rpm before the operating oil temperature and pressure levels are reached.**

Let the engine run at 1100 - 1300 rpm for about 5 minutes so as to bring the engine oil to the operating temperature, particularly, with outdoor temperatures below 0 °C.

#### 4.16.5 Start-up at low environmental temperatures

Consider the following warnings before starting-up at low environmental temperatures and with a cold engine:

- In order to prevent discharging the battery, do not prolong each attempt to start-up by more than 15 seconds; however, if the engine does not seem to be starting-up, extend the time to a maximum of 30 seconds.
- Wait at least one minute before trying to start-up again.
- It is recommended to not exceed six start-up attempts so as not to discharge the battery excessively.



### NOTE

It is recommended to use anti-freeze diesel at environmental temperatures lower than 0°C, so as to make sure the engine is optimally supplied, without reducing performance.

#### 4.16.6 Causes of failed start-ups

Check the following if the engine does not start-up:

- The parking brake switch is pressed.
- The gear selection lever is in the neutral position.
- No emergency stop buttons are pressed.

After checking all the previous conditions, remove the cause of failure to start and try the starting procedure again.



### NOTE

If the problem persists, contact a DIECI after-sales centre.

#### 4.16.7 Turn off the vehicle

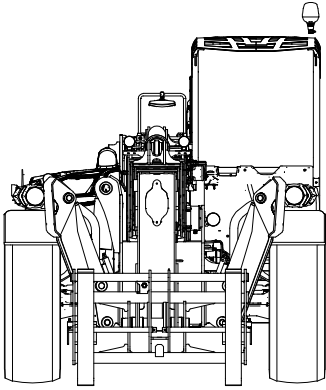
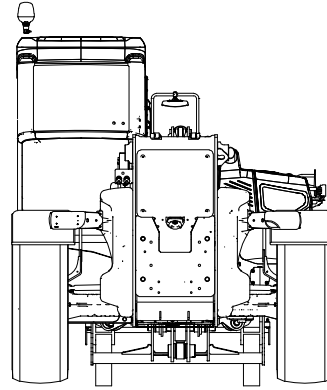
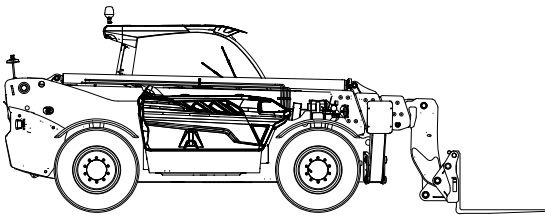
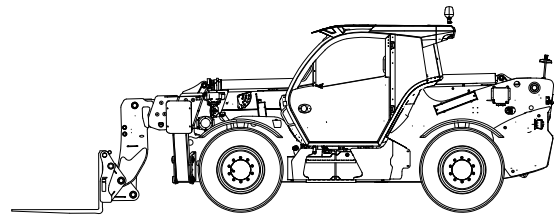
It is recommended to perform the following before switching the engine off:

1. Bring all the control levers to the idle position.
2. Bring the engine to low speed for a few seconds.
3. Turn the ignition key to position "0".

**NOTE**

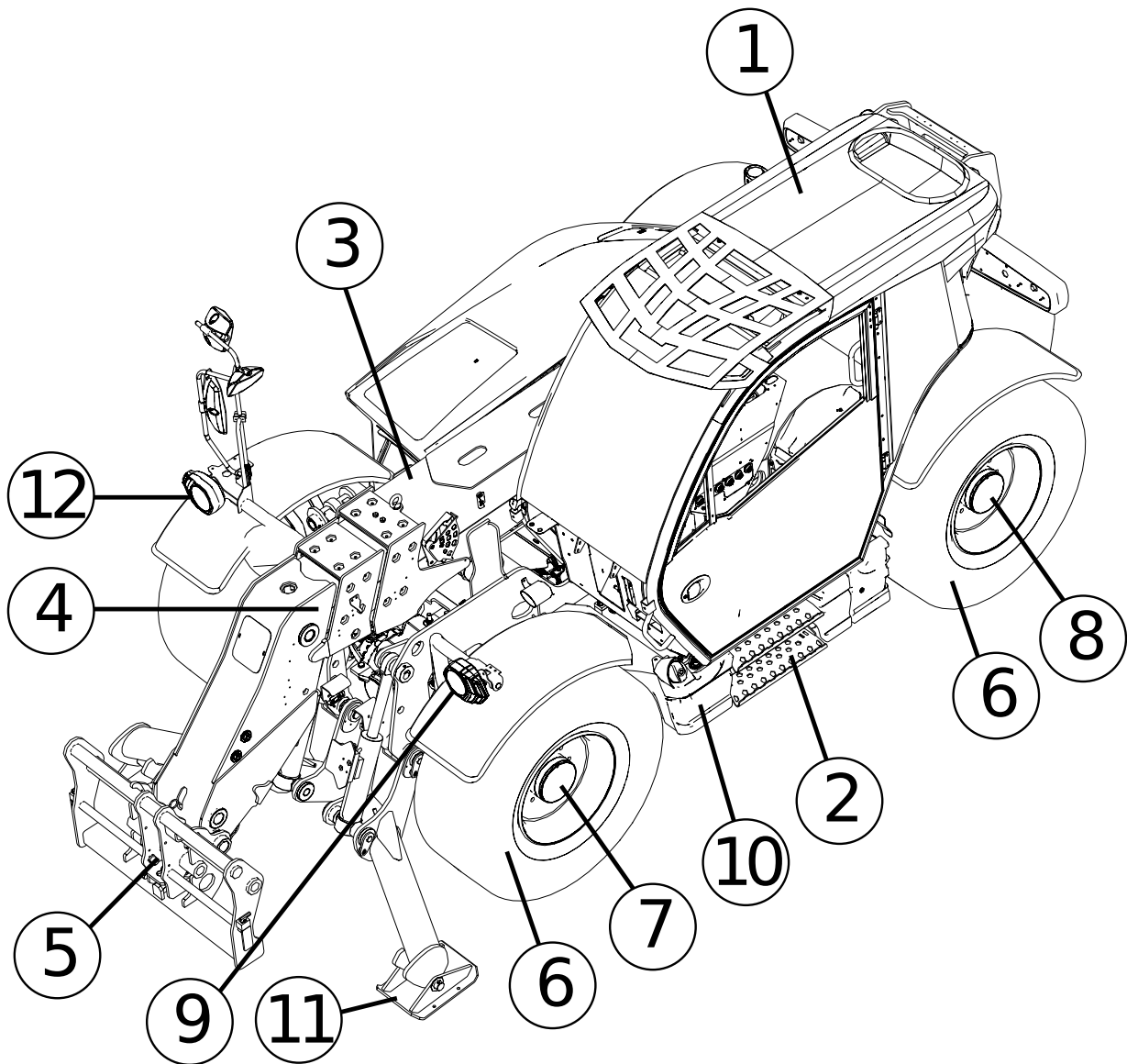
The images used to describe components and controls refer to a complete vehicle with all accessories; these may vary depending on the attachments and on the configuration chosen.

Refer to the "Definitions" chapter to understand references such as: Right side, Left side, Front and Back used in the manual.

**FRONT VIEW****REAR VIEW****RIGHT VIEW****LEFT VIEW**

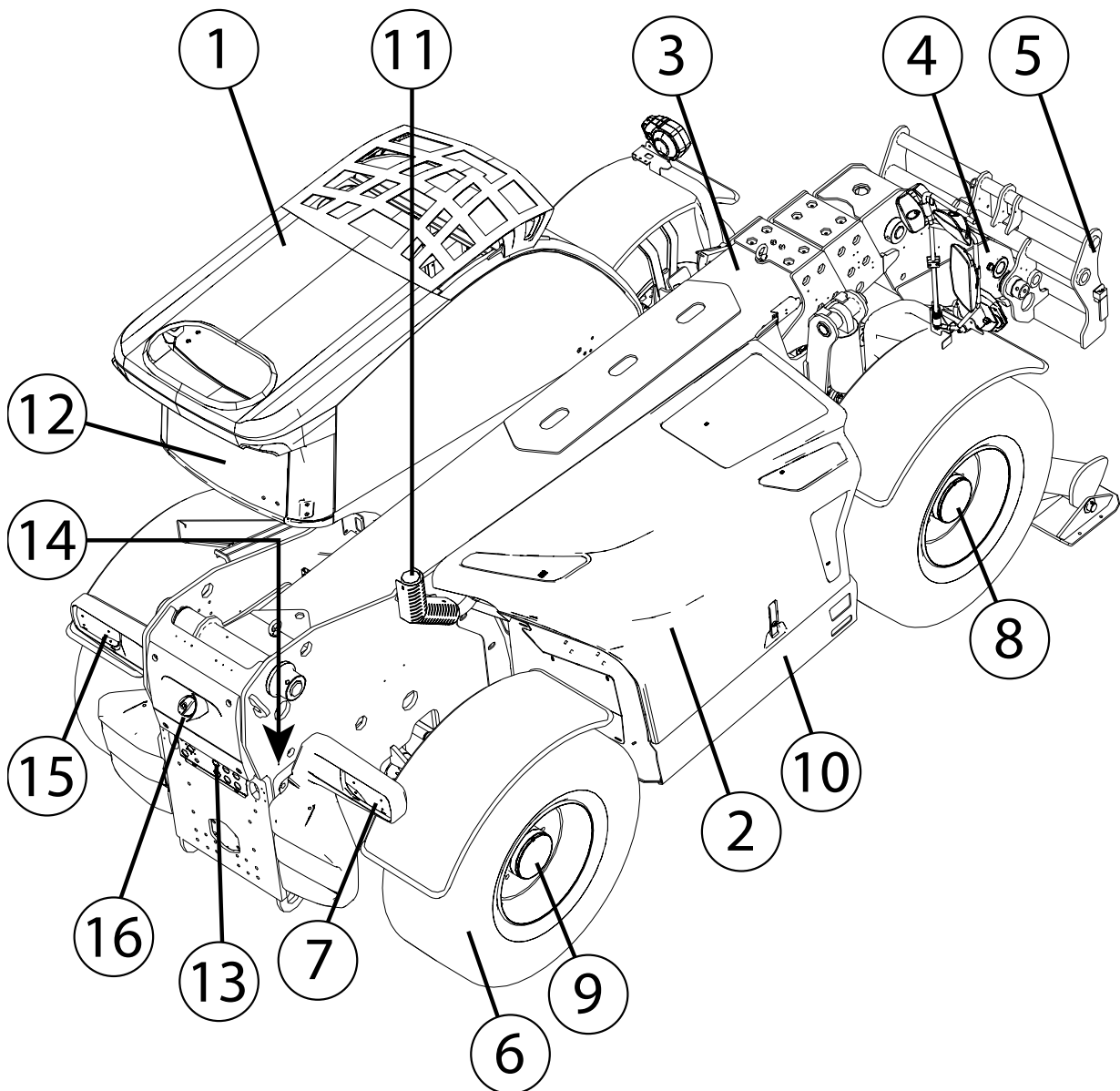


## 5.1 Left side components description



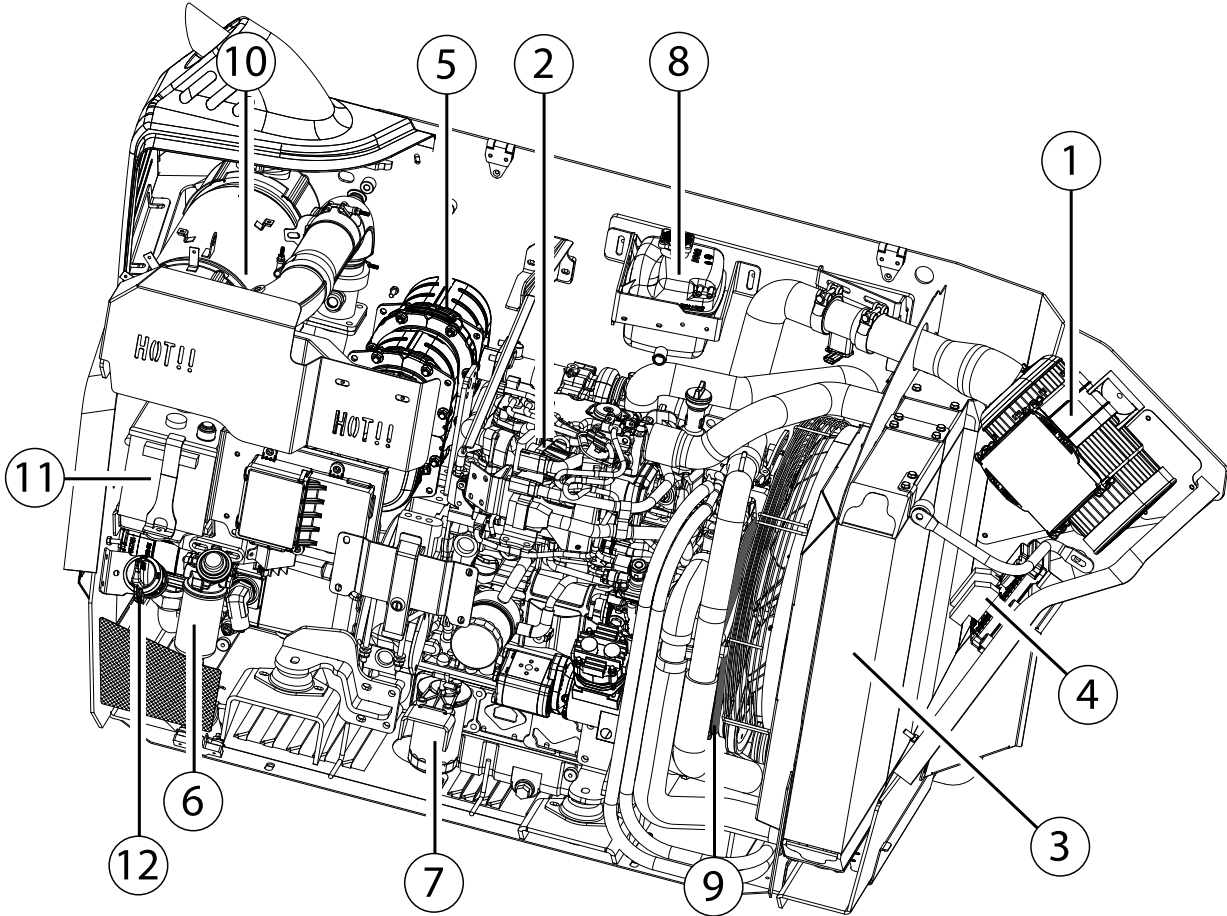
- 1 Cab
- 2 Steps for climbing on
- 3 Telescopic boom
- 4 Boom head
- 5 Attachment holding plate
- 6 Wheel
- 7 Front axle
- 8 REAR AXLE
- 9 Left front headlight
- 10 Fuel tank
- 11 Outriggers
- 12 Right front headlight

## 5.2 Right side components description



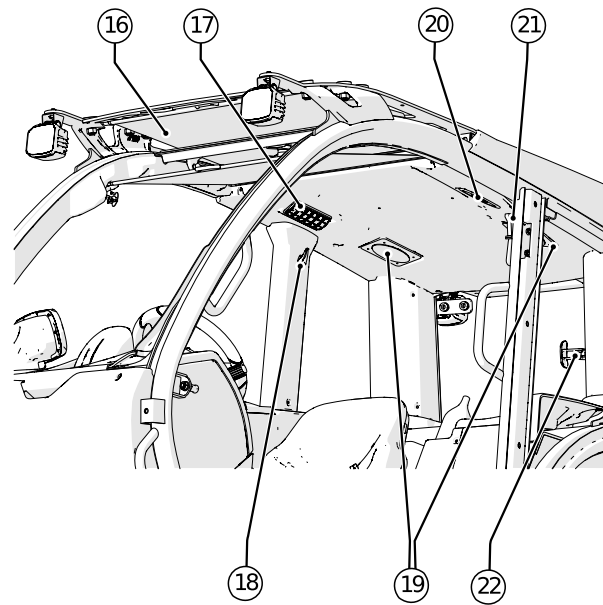
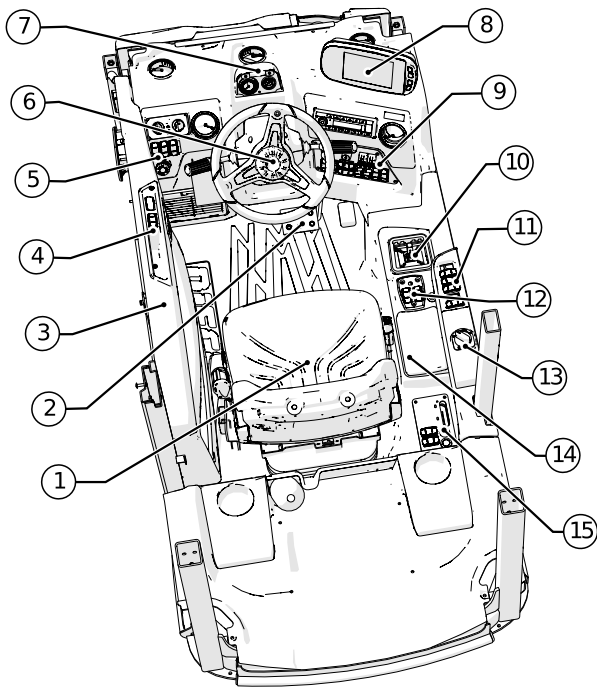
- |    |                          |
|----|--------------------------|
| 1  | Cab                      |
| 2  | Engine bonnet            |
| 3  | Telescopic boom          |
| 4  | Boom head                |
| 5  | Attachment holding plate |
| 6  | Wheel                    |
| 7  | Right rear headlight     |
| 8  | Front axle               |
| 9  | REAR AXLE                |
| 10 | Battery                  |
| 11 | Muffler                  |
| 12 | Rear emergency exit      |
| 13 | Rear hydraulic sockets   |
| 14 | Oil tank                 |
| 15 | Left rear headlight      |
| 16 | AdBlue® tank             |

### 5.3 Engine components description



- 1 Air filter
- 2 Engine
- 3 Radiator
- 4 Engine control unit
- 5 Diesel particulate filter
- 6 Fuel pre-filter
- 7 Fuel filter
- 8 Coolant tank
- 9 Transmission chain
- 10 SCR
- 11 Battery
- 12 Battery isolation switch

## 5.4 Cab components description



- |    |                                |
|----|--------------------------------|
| 1  | Seat                           |
| 2  | Pedals                         |
| 3  | Door                           |
| 4  | Door controls                  |
| 5  | Left instrument panel          |
| 6  | Steering wheel                 |
| 7  | Central instrument panel       |
| 8  | Display                        |
| 9  | Right instrument panel         |
| 10 | Joystick                       |
| 11 | R/H instrument panel           |
| 12 | Armrest front instrument panel |
| 13 | Speed limiter                  |
| 14 | Armrest                        |
| 15 | Armrest rear instrument panel  |
| 16 | Sunroof                        |
| 17 | Ceiling instrument panel       |
| 18 | Clothes hanger                 |
| 19 | Stereo speakers (if present)   |
| 20 | Interior lighting              |
| 21 | Hammer for emergency exit      |
| 22 | Rear glass handle              |

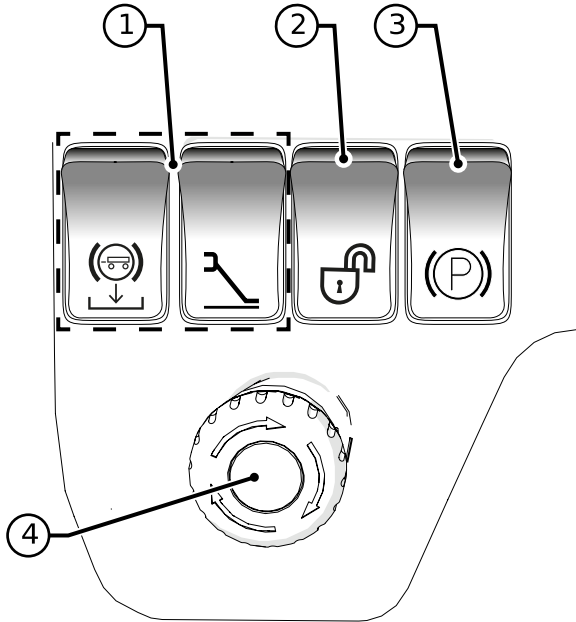
## 5.5 In-cab control panels



### NOTE

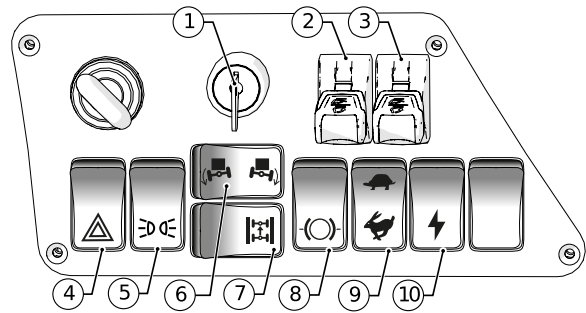
The controls may vary depending on the chosen configuration and set-up.

### 5.5.1 LH instrument panel



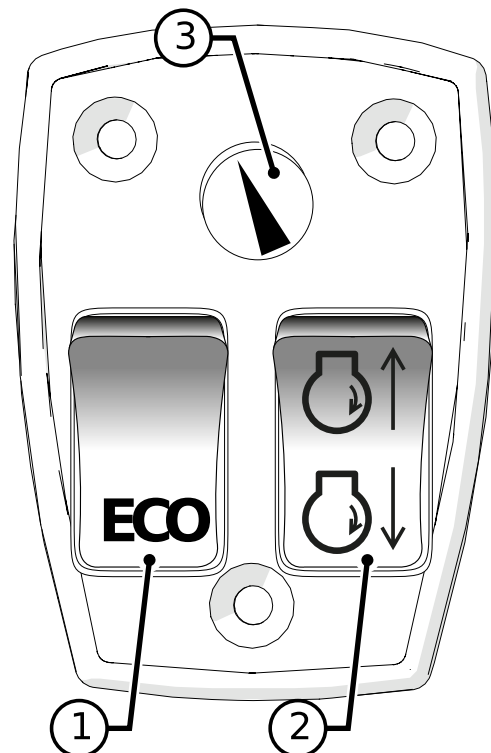
1. Outriggers consent switch (building vehicles)
2. Trailer brake check switch (Agri machines)
3. Equipment quick coupling switch (optional)
4. Parking brake switch
5. 4 Emergency stop switch

### 5.5.2 R/H instrument panel



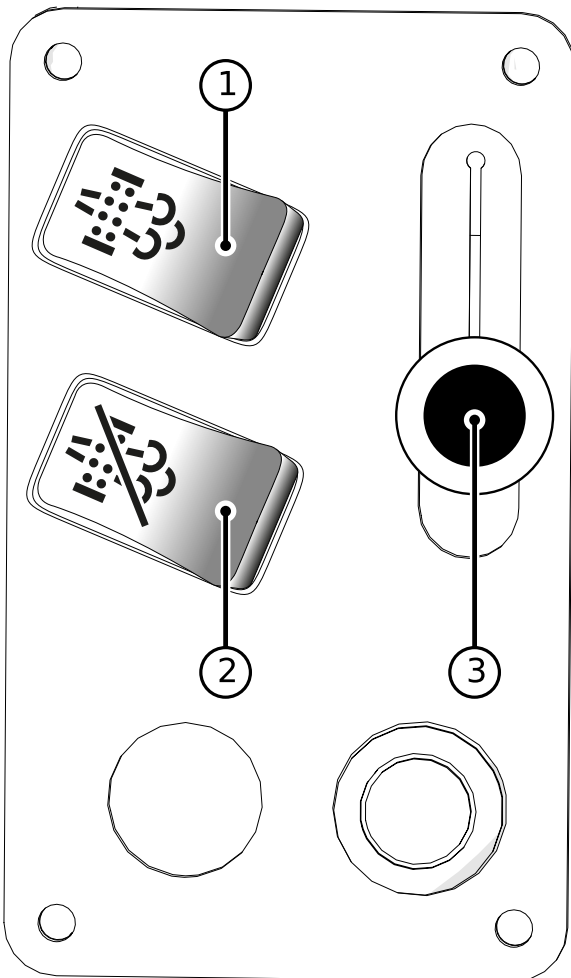
1. Bypass key
2. Left outrigger lever
3. Right outrigger lever
4. Emergency lights switch
5. Side lights and low beam lights switch
6. Transverse levelling device switch
7. Wheels alignment switch (optional)
8. Trailer/braking indicator light
9. Manual gear shift switch
10. Electrical contact switch (optional)

### 5.5.3 Armrest front instrument panel



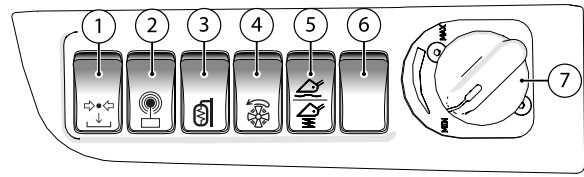
1. ECO mode switch
2. Hand throttle switch
3. Rear hydraulic sockets selector (optional)

### 5.5.4 Armrest rear instrument panel



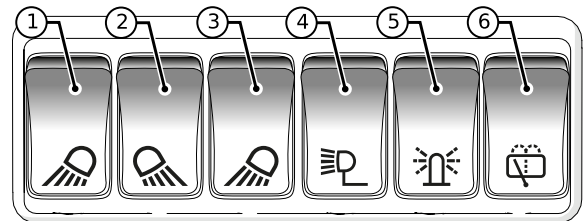
1. Forced regeneration switch
2. Inhibited regeneration switch
3. Steering selector lever

### 5.5.5 R/H instrument panel



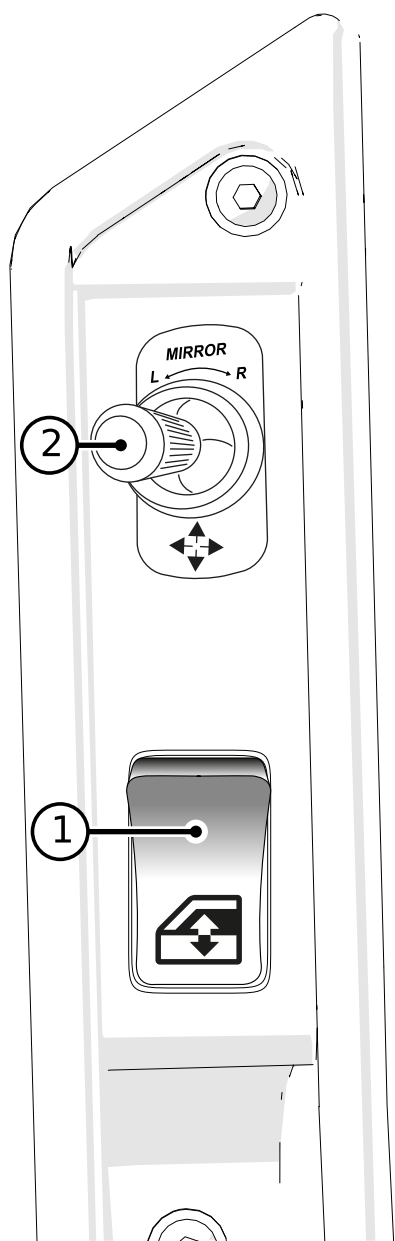
1. Caisson descent switch (optional)
2. Remote control enabling switch (optional)
3. Heated mirrors switch (optional)
4. Fan reversal switch (optional)
5. Boom suspension switch (optional) (based on version)  
/ Floating boom switch (optional) (based on version)
6. -
7. Speed limiter selector

### 5.5.6 Ceiling instrument panel



1. Cab front light switch (optional)
2. Cab rear light switch (optional)
3. Perimeter headlight switch (optional)
4. Light on the boom head switch (optional)
5. Rotating light switch
6. Rear window wiper and washer switch

## 5.5.7 Door controls



1. Window lift switch
2. Electric mirrors joystick (optional)

## 6.1 Safety stickers

### 6.1.1 Warnings for safety stickers

Some safety stickers have been applied on the vehicle and equipment in the positions shown below. Their purpose is to provide a guide for your own and others safety. Before starting to work, check the content and location of the stickers indicated on this manual. Review the safety stickers with all operators who will use the vehicle and equipment.



#### CAUTION

**Make sure to have fully understood their correct location and their contents.**

To ensure proper interpretation verify that they are in the correct position and that they are always kept clean.



#### DANGER

**Clean them when they are covered by mud, concrete or debris.**

It is absolutely forbidden to clean the stickers using solvents or gasoline; the labels may become discoloured.

See the summary table in the "Maintenance" chapter for safety stickers maintenance and check deadlines.

Replace the safety stickers in case of deterioration, damage or loss, as these must always be read and interpreted correctly.



#### WARNING

Do not under any circumstances remove the safety stickers.



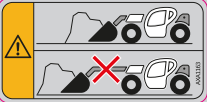




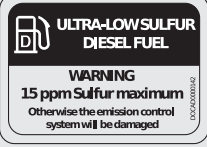



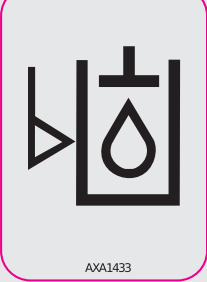
#### NOTE

The purchase order of replacement safety stickers must be made in the same way in which any spare part is ordered (be sure to communicate the model and serial number of the vehicle or equipment when placing the order).





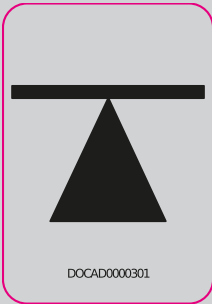

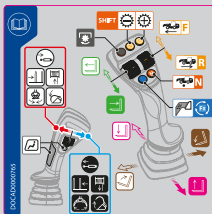


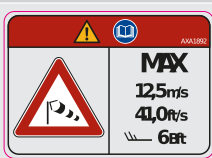
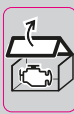

### 6.1.2 Meaning of safety stickers

SIGNAL	CODE	DESCRIPTION
	AXA1807	Indicates the maximum guaranteed acoustic power
	AXA2206	Outriggers maximum load on the ground (R.max daN=) 8000
	AXA2207	Outriggers maximum load on the ground (R.max daN=) 8500
	AXA2224	Tyres maximum load on the ground (R.max daN=) 8000
	AXA2225	Tyres maximum load on the ground (R.max daN=) 8500



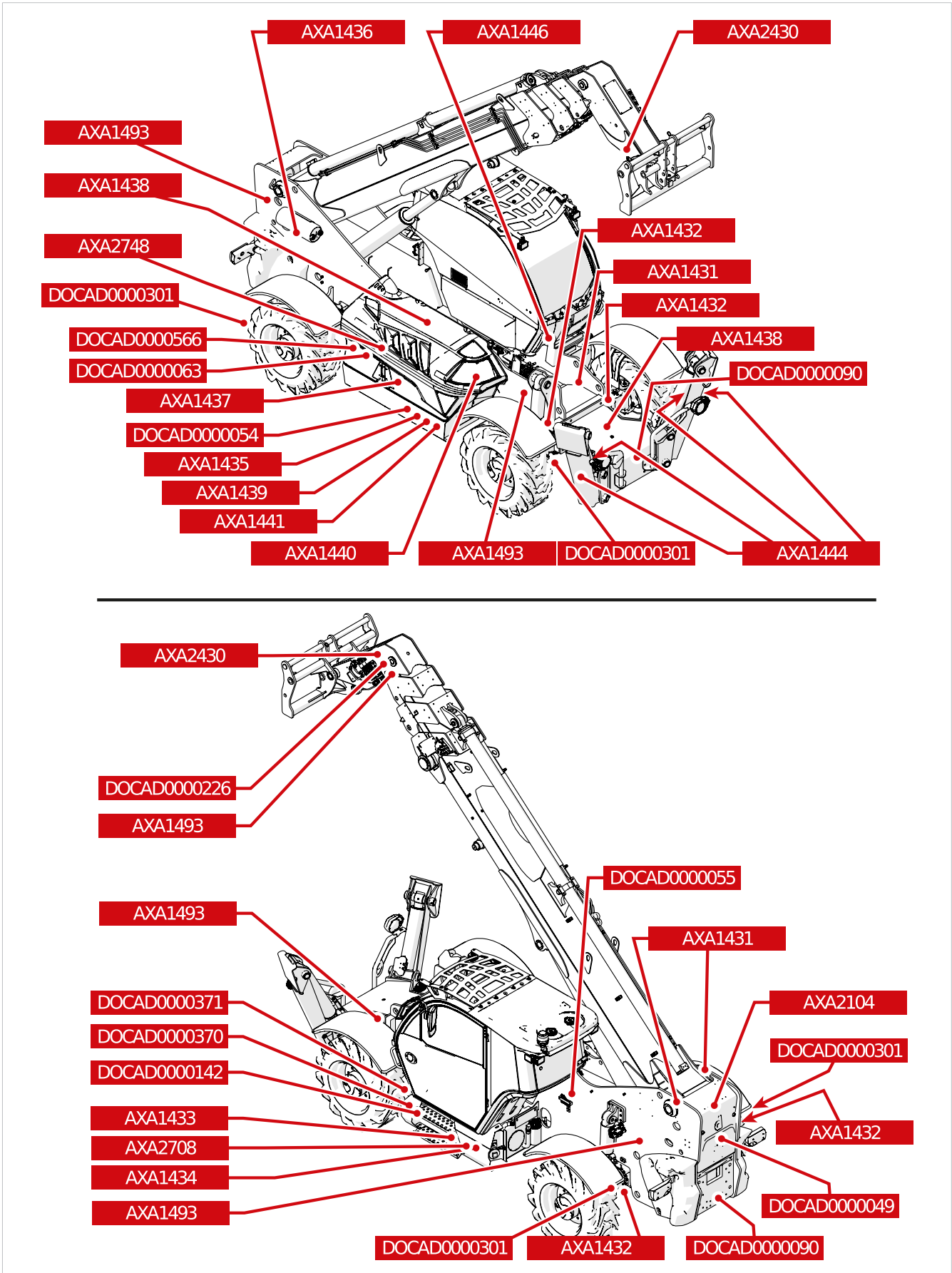
SIGNAL	CODE	DESCRIPTION
	AXA1163	Warning, keep the boom fully retracted when digging with buckets.
	DOCAD0000053	Danger, stop the engine and remove the ignition key during maintenance operations
	DOCAD0000054	Danger, comply with the safety distances from electric lines
	DOCAD0000370	Indicates where to refuel
	DOCAD0000371	Indicates the type of fuel
	DOCAD0000142	Ultra-Low Sulphur Diesel Decal
	AXA1431	Indicates the lifting points
	AXA1432	Indicates the points at which to anchor the vehicle for transport or towing
	DOCAD0000090	Position of the hitch for vehicle towing.
	AXA1433	Indicates where to check the hydraulic oil level

SIGNAL	CODE	DESCRIPTION
	AXA1434	Indicates where refuelling hydraulic oil
	AXA1435	Danger, moving mechanical parts, do not remove the safety guards and wait that the parts have stopped before carrying out any maintenance
	AXA1436	Indicates the position of the safety rod for lifting cylinders
	AXA1438	Indicates vehicle parts that can not be walked on
	AXA1439	Danger moving mechanical parts
	AXA1440	Danger of hot steam under pressure escaping
	AXA1441	Danger of hot surface
	AXA1492	Indicates the position of the brakes oil tank and the type of oil to use
	AXA1493	Warning, keep a safe distance
	AXA1432	Tow hitch decal
	DOCAD0000063	Battery isolation switch button instructions
	DOCAD0000566	Decal - battery isolation switch with LED
	AXA1501	Indicates lubrication points
	AXA1506	Compulsory use of seat belts

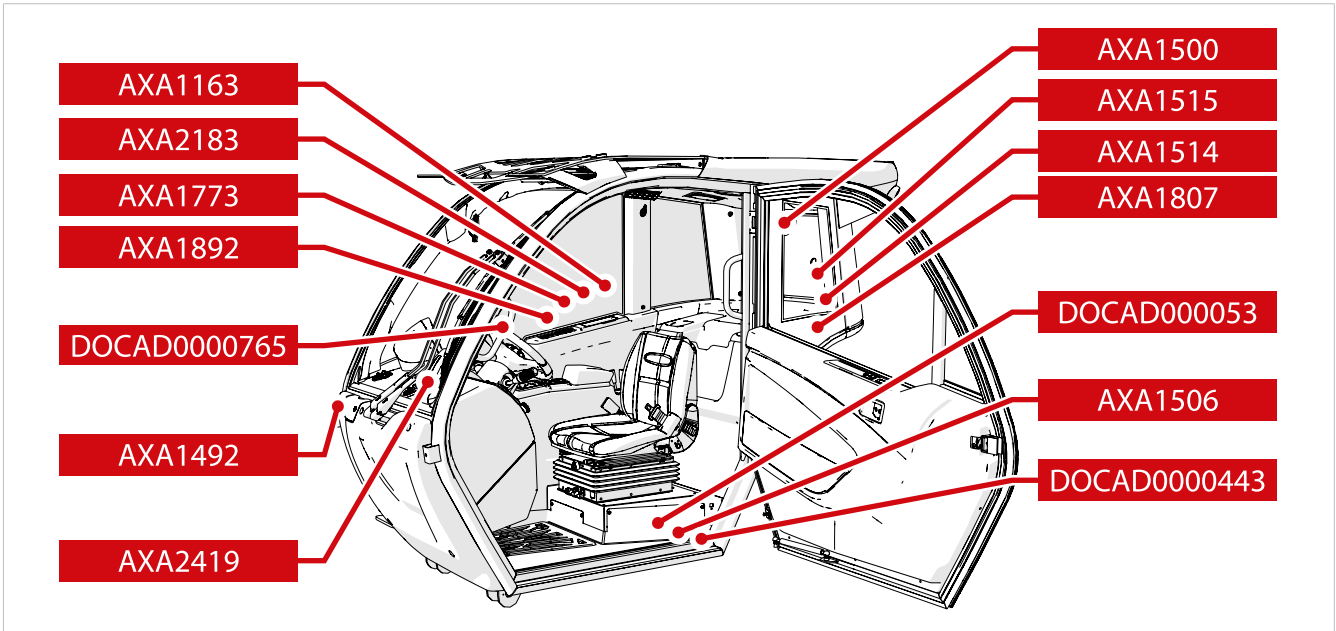
SIGNAL	CODE	DESCRIPTION
	AXA1514	Emergency exit
	AXA1515	Remove the cotter pin
	AXA1773	Warning, do not reach high speeds or over-revving the engine in downhill
	DOCAD0000226	Decal - boom head hyd. sockets
	DOCAD0000301	Decal - lifting point
	AXA2430	Do not stand under the forks or transport people with the forks
	DOCAD0000765	Instructions for standard joysticks
	AXA2708	Type of oil used in the standard hydraulic system
	AXA2798	Type of oil used in the hydraulic system ISO 32
	AXA1892	Indicates maximum use of the vehicle in case of wind
	AXA1437	Engine hood opening lever indication
	AXA1446	Horizontal boom indication

SIGNAL	CODE	DESCRIPTION
	AXA2748	Battery maintenance danger
	DOCAD0000049	AdBlue filling cap position
	DOCAD0000142	Indication on the required fuel quality
	DOCAD0000208	Instructions for rear hydraulic sockets [optional]
	AXA2104	Danger decal
	DOCAD0000055	Pressure check decal
	AXA2419	Decal - In case of emergency break glass
	AXA2183	Decal - Read the use and maintenance manual
	AXA1892	Wind maximum speed decal
	AXA1759	Decal - Tyre pressure
	AXA1444 *	Danger of feet crushing [Only for vehicles with outriggers]

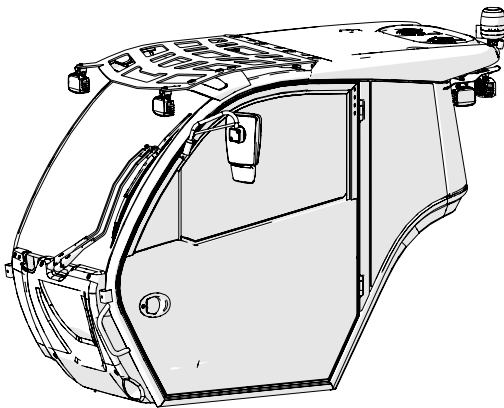
6.1.3 Safety stickers position on the vehicle



6.1.4 Safety stickers position in the cab



## 7.1 ROPS - FOPS Cab



The vehicle is equipped with an approved cab:

- **ROPS** (Roll Over Protection Structure)
- **FOPS** (Falling Objects Protective Structure)

The operator is therefore protected in the event of vehicle tipping and in the event of falling objects, as prescribed for earth moving vehicles.

### CAUTION

The cab is a safety device and as such must be always kept in the right conditions of use.

In case of cab tampering, the manufacturer has no civil liability in case of an accident, therefore it is absolutely forbidden to:

- Change, drill, or alter in any way the structure of the cab.
- Weld or mechanically connect parts to the cab chassis.
- If the fastening bolts are replaced, use elements of different strength class.
- Connect chains or ropes to the cab for the purpose of towing.

### WARNING

**In the case of vehicle tipping, staying in the cab with fastened seat belts allows to obtain a better protection.**

If the cab has undergone visual damage it must be replaced by consulting the authorised service centre or Dieci authorised workshop.

The cab is classified as:

CATEGORY "1"

The cab approved as category "1" does not offer full protection against the ingress of dust, aerosols and vapours. Consult and follow the instructions provided by the manufacturer of the chemicals used (such as pesticides, fungicides, herbicides, etc.) and those supplied by the manufacturer of the sprayer. Use the appropriate personal protective equipment and clothing (PPE) when indicated in these instructions, even when you are inside the cab.



### DANGER

**Inhalation danger for operators and bystanders.**

For protection against harmful dust, aerosols and vapours, refer to the instructions provided by the manufacturer of chemicals, by the manufacturer of the sprayer and to the basic rules contained in this manual.

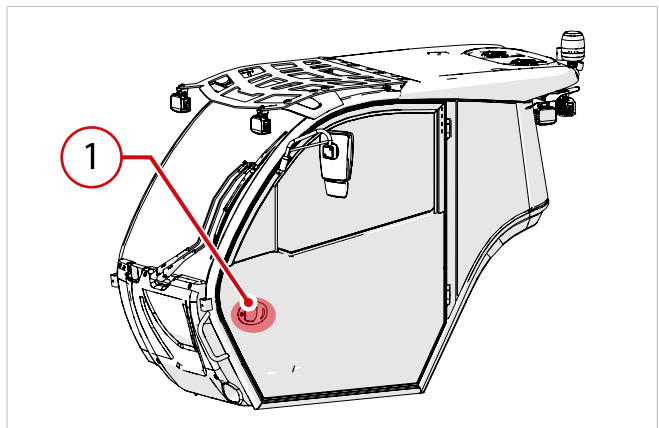
Refer to the packaging of the product used to use the appropriate protective equipment.

## 7.2 Climbing in and off the vehicle

### 7.2.1 Door opening

#### 7.2.1.1 External door handle

The door of the cab is equipped with an external handle "1" with lock.



To open the door from the outside:

- Insert the key into the lock and turn it clockwise/anti-clockwise to engage/disengage the lock.
- Pull the handle towards yourself to release the door with lock disengaged.



### NOTE

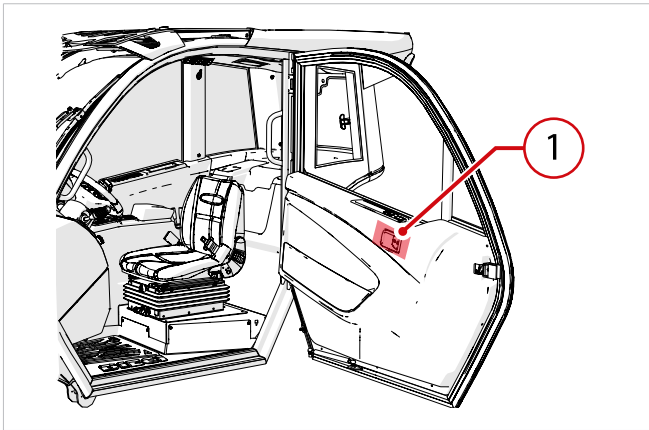
With lock engaged, the door will not open by the handle.



### WARNING

It is absolutely forbidden to operate with the cab door open.

## 7.2.1.2 Internal door handle



To open the door from the inside:

- Pull the handle to the inside to disengage the door "1".
- Push the door to the outside to complete the opening.
- Accompany the door with one hand while opening it.

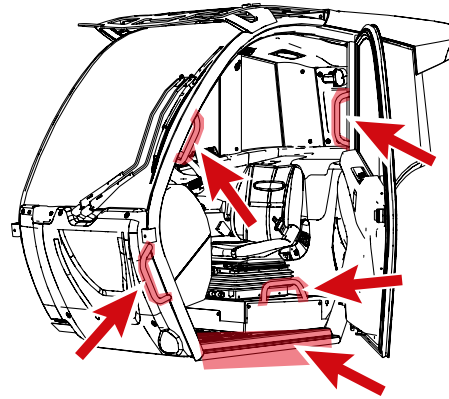
**CAUTION**

Before pushing the door outwards verify that the opening area is free from obstacles of various kinds.

**NOTE**

Before climbing into the cab, make sure your hands and your shoes are clean and dry to avoid slipping and falling.

Use only the appropriate handles and steps to access the cab, do not use the controls and the steering wheel from inside. Climb in and out of the vehicle always turned towards the driver's cab.

**WARNING****DANGER**

Climbing in and out of the cab is allowed only when the vehicle is stopped with the parking brake engaged. Do not leave the cab with the vehicle in motion.



## 7.3 Safety

### 7.3.1 Emergency stop



In emergency conditions, the vehicle can be stopped using the Emergency stop buttons.



#### CAUTION

It is recommended to use the emergency stop button only in case that there is an immediate danger to the operator, to the load and/or to the integrity of the vehicle.

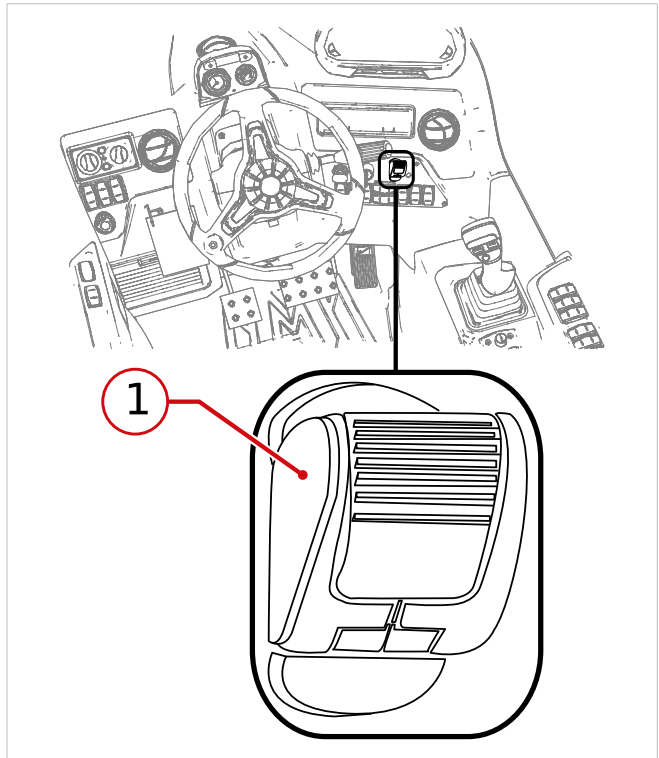
The pressure exerted on the emergency stop button activates the power supply cut-off and the consequent complete shutdown of the vehicle and any connected equipment.

The return to normal working conditions, after a stop caused by the emergency stop button, is only possible after:

- Removal of the cause that caused the stop
- Releasing the emergency stop button

To release the emergency stop button, rotate it in the direction indicated by the arrow printed on the button.

### 7.3.2 Emergency stop lever \*



#### NOTE

\* Only for vehicles approved as agri tractors.

Under emergency conditions, where the brake does not work, the vehicle can be stopped by the unstable emergency stop lever "1" located in the cab. Keep the lever pressed downward to let the vehicle be stopped smoothly.



#### DANGER

**The stop will be gradual up to a speed of 10 Km/h; after that the vehicle will stop abruptly.**

Since the lever is unstable, upon release the vehicle will resume going at normal speed.

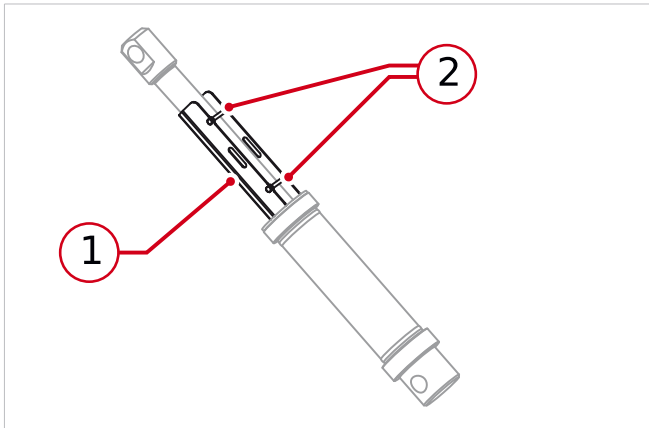
### 7.3.3 Safety rod

The safety rod must be used as a safety measure during maintenance operations, to prevent the descent or fall of the boom in case of failures.

To insert the safety rod "1" operate as follows:

- Lay a load on the ground.
- Completely close the extensions of the telescopic boom.
- Lift the boom to the minimum height necessary to apply the safety rod.
- Apply the safety rod around the lifting cylinder rod.

Lock the safety rod by means of the appropriate hooks "2".

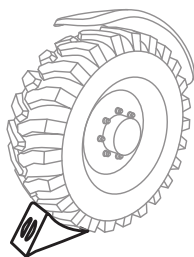


#### WARNING

##### Danger of crushing

In case of maintenance to the boom lifting cylinder or the relative block valve it is required to support the boom by means of an appropriate lifting device with minimum capacity of at least 3000 kg (6613.87 lb).

### 7.3.4 Wheel wedge



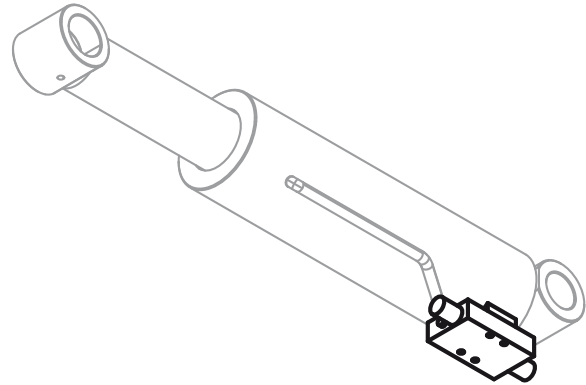
The wheel wedge must be used as a safety measure to prevent accidental or unwanted movements of the vehicle.

It is advisable to use them when parking the vehicle during stops along slopes or during maintenance operations.

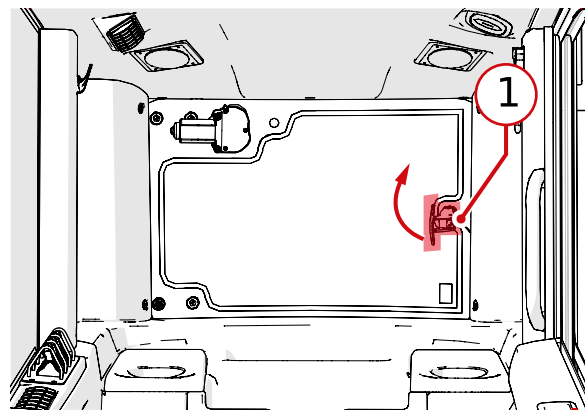
### 7.3.5 Block valves

The block valves for cylinders prevent uncontrolled movement of the pistons of the cylinders in the event of hydraulic pressure failure or bursting of a hose.

The valves are installed directly on all the cylinders.



### 7.3.6 Emergency exit: Rear glass



The rear glass of the cab can be used as an emergency exit in case the vehicle doors are locked.

To open the window fully, remove the fastener "1" and push the glass outward.

The fastener must always be positioned as shown in the figure during normal work operations.



#### DANGER

##### Danger of crushing.

It is prohibited to fully open the glass during the use of the vehicle, because of the shearing risks between the boom and the chassis.

The rear glass is near the telescopic boom.



**WARNING**

Be very careful when opening and/or removing the glass, as this may chip or crush and may cause injury to the operator in the cab and to anyone who is near the vehicle.

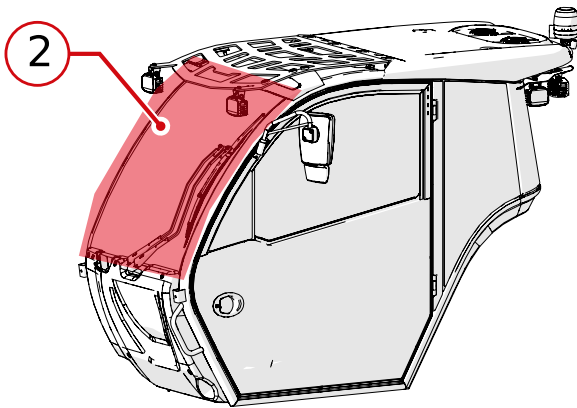
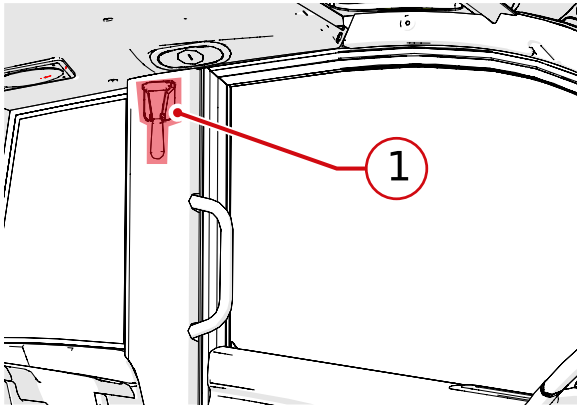
7.3.7 Emergency exit: Front glass \*



**NOTE**

\* **Emergency exit: The front glass is an optional attachment.**

Emergency exit: The front glass is a standard attachment for the vehicles approved as agricultural tractors.



The front glass of the cab can be used as an emergency exit in case the vehicle doors are locked.

Use the hammer "1" stored in the cab to break the front glass "2" in case of an emergency.

7.4 Comfort



**CAUTION**

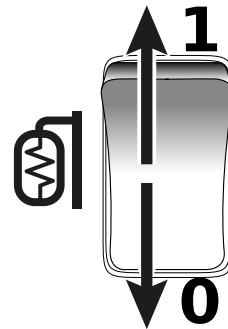
The graphical representation (shapes and colours) of the switches is purely an indication, while the description explains their exact operation.

7.4.1 Heated mirrors \*



**NOTE**

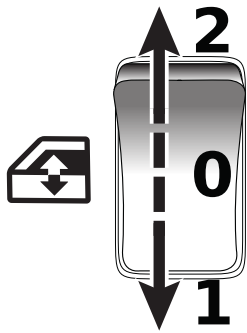
\* Heated mirrors are optional attachments.



To start the heated mirrors function press the switch shown in the figure.

The illuminated warning light on the switch indicates that the heated mirrors function is on.

## 7.4.2 Electric window



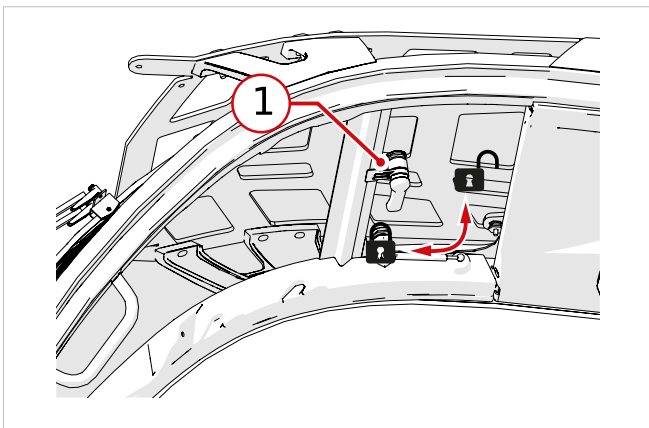
To move the door window, use the button on the door:

- 0- Rest position
- 1 - Press to lower the window.
- 2 - Press to raise the window.

**WARNING**

Before closing the window check that there are no objects or human limbs that can be crushed by this.

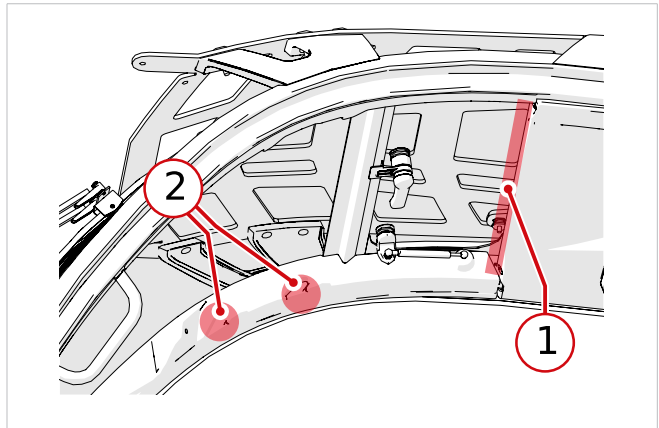
## 7.4.3 Canopy



To open the roof, turn the handle "1" to the open position and raise the roof.

To close proceed with the inverse operation until the handles are locked.

## 7.4.4 Sunshade

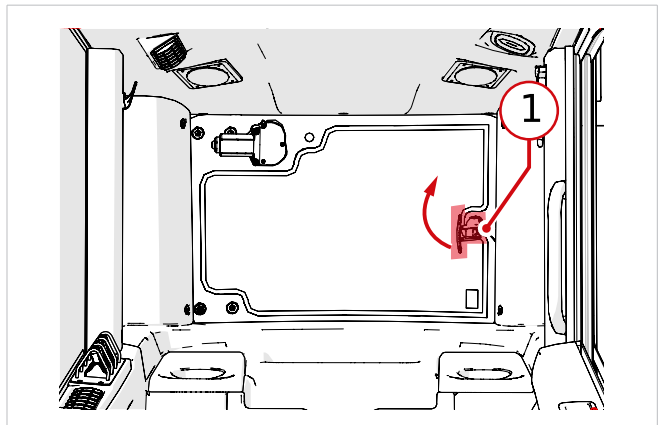


The Sunshade is located at the top of the cab.

To lower the Sunshade, take the handle located at the centre "1" and lower it down to lock it with the hooks provided "2".

To close the sunshade, lower the handle "1" to release it from the hooks "2" and take back the sunshade in closure.

## 7.4.5 Rear glass



To open the rear glass, lift the handle "1" and push the glass outward.

The glass is maintained in the open position by the handle.

To close the rear glass, pull the handle back in the cab and lower until it until the whole unit is completely locked.

**DANGER****Danger of crushing**

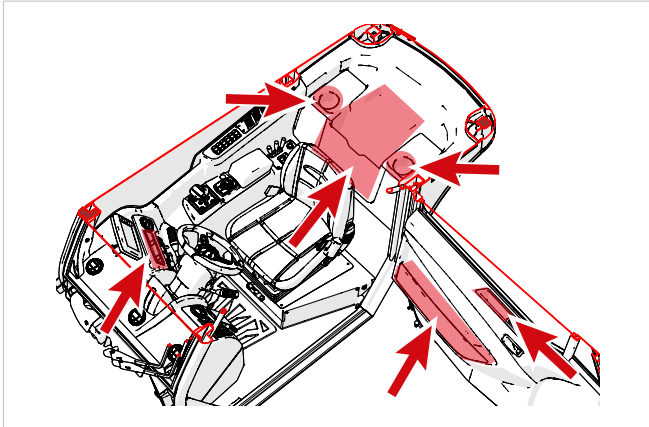
In case the handle would no longer maintain the open position of the glass, replace it in the shortest possible time.



**NOTE**

The rear glass also serves as an emergency exit, see the "Safety Devices" chapter for more information.

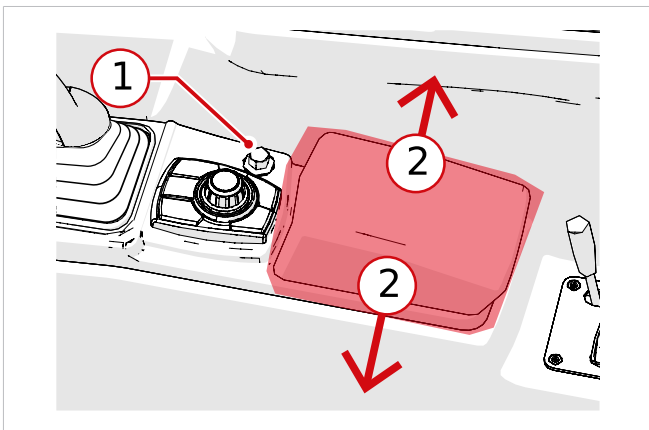
7.4.6 Storage compartment



There are different storage compartments in the cab:

- Behind the seat
- On the sides of the seat
- In the car door at the bottom
- In the car door at the top
- On the right instrument panel (if no radio optional)

7.4.7 Armrest



To adjust the height of the armrest it is necessary to:

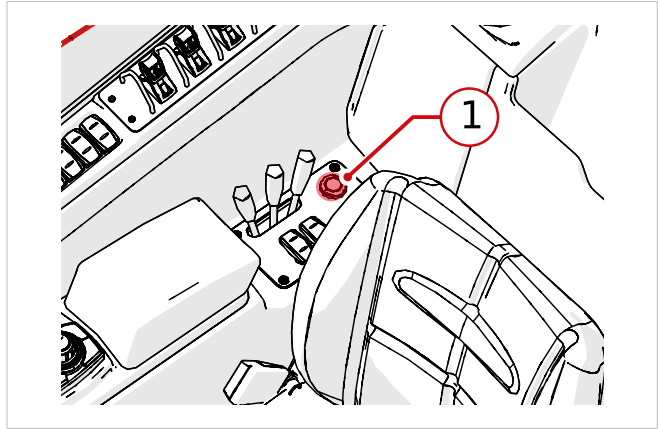
- Press and hold the button "1".
- Adjust the height of the armrest "2".
- Release button "1" to fasten the armrest in the desired position.

7.4.8 USB ports\*



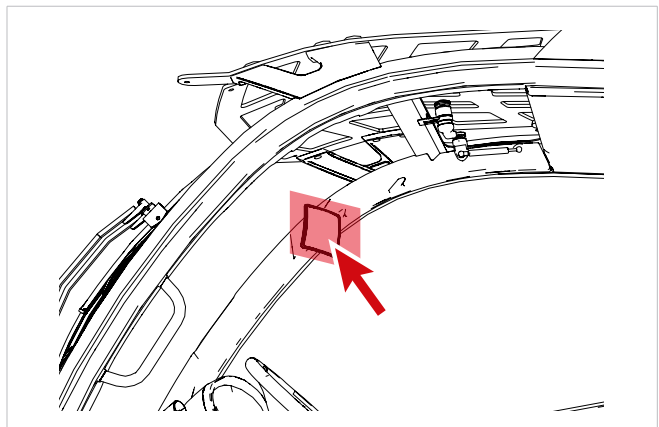
**NOTE**

\* The USB ports are optional devices.



The USB sockets "1" allow to connect direct current devices (battery chargers, cell phones, etc.).

7.4.9 Interior mirror

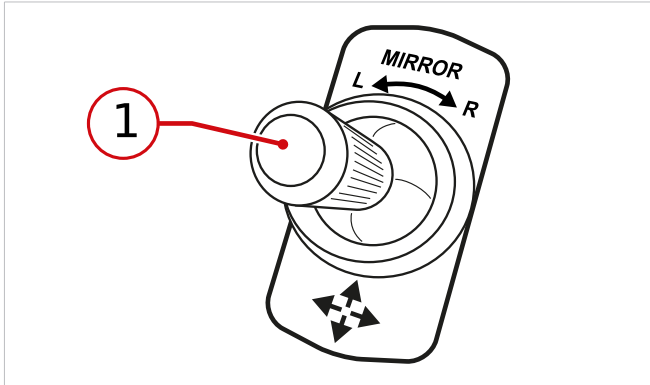


Adjust the internal mirror to have a good rear view during long trips.

## 7.4.10 Mirror adjustment \*

**NOTE**

\* The electrically adjustable mirrors are an optional equipment.



The angle of the wing mirrors can be adjusted using the joystick "1".

Turn the joystick handle "1" anti-clockwise to select the left-hand wing mirror (LH) or clockwise to select the right-hand wing mirror (RH).

After selecting the desired wing mirror, move the joystick to change the positioning of the mirror.

## 7.5 Lighting

**CAUTION**

The graphical representation (shapes and colours) of the switches is purely an indication, while the description explains their exact operation.

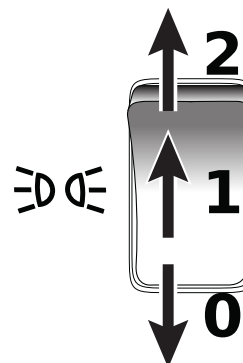
## 7.5.1 Emergency Lights



Press the emergency lights switch to turn on all four direction indicators.

- 0- Emergency lights off
- 1 - Emergency lights flashing intermittently

## 7.5.2 Sidelights and low beam lights



To turn on the front and rear side lights of the vehicle it is necessary to use the switch on the left instrument panel.

The switch has 3 stable positions:

- 0- Lights off
- 1- Side lights on
- 2 - Low beam lights on

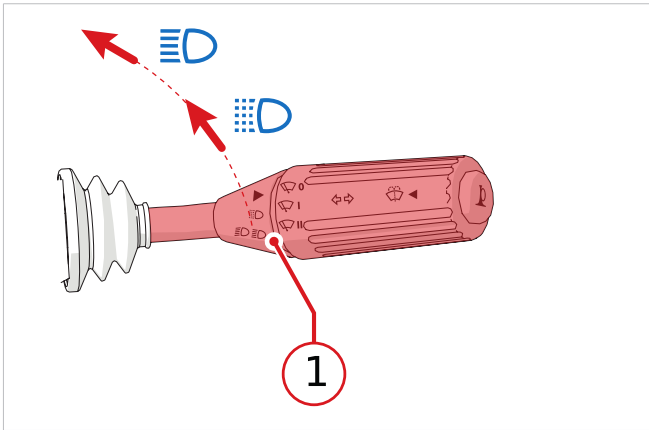
The LED on the switch lights up to indicate that the side lights are turned on.

When the side light are activated the instrument panel of the vehicle lights on.

**NOTE**

It is possible to turn on the side lights with the ignition key in "0" position, while it is necessary to bring the ignition key in position "I" to turn on the low beam lights.

7.5.3 High beam lights

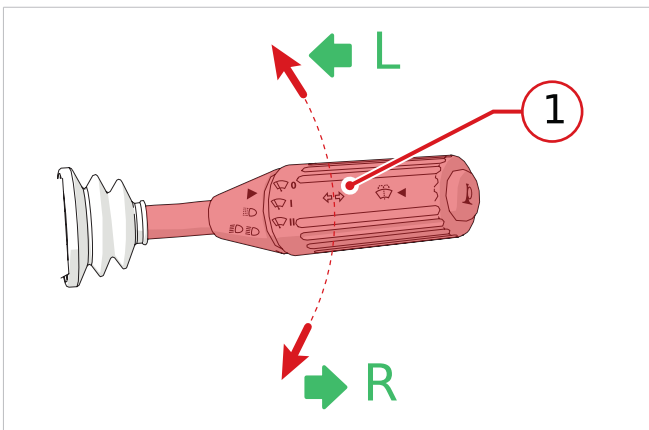


To turn on the high beam lights it is necessary to move the multifunction lever.

- To make individual flashes with the high beam lights, pull the multifunction lever toward the steering wheel to the first click. It is possible to use this function with the lights off and the ignition key in position "0".
- To turn on the high beam lights, pull the multifunction lever toward the steering wheel to the second click. It is possible to turn on the high beam lights only with the ignition key in position "I" and low beam lights on. The high beam lights turning on is indicated by the warning light on the instrument panel.

In both cases, once obtained the desired click, the multifunction lever returns to its rest position.

7.5.4 Direction indicators



Move the lever:

- Clockwise to indicate a right-hand bend (R).
- Anti-clockwise to signal a left-hand bend (L).

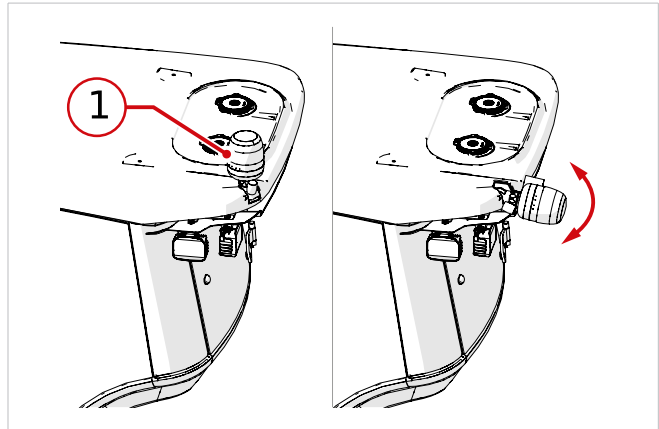
The indicators only work when the ignition switch is in the position of instrumentation on.

The indicator light on the central instrument panel will activate the direction indicators.

**CAUTION**

Push the multifunction lever in stand-by position after making the turn, return to the neutral position is not automatic.

7.5.5 Rotating light



The rotating light "1" is located on the driver's cab.

It is possible to fold the rotating light backwards when not in use.



Press the switch to activate the rotating light:

- 0- Rotating light off
- 1 - Rotating light on

The indicator on the switch lights up to indicate that the rotating light is turned on.

**WARNING**

**Do not use the rotating light improperly.**

Refer to the manager in charge of the work and to the regulations in force in the country of use of the vehicle to know the cases in which it is necessary and/or allowed to use the rotating light.

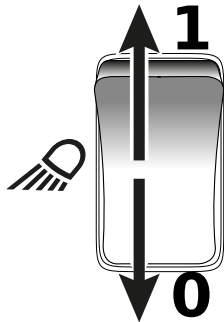
**NOTE**

It is possible to turn on the rotating light even if the ignition key is in the "0" position.

## 7.5.6 Cab front light \*

**NOTE**

\* The cab front light is an optional accessory.



Press the switch to turn on the front work light.

The LED on the switch lights up to indicate that the light is on.

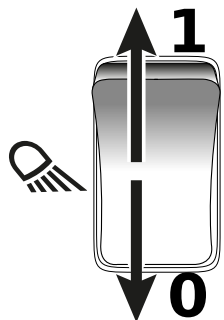
**NOTE**

To turn on the headlight it is necessary to bring the ignition key in position "I"

## 7.5.7 Cab rear light \*

**NOTE**

\* The cab rear light is an optional accessory.



Press the switch to turn on the rear work light.

The indicator on the switch lights up to indicate that the light is on.

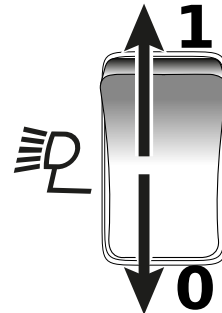
**NOTE**

To turn on the headlight it is necessary to bring the ignition key in position "I".

## 7.5.8 Work light on the boom head\*

**NOTE**

\* The work light on the boom head is an optional accessory.



Press the switch to turn on the work light on the boom head.

The indicator on the switch lights up to indicate that the light is on.

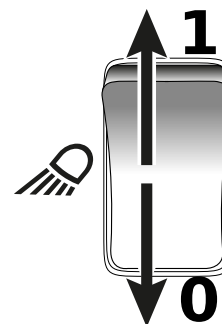
**NOTE**

To turn on the headlight it is necessary to bring the ignition key in position "I".

## 7.5.9 Perimeter lights \*

**NOTE**

\* Perimeter lights are an optional accessory.



Press the to switch on the perimeter lights.

The LED on the switch lights up to indicate that the lights are on.

**NOTE**

To turn on the headlight it is necessary to bring the ignition key in position "I".



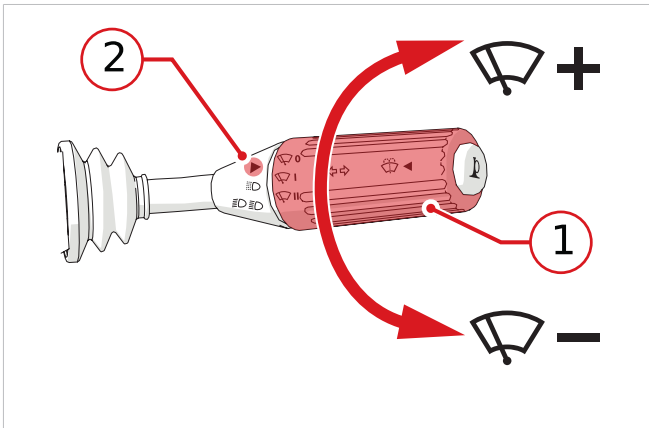
## 7.6 Windows



### CAUTION

The graphical representation (shapes and colours) of the switches is purely an indication, while the description explains their exact operation.

### 7.6.1 Front window wiper



Turning the knob to "1" activates the front window wiper.

The arrow "2" indicates which window wiper speed is currently active:

- 0- Off
- I - Slow
- II - Fast

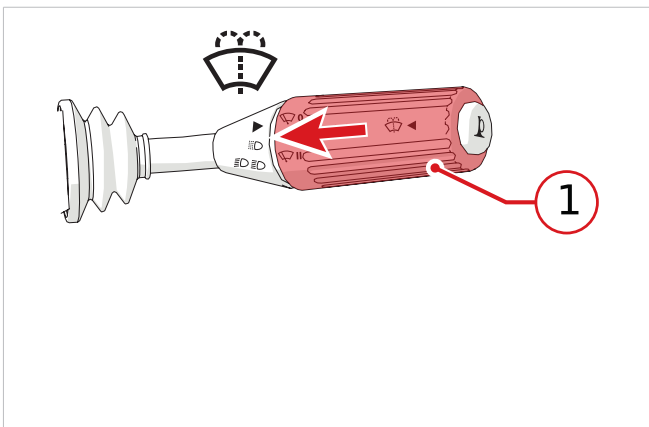


### WARNING

**Worn blades cause viewing difficulties and scratches to the glass.**

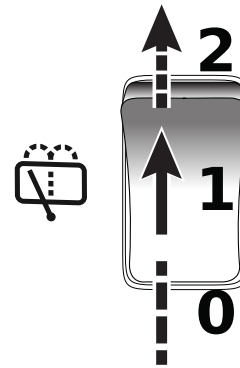
Replace the blades if they are damaged or worn.

### 7.6.2 Window washer



Press the middle button on the lever "1" to turn on the front window washer.

### 7.6.3 Upper and rear window wiper and washer



The switch of the upper and rear window wiper and washer has 3 positions, 2 of which are stable and 1 unstable:

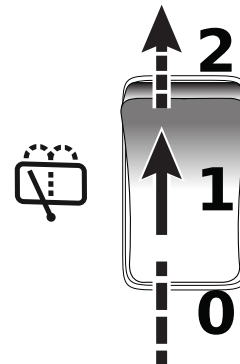
- 0- Window wiper off
- 1 - Window wiper on
- 2 - Rear window washer in operation, until pressed

### 7.6.4 Window wiper-washer on boom side \*



### NOTE

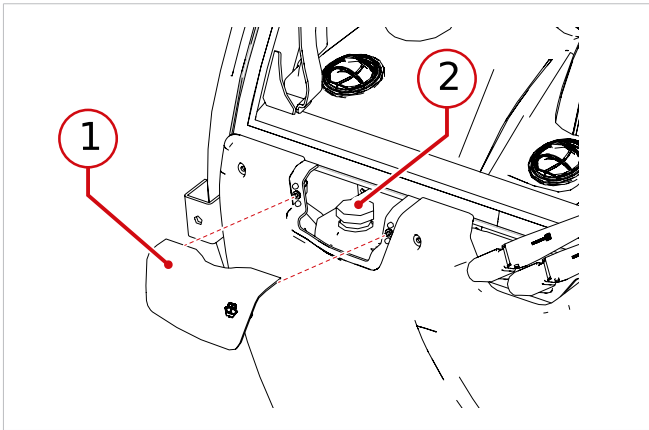
\* The window wiper-washer on boom side is an optional attachment.



The boom side window wiper and washer switch has 3 positions, 2 of which are stable and 1 unstable:

- 0- Window washer on boom side off
- 1 - Window washer on boom side on
- (2) - Window washer on boom side in operation, until pressed

### 7.6.5 Wiper fluid tank



The window washer fluid tank is located on the front external side of the cab.

To add liquid to the tank:

- Stop the vehicle and engage the parking brake.
- Get off the vehicle and remove the magnetic cover "1".
- Remove the filling cap "2".
- Add washing fluid to fill the tank.
- Put back the cap "2".
- Reassemble the magnetic cover "1".



#### **CAUTION**

During the winter, mix antifreeze fluid to the water.

---

## 7.7 Display

### 7.7.1 Home



#### NOTE

The icons may vary depending on the chosen configuration and set-up.




-	ICON	COLOUR	STATE	DESCRIPTION
T1		-	-	ESC button to leave a page Press and hold to go back to the main page
T2		-	-	Enter button to enter a page and open the main page menu
T3		-	-	UP/LEFT button to scroll through the pages
T4		-	-	DOWN/RIGHT button to scroll through the pages
X1		Green	Flashing	Direction indicators working
			Fast flashing light	Direction indicator malfunction
X2		Red	Fixed	Parking brake engaged
X3		Red	Fixed	Battery or alternator failure
			Flashing	Serious battery or alternator failure

-	ICON	COLOUR	STATE	DESCRIPTION
X4		Red	Fixed	Engine errors present, engine in limited power mode
X5		Yellow	Fixed	Engine errors present
X6		Red	Fixed	Inducement active at Level 1
			Flashing	<ul style="list-style-type: none"> <li>• Slow flashing: inducement active at Level 3.</li> <li>• Fast flashing: inducement active at Level</li> </ul>
Y1		Yellow	Fixed	DPF regeneration inhibition
Y2		Yellow	Fixed	Icon for DPF regeneration in progress (during regeneration the engine idle speed increases)
Y3		Yellow	Fixed	Medium level of soot
			Flashing	DPF regeneration requested: <ul style="list-style-type: none"> <li>• Slow flashing: high level of soot.</li> <li>• Fast flashing: critical level of soot</li> </ul>
Y4		Yellow	Fixed	Inducement warning for AdBlue low quality
			Flashing	<ul style="list-style-type: none"> <li>• Slow flashing: moderate inducement for AdBlue low quality.</li> <li>• Fast flashing: critical inducement for AdBlue low quality</li> </ul>
Y5		Yellow	Fixed	Low inducement for AdBlue technical error
			Flashing	<ul style="list-style-type: none"> <li>• Slow flashing: moderate inducement for AdBlue technical error</li> <li>• Fast flashing: critical inducement for AdBlue technical error</li> </ul>
Y6		Yellow	Fixed	Inducement warning for low level of AdBlue
			Flashing	<ul style="list-style-type: none"> <li>• Slow flashing: moderate inducement for low level of AdBlue;</li> <li>• Fast flashing: critical inducement for low level of AdBlue</li> </ul>
Z1		Red	Fixed	Longitudinal momentum indicator
Z2 Z3		Yellow	Fixed	-
Z4 Z5		Green	Fixed	-
Z6		Green	Fixed	-

	ICON	COLOUR	STATE	DESCRIPTION
A0		Red	Fixed	Engine error present
				Transmission error present
				Hydraulic circuit error
				Display error
				VCU1 unit error
				VCU2 unit error
				VCU3 unit error
				DTS unit error
				ATS error
A1a	-	-	-	Reported error code
A1b	-	-	-	Reported error description
A2		Green	Fixed	Sidelights on
		Blue		High beam lights on










-	ICON	COLOUR	STATE	DESCRIPTION
A3		Yellow	Flashing	Rear wheel alignment procedure
			Fixed	Procedure completed (front/rear wheels aligned)
			Flashing	Front wheel alignment procedure
A4		White	Fixed	Selected mode: front-steering wheels
				Selected mode: four steering wheels
				Selected mode: transverse steering
A6		Red	Fixed	Operator not properly seated in the driver's seat
		White		Selected driving mode: Normal
				Selected driving mode: Eco
				Selected driving mode: Loader
				Selected driving mode: Creep
				Gear change lock

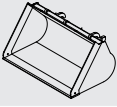
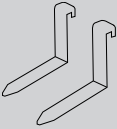


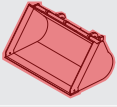
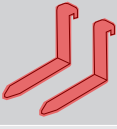


-	ICON	COLOUR	STATE	DESCRIPTION
A7		Green	Fixed	Forward gear selected
		Yellow		Gear in neutral selected
		Green		Reverse gear selected
A8	-	-	-	Clock
A9	-	-	-	Engine operation hour meter
B0		Red	Fixed	<ul style="list-style-type: none"> <li>• Maximum speed exceeded.</li> <li>• Maximum engine rpm exceeded</li> </ul>
		Yellow		Boom too high. Locking or limited speed of the boom until it is lowered.
B1		Yellow	Fixed	Periodic maintenance deadline expired
				Equipment maintenance deadline expired
B2		Blue	Fixed	No active hydraulic socket on boom head
				F1 hydraulic socket active
				F2 hydraulic socket active
				F3 hydraulic socket active
				F4 hydraulic socket active
				F5 hydraulic socket active

	ICON	COLOUR	STATE	DESCRIPTION
B3		Red	Fixed	Requested boom suspension function not active
		Green		Boom suspension function active
		Grey		Boom suspension function not requested
B4		Blue	Fixed	Boom floating function active
				Boom vertical up movement function active
				Boom position saving function active
				Equipment shaking function active
B5		Green	Fixed	Outriggers up (if installed)
		Red		Outriggers down (if installed)
		Yellow		Outriggers not completely up or down (if installed)
B6		Green	Fixed	Vehicle levelled
		Red		Vehicle not levelled
C0		Red	Fixed	Presence of water or impurities in the fuel filter
C1		Yellow	Fixed	Wait for glow plugs to warm up before turning on

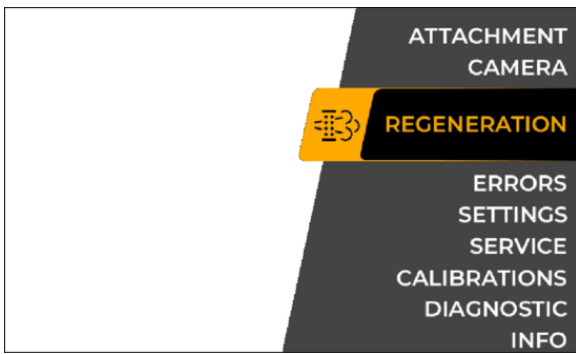


-	ICON	COLOUR	STATE	DESCRIPTION
C2		Red	Fixed	Hydraulic oil filter clogged
			Fixed	Transmission oil temperature out of range
			Flashing	Very high transmission oil temperature
C3		Red	Fixed	Air filter clogged
			Fixed	High temperature of engine intake air
			Flashing	Very high temperature of engine intake air
C4		Red	Fixed	Low engine oil pressure
			Fixed	High engine oil temperature
			Flashing	Very high engine oil temperature
C5		Yellow	Fixed	The engine requires higher rpm
E0		Blue	Fixed	Normal AD BLUE level. The level in the tank is shown on the side
		Yellow	Fixed	Low AD BLUE level
			Flashing	Very low AD BLUE level
E1		White	Fixed	Normal fuel level. The level in the tank is shown on the side
		Yellow	Fixed	Low fuel level
			Flashing	Very low fuel level
E2		White	Fixed	Normal coolant temperature. The temperature is shown on the side
		Red	Fixed	High coolant temperature
			Flashing	Very high coolant temperature
F0	-	-	-	Vehicle speed
F1		-	-	Engine speed
F2	-	-	-	Hand throttle
F3	-	-	-	Speed limiter
G1		Red	Fixed	Display mains fuse blown

-	ICON	COLOUR	STATE	DESCRIPTION
G2		Red	Fixed	Parking brake failure and/or low brake oil level
				Parking brake accumulator and/or service brake accumulator failure
G3		Red	Fixed	No electrical connection of the equipment
				Boom chains microswitch error
G4		Red	Fixed	Trailer brake disengaged
		Yellow		Slow gear engaged, gear change not permitted (if installed)
		Green		Slow gear engaged, gear change permitted (if installed)
		Yellow		Fast gear engaged, gear change not permitted (if installed)
		Green		Fast gear engaged, gear change permitted (if installed)
H0	-	-	-	Boom extension
H1	-	-	-	Boom angle

-	ICON	COLOUR	STATE	DESCRIPTION
H2		-	-	Bucket mode
				Forks mode
				Winch mode
				Basket mode
				Bucket mode error
				Forks mode error
				Winch mode error
		-	-	Basket mode error
H3	-	-	-	Weight of the load on the equipment
H4	-	-	-	Vehicle model

7.7.2 Menu



Use the T3 and T4 buttons to scroll through the menu items and press the T2 Enter button to make a selection and go to the related page.

