

EN



#### Attention

The present manual provided along with the unit in KIT configuration for the installation of the model indicated is an example of development of the User and Maintenance Manual for the complete unit. The creation of the User and Maintenance Manual for the equipped vehicle will remain at care of the Bodybuilder.

TRANSLATION OF THE ORIGINAL INSTRUCTIONS

Logbook code

31FT00050

Version

XF/BC



BUILDER: **CO.ME.T OFFICINE S.P.A.** 

ADDRESS: Via Castelfranco, 46

40017 San Giovanni in Persiceto (BO) -

Italia

Tel.: +39 0516878711 Fax: +39 051799902 www.officinecomet.com

DOCUMENT TYPE: OWNER'S MANUAL

MODEL: NEW EUROSFILO 19/2/9(11) HQ

SERIAL NUMBER: 14372

CUSTOMER:

YEAR OF MANUFACTURE: 2023

The contents of the present document cannot be used, reproduced or transferred to third parties without the express permission of builder.

The builder reserves the right to change the characteristics of the machine described in the present document without notice.



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THE MANUFACTURER XXX  DECLARES THAT THE FOLLOWING MACHINE:  Generic denomination: ELEVATING WORK PLATFORM Function: LIFTING Model-type: Model name Serial number: Commercial name:			
Generic denomination:  Function:  Model-type:  Serial number:  Commercial name:  Year of manufacture:  ELEVATING WORK PLATFORM  LIFTING  Model name  **Commercial name**  **Commercial name**  **Televation work platform  Model name  **Televation work platform  Lifting  Model name  **Televation work platform  **			
Function:  Model-type:  Serial number:  Commercial name:  Year of manufacture:			
Commercial name: Year of manufacture:	LIFTING		
INSTALLED ON:			
ELEMENT FACTORY MODEL MANUFACTURE NR.			
CHASSIS Builder Model name			
THIS COMPLIES WITH THE RELEVANT PROVISIONS, THE FOLLOWING DIRECTIVES AND TRELEVANT NATIONAL IMPLEMENTATION PROVISIONS:	THE		
2006/42/EC Machinery Directive			
2000/14/EC Directive on noise emission from machines and equipment for outdoor use, amended by 2005/88/EC	e, as		
Tipo di macchina: Piattaforme di accesso aereo con motori a combustione interna, in accordo definizione n. 1 in Annex I - Directive 2000/14/EC	o alla		
Procedure applied for conformity assessment: Enclosure V of directive 2000/14/EC			
Measured sound power level   dB (A): xxxLwA			
Guaranteed sound power level dB (A): xxxLwA			
Depositary for technical file: XXX  2004/108/EC Electromagnetic Compatibility Directive			
2006/95/EC Low Voltage Directive			
PERSON AUTHORISED TO WRITE THE TECHNICAL SHEET:  Name: XXX.  Address: XXX			
Place,			
Signed and stamped by legal representative	9		
Note			

The document represented above is an example.

The original CE declaration is delivered with the machine.



#### **DELIVERY - CONTROL COUPONS**

## Information for filling-in the reports and the service documents

The pages prepared inside this manual for recording the acceptance reports and servicing are an integral part of the machine documentation and must be filled-in completely according to the methods described below.

New provisions can intervene to modify the user obligations regarding filling-in the registers attesting to the controls and maintenance performed (e.g. in the event of modifications to current legislation).

At the user's responsibility, all the significant events affecting the operating life of the vehicle must be noted and in particular:

- variations in the equipment
- replacement of mechanisms, structural elements, safety devices, etc.
- major failures and the related repairs, not falling within normal or extraordinary maintenance
- periodic checks of the cables or chains (when present)
- obligatory periodic checks
- transferring the property

#### Attention

Do not leave anything blank: if the item is not applied write: NOT APPLICABLE.

#### Regulation for the after-sales assistance and warranty conditions

The after-sales service regulations and warranty conditions must be filled-in completely on delivery of the machine. 3 copies must be filled-in, of which one remains with the owner, one to Officine CO.ME.T SPA and one to the retailer/authorised dealer.

#### Acceptance report and first service

The acceptance report must be filled-in completely on machine delivery.

The controls indicated in D.10.3. are performed on delivery. Any defects or non-conformities detected must be indicated on the acceptance report.

The acceptance report must be filled-in in 3 copies, of which one remains with the owner, one to Officine CO.ME. T. and one with the retailer/authorised dealer.

The first service report, which must be performed on delivery, is made up of three copies:

- The 1st copy is attached to this manual.
- The 2nd copy to detach and deliver to the retailer/authorised dealer.
- The 3rd copy is detached and sent to Officine CO.ME. T. to start the warranty.

#### Second and third service

The controls envisioned for the second and third service are indicated in chapter I.4.

The execution of the service must be recorded in L.4. and on the service reports

The service report, which must be filled-in completely, is made up from three copies:

- The 1st copy is attached to this manual.
- The 2nd copy is detached and delivered to the authorised service centre.
- The 3rd copy is detached and sent to Officine CO.ME. T.



Page to be detached and sent to CO.ME. T. OFFICINE SPA duly filled-in, stamped and signed by the customer

page to be filled out and detached at the time of delivery to the end customer

REPORT OF DELIVERY ACCEPTANCE			
_			
the retraction of the			
AERIAL WOR	( PLATFORMS		
Model			
Serial number			
VEHICLE			
Model			
Frame			
Vehicle registration plate			
DC	OCUMENTS DELIVERED TO	OGETHER WITH EQUIPMENT	
□ Waybills/ L	ogbook		
□ Declaration	of Conformity of the aerial platform	m	
□ Operating/	maintenance manual/ spare parts	of aerial platform	
□ Diagram of	work applied to the machine, the	same as what is reported in this publication	
□ The namep	late contains the data consisting o	of the documentation attached to the machine	
•	□ Hydraulic/ electrical layouts		
<ul> <li>Declares to be informed about the rules of use, maintenance, support and accident prevention in this manual</li> </ul>			
Date			
for CO	for CO.ME. T. Officine SPA receipt for the CUSTOMER		





Copy for Retailer/ Dealer page to be filled out and detached at the time of delivery to the end customer

REPORT OF DELIVERY ACCEPTANCE			
The undersignedassigned by the companythe retraction of the aerial platform:			
AERIAL WORK	(PLATFORMS		
Model			
Serial number			
VEHICLE			
Model			
Frame			
Vehicle registration plate			
DC	OCUMENTS DELIVERED TO	OGETHER WITH EQUIPMENT	
□ Waybills/ Lo	ogbook		
□ Declaration	of Conformity of the aerial platform	m	
□ Operating/	maintenance manual/ spare parts	of aerial platform	
□ Diagram of work applied to the machine, the same as what is reported in this publication			
		of the documentation attached to the machine	
•	□ Hydraulic/ electrical layouts		
<ul> <li>Declares to be informed about the rules of use, maintenance, support and accident prevention in this manual</li> </ul>			
Date			
for CO.ME. T. Officine SPA receipt for the CUSTOMER			





Copy to be kept attached to the manual page to fill out at the time of delivery to End customer

REPORT OF DELIVERY ACCEPTANCE				
The undersigned .				
the retraction of the	aerial platform:			
AERIAL WORK	K PLATFORMS			
Model				
Serial number				
VEHICLE				
Model				
Frame				
Vahiala				
Vehicle registration plate				
DC	OCUMENTS DELIVERED TO	OGETHER WITH EQUIPMENT		
□ Waybills/ L	ogbook			
□ Declaration	n of Conformity of the aerial platfor	m		
□ Operating/	maintenance manual/ spare parts	of aerial platform		
□ Diagram of	work applied to the machine, the	same as what is reported in this publication		
□ The namep	plate contains the data consisting c	of the documentation attached to the machine		
□ Hydraulic/ o	□ Hydraulic/ electrical layouts			
<ul> <li>Declares to be informed about the rules of use, maintenance, support and accident prevention in this manual</li> </ul>				
Date				
for CO	for CO.ME. T. Officine SPA receipt for the CUSTOMER			





Page to be detached and sent to CO.ME. T. OFFICINE SPA duly filled-in, stamped and signed by the customer

page to be filled out and detached at the time of delivery to the end customer

CUSTOMER		
Address		
Person assigned	Tel.	Fax
PLATFORM	Serial number	
Vehicle	Vehicle registration plate	Frame
Date of delivery	Warranty duration	
AUTHORISED DEALER		
AUTHORISED SERVICE CENTRE		
REGULATION FOR THE AFTER-SALES ASSISTANCE AND WARRANTY CONDITIONS		

- 1. The CO.ME. T. guarantees the machine for 12 months from delivery.

  Spare parts will be supplied free of charge during the warranty period for the replacement of pieces resulting faulty, this does not include electrical parts.
- 2. The warranty is only valid if on delivery the page of the use and maintenance manual relative to FIRST SERVICING has been sent to CO.ME. T. duly filled-in and signed.
- 3. The warranty is only valid if all controls ad scheduled maintenance, indicated in the use and maintenance manual, have been recorded.
- 4. After-sales service is assured during the warranty period, only with charges for any consumables consisting in the execution of n. 3 services, distributed as follows:

First service: on delivery for staff training.

- Second service: within 6 months and however not over 250 hours of work for general control. *Third service:* within 12 months and however not over 500 hours of work for general control.
- 5. Servicing must be performed at the CO.ME. T. establishment or at the After-sales Point to which
- the machine has been assigned.
  - Whenever the Customer requests the Servicing be performed at his own establishment, all transfer costs and travelling time of the technician will be at his own expense.
- Subscriptions: on expiry of the warranty period, the Customer can request subscription to the Schedules After-sales Service, normally consisting in 2 interventions every year to be performed every 6 months.

Estimates for the cost of the Service will be supplied on request.

The spare parts are not included in the cost of the subscription; they will be supplied at list price.

Date	Stamp and signature of the customer for acceptance of the warranty conditions





Copy for Retailer/ Dealer page to be filled out and detached at the time of delivery to the end customer

CUSTOMER		
Address		
Person assigned	Tel.	Fax
PLATFORM	Serial number	
Vehicle	Vehicle registration plate	Frame
Date of delivery	Warranty duration	
AUTHORISED DEALER		
AUTHORISED SERVICE CENTRE		
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  - Whenever the Customer requests the Servicing be performed at his own establishment, all transfer costs and travelling time of the technician will be at his own expense.
- 6. Subscriptions: on expiry of the warranty period, the Customer can request subscription to the Schedules After-sales Service, normally consisting in 2 interventions every year to be performed every 6 months.
  - Estimates for the cost of the Service will be supplied on request.
  - The spare parts are not included in the cost of the subscription; they will be supplied at list price.

Date	Stamp and signature of the customer for acceptance of the warranty conditions
	,





Copy to be kept attached to the manual page to fill out at the time of delivery to End customer

CUSTOMER		
Address		
Person assigned	Tel.	Fax
PLATFORM	Serial number	
Vehicle	Vehicle registration plate	Frame
Date of delivery	Warranty duration	
AUTHORISED DEALER		
AUTHORISED SERVICE CENTRE		
REGULATION FOR THE AFTER	-SALES ASSISTANCE AND WARRAN	TY CONDITIONS

- 1. The CO.ME. T. guarantees the machine for 12 months from delivery.

  Spare parts will be supplied free of charge during the warranty period for the replacement of pieces resulting faulty, this does not include electrical parts.
- 2. The warranty is only valid if on delivery the page of the use and maintenance manual relative to FIRST SERVICING has been sent to CO.ME. T. duly filled-in and signed.
- 3. The warranty is only valid if all controls ad scheduled maintenance, indicated in the use and maintenance manual, have been recorded.
- 4. After-sales service is assured during the warranty period, only with charges for any consumables consisting in the execution of n. 3 services, distributed as follows:
  First service: on delivery for staff training.
  - Second service: within 6 months and however not over 250 hours of work for general control. *Third service:* within 12 months and however not over 500 hours of work for general control.
- 5. Servicing must be performed at the CO.ME. T. establishment or at the After-sales Point to which the machine has been assigned.
  - Whenever the Customer requests the Servicing be performed at his own establishment, all transfer costs and travelling time of the technician will be at his own expense.
- 6. Subscriptions: on expiry of the warranty period, the Customer can request subscription to the Schedules After-sales Service, normally consisting in 2 interventions every year to be performed every 6 months.
  - Estimates for the cost of the Service will be supplied on request.
  - The spare parts are not included in the cost of the subscription; they will be supplied at list price.

Date	Stamp and signature of the customer for acceptance of the warranty conditions
	,





Page to be detached and send to CO.ME. T. OFFICINE SPA duly completed, stamped and signed by the Customer and whoever cut the coupon, within 15 days of execution to be entitled to the warranty

FIRST SERVICE COUPON			
be made upon delivery			
Customer			
Address			
Model		Serial number	
Operation:  Instructions for use and maintenance to the Customer  Practical operation of each element of the machine  Delivery of the machine complete with CO.ME. T.:  registration documents to DMV  "CE" statement of conformity  instruction Manual on maintenance and spare parts  Comments:			
Coupon cut on:  Hours indicated by the counter:	The stamp of the service centre approved for the customer	The customer	





#### COPY FOR RETAILER/ DEALER

to be fill out and detached at the time of delivery to final customer

FIRST SERVICE COUPON  be made upon delivery		
Customer		
Address		
Model		Serial number
Operation:		
Instructions for use and maintena	ance to the Customer	
Practical operation of each element	ent of the machine	
Delivery of the machine complete	e with CO.ME. T.:	
<ul> <li>registration documents to DM</li> </ul>	V	
- "CE" statement of conformity		
- instruction Manual on maintenance and spare parts		
Comments:		
Coupon cut on:	The stamp of the service centre approved for the customer	The customer
Hours indicated by the counter:		





Page to be completed and attached and kept with this manual

FIRST SERVICE COUPON		
	be made upon delivery	
Customer		
Address		
		T
Model		Serial number
Operation:		
Instructions for use and maintena	ance to the Customer	
Practical operation of each element	ent of the machine	
Delivery of the machine complete	e with CO.ME. T.:	
<ul> <li>registration documents to DM</li> </ul>	V	
- "CE" statement of conformity		
- instruction Manual on maintenance and spare parts		
Comments:		
Coupon cut on:	The stamp of the service centre approved for the customer	The customer
Hours indicated by the counter:		





Page to be detached and send to CO.ME. T. OFFICINE SPA duly completed, stamped and signed by the Customer and whoever cut the coupon, within 15 days of execution to be entitled to the warranty

SECOND SERVICE COUPON		
to be carried out within 6 months after delivery and/ or 250 hours		
Customer		
Address		
Model		Serial number
Wodel		Serial number
Operation:		<u>I</u>
<ul> <li>efficiency of remote control of</li> <li>Control of cables and/ or chai</li> <li>Lubrication:</li> </ul>	ws, gearbox rotation, frame and f basket ins of arm extender skids (if pres s and any other point specified	sents)
Comments:		
Coupon cut on:  Hours indicated by the counter:	The stamp of the service centre approved for the customer	The customer





COPY FOR RETAILER/ DEALER to be fill out and detached at the time of delivery to final customer

SECOND SERVICE COUPON			
to be carried out wit	hin 6 months after delive	ry and/ or 250 hours	
Customer			
Address			
Model		Serial number	
Operation:  Checks and records:  efficiency of block valves on each jack  efficiency of safety system  tightening the fifth wheel screws, gearbox rotation, frame anchoring  efficiency of remote control of basket  Control of cables and/ or chains of arm extender skids (if presents)  Lubrication:  lubricating joints of base props and any other point specified in the lubrication chart  Replacement operations:  hydraulic oil and filter  Operation test:  efficiency of reach limiter (when present)  load cells (when present)			
Comments:			
Coupon cut on:  Hours indicated by the counter:	The stamp of the service centre approved for the customer	The customer	





Page to be completed and attached and kept with this manual

SECOND SERVICE COUPON		
to be carried out within 6 months after delivery and/ or 250 hours		
Customer		
Address		
Model		Serial number
Operation:  Checks and records: - efficiency of block valves on each jack - efficiency of safety system - tightening the fifth wheel screws, gearbox rotation, frame anchoring - efficiency of remote control of basket - Control of cables and/ or chains of arm extender skids (if presents)  Lubrication: - lubricating joints of base props and any other point specified in the lubrication chart  Replacement operations: - hydraulic oil and filter  Operation test: - efficiency of reach limiter (when present) - load cells (when present)		
Comments:		
Coupon cut on:  Hours indicated by the counter:	The stamp of the service centre approved for the customer	The customer





Page to be detached and send to CO.ME. T. OFFICINE SPA duly completed, stamped and signed by the Customer and whoever cut the coupon, within 15 days of execution to be entitled to the warranty

THIRD SERVICE COUPON		
to be carried out within 12 months after delivery and/ or 500 hours		
Customer		
Address		
Model		Serial number
Operation:  Checks and records: efficiency of block valves on each jack efficiency of safety system restarting tower rotation clearances emergency manual and electric pump efficiency tightening joint nuts and bolts hydraulic pressure circuit control of cables and/ or chains of arm extender skids (if presents)  Lubrication: lubricating joints of base props and any other point specified in the lubrication chart  Replacement operations: hydraulic oil and filter  Operation test: efficiency of reach limiter (when present)		
Comments:		
Coupon cut on:	The stamp of the service centre approved for the customer	The customer
Hours indicated by the counter:		





COPY FOR RETAILER/ DEALER to be fill out and detached at the time of delivery to final customer

THIRD SERVICE COUPON		
to be carried out within 12 months after delivery and/ or 500 hours		
Customer		
Address		
Model		Serial number
Operation:		
Lubrication:	ances ric pump efficiency ns of arm extender skids (if pres s and any other point specified	
Comments:		
Coupon cut on:	The stamp of the service centre approved for the customer	The customer
Hours indicated by the counter:		





Page to be completed and attached and kept with this manual

THIRD SERVICE COUPON		
to be carried out with	nin 12 months after deliv	ery and/ or 500 hours
Customer		
Address		
Model		Serial number
Operation:		
Lubrication:     lubricating joints of base prop Replacement operations:     hydraulic oil and filter Operation test:     efficiency of reach limiter (when load cells (when present)	ances ric pump efficiency ns of arm extender skids (if pres	
Comments:		
Coupon cut on:	The stamp of the service centre approved for the customer	The customer
Hours indicated by the counter:		





## A. GENERAL INFORMATION

## A.1. Introduction

As our products are always in change (as components of our suppliers) some details could not match exactly those installed on Your machine type.

In such cases, if you are in doubt with regard to the correct operation, consult an authorised service centre. Never proceed by trial and error.



#### Note

When requesting interventions on the machine (also by telephone) you must inform us of the working hours logged on the machine (shown on the hour counter) and the machine serial number.

This information must be supplied at every intervention request.

Please feel free to notify us of any errors or omissions in our manuals, with particular regard to safety, or offer criticism on how to improve the machine and our assistance service, or any other suggestions, in the interest of improving upon our product

This manual lists information relating to the model on the cover only.

#### **Attention**

In this publication, the term machine refers to the model on the cover only



The company CO.ME.T Officine S.r.l. is referred to as the Manufacturer.

## A.2. Standard followed

The machine was designed and built in compliance with EEC directives on safety and the harmonisation of the laws of the Member States, in this case reference is made to directive 2006/42/EC - 2006/95/ EC, insofar as applicable.

The design also has taken into account the following standards:

- UNI EN ISO 12100-1:2005 "Safety of the machinery" (Terminology)
- UNI EN ISO 12100-2:2005 "Safety of the machinery" (Technical characteristics and technical principles)
- ISO 13857 "Safety of the machinery" (safety distances)
- EN 60204 Safety of the machinery (electrical equipment)
- EN 349 "Safety of the machinery" (Minimum gaps to avoid crushing parts of the human body)
- EN 954-1 "Safety of the machinery" (Parts of the control systems related to safety)

## A.3. Assistance service

When the repair is of a certain importance and needs revisions, please contact the Manufacturer's Assistance Service, which has highly qualified personnel and equipment to perform the necessary action.

