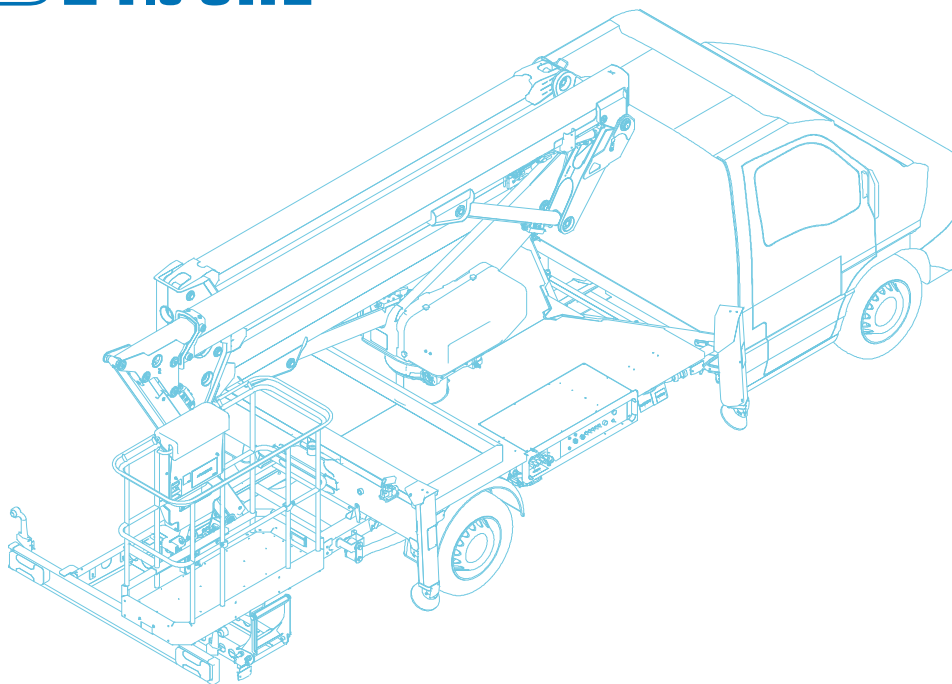


INSTRUCTIONS FOR USE AND MAINTENANCE

MOBILE ELEVATING
WORK PLATFORM

ZED_{21.3} JHL



FABRICATION NR.

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1 General information

1.1	Manufacturer information	1
1.2	Limitations of responsibility	1
1.3	Content and scope of this manual	2
1.3.1	Symbols	2
1.3.2	Illustrations	2
1.3.3	Scope of this manual	3
1.3.4	Amendments and additions	3
1.3.5	Composition	3
1.3.6	Intended readership	4
1.3.7	Conservation	5
1.3.8	Confidentiality	5
1.4	Glossary	6

2 Safety

2.1	Reference standards and directives	1
2.2	Intended and improper use	2
2.2.1	Non-permitted use	3
2.3	Obligations and requirements	3
2.3.1	Electrocution hazard	4
2.3.2	Tipping hazard	4
2.3.2.1	BEAUFORT wind scale	5
2.3.3	Risk of falling	7
2.3.4	Collision hazard	7
2.3.5	Work atmosphere hazards	7
2.3.6	Machine hazards	8
2.4	Operator Definition	9
2.4.1	The role of the operators	9
2.4.2	Training and importance of the procedures	10
2.4.3	Operators' tasks	10
2.4.4	Summary of operator standards	11
2.5	Road traffic	12
2.5.1	Checks and tests before driving	12
2.6	Safe workplace	13
2.6.1	Type of workplace	13
2.6.1.1	Supporting surface	13
2.6.1.2	Production areas or public areas	13
2.6.1.3	Positioning the machine	13
2.6.1.4	Delimitation of the operating area	13
2.6.2	Danger areas	14
2.6.3	Risks for exposed persons	15
2.6.4	Electrical tolerances	15
2.6.5	Ambient air temperature	15
2.6.6	Humidity	15
2.6.7	Noise level	15
2.6.8	Vibrations and crashes	15
2.6.9	Gas emissions	16
2.6.10	Contaminant agents	16

2.6.11	Ionising and non-ionising radiation.....	16
2.6.12	Lighting.....	16
2.7	Personal protective equipment (PPE)	17
2.7.1	Harness system	17
2.7.1.1	<i>Additional personal protective equipment</i>	18
2.8	Residual risks	18
3	Description and Technical Data	
3.1	General description of the machine	1
3.1.1	Classification	2
3.2	Direction	2
3.3	Identification information and CE marking	3
3.4	Description of main units	4
3.5	Main adhesive labels	5
3.6	Technical specifications	6
3.6.1	Technical data sheet	6
3.7	Dimensions	7
3.8	Working envelope	9
3.8.1	Plan view of work area	9
3.8.2	Work envelopes and load according to the stabilisation	11
4	Controls	
4.1	Control panels	1
4.2	Stabilisation control panel	2
4.3	Cabin control panel	3
4.4	Ground control panel	4
4.5	Emergency controls station	6
4.6	Power take-off control	7
4.7	Control panel in the work platform	8
5	Safety devices	
5.1	Emergency stop buttons	1
5.2	Alarms-warnings	2
5.2.1	Reset alarms	2
5.2.2	Buzzer	2
5.3	Stabilisers and/or beams not completely retracted	3
5.4	Stabilisers interlock switch	3
5.5	Aerial manoeuvres enabling	4
5.6	Manual emergency pump	4
5.7	Maximum pressure valve	5
5.8	Blocking valves on cylinders	5
5.9	Stabilisation control device	6
5.10	Turret rotation control device	7
5.11	Control device for driving on the road	7
5.12	Basket centring device	8
5.13	Working envelope control device	9

5.14	Spirit level	10
5.15	Anchorage points for the harness device	10

6 Procedures for Use

6.1	Foreword	1
6.2	General precautions	1
6.3	Operating stages	3
6.3.1	Pre-start checks	3
6.3.2	Starting the vehicle	4
6.3.3	Engaging the power take-off:	4
6.3.4	Stabilising the elevating work platform (MEWP)	5
6.3.5	Using the elevating platform	6
6.3.6	Returning the lifting platform to its rest position	8
6.3.7	Closing the stabilisers	8
6.3.8	Switching off the vehicle	9
6.4	Parking	9

7 Emergency manoeuvres

7.1	Foreword	1
7.1.1	Using solenoid valves	1
7.2	Work platform emergency stop	2
7.3	Levelling the work platform	2
7.4	Lowering the work platform using the ground controls in the event of operator incapacity	3
7.5	Manual lowering of platform from the ground	4
7.6	Lowering the work platform in the event of a power cut	6

8 Maintenance

8.1	Inspection logbook	2
8.2	General Rules	2
8.3	Maintenance summary table	3
8.3.1	Pre-start checks	3
8.3.2	Every 50 hours of operation	3
8.3.3	Every 100 hours of operation	4
8.3.4	Every 6 months or 500 hours of operation	4
8.3.5	Yearly or every 1000 hours of operation	5
8.3.6	Every 10 years or 10000 hours	6
8.4	Maintenance of mechanical components	7
8.4.1	Main mechanisms	7
8.4.2	Combustion engine	7
8.5	Lubrication and greasing	8
8.5.1	Greasing the pins	8
8.5.2	Lubricating the stabilisers	8
8.5.3	Lubricating the telescopic boom elements	9
8.5.4	Lubricating the turntable	9
8.6	Hydraulic system maintenance	10
8.6.1	Hydraulic cylinders	10
8.6.2	Hydraulic system pipes	10

8.6.3	Pressure check and valve adjustment	10
8.6.4	Hydraulic motors and pumps	10
8.6.5	Hydraulic oil	10
8.6.6	Hydraulic oil filter	11
8.6.7	Restore levelling of work platform	12
8.7	Electrical system	14
8.7.1	Electrical circuit	14
8.7.2	Stabiliser limit switches and interlock switches	14
8.8	Tightening the screws	15
8.8.1	Tightening the turret screws	15
8.8.2	Tightening the frame screws	16
8.9	Telescopic element clearance and sliding block wear verification	17
8.10	Slewing ring clearance check	18
8.11	Slewing drive greasing	19
8.12	Cleaning	20
8.12.1	Washing	20
8.13	Paintwork inspection and maintenance	21
8.13.1	Touching up the paintwork	21
8.13.2	Preparing the surfaces for repainting	21
8.13.3	Touching up paintwork on non-rusty parts	21
8.13.4	Touching up paintwork on non-rusty parts	22
8.13.5	Wax finishing	22
8.14	Checking the cables and chains	23
8.14.1	Checking the cables	23
8.14.1	Checking the chains	24
9	Demolition and Disposal	
9.1	Demolition	1
9.2	Disposal	2
10	Transport and storage	
10.1	Loading the machine onto a vehicle	1
10.2	Storage	2
11	Support and Warranty	
11.1	After-Sales services and spare parts	1
11.2	Spare parts	1
11.3	Warranty	2
12	Troubleshooting	
12.1	Problems, causes and remedies	1
12.2	List of alarms	4
12.2.1	Reset alarms	6
13	Diagrams and Attachments	
13.1	Electrical sytem diagram	2
13.2	Hydraulic system diagram	3

14 Facsimiles of EC Declaration and Certificates

15 Optional equipment and accessories

15.1	Dead-man-control: pedal in the basket on the work platform	1
15.2	5000V Insulated work platform	1
15.3	Auxiliary electric motor	1
15.4	Integrated access ladder on the platform	3

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1

GENERAL INFORMATION

1 General information

1.1 Manufacturer information

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1.2 Limitations of responsibility

The manufacturer is responsible for the machine in its initial configuration.

The use of non-original spare parts, modification of the machine, installation of any accessories not supplied or authorised by the manufacturer, or performing maintenance operations that do not comply with the instructions in this manual shall relieve the Manufacturer of any responsibility for damage or injury.

The customer shall bear responsibility for ensuring their workers collaborate and have the necessary expertise.

Acceptance of the machine expressly commits the customer to maintain it unaltered and to not remove, move or partially or completely disable the protective devices, guards and any and all other safety devices with which it is equipped.

Any defect that may be discovered must be reported to the manufacturer.

The manufacturer shall hold themselves exempt from all responsibility and obligations for any damage and/or injury caused by the following:

- Use of the machine outside the limits described in this manual.

- Partial or total failure to observe the machine use and maintenance instructions contained in this manual.
- Use by unauthorised and/or improperly trained personnel.
- Failure to observe health and safety and accident prevention legislation or the Highway Code.
- Mistakes during use and maintenance of the machine
- Disabling, modification or removal of the safety and protection devices that are installed
- Lack of maintenance
- Modifications or other work not authorised by the manufacturer
- Use of non-original spare parts or those that are otherwise not appropriate for the model
- Exceptional events and events outside of ordinary and proper use of the machine

It is up to the user to prove if a machine defect is the main and direct cause of an accident.

1.3 Content and scope of this manual

1.3.1 Symbols

For the purposes of personal and material safety, in preparing this document particular symbols have been used to draw attention to dangerous conditions, warnings and other relevant information:



DANGER!

Triangular symbol on yellow background, black border and black symbol.
Indicates the presence of a situation of imminent danger which, unless avoided, could lead to serious injury or even death.

ALWAYS FOLLOW THE SAFETY INDICATIONS ACCOMPANIED BY THIS SYMBOL TO AVOID THE RISK OF SERIOUS PERSONAL INJURY OR DEATH.



CAUTION

Triangular symbol on yellow background and black border.

Failure to observe the warnings accompanied by this symbol could cause damage to the machine and/or its components as well as personal injury.



PROHIBITED

Round pictogram on white background and red border with a red stripe across it.
This symbol is used to highlight operations or procedures that are **STRICTLY PROHIBITED**.



OBLIGATORY

Round symbol with blue background and white symbol.

WARNING

WARNING

Note on key functions or useful information regarding the operation in progress.

1.3.2 Illustrations

The illustrations contained in this document were up to date at the time of publication.

WARNING

The illustrations are provided purely as a rough guide and may show the machine with its protective devices removed for easier understanding.

1.3.3 Scope of this manual

WARNING

This document has been prepared pursuant to standards and legislation in force at the time of its publication.

The purpose of this manual is to provide all the information necessary to be able to use and handle the machine in a correct and safe manner according to the use envisaged by the manufacturer.

The manual contains a description of the machine, its technical and functional characteristics, descriptions of the safety and control devices, all information necessary for the operator to use it correctly and safely, the methods for performing checks and maintenance, as well as the information for compiling the check register.

This manual refers exclusively to the machine type and model indicated on the cover.

WARNING

This manual is not intended to train inexperienced operators or to teach people how to use the machine. All descriptions assume that the machine will only be used by operators trained specifically to operate this type of machine. This manual cannot in any way substitute adequate operator training.

The operator is directly responsible for the machine and its use.

This manual does not contain instructions for maintenance operations, which must be performed only by specialised personnel or by CTE SpA authorised service centres.



CAUTION

Before using the machine, carefully read the manual and be sure you understand all the safety standards and operating instructions.

Contact the manufacturer or the nearest service centre if in doubt.

Correct use and maintenance contribute to the proper operation and longer lifetime of the machine.

1.3.4 Amendments and additions

This manual conforms to standards and regulations in force at the time of marketing the machine and should not therefore be considered inadequate or lacking in the event of amendments or additions due to new legal provisions, updated standards or new acquired experience.

The Manufacturer reserves the right to inform the owner of any amendments or additions deemed necessary for previously marketed products.

To enable this, it is necessary to inform the manufacturer of any change in ownership of the machine.

1.3.5 Composition

This document is divided into 15 chapters, which are subdivided into sections and subsections.

CHAPTER		DESCRIPTION
1	GENERAL INFORMATION	describes the structure and organisation of the manual and provides the manufacturer's identification data
2	SICUREZZA	describes the safety requirements and the main safety standards to observe when using the lifting platform
3	DESCRIPTION AND TECHNICAL DATA	contains the technical data, performance data and technical characteristics of the lifting platform
4	CONTROLS	describes the function of the controls and instruments installed on the lifting platform
5	DISPOSITIVI DI SICUREZZA	lists and describes the characteristics of the safety devices installed on the lifting platform
6	PROCEDURES FOR USE	describes the operating phases and the instructions for use intended for the personnel in charge of operating the lifting platform
7	MANOVRE D'EMERGENZA	specifies the main emergency operations to perform if necessary.
8	MAINTENANCE	contains the main maintenance operations, with an indication of their recommended frequency
9	DEMOLITION AND DISPOSAL	contains the instructions for demolition and the disposal of the materials that make up the platform.
10	TRANSPORT AND STORAGE	contains the instructions for transporting and storing the platform
11	SUPPORT AND WARRANTY	contains the warranty and the instructions to follow for receiving assistance for the machine indicated in this manual
12	TROUBLESHOOTING	describes a series of common problems and indicates their probable causes and possible solutions
13	DIAGRAMS AND ATTACHMENTS	functional diagrams of the machine systems (hydraulic, electric etc.)
14	FACSIMILE OF EC DECLARATION	
15	OPTIONAL EQUIPMENT AND ACCESSORIES	lists the optional devices and describes them

1.3.6 Intended readership

WARNING

This manual may not in any way replace the specific technical preparation which operators must have previously undergone on similar machines or else which they must undergo under the supervision of qualified personnel.

This manual is written for the persons responsible for performing the following operations on the machine:

- Transport and handling
- Use
- Adjustments
- Cleaning
- Maintenance
- Demolition and disposal



PROHIBITED

It is prohibited for persons to perform operations or work which falls outside their specific areas of expertise and responsibilities.

1.3.7 Conservation

This manual is an integral part of the machine and should be stored with care in the cab dashboard so it can be readily consulted at any moment.

The manual must always accompany the machine along with the CE declaration of conformity, the check register and any other documents relating to the machine, including in the event that it is sold, up until such time as it is removed from service or disposed of.

Make a note of the fabrication number on the cover in order to easily identify the manual.

If the manual is lost or has deteriorated, request a new copy from the manufacturer, quoting the code on the cover or the machine's factory number.



PROHIBITED

Do not remove, tear out or make arbitrary modifications to any parts of this document.

1.3.8 Confidentiality

The technical information (text, drawings and illustrations) contained in this manual are property of CTE S.p.A. and should be considered confidential.

It is strictly prohibited to disclose, reproduce or translate this document, in whole or in part, without written authorisation from CTE S.p.A.

1.4 Glossary

List and meaning of the main terms used in this manual.

TERM	MEANING
Lowering	All operations to move the platform to a lower level.
Working envelope	Space inside which the work platform is designed to operate, within the loads and stresses specified for normal operating conditions. N.B.: Mobile elevating work platforms may have more than one work area.
Joints	Point of articulation between two or more elements that allow for its movement (synonym: hinge).
Rated load	The load for which the mobile elevating work platform has been designed for normal operation. The rated load includes people, tools and materials acting vertically on the work platform. N.B.: A mobile elevating work platform may have more than one rated load.
Load cycle	Cycle that starts from the access position, carries out work and returns to the access position.
Power system	System that transmits an energy or force used to move a part of the platform (hydraulic, electric, pneumatic, etc.).
Wireless control	Means by which the mobile elevating work platform operator's commands are transmitted without any physical connection for at least a part of the distance between the control console and the rest of the control system.
Transport position	Configuration of the mobile aerial work platform established by the manufacturer in which the mobile aerial work platform is designed to be transported to its place of use.
Telescopic element	Two or more hoses which run one into the other, so that the element is extending or retractile (synonym: extension booms or extensions).
Hydraulic extension	Extension or return of a specific element by means of a hydraulic movement.
Manufacturer	The company that manufactures the lifting platform and in some cases also combines it with the vehicle.
Self-revealing failure or fault	A fault or the failure of a component in which the fault or failure is apparent to the mobile elevating work platform operator and that can be detected without the need of diagnostics services. N.B.: The fault or the failure of a component can be evident to the mobile elevating work platform operator: <ul style="list-style-type: none"> – through changes in operating characteristics and/or – visual evidence and/or – noise and/or – other
Machine	The assembly consisting of the mobile platform and the vehicle (or carriage).
Service engineer	A qualified technician trained for carrying out the maintenance.
Authorised service centre	Company with one or more qualified technicians authorised by the manufacturer to carry out extraordinary maintenance and repairs.

TERM	MEANING
Operator	Person in charge of using and checking the lifting platform. An operator is defined as a person who operates, controls, moves and carries out the checks and maintenance described in this manual (excluding the work that has to be carried out by a service engineer or authorised service centre).
Exposed person	Anyone who is entirely or partly inside a hazardous area.
Aerial lifting platform (basket)	Platform equipped with railings and control panel that can be moved under load to the required work position. Authorised personnel stay inside the platform.
Mobile elevating work platform (MEWP)	A mobile machine intended to lift people for carrying out work from within the work platform.
Vehicle-mounted mobile elevating work platform	Mobile elevating work platform in which the chassis is a vehicle and the controls for manoeuvring it are located in the cab of the vehicle.
Mobile elevating work platform (self-propelled)	Mobile elevating work platform in which the controls for manoeuvring it are located on in the work platform.
Access position	Position that allows access to the work platform.
Risk	Result determined by the combination of the probabilities and the degree of seriousness of the possible injuries or possible health damages in a dangerous situation.
Rotation	Circular movement of the work platform around the vertical axis.
Extension (widening)	Distance between the axis of the turret and the outside wall of the work platform.
Load sensing system	System for monitoring the vertical load and vertical forces on the work platform. N.B.: The system includes the measuring devices, the method of mounting the measuring devices and the signal processing system.
Moment sensing system	A system of monitoring the moment acting about the tipping line tending to overturn the mobile elevating work platform.
Wire rope drive system	System that comprises one or more wire rope(s) running on rope drums and or over rope pulleys as well as any associated rope drums, rope pulleys and compensating pulleys.
Chain drive system	System that comprises one or more chain(s) running on chain sprockets and or over chain pulleys as well as any associated chain sprockets, chain pulleys and compensating pulleys.
Lifting	All operations required to move the platform to a higher level.
Movement	Any movement of the chassis with the work platform in a position other than its transport configuration.
Stabilisers	All devices and systems used to stabilise the mobile elevating work platforms by supporting and/or levelling the entire mobile elevating work platform or extending structure, for example jacks, suspension locking devices etc.

TERM	MEANING
Extending structure	Structure that is connected to the chassis and work platform supports. It allows movement of the work platform to its required position. It consists of a telescopic or articulated boom or a combination thereof and may or may not slew on its base.
Chassis	Base of the mobile elevating work platform. It means the carriage in the case of self-propelled machine and the vehicle chassis and the basic structure in the case of a mobile elevating work platform mounted on the vehicle.
Hazardous area	Any area inside and/or near a machine where there is a continuous risk for the safety and health of the persons exposed.

2

SAFETY

2 Safety

2.1 Reference standards and directives

The lifting platform was designed and constructed in compliance with the following standards and directives where applicable:

DIRECTIVE	DATE	SUBJECT
2006/42/EC	17/05/06	DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND COUNCIL dated 17 May 2006 relating to machinery and that modifies Directive 95/16/EC (recasting).
2014/30/EU	26/02/2014	DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND COUNCIL dated 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast).
2014/35/EU	26/02/2014	DIRECTIVE 2014/35/EU OF THE EUROPEAN PARLIAMENT AND COUNCIL dated 26 February 2014 on the harmonisation of the laws of Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.
2000/14/EC	08/05/2000	Directive 2000/14/EC OF THE EUROPEAN PARLIAMENT AND COUNCIL dated 8 May 2000 on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors.

The mobile elevating work platform was built mainly referring to the standards and technical specifications shown below:

STANDARD	ED.	TITLE
UNI EN 280:2015	October 2015	Mobile elevating work platforms - Design calculations - Stability criteria - Construction - Safety - Examinations and tests.
UNI EN ISO 13857:2008	May 2008	Safety of machinery. Safety distances to prevent danger zones being reached by the upper limbs/Safety distances to prevent danger zones being reached by the lower limbs.
UNI EN 349:2008	November 2008	Safety of machinery -- Minimum gaps to avoid crushing of parts of the human body.
UNI EN ISO 4413:2012	February 2012	Hydraulic fluid power - General rules and safety requirements for systems and their components.
IEC EN 60204-1:2016	October 2016	Safety of machinery - Electrical equipment of machines - Part 1 General requirements
UNI EN ISO 13850:2015	November 2015	Safety of machinery - Emergency stop - Principles for design.
UNI EN ISO 13849-1:2016	January 2016	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design.
UNI EN ISO 13849-2:2016	January 2016	Safety of machinery - Safety-related parts of control systems - Part 2: Validation

WARNING

The elevating platform was built referring to the standards and technical specifications indicated in standard UNI EN ISO 9001.

2.2 Intended and improper use



CAUTION

The intended use is that of a machine, **DESIGNED EXCLUSIVELY TO LIFT PERSONNEL** and their work tools, in compliance with the limits set forth by the technical data.

The elevating work platform can be used for working at height whilst remaining inside the platform, including:

- painting and routine or extraordinary maintenance of buildings
- maintenance of industrial plant and factories
- maintenance of electrical lines and the installation of electrical systems
- pruning

the limitations on use are described in the manual

Any mode or condition of use that does not fall within the limitations of use described in this manual and not intended by the manufacturer is forbidden.


DANGER!

- It is forbidden to exceed the limits indicated in the technical data.
- It is forbidden to use the lifting platform in a manner other than that for which it was intended and designed.

2.2.1 Non-permitted use


DANGER!

The manufacturer declines all responsibility for damage to property and/or injury to persons caused by failure to observe the following warnings.

IT IS STRICTLY PROHIBITED TO:

- lift loads or perform oblique lifts.
- use the lifting platform to push and/or pull objects.
- take accessories or pieces of equipment onto the platform that are classified as dangerous (e.g. flammable, toxic, explosive materials etc.) because of their chemical-physical characteristics.
- load the platform when it is raised.

2.3 Obligations and requirements


DANGER!

Failure to comply with safety standards could cause serious injury or even death.


CAUTION

Applicable national standards and legislation, safety standards set down by the employer and those relating to the work area should all be observed.

Read and ensure you have understood the safety standards before reading the following chapter.


DANGER!

The manufacturer declines all responsibility for damage to property and/or injury to persons caused by failure to observe the following warnings.


CAUTION

Tampering with PPE and/or removing the lead-sealed and painted seals is strictly prohibited.

2.3.1 Electrocution hazard



This machine is **NOT** electrically insulated and does **NOT** provide protection from contact with or when in proximity to electric power lines.

Observe the minimum safety distances required by the current national regulations or, in their absence, refer to the minimum distances indicated in the table at the side (ref. ISO 18893: 2014).

Voltage field (phase to phase)	Minimum safe distance (m)
0 to 50 kV	3
51 to 220 kV	4
221 to 500 kV	5
501 to 750 kV	10
751 to 1,000 kV	13

For Italy, as regards safe distances from electrical lines, the provisions of current legislation apply. (reference to tab. 1, attachment IX, Italian Leg. Decree 81/2008, as amended).

Nominal Voltage (kV)	Distance (m)
≤ 1	3
$1 < \text{Nominal Voltage} \leq 30$	3.5
$30 < \text{Nominal Voltage} \leq 132$	5
> 132	7



DANGER!

- Do not use the machine as a ground for welding.
- Never use the machine during storms or in the presence of lightning.



DANGER!

- It is mandatory to observe the minimum safe distance from live aerial equipment and lines.
- Clearance should be maintained, bearing in mind maximum extension of the machine's boom, as well as swaying of the conductors due to wind.
- Failure to comply with the minimum safety distances can cause death or serious injury.

2.3.2 Tipping hazard



Before using the machine, make sure that the ground is able to support the weight of the machine and withstand the pressure exerted by the stabilisers. Maximum load is specified on the labels attached to the stabilisers and in the manual's technical specifications.

Position the machine only on a level and stable surface.

IT IS STRICTLY PROHIBITED TO:

- Stabilise the machine on soft, muddy, frozen or slippery ground or in the immediate vicinity of holes, ditches or manholes.
- Lean the platform on other machines or structures.
- Exceed the maximum permissible inclination of the chassis. The maximum chassis inclination is specified in the technical specifications and on the machine plate. **Do not operate on ground with a greater than 3° slope.**
- Exceed the maximum load on the work platform and the maximum number of persons allowed (table of load quantities in the technical specifications and on the machine).
- Overload the raised platform. If parts have to be dismantled at height, check their weight to avoid exceeding the load.
- Use the machine at winds exceeding 12.5 m/s (45 km/h) or when there are gusts of wind.
- Increase the surface area or load of the platform. Increased surface exposed to the wind decreases machine stability.
- Use the machine in unfavourable weather conditions, such as storms, snow and mist.
- Push or pull any object outside the platform. **The maximum permissible manual force which may be applied is 40 daN.**
- Modify, replace or disengage any components that affect the safety and stability of the machine.
- Modify or alter the work platform. Fittings for holding down equipment or other material on the platform or guard rail increase the weight and exposed surface area of the platform and load.
- Attach metal wires, cables or similar objects to the platform. These could become trapped or hook onto a fixed external object.
- Modify, remove or replace any components that could reduce the overall weight or stability of the machine base, such as ballasts, deflating the tyres, removing batteries, spare wheels, etc.
- Position or attach loads which jut out from any part of the machine.
- Use the platform as a crane (applying loads outside the platform and using the machine to raise suspended loads).
- Use the machine as a goods lift (raising loads on the platform).
- Use the machine as a passenger lift (moving persons from one floor to another).
- Use the controls on the platform to free the platform when blocked, obstructed or impeded in any other way by an adjacent structure preventing normal movement. **Request the assistance of qualified personnel.**
- Tip the vehicle cab (this could compromise stability).
- Enter the vehicle cab (this could compromise stability).

2.3.2.1 BEAUFORT wind scale

Even if wind speed can be measured with reasonable accuracy using an anemometer, which expresses a value in knots or kilometres per hour, it is possible to estimate the wind speed empirically using the Beaufort Scale by observing the effects of the wind in the surrounding environment (its effects on the sea and/or land).

Below is an excerpt from the BEAUFORT scale.

Force	Name of the wind at a height of 10 m above flat, open land	Nm/h Km/h	Description of effects on land	Description of effects offshore
0	Calm	0-1 0-1	Calm, smoke rises vertically	Sea like a mirror
1	Light air	1-3 1-5	Direction of wind shown by smoke drift, but not by wind vanes.	Ripples with the appearance of scales are formed but without foam crests.
2	Light breeze	4-6 6-11	Wind felt on face, leaves rustle, ordinary vanes begin to move	Small wavelets, still short but more pronounced. Crests have a glassy appearance and do not break.
3	Gentle breeze	7-10 12-19	Leaves and small twigs in constant motion; wind extends light flag.	Small wavelets; crests begin to break; foam of glassy appearance; perhaps scattered white horses.
4	Moderate breeze	11-16 20-28	Raises dust, leaves and loose paper; small branches are moved.	Small waves, becoming longer; fairly frequent white horses.
5	Fresh breeze	17-21 29-38	Small trees in leaf begin to sway; crested wavelets form on inland waters.	Moderate waves, taking a more pronounced long form; many white horses are formed (chance of some spray).
6	Strong breeze	22-27 39-49	Large branches in motion; whistling heard in telegraph wires; umbrellas used with difficulty.	Larger waves begin to form.
7	Near gale	28-33 50-61	Whole trees in motion; effort needed to walk against the wind.	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind.

2.3.3 Risk of falling



IT IS OBLIGATORY TO:

- Wear suitable fall prevention devices conforming to current standards.
- Attach safety harness cables to the connection provided on the work platform.
- Keep the platform clear of debris.
- Check that the access gate to the work platform is properly closed before using the platform.

IT IS STRICTLY PROHIBITED TO:

- Attach personnel who are working at height, outside the work platform, to the safety cable attachment on the platform.
- Climb onto/sit on the work platform railing.
- Use ladders, scaffolding or similar items inside the work platform for climbing.
- Lean ladders on the machine structure.
- Get off the platform at height.
- Climb down the boom.
- Jam the access gate open.

2.3.4 Collision hazard



- Check that there are no overhead obstructions or other potential hazards within the working envelope.
- When moving the boom, constantly check the working envelope in order to avoid hitting obstacles with the boom or work platform.
- Use extreme caution when holding the guard rail to prevent any risk of crushing.
- It is recommended that operators wear a helmet when operating the machine;
- Lower the boom only if the area below is completely free from personnel and/or obstructions.

2.3.5 Work atmosphere hazards

IT IS OBLIGATORY TO:

- always use the machine in a suitably ventilated area to avoid the risk of carbon monoxide poisoning;
- Use the machine at an ambient temperature of between -10°C and +40°C.

WARNING

Contact the manufacturer if you wish to operate the machine outside the temperature range indicated.

IT IS STRICTLY PROHIBITED TO:

- Use the machine in hazardous atmospheres or in the presence of inflammable or explosive gas and materials or in explosive atmospheres.
- Start the engine if there is an odour or trace of gas, petrol, diesel fuel or other explosive substances.

- use the machine with insufficient lighting for the work to be carried out or for the machine moved safely.
- use the machine for recreational purposes.
- The lifting platform and relative electrical equipment **MUST NOT** be installed on surfaces that transmit vibrations and in environments where there is a danger of impact with other mechanical units.

2.3.6 *Machine hazards*

- Carry out a thorough pre-start check and test all the functions before each working shift.
- Mark and immediately remove from service in the event of any malfunctioning controls or faulty safety devices.
- **Never** use a machine that is damaged or faulty.
- Never use the machine if there is leakage of hydraulic oil or air. Leakage of hydraulic fluid or air could cause skin damage and burns.
- Ensure that all maintenance checks have been carried out, as specified in this manual.
- Ensure that all the labels are in place and that they are legible.
- Ensure that the manual is intact, legible and kept in the special container in the cab.
- The machine is equipped with an internal combustion engine that generates noise, the values of which are show in Chapter 3.

2.4 Operator Definition

The operators should be physically fit, in full possession of their mental faculties, fully aware of and responsible for the dangers that may arise when using the lifting platform.

Physical Characteristics

Operators should have good eyesight (even through the use of spectacles or contact lenses), good hearing and excellent motor skills.

Mental characteristics

Operators must not take substances that could alter their physical and mental abilities (such as medicines, alcohol, drugs etc.).

Operators must be aware that anything other than an optimal psychophysical condition can cause injury to themselves and to other persons, animals and damage to property present in the working (manoeuvring) envelope.

Extraneous personnel are not allowed to use the lifting platform, as they are not aware of the risks and dangers involved.

It is advisable that the lifting platform be used by operators aged 18 and over.

It is forbidden for the lifting platform to be used by subordinate workers, employed as apprentices.

THE employer must ensure that:

- The operator fulfils all vocational requirements for running the machine;
- The operator is adequately qualified and trained for using this type of machine;
- The operator has read and understood the manual.
- the operator has the specific authorisation if required by law (in Italy, this is mandatory).

WARNING

The manufacturer is available to provide courses specifically for operators.

2.4.1 The role of the operators

The lifting platform can only be used by two trained operators, with their roles established in advance:

Operator on the platform	Has the task of operating the lifting platform from the controls on the work platform itself.
Operator on the ground	Has the task of checking the area beneath the working position, the stability of the platform and operating the emergency controls of the aerial platform.



CAUTION

The operators should be suitably instructed on the use of the lifting platform. It is particularly important that the operator on the ground preventively knows the exact position and use of controls for emergency manoeuvres.

2.4.2 Training and importance of the procedures

All operators in charge of positioning, use, routine maintenance and machine operation need to attend a training course, to ensure:

- the correct positioning of the vehicle in the chosen place of operation
- safe use of the platform during the normal operating process
- safe performance of all emergency procedures
- that the ordinary maintenance procedures indicated in this manual by the manufacturer are carried out properly.



DANGER!

Before starting to work, the operator should ensure that all safety conditions that will prevent any accidents are met.

2.4.3 Operators' tasks

FUNCTION	ASSIGNED TASKS
Operators	<ul style="list-style-type: none"> - If work is to be carried out on construction sites or industrial areas, you must find out from the person in charge of safety about any dangers there are in the area in which it is intended to use the lifting platform and any dangers that may arise from its use. - Choice of vehicle parking place and performance of the lifting platform commissioning procedure (engagement of the power take-off, positioning of the stabilisers, etc.). - Assessment of the solidity and flatness of the ground on which the platform will be stabilised. - Procedure involving the boundary delimitation of the working area to avoid exposing persons and/or animals to the dangers created by loads falling from elevated positions. - Assessment of the trajectory to be covered by the load, assessment of the degree of danger that may be caused by fixed and moving obstacles situated in the operating area. - Performance of the lifting platform return operations for safe transportation. - Visual inspection of the lifting platform to look for any anomalies.
Driver of the vehicle	<ul style="list-style-type: none"> - Verification of the rest position of the lifting platform in order to prevent any risk situations arising during transport.
Operator in charge of routine maintenance	<ul style="list-style-type: none"> - Inspect the condition of the lifting platform, especially as regards wear and tear. - Routine maintenance as indicated by the manufacturer in this manual. - Notification of unforeseen circumstances (such as wear, yielding, breakages, etc.) due to unforeseeable causes and therefore not dealt with in this document. - Supervision of the recording of operations performed in workshops authorised by CTE.

**Supervisor
(understood
as being the
person in charge
of safety in the
work site or
industrial area)**

- informs the operator assigned to operate the lifting platform about:
 - » the hazards present in the operating area and the hazards that may be caused by the use of the lifting platform;
 - » the possible presence of persons in the hazardous area (operating area) who, for particular tasks, cannot abandon their workstation;
 - » the possible release of hazardous substances into the air or ground that could affect the safe operation of the platform;
 - » the compulsory safety devices to be used in the work area concerned.

