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Hinowa®

SELF-PROPELLED TRACKED PLATFORM GOLDLIFT 14.70

MANUAL USE AND MAINTENANCE

Valid from serial number G23

MUGL147020409

INDEX

FOREWORD

The aim of this manual is to provide the customer with all the necessary instructions and operating procedures essential for the proper use of the machine in order to avoid serious damages to the machine or others.

IMPORTANT

ALL THE INFORMATION IN THIS MANUAL IS MANDATORY AND MUST BE READ CAREFULLY AND UNDERSTOOD BEFORE STARTING ANY OPERATION ON THE MACHINE.

Being an important working tool, this manual must always be kept in a safe and easy to reach place to be available at any time for further explanations.

Since it is not possible for the manufacturer to check the application of the machine and its operation.

THE OPERATOR IS RESPONSIBLE to observe the safety instructions described in this manual.

Before delivery, each machine is checked and tested carefully so that the operator does not need to do any further adjustments.

IT IS ABSOLUTELY FORBIDDEN AND THE RESPONSIBILITY IS AT THE OPERATOR'S OWN RISK to do any alterations and/or adjustments without any prior authorisation from HINOWA SPA.

IT IS THE EMPLOYER'S RESPONSIBILITY TO MAKE SURE THE OPERATOR HAS THE NECESSARY SKILLS AND ABILITIES TO OPERATE PROPERLY THE MACHINE AND THAT HE HAS READ AND UNDERSTOOD THE CONTENTS OF THIS INSTRUCTION AND OPERATING MANUAL.

IT IS ALSO THE EMPLOYER'S RESPONSIBILITY TO TRAIN THE OPERATOR ACCORDING TO NATIONAL LAWS WHICH MIGHT BE SUPPLEMENTARY TO THE CONTENTS OF THIS MANUAL.

If this manual gets damaged or lost, ask directly HINOWA SPA for a replacement copy.

Note: all the pictures and drawings in the manual have been added to simplify the comprehension of the texts. The machine in your possession may differ from the pictures and the drawings in some details.

APPLIED STANDARDS

This machine has been planned, built and tested according to the prescribed harmonised regulations EN280 which supplies the presumption of conformity to the Essential Safety requirements of the Machine Directive 98/37/CE although it is a type C Voluntary Technical Rule. According to what prescribed in EN280 the platform GOLDLIFT has been classified in GROUP B, as the vertical projection of the load centre of gravity always remains outside the overturn lines and in TYPE I as the translation is only allowed when the platform is at rest.

CUSTOMER SERVICE

In case of repairs or overhauls of the following parts of the machine:
- Locking valves;
- Sensors (microswitches, photoelectric cells, loading sensors etc.);
- Main part of the electric system (PLC).

IT IS OBLIGATORY to contact the dealer where the platform has been purchased or directly HINOWA SPA Customer Service. They have highly qualified staff and above all the suitable equipment to carry out the necessary operations in complete safety.

When doing ordinary maintenance or repairs, ONLY USE ORIGINAL SPARE PARTS purchased from the dealer where the platform has been bought or directly from HINOWA Spa Spare parts Department.

WARRANTY

When purchasing a platform GOLDLIFT you are given a warranty and test certificate where the warranty terms are clearly stated and where there must be specified any interventions on the machine.

LIABILITY

HINOWA SPA declines any responsibility or obligations for any damages caused to people or things due to the following reasons:

- Not observing the instructions indicated in this INSTRUCTION AND OPERATING MANUAL with regard to the operating, use and maintenance of the machine;
- Any sudden or violent actions or wrong manoeuvres in the use and maintenance of the machine;
- Any alterations done to the structure and the components of the machine without any prior authorisation from HINOWA SpA and/or without using proper equipment;
- Any foreign events not related to the ordinary and proper use of the machine as described in this INSTRUCTION AND OPERATING MANUAL;
- Using non original and non authorised manufactured spare parts.

1. INTRODUCTION

In this manual, you can see safety-warning signs used to bring the reader's attention to some warnings of particular importance.
The warning signs comes under two main types identified and described below.

DANGER
This sign accompanied by the word DANGER indicates that the situation described below, if not avoided, can cause serious injuries or even death to the people concerned (operator, ground staff, people near the platform, people assigned to maintenance etc.).

WARNING
This sign accompanied with the word WARNING indicates that the situation described below indicates a potential risk to the structure of the machine. This condition could cause dangerous conditions (even injuries and death) to the people concerned.

2. OPERATOR'S MANUAL

2.1. DESCRIPTION OF THE MACHINE

The GOLD LIFT machine is a self-propelled hydraulic lifting device, equipped with a working control car situated at the top of a rotating and extensible articulated structure. The lifting device GOLD LIFT is meant for PLACING PEOPLE AND THEIR TOOLS AND MATERIALS IN PLACES HIGHER THAN GROUND LEVEL.
The main control station of all the movements of the lifting device GOLD LIFT is situated on the control car. Thanks to the main control station the operator can drive the machine, lift or lower the extensible structure and rotate it towards the left or the right for an overall 300° angle.
The machine GOLD LIFT is equipped with a ground control station that excludes the main control station by means of a switch. The ground controls check the movements of the extensible structure and are used in case of emergency to bring the control car back to the ground when the operator is not able to do it.
The ground emergency controls can be used when doing control checks before starting operating.
The machine GOLD LIFT is a self-propelled machine able to move easily on any type of ground, able to overcome big slopes and, seen its contained dimensions, to enter into narrow places. The control car is the only control location planned by the manufacturer that prevents the operator from being injured during all the translation operations of the machine. In fact, the controls have been studied to be used from the said position to have a proper sight of the involved area.
The travel function can be controlled from the ground position only when the machine has to pass pass through reduced-height or narrow spaces. In these cases, to allow the machine to access these spaces, the two-place cage must be removed. The machine must travel only lengthwise and must be controlled by a specialist operator.

When controlling the translation of the machine from the control car, take the maximum care of elements like cornices, terraces, lintels, branches etc. that could come into contact with the operator.

If the machine translation is controlled from the ground (see the a.m. admitted cases), remember that the machine must be orientated with the control car part towards the back so that, in case of a wrong manoeuvre, the operator does not come into contact with the rubber tracks.

Controlling the travel of the machine from the ground with the cage removed is considered an extraordinary procedure that should be adopted only when the work area cannot be reached in any other way.

It is absolutely forbidden to do manoeuvres different from the above mentioned ones by controlling translation from the ground as a possible sharp movement of the machine could crush the operator between itself and the elements present on the manoeuvring area or make the operator come into contact with the rubber tracks or the platform stabilisers.

After reinstalling the cage, put back the iron caps immediately.

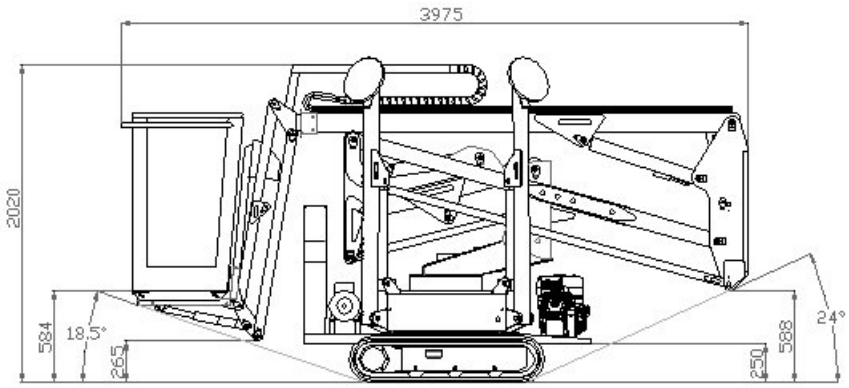
2.1.1 MACHINE IDENTIFICATION PLATE

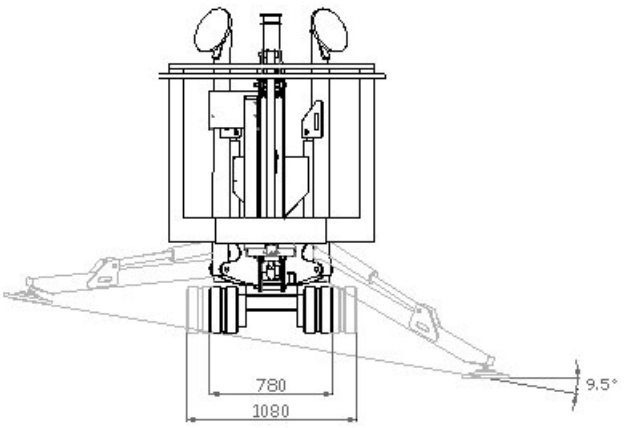
The Manufacturer plate is situated on the right side of the metallic frame sustaining the translation/stabilising controls. You can see the drawing below.

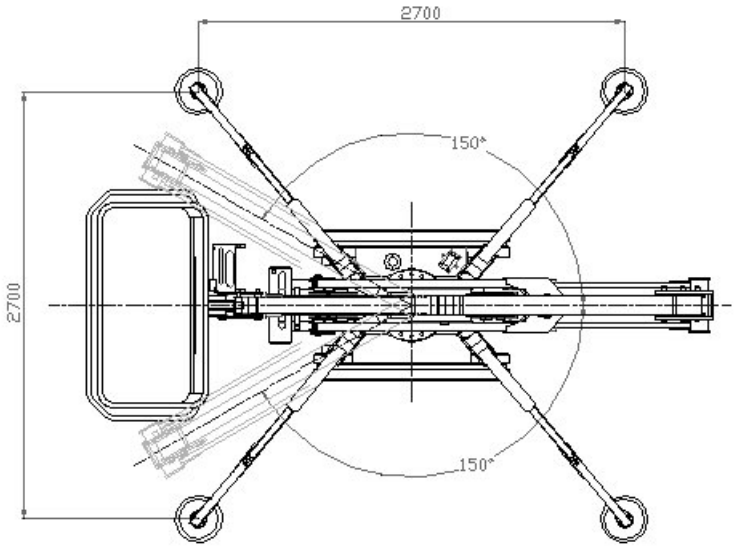
2.1.2 OVERALL DIMENSIONS OF THE MACHINE

2.1.2.1 DIMENSIONS 1470

Maximum length in running conditions.....3975 mm
Carriage width .....780-1080 mm
Maximum height in running conditions.....1980 mm
Maximum ramp angle .....18.5°
Maximum stabilising angle.....10°
Stabiliser base side .....2700 mm







N.B. Standard version with two-seater basket.

2.1.3 TECHNICAL DATA

2.1.3.1 PLATFORM TECHNICAL DATA

GOLDLIFT 14.70

	LOAD 200 kg	LOAD 120 kg
PLATFORM HEIGHT (tread level)	10,58 m	11,94 m
MAXIMUM WORKING HEIGHT	12,63 m	14,00 m
STANDARD CONTROL CAR DIMENSIONS	1330x694 H1100 mm	
HORIZONTAL RANGE	5,16 m	6,24 m
MAXIMUM WORKING HORIZONTAL RANGE	5,61 m	7,00 m
ROTATION (non continuous)	300°	300°
PLATFORM CAPACITY	200 kg,	120 kg
MAX GROUND REACTION PER STABILISER	1330 daN	
MAX GROUND PRESSURE PER STABILISER	1,9 daN/cm^2	
OPERATORS N°	2	1
OPERATOR N° IN SINGLE- SEATER BASKET (OPTION)	1	1
JIB-TYPE ARTICULATION	/	80° (+0°/-80°)
MAX WORKING INCLINATION	1°/2,2%	
MAX STABILISING INCLINATION	10°	
OVERALL WEIGHT IN TRANSPORT POSITION	1700 kg	
THERMIC ENGINE	HONDA GX270-9 CV-3000 rpm	
	HONDA GX390-13 CV-3000 rpm (Optional)	
	HATZ 1B30-7 CV-3000 rpm	
ELECTRIC ENGINE	1,5 kw/220V/50Hz 1500 rpm	
	1,5 kw/110V/50Hz 1500 rpm (Optional)	
TELECTRIC SYSTEM VOLTAGE	12 V	
PUMPS	2x3,15 cc	
MAX TRANSLATION SPEED (thermic engine)	1,4 km/h	
MAX TRANSLATION SPEED (thermic engine) with 2nd speed (optional)	1,4/2,8 km/h	
STAB/TRANSLATION SYSTEM PRESSURE	175 bar	
OVERHEAD PART PRESSURE	180 bar	
MAX UPPER SLANT IN RUNNING CONDITIONS	24°/53%	
MAX WIND SPEED	12,5 m/s	
MAX ADMITTED MANUAL FORCE	40 kg	
RUBBER CRAWLER WIDTH- OPEN/CLOSE	780/1080 mm	

NB: The side range is measured from the centre of the fifth wheel to the outer side of the control car.

DANGER

It is absolutely forbidden to translate and/or manoeuvre on transversal slopes with the crawler not extended as the machine could turn over and cause serious damages to the operator.

2.1.3.2 PETROL ENGINE TECHNICAL DATA

Make/ModelHONDA GX270
Fuel/coolant.....PETROL/AIR
Power SAEJ1349 .....6.6 kW (9 CV) / 3600 Giri/min
Max regulated rpm.....3000 giri/min
Maximum torque .....19.1 Nm/2500 Giri/min (80/1269/EC)
Cylinder n° 1
Cubic capacity.....270 cm^3

Make/Model .....HONDA GX390
Fuel/coolant.....PETROL/AIR
Power SAEJ1349 .....9.6 kW (13 CV) / 3600 Giri/min
Max regulated rpm.....3000 giri/min
Maximum torque .....26.5 Nm/2500 Giri/min (80/1269/EC)
Cylinder n° 1
Cubic capacity.....389 cm^3

2.1.3.3 DIESEL ENGINE TECHNICAL DATA

Make/Model .....HATZ 1B30
Fuel/coolant.....DIESEL/AIR
Power SAEJ1349 .....5,0 kW (6,8 CV) / 3600 Giri/min
Max regulated rpm.....3000 giri/min
Maximum torque .....18,2 Nm/2000 Giri/min (80/1269/EC)
Cylinder n° 1
Cubic capacity.....347 cm^3

2.1.3.4 HYDRAULIC SYSTEM TECHNICAL DATA

Hydraulic oil tank capacity.....25 litres
Pump .....double 2x3.15cm^3
Hydraulic system max pressure.....180 bar
For further information please consult the hydraulic diagram annexed to this manual or the paragraph relative to the maintenance of the relative components.

2.1.3.5 ELECTRIC SYSTEM TECHNICAL DATA

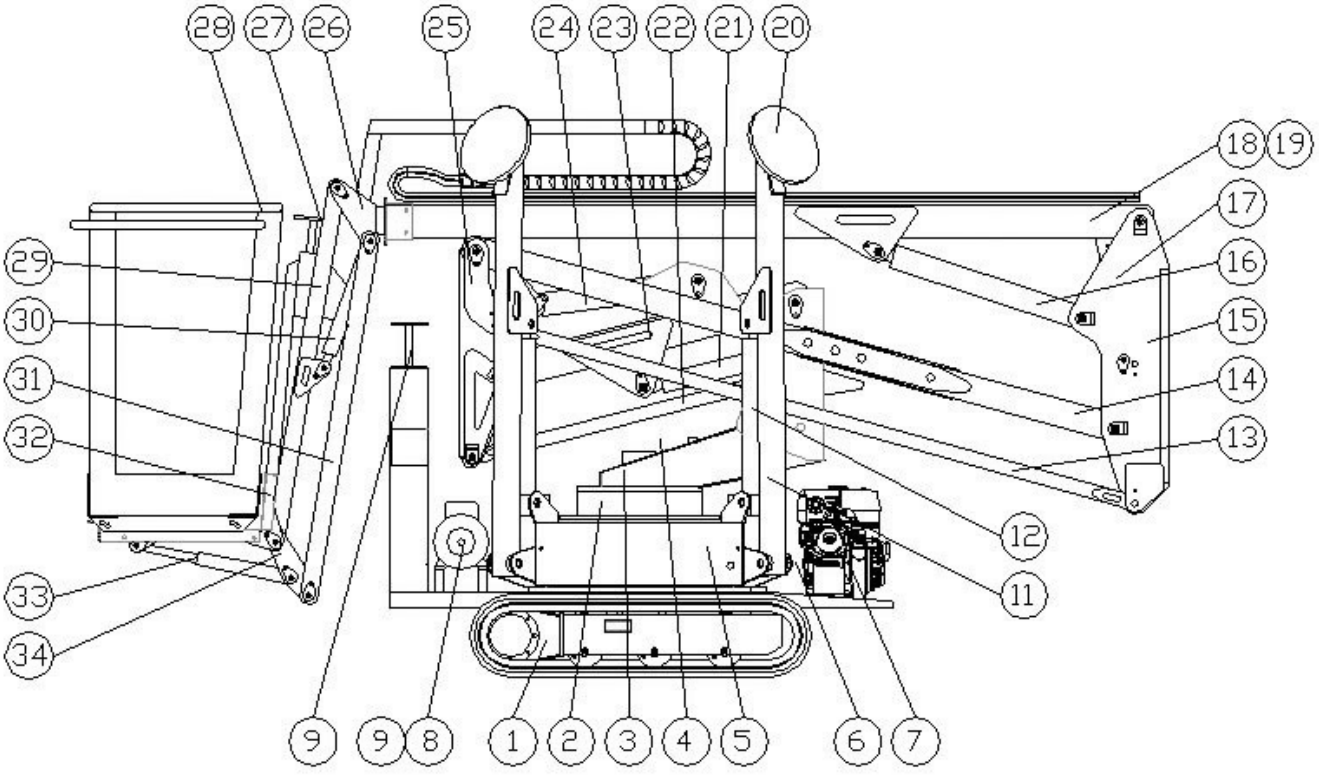
Battery .....35 Ah - 125 A - 12V
Alternator: - petrol engine.....10 A (3000rpm)
- diesel engine .....14 A (3000rpm)
Electric engine: - electrical connection.....220 V
- frequency .....50 Hz
- power .....1.5 kW

For further information please consult the electric diagram annexed to this manual or the paragraph relative to the maintenance of the relative components.

2.1.4 TERMINOLOGY

To make this manual easier to understand, there is a diagram that gives all the exact terms identifying the different parts of the platform.

GOLD LIFT 14.70



2.1.4.1 GOLD LIFT 14.70 KEY

1 Extensible rubber crawler
2 Fifth wheel + rotation engine
3 Revolving turret
4 Overhead part emergency controls
5 Base + electric components box + oil tank
6 Triple gear pump
7 Diesel/petrol engine
8 Electric engine
9 Triple gear pump
10 Translation and stabilisers controls
11 Stabilizer
12 Stabilizer cylinder
13 Second arm tie-rod
14 Second arm
15 Second transmission
16 Third arm cylinder
17 Basket levelling cylinder on transmission
18 Third arm
19 Extraction cylinder
20 Stabilizer cap
21 First arm cylinder
22 First arm tie- rod
23 First arm
24 Second arm cylinder
25 First transmission
26 Extraction arm
27 Controls
28 Basket or control car
29 Jib arm
30 Jib cylinder
31 Jib tie-rods
32 Basket support
33 Basket levelling cylinder on jib
34 Jib transmission

2.2 GENERAL SAFETY RULES

WARNING

NOT OBSERVING THE SAFETY PRECAUTIONS LISTED IN THIS SECTION AND SHOWN ON THE MACHINE CAN CAUSE INJURIES OR DEATH TO THE STAFF AND DAMAGES TO THE MACHINE AND IS A SERIOUS VIOLATION OF SAFETY RULES.

This section of this INSTRUCTION AND OPERATING MANUAL describes the dangerous procedures or situations that could cause damages to things and/or people and what the operator must do to avoid them.

- The operator must always work professionally, observing all the safety rules, taking care not to underestimate their own responsibility towards themselves and all the things and people around them.
- Before starting work it is essential that the operator makes sure the safety devices are in perfect conditions, that they make the necessary checks on the machine and become familiar with the ground conditions where they must manoeuvre and stabilise.
- When working it is essential that one specialised person with knowledge of the use of the machine and the contents of this INSTRUCTION AND OPERATING MANUAL stays on the ground.
- It is absolutely forbidden to do any alterations to the machine without any prior written authorisation from HINOWA SPA as this could damage its functioning and its safety. HINOWA SPA declines any responsibility for injury or damage caused by such behaviour.

Clothing and protective wear

Avoid wearing loose clothes, rings, watches or anything that could get entangled inside the rotating parts.
When operating the machine or doing maintenance jobs, wear a helmet, safety glasses and safety shoes, gloves and noise protection earmuffs after checking their integrity.

IMPORTANT

Wear the homologated and certified safety belt

Before operating at height it is necessary to correctly wear the safety belts and to fasten them to the anchorages of the basket.
The use of the safety belts is compulsory in connection with the local regulatins of every single State. In those States where the law does not require the use of holding systems, the choice is of the employer or/and user.

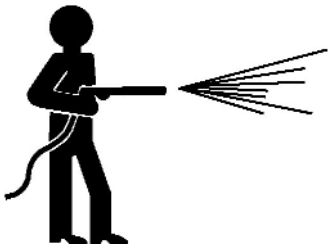
Safety valves

Never alter and/or tamper with the safety valves and the controls in the main hydraulic system. HINOWA SPA declines any responsibility for damages to people, things or the machine when the hydraulic valve standard gauging has been tampered with.

Fire prevention

Keep the engine compartment clean. Remove any pieces of wood, paper and other flammable products; clean properly any fuel leaks as they can be potential fire risks.
Petrol is extremely flammable and explosive under certain conditions. Refuel in a well-ventilated place and when the engine is off.
Never smoke or cause sparks in the refuelling place or the fuel storage place.
After refuelling, make sure that the cap is closed safely and properly.
Take care not to touch the exhaust pipe when it is hot, as it remains hot during the working of the machine and also after turning off the engine.

Preventing damages caused by washing the machine



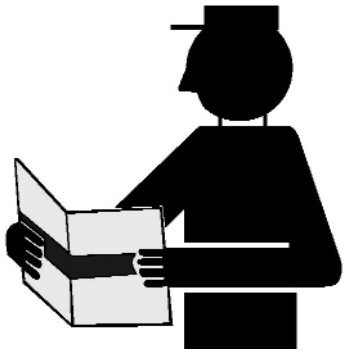
When washing the machine do not direct high- pressure jets onto the electric components. Do not use chemical or petrol detergents that could cause serious damages to the plastic components and the paint.

Preventing damages when the machine is at work.

When the machine has been stabilized and starts working, avoid entering in its working range.
Manoeuvre systematically the controls slowly and regularly. Do not invert movements sharply.

2.3 SAFETY ADVICE

2.3.1 GENERAL ADVICE

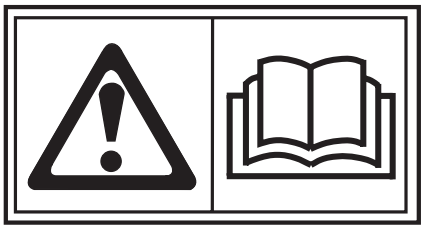


To avoid accidents, before starting work and before doing any operations of maintenance, read, understand and follow all the warnings and instructions given in this manual. The machine operator/user cannot be held responsible if they have not read this manual and learnt how to manoeuvre the machine under the supervision of a qualified operator.
Carefully read all the safety warnings in this manual and the safety signs on your machine.
Keep the safety signs in proper order and replace them when they are damaged.
Make sure that the new components on the machine have the proper safety signs.

2.3.2 PICTOGRAMS SITUATED ON THE MACHINE

You will find below the description, meaning and location of all the warning, indication and instruction stickers placed on the machine.

1) Description:
WARNING! READ THE INSTRUCTION AND MAINTENANCE MANUAL BEFORE USING THE MACHINE AND APPROACH THE ELECTRIC COMPONENT COMPARTMENT.
Location on the machine:
- on the electric component case
- on the basket.



2) Description:
WARNING: KEEP AT SAFETY DISTANCE FROM THE MACHINE.
Location on the machine:
- on the basket
- on the second transmission.

3) Description:
WARNING! DANGER OF CRUSHING LOWER LIMBS.
Location on the machine:
- on the stabilisers
- on the crawler.

4) Description:
WARNING! OBJECTS FALLING.
Location on the machine:
- on the basket.

5) Description:
MACHINE FIXING POINTS FOR TRANSPORT.
Location on the machine:
- on fixing points.

6) Description:
FASTEN SEAT BELT.
Location on the machine:
- on the basket.

7) Description:
USE PERSONAL PROTECTION DEVICES.
Location on the machine:
- on the basket.

8) Description:
NEVER DO MAINTENANCE WHEN THE MACHINE IS IN THE REST POSITION.
Location on the machine:
- on the basket.

9) Description:
NEVER FIX LADDERS, TOOLS OR OTHERS TO THE CONTROL CAR OF THE PLATFORM TO INCREASE WORKING OUTPUT.
Location on the machine:
- on the basket.

10) Description:
NEVER WORK NEAR ELECTRIC CABLES (Par. 2.7.1).
Location on the machine:
- on the basket.

