



T 320

forSte

Use and maintenance Manual

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Codice: SO-0029_TS
Matricola: 320T_____

Istruzioni originali

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INTRODUCTORY

A reasonable safety condition during works is essential to prevent serious damages to oneself and to other people. Therefore, it is essential to follow the WARNINGS and to carefully read this manual presenting accurate and fundamental instructions on routine and periodic maintenance procedures.

WARNING: READ AND KEEP THIS MANUAL!



- Study user's instructions.
- The operator shall be trained on the use of this machine, he should know its lifting capacity and utilisation limits, he should know and carefully follow safety standards.
- The instruction manual is a fundamental element for the proper use and the maintenance of this equipment.

TECHNICAL ASSISTANCE SERVICE

For repair and overhaul assistance please call SOCAGE organisation which relies on highly skilled workers and on suitable equipment.

The TECHNICAL ASSISTANCE SERVICE is at your disposal for explanations, advice and for interventions with its own workers, if necessary.

SPARE PARTS SERVICE

Guarantee of good functioning and service life is ensured by the use of original spare parts only, for this purpose refer to "CATALOGUE OF SPARE PARTS".



At the end of this manual there are some sheets on which every intervention, modernisation and change is to be recorded. By doing this, you and we will always have an updated statistical memorandum of the machine.

THIS MANUAL INSTRUCTIONS DO NOT TAKE THE PLACE OF BUT COMPLETE THE OBLIGATIONS ON SAFETY AND ACCIDENT LEGISLATION IN FORCE

SPECIAL EXECUTION

FRAME WITH DEMOUNTABLE STABILIZERS TO MOVE SEPARATELY

In certain cases, concerns the truck on which the installation is made, in order to hold the total weight of the equipment following the builder's instructions of the truck, is carried out the special execution in object which foresees the frame with removable and transportable stabilisers separately with removable and transportable stabilisers separately with an other vehicle.

With regard to the use of the equipment is necessary that the stabilisers, including mechanical fasteners besides hydraulic and electric connections, are mounted correctly.

The technical operations of mounting and dismounting of the stabilizers can easily be performed with normal tools, while for the hydraulic and electric connections are foreseen rapid joints.

The identification of the stabiliser's position on the frame is underlined by an equal number, reported both on stabilisers and on the position's area in the frame.

During the travel, so that the vehicle respects the directions regarding the traffic and the builder's instructions of the truck, the four stabilisers have to be dismounted and transferred on an other vehicle.

In the course of the equipment's use as working elevating platform, the stabilisers have to be positioned in their respective position's areas, fastened mechanically and joined both on hydraulic and electric level.

NOTES FOR ASSEMBLY KIT SUPPLIES

This manual refers to the complete machine as it is supplied by SOCAGE (with the description of the possible variants available on request).

As regards machines supplied with assembly “KIT” (the kit is prepared by workshops other than SOCAGE) the USE AND MAINTENANCE manual has to be drawn by the final installer and must conform the equipment and the directive force.

SOCAGE materials can be only used in the parts which are not changed if compared to the original installation.

NOTE: By assembly KIT of the SOCAGE . company we mean the supply of the upperworks up to the thrust bearing fixing lower ring to be welded on the frame produced by the installer and the main hydraulic components

NOTES FOR PLATFORM UTILIZATION

ATTENTION: TO EXCEED THE LOAD VALUE INDICATED BY THE WORKING AREA CAN LEAD TO STRUCTURAL DAMAGES AND THE OVERTURNING OF THE AERIAL WORKING PLATFORM

COUNTERWEIGHT AND ACCESSORIES

All the eventual counterweights and assembled accessories, which are already present during the inspection, do absolutely not be remove during the platform working phase, because they are integrant parts of the machine and they are indispensable in order to grant the stability opteined with the inspection

***** CHAPTER 1 *****

INTRODUCTORY INFORMATION

The documentation contained in this chapter is composed of
n° 8 pages, this one included..

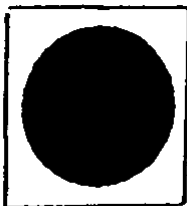
KEYS AND SYMBOLS USED FOR THE WARNING SIGNS



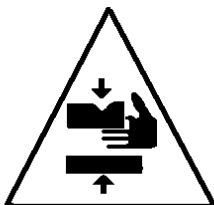
WARNING: DANGER Signs



PROHIBITION Signs



OBLIGATION Signs



CRUSHING DANGER Signs

IDENTIFICATION DATA OF THE MACHINE

All the information for the identification of the machine is carved on a plate on the turning turret.

N.B. For every demand specify type and serial number.

	
SOCAGE SRL	
STRADA STATALE 12 n.10 41030 SORBARA (MO) ITALY tel. 059 902656 fax 059 907304	
PIATTAFORMA DI LAVORO MOBILE ELEVABILE MOBILE ELEVATING WORKING PLATFORM	
MODELLO MODEL	SO-0022
NOME COMMERCIALE TRADE NAME	DA 320
MATRICOLA SERIAL NUMBER	320DAXXX
ANNO DI COSTRUZIONE YEAR OF MANUFACTURING	2010
PORTATA MASSIMA MAXIMUM LOAD	225 kg 2 PERSONE PEOPLE
CARICO ORIZZONTALE MASSIMO MAXIMUM HORIZONTAL LOAD	40 daN
VELOCITA' MASSIMA VENTO MAXIMUM WIND SPEED	12,5 m/s
INCLINAZIONE MAX TELAIO MAXIMUM CHASSIS INCLINATION	2 °
MASSA TOTALE CON AUTOCARRO TOTAL MASS WITH TRUCK	3500 kg

DECLARATION OF CONFORMITY

SOCAGE SRL

STRADA STATALE 12 N. 10
SORBARA DI BOMPORTO (MODENA) ITALY
TEL. 059.902656 FAX 059.902613

Composizione del fascicolo tecnico a cura di:

Ufficio tecnico Socage presso, Socage s.r.l., strada statale 12 n°10, Sorbara di Bomporto (modena) Italy

PIATTAFORMA DI LAVORO ELEVABILE / MOBILE ELEVATING WORKING PLATFORM

Modello/Tipo/Type/Type/Modelle:

SO-0029

Nome commerciale/Nombre comercial/Nom commercial/Trade name/Geschäftsname: **T 320**

Matricola/Matricula/N°de serie/Serial number/Serien nr. :

320Txxx

Anno di fabbricazione/Año de fabricación/Année de fabrication/year of construction/baujahr:

2010

Su autocarro/autocar/camion/truck/lastkraftwagen:

XXXXXXXXXX

Matricola/Matricula/N°de serie/Serial number/Serien nr. :

VWASBFTL.....

DICHIARAZIONE DI CONFORMITÀ CE / EC CONFORMITY DECLARATION (ORIGINAL)

We, the undersigned, hereby declare under our exclusive responsibility that the machine in question conforms to the prescriptions of the Machinery Directive 2006/42/EC and the Directives 2006/95/EC, 2004/108/EC, 2000/14/EC and the standard EN280:2013.

It is identical to the aerial working platform objet of the CE type certification. (Enclosure IV)

Esame per la Certificazione CE eseguita da:
Examen para la Certificación CE realizada por:
Examen pour la Certification CE exécuté par:
Examination for EC Certification executed by:
Prüfung für die EG-Bescheinigung ausgeführt vom:

VERICERT SRL (Notified Body n. 1878)

Verità Ricerca Certezza Conformità

Via Cavina, 19

48100 RAVENNA - Italy

Numero di Certificazione CE:

Certificación CE número:

Certification CE numéro:

Certification EC number:

Zertifikation EG nummer::

xxxx/xx/M

SOCAGE srl

Presidente del C.d.A.

FIorenzo FLISI

Sorbara, li _____

DECLARATION OF THE CONSTRUCTOR

SOCAGE SRL

STRADA STATALE 12 N. 10
SORBARA DI BOMPORTO (MODENA) ITALY
TEL. 059.902656 FAX 059.902613

AERIAL WORKING PLATFORM SUPPLIED IN KIT

Modello/Tipo/Type/Type/Modelle:

SO-0029

Nome commerciale/Nombre comercial/Nom commercial/Trade name/Geschäftsname: **T 320**

Matricola/Matricula/N°de serie/Serial number/Serien nr. :

320Txxx

DECLARATION

We, the undersigned, hereby declare under our exclusive responsibility that the machine in question conforms to the prescriptions of the Machinery Directive 2006/42/EC and the Directives 2006/95/EC, 2004/108/EC, 2000/14/EC and the standard EN280:2013.

It is strictly prohibited for the machine which is the subject of this declaration to be put into service before the machine on which it will be incorporated or assembled has been declared compliant with the provisions of the Directive 2006/42/EC.

Esame per la Certificazione CE eseguita da:
Examen para la Certificación CE realizada por:
Examen pour la Certification CE exécuté par:
Examination for EC Certification executed by:
Profung für die EG-Bescheinigung ausgeführt vom:

VERICERT SRL (Notified Body n. 1878)
Verità Ricerca Certezza Conformità
Via Cavina, 19
48100 RAVENNA - Italy

Numero di Certificazione CE:
Certificación CE número:
Certification CE numéro:
Certification EC number:
Zertifikation EG nummer:

xxxx/xx/M

SOCAGE srl

Presidente del C.d.A.
FIRENZO FLISI

Sorbara, li _____

REFERENCE REGULATIONS

This technical document “INSTRUCTION AND MAINTENANCE MANUAL” for raisable platforms model **T 320** is identified with code

MUM SO-0029_TS fs2.

This document has been written in compliance with harmonised regulations

UNI EN 12100-1st part paragraph 3.21

UNI EN 12100-2nd part paragraph 6.

EN 280 paragraph 7.

REVISIONS TO THIS DOCUMENT

This manual reflects the state of the art at the time of the machine's putting into the stream of commerce. It is an integral part of the machine and is in compliance with all regulations, laws and directives binding at that time; this manual cannot be considered inadequate if subsequently updated because of more recent experiments.

Changes, adaptations, etc. (if any) made on machines sold afterwards do not oblige the manufacturer to modify the equipment sold before nor to consider it and the relevant manual insufficient and unsuited.

Any possible supplement to this manual that the manufacturer judges important to send to the user should be kept together with the manual to which is an integral part.

TECHNICAL INFORMATION

REFERENCE REGULATIONS

SOCAGE platforms are manufactured in compliance with the following Directives :

- 2006/42/EC (called Machine Directive),
- 2004/108/EC
- 2006/95/EC (EMC)
- 2000/14/EC.

ENFORCED HARMONIZED REGULATIONS

- EN 12100-1:2005 Safety of the equipment (basic procedure);
- EN 12100-2:2005 Safety of the equipment (technical principles);
- EN 13857:2009 Safety distances of the upper parts;
- EN ISO 13850:2007 Emergency stop devices;
- EN 349:2008 Distances of pressing of parts of the body;
- IEC/EN 60204-1 Electrical equipment of the machines;
- DIN 15018 foglio 3 Calculations of steel structures;
- DPR 303/56 General regulations for hygiene on work
- DLgs 81/2008 Regulations for prevention of accidents on work place
- EN 13849-1:2008 Safety related parts of control system
- EN 13849-2:2013 Safety related parts of control system
- EN 280:2013 Aerial work platforms
- EN 12999:2012 Cranes safety- Loaders Cranes
- EN 4413:2012 Safety requirements for fluid systems and their components

ENFORCED REGULATIONS AND TECHNICAL RULES

EN 280 (Raisable working platforms)

EN 80 WGP8 (TC147) (Structural calculation)

NUMBER OF ESTIMATED LOADING CYCLES according to EN 280

100.000 (e.g. 10 Years, 50 weeks per year, 40 hours per week, 5 cycles per hour)

Within this number of cycles a complete overhaul and a deep structural inspection of the machine should be carried out. If working conditions are particularly heavy (e.g. always maximum load, great straddle , etc.) this inspection must be sped up (ask the manufacturer for an inspection of the machine).

EVERY 1500 - 4500 HOURS, WE SUGGEST A COMPLETE CHECKING PROCEDURE BY THE MANUFACTURER.

CYCLES REDUCTION FOR AUTHORIZED MACHINES AT INCREASED LOAD CAPACITY

66.000 (e.g. 7 Years, 48 weeks per year, 40 hours per week, 5 cycles per hour)

Within this number of cycles a complete overhaul and a deep structural inspection of the machine should be carried out. If working conditions are particularly heavy (e.g. always maximum load, great straddle , etc.) this inspection must be sped up (ask the manufacturer for an inspection of the machine).

EVERY 1000 - 3000 HOURS, WE SUGGEST A COMPLETE CHECKING PROCEDURE BY THE MANUFACTURER.

USE AND STORAGE CONDITIONS

SOCAGE platforms are manufactured to function under these environmental conditions:

- 1 working temperature: min. -10°C max. +40°C
- 1 humidity 30% - 95% without condensation

When the machine is to be used under environmental conditions other than the standard ones, special devices are available on request.

IMPORTANT

NEVER USE THE MACHINE UNDER UNFAVOURABLE AIR CONDITIONS (i.e.: MANY WORKING HOURS IN A SEE AREA).

- storage temperature: -30°C max. +60°C.
- if the oil temperature tends to exceed 70° C. it is necessary to mount a heat exchanger.

STATIC TEST

The machine HAS SUCCESSFULLY OVERCOME THE STATIC TEST carried out according to EN280:2013 as follows:

- Machine positioned at max allowed inclination;
- Machine with minimum allowed stabilisation;
- Pantograph boom totally raised and parallel to the ground;
- Machine at max outreach and turned basket;
- Test load equal to nominal load + an increase indicated by EN280 (wind, operators' pushes and dynamic effects);
- Slow starting of the machine rotation on the whole working area (at least 180° sideways), always keeping under control the position of the outriggers opposite the boom.

The test is considered overcome only if in the whole working area two outriggers never lift at the same time (so only one of the outriggers can be lifted, according to the position of the boom).

***** CHAPTER 2 *****

SAFETY STANDARDS USER'S INSTRUCTIONS

The documentation contained in this chapter is composed of
n°12 pages, this included..

For the use of platform the operators have to:

- be in perfect psycho-physical conditions**
- have the licence guide (right degree to the use of vehicle)**
- be instructed to the use of platform**
- have read and understood all the instructions and information in this manual and in the machine**

USER'S INSTRUCTIONS

IMPORTANT WARNINGS

ALL THE PROVISIONS ON USE AND MAINTENANCE CONTAINED IN THIS MANUAL ARE UNBREAKABLE, THEREFORE WE RECOMMEND TO CAREFULLY AND FREQUENTLY READ THEM AND TO ALWAYS PUT THEM INTO PRACTICE.

WITHOUT PREJUDICE TO SOCAGE SRL'S NON-LIABILITY OUTSIDE THE WARRANTY GIVEN, AFTER INSPECTION AND DELIVERY OF THE MACHINE, SOCAGE SRL RECOMMENDS TO CAREFULLY AND REGULARLY FOLLOW ALL THE PROVISIONS CONTAINED IN THIS MANUAL AND TO CORRECTLY PUT INTO PRACTICE THE REGULATIONS IN FORCE. THE NON-ENFORCEMENT OF WHAT INDICATED ABOVE IS ANOTHER REASON OF NON-LIABILITY FOR DAMAGES AGAINST THE MACHINE, THINGS, PERSONS AND OTHERS.

IN THE ABOVE INDICATED CASES THE 12-MONTHS WARRANTY IS NOT EFFECTIVE. TECHNICAL DATA CONTAINED IN THIS MANUAL CAN UNDERGO CHANGES DUE TO THE DIFFERENT TYPES OF TRUCKS, TO TECHNICAL CHANGES, OR TO THE ENTERING INTO FORCE OF MODIFIED REGULATIONS.

THEREFORE, THE USER SHOULD CAREFULLY STUDY THE ABOVE MENTIONED TECHNICAL DATA.

FOR SPECIAL WORKING CONDITIONS NOT INDICATED IN THIS DOCUMENT, ASK FOR THE MANUFACTURER'S WRITTEN APPROVAL.

INTRODUCTION

The operator of the platform being the only element of the machine who can think and reason, his responsibility is not reduced by the addition of safety devices. Every over-indulgence in easiness reducing concentration and attention in using these devices is absolutely forbidden.

Safety devices are intended to help, not to supervise operations.

Safety devices can be mechanic, electronic, or both, and they are for this reason subject to breakdowns and improper use.

The operator is the sole person responsible for his own safety and for the safety of by-standers: he must act as a professional, scrupulously following all safety standards.

ALWAYS KEEP IN MIND: THE NON-OBSERVANCE OF EVEN JUST ONE SAFETY STANDARD CAN CAUSE ACCIDENTS TO PERSONS, THINGS OR TO THE MACHINE.

The operator should make sure that every person he is working with is aware of dangers related to the functioning of the platform and that, therefore, is properly trained.

At any time, the operator should be aware of his own responsibility for the safety of his work-mates, for the safety of the machine and of everything surrounding it.

The operator should always check that the platform is properly stabilised; he should mind to the wind, to the movements of the arm and to every unusual thing, even the one which would be not remarked by a less careful person.

IT IS COMPULSORY TO LEARN AND TO FOLLOW ALL SAFETY STANDARDS. FOR THIS REASON, IT IS ESSENTIAL TO DEEPLY UNDERSTAND THIS MANUAL BEFORE USING THE PLATFORM. AT THE DELIVERY OF THE MACHINE, INSTRUCTIONS NECESSARY TO ITS USE WERE SUPPLIED TO THE BUYER; IN CASE OF HIRE OR TRANSFER, THE TRANSFEROR MUST GIVE THESE INSTRUCTIONS TO THE NEW USER.

SAFETY STANDARDS: SOMETHING TO ALWAYS DO

FOR SAFETY PURPOSES, IT IS ABSOLUTELY ESSENTIAL TO ALWAYS CARRY OUT THE FOLLOWING OPERATIONS:

- Carefully follow the user's instruction (in chronological order).
- It is absolutely forbidden to use the equipment with weights exceeding the ones indicated on the machine and in this document and in a way different from what indicated on the machine and in this document.
- Read the content of all the plates put on the equipment and in the maintenance and use manuals of the components of the same.
- The machine must be operated by at least two persons, one of them being a skilled worker perfectly knowing the use of the machine and who has to stay on the ground. If there isn't a control on the ground, the drives board on the ground have to be locked/ forbidden so other people can't have the access.
- Before installing this equipment, stabilise it with the help of stabilisers equipped with anchor plates; these stabilisers must necessarily rest on a solid ground. If necessary, use boards to arrange the thrusts on a big enough area with regard to the characteristics of the ground. These boards must be of a material suitable to the stabilisers' thrust, they must be thick enough and tried before use without workers on the machine which has to be at the maximum straddle, with the basket near the ground, and with a weight equal to the maximum allowed loading capacity.
- If the ground slopes, make sure that the inclination does not exceed 3°. In case of ground grade, provide always to adopt right means to prevent the mean's sliding (wedges under the wheels or other similar clamp systems). A difference in level due to horizontal steps is not to be considered a slope.
- The maximum deviation of the thrust bearing plane from the horizontal line must not exceed 2°.
- Make sure that the platform never rests on other structures, whether fixed or moving.
- Keep in mind that operations to reach the working spot must be carried out by the operator on the platform. As a matter of fact, GROUND OPERATION IS ALLOWED IN CASE OF EMERGENCY ONLY since, from ground, it is impossible to correctly estimate any interference, obstacle, real dynamic of basket movements, etc.
- Make sure there are no electric lines.
- If the platform is used on busy roads , it is compulsory to signal the presence of such platform by both the appropriate ground signals and the winking light and to follow traffic regulations in force.
- When entering into the basket, safety belts must be immediately fastened to the special connections and entry protections must be closed; make sure they are properly locked.

- All workers should wear the safety helmet, in accordance with the law. Do not drop any material from the basket or from top. For special works (pruning, painting, etc.) provide for necessary protections and measures for the safeguard of persons, of surrounding things and of the machine itself. It is forbidden to use working tools which are not in compliance with regulations in force.
- It is absolutely forbidden to insert tools, hands, fingers, etc. within the holes on the telescopic arms and in places where there are dangers arising from interference, cutting and crushing, etc.

WHILE MOVING :

- Drive with caution and avoid high speeds.
- Check if the chosen road is suitable to the equipment dimensions.
- Check if tyres show wear and tear and if inflating pressure is correct (when tyres are cold).
- Put on the brake when the machine is parked on a sloping road, and if necessary, lock the wheels with wedges.
- It is forbidden to travel or to move the truck with people or charges/materials in the basket or in the turret or on the frame walking floor

BEFORE GOING UP:

- Carry out daily inspections as indicated in chapter 4 “Maintenance”.
- Use the protective helmets and the approved accident-prevention dress.
- Put on the locking device for turret hydraulic distributor levers.
- Check to make sure that the automatic levelling of the basket is perfectly reset (basket horizontal) and pressurised
- Fasten safety belts (attacks on the basket belts are for one person to attack).
- Close entry protections.
- Once again, make sure that all controls are in working order and fix the working material properly, so that it cannot move or create dangers.
- Make sure that all operators are aware of use and maintenance provisions.

WHEN RAISED

- While moving, mind to arm travels; during rotation, lifting, lowering, march, etc., mind to any possible obstacle.
- Keep a minimum distance of at least 5 m (five metres) from electric lines and pylons and follow current regulations on minimum distances.
- Avoid any collision of basket or arms with the truck cabin, stabilisers or with other parts of the machine, with fixed (buildings) or moving (vehicles, cranes, etc.) obstacles.
- Do not stand under the working area of the equipment, in particular under arms and basket.
- Use the equipment for vertical movements only, never perform any throwing or thrusting towards any direction.
- Keep your hands far from joints or openings.
- It is forbidden to increase the load in and out of the basket.

AT THE END OF WORK

- Make sure that the structure and the operator-holding basket are in non-working position and that stabilisers have completely come back.

IMPORTANT

KEEP IN MIND THAT, ACCORDING TO ART. 25 DPR 27/4/1955 N° 547, VARYING INCLINATION AERIAL LADDERS, INVOLUTE WAGON BRIDGES AND SUSPENSION WINCH BRIDGES MUST BE TESTED AND INSPECTED EVERY YEAR, FROM THE ORGANS IN CHARGE OF SECURITY (ISPEL-USL-ASL-ARPA) IN ORDER TO DETERMINE THEIR EFFICIENCY WITH REGARD TO SAFETY.

SAFETY STANDARDS: SOMETHING TO NEVER DO

FOR SAFETY PURPOSES, IT IS ESSENTIAL TO NEVER USE THE MACHINE UNDER THE FOLLOWING CONDITIONS:

- With weights and in ways other than the ones for which it has been designed, tested and delivered (which are indicated on the machine itself);
- On an unsteady, wet or cluttered ground or having a slope exceeding 3°;
- Never use the machine during automatic basket levelling not reset (basket horizontal) and not pressurised
- With wind exceeding 12,5 m/s ;
- Near electric lines (The machine is not insulated);
- Without the entry protection bar of the basket;
- With material or objects hanging from the machine arms or sides (in any way outside the basket);
- Using ladders or similar tools within the basket;
- Performing any throwing or horizontal/inclined thrusting exceeding 20daN per person or o 40daN every two or more persons (move in an horizontal direction only);
- In areas presenting exploding hazard;
- If there are cracks, flaws, hydraulic leaks, cut wires or any other anomaly in functioning;
- At a temperature lower than -10°;
- As a lifting device for materials;
- With safety devices out of order or not inspected;
- Under dangerous weather conditions (poor visibility, thunderstorms , lightning, etc.);
- With posters, banners, etc. hanging from the basket, arms or other parts of the machine.

IMPORTANT

It is absolutely forbidden to insert tools, hands, fingers, etc. into the holes on telescopic arms, cable pulleys and on joints.

DURING WASHING WITH HIGH-PRESSURE JET DO NOT AIM AT BOXES, CABINETS AND ELECTRIC COMPONENTS. DO NOT WASH WITH DETERGENTS, CHEMICALS, PETROL OR SIMILAR SUBSTANCES, WHICH CAN DAMAGE RUBBER PARTS, PLASTIC COMPONENTS AND FILMS.

IMPORTANT

It is forbidden to increase the load onto the basket and to transport people when the platform is raised (even if you comply with the maximum capacity load)

WARNING!!! PAUSES/WORKING BREAK

Never leave the machine without care if the motor has not been turned off, the control board on ground blocked and the cabin compartment of the truck locked.

We advise you, in case of pauses or working break, to carry the platform on the ground (in transport position).

It is strictly forbidden to keep the machine open for long time, without carrying out a daily control on the status of the different components (valves, outriggers, levelling, etc...)

WARNING!!! WORKING NEAR ELECTRIC LINES

Operate with aerial platform near electric lines is always very dangerous because of the mobility of the machine structure.

We remind you that there can be electric discharges even without the contact with the two parts, but it can be sufficient that they go near a minimum level of the minimum security distance (see the set of rules in force in the country of destination of the machine).

The set of rules in Italy (DPR 81 art.117), prescribes the minimum distances given in the table . This value is to be considered the lowest distance during the different manoeuvres with the platform.

In any case we advise you previously to require the interruption of the current supply for the period of working with the platform.

<u>KV</u>	<u>DISTANCES MIN.</u>
≤ 1	3
1 ≤ 30	3,5
30 ≤ 132	5
> 132	7

RESIDUAL RISKS AND APPROPRIATE PRECAUTIONS

- Abrupt working of control levers: jerks and swinging hazard. GENTLY MOVE THE CONTROLS TO REGULATE SPEED AND ACCELERATION.
- Overload and horizontal/inclined thrusting: tilting hazard. DO NOT EXCEED WORKING LOADING CAPACITY.
- Ground sinking: tilting hazard. CHECK GROUND PRESSURE AND GROUND SOLIDITY (see ground pressure under stabilisers) (mind to winter thawing).
- Wind gusts: tilting hazard. DO NOT WORK UNDER DANGEROUS WEATHER CONDITIONS.
- Stroke against an obstacle, whether on the ground or in the air: collision and tilting hazard. BE EXTREMELY CAREFUL DURING OPERATION.
- Stroke against a tension line: electric shock hazard. KEEP AT A SAFE DISTANCE FROM ELECTRIC LINES.
- Work on platforms and sidewalks, etc.: tilting hazard. PAY ATTENTION TO THE GROUND AND TO THE POSITION OF STABILIZERS.
- Work in an explosive environment: explosion hazard. PREVIOUSLY GET INFORMATION ABOUT EXPLOSION OR FIRE HAZARD IN THE PLACE OF THE INTERVENTION.
- Persons near the working area of the machine: crushing hazard. KEEP WORKING AREA CLEAR AND FORBID ADMITTANCE TO UNAUTHORIZED WORKERS. DURING WORKING HOURS, CHECK IF WORKERS RESPECT THIS PROHIBITION.
- Thermal engine + exhaust: burning and poisoning hazard. DO NOT STAND NEAR EXHAUSTS. WHEN WORKING AT INTERIORS DIRECT EXHAUSTS OUTSIDE.
- Mind to overloads from top or caused by contact with other structures . BEFORE STARTING ANY WORK, PAY ATTENTION TO WORKING AREA CONDITIONS, TO THE GROUND, TO OBSTACLES, TO LUMINOSITY AND NOISE AND TO TRAINING OF WORKERS IN CHARGE OF THE MACHINE UTILIZATION.
- Poisonous materials. IN THE EQUIPMENT THERE ARE TOXIC SUBSTANCES AND MATERIALS (POISONOUS WHEN SWALLOWED OR INHALED (QUICK SILVER, OILS, PLASTICS ,ETC.) MAINTENANCE AND REPAIR OPERATIONS SHOULD BE CARRIED OUT BY TRAINED AND SKILLED WORKERS ONLY.

NB. IF THE MACHINE IS EQUIPPED WITH HOSES FOR EXHAUST GAS DEVIATION IT IS COMPULSORY TO USE THEM.

UTILIZATION LIMITS

DO NOT USE THE MACHINE:

- With a load exceeding working loading capacity.
- On a ground which is not resistant to pressure and weight under stabilisers.
- On a slope or inclination exceeding 3°.
- With the side stress in the basket exceeding 20daN for every person (max. 40daN for more than one person).
- With a wind exceeding 12,5 m/s.
- Within refrigerating chambers.
- In explosive or poisonous surroundings.
- During a thunderstorm.
- With poor visibility.
- In a not enough ventilated area. (Toxic exhaust gas of thermal engines).

INFORMATION ABOUT WIND SPEED

WIND FORCE Beaufort scale	WIND SPEED M/s	DESIGNATION	FEATURE
0	0.0 - 0.2	Calm	Calm wind; smoke is whipped up vertically or nearly vertically.
1 2	0.3 - 1.5 1.6 - 3.3	Light breeze	The wind direction is given by the smoke one; wind is felt on the face, leaves as well as baffle plate start moving.
3 4	3.4 - 5.4 5.5 - 7.9	Moderate breeze	Leaves and branches move continuously. Dust and paper are moved on the ground.
5	8.0 - 10.7	Quite near gale	Small branches with leaves move; waves on canals and lakes are formed.
6	10.8 - 13.8	Near gale	Big branches swing, wind whistles when passing through the electric line cables; it is difficult to walk with the umbrella opened.
7	13.9 - 17.1	Strong gale	Trees swing; it is difficult to walk.
8	17.2 - 20.7	Stormy wind	Branches are broken; it is hardly possible to walk.
9	20.8 - 24.4	Storm	The wind damages houses (antennas and roofing-tiles are swept away).

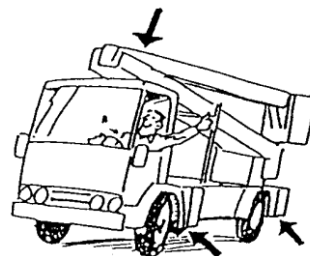
CAUTION

WIND SPEED IS MEASURED ON AVERAGE FOR APPROXIMATELY 10 MINUTES AT A 10-METER HEIGHT ON A LEVEL GROUND.

SUMMARY OF MOST IMPORTANT WARNINGS

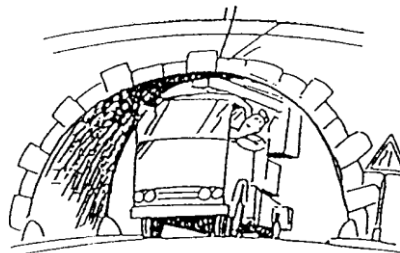
MOVEMENT POSITION

Make sure of the complete non-working condition.



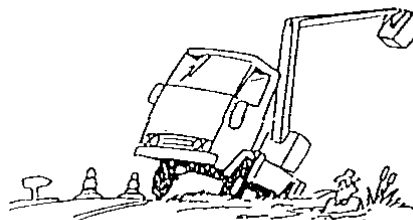
MOVEMENT

Mind to obstacles to the machine.



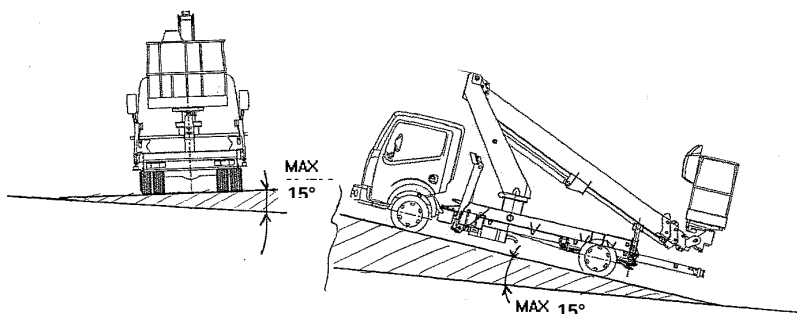
STABILIZATION

Mind to ground solidity.



