

ALMACRAWLER



BIBI 1490-BL SERIES:

BIBI 1490-BL PRIMO

BIBI 1490-BL EVO

BIBI 46-BL SERIES (US):

BIBI 46-BL PRIMO

BIBI 46-BL EVO

ATHENA 1490-BL SERIES (AUS-NZL):

ATHENA 1490-BL PRIMO

ATHENA 1490-BL EVO

**USE AND MAINTENANCE
ENGLISH**

Translation of the Original Instructions

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1 GENERAL INFORMATION.

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This document cannot be reproduced, in whole or in part, without the prior written consent of ALMAC S.p.A.

This document may only be used by the customer to whom the manual has been supplied along with the machine, and only for the purpose of use and maintenance of the machine to which the manual refers.

ALMAC S.p.A. declares that the information contained in this manual is consistent with the technical and safety specifications of the equipment to which the manual refers. ALMAC assumes no responsibility for direct or indirect damage to persons, property or animals resulting from use of the equipment under conditions other than those envisaged.

ALMAC S.p.A. reserves the right to make changes or improvements without notice to this document and to the equipment, without any obligation to update equipment already sent.

The information contained in this manual refers to the various pieces of equipment mentioned on the cover; some images and/or information may not be specific to the equipment in the customer's possession because the items are not available or are only available upon request.

1.1 Regulatory and legal aspects.

1.1.1 Documentation supplied.

The machine is delivered complete with the following documentation:

- Instruction manual (this document) including the Control register;
- Spare parts manual;
- CE marking applied to the machine;
- EC Declaration of Conformity;
- Hydraulic diagram;
- Wiring diagram.

The instruction manual and the annexed documents are integral parts of the machine and a copy of these, together with the certificates of the mandatory periodic checks, must be kept on board the machine in the appropriate container. The original documents must be kept in a dry and protected place; in the event of a change of ownership, these documents must always accompany the machine.

In case of loss or damage, a new copy must be requested, specifying the Model and serial number of the machine.

1.1.2 Report of commissioning, first verification, subsequent periodic checks and transfers of ownership.

The legal obligations of the machine owner differ depending on the state in which the machine is put into service. It is advisable to inquire about the procedures envisaged in your area with the relevant bodies for the protection of safety in the workplace. In order to improve the archiving of documents and to record the modification/assistance work, a section at the end of this booklet called "Control register" has been provided.

1.1.2.1 Report of commissioning and first verification (only for Italy).

In Italy, the owner of the Elevating Work Platform (PLE) must report its commissioning to INAIL and submit it to mandatory periodic checks. The first check will be carried out by INAIL, which shall do so within sixty days of the request, after which the employer may use local health authorities or authorised public or private entities.

Subsequent verifications are carried out by the afore-mentioned subjects, who perform them within thirty days of the request, after which the employer can use public or private qualified subjects. The checks are intensive and costly and the costs of performing them are the responsibility of the owner of the machine. To carry out the checks, the territorial supervisory bodies (ASL/USL or ARPA) and INAIL may avail themselves of the support of authorised public or private entities. The qualified private entities acquire the qualification of public service representatives and respond directly to the public structure in charge of the function.

To report commissioning in Italy, it is necessary to connect to the INAIL portal following the instructions on the portal itself.

INAIL will assign a serial number and, during the First Inspection, will fill in the “technical identification sheet”, reporting on it only the data detectable by the machine already in service or inferable from the instruction manual. This document will be an integral part of the machine documentation.

1.1.2.2 Periodic checks after the first check.

In Italy, the mandatory periodic checks are carried out annually. For their performance, it is necessary that the owner of the PLE makes a request by registered letter to the supervisory body (ASL/USL or ARPA or other authorised public or private subjects) competent for the territory at least twenty days before the end of the year from the time of past verification.

It should be noted that if a machine without a valid verification document is moved to the territory in an area outside of the competence of the usual supervisory body, it is the obligation of the owner to request the annual verification from the supervisory body that is competent for the new territory in which the machine is operating.

1.1.2.3 Transfers of ownership of the PLE.

In Italy, in the event of a transfer of ownership, the previous owner of the PLE is required to communicate the unavailability of the machine by connecting to the INAIL portal.

The new owner will have to retrieve the registration data of the PLE on the same INAIL portal, in order to continue to subject the machine to the periodic checks required by law.

The new owner must in any case be issued, by the previous owner, with the accompanying documentation already mentioned in the previous chapters (see ACCOMPANYING DOCUMENTATION).

To take advantage of the WARRANTY and to receive any updates and SERVICE BULLETINS, the new owner must report to ALMAC S.p.A. that they have taken possession of the machine by means of written communication using the forms provided at the end of this manual.

1.1.3 Training, informing and instructing of operators.

Training, informing and instructing of operators are legal obligations for the employer. The employer must ensure that workers assigned to use of the equipment receive adequate and specific training to allow its use in a suitable and safe way, also in relation to the damage that can be caused to other persons and property. It should be remembered that both those who directly manoeuvre the machine and those who are on the ground for any recovery and rescue operations are considered operators.

The designated operators must be of adult age and be recognised as suitable from a mental and physical perspective for this task. The following requirements must be ascertained before the operators are allowed to drive the machine:

- Sight and hearing in good conditions;
- Absence of changes induced by use of alcohol or drugs;
- Psychological equilibrium, absence of depression or stress.

1.1.4 Tests carried out before delivery.

Before being placed on the market, each example of the ALMAC platform was subjected to the following tests:

- Braking test
- Overload test
- Functional test

1.1.5 Warranty, Request for intervention under warranty and technical assistance.

1.1.5.1 Warranty and disclaimer.

ALMAC S.p.A. guarantees the devices of its own production and undertakes to replace, free of charge, in the shortest time possible, those parts that in its opinion are found to be defective.

Any intervention under warranty can only be performed at authorised ALMAC S.p.A. workshops and on the condition that the Customer is up to date with the payments.

The warranty is not recognised if the customer does not deliver the equipment for repair within 30 days from the date of the first complaint, to be made in writing.

With the exception of cases of willful misconduct or gross negligence, any liability of ALMAC S.p.A. to the Customer is excluded. for any damage resulting from faults/defects in the devices sold.

ALMAC S.p.A. is relieved of all liability and the warranty lapses in the following cases:

- Use not permitted or not provided for in this manual;
- Improper use of the machine or its use by untrained and/or non-instructed personnel;
- Use different from the specific regulations;
- Poor and/or non-punctual maintenance;
- Removal of seals;
- Changes were made to the machine without prior written authorisation from ALMAC S.p.A.;
- Non-original spare parts or spare parts not approved by ALMAC S.p.A. are used.

1.1.5.2 OPTIONAL warranty extension for lithium battery (LTH versions).

Lithium batteries (LTH versions) can benefit from an extension of the warranty period governed by a specific contract to be signed at the time of purchase of the machine.

The state of health of the lithium battery is constantly monitored through the MYALMAC portal which, if necessary, can send ALERT messages to the owner with instructions on operations to be carried out to keep the warranty active.

Repeatedly ignoring these requests and not performing proper battery maintenance may void the battery's warranty in advance. This eventuality will be automatically communicated to the owner by means of a special message that will be registered on the MYALMAC website.

1.1.5.3 Request for intervention under warranty and technical assistance.

Any requests for spare parts or technical interventions under warranty must be reported to ALMAC S.p.A. as soon as a defect is found.

For any request for intervention, always contact ALMAC's technical assistance service as indicated below:

	REGISTERED OFFICE	OPERATIONAL HEADQUARTERS
	ALMAC S.p.A. Viale Ruggeri 6/A 42016 Guastalla (RE) Italy	ALMAC S.p.A. Via Caduti sul lavoro 1 46019 Viadana (MN) Tel. +39 0375 833527 Fax. +39 0375 784350 Email: info@almac-italia.com

Always indicate the type and serial number of the machine when requesting spare parts under warranty or technical interventions. These data are indicated on the identification plate of the machine.

1.2 Description and intended use of the machine.

The machine described in this manual is a self-propelled Elevating Work Platform or, as described by the EN280 technical standard, a mobile machine designed to move people to work positions, in which they perform tasks while remaining on the work platform, with the understanding that persons enter and exit the work platform only through access positions at ground or chassis level, and which consists of at least a work platform with controls, an extendable structure (lift arms) and a frame.

The envisaged activities are:

- Maintenance of greenery;
- Maintenance and installation of systems or devices at height;
- Cleaning;
- Paint stripping, sandblasting, painting, welding;
- All activities to be carried out at height with the operator on the platform;

The maximum allowed capacity (different for each model; refer to the technical data in the tables later in this manual) consists of:

- A load of 80 kg is considered for each person;
- A load of at least 40 kg is considered for the equipment;
- The remaining load is represented by the material being processed.

The machine consists essentially of:

- A bi-levelling motorized base chassis, equipped with crawlers.
- Extendible scissor structure driven by one or more hydraulic cylinders;
- Operator platform with manually sliding appendage.

The base wagon supports the power source (battery or heat engine) and consists mainly of the following components:

- Articulated lower frame that allows levelling in both longitudinal (by means of one hydraulic cylinder and valve) and transverse direction (by means of two hydraulic cylinders and valves);
- Right crawler equipped with gear motor for the movement of the machine, connected to the lower frame by means of mechanical connecting rods;
- Left crawler equipped with gear motor for the movement of the machine, connected to the lower frame by means of mechanical connecting rods;
- Fixed upper frame on which the oil and fuel tanks, battery, charger, electric pump, hydraulic and electrical systems and the emergency ground control station are installed. The extendible structure is hinged to the fixed upper frame.

The extendible structure is of the scissor type and is operated by one or more single-acting hydraulic cylinders held in position by valves directly flanged on the cylinders themselves, in order to keep the arms in position even in the event of accidental breakage of a supply pipe. A suitable sensor monitors the development of the extendible structure, consequently monitoring the position of the platform at height, verifying that the operator always remains within the foreseen safety operating limits.

The work platform is fixed to the end of the last section of the extendible structure and is manually extendible (for more details see the TECHNICAL DATA chapter). The platform is made of steel or aluminium and is equipped with railings and footrests of regulatory height (railings H=1100 mm; footrests H=150 mm).

Access to the platform is by means of a ladder integral with the base chassis, and a gate with automatic closing and automatic locking in the closed position.

The control system of the machine consists of several sensors that allow the overall stability to be kept under control, keeping the extensible structure and the platform levelled and adjusting the height and speed of travel according to the various parameters monitored, namely:

- Ground inclination;
- Track of the machine;
- Development angle of the extendible structure;

- Loading on the platform.

By means of the LED lights on the control panel on the platform, the operator on board is constantly informed of the operating limits reached and the movements allowed. A display at the ground control station provides information on any malfunctions.

1.3 Manoeuvring stations.

The normal operating position is located on the platform and consists of a wired push-button panel connected to the machine by means of a spiral cable. On the ground there is a control station for the emergency recovery of the platform. It is however possible to drive the machine with an operator on foot, during transfers.

1.3.1 Use with driver on foot.

It is possible to remove the push-button panel from the platform and drive the machine on foot ONLY for operations of placing the machine, or loading and unloading the machine from means of transport. With push-button panel outside its platform housing, if the platform is completely lowered, all machine controls are allowed limited to the length of the connection cable.



Once the push-button panel has been removed from its seat on the work platform, use the shoulder strap present to secure it to the operator's body in a firm and safe way to avoid manoeuvring errors, paying close attention to the FORWARD and REVERSE gear position.

Before moving the machine from the ground, make sure that the platform is completely lowered and there are no people and/or materials on the platform.

Be careful not to come into contact with the platform crawlers. Stay at a safe distance using the length of the spiral cable.

Once the operation is finished, reposition the push-button panel in the compartment provided in the platform.

1.4 Power supply.

The machines are equipped with an electrical and hydraulic system through which the handling is obtained.

The machines can be equipped with different energy sources based on the following:

- LTH version = Lithium battery powered machine. The traction control is carried out by means of a pair of electric gearmotors.
- EVO version = Machine powered by a diesel engine and hydraulic pumps. Traction control is carried out by means of a pair of hydraulic gearmotors.

On battery versions, the battery pack is easily interchangeable, following the instructions in this manual.

In any case, both the hydraulic and the electrical systems are equipped with all the necessary guards (see wiring and hydraulic diagrams provided as annexes to this manual).

1.5 Non-permitted uses and "Exiting at height".

The normal and permitted use of the machine is described in the previous paragraphs. Anything not described as normal and permitted use is to be considered as not permitted use.

- It is forbidden to manoeuvre the work platform from the ground control station except for emergency recovery operations and maintenance operations.
- It is forbidden to manoeuvre the work platform with the control console outside the work platform if there are operators and/or material on board the platform.
- As the PLEs are designed to operate from the control position on the platform and the only access position permitted is that provided for the platform on the ground, any activity that provides for access and/or leaving of the same with the platform in a position other than that of access (the so-called "exit at height") is formally prohibited.

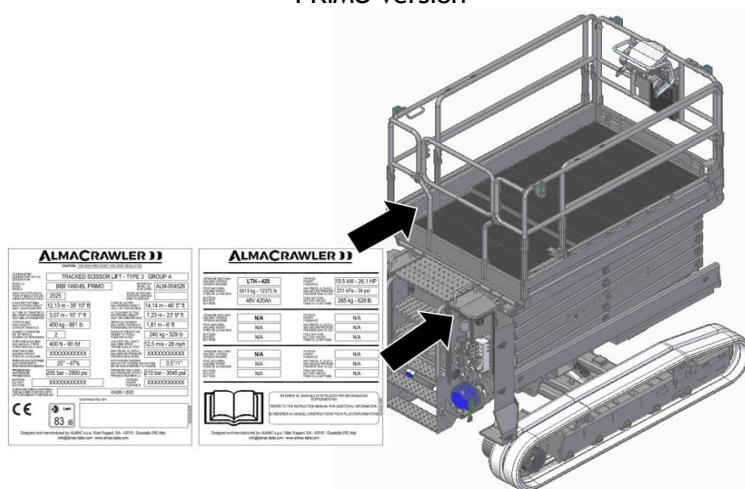
1.6 Identification.

In the event of a request for spare parts and for interventions, it is always necessary to mention the data shown on the registration plate placed on the platform and in the component compartment. In case of loss or illegibility of the plates (as well as for the various adhesive plates located on the various parts of the machine) it is necessary to restore it in the shortest possible time.

For the location of the plates see the figure below. It is advisable to transcribe this data in the following table:

MODEL: _____ _____	SERIAL NUMBER: _____	YEAR: _____
-----------------------	----------------------	-------------

PRIMO version



EVO version

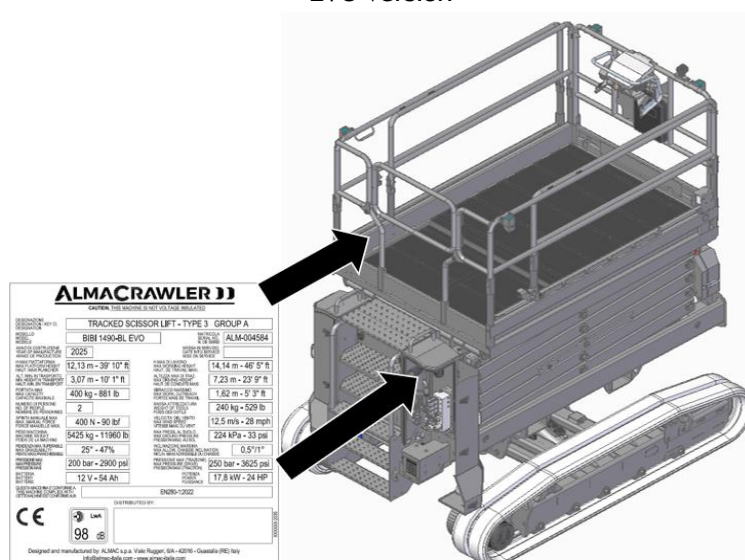


Figure 1

1.7 Definitions and locations of the main components.

The following images show the main components of the machine. This manual deals with various models and fittings so some images may differ slightly from the model in your possession.

1. Base chassis
2. Extendible scissor structure
3. Work platform

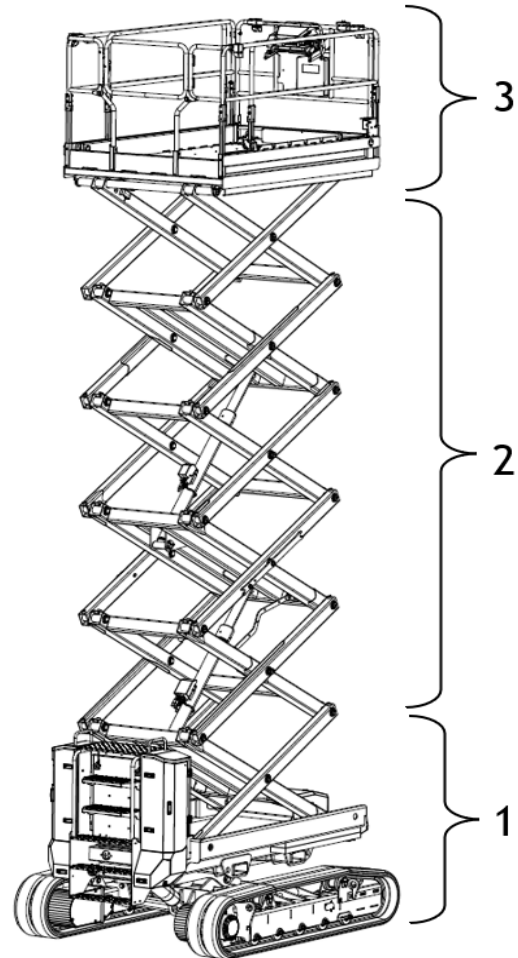


Figure 2

1.7.1 Main components of the base chassis.

1. Left track
2. Right track
3. Traction gear motors
4. Side levelling connecting rods
5. Right side levelling cylinder
6. Left side levelling cylinder
7. Longitudinal levelling cylinder
8. Battery, charger, AC-DC converter (PRiMO version)
9. Plug for charging the battery from the mains and plug TYPE 2 for charging from the column (PRiMO version)
10. DC electric pump (PRiMO version)
11. Heat engine (Evo version)
12. 12V heat engine battery and control system (Evo version)
13. Diesel tank (Evo version)
14. Hydraulic oil tank with level indicator
15. Platform access ladder
16. Main hydraulic unit
17. Hand pump
18. Hand pump lever
19. Hydraulic filters
20. Ground Control Station
21. Electronic control unit
22. Main differential panel
23. Electric pump controller
24. Relay and fuse box
25. Chassis angle sensor
26. AC power plug for platform power line
27. Flashing light
28. Left connecting rod angle sensor
29. Right connecting rod angle sensor
30. Right traction electric motor controller (PRiMO version)

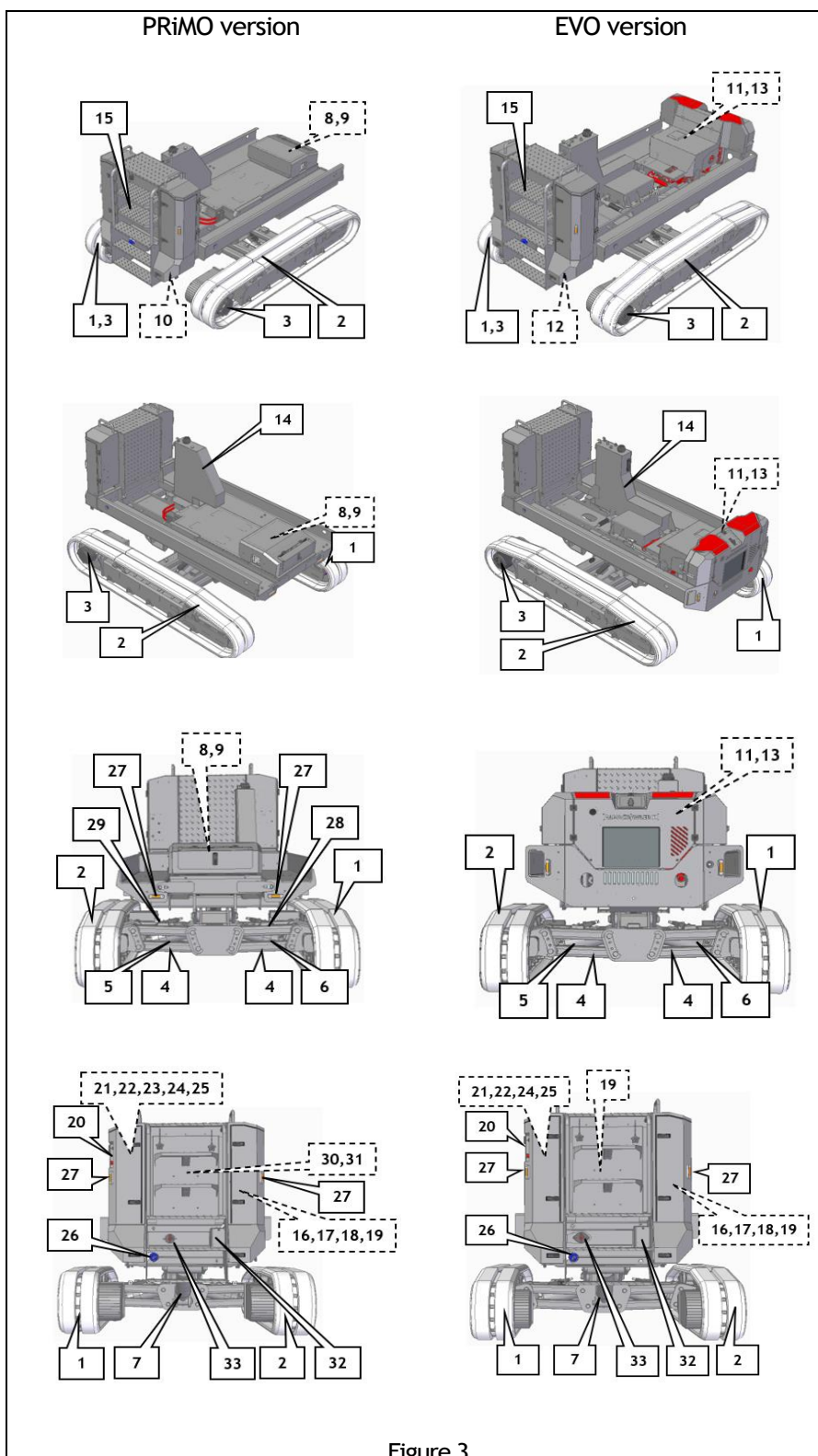
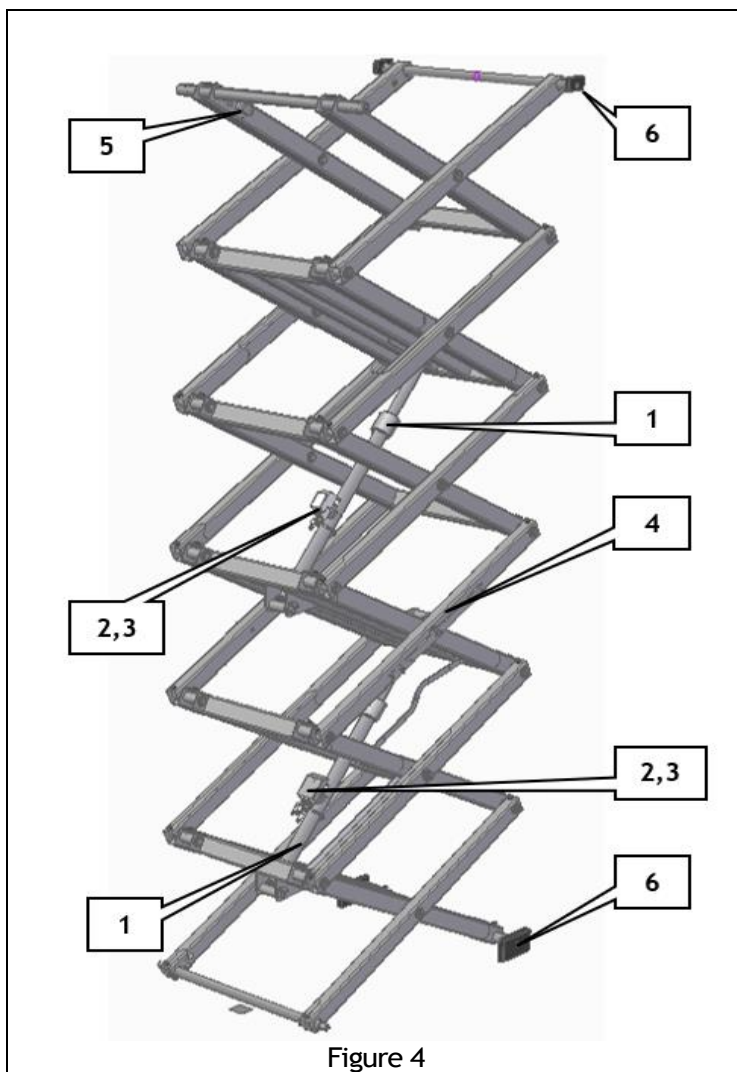


Figure 3

31. Left traction electric motor controller (PRiMO version)
32. Manual operator for emergency descent
33. Battery switch
34. Route lighting headlights (optional)

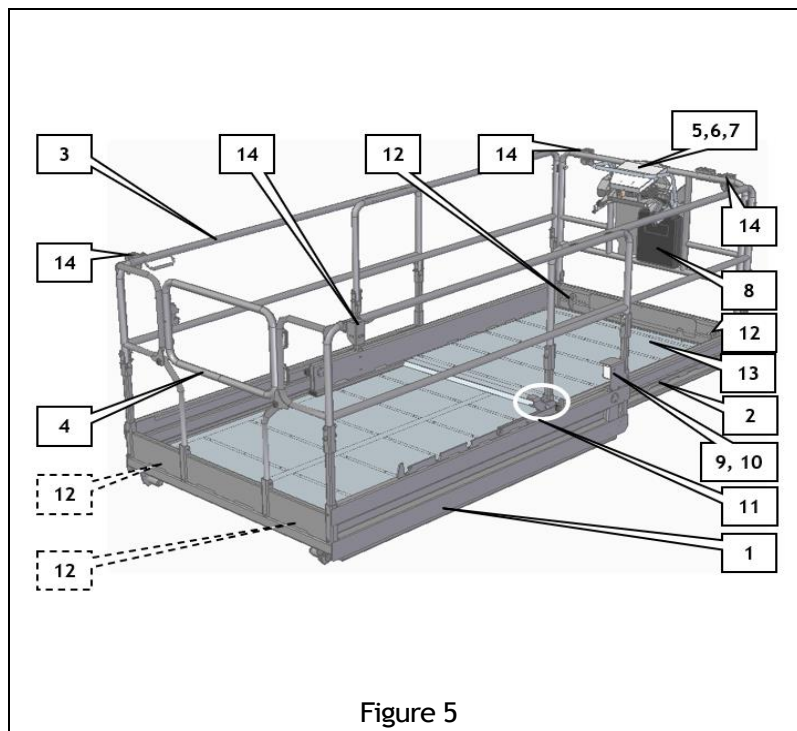
1.7.2 Main components of the scissor extendible structure.

1. Single-acting lifting cylinder
2. Locking solenoid valve
3. Pressure transducers for platform load sensing
4. Rods for the safety stop of the extendible structure during maintenance work
5. Angular sensor of the extendible structure.
6. Runners.



1.7.3 Main components of the work platform.

1. Fixed platform
2. Sliding platform
3. Inward tilting railings
4. Automatic closing entrance gate and automatic locking in closed position
5. Push-button panel
6. Push-button panel protection
7. AES Anti-entrapment system (optional)
8. Document holder compartment
9. Visual bubble (optional)
10. Platform AC Socket
11. Sliding platform release pedal
12. Harnesses anchor points
13. Dead man pedal (optional)
14. Platform anti-collision sensors (optional)
15. Work lights (optional)



2 TECHNICAL DATA, DIMENSIONS AND WORKING DIAGRAMS.

2.1 BIBI 1490-BL / BIBI 46-BL / ATHENA 1490-BL.

2.1.1 General technical data BIBI 1490-BL / BIBI 46-BL / ATHENA 1490-BL.

Dimensions:	Metric		Imperial	
Maximum work height (1)	14.14	m	46' 5"	ft
Maximum height of the tread surface (1)	12.13	m	39' 10"	ft
Maximum extension of the removable platform	1.15	m	3' 9"	ft
Maximum fully extended platform length	3.47	m	11' 4"	ft
Platform width	1.57	m	5' 2"	ft
Maximum capacity on the platform (m)	400	kg	881	lbs
Maximum number of persons on the platform (n)	2		2	
Weight of equipment and materials on the platform (me)	240	kg	529	lbs
Minimum ground clearance of the chassis (widened crawlers)	100	mm	4"	in
Max. walking surface height safety speed input (LOWERED TRAVEL POSITION)	< 2,5	m	< 8' 2"	ft
Max. height of the walking surface in translation	7.23	m	23' 9"	ft
Crawler width at extended track width (maximum track width)	2.03	m	6' 8"	ft
Crawler width at retracted track (minimum track)	1.69	m	5' 6"	ft
Maximum transport length with retracted removable platform (PRiMO)	2.88	m	9' 5"	ft
Maximum transport length with retracted removable platform (EVO)	3.03	m	9' 11"	ft
Minimum transport height with raised railings and extended carriageway	3.07	m	10' 1"	ft
Minimum transport height with raised railings and retracted track	3.45	m	11' 4"	ft
Minimum transport height with lowered railings and extended carriageway	2.56	m	8' 5"	ft
Minimum transport height with lowered railings and retracted carriageway	2.95	m	9' 8"	ft
Minimum transport height with disassembled railings and extended carriageway	2.26	m	7' 5"	ft
Minimum transport height with disassembled railings and retracted carriageway	2.65	m	8' 8"	ft
Track dimensions (Height x Width) (2)	570 x 320	mm	1' 11" x 1' 1"	ft
Hydraulic oil tank capacity (PRiMO)	45	l	12	gal
Hydraulic oil tank capacity (EVO)	90		24	
Max. hydraulic pressure	210	bar	3045	psi
Maximum ford crossing height (3)	350	mm	14"	in
Stability limits:				
Maximum lateral slope of the terrain with platform raised - wide track	14	°	14	°
Max. front longitudinal slope of raised platform terrain - wide carriageway	15	°	15	°
Max rear longitudinal slope of raised platform terrain - wide carriageway	15	°	15	°
Maximum manual force permitted for 2 persons on the platform (1)	400	N	90	lbf
Maximum wind speed	12.5	m/s	28	mph

- (1) Always refer to the working diagrams to obtain this data according to the various configurations of the machine.
- (2) Standard black rubber tracks; Optional non-marking rubber tracks.
- (3) Ford crossing refers to rapid transit of the machine through a flooded area; it is forbidden to leave the machine parked or work with gearmotors submerged in water.