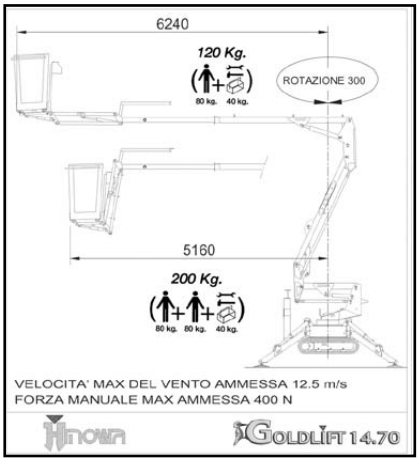
11) Description:
NEVER USE THE WORKING PLATFORM AS A LIFT.
Location on the machine:
- on the basket.

12) Description:
WEAR THE PROTECTIVE GLOVES
Location on the machine:
- on the basket.

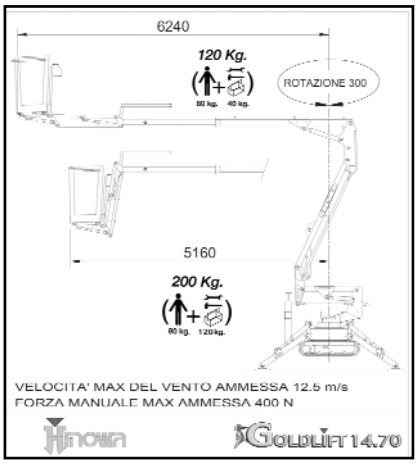
13) Description:
WEAR SAFETY SHOES
Location on the machine:
- on the basket.

14) Description:
WARNING! 230V.
Location on the machine:
- on the electric differential switch box.

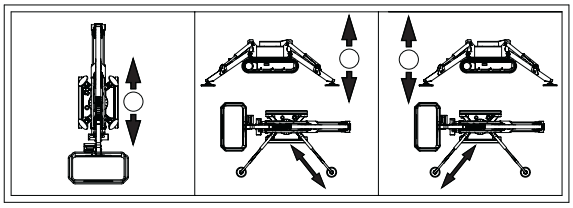
15) Description:
GOLDLIFT 14.70 MAX. LOADS AND ARM RANGES WITH SINGLE-SEATER BASKET
Location on the machine:
- on the basket.



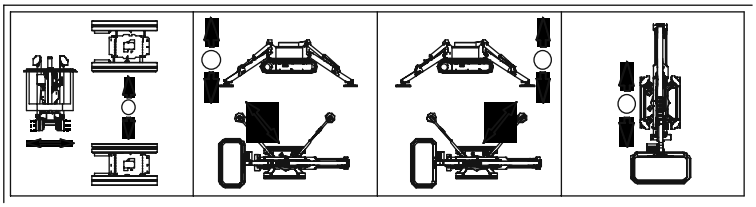
16) Description:
GOLDLIFT 14.70 MAX LOADS AND ARM RANGES WITH SINGLE-SEATER BASKET (OPTION)
Location on the machine:
- on the basket.



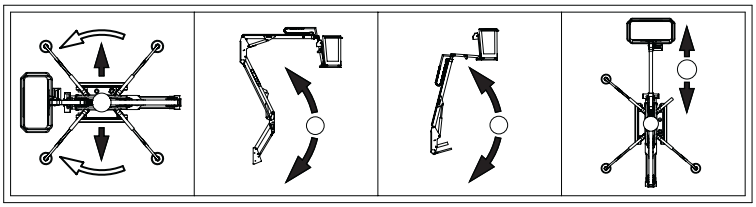
17) Description:
TRANSLATION DISTRIBUTOR CONTROL FUNCTIONS.
Location on the machine:
- near the translation controls.



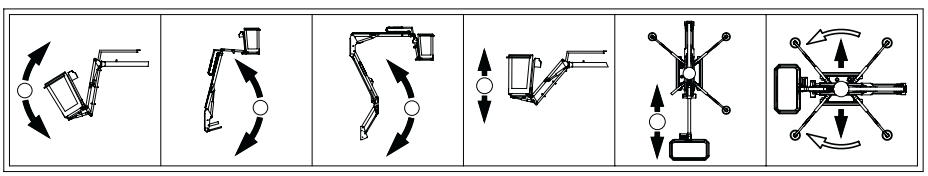
18) Description:
TRANSLATION DISTRIBUTOR CONTROL FUNCTIONS.
Location on the machine:
- near the translation controls.



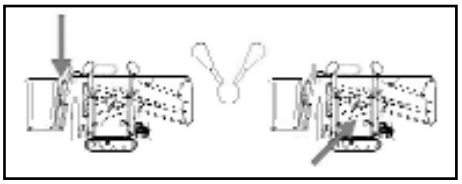
19) Description:
DISTRIBUTOR GROUND CONTROL FUNCTIONS OF THE OVERHEAD PART.
Location on the machine:
- near the ground platform controls.



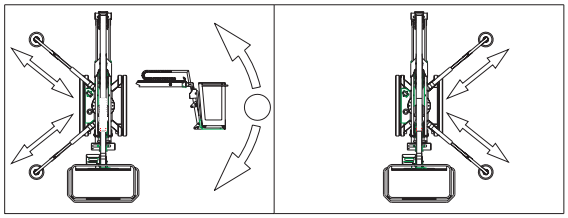
20) Description:
DISTRIBUTOR CONTROL FUNCTIONS OVERHEAD PART ON BASKET GOLDLIFT 14.70.
Location on the machine:
- near the overhead part controls on the basket.



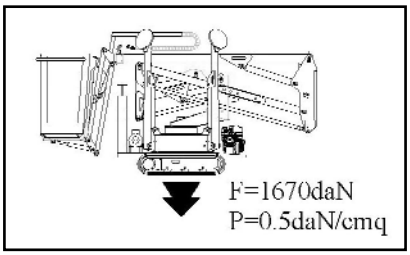
21) Description:
OVERHEAD PART GROUND CONTROL SWITCH FROM BASKET.
Location on the machine:
- near the overhead part ground control switch from basket .



22) Description:
HAND PUMP SWITCH.
Location on the machine:
- near hand pump switch.



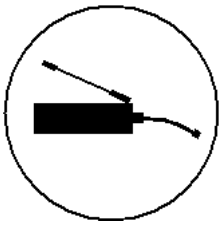
23) Description:
GROUND REACTION AND PRESSURE CAUSED BY THE WEIGHT OF THE MACHINE ON RESTING SURFACES.
Location on the machine:
- on the rubber crawler.



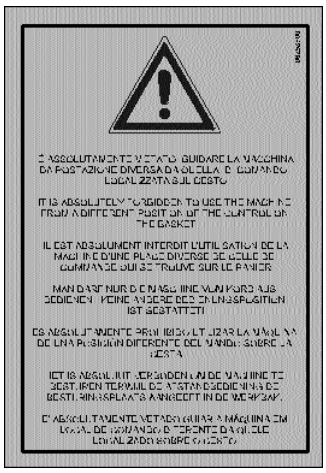
24) Description:
MAXIMUM REACTION AND MAXIMUM PRESSURE INDUCTED BY ONE STABILISER WITH CAP Diam.300 PLACED ON THE GROUND.
Location on the machine:
- on the stabiliser.

25) Description:
WARNING: DANGER OF INJURING UPPER LIMBS.
Location on the machine:
- in front of the distributor of the overhead part ground control and in front of the control place on the basket.

26) Description:
RESPECT THE GREASING INTERVARS OF THE INDICATED PARTS (see page 67-78).
Position on the machine:
- on the thermic engine protection in correspondence with the grease cup of the slew ring.



27) Description:
TRANSLATION STICKER: It is absolutely forbidden to use the machine from a different position of the control on the basket.
Position on the machine:
- Distributor support.

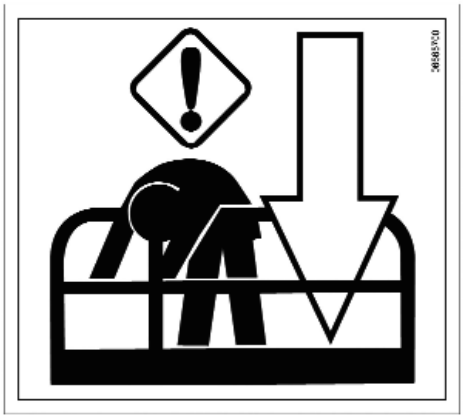


28) Description:
STICKER FOR THE CAGE LEVELLING LOCK
Release only in case of emergency, if the automatic levelling function does not work correctly; after use, restore immediately.
Location on the machine:
- overhead part distributor support.

29) Description:
STICKER FOR THE LOCKING OF THE CAGE GUIDE RETAINER CAPS
Release only in the cases specified in the operation and maintenance manual; after reinstalling the cage, put back the caps immediately.
Location on the machine:
- cage guide retainer caps
- cage support slide

30) Description:
IT IS FORBIDDEN TO LIFT THE MACHINE FROM THIS POSITION
Location on the machine:
- fastening points area.

31) Description:
Position of the emergency controls from the ground
Location on the machine:
- Near the hand pump.



REPLACE ALL STICKERS AND PLATES AS SOON AS THEY GET WORN.

NOT OBSERVING INSTRUCTIONS REGARDING WEAR AND TEAR, LOST OR NOT CONSULTING A SAFETY STICKER CAN CAUSE SERIOUS ACCIDENTS.

2.3.3 NOISE AND VIBRATIONS

HINOWA platforms both in GOLDLIFT 14.70 versions with thermic engine have been field-tested according to the parameters of the European Regulations 2000/14 CE and have registered a guaranteed 97dB (A) acoustic pressure level.
During overhead operations, this figure decreases as the control car moves away from the main source of noise.

The vibrations figures transmitted to the operator both through the controls and directly from the control car floor were assessed as lower than the maximum authorised limits.

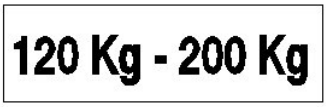
2.4 INSTRUMENTS AND CONTROLS

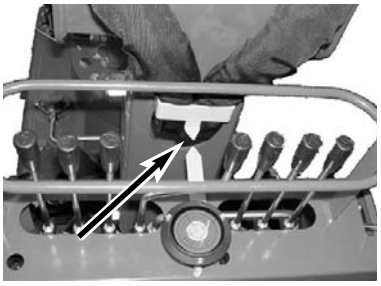
You will find below the indication for all the control functions and the indicators on the platform. Each device has a sticker nearby which describes briefly its applied function, but there are very often symbols used for encouraging a quick and safe use. Before operating the platform, read the description below to understand further the functions of each device and possibly learn the manufacturer's advice.

Before starting operating the platform the operator must read and understand perfectly the instructions given in this manual.

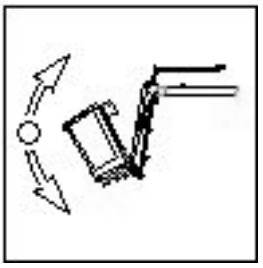
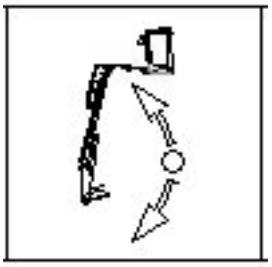
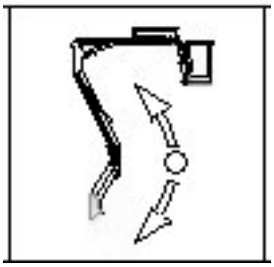
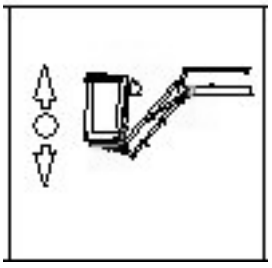
2.4.1 BASKET CONTROL DEVICE

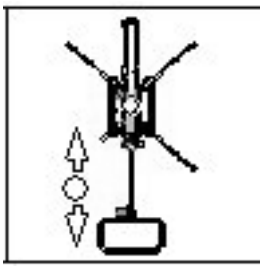
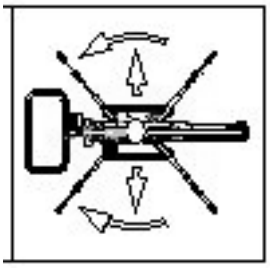
2.4.1.1 BASKET ELECTRIC PANEL

REF.	DESCRIPTIONS	PICTOGRAMS NEAR THE CONTROL
1	*Starter pushbutton*	
2	*Engine starting pushbutton* It allows a selected start of the engine by means of selector 4 directly from the control place on the control car.	
3	*Work selector* For GOLD LIFT 14.70, you can select two working methods by using the jib or not. Without the jib method the maximum admitted load on the control car is 200 kg (2 x 80 kg people + 40kg equipment) in std two-seater basket. Using the jib method the maximum admitted load on the control car is 120 kg (1 x 80kg person + 80kg equipment).	
4	*Engine type and emergency descent selector* This selector allows to choose either electric or petrol/diesel engine or, in case of emergency to excite, for emergency descent, the solenoid valves situated on the cylinders on the first, second and third arm descending the frame overhead part through gravity. The particular construction of this selector forces the operator, in case of emergency descent, to keep it continuously rotating, otherwise the selector would go back automatically to the pre-selected position.	EMERGENCY DESCENT  ELECTRIC ENGINE  THERMIC ENGINE 
5	*Emergency stop pushbutton* It allows stopping all the machine functions. Turn the pushbutton to make the machine operative.	
6	*PLC feeding pilot light* This green light indicates voltage in the electric system of the machine and therefore in the PLC which controls all its functions.	

REF.	DESCRIPTIONS	PICTOGRAMS NEAR THE CONTROL
7	***Load cell pilot light.*** This red light indicates that the maximum admitted load on the platform control car has been exceeded. On the GOLD LIFT 14.70 the light comes on when: - you exceed 120 kg on the control car and the jib method has been selected with selector 4. - you exceed 200 kg on the control car and no jib method has been selected with selector 4. When the light comes on, it is accompanied by an intermittent alarm.	
8	***Machine closed pilot light*** This red light indicates that the overhead part of the machine frame has been completely lowered and aligned with the base and that the withdrawing has completely happened. When this light comes on, the stabiliser controls and the crawler movements have been enabled. Two golden arrows, situated near the hydraulic controls on the crawler, visually signal the machine alignment.	 
9	***Stabilised machine pilot light*** This green light indicates that the stabiliser cylinders are completely opened and therefore all the stabilisers are resting on the ground. Once the machine is stabilised the controls for moving the overhead part of the frame and rotating the fifth wheel are enabled. The operator must make sure that the machine is stabilised without the 1° maximum limit admitted by the manufacturer.	
10	***Second speed button (optional)*** If pressed and **kept in position** during the machine's translation it controls the switching of the second speed.	

2.4.1.2 BASKET HYDRAULIC CONTROLS

REF.	DESCRIPTION	OPERATION/ MOVEMENT	PICTOGRAM NEAR THE CONTROL
1	***Basket levelling control*** This lever allows acting on the levelling cylinder of the control car to adjust any misalignments due to possible anomalies in the system. Being an emergency device and a dangerous manoeuvre, the operator must use a tool (e.g. screwdriver) to activate the distributor.	Lever forward: basket rotating toward the machine Lever backward: basket rotating away from the machine	
2	***Lever controlling movement of third arm*** This lever allows the operator to raise or lower the platform third arm.	Lever forward: raising third arm Lever backward: lowering third arm	
3	***Lever controlling first and second arm*** This lever allows the operator to raise and lower the first and second arm of the platform. The synchronisation of the movement between the first and the second arm allows to always have the maximum range when working and can be obtained thanks the particular configuration of the system and does not depend on the operator.	lever forward: synchronised raising of the first and second arm lever backward: synchronised lowering of the first and second arm	
4	***Jib control lever*** This lever allows the operator to raise and lower the jib.	lever forward: raising jib arm lever backward: lowering jib arm	

REF.	DESCRIPTION	OPERATION/ MOVEMENT	PICTOGRAM NEAR THE CONTROL
5	***Withdrawal control lever*** This lever allows the operator to extract and insert back the arm.	lever forward: re-entry withdrawal toward the machine. lever backward: withdrawal towards the outside	
6	***Rotation lever*** This lever allows the operator to rotate the overhead part of the platform frame around the fifth wheel axis. The machine alignment is indicated in paragraph 2.4.1.1	lever forward: anticlockwise rotation of the overhead part lever backward: clockwise rotation of the overhead part	

2.4.1.4 CRAWLER HYDRAULIC CONTROLS

The controls for translating and stabilising the machine have been designed to be operated from the basket. This way the operator is protected from any risks caused by contact with the rubber tracks and the stabilisers and they are able to see clearly the levelling indicator for stabilising the control car.

WARNING

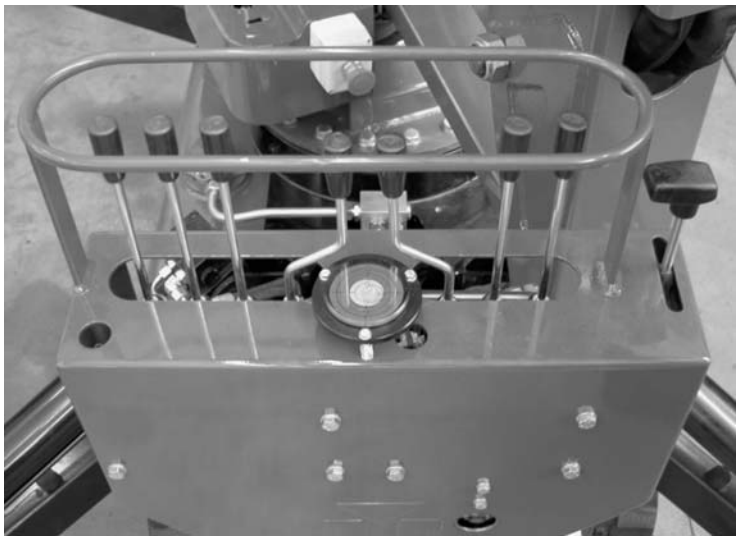
When controlling the translation of the machine from the control car, take the maximum care to elements like cornices, terraces, lintels, branches etc. that could come into contact with the operator.

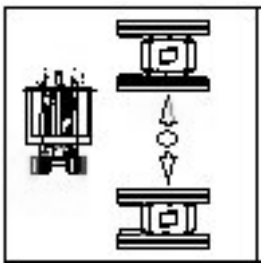
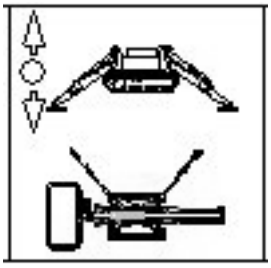
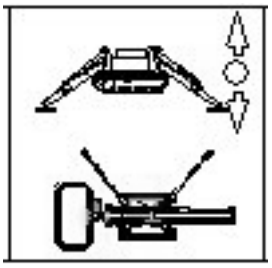
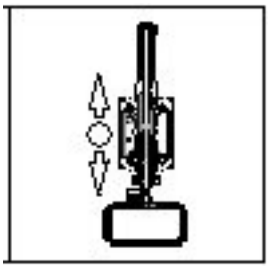
WARNING

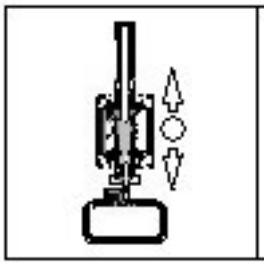
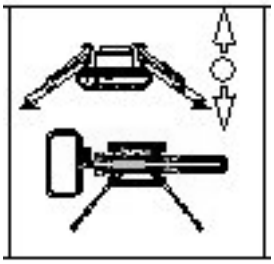
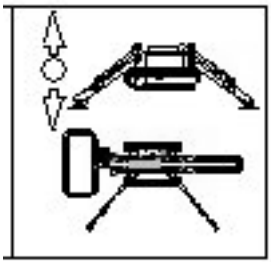
If the machine translation is controlled from the ground (see par.2.1), remember that the machine must be orientated with the part of the control car toward the back so that, in case of a wrong manoeuvre, the operator does not come into contact with the rubber tracks.

WARNING

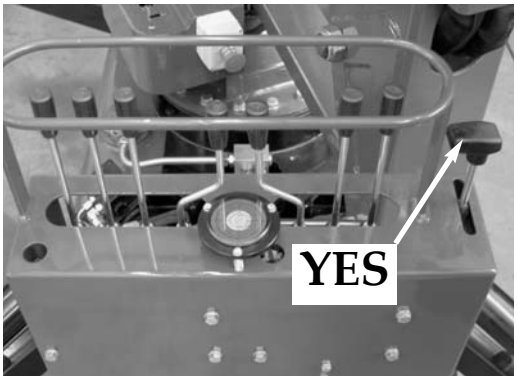
It is absolutely forbidden to do manoeuvres different from those mentioned above, by controlling translation from the ground as a possible sharp movement of the machine could crush the operator between itself and the elements present on the manoeuvring area or could make the operator come into contact with the platform rubber tracks.

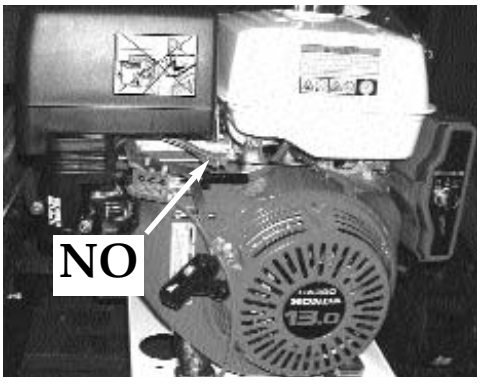


REF.	DESCRIPTION	OPERATION/ MOVEMENT	PICTOGRAM NEAR THE CONTROL
1	***Track widening lever*** This lever allows the operator to increase the width of the rubber crawler to increase the stability of the machine in particular on une ven and soft ground. By putting the width back into shape you can obtain a narrower machine able to enter narrow places.	lever forward: track widening lever backward: track narrowing	
2	***Lever controlling left rear stabiliser*** This lever allows the operator to raise and lower the left rear stabiliser.	lever forward: raising left rear stabiliser lever backward: lowering left rear stabiliser	
3	***Lever controlling left front stabiliser*** This lever allows the operator to raise and lower the left front stabiliser	lever forward: raising left front stabiliser lever backward: lowering left front stabiliser	
4	***Lever controlling left track movement*** This lever allows the operator to move the track back and forward	lever forward: moving forward left track lever backward: moving backward left track	

REF.	DESCRIPTION	OPERATION/ MOVEMENT	PICTOGRAM NEAR THE CONTROL
5	***Lever controlling right track movement*** This lever allows the operator to move the right track forward or backward.	lever forward: moving right track forward lever backward: moving right track backward	
6	***Lever controlling the right front stabiliser*** This lever allows the operator to raise or lower the right front stabiliser.	lever forward: raising right front stabiliser lever backward: lowering right front stabiliser	
7	***Lever controlling right rear stabiliser*** This lever allows the operator to raise or lower the right front stabiliser	lever forward: raising right rear stabiliser lever backward: lowering right rear stabiliser	
8	***Accelerator lever*** This lever allows the operator to accelerate the diesel/petrol engine	lever forward: accelerating lever backward: decelerating	

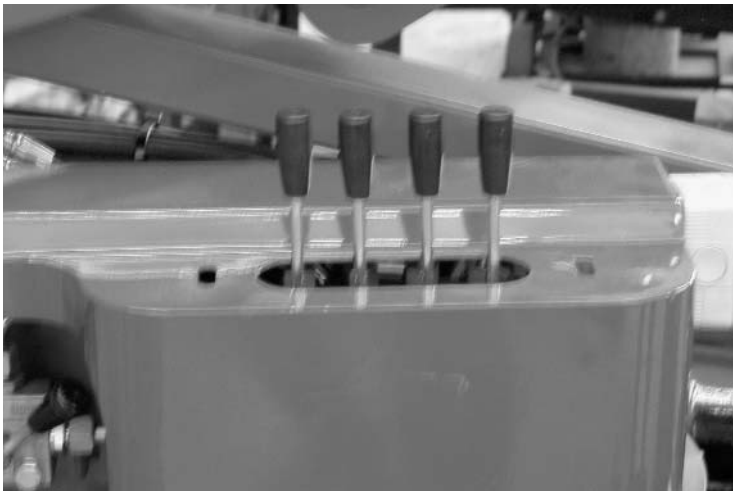
ATTENTION!
Only use the acceleration lever located on the hydraulic control panel on the undercarriage, and not the lever located on the engine as indicated in the picture.

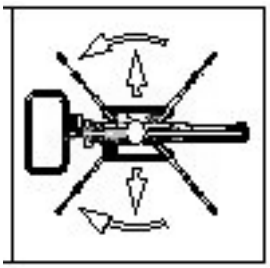
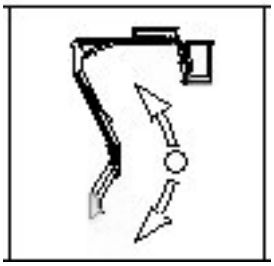


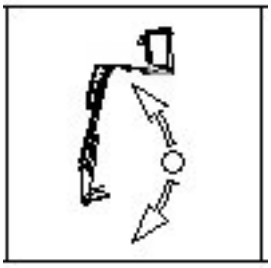
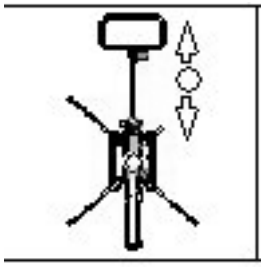


2.4.1.5 GROUND EMERGENCY CONTROLS SITUATED ON THE REVOLVING TURRET

These controls have been designed to manoeuvre the overhead part of the control car from the ground only in case of emergency after putting on the proper switch.