STABILIZATION

Maximum inclination ground.



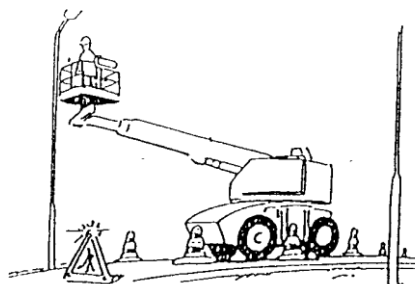
BALANCING

Check maximum allowed inclination.



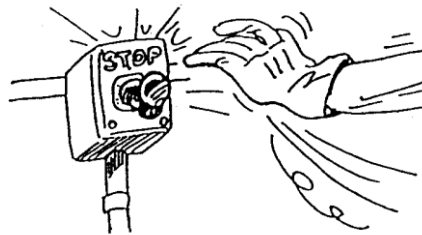
WORKING AREA

Put barriers around working area.



EMERGENCY STOP

If there is any anomaly, stop the machine.
BEFORE SWITCHING ON THE
MACHINE AGAIN, MAKE SURE THAT
DANGEROUS CONDITIONS ARE OVER



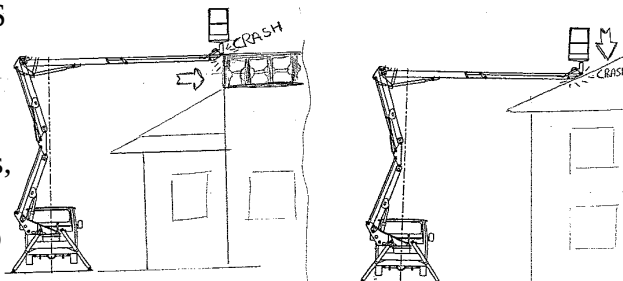
OBSTACLES AND ELECTRIC LINES

Make sure that there are no electric lines
and obstacles of some kind.



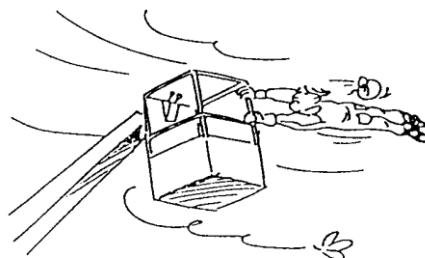
STROKE AND THRUSTING AGAINST OBSTACLES

The stroke and/or the thrusting against an obstacles
(opening/closing and/or lifting/lowering) may create
structural damages to the machine and serious risks of
tilting of the platform. Before and during the movements,
always verify visually the encumbrance of the machine
structure in all the directions (with particular attention to
the hidden parts, such as the lower part of the basket).



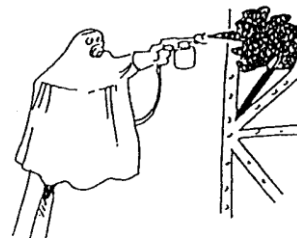
SAFETY BELTS

Mind to maximum working wind.
ALWAYS AND PROPERLY use
safety belts (attacks belts on the basket
are for one person to attack)..



PROTECTIONS

When performing special works,
safeguard yourself and the machine.



IN THE BASKET

Never use ladders, boards, or other object,
IT IS FORBIDDEN to mount onto the banister.



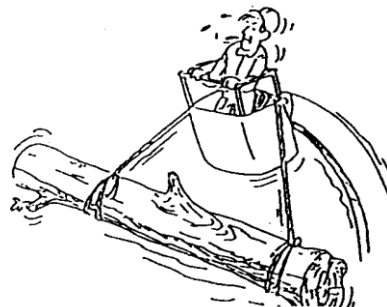
IN THE BASKET

Never exceed loading capacity allowed in the basket.



LIFTING

Never use the platform as a lifting device, not even for small weights.



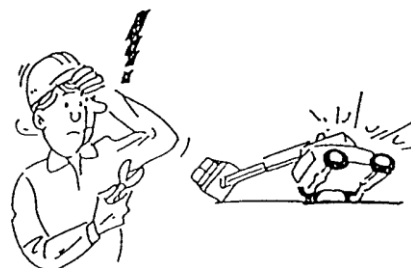
SAFETY BELTS AND HELMET

Always use safety belts and helmet.
Do not fasten belts to structures outside the basket BUT ONLY TO THE INDICATED SPECIAL CONNECTIONS (each attack is for a person) .



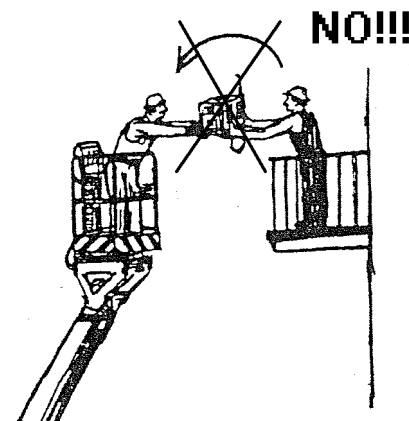
REPAIRS AND MODIFICATIONS

Do not carry out any repair or modification unless at authorised repair shops.



ATTENTION !!! LOAD ON HEIGHT

Do not load the basket while it is in height with tools or people. This operation can cause the tilting of the machine or serious damages to the structure.



IMPORTANT!!! CONSISTENCY OF THE GROUND

During the manoeuvres of installation of the outriggers give attention to the ground where you will put the outriggers plates.

You always have to verify the consistency and the solidity of the ground and, if it's necessary, interpose the right uprated baseplates to obtain a better load distribution transmitted to the ground (if you have doubts ask information to the yard manager or to a civil engineer experienced of the ground consistency).

For the load values transmitted to the ground from the machine's outriggers, see chapter 3 "Characteristics and performances", and for the consistency ground values you can find a chart of the allowable pressures of some kinds of ground below.

For the calculation of the specific pressure loaded on the ground from the outriggers use this formula:

$$P = F/A$$

where:

P= specific pressure loaded on the ground by the outrigger (daN/cm²-kg/cm²)

F= maximum load of the outriggers (kg-see chap. 3)

A= area/bearing surface of the outrigger (cm²)

Example for the platform with F= 3200 kg and the baseplates with surface A= 400 cm² (dimensions 20x20 cm)

$$P = 3200/400 = 8 \text{ daN/cm}^2$$

With uprated baseplates with surface A'= 1600 cm² (dimensions 40x40 cm)

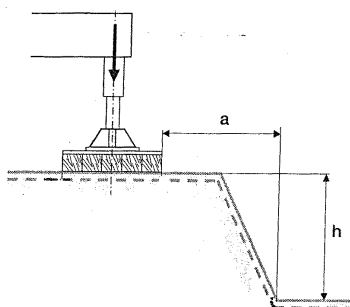
$$P' = 3200/1600 = 2 \text{ daN/cm}^2$$

Chart with the values of the ground consistency

Kind of ground	Specific pressure allowable (daN/cm ²)
Shifted grounds, not compact	1 - 2
Compact and granular grounds (sand)	2 - 6
Compact grounds (sand+gravel)	4 - 10
Rocks of middle consistency (limestone-sandstone)- paving suitable for the transit of the heavy means	10 - 15
Rocks of remarkable consistency (strong limestone-strong sandstone)	15 - 30
Compact rocks (porphyry-basalt-granite)	30 - 50

IMPORTANT!!! – SECURITY DISTANCE FROM DITCHES/SLOPES

During the installation of the outriggers, keep always a sufficient security distance from ditches and slopes. This distance is a consequence of the kind of ditch/slope (propped and not propped) and of the kind of ground (we advise you to ask information to the yard manager or to a civil engineer experienced of the ground consistency). We give you below the scheme/theoretical rule:



In case of ground subject to landslides or reported - $a = 2xh$

In case of compact ground, not subjected to landslides or reported - $a = 1xh$

***** CHAPTER 3 *****

DESCRIPTION, CONTROLS, FEATURES,
PERFORMANCES, EMERGENCY AND PUTTING INTO
OPERATION PROCEDURE

The documentation contained in this chapter is composed of
n° 26 pages, this included..

Important.: dimensions and weight reported have $\pm 5\%$ of tolerance

Description of the machine

3.1 Declared use of the machine

The Socage aerial working platform is designed and realised for lifting and moving people, who are housed inside a levelled basket, through space in all of the field of movements that can be performed.

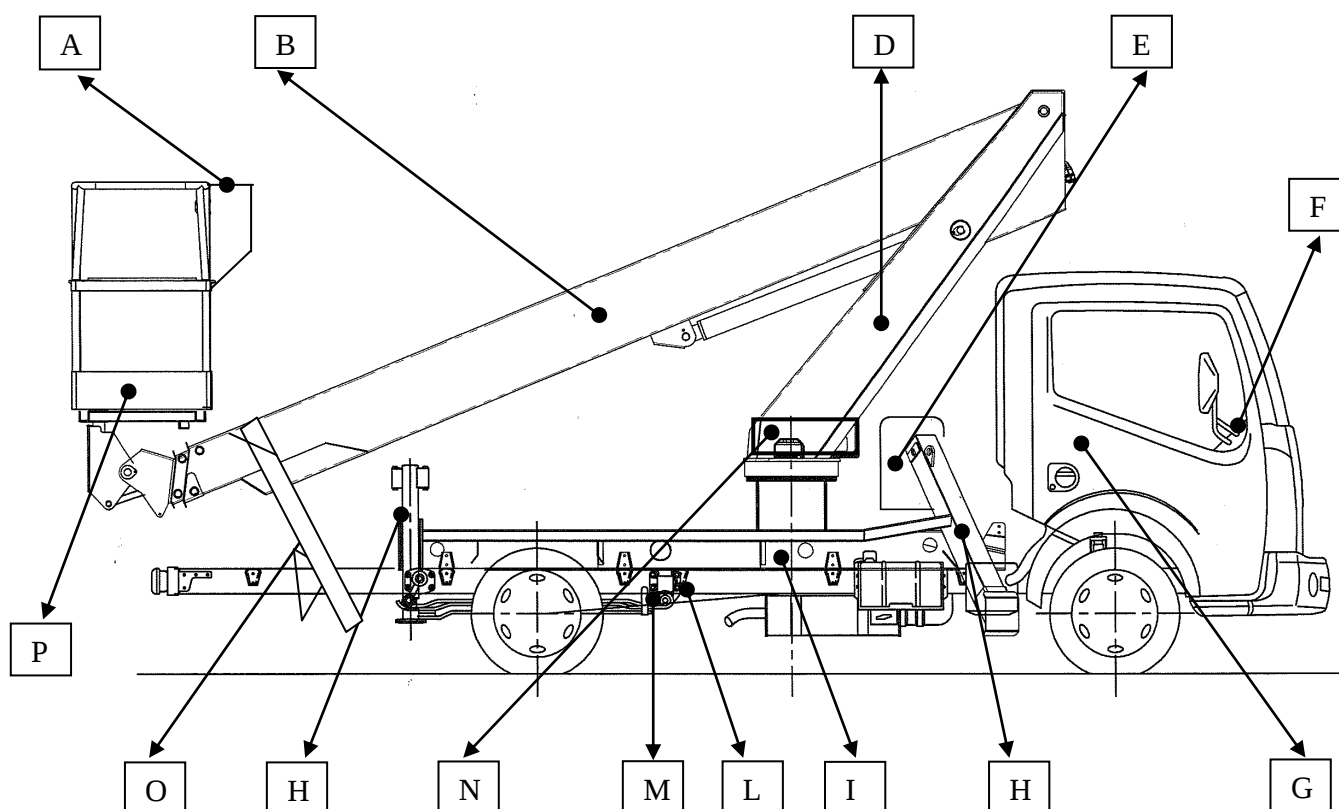
The platform lifts the staff vertically, allows horizontal movement by means of the joints and extensions and allows angular movements via the rotary turret.

The machine works with the outriggers pressed to the ground, the chassis levelled and the truck suspensions discharged.

Staff can take tools into the basket up to the maximum capacity indicated.

Once at height, the staff cannot tranship objects .

3.2 Main components



A – Controls in the basket

Hydraulic distributor for the movement of the basket platform.

B – Main telescopic boom

Telescopic boom with extension and swivelling realised with two hydraulic cylinders.

D - Turret

In top quality sheet steel, it is composed of a main press-bent body and electro-welded reinforcements. It is installed on the fifth wheel coupling support of the superstructure; rotation is ensured by a hydraulic motor with worm screws and automatic brake in work position. A rotating hydraulic distributor allows continuous rotation of the superstructure with respect to the chassis.

E – Oil tank

It is the tank that contains the oil for powering the machine's hydraulic plant, complete with MIN/MAX level.

F – Control board in cab

To check the correct insertion of the power take-off and activation of the plant. It is equipped with a timer in order to detect functioning times.

G – Power take-off control

For mechanical insertion of the power take-off.

H - Outriggers

With individual or simultaneous descent, they are fixed to the secondary frame.

I – Base frame

It is the top quality steel support structure for fixing the aerial part to the truck. It is finished with a walking floor in slip-proof aluminium.

L – Emergency hand pump

Hand pump for emergency descents.

M – Outrigger controls

Hydraulic distributor and panel for selecting outrigger movement.

N – Emergency controls

For moving the machine from the ground during descent in emergency conditions.

O – Access steps to the operator basket

Positioned in the rear part of the base frame, used for access to the basket.

P- Operator basket

It is the car that hosts the operator/s and the tools. It is realised in aluminium tubular with dimensions of 1400x700x1100 mm. Option available is a plastic basket with size 1400x700x1150 or a fibreglass basket with size 1400x700x1100mm (basket capacity decrease to 200kg) .

HYDRAULIC PLANT POWER SUPPLY

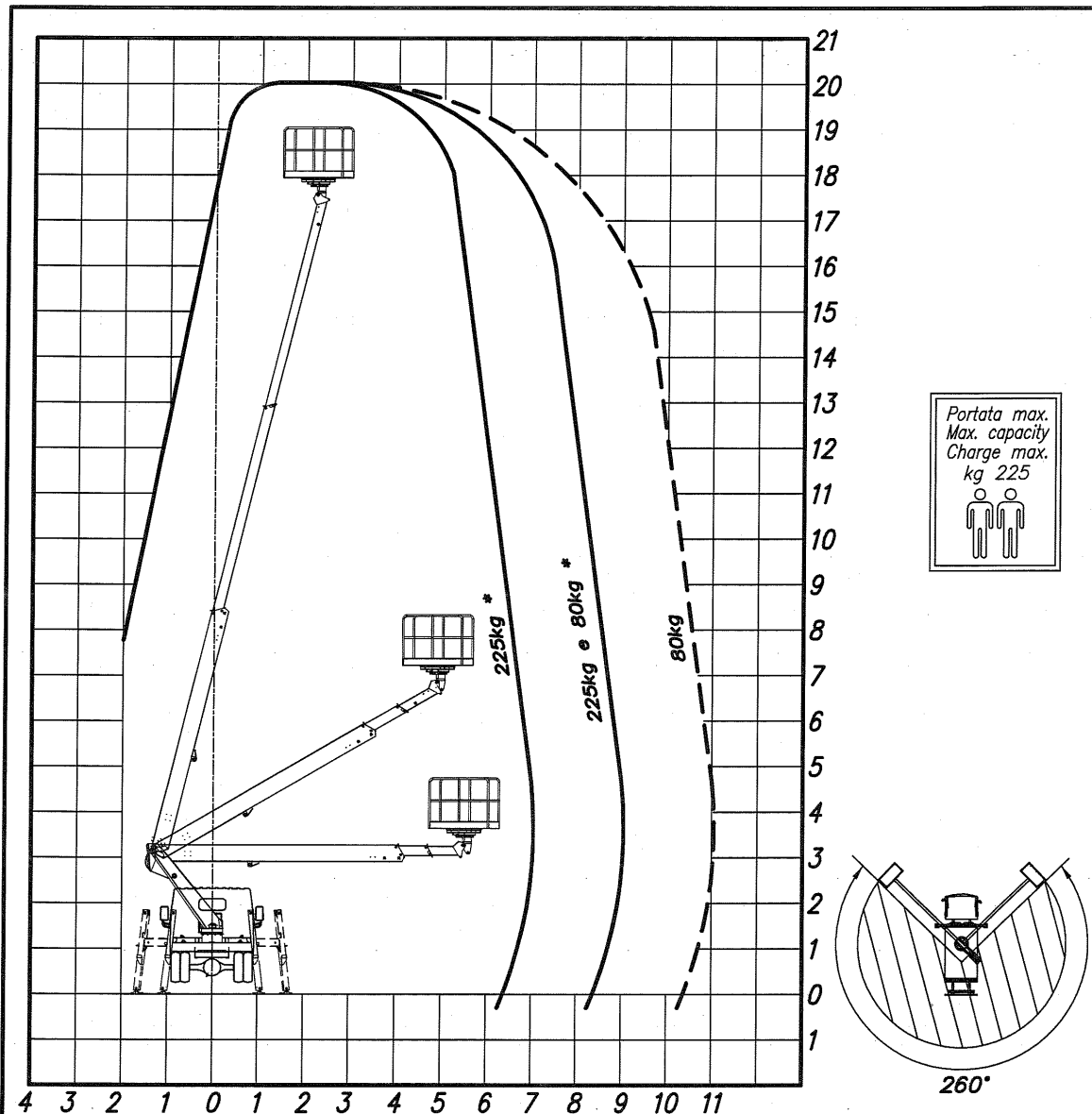
Power supply with pump coupled to the truck power take-off, with coupling control positioned in the driver's cab, completed by a luminous insertion indicator, positioned on the dashboard.

3.3 Technical features

Model	T 320	SO-0029
Wheelbase Stabilization	ME+H	(~2100/3200mm - ~2100 mm)
Maximum work height	m	20.00
Basket walking floor maximum height	m	18.00
EXTENDED OUTRIGGERS PERFORMANCES (~3200mm - ~2100 mm)		
Rear-lateral working area		
Maximum work reach	m	9.00
Basket maximum outreach	m	8.30
Front working area		
Maximum work reach	m	7.00
Basket maximum outreach	m	6.30
CLOSED OUTRIGGERS PERFORMANCES (~2100mm - ~2100 mm)		
Rear-lateral working area (no front area)		
Maximum work reach	m	7.00
Basket maximum outreach	m	6.30
Standard capacity	kg	225
Dimensions of aluminium basket	mm	1400x700x1100
Dimensions of polyethylene basket (optional)	mm	1400x700x1150
Dimensions of fibreglass basket (optional)	mm	1400x700x1100
N.B: capacity decrease to 200kg		
Superstructure rotation	°	Continuous
Basket rotation	°	90° right, 90° left
Lifting speed	m/s	0.4
Extension speed	m/s	0.4
Rotation speed	m/s	0.7
Maximum load under the outriggers	kg	3200
Specific load under the outriggers	daN/cm ²	12
Travelling dimensions	See layout page 3.6	
Level of machine vibrations	m/s ²	< 0,25
Noise intensity level LWA	dB	80
Note: The noise produced is caused by the motor of the truck, the detection of the noise on the platform at 1.60 m from the walking floor during the ascent, descent and extension phases has not signalled noise pressure exceeding 80 dBA		

important.: dimensions and weight reported have $\pm 5\%$ of tolerance

REAR-LATERAL WORKING AREA



* Versione in sagoma

CARATTERISTICHE TECNICHE – TECHNICAL SPECIFICATIONS

ALTEZZA MAX DI LAVORO – MAXIMUM WORKING HEIGHT 20m

ALTEZZA PIANO DI CALPESTIO – WALKING FLOOR HEIGHT 18m

SBRACCIO MAX DI LAVORO CON ROTAZIONE CESTO 11m

PORTATA – MAXIMUM CAPACITY LOAD 225 Kg

Area valida per settore posteriore e laterale

TOLLERANZA SULLE PRESTAZIONI INDICATE $\pm 3\%$ IN RAGIONE DELL'ALLESTIMENTO E DEGLI ACCESSORI
THE WORKING DIAGRAMS CAN VARY BY $\pm 3\%$ DEPENDING ON THE TYPE OF INSTALLATION AND ACCESSORIES

I dati e le dimensioni sono forniti a titolo indicativo e non impegnativo.

Data and descriptions are approximate and not binding.

Toutes les données et descriptions sont fournies à titre indicatif, sans engagement.

Angaben und Beschreibungen sind nicht verbindlich.

socage

PIATTAFORMA
AERIAL WORKING
PLATFORM

T320 su Cabstar

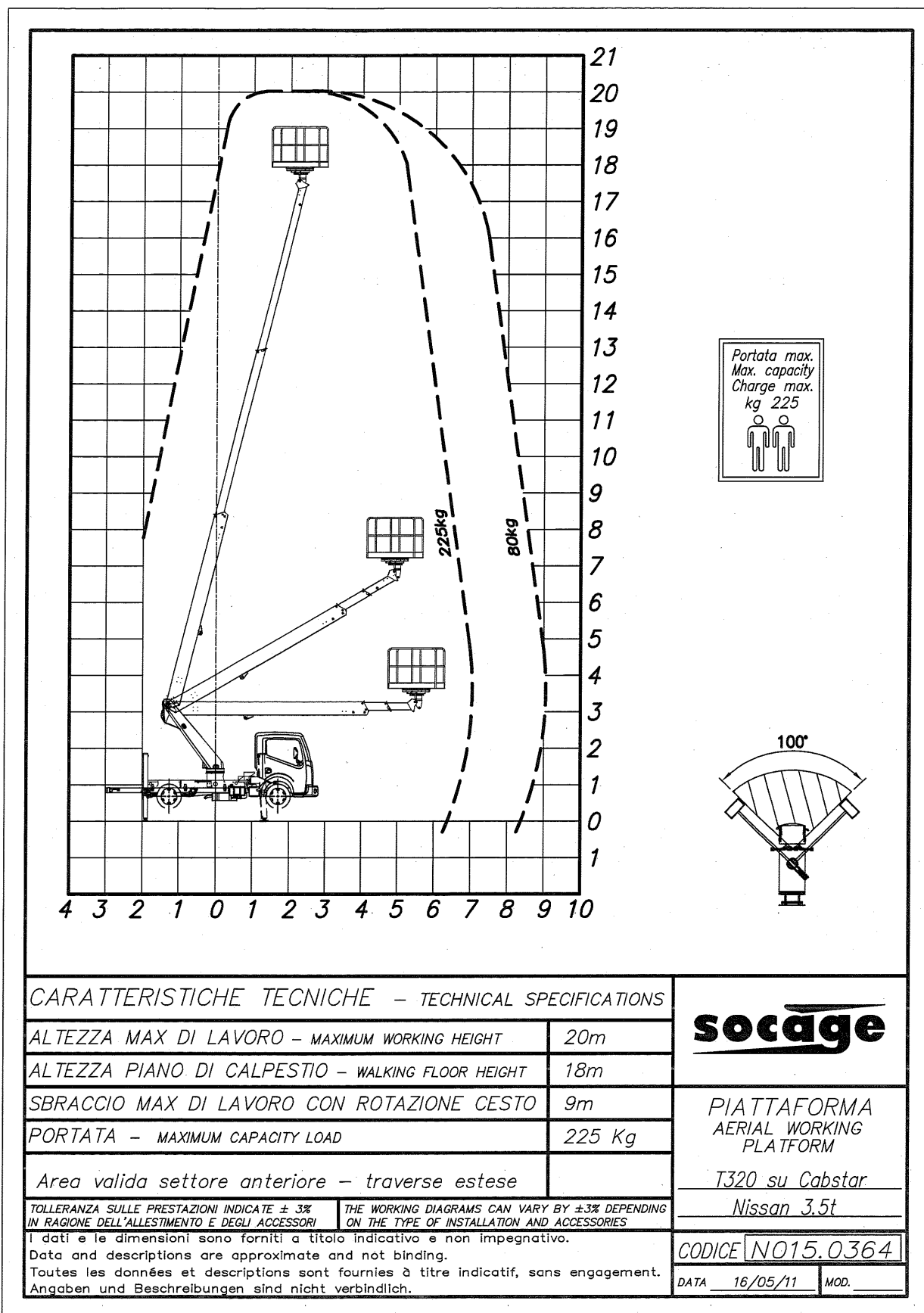
Nissan 3.5t

CODICE N015.0364

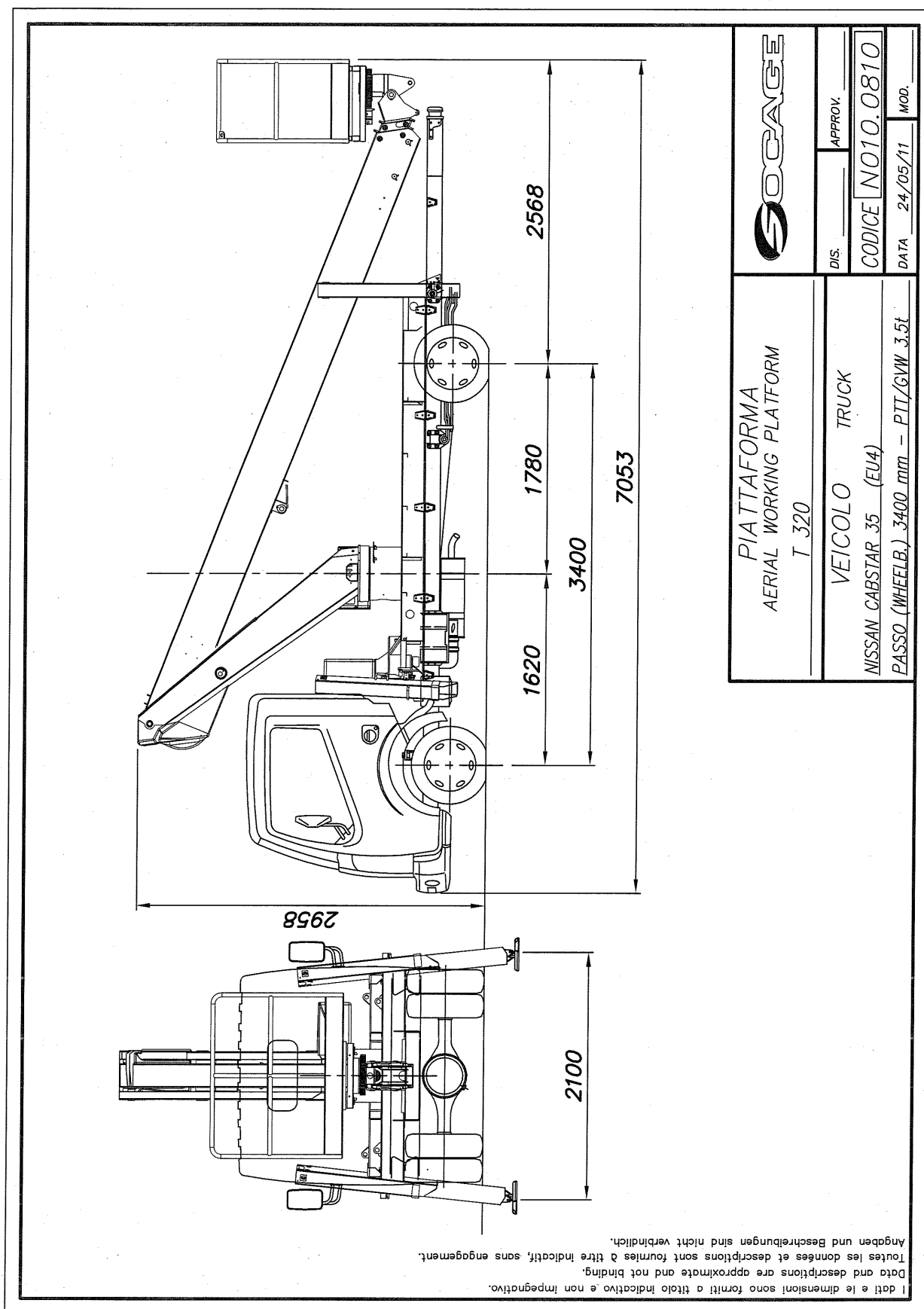
DATA 16/05/11

MOD.

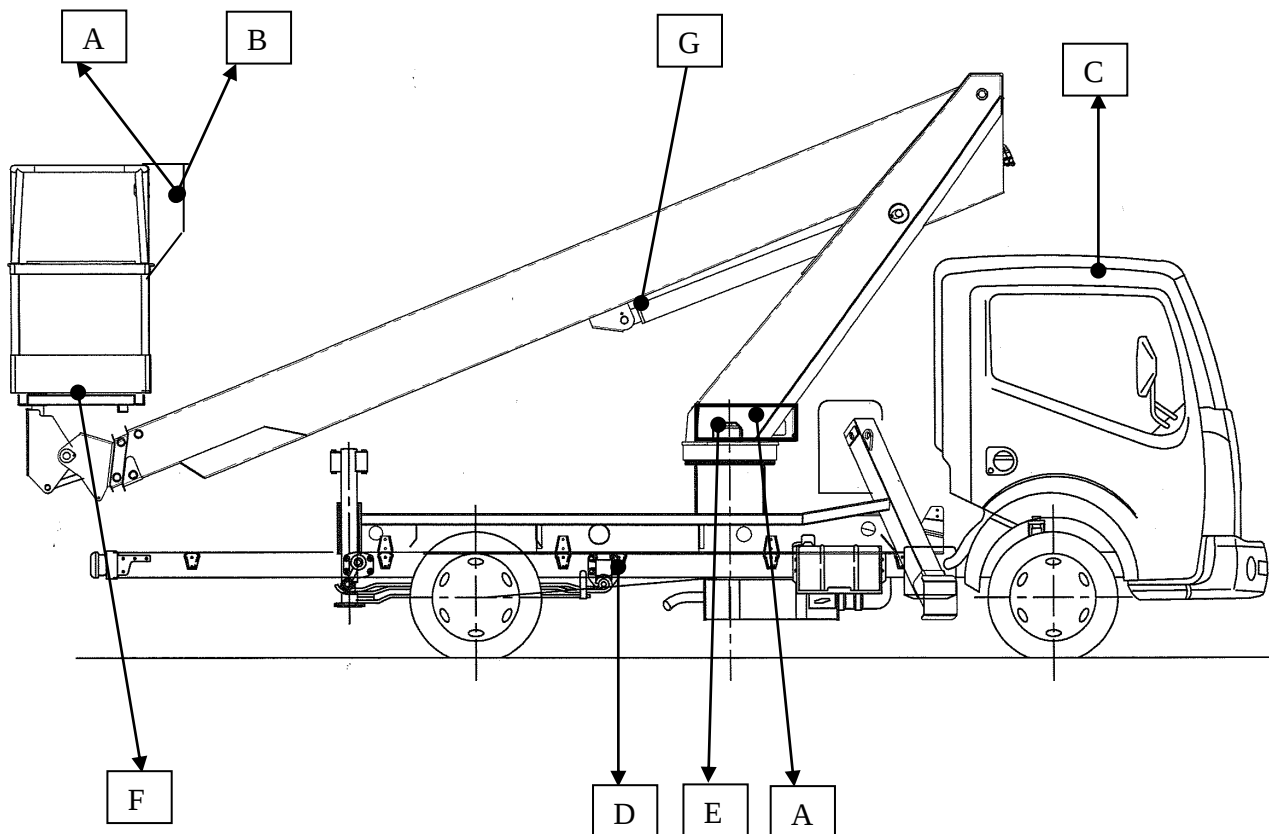
FRONT WORKING AREA (only with extended outriggers)



GENERAL LAYOUT



3.4 Safety devices



A – Emergency stop buttons

They are present on the turret and on the controls in the car. They stop any platform function in the case of an emergency.