Contact the Maintenance Service Centre: Tel. (0039)0516878711

For proper operation and a longer operating life of the machine, it is essential to use original spare parts.

Repairs and replacements with non-original parts are not allowed



# A.4. Warranty

The materials supplied by Co.me. t. Officine SPA have a guarantee of 12 months from the date of the first commissioning, as shown on the delivery receipt to the Customer.

Co.me. t. Officine SPA shall repair or replace the pieces recognised as defective during the warranty period.

With the replacement of the part deemed defective, Co.me. t. Officine SPA is freed from any expense incurred by the Dealer and the Dealer's Customer, from any alleged damages, present and future loss of earnings, conventional penalty, etc...

The warranty does not include the replacement and/ or repair of parts worn out during the normal use of the machine.

As for accessories and parts manufactured and supplied by third parties, the manufacturer's warranty conditions apply.

- The machine is guaranteed according to the contractual arrangements stipulated at the sale
- Non-original" Spare parts are not authorised by the Manufacturer, who is not responsible for any damage caused by these parts.
- The warranty is void if the rules and instructions for use contained in this booklet are not observed, or the actions provided in the WARRANTY COUPONS have not been carried out on by their deadlines.

## A.5. How to consult the manual

#### A.5.1. Structure of the publication

The manual is composed of separate sections with an initial table of contents showing the sequence of titles of the sections, the chapters, and the topics addressed, complete with page numbers

Page numbering is progressive.

The numbering of the sections is with hierarchical levels where:

A.4.1.

section first level second level

#### A.5.2. Symbols utilised

Below are the symbols used in this manual which point out to the reader the various levels of danger in the operation and maintenance of the machine.



## Danger

Information regarding a potential source of injury or damage to health.

**(1)** 

## Attention

Information or procedures which advise the operator as to how best to use the machine to prolong its life, avoid damage or loss of programming data, and optimize the work in compliance with the standards.



#### Note

Ancillary information.

#### A.5.3. Topics not covered by the manual

This publication DOES NOT address the following subjects:

- Maintenance or non-routine interventions.
   Supplementary maintenance tasks must be performed by personnel specifically authorised by the manufacturer.
- The installation and disassembly of the machine or its function units.
   This procedure is to be carried out by authorised personnel, trained as necessary by the Manufacturer.

## A.6. Notes for the user

## (1)

#### Attention

- It is forbidden to modify any part of the machine for any reason without explicit written authorisation from the manufacturer.
  - No agent or representative of the manufacturer is authorized to give instructions which in any way modify the "Instructions for Use", the safety prescriptions, the guarantee and/or the method of use of the product.
- The manufacturer declines all liability in relation to unauthorised modifications and reserves the right to take any actions it deems necessary to protect its interests.

## A.6.1. User or machine operator

The user is directly responsible for personal injury or injury of others or damage to property resulting from:

- improper use of the machine and any part of the machine;
- failure to comply with the safety prescriptions and safety regulations.

For the purpose and effects of the 2006/42/EC Machinery Directive, this machine must be entrusted for the exclusive use of skilled operators.

A qualified operator is construed as a person who has

- read the "operating instructions" in their entirety;
- understood the concepts expressed in this publication;
- made concrete as learnt being part of the instructions for use course of the specific machine.

The course is held by personnel authorised by the manufacturer.

It is advisable to ensure that more than one operator attends the training course.



The training course is designed to present the information given in the "Operating instructions" and provide immediate clarification of any doubts, effectively improving the training of operators in compliance with the requirements of statutory legislation.

#### A.6.2. Responsibility

The manufacturer is not responsible for consequences due to an incorrect or inappropriate use of the machine, such as:

- Unintended methods of use.
- Lack of attention in maintenance, in controls during production process and in checking the efficiency of the tools.
- Removal or disabling of active and passive safety devices.
- Irresponsible conduct not in compliance with good common practice.
- Unauthorised modifications.
- Events outside the normal and proper use.



#### A.6.3. Checking the Supplied Product

On receipt of the supplied product check that the delivered material complies with the order and that the "Operating Instructions" are attached.

Upon delivery of the machine, check to make sure it is not damaged and that no pieces are missing. In the event of damage or missing pieces, contact the manufacture or AREA REPRESENTATIVE.

On receipt of the machine, in the event of breach of contract, damaged or non-operating parts, record the non-conformities on the acceptance report, describing the problem detected in detail

## A.7. Intended use

In accordance with Machine Directive 2006/42/EC, these machines may only be used by personnel defined "professional".

Moreover, this staff has to be "qualified" for using the specific machine, through proper "formation and information" (by and to the account of the customer) and through these "Instructions for use" that have to be at disposal of the operator before using the machine.

The machine has been designed to lift operator(s) with the limits indicated in this publication.

The machine must be used and manned by at least 2 operators (one at a height and one on the ground).

Because of the hydraulic components installed, the execution of a manoeuvre to retract the machine back in emergency conditions requires two operators on the ground (see section "Emergency descent manoeuvres").

## A.8. Improper use

It is strictly prohibited to use the machine for any purpose other than that described in chapter "Intended use" - "General safety rules".

## A.9. Terminology

Tennant	The person who rented the vehicle with the elevating platform installed when is also the operator.		
Basic assemblage	Elevating platform with optional parts or accessories howsoever provided by the CE certification of the machine.		
Joints (synonym: hinge)	Joint and axle of the movement of two elements.		
Basket levelling	Manoeuvre that allows aligning the plane of the basket to the chassis of the vehicle.  This adjustment is performed by the manufacturer's technicians during the construction of the machine.		
Service centre	Place where you can interact with personnel authorised by us for the sale, installation, assistance, testing and marketing of the machinery or spare parts.		
Authorised dealer	See "service centre".		
Basket	Container connected to the work platform where one or more operators can fit, depending on the capacity of the same.  Its purpose is to protect and support operators who need to work at a height.		



Power system	System that transmits an energy or force used to move any part on the elevating platform (hydraulic, electrical, pneumatic, etc.).		
Control	Any device (push button, lever, switch, etc.) that starts, regulates or controls the elevating platform.		
Power take off or PTO command	Part, installed during the vehicle building or at a later stage, which enables or disenables the power take-off. It can be mechanical, electrical or hydraulic depending on the kind of vehicle.		
Counter-frame	Structural element between the vehicle frame and the lifting platform, which is able to absorb the strains caused by the machine.		
Builder	Manufacturer of the elevating platform.		
CE Conformity Declaration	Document issued by the manufacturer to certify compliance of the machine and its installation with the Machinery Directive.		
P.P.E.	Personal Protective Equipment provided under Leg. Decree 81/08 and subsequent amendments.		
Safety device	Electrical, mechanical or hydraulic system device that prevents injury and/ or damage to persons and things; its activation can be voluntary by the operator or automatic, induced by the presence of a hazard (the opening of a guard, the access to a certain area).		
Control valve	Controls of all or of a part of the functions (movements) of the lifting platform.		
Telescopic element (synonym: telescopic extension or extension boom)	Two or more hoses which run one into the other, so that the element is lengthening or retractile.		
Solenoid valve	Valve set in motion electrically.		
Hydraulic extension	Lengthening or re-entering of an element through a hydraulic movement.		
Telescopic extension	See extension boom.		
Heavy-duty	Lifting platform used at max. allowed limits.		
Crane levelling (Frame)	Operation performed with stabilisers to position the machine in terms of levelling.		
Levelling the basket	Adjustment that the CO.ME. T. technicians perform during machine construction and which keeps the floor of the basket walkway horizontal and parallel to the floor of the vehicle in any working position the basket is located.		
Machine	Vehicle with elevating platform connected through the power circuits and integrated in the vehicle.		
Routine maintenance	Operations, planned by the manufacturer for machine checks and maintenance which do not require particular tools or mechanical knowledge.		
Non-routine	Operations, both planned by the manufacturer and not, necessary to conserve		
<del></del>			



maintenance	and restore the safety, efficiency and functionality of the machine and also those which are unexpected and caused by breakages or wear due to particular events during use which require the compulsory intervention of a specialised operator, approved by the manufacturer and in possession of tools suitable for the purpose.			
Moment	Torque produced by a force based on the reach limit.			
Authorised service centre	Place where personnel authorised by the manufacturer, carry out installation, servicing, testing and marketing of spare parts and accessories; sometimes the authorised service centre also performs the functions of the point of sale.			
Operator/User/ In charge of use	Operator is defined as the person or persons in possession of requirements, skills and information necessary to ensure maximum safety during the installation, operation, adjustment, maintenance, cleaning, repair and handling of the machine.			
Superstructure	Group of elevating platform components that include rotation unit, turret, booms, hydraulic extensions, basket and controls that move them.  The moving parts of the machine when the same is in operating configuration.			
Ground part	Set of components of the elevating platform that includes the vehicle, counterchassis, base, trim, stabiliser cylinders and the controls that move them. The fixed parts of the machine when it is in operating configuration.			
РТО	Power take off or PTO.			
Danger	Situations or actions that could be the source of possible injury to persons or animals or damage to property.			
Exposed person	Every person who is completely or partially in a dangerous area.			
Working platform	Machine designed to make a work area accessible at a certain height for equipped staff.			
Lifting platform	See Working platform.			
Hydraulic pump	Hydraulic part connected to the power take-off which feeds the hydraulic system.			
Owner	Person who owns the machine with the elevating platform installed.			
Protection	Safety measures that consist in the use of specific technical means, designated "protections" (guards, safety devices), to protect persons from potential hazards that cannot be reasonably eliminated or sufficiently restricted by means of design strategies.			
Operating range	Covers the outermost points which can be reached by the lifting platform.			
Responsible for safety	The owner and/ or renter and/ or employee in conjunction with the site manager if operations are carried out in areas classified as construction sites, industrial sites and places of public or private access.			
Risk	Combination of the probability and degree of seriousness of possible injury or harm to health in a dangerous situation.			



Extension (widening)	Distance between the axis of the turret and the external edge of the basket.	
Extensions boom	Term used to describe the individual extension components that make up the telescopic element.	
Stabilise	Basic operation for operating safely, which also includes the choice of the base of operation and the inspection of the stabilisers' support area.	
Transducer	Element that transforms a signal of pressure, force or momentum into an electrical signal.	
Intended use	Machine used in compliance with the information provided in the operating instructions.	
Incorrect use that can be reasonably expected	Machine used in a manner not indicated in the operating instructions, but which could result from human behaviour which may be reasonably expected.	
Valve	Element responsible for the functioning and controlling the hydraulic system.	
Vehicle	Means of transportation such as: road tractors, motor vehicles for special use, homologated for the road circulation and on which a lifting platform is installed.	
Hazardous zone	Any area inside and/or in the proximity of a machine in which the presence of an exposed person constitutes a risk for the health and safety of such a person.	





## **B. DESCRIPTION**

## **B.1.** Identification data plate

The machine identification plate is fixed on one side of the machine.

The following specifications are stamped on the plate:



- 1. Model
- 2. Serial number
- 3. Year of manufacture

## Attention

For any requests covered by the guarantee or for spare parts, indicate the model number (1) and the serial number (2).

## **B.2.** Applied signals

① Attention

Printed indications may be present on the commercial parts and are the responsibility of the manufacturer of the commercial part.

Its description is not given in the manual.

## Danger signs





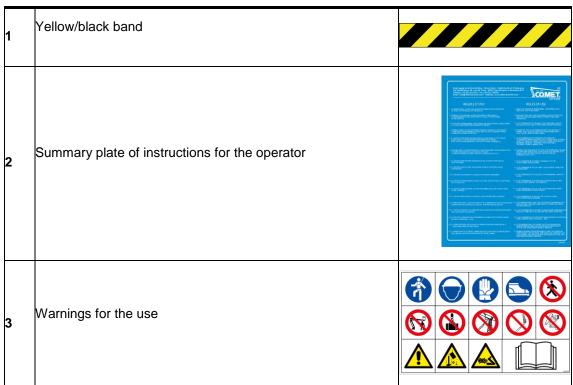
Maximum reaction of the stabiliser Maximum pressure to the ground



## **Prohibition signs**

Do not address water jets

## Other decals





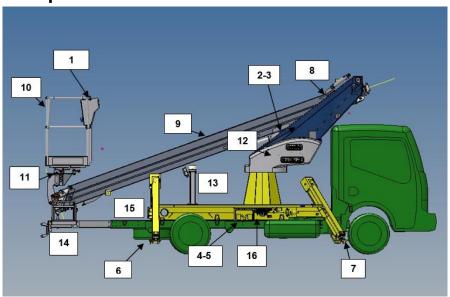
4	Load diagrams	200 kg   1   2   3   4   5   6   7   8   9
5	Indication of the maximum capacity of the basket	PORTATA MASSIMA  MAX. CAPACITY  Kg. 200  COMPRESE 2 PERSONE TWO OPERATORS ALLOWED
6	Builder logotype	Since 1960 COMET OFFICINE
7	White/red band	
10	Light of stabilisation movement or aerial part enabled	
12	Sign indicating location of the emergency pump	POMPA A MANO
13	Read the manual before using the machine	
14	Warning to properly put the stabiliser supports in operation	ATTENZIONE NON USARE L'APPARECCHIO SE I PUNTELLI NON SONO ABBASSATI CAUTION OPERATE ONLY WITH LOWERED OUTRIGGERS



15	Lubricating the fifth wheel	LUBRIFICASE LA PARLIA PERIODEAMENTE CON GRASSO AGIP GRESM IMPORTANT PERIODICALLY LUBRICATE GEAR WITH AGIP GR-SM. GREASE
17	CE plate	SAN GOVANNI IN PERSICETO  Tel - 1996/96/1971  Modelb / Matricola Sental  Veccio/Vehicle  Data Fabor / Year  N*Telsan Chassis Sental  Mg  No  No  No  No  No  No  No  No  No  N
18	Controls in the basket	ANTONIANA DIV.  STATEMENTA DIV.  STATEME
19	Testing CO.ME.T Officine SPA	TEST OK
	PTO light on, machine in working order light and machine in running order light	
21	Emergency stop	EMERGA AZA AZAZA
22	Use and tighten safety belts	
23	Greasing points of the pump	
24	Do not tamper with the automatic control valve of the cylinder	

26	Rotation block plate warning light				
30	clacson				
31	Start plate				
32	Stabiliser controls		PUNTELL DESTRO	POSTURIONI  SENSITIO  TRABE  THERE  THERE  THERE  THERE	NATELU ANTENDRI SALITTO DE STATO DE STA
33	Command tower	BRACCO BOOM PARTOGRAPO COMPANY	ANYOGRAM  LUF  BOT RANCOLLA  BASKT STORM  JE S	ROTADONE ROTATON NGAT	SELECTION OF THE SECOND OF THE
37	Machine model				-

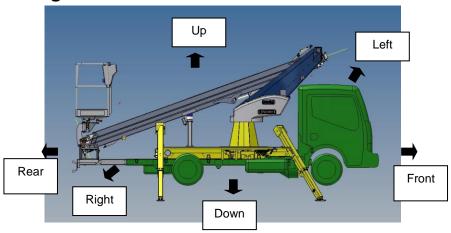
# **B.3. Main components**



- 1. Control panel in the basket
- 2. Control panel in the turret
- 3. Electric board for control panel in the turret
- 4. Electric board for control panel in the ground and safety system
- **5.** Control panel for outriggers
- **6.** Rear outriggers
- 7. Front outriggers
- 8. Turret

- 9. Boom
- 10. Basket
- **11.** Rotation assembly (if any)
- **12.** Electronic limiting device for lateral outreach
- **13.** Support for boom in rest position
- **14.** Ladder to access the aluminium deck and the platform
- 15. Oil tank
- 16. Manual pump

## **B.4. Positioning**



## **B.5.** Machine conditions

On restarting the machine after production has been stopped due to any reason, before proceeding check to ensure the machine has not been tampered with

## B.5.1. Transport condition

Machine in transport configuration means the conditions that allow the machine's movement by a vehicle from one workplace to another, also on the road.

In the case the general conditions of the machine must be:

- Complete retraction of the stabilisers.
- Basket at rest on rest support.
- Emergency pushbutton pressed.
- Any equipment secured with suitable stopping devices.



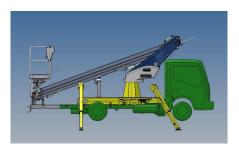
Resting configuration means those downtime conditions during which the machine is kept for a few minutes in the following general conditions:

- Machine stabilised.
- Basket at rest on rest support.
- Machine switch-off at main ON/OFF circuit breaker.
- Emergency pushbutton pressed.

- Hatches and panels equipped with locked locks.
- Keys removed.
- The operator can now temporarily leave the machine unmanned.
- The work zone must be delimited and marked.

#### Note

If the operator remains in the area, it is not essential to lock doors and panels equipped with locks.



#### B.5.3. Working condition

Machine in working configuration refers to situations in which the machine is operational and running.

In this case the general conditions of the machine must be as follows:

- Main switch in pos. ON.
- The engine is running.
- Machine stabilised.
- The basket is in working position.
- At least one operator is present in the basket.
- In the work area of the machine, only the operator who oversees and controls the machine on the ground is present.
- The working area is enclosed, marked and clear of obstacles, impediments and staff.



## B.5.4. Prolonged shutdown

When the machine must remain inactive for a period exceeding 3 days (e.g.: forced absence of the operator in charge of running and surveillance of the machine, closure for holidays, etc.).

In the case the general conditions of the machine must be:

Machine not stabilised.

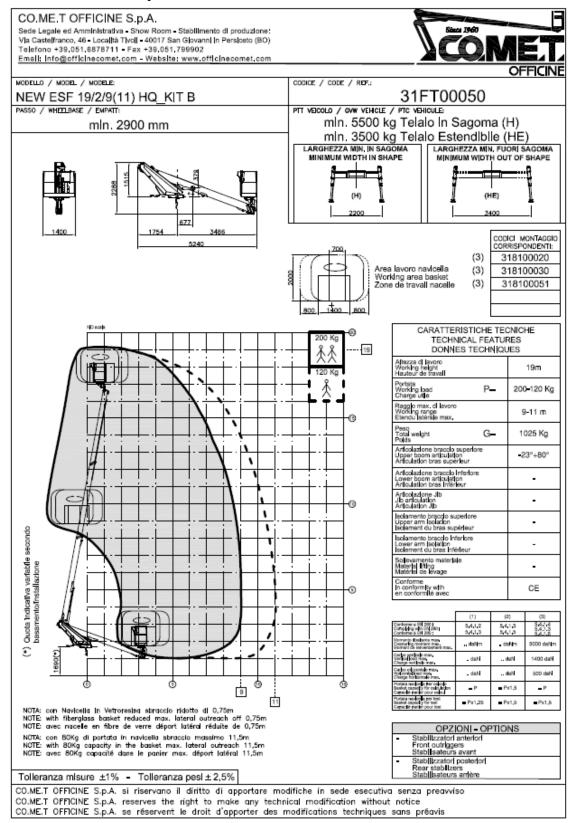


- Basket at rest on rest support.
- Machine off and unplugged from any power source.
- Hatches and panels equipped with locked locks.
- Keys removed.
- Emergency pushbutton pressed.
- Machine cleaned and disconnected from all energy supplies.
- If the maintenance schedule so requires, all the necessary maintenance work must be performed.



## C. TECHNICAL DETAILS

## C.1. Technical specifications



Co.me.t Officine S.p.A. reserves the right to make changes in the execution procedure without notice.



#### C.1.1. Noise level

Driver's seat: sound pressure level less than 70 db (A)

Guaranteed sound power level LwA = 98 dB (A)

Measurement methods and operating conditions: as specified by Directive 200/14/EC as amended by Directive 2005/55/EC and by standards EN 3744 and ISO 6355.

## C.1.2. Vibrations

Ground station (levers and controls): The total vibration value to which the hand-arm system is exposed is less than 2.5 m/s².

Aerial basket station (Operator working station): mean square value of weighted acceleration to which the entire body is exposed is less than 0.5 m/s².

Aerial basket station (levers and controls): The total vibration value to which the handarm system is exposed is less than 2.5 m/s².

