



SPB209CP

OPERATION AND MAINTENANCE MANUAL

TRANSLATION OF ORIGINAL INSTRUCTIONS

SERIAL NUMBER: _____





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TABLE OF CONTENTS

1	PREFACE	8
1.1	General information	8
1.2	Identification plate	9
1.3	Technical data	9
1.4	Diagrams and load charts	10
1.5	Original sealings	14
1.6	Operator training	14
1.7	Permitted use	14
1.8	Warranty	15
2	SAFETY INFORMATION	17
2.1	Requirements	17
2.2	Noise	18
2.3	Handover of the basics of the manual	19
2.4	Danger areas	20
2.5	What to do in case of emergency	21
2.6	Lifting signalling - symbols	22
2.7	Features of the operating area	23
2.8	Emergency stop	23
3	MAIN PARTS SPB209CP	25
4	MACHINE SIGNALLING AND CONTROL INSTRUMENTS	34
4.1	Main control panel	34
4.2	Control instruments	35
5	DESCRIPTION OF DISPLAY CLS INTERFACE PAGES	37
6	USING THE MACHINE IN NORMAL CONDITIONS	43
6.1	Inspection before use	43
6.2	Starting up the machine	44
6.3	Moving the machine	44
6.4	Outrigging the machine	46

6.5	Use of the crane	48
6.6	Switching off and setting aside the machine.....	48
6.7	Manual electrical starting combustion engine.....	49
6.8	Pull start / Emergency start.....	49
6.9	Low temperature starting	50
6.10	Use in emergency.....	50
7	HANDLING AND TRANSPORT	51
7.1	Anchoring for transport	51
7.2	Lifting anchors	51
8	MALFUNCTIONING SELF-DIAGNOSIS	53
8.1	Machine alarms and warnings	53
9	COMMISSIONING	54
9.1	Inspection before commissioning / Periodic checks / Check after a long period of inactivity	54
10		
	MAINTENANCE	55
10.1	Scheduled maintenance	55
10.2	Battery recharge	57
10.3	General safety warnings for maintenance operations	58
10.4	Extraordinary maintenance	59
10.5	Spare parts	68
10.6	Tools required for maintenance	68
11	TOOLS REQUIRED FOR MAINTENANCE	69
11.1	Introduction	69
11.2	Cases that relieve the manufacturer from responsibility.....	70
11.3	Maintenance log	70
11.4	List of maintenance operations.....	71
11.5	Detailed maintenance operation cards	72
11.6	Detailed mandatory periodic inspection data sheets provided by the owner.....	73
12	SHEET FOR THE TRANSFER OF INFORMATION	77
13	ACCESSORIES	78
13.1	Three-phase supply kit PP 400-4DX.....	80
13.2	Mechanical jib JIB800GB.....	82
14	ATTACHMENTS	85

15 LABELS AND PINS	86
15.1 Position of labels on SPB209CP.....	86
15.2 Position of safety pins	91

1 PREFACE

1.1 General information

The manual

Every manufactured machine is supplied with a copy of this manual.

The manual was written to assist the user and maintenance technician in performing the various operations required to operate and use the machine, operations designed in order to work in safe conditions. The operational techniques highlighted in these paragraphs are the basic ones. Ability and techniques are developed as the user acquires knowledge of the machine.

Note: This manual is an integral part of the machine and must accompany it in case of resale or transfer of the same.

The instructions indicated in this manual are, however, integrated from the training given at machine delivery.

Note: As regards other applicable accessories, please refer to the relevant operation and maintenance manuals..

Preservation of the manual

This manual must be stored near the machine and must accompany it in its various movements for work so that it is readily available to the operator if he/she needs to consult it.

Note: In case of loss or deterioration of the manual, request another copy from the *manufacturer*.

Information rights

This manual contains information of a confidential nature. All rights are reserved.

This manual cannot be reproduced or photocopied in whole or part without the written consent of JEKKO S.r.l. The use of this document is reserved solely for the client to whom the manual was supplied with the machine for the use and maintenance of the equipment to which the manual refers.

When writing this manual all the operations that concern the normal use and regular maintenance of the machine were taken into consideration.

Therefore, for correct and optimal use of the machine itself, it is necessary to carefully follow the detailed instructions. The operation of the machine must only be entrusted to suitably trained personnel.

It is recommended not to carry out any repairs or interventions that are not indicated in the manual. Any operations that require disassembly of machine components must be entrusted to authorised technicians. The manufacturer assumes no responsibility for direct or indirect damages to persons or animals as a result of using this manual or the machine in conditions other than those specified. JEKKO S.r.l. reserves the right to make changes or improvements without updating this manual and the machines, and possibly even machines sold of the same model as that to which this manual refers, but with a different serial number.

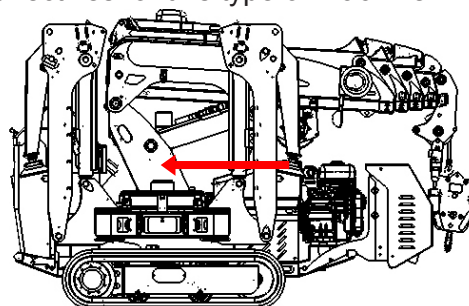
The applied CE mark guarantees conformity with the **2006/42EC Machinery directive**.