2.4.4 Summary of operator standards

- The use of the equipment is restricted exclusively to trained personnel.
- Never exceed the maximum permissible load.
- The use of PPE to protect against falls from high up is required;
- Operators must comply with the use and maintenance instructions provided by the manufacturer.
- Operators must comply with the current accident prevention regulations when working on the platform;
- Do not use the platform if it is malfunctioning;
- Check that the safety devices are working before using the platform.
- Ensure that the truck is perfectly level by using the stabilisers provided.
- Fully extend the stabilisers and position them in order to take the weight off the suspension system of the truck.
- Never move the truck with the platform raised.
- Carrying out work at a distance which is lesser than the safety clearance from uninsulated electrical lines indicated in the tables (see sec. 2.3.1) is prohibited;
- Never tie cables, ropes or other items to the platform.
- Never place ladders, stools or similar equipment on the platform in order to extend your reach.
- Manoeuvre the controls systematically in a slow and regular manner. Never change direction suddenly and always stop in neutral.
- Before manoeuvring, always check that there are no obstacles or persons in the way.


CAUTION

The manufacturer shall bear no liability if the above standards are not complied with.

2.5 Road traffic

This aerial work platform is fitted on a vehicle approved for road circulation.
The driver should have a suitable and valid driving licence for driving the vehicle on a public road.

2.5.1 Checks and tests before driving

- Ensure that all parts of the vehicle are in perfect working order (brakes, lights, rear-view mirrors, tyres etc.).
- Check the level of fuel, lubricating oil and cooling liquid.
- Check that the platform and booms are fully retracted.
- Check that the stabilisers are fully retracted.
- Check that the power take-off is not applied.
- When driving, always respect the speed limits and ensure vehicle speed is suitable for road/traffic conditions.
- Check that the route is not too bumpy and uneven.
- Always bear the machine's dimensions in mind when driving (consult the technical specifications).



CAUTION

Make sure the overall dimensions indicated in the technical data comply with the limits set forth by the Standard governing road traffic in the Country of use of the lifting platform.

2.6 Safe workplace

2.6.1 Type of workplace

The machine was designed and built for use in the following types of locations:

- Open-air places accessible to the public (e.g. squares, car parks, public roads, etc.)
- Private open-air places (e.g. yards in front of houses or blocks of flats for maintenance work on roofs etc.)
- Indoor areas accessible to the public (e.g. shopping centre entrances, sports centres, inside exhibition centres etc.)
- Open industrial areas (e.g. maintenance work on infrastructure such as barns, elevated floors etc.)
- Closed industrial areas (e.g. factory premises, hangars etc.)
- Open areas used for construction sites (e.g. construction yards)
- Inside airports
- On shipping docks

2.6.1.1 Supporting surface

The surface on which the vehicle is positioned must be compact and not subject to sinking: concrete, asphalt and compacted ground (construction sites) are preferable.

Should the tar surface overheat, or the ground not be sufficiently compact, resting plates between the ground and the stabiliser to prevent the latter from sinking.

2.6.1.2 Production areas or public areas

When operating inside production areas (construction sites and industrial sites) take special care when positioning the vehicle.

Wherever possible, choose the operating area (or working envelope) of the lifting platform also according to the following suggestions:

- This should be a place large enough to contain the entire structure, so as not to create any dangerous situations during the operations with the lifting platform boom
- It should not obstruct escape routes, emergency exits, pedestrian crossings and thoroughfares (for vehicles, fork lift trucks, self-propelled operating machines etc.).
- It should not obstruct the visibility of signs (boards, illuminated signs etc.).
- It should not obstruct the operating area of other pieces of equipment that are close by (such as travelling cranes, conveyors etc.) unless the equipment is not disabled for the entire period in which the lifting platform is used.

2.6.1.3 Positioning the machine

The position of the machine, relative to the position of the user, must allow the work to be carried out successfully whilst maintaining safety within the working envelope.

During this phase, the accessibility of the controls and the visibility of the applicable areas should be checked, with particular reference to positioning, operation and retraction.

2.6.1.4 Delimitation of the operating area

Before operating the lifting platform, always first check the environmental conditions and visibility and arrange suitable signs to demarcate the operating area such as:

- Barriers
- Tapes delimiting the area
- Signage (prohibition, warning, danger etc.)

2.6.2 Danger areas

The operating envelope (**A** and **B**) of the boom when completely horizontally extended is to be considered a danger zone and as such, persons shall not be allowed to remain within it.

Cordon off this area with barriers, construction site tape, chains, etc.

Use appropriate signals for operations on roadworks sites.

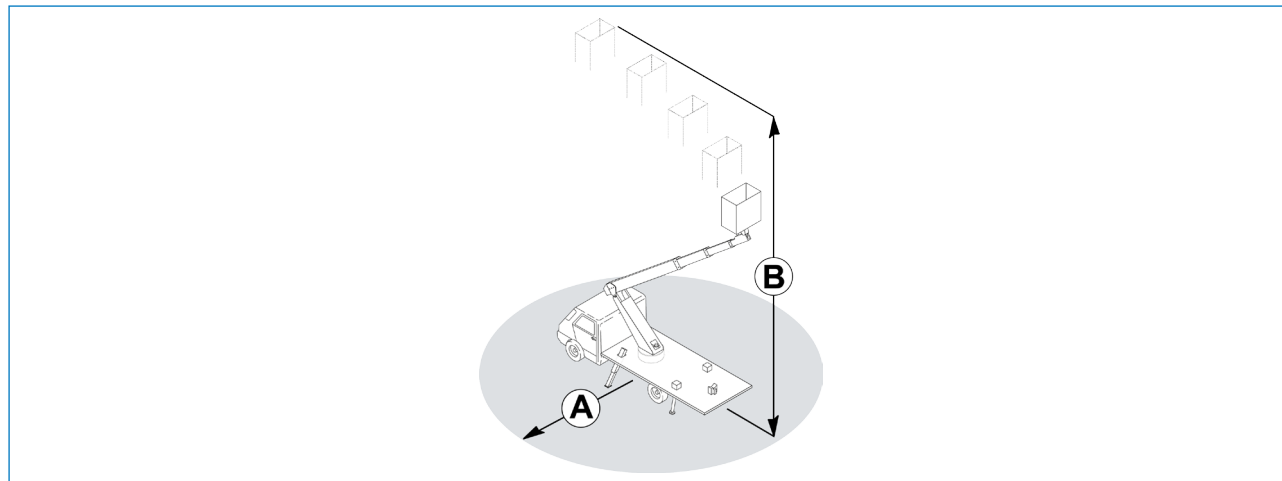


Fig. 2.1

A Maximum outreach of the aerial work platform (AWP)

B Maximum working height

WARNING

Diagram is indicative only. For data and all measurements, refer to Chapter 3.

2.6.3 Risks for exposed persons

The dangers caused in the situations described in the table below occur when:

- The person does not respect the safety barrier and enters the danger zone
- The operator forgets to delimit the boundary of the hazardous area and to affix the no entry sign in the hazardous area

Cause	Danger
Failure to maintain the safe distance	Crushing Shearing
Tools falling from elevated positions	Impact Crushing
Impact with moving parts	Falling on the ground or from height
Unsuitable operator position (between the lifting platform boom and fixed or moving obstacles)	Crushing Shearing
Movement of the vehicle during the positioning operation in the workplace	Running over

2.6.4 Electrical tolerances

The electrical equipment of the lifting platform was designed and built with reference to the Harmonised Standard EN 60204-1.

The electrical equipment is suitable for use in the surrounding environment and under the following working conditions.

2.6.5 Ambient air temperature

The electrical equipment is designed to operate correctly at air temperatures between -10 °C and +40 °C.

2.6.6 Humidity

The electrical equipment will work correctly in all weather conditions and levels of relative humidity.

2.6.7 Noise level

Airborne noise is produced by the engine of the vehicle that is approved for use on roads.

Sound detection carried out on the platform 1.50 m above the platform during ascent, descent, rotation and extension, detected sound pressure levels no greater than 70dB. The level of environmental sound emission is shown in chapter 3.

2.6.8 Vibrations and crashes

The lifting platform and relative electrical equipment **MUST NOT** be installed on surfaces that transmit vibrations and in environments in which there is a danger of impact with other mechanical devices. The machine does not produce vibrations that could be considered hazardous for the operator.

Measurements carried out under the most unfavourable conditions of use have ascertained that:

- the total value of vibrations to which the hand-arm system is exposed is less than 2.5 m/sec²
- the weighted root mean square acceleration value to which the main body is exposed is less than 0.5 m/sec².

2.6.9 Gas emissions

The vehicle's combustion engine emits exhaust gases.

The vehicle's battery emits hydrogen when recharging.

2.6.10 Contaminant agents

The mechanical components of the lifting platform and its electrical equipment are properly protected against the ingress of solid and liquid substances as established by the allowed use of the lifting platform and its usage environment.

The units making up the lifting platform **DO NOT** have protections against possible contaminant agents such as: special powders, acids, corrosive gases, salt etc.

If the operator detects a contaminant agent that could cause the machine to malfunction, s/he must immediately call a CTE assistance centre to verify its suitability for use.

2.6.11 Ionising and non-ionising radiation

The electrical equipment **DOES NOT** have additional protection against radiation (microwaves, ultra violet rays, laser, X-rays).

If the machine is likely to be frequently exposed to these kinds of radiation, additional measures must be taken to prevent the electrical equipment from malfunctioning and insulation from quickly deteriorating.

2.6.12 Lighting

Use the lifting platform in areas with proper natural or artificial lighting.



CAUTION

DO NOT use the lifting platform when there is insufficient lighting (at night, in dense fog or indoors with no artificial lighting).

If you have to operate in poorly lit areas, illuminate the area with devices installed on columns, connected to power supplies external to the machine. In this case, do not shine the auxiliary lighting equipment directly towards the operator's eyes. It is preferable to position them behind the operator in order to light the operating area properly, without causing any glare for the operator.

2.7 Personal protective equipment (PPE)

2.7.1 Harness system



OBLIGATORY

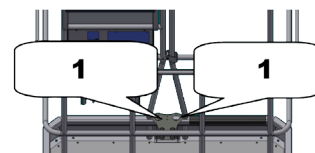
All the persons occupying the work platform must wear an appropriate harness system linked to the dedicated anchorage point.



The work platform is fitted with two anchorage points for the connection of a restraint system. Each anchorage point is sized for a static stress of 3 kN.

Point 1:

Anchorage point of restraint system (there are 2 anchorage points on the platform).



All the occupants the work platform must wear an appropriate fall protection system comprised of a full body harness compliant with Standard EN 361, fitted with chest and/or back connection and restraint or positioning adjustable lanyard (EN 354/EN358) and 2 connectors (EN 362) of a shape and size suitable for connection to the ends of the lanyard.



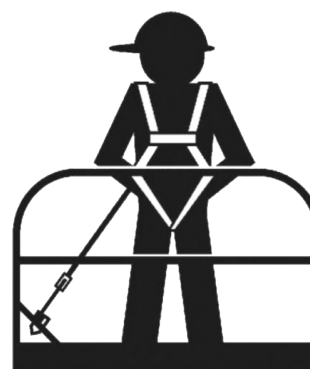
Note: the pictures above are provided purely as examples.

The lanyard must be adjusted as short as possible so as to hold the body inside the work platform. This assembly should not be regarded as a fall arrester, however, it prevents falls.

The hook point inside the work platform is not to be considered an anchorage point for fall arrester systems, but it is a restraint point as it has been designed to hold back the person inside the work platform.

The use of fall prevention systems foresees a mandatory training.

Please refer to the instructions for use provided by the manufacturer of the harness system components for the check, use and adjustment of the system.



DANGER!

It is prohibited to use the anchorage point on the platform to connect fall arrest systems.

**OBLIGATORY**

Use only devices that are well kept and in good working order. Moreover, the devices must be approved and bear the conformity CE-mark. Please refer to the manual provided by the manufacturer for the use and maintenance of the devices.

2.7.1.1 Additional personal protective equipment



In addition to the harness system, the use of the aerial work platform foresees the use of a safety helmet for overhead works with chinstrap (EN 397) and footwear for professional use (EN 346).

Other equipment may be required depending on the type of job or environment, such as: gloves, goggles, earmuffs etc. The requirement for and type of PPE must be evaluated by the employer or site manager.

2.8 Residual risks

Mechanical risks:

- Risk of crushing feet when stabilising the machine.
- Risk of crushing limbs by boom joints during the closing process.

The areas of risk are indicated with labels (see Chapter 3).

3

DESCRIPTION AND TECHNICAL DATA

3 Description and Technical Data

WARNING

The technical data shown in this chapter refers to a machine with standard equipment. Any changes and/or amendments to this data because of the presence of optional equipment and/or accessories are documented in Chapter 15.

3.1 General description of the machine

The **ZED 21.3 JHL** elevating work platform consists of a frame bolted to the chassis of the vehicle. The upper part of the frame consists of a slip resistant aluminium platform.

There are 4 stabilizers fastened to the chassis, two front stabilizers on moved beams and two rear stabilizers on fixed beam. They are positioned on the ground hydraulically and are equipped with ground-contact and stabiliser-closed sensors.

The stabilisers are operated manually by means of a hydraulic valve with extending front beams, through the relative extendible cylinders.

The rotating turret is fixed to a turntable that is mounted on the chassis. Turret rotation, $\pm 120^\circ$, is limited by a mechanical stop that prevents the continuous rotation of the elevating work platform by limiting it to $\pm 120^\circ$. Turret rotation is limited so that the structure does not collide with the cab of the vehicle. It only allows it to return to its starting point.

The boom unit, fixed to the turret, is composed of two articulated booms actuated by a hydraulic cylinder that allows them to be moved simultaneously by means of connecting rods.

When the work platform is rotated with respect to the rest position, the lowering of the articulated boom is limited so that it does not cause the structure to collide with the stabilisers.

A telescopic boom, formed by 2 elements (one fixed and one extensible) is fixed to the articulated boom. The telescopic boom is moved by a hydraulic actuator.

An articulated boom (jib), moved by a hydraulic cylinder, is anchored to the telescopic boom.

The work platform, made of aluminium, is anchored to the articulated boom (jib). It is also equipped with a hydraulic cylinder operated rotation device 90° 90° .

The machine is moved by proportional electro-hydraulic controls.

The main control station is located on the work platform. The secondary control station is located on the ground and is also used as an emergency control station.

The vehicle's thermal engine powers the hydraulic devices by means of a hydraulic pump activated by power take-off. The electrical power for the controls is supplied by the vehicle's battery.

The controls, the mode of operation and the devices installed on the machine are described in the following pages.

3.1.1 Classification

This machine has been designed to lift and move people and equipment within the platform's (AWP) maximum permissible load to positions located within the working envelope.

The platform should only be accessed on the ground via the gate.

the limitations on use are described in the manual Any mode or condition of use that does not fall within the limitations of use described in this manual and not intended by the manufacturer is forbidden.

The machine has been designed for an expected 100,000 work cycles and a heavy work regime (e.g. 10 years, 50 weeks a year, 40 hours a week, 5 cycles an hour).

The machine should be fully serviced and inspected by the manufacturer within the set number of work cycles. In the event of particularly heavy use, the machine should be serviced sooner.

The machine should be inspected every 1,000 hours and serviced every 5,000 hours.

3.2 Direction

No.	DESCRIPTION
A	Upper
B	Right-hand side
C	Rear

No.	DESCRIPTION
D	Bottom
E	Left-hand side
F	Front

The following diagrams illustrate the references and the convention used to identify the machine's stabilisers.

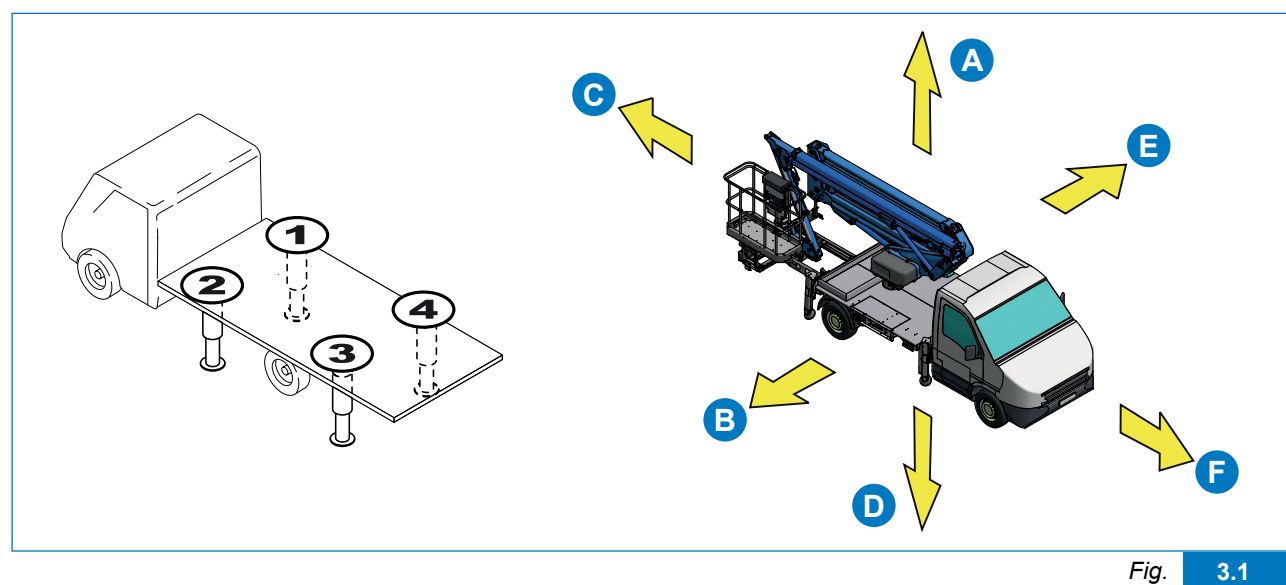







Fig. 3.1

3.3 Identification information and CE marking

Machine:	Mobile elevating work platform (MEWP)
Model:	ZED
Type:	21.3 JHL
Year of construction:	indicated on the CE plate
Manufacturer:	CTE S.p.a. Via Caproni 7, Z.I. - 38068 ROVERETO (TN) - Italy
Serial plate:	The serial plate illustrated below is riveted to the machine's turret.
Punched markings:	The fabrication number specified on the serial plate is also punched onto the turret.

WARNING

The vehicle also has a manufacturer's chassis number.
Refer to the vehicle's manual in order to locate it.

		FABBRICANTE/MANUFACTURER: CTE S.p.A. Via Caproni, 7 - 38068 Rovereto (TN) - ITALY Tel +39 0464 485050 - Fax +39 0464 485099			
PIATTAFORMA DI LAVORO MOBILE ELEVABILE / MOBILE ELEVATING WORK PLATFORM					
MODELLO: MODEL:		TIPO: TYPE:			
NUMERO DI FABBRICA FABRICATION NUMBER		ANNO DI COSTRUZIONE YEAR OF CONSTRUCTION			
PORTATA MASSIMA RATED LOAD:		COMPRESO N. INCLUDING N.	PERSONE E kg PERSONS AND kg	ATTREZZATURA EQUIPMENT	
MASSIMA ALTEZZA DAL SUOLO MAXIMUM HEIGHT FROM THE GROUND		m		AL PIANO CALPESTIO PIATTAFORMA AT WORK PLATFORM FLOOR	
SBRACCIO MASSIMO MAXIMUM OUTREACH		m		PARAPETTO PIATTAFORMA GUARD-RAILS WORK PLATFORM	
SOLLECITAZIONE MANUALE MASSIMA CONSENTITA MAXIMUM ALLOWABLE MANUAL FORCE		N			
MASSIMA VELOCITA' DEL VENTO CONSENTITA MAXIMUM ALLOWABLE WIND SPEED		m/s			
PRESSIONE MASSIMA IMPIANTO IDRAULICO MAXIMUM PRESSURE HYDRAULIC EQUIPMENT		bar			
MASSA A VUOTO COMPRESO VEICOLO NON LOADED MASS WITH VEHICLE		kg			
INCLINAZIONE MASSIMA AMMISSIBILE DEL TELAIO: MAXIMUM ALLOWABLE INCLINATION OF CHASSIS:		 °  °  °			
ALIMENTAZIONE ELETTRICA ESTERNA EXTERNAL ELECTRIC POWER		V	Hz		

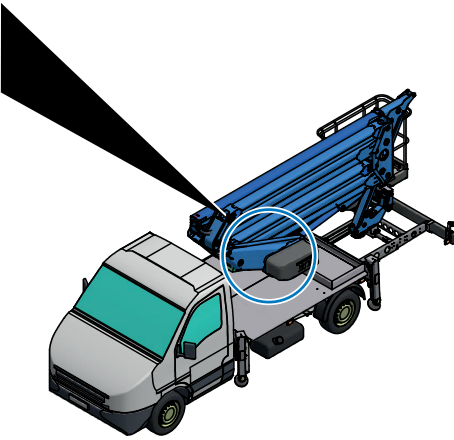


Fig. 3.2

3.4 Description of main units

No.	DESCRIPTION
1	Cab panel
2	Front stabiliser
3	220V outlet
4	Articulated boom
5	Turret
6	Ground electrical panel
7	Stabiliser control levers
8	Turntable
9	Rear stabiliser
10	Platform rotation actuator

No.	DESCRIPTION
11	Basket support plate
12	Elevating work platform
13	Control board on work platform
14	Aerial
15	Telescopic extension
16	Boom
17	Articulated lifting cylinder
18	Emergency controls distributor
19	Boom lifting cylinder
20	Power take-off button

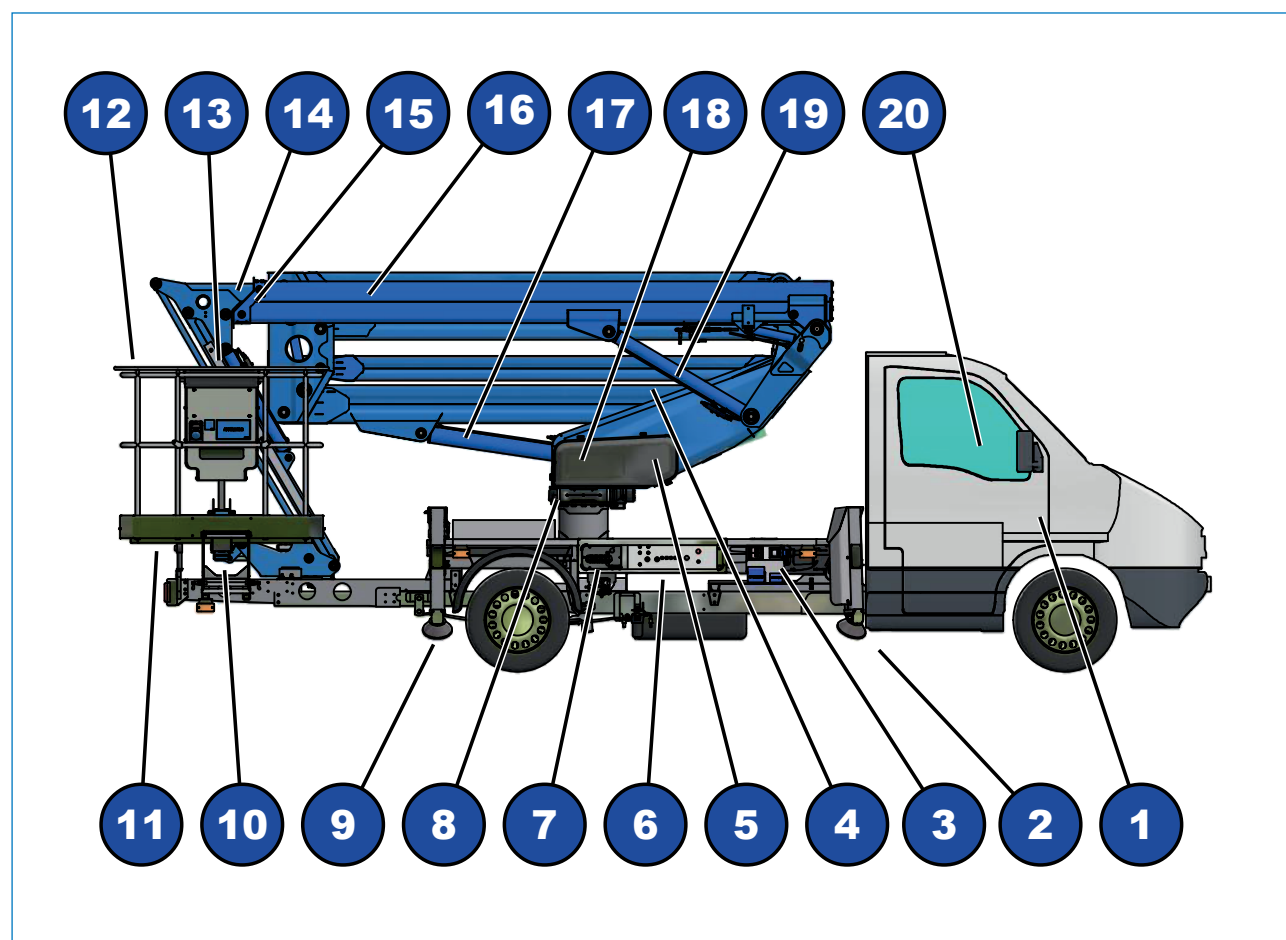


Fig. 3.3

WARNING

The picture shows one possible configuration of the machine, which may vary.

3.5 Main adhesive labels



3.6 Technical specifications

3.6.1 Technical data sheet

Maximum load on platform	300 kg (2 people and 140 kg of equipment)
Maximum platform height	19.00 m
Maximum working height	21.00 m
Maximum extension, up to secondary guarding	9,50 m
Maximum extension	10,00 m
Maximum permitted inclination of the ground	4°
Maximum permitted inclination of chassis	0°
Maximum tolerated wind speed	12.5 m/sec
Turret rotation	320° +/-
Levelling the work platform	Hydraulic parallelogram
Rotation of work platform	90° right + 90° left
Dimensions of work platform	1400 x 700 x 1100 mm
Maximum permitted lateral manual force	40 daN
Electrical system voltage	12 V
Controls	Proportional electro-hydraulic
Hydraulic oil reservoir capacity	40 l
Hydraulic system oil - ISO VG	50 l
Grease for turret gearbox	NLGI 2
Pivot grease	NLGI 2
Grease for telescopic elements	50% NLGI 2 - 50% ISO VG
Chain grease	NLGI 2
Maximum working pressure	240 bar
Guaranteed sound level	95 dB
Overall weight	3.5 t
Maximum pressure of stabiliser on ground	2800 daN
Centre distance between stabiliser plate pins (max)	3711 ± 20 mm
Stabilisers' longitudinal centre distance from the plate pins (max)	3334 ± 20 mm

WARNING

For any other data, please refer to the “technical features for the MEWP and inspection logbook” booklet supplied and which is an integral part of the machine.

3.7 Dimensions

WARNING

The overall dimensions vary according to the vehicle in which the MEWP is installed. For further information, please refer to the “technical features for MEWP and the inspection logbook” booklet supplied and which is an integral part of the machine.

DAILY 3.5t

Dimensions in running order (data refers to the vehicle illustrated)	
Length	7471 mm
Width	2249 mm
Height	2732 mm
Dimensions of the stabilised vehicle (data refers to the vehicle illustrated)	
Length	7471 mm
Width of stabilised vehicle (max)	3911 ± 20 mm

AL BASKET

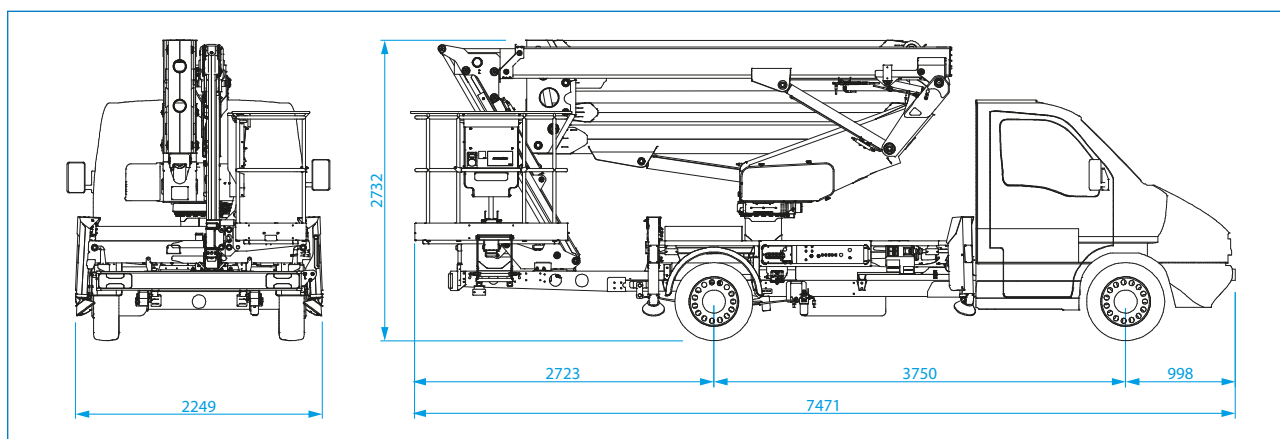


Fig. 3.4

FBR BASKET

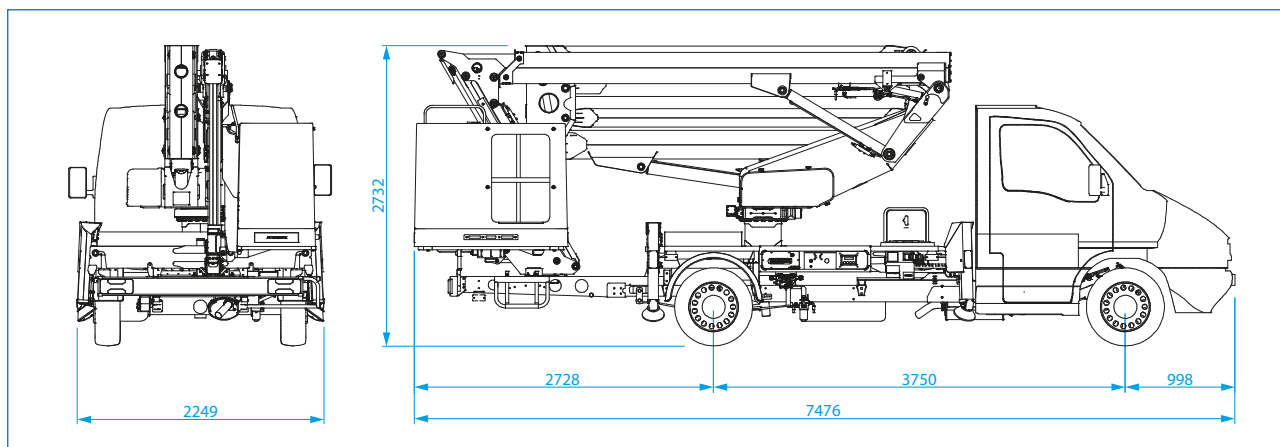


Fig. 3.5

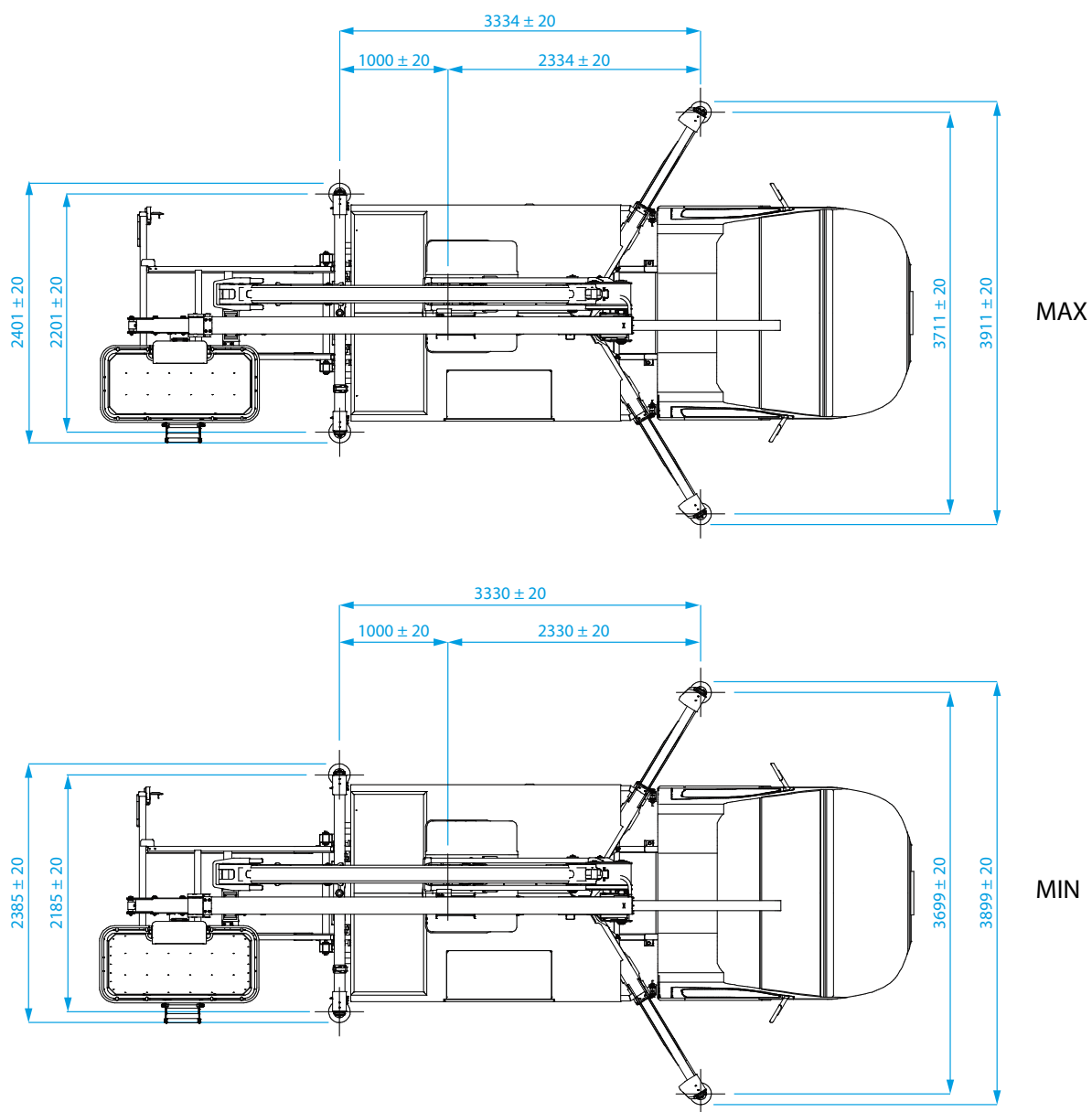


Fig. 3.6

3.8 Working envelope

3.8.1 Plan view of work area

The following illustration shows, in a plan view, the maximum capacity allowed in relation to the boom extension, to the angular position of the turret and to the position of the stabilisers (extended or retracted).