B – Manual basket levelling

Allows manual levelling of the basket when the boom is in the rest position.

C – Rotating flashing light

It is installed on the cab of the truck to signal when the platform is functioning

D – Hand pump for emergency descent

Allows to move the platform and take it back to travelling in the case of breakdown. Depending on set-up, there may be an emergency electric pump present, available as an optional and powered by the truck battery.

E – Emergency controls

They are present on the rotary turret and are used to move the platform in emergency condition.

F – Load limiting device on the basket (optional)

Device that blocks all platform movements if the basket is loaded with more than the maximum capacity accepted.

It is mounted as per standard in the cases in which the platform is set-up with basket capacity of 250 kg.

G – Moment straddle limiting device

Limiting device which controls maximum straddle of the basket in relation to the load present in the basket.

Flanged block valves on all cylinders

Cylinder movement is stopped if a hydraulic pipe breaks or there is a pressure drop.

Protections on electric and hydraulic plant

All flexible hoses and cables are equipped with wear-proof and burst-proof protections.

Outriggers/boom interlock

The outriggers controls are only activated if the booms are in the rest position and if the appropriate control has been selected in the turret panel. If this is not the case, they cannot be used.

Once the machine is stabilised a green light switches-on on the outriggers selection panel and, by selecting the desired position on the panel in turret (basket or turret), it is possible to lift the telescopic boom and start to work.

With the boom open it is no longer possible to activate the outriggers even by selecting the control in turret.

Rotation brake in work position

Once the rotation movement has been stopped, the turret is immediately blocked to prevent any movement during aerial work.

Maximum pressure valves

They prevent the maximum pressure in the hydraulic plant, at which the platform is calibrated, from being exceeded.

Safety belt attachments

Positioned on the basket, they are used to attach the operator's safety belts during use of the platform.

Anti-crash

The platform is equipped with an automatic anti-crash system, which prevents contact of the booms with the cab of the vehicle and the basket with the telescopic arm. Introduction into the critical area is signalled by the flashing anti-crash button and the blocking of movements. By pressing the anti-crash button, the system deactivates and the equipment moves regularly. On release of the button, the system becomes active immediately.

Inclinometer

This is a device that measures the angle of the base of the frame and that, together with the consent of the stabilizer pressed to the ground, allows the opening of the machine only when the angle of the machine meets the conditions of beginning regular work (within 2° - green light stabilisation lit). Beyond the threshold of 2° tilt the machine does not have the consent to the opening of the superstructure.

With the machine in work position (opened), if you exceed the 2° tilt, the intervention of the inclinometer does not block the movements, but activates an acoustic alarm, and the flashing red indicator light on the turret electric panel.

N.B. – CHECK EVERY WEEK, THE EFFICIENCY OF THE DEVICE BY STABILIZING THE BASE WITH INCLINATION ABOVE 2° AND AND CONTROLLING THAT THE OPENING OF THE SUPERSTRUCTURE DOESN'T OPERATE

Other possible platform supplies

- **Basket rotation** 90° right + 90° left
- **Hydraulic socket** in the basket
- **Auxiliary electric pump** with 230 V single-phase motor, complete with control board, protection and battery-charger
- **Pneumatic socket** in the basket
- **Galvanised metal trunk** mounted under the box
- **Fixed sides** in aluminium
- **Hinged sides** in aluminium

Load limiting device

MOMENT LIMITING DEVICE (MECHANICAL)

This machine is equipped with a Limiting device which controls maximum straddle of the basket.. Maximum straddle is indicated on the working diagrams in relation to the load present in the basket.

When the Limiting device enters into function, it is impossible to perform any hard function (lowering/opening) while operations to bring the basket in a safe position are still allowed. This Limiting function is created by the thrust read-out of the lifting cylinder to the turret combined with arm climbing read-out; this system allowed to stops these movements in a security position.

Before the above indicated stop (90% of the maximum straddle approx.), a sound alarm enters in function to forewarn the operator of the lock to maximum straddle.

N.B. BEFORE STARTING TO WORK, IT IS ESSENTIAL TO DAILY CHECK, THE EFFICIENCY OF THE DEVICE AND COMPLIANCE TO MAXIMUM STRADDLE MEASURES WHICH ARE INDICATED INTO WORKING DIAGRAMS.

IN CASE OF MANUAL WORKING OF CONTROLS (EMERGENCY), MOMENT LIMITING DEVICE IS NOT ACTIVE; ALWAYS PERFORM COMPLETE CLOSING OF OPENING DEVICES AS FIRST MOVEMENT.

Adjusting, calibration and replacing interventions, should be carried out at SOCAGE 's authorised service shops only.

WORKING PROGRAMME DEFINITION

This machine is equipped with a limiting device, that automatically allows to set the machine performance in relation with the load present inside the basket. Preventively consult the working diagrams in the use manual and on the control board to assign the possible performances in relation to the load present in the basket.

For the user's safeguard, it is essential to:

- MAKE SURE THAT THE LOAD YOU WANT TO PUT IN THE BASKET DOESN'T EXCEED THE ALLOWED WORKING LOADING CAPACITY.
- DON'T YOU PUT LOAD IN THE BASKET WHEN IT LIFTS;

A SIGNAL LAMP AND AN ACUSTIC ALARM WARN BEFORE YOU REACH THE MAXIMUM STRADDLE.

ATTENTION
IT'S FORBIDDEN TO ADD LOAD WHEN THE MACHINE IS LIFT

BASKET AUTOMATIC LEVELLING SYSTEM

The basket automatic hydraulic levelling system is realised with two closet circuit cylinders; the first acts as a motor (controlled by boom ascent/descent) and activates the second (applied to the end of the boom) that keeps the basket in horizontal position.

When starting work, it is important always to control the correct synchrony of the system

To control and restore correct levelling, if necessary, proceed as follows:

- { Enter in the basket and hold the red lever of maneuver and lift the mechanical lock plastic, so as to exclude the locking of the axial movement
- { Taking lifted the block activate the manual control in both directions, in a way to incline the basket in both directions by ($\pm 5^\circ$)
- { restore correct horizontal basket levelling
- { at this point the basket levelling system is perfectly zeroed and the machine can be used

ATTENTION:

The command of the manual levelling of the basket can be operated even when the machine is open. Always operate very slowly and smoothly, so as to avoid the danger of skidding / abnormal inclinations of the basket.

INCLINOMETER

This is a device that measures the angle of the base of the frame and that, together with the consent of the stabilizer pressed to the ground, allows the opening of the machine only when the angle of the machine meets the conditions of beginning regular work (within 2° - green light stabilisation lit). Beyond the threshold of 2° tilt the machine does not have the consent to the opening of the superstructure.

With the machine in work position (opened), if you exceed the 2° tilt, the intervention of the inclinometer does not block the movements, but activates an acoustic alarm, and the flashing red indicator light on the turret electric panel.

N.B. – CHECK EVERY WEEK, THE EFFICIENCY OF THE DEVICE BY STABILIZING THE BASE WITH INCLINATION ABOVE 2° AND AND CONTROLLING THAT THE OPENING OF THE SUPERSTRUCTURE DOESN'T OPERATE

LOAD LIMITING DEVICE (optional)

Load limiting device with maximum intervention threshold within 120% of the nominal capacity with block of all machine movements and intermittent acoustic warning that the load accepted has been exceeded. To take the machine from the block condition to that for use, the excess weight must be unloaded until lying within the accepted limit.

NB: the platform maximum load control system does not exempt the operator from controlling that the weight of the tools or the material to be loaded necessary for work or maintenance, is not greater than the maximum load accepted for the various declared uses of the platform

START-UP PROCEDURE

a) Stabilising the platform

1. Enter the vehicle cab.
2. Insert the parking brake.
3. Position the gear lever in the neutral position, keeping the truck engine ticking over.



The truck engine rotation MUST NOT exceed 1000 rpm



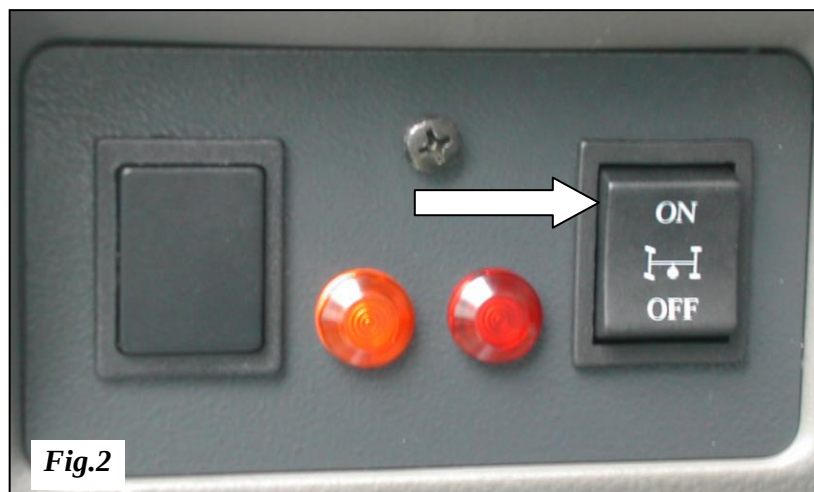
The maximum inclination accepted for the chassis is 2°

At this point, the platform electric plant power supply indicator switches-on on the panel in the cab.

Platform electric plant
power supply light on
– yellow



4. Press the clutch pedal.
5. Insert PTO:
 - if mechanic, place the lever between the seats in vertical position (picture1).
 - if electrical, keep pressed for a few seconds the push-button “ON” (picture.2) placed on the left of the steering wheel.



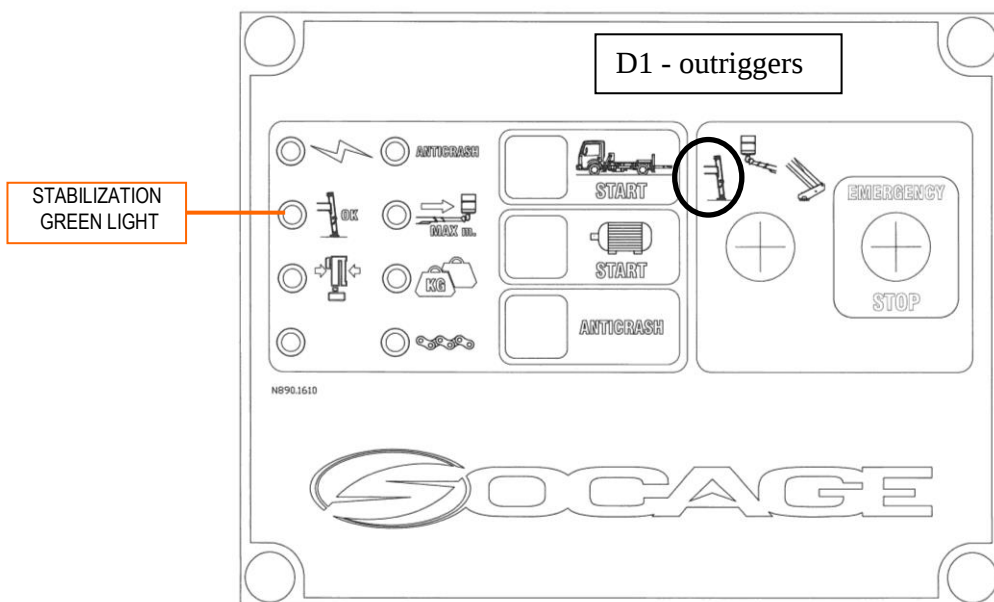
Release the clutch slowly.

If the power take-off has been inserted correctly, the power take-off red indicator lights up.

Power take-off inserted
light on – red



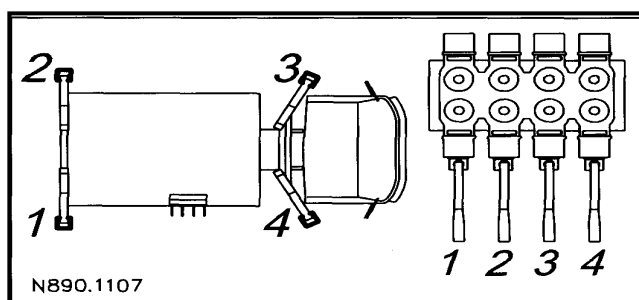
6. Go to the control board in the turret and position the selector switch key in position D1 – outriggers (see fig)



7a. It is now possible to decide whether to stabilise the machine using closed beams or whether **to** firstly proceed with manual extension of the beams to obtain maximum stabilising plan, or greater machine performances. **(For detailed instructions and relative figures, see page 3.16)**

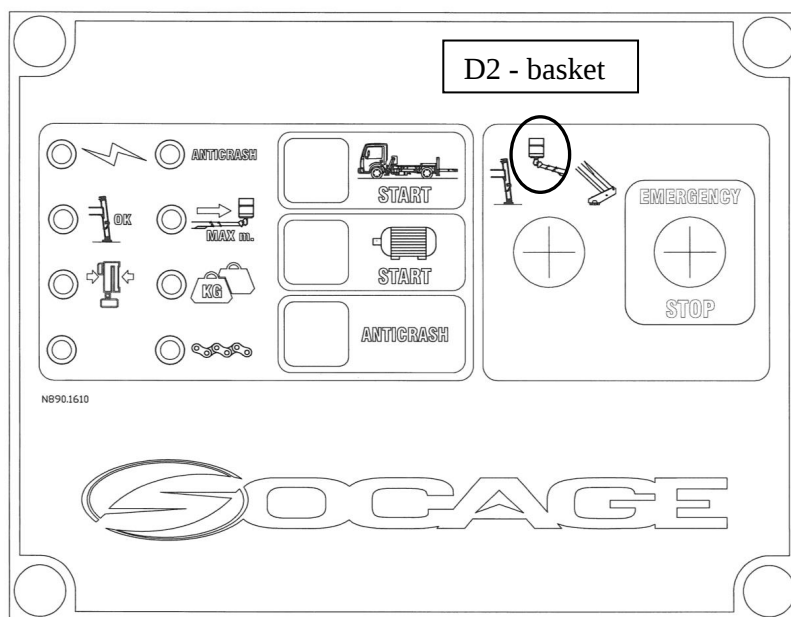
7b. To stabilise, push the levers of the control distributor of the stabilisers downwards. When the green light switches-on, on the turret panel, completely stabilise by activating the levers necessary so that the wheels are slightly lifted from the ground. Once stabilised, the consent is given for the use of the aerial part.

NB: always stabilise until centring the spirit level on the frame, at the side of the stabilisers levers.



b) Platform start-up

1. Turn the key to position D2 – basket controls.

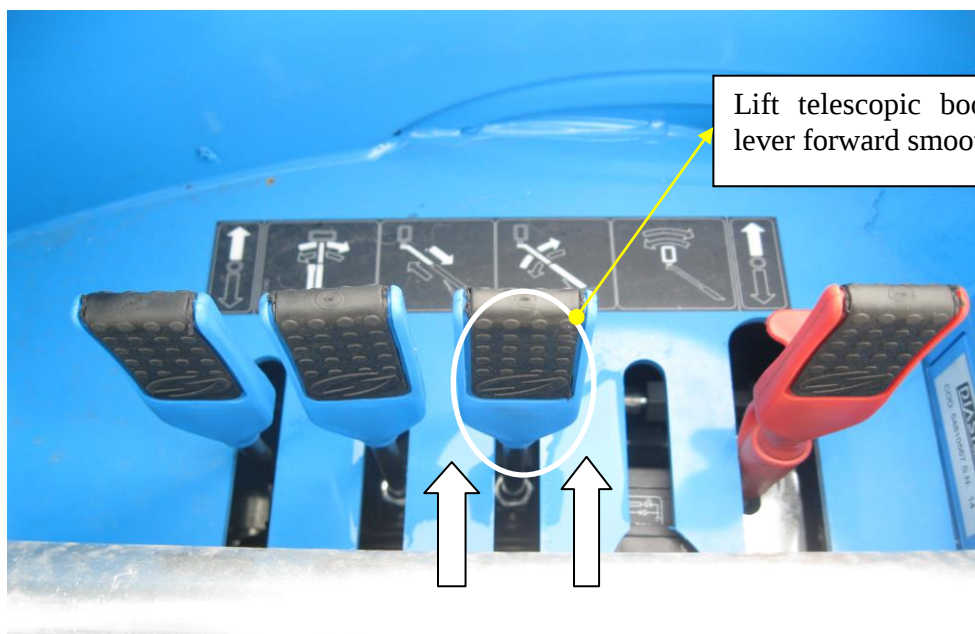


REMOVE THE KEY FROM THE SELECTOR BEFORE CLIMBING INTO THE BASKET.

2. Climb into the basket and wear the helmet. Fix the safety belts to the attachments indicated.



THE FIRST MOVEMENT TO BE PERFORMED IS LIFTING THE TELESCOPING ARM



If the oil temperature tends to exceed 70° C, a heat exchanger must be installed.

c) Closing the platform

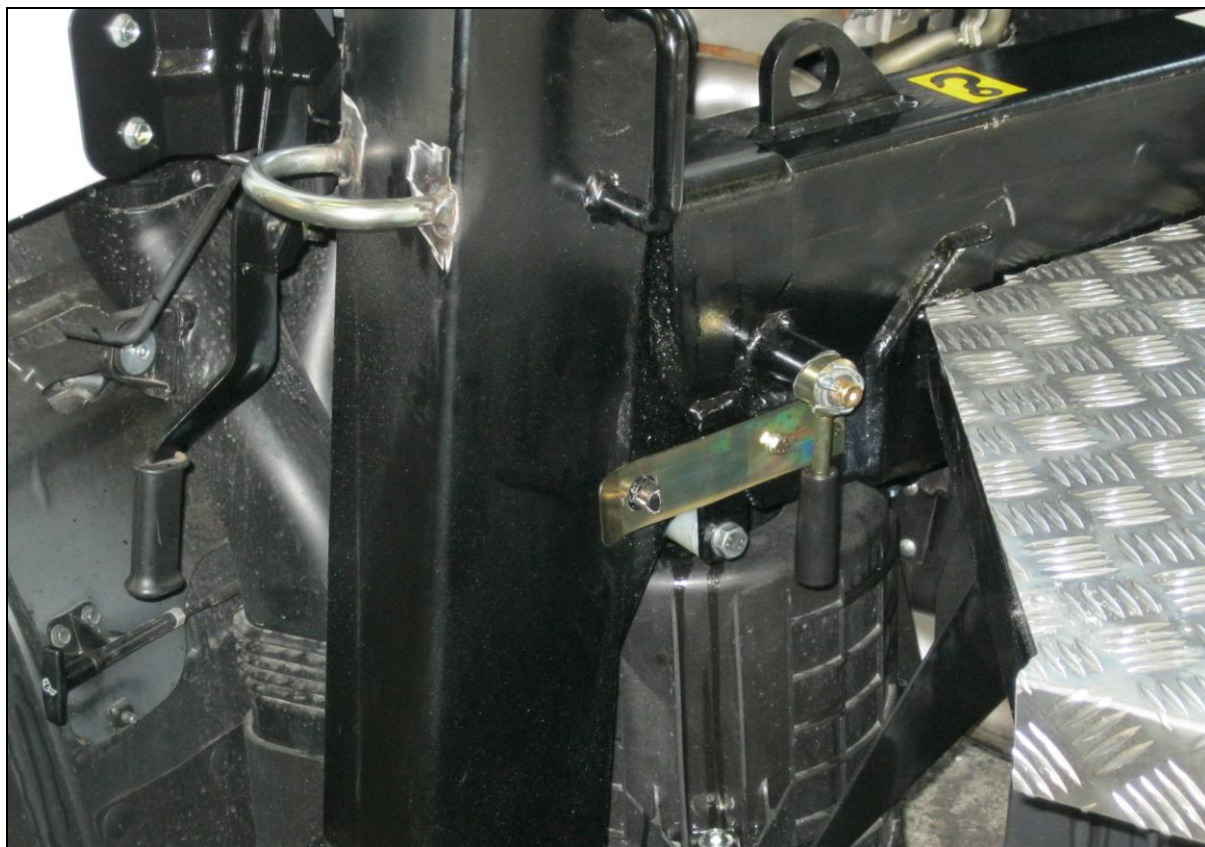
1. Retract the telescopic boom extension completely.
2. Centre the pantograph and close the bars.
3. Descent of the telescopic boom into the rest position.
4. Act on the outriggers control lever upwards, at the same time pressing the buttons corresponding to the front outriggers and alternating them with the rear ones so as not to cause stress to the lorry chassis.
5. Remove the key from the control panel in turret.
6. Disconnect the power take-off as follows:
 - a) Press the clutch button.
 - b) Disconnect the PTO as follows:
 - if mechanic, place the lever between the seats in horizontal position;
 - if electrical, keep pressed for a few seconds the push-button "OFF".
 - c) Release the clutch smoothly.



ALWAYS CONTROL THE CORRECT DISCONNECTION OF THE POWER TAKE-OFF BEFORE MAKING MOVEMENTS WITH THE TRUCK SO AS NOT TO CAUSE DAMAGE TO THE VEHICLE GEAR BOX!



INSTRUCTIONS FOR THE MANUAL EXTENSION OF THE STABILISING BEAMS



1. *Handles*
2. *Automatic hooking lever for retracted beam*
3. *Lever of the beam fixing pin*

CORRECT PROCEDURE FOR THE EXTENDING OF THE BEAMS.

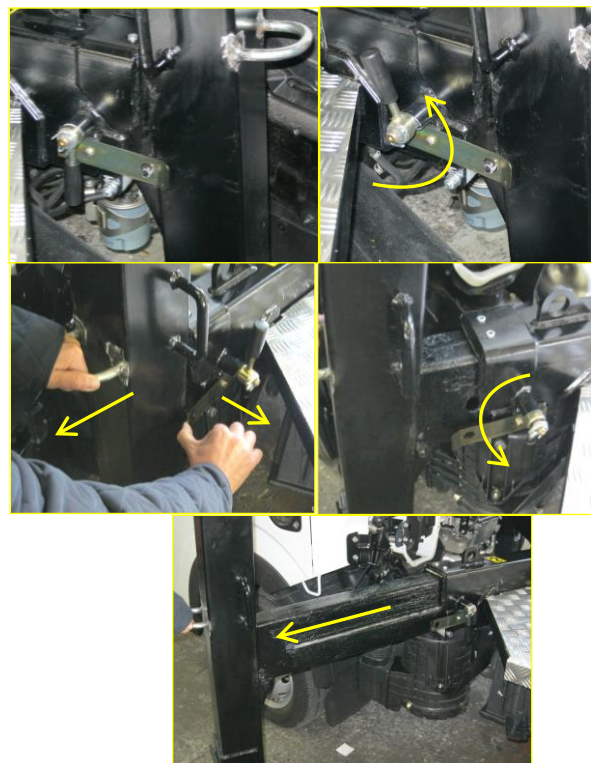
From the road running condition, before stabilising the machine, proceed as follows:

- Turn lever (3) 180° to free the beam from the fixing pin.
- Act on the automatic hooking lever (2) and remove the outriggers using appropriate handles (1) until they are free.
- Then bring lever (3) to initial position.
- Now completely remove the beams, paying particular attention to make the lever of the fixing pin of the beam click.
- Once the same operations have been carried out for all beams, it will be possible to proceed with the stabilisation.

ROAD RUNNING CONDITION

To bring the beams back in the road running condition:

- Turn lever (3) 180° to free the beam from the fixing pin and, using appropriate handles, slightly close the beams.
- Bring lever (3) back to initial position and completely close the beams, ensuring pin (3) and appropriate hooking lever (2) lock the beam.

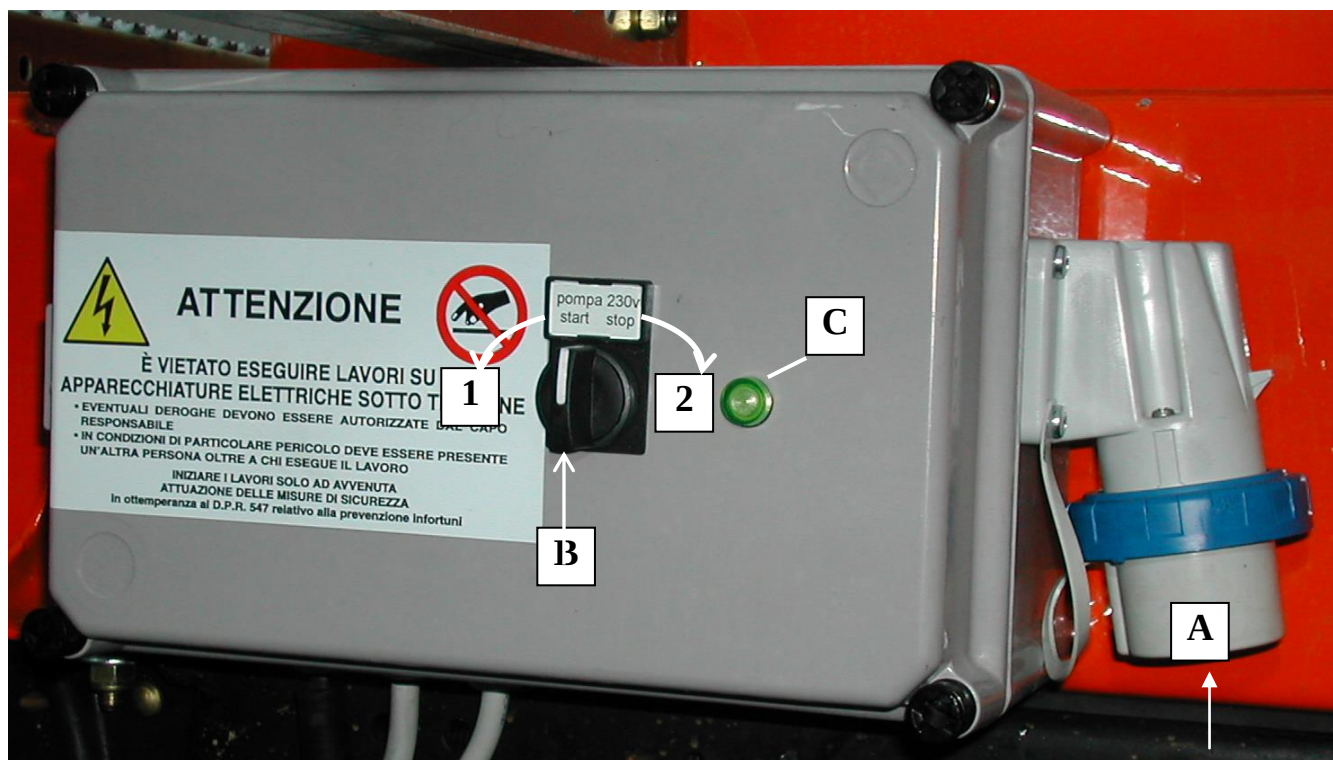


PROCEDURE FOR PUTTING INTO SERVICE WITH ELECTRIC PUMP (optional)

FOREWORD

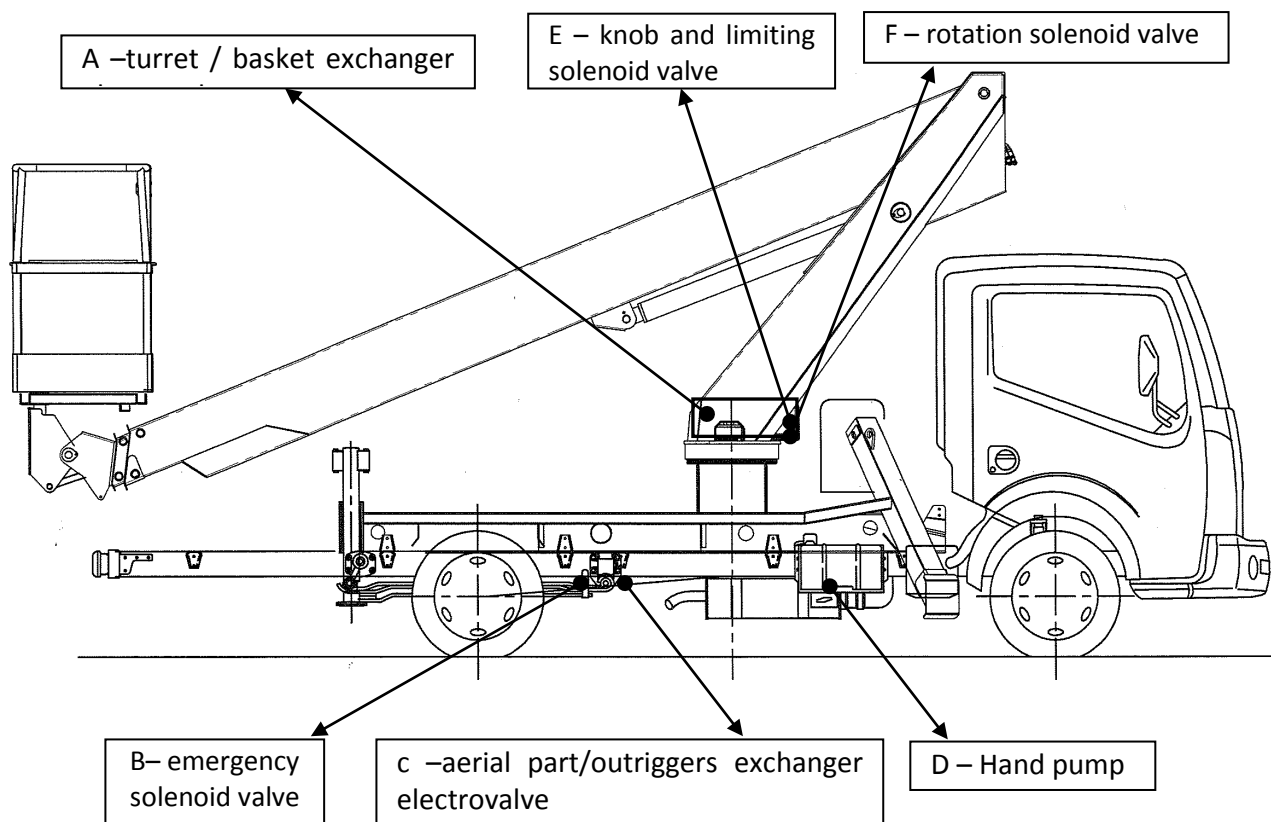
Read this manual carefully before starting to work with the machine. Until functioning of the controls and safety devices has been fully understood, try the machine from the position in the turret, without staff in the basket.

