



PIATTAFORME AEREE SEMOVENTI
SELF-PROPELLED WORK-PLATFORMS
PLATES-FORMES DE TRAVAIL AUTOMOTRICES
SELBSTFAHRENDE HUBARBEITSBÜHNEN
PLATAFORMAS ELEVADORAS AUTOPROPULSADAS
ZELFRIJDENDE HOOGWERKERS
SJÄLVGÅENDE ARBETSPLATTFORMAR
SAMOKRETNE RADNE PLATFORME

"V" SERIES
V8 E V10 E



USE AND MAINTENANCE MANUAL
- ENGLISH - ORIGINAL INSTRUCTIONS

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Tigieffe thanks you for purchasing a product of its range, and invites you to read this manual. Here you can find all the necessary information for a correct use of the purchased machine; therefore, you are advised to follow the instructions carefully and to read the manual thoroughly. The manual should be kept in a suitable place where no damage can occur to it. The content of this manual may be modified without prior notice and further obligations in order to add changes and improvements to the units already delivered. No reproduction or translation may take place without the written permission of the owner.

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1. INTRODUCTION

This Use and Maintenance Manual provides general instructions concerning the complete range of machines indicated on the cover. Therefore, the description of their components, as well as control and safety systems, may include parts not present on Your machine since supplied on request or not available. In order to keep pace with the technical development *AIRO-Tigieffe s.r.l.* reserves the right to modify the product and/or the use and maintenance manual at any time without updating the units already delivered.

1.1. Legal aspects

1.1.1. Delivery of the machine

Within EU (European Union) member countries the machine is delivered complete with:

- Use and Maintenance manual in your language
- CE mark applied on the machine
- CE conformity declaration
- Guarantee certificate
- Declaration of internal testing

Only for Italy:

- Instructions on commissioning declaration with INAIL and on the application for the first periodic check on the INAIL portal.

It is to be noted that the Use and Maintenance Manual is an integral part of the machine and a copy of this, together with copies of the documents certifying that the periodical checks have been carried out, must be kept on board in its suitable container. In the event of a transfer of ownership the machine must always be provided with its use and maintenance manual.

1.1.2. Declaration of commissioning, first check, further periodical checks and transfers of ownership

The legal obligations of the owner of the machine vary according to the country of commissioning. It is therefore recommended to inquire about the procedures in force in your country from the boards responsible for industrial safety. This manual contains a final section called "Check register" for a better filing of documents and recording of any modifications.

1.1.2.1. Declaration of commissioning and first check

In ITALY the owner of the Aerial Platform must notify the use of the machine to the local competent INAIL and submit it to periodical compulsory checks. The first of such checks is performed by the INAIL within sixty days from a request being made. In the event of such time passing without the inspection being made, the employer can call in the ASL (Local Health Unit) or qualified public or private services. Subsequent checks are made by the already-mentioned parties within thirty days from a request being made. In the event of such time passing without these checks being made, the employer can call in qualified public or private services. The checks are on a payment basis and the employer (machine owner) will be charged for them. For these checks, the territorial inspection boards (ASL/USL or ARPA) and INAIL can be supported by qualified public or private services. The qualified private institutes acquire the qualification of responsible for the public service and refer directly to the public structure that controls this function.

For the commissioning declaration in Italy it is necessary to login to the INAIL portal. Follow the instructions delivered together with other documents during the machine delivery, as well as the information about the portal.

The INAIL will assign a serial number when the First Check is performed before completing the "technical identification sheet" on which it indicates only the details obtained from the already-operating machine or obtainable from the instruction manual. Such document shall form an integral part of the machine documentation.

1.1.2.2. Further periodical checks

Yearly checks are compulsory. In Italy the Aerial Platform owner must apply for a periodical check - by registered letter - to the local competent inspection board (ASL/USL or other qualified public or private services) at least twenty days before the expiry of the year from the last check.

NB: If a machine without a valid control document should be moved in an area outside the competence of the usual inspection board, the owner of the machine must ask the inspection board, competent for the new territory where the machine is to be used, for the annual check.

1.1.2.3. Transfers of ownership

In case of transfer of ownership (in Italy) the Aerial Platform new owner must notify the ownership of the machine to the local competent inspection board (ASL/USL or ARPA or other qualified public or private services) by enclosing a copy of:

- Declaration of conformity issued by the manufacturer.
- Declaration of commissioning carried out by the first owner.

1.1.3. Operator training and information

The employer must ensure that the workers appointed to use the equipment are adequately and specifically trained so they are able to use the Mobile Elevating Work Platform in a proper and safe way and also avoid the risks caused by other people.

1.2. Tests performed before delivery

Before being placed on the market, each MEWP undergoes the following tests:

- Braking test
- Overload test
- Operating test

1.3. Intended use

The machine described in this use and maintenance manual is a self-propelled aerial platform intended for lifting persons and materials (equipment and work materials) in order to carry out maintenance, installation, cleaning, painting, de-painting, sand-blasting, welding operations, etc.

The max. capacity allowed (which varies according to the model – see paragraph “Technical features”) is divided as follows:

- 80 Kg for each person on board.
- 40 Kg for equipment.
- The remaining load is represented by the material being worked.

In any case NEVER exceed the maximum capacity allowed as indicated in paragraph “Technical features”. Persons, tools and work materials can be loaded on the platform only from the access position (platform lowered). It is absolutely forbidden to load persons, tools and work materials on the platform when it is not in access position.

All loads must be positioned inside the cage; do not lift loads (even if complying with the maximum capacity allowed) hanging from the platform or from the lifting structure.

Do not carry large-sized panels since they increase the resistance to wind force thus causing the machine to overturn.

While the machine is being displaced with lifted platform, no horizontal loads can be loaded onto the platform (operators on board are not allowed to pull wires or ropes, etc.).

An overload controller stops the operation of the machine if the load on the platform exceeds by 20% approx. the nominal load (see chapter “General use rules”) and platform is lifted.

The machine cannot be used in areas where road vehicles operate. Always surround the working area by means of suitable signs when the machine is used in public areas.

Do not use the machine to tow trucks or other vehicles.

All types of machine use other than those for which it was designed must be approved in writing by the machine manufacturer following a specific request on the part of the user.



Do not use the machine for purposes other than those for which it was designed, except after making a request and having obtained written permission in this sense from the manufacturer

1.3.1. Leaving at height

The mobile elevating work platforms are not designed by taking into account the risks of the “leaving at height” because the only access position considered is when the platform is completely lowered. For this reason, this activity is formally forbidden. However, there are exceptional conditions in which the operator needs to access or leave the work platform not in the access position. This activity is normally defined as “leaving at height”.

The risks connected to the “leaving at height” do not depend exclusively on the PLE (work elevating platform) characteristics; a specific risk analysis carried out by the employer can authorize this specific use by taking into account:

- The working environment characteristics;
- The absolute prohibition to consider the work platform as an anchoring point for people working outdoors;
- The use of the machine at xx% of its performances to avoid that additional forces created by a specific operation or bending of the structure move away the access zone from the unloading zone. Provide for some tests in order to define these limitations;
- Provide for a specific evacuation procedure in case of emergency (for example: an operator always on the platform, one at the ground control panel while a third operator leaves the lifted platform);
- Provide for a specific training of the staff both as operator and transported staff;
- Equip the unloading zone with all the devices that are necessary to avoid the risk of fall of the staff that accesses/leaves the platform.

What said above is not a formal authorization of the manufacturer for the “leaving at height”, but it wants to supply information to the employer - who is fully responsible for that - which can be useful for the planning of this exceptional activity.

1.4. Description of the machine

The machine described in this use and maintenance manual is a self-propelled elevating work platform equipped with:

- motorized chassis equipped with wheels;
- hydraulically driven rotating turret;
- lifting system (extensible structure) composed of telescopic column with vertical extension and the “jib”;
- operator platform (the max. capacity varies according to the model - see chapter “Technical features”).

The chassis is motorised to allow the machine to move even with lifted platform (see “Use instructions”) and has two rear driving wheels and two front idle steering wheels. The rear wheels are equipped with parking brakes, positive logic type (when drive controls are released brakes are automatically activated). On the chassis there are two fixed pot-hole guards which reduce the ground clearance close to the wheels and they guarantee the stability of the machine with a wheel in a hole.

The turret rests on a turntable fixed to the chassis and can be oriented (rotated) by 360° non-continuous around the central axle of the machine by means of irreversible endless screw.

The lifting system can be divided into two main structures:

- the first, with vertical extension, consists of a telescopic column;
- the second, consists of the terminal boom named “Jib”.

The hydraulic cylinders which move the extensible structure are single-acting and they are provided with normally sealed closed valves directly flanged on the same. These devices allow the booms to remain in position even if one of the supply tubes accidentally breaks.

The platform, hinged to the end of the “jib”, is equipped with guard-rails and toe-boards of a prescribed height (the height of the guard-rails is ≥ 1100 mm; the height of the toe-boards is ≥ 150 mm; in the access area the toe board height is ≥ 100 mm). The platform levelling is automatic and it is ensured by the jib tie rods.

1.5. Control panels

The machine is equipped with two control panels:

- on the platform for normal use of the machine.
- on the turret (or ground) there are the controls of emergency for the recovery of the platform, the emergency stop button, a key-selector to select the control panel and to start the unit and an additional key-selector (FACTORY OVERRIDE) - protected against the non-permissible use for the emergency ground recovery of a trapped and/or unconscious operator.

1.6. Drive power

The machines can be powered by an electro-hydraulic system composed of rechargeable batteries, electric pump and electric drive motors equipped with automatic parking brake;

Both the hydraulic and the electric systems are equipped with all necessary protections (see electric and hydraulic circuit diagrams annexed to this manual).

1.7. Machine life, demolition and decommissioning

The machine has been designed to last for 10 years in normal operating environments, if properly used and serviced. Within this period, the manufacturer must carry out a complete inspection/overhaul.

If disposal of the unit is necessary, comply with current local regulations.

In Italy, the demolition/decommissioning must be notified to the local ASL / USL or ARPA.

The machine consists mainly of metal parts which are easy to be identified (steel for the most parts, and aluminium for the hydraulic blocks); thus, we can state that the machine can be recycled at 90%.



European standards and those transposed by the member countries relating to respect for the environment and the disposal of wastes envisage heavy administrative and penal fines in case of infringement. In case of demolition/decommissioning, carefully keep to the provisions of applicable regulations, especially as regards materials such as hydraulic oil and batteries.

1.8. Identification

In order to identify the machine, when spare parts and service are required, always mention the information given in the serial number plate. Should this plate (as well as the various stickers applied on the machine) be lost or illegible, it is to be replaced as soon as possible. In order to identify the machine when no plate is available the serial number is also stamped on the chassis. To locate the plate and the stamp of the serial number, see the following picture. It is recommended to copy such data in the following boxes.

MODEL: _____	CHASSIS: _____	YEAR: _____
---------------------	-----------------------	--------------------



Fig.1

1.9. Location of main components

The picture shows the machine and its own components.

- 1) Control panel
- 2) Ground emergency controls
- 3) Controllers;
- 4) Hydraulic oil tank
- 5) Hydraulic block of control;
- 6) Pot-hole guards;
- 7) Electric pump
- 8) Electric drive motors with brake;
- 9) Turret rotation hydraulic motor;
- 10) 230V plug (optional)
- 11) Spirit level (optional) for visual check of machine levelling
- 12) Lifting cylinder telescopic column;
- 13) Jib lifting cylinder;
- 14) Solenoid valve proportional lower control telescopic control (EV5);
- 15) Solenoid valve proportional lower control jib (EV19)
- 16) Battery with central top up;
- 17) Power line plug (optional) and circuit breaker switch (optional);
- 18) Inclinometer;
- 19) Limiting sensor of platform load (load cell)
- 20) Turntable
- 21) Battery charger power supply plug;
- 22) Microswitch M1A;
- 23) Microswitch M1C.

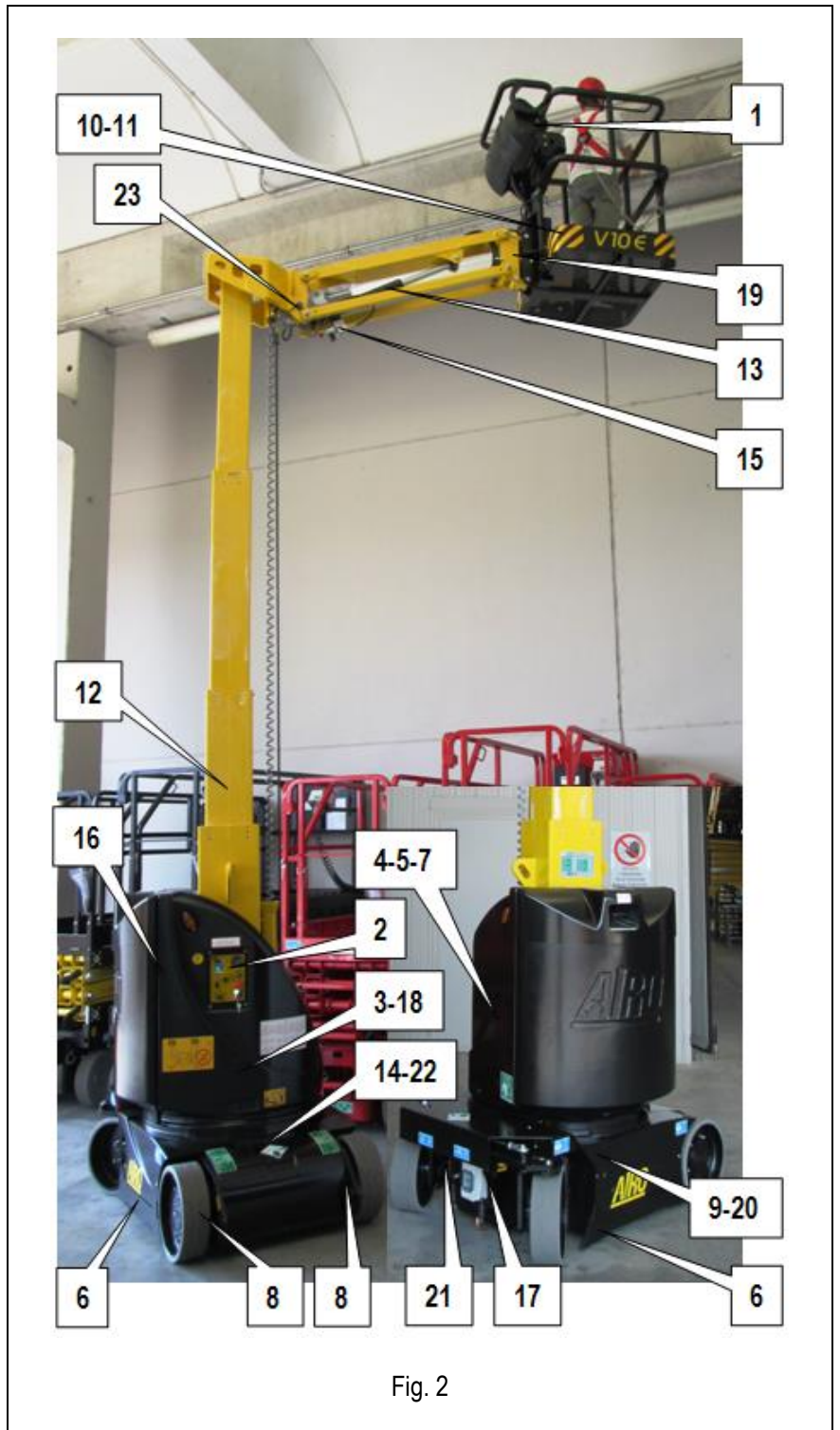


Fig. 2

2. TECHNICAL FEATURES OF STANDARD MACHINES



THE TECHNICAL FEATURES OF THE PRODUCTS IN THE FOLLOWING PAGES CAN BE MODIFIED WITHOUT PRIOR NOTICE

2.1. Model V8 E.

		V8 E			
Dimensions:					
	Maximum working height	8.1	m	26' 6"	ft
	Max. platform height	6.1	m	20"	ft
	Ground clearance - central area of the chassis	55	mm	21.6"	in
	Ground clearance - pot-hole area	30	mm	11.8"	in
	Max. outreach from turntable centre	3.35	m	10' 11"	ft
	Turret rotation (not continuous)	355	°	355	°
	Platform height for safety speed activation	< 2	m	<6' 11"	ft
	Internal steering radius	0.28	m	0' 11"	ft
	External steering radius	1.23	m	4'	ft
	Maximum capacity (m)	200	Kg	440	lbs
	Max. number of people on the platform (n) – indoors	2		2	
	Tool and material weight (me) (**) – indoors	40	Kg	88.2	lbs
	Max. number of people on the platform (n) – outdoors	2		2	
	Tool and material weight (me) ** – outdoors	40	Kg	88.2	lbs
	Maximum drive height	Max		Max	
	Maximum dimensions of platform (****)	0.8 x 0.99	m	2' 7" x 3' 3"	ft
	Max. hydraulic pressure	140	Bar	2030	psi
	Tyre dimensions (****)	Ø 406 x 127	mm	15.9" x 5"	In
	Tyre type (****)	Cushion soft		Cushion soft	
	Transport dimensions	2,8 x 1,0 H=1,99	m	9' 2" x 3' 3" H=6' 6"	ft
	Machine weight (unloaded) (*)	2720	Kg	6000	lbs
Stability limit:					
	Longitudinal inclination	2	°	2	°
	Transversal inclination	2	°	2	°
	Maximum manual force - indoors	400	N	89.9	lbf
	Maximum manual force - outdoors	400	N	89.9	lbf
	Maximum wind speed (***)	12.5	m/s	27.9	mph
	Max. load per wheel	1350	Kg	2900	lbs
Performance:					
	Driving wheels	2	N	2	no
	Max. drive speed	6	km/h	3.7	mph
	Safety drive speed	0.6	km/h	0.4	mph
	Oil tank capacity	30	Lt.	7.9	gal
	Gradeability	25	%	25	%
	Max. operating temperature	+50	°C	122	°F
	Min. operating temperature	-15	°C	5	°F

Battery power					
	Voltage and standard battery capacity - Deep Cycle	24 / 280	V/Ah	24 / 280	V/Ah
	Total electrolyte quantity of standard battery	4 x 10.3	Lt.	4 x 2.7	gal
	Standard battery weight	4 x 47	Kg	400	lbs
	Voltage and optional battery capacity - Drive Battery	24 / 320	V/Ah	24 / 320	V/Ah
	Total electrolyte quantity of optional battery	4 x 11.4	Lt.	1.0 x 3.0	gal
	Optional battery weight	4 x 52	Kg	4 x 114.10	lbs
	Single-phase battery charger (HF)	24 / 25	V/A	24 / 25	V/A
	Battery charger power supply mains voltage - single phase	230 – 50	V - Hz	230 – 50	V - Hz
	Max. current absorbed by battery charger	12	A	12	A
	Max. installed power	6.1	kW	8	hp
	Electric pump power DC	4.5	kW	6.0	hp
	Max. absorbed current	160	A	160	A
	AC drive motors power	2 x 0.8	kW	2 x 1.0	hp
	Max. current absorbed by each motor	2 x 50	A (DC)	2 x 50	A (DC)

(*) In some cases, different limits can be fixed. It is recommended to comply with the data shown on the machine plate.

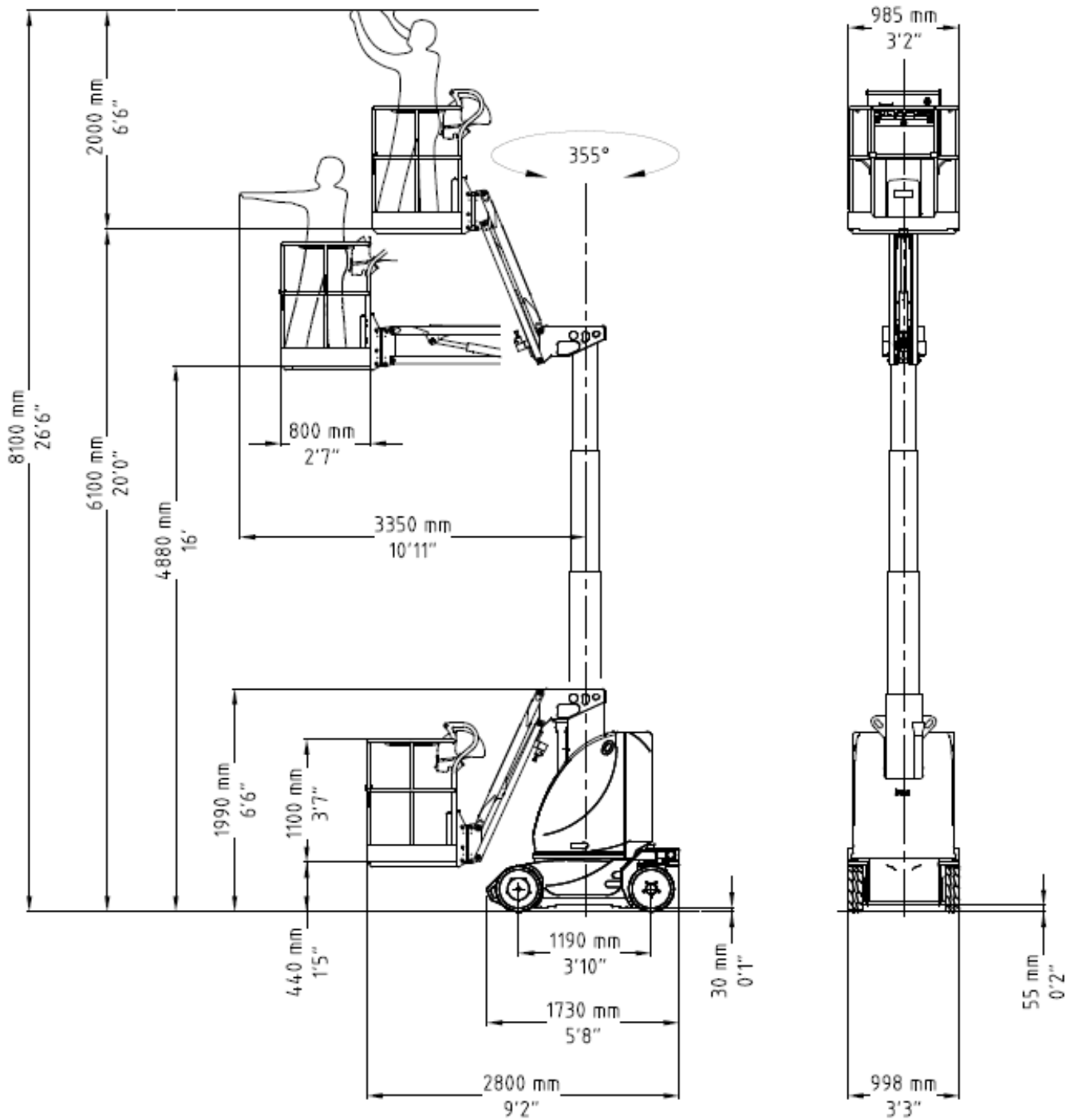
(**) $me = m - (n \times 80)$.

(***) Wind speeds higher or equal to 12.5 m/s indicate that the machines can also be used outdoors; Wind speeds equal to 0 m/s indicate that the machines can be used INDOORS ONLY.

(****) Standard tyres: cushion soft no-marking.

(*****) Standard steel platform.

V8 E



2.2. Model V10 E.

		V10 E			
Dimensions:					
	Maximum working height	9.86	m	32' 4"	ft
	Max. platform height	7.86	m	22' 9"	ft
	Ground clearance - central area of the chassis	55	mm	0' 2"	in
	Ground clearance - pot-hole area	30	mm	0' 1"	in
	Max. outreach from turntable centre	3.35	m	10' 9"	ft
	Turret rotation (not continuous)	355	°	355	°
	Platform height for safety speed activation	< 2	m	<6' 7"	ft
	Internal steering radius	0.28	m	0' 11"	ft
	External steering radius	1.23	m	4"	ft
	Maximum capacity (m)	200	Kg	440	lbs
	Max. number of people on the platform (n) – indoors	2		2	
	Tool and material weight (me) (**) – indoors	40	Kg	88.2	lbs
	Max. number of people on the platform (n) – outdoors	1		1	
	Tool and material weight (me) ** – outdoors	120	Kg	264.8	lbs
	Maximum drive height	Max		Max	
	Maximum dimensions of platform (****)	0.8 x 0.99	m	2' 7" x 3' 3"	ft
	Max. hydraulic pressure	140	Bar	2030	psi
	Tyre dimensions (****)	Ø 406 x 127	mm	15.9" x 5"	in
	Tyre type (****)	Cushion soft		Cushion soft	
	Transport dimensions	2,8 x 1,0 H=1,99	m	9' 2" x 3' 3" H= 6' 7"	ft
	Machine weight (unloaded) (*)	2770	Kg	6100	lbs
Stability limit:					
	Longitudinal inclination	2	°	2	°
	Transversal inclination	2	°	2	°
	Maximum manual force - indoors	400	N	90	lbf
	Maximum manual force - outdoors	200	N	45	lbf
	Maximum wind speed (***)	12.5	m/s	28	mph
	Max. load per wheel	1350	Kg	2900	lbs
Performance:					
	Driving wheels	2	N	2	no
	Max. drive speed	6	km/h	3.7	mph
	Safety drive speed	0.6	km/h	0.4	mph
	Oil tank capacity	30	Lt.	7	gal
	Gradeability	25	%	25	%
	Max. operating temperature	+50	°C	122	°F
	Min. operating temperature	-15	°C	5	°F

Battery power					
	Voltage and standard battery capacity - Deep Cycle	24 / 280	V/Ah	24 / 280	V/Ah
	Total electrolyte quantity of standard battery	4 x 10.3	Lt.	4 x 2.7	gal
	Standard battery weight	4 x 47	Kg	400	lbs
	Voltage and optional battery capacity - Drive Battery	24 / 320	V/Ah	24 / 320	V/Ah
	Total electrolyte quantity of optional battery	4 x 11.4	Lt.	1.0 x 3.0	gal
	Optional battery weight	4 x 52	Kg	4 x 114.10	lbs
	Single-phase battery charger (HF)	24 / 25	V/A	24 / 25	V/A
	Battery charger power supply mains voltage - single phase	230 – 50	V - Hz	230 – 50	V - Hz
	Max. current absorbed by battery charger	12	A	12	A
	Max. installed power	6.1	kW	8	hp
	Electric pump power DC	4.5	kW	6.0	hp
	Max. absorbed current	160	A	160	A
	AC drive motors power	2 x 0.8	kW	2 x 1.0	hp
	Max. current absorbed by each motor	2 x 40	A (DC)	2 x 50	A (DC)

(*) In some cases, different limits can be fixed. It is recommended to comply with the data shown on the machine plate.