IVECO 3.5t AL BASKET

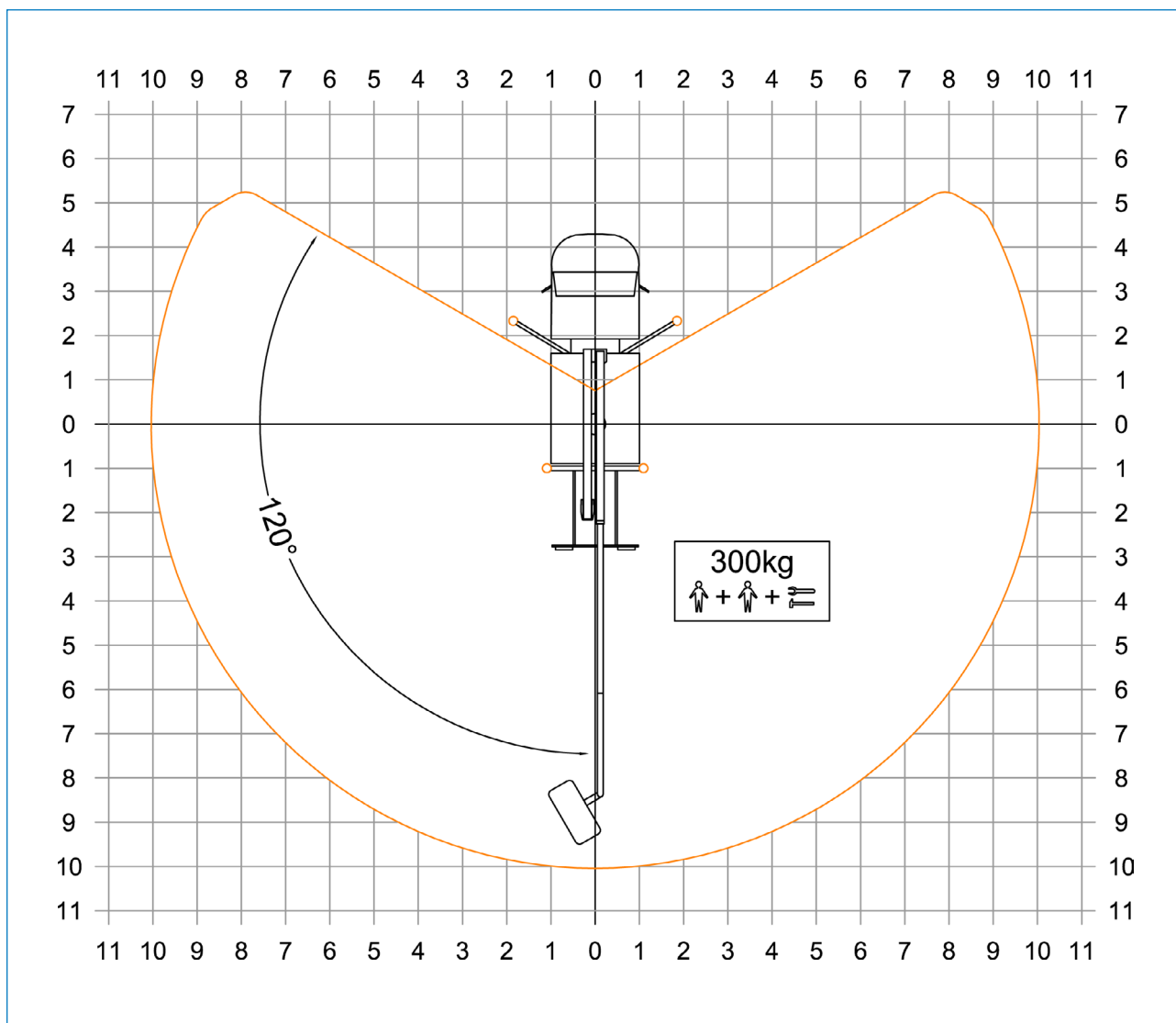


Fig.

3.7

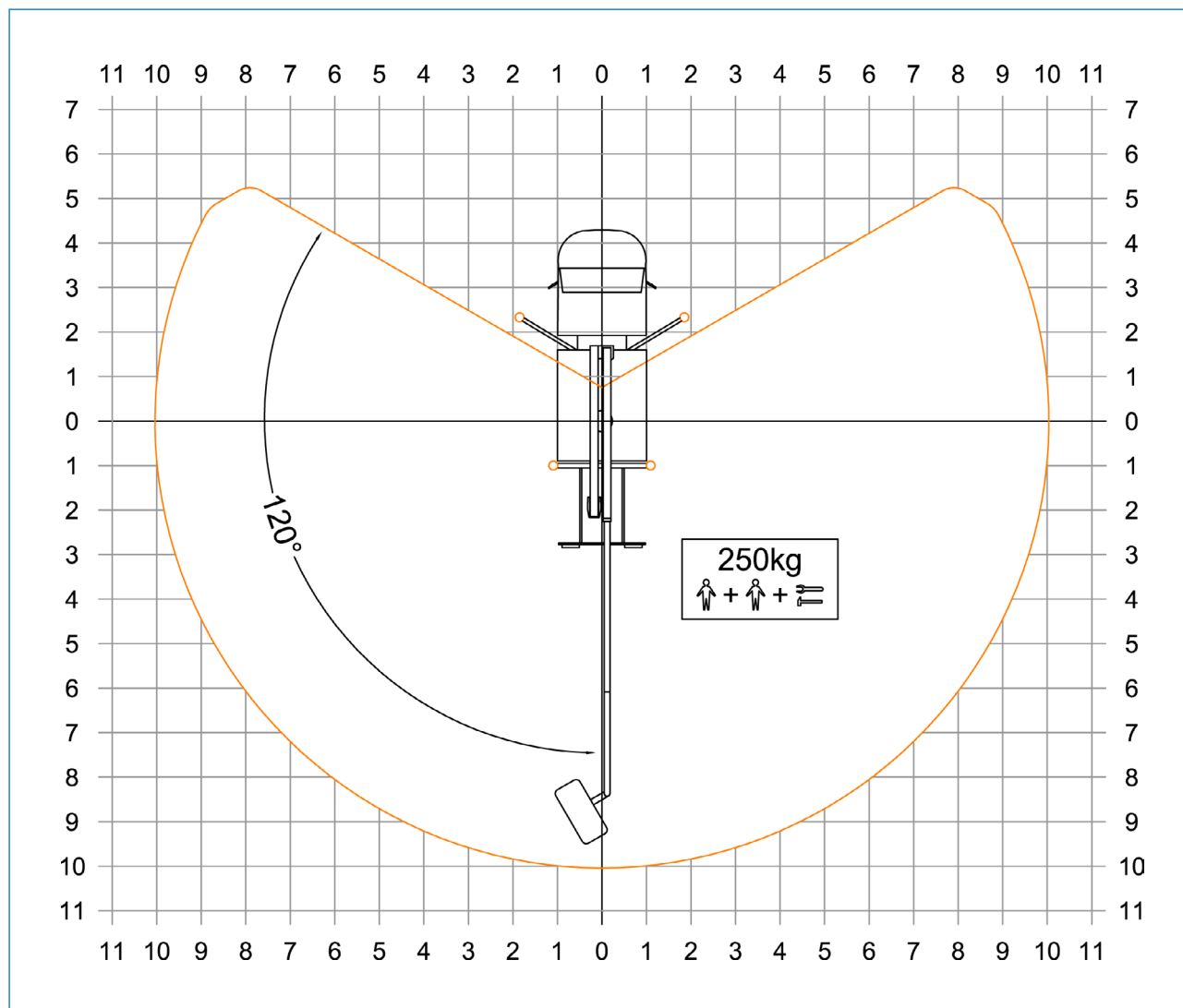
IVECO 3.5t**FBR BASKET**

Fig. 3.8

3.8.2 Work envelopes and load according to the stabilisation

IVECO 3.5t

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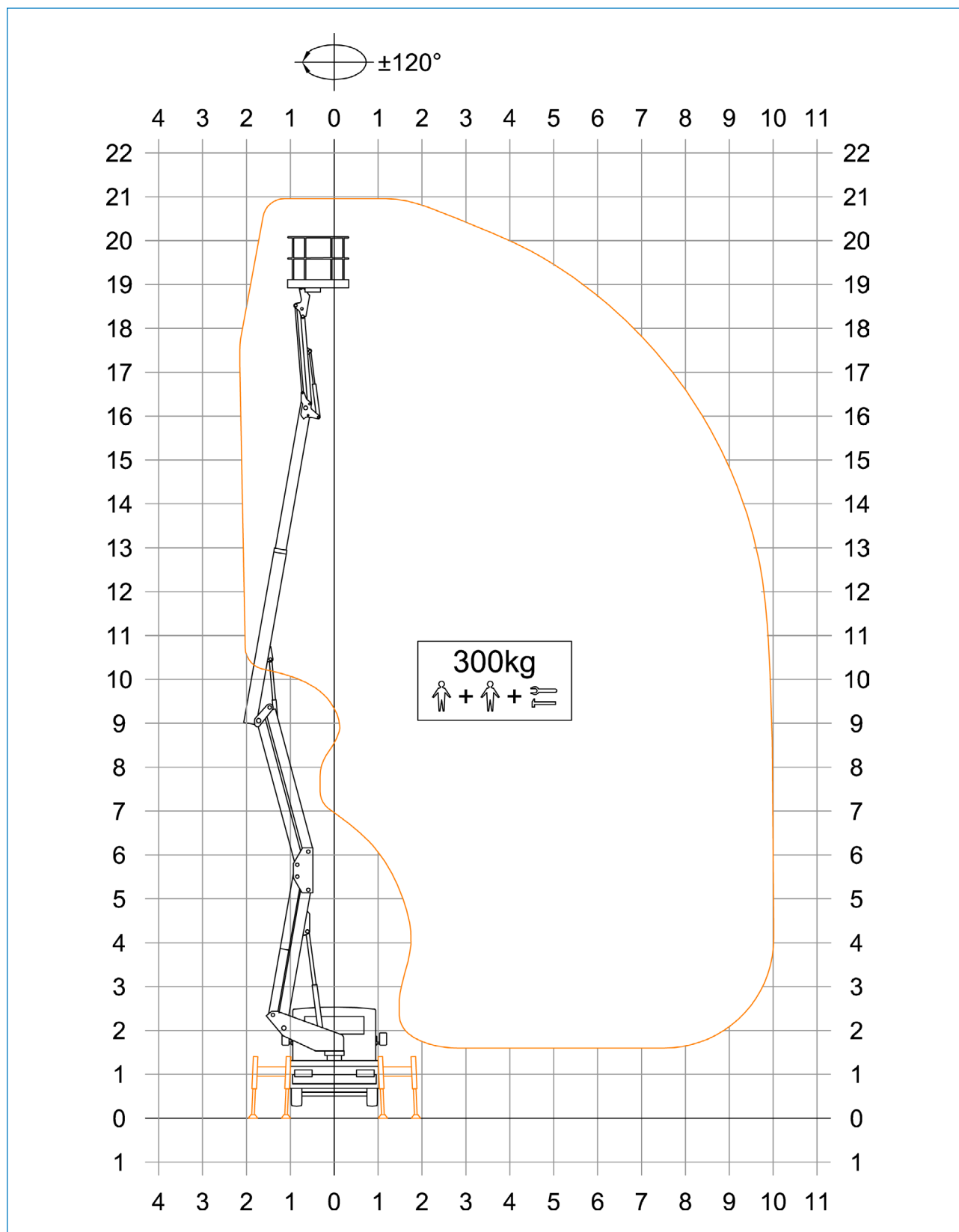


Fig.

3.9

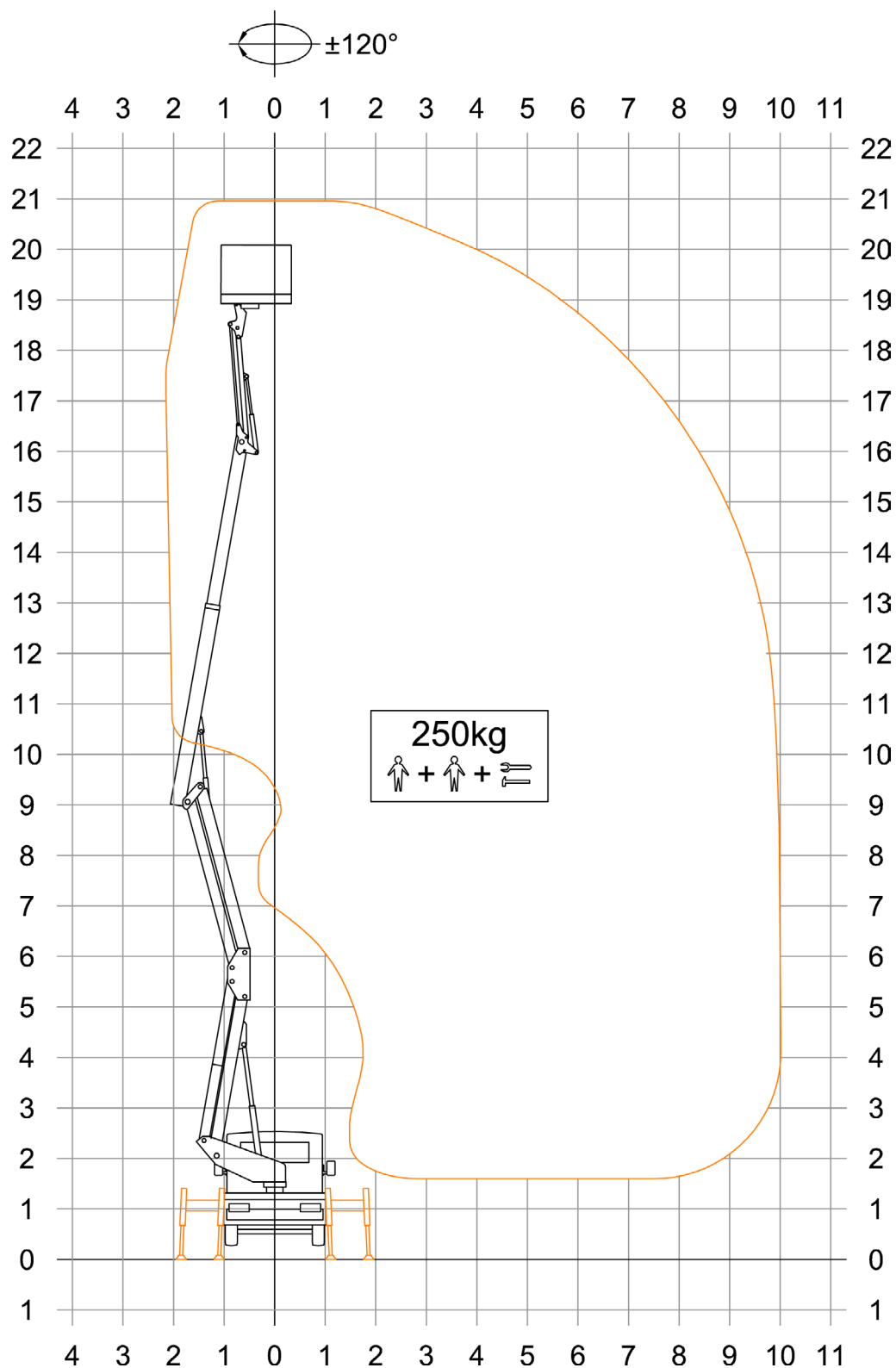
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Fig. 3.10

4

CONTROLS

4 Controls

4.1 Control panels

During use, the operator should only control the work platform using the control panel on the platform itself. The operator should only operate the ground control panel when stabilising the machine.

1	Stabilisation controls:	Standing operator position. The stabiliser control devices are installed on this panel.
2	Ground control panel:	Secondary control station. Standing operator position. In general, the ground control panel should be used to lift the platform for stowage purposes or for operational tests. The ground control panel can be used as a control station on the ground and in an emergency in order to rescue someone who is unable to move on the platform. When the ground control panel is active, the controls on the platform are not operational.
3	Control panel on work platform:	Main control station. Standing operator position. The aerial platform movement console is installed in this station. The operator can perform all the operations for the operating cycle of the machine under normal operating conditions. The console is fitted with the warning indicator lights and the emergency machine stop device.
4	Emergency controls:	Standing operator position. The solenoid valves that are used to bring the elevating platform back to the ground and into the transport position in the event of system malfunctions are installed in this station.
5	Manual hydraulic oil circulation pump	Standing operator position. This is where the emergency pump is fitted, which allows the operator to reactivate the circulation of the hydraulic oil for the return of the lifting platform in transport position in the event of a malfunction on the main pump.

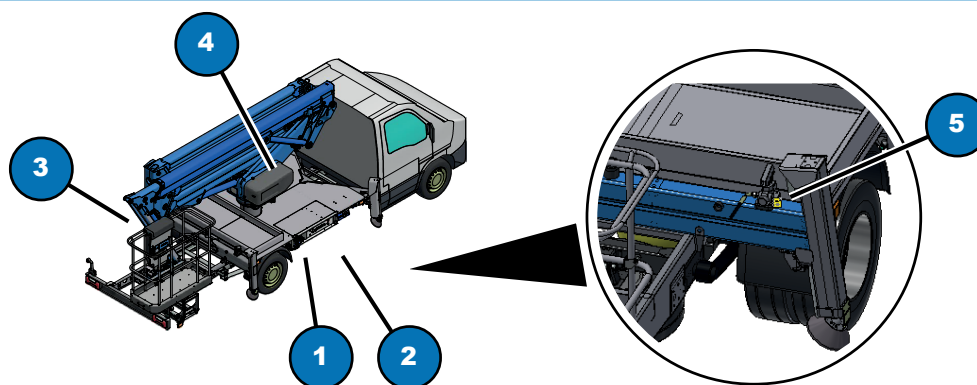


Fig. 4.1

4.2 Stabilisation control panel

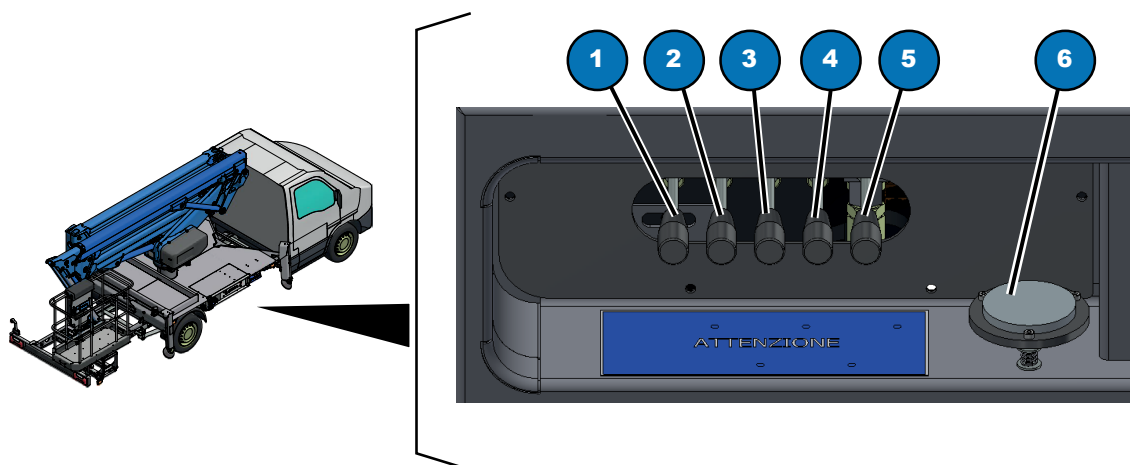


Fig. 4.2

Item	Description	
1	Back right stabiliser control lever	
2	Back left stabiliser control lever	<ul style="list-style-type: none"> Moving the lever downwards extends the stabiliser Moving the lever upwards retracts the stabiliser
3	Front left stabiliser control lever	
4	Front right stabiliser control lever	
5	Front outrigger control lever	<ul style="list-style-type: none"> lowering the lever causes the stabilisers to extend; raising the lever causes the stabilisers to retract lowering the lever causes the stabilisers to extend; raising the lever causes the stabilisers to retract
6	Levelling check spirit level	<ul style="list-style-type: none"> Indicates the correct levelling of the vehicle.

4.3 Cabin control panel

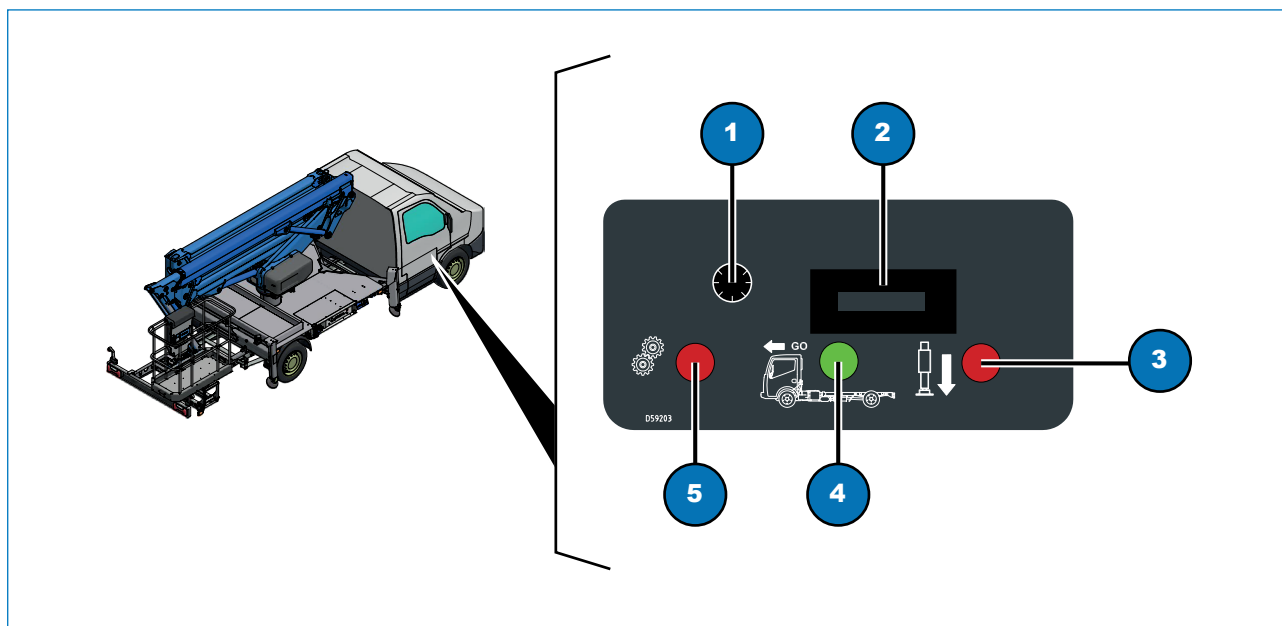


Fig.

4.3

	Item	Description
1	Fuse	2A quick fuse - platform auxiliaries
2	Hour counter	Is activated when the power-take-off (PTO) is engaged.
3	Red stabilisers lowered indicator light	When lit, it indicates that the stabilisers have not been completely retracted.
4	Green stabilisers retracted indicator light	When lit, it indicates that the stabilisers have been completely retracted. The machine is ready to be moved.
5	Power take-off light	Comes on when the power take-off is engaged and at the same time an audible signal is activated.

4.4 Ground control panel

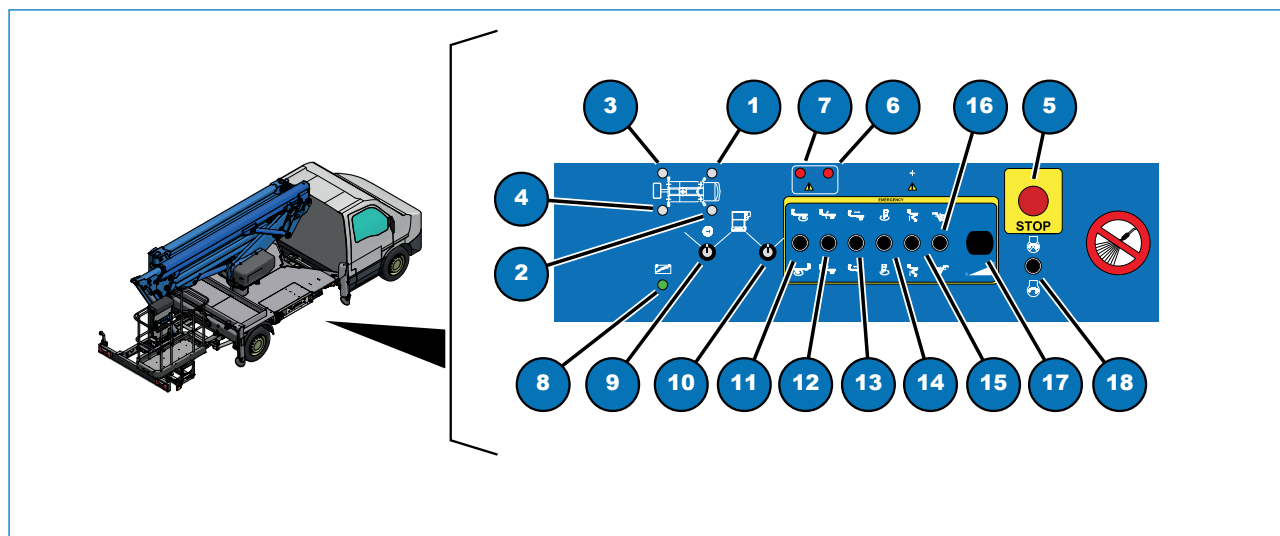














Fig. 4.4

Item	Description
1	Front left stabiliser indicator light; <ul style="list-style-type: none"> Switches on when the stabiliser is on the ground and minimum stabilisation has been accomplished.
2	Front right stabiliser indicator light; <ul style="list-style-type: none"> Switches on when the stabiliser is on the ground and minimum stabilisation has been accomplished.
3	Back left stabiliser indicator light; <ul style="list-style-type: none"> Switches on when the stabiliser is on the ground and minimum stabilisation has been accomplished.
4	Back right stabiliser indicator light <ul style="list-style-type: none"> Switches on when the stabiliser is on the ground and minimum stabilisation has been accomplished.
5	Emergency stop button; <ul style="list-style-type: none"> stops all manoeuvres and switches off the engine of the vehicle.
6	Alarm indicator light 2; <ul style="list-style-type: none"> second code number (see chapter on troubleshooting).
7	Alarm indicator light 1; <ul style="list-style-type: none"> first code number (see chapter on troubleshooting).
8	Voltage presence indicator; <ul style="list-style-type: none"> it lights up when the electrical system is powered.
9	Key selector switch - vehicle/aerial unit; <ul style="list-style-type: none"> Turning the key to the left activates the vehicle stabilisation control panel. Turning the key to the right activates the main control panel in the work platform. Turn the key to the vertical "neutral" position for driving on public roads.
10	Key selector switch for the aerial part/emergency manoeuvres. <ul style="list-style-type: none"> Turning the key to the right activates the vehicle's emergency control panel. Turning the key to the left activates the main control panel in the lifting platform. Turn the key to the vertical "neutral" position for driving on public roads.

11	<p>Three-position spring-return to centre selector switch, rotates the turret.</p> <ul style="list-style-type: none"> Keep the selector in the up position to rotate the platform to the right. keep the selector in the down position to rotate the platform to the left. 	 
12	<p>Three-position spring-return to centre selector switch, to raise/lower the telescopic boom.</p> <ul style="list-style-type: none"> keep the selector in the up position to raise the telescopic boom. keep the selector in the down position to lower the telescopic boom. 	 
13	<p>Three-position spring-return to centre selector switch, extends the telescopic boom.</p> <ul style="list-style-type: none"> keep the selector in the up position to extend the telescopic element; keep the selector in the down position to retract the telescopic element. 	 
14	<p>Three-position spring-return to centre selector switch, rotates the basket.</p> <ul style="list-style-type: none"> Keep the selector in the up position to rotate the turret to the right. Keep the selector in the down position to rotate the turret to the left. 	 
15	<p>Three-position spring-return to centre selector switch, to raise/lower the articulated boom.</p> <ul style="list-style-type: none"> keep the selector in the up position to raise the articulated boom; keep the selector in the down position to lower the articulated boom. 	 
16	<p>Three-position spring-return to centre selector switch, raises/lowers the aerial.</p> <ul style="list-style-type: none"> keep the selector in the up position to raise the aerial keep the selector in the down position to lower the aerial. 	 
17	<p>Movement speed proportional lever control;</p> <ul style="list-style-type: none"> operating the lever after actuating the required command (11, 12, 13, 14, 15) carries out the movement proportionally. 	
18	<p>Three-position spring-return to centre selector switch, powers the motor on/off:</p> <ul style="list-style-type: none"> Keep the selector in the down position to start the motor. Keep the selector in the up position to turn off the motor. 	


CAUTION

The working platform should only be controlled from the ground control panel in case of an emergency.
Refer to the chapter regarding emergency manoeuvres.


CAUTION

The stabiliser indicator lights come on when the plate has reached its minimum extension and is in contact with the ground, but they do not indicate that the machine has been properly stabilised. Use the spirit level to check that it is positioned correctly.

4.5 Emergency controls station

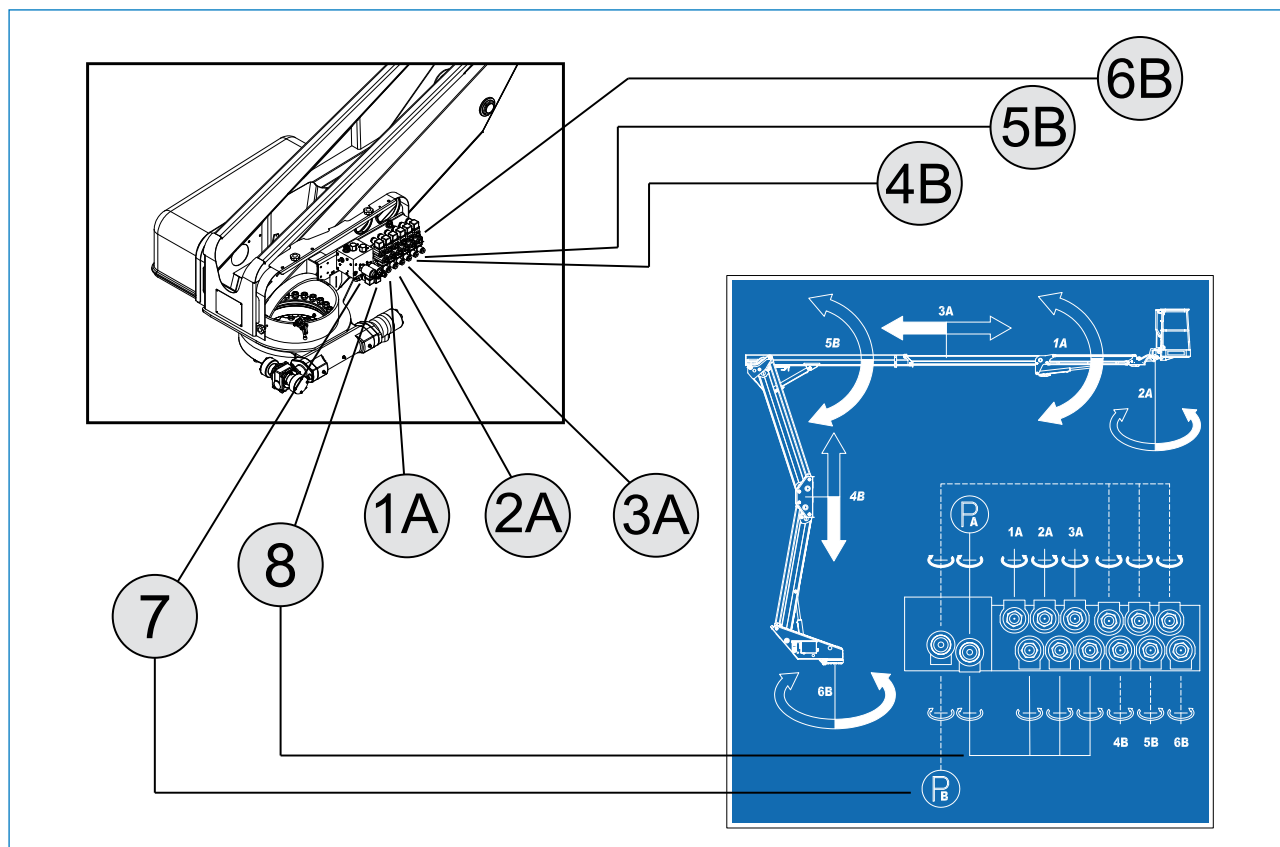


Fig. 4.5

Item	Description
1	Solenoid valve to raise the aerial; <ul style="list-style-type: none"> tighten the upper knob to raise the aerial; tighten the bottom knob to lower the aerial.
2	Solenoid valve to rotate the basket; <ul style="list-style-type: none"> tighten the upper knob to rotate the basket clockwise; tighten the lower knob to rotate the basket anticlockwise.
3	Solenoid valve to extend the telescopic boom; <ul style="list-style-type: none"> tighten the upper knob to extend the telescopic boom; tighten the bottom knob to retract the telescopic boom.
4	Solenoid valve to raise the articulated boom; <ul style="list-style-type: none"> tighten the upper knob to raise the articulated boom; tighten the bottom knob to lower the articulated boom.
5	Solenoid valve to raise the telescopic boom; <ul style="list-style-type: none"> tighten the upper knob to raise the telescopic boom; tighten the bottom knob to lower the telescopic boom.
6	Solenoid valve to rotate the turret; <ul style="list-style-type: none"> tighten the upper knob to rotate the turret clockwise; tighten the lower knob to rotate the turret anticlockwise.
7	Proportional solenoid valve; <ul style="list-style-type: none"> tighten the knob to enable the emergency controls station and activate single manoeuvre movement solenoid valves 4, 5 and 6.
8	Proportional solenoid valve; <ul style="list-style-type: none"> tighten the knob to enable the emergency controls station and activate single manoeuvre movement solenoid valves 1, 2 and 3.



CAUTION

A single manoeuvre can be made for each proportional solenoid valve. At the end of the manoeuvre, the knob must be put back in its original position (without forcing it).

4.6 Power take-off control

The power take-off control depends on the model of the vehicle.

On some vehicles, the power take-off is engaged electrically.

In this case, there is a control button on the dashboard and a relative indicator light.

Other vehicles have a mechanical power take-off that is engaged by using a manual control lever.



CAUTION

Depress the clutch before engaging or disengaging the power take-off. Never drive with the power take-off engaged, this could cause damage to the gear and hydraulic pumps.