From the Home screen, it is possible to access the menu pressing the T2 Enter key.

The menu items are:

ICON	MENU
	Equipment
	Camera
	Regeneration
	Errors
	Settings (Partly reserved to qualified personnel)
	Service (Reserved to qualified personnel)
	Calibrations (Reserved to qualified personnel)
	Diagnostics
	Information

On this page it is possible to view the information related to the equipment installed with the equipment automatic recognition system (ARS).

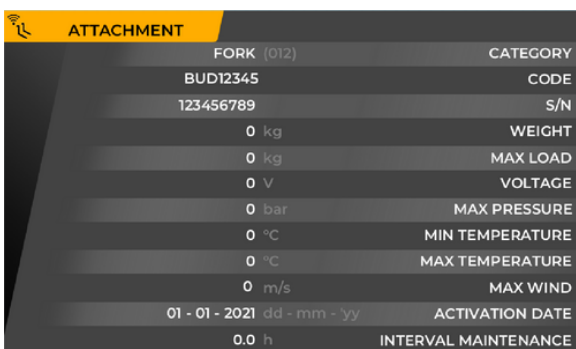
	CHARACTERISTICS	DESCRIPTION
1	CATEGORY	Shows the equipment category
2	CODE	Equipment code
3	S/N	Serial number of the equipment
4	WEIGHT	Equipment weight
5	MAX LOAD	Maximum load permitted by the equipment
6	VOLTAGE	Equipment electrical system voltage (if installed)
7	MAX PRESSURE	Equipment hydraulic circuit operating pressure (if installed)
8	TEMPERATURE	Minimum and maximum operating temperature
9	WIND	Wind maximum permissible force to use equipment
10	ACTIVATION DATE	Equipment activation date, expressed in day-month-year
11	MAINTENANCE INTERVAL	Maintenance interval

7.7.3 Equipment Automatic Recognition (ARS)



**NOTE**

**The Equipment Automatic Recognition is an optional function.**



7.7.4 Camera



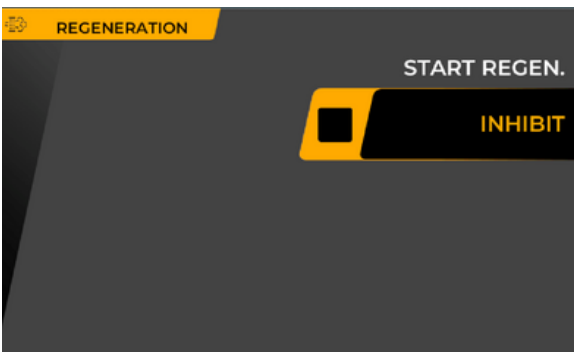
When reversing, an intermittent alarm will sound and the camera located at the rear of the vehicle (if installed) will turn on.

7.7.6 Errors



In case of error, the Home screen will show the relevant icon (A0), error code (A1a), and description (A1b). A 1.5 second sound alarm is also generated.

7.7.5 Regeneration

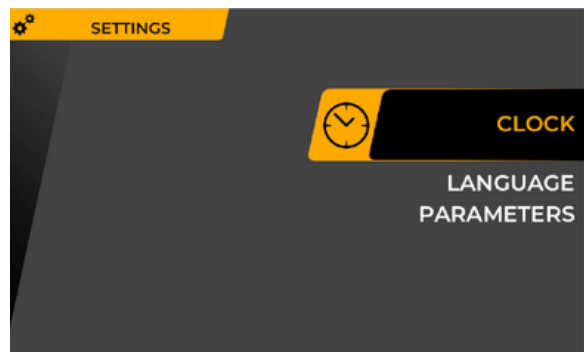


The DPF regeneration screen allows to:

- start regeneration with the relevant button
- unable regeneration by ticking the checkbox.

If there is more than one error, the error codes will be displayed cyclically every 2 sec. on the dashboard's Home screen.

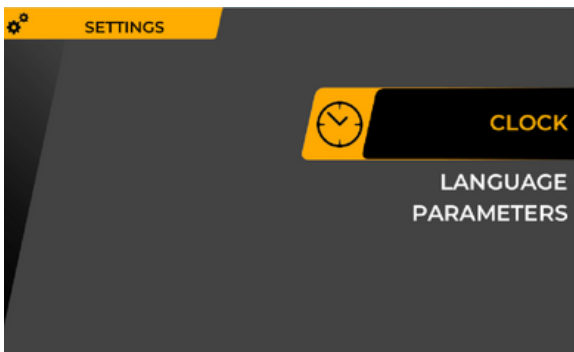
7.7.7 Settings



The setting screen allows to:

- set the clock;
- select the menu language;
- set some parameters.

### 7.7.7.1 Clock

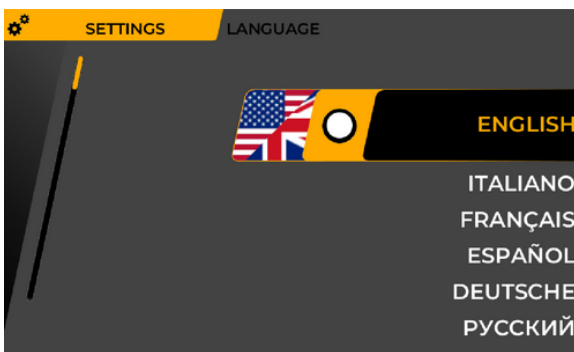


To adjust the time it is necessary to:

1. Press the OK button;
2. Turn the VDC controller to set the digit;
3. Press OK to confirm and change the following digit.

The clock is synchronised with the computerised control unit to maintain the right time when the battery is switched off.

### 7.7.7.2 Languages



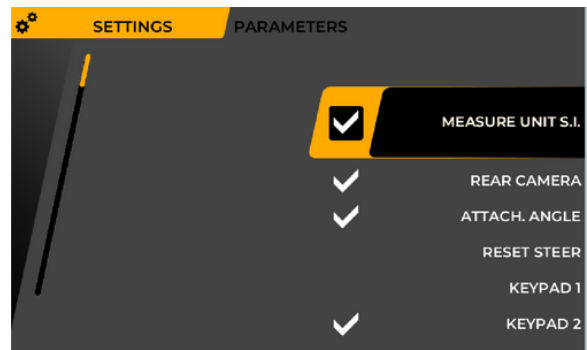
Select the desired language by pressing OK.



#### NOTE

**You can choose from 20 different languages.**

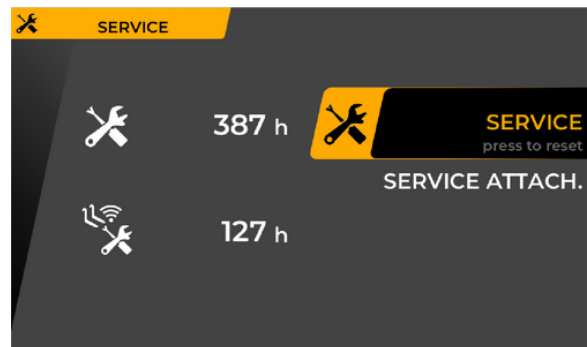
### 7.7.7.3 Parameters



#### CAUTION

**Menu reserved to DIECI qualified personnel**

### 7.7.8 Service



In this page you can see the countdown for both the vehicle's service hours and the accessories' service hours.



#### CAUTION

**Menu reserved to DIECI qualified personnel**



The Service icons indicate the intervals at which maintenance on the vehicle and equipment must be carried out

20 hours before the deadline, the icon stays on for 3 seconds after switching the dashboard on.

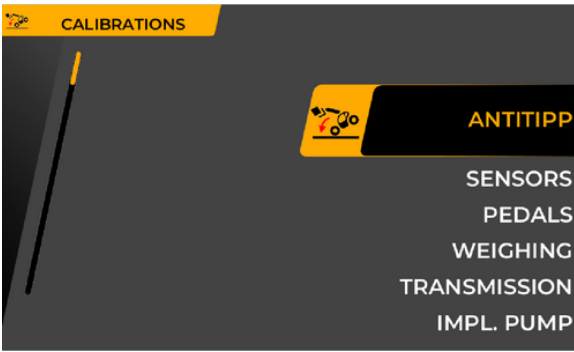
The icon stays on permanently if, at the end of deadline, maintenance is not carried out by specialised personnel.



#### NOTE

Contact the Dieci technical service to perform maintenance and reset the Service hour counting.

7.7.9 Calibrations



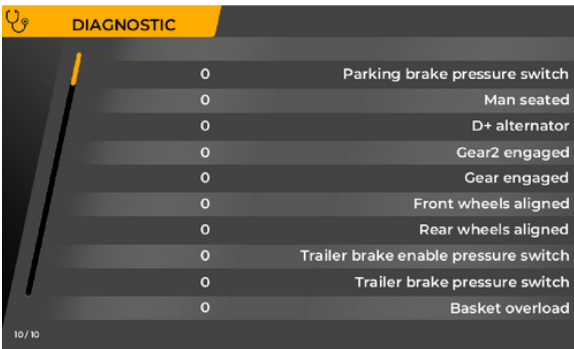
This page allows to calibrate vehicle functions. For every calibration there is a guided procedure in the relevant pages.



**CAUTION**

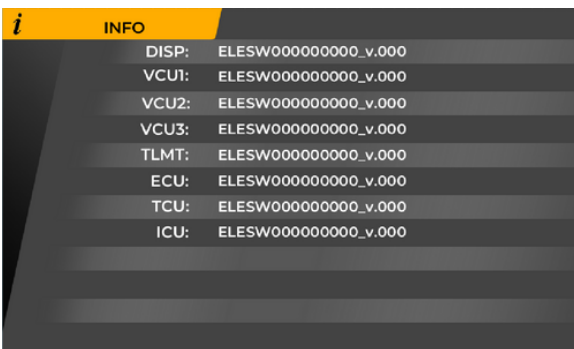
Menu reserved to DIECI qualified personnel

7.7.10 Diagnostics



This page shows the main inputs-outputs of the vehicle and their values.

7.7.11 Info



This page shows the software version of the vehicle's control units.

### 7.7.12 PopUp

A PopUp is a special window that is displayed to warn the user of a specific problem or to invite the user to perform a specific activity. They can be animated and are visible when the user is within the home page. Below is a list of the PopUps and their cause.



#### NOTE

**The PopUps may vary depending on the chosen configuration and set-up.**

POP-UP	CAUSE
	<p>When asked to engage the parking brake. When the engine is switched off, to start it. When there is no operator inside the cab and the parking brake is disengaged.</p>
	<p>When the boom floating function is requested or activated.</p>
	<p>When the boom vertical up movement function is requested or activated.</p>
	<p>When the boom position save function is requested or activated.</p>



POP-UP	CAUSE
	<p>When the boom shaking function is requested or activated.</p>
	<p>When HC level is <math>\geq 4</math>. (Only for FPT engines).</p>
	<p>When there is a DTS system limit on the vehicle.</p>
	<p>When the olive shaking function is activated.</p>
	<p>When inducement is active due to a DEF warning. (Only for FPT engines).</p>

POP-UP	CAUSE
	<p>When the engine reaches DPF level 3 (Kubota engine only).</p>
	<p>When the engine reaches DPF level 4 (Kubota engine only).</p>
	<p>When the engine requires ATS maintenance (Kubota engine only).</p>
	<p>When the operator's position is on the Remote control. This popup warns the cab operator that the controls inside the cab are no longer functional.</p>
	<p>When the operator's position is on the basket. This popup warns the cab operator that the controls inside the cab are no longer functional. In an emergency, the operator must use the red key (Bypass) to perform a recovery manoeuvre (first boom retraction, then boom lowering).</p>

## 7.8 Anti-tipping device

The vehicle is equipped with an anti-tipping device that has the purpose to help the operator to use the vehicle safely with different acoustic and visual warning signals according

The anti-tipping device is always active.



### WARNING

**This device can not replace the good experience of the operator in using the vehicle safety; the operator is the only one responsible for the safe operation of the vehicle and compliance with all safety standards prescribed.**

The operator must be able to determine if the data provided by the instrument are correct and real, using them for a safe use of the vehicle. When checking the loaded weight, make sure that this is lifted from the ground.

When turned on, the device starts a self-diagnostic program to check the proper operation of itself and of the transducers. In case of failure, the device sets itself in a safety state and stops the operations.

Therefore the operator, before starting to work, must make sure that the instrument operates correctly:

- Check for messages and alarms on the panel.
- Check that the device operates correctly.

The operator must, in case of any type of anomaly, immediately contact an authorised workshop or a DIECI authorised service centre.

### The device is always in operation.

The device is not intended for warning about the risk of tipping in case of:

- Transverse overturning
- A sudden overload,
- Transport/movement with the load in an elevated position,
- Movement on rough terrain, with obstacles or holes;
- Transport/movement on a slope or in the vicinity of a slope;
- High speed of movement on straight lines and on turns.



### CAUTION

When the limit load is reached, the device automatically locks all the aggravating movements for the stability of the vehicle.

Only the movements that allow to return the vehicle in safety conditions will remain active.

### 7.8.1 ByPass key



### WARNING

#### Danger of tipping

The ByPass Key must be used only if all of the following conditions occur:

- In case the maximum tipping limit and danger of vehicle overturning has been reached.
- By skilled and properly trained personnel.
- For short periods of time.
- In case it is not possible to restore the safety conditions.



The ByPass key is with hold down action, therefore, must be maintained rotated during the operation for setting the vehicle in safe conditions.



When using the ByPass key, the display will show the related icon "3".

The ByPass Key function turns off automatically after 30 seconds, even if the key continues to be rotated.

After reaching the safety zone, the alarm stops and the ByPass key can be released.



### WARNING

**DO NOT MAKE THE DESCENT OR THE EXTENSION OF BOOM MOVEMENTS AS THEY ARE MOVEMENTS AGGRAVATING THE STABILITY OF THE VEHICLE.**



### DANGER

When using the bypass key, only make the return or the slope of the telescopic boom, bringing this in safety situation.



### WARNING

When using the bypass key the anti-tipping systems are disabled.



## CAUTION

It is mandatory to consult the load charts of the vehicle and the equipment installed before performing any manoeuvre.

Use the inclinometer and the letters on the boom to know the exact position of the load.

In these conditions do not perform aggravating movements for the stability of the vehicle, there is a danger of loss of stability and tipping



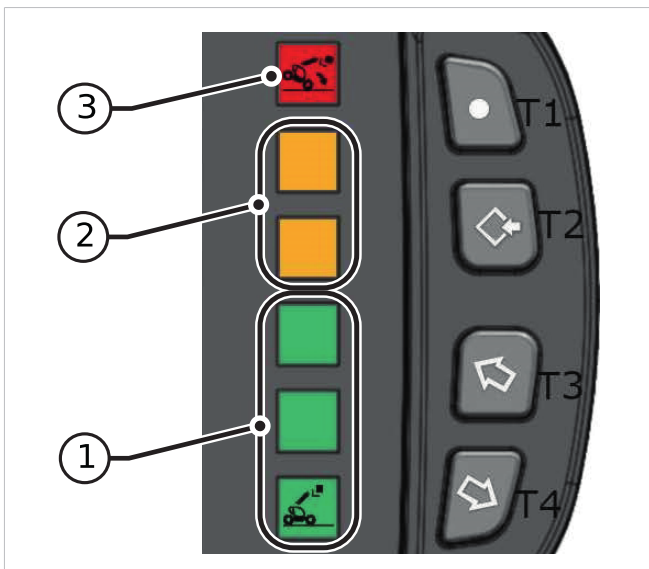
## NOTE

The bypass function is performed by a key to give the possibility to the Safety Officer to extract the key to prevent deactivating the anti-tipping system during normal working conditions

For a proper check of the device carry out the following operations:

- Place the vehicle on a flat, level surface and engage the parking brake.
- Ensure that the equipment is correctly installed on the vehicle and that it is suitable for the vehicle load-bearing capacity. Check that the anti-tipping device is set for the equipment being used at the time.
- Perform the test with warm vehicle engine.
- Refer to the load charts of the equipment installed and with closed boom pick up a load approximately weighing 50% of maximum capacity.
- Raise the load at about 50 cm from the ground.
- With the engine idling, extend the boom slowly. During this operation, check the display of the anti-tipping device.
- When the red zone is reached, the continuous audible signal will operate and the extension movement will stop simultaneously.
- At this point, check that aggravating movements for the equipment assembled are not permitted.
- Check that the stopping occurs at the point indicated in the load chart shown in notebook inside the cab.
- In the event that everything is working properly, it is possible to begin the work.

### 7.8.2 Longitudinal momentum indicator



The longitudinal momentum indicator is composed of a set of LED lights on the dashboard:

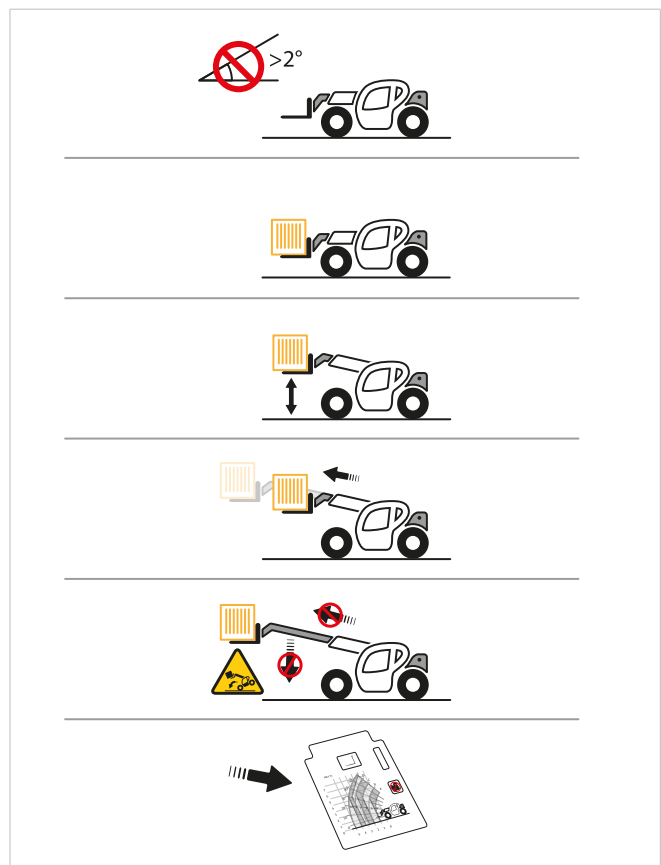
1. The green LEDs turn on during normal operation.
2. The yellow LEDs indicate a tipping warning.
3. The red LED indicates a tipping alarm.

### 7.8.3 Operation check with anti-tipping device load



## CAUTION

It is mandatory to check the proper operation of the anti-tipping device at the beginning of each work restart.





**WARNING**

If there are any faults of the safety devices, stop the work until it has been repaired.

Contact the Dieci service centre.

7.8.4 Anti-tipping device errors list



**NOTE**

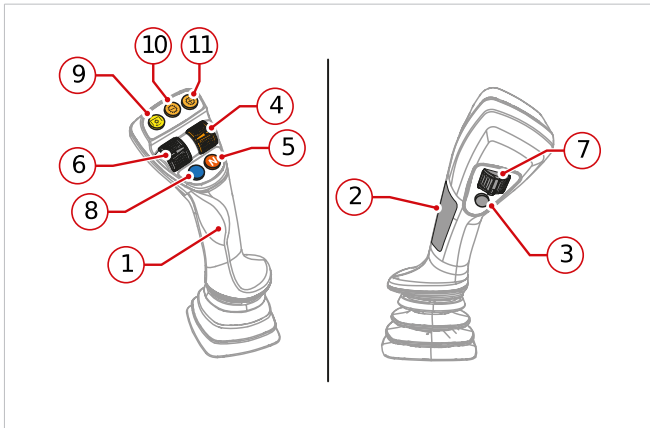
In case the vehicle is in error, contact a Dieci service centre to solve the problem, indicating the error code reported.

For more information about the errors display, refer to the "Central instrument panel" chapter.

ERROR CODE	DESCRIPTION	CAUSE
520195-2	Plausibility error	Strain gauge plausibility error Strain gauge not working
520195-9	CAN Timeout/Overrun	Communication problem on the can bus
520195-13	Calibration error	Load cell not calibrated or Signals higher than the maximum value or lower than the minimum value Power supply out of range
520195-31	Parameter setting	

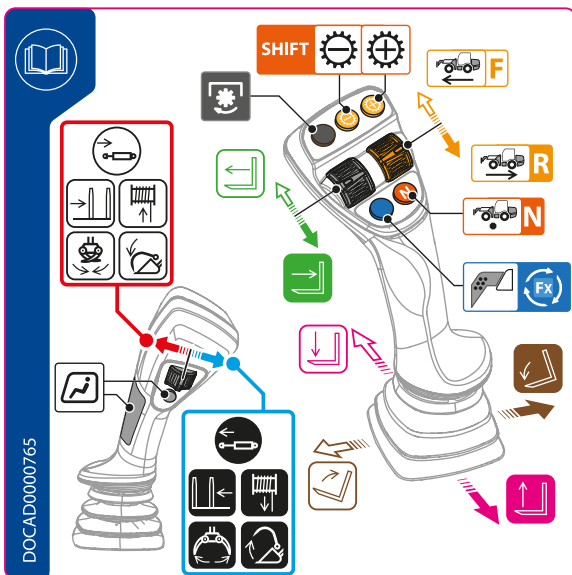
## 7.9 Guide and Transmission

### 7.9.1 Joystick



1	Grip	7	Services roller
2	Deadman sensor	8	Hydraulic sockets change button *
3	Deadman button	9	Continuous oil function button
4	FNR roller	10	Downshift
5	Neutral button	11	Upshift
6	Extension roller		

\* Components depending on optional equipment or pre-arrangements.



#### 7.9.1.1 Grip

	DESCRIPTION
	Boom lifting: Move the joystick handle backwards.
	Boom lower: Move the joystick handle forward.

	Tilting downwards: Move the joystick handle to the right.
	Tilting upwards: Move the joystick handle to the left.

#### 7.9.1.2 FNR roller

	DESCRIPTION
	Forward gear (F) Refer to FNR controls on joystick
	Neutral (N) Refer to FNR controls on joystick
	Reverse (R) Refer to FNR controls on joystick

#### 7.9.1.3 Transmission gearbox controls

	DESCRIPTION
	+ Button Upshift
	- Button Downshift

#### 7.9.1.4 Extension roller

	DESCRIPTION
	Boom retraction: Move the extension roller backwards.
	Boom extension: Move the extension roller forward.

7.9.1.5 Services roller



**NOTE**

**It is possible to connect different equipment and tools with different applications to the hydraulic sockets dedicated to the services.**

Refer to the equipment or tool manual to know its correct operation and its controls.

	DESCRIPTION
	Cylinder extension: Move the services roller to the right.
	Shifting to the right: Move the services roller to the right.
	Winch rope descent Move the services roller to the right.
	Grippers closing: Move the services roller to the right.
	Bucket closing: Move the services roller to the right

	DESCRIPTION
	Cylinder extension: Move the services roller to the left.
	Shifting to the left: Move the services roller to the left
	Winch rope lifting: Move the services roller to the left.
	Grippers opening: Move the services roller to the left
	Bucket opening: Move the services roller to the left

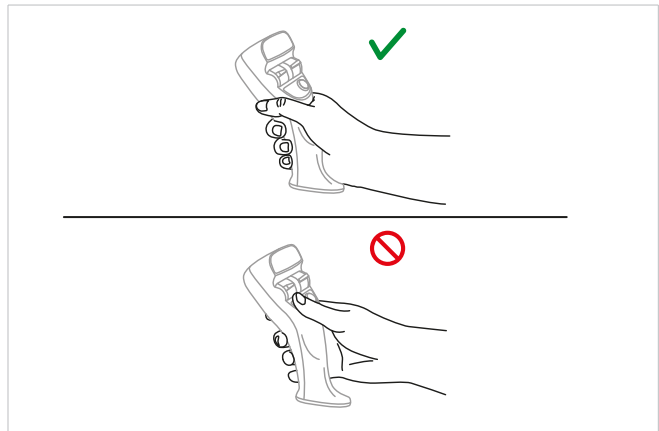
7.9.1.6 Deadman function: Capacitive sensor

	DESCRIPTION
	The deadman joystick function prevents any accidental movements.

The Joystick features a "deadman" capacitive sensor: to enable it to function you need to place your hand on the grip "1" correctly so as to activate the capacitive sensor "2".

If your hand is not resting on the capacitive sensor "2", boom movements are disabled.

Adjust the seat and the armrest so you can hold the joystick correctly.



7.9.1.7 Continuous oil function for sockets on boom head \*

	DESCRIPTION
	Continuous oil function.

The continuous oil function allows to maintain a constant volume of oil passing through the hydraulic sockets without acting consistently on the selector of the joystick.



**CAUTION**

**With the continuous oil function enabled, do not move away from the vehicle.**

Always stay within reach of the emergency stop button to stop all vehicle movements in an emergency.



**NOTE**

With the continuous oil function active it is still possible to use the joystick to move the boom.

When light of button "9" is on, on the joystick, it indicates that the continuous oil function is active.

With the continuous oil function active, the selection of the hydraulic sockets [if present] is disabled.

Activation of continuous oil function with vehicle in motion

Perform this procedure in case of work that requires the operator sitting in the cab and vehicle in motion.

**To enable the function it is necessary to:**

- The operator must be seated correctly in the driver's seat,
- Hold the joystick "1".
- [If there are several optional hydraulic sockets] Select the desired hydraulic socket on which to activate the function.
- Select the desired hydraulic socket on which to activate the function,
- Use the services roller on the joystick "7" to set the desired flow of oil.
- Maintain the flow of oil through the services roller and simultaneously press the button "9" for at least 3 seconds to activate the continuous oil function.

**To disable the function it is necessary to:**

- Press the button "9".

The continuous oil function stops if the operator rises from the seat.

Activation of the continuous oil function with stationary vehicle

Carry out this procedure in case of work requiring stationary vehicle and operator near the vehicle but not sitting in the cab.

**To enable the function it is necessary to:**

- The vehicle must be stationary and with parking brake engaged.
- The operator must NOT be seated correctly in the driver's seat.
- Hold the joystick "1".
- [If there are several optional hydraulic sockets] Select the desired hydraulic socket on which to activate the function.
- Use the services roller on the joystick "7" to set the desired flow of oil.
- Maintain the flow of oil through the services roller and simultaneously press the button "9" for at least 3 seconds to activate the continuous oil function.

When light of button "9" is on, on the joystick, it indicates that the continuous oil function is active.

With the continuous oil function active, the selection of the hydraulic sockets [if present] is disabled.

**To disable the function it is necessary to:**

- Press the button "9".

7.9.1.8 Hydraulic sockets on boom head \*



**NOTE**

\* The presence and number of hydraulic sockets and electrical contacts present on the boom head



**DANGER**

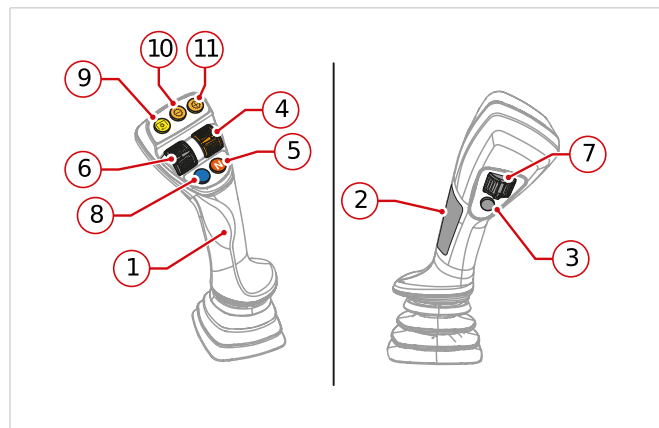
**Danger of moving the wrong hydraulic socket.**

Do not operate the hydraulic sockets using the joystick during the selection of the hydraulic socket.

Make the selection of the hydraulic socket and use the joystick to control the hydraulic socket selected only at a later time.

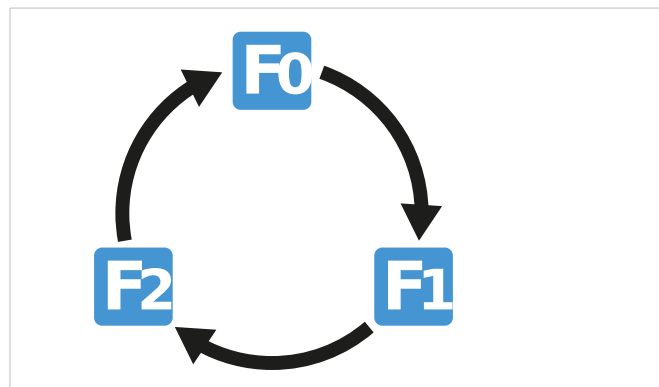
After connecting the equipment to the hydraulic sockets before starting the job, check in a safe location that all the controls are working properly. During the test, be careful not to create danger or damage to persons, animals or things.

The hydraulic socket selection function is used to change the active hydraulic socket on the boom head. Hold the joystick and press the Hydraulic socket change button "8". The active hydraulic socket on the head boom will switch to the next available hydraulic socket in a cyclic manner.



The hydraulic socket selection function is used to change the active hydraulic socket on the boom head.

Hold the joystick and press the Hydraulic socket change button "8". The active hydraulic socket on the head boom will switch to the next available hydraulic socket in a cyclic manner.



The icon corresponding to the active hydraulic socket will be shown on the display.



Switching the vehicle off and on again, the active hydraulic socket will always be the default one (F0) and not the last one previously selected.

7.9.1.9 Electrical contact on boom head \*

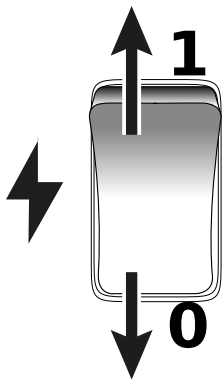


**NOTE**

**The presence of electrical contacts present on the telescopic boom head may vary depending on optional attachments.**

The pin of any equipment installed on the attachment holding plate can be connected to the electrical socket of the electrical contact on the telescopic boom head.

To enable the electrical contact, press the switch



**NOTE**

**For information on how to make the connections to the electrical socket, refer to the "Electrical connections" chapter.**



**DANGER**

Do not connect users with nominal voltage greater than 12 V and amperage greater than 3 A.

**Risk of damage to the electrical system.**

7.9.1.10 Boom suspension \*

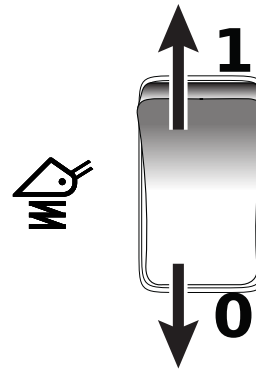


**NOTE**

\* The boom suspension is an optional accessory.

The boom suspension allows to make movements with the vehicle without being affected by the strong oscillations and jolting, caused by the boom, in the case of uneven ground.

To enable the boom suspension, press the switch in the figure.



The boom suspension is activated only if the following conditions occur:

- the telescopic boom is in the horizontal position at a height less than 2 meters from the ground.
- The vehicle has a speed greater than or equal to 5 km/h.



The green indicator light indicates that the function is active.



The grey indicator light indicates that the function is not requested.



The red indicator light indicates that the function is requested but not active.

The boom suspension is automatically deactivated by pressing the "deadman" button on the joystick.

The suspension may also be used during the transport of loads, with the boom in transport position (fully retracted and in horizontal -> lowered position).

7.9.1.11 Floating boom \*

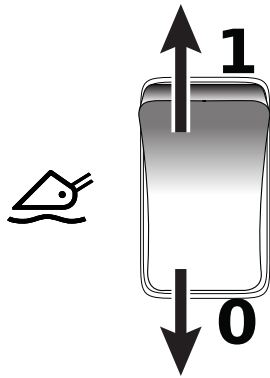


**NOTE**

\* The floating boom is an optional accessory.

The floating boom allows reverse travel with the bucket crawling on the ground to level the ground.

To activate the Floating boom, press the switch shown in the figure for a few seconds and hold the joystick.



The warning light on the switch indicates its operation.

The Floating boom is only activated if:

- the telescopic boom is less than 1 metre high.
- the vehicle is in a "low" anti-tipping condition.
- the load on the plate must not be such as to cause the vehicle to tip over.



The light blue indicator light on the display indicates that the function is active.

If the floating boom is raised during operation:

- at a height >1 metre, the floating boom is deactivated
- at a height < 1 metre, the floating boom falls back to the ground and continues its operation.

## 7.9.2 Movement selection lever \*



### NOTE

The movement selection lever is an optional attachment.

### Spring-return control lever

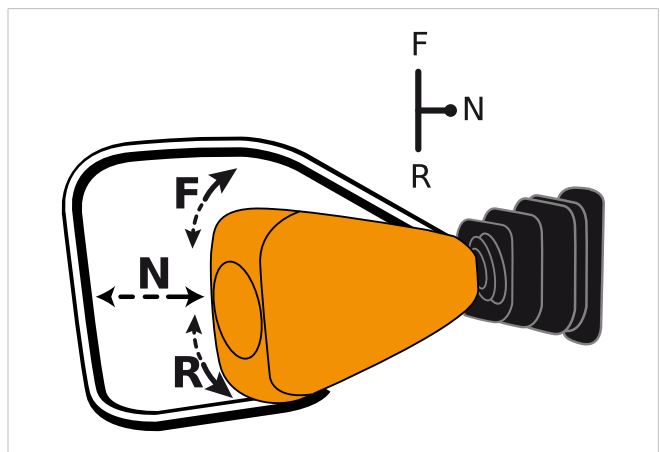
The Movement selection lever, at the left of the steering wheel, allows setting the direction of travel of the vehicle.

- Move the lever upward ("F" direction) to travel forward.
- Move the lever downwards ("R" direction) to proceed in reverse. When driving in reverse, an alarm sounds intermittently.
- Move the lever toward the steering wheel ("N" position), the transmission is in neutral and the vehicle is partially braked.



### NOTE

**Once the direction has been selected, the spring inside the lever will return it to its central position while maintaining the desired direction.**



After selecting a direction of movement, the corresponding indicator lights on the instrument panel turn on:



"F" forward movement



"R" reverse movement

The movements of the lever are not active when:

- The handbrake is engaged.
- The operator is not properly seated in the driver's seat.



### NOTE

**If the operator is not sitting properly in the driver's seat, the transmission is automatically switched off.**



**WARNING**

**After selecting the vehicle movement direction, it starts suddenly to move in the selected direction.**

Before selecting the movement direction make sure that nobody is standing near the vehicle.



**WARNING**

**It is dangerous to operate the movement selection lever with the engine at high rpm or at a speed higher than 2 km/h (1.2 mph).**

Before reversing the direction of movement, minimize the engine speed and select the new direction. Danger of vehicle overturning severe breakage of mechanical parts.

**7.9.3 Shift on Fly transmission**

The vehicle is equipped with an electronically controlled hydrostatic transmission with 2 mechanical gears:





- Turtle slow gear: suitable for work on construction sites, where maximum tractive force and low vehicle speeds are required.
- Hare fast gear: suitable for road travel, where high travel speeds but low tractive force are required.

The transmission that equips this vehicle offers the possibility of changing gears on the move, without necessarily having to stop the vehicle.

To switch from hare to turtle, press the "-" button on the joystick, and to switch from turtle to hare, press the "+" button on the joystick.

Shifting in motion is only permitted within certain vehicle speed ranges to ensure safety and safeguard the transmission components.

On the dashboard, depending on the colour of the engaged gear icon (Hare or Turtle), it is possible to understand whether gear shifting is allowed or not.

	Yellow Fixed	Slow gear engaged, gear change not permitted (if installed)
	Green Fixed	Slow gear engaged, gear change permitted (if installed)
	Yellow Fixed	Fast gear engaged, gear change not permitted (if installed)
	Green Fixed	Fast gear engaged, gear change permitted (if installed)



**WARNING**

**At very low oil temperatures, the shifting in motion is automatically inhibited.**

**Shifting from a standstill, on the other hand, is always permitted.**

On very steep climbs or descents, shifting in motion is inhibited for safety reasons.

To change gears, the vehicle must be stopped and the brake pedal must be depressed fully before shifting.

Shifting in motion is not available in the speed range between 0 and 5 km/h.

**7.9.4 Steering wheel**

The steering wheel of the vehicle allows steering the vehicle wheels according to the steering mode set.

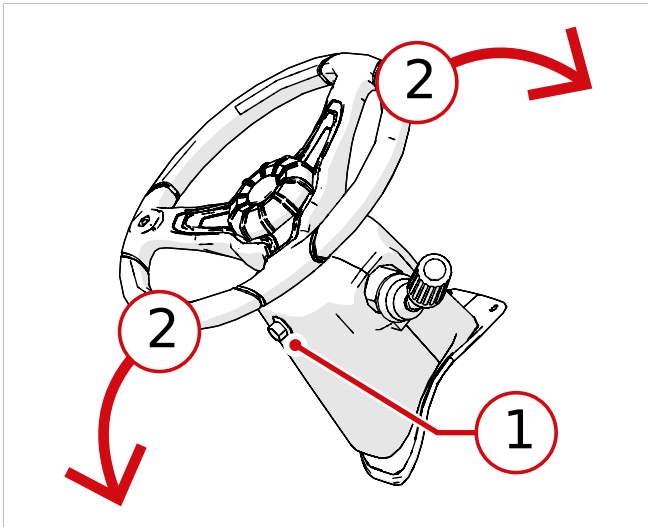


## NOTE

Refer to the "Steering selector" chapter.

The steering wheel is properly adjusted when the operator, with the back firmly against the backrest of the seat, is able to grasp the furthest side of the steering wheel while keeping the elbow slightly bent.

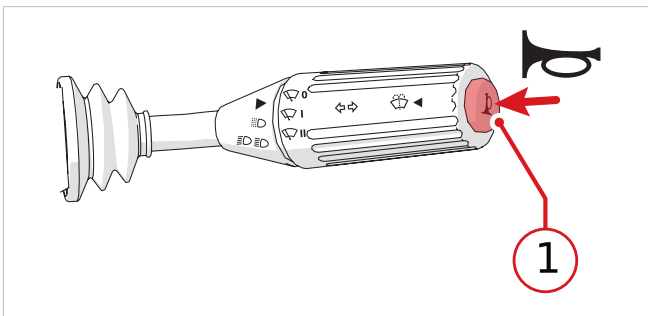
### 7.9.4.1 Steering wheel tilt adjustment



To adjust the steering wheel tilt:

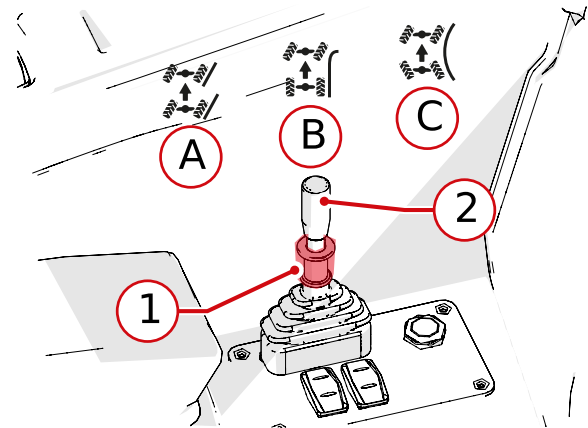
- Press and hold the button "1".
- Tilt the steering wheel to the desired position "2".
- Release the button "1" to lock the steering wheel.

### 7.9.5 Horn



Press the button on the end of the lever "1" to activate the horn.

### 7.9.6 Steering selector lever



The mechanical steering selection lever allows to change the wheels steering mode:

The steering selector lever is equipped with a locking device to prevent accidental operation. In order to move the lever "2" it is necessary to raise and keep the lock "1" raised. Release the lock "1" to fix the lever "2" in the chosen position:

#### A - Transverse

This type of steering allows a transverse or crab steering, so as to have a lateral displacement of the vehicle.

#### B - Front-steering wheels

This type of steering allows to carry out a steering with only the 2 front wheels.

#### C - Four steering wheels

This type of steering allows to carry out the steering with all 4 wheels, so as to have the smallest turning radius possible.



## DANGER

**Make the steering selection only with the vehicle stopped.**

Before selecting a new type of steering, align the wheels with stopped vehicle.



## WARNING

When the transverse steering is selected, always operate at low speed.

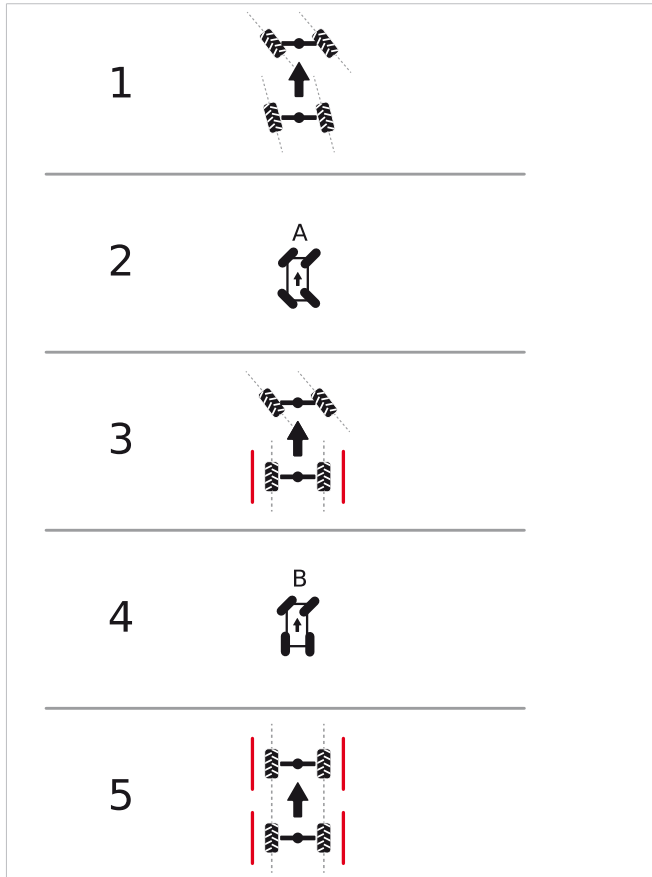


## CAUTION

For road travel, it is mandatory to select the 2-wheel steering mode.

Manual wheel alignment

**CAUTION**  
 Perform the wheel alignment periodically (every 8-10 hours) depending on the continuous use of the vehicle.



During normal use of the vehicle, frequently changing the steering modes, it is possible that the wheels are no longer perfectly aligned with each other.

To perform a proper wheel alignment, perform the following steps:

1. Stop the vehicle on a level ground.
2. Select the A or C steering mode
3. Turn the steering wheel until the rear wheels are aligned to the vehicle.
4. Select the B steering mode
5. Turn the steering wheel until the front wheels are aligned to the vehicle.

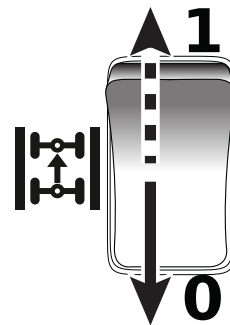
Try to move slowly for a few metres to verify that the vehicle travels properly in a straight line

**If at the end of the alignment the vehicle still does not proceed in a straight line, repeat the wheels alignment**

7.9.7 Wheels alignment check \*

**NOTE**  
 \* The wheels alignment check is an optional accessory.

**CAUTION**  
 Perform the wheel alignment periodically (every 8-10 hours) depending on the continuous use of the vehicle.



During normal use of the vehicle, frequently changing the steering modes, it is possible that the wheels are no longer perfectly aligned with each other.

By holding down the button shown in the figure, wheel alignment can be checked.

Stop the vehicle on a level ground.

In case two of the four wheels are very misaligned, try to align them manually (see chapter "Steering selector") as much as possible.

By pressing the wheel alignment button, it is possible to power the sensors to check that the axles are aligned.

Select the 4-wheel or transverse steering mode

Hold down the button. Turn the steering wheel until the icon next to the rear wheel alignment appears on the display.



Hold down the button. Turn the steering wheel slowly to align the rear wheels with the vehicle, then it will automatically switch to front steering mode.

Hold down the button. The front steering mode will activate automatically and the icon on the side will appear on the display.



Turn the steering wheel slowly to bring the front wheels in line with the vehicle.

Wheel alignment is now complete as confirmed on the display, the icon will appear.



### 7.9.8.1 Braking circuit errors list

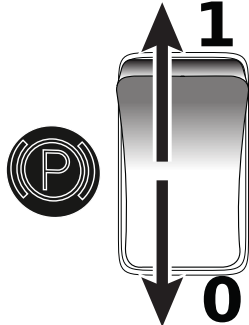


#### NOTE

In case the vehicle is in error, contact a Dieci service centre to solve the problem, indicating the error code reported.

For more information about the errors display, refer to the "Instrument panel" chapter.

## 7.9.8 Parking brake



To disengage the parking brake, lift the lock "A" and simultaneously press the switch on the side 1.



The parking brake properly engaged is indicated by the lighting of the switch and the indicator on the instrument panel of the vehicle.

With the parking brake engaged, the vehicle cannot move; the hydrostatic transmission is switched off and the wheels are braked.

To disengage the parking brake, press the switch from side "0".

The parking brake must be engaged:

- Every time the operator leave the vehicle, even in case of momentary stop
- Whenever the vehicle operates from a standstill even with outriggers down (if any)
- To start the engine.

The brake engages automatically when the engine is stopped.



#### WARNING

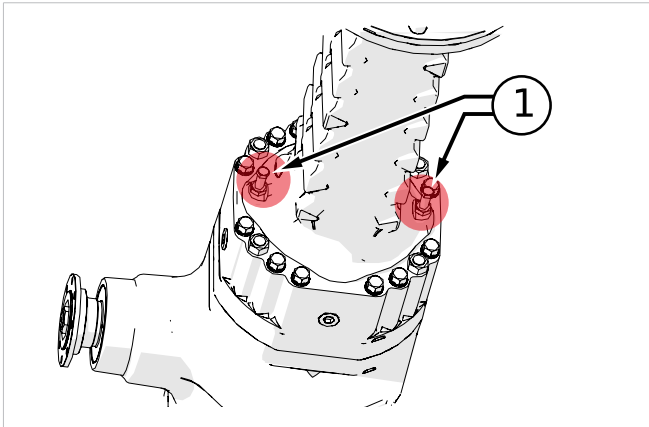
Unauthorised modification of axle ratios, vehicle weight, size of wheels and tyres can affect the parking brake efficiency.



#### NOTE

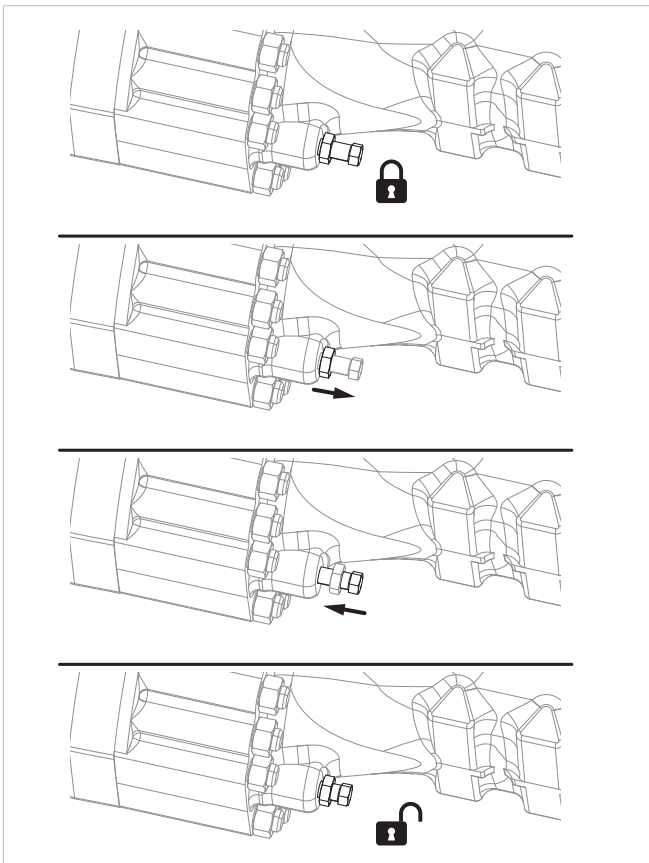
To verify the efficiency of the parking brake contact a DIECI authorized workshop.

7.9.8.2 Deactivating the internal parking brake manually



The parking brake must be disengaged directly on the axle with the engine off to allow the vehicle to be towed:

- Place safety wedges under the wheels to prevent the vehicle from moving suddenly.
- Loosen the lock nuts on both sides of the central body of the axle.
- Tighten the screws until they meet resistance; check the turns made in order to return the screws into the starting position when the towing operations are completed.
- Tighten the screws further 1.5 turns.
- In this way the brake will be released. After the towing return everything to the initial conditions.



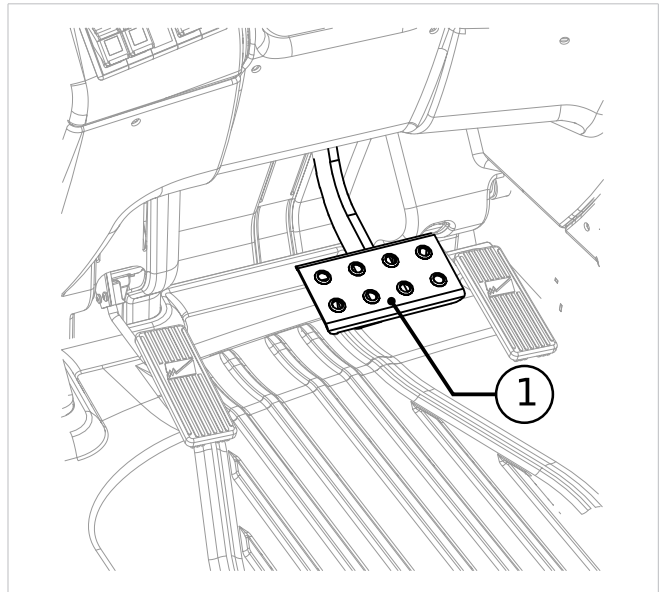
**DANGER**

**Never use the vehicle with the negative parking brake disengaged/disconnected.**

After the towing return everything to the initial conditions.

It is very important to re-tighten the screws with the same number of turns with which they are loosened

7.9.9 Service braking pedal



Press the service brake pedal "1" to slow down or stop the vehicle.

The pedal acts directly on the service brakes inside the differential axles.

When the brake pedal is pressed the stop lights of the rear lights go on. The lights remain in operation until the pedal is released.

Periodically check that both lights are working.



**WARNING**

In the case of restricted use of the pedal periodically check its proper operation. In case of problems contact the Dieci service centre.





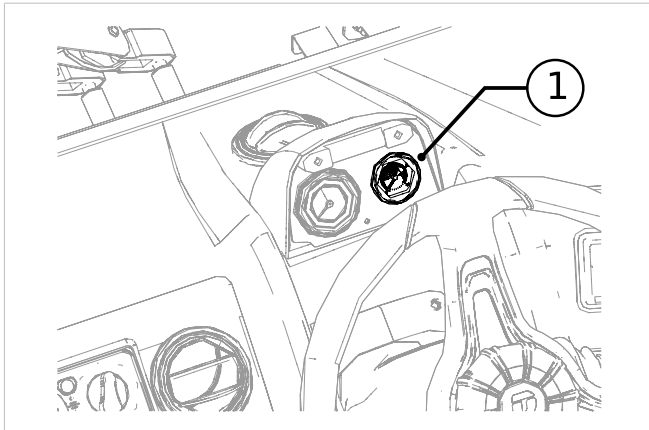
### CAUTION

If the warning light turns steady on, it indicates a low brake fluid level.

If the warning light turns on intermittently, the parking brake is stuck or damaged.

Do not use the vehicle until the problem has been solved. Contact a Dieci service centre.

#### 7.9.9.1 Servo brake



The pressure gauge "1" allows to control the servo brake pressure. In case of anomalies and faults, the pressure may drop.



### DANGER

**The pressure should not drop below 18 bar (1.8 MPa – 260 psi).**

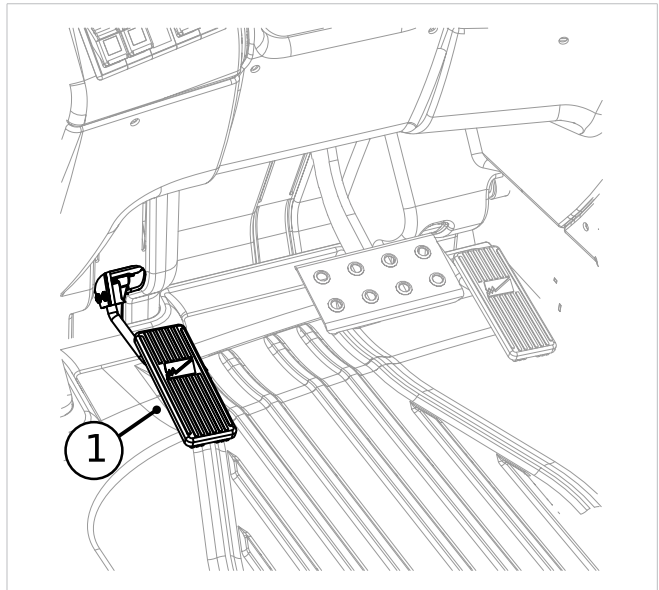
In the case of low pressure (below 18 bar) stop the vehicle and contact an authorised Dieci dealer to eliminate the defect.

It is absolutely forbidden to operate with servo brake accumulator pressure less than 18 bar (1.8 MPa – 260 psi).

#### 7.9.9.2 Brake fluid

When the "Brake fluid level low" indicator light flashes on the central dashboard (see Components paragraph), it means that the brake fluid level has dropped below the minimum (MIN) and therefore it must be restored.

#### 7.9.10 Inching Pedal



The inching pedal "1" acts directly on the hydrostatic transmission and allows to slow down the vehicle forward movement.

The pedal allows slow and precise forward movements with high rpm heat engine.

With pedal fully pressed, the vehicle stops the forward movement.

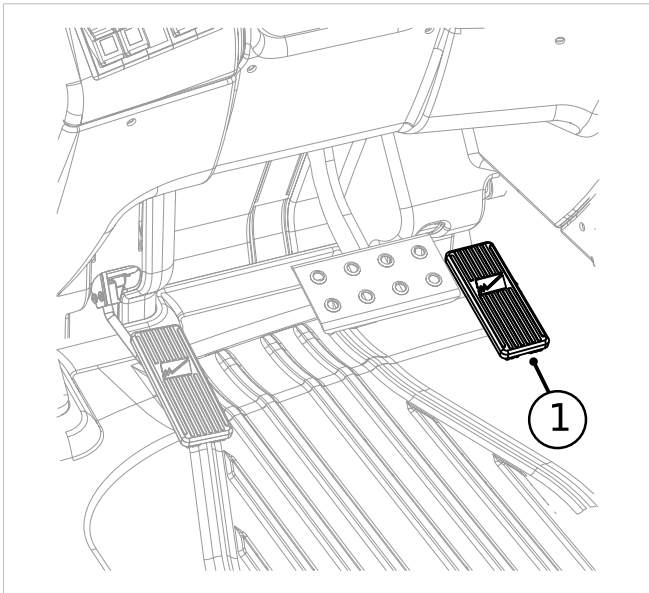


### DANGER

Do not press the inching pedal at high speeds, the vehicle brakes suddenly and the diesel engine risks over-revving.



7.9.11 Accelerator pedal



Press the accelerator pedal "1" to increase the engine speed, when the pedal is released the engine rpm will decrease.

The pedal acts directly on the injection pump of the engine



**WARNING**

If while driving, the vehicle exceeds the maximum allowed speed, the "Over speed protection" transmission electronic control goes into operation. The function automatically limits the vehicle speed in order to prevent transmission and diesel over revving.

Triggering of the "Over speed protection" function is signalled by the general alarm warning light switching on and the intermittent acoustic signal.

If the function intervenes, the operator must lift his foot from the accelerator pedal and reduce the speed of the vehicle.

When travelling down a very steep slope, the "Over speed protection" function may not be sufficient to limit the vehicle speed. In this case, the operator will necessarily have to lift his foot off the accelerator and act on the brake pedal to slow the vehicle and avoid overspeeding.



**NOTE**

The maximum speed of the vehicle varies with the inflation pressure and the size and wear of the tyres.

7.9.12 ECO mode



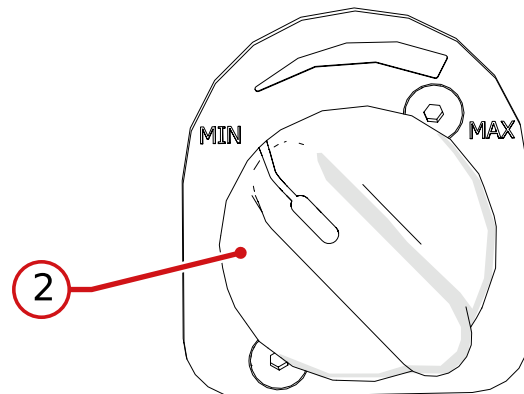
The switch activates the ECO mode, which allows the operator to save fuel.

The ECO mode is indicated by the corresponding indicator light on the display.

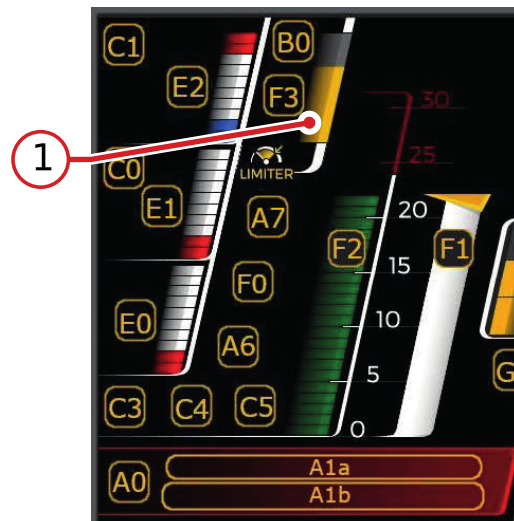
The ECO driving mode, when active, automatically kicks in above 20 km/h.

7.9.13 Maximum speed limiter

The Maximum speed limiter selector "2" is used to set the vehicle movement maximum speed.



Bar "1" shows the speed at which the vehicle will move during travel.



To set the speed limitation it is necessary to:

- Stop the vehicle

- Turn the selector "2":
  - Clockwise to increase the maximum speed
  - Counter-clockwise to decrease the maximum speed

#### 7.9.14 CREEP mode

Creep mode engages automatically when the hand throttle is activated.

Depending on the number of presses of the hand throttle button, the speed of the diesel engine can be set.

When the hand throttle is active, the speed limiter selector switch will adjust the maximum speed of the vehicle from 0 km/h up to the maximum speed that can be reached with the speed selected via the hand throttle.

Instead, the accelerator pedal will regulate the actual forward speed of the vehicle without affecting the RPM of the diesel engine.

Use mode:

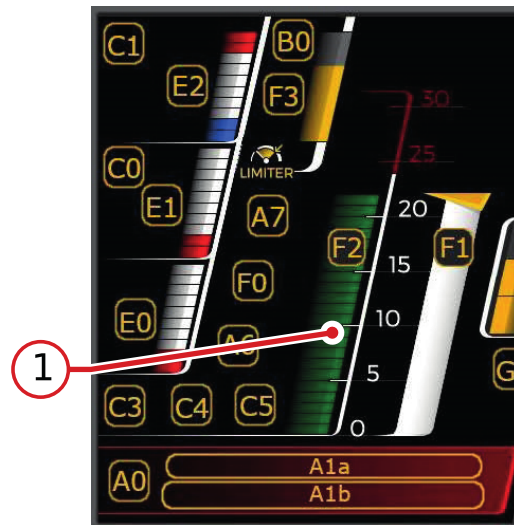
1. Set the desired speed using the hand throttle.
2. Press the brake and shift into gear F or R.
3. Slowly release the brake.
4. Turn the selector to set the desired speed limit.
5. Press the accelerator pedal to move the vehicle within the range previously set with the selector switch.



#### WARNING

**In Creep mode, the accelerator pedal will not affect the speed of the engine but only the vehicle forward speed.**

- The green marks "1" on the display show the rpm setting.



To deactivate the function, press the accelerator pedal.



#### CAUTION

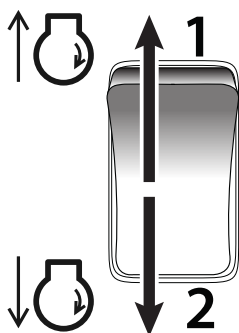
When turning off the vehicle, the function must be disabled and the engine must be brought to the minimum speed.



#### WARNING

Do not use the electronic throttle in the cab during the use of the basket and/or of the remote control.

#### 7.9.15 Electronic hand throttle

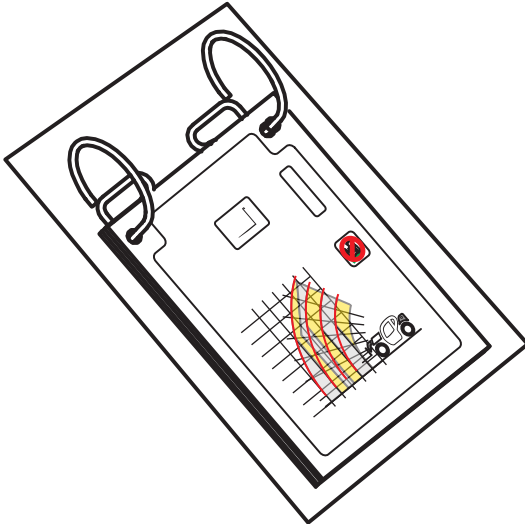


The hand throttle allows to maintain constant engine revolutions, without pressing the accelerator pedal.

- Press the Hand throttle on the top "1" to increase the engine revolutions by 200 rpm.
- Press the hand throttle on the bottom "2" to decrease the engine revolutions by 200 rpm.

## 7.10 Diagrams notebook

The diagrams notebook summarizes the main information for safe use of the vehicle for easy reference by the operator during the various processing phases.



### 7.10.1 Load Charts

The Safe Working Load (SWL) of the vehicles depends on the extension extent and the boom angle.

The load charts show the maximum height and extent allowed by certain equipment and loads, in order to work safely, without the risk of tipping of the vehicle during work operations.

This vehicle is however equipped with an anti-tipping device that monitors in real time the status of the load and the risk of tipping of the vehicle (see the "Anti-tipping device" chapter in the vehicle manual). It is however necessary to use and adhere to the load charts in relation to the load and type of accessory used.

**CAUTION**  
It is mandatory to have in the cab, the load chart referred to the equipment and the vehicle that is being used.

Refer to the correct load chart before handling a load.

**WARNING**  
**Danger of tipping.**

Do not raise or extend the boom when the vehicle is in motion. Fully lower and retract the boom before moving a load.

**CAUTION**

The load charts refer to stopped and levelled vehicle.

**The diagrams of the vehicle and equipment being used must always be present in the Diagram notebook found in the cab, used by the operator.**

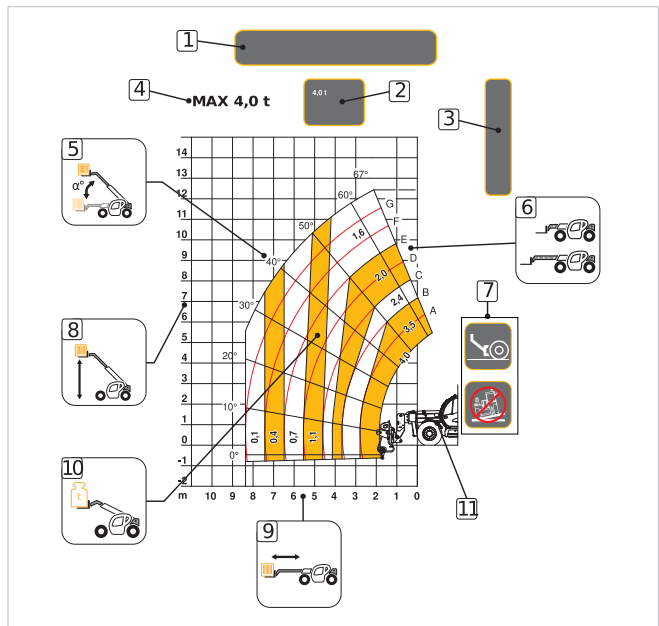
Replace the load charts if they deteriorate, are damaged or lost.

The load charts are ordered just like spare parts (make sure you provide the relative identification code when placing the order).

Before handling a load it is necessary to:

- Have read and understood the use and maintenance manual of the vehicle and equipment.
- It is mandatory to know the weight of the load that must be handled.
- Locate the centre of gravity of the load to be handled. The centre of gravity may not be at the centre of the load.

#### 7.10.1.1 Read the load charts



- 1** Vehicle name and model
- 2** Equipment model  
Equipment model with the indications of centre of the load.  
For more information, refer to the Equipment legend for load charts chapter
- 3** Load Chart code
- 4** Equipment maximum capacity  
The maximum capacity of the equipment is also reported by the sticker placed on the equipment itself.

- 1** Vehicle name and model
- 5** Boom angle  
The boom angle is indicated by the inclinometer on the left side at the end of the boom (if any), or on the display of the anti-tipping device (if present)
- 6** Boom extension  
The boom extension is indicated by letters of the alphabet ("A", "B", "C", "D", etc...). The same letters are shown as decals on the boom extension, so that the user in the cab can know the boom extension by reading the letters on it
- 7** Vehicle operating mode.  
For more information, refer to the Operating mode legend for load charts chapter
- 8** Load height from ground
- 9** Horizontal distance of the vehicle load
- 10** Load weight
- 11** Vehicle position

### 7.10.1.2 Use the load charts

The Load charts indicate the areas in which it is possible to operate with the vehicle and load in safe conditions.

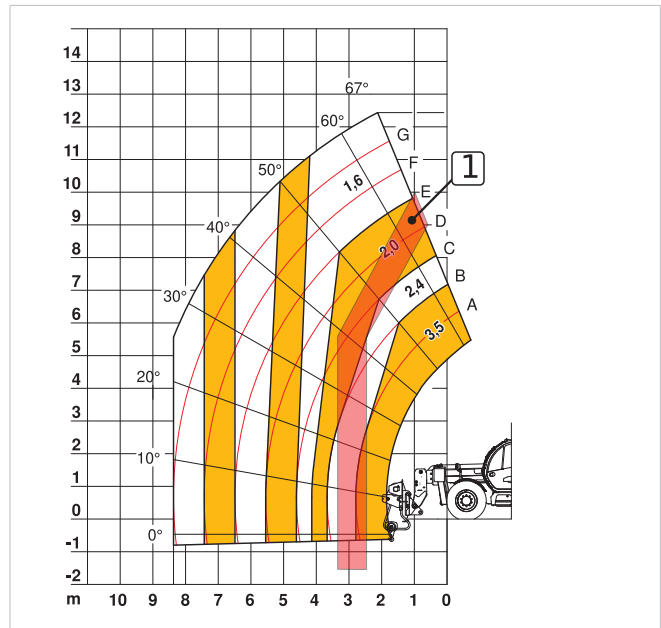


## WARNING

### Danger of tipping.

Operating the vehicle without observing the Load charts related to the equipment installed may result in hazardous conditions, up to the tipping limit and the operation of the Anti-tipping device

The whole working area of the boom is divided into these areas. Each area corresponds to a maximum capacity. The area closest to the vehicle will have a capacity equal to the maximum loading capacity of the vehicle; as moving away from the vehicle, the maximum capacity of the areas decreases.



Before starting to work, it is necessary to know:

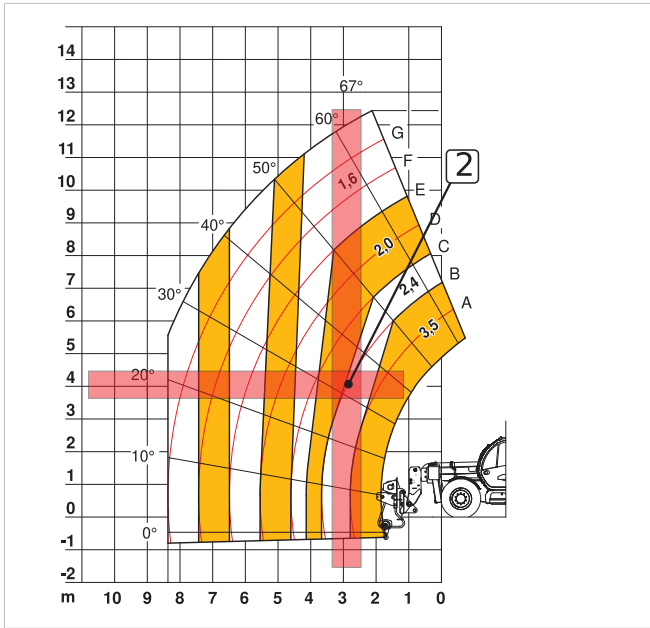
- Load weight
- Height from ground at which the load must be handled
- Distance from the vehicle at which the load must be handled

Locate the area of the load charts, showing a value just above the weight of the load to be handled; for example if the load weighs 1.5 tons, the area to which it is necessary to refer is the area with a capacity of 2 tons (position "1").

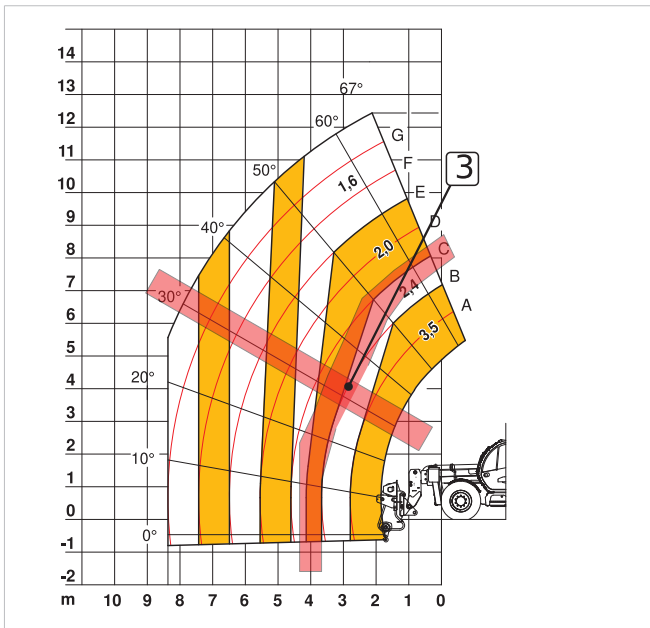
Knowing the area, the following will be known:

- the vertical and horizontal distance to which it will be possible to handle the load
- the boom extension and angle values at which it is possible to operate.

In order to know the vertical and horizontal distance at which it will be possible to handle the load, use the horizontal and vertical lines that cross the reference area; for example, it will be possible to carry the load at a distance of 3 m from the vehicle and 4 m in height remaining in safety conditions.



To avoid operating in conditions of tipping danger, use the boom angle and extension indications. For example, we could operate with the boom extended to letter C at an angle of 30°.


















**WARNING**

**Taking the load beyond the permissible area, we would enter in danger conditions of tipping over and the anti-tipping device, locking all the movements considered aggravating to the stability of the vehicle and of the load.**

Use the load charts for each load handling to determine the working area.

It is possible to start operating only under safety conditions and if within the predetermined safe work area.

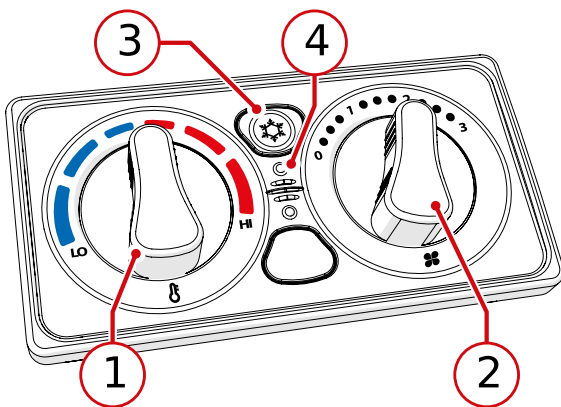
7.10.1.3 Equipment legend for load charts

-  Forks  
xxx = Centre of gravity of the load
-  Forks Spreader / Shifter  
xxx = Centre of gravity of the load
-  Winch  
xxx = Capacity
-  Crane extension  
xxx = Centre of gravity of the load
-  "Gooseneck" jib (Dimensions)  
xxx = Centre of gravity of the load
-  HOOK FOR FORK CARRIAGE
-  Gripper for pipe with pipe locker  
xxx = Centre of gravity of the load
-  Cylinders manipulating gripper
-  Wheels manipulating gripper
-  Sheets holding gripper
-  5 teeth orange-peel grabber
-  Centring layer
-  Negative jib
-  Positive jib
-  Fixed front basket  
xxx = length, yyy = width
-  Extensible front basket  
xxx = length, yyy = width, zzz = maximum width
-  Fixed trilateral basket  
xxx = length, yyy = width
-  Extensible trilateral basket  
xxx = length, yyy = width, zzz = maximum width
-  Front basket for tunnels  
xxx = length, yyy = width
-  Fixed trilateral basket for tunnels  
xxx = length, yyy = width

### 7.10.1.4 Operating modes legend for load charts

	Prohibition to operate on tyres
	Prohibition of operating with unlevelled vehicle
	Crossbeam outriggers lowered, 0% extended
	Crossbeam outriggers lowered, 50% extended
	Crossbeam outriggers lowered, 100% extended
	Crossbeam outriggers lifted
	Flap down outriggers lifted
	Flap down outriggers lowered
	On wheels
	Front position
	In non-continuous Rotation
	In continuous Rotation

## 7.11 Ventilation



### 7.11.1 Ventilation adjustment

To adjust the ventilation, turn the knob "2".

Clicks indicate respectively:

0- Off

1 - First speed

2 - Second speed

3 - Third speed

### 7.11.2 Air temperature adjustment

To adjust the temperature of the air coming out of the vents, turn the knob "1":

- Turning the knob clockwise (in the red scale) the temperature increases.
- By turning the knob anti-clockwise (in the blue scale), the temperature decreases until it is close to the outside temperature.

### 7.11.3 Air conditioning\*



#### NOTE

\* Air conditioning is an optional accessory.

For a correct use of air conditioning, follow the following steps:

- Check that all doors and windows are closed.
- Check that the heater is turned off by moving the lever towards the end of the blue scale.
- With the engine running, press the button "3" to turn on the air conditioning.
- Turn the airflow adjustment knob "2" to select the desired intensity.
- Open and adjust the vents to obtain the best cooling according to the ambient temperature.
- Turn the temperature knob "1" to obtain the desired temperature.

The active air conditioning is signalled by the LED "4" on



#### CAUTION

**Turn on the air conditioning two minutes, every 15 days, even in the colder seasons with the engine idling (without accelerating). In this way the moving parts, such as the compressor and the system in general are lubricated.**

To keep the air conditioning system efficient keep the condenser clean.



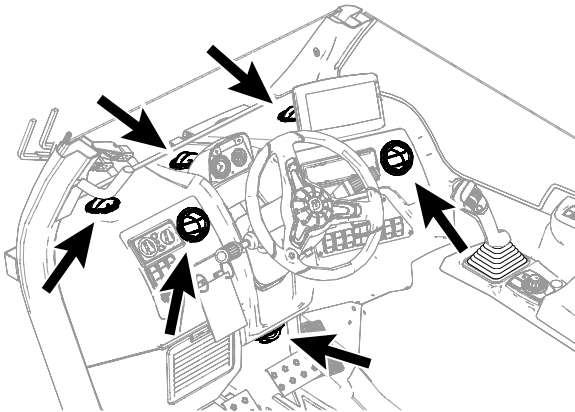
#### DANGER

**Do not loosen any hose of air conditioning systems in order to reach the capacitor since the contact between the skin and the refrigerant can cause frostbite.**

For maintenance and deadlines, see the "Maintenance" chapter



7.11.4 Ventilation nozzles



To open the air vents press on one side of these and adjust the air flow direction using the fins or rotating the vent.

To close the vents push the fins bringing them to the horizontal closing position.

7.12 Levelling

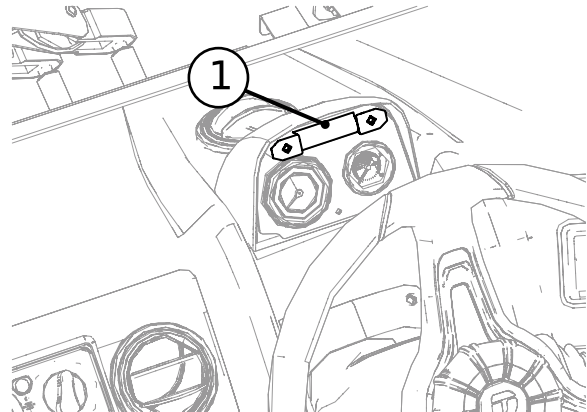
7.12.1 Spirit Level



**NOTE**

The levelling system may vary depending on the chosen configuration and set-up

The spirit level is located at the centre of the dashboard. It is used to verify the correct transverse levelling of the vehicle.



To safely operate, the spirit level must be at the centre, with a maximum approximation of 2° to the right or left.

In the standard spirit level, the angle exceeds 2° when the spirit level moves completely outside the 2 limit marks of 2°



**WARNING**

**Danger of transverse tipping.**

To safely operate, the spirit level must be at the centre, with a maximum approximation of 2° to the right or left

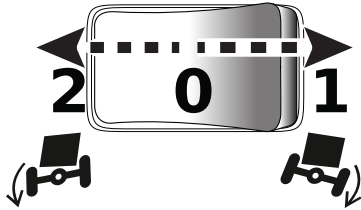
### 7.12.2 Transverse levelling device



#### NOTE

The transverse levelling device is an optional accessory.

The transverse levelling device allows to adapt the vehicle to the transverse inclination of the ground.



To level the vehicle it is necessary to:

- Position the load on the ground.
- Lower and fully retract the telescopic boom.
- Press the Transverse levelling button:
  - From the right side "1" to tilt the vehicle to the right.
  - From the left side "2" to tilt the vehicle to the left.



#### WARNING

**It is not possible to work with tilting greater than 2°. Danger of transverse tipping.**

Use the spirit level in the cab to check the inclination of the vehicle.



#### CAUTION

**It is not possible to level the vehicle when the attachment holding plate is more than 2 metres high. Danger of transverse tipping. With the man basket connected, level the vehicle only when the boom is retracted and lowered.**

### 7.12.3 Outriggers

#### 7.12.3.1 Outriggers warnings



#### NOTE

The Outriggers are present on the vehicle according to the model or of optional attachments.

The Outriggers feet allow to increase the stability of the vehicle during the working operations.

When using the vehicle with outrigger feet properly lowered, use the relative load charts.



#### WARNING

**Danger of transverse tipping.**

It is allowed to operate only if the vehicle transverse inclination is less than 2°.



#### CAUTION

**The sinking of the feet leads to the destabilization of the vehicle or of the load and consequent danger of vehicle tipping or load falling.**

Before lowering the outrigger feet, place the vehicle in working position, make sure that the ground is firm and can support the weight of the vehicle without the outrigger feet sinking into the ground.

See the chapter "Assessing the consistency of the work ground".



#### WARNING

Before proceeding with the transfer on road, lift and retract completely all outriggers.



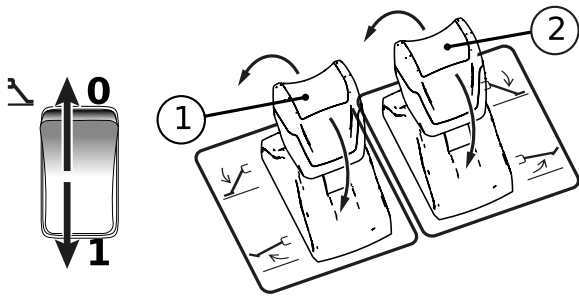
#### NOTE

It is allowed to move the outriggers only with boom retracted at a height lower than 2.5 m (8.2 ft).

Only for vehicle with man basket pre-arrangement, it is possible to move the outriggers with the boom extended not more than 500 mm (19.69 in) and at a height less than 2.5 m (8.2 ft)



7.12.3.2 Outriggers movement



To move the outriggers it is necessary to use the levers "1" and "2" located on the right instrument panel.

The controls are proportional compared to the outriggers movement.

- Lay the load on the ground.
- Lower and fully retract the telescopic boom.
- Press the button "A" to enable the use of levers "1" and "2".
- Press and hold down the button "A" to enable the outriggers movement and use:
  - The lever "1" to move the left outrigger.
  - The lever "2" to move the right outrigger.
  - Move the levers forward to lower the outriggers.
  - Move the levers backward to lift the outriggers.
- Check the correct levelling of the vehicle using the spirit level in the cab. The vehicle is correctly positioned on the outriggers when:
  - Both outriggers are lowered to the ground.
  - Both front wheels are off the ground.
  - The vehicle has a transverse slope less than 2°.



**NOTE**

**The Outriggers icon on the vehicle display has different statuses.**

Refer to the chapter: Outriggers icon\*.

7.13 Optional attachments

7.13.1 Fan reversal\*

**NOTE**

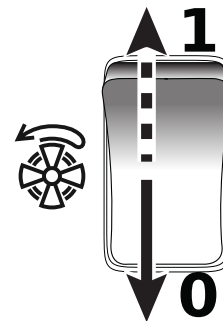
The fan reversal is an optional attachment.