1. Place the truck in a suitable position to reach the work place and check the consistency of the ground on which the machine is being stabilised. Pay attention to the eventual presence of sewers and other points of subsidence, which are not recognisable from a surface examination.
2. Connect to the electric line (pos.A) and start the electric pump by turning the selector switch (pos.B) anti-clockwise, taking it to pos. 1 “START” (indicator C will switch-on).
3. Now, holding the electric button down, positioned on the control panel in the turret (see page 3.17 pos.4), act on the hydraulic distributor levers to obtain platform stabilisation.
4. At this point, using the control panel in the basket, it is possible to select the platform use option with auxiliary electric pump (see controls page 3.19 - pos.3) and proceed with normal use of the platform (see point 4 page 3.8)
5. To close the machine, the rest manoeuvres are obviously the opposite to those stated previously stated. For greater clarity, the sequence is the following:
 - BOOM RETURN
 - BARS DESCENT AND REST ON THE SUPPORT
 - TELESCOPIC BOOM DESCENT
 - DESELECTION OF THE ELECTRIC PUMP BUTTON ON THE BASKET CONTROLS
 - PRESSING THE ELECTRIC PUMP BUTTON IN THE TURRET AND RETRACTION OF THE OUTRIGGERS; (REMEMBER THAT THE MANOEUVRE IS ONLY POSSIBLE IF THE BOOM IS RESTING ON THE SUPPORT)
 - VISUAL CHECK OF THE RETRACTION OF THE FOUR OUTRIGGERS AND THE PERFECT REST OF THE SET-UP AND VERIFICATION OF THE INDICATORS POSITIONED IN THE TRUCK CAB FOR CORRECT CLOSURE
 - SWITCH THE ELECTRIC PUMP OFF BY TAKING THE SELECTOR “B” TO POSITION 2 “STOP”.
 - DISCONNECT THE CONNECTION PLUG TO THE ELECTRIC LINE (pos.A)



3.6 Machine closure in emergency conditions

In the case of fault or interruption of the hydraulic or electric power supply during use, the operator on the round can carry out closure by performing the emergency movement from the ground.



A – Exchanger electrovalve that diverts the oil from the controls in turret to the controls on the basket.

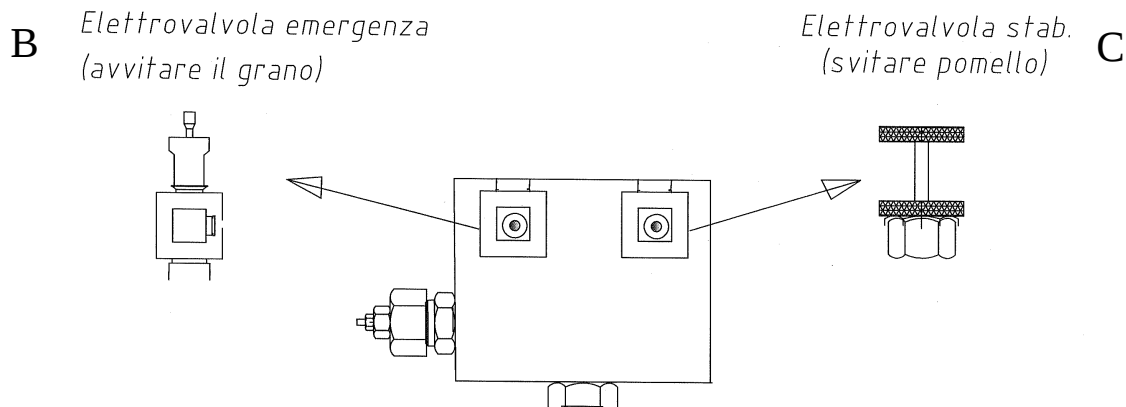
B - Emergency drain solenoid valve

C - Exchanger electrovalve that diverts the oil from the aerial part to the outriggers

D – Hand pump

E – Electro-valve discharging set-up for moment limiting device

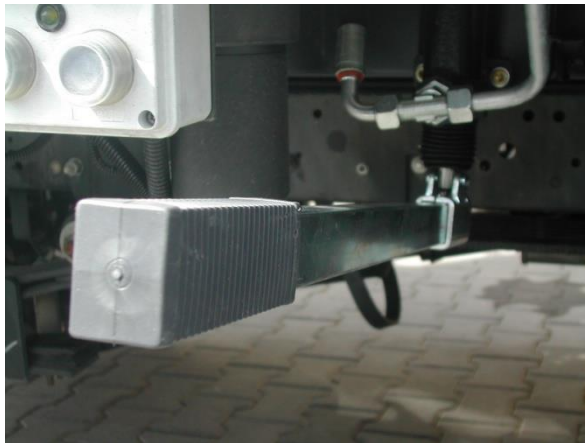
F – Rotation solenoid valve



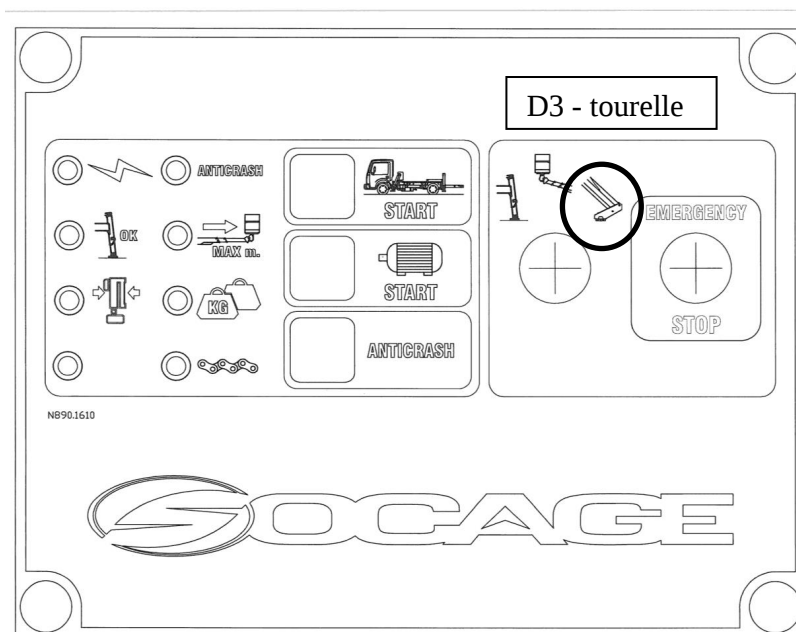
Hydraulic power supply failure

In the case of just hydraulic power supply failure, the machine can be moved with the aid of the manual pump proceeding as follows:

1. Take the manual pump grip, positioned in the truck cab, and insert it in the manual pump, positioned at the side of the outrigger controls.



2. Position the round controls selector at pos.D3 “turret”



3. Activate the controls in turret and at the same time activate the manual pump using the control lever to close the aerial part.
4. Activate the outrigger controls lever and at the same time act on the manual pump via the control lever to take the machine back to running conditions.

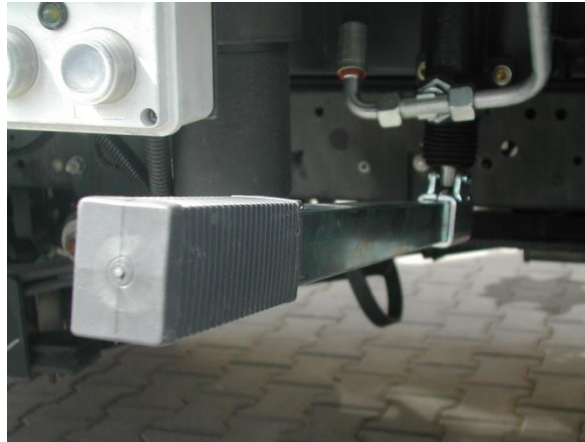


Contact a Socage authorised workshop to control the failure and seal the knobs of the solenoid valves again.

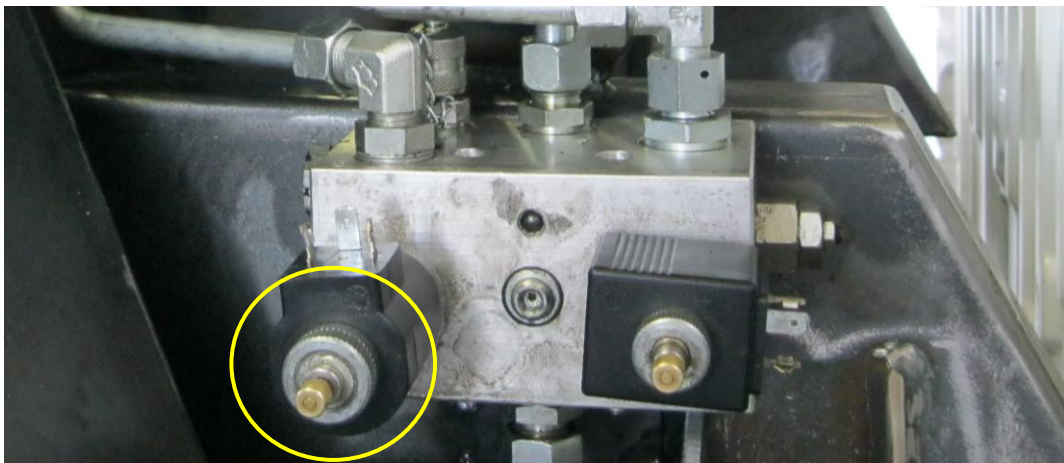
Electric power supply failure

In the case of just hydraulic power supply failure, the machine can be moved with the aid of the manual pump proceeding as follows:

1. Take the manual pump grip, positioned in the truck cab, and insert it in the manual pump, positioned at the side of the outrigger controls.



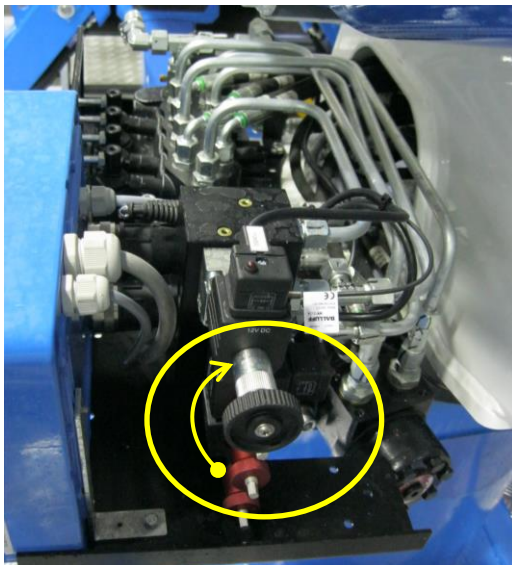
2. Remove the lead coating of the main drain solenoid valve, located under the frame, and exclude it by tightening the end run pin.



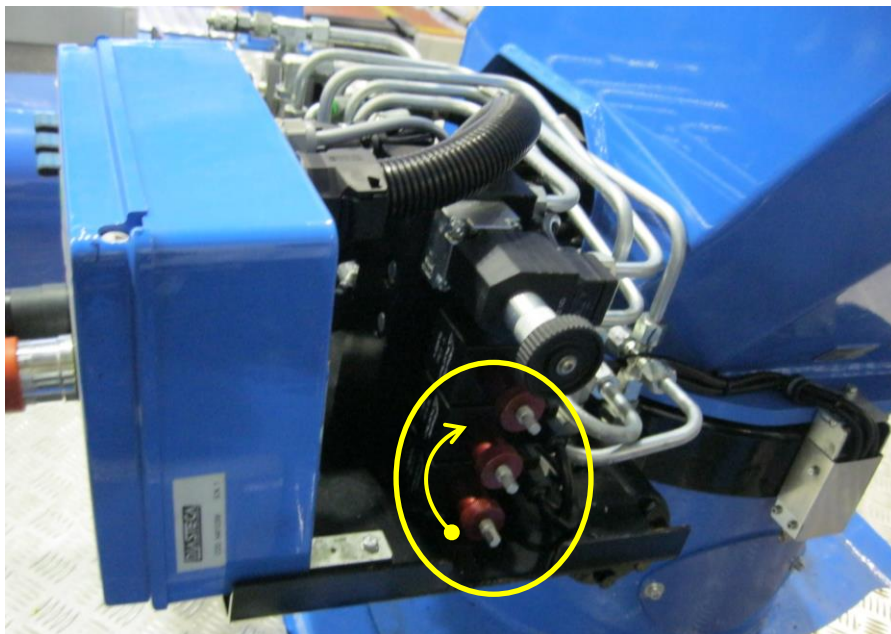
3. Remove turret's carter. Remove the seal from the knob (turret/basket exchanger electrovalve) and tighten it clockwise up to end run



4. Remove the protection in the turret. Remove the seal from the knob and to obtain the exclusion of the electro-valve discharging set-up, rotate clockwise up to end run.,

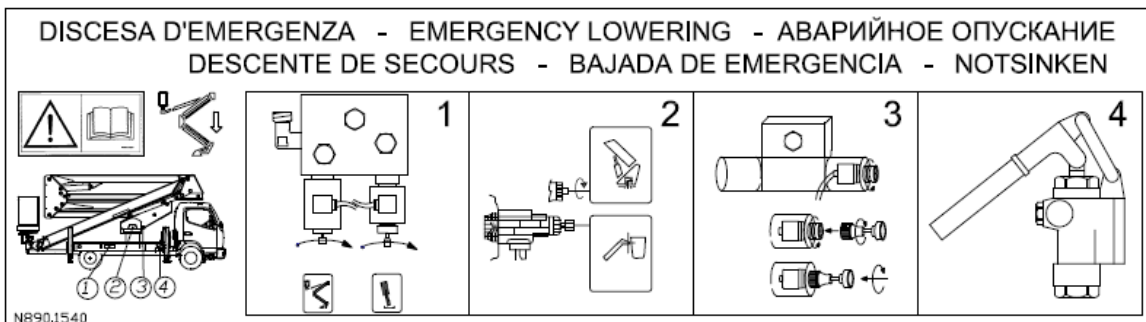


5. Exclude the rotation solenoid valves by tightening them to end run.



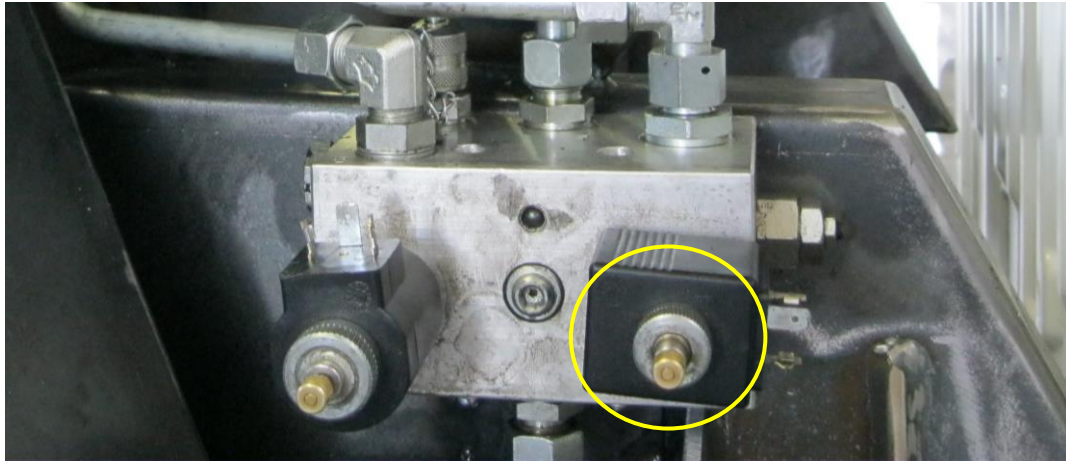
6. Activate the controls in the turret and at the same time activate the manual pump using the control lever to close the aerial part.

ADHESIVE SUMMARIZING THE EMERGENCY OPERATIONS



At this point to lift the outriggers and restore the machine running conditions:

7. Exclude the solenoid valve of the stabilisers by loosening the knob to end run



8. Activate the outriggers controls lever and at the same time action the manual pump using the control lever to take the machine back to running conditions.



When recovery operations have been completed, restore the following:

- Loosen the knob of the electrovalve in the turret up to end run and re-insert the protection sump.
- Loosen both knobs of the heat exchanger electrovalve at the side of the distributor up to end run.
- Remove the outriggers control lever.



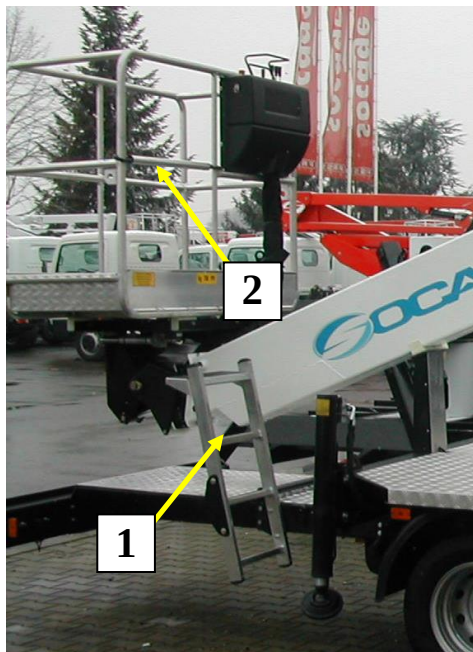
Contact a Socage authorised dealer to control the failure and seal the knobs of the electrovalves again.

3.7 Control board

ACCESS TO THE BASKET

1. Step for climbing onto the basket.
2. Basket protection sliding bar.

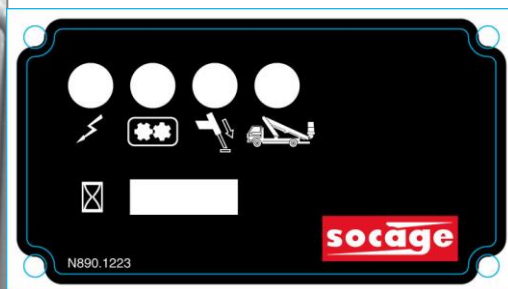
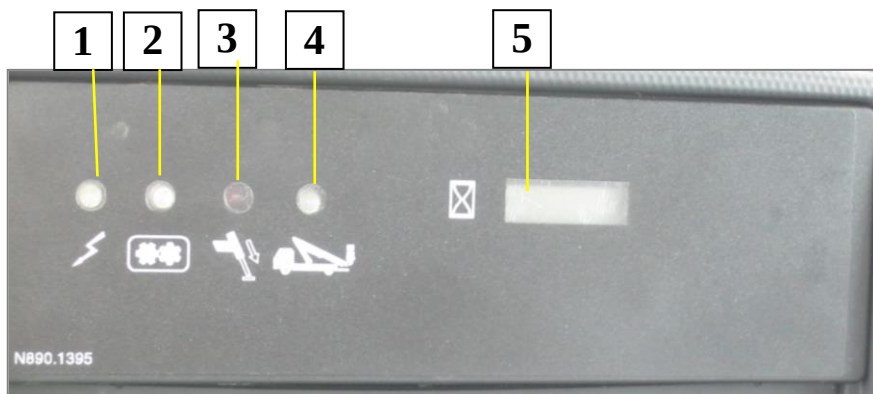
note: The slide bar access, returns automatically (by weight) in its position closing. Daily check the efficiency of the return automatic, using practice test



PANEL IN TRUCK CAB

The following are present on the panel inside the truck cab:

- 1- PLE power supply line white indicator light.
- 2- Power take-off inserted orange signal light.
- 3- Red indicator light signalling incorrect closure of the outriggers when moving
- 4- Green light indicating correct closing position of the platform – march position
- 5- Timer with simultaneous switch-on at the PLE electric control boards



COMMANDS AND CONTROLS

The positions indicated refer to the illustrations and hydraulic and electric layouts.

STABILIZATION

Stabiliser controls are located under the walking platform and are made up of four double acting hydraulic distributors. Perform lowering and climbing of stabilisers by working these distributors. For working arm opening, it is essential that all stabilisers are fixed to the ground. Once the arm has been lifted from its support on the frame, it is impossible to move stabilisers.

During machine closing, completely lower bars and, afterwards, the telescopic arm.

(!) WARNING (!)

The movements of “lifting-and-lowering stabilisers” have to be done symmetrically. That means to move the stabilisers altogether, at the same time. Otherwise, if they are moved singularly, than they have to be lifted or lowered alternatively, in graduation all four stabilisers. Better is if they are moved from two to two.

We underline the following:

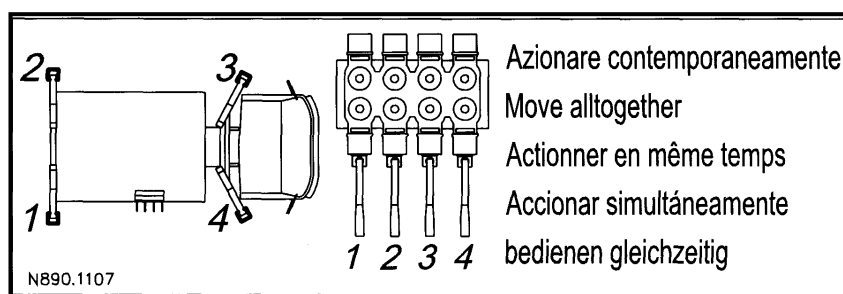
if the stabilisers are operated too much unbalanced, the frame, the basis structure of the platform and the stabilisers themselves can suffer for the effort.

If the machine has front slanted outriggers (towards the vehicle cabin) and back vertical outriggers it's necessary to put on the ground the front diagonal outriggers.

This is important to avoid a damage of the back vertical outriggers because of the sliding of the vehicle

DO NEVER OPERATE THE PLATFORM AS HERE FOLLOWING INDICATED:

NEVER LIFTING OR LOWERING COMPLETELY AND SEPARATELY ONE, TWO, OR THREE STABILISERS..



CONTROLS ON THE TURRET (Figure 015)

Controls realised with sensitised hydraulic distributors and with levers protected against accidental activation.

ELECTRIC CONTROLS AND COMMANDS

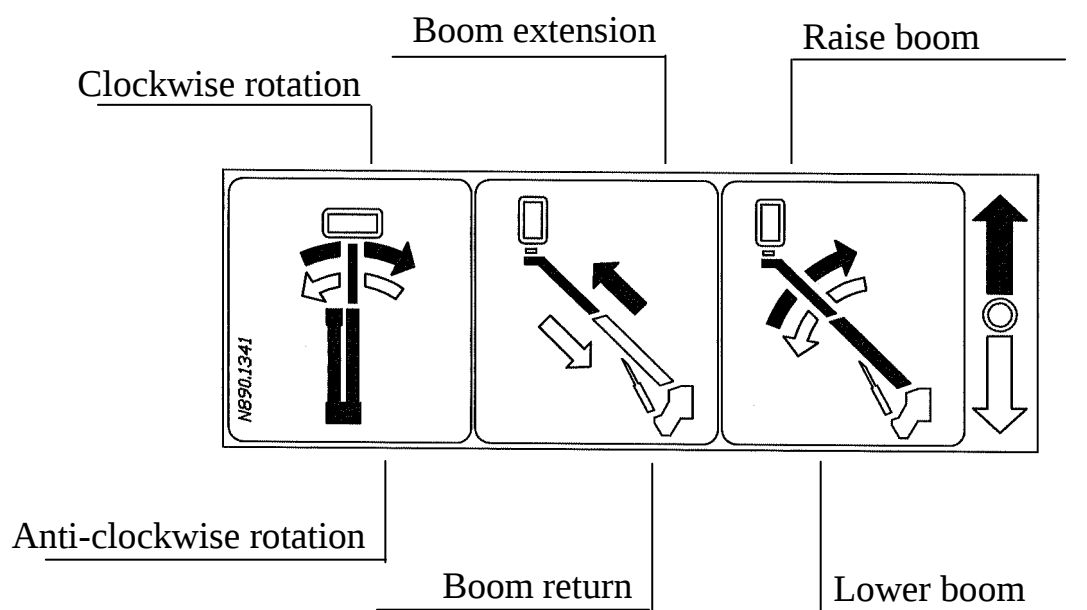
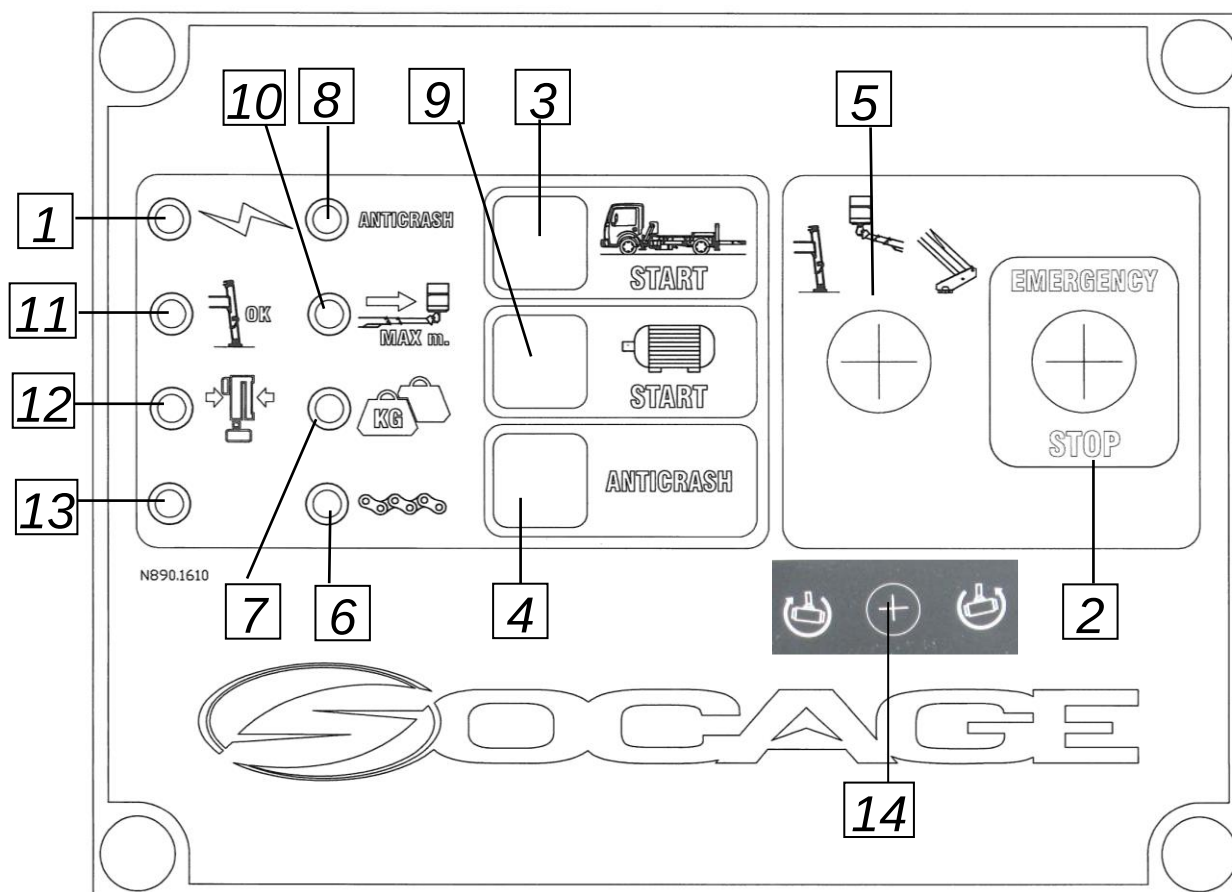
1. Plant electric power supply signal light.
2. Self-retaining emergency button.
If pressed, it causes all movements to stop, the thermal motor of the carriage to switch-off and triggers the acoustic signal. To restore functioning, release the button by turning the upper part.
3. Truck engine start-stop button
4. Anti-crash device by-pass button
5. Three-position key selector switch to enable TOWER-BASKET-CHASSIS controls
6. Signal lamp for chain loosening
7. Red indicator light for signalling overloads on the basket (optional)
8. Anti-crash signal lamp
9. Electric pump switch-on button (optional).
Allows to work with the truck thermal engine off.
For functioning, hold the button down and activate the hydraulic distributors normally.
10. Red indicator light for extension limiter intervention
11. Green stabilization signal lamp
12. Green indicator light for basket centring
13. Inclinometer
14. Basket rotation control selector switch

LEVER DISTRIBUTORS

Functions as per ideograms.

N.B. THE ACCIDENT-PREVENTION STANDARDS ENVISION THAT THE MANOEUVRES ARE CONTROLLED FROM THE BASKET, THEREFORE THE POSITION ON THE GROUND MUST BE LOCKED AND THE KEY MUST BE HELD BY THE OPERATOR ON THE GROUND.

CONTROL PANELS IN THE TURRET (Figure 015)

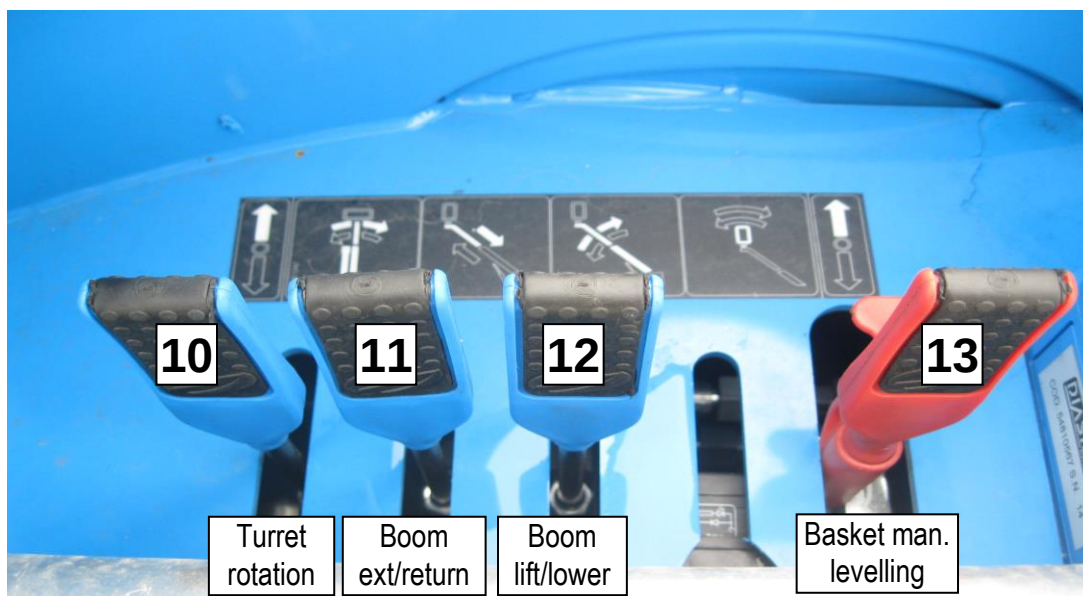
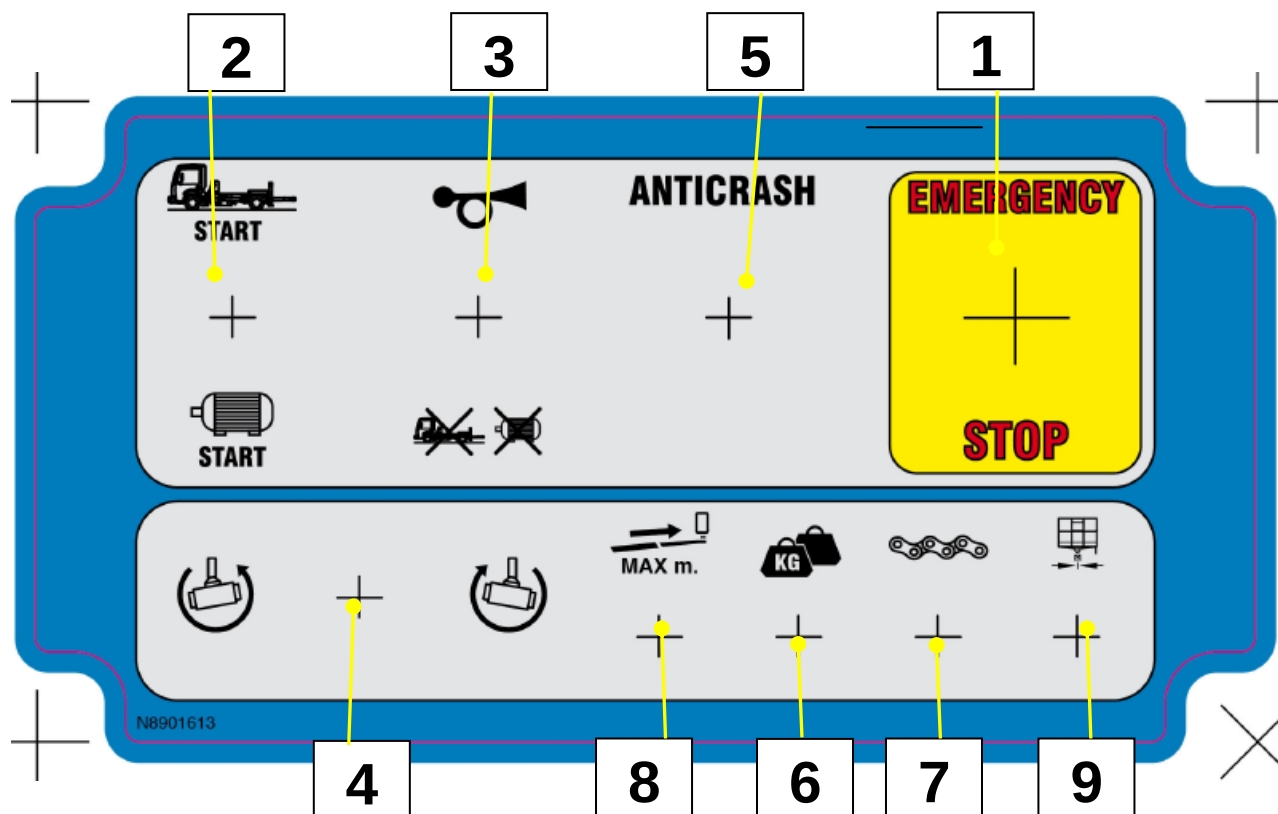


CONTROLS ON THE BASKET (Figure 016)

Controls realised with sensitised hydraulic distributors and with levers protected against accidental activation.