4.7 Control panel in the work platform

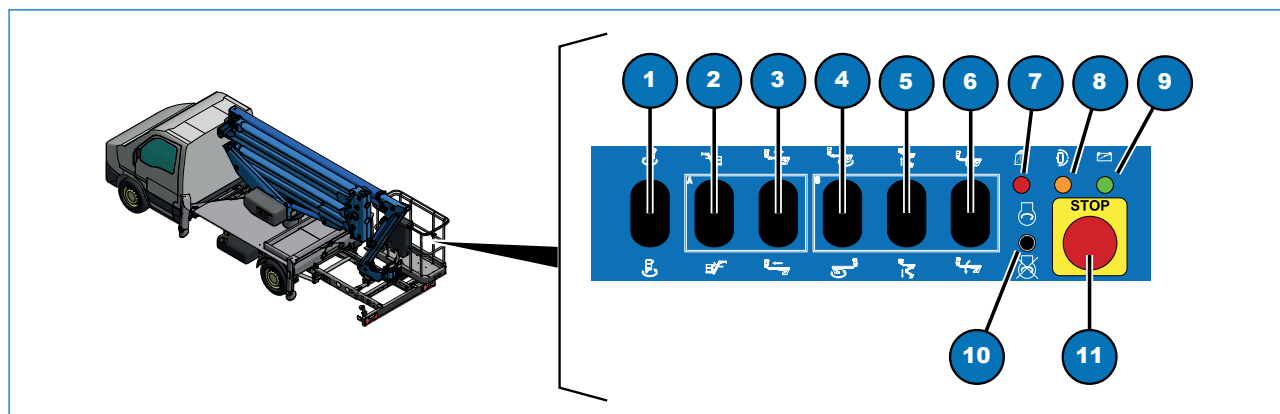














Fig. 4.6

Item	Description	
1	Three-position spring-return to centre proportional lever, rotates the basket. <ul style="list-style-type: none"> keep the lever in the up position to rotate the basket clockwise; keep the lever in the down position to rotate the basket counterclockwise. 	 
2	Three-position spring-return to centre proportional lever, raises/lowers the aerial. <ul style="list-style-type: none"> place the lever in the up position to raise the aerial place the lever in the up position to lower the aerial 	 
3	Three-position spring-return to centre proportional lever, extends/retracts the telescopic boom. <ul style="list-style-type: none"> keep the lever in the up position to extend the telescopic element; keep the lever in the down position to retract the telescopic boom. 	 
4	Three-position spring-return to centre proportional lever, rotates the turret. <ul style="list-style-type: none"> keep the lever in the up position to rotate the turret clockwise. keep the lever in the down position to rotate the turret counterclockwise. 	 
5	Three-position spring-return to centre proportional lever, raises/lowers the articulated boom. <ul style="list-style-type: none"> keep the lever in the up position to raise the articulated boom; keep the lever in the down position to lower the articulated boom. 	 
6	Three-position spring-return to centre proportional lever, raises/lowers the telescopic boom. <ul style="list-style-type: none"> keep the lever in the up position to raise the telescopic boom; keep the lever in the down position to lower the telescopic boom. 	 

7	<p>Overload alarm;</p> <ul style="list-style-type: none"> the warning light comes on and an audible alarm sounds, which lasts a few seconds, indicating that the machine is in a locked condition.
8	<p>Work platform centring indicator;</p> <ul style="list-style-type: none"> this light stays on during operation. If it switches off (buzzer activation), it indicates the risk of collision against the structure.
8	<p>Power supply present;</p> <ul style="list-style-type: none"> the green light comes on to indicate that the power supply is on and that it is possible to manoeuvre the platform.
9	<p>Voltage on light button</p> <ul style="list-style-type: none"> it lights up when the electrical system is powered.
10	<p>Three-position spring-return to centre selector switch, powers the motor on/off.</p> <ul style="list-style-type: none"> rotate the selector clockwise to start the motor; rotate the selector anticlockwise to turn off the motor.
11	<p>Emergency stop button.</p> <ul style="list-style-type: none"> pressing the emergency stop button disables all the controls and the vehicle engine switches off.

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5

SAFETY DEVICES

5 Safety devices

5.1 Emergency stop buttons

The following buttons are located in the main control stations from which the mobile working platform is operated (Fig. 5.1, 1 and 2) in order to stop the machine in the event of an emergency.

Pressing the emergency button causes the:

- electrical functions of the machine to be interrupted
- immediate stop of all movement acting directly on the hydraulic valves.

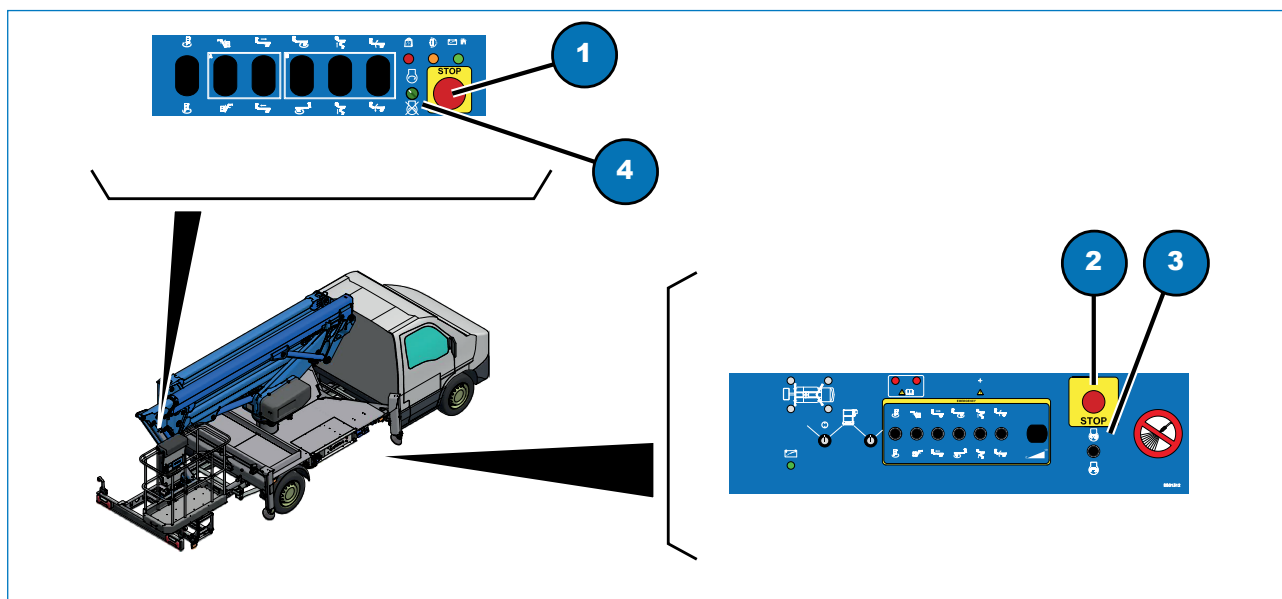


Fig.

5.1



DANGER

Before rearming the buttons, the causes for its use must be carefully evaluated.



CAUTION

To reactivate the function of the buttons, turn them in the direction indicated by the arrows until they click and lift.

SAFETY DEVICE FUNCTIONALITY CHECK

- Press the emergency button 5.1, 1 or 2) and make sure that it is not possible to manoeuvre the platform in any way.
- In order to do this under the safest possible conditions, operate the controls in the platform whilst the platform is in the stowed position.

5.2 Alarms-warnings

Errors and alarm messages are indicated by a sequence of flashes of the ALRM 1 and ALRM 2 LEDs. (See Fig. 4.3, ALRM1=7, ALRM2=6).

Example:

spieAlarm_inceppDiscesa = 0 x 0803
08 = 8 flashes of LED S7
03 = 3 flashes of LED S6

For further details, please refer to Chapter 12 “Troubleshooting”

5.2.1 Reset alarms

Please refer to Chapter 12 “Troubleshooting” for the alarm reset procedure.

5.2.2 Buzzer

Seven beepers are mounted on the platform:

- two are in the panel in the cabin (Fig. 4.3).
- three are in the earth command panel (Fig. 4.4);
- two are in the command panel in the work platform (Fig. 4.6).

Within the cab panel:

- the first is activated, accompanied by a continuous sound, when the PTO is activated;
- the second is activated, accompanied by a continuous sound, when the stabilisers have not been fully retracted.

Within in the ground command panel:

- the first is activated, with the continuous sound when the telescopic boom is resting on the boom rest for six seconds, inviting the operator keep the closure manoeuvre pressed insistently; with a continuous sound if the aerial rest isn't completely rested on the aerial or for a sensor failure.
- the second is activated, accompanied by an intermittent sound, if the work platform is overloaded above the maximum load value;
- the third is activated, accompanied by a continuous sound, when the work platform is rotated, and there is the relative risk of the aerial hitting the frame.

Within the command panel in the work platform:

- the first is activated, accompanied by an intermittent sound, if the work platform is overloaded above the maximum load value;
- the second is activated, accompanied by a continuous sound, when the work platform is rotated, and there is the relative risk of the aerial hitting the frame.

5.3 Stabilisers and/or beams not completely retracted

The red light (Fig. 5.2, 3) on the control panel in the cab, lights up if the stabilisers and / or the beams have not been fully retracted.

This device allows the operator to carry out an additional check if the platform is in the transport configuration. In this configuration, the light (Fig. 5.2, 3) must be off.

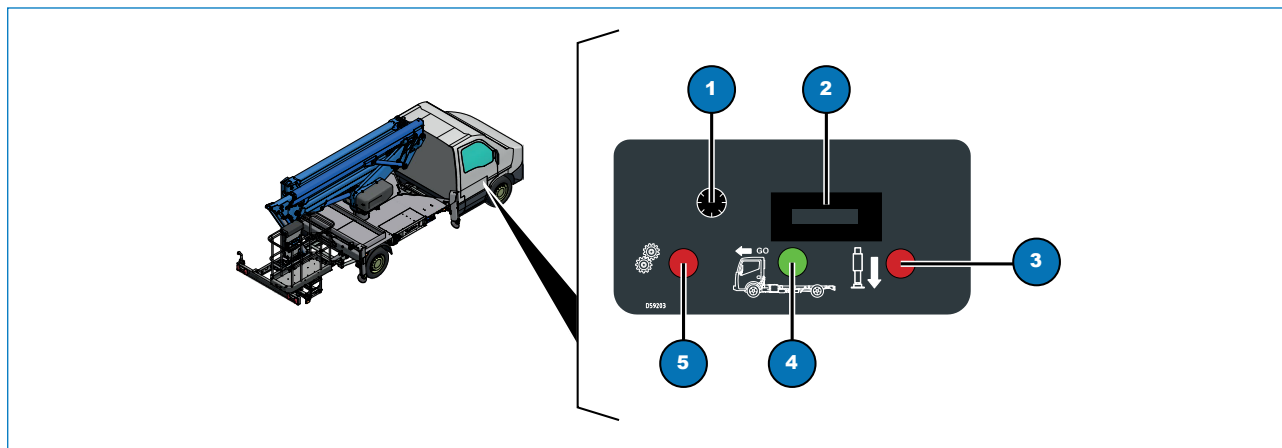


Fig. 5.2

5.4 Stabilisers interlock switch

the device (Fig. 5.3, 1) is formed by a sensor on the boom rest bracket and a receiver under the articulated boom (jib).

It only allows the stabilisation controls to be activated when the superstructure is fully closed, and the key selector switch is in the “stabilisers” position.

The stabiliser controls are automatically disabled when the boom is moved from its stowed position.



DANGER

After the boom has been raised from its support plate, any use of the stabilisation controls is prohibited.

SAFETY DEVICE FUNCTIONALITY CHECK

- Lift the aerial unit for more than two cm. It will not be possible to perform any operations using the stabilisation levers (Fig. 4.2, 1, 2, 3, 4 and 5).

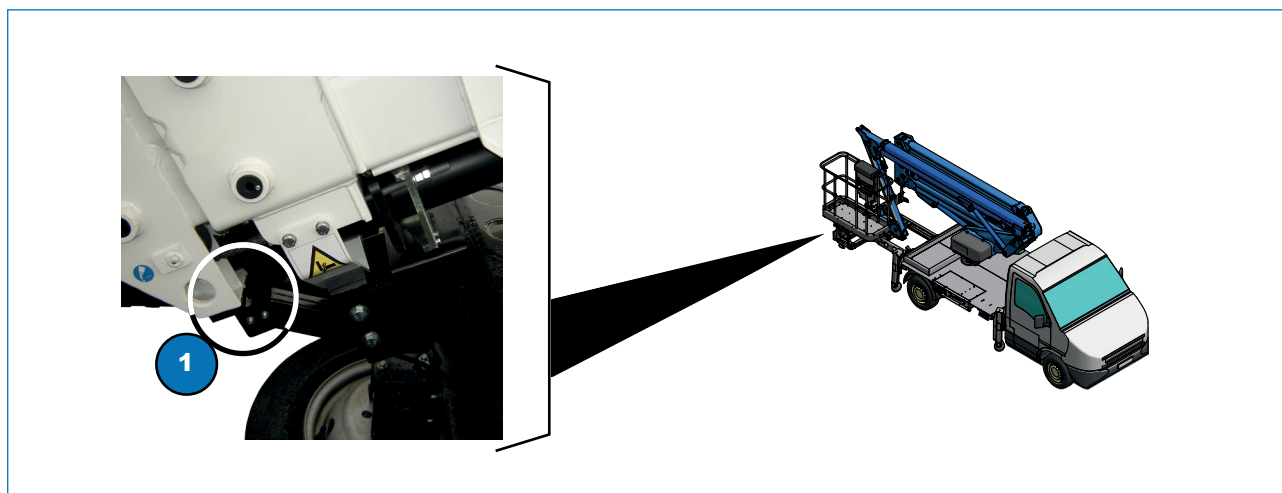


Fig. 5.3

5.5 Aerial manoeuvres enabling

Its function is to allow the aerial platform to be moved only when the machine has been stabilised. There is a micro switch on the foot of each stabiliser, located below the stabiliser carter, that detects if the stabiliser is resting on the ground. There are another two micro-switches on the vehicle's rear springs which detect minimum stabilisation. When the machine is being stabilised, the indicator lights 1, 2, 3 and 4 next to the stabilisation controls will light up only when all the feet are resting on the ground and the minimum stabilisation has been reached (see Fig. 4.4), and it will then be possible to raise the boom.

SAFETY DEVICE FUNCTIONALITY CHECK

- Stabilise the machine so that indicator lights 1, 2, 3 and 4 come on (see Fig. 4.4).
- retract one stabiliser until the corresponding light turns off.
- Try to move the aerial platform. It should not be possible to do so.

5.6 Manual emergency pump

The manual emergency pump (Fig. 5.4, 2) is installed on the frame's rear extension.



CAUTION

Only use the manual emergency pump if the main pump is broken.

It is designed to manually force the circulation of the hydraulic oil in the system. To do so, insert the handle provided into the hole on the pump and move it vigorously.



CAUTION

The manual pump will function only after it has been completely filled with oil.

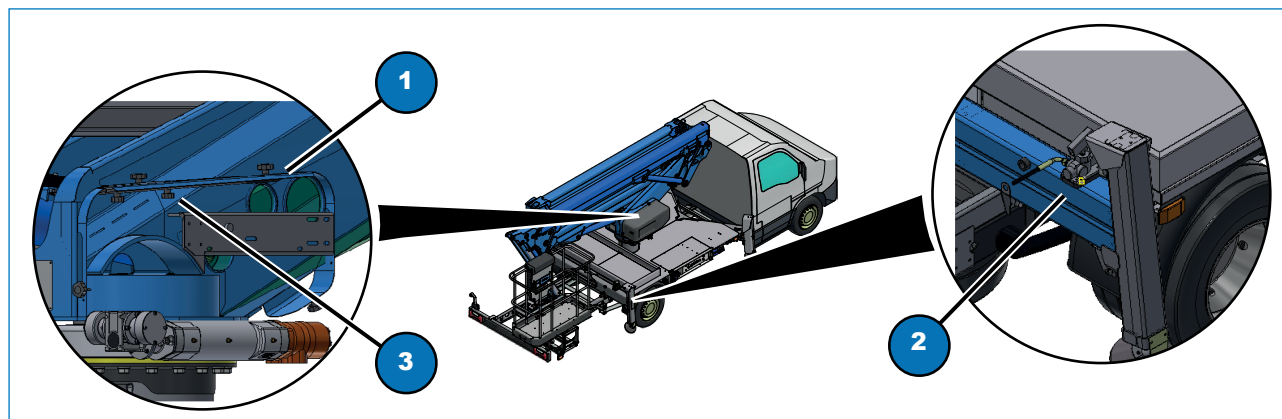


Fig. 5.4

SAFETY DEVICE FUNCTIONALITY CHECK

- Turn off the engine of the vehicle whilst keeping the power take off (PTO) (see Fig. 6.1) engaged with the platform raised.
- Remove the lever (Fig. 5.4, 1) from the right hand side of the turret by loosening the black locking knob (Fig. 5.4, 3) and attach it to the pump (Fig. 5.4, 2);
- Manually operate the lever of the emergency hand pump (Fig. 5.4, 2) and at the same time operate the electrical controls on the control panel.

5.7 Maximum pressure valve

The maximum pressure valve (Fig. 5.5, 1), located under the vehicle stabilisation control panel, prevents the maximum working pressure from being exceeded.

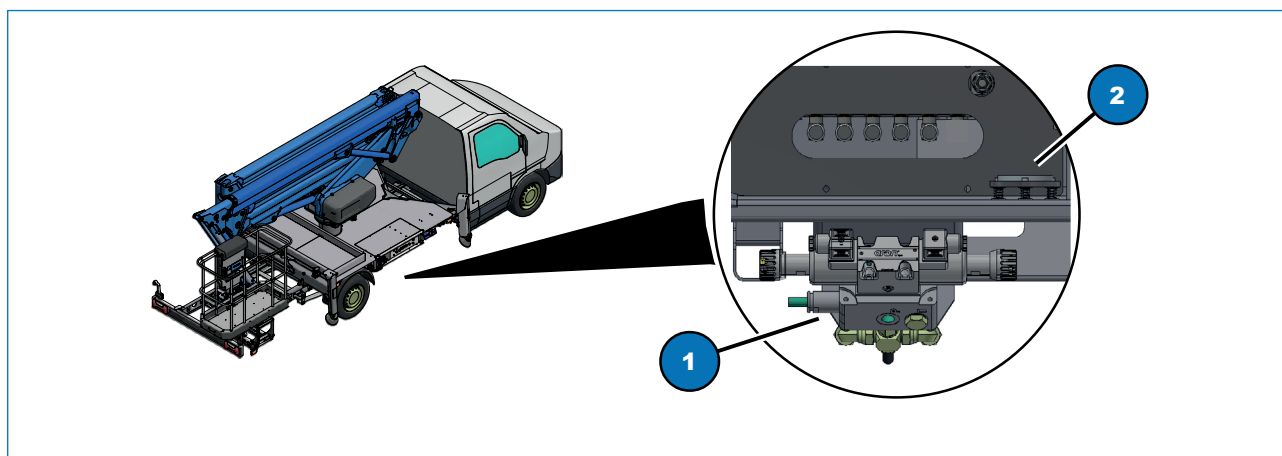


Fig.

5.5

5.8 Blocking valves on cylinders

The blocking valves are hydro-powered and if there is a lack of pressure (e.g. due to breakage of a delivery pipe) they prevent the uncontrolled movement of the corresponding cylinder.

The on/off blocking valves (Fig. 5.6)

are located:

- at the top of the stabilisers (2);

while the overcentre valves are positioned:

- next to the turntable (1);
- on the work platform (3)
- on the articulated boom lifting cylinder (4);
- on the telescopic boom extension cylinder (5);
- on the telescopic boom lifting cylinder (6);
- on the work platform levelling cylinder (7);
- on the front beam extraction cylinders (8).
- on the aerial lifting cylinder (9).

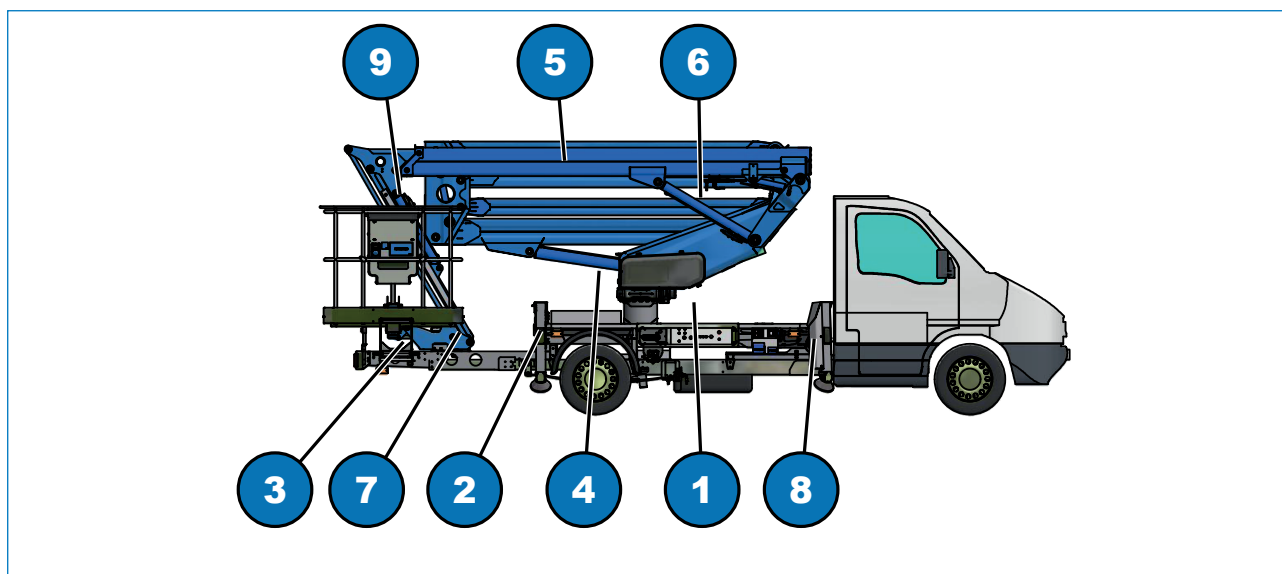


Fig.

5.6

5.9 Stabilisation control device

The stabilisation control device consists of two micro switches (Fig. 5.7, 1) and (Fig. 5.7, 2), found on each stabiliser; a micro-switch (Fig. 5.7, 3) found on the side of the front stabiliser beams; and a micro-switch (Fig. 5.7, 4) found on the vehicle's rear springs.

Micro-switch (Fig. 5.7, 1) indicates the complete closure of the plate for moving on the street; micro-switch (Fig. 5.7, 2) controls resting on the ground; micro-switch (Fig. 5.7, 3) controls the complete extension of the stabiliser; and micro-switch (Fig. 5.7, 4) indicates minimum stabilisation.

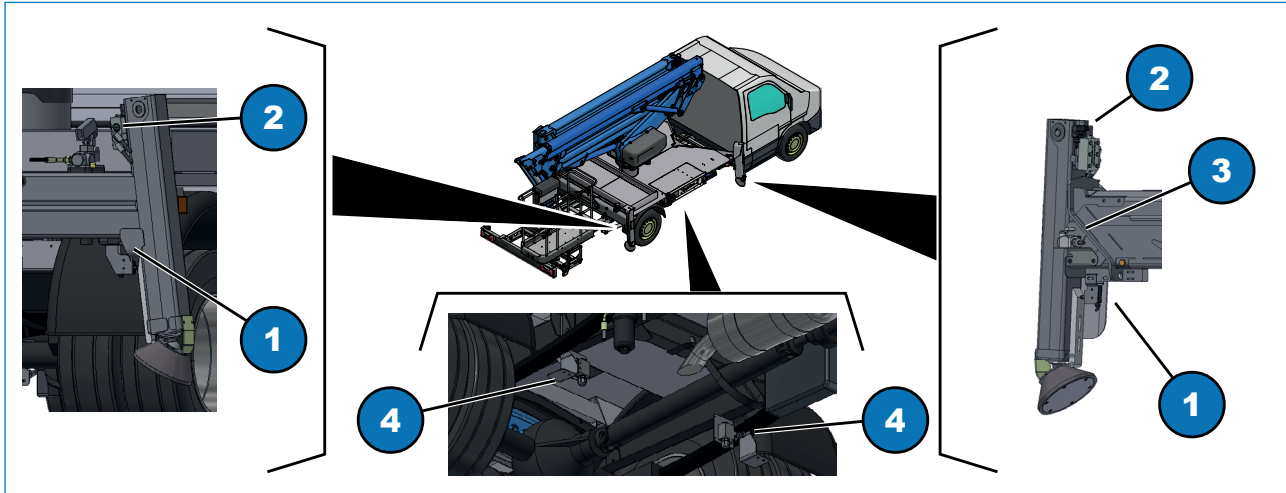


Fig. 5.7

SAFETY DEVICE FUNCTIONALITY CHECK

- When the stabilisers are properly extended, the four LEDs, 1, 2, 3 and 4 next to the stabilisation controls (see Fig. 4.4) are illuminated, indicating that the micro switches are working correctly (Fig. 5.7, 2) and (Fig. 5.7, 4);
- retract all the stabilisers and check that the LED in the cab (see Fig. 4.3, 4) is illuminated, indicating that the micro switches are operating correctly (Fig. 5.7, 1).

5.10 Turret rotation control device

The turret rotation control device consists of a micro switch (Fig. 5.8, 1) and an inductive sensor (Fig. 5.8, 2). The first is located inside the turret, on the articulated boom lifting cylinder. It indicates the complete closure of the platform, inhibiting the turret rotation manoeuvre. The second one is located on the slewing ring and acts at the same time as the one mentioned above to prevent the articulated arm from lowering when the turret is not in its rest position.

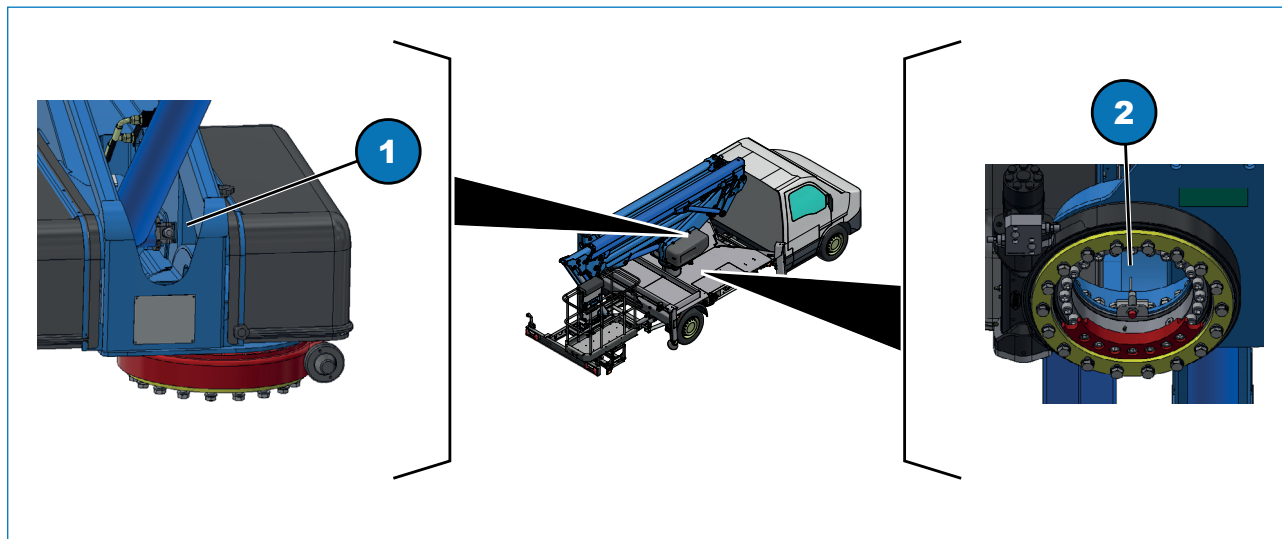


Fig.

5.8

5.11 Control device for driving on the road

The driving control device consists of one micro-switch placed on each stabilising beam (Fig. 5.9, 1). These micro-switches work simultaneously and, when they are all activated, the 'go' indicator on the cab panel lights up and the platform is entirely closed, reach to be driven on the road.

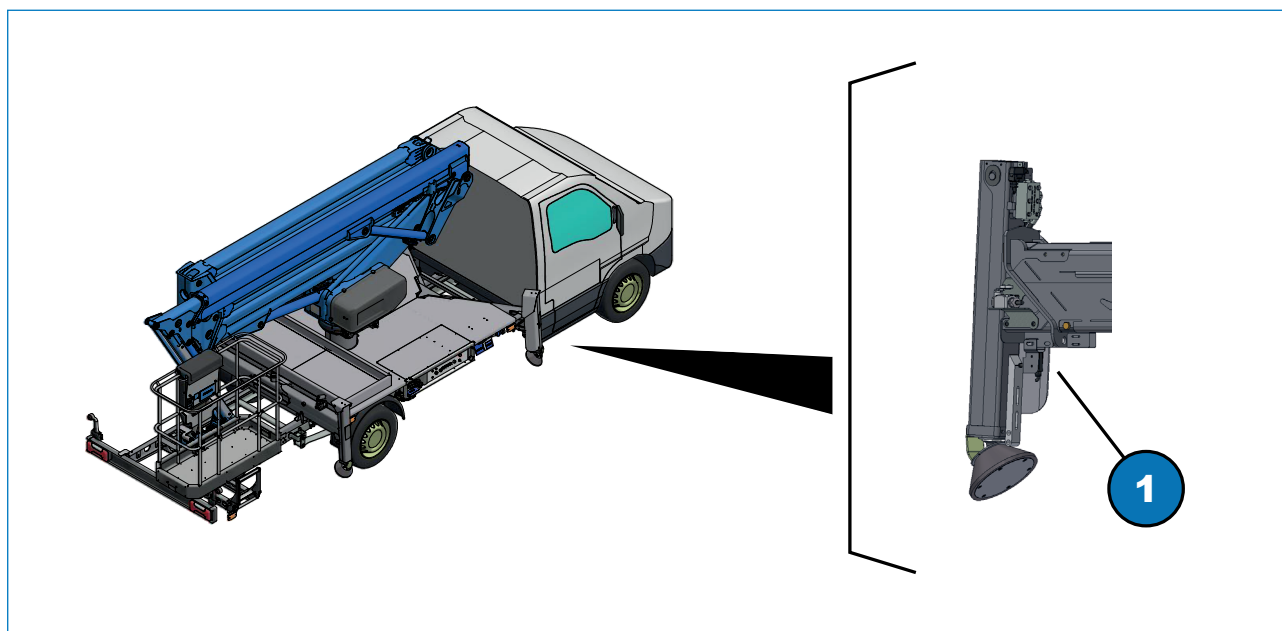


Fig.

5.9

5.12 Basket centring device

The basket centring device consists of one micro switch (Fig. 5.10, 1) found on the basket rotation. It signals when the basket is in the centre, lighting up the indicator on the control panel. When it's active, the structure can be closed completely without risk of collision.

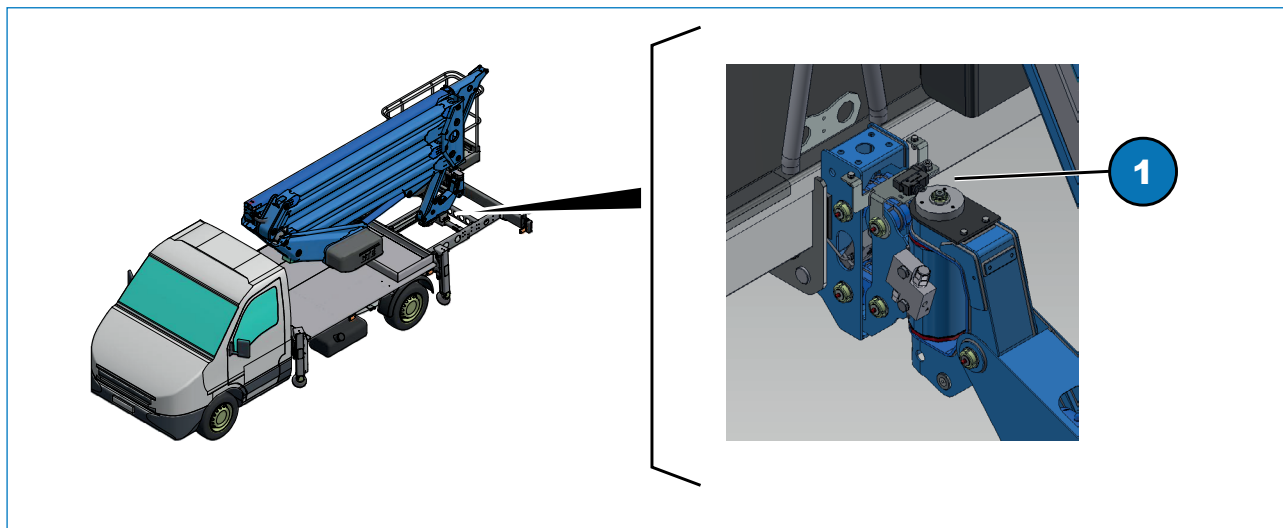


Fig. 5.10

5.13 Working envelope control device

The work area control device consists of four micro switches:

- one (Fig. 5.11, 6) located on the aerial;
- one (Fig. 5.11, 2) located behind the telescopic boom
- two (Fig. 5.11, 5) located on the turret;

and an inductive sensor (Fig. 5.11, 3) located on the work platform slewing ring.

The above-mentioned micro switches operate at the same time as the potentiometers to monitor the movements of the elevating work platform so as to prevent the work platform from colliding with the structure.

Micro-switch (Fig. 5.11, 1) is also used for slowing down when the articulated boom is being closed.

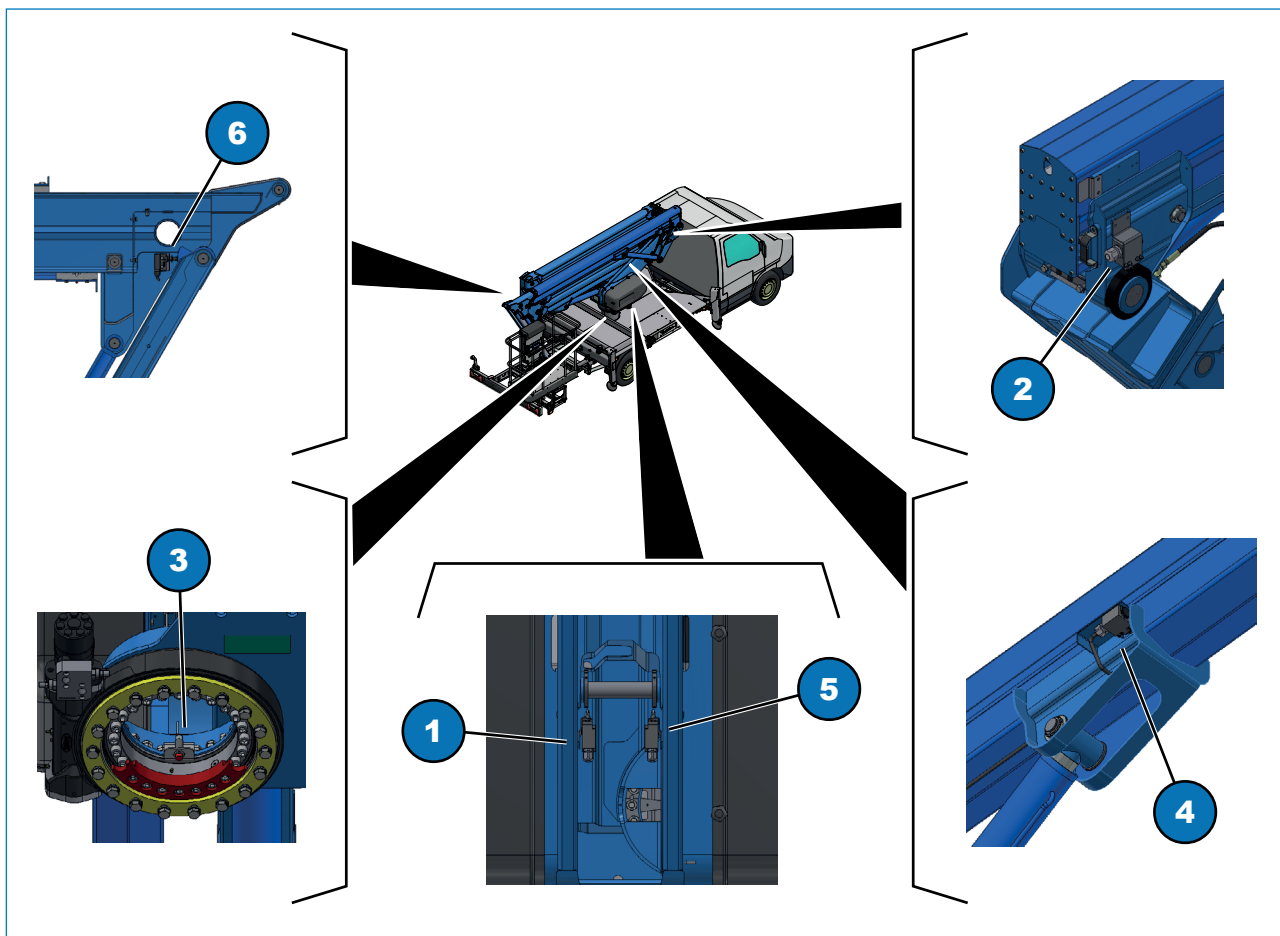


Fig. 5.11

5.14 Spirit level

The spirit level (Fig. 5.12, 2), located next to the stabiliser control levers, indicates if the machine is level.