REF.	DESCRIPTION	OPERATION/ /MOVEMENT	PICTOGRAM NEAR THE CONTROL
1	***Rotation lever*** This lever allows the operator to rotate the overhead part of the platform structure around the axis of the fifth wheel The machine alignment is indicated in paragraph 2.4.1.1	lever forward: rotating anticlockwise the overhead part lever forward: rotating clockwise the overhead part	
2	***Lever controlling first and second arm*** This lever allows the operator to raise and lower the first and second arm of the platform. The synchronisation of the movement between the first and second arm allows having the maximum working range and this is obtained thanks to the particular configuration of the system and does not depend on the operator.	lever forward: synchronised raising first and second arm lever backward: synchronised lowering of the first and second arm	

REF.	DESCRIPTION	OPERATION/ /MOVEMENT	PICTOGRAM NEAR THE CONTROL
3	***Lever controlling third arm movement*** This lever allows the operator to raise or lower the platform third arm.	lever forward: raising third arm lever backward: lowering third arm	
4	***Withdrawing lever control*** This lever allows the operator to pull out and reenter the withdrawing arm	lever forward: pulling out toward the outside lever backward: re-entering toward the machine	

2.5 SAFETY DEVICES

The instructions reported below regarding the safety devices are given to the user in order to understand the machine behaviour and the possible working sequences; it will also be possible to identify possible breakdowns and to be able to give more detailed information to the customer service and thus obtaining quicker and cheaper interventions.

IMPORTANT

The machine is equipped with safety devices able to prevent dangerous situations for the operator. Before starting any operation, the operator should check the perfect working of these devices.

DANGER

If a safety device does not work, either due to a breakdown or tampering, this could cause serious damage to the machine and could jeopardise the operator's life. HINOWA S.p.A. has designed the machine and the safety devices to guarantee the maximum to its customers. Anyhow the devices must be checked periodically according what described in this manual and must never be tampered with.

DANGER

Never intervene, on one's initiative, on the safety devices. In case of tampering, the manufacturer declines any responsibly regarding possible accidents resulting from such interventions.

DANGER

It is absolutely forbidden to tamper with the lead seal or the calibration of the maximum valves. In case of tampering, the manufacturer declines any responsibility for any possible accidents resulting from such interventions.

IMPORTANT

HINOWA S.p.A declines any responsibility for any damages caused by the machine to things and/or people if the above mentioned has not been observed.

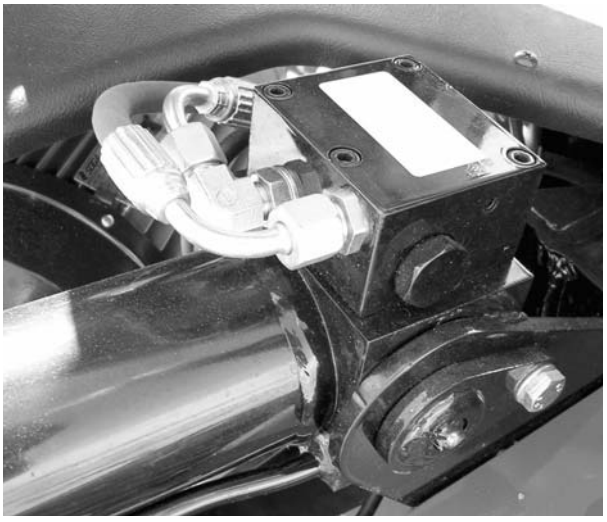
2.5.1 BATTERY CUTOUT

This device situated on the right side of the electric components box cuts the electric circuit of the machine locking all its movements. It can be seen easily and is of easy access without any tools. It must be put on every time you leave the machine at the end of a work shift or for longer periods.
By turning the key clockwise you cut the electric circuit of the machine. By turning the key anti-clockwise you cut the electric circuit of the machine and you can remove the key.

2.5.2 DISTRIBUTOR OVERPRESSURE VALVES

All the distributors on the platform are equipped with an overpressure valve that limits the pressure reached inside the system to the calibration pressure of the valve itself. These valves are calibrated inside HINOWA by qualified people, when testing the platform and they must never be tampered with.

2.5.3 CYLINDER STOP VALVES



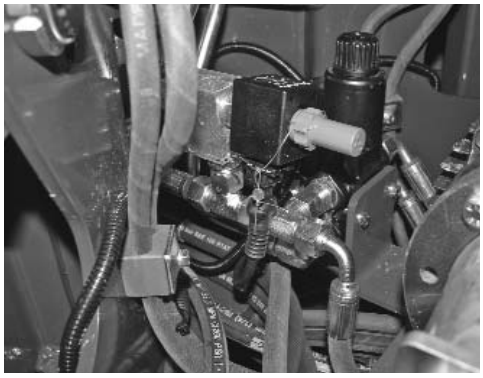
The stabiliser cylinders are equipped with a double stop valve that, in case of breakdown of the system or breaking of the tubes, stop the cylinder avoiding dangerous situations of platform instability.
All the cylinders that move the overhead part of the platform structure are equipped with stop valves that, in case of breakdown of the system or breakage of the tubes, stop the cylinder avoiding that the control car drops through gravity.
Qualified people calibrate these valves when testing the platform inside HINOWA S.p.A and they must never be tampered with.

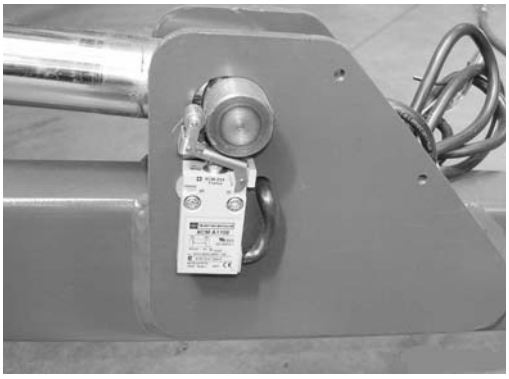
2.5.4 PHOTOCELLS AND SWITCH ALIGNMENT OVERHEAD PART OF THE STRUCTURE AND MACHINE BASE

The machine is provided with a double safety photocell which controls that the aerial part of the structure of the machine is completely lowered and aligned with the base and that the telescopic arm is completely retracted.

If one of these conditions does not occur, a signal is given to a switch that deactivates the translation and the stabiliser movement and feeds the overhead part of the structure.

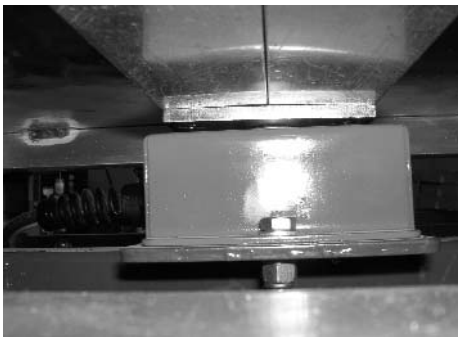
2.5.5 ENABLING DEVICE OF THE STRUCTURE OVERHEAD PART





When all the stabilisers are properly placed on the ground, the stabiliser cylinder goes towards the end of course releasing the micro-switches situated at the end of the rods. The micro-switches send a signal to a solenoid valve that sends oil coming from the carry-over device to the controls for the movement of the overhead part of the structure. If for any reason a micro-switch should reactivate during the movement of the basket (for example the raising of a stabiliser or the sinking of the ground) all the movements of the overhead part of the machine would be inhibited.

2.5.6 SENSOR OF CONTROL CAR LOAD



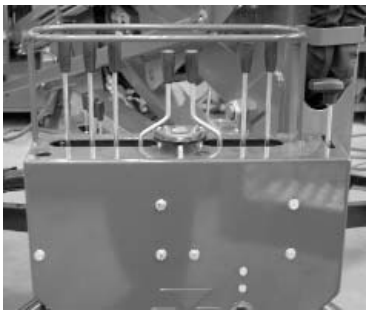
The load sensor present on the basket made up of a two-shaft basket support that allows exclusively vertical movement of the basket. Basket support is supplied by the load cell itself. Two extensometers are positioned inside the sensor positioned under the basket, which switch the relative weight inside the basket to an electric signal. The electric signal is sent to a card (see photo) that elaborates it and identifies any dangerous conditions.
The maximum load depends on the work modality selected (par. 2.4.1.1 point 3). If the work mode with jib has been selected, the load equals 120 kg. For the work mode with jib closed jib the max. accepted load is 200 kg.
When the max. accepted load is reached, a flashing red light appears on the electric control board as well as an acoustic signal and all platform movement is obstructed.
To restore platform functioning it is necessary to remove excess weight so as to fall within the max. accepted weight.

IMPORTANT

• Another alarm is triggered off, obstucting any aerial movement, in case, for any reason, the basket is lifted by the loading sensor.

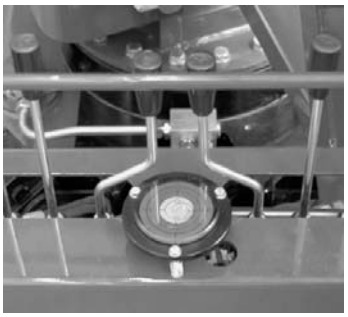
HINOWA S.p.A recommends the maximum care in the proper keep of the entire safety components and in particular the system of the load sensor on the control car. Always check its proper working if the basket should hit objects when doing jobs as this could cause problems to the system (e.g. pruning, painting etc.).

2.5.7 CONTROL GUARDS



The control levers of all the distributors are protected against the accidental falls of objects from the top and from involuntary activating from the operator of special welded protection structures and plate protections.

2.5.8 THE WATER LEVEL



The water level is situated near the control levers in a well visible place from the basket. This is the manufacturer's established place to carry out all the translating, stabilising and raising operations. The water level must be used to check that when the platform is working, it is levelled at the maximum 1° admitted inclination. To reach this, the water level must never be out of the white zone.

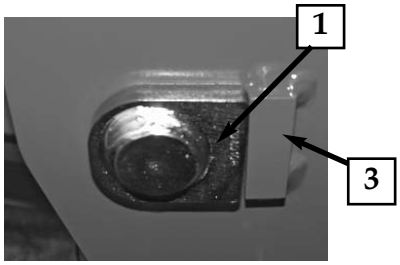
DANGER

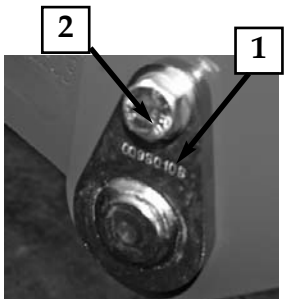
An approximate levelling outside the limits imposed by the manufacturer can be seriously dangerous and can jeopardise the stability of the platform causing risks, even mortal, to the operator and the other people operating nearby and on the machine.

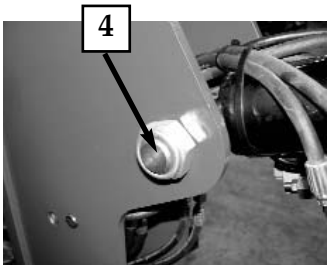
DANGER

Never alter the regulations on the water level; this device has been calibrated by HINOWA during the test prior to the sale. Only technicians having the proper tools and authorised by HINOWA can intervene on the water level.

2.5.9 LOCKING PIN SCREWS AND NUTS







All the pins used in the GOLD LIFT platform have been treated against wear and are provided with welded flanges (1) to prevent them from rotating inside their seat.
Some pins are provided with rotation locking screws (2) while others are provided with a retaining block that is welded on the machine body (3).

The pins located in the most delicate positions have threaded ends and are provided with self-locking nuts (4) or self-locking threaded ring nuts (4) to prevent the structure from collapsing.
The correct tightening of all the pin locking devices must be checked carefully and regularly, according to the intervals indicated by the machine manufacturer.

DANGER

Never loosen the pin blocks and check regularly their proper tightening. Even If a pin comes partially out of its seat, this could cause sudden and uncontrollable movements and also the lost of stability of the machine and/or the falling of the control car.

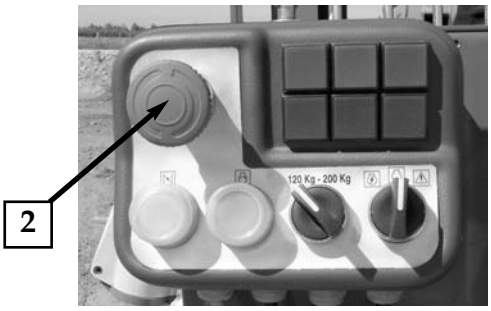
2.6 EMERGENCY DEVICES

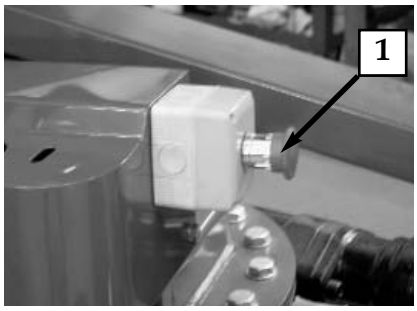
The emergency instructions reported below regarding the emergency devices are supplied to the user so that they can understand the behaviour of the machine and the possible working sequences; it will also be easier to identify them clearer and thus act quickly in case of emergency.

IMPORTANT

Before starting any operations, it is important that the operator checks the perfect working order of the emergency devices.

2.6.1 EMERGENCY STOP PUSHBUTTON



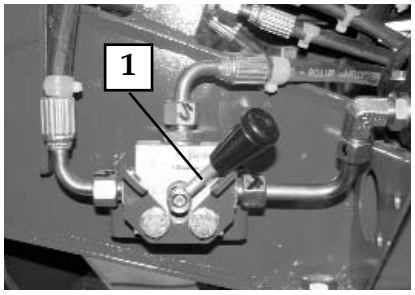


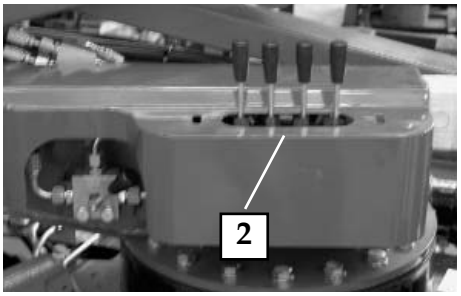
It allows the complete stop of any function of the machine in case of emergency.
There are two devices on the machine for emergency stop. The first one is situated on the platform crawler near the controls just above the fifth wheel (1), the second one is situated on the basket and is directly fixed on the electric control panel of the control car (2). When the device is on, turn the pushbutton to make the machine operative.

IMPORTANT

It is strongly recommended to follow the rule that forbids operating the platform without anyone on the ground. In fact, an incidental operation (e.g. the falling of a branch) or voluntary from strangers of the emergency stop pushbutton on the revolving turret would put the occupants of the basket in the difficult situation of not been able to operate any movements, except the descent with the emergency descent devices (par.2.4.1.5.).

2.6.2 SWITCH ENABLING EMERGENCY CONTROLS





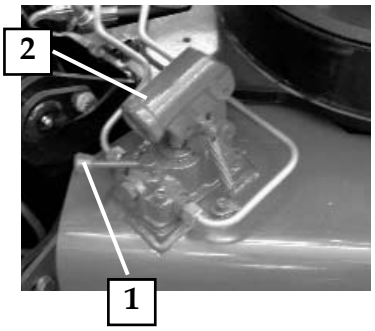
This device (1) is a tap that allows the operator on the ground to switch the controls from the control car to the emergency position situated on the revolving turret (2).

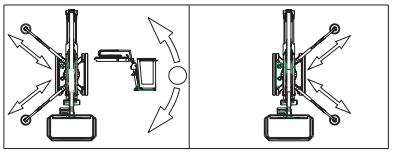
IMPORTANT

It is strongly recommended to follow the rule that forbids operating the platform without anyone on the ground. In fact, activating the switch by unqualified people could put the occupants of the basket in a difficult situation of not been able to operate any movements and to be dependable on the operating movements from the ground. If this was to happen, activate the emergency pushbutton and ask for help, or use the emergency descent devices (par. 2.9.8).

To avoid this danger there is a lever locking system by means of a padlock. You are reminded that the ground staff must always have a padlock key to intervene when needed.

2.6.3 HAND PUMP





The hand pump (2) serves to send the oil under pressure to do the manoeuvres in case of emergency due to breakdowns of the main hydraulic system.
The hand pump is equipped with a manual switch (1) which allows to select the control of the two right stabilisers (position 1) or the control of the two left stabilisers and the overhead part of the structure (position 2).
The stabiliser control is only allowed if there are no anomalies in the electric system and when the ignition key is ON.

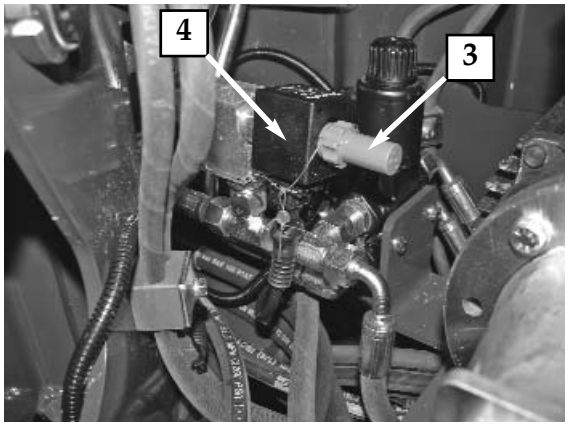
In case of breakdown of the electric system, the overhead - undercarriage change over switch must be manually applied by using the mechanical switch inside the electrical components opening (see photo).

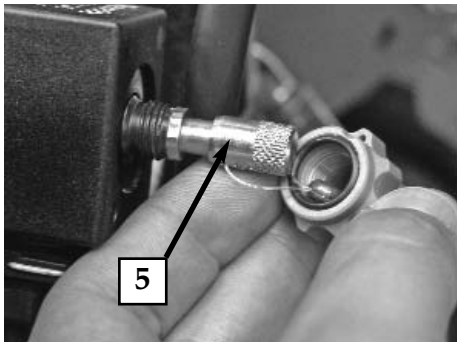
IMPORTANT

Always remember to remove the mechanical switch and restore the standard configuration of the switch as soon as you finish the emergency operations. If there is the mechanical switch when doing ordinary working operations this will compromise the safety of the machine, causing possible dangerous situations.

DANGER

Manoeuvring the stabilisers in case of emergency is only allowed in case of breakdown of the machine and requires the closing the stabilisers for road transport.





To control the overhead part of the structure without electric current, always remove the nipple (3) of the electric valve (4) (the outer lead seal automatically breaks by unscrewing and taking off the cap) and arm it manually pushing and turning the knob (5) underneath, il the inner lead-covered cable automatically breaks by reinforcing the electrovalve.
The manoeuvre of the stabilisers can be done through the hand pump by only turning the ignition key ON and making sure that there is no failure of the electric system.

IMPORTANT

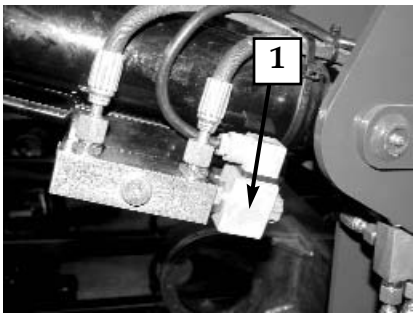
Remember to put back the solenoid valve knob (5) in the originary position paying attention to reassemble the protective cap and to restore the double lead seal.

DANGER

When manoeuvring the platform with the emergency controls you are without any safety devices. It is therefore necessary and mandatory to act on the controls only to bring back the basket to the ground and making sure to do these manoeuvres without causing the instability of the working platform.

2.6.4 SOLENOID VALVES FOR EMERGENCY DESCENT

The cylinders of the first, second and third arm are equipped with solenoid valves for emergency descent (1). Acting on the emergency descent selector on the electric panel controls situated on the control car excites this solenoid valves allowing the descent of the overhead part of the structure through gravity.
The use of this emergency device is bound to the presence of voltage in the platform electric system.



Follow the same precautions as reported at point 2.6.3

2.7 SAFETY REGULATIONS TO OBSERVE BEFORE USING THE PLATFORM

2.7.1 DANGER OF ELECTRIC FULMINATION

If the operator uses the machine near electrical lines, they must keep a clear distance. In the chart below are the relative values for keeping a minimum distance from the electrical lines according to their voltage.

SAFETY DISTANCE NEAR ELECTRIC LINES		
TYPE OF VOLTAGE		*SAFETY DISTANCE*
FROM	*TO*	*(METRES)*
0 V	300 V	5
300 V	50 KV	5
50 KV	200 KV	5
200 KV	350 KV	6,1
350 KV	500 KV	7,6
500 KV	750 KV	10,7
750 KV	1000 KV	13,7

WARNING

Keep a safety distance from the distribution lines and electrical installations bearing in mind the possible arc movements and oscillations of your working platform. Also bear in mind the electric lines own oscillations.

WARNING

Before starting operating, inspect the working area, taking note of the overhead electric lines, of moving machinery like for example bridge cranes or road, railway or building equipment.

2.7.2 DANGER DUE TO BAD WEATHER CONDITIONS

NEVER OPERATE IN BAD WEATHER

Never operate when there are storms, snow, fog and wind exceeding 12m/s. Never start the machine when the ambient temperature is below –20°C and over +40°C.

WARNING

In case of unexpected rain, always check that the machine is properly stabilised and that the ground has a proper consistency before starting work again.

2.7.3 DANGER DUE TO THE WORKING AREA

THE MACHINE CAN EXCLUSIVELY WORK ON COMPACT AND LEVELLED GROUND.

Always check that the ground slope where the platform is positioned does not exceed 10°. When stabilising, check with the water level near the main controls that the maximum inclination of the fifth wheel plane with respect to the horizontal line does not exceed 1°.

In running conditions, check if there are no people, holes, juttings, obstacles, rubble or things that might cover holes.

IMPORTANT

Before entering high risk areas (petrol refineries, supply-stations etc…), check its feasibility with the plant safety staff.

2.8 PROCEDURES FOR A PROPER USE

You will find below the using procedures of HINOWA platforms. Any use different from what is specified here, unless previously authorised by HINOWA, is absolutely forbidden.

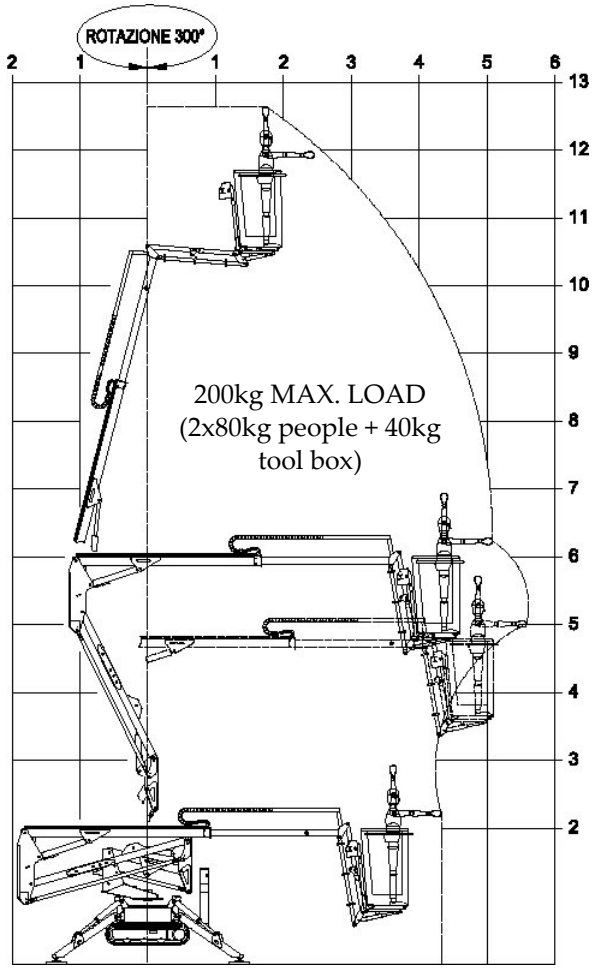
2.8.1 OPERATOR'S RECAPITULATORY TABLE OF SAFETY REGULATIONS

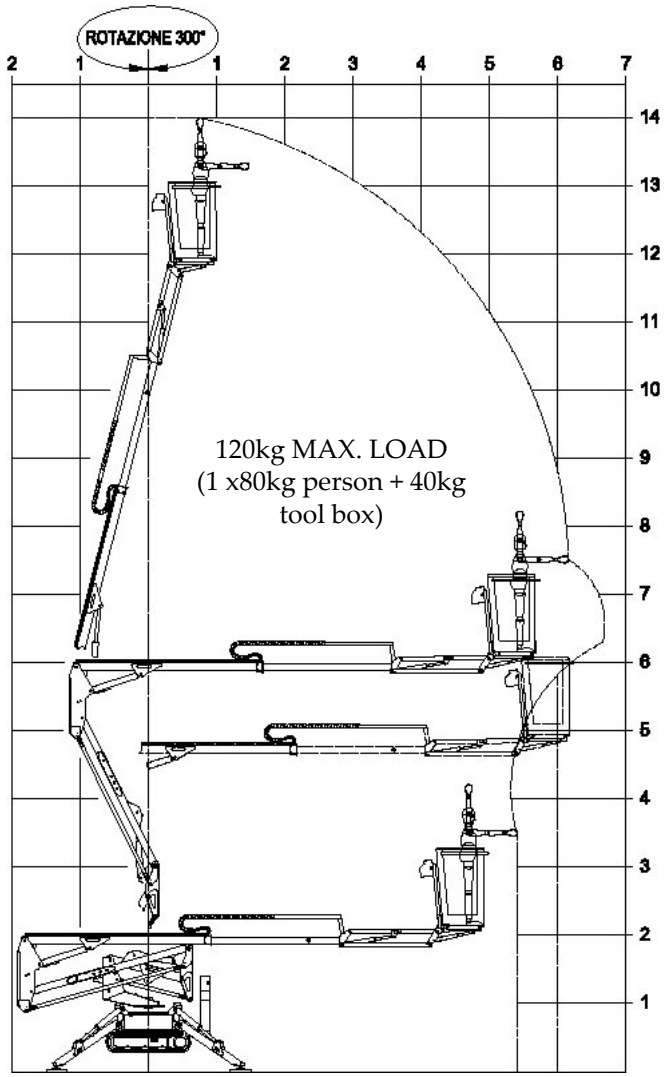
You will find below the recapitulatory table with the general safety regulations that the operator must follow carefully before starting operating the platform.
We remind you that there is a sticker showing this table near the controls on the control car, which can easily be seen from the control place.