1.2 Identification plate



An identification plate is applied on the crane, containing information on the machine model, production number, year of construction, year of commissioning and installed power. The machine is marked with the CE mark for the markets where it is required.

This mark means that the machine is compliant with the European directives for this type of machine.



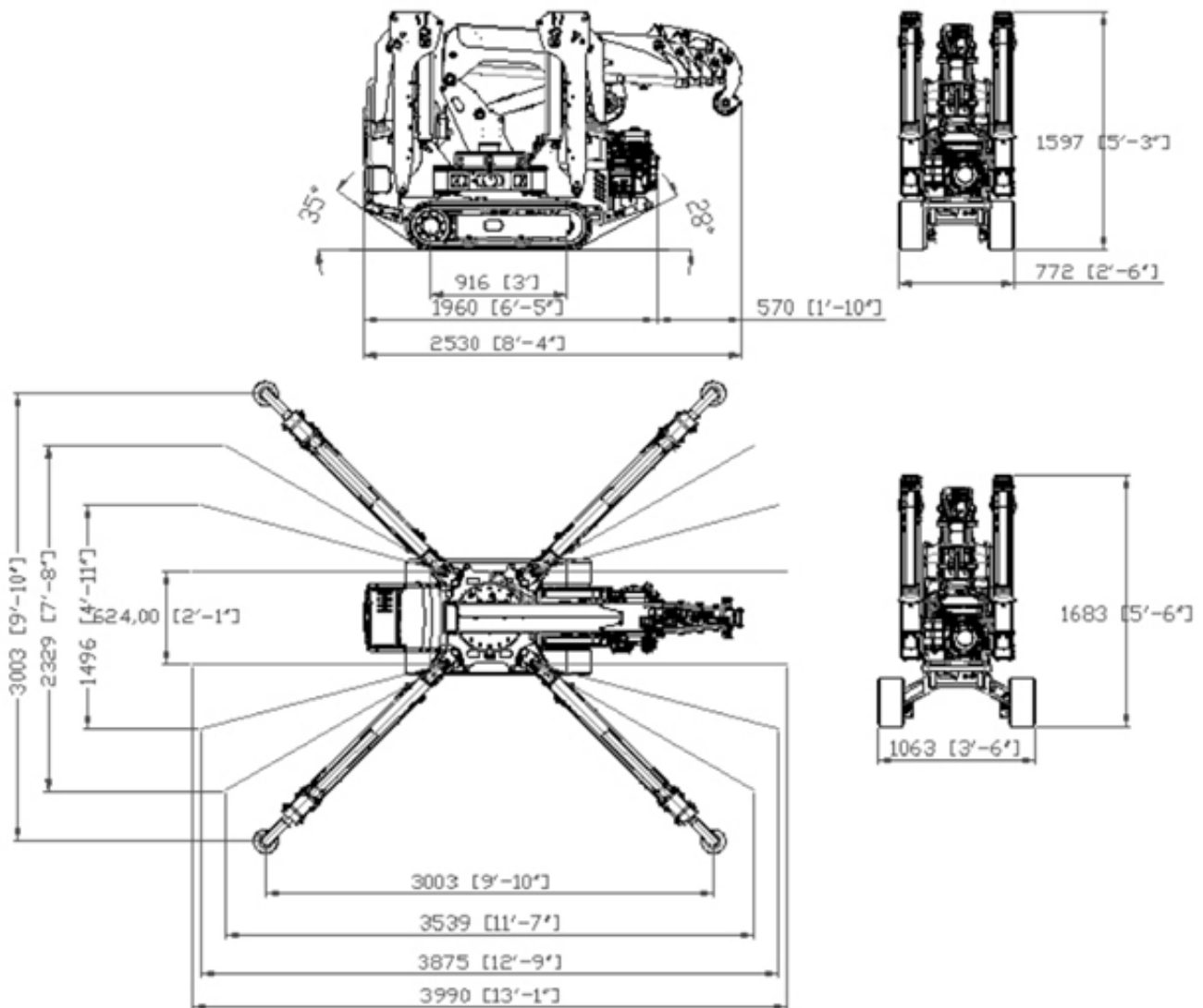
1.3 Technical data

Mobile crane model	SPB209CP
Lifting capacity	990 Kg (2183 lbs)
Dimensions	2500 x 770 x 1600 mm (8'2" x 2'6" x 5'3")
Weight	1450 Kg (3197 lbs)
Telescopic boom	1,9–6.1 m (6'3"-20' ft)
Working angle	0° + 75°
Slewing	280°
Max. winch pull	495 kg (1091 lbs)
Rope	53 m – Ø6 mm (173ft – Ø1/4")
Maximum reaction of individual outrigger	1050 kg (2315 lbs)
Ground pressure of individual crawler	0,40 kg/cm ² (819 lb/ftq)
Motorisation	Yamaha MZ360 7,6 kW 10,4 Hp 6 litre tank - Petrol
Wind speed in service and off service	not falling within point 4.1.2.2.2 of standard UNI EN 13000 since the machine has a closing time lower than 10 minutes
Counterweight	not present
Sound emission value	LWA 99 dB - controlled according to annex VI, Directive 2000/14/CE
Storage temperature	-20°C / +40°C (-4°F/104°F)
Operative temperature	-10°C / +40°C (+14°F/104°F)



Use the machine in compliance with the stated capacity values.