<u>POS.</u>	<u>DESCRIPTION AND FUNCTIONING</u>
1	<u>Self-retaining emergency button.</u> Pressing this button causes the cut-off of the electric power supply to all components with the consequent shutdown of all manoeuvres. N.B. If there is a power cut to the plant, check the position of this button.
2	<u>Truck engine start-stop button</u>
3	<u>Two-position selector switch for electric pump and horn switch-on</u>
4	<u>Basket rotation control selector switch</u> NB.: if 90°+90° rotation is present, before activating the control, it is very important to carry out the boom lift manoeuvre and take the basket to a position such to allow rotation without collisions with other parts of the machine
5	Anti-crash device by-pass button
6	<u>Red indicator light for signalling overloads on the basket (blocks movements) OPTIONAL</u>
7	Signal lamp for chain loosening
8	<u>Red indicator light for extension limiter intervention</u>
9	<u>Green indicator light for basket centring</u>
10	<u>Lever selector switch for turret rotation control.</u>
11	<u>Lever selector switch for boom extension and return movement.</u>
12	<u>Lever selector switch to control boom lift and lower movement.</u>
13	<u>Lever selector for basket levelling control</u> N.B.: it is recommended to use this control with the platform at rest and to always activate it very slowly in a way to prevent dangerous slipping/inclinations of the basket
14	Move operating pedal (if present – OPTIONAL)

BASKET CONTROL PANEL (Figure 016)



***** CHAPTER 4 *****

MAINTENANCE

The documentation contained in this chapter is composed of
n° 20 pages, this included..

ATTENTION!!! WELDING/RESTORATION

Different parts of the machine are made with steel of high elastic limit; do not never make weldings or restorations without the authorization and the preventive instructions of the constructor.

INDEX

1. Assumption
2. Products to use
3. Maintenance program
4. Rotation group greasing
5. Hydraulic oil level verification
6. Delivery filter cartridge replacement
7. Return filter cartridge replacement/cleaning
8. Control seal valves of cylinders block
9. Control pipefitting and pipes
10. Systems/electric components
11. Structure inspection
12. Control clamping bolts and nuts
13. System emptying and tank filling
14. Hinged pivots greasing
15. Sliding blocks greasing
16. Control/sliding blocks adjustment
17. Controls
18. Troubles-causes-cures
19. Irregularities of working

INTRODUCTION

It is of the utmost importance that this equipment is washed with water cleaning machine as to remove all polluting elements which can damage materials and impair good functioning.

After washing, lubricate all components as to properly restore sliding conditions and check if there are elements out of shape or which show wear. If so, it is compulsory to apply to an authorised service shop to replace these elements.

For lubricating material refer to what indicated in this manual.

It is essential to take into account that even safety devices can wear and that one has to always check if they are clean, lubricated and unimpaired. Under normal working conditions cleaning and lubricating operations as described above can be carried out once a month. This interval has to be reduced if there is a situation of use or an environment harder than normal.

It is impossible to describe all these situations, what follows is therefore a list of some examples:

- Machine setting into operation again after a long period of stoppage.
- Extremely high or extremely low environmental temperatures with subsequent fast lubricant deterioration or extreme hardening.
- Painting and sand blasting works during which the material tends to enter into the friction sliding guides and to combine with grease thus creating a mixture which is no more a lubricant but becomes an abrasive substance wearing out the components of the machine and locking the sliding guides.

We rely on your conscientiousness in tracing down, in relation to the ways in which the machine is used, when and how to perform control and maintenance absolutely necessary to the perfect functioning and good state of preservation of safety devices and of the machine in general.

WARNING

**FOR THE SAFEGUARD OF THE MACHINE AND OF OPERATORS IT IS COMPULSORY TO
USE ORIGINAL SPARE PARTS. TO KNOW THE AUTHORIZED SERVICE SHOP FOR
YOUR AREA CALL SOCAGE TECHNICAL SERVICE**

**DURING WASHING WITH HIGH-PRESSURE JET DO NOT AIM AT BOXES, CABINETS
AND ELECTRIC COMPONENTS. DO NOT WASH WITH DETERGENTS, CHEMICALS,
PETROL OR SIMILAR SUBSTANCES, WHICH CAN DAMAGE RUBBER PARTS, PLASTIC
COMPONENTS AND FILMS.**

**DO NOT PERFORM ANY MAINTENANCE OPERATION IF THE MACHINE IS MOVING.
TURNS ALL MOTORS OFF AND REMOVE KEYS FROM THE CONTROL PANEL AND
FROM THE DASHBOARD OF THE TRUCK. FOR BALL JOINTS WE SUGGEST TO
REPEAT GREASING WITH THE MACHINE IN DIFFERENT POSITIONS. HOWEVER,
MAINTENANCE HAS TO BE CARRIED OUT WHEN THE MACHINE IS TURNED OUT
AND AFTER THE KEYS HAVE BEEN REMOVED FROM CONTROL PANELS.**

Inspection, maintenance and other intervention on the machine are to be carried out according to specific skills. As far as maintenance programme is concerned, what follows is a list of workers in charge for each operation:

- A) The driver of the platform and the service shop of the company which owns the machine.
- B) SOCAGE authorised service shop.
- C) SOCAGE service shop.

Before carrying out any modifications you must to be authorized by the manufacturer.

NOTE: AFTER HAVING MADE THE DIFFERENT CONTROLS/MAINTENANCE PROVIDE TO GIVE THE RESULTS AND THE OPERATIONS MADE ON THE APPROPRIATE CONTROL BOOK-SEE CHAP.11

IF THE MACHINE IS TO BE STORED FOR A LONG TIME:

- Store it in a dry and well-aired place.
- Remove starting keys from the machine.
- Clean filter and electric system.
- Protect contacts and remote control switches with special antioxidising products.
- Grease sliding guides, chains and surfaces which are not protected by painting.
- Do not cover the machine with a plastic material since it would create damaging condensation.
- As far as the wagon is concerned, follow indications suggested by its manufacturer.

Before putting the machine into operation again, carry out inspection and maintenance procedures at intervals requested every day....., every 50 hours....., once a month.

DISMANTLING AND SCRAPPING

In case of scrapping, it is necessary to dismantle the machine and broke it down into uniform parts which should be sent to the relevant storage centres.

These types of materials are present on the machine:

- Iron materials: metal structural works and mechanical components.
- Plastic materials: gaskets, belts, protections.
- Electric materials: windings, controls, electric valves and similar components.
- Oils and lubricants: hydraulic oil, gearbox lubricants, greases.
- As far as wagon is concerned, follow what indicated by its manufacturer.
- Other materials: QUICKSILVER (basket balancing sensor)

EQUIPMET LIFTING

To lift the complete equipment (truck + platform), follow the truck usage indications. Do not hook to any platform parts during the lifting.

The platform parts (if it is not indicated inside this manual) can be dismounted only by some authorising workshops, and move by means and in accordance of the rules in force.

2. MATERIAL TO USE

- NILS NILEX EP1 grease or equivalent for axes and lubricator
- NILS NILEX EP1 graphitised grease for the booms extensions and the outriggers' supporting

	DROP POINT C°	DENSITY TO 15°C (g/cm ³)	WORKING TEMPERAT URE (°C)	Viscosity to 40°C (mm /s ²)	Flash Point (°C)	Autoignition Point (°C)
NILS NILEX EP1	ca.250	0,91÷0,95	-15/+100	ca.84.	≥ 250°	Not autoignition

Oil AGIP ARNICA 46 for hydraulic system - Hydraulic System Capacity 50 l

	Density to 15°C(Kg/l) ASTM D 1298	Viscosity to 40°C(mm /s) ASTM D 445	Flash V.A. °C ASTM D 92	Sliding °C ASTM D 97
AGIP ARNICA 32-46	0,865-0,870	32-45	202-215	-36

Equivalent: ROL LI 46 HIV
TOTAL EQUIVIS ZS 46
ESSO INVALOR EP 46
SCHELL TELLUS SX 46
MOBIL DTE 15

- v Oils for centre bearing rotation unit with endless-screws/flanged bearing:
- NILS NILEX EP1: for endless-screw/bearings/balls and for cogging

	DROP POINT C°	DENSITY TO 15°C (g/cm ³)	WORKING TEMPERAT URE (°C)	Viscosity to 40°C (mm /s ²)	Flash Point (°C)	Autoignition Point (°C)
NILS NILEX EP1	ca.250	0,91÷0,95	-15/+100	ca.84.	≥ 250°	Not autoignition

IT IS ABSOLUTELY FORBIDDEN TO INTRODUCE TOOLS, HANDS, FINGERS, ETC., IN THE HOLES OF THE TELESCOPIC BOOM.

ALL THE MAINTENANCE OPERATIONS HAVE TO BE MADE WITH ORDINARY TOOLS ACCORDING TO THE SAFETY RULES

IMPORTANT

CHECK CAREFULLY THE CONDITIONS OF THE ELECTRIC CONDUCTORS OF THE BASKET CONNECTION WITH THE TURNTABLE. FOR THE IMPORTANCE OF THE SAFETY IN THE OPERATION, WE SUGGEST TO REPLACE THESE CONDUCTORS EVERY 2000 WORKING – HOURS.

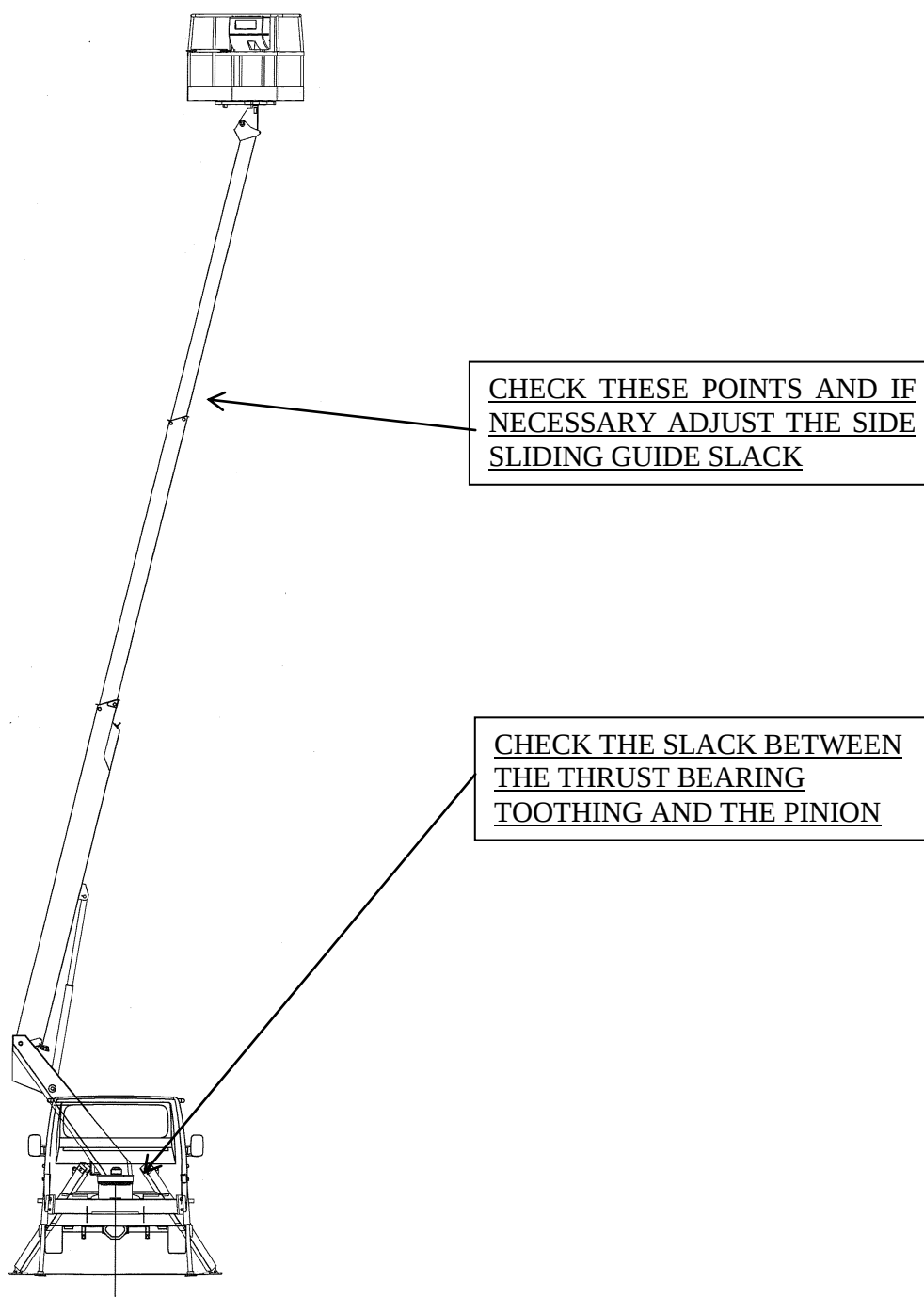
MAINTENANCE PROGRAMME

Important: After having carried out any kind of control/maintenance, and before putting the machine back into service, please carry out the control and maintenance operations foreseen “every day”.

INTERVALS	OPERATIONS	NOTES	BY
Every day before putting into operation	Check through repeated tests, without any person in the basket, the good functioning of all safety and emergency devices; in particular, be extremely mindful to · emergency stopping pushbuttons · locking systems for arm/stabilisers/inclinometer · controls and warning lights · if battery are charged · hydraulic oil and fuel tank levels MOREOVER, MAKE SURE THAT: · pin locking systems (plugs, collects, etc.) are in perfect efficiency and in good condition • instruction and safety plates can be perfectly read · there are no hydraulic leaks, loosen electric connections, collision signs, friction, etc.		A platform driver
Every 50 hours of work	Check oil level in the motors. Make sure that the following components are sufficiently clean: · first filter of diesel oil · motor air filter · machine (in particular, inspect tightness of connections and hoses); take the advantage of inspecting the condition of tyres, cables, all accessories and tools. Check hydraulic oil filter saturation.		A platform driver
Every month (~ 120 hours)	Perform a complete cycle of cleaning and greasing as indicated in the INTRODUCTION to this paragraph MAINTENANCE. Perform inspection and lubrication as indicated by the attached picture 050.	After the first 150 hours, replace hydraulic system oil filter cartridges	A platform driver

PICTURE 050

CHECK THE POSSIBLE PRESENCE
OF RUST POINTS WHICH CAN
REVEAL CRASHES CRACKES OR OTHER EVENTS
ON WHICH IT IS NECESSARY TO INTERVENE



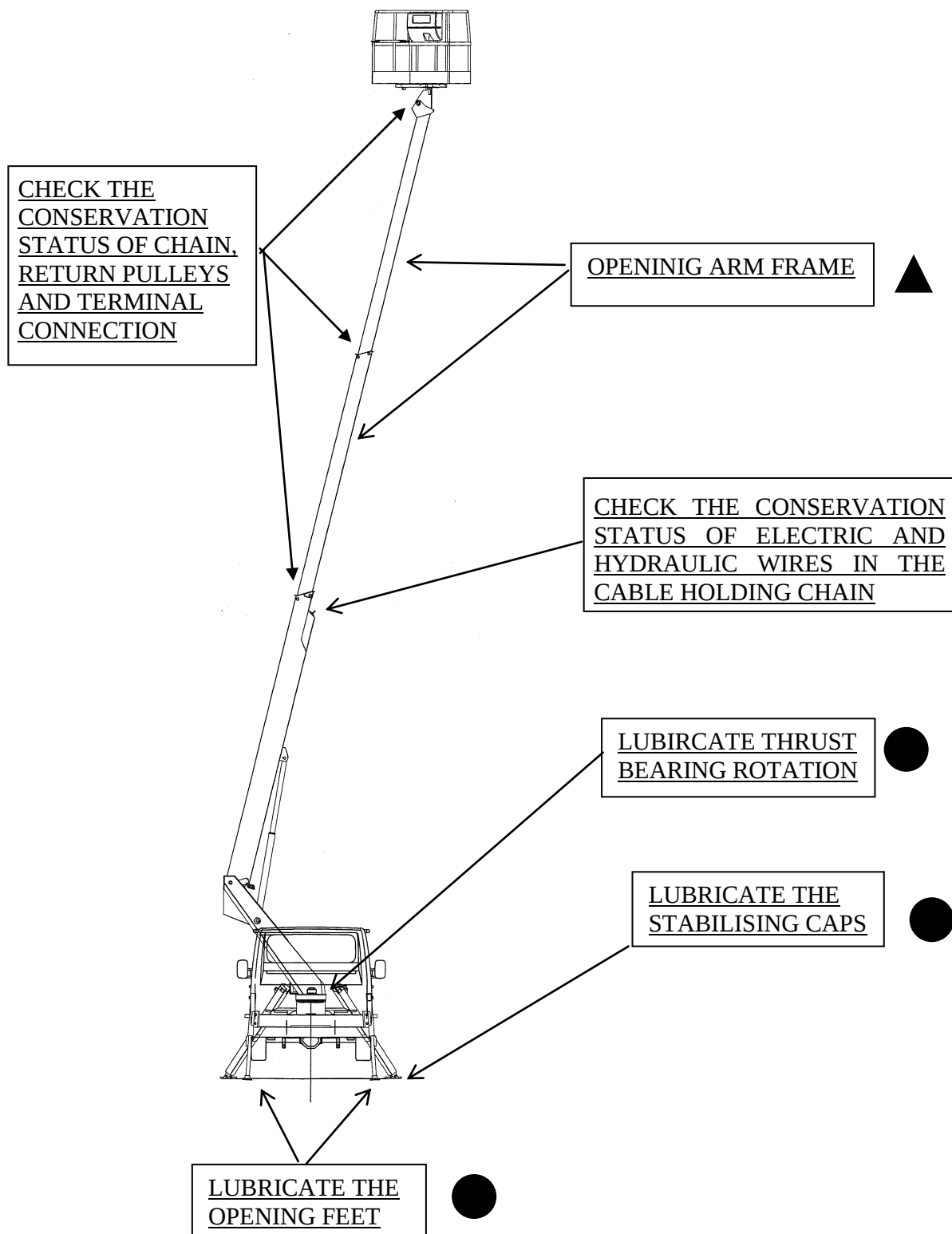
MAINTENANCE PROGRAMME

Important: After having carried out any kind of control/maintenance, and before putting the machine back into service, please carry out the control and maintenance operations foreseen “every day”.

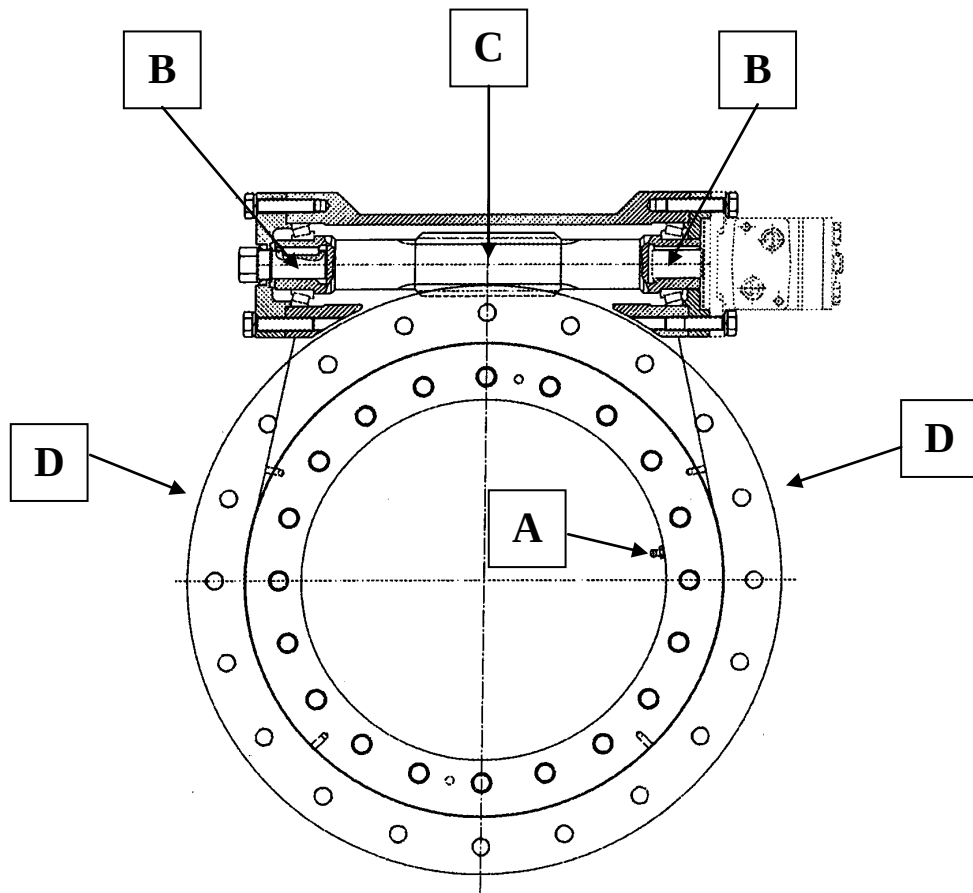
INTERVALS	OPERATIONS	NOTES	BY
Every 3 months (~ 360 hours)	Inspect main fixing tightening parts • thrust bearing nuts and bolts • gearbox nuts and bolts • frame-truck nuts and bolts • pin collects. Perform inspection and lubrication as indicated by the attached picture 051. Replace hydraulic system oil filter cartridges and inspect locking valves. N.B. If tightening of thrust bearing screws is not correct, it is necessary to replace the screws at our authorised service shops.	With this regard, see tightening couples at chapter 3 With this regard, see “INSTRUCTIONS FOR HYDRAULIC SYSTEM MAINTENANCE”	A platform driver and/or person in charge of safety at the company which owns the machine + B authorised service shops or SOCAGE company
Every 6 months (~ 750 hours)	Perform a complete inspection of the machine and write down your findings onto the special sheets herewith attached in the “INSPECTION REGISTER”		A platform driver + person in charge of safety at the company which owns the machine
Every year (~ 1500 hours)	Replace all the oil in the hydraulic system .	With this regard, see “INSTRUCTIONS HYDRAULIC SYSTEM MAINTENANCE”	A platform driver + person in charge of safety at the company which owns the machine + B authorised service shops or SOCAGE company
Every 1-3 years (1500-4500 hours)	COMPLETE INSPECTION	N.B. For authorized platforms at increased load capacity the period is reduce every 1-2 years (1000-3000 h) and the complete overhaul every 6-7 years (9000-10000 h)	B authorised service shops or SOCAGE company
Every 15000 hours or 10 years	COMPLETE OVERHAUL		B authorised service shops or SOCAGE company

PICTURE O51

**LUBRIFICATE THE PIVOT
OF ALL JOINTS**



4. GREASING/LUBRIFICATION OF THE CENTRE BEARING ROTATION UNIT WITH ENDLESS SCREWS

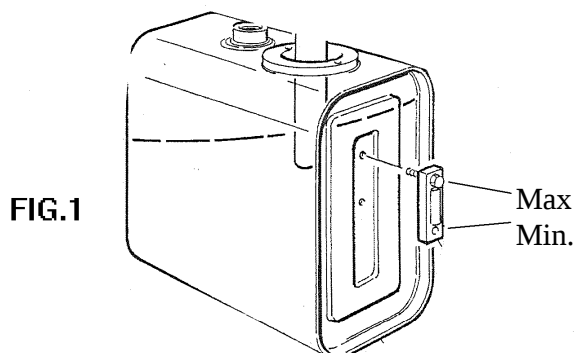


- A – BALL BEARINGS – NILS NILEX EP1 (through grease cup)
B – BEARINGS - NILS NILEX EP1 (through grease cup)
C – ENDLESS SCREWS/COCKING - NILS NILEX EP1 (through grease cup)
D – EXTERNAL COCKING – NILS NILEX EP1 (USING PANEL)

5 VERIFICATION HYDRAULIC OIL LEVEL

You have to check that the hydraulic oil level in the tank is between the minimum and maximum values like in picture 1. The verification has to be made when the machine is closed and in position of transport (even the outriggers) and when the vehicle is on a ground floor.

In case of oil lack you have to make the topping up with an oil that has the characteristics on page 4.4.



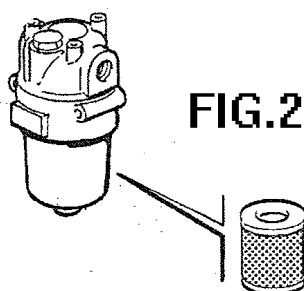
6. DELIVERY OIL FILTER CARTRIDGE REPLACEMENT

The delivery oil filter is near the control outriggers group (pic.2).

For a correct filter cleaning you have to replace the filter cartridge because it's not washable (made of microfibre).

For the replacement operation you have to proceed in this way:

- clean the filter external body
- screw out the lower part of the filter and extract the inside cartridge (before this operation put under the filter a container to gather the oil on the inside of the filter)
- insert the new cartridge and retighten the lower part of the filter



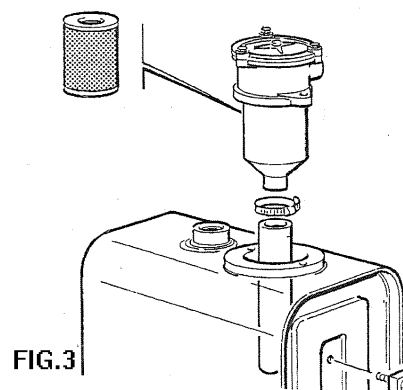
7. REPLACEMENT/RETURN FILTER CARTRIDGE CLEANING

The return filter cartridge is on the upper part of the tank (pic.3).

For a correct filter maintenance it's necessary to clean the inside filter cartridge and to replace it when its level of stoppage has exceeded the maximum limit (it's underlined by an evident dirty that can't be removed on its external surface).

For the cleaning and replacement operation you have to proceed in this way:

- clean the filter external body
- screw out the upper screws of the cover and extract the inside cartridge
- clean and replace the cartridge
- insert the new cartridge and retighten the screws of the cover



8. CONTROL OF THE SEAL OF THE CYLINDERS BLOCKING VALVES

Every three months check the seal of the blocking valves on the cylinders in this way:

A) Control of the blocking valves working steered of the outriggers

- 1) Fix stabilisers to the ground
- 2) Disconnect the power take off of the vehicle
- 3) Keep the truck turned on as to continue to electrically feed the controls.
- 4) Move lifting control levers and make sure that they do not move.
- 5) Switch off the truck, waiting for few minutes of the bedding and provide to mark the extension position of the outriggers
- 6) Check after 10 minutes that there was not a settlement (reenter of the outriggers)
- 7) Make the same test/control for the outriggers seal completely reentered

B) Control of the blocking valves on the cylinders of the superstructure

- 1) Partially lift the arms with maximum allowed load in the basket (Use only a load of material do not make the test with people in the basket)
- 2) Disconnect the power take off of the vehicle
- 3) Keep the truck turned on as to continue to electrically feed the controls
- 4) Operate on the interested controls and check that the cylinders do not make any movement
- 5) Switch off the truck waiting for few minutes of bedding and provide to mark the extension position of the different cylinders
- 6) Check after 10 minutes that there was not a settlement (Reenter of the cylinders)

7) Note: If you find settlements go as soon as possible to an authorized repair shop to make more controls and ,if it's the case, cures

9. CONTROL PIPEFITTINGS AND FLEXIBLE/RIGID PIPES

During the normal maintenance you have to control all the pipe fittings and the different hydraulic junctions of the machine to find irregularities.

The control of the pipe fittings has to be made through the check of the oil dripping absence and also check the correct clamping (if on the pipefitting there is a seal, and if it's necessary, make a replacement).

For the flexible pipes check with attention the junction pipe/pressed pipefitting and the general condition of the flexible pipe (it doesn't have early aging signs, craks, swellings or abrasions that can compromise the seal 9.

For the replacement of any pipes follow this instructions:

- 1 Switch off the truck engine
- 2 Operate, many times, control levers (motor turned off) in order to eliminate pressure within the circuits.
- 3 If these hoses are under the tank, a suction phenomenon by discharge filters could occur; therefore, if necessary, disconnect hoses connected to return filters.
- 4 If you have to replace an induction pipe from the tank, you have to stop the exit of the oil from the tank
- 5 Always proceed very carefully while removing the part to be replaced
- 6 Use always original pipes/spares

After having replaced the required parts, eliminate air which has entered into the circuit by moving the various jacks at end stroke.

ATTENTION!!! PIPES-ELECTRIC CABLES

The flexible pipes and the electric cables that slide on the inside of the cable holder chains are components that can be subject to wear and they have frequently be controlled to avoid damages risks with also a stopping machine.

You have to control their correct clamping to the extremities of the cable holder chain, their external wear condition and their correct position and tension (on the inside of the cable holder chain there can't be trusses and discharge of pipes and cables).

Note: If the cable holder chain is on the inside of the boom it can be made a visual control with a portable light from the back boom opening (you have to remove the cover lock up and make attention to the cable holder chain during the extension of the boom).