- The operating of the platform is only meant for assigned and previously trained staff.
- All the controlling manoeuvres of translation, stabilisation of the machine and movement of the extensible structures must be done from the control place on the control car.
- Follow carefully all the instructing and operating instructions indicated in the INSTRUCTING AND OPERATING MANUAL annexed to the machine.
- Never exceed the maximum admitted load indicated on the INSTRUCTING AND OPERATING MANUAL and on the machine with well visible indications applied on the control car.
- The operator must wear a helmet and fasten safety belts on proper anchors on the control car.
  Remember that the safety belts must be checked and CERTIFIED AGAIN EVERY YEAR.
  The use of the safety belts is compulsory in connection with the local regulatins of every single State. In those States where the law does not require the use of holding systems, the choice is of the employer or/and user.
- Before starting work, the operator must make sure that the safety devices are in perfect working condition, that the main mechanical parts and the fuel and oil level are in working order.
- Never operate on sinking, uneven and slippery grounds or with slopes exceeding the maximum admitted inclination as this could make the platform unstable.
- Level perfectly the machine frame observing the maximum admitted inclination as indicated in the INSTRUCTING AND OPERATING MANUAL and visible on the water level.
- Before doing any movement, check that there are no obstacles and no people in the trajectory on the working area.
- It is forbidden to work within a 5 m distance from the distribution lines and electric equipment.
- It is forbidden to operate in bad weather conditions unless it is absolutely necessary.
- It is forbidden to anchor cables, ropes or other on the platform.
- It is forbidden to fix ladders, tools or other on the control car to increase the working height.

- Always manoeuvre the controls slowly and regularly without inverting sharply the movements.

2.8.2 GOLD LIFT 14.70 WORKING AREA





2.9 USE OF THE OVERHEAD PLATFORM

IMPORTANT

When giving the explanations contained in this manual, it is implied that the operator has read and understood what has already been said in the previous paragraphs in this manual. There will be therefore fewer repetitions of warnings and photographs than in the previous parts of the manual.

IMPORTANT

HINOWA overhead platforms are suitable for doing overhead jobs operating from inside the control car. The platform must only be used by trained staff who knows the place and the function of all the controls, tools, indicators, pilot lights and the meaning of the stickers and indications on the machine.
The operator must have understood the manoeuvring procedures of the platform before operating it.
The proper use of the platform foresees, beside the operator (or operators) in the control car, that there is an experienced ground operator, supervising the machine, ready to intervene in case of dangerous situations and for any emergency manoeuvres. This implies that the ground staff must also be properly trained regarding the control functions and the using procedures and that they have read the manual.

IMPORTANT

- Ignoring even a single safety instruction could cause damages to the operator and/or the machine.

- Place a first aid kit and a fire extinguisher near the working area. Use them according to current regulations.

- Never stay within the platform working range. The area underneath the working field must be surrounded by a barrier. Anyhow it is forbidden to throw objects from the control car or towards it.

- It is compulsory to wear close-fitting clothes and to use safety equippment provided with all the PPE as foreseen by the risks analysis of every single yard (shoes, helmet, protective gloves and belts).

- When the work is carried out by two or more people, always agree on the correct procedure to follow before starting. Always inform your working colleagues before starting operating.

- Before starting operating at low temperature, turn on the engine for a few minutes to circulate the hydraulic oil so that it reaches at least 5°C.

- Before doing any manoeuvre and when climbing onto the control car, fasten immediately the seat belts to their fixing points. Remember that the safety belts must be checked and CERTIFIED AGAIN EVERY YEAR.

- If the stabiliser ground pressure should exceed the ground admitted pressure, increase the resting surface interposing slabs or a foundation of stable material (e.g. wood) between the ground and the stabilizer cap.

2.9.1 PRELIMINARY CHECKS BEFORE STARTING OPERATING

Do the following every day before starting work:

- Check that there are no oil leaks from the machine hydraulic system. In case of leaks do the necessary repairs and top up the level of hydraulic oil (see paragraph about maintenance operations). Clean the area with a solvent or a detergent and water under pressure.
- Check that there are no starts of corrosion and that there are no cracks near welding.
- Check the integrity and the proper working of the rubber tracks belts (see paragraph about maintenance operations).
- Check that there are no broken, damaged or missing components. Check the proper tightening of the pin locking screws and nuts or safety ring nuts. Replace, tighten and adjust according to the platform manufacturer's instructions before operating the machine.
- Eliminate debris that could cause fires or breakage taking care to the machine control area and the area around the diesel/petrol engine.
- Clean the handrail, footboards and control levers from any oil residues or debris that could compromise the execution of the manoeuvres in complete safety putting the operator at risk. Check the integrity of the pilot lights and the electric control on the electric panel situated on the control car.
- Check the state of the stickers placed on the machine in a well visible way.
- Check that there is enough gasoil/petrol in the fuel tank to avoid any useless stops with relative emergency descents.
- Check the proper working condition of the safety devices.

2.9.2 START OF THE PETROL/DIESEL (OPTIONAL) ENGINE

- Before starting the engine, you must know and have clear all the procedures of the machine and the engine as described in this INSTRUCTING AND OPERATING MANUAL given with the machine and know the meaning of the safety stickers.
- Read on the manual the recapitulary table of the operator's safety regulations and apply all its prescriptions.
- Before starting the engine, make sure that the selector on the electrical control panel on the control car (Part 4 on Hinowa fig.3) is positioned on the thermic engine.
- Starting the DIESEL engine (optional) can be done from the ground by means of the ignition key lateral to the engine, or directly from the control place on the basket. In this case, place the engine ignition key to ON before climbing on the control car using the proper handrails to reach the control position. Then act on the green pushbutton on the electrical control panel on the control car (re: part 2 on Hinowa fig.3).
- The start of the PETROL engine can only occur from the ground by means of the engine ignition key (in this case it is impossible to act on the starter), or directly from the control place. In this case turn the engine ignition key to ON before climbing onto the control car using the proper handrails to reach the control position. Then act on the green push-button on the control electric panel in the control car (part 2 in Hinowa fig.3). To control the starter, press the yellow pushbutton on the control electric panel on the control car (re: part 1 in Hinowa fig.3).

IMPORTANT

Before starting the engine, make sure that the accelerator control is in the proper position (about the minimum). Starting a cold engine at an excessive rpm could cause serious damages to the engine itself.

WARNING

STARTING THE ENGINE MUST ALWAYS HAPPEN WITH ALL LEVERS OF THE CONTROL DISTRIBUTORS IN NEUTRAL.
Always check that there are no foreign elements (e.g. branches) activating accidentally a control. This might move the platform suddenly independently from the operator's will and cause damages to things and/or people.

2.9.3 START OF THE ELECTRIC ENGINE

- Before starting the engine, make sure you know and have clear all the procedures described in the INSTRUCTING AND OPERATING MANUAL of the machine and you know the meaning of the safety stickers.
- Read in the manual the recapitulatory table of the operator's safety regulations and apply all its prescriptions.
- Feed the machine with an electric cable by means of the clutch situated at the bottom on the ground control support.

Before this:
- Make sure that the features of the electric lines match the voltage and the frequency indicated on the electric engine plate.
- Check the state of the electrical power wire and that its section must be suitable for 2.2kW. To connect use a "3x2.5mm2"three-pole cable with type F47 earth plate, double insulation with 16A plug. The maximum length of the cable must be 15 m.
- Fit in the ground a ground plate and connect it to the clamp of the machine earth plate, or check the working order of the connecting net, in case the soil does not allow such operation (e.g. inside premises).
- Before starting the engine, make sure that the selector on the control electric panel on the control car (re: part.4 in Hinowa fig.3) is positioned on the electric engine.
- Act on the green pushbutton on the control electric panel on the control car (re: part.2 in Hinowa fig.3).

WARNING

THE ENGINE START MUST ALWAYS OCCUR WHEN ALL THE LEVERS OF THE CONTROL DISTRIBUTORS ARE IN NEUTRAL.
Always check that there are no foreign elements (e.g. branches) activating accidentally a control. This might move the platform suddenly independently from the operator's will and cause damages to things and/or people.

2.9.4 TRANSLATION

The GOLD LIFT machine is a self propelled machine able to move easily on any type of soils, able to overcome big slopes (up to 18°C) and, seen the contained dimensions, to enter in narrow places.To translate, it is absolutely necessary that the machine is closed and aligned. The basket is the only control place planned by the manufacturer that prevents the operator from accidents when doing the operations connected to the translation of the machine. In fact, the controls have been designed to be used from that place in order to have a good sight of the involved area.

The travel function can be controlled from the ground position only when the machine has to pass pass through reduced-height or narrow spaces. In these cases, to allow the machine to access these spaces, the two-place cage must be removed.
In this case the machine can be moved forward by an operator in the ground position, but only lengthwise AND ONLY FROM THE RIGHT SIDE AND WITH THE CAGE REMOVED.
In such conditions it is absolutely forbidden to use the 2nd travel speed.
Always choose a proper rpm to have a precise control of the movements and also according to the operating area.

DANGER

Never climb or get off the basket if it is not completely lowered.

DANGER

Controlling the travel of the machine from the ground with the cage removed is considered an extraordinary procedure that should be adopted only when the work area cannot be reached in any other way.

IMPORTANT

The standard GOLD LIFT machines have not been homologated for road circulation. The working areas and autonomous transfers must be circumscribed and signalled according to current regulations. For transfers even short ones on public road, the machine must be carried on homologated vehicles.

After reinstalling the cage, put back the iron caps immediately.

DANGER

- When controlling the translation of the machine from the control car, take the maximum care of elements like cornices, terraces, lintels, branches etc. that could come into contact with the operator.
- In case of ground control of the machine (see the a.m. admitted cases), remember that the machine must have the control car removed.
- It is absolutely forbidden to do manoeuvres different from the above mentioned ones by controlling translation from the ground as a possible sharp movement of the machine could crush the operator between itself and the elements present on the manoeuvring area or make the operator come into contact with the rubber tracks or the platform stabilisers.
- You must not translate when the stabilisers are not completely raised and placed in transport position.
- The second translation speed (optional) can be used only on a straight and levelled surface on a solid ground.

2.9.4.1 PARKING OF THE MACHINE ON A SOLPE OR DISCONNECTED GROUND

When parking the machine on a slope or disconnected ground with the stabilizers closed make sure to stall the corners with wedges in order to avoid unintentional movements of the machine.

- **It is absolutely forbidden translating with the second speed on a non-levelled or ravelled surface and on curved surfaces.**

2.9.5 STABILISING AND LEVELLING THE MACHINE

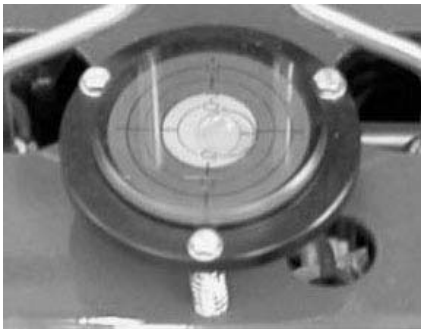
Once the machine has been placed, proceed with its stabilising and levelling. Above all make sure that the surfaces where you are can bear the specified ground pressure exercised from the machine (see technical data paragraph).

DANGER

- Always remember to keep away from escarpments or ditches of the same depth and keep at the prescribed distance from the electric lines.

- Make sure not to hit things or people when lowering the stabilisers.

To proceed with the stabilising and levelling operations, act from the basket on the controls relative to each stabiliser to lift the crawler from the ground as much as possible; once done act softly on the control levers of the stabilisers to bring the machine to the best levelling. To check that such condition has been met, there is a water level on the machine; when the air bubble is completely inside the green area (see the photo below) the machine is in the condition admitted for its use. Remember that the maximum slant the machine can be levelled is within a 1° tolerance signalled on the water level at 10 degrees. Grounds with higher slopes do not allow a proper stabilisation and are a serious risk for the users.
On each stabiliser (see photo below), near the cylinder connection to the stabiliser itself, there is an orange light. This light flashes when the stabiliser is resting on the ground.



IMPORTANT

NOTE: it is important that when the machine is stabilized the undercarriage is ALWAYS lifted from the ground.

DANGER

An improper stabilisation of the machine does not allow a proper working stability. HINOWA forbids the use of the machine if not stabilised as prescribed in this manual. The turning over of the machine can cause serious injuries or death to its occupants and ground staff.

DANGER

If one of the orange lights on each stabiliser does not flash even when the stabiliser is raised from the ground, stop the machine immediately and call the customer service as this signals the breakage of the micro-switches of the relative stabiliser.

DANGER

If working on the machine stabilised on slippery surfaces (marble, porphyry, smoothed concrete, wet smooth surfaces etc.), check that the basket movements do not induce the moving of the crawler. In this case, stop the operations and go back to the operating safety conditions established by the manufacturer.

2.9.6 MOVING THE CONTROL CAR

Once the machine has been correctly stabilized it is possible to proceed with the motion of the basket:

- Climb onto the basket alone with the tools necessary for the operations for an overall load not exceeding 120kg;
- Position properly the machine;
- Stabilise the machine within the limits planned by the manufacturer according the procedure described in this manual;
- Select option 120kg on the electric panel on the control car;
- Lift the third arm;
- Raise the pantograph composed of 1st and 2nd arm (to do so act on the lever which controls them automatically);
- Lengthen the withdraw;
- Lift the jib.

IMPORTANT

Never rotate the platform with the control car completely lowered; to avoid hitting the stabilisers with lower part of the basket, it is necessary and mandatory to lift it of about 1 metre.
If the machine does not allow the opening of the jib, check the overall load introduced on the control car as the load sensor has probably sensed a higher load; if it were not the case, the proper 120kg option has not been selected with the proper control and in this case the machine does not allow the movement of the jib. If instead all the conditions have been met, check the working order of the platform and contact the customer service.

To close the machine, follow these movements:

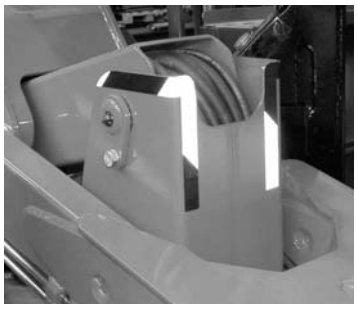
- Lower the jib;
- Re-enter the withdraw;
- Close the third arm;
- Lower the pantograph;
- Bring the arm on the support;
- Raise the stabilisers.

DANGER

- **It is absolutely forbidden to carry any types of material on the control car if the machine has not been stabilised and completely closed. Loading material in the control car when it is overhead from for example roofs or balconies etc. can cause the unavoidable turning over of the machine exposing the occupants and ground staff to a probable death risk.**

- **Never use the machine to carry loads; the machine can carry two people (80kg each) plus 40 kg tools or in 1470 version using the jib one person (80kg) and 40kg tools.**

- **When lowering the machine near the column, the potential risk of shearing the arms is signalled on stickers. Anyhow it is the user's responsibility to make people move away from this area.**



DANGER

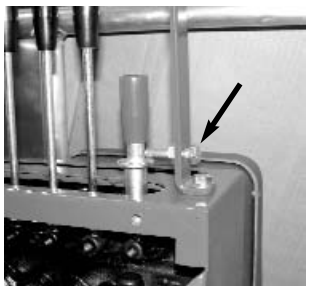
Never use the machine to carry objects with a large surface to the force of the wind (e.g. large signboards) even if there are within the machine load limits.

2.9.7 MANUAL LEVELLING OF THE CONTROL CAR

HINOWA platforms are equipped with an automatic levelling device of the control car; this device has been designed so that the basket floor remains always parallel to the ground independently from the arm movements of the platforms.

Anyhow, due to causes relative to possible blow-by, it could be necessary to operate manually to bring back the basket to its best position. To regulate do the following:

- Bring back the basket into the translation position by resting the third arm on the support (only if you discover the problem when you are on the overhead control car);
- Loosen the safety screws by loosening first the lock nut (you need two fixed 13 wrenches for this operation) until you free the control (see photo);



- Raise the safety device against accidental activating of the control. Act on it softly until you reach the levelling and also lowering the engine rpm;
- Release the lever softly until the neutral point and bring back the safety screw into position. Finally tighten the lock nut.

WARNING

Levelling the control car has been designed:

- As an exceptional manoeuvre in case a slight troubleshooting of the automatic levelling. If the trouble was to repeat itself frequently have the control car checked in an authorised workshop;
- Activating the manual levelling control is only admitted from the control car; otherwise the operator could suffer serious damages from the contact with the mobile parts of the machine;
- Never do the levelling manoeuvre with aims different from the above-described ones (e.g. lifting objets, to increase the working range of the platform etc.). Such a use could cause serious accidents even mortal.

2.9.8 MANOEUVRING THE BASKET EMERGENCY DESCENT

The machine has been planned considering any possible emergency situations such as mechanical breakdowns, electric breakdowns, the operator's sudden illness etc.). In these cases it is possible to intervene on the machine both from the basket and the ground place in order to bring back the machine to transport configuration or anyhow to bring assistance to the occupant(s) of the control car. You will find below the intervention procedures.

IMPORTANT

Remember that it is mandatory to have staff on the ground when the platform is working.

2.9.8.1 ACTIVATING THE BASKET EMERGENCY DESCENT

The emergency descent of the control car can be activated from the control car itself only if the machine electric system has not be compromised; to proceed do the following:

- Press the manual selector;
- Act on the arm descent controls used normally until the desired height;
- Release the manual selector.

Being a descent through gravity obviously it is not possible to have a rotation movement from the platform and to re-enter or withdraw the telescopic arm. Therefore the basket descents vertically at a distance from the rotation centre that is conditioned by the configuration the machine had at the moment of emergency.

IMPORTANT

During the emergency descent, the jib cylinder cannot be activated. Therefore with the arm completely lowered, the control car comes to be at 1.80m from the ground. In this case, to bring assistance to the person on the control car you need to use an external tool (e.g. ladder).

2.9.8.2 ACTIVATING THE GROUND EMERGENCY DESCENT WITH THE MACHINE IN PERFECT WORKING ORDER

This emergency descent is only allowed in case of:
- the control car operator is taken ill.

IMPORTANT

The only aim for using the ground emergency descent is to bring assistance to the operator (s) on board of the control car and to bring the control car near the ground. Any other use is forbidden.

To do the emergency descent in the above mentioned conditions operate as below:

a) Shift the distributor switch of the distributor control on the basket to the ground distributor.
b) Operate the arm movement arms until you bring back the operator on the basket to the ground.

2.9.8.3 ACTIVATING THE GROUND EMERGENCY DESCENT WITH THE HAND PUMP IN CASE OF ALL ENERGY SYSTEM BREAKDOWN

This emergency descent is only done in case of:
- breakdown of the machine electric system as it is not possible to do the emergency manoeuvre from the control car;

IMPORTANT

The only aim for using the ground emergency descent is to compensate a breakdown of the system and therefore to bring the control car near the ground. Any other use is forbidden.

The ground emergency descent can occur using the hydraulic hand pump (par.2.6.3); To move the basket, pump the oil manually while using at the same time the ground controls relative to the arm movements.

WARNING

Never do manoeuvres different from the above mentioned like withdrawing the telescopic arm, moving the jib, moving the stabilisers and in general all the manoeuvres that could make the machine unstable.

To carry out the emergency descent in the above- mentioned conditions operate as follow:

Case 1: voltage on rotating the ignition key to ON and with the emergency stop pushbutton deactivated:

1. Position the switch on the hand pump in the position matching the arms movement;
2. Shift the distributor selection switch from the distributor control on the basket to the ground distributor;
3. Act on the hand pump and at the same time operate on the levers of the arms movements individually to bring the operator on the basket to the ground.

Case 2: no voltage or emergency stop pushbuttons activated:

1. Remove the protection cap from the blue safety solenoid valve near the electric engine, the lead-covered cable breaks by unscrewing the cap (par. 2.6.3).
2. Arm the mechanical working of the solenoid valve by pushing and rotating (par.2.6.3) the golden coloured hand grip near the solenoid valve coil. The leaded wire will break operating the emergency without the use of tools;
3. Position the switch on the hand pump to the position matching the arm movements;
4. Shift the distributor selection switch from the basket distributor to the ground distributor;
5. Act on the hand pump and at the same time operate on the levers of the arm movements individually until you bring the operator aboard the basket to the ground.
6. **Deactivate the emergency, restore the leading and put back the protection nipple (par. 2.6.3).**

2.9.9 MAIN USES PLANNED FOR THE PLATFORM

You will find below the specific warnings for the most frequent uses of the platform. What follows is integrative and does not replace the contents of the Instructing and operating manual.

2.9.9.1 SYSTEMS

A simple but important recommendation is to always check that the parts you intervene on are not under tension. When in doubt, ask the ground staff to check. Remember also not to come close to the electric lines keeping at a proper distance from the voltage they carry (see specifications given in this manual).

2.9.9.2 CLOSED PREMISES

To operate in closed premises, HINOWA recommends to opt as much as possible for the electric engine; If it is not possible make sure there is a sufficient change of air to avoid accumulating gases harmful to people's health.
Always remember that if the light in the working place is not sufficient, you must equip yourself with extra lighting devices.

2.9.9.3 USING FOR PRUNING

This use requires caution to avoid the lost of the machine stability. Remember that:

- if branches or trunks fall on the safety devices of the machine this could cause breakage;
- the fall of plant parts could damage the machine;
- the fall of plant parts could press the ground emergency pushbutton. In this case you lose control of the machine and you need to ask the ground staff to intervene;
- the pruning tools like chain saws exercise a strong force toward the outside of the basket edge;
- Always check beforehand that the shrub to cut cannot fall on any parts of the platform or the basket.

2.9.9.4 USE FOR REPAIRS AND MAINTENANCE OF ROOFS AND RAIN PIPES

Always remember that the platform must not be used for transporting material in the air even if is within the load limits indicated by the manufacturer. The platform is not a lifting equipment.
Always remember that once the basket has been raised from the frame you must never carry

objects. Remember that no safety device can help you when you are in the air with the overloaded basket, as its emergency descent does not guarantee against turning over. The only way to be safe is to go back as soon as possible within the admitted load limits for the basket according to the working configuration by unloading the basket.

2.9.9.5 USE FOR PAINTING, SAND BLASTING AND PLASTERING

This type of use requires a meticulous protection of the delicate parts of the machine like the rods of the hydraulic cylinders, their gaskets, safety devices, telescopic hydraulic withdraws and inscriptions on the machine (e.g. manufacturer's plate, warning stickers, load chart etc.). If sand gets mixed with the protection grease of the withdraws it becomes an extremely abrasive mixture compromising the quality of the machine movements and its life.

2.9.9.6 USE IN SALTY ENVIRONMENT

If the machine is used in environments with a particular corrosive atmosphere, do more frequent checks regarding rust and the state of greasing and lubrication of the mobile parts than the ones recommended by the manufacturer in normal conditions.
Cover the machine every time you are not using it even for short periods to protect it from salt and sand carried by the wind.

2.10 REMOVAL OF THE BASKET

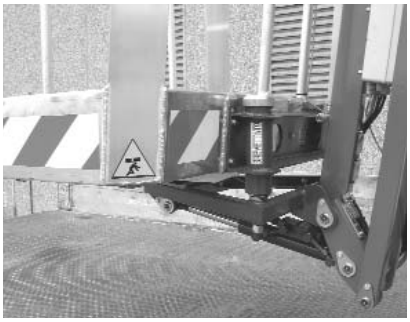
The basket can only be removed to allow passage through holes measuring 1500 and 790 mm.

WARNING

IF THE MACHINE DOES NOT HAVE A BASKET, YOU CAN ONLY MOVE THE TRACKS AS DESCRIBED ON PARAGRAPHS 2.1 AND 2.9.4.

To remove the basket act as follows:

- Unscrew the aluminium lids on the two basket mounting trunnions (see photo);



- SRemove the basket from above.