DIMENSIONS



1.4 Diagrams and load charts

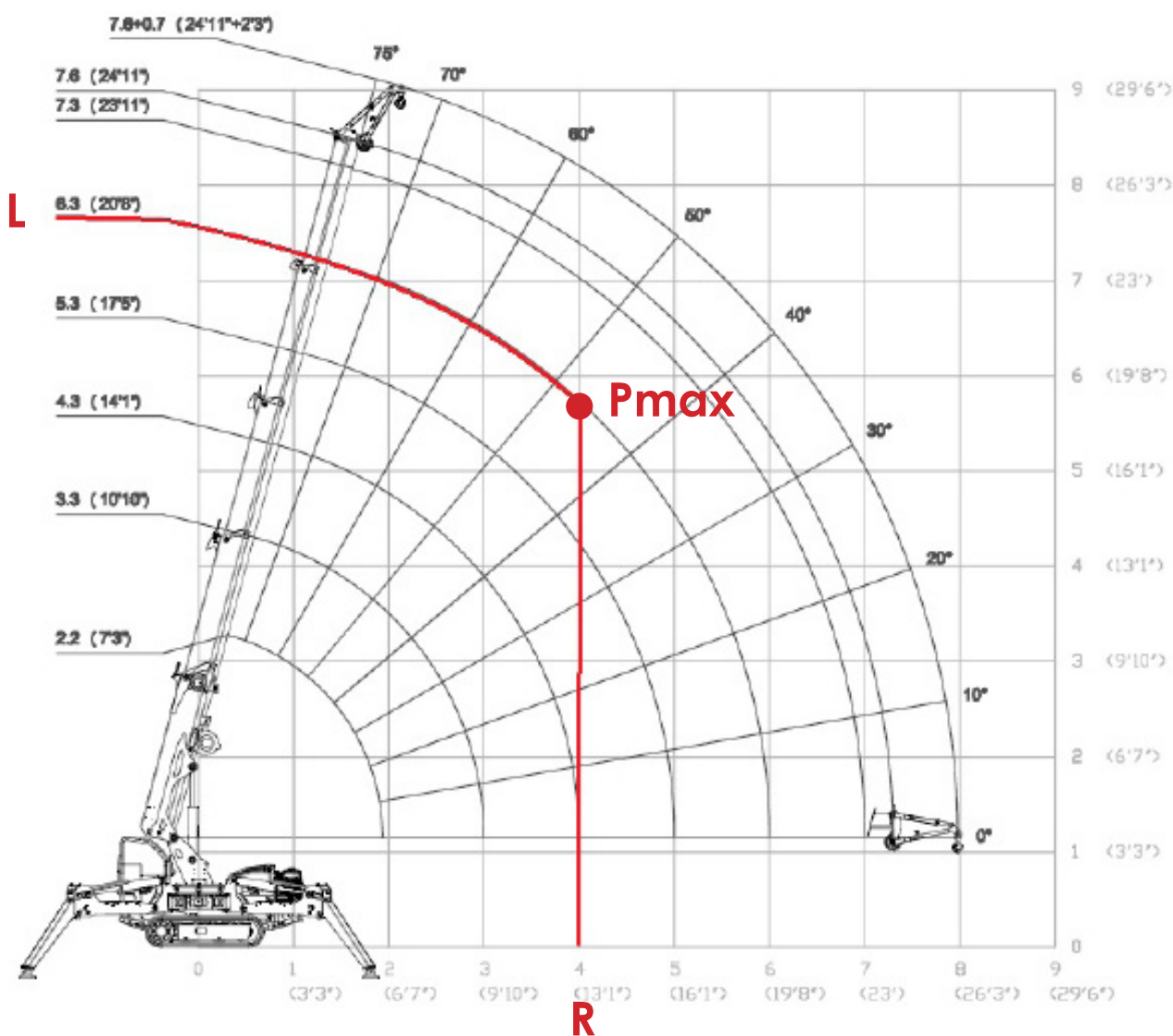


Every machine is supplied with a booklet containing the diagrams and relevant load charts. The diagram represents the mobile crane's working area in every specific configuration, while the chart contains detailed information on the maximum capacity in the various points of the working area.

WORK DIAGRAM

There may be two types of charts:

1- Chart based on crane boom: in this case the maximum load in a given point P is identified by the extension L of the crane boom and by the distance R from the crane's slewing centre (radius).