2.1.2 Technical data BIBI 1490-BL PRIMO / BIBI 46-BL PRIMO / ATHENA 1490-BL PRIMO - LTH battery.

Technical data	Metric		Imperial	
Lithium Battery - LiFePO4				
Machine weight (1)	5613	kg	12375	lbs
Rated battery voltage	48	V	48	V
Standard battery capacity	420	Ah	420	Ah
Battery weight	230	kg	507	lbs
Battery pack weight	285	kg	628	lbs
Battery life (4)	≥2000	cycles	≥2000	cycles
Single-phase charger (included in the battery pack)	48 / 65	V / A	48 / 65	V / A
Power supply mains voltage single-phase charger	85-270 / 50-60	V / Hz	85-270 / 50-60	V / Hz
Maximum current absorbed by the charger @ 230V	16	A	16	A
Maximum current supplied by the charger @ 230V	65	A	65	A
Maximum current absorbed by the charger @ 120V	10	A	10	A
Maximum current supplied by the charger @ 120V	40	A	40	A
DC electric pump power	4.5	kW	6	HP
Max. current absorbed by the DC electric pump	150	A	150	A
Traction motor power	7.5 + 7.5	kW	10 + 10	HP
Max. current absorbed by traction motors	250 + 250	A	250 + 250	A
LWA sound power	83	dB A	83	dB A
Operator station sound level LpA ± KpA	69.2 ± 2.6	dB A	69.2 ± 2.6	dB A
Vibrations transmitted to hand/arm system (operator hand rest)	<2.5	m/s ²	<8.2	ft/s ²
Whole body vibrations (on platform - measured on flat ground) (2)	0.18 ± 0.03	m/s ²	0.59 ± 0.1	ft/s ²
Hand/arm system vibrations (operator hand support) (3)	0.2 ± 0.03	m/s ²	0.66 ± 0.1	ft/s ²
Minimum operating temperature of the machine	-20	°C	-4	°F
Maximum operating temperature of the machine	+50	°C	+122	°F
Minimum temperature for recharging of the lithium battery (5)	0	°C	+32	°F
Maximum temperature for recharging of the lithium battery	+45	°C	+113	°F
Performance:				
Maximum gradient that can be exceeded in transportation conditions	25	°	25	°
Maximum travel speed in transportation position	4	km/h	2.48	mph
Maximum travel speed with platform in raised position	0.6	km/h	0.37	mph
Platform complete ascent time	50÷55	s	50÷55	s
Platform complete descent time	50÷55	s	50÷55	s

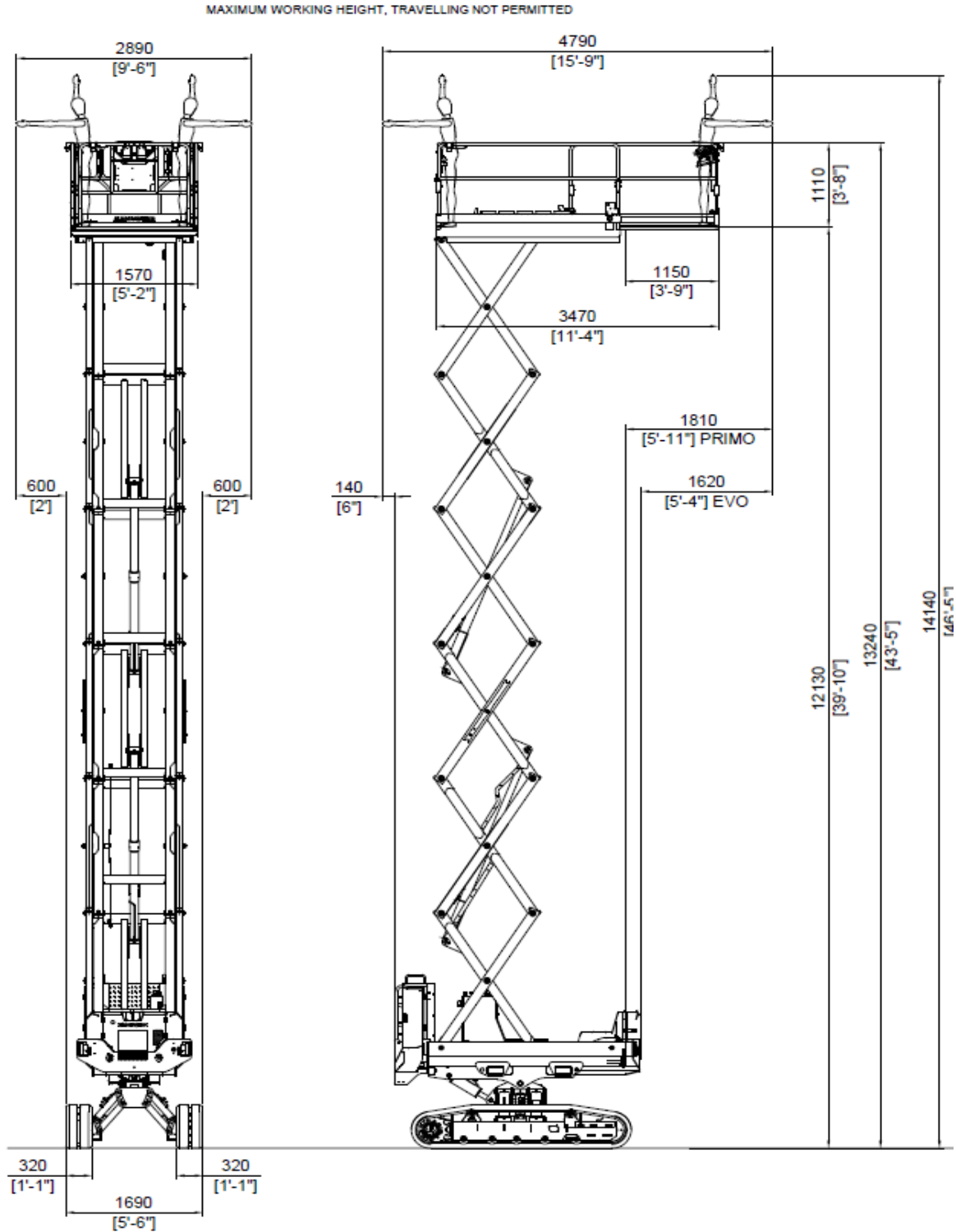
- (1) The machine weight may vary depending on the presence of optional accessories. Refer to the data on the plate of the machine.
- (2) Values referring to the raised platform.
- (3) Values referring to the platform in the transport position.
- (4) Declared value @80%DOD and punctual maintenance.
- (5) At lower temperatures the charging current is considerably reduced resulting in an increase in the overall charging time.

2.1.3 Technical data BIBI 1490-BL EVO / BIBI 46-BL EVO / ATHENA 1490-BL EVO - YANMAR 3TNV80F-SDSA

Technical data	Metric		Imperial	
Diesel engine type: YANMAR-SDSA				
Certification	STAGE-V - TIER 4F			
Machine weight (1)	5425	kg	11960	lbs
Dry weight of the engine	130	kg	287	lbs
Displacement	1267	cm ³	77	in ³
Gross power	17.8	kW	23.9	HP
Gross power speed	3000	r/min	3000	rpm
Minimum speed	1200	r/min	1200	rpm
Engine oil quantity	1.6	l	0.4	gal
Motor oil type	10W30			
Fuel tank capacity	20	l	5.3	gal
Starter battery voltage and capacity	12 / 54	V / Ah	12 / 54	V / Ah
Starter battery weight	12.1	kg	27	lbs
LWA sound power	98	dB A	98	dB A
Operator station sound level LpA ± KpA	82.7 ± 2.6	dB A	82.7 ± 2.6	dB A
Vibrations transmitted to hand/arm system (operator hand rest)	<2.5	m/s ²	<8.2	ft/s ²
Whole body vibrations (on platform - measured on flat ground) (2)	0.25 ± 0.04	m/s ²	0.82 ± 0.13	ft/s ²
Hand/arm system vibrations (operator hand support) (3)	0.52 ± 0.12	m/s ²	1.7 ± 0.39	ft/s ²
Minimum operating temperature	-20	°C	-4	°F
Maximum operating temperature	+50	°C	+122	°F
Performance:				
Maximum gradient that can be exceeded in transportation conditions	25	°	25	°
Maximum travel speed in transportation position	2.5	km/h	1.55	mph
Maximum travel speed with platform in raised position	0.6	km/h	0.37	mph
Platform complete ascent time	50÷55	s	50÷55	s
Platform complete descent time	50÷55	s	50÷55	s

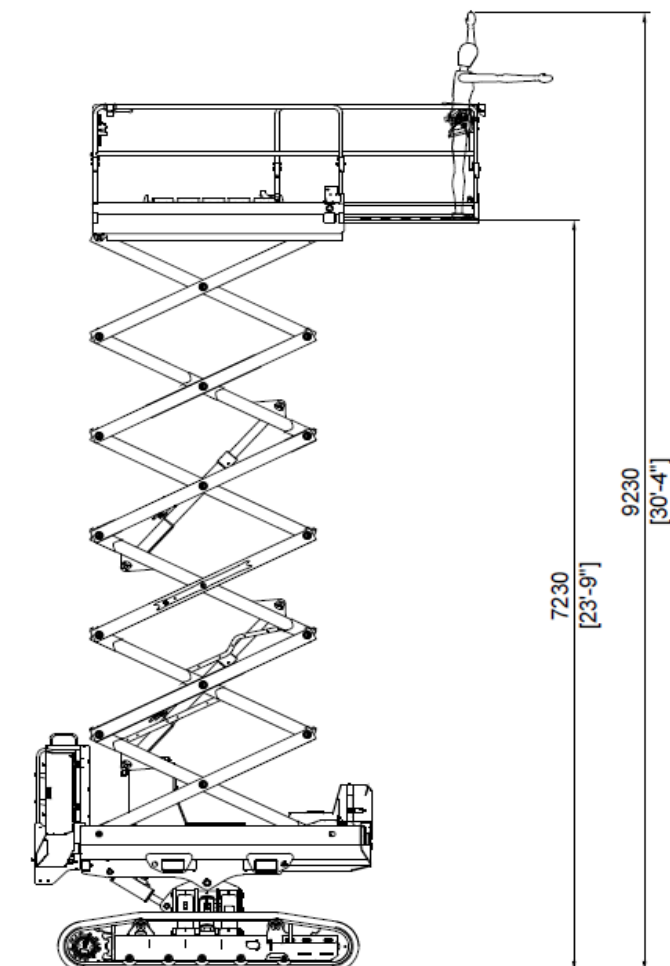
2.1.4 Work diagrams BIBI 1490-BL / BIBI 46-BL / ATHENA 1490-BL.

2.1.4.1 Work diagrams BIBI 1490-BL / BIBI 46-BL / ATHENA 1490-BL: Translation inhibited.

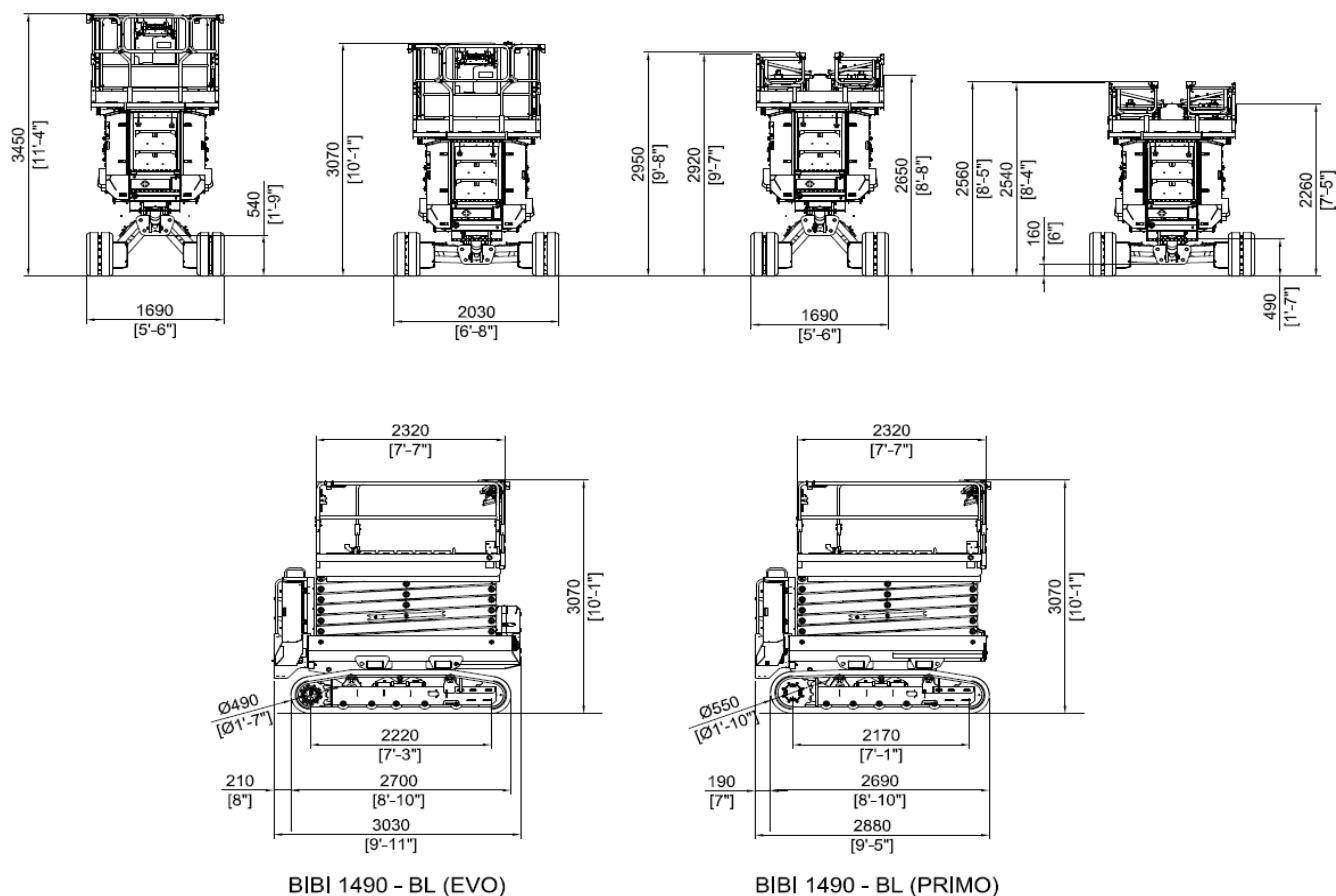


2.1.4.2 Work diagrams BIBI 1490-BL / BIBI 46-BL / ATHENA 1490-BL: Translation allowed.

MAXIMUM WORKING HEIGHT WITH TRAVELLING PERMITTED
MAXIMUM WORKING HEIGHT WITH LEVELLING PERMITTED
(Pro-Active levelling system)



2.1.4.3 Work diagrams BIBI 1490-BL / BIBI 46-BL / ATHENA 1490-BL: Transport dimensions.



3 SAFETY INFORMATION, OBLIGATIONS AND PROHIBITIONS.

3.1 Personal protection equipment (PPE).

For safe use of the machine, it is mandatory to wear the appropriate Personal Protection Equipment indicated below, in addition to any additional devices related to the risks concerning the activity being carried out by the Employer (example: in cases of activity in a noisy environment, the use of hearing protectors will be prescribed, etc.).

The minimum PPE related to the risks prevalent during use of the machine are:

- Retaining device (harness) complete with lanyard and connectors;
- Safety helmet;
- Safety footwear.

For the use and maintenance of the PPE in use, refer to the respective manufacturers' manuals.

3.1.1 Restraint/fall arrest device and anchoring points on the platform.

Each anchor point on the platform is specifically designed and suitable to anchor a **fall arrest system** for one person.

The safety device consists of a full-body harness (1), with a sternal and/or dorsal attachment equipped with an adjustable lanyard (2) for restraint or fall arrest, attached to the connection point in the prepared basket, through connectors of suitable shape and size.

The operator and personnel being transported on the platform must wear the PPE described above and attach the connector (carabiner) to the anchor points indicated in the following image, adjusting the lanyard so that it remains as short as possible.

The choice of whether to use a restraint or fall arrest device is the responsibility of the employer and depends on the analysis of the risks associated with the actual use of the machine.

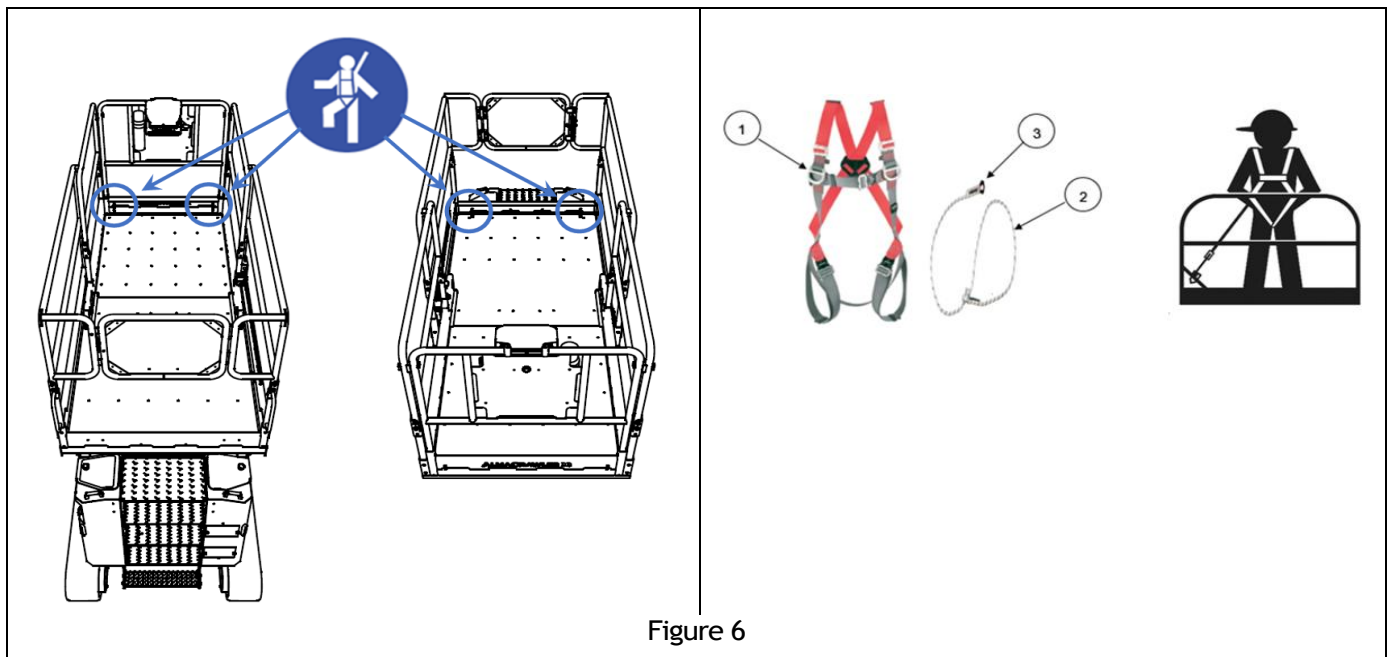


Figure 6



Attention: only one person can be connected to each anchor point.

3.2 Safety regulations.

3.2.1 General safety regulations.

- Read this manual carefully before starting, using, servicing or performing other operations on the machine;
- The use of the machine is reserved for adults and adequately trained and educated persons;
- Ensure being informed and comply with the regulations in force in the country of use relating to the use of machines for the lifting of persons;
- The machine must be kept in a perfect condition following the maintenance program described in the *Maintenance Chapter*. It is the responsibility of the employer to verify that maintenance operations are carried out by qualified personnel;
- Use the machine within the operating limits stated in the previous chapter and in the following part of this manual (temperature limits, wind speed, ground inclinations, etc.);
- Do not wear rings, wrist watches, jewellery, unfastened or loose clothing such as neck ties, torn garments, scarves, unbuttoned jackets or garments with open zip fasteners that may become entangled in moving parts. Wear approved safety garments, such as non-slip footwear and a reflective vest;
- Always keep the tread surface, steps, handrails and grab bars clean and free from any foreign object or traces of oil, mud or snow to minimise the risk of slipping or tripping;
- Clean the soles of your shoes before getting on the PLE.;
- Using the PLE requires the simultaneous presence of at least two operators, one of which remains on the ground and is able to carry out the emergency operations described in this manual;
- Use the machine at a minimum distance from high-voltage lines as indicated in the following chapters;
- Never exceed the maximum capacity permitted on the platform both in relation to the maximum load permitted and the number of persons being transported;
- It is forbidden to load and/or unload people and/or materials when the platform is not in the access position;
- It is forbidden to use structural elements of the machine for ground connections while welding work is carried out on the platform;
- Enter and exit the platform using the appropriate gate and steps (when applicable);
- Do not use the controls or flexible hoses as hand holds;
- Do not protrude from the perimeter railings of the platform;
- Warn your supervisor in case of operating irregularities or suspected unsafe operation of the machine; isolate the machine, turn it off and remove the keys to prevent unauthorised use;
- Make sure that all guards, other protections and covers are positioned correctly and that all the safety devices are installed and efficient;
- Do not use the platform in places where there is a risk of explosion or fire outbreaks;
- Do not use water jets or high pressure washers to wash the platform;
- All personnel on the platform must wear, as a minimum, the PPE indicated in this manual. The operator on the ground must also wear a hard-hat;
- The platform cannot be used if the lighting conditions are not sufficient;
- In the event of rain, take care to protect the control box on the platform using the appropriate cover;
- Maintain a distance of at least 2 m from extreme gradients (ditches, steep terrain, etc.);
- Ensure there is sufficient autonomy to avoid the forced shut-down of the machine;
- Before moving the machine in any way, make sure you have enough space to avoid collisions with fixed obstacles such as buildings, structures, or other objects in the work area.
- It is forbidden to use the platform for lifting loads and/or as a crane;
- Overloads, transverse stresses, impacts, brusque and sudden movements of the platform are forbidden;

- When moving or working on the platform, both feet must be firmly placed on the floor;
- If the boom or platform remains entangled so that one of the tracks is lifted from the ground, all personnel must be evacuated before releasing the machine. If necessary, use other equipment for the evacuation of personnel;
- It is forbidden to get on or off the platform when it is controlled from the ground;
- It is forbidden to operate the PLE from the ground control position when the operators are present on the platform, except for emergency recovery operations;
- It is forbidden to transport large materials or panels, as they increase wind resistance causing a high risk of tipping over.
- It is forbidden to increase the reach or working height of the PLE by using additional equipment (e.g. ladders);

3.2.2 Handling and movement

- It is forbidden to circulate on roads open to public traffic. The machine is not approved for this purpose.
- Do not drive over loose soils to avoid risks of instability and downtime. To avoid overturning, the maximum permissible gradients indicated in the chapter on the technical characteristics of each model under the heading "Stability limits" must be observed;
- The machine is equipped with a self-levelling system, but, in any case, it is necessary to move on inclined planes with the utmost caution;
- As far as possible, on machines with variable carriageway, always use the maximum carriageway during travel to reduce the risks of overturning;
- With the DYNAMIC LEVELLING function active, when the platform is lowered, the control system maintains the horizontality of the platform automatically at the same time as the translation control. Pay attention to this automatic function, deactivating it if you are operating in particularly low environments, under the threshold of a door, or at the entrance/exit of containers, trucks and the like. The DYNAMIC LEVELLING function must be deactivated in case of risk of collisions with aerial obstacles;
- The PROACTIVE LEVELLING function is always active: when the platform is raised, when the traction manoeuvre encounters a slope, the manoeuvre stops automatically. When the traction command is restarted, the extendible structure will self-level before allowing the traction to be restarted. Pay close attention when moving on terrain that is not perfectly horizontal.
- With platform outside the ACCESS position (with platform starting from a certain height from the ground - see TECHNICAL DATA chapter) the traction speed is automatically entered in safety speed up to a variable working height (see work diagrams) beyond which traction is automatically inhibited. During the pulling manoeuvre in elevation, the operators on board must not apply horizontal loads to the platform (no pulling ropes, cables, etc.);
- When moving, be careful and avoid deep dips and holes in the ground;
- Do not change direction on kerbs, rocks or significant elevations (>100 mm) while driving;
- Always take kerbs or drive over any unevenness with the tracks perpendicular to the obstacle to be passed over;
- When moving uphill, do not steer in the passage from the flat ground to the slope. If this is absolutely necessary, perform the manoeuvre gradually;
- Always make sure that both tracks are resting on the same plane in order to avoid damaging the tracks;
- When proceeding on an obstacle and the track is resting only on the load-bearing rollers there is a risk that the track will come out of its seat. Control the movement with caution in these conditions;
- When changing direction in a situation where one of the tracks cannot move sideways due to obstacles, the track may come out of its seat. Control the movement with caution in these conditions;
- Control the movement with the platform raised only if the ground is consistent;
- The machine can cross a ford (see TECHNICAL DATA chapter) for a short time. It is forbidden to leave the machine parked or work with traction gear motors immersed in water.
- Electronic control during traction at height allows you to move safely on terrain where the slope changes gradually. However, the system cannot prevent the machine from overturning in the event of sudden changes in the slope of the ground or curbs.
- Before controlling the movement both with a low platform and with a raised platform, check that all 4 ends of the tracks are resting on the ground. Otherwise, avoid travelling and reposition the machine. The image below shows only some (not all) of the hazardous conditions to avoid

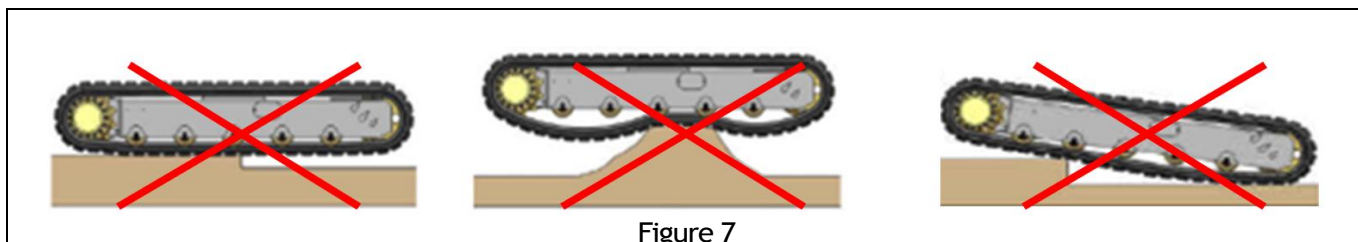


Figure 7

- When descending from very steep slopes or stairs, follow the instructions below (see image below):
 - Check that the slope of the stairs/ramp falls within the maximum limits of inclination permitted for the machine. Do not go down/upstairs or slopes higher than those indicated;
 - Insert shims/material between the steps to reduce the cutting angle and better distribute the weight of the machine;
 - If the slope is within the maximum limits, widen the track as much as possible and prepare the machine by tilting the frame:
 - In the opposite direction to the direction of travel when descending;
 - In the direction of travel when climbing;
 - Control the traction of the machine while on the ground, from a safe position, operating with caution using the lowest speed.

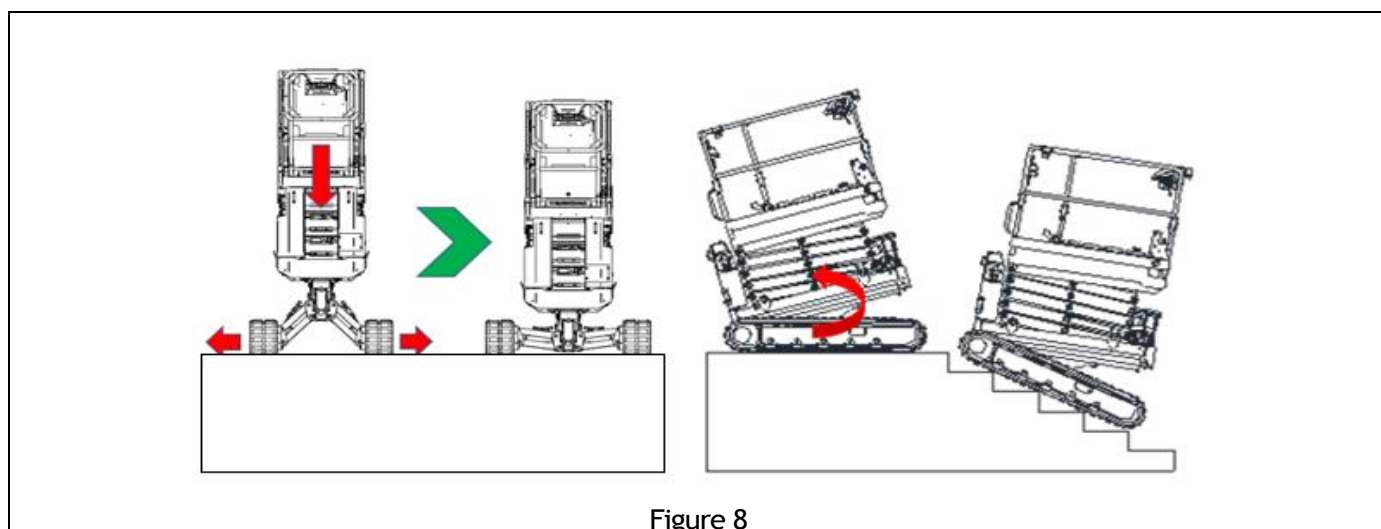


Figure 8

3.2.3 Work phases.

- The machine is equipped with numerous sensors on its moving parts (extendible tracks, base carriage, scissor structure, etc.) that constantly monitor the configuration of the machine and the loads transported on the platform. Any alarms or manoeuvre inhibitions are clearly indicated by the illuminated LEDs in the control console on the platform and on the display at the ground control station; manoeuvres dangerous to stability are automatically inhibited, and the operator on the platform is always aware of the situation;
- With the platform raised, the machine is equipped with a system that automatically balances the pressures between the lifting cylinders. Any slight movements or jolts of the platform at the end of the ascent or descent operations must be considered normal and do not constitute an operating anomaly.
- The machine is equipped with a load detection system that inhibits the lifting of the platform in any position when the load exceeds about 20% of the nominal load. It is necessary to remove the excess load to resume normal operation with the machine;
- The machine incorporates an automatic function to reduce the risk of shearing and crushing: descent of the platform is automatically interrupted when the vertical distance between the ends of the scissor structure is greater than 50 mm, leaving the operator at the controls to ensure that there are no people near the machine;
- The machines are equipped with a device for controlling the charge status of the battery (BIBI 1490-BL PRIMO) which, when the residual charge level reaches too low levels, signals the condition to the operator by means

- of a LED on the control position on the platform, and inhibits the high speed in traction and the platform ascent command. It is necessary to recharge the battery;
- Always check that there are no persons within range of the machine. From the platform, pay particular attention when making movements and descents;
 - In order to prevent unqualified personnel from coming into dangerous contact with the machine during work in areas open to the public, the work area must be cordoned off with barricades or other suitable means of signalling.
 - Avoid operating with the machine in harsh environmental conditions such as strong winds, storms (see also chapter dedicated to wind action).
 - Before lifting the platform, make sure that the tracks are completely resting on the ground; avoid extending the extendible structure if part of the tracks is raised from the ground. Risk of tipping over. See figure in the previous chapter in which a number of situations to be avoided are represented.
 - During the descent commands pay attention to any obstacles under the platform to avoid tipping over and/or damage.
 - Materials, equipment and tools must be stably positioned on the platform to prevent them from falling to the ground during manoeuvres.
 - The machine automatically limits the movements of the extendible structure based on the numerous parameters monitored (inclination of the ground, carriageway, load on the platform), indicating to the operator any alarm condition. In any case, to move the machine in complete safety, once the carriage is positioned in a favourable position, orienting the platform towards the point to be reached at height and:
 - .1 Lift the platform;
 - .2 Extend the extendible platform to reach the operating point at height;
 - .3 Perform the work from a comfortable position, remaining inside the work platform.
 - For the retraction manoeuvres to be carried out, the sequence to be performed is reversed with respect to the above. At the end of the work, after having completely lowered the booms and parked the machine in a safe place, to prevent unauthorised persons from using the machine, remove the keys from the control panels and store them in a safe place that is not accessible to unauthorised persons.

3.2.4 Wind action and Beaufort scale.

Wind is one of the possible causes of overturning. It is forbidden to use the machine with wind exceeding 12.5 m/s (45 km/h - 28 mph). There is no anemometer on the standard machine; to monitor the wind speed, refer to the table below in which the operating wind limit is defined as No.6 according to the INTERNATIONAL BEAUFORT SCALE.

Beaufort Number	Wind speed (km/h)	Wind description	Sea conditions	Ground conditions
0	0	Calm	Flat.	Smoke rises vertically.
1	1-6	Gentle wind	Slight ripples on the surface. White crests do not form.	Wind movement visible from the smoke.
2	7-11	Light breeze	Minute waves, still short but evident. The crests do not break, glassy appearance	Wind felt on bare skin. The leaves rustle.
3	12-19	Strong breeze	Waves with breaking crests, foam of glassy appearance. "Sheep" visible with white crests.	Smaller leaves and branches in constant motion.
4	20-29	Moderate wind	Waves with a tendency to lengthen. The "Sheep" are more frequent	Lifting of dust and paper. Branches move.
5	30-39	Strong wind	Moderate waves with an elongating shape. Plentiful "sheep", some spray.	Shrubs with leaves sway. Small waves form in inland waters.
6	40-50	Fresh wind	Large waves (surf) with white foam crests. Probable spray.	Movement of large branches. Difficulty using an umbrella.
7	51-62	Strong wind	The surf increases. The waves break and the foam is "blown" in the direction of the wind.	Whole trees shaken. Difficulty walking against the wind.
8	63-75	Gusts	High waves. The crests break forming swirling spray sucked by the wind.	Branches ripped from trees. Impossible to walk against the wind.
9	76-87	Heavy gusts	High waves with rolling crests. Thicker foam strips.	Slight damage to structures (chimneys and tiles removed).
10	88-102	Storm	Very high waves surmounted by very long crests. Foam strips tend to compact and the sea looks whitish. The breakers are much more intense and visibility is reduced.	Tree uprooting. Considerable structural damage.
11	103-117	Violent storm	Huge waves that could also hide medium-sized ships from view. Sea covered with foam banks. The wind fogs the top of the crests. Reduced visibility.	Huge structural damage.
12	>117	Hurricane	Very high waves; air full of foam and spray, completely white sea.	Huge and extensive damage to structures.



Danger: The platform must never be used when the wind force corresponds to a value greater than 6 on the Beaufort scale. For values between 4 and 6 of the scale, always pay the utmost attention.

3.2.5 Suitability of the ground and pressure on the ground of the machine.

3.2.5.1 Ground capacity.

Before using the machine, the operator must always verify that the floor or ground is suitable to withstand the load and pressures generated by the machine, and such as not to make the machine slip due to a steep slope and/or poor adhesion.

The tables of the technical data of each machine indicate the values of pressure and ground loads in order to help in the evaluation of the floor/ground on which the machines can operate. Consider appropriate additional coefficients to be sure of the suitability of the ground. The meaning of the various data and the method for calculating them is explained below.