10. SYSTEMS/ELECTRIC COMPONENTS

Check every 100 hours/one month of working the preservation state of the components and of the electric harness (control with attention the cables and the different plugs/tap). Check that the cables don't have impact signs/rubbings or superficial wears and that they are correctly fixed in their original position.

You have also to check the integrity of the different electric boxes and verify the correct water tightness of the covers and of the pipe fittings for the entry of the electric cables (to avoid dangerous water infiltrations). For the machine shaving the electrohydraulic joint on the inside of the turret (machines with a continuous rotation of the turret) verify the integrity of its inside electric connections (brushes and sliding links) and lubricate them every month with a right antioxidant product (antioxidant spray for electric contacts).

11. STRUCTURE INSPECTION

The complete control and the structure inspection of the platform has to be made every 1500/2000 working hours if it's possible by the expert personnel and authorized by the constructor to check the general condition of the machine.

To make this control follow this instructions:

- wash/clean with attention all the machine
- make a visual inspection to the entire structure of the machine (also the connection frame to the vehicle) with particular attention to the welding sand to the points of rust/oxidation to find weakening signs
- if you find flaws/cracks or if you have doubts go as soon as possible to an authorized repair shop to make more controls and if it's the case cares

12. CONTROL BOLTS AND NUTS CLAMPING

The control of the correct bolts and nuts clamping used on the platform has to be made every 300/600 working hours, if it's possible, by the expert personnel to find settlements or loosening.

You have to control the clamping of all the bolts and nuts that are on the machine (through dynamometric key with the aid of the values clamping chart below). Give attention to the follow critical points:

- clamping to the vehicle frame
- basket clamping
- Clamping flanged valve on cylinder
- clamping thrust bearing/turret/frame
- clamping system for pin blocking
- outriggers clamping

ATTENTION!!!

During the controls/new clamping do not use the screws that are already at a yield/extended because they do not guarantee the correct seal characteristics.

If you find a loose clamping, in particular of the critical clamping points, replace the screw (use always original spares given by the constructor).

NUTS AND BOLTS TIGHTENING COUPLE TABLE Nm

Rated diameter (mm)	BOLT CLASS		
	8.8	10.9	12.9
5	5	7	8
6	8	12	14
8	20	29	35
10	40	60	70
12	70	100	120
14	110	160	190
16	170	250	300
18	240	350	410
20	340	500	580
22	460	680	800
24	580	860	1000
27	860	1270	1490
30	1170	1720	2010
33	1590	2340	2740
36	2040	3000	3520
39	2660	3900	4570

Precision tightening C μ = 0,15 Law E25-030 Afnor 84162
(10Nm $\approx$ 1 Kgm)

TABLE OF PIPEFITTING/PIPES TIGHTENING COUPLE

PIPEFITTING/PIPE 24° - DIN3861

PIPEFITTING/PIPE 60°-BSP

T Ø EST PIPE		F THREAD	TIGHTENIN G COUPLE
SERIE	SP		N.m
LIGHT (L)	6	12 x 1,5	13 - 15
	8	14 x 1,5	15 - 18
	10	16 x 1,5	25 - 28
	12	18 x 1,5	27 - 30
	15	22 x 1,5	50 - 60
	18	26 x 1,5	60 - 75
	22	30 x 2	85 - 105
	28	36 x 2	120 - 140
HEAVY (S)	6	14 x 1,5	14 - 16
	8	16 x 1,5	25 - 28
	10	18 x 1,5	27 - 30
	12	20 x 1,5	43 - 54
	14	22 x 1,5	50 - 62
	16	24 x 1,5	60 - 75
	20	30 x 2	90 - 110
	25	36 x 2	125 - 145

T Ø EST PIPE		F THREAD	TIGHTENIN G COUPLE
mm	IN.		N.m
5	3/16	1/8	12 - 14
6	1/4	1/4	14 - 16
10	3/8	3/8	25 - 28
12	1/2	1/2	45 - 60
16	5/8	5/8	55 - 70
20	3/4	3/4	90 - 110
25	1"	1"	120 - 140
32	1"1/4	1"1/4	170 - 190
38	1"1/2	1"1/2	200 - 245

13. SYSTEM EMPTYING AND TANK REFILLING

If it is necessary to empty the equipment, you have to completely remove used oil as not to mix it with new oil. Intake must be carried out starting from the equipment's lowest part; intake should be carried out when oil is hot.

The oil for refilling the equipment should be poured into the tank through a 25 micron filter.

Oil must be clean and devoid of any foreign substance which could cause anomalies and early wears to the equipment; moreover, oil must correspond to specifications indicated.

PROCEDURE TO BE FOLLOWED IN CASE OF ANY BREAKDOWN TO ONE OF THE PUMPS OR TO ONE OF THE MOTORS

Under these conditions there is a risk of polluting the whole system. As a matter of fact, a breakdown in this equipment is always characterised by quite an abrasive dust which can cause serious damages to the remaining systems. You have to release tank oil, wash and clean: valves, users, hoses and tank.

Moreover, it is necessary to check if cylinders show wear.

Replace all the filters and fit provisional 25 micron filters on each return hose.

Let the equipment work for 40/50 hours approx. before removing provisional filters and refilling tank with new oil.

14. GREASING OF THE HINGED PINS

The hinged pins have to be lubricated with right lubricators.

For the kind of grease see paragraph 2-Products to use.

15. GREASING OF THE SLIDING BLOCKS

To lubricate the sliding blocks you have to strew the sliding parts of the different booms with a right lubricator/grease (see paragraph 2 –Products to use) in the contact zone of the sliding blocks.

Make some operations of extension/without operator after having finished the clamping operation, so you can obtain the correct lubrication distribution on the sliding parts.

16. CONTROL/ADJUSTMENT OF THE SLIDING BLOCKS OF THE TELESCOPIC BOOMS

Check regularly the wear condition (and make the adjustment when it's necessary) of the sliding blocks of the telescopic booms.

The lateral sliding blocks are generally adjustable from the outside through a system with screw/adjustment register. The correct adjustment can't be very narrow (to avoid an early damage) and not very slow (to avoid a side clearance). We advise you to maintain a maximum allowance between sliding block and boom of 0,5mm.

The upper and lower sliding blocks are not adjustable from the outside. To control the wear condition and a new adjustment you have to go to an authorized workshop because it's necessary to remove the parts.

In any case you can check their wear controlling the thickness.

The head of the screws or of the backstops can't protrude from the upper surface of the sliding block. We advise you to maintain a minimum projection of the sliding block of 3mm compared to the clamping systems.

17. CONTROLS

Check the correct controls working (hydraulic and electric), the correct position, the graduality of the operations and the operative speed, if there is an anomalous working go as soon as possible to an authorized assistance point.

18. TROUBLES / POSSIBLE CAUSES / REMEDIAL MEASURES

Troubles	Possible causes	Hypothesis for intervention
INSUFFICIENT PRESSURE or pressure gradient in comparison to the level required in the circuit	1. max pressure valve half-open 2. pump defect 3. excessive inner leaks 4. excessive loading loss	1. a) for too low calibration pressure b) for wearing out of tightening seats c) for dirt under seats d) for spring breakdown 2. see points 5 ÷ 11 3. a) tightening collects in the cylinders and in the hydraulic motors show wear b) distributor and valves wearing c) not enough viscous oil 4. a) too viscous oil b) oil pass - throughs not adequately shaped c) oil pass-throughs partially obstructed
PUMP DEFECT for lack of power or for power extremely below normal values	5. throttled intake 6. air inlet 7. hermetically sealed tank 8. defective working 9. too viscous oil 10. inner breakdowns in the pump 11. the pump shows too much wearing	5. a) too small or obstructed intake filter b) obstructed intake hose c) too little or crooked hose 6. a) in the tank intake take-off b) in intake connections c) in the seal of the pump shaft d) for intake of foamy oil 7. air bleed in the obstructed tank 8. a) check coupling b) too high or too low speed 9. see indications for the pump 10. a) broken inner gaskets b) pasted blades, plates or pistons c) untightened pump head d) broken inner parts which should be replaced 11. pump should be replaced
exceedingly NOISY PUMP (for instance some gear pump are always a little noisy)	12. cavitation 13. air inlet 14. inner wearing 15. system vibrations	12. a) throttled intake: see point 5 b) excessive viscosity: see point 9 13. see point 6 14. excessive clearance in supports and plates 15. defective installation, resonance, etc.

Troubles	Possible causes	Hypothesis for intervention
OVERHEATING i.e. rising of oil temperature above prudential limit of 50°-60°	16.too high maximum pressure 17.power is uselessly engaged 18. extreme inner leaks 19.extreme loading loss 20.insufficient oil capacity 21.insufficient cooling . extreme friction	16. excessive valve calibration 17. a) insufficient exclusion valve b) malfunctioning short-circuit at cycle end c) hydraulic circuit to be modified 18. see point 3 19. see point 4 20. increase oil tank capacity 21. a) add artificial cooling b) refrigerants, if any, not effective 22. a) defective pump inner fitting b) lack of lubrication when required c) use of not enough lubricating oil
INCORRECT MOVEMENTS of hydraulically operated elements in comparison to the required cycled	23.air in the circuit 24.valves locked 25.cylinders locked 26.extreme loading loss 27.varying accumulator pressure	23. a) let air bubbles off at the top b) eliminate air leaks: see point 6 24. a) valves locked, while closing, by rubber or other materials b) valves half-open because of dirt 25. a) cylinder inner incorrect mounting b) normal axle loading not permitted c) seizing of connecting pins 26. see point 4 27. a) insufficient accumulator capacity b) circuit greater demand because of inner leaks
EXTREME WEARING i.e. excessively fast in comparison to working period	28.oil containing abrasive substances 29.insufficient lubrication 30.high working pressure 31.defective coupling	28. a) too old oil b) filters not efficient 29. a) poor quality oil b) too fluid oil at working temperature 30. in comparison to the allowed max. pressure for pump and valves 31. abnormal strain on shafts and stems

19. WORKING ANOMALIES: PART BREAKDOWN

What follows is a list of reasonably foreseeable explanations for which the machine cannot work, relevant to each operation of the platform: in the columns of the following chart we have listed type of trouble, operation, parts which can cause the breakdown and type of intervention to be carried out.

Parts/breakdown	Cause	Remedial measures
Noisy power take off	Driving with power take off applied. Working wearing.	Overhaul or total replacing.
Free power take off	Air switch breakage or air lack in the truck.	Overhaul or total replacing
Noisy truck pump	Lack of oil or breakage of key or of take off connecting joint	Oil refilling or replacing
Stab. insufficient oil pressure	Make sure that the arm is in non-working position and that micro-switch is depressed. Nylon pin (hydraulic switch) broken down. Broken truck pump. Filter obstructed. Non-return valve open. Dirty max. exchanger valve, stabilisation distributor.	Check every single part. Clean or replace, if necessary.
Turret controls out of order	Stabilisation has not occurred. Exchange heart-basket control not switch (See electric system manual)	Check Stab. micro-switches (4) and axle micro-switch
Basket controls out of order	(See electric system manual)	

Parts/breakdown	Cause	Remedial measures
Insufficient oil pressure turret distributor	Dirty distribution max. valve. Exchanger not stimulated Arm holder microswitch broken down.	Inspection of turret panel fuses Replacing of parts (See electric system manual)
Insufficient 220 Volt oil pump pressure	Broken pump or dirty non- return truck pump valve	Clean and/or replace
Emergency stoppage for Edi System	Lack of current Coil burnt out	Check cable from frame to truck cabin Replacing
Pantograph lowering oscillation	Turret accumulator	Replacing
Potentiometer lever: it does not come back to the regular position.	Wearing of the spring	Replacing
Basket rotation out of order	Dirty electric valve or burnt out. Pushbutton broken down. Cylinder valve locked.	Replace or clean.
Basket balancing and rotation out of order	Electric valve locked or out of order	
Excessive rotation clearance when the machine is turned off	Loosened fixing screws	Adjust fixing plate of the gearbox and tighten screws

***** CHAPTER 5 *****

HYDRAULIC SYSTEM

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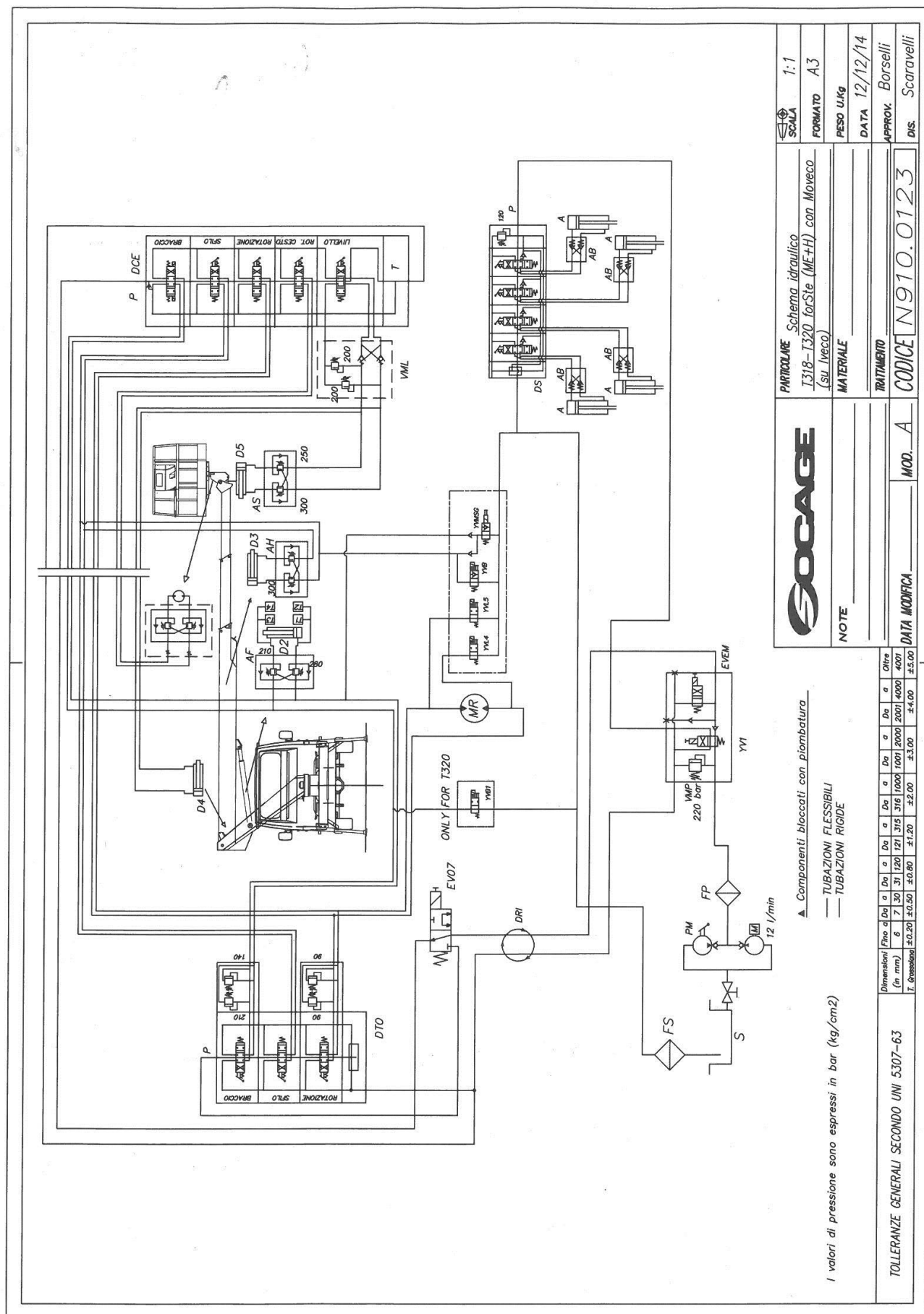
KEYS TO SYMBOLS OF HYDRAULIC COMPONENTS

EQUIPMENT SERIES SO-0029 - T 320

What follows is a list of hydraulic system components, their relevant symbols are indicated in the following chart:

<u>SYMBOL</u>	<u>COMPONENT AND USE</u>
M	Hydraulic system feeding pump
PM	Emergency hand pump
FS	25 micron - Discharge line filter
FP	Delivery oil filter
S	Oil tank
DS	Stabiliser control distributors
A1-2-3-4	Stabiliser cylinders
AB	Stabiliser cylinders' locking valve
EV1-2-3-4	General discharging set-up
VMP	Maximum pressure valves
YV1	Exchanger electro-valve (aerial part/stabilizers)
EVEM	Emergency electro-valve
EV7	Exchanger electro-valve
DTO	Turret control distributor
MR	Turret rotation motor
DRI	Turret rotation distributor
D2	Arm lifting cylinder
AF	Locking valve on D2 cylinder
D3	Opening arm cylinder
AH	Locking valve on D3 cylinder
D5	Basket balancing cylinder
AS	Locking valve on D5 cylinder
D4	Intermediate head balancing cylinder
VML	Maximum pressure valves on balancing system
DCE	Basket control distributor
YMSG	General discharging electro-valve for straddle limiting device
YVB	electro-valve block arm opening
YVL4	electro-valve block rotation
YVL5	electro-valve block counter clockwise rotation
YVB1	electro-valve block arm lift

HYDRAULIC SYSTEM

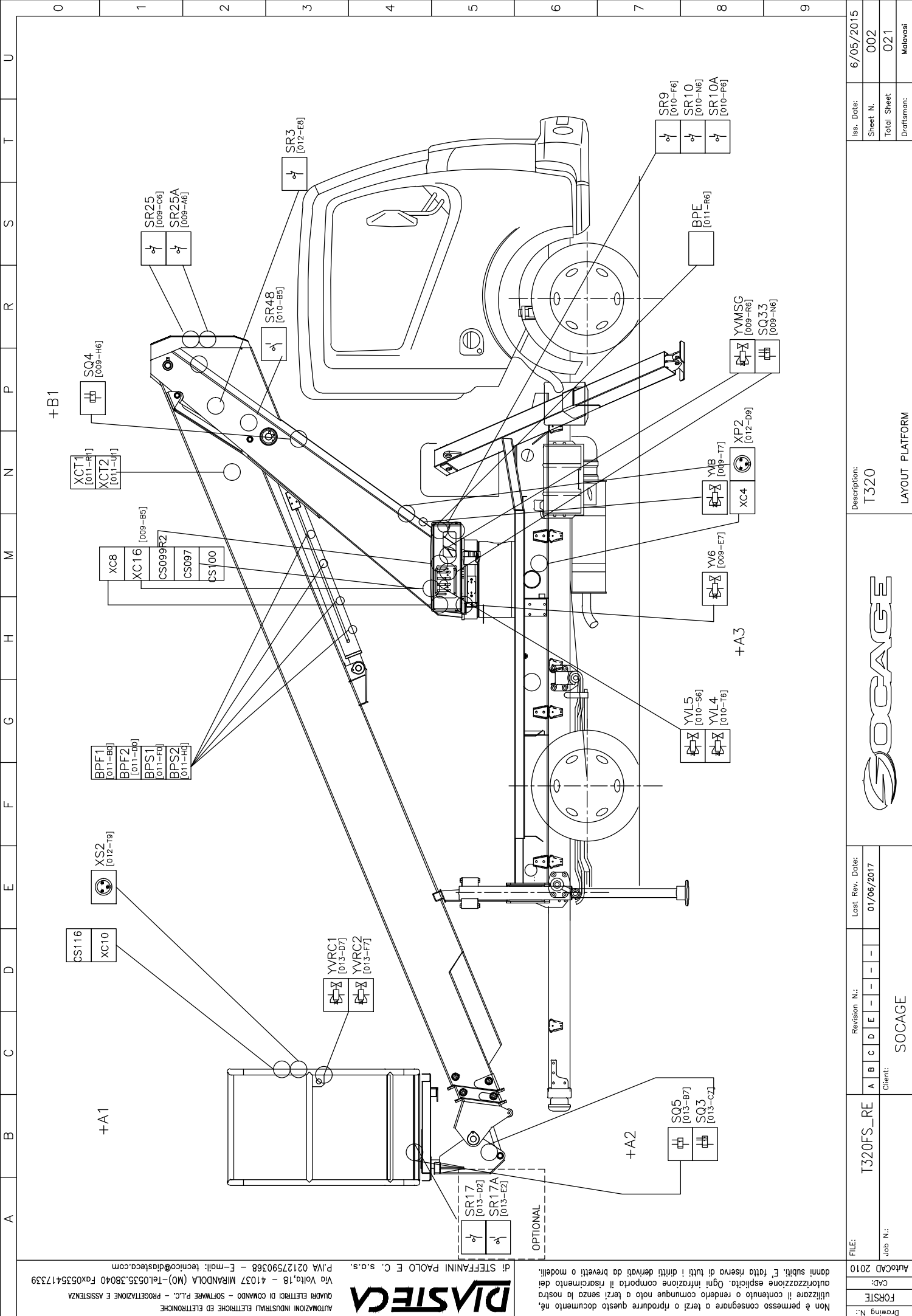


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***** CHAPTER 6 *****

ELECTRIC SYSTEM

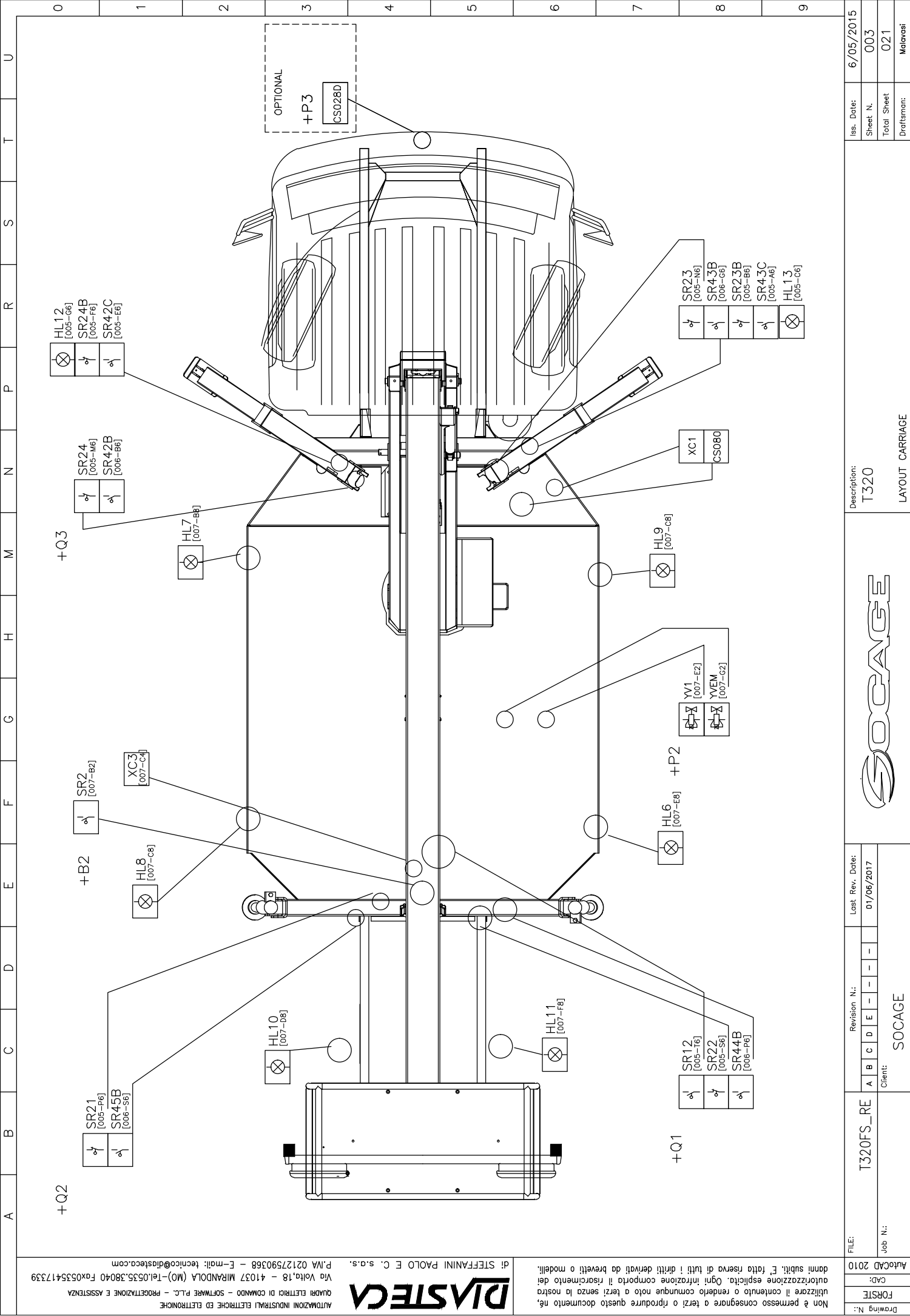
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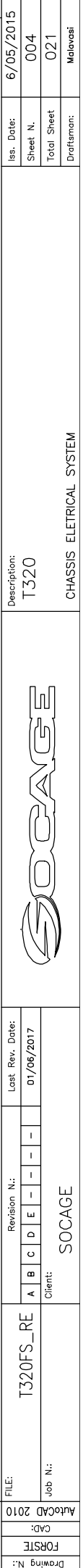