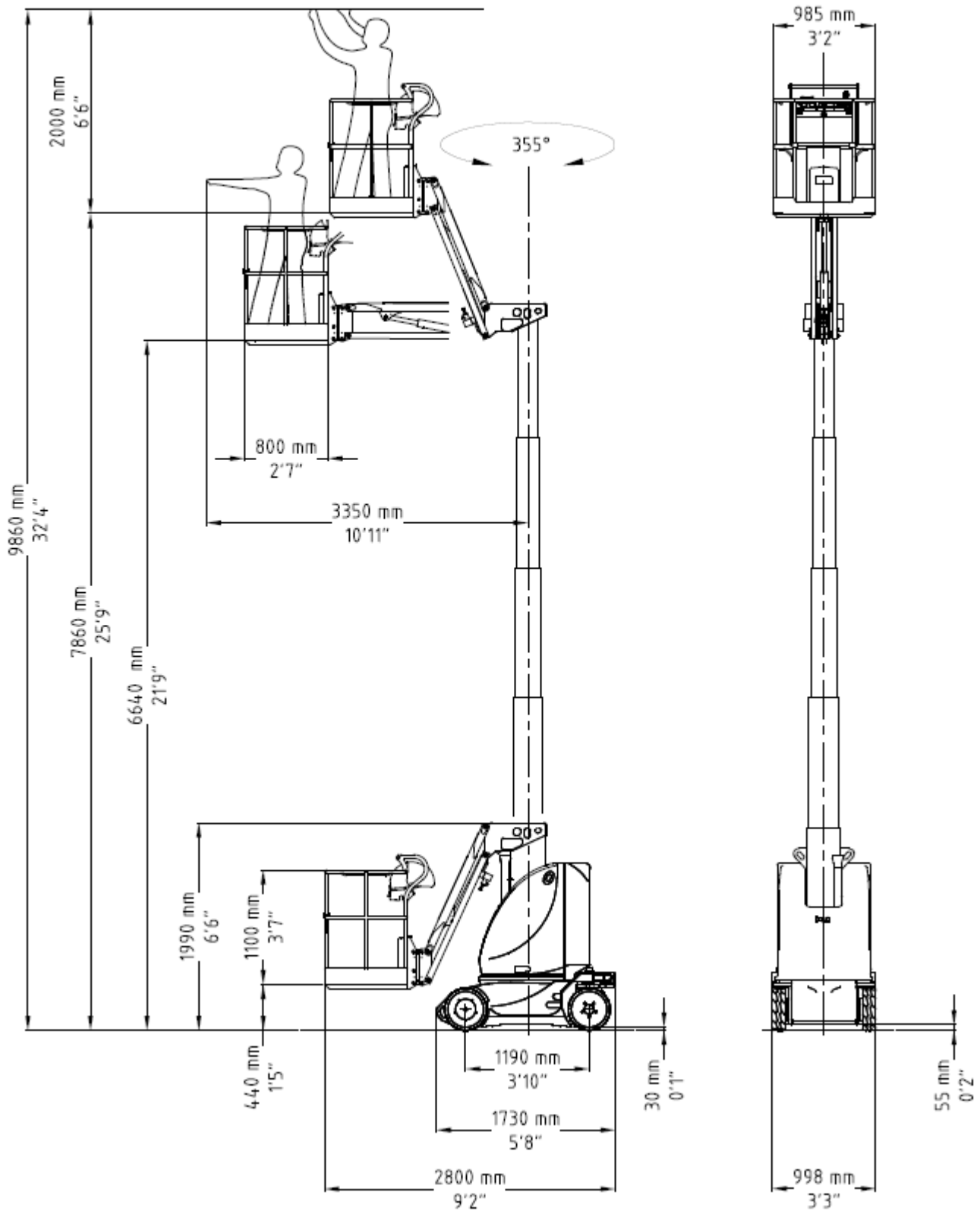
(**) $me = m - (n \times 80)$.

(***) Wind speeds higher or equal to 12.5 m/s indicate that the machines can also be used outdoors; Wind speeds equal to 0 m/s indicate that the machines can be used INDOORS ONLY. The V10 E can be used outdoors with only one person on the platform.

(****) Standard tyres: cushion soft no-marking.

(*****) Standard steel platform.

V10 E



2.3. Vibrations and noise

Noise tests have been carried out under the most unfavourable conditions to study the effects on the operator. The level of acoustic pressure weighed (A) at work places does not exceed 70dB(A) for each electrical model.

For the models equipped with diesel motor generator, the level of acoustic pressure weighed (A) at work places does not exceed 106dB(A), the level of acoustic pressure at ground control panel does not exceed 85dB(A), the level of acoustic pressure at platform control panel does not exceed 78bD(A).

As to vibrations in ordinary working conditions:

- The average weighted quadratic value in frequency of the acceleration which the upper members have to withstand is below **2.5 m/sec²** for each of the models to which this Use and Maintenance manual refers.
- The average weighted quadratic value in frequency of the acceleration which the body has to withstand is below **0.5 m/sec²** for each of the models to which this Use and Maintenance manual refers.

3. SAFETY PRECAUTIONS

3.1. Personal protective equipment (PPE)

Always wear personal protective equipment according to current regulations concerning industrial health and safety (in particular, hard hat and safety shoes are **COMPULSORY**).

It is the operator or safety manager's responsibility to choose the personal protective equipment (PPE) depending on the activity to be carried out. For their correct use and maintenance, refer to the equipment manuals themselves.

The use of safety harness is not compulsory except in certain countries with specific regulations. In Italy, the consolidation act on safety, **Law Decree 81/08**, has made the use of a safety harness mandatory.

The harness is attached to one of the anchorages reported by labels, as in the following picture.



Fig. 3

3.2. General safety norms



- Only adults (18 years old), after carefully reading this manual, are allowed to use the machine. The employer is responsible for training.
- The platform is intended for people carriage; therefore, it is necessary to comply with the current local regulations relevant to this class of machines (see paragraphs 1).
- At least two users must operate the machine, one of them on the ground, able to carry out the emergency operations described in this handbook.
- Always keep the machine at a safety distance from power lines as indicated in the next chapters.
- Use the machine according to the capacity values indicated in the technical features section. The identification plate shows the maximum number of people allowed on the platform at any one time, the maximum capacity and the tool and material weight. Never exceed the indicated figures.
- Do NOT use the framework of the platform or any of its elements for grounding connections while welding on the platform.
- It is absolutely forbidden to load and/or unload persons and/or material with platform not in the access position.
- It is the machine owner and/or safety manager's responsibility to check that the maintenance and repair operations are carried out by skilled personnel.

3.3. Use instructions

3.3.1. General

The electric and hydraulic circuits are provided with safety devices, calibrated and sealed by the manufacturer:



DO NOT TAMPER WITH AND MODIFY THE CALIBRATION OF ANY COMPONENT OF THE ELECTRIC AND HYDRAULIC SYSTEMS.

- The machine must be used only in areas well lit up, checking that the ground is flat and firm. The machine may not be used if the lighting conditions are not sufficient. The machine is not equipped with any lightning system.
- Before using the machine check its integrity and conservation state.
- During maintenance operations do not dispose of any waste materials in the environment, but comply with current regulations.
- Do not carry out any service or maintenance operations when the machine is connected to the mains supply. Follow the instructions given in the following paragraphs.
- Do not approach the electric and hydraulic system components with sources of heat or flames.
- Do not increase the max. allowed height by means of scaffolds, ladders or other.
- With the machine lifted, do not fasten the platform to any structure (beams, pillars or wall).
- Do not use the machine as a crane, hoist or lift.
- Protect the machine (in particular the platform control panel by means of the specially provided cover- optional) and the operator when working in adverse environmental conditions (painting, de-painting, sand-blasting, washing, etc.).
- Using the machine in bad weather conditions is forbidden; in particular, wind speeds must not exceed the limits indicated in the Technical specifications (to measure speeds, see the following chapters).
- Machines with a wind speed limit of 0 m/s are to be used indoors only.
- In the event of rain or in parking condition always protect the platform control panel by means of the specially provided cap (optional).
- Do not use the machine in areas where risks of fire or explosion exist.
- Do not use pressurized water jets (high-pressure cleaners) to wash the machine.
- Overloading the work platform is forbidden.
- Avoid knocks and/or contacts with other vehicles and fixed structures.
- Leaving or accessing the work platform is forbidden unless this is in the position required for access or leaving (see the "Accessing the platform" chapter).



3.3.2. Handling

- Before handling the machine check that the connection plugs are disconnected from the power supply source. Always check the cable position during handling if the machine is powered with a 230V electrical pump.
- In order to avoid any instability, use the machine on regular and firm grounds. To prevent the machine from overturning, comply with the max. gradeability values indicated in the Technical data section under paragraph "Stability limits". However, movements on inclined grounds are to be carried out with the utmost caution.
- As soon as the platform is lifted (the tolerance varies from model to model) the safety drive speed is automatically activated (all models of this handbook have passed the stability Tests in compliance with standard EN280).
- Drive the machine with lifted platform only on flat grounds, verifying the absence of holes or steps on the floor and bearing in mind the overall dimensions of the machine.
- While driving the machine with lifted platform the operators are not allowed to place horizontal loads onto the platform (operators on board must not pull ropes, wires, etc.).
- The machine must not be used directly for road transport. Do not use it for material transport (see paragraph "Intended use").
- Check that in the operating area there are not obstacles or other dangerous elements.
- Pay particular attention to the area above the machine during lifting to avoid any crushing and collisions.
- During operation keep your hands in safety position, the driver has to place them as shown in picture A or B while the transported operator has to keep them as shown in picture C.



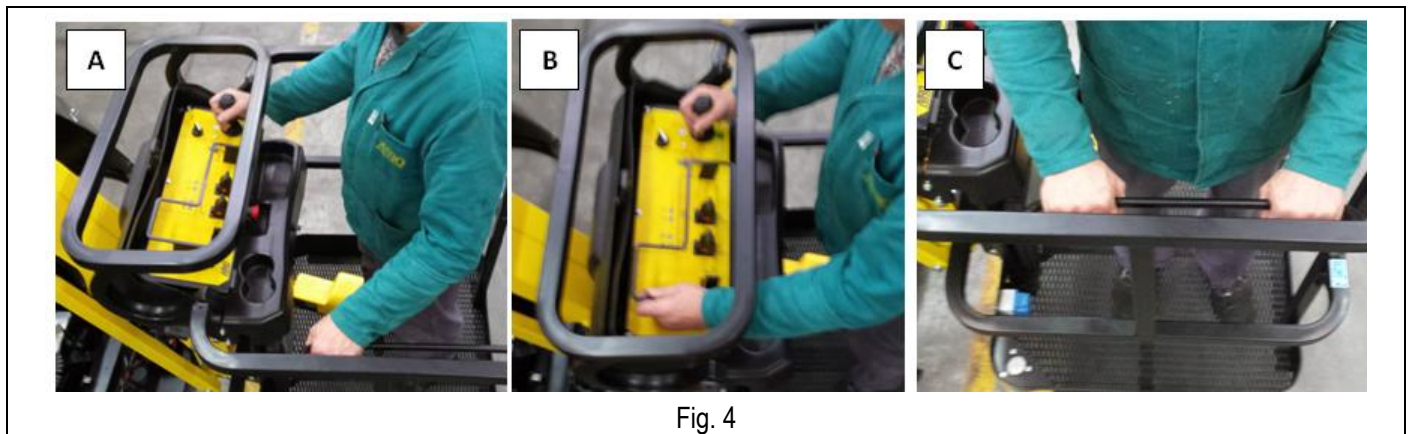


Fig. 4

3.3.3. Operating procedures

- The machine is equipped with a chassis inclination control system disabling lifting operations in case of unstable positioning. Working operations can be resumed only after placing the machine in a steady position. If the audible alarm and the red light on the platform control panel turn on, the machine is not correctly positioned (see paragraphs relevant to "Use instructions"). It is necessary to bring it to safety rest position before starting operations again. If the tilt alarm trips with the platform elevated, the only possible operations are those that allow lowering the platform.
- The machine is equipped with an overload controller stopping the platform in case of overloading. In case of platform overloading when lifted, also drive is disabled. Platform operation can be resumed only after removing the overload. Should the audible alarm and the red light located on the platform control panel turn on, then the platform is overloaded (see chapter "Red warning light overload"). Remove the exceeding load before starting operations again.
- Electrically-powered machines feature a device for checking the state of discharge of the battery (battery protection): when battery discharge is at 20% the operator on the platform is informed of this condition through a flashing red light. In this condition lifting is disabled, battery should be immediately charged.
- Do not use the machine if the protection door of the emergency of the system **FACTORY OVERRIDE** is absent, or if it's missing the leaded seal (see chapter **EMERGENCY MANUAL CONTROLS**).
- Do not lean over the platform guard rails.
- Make sure that no people, apart from the operator, are in the area where the machine is operating. While moving the platform, the operator on board should pay particular attention to avoid any contact with the personnel on the ground.
- During operations in public areas, in order to prevent people other than the personnel from approaching the machine and being endangered, surround the working area by means of barriers or other suitable signs.
- Avoid severe weather conditions and, in particular, windy days.
- Lift the platform only if the machine is resting on solid and horizontal surfaces (following chapters).
- Drive the machine with lifted platform only if the ground is solid and horizontal.
- After each work session, always take the keys out of the control panels and keep them in a safe place to prevent unauthorized people from using the machine.
- Always place working tools in a steady position to prevent them from falling and hurting the operators on the ground.



When choosing the positioning point of the chassis, to prevent unexpected possible contacts with obstacles, always observe the figures carefully as these make it possible to identify the range of action of the platform (chap. 2).

3.3.4. Wind speed according to Beaufort scale

You can use the table below for a simple assessment of the wind speed. We remember that the max. limit for each machine model is indicated in the table TECHNICAL FEATURES OF STANDARD MACHINES.



The machines for which the max. wind limit is 0 m/s must be used indoors only. These machines cannot be used outdoors even with no wind.

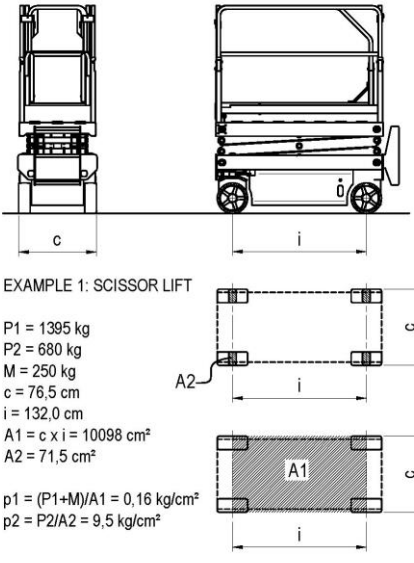
Beaufort Number	Wind speed (km/h)	Wind speed (m/s)	Wind description	Sea conditions	Land conditions
0	0	<0.28	Calm	Flat	Smoke rises vertically.
1	1-6	0.28-1.7	Light air	Ripples without crests. No whitecaps.	Wind motion visible in smoke.
2	7-11	1.7-3	Light breeze	Small wavelets. Crests of glassy appearance, not breaking.	Wind felt on exposed skin. Leaves rustle.
3	12-19	3-5.3	Gentle breeze	Large wavelets. Scattered white caps.	Leaves and small twigs constantly moving.
4	20-29	5.3-8	Moderate breeze	Small waves with breaking crests. Fairly frequent whitecaps.	Dust and loose paper raise. Small branches begin to move.
5	30-39	8.3-10.8	Fresh breeze	Moderate longer waves. Many whitecaps. Small amounts of spray.	Small trees in leaf begin to sway. Strong breeze
6	40-50	10.8-13.9	Strong breeze	Large waves with foam crests and some spray. Some airborne spray is present.	Large branches in motion. Umbrella use becomes difficult.
7	51-62	13.9-17.2	Near gale / Moderate gale	Sea heaps up and foam begins to streak. Some foam from breaking waves is blown into streaks along wind direction.	Whole trees in motion. Effort needed to walk against the wind.
8	63-75	17.2-20.9	Fresh gale	Moderately high waves with breaking crests forming spindrift. Streaks of foam. Breaking crests forming spindrift.	Some twigs broken from trees. Cars veer on road. Progress on foot is seriously impeded.
9	76-87	20.9-24.2	Strong gale	High waves whose crests sometimes roll over. Dense foam is blown along wind direction.	Larger branches break off trees, construction/temporary signs and barricades blown over, damage to circus tents and canopies.
10	88-102	24.2-28.4	Whole gale / Storm	Very high waves with overhanging crests. Large patches of foam from wave crests give the sea a white appearance. Large amounts of airborne spray reduce visibility.	Trees are broken off or uprooted. Considerable damage to structures.
11	103-117	28.4-32.5	Violent storm	Exceptionally high waves. Very large patches of foam cover much of the sea surface. Very large amounts of airborne spray severely reduce visibility.	Many roofing surfaces are damaged; asphalt tiles that have curled up and/or fractured due to age may break away completely.
12	>117	>32.5	Hurricane	Huge waves. Air is filled with driving spray, sea is completely white with foam and spray.	Some windows may break; mobile homes and poorly constructed sheds and barns are damaged.

3.3.5. Pressure of the machine on ground and load-bearing capacity of ground

Before using the machine, the operator must make sure the floor is suitable for withstanding the specific loads and pressures on the ground with a certain safety margin.

The following chart provides the parameters in play and two examples of calculation of the average pressure on the ground below the machine and max pressure underneath the wheels or outriggers (p1 and p2).

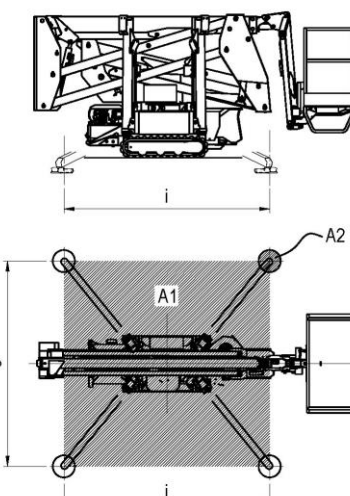
SYMBOL	U.M.	DESCRIPTION	EXPLANATION	FORMULA
P1	Kg	Total machine weight	It represents the machine weight, nominal load excluded. Note: always refer to the details indicated on the plates affixed to the machine.	-
M	Kg	Nominal Load	The max. load allowed for the work platform.	-
A1	cm ²	Area occupied on the ground	Machine supporting area on the ground determined by the result of TRACK x WHEEL BASE.	$A1 = c \times i$
c	cm	Track	Cross width of machine measured outside the wheels. or: Cross width of machine measured between levelling outrigger centres.	-
i	cm	Wheel base	Longitudinal length of machine measured between wheel centres. or: Longitudinal length of machine measured between levelling outrigger centres.	-
A2	cm ²	Wheel or levelling outrigger area	Wheel or levelling outrigger ground support area. The wheel support area on the ground must be verified empirically by the operator; the levelling outrigger support area depends on the shape of the support foot.	-
P2	Kg	Max. load on wheel or levelling outrigger	This represents the max. load that can be discharged onto the ground by a wheel or by a levelling outrigger when the machine is in the worst position and load conditions. Note: always refer to the details indicated on the plates affixed to the machine.	-
p1	Kg/cm ²	Pressure on ground	Average pressure placed on the ground in idle conditions and supporting the nominal load.	$p1 = (P1 + M) / A1$
p2	Kg/cm ²	Max specific pressure	Max. pressure which a wheel or a levelling outrigger can place on the ground when the machine is in the worst position and load conditions.	$p2 = P2 / A2$



EXAMPLE 1: SCISSOR LIFT

P1 = 1395 kg
P2 = 680 kg
M = 250 kg
c = 76,5 cm
i = 132,0 cm
A1 = c x i = 10098 cm²
A2 = 71,5 cm²

$p1 = (P1+M)/A1 = 0,16 \text{ kg/cm}^2$
 $p2 = P2/A2 = 9,5 \text{ kg/cm}^2$



EXAMPLE 1: CRAWLER LIFT

P1 = 2200 kg
P2 = 920 kg
M = 200 kg
c = 295 cm
i = 295 cm
A1 = c x i = 87025 cm²
A2 = 62,8 cm²

$p1 = (P1+M)/A1 = 0,03 \text{ kg/cm}^2$
 $p2 = P2/A2 = 14,6 \text{ kg/cm}^2$

The table below shows the load-bearing capacity of the ground split up by ground type. Refer to the data contained in the specific tables of each model (chapter 2, TECHNICAL FEATURES OF STANDARD MACHINES) to obtain the figure relating to the max pressure on the ground caused by the single wheel.



Using the machine is forbidden if the max pressure on the ground per wheel is above the load-bearing capacity of the specific type of ground on which the machine is to be used.

TYPE OF GROUND	BEARING CAPACITY IN Kg/ cm ²
Non compact filling earth	0 – 1
Mud, peat, etc.	0
Sand	1.5
Gravel	2
Friable earth	0
Soft earth	0.4
Rigid earth	1
Semi-solid earth	2
Solid earth	4
Rock	15 - 30

Should you have any doubts, verify the load-bearing capacity with specific tests. In case of constructed surfaces (concrete floors, bridges, etc.) the load-bearing capacity must be provided by the builder.

3.3.6. High-voltage power lines

The machine is not electrically insulated and is not protected in case of contact with or vicinity to power lines. A minimum distance must be kept from the power lines according to the applicable laws and the following table

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

3.4. Dangerous situations and/or accidents

- If, during Preliminary Operation Checks or when using the machine, the operator discovers a defect that could produce a hazardous situation, the machine must be placed in **safety condition** (isolate it and affix a notice) and the employer must be notified about the fault.
- If, during use, an accident occurs, with injury to the operators, caused by operating errors (e.g., collisions) or any structural yielding, the machine must be placed in **safety condition** (isolate it and affix a notice) and the employer must be notified about the fault.
- In case of an accident with injuries to one or more operators, the operator on the ground (or on a platform not involved in the accident) must:
 - **Seek help immediately**
 - Perform the operation to return the platform to the ground **only if he is certain this will not make the situation worse.**
 - Place the machine in **safety condition** and notify the fault to the employer.

4. INSTALLATION AND PRELIMINARY CHECKS

The machine is supplied completely assembled, therefore it can perform all functions in full safety as provided for by the manufacturer. No preliminary operation is required. To unload the machine, follow the instructions in chapter "Handling and carrying". Place the machine onto a firm ground and with a gradeability lower than the max. allowed (see technical features "**Stability limits**").

4.1. Becoming acquainted with the machine

Anyone wishing to use a machine with weight, height, width and length characteristics or which generally differs significantly from the training received must be updated in order to cover the differences.

The employer shall be responsible for ensuring all the operators who use work equipment are adequately trained and in order with applicable health and safety legislation.

4.2. Preliminary operation checks

Before using the machine read the instructions given in this manual and the concise instructions indicated on the platform plate. Check the perfect integrity of the machine (by sight check) and read the plates showing machine operating limits.

Before using the machine, the operator must always check visually that:

- The battery is completely charged.
- The oil level lies between the min. and max. value (with lowered platform).
- The ground is sufficiently horizontal and solid.
- The machine carries out all operations in safety.
- The wheels and drive motors are properly fixed.
- The wheels are in good condition.
- Make sure the rails are fastened to the platform and the gate/s are in automatic reclosing mode.
- The structure does not show clear faults (visually check welding of lifting structure).
- The instructions plates are perfectly readable.
- the controls are perfectly efficient both at operator position and at emergency ground control panel, including dead-man system.
- The protection door of the emergency key of the system FACTORY OVERRIDE is in on position fixed with screw and blocked with lead seal
- The anchoring points for the harness are in perfect state of conservation.

Do not use the machine for purposes different from those it was intended for.

5. HOW TO USE

Before using the machine read this chapter thoroughly.



WARNING!

Follow exclusively the instructions given in the next paragraphs and the safety rules described both hereafter and in the previous paragraphs. Read the next paragraphs carefully in order to properly understand the on/off procedures as well as all operations and their correct use.

5.1. Platform control panel

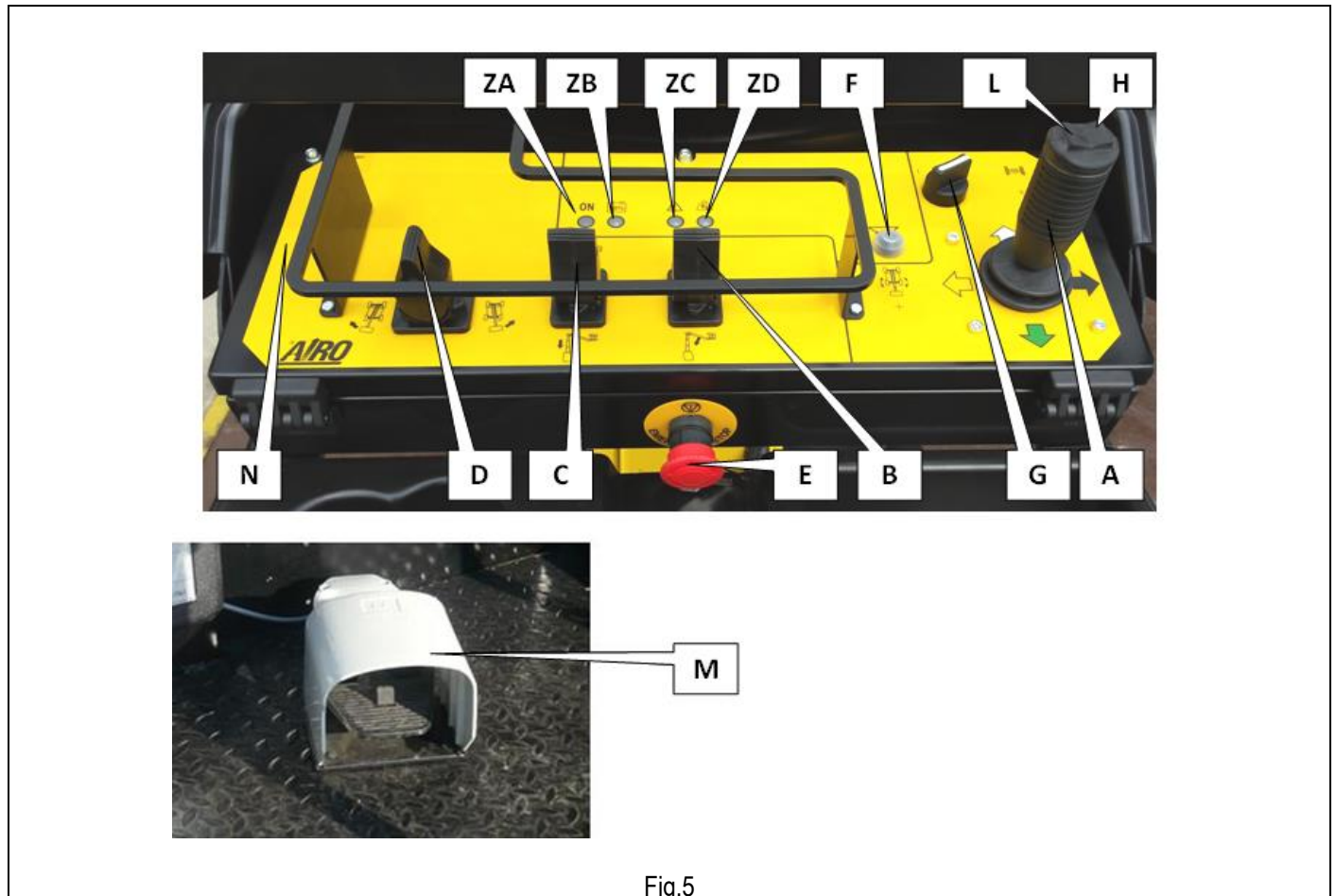


Fig.5

- A) Drive proportional joystick control
- B) Proportional lever control up/down telescopic column
- C) Proportional lever control jib up/down
- D) Proportional lever control turret rotation
- E) Emergency STOP button
- F) Manual horn
- G) Drive speed selector
- H) Right steering switch
- L) Left steering switch
- M) Dead-man pedal
- N) "Dead-man" button (optional)
- ZA) Enabled control panel warning light
- ZB) Flat battery warning light
- ZC) Danger warning light
- ZD) Overload warning light

All movements are controlled by proportional joystick /levers; it is therefore possible to adjust movement speed by means of the relative controls. To avoid sudden shakes during movements, it is advisable to operate the proportional joystick controls gradually.