SYMBOL	UoM	DESCRIPTION	EXPLANATION	FORMULA
A1a	cm ²	Minimum area occupied by the machine on the ground	MINIMUM ground support area of the machine determined by the MINIMUM TRACK product x LENGTH.	$A1a = c1 \times i2$
A1b	cm ²	Maximum area occupied by the machine on the ground	MAXIMUM ground support area of the machine determined by the MAXIMUM TRACK product x LENGTH.	$A1b = c2 \times i2$
A2	cm ²	Ground support area of a track	Ground support area of a track. The ground support area of a track was detected considering the support on the concrete floor.	$A2 = c3 \times i1$
A3	cm ²	Landing area of the section of track that withstands the maximum load	It is the design estimate of the track area on which the maximum load generated by the machine in the worst load conditions insists	$A3 = c3 \times i3$
c1	cm	Minimum carriageway	MINIMUM transversal width of the machine measured externally between the tracks or between the outermost parts of the machine	-
c2	cm	Maximum carriageway	MAXIMUM transverse width of the machine measured externally between the tracks or between the outermost parts of the machine	-
c3	cm	Track width	Represents the maximum width of a track.	-
i1	cm	Centre distance	Centre distance between the centre of the traction gear reducer and the idler wheel.	-
i2	cm	Machine length	It is the overall length of the machine.	-
i3	cm	Track length under maximum load	It is the design estimate of the length of the track area subjected to the maximum load generated by the machine in the worst load conditions	-
M	kg	Nominal load	The maximum capacity permitted for the work platform	-
P1	kg	Machine weight	It represents the weight of the machine, excluding the nominal load. Note: always refer to the data indicated on the plates applied to the machine.	-
P2	kg	Maximum load on track or stabilizer.	It represents the maximum load that can be unloaded to the ground by a track or a stabilizer when the machine is in the worst position and load conditions. Note: always refer to the data indicated on the plates applied to the machine.	-
p1a	Kg/cm ²	Ground pressure	Average pressure that the machine exerts on the ground in resting conditions and supporting the nominal load.	$p1a = (P1 + M) / A1a$
p1b	Kg/cm ²	Ground pressure	Average pressure that the machine exerts on the ground under rest conditions and supporting only one operator.	$p1b = (P1 + 80) / A1a$
p1c	Kg/cm ²	Ground pressure	Average pressure that the machine exerts on the ground in resting conditions with the operator who drives the machine on foot (without load on the platform).	$p1c = P1 / A1b$
p2	Kg/cm ²	Average pressure on tracks	Average pressure exerted on the ground by the tracks by the machine under full load transportation conditions.	$p2 = (P1 + M) / 2 / A2$
p3	Kg/cm ²	Maximum point pressure	Maximum pressure that a portion of track or a stabilizer exerts on the ground when the machine is in the worst position and load conditions.	$p3 = P2 / A3$

See below an example of calculation of the specific pressures "p1", "p2", "p3".

		BIBI 1490-BL PRIMO		BIBI 1490-BL EVO	
	Formula	Metric	Imperial	Metric	Imperial
P1		5613 kg	12375 lbs	5425 kg	11960 lbs
P2		3007 kg	6630 lbs	2913 kg	6422 lbs
M		400 kg	881 lbs	400 kg	881 lbs
i1		217 cm	85"	221 cm	87"
i2		398 cm	157"	398 cm	157"
i3		40 cm	16"	40 cm	16"
c1		169 cm	67"	169 cm	67"
c2		203 cm	80"	203 cm	80"
c3		32 cm	13"	32 cm	13"
A1a	$= c1 \times i2$	67262 cm ²	10426 in ²	67262 cm ²	10426 in ²
A1b	$= c2 \times i2$	80794 cm ²	12523 in ²	80794 cm ²	12523 in ²
A2	$= c3 \times i1$	6944 cm ²	1076 in ²	7072 cm ²	1096 in ²
A3	$= c3 \times i3$	1280 cm ²	198 in ²	1280 cm ²	198 in ²
p1a	$= (P1 + M) / A1a$	894 kg/m ²	1.27 psi	866 kg/m ²	1.23 psi
p1b	$= (P1 + 80) / A1a$	846 kg/m ²	1.2 psi	818 kg/m ²	1.16 psi
p1c	$= P1 / A1b$	695 kg/m ²	0.99 psi	672 kg/m ²	0.96 psi
p2	$= (P1 + M) / 2 / A2$	0.43 kg/cm ²	6.1 psi	0.41 kg/cm ²	5.86 psi
p3	$P2 / A3$	2.35 kg/cm ²	33.4 psi	2.27 kg/cm ²	32.3 psi

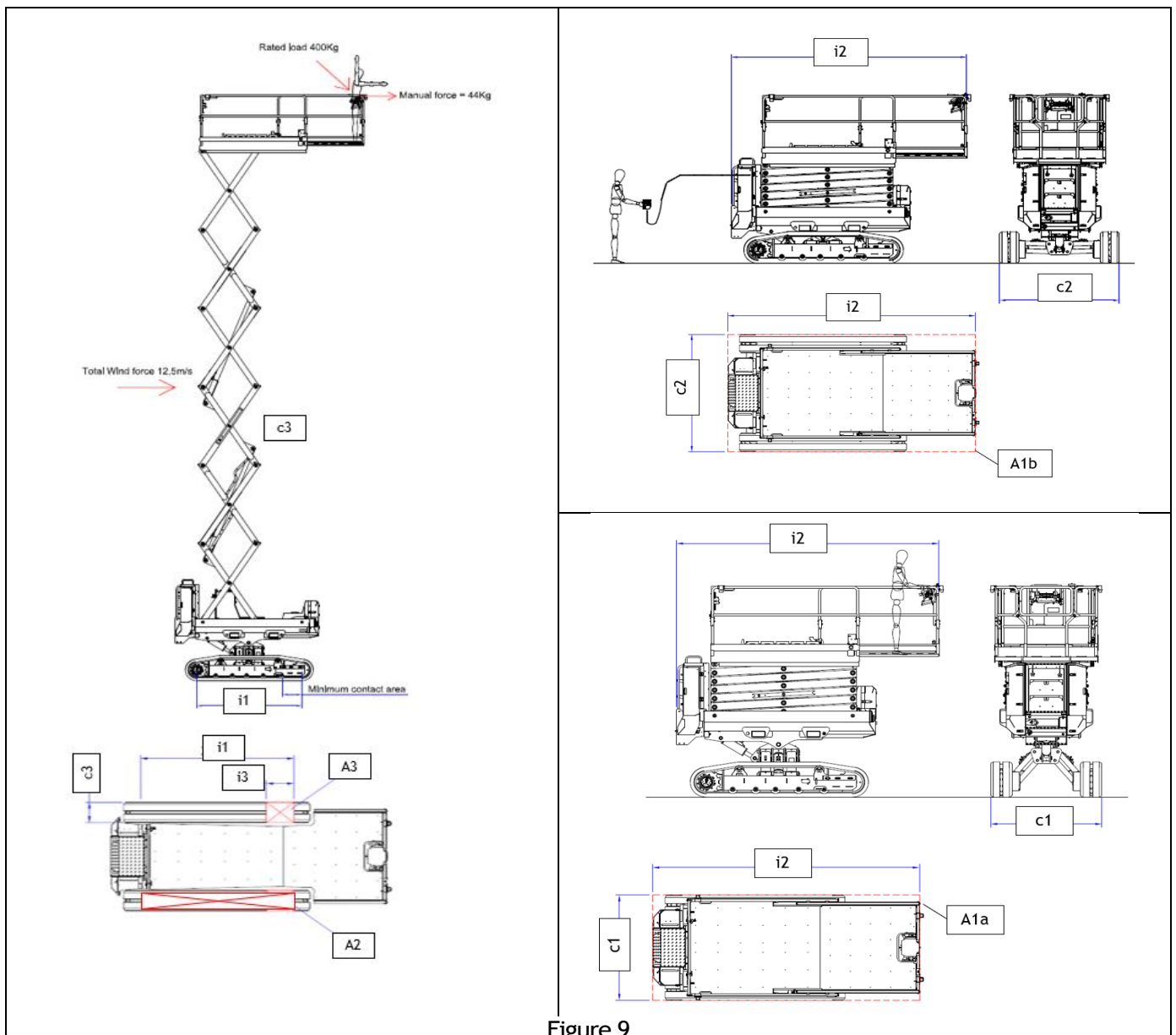


Figure 9

The following table shows the indicative bearing capacity of the soil by type of ground. Compare the bearing capacity of the ground with the specific pressure data calculated with the method just described to understand if the ground is able to withstand the pressure generated by the machine. The values in the table are indicative, therefore in case of uncertainty the bearing capacity of the ground must be ascertained with specific examinations. In the case of structures (example: concrete floors, bridges, etc.) the lift must be requested from the manufacturer of the structure.

TYPES OF SOIL	CAPACITY VALUE	
	Kg/cm ²	lb/in ²
Non-compact excavated soil	0 - 1	0 - 14
Mud, peat, etc.	0	0
Sand	1.5	21
Gravel	2	28
Crumbly earth	0	0
Soft earth	0.4	6
Rigid earth	1	14
Semi-solid earth	2	28
Solid earth	4	56
Rock	15 - 30	210 - 420



It is forbidden to use the machine if the maximum pressure generated on the ground is higher than the permissible lift value indicated in the table.

3.2.5.2 Ground inclination.

Before using the machine, the operator must always check that the floor or ground is suitable to avoid sliding of the machine due to high slopes and/or poor adhesion. The maximum inclinations compensated by the automatic levelling system are represented in the image below. It is the responsibility of the operator to assess whether the ground in which the machine operates is able to hold the machine in place.

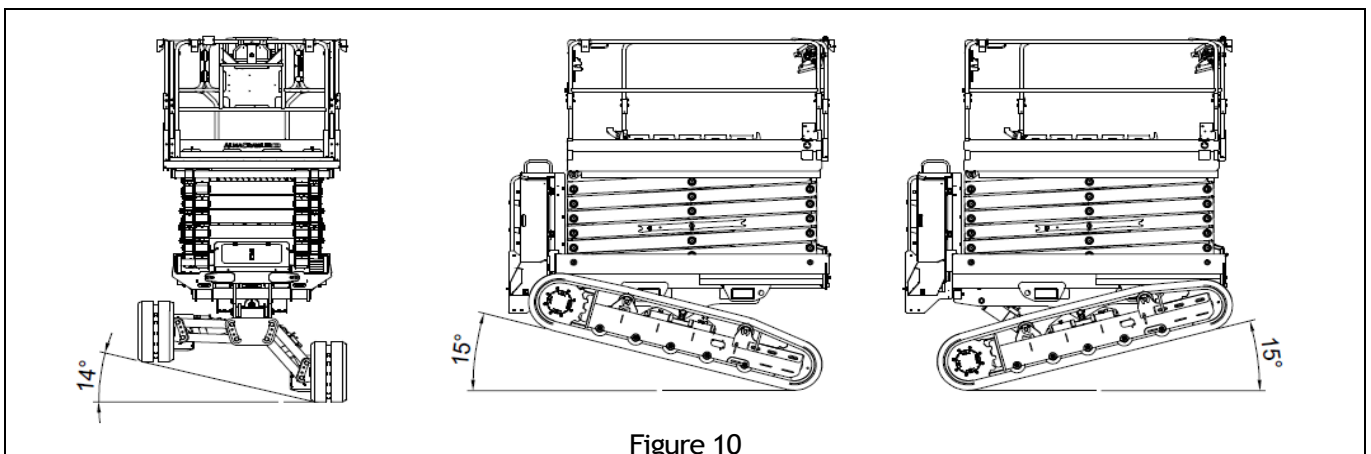


Figure 10



It is forbidden to operate on inclined terrain if these do not guarantee the adhesion of the crawlers. Risk of machine slipping!!

3.2.6 Live power lines

The machine is not electrically insulated and does not provide protection from contact with or proximity to power lines.

It is necessary to maintain a minimum distance from the power lines according to the current regulations and to the following table.

Type of power lines	Voltage (KV)	Minimum distance	
		m	ft
Light poles	<1	3	10
	1 - 10	3.5	12
	10 - 15	3.5	12
	15 - 132	5	17
	132 - 220	7	23
	220 - 380	7	23
High voltage pylons	>380	15	50

Keep away from other machinery that is operating near live power lines.

In Canada and the USA, when working near live lines, a minimum distance must be maintained in accordance with the OSHA 1910.333 standard or according to national laws and regulations.

3.3 In case of an accident.

If during use an accident occurs, without injury to the operators, caused by manoeuvring errors (e.g. collisions) or structural failures, the machine must be placed in a safe situation (isolate it, apply a sign) and it is mandatory to report the anomaly to the employer.

In the event of an accident with injury to one or more operators, the operator on the ground (or on the platform not involved) must:

- Call for help immediately.
- Perform manoeuvres to bring the platform to the ground **only if it is certain that they will not aggravate the situation.**
- Put the machine in a **safe situation** and report the anomaly to the employer.

4 INSTALLATION AND PRELIMINARY CHECKS.

The machine is generally delivered fully assembled, therefore it can perform all the functions provided by the manufacturer in complete safety. It is not necessary to perform any preliminary operations. To unload the machine, follow the instructions in the **LOADING AND TRANSPORTATION** chapter.

Place the machine on a sufficiently compact surface with a slope lower than the maximum permitted (see technical specifications "**Stability limits**") before operating it.

4.1 Familiarisation.

Anyone intending to operate with a machine with characteristics of weight, height, width, length or complexity that differ significantly from the training received must first ensure familiarisation with these aspects to cover the differences.

It is the responsibility of the employer to ensure that all operators using work equipment are adequately trained and instructed to comply with the current health and safety legislation.

4.2 Pre-use checks.

Before starting to work with the machine, it is necessary to have read and understood the user instructions and the prohibitions in this manual and, in summary form, on an information panel on the platform. Check the perfect integrity of the machine (by visual inspection) and read the plates showing the limits of use of the same.

Before using the machine, the operator must always verify that:

- The battery is fully charged and/or the fuel tank is full.
- The engine oil level is between the minimum and maximum values.
- The hydraulic oil level in the tank is between the minimum and maximum value (under the conditions described in the **MAINTENANCE** chapter).
- There are no traces of oil or fuel leaks, or other fluids.
- Visually check the hydraulic hoses and electrical cables for deformation and/or wear.
- The trajectory that the elevated platform will have to follow is free from obstacles and power lines.
- The gearmotors and traction tracks are correctly secured.
- The tracks are in a good condition and tensioned correctly.
- The access staircase is correctly fixed.
- The folding guardrails are in a vertical position and locked with all the pins and screws in the correct position (see **LOADING** and **TRANSPORT** chapter) and that the entrance gate closes and locks automatically.
- The structure has no obvious defects (also visually check the welds of the lifting structure, the chassis and the crawled longerons) and there are no deformations (e.g. Railings and platform gates). More detailed instructions can be found in the **MAINTENANCE** chapter.
- The fixing and connecting elements (seeger, rings, nuts, screws) of the extendible structure are in position and leave no doubt as to their actual tightening.
- Check that there is no rust on the supporting components of the structure and on the fixing elements.
- The instruction plates and control panels are perfectly legible.
- The appropriate container contains at least one copy of the instruction manual in your language, and the last valid periodic verification report.
- The machine performs all manoeuvres safely.

- The controls are perfectly efficient both from the platform control position and from the emergency control position on the base carriage, including the "man present" system and the emergency stops. For these checks, refer to the FUNCTIONAL CHECKS section in the MAINTENANCE chapter.
- The anchor points of the harnesses are in a perfect condition.
- The terrain on which it is intended to operate is sufficiently horizontal and consistent.

4.3 Defects found during pre-use checks.

If during the pre-use Checks (or during use of the machine), the operator finds a defect that can generate dangerous situations or suspicions that there may be malfunctions, the machine must be placed in a safe situation (isolate it, apply a sign). Report the anomaly to the employer and arrange for an authorised service centre to be contacted.

5 METHOD OF USE.

5.1 Control station on the platform.

5.1.1 Document compartment on the platform.

There is a document holder on the platform. A copy of at least the following documents must always be kept in this compartment:

- Instruction manual in the language of the operator;
- Documentation attesting to the periodic checks required by law (seek information regarding the national obligations).

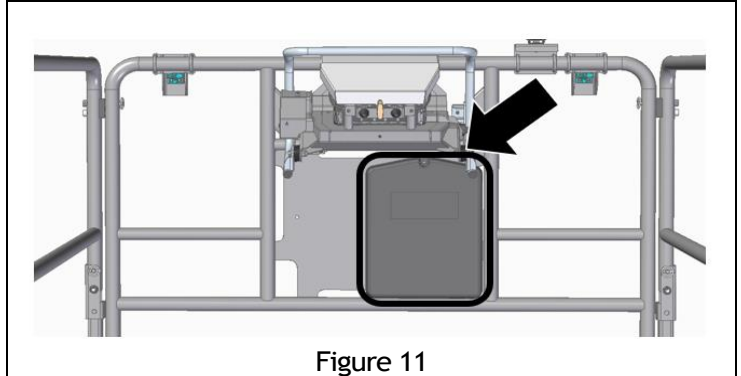


Figure 11

5.1.2 Push-button panel protection on the platform.

When parking or transporting the machine, or during activities that may dirty the push-button panel on the platform, it is necessary to insert the protective cover supplied with the machine to protect the control parts and screen printing. Please note that the cover is lockable to prevent the use of the push-button panel by non-workers.

1. To protect the push-button panel on the platform, rotate the protection "A" on the console and, if necessary, lock it in place using a padlock (B) (not supplied by ALMAC).
2. To operate with the push-button panel on the platform, rotate the guard (A) outwards to free access to the controls.

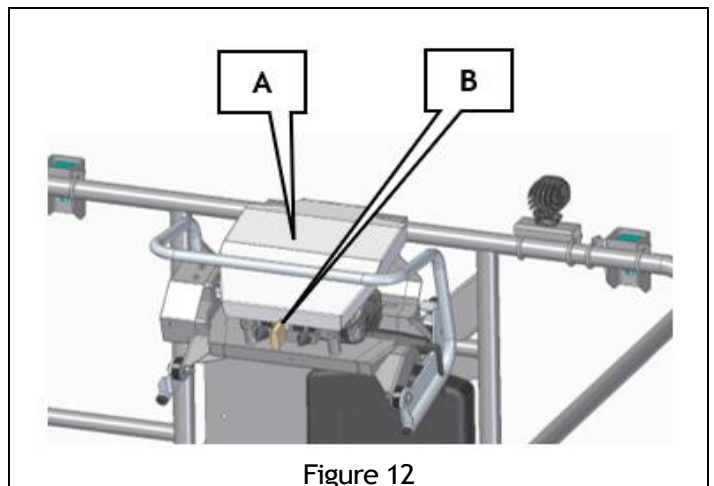


Figure 12

5.1.3 Safe position for the hands of operators being transported in the platform.

The operator who drives the machine from the control station on the platform is generally not exposed to the risk of hand crushing or entrapment however other operators being transported may be.

To reduce the risk of crushing or entrapment of the hands of operators other than the driver, the operators must keep their hands in the safe positions indicated by the arrows when the machine is moving.

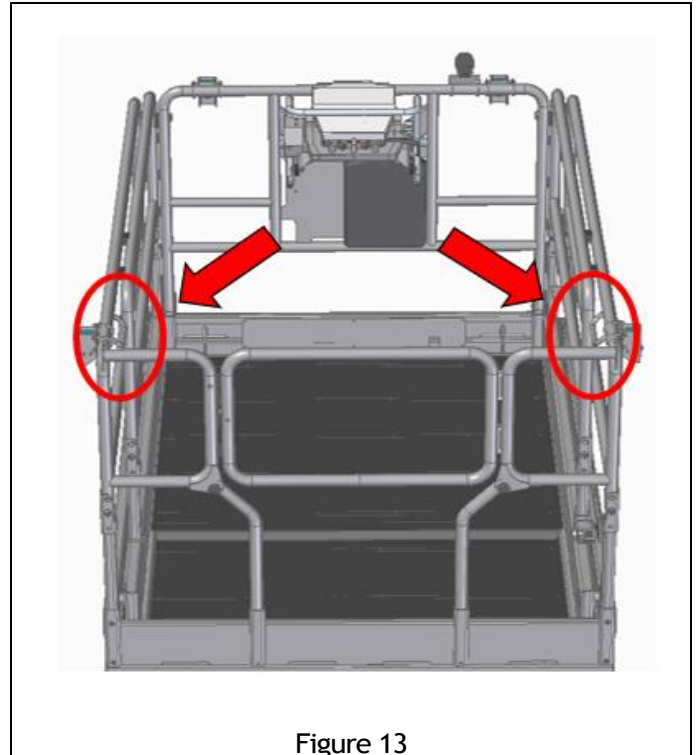


Figure 13

5.1.4 Fixing of the push-button panel on the platform.

When operating from the control station on the platform, or during the transport of the machine, it is necessary to secure the mobile push-button panel on the platform by following the instructions below:

1. Open the lid by turning it outwards. Please note that the lid can be closed and locked using a padlock (not supplied by ALMAC).



2. Insert the push-button panel into the support and take the cord with the hook indicated by the arrow;



3. Pass the lanyard in front of the vertical panel and fasten the hook to the support as indicated by the arrow (image on the right). In this way the push-button panel is locked.



Figure 14

5.1.5 Push-button panel in the platform.

The platform is equipped with a removable push-button panel (console).

With a push-button panel outside its platform housing, when the platform is raised, the ascent of the platform and the translation at height are inhibited.



PRiMO version

1. LEFT TRACK CONTROL PROPORTIONAL LEVER
2. RIGHT TRACK CONTROL PROPORTIONAL LEVER
3. PLATFORM UP/DOWN CONTROL SWITCH
4. DRIVING MODE SELECTOR
5. DRIVE SPEED SELECTOR
6. LEFT SIDE LEVELING SWITCH
7. LONGITUDINAL LEVELING SWITCH
8. RIGHT SIDE LEVELING SWITCH
9. DYNAMIC LEVELLING SELECTOR
10. EMERGENCY STOP BUTTON
11. HORN BUTTON
12. "START-ON" BUTTON
13. GREEN LED SIGNALLING CONTROLS ENABLED
14. MAGNETIC KEY
15. LED DISPLAY
16. SERVICE BUTTONS
17. LIGHTS BUTTON - OPTIONAL
18. CONTROL CABLE CONNECTOR
19. CONTROL ENABLING PEDAL - OPTIONAL

EVO versions

1. LEFT TRACK CONTROL PROPORTIONAL LEVER
2. RIGHT TRACK CONTROL PROPORTIONAL LEVER
3. THERMAL AND ELECTRIC MOTORS ON/OFF/PREHEATING SELECTOR
4. PLATFORM UP/DOWN CONTROL SWITCH
5. DRIVING MODE SELECTOR
6. LEFT SIDE LEVELING SWITCH
7. LONGITUDINAL LEVELING SWITCH
8. RIGHT SIDE LEVELING SWITCH
9. DYNAMIC LEVELLING SELECTOR
10. EMERGENCY STOP BUTTON
11. HORN BUTTON
12. "START-ON" BUTTON
13. GREEN LED SIGNALLING CONTROLS ENABLED
14. MAGNETIC KEY
15. LED DISPLAY
16. SERVICE BUTTONS
17. LIGHTS BUTTON - OPTIONAL
18. POWER SELECTOR
19. CONTROL CABLE CONNECTOR
20. CONTROL ENABLING PEDAL - OPTIONAL

5.1.5.1 "Man present" system.

For safety reasons, when the machine is switched on, after activating the EMERGENCY STOP button (10) by turning it clockwise, to activate the push-button panel it is necessary to press the start-ON button (12). The flashing of the green LED (13) indicates that the controls are not enabled.

To make the controls available, you must enable them by first activating the START-ON button (12) or pressing the enabling pedal (19 - OPTIONAL - PRiMO version / 20 version - OPTIONAL - EVO version).

5.1.5.1.1 Enabling commands using the START-ON button.

Pressing and releasing the START-ON button (12) the green LED (13) lights up with a steady light and for the next 10 seconds the controls are available. If 10 seconds elapse after pressing the start-ON button (12) or after issuing a command, the green LED (13) returns blinking and the start-ON button (12) must be pressed again to continue operating the machine.

Enabling of the controls using the START-ON button (12) when the platform is raised is only active if the control push-button panel is correctly positioned in its support on the platform; if the control push-button panel is out of its support, the only possible manoeuvre is descent.

NOTE FOR MACHINES COMMISSIONED IN THE USA/CANADA: The START-ON button (12) must be kept operated at the same time as the command to be executed. Alternatively, the controls can be enabled using the enabling pedal that is standard for these markets.

5.1.5.1.2 Enabling pedal controls (OPTIONAL).

By pressing and holding the enabling pedal (19 for PRiMO version / 20 for EVO version) the green LED (13) lights up with a fixed light and for the next 20 seconds, the controls are available. Releasing the pedal at any time automatically stops the movements of the machine.

If 20 seconds elapse after pressing the pedal (19 for the PRiMO / 20 version for the EVO version) or after issuing a command, the green LED (13) becomes blinking again and the pedal must be operated again (19 for the PRiMO version / 20 for the EVO version) to continue operating the machine.

The enabling of the controls by means of the pedal (19 - OPTIONAL - for PRiMO version / 20 - OPTIONAL - for EVO version), when the platform is raised, is active only if the control push-button panel is correctly positioned in its support on the platform; if the push-button panel is out of its support, the only possible manoeuvre is the descent.

5.1.5.2 Traction and steering controls.



Attention: before performing any operation to move the machine, check that there are no persons nearby or within the machine's range of action and that any connection cable to the machine is disconnected. In any case, proceed with the utmost caution.

Before carrying out a traction movement with a raised platform, be sure that the ground on which you intend to move has the characteristics described in the previous paragraphs.

Take into account all the indications and prohibitions indicated in the SAFETY RULES chapter of this manual.

Drive the machine at speeds appropriate to the terrain on which you are operating, limiting the use of high speed to long journeys on flat terrain.

If you are in a condition in which the traction control is available (see LED indications), once the controls are activated by means of the start-on button (12), you can control **FORWARD/BACKWARD TRACTION** by simultaneously operating in the same direction and intensity of the two proportional levers (1) (2) to obtain straight running, or with different intensity to obtain the steering of the machine remembering that the right lever controls the right track, and the left lever controls the left track. By operating the two levers (1) (2) in the opposite direction to each other, the counter-rotation of the traction tracks is obtained with consequent steering of the machine around its central axis.

The TRACTION commands are proportional; it is therefore possible to modulate the execution speeds of the movements according to the displacement of the proportional levers themselves.

5.1.5.2.1 Traction and steering control with DYNAMIC LEVELING function.

This function activates automatic levelling of the superstructure both longitudinally and laterally while controlling traction or steering when the platform is lowered.

When the selector (9) is in the ON position, by controlling the traction with the platform lowered, the DYNAMIC LEVELLING function is activated and:

PRiMO version:

- The slow traction speed (ECO) is automatically activated, regardless of the condition of the speed selector (5);
- If the speed selector (5) is in STD or POW position, the green LED indicating the ECO speed is flashing (see LED DISPLAY chapter);
- During traction, when facing inclined terrain, the machine automatically controls the levelling of the superstructure so as to always keep the extendable structure and platform level.

EVO version:

- The machine advances at a reduced speed.
- During traction, when facing inclined terrain, the machine automatically controls the levelling of the superstructure so as to always keep the extendable structure and platform level.
- When the superstructure is levelled, the traction speed increases significantly.

With the platform in the raised position, the selector (9) does not affect the operation of the machine.

5.1.5.2.2 Traction and steering control with PROACTIVE LEVELING function.

This function activates the automatic levelling of the superstructure both longitudinally and laterally while controlling traction or steering when the platform is raised.

By controlling the traction (if allowed; see LED indications - LED DISPLAY chapter) with raised platform, the PROACTIVE LEVELLING function is active up to the maximum allowed travel height (see TECHNICAL DATA chapter) and:

- The traction stops automatically when the 1° inclination of the superstructure is exceeded. The tilt alarms are activated (see chapter LED DISPLAY). The operator must release the traction control levers;
- By reactivating the traction control, the machine first controls the levelling of the superstructure, and when the superstructure is levelled, the traction control works again.

**Warning: DANGER OF TIPPING OVER!**

The system cannot prevent the machine from tipping over in the event of sudden changes in the slope of the ground or curbs.

It is strictly forbidden to face sudden changes of slope, curbs, depressions, stairs, holes or bumps while travelling.

It is the operator's complete responsibility to verify the suitability of the ground over which they must travel.

If the machine reaches inclinations higher than those allowed - with the platform raised - the PROACTIVE LEVELING function is deactivated and travel is inhibited. Within certain inclination limits, platform ascent may be allowed; platform descent is always available. See the LED DISPLAY chapter to understand the possible alarms and manoeuvres.

5.1.5.2.3 Traction and steering control in STANDARD mode, ED-S, DC-S.

Using the selector (4 for PRiMO version / 5 for EVO version) you can choose three driving modes:

- STANDARD (selector in central position);
- DC-S - DIRECTION CONTROL (selector in DC-S position);
- ED-S - EASY DRIVE (selector in ED-S position).

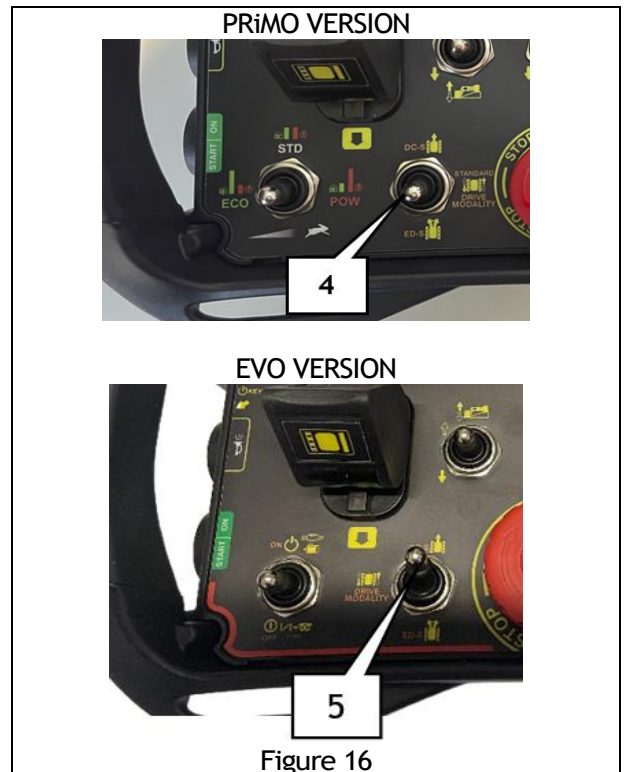


Figure 16

5.1.5.2.3.1 STANDARD mode.

In this mode, the left joystick controls the left track while the right joystick controls the right track as shown above.

5.1.5.2.3.2 DIRECTION CONTROL Mode - DC-S.

In this mode, the right joystick controls both tracks equally, i.e. it is only possible to move straight without steering. This mode is recommended for relatively long distances in large spaces.



NOTE 1: It is possible that in this mode the gear is not perfectly straight due to ground disconnections, load difference on the tracks, factory tolerances.

NOTE 2:

- **PRiMO version:** If DC-S mode and POW driving speed have been selected at the same time, the machine runs straight ahead at the highest traction speed.
- **EVO version:** if the DC-S mode and DYNAMIC LEVELING=ON have been selected at the same time, the machine advances straight ahead at the highest traction speed.

5.1.5.2.3.3 EASY DRIVE Mode - ED-S.

In this mode, similar to the STANDARD one, the left joystick controls the left track and the right joystick controls the right track. Unlike the STANDARD mode, by operating a single joystick, the track controlled by the opposite joystick is never stopped, allowing "soft" steering.

The track counter rotation command is inhibited in this mode.

5.1.5.2.4 Various combination of traction controls (only for EVO version)

Based on the combination of the DRIVING MODE (5) and DYNAMIC LEVELLING (9) commands, the behaviour of the machine, when the platform is lowered, is summarised in the following table:

COMBINATIONS OF CONTROLS ON THE PUSH-BUTTON PANEL			MOTOR RPM	TRACTION SPEED	STEERING	LEVELLING	COUNTER STEERING
1	DYNAMIC LEVELLING (9)	OFF	HIGH	MEDIUM	EASY DRIVE	NO	NO
	DRIVING MODE (5)	ED-S					
2	DYNAMIC LEVELLING (9)	OFF	HIGH	MEDIUM	FREE	NO	YES
	DRIVING MODE (5)	STD					
3	DYNAMIC LEVELLING (9)	OFF	HIGH	MEDIUM	STRAIGHT	NO	NO
	DRIVING MODE (5)	DC-S					
4	DYNAMIC LEVELLING (9)	ON	HIGH	LOW	EASY DRIVE	YES	NO
	DRIVING MODE (5)	ED-S					
5	DYNAMIC LEVELLING (9)	ON	HIGH	MEDIUM	FREE	YES	YES
	DRIVING MODE (5)	STD					
6 (*)	DYNAMIC LEVELLING (9)	ON	HIGH	HIGH (*)	STRAIGHT	YES (*)	NO
	DRIVING MODE (5)	DC-S					

(*) NOTES:

- If the machine is levelled, the traction starts slowly and then accelerates, without controlling the levelling;
- If the machine is not leveled, automatic levelling is activated in advance and once levelled, traction starts slowly and then accelerates;
- If the machine is not able to level, the traction starts slowly and then accelerates, without controlling the levelling.