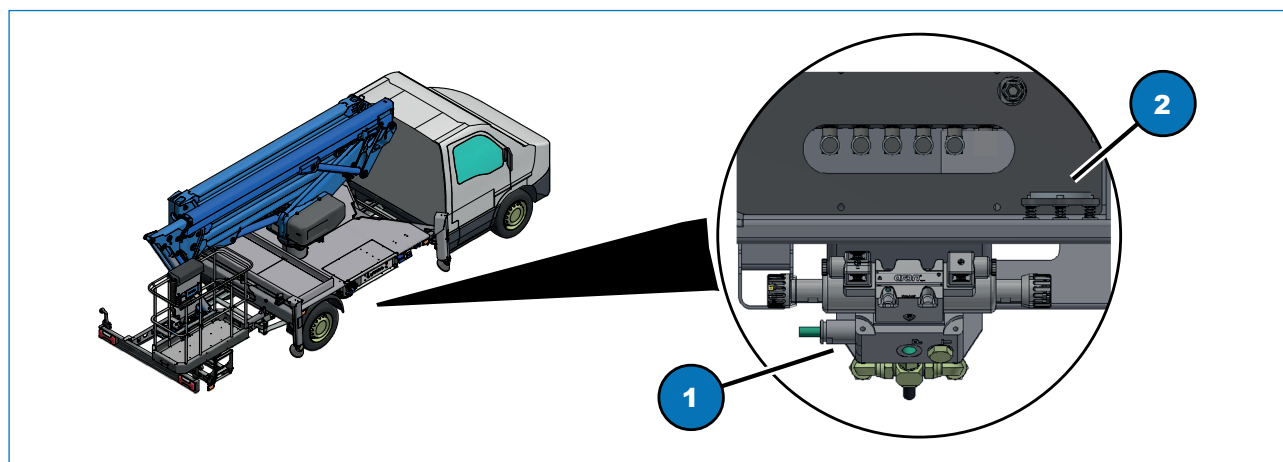


Fig. 5.12

SAFETY DEVICE FUNCTIONALITY CHECK

- Use a hand-held spirit level to check that the spirit level on the machine is working correctly.
- Position the hand-held spirit level alternately along the lengthways axis of the machine and along the crossways axis of the stabilisers.
- if the spirit level on the machine is faulty, contact technical assistance services.

5.15 Anchorage points for the harness device

The elevating platform is provided with two anchor points (Fig. 5.13, 1) for attaching the operator(s) safety harness.

Operators can start working only after they have hooked up the fall-preventing personal protective equipment to the anchorage point provided on the platform. Only one harness system can be attached to each attachment point.

The state of each attachment point (wear and affixing) must be checked periodically.

Notes: (a) standard platform
(b) GRP platform (optional).

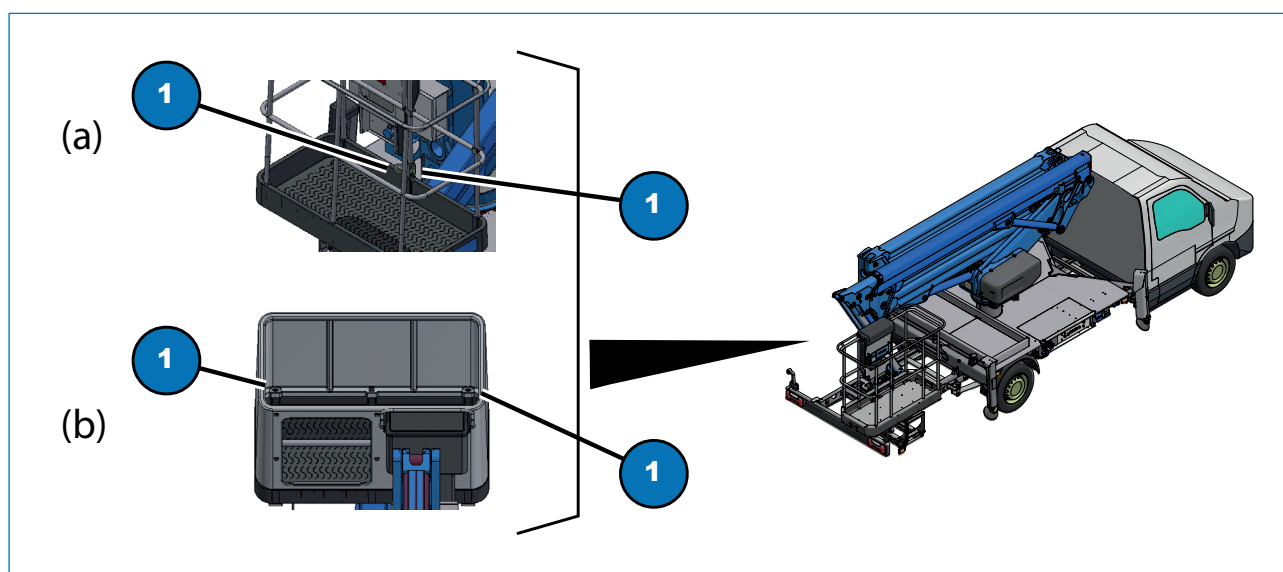


Fig. 5.13

6

PROCEDURES FOR USE

6 Procedures for Use

6.1 Foreword



CAUTION

Before reading this chapter, make sure you have carefully read and understood, ALL the previous chapters.

This chapter describes the work cycle that the elevating platform can be reasonably expected to perform.

Any special situations and conditions which could arise for the operators, should be dealt with taking into account and observing the machine's maximum permitted limits (technical data) and, above all, ensuring that everything is carried out with the utmost safety for the operators firstly and, then, for the machine as well.

6.2 General precautions



PERICOLO!

Failure to observe the following warnings could create dangerous situations and cause damage to property and / or injury to persons.

IT IS OBLIGATORY TO:

- Comply with national standards and legislation, safety standards set down by the employer and those relating to the work area.
 - Always wear a safety helmet.
 - Comply with the Highway Code in the country of use when the vehicle is being driven on public roads.
 - Comply with the current accident prevention regulations when working on the platform.
 - Check the proper operation and condition of all the devices before each use, following the instructions contained in this manual.
 - Check and evaluate the actual work safety conditions (ground, wind, levelling etc.).
 - Always cordon off the work area.
- The operator must stop all operations if unauthorised personnel are present in the work area or on the bed of the vehicle.**
- Turn on the flashing beacons when the platform is operational.

- Always keep handles and steps free from oil and grease.
- Use suitable safety harnesses when working.
- Make sure that the work area is not too close to power lines and that it is clear of obstacles.
- Use the steps to access the control panels.

**CAUTION**

When using the platform, the emergency manoeuvring workstation must be monitored by qualified personnel.

**CAUTION**

Do not climb on the vehicle and / or get into the cab when the machine is stabilised.

IT IS STRICTLY PROHIBITED TO:

- lean over the edge of the platform whilst it is in use
 - leave the ground control station unattended while the operator is alone in the work platform.
 - remove covers and / or safety guards (except for maintenance)
 - keep the joints lifted unnecessarily when the lifting platform is not being used for work.
 - use the lifting platform under conditions of poor visibility.
 - load the platform with materials and/or things when the platform is already at a height.
 - use the elevating platform for lifting or moving materials and/or objects.
 - tamper with safety devices
 - get close to power lines and live electrical equipment.
- Keep at a safety distance in compliance with the national standards in force.**
If the rated voltage of the power line is not known, always keep a minimum distance of 5 m.
- get on and off the machine when it is already raised from the transport position.
 - leave the platform unattended in a position other than the transport position without removing the keys from the control panel.
 - use the platform if the wind speed is greater than 45 km/s.
 - use the platform to lift loads or transport materials.
 - use the platform resting against external structures.
 - exceed the maximum capacity of the work platform (particularly when it is raised).
 - take substances that could alter your physical and mental abilities (e.g. alcohol, drugs).
 - disable safety devices to carry out manoeuvres that would otherwise not be possible to perform.
 - stop the lifting platform abruptly (unless for safety reasons).
 - use the platform in potentially explosive environments.

Once you are on the bed of the vehicle, you should be careful because the anti-slip aluminium components have sharp edges.

The operator in the basket must be supported by another properly instructed person on the ground. There should be no obstacles or dangers in the basket work area.

Carry out maintenance regularly, following the schedule indicated in this manual and using appropriate equipment that is in good working order.

If you need to move to another work area, move the machine with the equipment in the transport position.

Before using the machine, place the stabilisers firmly on solid ground and level the vehicle, using a spirit level.

Before getting onto the work platform, ensure that the weight of the operator and the equipment does not exceed the values indicated in the load capacity diagram and on the CE plate (see section 3.3).

6.3 Operating stages

6.3.1 Pre-start checks



CAUTION

You must have read and understood the operation and maintenance manual before using the machine.

Only use the elevating work platform (MEWP) for the uses intended by the manufacturer and specified in this manual.

The lifting platform can only be used with braked and stabilised vehicle on a level and solid surface.

Before starting to use the lifting platform, it is recommended that you carry out a series of checks, both on the machine and in the area in which the machine will be positioned.

- check that the ground is compact and able to support the weight of the machine (the load for each stabiliser is specified in the technical specifications and on the stabiliser itself).
- check that the ground is level or that it has an inclination of no greater than 3°.
- inspect the work area (see subsection 2.6.2)
- check for the presence of obstacles and overhead lines in the work area that could obstruct or limit the use of the machine.
- check that there is a sufficient amount of fuel in the vehicle's fuel tank.
- check that the operation and maintenance manual is present and that it is complete and legible.
- check that all adhesive labels are present and legible (see Section 3.5).
- check the level of hydraulic oil and top up if necessary (see chapter 8 "Maintenance").
- inspect the aerial work platform, checking the following components and areas for any damage, missing or improperly installed parts or oil leaks:
 - » electrical components, cables and electrical wires
 - » hydraulic hoses/pipes, fittings, cylinders and distributors
 - » slewing ring motor
 - » nuts, bolts and other fastening components
 - » structural or welding cracks and damage to the machine
 - » work platform and access gate
 - » limit switches and safety devices
- check that the deviator valves used to reset the levelling of the platform are in the extension position and that the padlock is closed.
- check that the controls in the platform are working properly before lifting it to a height.
- check that the working area is cordoned off, marked with signs and free of obstacles
- check that the safety systems are working properly (see chapter 5)



CAUTION

If one or more safety systems are damaged or faulty, DO NOT USE THE PLATFORM!

Report the fault immediately to the nearest authorised service centre

- check that the batteries are in good working order
- check that connections to external supplies have been carried out properly
- check that the route the work platform has to follow to reach the working point is free from obstacles

6.3.2 Starting the vehicle

Procedure:

- Sit in the driver's seat.
- Make sure the vehicle won't move by pulling the handbrake and place the gear lever in neutral.
- Start the engine following as indicated in the vehicle's instruction manual.
- If the vehicle is equipped with an engine speed regulation device, slightly increase the speed of the engine.



CAUTION

Never exceed 1500 RPM.

The engine could overheat or the pump could break.

6.3.3 Engaging the power take-off:

Procedure (Fig. 6.1):

- Fully depress the clutch.
- If it is engaged mechanically, move the control lever (1), located between the seats, into the "ENGAGE" position; If it is engaged electronically: press the button (2) on the control panel that activates the PTO;
- the PTO indicator (5) will come on, an acoustic warning signal will sound and the hour counter will start;
- if the vehicle has an electromagnetic clutch with switch (refer to the vehicle's instruction manual), a visual and a sound signal is activated when the power take-off is engaged;
- Raise the clutch pedal slowly.
- place the magnetic beacon light (3) on the roof of the machine and turn it on by inserting the plug in the cigar lighter socket.

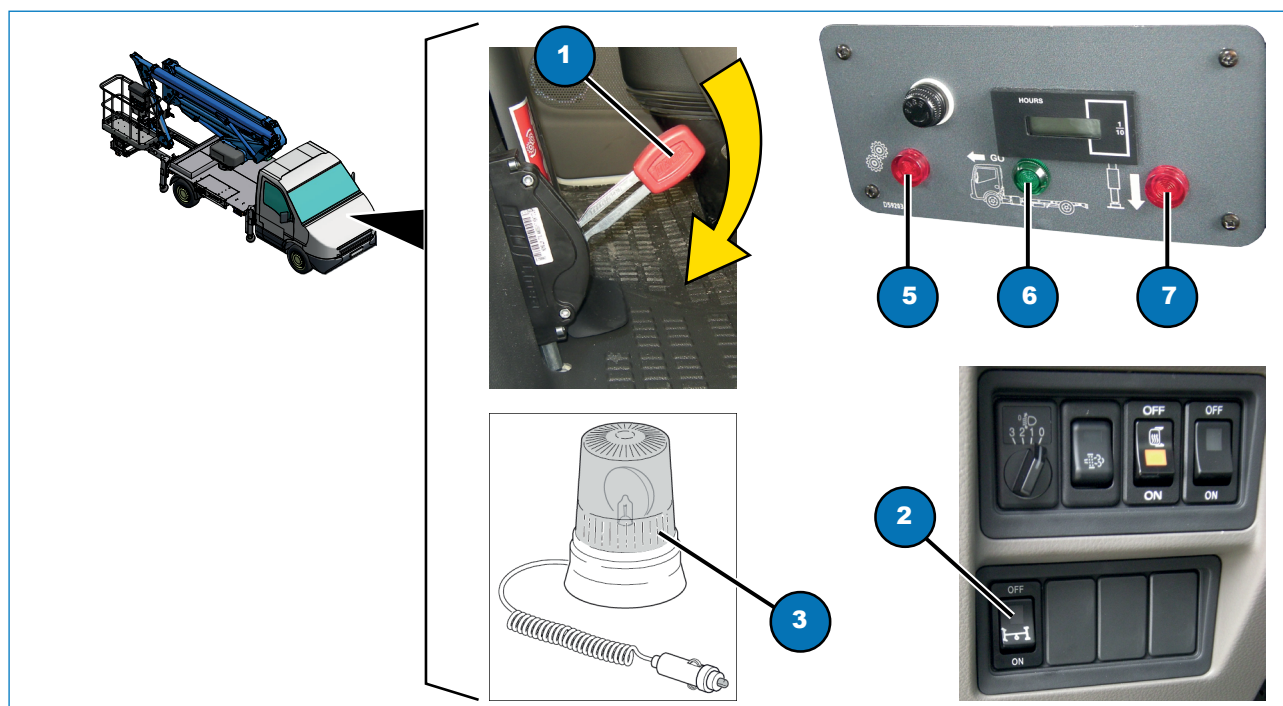


Fig. 6.1



CAUTION

Before starting any manoeuvre (in cold weather), it is advisable to run the hydraulic system pump at idle speed for a few minutes so that the oil reaches the minimum working temperature (about 40° / 5 min) to allow it to flow correctly.

6.3.4 Stabilising the elevating work platform (MEWP)

Procedure:

- Position yourself in front of the “ground control panel”.
- Place the key in the selector switch (Fig. 6.2, 9)
- Turn the selector switch (Fig. 6.2, 9) into the “Stabiliser controls” position;
- The light (Fig. 6.2, 8) will turn on;
- Make sure that all the stabiliser indicator lights (Fig. 6.2, 1, 2, 3 & 4) on the stabilisers are off;



CAUTION

If one or more indicator lights are on (Fig. 6.2, 1, 2, 3 and 4) and flashing quickly, it means that there is a fault with the stabiliser limit switches.

DO NOT STABILISE THE PLATFORM!

- Extend the stabiliser beams by operating the lever in turn (Fig. 6.3, 5). Move the lever downwards to extend the beams, upwards to retract.
- Lower the stabilisers by operating the levers in turn (Fig. 6.3, 1, 2, 3 & 4). Move the levers downwards to extend the stabilisers, upwards to retract. Fully extend the stabilisers to lift up the vehicle and take the weight off the suspension.
- Check the spirit level (Fig. 6.3, 6) located under the stabiliser controls and level the vehicle using the stabiliser control levers. The machine is perfectly level when the bubble in the spirit level is at the centre (0°).
- Check that the indicator lights are on (Fig. 6.3, 1, 2, 3 & 4), which indicates that it is possible to raise the boom. The indicator lights will flash slowly when the stabilisers touch the ground and will have a steady light when minimum stabilisation is reached.



CAUTION

When the indicator light comes on it does not mean that the vehicle has been properly stabilised. This is only indicated by the spirit level (Fig. 6.3, 7).

Before getting onto the platform, make sure that the machine is properly stabilised: chassis lifted and level, weight taken off the suspensions and all four stabilisers resting on suitably firm ground.

If the ground is not firm enough to withstand the weight, use planks that are suitable for the purpose and that have been checked before use.

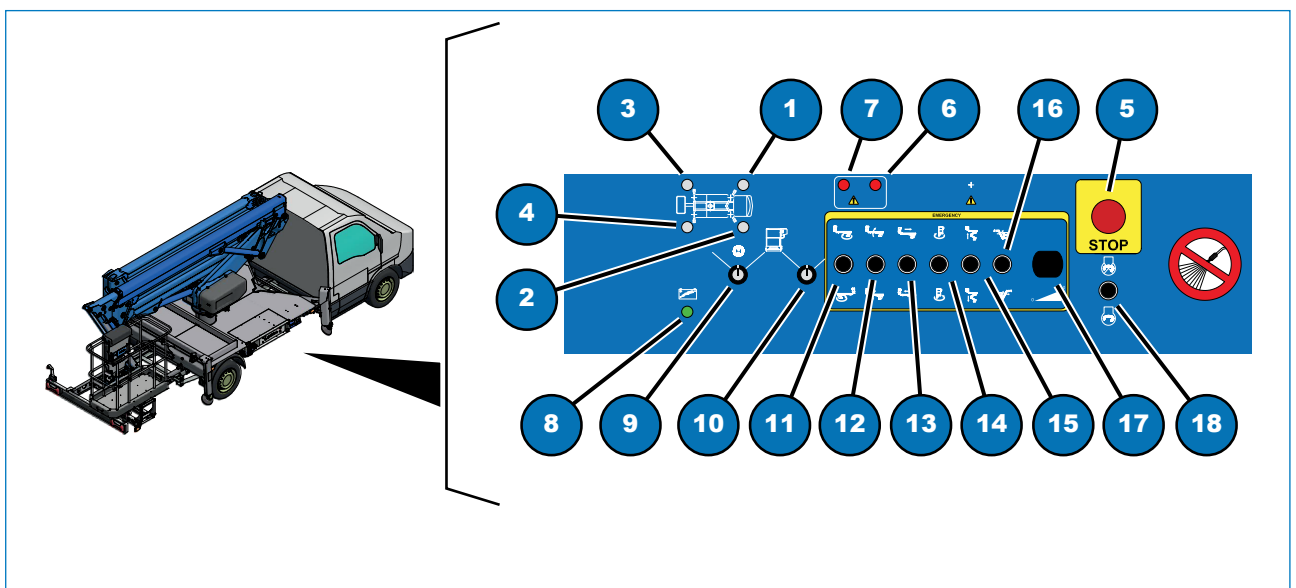


Fig. 6.2

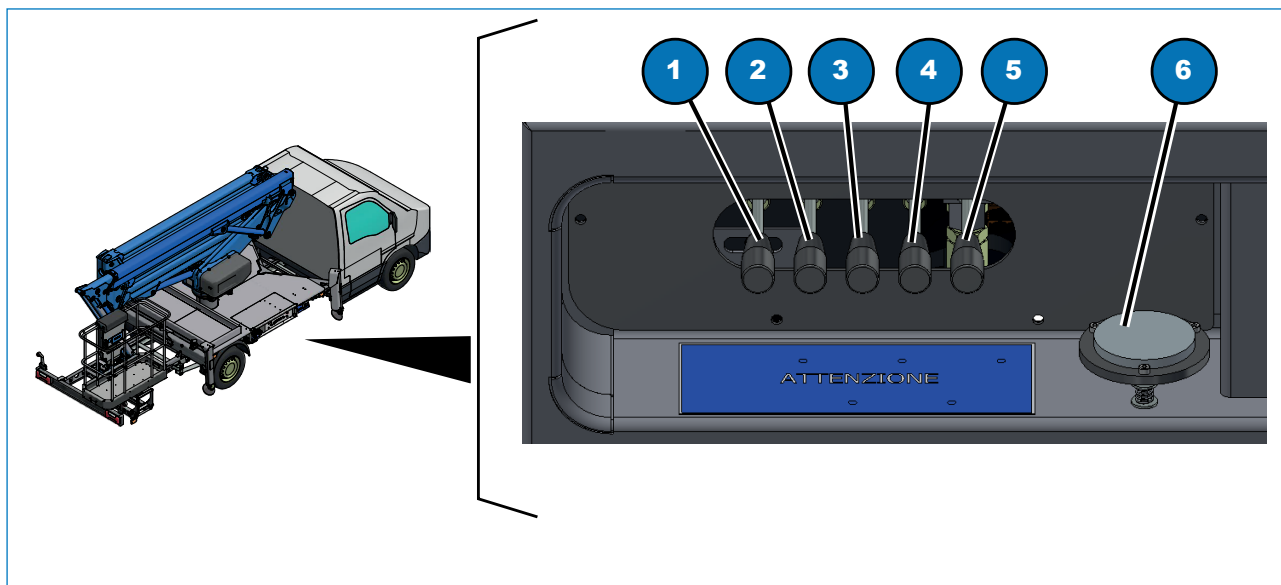


Fig. 6.3

**OBLIGATORY**

Put the helmet and harness on before getting onto the platform.

Before lifting the platform to a height, ensure that the machine is properly stabilised by checking that the four blocking valves on the stabilisers are closed. If necessary, call the Assistance Centre.

6.3.5 Using the elevating platform

**CAUTION**

Before moving the platform, make sure that the weight in the platform is evenly distributed and that it does not exceed the maximum permissible load.

Procedure:

- turn the selector switch key (Fig. 6.2, 9) into the “Work Platform” position.
- Remove the key and take it with you.
- Check the condition of the personal protective devices before using them. Wear a safety harness and any other PPE that may be necessary before getting on the platform.
- Carefully get onto the work platform.
- Check that the access gate is closed.
- Connect the snap hook of the harness to one of the anchorage points on the work platform.
- Check that the power supply indicator LED on the work platform control board is on (Fig. 6.4, 9);
- lift the articulated boom so that it can be rotated;
- lifting the boom from the support plate inhibits the stabilising movements.
- Move the boom by keeping the selector switch control pressed (Fig. 6.4, 1, 2, 3, 4, 5 or 6) in the required position;

WARNING

The boom can be moved by carrying out two manoeuvres simultaneously: one of the manoeuvres A (fig. 6.4, 2 and 3) with one of the manoeuvres B (fig. 6.4, 4, 5 and 6).

- At least one person that is qualified or trained to use the machine should be present on the ground whilst it is being used.
- when the platform is raised, ensure that it does not collide with fixed or mobile parts or the cabin of the vehicle. Keep a safe distance from electrical lines (see section 2.3.1). Rotate, lift and lower the boom with caution. Do not lean out from or hold onto the outside of the work platform.

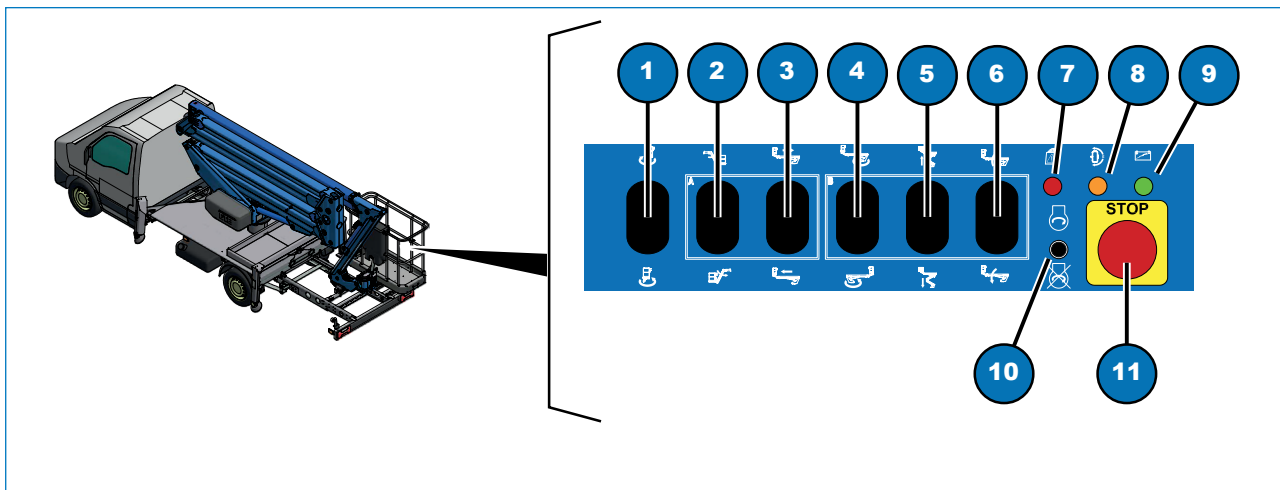


Fig.

6.4

WARNING

If you wish to switch off the engine once you have reached the work position, rotate the selector switch (Fig. 6.4, 10) leftwards.
To restart, rotate the selector switch (Fig. 6.3, 10) rightwards.

WARNING

The machine is equipped with a platform load monitoring device. When the red “Overload” indicator light turns on (Fig. 6.4, 7), an acoustic signal is emitted that lasts a few seconds and at the same time all platform movements are blocked.
This means that the maximum load of the platform has been exceeded.
Once the excess load has been removed from the platform, the controls will be available again.



CAUTION

On the machines equipped with a pantograph anti-collision device, all dangerous manoeuvres are blocked when close to the vehicle cabin while all other manoeuvres are allowed.

6.3.6 Returning the lifting platform to its rest position

Return the work platform to its stowed position as follows (Fig. 6.5):

- retract the extension of the telescopic boom completely (3);
- rotate (4) the work platform to its central position (90° in relation to the boom);
- retract the aerial (6) and the articulated boom (2), centre the turret placing the red signals (1) in order, and lower the telescopic boom (5) until the stowed position is reached.
- Visually check that the boom is centred perfectly on its rest.
- Get off the platform carefully.
- Check that there are no objects inside the platform.

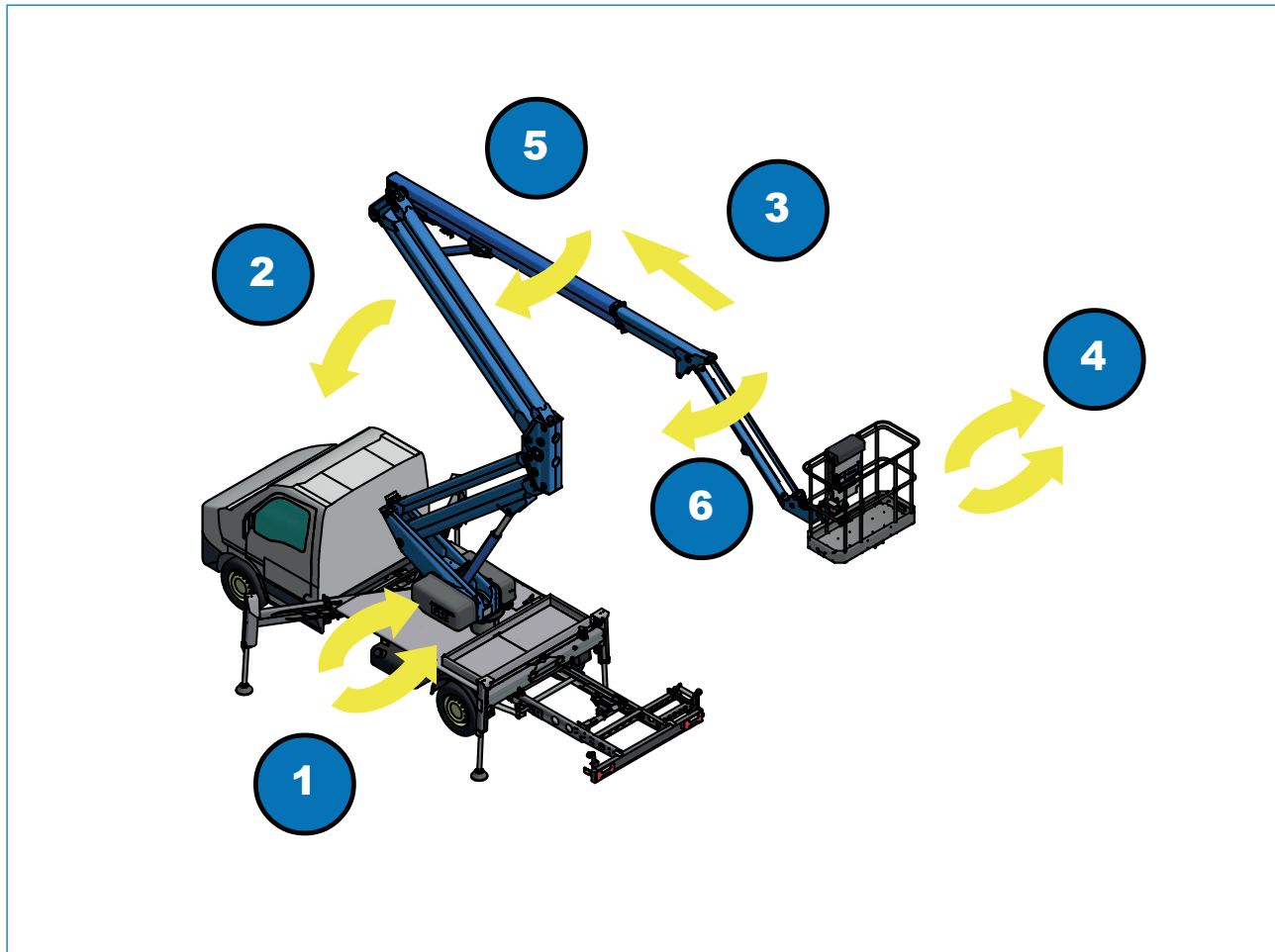


Fig. 6.5

6.3.7 Closing the stabilisers

- Insert the key in the selector switch on the ground control panel and rotate it to the “stabilisers” position (Fig. 6.2, 9);
- retract the stabilisers completely by operating the levers (Fig. 6.3, 1, 2, 3 & 4); retract the beams completely by operating the lever (Fig. 6.3, 5);
- check that the stabiliser indicator lights turn off (Fig. 6.2, 1, 2, 3 & 4);
- rotate the key to the “neutral” position and remove it from the selector switch (Fig. 6.2, 9).

6.3.8 Switching off the vehicle

Sit in the driver's seat (Fig. 6.1):

- Check that the red indicator light on the control panel is off, indicating the successful retraction of the stabilisers (7) and that the green indicator light is on, indicating that the machine is ready to be moved (6);
- Bring the manual accelerator control back to idle speed (unless the vehicle has an automatic acceleration control)

Disengage the power take-off as follows (Fig. 6.1):

- Depress the clutch pedal.
- press the disengage button (2) or move the lever between the seats(1) to "DISENGAGE";
- Release the clutch pedal.
- the red "power take-off" button (5) will switch off and the sound alarm will stop.



OBLIGATORY

When using the vehicle on a public road, make sure that you have the vehicle documents and your driver's licence with you and keep strictly to the Highway Code.

6.4 Parking

- Park the machine in a suitable area out of the way of traffic The ground must be level and firm
- If parking on a slope or on an inclination, apply the handbrake and chock the wheels
- Run the engine at idle speed for a few minutes to let it cool down gradually.
- Switch off the engine.
- Pull the parking brake.
- Remove the key.
- Lock the doors.
- Check that the control panels, carters and any equipment containers are closed

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7

EMERGENCY MANOEUVRES

7 Emergency manoeuvres

7.1 Foreword

In the event of emergency manoeuvres, the operating ground station must be under the control of an expert and skilled person.

All operations must be carried out with great care and under his/her supervision.

Carefully follow the instructions provided in this manual.

**DANGER!**

The occurrence of the cases listed results in hazardous situations. Therefore, operators are required to stop all manoeuvres and close the platform safely and immediately contact CTE authorised repair shop to have the normal machine use conditions restored.

**CAUTION**

In some set-ups, the machine is provided with optional equipment such as: Electric pumps, Electric Engines, Auxiliary Engines. If the vehicle pump is malfunctioning (PTO), these devices must be used to replace it.

7.1.1 Using solenoid valves

**CAUTION**

There is a seal on solenoid valves to guarantee the installation integrity. If seals are missing, it is considered to be tampering and the manufacturer cannot be held liable. The personnel in charge of inspecting and using the platform will be deemed responsible. For this reason, it is necessary to apply the seals at an authorised CTE workshop immediately after having solved the emergency.

7.2 Work platform emergency stop

The platform is equipped with a device that immediately stops all movements.

In order to activate it, press one of the two red mushroom head emergency buttons (Fig 7.1, 1 and 2) located on the machine.

Once the cause of the emergency has been resolved, normal operation can be restored by rotating the button by a quarter of a turn and switching on the engine of the vehicle using the selectors (Fig 7.1, 3 and 4).

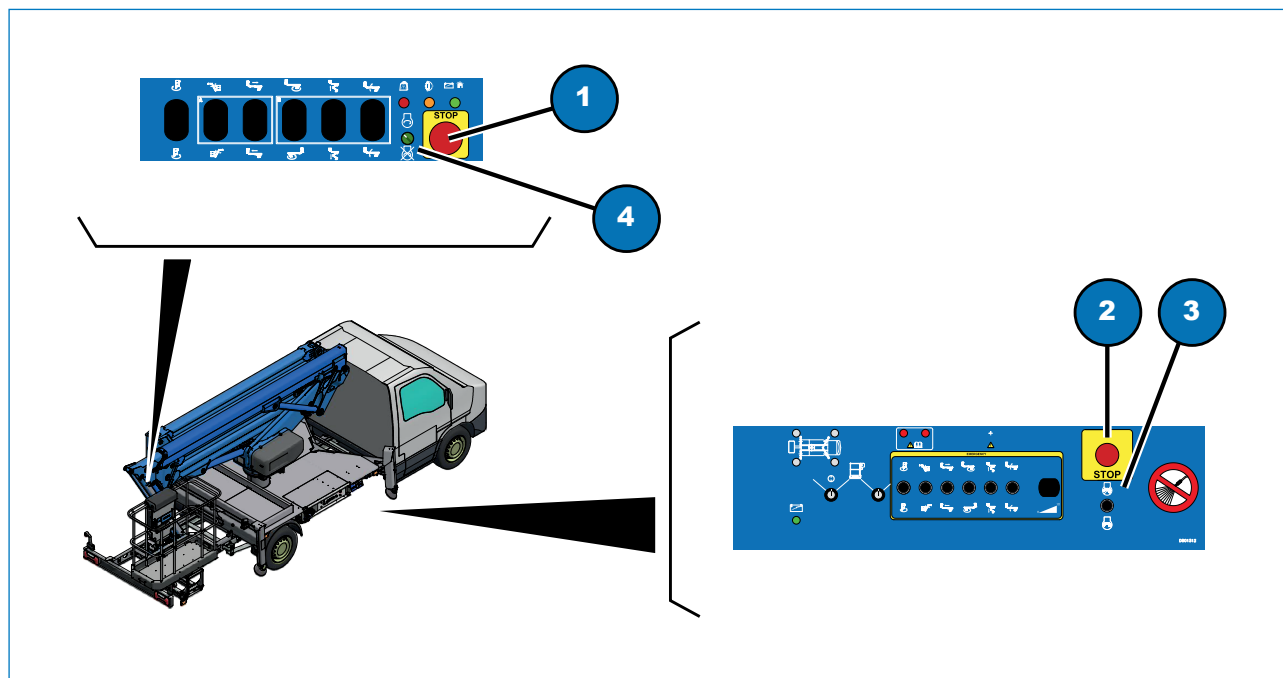


Fig. 7.1



CAUTION

Read and understand the previous chapters before reading this one.