The fan reversal allows precisely the radiator fan reversal to clean the radiator from any dirt deposits such as dust and straw.

The reversal is carried out automatically every 20 minutes, without having to stop the vehicle.

To manually activate the fan reversal operation act on the relevant button "1". The cleaning cycle is activated automatically by pressing the button, which should therefore not be held down.

The automatic fan reversal timer is also reset when the button is pressed.



The fan will remain in the "cleaning" position (reversed motion) for a time set by the manufacturer.

**CAUTION**

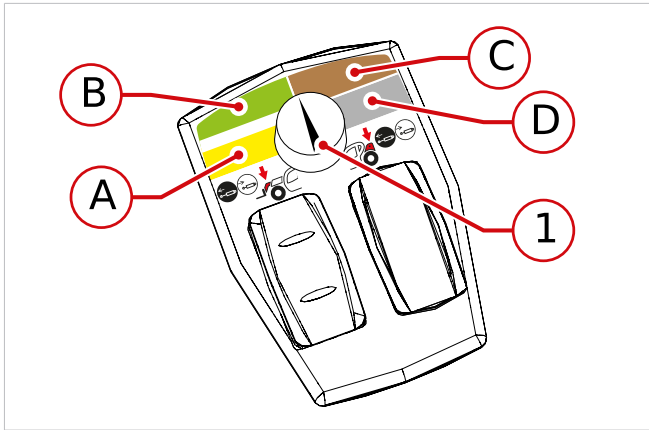
The fan reversal presence does not exempt the user from cleaning the fan, radiator and engine compartment, at the intervals indicated by regular maintenance.

7.13.2 Hydraulic sockets selector

**NOTE**

**The hydraulic socket selector is part of the optional equipment.**

The presence and number of rear hydraulic sockets present on the vehicle may vary depending on the optional attachments.



The hydraulic sockets switch allows to select which hydraulic sockets must be operated by the joystick and is present only on vehicles that are equipped with rear hydraulic sockets and on the telescopic boom head.

Turn the knob "1" to activate the different hydraulic sockets on the vehicle:

- A - Sockets on boom head
- B - Rear Green sockets
- C - Rear Brown sockets
- D - Rear Grey sockets

For the selection of any optional sockets on the boom, refer to the chapter Selection of hydraulic sockets on the boom head.



### NOTE

If there are no rear brown and grey sockets, if selected through the knob "1", the green socket will be activated.



### DANGER

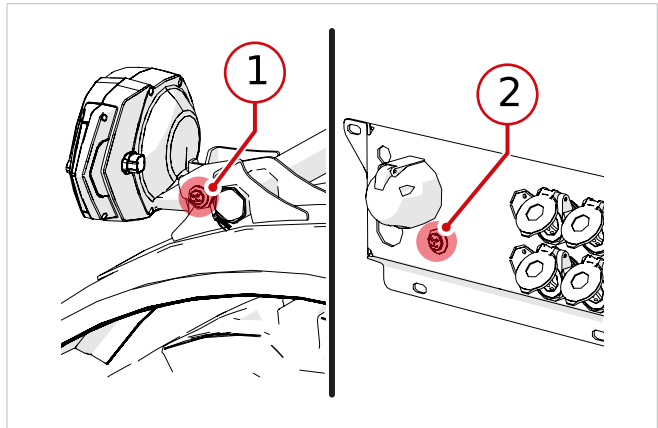
#### Danger of moving the wrong hydraulic socket.

Do not operate the hydraulic sockets using the joystick during the selection of the hydraulic socket.

Make the selection of the hydraulic socket and use the joystick to control the hydraulic socket selected only at a later time.

After connecting the equipment to the hydraulic sockets before starting the job, check in a safe location that all the controls are working properly. During the test, pay attention not to pose a risk or cause damage to persons, animals or property.

### 7.13.3 Pressure relief from hydraulic sockets



To facilitate the installation and removal of connections to the hydraulic sockets, it is possible to use the pressure relief from the hydraulic sockets.

Press the button "1" located on the left front light support for a few seconds to release pressure from the hydraulic sockets on the boom head.

If there are several hydraulic sockets, the pressure relief occurs cyclically at each activation of the button "1".

If present, press the button "2" on the back of the vehicle for a few seconds to release pressure from the rear hydraulic sockets.

If there are several hydraulic sockets, the pressure relief occurs cyclically at each activation of the button "2".



### NOTE

Pressure can also be released by pressing the button.

### 7.13.4 Trailers braking



### NOTE

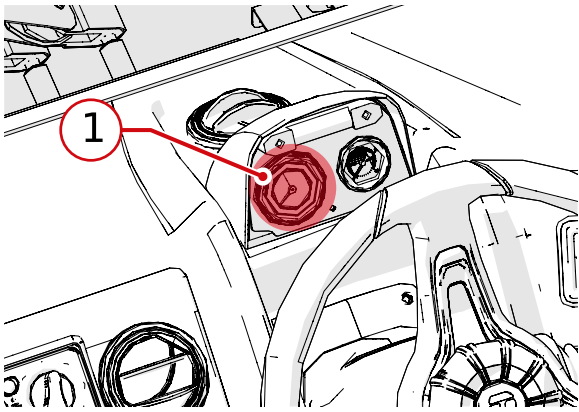
All the different types of trailer braking are optional accessories.



The warning light indicates a failure or low pressure in the trailer brake system.

The pressure gauge on the left instrument panel indicates the pressure of the trailer braking system.

The maximum pressure of the pneumatic system is 0.72 MPa (104.4 psi).



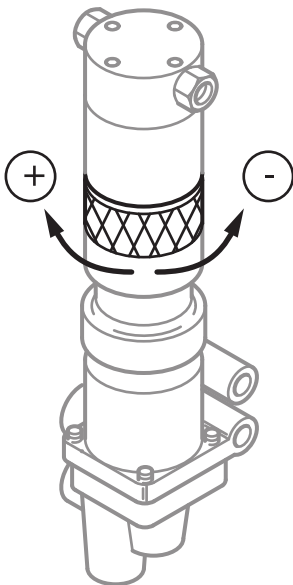
**DANGER**

Do not move the vehicle until the warning light goes off because the trailer might not brake regularly.

Attach the trailer to the tow hitch of the vehicle, and then make the connections of the braking system of the trailer.

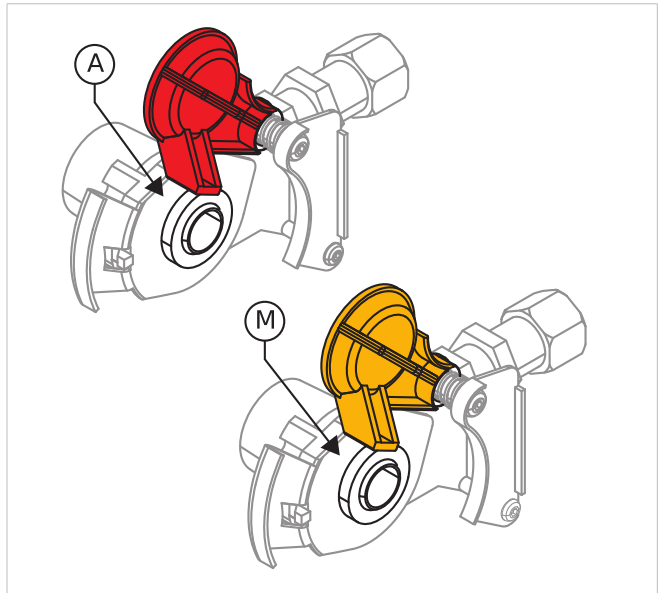
Adjust the brake adjustment distributor according to the type of trailer and load being transported. The Brake Adjustment Distributor is located at the rear of the vehicle.

- Turn the ring nut to the "+" sign to anticipate the trailer braking.
- Turn the ring nut to the "-" sign to delay the trailer braking.



There are different types of trailer braking:

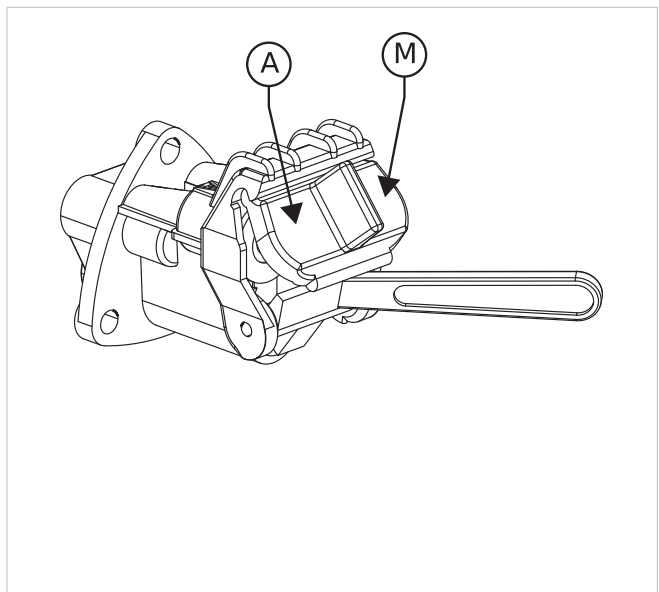
7.13.4.1 Pneumatic braking EEC type



The pneumatic braking of EEC type includes two couplings:

CONDITIONS	YELLOW (M)	RED (A)
Operator sitting with vehicle in operation	No air	Yes air
Vehicle running without operator	No air	Yes air
Operator sitting with vehicle in operation and parking brake engaged	Yes air	Yes air
Operator sitting with vehicle in operation and brake pedal pressed	Yes air	Yes air

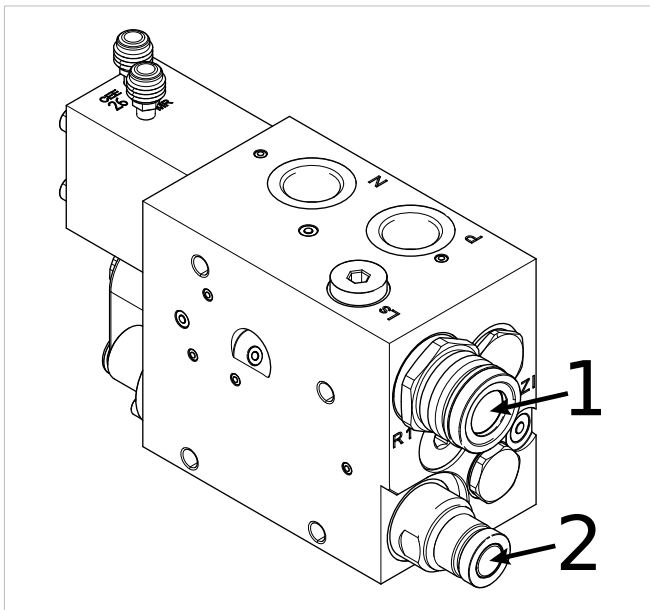
7.13.4.2 Pneumatic braking type CUNA NC 144-04



The pneumatic braking type CUNA has a single aluminium coupling:

CONDITIONS	(M)	(A)
Operator sitting with vehicle in operation	No air	Yes air
Vehicle running without operator	No air	Yes air
Operator sitting with vehicle in operation and parking brake engaged	Yes air	Yes air
Operator sitting with vehicle in operation and brake pedal pressed	Yes air	Yes air

### 7.13.4.3 Hydraulic braking EEC type



The trailer braking system acts proportionally to the pressure exerted on the brake pedal of the vehicle.

To connect the hydraulic braking system of the trailer to the vehicle system with engine on it is necessary:

- Do the approaching operations to the trailer and connect it to the appropriate hitch for the vehicle trailers.
- Apply the parking brake in the cab and go out of the vehicle.
- Press and hold the button "2" to exhaust pressure from the hydraulic braking system.
- Connect the braking circuit of the trailer to the hydraulic socket "1".
- Release the button "2".

If the coupler is not used, it must be adequately protected with its cap.

To disconnect the hydraulic braking system of the trailer from the vehicle:

- Place the vehicle and the trailer on level and non slope ground.



### DANGER

**If it is not possible to place the vehicle and the trailer on non-slope ground, place wedges under the wheels of the trailer and engage the negative brake of the vehicle to prevent it from moving during the operation.**

- Press and hold the button "2" to exhaust pressure from the hydraulic braking system.
- Press and hold the button "2" and remove the hydraulic connection from the socket "1".
- Continue the trailer release operations.

If the coupler is not used, it must be adequately protected with its cap.



### DANGER

**By activating the parking brake on the vehicle, the trailer connected to the vehicle is braked only until the vehicle engine is on.**

**Turning off the engine of the vehicle or pressing the "2" when the trailer braking circuit is connected to the vehicle, the trailer will be not braked; while the vehicle will continue to be braked thanks to the negative parking brake.**

Pay utmost attention in the case of sloping ground. Place chocks under the trailer wheels to prevent accidental movement.

### 7.13.4.4 Hydraulic braking type CUNA NC 344-05

The trailer braking operates under pressure; the hydraulic circuit of the vehicle provides a constant pressure to the trailer braking system.

By connecting the braking system of the trailer to the vehicle, the trailer is released from the brakes and can move.

The pressure is varied in proportion to the pressure exerted on the brake pedal of the vehicle.

The trailer brake valve, located on the back of the vehicle, has a lever "A" for the hydraulic braking activation and deactivation:

- When the lever is in position "0" the hydraulic braking is activated.
- When the lever is in position "1" the hydraulic braking is deactivated.

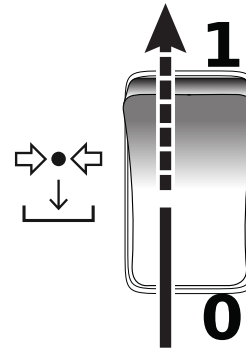


**WARNING**

With the trailer connected and lever "A" in position "0", the parking brake is enabled on the trailer.

In case of non-use of the trailer it is advisable to move the lever in the "1" position to prevent that the systems remains under pressure.

Keeping the system under pressure entails an unnecessary loss of engine power, with consequent higher power consumption, and unnecessary heating of the hydraulic oil.



The Caisson Descent allows to use equipment or trailers with single-acting cylinders, if connected to the rear YELLOW hydraulic socket.

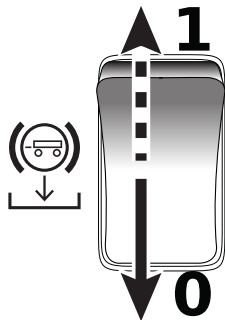
**To put the socket under pressure it is necessary to:**

- Select the rear GREEN coupler with the selector hydraulic coupler selector.
- Use the services control to lift the caisson.
- After reaching the desired height release the control. The trailer will remain stationary in that position.

**To relieve pressure from the socket it is necessary to:**

- Press the Caisson Descent button and hold down until needed.

7.13.4.5 Trailer braking check



The trailer braking check button allows to temporarily release the brake of the trailer connected.

This function is used to check if the vehicle is able to keep the trailer braked; in order to avoid that during the trailer disconnection operations it will drag or push the vehicle to which it is connected.



**DANGER**

**Danger of crushing and damage to the vehicle.**

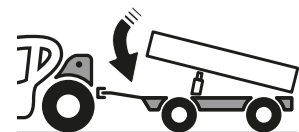
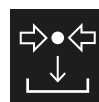
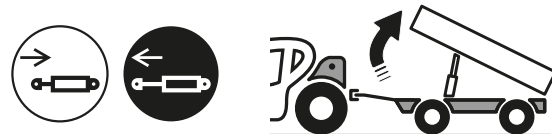
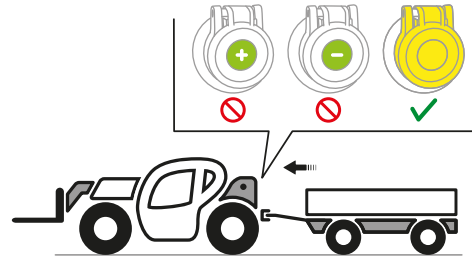
Take appropriate precautions (wedges or auxiliary brakes) before carrying out trailer disconnection.

7.13.5 Caisson descent



**NOTE**

The Caisson descent is an optional attachment for the agricultural sector, available only on vehicles with open centre distributor.



**DANGER**

When using the Caisson Descent, make sure that nobody is in range of the vehicle and if the trailer is connected to it. Danger of crushing.

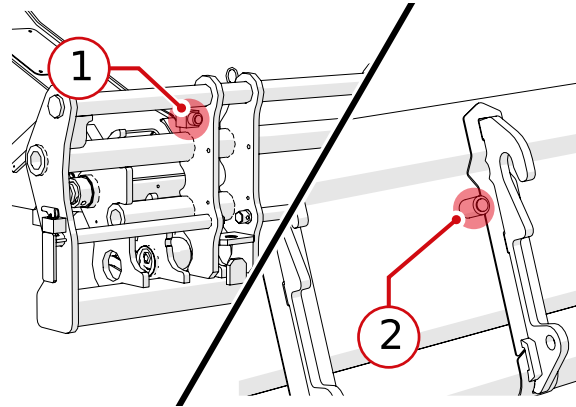
**CAUTION**

When using the Caisson Descent (YELLOW rear hydraulic socket), it is not allowed to use the GREEN rear hydraulic socket.

## 7.13.6 Automatic equipment recognition \*

**NOTE**

The Equipment Automatic Recognition is an optional function.



The automatic equipment recognition system consists of a sensor "1" placed on the vehicle plate and of an identifier "2" placed on the equipment.

This system allows the automatic setting of the vehicle based on the equipment or tool installed on the vehicle, thus ensuring maximum ease and safety for the operator.

The vehicle display shows the mode in which the vehicle is automatically set and the equipment or tool capacity (if available).

Refer to the "Equipment Display / Capacity" chapter.

## 7.14 Remote Control

**NOTE**

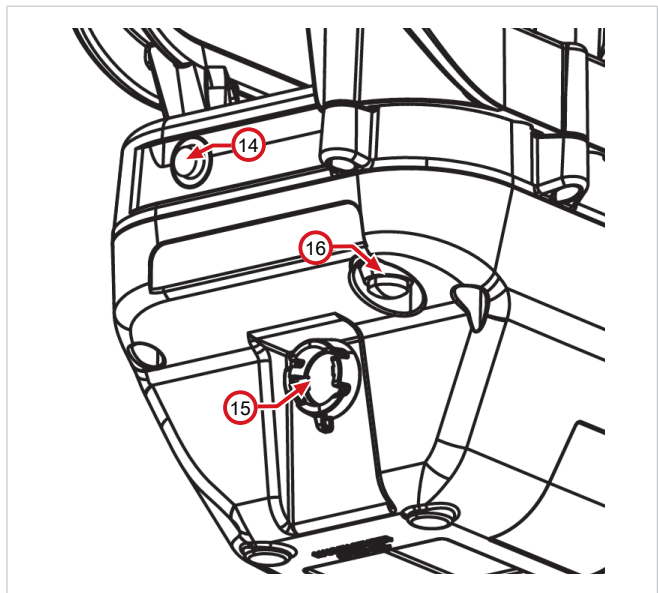
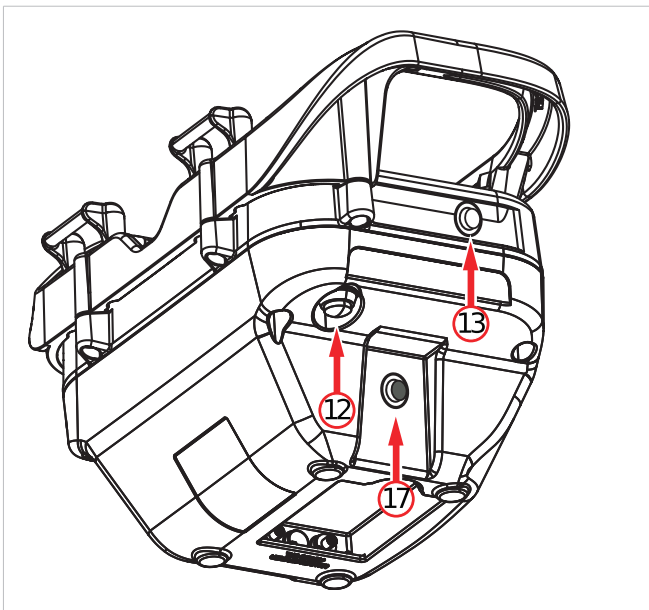
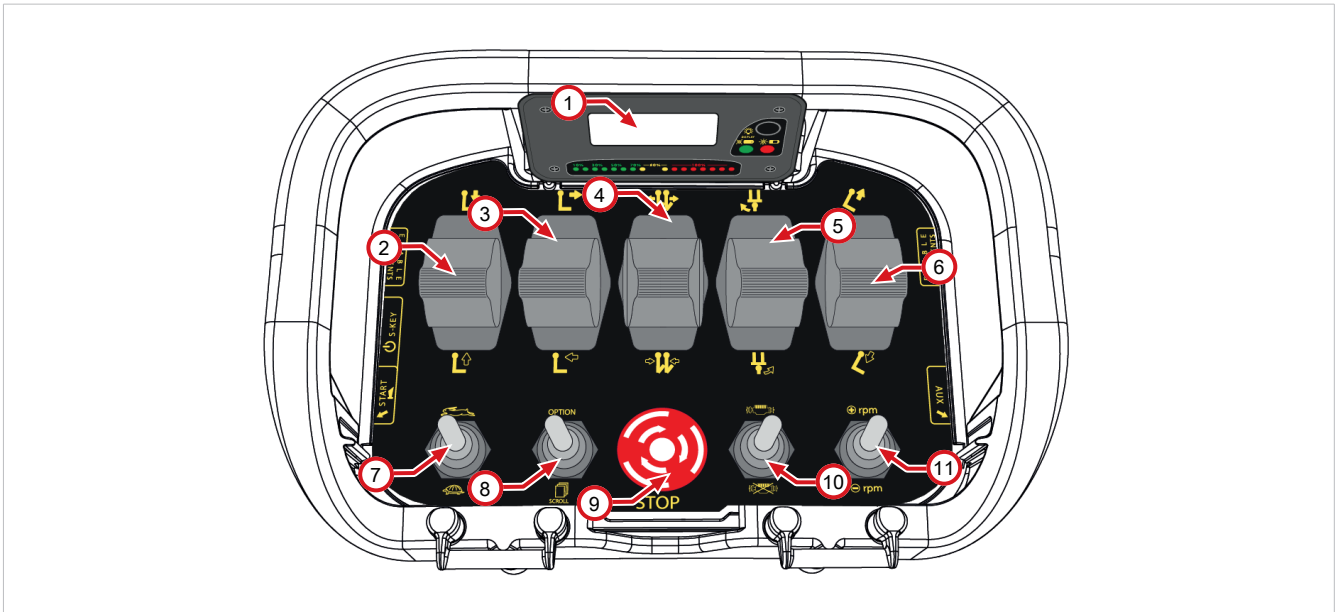
The Remote control is an optional accessory.

**NOTE**

There are two types of remote controls, depending on the chosen vehicle configuration:

- Remote control with levers
- Remote control with joystick

### 7.14.1 Remote control with levers: Description



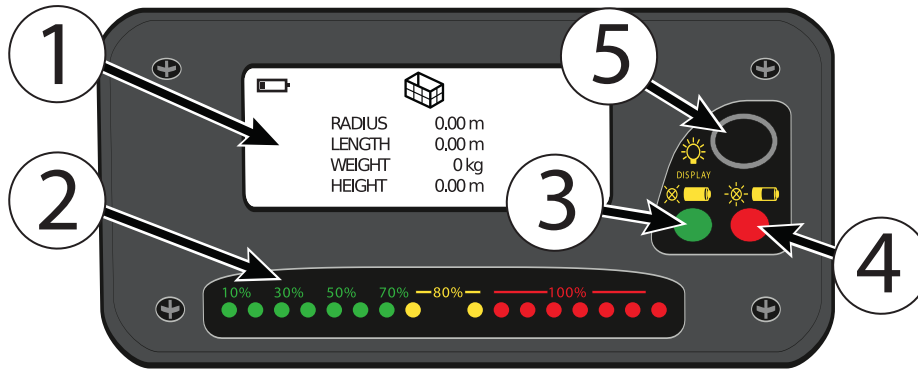
1	LCD display
2	Boom lowering / lifting lever
3	Boom extension / retraction lever
4	Services lever
5	Turret rotation lever (for rotating vehicles)
6	Up / down tilting lever










10	Vehicle ignition switch
11	Accelerator lever
12	Electric contact on boom head button
13	Deadman button
14	Deadman button
15	Remote control on/off key

1	LCD display	10	Vehicle ignition switch
7	Movements speed lever	16	Remote control and horn enable button
8	Boom head solenoid valve lever	17	Wired control connector
9	Emergency stop button		



7.14.1.1 Remote control display



	DESCRIPTION
1	LCD display
2	Anti-tipping Led signal
3	Remote control status LED
4	Remote control battery status LED
5	Not used
WEIGHT	Current weight
RADIUS	Radius
HEIGHT	Load height from the ground
ANGLE	Boom angle
LENGTH	Boom extension length
	Forks operating mode icon
	Lifting accessory operating mode icon
	Basket operating mode icon
	Battery charge level
	Remote control signal level
	Fuel low level icon
	General alarm icon
	Chains error icon (present if the vehicle is prearranged with PLE)
	Levelness icon (present if the vehicle is prearranged with PLE)

#### 7.14.1.2 Remote control emergency stop button

The emergency stop button "9" turns off the diesel engine of the vehicle and the remote control, stopping all movements of the vehicle and of the equipment.

#### 7.14.1.3 Movements speed lever

The movements speed lever "7" allows to set the vehicle boom speed.



Move the lever up to set the fast movements (hare symbol) the fast movements (hare symbol)



Move the lever down to set the slow movements (turtle symbol) the slow movements (turtle symbol)

**Only slow movements are enabled when using the basket.>**

#### 7.14.1.4 Accelerator lever

Accelerator lever "11" allows maintaining the diesel engine rpm of the vehicle constant.

rpm Move the lever forward to increase the engine rpm of 200 rpm. the engine rpm by 200 rpm.

rpm Move the lever backward to decrease the engine rpm of 200 rpm. the engine rpm by 200 rpm.

#### 7.14.1.5 Remote control on/off key

The on/off key "15" allows to turn on and turn off the remote control. To turn on the remote control, turn the knob from position O to position I.

#### 7.14.1.6 Remote control and horn enable button

Button "16" is used both to enable the remote control commands and to operate the horn of the vehicle.

#### 7.14.1.7 Deadman buttons

Buttons "13 and 14" must be pressed to run boom functions (use any of these buttons).

#### 7.14.1.8 Boom control levers

The boom control levers are used to carry out various movements:

#### Boom lowering / lifting lever "2"

Boom down

Boom up

#### Boom extension / retraction lever "3"

Boom extension

Boom retraction

#### Services lever "4"

Services

Services

#### Turret rotation lever "5"

Turret anti-clockwise rotation

Turret clockwise rotation

#### Tilting lever "6"

Tilting downwards

Upwards Tilting

#### 7.14.1.9 Electric contact on boom head button

The button "12" allows to activate the electrical contact on the boom head (if any).

Press again the button to disable the electrical contact on the boom head.

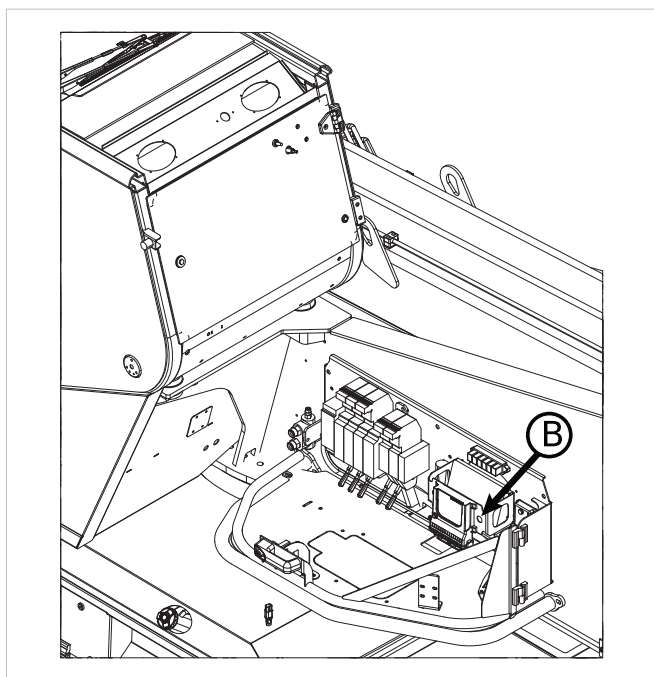
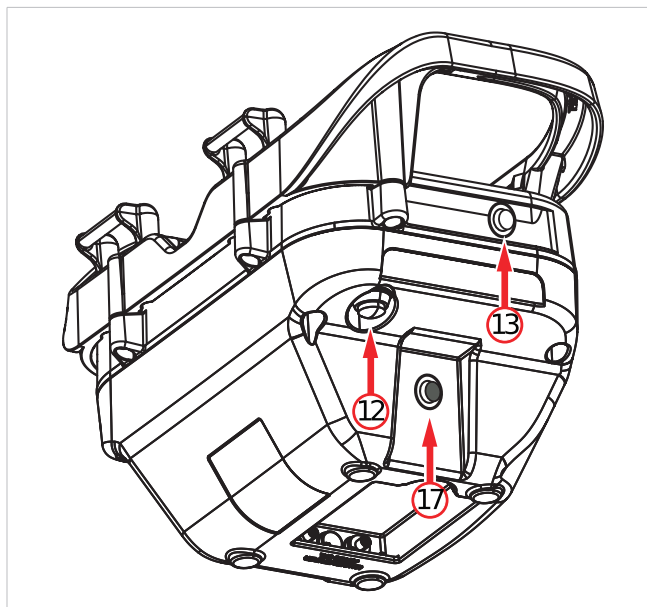
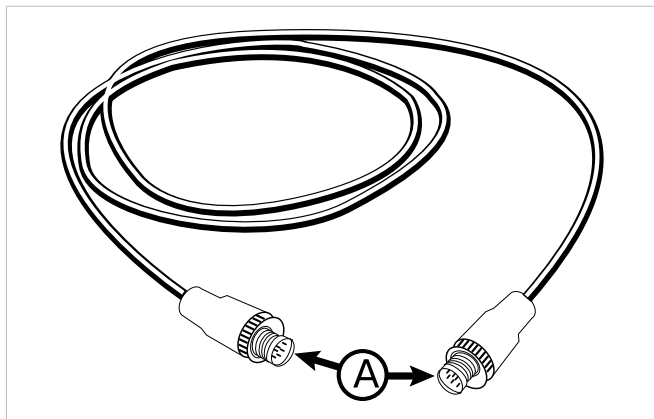
#### 7.14.1.10 Boom head solenoid valve lever

Lever "8" allows activating the solenoid valve on the boom head (if present).

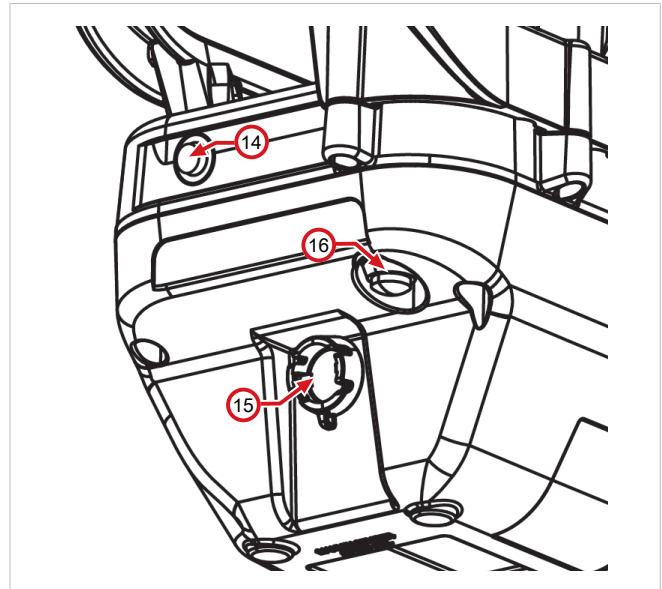
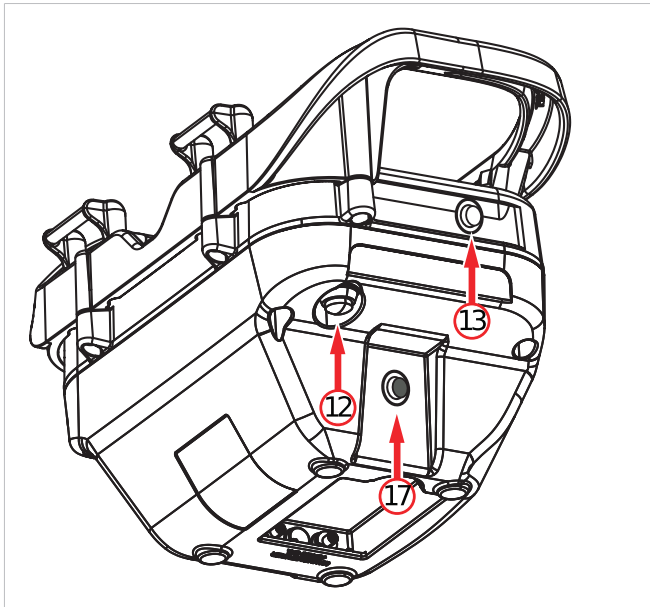
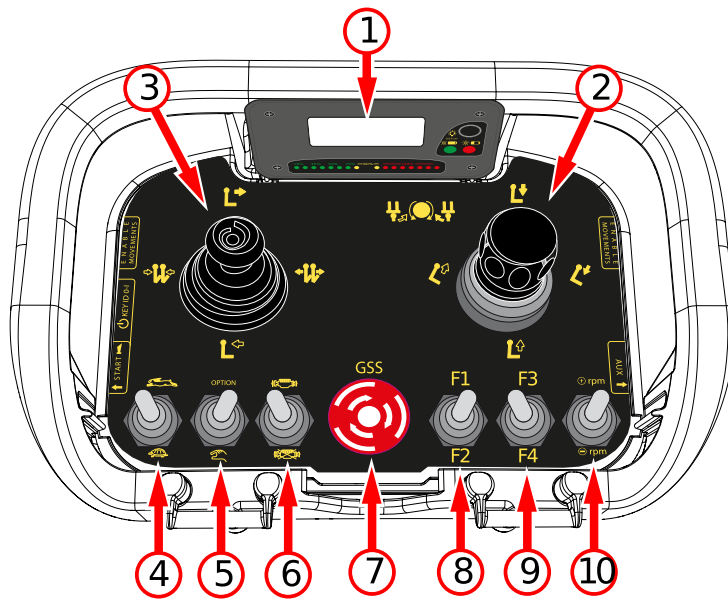
7.14.1.11 Wired control connection

The wired control cable is supplied to connect the receiver to the transmitter for working in environments where the remote control cannot be switched on or if the battery is dead.

Connect connector "A" to connector "17" on the remote control and to connector "B" on the vehicle.



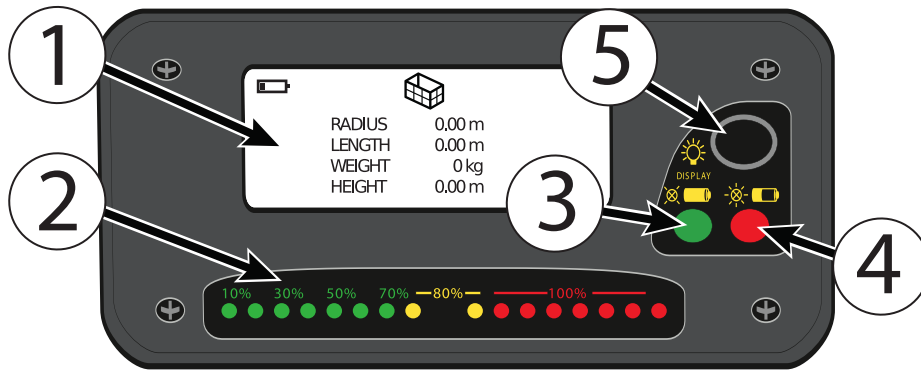
## 7.14.2 Remote control with joystick: Description












1	LCD display
2	Joystick controlling boom down / up movement / tilting down / tilting up on services / turret rotation (for rotating vehicles)
3	Boom extension / retraction joystick /
4	Movement speed lever (the hare function with basket equipment is disabled) basket equipment is disabled)
5	Boom head solenoid valve lever
6	Vehicle ignition switch
7	Emergency stop button
8	Vehicle equipment function lever (F1-F2)

9	Vehicle equipment function lever (F3) (F4 NOT USED)
10	Accelerator lever
12	Electric contact on boom head button
13	Deadman button
14	Deadman button
15	Remote control on/off key
16	Remote control and horn enable button
17	Wired control connector

7.14.2.1 Remote control display



	DESCRIPTION
1	LCD display
2	Anti-tipping Led signal
3	Remote control status LED
4	Remote control battery status LED
5	Not used
WEIGHT	Current weight
RADIUS	Radius
HEIGHT	Load height from the ground
ANGLE	Boom angle
LENGTH	Boom extension length
	Forks operating mode icon
	Lifting accessory operating mode icon
	Basket operating mode icon
	Battery charge level
	Remote control signal level
	Fuel low level icon
	General alarm icon
	Chains error icon (present if the vehicle is prearranged with PLE)
	Levelness icon (present if the vehicle is prearranged with PLE)

#### 7.14.2.2 Remote control emergency stop button

The emergency stop button "7" turns off the diesel engine of the vehicle and the remote control, stopping all movements of the vehicle and of the equipment.

#### 7.14.2.3 Movements speed lever

The movements speed lever "7" allows to set the vehicle boom speed.



Move the lever up to set the fast movements (hare symbol)



Move the lever down to set the slow movements (turtle symbol)

**Only slow movements are enabled when using the basket.>**

#### 7.14.2.4 Accelerator lever

Accelerator lever "10" allows maintaining the diesel engine rpm of the vehicle

rpm Move the lever forward to increase the engine rpm of 200 rpm.

rpm Move the lever backward to decrease the engine rpm of 200 rpm.

#### 7.14.2.5 Remote control on/off key

The on/off key "15" allows to turn on and turn off the remote control.

To turn on the remote control, turn the knob from position O to position I.

#### 7.14.2.6 Remote control and horn enable button

Button "16" is used both to enable the remote control commands and to operate the horn of the vehicle.

#### 7.14.2.7 Deadman buttons

Buttons "13 and 14" must be pressed to run boom functions (use any of these buttons)

#### 7.14.2.8 Boom control joystick "2"

The boom control joystick is used to carry out various movements:

Joystick controlling boom down / up movement "2"

Boom down

Boom up

Turret rotation joystick "2" [if present]

Turret anti-clockwise rotation

Turret clockwise rotation

Tilting joystick "2"

Tilting downwards

Upwards Tilting

#### 7.14.2.9 Boom control joystick "3"

The boom control joystick is used to carry out various movements:

Boom extension / retraction lever "3"

Boom extension

Boom retraction

Service lever "3" used with F1-F2-F3 for Positive/Negative jib movements

+ F1 Jib up movement  
+ F2 Jib extension  
+ F3 Jib anti-clockwise rotation

+ F1 Jib down movement  
+ F2 Jib retraction  
+ F3 Jib clockwise rotation

7.14.2.10 Electric contact on boom head button

The button "12" allows to activate the electrical contact on the boom head (if any).

Press again the button to disable the electrical contact on the boom head.

7.14.2.11 Boom head solenoid valve lever

Lever "5" allows activating the solenoid valve on the boom head (if present).

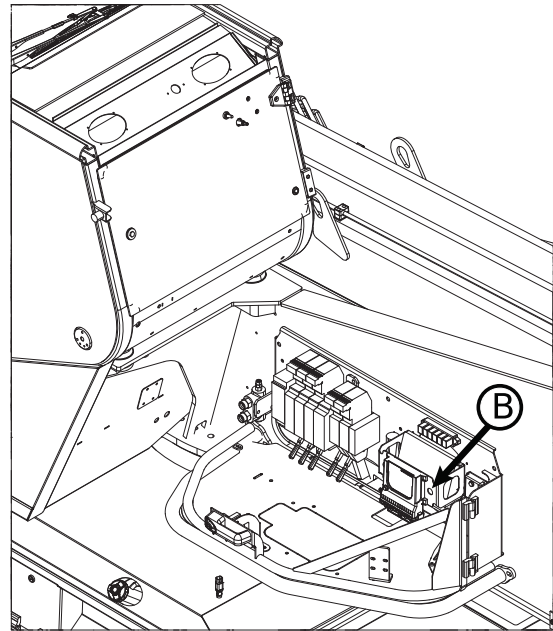


Confirm fastened equipment



**NOTE**

**With the baskets correctly installed it is not necessary to press ok.**



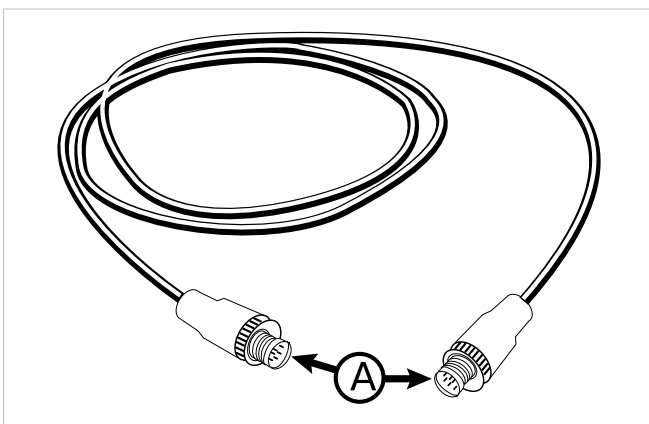
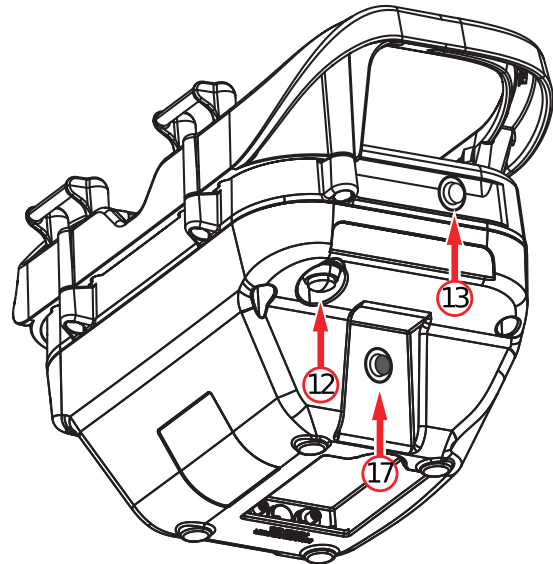
7.14.2.12 Vehicle equipment function levers

Levers "8" and "9" have the same function of the F1 - F2 - F3 buttons on the left-hand joystick in the cab.

7.14.2.13 Wired control connection

The wired control cable is supplied to connect the receiver to the transmitter for working in environments where the remote control cannot be switched on or if the battery is dead.

Connect connector "A" to connector "17" on the remote control and to connector "B" on the vehicle.



### 7.14.3 Remote Control: Use

The vehicle, if prepared, can be used by the remote control.

The movements that can be performed from the remote control are:

- Telescopic boom extension/retraction.
- Telescopic boom Up/Down movement.
- Tilting.
- Services.

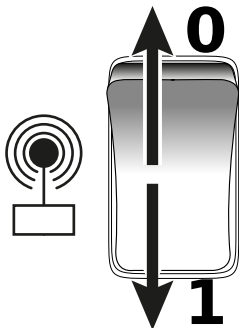
To use the vehicle by remote control carry out the following operations:

#### Operations on the vehicle:

Assemble the equipment on the vehicle, if not already installed. (Refer to the chapter "Equipment installation" and set the correct mode of use of the vehicle)

- Lay the load on the ground.
- Level the vehicle (if available).
- Place the vehicle on outriggers (if installed).
- Place the gear lever to neutral "N" position.
- Engage the parking brake.
- Press the switch "1" to enable the controls from the remote control. Pressing the switch will automatically shut down the vehicle engine.

Turn the vehicle ignition key in position "I" without starting the engine.

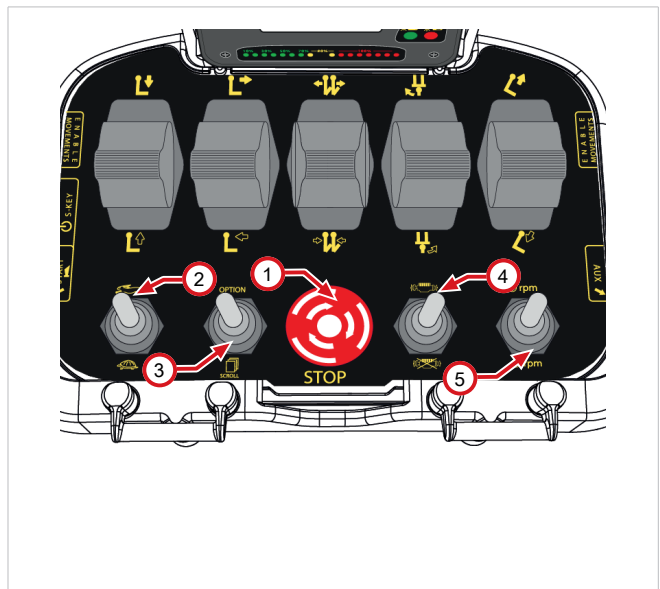
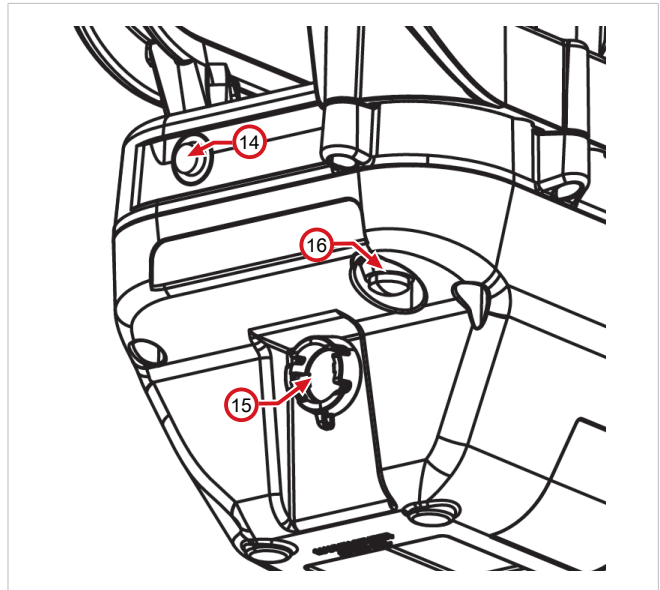


#### Operations on the remote control:>

- Turn the remote control on/off knob "15" to position "I".
- Press the remote control on/off button "16"
- Move the vehicle on/off lever "10" up and hold it for 2 seconds.

The ON remote control indicator light will flash green until the remote control will remain on.

When switching on the remote control, it will emit an alert tone.



#### WARNING

Always remain at a safe distance from the vehicle and from the load, outside the area that would be occupied in case of vehicle overturning and load fall.

When using the vehicle with remote control:

- The emergency button in the cab is always active.
- The gear of the vehicle is inhibited.



#### NOTE

After 4 min of non-use of the remote control, the remote control and the vehicle will turn off.



**WARNING**

**When using the vehicle with remote control, the buzzer and the red LED on the vehicle come into operation when the vehicle reaches the tipping limit.**

To reset the vehicle in safe conditions, make movements that do not aggravate the stability depending on the type of equipment currently used.

## 7.14.8 Remote Control: Additional information

**NOTE**

For additional information on the use and maintenance of the remote control, refer to the specific manual of the remote control.

## 7.14.4 Remote Control: Turn off the vehicle and the remote control

To turn off the vehicle engine and the remote control, turn the ignition knob from position "1" to position "0".

## 7.14.5 Remote Control: Receiver

The remote control receiver is installed on the rear of the vehicle. When the remote control is selected in the cab, the receiver turns on. For the operating specifications carefully read and learn the use and maintenance instructions of the remote control manufacturer.

## 7.14.6 Remote Control: Recharge

At the seat side there is the remote control battery charger.

## 7.14.7 Remote Control: Back-up

If the transmitter unit can not be used, it can be replaced by a Transmitting Unit called "BACK-UP UNIT", to be requested to Autec.

It is identical to the Unit that can no longer be used and is distinguished only by the presence of the word "BACK-UP UNIT" in the battery housing.

**WARNING**

Insert the "Key ID 0-1" or the "ID internal tx memory" of the transmitting unit that is no longer usable in the "BACK-UP UNIT" and perform the procedure for storing the address described below.

Storing the address

With the battery charged and the ignition key inserted in the "BACK-UP UNIT", carry out the following procedure:

- press the STOP button,
- Press the START button and keep it pressed until the green LED turns off,
- disengage the STOP button.

Now it is possible to start the Remote control and command the vehicle with the "BACK-UP UNIT" transmitting unit.

## 7.15 Engine

### 7.15.1 Kubota Engine (Stage V)



#### NOTE

The use and maintenance manual of the engine is an integral part of the documentation supplied with the vehicle.

Consult the engine manual or contact an authorized workshop for maintenance.

We recommend that you read the information in the instruction manual carefully and comply with it. This will help you avoid accidents, you will benefit from the manufacturer's warranty and you will always have an efficient engine ready for use.

#### 7.15.1.1 DPF (Diesel Particulate Filter) Regeneration

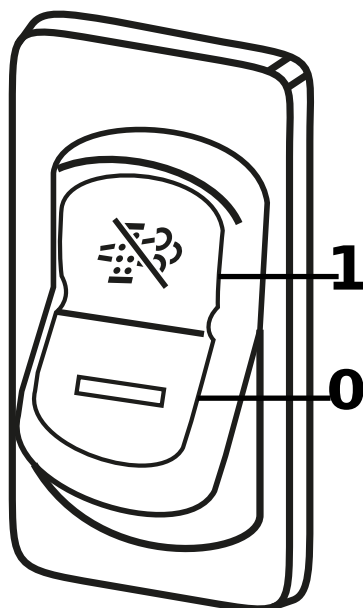
##### 7.15.1.1.1 Passive regeneration

Passive regeneration is carried out each time the exhaust gases reach temperatures over 300°C.

Passive regeneration is always in operation and does not affect in any way the use of the vehicle.

Despite passive Regeneration, it is possible that the vehicle still accumulates particulate during the work cycle.

##### 7.15.1.1.2 Regeneration inhibited



To inhibit regeneration, press the switch.

The inhibited DPF Regeneration is indicated by the indicator light on with steady light



#### WARNING

**Inhibiting Regeneration prevents the DPF and exhaust gas from reaching high temperatures; but the accumulation of particulates in the DPF filter increases quickly.**

It is recommended to use this mode only and exclusively if working indoors or in the vicinity of highly flammable material.

With inhibited Regeneration pay particular attention to the DPF level and perform frequent forced regeneration operations if necessary.

#### 7.15.1.1.3 Automatic active regeneration (Automatic regeneration)

The active automatic regeneration does not affect the use of the vehicle, but it produces an increase in temperature in the DPF and of the exhaust gas (over 700°C) even at low engine speeds.

The vehicle will burn the accumulation of particulate if the necessary conditions are reached during the normal working cycle of the vehicle.

The automatic active regeneration starts when the DPF reaches LEVEL 1 and the engine temperature is sufficiently high.

Active automatic regeneration in execution, it is indicated by the indicator light on with steady light.



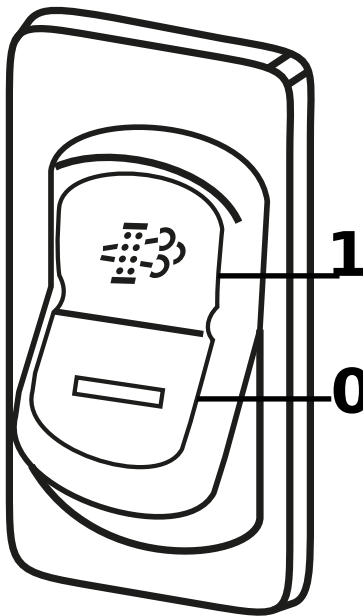
## 7.15.1.1.4 Forced regeneration (Parked regeneration)

The forced regeneration can be activated when the indicator light starts to flash.

The indicator light "B" flashing indicates that the level of particulate accumulation reaches Level 2.

Forced regeneration is necessary when the particulate accumulation level reaches a critical level in which the engine enters de-rating mode.

It is not allowed to use the vehicle during the forced regeneration and the engine revolutions are managed by the engine control unit (ECU) in an automatic way.



To carry out a forced regeneration is necessary to:

- Bring the vehicle on a firm and level ground in a well-ventilated place (avoid enclosed spaces).
- Retract and lower the boom completely, leave the loads on the ground.
- Move the movement selection lever to N.
- Engage the parking brake.
- Do not press the accelerator pedal.
- With the engine running, press the button for 3s to start the forced regeneration cycle.

The DPF forced regeneration cycle lasts for about 20 minutes (it varies depending on environmental conditions).

**WARNING**

**During the forced regeneration cycle it is not possible to use the vehicle.**

During the forced regeneration cycle the operator can leave the cab of the vehicle, but must remain in the vicinity in order to intervene if the safety conditions for the execution of the forced regeneration cycle are lacking.

**NOTE**

**The forced regeneration cycle is interrupted:**

- a) If the accelerator pedal is pressed
- b) In case the movement selection lever is moved from N.
- c) If the parking brake is disengaged.

In order to re-activate the forced regeneration, it is necessary to turn off and then on the engine of the vehicle.

## 7.15.1.1.5 DPF cleaning

For this technical service, contact the local Kubota dealer.

Removal of residues

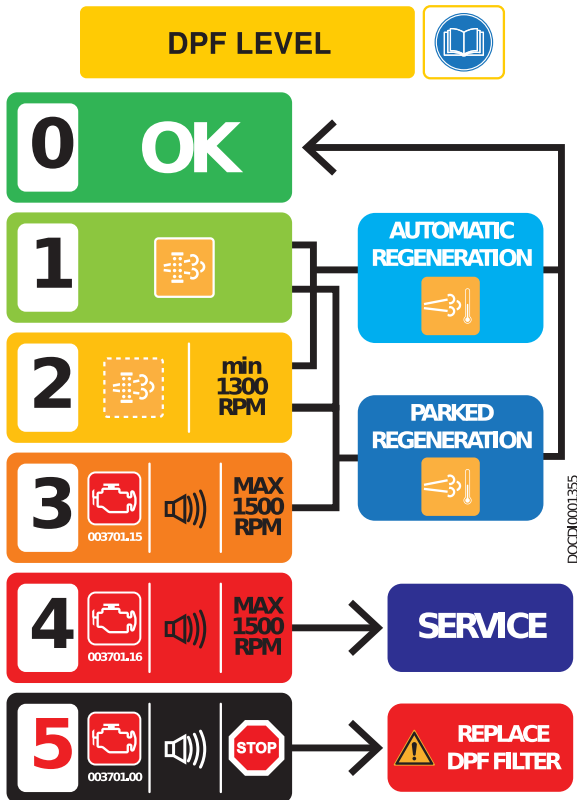
The longer the time of the DPF use and the greater the amount of residues (burnt residues) accumulated in the filter. An excessive amount of accumulated residues adversely affects the performance of the DPF.

Ask the authorized Kubota dealer to clean the filter every 3000 hours of operation.

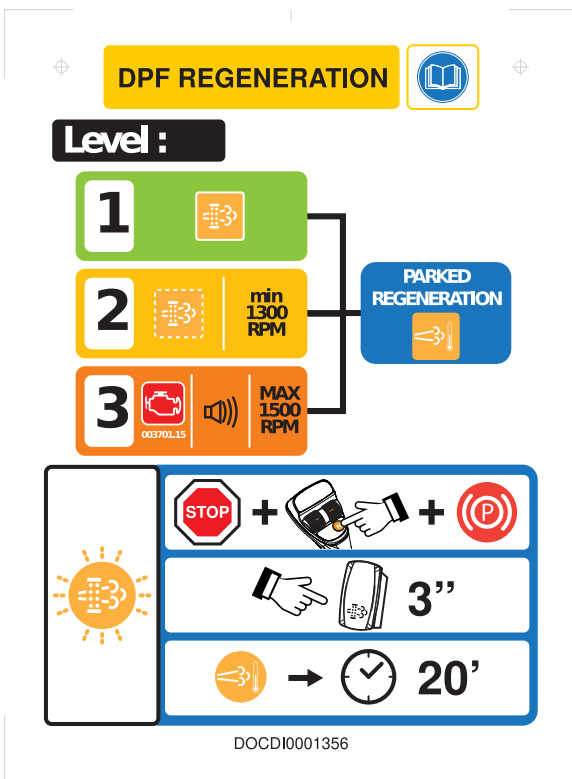
## 7.15.1.1.6 Regeneration control levels

LEVEL	DESCRIPTION	DISPLAYING
Level 0 Passive regeneration	The active regeneration is not necessary. It is not possible to start a forced regeneration.	
Level 1 Active regeneration	In order to maintain an acceptable level of particulate, the automatic active regeneration is necessary.  It is possible to start a forced regeneration.	  Steady on
Level 2 Required	If after 30 minutes during which the automatic active regeneration is enabled, the particulate level is not at acceptable levels, the forced regeneration can be started. the particulate is not within acceptable levels, it is possible to start the Forced regeneration  The forced regeneration is available to return the amount of particulate to acceptable levels.	  It starts flashing
Level 3 CAUTION	particulate to acceptable levels. The engine rpm is limited to 1500 rpm in order to protect the integrity of the DPF device.  Intermittent acoustic signal in the cab (even outside the cab for vehicles with man basket prearrangement).	  Waning light on with error 003701.15
Level 4 Service	The regeneration is possible only through the intervention of the service centre.  The engine rpm is limited to 1500 rpm in order to protect the integrity of the DPF device.  Continuous acoustic signal in the cab (even outside the cab for vehicles with man basket prearrangement).	  Waning light on with error 003701.16
Level 5 Stop	The regeneration is not possible not through the intervention of the service centre, but it is necessary to replace the DPF.  The engine power is significantly decreased. Continuous acoustic signal in the cab (even outside the cab for vehicles with man basket prearrangement).	  Waning light on with error 003701.00

DPF regeneration levels quick guide



DPF regeneration quick guide



7.15.1.1.7 AdBlue®

AdBlue® is a registered trademark of Verband der Automobilindustrie (VDA).

AdBlue® used in the selective catalytic reduction (SCR) to reduce emissions of nitrogen oxides from the exhaust gases produced by vehicles equipped with a diesel engine.

The solution is non-toxic, non-flammable and is not dangerous to handle. However, the solution can be corrosive to some metals and must be stored and transported using the proper materials.

7.15.1.1.8 AdBlue®: The risks of an AdBlue® out of specification

The SCR systems are very sensitive to the quality of AdBlue® used.

It is extremely important that the AdBlue® complies with the specifications and has not been contaminated during transport, handling or storage.

A key aspect to consider is that the damage that can result from an AdBlue® containing calcium or metals out of specification are not immediately visible, but appear after a certain time, and even after many kilometres.

In summary the problems that can arise from a low quality AdBlue® are of two types: ageing and poisoning of the catalyst.

- Ageing is typically given by the presence of substances that causes the catalyst to loose its efficiency and reduce its life and ability to operate (reducing the usable area). The catalyst is designed to last the lifetime of the vehicle while if AdBlue® with parameters (e.g. calcium) out of specification is used, it will last less and must be replaced with high costs.
- Poisoning is typically due to the presence of metals (e.g. zinc or copper) or pollutants (which should never be present in AdBlue®) as it immediately ruins the catalyst and makes it unusable. The result is an immediate need to replace the catalyst in order to enable the SCR system operation again.

Therefore ageing takes place slowly and stops the vehicle after a long time while poisoning is rather immediate and immediately stops the vehicle. Both, however, require costly catalyst replacement and can be prevented only using high quality AdBlue® without contaminants.

## 7.15.1.1.9 AdBlue®: Specifications

**Specifications of AUS32 (AdBlue®) Complying with DIN 70070.**  
Urea 32.5 % - solution in water

CHARACTERISTICS	MIN	MAX	REFERENCE UNIT
Urea content	31.8	33.2	% of weight
Density at 20°C	1087	1093	g/cm <sup>3</sup>
Refractive index at 20°C	1.3814	1.3843	
Alkalinity as NH <sub>3</sub>	-	0.2	%
Biuret	-	0.3	%
Aldehyde	-	5	mg/kg
Insoluble	-	20	mg/kg
Phosphates (PO <sub>4</sub> )	-	0.5	mg/kg
Calcium	-	0.5	mg/kg
Iron	-	0.5	mg/kg
Copper	-	0.2	mg/kg
Zinc	-	0.2	mg/kg
Chromium	-	0.2	mg/kg
Nickel	-	0.2	mg/kg
Aluminium	-	0.5	mg/kg
Magnesium	-	0.5	mg/kg
Sodium	-	0.5	mg/kg
Potassium	-	0.5	mg/kg

## 7.15.1.1.10 AdBlue® tank filling



### WARNING

Danger of burns caused by boiling hot AdBlue®.

In the following situations, the AdBlue® pipes are under pressure:

- With engine running
- After turning off the engine

When opening the fuelling system, the leakage of boiling hot AdBlue®/DEF may cause burns.

- Cool the engine before opening the fuelling system.
- Always wear protective gloves, clothing, and goggles to open the system.
- Slowly open the pipe fittings and the clamping elements of the system components.



### WARNING

Damage to the engine caused by the presence of AdBlue® in the fuel.

The AdBlue® must not be refilled into the fuel tank. Fill AdBlue® exclusively in the AdBlue® tank.

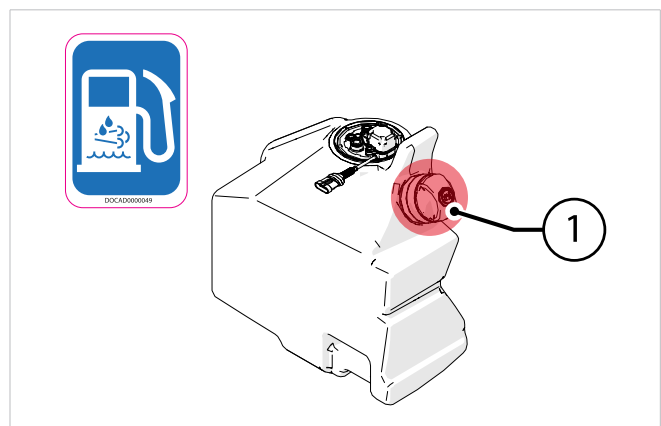
Avoid excessive filling of the AdBlue® tank.

**When opening the AdBlue® tank, small amounts of ammonia vapour may escape.**

Fill the AdBlue® tank only in well-ventilated environments.

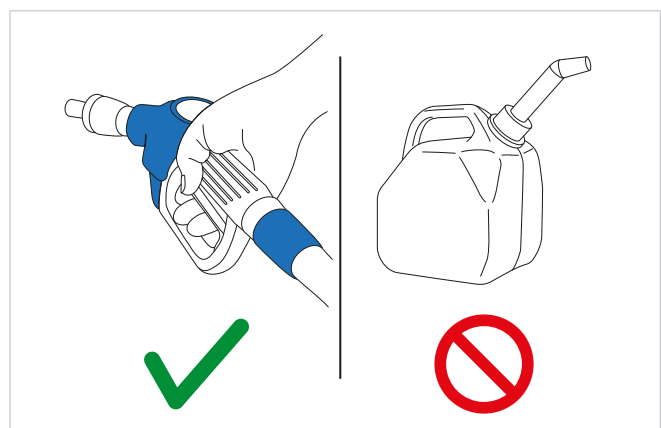
Avoid AdBlue® contact with skin, eyes or clothing.

Keep children away from the AdBlue®



When filling AdBlue® it is necessary to:

- Park the vehicle and turn off the engine.
- Allow the engine to cool down.
- Open the AdBlue® tank cap "1".
- Fill up.
- Close the AdBlue® tank cap.



7.15.1.1.11 KUBOTA engine errors list



**NOTE**

In case the vehicle is in error, contact a Dieci service centre to solve the problem, indicating the error code reported.

For more information about the errors display, refer to the "Display" chapter.

J1939-73	DTC
636	NE-G-NE displacement: Crankshaft position sensor G: Camshaft position sensor
633	Pressure limiter emergency opening
157	High rail pressure
1347	Locked SCV (suction control valve)
1239	Loss of fuel (in high pressure fuel systems)
172	Temp error: intake air: low value
172	Temp error: intake air: high value
110	Coolant temperature sensor: low value
110	Coolant temperature sensor: high value
174	Fuel temperature sensor: low value
174	Fuel temperature sensor: high value
157	Rail pressure sensor: low value
157	Rail pressure sensor: high value
523535	Injector charge voltage: high value
651	Wiring/coil open circuit in the 1st cylinder injector
653	Wiring/coil open circuit in the 3rd cylinder injector
654	Wiring/coil open circuit in the 4th cylinder injector
652	Wiring/coil open circuit in the 2nd cylinder injector
110	Engine overheating
190	Engine over-revving (excessive rpm)
102	Intake air pressure sensor: low value
102	Intake air pressure sensor: high value
636	No NE sensor pulse input (crankshaft position sensor)
636	NE sensor pulse number error (crankshaft position sensor)
723	No sensor G pulse input (camshaft position sensor)
723	G sensor pulse number error (camshaft position sensor)
523544	+B short circuit of the air heaters relay operation circuit
523544	Short to ground of the air heaters relay operation circuit
524	Oil pressure error
100	Oil pressure error
168	Battery voltage: low value
168	Battery voltage: high value
523538	QR data error:
523538	No QR data
628	ROM FLASH ECU error
1077	CPU error (main IC) ECU
523527	CPU error (monitoring IC) ECU

523525	Injector charge voltage: low value
1347	SCV drive system error
1347	Short circuit B+ of the SCV
3509	Sensor supply voltage 1: low value
3509	Sensor supply voltage 1: high value
3510	Sensor supply voltage 2: low value
3510	Sensor supply voltage 2: high value
1485	Main relay locked in closing position
523539	Pump 1 seizing
523540	Pump 2 seizing
91-4	Accelerator 1 position sensor: low value
91-3	Accelerator 1 position sensor: high value
45045	Accelerator 2 position sensor: low value
45014	Accelerator 2 position sensor: high value
523543	Accelerator position sensor error (CAN)
523523	Injector operation circuit simultaneously open in cylinders no. 1 and 4 Short circuit to ground of the cylinder injectors No. 1 and 4 on the supply side or short to ground of all the cylinder injectors Short circuit to +B of the cylinder injectors No. 1 and 4 on the supply side or short to +B of all the cylinder injectors
523524	Injector operation circuit simultaneously open in cylinders no. 2 and 3 Short circuit to ground of the cylinder injectors No. 2 and 3 on the supply side or short to ground of all the cylinder injectors Short circuit to +B of the cylinder injectors No. 2 and 3 on the supply side or short to +B of all the cylinder injectors
108	Barometric pressure sensor error (low side) Barometric pressure sensor error (high side)
523604	Bus CAN1 disabled
523547	Bus CAN2 disabled
523548	CAN-KBT frame error
List of DTC codes (AFTER RELATED TREATMENT)	
171	Built-in MAF intake air temperature sensor: low value Built-in MAF intake air temperature sensor: high value
132-1	Intake air volume: low value
132-4	MAF sensor: low value
132-3	MAF sensor: high value
172	Intake air temperature: high value. Only intercooler model
174	High fuel temperature
523574	EGR actuator open circuit EGR actuator coil short circuit
523572	EGR position sensor error
3242	Exhaust gas temperature sensor 1: low value Exhaust gas temperature sensor 1: high value
4765	Exhaust gas temperature sensor 0: low value Exhaust gas temperature sensor 0: high value
523700	EEPROM checksum error
3936	Remove of DPF System (PCD)
523580	Intake throttle error feedback
91	Accelerator position sensor correlation error
523575	EGR actuator valve lock
523576	EGR (DC motor) overheating

J1939-73	DTC
523577	EGR (DC motor) temperature sensor error
3246	Exhaust gas temperature sensor 2: low value
3246	Exhaust gas temperature sensor 2: high value
3251	Differential pressure sensor 1: low value
3251	Differential pressure sensor 1: high value
523582	Intake throttle air raise sensor: low value
523582	Intake throttle air raise sensor: high value
3252	Emission deterioration
4765	Emergency Exhaust gas temperature sensor 0: high value
3242	Emergency Exhaust gas temperature sensor 1: high value
3246	Emergency Exhaust gas temperature sensor 2: high value
3701	Excessive PM3
3701	Excessive PM4
3701	Excessive PM5
132	Low supercharging pressure
523589	Coolant low temperature in the parked regeneration
523590	Parked regeneration timeout
3936	Loss of Function of DPF System (PCD)
523599	Error of all the exhaust temperature sensors
523600	Pump initial calibration not completed
523601	Exhaust gas high temperature after DTC high temperature emergency.
523602	High regeneration frequency
523603	Overheating precaution
523578	No communication with EGR
523591	CAN CCVS frame error (vehicle parking and speed switch)
523592	CAN CM1 frame error (regeneration switch)
523595	CAN ETC5 frame error (neutral switch)
523596	CAN TSC1 frame error
523598	CAN EBC1 frame error





**NOTE**

The vehicle is supplied with the equipment useful for the vehicle use and maintenance.

## 8.1 Tool bag content

**TOOL BAG**



**SOCKET WRENCH**



**SET OF WRENCHES**



**SCREWDRIVER**



**LUBRICATOR**



**QUICK COUPLINGS CAPS**



**ROD FOR EMERGENCY RECOVERY PUMP (ONLY IF MAN BASKET IS FITTED)**



**ADAPTER CABLE FOR ENGINE DIAGNOSIS (ONLY FPT ENGINES STAGE IIIIB/TIER 4I VERSION AND FOLLOWING)**



## 8.2 Standard equipment

**PROTRUDING LOAD SIGNAL (ONLY ITALY)**



**ROTATING LIGHT**



**PIN FOR VEHICLE TOW HITCH**



**PIN FOR TRAILER HITCH (ONLY TRACTORS)**



## 9.1 General warnings on equipment use



### DANGER

It is strictly forbidden to modify the structure of the equipment or adjust the safety devices of the various tool components.

- Only Equipment CE certified by the relative manufacturer can be used on DIECI vehicles, as well as equipment approved or falling within the technical limits set out by DIECI S.r.l. The guarantee is void if not approved equipment is used.
- The Tool does not require CE certification.
- Dieci S.r.l. liability shall not be involved if equipment use or modifications do not comply with the above mentioned requirements.



### CAUTION

**The equipment installed on the vehicle may only be used:**

a) on consistent ground and with vehicle level with maximum tilt of 2°.

b) by competent and qualified personnel who must have read this manual. In the case of road use refer to the Use and Maintenance Manual of the vehicle making sure that the operator is in possession of a valid driver's license in accordance with the laws in force in the country of use (license B or higher for ITALY), and that the vehicle boom is in the fully retracted position.

- Some equipment be accompanied by instructions related to safety standards, connection and disconnection, operation and maintenance. Carefully read and fully implement these instructions prior to installation, use and maintenance of the equipment. In case of doubt, contact your local dealer.
- Before starting to use the vehicle and related equipment, or before performing particularly complex or dangerous operations, it is absolutely necessary to practice in a clear work area free from obstructions.
- In case of poor visibility of the zone use a person on the ground to coordinate the movements and operations and that monitors the area inviting people who might come, to go away. The individual on the ground must stand at a safe distance from the vehicle in motion and alert, before any movement, any personal around.
- To prevent damaging hydraulic fittings when changing an equipment, stop the engine and wait a few seconds to remove pressure from the circuit. Always clean the fittings before their reinsertion.

- Check the cleanliness, protection and conditions of quick release joints in the equipment circuits and on the boom head daily.



### DANGER

Never carry the equipment in the vicinity of an open flame.



### WARNING

**When using the vehicle, carefully follow the respective Load charts.**

It is strictly prohibited to work without the respective load charts for the type of vehicle and installed equipment.

- The indications given by the anti-tipping system of the vehicle must be considered valid for standard working conditions, on flat and solid ground with well-operating and properly calibrated equipment. In any case, the values indicated by the load charts must be respected and never exceeded.
- It is mandatory, every time the equipment is used to insert the safety plugs to secure the equipment to the attachment holding plate.
- If an attachment holding plate different from the original Dieci attachment holding plate is installed on the vehicle, a residual load will remain on the anti-tipping device of the vehicle as a safety factor.
- Refer to the manual of the manufacturer of the attachment holding plate installed if different than the original Dieci attachment holding plate.



### CAUTION

**When moving the vehicle with equipment or man baskets installed, maintain a speed appropriate to the type of ground.**

When driving on rough terrain it is advisable not to exceed 10 km/h (6,2 mph) to prevent vibration and pitching phenomena, damaging the equipment or the man basket installed on the vehicle.



### WARNING

**It is possible that in certain working conditions there is no interference between the attachment holding plate and/or the equipment and the vehicle chassis or wheels.**

Pay due attention to prevent damage to the vehicle. Lift and extend the boom just enough to avoid interference.

### 9.1.1 Equipment pre-use checks



#### NOTE

Refer to the pre-use safety procedures of the vehicle on which the equipment is installed.

Before every use and every time new equipment is installed on the vehicle:

- Check that the equipment is properly hooked to all the pins and the hooks are inserted in the correct position.
- There is no damage, deterioration, deformation of the equipment locking components.
- Check that the equipment and components are intact, perfectly operating and not damaged.
- Verify that the equipment capacity is more than the weight of the load to be moved.
- Verify the correct operation of the equipment and of the controls present in the vehicle cab on which the equipment is installed in a work zone free from personnel and obstacles.
- Verify the operation of all indicators and lights present inside the vehicle on which the equipment has been mounted.
- Check the tilting when empty.
- Check the oil level in the hydraulic circuit.
- Check that the safety symbols and stickers are clearly legible.
- Check the efficiency and operation of the safety devices.
- Visually check the state of welding, inspect the vehicle and check for cavities, cracks of the welding or base metal or other inconveniences.
- Check for any deformations and/or modifications of the material due to sudden temperature changes or damage from impacts.
- Check the equipment for wear.
- Verify the use mode relating to the installed equipment has been set on the vehicle.
- Verify that the Load charts relating to the vehicle and installed equipment are present on the vehicle.

#### In case of equipment with hydraulic connections:

- Check that the pipes are in good conditions and do not obstruct the movements of the boom or of the equipment.
- Verify the correct connection of the hydraulic pipes (if present) ensuring that the equipment functions are not inverted.

In case of equipment with electrical connections:

- Check that the cables are in good conditions and do not obstruct the movements of the boom or of the equipment.

- Clean and fasten all the electrical connections (if present). Check before each work shift that there are no loose, twisted, hardened or damaged electrical cables. Do not operate the operating vehicle if there are any loose, twisted, hardened or damaged electric cables.

In the event of radiocontrol pre-arrangement:

- Refer to the specific manual of the equipment for further checks.
- Verify the correct operation of the radiocontrol/push button control panel and the charge status of the batteries.

In case lifting equipment is used

- Refer to the specific manual of the equipment for further checks.
- Verify the integrity of the lifting hook, including relative catch, and of the hook bolt to the rope.

In case winches are used

- Refer to the specific manual of the equipment for further checks.
- Check that the rope is not damaged, cut, torn, frayed. On the contrary, do not use the equipment and replace it. (This check can be carried out by fully extending the lift boom and unrolling the winch rope). During this operation it is also possible to check the operation of the limit switch, which must lock the rope according to the procedure described in the specific paragraph.
- Verify the operation of the extensometric transducer of the mounted equipment (if present); to do this, try to lift a load slightly heavier than the nominal maximum capacity of the equipment. In case the equipment is unable to lift the load, the transducer operates correctly, otherwise immediately interrupt the operation bringing the load to the ground and repair the equipment.

In case of using elevating work platforms

- Refer to the specific manual of the equipment for further checks.
- Verify the operation of the emergency button of the load limiter and of the area limiter at the beginning of each work cycle.
- Before using the platform ensure it is not wet, dirty with grease, oil, has icy surfaces or covered with other substances that can make its surface slippery. On the contrary, accurately clean and dry the platform surfaces. Danger of slipping and falling.

- The vehicle on which the equipment is installed must be braked and stabilized on solid ground. If outriggers (optional) are present, position them correctly on the ground before starting to operate.

- Before operating, make sure that the openings for access to the platform are in the closed position; always verify the correct engagement of the safety harnesses (PPE category III).



### CAUTION

**All checks must be carried out by adequately trained personnel and registered on the control log.**

If damage or malfunctioning is detected, comply with the instructions contained in this manual or in the manual of the equipment or basket or contact the DIECI Assistance Centre to agree the actions to be taken.

If routine or extraordinary maintenance or technical adjustment of the equipment is required, contact exclusively personnel authorized by the DIECI Assistance Centre and note the service intervention on the control log.

If the equipment is tampered with, the guarantee is voided and the Manufacturer is relieved of all liability.



### DANGER

Operators who note anomalies on the equipment or on the vehicle on which it is installed, and it does not conform to safety regulations must suspend use and immediately inform the Person in charge.



### NOTE

For road circulation, refer to the Use and Maintenance Manual of the vehicle on which the equipment is installed.

## 9.1.2 Bucket warnings



### WARNING

Pay particular attention to the following points when using the vehicle with bucket.

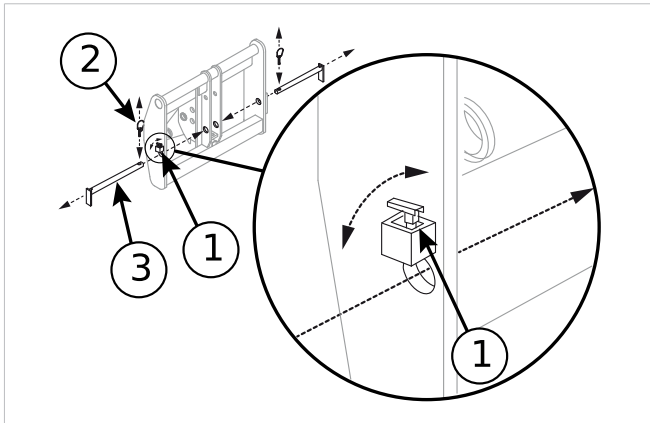
- We recommend a limited and occasional use of the vehicle with bucket.
- Intensive use can damage the boom, so maintenance intervals should be halved.
- It is forbidden to push the bucket against the material with the extension movement.
- When pushing with the bucket against the material it is necessary to:
  - Keep the wheels straight;
  - Keep the boom closed;
  - Do not push the boom down lifting the two front wheels;
  - Lower between the two chassis guides (if present);
  - Do not excavate with the bucket
- It is forbidden to use buckets larger than those specified in the price list.
- It is forbidden to use buckets that are not "DIECI", in case you want to use buckets that are not "DIECI" contact the customer service.
- It is permitted to use the vehicle with the bucket only for carrying work



### CAUTION

**It is important that there is always visibility by the operator on the bucket work area. A bucket that is too large limits the operator's visibility and can damage the vehicle.**

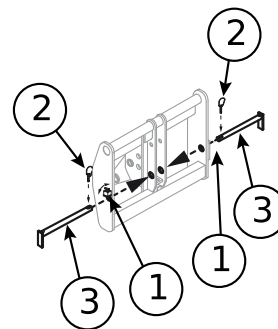
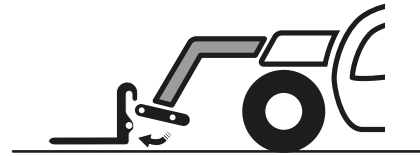
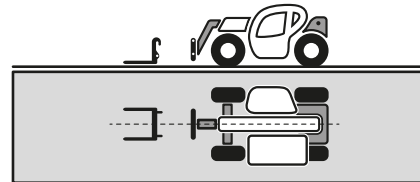
## 9.2 Equipment installation procedure



To properly install equipment carry out the following operations:

1. Remove the safety pins "3" (if installed) by removing the safety plugs "2" and lifting the lock pins "1".
2. Place the equipment on a flat not yielding surface, to be able to smoothly engage it with the attachment holding plate of the vehicle.
3. Place the vehicle with the boom lowered parallel to the tool. Approach the attachment holding plate to the accessory extending the telescopic boom. The vehicle can not extend the boom if it is completely lowered. Slightly raise the boom to be able to extend it.
4. Using the tilting movement, rotate the attachment holding plate downward. Bring the top of the plate under the locking hooks of the tool.
5. Slightly lift the boom and rotate the attachment holding plate upwards, thus making the equipment adhere to the attachment holding plate of the vehicle. During this operation, make sure that no person is in the vicinity of the equipment or the vehicle boom.
6. Turn off the engine and get out of the vehicle.
7. Lift the lock pin "1" and insert the safety pins "3" in their seats on attachment holding plate, passing through the corresponding slots of the equipment. In the case the two holes do not match, perform the steps described in chapter "Safety pin outline".
8. Fit the safety plug "2" on the pins just inserted.
9. In the event that the equipment needs electrical or hydraulic connections, refer to the "hydraulic connections" chapters.

10. Once properly fixed the equipment, turn on the vehicle and set the correct mode of operation of the vehicle related to the newly installed equipment:
11. Consult the use and maintenance manual of the vehicle to set the correct mode of use.
12. Check that in the cab there is the load chart related to the vehicle and to the equipment just installed.



### DANGER

In case, for deformation, the pin and the related safety pin do not reach the required position, it is absolutely forbidden to use the accessory as it may come off and fall to the ground dangerously.

It is forbidden to operate without the safety pin installed on the attachment holding plate.



## WARNING

When using an equipment that has electrical or hydraulic connections these must always be correctly connected to the vehicle. Failure to connect does not allow the proper operation of the safety devices with risk of damage to property and persons and risk of vehicle tipping.



## DANGER

It is forbidden to operate with a mode of use of the vehicle not suitable for the type of equipment installed. The electro-hydraulic equipment will not work correctly and safety devices will not be in operation creating a risk of damage to property and people and the vehicle risk of tipping.

**It is forbidden to operate without the proper load chart related to the vehicle and to the equipment installed.**

For more details on the accessory installation procedures or warnings, consult the use and maintenance manual of the accessory.



## CAUTION

**Before each use, check that:**

- a) The equipment is properly hooked to all the pins and hooks are inserted in the correct position.
- b) There is no damage, deterioration, deformation of the equipment locking components.
- c) If present, the electric cables or hydraulic hoses are in good condition and do not create hindrance while using the equipment.
- d) The mode of operation of the vehicle is consistent with the type of equipment installed.
- e) In the cab there are the load charts related to the vehicle and to the equipment installed.

## 9.3 Hydraulic connections

### 9.3.1 Warnings for hydraulic connections



## NOTE

Before making the hydraulic connections, perform the "Equipment installation procedure" and check the equipment is correctly fixed to the vehicle.

Check the hydraulic pipes do not obstruct the movements of the vehicle or of the equipment as it may be damaged.

Consult the equipment manual to verify correct operation.



## WARNING

When using an equipment that has electrical or hydraulic connections these must always be correctly connected to the vehicle. Failure to connect does not allow the proper operation of the safety devices with risk of damage to property and persons and risk of vehicle tipping.