Operating conditions of the machine during measurement: surveys were conducted with simulation of the loaded basket - work platform with the machine on firm ground.

The tests were performed on the stabilised machine.

Methods of measurement: as indicated by the EN1032/A1, EN 20643, EN standards.



## D. SAFETY

## D.1. Foreword

Most of the accidents that occur at work are due to negligence in the maintenance or operation of the machine.

It is therefore necessary to read this manual so as to be able to operate in the greatest possible safety and always maintain the machine in a state of efficiency.

If in doubt, refer to the user's manual or call the Service Centre of the manufacturer:

## tel. (0039)0516878711

## D.2. Positioning

Check the backing surface.

The ground and positioning structures must be flat, compact, resistant and not soft (prefer concrete, asphalt and compact ground), depending on the force transmitted by the machine outrigger.

It is important to take precautions to ensure the ground or base on which the machine will be used is compact and stable, is of adequate bearing capacity and there is appropriate friction. Therefore, planks may have to be laid to distribute the load, or plates (material is not supplied), or the stabilising base must be widened, etc...

The bottom line is to ensure that the stabilisers do not sink into the ground and do not move (see D.5. "General rules of conduct").

Do not stabilise the machine on surfaces that are slick, icy or wet or in any way slippery.

The elevating platform after stabilisation may be affected by poor soil conditions, the settling of the soil, on which the gradient of the machine depends, i.e., its stability.

The following are typical conditions of the ground that requires particular attention:

#### Uncompacted filling material:

earth or other filling material can be piled along a trench that is filled but not compacted.

Cracks in the terrain along the trench are an indication of uncompacted filling material.

#### Underground and basement areas:

generally, they cannot withstand the weight of the machine therefore, the ground may give way suddenly.

## Underground services:

sewers, manholes, drains, wells, gas and water pipelines, etc. can be damaged by the weight of the platform or may not withstand the load, sink and cause the machine to tilt over.

#### • Extremely slippery and smooth surfaces:

very low friction between the stabilisers and the ground (for instance friction between steel and marble with frost) can cause the machine to slide, especially if inclined, even after having stabilised the machine and this leads to serious consequences.

#### Weather conditions:

heavy or incessant rainfall can alter the conditions of the ground and cause subsidence; if you see or suspect that the ground has become too soft you must evaluate the action to be taken so as to ensure the machine is kept level and assess



the bearing capacity of the support beds, widen the stabilising base, etc. However, do not go near the area in question.

Thereafter, monitor the change in the conditions of the ground regularly.



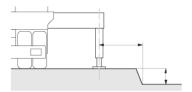
#### **Attention**

Frozen ground may seem more stable but in fact a thaw, possible throughout the day, may vary the conditions of lifting.

Do not set the stabilisers in place on edges of embankments, slopes, uneven ground, etc. Where possible, the stabilisers must only be set on ground that is flat or made level. Should the stabilisers be set on edges of embankments, slopes, uneven ground, etc. the following requirements must be met:

- uncompacted ground: **D = 2a** 

- compacted ground: **D** = **a** 



Check that every stabiliser and the relative supporting material makes complete contact with the ground before starting the works and thereafter, implement regular inspections.

If in doubt about the conditions of the ground, refer to the site manager.

The descent of the feet jacks must not compromise the working stability, for this reason both positioning and levelling must be performed with the elevating platform in rest configuration, using the spirit levels positioned at the side of the outrigger positions to check that the machine is level  $(\pm 1^{\circ})$ 

Before removing the Lifting platform from its idle position, ensure that the machine has been stabilised and levelled properly, within the design limits stipulated by the manufacturer (1°) and that it is positioned on a surface that is stable and adequate for the maximum force exerted on the ground by the stabilisers (shown on the relative plate affixed on them).

Table of the approximate pressure units allowable for certain types of land

	Allowable pressure (daN/cm³)
Loose, non-compact soils	1 ÷ 2
Granular compacted soils (sand)	2 ÷ 6
Compacted soils (sand + gravel)	4 ÷ 10
Medium strength rocks (sandstones, limestones)	10 ÷ 15
Rocks of high strength (strong sandstones, strong limestones)	15 ÷ 30
Massive rocks (granite, porphyry, basalt)	30 ÷ 50

The stabilization of the platform shall be carried out so as to lift the wheels off the ground and in any case to unload the weight of the lifting platform from the springs or suspensions of the vehicle.

The stabiliser jacks have a long enough run to lift the machine completely off the ground.

Test for correct stabilisation by checking the wheel elevating off the ground, the flatness of the frame and the compactness of the soil on which the stabiliser feet are supported.

#### Engage the vehicle's handbrake.

If the handbrake is not applied, the opening of the stabiliser feet would cause an acoustic alarm.

## D.2.1. Delimitation of the working area

Before working with the elevating platform, make sure the visibility and environmental conditions that can occur in the work area are limited with adequate signalling systems:

- barriers:
- tapes delimitating the area;
- signals (of prohibition, of warning, of danger, etc...);
- signals delimitating the area (light signals, cones, etc...).

## Note

#### This material is not included with the lifting platform.

To assess the work area in order to limit it, consider the worst-case trajectory, i.e., where the danger is greatest, also considering that failures can occur at any position where the elevating platform would be located.

## Note

## Wherever possible, bound an area bigger than the crane's maximum outreach.

In the area you have to eliminate whatever dangerous object or toxic substance.

The delimitation must explicit the no admittance for people, animals, means and vehicles not authorised.

When it is impossible to eliminate the transit risk inside the lifting platform working area, it is necessary to arrange some authorized personnel to survey the area limits and direct the traffic in the concerned area.

## O Attention

Should the operator be forced to work close to, or pass by residential and/or crowded buildings, it would be advisable to evacuate people and protect possible worthy goods.

Take the same precautions if you work close to artistic goods.

It would be better to contract a suitable assurance for possible damages caused during work.



## D.3. Environment

#### D.3.1. Temperature

The Lifting platform can work correctly at an environmental temperature between -10°C e -45°C.

If you reported a different degree, working with the lifting platform would be forbidden without the right cautions.

#### D.3.2. Humidity

The electric equipment works correctly at an atmospheric condition with a humidity less than 85% at a max temperature of +45° C.

Higher humidity is allowed with inferior temperatures.

With a higher humidity and a temperature near 0° you would incur in a block of the mechanical electric and safety systems.

Check out their correct working before using the lifting platform.

#### D.3.3. Visibility and light

Before positioning the elevating platform, check respect for the minimal visibility standards, avoiding shadow cones, stroboscopic effects and dazzle, areas with little visibility (fog, smoke, etc.) and un-lit.

Do not operate in the work area and in particular in proximity of the work and commands area whenever reasonable safety and visibility are not guaranteed

If you have to work in barely lighted up areas, illuminate the area with lighting devices, connected to energy source not in relation to the machine.

In this case do not point the supplementary lighting devices to the operator's eyes, but place them at the worker's shoulders, so that you could illuminate rightly the working area without dazzling him.

Do not operate when visibility from the basket is poor: agree on the meaning of signals to use if you need to resort to help from an operator on the ground.

#### D.3.4. Power lines

Windy conditions can cause the cables to swing beyond the distance allowed and reach the lifting platform, thereby causing electrical discharge.

The electric discharge is a danger for all the exposed people's lives, so you have to keep the lifting platform at the distances indicated in the table here reported.

Remain at the distances stated in the table in the vicinity of high voltage electric lines:

#### Table of safety distances

Safety distance from active electric lines (live) and unprotected or insufficiently protected electric plants to be observed when performing electrical works, net if the clearance deriving from the type of job, the equipment used, as well as side slip of the operators due to the wind and lowering of height due to thermal conditions.

Nominal voltage Un (kV)	Minimum distance allowed (m)
≤ 1	3
10	3.5
15	3.5
132	5
220	7
380	7

If you incurred in contacts between the lifting platform and the electric lines, or the distance between the lifting platform and the electric lines were reduced (because of wind, swinging, etc), causing dangerous discharge, it would be necessary:

- keep staff and animals in the area at a distance of at least 10 m from the elevating platform or the vehicle;
- the workers within a beam of 10 m must go out skipping with the legs closed and united:
- avoid contact with the elevating platform and/or the vehicle;
- Inform staff in the surrounding area of the impending danger, prohibiting them from approaching and touching the elevating platform and vehicle;
- if your position Is free from dangerous implications, do not try to go away, but keep staying in your position waiting for specialised aid, do not touch any object or metallic part different from those you are already in touch with;
- operators who are in the basket, or on the floor or in the cab of the vehicle must remain still in that position, waiting for specialised help.

## Note

The same warnings are valid in case of contact with electrodes, electric lines of trains, tram, trolley bus, cableways, etc...

It is forbidden to work with the lifting platform at a distance from the aerial and underground electric lines lower than the minimum distance allowed by the norms issued in the Country in which you are working.

## Note

Warnings are to be considered effective also for the electric lines of trains, tram, trolley bus, cableway, etc...

#### Attention

In case of wind both electric cables and the lifting platform could swing with jumps.

This sudden approaching can change the safety distance in a dangerous way, exposing the structure to possible electric discharge.

Remain at a safe distance from the electric line (see also D.3.4. in Table "Power lines"- "Table of safety distances" - Leg. D. 81/2008).

When moving the machine beneath or nearby overhead power lines, always use the help of a person who is an expert in giving indications from the ground.

Do not raise any part of the machine whilst passing beneath overhead power lines or between two poles that indicate the maximum height.



#### D.3.5. Wind conditions

It is forbidden to operate in open areas in very windy conditions with an intensity close to 50 km/h (approx. 12.5 m/s is equal to 6 on the Beaufort scale) and in gusts of wind.

Refer to the following table to value the effects of the wind:

Strength of the wind		Speed of the wind		Effect of the wind
Beaufor t degree	Name	m/s	km/h	
0	Calm	0÷0.2	1	Calm, the smoke goes up straight-line.
1	Light movement of air	0.3÷1.5	1÷5	Direction of the wind indicated only by the movement of the wind, but not by a flag.
2	Light wind	1.6÷3.3	6÷11	You feel the wind on your face, the leaves are rustling, the flag is moving.
3	Light breeze	3.4÷5.4	12÷19	Leaves and branches are moving, the wind stretch light flags out.
4	Moderate breeze	5.5÷7.9	20÷28	It lifts dust and free papers; it moves branches and finest rods.
5	Fresh breeze	8.0÷10.7	29÷38	Little leaves begin to wave. On lakes you can see foams.
6	Strong wind	10.8÷13.8	39÷49	Strong rods are moving, whistles in telegraphic lines, it is hard to use umbrellas.
7	Tight wind	13.9÷17.1	50÷61	All trees are moving, it is hard to go against the wind.
8	Stormy wind	17.2÷20.7	62÷74	It breaks the branches of the trees; it is difficult to walk in open air.
9	Storm	20.8÷24.4	75÷88	Little damages to houses (it destroys the covers of chimneys and tiles).
10	Violent storm	24.5÷28.4	89÷102	Up rooted trees, damaged houses.

In the absence of an anemometer strong wind conditions can be detected when: the strong branches move; it is possible to hear the wind whistling between the overhead power lines and it is very hard to keep an umbrella open.

It is very important to be aware that the speed of wind increases with height off the ground and can increase by 50% at 20 metres off the ground. Furthermore, there lies a cooling factor caused by the wind and the height, i.e. the speed of the wind increases together with the height, however the temperature drops.

You must pay attention when lifting sheets/plates of material that have a large surface used to coat buildings, panels and other material that can act as a "sail": even the



minimum force exerted by the wind on a large surface becomes significant and can seriously jeopardise the stability of a crane, especially in conditions of gusts of wind.

## D.4. During the use

Approaching the work position must be done at a moderate speed and with caution to avoid collisions or rocking the arms.

#### D.4.1. Movement, driving and placement

To ensure the safety during moving or driving the machine, always fold down the aerial part of the machine.

In particular, make sure the stabilisers are in rest position.



#### **Danger**

While moving and driving, always put on the safety locks of all the parts which require such use.

If necessary, restore the efficiency of the pins, shear pins and blocks, calling directly and exclusively the closer Authorised Shop Assistance.

Ways of displacement and/or circulation must be completed with the technical data of the installator and of the builder of the auto-vehicle.

However, respect the issued norms.



#### Note

Before you begin driving on the road, make sure that the indicator inside the cab signals proper closing of the stabiliser feet (green light lit).

If the red light is on and the buzzer is turned on, turn off the vehicle and check for proper positioning or the integrity of the signalling system.

Make sure that inside the basket there are no objects, materials, tools, etc., before moving the vehicle.

When you work within productive areas (erecting yards and industrial areas) pay attention where the machine is placed.



## Attention

Driving on the road is prohibited with objects, materials or weights that are hanging from or inside the basket.

Prefer workplaces for the elevating platform that have these characteristics:

- it should be a large enough place to contain the entire structure, so as not to create any dangerous situations during the operations with the lifting platform arm;
- they must not impede the work spaces of other equipment nearby (other elevating platforms, cranes, bridge cranes, conveyors, etc.) unless the equipment is previously taken out of service for the entire period of the use of the elevating platform.

If you have not previous indications and authorisations, the placement of the machine must not interfere with:

- safety doors, pedestrian crossing and transit ways;
- exits ways in case of danger, doors and private entrances, driveways;
- the visibility of signals (road-signals, warning sign, signal lights etc...).

## D.4.2. Working on public roads

 When working in an area where vehicles and pedestrians pass from, for your own and others' safety you must ensure that the entire work area is closed off with cones, warning panels, indication, flashing yellow lights, etc.



Refer to the work supervisor.

- Under no circumstances must parts of a lifting platform be extended or rotated above the road.
- It is illegal for anyone but specifically authorised personnel to direct the traffic on public roads.
  - A request must be presented to the local police.
- When works must be implemented during the night, in an area accessed by the public, barriers together with indication, flashing yellow lights must be set up.

#### D.4.3. Working in enclosed areas

- It is forbidden to use the lifting platform in closed environments or when exhaust fumes are released directly on people standing on the working area, if the exhaust pipe has not been routed far away from the operator or the exposed people.
- The use of the machine must not impede the work spaces of other equipment nearby (other elevating platforms, cranes, bridge cranes, conveyors, etc.) unless the equipment is previously taken out of service for the entire period of the use of the elevating platform.
- The work area must be an environment large enough to hold the entire structure, so as not to create situations of danger during manoeuvres with the arm of the elevating platform.

## D.5. General rules of conduct

To prevent accidents, strictly observe the existing regulations and the operating and maintenance instructions provided by the manufacturer.

Check the integrity of the personal safety devices prior to use.

Make sure that the safety devices are in perfect condition; if not, immediately provide for repair or replacement.

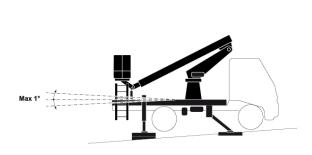
The machine can work only on solid ground; the maximum pressure on the soil under a single stabiliser is shown on the same stabiliser and on the plate on the tower.

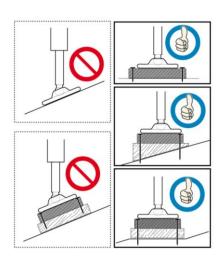
Always check that the inclination of the frame does not exceed 1° of incline both longitudinal and transverse.

Put spacers between the ground and the plate to distribute the load to the ground and restore horizontality (see figure).

The spacers must be of suitable material, secured to the ground and among themselves so that they cannot move and/ or slip.

The position of the foot support of the stabiliser foot must be horizontal.







Make sure that no one is close by, except as permitted.

Secure all tools, implements or other materials placed inside the basket, to prevent movements or falls of the same; all unused equipment must be removed from the basket before ascending.

Before ascending to a height, ensure the good functionality of all the controls, and place the equipment and working material so that is does not cause damage or create hazards, either of tripping or falling.

It is mandatory to use type-approved safety belts for PLE and not supplied.

Always check that the bars protecting access to the basket are perfectly intact.

When at a height, pay attention not to strike the basket against fixed or mobile parts or against the lorry cabin.

Observe the minimum clearances in the presence of live power lines (at least 5 m, see table "Power lines"- "Table of safety distances" page 31).

During operation, there must be present, on the ground, at least one person who knows the specialised use of the machine.

Manoeuvres from the ground are allowed only in case of emergency.

When work is finished, replace the machine in rest position, the basket must be in the right position and the stabilisers fully retracted.

Observe any special regulations on driving when working in a place open to traffic, using flashing lights, beeping signals, and the appropriate visual signs on the ground.

If you must abandon the machine, leaving it unattended, position the machine in the rest configuration.

Refer to the vehicle owner's manual for all those elements or parts that are proper and related to the vehicle on which the platform is installed.

## D.6. Forbidden behaviours

- Never stabilise the platform on structures whose consistency is not known.
- It is forbidden to move the elevating platform when the stabiliser feet are not supported tightly on the floor and/ or when the support on the ground under the stabiliser does not guarantee maximum stability.
- It is prohibited to modify the stabilisation with staff inside the basket of the elevating platform.
- It is prohibited to continue work as soon as failures occur, however small, in the soil.
- It is prohibited to use the elevating platform for elevating loads unless there are personnel authorised with the work equipment.
- Do not use the machine with loads suspended from the sides of the basket, or use the latter as a means to transport materials, which are not tools needed to work, from one point to another.
- It is prohibited to use the elevating platform to push or drag a load.
- It is forbidden to lift, pull or push loads fixed on earth.
- It is prohibited to load, lift or move loads.
   The platform is NOT and should not be used as, a crane loader.
- Do not use the machine near live power lines (see table above "Power lines" "Table of safety distances").
- ? Do not insert hands or tools in the moving parts or openings in the joints of the arms.
- ? Do not exceed the permitted capacity, both for number of occupants and for the weight of the equipment.
- ? It is forbidden to tamper with the seals (plugs) on the valves and safety valves.
- ? Do not lock the bars protecting access to the basket in the open position.
- ? Do not operate if the level bubble does not indicate that the machine is level.
- Po not operate if the soil is not properly levelled and resistant to the stabilisers? pressure.



- ? Do not climb on board the basket.
- ? On the basket, do not use ladders, raised floors, tables or anything else to reach the work point.
- ? Never try to ascend or descend from the machine during motion.
- ? Do not lean or hang on the outside of the basket.
- Do not insert hands or tools in the moving parts or openings in the joints of the arms.
- Do not exceed the permitted capacity, both for number of occupants and for the weight of the equipment.
- It is forbidden to tamper with the seals (plugs) on the valves and safety valves.
- Do not lock the bars protecting access to the basket in the open position.
- Do not operate if the level bubble does not indicate that the machine is level.
- Do not operate if the soil is not properly levelled and resistant to the stabilisers' pressure.
- Do not climb on board the basket.
- On the basket, do not use ladders, raised floors, tables or anything else to reach the work point.
- Never try to ascend or descend from the machine during motion.
- Do not lean or hang on the outside of the basket.
- Do not use the control levers or pipes as handles for climbing.
- Do not carry fuel tanks, hydraulic oil or other flammable material without taking appropriate precautions.
- Do not make any sudden reversals of movement.
- Avoid sudden braking, sudden departures or changes of direction.
- If the basket or any part of the machine is trapped in an adjoining structure, do not use the control commands.
  - Request the assistance of specialised personnel.
- Do not attach wires, cables or similar objects to the basket. They could pinch or attach
  to an external hard object resulting in damage to the machine or its tipping.
- it is prohibited to modify, remove or replace any components that would reduce the overall weight or the stability of the base of the machine, such as ballast, batteries, spare wheels, etc.
- It is prohibited to move the vehicle with an operator at a height.
   Operation not allowed by the safety systems supplied with the basket.
- It is forbidden to stand under the basket.
- It is prohibited to place the elevating platform on surfaces that transmit vibration.
- It is prohibited to place and use the elevating platform when environmental conditions present a risk of an explosion or fire.

#### Attention

The elevating platform CANNOT be used in potentially explosive and/ or incendiary environments as this is not in compliance with ATEX 94/9/EC and 1999/92/EC directives.