For safety reasons, to operate the machine, it is necessary to press “dead-man” pedal **M** or “dead-man” button **N** at platform before operating the controls. If the “dead-man” pedal is accidentally released while the machine is operating, the movement is immediately stopped.



WARNING!

Holding down the “dead-man” pedal for over 10 seconds without carrying out any operation will disable the control panel. Once the dead-man button is pressed, you have 2 seconds to activate the controls. If no operation is performed after 2 seconds, the control panel is disabled.

The disabled control panel condition is indicated by the flashing green led (ZA). To operate the machine again it is necessary to release the “dead man” pedal and press it again or press the “dead man” button; the green led (ZA) will light up steady and for the next 10 seconds all controls will be enabled.

5.1.1. Drive and steering



Before carrying out any displacement operation, verify that no people are in proximity of the machine and in any case proceed with the utmost caution.



IT IS FORBIDDEN to drive the machine when the platform is lifted unless the chassis is flat and steady with no holes and steps.

To drive the machine, carry out the following operations in sequence:

- press and hold down “dead-man” pedal **M** or press and release “dead-man” button **N** located on the platform; the green led **ZA** will light up steady indicating its enabling;
- in case of use of the pedal within 10 seconds from the green steady led lighting up, set the proportional joystick drive control **A** and forward for forward drive or backward for reverse drive.
- In case of use of the button within 2 seconds from the green steady led lighting up, set the proportional joystick drive control **A** and forward for forward drive or backward for reverse drive.

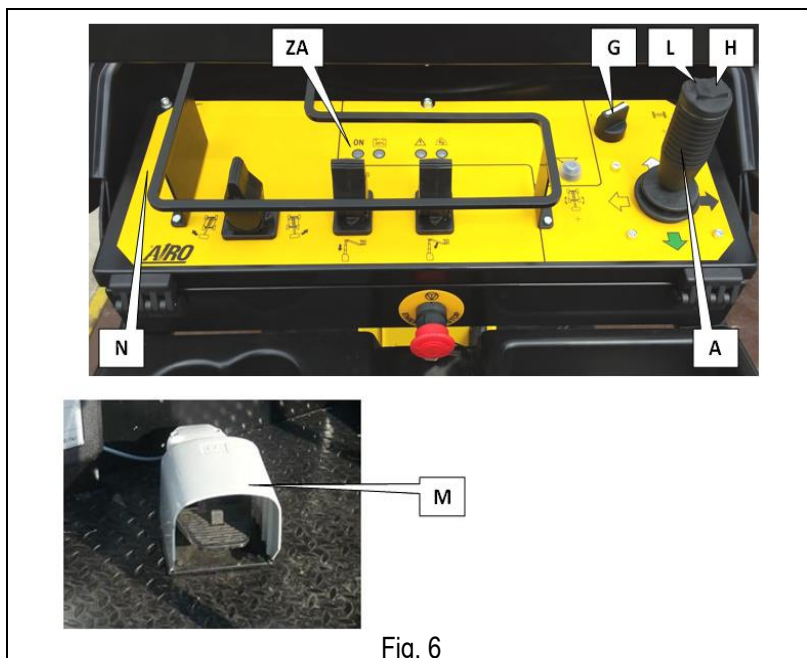


Fig. 6



WARNING!!

Drive and steering controls can take place at the same time but they are interlocked with the platform movement controls (lifting/lowering/rotation). With platform lowered (booms down, telescopic boom in, jib at a height between $+10^\circ$ and -70°) simultaneous steering-drive-turret rotation is possible to facilitate the machine positioning in narrow spaces.

With platform lowered (telescopic column lowered and jib at a height between $+10^\circ$ and -70°) it is possible to select different drive speeds **G** it is possible to select different drive speeds by means of the speed selector.

NOTE: To achieve maximum drive speed, set the speed selector **G** to position (III), and press down the proportional joystick (A).
To operate on high ascending slopes (e.g. while loading the machine onto a truck) set the speed selector **G** to position (II) or (III).
To operate on high descending slopes (e.g. while unloading the machine from a truck) and get the minimum speed with lowered platform, set the speed selector **G** to position (I).



With platform lifted, safety drive speed is automatically enabled regardless of the position of speed selector “G”.

To steer, press the buttons **H / L** located on the drive proportional joystick control (press the right button for right steering and vice versa). Also the steering control is enabled by the dead-man pedal or by the button “dead-man” and it is possible only if the green led **ZA** is lit up steady.

5.1.2. Platform positioning movements

To carry out all movements other than drive, use proportional levers **B**, **C**, **D**.

To achieve the movement, it is necessary to carry out the following operations in sequence:

- Press and hold down “dead-man” pedal **M** or press and release “dead-man” button **N** located on the platform; the green led **ZA** will light up steady indicating its enabling;
- In case of use within 10 seconds from the green steady led lighting up, set the proportional joystick control or the desired switch in the direction shown by the serigraphy on the control panel.
- In case of use within 2 seconds from the green steady led lighting up, set the proportional joystick control or the desired switch in the direction shown by the serigraphy on the control panel.

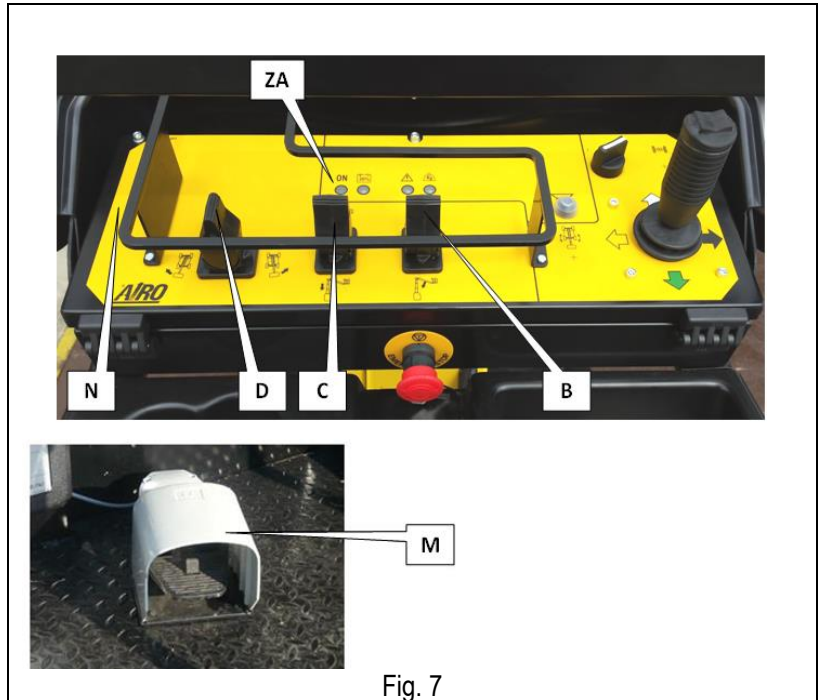


Fig. 7

NOTE: before activating the proportional joystick control or the desired switch the dead-man pedal must be pressed. Release the “dead-man” pedal and the manoeuvre will be immediately stopped.



The platform positioning controls can't be used simultaneously. The turret orientation can be used at the same time as the drive and steering controls in lowered platform conditions (telescopic column lowered, jib at a height between +10° and -70°).

5.1.2.1. Telescopic column lifting/lowering

To lift/lower the pantograph (first boom), use the proportional lever **B**. Set the proportional lever **B** forward for lifting or backward for lowering.

5.1.2.2. Jib lifting/lowering.

To lift/lower the JIB, use the proportional lever **C**. Set the proportional lever **C** forward for lifting or backward for lowering.

5.1.2.3. Turret orientation (rotation)

To carry out the turret orientation (rotation), use the proportional lever **D**. Set the proportional lever **D** to the right in counter-clockwise rotation or to the left in clockwise rotation.



With platform lowered (telescopic column lowered, jib at a height between +10° and -70°) simultaneous steering-drive-turret orientation is possible to facilitate the machine positioning in narrow spaces.

5.1.3. Other functions of the platform control panel.

5.1.3.1. Manual horn

It warns that the machine is moving; it is manually operated by means of the press-button F.

5.1.3.2. Emergency stop button

By pressing the red emergency STOP button E all control functions of the machine are stopped. Normal functions are enabled by rotating the button of 1/4 turn clockwise.

5.1.3.3. Warning lights

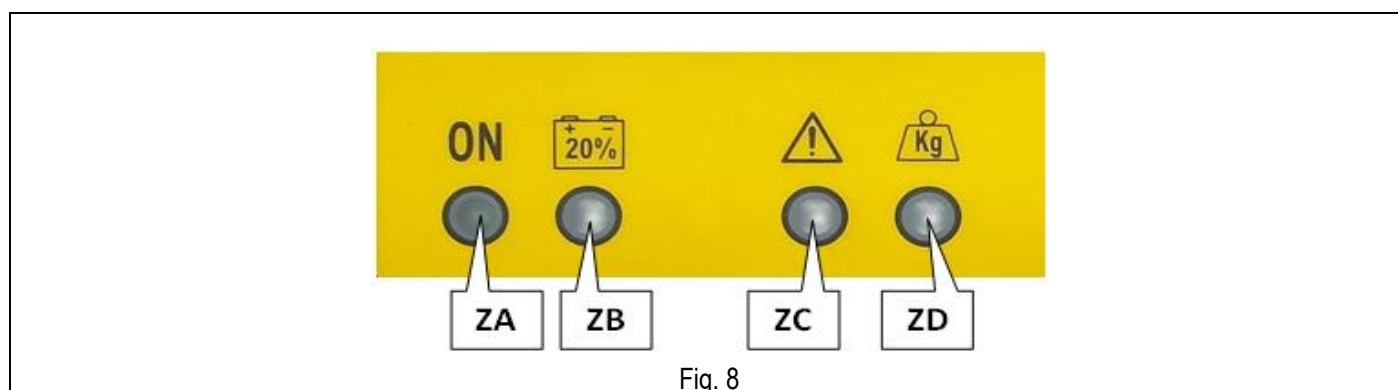


Fig. 8

5.1.3.3.1. Enabled control panel green warning light (ZA)

Lit up flashing when the machine is turned on. If the platform control panel has been selected and this light flashes the controls are not enabled because the dead-man pedal is not pressed or it was pressed for more than 10 seconds and no operation was performed or dead-man button was not pressed or more than 2 seconds went by since its release and no operation was performed.

On steady with machine on and dead-man pedal pressed for less than 10 seconds or dead-man button pressed and released for less than 2 seconds. With platform control panel all controls are enabled (unless other types of warning show up – see next paragraphs).

5.1.3.3.2. Red warning light: flat battery (ZB)

Flashing when battery is charged at 20% only. In this condition, platform lifting is disabled. Batteries should be immediately recharged.

5.1.3.3.3. Danger red warning light (ZC)

It flashes quickly for 4 seconds together with the audible alarm at the machine start-up in case of fault during safety test on controls (pedal, joystick control, switches, etc).

It is lit up steady together with the audible alarm (just in case of lifted platform) when the chassis inclination exceeds the allowed value. The lifting of the telescopic column is inhibited (the JIB lifting stays active). If platform is lifted, drive is also disabled. It is necessary to lower the booms completely and then place the machine onto a flat surface.

It is lit up without the audible alarm with booms raised and one or both of the pot-hole guards not perfectly lowered. All platform movement controls are possible but drive with raised platform is automatically disabled.



WARNING! The activation of this indicator together with the audible alarm warns of a dangerous situation since the machine or the platform have reached a dangerous inclination level for the machine stability. When the chassis inclination exceeds the allowed value, to prevent increasing the overturn risk, the operator on the platform is recommended to retract the telescopic boom first and to lower it as the last operation.

5.1.3.3.4. Overload red warning light (ZD)

Lit up steady with activation of audible alarm with a platform overload exceeding 20% the nominal load. If platform is lifted, the machine is completely locked. If the platform is lowered all drive/steering operations are still possible but lifting/rotation are disabled. Remove the overload before using the machine again.

Fast flashing in case of fault in the platform overload controller. With lifted platform the machine is completely locked. After reading the manual instructions, trained staff can carry out an emergency manoeuvre for platform lowering.



WARNING! The activation of this indicator is a synonym of danger since the load at platform is exceeding or no overload controller is active upon signalling. For adjustment or activation in emergency situations read the MAINTENANCE chapter.

5.2. Ground control panel and controllers

The controllers (administration devices and control functions of the machine) have been located inside the cowling in the turret, fixed at the base of the telescopic column.

The ground control panel is located on the rotating turret (see paragraph "Location of main components") and is used to:

- Turn the machine ON/OFF.
- Select the control panel (ground or platform).
- Operate the platform in emergency cases.
- Display some operation parameters (working hours; various faults; battery charger operation; etc.).



IT IS FORBIDDEN

To use the ground control panel as a workstation when personnel is on the platform.



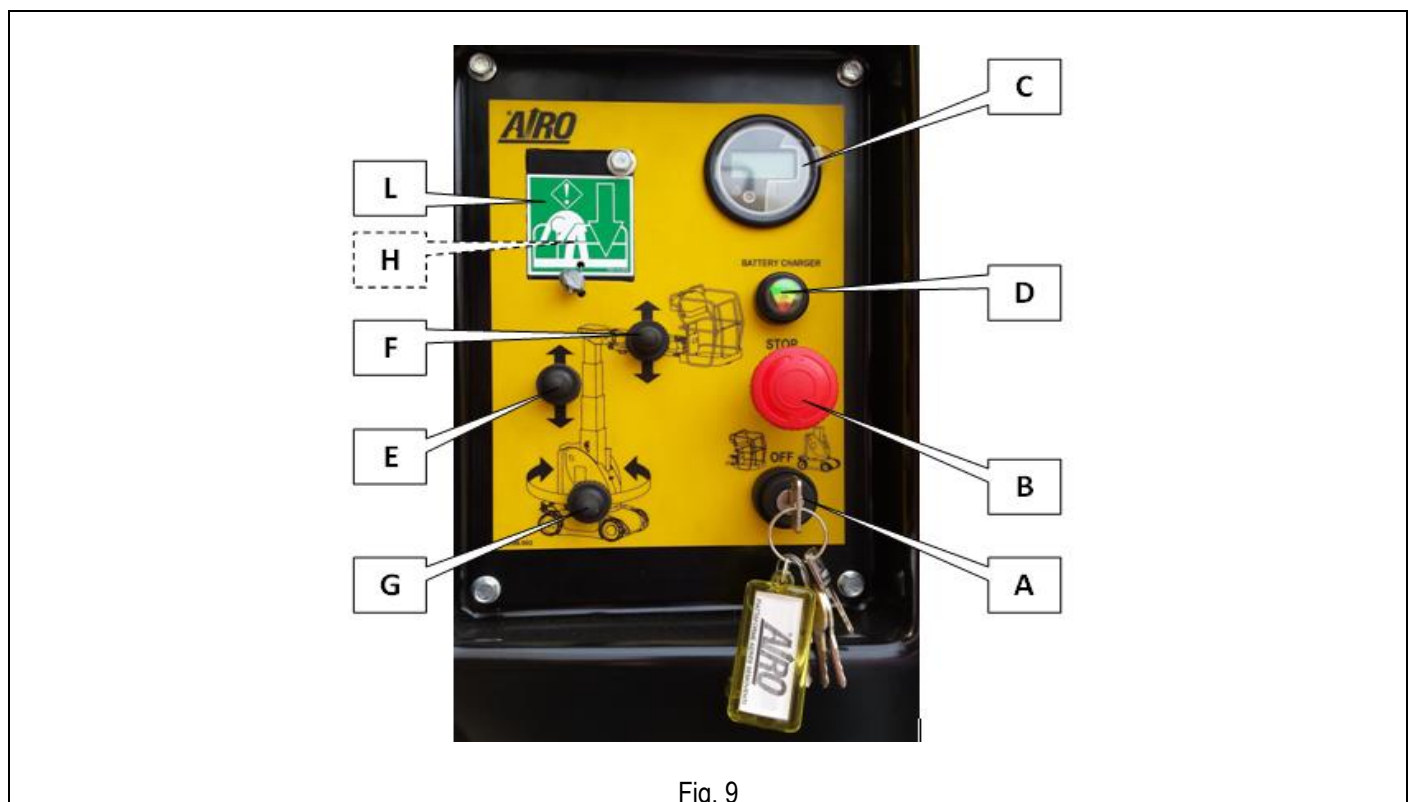
Use the ground control panel only to start/stop the machine, to select the control panel or in emergency situations to allow the platform to be recovered.



Give the key to authorized persons and keep a duplicate in a safe place.
Always remove the on/off key at the end of work shifts.



Access to the electric control unit is allowed to specialized personnel only for maintenance and/or repair purposes. Access the controllers only after the machine has been disconnected from any 230V power sources.



- A) ON-OFF key and control panel selector (ground/platform)
- B) Emergency STOP button
- C) Battery indicator / Hour meter/ Display
- D) Battery charger light
- E) TELESCOPIC COLUMN LIFTING/LOWERING lever
- F) JIB LIFTING/LOWERING lever
- G) TURRET ROTATION lever
- H) Key-selector for emergency FACTORY OVERRIDE
- L) Screwed and leaded door for emergency FACTORY OVERRIDE

5.2.1. On-off key and control panel selector (A)

The on-off key located on the ground control panel is used to:

- turn ON the machine by selecting one of the two control panels:
 - Platform control panel enabled with locking key switch set to platform symbol. Stable key position with possibility to extract the key.
 - Ground control panel enabled (for emergency operations) with locking key switch set to turret symbol. Position with action to be kept. When the key is released the machine is turned off.
- Turn OFF the control circuits by turning it to OFF.

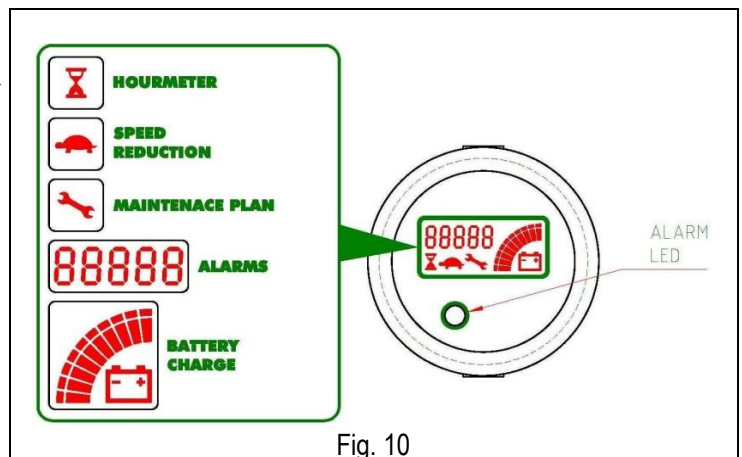
5.2.2. Emergency stop button (B)

By pressing this button, the machine is completely stopped; by rotating it of 1/4 turn (clockwise) the machine can be turned ON by means of the ON-OFF key.

5.2.3. Battery indicator / Hour meter / Display (C)

It indicates the charge level of the battery (Battery charge), the working hours of the machine (hourmeter), the error messages of the control system (alarms + alarm led), any need of maintenance (maintenance plan). It is also equipped with a red led that lights up in case of alarms and/or error messages.

Battery indicator: If the full bar is lit up, it means that the battery is 100% charged. When only a segment of the bar is lit up, and the battery icon flashes, it means that the battery charge has reached its 20% minimum level.



In this condition platform lifting is automatically disabled. The battery must be immediately recharged. However, battery should be recharged daily, either at night or during long work intervals.

Hour meter: the system has been set up to count the working hours of the devices fitted on the machine, in order to carry out the indicated maintenance operations. When the machine is ON but not moving, the system does not count the working hours. While counting the hours, the hour meter icon flashes.

5.2.3.1. Display messages

Any alarm and/or system error codes can be displayed in the following form:

Example of error code: **03 A 22**

The first **2** figures relate to the concerned device:

- **03** = MASTER controller
- **04** = SLAVE controller
- **08** = board on platform CAN TILLER
- **16** = MDI indicator.

The Letter **A** means alarm / error.

The last **2** digits specify the particular type of alarm or error.

If there are multiple alarms/errors, they are displayed one at a time, in rotation.

Table of codes of alarm/error:

MDI code = displayed on the indicator

ZAPI code = displayed on the calibration console, if connected to the system.

For several diagnostic tasks described in the table, it is necessary to connect the Smart ZAPI console

Cod. Mdi	Cod. Zapi	Message on Smart Console	Description	Diagnostics / Possible solution
0	66	BATTERY LOW	Battery discharged <10%	Recharge the battery. If this is not solved, use a voltmeter to measure the battery voltage and compare it with the value in parameter BATTERY VOLTAGE. If they are different, adjust the value of the ADJUST BATTERY parameter.
0	247	DATA ACQUISITION	Current gain acquisition	The alarm ends when the acquisition is finished.
0	249	CHECK UP NEEDED	Maintenance request alert	Simply select the option CHECK UP DONE on value ON after maintenance has been performed.
8	8	WATCHDOG	Safety logic error	This alarm may be caused by a hardware fault in one of the two (or both) of the multi-vibrators or due to a software execution problem. In both cases it is a fault inside the controller, which must be replaced.
8	231	WATCHDOG#2	Safety logic error	This alarm may be caused by a hardware fault in one of the two (or both) of the multi-vibrators or due to a software execution problem. In both cases it is a fault inside the controller, which must be replaced.
11	211	STALL ROTOR	Drive rotor locked / encoder signal not received	Check on TESTER menu if during a drive request the FREQUENCY and ENCODER signs are equal and both different from zero.
12	239	CONTROLLER MISM.	Software version incompatible with the controller	This type of error is not related to external components, so if present, replace the controller.
13	208	EEPROM KO	EEPROM memory error	Try to perform a CLEAR EEPROM operation (refer to the console manual). Turn the system off and on. If the alarm reoccurs, replace the controller. If the alarm disappears, the parameters stored during calibration will be replaced by the default parameters.
13	209	PARAM RESTORE	Loading parameter sets made	If a procedure of CLEAR EEPROM was carried out before the last ignition, this warning means that the EEPROM has been correctly deleted: A new command clears the alarm. If this alarm goes off at power-up, without any previous CLEAR EEPROM procedure, there might be a problem in the controller, which must be replaced.
17	17	LOGIC FAILURE #3	Error in logic: hardware problem	This type of error is not related to external components, so if present, replace the controller.

22	248	NO CAN MSG.	CAN Bus Error	<p>Check that the controllers and boards on CAN Bus are correctly supplied.</p> <p>Check the wiring of CAN Bus connections on various devices.</p> <p>If there are no errors in the wiring, the internal transmission circuit on CAN BUS may have failed.</p> <p>In this case replace the controller or the board.</p>
23	252	WRONG ZERO	Internal amplifier stage error	<p>This type of error is not related to external components; replace the controller.</p>
24	220	KEY OFF SHORTED	Command selection key short circuit	<p>The fault is very likely to be due to an undervoltage, therefore it is advisable to check:</p> <p>A) If there is a negative pulse (below the threshold voltage) of the key signal, due to external loads, such as the starting of DC/DC converters, relays, contactors or excitation of the solenoids.</p> <p>B) Check the connection of the power cables to the battery terminals, positive and negative, to the line contactor and the controller + Batt and -Batt, which must be screwed with a torque ranging 5,6 Nm ÷ 8.4 Nm.</p> <p>C) If there is no transient voltage on the power supply line and the alarm is present each time the key is activated, the error is probably in the controller hardware, then replace the logic board.</p>
25	224	WAITING FOR NODE	Waiting for communication on CAN Bus	<p>The controller receives from the CAN the message that another network node (controller, CAN tiller board) is in error conditions: it is necessary to wait for the resolution of the error state in order to be able to proceed.</p> <p>Try turning the system off and on.</p> <p>If the alarm reoccurs, check the connection wiring of the various nodes of the CAN Bus network.</p> <p>If wiring is correct, the internal logic circuits to the devices may have failed.</p> <p>This requires the replacement of the affected device.</p>
26	234	DRV. SHOR. EV	Possible short circuit on solenoid valve	<p>Check if there is a short circuit or a low impedance between the negative of one of the coils and -batt.</p> <p>Check that in the SET OPTION menu, for outputs not connected, the corresponding parameter is set to value ABSENT.</p> <p>Otherwise the driver circuit may be damaged and the controller must be replaced.</p>
27	213	AUX BATT. SHORT.	Electric brake output not correct	<p>It is recommended you check that the coil is correctly connected between pins B1 and B5.</p> <p>If no problems are found on the coil, the problem is inside the controller, which must be replaced.</p>

28	28	PUMP VMN LOW	Output voltage on pump lower than required	<p>A) If the problem occurs at startup (the line contactor LC is not closed yet), check:</p> <ul style="list-style-type: none"> - Internal connections of the motor (ohmic continuity) - Cable connections of the motor power - If motor connection is OK, the problem is inside the controller which must be replaced. <p>B) If the problem occurs after closing the LC (the LC line contactor was closed and then reopens), check:</p> <ul style="list-style-type: none"> - Motor connections - If the motor windings / cables have insulation losses toward the machine chassis; - If no problems are found on motors, the problem is inside the controller which must be replaced; <p>C) If the alarm occurs during the motor operation, check:</p> <ul style="list-style-type: none"> - Motor connections - If the motor windings / cable have insulation losses toward the machine chassis; - If the power contact of the LC line contactor engages correctly with a strong contact; - If no problems are found on motors, the problem is inside the controller which must be replaced;
29	29	PUMP VMN HIGH	Output voltage on pump higher than required	<p>It is recommended to check:</p> <p>A) Motor connections;</p> <p>B) If the motor windings / cables have insulation losses toward the truck chassis;</p> <p>C) If no problems are found on motors, the problem is inside the controller which must be replaced;</p>
30	232	CONT. DRV. EV	Impossible to control the ON/OFF output	The device or its driver circuit is damaged, replace the controller.
31	31	VMN HIGH	Drive motor phase voltage too high	<p>A) If the problem occurs at start-up (line contactor open), check:</p> <ul style="list-style-type: none"> - The internal connections of the motor (ohmic continuity); - Power cable connections of the motor; - Loss of insulation between the motor and vehicle chassis; <p>If motor connections are OK, the problem is inside the controller</p> <p>B) If the alarm occurs during motor operation, check:</p> <ul style="list-style-type: none"> - Motor connections; - If the motor winding / cables phases have insulation losses toward the machine chassis; - If the power contact of the line contactor goes off correctly and keeps a solid contact; <p>If motors do not have any problems, the fault is in the controller.</p>
31	206	INIT VMN HIGH	Initial motor drive phase voltage too high	<p>Please check</p> <ul style="list-style-type: none"> - The internal connections of the motor (ohmic continuity); - Power cable connections of the motor; - Loss of insulation of the motor on vehicle chassis; <p>If motor connections are OK, the problem is in the controller, which must be replaced.</p>
33	203	PUMP VMN NOT OK	Initial pump voltage too low	<p>Please check:</p> <ul style="list-style-type: none"> - The motor connected to -P must be completely still before this alarm is displayed. <p>The software will wait 30 seconds before displaying the alarm code. During this time interval, the following warning is displayed "WAIT MOTOR STILL"</p> <ul style="list-style-type: none"> - Internal connections of the motor; - Power cable connections of the motor; - Loss of insulation of the motor toward the vehicle chassis; <p>If motor connections are OK, the problem is in the controller, which must be replaced.</p>
34	37	CONTACTOR CLOSED	Line contactor already closed at start-up	<p>It is recommended that you check the LC power contacts;</p> <p>Replace the line contactor if necessary.</p>

40	202	BRAKE RUN OUT	Brake circuit error	This alarm is displayed if the operation of the electric brakes of the drive motors was forced due to inconsistency between the drive speed value detected by the encoders and that required by the command (e.g.: control loss during drive highly inclined ground). Turn the system off and on. Check out the condition of the brakes and in case of excessive wear, replace them.
40	254	AUX DRIV.SHRT.	Possible short circuit on electric brake output	A) Check if there is a lowering or low impedance between NEB CNA # 4 and -BATT. B) The driver circuit is be damaged in the controller, which must be replaced.
41	251	WRONG BATTERY	Wrong battery than that set	A) Check that the parameter value SET BATTERY of the controller matches the rated voltage of the battery. B) Check that for the parameter TESTER MENU / BATTERY VOLTAGE the same value of the battery voltage measured with a voltmeter is displayed. If it does not match, execute the function "ADJUST BATTERY". C) Replace the battery.
42	246	AUX DRIV.OPEN	Circuit open on output command of electric brake	Replace the controller.
43	198	OVERLOAD	Overload alarm	Check that you have not exceeded the allowed load: if you have, remove the overload and check that the alarm disappears. If the alarm persists, open the control panel and make sure the overload controller board is correctly connected and powered. Check out any alarm messages on the display of the overload controller board. If necessary, contact AIRO technicians.
44	199	TILT SENSOR	Tilt alarm	Make sure the ground inclination does not exceed the limits: if it does, move to a level ground and check if the alarm disappears. If the alarm remains active even on level ground, check the tilt sensor wiring: in case of correct wiring, follow the manual and on level ground perform a new calibration of the zero of the tilt sensor; If the problem still exists, try replacing the tilt sensor.
48	240	EVP DRIVER OPEN	Circuit open on proportional solenoid valve	Please check the EVP coil impedance of the proportional solenoid. If the EVP coil impedance is OK, the problem is in the controller, which must be replaced.
49	241	MANY PUMP REQS	Pump speed simultaneous requests	Only one pump function at a time can be requested. Bring back all joysticks to rest position and try executing only one command at a time.
50	215	EVP DRIV. SHORT.	Short circuit on proportional solenoid valve	Check if there is a low impedance or short circuit between the negative of the coil and -BATT. If this is not case, the driver circuit may be damaged and the controller must be replaced.
51	228	TILLER OPEN	Dead-man button not pressed	At the next command the warning disappears.
52	52	PUMP I=0 EVER	Error on pump feedback current	A) Check if there is continuity on the motor connection. If the motor connection is open, the current cannot flow, then the test fails and the error code is displayed. B) If everything is ok for what concerns the motor, the problem might be in the current sensor or in the relevant circuit.
53	53	STBY I HIGH	Feedback current sensor damaged	This type of error is not related to external components, so if present, replace the controller.