## NOTE

Always accurately clean the hydraulic connections before each coupling. If not used, both the hydraulic connections must be protected with adequate plastic caps.



## WARNING

Do not use the vehicle or the equipment if the hydraulic pipes are worn or damaged, but repair or replace them.

**Once the hydraulic connections have been made, it is compulsory to verify that the controls are consistent with the operations carried out on the vehicle.**

By inverting the connections, the accessory functions may be inverted compared to normal use, therefore, after having completed the equipment installation procedure, test the various functions in a free zone.





**DANGER**

**Hydraulic liquid under pressure**

Fine jets of hydraulic oil at high pressure can penetrate the epidermis. Keep hands and face at a safe distance from the pressurized fluid and wear goggles and protective gloves. Bring a piece of cardboard to the area of the suspected leak and then check for traces of liquid on the cardboard. If the liquid penetrates the skin immediately seek for medical advice.

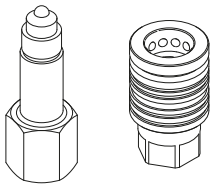
**Hydraulic pressure**

The leakage of hydraulic oil at operating pressure can cause injury: before connecting or disconnecting the hydraulic pipes, release the residual pressure from the hydraulic circuit. Prevent starting the engine with disconnected pipes.

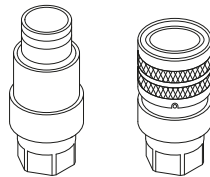
9.3.2 Type of hydraulic quick couplings

The hydraulic quick couplings at boom head can be of two types:

**PUSH-PULL**



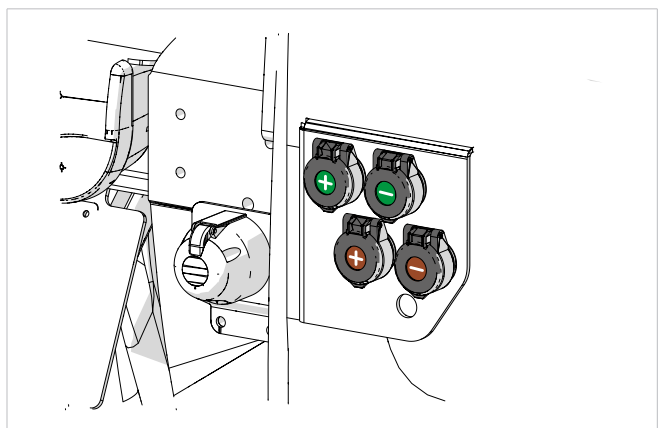
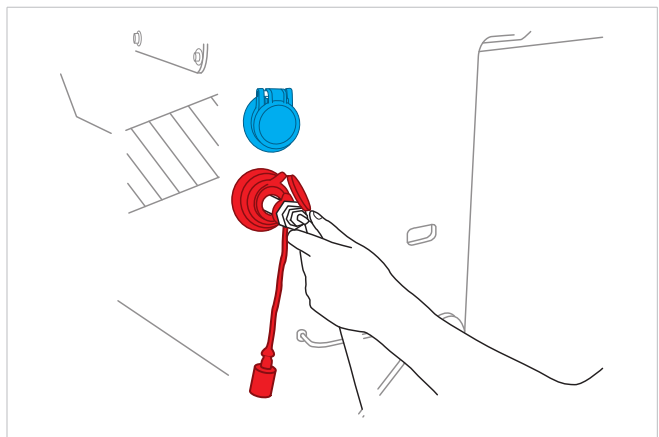
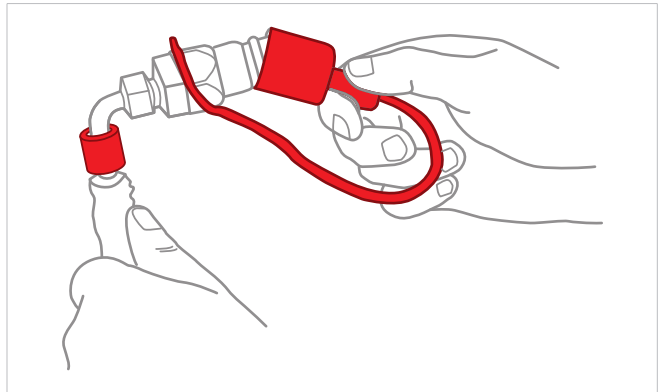
**FLAT-FACE**



9.3.3 References for correct connection

To make the correct connection of the hydraulic fittings, each hydraulic plug or socket is marked with a colour or symbol.

- The **red** plugs must be connected to the **red** sockets or those with the "+" mark.
- The **blue** plugs must be connected to the **blue** sockets or those with the "-" mark.



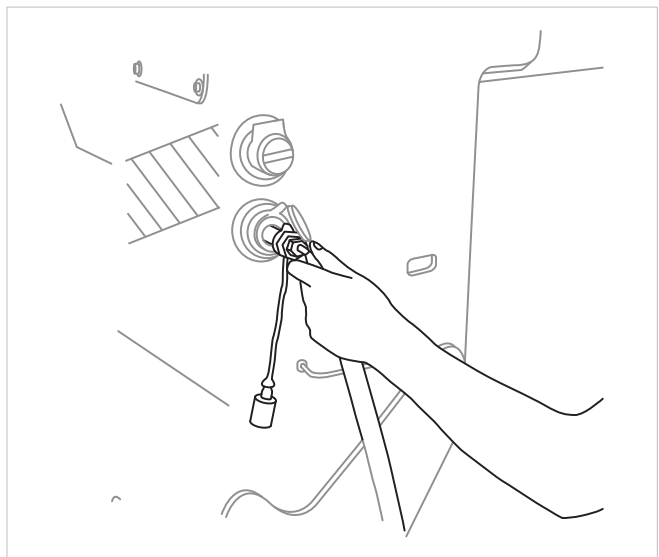
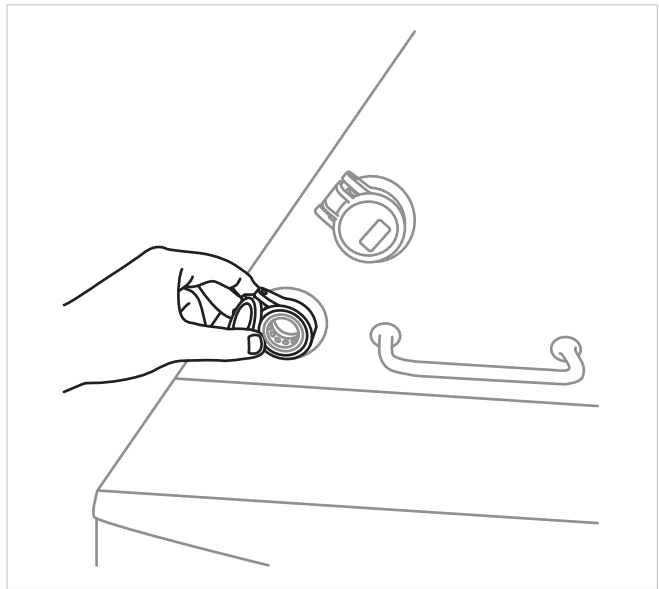
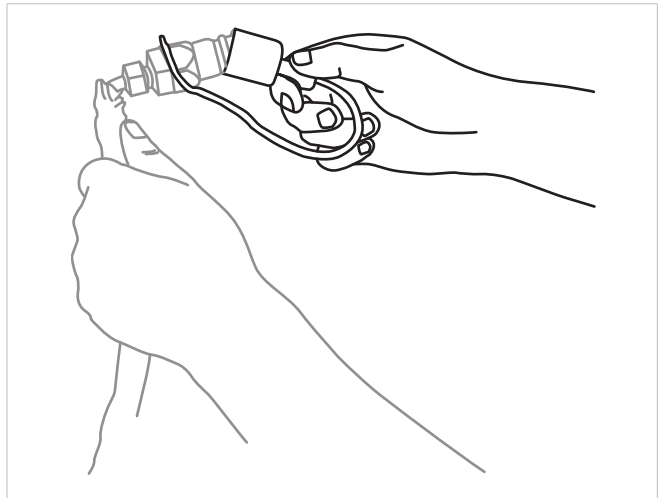


## WARNING

Equipment with hydraulic connections made incorrectly have movements or functions that do not agree with the operator's controls and can cause damage to other operators, material handled or to the vehicle and equipment.

Always make sure that the hydraulic connections follow the indications given above for proper connection and that the movements and functions of the equipment comply with the operator controls.

### 9.3.4 Push-Pull couplings connection



To connect the Push-Pull quick couplings to the sockets on the boom head:

1. Perform the equipment installation procedures described in the chapter: "Equipment installation procedure".



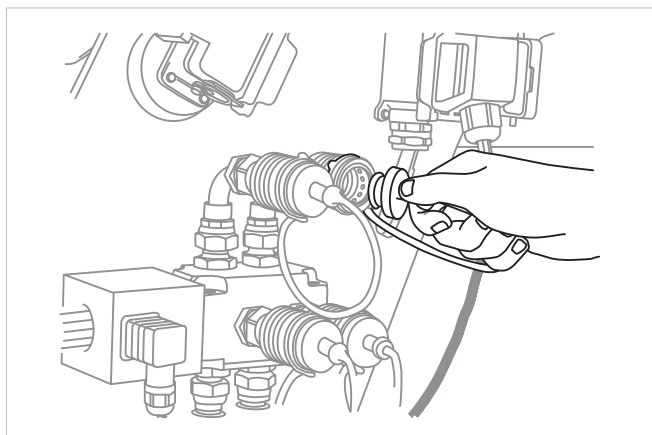
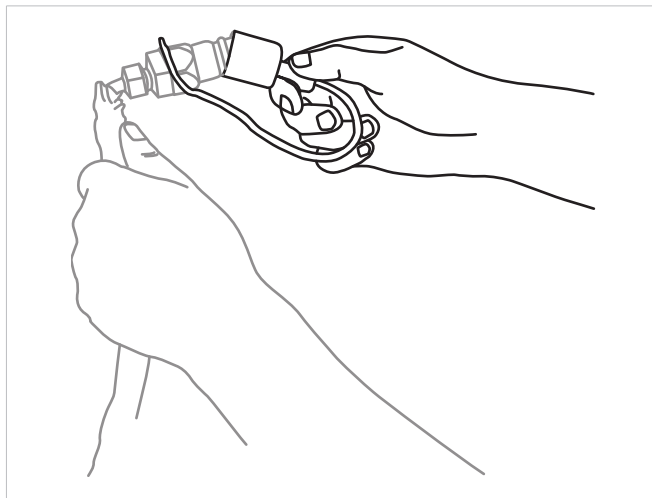
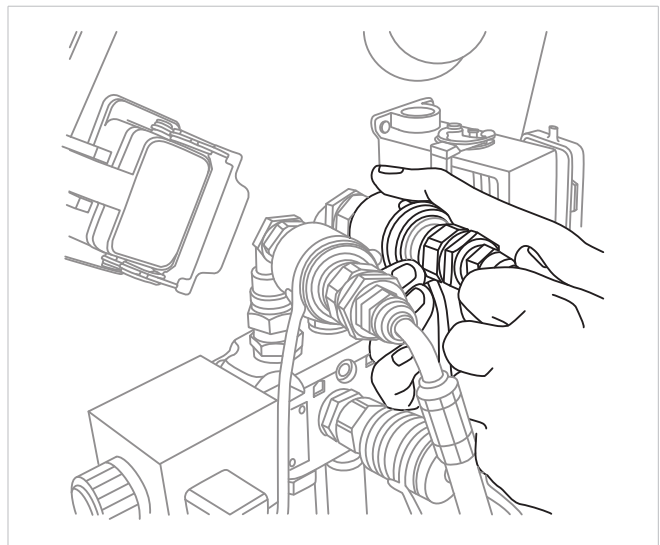
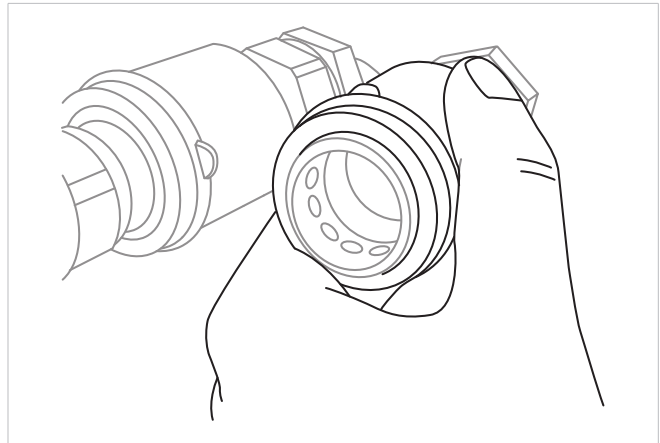
2. Turn off the vehicle.
3. In case of closed centre distributor, relieve the system residual pressure (Closed centre distributor: Relieve the pressure through the trailer Descent button).
4. Remove the protective cap from the equipment hydraulic plugs.
5. Lift the protective cover for the hydraulic socket present on the boom head
6. Clean the plug and socket, if soiled.
7. Place the plug inside the socket and press until the tube is blocked.
8. Check that the hydraulic pipe is correctly fixed.
9. Carry out the same operation for both pipes.



**NOTE**

Consult the equipment manual to verify correct operation.

9.3.4.1 Push-Pull couplings connection when connected to a valve



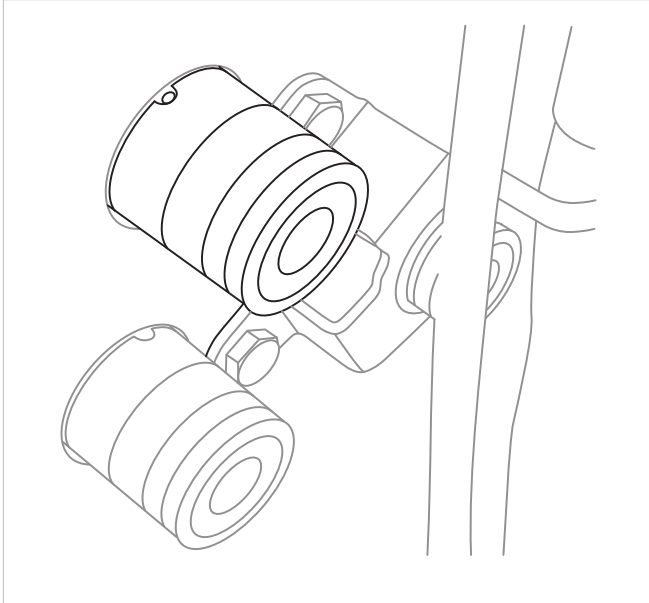
To connect the Push-Pull quick couplings to the valve on the boom head:

1. Perform the equipment installation procedures described in the chapter: "Equipment installation procedure".
2. Turn off the vehicle.
3. In case of closed centre distributor, relieve the system residual pressure (Closed centre distributor: Relieve the pressure through the trailer Descent button).
4. Remove the protective cap from the equipment hydraulic plugs.
5. Remove the protective cap from the hydraulic sockets installed in the valve on the boom head.
6. Clean the plug and socket, if soiled.
7. Push the ring on the valve socket towards the boom.
8. Place the plug fully inside the socket and release the ring of the valve
9. Check that the hydraulic pipe is correctly fixed.
10. Carry out the same operation for both pipes.

**NOTE**

Consult the equipment manual to verify correct operation.

## 9.3.5 Flat-Face couplings connection

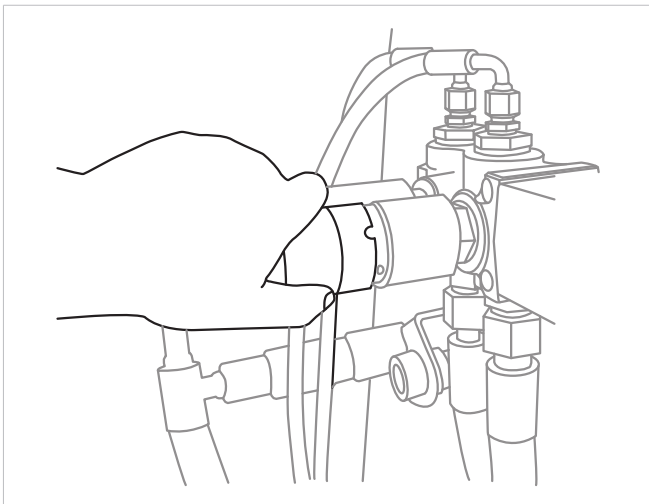
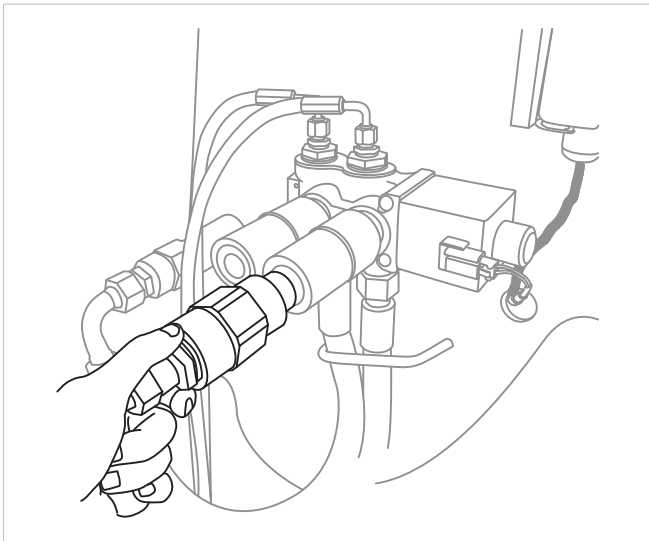


To connect the Flat-Face quick couplings:

1. Perform the equipment installation procedures described in the chapter: "Equipment installation procedure".
2. Turn off the vehicle.
3. In case of closed centre distributor, relieve the system residual pressure (Closed centre distributor: Relieve the pressure through the trailer Descent button).
4. Clean the plug and socket, if soiled.
5. Rest the plug at centre of the socket and push the plug fully, until the socket ring is lifted.
6. Turn the ring to block the plug inside the socket.
7. Check that the hydraulic pipe is correctly fixed.
8. Carry out the same operation for both pipes.

**NOTE**

Consult the equipment manual to verify correct operation.

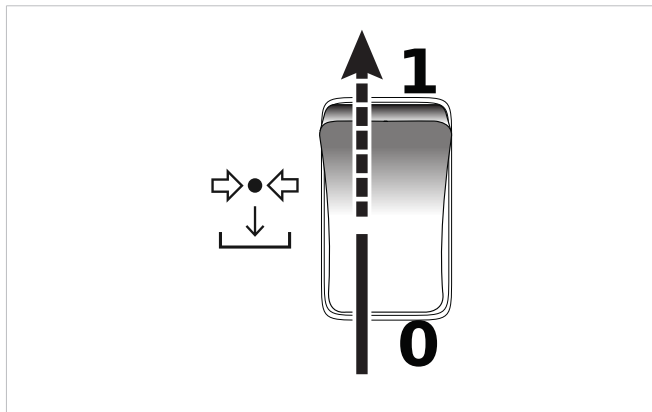
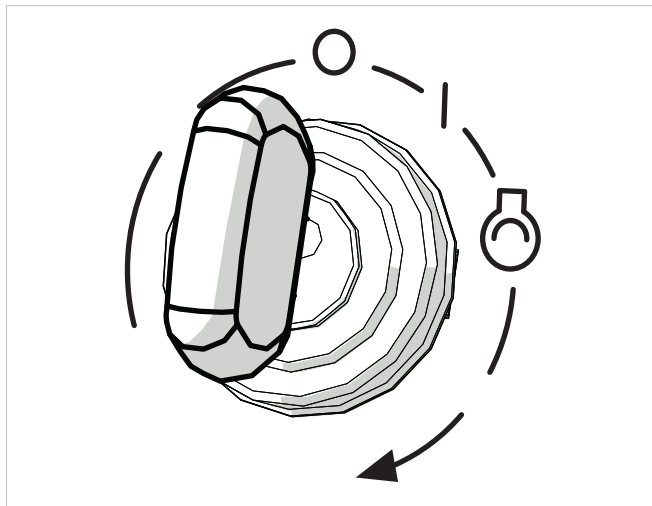


9.3.6 Closed centre distributor: Relieve the pressure through the trailer Descent button \*



**NOTE**

This operation is possible and it may be required only for vehicles fitted with "Closed centre distributor" and "Trailer descent".



To relieve pressure it is necessary to:

1. Move the ignition key of the vehicle to position "I".
2. Select the hydraulic socket still under pressure (if there is more than one hydraulic socket refer to the vehicle manual, chapter "Hydraulic sockets selection").
3. Press the "Trailer descent" button to release the residual pressure of the selected hydraulic press.
4. Proceed with the hydraulic couplers connection operation.

**9.4 Electrical Connections**

9.4.1 Warnings for electrical connections



**DANGER**

**Before making the electrical connections, switch off the vehicle.**

Do not use the vehicle or the equipment if the electrical cables are worn or damaged, but repair or replace them.



**WARNING**

Do not leave the boom plug hanging from the chain during work operations as this may be damaged impairing the vehicle correct operation when used without equipment.



**CAUTION**

Before making the electrical connection, perform the "Equipment installation procedure" and check the equipment is correctly fixed to the vehicle.



**WARNING**

**When using an equipment that has electrical or hydraulic connections these must always be correctly connected to the vehicle. Failure to connect does not allow the proper operation of the safety devices with risk of damage to property and persons and risk of vehicle tipping.**

Consult the equipment manual to verify correct operation.



**CAUTION**

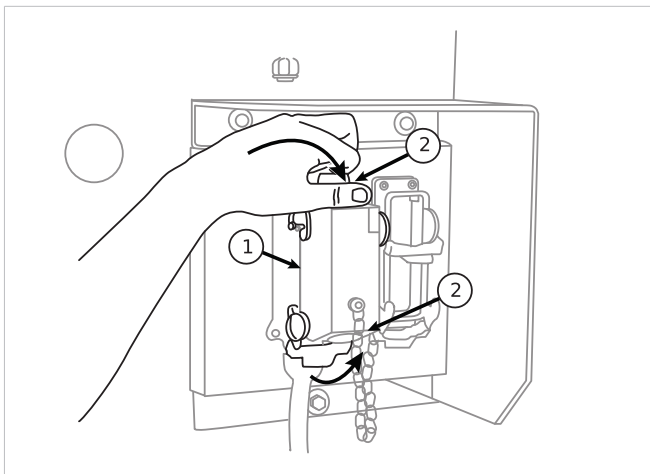
Check that the electrical cable is not in a position that hampers the movements of the operating vehicle and of the equipment as it could be damaged.

### 9.4.2 Procedure for connecting electrical connections

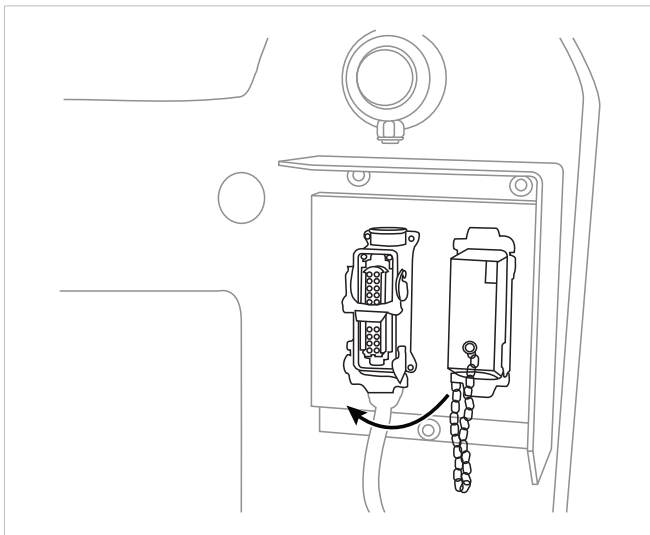
The electrical connections on the boom head may have 6, 16 or 24 poles, but the connection procedure is the same for both.

For equipment provided with electrical system carry out the following operations:

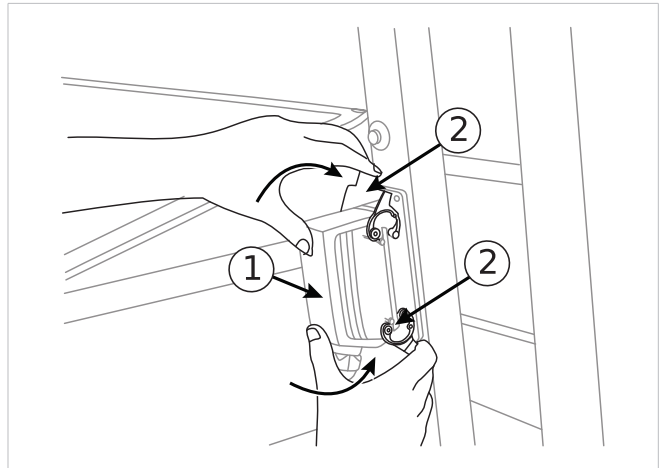
1. Perform the equipment installation procedures previously described.
2. Turn off the vehicle.
3. Disconnect the cover from the socket on the boom "1" **by** lowering the 2 safety levers "2".



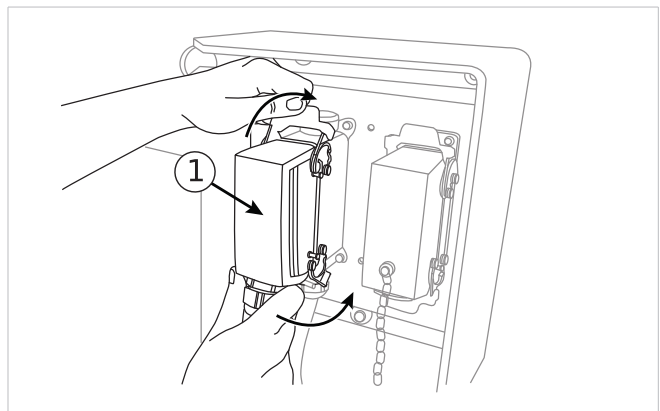
4. Remove the cover located on the boom socket and fit it in the dummy socket aside and fasten it with the appropriate levers.



5. Disconnect the plug from the dummy socket on the equipment "1" lowering the 2 safety levers "2".



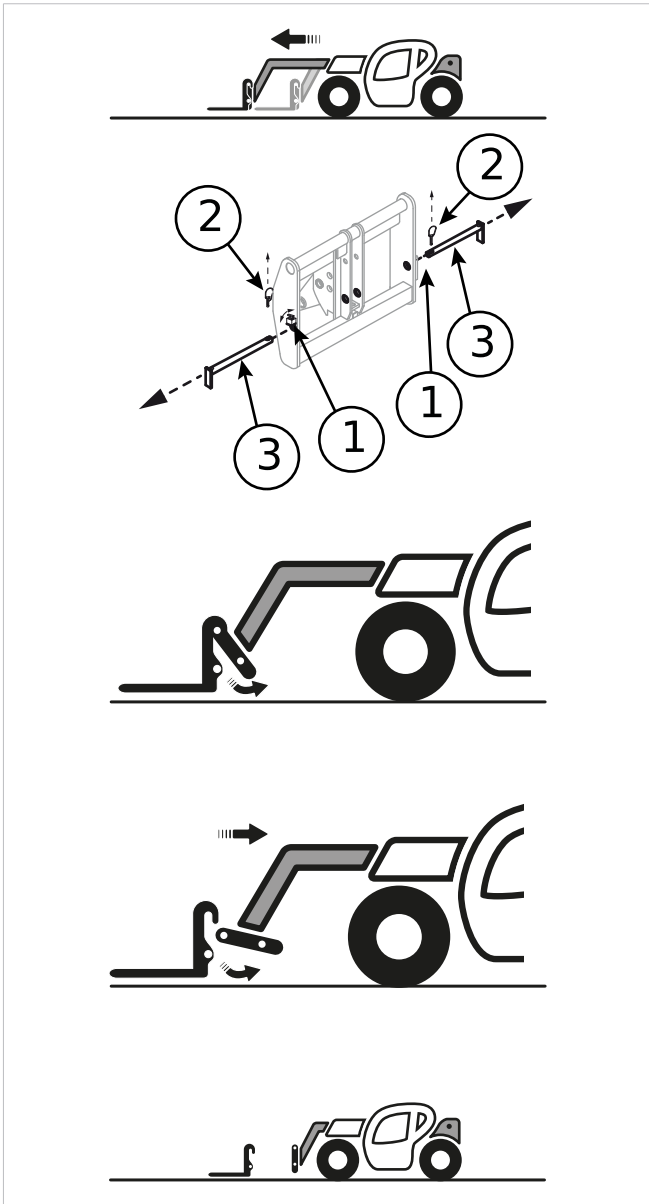
6. Connect the plug of the equipment on the electrical socket of the boom, fastening it by lifting the 2 safety levers "1".



7. Once properly fixed the equipment, turn on the vehicle and set the correct mode of operation of the vehicle related to the newly installed equipment.

8. Check that in the cab there is the load chart related to the vehicle and to the equipment just installed.

## 9.5 Equipment removal



7. Release the equipment following the reverse procedure of the equipment installation in accordance with the type of plate installed on the vehicle.
8. Turn on the vehicle and swing down in order to release the attachment holding plate from the equipment.
9. Once released the attachment holding plate, retract the vehicle boom.



### NOTE

The accessory placed on the ground must always be appropriately marked and barriers and clearances must be laid on all sides of the area that it could occupy falling.



### DANGER

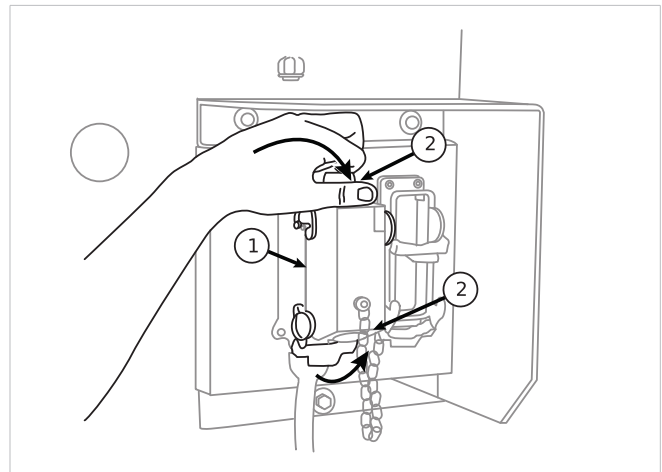
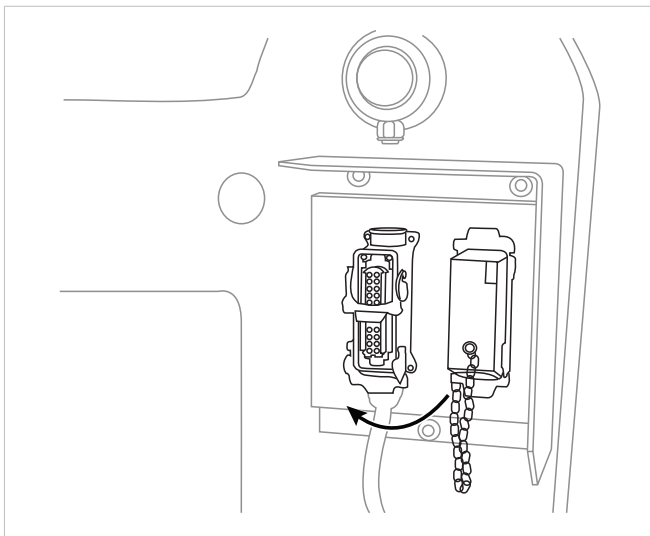
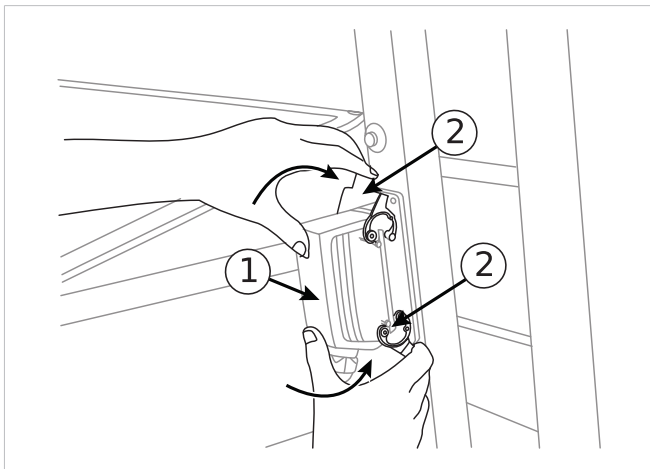
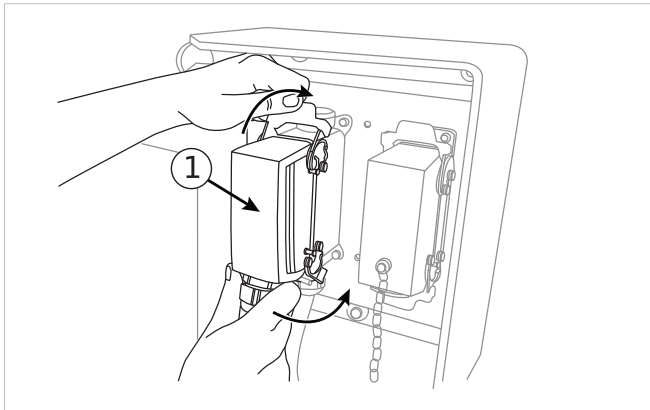
**After releasing the system pressure always wait for a minute before disconnecting the joints.**

Always disconnect the hydraulic pipes and electrical cables of the equipment before releasing it from the vehicle. Otherwise it is possible to damage the pipes or cables and the tool may fall and be dragged.

To store the accessory, once you finished using it, carry out the following operations:

1. Place the vehicle on a solid and level ground.
2. Position the equipment above a support platform to facilitate the handling and transportation of the single piece of equipment.
3. Lower and extend the vehicle boom of about one metre.
4. Turn off the engine.
5. Remove the electrical connections, if any (see the following chapter).
6. Remove the water connections, if any (see the following chapter).

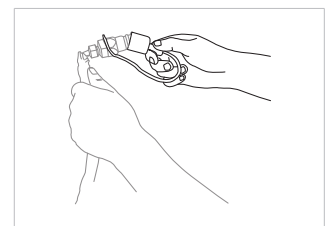
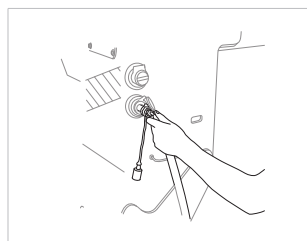
### 9.5.1 Electrical connections removal



To remove the electrical connections from the equipment it is necessary to:

1. Follow steps 1, 2, 3 and 4 of the procedure to remove the equipment from the vehicle described in the previous chapter.
2. Disconnect the plug of the equipment from the boom by lowering the two safety levers.
3. Position the plug of the equipment on its dummy socket "1", fastening it with the safety levers "2".
4. Disconnect the cover located on the boom dummy socket and fit it in the electrical socket.
5. Secure the cover to the socket on the boom "1" through the safety levers.
6. Check that the electrical cables are not trapped in the attachment holding plate or that they can be crushed by the equipment when it will be placed on the floor.
7. Proceed with the subsequent operations to remove the equipment from the vehicle.

### 9.5.2 Push-Pull couplings removal



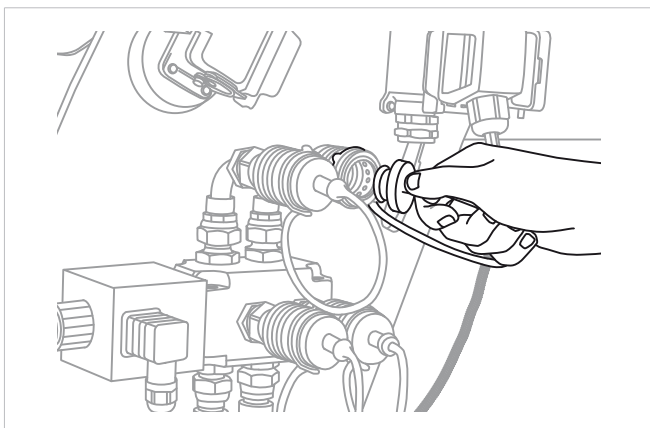
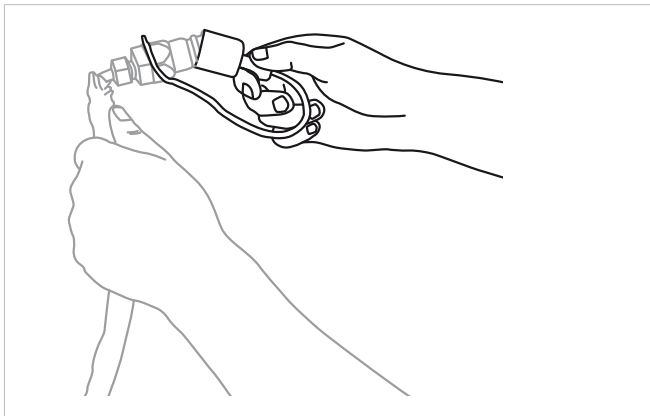
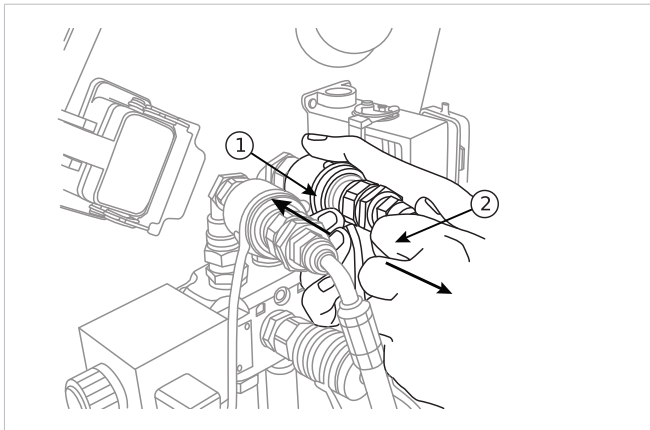
To disconnect the Push-Pull quick couplings from the socket on the boom head it is necessary to:

1. Follow steps 1, 2, 3 and 4 of the procedure to remove the equipment from the vehicle described in the previous chapter.
2. If a closed centre distributor is installed on the vehicle, carry out the procedures described in chapter "Closed centre distributor: Relieve the pressure by pressing the "Trailer descent" button to relieve the pressure in the hydraulic circuit.
3. Turn off the vehicle.

4. Pull the plug towards yourself to remove it from the socket.
5. Clean the plug and socket, if soiled.
6. Fit the protective cap on the equipment hydraulic plugs.
7. Carry out the same operation for both pipes.
8. Check that the hydraulic pipes are not trapped in the attachment holding plate or that they can be crushed by the equipment when it will be placed on the floor.
9. Proceed with the subsequent operations to remove the equipment from the vehicle.

**9.5.2.1 Push-Pull couplings removal when connected to a valve**

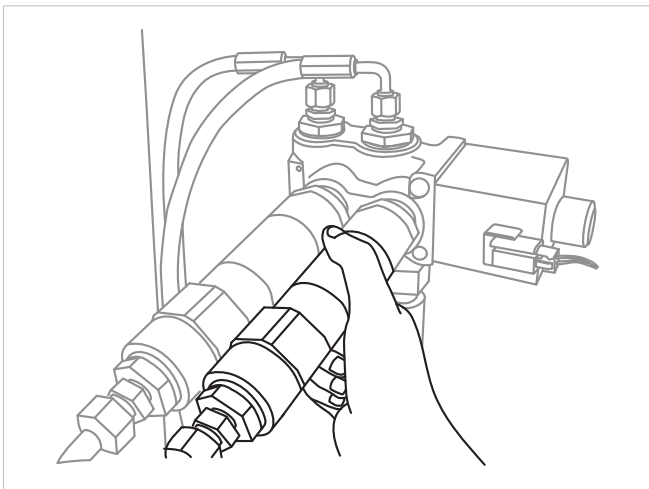
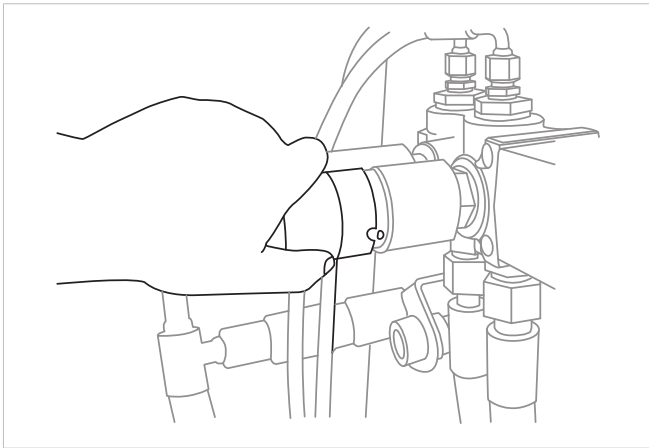
To disconnect the Push-Pull quick couplings from the valve on the boom head:



1. Follow steps 1, 2, 3 and 4 of the procedure to remove the equipment from the vehicle described in the previous chapter.
2. If a closed centre distributor is installed on the vehicle, carry out the procedures described in chapter "Closed centre distributor: Relieve the pressure by pressing the "Trailer descent" button to relieve the pressure in the hydraulic circuit.
3. Turn off the vehicle.
4. Push the ring of the socket towards the vehicle boom "1".
5. Pull the plug towards yourself to remove it from the socket "2".
6. Clean the plug and socket, if soiled.
7. Fit the protective cap on the equipment hydraulic plugs.
8. Fit the protective cap on the hydraulic sockets of the valve.
9. Carry out the same operation for both pipes.
10. Check that the hydraulic pipes are not trapped in the attachment holding plate or that they can be crushed by the equipment when it will be placed on the floor.
11. Proceed with the subsequent operations to remove the equipment from the vehicle.



### 9.5.3 Flat-Face couplings removal



To disconnect the Flat-Face quick couplings:

1. Follow steps 1, 2, 3 and 4 of the procedure to remove the equipment from the vehicle described in the previous chapter.
2. If a closed centre distributor is installed on the vehicle, carry out the procedures described in chapter "Closed centre distributor: Relieve the pressure by pressing the "Trailer descent" button to relieve the pressure in the hydraulic circuit.
3. Turn off the vehicle.
4. Turn the socket ring to match the recess with the position of the ball placed on the socket.
5. Push the socket ring "1".
6. Pull off the plug "2".
7. Clean the plug and socket, if soiled.
8. Carry out the same operation for both pipes.
9. Check that the hydraulic pipes are not trapped in the attachment holding plate or that they can be crushed by the equipment when it will be placed on the floor.
10. Proceed with the subsequent operations to remove the equipment from the vehicle.

## 9.6 Forks

### 9.6.1 Identification

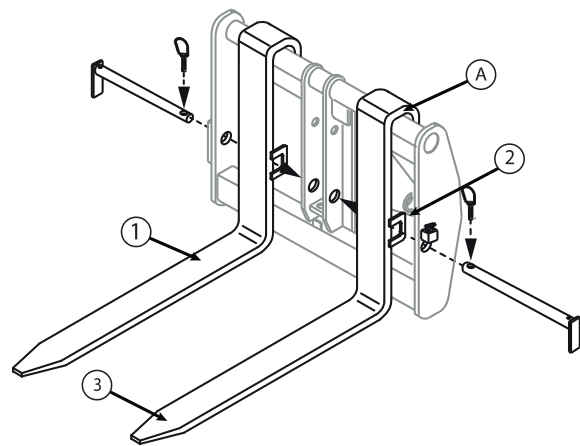
The term "Forks" means the pair of forks to be installed on the vehicle.

The purpose of this equipment is the lifting and handling of a load from the ground upwards, and vice versa.



#### NOTE

The forks may be provided with a spreader/shifter that allows to position the distance between the forks more quickly and safely.



The data necessary for the identification of the forks are positioned on the right side of the forks, in the upper part "A".

Below are the identification data (their order may be different on the forks).

To ensure a prompt and efficient service when ordering parts or when requesting information or technical clarification always specify the identification details.

Therefore we recommend to note the data relating to the accessory in your possession in order to safely and quickly identify them in the future, in case of need.

<b>Dieci forks code</b>	.....
<b>Manufacturer's Logo/Abbreviation</b>	.....
<b>Manufacture Date/Batch</b>	.....
<b>Maximum capacity (Kg)</b>	.....
<b>Load application centre of gravity (mm) *</b>	.....

\* There may be more than one value depending on the load.

### 9.6.2 Description

The forks consist of the following main components:

1. Forks



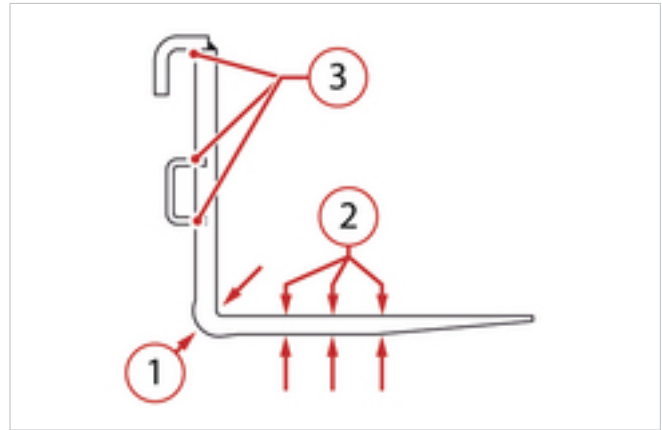
2. Eyelet
3. Hole for mounting specially designed equipment



**DANGER**

It is strictly forbidden to use the Hole for fastening equipment, for the installation of equipment not expressly approved by Dieci or for a use other than that intended.

Vehicle tipping danger, damage to forks or falling materials.



9.6.3 Forks check



**NOTE**

For the forks verification frequency refer to the "Control log".



**CAUTION**

During maintenance and control, it is mandatory to use the appropriate Personal Protective Equipment.



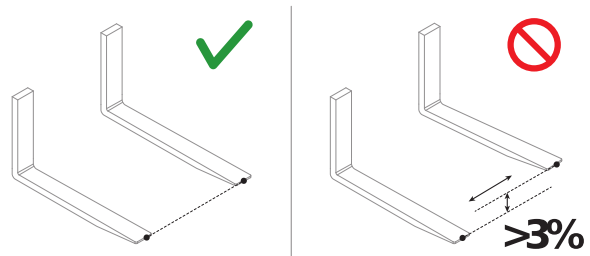
**WARNING**

It is absolutely forbidden to carry out maintenance on the forks (e.g. welding, drilling, engraving, etc.).

In the event of damage or deformation immediately replace the forks.

Verify the deformation of the forks

Verify that the two forks are parallel between them and that the distance from the ground is the same for both, or with difference of less than 3% of the length of the fork.



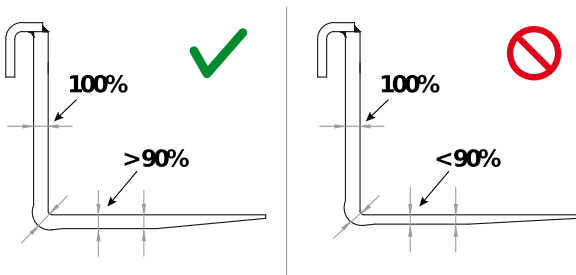
For example, for a fork 1800 mm long, the difference between the maximum permissible deformation of the fork tips will therefore be of 54 mm ( $1800 \times 3/100 = 54$ ).

Check the integrity of the welds

Check that all the welds on the forks "3" are in good conditions and have no cracks or anomalies.

**Check the forks thickness.**

The maximum wear allowed is 10%.



For example for a fork 70 mm thick, the thickness must not be less than 63 mm. ( $70 - 10\% = 63$ )

For a quick check of the thickness of the forks, it is necessary to measure the thickness in the vertical part of the fork "1"; this will be the dimension to which refer for the fork thickness measurements "2". Make at least three measurements at several points.

### 9.6.4 Forks use



#### CAUTION

Before starting to use the equipment, inspect and test it as described in the section "Equipment pre-use check".



#### WARNING

It is absolutely forbidden to use the forks or any type of equipment, without securing it to the attachment holding plate with the appropriate safety plugs.

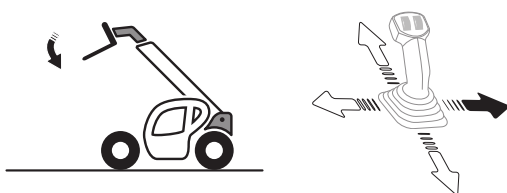
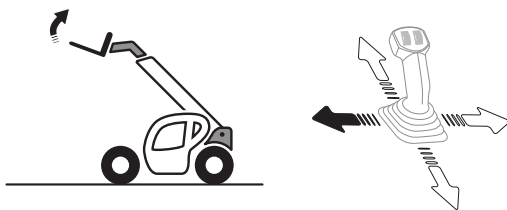


#### DANGER

Before each use, check the wear status of the forks, they could be worn out and not hold the load to be handled creating a dangerous situation.

Before starting to use the equipment, refer to the chapters:

- a) "Safety regulations"
- b) "Forks safe working procedures"
- c) "Forks check"



To use the forks it is sufficient to move the controls for the plate tilting.

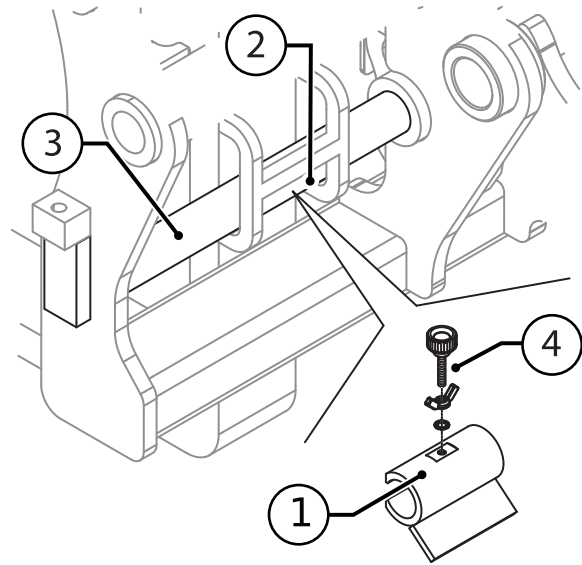
By moving the joystick to the left, the tips of the forks will rise; by moving the joystick to the right, the tips of the forks will drop.

### 9.6.5 Forks adjustment

To adjust the position of the forks it is necessary to:

- Deposit a load to the ground.
- Lower and fully retract the boom moving the forks to about 1 m above the ground.
- Turn off the vehicle.
- Get off the vehicle and manually move the forks to the desired width.

### 9.6.6 Fork block



The Forks block prevents lateral movement of the forks once the desired setting has been chosen.

To engage the forks block:

1. Perform the forks installation procedure on the fork carrier plate.
2. Place the forks block "1" in the eyelet of the forks "2".
3. Insert the plug "3" completely down in order to fit the eyelet "2" and the fork block "1".
4. Fasten the plug with the related safety stops.
5. After moving the fork laterally to the desired position, fix the position by tightening the screw "4".

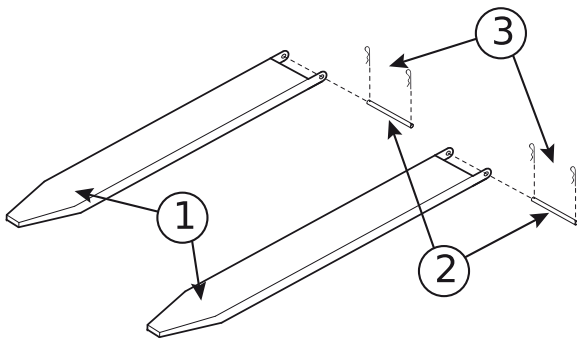
9.6.7 Fork extensions



**CAUTION**

**Before starting to use the equipment, inspect and test it as described in the section "Forks Safe Working Procedures".**

Before starting to use the equipment, refer to the "Safety regulations" and "Safe Working Procedures" described in the manual of the vehicle on which the equipment is installed.



The fork extensions consists of the following main components:

1. Extension
2. Fastener pin
3. Safety plug

Warnings for use

- Use the extensions only with the forks for which they were constructed.
- Before use, check their integrity.
- Always apply the pin with the related cotter pin.
- Do not use loads exceeding those indicated by the forks on which the fork extensions are mounted.
- Refer to the load chart of the forks to which are applied the fork extensions.
- Make sure of the load stability.
- Do not take the load with a single extension.
- Do not use extensions for purposes other than those for which they were constructed.

Installation

- Fit the extension on the forks after establishing the integrity of the extension and the forks.
- Put the fastener pin "2" with the related safety plug "3".



**DANGER**

Never use if the forks or the extensions if they are defective or show tampering signs.

Forks extension check

- At each use check the integrity of welds and repair if necessary.
- When the thickness of the lower metal sheet reaches 80% of its original thickness, the extension must be replaced.

9.6.8 Forks safe working procedures

9.6.8.1 General instructions on forks use



**DANGER**

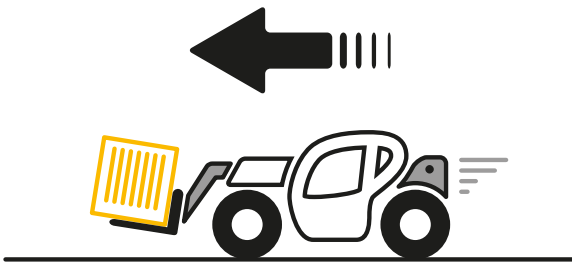
**Never lift a load slung with a single fork or with a board.**

It is absolutely forbidden to use the forks with hooks, straps or other materials for handling suspended loads. Use the appropriate accessories (hook, winch, jib).

- Always set the forks fully under the load and move it to the transport position (forks at 300mm from the ground and tilted backwards, with fully retracted boom).
- The load diagrams are valid for centres of gravity indicated on the diagram. For a centre of gravity at a greater distance, contact your dealer.
- Pay attention to the risk of crushing limbs when adjusting the forks manually.
- It is absolutely forbidden to increase the length or width of the forks with extensions not provided directly by the Manufacturer. In this case DIECI is raised from any responsibility regarding their use.
- Forks overloading and transverse stress are strictly prohibited.
- Place the forks to their maximum possible width depending on the load to be moved. Before lifting a load make sure that the width of the forks corresponds to that of the pallet or that these can withstand the weight of the load on the pallet. Forks set wide apart maintain a stable load.
- Place loads evenly on the forks, to obtain a stable balance. When lifting wide loads, or not centred and that are impossible to centre, manoeuvre the vehicle with caution in order to prevent this from tipping. Use caution when lifting bars of considerable length.

- Do not raise the load with the tip of the forks facing downwards. The forks must always be with the tips pointing upwards; in this way the load will lean against the plate of the forks. A lifted load can be tilted forward only if it must be placed on a stack or directly on a discharge surface.
- Do not use the vehicle to transport or move persons when the forks are assembled on it. Use suitable interchangeable equipment approved by Dieci.

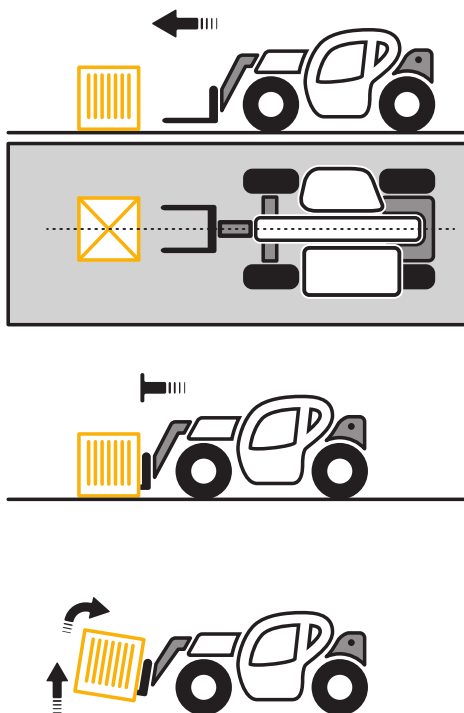
### 9.6.8.2 Load transport position with forks



To correctly transport a load with forks it is necessary to:

1. Fully retract the boom.
2. Lower the boom fully down so that the forks are at about 300 mm from the ground.
3. Tilt the fork tips upward.

### 9.6.8.3 Picking up a load from the ground



1. Slowly move the vehicle to the load to be lifted with the boom fully retracted and the forks in a horizontal position at the height of the lifting position. Keep the forks raised just enough to avoid contact with the ground.
2. Bring the forks under the load to be lifted up to the contact with the attachment holding plate.
3. Press the brake pedal and move the gear selector in neutral.
4. Slightly lift the load and tilt the attachment holding plate backward setting it in the transport position.



### WARNING

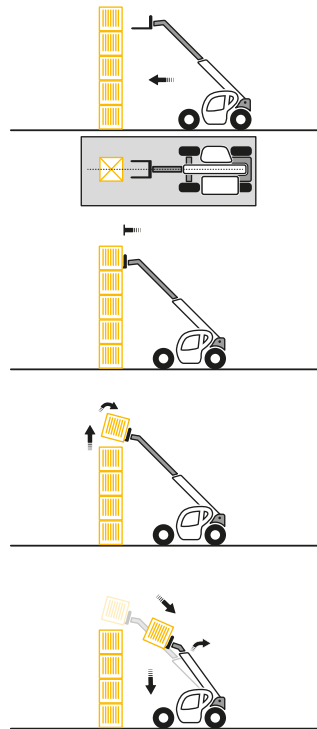
Always observe the centre of gravity of the load, tilt the forks enough to ensure stability and prevent the loss of the load during braking.



### DANGER

Never carry a load with boom raised and/or removed.

### 9.6.8.4 Picking up a load from a high position



1. Make sure that the forks pass easily under the load.
2. Drive slowly and cautiously approaching the vehicle to the load placing it perpendicular to this with the forks horizontal. If necessary, use the inching pedal to approach slowly.

3. Always remember to keep the distance required to insert the forks under the load, between the stack and the vehicle.
4. Extend the boom for the shortest possible length.
5. After bringing the forks under the load to be lifted until it is in contact with the fork holding plate, press the brake pedal and move the gear selector in neutral.
6. Lift the load and tilt the fork holding plate to the transport position.
7. If possible lower the load without moving the vehicle.
8. Lift the boom to move the load away, then retract the extensions and lower the boom to set the load in the transport position.
9. If not possible, move the vehicle backward very slowly and very carefully, after moving the load away properly retract the extensions and lower the boom to set the load in the transport position.



**WARNING**

Always observe the centre of gravity of the load, tilt the forks enough to ensure stability and prevent the loss of the load during braking.



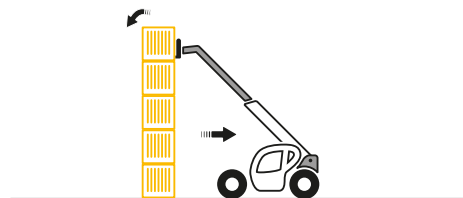
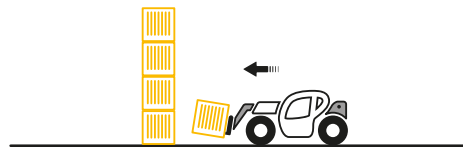
**DANGER**

**Danger of tipping**

It is absolutely forbidden to pick up a load if the vehicle is not level.

Never carry a load with boom raised and/or removed.

9.6.8.5 Positioning a load in a high position



1. Bring the load in the transport position in front of the stack.
2. Lift and extend the boom to take the load above the stack. If necessary, move the vehicle towards the stack very slowly and very carefully. If necessary, use the inching pedal to approach slowly.
3. Press the brake pedal and move the gear selector in neutral.
4. Place the load horizontally and lay it on the stack, lower and retract the extensions to properly position the load.
5. Release the forks alternately retracting the extensions and lifting the boom; if possible make the vehicle move back very slowly and very carefully.



**WARNING**

Always observe the centre of gravity of the load, tilt the forks enough to ensure stability and prevent the loss of the load during braking.



## DANGER

### Danger of tipping

It is absolutely forbidden to pick up a load if the vehicle is not level.

Never carry a load with boom raised and/or removed.

#### 9.6.8.6 Picking up a round load



1. Tilt the forks forward and retract the telescopic boom, while inserting the forks under the load.
2. Rotate the fork carrier plate backward to slide the load. If necessary secure the load with wedges.



## WARNING

Always observe the centre of gravity of the load, tilt the forks enough to ensure stability and prevent the loss of the load during braking.



## DANGER

Never carry a load with boom raised and/or removed.



## NOTE

There are various interchangeable equipment such as grippers to facilitate the work with objects which are round, contact your DIECI dealer.

## 9.7 Bucket

On DIECI vehicles it is recommended to use only Buckets manufactured or approved by Dieci Srl.

The use of buckets not approved by Dieci Srl may void the warranty.

Dieci Srl buckets have connections, dimensions and working angles optimized for DIECI vehicles.

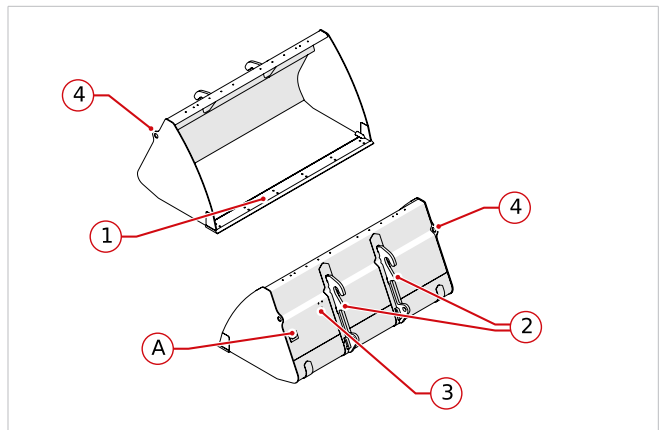
### 9.7.1 Buckets identification

Buckets allow handling inert material.

To ensure a prompt and efficient service when ordering parts or when requesting information or technical clarification always specify the serial number.

Therefore we recommend to note the data relating to the accessory in your possession in order to safely and quickly identify them in the future, in case of need.

The data necessary for the identification of the buckets are positioned on the right side, in the upper part "A".

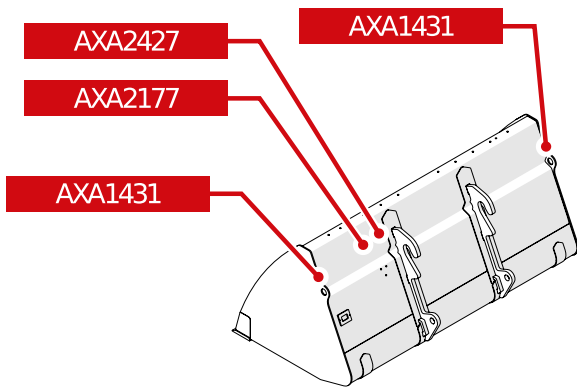


### 9.7.2 Buckets description

All the buckets consist of the following components:

1. Blade
2. Hooks for plate connection
3. Tilt indicator
4. Hooks for lifting

9.7.3 Buckets safety stickers



Buckets safety stickers:

- AXA2427 – Keep the safety distance from the equipment
- AXA2177 – Read the use and maintenance manual.
- AXA1431 – Lifting hook

9.7.4 Bucket use



**WARNING**

**Before starting to use the equipment, inspect and test it as described in the section "Equipment pre-use check".**

It is absolutely forbidden to use the forks or any type of equipment, without securing it to the attachment holding plate with the appropriate safety plugs.



**DANGER**

Before each use, check the wear status of the equipment, they could be worn out and not hold the load to be handled creating a dangerous situation.

Before starting to use the equipment, refer to the chapters:

- "Safety regulations"
- "Buckets Safe Working Procedures"
- "Equipment pre-use checks"



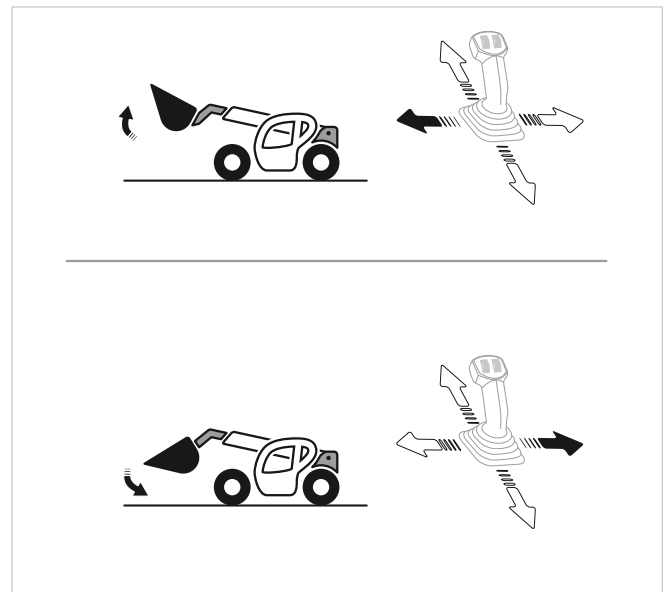
**CAUTION**

Set the appropriate working mode of the vehicle during the bucket use. If this is not done properly, the anti-tipping device could start up and the movements will consequently stop during the bucket excavation or the loading.

To use buckets with Pegasus model vehicles, it is necessary to select the equipment on the anti-tipping device. For the load charts of the Pegasus vehicle when using the bucket, refer to the fork diagram. Extending the boom beyond the letter "A", the loads are halved with respect to those shown on the fork diagram.

To use the buckets it is sufficient to move the plates tilting controls.

Moving the joystick to the left, the tip of the bucket will move up; moving the joystick to the right, the tip of the bucket will move down.



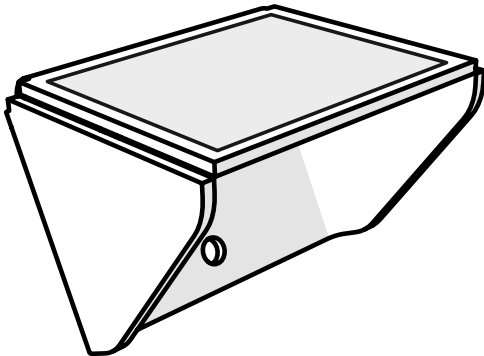
**WARNING**

Given the large size of the buckets, for some movements it will be necessary to remove the boom to prevent contact of the bucket with other parts of the vehicle. It is advisable to operate with the minimum possible extension of the boom.



9.7.5 Fixed tilt indicator use

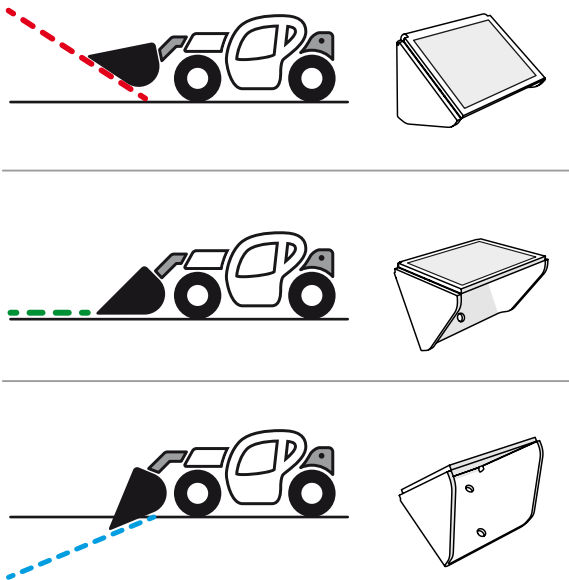
In the left part of the bucket there is the fixed tilt indicator, this tool allows to know the angle of the bucket during use.



The bucket position can be determined based on the face shown by the fixed tilt indicator:

- **Upper visible face:** the bucket blade is turned upward
- **Face parallel to the ground:** the bucket is aligned to the ground
- **Lower visible face:** the bucket blade is turned downward

During the bucket loading phase, to obtain the maximum efficiency of the bucket it is appropriate to use the bucket aligned to the ground.



9.7.6 Movable tilt indicator use \*



**NOTE**

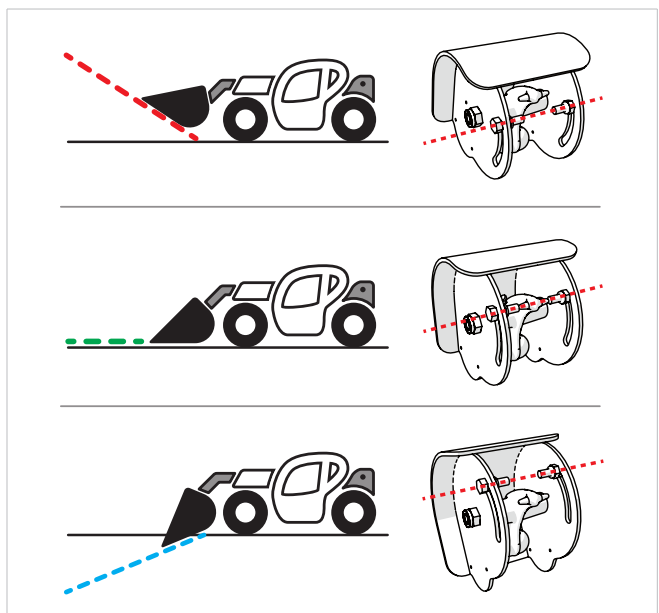
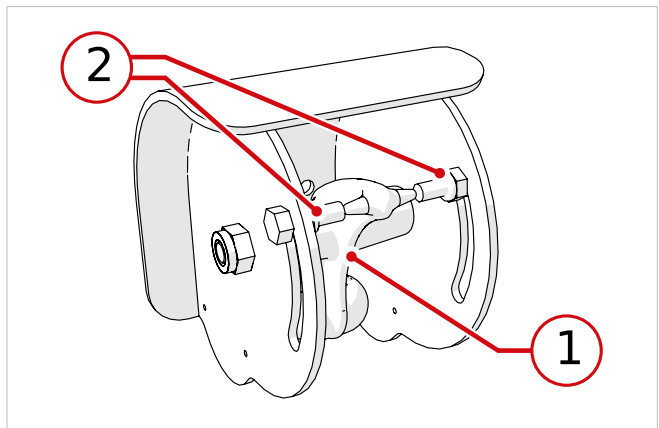
The movable tilt indicator is an optional accessory.

In the left part of the bucket there is the movable tilt indicator, this tool allows to know the angle of the bucket during use.

It is composed of a pendulum "1" and by two indicators "2". The bucket position is determined according to the position of the pendulum "1" compared to the indicators "2":

- **Pendulum above the indicators:** the bucket blade is turned upward
- **Pendulum at indicators level:** the bucket is aligned to the ground
- **Pendulum below the indicators:** the bucket blade is turned downward

During the bucket loading phase, to obtain the maximum efficiency of the bucket it is appropriate to use the bucket aligned to the ground.





9.7.7 Buckets Safe Working Procedures



**DANGER**

Do not change the structure of the equipment.  
Do not use the equipment for lifting persons, animals or things other than those specified.

9.7.7.1 Checks before lifting

Before starting the operations, perform these checks and inspections to ensure greater safety for operators.

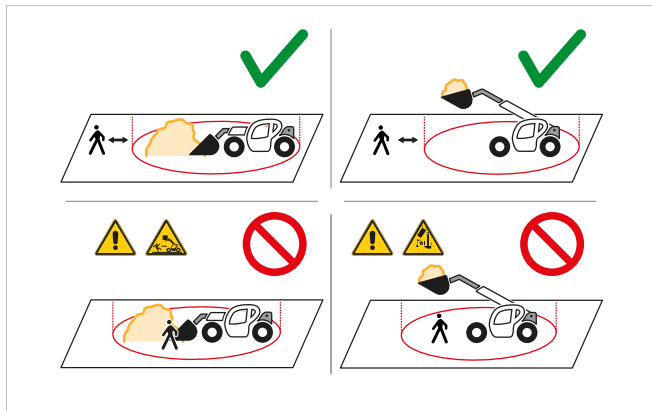
- Positioning of the vehicle and ground conditions.
- Check the dimensions and characteristics of the work area and complete visibility of the load and of the surrounding area. Otherwise use a person on the ground assigned for signalling.

9.7.7.2 Danger zones

The danger zones of the vehicle can be identified in the work area of the vehicle and of the bucket.

This area varies in size depending on:

- Load characteristics and size
- Load lifting height



**WARNING**

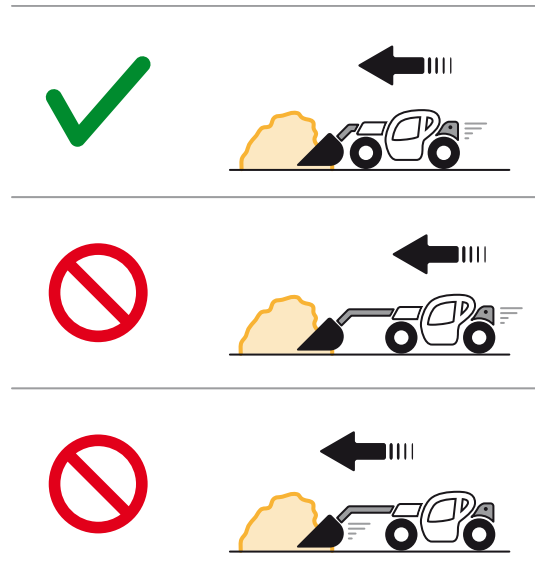
Keep away from the vehicle during operation and from the aggregates to be moved, or from the excavation.

9.7.7.3 Bucket load

It is strictly forbidden to push or stack inert material with extended boom. It can cause serious damage to the vehicle.

It is strictly forbidden to push or stack material using the boom extension. It can cause serious damage to the vehicle.

It is strictly forbidden to make levelling or digging operations in reverse. It can cause serious damage to the vehicle.



It is strictly forbidden to push or stack material with the vertical bucket planted in the ground.

9.7.7.4 Bucket unloading



**WARNING**

It is strictly forbidden to repeatedly beat the swinging cylinder at closing limit switch to detach material attached to the bucket.

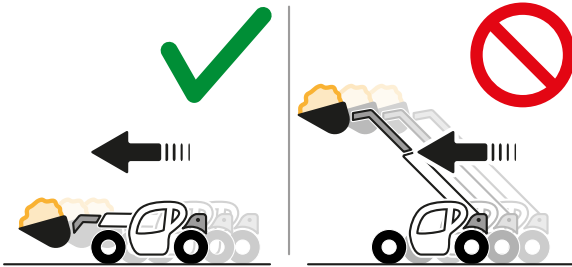
It can cause serious damage to the vehicle



### 9.7.7.5 Carry a load with bucket

The correct vehicle movement position with the bucket equipment installed is:

- Bucket as close as possible to the ground
- Boom retracted as much as possible



#### WARNING

It is advisable to keep the bucket at a height sufficient to be able to avoid roughness of the terrain along the way.

## 9.8 Equipment lifting



#### WARNING

**Make sure that the lifting device is adequate for the weight of the equipment to be lifted and that each device used for lifting and every accessory used is CE marked.**

Make sure that the ropes, chains, straps and hooks are in good condition and with capacity adequate to the weight of the equipment to be lifted.

The weight of the equipment is shown on a special riveted metal plate; check the overall dimensions for the maximum and minimum height values from the ground and the weight allowed.

Position the hooks into the lifting holes located at the top, at the centre of gravity of the equipment.



#### DANGER

**It is absolutely forbidden to transport the vehicle with the equipment still installed on it.**

## 9.9 Equipment transport



#### WARNING

Make sure that the capacity of the means of transport is adequate for the weight of the equipment to carry.

When loading or unloading an equipment from a means of transport, there is always the danger of vehicle overturning.

Use a truck or a trailer suitable for transport of the equipment.

When transporting the equipment it is advised to use a support platform for easier handling.

Then fasten the equipment with appropriate slinging systems, check that they are in good condition and appropriate for the weight and dimensions of the equipment.



#### DANGER

**It is absolutely forbidden to transport the vehicle with the equipment still installed on it.**

For details on the procedures to be followed during transport of the vehicle, refer to the Use and Maintenance Manual of the vehicle on which the equipment will be installed.

## 10.1 Vehicle towing



### DANGER

The vehicle towing is a delicate operation and the risks to the operator are high. The manufacturer's warranty is not applicable in case of incidents or accidents that occur during towing. If possible make repairs where the vehicle is located.

It is advisable that the towing operations are carried out by skilled personnel.

#### It is absolutely forbidden:

- Ever try to start the vehicle by pushing or towing.
- To tow the vehicle on public roads and for very long paths, if possible keep the yellow flashing light and the emergency lights in operation.
- To tow the vehicle on a slope
- Stand between the towing vehicle and towed vehicle.



### WARNING

With the engine off the steering wheel and brakes servo controls do not work. If it is not possible to keep the engine running while towing the vehicle take into account that the efforts to use the steering wheel will be much higher than normal.



### CAUTION

**The vehicle towing can be made only in emergency conditions at a maximum speed of 4 km/h (2.5 mph) and for short distances up to 500 m (1640 ft).**

To tow the vehicle over longer distances, contact Dieci service center.

It is mandatory to tow the vehicle with a rigid towing bracket. The towing bracket must be designed for a tensile stress of 10 t (22040 lb). Attach the towing bracket between towing vehicle and the vehicle in failure at the points prearranged for towing.

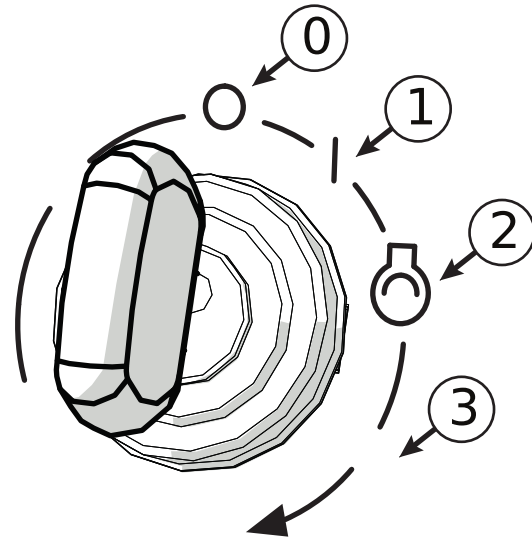


### DANGER

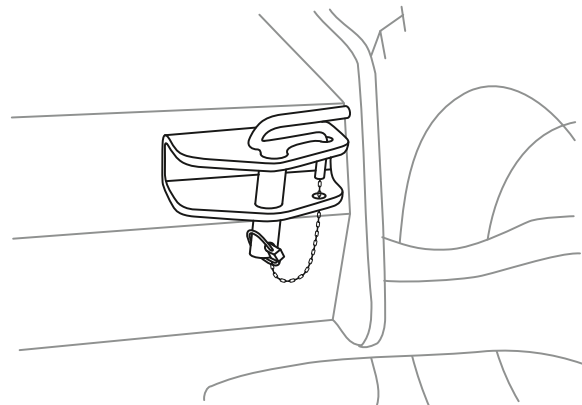
Make sure that the weight of a towed vehicle not equipped with brakes never exceeds the weight of the vehicle that tows the vehicle. The distance required to stop the vehicle increases with the increase of the speed and of the load towed, in particular in the slope sections.

### 10.1.1 Vehicle towing with electrical panel on

If it is necessary to tow the vehicle with the electrical panel in operation (for example, transmission failure) follow the following steps:

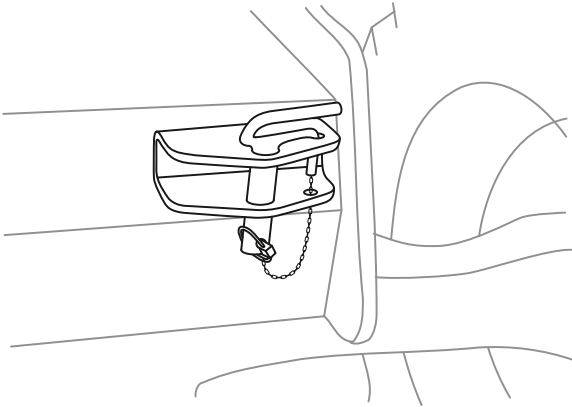


- Turn the vehicle off by turning the ignition key to "0"



- Attach the towing bracket between towing vehicle and the vehicle in failure at the points prearranged for towing.
- Make sure that the vehicle is in a stable configuration and lock the wheels with chocks to prevent accidental movement of the vehicle.
- Remove the lower protective casing by removing the screws with a wrench size **13**.
- Follow the steps described in the chapter "Manually disable the transmission".
- Switch on the electrical panel by turning the ignition key to position "1".
- Disengage the parking brake switch.
- Remove the wheels chock.
- Remain seated in the driver's seat while towing to avoid that the automatic parking brake engages automatically

### 10.1.2 Towing the vehicle with engine in failure



In case it is necessary to tow the vehicle with engine in failure, follow the following steps:

- Attach the towing bracket between towing vehicle and the vehicle in failure at the points prearranged for towing.
- Make sure that the vehicle is in a stable configuration and lock the wheels with chocks to prevent accidental movement of the vehicle.
- Follow the steps in the section "Manually disable the parking brake on the vehicle front axle".
- Follow the steps described in the chapter "Manually disabling the drive".



#### **DANGER**

**With the engine off, the drive and parking brake are still active.**

Towing the vehicle with active drive and brake can cause serious damage to the vehicle and create dangerous situations.

**WARNING**

**Before performing any maintenance operations set the vehicle in the maintenance position.**

Use appropriate personal protective equipment during the various checking and maintenance operation of the vehicle.

**WARNING**

**It is prohibited to carry out maintenance on the vehicle if this chapter has not been carefully read and learned.**

To learn about maintenance operations and time, refer to the Maintenance Log.

All maintenance operations must be recorded on the appropriate Maintenance Log.

When operating in corrosive environments it is important to intervene with appropriate maintenance methods and timing in order to prevent excessive wear of the vehicle.

## 11.1 Maintenance warnings

This vehicle has been designed and built to provide maximum performance, savings and facilitate its operation in various working conditions.

Before delivery, the vehicle and the equipment were tested both by the Manufacturer and by the Dealer to ensure their maximum condition. In order to preserve these conditions and to ensure trouble free operation, it is important to perform routine maintenance, as specified in this Manual at a DIECI dealer at the frequency required.

This section of the Manual provides all the details of the maintenance requirements necessary for maintaining the DIECI vehicle in perfect working condition.

It is recommended that all services must be carried out as part of the assistance program recommended by DIECI. Remember that the owner and/or user is responsible of keeping the vehicle and equipment in safe operating condition and able to operate.

It should be noted, also, that proper maintenance of vehicle and equipment not only improves reliability, but preserves its value over time

**CAUTION**

**Maintenance or repairs not covered in this chapter and in the rest of the manual should be performed only by DIECI Dealers.**

It is mandatory to have read and learned the "Safety" chapter before reading the "Maintenance" chapter

**CAUTION**

Use appropriate personal protective equipment during the various checking and maintenance operations of the vehicle.

**WARNING**

In case of malfunction do not use the vehicle until it has been repaired.