- It is prohibited to place and use the elevating platform when the environment is contaminated by a corrosive atmosphere.
- It is prohibited to disassemble the mechanical, electrical or hydraulic parts of the elevating platform.
- Perform only those operations (adjustment mechanical, electrical or hydraulic, etc.) described in this publication.



- It is prohibited to perform any operation (adjustment, disassembly, etc.) on the elevating platform when the same is in motion.
- It is forbidden to operate with mechanical electrical or hydraulic safety devices that has been removed and/or illegally broken.
- It is absolutely forbidden to stay by the crane not properly addressed (ex. ties, wide clothes, unbuttoned and/or protruding etc.): wear only working suits.
- It is forbidden to use the elevating platform as a ground during the welding of nearby structures, unless it is equipped with adequate equipment for this purpose.
- It is prohibited to use the machine to tow another vehicle.
- It is forbidden to operate in open place during a storm.
- It is prohibited to use the elevating platform in enclosed areas or when the exhaust gas is directly emitted at personnel present in the workplace, without having provided for the connection of the proper evacuation hose for the exhaust gases of the vehicle, pointing away from the operator and the people exposed.
- It is prohibited to use the elevating platform in an environment where the sound intensity exceeds the values of law, without adequate hearing protection.
- Do not direct high pressure jets onto the electrical components, cabets and boxes while washing the machine. Also do not use chemical cleaners or gasoline that would cause serious damage to the paint and plastic components.

## D.7. Method used to access hazardous areas

To prevent access to hazardous parts composed of moving parts in general, guards are present on various machine parts (made of sheet metal, metal mesh, plastic etc.) and are fixed with screws and/or nuts etc...

To avoid the risk of serious injury due to the presence of moving parts adhere strictly to the following rules of conduct.

- The guards must always be present and correctly secured during machine operation.
- The guards must only be removed by authorised personnel using suitable tools.
- The guards must only be removed when the machine is at a standstill and cannot be restarted by third parties.
- Before removing fixed guards disconnect the machine from the energy sources and affix a sign stating "Work in progress; Do not use".
- Before restarting the machine, reposition the guards and secure then as envisaged by the manufacturer.
- The threaded fasteners must be torqued in such a way as to prevent their removal using only the hands or makeshift tools.

## D.8. General requirements for maintenance

The maintenance operations may only be carried out by authorised personnel suitably trained and skilled and expressly authorised by the company using the machine.

Maintenance work on the machine must be performed in observance of all the safety indications given in the present publication.

Before performing maintenance work, disconnect the machine from the energy sources and affix a sign stating "Work in progress. Do not use".

Before performing maintenance work on the machine, read the technical documentation supplied by the manufacturer and the suppliers of individual commercial parts of the machine.

In particular consult:

- Owner's manual
- The diagrams of the electrical, hydraulic, etc.



The manufacturer's technical service is at your complete disposal for any information concerning maintenance work to be carried out on the parts supplied.

## ①

#### **Attention**

In the case of operating faults do not attempt to solve any anomalous situations that may occur using makeshift means.

## D.9. Replacement parts

The use of non-authentic spare parts may cause machine malfunctions, which in turn may lead to hazardous situations for the operator and any individuals working near the machine.

## ①

#### Attention

Always use authentic spare parts.

## D.10. Preparation and inspection

#### D.10.1. General preparation

This section provides the personnel responsible for making the machine ready and for its entry in operation with the information necessary and lists the checks that are to be done before operating the machine.

It is important that the information given in this section is read and understood before using the machine.

Ensure that all the necessary inspections have been done with positive outcomes before using the machine.

These procedures have the purpose of lengthening the working life of the machine and guaranteeing its safety.

## ①

#### Attention

Since the manufacturer is unable to exercise any direct control over the inspections on the spot and maintenance work, these activities fall under the exclusive responsibility of the owner and the operator.

#### D.10.2. Making ready for use

Before using a new machine, it is necessary to inspect it carefully for any evidence of damage sustained during shipment and then to give it routine inspections as indicated in the section "Inspection on delivery".

During start up and initial operation, the machine must be checked carefully for hydraulic fluid leaks. Check that all the components are secured in position.

The activities for making the machine ready for use come under the responsibility of personnel in charge.

Make ready requires common sense (for example the telescopic boom should extend and retract without encountering obstacles and the brakes should work correctly) combined with a series of visual inspections.

The compulsory requirements are listed in the section "Daily visual inspections".

It is necessary to verify that the directions listed in the sections "Inspection on delivery", "Routine maintenance" and "Daily working checks" have been followed.

## D.10.3. Inspection on delivery

The following list describes the controls to carry out on delivery of the machine.

The controls to be carried out successively are described later in the manual.

The signing of the acceptance report (ref. Chapter L) shows that the controls were performed on delivery.



Any observations, notes or recordings of anomalies must be signalled and described in detail in the acceptance report.

#### D.10.3.1. Frame

- Check for the presence of the formation of cracks, warps, wear or looseness.
- Check that the stabilizer is locked into position, that they do not show signs of damage and that the hydraulic pipes do not leak.
- Check that the cylinders for the stabilizer feet are tightened in position, do not show evident signs of wear and that the hydraulic piping shows no leakage
- Check that the microswitches on the stabiliser feet are tightened.
- Check that the solenoid valves and hydraulic tubes are not damaged or leaking and that they are secured in position.
  - Check the electrical voltage and make sure there are no traces of corrosion on the electrical connections.
- Check the drive gears, electrical or hydraulic motors, brakes and any hydraulic tubes present for damage or leaks.
- Check that the ground controls do not have loose or missing parts and that all parts are locked in position.
- Check the voltage in the electrical connections, make sure that there are no traces of corrosion or exposed wires.
- Check the voltage in the electrical connections, make sure that there are no traces of corrosion or exposed wires.
  - Ensure that all the switches work properly.
- Check the oil level in the drive gears (if necessary, contact the service personnel for assistance).
- Check the batteries (if present), ensuring that the bleed valves are not loose or missing, that the electrical connections are secure and are not corroded and that the electrolyte level is correct.
- Check that the tank and hydraulic pipes are not damaged or leaking and that the refill plug is locked in position.
- Check all electrical cables for damaged or missing parts.
- Check accessories, making certain that they are not damaged, that no parts are loose or missing, and that they are locked in position.
- Check all the access doors for damage and that the locks and hinges work correctly and are secured in position.
- Check that the fuel lines are not damaged or leaking and that they are secured in position.

## D.10.3.2. Turret

- Check the turret for damage, loose or missing parts and that it is locked in position.
- Check that the gearbox rotation is not damaged, that parts are not loose or missing, that the hydraulic pipes and seating for components show no signs of leaks; check that the rotation sprocket is not worn.
- Check for oil in the rotation gearbox
- Check the slewing ring for damage, wear, lubricant and for loose or missing bolts.
- Check that the solenoid valves and hydraulic tubes are not damaged or leaking and that they are secured in position.
- Check that the solenoid valves and hydraulic tubes are not damaged or leaking and that they are secured in position.
  - Check the electrical voltage and make sure there are no traces of corrosion on the electrical connections.



- Check the voltage in the electrical connections, make sure that there are no traces of corrosion or exposed wires.
- Check the voltage in the electrical connections, make sure that there are no traces of corrosion or exposed wires.
  - Ensure that all the switches work properly.
- Check that the securing bolts of all the pins are tightened in position and do not show signs of wear.
- Check that all the joints of moving parts are lubricated.
- Check that the hydraulic directional control valve and its tubes are not leaking or damaged.

#### D.10.3.3. Booms

- Check that the arms, cylinders and pins are securely in place and don't have cracks, fractures, missing or damaged parts.
- Check that the securing bolts of all the pins are tightened in position and do not show signs of wear.
- Check that the hydraulic pipes and electrical cables are secured in position and do not have damaged or missing parts.
- Check all the bushings for signs of wear or damage.
- Check that all the joints of moving parts are lubricated.
- Check that the sliding blocks have no visible signs of damage, missing parts and that they are locked in position.
- Check that the chains or cables (if any) of the sliding elements do not show visible damage or missing parts and that they are properly tensioned.

#### D.10.3.4. Basket

- Check that the basket and the control panel are in position and that there are no damaged, loose or missing parts.
- Check that the switches, control levers and electrical connections are not live and that there are no traces of corrosion.
  - Check that all the cables are not defective or damaged.
  - Ensure that the switches work properly.
- Check that the basket rotation system is secured in place, well-lubricated, operates correctly and is not damaged.
- Check that the hydraulic pipes are secured in position and that they are not damaged or leaking.



Check that all the signs DANGER, WARNING, INSTRUCTION applied all over the machine are in position and legible.

#### D.10.4. Bolt and screw tightening

The tightening torque table (see the pages specified) consists of standard torque values, based on the diameter and the class (hardness) of the screws; this also establishes the torque values with and without lubricants according to the practice recommended by the factory.

This table is provided for the purpose of helping the user or the operator if the need should arise for immediate adjustment during an inspection or operation so that the maintenance service personnel are informed.

Using the tightening torque table in combination with the index of the points to be tightened shown in the chapter entitled "Maintenance" will improve the safety and performance of the machine.



## D.10.5. Daily inspection

Inspection on workdays before starting up the machine comes under the responsibility of the operator and the user.

Operators and users are advised to inspect the machine before use, even if the machine has already been used by another user/operator.

These checks must also be made after maintenance has been done to the machine.

Daily inspection is not recorded in the controls register but is mandatory for correct machine operation.

Any anomalies detected during the daily checks must be recorded in the chapter L.4.

In addition to the daily visual inspection, make sure that the following operations are included as a part of the daily inspection procedure:

- General cleaning
  - Check that all the weight-bearing surfaces are free of spills of oil, fuel, hydraulic oil, mud and foreign bodies. Check the general cleanliness.
- Plates

Keep all the plates showing information and control labels clean and visible. To keep them visible it is advisable to cover them when spraying paint or sand blasting.

- Owner's manual
  - Ensure that a copy of this manual is kept in the special container.
- Control register
  - Ensure notes are made or even better, a register regarding machine operation; make sure that it is updated and no element is left in doubt, this could lead to reduced machine safety
  - Draw up a logbook for planned maintenance.
- Begin each working day with the batteries charged and/or a full tank of fuel.

## (!) Attention

To avoid injury, do not operate the machine unless all breakdowns have been repaired.

The use of a defective machine constitutes a violation of the safety rules.

To avoid injuries, ensure that the electrical current is switched off during the daily visual inspection.

## Note

Check visually and manually that the safety micro-switches are in position and that they are working correctly.

- Check that the brakes work correctly

## **6** 1

#### Note

After changing the oil on new and recently overhauled machines and all those which have had the hydraulic oil changed, operate all the movements for at least two full cycles and check the oil level in the tank again.

Ensure that all the parts requiring lubrication are given maintenance.
 Refer to the specific pages for the methods to be adopted.

#### D.10.5.1. Daily visual inspection

Start the visual inspection from the first paragraph in the list below.

Continue to check the condition of each part indicated in the list of daily visual inspection checks.



#### **Attention**



To avoid injury, do not operate the machine unless all breakdowns have been repaired.

The use of a defective machine constitutes a violation of the safety rules.

To avoid injuries, ensure that the electrical current is switched off during the daily visual inspection.

#### Note

Do not underestimate the importance of inspecting the base of the frame. Checking this area often reveals conditions that can cause serious damage to the machine.

- Basket overall No loose or missing parts; no damage visible; the clevis pins and/or trunnions should be locked in position.
- Control panel on the basket The switches should be in the correct position; no loose or missing parts; no damage visible; all labels and plates should be present, intact and legible; all control signs should be legible.
- Levelling cylinders No damage visible; the trunnions should be locked in position; the flexible pipes should have no visible damage or traces of leakage.
- Booms / lifting cylinders and extension cylinders No damage visible; the trunnions should be locked in position; the flexible pipes should have no visible damage or traces of leakage.
- Limiter micro-switches Micro-switches should be in good working order; no damage visible.
- Hydraulic oil filter the filter should be correctly locked in position; no damage visible; no signs of leakage.
- Cover panels Covers should be correctly secured in position; no loose or missing parts.
- Control solenoid valves No loose or missing parts; no signs of leakage; no electrical cables or flexible tubes should be unsupported; no electrical cables should be damaged or broken.
- Ground controls Switches should be working; no damage visible; labels should be in place and legible.
- Hydraulic oil tank The oil level should be correct (check the level when the oil is cold, the components are not moving and the machine is in the rest position); the cap should be locked in position.
- Hydraulic pump No loose or missing parts; no signs of leakage.
- Slewing ring of the turret No loose or missing screws or nuts; no damage visible;
   appropriate lubrication; no signs of loosening between the bearing and the structure.
- Swivel motor and gears No loose or missing screws or nuts; no damage visible; appropriate lubrication.
- Basket rotation device (if present) No damage visible; flexible pipes should not be damaged and should not leak.
- Reach limit (if present) Check efficiency and integrity.
- Cab anti-collision system No damage visible; sensors not damaged.

## D.10.5.2. Daily working checks

Once the visual inspection has been completed, it is necessary to do a working check of all the systems in an area free of ground and aerial obstructions.

First use the ground controls and check all the functions operated by these controls.

Then use the controls on the basket to check all the functions operated from this position.



## Attention

To avoid serious injuries, do not operate the machine if any one of the controls that operate it does not return to its off or neutral position when released.

## Attention

To prevent collisions and injuries if the machine does not stop when a command is released, take the command lever back to the centre and use the emergency button to stop the machine.

## Note

#### NEVER move the machine while the boom is raised from the resting position.

Lower and raise the booms of the machine.
 Check that the operation is correct and without obstacles.

## Note

## Carry out the checks on the ground controls first and then the basket controls.

- Lift, extend, retract and lower the arms and the pantograph trolley.
   Check that the operation is normal and without obstructions.
- Extend the telescopic boom so that it moves from the retracted position to the extended position and vice versa a number of times with different lengths of extension. Check that the telescopic mechanism works correctly and without obstruction.
- Rotate the turret to the left and then the right by a minimum of 45°.
   Check that the rotation occurs without obstruction.
- Check that the basket automatic levelling system works correctly during raising and lowering of the boom.
- Ground controls.

Press the EMERGENCY button.

None of the controls should be enabled, not even the controls in the basket.

#### D.10.6. Maintenance of the batteries

To avoid injury caused by explosion, do not smoke near the batteries or bring a naked flame or a source of sparking close during maintenance work.

## Attention

#### Always wear protective goggles when doing maintenance on the batteries.

- The batteries do not need maintenance except for the occasional cleaning of the terminals as described below.
- Remove the cables from each terminal of the battery one at a time beginning with the negative terminal.
  - Clean the cables with a neutral solution (for example: sodium bicarbonate and water or ammonia) and a metal wire brush.
  - Replace the electrical cables or the screws in the terminals if necessary.
- Clean the terminals of the battery with a metal wire brush then reconnect the cables to the terminals.
  - Apply mineral grease or Vaseline to the surfaces that are not in contact.
- When all the cables and terminals have been cleaned make sure that the cables are secured correctly and not squashed.
   Close the battery housing cover panel.

## D.10.7. Electric pump maintenance (if present)

Follow the instructions given in the manufacturer's manual.

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#### D.10.8. Routine maintenance

The periodic maintenance interventions are given in chapter I.4. "Routine maintenance frequency table".

## D.11. Residual risks and dangers

In the following we indicate the risks that staff may be subject to with improper actions.

- Risk of falling from an elevated position if you do not pay attention or do not use the supports and the proper handles when the basket is going up or down, if you do not close all the safeties (arms, doors, chains, etc.) or do not fasten the safety belts to the appropriate rings in the basket.
- Risk of collision with equipment or items in the operational area, if movement is not cautious and not executed with the necessary attention. This brings a risk of tipping the elevating platform if the collision compromises the structure of the machine.
- Risk of material falling from above with a consequent risk of impact on those exposed.
- Danger of crushing and impact during the operation of positioning the stabiliser feet.
- Danger of entrapment and dragging caused by the use of not right clothes.
- Risk of collision with fixed infrastructures and moving objects during platform operation unless the necessary manoeuvring clearances have been taken into consideration.
- Risk of crash with consequent dangers of crushing and falling down for people and/or for workers in the operating area.
- Risk of tipping due to the soil underneath the stabiliser feet moving.
- Risk of tipping over if a payload is loaded in the basket when it is already raised, the mass of which is unknown.
- Risk of personal danger when the person assigned to using it starts to move the elevating platform before the co-worker has left or has removed their limbs from the danger zone.
- Risk for the personal safety when you assemble/disassemble parts, accessories or components and the workers are without the necessary personal protections (safetyhelmet, gloves, shoes, etc...).

## D.11.1. During the transport

**Risk of crash** with fixed structure (ex. bridges, over-bridges etc...) along the way, if you do not place the lifting platform after the use in the right position correctly closed.

#### D.11.2. During parking/unwinding

- Risk of damage to the operator or to exposed people during the unwinding of the lifting platform in the closed position, if you are not by the controlling place and/or if you not have a sufficient visibility.
- Risk of vandalic operation in case of temporary absence, if you do not close with keys or locks all the doors.
- Risk of damages for the objects placed under the lifting platform, because of parking or long stopping with the extensions lifted and opened (fairs, expositions), in case the booms go down slowly but continuously because of normal leakages.

## D.11.3. During maintenance

**Risk of falling** down for the booms of the lifting platform with a consequent danger of crushing in case of:

parts or elements of the elevating platform are replaced with non-original parts;

forbidden operations to the builder;

interventions by shops non-authorised by the builder.



Risk of emission of fluid in pressure (oil) if you realise wrong and/or not authorised maintenance operations on the hydraulic system.

### D.12. Risks for the operators and exposed people

If people do not stay and/or transit at a safety distance, they can incur:

Danger of amputating Danger of running down Danger of crushing

Danger of crash with consequent falling down



#### Note

The effect of vibrations on the operator on the elevating platform are insignificant. Furthermore, by resting the stabilisers of the lifting platform on to the ground, the only interaction between the operator and the crane is via the controls. In the command station in the basket, the operator will be relayed an amount of vibration equal to or below those received at the vehicle drive.



#### Note

The lifting platform is declared to be compliant with the applicable directives. The lifting platform's noise emission does not exceed 65 db. Check the noise levels of the vehicle on which the lifting platform is installed.

## D.13. Emplacements of control

Activate the control levers gradually and slowly especially during the rotation and descent phases, avoiding sudden interventions and release. This platform is fitted with non-compensated distributor; therefore, one lever must be used at a time to guarantee correct operation.



#### **Danger**

If two movements are implemented simultaneously, one can interfere with the other, thereby causing an unforeseen and hazardous increase in speed that the operator will have difficulty controlling.



Note: This can also occur on load sensing distributors if the oil flow required by the simultaneous movements exceeds the flow supplied by the pump.



#### Danger

Manoeuvres from commands on the turret are only allowed in emergency situations.

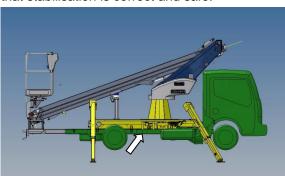
On the lifting platform various emplacements of control can be distinguished.

#### D.13.1. Stabiliser controls

The controls for operating the stabilising elements are on the side of the vehicle.

A level bubble is in a visible position to permit the stabilisation of the vehicle within the allowed values.

Both the operators must participate by operating the controls and ensuring the area so that stabilisation is correct and safe.



#### **Attention**

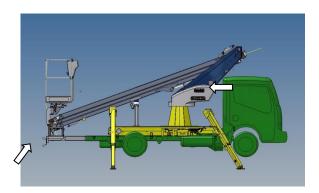
The operator, in order to have full control of the stabilising elements and the work area must be supported by the second operator so that stabilisation takes place and achieves complete safety.

#### D.13.2. Controls on the turret

You can reach the emplacement in total security through a stair or protected high planes. Keep the steps and the floor clean from dirt (grease, oil, soil, etc.) to keep them from getting slippery.

### Danger

To avoid falls during the ascent or descent from the station, use the supports and handles.