54	19	LOGIC FAILURE #1	Error in logic: power supply undervoltage or overvoltage	Alarm displayed at start-up or in standby; in these cases, the error is very likely due to undervoltage, then it is advisable to check: A) Descendant pulse of the key input signal (below the undervoltage threshold) due to external loads, such as the starting of DC/DC converters, relays, contactors or excitation of solenoids; B) If there is no voltage transient on the power supply line and the alarm is present each time the system is turned on, the error is likely to be due to the internal hardware, then the controller must be replaced.
55	18	LOGIC FAILURE #2	Error in logic: hardware problem	This type of error is not related to external components, so if present, replace the controller.
56	217	PUMP I NO ZERO	Pump feedback current outside the allowed range	This type of error is not related to external components, so if present, replace the controller.
60	60	CAPACITOR CHARGE	Power capacitors cannot be load	A) An external load absorbs current and does not allow the power capacitor circuit to be charged. Check if there are lamps or DC-DC converters connected in parallel. B) The charge resistance is open. Insert a power resistance between the contacts of the line contactor: If the alarm disappears, it means that the resistance inside the controller is damaged. C) The charging circuit inside the controller is faulty. D) The controller power section has a problem.
61	250	THERMIC SENS. KO	Controller thermal sensor malfunction	This type of error is not related to external components, so if present, replace the controller.
62	62	TH. PROTECTION	Operation in thermal protection - controller overheating	Improve the cooling of the controller. If the alarm is displayed when the controller is cold, the possible causes are a failure in the thermal sensor or in the logic board. In the latter case, the controller must be replaced.
63	204	WAIT MOT.P STILL	Waiting for the pump motor stop	If the motor connected to -P is still running, wait until it has fully stopped. Otherwise, within 30 seconds the alarm "PUMP VMN NOT OK" will appear. Refer to the item "PUMP VMN NOT OK".
64	238	TILLER ERROR	Dead-man circuit error	Check wiring of CAN # 1 and CAN # 29 by means of a voltmeter. If the status of these inputs is right, there might be problem in the controller, which must be replaced.
65	65	MOTOR TEMPERAT.	Drive motor overheating	Check the reading of the thermal sensor inside the motor (by reading the value of the parameter MOTOR TEMPERATURE in the MOTOR menu reading in the TESTER menu); check the ohmic value of the sensor and the wiring. If the sensor is operating correctly, improve the air-cooling of the motor. If the alarm is displayed when the motor is cold, the problem is inside the controller, which must be replaced.
67	218	SENS MOT TEMP KO	Motor thermal sensor malfunction	Check the correct connection of the temperature sensor of the motor. If the current sensor is connected correctly, try replacing it. If the problem persists, try replacing the controller.
68	222	SMART DRIVER KO	Positive output for electric brake damaged	A) It is recommended that the wiring be checked in order to verify if the Smart driver output, CNB # 1, is short-circuited with -Batt. B) If, even after disconnecting the wire from the connector pin, the output remains at low voltage, the problem is inside the controller and the Smart Driver may be damaged. The controller must be replaced

70	195	CHARGER ON	Battery charger in operation mode	The alarm is normally present when the system is switched on and the battery charger is in operation: all movements are disabled. Check that the NC mains contact, inside the battery charger, is closed and that the wiring for connecting the contact to the controller is correct.
71	210	WRONG RAM MEM.	RAM memory error	This type of error is not related to external components, so if present, replace the controller.
72	30	VMN LOW	Drive motor phase voltage too low	A) If the problem occurs at start-up (line contactor open), check: - The internal connections of the motor (ohmic continuity); - Power cable connections of the motor; - Loss of insulation between the motor and vehicle chassis; If motor connections are OK, the problem is inside the controller B) If the alarm occurs during motor operation, check: - Motor connections; - If the motor winding / cables phases have insulation losses toward the machine chassis; - If the power contact of the line contactor goes off correctly and keeps a solid contact; If motors do not have any problems, the fault is in the controller.
72	207	INIT VMN LOW	Initial drive motor phase voltage too low	Please check - The internal connections of the motor (ohmic continuity); - Power cable connections of the motor; - Loss of insulation of the motor on vehicle chassis; If motor connections are OK, the problem is in the controller, which must be replaced.
74	74	DRIVER SHORTED	Short circuit on line contactor coil output	A) Check if there is a short circuit or low impedance between NLC CNB # 6 and -BATT. B) The driver circuit is be damaged in the controller, which must be replaced. C) The LC line contactor coil wires are broken or not connected, then check the coil.
75	75	CONTACTOR DRIVER	Error on line Contactor output	This type of error is not related to external components; replace the controller.
75	75	CONTACTOR CLOSED	Error on line Contactor output	It is recommended that you check the LC line contactor power contacts; Replace the LC line contactor if necessary.
75	75	CONT. DRV. EV.	Error on the solenoid valve driver circuit	The device or its driver circuit is damaged, replace the controller.
76	223	COIL SHOR. MC-EB	Contactor/electric brake control short circuit	A) The main typical cause of this error code is in the wiring or in the coil. Then check the connections of the controller outputs. B) If no failures / problems outside are detected, the problem is in the controller, which must be replaced.
77	38	CONTACTOR OPEN	Line contactor open	It might be due to a contact problem in the LC line contactor that does not work (no pull-in); try replacing the line contactor.
78	78	VACC NOT OK	Drive potentiometer not calibrated	If the alarm appears at the machine start-up, the initial calibration of the drive potentiometer must be executed. If the alarm is displayed with the machine already calibrated, check the mechanical calibration and functionality of the drive potentiometer.

79	79	INCORRECT START	Control sequence not correct	<p>The possible reasons for this alarm are (use the readings on the TESTER menu of the console to facilitate troubleshooting):</p> <p>A) A command already active at system's start-up</p> <p>B) A command active before the dead-man pedal contact is closed;</p> <p>C) Dead-man pedal contact already active (closed) at start-up;</p> <p>Check wiring. Check the joystick microswitches.</p> <p>Check you meet the sequence for a command: press the dead-man pedal first and then operate the joystick of the required command.</p> <p>If the problem persists after the above checks, the error may be caused by a failure of the controller logic or CAN Tiller board: in this case, replace the device.</p>
79	242	PUMP INC START	Pump start incorrect	<p>The reasons for this alarm may be:</p> <p>A) Request to pump drive already active at start-up;</p> <p>B) Request to pump drive active without closing the dead-man contact.</p> <p>Check the wiring and the correct operation of microswitches.</p> <p>Check that the control procedure has the correct sequence: press the dead-man first and then start the requested command.</p> <p>If the problem persists, a fault in the internal circuit may be present.</p> <p>In this case replace the controller.</p>
80	80	FORW + BACK	Simultaneous Forward-Backward control	<p>Check wiring of microswitch inputs of Forward and Backward drive.</p> <p>Use a TESTER to check the correct operation of microswitches.</p> <p>If there are no errors in wiring and microswitches work correctly, the problem may arise from a logic fault: replace the controller.</p>
82	82	ENCODER ERROR	Drive motor encoder error	<p>A) Check the electrical and mechanical functionality of the encoder and wiring.</p> <p>B) Check the mechanical installation of the encoder, if the encoder is inserted correctly inside its own housing.</p> <p>C) Also the electromagnetic noise on the sensor bearing may be cause for alarm. In these cases, try replacing the encoder.</p> <p>D) If the problem is still present after replacing the encoder, the error is in the controller, which must be replaced.</p>
82	200	INPUT MISMATCH	Input error not consistent	<p>The alarm is displayed when an input, made redundant on multiple devices (Master and Slave controller, controller and CAN Tiller board) to increase safety, has different values, not consistent.</p> <p>(e.g. the tilt sensor is read by both controllers. The alarm is displayed if the value read by a controller differs from that read by the other).</p> <p>If possible connect the console and spot which input creates the problem: check the wiring connection between the sensor/limit switch and system devices (controllers, boards).</p> <p>If there are no errors in the wiring, try disconnecting the sensor/limit switch.</p> <p>If the problem persists, one of the 2 devices monitoring the sensor may have failed.</p> <p>In this case, replace the device (controller or CAN Tiller board).</p>
82	201	INPUT MISM. SLV	Redundant input error not consistent	See previous point.

83	212	JIB POT ERROR	Jib potentiometer signal error	Open the platform control panel and check the joystick wiring of the jib; If wiring is correct, connect the console, enter the ADJUSTMENTS menu and execute the procedure for the acquisition of the JIB control joystick signal: - bias position of Jib lifting (JIB UP MIN); - maximum position of Jib lifting (JIB UP MAX); - bias position of Jib lowering (JIB DOWN MIN); - maximum position of Jib lowering (JIB DOWN MAX). If the problem persists, try replacing the joystick. If this is not solved, try replacing the CAN TILLER board in the control panel.
83	230	MAST POT ERROR	Mast potentiometer signal error	Open the platform control panel and check the joystick wiring of the mast; If wiring is correct, connect the console, enter the ADJUSTMENTS menu and execute the procedure for the acquisition of the mast control joystick signal: - bias position of mast lifting (MAST UP MIN); - maximum position of Mast lifting (MAST UP MAX); - bias position of Mast lowering (MAST DOWN MIN); - maximum position of Mast lowering (MAST DOWN MAX). If the problem persists, try replacing the joystick. If this is not solved, try replacing the CAN TILLER board in the control panel.
83	235	ROT POT ERROR	Rotation potentiometer signal error	Open the platform control panel and check the joystick wiring of turret rotation; If wiring is correct, connect the console, enter the ADJUSTMENTS menu and execute the procedure for the acquisition of the control joystick signal for turret rotation : - bias position of right turret rotation (SWING RIGHT MIN); - maximum position of right turret rotation (SWING RIGHT MAX); - bias position of the left turret rotation (SWING LEFT MIN) - maximum position of left turret rotation (SWING LEFT MAX). If the problem persists, try replacing the joystick. If this is not solved, try replacing the CAN TILLER board in the control panel.
84	84	STEER SENSOR KO	Steering Sensor error	Check wiring of the steering sensor. If wiring is correct, connect the console, enter the ADJUSTMENTS menu and execute the procedure for the signal acquisition again. - with steering in centred position (SET STEER 0-POS); - with steering fully to the right (SET STEER RIGHT); - with steering fully to the left (SET STEER LEFT). If the problem persists, try replacing the steering sensor.
85	226	VACC OUT RANGE	Drive potentiometer signal out of range	Execute the acquisition procedure PROGRAM VACC.
86	86	PEDAL WIRE KO	Pedal connection error	Check the pedal wiring.
86	229	POS. EB. SHORTED	Electric brake positive output always high	A) It is recommended that the wiring be checked in order to verify if a positive is connected to the Smart driver output, CNB # 1. B) If, even after disconnecting the wire from the connector pin, the controller output remains active with a high voltage value, the problem is inside the controller and the Smart Driver may be short-circuited. In this case replace the controller.
87	227	HEIGHT SENSOR KO	Lifting sensor signal (optional) KO	Check the wiring of the optional control potentiometer of the lift height. If wiring is correct, then the potentiometer may be faulty: try replacing it.
88	233	POWER MOS SHORT	Internal power MOS short circuit	Replace the controller.
89	245	PUMP VACC NOT OK	Pump control not calibrated	It is recommended repeating a "PROGRAM VACC" procedure.

90	243	PUMP VACC RANGE	Pump control out of range	If the parameter EVP TYPE is set to ANALOG, acquire the values LOWER MIN and MAX LOWER once again. If the controller is in Combiacx configuration and the parameter PROPORTION. LIFT is set to ON, acquire also the values LIFT MIN and MAX LIFT once again.
91	214	EVP COIL OPEN	Proportional solenoid valve coil - open circuit	A) It is recommended checking the wiring in order to verify if the coil of the proportional solenoid valve EVP is connected correctly, without interruptions; B) If the alarm continues to be present, even by connecting the coil to the correct pin or replacing it, the problem is inside the logic board of the controller and must be replaced.
92	236	CURRENT GAIN	The Parameters current Gain are not set	Request the assistance of an AIRO technician to execute the correct adjustment of the current gain parameters.
93	197	OVERRIDE	OVERRIDE mode	Warning notifying that you are operating in OVERRIDE mode. Turn off and then turn on the system in normal operation mode, with the ground or platform controls, and check that the warning is no longer present.
94	0	NONE		Misalignment between hour meter data of the controller and that of the indicator. Leave the machine on for more than 2 minutes to allow data alignment.
95	244	HEIGHT LIMIT EXC	Lifting sensor signal (optional) over the allowed limit.	Warning notifying that the maximum set height limit of the lift mast has been exceeded. Lower the mast and check out if the warning disappears.
96	237	ANALOG INPUT	Analog signal conversion problem	If the issue occurs permanently, the controller must be replaced.
97	196	AUX RELE SHORTED	Short circuit on auxiliary relay coil	Check wiring of the auxiliary activation relay of the line contactor LC. If wiring is correct, there may be an error in the driver circuit inside the controller.
98	219	PEV NOT OK	Positive voltage of solenoid valves not correct	Check connector B2: it must be connected to battery voltage (after the line contactor LC).
99	253	SLIP_PROFILE	SLIP profile parameter choice error	Check the value of these parameters in the hardware setting menu.

Below is a table that summarizes some tests carried out after removing the cables and/or connectors, with related messages displayed on the indicator MDI.

Table of wire disconnection tests:

TEST	Cod. MDI	Alarm on console	Movements allowed from around	Movements allowed from platform	NOTES
RH motor connector disconnection (encoder + thermal sens.)	03A67	SENSOR MOTOR TEMP KO	All	all	
LH motor connector disconnection (encoder + thermal sens.)	04A 3	SENSOR MOTOR TEMP KO	All	all	
RH motor brake disconnection	03A40	AUX DRIV. SHRT. 41	None	none;	Disconnection with system running
	03A68	SMARTDRIVER KO	none;	none;	Disconnection before turning the system on
LH motor brake disconnection	03A25 + 04A 6	AUX DRIV. SHRT. 41	none;	none;	Disconnection with system running
	03A25 + 04A 4	SMARTDRIVER KO	none;	none;	Disconnection before turning the system on
RH motor, U cable disconnection	03A72	INIT VMN LOW	none;	none;	
RH motor, V cable disconnection	03A72	VMN LOW	none;	none;	
RH motor, W cable disconnection	03A72	VMN LOW	none;	none;	
	03A25 + 04A 8	Node 3: WAITING FOR NODE	none;	none;	From the ground: If the disconnection occurs when the system is running, no alarm occurs and all movements are possible.
Node 4: VMN LOW		none;	none;		
LH motor, U cable disconnection	03A25 + 04A 8	Node 3: WAITING FOR NODE	none;	none;	From platform: after disconnecting the TLR for UM all movements are locked. Before they were all possible.
		Node 4: VMN LOW	none;	none;	
LH motor, V cable disconnection	03A25 + 04A 8	Node 3: WAITING FOR NODE	none;	none;	
		Node 4: VMN LOW	none;	none;	
LH motor, W cable disconnection	03A25 + 04A 8	Node 3: WAITING FOR NODE	none;	none;	
		Node 4: VMN LOW	none;	none;	
Cable disconnection + pump	03A33	PUMP VMN NOT OK	none;	none;	Disconnection before turning the system on
	03A63	WAIT MOT P STILL	none;	none;	
Cable disconnection - pump	03A28	PUMP VMN LOW	none;	none;	Disconnection with system running
	03A33	PUMP VMN NOT OK	none;	none;	
EV5 column down proportional solenoid valve disconnection	03A63	WAIT MOT P STILL	none;	none;	Disconnection before turning the system on
	03A28	PUMP VMN LOW	none;	none;	Disconnection with system running
EV19 jib down proportional solenoid valve disconnection	03A91	EVP COIL OPEN	All	All	
ON/OFF solenoid valve disconnection	04A 7	EVP COIL OPEN	All	All	
Only RH thermal sensor disconnection	-	-	All	All	
Only LH thermal sensor disconnection	03A67	SENSOR MOTOR TEMP KO	All	all	
	04A 3	SENSOR MOTOR TEMP KO	All	all	

5.2.4. Battery charger warning light (D)

They allow to check the correct operation of the battery charger and the state of charging of the battery.

After plugging into the mains, the indicator starts flashing for a few seconds with red light, checking phase of the battery. Then the phases of battery charge are started and displayed in sequence from fixed light first red, then yellow and finally green, which indicates the end of charging.

No light or long flashing during battery charger feeding indicates malfunctioning.

5.2.5. Platform control levers (E F G)

The various levers shown in the figure allow the platform to be operated. According to the various signs the corresponding movements are activated. These controls can be operated only if the on-off key is set to ON down (ground control panel selected). Or if the function FACTORY OVERRIDE is activated. We shall also remind you that the ground controls are to be used to operate the platform only in emergency situations and must not be used for any other purposes.

5.2.6. Emergency FACTORY OVERRIDE (H L)

It is an emergency function for a fast recovery of an operator blocked at height because trapped and/or unconscious, even in case of blocking alarms like the OVERLOAD ALARM or in case of machine switched-off, through of the button or in case of turned off machine through emergency stop buttons.

To activate the function, it is necessary:

1. Remove the fixing screw of door **L**, using a 10 mm hexagonal wrench. The 10 mm wrench is not equipped.
2. Remove the door **L** removing **the two lead seal**.
3. Set the ON/OFF locking, in the selector key **FACTORY OVERRIDE H** and rotate it, keeping it active, in clockwise rotation until the activation of the audible alarm of the machine which report the activation of the function.
4. Operate with the platform control levers **E - F - G**.
5. Once the emergency recovery is completed, place the machine out of service and call the technical assistance service to reset the leaded seal.

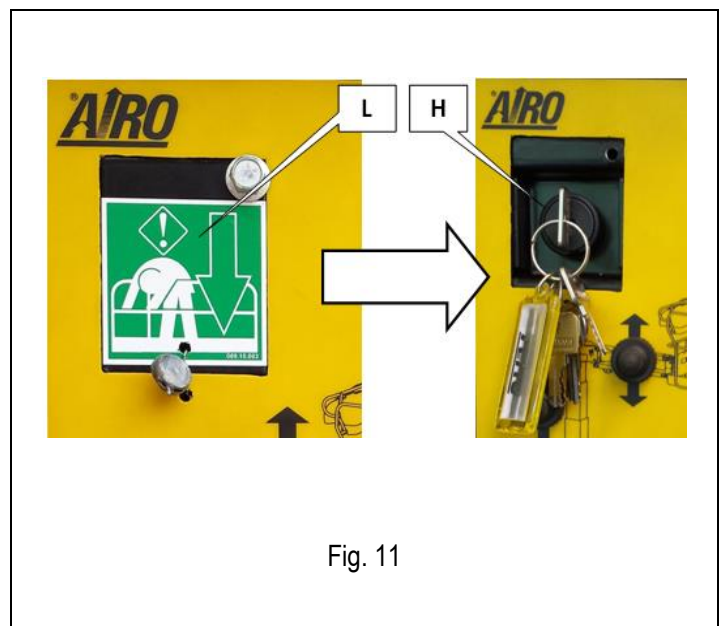


Fig. 11



WARNING! The function **FACTORY OVERRIDE** is only for the quick recovery of an operator blocked at height because trapped and/or unconscious. During the activation of the function **FACTORY OVERRIDE**, the functions of the inclination control system and those of the platform load control and the ground and platform emergency stops are not enabled. **IT IS FORBIDDEN** to use this function for different purposes.

A timer limits the use of the function to a maximum time of 10 minutes, beyond which it is automatically disabled.

Do not use the machine if the protection door of the emergency of the system **FACTORY OVERRIDE is absent, or if it's missing the leaded seal.**

CALL THE TECHNICAL ASSISTANCE TO RESET THE SEAL

5.3. Platform access

The “access position” is the only one from which loading or unloading of persons and materials is allowed. The “access position” to the work platform is the completely lowered configuration.

To get on the platform:

- get on the platform hanging on to the entry side rails.
- Raise the bar and get on board.

Check that, once you are on the platform, the bar falls down closing the access. Fasten the safety harness to the provided hooks.



To get on the platform use only the access equipment the platform is provided with. When moving up or down, always keep your eyes on the machine and hold onto the entry stringers.



IT IS FORBIDDEN
Lock the closing bar so as to keep the platform access door open.

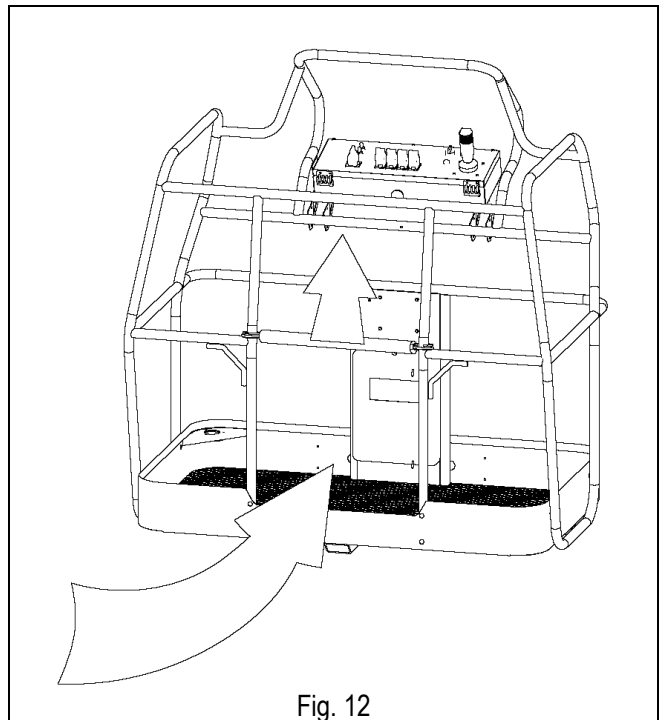


Fig. 12



IT IS FORBIDDEN
Leaving or accessing the work platform if this is not in the position required for accessing or leaving is forbidden.

5.4. Machine start-up

To start the machine the operator shall:

- release the emergency stop button on the ground control panel by rotating it of 1/4 turn clockwise;
- turn the on-off key on the ground control panel to "Platform" position
- remove the starting key and hand it over to a person in charge on ground, properly informed of the use of the emergency controls
- get onto the platform
- release the emergency stop button on the platform control panel by rotating it by 1/4 clockwise (see previous paragraphs).

As the machine is electric-powered (models “E”), now the various functions can be performed by thoroughly following the instructions given in the previous paragraphs. To turn on the machine, the battery charger must be disconnected from the mains. If the battery charger is working, the machine is off and cannot be turned on.

5.5. Machine stop

5.5.1. Normal stop

During the normal use of the machine, releasing the controls or the dead-man pedal in the platform, the operation will be stopped. Stop occurs within a time limit set in the factory, which guarantees smooth braking.

5.5.2. Emergency stop button

Should it be necessary, the operator may immediately stop all machine functions on both platform and ground control panel.

On the platform control panel:

- press the emergency stop button on the control panel and the machine is turned off.
- by releasing the dead-man pedal, the operation will be stopped.

On the ground control panel:

- press the emergency stop button on the ground control panel (if any) and the machine will be turned off;
- by pulling out the power connector represented in the figure beside, the machine power is cut out (power circuit cut-out).



To resume the operations:

On the platform control panel:

- turn the emergency stop button of 1/4 turn clockwise;

On the ground control panel:

- turn the emergency stop button of 1/4 turn clockwise and insert the connector thoroughly to power the machine again.