### 11.1.1 Avoid accidents during maintenance

- Always clean and tidy the workplace in order to carry out every operation safely.
- Do not leave tools or other instruments scattered in a disorderly manner in the workplace.
- Clean grease traces, oil or other substances that could cause you to slip.
- For the workplace safety put rags soaked with grease and/or other flammable materials in a secure container.
- Use only tools appropriate for the task and make sure to use them in the right way. The use of damaged, poor quality, faulty, makeshift tools or not suitable for use may cause serious injury.
- Do not hit the vehicle and the equipment or their parts with a hammer or any other instrument, as projected fragments could cause injury.
- If inspection or maintenance is carried out on vehicles or equipment which are still covered with mud, oil, etc., operators risk sliding or falling and the visual analysis of components is made more difficult. Thoroughly clean the vehicle or equipment before every operation.
- Make sure about the maintenance procedures before starting the work
- Keep the work area clean and dry.
- Replace worn or faulty components.
- Eliminate accumulations of grease oil and debris

- The knurled metal sheets (bulb plates) and the cab floor are the only parts of the vehicle that can be stepped on. Use a ladder (suitable for the intended purpose) for maintenance of parts that cannot be reached from the ground.



## DANGER

**Do not carry out any maintenance operation with running engine or moving vehicle.**

Should maintenance need to be performed with the engine running, ask at least two workers for help and observe the following instructions:

- One worker must always be seated in the driver's seat, ready to switch off the engine at any time.
- All workers must remain in contact with one another.
- Take care not to remain entrapped in components during the execution of operations performed on the fan, fan belt or other rotating parts.
- Do not touch levers or control pedals. Should a lever or pedal need to be moved, always warn operators first so they can move out of the dangerous area.
- Do allow instruments or other objects to fall into the vehicle rotating parts, as these parts may break and be projected out.
- The vehicle must be outdoors when the engine is running. The vehicle can be kept in a closed area only if it is properly ventilated and the vehicle is equipped with specific purifiers



## WARNING

**In the case of operations to be performed by holding the boom raised, install the safety rod on the boom shaft.** If you need to perform repair or maintenance work under the vehicle, firmly support the movable parts with blocks and supports that are solid enough to support the weight.

- Store the accessories removed from the vehicle in a safe place where they do not risk falling. Take precautions to prevent unauthorized persons from approaching the storage area.



## DANGER

Do not rest metal parts on the battery.



## DANGER

**Danger of entanglement.**

Damage may be caused by entanglement in moving parts. To prevent accidents it is compulsory to wear proper safety equipment for maintenance.



## DANGER

**Exhaust gas danger**

Exhaust engine gases are toxic and can damage your health.

The vehicle must be outdoors when the engine is running.

The vehicle can be kept in a closed area only if it is properly ventilated and the vehicle is equipped with specific purifiers



## DANGER

**Pressurized liquids danger**

After operation, the engine cooling liquid is hot and under pressure. Contact with hot water and/or steam may cause serious burns.

- Do not attempt to loosen connections, pipes or hydraulic components when circuits are under pressure.
- Avoid possible injury caused by hot water jets.
- Do not remove the radiator cap until the engine has cooled down.
- Before removing the cap, release all of the pressure.
- Prevent burns caused by oil or other hot parts during inspection or discharge by allowing the oil and cap to cool down before beginning operation.
- Even after the oil has cooled down, slightly loosen the cover or cap before removing it to mitigate pressure



## DANGER

**Burns danger.**

Pay attention to burns. Engine reduction gear oil and the hydraulic system, pipes, engine and other components heat up when the vehicle is used.

Wait until all components cool down before beginning maintenance or repair work

- Fluids such as fuel or hydraulic oil under pressure can penetrate the skin and eyes causing serious injuries. Take care to avoid these risks when repairing or doing maintenance work on the vehicle.
- Discharge the pressure (using the hydraulic levers of the distributors) before disconnecting or repairing pipes and hydraulic parts.



## DANGER

When a hydraulic pipe needs to be disconnected, slowly loosen the fittings to discharge residual pressure.



**DANGER**

**Pressurized liquids danger.**

Hydraulic energy accumulators are mounted on the vehicle. Before intervening on them, make sure to discharge any internal pressure. Danger of high pressure oil splashes.

- Before restarting the engine, ensure that all fittings have been properly tightened.
- Use a piece of cardboard to check for any leaks; make sure your body is adequately protected against pressurized fluids.
- Any fluids that penetrate the skin must be removed surgically. Should there be an accident, seek medical attention immediately.



**DANGER**

**Corrosive substances danger**

Never touch air conditioning coolant.

- If it comes into contact with eyes, air conditioning coolant may cause blindness; it may cause freezing if it comes into contact with skin.
- When cleaning with compressed air, serious injury may be caused by flying particles.
- Always wear protective goggles, a dust mask, gloves and other protective equipment.



**WARNING**

**Adjusting and/or dismantling balancing and safety valves can be dangerous.**

One of the above-mentioned valves may be removed only when the concerned jack is at rest and the hydraulic circuit is not under pressure.

All other operations must be carried out by qualified, authorized personnel only.



**NOTE**

Only use lubricants suggested by DIECI; never utilize used lubricants.

11.1.2 Personal protective equipment for maintenance



**WARNING**

Always use the personal protective equipment most suitable to the checking or maintenance operation to be performed.

ICON	DESCRIPTION
	Wear protective goggles Wear protective goggles in case of operations requiring the use of compressed air.
	Wear safety shoes
	Wear protective gloves Wear nitrile gloves in case of operations with grease, hydraulic oil or fuel
	Wear protective clothing
	Wear a protective mask



**DANGER**

**Danger of crushing**

Pay attention to moving parts to avoid danger of crushing or dragging of the lower and upper limbs. Avoid wearing jewellery or pendants that might be trapped in moving parts. Long hair must be tied back to avoid it being caught in moving parts.

Do not wear loose clothing, chains, belts or other accessories that may be caught in the control levers or in other parts of the vehicle.



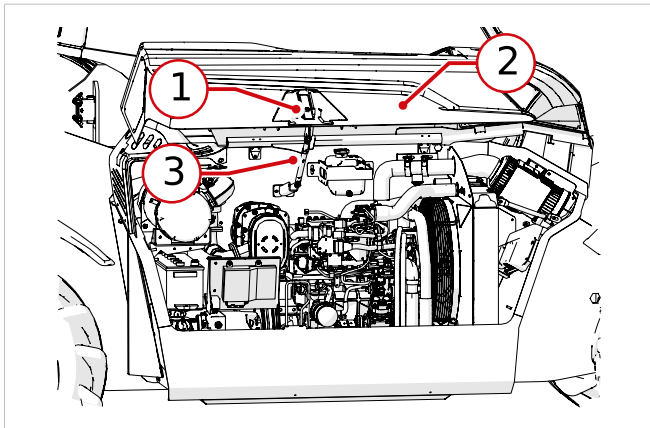
## 11.2 Engine bonnet opening



### DANGER

Do not open the hood with the diesel engine in motion. At the end of the maintenance operations the hood must always be closed and locked. Do not work with the engine hood open.

To open the engine bonnet it is necessary to:

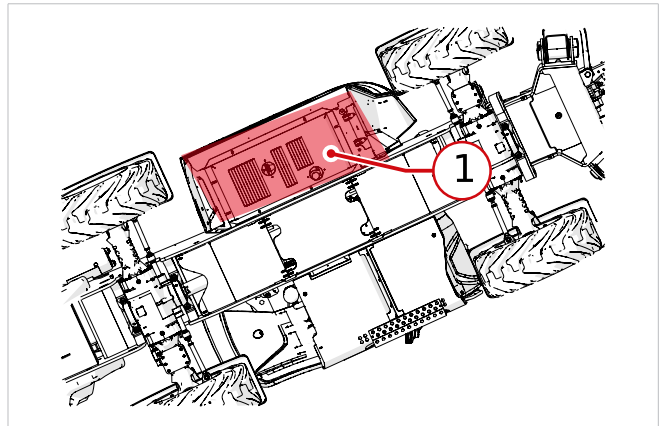


- Turn off the diesel engine.
- Remove the ignition key.
- Place a label showing "Maintenance in progress" in the cab.
- Disconnect the battery using the battery isolation switch.
- Pull the handle "1" to open the bonnet.
- Lift the engine hood "2" and fasten the support rod "3".
- Release the hood gradually to ensure that the rod has been inserted correctly and that the hood does not close.

To close the engine bonnet it is necessary to:

- Hold the engine hood "2" and release the support rod "3".
- Close the engine bonnet with light pressure. Always check the proper closing before starting to work or before leaving the vehicle.
- Reactivate the battery isolation switch.

## 11.3 Under chassis protection plate removal



To perform maintenance operations it is necessary to temporarily remove the under chassis protection of the vehicle. The under chassis protection protects the bottom of the vehicle, from any bumps, collisions, dirt.

To remove the engine under chassis protections:

- Place the vehicle in the maintenance position.
- Lock the wheels with chocks to prevent accidental movement of the vehicle.
- Unscrew the fastening bolts with a wrench size 13 and remove the engine under chassis protection "1".



### CAUTION

At the end of the maintenance operations refit the under chassis protections.



## 11.4 Battery



### DANGER

**To avoid the risk of explosion of the batteries:**

- a) Keep sparks, free flames and cigarettes away from the top of the batteries because the gases that they can produce are highly flammable.
- b) Do not charge damaged batteries.
- c) Do not charge a hot battery



### DANGER

**Batteries contain highly polluting substances that must not be dispersed into the environment.**

Dead, old, damaged, batteries etc. must be properly disposed of.



### DANGER

**The battery contains sulphuric acid electrolyte which is a corrosive substance and must be treated with caution because it can cause poisoning and severe burns.**

Keep out of the reach of children.

Avoid contact with skin and eyes.



### CAUTION

Wear protective clothing, gloves and safety glasses. In case of contact with eyes or skin, rinse immediately with plenty of water and seek medical attention. If swallowed, contact a doctor immediately.

- Do not overturn or tilt the battery as acid could come out.
- Charge the battery in a well ventilated area and always disconnect the power before removing the clamps.
- To check the charge status always use a voltmeter or a densimeter. If it is necessary to check the electrolyte level, use a flashlight, never a flame.
- Never place a metal object between the clamps to check the battery charge.
- Do not generate sparks with the cable clamps while charging the battery or starting the engine of the vehicle with an auxiliary battery.
- Check that the vent caps or covers are fitted correctly and firmly.
- Clean the top of the battery, check that the clamps are tight and cover them with a thin layer of petroleum jelly.

- In case of frozen battery this should be stored in a warm place to defrost. Do not use and do not recharge it: risk of explosion.
- In normal conditions the battery is kept charged by the alternator of the vehicle. If this becomes completely exhausted due to prolonged disuse or because at the end of its life the alternator loses its capacity to "regenerate". The battery must be replaced and recharged using a special battery charger tool.



### DANGER

Before performing any maintenance on the vehicle, disconnect the power supply to the electric circuit of the vehicle by pressing the battery isolation switch

#### 11.4.1 Low maintenance batteries

The low-maintenance batteries have been studied to avoid maintenance operations in ordinary and normal use of the battery. In case of discharge check the electrolyte level. For technical specifications contact the supplier or the manufacturer.

#### 11.4.2 "Zero" maintenance batteries

These batteries do not allow maintenance.

When the battery is discharged it must be replaced.

For technical specifications contact the supplier or the manufacturer.



### DANGER

Do not carry out maintenance or recovery operations on "zero" maintenance batteries.

#### 11.4.3 Battery: Instructions for recharging

- A battery is fully charged if at constant temperature the density of the electrolyte and the measured voltage at the poles does not increase within 2 hours.
- Each recharge will be good as good are the general conditions of the battery. This means that an old battery, after charging, will not have the same life and efficiency of a new battery.
- The simplest charging method is to charge at constant power.
- At the end of the charging, the battery charger voltage increases and creates gasification. It is recommended to use simple battery chargers with minimum current control and timer.

- If the battery has a low electrolyte level restore it to the minimum level (just above the plates limit) then charge them. After the charging is completed, fill to the maximum level (to prevent leakage).
- Overcharging must be avoided because:
  - It is a loss of energy which causes the dissociation of water.
  - It produces loss of active mass for the electrodes deterioration
  - It creates a risk of explosion.
- If sulphated batteries are recharged without voltage limitation, they will boil and warm up involving risk of explosion.
- For old batteries (in most cases sulphated) charge with great caution. Even with 13.8 Volts there is the possibility of a temperature increase.

Follow these instructions to recharge the battery:

1. Disconnect the cables of the vehicle from the battery to protect the electrical system of the vehicle.

Place the battery at a safe distance from the vehicle.

If possible, remove the caps.

Check the electrolyte level, if possible.

Clean the poles.

Make sure the room is sufficiently ventilated.

Limit the charging current to a maximum of 1/10 of the battery capacity (Ah).

Connect the battery to the charger.

Connect the charger to the mains.

Turn on the battery charger.

The battery temperature must not exceed 55°C.

After finishing switch off the battery charger.

Disconnect the battery charger from the mains.

Disconnect the battery from the charger.

Check the electrolyte level, if possible.

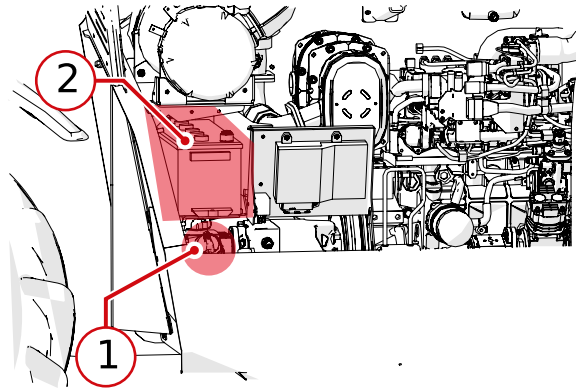
Refit the caps.

#### 11.4.4 Battery isolation switch



### WARNING

Use this switch only when the engine is stopped.



The battery cut-off switch "1" allows the operator to isolate the battery from the electrical circuit in case of emergency or during maintenance operations.

To isolate the battery:

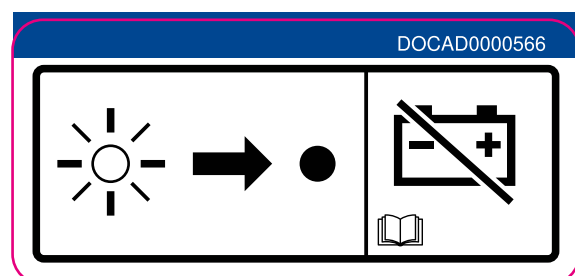
- Turn off the engine.
- Turn the ignition key to position "0".
- For some applications, the engine may be equipped with a standby indicator light before connection. The standby indicator light before disconnection is on during engine operation and goes out about 2 minutes after engine has stopped; after the light goes out, turn the battery isolation switch counter-clockwise to the off position.



### WARNING

**Do not turn the battery isolation switch off until the indicator light goes out. If the switch is turned off while the indicator light is on, the diesel exhaust fluid system (DEF) will not bleed the DEF. If the DEF is not bled, it may freeze and damage both pump and pipes.**

**Never move the main switch to the OFF position while the engine is running. The electrical system can be seriously damaged.**





**NOTE**

If the vehicle is provided with the basket pre-arrangement it is also provided with a battery isolation switch with removable key, to ensure that it is not used accidentally.

**11.4.5 Battery: Replacement**

The vehicle is equipped with a battery located on the rear central part of the chassis "2".

Before removing the battery disconnect it from the electrical circuit through the appropriate battery isolation switch, following the instructions given in the relevant chapter.

To remove the battery:

- Place the vehicle in the service position as described in the "Setting the vehicle for maintenance" section.
- To access the battery it is necessary to remove the protection guards.
- Disconnect the NEGATIVE cable (black) from the battery.
- Disconnect the POSITIVE cable (red) from the battery.
- Remove the battery from the vehicle.
- Place the new battery.
- Connect the POSITIVE (red) cable to the battery.
- Connect the NEGATIVE (black) cable to the battery.
- Reactivate the battery isolation switch.
- Close the engine bonnet.

**11.4.6 Start up with auxiliary batteries**



**WARNING**

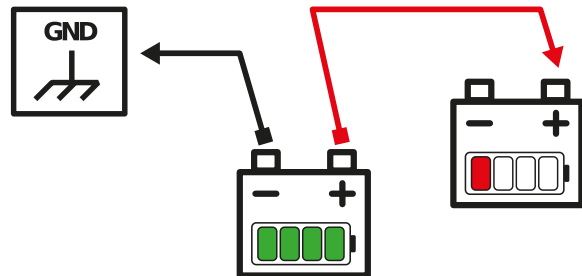
**Start-up with auxiliary batteries is an operation that requires two properly trained and qualified operators.**

An error in executing the operations can cause serious damage to the vehicle, to property and people.

- When starting the engine using another vehicle, connect the accumulators in parallel. When connecting the cables, avoid contact between the positive cable "+" and the negative cable "-".
- Wear the necessary personal protective equipment before starting the operation.
- Take care to avoid contact between the vehicle to be started and the vehicle that must supply power to prevent sparks and explosions of hydrogen produced by the accumulators. The accumulator explosion causes serious damage and injury.
- Make sure not to exchange the ignition cables and first connect the earth cable (-) and then the positive cable (+).
- Be very careful when removing the ignition cables; to ensure that the cables disconnected from the accumulator do not touch other parts of the vehicle to avoid explosions caused by hydrogen.

- Cables and grippers must be proportional to the current load to be transferred. The accumulator to be used for the start-up must have a capacity greater than or at least equal to that of the standard accumulator installed.
- Check the cables and grippers for corrosion or damage. Make sure the grippers are tightly gripping the terminals.
- Be very careful during the different operations: direct or indirect contact with live parts can result in injury and sometimes even in death.
- When starting the engine, the operator must be in the driver's seat so as to keep the vehicle under control.
- All these operations must be carried out by skilled and trained personnel.

**11.4.6.1 Cable connection and engine start-up**



1. Make sure the ignition key is in position "0".
2. Connect the cable from the negative clamp "-" of the charged battery to the earth block of the vehicle to start-up.
3. Connect the positive terminals "+" of the two batteries to each other.
4. If a charged battery installed on a properly running vehicle is used, start the engine of the latter and run it at high rpm.
5. Start the engine of the failed vehicle.

**11.4.6.2 Cables removal**

With the engine running remove the cables in reverse order of the connection.

1. Disconnect the positive cable "+" first from the battery used for starting and then from the low battery.
2. Disconnect the negative cable "-" from the earth of the running engine and therefore from the fully charged battery.

## 11.5 Fuel



### DANGER

Never add different types of fuel such as petrol or alcohol to diesel.

It is forbidden to refuel while the engine is running.

It is forbidden to smoke when refuelling.



### DANGER

Inhale diesel fumes for the least time possible as they are dangerous carcinogens for your health

Before handling fuel and filling the tank, comply with the following regulations:

- Clean the area around the fuel cap. Refill the fuel tank at the end of every day to reduce condensation when the vehicle is at rest.
- Water and sediments must be removed before they reach the engine.
- Do not use antifreeze to remove water from diesel fuel.
- Do not rely on a filter to remove water from diesel fuel.
- Never leave the tank without a cap and always lock it. Should you lose the original cap, replace it with an original spare. Not just any cap is suitable.
- Keep the fuel pump gun under control while filling the tank.
- Do not inspect the tank with a flame.
- Do not fill up the tank completely. Leave room for expansion and immediately clean any spillage.
- In the event of fuel leaks due to breakage, stop the leak as quickly as possible, do not use the vehicle and contact DIECI customer service.

### 11.5.1 Specifications for recommended fuel



### NOTE

To achieve good performance, see the engine manual of the vehicle to know the best features.

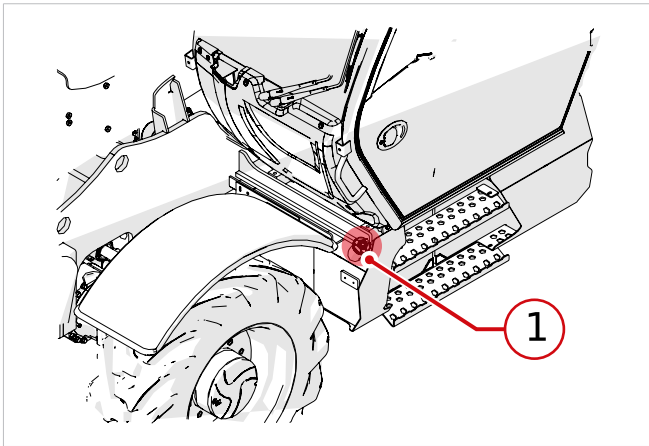
### 11.5.2 Cleaning and storing fuel

It is important for the fuel to be kept clean.

The advice provided below will help maintain fuel quality.

- Never use zinc-coated containers.
- Never clean the inside of containers or power supply system components with cloths that may leave deposits.
- The cistern capacity must allow intervals between refuelling not to be too long. A capacity of 3000 litres is sufficient for an average sized company.
- The storage cistern must be covered and placed on a support that is high enough to allow the vehicle refuelling by means of gravity. A large basin for collection must be placed under the cistern in case of fuel leakage. The cistern must have an opening large enough to allow someone to access it for cleaning purposes.
- The delivery tap must be larger at the bottom in order to trap any deposits; it must also be equipped with a removable filter. The cistern should be tilted 40 mm per meter towards the sedimentation drain plug.
- The fuel barrels must be covered when stored to prevent water infiltration. They should be tilted slightly, so that any water will run to the upper rim. The fuel barrels should not be stored for too long before being used.
- If the barrels are kept outside, their caps must be tightly closed to prevent water from seeping in.
- After refuelling the storage cisterns or barrels, it is recommended to allow the fuel to set for at least two hours, thereby allowing any sediment of water and impurities to be deposited before the fuel is used.

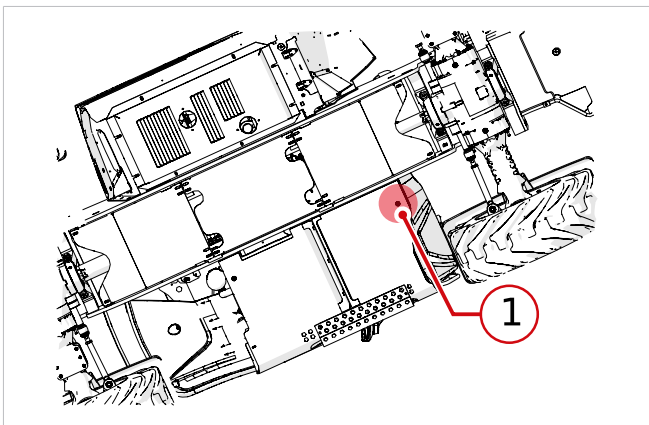
11.5.3 Refuelling



When refuelling it is necessary to:

- Park the vehicle and turn off the engine
- Open the fuel cap
- Refuel
- Close the fuel cap

11.5.4 Fuel tank: Cleaning



With the vehicle in the maintenance position:

- Place a suitable container under the fuel tank.
- Remove the cap from under the tank and drain the fuel to remove impurities present in the tank.
- Put back the cap and fill with clean fuel.

11.6 Safety stickers: Inspection

- Check that all safety stickers are intact and in good condition.

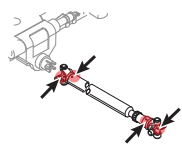


**NOTE**

Refer to the chapter "Safety Stickers Cleaning" for cleaning the safety stickers.

## 11.7 Greasing

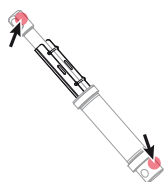
Grease the points shown in the figure until grease comes out and clean the lubricators from dirt or deposits.



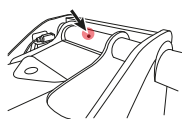
Drive shafts lubrication points.



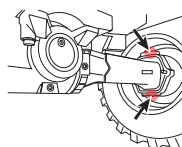
Greasing points for swinging axle.



Lifting cylinder lubrication points.



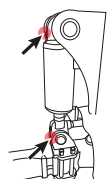
Boom-chassis pin lubrication points.



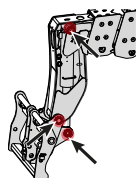
Wheels greasing points.



Outriggers lubrication points.



Levelling cylinder lubrication points.



Tilting cylinder lubrication points



External parking brake cylinder lubrication points.

### 11.7.1 Automatic lubrication system



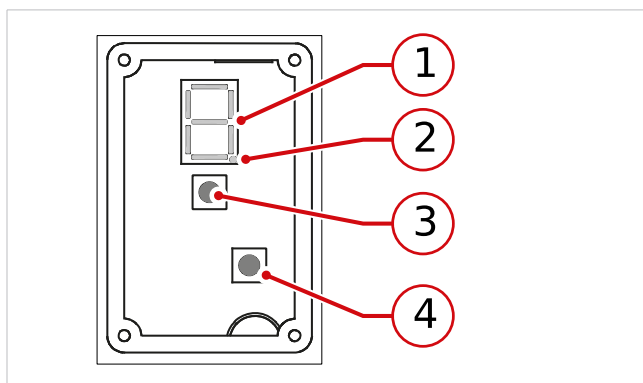
#### NOTE

The automatic lubrication system is an optional accessory.

#### 11.7.1.1 Controls

The following table describes the command and control devices for the centralized lubrication systems with pause - work timer and pause - sensor timer.

The devices on the Timer are highlighted in the figure.



-	TYPE	DESCRIPTION
1	Display	<ul style="list-style-type: none"> <li>• During the time setting procedure, it displays the set parameters. for time setting it shows the parameters set.</li> <li>• During normal system operation, the LEDs of the display turn on alternatively system operation, the LEDs of the display turn on alternatively</li> </ul>
2	LED Display	It lights up when the lubrication system is electrically powered. system is electrically powered.
3	Button TEST	It can be pressed applying a light pressure, on the writing "push", on the timer access cover. slight pressure at the push wording, on the timer access cover. When pressed during the normal operation of the pump it starts the set working cycle, carrying out an operation test. of the pump it starts the set work cycle, performing an operation test. Once the work cycle is completed, the timer returns to automatic operation. returns to automatic operation. When pressed during the timer programming, it is possible to scroll through the selections. timer it allows scrolling through the selections.
4	Button ENTER	<ul style="list-style-type: none"> <li>• Pressed for 3 seconds starts the digital programming. digital programming.</li> <li>• Briefly pressed during the programming phase, it allows editing the values for P (pause) or L (work). programming phase, it allows to modify the P (pause) or L (work) values.</li> </ul>

#### 11.7.1.2 Timer programming

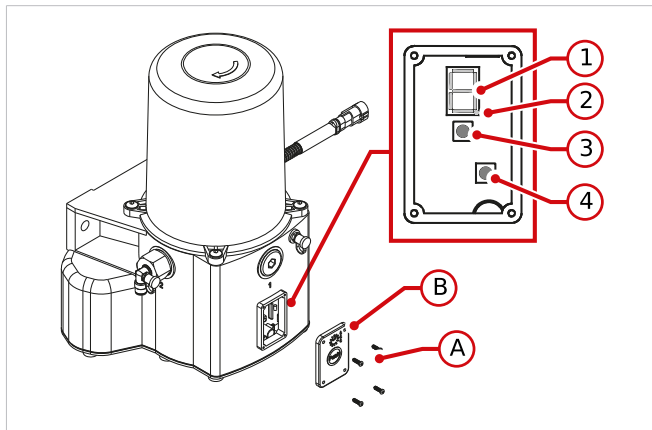
The operations that must be performed for the digital programming of the control timer are summarized below.





**NOTE**

Remember that if the power supply is interrupted, the timer will save the internal data in a digital memory with virtually unlimited duration over time. When the power supply is restored, the timer reloads the previously saved data and resumes the time counting from the point where it was interrupted, and from the condition in which it was



NO.	OPERATION	EFFECT
1	Loosen the fastening screws "A" and remove the access cover "B" to the timer screws "A" and remove the access cover "B" to the timer	The Timer for digital programming is accessed
2	Press and hold the ENTER button for 3 seconds	The display turns on and shows the letter P (Pause time). set for the parameter P. the letter P (Pause time) is displayed.
3	Briefly press the ENTER button	The display shows the value set for parameter L. set for parameter P.
4	Pressing the TEST button changes the value of parameter P	At each press on the display, the digits or letters reported in the work time setting table are displayed sequentially The digits or letters reported in the Pause time setting table are displayed sequentially. the digits or letters shown in the Pause time settings table are displayed sequentially.
5	Briefly press the ENTER button to confirm the setting chosen ENTER to confirm the selected setting	The value shown on the display is stored as current value of parameter P and the display shows the letter P again. display is stored as current value of the parameter P and the display shows again the letter P.
6	Press the TEST button to alternate the display of the P and L parameters The display shows the letter L (work time). to alternate the display of the P and L parameters	The display shows the letter L (work time). NOTE: please remember that by pressing the TEST button the letters P or L are displayed alternately by pressing the TEST button alternates the display of the letters P or L
7	Briefly press the ENTER button to confirm the setting chosen ENTER button	The display shows the value set for parameter L. set for the parameter L.
8	Pressing the TEST button changes the value of parameter L TEST to edit the value of the L parameter	At each press on the display, the digits or letters reported in the work time setting table are displayed sequentially the digits or letters shown in the Work time settings table are displayed sequentially.
9	Briefly press the ENTER button to confirm the setting chosen ENTER button to confirm the setting selected	The value displayed is stored as current value of the L parameter and the display shows again the letter L. is stored as current value of parameter L and the display shows the letter L again.

10	Press and hold for 3 seconds The display turns off and the timer is ready to work with the newly set parameters. button for 3 seconds ENTER button	The display turns off and the timer is ready to work with the newly set parameters.
11	Reassemble the timer access cover "B" and tighten the fastening screws "A" The pump is ready to run. tighten the fastening screws "A"	The pump is ready to run.

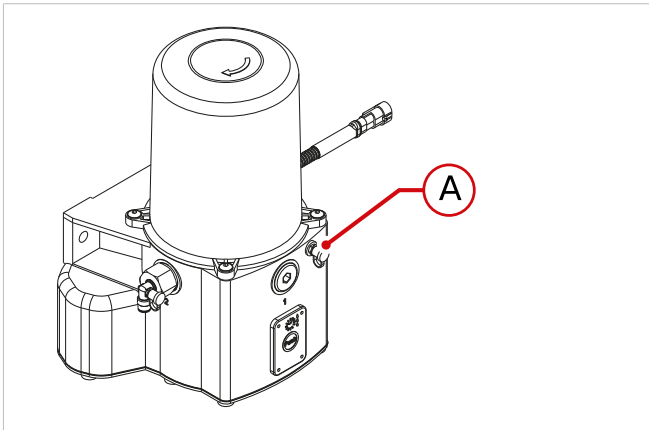
The electric pump in the version with control timer is delivered to the customer with the following default settings:

MODELS	PAUSE TIME	WORK TIME
Pegasus 45.30	Turret – 6 Carriage – 8	Turret – 6 Carriage – 3
PEGASUS 50.21	Turret – 6 Carriage – 6	Turret – 3 Carriage – 6
Fixed	8	2

DISPLAY	TIME
0	5 min
1	10 min
2	15 min
3	30 min
4	1 h
5	2 h
6	3 h
7	4 h
8	5 h
9	6 h
A	7 h
B	8 h
C	9 h
D	10 h
E	11 h
F	12 h

DISPLAY	TIME
0	20 sec
1	40 sec
2	1 min
3	1.5 min
4	2 min
5	2.5 min
6	3 min
7	3.5 min
8	4 min
9	4.5 min
A	5 min
B	5.5 min
C	6 min
D	6.5 min
E	7 min
F	8 min

### 11.7.1.3 Tank filling



The pump tank is filled using the lubricator "A".

Remove the cap from the lubricator and, using the appropriate dispenser, fill the tank up to the maximum level (MAX) indicated by the adhesive strip attached to the tank.

For the characteristics of the lubricant to be used, refer to the following paragraph.

During the tank filling, the air contained in it is discharged to the outside through the appropriate vent. Make sure that the vent, placed at the rear of the tank, is not clogged.

### 11.7.1.4 Lubricants

It must be remembered that the automatic greasing system is designed to work with lubricants having maximum NLGI 2 grade

- Use lubricants compatible with the NBR gasket
- The components of the systems that are supplied with lubricant in them are supplied with NLGI 2 grade lubricant

A comparison table related to the classification of NLGI (National Lubricating Grease Institute) and ASTM (American Society for Testing and Materials) lubricants, limited to the values for automatic greasing systems, is shown below.

RANGE DESCRIPTION	NLGI GRADE	PENETRATION ASTM AT 25°C IN 1/10 OF MM
Fluid greases	0	445 – 475
Semi-fluid greases	0	400 – 430
Semi-fluid greases	0	355 – 385
Soft grease	1	310 – 340
Medium grease	2	265 – 295

For more information on the technical characteristics and safety measures to be taken, consult the Product Safety Data Sheet (Directive 93/112/EEC) concerning the type of lubricant chosen and supplied by the manufacturer.

### 11.7.1.5 Operation check

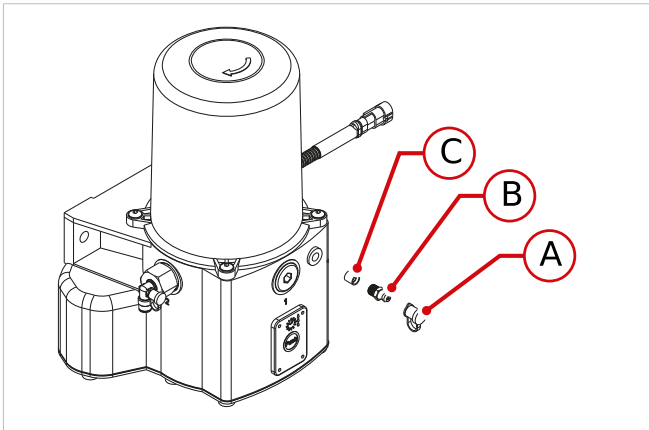
Perform the following check after a long period of vehicle downtime:

- Check that the lubricant in the tank is above the minimum level.
- Disconnect one or more secondary pipes from the bearing points.
- Press the manual start button (TEST).
- Repeat the operation described in the previous step until the lubricant correctly reaches all the disconnected bearing points.
- Re-engage the piping to the bearing points.

In case the system does not work properly, consult the ANOMALIES chapter.



## 11.7.1.6 Filter replacement



For maintenance of the tank filling filter, remove the plug "A", the lubricator "B" and the filter "C".

Check the condition of the filter and if necessary clean it using compressed air.

If it is still dirty after having carried out the cleaning operation, replace it.

Then, reassemble the filter "C", the lubricator "B" and the plug "A".

To tighten the lubricator "B", use a maximum torque of 6Nm.

### 11.7.1.7 Operating anomalies

This chapter informs maintenance personnel about:

- the possible anomalies that may occur during the operation of the system;
- the reason that caused the failure to start or stop the system;
- possible remedies to be adopted.

NO.	ANOMALY	CODE	CAUSE	REMEDY TO BE TAKEN
1	The pump motor does not work	1.01	Current is not supplied	Check the power supply system, checking the status of the fuse
		1.02	The electronic board does not work	Replace the electronic board
		1.03	The gear motor does not work	Replace the gear motor
2	The pump does not send lubricant	2.01	The tank is empty	Fill the tank with clean lubricant
		2.02	Air bubbles in the lubricant	Disconnect the primary pipe from the connection fitting to the pumping element. Operate the pump according to the manual operating cycle until lubricant completely free of air bubbles comes out from the fitting
		2.03	Use of unsuitable lubricant	Replace the lubricant with suitable lubricant
		2.04	Clogged pumping element suction	Remove the pumping element and clean the suction ducts
		2.05	The pumping element piston is worn out.	Replace the pumping element
		2.06	The delivery valve of the pumping element is blocked	Replace the pumping element
3	The pump works but lubricant does not arrive to the bearing points	3.01	Pipes disconnected	Check the condition of the pipes and the relative connections to the fittings. Replace worn pipes
		3.02	Progressive distributor blocked	Replace the distributor or clean it
4	The lubricant is distributed to the bearing points in irregular doses	4.01	The distributor is not correctly connected to the bearing points	Check the dosages with the system diagram
		4.02	Wrong pause time setting	
5	The display LED is not turned on.	5.01	The supply voltage is not correct	Check that the supply voltage is between 20V DC and 30V DC and then intervene on the supply circuit
6	Pressing the TEST button the engine does not operate	6.01	The engine is not correctly connected to the timer	Check the wiring that connects the electric motor to the timer and then restore the correct connection
		6.02	The engine does not work correctly	Check that the motor is not short-circuited or that it absorbs a current exceeding 7A. Replace the gear motor.
7	The display LEDs rotate but the motor does not work	7.01	Defective motor	Contact the Customer Service
8	The pump starts the lubrication phase but it stops it immediately	8.01	Defective engine or high output absorption	Allow to cool for a few minutes and then try again: if the problem persists, contact the Customer Service

## 11.8 Preliminary maintenance operations

### 11.8.1 Prepare the vehicle in the "Maintenance position"



#### WARNING

Before performing maintenance work on your vehicle, do the following:

- Park the vehicle on flat, even ground.
- Engage the parking brake.
- Lower and fully retract all mobile parts (booms, shovels, etc.).
- If the maintenance operation requires the mobile parts to remain up, apply the safety rod.
- Run the engine at a minimum for 60 seconds to cool it down.
- Release residual pressure from the hydraulic system.
- Switch off the key in the ignition switch.
- Remove the ignition key.
- Hang up a sign that indicates maintenance work is underway. This sign can be hung on the cab door and inside it on the controls.
- Set up barriers and spacers to prevent unauthorised personnel from approaching the vehicle.
- Disconnect the battery isolation switch.
- Allow the engine to cool down.

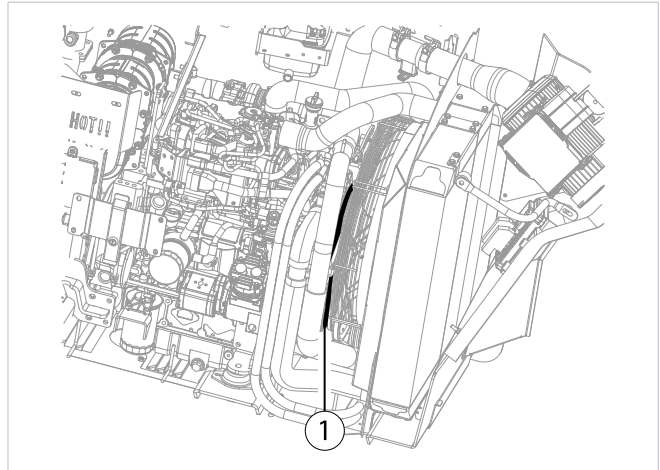
## 11.9 Engine maintenance



#### NOTE

For the engine maintenance operations, refer to its manual

### 11.9.1 Belts: Check and adjustment



Check that the belt "1" does not have cuts, cracks or rubbing signs; when in doubt, install a new belt.

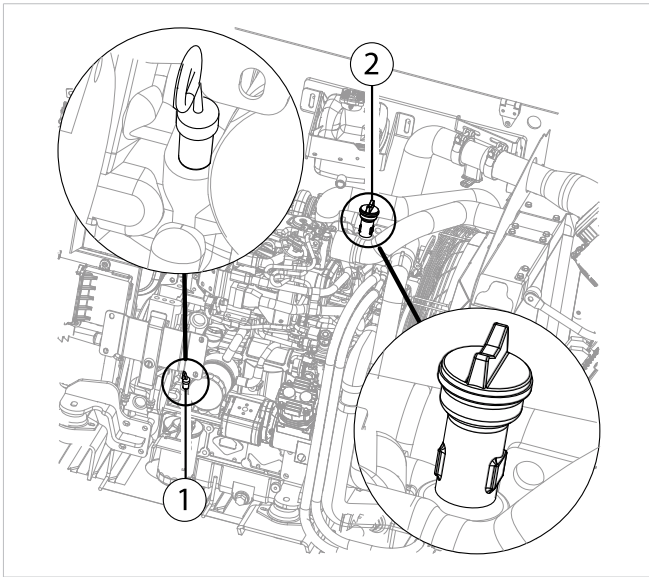
Make sure that the belt is properly fit on the pulleys and that the tensioner is working properly.



#### NOTE

**If the belt does not appear in good condition, replace it with a new one.**

## 11.9.2 Engine oil: Check and filling up



- Check the level with the vehicle on level ground and the engine turned off. Wait at least 5 minutes to allow the oil to settle into the sump.
- Pull out the dipstick "1", clean it and insert it back fully down.
- Pull out again the dipstick "1" and check that the oil level is between the "MIN" and "MAX" mark.
- Put back the dipstick and insert it fully down.
- If necessary, add oil from the plug on the engine "2".

For the amount and type of oil, refer to the engine manual.

**WARNING**

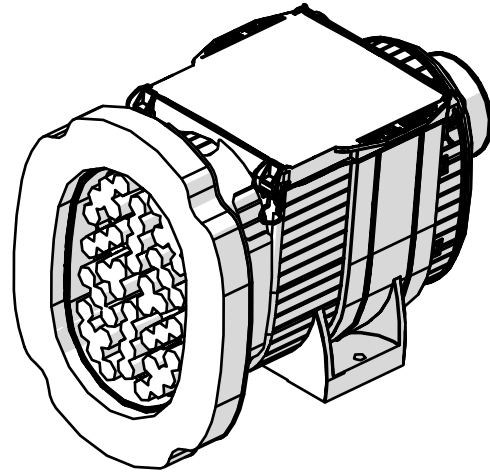
**Do not fill beyond the "MAX" mark; if the amount is excessive, oil burns with production of smoke and possible damage to the DPF.**

Never operate the engine with the oil level below the "MIN" mark.

## 11.10 Air filter: Cartridges cleaning and replacement

**CAUTION**

The inspection, cleaning and replacement must be carried out with the vehicle in the maintenance position.



An air filter in bad conditions results in the reduction of power, excessive fuel consumption and reduced engine life



A clogged filter is signalled by the indicator light located on the dashboard of the vehicle; after the clogging indication it is possible to continue operating for a period not longer than 10 hours. The maintenance must however be performed at the frequency required

**WARNING**

When the clogging is indicated, it is possible to continue working for not more than one hour

It is recommended to:

- Clean the filters only when the indicator light indicates clogging or at the frequency required. Unnecessary and too frequent cleaning exposes the elements to damage by handling that can allow dust and dirt to pass through the filtering stage and cause engine damage.
- In case the filter elements are in contact with liquids of any kind they must be replaced.
- Periodically check the intake sleeves, replace them immediately in case they are damaged or deteriorated.

- Periodically check the tightness of the bolts and clamps. Air must not be allowed to get into the engine circulation without having first gone through the filter.

For the complete efficiency of the filter it is recommended to operate with the filter complete with all its parts and components, assembled in the correct way.

Each deteriorated part must be replaced as soon as possible.



**CAUTION**

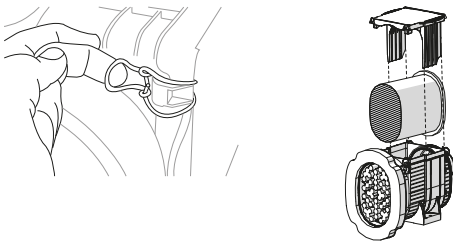
**For the complete efficiency of the filter it is recommended to operate with the filter complete with all its parts and components.**

Each deteriorated part must be replaced as soon as possible.

It is absolutely forbidden to operate without the engine air filter.

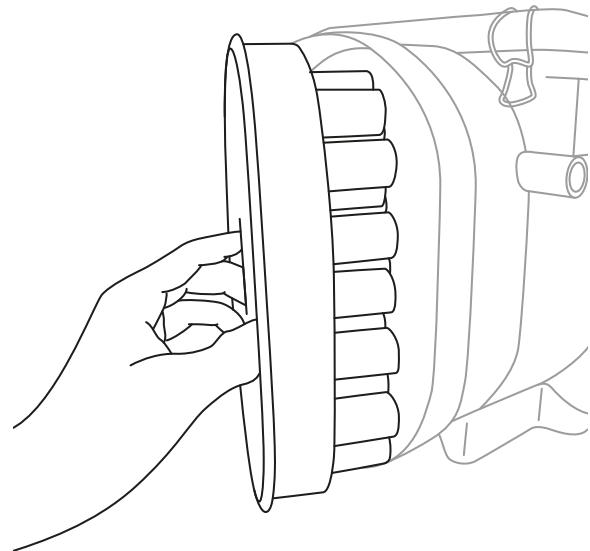
The engine sucks air constantly during its use; dust particles entering in circulation may cause serious damage.

For proper cleaning of the filter it is necessary to:



- Prepare the vehicle in the maintenance position.
- Open and lock the hood.
- Open the filter cover pulling the locking levers located on the four corners.
- Lift the cover and remove the cartridge from inside the filter.
- Use a wet lint-free cloth to clean the box and the cover.
- Clean or replace the filters. The filter cleaning is carried out with compressed air, up to 3 bar (43.5 psi), at a distance of not less than 150 mm (5.9 in), taking care not to damage the filtering element.
- Reassemble everything carrying out the same operations in reverse.

For a correct cleaning of the suction ducts it is necessary to:



- Prepare the vehicle in the maintenance position.
- Open and lock the hood.
- Loosen the screw that secures the inlet honeycomb.
- Remove the air inlet honeycomb.
- Use a wet lint-free cloth for cleaning. Clean every air inlet hole.
- Put back the inlet honeycomb in its seat.

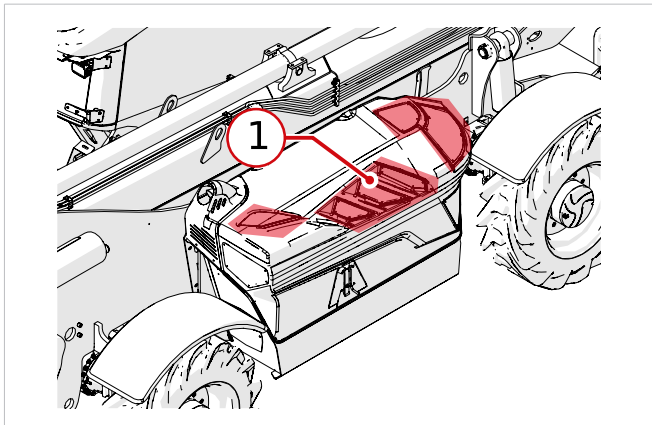


**NOTE**

In case the connection gasket between the suction duct and the filter is damaged, it must be replaced.

## 11.11 Radiator maintenance

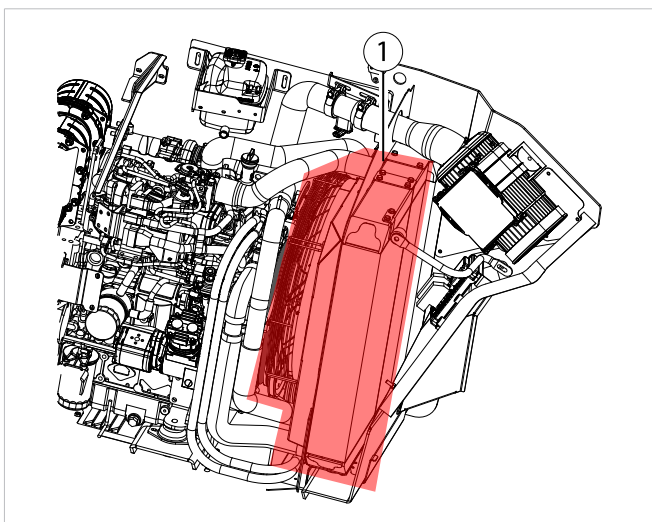
### 11.11.1 Air recirculation grids and nets



Check that the air recirculation grids and nets "1" are clean and free from dirt:

For cleaning use a jet of air at low pressure from the inside to the outside of the vehicle.

### 11.11.2 Radiator: Checking and cleaning



The oil and water radiator "1" involves the following steps:

#### Radiators check

Check that the fins are not deformed; in that case straighten with caution.

Check that the fins have not accumulated dirt and that they are not obstructed.

#### Radiators cleaning

Prepare the vehicle in the maintenance position.

Clean the radiator from dirt and impurities accumulated between the cooling fins. For cleaning use compressed air with pressure not exceeding 7 bar directed from the inside towards the outside.

If necessary, apply a detergent solution and then remove it with a pressure washer.

### 11.11.3 Radiator: Liquid filling up and replacement



#### DANGER

Do not remove the filling cap of the radiator when the system is hot, otherwise it could cause leakage of boiling coolant. Once the system has cooled, turn the filling cap to the first mark and wait until the pressure has completely exhausted before proceeding.

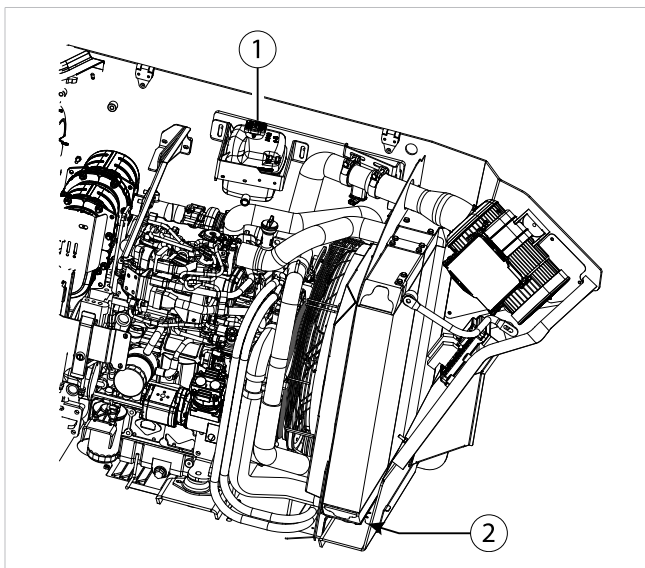
Danger of burns and injuries.



#### DANGER

The coolant can be toxic. Avoid contact with skin, eyes or clothing. Rinse thoroughly with water in case of contact with skin and eyes. Consult a doctor immediately.

If not reused, dispose of in accordance with local environmental regulations.



#### Filling up

- Prepare the vehicle in the maintenance position.
- Open the engine bonnet.
- Slowly unscrew the filling cap "1" anticlockwise up to the safety stop.
- Exhaust the residual pressure and steam.
- Add the coolant up to the level of 30 mm (1.2 in) below the cap.
- Put back the cap.
- Close the engine bonnet.

#### Coolant replacement

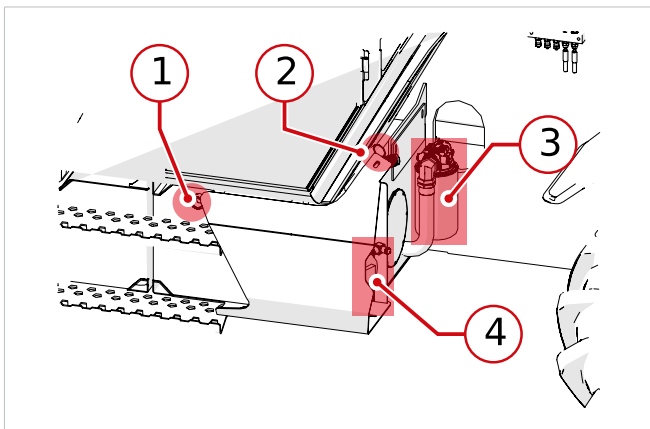
- Prepare the vehicle in the maintenance position.
- Open the engine bonnet.
- Remove the discharge sleeve "2" to allow water to flow away from the radiator.



- Remove the filling cap "1" to speed draining.
- Allow the cooling system to completely drain.
- Rinse the radiator with clean demineralised water introducing it from the filling cap "1" and making it flow out from the orifice of the sleeve "2". If necessary, add detergent.
- Check the condition of sleeves and their fittings, replace them if necessary.
- Once cleaning has been completed, refit the drain sleeve "2".
- Fill the cooling system from the filling cap "1" until the level is 30 mm (1.2 in) below the cap with the coolant previously prepared.
- Close the filler cap.
- Close the engine bonnet.
- Start the engine at idle speed for a few minutes.
- Make sure there are no leaks, check the level and add more liquid if necessary.

## 11.12 Hydraulic system maintenance

### 11.12.1 Hydraulic oil: Check and replacement



The hydraulic oil tank is located on the left side of the vehicle, under the cab.

The level can be checked through the transparent plug placed on the left side of the vehicle "1".

The level is correct when the oil is visible from the transparent plug "1" with all the cylinders of the vehicle in the transport position.



#### NOTE

See the chapter "Technical data" to know the amount and type of recommended oil.

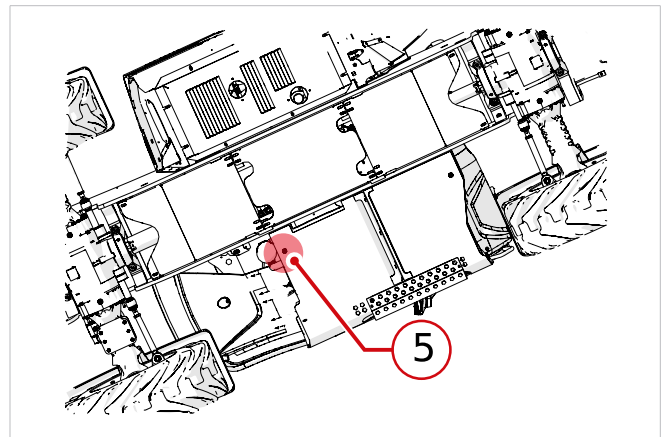
#### Oil check

To keep the vehicle in normal operation conditions, it is necessary to keep the oil level in best conditions.

To properly check the oil level in the tank it is necessary to:

- Prepare the vehicle in the maintenance position.
- Make sure that all cylinders and jacks of the vehicle are retracted (e.g. telescopic boom fully retracted and lowered, attachment holding plate tilted down as much as possible to avoid contact with chassis or tyres). In this way all the oil of the hydraulic circuit will be sent in the tank.
- Check the oil level through the transparent plug "1". Under the best conditions, the oil level reaches the middle of the transparent indicator.
- If necessary, remove the plug "2" located on the back of the cab, and add oil until it reaches the proper level.

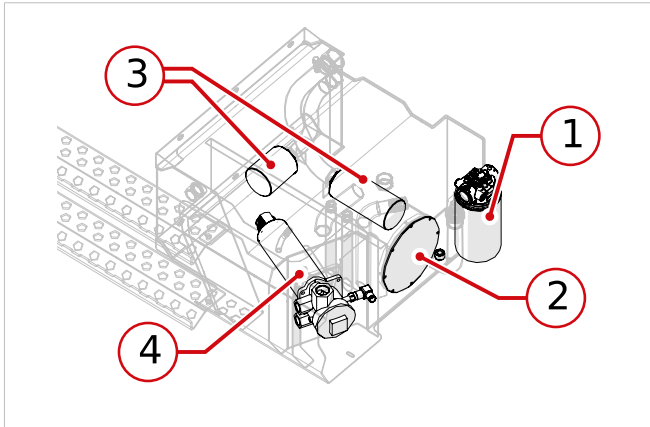
#### Oil change



To change the oil in the tank it is necessary to:

- Prepare the vehicle in the maintenance position.
- Make sure that all cylinders and jacks of the vehicle are retracted (e.g. telescopic boom fully retracted and lowered, attachment holding plate tilted down as much as possible to avoid contact with chassis or tyres). In this way all the oil of the hydraulic circuit will be sent in the tank.
- Place a container under the drain plug (located under the tank).
- Remove the filling cap "2" placed behind the cab.
- Remove the drain plug "5" to let the oil drain.
- Refit the drain plug "5".
- Fill the tank with the oil indicated
- Check the hydraulic oil level.
- If necessary, top up the level.

### 11.12.2 Movement pump intake hydraulic oil filter: Replacement

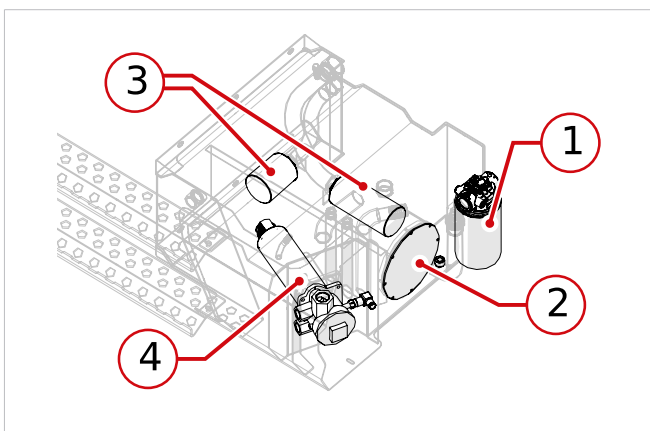


The movement pump hydraulic oil intake filters "3" are located inside the hydraulic oil tank; to replace them, completely empty the tank. It is therefore advisable to carry out the replacement of the intake filters in conjunction with the oil change.

To replace the intake filter, carry out the following operations:

- Perform the operations for replacing the hydraulic oil until the tank is empty.
- Disassemble the flange "2" to access to the intake filters.
- Unscrew the intake filters "3" located inside the tank with an adjustable spanner.
- Install new filters and tighten with a wrench.
- Put back the drain plug.
- Fill the tank with the oil indicated.
- Check the hydraulic oil level.
- If necessary, top up the level.

### 11.12.3 Transmission pump intake hydraulic oil filter: Replacement

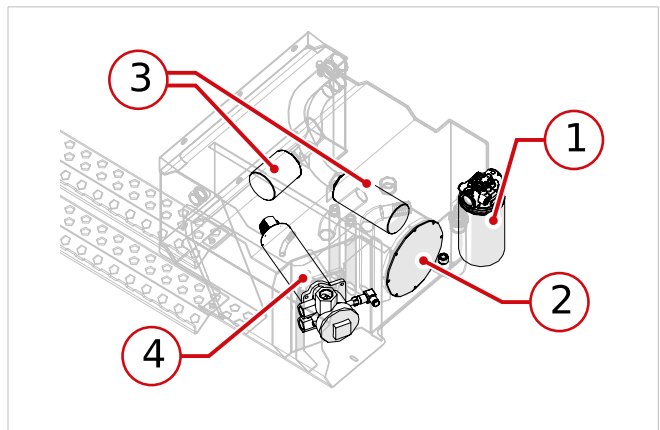


The transmission pump intake hydraulic oil filter "1" is located outside the hydraulic oil tank.

To replace the transmission pump intake filter, carry out the following operations:

- Prepare the vehicle in the maintenance position.
- Turn on the vehicle and lift the boom just enough to insert the safety rod on the lifting cylinder rod.
- Turn off the engine and remove the ignition key, place a sign in the cab showing "Maintenance in progress".
- Allow engine and hydraulic oil to cool down.
- Insert the "boom support" safety rod on the rod of the lifting cylinder, apply appropriate safety supports to the telescopic boom.
- Place a container under the oil filter "1" to collect the oil that may spill during the change.
- Replace the filter "1", lightly oil the gasket and tighten by hand for 3/4 of a turn.
- Lower the vehicle boom.
- Check the hydraulic oil level.
- If necessary, top up the level

### 11.12.4 Hydraulic oil return filter

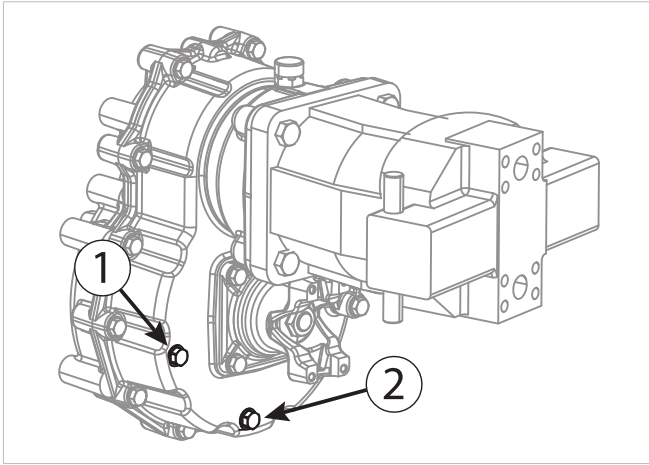


To replace the hydraulic oil filter carry out the following operations:

- Perform the operations for replacing the hydraulic oil until the tank is empty.
- Unscrew the return filter plug "4".
- Unscrew the return filter "4".
- Install new filters.
- Refit the return filter plug.
- Fill the tank with the oil indicated.
- Check the hydraulic oil level.
- If necessary, top up the level.



## 11.13 2 speed transmission maintenance



### 11.13.1 Transmission gearbox Oil: Inspection

- Set the vehicle in the maintenance position.
- Place a container under the transmission gearbox.
- Take off the level cap "1", oil must leak out from its hole.
- If necessary, top-up through the hole of the cap until the oil seeps through

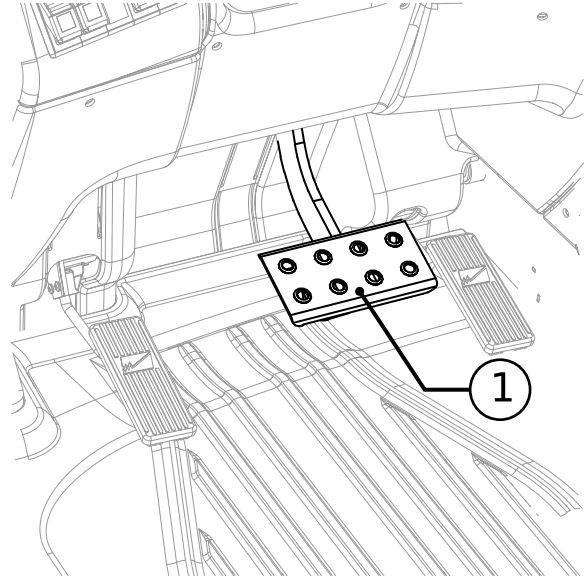
### 11.13.2 Transmission gearbox Oil: Check and replacement

- Set the vehicle in the maintenance position.
- Place a container under the transmission gearbox.
- Take off the level cap "1" and the drain plug "2".
- Allow the oil to completely drain out.
- Refit the drain plug and tighten it securely.
- Top-up with approved type of oil from cap "1" until the oil seeps through.

## 11.14 Brakes maintenance

### 11.14.1 Brake: Inspection

Visually check that the joints of the pedals are not damaged and that the pedal stroke is not excessive or too elastic.

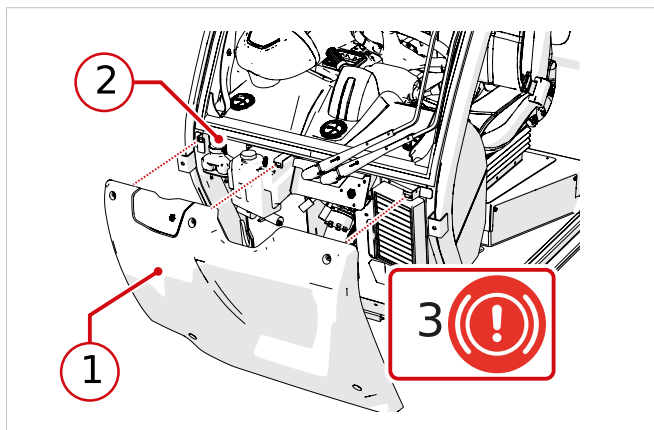


### **DANGER**

**If irregularities in braking are noticed, contact qualified personnel to verify the cause of the trouble.**

The braking parts also safeguard the operator's safety, do not intervene personally on the braking system trying to eliminate possible anomalies.

## 11.14.2 Brakes oil: Check and replacement



When the indicator light "3" (Brake fluid level low) flashes on the central instrument, it means that the brake fluid level has dropped below the minimum (MIN) and therefore it must be restored.

To access the tank, remove the front protective casing of the cab "1" and check that the oil level is always above the minimum level (MIN) indicated on the tank "2". If necessary top up from the cap.

**WARNING**

**If the warning light "3" stays on even after adding oil, contact a Dieci authorised service centre to solve the problem.**

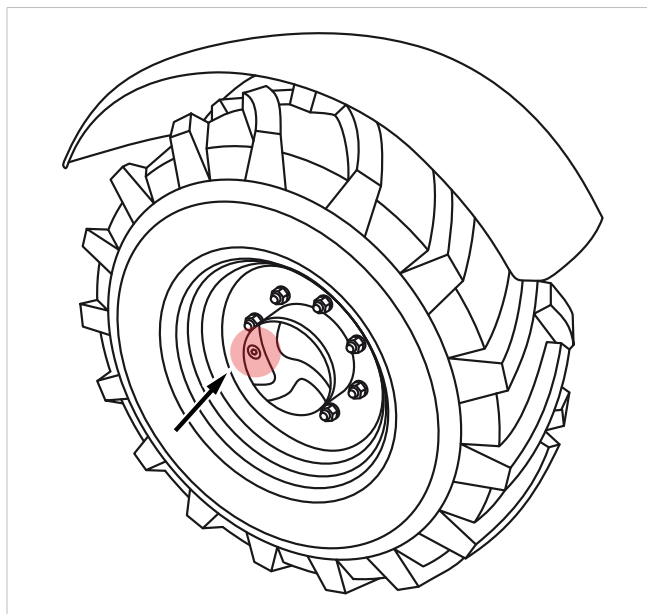
A slight lowering of the level is due to normal wear of the brake discs.

Do not press the brake pedal until the topping up is completed. Make sure the tank is closed before acting on the pedal.

## 11.15 Wheel maintenance

## 11.15.1 Epicycloidal reduction gear oil: Check and replacement

The oil cap of the epicycloidal reduction gear is located on the hub of the wheel:



**When checking the oil level it is necessary to:**

- Prepare the vehicle in the maintenance position.
- Turn the wheel for the oil cap to be in the horizontal position (9 o'clock).
- Place a container to collect the oil.
- Remove the cap and verify that the oil seeps from the hole.
- If necessary, top-up through the same hole.
- Close the cap and tighten it securely.

**When replacing the oil it is necessary to:**

- Prepare the vehicle in the maintenance position.
- Turn the wheel for the oil cap to be in the lowest possible position (6 o'clock).
- Place a container to collect the oil.
- Remove the cap and let the oil drain completely.
- Turn the wheel and bring the cap to the horizontal position (9 o'clock).
- Fill through the same cap with new oil until it seeps through.
- Close the cap and tighten it securely.

## 11.15.2 Wheel nuts tightening

**NOTE**

Tighten the nuts at the intervals required in the maintenance table.

Use the corresponding table to know the correct tightening torque.

Always tighten the nuts in opposing position, not consecutively.

After installing the wheel, tighten the nuts between the wheel and the axles. Then check the nut torque every day until the torque is stabilized.

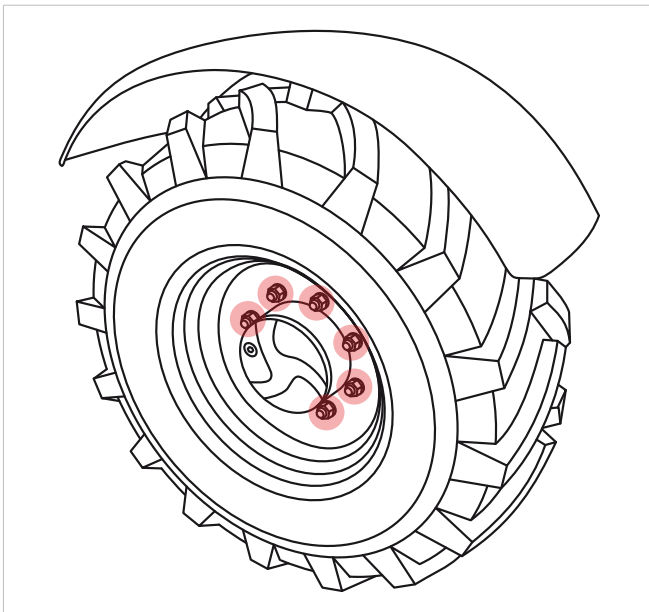
The number of axle columns must match the number of nuts tightened. Then all the nuts on each wheel must be installed otherwise the vehicle can not operate.

In case of wheel replacement the vehicle or the raised side can be placed on the ground only with wheels installed and properly tightened.

The nuts tightening must be made first with the vehicle, or part of it, raised from the ground then with vehicle resting on the ground.

Only use DIECI original nuts for tightening the wheels. If you lose even one nut contact the DIECI service centre.

**11.15.2.1 Wheel nuts tightening: Inspection**



Check that the nuts of the front and rear wheels are tightened well, using a torque wrench (with a torque multiplier, if necessary).

TAPERED NUT	TORQUE
M18x1.5	460 N·m (339,02 ft·lbs)
M22x1.5	740 N·m (545,38 ft·lbs)

**11.15.3 Tyres**

**! CAUTION**

The diagrams notebook in the cab and the "Technical data" chapter show the tyres available for your vehicle model and the relative inflation pressures.

On receiving the vehicle check the air pressure of the tyres

- Check the tyre pressure regularly. The pressure must be checked with cold tyres.
- The tyre pressure must always be at the levels indicated.
- Check the size of the tyres installed and the number of canvasses for the correct inflation pressure.

**! DANGER**

Tyres showing cuts or excessive wear must be replaced immediately.

- At each use, check that the tyre shoulders are not damaged.
- Keep oil, grease and corrosive liquids away from the tyres to avoid deterioration of the rubber.
- To obtain the maximum efficiency do not use tyres with more than 80% of tread wear.

**! WARNING**

**Inflating or operating on the tyres can be dangerous.**

To operate on tyres or install them, contact specialised personnel

In any case, to prevent serious or fatal injuries, follow the safety precautions below.

- The vehicle wheels are very heavy. Handle with care and make sure that, once stored, they can not fall and injure someone.
- Never try to repair a tyre on a public road or highway.
- Make sure the jack is placed on a solid and flat surface.
- Make sure the jack is adequate for lifting the vehicle.
- Use ratchet jacks or other locking means suitable to support the vehicle during the tyres repair.
- Do not place any part of the body under the vehicle.
- Do not start the engine while the vehicle is on the jack.
- Never hit a tyre or a rim with a hammer.
- Make sure the rim is clean, without rust and undamaged. Do not weld, solder, repair in any way or use a damaged rim.

- Do not inflate a tyre unless the rim is mounted on the vehicle or secured in such a way that it cannot move in case the tyre or rim should break suddenly.
- Do not inflate any tire over the pressure indicated by DIECI. If the bead chafer does not settle on the rim, when arriving to this pressure deflate the tyre and lubricate again with a solution of soap and water, inflate again. Do not use oil or grease. An inflation greater than permitted with bead chafer not settled may break the bead or rim with explosive force sufficient to cause serious injury.
- After installing the wheel, tighten the nuts between the wheel and the axles. Then check the nut torque every day until the torque is stabilized.

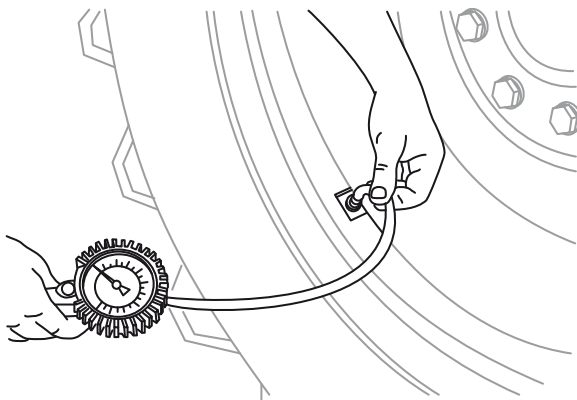


**CAUTION**

**When fitting a new or repaired tyre, use a valve adapter of spring type with distant pressure gauge that allows the operator to stay well away from the tyre during inflation.**

Use a safety cage.

11.15.3.1 Tyre pressure: Inspection



Verify and adjust the pressure of the front and rear tyres.

Check that the tread and the sides are not damaged.

Connect a pressure gauge to the tyre valve and verify that the inflation pressure is correct

11.15.3.2 Tyres filled with urethane



**NOTE**

**Tyres filling with urethane is an optional accessory.**

**Consult your dealer in case of doubts or information on your vehicle.**



**DANGER**

**It is not permitted to fit tyres inflated with polyurethane foam unless authorised by the manufacturer.**

With tires filled with urethane it is forbidden to travel on the road.



**CAUTION**

The maximum permitted speed with tyres filled with urethane is 20 km/h (12.4 mph).

11.15.3.3 Tyre symbols key

ICON	DESCRIPTION
	Tyre dimensions Indicates the tyre pressure.
	Tread pattern Indicates the design with which the tyre tread is carved.
	Load index and Speed index The load index corresponds to the maximum load that the tyre can support. The speed index indicates the maximum speed at which the tyre can bear the weight corresponding to its load index.
	Tyre pressure For most vehicle models, tyre pressure is the same for all wheels.
	Front axle tyre pressure For some vehicle models, the tyres must be inflated with different pressures between the front axle and the rear axle
	Rear axle tyre pressure For some vehicle models, the tyres must be inflated with different pressures between the front axle and the rear axle.

11.16 Lighting

The vehicle lighting must always be efficient and fully functional. Its operation must be checked every day. In case of damage to the lighting system immediately replace the damaged part.

Immediately replace a burned out bulb.



**CAUTION**

Refer to the "Maintenance" chapter before making any adjustments or maintenance.



**NOTE**

The bulbs are very fragile. Handle with care.

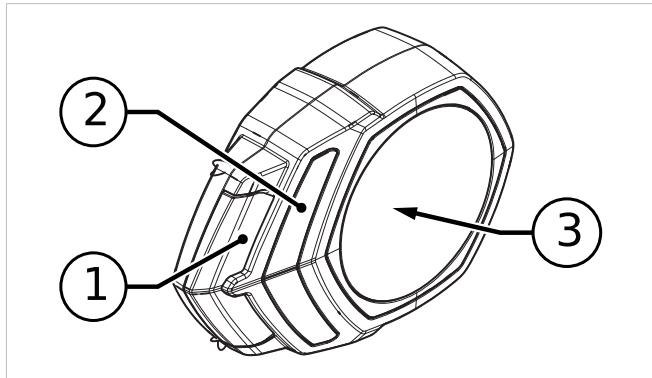
The low beam bulbs must not be handled with bare hands.

11.16.1 Headlight\*



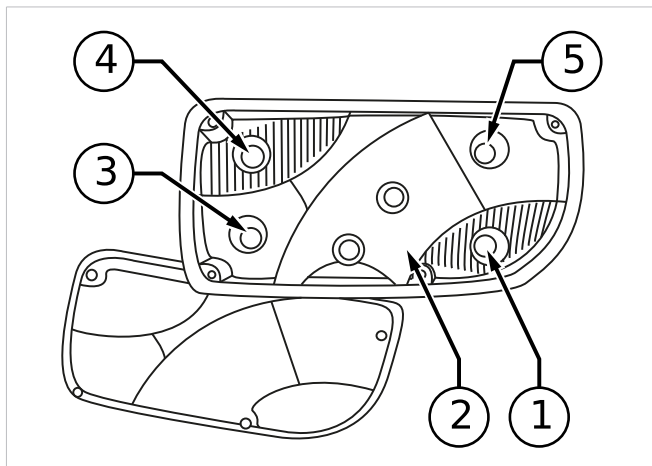
**NOTE**

\* Depending on the model.



- 1 Direction indicator:  
HYBRID LED - 6.2 W  
FULL LED - 7.2 W
- 2 Front side lights:  
HYBRID LED - 0.8 W  
FULL LED - 1.3 W
- 2 DRL:  
HYBRID LED - 6.2 W  
FULL LED - 6.4 W
- 3 Low and high beam lights:  
HYBRID LED - 55/60 W  
FULL LED - 21.5/13 W

11.16.2 Tail light



- 1 Reversing light - 21 W
- 2 Rear side light- 5 W
- 3 Braking light - 21 W

- 4 Direction indicator - 21 W
- 5 Rear fog light - 21 W

**To access the bulbs:**

1. Prepare the vehicle in the maintenance position.
2. Turn off the battery isolation switch to disconnect power to the electrical system.
3. Remove the power supply connector on the back of the light.
4. Remove the front of the headlight by loosening the screws placed in the cap.

To close the headlight operate in the reverse order, paying attention to correct positioning of the sealing gasket.

**Tail light bulb replacement.**

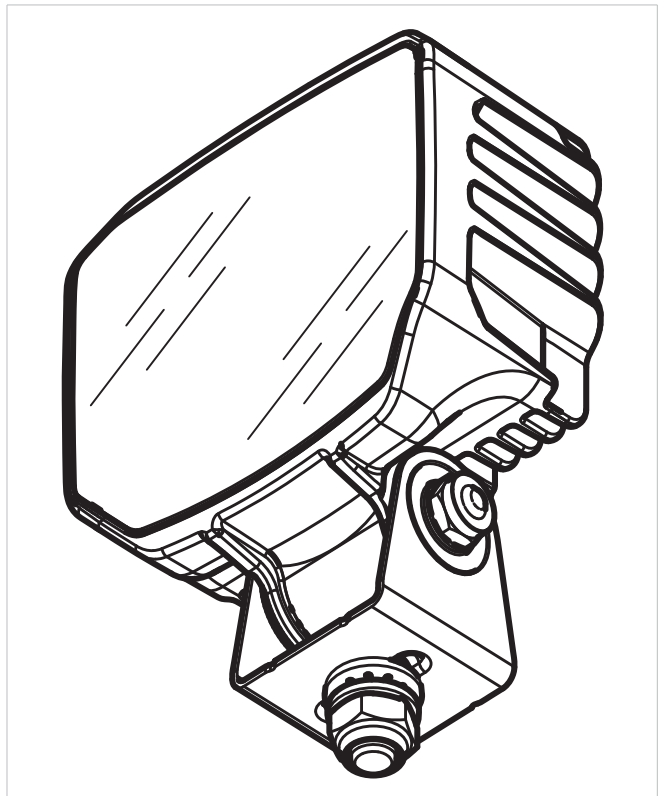
- Press the top of the bulb.
- Turn the bulb, keeping it pressed, to release it from the lock.
- Perform the same procedure in reverse order to insert the new bulb.

11.16.3 Front, rear and boom head LED work light



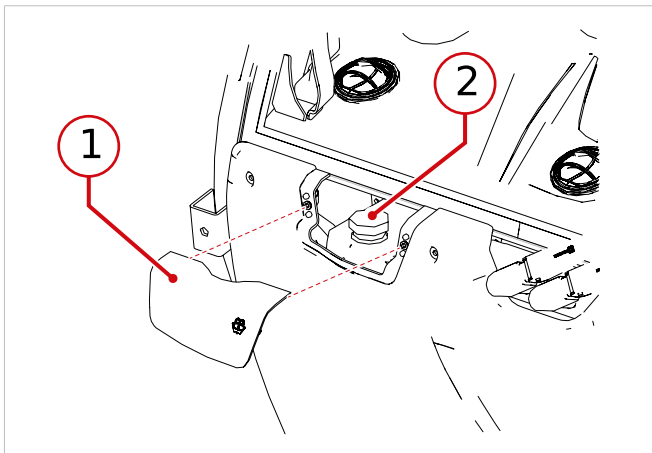
**NOTE**

The LED work light is an optional accessory.



The LED work light does not require maintenance.

## 11.17 Window washer fluid tank



The washer fluid tank is located on the front external right side of the cab

To add liquid to the tank:

1. Remove the cover with magnetic inserts "1".
2. Remove the filling cap "2"
3. Add washing fluid to fill the tank.
4. Put back the cap.
5. Reassemble the cover.



### CAUTION

During the winter, mix antifreeze fluid with the water.

## 11.18 Ventilation system maintenance

### 11.18.1 Cab ventilation filter: Cleaning and replacement



#### DANGER

Do not use diesel fuel, gasoline, solvents or water to clean the cartridges, as this may damage the filtering material.



#### WARNING

If the vehicle is used in environments particularly rich of dust (barns, etc.), the filter life is reduced to 100 hours.

**In** case of malfunction of the ventilation system, check the filter clogging.

In the event that the malfunction continues despite the filter replacement, contact DIECI service centre.

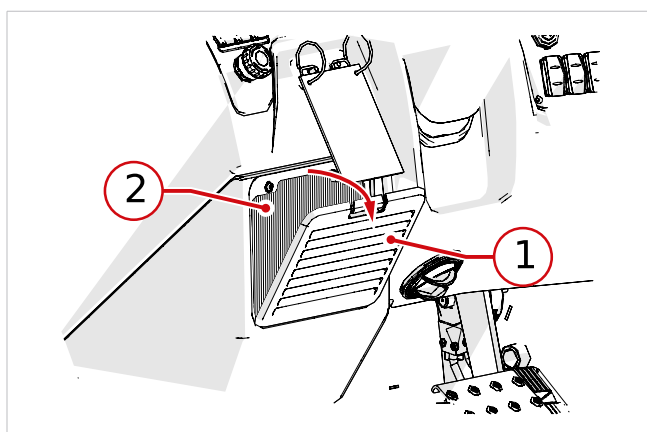


#### DANGER

**Do not use the vehicle without a cab filter.**

The entry of dust into the cab may involve risks to the health of the operator and breakage of the ventilation system.

### Internal air filter replacement

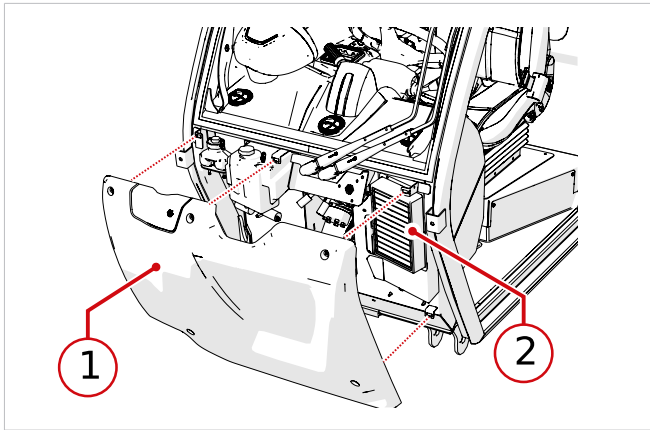


To replace the internal air filter in the cab, it is necessary to:

- Open the cover "1".
- Remove and replace the filter "2".
- Reassemble the cover "1".

### Replacement of external air filter





To replace the external air filter in the cab, it is necessary to:

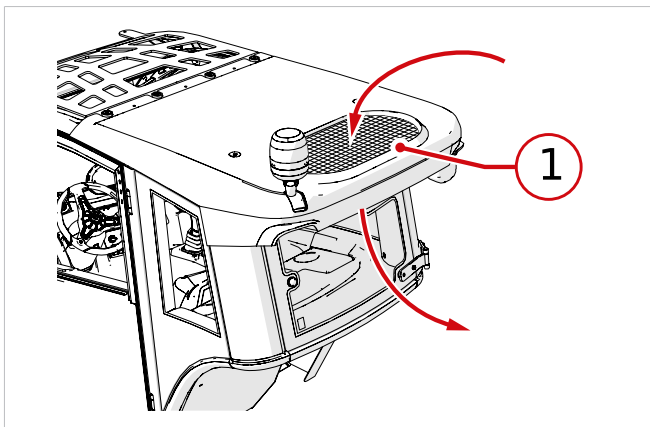
- Open the front protection housing "1".
- Remove and replace the filter "2".
- Put back the front protection housing "1".

11.18.2 Air conditioning: Cleaning



**NOTE**

\* Air conditioning is an optional accessory.



To clean the air conditioning radiator, it is necessary to:

- Prepare the vehicle in the maintenance position.
- Clean the air conditioning radiator "1" directing compressed air at a maximum pressure of 7 bar, from the top downwards, in the direction opposite to that of the normal flow of air. The air flow must be perpendicular to the radiator surface.
- Remove dirt from under the air conditioning radiator.