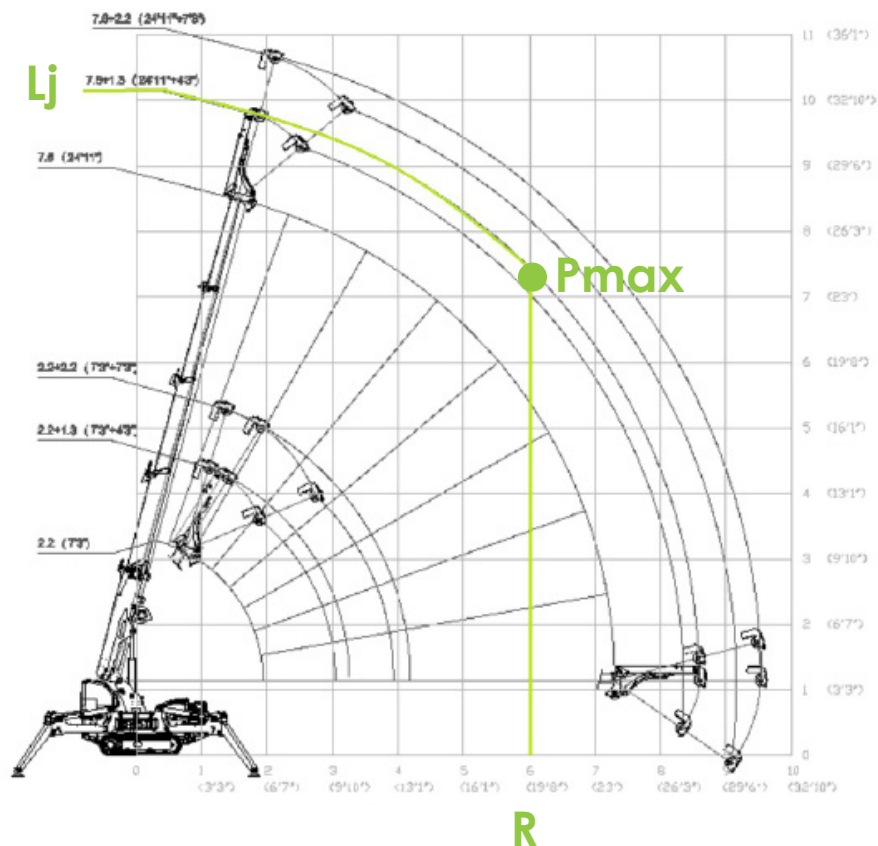


L = Length of telescopic boom

Stab 100%		Main Boom (winch)										ton	CW 0 kg	
		L										lbs	(0 lbs)	
R		3,4	4,4	5,5	6,2	6,9	7,9	8,9	9,9	10,9	12,1	R	m	
1,0	2,70	2,50	2,10	1,90	1,80	1,70	1,60	1,40	1,20	1,00	1,0	1,0	m	
3,28	5952	5512	4630	4189	3968	3748	3527	3086	2564	2205	3,28	3,28	m	
2,00	2,70	2,50	2,10	1,90	1,70	1,60	1,60	1,40	1,20	1,00	2,00	2,00	m	
6,56	5952	5512	4630	4189	3968	3748	3527	3086	2564	2205	6,56	6,56	m	
2,50	2,50	2,30	2,00	1,80	1,70	1,60	1,60	1,40	1,20	1,00	2,50	2,50	m	
8,20	5512	5071	4409	3968	3748	3527	3277	3086	2866	2205	8,20	8,20	m	
3,00	2,50	2,30	2,00	1,80	1,70	1,60	1,60	1,40	1,20	1,00	3,00	3,00	m	
9,84	5512	5071	4409	3968	3748	3527	3277	3086	2866	2205	9,84	9,84	m	
4,00	1,30	1,30	1,30	1,30	1,30	1,30	1,30	1,10	1,00	0,90	4,00	4,00	m	
13,12												13,12	13,12	m
4,60			1,20	1,10	1,10	1,10	1,10	1,00	0,90	0,70	4,60	4,60	m	
15,09												15,09	15,09	m
5,00			1,10	1,00	0,90	0,90	0,90	0,80	0,70	0,60	5,00	5,00	m	
16,40												16,40	16,40	m
6,00			0,90	0,90	0,70	0,70	0,70	0,60	0,60	0,50	6,00	6,00	m	
19,69												19,69	19,69	m
7,00							0,70	0,60	0,50	0,40	7,00	7,00	m	
22,97												22,97	22,97	m
8,00								0,60	0,50	0,40	8,00	8,00	m	
26,25												26,25	26,25	m
9,00									0,45	0,35	0,25	9,00	9,00	m
29,53												29,53	29,53	m
10,00										0,35	0,25	10,00	10,00	m
32,81												32,81	32,81	m
11,20											0,25	11,20	11,20	m
36,75												36,75	36,75	m

R = Operating radius

Pmax = Maximum capacity



2- Chart based on boom and attachment: in this case the maximum load in a given point P is identified by the extension L_j of the attachment and by the distance R from the crane's slewing centre (radius)

Lj = Jib length

Stab 100%		JIB600.2H (winch)						ton lbs	CW 0 kg (0 lbs)
R	1,6 5,2	2,1 6,9	2,6 8,5	3,1 10,2	3,7 12,1	Lj		R	m ft
1,0	0,60	0,60	0,60	0,52	0,50			1,0	m
3,28	1323	1323	1323	1146	1102			3,28	ft
3,00	0,60	0,60	0,60	0,52	0,45			2,00	
9,84	1323	1323	1323	1146	992			6,56	
4,00	0,60	0,55	0,47	0,42	0,38			2,50	
13,12	1323	1213	1036	926	838			8,20	
5,00	0,36	0,33	0,31	0,29	0,27			3,00	
16,40	794	728	683	639	595			9,84	
6,00	0,25	0,24	0,22	0,21	0,19			4,00	
19,69	551	529	507	483	419			13,12	
7,10	0,25	0,24	0,23	0,21	0,19			4,60	
23,29	551	529	507	483	419			15,09	

R = Operating radius

Pmax = Maximum capacity

Each chart also contains information concerning the operative method it refers to, the type of installed attachment, whether or not a counterweight is present and the stability condition of reference 100% - 50% - 0% - track (pick&carry).