WARNING

The emergency stops are not active during the function of emergency recovery **FACTORY OVERRIDE**.

5.6. Emergency controls

In case of emergency caused by a fault of the control system, or by an accident occurred to an operator at height, it is possible to bring the work platform to the ground using these following systems. Each of these systems is available to the operator in the ground, who has been trained of the emergency functions and who has the keys of the machine.

5.6.1. Emergency controls from the ground control panel

See chapter "Ground control panel and controllers"

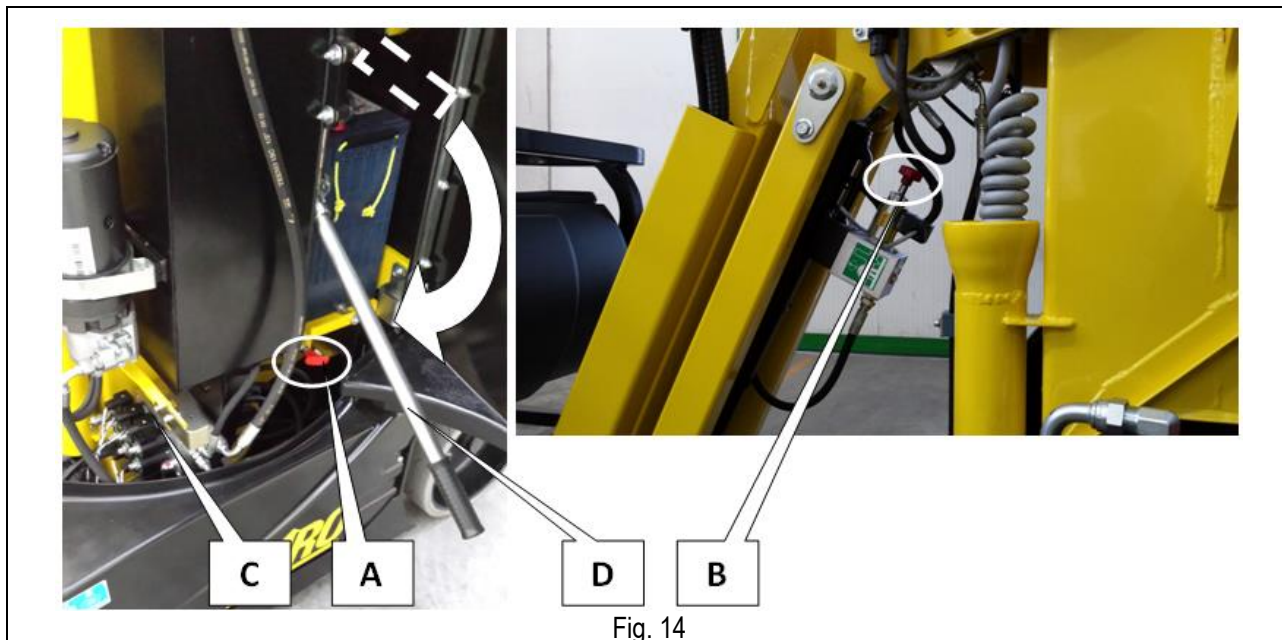
5.6.2. Function FACTORY OVERRIDE.

See chapter "Ground control panel and controllers".

5.6.3. Emergency manual controls



This function is to be used only in emergency situations, when no motive power is available.



In case of fault in the electric or hydraulic system, carry out the following emergency procedures:

- 1) Open the right cover of the turret and identify and pull to the outside the knob **A** shown in figure, to achieve the lowering of the telescopic column;
- 2) Once the jib lifting cylinder is accessible, pull to the outside the knob **B** shown in figure, to achieve the lowering of the jib.

Caution, the emergency control can be stopped at any time by releasing the knob.

In case of further needs, it is possible to control the turret rotation and the lifting of the telescopic column through the use of the manual pump.

- 1) Open the right cover of the turret and identify the hydraulic block **C** at the base of the oil tank
- 2) Remove the operating lever of the manual pump **D** and insert it on the pump;
- 3) Activate the required solenoid valve (see correspondence with movements described below), pressing and rotating by 1/4 clockwise the knurled extremity;
- 4) Activate the emergency pump **E**.
- 5) Check the correct execution of this procedure.

Solenoid valves and relevant movements:

- EV4 = Telescopic column lifting (not manually activated);
- EV5 = Telescopic column lowering - solenoid valve at the base of the cylinder lifting column. It is activated through the knob **A**;
- EV12 = Turret right rotation;
- EV13 = Turret left rotation;
- EV18 = Jib up;
- EV19 = Jib lowering - solenoid valve at the base of the cylinder jib lifting. It is activated through the knob **B**;



WARNING: The emergency control can be stopped at any moment by stopping the pump.



Once you have completed the manual emergency manoeuvre it is necessary to return everything to the initial conditions.

5.7. Socket for electric tool connection (Optional)

The work platform can be equipped with a socket (230V Ac) enabling the operator to connect the electric tools necessary to carry out his operations.

To activate the electric line (see pictures above) introduce a cable into the plug connected to the 230V AC 50 Hz mains, with all protections according to the current standards in force. If there is the circuit breaker switch (optional), to activate the electric line set the switch to ON position. It is advisable to check the earth-leakage circuit breaker by means of the specially provided TEST button.

The plugs and sockets equipped on standard machines comply with EEC standards and can therefore be used in EU member countries. On request the machine can be equipped with plugs and sockets in compliance with local standards or with particular needs.



Fig.15



Connect to the power mains having the following features:

- Power voltage 230V \pm 10%
- Frequency 50=60 Hz
- Activated grounding line.
- Working protection devices according to current standards in force.
- Do not use extension leads exceeding 5 metres to connect to the mains.
- Use a cable of suitable section (min 3x2.5 mm²).
- Do not use rolled-up cables.

5.8. End of work

After stopping the machine according to the instructions given in the previous paragraphs:

- Always set the machine to rest position (platform completely lowered).
- Press the emergency Stop button on the ground control panel.
- Remove the keys from the control panel to prevent unauthorized people from using the machine.
- Recharge the battery according to the instructions given in section "Maintenance".

6. HANDLING AND CARRYING

6.1. Handling

To handle the machine in normal operating conditions, follow the instructions given in chapter "USE INSTRUCTIONS" under paragraph "Drive and steering".

When the platform is completely lowered (booms down, telescopic boom completely in and jib at a height between +10° and -70° with respect to horizontal axis) the machine can be handled (i.e. drive can be performed) at different speeds to be freely selected by the user.

When the platform is lifted and exceeds a given height, the enabled machines (see chapter "Technical Features") can be driven at a reduced speed (automatically) up to the height specified in chapter "Technical Features".



WARNING!

Drive with lifted platform may be subject to different restrictions according to the country where the machine is used. Find out about the legislative limits concerning this operation from the bodies of Health and Safety at work.

It is absolutely forbidden to drive the machine when platform is lifted unless the ground is horizontal, flat and steady.

Before carrying out any displacement operation, verify that no people are in proximity of the machine and in any case proceed with the utmost caution.

Before handling the machine check that the connection plugs are disconnected from the power supply source.

Check that there are no holes or steps on the floor and bear in mind machine overall dimensions.

If the machine while travelling hits a hump or a hole with platform lifted, the machine will rest on one or both pot-hole guards with no danger to the operator.

Now, if you lower the platform completely, and both drive wheels are lifted from the ground, the machine might not be able to quit the lock condition with its own means. Emergency towing is necessary (see par. "Emergency towing").

Do not use the machine to tow other vehicles.

Before steering and driving the machine, check the actual position of the rotating turret through the relevant stickers on the chassis to achieve the correct movement direction.

While the machine is being displaced with lifted platform, no horizontal loads can be loaded onto the platform (operators on board are not allowed to pull wires or ropes, etc.).

6.2. Carrying

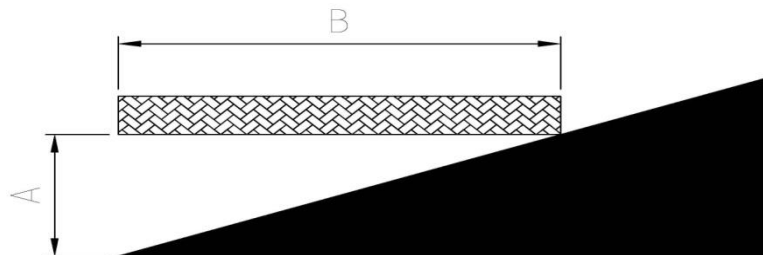
In order to carry the machine to the various working sites, follow the instructions given below. Considering the large dimensions of some models, before carrying, it is recommended to inquire about the overall dimension limits for road transport in force in your country.



Before carrying the machine, turn it off and remove the keys from the control panels. No people are allowed in proximity to or on the machine to avoid any risks deriving from sudden movements. For safety reasons never lift or tow the machine by means of its booms or platform. Loading operations are to be carried out on a flat surface with a suitable capacity, after setting the platform to rest position.

To carry the machine the operator shall load it onto a vehicle either:

- **By means of loading ramps and translation controls** located on the platform to load it directly onto the machine (if ramp slope is within the gradeability described in paragraph "TECHNICAL FEATURES" and ramp capacity is adequate to weight) according to the instructions given in paragraph "USE INSTRUCTION" under paragraph "Drive and steering" for correct operation of drive controls. During the loading operation following this system, it is best to raise the Jib (not over +10° with respect to the horizontal to prevent engaging the safety speed) to prevent the platform knocking against the ground. Pay attention not to load other booms during this operation to prevent the emergency microswitches from being activated, which in case of inclined machine disable all the manoeuvres except the lowering ones. If the slope exceeds the gradeability, the machine is to be towed by means of a windlass only if the operator on the platform simultaneously activates the drive control to release the parking brakes. The gradient can be determined using an electronic level or empirically as described below: position a wood board of known length on the gradient to be measured. Position a spirit level on the wood board and lift the downstream extremity of the latter until it is level. Now measure the distance between the board and the ground (A), divide this by the length of the board (B) and multiply by 100. The following image sums up the method.



- **By means of hooks and steel ropes** (with safety factor = 5, see machine weight in Technical features) connected to the provided holes as indicated in the picture aside;

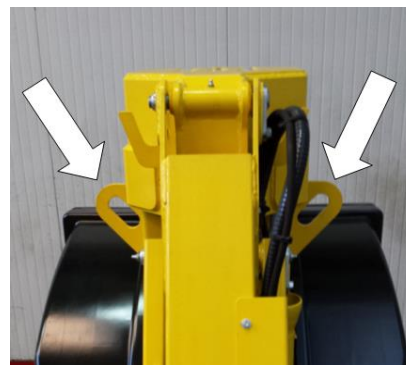


Fig.16



IT IS FORBIDDEN to lift up the machine by means of a lift truck, since there are no suitable positioning points of the forks.



Once the machine has been placed on the vehicle platform fasten it by means of the same holes used for lifting and/or the four slots provided on the chassis and indicated with the symbol of the hook. To avoid breaking the platform overload controller, thus causing the machine to stop, DO NOT fix the machine to the vehicle base by tying the platform (any model) or the last lifting boom.



Before carrying the machine check the stability grade. The platform must be fully lowered to ensure adequate stability during the entire operation.

6.3. Emergency towing of the machine

In the event of a fault, carry out the following operations to tow the machine:

1. Hook the machine to the provided holes.
2. Unscrew and remove the central cap of the two reduction gears (on the two rear driving wheels) by means of a 10 mm Allen wrench key.
3. Remove the central dragging pin of the reduction by means of a needle-nose pliers, and reposition the central cap to reduce the oil leaking.
4. Tow at a very slow speed (remember that when the machine is being towed, brakes are out of order).

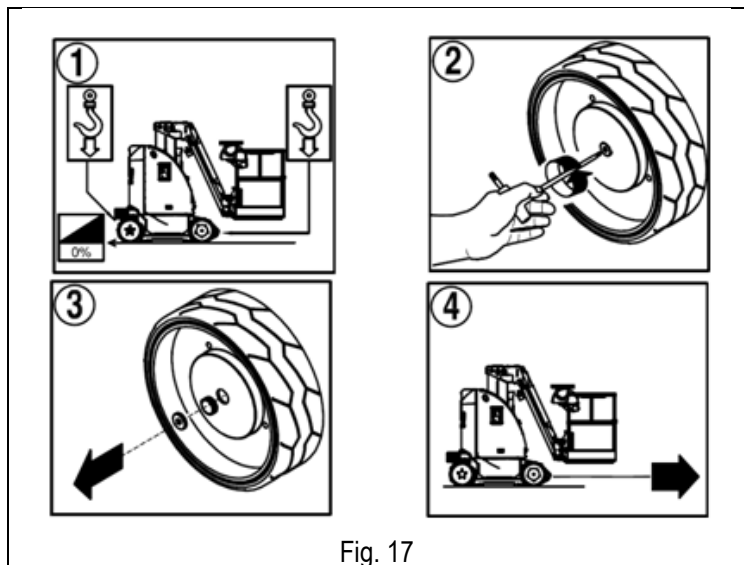


Fig. 17

WARNING! THIS OPERATION MAY CAUSE OIL LEAKAGE FROM THE DRIVE REDUCTION GEARS.

To resume the normal operation, set back the machine to initial conditions and, if necessary, top up the oil level inside the drive reduction gears.



Tow at a very slow speed (remember that when the machine is being towed, brakes are out of order).

Tow only on a flat ground.

Do not park the machine without brakes on.

With the brakes off, put wedges under the wheels to prevent the machine from moving accidentally.

7. MAINTENANCE



- Always carry out maintenance operations with machine at a standstill position and after having removed the key from the control panel with the platform in rest position.
- The maintenance operations described below refer to a machine with ordinary working use. In case of difficult conditions of use (extreme temperatures, corrosive environments, etc.) or following long machine inactivity, it will be necessary to contact the AIRO assistance service to change the intervention schedule.
- Repairs and maintenance operations are to be carried out by trained and authorised personnel only. All maintenance operations should be carried out in compliance with the current work safety regulations (work places, personal protection equipment, etc...).
- Carry out only the maintenance and adjustment operations described in this user manual. In emergency situations (e.g. breakdown, wheels replacement) contact Our Technical Support.
- During interventions, check that the machine is completely locked. Before carrying out maintenance operations inside the lifting structure, check that this is off-line in order to avoid accidental lowering of the booms.
- Remove the battery cables and provide batteries with a suitable protection during welding operations.
- Carry out maintenance operations on the heat engine only when it is not running and sufficiently cool (except for those operations, such as oil change, which must be performed when the motor is hot). Risk of burns in contact with hot parts.
- Do not use petrol or other flammable materials to clean the heat engine.
- For maintenance operations on the heat engine, read the manufacturer's manual of the motor supplied on machine purchase.
- In case of replacement, use original spare parts only or spare parts approved by the manufacturer.
- Disconnect the 230V AC and/or 380V AC sockets, if any.
- The lubricants, hydraulic oils, electrolytes and all detergent products should be handled with care and disposed of in safety according to the current regulations. A prolonged contact with the skin may cause irritations and dermatosis; wash with water and soap and rinse thoroughly. Contact with eyes, especially with electrolytes, is also dangerous; rinse with water thoroughly and call the doctor.



WARNING!
NEVER MODIFY OR TAMPER WITH MACHINE PARTS TO IMPROVE THE MACHINE PERFORMANCE AS THIS MAY AFFECT ITS SAFE OPERATION.

7.1. Machine cleaning

To clean the machine, use non-pressurized water jets after properly protecting the following parts:

- The control panel (both platform and ground).
- the electric ground control unit and all electric boxes in general;
- The electric motors.



Do not use pressurized water jets (high-pressure cleaners) to clean the machine.

After washing the machine, always:

- Dry the machine.
- Check integrity of plates and stickers.
- Lubricate the articulated joints equipped with greaser.

7.2. General maintenance

The table below indicates the main maintenance operations and their frequency. The machine is equipped with a service hour-meter.

Operation	Frequency
Screw tightening (see paragraph "Various adjustments")	After the first 10 working hours
Oil level check in hydraulic tank	After the first 10 working hours
Check of the battery state (charge and liquid level)	Every day
Check of deformation of tubes and cables	Every week
Check of stickers and code plates	Every month
Articulated joints and sliding blocks greasing	Every month
Emergency devices efficiency check	Every year
Electric connections check	Every year
Oil level check in hydraulic tank	Every year
Hydraulic connections check	Every year
Periodic operation check and structure visual check	Every year
Screw tightening (see paragraph "Various adjustments")	Every year
Operation check of movement circuit pressure relief valve	Every year
Brake system operation check	Every year
Operation check of the turret inclinometer	Every year
Operation check of platform overload controller	Every year
Operation check of M1 microswitches	Every year
Operation check of dead-man button (and/or pedal safety system)	Every year
Telescopic boom sliding blocks clearance adjustment	Every year
Hydraulic filter replacement	Every two years
Total oil change in hydraulic tank	Every two years



TO SEND THE MACHINE TO THE MANUFACTURER WITHIN 10 YEARS OF WORK FOR A COMPLETE CHECK

7.2.1. Various adjustments

Check the conditions of the following components and, if necessary, tighten after the first 10 working hours and, afterwards, at least once a year:

- 1) Wheel screws
- 2) drive geared motor fixing screws;
- 3) Steering cylinder fixing screws
- 4) fixing screws of steering hub pins;
- 5) cage fixing screws;
- 6) Hydraulic fittings
- 7) screws and safety dowels of boom pins;
- 8) Turntable fixing screws
- 9) fixing screws telescopic column sliding blocks.

For torque wrench setting refer to the table below.



Fig. 18

TORQUE WRENCH SETTING (S.I. 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
M24	65.0	650	92.0	920	110	1100

7.2.2. Greasing

Grease all articulated joints equipped with greaser (or predisposition for greaser) at least every month.

At least once a month, using a spatula or a brush, lubricate the telescopic column extension.

Moreover, always remember to grease the articulated joints:

- After washing the machine.
- Before using the machine again after a long time-interval.
- After using the machine in adverse environmental conditions (high humidity levels; presence of dust; coastal areas, etc).

Grease all points indicated in the picture aside (and all articulated joints equipped with greaser) with grease type **ESSO BEACON-EP2** or equivalent.

**(OPTIONAL BIODEGRADABLE OIL KIT)
PANOLIN BIOGREASE 2**



Fig. 19

7.2.3. Hydraulic circuit oil level check and change

Check after the first 10 working hours and, afterwards, once a month the oil level in tank by means of the level dipstick of the filler cap (part. **A** in the picture aside) and make sure that it always lies between the max. and min. values. If necessary, top up until the max. level is reached. The oil check should be carried out when platform is completely lowered.

Completely change the hydraulic oil at least every two years.

To empty the tank:

- Lower the platform completely.
- stop the machine by pressing the emergency stop button of the ground control panel.
- Place a container under cap (**B**), under the tank, and unscrew it.

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

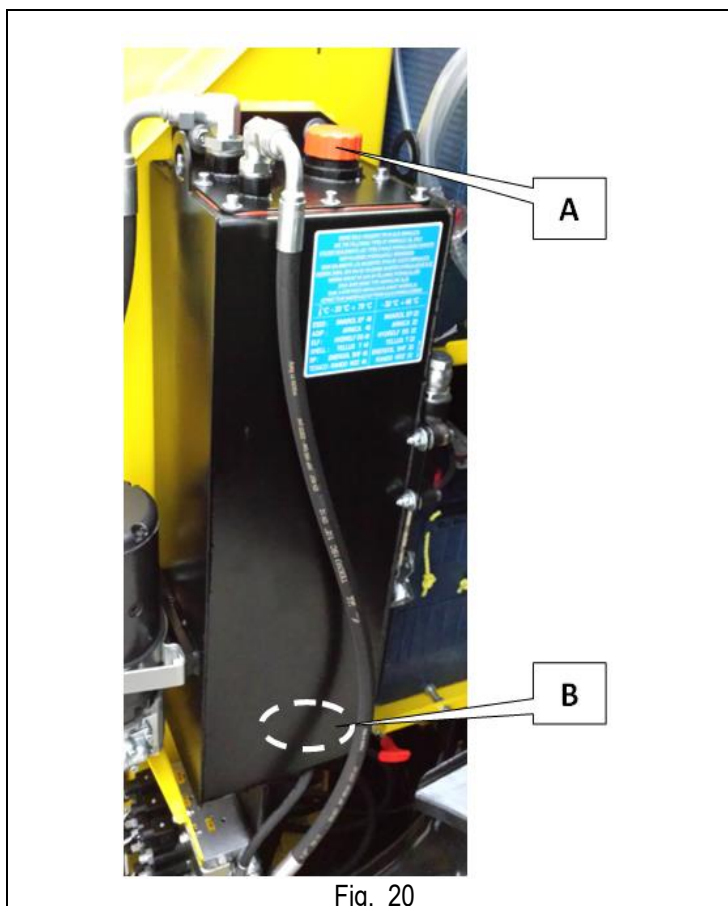


Fig. 20

HYDRAULIC SYSTEM OIL			
BRAND	TYPE		REQUIRED QUANTITY
	-20°C +79°C	-30°C +48°C	
SYNTHETIC OILS			30 Litres
ESSO	Invarol EP46	Invarol EP22	
AGIP	Arnica 46	Arnica 22	
ELF	Hydrelf DS46	Hydrelf DS22	
SHELL	Tellus SX46	Tellus SX22	
BP	Energol SHF46	Energol SHF22	
TEXACO	Rando NDZ46	Rando NDZ22	
Q8	LI HVI 46	LI HVI 22	
PETRONAS	HIDROBAK 46 HV	HIDROBAK 22 HV	
BIODEGRADABLE OILS - OPTIONAL			
PANOLIN	HLP SINTH E46	HLP SINTH E22	



Do not dispose of used oil in the environment. Comply with the current local standards.

The lubricants, hydraulic oils, electrolytes and all detergent products should be handled with care and disposed of in safety according to the current regulations. A prolonged contact with the skin may cause irritations and dermatosis; wash with water and soap and rinse thoroughly. Contact with eyes, especially with electrolytes, is also dangerous; rinse with water thoroughly and call the doctor.

7.2.3.1 Biodegradable hydraulic oil (Optional)

At the request of the customer, the machines can be supplied with biodegradable hydraulic oil compatible with the environment. Biodegradable hydraulic oil is completely synthetic, without zinc, non-polluting and highly efficient with saturated ester base, combined with special additives. The machines with biodegradable oil use the same component parts as standard machines, but the use of such type of oil is best taken into account from machine construction. In case of wanting to change from mineral-oil based hydraulic oil to "bio" oil, the following procedure must be followed.

7.2.3.2 Emptying

Empty the hot hydraulic oil for entire system operation (oil tank, cylinders, large-volume pipes).

7.2.3.3 Filters

Change the filtering inserts. Use standard filters as indicated by the manufacturer.

7.2.3.4 Washing

After completely emptying the machine, fill with a nominal quantity of "bio" hydraulic oil. Start the machine and perform all work movements at low revs for at least 30 minutes. Drain the liquid from the system as indicated at 7.2.3.

Warning: During the entire washing procedure, avoid air entering the system.

7.2.3.5 Filling

After washing, fill the hydraulic circuit, bleed and check the level.

Bear in mind that contact of fluid with the hydraulic pipes can cause swelling.

Also remember that contact of fluid with the skin can cause reddening or irritation.

Also use suitable PPE during these operations (e.g., protective eyewear and gloves).

7.2.3.6 Commissioning / check

"Bio" oil behaves regularly, but it must be checked by taking a sample at set intervals according to the indications provided below:

CHECK FREQUENCY	NORMAL DUTY	HEAVY DUTY
1 st CHECK AFTER	50 OPERATING HOURS	50 OPERATING HOURS
2 nd CHECK AFTER	500 OPERATING HOURS	250 OPERATING HOURS
3 rd CHECK AFTER	1000 OPERATING HOURS	500 OPERATING HOURS
FOLLOWING CHECKS	1000 HOURS OR 1 OPERATION YEAR	500 HOURS OR 1 OPERATION YEAR

The fluid state is therefore constantly monitored, thus allowing its use until its features decay. Normally, in the absence of contaminating agents, the oil is never completely changed, but only occasionally topped-up.

The oil samples (at least 500ml) must be taken with the system at operating temperature.

It is recommended to use new and clean containers.

The samples must be sent to the "bio" oil supplier.

For more dispatch details, contact Your nearest distributor.

Copies of the analysis report must be kept in the check register. This is mandatory.

7.2.3.7 Mix

Mixtures with other biodegradable oils are not allowed.

The remaining amount of mineral oil must not exceed 5% of total filling quantity as long as the mineral oil is suitable for the same use.

7.2.3.8 Micro-filtration

When making the conversion on second-hand machines, always take into account the high dirt dissolution power of biodegradable oil.

After conversion, the dissolution of fault-causing deposits in the hydraulic system could occur. In extreme cases, washing the seal housings can cause greater leaks.

To prevent faults as well as avoid any negative effect on oil quality, after the conversion, it is best to filter the hydraulic system using a micro-filtration system.

7.2.3.9 Disposal

The biodegradable oil, inasmuch as saturated ester, is suitable for both thermal and material re-use.

It therefore provides the same disposal / re-use options as mineral based old oil.

Such oil can be incinerated whenever local laws allow.

Recycling the oil is preferable to disposal on dumps or incineration.

7.2.3.10 Topping up

The oil must **ONLY EVER** be topped up with the same product.

Note: Max water contamination is 0.1%.

7.2.4. Hydraulic filter replacement

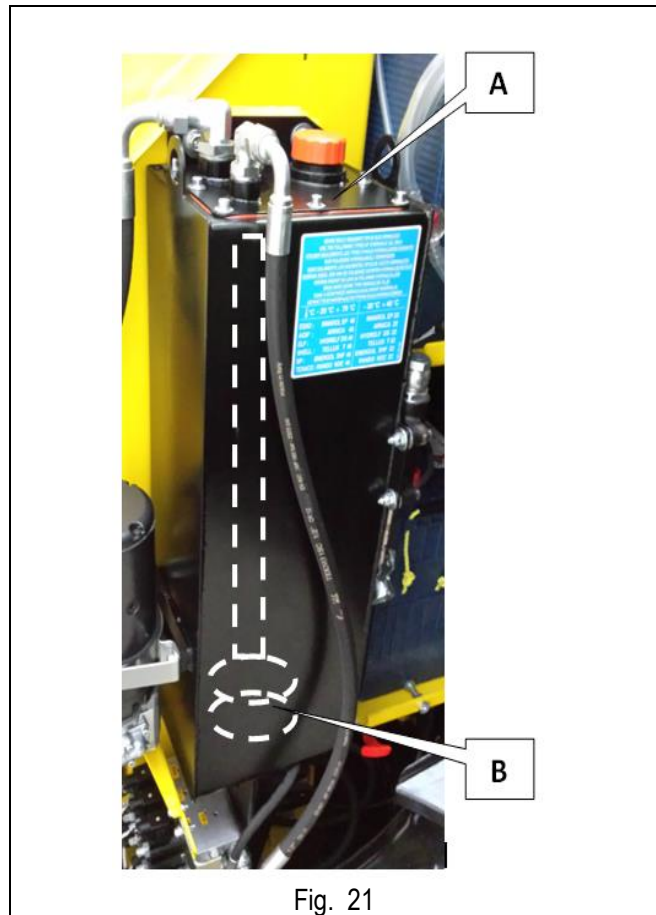
All models are equipped with suction filter inside the tank. It is advisable to replace it at least every two years.