5.1.5.2.5 Drive speed selector (only for PRiMO version).

Using the selector (5) it is possible to choose three different power speeds, listed below:

- ECO mode (slow speed)
- STD mode (intermediate speed)
- POW mode (max speed).

(*) The selected driving speed is shown by the appropriate LEDs lit with a fixed light (see LED DISPLAY chapter).

Under certain conditions (see limits indicated in Chapter - TECHNICAL DATA) the maximum travel speed is automatically reduced regardless of the position of the selector.



Figure 17

5.1.5.2.5.1 ECO (ECONOMY) mode.

ECO mode reduces battery consumption by setting a low speed, thereby reducing some traction performance. Use this mode on horizontal and compacted terrain, for precise movements, and while climbing and descending ramps.

5.1.5.2.5.2 STD mode (STANDARD).

STD mode is a compromise between traction performance and battery consumption. Use this mode on slightly uneven and compacted terrain.

5.1.5.2.5.3 POW (POWER) mode.

POW mode ensures maximum traction performance, but significantly reduces working autonomy. Use this mode on slightly uneven and/or soft ground, and for long trips in obstacle-free areas.

NOTE: If DC-S mode and POW driving speed have been selected at the same time, the machine runs straight ahead at the highest traction speed.

5.1.5.2.6 Traction control with operator walking.

It is possible to remove the push-button panel from the platform and drive the machine on foot during machine placement operations or for loading and unloading the machine from means of transport. The length of the control cable allows the operator who drives the machine on foot to position himself in the safe zone during handling.

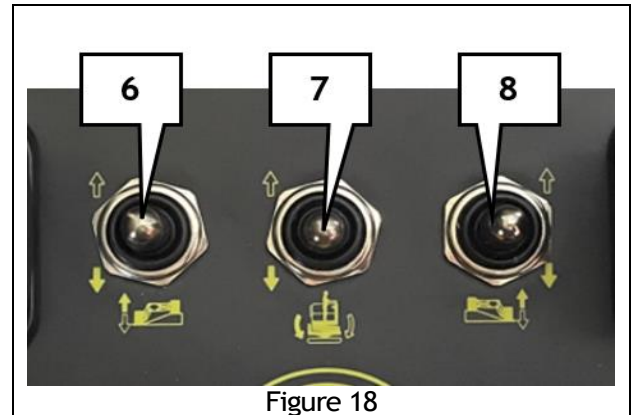
Please note that to enable the controls when the push-button panel is out of its support on the platform, you must press and release the START-ON button (12).

5.1.5.3 Manual levelling.

When the platform is lowered, it is possible to control the manual levelling of the machine by acting on the switches (6) (7) (8).

By combining these commands it is possible to change the levelling and the height from the ground of the machine.

When the platform is raised, the control system automatically levels the machine in advance.



The switch (6) controls the left side levelling; by pulling it back, the left side of the machine lowers; by pushing it forward, it rises;

The switch (8) controls the right side levelling; by pulling it back, the right side of the machine lowers; by pushing it forward, it rises;

The switch 7 controls the longitudinal levelling; pulling it back lowers the rear side (access ladder side); pushing it forward, lowers the front side.

5.1.5.4 Platform handling.

5.1.5.4.1 Platform ascent/descent.

To perform the platform ascent/descent manoeuvre, use the switch (3 for PRiMO version / 4 version for EVO version) by operating it forward to obtain the ascent, or backward to obtain the descent. The control is on-off so it is not possible to modulate the manoeuvring speed that takes place at a fixed speed regulated in the factory.

When the platform is at a height below than the limit of the work diagram in which traction is allowed (see the TECHNICAL DATA chapter), if the platform ascent control is activated when the superstructure is inclined, the control system levels the structure before activating the ascent.

Starting from the elevated platform position at a height at which translation is inhibited, during descent the movement is automatically interrupted for a few moments in the position where it falls within the translation diagram. If the descent control is kept activated, the manoeuvre resumes immediately.

During the descent the movement stops automatically in a position where the vertical distance between the ends of the scissors is greater than 50 mm. In this condition, the flashing lights and the audible warning device (if present - OPTIONAL) warn of the dangerous condition by activating quickly. The operator on the platform must release the descent command, check that there is nothing/no one trapped in the lifting structure, and wait for the horn to turn off (about 3 seconds), then he can resume the descent command which resumes after about 1.5 seconds having activated the command.



Figure 19

During the descent, pay attention to the presence of obstacles below the work platform to avoid overturning or damage to the machine or external structures.

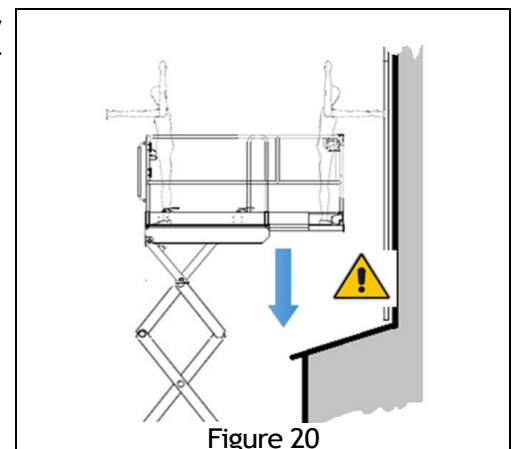


Figure 20

5.1.5.4.2 Manual extension of the platform.

The work platform is equipped with a manually sliding appendage that allows the work platform to be lengthened and operated cantilevered with respect to the basic structure of the machine.

To extend the work platform, it is necessary to:

1. Press the stop pedal (A)
2. Manually push the sliding platform from the railings (B);
3. Make sure the pedal pin is locked inside one of the available seats (C).

To retract the work platform, carry out the operation in the reverse direction.

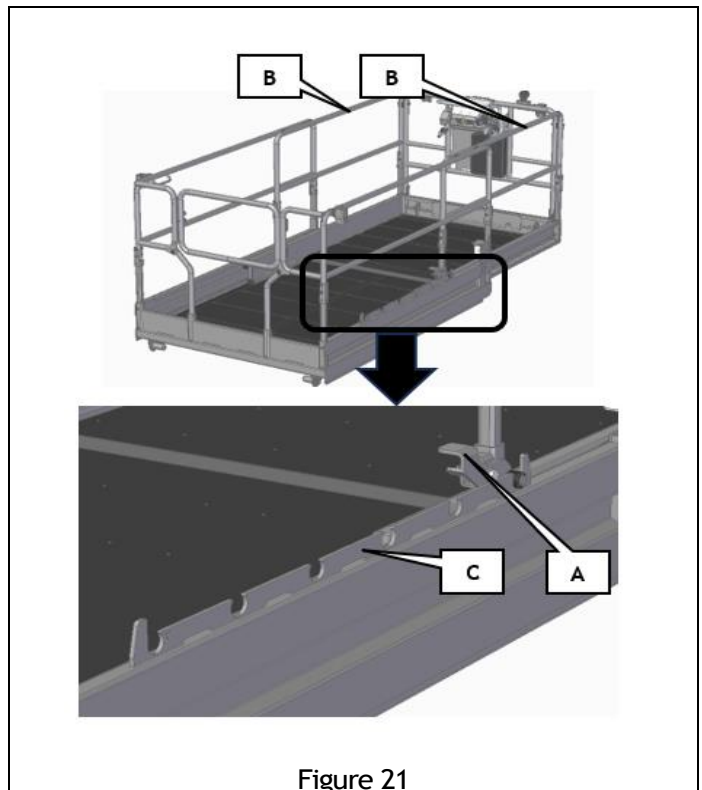


Figure 21

5.1.5.5 Information on the limitations of the controls depending on the inclination of the ground

The following table indicates the permissible limit conditions for the TRACTION and PLATFORM ASCENT controls in combination with DYNAMIC LEVELLING and PROACTIVE LEVELLING, remembering that the descent command is always allowed (except for overload alarm):

FRAME INCLINATION	PLATFORM POSITION (*)	TRACTION	LEVELLING	PLATFORM ASCENT
Any	LOWERED TRAVEL POSITION ACCESS POSITION	Allowed at maximum speed	Manual levelling Dynamic levelling Automatic levelling	Allowed after levelling
$>0.5^{\circ} < 1^{\circ}$	ELEVATED TRAVEL POSITION	Allowed but only at reduced speed	Proactive levelling	Allowed after levelling
$>1^{\circ} < 3^{\circ}$	ELEVATED TRAVEL POSITION	Not allowed	Proactive levelling	Allowed after levelling
$>3^{\circ}$	ELEVATED TRAVEL POSITION	Not allowed	Not allowed	Not allowed
$<0.5^{\circ}$	ELEVATED STATIC POSITION	Not allowed	Not allowed	Allowed
$>0.5^{\circ}$	ELEVATED STATIC POSITION	Not allowed	Not allowed	Not allowed

(*) Definitions:

- **ACCESS POSITION:** is the position where you can enter and exit the platform. The platform is completely lowered;
- **LOWERED TRAVEL POSITION:** the platform is slightly raised, at a height where high traction speed is still available.
- **ELEVATED TRAVEL POSITION:** the platform is raised, beyond the LOWERED TRAVEL POSITION at a height where traction is permitted, at an automatically limited speed.
- **ELEVATED STATIC POSITION:** the platform is raised, beyond the height of the ELEVATED TRAVEL POSITION, to a height where traction is automatically inhibited.

5.1.5.6 Other functions and devices of the control push-button panel.

5.1.5.6.1 Emergency stop.

Pressing the red emergency stop button (10) stops the movements in progress, but the control system remains on. To resume normal functions from the control position on the platform after an operation of the emergency stop button, it is necessary to:

- Rotate clockwise by a quarter of a turn (or by pulling outwards, depending on the type of button) the button itself;
- Wait for the reactivation of the control panel lights on the platform.

5.1.5.6.2 Power selector (only for EVO version)

The selector (18) is not active.

5.1.5.6.3 Motor ON/OFF/PREHEATING selector (only for EVO version)

If the thermal motor is switched off:

- Operate the selector (3) backwards for a few seconds for the preheating of the spark plugs (for Diesel engines equipped with this function);
- Move the selector (3) forward for a few seconds to start the thermal motor.

If the thermal motor is switched on:

- Operate the selector (3) backwards for a few seconds to turn it off.

5.1.5.6.4 HORN button.

The HORN button (11) must be activated when you intend to signal the movement of the machine by alerting personnel potentially within the range of action of the machine.

5.1.5.6.5 LIGHTS button (OPTIONAL).

Optionally, the machine can be equipped with a lighting system that includes platform work lights and headlights to illuminate the traction path on the base chassis.

The LIGHTS button (17) switches the lighting system on or off if the control position on the platform has been selected from the control panel on the ground. If the ground control position is selected, the lighting system turns on automatically, and the button (17) is not active.

5.1.5.6.6 Magnetic key.

The magnetic key (14) is used to activate the push-button panel. Insert the key supplied to activate the keypad. If the key is not inserted, the keypad does not activate.

The key is encrypted, therefore use only the key supplied; it is not possible to activate the keypad with the key of another keypad.

5.1.5.6.7 Control cable connector.

It is possible to disconnect the push-button panel from the control cable for service purposes. To disconnect the push-button panel, grip the coiled cable from the fitting (B) by pressing it against the push-button panel, and at the same time rotate the ferrule (A).

CAUTION: DO not rotate the spiral cable fitting (B) during cable connection/disconnection operations. Risk of damage to the conductors.

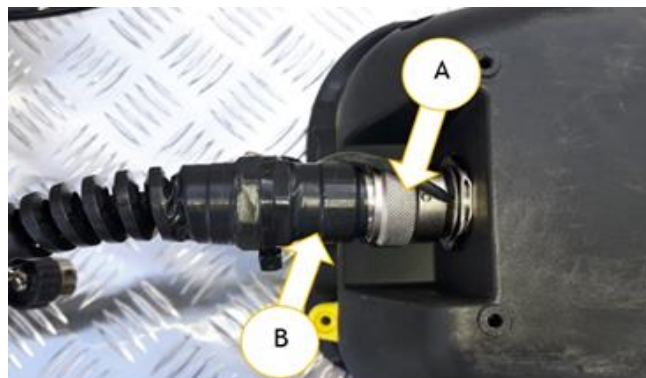


Figure 22

5.1.5.6.8 Service buttons.

The service buttons (16) are necessary for service operations such as, for example, the operation of replacing the tracks described in the MAINTENANCE chapter.

5.1.5.6.9 Led display.

The LED display (15) provides information necessary for the operator during normal use of the machine and information on any errors and/or faults.

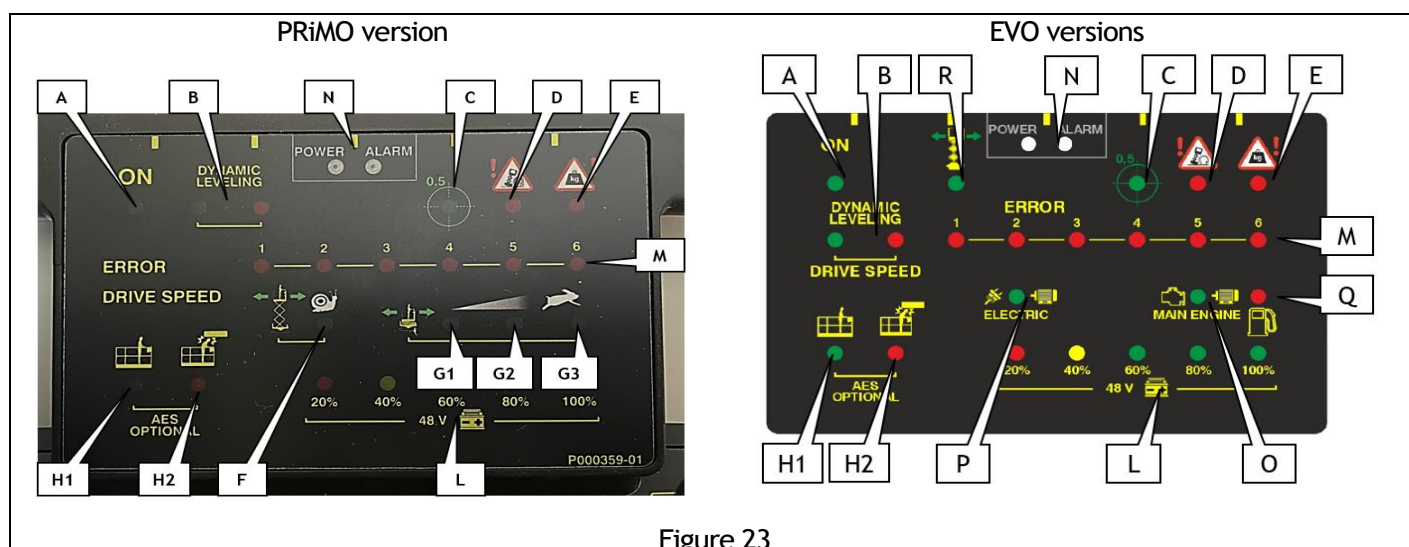


Figure 23

A INDICATOR LIGHT "ON" - see chapter DEAD MAN SYSTEM.

B "DYNAMIC LEVELING" INDICATOR LIGHTS - depends on the DYNAMIC LEVELING selector (9).
GREEN LIGHT OFF, RED LIGHT ON: the DYNAMIC LEVELING selector (9) is in the off position and the self-levelling system is not active during traction with the platform lowered. Or the platform is raised. The red light on indicates that levelling is disabled.

GREEN LIGHT OFF, RED LIGHT FLASHING: the DYNAMIC LEVELING selector (9) is in the ON position and the DRIVING MODE selector is in DC-S mode and the self-levelling system is not active during traction with the platform lowered.

The flashing red light indicates that the machine, despite the DYNAMIC LEVELING selector (9) being in the ON position, has disabled the self-levelling system as a result of operational limitations.

FLASHING GREEN LIGHT, RED LIGHT OFF: the DYNAMIC LEVELING selector (9) is in the ON or OFF position and self-levelling is in progress before the ascent manoeuvre or self-levelling is in progress during traction with PROACTIVE LEVELING function.

The flashing green light indicates that levelling is in progress.

GREEN LIGHT ON, RED LIGHT OFF: the DYNAMIC LEVELING selector (9) is in the ON position and the self-levelling system is active during traction with the platform lowered, if the operating conditions allow it. The travel speed is automatically set to ECO (only for the PRiMO version).

The green light on indicates that levelling is enabled.

C "LEVEL" INDICATOR - depends on the machine inclination control sensor.

GREEN LIGHT ON WITH STEADY LIGHT: the machine is correctly levelled between 0° and 0.5°. If there are no other alarms, and the operating conditions allow it, all the controls are available; see status of the other LEDs.

FLASHING GREEN LIGHT: the machine is tilted between 0.5° and 1°. If there are no other alarms, and the operating conditions allow it, some controls are available after automatic or manual levelling; see status of the other LEDs.

GREEN LIGHT OFF: The machine is tilted beyond 1° with potential danger to stability when the platform is raised. The audible hazard warning and the red INCLINATION ALARM light (D) are also on. The platform must be lowered to reposition the machine in an area where levelling is possible.

D "TILT ALARM" INDICATOR - depends on the machine tilt control sensor.

RED LIGHT OFF: the machine is correctly levelled. If there are no other alarms, and the operating conditions allow it, all the controls are available; see status of the other LEDs.

FLASHING RED LIGHT: the machine is not properly levelled. If there are no other alarms, and the operating conditions allow it, some controls are available after automatic or manual levelling; see status of the other LEDs.

RED LIGHT ON WITH STEADY LIGHT: the platform is raised and the machine is not level with potential danger to stability. The audible warning device is also on, while the "BUBBLE LEVEL" light (C) is off. It is necessary to lower the platform to reposition the machine in an area where it is possible to level.

E "OVERLOAD" indicator light - depends on the platform load monitoring system.

RED LIGHT OFF: the load on the platform is lower than the maximum load. If there are no other alarms, and the operating conditions allow it, all the controls are available; see status of the other LEDs.

RED LIGHT ON: the load on the platform has exceeded the allowed limit. The alarm buzzer is active.

- If the platform is lowered, the ascent of the platform is inhibited;
- If the platform is raised, all movements are inhibited.

F "TRACTION AT HEIGHT" INDICATOR (only for PRiMO version).

GREEN LIGHT ON: the platform is raised, and is located inside the work diagram where traction is allowed. The traction speed is automatically limited. If during traction at height the machine exceeds the permitted inclination limit, but remains within the limits in which levelling is allowed - see lights (C) and (D)- this light remains on but the manoeuvre stops. By activating the traction control again, the machine first activates levelling, and then traction.

GREEN LIGHT OFF:

- The platform is lowered. It is possible to control the traction at the different speeds selectable through the selector (5) (only for PRiMO version).
- The platform is raised and traction at height is inhibited due to the presence of another alarm, or because it is outside the work diagram in which traction at height is allowed (see the TECHNICAL DATA chapter).

G "TRACTION SPEED" LIGHTS with low platform (only for PRiMO version) - depend on the speed selector (5).

GREEN LIGHT G1 ON: the selector (5) is in ECO position.

GREEN LIGHT G1 FLASHING: the selector (5) is in STD or POW position, but the traction speed corresponds to ECHO because the selector (9) is in ON position or because there are operating limitations entered by the telematic control system (MY ALMAC).

GREEN LIGHTS G1+G2 ON: the selector (5) is in the STD position; the selector (9) is in the off position.

GREEN LIGHT G1 ON+G2 FLASHING: the selector (5) is in POW position, but the traction speed corresponds to Std because there are operating limitations entered by the control system.

GREEN LIGHTS G1+G2+G3 ON: the selector (5) is in the POW position; the selector (9) is in the off position.

GREEN LIGHTS G1+G2+G3 OFF: the platform is raised.

H ANTI-ENTRAPMENT SYSTEM "AES" INDICATOR LIGHTS (OPTIONAL).

GREEN LIGHT "H1" AND RED LIGHT "H2" OFF:

- the AES anti-entrapment system (OPTIONAL) is not present, or
- the AES anti-entrapment system is present but the push-button panel is not positioned in its compartment. If the platform is raised, both traction and platform ascent are inhibited; descent is available. If the platform is lowered, the platform ascent is inhibited.

GREEN LIGHT "H1" ON: the ANTI-ENTRAPMENT system is present and:

- If the platform is lowered, the function is not active;
- If the platform is raised, the function is active and if the operator is pressed against the protection roll-bar during a platform ascent command, or traction at height (with or without levelling function), the protection procedure begins (see chapter ANTI-ENTRAPMENT KIT "AES").

GREEN LIGHT "H1" OFF and RED LIGHT "H2" ON: the protection procedure is in progress or the procedure has ended, but the roll-bar is still pressed.

GREEN LIGHT H1 and RED LIGHT H2 FLASHING: the sensor of the ANTI-ENTRAPMENT system is faulty. The protection procedure is active (see chapter ANTI-ENTRAPMENT KIT "AES").

L BATTERY CHARGE LEVEL INDICATOR LIGHTS (active for PRiMO version only).

INDICATION OF CHARGE LEVEL WHILE CHARGING: During charging, the available charge level of the battery is indicated by the lighting of the fixed light LEDs. The other LEDs are flashing.

INDICATION OF CHARGE LEVEL DURING DISCHARGE: During discharge, the available charge level of the battery is indicated by the fixed or flashing light ignition of the LEDs according to the following example:

- All 5 LEDs are on with fixed light: the battery is charged between 90% and 100%;
- The first 4 LEDs are on with a fixed light, the last LED is flashing: the battery is charged between 89% and 81%.
- When the red LED is on with steady light, the full discharge of the battery is about to be reached; the machine is still able to work normally
- When the red LED is flashing, the battery is low: it is no longer possible to control the platform ascent, and the only ECO traction speed is possible. It is necessary to charge the battery immediately.

M "ERROR" LIGHTS.

In normal operation of the machine, all the "ERROR" lights are off.

In the event of a fault or malfunction, the combination of on/off lights provides indications on the type of error, as shown in the table below.

N PUSH-BUTTON PANEL OPERATING STATUS INDICATOR LIGHTS.

"POWER" LIGHT: if this light is off, the push-button panel is not powered. No command is active from the push-button panel on the platform. When the machine is normally switched on and the push-button panel is active, this light is on with flashing light.

"alarm" LIGHT: normally this light is off. When it is switched on with a fixed or flashing light, alone or in combination with the "POWER" light, there is a malfunction of the push-button panel as shown in the table below. Contact technical support.

Note: if the "POWER" light is off, and the "ALARM" light emits a long flashing light, it means that the emergency stop button is pressed or faulty.

O SELECTION OF THE PRIMARY POWER SUPPLY (only for EVO version).

GREEN LIGHT ON: normally this light is on, unless the "preheating glow plugs" function is in progress.

FLASHING GREEN LIGHT: the "preheating glow plugs" function is in progress.

P SELECTION OF SECONDARY/AUXILIARY POWER SUPPLY (only for EVO version). INDICATOR LIGHT NOT ACTIVE.

Q FUEL RESERVE INDICATOR LIGHT (only for EVO version).

RED LIGHT OFF: the fuel level in the tank is higher than the reserve level.

RED LIGHT ON: the fuel level has reached the reserve. After approximately 30 seconds from its switching on, the internal combustion engine switches off automatically and it is necessary to proceed

immediately with refuelling. It is possible to start the engine when the warning light is on, but the engine will switch off after 30 seconds.

R "TRACTION" INDICATOR (only for EVO version).

GREEN LIGHT ON: the platform is lowered. If there are no other alarms, and the operating conditions allow it, all the controls are available; see status of the other LEDs.

FLASHING GREEN LIGHT: the platform is raised, and is located inside the work diagram where traction is allowed. The traction speed is automatically limited. If during traction at height the machine exceeds the permitted inclination limit, but remains within the limits in which levelling is allowed - see lights (C) and (D)- this light keeps flashing but the manoeuvre stops. By activating the traction control again, the machine first activates levelling, and then traction.

GREEN LIGHT OFF: the platform is raised and traction at height is inhibited due to the presence of another alarm, or because the operator is outside the work diagram in which traction at height is allowed (see the TECHNICAL DATA chapter).

5.1.5.6.9.1 "error" indicator lights (M): error table.



Warning: The errors are listed in order of danger; in the event that two errors occur, the one deemed most serious is displayed.

		= LIGHT OFF					
		= FLASHING LIGHT					
		= LIGHT ON					
ERROR TYPE	CODE	FAULT INDICATORS					
		1	2	3	4	5	6
No signal from the push-button panel	10						
Right traction inverter not detected	11						
Left traction inverter not detected	12						
Pump controller not detected	13						
Right traction inverter error	14						
Left traction inverter error	15						
Electric pump error	16						
Battery error	17						
Scissor angle sensor redundancy error	30						
No signal from the scissor angle sensor 1	31						
No signal from the scissor angle sensor 2	32						
Scissor angle sensor offset error	33						
Frame angle sensor redundancy error	40						
No signal from the frame angle sensor 1	41						
No signal from the frame angle sensor 2	42						
Frame angle sensor offset error	43						
Lower frame angle sensor redundancy error	44						
No signal from the angle sensor 1 of the lower frame	45						
No signal from the angle sensor 2 of the lower frame	46						
Lower frame angle sensor offset error	47						
Right connecting rod angle sensor redundancy error	50						
No signal from the right connecting rod angle sensor 1	51						
No signal from the right connecting rod angle sensor 2	52						
Right connecting rod angle sensor offset error	53						
Pressure transducer redundancy error	70						
No signal from the pressure transducer 1	71						
No signal from the pressure transducer 2	72						
No signal from the pressure transducer 3	73						
No signal from the pressure transducer 4	74						
Excessive pressure detected by pressure transducer 1	75						
Excessive pressure detected by pressure transducer 2	76						

Excessive pressure detected by pressure transducer 3	77	●	○	●	●	○	●
Excessive pressure detected by pressure transducer 4	78	●	●	●	●	○	●
Left connecting rod angle sensor redundancy error	80	○	●	●	●	○	●
No signal from the left connecting rod angle sensor 1	81	○	●	●	●	●	●
No signal from the left connecting rod angle sensor 2	82	○	○	●	●	●	●
Left connecting rod angle sensor offset error	83	●	●	●	○	○	●
BMS not detected	100	○	○	○	○	●	●
BMS Overload Alarm	101	○	○	○	●	○	○
Low engine oil pressure	110	●	○	○	●	○	●
High radiator coolant temperature	111	●	○	○	●	●	○
Alternator not connected	112	●	○	○	○	●	●
Platform upward movement detected without selecting the command	115	●	○	○	●	●	●
Pressure difference between high lift cylinders	116	○	○	○	●	○	○
Lift cylinders pressure equalisation procedure error	117	●	○	○	○	○	○
Short circuit contactor X	120	○	○	○	●	○	●
Short circuit contactor Y	121	○	○	○	●	●	○
Short circuit contactor Z	122	○	○	○	●	●	●
AES microswitch electrical error (Anti-Entrapment)	135	●	○	●	●	○	○
AES microswitch disconnected (Anti-Entrapment)	136	●	●	○	○	○	●
Control unit under the platform not detected	170	○	○	○	●	●	○
Anti-collision sensor 1 disconnected	171	○	○	●	○	○	●
Anti-collision sensor 2 disconnected	172	○	○	●	○	●	○
Anti-collision sensor 3 disconnected	173	○	○	●	○	●	●
Anti-collision sensor 4 disconnected	174	○	○	●	●	○	○
Left traction distributor not detected	200	⚙	○	○	○	○	○
Inconsistent feedback right traction distributor	201	⚙	●	○	○	○	○
Minimum speed too high right traction distributor	202	⚙	⚙	○	○	○	○
Right traction distributor blocked shuttle	203	⚙	○	●	○	○	○
Incorrect position of the right traction distributor shuttle	204	⚙	●	●	○	○	○
Right traction distributor error	205	⚙	⚙	●	○	○	○
Left traction distributor not detected	206	⚙	○	⚙	○	○	○
Inconsistent feedback of left traction distributor	207	⚙	●	⚙	○	○	○
Minimum speed too high of left traction distributor	208	⚙	⚙	⚙	○	○	○
Left traction distributor blocked shuttle	209	⚙	○	○	●	○	○
Incorrect position of left traction distributor spool	210	⚙	●	○	●	○	○
Left traction distributor error	211	⚙	⚙	○	●	○	○
Machine not detected	212	⚙	○	●	●	○	○
		1	2	3	4	5	6

5.1.5.6.9.2 Indicators (N) "PUSH-BUTTON PANEL OPERATING STATUS": error table.

The following table shows malfunctions of the push-button panel in the platform.

Signalling	Possible cause	Solution
POWER light: off.	The machine is switched off or it is not possible to power the push-button panel.	Switch off the machine, and turn on again after 5 minutes: the self-restoring fuse may have temporarily interrupted the power supply.
ALARM light: fixed on. POWER light: double flashing.	Error in the push-button panel memory card.	Contact the SERVICE.
The push-button panel is enabled. ALARM light (a): one long flash (b). POWER light: off.	The emergency stop button is pressed.	Unlock the emergency stop button
The push-button panel is enabled. ALARM light (a): four long flashes (b). POWER light: off.	A SAFETY command has been activated.	Return the unstable controls to the neutral position.
The push-button panel is enabled. ALARM light (a): 1 to 4 long flashes and a few short flashes (b). POWER light: ON.	At least one of the controls on the push-button panel is not in the NEUTRAL position.	Return the unstable controls to the neutral position. To identify which command is activated, consult the following table.

- (a) Always, when the ALARM light is on, the buzzer of the push-button panel is active;
(b) Press the START-ON button and keep it pressed until the push-button panel turns off.

The table below identifies the commands activated during the button panel power-up procedure and which generate an error.

POWER light	ALARM light			Active command
	Long flashes	Short flashes		
		PRiMO	EVO	
ON	1	2	19	Work lights button
ON	1	3	3	Horn button
ON	1	4	4	Platform up
ON	1	5	5	Platform descent
ON	1	11	11	Left levelling UP
ON	1	12	12	Left levelling DOWN
ON	1	13	13	Levelling FORWARD
ON	1	14	14	Levelling BACKWARDS
ON	1	15	15	Right levelling UP
ON	1	16	16	Right levelling DOWN
ON	2	5	5	Left traction control lever - analog
ON	2	6	6	Right traction control lever - analog
ON	3	5	5	Left traction control lever - FORWARD
ON	3	6	6	Right traction control lever - FORWARD
ON	4	5	5	Left traction control lever - BACK
ON	4	6	6	Right traction control lever - BACK
ON	1	/	2	Power selector button

5.1.6 Anti operator entrapment kit "AES" (OPTIONAL).

As an option, a sensor bar (A) can be installed at the platform control station as shown in the figure to reduce the dangers arising from operator entrapment during work from the platform control station while operating at height.

The system is not active:

- When the platform is low (ACCESS POSITION and LOWERED TRAVEL POSITION)
- If the push-button panel is not correctly inserted in its compartment.

When the system is not active, the H1 and H2 lights are off. If the platform is raised, both traction and platform ascent are inhibited; descent is available. If the platform is lowered, the platform ascent is inhibited.

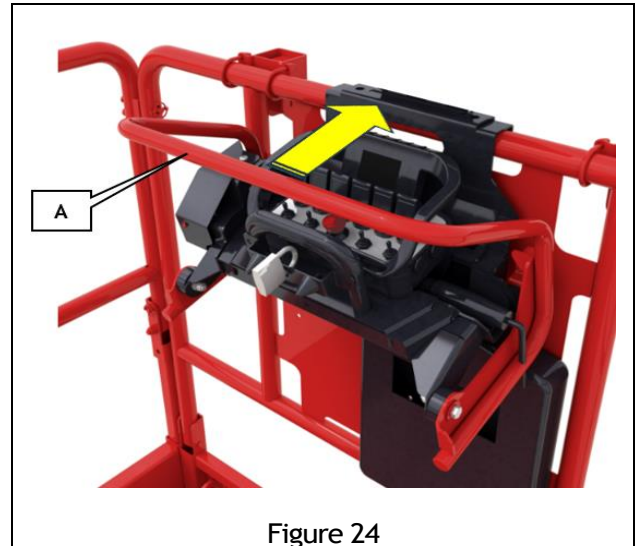


Figure 24

If during a movement the operator is pressed against the protection roll-bar due to an obstacle at height, the manoeuvre that was being operated automatically stops and the protection procedure is activated:

- The discontinuous sound warning buzzer is activated (it is also possible to request, as an option, the activation of the horn);
- The "H2" light comes on (it remains on until the bar is released);
- The descent of the platform for about 300 mm is activated;

After activating the anti-entrapment function, the controls are not active (the green LED ON is flashing). To resume operating with the commands on the platform, the bar must be released and the consent system must be reactivated.