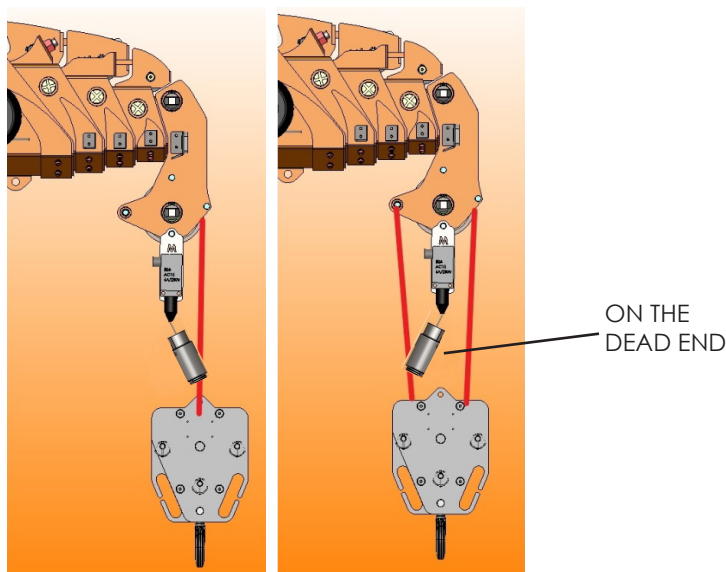
With regards to the winch, it is specified that the respective maximum capacity for the mobile crane SPB209CP is 495 kg (1091 lbs).



To lift greater loads, the arrangement of the pulleys must be changed using double pull.

In order to increase the rope capacity, the hook device must be assembled as highlighted in the picture.

SPB209 with winch		
Lifting capacity	Pulleys	Number of ropes
495 kg (1091lbs)	-	1
990 kg (2180lbs)	1	2





The rope must be replaced and adequately adjusted only by trained technical personnel.

1.5 Original sealings

To guarantee machine operation in safe conditions, some valves have been sealed by the manufacturer.



Removing the seals of individual solenoid valves implies **UNSAFE** machine operation.
The manufacturer disclaims all liability.

1.6 Operator training

The training for the operator who uses the machine is obligatory for its correct use. JEKKO S.r.l. makes available specialised technicians for this training. Please contact the manufacturer for further information.

1.7 Permitted use

The mobile crane is designed for handling loads with hook, winch or any attachments. The loads must comply with the capacity charts supplied with the manual.

All uses not specifically mentioned are to be considered unintended uses specifically:

- any use other than specified in this manual for which the machine has been designed and constructed.



CAUTION!!
Within the European Union it is strictly forbidden to use the machine to lift people.



CAUTION!!
Outside the European Union comply with the regulations in force. Refer to your dealer or contact JEKKO S.r.l.

CAUTION!!
**THE MACHINE HAS NOT BEEN DESIGNED FOR LIFTING PEOPLE,
HENCE IT DOES NOT MEET THE SAFETY REQUIREMENTS SET FORTH
BY THE EUROPEAN REGULATIONS.**

1.8 Warranty

LIMITED WARRANTY OF THE MANUFACTURER JEKKO S.r.l.

The limited warranty of the JEKKO Manufacturer covers the following products against defects of materials or manufacturing for the following periods of time:

- Structural crane components – twenty-four (24) months
- Components of the crane's moment and load indicator – twenty-four (24) months
- All other crane components – twelve (12) months
- Part replacement – six (6) months, unless the part is replaced under warranty within the first six (6) months from the crane's commissioning date, the limited warranty periods of parts extend to the remainder of the twelve (12) months of the basic crane limited warranty.

The limited warranty period commences on the date the customer commissions the crane or spare part. This date shall be documented by the Distributor and by the Customer.

The limited warranty includes parts, materials and labour for the time mentioned above.

In appropriate circumstances, where it is not economically advantageous to repair a crane, JEKKO shall replace the crane.

EXCLUSIONS

1. Parts and components not supplied by JEKKO.
2. The repair or replacement of any covered part if a mechanical fault has not occurred
3. Any breakdown due to physical damage or collision.
4. Any breakdown due to overloading, improper use, misuse, negligence, incompetence or lack of maintenance.
5. Any breakdown caused by unauthorised alterations or changes.
6. Any breakdown due to fire, theft, acts of vandalism, riots explosion, force majeure, war or environmental damage.
7. Hydraulic oil, filters, bushings, maintenance parts or materials, boom sliding surfaces, breakdown of the part due to excessive wear, shop procurement, purifiers, expenses or sundry taxes.
8. Any bonus for overtime work requested by the Customer.
9. Business interruptions, loss of sales and/or profits, rental or equipment replacement, costs of delay for any other loss, cost or special, indirect, incidental or consequential damage.
10. Liability for damage to property, or injury, or death of a person arising from crane operation..
11. Any material subject to normal wear and/or deterioration.

PROCEDURES FOR WARRANTY CLAIMS

- The Customer shall inform the Distributor of the warranty claim.
- The Distributor shall promptly alert the after-sale department ("RPV") of JEKKO to the claim.
- The Distributor shall immediately investigate the claim and, if covered by the limited warranty, shall prepare and send to JEKKO's after-sale department a written estimate, including the parts, materials and labour to perform the required warranty repairs.