To replace the filtering cartridge:

- Stop the machine by pressing the emergency stop button on the ground control panel.
- Disconnect the tubes from the tank.
- Unscrew the coupling flange **A** unlocking the four 5 mm Allen wrench screws.
- Unscrew filter **B** from the suction tube and clean it with a detergent and a compressed air jet by blowing from the connection or replace the filtering element.

To restore the initial condition, carry out the above-mentioned operation in reverse order.

During these operations a quantity of oil may leak out. In this case remove the oil by means of cloths and by pouring it into a specific container.



Replace the filters using only original accessories available at our Technical Support.
Do not re-use used oil and do not leave it in the environment, but dispose of in compliance with local standards in force.
Once the filters have been replaced, check the hydraulic oil level in the tank.

7.2.5. Drive reduction gear oil level check and change

The oil level should be checked at least once a year. Place the machine so as to have the two caps (A and B) in the position shown in the picture aside (in a few cases it is necessary to remove the driving wheels to access the a.m. caps). Check the level by means of cap (A). Oil check must be carried out when the oil is hot. The level is correct when the reduction gear body is full of oil up to the cap limit (A). Should a lubricant volume higher than 10% be topped up, check that there is no oil leakage in the system. Do not mix different types of oil, of the same or of different brands. Do not mix mineral oils and synthetic oils.

The oil must be changed the first time after 50-100 working hours, and afterwards after every two years. Depending on the actual operating conditions, these intervals may be varied for each single case.

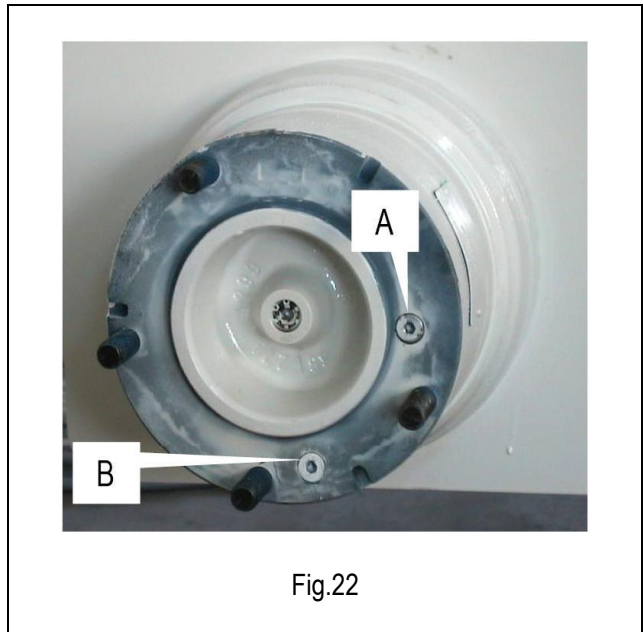


Fig.22

While changing the oil it is advisable to wash the internal part of the cover with a fluid recommended by the lubricant producer. To avoid sludge deposits, the oil must be changed when the reduction gear is hot. To change the oil, unscrew cap B, and place a container of a 2-litre capacity under it. Empty the reduction gear body completely, clean it as described above and then fill it up to the limit level of cap A through the same hole (for max. capacity see following table).

HYDRAULIC SYSTEM OIL		
BRAND	TYPE	REQUIRED QUANTITY
		Drive
SYNTHETIC OILS		
ESSO	Compressor Oil LG 150	0,4 litres
AGIP	Blasia S 220	
CASTROL	Alpha SN 6	
IP	Telesia Oil 150	
BIODEGRADABLE OILS - OPTIONAL		
PANOLIN	Biogear 80W90	

7.2.5.1 Checks in the use of synthetic biodegradable oil in drive reduction gears (Optional)

Quarterly or every 500 hours check the oil level. In case of need top up. If you notice that more than 10% of oil lacks in the reduction gear, check if there are any leaks.

Change the oil in the rotation reduction gear after the first 100 hours of operation and then every 6000 hours or every 3 years. Depending on the actual operating conditions, these intervals may change.

When changing the oil, it is recommended that you run a wash cycle inside the cover.

Change the oil when the reduction gear is hot. Mixtures of different oils (either biodegradable or mineral) even of the same brand are not allowed.



During oil change or topping up, do not discard the hydraulic oil in the environment.

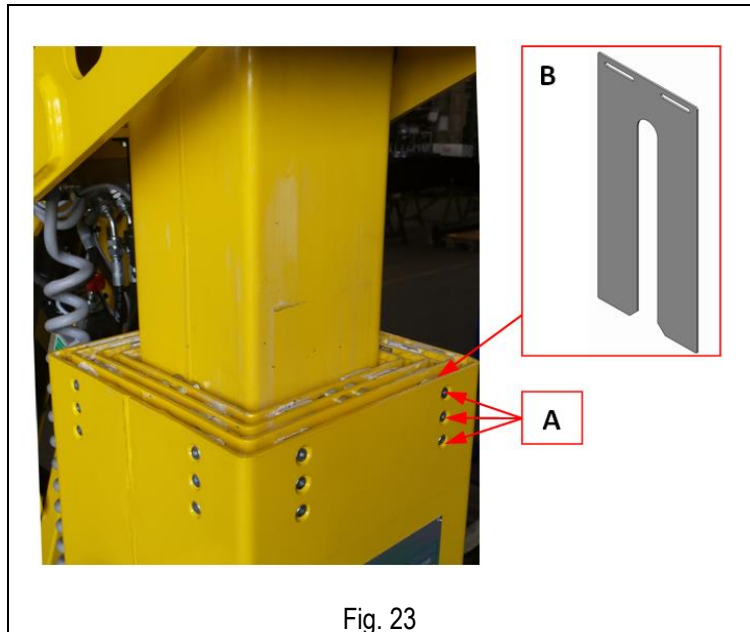
7.2.6. Telescopic column sliding blocks clearance adjustment

Check the wear of the telescopic boom sliding blocks every year.

The correct clearance between the blocks of the boom is 0,5-1 mm; in case of higher clearance by means of an additional calibrated thickness of 0,5 mm **B**.

For each sliding block:

- Loosen the two locking screws of **A**;
- Insert a number of shims **B** necessary to reach the required clearance;
- Refit the locking screws of **A**.



WARNING!
AS THIS OPERATION IS VERY IMPORTANT IT IS TO BE CARRIED OUT BY SKILLED
TECHNICIANS ONLY.

7.2.7. Pressure relief valve operation check

The main pressure relief valve controls the maximum pressure of the hydraulic circuit. Normally, this valve does not require any adjustment, since it is calibrated at the factory before the machine is delivered.

Calibration is required:

- in case of replacement of the hydraulic block
- in case of replacement of the pressure relief valve only.

Check operation at least once a year

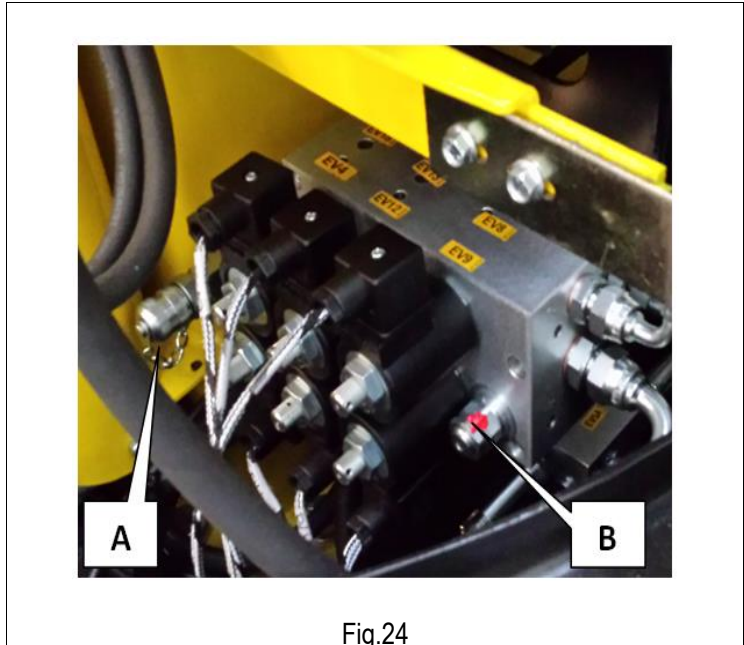


Fig.24

To check the operation of the pressure relief valve:

- Introduce a pressure gauge with full scale of at least 150 bar in the special quick coupling (1/4" BSP) **A**;
- Using the ground control panel, lift the machine of the telescopic column up to the end stop;
- Check the pressure value. The correct value is indicated in the chapter "**Technical features**".

To calibrate the pressure relief valve:

- Introduce a pressure gauge with full scale of at least 150 bar in the special quick coupling (1/4" BSP) **A**;
- Locate the pressure relief valve of lifting circuit **B**;
- Unscrew the adjusting dowel lock-nut.
- Using the ground control panel, lift the machine of the telescopic column up to the end stop;
- Adjust the pressure relief valve by means of the adjusting dowel so as to reach the pressure value indicated in chapter "**Technical Features**".
- Once calibration has been carried out, lock the adjusting dowel by means of the lock-nut.



WARNING!
AS THIS OPERATION IS VERY IMPORTANT IT IS TO BE CARRIED OUT BY SKILLED TECHNICIANS ONLY.

7.2.8. Operation check of the turret inclinometer



WARNING!
Usually the inclinometer does not need to be adjusted unless the electronic control unit is replaced. The equipment necessary for the replacement and adjustment of this component is such that these operations should be carried out by skilled personnel.

AS THIS OPERATION IS VERY IMPORTANT IT IS TO BE CARRIED OUT BY SKILLED TECHNICIANS ONLY.

The inclinometer does not require any adjustment since it is calibrated in the factory before the machine is delivered.

This device controls the chassis inclination and when inclined over the allowed value:

- it disables lifting
- it disables drive when platform exceeds a given height (varying according to model).
- it warns of the instability condition by means of an audible alarm and a warning light located on the platform (see “General use instructions”).

The inclinometer checks the inclination with respect to the two axes (X; Y). On machine models that have the same transversal and longitudinal inclination limits, the control is carried out with reference to one axis only (X-axis).

Check operation at least once a year.

To check the inclinometer operation according to the **longitudinal axis** (generally **X-axis**):

- using the platform control panel set the machine so as to place a shim of dimension (**A+10 mm**) under the two rear or front wheels (see following table).
- wait three seconds (operation delay set at factory) until the danger red light turns on. With platform lowered (booms down, telescopic boom in and jib at a height between +10° and -70°) all manoeuvres are still possible. By lifting one of the booms (excepting the Jib) and/or extending the telescopic boom with respect to the horizontal, the control system of the machine disables the lifting and drive controls, and the audible alarm is activated;
- If the alarm does not go off CALL THE TECHNICAL ASSISTANCE.

To check the inclinometer according to the **transversal axis** (normally **Y-Axis**):

- Using the platform control panel set the machine so as to place a shim of dimension (**B+10 mm**) under the two side right or left wheels (see following table).
- wait three seconds (operation delay set at factory) until the danger red light turns on. With platform lowered (booms down, telescopic boom in and jib at a height between +10° and -70°) all manoeuvres are still possible. By lifting one of the booms (excepting the Jib) and/or extending the telescopic boom with respect to the horizontal, the control system of the machine disables the lifting and drive controls, and the audible alarm is activated;
- If the alarm does not go off CALL THE TECHNICAL ASSISTANCE.

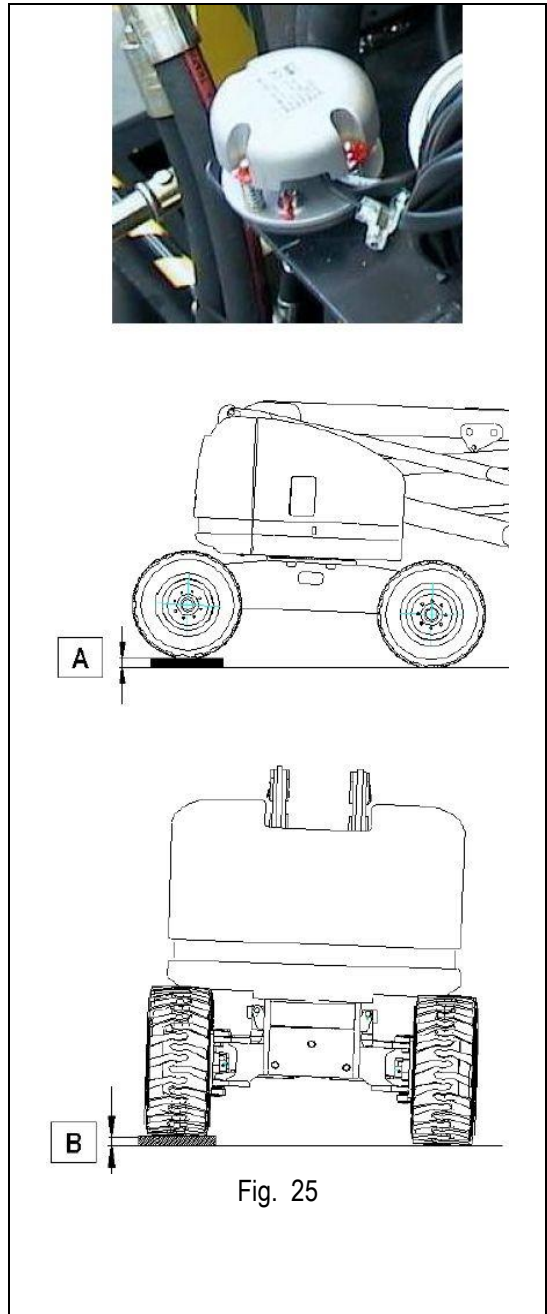


Fig. 25

SHIMS	V8 E	V10 E
A [mm]	42	42
B [mm]	32	32



WARNING! The dimensions of shims A and B refer to max. allowed inclination as indicated in table “TECHNICAL FEATURES”. To be used during the inclinometer calibration.

7.2.9. Adjustment of the overload controller (load cell)



WARNING!

Usually this device does need to be adjusted unless the device itself is replaced. The equipment necessary for the replacement and adjustment of this component is such that these operations should be carried out by skilled personnel.

AS THIS OPERATION IS VERY IMPORTANT IT IS TO BE CARRIED OUT BY SKILLED TECHNICIANS ONLY.

The AIRO self-propelled articulated boom aerial platforms are equipped with a sophisticated overload controller. Normally the overload controller does not require any adjustments, since it is calibrated in the factory before the machine is delivered.

This device checks the load on the platform and:

- disables all movements if platform is overloaded by 20% compared to the nominal load (drive and steering disabled with platform lifted);
- with platform in transport position and overloaded by 20% compared to the nominal load, only lifting is disabled;
- it warns the user of the overload condition by means of the platform audible alarm and warning light;
- by removing the exceeding load, the machine can be operated again.

Check operation at least once a year.

The overload controller consists of:

- deformation transducer (**A**);
- electronic board (**B**) for the system calibration located inside the platform control panel.

Operation check of the overload controller:

- when platform is completely lowered, load a charge evenly distributed equal to the normal load allowed by the platform (see paragraph "Technical features"). In this condition all operations should be possible both on platform control panel and ground control panel.

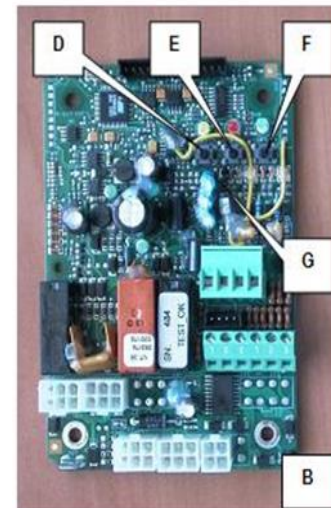
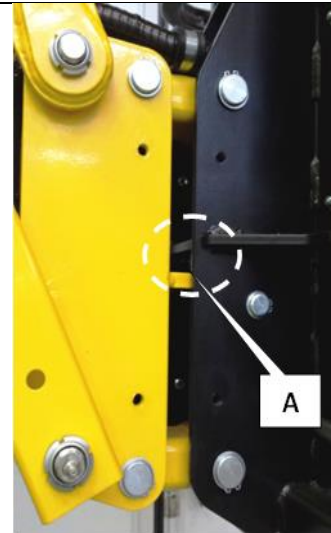


Fig.26a

- With platform completely lowered add to the rated load an overload of 25% of the nominal load. In this condition the red alarm light and the audible alarm turn on.
- If the platform is at a height from the ground higher than that indicated in chapter “Technical features”, the alarm condition locks the machine completely (the jib activates its microswitch after exceeding a height of 10° according to the horizontal axis) the alarm condition blocks the machine completely. To operate the machine again, remove the overload.

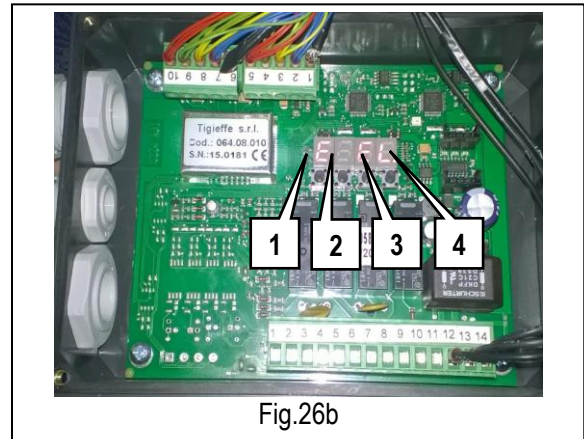


Fig.26b

The system needs calibration:

- In case of replacement of one of the items composing the system.
- When, following an excessive overload or a collision, without the excessive load the danger condition is signalled anyway.

Calibration depends on the type of fitted device.

If the board is the one shown in **fig.26a**:

- switch off the machine;
- Open the platform control panel and locate the electronic board B;
- without any load on the platform, fit the bridge between the two pins of the connector **G**;
- switch on the machine;
- press button **D** (the yellow light and red light turn on);
- press button **E** (the luminosity of the red light increases a few seconds), and the overload controller will be reset;
- position a distributed load on the platform equal to nominal capacity plus 20% ;
- press button **F** (the green light turns on a few seconds) to store the overload condition;
- press button **D** again to exit the calibration procedure (the yellow light turns off and if the procedure has been carried out correctly, the red light stays on signalling the overload);
- switch off the machine;
- open the jumper on connector **G**;
- switch on the machine;
- check that after removing the 20% overload (only the rated load remains on the platform) the alarm condition does not occur in any of the platform positions (platform down, up, driving, rotated);
- Once the adjustment has been completed, close the box which contains the board.

If the board is the one shown in **fig.26b**:

- switch off the machine;
- Open the box which contains electronic board.
- switch on the machine;
- With no load on the platform, press and hold buttons **1** and **4** until the word **CONS** appears;
- Press **4** to enter the **CAP** and **4** again to display the parameter value;
- Enter the correct value = **1000** via the button **1**, **2** and **3**. Press button **4** to save and exit.
- Press **2** and **2** again to switch to **J01J**, press **4** to display the parameter value;
- Enter the correct value = **1** via the button **1**, and **2**. Press button **4** to save and exit.
- Press **3** and **2** again to switch to **CALB**. Press **4** to switch to **CAL**;
- After checking that there are no loads on platform, press **1** to perform the zero calibration;
- Load the weight equal to the nominal load and check out the value shown on the display. If it is correct, press **4** to save and exit, otherwise press **2** and then, via buttons **1**, **2** and **3** manually enter the correct value. Press **4** and **4** again to go back to **CALB**.
- Press **2** and **2** again to switch to **ALAR**, then press **4** and **2** again to switch to **BLOC**;
- Press **4** to enter and then, via buttons **1**, **2** and **3**, enter the alarm value equal to the nominal load + the overload of 20%. Press **4** to save;
- Press **2** to go to **DIFF** and **4** again to enter. Set the value = **0045**, via buttons **1**, **2** and **3**, then **4** again to store;
- Press **2** to switch to **TEST** and **4** again to do the test. When **PASS** appears, press **3** three times to exit calibration;
- Check out if the display shows the value of the current load on the platform;
- Check out if with a load \geq the rated load + 20% overload, the system goes into overload alarm and that, by removing the 20% overload, the alarm condition disappears;
- Once the adjustment has been completed, close the box which contains the board.



AS THIS OPERATION IS VERY IMPORTANT IT IS TO BE CARRIED OUT BY SKILLED TECHNICIANS ONLY

7.2.10. Overload controller by-pass – ONLY FOR EMERGENCY OPERATIONS

In case of fault and impossibility to calibrate the device, a by-pass of the system is possible by means of locking key switch (A) under the control panel. Keep the locking key switch active for 5 seconds and release to get the BY-PASS condition.

WARNING!! IN THIS CONDITION THE MACHINE CAN CARRY OUT ANY OPERATION, THOUGH THE RED FLASHING LED AND THE AUDIBLE ALARM SIGNAL THE DANGER CONDITION. TURNING OFF THE MACHINE WILL RESET THE SYSTEM, AND UPON STARTING, THE OVERLOAD CONTROLLER OPERATES AGAIN SIGNALLING THE PREVIOUS OVERLOAD CONDITION.

THIS OPERATION IS ALLOWED ONLY FOR EMERGENCY HANDLING OF THE MACHINE. DO NOT USE THE MACHINE IF THE OVERLOAD CONTROLLER IS NOT EFFICIENT.

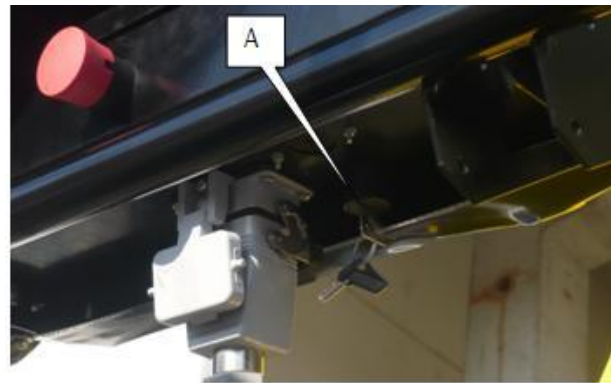


Fig. 27



WARNING!
THIS OPERATION IS ALLOWED ONLY FOR EMERGENCY HANDLING OF THE MACHINE OR IN THE EVENT OF A FAULT OR IMPOSSIBILITY TO CALIBRATE THE SYSTEM. DO NOT USE THE MACHINE IF THE OVERLOAD CONTROLLER IS NOT EFFICIENT.

7.2.11. Operation check of M1 microswitches

The lifting booms are controlled by microswitches:

- M1A at the base of telescopic column (N.2 microswitch);
- M1C on the Jib.

Once a year check the working conditions of the microswitches M1.

The M1A microswitch functions are the following:

With platform outside the rest position (M1A activated):

- the safety drive speed is automatically activated;
- if the chassis inclination exceeds the max. allowed value, the lifting and drive controls are disabled;
- when the platform is overloaded ALL operations until removal of overload are disabled.



The following functions of the microswitch M1C on the Jib were designed to support loading/unloading from the ramps of a vehicle:

With telescopic column in rest position (M1A microswitches not activated), and Jib with inclination higher than +10° according to the horizontal axis (M1C activated):

- the third drive speed is automatically disabled;
- if the chassis is inclined over the max. allowed inclination, Jib lifting and drive controls remain allowed;

7.2.12. Operation check of dead-man pedal safety system

The platform dead-man pedal is for enabling the operation controls of the machine on the platform control panel.

Check operation at least once a year.

To check the “dead-man” PEDAL:

- Move the drive joystick forward and backward in sequence, WITHOUT PRESSING THE “DEAD-MAN” PEDAL.
- check that the machine does not perform any movement.

- hold down the dead-man pedal for more than 10 seconds
- With the pedal pressed, move the joystick forward and backward in sequence.
- check that the machine does not perform any movement.

If the device works properly, no machine movement is possible on the platform control panel unless you press the “dead-man” pedal beforehand. If this is pressed for more than 10 seconds and no operation is performed, all movements are disabled; to operate the machine again, release the dead-man pedal and press it again.

The condition of the switch is indicated by the green led in the platform:

- Steady green led lit up enabled control panel
- Flashing green led lit up disabled control panel

7.2.13. Operation check of “dead-man” button safety system (optional).

The platform dead-man button (alternative to the pedal) is for enabling the operation controls of the machine from the platform control station.

Check operation at least once a year.

To check the dead-man BUTTON:

- move the drive joystick forward and backward in sequence, WITHOUT PRESSING THE DEAD-MAN BUTTON
- check that the machine does not perform any movement

- press and release the dead-man button and wait three seconds
- move the joystick forward and backward in sequence
- check that the machine does not perform any movement

If the device works properly, no machine manoeuvre is possible from the platform control panel unless you press the dead-man button beforehand. If this is pressed for more than 2 seconds and no operation is performed, all movements are disabled; to operate the machine again, press and release the dead-man pedal again and activate a control within 2 seconds.

The condition of the switch is indicated by the green led in the platform:

- Steady green led lit up enabled control panel
- Flashing green led lit up disabled control panel

7.3. Battery

The battery is one of the most important elements of the machine. It is recommended to keep it in an efficient condition to increase its useful life, to avoid faults and to reduce the management costs of the machine.

7.3.1. General instructions for battery

- In case of new batteries do not wait for the flat battery warning before recharging; recharge batteries after 3 or 4 working hours for the first 4/5 times.
- In case of new batteries full performance is achieved after approx. ten cycles of discharge and charge.
- Charge the battery in airy rooms and open the caps to allow the outflow of gas.
- Do not use extension leads exceeding 5 metres to connect the battery charger to the mains.
- Use a cable of suitable section (min 3x2.5 mm²).
- Do not use rolled-up cables.
- Do not approach the battery with flames. Risk of deflagration due to the formation of explosive gases.
- Do not carry out temporary or irregular electric connections.
- The terminals must be tightened and without deposits. The cables must be provided with a good insulation.
- Keep the battery cleaned, dry and free of oxidation products by using antistatic cloths.
- Do not place tools or any other metal object on the battery.
- Check that the electrolyte level is 5-7 mm higher than the splash guard level.
- During charging operations check that the electrolyte temperature is not higher than 45°C max.