Warning: the description does not represent a safety device, but an aid to the operator with the intention of reducing the risk of entrapment of the operator at the controls of the machine. It remains the responsibility of the operator to monitor the surrounding environment by operating with the machine.

5.1.7 Anti-collision kit (OPTIONAL).

Optionally, a collision protection kit can be installed to reduce the risk of collision with obstacles at height, through the presence of one or more sensors (depending on the option chosen by the customer: BASIC or ADVANCED) installed on the handrail of the work platform.

This accessory, adjusted at the factory, detects obstacles at a vertical distance of less than 1.5 m from the handrail and warns the operator of the danger of crushing by means of an appropriate warning on the control panel in addition to inhibiting the control active at that time. The descent manoeuvre is always allowed.

For this optional kit there is a specific instruction manual to refer to.

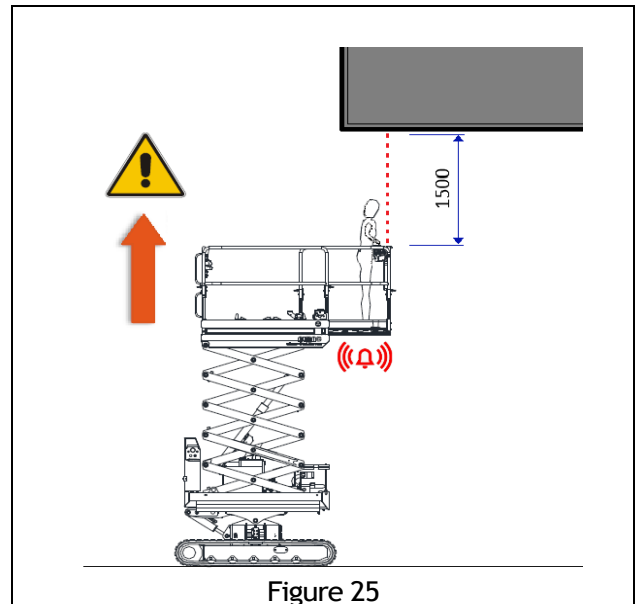


Figure 25



Attention: what is described does not represent a safety device but an aid to the operator with the aim of reducing the risk of crushing. It remains the responsibility of the operator to monitor the surrounding environment by operating with the machine.

5.1.8 Platform power line.

To allow the operator to use work tools powered by the single-phase mains voltage (110V or 230V), the machine is equipped with a power socket on the platform (B).

To activate the power line, insert into the plug (A) a cable connected to the mains (110V or 230V depending on the destination market of the machine), equipped with all the protections according to the current provisions on the subject. Access the life-saving switch (D) by opening the left door (C) and turn it to the ON position.

Before operating, it is necessary to check the life saver using the appropriate TEST button.

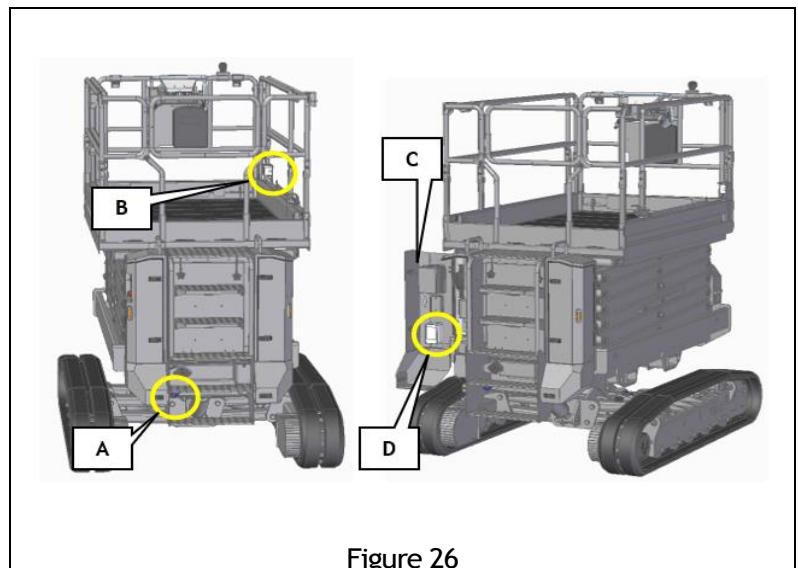


Figure 26



Connect to a power grid that has the following characteristics:

- Supply voltage 110-230V $\pm 10\%$;
- Frequency 50÷60 Hz;
- Connected and efficient earthing line;
- Do not use extensions beyond 5 m to connect to the mains;
- Use a cable of the appropriate section (min. $3 \times 2.5 \text{ mm}^2$);
- Do not use coiled cables

5.2 Control point on the ground.

The ground control position is located on the base wagon and has the function of:

- Switching the machine on and off;
- Selecting the enabled control position (on the ground or on the platform);
- Move the extendible structure to return the platform to the ground in case of emergency or for maintenance operations. The ground control position is available if it is activated when the emergency stop button has been previously pressed on the platform, in order to prioritize the emergency recovery of the platform. By reactivating and pressing the platform stop button again, while the machine is being controlled from the ground, the movements stop again.



Warning: It is forbidden to operate from the ground controls in normal working conditions with personnel on board the platform. The ground control point is used exclusively for emergency recovery operations, for maintenance, or during trade fairs or exhibitions (without operators on the platform).

The main key must always be available to the recovery operator who remains on the ground during normal use of the machine, ready to intervene in the event of an emergency.

At the end of the work, turn the machine off by turning the main key to the "OFF" position and remove the key itself in order to avoid the unauthorised use of the machine.

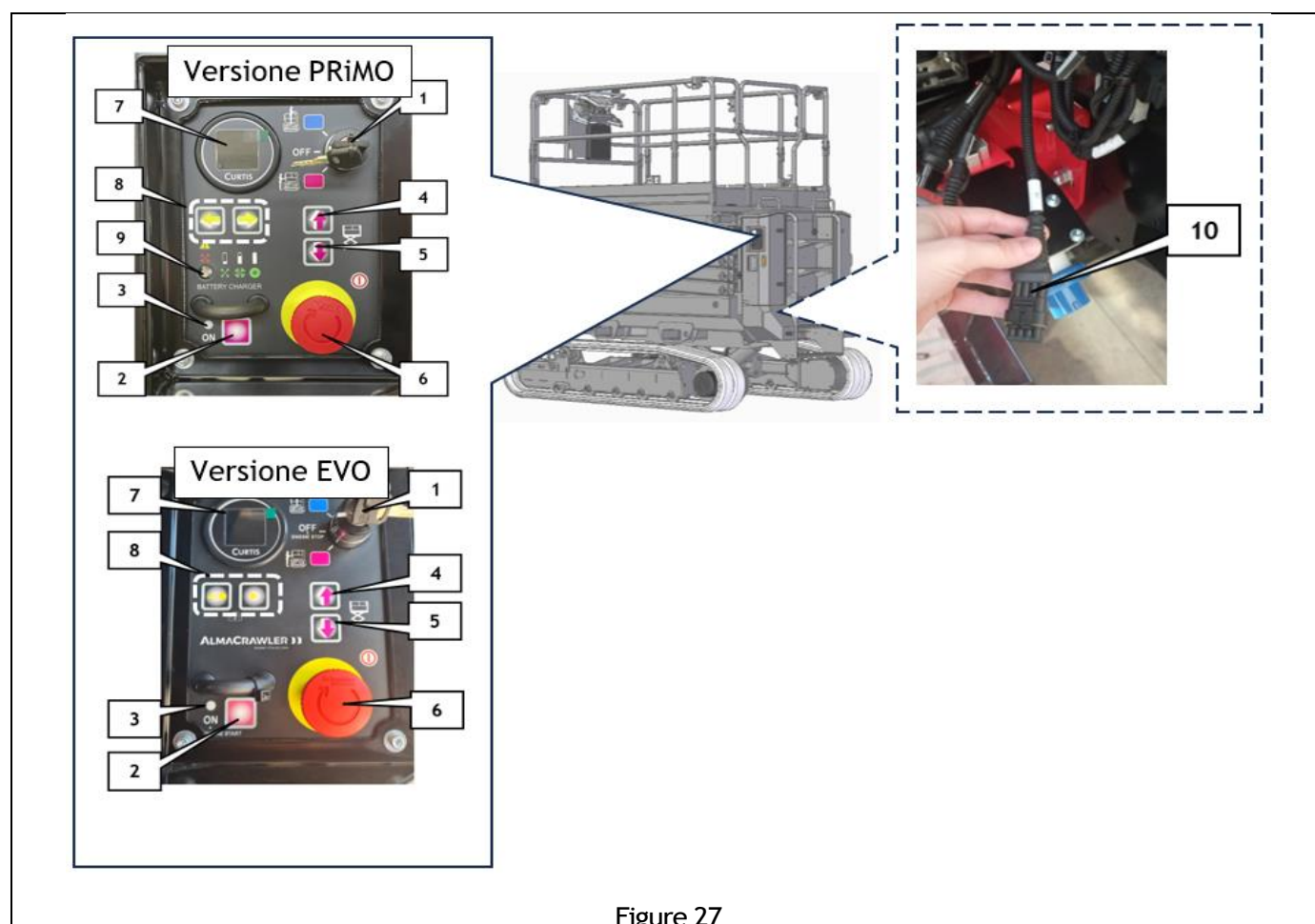


Figure 27

1. MAIN KEY SWITCH/CONTROL STATION SELECTOR + "ENGINE STOP" (only for EVO version)
2. CONTROLS ENABLE BUTTON "ON" - "ENGINE START+ON" HEAT ENGINE (only for Evo version)
3. GREEN LIGHT SIGNALLING CONTROLS ENABLED
4. PLATFORM ASCENT BUTTON
5. PLATFORM DOWN BUTTON
6. EMERGENCY STOP BUTTON
7. CIRCULAR DISPLAY
8. DISPLAY BUTTONS
9. CHARGER LIGHT (OPTIONAL) (only for PRiMO version)
10. "X6" PROGRAMMING AND DIAGNOSTICS CONNECTOR

5.2.1 Main key switch/control statopm selector + "ENGINE STOP" (only for EVO version).

The main key of the ground control point is used to:

- Switch on the machine by selecting one of the two control stations:
 - Control point on the platform with key rotated on the BLUE box. Stable position with the option of removing the key (for machines put into service outside Europe, the key may not be removable in this position);
 - Control point on the ground with key turned on the PURPLE box. Stable position with non-removable key.
- Switch off the control circuits (and the heat engine on the EVO version) by turning the key to the "OFF" position. Stable position with the possibility of extracting the key.



Warning: The main key must always be available to the recovery operator who remains on the ground during normal use of the machine, ready to intervene in the event of an emergency.

At the end of the work, turn the machine off by turning the main key to the "OFF" position and remove the key itself in order to avoid the unauthorised use of the machine.

5.2.2 Commands enable button "ON" and commands enabled green indicator light. ENGINE START button (only for EVO version)

when the machine is switched on, if the ground control station has been selected, after releasing the EMERGENCY STOP button (6) by turning it clockwise, the green LED (3) is flashing. The flashing of the green LED (3) indicates that the controls are not enabled.

- PRiMO version: To make the commands available, they must be enabled by first pressing the ON button (2) and keeping it pressed while pressing one of the command buttons described below.
- EVO version:
 - Press the ENGINE START+ON button (2) to start the combustion engine. Once the engine is running, to make the controls available, enable them by previously pressing the ENGINE START+ON button (2) and holding it down while pressing one of the control buttons described below.
 - if the diesel engine is switched off, by pressing the ENGINE START+ON button (2) and immediately the descent button, the descent of the platform with the engine switched off is obtained.

If the "ON" button is released, the movement active at that time stops. To restart operating the machine, it is necessary to press the "ON" button again before operating a control button.

5.2.3 Emergency stop button.

Press the button (6) to completely switch off the machine. To resume normal operation of the machine - depending on the position of the key selector - it is necessary to turn the button one-quarter of a turn clockwise so that the button is completely extracted.

5.2.4 PLATFORMUP/DOWN buttons .

To control the ascent/descent of the platform from the ground control position, press the "ON" enable button (2) and, at the same time, the button (4) for the ascent or the button (5) for the descent.

5.2.5 Circular display.

The circular display (7) represents the human-machine interface and contains the following indications:

- a. Percentage value of the battery's residual state of charge;
- b. Machine alarms (OVERLOAD, EXCESSIVE INCLINATION);
- c. Control device error messages;
- d. Hours of work.

By means of the button (8 A) it is possible to change the message page; by means of the button (8 B) it is possible to return to the main page.

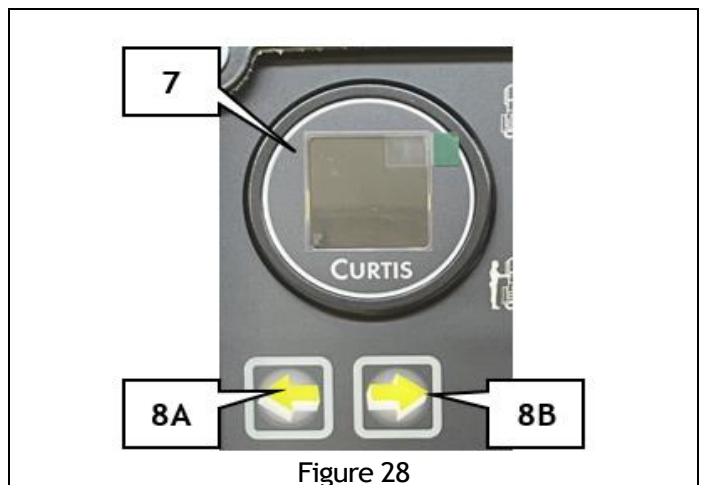


Figure 28

5.2.5.1 Main error messages.

Any error messages are displayed in the circular display as shown to the side.

On the LED display of the push-button panel on the platform, the errors present are shown by coming on of the red error lights described in the LED DISPLAY chapter. Refer to the relevant chapter to view the list of possible errors.

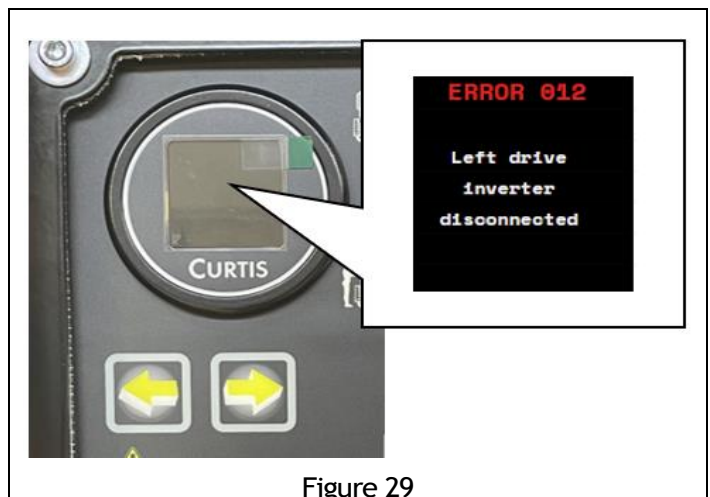


Figure 29

5.2.6 CHARGER light (OPTIONAL- only for PRiMO version).

As standard, the charger light is positioned on the battery compartment (see chapter RECHARGING THE BATTERY) next to the electrical connection plug.

Optionally, at the customer's request, it is possible to place the CHARGER light (9) on the ground control panel. This light is active when the charger is powered. The indicator indicates the progress of the charging as follows:

- Fast flashing GREEN light: start of battery charging;
- Slow flashing GREEN light: final phase of battery charging;
- Fixed GREEN On: Battery charging is complete.
- RED light: error during the charging phase.

See also chapter RECHARGING THE BATTERY.

5.2.7 Motion and alarm buzzer.

The warning buzzer integrated in the ground control position:

- It is lit with discontinuous sound with slow frequency during the movements of the machine:
 - Standard function: the warning device is active during the travel commands;
 - Optional function 1: the indicator is active during the platform translation and descent commands;
 - Optional function 2: the indicator is active during all machine controls.
- During descent of the platform, the warning buzzer is activated when the manoeuvre stops automatically as an anti-shear function.
- Continuous sound is on to signal an alarm condition (for alarm signals check the LED DISPLAY and CIRCULAR DISPLAY chapters).

5.2.8 Programming and diagnostics connector.

By means of the connector (10), a PC or diagnostic tool can be connected to query and calibrate the control system. It is reserved for the Technical Service.

5.3 Access to the platform.

The access position (fully lowered platform) is the only position where people and materials are allowed to board and disembark from the platform.

Procedure to access the platform:

- Climb the ladder (A) holding on to the gripping points (B);
- Unlock the gate lock (C) by pushing the lever (D) and open the gate (C) inwards;
- The gate (C) closes and locks automatically. Check the actual closing of the gate;
- Attach the safety harness to the hooks on the platform.

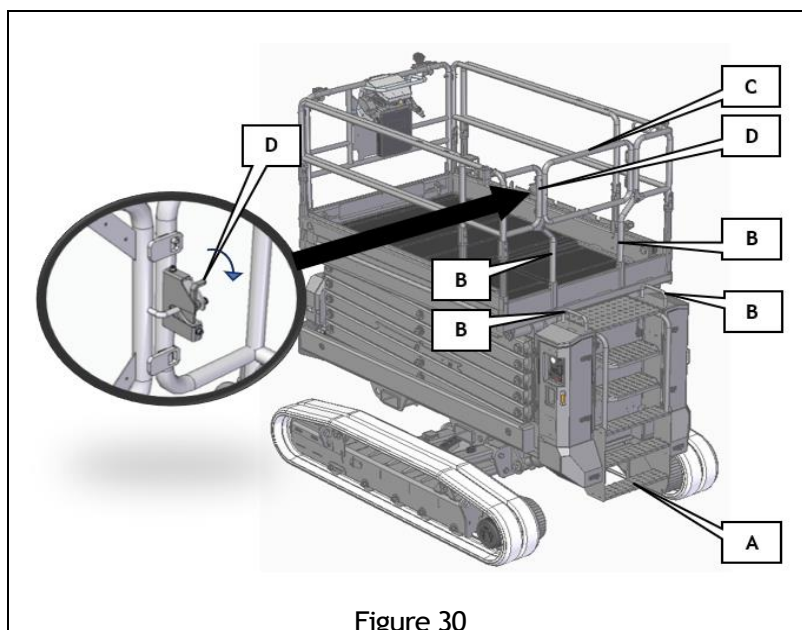


Figure 30



Attention: Get into/out of the basket with your eyes always facing the machine.

It is **FORBIDDEN** to lock the gate so as to keep access to the platform open. Correct use of the machine requires that the gate is locked. It is absolutely forbidden to work at height with an open gate.

It **IS FORBIDDEN** to leave or access the work platform if it is not in the access position.

5.3.1 Access to the platform with EASY ACCESS function.

To facilitate access to the platform, you can activate the EASY ACCESS function as follows:

- With the platform fully lowered, with the consent of the controls, operate the platform descent control (A) twice, keeping the switch activated;
- The machine widens the tracks and leans down at the rear to lower the access ladder.

The EASY ACCESS function stops automatically when the machine reaches the factory-defined inclination, or by releasing the descent command (A).

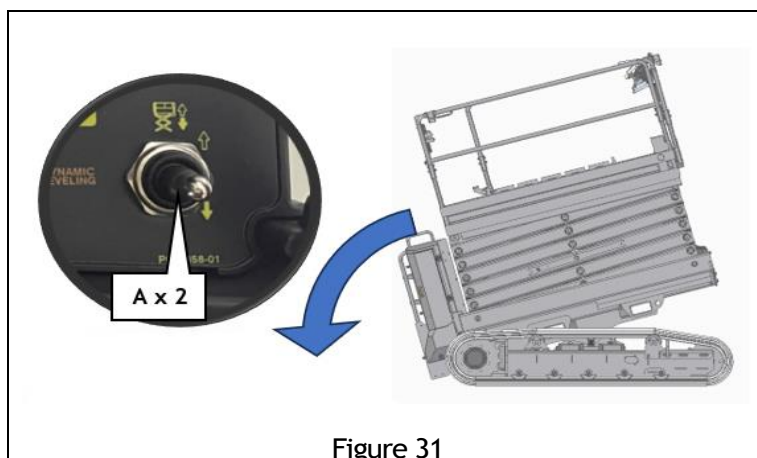


Figure 31

5.4 Machine start-up.

To start the machine the operator must:

- Unlock the emergency stop button (2) of the ground control position, turning it clockwise by a quarter of a turn;
- Turn the key selector (1) of the ground control point to the position represented by the blue box (platform controls);
- Remove the ignition key and hand it to a responsible person trained in the use of emergency recovery controls who remains on the ground (for machines in AUSTRALIA and NEW ZEALAND the key remains in the selector because it cannot be removed);
- Enter the platform and attach the safety harness to the anchor points;
- On the platform push-button panel, release the emergency stop button (3) by turning it clockwise by a quarter of a turn;
- Press the START-ON button (4) to operate the push-button panel.

It is now possible to operate the machine according to the instructions in the previous chapters.

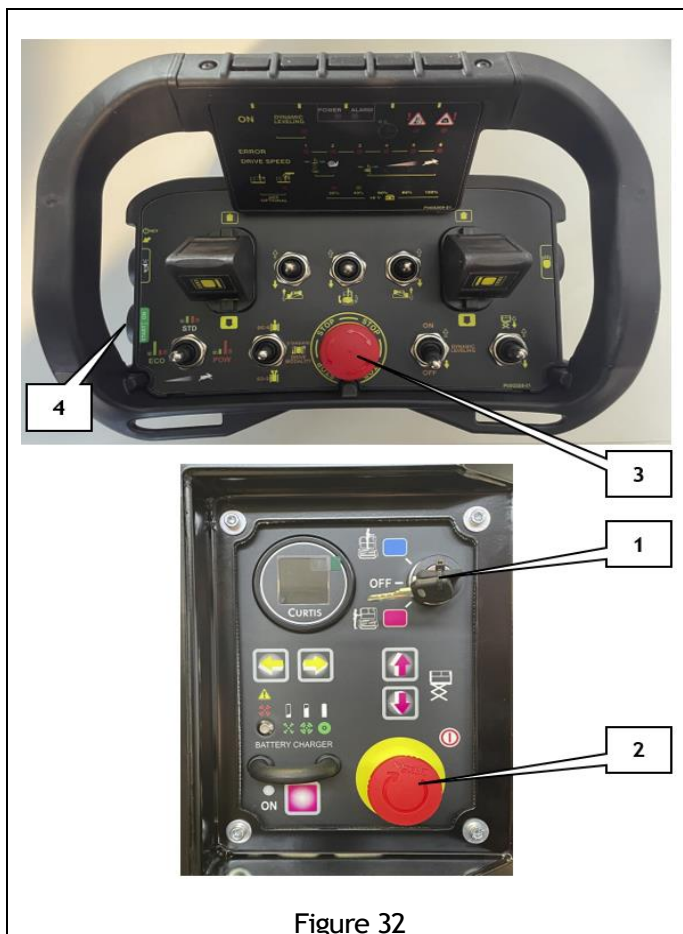


Figure 32

5.5 Stopping the machine.

5.5.1 Normal shutdown.

During normal use of the machine, releasing the joysticks and switches stops the relative command.

5.5.2 Emergency stop.

If necessary, the operator can control the emergency shutdown of the machine both from the control push-button panel on the platform and from the ground control point by pressing one of the red emergency buttons present (see image to the side).

Reactivating an emergency stop after operating it, to resume working with the machine, repeat the commands described in the MACHINE START-UP chapter.

NOTE: by pressing the emergency stop button on the platform, the movements are stopped and the push-button panel is deactivated; the ground control station remains operational if selected with the main key switch when the emergency stop on the platform has already been activated.

The platform stop button is only available if the pushbutton panel has been previously activated (by pressing the START-ON button).



Figure 33

5.6 End of work.

Once use of the machine is completed or if the machine is left unattended for significant periods (long work breaks, lunch break, end of the working day) after stopping the machine according to the instructions in the previous paragraphs:

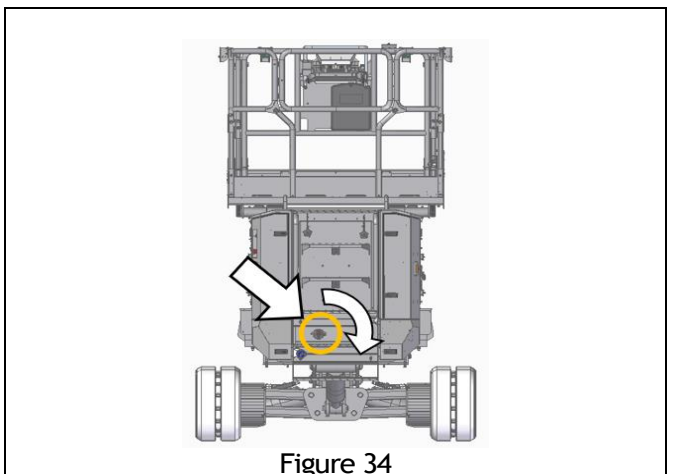


Figure 34

- Always bring the platform to access conditions (completely lowered);
- Press the stop buttons of the control panel on the platform and on the control seat on the ground;
- Turn the main key to the OFF position and remove the key to prevent unauthorised persons from using the machine;

- Disconnect the starter battery by turning the power switch shown in the image clockwise;
- Refuel or recharge the battery depending on the type of machine.

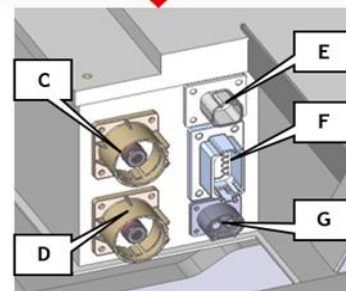
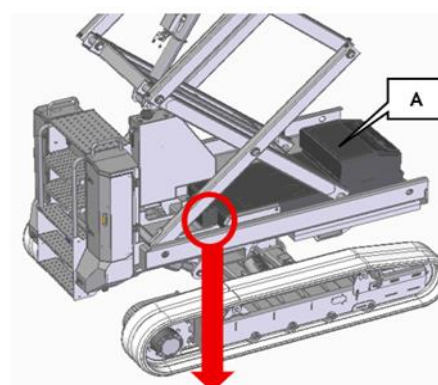
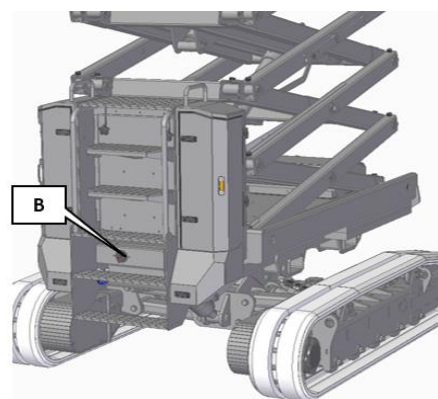
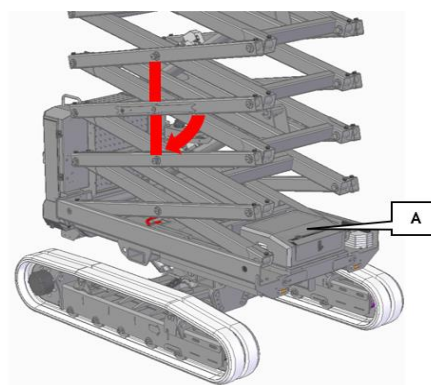


It is the responsibility of the operator to park the machine in a safe and secure place against unauthorised use, leaving the machine completely switched off and removing the main key.

5.7 Quick replacement of the Battery Pack (only for PRiMO version).

The battery pack (A) can be easily replaced to increase the working autonomy of the machine. To remove the battery pack (A):

1. Level the machine by lifting the platform, then lock the scissor structure with two safety stops (one on each side of the machine);
2. Switch off the machine and disconnect the battery by turning the power switch (B) to the vertical position (off);
3. Disconnect the power connectors (C, D) by pressing the release lever and pulling towards the inside of the machine;
4. Disconnect the control (E-F) and grounding (G) connectors by pressing the release lever and pulling towards the inside of the machine;



5. Unscrew completely and remove the two fixing screws (H);
6. Using a forklift truck, fork the battery (A) slowly advancing with the forklift truck until it reaches the bottom of the chocks (I);
7. Lift the battery a few millimetres while keeping it parallel to the support guides, then back up with the forklift to complete the battery removal.

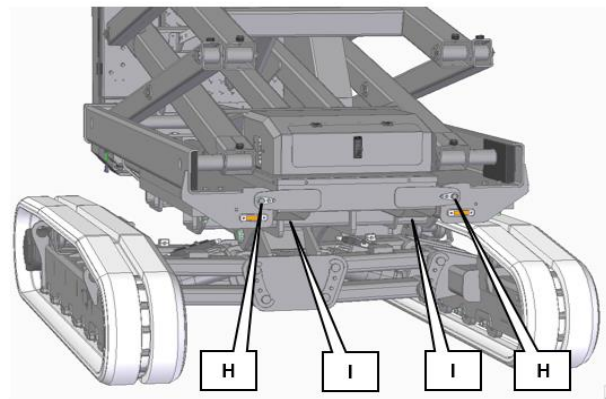


Figure 35

To install the new battery, perform the operations described above, reversing the sequence paying attention to resting the battery on the support runners correctly fit the battery guides.



If the complete view of the operating field is not guaranteed by the forklift, a person on the ground must collaborate with the forklift and suggest the correct operations to be carried out.

It is the responsibility of the operator to correctly carry out the battery replacement operation respecting the operations described to avoid damaging the battery and/or the machine.

The battery removed from the machine must be charged following the instructions in the MAINTENANCE chapter.

Make sure you have connected all the connectors to the end before resuming operation with the machine.

The machine is able to install all the batteries provided by the manufacturer, keeping the flow characteristics and working diagrams unchanged.

5.8 Level and refuelling (EVO version only)

Refuel only when the engine is off and cold.

Never fill up near a heat or flame source, do not smoke.

Only use uncontaminated fuel and clean containers.

Do not disperse fuel.

Always use a filter when refuelling, as dirt and sand can cause serious damage to the motor's fuel system.

Do not overfill the tank to prevent fuel from escaping from the filler cap when operating on inclined terrain.

Always clean surfaces after refuelling.



For DIESEL engines:

- The minimum recommended cetane number of the fuel is 45. It is preferable to have a cetane number greater than 50, especially for ambient temperatures below -20°C or for altitudes above 1,500 m.
- The specific type of diesel fuel and sulphur content in % (ppm) must comply with the applicable emission standards for the area in which the engine is being operated. Use very low sulphur fuel, but in any case comply with the emission standards applicable to the area where the engine is put into operation. Fuels with an EN590 or ASTM D975 specification are recommended.
- For more information, consult the use and maintenance manual of the engine.

Check the fuel level through the visual indicator (A).

To refuel, open the hatch (B) to access the tank cap (C) through which to refuel.

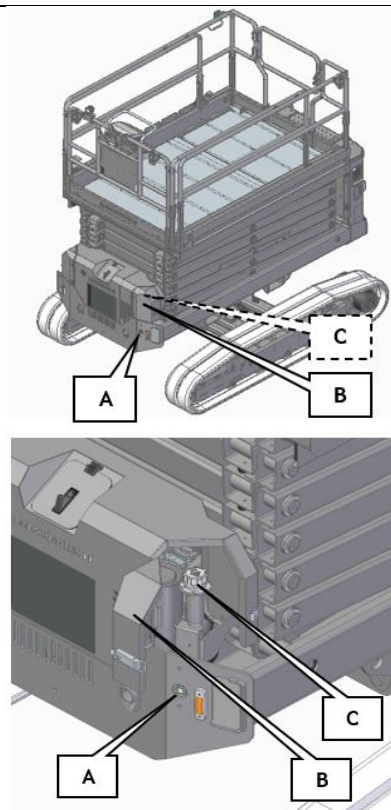


Figure 36

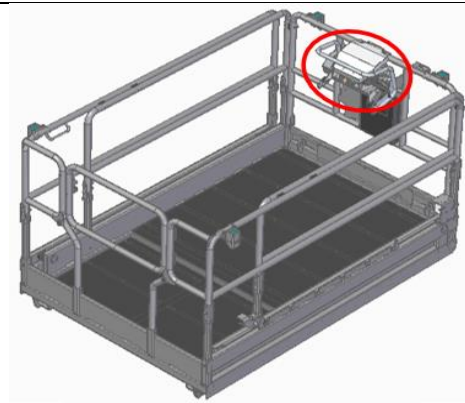
6 LOADING AND TRANSPORTATION.