7.3 Levelling the work platform



CAUTION

If you notice that the work platform is not perfectly level with respect to the horizontal, lower it to the ground and get off.

The procedure for restoring safe working conditions (work platform horizontal), is described in Chapter 8 "Maintenance" and should be carried out by a qualified technician.

7.4 Lowering the work platform using the ground controls in the event of operator incapacity.

In the event that the operator on the work platform is incapacitated, the emergency controls should be used as follows (Fig. 7.2):

- 1) Remove the key from inside in the turret (Fig. 7.3, 5) that is fastened using a lead wire seal.
- 2) insert the key in the selector switch (10) and turn it to the “emergency controls” position;
- 3) activate the control switch for the required movement and at the same time use the proportional joystick (17). Using the movement control switches with care, bring the work platform into its stowed position.
- 4) when finished, place the selector switch (10) in the central position;
- 5) remove the key from the selector switch (10).

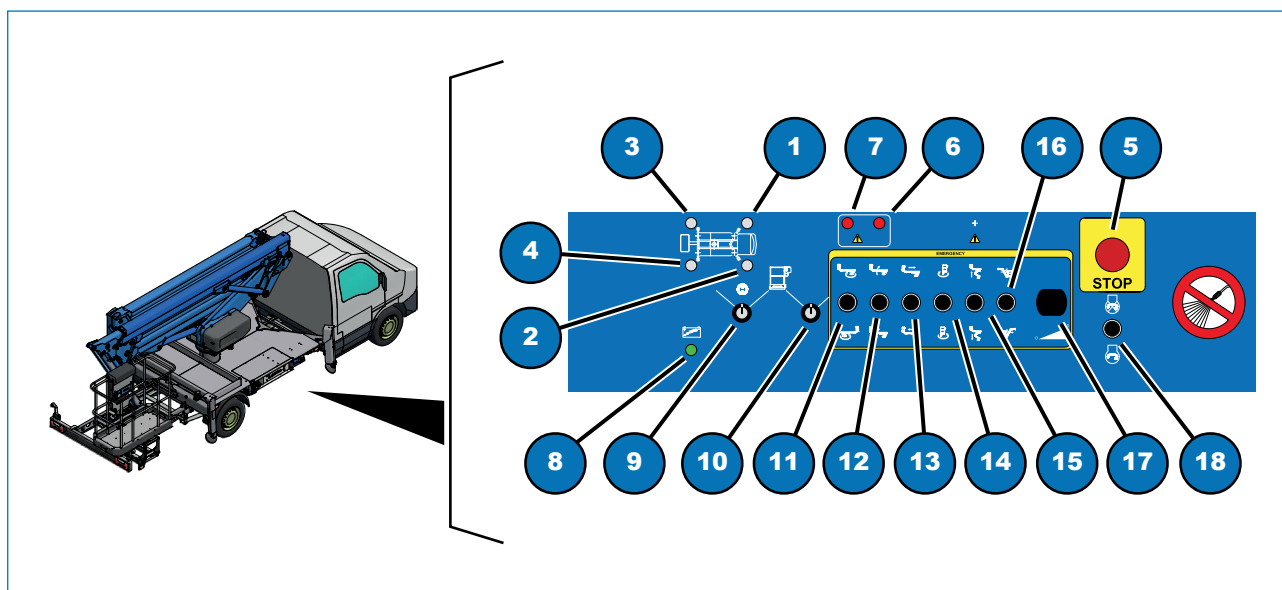


Fig. 7.2



OBLIGATORY
Contact the Assistance Centre in order to
replace the key in the turret with a lead wire seal.

7.5 Manual lowering of platform from the ground

If the vehicle's engine breaks down, the gear pump that supplies power to all the equipment fails or there is a power cut, the platform can be lowered as follows:

- 1) remove the manual pump control lever (Fig. 7.3, 1) fastened in the ladder by unscrewing the black locking knob (Fig. 7.3, 3);
- 2) insert the handle onto the manual pump (Fig. 7.3, 2);
- 3) Remove the seal from the "stabiliser/work platform control" (Fig. 7.3 1) "stabiliser/work platform control" located close to the stabiliser controls.
- 4) completely remove the carter in the turret by unscrewing the black locking knobs (Fig. 7.3, 2, 3, 4);

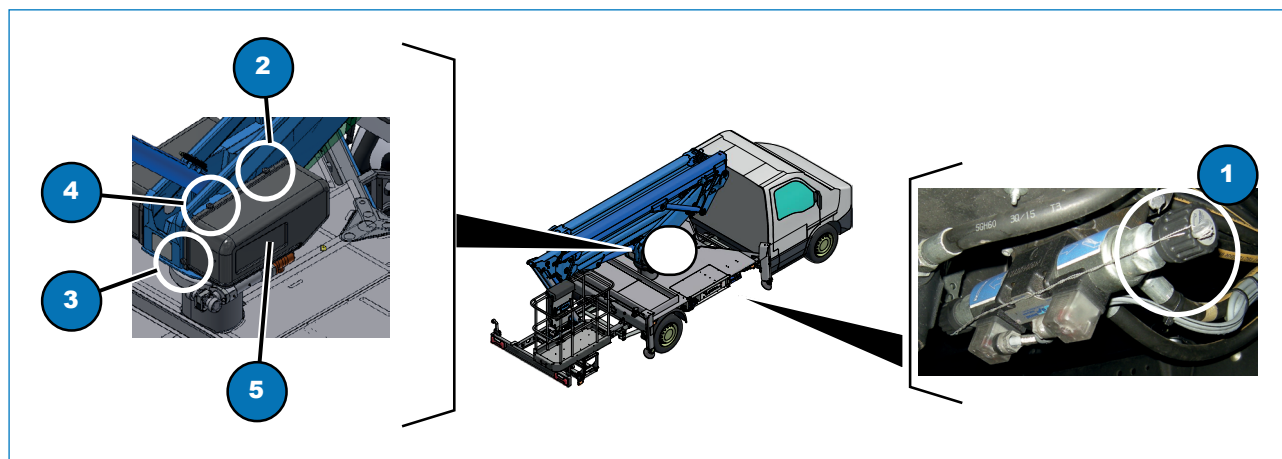


Fig. 7.3

- 5) lower the platform to the ground following the indications shown in the diagram on the label (Fig. 7.4) above the cover:



CAUTION

Always open only one valve at a time. Before moving to the next valve, close the valve that was opened previously.

The direction of rotation of the emergency manoeuvres always refers to a person sitting in the cab of the vehicle.

- A) Close the valves completely (Fig. 7.4 7 and 8)
- B) open the valve relative to the telescopic arm, **3A** to extend or **3B** to retract the extension: set the required travel speed using the proportional valve **8**. After completing the manoeuvre, close the valve (Fig. 7.4, **3A** or **3B**) and the valve (Fig. 7.4, **8**);
- C) open the valve relative to the articulated arm, **4A** to lower or **4B** to lift the arm: set the required travel speed using the proportional valve **7**. After completing the manoeuvre, close the valve (Fig. 7.4, **4A** or **4B**) and the valve (Fig. 7.4, **7**);
- D) open the valve relative to the turret, **6A** for counterclockwise rotation or **6B** for clockwise rotation: set the required travel speed using the proportional valve **7**. After completing the manoeuvre, close the valve (Fig. 7.4, **6A** or **6B**) and the valve (Fig. 7.4, **7**);
- E) open the valve relative to the aerial, **1A** to lower or **1B** to lift the aerial: set the required travel speed using the proportional valve **8**. After completing the manoeuvre, close the valve (Fig. 7.4, **1A** or **1B**) and the valve (Fig. 7.4, **8**);
- F) open the valve relative to the working platform, **2A** for counterclockwise rotation or **2B** for clockwise rotation: set the required travel speed using the proportional valve **8**. After completing the manoeuvre, close the valve (Fig. 7.4, **2A** or **2B**) and the valve (Fig. 7.4, **8**);
- G) and finally open the valve relative to the telescopic arm, **5A** to lift or **5B** to lower the arm: set the required travel speed using the proportional valve **7**. After completing the manoeuvre, close the valve (Fig. 7.4, **5A** or **5B**) and the valve (Fig. 7.4, **7**);
- H) after having completed the manoeuvres, completely unscrew the proportional valves (Fig. 7.4, **7** and **8**);

- l) replace the hand pump lever in the ladder and secure it using the black knob.

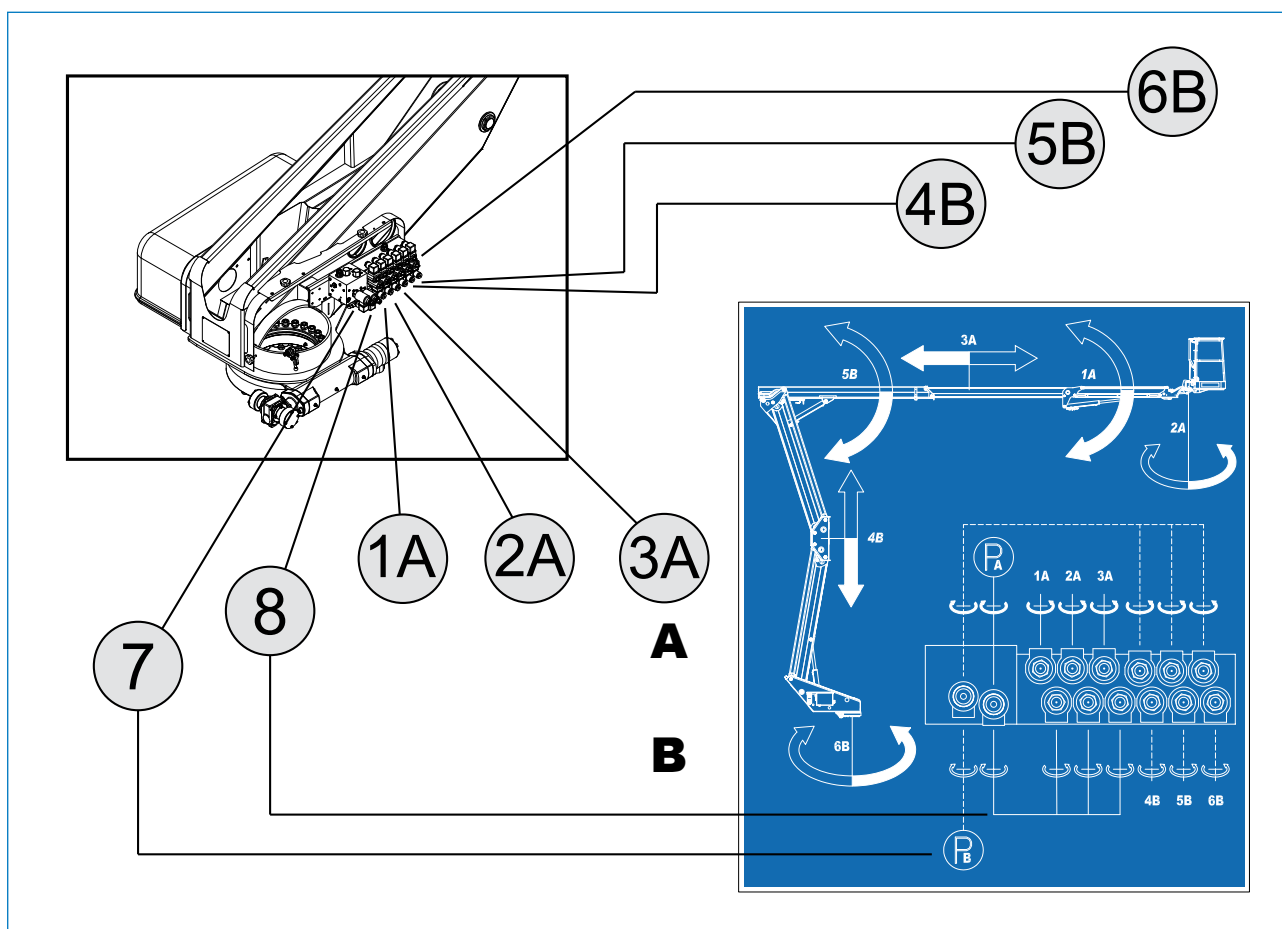


Fig. 7.4



CAUTION

Put the machine out of service and contact the Assistance Centre to check and repair the fault and attach a new lead wire seal onto the valves.

7.6 Lowering the work platform in the event of a power cut

If there is a failure to the vehicle's engine, the gear pump that supplies motor power to all the equipment, the platform can be lowered as follows (Fig. 7.5):

- 1) remove the control lever (1) of the manual pump (2) fixed to the ladder by loosening the black locking knob;
- 2) insert the grip (1) in the manual pump (2) located near the rear right-hand extension;
- 3) whilst the operator on the work platform operates the control of the required movement, activate the manual pump (2);
- 4) when recovery has been carried out, re-position the manual pump control lever, fixing it on the ladder using the black locking knob.

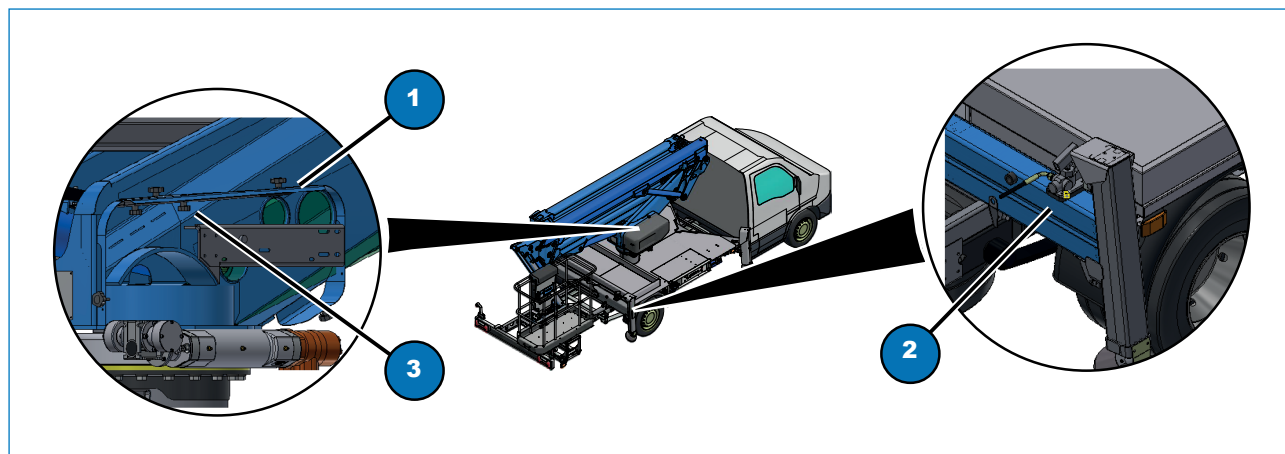


Fig. 7.5

8

MAINTENANCE

8 Maintenance

This chapter covers routine maintenance only.

The operator can only carry out the routine maintenance indicated by “O” (operator) in the maintenance summary table

Other maintenance work, indicated by “M” (qualified technician)” in the maintenance summary table, must be carried out by qualified technicians and following the schedule and instructions indicated in the manual. Follow the maintenance instructions in order to keep the equipment in good working order and safe to operate.



CAUTION

Any maintenance work not mentioned in this chapter should only be carried out by After-Sales Services or by Service Centres authorised by the manufacturer.

The aerial platform can work in contact with water, sand, earth, etc. and requires regular lubrication. This is vitally important, not only for to ensure machine’s durability over time, but also to minimise operating costs.

Please contact **After-sales Services** for any further information.



Phone: +39 0464 711200

Fax: +39 0464 485099

Before each use, ensure that all necessary maintenance has been carried out and carry out all the checks indicated in the “Pre-start checks” table.



CAUTION

**Take a damaged or broken machine out of service immediately.
Repair all damage and/or faults before putting the machine back into service.**

Perform a quarterly check on any machines that have been out of service for more than three months before putting them back into service.

8.1 Inspection logbook

The inspection logbook issued by CTE to the platform owner (pursuant to the meaning of Annex I to Directive 2006/42/EC) is to be considered an integral part of the machine and must accompany the machine throughout its operational life until it is scrapped.

The following information regarding the machine must be recorded in the logbook:

- Change of ownership
- Replacement of motors, engines, mechanisms, structural components, electrical components, hydraulic components, safety devices and corresponding components
- Significant faults and relative repairs
- Regular inspections

AVVERTENZA

If there are not enough sheets in the logbook, add other sheets as necessary, by photocopying them or preparing them in the same way as the ones already present.

The user should indicate the type of platform, the factory serial number and the year of construction on the additional sheets so that they can become an integral part of this logbook.

Any maintenance carried out after the first 100 hours, on a quarterly, six-monthly or annual basis, should be recorded in section 7 (Periodic checks and maintenance) of the inspection logbook.

The Inspection Logbook should be kept at the disposal of supervisory bodies for a period of five years from the date of the last record, or until the equipment is put out of service, whichever occurs first.

A document certifying the most recent check should accompany the equipment wherever it is used.

8.2 General Rules

- When removing and reinstalling parts, always use extractors, spanners and equipment that will not damage the components.
- Use copper headed hammers or wooden mallets to release parts that are securely fastened.
- Separate the pieces of the various units and partially screw the nuts onto their corresponding pins or stud bolts. Clean the parts using brushes or rags, then wash them using petroleum or warm water and remove all residues using compressed air.
- After grinding using abrasive tools, thoroughly wash the parts or blast them with compressed air to make sure that all the abrasive dust has been removed
- When reassembling parts, ensure that they are clean and adequately lubricated.
- Take maximum care with the snap rings and spring pins:
if they show signs of damage, replace them immediately.



CAUTION

All maintenance described in the following pages is applicable exclusively to the aerial work platform.

For maintenance of the vehicle on which the equipment is installed, refer to the instructions provided by the vehicle manufacturer.

8.3 Maintenance summary table


CAUTION

In order for the warranty to remain valid, inspection and maintenance must be carried out at an authorised CTE service centre after the first 100 hours and after every 1000 hours (or every year) of operation.

8.3.1 Pre-start checks

Description of operation		Section
Visual inspection	O	6.3.1
Check use and maintenance manual	O	6.3.1
Legibility of plates and adhesives	O	6.3.1
Checking for damages and missing, loose or detached parts	O	6.3.1
Check welds, pins and joints	O	6.3.1
Check for any oil leaks	O	8.6
Check pressures	O	8.6.3
Hydraulic oil level check	O	8.6.5
Check hydraulic oil filter clogging indicators	O	8.6.6
Check the operation of the controls in the platform and on the ground	O	8.7.1
Check safety devices (Emergency Stop)	O	8.7.1
Test limit switches	O	8.7.2
Test power supply differential circuit breaker in the platform.	O	15.3
Check harness system anchorage	O	5.15

O = to be done by an operator

M = to be done by a qualified technician

8.3.2 Every 50 hours of operation

Description of operation		Section
Visual inspection	O	6.3.1
Check use and maintenance manual	O	6.3.1
Legibility of plates and adhesives	O	6.3.1
Checking for damages and missing, loose or detached parts	O	6.3.1
Check welds, pins and joints	O	6.3.1
Check for any oil leaks	O	8.6
Check pressures	O	8.6.3
Hydraulic oil level check	O	8.6.5
Check hydraulic oil filter clogging indicators	O	8.6.6
Check the operation of the controls in the platform and on the ground	O	8.7.1
Check safety devices (Emergency Stop)	O	8.7.1
Test limit switches	O	8.7.2
Test power supply differential circuit breaker in the platform.	O	15.3
Lubrication and greasing	O	8.5

O = to be done by an operator

M = to be done by a qualified technician

8.3.3 Every 100 hours of operation

Description of operation		Section
Visual inspection	O	6.3.1
Check use and maintenance manual	O	6.3.1
Legibility of plates and adhesives	O	6.3.1
Checking for damages and missing, loose or detached parts	O	6.3.1
Check welds, pins and joints	O	6.3.1
Check for any oil leaks	O	8.6
Check pressures	O	8.6.3
Hydraulic oil level check	O	8.6.5
Check hydraulic oil filter clogging indicators	O	8.6.6
Check the operation of the controls in the platform and on the ground	O	8.7.1
Check safety devices (Emergency Stop)	O	8.7.1
Test limit switches	O	8.7.2
Test power supply differential circuit breaker in the platform.	O	15.3
Replace hydraulic oil filters	M	8.6.6
Lubrication and greasing	O	8.5
Check turret fixing screws	M	8.8.1
Check the correct tightness of all connecting bolts from the subframe to the truck	M	8.8.2

O = to be done by an operator

M = to be done by a qualified technician

8.3.4 Every 6 months or 500 hours of operation

Description of operation		Section
Visual inspection	O	6.3.1
Check use and maintenance manual	O	6.3.1
Legibility of plates and adhesives	O	6.3.1
Checking for damages and missing, loose or detached parts	O	6.3.1
Check welds, pins and joints	O	6.3.1
Check for any oil leaks	O	8.6
Check pressures	O	8.6.3
Hydraulic oil level check	O	8.6.5
Check hydraulic oil filter clogging indicators	O	8.6.6
Check the operation of the controls in the platform and on the ground	O	8.7.1
Check safety devices (Emergency Stop)	O	8.7.1
Test limit switches	O	8.7.2
Test power supply differential circuit breaker in the platform.	O	15.3
Replace hydraulic oil filters	M	8.6.6
Lubrication and greasing	O	8.5
Check turntable fixing screws	M	8.8.1
Check the correct tightness of all connecting bolts from the subframe to the truck	M	8.8.2

O = to be done by an operator

M = to be done by a qualified technician

8.3.5 Yearly or every 1000 hours of operation

Description of operation		Section
Visual inspection	O	6.3.1
Check use and maintenance manual	O	6.3.1
Legibility of plates and adhesives	O	6.3.1
Checking for damages and missing, loose or detached parts	O	6.3.1
Check welds, pins and joints	O	6.3.1
Check for any oil leaks	O	8.6
Check pressures	O	8.6.3
Hydraulic oil level check	O	8.6.5
Check hydraulic oil filter clogging indicators	O	8.6.6
Check the operation of the controls in the platform and on the ground	O	8.7.1
Check safety devices (Emergency Stop)	O	8.7.1
Test limit switches	O	8.7.2
Test power supply differential circuit breaker in the platform.	O	15.3
Change hydraulic oil	M	8.6.5
Replace hydraulic oil filters	M	8.6.6
Lubrication and greasing	O	8.5
Check turntable fixing screws	M	8.8.1
Check the correct tightness of all connecting bolts from the subframe to the truck	M	8.8.2
Check slewing ring clearance	M	8.10
Check condition of paint	O	8.13
Check and carry out maintenance on chains and/or cables	O	8.14

O = to be done by an operator

M = to be done by a qualified technician

8.3.6 Every 10 years or 10000 hours

Description of operation		Section
Visual inspection	M	6.3.1
Check use and maintenance manual	M	6.3.1
Legibility of plates and adhesives	M	6.3.1
Checking for damages and missing, loose or detached parts	M	6.3.1
Check welds, pins and joints	M	6.3.1
Check for any oil leaks	M	8.6
Check pressures	M	8.6.3
Hydraulic oil level check	M	8.6.5
Check hydraulic oil filter clogging indicators	M	8.6.6
Check the operation of the controls in the platform and on the ground	M	8.7.1
Check safety devices (Emergency Stop)	M	8.7.1
Test limit switches	M	8.7.2
Test power supply differential circuit breaker in the platform.	M	15.3
Change hydraulic oil	M	8.6.5
Replace hydraulic oil filters	M	8.6.6
Lubrication and greasing	M	8.5
Check turntable fixing screws	M	8.8.1
Check the correct tightness of all connecting bolts from the subframe to the truck	M	8.8.2
Check slewing ring clearance	M	8.10
Replace hydraulic hoses	M	8.6.2
Replace hydraulic pumps	M	8.6.4
Replace cylinder seals	M	8.6.1
Check condition of paint	M	8.13
Replace cables and/or chains	M	8.14

O = to be done by an operator

M = to be done by a qualified technician

8.4 Maintenance of mechanical components

8.4.1 Main mechanisms

Mechanical parts in mutual rotation should be inspected periodically, checking the condition of nuts, bolts and screws to make sure none have been loosened. Before each use, visually inspect the fixing screws and nuts connecting the slewing ring to the chassis and turret, the gearbox, the connection between the rotating joint and the turret, the locks on the pins, the fixing nuts on the vehicle, all other bolts, particularly on parts subjected to vibration and movement. Before each use, also visually inspect all the structural components for cracks in welds, corrosion or signs of wear. After the first 100 hours and then every 3 months or 500 hours, check:

- the tightness of the turntable fixing nuts using a torque wrench (refer to the “Tightening torque” table)
- the tightness of all connecting bolts of the subframe to the truck using a torque wrench (refer to the “Tightening torque” table)

8.4.2 Combustion engine

For maintenance of the internal combustion engine, follow the instructions indicated in the vehicle manufacturer’s manual.

8.5 Lubrication and greasing

8.5.1 Greasing the pins

Every 50 hours, grease the pins at the points specified in the figure by injecting a small amount of grease using a manual grease gun (D fig. 8.1), through the grease fittings.

Lubricant: **NLGI 2** grease or equivalent.



CAUTION

Do not grease the two of grease fittings on the slewing bearing.

Place the platform in the position shown in A (Fig. 8.1) before proceeding with the lubrication and greasing.

All platform pins, joints and stabiliser seats are equipped with ball lubricators identified by a specific label (Fig. 8.1, B).

To grease the articulated joints, inject a small quantity of grease using a greasing pump (Fig. 8.1, C), inject pressurised grease through the domed grease nipples until the old lubrication grease comes out of the ends.

Lubricate all the points of the joints and all parts fitted with grease fittings.

Move all the joints and introduce again a little quantity of lubricating oil.

Clean the elements to remove the exhaust lubricant discharged from the joint points.

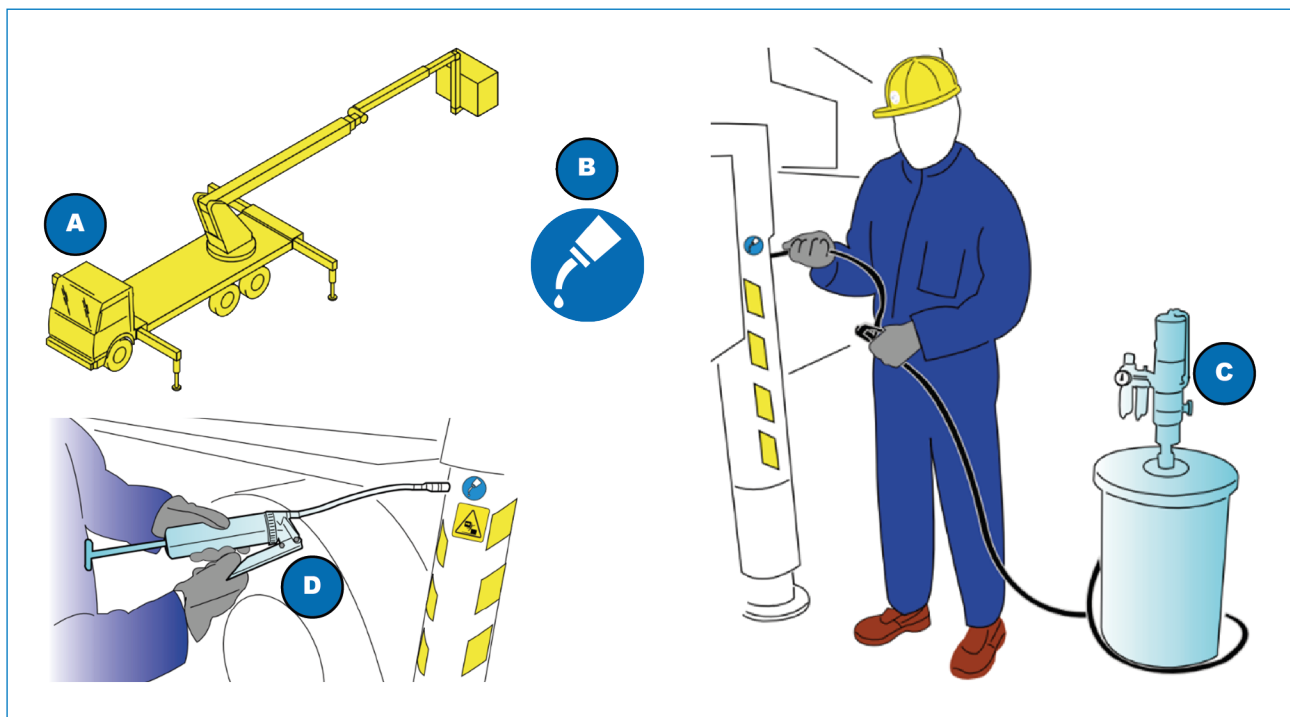


Fig. 8.1

8.5.2 Lubricating the stabilisers

Lubricate every 50 hours of operation as follows: stabilise the machine by fully extending the stabilisers. Check the lubrication of the sliding elements. If they are dusty or dirty, clean them and remove the grease. Then, using a brush, apply a thin layer of NLGI 2 grease mixed with 50% of ISO VG 32 hydraulic oil.

8.5.3 *Lubricating the telescopic boom elements*

Lubricate every 50 hours of operation as follows: stabilise the machine and fully extend the telescopic boom. Check the lubrication of the elements. If they are dusty or dirty, clean them and remove the grease. Then, using a brush, apply a thin layer of NLGI 2 grease mixed with 50% of ISO VG 32 hydraulic oil.

8.5.4 *Lubricating the turntable*

Every three months or every 500 hours of operation, check and lubricate the turntable. These intervals can be varied according to the actual operating conditions.

8.6 Hydraulic system maintenance

The hydraulic system is made up of various components that have to be maintained at different intervals.

8.6.1 Hydraulic cylinders

Before each use, check that there are no leaks in the following points: rod seal, fittings, valves and pipes. If there are leaks, do not use the machine and contact After-sales Services.

8.6.2 Hydraulic system pipes

Before each use, visually check the fittings, valves and pipes for leaks. Check that the rubber hoses are integral and without cracks. If there are leaks, do not use the machine and contact After-sales Services.

8.6.3 Pressure check and valve adjustment

Check the maximum pressure valve: stabilise the platform properly, retract the boom by pressing the relevant button on the ground control panel and check that the pressure on the manometer corresponds with what indicated in the technical data table.

If the pressure is different, contact After-sales Services.



CAUTION

All valve adjustments should be carried out at the manufacturer's premises or at an Authorised Service Centre.

8.6.4 Hydraulic motors and pumps

Before each use, visually check the fittings, flanges and pipes for leaks. Hydraulic pumps and motors do not require additional maintenance instructions. If there are any leaks, contact After-sales Services.

8.6.5 Hydraulic oil

Before use, visually check the level of the hydraulic oil by using the indicator on the tank (Fig. 8.2, 3). The level should be at the centre of the indicator. If necessary, remove the filler cap and top it up. (Fig. 8.2, 1).

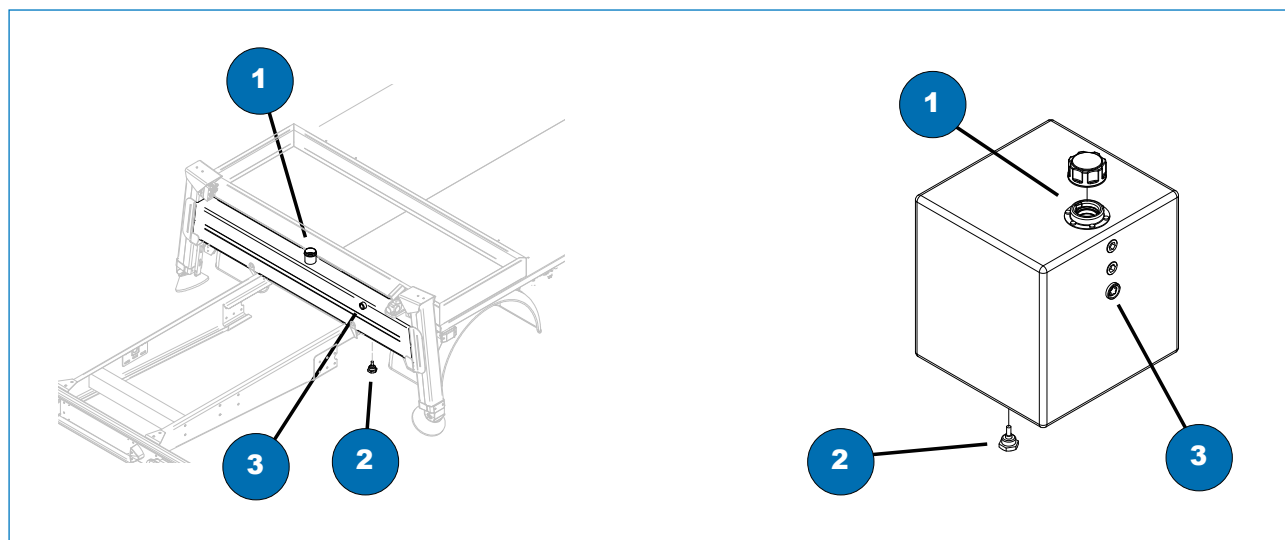


Fig. 8.2

The indicative operating environment temperature ranges for the types of oil are shown below.

HYDRAULIC OIL	T = TEMPERATURE (°C)
ISO VG 22	-20°<T<+30°
ISO VG 32	-5°<T<+40°
ISO VG 46	0°<T<+50
ISO VG 68	+10°<T<+60°


CAUTION

The following operations should be carried out with the platform in its rest position (stabilisers and booms fully retracted).

Change the hydraulic oil every 1000 hours, or at least one a year. At the same time, replace the hydraulic oil filters. To replace it, get a suitable, large-enough receptacle or receptacles (see Section 3.6.1) and drain the used oil by loosening the drainage cap (Fig. 8.2, 2) found under the tank. Close the drain plug and refill the tank.


CAUTION

Avoid releasing hydraulic oil into the environment when changing it. Dispose of the oil in accordance with current legislation.

8.6.6 Hydraulic oil filter

There is a filter near the tank (Fig. 8.3, 2). Each time the machine is used, check that the filter clogging indicator (Fig. 8.3, 1) is green. This check must be carried out in the operational phase. If the indicator is in the red area, replace the filter. Replace the filter after the first 100 hours and then every three months or 500 hours. Observe the checks and recommended intervals between replacements, as clogging of the filter affects the working order of the machine and can damage hydraulic components.