#### Attention

The controls can be used only after having fully opened the (E) door with the suitable key.

By opening the door, the basket controls are automatically disabled.



#### D.13.3. Controls in the basket

The movements of the aerial part of the platform are controlled from the basket.

The work station can be reached by a ladder.



#### Danger

In order to avoid any falling down during the going in or out the emplacement, use the supports and the right handles, paying the most attention.

The ascent and descent must be carried out safely, with the basket, the arms and the elevating platform in the configuration at rest.



etc.) that are present.

Hook on the safety belts.



#### 

The basket is surrounded by a parapet.

It is strictly forbidden to lean out over this protection.

#### D.13.4. **Emergency stop**

"Emergency stop" controls are present on the machine and must be activated in the event of an immediate presumable danger.

Therefore, be aware of the position of the various "emergency stop" controls in order to use them promptly when necessary.

### Attention

Before restarting the machine after an emergency stop, ensure that the causes of the emergency stop have been remedied and check carefully to ensure that there are no persons or obstacles in potentially dangerous areas.

### D.14. The operators

The elevating platform needs at least two operators.

Establish roles within the work group before starting to work so that each operator fully understands the task to be performed.

Each operator can cover multiple tasks and roles (example: the person who uses the platform, the maintenance man, the driver of the vehicle may be the same person).

#### D.14.1. **Jobs**

Every operator has some jobs to do and he must respect them.

The operative people who work with a lifting platform are:



#### Operator on the ground

The operator on the ground must ensure the work area to report any hazards to the operator in the basket, external staff must be kept from entering the danger zone and must be able to perform all the operations of retraction with safety for the platform and the operator in the basket if the latter is unable to do so.

#### Person in charge of using the lifting platform

- Before using the lifting platform in erecting yards or in industrial areas, he takes information from the safety responsible of the area about the possible dangers in the area in which the lifting platform has to work and about the dangers you could cause by using the lifting platform.
- He chooses the place in which operate and park the vehicle with the lifting platform.
- He delimitates the working area to avoid the entrance to non-authorised people.
- He values the direction to take and the relative danger degree given by the possible presence of obstacles.
- carries out the elevating operations, of approaching the work point.
- He realises the operations for closing the lifting platform for a transport in complete safety.
- He controls visually the lifting platform searching possible anomalies.
- checks the status and readability of work diagrams and the plates applied to the elevating platform.
- Wear, according to the activity to be carried out, personal protective equipment (PPE).

HE	LMET	Use of protective helmet to prevent risks generated by any impact with obstacles.
GLOVES  Use protective gloves to prevent cuts, perforation, puburns when carrying out activities at a height.		Use protective gloves to prevent cuts, perforation, puncture or burns when carrying out activities at a height.
		You have not strictly forced to use gloves when it is necessary to increase the sensitivity in using levers or manipulators.
SH	OES	Use of accident-prevention shoes to prevent risks generated by falling materials when working at a height.
CL	OTHES	Use protecting clothes to avoid to get entangled with lifted and transported parts.
	OUSTIC	Protect the hearing in case you use the lifting platform in an area with an acoustic intensity higher than the values indicated by the law.

#### Driver of the vehicle

- Check the correct position of the transport of the elevating platform and the proper placement of the mechanical stops present.
- Drive the vehicle set-up with the elevating platform in complete safety from one work place to another.



### Note

The driver of the vehicle during transport doesn't need PPE.

In fact, it is underlined that while driving the vehicle equipment such as helmet, accident prevention shoes and glasses (or protective screen) must be put out for not troubling movements while driving.



#### Employed in the ordinary maintenance

- He checks out the state of preservation of the lifting platform, the wear of the sliding elements (ex.: wear pads on the booms), flexible pipes and possible leakages.
- He realises the ordinary maintenance as foreseen and as frequently indicated in the present publication.
- He signals unexpected situations (as wears, fallings down, breaks, etc.) to the authorised shop and to the lifting platform's owner.
- He checks out that the supplementary maintenance has been realised by authorised shops as frequently indicated in the present manual.
- He fills the control register.
- Wear, according to the activity to be carried out, personal protective equipment (PPE).

CLOTHES	Use protecting clothes to avoid any entanglement with mechanical parts of the lifting platform or vehicle.
GLOVES	Use of protecting gloves to avoid cuts, perforations or picks caused by mechanical parts non-correctly trimmed.
SHOES	Use safety shoes to avoid risks caused by the falling down of materials or devices used during the ordinary maintenance.
EYEGLASSES	Protect your eyes with eyeglasses or protecting screens in case of operations near the hydraulic system in pressure.

#### Company manager using the elevating platform

He informs the operator employed to the use of the lifting platform about:

- Dangers present in the working area and on those that could be created by using the lifting platform.
- Possible presence of workers in the dangerous area (area of manoeuvre of the lifting platform) that cannot abandon the working area because of particular jobs.
- Possible emissions of dangerous substances in the air or in the ground that could compromise the safe movement of the loads.
- Safety devices compulsory in the working area.

#### Responsible for the safety of the lifting platform

 He informs the employed to the use of the lifting platform about the dangers that could be produced by using the lifting platform.



#### Danger

The responsible for the safety of the lifting platform must watch over the crane to avoid an improper use of it; to avoid any possible damages to the operator, exposed people, animals and material present in the working area.

## D.15. Personal protective equipment (PPE)

During the course of normal work and during maintenance work it is necessary to ensure that workers are provided and are using Personal Protective Equipment for the task at hand.



#### Attention

The personal protection devices must be carefully stored and replaced when damaged.



### D.16. Suitability

The operator's aptitude requisites, knowledge and training must be respondent to the norm ISO 9926-1:1992.

Suitability of the machine operator must first be verified by health checks, in strict compliance with the law applicable in the Country of use.

The machine must be used by a trained operator who has no problems pertaining to sight or hearing.

It is the responsibility of the employer of the company using the elevating platform to verify, including through tests or attitudinal surveys, that:

- the operator employed to the use of the lifting platform is able following the professional medical visit;
- the operator is a person physically and mentally wealthy, aware and responsible of the possible dangers that could occur by using the lifting platform and a person who is able of self-control even in highly stressing situations;
- the operator employed to the functioning and/or maintenance of the lifting platform is wealthy and that he does not present pathology that could arise suddenly;
- the operator has good sight (even if through eyeglasses or lenses), good hearing, ready reflexes, good movements coordination;
- the operator does not take substances that could alter his physical and mental capacities (medicines, alcohol, drugs, etc.).
   Non-perfect physical conditions can be the causes of serious damages to himself, but also to people, animals or material good in the working area of the lifting platform;
- the operator is able to read and comprehend the documents, symbols, stickers and working diagrams applied on the lifting platform;
- the operator knows that it is not allowed to use the lifting platform for strangers, because they do not know the risks and dangers they can cause;
- the operators must have specific skills and must have participated in the training course;
- the operator is at least 18 years old;
- the operator has got a regular driving licence valid in that country, in case he has to drive the vehicle on which the lifting platform is mounted;
- the operator must have read and understood this User Manual and the relative annexes.

The builder suggests proceeding norms, accepting the main norms for safety:

Each worker must take care for his and others safety and wealth, considering his own formation and the instructions given by the employer; practically taking care of those people on whom the effects of actions or omissions could fall on during the working.

In order to realise such aims, the workers have to:

- use correctly the machines, devices, equipments, dangerous substances, transport equipments and other vehicles;
- use correctly the individual protections and after using put them on their proper place back;
- do not put out of order, replace or change place to the safety devices arbitrarily, but use them correctly;
- signal to the employer and/or to the employed in safety every situation that could be reasonably considered a real and immediate danger for safety and wealth; for the same reason you have to signal also whatever defect found in protecting systems;



- cooperate with the employer and/or with the employed in safety for the protection of the safety and wealth of the workers during the working, respecting the national norms and the duties imposed by the competent authority;
- cooperate with the employer and/or with the employed in safety for the realisation of environmental and working conditions without any risk of danger, in order to grant to workers safety and wealth in the working area, respecting the national norms.

#### Furthermore, the employer has to:

- check out that workers and their agents know the laws and safety norms;
- check out that the workers and their agents respect the laws and safety norms;
- give all the necessary information for the respect of the operator's safety and wealth;
- respect the issued safety and wealth norms.



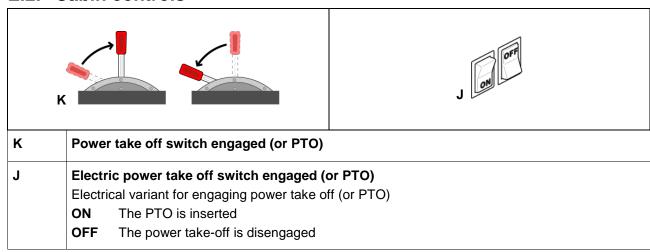
### E. CONTROLS

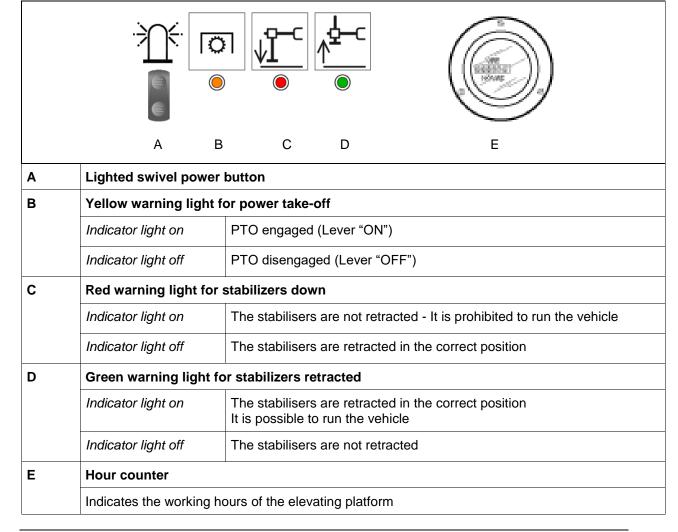
#### E.1. Foreword

Read and understand every part of this publication before moving the platform, in particular the "Safety" section and this section.

It is prohibited to try moving the platform after reading ONLY this section.

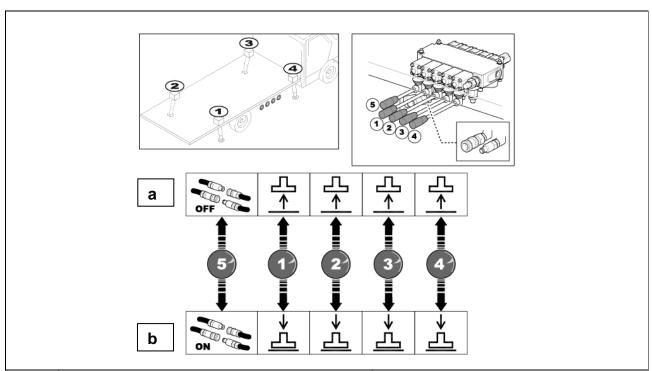
### E.2. Cabin controls







# **E.3.** Outriggers controls



Name	Description	Function	
		position a	position b
1	Movement lever of the right rear stabiliser foot		
2	Movement lever of the left rear stabiliser foot	Stabiliaar faat un	Stabiliser feet down
3	Movement lever of the left front stabiliser foot	Stabiliser feet up	Stabiliser reet down
4	Movement lever of the right front stabiliser foot		
5	Fast hydraulic grip lever (optional)	OFF Steep grip disengaged	ON Steep grip engaged



# E.4. Emergency command positions on the ground or on turret

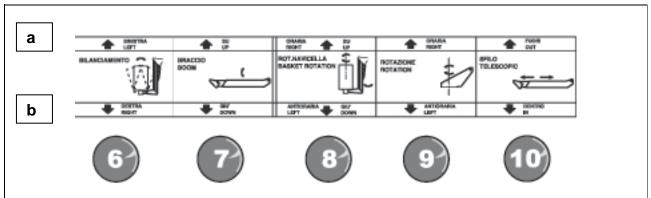


## **A** Danger

The entrance to the safety station is allowed to qualified operators, prepared to overcome the difficulties that this station could cause.

### **Attention**

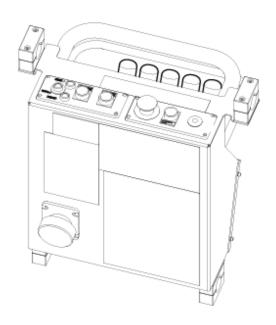
The controls can be used only after having fully opened the (A) door with the suitable key. By opening the door, the basket controls are disabled.



Name	Description	Fu	Function	
		position a	position b	
6	Basket manual balancing lever	Left	Right	
7	Boom movement lever	Raising	Lowering	
8	Basket rotation lever	Cockwise rotation	Counterclockwise rotation	
9	Turret movement lever	Cockwise rotation	Counterclockwise rotation	
10	Extension movement lever	Out	Retraction	

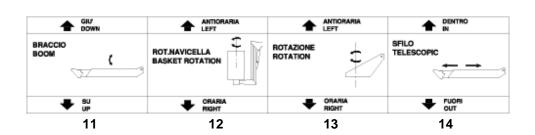


## E.5. Controls in the basket





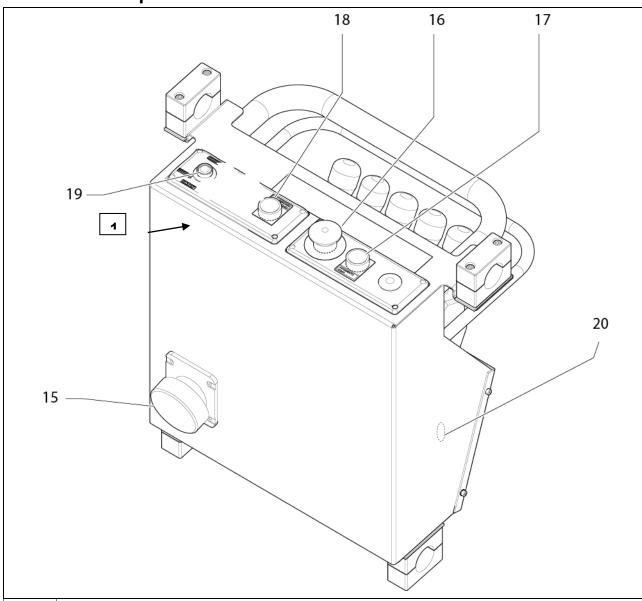




Name	Description	Fund	Function	
		position a	position b	
11	Boom movement lever	Lowering	Raising	
12	Basket movement lever	Counterclockwise rotation	Clockwise rotation	
13	Turret movement lever	Counterclockwise rotation	Clockwise rotation	
14	Extension movement lever	Retraction	Out	



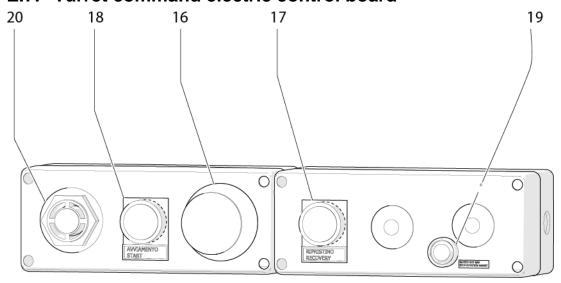
# E.6. Electrical panel for basket controls



Sigla	Descrizione
15	Electrical outlet with 220 V service
16	Emergency button and Stop vehicle engine
	Pressing the button immediately stops the engine and all movements and cuts power to all the controls.  Reset by turning the button in the direction of the arrows.
17	Green button to start the engine
18	"Reset" blue button
	With the button pressed, basket rotation and other movements prevented by the cabin/lorry anti-collision interlock are obtained.
19	Blue warning lights for basket rotation The warning light is on when the basket rotation block is activated.
20	Beeper for basket rotation block

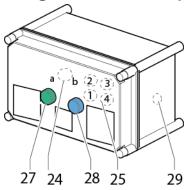


# E.7. Turret command electric control board



Sigla	Description	
16	Emergency button and Stop vehicle engine	
	Pressing the button immediately stops the engine and all movements and cuts power to all the controls.	
	Reset by turning the button in the direction of the arrows.	
17	Green button to start the engine	
18	"Reset" blue button	
	By holding the button pressed the basket rotation is reset as well as the motions disabled by the cab/truck anti-collision interlock system.	
19	Blue warning lights for basket rotation	
	The warning light is on when the basket rotation block is activated.	
20	Beeper for basket rotation block	

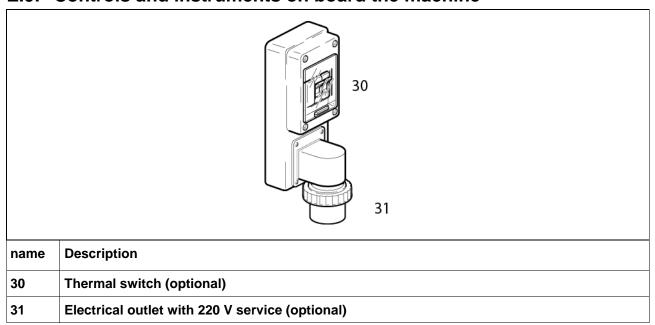
# E.8. Electrical panel of the ground control (Secure system)



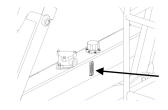
Name	Description	
27	Green indicator light	
	Stabilisation enabled indicator. The light on indicates it is possible to begin stabilising.	
28	Blue indicator light	
	Movement of aerial parts enabled indicator. The light on indicates it is possible to begin to move the arms and the tower.	
29	Beeper for stabilizer feet down and intermittent sound for handbrake not inserted	
24	Selector	
	Position a: outriggers movement Position b: aerial part movement	
25	Outriggers indicator lights	
	To indicate the proper exit of the outriggers: each indicator light corresponds to one outrigger 1 = rear right 2 = rear left 3 = front left 4 = front right	



### E.9. Controls and instruments on board the machine



## E.10. Hydraulic oil level



With the elevating platform in the transport position, the level should be visible at the Maximum level indicator.

With the elevating platform fully extended (jack rods out) the level should be visible at the Minimum level indicator.

However, the level must be always visible and it has not to come over or disappear from the indicators.

#### E.11. Level bubbles

We have the best work conditions with the machine on a flat ground, to check such a condition the machine presents a level bubble.

Follow the instructions stated in section G - Use, chapter G.5. "Placing the machine".

#### Attention

The bubble is not always installed in the position represented in the figure. Its location will necessarily, however, be close to the stabilisation command, visible to the operator who performs the manoeuvre.



## E.12. Emergency button

If you experience an emergency situation (malfunctions, use, maintenance, etc., caused also by external elements, it is necessary to intervene as soon as possible by inhibiting the operation of the elevating platform using the emergency device.

Each command station is equipped with a device that allows the operator to stop the operation of the elevating platform in case of immediate danger.

Activate the emergency button to stop any movement of the elevating platform.

To make the elevating platform operational again, you must reset it:

- The work conditions.
- The safety conditions.
- The functionality of the device, in case of push button rotate the button in the direction suggested by the overprinted arrows or pull the button.



### ①

#### **Attention**

Use the device strictly in case of emergency.



#### Danger

Avoid, if possible, pressing the device while performing fast manoeuvres; this could cause dangerous swings of the basket.

Check the efficiency of the device before each use of the elevating platform:

- Give energy to the power system.
- Control each movement of the lifting platform.
- Press the button.

The device is efficient, if the movement stops.

The check is conducted on all the devices in the elevating platform.

If the device is damaged beyond repair, making any attempt to return the elevating platform in the transport configuration futile, please contact the assistance service nearest you, both to get information on the possible recovery of the device, and for information regarding the retraction manoeuvres.



### F. DEVICES

## F.1. Safety devices

A number of safety devices are installed on the machine for the safety of the operator and the protection of the machine.

### ①

#### **Attention**

Do not tamper with, disconnect, bypass or remove any of the machine's safety devices or guards.

The Manufacturer declines all responsibility for machine safety if this instruction is not observed.

#### F.1.1. Emergency button

Each command station is equipped with **(A)** emergency buttons that allow the operator to stop the operation of the machine in case of immediate danger.