Before transporting the machine between different workplaces with a means of transport, it is necessary to ascertain the limits of space and transportable weight on the basis of the road traffic regulations in force. To reduce the transport size of the machine, or to pass through lowered areas with the machine, it is possible to fold the railings as explained below. For special needs, it is possible to further reduce the height of the machine by completely disassembling the railings.

For transport dimensions with folded or disassembled railings, refer to the working diagrams in the TECHNICAL DATA chapter.

6.1 Reduction of the transport height by folding the railings.

1. If the machine is equipped with the "AES" anti-entrapment system, before folding the railings, remove the push-button panel and its support by unscrewing it from the front railing to avoid damage.
Otherwise, it is possible to fold the railings without removing the push-button panel support, but the push-button panel must be removed.



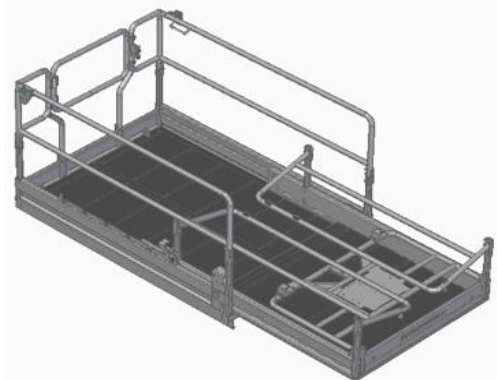
2. Position yourself on the platform safely, extend the extendible platform, then unlock the front parapet fixings (see specific instruction below) and fold the railing towards the inside of the platform.



3. Unlock the fixings of the right side parapet of the extendible platform and fold the railing towards the inside of the platform.



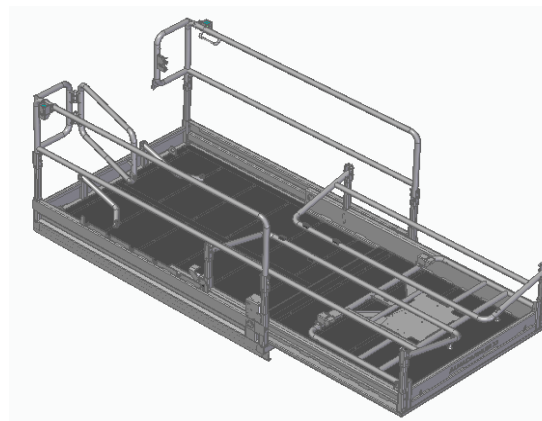
4. Unlock the fixings of the left side railing of the extendible platform and fold the railing towards the inside of the platform. Exit the platform.



5. Open the entrance gate.



6. Unlock the fixings of the entrance posts and fold them towards the inside of the platform.



7. Unlock the fixings of the right side railing of the fixed platform and fold the railing towards the inside of the platform.



8. Unlock the fixings of the left side railing of the fixed platform and fold the railing towards the inside of the platform.

9. Return the sliding platform paying attention to any interference between the folded railings, then lock it in place with the stop pedal in position "T".

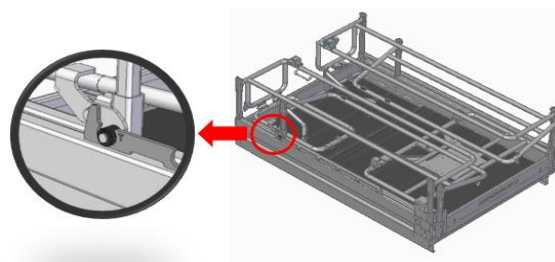
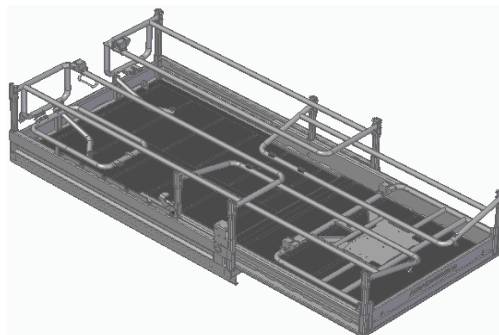
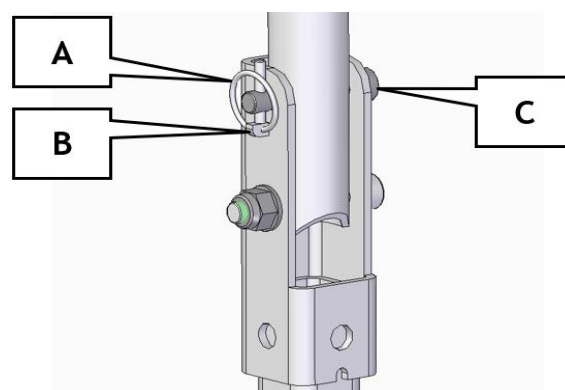


Figure 37

HOW TO UNLOCK THE RAILINGS.

To unlock the railings:

1. Turn the lock (A) of the locking plug (B) then remove the plug from the pin (C);
2. Remove the pin (C);
3. Once the railing has been freed, it can be folded back towards the inside of the platform. Folding out is impossible.



HOW TO UNLOCK THE ENTRY POSTS

To unlock the entrance posts:

1. Unscrew the knob (A);
2. Fold the columns towards the inside of the platform. Folding out is impossible.

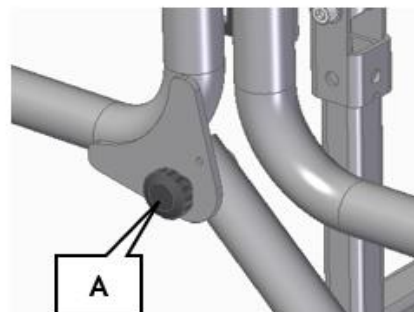


Figure 38



The operations described above only serve to reduce the height of the closed machine to facilitate transport and passage through areas of limited height.

It is **FORBIDDEN** to lift the platform with personnel on board if the railings are not present or with folded and/or unlocked railings.

It is the responsibility of the operator to always check, before using the machine, the correct installation and locked position of the railings.

6.2 Loading using ramp.

It is possible to load the machine on the platform of the means of transport by means of loading ramps (of appropriate slope, and adequate capacity - see the TECHNICAL DATA Chapter), using the normal translation commands and driving the machine from the control station to the platform.

When the ramps are particularly steep, it is advisable to remove the push-button panel from the control point on the platform and operate the machine on foot, placing yourself in a safe condition with respect to a possible overturning of the machine and paying attention to the moment of change of gradient, appropriately reducing the speed in order to minimise the oscillations of the machine.



During loading and unloading operations:

- Always prepare the machine on the maximum carriageway for maximum stability;
- Do not try to load/unload the machine when it is out of TRANSPORTATION conditions (see instructions on the control push-button panel).
- Remain at a safe distance from the machine using the length of the spiral control cable.
- Drive the machine at a particularly low speed, also using the controls that allow straight running and low speed (DC-S + ECO mode (only for PRiMO version)); see chapter describing the controls).

6.3 Loading with forklift truck.

It is possible to load the machine on the platform of the means of transport using a forklift of appropriate capacity (see the weight of the machine in the TECHNICAL DATA chapter) and with an adequate length of the forks, forking the machine at the points indicated by the adhesive plates placed on the machine and represented next to it.

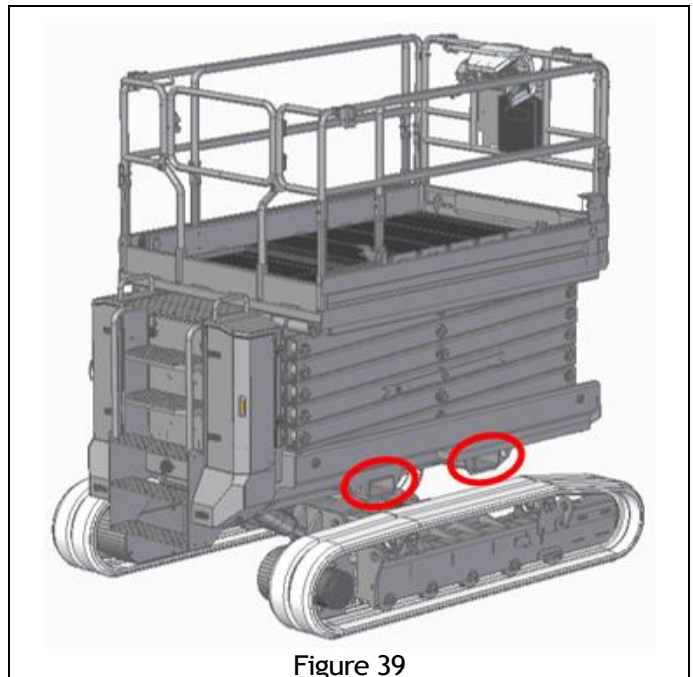


Figure 39

6.4 Loading with crane.

It is possible to load the machine on the platform of the means of transport using a crane. By means of four lifting straps of appropriate length and capacity (see the weight of the machine in the TECHNICAL DATA chapter), hooking up to the lifting points indicated by the adhesive plates placed on the machine and represented next to it.

To avoid damaging the machine, it is necessary to use sufficiently long bands.

Do not use chains for lifting the machine.

Take into account the position of the centre of gravity as indicated below.

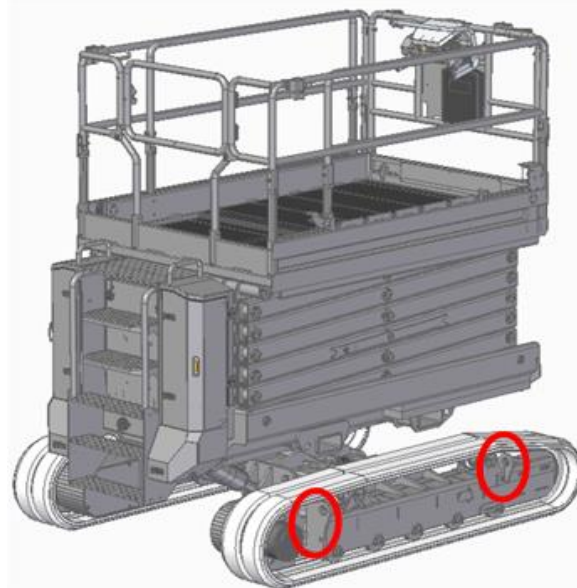


Figure 40

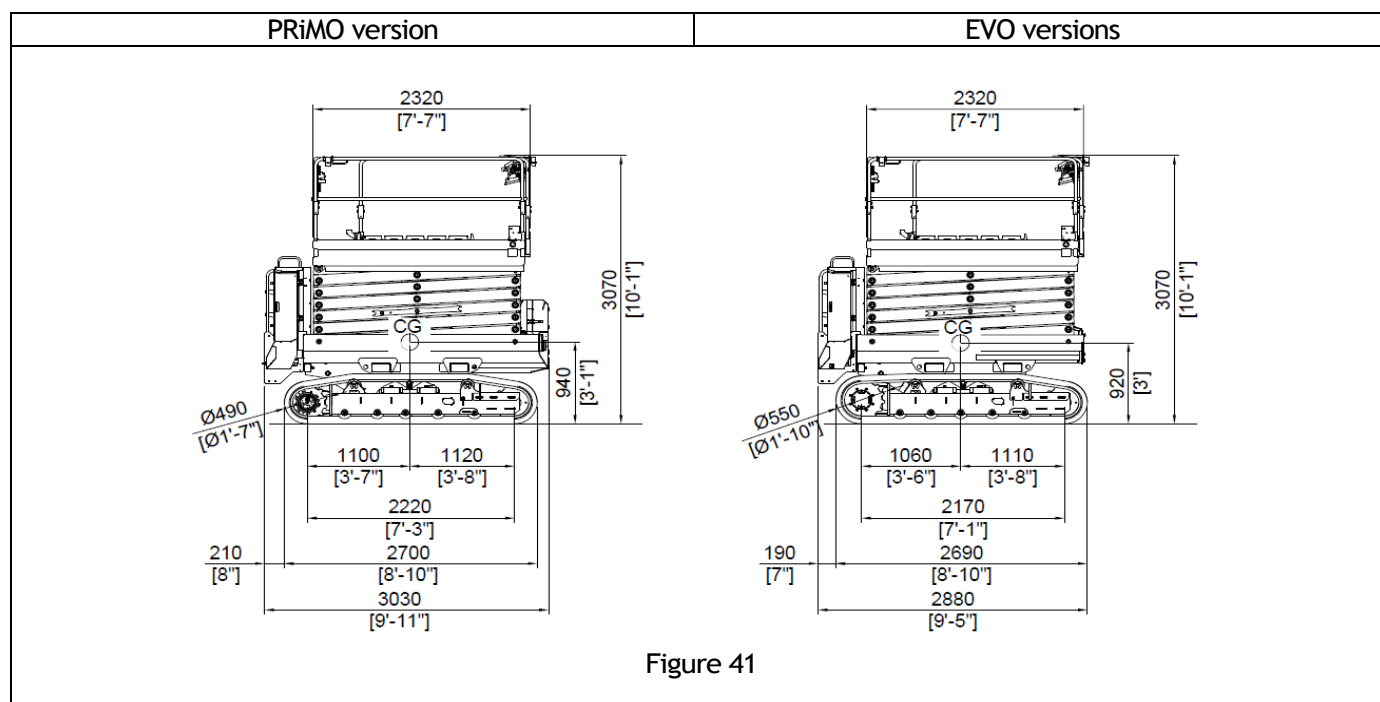
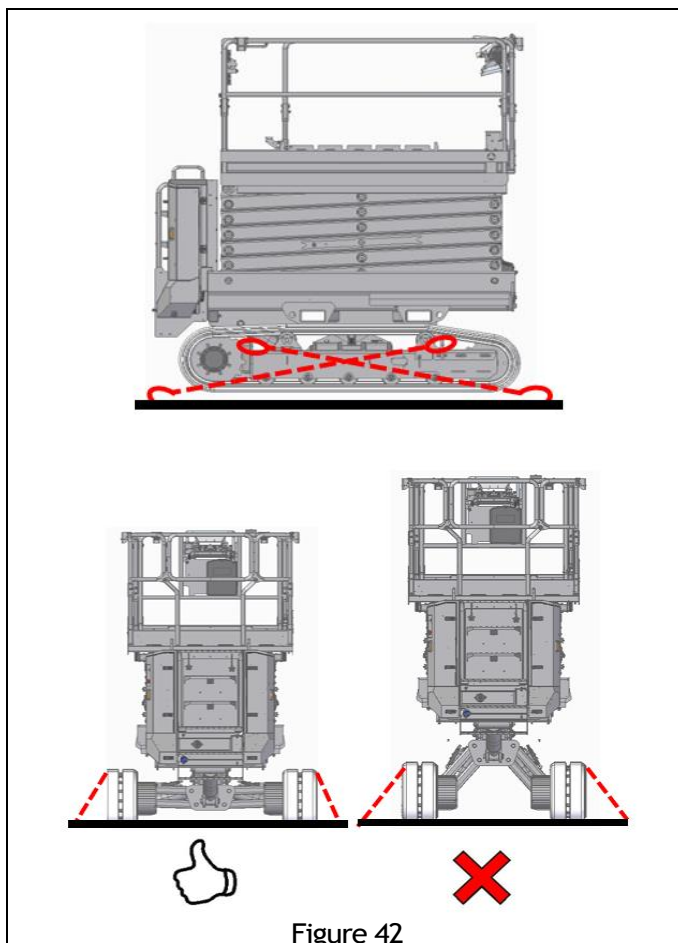


Figure 41

6.5 Securing of the machine on the means of transport.

Before proceeding with the transport, lower the platform completely, widen the carriageway, and fix the machine to the means of transport as shown in the image on the side. Securing must be performed on both sides of the machine.



Attention: Do not excessively tighten the fixing straps to avoid damaging the machine structure.

Attention: Before transporting, make sure that the platform is COMPLETELY LOWERED

7 EMERGENCY CONTROLS.

During use of the emergency controls, a qualified operator, who must always be present on the ground, assumes responsibility for movement the machine and the operator on board using the emergency modes described below.



The operator who uses the emergency controls must always check that the movements of the machine take place in accordance with the controls operated. In the event that uncontrolled movements are activated, proceed directly with the manual emergency controls.

Contact the authorised service centre.

7.1.1 Emergency recovery of an incapacitated operator.

In the event that the operator on the platform is unable to return to the ground by using the controls on the platform, a qualified operator in possession of the main key (for machines intended for AUSTRALIA and NEW ZEALAND the key is always present on the key selector), can operate the emergency controls of the ground control point.

To use the ground control point:

- Turn the key (1) to the GROUND CONTROL position (purple box);
- Activate the heat engine using the "ENGINE START+ON" button (only for Evo version);
- Operate the ON button (2) in advance and keep it pressed while pressing one of the control buttons of the extendible structure (4-5) as described in the GROUND CONTROL STATION chapter.

NOTE: on the EVO version, with the diesel engine off, it is possible to control the descent by activating the ON button (2) in advance and immediately pressing the button (5), keeping them both activated for the entire duration of the manoeuvre.

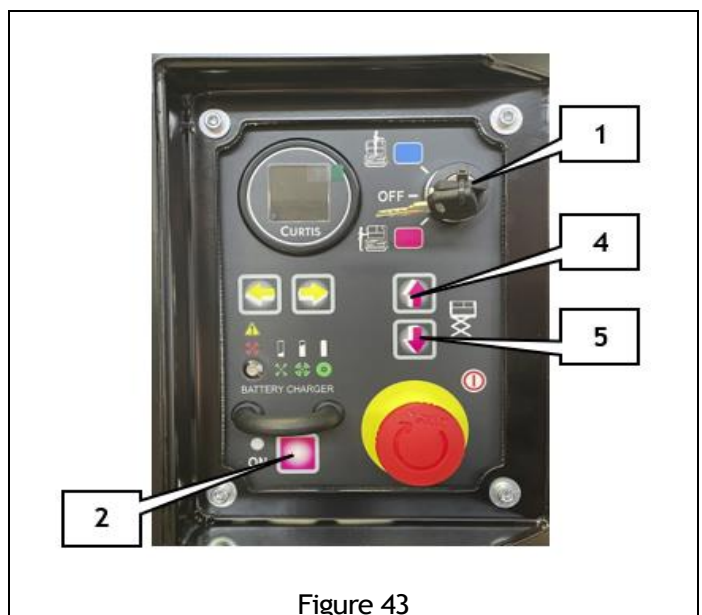


Figure 43



During the use of the ground controls described in this procedure all safety functions are active.

7.1.2 Manual emergency recovery.

7.1.2.1 Emergency recovery of the operator.

In the event that the operator on the platform is unable to return to the ground through the use of the platform controls because in the presence of a fault in the load control system, or in the event of a lack of power, to recover a blocked operator it is necessary for a qualified operator on the ground to use the manual controls in the manner described below.

The manual emergency descent control consists of a diverter located on the ground at the foot of the access ladder as indicated on the side.

Before operating the emergency lowering, always make sure that the machine is switched off by turning the main key at the ground control station to the 'OFF' position.

To command the emergency descent:

- Open the doors (A-B).
- Insert the lever (C) on the manual pump (D) and operate the pump while, at the same time, keeping the diverter (E) pressed. After a few seconds, you can end the operation of the manual pump and simply hold the diverter to command the emergency descent.

You can stop the emergency descent by releasing the diverter.

After using the manual control, slightly pull the diverter outwards to make sure that the machine works correctly after normal use.

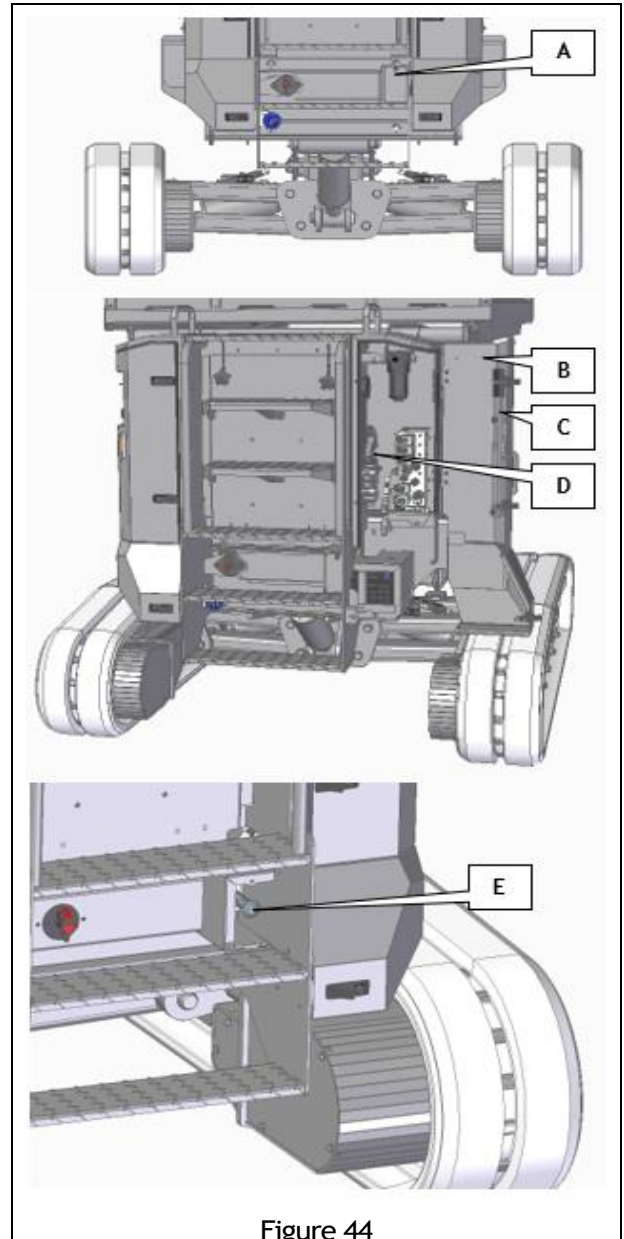


Figure 44



During the use of the manual emergency controls all safety functions are deactivated, including the automatic anti-ignition system. The operator on the ground who activates the manual emergency control assumes responsibility for it.

This function must only be performed in an emergency, when it is not possible to rescue the operator in any other way.

It is forbidden to use the manual emergency lowering control to lower the platform under overload conditions. The only exception applies in the event of overload caused by the operator on board or the platform being crushed against a fixed obstacle.

7.1.2.2 Emergency movement of the machine in case of failure of the controls.

In the event of a failure that does not allow traction controls, the only possible ways to make emergency movements of the machine are:

- Lifting and handling by means of a forklift;
- Lifting and handling by means of a crane.

Both modes are described in the LOADING and TRANSPORT chapter.



It is **FORBIDDEN** to tow or move the machine in a way other than those provided for in this manual. Possible damage.

7.1.2.3 Manual emergency ascent.

To access the machine components located inside the scissor structure in the event of a failure of the controls, it is possible to manually control the ascent of the platform.

To manually control the ascent of the platform:

1. Open the right rear hood (A) and remove the lever (B) of the manual pump (C) from its seat by unscrewing the two knobs (D).
2. Screw the knurled knob of the solenoid valve EV3 completely;
3. Insert the lever (B) on the manual pump (C) and operate the pump while, at the same time, keeping the button of the solenoid valve EV19 pressed.

At any time it is possible to stop the manoeuvre by releasing the button of the solenoid valve EV19 and/or by stopping the operation of the manual pump.

Once finished, restore the initial conditions before operating the machine.

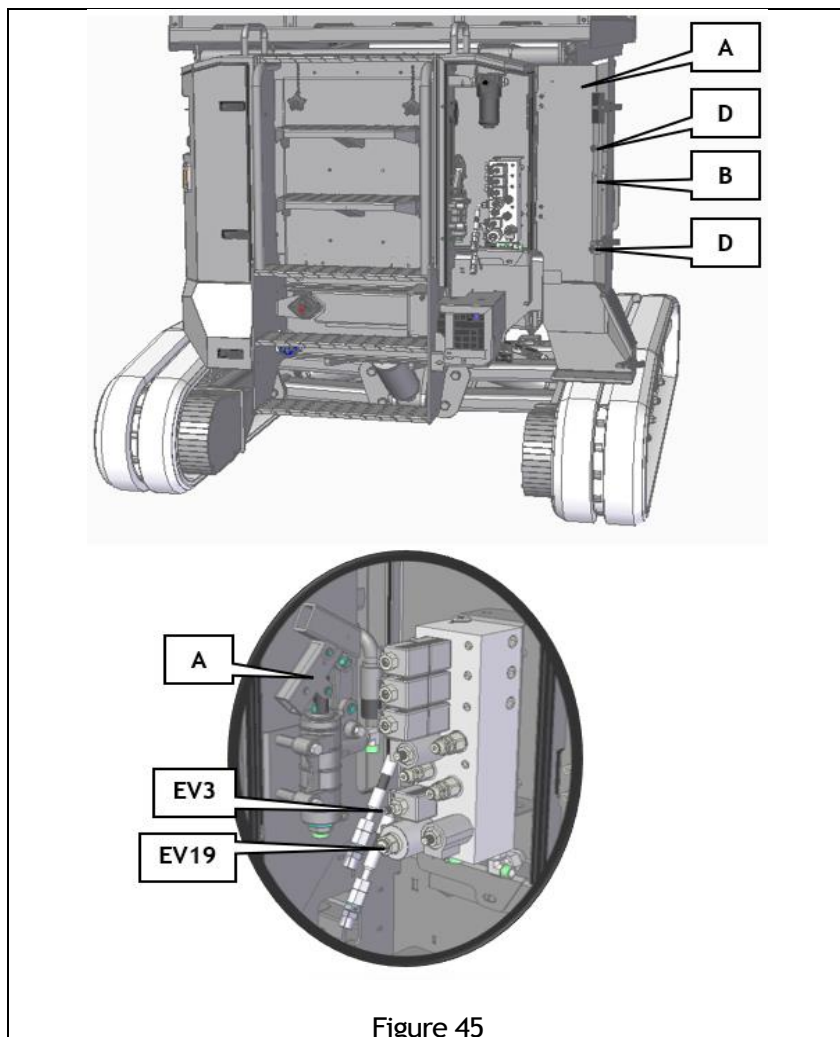


Figure 45



Use of the hand pump for any other purposes is strictly prohibited.

8 MAINTENANCE AND STORAGE.

8.1 Safety rules during maintenance.



- Always perform maintenance operations in maximum safety conditions, with the machine stopped and switched off, having removed the key from the ground control panel, with the emergency buttons pressed and wearing the personal protection equipment suitable for the operations to be carried out.
- Only suitably trained personnel are authorised to perform repairs and maintenance on the machine.
- The maintenance operations described refer to the machine used in "normal" conditions; if you believe that the conditions of use of the machine are extreme (extreme temperatures, corrosive environments, very long work cycles, etc.) or if the machine has been inactive for long periods, contact the ALMAC technical service to adjust the frequency of the interventions.
- If parts of the machine need to be replaced, use only original parts or those approved in writing by ALMAC; the use of non-original or unapproved spare parts leads to the forfeiture of the warranty and of any liability on the part of ALMAC.
- Modifications or additions to the machine are not allowed unless expressly authorised by ALMAC.
- During maintenance or technical assistance, the machine must be completely locked. Do not act on the valves installed directly on the hydraulic cylinders of booms and outriggers if they have not been immobilised/locked in place: risk of uncontrolled movement of the structure.
- Do not insert the body, limbs or fingers in sharp, jointed openings on the machine that are not controlled or without proper guards unless securely held in place;
- Disconnect the machine from all external energy sources (110-230V single-phase power line) before intervening.
- In case of maintenance work on electric traction and/or electric pump motors and inverters, always disconnect the battery beforehand.
- For maintenance operations on the thermal motor consult the manual provided by the manufacturer, and annexed to the machine documentation at the time of delivery.
- Make sure there are no fluids under pressure before disassembling unions or pipes: oil spattering out under pressure can cause serious injuries. Immediately call a physician if injuries occur or the fluid from pipes is accidentally ingested. Remember that fluid seeping from a very tiny hole can be almost invisible but possess sufficient force to penetrate beneath the skin. Use a piece of card or wood to check for leaks.
- Perform maintenance operations when the fluids (hydraulic oil, lubricating oils) are sufficiently cooled.
- Hydraulic oil, lubricants and electrolytes must be handled with care and discharged safely in compliance with current regulations. Prolonged skin contact may cause irritation and dermatosis. Wash with soap and water, then rinse thoroughly following contact with any of these elements. Eye contact is also dangerous: wash thoroughly with water and seek medical attention.
- Place the machine out of service, isolate it and report the situation to your employer in the event that there is an anomaly in a mechanical or hydraulic element or in a control or safety device. NOTIFY IMMEDIATELY A ALMAC SERVICE CENTER.



It is absolutely forbidden to modify or tamper with machine parts and sensors. ALMAC is relieved of any responsibility in the case of modifications / tampering.

8.2 Storage and re-commissioning.

If the machine is to be kept out of service for a long period (> 30 days):

- Proceed with a full recharge of the battery before decommissioning (only for PRiMO version);
- Disconnect the 12V battery using the power switch (only for EVO version);
- If possible, always keep the charger connected to a power outlet in order to compensate for the self-discharge of the battery (only for PRiMO version);
- Thoroughly clean the machine before parking it to avoid damaging the paintwork, the hydraulic cylinder rods and the adhesive plates;
- Store the machine indoors or protect it from weathering, also making sure that the machine is not exposed to extreme temperatures (see the TECHNICAL DATA table);
- Turn off the machine during storage;
- Carefully follow any instructions/requests received via automatic messaging from the MY ALMAC website.

Before putting a machine back into service after a long period of inactivity (> 30 days), perform the maintenance operations described in the routine periodic maintenance table below.

8.3 Routine maintenance.

The checks and maintenance operations must be performed as indicated in the table below.

[illegible]

PS*: After the first 50 hours of operation of the machine, a torque wrench check is required to tighten the tracked undercarriage to the machine frame, gear reducers and transmission ring gears.



The machines can be equipped with various types of thermal motor. For routine maintenance operations and for the frequency of intervention on the thermal motors always refer to the USE and MAINTENANCE manual of the motor manufacturer, provided at the time of delivery of the machine

8.3.1 Cleaning the machine and the adhesive plates.

To clean the machine correctly it is possible to use jets of water that are not pressurised, adequately protecting the following parts:

- Electrical components;
- Ground control panel and push-button panel on the platform;
- Electric motors and battery.

Once the machine has been cleaned, dry all the details, check the integrity/readability of the instruction and alarm adhesive plates, and grease the areas provided with grease nipples and the runners and rollers of the scissor structure and the sliding platform.



Warning: Never use petrol, solvents or other flammable liquids as detergents. Use authorised commercial, non-flammable and non-toxic degreasers.

8.3.2 Functional checks.

According to the frequency described in the maintenance table, and always before each use of the machine, it is necessary to check the correct operation of the controls and emergency stops. In particular, the checks to be carried out are as follows:

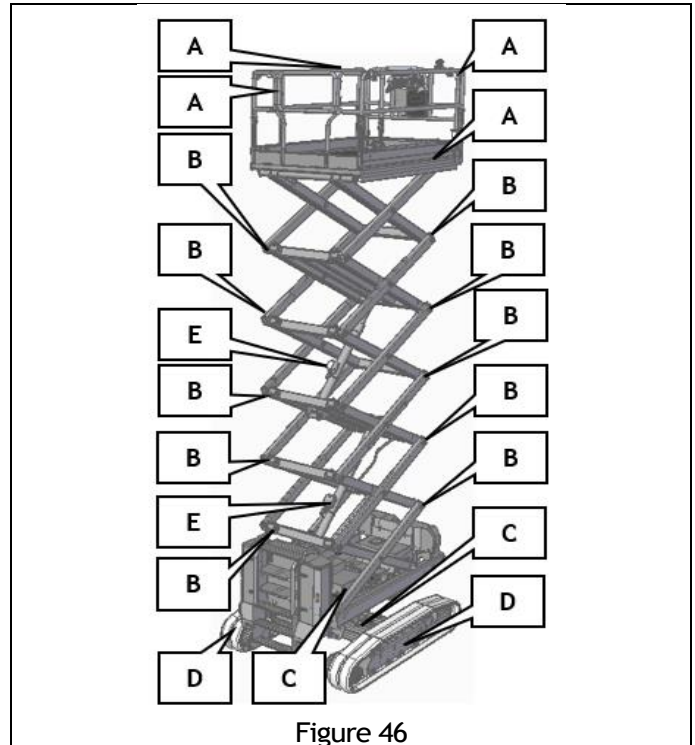
- Check that the "dead man" consent systems (ON buttons, pedal) are working correctly or that, if the green consent led is flashing, no manoeuvre is activated.
- With the platform in the transport configuration, place the machine with the frame tilted with respect to the horizontal by a value greater than 1° on the lateral. Operate the platform lifting control, make sure that the system automatically returns the horizontal frame.
- With the platform in the transport configuration, place the machine with the frame tilted with respect to the horizontal by a value greater than 1° on the longitudinal. Operate the platform lifting control, make sure that the system automatically returns the horizontal frame.
- With the platform in the transport configuration, place the machine with the frame tilted with respect to the horizontal at the maximum angle both on the longitudinal and on the lateral. Operate the platform lifting control, make sure that the system automatically returns the horizontal frame.
- With the machine perfectly stabilised:
 - Lift the platform and make sure that the machine works correctly (levelling the platform is an automatic movement, check the correct operation). There must be no load on the platform.
 - Lower the platform and make sure that the machine operates correctly with particular regard to the anti-shearing function: when the vertical distance between the arms of the scissor structure is just over 50 mm, the descent control stops automatically; the flashing lights and the audible warning device (if present - OPTIONAL) warn of the dangerous condition by activating with a fast frequency. It is necessary to release the descent command and wait for the buzzer to turn off (about 3 seconds), then resume the descent command which resumes after about 1.5 seconds having activated the command.
- Lift the platform to a height higher than the TRANSPORT position but lower than the maximum traction position and check that, when the traction consent indicator at height is on, the machine advances at the safety speed only;
- Lift the platform to a height higher than the maximum traction and check that, when the traction consent indicator at height is off, traction is effectively inhibited.
- Lift the platform to a height higher than the TRANSPORT position but lower than the maximum traction position and transferring on a non-flat ground, check that the machine stops automatically when the inclination of the frame with respect to the horizontal exceeds 1°. Release the traction control, at the next traction or lifting control the system must automatically return the horizontal superstructure. After the levelling, the machine will perform the selected movement;
- Lift the platform to a height higher than the TRANSPORT position and check that the manual levelling command is automatically inhibited.