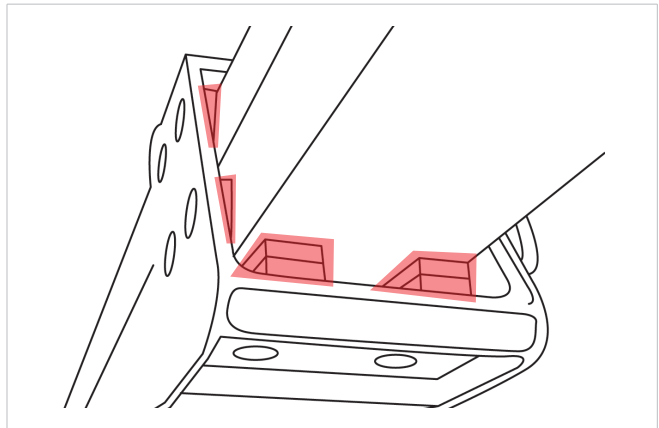
**CAUTION**

**Be careful not to damage the radiator fins while cleaning.**

Check that the fins are not deformed; in that case straighten with caution.

11.19 Boom maintenance

11.19.1 Sliding blocks maintenance



Worn sliding blocks can lead to oscillations and clearances between one extension and the other with consequent loss of precision in the movements and danger of load falling.

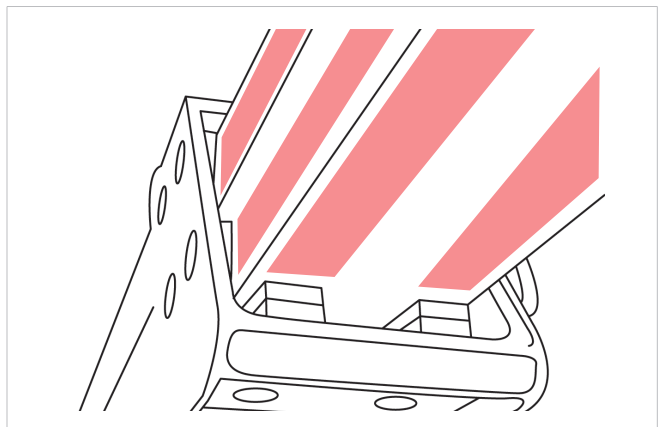
- For the deadlines see the summary table at the beginning of the chapter.
- With severe working conditions the wear is greater



**CAUTION**

Maintenance to the telescopic boom sliding blocks must be performed by authorized DIECI workshop

11.19.2 Boom lubrication with grease

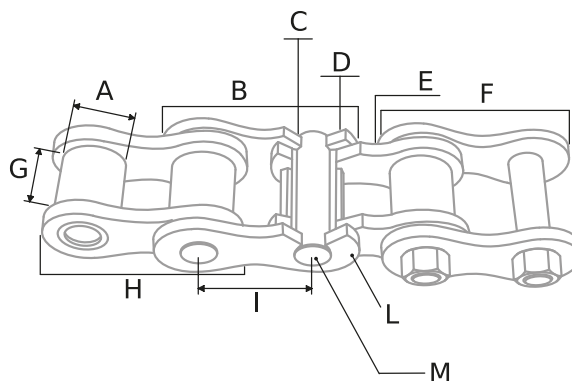


The boom sliding blocks must be kept lubricated to prevent as much as possible the deterioration and maintain soft movements.

If the grease layer is thin or if impurities (sand, dust, shavings, etc.) are present, proceed as follows:

- Prepare the vehicle in the maintenance position.
- Turn on the vehicle.
- Fully extend the boom and keep it in horizontal position.

- Turn off the engine and remove the ignition key, place a sign in the cab showing "maintenance in progress".
- Disconnect the battery using the battery cut-off switch.
- Remove the layer of grease and impurities on the surface of the extensions with a cloth.
- Use a brush to apply a layer of approved type grease on all four sides of the extensions.
- Fully retract and extend the boom several times to evenly distribute the grease.
- Turn off the vehicle.
- Remove excess grease.



**CAUTION**

Use only lubricants recommended by DIECI, different lubricants may cause severe damage to the sliding surfaces.



**WARNING**

During the grease visual check and application the vehicle must be turned off and the key removed from the cab to avoid accidental operation.



**NOTE**

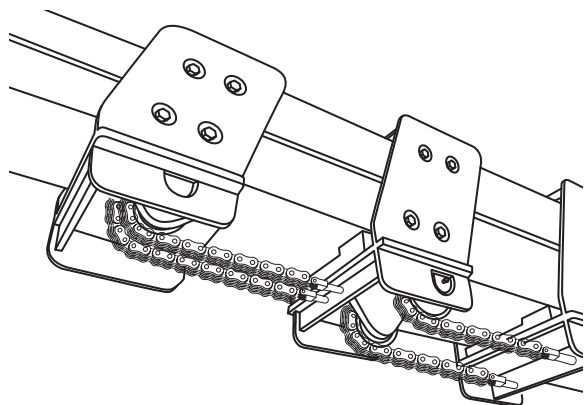
See the "Maintenance Log" chapter to know the maintenance intervals timing.

When using the vehicle in severe conditions, very dusty environment requires a more frequent greasing.

The chains are composed of:

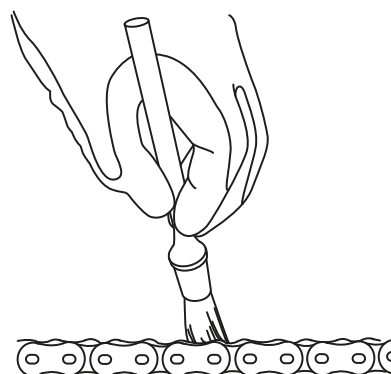
- A - Roller diameter
- B - External mesh
- C - Bushing
- D - Roller
- E - Internal plate
- F - Junction mesh
- G - Internal width
- H - Internal mesh
- I - Pitch
- L - External plate
- M - Pin

11.19.3 Boom external chains



The external chains on the boom allow the boom extension and retraction.

11.19.3.1 Lubrication



Lubrication during the operation allows:

- Interposing a liquid between the contact surfaces to reduce wear and prevent seizure.
- Protect the chains against corrosion.
- Reduce the noise between the surfaces subjected to shocks

Lubrication must be carried out:

- Longitudinally, in an area where the joints are not so stressed to facilitate the lubricant penetration.
- Transversely, between the plates to facilitate the penetration of oil in the joint.





**NOTE**

In case of special applications or use in adverse conditions, consult the DIECI service centre.



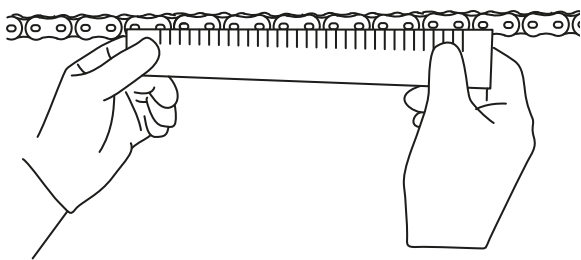
**WARNING**

It is absolutely forbidden to lubricate the chains using grease.

The oil viscosity must be suitable to room temperature. A too low viscosity facilitates the evacuation of lubricant, a too high viscosity prevents the lubricant to penetrate the joints. To know the correct viscosity refer to the following table:

TEMPERATURE	RECOMMENDED VISCOSITY ISO VG (CST)
-15 °C < T < 0 °C	between 15 and 32
5 °F < T < 32 °F	
0 °C < T < 50 °C	between 46 and 150
32 °F < T < 122 °F	
50 °C < T < 80 °C	between 220 and 320
122 °F < T < 176 °F	

**11.19.3.2 Wear checks**



At the due deadlines it is necessary to check:

- The geometry of installation.
- The chain status, to analyse the traces of friction that may indicate an incorrect installation geometry.
- Wear on the profile of the lateral plates for contact with the pulleys and the guide systems.
- Wear on the outer plate sides and on the heads of pins for contact with the pulley flanges or with any guiding device.
- The chain joints wear with direct measurement of its length with measuring instrument or a checking scale, and visually.
- The Fleyer lifting chains plates wear.

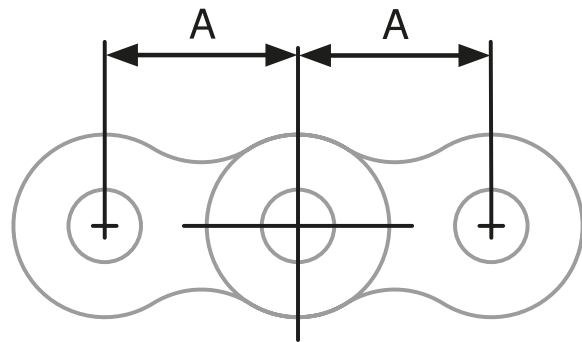


**CAUTION**

**The chains replacement is compulsory when wear for elongation exceeds 2%.**

When replacing the chain it is also mandatory to replace the respective rollers

**11.19.3.3 Determination of wear elongation**



- Check the type of chain installed, as indicated on its external plates; if unreadable contact the DIECI service centre.
- Find the pitch of the chain on the table. (e.g. Fleyer chain AL8/BL8 Pitch 25.40 mm (1 in)) and multiply by 10.
- Measure 10 pitches of the chain to be checked
- If the measurement is greater than 2% of the pitch shown in the table multiplied by ten, the chain is considered worn and must obligatorily be replaced.

**2% of the measurement = [ Measurement: 100 ] x 2 >**



**CAUTION**

The measurement must be carried out at several points, as the wear may not be uniform, and with the chain in tension. The measurement can be performed with a gauge or millimetric ruler.

FLEYER CHAINS	FLEYER CHAINS	PITCH MM	PITCH INCH
AL4	BL4	12.7	0.5
AL5	BL5	15.87	0.6
AL6	BL6	19.05	0.7
AL8	BL8	25.4	1
AL10	BL10	31.75	1.2
AL12	BL12	38.1	1.5
AL14	BL14	44.45	1.7
AL16	BL16	50.8	2

**11.19.3.4 Check, cleaning and lubrication**

- Prepare the vehicle in the maintenance position.
- Turn on the vehicle.
- Place the vehicle on outriggers (if installed).

- Fully extend the boom in horizontal position
- Turn off the engine and remove the ignition key, place a sign in the cab showing "maintenance in progress".
- Clean the chains with a clean, lint-free cloth to remove surface impurities.
- Brush the chains vigorously to remove impurities, using a hard nylon brush and clean diesel fuel. Subsequently blow with compressed air.
- Carefully examine the chains as described in the "Wear check" paragraph.
- Lightly lubricate the chains by using a brush soaked with oil (see the "Lubrication" paragraph).
- Remove excess oil on the entire surface of the chains with a clean cloth.
- Operate the telescopic boom several times to distribute the oil evenly.



### CAUTION

In case of chains replacement contact the Dieci service centre.

The chains can be weakened by hydrogen.

It is absolutely forbidden to operate in acid places.

Work for the shortest time possible in oxidizing and corrosive places

## 11.20 Cylinders block valves maintenance

The block valves for cylinders prevent uncontrolled movement of the pistons of the cylinders in the event of hydraulic pressure failure or bursting of a hose.

The valves are installed directly on the cylinders.



### DANGER

**During the checking operations do not allow any person to stay within the radius of action of the vehicle.**

Check the valves individually.

In case of malfunction do not use the vehicle until it has been repaired

Boom lifting cylinders:

- Start the engine. Make sure that the parking brake is engaged and the transmission is in neutral.
- Lift the boom to approximately 45°.
- With the engine running at 1400 rpm, lower the boom. During the boom movement stop the engine.

The boom movement must slow down and then stop when the engine slows down and stops.



### DANGER

**If the boom continues to move after stopping the engine, the lifting cylinders block valve is faulty.**

Remove the fault as soon as possible, contact the DIECI service centre.

Boom extension cylinder:

- Start the engine. Make sure that the parking brake is engaged and the transmission is in neutral.
- Lift and fully extend the boom.
- With the engine running at 1400 rpm, retract the boom. During the boom movement stop the engine.

The boom movement must slow down and then stop when the engine slows down and stops.



### DANGER

**If the boom continues to move after stopping the engine, the extension cylinders block valve is faulty.**

Remove the fault as soon as possible, contact the DIECI service centre

Forks tilting cylinders:

- Start the engine, take a load on the forks (for example, a load of bricks or some bales of hay).
- Tilt the forks fully upward.

- Engage the parking brake and set the transmission into neutral.
- Tilting the boom away from the ground sufficiently to allow the forks to tilt forward.
- With the engine running at 1400 rpm, operate the control lever to tilt the plate forward. During the forks movement stop the engine.

The tilting movement must slow down and then stop when the engine slows down and stops



**DANGER**

**If the forks continue to move after stopping the engine, the tilting cylinders block valve is faulty.**

Remove the fault as soon as possible, contact the DIECI service centre

Levelling and oscillating block cylinders (if any):

- Position the vehicle on a perfectly horizontal surface.
- Make sure that the parking brake is engaged and the transmission is in neutral.
- Make sure the vehicle is in carriage mode.
- Lift the boom about 15 cm from the ground and level the vehicle so that the chassis is perfectly parallel to the surface (check the level in the cab).
- Check that, without intervening on the levelling control, the vehicle maintains this position even after a prolonged use.



**DANGER**

**If the chassis continues to move after stopping the engine, the levelling cylinders block valve is faulty.**

Remove the fault as soon as possible, contact the DIECI service centre



**NOTE**

Do not level the vehicle with boom raised and/or removed.

Outriggers cylinders (if present)

- Start the engine. Make sure that the parking brake is engaged and the transmission is in neutral.
- Place the vehicle on outriggers.
- Level the vehicle with the outriggers.
- Fully extend the boom.
- With the engine running at idle speed, rotate the vehicle turret.



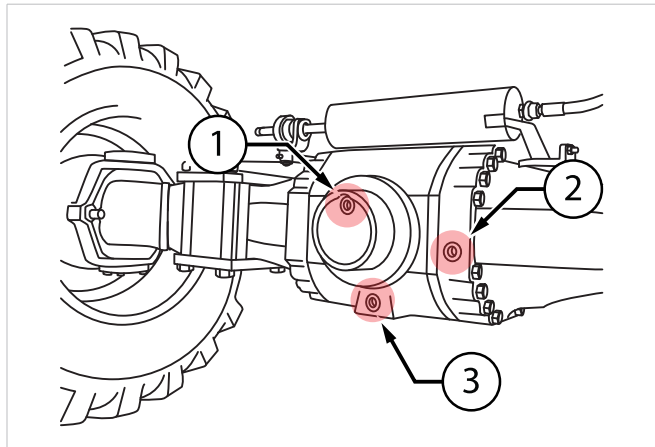
**DANGER**

**If the outriggers continue to move after stopping the engine, the outriggers cylinders block valve is faulty.**

Remove the fault as soon as possible, contact the DIECI service centre.

**11.21 Differential Axles Maintenance**

**11.21.1 Differential axles oil: Check and replacement**



The filler, level and drain plugs are located in the central part of the front and rear differential axle.

**When checking the oil level it is necessary to:**

- Prepare the vehicle in the maintenance position.
- Place a container for the oil recovery under the level plug "2" to collect any leaks.
- Open the level cap "2". In the best conditions oil must seep out from the hole.
- If necessary, open the cap "1" and top up to make oil seep out from the level cap "2".
- Put back the caps and tighten down.

**When replacing the oil it is necessary to:**

- Prepare the vehicle in the maintenance position.
- Place a container for the oil recovery under the drain plug "3" to collect any leaks.
- Open the filling cap "1" and then the drain plug "3".
- Drain off all the oil.
- **Close the drain plug "3".**
- Load new oil from the filling cap "1", up to make oil seep out from the level cap "2".

Put back the caps and tighten down.



**WARNING**

**Replace oil in the differential axles after the first 100 hours of use.**

Failure to replace the running-in oil will compromise the correct operation of the differential axles.

## 11.22 Hydraulic fittings tightening torques

### INSERTS WITH 60° NOSE - BSP THREAD

Thread	(N·m)
1/18.28	12-14
1/4.19	14-16
3/8-19	25-28
1/2-14	45-60
5/8-14	55-70
3/4-14	90-110
1"-11	120-140
1"1/4-11	170-190
121/2-11	200-245

### INSERTS WITH 60° NOSE - METRIC THREAD

Thread	(N·m)
10x1	12-14
12x1.5	13-15
14x1.5	15-18
16x1.5	25-28
18x1.5	27-30
22x1.5	50-60
26x1.5	60-75
28x1.5	80-100
30x1.5	110-130

### SERIES DIN RANGE "L"

Thread	(N·m)
12x1.5	13-15
14x1.5	15-18
16x1.5	25-28
18x1.5	27-30
22x1.5	50-60
26x1.5	30-75
30.2	85-105
36x1.5	120-140
45x1.5	170-190
52x1.5	190-230

### SERIES DIN RANGE "S"

Thread	(N·m)
14x1.5	15-18
16x1.5	25-28
18x1.5	27-30
20x1.5	43-54
22x1.5	50-62
24x1.5	60-75
30x2	90-110
36x2	125-145
42x2	170-190
52x2	200-245

## 11.23 Torque specifications - fasteners

### 11.23.1 Torque specifications - fasteners: Fine pitch

	COEFFICIENT OF FRICTION	4.8		5.8	
		Preload (N)	Tightening torque:(Nm)	Preload (N)	Tightening torque:(Nm)
M8	0.10	9798	10.87	12248	13.59
	0.14	9080	13.53	11349	16.91
M10	0.10	15297	21.13	19121	26.41
	0.14	14175	26.27	17719	32.84
M10	0.10	16384	22.12	20480	27.66
	0.14	15222	27.80	19027	34.75
M12	0.10	22021	35.83	27526	44.79
	0.14	20406	44.53	25507	55.66
M12	0.10	23334	37.26	29167	46.57
	0.14	21669	46.70	27087	58.38
M14	0.10	31610	59.04	39513	73.80
	0.14	29346	73.92	36682	92.40
M16	0.10	42581	89.78	53227	112.23
	0.14	39588	113.06	49485	141.32
M18	0.10	51457	124.03	64322	155.03
	0.14	47752	155.02	59690	193.78
M18	0.10	55415	130.17	69269	162.72
	0.14	51578	164.67	64472	205.84
M20	0.10	65534	173.72	81918	217.16
	0.14	60886	218.17	76108	272.71
M20	0.10	70115	181.58	87643	226.97
	0.14	65319	230.55	81649	288.19
M22	0.10	81221	236.88	101526	296.10
	0.14	75534	298.75	94417	373.43
M22	0.10	86164	246.02	107705	307.53
	0.14	80332	313.41	100415	391.76
M24	0.10	98516	308.56	123145	385.70
	0.14	91693	390.33	114617	487.92
M24	0.10	104079	319.62	130099	399.52
	0.14	97096	408.12	121370	510.15
M27	0.10	127922	448.43	159903	560.54
	0.14	119185	569.67	148981	712.09
M30	0.10	16818	623.80	201022	779.75
	0.14	149957	795.14	187446	993.93

	COEFFICIENT OF FRICTION	6.8		8.8	
		Preload (N)	Tightening torque:(Nm)	Preload (N)	Tightening torque:(Nm)
M8	0.10	14697	16.31	19596	21.75
	0.14	13619	20.29	18159	27.05
M10	0.10	22945	31.69	30594	42.25
	0.14	21263	39.41	28350	52.55
M10	0.10	24575	33.19	32767	44.25
	0.14	22833	41.70	30443	55.61
M12	0.10	33031	53.75	44041	71.67
	0.14	30609	66.79	40812	89.06
M12	0.10	35001	55.88	46667	74.51
	0.14	32504	70.06	43338	93.41
M14	0.10	47415	88.57	63220	118.09
	0.14	44019	110.89	58692	147.85
M16	0.10	63872	134.67	85163	179.56
	0.14	59382	169.59	79176	226.12
M18	0.10	77186	186.04	102914	248.06
	0.14	71628	232.53	95503	310.05
M18	0.10	83123	195.26	110830	260.35
	0.14	77366	247.01	103155	329.35
M20	0.10	98301	260.59	131068	347.45
	0.14	91329	327.26	121772	436.34
M20	0.10	105172	272.36	140229	363.15
	0.14	97979	345.82	130638	461.10
M22	0.10	121831	355.32	162442	473.76
	0.14	113301	448.12	151068	597.49
M22	0.10	129246	369.04	172329	492.05
	0.14	120498	470.11	160664	626.82
M24	0.10	147773	462.84	197031	617.12
	0.14	137540	585.50	183387	780.67
M24	0.10	156119	479.43	208152	639.23
	0.14	145644	612.18	194192	816.24
M27	0.10	191884	627.65	255845	896.87
	0.14	178778	854.51	238370	1139.34
M30	0.10	241226	935.70	321635	1247.60
	0.14	224936	1192.72	299914	1590.29

	COEFFICIENT OF FRICTION	10.9		12.9	
		Preload (N)	Tightening torque:(Nm)	Preload (N)	Tightening torque:(Nm)
M8	0.10	27557	30.58	33069	36.70
	0.14	25536	38.04	30643	45.65
M10	0.10	43023	59.42	51627	71.30
	0.14	39867	73.89	47841	88.67
M10	0.10	46079	62.23	55295	74.67
	0.14	42811	78.20	51373	93.84
M12	0.10	61933	100.78	74320	120.94
	0.14	57391	125.24	68870	150.29
M12	0.10	65626	104.78	78751	125.74
	0.14	60945	131.36	73134	157.63
M14	0.10	88903	166.06	106684	199.27
	0.14	82535	207.91	99043	249.49
M16	0.10	119760	252.51	143712	303.02
	0.14	111341	317.98	133609	381.57
M18	0.10	144723	348.83	173668	418.59
	0.14	134302	436.00	161162	523.20
M18	0.10	155855	366.12	187026	439.34
	0.14	145062	463.15	174075	555.77
M20	0.10	184315	488.60	221178	586.32
	0.14	171243	613.61	205491	736.33
M20	0.10	197198	51.68	236637	612.82
	0.14	183710	648.42	220452	778.10
M22	0.10	228433	666.23	274120	799.48
	0.14	212439	840.22	254927	1008.27
M22	0.10	242337	691.94	290804	830.33
	0.14	225933	881.46	271120	1057.75
M24	0.10	277075	867.83	332490	1041.40
	0.14	257887	1097.82	309465	1317.38
M24	0.10	292723	898.92	351268	1878.71
	0.14	273083	1147.84	327699	1377.41
M27	0.10	359782	1261.22	431738	1513.46
	0.14	335208	1602.20	402250	1922.64
M30	0.10	452299	1754.43	542759	2105.32
	0.14	421754	2236.34	506105	2683.61

## 11.23.2 Torque specifications - fasteners: Coarse pitch

	COEFFICIENT OF FRICTION	4.8		5.8	
		Preload (N)	Tightening torque:(Nm)	Preload (N)	Tightening torque:(Nm)
M3	0.10	1220	0.54	1525	0.68
	0.14	1126	0.60	1407	0.83
M3.5	0.10	1638	0.84	2048	1.05
	0.14	1511	1.03	1889	1.28
M4	0.10	2115	1.25	2644	1.56
	0.14	1951	1.53	2439	1.91
M5	0.10	3462	2.46	4327	3.08
	0.14	3197	3.02	3996	3.78
M6	0.10	4875	4.24	6093	5.30
	0.14	4499	5.19	5624	6.48
M7	0.10	7135	6.97	8918	8.71
	0.14	6600	8.60	8250	10.76
M8	0.10	8947	10.20	11184	12.75
	0.14	8266	12.54	10332	15.67
M10	0.10	14245	20.11	17806	25.14
	0.14	13167	24.76	16459	30.95
M12	0.10	20767	34.43	25958	43.03
	0.14	19204	42.42	24005	53.03
M14	0.10	28390	54.77	35487	68.46
	0.14	26261	67.56	32827	84.45
M16	0.10	39242	85.14	49053	106.43
	0.14	36364	105.8	45455	132.26
M18	0.10	47533	117.48	59416	146.85
	0.14	43986	145.16	54983	181.45
M20	0.10	61238	166.08	76548	207.61
	0.14	56747	206.39	70934	257.98
M22	0.10	76305	227.22	95382	284.02
	0.14	70792	283.79	88490	352.74
M24	0.10	88232	287.16	110291	358.94
	0.14	81762	356.84	102202	446.05
M27	0.10	115779	420.40	144724	525.05
	0.14	107442	525.08	134302	656.35
M30	0.10	141000	572.83	176249	716.03
	0.14	130771	714.49	163463	893.11



	COEFFICIENT OF FRICTION	6.8		8.8	
		Preload (N)	Tightening torque:(Nm)	Preload (N)	Tightening torque:(Nm)
M3	0.10	1830	0.82	2440	1.09
	0.14	1689	1.00	2252	1.34
M3.5	0.10	2457	1.26	3276	1.68
	0.14	2267	1.54	3023	2.05
M4	0.10	3173	1.88	4231	2.50
	0.14	2926	2.29	3902	3.06
M5	0.10	5192	3.70	6923	4.93
	0.14	4795	4.53	6394	6.04
M6	0.10	7312	6.35	9749	8.47
	0.14	6749	7.78	8998	10.37
M7	0.10	10702	10.45	14269	13.94
	0.14	9899	12.90	13199	17.21
M8	0.10	13421	15.30	17894	20.41
	0.14	12398	18.80	16531	25.07
M10	0.10	21367	30.16	28489	40.22
	0.14	19751	31.14	26335	49.52
M12	0.10	31150	51.64	41533	68.86
	0.14	28806	63.63	38408	84.84
M14	0.10	42585	82.15	56780	109.53
	0.14	39392	101.34	52522	135.13
M16	0.10	58863	127.72	78484	170.29
	0.14	54546	158.71	72729	211.61
M18	0.10	71300	176.22	95066	234.96
	0.14	65979	217.74	87972	290.32
M20	0.10	91857	249.13	122476	332.17
	0.14	85121	309.58	113494	412.78
M22	0.10	114458	340.82	152610	454.43
	0.14	106188	425.69	141584	567.58
M24	0.10	132349	430.73	176465	574.31
	0.14	122643	535.26	163524	713.68
M27	0.10	173668	930.06	231558	840.08
	0.14	161162	787.62	214883	1050.16
M30	0.10	211499	859.24	281999	1145.65
	0.14	196156	1071.73	261541	1428.97

	COEFFICIENT OF FRICTION	10.9		12.9	
		Preload (N)	Tightening torque:(Nm)	Preload (N)	Tightening torque:(Nm)
M3	0.10	3431	1.53	4117	1.84
	0.14	3167	1.88	3800	2.26
M3.5	0.10	4608	2.36	5529	2.84
	0.14	4251	2.89	5101	3.47
M4	0.10	5950	3.52	7140	4.22
	0.14	5487	4.30	6584	5.16
M5	0.10	9736	6.93	11683	8.32
	0.14	8991	8.50	10789	10.20
M6	0.10	13710	11.92	16452	14.30
	0.14	12654	14.59	15184	17.51
M7	0.10	20066	19.60	24079	23.52
	0.14	18561	24.20	22274	29.04
M8	0.10	25164	28.70	30197	34.44
	0.14	23247	35.26	27897	42.31
M10	0.10	40063	56.56	48075	67.87
	0.14	37033	69.64	44440	83.56
M12	0.10	58406	96.83	70087	116.20
	0.14	54011	119.31	64814	143.17
M14	0.10	79847	154.03	95816	184.84
	0.14	73860	190.02	88632	228.03
M16	0.10	110369	239.47	132442	287.36
	0.14	102274	297.58	122729	357.09
M18	0.10	133687	330.41	160424	396.49
	0.14	123711	402.26	148453	489.92
M20	0.10	172232	467.11	206678	560.54
	0.14	159601	580.47	191522	696.56
M22	0.10	214608	639.05	257530	766.85
	0.14	199102	798.16	238923	957.80
M24	0.10	248154	807.63	297784	969.15
	0.14	229955	1003.61	275946	1204.33
M27	0.10	325628	1181.36	390753	1417.63
	0.14	302179	1476.79	362615	1772.15
M30	0.10	396561	1611.08	475873	1933.29
	0.14	367792	2009.49	441351	2411.39

Local Dealers can supply original spare parts as well as advice and instructions for their installation and use.

Use only original spare parts when they are required.

The use of non-original spare parts may cause damage to other parts of the vehicle. Customers are advised to purchase all original spare parts required only from an authorised Agent or Dealer.

DIECI s.r.l. does not consider itself liable for damage deriving from the use of non-original spare parts.

## 12.1 Spare parts supply

DIECI s.r.l. guarantees the supply of original spare parts or alternatives for 10 years from the date of the last model produced of the series concerned.

## 12.2 Assistance to owner / operator

In order to obtain a good service from your Dealer, please obtain these fundamental data before contacting the service centre:

Specify your name, address and telephone number.

Indicate the model and serial number of the vehicle chassis.

Indicate the date of purchase and the hours of operation.

Explain the nature of the fault.

Note that only DIECI Dealers can access the resources at DIECI site for customer service. Moreover, they are able to offer a variety of programs with regard to warranty, maintenance at a fixed price, safety checks, including tests

## 12.3 Technical Assistance Service address

Dieci Technical Assistance Service

Via E. Majorana, 2/4

42027 Montecchio Emilia (RE) ITALY

Tel. +39 0522 869611

Fax +39 0522 869744

service@dieci.com



## WARNING

The interventions for the elimination of faults can only be carried out by trained personnel.

Do not work on failures if the "Safety regulations", "Safe Working Procedures" and "MAINTENANCE" have not been read and understood before.



This symbol indicates that the trouble experienced may NOT be resolved without the intervention of a authorized DIECI Service workshop

## 13.1 Engine

PROBLEM	CAUSE	SOLUTION
It does not set in motion	Direction of travel lever engaged	Place the lever in neutral
	Parking brake deactivated	Activate it
	No fuel	Fill the tank
	Battery isolation switch disconnected	Connect the battery isolation switch
	Low Battery	Recharge the battery or replace it
	Fuse failure	Replace the fuse
	Other	Refer to the User and Maintenance manual of the engine



## 13.2 Hydraulic transmission system

PROBLEM	CAUSE	SOLUTION
The vehicle does not move in any direction of travel	Insufficient hydraulic oil level	Check the hydraulic oil level
	Hand throttle engaged	Disengage the hand throttle
	The sensor built-in the seat does not report the presence of the operator	Sit properly at the driver's seat
	The movement selection lever is not engaged	Engage the lever to the desired position
	The outriggers are lowered (if installed)	Raise all outriggers fully up
	Parking brake in operation	Disengage the brake
	Electrical circuit failure	Repair the circuit
	Hydrostatic transmission failure	Repair or replace the transmission
The vehicle loses speed	The transmission ByPass tap has been opened (if installed)	Close the ByPass tap
	Hydraulic oil intake filter clogged	Remove the oil filter and replace it
The vehicle loses speed	Inching pedal failure	Check the correct operation of the pedal and of the valve





## 13.3 Brakes




PROBLEM	CAUSE	SOLUTION
The vehicle does not brake	Lack of oil in the oil - brakes tank	Refill the tank and / or Purge the system
	Loss of fluid from the circuit	Check for leaks
	Brake discs worn	Replace the brake discs
	Brake master cylinder failure	Repair or replace
	Unsuitable fluid in the circuit or in the differential sump	Check the brake oil specifications indicated



## 13.4 Steering wheel

PROBLEM	CAUSE	SOLUTION	
The vehicle runs sideways The wheels are not aligned	The wheels are not correctly aligned	Align them	
	Steering selection error	Put back the lever in a different steering mode	
	Control distributor failure	Repair or replace the distributor	
	Leakage from the steering wheel hydraulic cylinders	Replace the gaskets	

## 13.5 Telescopic boom

PROBLEM	CAUSE	SOLUTION	
The vehicle does not lift the load	They safety systems have activated	See the "Anti-tipping device" chapter	
	Electrical system failure	Check the fuses and electrical system	
	Hydraulic oil level in the tank insufficient	Top up	
	Relative hydraulic pump failure	Repair or replace the pump	
	Distributor low calibration	Check and re-calibrate the distributor	
	Lifting cylinders internal leak	Replace the gaskets	
The boom does not extend	"The safety systems have been activated (Indicator light and audible alarm in operation)"	See the "Anti-tipping device" chapter	
The boom does not come down	"The safety systems have been activated (Indicator light and audible alarm in operation)"	See the "Anti-tipping device" chapter	

## 14.1 DYNAMIC vehicle error list

### 14.1.1 Sensor

				ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD	
Device	Code	Root cause	Description	Component			
Levelness sensor	520192	2	Plausibility error	Error communicated by the device concerning the reading of the length or Error communicated by the device concerning the breakage of cable Length plausibility error	X616	X616	X616
		9	Rx CAN overflow malformed PDO CAN Timeout/Overrun	Communication problem on the can bus	X616	X616	X616
		13	Out of calibration	Signals higher than the maximum value or lower than the minimum value	X616	X616	X616
		31	Generic error	Other kind of error communicated by the device	X616	X616	X616
Boom coil sensor	520193	2	Plausibility error	Error communicated by the device concerning the reading of the length or Error communicated by the device concerning the breakage of cable Length plausibility error	X619	X619	X619
		9	Rx CAN overflow malformed PDO CAN Timeout/Overrun	Communication problem on the can bus	X619	X619	X619
		13	Out of calibration	Signals higher than the maximum value or lower than the minimum value	X619	X619	X619
		31	Generic error	Other kind of error communicated by the device	X619	X619	X619
Seat	520194	2	Plausibility error	Plausibility error of NO/NC contacts	X152	X152	X152
		7	Inconsistency of signal	Inconsistency of switch to detect seat position	X152	X152	X152
Load cell	520195	2	Plausibility error	Strain gauge plausibility error Strain gauge not working	X559	X559	X559
		9	CAN Timeout/Overrun	Communication problem on the can bus	X559	X559	X559
		13	Out of calibration	Load cell not calibrated or Signals higher than the maximum value or lower than the minimum value Power supply out of range	X559	X559	X559
		31	Parameter setting	-	X559	X559	X559
Fan drive	520196	-	-	-	X831s	X831s	X831s
Fuel tank	520197	-	-	-	X512	X512	X512
Parking brake	520198	-	-	-	X121	X121	X121
Multiple inlet	520199	2	Plausibility error	Micro boom close plausibility error	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Tool angle sensor	520200	2	Plausibility error	Error communicated by the device concerning the reading of the Hall sensor or Angle plausibility error	-	-	-
		9	Rx CAN overflow malformed PDO CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		13	Out of calibration	Signals higher than the maximum value or lower than the minimum value	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
Boom angle sensor	520201	2	Plausibility error	Error communicated by the device concerning the reading of the Hall sensor or Angle plausibility error	-	-	-
		9	Rx CAN overflow malformed PDO CAN Timeout/Overrun	Communication problem on the can bus	x728	x728	x728
		13	Out of calibration	Signals higher than the maximum value or lower than the minimum value	x728	x728	x728
		31	Generic error	Other kind of error communicated by the device	x728	x728	x728
Axle suspension sensor	520202	2	Plausibility error	Error communicated by the device concerning the reading of the Hall sensor or Angle plausibility error	-	-	-
		13	Out of calibration	Signals higher than the maximum value or lower than the minimum value	-	-	-
Axle suspension sensor	520203	2	Plausibility error	Error communicated by the device concerning the reading of the Hall sensor or Angle plausibility error	-	-	-
		13	Out of calibration	Signals higher than the maximum value or lower than the minimum value	-	-	-
RFID sensor	520204	2	Plausibility error	Device hardware error or Reading error Writing error Tag error Buffer overflow	-	-	-
		9	Rx CAN overflow malformed PDO CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
FL outrigger extension sensor	520205	2	Plausibility error	-	-	-	
		13	Out of calibration	Signals higher than the maximum value or lower than the minimum value	-	-	-
FR outrigger extension sensor	520206	2	Plausibility error	Length plausibility error	-	-	-
		13	Out of calibration	Signals higher than the maximum value or lower than the minimum value	-	-	-
RL outrigger extension sensor	520207	2	Plausibility error	Length plausibility error	-	-	-
		13	Out of calibration	Signals higher than the maximum value or lower than the minimum value	-	-	-
RR outrigger extension sensor	520208	2	Plausibility error	Length plausibility error	-	-	-
		13	Out of calibration	Signals higher than the maximum value or lower than the minimum value	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
FL outrigger grounding microswitch	520209	2	Plausibility error	Plausibility error of NO/NC contacts	-	-	-
		7	Inconsistency of signal	Inconsistency of switch to detect outriggers fully up/down	-	-	-
FR outrigger grounding microswitch	520210	2	Plausibility error	Plausibility error of NO/NC contacts	-	-	-
		7	Inconsistency of signal	Inconsistency of switch to detect outriggers fully up/down	-	-	-
RL outrigger grounding microswitch	520211	2	Plausibility error	Plausibility error of NO/NC contacts	-	-	-
		7	Inconsistency of signal	Inconsistency of switch to detect outriggers fully up/down	-	-	-
RR outrigger grounding microswitch	520212	2	Plausibility error	Plausibility error of NO/NC contacts	-	-	-
		7	Inconsistency of signal	Inconsistency of switch to detect outriggers fully up/down	-	-	-
Proximity FL outrigger	520213	-	-	-	-	-	-
Proximity FR outrigger	520214	-	-	-	-	-	-
Proximity RL outrigger	520215	-	-	-	-	-	-
Proximity RR outrigger	520216	-	-	-	-	-	-
Turret angle sensor	520217	2	Plausibility error	Error communicated by the device concerning the reading of the Hall sensor or Angle plausibility error	-	-	-
		9	Rx CAN overflow malformed PDO CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		13	Out of calibration	Signals higher than the maximum value or lower than the minimum value	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
Turret locking sensors	520218	7	Inconsistency of signal	Inconsistency of switch to detect position	-	-	-
Spool position sensor	520219	7	Inconsistency of signals	Inconsistency of spool position signals (spool not in centre in both positions)	-	-	-
Spool position sensor	520220	7	Inconsistency of signals	Inconsistency of spool position signals (spool not in centre in both positions)	-	-	-
Spool position sensor	520221	7	Inconsistency of signals	Inconsistency of spool position signals (spool not in centre in both positions)	-	-	-
Spool position sensor	520222	7	Inconsistency of signals	Inconsistency of spool position signals (spool not in centre in both positions)	-	-	-
LiftCyl1 lower pressure	520223	31	Generic error	Generic error for lower pressure sensor of boom lifting cylinder 1	-	-	-
LiftCyl1 rod pressure	520224	31	Generic error	Generic error for rod side pressure sensor of boom lifting cylinder 1	-	-	-
LiftCyl1 lower pressure	520225	31	Generic error	Generic error for lower pressure sensor of boom lifting cylinder 2	-	-	-
LiftCyl1 rod pressure	520226	31	Generic error	Generic error for rod side pressure sensor of boom lifting cylinder 2	-	-	-
LiftCyl1 lower pressure	520227	31	Generic error	Generic error for lower pressure sensor of bar compensation cylinder 1	-	-	-



					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
LiftCyl1 rod pressure	520228	31	Generic error	Generic error for rod side pressure sensor of bar compensation cylinder 1	-	-	-

## 14.1.2 HMI

				ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD	
Device	Code	Root cause	Description	Component			
Drive pedal	91	2	Plausibility error	Difference between two channel too high	X233	X233	X233
		3	Signal too high	Signal of the pedal too high, out of calibration	X233	X233	X233
		4	Signal too low	Signal of the pedal too low, out of calibration	X233	X233	X233
Inching pedal	520243	2	Plausibility error	Difference between two channel too high	X138	X138	X138
		3	Signal too high	Signal of the pedal too high, out of calibration	X138	X138	X138
		4	Signal too low	Signal of the pedal too low, out of calibration	X138	X138	X138
Brake pedal	521	2	Plausibility error	Difference between two channel too high	X833	X833	X833
		3	Signal too high	Signal of the pedal too high, out of calibration	X833	X833	X833
		4	Signal too low	Signal of the pedal too low, out of calibration	X833	X833	X833
Right joystick	520245	9	CAN Timeout/Overrun	Communication problem on the can bus	X611	X611	X611
		31	Generic error	Other kind of error communicated by the device	X611	X611	X611
Right joystick	2660	2	Plausibility error	Axis 1 out of range signal Axis 2 out of range signal Axis plausibility error	X611	X611	X611
Right joystick	2661	2	Plausibility error	Axis 1 out of range signal Axis 2 out of range signal Axis plausibility error	X611	X611	X611
Right joystick	2685	31	Generic error	Button timeout Button active during ignition	X611	X611	X611
Right joystick	2686	31	Generic error	Button timeout Button active during ignition	X611	X611	X611
Right joystick	2687	31	Generic error	Button timeout Button active during ignition	X611	X611	X611
Right joystick	2688	31	Generic error	Button timeout Button active during ignition	X611	X611	X611
Right joystick	2689	31	Generic error	Button timeout Button active during ignition	X611	X611	X611
Right joystick	2690	31	Generic error	Button timeout Button active during ignition	X611	X611	X611
Right joystick	2696	31	Generic error	Button timeout Button active during ignition	X611	X611	X611
Right joystick	2662	2	Plausibility error	Axis 1 out of range signal Axis 2 out of range signal Axis plausibility error	X611	X611	X611
Right joystick	2663	2	Plausibility error	Axis 1 out of range signal Axis 2 out of range signal Axis plausibility error	X611	X611	X611
Right joystick	2664	2	Plausibility error	Axis 1 out of range signal Axis 2 out of range signal Axis plausibility error	X611	X611	X611
Drive lever	520258	2	Plausibility error	2 or more signals among F/R/N active at the same time - all signals (F/R/N) inactive at the same time	X109	X109	X109
		9	CAN Timeout/Overrun	Communication problem on the can bus	X109	X109	X109
		31	Generic error	Other kind of error communicated by the device	X109	X109	X109

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Steering selector	520259	2	Plausibility error	2 signals among Crab/Circular/Front active at the same time - all signals Crab/Circular/Front inactive at the same time	-	-	-
Mini Joystick SV Rear1	520260	3	Signal too high	Signal of the joystick too high, out of calibration	-	-	-
		4	Signal too low	Signal of the joystick too low, out of calibration	-	-	-
Mini Joystick SV Rear2	520261	3	Signal too high	Signal of the joystick too high, out of calibration	-	-	-
		4	Signal too low	Signal of the joystick too low, out of calibration	-	-	-
Mini Joystick SV Rear3	520262	3	Signal too high	Signal of the joystick too high, out of calibration	-	-	-
		4	Signal too low	Signal of the joystick too low, out of calibration	-	-	-
Knob	520263	9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
Cluster	520264	9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		12	CAN CounterChecksum failed	Cluster is sending a wrong signal over the message MSG_STATUS1	-	-	-
HandThrottle	520265	2	Plausibility error	2 signals among HandThrottle Up/Down active at the same time	X611	X611	X611
Bypass key	520266	2	Plausibility error	2 NO contacts have different status	X146	X146	X146
Keypad1	520267	2	Manufacturer error	Error communicated by the device	X135	X135	X135
		9	CAN Timeout/Overrun	Communication problem on the can bus	X135	X135	X135
		31	Generic error	Other kind of error communicated by the device	X135	X135	X135
Keypad2	520268	2	Manufacturer error	Error communicated by the device	-	-	-
		9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
Parking brake button	520269	2	Plausibility error	NO and NC contacts have same status	X121	X121	X121
Keypad3	520270	2	Manufacturer error	Error communicated by the device	-	-	-
		9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
Keypad4	520271	-	-	-	-	-	-
Keypad5	520272	-	-	-	-	-	-
Cab display	520273	9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		12	CAN CounterChecksum failed	Cluster is sending a wrong signal over the message MSG_STATUS1	-	-	-
RadioControl	520274	2	Manufacturer error	Error communicated by the device	-	-	-
		9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		12	CAN CounterChecksum failed	Device is sending a wrong signal over the messages sent	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Left joystick	520275	9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
Right armrest	520276	9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		12	CAN CounterChecksum failed	Device is sending a wrong signal over the messages sent	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
Light switch lever	520277	2	Manufacturer error	Error communicated by the device	-	-	-
		9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
Outrigger mode selector	520278	7	Inconsistency of signals	Inconsistency of signals used to select manual/automatic mode	-	-	-
LH front mini joystick outrig.	520279	3	Signal too high	Signal of the joystick too high, out of calibration	-	-	-
		4	Signal too low	Signal of the joystick too low, out of calibration	-	-	-
RH front mini joystick outrig.	520280	3	Signal too high	Signal of the joystick too high, out of calibration	-	-	-
		4	Signal too low	Signal of the joystick too low, out of calibration	-	-	-
Encoder speed limiter	520281	3	Signal too high	Signal of the joystick too high, out of calibration	-	-	-
		4	Signal too low	Signal of the joystick too low, out of calibration	-	-	-

14.1.3 Mechanical components

				ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD	
Device	Code	Root cause	Description	Component			
Transmission	520322	9	CAN Timeout/Overrun	Communication problem on the can bus	X82	X82	X82
		12	CAN CounterChecksum failed	The TCU is sending a wrong signal over the messages sent on the can bus (Drv2, Drv4, Snsr2, SwtOutp1, Tra1 ...)	X82	X82	X82
Engine	520323	9	CAN Timeout/Overrun	Communication problem on the can bus	X744/X745	X744/X745	X744/X745
Collector	520324	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
		9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
Collector	520325	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X775	X775	X775
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	X775	X775	X775
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X775	X775	X775
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X775	X775	X775
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X775	X775	X775
		7	Inconsistency of signals	Inconsistency between control and spool feedback	X775	X775	X775
		9	CAN Timeout/Overrun	Communication problem on the can bus	X775	X775	X775
		31	Generic error	Other kind of error communicated by the device	X775	X775	X775
Collector	520326	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X774	X774	X774
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	X774	X774	X774
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X774	X774	X774
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X774	X774	X774
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X774	X774	X774
		7	Inconsistency of signals	Inconsistency between control and spool feedback	X774	X774	X774
		9	CAN Timeout/Overrun	Communication problem on the can bus	X774	X774	X774
		31	Generic error	Other kind of error communicated by the device	X774	X774	X774

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Collector	520327	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X765	X765	X765
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	X765	X765	X765
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X765	X765	X765
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X765	X765	X765
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X765	X765	X765
		7	Inconsistency of signals	Inconsistency between control and spool feedback	X765	X765	X765
		9	CAN Timeout/Overrun	Communication problem on the can bus	X765	X765	X765
		31	Generic error	Other kind of error communicated by the device	X765	X765	X765
Collector	520328	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X766	X766	X766
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	X766	X766	X766
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X766	X766	X766
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X766	X766	X766
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X766	X766	X766
		7	Inconsistency of signals	Inconsistency between control and spool feedback	X766	X766	X766
		9	CAN Timeout/Overrun	Communication problem on the can bus	X766	X766	X766
		31	Generic error	Other kind of error communicated by the device	X766	X766	X766
Collector	520329	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X777	X777	X777
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	X777	X777	X777
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X777	X777	X777
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X777	X777	X777
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X777	X777	X777
		7	Inconsistency of signals	Inconsistency between control and spool feedback	X777	X777	X777
		9	CAN Timeout/Overrun	Communication problem on the can bus	X777	X777	X777
		31	Generic error	Other kind of error communicated by the device	X777	X777	X777

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Collector	520330	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X776	X776	X776
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	X776	X776	X776
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X776	X776	X776
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X776	X776	X776
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X776	X776	X776
		7	Inconsistency of signals	Inconsistency between control and spool feedback	X776	X776	X776
		9	CAN Timeout/Overrun	Communication problem on the can bus	X776	X776	X776
		31	Generic error	Other kind of error communicated by the device	X776	X776	X776
Collector	520331	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X767	X767	X767
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	X767	X767	X767
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X767	X767	X767
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X767	X767	X767
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X767	X767	X767
		7	Inconsistency of signals	Inconsistency between control and spool feedback	X767	X767	X767
		9	CAN Timeout/Overrun	Communication problem on the can bus	X767	X767	X767
		31	Generic error	Other kind of error communicated by the device	X767	X767	X767
Collector	520332	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X768	X768	X768
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	X768	X768	X768
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X768	X768	X768
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X768	X768	X768
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X768	X768	X768
		7	Inconsistency of signals	Inconsistency between control and spool feedback	X768	X768	X768
		9	CAN Timeout/Overrun	Communication problem on the can bus	X768	X768	X768
		31	Generic error	Other kind of error communicated by the device	X768	X768	X768
Instrument	520333	9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		12	CAN counter check failed	TCU is sending a wrong signal over the messages sent on the CAN bus (Drv2, Drv4, Snsr2, SwtOutput1, Tra1 ..)	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Power steering	520334	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
		9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
Power steering	520335	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
		9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
Collector	520336	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
		9	CAN Timeout/Overrun	Communication problem on the can bus	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
	520337	-	-	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle	-	-	-
	520338	-	-	Detected a too different value of the solenoid current, check the solenoid	-	-	-
	520339	-	-	Communication problem on the can bus	-	-	-
	520340	-	-	Detected a short circuit to ground, check the connectors	-	-	-
	520341	-	-	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-



14.1.4 Actuators

				ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Device	Code	Root cause	Description	Component		
Parking brake SV 1	520342	1 Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X228	X228	X228
		3 Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X228	X228	X228
		5 Open circuit	Detected an open circuit over the solenoid, check the connector.	X228	X228	X228
		6 Grounded Circuit	Detected a short circuit to ground, check the connectors	X228	X228	X228
Crab SV	520343	1 Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3 Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5 Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6 Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Circular SV	520344	1 Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3 Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5 Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6 Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Steering wheel stop SV	520345	1 Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3 Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5 Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6 Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Fan drive SV 1	520346	1 Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X829	X829	X829
		2 Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	X829	X829	X829
		3 Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X829	X829	X829
		5 Open circuit	Detected an open circuit over the solenoid, check the connector.	X829	X829	X829
		6 Grounded Circuit	Detected a short circuit to ground, check the connectors	X829	X829	X829
Fan drive reversal SV 1	520347	1 Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X837	X837	X837
		3 Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X837	X837	X837
		5 Open circuit	Detected an open circuit over the solenoid, check the connector.	X837	X837	X837
		6 Grounded Circuit	Detected a short circuit to ground, check the connectors	X837	X837	X837

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Front SV 1	520348	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Front SV 2	520349	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Rear SV 1	520350	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X829	X829	X829
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X829	X829	X829
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X829	X829	X829
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X829	X829	X829
Rear SV 2	520351	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X830	X830	X830
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X830	X830	X830
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X830	X830	X830
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X830	X830	X830
Rear SV 3	520352	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X871	X871	X871
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X871	X871	X871
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X871	X871	X871
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X871	X871	X871
Front/rear pressure relief SV	520353	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Vent fan drive SV 1	520354	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Fan drive SV 2	520355	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Boom suspension SV	520356	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X705	X705	X705
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X705	X705	X705
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X705	X705	X705
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X705	X705	X705
Quick coupling SV	520357	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X952	X952	X952
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X952	X952	X952
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X952	X952	X952
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X952	X952	X952
Forward SV	520358	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X527	X527	X527
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X527	X527	X527
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X527	X527	X527
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X527	X527	X527
Reverse SV	520359	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X528	X528	X528
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X528	X528	X528
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X528	X528	X528
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X528	X528	X528
Reverse steering SV	520360	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected a short circuit to ground, check the connectors	-	-	-
		6	Grounded Circuit	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Swinging SV	520361	1	Negative Value	Detected an open circuit over the solenoid, check the connector.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected a short circuit to ground, check the connectors	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Fan drive reversal SV 2	520362	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Vent fan drive SV 2	520363	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Fan drive SV 3	520364	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Fan drive reversal SV 3	520365	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Vent fan drive SV 3	520366	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Parking brake SV 2	520367	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Electrical contact 1	520368	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Trailer brake SV	520369	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Starter SV	520370	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Axle suspension SV	520371	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Axle suspension SV	520372	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Axle suspension SV	520373	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Axle suspension SV	520374	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Axle suspension SV	520375	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Axle suspension SV	520376	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Axle suspension SV	520377	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Axle suspension SV	520378	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Axle suspension SV	520379	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Inching SV	520380	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Front SV 3	520381	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Front SV 4	520382	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Front SV 5	520383	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Olive shaker SV	520384	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Collector outrigger	520385	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Collector outrigger	520386	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Collector outrigger	520387	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Collector outrigger	520388	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Collector outrigger	520389	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Collector outrigger	520390	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-



					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Collector outrigger	520391	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Collector outrigger	520392	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		2	Tolerance Error	Detected a too different value of the solenoid current, check the solenoid	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Collector outrigger	520393	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X504	X504	X504
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X504	X504	X504
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X504	X504	X504
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X504	X504	X504
Collector outrigger	520394	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X550	X550	X550
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X550	X550	X550
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X550	X550	X550
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X550	X550	X550
Collector outrigger	520395	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X602	X602	X602
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X602	X602	X602
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X602	X602	X602
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X602	X602	X602
Collector outrigger	520396	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	X603	X603	X603
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	X603	X603	X603
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	X603	X603	X603
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	X603	X603	X603

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Collector outrigger	520397	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Collector outrigger	520398	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Collector outrigger	520399	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Collector outrigger	520400	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Collector outrigger	520401	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Gear SV 1	520402	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Gear SV 2	520403	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Front axle lock SV 1	520404	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Front axle lock SV 1	520405	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Front axle lock SV 2	520406	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Front axle lock SV 2	520407	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Rear axle lock SV 1	520408	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Rear axle lock SV 1	520409	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Rear axle lock SV 2	520410	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Rear axle lock SV 2	520411	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
RH levelling SV	520412	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
LH levelling SV	520413	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Venting levelling SV	520414	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
TurretLock SV	520415	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Electrical contact 2	520416	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Electrical contact 3	520417	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Central lock	520418	1	Negative Value	Detected a negative value of the solenoid current, check the connector and the ground reference of the vehicle.	-	-	-
		3	Shorted To Power Supply	Detected a short circuit to the power supply, check the connectors	-	-	-
		5	Open circuit	Detected an open circuit over the solenoid, check the connector.	-	-	-
		6	Grounded Circuit	Detected a short circuit to ground, check the connectors	-	-	-
Lights Control Unit	520419	9	CAN time expired	Communication problem on the can bus	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
HVAC	520420	9	CAN time expired	Communication problem on the can bus	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-

## 14.1.5 Electrical components

				ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD	
Device	Code	Root cause	Description	Component			
VCU	520422	3	Supply Voltage Above Normal	Voltage too high	X670	X670	X670
		4	Supply Voltage Below Normal	Voltage too low	X670	X670	X670
		12	Checksum Failure	Internal Check of the Control Unit failed, change the unit	X670	X670	X670
		14	Cycle Execution Time too high	Execution loop time of the control unit too long. Contact the Technical Office	X670	X670	X670
CAN	520423	10	Overflow	Communication problem over the can bus; too much messages	-	-	-
		12	BusOff	Communication problem over the can bus, check CanHigh and CanLow	-	-	-
		31	Generic error	Communication problem on the can bus	-	-	-
CAN	520424	10	Overflow	Communication problem over the can bus; too much messages	-	-	-
		12	BusOff	Communication problem over the can bus, check CanHigh and CanLow	-	-	-
		31	Generic error	Communication problem on the can bus	-	-	-
CAN	520425	10	Overflow	Communication problem over the can bus; too much messages	-	-	-
		12	BusOff	Communication problem over the can bus, check CanHigh and CanLow	-	-	-
		31	Generic error	Communication problem on the can bus	-	-	-
Redundant VCU	520426	2	Plausibility error	SRDO data plausibility error or VCU1/VCU2 plausibility error (about boom angle/reel/inclinometer sensors)	X670	X670	X670
		9	Rx CAN overflow malformed PDO CAN Timeout/Overrun	Communication problem on the can bus	X670	X670	X670
		12	CAN Counter failed	The redundant VCU is sending a wrong signal over the messages sent on the can bus (SRDO message)	X670	X670	X670
		31	Generic error	Other kind of error communicated by the device	X670	X670	X670
LMS	520427	2	Plausibility error	Tipping alarm signals plausibility error	-	-	-
		9	Rx CAN overflow malformed PDO CAN Timeout	Communication problem on the can bus	-	-	-
		31	Generic error	Other kind of error communicated by the device	-	-	-
TLMT	520428	2	Plausibility error	Incompatibility between digital vehicle limitation (Kiwitron)	X416	X416	X416
		9	CAN Timeout/Overrun	Communication problem on the can bus	X416	X416	X416

					ICARUS 40.14 DYNAMIC GD	ICARUS 45.17 DYNAMIC GD	ICARUS 60.18 DYNAMIC GD
Optional VCU	520429	2	Plausibility error	SRDO data plausibility error	X670	X670	X670
		9	Rx CAN overflow malformed PDO CAN Timeout/Overrun	Communication problem on the can bus	X670	X670	X670
		12	CAN Counter failed	The optional VCU is sending a wrong signal over the messages sent on the can bus (SRDO message)	X670	X670	X670
		31	Generic error	Other kind of error communicated by the device	X670	X670	X670
Attachments system	520430	2	Manufacturer error	Error communicated by the device o overload alarm plausibility fault	ON THE ATTACHMEI	ON THE ATTACHMEI	ON THE ATTACHMENT
		9	Rx CAN overflow malformed PDO CAN Timeout/Overrun	Communication problem on the can bus	ON THE ATTACHMEI	ON THE ATTACHMEI	ON THE ATTACHMENT
		12	CAN Counter failed	The BMS controller is sending a wrong signal over the messages sent on the can bus (TPDO1 message)	ON THE ATTACHMEI	ON THE ATTACHMEI	ON THE ATTACHMENT
		14	Special instruction	ID tool and ID BMS27 are different	ON THE ATTACHMEI	ON THE ATTACHMEI	ON THE ATTACHMENT
		31	Generic error	Other kind of error communicated by the device	ON THE ATTACHMEI	ON THE ATTACHMEI	ON THE ATTACHMENT
CAN	520431	10	Overflow	Communication problem over the can bus; too much messages	-	-	-
		12	BusOff	Communication problem over the can bus, check CanHigh and CanLow	-	-	-
		31	Generic error	Communication problem on the can bus	-	-	-

## 14.2 Basket pre-arrangement error list \*



### NOTE

The Pre-arrangement for man baskets is an optional accessory.

#### Alarms

CODE	DESCRIPTION
1	E2PROM error - Basket Kit Control unit MC2M
2	CRC error - Basket Kit Control unit MC2M
10	E2PROM Error - Sensor ACQ1 ch.A
11	Accelerometer Error 1 - Sensor ACQ1 ch.A
12	Accelerometer Error 2 - Sensor ACQ1 ch.A
13	Watchdog Error - Sensor ACQ1 ch.A
14	CAN communication Time-out Error - Sensor ACQ1 ch.A
15	Error for Boom angle below the minimum value entered in the table - ACQ1 ch.A sensor
16	Error for Boom angle above the maximum value entered in the table - ACQ1 ch.A sensor
20	E2PROM Error - ACQ1 ch.B sensor
21	Accelerometer Error 1 - Sensor ACQ1 ch.B
22	Accelerometer Error 2 - Sensor ACQ1 ch.B
23	Watchdog Error - Sensor ACQ1 ch.B
24	CAN communication Time-out Error - Sensor ACQ1 ch.B
25	Error for Boom angle below the minimum value entered in the table - ACQ1 ch.B sensor
26	Error for Boom angle above the maximum value entered in the table - ACQ1 ch.B sensor
30	Error for Boom extension sensor voltage below the minimum value allowed - ACQ1 ch.A sensor
31	Error for Boom extension sensor voltage above the maximum value allowed - ACQ1 ch.A sensor
32	Error for Boom extension below the minimum value entered in the table - ACQ1 ch.A sensor
33	Error for Boom extension above the maximum value entered in the table - ACQ1 ch.A sensor
34	Error for Boom extension sensor voltage below the minimum value allowed - ACQ1 ch.B sensor
35	Error for Boom extension sensor voltage above the maximum value allowed - ACQ1 ch.B sensor
36	Error for Boom extension below the minimum value entered in the table - ACQ1 ch.B sensor
37	Error for Boom extension above the maximum value entered in the table - ACQ1 ch.B sensor
40	Error for Angle ch.A and Angle ch.B too high Differential - ACQ1 ch.A Sensor
41	Error for Extension Differential ch.A and Angle Extension ch.B too high - ACQ1 ch.A Sensor
42	Outriggers Microswitch Signal Error - inconsistent outriggers microswitch signals
43	Closed boom microswitch signal error - Inconsistent closed boom microswitch signals
44	Error for low boom microswitch signal - Inconsistent low boom (small area) microswitch signals
50	Lifting Directional Error - Inconsistent drive and directional lifting
51	Extension Directional Error - Inconsistent drive and directional extension
52	Tilting Directional Error - Inconsistent drive and directional tilting

53	Services Directional Error - Inconsistent drive and directional services
60	Lifting Signal Error - Cab Joystick
61	Tilting Signal Error - Cab Joystick
62	Extension Signal Error - Cab Joystick
63	Services Signal Error - Cab Joystick
70	Error for Pedal ch.A and Pedal ch.B Differential too high - Accelerator Pedal Sensor
71	Error for Pedal ch.A Signal below the minimum value allowed - Accelerator Pedal Sensor
72	Error for Pedal ch.A Signal above the minimum value allowed - Accelerator Pedal Sensor
73	Error for Pedal ch.B Signal below the minimum value allowed - Accelerator Pedal Sensor
74	Error for Pedal ch.B Signal above the maximum value allowed - Accelerator Pedal Sensor
80	Error for stabilized 15V voltage output - Basket Kit MC2M control unit
81	Error for stabilized 5V voltage output - Basket Kit MC2M control unit

#### Warnings

CODE	DESCRIPTION
1	No deadman consent
2	Movements stop for SARL alarm
3	Movements lock for Winch Overload alarm
5	ACQ angle channels inconsistency
6	ACQ extension channels inconsistency
7	Movement not allowed by the table
8	Lifting slowdown for angle values greater than a certain value
9	Electric movements slowdown for SARL pre-alarm
10	Movement stop for vehicle not stabilized
11	Movement stop for small area working condition
12	Equipment not recognized
13	The enable from Remote control is missing
14	Movement lock for Recover from cab working condition
15	Movement Stop for Danfoss Lifting Directional alarm
16	Movement Stop for Danfoss Lifting Module alarm
17	Movement Stop for Danfoss Extension Module alarm
18	Bypass key use not allowed
20	Movements stop for Forks equipment selected
21	Movements stop for Bucket equipment selected
22	Movements stop for Winch equipment selected
23	Movements stop for Basket equipment selected
24	Movements stop for rear transverse tipping
60	Movements stop for Danfoss Lifting module internal error
61	Movements stop for Danfoss Lifting module Directional error
62	Movements stop for Danfoss Lifting module Tension error
63	Movements stop for Danfoss Extension module internal error
64	Movements stop for Danfoss Extension module Directional error
65	Movements stop for Danfoss Extension module voltage error



CODE	DESCRIPTION
69	Movements stop for Danfoss Services module internal error
70	Movements stop for Danfoss Services module Directional Error
71	Movements stop for Danfoss Services module Voltage Error
72	Movements stop for Danfoss Tilting module internal error
73	Movements stop for Danfoss Tilting module directional error
74	Movements stop for Danfoss Tilting module voltage error
80	Power voltage error
86	Sensors error

Cleaning the vehicle and all its components is fundamental for it to be kept in proper working order.

## 15.1 Vehicle cleaning

Proceed as follows for a correct cleaning process:

- Switch the engine off, remove the ignition key and wait until the various components cool down.
- Wear the suitable protective clothing (gloves, masks, overalls, etc.).
- Do not use flammable liquids, acids or products that may chemically attack the vehicle components.
- Use water to soften dirt that sticks to the surface.
- Ask your DIECI dealer for touch-up paint to repair minor defects in the vehicle bodywork.
- Check that all the safety stickers are present. Replace any that have been lost or removed for cleaning purposes.
- Use a pressure washer to clean the external part of the vehicle and the engine compartment, bearing the following in mind:
  - Make sure the top-up caps (radiator, oil tank, fuel tank, etc.) are correctly closed.
  - Protect the control units and connectors from water infiltrations.
  - Do not operate with a pressure and water temperature that exceeds 100 bar and 80°, respectively.
  - Hold the washer nozzle at a minimum distance of 40 cm from the relative surface.
  - Do not direct the jet at any single point but wash with wide strokes.
  - The inside of the vehicle is delicate and cannot be cleaned with a pressure washer.

### Electrical components

- If a pressurized jet is used, try not to wet the electrical components, such as the alternator and the starter motor.
- If water accidentally falls into the electrical system, it could cause the vehicle to malfunction.
- Do not use water or steam to clean the electrical system, sensors and connectors

### Mechanical Components

- Do not clean the moving elements or hot surfaces, allow all components to cool as a temperature change could damage them.

## 15.2 Glasses cleaning

- The cab windows, lights and wing mirrors must be washed often with soapy water.
- After washing has been completed, dry thoroughly; do not leave any stains or marks which may limit or obstruct the driver's visibility.

## 15.3 Cleaning the cab

- Clean soft upholstery in the cab with a cloth that has been dipped in a solution of water and detergent and then thoroughly wrung.
- The driver's seat and the floor must be cleaned with a vacuum cleaner and/or a stiff brush. If necessary, use a damp cloth to remove any stubborn stains.
- Clean the seat belt with a sponge that has been soaked in hot soapy water, and let it dry on its own.
- Fabric-covered seats must be cleaned with a stiff brush or vacuum cleaner. Plastic seats must be cleaned with a damp cloth.



### WARNING

#### Pay attention to electrical components.

Do not use water jets inside the cab.

Do not use products containing alcohol to clean the interior lining of the cab.

## 15.4 Safety stickers cleaning



### CAUTION

To ensure proper interpretation verify that they are in the correct position and that they are always kept clean.

Clean the safety stickers when they are dirty, covered with mud, concrete or debris.



### WARNING

**It is absolutely forbidden to clean the messages on the vehicle and equipment using solvents or gasoline.**

The labels may become discoloured. The labels in addition to the caution and safety ones must always be treated in the same way.

**CAUTION**

Always check the good condition of the anchors (ropes, chains, wedges, etc...).

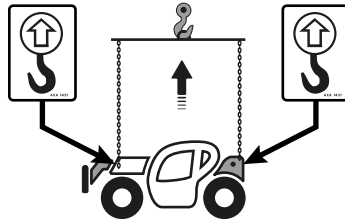
Make sure that the lifting equipment is adequate for the weight of the vehicle to be lifted

**NOTE**

The weight and dimensions of the vehicle are shown in the "Technical data" chapter; check the overall dimensions for the maximum and minimum height values from the ground and the weight allowed.

The vehicle is fitted with lifting points, marked by special symbols.

Attach the ropes at the points indicated in the figure, paying utmost attention during the lifting phases.



Slowly proceed with the lifting.

**DANGER**

Before lifting the vehicle, make sure no unauthorised personnel are in the surrounding area.

**CAUTION**

Lifting cables with a minimum unit capacity of 6 tons (13220 lb) are required.

Before lifting the vehicle, make sure to:

- Remove any equipment installed on the vehicle.
- Retract and lower the telescopic boom completely.
- Engage the parking brake, place the movement selection lever at "N" and switch off the vehicle.
- Close all windows and the cab door.

**WARNING**

Always check the good condition of the anchors (ropes, chains, wedges, etc...).

**NOTE**

The weight and dimensions of the vehicle are shown in the "Technical data" chapter; check the overall dimensions for the maximum and minimum height values from the ground and the weight allowed

Pay attention to the following when loading the vehicle onto a trailer:

- Before using ramps or trailers to load the vehicle on, remove any mud, ice or oil that could cause accidents.
- Check that the axle and the transport vehicle can withstand the overall weight of the vehicle and any loaded equipment.
- Check the overall dimensions of the vehicle for minimum and maximum heights from the ground and the weight allowed.
- Carefully handle the vehicle onto the transport vehicle.
- Make sure local regulations are observed when transporting the vehicle on public roads.

**DANGER**

When loading or unloading a vehicle from a transport vehicle, there is always the risk of the vehicle overturning sideways; therefore, have another person on the ground to control the operations.



Take the following precautions when loading or unloading a vehicle:

1. 1. Choose solid and level ground.
2. Remove any attachments installed on the vehicle.
3. 3. Lower and fully retract the telescopic boom
4. 4. Use a platform or a ramp.
5. 5. Always select the slowest speed.
6. Load the vehicle on to the transport vehicle, making sure that the ramps are positioned properly and safely.
7. 7. Once the vehicle is in a safe position, switch the engine off and engage the parking brake.
8. Close all windows and the cab door.
9. Anchor the vehicle to the transport vehicle with chains or cables through the relative hooks.
10. 10. Apply wedges to the front and rear wheels of the transport vehicle.

## 18.1 Long period of inactivity

If the vehicle must be stored for a long period of time (over a week), certain precautions must be complied with to protect it:

- Clean the vehicle.
- Lubricate all the lubricators.
- Check the tyres and inflate them to the recommended pressure.
- Clean the fuel system and change the filter cartridges.
- Store any equipment.
- Realign and lower all the mobile parts of the vehicle completely.
- Close and lock all the windows.
- Close and lock the door

## 18.2 Long period of inactivity

If the vehicle must be stored for a long period (more than two months), certain precautions must be complied with to protect it:

- Clean the vehicle.
- Touch up the paint where necessary to prevent rust.
- Lubricate all the lubricators.
- Check whether any parts are worn or damaged and replace them, if necessary.
- Check the tyres and inflate them to the recommended pressure.
- Drain the oil from the engine and replace it with new oil.
- Clean the fuel system and change the filter cartridges.
- Empty the fuel tank as usual and fill it with ten litres of special fuel for prolonged inactivity. Run the engine for ten minutes so the new solution can distribute evenly.
- Store any equipment.
- Use the battery isolation switch to deactivate the electrical circuit.
- Realign and lower all the mobile parts of the vehicle completely.
- Apply a layer of light grease on the uncovered rods of the hydraulic cylinders
- Cover the exhaust opening.
- Close and lock all the windows.
- Close and lock the door.

## 18.3 Restarting the vehicle

Preparing the vehicle after a long period of inactivity:

- Inflate the tyres to the correct pressure.
- Remove the jack stands from under the axles.
- Fill the fuel tank.
- Check the radiator coolant level.
- Check the level of the various oils.
- Fit a fully charged battery.
- Remove the cover of the exhaust pipe.
- Remove the layer of grease on the exposed cylinder rods.
- Start the engine and check that all the controls work properly.
- Let the engine run for a few minutes.
- Verify the efficiency of the braking system.

- Waste material should not be dispersed in the environment but rather disposed of appropriately. Used lubricants, batteries, rags dirty with grease, brake pads etc. should be handed over to specialized companies authorised to dispose of polluting waste.
- Improper waste disposal poses a threat to the environment. The following are potentially dangerous waste: lubricants, fuel, cooling, filters and batteries.
- Do not spill or pour waste onto the ground, into the sewers or into water beds.
- Contact your local authority or collection centres for information on how to recycle or dispose of waste properly

## 19.1 Ecological considerations

A few helpful recommendations are listed below. Learn about current legislation in force in your country.

Ask suppliers for information about lubricating oils, fuels, antifreeze products, detergents, etc., about their effects on people and on the environment as well as information regarding the regulations to be complied with when using, stocking and disposing of such products.

- Do not refill the tanks using unsuitable jerry cans or pressurised combustible fuelling systems as they may cause leaks and loss of significant amounts of liquid.
- Modern lubricating oils contain additives. Do not burn contaminated combustible oils and/or oils used in conventional heating systems.
- Do not burn contaminated combustible oils and/or oils used in conventional heating systems.
- Take care not to spill used engine cooling fluids, engine and transmission lubricating oils, hydraulic oil, brake oil etc. while pouring or draining them. Store them safely and, when it is time, dispose of them in compliance with current legislation or with local facilities.
- Modern antifreeze liquids and their solutions, such as antifreeze and other additives should be replaced every two years. Make sure such liquids are not absorbed by the soil; they should be collected and disposed of appropriately.
- Do not intervene directly with the air conditioning systems (Optional), by opening them. These systems contain gas which must not be released into the atmosphere. Contact your dealer or an expert who has the necessary special equipment and who would, in any case, have to refill the system.
- Immediately repair any leaks or faults in the cooling or engine hydraulic systems.

## 19.2 Protect the environment

It is illegal to pollute sewers, water sources or soil. Use only authorised dumping grounds centres, including the areas designated by the local authorities or workshops equipped with the necessary tools for the disposal of used oils. If in doubt, contact your local authority for relevant instructions.

To demolish the vehicle or the equipment, dismantle all components and keep the different types of materials separated for sending to the relative collection centres.

The following types of materials may be present:

- Ferrous materials (carpentries and mechanical components)
- Plastic materials (gaskets, belts, protections)
- Electric materials (cables, windings and similar)
- Oils and lubricants (hydraulic oil, reduction gear lubricants, lubricating greases)

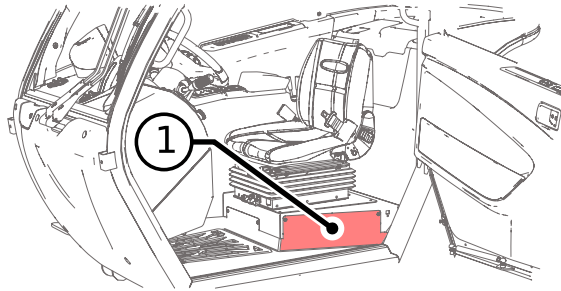
The main circuit is protected by fuses placed in the general electronic board.

To access the fuse box, remove the left plastic part to the side the instrument panel by unscrewing the related screws.  
In case of electrical malfunction it is necessary to check the fuses as a first troubleshooting step.