- JEKKO shall examine and promptly approve all covered warranty claims. Should JEKKO reject a warranty claim, owing to the fact that it is not covered or it is excluded, it shall specify its reasons to the Distributor so the Distributor may inform the Customer.
- JEKKO's after-sale department reserves the right, at its own expense, to have them or the Dealer ship the covered parts or materials, for an inspection by JEKKO.
Should it be required, the repair shall not be hindered or delayed, in order to preserve the Customer's goodwill.
Should JEKKO request the return of parts or materials, it shall specify the type and methods of transport for the return.
All removed parts and materials shall become the property of JEKKO.
- The Distributor shall not effect a repair or hire Third Parties to perform a repair, unless JEKKO has approved the written estimate, except in special circumstances:
 - unavailable after-sale department personnel (owing to holidays or other);
 - where immediate action is required for safety or to preserve the Customer's goodwill.
- The Distributor shall cooperate with JEKKO to provide all information reasonably required to examine the claim and/or for quality control purposes.

This limited warranty is the only authorised warranty of the manufacturer JEKKO and replaces all other warranties, whether explicit, implicit, or representations, including any warranties of merchantability or fitness for any particular purpose or any other obligation by JEKKO or the Distributor.

The repair provided for in the limited warranty, is the exclusive repair provided for JEKKO products. In no case shall JEKKO or the Distributor be liable for business interruptions, loss of sales and/or profits, rental or equipment replacement, costs of delay or any other loss, cost or special, indirect, incidental or consequential damage.

Further information on liability

THE MANUFACTURER FURTHER DECLARES TO DISCLAIM ANY LIABILITY IN THE EVENT OF:

1. *Improper use of the machine*
2. *Tampering with the machine or its components*
3. *Use of the machine by unauthorised persons*
4. *Poor maintenance*
5. *Complete or partial failure to comply with the instructions*
6. *Failure to perform checks and top ups on the lubrication system*
7. *Failure to perform periodic checks*
8. *Use of non-original spare parts*
9. *Unauthorised modifications or repairs*
10. *Exceptional events*

2 SAFETY INFORMATION

In the design and manufacture of this machine, criteria and measures were taken with the aim of satisfying the essential safety requirements contained in the standards indicated in the EC certificate. The careful risk analysis carried out by the manufacturer has enabled the elimination of the vast majority of hazards associated with the conditions of use of the machine, both those provided for and reasonably foreseeable. The full documentation of the adopted safety measures is contained in the technical file of the machine, which is kept at the offices of the manufacturer.

The manufacturer recommends that you carefully follow the instructions, procedures and recommendations contained in this manual and as well as the current legislation on safety in the workplace, in order to use the provided safety devices, both integrated on the machine and individual.

2.1 Requirements

For greater operator and workplace safety, the following list of good norms, operational requirements, to follow in order to operate with the machine.

Remarks on the operator

- ⇒ Physical and mental health
- ⇒ Sense of responsibility
- ⇒ Sense of direction
- ⇒ The right care in executing manoeuvres, in evaluating dangerous situations and the workplace on which he/she is operating
- ⇒ Reflex response
- ⇒ Excellent concentration
- ⇒ No drug or alcohol addiction!

General requirements

Requirement no. 1

- Protect yourself!
- Protect the environment and animals!
- Ensure there are no persons exposed to hazards!
- Climbing onto the system is forbidden, slipping hazard!
- Beware of moving parts. Shearing hazard!



Requirement no. 2

- Use Personal Protection Equipment (PPE)!
- Watch out for sharp edges!



- Use of the machine is forbidden to non-authorised or untrained personnel!
- In the event of operator changeover, hand over the basics and the manual!
- Operate calmly, accurately and with concentration!

Personnel requirements

The operator must not wear:

- ⇒ rings
- ⇒ watches
- ⇒ jewellery

Loose clothing such as:

- ⇒ ties
- ⇒ torn clothing
- ⇒ scarves
- ⇒ unbuttoned blouses, jackets or aprons
- ⇒ coats with open zipper
- ⇒ anything else might be dangerous with moving parts



Requirement no. 4

Work rules

- ⇒ The machine may only be used in well lit areas, ensuring the ground is level and adequately consistent (see table on page 47-48). The machine may not be used if the lighting conditions are insufficient
- ⇒ Ensure the lifting operations comply with the crane's intended use (e.g. required crane capacity, working radius, hook height)
- ⇒ Check the suitability for the purpose of all parts (e.g. components, additional parts, load lifting equipment, harnesses)
- ⇒ Do not use thermal propulsion (Diesel or Petrol engine) in closed premises or insufficiently aerated premises
- ⇒ Do not go near the electric and hydraulic system components with sources of heat or flames
- ⇒ Pay attention to protecting the machine (especially the controls area) and the operator while working in hostile environments (painting, stripping, sanding, washing etc.)
- ⇒ It is forbidden to use the machine in adverse weather conditions (snow, unfavourable temperature and fog);
- ⇒ Take care to protect the control area in rain or when parking the machine
- ⇒ Do not use the machine in premises where there are risks of explosion or fire
- ⇒ Keep the handling parts, controls and signalling devices clean.



Do not smoke
Do not use open flames

2.2 Noise

According to annex VI of Directive 2000/14/CE, the **SPB209CP** features a guaranteed sound emission **LWA of 99 dB**.