Re-assemble the basket as follows:

- Insert the basket into the fixing screws on the basket sup-

port, paying attention to allow it to descend as parallel as possible to the basket support;

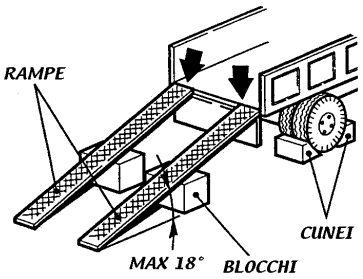
- **Screw on the two aluminium lids.**

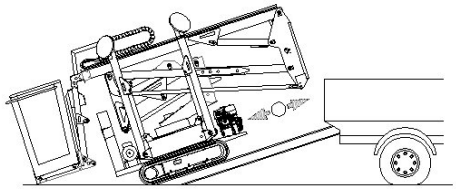
2.11 TRANSPORT SAFETY REGULATIONS

IMPORTANT

Make sure that the means of transport for the platform has a suitable capacity and that no part of the platform comes out of the limits prescribed by the Highway Code.

2.11.1 LOADING AND UNLOADING ON RAMPS





The HINOWA platform has a very high manoeuvrability and stability even when translating. However we recommend the user to operate carefully even during operations apparently simple.

For example to load on a lorry do the following:
- park the lorry or the trailer on a flat surface;
- make sure that the ramps and the trailer are strong enough to bear the weight of the machine and that there are no debris or slippery material;
- if the vehicles are not properly equipped put blocks under the ramps;
- widen the platform crawler;
- place the ramps parallel between each other at a distance equal to the one between the tracks;
- climb onto the ramps proceeding with the machine orientated with the control car toward the rear part;
- near the arrival place, proceed carefully to avoid strong jolts when passing from the slant plane to the arrival plane;
- park the machine so that no parts come out of the outline of the mean of transport.

To get off proceed following the above-mentioned indications and prescriptions.

IMPORTANT

During the translating and the changing of slant phases, take care not to damage the safety devices situated below the basket and near the first withdraw end. If the change of slant was to be too excessive, change the inclination of the ramps or use longer ramps.

2.11.2 LIFTING THE MACHINE

To lift the machine you need lifting equipment with a proper load according to the distance and the height you want to lift the platform.

WARNING

- For the lifting operations necessary for maintenance or loading on means of transport only use machinery (e.g. cranes, overhead travelling cranes etc.) and loading devices (e.g. cables, chains, hooks) of proper load and in perfect state of preservation; to check the machine weight consult the paragraph relative to the platform technical data.
  In the photograph below, you can see how and where the platform must be hooked.

- When you lift the machine, it must be in transport configuration (arms completely closed and lowered, stabilisers completely raised and crawler widened). If not the machine would be unbalanced and the lifting dangerous.

- Never lift the machine with an operator on board.

- During the lifting phases make sure that no one is in the operating area and always avoid transiting the suspended machine over people.

IMPORTANT

Never lift the machine slinging it differently than the one shown; if for example it was lifted with one arm hooked exploiting the ground anchoring devices (not planned to bear the platform weight) or simply passing a sling around any arm elements, this would load forcefully the fifth wheel and other elements of the machine for which they have not been planned. It is highly probable that this will cause structural damages to the machine.

2.11.2.1 HOW AND WHERE TO HOOK THE PLATFORM

To lift the platform, hook it to each support pin of the stabiliser cap as indicated on the photograph below.

DANGER

Always hook all four feet as the machine could become unbalanced. Always use four separate cables, chains or slings; this way, the breakage or an improper anchoring of a connecting device would not cause dangerous movements of the load.

2.11.2.2 WHAT TO USE FOR HOOKING THE PLATFORM

The lifting device must be in a good state of preservation and used according to the specifications supplied by its manufacturer. As the platform weight is not divided equally on the four stabilisers, the maximum requested load for each of the four cables, chains or slings used must be:
no lower than 600 kg and their length not shorter that 2,5 m and identical between each other.

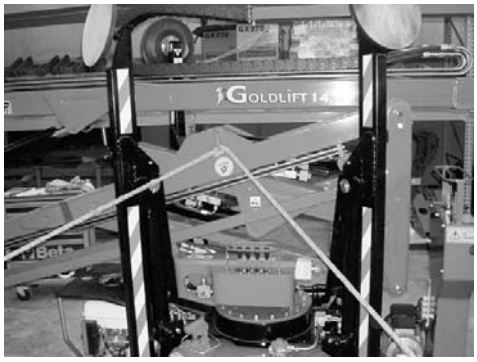
The width of the slings must not be over 40 mm, the chains must not be over 25 mm, the cable diameters must not be over 25 mm not to exercise a pressure on the stabiliser cap in an anomalous direction.

IMPORTANT

Using cables, chains or slings with lengths lower than 2.5m could cause permanent damages to the machine stabilisers.

2.11.3 TRANSPORT OF THE MACHINE

Once loaded on the trailer, fix the machine with tie-rods as shown on the photo below. Check that the dimensions of the machine and the trailer match the prescriptions of the Highway Code.



3. SPECIFICATIONS FOR GREASING AND LUBRICATING

3.1 SAFETY RULES FOR GREASING AND LUBRICATING

DANGER

- Errors can be extremely dangerous. Before greasing or doing repairs, read carefully the instructing and maintenance manual.
- Handle any part with maximum care. Keep hands and fingers away from gaps, gearing and similar. Always use the approved protective devices, like safety glasses, safety gloves and shoes.
- Never discard lubricants in the environment but collect and discard such products according to the current regulations in each country.
- Never do any maintenance operations when the working arm is not completely lowered and/or the machine is stabilised.
- When intervening on the machine, put a visible sign with “DANGER. Do not move the machine, ongoing checks” on the ignition panel.

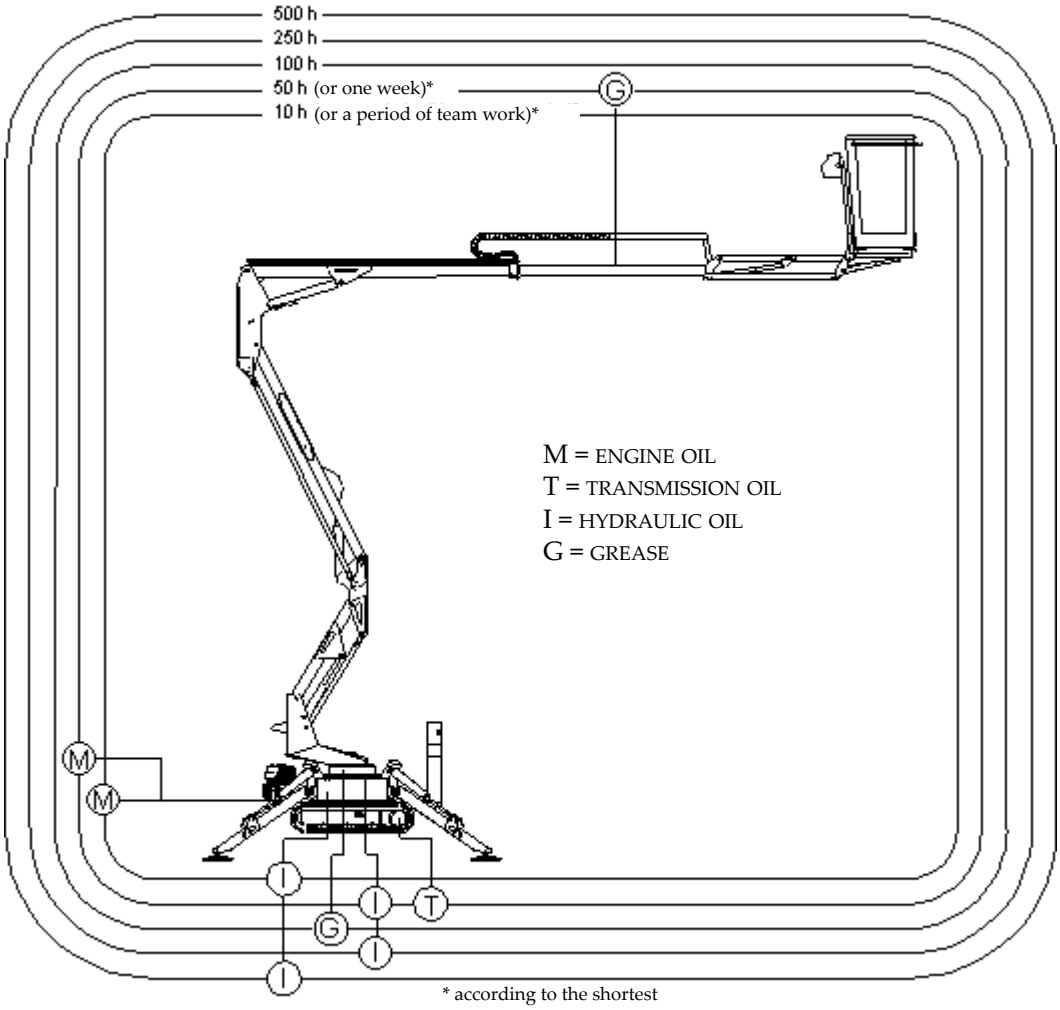
3.2 LUBRICATING POINTS

Recommended oils and lubricants chart.

MAKE	HYDRAULIC OIL	ENGINE OIL -15° +40°	TRACTION REDUCTION UNIT	GREASE
ESSO	NUTO H 46	TD 15 W 40	EP 150	BEACON2
CALTEX	SIRIUS H 46		WRP150	EP 2
AGIP	OSO H 46	SIGMA TURBO 15 W 40	BLASIA 150	GR MUEP 2
I P	HYDRUS H 46	TARUS TURBO 15 W 40	MELLANA 150	GREP 2

3.3 GREASING POINTS

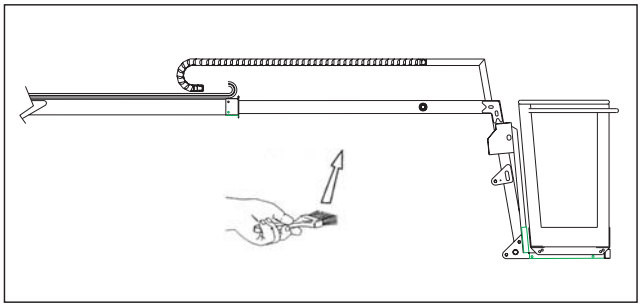
GOLDLIFT 14.70



IMPORTANT

RESPECT THE GREASING INTERVALS IN ORDER TO PROTECT PINS AND CONNECTION PIVOTS FROM THE WEAR AND TEAR.

3.3.1 GREASING THE TELESCOPIC ARM AND CHECKING THE WEAR AND TEAR OF THE SLIDING BLOCKS



- Using a brush, spread grease over the telescopic arm.
- Check visually the play between the telescopic arm and the sliding blocks.
- In case the play exceeds 3 mm it is necessary to operate on the plastic registers, screwing them to lean on the arm in case of the upper ones, or to bring them to 1 mm in case of the bottom ones.
  Control the support and the correct distance slipping off and closing the arm.
- The possible replacement of the sliding shoes has to be made in an Hinowa authorized workshop

4. MAINTENANCE OF THE MACHINE

4.1 SAFETY REGULATIONS FOR MAINTENANCE OPERATIONS

WARNING

- The spare parts must match the technical prescriptions established by HINOWA. This is guaranteed by the use of original spare parts.
- Errors are extremely dangerous. Before greasing or doing any repairs, read carefully the instructing and operating manual.
- Handle parts with great care. Do not put hands or fingers between two parts. Wear homologated safety garments like safety glasses, gloves and shoes.
- Handle each item with maximum care. Keep hands and fingers away from gaps, gearing and similar. Always use the approved protective devices, like safety glasses, safety gloves and shoes.
- When working on the electric system, always wear protective gloves and remove any rings, wristwatches or any other metallic jewels. As a general rule, never clean parts with

petrol.

- The interventions on the auxiliary electric system must exclusively be done by our Assistance Centre to guarantee the conformity of what prescribed in current legislation (EN 60204 and home legislation).
- Always disconnect the battery before intervening on the electric system.
- The hydraulic tubes must always be laid and fitted in a correct manner.
- Tampering with the hydraulic circuit can represent a serious danger for the use of the platform.
- Never discard lubricants in the environment but collect and discard such products according the current regulations in every country.
- Check the vehicle at least once a day or every work shift for any identifiable outer damages (corrosion, integrity of the structural parts, welding). Any identified variations (included the functional behaviour) should be signalled immediately to the person in charge. Stop and block immediately the vehicle and carry out accurate checks.
- A fluid that leaks under pressure can penetrate the skin. Always release under pressure before removing the hydraulic tubes and tighten properly the pipefittings before letting in pressure. Keep hands and body away from small holes and nozzles from which comes out high-pressure liquid. Use a piece of cardboard or paper to find leaks.

IMPORTANT

Heavy parts must be lifted by means of lifting equipment of suitable capacity.

- Never do any maintenance operations when the working arm is not completely lowered and/or the machine is stabilised.
- When intervening on the machine, put a visible sign with “DANGER. Do not move the machine, ongoing checks” on the ignition panel.

4.2 PERIODIC GENERAL CONTROL

After the first 2000 hours, it becomes necessary a general control of the machine, at a certificated centre of Hinowa, which examines the state of the machine and fills in a form furnished by Hinowa.
The following controls to this first control have to be carried out every 1000 hours.
For locating the Hinowa certificated assistance centre, please refer you to your own reseller.

4.2.1 PERIODICAL MAINTENANCE TIMES

HONDA PETROL ENGINE

DETAIL	INTERVENTION	BEFORE STARTING.	SECOND NEED	INTERVAL (HOURS)							PAGE
				10	50	100	250	500	1000	2000	
AIR FILTER	CLEANING CONTROL	•									
	REPLACEMENT							•			
ENGINE OIL	LEVEL CONTROL	•		•							
	REPLACEMENT				•*		•				
ENGINE SUMP	CLEANING					•					
FUEL TANK AND NET	CLEANING							•			
HYDRAULIC OIL	LEVEL CONTROL	•		•							
	REPLACEMENT								•		
HYDR. OIL FILTER	CARTRIDGE REPLACEMENT				•*		•				
ARTICULATION POINTS	GREASING				•*	•					
BATTERY	ELECTROLYTE LEVEL CONTROL		•				•				
REDUCTION GEAR DRIVES OIL	LEVEL CONTROL					•					
	REPLACEMENT				•*				•		
MACHINE	GENERAL PERIODIC CONTROL								•	•*	
EXTENSION SLIDING INNER RING	WEAR CONTROL							•			
	REPLACEMENT									•	

* First intervention.

PERKINS DIESEL ENGINE

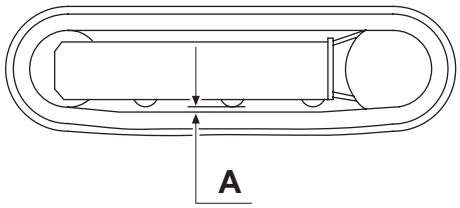
DETAIL	INTERVENTION	BEFORE STARTING.	SECOND NEED	INTERVAL (HOURS)							PAGE
				10	50	100	250	500	1000	2000	
FLAT AIR FILTER	CLEANING CONTROL	•									
	REPLACEMENT							•			
ENGINE OIL	LEVEL CONTROL	•		•							
	REPLACEMENT				•*		•				
ENGINE OIL FILTER	CLEANING						•				
	REPLACEMENT								•		
FUEL FILTER	CLEANING		•								
	REPLACEMENT							•			
WATER SEPARATOR	WATER CLEANING AND DRAIN		•				•				
HYDRAULIC OIL	LEVEL CONTROL	•		•							
	REPLACEMENT								•		
HYDRAULIC OIL FILTER	CARTRIDGE REPLACEMENT				•*		•				
ARTICULATION POINTS	GREASING				•*	•					
BATTERY	ELECTROLYTE LEVEL CONTROL		•				•				
REDUCTION GEAR DRIVES OIL	LEVEL CONTROL					•					
	REPLACEMENT				•*				•		
MACHINE	GENERAL PERIODIC CONTROL								•	•*	
EXTENSION SLIDING INNER RING	WEAR CONTROL							•			
	REPLACEMENT									•	

* First intervention.

4.3 RUBBER TRACK MAINTENANCE

4.3.1 CHECKING TRACK TENSION

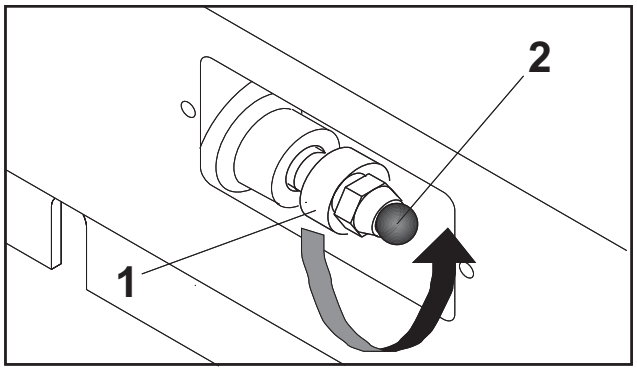
Park the machine on a solid and flat surface. Lift machine safety and put stable blocks under the crawler frame to support it. Measure distance A from the roller bottom to the rubber track rigid inner part. The track tension is correct if measurement A is between 10 and 15 mm.
If the track tension is not within the above-mentioned measurements, not too loose nor too tight, follow the instructions given in the following paragraph.



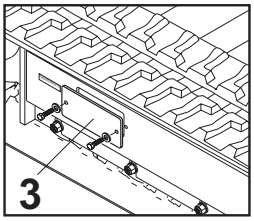
4.3.2 OPERATIONS TO LOOSEN OR TIGHTEN TRACK

The grease contained in the hydraulic track is under pressure. Therefore never loosen greasing valve 1 for more than one turn. If the valve is too loose, it might get expelled under the grease pressure, exposing the operator to risk. Never loosen grease nipple 2.
Remove any mud or gravel jammed between the sprocket and the track links before loosening them.

1. Remove screws and plate 3 to have access to regulation.
2. To loosen track, slowly unscrew valve 1 anti clockwise for no more than one turn. One turn of valve 1 is sufficient to loosen track.
3. If the grease does not start draining, make the track turn slowly.
4. Once the right tension is obtained, turn valve 1 clockwise and then tighten it. Clean any grease leaks.
5. To stretch a track, put a grease gun inside grease nipple 2 and add grease until the track deflection is within specifications.



DANGER

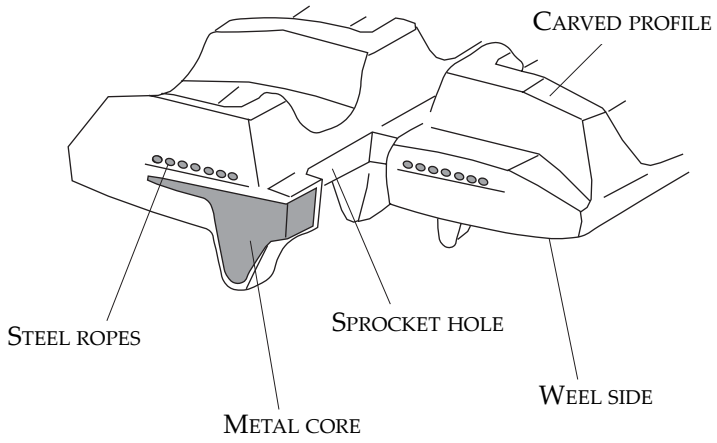


DANGER

There is something wrong if the track remains stretched once valve 1 has been turned anti-clockwise or loose after putting grease in grease nipple 2. In any case, never try to remove tracks or dismantle the track tension cylinder, as the high pressure of the grease inside the track is very dangerous.

4.3.3 CHECKING RUBBER TRACKS

Fig. A



The rubber track structure is shown in fig.A. The steel ropes and the metal core are buried in rubber.
The engraved threads are meant to give stability when moving on soft soil. They are situated in the lower part of the ground support. The wheel guides, situated inside the track, prevent

the track from coming out of the guide rollers.

Causes of damages

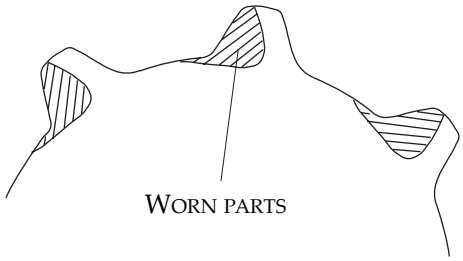
A) *Steel ropes breakage*

An excessive tension causes the breaking of the steel ropes under the following conditions:
- When there is an excess of stones and foreign material between the track and the crawler frame;
- When the track comes out of its guide;
- When there is strong friction like quick changes of direction.

B) *Wear and tear of metallic cores*

As in the case of the a.m. breakage of steel ropes, an excessive stress might cause the bending or the breaking of the metallic cores, which can also be caused by the following:
- Improper contact between sprocket and track;
- Rotation of the inner rollers;
- Working in sandy soil.

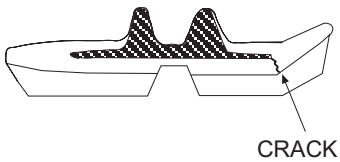
C) *Parting of the metallic cores*



The metallic core acts as rubber adhesive between itself and the steel ropes.
Parting can be caused by excessive stress like the breakage of the ropes, as a result of the following:
- The metallic cores have been wound up by the worn sprocket as shown in the figure.
If the sprocket shows this wear and abrasion, replace it as soon as possible.
In case of breakage as per paragraphs A-B-C-, it is necessary to replace the track as this could cause a complete lost of functionality.

D) *Abrasion and fatigue cracks*

1. The cracks at the base of the thread are the result of rubber fatigue bending caused by the sprocket and the track tensioner.



2. The cracks and the curves on the rubber edge are due to manoeuvring the track where there are concrete kerbs and sharp edges.

3. The cracks and abrasions on the rubber of the roller guide slides are caused by fatigue due to the compression of the rubber under the wheel weight combined to working in sandy

soil, or repeated sharp changes of direction.

4. The abrasion of the engraved thread can originate especially in case of rotations on concrete surfaces, gravel or hard surfaces.

The conditions for damage indicated in paragraph D point 1, 2, 3 are not to be considered deadly for the track and even if there is a gradual or progressive damage, the track will continue to work.
If the damage indicated at point 3 worsens, this will expose the metallic cores. If this exposition is more than half the track circumference, it is time to replace it. However you can still use it.

E) *Cracks due to external factors*

The cracks on the track outer surface (the one in contact with the ground) are very often due to contacts with gravel, sharp stones, sharp material such as metal plates, nails, glass, which can cause cuts. From the point of view of rubber property this cannot be avoided although it depends from working conditions.
The cracks on the circumference outer surface and on the rubber edge come from the contact the track has with the crawler body or with concrete sharp edges. The crack increases quite slowly.
Even if it does not look good, the track can still be used in hard working conditions.

4.3.4 REPLACING RUBBER TRACKS

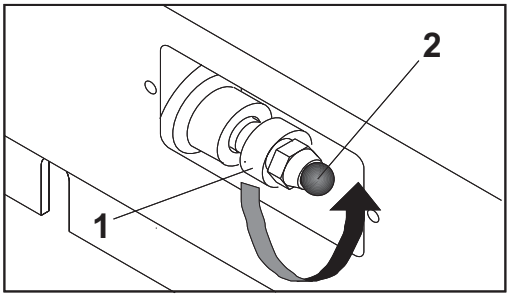
DANGER

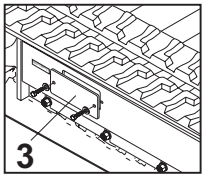
The grease inside the hydraulic track is under pressure. Therefore never loosen grease nipple valve 1 for more than one turn; otherwise it might be expelled under the pressure of the grease, putting the operator at risk. Never loosen grease nipple 2.
In case of gravel or mud jammed between the sprocket and the track link, remove them before loosening.

Removing rubber track

1. Park the machine on a solid and flat surface, lift it and support it safely by means of the stabilisers.

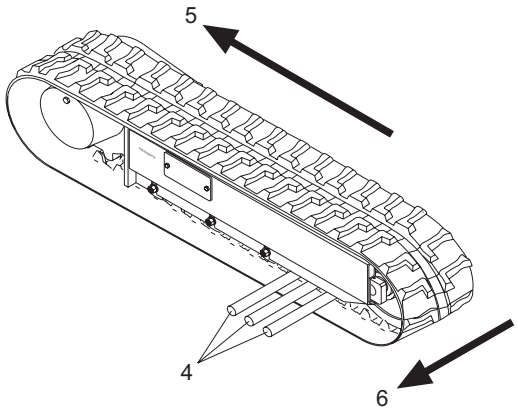
2. Remove screws and take off plate 3 to have access to regulation.





3. Per allentare il cingolo svitate lentamente la valvola 1 in senso antiorario per non più di un giro. Un giro della valvola 1 è sufficiente per allentare il cingolo.

4. Se il grasso non inizia a drenare, fate lentamente ruotare il cingolo.



5. Inserite 3 tubi di acciaio (4) all'interno del cingolo nello spazio tra i rulli. Fate ruotare la ruota motrice in retromarcia (5) in modo che i tubi in acciaio procedano con il cingolo e si impegnino sulla ruota tendicingolo. Fate forza (6) lateralmente per far scorrere il cingolo e sollevarlo dalla ruota tendicingolo.