- Operate the emergency button of the platform control station and check that the platform control console is switched off. Release the emergency button at the end of this test.
- Operate the emergency button of the ground control point, check that the machine is completely off and that no function is permitted. Release the emergency button at the end of this test.
- Operate the warning buzzer and make sure it works.
- Check that each command stops when the command is released, by automatically returning to the central position.
- Through the control post on the ground, check that the controls are functional and in compliance with their operation.
- Check the correct operation of the manual emergency lowering device.
- Check that the 12V starter battery of the endothermic engine is charged (only for EVO version); a simple way to check its charge is to start the endothermic engine; the engine must start easily.
- After all the previous checks have been successful, load the maximum nominal load onto the platform and, using the ground control station, command the various movements, checking that the machine performs all the movements in a fluid manner.

8.3.3 Visual inspection of the structural elements of the machine.

According to the frequency described in the maintenance table, and always before each use of the machine, it is necessary to visually check the integrity of the main structural elements of the machine, with particular attention to the welding. The parts to be visually checked are as follows:

- A. Platform, access ladder, railings and rod or gate for closing the access compartment;
- B. Welding of the seats of the pins of the scissor lifting structure;
- C. Welded ears for hinging the levelling cylinders;
- D. Tracked longerons and welding area at the hinge ears of the levelling cylinders;
- E. Integrity of the lifting cylinders, with particular attention to welding with the pins supports.
- F. Hydraulic pipes, electrical cables and their protective sheaths must not be deformed, abraded or broken.



Any traces of rust on the welds must suggest the presence of a crack and result in placing the machine out of service until a thorough technical inspection by penetrating liquids or magnetoscopic verification is performed. Do not use the machine in the presence of pins and fixing systems that are not intact or that are rusty.



To carry out a quick and correct visual inspection of the structural elements of the machine, the machine must be constantly washed/cleaned. If it is not possible to perform the visual inspection due to dirt being present, do not use the machine.

8.3.4 Visual inspection of screw tightening/ Screw tightening.

According to the frequency described in the maintenance table, and always before each use of the machine, it is necessary to visually check the tightening of the elements indicated to the side, namely:

- A. Undercarriage tracked to the machine frame;
- B. Traction reducers
- C. Transmission crown gear;
- D. Track guide rollers;
- E. Tracks;
- F. Nuts, seegers, fixing nuts for the pins of the extendible structure, the platform and the levelling cylinders of the carriage;
- G. Platform railing fixing screws.

If necessary or in doubt, tighten the various elements in accordance with the tightening table below, verifying the class of the screws directly from the stamping on them.

It is mandatory to tighten the tracked undercarriage, traction reducers and drive crowns on an annual basis.

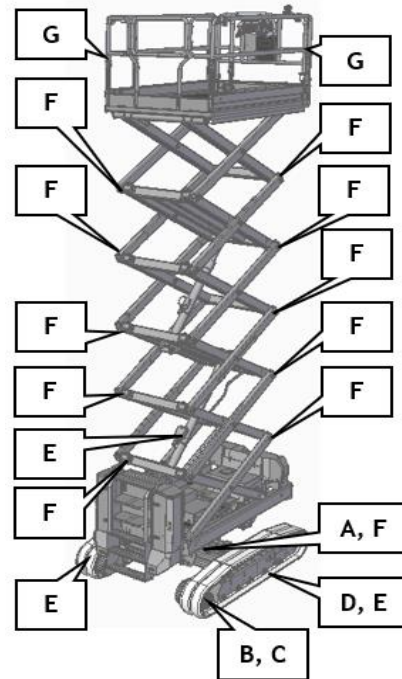


Figure 47

SCREW TIGHTENING TORQUE (metric thread, normal pitch)						
Class	8.8 (8G)		10.9 (10K)		12.9 (12K)	
Diameter	kgm	Nm	kgm	Nm	kgm	Nm
M4	0.28	2.8	0.39	3.9	0.49	4.9
M5	0.55	5.5	0.78	7.8	0.93	9.3
M6	0.96	9.6	1.30	13.0	1.60	16.0
M8	2.30	23.0	3.30	33.0	3.90	39.0
M10	4.60	46.0	6.50	65.0	7.80	78.0
M12	8.0	80.0	11.0	110	14.0	140
M14	13.0	130	18.0	180	22.0	220
M16	19.0	190	27.0	270	33.0	330
M18	27.0	270	38.0	380	45.0	450
M20	38.0	380	53.0	530	64.0	640
M22	51.0	510	72.0	720	86.0	860

8.3.5 Wear control of runners and sliding platform rollers.

According to the frequency described in the maintenance table, visually check the state of conservation of:

- A. Runners of the scissor structure on the frame and under the platform
- B. Sliding platform support rollers.

Control the ascent and descent of the platform to visually check that the movement of the runners of the scissor structure (on the frame and under the platform) is linear and without interference between the parts.

Remove and retract the sliding platform and check that no excessive effort is required for this operation.

In the event of irregular operations, check that there are no foreign bodies in the flow paths.

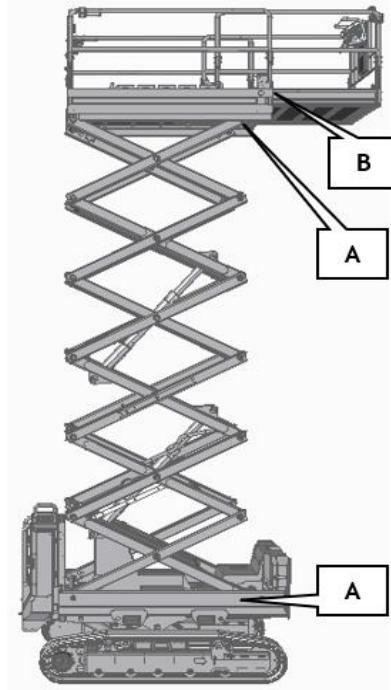


Figure 48

8.3.6 Greasing joints, runners and sliding platform rollers.

According to the frequency described in the maintenance table, grease the points equipped with the joint greaser, the sliding shoes and the rollers of the sliding platform as shown in the image.

To grease the runners, lift the platform and use a brush to lightly grease the surfaces that come into contact with the runners. Before greasing, remove any dirt that has accumulated on the parts. After greasing, command the platform descent and then remove the excess grease.

To grease the rollers, extend the sliding platform and use a brush to lightly grease the surfaces that come into contact with the rollers. Before greasing, remove any dirt that has accumulated on the parts. After greasing, retract and remove the sliding platform again, then remove the excess grease

Remember to always grease the same points:

- After washing the machine;
- Before using the machine after long periods of inactivity;
- After use of the machine in hostile environments (very humid, very dusty, coastal areas, etc.).



The correct cleaning and greasing of the sliding paths of the runners is essential for the correct detection of the load on the platform.

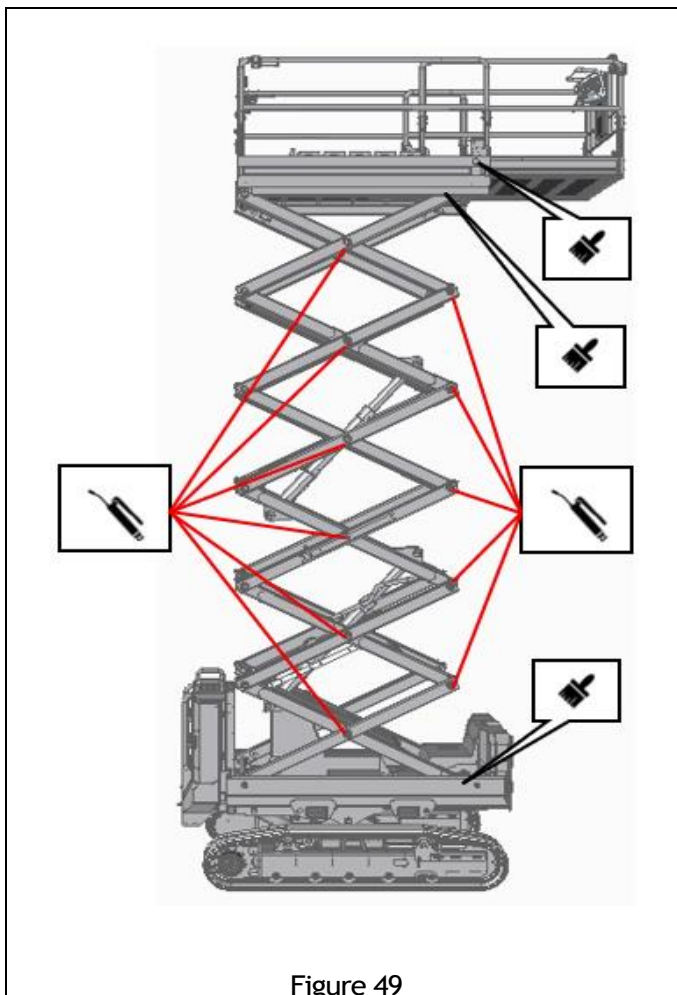


Figure 49



Attention: Use only lubricating grease with the same characteristics as those shown in the table below.

GREASE TABLE FOR GREASE POINTS	
PAKELO	BEARING EP GREASE NLGI2
ADDINOL	ADDIFLON PTFE WHITE 3 PASTE
NILS	WHITE STAR EP

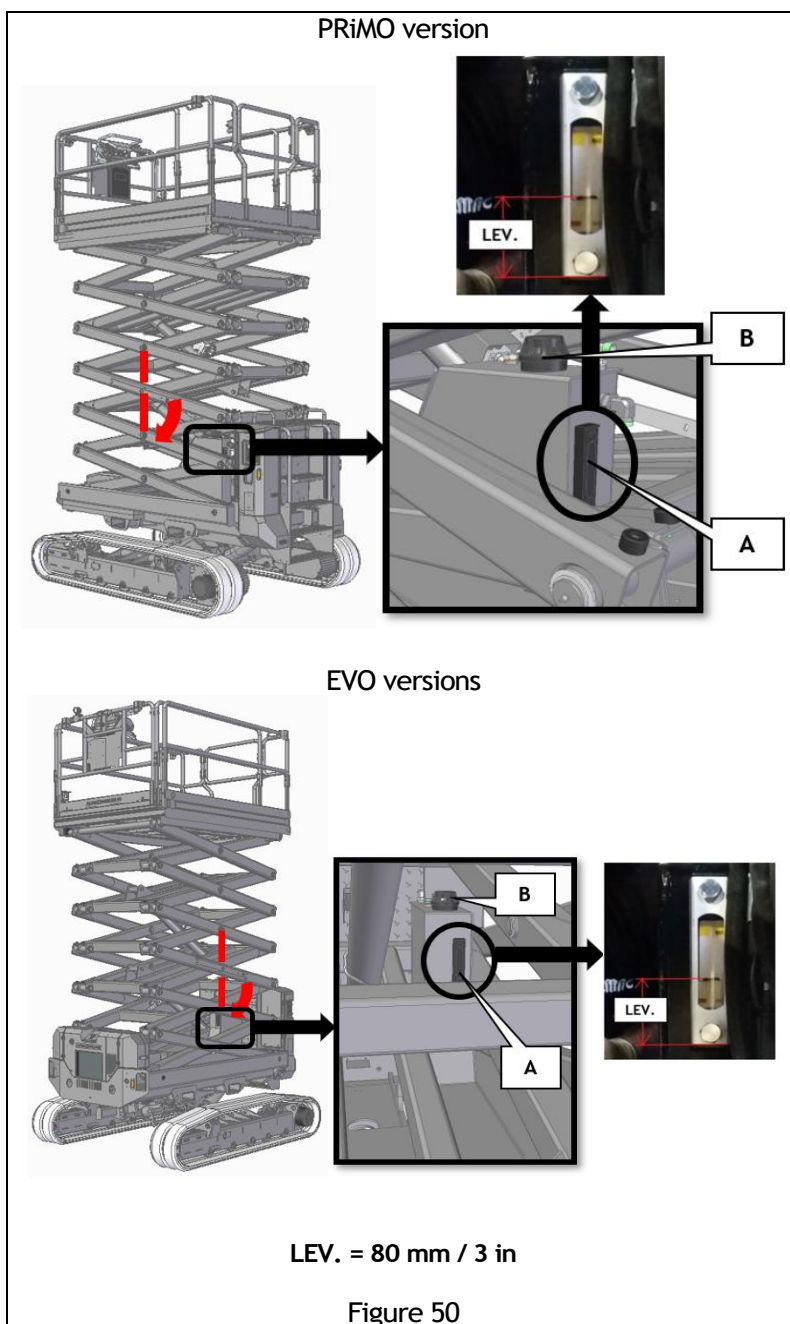
8.3.7 Check hydraulic oil level / Oil change.

According to the frequency described in the maintenance table, and always before each use of the machine, it is necessary to check the level of hydraulic oil in the tank, through the visual indicator indicated to the side (A).

The level check must be performed with:

- Maximum carriageway (chassis all lowered);
- Lifting structure supporting the safety supports.
- Machine turned off.

In this condition, the correct oil level is the one shown next to it. If necessary, top up with new oil and filter through the cap (B) until the maximum level is reached. To reach the cap (B), place the lifting structure on the safety supports.



Completely replace the hydraulic oil - at the same time as replacing the filters - as indicated in the maintenance table.

To empty the tank:

- put the machine on minimum carriageway (carriage all up), place a container of suitable capacity (see TECHNICAL DATA) under the hydraulic oil tank and loosen the emptying cap (C). Or:
- equip yourself with a manual or electrical pumping system not supplied with the machine, then place the machine in the same conditions described to carry out the level control and suck the oil through the loading cap (B).

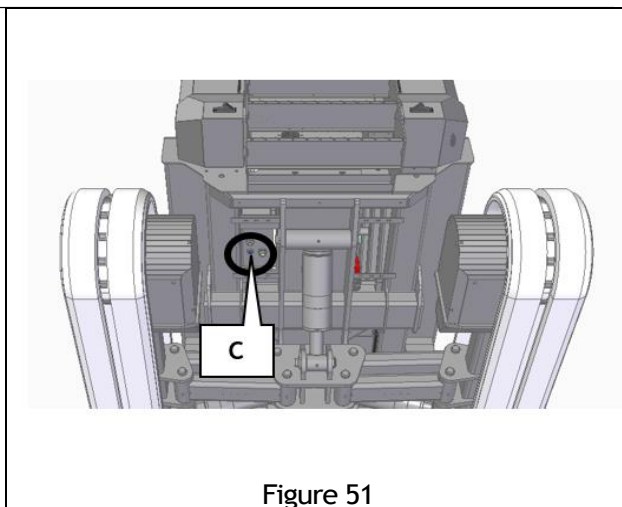


Figure 51

Fill the tank via the cap (B) with new, filtered oil to the level indicated above. Refer to the TECHNICAL DATA tables to ascertain the necessary quantities of oil. Use only the types of oil indicated in the table below.

TEMPERATURE→	0°C +70°C	-20°C +50°C	-30°C +30°C
BRAND	TYPE	TYPE	TYPE
AGIP	Arnica 68	Arnica 46	Arnica 32
BP	Energol SHF68	Energol SHF46	Energol SHF32
ELF	Hydrelf DS68	Hydrelf DS46	Hydrelf DS32
ESSO	Invarol EP48	Invarol EP46	Invarol EP32
PETRONAS	Hidrobak 68 HV	Hidrobak 46 HV	Hidrobak 32 HV
SHELL	Tellus SX68	Tellus SX46	Tellus SX32
TEXACO	Rando NDZ68	Rando NDZ46	Rando NDZ32



ATTENTION: do not disperse the used oil in the environment but use the relevant collection centres.

8.3.8 Replacement of hydraulic oil filters.

According to the frequency described in the maintenance table, and in the event that the clogging indicator indicates it, it is necessary to replace the hydraulic oil filters at the same time as the hydraulic oil is replaced.



To replace the filters USE ONLY ORIGINAL SPARE PARTS. Contact ALMAC for assistance with the procurement of the material.

Do not reuse the recovered oil, do not disperse it in the environment but dispose of it in accordance with the regulations in force.

8.3.8.1 Delivery filters.

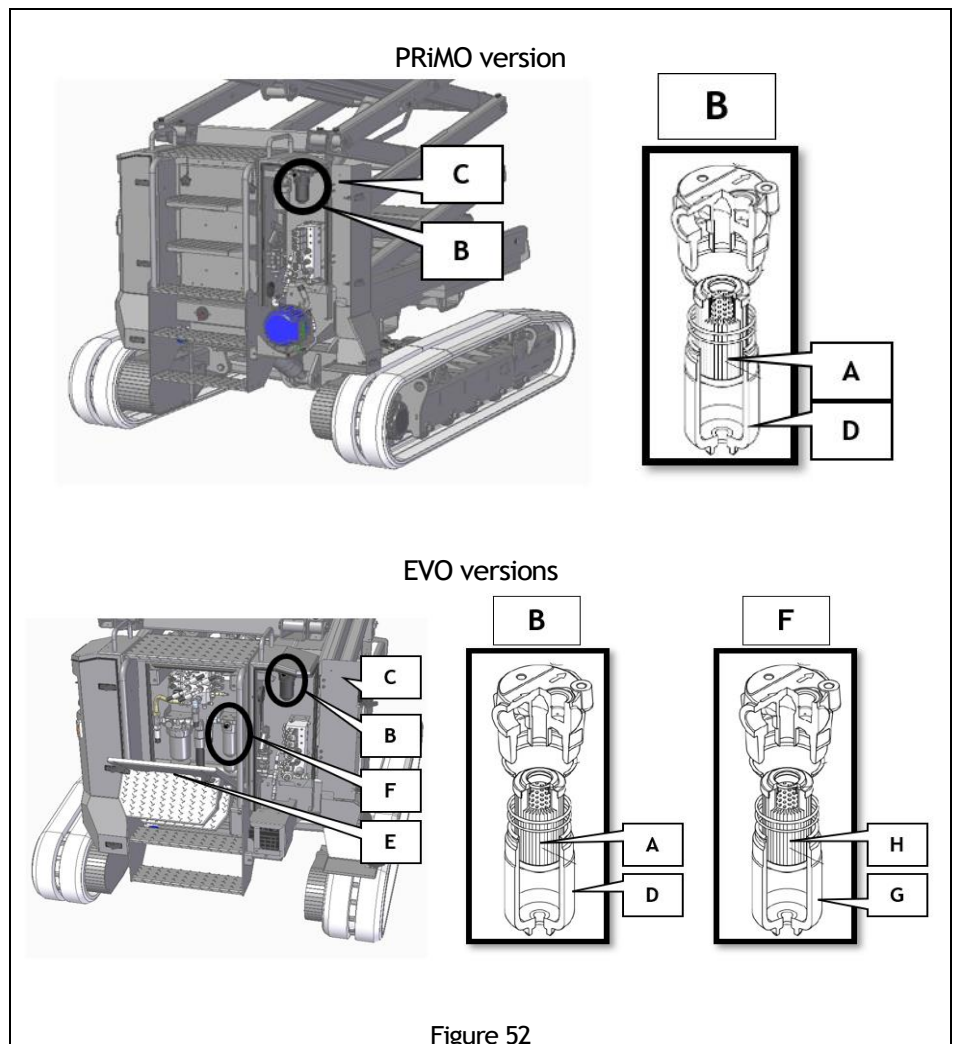
To replace the cartridge (A) of the delivery filter(s):

- Turn off the machine completely;
- Open the door (C) to access the filter (B);
- Unscrew the cup (D) and remove it from its seat;
- Replace the cartridge (A);
- Screw the cup (D) again and, if necessary, refill the tank;

On the EVO version there is a second delivery filter:

- Open the door (E) to access the filter (F);
- Unscrew the cup (G) and remove it from its seat;
- Replace the cartridge (H);
- Screw the cup (G) again and, if necessary, refill the tank;

Thoroughly remove any oil residue from the area of operation.



8.3.8.2 Return filter.

PRiMO VERSION

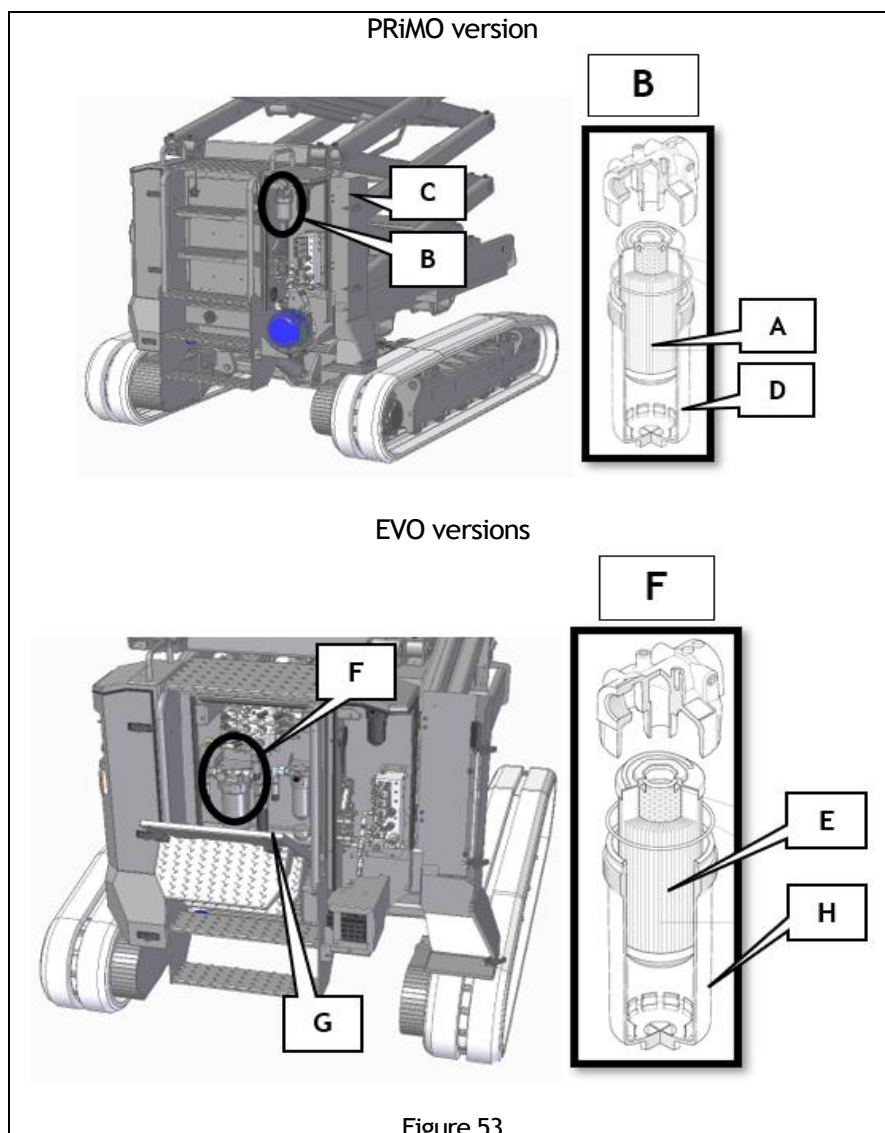
To replace the cartridge (A) of the return filter (B):

1. Turn off the machine completely;
2. Open the door (C) to access the filter (B);
3. Unscrew the cup (D) and remove it from its seat;
4. Replace the cartridge (A);
5. Screw the cup (D) again and, if necessary, refill the tank;
6. Thoroughly remove any oil residue from the area of operation.

EVO VERSION

To replace the cartridge (E) of the return filter (F):

1. Turn off the machine completely;
2. Open the door (G) to access the filter (F);
3. Unscrew the cup (H) and remove it from its seat;
4. Replace the cartridge (E);
5. Screw the cup (H) again and, if necessary, refill the tank;
6. Thoroughly remove any oil residue from the area of operation.



8.3.9 Check the oil level of the traction reducers / Oil replacement.

According to the frequency described in the maintenance table, the oil level in the traction reducers must be checked according to the following procedure.

To check the level:

- Control the movement until the caps (A) and (B) are brought to the position shown to the side;
- Unscrew the cap (A);
- If oil is seen leaking out, the level is correct. If not, top up through the same cap (A).

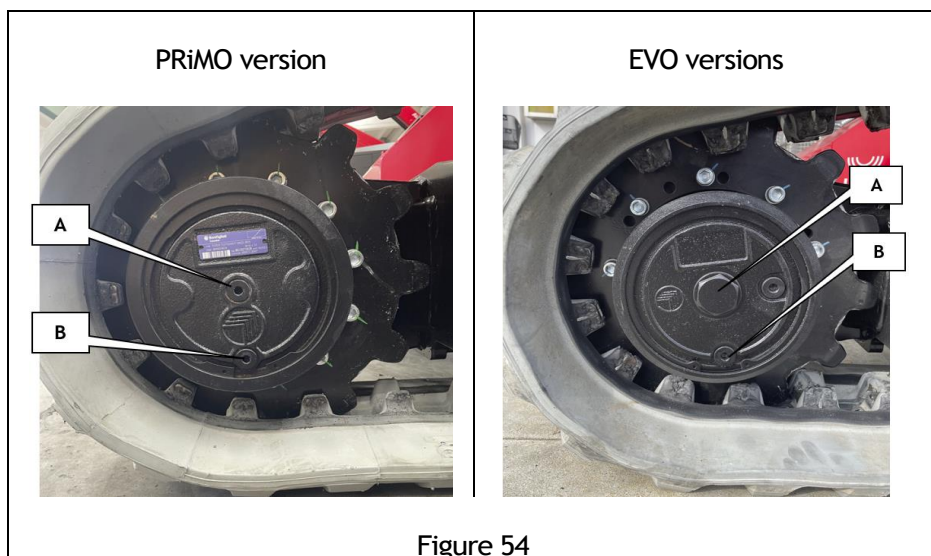


Figure 54

To replace the reducer oil:

- Control the movement until the caps (A) and (B) are in the position shown;
- Place a container under the cap (B) to collect the oil from the reducer;
- Unscrew the caps (B) and (A) and completely empty the reducer;
- Close the cap (B) and add lubricating oil for reducers, in the hole (A) until it comes out of the hole itself;
- Close the cap (A).

Use only the types of oil indicated in the table below.

BRAND	TYPE	QUANTITY	
		PRiMO version	EVO versions
SHELL	SPIRAX S3 AX 80W/90	1.3 litres per reducer	1.1 litres per reducer



ATTENTION: do not disperse the used oil in the environment but use the relevant collection centres.

8.3.10 Tracks: checking of wear, tensioning and replacement.

According to the frequency described in the maintenance table, and always before each use of the machine, it is necessary to check the state of wear and correct tension of the tracks.

8.3.10.1 Track wear check.

Check the wear and condition of the tracks, replacing them when the tread is equal to or less than 10 mm. Replace the tracks even before this event, if there are dangerous cuts or lacerations.

8.3.10.2 Checking and adjusting track tension.

To check the tension, when the tracks are resting on the ground, pull the track slightly upwards at the centre line. The maximum permissible deflection must be less than or equal to 20 mm (2 cm). Otherwise, or if the track is particularly noisy during translation due to excessive deformation, contact the Technical Assistance Service.

The machine is in fact equipped with an automatic track tensioning system powered by the hydraulic circuit of the machine during normal operation that does not require intervention by the operator.

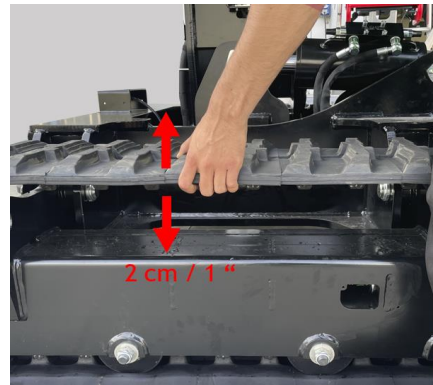


Figure 55

8.3.10.3 Replacing the tracks.

If necessary, to replace a track:

- Lift the machine, with the platform lowered, by means of a lifting device among those provided for in this manual (LOADING and TRANSPORT chapter) in order to obtain a height of about 15-20 cm from the ground of the track;
- Thoroughly clean all parts of the tracked undercarriage;
- Disassemble the guards (A and B) of the traction motor of the track to be replaced;
- Locate the tensioner-tracking valve (C) and loosen the adjustment grub screw by a few turns until the tracks start loosening.
- Compress the track tensioning cylinder by pressing on the idler wheel (D);
- To remove the track from its seat:
 - **PRiMO version:** lever between the track and the idle wheel with a lever while an operator operates the traction control having previously selected the ECO + STANDARD + DYNAMIC LEVELING=OFF mode so as not to activate the automatic tensioning control;
 - **Evo version:** lever between the track and the idle wheel with a lever while an operator operates the traction control and, at the same time, presses the first service button on the left (see chapter MODE OF USE) so as not to activate the automatic tensioning system;
- Install the new track by means of the reverse procedure, making the sprocket wheel match its seats, then inserting it on the tendon-string wheel;

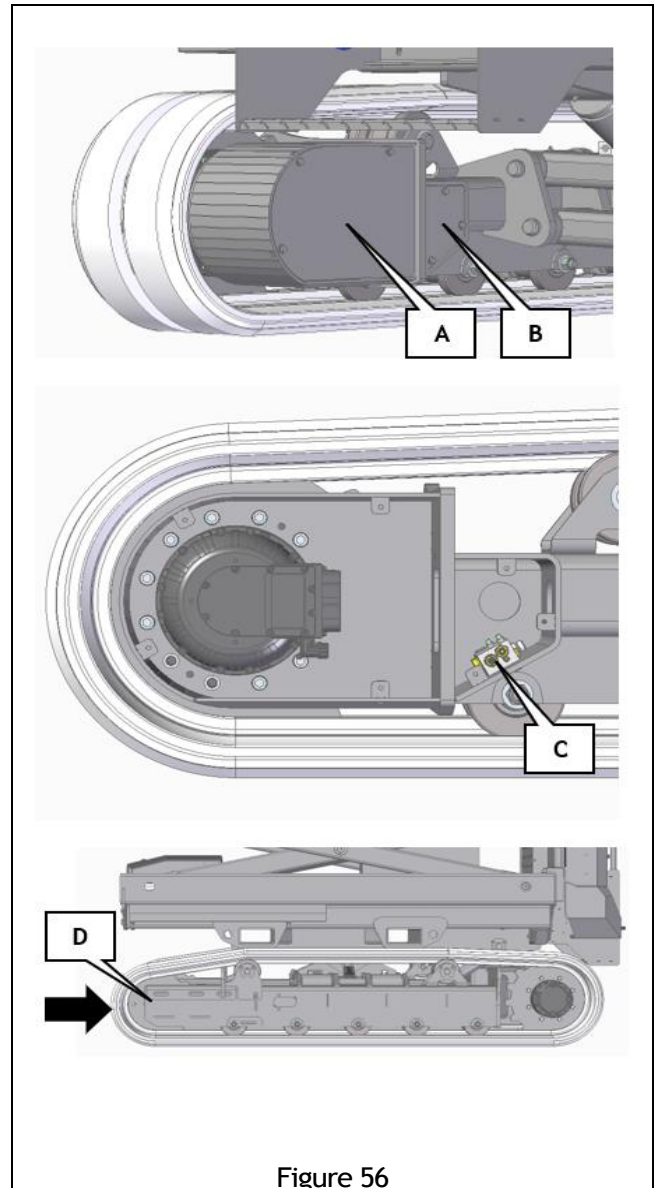


Figure 56

- To fully guide the track:
 - **PRiMO version:** activate the traction control having previously selected the ECO + STANDARD + DYNAMIC LEVELING=OFF mode (for PRiMO version so as not to activate the automatic tensioning command);
 - **Evo version:** to fully guide the track, operate the traction control and, at the same time, press the first service button on the left so as not to activate the automatic tensioning system;
- Once the track is perfectly in place, tighten the strap-tightening valves:
 - **PRiMO version:** activate the traction control, having previously selected the Std or POW + DYNAMIC LEVELING=off mode to activate the automatic tensioning system without activating automatic levelling;
 - **EVO version:** activate the traction control + DYNAMIC LEVELING=off to activate the automatic tensioning system without activating automatic levelling;
- Check the tensioning as described above.