If the personal daily exposure may be greater than or equal to 85 dB (A) it is recommended to use PPE (protective earmuffs, protective plugs, etc.).
If the personal daily exposure may be greater than or equal to 90 dB (A) it is obligatory to use PPE (protective earmuffs, protective plugs, etc.).

2.3 Handover of the basics of the manual

This part of the manual is dedicated to any operations in the event a new machine operator is to take over and the succession in case of sale.

OPERATIVE RESPONSIBILITY OF THE MACHINE
LIES WITH WHOMEVER,
upon collecting the machine from the manufacturer,
ASSUMES THE ROLE OF OPERATOR.

HOWEVER

The collection of the machine may be carried out by personnel appointed by the buyer or, in case, by someone who will not be taking on the role of operator.

① These individuals cannot take on responsibility for all the machines they collect, THEY WILL THEREFORE **TAKE ON A ROLE OF "TEMPORARY OPERATOR,"** WHICH WILL END WHEN THE MACHINE IS DELIVERED TO THE BUYER.

① Every temporary operator is, however, expected to take on and hand over the basics on the machine operation received from the manufacturer to the person who will then assume the role of **OPERATOR.**



CAUTION!

When the machine is intended to be driven by several operators in the company, it is obligatory to transfer knowledge on operation and to hand the manual to the operators taking over.

What to do during knowledge handover?

- ⇒ Instruct the new operator or new owner on all aspects relevant to machine operation;
- ⇒ *Particularly highlight the components relevant to operational safety;*
- ⇒ Advise fully on danger zone aspects and machine hazards;
- ⇒ *Hand over the manual to the new operator (or new owner), pointing out the contents;*
- ⇒ Point out the presence of the Declaration of Conformity and the EC plate;
- ⇒ *In case of sale, also give the manufacturer's Declaration of Conformity to the new owner and point out the presence of the marking plate;*
- ⇒ Make sure your colleague has understood the instructions and has no doubts on operation.

How to prove knowledge and manual handover?

Given the great importance that is given to an adequate knowledge of the machine and considering that the operator, as soon as he/she ceases as operator, is no longer responsible, we considered

it appropriate to include some printouts specifically drafted with the aim of witnessing the correct successful removal of the machine at the manufacturer's premises (statement of responsibility) and the successful handover between operators.



Use of the machine is only allowed to trained adults who have carefully read this manual.

Failed or incomplete transfer of knowledge and manual might lead to involvement or even indictment in the event of damage or injury to the health of persons, property, animals or the environment.

The owner of the machine and/or the safety manager are responsible for ensuring that operators have been adequately trained on how to use the machine in question.

IN SUMMARY

- *Inform.*
- *Hand over the manual and point out its content.*
- *Fill out and sign the printout.*
- *It is in the interest of the person who carries out the knowledge and manual handover to make a photocopy of the page attesting the handover and to keep it.*

2.4 Danger areas

The machine consists of areas that are particularly dangerous for the operator or for whoever finds themselves inside it.

The area considered hazardous is determined by the operating range of the crane boom.



It is strictly forbidden to stand underneath suspended loads.



Further dangers are generated by the working area, some requirements are:



**It is forbidden to work near electrical cables.
Danger of death in the event of contact with electrical cables.**



**Shearing hazard with moving parts.
Do not lean onto the machine during operation.**

During operation, the following minimum safety distances are recommended from unprotected or insufficiently protected active parts of power lines and electrical systems:

Nominal variation Un (KVolt)	Minimum allowed distance
≤ 1	3 m (9,8 ft)
$1 < Un \leq 30$	3.5 m (11,4 ft)
$30 < Un \leq 132$	5 m (16,4 ft)
> 132	7 m (22,97 ft)

2.5 What to do in case of emergency

In an emergency, bring the machine to a ZERO ENERGY state via the red emergency stop button.

FIRE

Put the fire out with fire extinguishers, with which the site must be equipped.

BURNS

- 1) Put the fire out with fire extinguishers, with which the site must be equipped:
 - dousing with water
 - a powder extinguisher, avoiding spraying in the face
 - coperte o rotolamento della vittima per terra
- 2) Do not remove bits of fabric stuck to the skin
- 3) In case of scalding, quickly but carefully remove wet clothes
- 4) Cover the burn with a special anti-burn pack or with a sterile bandage (the machine must be equipped, by the user, with a suitable first-aid kit).

CARBON MONOXIDE POISONING (CO)

The carbon monoxide contained in motor exhausts is odourless and dangerous because it results in poisoning.

In closed rooms, carbon monoxide is very dangerous because it reaches critical concentration in a short time.

If assisting a poison victim, bring him/her to safety in a ventilated place. Place the victim on his/her side if unconscious and carry out artificial respiration if necessary.



**Only use the crane in ventilated premises.
It is forbidden to use the machine in closed premises, poisoning hazard!**

CAUSTIC BURNS

Caustic skin burns are caused by the leakage of the battery acid:

- Remove clothing and wash with running water, taking care not to affect the healthy parts

Caustic eye injuries are caused by both battery acid and lubrication oil as well as diesel:

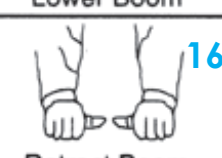
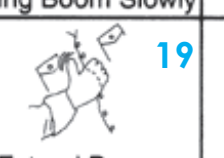
- Rinse the eye with water for at least 10 minutes while holding the eyelids open so the water flows onto the eyeball, while moving the eye in all directions.