Push the emergency red mushroom like button to stop every movement.

To restart the machine reset:

- The work conditions.
- The safety conditions.
- The emergency stop device by twisting the button head in the direction shown by the arrows marked on it.

Check the efficiency of the safety device before each use of the machine:

- Give energy to the power system.
- Press the button.

The device is working if no movement occurs.

Perform the check on all the emergency devices in the control stations.

If the device is irreparably damaged and all attempts to restore the working configuration are unsuccessful, contact the service centre for information on how to reset the device and the machine.

#### F.1.2. Alarms

#### Acoustic signal (buzzer)

The beepers are positioned in the electrical boxes of the machine and detect the rotation block, the stabilizer feet down position and the handbrake not inserted (see E.6. "Electrical panel for basket controls", E.7. "Turret command electric control board", E.8. "Electrical panel of the ground control (Secure system)").

#### **Optical alarm**

Intermittent yellow flashing light to indicate when the machine is operating. It goes off when the vehicle is in motion.

#### F.1.4. Lateral outreach limiting device

The aerial platform is equipped by a device to check constantly the working area and, in particular to limit the lateral outreach. The electric panel of the limiting device is positioned in the turret and it is connected to some manostats leaded on the cylinder that lifts the boom and to an angle sensor that reads the boom inclination.

The electronic limiting device can be calibrated only by the manufacturer or the authorized workshops. In case the manostats and the angle sensor are damaged, the units will be blocked.



#### F.1.6. Manual emergency pump

The machine has a manual emergency pump (A) in the event that there is a fault which causes total machine lockout (see "Emergency descent manoeuvres").

#### F.1.7. Cut-off valve

The jacks are equipped with a shut-off valve (safety valve) to stop the movement of the same jack in case of faults or cracks in the hydraulic system that powers it.

#### F.2. Functional devices

### F.2.1. Telescopic boom sensors and basket in rest mode

Detect the rest position of the platform.

Depending on the platform model, there can be several position control devices installed.

#### F.2.2. Quick hydraulic service outlet (optional)

The platform is equipped with quick service outlets for hydraulic tools.

Enabling the auxiliary system is possible by pressing the lever located alongside facing the same quick outlets in the basket and on the stabilisation commands.

#### F.2.3. Stabilisation control

A series of switches, located on the front and rear stabiliser legs, constantly monitor the correct position of the platform.

The microswitch has the function of ensuring that the ground pressure exerted by the stabilisation is continuous (the pressure can be lacking due to land subsidence or a stabiliser cylinder, etc.).

The ground pressure of the stabiliser feet is indicated by the "Safety system" blue light.

The microswitch (A) has the function of signalling the closing of the stabiliser legs.

Retraction into the profile is indicated by the green light in the cab

#### F.2.4. Thermo-magnetic circuit breakers (optional)

Each electric line in the elevating platform is protected by a thermo-magnetic circuit breaker in accordance with the applicable regulations.

#### F.2.5. Fuses

The electrical functions installed in the elevating platform are protected by fuses.

The electric line that starts from the vehicle battery is protected by a fuse installed near that battery.



### G. USE

### G.1. Foreword

Read and understand every part of this publication before moving the platform, in particular the "Safety" section and this section.

It is prohibited to try moving the platform after reading ONLY this section.

### G.2. Inspections and examinations before starting

The service checks and daily inspections must be carried out by the operator before and after using the lifting platform, by following the instructions provided by the manufacturer.

For the proper use and compliance with safety parameters, any operation must be preceded by the operating controls described in chapter D.10.5. section "D - Safety".

### Output Attention

After a break or a brief going away from the machine, be sure that the devices set up before have not been modified or that the machine does not present any vandalism or violation.

### G.3. Warnings on the commissioning of the platform

 Before starting any operations, it is recommended to make sure there is sufficient fuel in the tank to avoid making unnecessary stops in emergency.

### G.4. Precautions during use

- The operator must position himself so as to take control of the work area and the space involved in movement;
- it is prohibited to move the arm of the elevating platform and the basket above the operator or authorised persons present in the work area;
- it is strictly forbidden to lean to the parts in movement;
- Do not use the lifting platform for aims different from those foreseen by the builder;
- always check in advance that the operation of the machine, and each of its units, will
  not give rise to dangerous situations for persons, things or animals;
- get individual protecting systems foreseen by the issued norms preventing accidents;
- If it was necessary to control the emergency, restore the productive system only after having removed the dangerous conditions;
- in case of damage to the machine (damaged pipes, cracks in the structure, broken safety devices, etc.), it is forbidden to continue using the machine.

## G.5. Placing the machine

Proceed as follows to position the platform:

- 1. Climb to the driver's seat of the vehicle, put on the hand brake and start the engine.
- 2. Wait a few minutes, leave the engine slightly accelerated.
- 3. For normal operation of the aerial platform, the engine of the vehicle must run at 750-800 revolutions per minute (approximately equal to 14 l/ min.).
  - In a case of using the hydraulic tools, connected to the appropriate quick outlets, the engine will need to reach 1100 rpm (approximately equal to 20 l/ min.).
  - If for any reason the accelerator does not work, use the foot or hand accelerator.
- 4. Engage the PTO as follows:
  - press the clutch pedal.
  - put the transmission in neutral.
  - operate the lever between the seats or the switch installed on the vehicle dashboard, in "ENGAGE" ON position. The orange light will go on.



### Attention

#### Do NOT rev the engine with the PTO engaged.

 In the colder months it is advisable to run the pump for a few minutes to warm up the oil.

Simultaneously with the engaging of the PTO, the "safety system" automatically starts (see E.8. "Electrical panel of the ground control (Secure system)").

#### Cool starting

### ①

**(**2)

#### Attention

Check always the state of charge of batteries when the vehicle works in low temperatures environments.

### With temperature 0°C ÷ -10°C

#### Proceed as follows:

- Start the vehicle motor (or auxiliary motor) with low motor rpm.
- Engage the power plug.
  - The electrical functions of the elevating platform are automatically enabled.
- let the vehicle cabin be inaccessible.
- Keep the motor activated at the minimum speed for 3-5 minutes.
- Check the position of the emergency push button.
- Enable the commands that activate the movement of the machine.
- Place the elevating platform in working configuration.
- Carry out the first movement slowly up to end run.
  - Continue the action until the oil has reached the minimum temperature for use (10-15° C) verifiable by the speed of the elevating platform.

#### Attention

Terminate the action of the reach limit of the jacks upon reaching the correct temperature range.

- 5. Stabilise the machine properly by proceeding as follows:
  - Make the stabilisers go down by alternately pressing the levers of the front and rear stabilisers, keeping the frame of the vehicle level and horizontal.
  - Pushing down the levers, the jacks go out, pushing the retraction up.
  - Visually check that the ground bases of stabilizer feet are free of obstacles (see chapters D.5. "General rules of conduct", D.6. "Forbidden behaviours", D.13.1. "Stabiliser controls" and E.3. "Stabiliser controls").
- 6. By moving each lever, and then each foot stabiliser, you can level the machine according to the terrain on which it is operating.

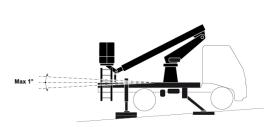
For good stabilisation at a height, it is preferable to have the machine higher and have more wooden boards under the legs to make up the difference, as well as to address the possible inconsistency of the terrain.

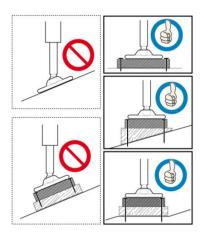
Put spacers between the ground and the plate to distribute the load to the ground and restore horizontality (see figure).

The spacers must be of suitable material, secured to the ground and among themselves so that they cannot move and/ or slip.

The spacers to make up the difference in level must be placed so that the stabiliser plate of the foot operates in a horizontal position.







Stabilisation must be within 1° of flatness sidewise and lengthwise to the vehicle.



#### **Danger**

If the stabilisation do9es not allow extraction within the permitted maximum height of 1°, it is PROHIBITED to try any movement with the platform.

- 1. When all the stabilisers are flat on the ground, the blue light on the box they will turn on. From this moment you can move the arms. After the light turns on, we recommend working with the control levers to make the stabiliser feet go out another 2-3 cm.
- 2. During the placement manoeuvre, level the basket by using the special circular bubble located laterally to the stabiliser commands.
  - 9. Although the basket cannot carry at a height, if the stabiliser feet are not in position, warnings are given next to the place of operation prohibiting use if the stabiliser feet are not lowered.

#### **Prohibition**

It is forbidden to activate the stabilisation controls when the elevating platform is in operation.

If you try to stabilize the machine without previously inserting the handbrake a beeper will sound intermittently.

## G.6. Commissioning the platform

For commissioning the platform proceed as follows.

- 1. Prepare the active control panel:
  - The commands in the basket are the main ones.
  - The commands in the tower are for emergency.
     Only in case of emergency, the operator on the ground will have to activate the commands in the tower.
- 2. Climbing into the basket: enter the basket using the special ladder.

It is compulsory to fasten your safety belts into the proper attachments.

As soon as the arm is raised a few inches from the column support, the green light on the electrical box, will go off, indicating the impossibility to control the movement of the stabilisers.

The blue light however will always stay on to indicate the possibility of moving the arms.

Move into work position using the control panel: The "rotating basket" command is only active on machines where this option is installed.



### ① Attention

Exactly follow the sequence listed below.

A different sequence would cause harmful interference and collisions.

- First of all, control the lifting of the pantograph arm from the support column and lift it enough to work safely and avoid interference.
- Turn the turret in the direction of the work point, paying attention to possible interference with the outrigger feet.
- Lift the telescopic boom.
- Adjust the search for the exact point of work by moving the extension and rotating the basket.

### Att

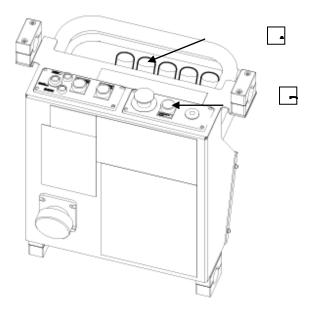
#### **Attention**

Carry out the rotation of the basket only with the arm is above the horizontal.

3. The controls to start / stop the engine of the vehicle are close to the commands in the basket.

The (A) button allows to stop the engine when the working position is reached, and restart (B) only when new move is required.

The (A) button also works as a general emergency stop.







### G.7. Setting the platform at rest

### ①

#### Attention

Exactly follow the sequence listed below.

A different sequence would cause harmful interference and collisions.

- 1. Centre the basket.
- Retraction with the extension.
- 3. Lower the pantograph boom.

Do not close the pantograph boom completely.

Keep the boom at a height such that, in the turret rotation phase, the sane does not interfere with the supporting columns (A) and the outriggers.

- 4. Rotate the tower until the arm is not in the direction of the support rest.
- 5. Lower the arm positioning it on the rest support and activating the (B) and (C) sensors.

The green light on the electric box comes on, indicating the possibility of controlling the movement of the stabilisers.

- 6. The blue light stays on to indicate the possibility of moving the arms.
- 7. Lower the telescopic boom.
- 8. Disconnect the safety belts and exit the basket with caution.
- 9. Raise the stabilisers completely by alternately operating the levers of the front and rear stabilisers, keeping the frame of the vehicle level and horizontal.

The green light of the electric box stays on, indicating the possibility of controlling the movement of the stabilisers.

The blue light instead goes off to indicate the inability to move the arms.

## G.8. Moving the truck

For driving on the road with the vehicle, proceed as follows:

- 1. Climb into the driver's seat of the vehicle.
- 2. In the cab, the red light that indicates the stabiliser feet are lowered must be off and the green light that indicates the position of the vehicle must be on; if not, check that the stabiliser feet are fully retracted and the arm is at rest.
- 3. Disengage the PTO by operating as follows:
  - press the clutch pedal;
  - operate the lever between the seats in "DISENGAGED" position;
  - let off on the clutch pedal;
  - check the "orange" warning light.
- 4. Before starting off, make sure you have the registration documents on board and your driver's license and carefully obey the traffic rules.

#### G.9. Precautions after the use

- Fasten the equipment or the free accessories to avoid any shaking or falling from the truck body during the transport.
- Take the placards and signals used to limit the area.
- Clean and rearrange the area in which you worked, to restore the situation as closer as possible to the previous condition, before working.

## ① Attention

In case the work had modified or reduced the safety, it would be better to signal it to the safety responsible of the erecting yard or to the area owner, or personally marking the danger with right signals.



 Take the keys from the closings away and from the devices, which foresees the use of them and place them inside the cabin.

### G.10. Calibration system for the basket levelling

The levelling system is directly calibrated by the manufacturer.

In case of need, restore the vertical position of the basket operating by the controls in the turret (emergency) by using the proper lever.

- Check that the basket is completely empty and in rest position.
- Open door (A) with the key

The controls in the basket are deactivated:

Even in case the protective case is removed it is necessary to disconnect one plug that deactivated the controls in the basket.

- Activate the lever (6) up to the limit in both directions for two times then restore the original level of the basket base.
- Perform with empty basket lifting and descent of the basket by activating the ground controls to check the correct functioning and positioning.



#### Note

Basket levelling is automatic and calibrated by the manufacturer. Adjust only when the difference in level exceeds two degrees (2°).

### **G.11. Emergency descent manoeuvres**

#### G.11.1. Foreword

The tables in this chapter allow the identification of the operations to be carried out to set the machine in rest or transport position in emergency conditions

The **retraction operations table** describes those operations that, carried out together, according to the Table showing the relevant sequences, indicate the proper manoeuvres to be carried out to set the machine in rest or transport position according to emergency situations occurred

The operations intended to retract the stabilizers should be carried out only after having retracted the basket and set the machine in rest position

### G.11.2. Table of operations sequence

Emergency situations	Emergency operations sequence (only the operator on the ground)	
	Basket retraction	Retraction stabilisation
The operator in the basket cannot use the controls and the emergency button is NOT pressed	0+5	9
The operator in the basket cannot use the controls and the emergency button is pressed	1+2+4+5+3+5+6+8	7+8+9+11
Faulty "secure system"	6+5+10 e 7+5+11	9
Faulty hydraulic pump of the vehicle *	5+8	8+9
Battery out of service *	1+2+4+5+3+5+6+8	7+8+9+11
General emergency *	1+2+4+5+3+5+6+8	7+8+9+11

Operations to be carried out with the collaboration of a second operator on the ground.





## G.11.3. Retraction operations table

Operation ID	Operation description	
1	Remove the guard (A).	W.officinecomet.com  A
2	Disconnect the <b>(B)</b> plug that disables the basket controls.	B
3 (!)	Unseal the (C) emergency solenoid valve. Once the seal is broken, tighten the emergency knob (D) all the way by hand.  Attention This operation disables the basket load control system.  Before resuming normal operation on the platform, the control system operation must be restored by the Manufacturer or an Authorised Workshop.	C



<b>1</b>	Remove the lead seal in the emergency electrovalve (E) Once the lead seal is broken, manually screw the emergency button up to the limit.  Attention This operation deactivates the electronic control of the lateral outreach.  Before starting again, the standard use of the aerial platform, the functioning of the control system must be restored by the Manufacturer or the Authorized Workshop.	E
5	Control the arms using the <b>(F)</b> levers of the emergency station and set the machine in rest position.	
6	Power the motion distributors of the arms.  Press, holding the cursor pressed using a punch or a Ø 3 screwdriver.  Before resuming normal operation on the platform, the control system operation must be restored by the Manufacturer or an Authorised Workshop.	



7 Power the motion distributors of stabilizers.

Press, holding the cursor pressed using a punch or a  $\emptyset$  3 screwdriver.

Before resuming normal operation on the platform, the control system operation must be restored by the Manufacturer or an Authorised Workshop.



8 Pump oil through the hand pump

1

Note

To use the hand pump, the knob F1 must be tightened completely.

Before resuming normal operation on the platform, the control system operation must be restored by the Manufacturer or an Authorised Workshop.



Configure the machine in transport conditions through the **(H)** stabilization controls.



Danger

Perform this operation only if the machine is in rest position (see B.5.2.).





11 Release the cursor.

Release the cursor.

## G.12. Battery operated and electric emergency lowering (if present)

The presence of the "electric emergency" allows to slowly perform any movement in the event of breakdown of the main pump or in situations where it is not deemed appropriate to switch the vehicle engine on.

If the electric pump is connected to the batteries of the vehicle, it must not be used for more than 2-3 minutes continuously, alternated with cooling times equal to 2 or 3 times those of operating.

If instead it is equipped with an autonomous battery, for operating and rest times (as well as instructions on maintenance, recharging and disposal) refer to the appropriate manual from the Manufacturer.

It is advisable to perform a test of efficiency of the electric motor at least once every 3 months.

## G.13 Electric outlet in the basket (if present)

The basket is equipped with electrical outlet 220 volt (2+T) 16 A, with an input magnetic thermal circuit breaker and safety switch at high sensitivity.

Before providing power, check that the energy source used has a proper ground connection.



### G.14. Hydraulic outlets for operating hydraulic tools (if presents)

The use of hydraulic tools is possible thanks to the presence of hydraulic power outlets, one on the floor (next to the stabiliser commands) and one in the basket, both with quick couplings

The outlets provide enough power to operate tools with the following characteristics

- Maximum pressure ...... 140 bar
- Maximum load ......22 lt/min

#### **Attention**

Do not connect tools to the system that require different pressure and flow limits from those indicated above.

To connect the tools to the outlets, proceed as follows:

- Turn off the vehicle engine.
- Connect the quick couplings and lock them with the appropriate locknut.
- Start the engine.
- Engage the hydraulic distributor lever.

To unplug the tool, repeat the operation in reverse order.

### G.15. Protection and storage

If the machine must remain at rest for a certain period of time, take the following precautions:

#### · Short period shut-down

Perform general cleaning and lubrication of all parts provided with a grease nipple.

#### · Long period shut-down

As above, and also:

- spray the platform with protective wax;
- protect the machine with plastic sheeting against the weather;
- keep the machine in a dry place.



### H. TROUBLE - CAUSE - REMEDIES

### H.1. Foreword



①

## Danger

The operations described in the various headings must be carried out exclusively with the machine stopped and disconnected from the power sources (electrical and pneumatic).

#### **Attention**

The following cases present possible breakdown situations and, for each one, there is a list of control sequences to be followed to remove motives which could have caused machine damage.

#### H.1.1. **Technical support**

Consult with Dealer Co.me.t Officine SPA, or directly to the Technical Customer Assistance Service, providing the necessary data shown on the nameplate:

- Type of machine
- Serial number

Also supply all the relevant information concerning the problem detected.

#### H.2. Mains defects

Here are the most common problems and their causes, to let the operator provide for them directly, when possible, or in any case when it is necessary to contact the Authorised Service Centre.

#### **Attention**

The operations reported in this chapter are to be done exclusively by the authorised shops.

The equipment does not move		
Possible causes	Remedy	
The pump fails to turn on	<ol> <li>Check the lever in the cab.</li> <li>Make sure that the safety switch on the coupling lever of the PTO is engaged.</li> </ol>	
Insufficient oil	Check level.	
Machine not stabilised	Make sure the stabilisers are fully extended (the blue light should be lit). The command made in the cab did not activate the PTO: turn the screws of the registration sheath with keys 15 mm and remove the clearance.	
Fault in basket controls	Try to manoeuvre the machine from the ground; if working properly check the hydraulic connections from the switch to the distributor in the basket.	
Failure in load detection control	Make sure that you have not exceeded the permitted capacity. Check the fuse in the box on the right side of the vehicle.	



If, after the checks suggested above, the machine still does not work, the failure is due to the hydraulic pump or solenoid.

The basket operator fails to bring the arms down to resting position		
Possible causes	Remedy	
The main pump is not working (confirmed by the absence of pulsations in the discharge oil pipe)	<ol> <li>The command made in the cab did not activate the PTO: turn the screws of the registration sheath with keys 15 mm and remove the clearance.</li> <li>Use the emergency hand pump, then intervene on the pump and the PTO.</li> </ol>	
The valve block on a cylinder has been triggered due to the detachment or the accidental breakage of a hose	Seek the intervention of rescue vehicles and operators who work at high altitude (fire fighters, etc.), to transfer the operator in the basket back to land.	