## WARNING

**Before accessing the fuse box in the cab, set the vehicle in the maintenance position.**





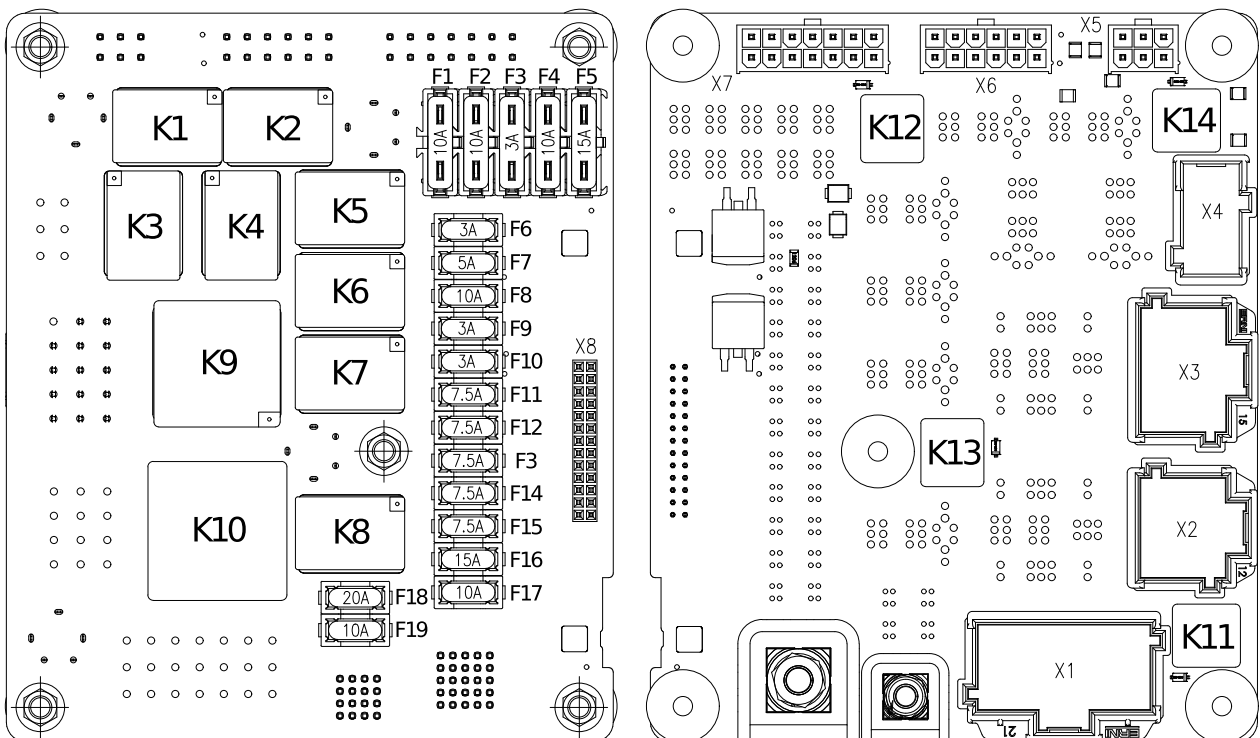
## 21.1 Fuse legend

NAME	FUNCTION
F1	Rear work lights
F2	Front work lights
F3	+30 - Idea instrument power supply
F4	Free
F5	+30 - Heated mirrors/Rear window
F7	Pneumatic braking SV
F8	+30 - Power socket
F9	+30 - Idea instrument
F11	+15 Services - P. brake/Trailer Brake SV
F12	+15 services - Cab controls
F13	+15 services - Int. Lighting
F14	+15 Services - Sensors
F15	+15 Serv. - Levelling
F16	+15 Services - Opt. pneumatic seat
F17	+15 Services - Electrical contact switch
F18	+15 Services - Electric window
F19	+15 Services - Rear SV + Trailer
F20	Liberty Link
F21	+15/54 Key - Radio switch
F22	+15 Key - Alternator
F23	Alternator excitation key
F24	+15/54 Key - Starter Anti-restart/Cab Mushroom-head button
F25	Boom head work light relay
F26	+15 Services - Rotating light switch
F27	+15 Services - SAR control unit
F28	+15 Services - Mirrors/radio adjustment
F29	+15 Services - Front wiper
F30	+15 Services - Perimeter lights
F31	+15 Services - Rear-lateral wipers
F32	+15 Services - Brake lights microswitch
F33	Front RH + Rear LH side lights
F34	Front LH + Rear RH side lights
F35	+30 - Overhead light, radio and light switch, combination light
F36	+30 GPS kit and immobilizer
F37	Reverse gear light/buzzer
F38	Aux pump
F39	Supply Udc1 Danfoss
F40	Low beam lights
F41	+30 - Brake pedal pressure switch
F42	High beam lights
F43	Horn
F44	+30 - Warning

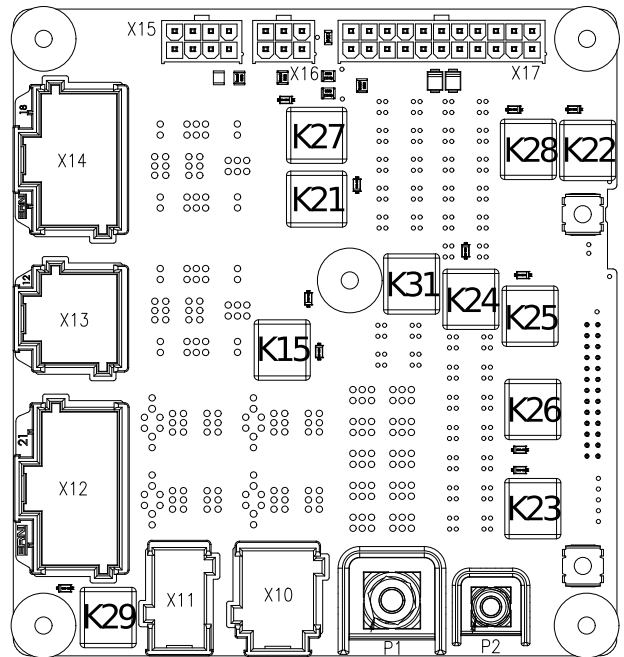
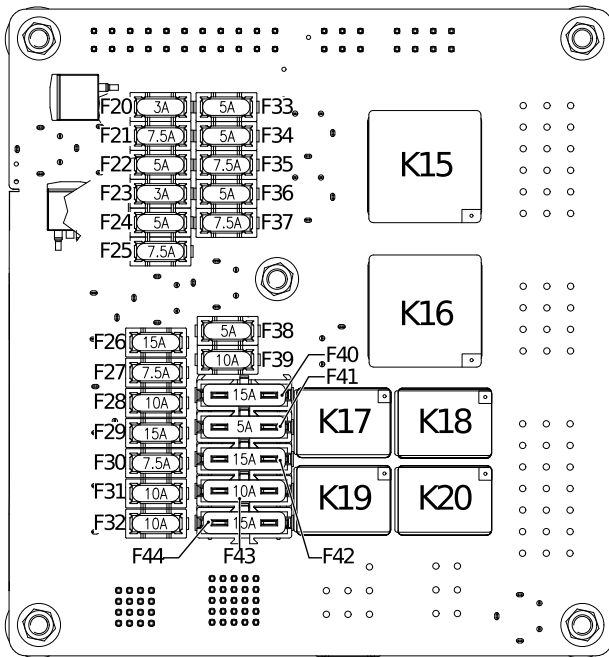
## 21.2 Relay legend

NAME	FUNCTION
K1	Outriggers consent
K2	Front work lights
K3	Mirror heating
K4	Free
K5	Rear work lights
K6	Pneumatic braking
K7	Free
K8	Engine stop
K9	Air conditioning alarm
K10	Start-up enabling
K11	Levelling enable
K12	Fan sensor
K13	Services consent
K14	Heating fan
K15	Free
K16	Free
K17	Anti-tipping warning light
K18	Low beam light
K19	Horn
K20	High beam
K21	Reversing light
K22	Boom work lights
K23	Stop lights
K24	Aux pump
K25	Distributor enabling
K26	HMI check
K27	Free
K28	Parking brake
K29	Levelling enable
K30	Low boom
K31	Free

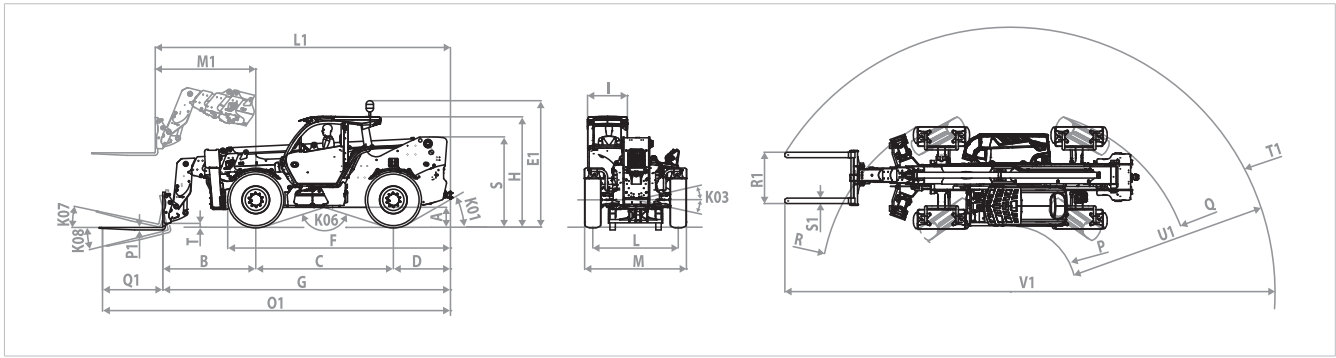
## 21.3 S model control unit



# 21.4 M model control unit



## 22.1 Dimensions



	MFG3523	MFH3701	MFM3901
Vehicle model	ICARUS 40.14 DYNAMIC - GD	ICARUS 45.17 DYNAMIC - GD	ICARUS 60.18 DYNAMIC - GD
Track width	1970 mm (77.6 in)	1970 mm (77.6 in)	2050 mm (80.7 in)
Size (Length x Width x Height)	6200 mm (244.1 in) x 2390 mm (94.1 in) x 2530 mm (99.6 in)	6260 mm (246.5 in) x 2390 mm (94.1 in) x 2530 mm (99.6 in)	6900 mm (271.7 in) x 2440 mm (96.1 in) x 2670 mm (105.1 in)
A	390 mm (15.4 in)	390 mm (15.4 in)	460 mm (18.1 in)
B	1900 mm (74.8 in)	1960 mm (77.1 in)	2230 mm (87.8 in)
C	3050 mm (120.1 in)	3050 mm (120.1 in)	3300 mm (129.9 in)
D	1255 mm (49.4 in)	1255 mm (49.4 in)	1370 mm (53.9 in)
E1	2805 mm (110.4 in)	2805 mm (110.4 in)	2935 mm (115.6 in)
F	4890 mm (192.5 in)	4890 mm (192.5 in)	5350 mm (210.6 in)
G	6200 mm (244.1 in)	6260 mm (246.5 in)	6900 mm (271.7 in)
H	2530 mm (99.6 in)	2530 mm (99.6 in)	2670 mm (105.1 in)
I	960 mm (37.8 in)	960 mm (37.8 in)	960 mm (37.8 in)
L	1970 mm (77.6 in)	1970 mm (77.6 in)	2050 mm (80.7 in)
L1	6340 mm (249.6 in)	6455 mm (254.1 in)	7095 mm (279.3 in)
M	2390 mm (94.1 in)	2390 mm (94.1 in)	2440 mm (96.1 in)
M1	2030 mm (79.9 in)	2030 mm (79.9 in)	2420 mm (95.3 in)
O1	7400 mm (291.3 in)	7465 mm (293.9 in)	8100 mm (318.9 in)
P	1405 mm (55.3 in)	1405 mm (55.3 in)	1250 mm (49.2 in)
P1	50 mm (2.0 in)	50 mm (2.0 in)	60 mm (2.4 in)
Q	4140 mm (163.0 in)	4140 mm (163.0 in)	3970 mm (156.3 in)
Q1	1200 mm (47.2 in)	1200 mm (47.2 in)	1525 mm (60.0 in)
R	4140 mm (163.0 in)	4140 mm (163.0 in)	4160 mm (163.8 in)
R1	1220 mm (48.0 in)	1220 mm (48.0 in)	1230 mm (48.4 in)
S	1800 mm (70.9 in)	1800 mm (70.9 in)	2152 mm (84.7 in)
S1	120 mm (4.7 in)	120 mm (4.7 in)	130 mm (5.1 in)
T	155 mm (6.1 in)	98 mm (3.9 in)	80 mm (3.1 in)
T1	5635 mm (221.9 in)	5675 mm (223.4 in)	5834 mm (229.7 in)
U1	4230 mm (166.5 in)	4275 mm (168.3 in)	4767 mm (187.7 in)
V1	10260 mm (403.9 in)	10360 mm (407.9 in)	10965 mm (431.7 in)
K01	32°	32°	30°
K03	10°	10°	10°
K06	147°	147°	145°
K07	14°	14°	14°
K08	120°	120°	120°

## 22.2 Performance

	MFG3523	MFH3701	MFM3901
Vehicle model	ICARUS 40.14 DYNAMIC - GD	ICARUS 45.17 DYNAMIC - GD	ICARUS 60.18 DYNAMIC - GD
Fork swivelling angle	130°	130°	133°
Pull-out force	9800 daN (22031 lbf)	9800 daN (22031 lbf)	5700 daN (12814 lbf)
Towing force	8560 daN (19244 lbf)	8560 daN (19244 lbf)	9760 daN (21941 lbf)
Maximum climb angle	40%	50%	40%
Outriggers maximum capacity	4000 kg (8818 lb)	4500 kg (9921 lb)	6000 kg (13228 lb)
Wheels maximum capacity	4000 kg (8818 lb)	4500 kg (9921 lb)	6000 kg (13228 lb)
Maximum capacity	4000 kg (8818 lb)	4500 kg (9921 lb)	6000 kg (13228 lb)
Capacity at maximum height on outriggers	2800 kg (6173 lb)	2200 kg (4850 lb)	2300 kg (5071 lb)
Capacity at maximum height on wheels	1600 kg (3527 lb)	1100 kg (2425 lb)	400 kg (882 lb)
Capacity at maximum horizontal extension on outriggers	1400 kg (3086 lb)	700 kg (1543 lb)	900 kg (1984 lb)
Capacity at maximum horizontal extension on wheels	400 kg (882 lb)	300 kg (661 lb)	100 kg (220 lb)
Maximum horizontal extension on outriggers	9.4 m (30.8 ft)	12.5 m (41.0 ft)	13.9 m (45.6 ft)
Maximum horizontal extension on wheels	9.5 m (31.2 ft)	10.4 m (34.1 ft)	11.5 m (37.7 ft)
Maximum lifting height on outriggers	13.4 m (44.0 ft)	16.4 m (53.8 ft)	17.8 m (58.4 ft)
Maximum lifting height on wheels	13.1 m (43.0 ft)	13.2 m (43.3 ft)	17.8 m (58.4 ft)
Forward swivelling	3.3 s	3.3 s	3.3 s
Reverse swivelling	2.1 s	2.1 s	2.1 s
Lowering	8.4 s	10.2 s	9.3 s
Retraction	15.6 s	14.1 s	12.8 s
Extension	21.4 s	21.4 s	19 s
Lifting	12.3 s	14.1 s	13.3 s
Boom type	Telescopic with 2 telescopic sections and boom speed additional device	Telescopic with 3 telescopic sections and boom speed additional device	Telescopic with 3 telescopic sections and boom speed additional device
Max speed (referred to wheels with maximum permitted diameter)	38 km/h (23.6 mph)	38 km/h (23.6 mph)	30 km/h (18.6 mph)
Maximum horizontal extension	9.5 m (31.2 ft)	12.5 m (41.0 ft)	13.9 m (45.6 ft)
Maximum lifting height	13.4 m (44.0 ft)	16.4 m (53.8 ft)	17.8 m (58.4 ft)

## 22.3 Engine

	MFG3523	MFH3701	MFM3901
Vehicle model	ICARUS 40.14 DYNAMIC - GD	ICARUS 45.17 DYNAMIC - GD	ICARUS 60.18 DYNAMIC - GD
Brand	Kubota	Kubota	Kubota
Model	V3800-TIE5	V3800-TIE5	V3800-TIE5
Supply	Diesel	Diesel	Diesel
Displacement	3769 cm <sup>3</sup> (230 in <sup>3</sup> )	3769 cm <sup>3</sup> (230 in <sup>3</sup> )	3769 cm <sup>3</sup> (230 in <sup>3</sup> )
Operation	4-stroke	4-stroke	4-stroke
Cooling system	Liquid	Liquid	Liquid
Nominal power	85.1 kW (114 HP)	85.1 kW (114 HP)	85.1 kW (114 HP)
@rpm	2600 rpm	2600 rpm	2600 rpm
Peak power	85 kW (114 HP)	85 kW (114 HP)	85 kW (114 HP)
@rpm	2600 rpm	2600 rpm	2600 rpm
Number and arrangement of cylinders	4, Vertical in line	4, Vertical in line	4, Vertical in line
Injection	Electronic, Common Rail	Electronic, Common Rail	Electronic, Common Rail
Consumption	215 g/kWh (353.68 lb/Hp h)	215 g/kWh (353.68 lb/Hp h)	215 g/kWh (353.68 lb/Hp h)
@rpm	2600 rpm	2600 rpm	2600 rpm
Maximum torque	379 Nm (280 lbft)	379 Nm (280 lbft)	379 Nm (280 lbft)
@rpm	1500 rpm	1500 rpm	1500 rpm
Intake	Turbocharger after-cooler	Turbocharger after-cooler	Turbocharger after-cooler
Emission standards	Stage V	Stage V	Stage V
Exhaust gas treatment	DOC+DPF+SCR	DOC+DPF+SCR	DOC+DPF+SCR
Air filter	Air pre-heating and air pre-filtering with dust separator	Air pre-heating and air pre-filtering with dust separator	Air pre-heating and air pre-filtering with dust separator
@rpm	2700 rpm	2700 rpm	2700 rpm
Overspeed protection	42 km/h (26.1 mph)	42 km/h (26.1 mph)	36 km/h (22.4 mph)
CO emissions	0.057 g/kWh (0.09 lb/Hp h)	0.057 g/kWh (0.09 lb/Hp h)	0.057 g/kWh (0.09 lb/Hp h)
HC emissions	0.011 g/kWh (0.02 lb/Hp h)	0.011 g/kWh (0.02 lb/Hp h)	0.011 g/kWh (0.02 lb/Hp h)
NOx emissions	0.276 g/kWh (0.45 lb/Hp h)	0.276 g/kWh (0.45 lb/Hp h)	0.276 g/kWh (0.45 lb/Hp h)
Particulate emissions	0.0102 g/kWh (0.02 lb/Hp h)	0.0102 g/kWh (0.02 lb/Hp h)	0.0102 g/kWh (0.02 lb/Hp h)

## 22.4 Weights

	MFG3523	MFH3701	MFM3901
Vehicle model	ICARUS 40.14 DYNAMIC - GD	ICARUS 45.17 DYNAMIC - GD	ICARUS 60.18 DYNAMIC - GD
Maximum mass	14150 kg (31195 lb)	14150 kg (31195 lb)	15450 kg (34061 lb)
Unladen weight	12100 kg (26676 lb)	13000 kg (28660 lb)	14750 kg (32518 lb)
Maximum permitted mass on front axle	7700 kg (16976 lb)	7700 kg (16976 lb)	7850 kg (17306 lb)
Maximum permitted mass on rear axle	7770 kg (17130 lb)	7770 kg (17130 lb)	8300 kg (18298 lb)
Load per wheel	7000 daN (15737 lbf)	7350 daN (16523 lbf)	9050 daN (20345 lbf)
Load per foot	6600 daN (14837 lbf)	7200 daN (16186 lbf)	7241 daN (16278 lbf)

## 22.5 Electrical and hydraulic system

	MFG3523	MFH3701	MFM3901
Vehicle model	ICARUS 40.14 DYNAMIC - GD	ICARUS 45.17 DYNAMIC - GD	ICARUS 60.18 DYNAMIC - GD
Battery	12V - 135 Ah - 950 A cold cranking	12V - 135 Ah - 950 A cold cranking	12V - 135 Ah - 950 cranking A cold
Alternator	12 V	12 V	12 V
Starter motor	12 V - 3 kW	12 V - 3 kW	12 V - 3 kW
Hydraulic pump type	Dual gear pump for power steering and movements	Dual gear pump for power steering and movements	Dual gear pump for power steering and movements
Hydraulic pump capacity	140 l/min (37.0 gal/min)	140 l/min (37.0 gal/min)	140 l/min (37.0 gal/min)

	MFG3523	MFH3701	MFM3901
Max. operating pressure	25 MPa (3626 psi)	25 MPa (3626 psi)	27 MPa (3916 psi)
Distributor control	4 in 1 proportional electric joystick with FNR	4 in 1 proportional electric joystick with FNR	4 in 1 proportional electric joystick with FNR
Boom hydraulic sockets	With flat face quick couplings with continuous oil function.	With flat face quick couplings with continuous oil function.	With flat face quick couplings with continuous oil function.
Rear hydraulic sockets maximum pressure	25 MPa (3626 psi)	25 MPa (3626 psi)	27 MPa (3916 psi)
Outriggers	Two with proportional control and independent from the cab	Two with proportional control and independent from the cab	Two with proportional control and independent from the cab
Distributor type	4in1 full electric	4in1 full electric distributor	4in1 full electric distributor

## 22.6 Transmission

	MFG3523	MFH3701	MFM3901
Vehicle model	ICARUS 40.14 DYNAMIC - GD	ICARUS 45.17 DYNAMIC - GD	ICARUS 60.18 DYNAMIC - GD
Transmission type	Hydrostatic Shift on Fly with electronic control with shifting in motion and ECO function	Hydrostatic Shift on Fly with electronic control with shifting in motion and ECO function	Hydrostatic Shift on Fly with electronic control with shifting in motion and ECO function
Reversal	With electronic control operated with vehicle in motion	With electronic control operated with vehicle in motion	With electronic control operated with vehicle in motion
Transmission gearbox	2-speed electronically controlled servo-controlled "Shift on Fly" gear shifting in motion	2-speed electronically controlled servo-controlled "Shift on Fly" gear shifting in motion	2-speed electronically controlled servo-controlled "Shift on Fly" gear shifting in motion
Inching	With electronic pedal for controlled forward movement	With electronic pedal for controlled forward movement	With electronic pedal for controlled forward movement
Hydraulic motor	Hydrostatic with continuous automatic adjustment	Hydrostatic with continuous automatic adjustment	Hydrostatic with continuous automatic adjustment

## 22.7 Axles

	MFG3523	MFH3701	MFM3901
Vehicle model	ICARUS 40.14 DYNAMIC - GD	ICARUS 45.17 DYNAMIC - GD	ICARUS 60.18 DYNAMIC - GD
Driving axles	Front and rear	Front and rear	Front and rear
Type of axles	2 steering, with 4 epicycloidal reduction gears	2 steering, with 4 epicycloidal reduction gears	2 steering, with 4 epicycloidal reduction gears
Service braking	Oil bath with servo brake on front and rear axle with double hydraulic system	Oil bath with servo brake on front and rear axle with double hydraulic system	Oil bath with servo brake on front axle with double hydraulic system
Parking braking	Negative actuation with electrical control	Negative actuation with electrical control	Negative actuation with electrical control
Front axle	With transverse levelling device with control in the cab	With transverse levelling device with control in the cab	With transverse levelling device with control in the cab
REAR AXLE	Swinging	Swinging	Oscillating with automatic lock
Type of steering	4 wheels / transversal / 2 wheels	4 wheels / transversal / 2 wheels	4 wheels / transversal / 2 wheels

## 22.8 Acoustic pressure

	MFG3523	MFH3701	MFM3901
Vehicle model	ICARUS 40.14 DYNAMIC - GD	ICARUS 45.17 DYNAMIC - GD	ICARUS 60.18 DYNAMIC - GD
Acoustic pressure: Reference standard perceived by the operator	UNI EN 12053:2008	UNI EN 12053:2008	UNI EN 12053:2008
Acoustic pressure: Value perceived by the operator with closed cab	71.6 dB(A)	71.6 dB(A)	72.4 dB(A)
Acoustic pressure: Reference standard for stopped and running vehicle	Directive 2009/63/EC	Directive 2009/63/EC	Directive 2009/63/EC
Acoustic pressure: Value with stopped vehicle	-	-	81.5 dB(A)

## 22.9 Acoustic power

	MFG3523	MFH3701	MFM3901
Vehicle model	ICARUS 40.14 DYNAMIC - GD	ICARUS 45.17 DYNAMIC - GD	ICARUS 60.18 DYNAMIC - GD
Acoustic power: Reference standard	Directive 2000/14/EC	Directive 2000/14/EC	Directive 2000/14/EC
Acoustic power: Guaranteed value	106 dB(A)	106 dB(A)	106 dB(A)
Acoustic power: Measured value	105 dB(A)	105 dB(A)	105 dB(A)

## 22.10 Vibration

	MFG3523	MFH3701	MFM3901
Vehicle model	ICARUS 40.14 DYNAMIC - GD	ICARUS 45.17 DYNAMIC - GD	ICARUS 60.18 DYNAMIC - GD
Reference standard for seat vibrations	UNI EN 13059	UNI EN 13059	UNI EN 13059
Value for seat vibrations	0.88 m/s <sup>2</sup> (2.9 ft/s <sup>2</sup> )	0.88 m/s <sup>2</sup> (2.9 ft/s <sup>2</sup> )	0.66 m/s <sup>2</sup> (2.2 ft/s <sup>2</sup> )
Uncertainty for seat vibrations value	0.26 m/s <sup>2</sup> (0.9 ft/s <sup>2</sup> )	0.26 m/s <sup>2</sup> (0.9 ft/s <sup>2</sup> )	0.2 m/s <sup>2</sup> (0.7 ft/s <sup>2</sup> )
Reference standard for steering wheel vibrations	EN 1032	EN 1032	EN 1032
Value for steering wheel vibrations	1.56 m/s <sup>2</sup> (5.1 ft/s <sup>2</sup> )	1.56 m/s <sup>2</sup> (5.1 ft/s <sup>2</sup> )	1.05 m/s <sup>2</sup> (3.4 ft/s <sup>2</sup> )
Uncertainty for steering wheel vibrations value	0.47 m/s <sup>2</sup> (1.5 ft/s <sup>2</sup> )	0.47 m/s <sup>2</sup> (1.5 ft/s <sup>2</sup> )	0.32 m/s <sup>2</sup> (1.0 ft/s <sup>2</sup> )



## 22.11 Tyre data

	MFG3523	MFH3701	MFM3901
Vehicle model	ICARUS 40.14 DYNAMIC - GD	ICARUS 45.17 DYNAMIC - GD	ICARUS 60.18 DYNAMIC - GD
Standard tires	400/70-24"	400/70-24"	440/80-24"
Optional tires	18-22.5 (445/65 R 22.5)	18-22.5 (445/65 R 22.5)	440/80-24"



### CAUTION

**Take precautions before operating on the tires pressure.**

Refer to the Tyre chapter

**Icarus**  
DOCID0000864

						(bar)	(psi)
AID0721	Mitas	18-22,5 (445/65 R 22.5)		AR-01	169F	<b>8,0</b>	116
AID0723	Mitas	16/70-24 (405/70-24)		MPT-04	151D	<b>4,0</b>	58
AID0731	Michelin	400/70-24 (16/70-24)		POWER-CL	158A8	<b>5,0</b>	73
AID0759	Mitas	18-22,5 (445/65 R 22.5)		MPT-06	163A8	<b>4,5</b>	65
AID0715	Mitas	18-22,5 (445/65 R 22.5)		AR-01	169F	<b>8,0</b>	116
AID0717	Mitas	16/70-24 (405/70-24)		MPT-04	151D	<b>4,0</b>	58
AID0719	Mitas	16/70-20 (405/70-20)		MPT-04	148D	<b>3,5</b>	51
AID0725	Mitas	18-22,5 (445/65 R 22.5)		MPT-06	163A8	<b>4,5</b>	65
AID0727	Michelin	400/70-24 (16/70-24)		POWER-CL	158A8	<b>5,0</b>	73
AID0729	Michelin	16/70-20 (405/70-20)		POWER-CL	149A8 149B	<b>4,0</b>	58
AID4383	Michelin	400/70-24 (16/70-24)		POWER-CL	158A8	<b>5,0</b>	73

## 22.12 Filling

	MFG3523	MFH3701	MFM3901
Vehicle model	ICARUS 40.14 DYNAMIC - GD	ICARUS 45.17 DYNAMIC - GD	ICARUS 60.18 DYNAMIC - GD
Engine oil specifications	DIECI ENGINE EVOLUTION TIR4 SAE 15W/40; (< -20°C / -4°F) DIECI ENGINE EVOLUTION TIR4 SAE 10W-30	DIECI ENGINE EVOLUTION TIR4 SAE 15W/40; (< -20°C / -4°F) DIECI ENGINE EVOLUTION TIR4 SAE 10W-30	DIECI ENGINE EVOLUTION TIR4 SAE 15W/40; (< -20°C / -4°F) DIECI ENGINE EVOLUTION TIR4 SAE 10W-30
Engine oil quantity	13.2 l (3.49 gal)	13.2 l (3.49 gal)	13.2 l (3.49 gal)
Front axle oil specifications	DIECI GEAR EP/E LS 85W-90 API GL-5, MIL-L-2105D; (-20°C / < -4°F) DIECI SPECIAL LS SYNT AXEL OIL 75W-90	DIECI GEAR EP/E LS 85W-90 API GL-5, MIL-L-2105D; (-20°C / < -4°F) DIECI SPECIAL LS SYNT AXEL OIL 75W-90	DIECI GEAR EP/E LS 85W-90 API GL-5, MIL-L-2105D; (-20°C / < -4°F) DIECI SPECIAL LS SYNT AXEL OIL 75W-90
Front axle oil quantity	7.3 l (1.93 gal)	7.2 l (1.90 gal)	13.5 l (3.57 gal)
Front reduction gear oil specifications	DIECI AXEL OIL 100; (-20°C / < -4°F) DIECI SPECIAL LS SYNT AXEL OIL 75W-90	DIECI AXEL OIL 100; (-20°C / < -4°F) DIECI SPECIAL LS SYNT AXEL OIL 75W-90	DIECI AXEL OIL 100; (-20°C / < -4°F) DIECI SPECIAL LS SYNT AXEL OIL 75W-90
Front reduction gears oil quantity	0.8 l (0.21 gal)	2.1 l (0.55 gal)	1.9 l (0.50 gal)
Rear axle oil specifications	DIECI GEAR EP/E LS 85W-90 API GL-5, MIL-L-2105D; (-20°C / < -4°F) DIECI SPECIAL LS SYNT AXEL OIL 75W-90	DIECI GEAR EP/E LS 85W-90 API GL-5, MIL-L-2105D; (-20°C / < -4°F) DIECI SPECIAL LS SYNT AXEL OIL 75W-90	DIECI GEAR EP/E LS 85W-90 API GL-5, MIL-L-2105D; (-20°C / < -4°F) DIECI SPECIAL LS SYNT AXEL OIL 75W-90
Rear axle oil quantity	7.4 l (1.95 gal)	7.4 l (1.95 gal)	13.2 l (3.49 gal)
Rear reduction gear oil specifications	DIECI AXEL OIL 100; (-20°C / < -4°F) DIECI SPECIAL LS SYNT AXEL OIL 75W-90	DIECI AXEL OIL 100; (-20°C / < -4°F) DIECI SPECIAL LS SYNT AXEL OIL 75W-90	DIECI AXEL OIL 100; (-20°C / < -4°F) DIECI SPECIAL LS SYNT AXEL OIL 75W-90
Rear reduction gears oil quantity	0.8 l (0.21 gal)	2.1 l (0.55 gal)	1.9 l (0.50 gal)
Transmission gearbox oil specifications	SAE 85W90, API GL4 - SAE 85W90, API GL5	SAE 85W90, API GL4 - SAE 85W90, API GL5	SAE 85W90, API GL4 - SAE 85W90, API GL5
Transmission gearbox oil quantity	1.8 l (0.48 gal)	1.8 l (0.48 gal)	1.8 l (0.48 gal)
Air conditioning refrigerant specifications	R134A	R134A	R134A
Air conditioning refrigerant quantity	1.3 kg (3 lb)	1.3 kg (3 lb)	1.3 kg (3 lb)
Grease specifications	DIECI BLUE GREASE EP	DIECI BLUE GREASE EP	DIECI BLUE GREASE EP
Grease quantity	4 kg (9 lb)	4 kg (9 lb)	4 kg (9 lb)
Braking circuit oil specifications	DIECI MTF III FLUID	DIECI MTF III FLUID	DIECI MTF III FLUID
Braking circuit oil quantity	1.2 l (0.32 gal)	1.2 l (0.32 gal)	1.2 l (0.32 gal)
Hydraulic oil type	DIECI Hydro Telehandler Fluid ISO46	DIECI Hydro Telehandler Fluid ISO46	DIECI Hydro Telehandler Fluid ISO46
Hydraulic system (total)	174 l (45.97 gal)	174 l (45.97 gal)	190 l (50.19 gal)
Coolant specifications	DIECI OAT ORANGE COOLANT READY	DIECI OAT ORANGE COOLANT READY	DIECI OAT ORANGE COOLANT READY
Coolant quantity	14.5 l (3.83 gal)	14.5 l (3.83 gal)	14.5 l (3.83 gal)
Diesel tank	120 l (31.70 gal)	120 l (31.70 gal)	120 l (31.70 gal)
AdBlue tank	20 l (5.28 gal)	20 l (5.28 gal)	20 l (5.28 gal)

22.12.1 DIECI Hydro Telehandler Fluid ISO46

The sticker shown aside indicates that the hydraulic circuit is filled with hydraulic oil DIECI Hydro Telehandler Fluid ISO46.



Specifications:

ISO 6743-4 HV, Afnor NFE 48-602, ISO 11158, DIN 51524 Part 3 HVLP, Afnor NFE 48-603 HV, ASTM D6158, Denison HF-0 / HF-1 / HF-2, Eaton Vickers I-286-S / M-2950-S, Cincinnati Machine P-68 / P-69 / P-70, Afnor NFE 48-690(dry), Afnor NFE 48-691(wet), U.S. Steel 126 / 127 / 136, JCMAS HK, Bosch variable vane pumps, Rexroth RE 90220, Sauer Danfoss 520L0463, General Motors (LS-2) LH-03-1 / LH-04-1 / LH-06-1, SEB 181222.

Chemical-physical characteristics

PROPERTIES	ANALYSIS METHOD	UNIT OF MEASURE	VALUE
Density at 15°C	ASTM D1298	kg/l	0.88
Viscosity at 40°C	ASTM D445	cSt	46.6
Viscosity at 100°C	ASTM D445	cSt	8.6
Viscosity Index	ASTM D2270	-	165
Kinematic viscosity at 40°C after Sonic Shear	ASTM D445	cSt	41.6
Viscosity Index after Sonic Shear	ASTM D2270	-	144
FZG Failure Load Stage	ASTM D5182	Stage	12
Flash Point (C.O.C.)	ASTM D92	°C	210
Pour point	ASTM D97	°C	-35
Temperature for Brookfield viscosity of 750cP	ASTM D2983	°C	-9

## 22.12.2 DIECI Hydro Telehandler Fluid ISO32

**NOTE**

**Hydraulic oil for cold climates is an optional.**

**Consult your dealer in case of doubts or information on your vehicle.**

The sticker shown aside indicates that the hydraulic circuit is filled with hydraulic oil DIECI Hydro Telehandler Fluid ISO32.



## Specifications:

ISO 6743-4 HV, Afnor NFE 48-602, ISO 11158, DIN 51524 Part 3 HVLP, Afnor NFE 48-603 HV, ASTM D6158, Denison HF-0 / HF-1 / HF-2, Eaton Vickers I-286-S / M-2950-S, Cincinnati Machine P-68 / P-69 / P-70, Afnor NFE 48-690(dry), Afnor NFE 48-691(wet), U.S. Steel 126 / 127 / 136, JCMAS HK, Bosch variable vane pumps, Rexroth RE 90220, Sauer Danfoss 520L0463, General Motors (LS-2) LH-03-1 / LH-04-1 / LH-06-1, SEB 181222.

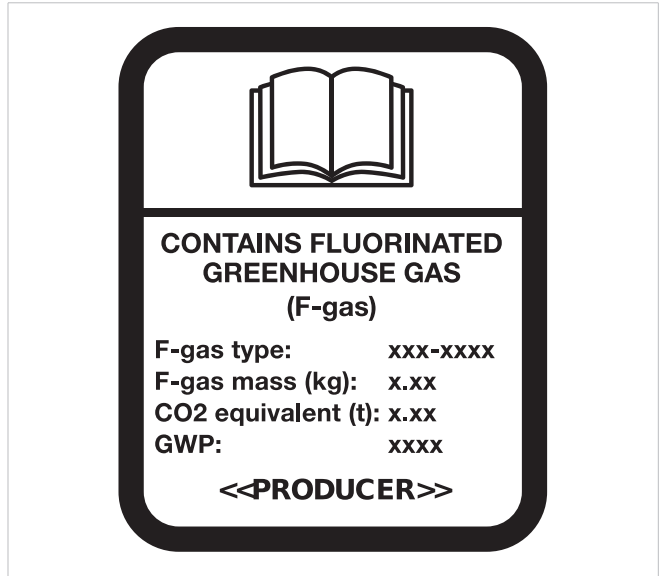
## Chemical-physical characteristics:

PROPERTIES	ANALYSIS METHOD	UNIT OF MEASURE	VALUE
COLOUR	-	-	Green-Blue
Density at 15°C	ASTM D1298	kg/l	0878
Viscosity at 40°C	ASTM D445	cSt	32.4
Viscosity at 100°C	ASTM D445	cSt	6.6
Viscosity Index	ASTM D2270	-	165
Flash Point (C.O.C.)	ASTM D92	°C	205
Pour point	ASTM D97	°C	-37

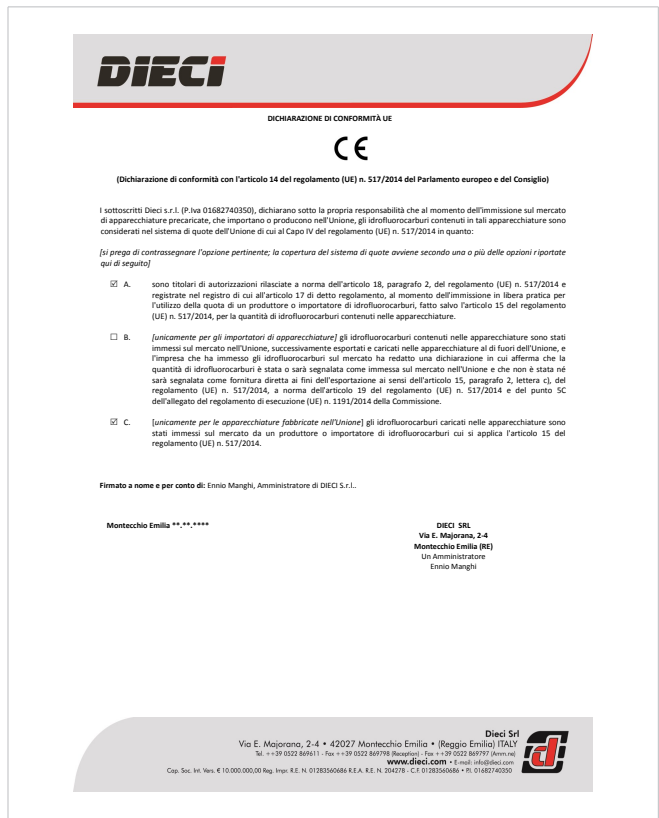
22.12.3 Declaration of conformity for F-Gas

In accordance with Art. 12 of EU Reg.No. 517/2014 concerning the fluorinated gases contained in the air-conditioning system, on the vehicles there are:

- Label indicating the amount of fluorinated gases present.



- Declaration of Conformity (a facsimile is shown on the side)



## 22.13 Equipment and tools compatible for Icarus 40.14 - Dynamic - GD

	PRODUCTION CODE	DESCRIPTION
TFR0007	BUD1077	Pair of floating forks mm 120 x 50 l = 1200, capacity 5.0 t
TCV0007	BCV8045, BCV8279	Fork counterplate (with pins) for use with quick attachment
TFR0002	BUD1051/0G, BUD1185	Pair of fork extensions L = 1900 mm for forks mm 120 x 50
TCV0049	BCV8345	Counterplate complete with forks 120X50X1200 for use with quick coupling
TCV0008	BCV8069	Fork spreader c/w forks mm 120 x 50 l = 1200 and 5 t capacity
TCV0078	BCV8375	Fem 3 counterplate (without forks). Capacity 5.0 t.
TCV0074	BCV8373	Fork spreader/translator c/w forks mm 120 x 50 l = 1200 and 5.0 t capacity (mandatory Fem 3 counterplate)
TCV0083	BCV8383	Floating fork translator complete with pair of forks of mm 120x50 L= 1200 (mandatory Fem 3 counterplate)
TFR0009	BUD1121/0G	Forks counterplate rise (for counterplate tcv0007)
TBN0136	BUB2717	Excavating bucket without teeth, m <sup>3</sup> 1.00 SAE heaped, (width 2.4 m) with protection. Equipment approval for road use.
TBN0104	BUB2717-S	Excavating bucket without teeth, m <sup>3</sup> 1.00 SAE heaped, (width 2.4 m) with bolted blade protector, with protection. Equipment approval for road use.
TBN0105	BUB2718	Excavating bucket with teeth, m <sup>3</sup> 1.00 SAE heaped, (width 2.4 m) with protection. Equipment approval for road use.
TBN0106	BUB2719	Bucket for light materials (max spec. weight 0.8 t/m <sup>3</sup> ) m <sup>3</sup> 1.50 SAE heaped (width 2.4 m) Equipment approved for road use.
TBN0107	BUB2719-S	Bucket for light materials (max spec. weight 0.8 t/m <sup>3</sup> ) m <sup>3</sup> 1.50 SAE heaped (width 2.4 m) with bolted blade protector. Equipment approval for road use.
TBN0108	BUB2720	Bucket for ultralight material (max spec weight 0.5 t/m <sup>3</sup> ) m <sup>3</sup> 2.5 SAE heaped (width 2.4 m)
TBN0109	BUB2720-S	Bucket for ultralight materials (max. spec. weight 0.5 t/m <sup>3</sup> ) m <sup>3</sup> 2.5 SAE heaped (width 2.4 m) with bolted blade protector.
TBN0134	BUB2721	4 in 1 bucket l=2.3 m without teeth and protection
TBN0135	BUB2721-S	4 in 1 bucket l=2.3 m with bolted blade protector and protection

## 22.14 Equipment and tools compatible for Icarus 45.17 - Dynamic - GD

	PRODUCTION CODE	DESCRIPTION
TFR0007	BUD1077	Floating forks mm 120 x 50 L = 1200. Capacity 5.0 t.
TCV0007	BCV8045, BCV8279	Fork counterplate (with pins) for use with quick coupling.
TCV0008	BCV8069	Fork extender complete with pair of forks mm 120 x 50 L = 1200 and 5 t capacity.
TFR0002	BUD1051/0G, BUD1185	Pair of fork extensions L = 1900 mm for forks mm 120 x 50.
TFR0009	BUD1121/0G	Forks counterplate rise (for counterplate TCV0007).
TCV0074	BCV8373	Fork extender/translator complete with a pair of forks mm 120 x 50 L = 1200 and capacity 5.0 t. (mandatory Fem 3 counterplate).
TCV0083	BCV8383	Floating fork translator complete with pair of forks of mm 120X50 L= 1200 (mandatory Fem 3 counterplate).
TCV0049	BCV8345	Counterplate complete with forks 120X50X1200 for use with quick coupling.
TCV0078	BCV8375	Fem 3 counterplate (without forks). Capacity 5.0 t.
TBN0134	BUB2721	4 in 1 bucket l=2.3 m without teeth and protection
TBN0135	BUB2721-S	4 in 1 Bucket L=2.3 m with bolted blade protector and guard.
TBN0136	BUB2717	Excavating bucket without teeth, m <sup>3</sup> 1.00 SAE heaped, (width 2.4 m) with protection. Equipment approval for road use.
TBN0105	BUB2718	Excavating bucket with teeth, m <sup>3</sup> 1.00 SAE heaped, (width 2.4 m) with protection. Equipment approval for road use.
TBN0104	BUB2717-S	Excavating bucket without teeth, m <sup>3</sup> 1.00 SAE heaped, (width 2.4 m) with bolted blade protector, with protection. Equipment approval for road use.
TBN0106	BUB2719	Bucket for light materials (max spec. weight 0.8 t/m <sup>3</sup> ) m <sup>3</sup> 1.50 SAE heaped (width 2.4 m) Equipment approved for road use.
TBN0107	BUB2719-S	Bucket for light materials (max spec. weight 0.8 t/m <sup>3</sup> ) m <sup>3</sup> 1.50 SAE heaped (width 2.4 m) with bolted blade protector. Equipment approval for road use.
TBN0108	BUB2720	Bucket for ultralight material (spec. weight max 0.5 t/m <sup>3</sup> ) 2.5 m <sup>3</sup> SAE heaped (width 2.4 m).
TBN0109	BUB2720-S	Bucket for ultralight materials (max. spec. weight 0.5 t/m <sup>3</sup> ) m <sup>3</sup> 2.5 SAE heaped (width 2.4 m) with bolted blade protector.

## 22.15 Equipment and tools compatible for Icarus 60.18 - Dynamic - GD

	PRODUCTION CODE	DESCRIPTION
TFR0046	BUD1266	Pair of floating forks mm 130 x 60 l = 1200, capacity 6.5 t
TCV0053	BCV8361	Fork spreader c/w forks mm 130 x 60 l = 1200 and 6.5 t capacity
TFR0047	BUD1227	Pair of fork extensions L = 1900 mm for forks mm 130x60
TCV0049	BCV8345	Counterplate complete with forks 120X50X1200 for use with quick coupling
TFR0028	BUD1201	Pair of floating forks (5 x 2.3 L = 60 in) (130 x 60 L=1525 mm)
TFR0029	BUD1202	Pair of floating forks (5 x 2.3 L = 72 in) (130 x 60 L=1830 mm)
TFR0030	BUD1227	Pair of fork extensions L = 95 in (2400 mm) for forks 5 x 2.3 in (130 x 60 mm)
TCV0029	BCV8312	Counterplate 60 in (1525 mm) with forks 5x2.30 L=60" (with pins) for use with quick coupling.
TCV0030	BCV8313	Counterplate 72 in (1830 mm) with forks 5x2.30 L=72" (with pins) for use with quick coupling.
TCV0031	BCV8314	Counterplate 60 in (1525 mm) with forks 5x2.30 l=72" (with pins) for use with quick coupling.
TCV0032	BCV8315	Counterplate 72 in (1830 mm) with forks 5x2.30 l=60" (with pins) for use with quick coupling.
TFR0036	BUD1229	Counterplate guard (60 in)
TFR0034	BUD1231	Fork counterplate guard 72 in for forks
TBN0109	BUB2720-S	Bucket for ultralight materials (max. spec. weight 0.5 t/m <sup>3</sup> ) m <sup>3</sup> 2.5 SAE heaped (width 2.4 m) with bolted blade protector.
TBN0108	BUB2720	Bucket for ultralight material (max spec weight 0.5 t/m <sup>3</sup> ) m <sup>3</sup> 2.5 SAE heaped (width 2.4 m)
TBN0107	BUB2719-S	Bucket for light materials (max spec. weight 0.8 t/m <sup>3</sup> ) m <sup>3</sup> 1.50 SAE heaped (width 2.4 m) with bolted blade protector. Equipment approval for road use.
TBN0106	BUB2719	Bucket for light materials (max spec. weight 0.8 t/m <sup>3</sup> ) m <sup>3</sup> 1.50 SAE heaped (width 2.4 m) Equipment approved for road use.
TBN0105	BUB2718	Excavating bucket with teeth, m <sup>3</sup> 1.00 SAE heaped, (width 2.4 m) with protection. Equipment approval for road use.
TBN0104	BUB2717-S	Excavating bucket without teeth, m <sup>3</sup> 1.00 SAE heaped, (width 2.4 m) with bolted blade protector, with protection. Equipment approval for road use.
TBN0136	BUB2717	Excavating bucket without teeth, m <sup>3</sup> 1.00 SAE heaped, (width 2.4 m) with protection. Equipment approval for road use.
TBN0134	BUB2721	4 in 1 bucket l=2.3 m without teeth and protection
TBN0135	BUB2721-S	4 in 1 bucket l=2.3 m with bolted blade protector and protection



## 22.16 Environmental conditions

Although the vehicle and the equipment can be used in several different situations, however, it is necessary to observe, as a precautionary measure, compliance with minimum standards of operation as specified below:

PARAMETER	ALLOWED VALUES
Operating temperatures	from -20 °C to +40 °C (from -4 °F to 104 °F)
Average daily temperature	+40 °C (< 104 °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)

## 22.17 Electromagnetic Interference

In the case of additional equipment installed by the customer, the user must verify if the installation causes interference of any kind with the tools of the vehicle; if so, the user must correct such interferences.

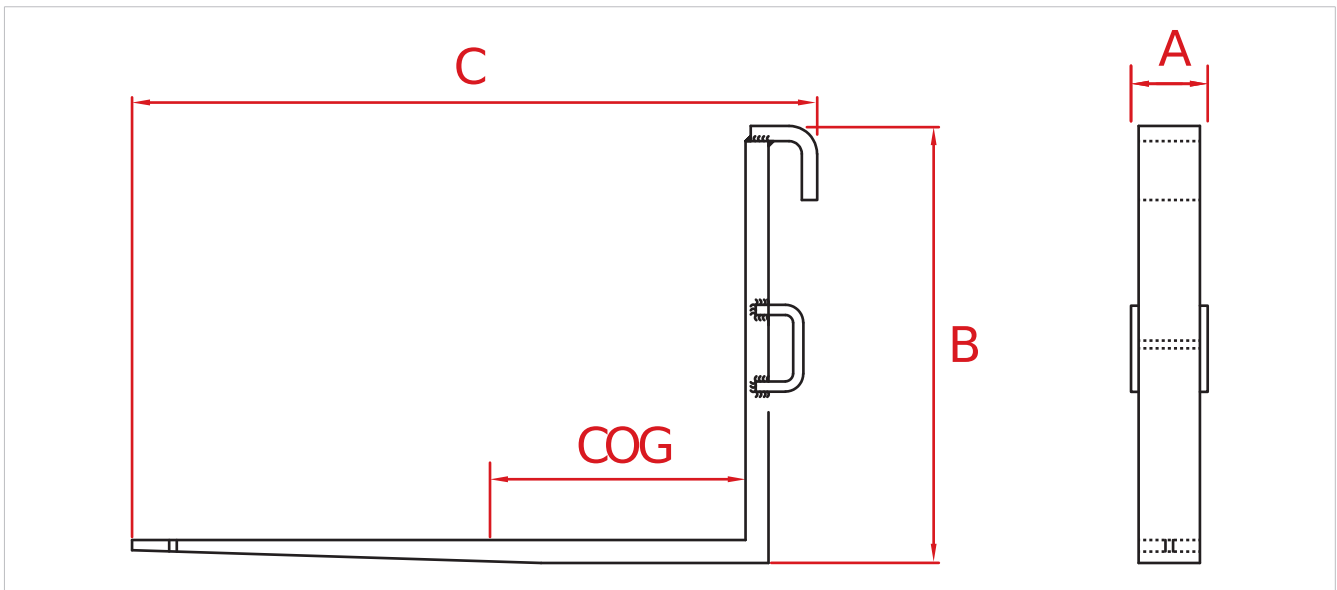
It is essential to pay particular attention to mobile devices such as radio communications (telephones) that must be installed by trained service technicians must use externally mounted antennas.

In general, it should be kept in mind that any additional electrical equipment installed must comply with the regulations in the country of use of the vehicle.

## 22.18 Radiations

The vehicle, in conditions of normal use, does not produce any type of radiation, ionizing and non ionizing, that can cause problems to the operator.

## 22.19 Forks technical data



### 22.19.1 Technical data for ICARUS forks 40.14 - 45.17 DYMANIC - GD

		BCV8373
Price list equipment code		TCV0074
Capacity		5000 kg (11023 lb)
Weight		540 kg (1190 lb)
Width (A)		1350 mm (53.1 in)
Height (B)		916 mm (36.1 in)
Length (C)		1580 mm (62.2 in)
COG		500 mm (19.7 in)
Width section		120 mm (4.7 in)
Height section		50 mm (2.0 in)
Length section		1200 mm (47.2 in)
		BCV8383
Price list equipment code		TCV0083
Capacity		5000 kg (11023 lb)
Weight		510 kg (1124 lb)
Width (A)		1440 mm (56.7 in)
Height (B)		950 mm (37.4 in)
Length (C)		1600 mm (63.0 in)
COG		500 mm (19.7 in)
Width section		120 mm (4.7 in)
Height section		50 mm (2.0 in)
Length section		1200 mm (47.2 in)
		BCV8279
Price list equipment code		TCV0007;TCV0027
Capacity		135 kg (298 lb)
Weight		-
Width (A)		1405 mm (55.3 in)
Height (B)		720 mm (28.3 in)
Length (C)		200 mm (7.9 in)
COG		-
Width section		-
Height section		-
Length section		-
		BCV8345
Price list equipment code		TCV0049
Capacity		5000 kg (11023 lb)

<b>BCV8345</b>	
Weight	260 kg (573 lb)
Width (A)	1300 mm (51.2 in)
Height (B)	920 mm (36.2 in)
Length (C)	1435 mm (56.5 in)
COG	500 mm (19.7 in)
Width section	120 mm (4.7 in)
Height section	50 mm (2.0 in)
Length section	1200 mm (47.2 in)

<b>BCV8375</b>	
Price list equipment code	TCV0078
Capacity	5000 kg (11023 lb)
Weight	320 kg (705 lb)
Width (A)	1320 mm (52.0 in)
Height (B)	805 mm (31.7 in)
Length (C)	1460 mm (57.5 in)
COG	500 mm (19.7 in)
Width section	120 mm (4.7 in)
Height section	50 mm (2.0 in)
Length section	1200 mm (47.2 in)

<b>BUD1121/0G</b>	
Price list equipment code	TFR0009;TFR0045;TFR0048
Capacity	-
Weight	40 kg (88 lb)
Width (A)	1308 mm (51.5 in)
Height (B)	770 mm (30.3 in)
Length (C)	120 mm (4.7 in)
COG	-
Width section	-
Height section	-
Length section	-

<b>BUD1185</b>	
Price list equipment code	TFR0002
Weight	110 kg (243 lb)
Width (A)	154 mm (6.1 in)
Height (B)	70 mm (2.8 in)
Length (C)	1965 mm (77.4 in)

<b>BUD1077</b>	
Price list equipment code	TFR0007
Capacity	4500 kg (9921 lb)
Weight	190 kg (419 lb)
Width (A)	150 mm (5.9 in)
Height (B)	865 mm (34.1 in)
Length (C)	1345 mm (53.0 in)
COG	500 mm (19.7 in)
Width section	120 mm (4.7 in)
Height section	50 mm (2.0 in)
Length section	1200 mm (47.2 in)

## 22.19.2 Technical data for ICARUS forks 60.18 - DYNAMIC - GD

BUD1266	
Price list equipment code	TFR0046
Capacity	6500 kg (14330 lb)
Weight	235 kg (518 lb)
Width (A)	130 mm (5.1 in)
Height (B)	840 mm (33.1 in)
Length (C)	1200 mm (47.2 in)
COG	600 mm (23.6 in)
Width section	130 mm (5.1 in)
Height section	60 mm (2.4 in)
Length section	1200 mm (47.2 in)

BCV8361	
Price list equipment code	TCV0053
Capacity	6000 kg (13228 lb)
Weight	450 kg (992 lb)
Width (A)	1410 mm (55.5 in)
Height (B)	1128 mm (44.4 in)
Length (C)	1500 mm (59.1 in)
COG	600 mm (23.6 in)
Width section	130 mm (5.1 in)
Height section	60 mm (2.4 in)
Length section	1200 mm (47.2 in)

BCV8345	
Price list equipment code	TCV0049
Capacity	5000 kg (11023 lb)
Weight	260 kg (573 lb)
Width (A)	1300 mm (51.2 in)
Height (B)	920 mm (36.2 in)
Length (C)	1435 mm (56.5 in)
COG	500 mm (19.7 in)
Width section	120 mm (4.7 in)
Height section	50 mm (2.0 in)
Length section	1200 (47.2 in)

BUD1201	
Price list equipment code	TFR0028
Capacity	6500 kg (14330 lb)
Weight	280 kg (617 lb)
Width (A)	160 mm (6.3 in)
Height (B)	905 mm (35.6 in)
Length (C)	1660 mm (65.4 in)
COG	600 mm (23.6 in)
Width section	130 mm (5.1 in)
Height section	60 mm (2.4 in)
Length section	1525 mm (60.0 in)

BUD1202	
Price list equipment code	TFR0029
Capacity	6500 kg (14330 lb)
Weight	320 kg (705 lb)
Width (A)	160 mm (6.3 in)
Height (B)	905 mm (35.6 in)
Length (C)	1960 mm (77.2 in)
COG	600 mm (23.6 in)
Width section	130 mm (5.1 in)
Height section	60 mm (2.4 in)
Length section	1830 mm (72.0 in)

BCV8312	
Price list equipment code	TCV0029

BCV8312	
Capacity	4200 kg (9259 lb)
Weight	410 kg (904 lb)
Width (A)	1656 mm (65.2 in)
Height (B)	907 mm (35.7 in)
Length (C)	1836 mm (72.3 in)
COG	500 mm (19.7 in)
Width section	130 mm (5.1 in)
Height section	60 mm (2.4 in)
Length section	1200 mm (47.2 in)

BCV8313	
Price list equipment code	TCV0030
Capacity	4200 kg (9259 lb)
Weight	550 kg (1213 lb)
Width (A)	1656 mm (65.2 in)
Height (B)	907 mm (35.7 in)
Length (C)	1836 mm (72.3 in)
COG	600 mm (23.6 in)
Width section	130 mm (5.1 in)
Height section	60 mm (2.4 in)
Length section	1830 mm (72.0 in)

BCV8314	
Price list equipment code	TCV0031
Capacity	4200 kg (9259 lb)
Weight	435 kg (959 lb)
Width (A)	1656 mm (65.2 in)
Height (B)	907 mm (35.7 in)
Length (C)	1836 mm (72.3 in)
COG	600 mm (23.6 in)
Width section	130 mm (5.1 in)
Height section	60 mm (2.4 in)
Length section	1200 mm (47.2 in)

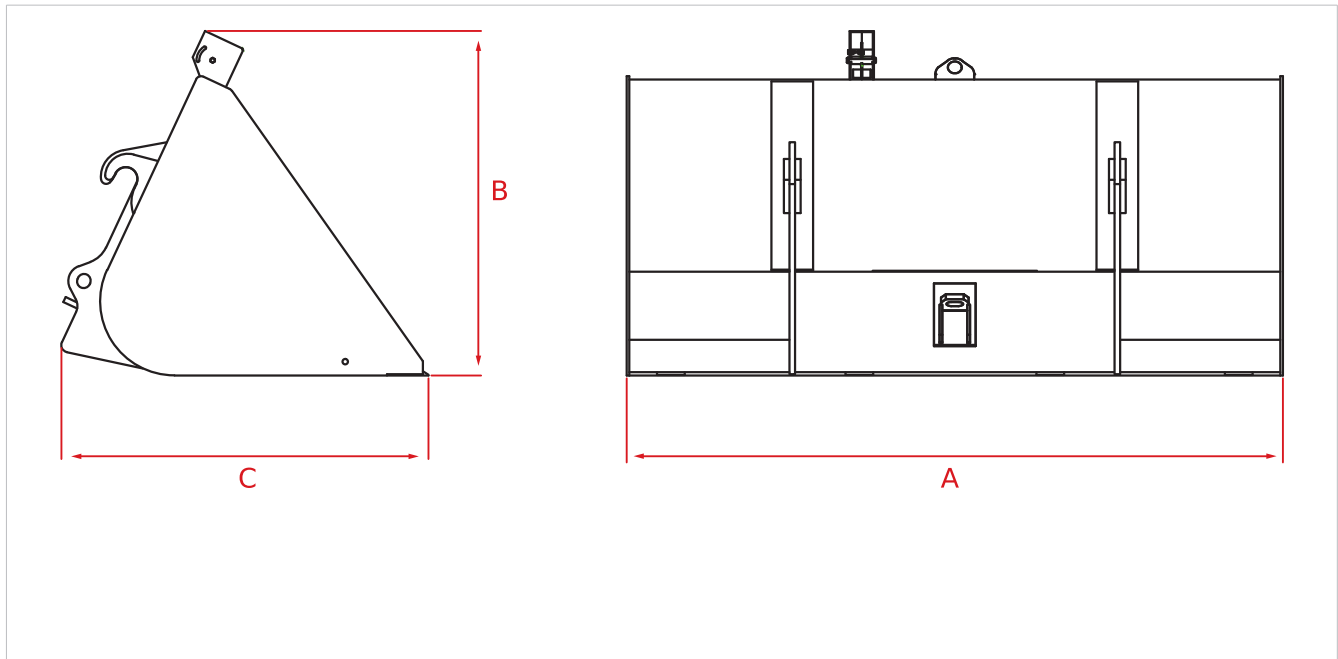
BCV8315	
Price list equipment code	TCV0032
Capacity	6500 kg (14330 lb)
Weight	510 kg (1124 lb)
Width (A)	1656 mm (65.2 in)
Height (B)	907 mm (35.7 in)
Length (C)	1836 mm (72.3 in)
COG	600 mm (23.6 in)
Width section	130 mm (5.1 in)
Height section	60 mm (2.4 in)
Length section	1200 mm (47.2 in)

BUD1229	
Price list equipment code	TFR0036
Capacity	-
Weight	-
Width (A)	1670 mm (65.7 in)
Height (B)	710 mm (28.0 in)
Length (C)	130 mm (5.1 in)
COG	-
Width section	-
Height section	-
Length section	-

BUD1231	
Price list equipment code	TFR0034
Capacity	-
Weight	35 kg (77 lb)
Width (A)	1968 mm (77.5 in)

	BUD1231
Height (B)	710 mm (28.0 in)
Length (C)	130 mm (5.1 in)
COG	-
Width section	-
Height section	-
Length section	-

## 22.20 Buckets technical data



### 22.20.1 Technical data for ICARUS buckets 40.14 - 45.17 - 60.18 DYMANIC - GD

	BUB2717
Price list equipment code	TBN0136;TBN0314
SAE heap capacity	1 m <sup>3</sup> (35 ft <sup>3</sup> )
Struck capacity	0.8 m <sup>3</sup> (28 ft <sup>3</sup> )
Weight	490 kg (1080 lb)
Maximum density	1800 kg/m <sup>3</sup> (112 lb/ft <sup>3</sup> )
Width (A)	2400 mm (94.5 in)
Height (B)	893 mm (35.2 in)
Length (C)	987 mm (38.9 in)

	BUB2717-S
Price list equipment code	TBN0104;TBN0315
SAE heap capacity	1 m <sup>3</sup> (35 ft <sup>3</sup> )
Struck capacity	0.8 m <sup>3</sup> (28 ft <sup>3</sup> )
Weight	560 kg (1235 lb)
Maximum density	1800 kg/m <sup>3</sup> (112 lb/ft <sup>3</sup> )
Width (A)	2400 mm (94.5 in)
Height (B)	893 mm (35.2 in)
Length (C)	987 mm (38.9 in)

	BUB2719
Price list equipment code	TBN0106;TBN0316
SAE heap capacity	1.5 m <sup>3</sup> (53 ft <sup>3</sup> )
Struck capacity	-
Weight	535 kg (1179 lb)
Maximum density	800 kg/m <sup>3</sup> (50 lb/ft <sup>3</sup> )
Width (A)	2400 mm (94.5 in)
Height (B)	950 mm (37.4 in)
Length (C)	1087 mm (42.8 in)

<b>BUB2720</b>	
Price list equipment code	TBN0108
SAE heap capacity	2.5 m <sup>3</sup> (88 ft <sup>3</sup> )
Struck capacity	2.1 m <sup>3</sup> (74 ft <sup>3</sup> )
Weight	675 kg (1488 lb)
Maximum density	500 kg/m <sup>3</sup> (31 lb/ft <sup>3</sup> )
Width (A)	2400 mm (94.5 in)
Height (B)	1150 mm (45.3 in)
Length (C)	1387 mm (54.6 in)

<b>BUB2720-S</b>	
Price list equipment code	TBN0109
SAE heap capacity	2.5 m <sup>3</sup> (88 ft <sup>3</sup> )
Struck capacity	2.1 m <sup>3</sup> (74 ft <sup>3</sup> )
Weight	740 kg (1631 lb)
Maximum density	500 kg/m <sup>3</sup> (31 lb/ft <sup>3</sup> )
Width (A)	2400 mm (94.5 in)
Height (B)	1150 mm (45.3 in)
Length (C)	1387 mm (54.6 in)

<b>BUB2721</b>	
Price list equipment code	TBN0134
SAE heap capacity	1 m <sup>3</sup> (35 ft <sup>3</sup> )
Struck capacity	0.8 m <sup>3</sup> (28 ft <sup>3</sup> )
Weight	660 kg (1455 lb)
Maximum density	800 kg/m <sup>3</sup> (50 lb/ft <sup>3</sup> )
Width (A)	2400 mm (94.5 in)
Height (B)	1210 mm (47.6 in)
Length (C)	1024 mm (40.3 in)

<b>BUB2721-S</b>	
Price list equipment code	TBN0135
SAE heap capacity	1 m <sup>3</sup> (35 ft <sup>3</sup> )
Struck capacity	0.8 m <sup>3</sup> (28 ft <sup>3</sup> )
Weight	725 kg (1598 lb)
Maximum density	800 kg/m <sup>3</sup> (50 lb/ft <sup>3</sup> )
Width (A)	2400 mm (94.5 in)
Height (B)	1210 mm (47.6 in)
Length (C)	1024 mm (40.3 in)

### Operating modes key

Codes have been used in the tables that indicate the vehicle and equipment combination in order to indicate the various operating modes on the vehicle.

OPERATING MODE	ICONS		DESCRIPTION
DIAG_M100		-	Only on wheels
DIAG_M200		-	Front outriggers (2) on wheels
DIAG_M201		-	Front outriggers (2), on feet
DIAG_M300			Flap down outriggers (4), on wheels with front turret (0°)
DIAG_M301			Flap down outriggers (4), on wheels with rotated turret (400°)
DIAG_M302			Flap down outriggers (4), on feet with rotated turret (400°)
DIAG_M400			Crossbeam outriggers (4), on wheels with front turret (0°)
DIAG_M401			Crossbeam outriggers (4), on wheels with rotated turret (0°)
DIAG_M402			Crossbeam outriggers (4), on 100% extended feet and turret in rotation (360°)
DIAG_M403			Crossbeam outriggers (4), on 50% extended feet and turret in rotation (360°)
DIAG_M404			Crossbeam outriggers (4), on 0% extended feet and turret in rotation (360°)
DIAG_M500			Flap down outriggers (4), on wheels with front turret (0°)
DIAG_M501			Flap down outriggers (4), on wheels with rotated turret (360°)
DIAG_M502			Flap down outriggers (4), on feet with front turret (0°)
DIAG_M503			Flap down outriggers (4), on feet with rotated turret (360°)

### How to read the equipment matching tables

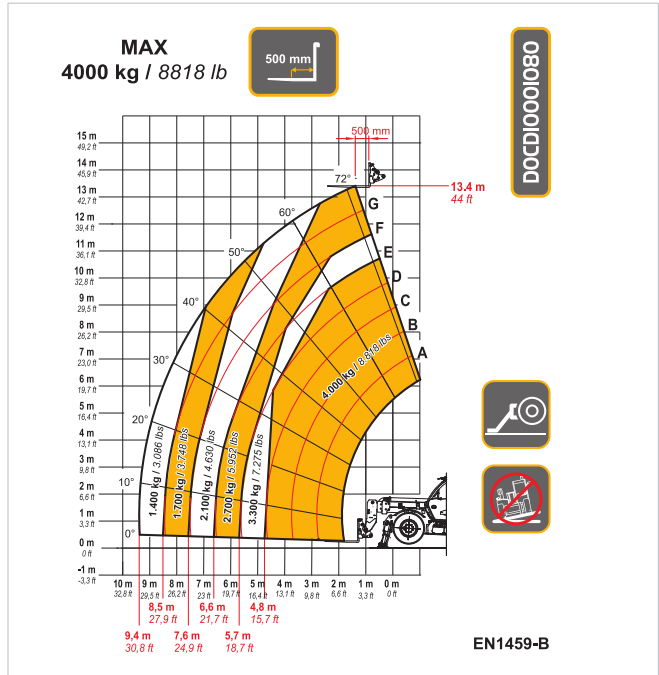
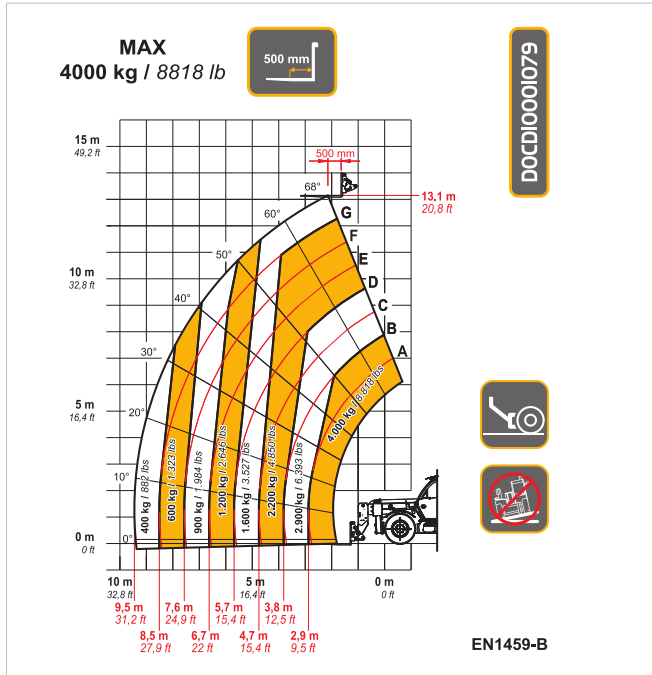
The vehicle and equipment combinations are shown in the following tables and include the following cases:

INDICATION	DESCRIPTION
x	Load chart not necessary for vehicle and equipment use in the specified operating mode.
No	It is not possible to use vehicle and equipment in the specified operating mode.
AXB0000 or DOCDI0000000	Load chart code of the vehicle and equipment in a specific operating mode.
N/D	Load chart not available.



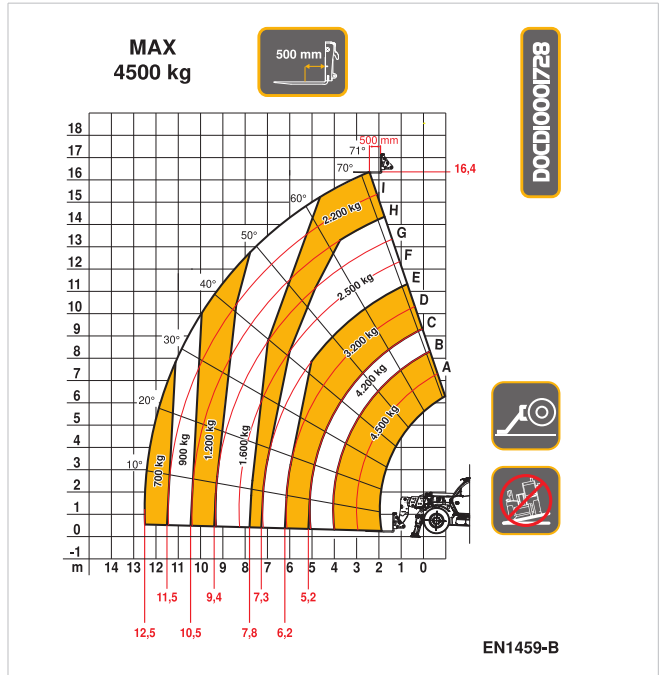
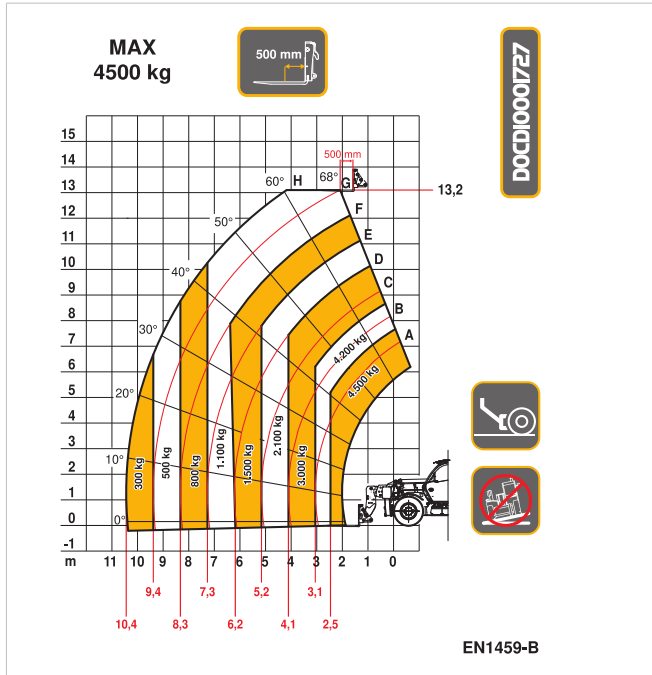
# 23.1 Load charts Icarus 40.14

Vehicle code	MFG3523	
Diagrams code	DOCDI0001079	DOCDI0001080
Vehicle model	Icarus 40.14 GD	
Production equipment code	BUD1077	
Price list equipment code	TFR0007	
Unit of measure	Metric/Imperial	
Operating mode	DIAG_M200	DIAG_M201



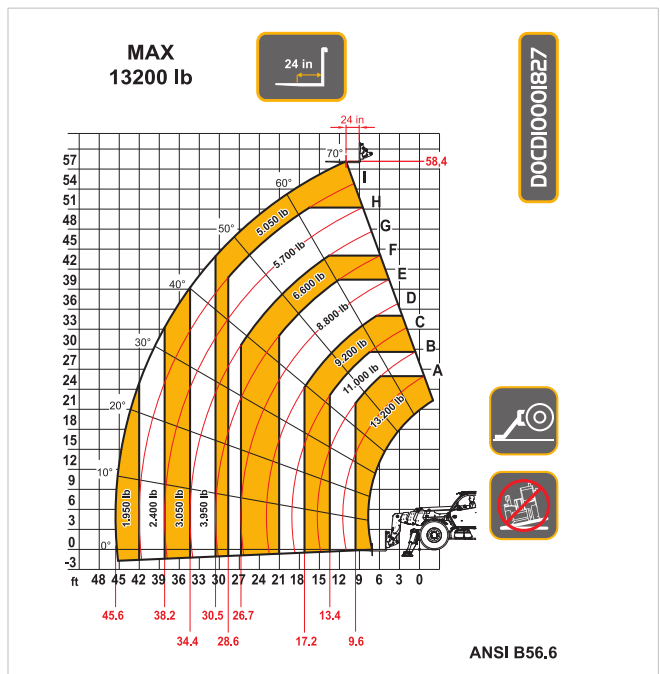
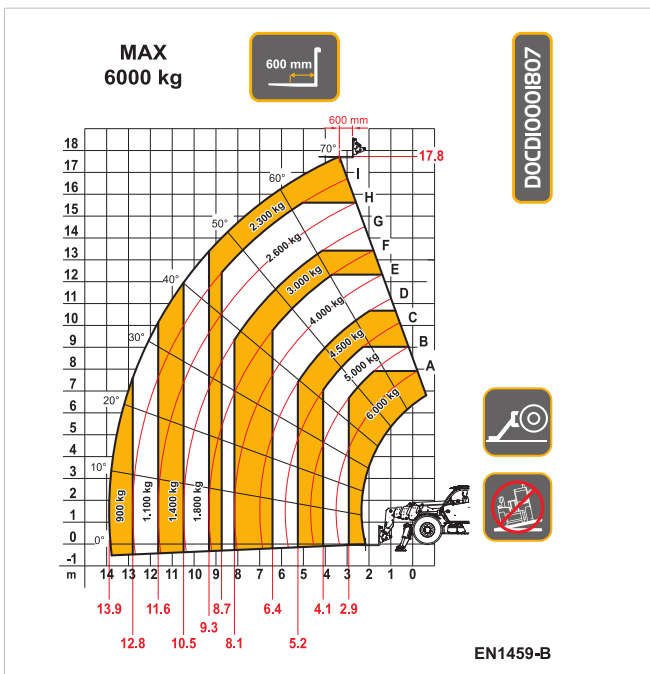
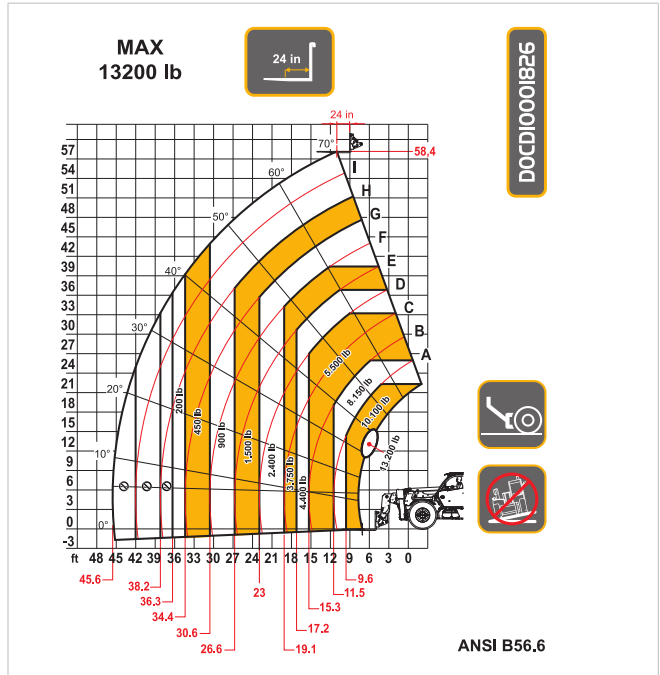
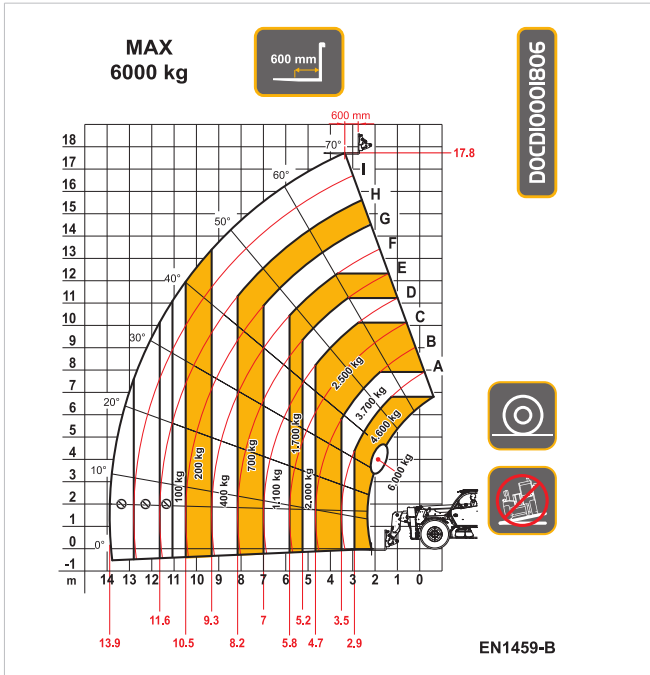
## 23.2 Load charts Icarus 45.17

Vehicle code	MFH3701	
Diagrams code	DOCDI0001727	DOCDI0001728
Vehicle model	Icarus 45.17 GD	
Production equipment code	BUD1077	
Price list equipment code	TFR0007	
Unit of measure	Metric/Imperial	
Operating mode	DIAG_M200	DIAG_M201



## 23.3 Load charts Icarus 60.18

Vehicle code	MFM3901			
Diagrams code	DOCDI0001806	DOCDI0001826	DOCDI0001807	DOCDI0001827
Vehicle model	Icarus 60.18 GD			
Production equipment code	BUD1266			
Price list equipment code	TFR0046			
Unit of measure	Metric	Imperial	Metric	Imperial
Operating mode	DIAG_M200	DIAG_M201	DIAG_M200	DIAG_M201



The Control Log and Maintenance Log are to be considered as integral parts of the vehicle and equipment.

These logs must therefore accompany the vehicle and equipment for their life, to final disposal.

## 24.1 Type of logs

### 24.1.1 Check log

The Check Log records the main checks on the safety devices of the equipment, recommended by Dieci S.R.L. with the related deadlines.

These checks ensure the proper operation of the safety devices.



#### NOTE

The checks specified in the Check Log are in addition to the routine maintenance described in the Maintenance Log.

### 24.1.2 Maintenance log

On the Maintenance Log are recorded all scheduled maintenance with timelines, referred to the use in normal, and not heavy, conditions. Such maintenance intervals allow to keep the vehicle or the equipment in the best efficiency conditions.

The scheduled maintenance intervals frequency must be reduced even to daily, if necessary, in particularly heavy working conditions (humidity, mud, sand, high dust level, etc.).



#### NOTE

Consult the DIECI service centre to establish appropriate timelines when working in particularly heavy environments.

## 24.2 Instructions for compiling the logs

### 24.2.1 Warnings on the Check log

- The log must be prepared in accordance with the requirements imposed by the Essential Safety Requirement 4.4.2.b Annex I of the Machinery Directive 2006/42/EC, in order to preserve evidence of the proper conduct of all the inspection and maintenance activities concerning the vehicle safety.
- In the log, in addition to all the activities relating to the life, use and maintenance of safety systems of the vehicle (replacement of parts, overhauls, breakdowns, etc.) it is necessary to record all the checks required by the regulations in force in the country where the vehicle is used.
- It is also necessary that the name of the verifier technician and date of maintenance are clearly identifiable.
- It is recommended to prepare, update and preserve the check log with care, for the entire life of the vehicle or equipment.



#### NOTE

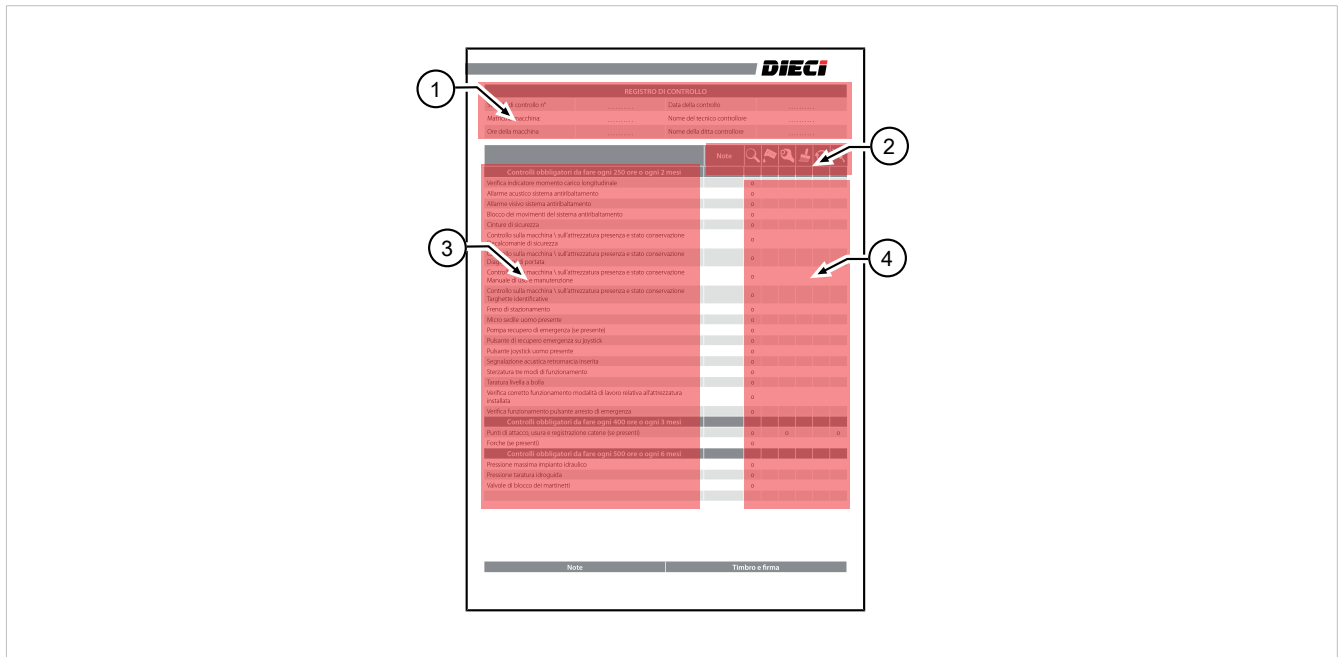
**Here following there are some pages to allow compiling such logs.**

Consult the Dieci s.r.l. service centre to obtain more information regarding the availability of check and maintenance logs.

### 24.2.2 Warnings on the maintenance log

- The maintenance log shall prevail for warranty claims. All activities relating to the life, use and maintenance of the vehicle must be registered in the log.








24.2.3 Logs compiling



Each log (fig. 150606-1) requires the compilation of several parts:

1. Log data
2. Operations to carry out
3. Component or device on which to carry out the operation to be performed
4. Space that indicates the obligatory operation marked by the symbol "o", and the possibility to annotate an extraordinary operation not included in the log.

24.2.4 Logs legend

SYMBOL	DESCRIPTION
	Inspection - Check
	Refilling
	Adjustment
	Cleaning
	Replacement
	Greasing
	Maintenance at an authorised service centre **

### 24.2.5 Intervals legend



#### NOTE

**The intervals are defined both in hours of work and in time intervals from the date of purchase.**

It is necessary to make interventions at the end of the first interval, either work hours or time.

TIMELINES	DESCRIPTION
0h	According to the need - To be completed in the case of checks not linked to deadlines but more or less related to the heavy operation of the vehicle
10h / 1m	Every 10 hours of operation or every month
50h / 1m	Every 50 hours of operation or every month
250h / 2m	Every 250 hours of operation or every 2 months
500h / 6m	Every 500 hours of operation or every 6 months
1000h / 1y	Every 1000 hours of operation or every year
2000h	Every 2000 hours of operation
4000h	Every 4000 hours of operation
2y	Every 2 years

## 24.3 Periodic checks and recording mode (Italian only)








- The employer/operator of the vehicle is required to submit the vehicle to the periodic checks provided by law (Ministerial Decree 12/9/59 and Legislative Decree 81/08).
- He/she also has the obligation to comply with the maintenance and surveillance plan described in this Use and Maintenance Manual of the vehicle.
- The periodic inspection, testing and maintenance must be carried out by specialized personnel appointed for that purpose or by a workshop authorized by the manufacturer DIECI S.r.l.
- The employer/operator of the vehicle must record or appoint personnel trained for the purpose to record the results of the checks into the Check Log.
- Regular checks that have to be entered in the "Check Log" are:
  - Quarterly periodic checks regarding the functionality and/or efficiency of ropes/chains according to Annex VI section 3.1.2 of Legislative Decree 81/08;
  - Yearly periodic checks regarding the operation and storage of the vehicle for safety purposes (yearly inspections, corrosion checks, calibration check, etc.) in accordance with Annex VII of Legislative Decree 81/08;
    - The law provides administrative sanctions against those who do not carry out the quarterly and yearly checks.
    - The Check Log, where all the checks are to be recorded, must be shown upon request to the officials responsible for monitoring the current legislation.
    - Following the yearly periodic check the Local Health Authority official (Dip.SSIA), or the private Enabled Party chosen, issues a suitability report or prescribes the necessary obligations. The user is obliged to preserve the check report together with the Check Log.
    - The checks evaluation must be recorded in the following dedicated pages indicating the outcome of the check, date, signature and any comments of the party in charge.
    - If the pages dedicated in this Manual are insufficient for the annotations made during the life of the vehicle, use additional sheets and pay attention to fill them in accordingly.

## 24.4 Obligation and how to report to I.N.A.I.L. (National institute for insurance against accidents at work) (Italy only)

- The Legislative Decree 81/08 - Annex VII prescribes the obligation, to employers and users of lifting equipment with motor with capacity > 200 kg and lifting platforms for persons, to report the successful commissioning to the competent authority of the territory of the vehicle (currently I.N.A.I.L.), specifying the place of installation of the vehicle so that the authority itself may carry out the first verification.
- The report to I.N.A.I.L. must be carried out by attaching to the vehicle commissioning report a copy of the EC Declaration of Conformity of machinery referred to in Annex IIA of the Legislative Decree 17/2010 - Machinery Directive 2006/42/ EC.
- The original statements (CE Declaration of Conformity - Annex IIA) must be retained by the customer.
- The report to I.N.A.I.L. may be sent by registered letter with return receipt.

## 24.5 Check log

The following are some sheets for filling in the Control Log.

CHECK LOG								
Check sheet no.	.....	Check date	.....					
Vehicle serial number:	.....	Name of the technician performing the check	.....					
Vehicle hours	.....	Name of the Company performing the check	.....					
CHECKS								
250h / 3m	Longitudinal load momentum indicator check	<input type="checkbox"/>						
250h / 3m	Audible tipping alarm	<input type="checkbox"/>						
250h / 3m	Visual tipping warning	<input type="checkbox"/>						
250h / 3m	Anti-tipping system movements block	<input type="checkbox"/>						
250h / 3m	Seat belts	<input type="checkbox"/>						
250h / 3m	Control over the vehicle \ equipment for the presence and status of conservation of Safety Stickers	<input type="checkbox"/>						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Capacity Diagrams	<input type="checkbox"/>						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of the Use and maintenance manual	<input type="checkbox"/>						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Identification labels	<input type="checkbox"/>						
250h / 3m	Parking brake	<input type="checkbox"/>						
250h / 3m	Deadman seat microswitch	<input type="checkbox"/>						
250h / 3m	Emergency recovery pump (if any)	<input type="checkbox"/>						
250h / 3m	Emergency recovery button on joystick	<input type="checkbox"/>						
250h / 3m	Deadman joystick button	<input type="checkbox"/>						
250h / 3m	Reverse gear engaged acoustic signal	<input type="checkbox"/>						
250h / 3m	Three operation mode steering	<input type="checkbox"/>						
250h / 3m	Spirit level indication	<input type="checkbox"/>						
250h / 2m	Installed equipment working mode correct operation check	<input type="checkbox"/>						
250h / 2m	Emergency stop button operation check	<input type="checkbox"/>						
250h / 2m	Operation check consistent with the instructions in the cab	<input type="checkbox"/>						
400h / 3m	Chains (if any) coupling points, wear and adjustment	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	
400h / 3m	Forks (if present)	<input type="checkbox"/>						
500h / 6m	Hydraulic system maximum pressure	<input type="checkbox"/>						
500h / 6m	Power steering calibration pressure	<input type="checkbox"/>						
500h / 6m	Jacks block valves	<input type="checkbox"/>						
NOTES		STAMP AND SIGNATURE						








CHECK LOG			
Check sheet no.	.....	Check date	.....
Vehicle serial number:	.....	Name of the technician performing the check	.....
Vehicle hours	.....	Name of the Company performing the check	.....

	CHECKS							
250h / 3m	Longitudinal load momentum indicator check	o						
250h / 3m	Audible tipping alarm	o						
250h / 3m	Visual tipping warning	o						
250h / 3m	Anti-tipping system movements block	o						
250h / 3m	Seat belts	o						
250h / 3m	Control over the vehicle \ equipment for the presence and status of conservation of Safety Stickers	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Capacity Diagrams	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of the Use and maintenance manual	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Identification labels	o						
250h / 3m	Parking brake	o						
250h / 3m	Deadman seat microswitch	o						
250h / 3m	Emergency recovery pump (if any)	o						
250h / 3m	Emergency recovery button on joystick	o						
250h / 3m	Deadman joystick button	o						
250h / 3m	Reverse gear engaged acoustic signal	o						
250h / 3m	Three operation mode steering	o						
250h / 3m	Spirit level indication	o						
250h / 2m	Installed equipment working mode correct operation check	o						
250h / 2m	Emergency stop button operation check	o						
250h / 2m	Operation check consistent with the instructions in the cab	o						
400h / 3m	Chains (if any) coupling points, wear and adjustment	o		o			o	
400h / 3m	Forks (if present)	o						
500h / 6m	Hydraulic system maximum pressure	o						
500h / 6m	Power steering calibration pressure	o						
500h / 6m	Jacks block valves	o						

NOTES	STAMP AND SIGNATURE



CHECK LOG			
Check sheet no.	.....	Check date	.....
Vehicle serial number:	.....	Name of the technician performing the check	.....
Vehicle hours	.....	Name of the Company performing the check	.....