Fitting rubber track

DANGER

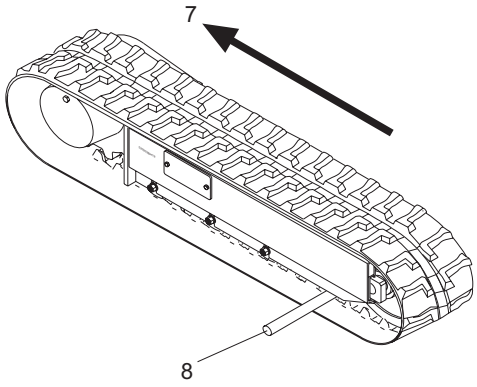
1. Make sure that all the safety conditions are met when the machine is lifted to fit the track.

2. Check that the grease inside the hydraulic cylinder has been removed.

3. Mesh the track links with the sprocket and place the other end of the track on the track tensioning sprocket.

4. Rotate driving wheel backward (7) pushing the track shoes inside the frame (8).

5. Using a steel tube, position track and rotate driving wheel again.



6. Make sure the track links are properly meshed onto the sprocket and the track-tensioning sprocket.

7. Adjust track tension (see paragraph 4.3.2 -"Operations to loosen/stretch track").

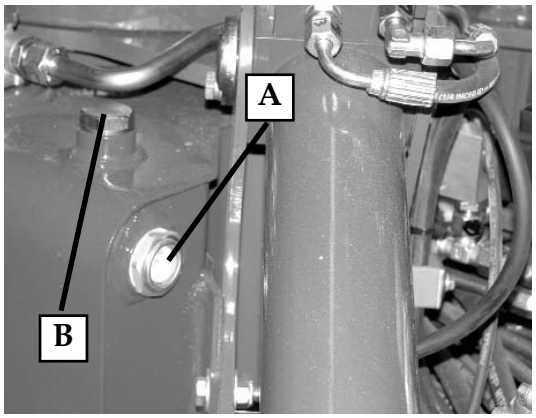
8. Place rubber crawler on the ground.

4.4 CHECKING BOLTS AND NUTS TIGHTNESS

According to the use of the platform, it is necessary to check all the parts and bolts and nuts that could become loose.
Pay special attention to the frame parts such as the track tensioning wheels, the translation gearmotor, the drive wheels and guide rollers. Check them for tightness as per chart beside.

Thread diameter mm	Diametral pitch mm	kgm
6	1	1,3 ± 0,15
8	1,25	3,2 ± 0,3
10	1,5	6,5 ± 0,6
12	1,75	11 ± 1
14	2	17,5 ± 2
16	2	27 ± 3
18	2,5	37 ± 4
20	2,5	53 ± 6
22	2,5	73 ± 8
24	3	92 ± 10
27	3	135 ± 15
30	3,5	184 ± 20

4.5 CHECKING HYDRAULIC OIL LEVEL



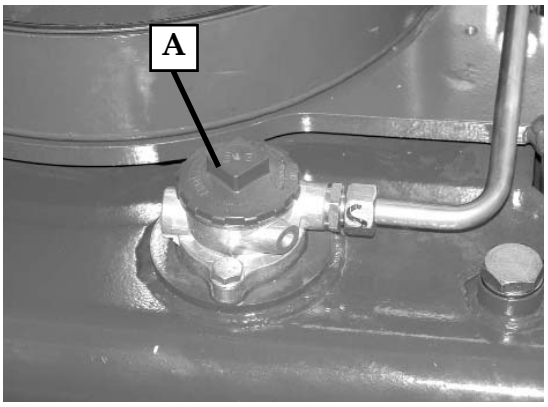
The check is done when the platform (PLE) and the stabilisers are at rest on flat ground.
Check that the oil level is about half the inspection hole A.

If not, top up through filling tap B. See par.3.2 for oil specifications.

4.6 CHECKING LEAKS FROM THE HYDRAULIC SYSTEM

Check visibly all the flexible tubes, the pipefittings and all the other components of the hydraulic system, for any leaks.
Usually, you can eliminate the leaks on the tubes by tightening properly the pipefittings
You cannot eliminate the leaks in the sealing areas with gaskets (o-rings, sealing rings etc) by single tightening as the gasket leaks because it is damaged or hardened.
You can only restore the sealing by replacing the gasket.

4.7 CHECKING FILTER CARTRIDGE



Replace the cartridge at each oil replacement and according to the intervals indicated by the maintenance chart (par.4.2)
NOTE: Always do the first replacement of the cartridge after the first 50 working hours, to eliminate working residues of tubes and hydraulic components from the hydraulic system.

1. Unscrew cap A and extract the filter cartridge.
2. If the cartridge is very dirty, replace it with a new one with the same features.
3. Tighten cap A.

4.8 CHECKING MACHINE PLATES

- Check if the prohibition, warning, danger and control plates are on the machine and that they are legible.
- Consult the pictogram paragraph to identify any missing or damaged plates.

4.9 CHECKING WORKING PRESSURES OF THE HYDRAULIC SYSTEM

To do this check, use a pressure gauge with a 200 bar minimum at the bottom of the scale.

WARNING

- Make sure the machine is closed and at rest.
- Make sure that no one is within the machine working range.
- All the controls must be made as defined in this manual from the driver's place on the basket.

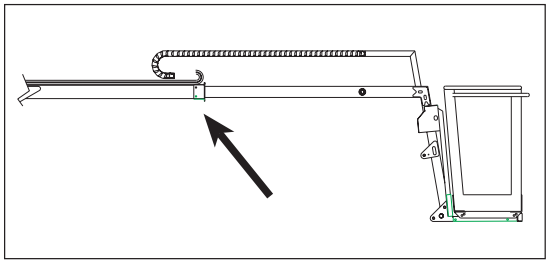
a) Connect the pressure gauge to the pressure socket situated on the aluminium block of the delivery manifold, situated above the electric engine
First connect the MB inlet (ref. Hydraulic system).
b) Place yourself at the driver's place and turn on the machine.
c) Close completely one of the two left stabilisers and keep the lever on.
Read the pressure gauge figure. This figure is relative to the distributor left movement.
Turn off the machine.
d) Connect the pressure gauge to the MA inlet (ref. Hydraulic system).
e) Place yourself at the driver's seat and turn on the machine.
f) Close completely one of two right stabilisers and keep the lever on.
Read the pressure figure. This figure is relative to the distributor right movement.
g) Stabilise the machine.
h) Act upon the CLOSING third arm cylinder.
Keep the lever in position and read the pressure figure. This figure is relative to the overhead part of the distributor on the basket.

i) Turn off the machine and move near the overhead part of the distributor from the ground.
l) Shift the switch to control the ground overhead and turn on the machine again.
m) Act upon the CLOSING third arm cylinder. Keep the lever in position and read the pressure figure. This figure is relative to the ground overhead part of the distributor.

4.10 CHECKING THE TIGHTENING OF THE FIXING SCREWS OF THE PIN STOPS AND THE RING NUTS

- Make sure that the fixing screws and the ring nuts of the pin stops are not loose.
- If they are loose, it is necessary to tighten screws or ring nuts to a torque of 4 kgm.
- Never try to tighten ring nuts or pin stops to a higher torque, as this could affect the correct operation of the pins.

4.11 CHECKING WEAR AND TEAR OF THE TELESCOPIC ARM SLIDING BLOCKS

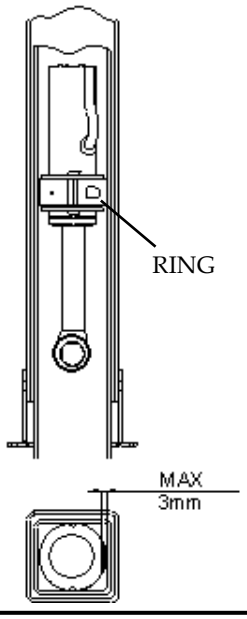


- Check visibly the wear and tear of the sliding block at the end of the first arm.
- If the sliding block shows wear and tear exceeding 3 mm, replace it.
- The screwhead and the upper part of the stops that hold the sliding blocks on the arm must never come out of the upper outline of the sliding blocks.
- The replacement of the sliding blocks must always be done in an authorised Hinowa Spa workshop.

4.12 CONTROL OF WEAR AND TEAR OF THE INTERIOR SLIDING RING EXTENSION

IMPORTANT

Respecting the indicated time in the schedule for the periodic maintenance (see 4.2.1) it's important to verify the wear and tear of the interior sliding ring of the extension which is fixed at the extremity of the drum extension.
If the wear and tear exceeds 3mm on the radius of the ring, it has to be replaced.



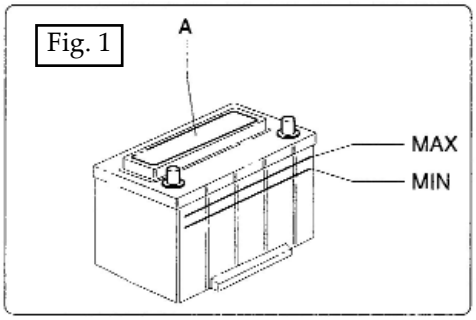
4.13 BATTERY: CHECKS AND MAINTENANCE

IMPORTANT

- Never approach flames or cause sparks near the battery (explosive gas).
- The battery contains sulphuric acid that is highly explosive.
- Therefore act with maximum care and protect eyes and face.
- In case of any accidental contact with the skin, wash immediately with abundant running water.

4.13.1 CHECKING ELECTROLYTE

The battery does not need topping up.
Anyhow if the electrolyte level, with the machine flat, was below the minimum level (MIN), you can top it up by removing cover "A" and add distilled water without exceeding the level (MAX).



WARNING

If the inactivity period is more than a month, it is advised to isolate the battery:
- Remove the battery terminals, always starting by the negative pole (-).
- Connect again the electric cables always starting from the positive pole (+).

4.13.2 RECHARCHING THE BATTERY

WARNING

- Recharging the battery must always be done in a ventilated place and away from free flames and any spark sources.
- Never remove the cables when the engine is on.
- Remove the battery cover (fig.1) and put it back after the battery has been recharged. This is to avoid explosion risks.

To recharge the battery, operate as follows:
1) Disconnect the terminals of the machine electric system from the battery poles.
2) Remove cover "A" (fig.1).
3) Connect the recharging cables to the battery poles and turn on the recharging equipment.
4) Once the recharging done, disconnect the equipment before disconnecting it from the battery.

5) Fix back the terminals to the battery poles. Then spread them with pure petroleum jelly or other suitable protections.
6) Close back the battery with cover "A" (fig.1).

IMPORTANT

The recharging voltage must never exceed 14,7 Volt and the recharging intensity must always be limited to 0,2 of the figure indicated on the cover.

4.13.3 REPLACING THE BATTERY

WARNING

- Never remove the cables when the engine is on.
- Remove the battery terminals, always starting by the negative pole (-).
- Connect again the electric cables always starting from the positive pole (+).

When the battery does not accumulate electric energy anymore, replace it with one having the same features.
See the specifications table on the battery.

4.13.4 DISCARDING THE BATTERY

Always discard batteries according to current environmental laws.

4.14 ENGINE MAINTENANCE

See the instructing and operating manual annexed to this one.

5. TROUBLESHOOTING

PROBLEM	*CAUSE*	*SOLUTION*
The pump is very noisy	• The pump does not suck • Worn pump • The pump sucks air	• Replace pump • Check oil level in the relative tank
With the pump activated, the oil does not reach the hydraulic system or arrives at a pressure too low to move the machine	• See point 1 • Maximum pressure valves not calibrated or dirty • Worn maximum pressure valves • The solenoid protection fuses of the solenoid power valves are burnt-out • The hydraulic switch situated under the column is faulty	• See point 1 • Calibrate again or clean the maximum pressure valves • Replace maximum pressure valves • Replace the control solenoid of the emergency solenoid valves • Clean or replace the emergency solenoid valves • Replace solenoid fuses
Once the equipment is stabilised, you cannot detach the overhead part from the supports at rest	• See point 2 • The solenoid of the emergency solenoid valves does not get excited (only movement of the overhead part) • The stabiliser microswitches do not close the contact	• See point 2 • Regulate the microswitches on the stabilisers
The machine superstructure does not hold the working platform with the rated load on board	• Locking valves dirty or faulty	• Dismantle and clean the locking valves on the jacks that hold the load
When working with the overhead part, the machine stops	• Accidental pressing of the emergency pushbutton • The general protection fuse of the electric system is burnt-out • The load cell has been activated	• Put back the pressed push-button to neutral position • Replace the general protection fuse • Unload the machine

PROBLEM	*CAUSE*	*SOLUTION*
After finishing work, it is impossible to destabilise the equipment	• The overhead part has not been put completely at rest or the column switch has not been properly positioned	• Repeat the procedure of putting the overhead part at rest and check the correct position of the switch
When using the overhead part, there are vibrations and variability in the speed of the withdrawing and re-entering manoeuvres of the working arm	• Telescopic arm and sliding blocks insufficiently lubricated • Worn sliding blocks	• Lubricate arm and sliding blocks • Replace sliding blocks
The working platform does not remain levelled when shifting the arm	• Air in the levelling system • The balancing valve on the levelling system is faulty or not calibrated	• Remove the air from the levelling system of the working platform (contact our technical assistance service) •Replace the balancing valve of the levelling system of the working platform

6. CHECKING THE MACHINE AFTER REPAIRS

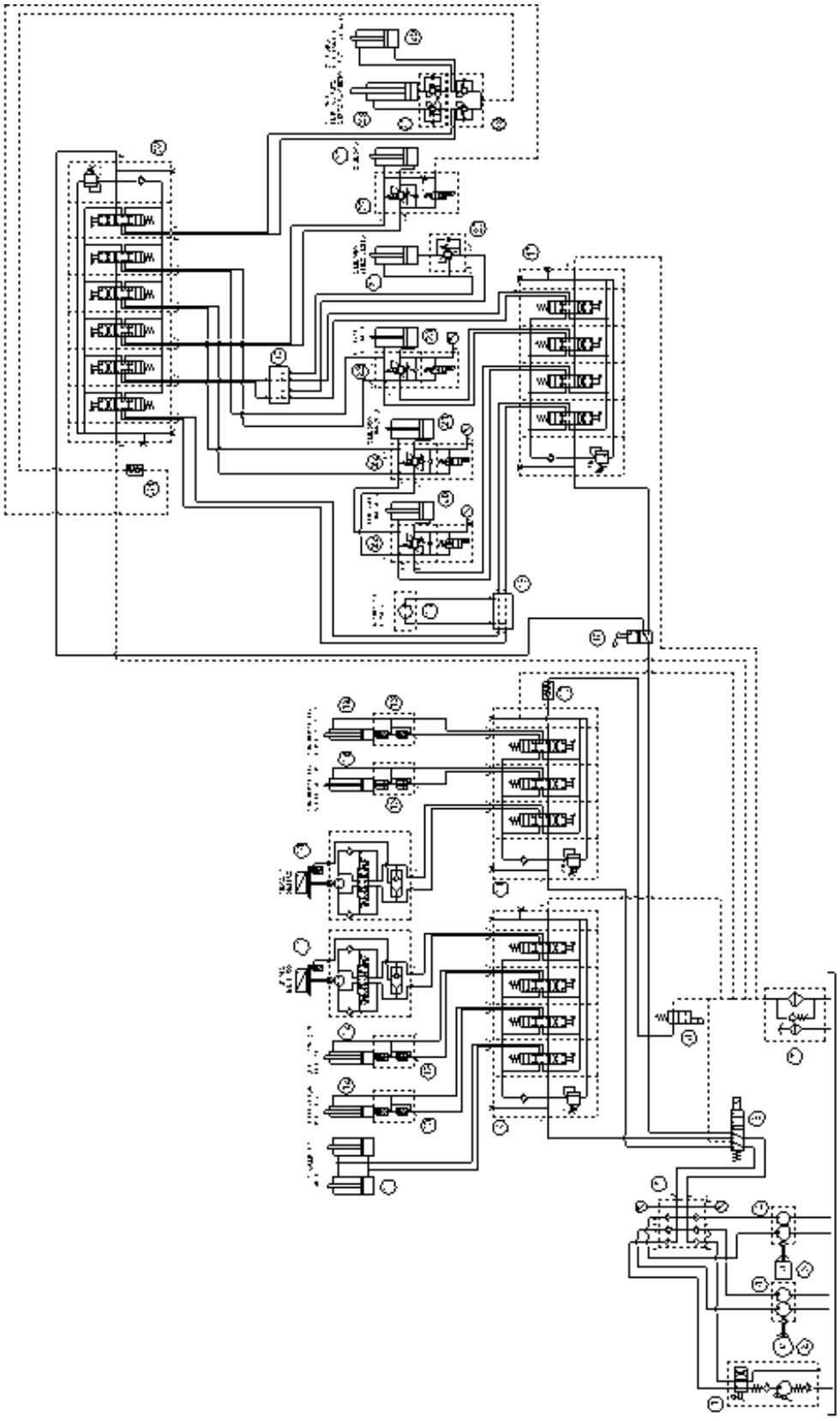
6.1 CHECKING THE PROPER WORKING OF THE CONTROLS

- Check that the ground, working platform and emergency controls are working smoothly and easily and that the levers go back automatically to the central position.
- Check that the lever protections are not bent preventing a proper working of the control.
- See par.2.4 for a proper working of the controls.

6.2 CHECKING THE PROPER WORKING OF THE SAFETY DEVICES

Check that all the safety devices are working as per par.2.5 and 2.6.

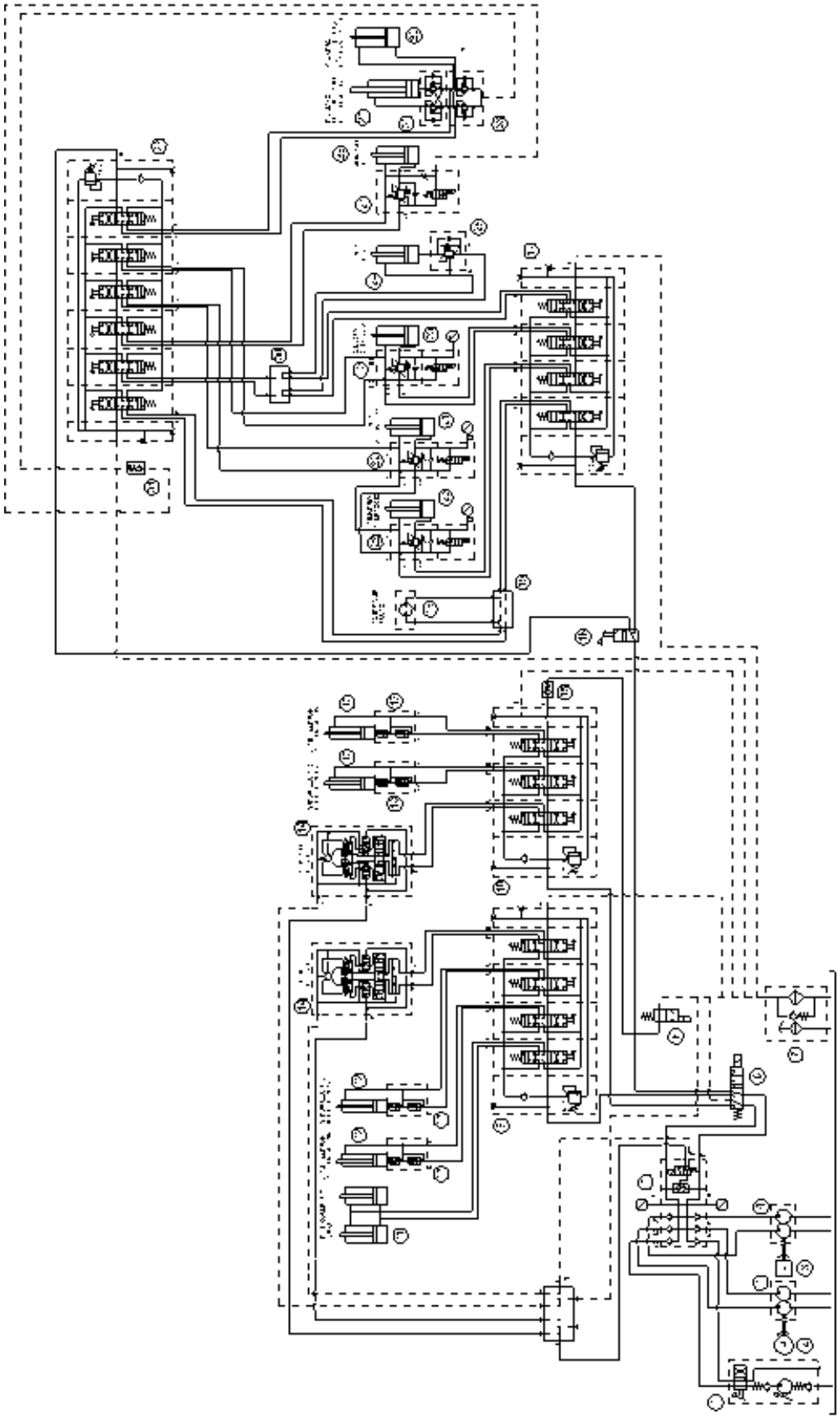
7. HYDRAULIC SYSTEM
7.1 GOLDLIFT 14.70 HYDRAULIC SYSTEM



7.2 KEY DIAGRAM GOLDLIFT 14.70 HYDRAULIC SYSTEM

1 Hand pump
2 2.2 W, 4 IP55 poles, electric engine
3 GX270 QME2 petrol engine
3 1B30 Diesel engine
4 Double geared pump
5 Pump inlet manifold block
6 6 way switch
7 Exhaust filter
8 Solenoid valve
9 Distributor
10 Distributor
11 Crawler widening cylinder
12 Stabiliser cylinder
13 Stabiliser locking valve
14 Gearmotor
15 Non return valve
16 Switch
17 Distributor
18 Rotation engine
19 Manifold
20 First arm cylinder
21 Second arm cylinder
22 Arm balancing valve
23 Third arm cylinder
24 Withdraw cylinder
25 Withdraw balancing cylinder
26 Jib cylinder
27 Jib balancing valve
28 Basket levelling cylinder with jib
29 Basket levelling cylinder on transmission
30 Manifold
31 Double balancing valve
32 Distributor
33 Shock-proof valve with cartridge
34 Unidirectional valve with cartridge + cross joint

7.3 GOLDLIFT 14.70 HYDRAULIC SYSTEM WITH 2ND SPEED



7.4 KEY DIAGRAM GOLDLIFT 14.70 HYDRAULIC SYSTEM WITH 2ND SPEED

1 Hand pump
2 2.2 W, 4 IP55 poles, electric engine
3 GX270 QME2 petrol engine
3 1B30 Diesel engine
4 Double geared pump
5 Pump inlet manifold block
6 6 way switch
7 Exhaust filter
8 Solenoid valve
9 Distributor
10 Distributor
11 Crawler widening cylinder
12 Stabiliser cylinder
13 Stabiliser locking valve
14 Gearmotor
15 Non return valve
16 Switch
17 Distributor
18 Rotation engine
19 Manifold
20 First arm cylinder
21 Second arm cylinder
22 Arm balancing valve
23 Third arm cylinder
24 Withdraw cylinder
25 Withdraw balancing cylinder
26 Jib cylinder
27 Jib balancing valve
28 Basket levelling cylinder with jib
29 Basket levelling cylinder on transmission
30 Manifold
31 Double balancing valve
32 Distributor
33 Shock-proof valve with cartridge
34 Unidirectional valve with cartridge + cross joint

8. ELECTRIC SYSTEM

ELECTRIC DIAGRAM GOLDLIFT/500 (Valid from serial number G23)

01. HOW TO READ THE WIRING DIAGRAMS

The wiring diagram is shown divided by individual application, so as make it easier to read and as straightforward as possible.

Some considerations are valid for all machines, unless otherwise specified. Specifically, the following should be remembered:

- Each component is identified by a code; the meaning of this code is shown in the key at the bottom left.

- Each component only describes the identification of the connector used and the pins corresponding to the application in question. The wiring references are shown on the outside of the connector.

- Each cable describes the colour or the identifier number. Where the colour is not shown, the cable is black. Where the number is used, two digits are shown: the first identifies the wire and is also marked on the wire itself, the second identifies the number of wires in the cable (e.g.: 14/18=wire number 14 in an 18-wire cable).

- The Y/G (=yellow and green) wires are always earth wires. The general earth connectors are located in the control panel, in the control board box and in the mains power supply box (220V).