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Iss. Date: 6/05/2015
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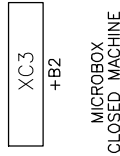
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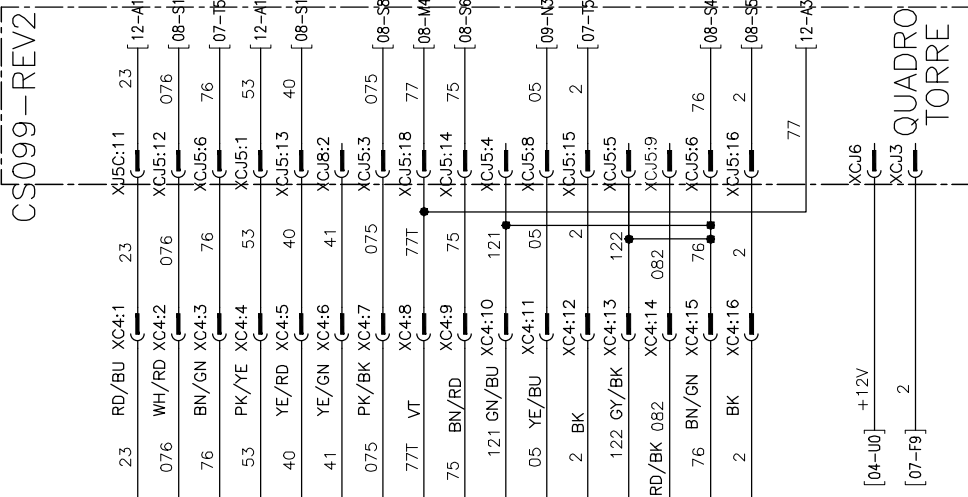
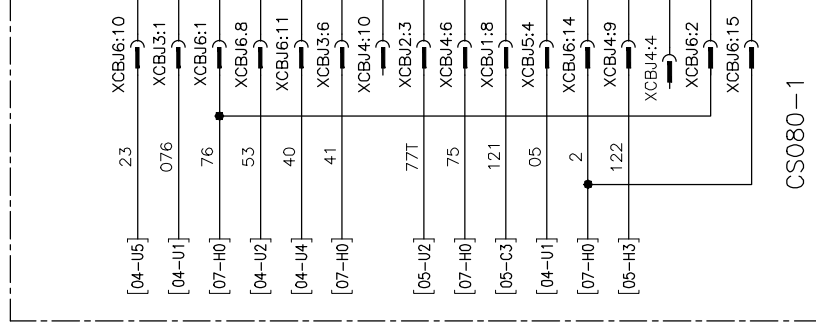
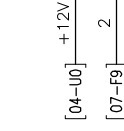
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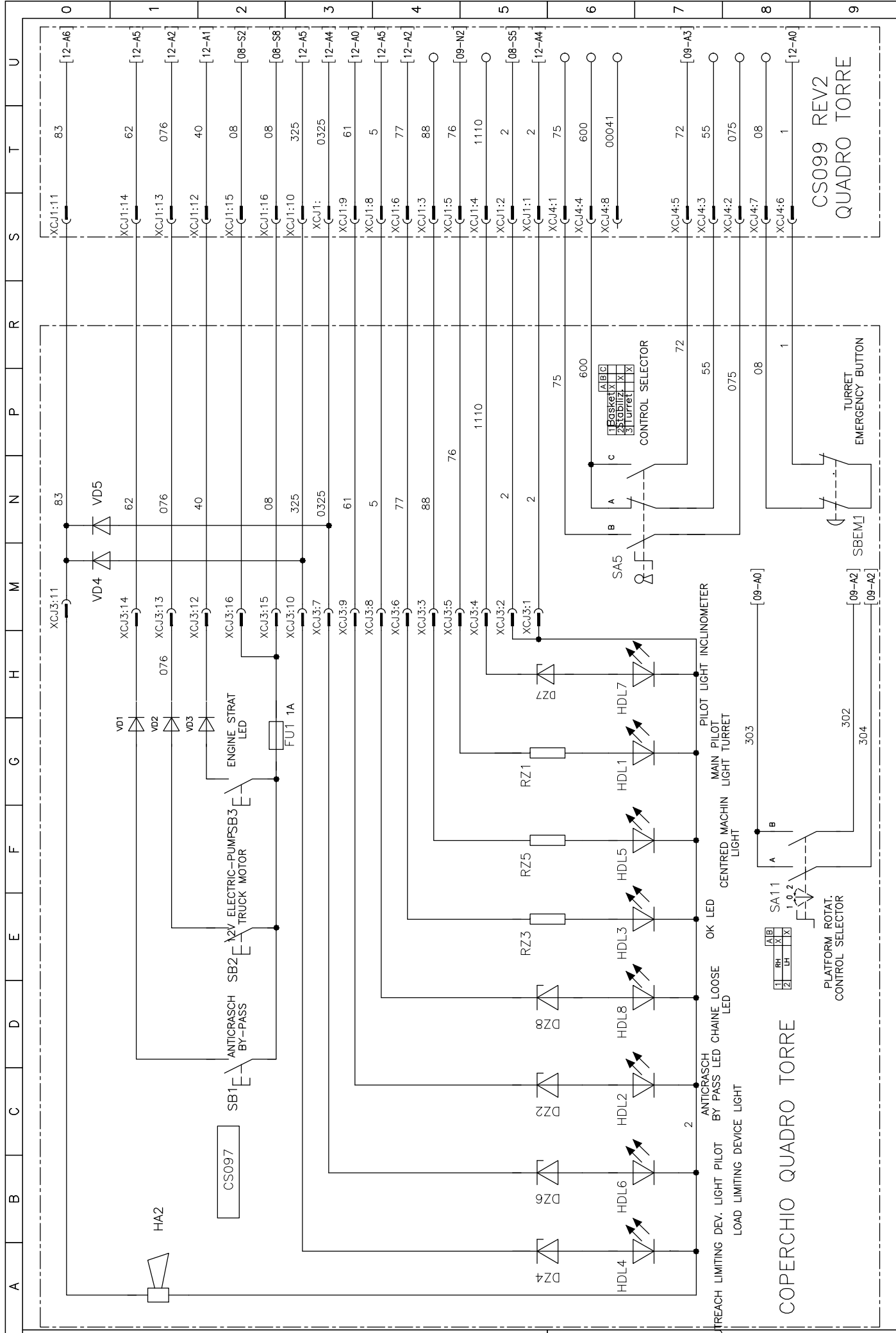
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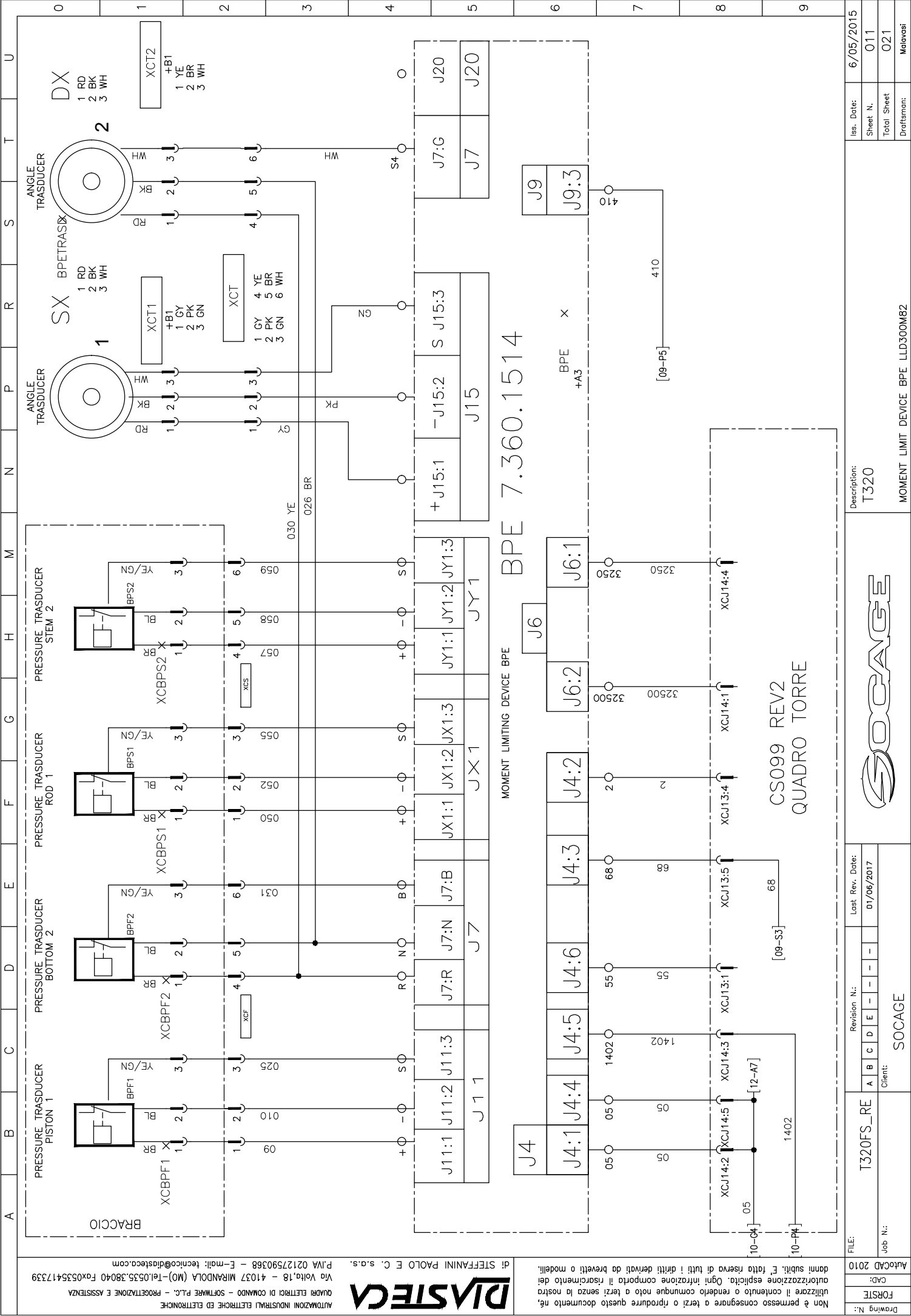
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[11-C8]																	05																	XCJ15:15																	05																	XC8:U																	05																	XC10:U																	05																	[13-A5]																																																																																																																						
[09-U3]																	17																	XCJ15:16																	17																	XC8:V																	17																	XC10:V																	17																	[13-N5]																																																																																																																						
[09-U3]																	CS099REV2																	XCJ15:17																	17																	XC8:W																	17																	XC10:W																	17																	[13-A5]																																																																																																																						
[09-U3]																	XP2																	XCJ15:18																	XP2																	XC8:X																	XP2																	XC10:X																	XP2																	[13-N5]																																																																																																																						
[09-U3]																	LIMIT SWITCH READING POSITIONING BOOM																	XCJ15:19																	LIMIT SWITCH READING POSITIONING BOOM																	XC8:Y																	LIMIT SWITCH READING POSITIONING BOOM																	XC10:Y																	LIMIT SWITCH READING POSITIONING BOOM																	[13-N5]																																																																																																																						
[09-U3]																	SR3																	XCJ15:20																	SR3																	XC8:Z																	SR3																	XC10:Z																	SR3																	[13-N5]																																																																																																																						
[09-U3]																	XCR3:1																	XCJ15:21																	XCR3:1																	XC8:a																	XCR3:1																	XC10:a																	XCR3:1																	[13-N5]																																																																																																																						
[09-U3]																	BK																	XCJ15:22																	BK																	XC8:b																	BK																	XC10:b																	BK																	[13-N5]																																																																																																																						
[09-U3]																	XCR3:2																	XCJ15:23																	XCR3:2																	XC8:c																	XCR3:2																	XC10:c																	XCR3:2																	[13-N5]																																																																																																																						
[09-U3]																	BK/WH																	XCJ15:24																	BK/WH																	XC8:d																	BK/WH																	XC10:d																	BK/WH																	[13-N5]																																																																																																																						
[09-U3]																	XP2																	XCJ15:25																	XP2																	XC8:e																	XP2																	XC10:e																	XP2																	[13-N5]																																																																																																																						
[09-U3]																	+A3																	XCJ15:26																	+A3																	XC8:f																	+A3																	XC10:f																	+A3																	[13-N5]																																																																																																																						
[09-U3]																	230V PLUG LINE ON TURRET																	XCJ15:27																	230V PLUG LINE ON TURRET																	XC8:g																	230V PLUG LINE ON TURRET																	XC10:g																	230V PLUG LINE ON TURRET																	[13-N5]																																																																																																																						
[09-U3]																	QUADRO CESTO																	XCJ15:28																	QUADRO CESTO																	XC8:h																	QUADRO CESTO																	XC10:h																	QUADRO CESTO																	[13-N5]																																																																																																																						
[09-U3]																	X52																	XCJ15:29																	X52																	XC8:i																	X52																	XC10:i																	X52																	[13-N5]																																																																																																																						
[09-U3]																	BASKET																	XCJ15:30																	BASKET																	XC8:j																	BASKET																	XC10:j																	BASKET																	[13-N5]																																																																																																																						
[09-U3]																	230V SOCKET																	XCJ15:31																	230V SOCKET																	XC8:k																	230V SOCKET																	XC10:k																	230V SOCKET																	[13-N5]																																																																																																																						

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

XCR3:1

BK

XCR3:2

BK/WH

GND

L

N

QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

XCR3:1

BK

XCR3:2

BK/WH

GND

L

N

QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

XCR3:1

BK

XCR3:2

BK/WH

GND

L

N

QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

XCR3:1

BK

XCR3:2

BK/WH

GND

L

N

QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

XCR3:1

BK

XCR3:2

BK/WH

GND

L

N

QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

XCR3:1

BK

XCR3:2

BK/WH

GND

L

N

QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

XCR3:1

BK

XCR3:2

BK/WH

GND

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QUADRO CESTO

X52

4A1

BASKET

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CS099REV2

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XP2

+A3

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BK/WH

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X52

4A1

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XCR3:2

BK/WH

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QUADRO CESTO

X52

4A1

BASKET

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CS099REV2

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XP2

+A3

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XCR3:1

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XCR3:2

BK/WH

GND

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QUADRO CESTO

X52

4A1

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CS099REV2

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XCR3:2

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X52

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CS099REV2

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BK/WH

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X52

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X52

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X52

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CS099REV2

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XCR3:1

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XCR3:2

BK/WH

GND

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QUADRO CESTO

X52

4A1

BASKET

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BK/WH

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N

QUADRO CESTO

X52

4A1

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CS099REV2

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QUADRO CESTO

X52

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BK

XCR3:2

BK/WH

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QUADRO CESTO

X52

4A1

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CS099REV2

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QUADRO CESTO

X52

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X52

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BK/WH

GND

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QUADRO CESTO

X52

4A1

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XCR3:2

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QUADRO CESTO

X52

4A1

BASKET

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CS099REV2

230V PLUG LINE ON TURRET

XP2

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QUADRO CESTO

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CS099REV2

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+A3

LIMIT SWITCH READING POSITIONING BOOM

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BK

XCR3:2

BK/WH

GND

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N

QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

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XCR3:2

BK/WH

GND

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QUADRO CESTO

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230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

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LIMIT SWITCH READING POSITIONING BOOM

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QUADRO CESTO

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230V PLUG LINE ON TURRET

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LIMIT SWITCH READING POSITIONING BOOM

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QUADRO CESTO

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BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

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XCR3:2

BK/WH

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QUADRO CESTO

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BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

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XCR3:2

BK/WH

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QUADRO CESTO

X52

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BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

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BK

XCR3:2

BK/WH

GND

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QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

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XCR3:2

BK/WH

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QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

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XCR3:1

BK

XCR3:2

BK/WH

GND

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N

QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

XCR3:1

BK

XCR3:2

BK/WH

GND

L

N

QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

XCR3:1

BK

XCR3:2

BK/WH

GND

L

N

QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

XCR3:1

BK

XCR3:2

BK/WH

GND

L

N

QUADRO CESTO

X52

4A1

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230V SOCKET

CS099REV2

230V PLUG LINE ON TURRET

XP2

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LIMIT SWITCH READING POSITIONING BOOM

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BK

XCR3:2

BK/WH

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L

N

QUADRO CESTO

X52

4A1

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230V PLUG LINE ON TURRET

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XP2

+A3

LIMIT SWITCH READING POSITIONING BOOM

SR3

XCR3:1

BK

XCR3:2

BK/WH

GND

L

N

QUADRO CESTO

X52

4A1

BASKET

230V SOCKET

CS099REV2

Non è permesso consegnare o terzi o riprodurre questo documento né, autorizzazione esplicita. Ogni infrazione comporta il risarcimento dei danni subiti. E' fatta riserva di tutti i diritti derivati da brevetti o modelli.



di STEFFANINI PAOLO E. C. s.a.s.
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Via Volta,18 - 41037 MIRANDOLA (MO) - Tel.0535.38040 Fax0535417339
QUADRI ELETTRICI DI COMANDO - SOFTWARE P.L.C. - PROGETTAZIONE E ASSISTENZA AUTOMAZIONI INDUSTRIALI ELETTRICHE ED ELETTRONICHE

Revision N.:																				Description:									
T320FS_RE																				T320									
FILE:										Last Rev. Date:										Iss. Date:									
AutoCAD 2010										01/06/2017										6/05/2015									
C.D.:										Client:										Sheet N.									
FORSTE										SOCAGE										012									
Drawing N.:										Job N.:										Total Sheet									
																				021									
																				Draftsman:									
																				Malvasi									
																				BOOM/BASKET ELETRICAL SYSTEM									

CABLE		Pin	Wire	Description	Pos.
16	1	23	ELECTRIC HORN	7-S0	
15	2	076	230V ELECTRIC-MOTOR START	7-S1	
14	3	76	GENERAL LINE	7-S1	
13	4	53	ENGINE WT OUT	7-S1	
12	5	40	TRUCK MOTOR START	7-S2	
11	6	41	MOVEMENT CONTROL YEEM	7-S2	
10	7	075	STABILIZER CONTROL YV1	7-S3	
9	8	771	OUTRIGGERS DEPLOYED SIGN	7-S3	
8	9	75	CLOSED MACHINE	7-S3	
7	10	121	READING TRAY/OUT FRONT RH	7-S3	
6	11	05	+12V EM	7-S3	
5	12	2	NEGATIVE	7-S4	
4	13	122	READING TRAY/OUT FRONT RH	7-S4	
3	14	082	OPEN MACHINE	7-S4	
2	15	76	GENERAL LINE	7-S5	
1	16	2	NEGATIVE	7-S5	

CABLE		Pin	Wire	Description	Pos.
	1	XC10:A	61	GENERAL LINE	12-50
	2	XC10:B	61	BY-PASS ANTICRASH PILOT LIGHT	12-50
	3	XC10:C	041	LOADING LIMIT DEVICE PREDISP.	12-50
	4	XC10:D	0041	LOADING LIMIT DEVICE PREDISP.	12-51
	5	XC10:E	23	ELECTRIC HORN	12-51
	6	XC10:F	40	TRUCK START	12-51
	7	XC10:G	53	ENGINE WT OUT	12-51
	8	XC10:H	76	GENERAL LINE	12-52
	9	XC10:J	076	ELECTRIC-PUMP START	12-52
	10	XC10:K	77	OUTRIGGERGS DEPLOYED SIGN	12-52
	11	XC10:L	140	12V 90W SOCKET	12-53
	12	XC10:M	303	PLATFORM ROTATION LINE	12-53
	13	XC10:N	302	ROT CCKW BASKET	12-53
	14	XC10:P	2	NEGATIVE	12-54
	15	XC10:R	304	ROT CKW BASKET	12-54
	16	XC10:S	0325	LOADING LIMITING DEVICE	12-54
	17	XC10:T	86	BASKET/BOOM ANTICRASH SIGNAL	12-54
	18	XC10:U	62	BY-PASS ANTICRASH	12-55
	19	XC10:V	325	CHANCES LOOSE LIGHT	12-55
	20	XC10:W	35	WARNING MOMENT LIMIT DEVICE LIGHT	12-55
	21	XC10:X	83	BUZZER	12-56
	22	XC10:Y	SCORTA	NOT USED	12-56
	23	XC10:Z	SCORTA	NOT USED	12-56
	24	XC10:a	SCORTA	NOT USED	12-57
	25	XC10:b	SCORTA	NOT USED	12-57

A B C D E F G H M N P R S T U														
Tag	Pos.	Locat.	Q.ty	Code	Italian Description	English Description	Type	Factory						
FUBAT	4-B1	30A	1	1COP2867	PORTA FUSIBILE COPAT		2867	COPAT						
		30A	1	1COP2868	FUSIBILE MAXI AMP 30AH		2868	COPAT						
XC2	4-N1		1	1AMPCOP75554	CUFFIA 4 POLI SUPER SEAL		COP75554	AMP						
			1	1AMP282088/1	CONNETTORE PORTA FEMMINA 4 POLI SUPER SE	AL	282088/1	AMP						
			1	1AMP282106/1	CONNETTORE PORTA MASCHI 4 POLI SUPER SEA	L	282106/1	AMP						
XC2A	4-N2		1	1AMP282087/1	CONNETTORE PORTA FEMMINA 3 POLI SUPER SE	AL	282087/1	AMP						
			1	1AMP282105/1	CONNETTORE PORTA MASCHI 3 POLI SUPER SEA	L	282105/1	AMP						
			1	1AMPCOP76319	CUFFIA 3 POLI SUPER SEAL		COP76319	AMP						
HL12	5-G6		1	1COB04.108.000.02	FANALE LATERALE SENZA LAMP.		04.108.000.02							
			1	1COB12844	LAMPADA A SILURO SV 8,5-8 5W 12V		12844							
HL13	5-C6		1	1COB04.108.000.02	FANALE LATERALE SENZA LAMP.		04.108.000.02							
			1	1COB12844	LAMPADA A SILURO SV 8,5-8 5W 12V		12844							
SR12	5-T6	+Q1	1	1PIZVFSFP1	STAFFA NERA DI SUPPORTO PER FINECORSA FR	525	VFSFP1	PIZZATO						
		+Q1	1	1PIZFR525	FINECORSA AZIONATA CON ASTA A MOLLA		FR525	PIZZATO						
SR21	5-P6	+Q2	1	1TELXGMN2101A4S	FINECORSA 1 NC- 1NO C/CONN. SS 4POLI. M.		XCMN2101A4S	TELEMECANIQUE						
		+Q2	1	1TELZCY25	LEVA ROT.PLASTICA		ZCY25	TELEMECANIQUE						
SR22	5-S6	+Q1	1	1TELXGMN2101A4S	FINECORSA 1 NC- 1NO C/CONN. SS 4POLI. M.		XCMN2101A4S	TELEMECANIQUE						
		+Q1	1	1TELZCY25	LEVA ROT.PLASTICA		ZCY25	TELEMECANIQUE						
SR23	5-N6	+P1	1	1TELXGMN2101A4S	FINECORSA 1 NC- 1NO C/CONN. SS 4POLI. M.		XCMN2101A4S	TELEMECANIQUE						
		+P1	1	1TELZCY25	LEVA ROT.PLASTICA		ZCY25	TELEMECANIQUE						
SR23B	5-B6	+P1	1	1TELZCMD21L1	CORPO MINIATURA 1NO 1NC AZ.VELOCE+CV1M		ZCMD21L1	TELEMECANIQUE						
		+P1	1	1TELZCE01	TESTA ROTATIVA		ZCE01	TELEMECANIQUE						
		+P1	1	1TELZCY25	LEVA ROT.PLASTICA		ZCY25	TELEMECANIQUE						
SR24	5-M6	+Q3	1	1TELXGMN2101A4S	FINECORSA 1 NC- 1NO C/CONN. SS 4POLI. M.		XCMN2101A4S	TELEMECANIQUE						
		+Q3	1	1TELZCY25	LEVA ROT.PLASTICA		ZCY25	TELEMECANIQUE						
SR24B	5-F6	+Q3	1	1TELZCMD21L1	CORPO MINIATURA 1NO 1NC AZ.VELOCE+CV1M		ZCMD21L1	TELEMECANIQUE						
		+Q3	1	1TELZCE01	TESTA ROTATIVA		ZCE01	TELEMECANIQUE						
		+Q3	1	1TELZCY25	LEVA ROT.PLASTICA		ZCY25	TELEMECANIQUE						
SR42C	5-E6	+P1	1	1TELZCMD21L1	CORPO MINIATURA 1NO 1NC AZ.VELOCE+CV1M		ZCMD21L1	TELEMECANIQUE						
		+P1	1	1TELZCE01	TESTA ROTATIVA		ZCE01	TELEMECANIQUE						

AUTOMAZIONI INDUSTRIALI ELETTRICHE ED ELETTRONICHE
QUADRI ELETTRICI DI COMANDO - SOFTWARE P.L.C. - PROGETTAZIONE E ASSISTENZA
Via Volta,18 - 41037 MIRANDOLA (MO)-Tel.0535.38040 Fax0535417339
P.IVA 02127590368 - E-mail: tecnico@diasteca.com

di STEFFANINI PAOLO E C. s.a.s.



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Last Rev. Date:

Description:
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LIST OF MATERIAL

Iss. Date:
6/05/2015
Sheet N.:
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Total Sheet:
021
Draftsman:
Malovasi

A B C D E F G H M N P R S T U													
Tag Pos. Locat. Q.ty Code Italian Description English Description Type Factory													
0	KAROT	9-D7		1	1UPE289677.300CS	RELAIS 12V 10/20A IVECO						289677.300CS	UPEM
	SQ33	9-N6	+A3	1	1DELCSA202G05	CONNETTORE4P 90 GRADI+CV4X0,25MMQ 5MT						CSA202G05	DELCO
	SQ4	9-H6	+A3	1	1SELB06E124POC5	SENSORE DI PROSSIMITA' PNP NO						B06E124POC5	SELET SENSOR
			+A3	1	1DELCSA202G05	CONNETTORE4P 90 GRADI+CV4X0,25MMQ 5MT						CSA202G05	DELCO
	SR25	9-C6	+B1	1	1TELXCMN21F2L1	FINEC A PULSA/FILETTO/ROT ACCIAIO+CAV1M						XCMN21F2L1	TELEMECANIQUE
	SR25A	9-A6	+B1	1	1TELXCMN21F2L1	FINEC A PULSA/FILETTO/ROT ACCIAIO+CAV1M						XCMN21F2L1	TELEMECANIQUE
	VD12	9-D3		1	1ELCTWS1N5408	DIODO 3A 1000V 1N5408						TWS1N5408	ELECTRONIC CENTER
	VD6			1	1ELCTWS1N5408	DIODO 3A 1000V 1N5408						TWS1N5408	ELECTRONIC CENTER
	YV6	9-E7	+A3	1	1DELE451N3N15011C32	CONNET YV2P+T DIO+LEDROS24V+C2X0,75 1,5M						E451N3N15011C32	DELCO
3	YVB	9-T7		1	1DELE451N3N15011C32	CONNET YV2P+T DIO+LEDROS24V+C2X0,75 1,5M						E451N3N15011C32	DELCO
	YMSG	9-R6	+A3	1	1DELE451N3N15011C32	CONNET YV2P+T DIO+LEDROS24V+C2X0,75 1,5M						E451N3N15011C32	DELCO
	SR10	10-N6		1	1TELZCMC39L2	CAVO2M+CONNETTORE 2NC-1NO X CORPO ZCMD39						ZCMC39L2	TELEMECANIQUE
4				1	1TELZCMD39	CORPO MINIATURA 1NO 2NC AZIONE VELOCE						ZCMD39	TELEMECANIQUE
				1	1TELZCE02	TESTA PULSANTE CON ROTELLA IN ACCIAIO						ZCE02	TELEMECANIQUE
	SR10A	10-P6		1	1TELZCMC39L2	CAVO2M+CONNETTORE 2NC-1NO X CORPO ZCMD39						ZCMC39L2	TELEMECANIQUE
5				1	1TELZCMD39	CORPO MINIATURA 1NO 2NC AZIONE VELOCE						ZCMD39	TELEMECANIQUE
				1	1TELZCE02	TESTA PULSANTE CON ROTELLA IN ACCIAIO						ZCE02	TELEMECANIQUE
	SR48	10-B5	-	1	1TELZCMD25L2	CORPO MINIATURA 1NO 1NC AZ.LENTA+CVO2M						ZCMD25L2	TELEMECANIQUE
6			-	1	1TELZCE01	TESTA ROTATIVA						ZCE01	TELEMECANIQUE
			-	1	1TELZCY15	ELEMENTO LEVA CON ROTELLA IN PLASTICA						ZCY15	TELEMECANIQUE
	SR9	10-F6		1	1TELZCE02	TESTA PULSANTE CON ROTELLA IN ACCIAIO						ZCE02	TELEMECANIQUE
7				1	1TELZCMD39	CORPO MINIATURA 1NO 2NC AZIONE VELOCE						ZCMD39	TELEMECANIQUE
				1	1TELZCMC39L2	CAVO2M+CONNETTORE 2NC-1NO X CORPO ZCMD39						ZCMC39L2	TELEMECANIQUE
	YVL4	10-T6		1	1DELE451N3N15011C32	CONNET YV2P+T DIO+LEDROS24V+C2X0,75 1,5M						E451N3N15011C32	DELCO
8	YVL5	10-S6		1	1DELE451N3N15011C32	CONNET YV2P+T DIO+LEDROS24V+C2X0,75 1,5M						E451N3N15011C32	DELCO
	YVMS02	10-B8		1	1DELE451N3N15011C32	CONNET YV2P+T DIO+LEDROS24V+C2X0,75 1,5M						E451N3N15011C32	DELCO
	BPE	11-R6	+A3	1	6S0C54110446	SCHEDA BPE LLD82XPER.+ANG.+EST.						54110446	SOCAGE
9	BPETRASD	11-S0		1	6S0C54110416	GRUP.TRASD.ANG.BPE2XTA320APV12L.10M						54110416	SOCAGE
	XGBPF1	11-B1		1	6S0C54110461	CAVO X TRASD. BPE TPV250 DEUTSCH						54110461	
	XCBPF2	11-D1		1	6S0C54110461	CAVO X TRASD. BPE TPV250 DEUTSCH						54110461	
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LIST OF MATERIAL													
Iss. Date: 6/05/2015													
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Total Sheet 021													
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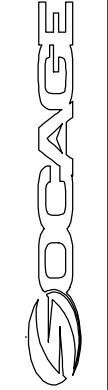
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T320FS_RE
Revision N.:
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Client: SOCAGE

Last Rev. Date:
01/06/2017



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Client: SOCAGE								



Description: T320

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Draftsman:	Malavasi

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Tag	Pos.	Locat.	Q.ty	Code	Italian Description			English Description			Type	Factory		
			1	1NAITWD1911	CAPPUCCIO IN GOMMA PROTETTIVO X LEVE			CAP IN PROTECTIVE GUM FOR LEVER			TWD1911	NAIS		
SA7	13-P2		1	1NAIT215SA	COMMUTATORE LEVA 2 SCAMBI FASTON 1-0-2			LEVER COMMUTATOR 1-0-2			T215SA	NAIS		
SA8	13-S2		1	1NAITWD1911	CAPPUCCIO IN GOMMA PROTETTIVO X LEVE			CAP IN PROTECTIVE GUM FOR LEVER			TWD1911	NAIS		
			1	1NAIT115GA	COMMUTAT.LEVA 1 SC.FASTON 1-0-2 IMPULSO			LEVER COMMUTATOR 1-0-2IMPULSE			T115GA	NAIS		
			1	1NAITWD1911	CAPPUCCIO IN GOMMA PROTETTIVO X LEVE			CAP IN PROTECTIVE GUM FOR LEVER			TWD1911	NAIS		
SBE1M2	13-T2		1	1TELZB4BS834	PULSANTE FUNGO EMERGENZA DIAM 30 METALLO			RD EMERGENCY MUSHROOM-HEAD PUSH BUT.D.30			ZB4BS834	TELEMECANIQUE		
			1	1TELZB4BZ102	CORPO COMPLETO(FLANGIA+CONTATTO)1NC MET			COMPLETE CASING(FLANGE+CONTACT 1NC)METAL			ZB4BZ102	TELEMECANIQUE		
			1	1TELZBE101	ELEM.CONTA.NO+COLLEG.VITESERRAFILO NO			CONTACT'S ELEM.NO+CONN.WITH CLAMP.SCREW			ZBE101	TELEMECANIQUE		
			1	1TELZBE102	ELEM.CONTA.NC+COLLEG.VITE_SERRAFILO NC			CONTACT'S ELEM.NC+CONN.WITH CLAMP.SCREW			ZBE102	TELEMECANIQUE		
SH2	13-R6		1	1TELZB5-AW553	TESTA PULSANTE LUMIN.GIALLO LED			LED YELLOW BRIGHT BUTTON HEAD			ZB5-AW553	TELEMECANIQUE		
			1	1TELZB5-AVJ5	CORPO LAMPADA SPIA GIALLA LED 12V			COMPLETE FORM(FLANGE+CONTACT)METAL			ZB5-AVJ5	TELEMECANIQUE		
SQ3	13-C7	+A2	1	1SELB01E124PSCC5	SENSORE DI PROSSIMITA' PNP NC-NO Ø12			PROXIMITY SENSOR PNP NC-NOØ12			B01E124PSCC5	SELET SENSOR		
		+A2	1	1DELCSA202G05	CONNETTORE4P 90 GRADI+CV4X0,25MMQ 5MT			CONNECTOR4P 90° +CABLE 4X0,25MMQ 5M			CSA202G05	DELCO		
SQ5	13-B7	+A2	1	1SELB01E124PSCC5	SENSORE DI PROSSIMITA' PNP NC-NO Ø12			PROXIMITY SENSOR PNP NC-NOØ12			B01E124PSCC5	SELET SENSOR		
		+A2	1	1DELCSA202G05	CONNETTORE4P 90 GRADI+CV4X0,25MMQ 5MT			CONNECTOR4P 90° +CABLE 4X0,25MMQ 5M			CSA202G05	DELCO		
SR17	13-D2	+A2	1	1TELZCMD25L2	CORPO MINIATURA 1NO 1NC AZ.LENTA+CVØ2M			MINIATURECASING 1NO 1NC SLOW ACTION			ZCMD25L2	TELEMECANIQUE		
		+A2	1	1TELZCEF2	TEST,PULS.+ROT.ACCIAIO FIL.M12(XCBG5022)			PUSH BUTTON HEAD+STEEL WHEEL THREADM12			ZCEF2	TELEMECANIQUE		
SR17A	13-E2	+A2	1	1TELZCMD25L2	CORPO MINIATURA 1NO 1NC AZ.LENTA+CVØ2M			MINIATURECASING 1NO 1NC SLOW ACTION			ZCMD25L2	TELEMECANIQUE		
VD10	13-R5		1	1ELCTWS1N4007	DIODO 1A 1000V 1N4007			DIODE 1A 1000V 1N4007			TWS1N4007	ELECTRONIC CENTER		
VD7	13-N7		1	1ELCTWS1N5408	DIODO 3A 1000V 1N5408			DIODE 3A 1000V 1N5408			TWS1N5408	ELECTRONIC CENTER		
VD8	13-U4		1	1ELCTWS1N5408	DIODO 3A 1000V 1N5408			DIODE 3A 1000V 1N5408			TWS1N5408	ELECTRONIC CENTER		
VD9	13-N7		1	1ELCTWS1N5408	DIODO 3A 1000V 1N5408			DIODE 3A 1000V 1N5408			TWS1N5408	ELECTRONIC CENTER		
XS1	13-T7		1	1MTA6811	PRESA MEMBERS ACCENDISIGARI C/OPERCCHIO			ELECTRIC LIGHTER MEMBERS TAP WITH CAP			6811	MTA		
YVRC1	13-D7		1	1DELE451N3N15011C32	CONNET YV2P+T DIO+LEDROS24V+C2X0,75 1,5M			CONN YV2P+H DIODE+REDED24V +C2X0,75M1,5			E451N3N15011C32	DELCO		
YVRC2	13-F7		1	1DELE451N3N15011C32	CONNET YV2P+T DIO+LEDROS24V+C2X0,75 1,5M			CONN YV2P+H DIODE+REDED24V +C2X0,75M1,5			E451N3N15011C32	DELCO		
CS097	14-F1		1	5DIACS097-12V	SCHEDA CS097-12V PANNELLO TORRE FORSTE -						CS097-12V			
CS099REV2	14-M4		1	5DIACS099-12VDC	SCHEDA TORRE FORSTE 12V						CS099-12VDC	DIASTECA		
XC1 (CAVO	15-B2	+P1	1	1WDM1873540000	HDCHE10BZF FEMMINA 10P MOLLA (PUSH-IN)						1873540000	WEIDMULLER		
		+P1	1	1WDM1873550000	HDCHE10MT MASCHIO 10P MOLLA (PUSH-IN)						1873550000	WEIDMULLER		
		+P1	1	1WDM1654070000	HDCHE10TSVU1/16 CUST.MOB.OUT OR.PG16						1654070000	WEIDMULLER		

DIVISCA

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		Client:							SOCAGE
		Job N.:							
Description:									
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Iss. Date:									
Sheet N. 021									
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Draftsman: Malovasi									
LIST OF MATERIAL									

***** CHAPTER 7 *****

EXTENSION CHAINS/REENTER OF THE
TELESCOPIC BOOM

The documentation contained in this chapter is composed of
n° 4 pages, this one included..

Note: The examination and replacement criterion of chains, described in this chapter, have been
extracted from the specific instructions given by the chains constructors

MAINTENANCE INSTRUCTIONS FOR BOOMS EXTENSION CHAINS.