	CHECKS							
250h / 3m	Longitudinal load momentum indicator check	o						
250h / 3m	Audible tipping alarm	o						
250h / 3m	Visual tipping warning	o						
250h / 3m	Anti-tipping system movements block	o						
250h / 3m	Seat belts	o						
250h / 3m	Control over the vehicle \ equipment for the presence and status of conservation of Safety Stickers	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Capacity Diagrams	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of the Use and maintenance manual	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Identification labels	o						
250h / 3m	Parking brake	o						
250h / 3m	Deadman seat microswitch	o						
250h / 3m	Emergency recovery pump (if any)	o						
250h / 3m	Emergency recovery button on joystick	o						
250h / 3m	Deadman joystick button	o						
250h / 3m	Reverse gear engaged acoustic signal	o						
250h / 3m	Three operation mode steering	o						
250h / 3m	Spirit level indication	o						
250h / 2m	Installed equipment working mode correct operation check	o						
250h / 2m	Emergency stop button operation check	o						
250h / 2m	Operation check consistent with the instructions in the cab	o						
400h / 3m	Chains (if any) coupling points, wear and adjustment	o		o			o	
400h / 3m	Forks (if present)	o						
500h / 6m	Hydraulic system maximum pressure	o						
500h / 6m	Power steering calibration pressure	o						
500h / 6m	Jacks block valves	o						








NOTES	STAMP AND SIGNATURE

CHECK LOG			
Check sheet no.	.....	Check date	.....
Vehicle serial number:	.....	Name of the technician performing the check	.....
Vehicle hours	.....	Name of the Company performing the check	.....

	CHECKS							
250h / 3m	Longitudinal load momentum indicator check	o						
250h / 3m	Audible tipping alarm	o						
250h / 3m	Visual tipping warning	o						
250h / 3m	Anti-tipping system movements block	o						
250h / 3m	Seat belts	o						
250h / 3m	Control over the vehicle \ equipment for the presence and status of conservation of Safety Stickers	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Capacity Diagrams	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of the Use and maintenance manual	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Identification labels	o						
250h / 3m	Parking brake	o						
250h / 3m	Deadman seat microswitch	o						
250h / 3m	Emergency recovery pump (if any)	o						
250h / 3m	Emergency recovery button on joystick	o						
250h / 3m	Deadman joystick button	o						
250h / 3m	Reverse gear engaged acoustic signal	o						
250h / 3m	Three operation mode steering	o						
250h / 3m	Spirit level indication	o						
250h / 2m	Installed equipment working mode correct operation check	o						
250h / 2m	Emergency stop button operation check	o						
250h / 2m	Operation check consistent with the instructions in the cab	o						
400h / 3m	Chains (if any) coupling points, wear and adjustment	o		o			o	
400h / 3m	Forks (if present)	o						
500h / 6m	Hydraulic system maximum pressure	o						
500h / 6m	Power steering calibration pressure	o						
500h / 6m	Jacks block valves	o						

NOTES	STAMP AND SIGNATURE

CHECK LOG			
Check sheet no.	.....	Check date	.....
Vehicle serial number:	.....	Name of the technician performing the check	.....
Vehicle hours	.....	Name of the Company performing the check	.....

	CHECKS							
250h / 3m	Longitudinal load momentum indicator check	o						
250h / 3m	Audible tipping alarm	o						
250h / 3m	Visual tipping warning	o						
250h / 3m	Anti-tipping system movements block	o						
250h / 3m	Seat belts	o						
250h / 3m	Control over the vehicle \ equipment for the presence and status of conservation of Safety Stickers	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Capacity Diagrams	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of the Use and maintenance manual	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Identification labels	o						
250h / 3m	Parking brake	o						
250h / 3m	Deadman seat microswitch	o						
250h / 3m	Emergency recovery pump (if any)	o						
250h / 3m	Emergency recovery button on joystick	o						
250h / 3m	Deadman joystick button	o						
250h / 3m	Reverse gear engaged acoustic signal	o						
250h / 3m	Three operation mode steering	o						
250h / 3m	Spirit level indication	o						
250h / 2m	Installed equipment working mode correct operation check	o						
250h / 2m	Emergency stop button operation check	o						
250h / 2m	Operation check consistent with the instructions in the cab	o						
400h / 3m	Chains (if any) coupling points, wear and adjustment	o		o			o	
400h / 3m	Forks (if present)	o						
500h / 6m	Hydraulic system maximum pressure	o						
500h / 6m	Power steering calibration pressure	o						
500h / 6m	Jacks block valves	o						








NOTES	STAMP AND SIGNATURE

CHECK LOG			
Check sheet no.	.....	Check date	.....
Vehicle serial number:	.....	Name of the technician performing the check	.....
Vehicle hours	.....	Name of the Company performing the check	.....

	CHECKS							
250h / 3m	Longitudinal load momentum indicator check	o						
250h / 3m	Audible tipping alarm	o						
250h / 3m	Visual tipping warning	o						
250h / 3m	Anti-tipping system movements block	o						
250h / 3m	Seat belts	o						
250h / 3m	Control over the vehicle \ equipment for the presence and status of conservation of Safety Stickers	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Capacity Diagrams	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of the Use and maintenance manual	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Identification labels	o						
250h / 3m	Parking brake	o						
250h / 3m	Deadman seat microswitch	o						
250h / 3m	Emergency recovery pump (if any)	o						
250h / 3m	Emergency recovery button on joystick	o						
250h / 3m	Deadman joystick button	o						
250h / 3m	Reverse gear engaged acoustic signal	o						
250h / 3m	Three operation mode steering	o						
250h / 3m	Spirit level indication	o						
250h / 2m	Installed equipment working mode correct operation check	o						
250h / 2m	Emergency stop button operation check	o						
250h / 2m	Operation check consistent with the instructions in the cab	o						
400h / 3m	Chains (if any) coupling points, wear and adjustment	o		o			o	
400h / 3m	Forks (if present)	o						
500h / 6m	Hydraulic system maximum pressure	o						
500h / 6m	Power steering calibration pressure	o						
500h / 6m	Jacks block valves	o						

NOTES	STAMP AND SIGNATURE

CHECK LOG			
Check sheet no.	.....	Check date	.....
Vehicle serial number:	.....	Name of the technician performing the check	.....
Vehicle hours	.....	Name of the Company performing the check	.....

	CHECKS							
250h / 3m	Longitudinal load momentum indicator check	o						
250h / 3m	Audible tipping alarm	o						
250h / 3m	Visual tipping warning	o						
250h / 3m	Anti-tipping system movements block	o						
250h / 3m	Seat belts	o						
250h / 3m	Control over the vehicle \ equipment for the presence and status of conservation of Safety Stickers	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Capacity Diagrams	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of the Use and maintenance manual	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Identification labels	o						
250h / 3m	Parking brake	o						
250h / 3m	Deadman seat microswitch	o						
250h / 3m	Emergency recovery pump (if any)	o						
250h / 3m	Emergency recovery button on joystick	o						
250h / 3m	Deadman joystick button	o						
250h / 3m	Reverse gear engaged acoustic signal	o						
250h / 3m	Three operation mode steering	o						
250h / 3m	Spirit level indication	o						
250h / 2m	Installed equipment working mode correct operation check	o						
250h / 2m	Emergency stop button operation check	o						
250h / 2m	Operation check consistent with the instructions in the cab	o						
400h / 3m	Chains (if any) coupling points, wear and adjustment	o		o			o	
400h / 3m	Forks (if present)	o						
500h / 6m	Hydraulic system maximum pressure	o						
500h / 6m	Power steering calibration pressure	o						
500h / 6m	Jacks block valves	o						








NOTES	STAMP AND SIGNATURE

CHECK LOG			
Check sheet no.	.....	Check date	.....
Vehicle serial number:	.....	Name of the technician performing the check	.....
Vehicle hours	.....	Name of the Company performing the check	.....

	CHECKS							
250h / 3m	Longitudinal load momentum indicator check	o						
250h / 3m	Audible tipping alarm	o						
250h / 3m	Visual tipping warning	o						
250h / 3m	Anti-tipping system movements block	o						
250h / 3m	Seat belts	o						
250h / 3m	Control over the vehicle \ equipment for the presence and status of conservation of Safety Stickers	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Capacity Diagrams	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of the Use and maintenance manual	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Identification labels	o						
250h / 3m	Parking brake	o						
250h / 3m	Deadman seat microswitch	o						
250h / 3m	Emergency recovery pump (if any)	o						
250h / 3m	Emergency recovery button on joystick	o						
250h / 3m	Deadman joystick button	o						
250h / 3m	Reverse gear engaged acoustic signal	o						
250h / 3m	Three operation mode steering	o						
250h / 3m	Spirit level indication	o						
250h / 2m	Installed equipment working mode correct operation check	o						
250h / 2m	Emergency stop button operation check	o						
250h / 2m	Operation check consistent with the instructions in the cab	o						
400h / 3m	Chains (if any) coupling points, wear and adjustment	o		o			o	
400h / 3m	Forks (if present)	o						
500h / 6m	Hydraulic system maximum pressure	o						
500h / 6m	Power steering calibration pressure	o						
500h / 6m	Jacks block valves	o						

NOTES	STAMP AND SIGNATURE

CHECK LOG			
Check sheet no.	.....	Check date	.....
Vehicle serial number:	.....	Name of the technician performing the check	.....
Vehicle hours	.....	Name of the Company performing the check	.....

	CHECKS							
250h / 3m	Longitudinal load momentum indicator check	o						
250h / 3m	Audible tipping alarm	o						
250h / 3m	Visual tipping warning	o						
250h / 3m	Anti-tipping system movements block	o						
250h / 3m	Seat belts	o						
250h / 3m	Control over the vehicle \ equipment for the presence and status of conservation of Safety Stickers	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Capacity Diagrams	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of the Use and maintenance manual	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Identification labels	o						
250h / 3m	Parking brake	o						
250h / 3m	Deadman seat microswitch	o						
250h / 3m	Emergency recovery pump (if any)	o						
250h / 3m	Emergency recovery button on joystick	o						
250h / 3m	Deadman joystick button	o						
250h / 3m	Reverse gear engaged acoustic signal	o						
250h / 3m	Three operation mode steering	o						
250h / 3m	Spirit level indication	o						
250h / 2m	Installed equipment working mode correct operation check	o						
250h / 2m	Emergency stop button operation check	o						
250h / 2m	Operation check consistent with the instructions in the cab	o						
400h / 3m	Chains (if any) coupling points, wear and adjustment	o		o			o	
400h / 3m	Forks (if present)	o						
500h / 6m	Hydraulic system maximum pressure	o						
500h / 6m	Power steering calibration pressure	o						
500h / 6m	Jacks block valves	o						

NOTES	STAMP AND SIGNATURE

CHECK LOG			
Check sheet no.	.....	Check date	.....
Vehicle serial number:	.....	Name of the technician performing the check	.....
Vehicle hours	.....	Name of the Company performing the check	.....

	CHECKS							
250h / 3m	Longitudinal load momentum indicator check	o						
250h / 3m	Audible tipping alarm	o						
250h / 3m	Visual tipping warning	o						
250h / 3m	Anti-tipping system movements block	o						
250h / 3m	Seat belts	o						
250h / 3m	Control over the vehicle \ equipment for the presence and status of conservation of Safety Stickers	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Capacity Diagrams	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of the Use and maintenance manual	o						
250h / 3m	Control over the vehicle \ equipment for the presence and conservation status of Identification labels	o						
250h / 3m	Parking brake	o						
250h / 3m	Deadman seat microswitch	o						
250h / 3m	Emergency recovery pump (if any)	o						
250h / 3m	Emergency recovery button on joystick	o						
250h / 3m	Deadman joystick button	o						
250h / 3m	Reverse gear engaged acoustic signal	o						
250h / 3m	Three operation mode steering	o						
250h / 3m	Spirit level indication	o						
250h / 2m	Installed equipment working mode correct operation check	o						
250h / 2m	Emergency stop button operation check	o						
250h / 2m	Operation check consistent with the instructions in the cab	o						
400h / 3m	Chains (if any) coupling points, wear and adjustment	o		o			o	
400h / 3m	Forks (if present)	o						
500h / 6m	Hydraulic system maximum pressure	o						
500h / 6m	Power steering calibration pressure	o						
500h / 6m	Jacks block valves	o						

NOTES	STAMP AND SIGNATURE










## 24.6 Maintenance log

MAINTENANCE LOG			
Maintenance sheet no.	.....	Maintenance date	.....
Vehicle serial number:	.....	Maintenance technician name	.....
Vehicle hours	.....	Maintenance company name	.....

	MAINTENANCE							
0h	Air conditioning system	o			o			
0h	Anti-tipping device inspection with load	o						
0h	Filters (air, engine oil, hydraulic oil, fuel, air conditioning system, cab)	o						
0h	Brake			o				
0h	Parking brake	o						
0h	Electrolyte level and battery charge	o						
0h	Lighting	o						
0h	Hydraulic oil level	o						
0h	Alternator belts \ services	o						
0h	Engine oil level	o						
0h	Radiators	o			o			
0h	Radiator expansion tank	o	o					
0h	Tyre pressure	o						
0h	Wear check (on both the vehicle and equipment if installed)	o						
10h / 1m	Boom chains (if installed)	o						
10h / 1m	Window washer tank	o	o					
10h / 1m	Safety stickers	o						
10h / 1m	Safety devices	o						
10h / 1m	Coolant	o						
10h / 1m	Engine oil level	o						
10h / 1m	Radiators				o			
10h / 1m	Metal structural work, no cracks	o						
50h / 1m	Grease level in the automatic lubrication system (if installed)						o	
50h / 1m	Prop shafts						o	
50h / 1m	Axles oscillation						o	
50h / 1m	Wheels reduction gear pins						o	
50h / 1m	Axle differential oil	o						
50h / 1m	Epicycloidal reduction gear oil	o						
50h / 1m	Ropes and chains (if installed)	o					o	
50h / 1m	Wear pads	o					o	
50h / 1m	Cab ventilation filter				o			
50h / 1m	Mechanical joints of parking brake on the axle						o	
50h / 1m	Brakes oil level	o						
50h / 1m	Hydraulic oil level	o						
50h / 1m	Hydraulic system leaks	o						
50h / 1m	Air filter				o			
50h / 1m	Fuel filter				o			
50h / 1m	Coolant	o						
50h / 1m	Engine oil level	o						
50h / 1m	Tyre pressure	o						
50h / 1m	Wheel nuts tightening	o						
50h / 1m	Mechanical joints						o	
50h / 1m	Inching oil level (only PS transmissions)	o						
50h / 1m	Transmission oil	o						
First 100h	Axles differential oil					o		
First 200h	Epicycloidal reduction gear oil					o		
First 200h	Dropbox Oil (if any)					o		
250h / 2m	Ropes and chains (if any) coupling points, wear and adjustment	o		o			o	
250h / 2m	Boom chains (if installed)			o				
250h / 2m	Seat belts	o						
250h / 2m	Rear view mirrors	o						

		MAINTENANCE						
250h / 2m	Anti-tipping device	o						
250h / 2m	Electrolyte level and battery charge	o						
250h / 2m	Torque specifications - Hydraulic Fittings			o				
250h / 2m	Alternator belts \ services	o		o				
250h / 2m	Torque specifications - fasteners			o				
500h / 6m	PTO gearbox oil (if installed)					o		
500h / 6m	Forks: wear	o						
500h / 6m	Cab ventilation filter					o		
500h / 6m	Brakes oil					o		
500h	Hydraulic oil filter(s)					o		
500h / 6m	Electrical system	o						
500h / 6m	Block valves					o		
500h / 6m	Air filter				o			
500h / 6m	Fuel tank					o		
500h / 6m	Fuel pre-filter					o		
500h / 6m	(FPT) Fuel filter					o		
500h / 6m	(FPT) Engine oil filter					o		
500h / 6m	(FPT) Engine oil				o			
500h / 6m	(FPT) AdBlue intake prefilter (if present)					o		
500h / 6m	(KUBOTA) Fuel filter					o		
500h / 6m	(KUBOTA) Engine oil filter					o		
500h / 6m	(KUBOTA) Engine oil					o		
500h / 6m	(PERKINS) Engine oil					o		
500h / 6m	(PERKINS) Engine oil filter					o		
500h / 6m	(PERKINS) Engine air filter					o		
500h / 6m	(PERKINS) Water separator filter and prefilter					o		
1000h / 1y	PTO gearbox oil (if installed)					o		
1000h / 1y	Axles differential oil					o		
1000h / 1y	Epicycloidal reduction gear oil					o		
1000h / 1y	Dropbox Oil (if any)					o		
1000h / 1y	Equipment condition	o						**
1000h / 1y	Forks support plate: wear	o						**
1000h / 1y	Telescopic boom: conditions	o						**
1000h / 1y	Telescopic boom: bearings and pivot bushes	o						**
1000h / 1y	Wear pads: wear	o						**
1000h / 1y	Cab structure	o						**
1000h / 1y	Brakes oil circuit				o			**
1000h / 1y	Brakes oil circuit: Pressure	o						**
1000h / 1y	Brake			o				**
1000h / 1y	Electrical system: cables condition	o						**
1000h / 1y	Electrical system: Lighting and signalling	o						**
1000h / 1y	Electrical system: Acoustic signal devices	o						**
1000h / 1y	Hydraulic system: Jacks	o						**
1000h / 1y	Hydraulic system: Pipes and flexible pipes	o						**
1000h / 1y	Hydraulic system: Movements speed	o						**
1000h / 1y	Engine valves clearances	o						**
1000h / 1y	Coolant					o		
1000h / 1y	Engine speeds	o						**
1000h / 1y	Wheels and tyres conditions	o						**
1000h / 1y	Chassis: bearings and pivot bushes	o						**
1000h / 1y	Chassis: structure	o						**
1000h / 1y	Transmission oil					o		
1200h	Auxiliary components belt					o		
1500h	Blow-by filter					o		
2000h	Hydraulic oil					o		
2000h	Axles oscillation	o						**
2000h	Ropes and chains (if installed)					o		**
2000h	Hydraulic system: Capacity	o						**
2000h	Hydraulic system: Pressures	o						**
2000h	Hydraulic oil tank				o			**
2000h	Alternator and Starter motor	o						**

MAINTENANCE								
2000h	Radiators	o			o			**
2400h	Valves-rocker arms clearance adjustment					o		
3000h	(KUBOTA) DPF filter (if present)				o			**
3000h	(KUBOTA) DEF/AdBlue pump filter (if present)					o		**
3000h	(PERKINS) Alternator and fan belt					o		
3600h / 2y	(FPT) AdBlue tank filter (if present)					o		**
4000h	Prop shafts	o				o		**
4000h	Reduction gears universal joint	o						**
4000h	Wheels reduction gear clearance	o						**
4000h	Steering ball joints	o						**
4000h	Wheels reduction gear pins	o						**
4000h	Brakes wear	o						**
8000h	(KUBOTA) DEF/AdBlue tank filter (if present)					o		**
10000h / 3y	(PERKINS) DEF collector filter (if installed)					o		
2y	Air conditioning system (if installed): Dissipater filter					o		**
2y	Air conditioning system (if installed): Oil refrigerant	o						**
2y	Air conditioning system (if installed): Pressure switches	o		o				**
2y	Air conditioning system (if installed): Condenser and evaporator coils				o			**
2y	Air conditioning system (if installed): Condensate and exhaust valve tank				o			**
NOTES		STAMP AND SIGNATURE						

MAINTENANCE LOG			
Maintenance sheet no.	.....	Maintenance date	.....
Vehicle serial number:	.....	Maintenance technician name	.....
Vehicle hours	.....	Maintenance company name	.....

	MAINTENANCE							
0h	Air conditioning system	o			o			
0h	Anti-tipping device inspection with load	o						
0h	Filters (air, engine oil, hydraulic oil, fuel, air conditioning system, cab)	o						
0h	Brake			o				
0h	Parking brake	o						
0h	Electrolyte level and battery charge	o						
0h	Lighting	o						
0h	Hydraulic oil level	o						
0h	Alternator belts \ services	o						
0h	Engine oil level	o						
0h	Radiators	o			o			
0h	Radiator expansion tank	o	o					
0h	Tyre pressure	o						
0h	Wear check (on both the vehicle and equipment if installed)	o						
10h / 1m	Boom chains (if installed)	o						
10h / 1m	Window washer tank	o	o					
10h / 1m	Safety stickers	o						
10h / 1m	Safety devices	o						
10h / 1m	Coolant	o						
10h / 1m	Engine oil level	o						
10h / 1m	Radiators				o			
10h / 1m	Metal structural work, no cracks	o						
50h / 1m	Grease level in the automatic lubrication system (if installed)						o	
50h / 1m	Prop shafts						o	
50h / 1m	Axles oscillation						o	
50h / 1m	Wheels reduction gear pins						o	
50h / 1m	Axle differential oil	o						
50h / 1m	Epicycloidal reduction gear oil	o						
50h / 1m	Ropes and chains (if installed)	o					o	
50h / 1m	Wear pads	o					o	
50h / 1m	Cab ventilation filter				o			
50h / 1m	Mechanical joints of parking brake on the axle						o	
50h / 1m	Brakes oil level	o						
50h / 1m	Hydraulic oil level	o						
50h / 1m	Hydraulic system leaks	o						
50h / 1m	Air filter				o			
50h / 1m	Fuel filter				o			
50h / 1m	Coolant	o						
50h / 1m	Engine oil level	o						
50h / 1m	Tyre pressure	o						
50h / 1m	Wheel nuts tightening	o						
50h / 1m	Mechanical joints						o	
50h / 1m	Inching oil level (only PS transmissions)	o						
50h / 1m	Transmission oil	o						
First 100h	Axles differential oil					o		
First 200h	Epicycloidal reduction gear oil					o		
First 200h	Dropbox Oil (if any)					o		
250h / 2m	Ropes and chains (if any) coupling points, wear and adjustment	o		o			o	
250h / 2m	Boom chains (if installed)			o				
250h / 2m	Seat belts	o						
250h / 2m	Rear view mirrors	o						
250h / 2m	Anti-tipping device	o						
250h / 2m	Electrolyte level and battery charge	o						

MAINTENANCE								
250h / 2m	Torque specifications - Hydraulic Fittings			o				
250h / 2m	Alternator belts \ services	o		o				
250h / 2m	Torque specifications - fasteners			o				
500h / 6m	PTO gearbox oil (if installed)					o		
500h / 6m	Forks: wear	o						
500h / 6m	Cab ventilation filter					o		
500h / 6m	Brakes oil					o		
500h	Hydraulic oil filter(s)					o		
500h / 6m	Electrical system	o						
500h / 6m	Block valves					o		
500h / 6m	Air filter				o			
500h / 6m	Fuel tank					o		
500h / 6m	Fuel pre-filter					o		
500h / 6m	(FPT) Fuel filter					o		
500h / 6m	(FPT) Engine oil filter					o		
500h / 6m	(FPT) Engine oil				o			
500h / 6m	(FPT) AdBlue intake prefilter (if present)					o		
500h / 6m	(KUBOTA) Fuel filter					o		
500h / 6m	(KUBOTA) Engine oil filter					o		
500h / 6m	(KUBOTA) Engine oil					o		
500h / 6m	(PERKINS) Engine oil					o		
500h / 6m	(PERKINS) Engine oil filter					o		
500h / 6m	(PERKINS) Engine air filter					o		
500h / 6m	(PERKINS) Water separator filter and prefilter					o		
1000h / 1y	PTO gearbox oil (if installed)					o		
1000h / 1y	Axles differential oil					o		
1000h / 1y	Epicycloidal reduction gear oil					o		
1000h / 1y	Dropbox Oil (if any)					o		
1000h / 1y	Equipment condition	o						**
1000h / 1y	Forks support plate: wear	o						**
1000h / 1y	Telescopic boom: conditions	o						**
1000h / 1y	Telescopic boom: bearings and pivot bushes	o						**
1000h / 1y	Wear pads: wear	o						**
1000h / 1y	Cab structure	o						**
1000h / 1y	Brakes oil circuit				o			**
1000h / 1y	Brakes oil circuit: Pressure	o						**
1000h / 1y	Brake			o				**
1000h / 1y	Electrical system: cables condition	o						**
1000h / 1y	Electrical system: Lighting and signalling	o						**
1000h / 1y	Electrical system: Acoustic signal devices	o						**
1000h / 1y	Hydraulic system: Jacks	o						**
1000h / 1y	Hydraulic system: Pipes and flexible pipes	o						**
1000h / 1y	Hydraulic system: Movements speed	o						**
1000h / 1y	Engine valves clearances	o						**
1000h / 1y	Coolant					o		
1000h / 1y	Engine speeds	o						**
1000h / 1y	Wheels and tyres conditions	o						**
1000h / 1y	Chassis: bearings and pivot bushes	o						**
1000h / 1y	Chassis: structure	o						**
1000h / 1y	Transmission oil					o		
1200h	Auxiliary components belt					o		
1500h	Blow-by filter					o		
2000h	Hydraulic oil					o		
2000h	Axles oscillation	o						**
2000h	Ropes and chains (if installed)					o		**
2000h	Hydraulic system: Capacity	o						**
2000h	Hydraulic system: Pressures	o						**
2000h	Hydraulic oil tank				o			**
2000h	Alternator and Starter motor	o						**
2000h	Radiators	o			o			**
2400h	Valves-rocker arms clearance adjustment					o		








MAINTENANCE								
3000h	(KUBOTA) DPF filter (if present)				o			**
3000h	(KUBOTA) DEF/AdBlue pump filter (if present)					o		**
3000h	(PERKINS) Alternator and fan belt					o		**
3600h / 2y	(FPT) AdBlue tank filter (if present)					o		**
4000h	Prop shafts	o				o		**
4000h	Reduction gears universal joint	o						**
4000h	Wheels reduction gear clearance	o						**
4000h	Steering ball joints	o						**
4000h	Wheels reduction gear pins	o						**
4000h	Brakes wear	o						**
8000h	(KUBOTA) DEF/AdBlue tank filter (if present)					o		**
10000h / 3y	(PERKINS) DEF collector filter (if installed)					o		**
2y	Air conditioning system (if installed): Dissipater filter					o		**
2y	Air conditioning system (if installed): Oil refrigerant	o						**
2y	Air conditioning system (if installed): Pressure switches	o		o				**
2y	Air conditioning system (if installed): Condenser and evaporator coils				o			**
2y	Air conditioning system (if installed): Condensate and exhaust valve tank				o			**
NOTES		STAMP AND SIGNATURE						

MAINTENANCE LOG			
Maintenance sheet no.	.....	Maintenance date	.....
Vehicle serial number:	.....	Maintenance technician name	.....
Vehicle hours	.....	Maintenance company name	.....

	MAINTENANCE							
0h	Air conditioning system	o			o			
0h	Anti-tipping device inspection with load	o						
0h	Filters (air, engine oil, hydraulic oil, fuel, air conditioning system, cab)	o						
0h	Brake			o				
0h	Parking brake	o						
0h	Electrolyte level and battery charge	o						
0h	Lighting	o						
0h	Hydraulic oil level	o						
0h	Alternator belts \ services	o						
0h	Engine oil level	o						
0h	Radiators	o			o			
0h	Radiator expansion tank	o	o					
0h	Tyre pressure	o						
0h	Wear check (on both the vehicle and equipment if installed)	o						
10h / 1m	Boom chains (if installed)	o						
10h / 1m	Window washer tank	o	o					
10h / 1m	Safety stickers	o						
10h / 1m	Safety devices	o						
10h / 1m	Coolant	o						
10h / 1m	Engine oil level	o						
10h / 1m	Radiators				o			
10h / 1m	Metal structural work, no cracks	o						
50h / 1m	Grease level in the automatic lubrication system (if installed)						o	
50h / 1m	Prop shafts						o	
50h / 1m	Axles oscillation						o	
50h / 1m	Wheels reduction gear pins						o	
50h / 1m	Axle differential oil	o						
50h / 1m	Epicycloidal reduction gear oil	o						
50h / 1m	Ropes and chains (if installed)	o					o	
50h / 1m	Wear pads	o					o	
50h / 1m	Cab ventilation filter				o			
50h / 1m	Mechanical joints of parking brake on the axle						o	
50h / 1m	Brakes oil level	o						
50h / 1m	Hydraulic oil level	o						
50h / 1m	Hydraulic system leaks	o						
50h / 1m	Air filter				o			
50h / 1m	Fuel filter				o			
50h / 1m	Coolant	o						
50h / 1m	Engine oil level	o						
50h / 1m	Tyre pressure	o						
50h / 1m	Wheel nuts tightening	o						
50h / 1m	Mechanical joints						o	
50h / 1m	Inching oil level (only PS transmissions)	o						
50h / 1m	Transmission oil	o						
First 100h	Axles differential oil					o		
First 200h	Epicycloidal reduction gear oil					o		
First 200h	Dropbox Oil (if any)					o		
250h / 2m	Ropes and chains (if any) coupling points, wear and adjustment	o		o			o	
250h / 2m	Boom chains (if installed)			o				
250h / 2m	Seat belts	o						
250h / 2m	Rear view mirrors	o						
250h / 2m	Anti-tipping device	o						
250h / 2m	Electrolyte level and battery charge	o						

MAINTENANCE								
250h / 2m	Torque specifications - Hydraulic Fittings			o				
250h / 2m	Alternator belts \ services	o		o				
250h / 2m	Torque specifications - fasteners			o				
500h / 6m	PTO gearbox oil (if installed)					o		
500h / 6m	Forks: wear	o						
500h / 6m	Cab ventilation filter					o		
500h / 6m	Brakes oil					o		
500h	Hydraulic oil filter(s)					o		
500h / 6m	Electrical system	o						
500h / 6m	Block valves					o		
500h / 6m	Air filter				o			
500h / 6m	Fuel tank					o		
500h / 6m	Fuel pre-filter					o		
500h / 6m	(FPT) Fuel filter					o		
500h / 6m	(FPT) Engine oil filter					o		
500h / 6m	(FPT) Engine oil				o			
500h / 6m	(FPT) AdBlue intake prefilter (if present)					o		
500h / 6m	(KUBOTA) Fuel filter					o		
500h / 6m	(KUBOTA) Engine oil filter					o		
500h / 6m	(KUBOTA) Engine oil					o		
500h / 6m	(PERKINS) Engine oil					o		
500h / 6m	(PERKINS) Engine oil filter					o		
500h / 6m	(PERKINS) Engine air filter					o		
500h / 6m	(PERKINS) Water separator filter and prefilter					o		
1000h / 1y	PTO gearbox oil (if installed)					o		
1000h / 1y	Axles differential oil					o		
1000h / 1y	Epicycloidal reduction gear oil					o		
1000h / 1y	Dropbox Oil (if any)					o		
1000h / 1y	Equipment condition	o						**
1000h / 1y	Forks support plate: wear	o						**
1000h / 1y	Telescopic boom: conditions	o						**
1000h / 1y	Telescopic boom: bearings and pivot bushes	o						**
1000h / 1y	Wear pads: wear	o						**
1000h / 1y	Cab structure	o						**
1000h / 1y	Brakes oil circuit				o			**
1000h / 1y	Brakes oil circuit: Pressure	o						**
1000h / 1y	Brake			o				**
1000h / 1y	Electrical system: cables condition	o						**
1000h / 1y	Electrical system: Lighting and signalling	o						**
1000h / 1y	Electrical system: Acoustic signal devices	o						**
1000h / 1y	Hydraulic system: Jacks	o						**
1000h / 1y	Hydraulic system: Pipes and flexible pipes	o						**
1000h / 1y	Hydraulic system: Movements speed	o						**
1000h / 1y	Engine valves clearances	o						**
1000h / 1y	Coolant					o		
1000h / 1y	Engine speeds	o						**
1000h / 1y	Wheels and tyres conditions	o						**
1000h / 1y	Chassis: bearings and pivot bushes	o						**
1000h / 1y	Chassis: structure	o						**
1000h / 1y	Transmission oil					o		
1200h	Auxiliary components belt					o		
1500h	Blow-by filter					o		
2000h	Hydraulic oil					o		
2000h	Axles oscillation	o						**
2000h	Ropes and chains (if installed)					o		**
2000h	Hydraulic system: Capacity	o						**
2000h	Hydraulic system: Pressures	o						**
2000h	Hydraulic oil tank				o			**
2000h	Alternator and Starter motor	o						**
2000h	Radiators	o			o			**
2400h	Valves-rocker arms clearance adjustment					o		



MAINTENANCE								
3000h	(KUBOTA) DPF filter (if present)				o			**
3000h	(KUBOTA) DEF/AdBlue pump filter (if present)					o		**
3000h	(PERKINS) Alternator and fan belt					o		**
3600h / 2y	(FPT) AdBlue tank filter (if present)					o		**
4000h	Prop shafts	o				o		**
4000h	Reduction gears universal joint	o						**
4000h	Wheels reduction gear clearance	o						**
4000h	Steering ball joints	o						**
4000h	Wheels reduction gear pins	o						**
4000h	Brakes wear	o						**
8000h	(KUBOTA) DEF/AdBlue tank filter (if present)					o		**
10000h / 3y	(PERKINS) DEF collector filter (if installed)					o		**
2y	Air conditioning system (if installed): Dissipater filter					o		**
2y	Air conditioning system (if installed): Oil refrigerant	o						**
2y	Air conditioning system (if installed): Pressure switches	o		o				**
2y	Air conditioning system (if installed): Condenser and evaporator coils				o			**
2y	Air conditioning system (if installed): Condensate and exhaust valve tank				o			**
NOTES		STAMP AND SIGNATURE						


MAINTENANCE LOG			
Maintenance sheet no.	.....	Maintenance date	.....
Vehicle serial number:	.....	Maintenance technician name	.....
Vehicle hours	.....	Maintenance company name	.....

	MAINTENANCE							
0h	Air conditioning system	o			o			
0h	Anti-tipping device inspection with load	o						
0h	Filters (air, engine oil, hydraulic oil, fuel, air conditioning system, cab)	o						
0h	Brake			o				
0h	Parking brake	o						
0h	Electrolyte level and battery charge	o						
0h	Lighting	o						
0h	Hydraulic oil level	o						
0h	Alternator belts \ services	o						
0h	Engine oil level	o						
0h	Radiators	o			o			
0h	Radiator expansion tank	o	o					
0h	Tyre pressure	o						
0h	Wear check (on both the vehicle and equipment if installed)	o						
10h / 1m	Boom chains (if installed)	o						
10h / 1m	Window washer tank	o	o					
10h / 1m	Safety stickers	o						
10h / 1m	Safety devices	o						
10h / 1m	Coolant	o						
10h / 1m	Engine oil level	o						
10h / 1m	Radiators				o			
10h / 1m	Metal structural work, no cracks	o						
50h / 1m	Grease level in the automatic lubrication system (if installed)						o	
50h / 1m	Prop shafts						o	
50h / 1m	Axles oscillation						o	
50h / 1m	Wheels reduction gear pins						o	
50h / 1m	Axle differential oil	o						
50h / 1m	Epicycloidal reduction gear oil	o						
50h / 1m	Ropes and chains (if installed)	o					o	
50h / 1m	Wear pads	o					o	
50h / 1m	Cab ventilation filter				o			
50h / 1m	Mechanical joints of parking brake on the axle						o	
50h / 1m	Brakes oil level	o						
50h / 1m	Hydraulic oil level	o						
50h / 1m	Hydraulic system leaks	o						
50h / 1m	Air filter				o			
50h / 1m	Fuel filter				o			
50h / 1m	Coolant	o						
50h / 1m	Engine oil level	o						
50h / 1m	Tyre pressure	o						
50h / 1m	Wheel nuts tightening	o						
50h / 1m	Mechanical joints						o	
50h / 1m	Inching oil level (only PS transmissions)	o						
50h / 1m	Transmission oil	o						
First 100h	Axles differential oil					o		
First 200h	Epicycloidal reduction gear oil					o		
First 200h	Dropbox Oil (if any)					o		
250h / 2m	Ropes and chains (if any) coupling points, wear and adjustment	o		o			o	
250h / 2m	Boom chains (if installed)			o				
250h / 2m	Seat belts	o						
250h / 2m	Rear view mirrors	o						
250h / 2m	Anti-tipping device	o						
250h / 2m	Electrolyte level and battery charge	o						








	MAINTENANCE							
250h / 2m	Torque specifications - Hydraulic Fittings			o				
250h / 2m	Alternator belts \ services	o		o				
250h / 2m	Torque specifications - fasteners			o				
500h / 6m	PTO gearbox oil (if installed)					o		
500h / 6m	Forks: wear	o						
500h / 6m	Cab ventilation filter					o		
500h / 6m	Brakes oil					o		
500h	Hydraulic oil filter(s)					o		
500h / 6m	Electrical system	o						
500h / 6m	Block valves					o		
500h / 6m	Air filter				o			
500h / 6m	Fuel tank					o		
500h / 6m	Fuel pre-filter					o		
500h / 6m	(FPT) Fuel filter					o		
500h / 6m	(FPT) Engine oil filter					o		
500h / 6m	(FPT) Engine oil				o			
500h / 6m	(FPT) AdBlue intake prefilter (if present)					o		
500h / 6m	(KUBOTA) Fuel filter					o		
500h / 6m	(KUBOTA) Engine oil filter					o		
500h / 6m	(KUBOTA) Engine oil					o		
500h / 6m	(PERKINS) Engine oil					o		
500h / 6m	(PERKINS) Engine oil filter					o		
500h / 6m	(PERKINS) Engine air filter					o		
500h / 6m	(PERKINS) Water separator filter and prefilter					o		
1000h / 1y	PTO gearbox oil (if installed)					o		
1000h / 1y	Axles differential oil					o		
1000h / 1y	Epicycloidal reduction gear oil					o		
1000h / 1y	Dropbox Oil (if any)					o		
1000h / 1y	Equipment condition	o						**
1000h / 1y	Forks support plate: wear	o						**
1000h / 1y	Telescopic boom: conditions	o						**
1000h / 1y	Telescopic boom: bearings and pivot bushes	o						**
1000h / 1y	Wear pads: wear	o						**
1000h / 1y	Cab structure	o						**
1000h / 1y	Brakes oil circuit				o			**
1000h / 1y	Brakes oil circuit: Pressure	o						**
1000h / 1y	Brake			o				**
1000h / 1y	Electrical system: cables condition	o						**
1000h / 1y	Electrical system: Lighting and signalling	o						**
1000h / 1y	Electrical system: Acoustic signal devices	o						**
1000h / 1y	Hydraulic system: Jacks	o						**
1000h / 1y	Hydraulic system: Pipes and flexible pipes	o						**
1000h / 1y	Hydraulic system: Movements speed	o						**
1000h / 1y	Engine valves clearances	o						**
1000h / 1y	Coolant					o		**
1000h / 1y	Engine speeds	o						**
1000h / 1y	Wheels and tyres conditions	o						**
1000h / 1y	Chassis: bearings and pivot bushes	o						**
1000h / 1y	Chassis: structure	o						**
1000h / 1y	Transmission oil					o		**
1200h	Auxiliary components belt					o		**
1500h	Blow-by filter					o		**
2000h	Hydraulic oil					o		**
2000h	Axles oscillation	o						**
2000h	Ropes and chains (if installed)					o		**
2000h	Hydraulic system: Capacity	o						**
2000h	Hydraulic system: Pressures	o						**
2000h	Hydraulic oil tank				o			**
2000h	Alternator and Starter motor	o						**
2000h	Radiators	o			o			**
2400h	Valves-rocker arms clearance adjustment					o		**

MAINTENANCE								
3000h	(KUBOTA) DPF filter (if present)				o			**
3000h	(KUBOTA) DEF/AdBlue pump filter (if present)					o		**
3000h	(PERKINS) Alternator and fan belt					o		
3600h / 2y	(FPT) AdBlue tank filter (if present)					o		**
4000h	Prop shafts	o				o		**
4000h	Reduction gears universal joint	o						**
4000h	Wheels reduction gear clearance	o						**
4000h	Steering ball joints	o						**
4000h	Wheels reduction gear pins	o						**
4000h	Brakes wear	o						**
8000h	(KUBOTA) DEF/AdBlue tank filter (if present)					o		**
10000h / 3y	(PERKINS) DEF collector filter (if installed)					o		
2y	Air conditioning system (if installed): Dissipater filter					o		**
2y	Air conditioning system (if installed): Oil refrigerant	o						**
2y	Air conditioning system (if installed): Pressure switches	o		o				**
2y	Air conditioning system (if installed): Condenser and evaporator coils				o			**
2y	Air conditioning system (if installed): Condensate and exhaust valve tank				o			**
NOTES		STAMP AND SIGNATURE						

MAINTENANCE LOG			
Maintenance sheet no.	.....	Maintenance date	.....
Vehicle serial number:	.....	Maintenance technician name	.....
Vehicle hours	.....	Maintenance company name	.....

	MAINTENANCE							
0h	Air conditioning system	o			o			
0h	Anti-tipping device inspection with load	o						
0h	Filters (air, engine oil, hydraulic oil, fuel, air conditioning system, cab)	o						
0h	Brake			o				
0h	Parking brake	o						
0h	Electrolyte level and battery charge	o						
0h	Lighting	o						
0h	Hydraulic oil level	o						
0h	Alternator belts \ services	o						
0h	Engine oil level	o						
0h	Radiators	o			o			
0h	Radiator expansion tank	o	o					
0h	Tyre pressure	o						
0h	Wear check (on both the vehicle and equipment if installed)	o						
10h / 1m	Boom chains (if installed)	o						
10h / 1m	Window washer tank	o	o					
10h / 1m	Safety stickers	o						
10h / 1m	Safety devices	o						
10h / 1m	Coolant	o						
10h / 1m	Engine oil level	o						
10h / 1m	Radiators				o			
10h / 1m	Metal structural work, no cracks	o						
50h / 1m	Grease level in the automatic lubrication system (if installed)						o	
50h / 1m	Prop shafts						o	
50h / 1m	Axles oscillation						o	
50h / 1m	Wheels reduction gear pins						o	
50h / 1m	Axle differential oil	o						
50h / 1m	Epicycloidal reduction gear oil	o						
50h / 1m	Ropes and chains (if installed)	o					o	
50h / 1m	Wear pads	o					o	
50h / 1m	Cab ventilation filter				o			
50h / 1m	Mechanical joints of parking brake on the axle						o	
50h / 1m	Brakes oil level	o						
50h / 1m	Hydraulic oil level	o						
50h / 1m	Hydraulic system leaks	o						
50h / 1m	Air filter				o			
50h / 1m	Fuel filter				o			
50h / 1m	Coolant	o						
50h / 1m	Engine oil level	o						
50h / 1m	Tyre pressure	o						
50h / 1m	Wheel nuts tightening	o						
50h / 1m	Mechanical joints						o	
50h / 1m	Inching oil level (only PS transmissions)	o						
50h / 1m	Transmission oil	o						
First 100h	Axles differential oil					o		
First 200h	Epicycloidal reduction gear oil					o		
First 200h	Dropbox Oil (if any)					o		
250h / 2m	Ropes and chains (if any) coupling points, wear and adjustment	o		o			o	
250h / 2m	Boom chains (if installed)			o				
250h / 2m	Seat belts	o						
250h / 2m	Rear view mirrors	o						
250h / 2m	Anti-tipping device	o						
250h / 2m	Electrolyte level and battery charge	o						

MAINTENANCE								
250h / 2m	Torque specifications - Hydraulic Fittings			o				
250h / 2m	Alternator belts \ services	o		o				
250h / 2m	Torque specifications - fasteners			o				
500h / 6m	PTO gearbox oil (if installed)					o		
500h / 6m	Forks: wear	o						
500h / 6m	Cab ventilation filter					o		
500h / 6m	Brakes oil					o		
500h	Hydraulic oil filter(s)					o		
500h / 6m	Electrical system	o						
500h / 6m	Block valves					o		
500h / 6m	Air filter				o			
500h / 6m	Fuel tank					o		
500h / 6m	Fuel pre-filter					o		
500h / 6m	(FPT) Fuel filter					o		
500h / 6m	(FPT) Engine oil filter					o		
500h / 6m	(FPT) Engine oil				o			
500h / 6m	(FPT) AdBlue intake prefilter (if present)					o		
500h / 6m	(KUBOTA) Fuel filter					o		
500h / 6m	(KUBOTA) Engine oil filter					o		
500h / 6m	(KUBOTA) Engine oil					o		
500h / 6m	(PERKINS) Engine oil					o		
500h / 6m	(PERKINS) Engine oil filter					o		
500h / 6m	(PERKINS) Engine air filter					o		
500h / 6m	(PERKINS) Water separator filter and prefilter					o		
1000h / 1y	PTO gearbox oil (if installed)					o		
1000h / 1y	Axles differential oil					o		
1000h / 1y	Epicycloidal reduction gear oil					o		
1000h / 1y	Dropbox Oil (if any)					o		
1000h / 1y	Equipment condition	o						**
1000h / 1y	Forks support plate: wear	o						**
1000h / 1y	Telescopic boom: conditions	o						**
1000h / 1y	Telescopic boom: bearings and pivot bushes	o						**
1000h / 1y	Wear pads: wear	o						**
1000h / 1y	Cab structure	o						**
1000h / 1y	Brakes oil circuit				o			**
1000h / 1y	Brakes oil circuit: Pressure	o						**
1000h / 1y	Brake			o				**
1000h / 1y	Electrical system: cables condition	o						**
1000h / 1y	Electrical system: Lighting and signalling	o						**
1000h / 1y	Electrical system: Acoustic signal devices	o						**
1000h / 1y	Hydraulic system: Jacks	o						**
1000h / 1y	Hydraulic system: Pipes and flexible pipes	o						**
1000h / 1y	Hydraulic system: Movements speed	o						**
1000h / 1y	Engine valves clearances	o						**
1000h / 1y	Coolant					o		
1000h / 1y	Engine speeds	o						**
1000h / 1y	Wheels and tyres conditions	o						**
1000h / 1y	Chassis: bearings and pivot bushes	o						**
1000h / 1y	Chassis: structure	o						**
1000h / 1y	Transmission oil					o		
1200h	Auxiliary components belt					o		
1500h	Blow-by filter					o		
2000h	Hydraulic oil	o						
2000h	Axles oscillation	o						**
2000h	Ropes and chains (if installed)					o		**
2000h	Hydraulic system: Capacity	o						**
2000h	Hydraulic system: Pressures	o						**
2000h	Hydraulic oil tank				o			**
2000h	Alternator and Starter motor	o						**
2000h	Radiators	o			o			**
2400h	Valves-rocker arms clearance adjustment					o		

MAINTENANCE								
3000h	(KUBOTA) DPF filter (if present)				o			**
3000h	(KUBOTA) DEF/AdBlue pump filter (if present)					o		**
3000h	(PERKINS) Alternator and fan belt					o		**
3600h / 2y	(FPT) AdBlue tank filter (if present)					o		**
4000h	Prop shafts	o				o		**
4000h	Reduction gears universal joint	o						**
4000h	Wheels reduction gear clearance	o						**
4000h	Steering ball joints	o						**
4000h	Wheels reduction gear pins	o						**
4000h	Brakes wear	o						**
8000h	(KUBOTA) DEF/AdBlue tank filter (if present)					o		**
10000h / 3y	(PERKINS) DEF collector filter (if installed)					o		**
2y	Air conditioning system (if installed): Dissipater filter					o		**
2y	Air conditioning system (if installed): Oil refrigerant	o						**
2y	Air conditioning system (if installed): Pressure switches	o		o				**
2y	Air conditioning system (if installed): Condenser and evaporator coils				o			**
2y	Air conditioning system (if installed): Condensate and exhaust valve tank				o			**
NOTES		STAMP AND SIGNATURE						

MAINTENANCE LOG			
Maintenance sheet no.	.....	Maintenance date	.....
Vehicle serial number:	.....	Maintenance technician name	.....
Vehicle hours	.....	Maintenance company name	.....



	MAINTENANCE							
0h	Air conditioning system	o			o			
0h	Anti-tipping device inspection with load	o						
0h	Filters (air, engine oil, hydraulic oil, fuel, air conditioning system, cab)	o						
0h	Brake			o				
0h	Parking brake	o						
0h	Electrolyte level and battery charge	o						
0h	Lighting	o						
0h	Hydraulic oil level	o						
0h	Alternator belts \ services	o						
0h	Engine oil level	o						
0h	Radiators	o			o			
0h	Radiator expansion tank	o	o					
0h	Tyre pressure	o						
0h	Wear check (on both the vehicle and equipment if installed)	o						
10h / 1m	Boom chains (if installed)	o						
10h / 1m	Window washer tank	o	o					
10h / 1m	Safety stickers	o						
10h / 1m	Safety devices	o						
10h / 1m	Coolant	o						
10h / 1m	Engine oil level	o						
10h / 1m	Radiators				o			
10h / 1m	Metal structural work, no cracks	o						
50h / 1m	Grease level in the automatic lubrication system (if installed)						o	
50h / 1m	Prop shafts						o	
50h / 1m	Axles oscillation						o	
50h / 1m	Wheels reduction gear pins						o	
50h / 1m	Axle differential oil	o						
50h / 1m	Epicycloidal reduction gear oil	o						
50h / 1m	Ropes and chains (if installed)	o					o	
50h / 1m	Wear pads	o					o	
50h / 1m	Cab ventilation filter				o			
50h / 1m	Mechanical joints of parking brake on the axle						o	
50h / 1m	Brakes oil level	o						
50h / 1m	Hydraulic oil level	o						
50h / 1m	Hydraulic system leaks	o						
50h / 1m	Air filter				o			
50h / 1m	Fuel filter				o			
50h / 1m	Coolant	o						
50h / 1m	Engine oil level	o						
50h / 1m	Tyre pressure	o						
50h / 1m	Wheel nuts tightening	o						
50h / 1m	Mechanical joints						o	
50h / 1m	Inching oil level (only PS transmissions)	o						
50h / 1m	Transmission oil	o						
First 100h	Axles differential oil					o		
First 200h	Epicycloidal reduction gear oil					o		
First 200h	Dropbox Oil (if any)					o		
250h / 2m	Ropes and chains (if any) coupling points, wear and adjustment	o		o			o	
250h / 2m	Boom chains (if installed)			o				
250h / 2m	Seat belts	o						
250h / 2m	Rear view mirrors	o						
250h / 2m	Anti-tipping device	o						
250h / 2m	Electrolyte level and battery charge	o						










MAINTENANCE								
250h / 2m	Torque specifications - Hydraulic Fittings			o				
250h / 2m	Alternator belts \ services	o		o				
250h / 2m	Torque specifications - fasteners			o				
500h / 6m	PTO gearbox oil (if installed)					o		
500h / 6m	Forks: wear	o						
500h / 6m	Cab ventilation filter					o		
500h / 6m	Brakes oil					o		
500h	Hydraulic oil filter(s)					o		
500h / 6m	Electrical system	o						
500h / 6m	Block valves					o		
500h / 6m	Air filter				o			
500h / 6m	Fuel tank					o		
500h / 6m	Fuel pre-filter					o		
500h / 6m	(FPT) Fuel filter					o		
500h / 6m	(FPT) Engine oil filter					o		
500h / 6m	(FPT) Engine oil				o			
500h / 6m	(FPT) AdBlue intake prefilter (if present)					o		
500h / 6m	(KUBOTA) Fuel filter					o		
500h / 6m	(KUBOTA) Engine oil filter					o		
500h / 6m	(KUBOTA) Engine oil					o		
500h / 6m	(PERKINS) Engine oil					o		
500h / 6m	(PERKINS) Engine oil filter					o		
500h / 6m	(PERKINS) Engine air filter					o		
500h / 6m	(PERKINS) Water separator filter and prefilter					o		
1000h / 1y	PTO gearbox oil (if installed)					o		
1000h / 1y	Axles differential oil					o		
1000h / 1y	Epicycloidal reduction gear oil					o		
1000h / 1y	Dropbox Oil (if any)					o		
1000h / 1y	Equipment condition	o						**
1000h / 1y	Forks support plate: wear	o						**
1000h / 1y	Telescopic boom: conditions	o						**
1000h / 1y	Telescopic boom: bearings and pivot bushes	o						**
1000h / 1y	Wear pads: wear	o						**
1000h / 1y	Cab structure	o						**
1000h / 1y	Brakes oil circuit				o			**
1000h / 1y	Brakes oil circuit: Pressure	o						**
1000h / 1y	Brake			o				**
1000h / 1y	Electrical system: cables condition	o						**
1000h / 1y	Electrical system: Lighting and signalling	o						**
1000h / 1y	Electrical system: Acoustic signal devices	o						**
1000h / 1y	Hydraulic system: Jacks	o						**
1000h / 1y	Hydraulic system: Pipes and flexible pipes	o						**
1000h / 1y	Hydraulic system: Movements speed	o						**
1000h / 1y	Engine valves clearances	o						**
1000h / 1y	Coolant					o		
1000h / 1y	Engine speeds	o						**
1000h / 1y	Wheels and tyres conditions	o						**
1000h / 1y	Chassis: bearings and pivot bushes	o						**
1000h / 1y	Chassis: structure	o						**
1000h / 1y	Transmission oil					o		
1200h	Auxiliary components belt					o		
1500h	Blow-by filter					o		
2000h	Hydraulic oil					o		
2000h	Axles oscillation	o						**
2000h	Ropes and chains (if installed)					o		**
2000h	Hydraulic system: Capacity	o						**
2000h	Hydraulic system: Pressures	o						**
2000h	Hydraulic oil tank				o			**
2000h	Alternator and Starter motor	o						**
2000h	Radiators	o			o			**
2400h	Valves-rocker arms clearance adjustment					o		

MAINTENANCE								
3000h	(KUBOTA) DPF filter (if present)				o			**
3000h	(KUBOTA) DEF/AdBlue pump filter (if present)					o		**
3000h	(PERKINS) Alternator and fan belt					o		**
3600h / 2y	(FPT) AdBlue tank filter (if present)					o		**
4000h	Prop shafts	o				o		**
4000h	Reduction gears universal joint	o						**
4000h	Wheels reduction gear clearance	o						**
4000h	Steering ball joints	o						**
4000h	Wheels reduction gear pins	o						**
4000h	Brakes wear	o						**
8000h	(KUBOTA) DEF/AdBlue tank filter (if present)					o		**
10000h / 3y	(PERKINS) DEF collector filter (if installed)					o		**
2y	Air conditioning system (if installed): Dissipater filter					o		**
2y	Air conditioning system (if installed): Oil refrigerant	o						**
2y	Air conditioning system (if installed): Pressure switches	o		o				**
2y	Air conditioning system (if installed): Condenser and evaporator coils				o			**
2y	Air conditioning system (if installed): Condensate and exhaust valve tank				o			**
NOTES		STAMP AND SIGNATURE						

MAINTENANCE LOG			
Maintenance sheet no.	.....	Maintenance date	.....
Vehicle serial number:	.....	Maintenance technician name	.....
Vehicle hours	.....	Maintenance company name	.....

	MAINTENANCE							
0h	Air conditioning system	o			o			
0h	Anti-tipping device inspection with load	o						
0h	Filters (air, engine oil, hydraulic oil, fuel, air conditioning system, cab)	o						
0h	Brake			o				
0h	Parking brake	o						
0h	Electrolyte level and battery charge	o						
0h	Lighting	o						
0h	Hydraulic oil level	o						
0h	Alternator belts \ services	o						
0h	Engine oil level	o						
0h	Radiators	o			o			
0h	Radiator expansion tank	o	o					
0h	Tyre pressure	o						
0h	Wear check (on both the vehicle and equipment if installed)	o						
10h / 1m	Boom chains (if installed)	o						
10h / 1m	Window washer tank	o	o					
10h / 1m	Safety stickers	o						
10h / 1m	Safety devices	o						
10h / 1m	Coolant	o						
10h / 1m	Engine oil level	o						
10h / 1m	Radiators				o			
10h / 1m	Metal structural work, no cracks	o						
50h / 1m	Grease level in the automatic lubrication system (if installed)						o	
50h / 1m	Prop shafts						o	
50h / 1m	Axles oscillation						o	
50h / 1m	Wheels reduction gear pins						o	
50h / 1m	Axle differential oil	o						
50h / 1m	Epicycloidal reduction gear oil	o						
50h / 1m	Ropes and chains (if installed)	o					o	
50h / 1m	Wear pads	o					o	
50h / 1m	Cab ventilation filter				o			
50h / 1m	Mechanical joints of parking brake on the axle						o	
50h / 1m	Brakes oil level	o						
50h / 1m	Hydraulic oil level	o						
50h / 1m	Hydraulic system leaks	o						
50h / 1m	Air filter				o			
50h / 1m	Fuel filter				o			
50h / 1m	Coolant	o						
50h / 1m	Engine oil level	o						
50h / 1m	Tyre pressure	o						
50h / 1m	Wheel nuts tightening	o						
50h / 1m	Mechanical joints						o	
50h / 1m	Inching oil level (only PS transmissions)	o						
50h / 1m	Transmission oil	o						
First 100h	Axles differential oil					o		
First 200h	Epicycloidal reduction gear oil					o		
First 200h	Dropbox Oil (if any)					o		
250h / 2m	Ropes and chains (if any) coupling points, wear and adjustment	o		o			o	
250h / 2m	Boom chains (if installed)			o				
250h / 2m	Seat belts	o						
250h / 2m	Rear view mirrors	o						
250h / 2m	Anti-tipping device	o						
250h / 2m	Electrolyte level and battery charge	o						

MAINTENANCE								
250h / 2m	Torque specifications - Hydraulic Fittings			o				
250h / 2m	Alternator belts \ services	o		o				
250h / 2m	Torque specifications - fasteners			o				
500h / 6m	PTO gearbox oil (if installed)					o		
500h / 6m	Forks: wear	o						
500h / 6m	Cab ventilation filter					o		
500h / 6m	Brakes oil					o		
500h	Hydraulic oil filter(s)					o		
500h / 6m	Electrical system	o						
500h / 6m	Block valves					o		
500h / 6m	Air filter				o			
500h / 6m	Fuel tank					o		
500h / 6m	Fuel pre-filter					o		
500h / 6m	(FPT) Fuel filter					o		
500h / 6m	(FPT) Engine oil filter					o		
500h / 6m	(FPT) Engine oil				o			
500h / 6m	(FPT) AdBlue intake prefilter (if present)					o		
500h / 6m	(KUBOTA) Fuel filter					o		
500h / 6m	(KUBOTA) Engine oil filter					o		
500h / 6m	(KUBOTA) Engine oil					o		
500h / 6m	(PERKINS) Engine oil					o		
500h / 6m	(PERKINS) Engine oil filter					o		
500h / 6m	(PERKINS) Engine air filter					o		
500h / 6m	(PERKINS) Water separator filter and prefilter					o		
1000h / 1y	PTO gearbox oil (if installed)					o		
1000h / 1y	Axles differential oil					o		
1000h / 1y	Epicycloidal reduction gear oil					o		
1000h / 1y	Dropbox Oil (if any)					o		
1000h / 1y	Equipment condition	o						**
1000h / 1y	Forks support plate: wear	o						**
1000h / 1y	Telescopic boom: conditions	o						**
1000h / 1y	Telescopic boom: bearings and pivot bushes	o						**
1000h / 1y	Wear pads: wear	o						**
1000h / 1y	Cab structure	o						**
1000h / 1y	Brakes oil circuit				o			**
1000h / 1y	Brakes oil circuit: Pressure	o						**
1000h / 1y	Brake			o				**
1000h / 1y	Electrical system: cables condition	o						**
1000h / 1y	Electrical system: Lighting and signalling	o						**
1000h / 1y	Electrical system: Acoustic signal devices	o						**
1000h / 1y	Hydraulic system: Jacks	o						**
1000h / 1y	Hydraulic system: Pipes and flexible pipes	o						**
1000h / 1y	Hydraulic system: Movements speed	o						**
1000h / 1y	Engine valves clearances	o						**
1000h / 1y	Coolant					o		
1000h / 1y	Engine speeds	o						**
1000h / 1y	Wheels and tyres conditions	o						**
1000h / 1y	Chassis: bearings and pivot bushes	o						**
1000h / 1y	Chassis: structure	o						**
1000h / 1y	Transmission oil					o		
1200h	Auxiliary components belt					o		
1500h	Blow-by filter					o		
2000h	Hydraulic oil					o		
2000h	Axles oscillation	o						**
2000h	Ropes and chains (if installed)					o		**
2000h	Hydraulic system: Capacity	o						**
2000h	Hydraulic system: Pressures	o						**
2000h	Hydraulic oil tank				o			**
2000h	Alternator and Starter motor	o						**
2000h	Radiators	o			o			**
2400h	Valves-rocker arms clearance adjustment					o		

MAINTENANCE								
3000h	(KUBOTA) DPF filter (if present)				o			**
3000h	(KUBOTA) DEF/AdBlue pump filter (if present)					o		**
3000h	(PERKINS) Alternator and fan belt					o		**
3600h / 2y	(FPT) AdBlue tank filter (if present)					o		**
4000h	Prop shafts	o				o		**
4000h	Reduction gears universal joint	o						**
4000h	Wheels reduction gear clearance	o						**
4000h	Steering ball joints	o						**
4000h	Wheels reduction gear pins	o						**
4000h	Brakes wear	o						**
8000h	(KUBOTA) DEF/AdBlue tank filter (if present)					o		**
10000h / 3y	(PERKINS) DEF collector filter (if installed)					o		**
2y	Air conditioning system (if installed): Dissipater filter					o		**
2y	Air conditioning system (if installed): Oil refrigerant	o						**
2y	Air conditioning system (if installed): Pressure switches	o		o				**
2y	Air conditioning system (if installed): Condenser and evaporator coils				o			**
2y	Air conditioning system (if installed): Condensate and exhaust valve tank				o			**
NOTES		STAMP AND SIGNATURE						

MAINTENANCE LOG			
Maintenance sheet no.	.....	Maintenance date	.....
Vehicle serial number:	.....	Maintenance technician name	.....
Vehicle hours	.....	Maintenance company name	.....

	MAINTENANCE							
0h	Air conditioning system	o			o			
0h	Anti-tipping device inspection with load	o						
0h	Filters (air, engine oil, hydraulic oil, fuel, air conditioning system, cab)	o						
0h	Brake			o				
0h	Parking brake	o						
0h	Electrolyte level and battery charge	o						
0h	Lighting	o						
0h	Hydraulic oil level	o						
0h	Alternator belts \ services	o						
0h	Engine oil level	o						
0h	Radiators	o			o			
0h	Radiator expansion tank	o	o					
0h	Tyre pressure	o						
0h	Wear check (on both the vehicle and equipment if installed)	o						
10h / 1m	Boom chains (if installed)	o						
10h / 1m	Window washer tank	o	o					
10h / 1m	Safety stickers	o						
10h / 1m	Safety devices	o						
10h / 1m	Coolant	o						
10h / 1m	Engine oil level	o						
10h / 1m	Radiators				o			
10h / 1m	Metal structural work, no cracks	o						
50h / 1m	Grease level in the automatic lubrication system (if installed)						o	
50h / 1m	Prop shafts						o	
50h / 1m	Axles oscillation						o	
50h / 1m	Wheels reduction gear pins						o	
50h / 1m	Axle differential oil	o						
50h / 1m	Epicycloidal reduction gear oil	o						
50h / 1m	Ropes and chains (if installed)	o					o	
50h / 1m	Wear pads	o					o	
50h / 1m	Cab ventilation filter				o			
50h / 1m	Mechanical joints of parking brake on the axle						o	
50h / 1m	Brakes oil level	o						
50h / 1m	Hydraulic oil level	o						
50h / 1m	Hydraulic system leaks	o						
50h / 1m	Air filter				o			
50h / 1m	Fuel filter				o			
50h / 1m	Coolant	o						
50h / 1m	Engine oil level	o						
50h / 1m	Tyre pressure	o						
50h / 1m	Wheel nuts tightening	o						
50h / 1m	Mechanical joints						o	
50h / 1m	Inching oil level (only PS transmissions)	o						
50h / 1m	Transmission oil	o						
First 100h	Axles differential oil					o		
First 200h	Epicycloidal reduction gear oil					o		
First 200h	Dropbox Oil (if any)					o		
250h / 2m	Ropes and chains (if any) coupling points, wear and adjustment	o		o			o	
250h / 2m	Boom chains (if installed)			o				
250h / 2m	Seat belts	o						
250h / 2m	Rear view mirrors	o						
250h / 2m	Anti-tipping device	o						
250h / 2m	Electrolyte level and battery charge	o						

	MAINTENANCE							
250h / 2m	Torque specifications - Hydraulic Fittings			o				
250h / 2m	Alternator belts \ services	o		o				
250h / 2m	Torque specifications - fasteners			o				
500h / 6m	PTO gearbox oil (if installed)					o		
500h / 6m	Forks: wear	o						
500h / 6m	Cab ventilation filter					o		
500h / 6m	Brakes oil					o		
500h	Hydraulic oil filter(s)					o		
500h / 6m	Electrical system	o						
500h / 6m	Block valves					o		
500h / 6m	Air filter				o			
500h / 6m	Fuel tank					o		
500h / 6m	Fuel pre-filter					o		
500h / 6m	(FPT) Fuel filter					o		
500h / 6m	(FPT) Engine oil filter					o		
500h / 6m	(FPT) Engine oil				o			
500h / 6m	(FPT) AdBlue intake prefilter (if present)					o		
500h / 6m	(KUBOTA) Fuel filter					o		
500h / 6m	(KUBOTA) Engine oil filter					o		
500h / 6m	(KUBOTA) Engine oil					o		
500h / 6m	(PERKINS) Engine oil					o		
500h / 6m	(PERKINS) Engine oil filter					o		
500h / 6m	(PERKINS) Engine air filter					o		
500h / 6m	(PERKINS) Water separator filter and prefilter					o		
1000h / 1y	PTO gearbox oil (if installed)					o		
1000h / 1y	Axles differential oil					o		
1000h / 1y	Epicycloidal reduction gear oil					o		
1000h / 1y	Dropbox Oil (if any)					o		
1000h / 1y	Equipment condition	o						**
1000h / 1y	Forks support plate: wear	o						**
1000h / 1y	Telescopic boom: conditions	o						**
1000h / 1y	Telescopic boom: bearings and pivot bushes	o						**
1000h / 1y	Wear pads: wear	o						**
1000h / 1y	Cab structure	o						**
1000h / 1y	Brakes oil circuit				o			**
1000h / 1y	Brakes oil circuit: Pressure	o						**
1000h / 1y	Brake			o				**
1000h / 1y	Electrical system: cables condition	o						**
1000h / 1y	Electrical system: Lighting and signalling	o						**
1000h / 1y	Electrical system: Acoustic signal devices	o						**
1000h / 1y	Hydraulic system: Jacks	o						**
1000h / 1y	Hydraulic system: Pipes and flexible pipes	o						**
1000h / 1y	Hydraulic system: Movements speed	o						**
1000h / 1y	Engine valves clearances	o						**
1000h / 1y	Coolant					o		
1000h / 1y	Engine speeds	o						**
1000h / 1y	Wheels and tyres conditions	o						**
1000h / 1y	Chassis: bearings and pivot bushes	o						**
1000h / 1y	Chassis: structure	o						**
1000h / 1y	Transmission oil					o		
1200h	Auxiliary components belt					o		
1500h	Blow-by filter					o		
2000h	Hydraulic oil					o		
2000h	Axles oscillation	o						**
2000h	Ropes and chains (if installed)					o		**
2000h	Hydraulic system: Capacity	o						**
2000h	Hydraulic system: Pressures	o						**
2000h	Hydraulic oil tank				o			**
2000h	Alternator and Starter motor	o						**
2000h	Radiators	o			o			**
2400h	Valves-rocker arms clearance adjustment					o		








MAINTENANCE								
3000h	(KUBOTA) DPF filter (if present)				o			**
3000h	(KUBOTA) DEF/AdBlue pump filter (if present)					o		**
3000h	(PERKINS) Alternator and fan belt					o		**
3600h / 2y	(FPT) AdBlue tank filter (if present)					o		**
4000h	Prop shafts	o				o		**
4000h	Reduction gears universal joint	o						**
4000h	Wheels reduction gear clearance	o						**
4000h	Steering ball joints	o						**
4000h	Wheels reduction gear pins	o						**
4000h	Brakes wear	o						**
8000h	(KUBOTA) DEF/AdBlue tank filter (if present)					o		**
10000h / 3y	(PERKINS) DEF collector filter (if installed)					o		**
2y	Air conditioning system (if installed): Dissipater filter					o		**
2y	Air conditioning system (if installed): Oil refrigerant	o						**
2y	Air conditioning system (if installed): Pressure switches	o		o				**
2y	Air conditioning system (if installed): Condenser and evaporator coils				o			**
2y	Air conditioning system (if installed): Condensate and exhaust valve tank				o			**
NOTES		STAMP AND SIGNATURE						



MAINTENANCE LOG			
Maintenance sheet no.	.....	Maintenance date	.....
Vehicle serial number:	.....	Maintenance technician name	.....
Vehicle hours	.....	Maintenance company name	.....

	MAINTENANCE							
0h	Air conditioning system	o			o			
0h	Anti-tipping device inspection with load	o						
0h	Filters (air, engine oil, hydraulic oil, fuel, air conditioning system, cab)	o						
0h	Brake			o				
0h	Parking brake	o						
0h	Electrolyte level and battery charge	o						
0h	Lighting	o						
0h	Hydraulic oil level	o						
0h	Alternator belts \ services	o						
0h	Engine oil level	o						
0h	Radiators	o			o			
0h	Radiator expansion tank	o	o					
0h	Tyre pressure	o						
0h	Wear check (on both the vehicle and equipment if installed)	o						
10h / 1m	Boom chains (if installed)	o						
10h / 1m	Window washer tank	o	o					
10h / 1m	Safety stickers	o						
10h / 1m	Safety devices	o						
10h / 1m	Coolant	o						
10h / 1m	Engine oil level	o						
10h / 1m	Radiators				o			
10h / 1m	Metal structural work, no cracks	o						
50h / 1m	Grease level in the automatic lubrication system (if installed)						o	
50h / 1m	Prop shafts						o	
50h / 1m	Axles oscillation						o	
50h / 1m	Wheels reduction gear pins						o	
50h / 1m	Axle differential oil	o						
50h / 1m	Epicycloidal reduction gear oil	o						
50h / 1m	Ropes and chains (if installed)	o					o	
50h / 1m	Wear pads	o					o	
50h / 1m	Cab ventilation filter				o			
50h / 1m	Mechanical joints of parking brake on the axle						o	
50h / 1m	Brakes oil level	o						
50h / 1m	Hydraulic oil level	o						
50h / 1m	Hydraulic system leaks	o						
50h / 1m	Air filter				o			
50h / 1m	Fuel filter				o			
50h / 1m	Coolant	o						
50h / 1m	Engine oil level	o						
50h / 1m	Tyre pressure	o						
50h / 1m	Wheel nuts tightening	o						
50h / 1m	Mechanical joints						o	
50h / 1m	Inching oil level (only PS transmissions)	o						
50h / 1m	Transmission oil	o						
First 100h	Axles differential oil					o		
First 200h	Epicycloidal reduction gear oil					o		
First 200h	Dropbox Oil (if any)					o		
250h / 2m	Ropes and chains (if any) coupling points, wear and adjustment	o		o			o	
250h / 2m	Boom chains (if installed)			o				
250h / 2m	Seat belts	o						
250h / 2m	Rear view mirrors	o						
250h / 2m	Anti-tipping device	o						
250h / 2m	Electrolyte level and battery charge	o						

MAINTENANCE								
250h / 2m	Torque specifications - Hydraulic Fittings			o				
250h / 2m	Alternator belts \ services	o		o				
250h / 2m	Torque specifications - fasteners			o				
500h / 6m	PTO gearbox oil (if installed)					o		
500h / 6m	Forks: wear	o						
500h / 6m	Cab ventilation filter					o		
500h / 6m	Brakes oil					o		
500h	Hydraulic oil filter(s)					o		
500h / 6m	Electrical system	o						
500h / 6m	Block valves					o		
500h / 6m	Air filter				o			
500h / 6m	Fuel tank					o		
500h / 6m	Fuel pre-filter					o		
500h / 6m	(FPT) Fuel filter					o		
500h / 6m	(FPT) Engine oil filter					o		
500h / 6m	(FPT) Engine oil				o			
500h / 6m	(FPT) AdBlue intake prefilter (if present)					o		
500h / 6m	(KUBOTA) Fuel filter					o		
500h / 6m	(KUBOTA) Engine oil filter					o		
500h / 6m	(KUBOTA) Engine oil					o		
500h / 6m	(PERKINS) Engine oil					o		
500h / 6m	(PERKINS) Engine oil filter					o		
500h / 6m	(PERKINS) Engine air filter					o		
500h / 6m	(PERKINS) Water separator filter and prefilter					o		
1000h / 1y	PTO gearbox oil (if installed)					o		
1000h / 1y	Axles differential oil					o		
1000h / 1y	Epicycloidal reduction gear oil					o		
1000h / 1y	Dropbox Oil (if any)					o		
1000h / 1y	Equipment condition	o						**
1000h / 1y	Forks support plate: wear	o						**
1000h / 1y	Telescopic boom: conditions	o						**
1000h / 1y	Telescopic boom: bearings and pivot bushes	o						**
1000h / 1y	Wear pads: wear	o						**
1000h / 1y	Cab structure	o						**
1000h / 1y	Brakes oil circuit				o			**
1000h / 1y	Brakes oil circuit: Pressure	o						**
1000h / 1y	Brake			o				**
1000h / 1y	Electrical system: cables condition	o						**
1000h / 1y	Electrical system: Lighting and signalling	o						**
1000h / 1y	Electrical system: Acoustic signal devices	o						**
1000h / 1y	Hydraulic system: Jacks	o						**
1000h / 1y	Hydraulic system: Pipes and flexible pipes	o						**
1000h / 1y	Hydraulic system: Movements speed	o						**
1000h / 1y	Engine valves clearances	o						**
1000h / 1y	Coolant					o		
1000h / 1y	Engine speeds	o						**
1000h / 1y	Wheels and tyres conditions	o						**
1000h / 1y	Chassis: bearings and pivot bushes	o						**
1000h / 1y	Chassis: structure	o						**
1000h / 1y	Transmission oil					o		
1200h	Auxiliary components belt					o		
1500h	Blow-by filter					o		
2000h	Hydraulic oil					o		
2000h	Axles oscillation	o						**
2000h	Ropes and chains (if installed)					o		**
2000h	Hydraulic system: Capacity	o						**
2000h	Hydraulic system: Pressures	o						**
2000h	Hydraulic oil tank				o			**
2000h	Alternator and Starter motor	o						**
2000h	Radiators	o			o			**
2400h	Valves-rocker arms clearance adjustment					o		

MAINTENANCE								
3000h	(KUBOTA) DPF filter (if present)				o			**
3000h	(KUBOTA) DEF/AdBlue pump filter (if present)					o		**
3000h	(PERKINS) Alternator and fan belt					o		**
3600h / 2y	(FPT) AdBlue tank filter (if present)					o		**
4000h	Prop shafts	o				o		**
4000h	Reduction gears universal joint	o						**
4000h	Wheels reduction gear clearance	o						**
4000h	Steering ball joints	o						**
4000h	Wheels reduction gear pins	o						**
4000h	Brakes wear	o						**
8000h	(KUBOTA) DEF/AdBlue tank filter (if present)					o		**
10000h / 3y	(PERKINS) DEF collector filter (if installed)					o		**
2y	Air conditioning system (if installed): Dissipater filter					o		**
2y	Air conditioning system (if installed): Oil refrigerant	o						**
2y	Air conditioning system (if installed): Pressure switches	o		o				**
2y	Air conditioning system (if installed): Condenser and evaporator coils				o			**
2y	Air conditioning system (if installed): Condensate and exhaust valve tank				o			**
NOTES		STAMP AND SIGNATURE						

MAINTENANCE LOG			
Maintenance sheet no.	.....	Maintenance date	.....
Vehicle serial number:	.....	Maintenance technician name	.....
Vehicle hours	.....	Maintenance company name	.....

	MAINTENANCE							
0h	Air conditioning system	o			o			
0h	Anti-tipping device inspection with load	o						
0h	Filters (air, engine oil, hydraulic oil, fuel, air conditioning system, cab)	o						
0h	Brake			o				
0h	Parking brake	o						
0h	Electrolyte level and battery charge	o						
0h	Lighting	o						
0h	Hydraulic oil level	o						
0h	Alternator belts \ services	o						
0h	Engine oil level	o						
0h	Radiators	o			o			
0h	Radiator expansion tank	o	o					
0h	Tyre pressure	o						
0h	Wear check (on both the vehicle and equipment if installed)	o						
10h / 1m	Boom chains (if installed)	o						
10h / 1m	Window washer tank	o	o					
10h / 1m	Safety stickers	o						
10h / 1m	Safety devices	o						
10h / 1m	Coolant	o						
10h / 1m	Engine oil level	o						
10h / 1m	Radiators				o			
10h / 1m	Metal structural work, no cracks	o						
50h / 1m	Grease level in the automatic lubrication system (if installed)						o	
50h / 1m	Prop shafts						o	
50h / 1m	Axles oscillation						o	
50h / 1m	Wheels reduction gear pins						o	
50h / 1m	Axle differential oil	o						
50h / 1m	Epicycloidal reduction gear oil	o						
50h / 1m	Ropes and chains (if installed)	o					o	
50h / 1m	Wear pads	o					o	
50h / 1m	Cab ventilation filter				o			
50h / 1m	Mechanical joints of parking brake on the axle						o	
50h / 1m	Brakes oil level	o						
50h / 1m	Hydraulic oil level	o						
50h / 1m	Hydraulic system leaks	o						
50h / 1m	Air filter				o			
50h / 1m	Fuel filter				o			
50h / 1m	Coolant	o						
50h / 1m	Engine oil level	o						
50h / 1m	Tyre pressure	o						
50h / 1m	Wheel nuts tightening	o						
50h / 1m	Mechanical joints						o	
50h / 1m	Inching oil level (only PS transmissions)	o						
50h / 1m	Transmission oil	o						
First 100h	Axles differential oil					o		
First 200h	Epicycloidal reduction gear oil					o		
First 200h	Dropbox Oil (if any)					o		
250h / 2m	Ropes and chains (if any) coupling points, wear and adjustment	o		o			o	
250h / 2m	Boom chains (if installed)			o				
250h / 2m	Seat belts	o						
250h / 2m	Rear view mirrors	o						
250h / 2m	Anti-tipping device	o						
250h / 2m	Electrolyte level and battery charge	o						

MAINTENANCE								
250h / 2m	Torque specifications - Hydraulic Fittings			o				
250h / 2m	Alternator belts \ services	o		o				
250h / 2m	Torque specifications - fasteners			o				
500h / 6m	PTO gearbox oil (if installed)					o		
500h / 6m	Forks: wear	o						
500h / 6m	Cab ventilation filter					o		
500h / 6m	Brakes oil					o		
500h	Hydraulic oil filter(s)					o		
500h / 6m	Electrical system	o						
500h / 6m	Block valves					o		
500h / 6m	Air filter				o			
500h / 6m	Fuel tank					o		
500h / 6m	Fuel pre-filter					o		
500h / 6m	(FPT) Fuel filter					o		
500h / 6m	(FPT) Engine oil filter					o		
500h / 6m	(FPT) Engine oil				o			
500h / 6m	(FPT) AdBlue intake prefilter (if present)					o		
500h / 6m	(KUBOTA) Fuel filter					o		
500h / 6m	(KUBOTA) Engine oil filter					o		
500h / 6m	(KUBOTA) Engine oil					o		
500h / 6m	(PERKINS) Engine oil					o		
500h / 6m	(PERKINS) Engine oil filter					o		
500h / 6m	(PERKINS) Engine air filter					o		
500h / 6m	(PERKINS) Water separator filter and prefilter					o		
1000h / 1y	PTO gearbox oil (if installed)					o		
1000h / 1y	Axles differential oil					o		
1000h / 1y	Epicycloidal reduction gear oil					o		
1000h / 1y	Dropbox Oil (if any)					o		
1000h / 1y	Equipment condition	o						**
1000h / 1y	Forks support plate: wear	o						**
1000h / 1y	Telescopic boom: conditions	o						**
1000h / 1y	Telescopic boom: bearings and pivot bushes	o						**
1000h / 1y	Wear pads: wear	o						**
1000h / 1y	Cab structure	o						**
1000h / 1y	Brakes oil circuit				o			**
1000h / 1y	Brakes oil circuit: Pressure	o						**
1000h / 1y	Brake			o				**
1000h / 1y	Electrical system: cables condition	o						**
1000h / 1y	Electrical system: Lighting and signalling	o						**
1000h / 1y	Electrical system: Acoustic signal devices	o						**
1000h / 1y	Hydraulic system: Jacks	o						**
1000h / 1y	Hydraulic system: Pipes and flexible pipes	o						**
1000h / 1y	Hydraulic system: Movements speed	o						**
1000h / 1y	Engine valves clearances	o						**
1000h / 1y	Coolant					o		
1000h / 1y	Engine speeds	o						**
1000h / 1y	Wheels and tyres conditions	o						**
1000h / 1y	Chassis: bearings and pivot bushes	o						**
1000h / 1y	Chassis: structure	o						**
1000h / 1y	Transmission oil					o		
1200h	Auxiliary components belt					o		
1500h	Blow-by filter					o		
2000h	Hydraulic oil					o		
2000h	Axles oscillation	o						**
2000h	Ropes and chains (if installed)					o		**
2000h	Hydraulic system: Capacity	o						**
2000h	Hydraulic system: Pressures	o						**
2000h	Hydraulic oil tank				o			**
2000h	Alternator and Starter motor	o						**
2000h	Radiators	o			o			**
2400h	Valves-rocker arms clearance adjustment					o		

MAINTENANCE								
3000h	(KUBOTA) DPF filter (if present)				o			**
3000h	(KUBOTA) DEF/AdBlue pump filter (if present)					o		**
3000h	(PERKINS) Alternator and fan belt					o		
3600h / 2y	(FPT) AdBlue tank filter (if present)					o		**
4000h	Prop shafts	o				o		**
4000h	Reduction gears universal joint	o						**
4000h	Wheels reduction gear clearance	o						**
4000h	Steering ball joints	o						**
4000h	Wheels reduction gear pins	o						**
4000h	Brakes wear	o						**
8000h	(KUBOTA) DEF/AdBlue tank filter (if present)					o		**
10000h / 3y	(PERKINS) DEF collector filter (if installed)					o		
2y	Air conditioning system (if installed): Dissipater filter					o		**
2y	Air conditioning system (if installed): Oil refrigerant	o						**
2y	Air conditioning system (if installed): Pressure switches	o		o				**
2y	Air conditioning system (if installed): Condenser and evaporator coils				o			**
2y	Air conditioning system (if installed): Condensate and exhaust valve tank				o			**
NOTES		STAMP AND SIGNATURE						

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