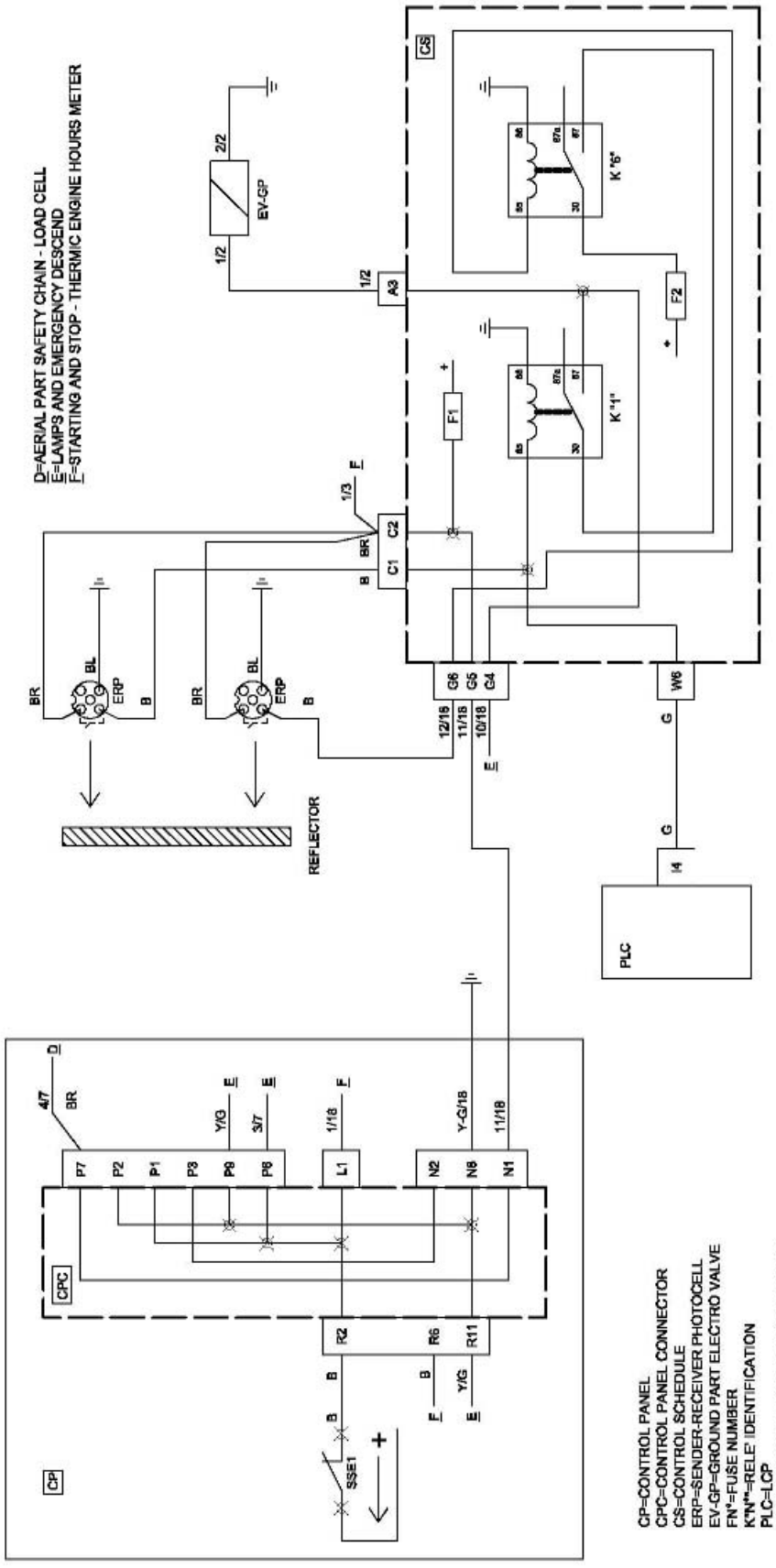
- The control board manages all the machine safety functions and is always shown with a dashed perimeter. To make the system easier to understand, the wiring diagram is also shown inside the control board boxes.

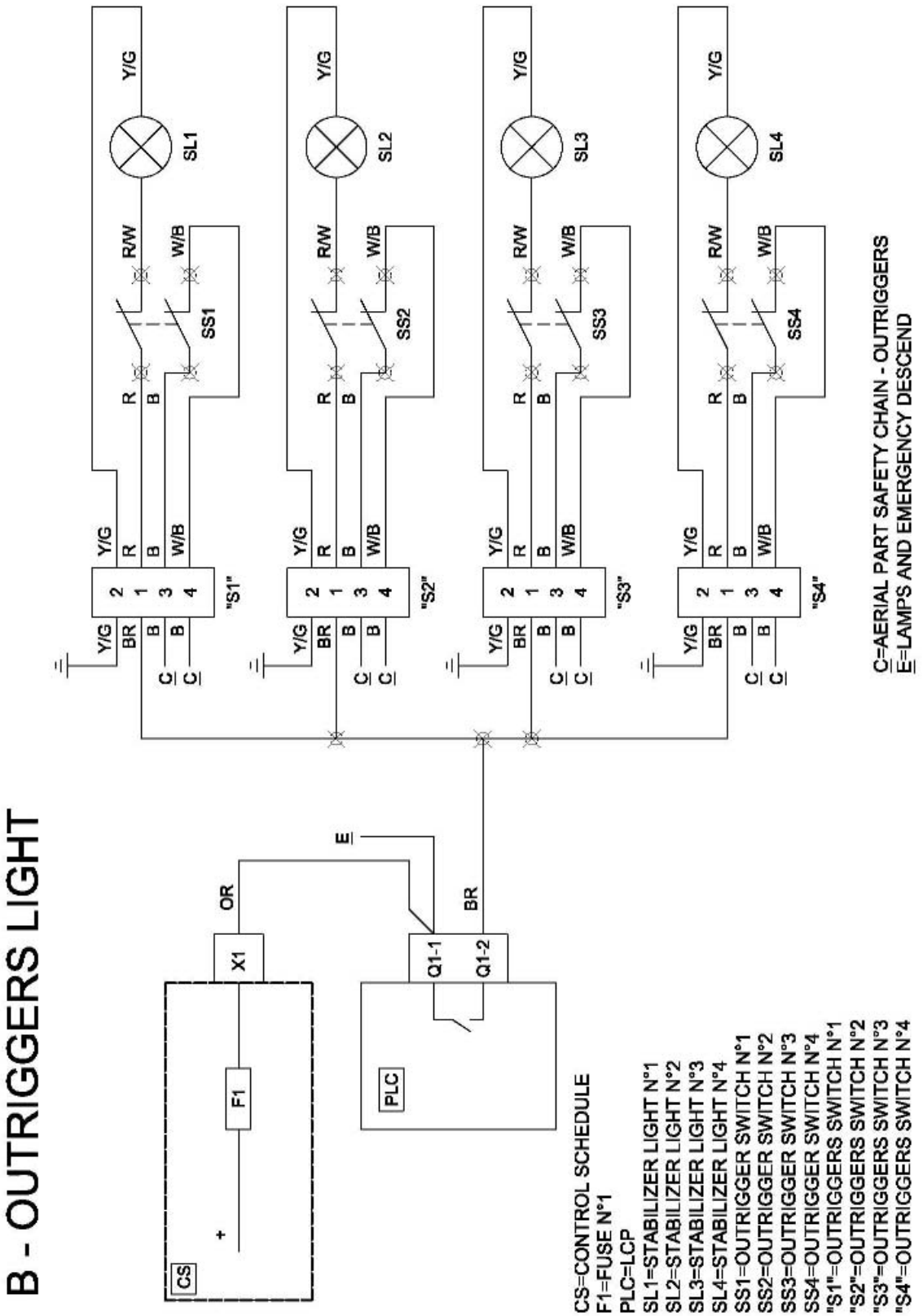
- The location of the connectors and the pins on the control board, on the load cell control unit and on the PLC is shown in sections "I and L".

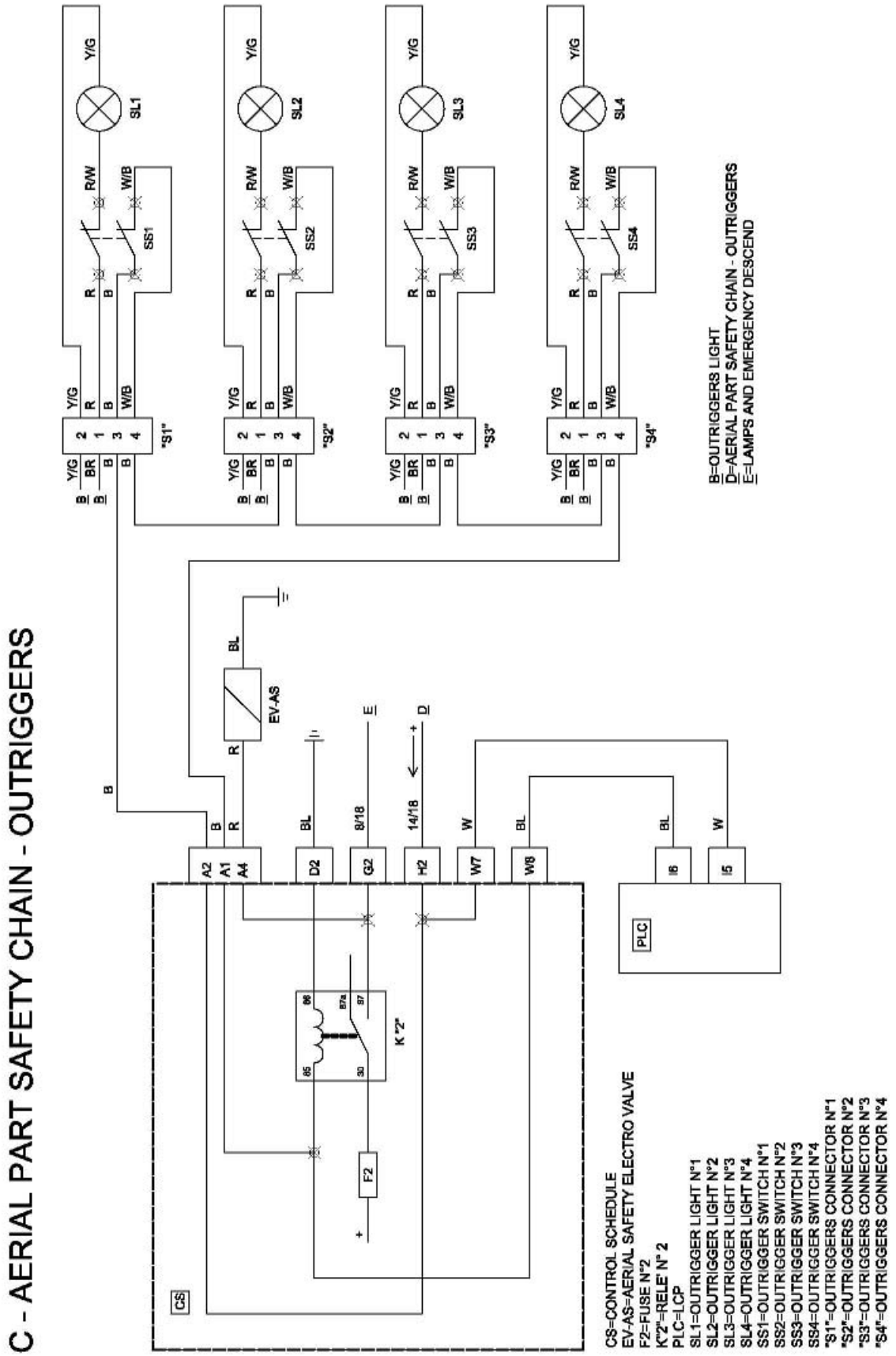
- The location of the electrical components is shown in section "M".

COLOUR CODES
B = BLACK
BL = BLUE
BR = BROWN
G = GREEN
GR = GREY
OR = ORANGE
R = RED
W = WHITE
Y = YELLOW

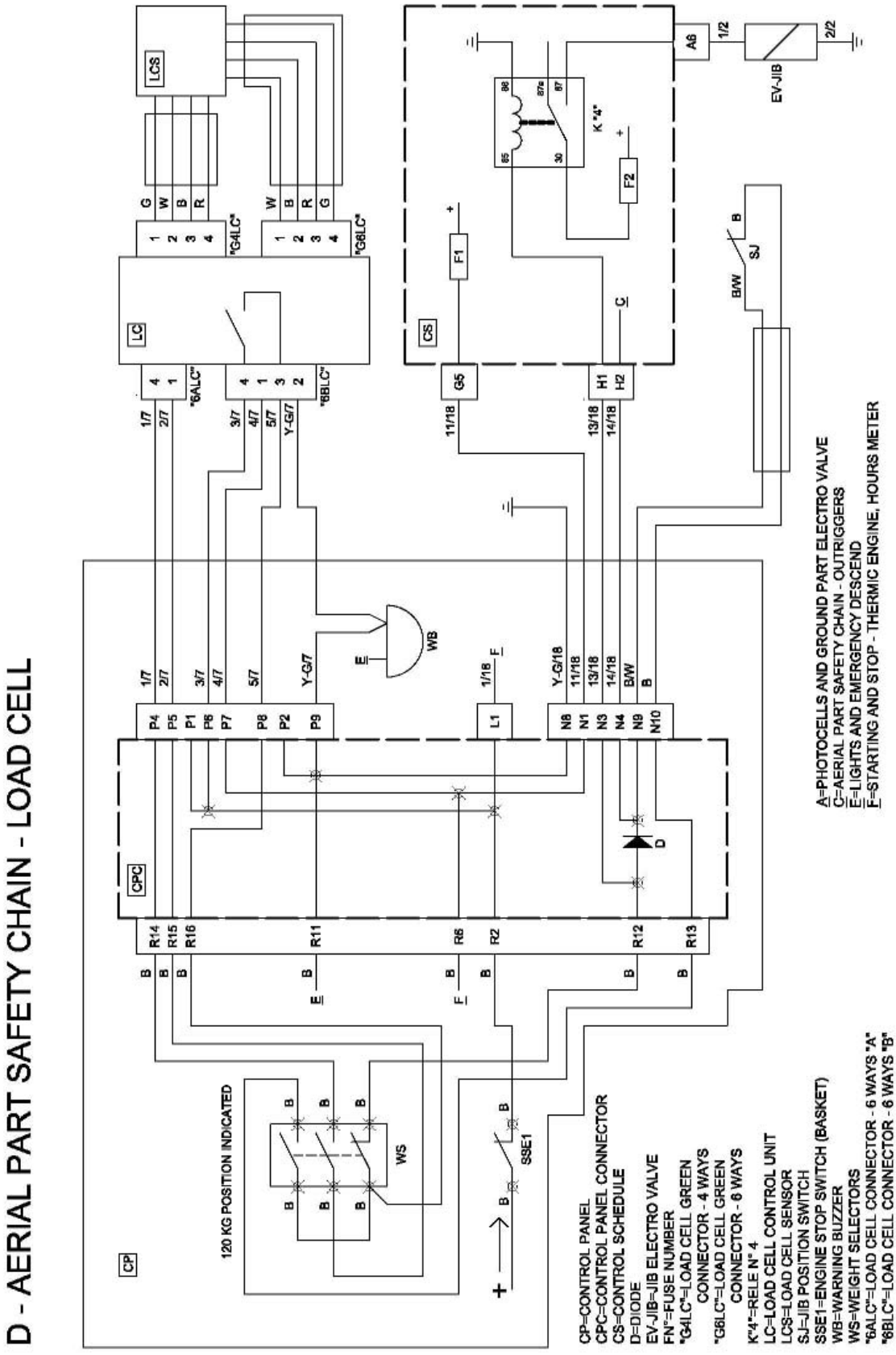
A - PHOTOCELLS AND GROUND PART ELECTRO VALVE

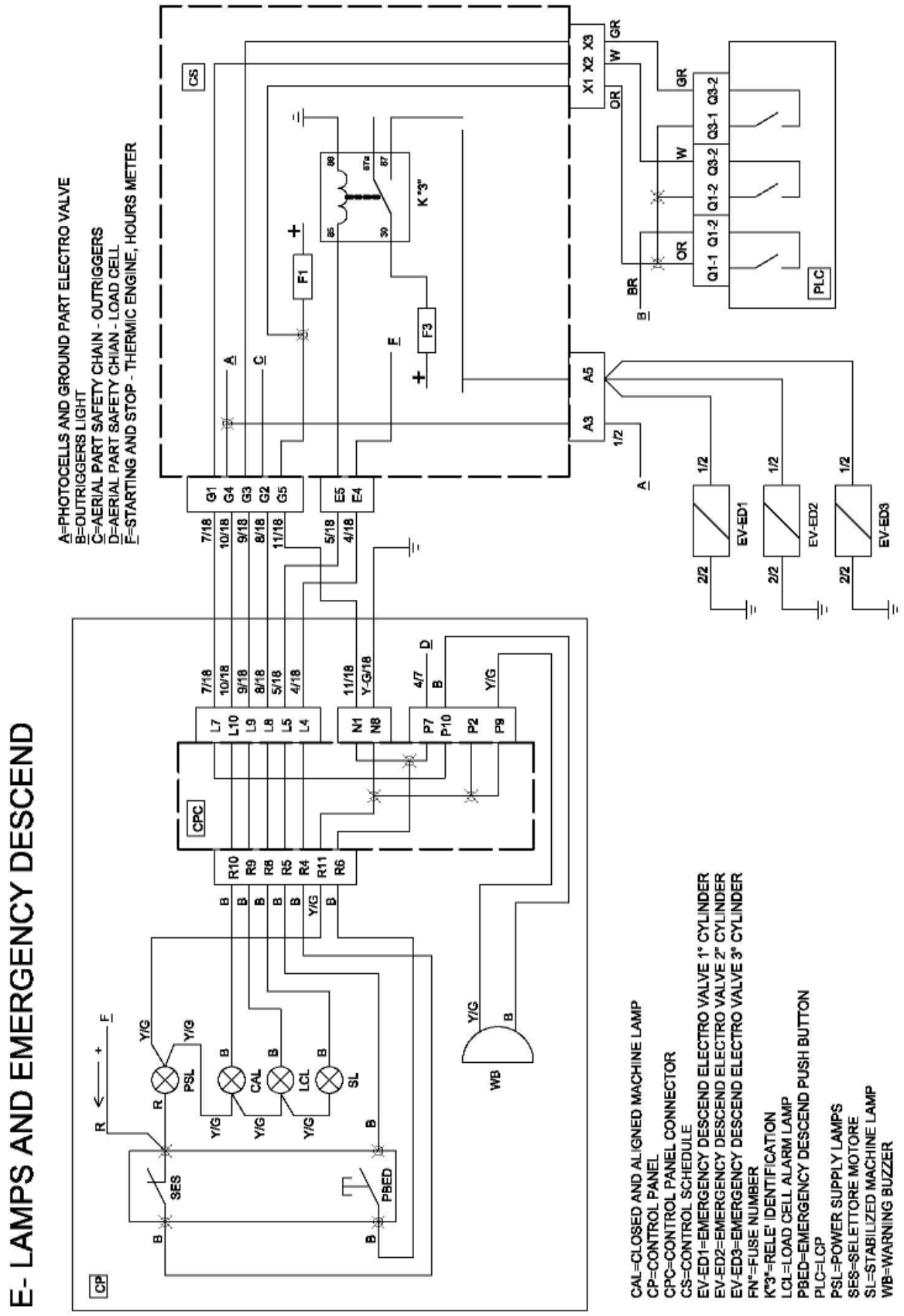


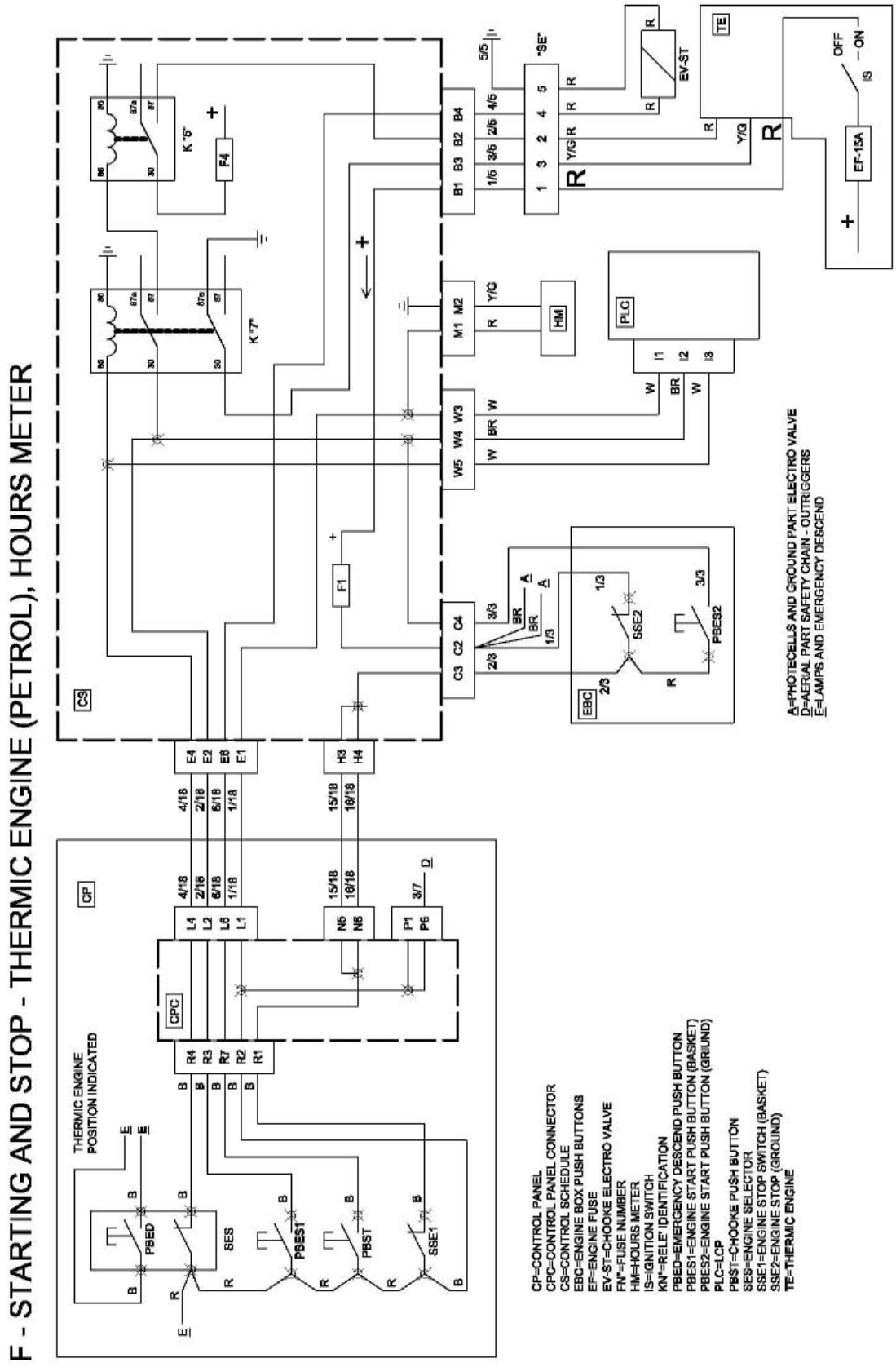

B - OUTRIGGERS LIGHT
CS
+
F1
X1
OR
E
BR
PLC
Q1-1
Q1-2
SL1
SL2
SL3
SL4
SS1
SS2
SS3
SS4
"S1"
"S2"
"S3"
"S4"
Y/G
R/W
W/B
R
B
BR
C=AERIAL PART SAFETY CHAIN - OUTRIGGERS
E=LAMPS AND EMERGENCY DESCEND
CS=CONTROL SCHEDULE
F1=FUSE N°1
PLC=LCP
SL1=STABILIZER LIGHT N°1
SL2=STABILIZER LIGHT N°2
SL3=STABILIZER LIGHT N°3
SL4=STABILIZER LIGHT N°4
SS1=OUTRIGGER SWITCH N°1
SS2=OUTRIGGER SWITCH N°2
SS3=OUTRIGGER SWITCH N°3
SS4=OUTRIGGER SWITCH N°4
"S1"=OUTRIGGERS SWITCH N°1
"S2"=OUTRIGGERS SWITCH N°2
"S3"=OUTRIGGERS SWITCH N°3
"S4"=OUTRIGGERS SWITCH N°4


C - AERIAL PART SAFETY CHAIN - OUTRIGGERS
B=OUTRIGGERS LIGHT
D=AERIAL PART SAFETY CHAIN - OUTRIGGERS
E=LAMPS AND EMERGENCY DESCEND
CS=CONTROL SCHEDULE
EV-AS=AERIAL SAFETY ELECTRO VALVE
F2=FUSE N°2
K"2"=RELE' N° 2
PLC=LCP
SL1=OUTRIGGER LIGHT N°1
SL2=OUTRIGGER LIGHT N°2
SL3=OUTRIGGER LIGHT N°3
SL4=OUTRIGGER LIGHT N°4
SS1=OUTRIGGER SWITCH N°1
SS2=OUTRIGGER SWITCH N°2
SS3=OUTRIGGER SWITCH N°3
SS4=OUTRIGGER SWITCH N°4
"S1"=OUTRIGGERS CONNECTOR N°1
"S2"=OUTRIGGERS CONNECTOR N°2
"S3"=OUTRIGGERS CONNECTOR N°3
"S4"=OUTRIGGERS CONNECTOR N°4