The machine works, but too slowly		
Possible causes	Remedy	
Oil too thick (confirmed by the fact that the problem tends to decrease as the oil temperature increases, making it more fluid)	Replace the oil with a suitable type of oil.	
Pressure relief valve for the distributor worn out by use (you hear a grinding noise coming from the pump)	Seek technical assistance.	
Low efficiency of the pump due to wear	Overhaul the pump.	

The basket does not stay at height		
Possible causes	Remedy	
If the descent is slow but continuous, it may involve a problem of the safety valve seal located along the cylinder.	Seek technical assistance.	
If the descent is at intervals and jerky, the problem is in the interior of the cylinder seals, which allow oil to filter oil from one chamber to the next	Seek technical assistance.	



The basket swings in rotation		
Possible causes	Remedy	
Loosening of the lock screws of the basket with a door flange bolt for setting the upper arm and the set screws of the levelling	Tighten screws. Check the levelling jacks.	

The stabiliser feet retract under load		
Possible causes	Remedy	
Safety valve malfunction	Replace valve.	
The cylinder seals don't hold	Replace gaskets/seals.	





## I. MAINTENANCE

#### I.1. Foreword

The platform needs a little, but important, maintenance.

The user must perform the operations listed below paying the utmost attention to the service intervals.

The machine was designed and built with solutions that require a reduced time for routine maintenance (lubrication, tightening, etc.); despite this, the machine must be completely overhauled after 10 years from its registration. The Manufacturer recommends and requires such an overhaul after 5 years at an authorised workshop.

## ① Attention

Maintenance operations must be carried out exclusively by the Customer Assistance Service of Co.me. t. Officine s.r.l. or by personnel qualified with suitable equipment for the operation to be performed.

To get the best performance from the machine and to ensure its maximum life, it is necessary that the rules of use and maintenance are strictly followed by those assigned to the machine.

Perfect lubrication is needed to ensure long use of the machine, especially if the work is often in contact with water, sand, earth, etc.

If in doubt, and for more information, please contact our assistance service:

# Co.me. t. Officine SPA Maintenance Service Centre Tel. (0039)0516878711

### 4 Attention

Before doing any maintenance work and especially maintenance and/or repairs to the electrical system or if it is necessary to do WELDING, COMPLETELY DISCONNECT ALL THE BATTERIES OF THE MACHINE BY REMOVING THE CONNECTOR TERMINALS.

The terms periodic and routine maintenance refer to interventions which must be performed regularly throughout the whole of the machine's working life at a set frequency. Inspection and careful maintenance allow the machine to work continually and with maximum efficiency. The following is a list of operations to be performed on the machine. Remember also that the prompt replacement of a worn part avoids further damage and reduces the time that the machine is inoperative.

Other maintenance work not covered by this section is to be considered as special maintenance and is not part of the duty assigned to the operators who use the machine. This kind of work must be done by a specialized workshop.

## $\triangle$

#### Danger

It is mandatory that all maintenance operations are carried out when the machine is in rest position (see B.5.2. "Condition of rest").

#### **Attention**



A few pages have been added to this manual so that the operator assigned to maintenance can keep notes of the maintenance work done and the number of hours the machine has worked, in the latter case making use of the hour-meter.

During operating and maintenance do not dispose of pollutants (oils, greases, etc.) into the environment, and dispose of the various products separately in compliance with current laws in this regard.

Electrical and Electronic waste may contain hazardous substances that may potentially be harmful to the environment and the health of people. We urge you to dispose of it in the correct manner.

In terms of the EEEW (Electrical and Electronic Equipment Waste) directive, when scrapping, the user is to separate the electrical and electronic components and dispose of them via authorised collection centres, or they must hand them over, still installed, to the seller when making a new purchase.

#### **Danger**

It is prohibited to try to restore, repair or perform maintenance if the procedure is not listed in this section.

Maintenance operations that are reported in the periodic maintenance table (Table I.4. regular periodic maintenance), but are not described in this section must be performed at an authorised service centre.

The tables for periodic maintenance, as well as records and coupons, do NOT describe the procedures for their maintenance, only the deadlines.

## I.2. Maintenance work safety

- Never perform maintenance operations while the batteries are charging.
- In the area/workshop used for the maintenance or during battery recharging only the qualified personnel assigned to maintenance should be present.
- Replace worn parts with identical, original spare parts.
- It is forbidden to make modifications or replacements using components which are unsuitable or not authorised by the manufacturer.
- Before doing any intervention on pressure lines, it is necessary to depressurise them by using the control levers.
- At the end of maintenances or reparations and before activating the machine again, check that you have not some tools, rags or some other material near the moving parts.
- During the assembly and disassembly of the parts, always use extractors, keys and suitable equipment.
- To unblock solidly adhering parts, use copper hammers or wooden mallets.
- Distinctly separate parts of the various units and partially tighten the nuts on their pins or studs
  - Clean the parts with a wire brush, then wash with hot oil or water, removing debris with compressed air.
- After rubbing with abrasive compound, thoroughly wash the affected parts or subject them to compressed air, ensuring the complete removal of the abrasive compound.
- Reassembling the parts, make sure they are clean and lubricate them properly.
- Give full attention to the retaining rings and pins: if signs of failure are evident, proceed to their immediate replacement.



## (1)

#### **Attention**

Wear specific anti-piercing gloves when performing maintenance work.

Maintenance interventions must be carried out at least at the recommended intervals, although the precise frequency depends on the conditions of use of the machine.

During maintenance, repair, cleaning, or adjustment indicate the machine	
stoppage in a clearly visible manner with a sign placed on the control panel	
reading "WORK IN PROGRESS".	

!	

## ①

#### Attention

Before starting the machine up again, correctly re-mount and tighten all the parts which have been removed (in particular fixed and moving covers and safety components).



#### **Danger**

Read the "Safety" section of this manual in its entirety before starting work.

## I.3. Spares

We recommend the use of original spare parts, on penalty of loss of the warranty.

For requests for spare parts, service or information, always refer to the data on the identification plate located on the tower base.

Also provide the data of the machine which is mounted on the platform.

## I.4. Routine maintenance frequency table

Ref.	Work hours	100 hours or monthly	250 hours or every six months	or annually
	GENERAL STATE OF AERIAL PLATFORM		(zna combou)	(3rd coupon)
1.5	General cleaning of the platform.	х	х	х
1.5.1	Control that all safety signals and information and operating plates are legible.	Х	х	Х
	General structure check: Check the absence of cracks, deformations, wear and loosening.	Х	х	Х
1.6	Check the state of lubrication of the points indicated in the greasing layout (including extension greasing).		х	Х
E	Completeness of commands (presence of all buttons).	х	х	х
F.1	Safety devices.			



Ref.	Work hours	100 hours or monthly	250 hours or every six months (2nd coupon)	500 hours or annually (3rd coupon)
F.1.1 I.10.3	Check emergency buttons.	Х	X	X
F.1.2 I.10.4	Check the operation of the load cells (if presents).	Х	х	х
F.1.3	Acoustic and visual waning devices.	Х	х	х
F.1.4	Interlock control system.	Х	х	х
F.1.5	Cab anti-collision system control.	Х	х	х
F.1.6	Check emergency hand pump.	Х	х	х
I.10.2 D.10.5	Micro-sensors control.	Х	Х	Х
F.1.7 I.7. 12	Check the efficiency of the valve block of the basket levelling jack.	Х	х	х
F.1.7 I.7. 12	Control boom levelling and lifting jack block valve efficiency.	Х	х	х
F.2.3 I.7. 12	Control outriggers, fixing and block valves efficiency.	х	х	х
F.1.7	Check the efficiency of jib angle jack of the block valve (if present).	Х	х	х
	Ground controls - Switches should be working; no damage visible; labels should be in place and legible.	Х	х	х
	Check that the basket automatic levelling system works correctly during raising and lowering of the boom.	Х	х	х
1.7	OIL - HYDRAULIC SYSTEM		1	
I.7.1	Cleaning oil tank			х
1.7.1	Oil replacement			х
1.7.1	Check oil level	х	х	х
1.7.3	Hydraulic cylinders: check there are no oil leaks. In the case of a leak at a cylinder seal, replace it	Х	Х	X
1.7.4	Hydraulic pumps: check there are no oil leaks	Х	Х	х



Ref.	Work hours	100 hours or monthly	250 hours or every six months (2nd coupon)	500 hours or annually (3rd coupon)
1.7.5	Hydraulic motors: check no leaks on flow pipes	Х	Х	х
1.7.6	Rotary joint: check there are no oil leaks.	Х	х	х
1.7.7	Hydraulic system: check there are no oil leaks.	Х	х	х
1.7.8	Changing the oil filter.		х	х
1.7.9	Control rotation reducer oil.	Х	х	х
1.7.9	Replacing rotation reducer oil.		х	х
I.7.10	Control circuit pressure and distributors maximum pressure valves calibration efficiency.		х	х
1.7.11	Check manoeuvre times.		х	х
1.9	MECHANICAL			
	Visual check of the state of preservation of the bodywork and joint attachment welding (absence of cracks, signs of wear splits, etc.).	Х	х	х
1.9.2	Check tower rotation.	х	х	х
1.9.2	Lubricate fifth wheel and pinion notching.	Х	х	
1.9.2	Grease fifth wheel grease nipples.			х
1.9.3	Checking for wear and wear pad adjustment.		х	х
1.9.4	Control screws tightness on outriggers and joints.	х	х	х
1.9.4	Check the tightness of fifth wheel screws.	х	х	х
1.9.4	Control screws tightness on reducer blocking.	х	х	х
1.9.4	Check tightness of bolts anchoring the device to the vehicle.	х	х	
I.10	ELECTRICAL			
	Check the voltage in the electrical connections, make sure that there are no traces of corrosion or exposed wires.	Х	х	х
I.10.5	Check the batteries (if present), ensuring that the bleed valves are not loose or missing, that the		Х	Х



Ref.	Work hours	100 hours or monthly	250 hours or every six months (2nd coupon)	500 hours or annually (3rd coupon)
	electrical connections are secure and are not corroded and that the electrolyte level is correct.			
	Check for twisting of the electric cord coiled through the distributor and tower.		х	х

The operations shown in the periodic table, whose procedures are not described in this section, must be performed at an authorised service centre.

The tables for periodic maintenance, as well as records and coupons, do NOT describe the procedures for their maintenance, only the deadlines.

### I.5. Cleanliness

After every trip and every intervention, clean carefully the equipment (joints, pins, sliding pads).

Keep handles and decking free of oil, grease and dirt to minimise the risk of slipping and falling.

When you wash the machine, protect properly its components and electric connections, because using direct and under pressure jets on equipments and electric connections could cause damages.

To avoid rapid wear of seals, remove dust, debris and dirt from the jack rods using non-abrasive detergents.

## ①

### Attention

This procedure must be performed with care to avoid scratching or scoring the rods.

- Clean impurities and dirt on controls.
- The carpentry protected by paint has to be cleaned with water and non-corrosive cleansers.

We suggest you to dry carefully after every washing (by blowing compressed air).



#### Danger

It is strictly forbidden to address water jets near electric components (boards, electric valves, push button, etc.) and oil plugs.

#### I.5.1. Cleaning the data plates and indicator lights

Whenever it becomes necessary, clean the control indications, the indicator lights, the plates and, above all, the safety pictograms.

All data plates and decals on the machine or on parts of the machine must be clearly legible.

If deterioration is found, request a replacement by contacting the manufacturer's spare parts service directly.



## I.6. Greasing and lubrication

Smooth surfaces and gears are first cleaned with used grease using a wire brush, and then lubricated with grease using a brush.

Always remove excess grease.

Using the pump lubricator, put lubricating grease through the grease nipples on all the articulation points until lubricant leaks out, thereby replacing the used grease (see I.6.1. "Greasing points diagram").

Start up the machine for the time strictly necessary to perform a few movements with the greased joints.

### Attention

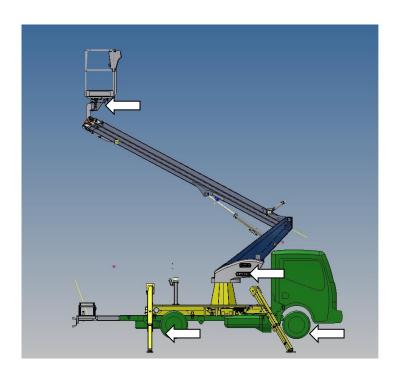
Damaged or clogged lubricators must always be replaced.

## ① Attention

Use lubricant grease having the same characteristics as that shown in the specific table in this section.

#### I.6.1. Layout of greasing and lubrication points

The illustration below shows the grease nipples Inject grease into all the grease nipples



Configure the stabilised machine with the boom positioned horizontally and extended as far as it will go.

Scrape off the old layer of grease with a plastic spatula.

Spread on a new layer of grease using a brush.



## I.7. Oil - hydraulic system

#### I.7.1. Hydraulic System

The hydraulic system consists of several components which, because of their operation, are subject to different maintenance.

#### Note

After changing the oil on new and recently overhauled machines and all those which have had the hydraulic oil changed, operate all the movements for at least two full cycles and check the oil level in the tank again.

#### I.7.1.1. Hydraulic oil tank cleaning

- Open the filler cap.
- Remove the drain plug from the tank and drain the used oil into a container.
- Carefully wash the tank with fuel oil or gasoline.
- Dry with compressed air.
- Fill with new oil up to the level indicator (see next paragraph).

#### I.7.1.2. Checking the level and replacing the hydraulic oil

#### Inspection

Check the right level directly on the tank.

The amount of oil in the tank is correct if the level is visible in the indicator is between **a** and falls within the min and max level of the indicator with the machine in transport configuration.

#### Replacement



## Danger

Oil at high temperature. Risk of burns.

Before realising the interventions, wait some minutes with the machine stopped and the motor off.

- Configure the platform in the transport position (jacks completely closed).
- Turn off the vehicle engine and pull the handbrake.
- Prepare a vessel able to contain the quantity of oil in the tank and place it under the tank.
- Close the tap.
- Remove the magnetic cab B for discharging oil.
- waiting for the fully outgoing of oil, clean and assemble the cap again.
- Open the cap and put oil into it, reaching the right level.

#### Close the cap again.

#### ① Attention

Use hydraulic oil with the same characteristics shown in table.

#### (!) Attention

Do not introduce oil directly in the tank without having filtered it previously.

#### 4 Attention

Do not disperse the exhausted oil in the environment. It has to be delivered to a collecting and disposal body for used oils.

#### I.7.2. Hydraulic cylinders

The routine maintenance operations of these hydraulic actuators are limited to the checking the seal on the pipe connections and checking the ball joints and bushings, with possible greasing of the pins.

One special maintenance operation is to provide for a complete change of the seals that appear to be worn and with consequent improper operation of the cylinder.

#### I.7.3. Hydraulic pumps

The hydraulic pumps require no maintenance except to keep checking the flange seal of the suction and delivery pipes.

#### I.7.4. Hydraulic motors

The hydraulic motors do not require special maintenance, except to keep checking on the delivery pipe.

#### I.7.5. Rotary joint

The rotary joint requires special maintenance only when the internal seals are worn.

Instead, systematically check the seal between the pipe joints and the rotary joint and check the tightness of the iron bracket bolts.

#### I.7.6. Hydraulic system

Check the tightness of the pipes and tighten the connections as soon as you notice a slight leak.

This is especially necessary during the first period of operation, because vibration and settling of the material may cause oil leaks at the seams.

#### I.7.7. Filters

Oil filters should be checked regularly as the clogging of the filter decreases the efficiency of the machine and can lead to the collapse of the filter resulting in the circulation of particles that can cause damage to hydraulic components.

Replacement cartridge: see I.4. "Routine maintenance frequency table".

During the first period of operation, the filters should be replaced at shorter intervals.

Shorter intervals are to be expected for use of the machine in very dusty areas.

#### 4 Attention

If you make replacements of some of the components in the hydraulic system (pumps, hydraulic motors, cylinders, etc.) resulting in the release of significant amounts of impurities, you need to replace the oil and the filters (see chapters I.7.1.2. "Checking the level and replacing the hydraulic oil" and I.7.7.1. "Return filter replacement").

#### I.7.7.1. Return filter replacement

During the operations of replacement and cleanliness of the filter, the pump must be disconnected.

Clean the area near the filter before removing it.

At the interval given it is necessary to change the filtering cartridge.

#### Attention

Oil at high temperature. Risk of burns.

Unscrew the cover (A) of the filter.



Extract the filter and clean or replace it with one with the same filtering capacity (20µ).



### ① Attention

Lubricate and check the position of the seal between the cover and the filter.

#### I.7.8. Check/replacement oil in the rotation reducer

The characteristics of the oil to be used are WD30.

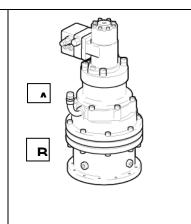
#### · Level check

Loosen plug **(A)** and ensure the oil can be seen from the hole. If necessary, introduce some more oil through the hole itself.

Screw the plug (A) again.

#### Replacement

- Prepare a vessel collecting lubricating oil.
- Prepare a rubber hose to be connected to the threaded hole to let the lubricating oil coming out.
- ? Loosen plug Loosen plug (B) and connect the rubber pipe to the hole.
  - To facilitate the oil flow, also loosen oil inlet plug (A).
- Wait for all the oil to come out.



#### **Prohibition**

Spent oil must be disposed of in compliance with local legislation.

- Close hole (B).
- Through plug (A), top-up until the oil is visible from the same hole.

## Note

For further maintenance instructions refer to the documentation attached to the reducer.

#### I.7.9. Check pressure and regulating valves

The pressure relief valves in the various circuits are calibrated by CO.ME. T. Officine spa so as to operate with the maximum allowable flow rate allowed in the whole area of the work diagram.



The calibration values are as follows:

max valve pressure stabilisers	160	bar
max main pressure valve	210	bar

In case of problems, contact our Customer Service.

#### **Danger**

#### DO NOT TAMPER WITH THE VALVE

All the calibration operations for the valves should be performed only by factory authorised or qualified personnel, with the approval of the CO.ME. T. Officine SPA

### I.7.10. Operating time

A check of the efficiency of the valve calibrations can be performed by finding the speed values of the individual manoeuvres.

The following are the average times for the execution of an operating cycle:

Manoeuvre	Time	
Elevating arms	Raising	64"
	Lowering	58"
Extending arms	Out	38"
	Retraction	44"
Rotation 360°		160"
Extending stabilisers	30"	



#### I.7.11. Check the efficiency of the jacks' block valves

- Load in the basket the maximum permissible capacity.
- From the rest position, raise the arm to around 10°, with a pencil make a reference mark on the rod of the jack.
- Stop the oil pump.
- Operating with the control lever of the arm (pos. DOWN).
   The jack should not return, otherwise you need to replace the valve.
- The same procedure with arm fully raised and slightly extended, operate with the handle of the extender (pos. IN).
- After any valve replacement, it is necessary to purge the air entering the jack by pushing the rod in both directions with the machine completely unloaded.

#### I.7.12. Adjusting the levelling system

It is calibrated directly by CO.ME. T. Officine SPA.

Only in case of oil leakage from the connecting pipes, restore the verticality of the basket by operating the commands in the tower via the lever provided and selecting oil delivery supplied through the taps located on the distributor element.

See chapter G.10. "Adjusting the levelling system of the basket".

#### I.7.13. Functional diagrams

The hydraulic layouts and wiring diagrams are supplied attached to this manual.





#### I.8. Lubricants table

#### Attention

All maintenance work must be done with the motor switched off and the machine in the rest position.

### Attention

Do not add oil different to what the manufacturer advises.