CAUTION

If parts of the hydraulic circuit have to be replaced due to serious failures, such as seizing of the pumps, hydraulic motors or cylinders, which results in a large quantity of impurities entering the hydraulic circuit, the filter must be replaced again following the instructions above.

Replace the hydraulic oil filter as follows:

- unscrew the filter (Fig. 8.3, 2) using the special key if necessary;
- insert the new filter and tighten it, taking care to lubricate the sealing gasket with grease.
- top up the hydraulic oil tank (Fig. 8.2, 3) and check the level on the special indicator (Fig. 8.2, 1).

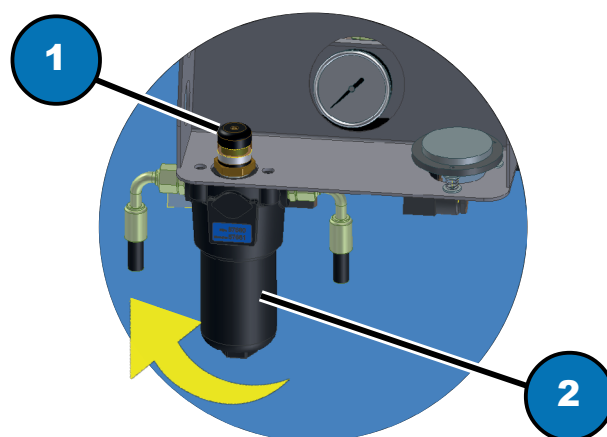


Fig. 8.3

**CAUTION**

Be careful not to release hydraulic oil into the environment when changing it. Dispose of the filter in accordance with the law.

8.6.7 Restore levelling of work platform**CAUTION**

If you notice that the work platform is not level with respect to the horizontal, lower it to the ground and get off.

This maintenance work must be performed by a qualified technician (M).

**DANGER**

THE presence of personnel inside the working platform during these operations is strictly prohibited.

Restore safe working conditions (work platform in horizontal position), as follows:

- 1) Remove the key fastened to the structure by the lead wire seal.
- 2) access the “emergency ground controls” settings (Ch 4);
- 3) Place the key in the selector switch, rotating to the right to the “Emergency Control” position;
- 4) activate the extensible boom lifting selector. Keep the selector switch pressed and at the same time use the joystick, until the work platform about a half metre;
- 5) activate the boom extension selector. Keep the selector switch pressed and at the same time use the joystick, until the work platform is raised about a half metre;
- 6) carefully get up on the bed and open the diverter block lock (Fig. 8.4 4) with the key provided by the Safety Manager, raising the silver coloured lever (Fig. 8.4, 5) on the turret;
- 7) turn both of the two-position diverter valves (Fig. 8.4, 6 & 7) by two positions;
- 8) get down from the bed of the vehicle and press the “extend telescopic boom” selector and, without letting it go, press the joystick which controls movement speed. By doing this it is possible to level the working platform (completely lower and raise the platform and then align it).

- 9) After completing these operations, place both of the two-position deviator valves, located at the base of the extension boom, back into their original position (extension position, indicated by the label **A**. Remove the lever from the deviator valves, put it back it in the turret and secure it using the black locking knob).
- 10) attach the padlock in the locking position, close it and give the key back to the safety manager.
- 11) check that the extension boom works correctly by pressing the switch that controls the extension of the boom and using the potentiometer lever. Retract the extension boom into its rest position.
- 12) Place the key selector switch in the “ basket controls” position;
- 13) Remove the key and close the cover of the control panel.

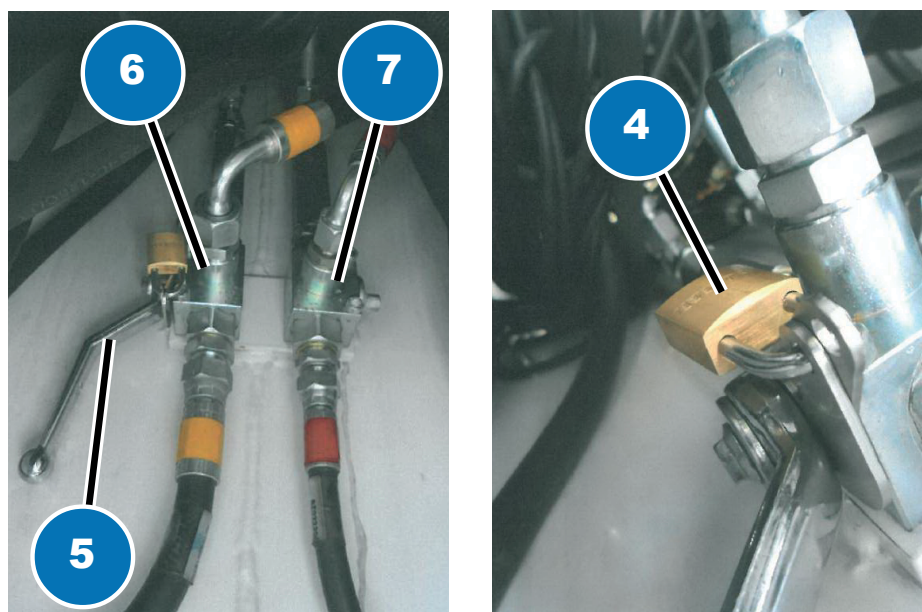


Fig. 8.4



DANGER

When levelling the work platform, it is prohibited to use telescopic swing.

8.7 Electrical system

8.7.1 Electrical circuit

The electrical circuit is made up of many components. Their working efficiency should be checked according to the operations they perform. Check the working order of all operational controls before each use by carrying out a complete work cycle for each control using the ground control panel. Also check that the emergency stop buttons work properly.



CAUTION

There should be nobody on the work platform during the test.

Go onto the work platform and repeat the test using the controls on the platform. Check the condition of the power cable of the ground control panel underneath the turret. If the cable is twisted, remove the plug from the control panel and unravel it.

8.7.2 Stabiliser limit switches and interlock switches

Before each use, check that all the stabiliser/boom interlock limit switches are working properly. To make sure that they are working correctly, stabilise the machine and check the operation of the boom. Lower the boom, retract the stabilisers one at a time and check that it is not possible to operate the boom.

8.8 Tightening the screws

If you need to tighten the screws of the turret and the frame, tighten them using a manual torque wrench (Fig. 8.7, Fig. 8.8, point 1) or an electric one (Fig. 8.6, Fig. 8.8, point 2).

The following tightening torques should be set when tightening, according to the screw material and thread (ISO metric thread)

Nominal screw diameter	M = Tightening torque (Nm)	
	Class 8.8	Class 10.9
12 x 1.25	90.6	127
14 x 1.5	143	202
16 x 1.5	214	302
18 x 2.5	288	406
20 x 2.5	409	576
22 x 2.5	554	780
24 x 3	708	996



CAUTION

Reduce M by 10% when:

- tightening is carried out using cordless tightening machines
- the screws are galvanised.

POSITION OF PLATFORM:

- 1) transport position
- 2) vehicle switched off

8.8.1 Tightening the turret screws

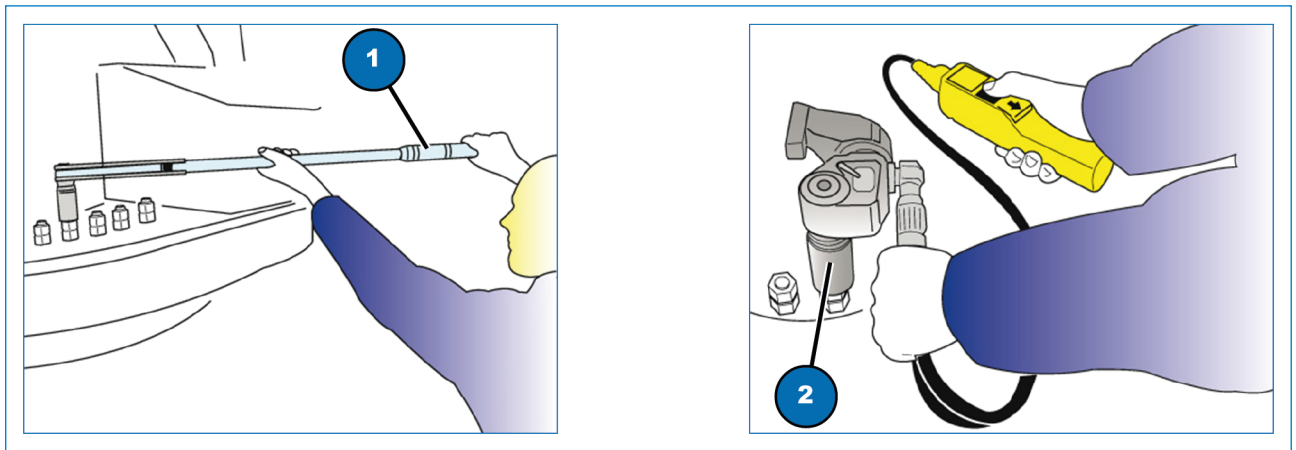


Fig. 8.5

The frequency at which the screws need to be tightened depends on factors such as the frequency of use and the work environment. It is nevertheless possible to establish that under normal work conditions, the screws of the turret should be checked and tightened after the first 250 hours of operation or the first 3 months and generally least every 12 months or 1000 hours.



CAUTION

Do not exceed the values indicated by the dynamometric wrench.

8.8.2 Tightening the frame screws

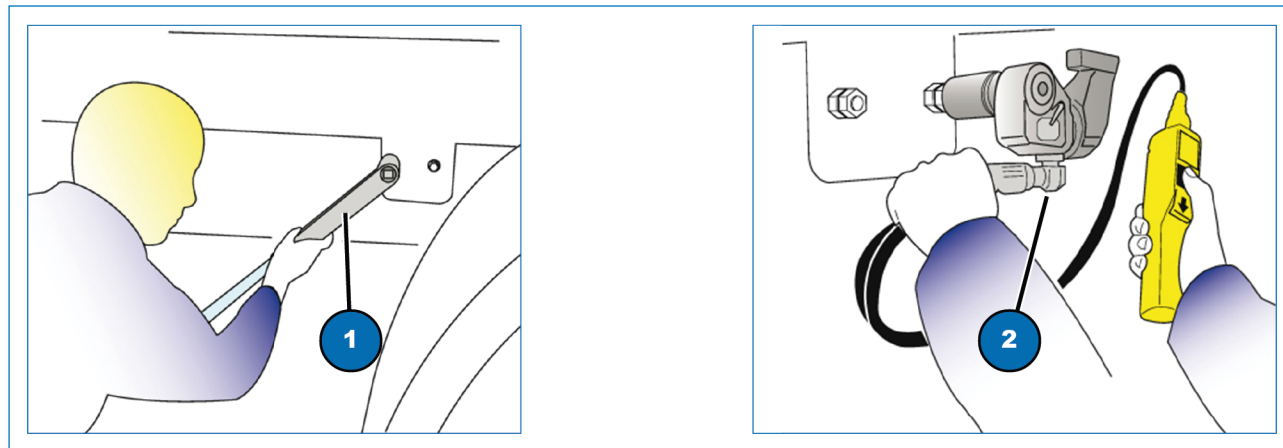


Fig. 8.6

The frequency at which the screws need to be tightened depends on factors such as the frequency of use and the work environment. It is nevertheless possible to establish that under normal work conditions, the screws of the turret should be checked and tightened after the first 250 hours of operation or the first 3 months and generally least every 12 months or 1000 hours.



CAUTION

Do not exceed the values indicated by the dynamometric wrench.

8.9 Telescopic element clearance and sliding block wear verification

POSITION OF PLATFORM:

- 1) transport position
- 2) vehicle switched off

SLIDING BLOCK WEAR CHECK:

The special adjustable blocks (Fig. 8.9, 1) help reduce sliding friction when the boom is extended:

- check the wear and tear of the pads for the telescopic elements;
- replace the blocks if there is a clearance of more than 5 mm between the tubulars of the telescopic elements when the boom and the telescopic elements are completely retracted.

TELESCOPIC ELEMENT CLEARANCE CHECK:

Check the clearances and adjust as necessary:

- this operation must be performed with the platform in the rest position.
- tighten the adjusting nuts (Fig. 8.9, 2) until coming into contact with the removable inner boom;
- Unscrew the nut by half a turn to allow a slight clearance between the elements.



CAUTION

While inserting the boom, do not exert excessive pressure on the sliding blocks; this may damage the structure of the booms.

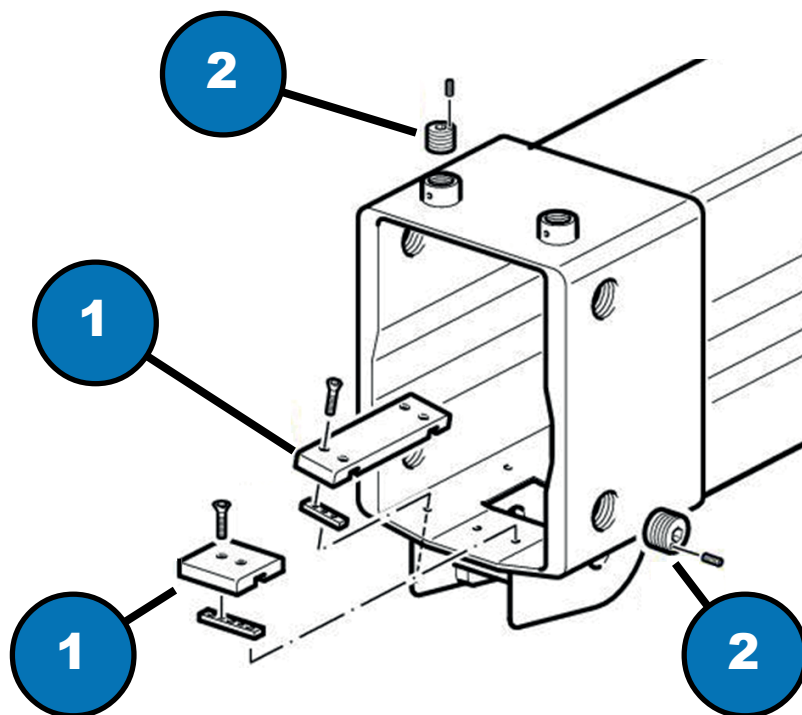


Fig.

8.7

8.10 Slewing ring clearance check

The clearance between the slewing rings increases during the life of the slewing bearing because of wear. The amount of clearance should therefore be checked regularly. The measured values should then be compared to other measurements taken over time using an identical method.

The measurement should be taken using a centesimal comparator when the turret is stationary. Proceed as follows:

- 1) Thoroughly clean the points on which the measurement to be taken.
- 2) Lift the boom up until it is at 0° and extend it completely until it reaches its maximum extension with the turret aligned with the axis of the vehicle.
- 3) Position the comparator as indicated in the diagram (Fig. 8.10, 1) measure the Amax axial clearance;
The measured value must be less than or equal to:
 $A_{max} = 1.35 \text{ mm}$
- 4) If the measured value is greater, contact an authorised service centre
- 5) Position the comparator as indicated in the diagram (Fig. 8.10, 2) and measure the Bmax axial clearance;
The measured value must be less than or equal to:
 $B_{max} = 1.50 \text{ mm}$
- 6) If the measured value is greater, contact an authorised service centre.

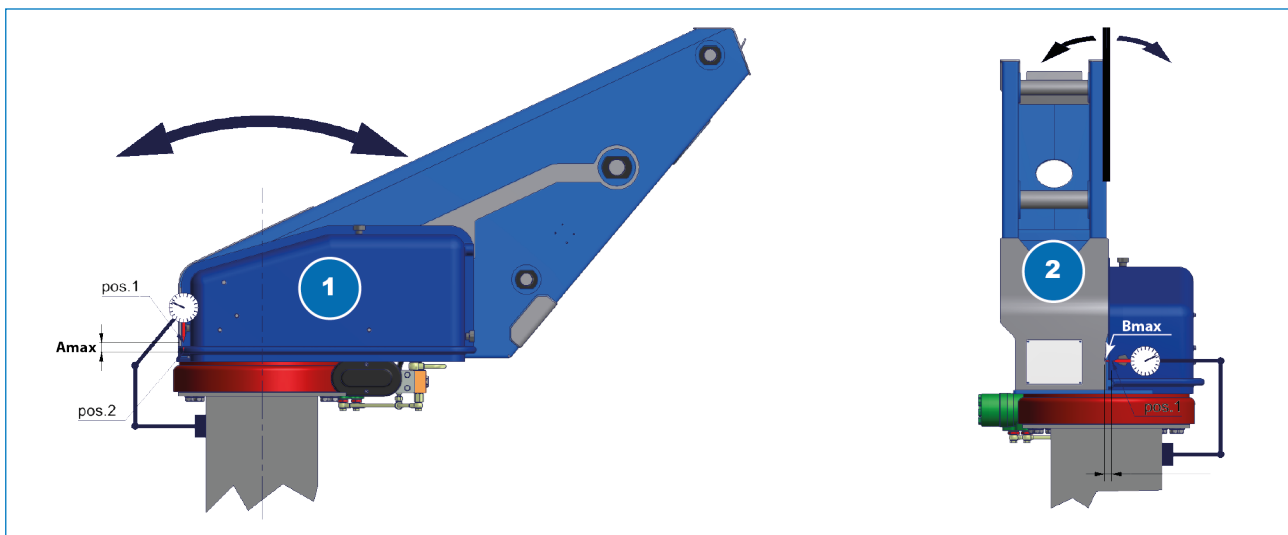


Fig. 8.8

8.11 Slewing drive greasing

POSITION OF PLATFORM:

- 1) transport position
- 2) vehicle switched off

The turntable is lubricated by injecting grease under pressure via the grease fittings using a manual or pneumatic grease gun.

The grease fittings are divided into two groups; those for greasing the screw (Fig. 8.11, 1) and those for greasing the slewing ring (Fig. 8.11, 2).

In order to grease the inside of the slewing ring you need to access the inside of the turret by removing the cover on the turret, see Fig. 8.4.

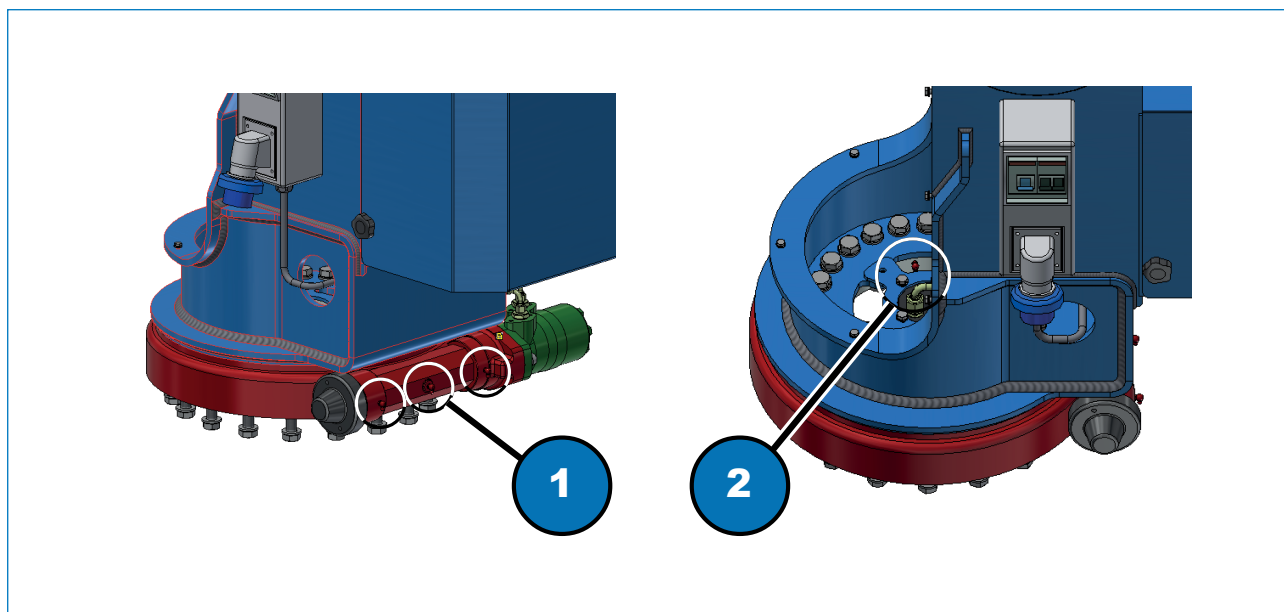


Fig. 8.9

It is recommended to lubricate the slewing ring every six months or every 500 hours of operation.



CAUTION

DO NOT MOVE THE PLATFORM WHEN AN OPERATOR LUBRIFICATE THE TURNTABLE AND PINION TEETH

Only use the type of grease indicated in the technical specifications. Otherwise, contact the Assistance Services or an Authorised Workshop.

8.12 Cleaning

Always keep the grab handles, platforms and steps clean and degreased to prevent slipping and accidental falls.

It is recommended to carry out “localized” cleaning manually.

Manual cleaning must be carried out using non-abrasive tools, soft cloths, brushes with soft bristles, paper, etc. To remove stubborn, oily or sticky dirt, use degreasing products specific for painted surfaces.

8.12.1 Washing

It is recommended to carry out “thorough” cleaning manually using a “pressure washer”.

The frequency at which cleaning needs to be carried out depends on:

- 1) the use of the machine:
 - construction sites
 - industrial sites
 - food manufacturing facilities
 - ecc..
- 2) external environmental factors such as:
 - the geographic location
 - the environmental corrosion class in which the machine is used (for example, saline environments, humid environments etc.)
 - the level of air pollution
 - the presence of fine wind-borne dust (e.g. sand, dust etc.)

The machine is normally cleaned using a manual pressure washer, taking the following precautions:

- 1) adequately protect electrical components and connections from direct or indirect water jets
- 2) use hot water, maximum temperature 70°C, maximum pressure 90 bar, maximum flow rate 20 l/min., minimum distance of the water jet from the surface to be washed 30 cm.
- 3) use neutral pH (pH 5-8) detergents that are specific for painted surfaces,
- 4) use medium soft water 4-8 °f (French degrees)
- 5) do not use solvents, petrol or substances that contain chlorinated hydrocarbons, ketones, abrasive pastes or esters
- 6) the surfaces can be cleaned mechanically at the same time using a soft cloth or a clean sponge (do not use a brush)
- 7) do not direct the water jet towards control panels and electrical equipment
- 8) do not clean the machine in the vicinity of live electrical equipment
- 9) wear suitable personal protective equipment
- 10) only clean the machine in areas in which it is possible to collect waste liquids in accordance with the law.

Cleaning can be carried out monthly if the machine is used in an environment that is not particularly harsh. If used in a harsh environment, cleaning must be carried out weekly and if used in a corrosive environment the machine should be cleaned daily.



CAUTION

After cleaning, always grease and lubricate all the parts indicated in section 8.5

8.13 Paintwork inspection and maintenance

Most parts and components of the lifting platform are protected from atmospheric agents by paint or other surface treatments.

The paintwork should be checked regularly because if it is in good condition, it is one of the best guarantees for the platform's long service life. It is important to prevent the painted surfaces from coming into contact with acids, solvents, plaster and mortar.

If the machine is used for welding, grinding, cutting metals, or in environments in which they are carried out, prevent welding spatter and sparks from reaching the surfaces of the machine.

Also avoid knocking or rubbing the surfaces. Make sure that all the surfaces are clean of oil, grease and dirt that could damage the paint.

The paint requires regular maintenance and cleaning to ensure that its protective properties remain unaltered. If the paintwork becomes damaged, it must be touched up as soon as possible to prevent rust from forming and spreading.

It is up to the end user or an authorised workshop to check the condition of the protective coatings regularly, both painted and metallic, and to restore any areas that need repairing.

8.13.1 *Touching up the paintwork*

The paintwork of the structural components of the machine must be touched up following the instructions below. This work must be carried out by an authorised workshop, a company specialized in paintwork or a skilled technician. The structural components of the machine are made of high-strength steels and must not be damaged by mechanical processes that reduce their thickness or that damage their surfaces.

8.13.2 *Preparing the surfaces for repainting*

Before being repainted, all parts of the machine must be:

- 1) cleaned,
- 2) rinsed with medium soft water to avoid limescale deposits,
- 3) thoroughly dried,

(refer to section 8.12)

8.13.3 *Touching up paintwork on non-rusty parts*

- 1) Manually sand the entire area to be touched up or use an orbital, electric or pneumatic sander. Use P320 grit abrasive discs.
- 2) Clean the area involved in order to remove any sanding dust.
- 3) Clean thoroughly using antislicone and wait until it is completely dry.
- 4) If the primer becomes damaged and bare metal is exposed during sanding, it should be touched up using an acrylic primer Spray, Dinitrol 8500.
- 5) Apply one coat of two-component acrylic or polyacrylic enamel paint.

8.13.4 Touching up paintwork on non-rusty parts

- 1) Manually sand the entire area to be touched up, plus an overlap of 30/50mm, or use an orbital, electric or pneumatic sander to expose the bare metal but without damaging it. Use P320 grit abrasive discs.
- 2) Clean the area involved in order to remove any sanding dust.
- 3) Clean thoroughly using antisilicone and wait until it is completely dry.

**CAUTION**

Apply the primer + enamel paint within 2 hours of sanding

- 4) Only apply a Coat of "Converust RC900" Dinitrol Primer on bare metal (follow the product instructions) and wait until it is completely dry (~6 hours).
- 5) Apply one coat of two-component acrylic or polyacrylic enamel paint.

8.13.5 Wax finishing

To ensure greater protection against atmospheric agents and therefore a longer service life, the machine has been treated with protective waxes. At least once a year, this protective coating should be restored.

This should be done by applying the thickness indicated in the technical data sheet. The protective coatings are indicated below:

- for the machine chassis, the lower and rear part, control valve and manual drives use Dinitrol 4010
- for all the hydraulic fittings, junction boxes, supports, pipes, heads and pins use Dinitrol 977.

All work must be carried out by an authorised CTE workshop or a company specialized in surface treatment and paintwork.

**CAUTION**

Use only Corroheat 4010 Dinitrol also for all the galvanized parts including the slewing ring bolts and for all the valve blocks located under the truck bed.

Refer to the manufacturer's data sheets for preparing, applying and removing the product.

8.14 Checking the cables and chains

The wire rope and/or chain drive system should be inspected as follows. This should be carried out by an authorised workshop or a qualified technician.



CAUTION

This should only be carried out if the wire rope and/or chain drive systems are installed on the elevating work platform (chapter 3.6)

8.14.1 Checking the cables

The cables should be checked as follows:

- maintenance (lubrication and tensioning) every year or 1,000 hours of use;
- state of wear, every year or 1,000 hours of use;
- replacement every 10 years or 10,000 hours of use.

Lubricate cables

To apply the lubricant:

- 1) Remove the cleaning brushes (fig.10,1);
- 2) Remove the anti-slip off shield (fig.10,2);
- 3) Support the boom with a sling attached to the bridge crane;
- 4) Turn off the system S3;
- 5) Move the boom forwards and backwards and inspect the cables of each extension:
 - Inspect visible parts for deformation or deterioration and inspect attachment points;
 - EXTRAORDINARY INSPECTION: After an accident, after disassembly and reassembly or after the equipment has been unused for a while before being put back into service;
- 6) Lubricate the cables in correspondence with the pulley by extending the telescopic element in order to lubricate the longest possible length of the cable:
 - Carry out the operations with the cable perfectly dry;
 - Remove any dry grease, dust, rubber or anything else from the surface of the cable using mechanical means (shaped brushes or scrapers);
 - Apply small amounts of grease evenly in order to build up a thin, continuous and transparent layer that allows you to see the entire surface of the steel. The grease should be left to dry once it has been applied.



CAUTION

Chemicals and solvents must not be used for cleaning.

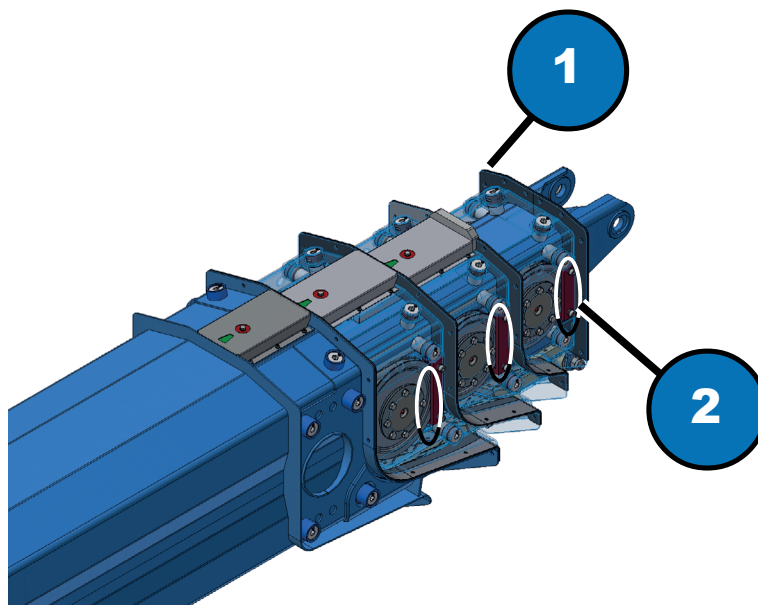


Fig. 8.10

Tensioning the cables

Make sure that the balancers are centred before carrying out the tensioning (fig.8.11,1). If they are not centred, do not use the platform and take it to an authorised workshop for re-tensioning.

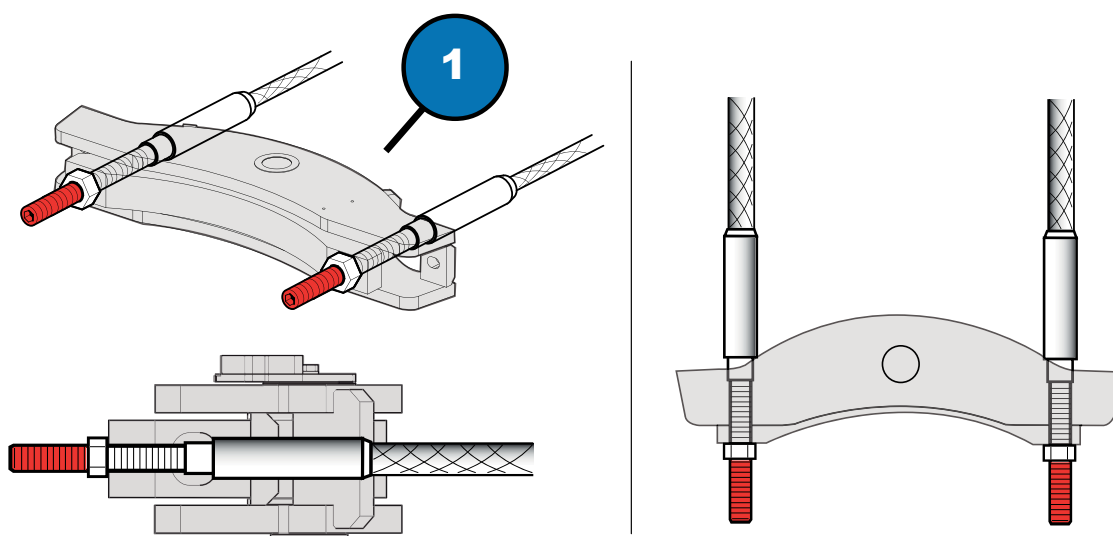


Fig. 8.11

8.14.1 Checking the chains

The chains should be checked as follows:

- maintenance (lubrication and tensioning) every year or 1,000 hours of use;
- state of wear, every year or 1,000 hours of use;
- replacement every 10 years or 10,000 hours of use.

Lubricate chain

GREASING THE MAIN BOOM: lift the boom to a max. angle of (°) and extend the telescopic elements completely. To do this, use another platform next to the telescopic elements.

GREASING THE JIB: open the JIB and fully extend its elements.

To apply the lubricant:

Fully extend the telescopic elements of the boom. Using a brush, apply a new film of lubricant to the entire surface of the lower chains that drive the extension of the telescopic elements.



CAUTION

If the chain is contaminated with abrasive particles (e.g. sand or paint), clean it carefully using suitable solvents before lubricating it.

Tightening the chains

The chain should be tensioned as follows:

- A) Unscrew the nuts (fig. 8.12, 1):
- B) Tighten the nuts using a TORQUE WRENCH (fig. 8.12, 2).

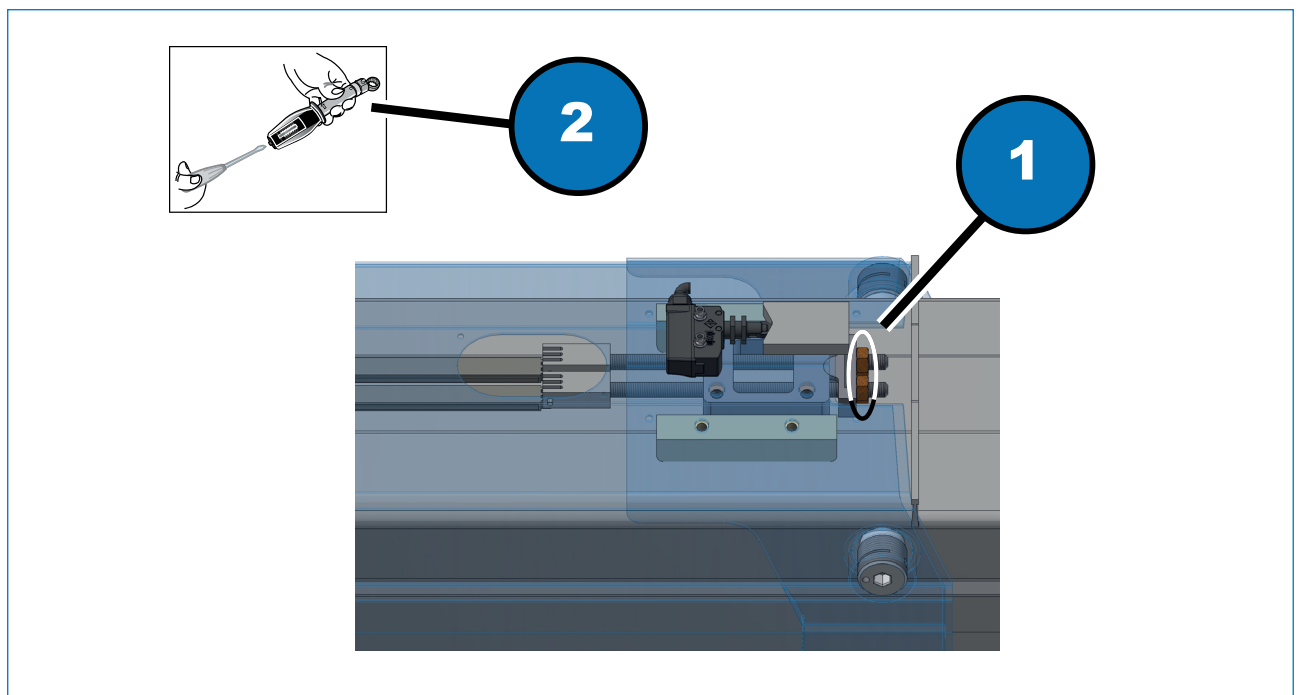


Fig. 8.12



CAUTION

Do not move the chains during tensioning.

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9

DEMOLITION AND DISPOSAL

9 Demolition and Disposal

9.1 Demolition

The machine should be scrapped adopting safety measures that take into account logistic and environmental factors and its state of wear.