Warning: Tracks must only be replaced by specialized, properly trained personnel.

The operation must be carried out after ensuring the perfect stability of the machine, wearing all the necessary PPE (professional footwear, gloves, helmet, etc.).

8.3.11 Control of the overload control system.

According to the frequency described in the maintenance table, check the operation of the overload control system on the platform.

The machine is equipped with a platform load control system, consisting of a pair of pressure transducers (A), and an angular sensor (B) that measures the angle of the scissor structure. If the nominal load is exceeded by 20% and the platform is not in the access position, the overload alarm is activated and the machine is completely locked. To resume operation with the machine, it is necessary to completely remove the overload.

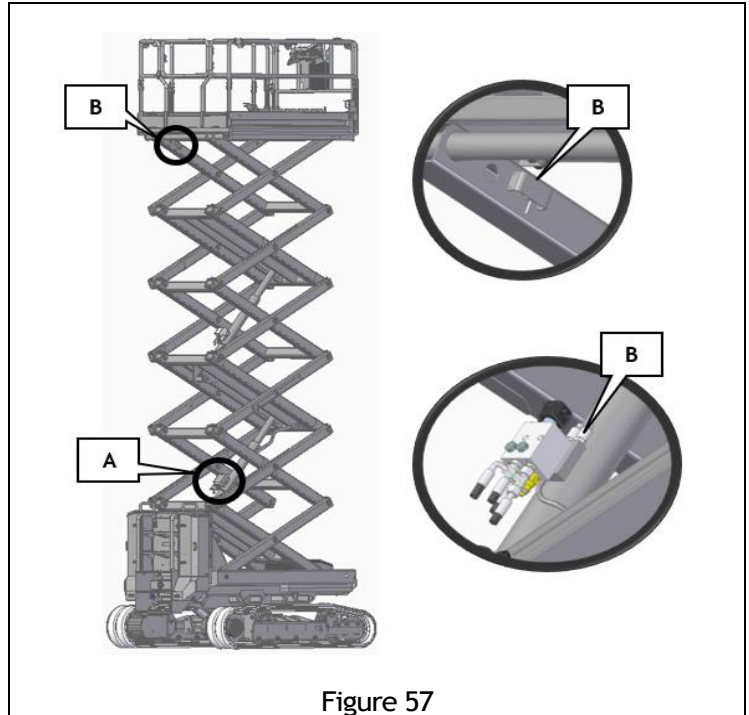


Figure 57

To check its operation:

- Apply the nominal load on the platform (see TECHNICAL DATA table) and check that the machine is operating normally;
- With the platform in the access position (fully lowered), load an overload of 20%;
- Control the ascent of the platform and verify that, in a few seconds, the overload alarm is activated and the platform ascent command stops. If the platform has reached a height where traction in elevation is allowed, the traction control is also inhibited;
- Remove the excess load and check that the machine exits the alarm condition and the previously inhibited controls are once again available.



If the operator finds a defect that can generate dangerous situations or suspicions that there may be malfunctions, the machine must be placed in a safe condition (isolate it, affix a sign) then report the fault to the employer and contact an authorised service centre.

8.3.12 Check the efficiency of the 115-220V socket differential switch.

According to the frequency described in the maintenance table, check the operation of the differential switch of the power line on the platform

To check its operation:

- Connect the plug on the base carriage to a cable connected to the mains in accordance with the current regulations;
- Press the "TEST" button shown in the figure, checking that the differential switch trips, opening the electrical circuit.

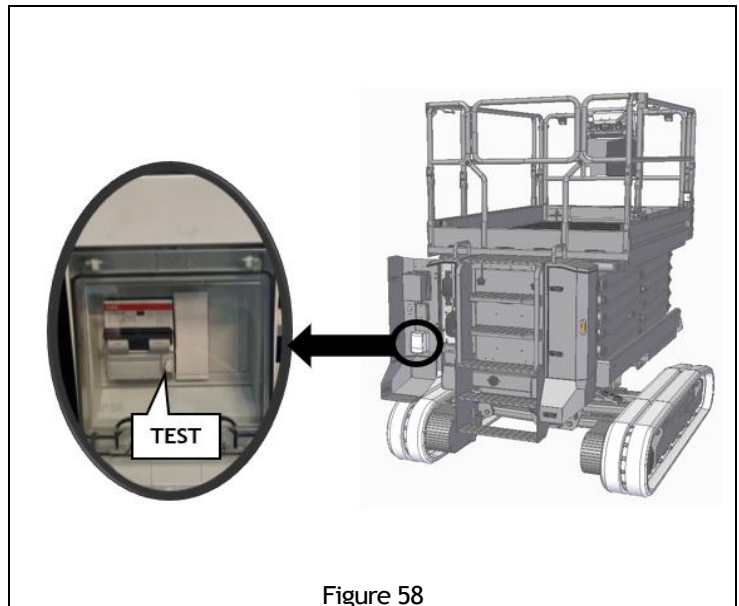


Figure 58

8.3.13 Check machine sensors.

All the moving parts of the machine, with the exception of the sliding platform and the guardrails, are monitored by sensors. Based on the information received from these sensors, the control system adapts the operation of the machine in relation to:

1. Working diagrams;
2. Speed limitation;
3. The inhibition of commands.

According to the frequency described in the maintenance table, check the operation of the various machine sensors. Their operation is monitored by the control system which detects the faults and highlights them on the control console on the platform as well as inhibiting the connected commands.

It is believed that once the FUNCTIONAL CHECKS described in this manual have been completed, if no malfunctions are detected, the machine sensors are efficient.

8.3.14 ANTI-COLLISION and ANTI-CRUSH ultrasonic sensors control (optional).

If present, check the operation of the ANTI-COLLISION and ANTI-CRUSHING system installed on the platform according to the frequency described in the maintenance table. The operation of the system is described in a specific instruction manual to which reference should be made.

8.3.15 Control of the operator anti-entrapment system "AES".

If present, check the operation of the ANTI-ENTRAPMENT system installed on the platform according to the frequency described in the maintenance table. The operation of the system is described in the chapter METHOD OF USE.

8.3.16 Battery.

The battery is a fundamental component in the operation of the machine. Maintaining it over time is important both to increase its life and to limit problems and reduce the costs of managing the machine itself.

In general, bear in mind the following warnings:

- Charge the lead-acid battery in ventilated environments and in places not directly exposed to sunlight so as not to reach too high temperatures;
- Keep naked flames well away from the battery since explosive gases may form;
- Do not make temporary electrical connections;
- For the "PRiMO" version, do not use a charger outside the machine to recharge the batteries. Only the charger built into the machine is suitable for recharging the batteries;
- Do not place tools or any other metal object on the battery;
- Clean any encrustations from the battery terminals and always tighten them;
- Always keep the battery clean, dry and free from rust;
- In the event of a battery replacement, use an original component with the same electrical and weight characteristics; on electric machines ("PRiMO" version) the mass of the battery affects the stability of the machine.

8.3.16.1 Lithium battery (only for PRiMO version).

The LITHIUM battery present on the machines in the LTH version powers the power circuits of the machine and, through a DC-DC converter, also the control circuits.

- The battery consists of lithium-ion cells and an advanced electronic management system, integrated into the same battery, called BMS (Battery Management System) that communicates directly with the machine control system and with the battery charger, optimally managing the battery for the efficiency and duration of the battery itself.
- The chemistry of lithium cells provides a high level of safety, high performance and allows a high degree of flexibility of use in charge/discharge cycles without having any memory effect.
- The battery is maintenance-free and can withstand discharges and incomplete charges (opportunity charging) without affecting its life span.
- The absence of emissions and the extended working temperature range make the machine perfectly suitable for any working environment.
- The terminal clamps must be tight and dirt-free. The insulating parts of the cables must be in a good condition.
- Keep the battery clean, dry and free from oxidation products using antistatic cloths.
- Do not place tools or any other metal object on the battery.
- On the LITHIUM battery there is a safeguard function which, after approximately 4 hours of non-use of the machine, turns off the battery. To reactivate the battery, simply turn the machine off/on or press the WAKE UP button on the battery itself.

8.3.16.1.1 LITHIUM battery maintenance.

Lithium batteries are the MAINTENANCE-FREE type. Consider the following:

- Clean the battery power connectors from fouling and rust.
- Check the good tightness of the power connectors and the control connector.
- If the need arises to disconnect/replace the battery from the machine, follow the instructions in the HOW TO USE chapter.
- It is necessary to clean the dust filters of the ventilation system as shown in the maintenance table. To carry out this activity, it is necessary to lift the platform from the ground controls and lock the extendible structure as shown in the previous chapters, to make the filters (A) accessible, then disassemble the embedded covers (B), and remove the filter panel (C). Blow on the filter panels (C). If in doubt about the effectiveness of cleaning, replace both filter panels. A failure of the cooling system due to clogged filters can void the battery warranty.
- Although the LITHIUM battery accepts partial charges without consequences, a full 100% recharge of the battery is necessary at least once a week to ensure the correct equalization of the cells.

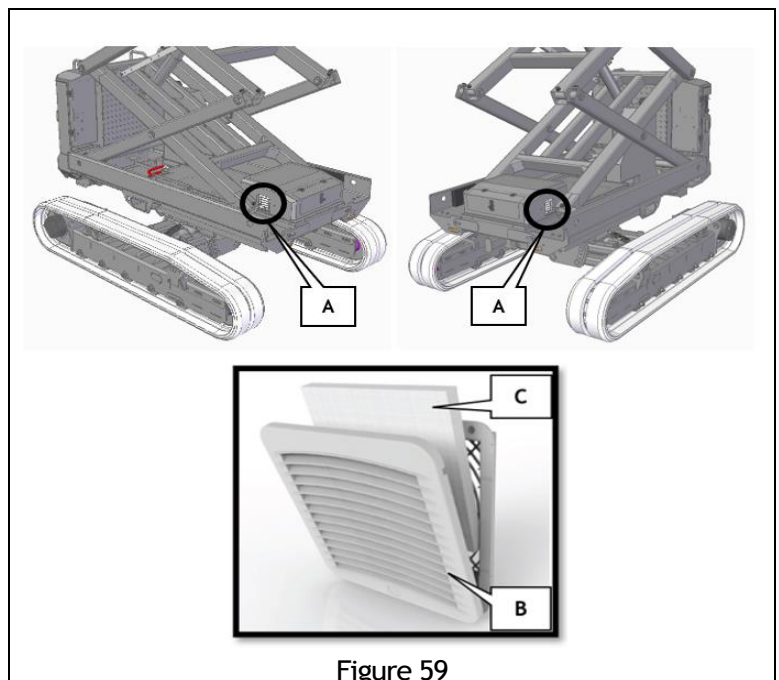


Figure 59

- During periods of inactivity of the machine, the batteries spontaneously discharge (self-discharge). It is recommended to avoid periods of inactivity longer than 3 months. If it is expected to have to put the machine out of service for longer periods, it is necessary to provide a full charge every 3 months using the charger connected to the 115-230V mains. In any case, subject the battery to a full charge in anticipation of long periods of inactivity.
- For batteries covered by the WARRANTY EXTENSION contract, all maintenance operations required from the owner of the machine must be carried out by means of specific e-mail messages.

- It is forbidden to open the battery cover. Breaking the battery cover seals automatically invalidates the warranty.
- To limit self-discharge of the batteries during periods of inactivity, it is advisable to leave the charger connected to the 115-230V mains.
- If the battery does not recharge using the installed charger, do not attempt to provide an external charger.
- In the presence of malfunctions attributable to the battery, avoid intervening directly and notify the Technical Assistance Service.



For transportation purposes, lithium batteries are classified as dangerous goods according to the law. The battery is classified as follows:

UN Number: UN3480
UN Description: Lithium Ion Batteries
ADR Class: Class 9
IMDG Code: UN3480
Marine pollutant: NA
Packing group: II

8.3.16.1.2 Recharging the LITHIUM BATTERY.

To charge the LITHIUM battery, it is necessary to connect the charger to the mains or to a vehicle charging station.

Battery charging can take place either when the battery pack is installed on the machine, or when it is on the ground, disconnected from the machine; in the latter case, the indications on the charging status are displayed by the circular indicator (C) directly on the battery compartment in which the charge status is represented in percentage (SOC=State Of Charge). The indications on the charging progress can also be displayed by the green LED (B) positioned directly on the battery compartment, or, optionally, on the ground control position.

The flashing green LED indicates that charging is in progress. Full recharge is indicated by the fixed light of the green LED. Turning on the LED with a red light indicates an error during charging or a fault. Request technical intervention.

Please note that the machine is powered by a removable battery pack.

8.3.16.1.2.1 Charging through mains.

To recharge the LITHIUM battery it is necessary to connect the charger to an electrical network equipped with all the protections according to current safety regulations, and which has the following characteristics (depending on the country of commissioning of the machine):

- Supply voltage 115-230V AC $\pm 10\%$ single phase;
- Frequency 50÷60 Hz;
- Earthing line connected;
- Efficient magneto-thermal and differential switch device;

The following should also be remembered:

- Do not use cables or extensions longer than 5 meters;
- Do not use rolled up cables or extensions;
- Use a cable of appropriate cross-section (minimum 3x2.5 mm²);

To proceed with charging, select the power supply via the mains socket (pos.2 of selector D), connect the plug (A) to a cable connected to the mains as described above, checking that the built-in charger turns on correctly, by turning on the green LEDs (B). The flashing green LED indicates that charging is in progress. Full recharge is indicated by the fixed light of the green LED. Turning on the LED with a red light indicates an error during charging or a fault. Request technical intervention.

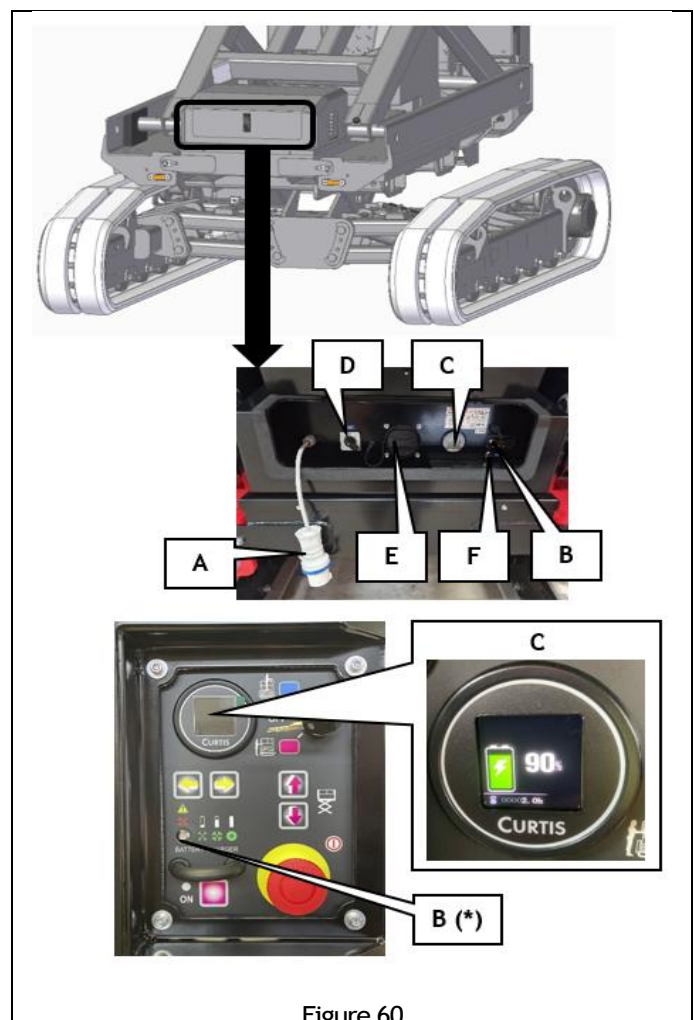


Figure 60

When the machine is switched on, at the ground control position and directly on the battery compartment it is possible to view the charging progress in percentage on the circular indicator (C) as shown in the figure.



ATTENTION: during the order phase it is possible to configure the control system of the machine to ensure that, when charging the battery:

- The machine is fully functional;
- The machine does not perform traction movements;
- The machine does not make any movement.

8.3.16.1.2.2 Recharging by means of a vehicle charging station

The charging station must be of alternating current AC type 2, IEC 62196-2, 32A / 250V (AC).

The following should also be remembered:

- Use a specific cable;
- Do not use cables or extensions longer than 5 meters;
- Do not use rolled up cables or extensions;

To proceed with recharging, select the power supply by means of station (pos.1 of selector switch D), remove the cover from the socket (E) by pulling it outward, connect the plug (E) to a cable connected to the charging column as described above, press the WAKE UP button (F) while checking that the built-in charger is turned on correctly, by the lighting of the green LED (B) on the ground control station. The flashing green LED indicates that charging is in progress. Full recharge is indicated by the fixed light of the green LED. Turning on the LED with a red light indicates an error during charging or a fault. Request technical intervention.

8.3.16.2 Battery 12V start and power supply of the control circuit (only for EVO version).

The 12V battery is used to:

- Power the machine control circuit;
- Start the thermal motor.

8.3.16.2.1 Maintenance of the 12V starter battery.

The batteries on ALMAC machines are of the MAINTENANCE-FREE type, i.e., they are equipped with a technology that significantly reduces water consumption and retains the electrolyte for the entire life cycle of the battery. It is therefore sufficient to:

- Clean the terminal terminals of the battery from scale and oxide;
- Check that the terminals are tightened correctly.

8.3.16.2.2 Recharging the 12V starter battery.

The alternator on the thermal motor charges the starter battery. It therefore means that the battery always recharges when the thermal motor is running.

Battery charging is also guaranteed by an AC-DC converter which, when the machine is connected to the mains, keeps the battery charged.

If charging with an external charger is required, remember to disconnect the battery from the machine's electrical system, and proceed with charging in ventilated environments.



Attention: when charging, gas develops that in certain conditions can create EXPLOSIVE ATMOSPHERES. Always recharge batteries in well ventilated places that conform to standards EN 60079-10 (IEC 31-30), where there is no risk of fire outbreaks and where suitable extinguishers are ready to hand.

9 DEMOLITION.

9.1 Life of the machine.

The machine has been designed to work for 10 years in normal operating environments considering proper use and correct maintenance.

9.2 Deactivation and demolition.

Once the end of the technical and operational life is reached, the machine must be subject to a detailed and complete verification/service by the manufacturer or by specialist and qualified technicians.

If the test does not have a positive outcome, the equipment must be deactivated and demolished. The machine must be reduced to conditions in which it can no longer be used for the purposes for which it was designed and built. In addition, the raw materials used to make it must be recovered for recycling purposes where possible.

In case of demolition, follow the regulations in force in the country where this operation is carried out.

In Italy, demolition / disposal must be reported to the local ASL / USL or territorial ARPA.

The machine mainly consists of easily recognisable metal parts (mostly steel and aluminium for the hydraulic blocks); it is therefore possible to affirm that the machine is 90% recyclable.

The machine must be demolished following the adoption of safety measures that must take account of the logistic, environmental and wear conditions of the machine itself.

Comply with the following general rules:

- Wear approved protective clothing and accessories (hard-hat, safety footwear, gloves, goggles and face mask if necessary) in accordance with the accident-prevention laws in force;
- Disconnect the machine from all power sources;
- Ensure that the machine is unable to operate and that it cannot be used, by breaking some of its vital components and take it to a place where you are certain that it cannot be accessed by anyone;
- Use appropriate lifting devices;
- Disassemble the machine into small, easily transportable units;
- To dispose of the machine, separate the non-polluting materials from the polluting ones (insulation, plastic materials, rubber, etc.).



The European regulations and those transposed by the Member States on environmental compliance and waste disposal provide for heavy administrative and criminal sanctions in the event of inadequate compliance.

Therefore, in the event of demolition / decommissioning, strictly comply with the rules imposed by the regulations in force, especially for materials such as hydraulic oil and batteries.

9.3 Battery disposal.

Battery recycling is mandatory and depends on the various national regulations (in Europe: European Directive 2006/66/EC). Find out about the legislation in force in your country.

- Cells and batteries, even if fully discharged, may still contain a considerable amount of energy. It is therefore necessary to always protect the terminals to prevent short circuits;
- Dispose of in accordance with the local laws and regulations (contact your nearest dealer);
- Store the material to be disposed of as indicated in the specific Section of the Battery Safety Data Sheet (request a copy);
- DO NOT throw into sewers, on the ground or in water courses.

10 EC DECLARATION OF CONFORMITY (FACSIMILE).

ALMACRAWLER

DICHIARAZIONE CE DI CONFORMITA' (IT)	CE DECLARATION OF CONFORMITY (EN)	DECLARATION CE DE CONFORMITE' (FR)	EG KONFORMITÄTS ERKLÄRUNG (DE)	DECLARACION CE DE CONFORMIDAD (ES)
Dichiarazione originale	Original Declaration	Déclaration Originale	Originalerklärung	Declaración Original
Noi	We	Nous	Wir	Nosotros
ALMAC S.P.A. P.IVA e Cod.Fisc. 02559800350 Viale Ruggeri 6/a. 42016, Guastalla (RE) - Italia Ph. +39 0375-833527 http: www.almac-italia.com; e-mail: info@almac-italia.com				
Dichiaro sotto la nostra esclusiva responsabilità che il prodotto PIATTAFORMA DI LAVORO ELEVABILE – MODELLO:	Declare under our exclusive responsibility that the product MOBILE ELEVATING WORK PLATFORM – MODEL:	Declarons sous notre responsabilité exclusive que le produit PLATEFORME ELEVATRICE MOBILE DE PERSONNEL – MODEL :	Erkläre hiermit unter Übernahme der vollen Verantwortung für diese Erklärung, daß das Produkt HUBARBEITSBÜHNEN – TYP:	Declaramos bajo nuestra exclusiva responsabilidad que el producto PLATAFORMA ELEVADORA MÓVIL DE PERSONAL – MODELO:
BIBI 1490-BL PRIMO				
MATRICOLA:	SERIAL NO:	N. DE SERIE:	SERIENNUMMER:	N. MATRICULA:
ALM-004526				
ANNO DI COSTRUZIONE:	MANUFACTURING YEAR:	ANNEE DE CONSTRUCTION:	BAUJAHR:	AÑO DE CONSTRUCCIÓN:
2025				
Al quale questa dichiarazione si riferisce è conforme alle direttive 2006/42/CE, 2014/30/CE, 2005/88/CE e al modello certificato da:	To which this declaration refers is in compliance with the directives 2006/42/CE, 2014/30/CE, 2005/88/CE and with the model certified by:	Faisant l'objet de la présente déclaration est conforme aux directives 2006/42/CE, 2014/30/CE, 2005/88/CE et au modèle certifié par	Auf das sich die vorliegende Erklärung bezieht, den 2006/42/CE, 2014/30/CE, 2005/88/CE Richtlinien und dem von:	Al cual esta declaración se refiere cumple las directivas 2006/42/CE, 2014/30/CE, 2005/88/CE y el modelo certificado por:
VERICERT srl Via Luigi Masotti, 5 – 48124 Fornace Zarattini (RA) - Italia Organismo Notificato N°1878				
CERTIFICATO CE DI TIPO:	EC-TYPE EXAMINATION CERTIFICATE:	CERTIFICATE CE DE TYPE:	EG-BAUMUSTERPRÜF BESCHEINIGUNG:	CERTIFICADO DE EXAMEN CE DE TIPO:
1878M172418CT0725 of 31/07/2025				
e alle norme seguenti:	and with the following standards:	et aux normes suivantes:	die Erklärung entspricht den folgenden Normen:	y a las siguientes normas:
EN 280-1:2022 EN ISO 12100:2010 EN 60204-1:2018				
Il firmatario di questa dichiarazione di conformità è autorizzato a costituire il Fascicolo Tecnico.	The signatory of this conformity declaration is authorized to set up the Technical File	Le signataire de cette déclaration de conformité est autorisé à constituer le Dossier Technique	Der Unterzeichner dieser Konformitätserklärung ist autorisiert, das technische Unterlagen abzufassen.	El firmante de esta declaración de conformidad está autorizado a crear el Expediente Técnico

Guastalla (RE) 31/07/2025

Andrea Artoni
Legale Rappresentante / Legal representative

ALMAC S.p.A.
V.le Ruggeri, 6/A
42016 GUASTALLA - RE
C.F. / P.I. 02559800350

ALMACRAWLER

DICHIARAZIONE CE DI CONFORMITA' (IT)	CE DECLARATION OF CONFORMITY (EN)	DECLARATION CE DE CONFORMITE' (FR)	EG KONFORMITÄTS ERKLÄRUNG (DE)	DECLARACION CE DE CONFORMIDAD (ES)
Dichiarazione originale	Original Declaration	Déclaration Originale	Originalerklärung	Declaración Original
Noi	We	Nous	Wir	Nosotros
ALMAC S.P.A. P.IVA e Cod.Fisc. 02559800350 Viale Ruggeri 6/a. 42016, Guastalla (RE) - Italia Ph. +39 0375-833527 http: www.almac-italia.com; e-mail: info@almac-italia.com				
Dichiaro sotto la nostra esclusiva responsabilità che il prodotto PIATTAFORMA DI LAVORO ELEVABILE – MODELLO:	Declare under our exclusive responsibility that the product MOBILE ELEVATING WORK PLATFORM – MODEL:	Declarons sous notre responsabilité exclusive que le produit PLATEFORME ELEVATRICE MOBILE DE PERSONNEL – MODEL :	Erklären hiermit unter Übernahme der vollen Verantwortung für diese Erklärung, daß das Produkt HUBARBEITSBÜHNEN – TYP:	Declaramos bajo nuestra exclusiva responsabilidad que el producto PLATAFORMA ELEVADORA MÓVIL DE PERSONAL – MODELO:
BIBI 1490-BL EVO				
MATRICOLA:	SERIAL NO:	N. DE SERIE:	SERIENNUMMER:	N. MATRICULA:
ALM-004584				
ANNO DI COSTRUZIONE:	MANUFACTURING YEAR:	ANNEE DE CONSTRUCTION:	BAUJAHR:	AÑO DE CONSTRUCCIÓN:
2025				
Al quale questa dichiarazione si riferisce è conforme alle direttive 2006/42/CE, 2014/30/CE, 2005/88/CE e al modello certificato da:	To which this declaration refers is in compliance with the directives 2006/42/CE, 2014/30/CE, 2005/88/CE and with the model certified by:	Faisant l'objet de la présente déclaration est conforme aux directives 2006/42/CE, 2014/30/CE, 2005/88/CE et au modèle certifié par	Auf das sich die vorliegende Erklärung bezieht, den 2006/42/CE, 2014/30/CE, 2005/88/CE Richtlinien und dem von:	Al cual esta declaración se refiere cumple las directivas 2006/42/CE, 2014/30/CE, 2005/88/CE y el modelo certificado por:
VERICERT srl Via Luigi Masotti, 5 – 48124 Fornace Zarattini (RA) - Italia Organismo Notificato N°1878				
CERTIFICATO CE DI TIPO:	EC-TYPE EXAMINATION CERTIFICATE:	CERTIFICATE CE DE TYPE:	EG-BAUMUSTERPRÜF BESCHEINIGUNG:	CERTIFICADO DE EXAMEN CE DE TIPO:
1878M172418CT0725 of 31/07/2025				
e alle norme seguenti:	and with the following standards:	et aux normes suivantes:	die Erklärung entspricht den folgenden Normen:	y a las siguientes normas:
EN 280-1:2022 EN ISO 12100:2010 EN 60204-1:2018				
Il firmatario di questa dichiarazione di conformità è autorizzato a costituire il Fascicolo Tecnico.	The signatory of this conformity declaration is authorized to set up the Technical File	Le signataire de cette déclaration de conformité est autorisé à constituer le Dossier Technique	Der Unterzeichner dieser Konformitätserklärung ist autorisiert, das technische Unterlagen abzufassen.	El firmante de esta declaración de conformidad está autorizado a crear el Expediente Técnico

Guastalla (RE) 31/07/2025

Andrea Artoni
Legale Rappresentante / Legal representative

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V.le Ruggeri, 6/A
42016 GUASTALLA - RE
C.F. / P.I. 02559800350

11 INSPECTION REGISTER.

This INSPECTION REGISTER is issued to the user of the machine in accordance with Annex 1 of the Machinery Directive 2006/42/EC; it must always accompany the machine even after changes of ownership and is used to record in the appropriate spaces the events that concern the life of the machine, and more precisely:

- Periodic checks by the control bodies (in Italy: ASL, ARPA or authorised private bodies);
- Mandatory maintenance and checks to verify the integrity, the structure of the machine and the protection and safety systems under the responsibility of the Employer and with the minimum frequency required in the MAINTENANCE chapter.
- Transfers of ownership to be recorded and:
 - Communicate to ALMAC S.P.A to continue enjoying the guarantee, service bulletins and updates;
 - Report the transfer to any competent bodies (in Italy: INAIL).
- Extraordinary maintenance or the replacement of important machine elements (structural parts or control systems).

11.1 Register of INSPECTIONS and PERIODIC CHECKS by the control bodies.

	Date	Observations	Body; First Name and Surname; Signature and Stamp
1st Check			
2nd Check			
3rd Check			
4th Check			
5th Check			
6th Check			
7th Check			
8th Check			
9th Check			
10th Check			

If the machine is kept in service for a period of more than 10 years, after having undergone an extraordinary check, record the subsequent periodic checks below.

11th Check			
12th Check			
13th Check			
14th Check			
15th Check			

11.2 Register of PERIODIC INSPECTIONS by the owner.

For controls in this section, refer to the MAINTENANCE chapter.

FUNCTIONAL CHECKS			
	Date	Observations	First Name, Surname; Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

VISUAL CHECK OF TIGHTENING OF SCREWS / TIGHTENING OF SCREWS			
	Date	Observations	First Name, Surname; Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

VISUAL INSPECTION OF THE STRUCTURAL ELEMENTS OF THE MACHINE			
	Date	Observations	First Name, Surname; Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

GREASING OF RUNNERS AND SLIDING PLATFORM ROLLERS			
	Date	Observations	First Name, Surname; Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

REPLACING THE HYDRAULIC OIL			
	Date	Observations	First Name, Surname; Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

REPLACING THE HYDRAULIC OIL FILTERS			
	Date	Observations	First Name, Surname; Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

REPLACING THE OIL IN THE TRACK REDUCERS			
	Date	Observations	First Name, Surname; Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

CHECKING OF TRACK WEAR AND TENSION			
	Date	Observations	First Name, Surname, Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

CLEANING/REPLACING THE DUST FILTERS ON THE LITHIUM BATTERY			
	Date	Observations	First Name, Surname, Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

12V BATTERY CHECK			
	Date	Observations	First Name, Surname, Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

OVERLOAD CONTROL DEVICE CHECK			
	Date	Observations	First Name, Surname, Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

CHECKING OF THE EFFICIENCY OF THE 115-230V SOCKET DIFFERENTIAL SWITCH			
	Date	Observations	First Name, Surname, Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

CHECKING OF THE MACHINE SENSORS			
	Date	Observations	First Name, Surname, Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

CHECKING OF ULTRASONIC SENSORS (IF PRESENT)			
	Date	Observations	First Name, Surname, Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			



OPERATOR ANTI-ENTRAPMENT SYSTEM CONTROL			
	Date	Observations	First Name, Surname, Signature and Stamp
1st year			
2nd year			
3rd year			
4th year			
5th year			
6th year			
7th year			
8th year			
9th year			
10th year			

11.3 Transfers of ownership.

Copy to be kept	
on:	
Ownership of the machine:	
Serial no.	
Year of manufacture	
Is transferred to:	
It is hereby certified that, as of the date above, the technical, dimensional and functional characteristics of the aforementioned machine conformed to the original characteristics and that variations, if any, have been placed in the record.	
Seller's business name:	
Seller	
Purchaser	

Copy to be sent to ALMAC S.p.A.	
On:	
Ownership of the machine:	
Serial no.	
Year of manufacture	
Is transferred to:	
It is hereby certified that, as of the date above, the technical, dimensional and functional characteristics of the aforementioned machine conformed to the original characteristics and that variations, if any, have been placed in the record.	
Seller's business name:	
Seller	
Purchaser	

12 FUNCTIONAL DIAGRAMS.

12.1 WIRING DIAGRAMS.

The wiring diagrams are delivered to the owner of the machine, annexed to this instruction manual at the time of delivery of the machine.

12.2 HYDRAULIC DIAGRAMS.

The hydraulic diagrams are delivered to the owner of the machine, annexed to this instruction manual at the time of delivery of the machine.



ALMACRAWLER

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