Element	Specifications for oils and grease
Slewing ring Pinion Chains	Molybdenum disulfide grease SAE NLGI 2 ISO drip point 190°C Density at 20°C
Bushings Bearings Sliding blocks	Grease Consistency NLGI
Hydraulic oil	Oil       0,870 kg/l         Density at 15°C       0,870 kg/l         Viscosity at 100°C       5,9 mm²/s         Viscosity at 40°C       30 mm²/s         Viscosity index       145         Flash point V.A       212°C         Pour point       -30°C

## O Attention

The bushings of pins and joints are of a self-lubricating type.

## I.9. Mechanical

The mechanical parts in mutual rotation are regularly inspected and lubricated.

You should also check the status of bolted connections to check for any loosening of bolts.

You should therefore check:

- the flanges of the fifth wheel, both with respect to the frame and to the turning tower;
- the connection of the bracket to swivel joint of the tower;
- connections of transmission shafts;
- the closing of the pins;
- every other bolt, especially the parts subject to vibration and movement;
- the flange of the motor gearbox rotation;
- the friction of the motor gearbox.

#### I.9.1. Internal combustion engine

For maintenance of the internal combustion engine, follow the Manufacturer's instructions in the manual that came with the truck.

Similarly, for accessories such as hydraulic systems, auxiliary engines, batteries, etc., refer to the specific manuals of the respective manufacturers.

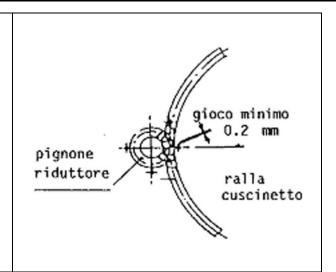
#### I.9.2. Check tower rotation

## ①

#### Attention

Intervention to be performed at authorised workshop.

- Remove the protective cover to gain access to the fifth wheel coupling.
- Check and tighten the coupling nuts to the base of the fifth wheel.
- Check and tighten the set screws of the hydraulic motor.
- Rotate the tower, checking its proper functioning.
- If you experience stripping of the screws, reduces the clearance of the meshing between the pinion and crown of the fifth wheel by working on the flange of the fifth wheel to the tower.



## ①

#### **Attention**

The minimum clearance of the meshing cannot fall below the 0.2 mm.

If after these operations the irregularity remains, it is necessary to replace the pair that is worn.

You should always leave a little play (see figure), avoiding interfering with the meshing which would make it difficult to turn, as can be recognized by the jerky advancing and rapid wear of the fifth wheel.

## ①

### **Attention**

Lubricate the notching of the fifth wheel and pinion according to the frequency indicated in I.4. "Routine maintenance frequency table", using grease with the features indicated in I.8. "Lubricants table".

Once a year or every 500 hours, grease the two fifth wheel grease nipples in the area of the rotating distributor under the tower with (see I.8. "Lubricants table") grease, taking care to rotate the fifth wheel for good distribution of the lubricant.

Thoroughly clean the fifth wheel and pinion with gasoline, inspect the meshing by rotating the tower In the presence of play, act as above.

#### I.9.3. Checking for wear and wear pad adjustment

Check wear of extension shoes; when arm and extensions are re-entered completely and there is still play exceeding 5 mm between one extension and another they must be replaced.

#### **Attention**

Replacement of the sliding blocks must be done at an authorized workshop.



Check the centring of the extension and intervene on the registers (**A**) if necessary: loosen or tighten the register to move the extension nearer to or further away from the wall.

#### I.9.4. Checking the parts are secured well

- 1. Stabiliser ring nuts and joints
- 2. Slewing ring screws
- 3. Screws for locking gearbox

## (1)

#### **Attention**

Intervention to be performed at authorised workshop.

#### I.9.4.1. Tightening fifth wheel screws

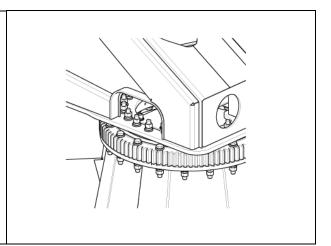
Rotate the tower in order to free the screws for checking the tightening.

Tighten the screws alternately from opposite corners.

Observe the tables on the following pages.

#### **Attention**

Intervention to be performed at authorised workshop.



#### I.9.5. Screw tightening

All screws are to be tightened always with a torque wrench.

Excessive tightening of the screws may damage them while insufficient tightening defeats their purpose.

Each screw has its own specific value and the calibration of the torque wrench depends on its diameter and type.

If there are a number of screws for the same component (for example the slewing ring, plates, motor-gearboxes) it is necessary to tighten them two at a time in diametrically opposite positions.

Below is the table of values to be used.

#### I.9.5.1. Screw tightening table

If the screws are lubricated then 60% of the torque value for tightening is to be used while if the screws are not lubricated then 70% of the value given in the table is to be used.



## Pre-load and torque for screws with iso thread and wide pitch

D0 8 0		Max. pre-	-load (kg)		Max torq	ax torque (kgm)		
Nominal screw diameter	6.6	8.8	10.9	12.9	6.6	8.8	10.9	12.9
Mignineren	6 D	8 G	10 K	12 K	6 D	8 G	10 K	12 K
M 4x0,7	222	394	554	665	0.17	0.31	0.43	0.52
M 5x0,8	357	635	895	1070	0.33	0.60	0.84	1.01
M 6x1	507	902	1270	1520	0.58	1.03	1.46	1.75
M 7x1	728	1300	1820	2180	0.94	1.69	2.36	2.83
M 8x1,25	920	1640	2310	2770	1.39	2.48	3.49	4.19
M 9x1,25	1210	2160	3050	3630	2.05	3.67	5.18	6.17
M 10x1,5	1480	2600	3660	4380	2.83	4.97	7.00	8.37
M 12x1,75	2120	3780	5320	6380	4.74	8.46	11.90	14.30
M 14x2	2890	5160	7250	8700	7.54	13.46	18.92	22.70
M 16x2	3950	7020	9900	11900	11.50	20.40	28.80	34.60
M 18x2,5	4840	8600	12100	14500	16.00	28.40	40.00	48.00
M 20x2,5	6160	11000	15450	18500	22.20	39.60	55.60	66.60
M 22x2,5	7630	13600	19100	22900	30.00	53.00	74.50	90.00
M 24x3	8900	15900	22300	26700	39.00	70.00	98.00	117.00
M 27x3	11500	20600	28900	34700	56.00	101.00	142.00	170.00
M 30x3	14100	25200	35400	42400	77.00	138.00	193.00	232.00



#### Pre-load and torque for screws with iso thread and small pitch

		Max. pre-load (kg)			Max torque (kgm)			
Nominal screw diameter	6 D	8 G	10 K	12 K	6 D	8 G	10 K	12 K
	6.6	8.8	10.9	12.9	6.6	8.8	10.9	12.9
M 8x1	995	1750	2470	2960	1.48	2.60	3.70	4.40
M 10x1,25	1540	2740	3860	4630	2.90	5.20	7.30	8.70
M 12x1,25	2420	4140	5800	6980	5.30	9.10	12.80	15.40
M 12x1,5	2220	3960	5570	6680	5.00	8.90	12.50	15.00
M 14x1,5	3150	5600	7880	9450	8.00	14.30	20.00	24.00
M 16x1,5	4200	7500	10500	12600	12.00	21.50	30.00	36.00
M 18x1,5	5430	9700	13600	16300	17.40	31.00	43.00	52.00
M 20x1,5	6900	12100	17150	20600	24.40	43.00	61.00	73.00
M 22x1,5	8400	15000	21000	25200	32.00	57.50	80.50	97.00
M 24x2	9650	17200	24200	29000	41.00	73.50	103.00	124.00
M 27x2	12500	22300	31300	37500	60.00	107.00	150.00	180.00
M 30x2	15700	27800	39200	47000	83.00	147.00	208.00	250.00

The pre-load has been calculated as 70% of the minimum yield load.

The torque has been calculated using the formula 39 of the Junker & Blume manual, and giving a friction coefficient  $\mu$  ges the average value  $\mu$  ges = 0.14.

### I.10. Electrical maintenance

## Opening the state of the sta

The machine must be isolated from all power supplies.

#### I.10.1. Fuse replacement

Inside the electric cabinet of the "safety system" is a fuse to protect the rest of the line; the other fuses are installed in the place provided by the vehicle manufacturer.

Replace damaged fuses with others of equal amperage.

### I.10.2. Checking sensors and microswitches

Check that the sensors and microswitches installed are intact and in good working order.

Simulate the intervention of the activated device. It should prevent the functions or movements it controls. If the manoeuvre or function is activated anyway, contact an authorised workshop to restore normal safety conditions.

Sensors to be checked are described in chapter F - "Devices".



#### I.10.3. Check emergency buttons

Check that the individual emergency buttons work correctly.

When the machine is on, press one of the mushroom-head buttons and attempt to perform a manoeuvre.

This should be prohibited. If it is activated anyway, switch the machine off and contact an authorised workshop to restore normal safety conditions.

#### I.10.4. Test the overload sensor operation in the basket

Load the basket with a weight just over the maximum allowed. The sensor must intervene signalling that the accepted weight has been exceeded with the switch-on of the red led 18 and intermittent acoustic signal.

#### I.10.5. Maintenance of the batteries

To avoid injury caused by explosion, do not smoke near the batteries or bring a naked flame or a source of sparking close during maintenance work.

### Attention

#### Always wear protective goggles and gloves when working on batteries.

Always refer to the operating instructions of the vehicle on which they are installed to have the maintenance information and technical specifications

Generally, the batteries are maintenance-free, except for occasionally cleaning the terminals as described below:

- Remove the cables from each terminal of the battery one at a time beginning with the negative terminal.
  - Clean the cables with a neutral solution (for example: sodium bicarbonate and water or ammonia) and a metal wire brush.
  - Replace the electrical cables or the screws in the terminals if necessary.
- Clean the terminals of the battery with a metal wire brush then reconnect the cables to the terminals.
  - Apply mineral grease or vaseline to the surfaces that are not in contact.
- When all the cables and terminals have been cleaned make sure that the cables are secured correctly and not squashed.

#### I.11. Placing the machine out of service for a prolonged period of disuse

In the event of prolonged disuse perform the following operations on the machine.

- Thorough cleaning.
- Lubrication of all moving parts.
- Anti-rust surface treatment on all unpainted metal parts (apply oil or MoS2 spray).
- Cover the machine with a waterproof tarpaulin to protect it from dust and damp.

## L. REGISTERS

#### L.1. References

Leg. Decree 81 of 09/04/2008 (amended by Leg. Decree 106 of 03/08/2009) - Consolidated Law on the protection of health and safety in the workplace (merges and repeals Pres. Decree 547 of 27/04/55, Leg. Decree 626 of 19/09/1994 et seq. and Leg. Decree 277 of 15/08/1991).

For machine data, refer to that stated in this use and maintenance manual.

## L.2. Management of recordings and reports

The pages set-up for recording the control, maintenance interventions and reports are an integral part of the machine documentation and must be filled-in completely according to the methods described below.

New provisions can intervene to modify the user obligations regarding filling-in the registers attesting to the controls and maintenance performed (e.g. in the event of modifications to current legislation).

At the user's responsibility, all the significant events affecting the operating life of the vehicle must be noted and in particular:

- variations in the equipment;
- replacement of mechanisms, structural elements, safety devices, etc.;
- major failures and the related repairs, not falling within normal or extraordinary maintenance;
- periodic checks of the cables or chains (when present);
- obligatory periodic checks;
- transferring the property.

## Attention

- Do not leave anything blank: if the item is not applied write: NOT APPLICABLE.
- At the end of the examination, fill-in L.4. "The inspection report, periodic checks and non-compliance".

IF NON-CONFORMITIES HAVE BEEN DETECTED, DESCRIBE THEM IN L.4. AND ALSO INDICATE THE RESOLUTION AND THE CLOSURE OF THE NON-CONFORMITY.



#### Note

If there are not enough sheets in the log for the records, add the necessary papers (e.g., photocopying the various schedules in advance), prepared according to the formats shown here.

The additional sheets of the user must contain references that can identify them as part of this section of the manual for this machine.



#### L.2.1. Controls and scheduled periodic maintenance register

All controls and scheduled maintenance interventions indicated in chapter I.4. must be recorded in register L.4.

The daily controls D.10.5. are not recorded every day, but are however mandatory for correct machine operation

If non-conformities are highlighted during the daily controls, these must be recorded in I 4

The following must be indicated in the register L.4.:

- Report number
- Date
- Machine work hours
- Indication of controls carried out (tick the box at the side of the indication of frequency of the control you declare to have performed all of the operations relative to that frequency as indicated in I.4.)
- Control results
- Description of any anomalies
- Description of any interventions
- Operator's signature

#### L.2.2. Maintenance and extraordinary checks register

Must be performed at authorised workshop if:

- structural changes
- major repairs
- non-routine maintenance
- recommissioning after long down periods
- disassembly and reassembly elsewhere

The extraordinary checks carried out at the authorised office consist in the inspection of the machine and this is performed by suitably trained operators.

Every intervention must be recorded on L.4. "The inspection report, periodic checks and non-compliance".

#### L.2.3. Register of controls envisioned by current legislation

ON COMMISSIONING OF THE ELEVATING PLATFORM, THE USER MUST REPORT TO THE AUTHORISED AND COMPETENT BODY FOR THE TERRITORY OF REFERENCE.

This register must be presented to the technician assigned to performing the abovementioned checks and successive checks.

The reports of the checks carried out by the control body must be kept inside the register.

If ropes and chains are present, the three-monthly checks must be recorded in the table L.6.

If the ropes and chains are replaced (IF PRESENT) the table L.7. must be filled-in.

#### L.2.4. Authorised persons

The records must be performed by staff carrying out tests (owner or authorised workshop), these personnel must be expert and, when required, authorised by law.



#### L.2.5. Conservation of the control register

This register must be kept for the entire life span of the machine.

The register is an integral part of the use and maintenance manual, which describes the methods and frequency with which the controls and maintenance must be performed.

It is prohibited to divide the controls register from the use and maintenance manual.

ON COMMISSIONING OF THE ELEVATING PLATFORM, THE USER MUST report to the authorised and COMPETENT body FOR THE TERRITORY IN RELATION TO THE POSITION OF THE ESTABLISHMENT OR SITE.

This register must be presented to the technician assigned to performing the abovementioned checks and successive checks.

## L.3. Method for carrying out the checks

Controls and maintenance = See table I.4. and successive descriptions

Extraordinary maintenance and checks = According to punctual requirements

Controls envisioned by current legislation = Yearly check by authorised body + ropes and chains every three months (if presents)

Summary of where he controls and maintenance are indicated within the manual:

- · Chapter D "Safety"
  - D.10.3. Inspection on delivery
  - D.10.4. couplings
  - D.10.5. Daily inspection
  - D.10.6. Batteries
  - D.10.7. Electric pump
  - D.10.8. Routine maintenance (Put reference to I.4.)
- Chapter I "Maintenance"
  - I.4. Periodic maintenance table (100, 250, 500 hours, 2nd and 3rd service NB the daily controls are indicated in D.10.5.)
- Chapter L "Recordings"

L.4. –



## L.4. The inspection report, periodic checks and non-compliance

Report No.	Date		Machine work hours	
Checks relating to the testing of ope  100 hours  250 hours  500 hours  Ropes and chains (if preser  Extraordinary maintenance  Other	nt)	n (also fill-in L.8.)		
Results:	ed)	Malfunction:  Resolved  NOT reso		
Description of the anomaly:				
Description of the solution (interven	tion, replacement, e	etc.)		
Operator Function	Name surname		Signature	
Report No.	Date		Machine work hours	
Checks relating to the testing of operation of the string of the strin	nt)	n (also fill-in L.8.)		
Results:     Positive     Negative (anomalies detect	ed)	Malfunction:  Resolved NOT resolved		
Description of the anomaly:				
Description of the solution (interven-	tion, replacement, e	etc.)		
Operator Function	Name surname		Signature	



Report No.	Date		Machine work hours		
Checks relating to the testing of operations  100 hours 250 hours 500 hours Ropes and chains (if present) Extraordinary maintenance and new inspection (also fill-in L.8.) Other					
Results:	Positive		Malfunction:  Resolved NOT resolved		
Description of the anomaly:					
Description of the solution (intervention, replacement, etc.)					
Operator Function	Name surname		Signature		
Report No.	Date		Machine work hours		
Checks relating to the testing of operations  100 hours 250 hours 500 hours Ropes and chains (if present) Extraordinary maintenance and new inspection (also fill-in L.8.) Other					
Results:		Malfunction:  Resolved  NOT resolved			
Description of the anomaly:					
Description of the solution (intervention, replacement, etc.)					
Operator Function Name surname			Signature		



# L.5. Change of ownership record

	SUCCESSIVE CHANG	BES OF OWNE	ERSHIP
Date			
The ownership	of the WORK PLATFORM		
described in th	is manual is transferred to the Firr	m/Company:	
and functions	rtified that, at the date mentioned of the WORK PLATFORM descr at any modifications have been re	ibed in this ma	anual conform to those originally
	The Seller		The Buyer
			L
	SUCCESSIVE CHANG	BES OF OWNE	ership
Date			
The ownership	of the WORK PLATFORM		
described in th	is manual is transferred to the Fire	m/Company:	
and functions	rtified that, at the date mentioned of the WORK PLATFORM descr at any modifications have been re	ibed in this ma	anual conform to those originally
	The Seller		The Buyer
	<u> </u>		
		l	l .



	SUCCES	SSIVE CHANG	jes of own	ERSHIP	
Date					
The ownersh	ip of the WORK PLAT	TFORM			
described in	this manual is transfe	rred to the Firr	m/Company:		
and functions	ertified that, at the dass of the WORK PLAT	TFORM descri	ibed in this m	anual conform to	ns, dimensions those originally
	The Seller			The Buyer	
	eck cables and	l chains q	uarterly (	by the Comp	any) (if
		I chains q		by the Comp	Signature
presents	5)			by the Comp	
presents	5)			by the Comp	
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presents	5)			by the Comp	
presents	5)			by the Comp	
presents	5)			by the Comp	
presents	5)			by the Comp	



# L.7. Cable/ chain characteristics (if presents)

Coupon to fill-in if ropes or chains are replaced.

Brand	Model	Capacity	Q.ty
	Brand	Brand Model	Brand Model Capacity  Capacity  Capacity



# L.8. Form for replacements and changes made

Place:	Date:	Hours recorded:
Description of the item replaced (structural elements, safety devices, acces	sories, etc.)	
Reason for the replacement	_	
The manager for repairs declares having of and/ or changed part and that he has attes		lation the perfect efficiency of the replaced riginal safely conditions
Signature of the manager for the repair		Signature of the machine manager
L.9. Form for recording sign	hificant damage	and related repairs
Place:	Date:	Hours recorded:
Failure description	,	,
Conceivable causes		
Results of repair made		
Signature of the manager for the repair		Signature of the machine manager





## M.1. Warning

No special measures need be taken during disposal of the machinery as more than 90% (in weight) of this is made up of recyclable materials.

The machine should be scrapped adopting safety measures that take account of the logistic and environmental conditions and the state of wear.

Nonetheless, follow the general rules below:

- Wear protective clothing and accessories (helmet, safety footwear, gloves, and safety spectacles and facemask if necessary) approved in accordance with statutory safety legislation.
- Disconnect the machine from all energy sources.
- Use suitable lifting means as indicated in the "Transport" section of the "Lifting systems" chapter.

#### Attention

The machinery must be demolished and disposed of by specialized, qualified technicians in accordance with all rules on the scrapping of industrial products.



### N. CONCLUSIONS

We concluded.

Thank you for allowing us to count on your understanding and approval.

If the topics treated are already known to you, we kindly request your indulgence, it is always useful to achieve a better understanding of the equipment and to ensure greater security and better performance.

If certain parts of this are not written clearly enough, please accept our apologies and please contact our Customer Service.

Once again, we recommend that operators adhere strictly to the requirements and recommendations.

Good job

#### **CO.ME. T. OFFICINE SPA**

Via Castelfranco, 46 40017 San Giovanni in Persiceto (BO)

Tel.: +39 0516878711 Fax: +39 051799902 www.officinecomet.com info@officinecomet.com