In general, it is necessary to carry out demolition following the indications below:

- The operator must wear safety clothing and approved protective equipment (helmet, safety footwear, gloves, goggles and mask) that are compliant with the applicable safety standards
- Make sure that the machine is disconnected from all power sources
- Check that the hydraulic, pneumatic and water systems (including the storage tanks) are completely empty. If they are not, empty them.

**CAUTION**

Dispose of waste fluids properly as they can pollute the environment.

- Check and depressurise any systems that are under pressure.
- Dismantle the machine into small units that can be easily transported.

**CAUTION**

The demolition of the machine must be performed by specialised and qualified companies as they have the proper equipment, tools and machines to carry out the work.

9.2 Disposal

In general, it is necessary to dispose of the machine following the indications below:

- The operator must wear safety clothing and approved protective equipment (helmet, safety footwear, gloves, goggles and mask) that are compliant with the applicable safety standards
- Items made of different materials (steel, aluminium, rubber, electric cables) should be separated into different containers.

To dispose of polluting substances (PVC, lubricant oil and synthetic gum) comply with the standards in force in the country where the platform will be disposed of.



CAUTION

Be very careful to recover and separate potentially dangerous materials used for the construction of the components.



CAUTION

The disposal of the machine can be assigned to companies specialised and trained to carry out this kind of work.

10

TRANSPORT AND
STORAGE

10 Transport and storage

10.1 Loading the machine onto a vehicle

- To avoid hitting low buildings, bridges or power lines when transporting the platform on a truck or trailer, you must know the exact maximum height.
- Make sure that all affixing devices are effective and in good working order.
- Ensure that the platform is fully retracted and locked into its rest position.
- Check that the stabilisers have been fully retracted.
- Read all loading or towing instructions in the vehicle's use and maintenance manual before loading or towing the machine.
- Check the load capacity of the ramp and the truck on which the machine will be placed.
- Never lift the platform by its boom when loading the machine onto the truck.

**CAUTION**

Never tow the machine if you are not familiar with the specific instructions for doing so.

10.2 Storage

Operation	Short term (up to 1 month)	Long term (over 1 month)
Clean the machine.	<input type="checkbox"/>	<input type="checkbox"/>
Park the machine in a dry covered place.	<input type="checkbox"/>	<input type="checkbox"/>
Lock the doors.	<input type="checkbox"/>	<input type="checkbox"/>
Remove the keys from the vehicle and lifting platform (MEWP) to prevent unauthorised use.	<input type="checkbox"/>	<input type="checkbox"/>
If the machine is fitted with a battery isolator switch, disconnect the battery.	<input type="checkbox"/>	<input type="checkbox"/>
Lubricate and grease.		<input type="checkbox"/>
Protect the machine with a suitable protective cover		<input type="checkbox"/>

11

SUPPORT AND WARRANTY

11 Support and Warranty

11.1 After-Sales services and spare parts



Phone: +39 0464 711200

Fax: +39 0464 485099

Contact your nearest authorised service centre for any extraordinary maintenance, repairs or spare parts. It will have qualified personnel and suitable equipment available for carrying out any work that may be required.

Please contact After-Sales Services for any information you may require.



CAUTION

In order for the machine to operate correctly and to avoid damage to the machine itself, it is prohibited to carry out repairs or replace components with non-original parts.

11.2 Spare parts



OBLIGATORY

Only use original spare parts.

When making a request, please specify:

- model, fabrication number and vehicle on which the platform is installed
- reference code and technical description (see Spare Parts Catalogue) of the part that is damaged and / or to be replaced.

11.3 Warranty



OBLIGATORY

For the warranty conditions please refer to the warranty certificate delivered with the machine.

The machine is covered by warranty starting from the date it is delivered to the customer. For the warranty terms and conditions, please refer to the warranty certificate delivered with the machine. The manufacturer reserves the right to repair or replace any parts considered to be defective within the period of the warranty.

The warranty expires whenever the requirements and instructions of use indicated in this manual are not observed. Work carried out under warranty is carried out during normal working hours at the authorised workshops or at the manufacturer's premises. Technicians' travel costs are debited for work carried out at the customer's premises. The customer is billed for transport costs for work carried out at the manufacturer's premises.

During the replacement of defective parts, the manufacturer company cannot be held responsible for any expenses sustained by the commercial agent and customer, any supposed present or future damage, loss of earnings, forfeits, etc.

The warranty does not cover the replacement and/or repairs of parts that are worn out or damaged during ordinary use of the machine.

12

TROUBLESHOOTING

12 Troubleshooting

12.1 Problems, causes and remedies

The following pages list some of the most common issues, their probable causes and possible solutions.



CAUTION

Certain problems may be resolved by the operator within the scope of the operations listed in the “Maintenance” section, while other issues must be resolved by going to an authorised repair shop.

ISSUE	CAUSE	REMEDY	*
Vibration of cylinders, telescopic elements that do not move smoothly when first moved.	Hydraulic oil temperature too low.	Carry out idle operation for a few minutes in order to heat up the oil.	
Vibrations during all movements when oil is hot	Lack of oil in tank.	Add hydraulic oil.	
	There is air inside the hydraulic system.	Repeatedly move the cylinders to the end of their stroke in both directions.	
Vibrations during extension of telescopic elements	Lack of lubricant	Grease the telescopic elements.	
	Worn sliding blocks	Replace the sliding blocks	■
	Incorrectly adjusted boom extension cylinder valve	Calibrate the valve.	■
The machine does not lift the work platform	Damaged pump	Replace the pump	■
	Valves incorrectly adjusted	Adjust the valves	■
	Worn cylinder seals	Replace seals	■

ISSUE	CAUSE	REMEDY	*
The machine lifts but cannot support the load	Worn cylinder seals	Replace seals	■
	Valves incorrectly adjusted	Adjust the valves	■
	Jack valves dirty or worn	Replace the valves	■
The machine does not rotate correctly	Vehicle inclined beyond the maximum permissible flatness	Stabilise the vehicle within the permissible tolerance range	
	Valves on the distributor are poorly adjusted or dirty.	Calibrate or clean the valves	■
	Malfunctioning slewing gear	Replace the slewing gear	■
Creaking of joints and bushings	Lack of lubrication	Grease the joints or bushings	
Stabiliser cylinder seal failure	Dirty lock valves	Clean or replace the valve	■
The levers do not control any movement	Worn cylinder seals	Replace seals	■
	Emergency stop button pressed	Rotate the button until it reaches normal position.	
Solenoid valve blocked	Dirt inside	Use the solenoid valve cursor to try to unblock it and contact a specialised service centre	■
	Defective solenoid valve	Replace solenoid valve	
No power	Faulty fuse	Replace the fuse	
Noisy pump	Viscosity of hydraulic oil is too high	Use the recommended hydraulic oil	
	Level of hydraulic oil in the tank is too low	Top up with the same type of hydraulic oil	
	Suction pipe is blocked or crushed	Check the pipe for damage	■
	Air entering via the suction flange	Check the tightness of the seals and replace the gasket	■
Some hydraulic components of the machine are working slowly	Maximum pressure valve on the distributor of the section of the circuit that is malfunctioning is incorrectly adjusted or the shutter of which is open because of dirt.	Readjust the valve Remove and clean it, then reinstall with new metal seals. Replace the valve	■
	Worn out pump	Replace the pump	■

ISSUE	CAUSE	REMEDY	*
Hydraulic cylinder working incorrectly	Oil leak between the two chambers in the cylinder and the consequent inability to support loads.	Replace the gaskets of the cylinder.	■
	Piston/rod joint loose	Check the joint between piston/rod	
	Max. pressure valve on distributor is stuck or worn.	Dismantle and clean the max. pressure valve or replace it.	■
Lights do not work	Burnt out bulb	Replace the bulb	
	Broken electrical connection	Repair the connection	■
	Burnt out fuse	Replace the fuse	
Excessive heating of hydraulic oil	Level of hydraulic oil in the tank is too low	Top up with the same type of hydraulic oil	
Solenoid valves do not work	No power	Check the electrical system	■
	Cursor does not move	Replace solenoid valve	■
	The coil does not work	Replace the coil	■

* ■ Repair to be carried out at a CTE authorised workshop.



CAUTION

For anything not described in this table, please contact the Service Centre.

12.2 List of alarms

The alarm errors and messages are displayed through a sequence of LEDs, ALARM1 (Fig. 12.1, 7) and ALARM2 (Fig. 12.1, 6).

Example:

spieAlarm_inceppDiscesa = 0 x 0803

08 = 8 flashes of LED ALARM1

03 = 3 flashes of LED ALARM2

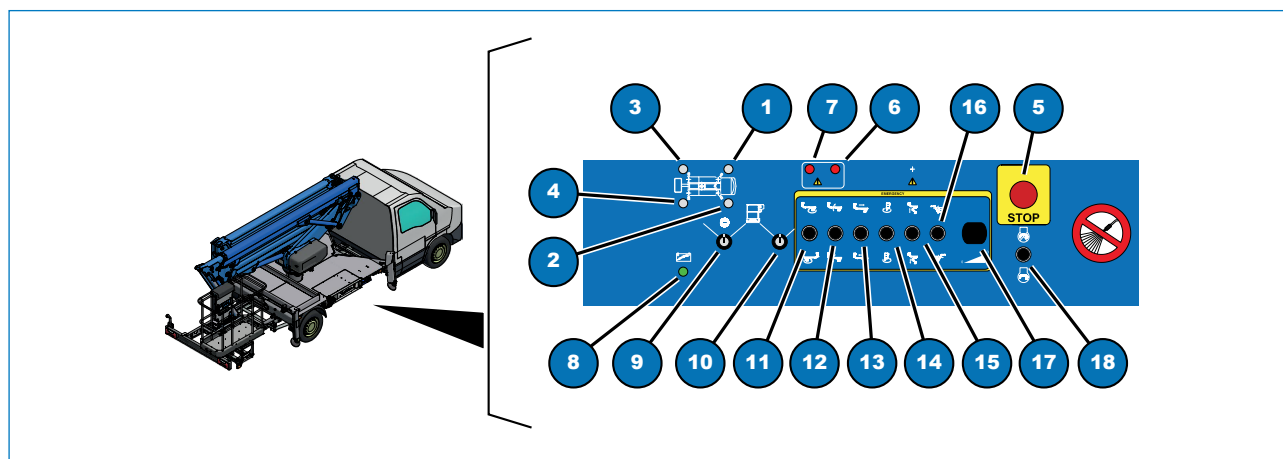


Fig. 12.1

Alarm code			Description
	ALARM1	ALARM2	CAN ALARM
0x	01	01	spieAlarm_MMSSafetyNoCan
		02	spieAlarm_MMSTorr1NoCan
		03	spieAlarm_MMSTorr2NoCan
		04	spieAlarm_MMSCestelloNoCan
		05	spieAlarm_MMSPulsCarroNoCan
		06	spieAlarm_MMSSafetyNoGND
		07	spieAlarm_MMSTorr1NoGND
		08	spieAlarm_MMSTorr2NoGND

Alarm code			Description
	ALARM1	ALARM2	SENSORS ERROR ALARM TORR 1
0x	02	01	spieAlarm_angRotTorr1Cks
		02	spieAlarm_angRotTorr1Open
		03	spieAlarm_angRotTorr1VBat
		04	spieAlarm_angBraccioTorr1Cks
		05	spieAlarm_angBraccioTorr1Open
		06	spieAlarm_angBraccioTorr1VBat
		07	spieAlarm_pressPistoneTorr1Open
		08	spieAlarm_pressPistoneTorr1VBat
		09	spieAlarm_pressSteloTorr1Open

Alarm code			Description
0x	03	01	spieAlarm_pressSteloTorr1VBat
		02	spieAlarm_pressDiscesaTorr1Open
		03	spieAlarm_pressDiscesaTorr1VBat

Alarm code			Description
	ALARM1	ALARM2	SENSORS ERROR ALARM TORR 2
0x	04	01	spieAlarm_angRotTorr2Cks
		02	spieAlarm_angRotTorr2Open
		03	spieAlarm_angRotTorr2VBat
		04	spieAlarm_angBraccioTorr2Cks
		05	spieAlarm_angBraccioTorr2Open
		06	spieAlarm_angBraccioTorr2VBat
		07	spieAlarm_pressPistoneTorr2Open
		08	spieAlarm_pressPistoneTorr2VBat
		09	spieAlarm_pressSteloTorr2Open
0x	05	01	spieAlarm_pressSteloTorr2VBat
		02	spieAlarm_pressSfiloTorr2Open
		03	spieAlarm_pressSfiloTorr2VBat

Alarm code			Description
	ALARM1	ALARM2	ERROR TORR 1
0x	06	01	spieAlarm_diffAngRotTorr1
		02	spieAlarm_diffAngBraccioTorr1
		03	spieAlarm_diffPressPistoneTorr1
		04	spieAlarm_diffPressSteloTorr1
		05	spieAlarm_extraCorsaTorr1
		06	spieAlarm_angBraccioMaxTorr1
		07	spieAlarm_angBraccioMinTorr1

Alarm code			Description
	ALARM1	ALARM2	ERROR TORR 2
0x	07	01	spieAlarm_diffAngRotTorr2
		02	spieAlarm_diffAngBraccioTorr2
		03	spieAlarm_diffPressPistoneTorr2
		04	spieAlarm_diffPressSteloTorr2
		05	spieAlarm_extraCorsaTorr2
		06	spieAlarm_angBraccioMaxTorr2
		07	spieAlarm_angBraccioMinTorr2

Alarm code			Description
	ALARM1	ALARM2	ERROR TORR
0x	08	01	spieAlarm_installAngRotTorr
		02	spieAlarm_inceppRotTorr
		03	spieAlarm_inceppDiscesa
		04	spieAlarm_inceppSfilo

12.2.1 Reset alarms

The alarm is reset automatically when the cause of the error has been corrected. The operator cannot force the alarms to reset.

13

DIAGRAMS AND ATTACHMENTS

13 Diagrams and Attachments

13.1 Electrical sytem diagram

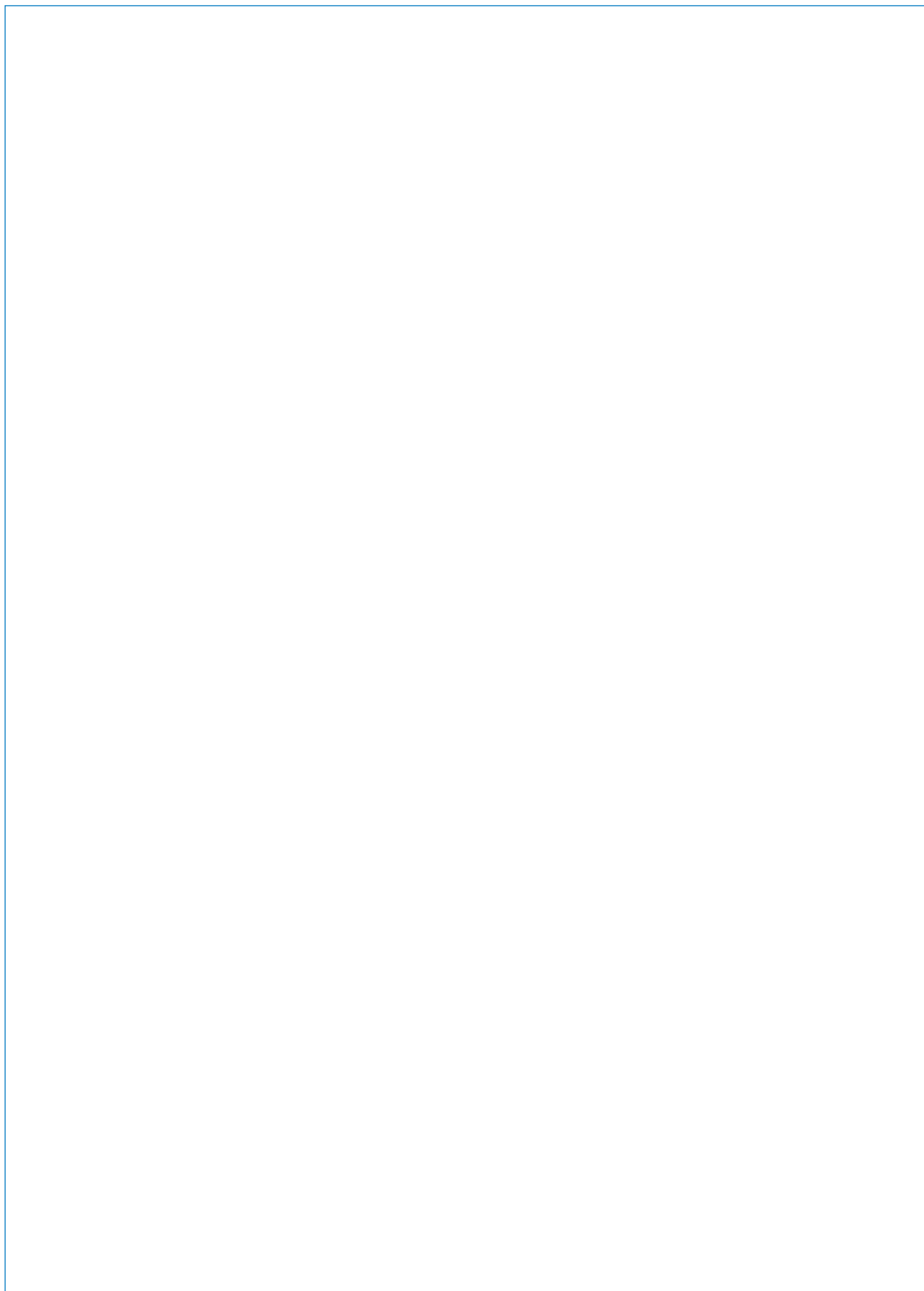
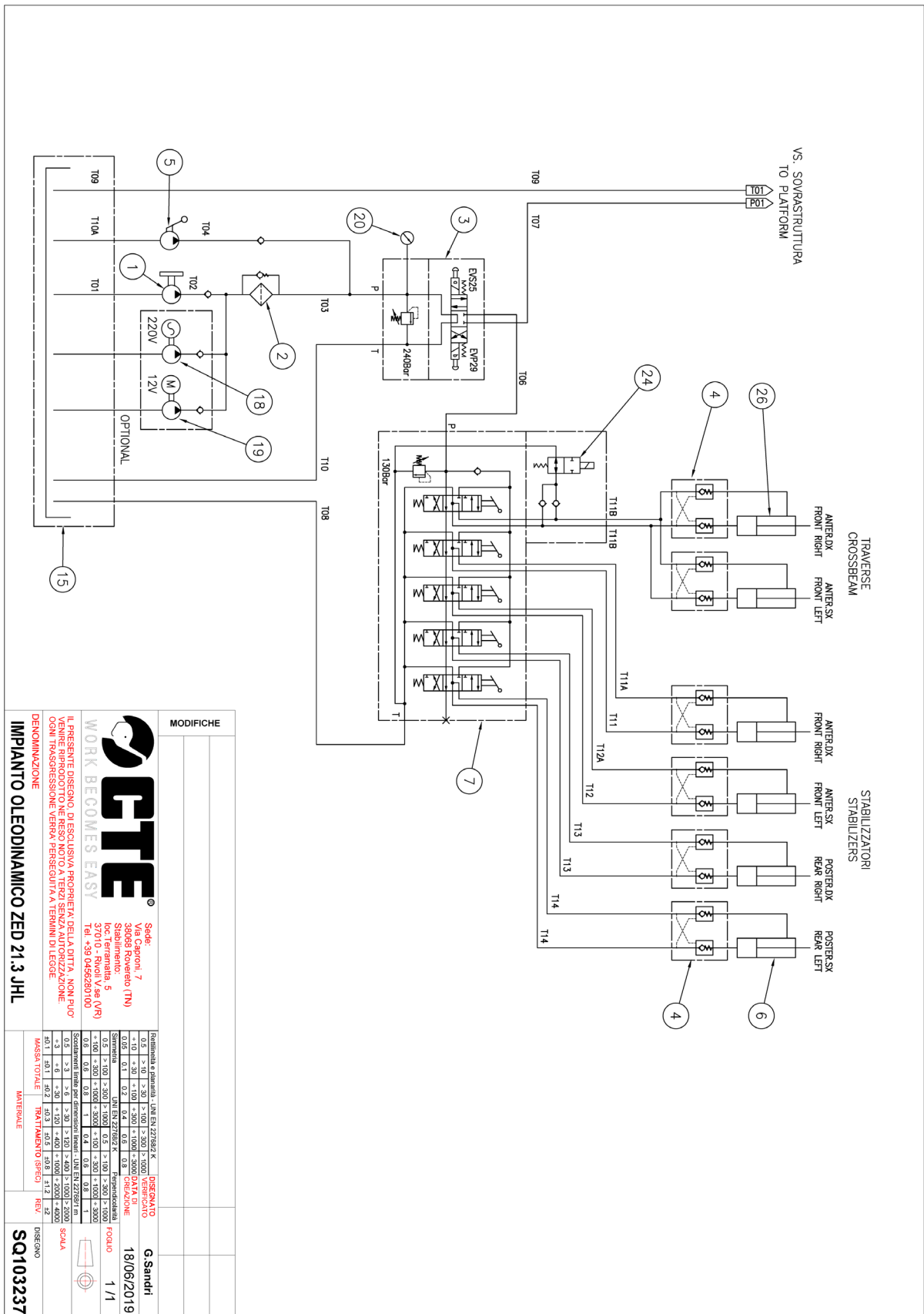


Fig. 13.1

13.2 Hydraulic system diagram



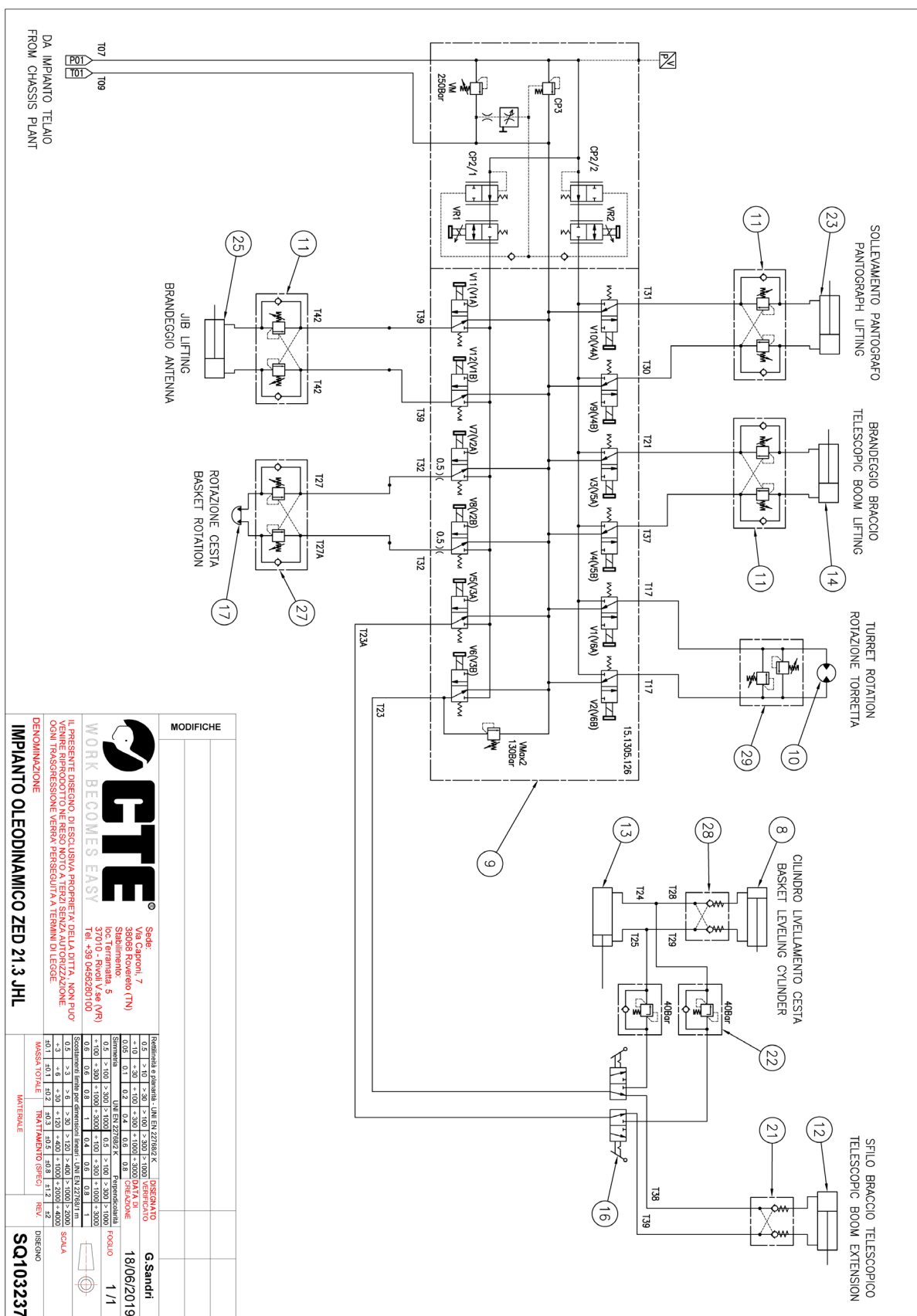


Fig. 13.3

14

FACSIMILES OF EC DECLARATION

14 Facsimiles of EC Declaration and Certificates

Below is a facsimile of the EC declaration delivered with the machine and which should be kept carefully by the Customer.

If it is lost, please contact Customer Services as soon as possible.



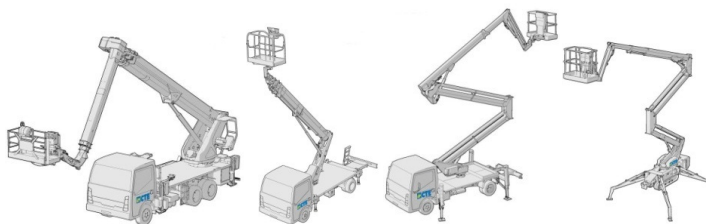
Phone: +39 0464 711200

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**CTE S.p.A.**

Via Caproni, 7 - 38068 Rovereto (TN) - ITALY

Tel +39 0464 485050 - Fax +39 0464 485099



DECLARATION OF CONFORMITY

(edited according to Annex II letter A of Directive 2006/42/CE)

CTE S.P.A. via Caproni 7 – Z.I. – 38068 Rovereto (TN) - ITALY, “*manufacturer*”, in accordance with the above directive, of the following mobile elevating work platform (machine included in Annex IV of the Machinery Directive):

MODEL:	TYPE:
COMMERCIAL NAME:	
SERIAL NO.:	YEAR OF CONSTRUCTION:
VEHICLE:	CHASSIS:

declare under its responsibility that the elevating work platform is a machine pursuant to and in accordance with Directive 2006/42/EC and that the “CE” mark was affixed on it;

- it complies with Directive 2006/42/EC (Machinery Directive) and the national legislation that transposes it;
- it complies with the following additional directives:
 - 2014/30/UE (electromagnetic compatibility)

(the normative references must be understood as extended to possible subsequent modifications and/or integrations)

- it complies with Directive 2000/14/EC of 8 May 2000 “on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors”, with the relevant national laws transposing it (implemented in Italy with D.Lgs.262/2002) and the subsequent 2005/88/EC.

Machine type: aerial access platforms with internal combustion engine in compliance with definition no.1 of annex I of Dir. 2000/14/EC.

Procedure applied to assess conformity: Annex V of Dir. 2000/14/EC

Measured sound power level LwA: dB(A)

Guaranteed sound power level LwA: dB(A)

- net installed power in kW :
- harmonised standard applied: EN280:2015

and also declares that:

- The body authorised to compile the technical dossier is CTE S.p.A. at the Technical Department in Loc. Terramatta, 5 – 37010 Rivoli V.se (VR) Italy – info@ctelift.com
- The machine complies with the prototype that obtained CE certification no.released by the following Notified Body:

.....

Rovereto, day/month/year

.....
Lorenzo Cipriani
Legal Representative

Fig. 14.1

15

OPTIONAL EQUIPMENT AND ACCESSORIES

15 Optional equipment and accessories

15.1 Dead-man-control: pedal in the basket on the work platform



The machine can be equipped with a pedal in the basket system on the work platform. This accessory, if not pressed, deactivates all manoeuvres from the control board. In order to use the control board, you first have to press the pedal and then you can perform the manoeuvres you require using the proportional levers.

15.2 5000V Insulated work platform



The machine can be equipped with a 5000V insulated platform. For more information and technical data consult the manual that is integral part of the machine.

15.3 Auxiliary electric motor

The platform can be equipped with an auxiliary electric motor **M2**. The platform can be powered either by the engine of the vehicle or by the auxiliary electric motor.

The controls are located on the bed of the vehicle (see section 4 Controls), on the opposite side to the stabiliser controls, and allow the platform to be used without having to enable the system from the cab. The electric motor, which is independent from the vehicle on which it is installed, must be connected to an external power supply (220V), via the socket (7).

It can be used under any conditions. It is especially recommended to be used in the case of:

- A vehicle engine breakdown
- A fault in the hydraulic motor connected to the vehicle engine
- Work to be undertaken in closed places (tunnels, warehouses etc.), to prevent exhaust gas being emitted to the environment.

If possible, place the vehicle next to the point you have to reach and prepare the work platform for use.

- Switch off the engine of the vehicle
- Put the gear lever in neutral.
- Pull the parking brake.
- Connect the electric motor to an external 220V electricity supply via the socket (7)

- If the indicator light (5) is not on, press the reset button (2)
- Start the electric motor

The speed is controlled automatically.

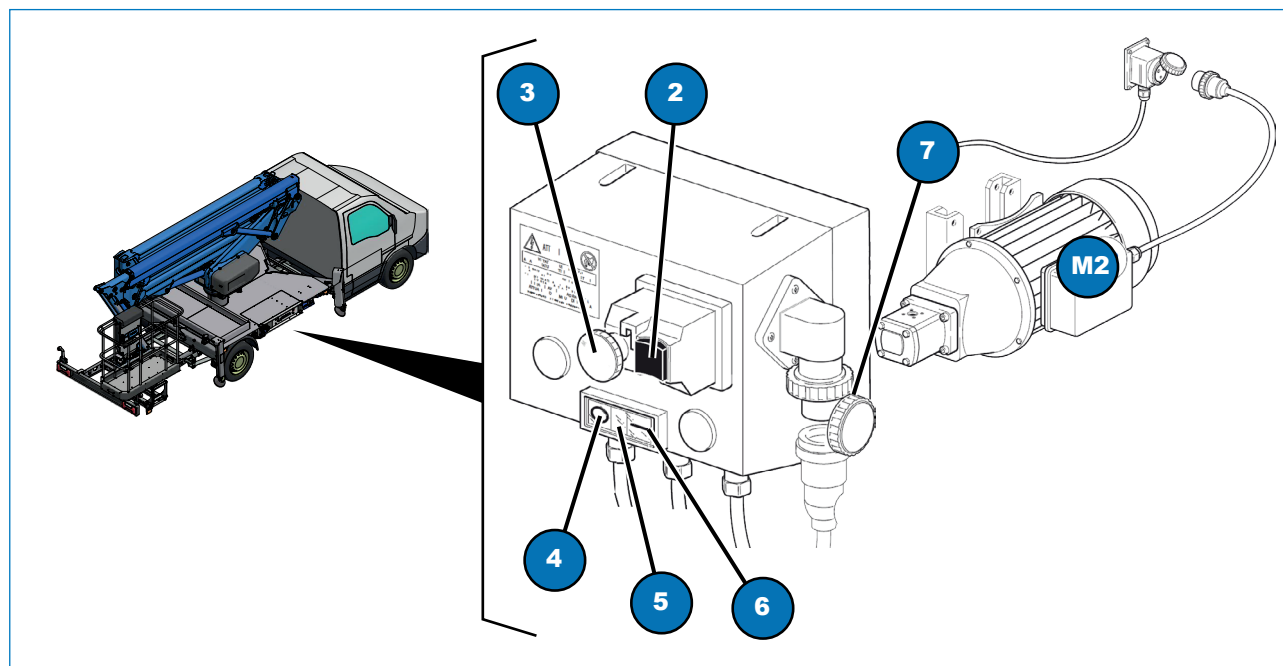


Fig. 15.1

AVVERTENZA

The images of optional equipment are indicative only.



CAUTION

Using the electric motor does not change the method and logic of operating the platform.



CAUTION

It is recommended to stop the vehicle's engine when the electric motor is enabled.

AVVERTENZA

When the 220 V auxiliary motor is used, the speed of movement of the platform is slower (approximately 50%) than when the engine of the vehicle is used. This is in order to reduce the electric power requirements to within the limits of domestic electrical installations (3 kW).



DANGER

Only use the 220V pump motor as an alternative to the pump motor of the vehicle, but not at the same time. Doing so may cause excessive mechanical stresses on the structure of the platform.



CAUTION

The lockable red mushroom head emergency button SE3 can prevent unauthorised use during work breaks.


DANGER

Make sure that the mains electricity supply is protected by appropriate circuit breaker and that the earthing system complies with current safety standards.

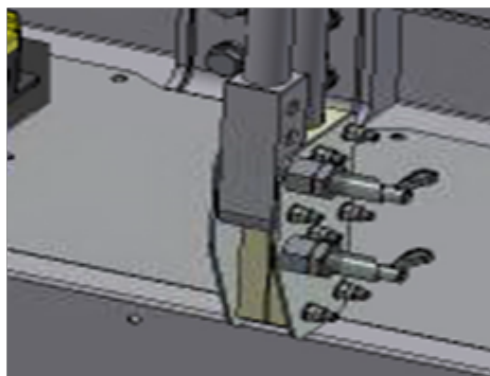
15.4 Integrated access ladder on the platform

The working platform must be fitted with an integrated access ladder.

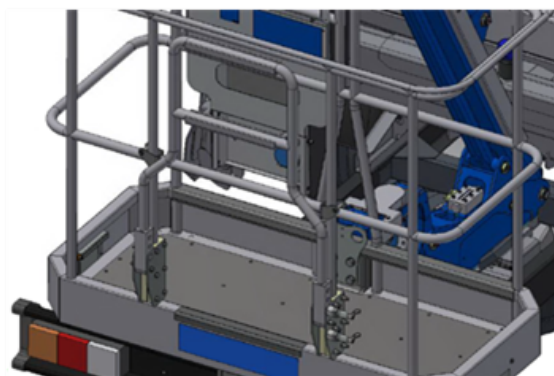


The integrated access ladder replaces the access ladder fixed to the frame.

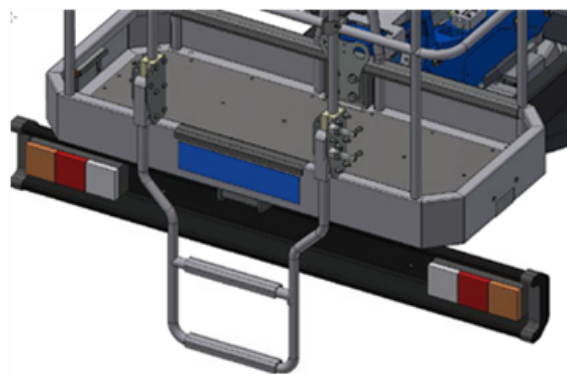
To lower the ladder and get up onto the working platform, release the locking pin (1) by turning the lever and lower the ladder, holding it until it locks into place; the pin (2) must go into the appropriate hole.



To raise the ladder and put it back into the rest position, release the locking pin (2) by turning the lever and raise the ladder, holding it until it locks into place; the pin (1) must go into the appropriate hole.



Access ladder in the rest position



Ladder lowered for access to the work platform

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