7.3.2. Battery maintenance

- For normal water operating conditions, water topping up is to be carried out every week.
- Top up using distilled or demineralized water.
- Top up after battery charging. The electrolyte level must be 5-7 mm higher than the splash guard level.
- For machines equipped with automatic topping up device of manual type follow the instructions given in the battery user manual.
- For machines equipped with an automatic topping device of electric type, operate the electric selector on the tank by activating the electric refilling of the canister, frontally the visual flow indicator will start turning indicating the passage of water to the batteries, keep the selector operated up to complete filling and when the visual flow indicator is no longer moving and the plug floats on the batteries can all be seen, then the batteries will be completely topped up.
- Battery discharge must be stopped when 80% of the battery rated capacity has been used. An excessive and prolonged discharge irreversibly damages the battery. The machine is equipped with a device that, when the battery is discharged by 80%, lifting operations are disabled. The battery needs to be recharged. This condition is signalled by a flashing light of the relevant led on the platform control panel.
- Battery charge is to be carried out according to the instructions given in the next paragraphs.
- Keep caps and connections covered and dry. A careful cleaning allows electric insulation protection, good operation and useful life of the battery.
- In case of faulty operations due to the battery, avoid any direct intervention and call the Customer Service.
- When the machine is not being used the batteries will run down automatically (automatic discharge). To avoid the battery operation from being compromised, charge it at least once a month. This has to be done even if the density values of the electrolyte are high.
- To limit the discharge of the battery during periods of inactivity, store the machine in environments where the temperature is below 30°C and press all the emergency buttons, including the main power button.

7.3.3. Battery recharge



WARNING!
EXPLOSIVE gas is originated during battery charging process. Therefore, charging must take place in airy rooms where no risks of fire and explosion exist and in the presence of fire extinguishers.

Connect the battery charger to the power mains having all protections according to the current standards in force and with the following features:

- Power voltage 230V \pm 10%
- Frequency 50÷60 Hz
- Activated grounding line.
- Magneto-thermic switch and residual current device ("circuit breaker")

Moreover:

- Do not use extension leads exceeding 5 metres to connect the battery charger to the mains.
- Use a cable of suitable section (min 3x2.5 mm²).
- Do not use rolled-up cables.



IT IS FORBIDDEN
Connection to mains that do not comply with the above mentioned features.
Failure to comply with the a.m. instructions may cause incorrect functioning of the battery chargers with consequent damage not covered by the warranty.



WARNING!
After charging, when the battery charger is still connected, the electrolyte density values should range from 1.260 g/l to 1.270 g/l (at 25thC).

To use the battery chargers, follow these procedures:

- connect the battery chargers by means of plug **A** to a current socket with the a.m. features
- check the connection state of the battery charger through led **B**. If it is on, connection has taken place and charging has started. The colour and enable mode of the leds indicate the charging phase (refer to table below).

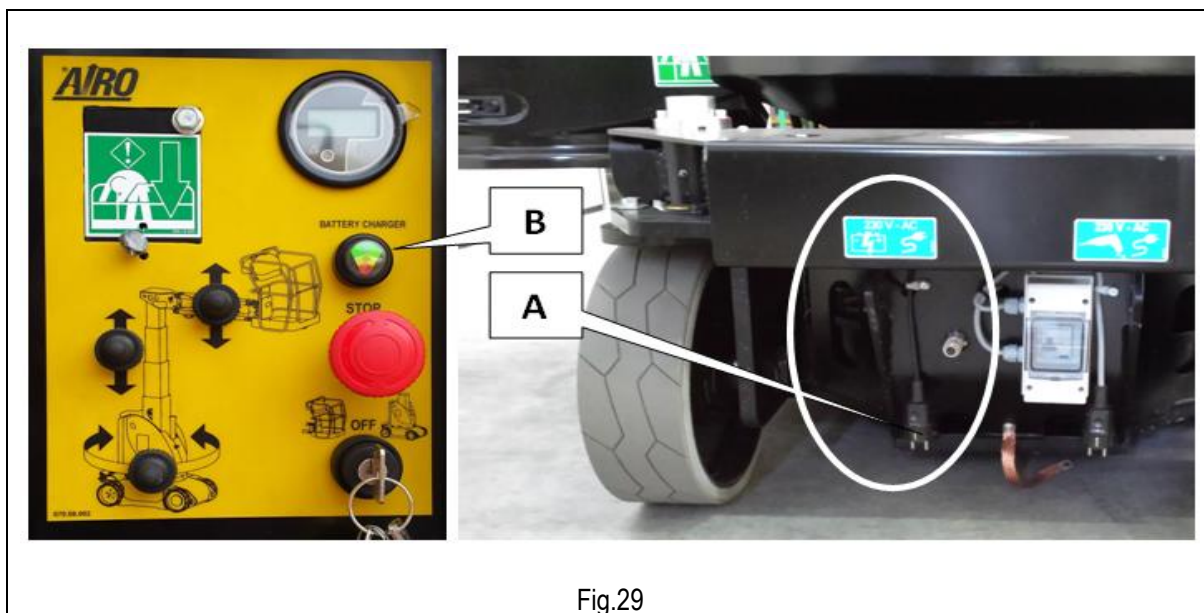


Fig.29

WARNING	DESCRIPTION
Red led flashing for a few seconds	Battery charger self-diagnostic phase
Red led on	Indicates the first and second charging phase
Yellow led on	Indicates the equalization of the charging phase
Green led on	Indicates that charging is over; buffer charge active



With the battery charger ON, the machine is automatically off.

To disconnect the battery charger from the power source, disconnect the machine from the electric line.



WARNING!

Before using the machine check that the power cord of the battery charger is disconnected.

7.3.4. Battery charger: fault report

The flashing LED on the battery charger indicator described in the previous paragraph indicates that a warning situation has occurred:

WARNING	PROBLEM	SOLUTION
Red led constantly flashing	No connection with the battery	Check the connections with the battery
	Connections with the battery inverted	
Red and yellow led blinking	Connection problems	Check all connections
		Check that battery was not disconnected during charging phase
	Battery problems	Check the battery
		Check the fluid level (for pb-acid batteries only)

WARNING!



In presence of alarm the battery charger stops the current delivery.
 In the event of an alarm of one of the two battery chargers, intervene as soon as possible to replace the faulty device, avoiding the batteries from being charged by a single battery charger.
 In fact, in this case batteries tend to deteriorate much more quickly.

7.3.5. Battery replacement



Replace the old batteries only with models of the same voltage, capacity, dimensions and mass. Batteries must be approved by the manufacturer.



Do not dispose of batteries in the environment after replacement. Comply with the current local standards.



AS THIS OPERATION IS VERY IMPORTANT IT IS TO BE CARRIED OUT BY SKILLED TECHNICIANS ONLY.

CALL THE TECHNICAL SUPPORT

8. MARKS AND CERTIFICATIONS

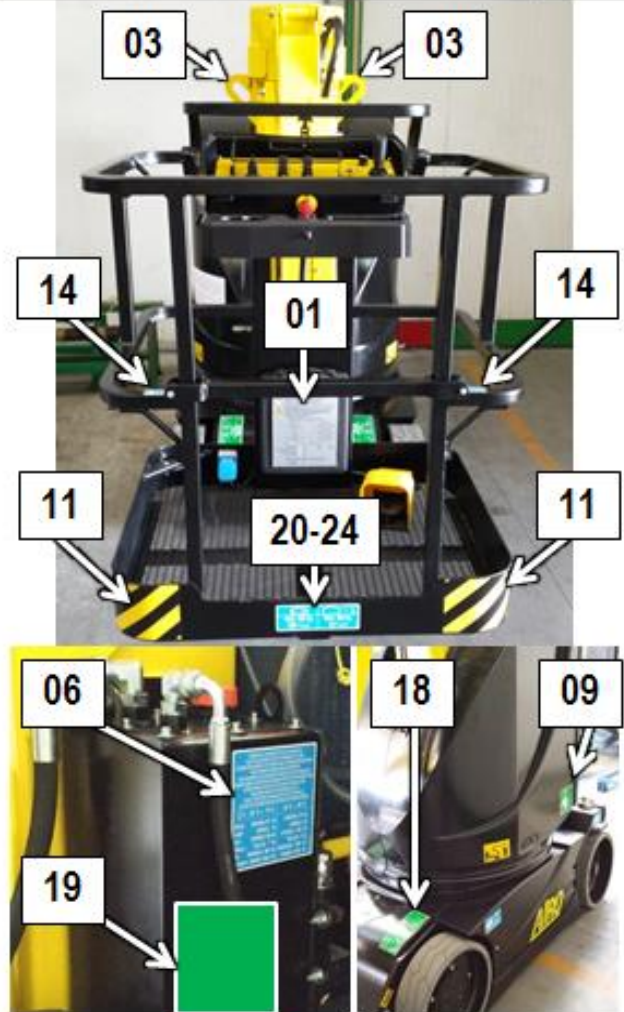
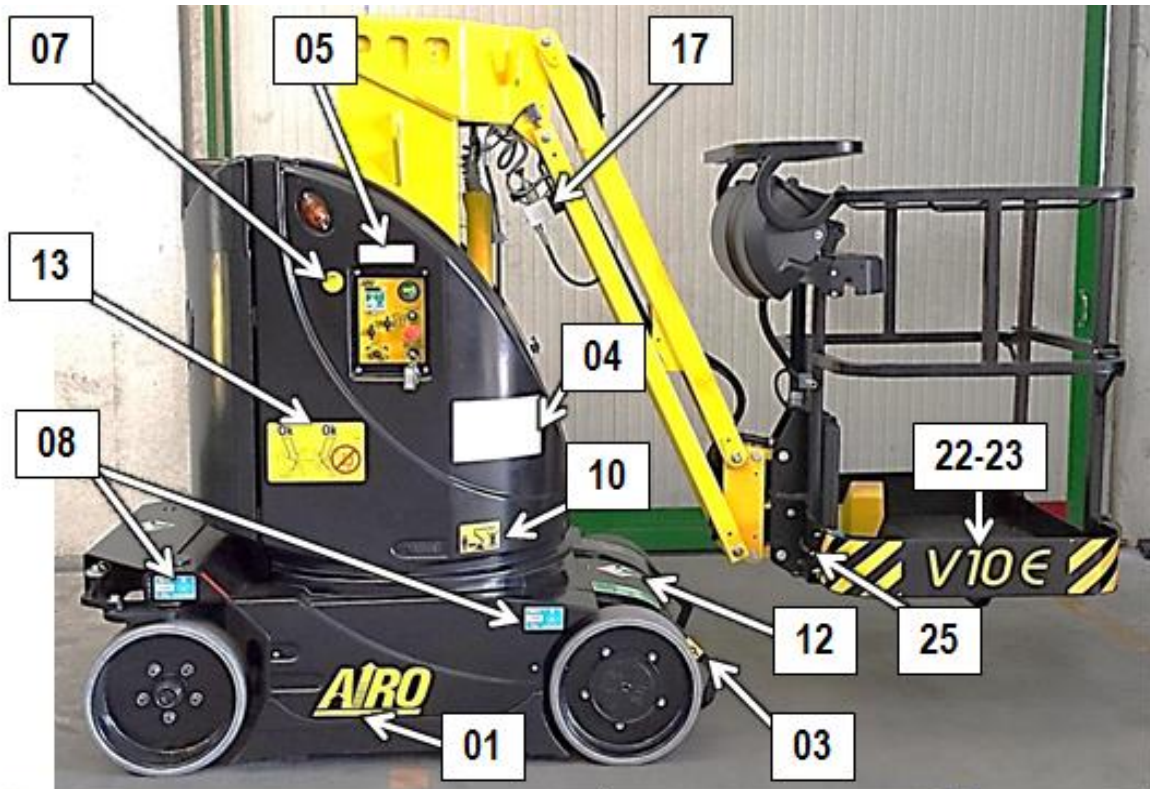
The models of self-propelled aerial platform described in this manual were subject to the CE type test according to the Directive 2006/42/EC. The certification was issued by:

<p>Eurofins Product Testing Italy Srl - 0477 Via Cuorné, 21 10156 – Torino – TO (Italy)</p>	
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Test carrying out is shown by the above plate with CE mark applied on the machine and by the declaration of conformity enclosed in this user manual.

9. PLATES AND STICKERS

	CODE	DESCRIPTION	QUANTITY
1	001.10.001	AIRO WARNINGS PLATE I	1
2	001.10.024	AIRO SERIAL NUMBER PLATE	1
3	001.10.031	TOWING HOOK STICKER	6
4	001.10.057	GENERAL WARNINGS STICKER	1
5	001.10.059	WHEELS TIGHTENING STICKER	1
6	001.10.150	OIL TYPE STICKER "46" I_D_F_NL_B_G_PL	1
7	001.10.180	NEXT CHECK STICKER	1
8	001.10.243	"MAX. LOAD PER WHEEL" STICKER	4
9	001.10.259	IPAF EMERGENCY LOWERING STICKER	1
10	001.10.260	NO STOPPING STICKER ARTICULATED SYMBOL	2
11	010.10.010	YELLOW-BLACK LINE STICKER >150X300	4
12	023.10.003	DIRECTIONS STICKER	2
13	029.10.011	NO FASTEN CAGE STICKER	1
14	035.10.007	SAFETY BELTS ATTACHMENT STICKER	2
15	045.10.005	BATTERY ISOLATOR STICKER (SYMBOLS)	1
16	045.10.011	BATTERY CHARGER PLUG STICKER	1
17	069.10.003	IPAF EMERGENCY LOWERING STICKER - SMALL	2
18	070.10.008	EMERGENCY TOWING STICKER	2
19	070.10.009	MANUAL EMERGENCY STICKER V8-V10	1
20	008.10.003	CAPACITY STICKER 200KG (V8 E ONLY)	1
21	001.10.173	AIRO PRE-SPACED YELLOW STICKER 300X140	2
22	070.10.005	PRE-SPACED STICKER YELLOW "V8 E" (V8 E ONLY)	2
23	070.10.006	PRE-SPACED STICKER YELLOW "V10 E" (V10 E ONLY)	2
24	070.10.007	CAPACITY STICKER 200KG (INT. 2P/EST. 1P) (V10 E ONLY)	1
25	001.10.021	GROUND SYMBOL STICKER	1
26	045.10.010	POWER LINE PLUG STICKER	1



10. CHECK REGISTER

The check register is released to the user of the platform in conformance with annex 1 of Directive 2006/42/EC. This register is to be considered an integral part of the equipment and must accompany the machine for its entire life until its final disposal.

The register is provided for the notation, according to the proposed format, of the following events that regard the life of the machine:

- Periodic obligatory inspections under the care of the agency responsible for checking it (in Italy, ASL or ARPA).
- Obligatory periodic inspections to verify the structure, proper machine functioning and the protection and safety systems. Such inspections are the responsibility of the safety manager of the company that owns the machine and must occur with **frequency indicated**.
- Transfers of ownership. In Italy, the purchaser must notify the INAIL department responsible that the installation of the machine has occurred.
- Extraordinary maintenance work and replacement of important elements of the machine.

REQUIRED PERIODIC INSPECTIONS BY THE OWNER

STRUCTURAL CHECK		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
VISUAL CHECK		Check the integrity of the guardrails; the harness anchoring points; state of the lifting structure; any access ladders; rust; state of the tyres; oil leaks; locking pins on the structure.	
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			
DEFORMATION OF TUBES AND CABLES		Most of all, check at junction points that tubes and cables do not show any evident defects. Check the spiral control cable external to the lifting structure is completely retracted in its housing with lowered platform. Check the spring reels of the hydraulic tubes. Monthly operation. It is not necessary to indicate its execution every month, but at least every year when the other operations are carried out.	
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

REQUIRED PERIODIC INSPECTIONS BY THE OWNER

STRUCTURAL CHECK		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
VARIOUS ADJUSTMENTS		See chapter 7.2.1	
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

GREASING		See chapter 7.2.2 Monthly operation. It is not necessary to indicate its execution every month, but at least every year when the other operations are carried out.	
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

REQUIRED PERIODIC INSPECTIONS BY THE OWNER

CHECK	DESCRIPTION OF OPERATIONS TO BE PERFORMED		
HYDRAULIC TANK AND DRIVE REDUCTION GEARS OIL LEVEL CHECK	See chapter 7.2.3 and 7.2.5 Daily operation. It is not necessary to indicate its execution every day, but at least every year when the other operations are carried out.		
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			
TELESCOPIC COLUMN SLIDING BLOCKS CLEARANCE ADJUSTMENT.	See chapter 7.2.6.		
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

REQUIRED PERIODIC INSPECTIONS BY THE OWNER

CHECK		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
CALIBRATION CHECK OF PRESSURE RELIEF VALVE		See chapter 7.2.7.	
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			
BATTERY STATE		See chapter 7.3 Daily operation. It is not necessary to indicate its execution every day, but at least every year when the other operations are carried out.	
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

REQUIRED PERIODIC INSPECTIONS BY THE OWNER

CHECK		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
TOTAL OIL CHANGE IN HYDRAULIC TANK (EVERY TWO YEARS)		See chapter 7.2.3.	
	DATE	REMARKS	SIGNATURE + STAMP
2nd YEAR			
4th YEAR			
6th YEAR			
8th YEAR			
10th YEAR			
HYDRAULIC FILTER REPLACING (EVERY TWO YEARS)		See chapter 7.2.4.	
	DATE	REMARKS	SIGNATURE + STAMP
2nd YEAR			
4th YEAR			
6th YEAR			
8th YEAR			
10th YEAR			

REQUIRED PERIODIC INSPECTIONS BY THE OWNER

REQUIRED PERIODIC INSPECTIONS BY THE OWNER			
CHECK		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
TOTAL OI CHANGE IN DRIVE REDUCTION GEARS (EVERY TWO YEARS)		See chapter 7.2.5.	
	DATE	REMARKS	SIGNATURE + STAMP
2nd YEAR			
4th YEAR			
6th YEAR			
8th YEAR			
10th YEAR			

REQUIRED PERIODIC INSPECTIONS BY THE OWNER

SAFETY SYSTEM CHECK		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
OPERATION CHECK OF THE TURRET INCLINOMETER		See chapter 7.2.8.	
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			
EFFICIENCY CHECK OF PLATFORM OVERLOAD CONTROLLER		See chapter 7.2.9.	
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

REQUIRED PERIODIC INSPECTIONS BY THE OWNER

SAFETY SYSTEM CHECK		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
OPERATION CHECK MICROSWITCHES M1		See chapter 7.2.11	
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

SAFETY SYSTEM CHECK		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
DEAD-MAN SYSTEM CHECK		See chapter 7.2.12. and 7.2.13.	
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

REQUIRED PERIODIC INSPECTIONS BY THE OWNER

STICKERS AND PLATES CHECK

See Chapter 9. Check the legibility of the aluminium plate on the platform where the main instructions are summarised; that the capacity stickers are on the platform and that they are legible; that the stickers on the ground and platform controls are legible.

	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

SAFETY SYSTEM CHECK

DESCRIPTION OF OPERATIONS TO BE PERFORMED

BRAKING SYSTEM EFFICIENCY CHECK

GOING DOWN A RAMP WITH MAX. SLOPE INDICATED IN CHAPTER "TECHNICAL FEATURES", AT THE LOWEST SPEED, THE MACHINE SHOULD BE ABLE TO STOP, UPON RELEASE OF THE JOYSTICK, IN A SPACE OF LESS THAN 1.5 METERS

	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

REQUIRED PERIODIC INSPECTIONS BY THE OWNER

CHECK OF EMERGENCY DEVICES		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
MANUAL EMERGENCY LOWERING CHECK		See chapter 5.6	
	DATE	REMARKS	SIGNATURE + STAMP
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

11. TRANSFERS OF OWNERSHIP

FIRST OWNER

COMPANY	DATE	MODEL	SERIAL NUMBER	DELIVERY DATE

AIRO / Tigieffe S.r.l.

SUBSEQUENT TRANSFERS OF OWNERSHIP

COMPANY	DATE

We affirm that, as of the date quoted above, the technical, dimensional and functional features of this machine were in conformance with what was originally required and that any changes have been recorded in this Register.

THE SELLER

THE PURCHASER

SUBSEQUENT TRANSFERS OF OWNERSHIP

COMPANY	DATE

We affirm that, as of the date quoted above, the technical, dimensional and functional features of this machine were in conformance with what was originally required and that any changes have been recorded in this Register.

THE SELLER

THE PURCHASER

SUBSEQUENT TRANSFERS OF OWNERSHIP

COMPANY	DATE

We affirm that, as of the date quoted above, the technical, dimensional and functional features of this machine were in conformance with what was originally required and that any changes have been recorded in this Register.

THE SELLER

THE PURCHASER

SUBSEQUENT TRANSFERS OF OWNERSHIP

COMPANY	DATE

We affirm that, as of the date quoted above, the technical, dimensional and functional features of this machine were in conformance with what was originally required and that any changes have been recorded in this Register.

THE SELLER

THE PURCHASER

SUBSEQUENT TRANSFERS OF OWNERSHIP

COMPANY	DATE

We affirm that, as of the date quoted above, the technical, dimensional and functional features of this machine were in conformance with what was originally required and that any changes have been recorded in this Register.