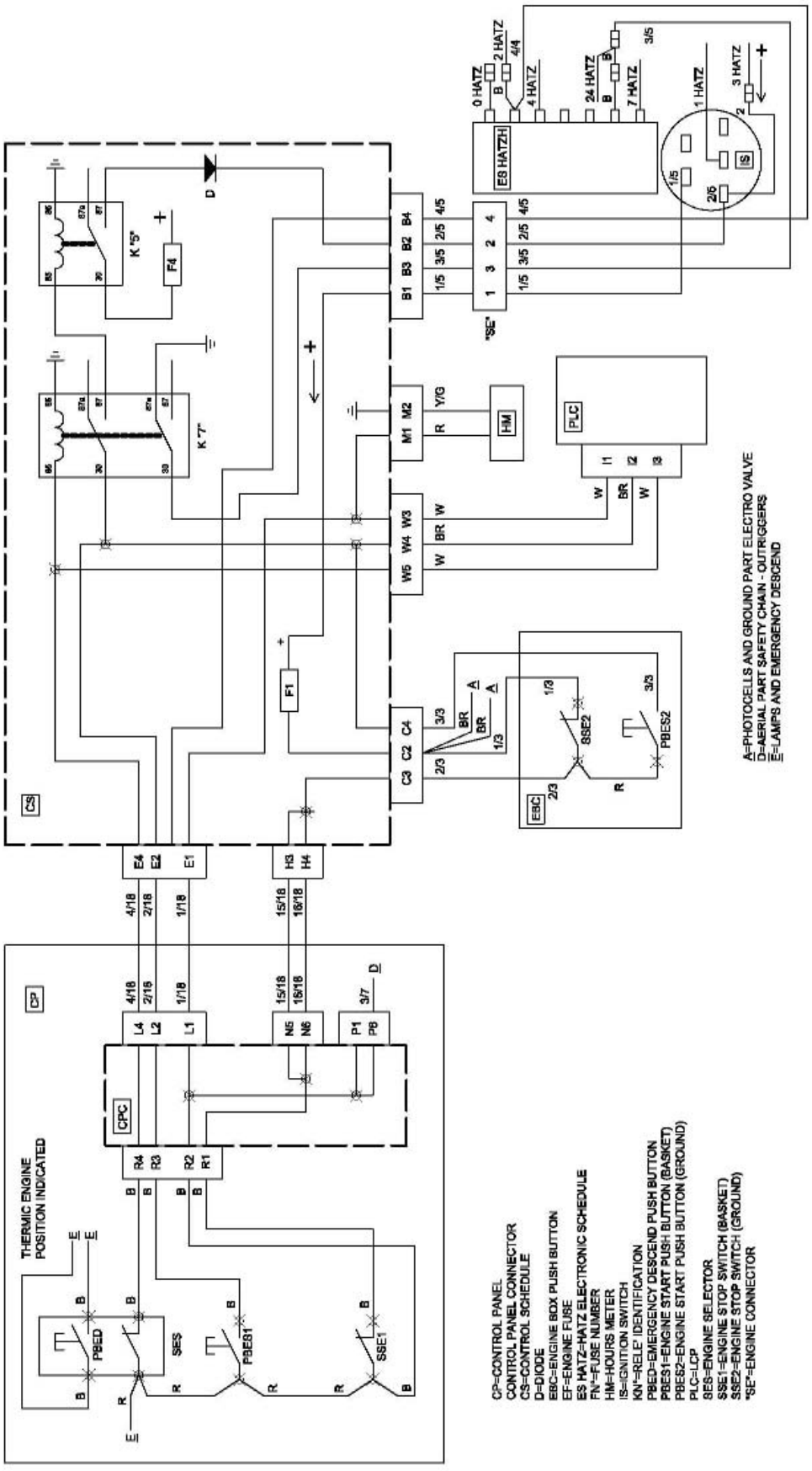
D - AERIAL PART SAFETY CHAIN - LOAD CELL



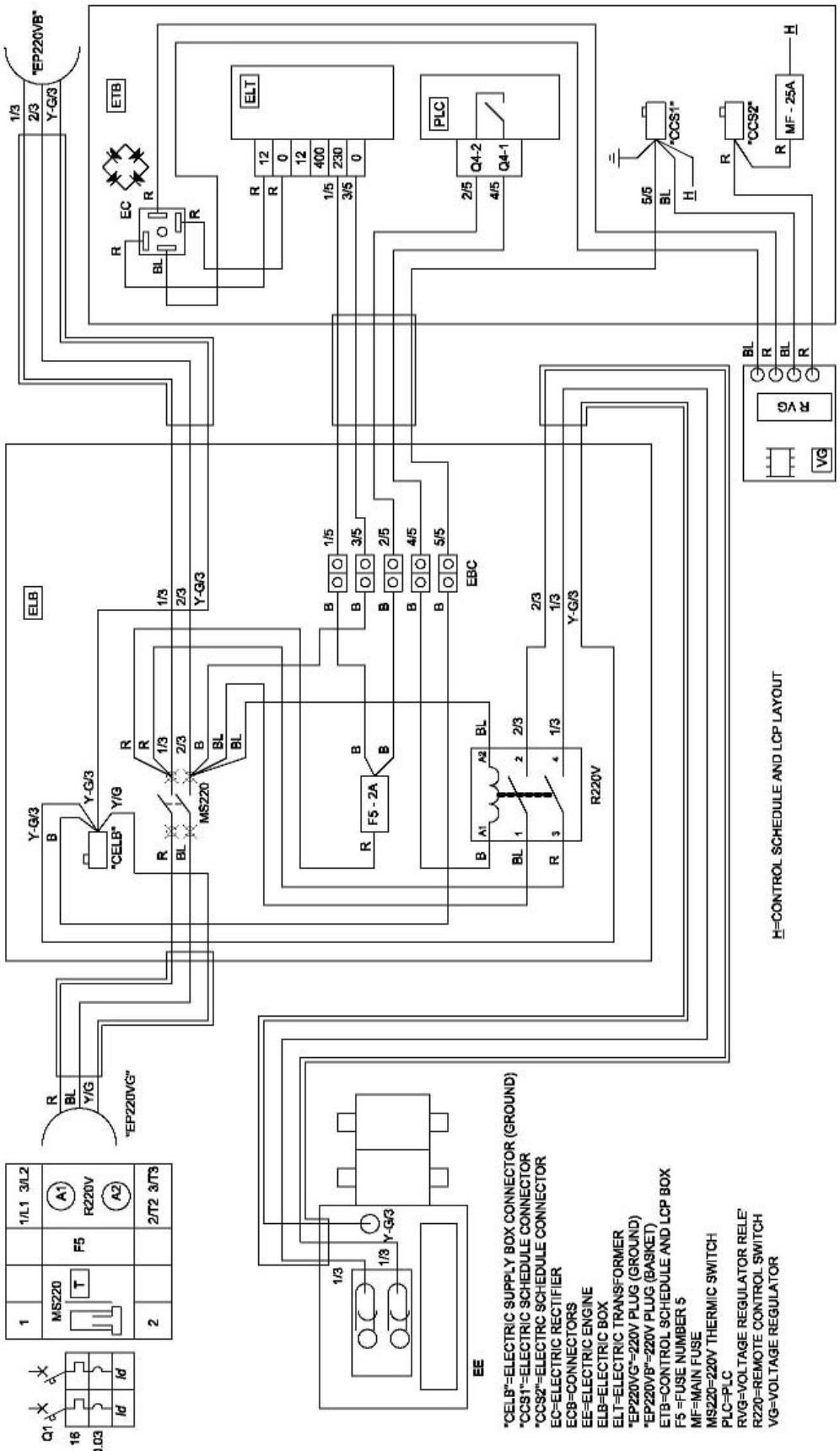

E- LAMPS AND EMERGENCY DESCEND
A=PHOTOCELLS AND GROUND PART ELECTRO VALVE
B=OUTRIGGERS LIGHT
C=AERIAL PART SAFETY CHAIN - OUTRIGGERS
D=AERIAL PART SAFETY CHAIN - LOAD CELL
F=STARTING AND STOP - THERMIC ENGINE, HOURS METER
CS
CPC
CP
PLC
K "3"
F1
F3
SES
PBED
PSL
CAL
LCL
SL
WB
EV-ED1
EV-ED2
EV-ED3
CAL=CLOSED AND ALIGNED MACHINE LAMP
CP=CONTROL PANEL
CPC=CONTROL PANEL CONNECTOR
CS=CONTROL SCHEDULE
EV-ED1=EMERGENCY DESCEND ELECTRO VALVE 1° CYLINDER
EV-ED2=EMERGENCY DESCEND ELECTRO VALVE 2° CYLINDER
EV-ED3=EMERGENCY DESCEND ELECTRO VALVE 3° CYLINDER
FN°=FUSE NUMBER
K"3"=RELE' IDENTIFICATION
LCL=LOAD CELL ALARM LAMP
PBED=EMERGENCY DESCEND PUSH BUTTON
PLC=LCP
PSL=POWER SUPPLY LAMPS
SES=SELETTORE MOTORE
SL=STABILIZED MACHINE LAMP
WB=WARNING BUZZER


F - STARTING AND STOP - THERMIC ENGINE (PETROL), HOURS METER
CP=CONTROL PANEL
CPC=CONTROL PANEL CONNECTOR
CS=CONTROL SCHEDULE
EBC=ENGINE BOX PUSH BUTTONS
EF=ENGINE FUSE
EV-ST=CHOOKE ELECTRO VALVE
FN°=FUSE NUMBER
HM=HOURS METER
IS=IGNITION SWITCH
KN°=RELE' IDENTIFICATION
PBED=EMERGENCY DESCEND PUSH BUTTON
PBES1=ENGINE START PUSH BUTTON (BASKET)
PBES2=ENGINE START PUSH BUTTON (GRUND)
PLC=LCP
PBST=CHOOKE PUSH BUTTON
SES=ENGINE SELECTOR
SSE1=ENGINE STOP SWITCH (BASKET)
SSE2=ENGINE STOP (GROUND)
TE=THERMIC ENGINE
A=PHOTOCELLS AND GROUND PART ELECTRO VALVE
D=AERIAL PART SAFETY CHAIN - OUTRIGGERS
E=LAMPS AND EMERGENCY DESCEND
THERMIC ENGINE POSITION INDICATED
CS
CP
CPC
EBC
PLC
HM
TE
EV-ST
EF-15A
K "5"
K "7"
F1
F4
PBED
SES
PBES1
PBST
SSE1
SSE2
OFF
ON

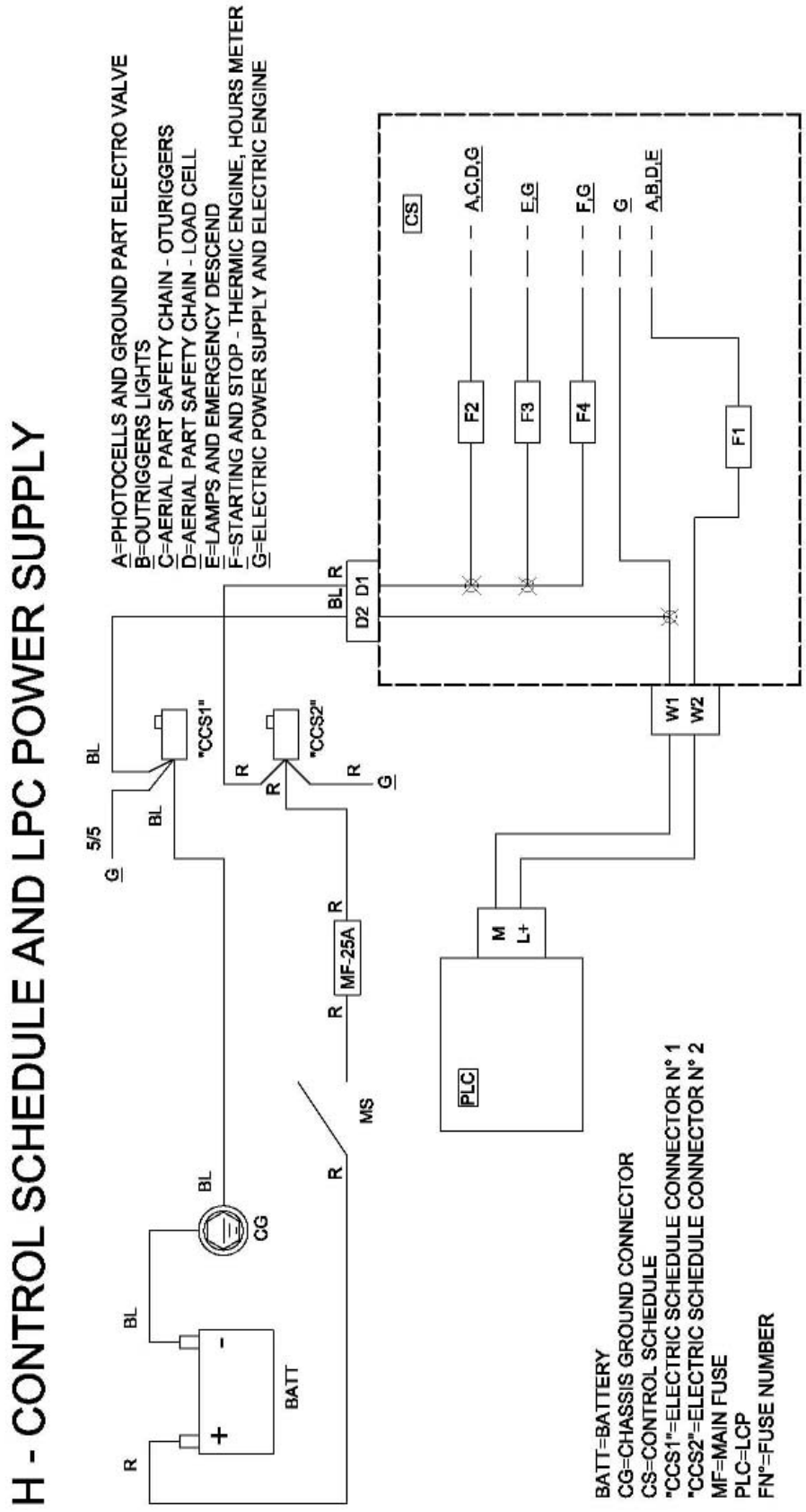
F2 - STARTING AND STOP - THERMIC ENGINE (DIESEL), HOURS METER



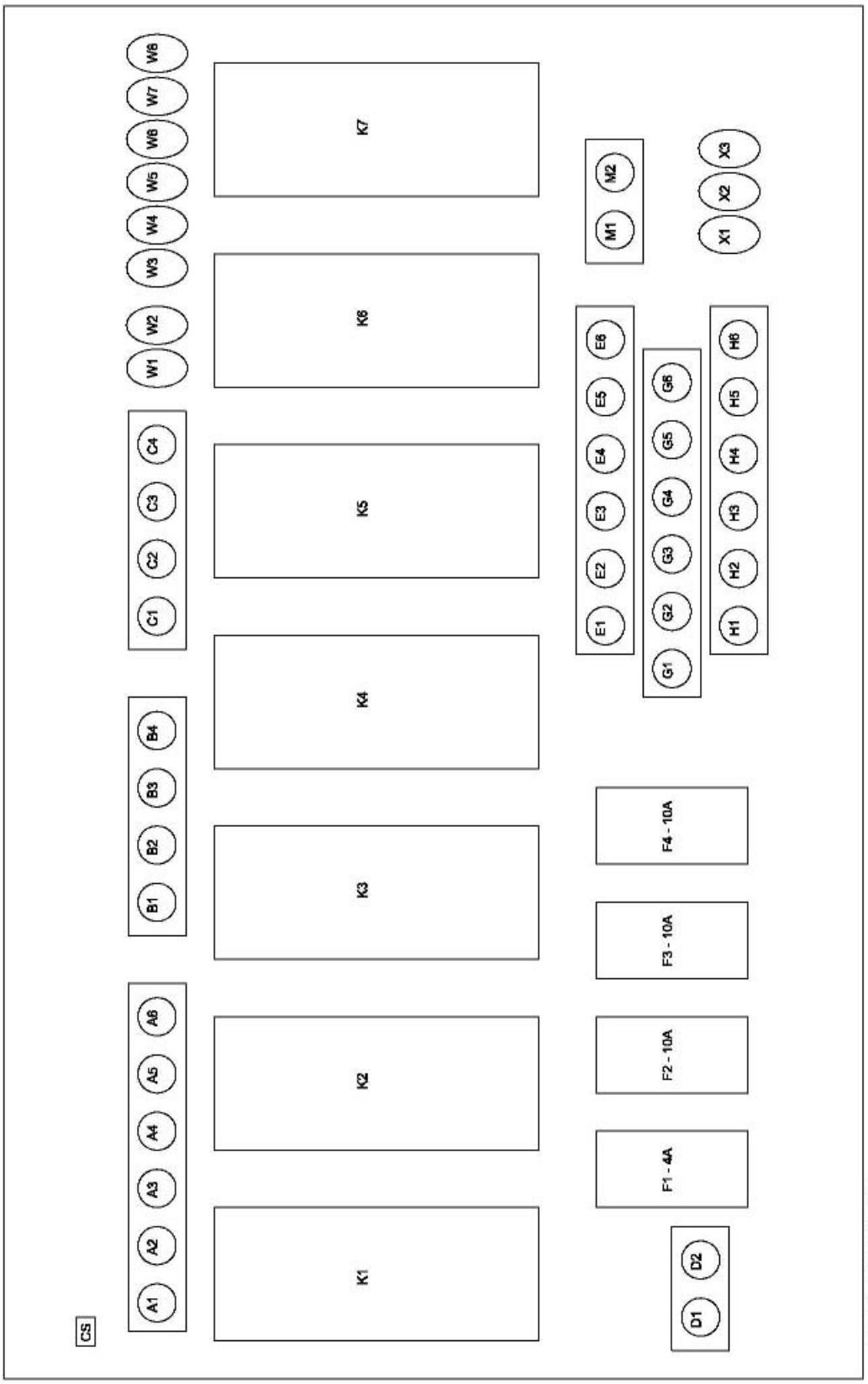
G - ELECTRIC POWER SUPPLY AND ELECTRIC ENGINE



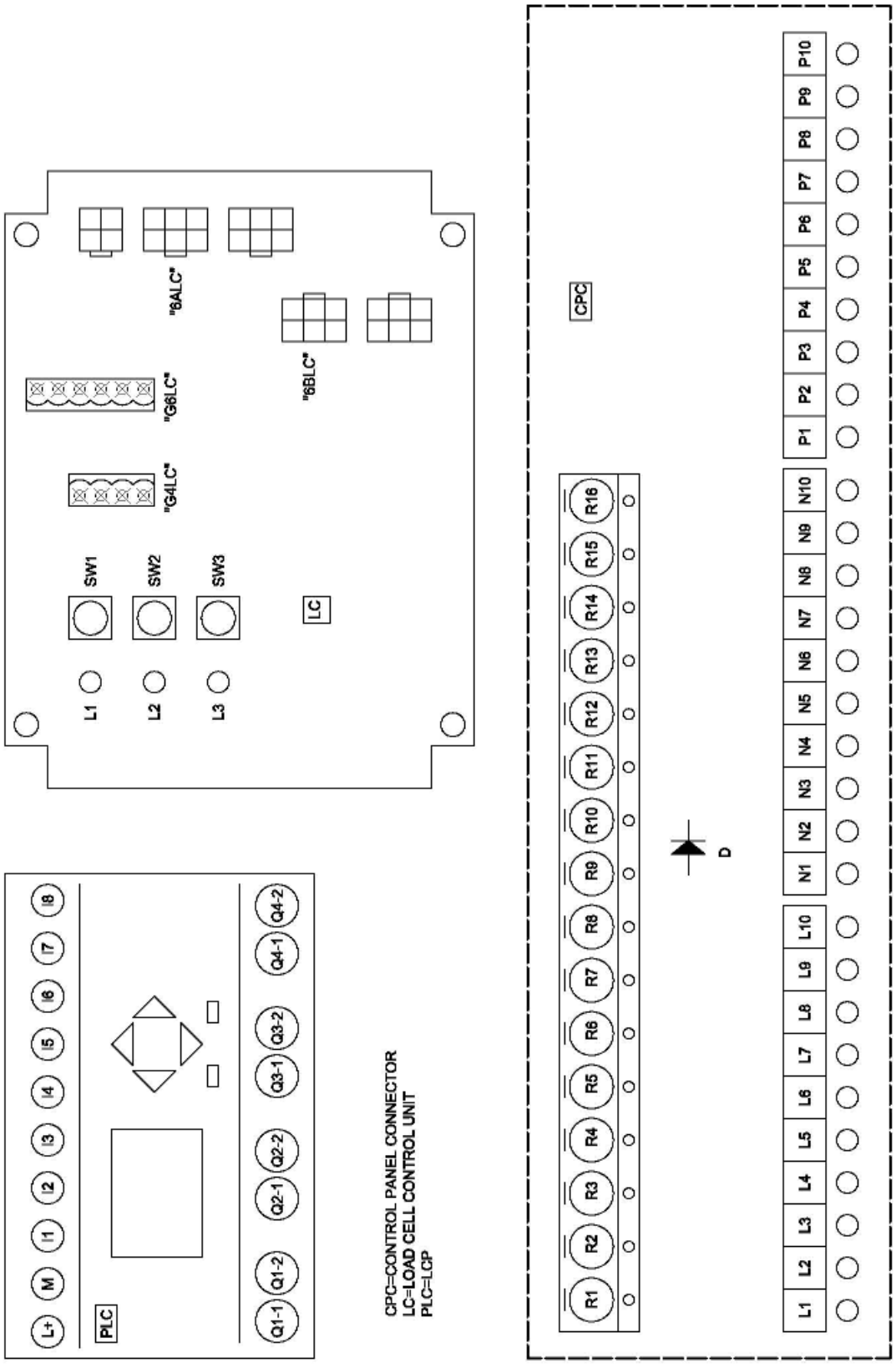
H - CONTROL SCHEDULE AND LPC POWER SUPPLY



I - CONTROL SCHEDULE LAYOUT

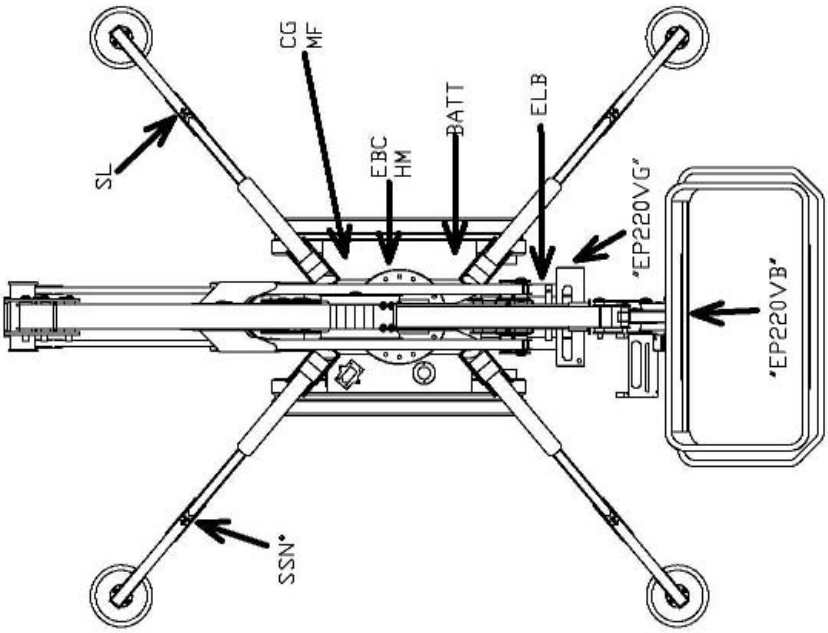


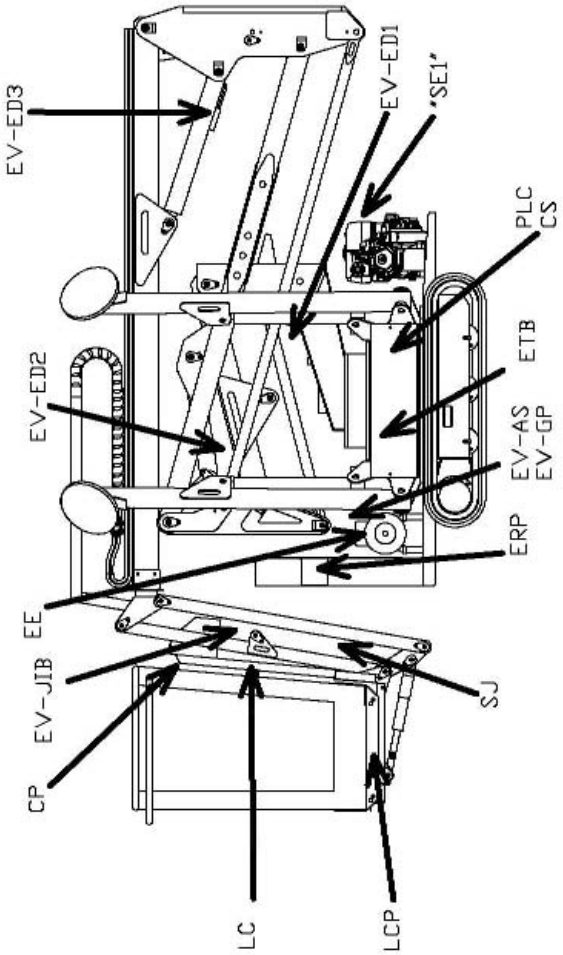
L - LOAD CELL CONTROL UNIT, LCP AND CPC LAYOUT



CPC=CONTROL PANEL CONNECTOR
LC=LOAD CELL CONTROL UNIT
PLC=LCP

M - COMPONENTS LOCATION





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