In order to maintain the platform safety, it is necessary to check the tension conditions, surface and lubrication usury of the booms extension chains as explained in the " MAINTENANCE PROGRAM " and to record the controls and the interventions on the " CONTROL REGISTER."

- Check of chains tension condition; At the beginning of the chains ordinary maintenance operations when the booms are totally extended and with the help of an external tools, it is necessary to check the perfect tension ; pushing with a hand (applied force : around 5 - 10 kgs) in the middle of the chain free length, this will not have to bend not more than 30-40 mm, and it will not have in contact with the boom; this operation must have carried out on all the visible points of chain;
- Visual check of the chains condition; they must not have any visible signs of rubbing on lateral sides, or drying up seizure in the middle; moreover they must not have any bumping signs as well as surface gangs or yielding signs (Checks that you can control with the following procedure);
- Extension Check; this procedure consists of three phases:
 1. Identification of the points to check;
 2. Measure through control tool (we suggest the use of a calibre with division 1/20) the length at least 20 footsteps in some points of the chain;
 3. Check that in all the points of control of the footsteps, the extension of the chain does not exceed 2% (the max extension value foreseen by the builder is 3% it is reduced for the safety);

Example: a) chain base 1" = 25,4 mm

b) n° 20 footsteps x 25,4 = 508 mm (original length)

c) max admitted length = 508 + 2% = 518,16 mm

if from the visual examination or from the dimension control, the chain does not correspond to the specifications requested above, it is necessary to replace all the branches presents in the machine; for this operation, please contact an authorised service point SOCAGE.

As regards the lubrication; it is necessary to follow to the manufacturer's indications enclosed inside this Manual.

IMPORTANT
DO NOT WORK ABSOLUTELY ON THE CHAINS OR ON THE TRANSMISSION ROLLERS. IF YOU NEED ANY HELP PLEASE CONTACT AN AUTHORISED SOCAGE WORKSHOPS SERVICE OR DIRECTLY THE MANUFACTURER.

LUBRICATION, MAINTENANCE AND INSPECTION OF CABLES

LUBRICATION AND MAINTENANCE

The maintenance of chains should be made according to the kind of use (use frequency) and to the use environment of the machine.

In case of normal use of the machine, in normal environmental conditions, we advise you to lubricate every month the chains with a specific lubricating oil (fluid mineral oil), sufficiently fluid (viscosity from 20 to 40 SAE) to go inside the chains joints (also spray version) and weatherproof, hydrophobic, corrosionproofing (examples: chain spray (REXNORD)-HIGHT PERFORMANCE CHAIN (REXOIL)-STRUCTOVIS FHD (KLUBER)-ESSO OLIO ST 80 (ESSO)-SHELL T220 (SHELL)-MOBILARMA 524 (MOBIL).

This product is created to lubricate chains for frequent use and for dangerous use conditions. It is recommended in particular for all external uses where the main cause of deterioration is corrosion.

For the use remove dirty's residuals on the chain: brush and clean with steam/hot water or solvents, eliminate water with compressed air and apply directly the product (move always the chain).

In case of more dangerous uses (frequency use and the most dangerous environmental conditions) increase the periodicity of greasing time adequately.

NOTE: The first signal of lack or inadequacy of lubrication is underlined by the extension of the chain noise. As soon as there is this expansion lubricate immediately the chain to avoid dangerous damages and advanced wear.

Verify also the absence of superficial rust on the different parts of chain.

OTHER DECAY SIGNS

Apart from the above described evaluations, a cable should be replaced:

- when the side lap weld links don't come back in their original position after the passage on the transmission rollers.
- when the pivots of the side lap weld links are loose or have a backlash in their seats
- when the side lap weld links of the chain have an important external wear
- when the plates have impact traces or breakings
- when there are broken pivots

Here there are some photos which describe some conditions of wear/damage of the cable that require as soon as possible a replacement.

If the chain has not the right requirements, after the visual exam or the dimension control, it's necessary make more specific controls and, if it's the case, replace the chain. For this operation contact the authorized workshop or directly the constructor firm.

IMPORTANT

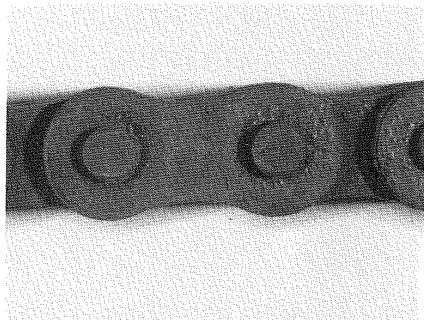
DO NOT MAKE OPERATIONS ON THE CHAINS, ON THE TRANSMISSION ROLLERS OR ON THE TIGHTENER IN ANY CASE. IF IT'S NECESSARY CONTACT THE AUTHORIZED WORKSHOP OR DIRECTLY THE CONSTRUCTOR FIRM.

- Superficial rust
- stiffness of junctions

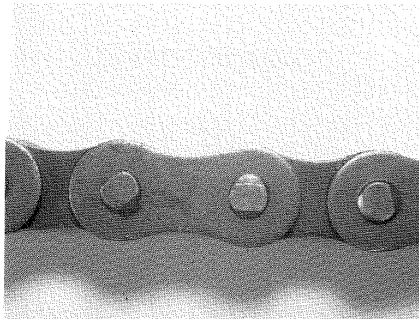
- pivots torsion
- loose pivot or with a back lash in their seats
- external wear not permissible

- damages
- broken plates
- broken pivots

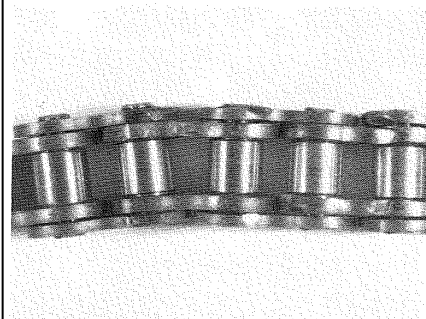
Ruggine Superficiale



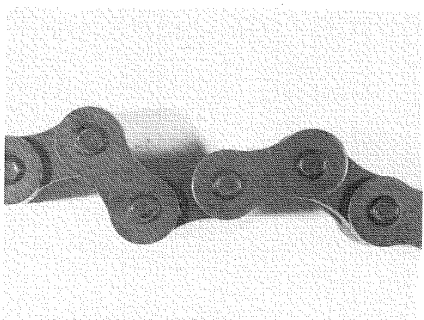
Torsione dei perni



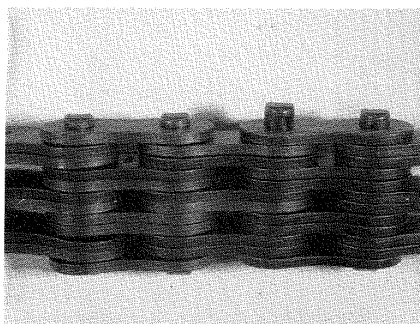
Danneggiamenti



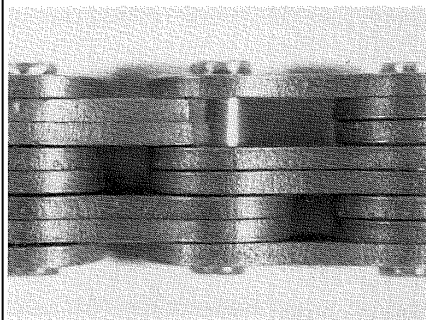
Rigidità della giunzioni



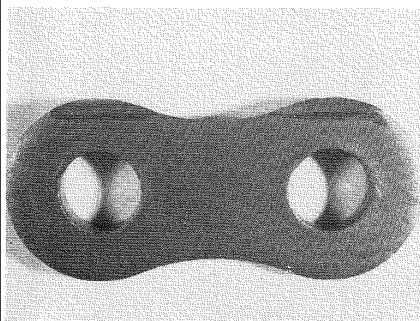
Perni lasci allentati o con troppo gioco sulle sedi



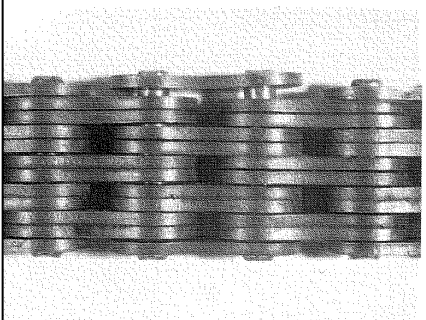
Piastre rotte



Usura esterna inammissibile



Perni rotti



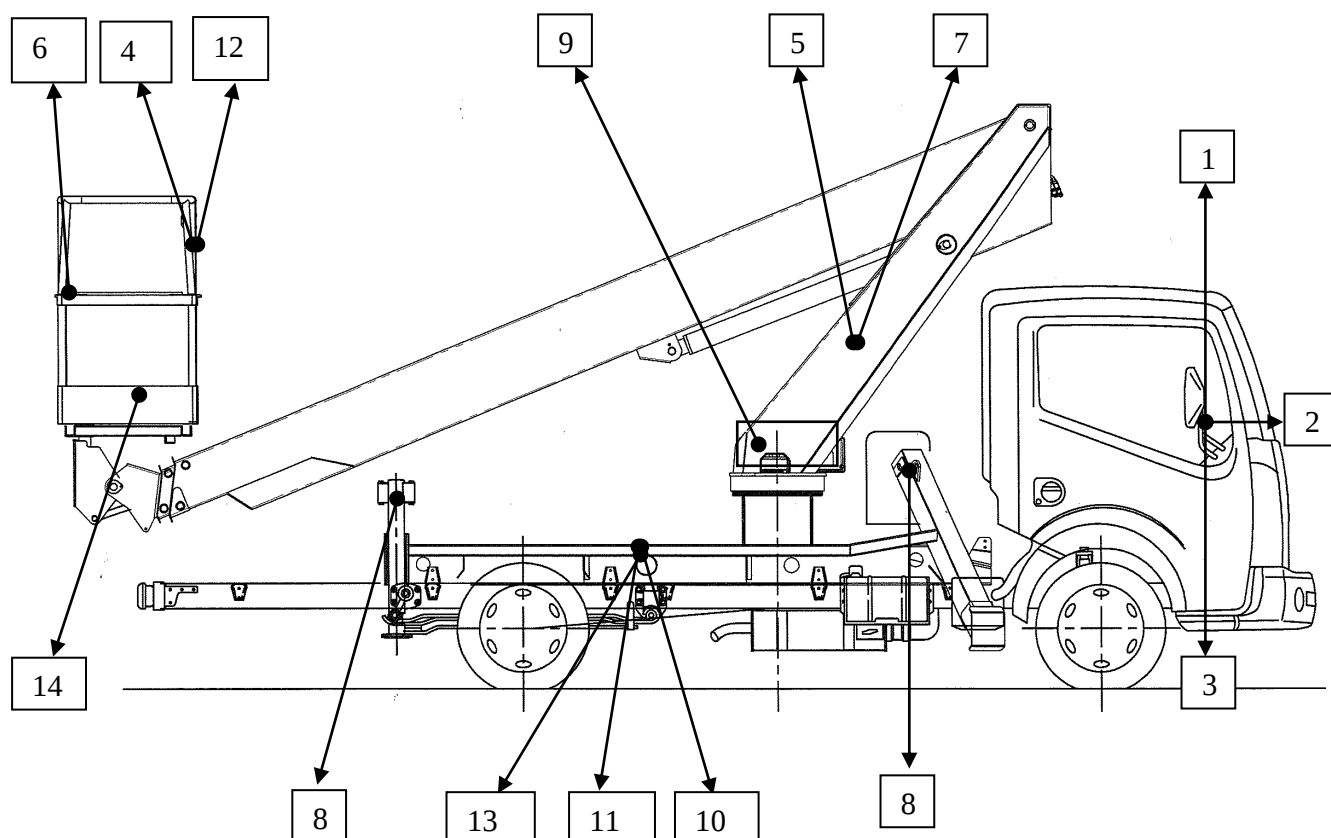
***** CHAPTER 8 *****

MARKING

The documentation contained in this chapter is composed of
n° 8 pages, this included..

THIS CHAPTER CONTAINS MACHINE IDENTIFICATION, SAFETY AND UTILIZATION INSTRUCTION PLATES. IT IS COMPULSORY TO CHECK IF THESE PLATES ARE INTEGRAL AND CLEAR. Following to bringing up to date, some drawings, colours or text expressions could be modified; however, message meaning remains unchanged.

Marcatura





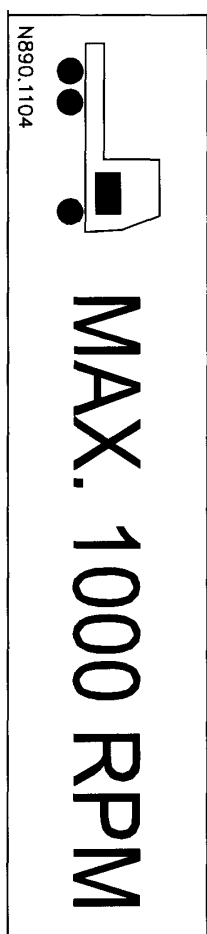
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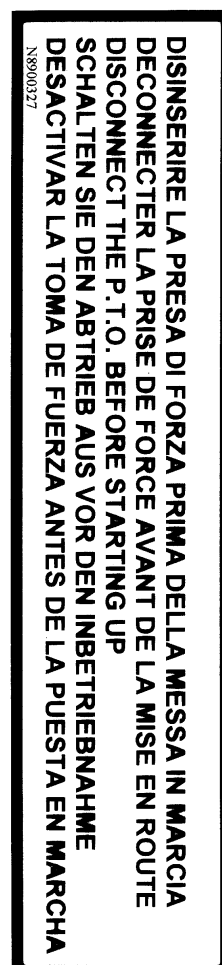
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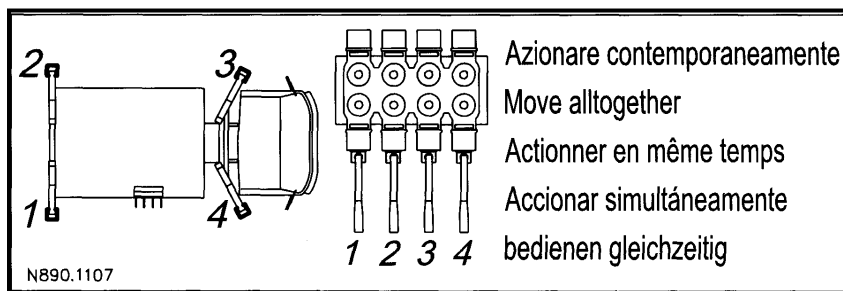
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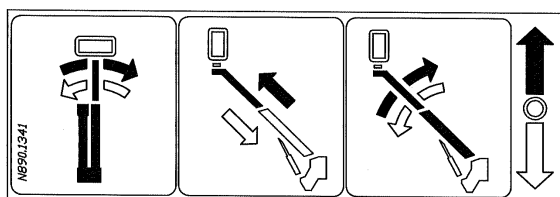
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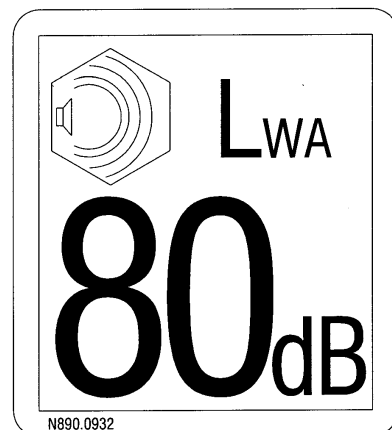
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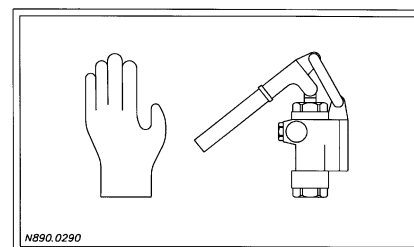
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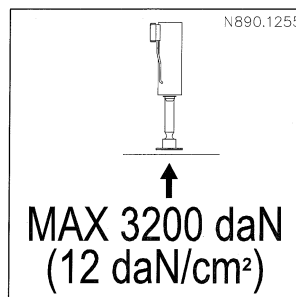
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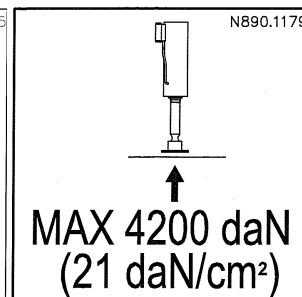
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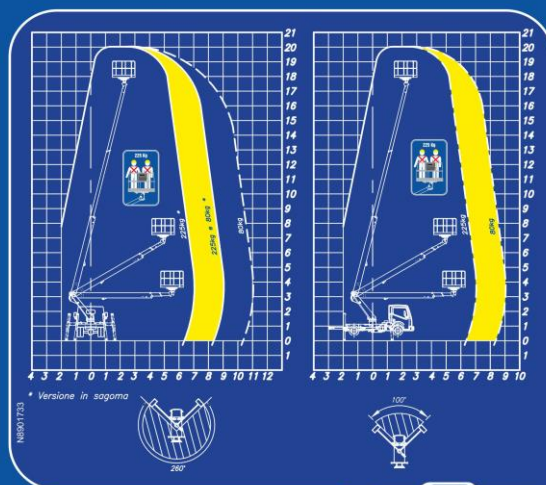
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8



8 optional



APERTURA - Primo movimento
OPENING - First movement
OUVERTURE - Premier mouvement
APERTURA - Primeiro movimento
OFFNUNG - erste Bedienung



CHIUSURA - Ultimo movimento
CLOSING - Last movement
FERMETURE - Dernier mouvement
CIERRE - Ultimo movimiento
SCHLIEßUNG - letzte Bedienung



MAX = 40 daN

PORTATA MASSIMA
MAXIMUM CAPACITY
CHARGE MAXIMALE
CARGA MAXIMA
МАКСИМАЛЬНАЯ
ГРУЗОПОДЪЕМНОСТЬ

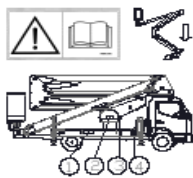
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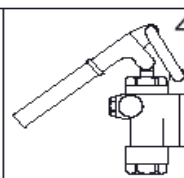
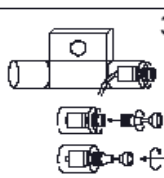
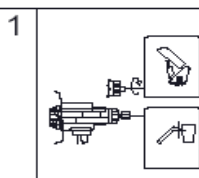
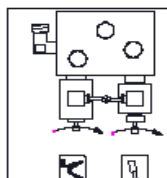
SOCAGE
socage.it

12

DISCESA D'EMERGENZA - EMERGENCY LOWERING - АВАРИЙНОЕ ОПУСКАНИЕ
DESCENTE DE SECOURS - BAJADA DE EMERGENCIA - NOTSINKEN



N898.1540



13

OPTIONAL PRESCRIPTION FOR INSULATED BASKET

!!!ATTENTION – DANGER!!!

BASKET INSULATION IS GUARANTEED ONLY FOR INVOLUNTARY CONTACTS WITH ELECTRIC LINES WORKING AT $\leq$ _____ V IN ALTERNATE OR CONTINUOUS CURRENT. INSULATION IS VALID ONLY IN DRY CONDITIONS.

!!!ATTENTION – DANGER!!!

N890.1015

!!!ATTENTION – DANGER!!!

NOT INSULATED SOCKET: DON'T USE IT WHEN THERE IS THE RISK OF TOUCHING ELECTRIC LINE ABSOLUTELY.

!!!ATTENTION – DANGER!!!

N890.0479

!!!ATTENTION – DANGER!!!

PRESCRIPTIONS TO GUARANTEE INSULATION

- DON'T MODIFY OR TAKE ANY PART RELATING TO INSULATION AWAY FROM THE BASKET (INSULATORS, BLACK PROTECTION, CONTROL PUSH-BUTTON, DISTRIBUTOR LEVELS, ETC.).
- DON'T PAINT NOR GET DIRTY THE INSULATING COMPONENTS (INSULATORS, BLACK PROTECTION, CONTROL PUSH-BUTTON, DISTRIBUTOR LEVELS, ETC.).
- IN CASE OF BREAKING OR SERIOUS DAMAGES DON'T USE THE EQUIPEMENT NEAR ELECTRIC LINES BEFORE HAVING DONE THE SUITABLE MAINTENANCE AT THE SO.CA.GE.-FASSI OR ANOTHER AUTHORIZED WORKSHOP.
- USE THE EQUIPEMENT NEAR ELECTRIC LINES ONLY IN DRY CONDITIONS.

!!!ATTENTION – DANGER!!!

N890.0481

***** CHAPTER 9 *****

INTEGRATION FOR INSULATED BASKET
(OPTIONAL)

The documentation contained in this chapter is composed of
n° 4 pages, this included..

WORKERS-CARRYING INSULATED BASKET

Polyethylene structure equipped with a lateral opening to enter and protected from a bar.
The basket dimensions are the following: mm. 1400x700x1150h..

This basket prevents persons and things from **INVOLUNTARY** contacts with electric lines and it has not to be used for live working.

After the assembly of the isolation the basket is tested with a standard test in which a discharge of 3 times stronger compared to the isolation value for 60 seconds, with the control of the lack of discharges or connection points.

It is advisable that the workers use shoes and gloves made of an insulated material together with a insulated cover to put on the controls before doing some electric maintenance works.

.

ALWAYS REMEMBER:



BASKET INSULATION IS GUARANTEED ONLY FOR INVOLUNTARY CONTACTS WITH ELECTRIC LINES WORKING AT $\leq$ _____ V IN ALTERNATE OR CONTINUOUS CURRENT



INSULATION IS VALID ONLY IN DRY CONDITIONS.



DON'T MODIFY OR TAKE ANY PART RELATING TO INSULATION AWAY FROM THE BASKET (INSULATORS, BLACK PROTECTION, CONTROL PUSH-BUTTON, DISTRIBUTOR LEVELS, ETC.).



DON'T PAINT NOR GET DIRTY THE INSULATING COMPONENTS (INSULATORS, BLACK PROTECTION, CONTROL PUSH-BUTTON, DISTRIBUTOR LEVELS, ETC.).



IN CASE OF BREAKING OR SERIOUS DAMAGES DON'T USE THE EQUIPMENT NEAR ELECTRIC LINES BEFORE HAVING DONE THE SUITABLE MAINTENANCE AT THE SOCAGE - OR ANOTHER AUTHORIZED WORKSHOP.



IF IT IS PRESENT, SOCKET IS NOT INSULATED. SO IT HAS NOT TO BE USED WHEN THERE IS THE RISK OF TOUCHING ELECTRIC LINES

***** CHAPTER 10 *****

ACCESSORIES

The documentation contained in this chapter is composed of
n° 4 pages, this included..

ACCESSORIES

You can install, if you want, a series of accessories.

Here there is a brief description of it and the modalities for their correct use.

ROTATING BEACON ON THE CABIN OF THE VEHICLE

It signals the use of platform when you work near roads or traffic zones.

It can have a magnetic mobile connection (it has to be placed on the cabin roof) or with a fixed connection.

Their ignition isn't automatic, but you have to activate it through the switch/connecting plug that is in the cabin of the vehicle before starting to work with the platform.

WARNING:

It is forbidden to go on road with the rotating beacon lighted.

It is forbidden to go on road with the magnetic rotating beacon that is on the cabin roof (it has to be removed).

OUTLET/ELECTRICAL PLUG 230V-50Hz

Outlet for the connection to the external power grid (400V-50Hz) on the ground, on the platform frame.

WARNING:

Before joining to the external power grid you have to check that the safety devices required for by norm are installed (differential/magnetic-thermic cut-outbox).

Electrical plug on the basket for the connection of the electrical tools (400V-50Hz-10A).

OUTLET/ELECTRICAL PLUG 400V-50Hz

Outlet for the connection to the external power grid (400V-50Hz) on the ground, on the platform frame.

WARNING:

Before joining to the external power grid you have to check that the safety devices required for by norm are installed (differential/magnetic-thermic cut-outbox).

Electrical plug on the basket for the connection of the electrical tools (400V-50Hz-16A).

PNEUMATIC/HYDRAULIC OUTLET ON THE BASKET

Input connection (on the lower part of the machine turret) for the junction to an external air/hydraulic line (connection 3/8''G-max 100 bar/15 l/min). Appropriate use connection on the basket (3/8''G) for the pneumatic/hydraulic tools connection (max 100 bar).

AUXILIARY MOTOR PUMP 230V-50Hz

Auxiliary motor pump (to connect to the external electrical grid 230V-50Hz-3Kw) for the use of platform without the switch of the vehicle motor.

WARNING:

Before joining to the external power grid you have to check that the safety devices provided for by law are installed (differential/magnetic-thermic cut-outbox).

The group is composed of a monophasic electric motor 230V-50Hz-2,5HP, hydraulic pump (flow rate delivered 5/6 l/min-230 bar), electric control system and group for automatic recharge of the vehicle battery.

For its use follow these instructions:

- switch on the electric board of the vehicle (for the working the power take off and the hand brake have to be inserted)
- activate the ignition lock switch which is on the electric board of the motor pump group
- at this point, from the control position it will be possible to switch on the motor pump and working with the machine in the same way of the normal controls (only with movements speed a little bit lower)

EMERGENCY MOTOR PUMP 12V

Auxiliary motor pump (directly connected to the vehicle batteries) for the recovery of the platform in case of emergency (if the hand pump is not used).

The group is composed of an electric motor with a direct current 12V-1,5Kw, hydraulic pump, (flow rate 2/3 l/min-150bar) and electric control system.

For its use follow these instructions:

-activate the drive push button of the motor pump from the control positions and you have to maintain it pressed. Then you can work with the machine in the same way of the hand controls to make the recovery of the machine in case of emergency.

ANTICOLLISION DEVICES

Series of electrohydraulic devices (see the list below) that can allow the control of the machine parts to avoid some collision risks.

-Anticollision of the boom with the vehicle cabin

Device that locks the descent/boom rotation (or of the pantograph if it exists), in the front zone of the vehicle at a point that doesn't interfere with the cabin structure

-Anticollision of the external raceways of the boom with the back outriggers (during the lock up of the machine)

Device that locks the descent boom in the locking position if the machine is not perfectly aligned in the correct position (to avoid damages of the external raceway of the boom)

-Anticollision of the basket against external obstacles

Device that locks some machine movements (extension boom/rotation) when the sensors on the basket notice the presence of an external obstacle.

STABILIZATION FROM THE BASKET

Electro hydraulic group that allows the use of the electrical controls of the stabilization on the basket (always with the machine/aerial parts in locked position/boom on its transport support) for their use follow the same ways of the controls of the outriggers on ground.

DOUBLE CONTROL OUTRIGGERS POSITION

Electric device that signales the correct position of locking/outriggers transport through the switching off of the red light on the dash board in the vehicle cabin, the correct lock position/outriggers transport (to avoid the danger of putting it into traffic with the outriggers that are not in a correct position).

***** CHAPTER 11 *****

INSPECTION REGISTER

The documentation contained in this chapter is composed of
n° 10 pages, this included..

REFERENCE REGULATIONS

This inspection register is given by Messrs. SOCAGE to the user of this platform, in compliance with 2006/42/EC directive.

PRESERVATION INSTRUCTIONS

This register is to be considered an integral part of the platform and should accompany this equipment during its whole working life up to final scrapping.

ATTENTION!!!

According to the regulation 2006/42/CE together with this register also the certificates of the replaced components must be recorded (motor, mechanisms, structural elements, safety devices and as well as the dedicated components) as well as the reports of important repairing.

COMPILATION INSTRUCTIONS

The following instructions are given according to provisions known at the date of the lifter's putting into the stream of commerce. New provisions could modify the user's obligations.

IMP.: THE FREQUENCY AND IMPORTANCE OF THE TESTS MAY ALSO DEPEND ON THE NATIONAL REGULATIONS.

This register has been conceived to write down, according to proposed charts, the following events related to the useful life of the machine:

- periodic inspections (Max every six months) to be carried out by the person in charge of safety at the company which owns the platform
- transfers of title
- replacement of motor, mechanisms, structural components, safety devices and relevant components
- breakdowns of some importance and appropriate repairs

PERIODIC INSPECTIONS

Inspection date	Date of next inspection	Name of inspector	Comments	Signature

PERIODIC INSPECTIONS

Inspection date	Date of next inspection	Name of inspector	Comments	Signature

DELIVERY OF TO THE FIRST OWNER

This platform, serial number....., manufactured in
as indicated in this inspection register was delivered by SOCAGE , on..... to:
.....
.....

according to the conditions set forth by the agreement, with technical, dimension and functional specifications indicated in the instruction manual and in the summary contained in this Register.

MESSRS.

SUBSEQUENT TRANSFERS OF TITLE

On title of the platform in question was transferred to :
.....
.....

We certify that, on the above mentioned date, technical, dimension and functional specifications of the lifter in question are in accordance to original specifications and that changes, if any, have been written down in this Register.

The seller

The buyer

.....

.....

SUBSEQUENT TRANSFERS OF TITLE

On title of the platform in question was transferred to :
.....
.....

We certify that, on the above mentioned date, technical, dimension and functional specifications of the lifter in question are in accordance to original specifications and that changes, if any, have been written down in this Register.

The seller

The buyer

.....

.....

REPLACEMENT OF STRUCTURAL COMPONENTS

Date:

component description
.....

manufacturer: supplied by:

reason for the replacement:
.....
.....
.....The person in charge of the replacement
.....The user
.....

REPLACEMENT OF STRUCTURAL COMPONENTS

Date:

component description
.....

manufacturer: supplied by:

reason for the replacement:
.....
.....
.....The person in charge of the replacement
.....The user
.....

REPLACEMENT OF STRUCTURAL COMPONENTS

Date:

component description
.....

manufacturer: supplied by:

reason for the replacement:
.....
.....
.....The person in charge of the replacement
.....The user
.....

REPLACEMENT OF MECHANISMS

Date:

component description
.....

manufacturer: supplied by:

reason for the replacement:
.....
.....
.....The person in charge of the replacement
.....The user
.....

REPLACEMENT OF MECHANISMS

Date:

component description
.....

manufacturer: supplied by:

reason for the replacement:
.....
.....
.....The person in charge of the replacement
.....The user
.....

REPLACEMENT OF MECHANISMS

Date:

component description
.....

manufacturer: supplied by:

reason for the replacement:
.....
.....
.....The person in charge of the replacement
.....The user
.....

REPLACEMENT OF SAFETY DEVICES AND RELEVANT COMPONENTS

Date:

component description
.....

manufacturer: supplied by:

reason for the replacement:
.....
.....
.....The person in charge of the replacement
.....The user
.....

REPLACEMENT OF SAFETY DEVICES AND RELEVANT COMPONENTS

Date:

component description
.....

manufacturer: supplied by:

reason for the replacement:
.....
.....
.....The person in charge of the replacement
.....The user
.....

REPLACEMENT OF SAFETY DEVICES AND RELEVANT COMPONENTS

Date:

component description
.....

manufacturer: supplied by:

reason for the replacement:
.....
.....
.....The person in charge of the replacement
.....The user
.....

(DA COMPILARSI OBBLIGATORIAMENTE AD OGNI PASSAGGIO D'USO)

[illegible]

EMPTY PAGE FOR FURTHER INFORMATION