THE SELLER

THE PURCHASER

IMPORTANT BREAKDOWNS

DATE	DESCRIPTION OF BREAKDOWN	SOLUTION

SPARE PARTS USED		DESCRIPTION
CODE	QUANTITY	

SERVICE

SAFETY MANAGER

DATE	DESCRIPTION OF BREAKDOWN	SOLUTION

SPARE PARTS USED		DESCRIPTION
CODE	QUANTITY	

SERVICE

SAFETY MANAGER

IMPORTANT BREAKDOWNS

DATE	DESCRIPTION OF BREAKDOWN	SOLUTION

SPARE PARTS USED		DESCRIPTION
CODE	QUANTITY	

SERVICE

SAFETY MANAGER

DATE	DESCRIPTION OF BREAKDOWN	SOLUTION

SPARE PARTS USED		DESCRIPTION
CODE	QUANTITY	

SERVICE

SAFETY MANAGER

IMPORTANT BREAKDOWNS

DATE	DESCRIPTION OF BREAKDOWN	SOLUTION

SPARE PARTS USED		DESCRIPTION
CODE	QUANTITY	

SERVICE

SAFETY MANAGER

DATE	DESCRIPTION OF BREAKDOWN	SOLUTION

SPARE PARTS USED		DESCRIPTION
CODE	QUANTITY	

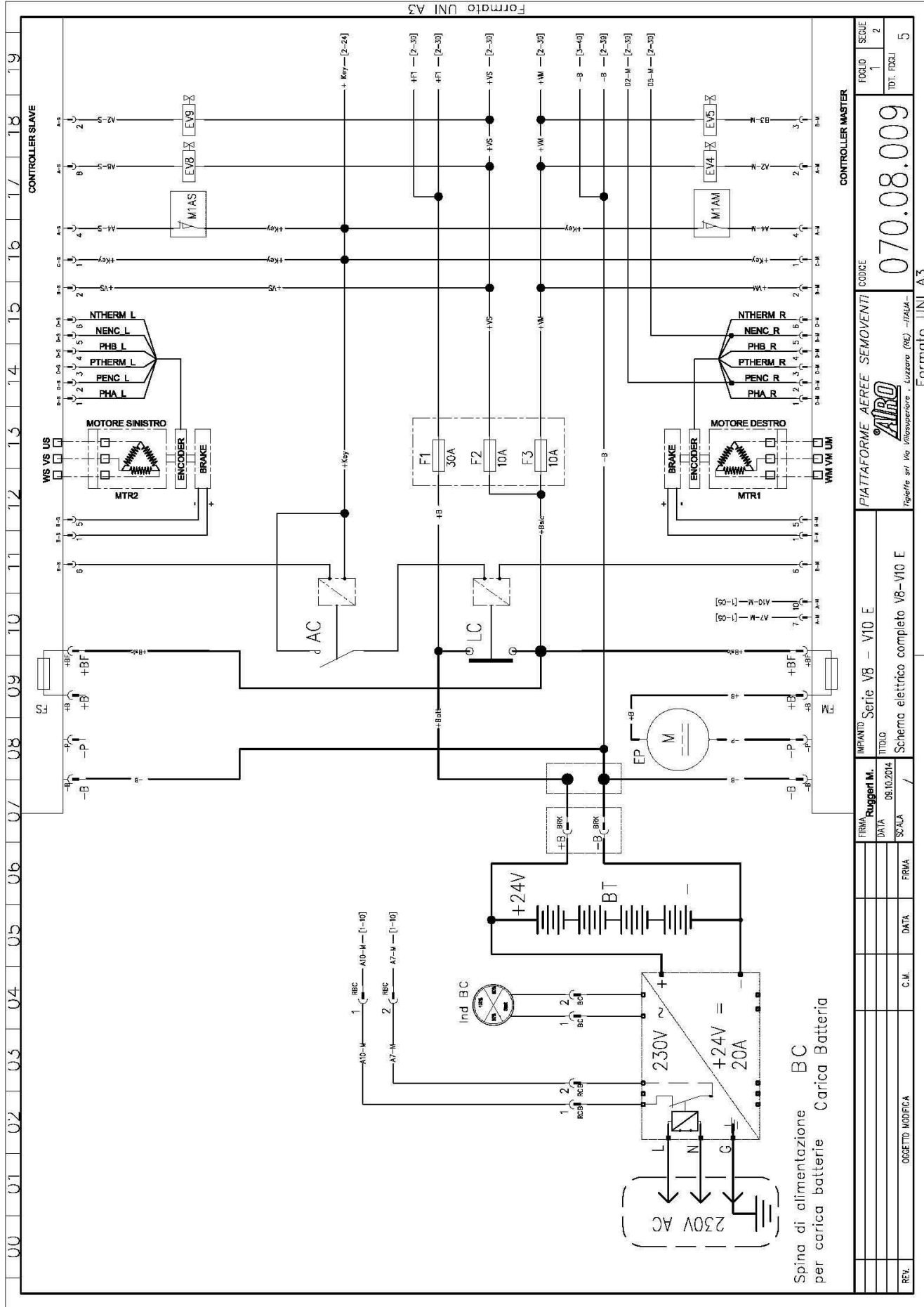
SERVICE

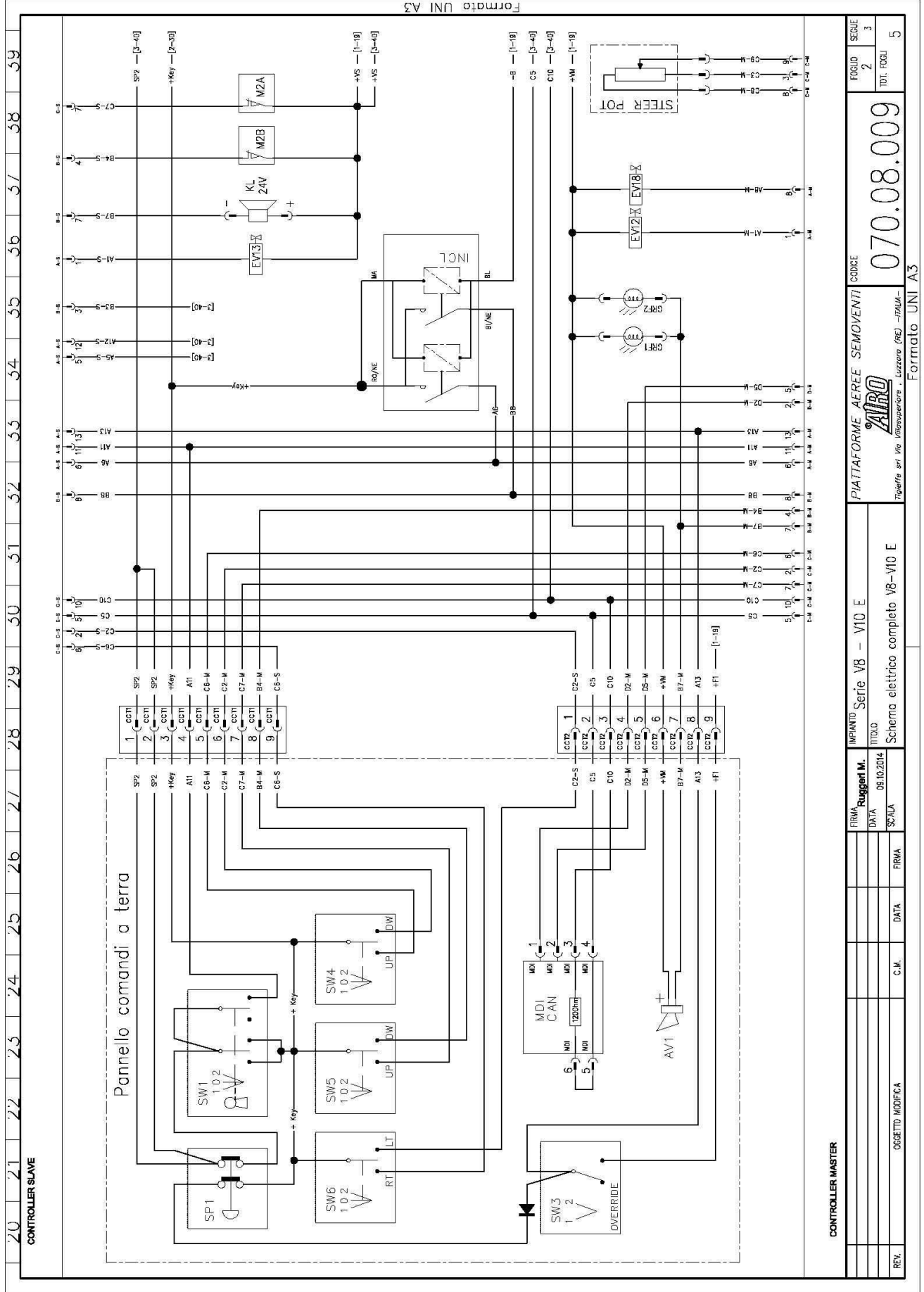
SAFETY MANAGER

12. ELECTRIC DIAGRAM

V8 E V10 E

SYMB.	DESCRIPTION	Pag-Col.
AC1	AUXILIARY CONTACTOR	1-09/11
AV1	GROUND AUDIBLE ALARM	2-26
AV2	PLATFORM AUDIBLE ALARM	4-62/63
BC	BATTERY CHARGER	1-02/04
BT	BATTERY	1-05/06
BY	OVERLOAD CONTROLLER BY-PASS SELECTOR	4-68
EP	ELECTRIC PUMP	1-08/09
EV4	COLUMN LIFTING SOLENOID VALVE	1-17/18
EV5	COLUMN LOWERING SOLENOID VALVE	1-18
EV8	RIGHT STEERING SOLENOID VALVE	1-17/18
EV9	LEFT STEERING SOLENOID VALVE	1-18
EV12	CLOCKWISE TURRET ROTATION SOLENOID VALVE	2-36/37
EV13	ANTICLOCKWISE TURRET ROTATION SOLENOID VALVE	2-36
EV18	JIB LIFTING SOLENOID VALVE	2-37
EV19	JIB LOWERING SOLENOID VALVE	4-48/49
F1	LOGIC FUSE	1-12/13
F2	MASTER CONTROLLER LOGIC FUSE	1-12/13
F3	SLAVE CONTROLLER LOGIC FUSE	1-12/13
FM	MASTER POWER FUSE	1-09/10
FS	SLAVE POWER FUSE	1-09/10
GRF1	ROTATING BEACON 1	2-34/34
GRF2	ROTATING BEACON 2	2-35
INCL	TILT SENSOR (INCLINOMETER)	2-33/36
Ind BC	BATTERY CHARGER INDICATOR	1-04
KL	24V HORN	2-36/37
LC	LINE CONTACTOR	1-09/11
M1A M	1 LOW COLUMN MICROSWITCH	1-16/17
M1A s	2 LOW COLUMN MICROSWITCH	1-16/17
M1C	JIB MICROSWITCH	3-49/50
M2A	CLOCKWISE TURRET ROTATION STOP LIMIT SWITCH	2-38/39
M2B	ANTICLOCKWISE TURRET ROTATION STOP LIMIT SWITCH	2-37/38
MD1 CAN	MULTIFUNCTION DISPLAY	2-23/24
MTR1	DRIVE MOTOR 1 (RIGHT)	1-12/13
MTR2	DRIVE MOTOR 2 (LEFT)	1-12/13
SP1	EMERGENCY SWITCH – ON THE GROUND	2-20/21
SP2	EMERGENCY SWITCH – ON THE PLATFORM	3-58/59
SP3	HORN BUTTON	4-66/67
SW1	PLATFORM/GROUND CONTROL SELECTOR	2-22/24
SW3	FACTORY OVERRIDE SELECTOR	2-20/21
SW4	COLUMN LIFTING/LOWERING SELECTOR - FROM GROUND	2-24/25
SW5	JIB LIFTING/LOWERING SELECTOR - FROM GROUND	2-22/23
SW6	TURRET ROTATION SELECTOR - FROM GROUND	2-21/22
UM	DEAD-MAN PEDAL CONTACT	3-50/51





20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

CONTROLLER SLAVE

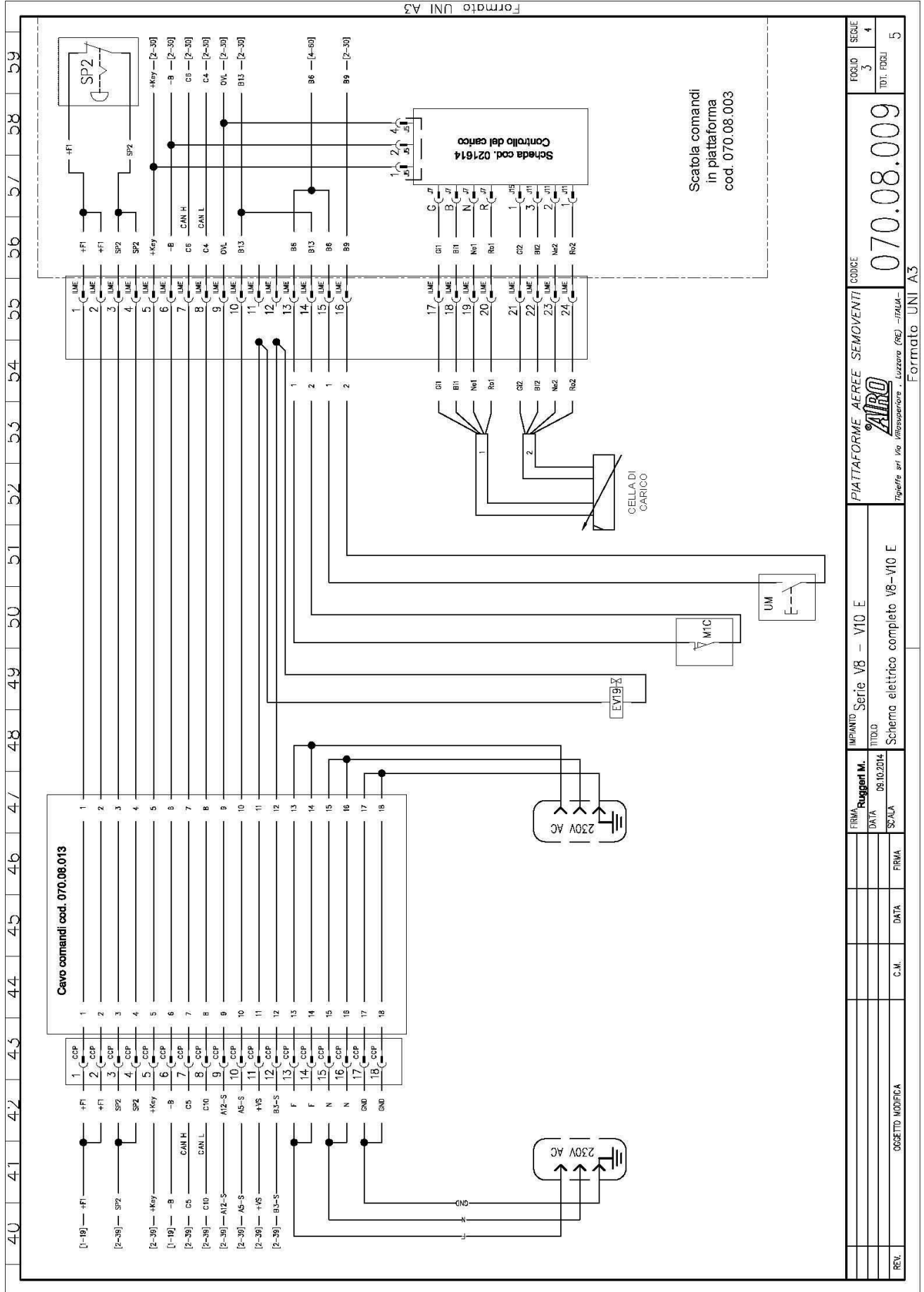
Formato UNI A3

CONTROLLER MASTER

REV.	OGGETTO MODIFICA	C.M.	DATA	FIRMA	SCALA	DATA	FIRMA	IMPANTO	Serie V8 - V10 E	PIATTAFORME AEREE SEMOVENTI	CODICE	FOGLIO	SEGUE
								Ruggieri M.	V10 E	070.08.009	070.08.009	2	3
								08.10.2014				DOT. FOGLI	5

AIRO
Tipeferte srl Via Villanovese - Luzzara (RC) - ITALIA

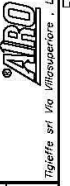
Formato UNI A3



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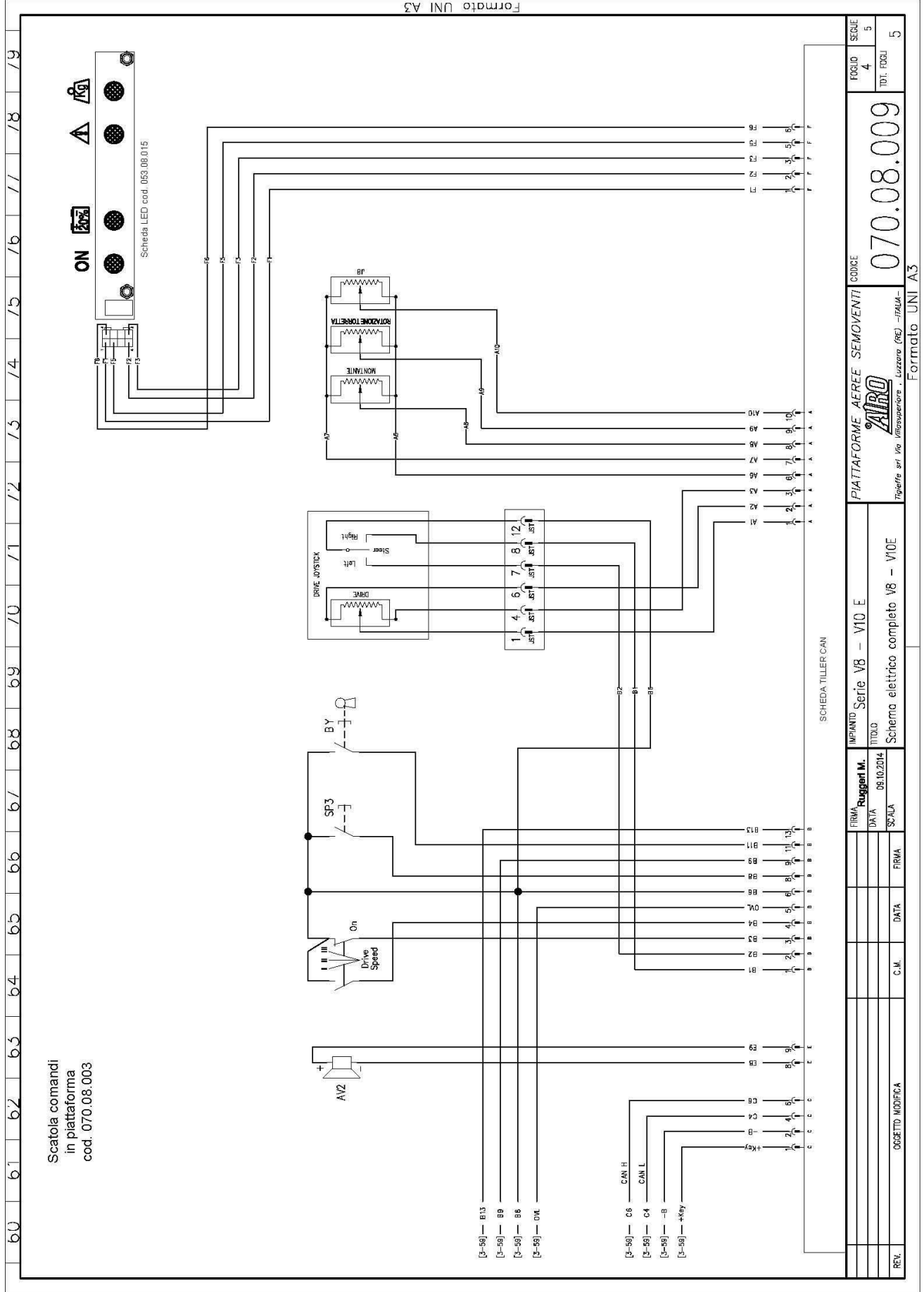
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REV.	OGGETTO MODIFICA	C. M.	DATA	FIRMA	SCALA	DATA	FIRMA	IMPianto Serie V8 - V10 E	PIATTAFORME AEREE SEMOVENTI	CODICE	FOGLIO	SEGUE
						08.10.2014		Schema elettrico completo V8-V10 E		070.08.009	3	4
											IDT. FOGLI	5

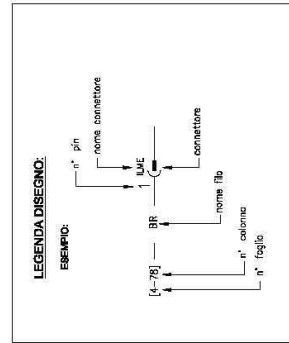


Tipografie srl Via Villanovese - Luzzara (RC) - ITALIA -

Formato UNI A3



SIMB.	DESCRIZIONE	Pag.-Col.	SIMB.	DESCRIZIONE	Pag.-Col.
AC	Contattore ausiliario	1-09/11	MDI CAN	Display multifunzione	2-23/24
AV1	Avvisatore acustico a terra	2-29/30	MTR1	Motore trazione 1	1-12/13
AV2	Avvisatore acustico in piattaforma	4-62/63	MTR2	Motore trazione 2	1-12/13
BC	Caricabatteria	1-02/04	SP1	Interruttore di emergenza a fungo a terra	2-20/21
BT	Batteria Trazione	1-05/06	SP2	Interruttore di emergenza a fungo in piattaforma	3-58/59
BY	Selettore By-pass controllo carico	4-68	SP3	Comando caccan	4-66/67
EP	Elettropompa	1-08/09	SW1	Selettori comandi piattaforma/terra	2-22/24
EV4	Elettrovalvola di sollevamento Montante	1-17/18	SW3	Selettore OVERRIDE	2-20/21
EV5	Elettrovalvola di discesa Montante	1-18	SW4	Selettore Salita/Discesa Montante da terra	2-24/25
EV8	Elettrovalvola di sterzo a destra	1-17/18	SW5	Selettore Salita/Discesa Jib da terra	2-22/23
EV9	Elettrovalvola di sterzo a sinistra	1-18	SW6	Selettori Rotazione Torretta da terra	2-20/21
EV12	Elettrovalvola di rotazione torretta a destra	2-36/37	UM	Contatto pedale "Uomo presente"	3-50/51
EV13	Elettrovalvola di rotazione torretta a sinistra	2-36			
EV18	Elettrovalvola di sollevamento JB	2-37			
EV19	Elettrovalvola di discesa JB	4-48/49			
F1	Fusibile logica	1-12/13			
F2	Fusibile Logica controller Master	1-12/13			
F3	Fusibile Logica controller Slave	1-12/13			
FM	Fusibile potenza Master	1-09/10			
FS	Fusibile potenza Slave	1-09/10			
GRF1	Girofaro 1	2-34/35			
GRF2	Girofaro 2	2-35			
INCL	Sensore di inclinazione	2-33/36			
Ind BC	Indicatore Carica Batteria	1-04			
KL	Caccan 24Vdc	2-36/37			
LC	Teleuttore di linea	1-09/11			
M1AM	Finecorsa Montante basso 1	1-16/17			
M1AS	Finecorsa Montante basso 2	1-16/17			
M1C	Finecorsa jib basso	3-49/50			
M2A	Finecorsa stop rotazione destra torretta	2-38/39			
M2B	Finecorsa stop rotazione sinistra torretta	2-37/38			

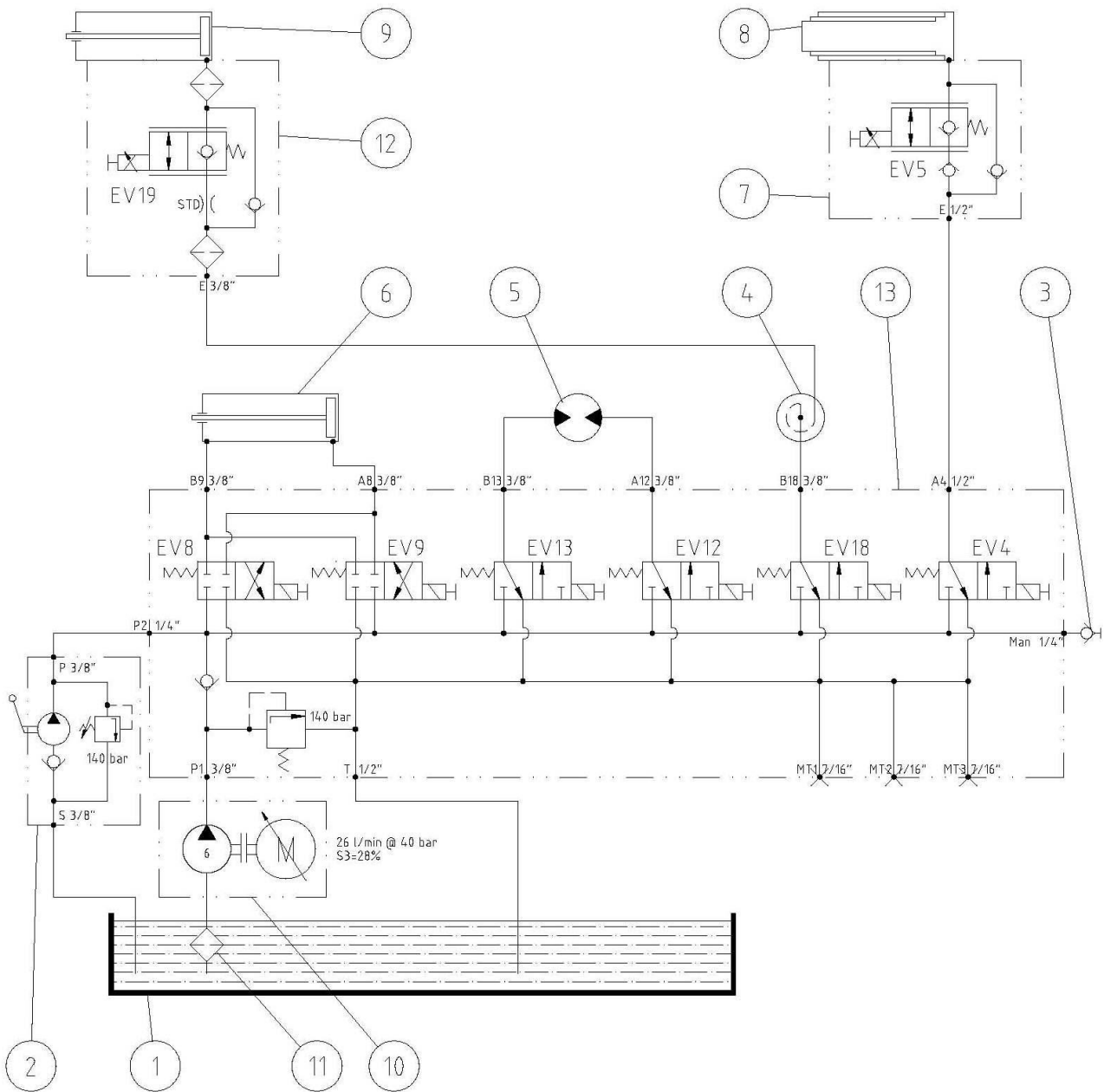


REV.	OGGETTO MODIFICA	C.M.	DATA	FIRMA	IMPianto	PIATTAFORME AEREE SEMOVENTI	CODICE	FOLIO	SEGUE
					Schema elettrico completo V8 - V10 E	070.08.009	070.08.009	5	-
								5	5

13. HYDRAULIC DIAGRAM

V8 E V10 E
N°070.07.001

1	OIL TANK
2	EMERGENCY OPERATION HAND PUMP
3	QUICK COUPLING
4	HOSE REEL
5 a	TURRET ROTATION ROTATING TABLE
5 b	TURRET ROTATION HYDRAULIC MOTOR
6	STEERING CYLINDER
7	LOWERING CONTROL INTEGRATED ASSEMBLY - COLUMN
8	TELESCOPIC CYLINDER - COLUMN
9	JIB CYLINDER
10	ELECTROPUMP
11	SUCTION FILTER
12	LOWERING CONTROL INTEGRATED ASSEMBLY - JIB
13	ON-OFF MOVEMENTS HYDRAULIC LOCK
EV4	TELESCOPIC COLUMN LIFTING SOLENOID VALVE
EV5	TELESCOPIC COLUMN LOWERING SOLENOID VALVE
EV8	LEFT STEERING SOLENOID VALVE
EV9	RIGHT STEERING SOLENOID VALVE
EV12	CLOCKWISE TURRET ROTATION SOLENOID VALVE
EV13	COUNTERCLOCKWISE TURRET ROTATION SOLENOID VALVE
EV18	JIB LIFTING SOLENOID VALVE
EV19	JIB LOWERING SOLENOID VALVE



14. CONFORMITY DECLARATION.



AIRO IS A DIVISION OF TIGIEFFE S.R.L. – Via VILLASUPERIORE, 82 – 42045 LUZZARA (RE)
 TEL. +39 522 977365 - FAX +39 522 977015

DICHIARAZIONE CE DI CONFORMITA' - CE DECLARATION OF CONFORMITY - DECLARATION CE DE CONFORMITE' - EG KONFORMITÄTSEKTLÄRUNG - DECLARACION CE DE CONFORMIDAD- ЗАЯВЛЕНИЕ О КОНФОРМНОСТИ ЕС 2006/42/CE

Dichiarazione originale	Original Declaration	Déclaration Originale	Originalerklärung	Declaración Original	Оригинальная декларация
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Noi - We - Nous - Wir – Nosotros- мы

Tigieffe S.r.l. - Via Villa Superiore N.° 82 - Luzzara (Reggio Emilia) - ITALIA

Dichiaro sotto la nostra esclusiva responsabilità che il prodotto:	Declare under our exclusive responsibility that the product:	Declarons sous notre responsabilité exclusive que le produit:	Erklären hiermit unter Übernahme der vollen Verantwortung für diese Erklärung, daß das Produkt:	Declaramos bajo nuestra exclusiva responsabilidad que el producto:	Под нашу исключительную ответственность заявляем, что изделие:
--	--	---	---	--	--

Piattaforma di Lavoro Elevabile
 Mobile Elevating Work Platform
 Plates-forme Elévatrice Mobiles de Personnel
 Fahrbare Hubarbeitsbühnen
 Plataforma Elevadora Móvil de Personal
 Платформа для высотного работ

Modello - Model - Modèle Typ – Modelo-МОДЕЛЬ	N° Chassis - Chassis No. N° Chassis - Fahrgestellnr - N° Chassis - Номер Рама	Anno - Year - Année Baujahr – Ano -Год
V8 E	XXXXXXXXXX	XXXXXXXXXX

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:	К которой это заявление относится, соответствует директивами 2006/42/CE, 2014/30/CE, 2005/88/CE и сертифицированной модели из:
--	---	---	---	---	--

Eurofins Product Testing Italy Srl - Via Cuorné, 21 10156 – Torino – TO (Italy)
Identification No. 0477

con il seguente numero di certificazione:	with the following certification number:	avec le numéro de certification suivant:	Zertifizierten Modell mit folgender Zertifizierungsnummer:	con el siguiente número de certificación:	со следующим сертифицированным номером:
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N.Certificato - Certificate No. - N° du certificat - Bestätigungnummer - N° de certificado – Номер Сертификата

XYZ

e alle norme seguenti:	and with the following standards:	et aux normes suivantes:	die Erklärung entspricht den folgenden Normen:	y a las siguientes normas:	и со следующими нормами:
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EN 280:2013+A1:2015 EN ISO 12100:2010 EN ISO 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.	Лицо, подписавшее это заявление о соответствии, уполномочено составить техническую документацию оборудования.
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Luzzara (RE), data-date-date-Datum-fecha-Дата

.....
Pignatti Simone
 (General Manager)



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TEL. +39 522 977365 - FAX +39 522 977015

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Dichiarazione originale	Original Declaration	Déclaration Originale	Originalerklärung	Declaración Original	Оригинальная декларация
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Noi - We - Nous - Wir – Nosotros- мы

Tigieffe S.r.l. - Via Villa Superiore N.° 82 - Luzzara (Reggio Emilia) - ITALIA

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Piattaforma di Lavoro Elevabile
Mobile Elevating Work Platform
Plates-forme Elévatrice Mobiles de Personnel
Fahrbare Hubarbeitsbühnen
Plataforma Elevadora Móvil de Personal
Платформа для высотного работ

Modello - Model - Modèle Typ – Modelo-МОДЕЛЬ	N° Chassis - Chassis No. N° Chassis - Fahrgestellnr - N° Chassis - Номер Рама	Anno - Year - Année Baujahr – Año -Год
V10 E	XXXXXXXXXX	XXXXXXXXXX

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:	К которой это заявление относится, соответствует директивами 2006/42/CE, 2014/30/CE, 2005/88/CE и сертифицированной модели из:
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**Eurofins Product Testing Italy Srl - Via Cuorné, 21 10156 – Torino – TO (Italy)
Identification No. 0477**

con il seguente numero di certificazione:	with the following certification number:	avec le numéro de certification suivant:	Zertifizierten Modell mit folgender Zertifizierungsnummer:	con el siguiente número de certificación:	со следующим сертифицированным номером:
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N.Certificato - Certificate No. - N° du certificat - Bestätigungnummer - N° de certificado – Номер Сертификата

XYZ

e alle norme seguenti:	and with the following standards:	et aux normes suivantes:	die Erklärung entspricht den folgenden Normen:	y a las siguientes normas:	и со следующими нормами:
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EN 280:2013+A1:2015 EN ISO 12100:2010 EN ISO 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.	Лицо, подписавшее это заявление о соответствии, уполномочено составить техническую документацию оборудования.
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Luzzara (RE), data-date-date-Datum-fecha-Дата

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Pignatti Simone
(General Manager)



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