ELECTRIC SHOCK

Electric shock may be caused by the electrical system of the motor or the system (12/24V).

The low voltage value does not result in high current flows through the human body. However, in the case of a short circuit, for example, by a metal tool, this can result in torching and burns.

2.6 Lifting signalling - symbols

 Main Hoist	 Auxiliary Hoist	 Hoist Load	 Hoist Load Slowly	 Stop
 Raise Boom	 Raise Boom & Lower Load	 Lower Load	 Lower Load Slowly	 Emergency Stop
 Lower Boom	 Lower Boom & Raise Load	 Swing Boom	 Swing Boom Slowly	 Travel (mobile eqpt)
 Retract Boom 2 hands	 Retract Boom 1 hand	 Extend Boom 2 hands	 Extend Boom 1 hand	 Dog Everything

- 1 Main lifting
- 2 Auxiliary lifting
- 3 Lift the load
- 4 Lift the load slowly
- 5 Stop
- 6 Lift the boom
- 7 Lift the boom and lower the load
- 8 Lower the load
- 9 Lower the load slowly
- 10 Emergency stop
- 11 Lower the boom
- 12 Lower the boom and lift the load
- 13 Slew the boom
- 14 Slew the boom slowly
- 15 Move the crawlers
- 16 Retract the boom (2 hands)
- 17 Retract the boom (1 hand)
- 18 Extend the boom (2 hands)
- 19 Extend the boom (1 hand)
- 20 Stop

2.7 Features of the operating area

In order to avoid unpleasant accidents, the operating area must have certain features.

More precisely, ensure:

- sufficient space for placing the outriggers configured compatibly with handling requirements;
- terrain slope not exceeding 5%;
- the crawlers and outrigger feet must rest onto consistent ground, able to withstand the maximum load, without manholes or panels as covering etc.
Pay special attention to hidden inadequacies in the ground and to the presence of mud or ice;
- if necessary, ensure the operating area is served by a source of electrical power with characteristics compatible with the requirements of the machine and compliant with the regulations in force.
- sufficient free operating space for lifting operations.



Do not use the crane on terrain whose conditions are uncertain or if the ground pressure exceeds the limit value.

2.8 Emergency stop

Note: The stop procedure described may be carried out at any time.

According to current standards in safety matters, the machine features a series of emergency systems which must be used in cases where the normal stop procedure takes too long, in order to safeguard the safety of the operator and any person that might be in a hazardous area, as well as the machine itself.



CAUTION!

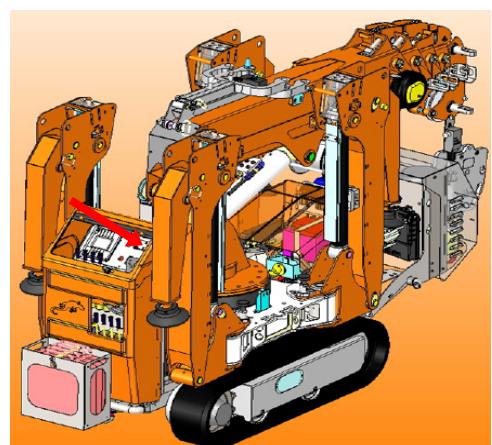
Before restarting the machine after an emergency stop, remove the causes that led to using the device.

Arrangement of emergency controls

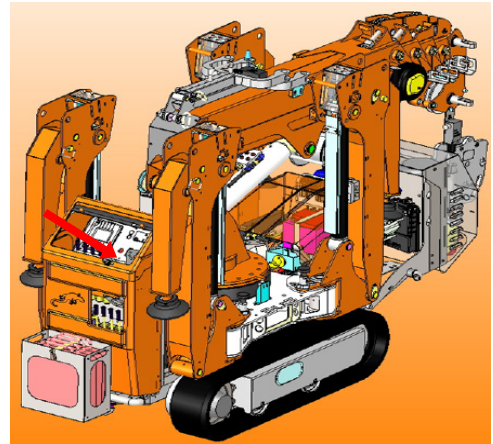
The machine features various types of emergency systems.

The type and position are as follows:

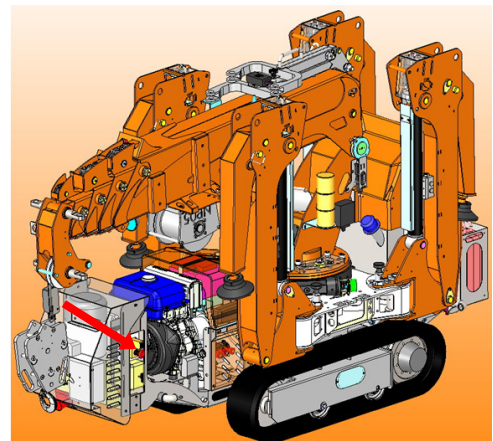
- Emergency button - on the **control panel**



- Emergency button - on the **joystick of wire controls**



- Emergency button - on the **power pack** (accessory)



Use of the emergencies

In order to assure the safety of the machine, the installed emergency devices are of the mushroom-headed emergency push-button.

To activate the emergency stop, just PRESS THE MUSHROOM-HEADED BUTTON.

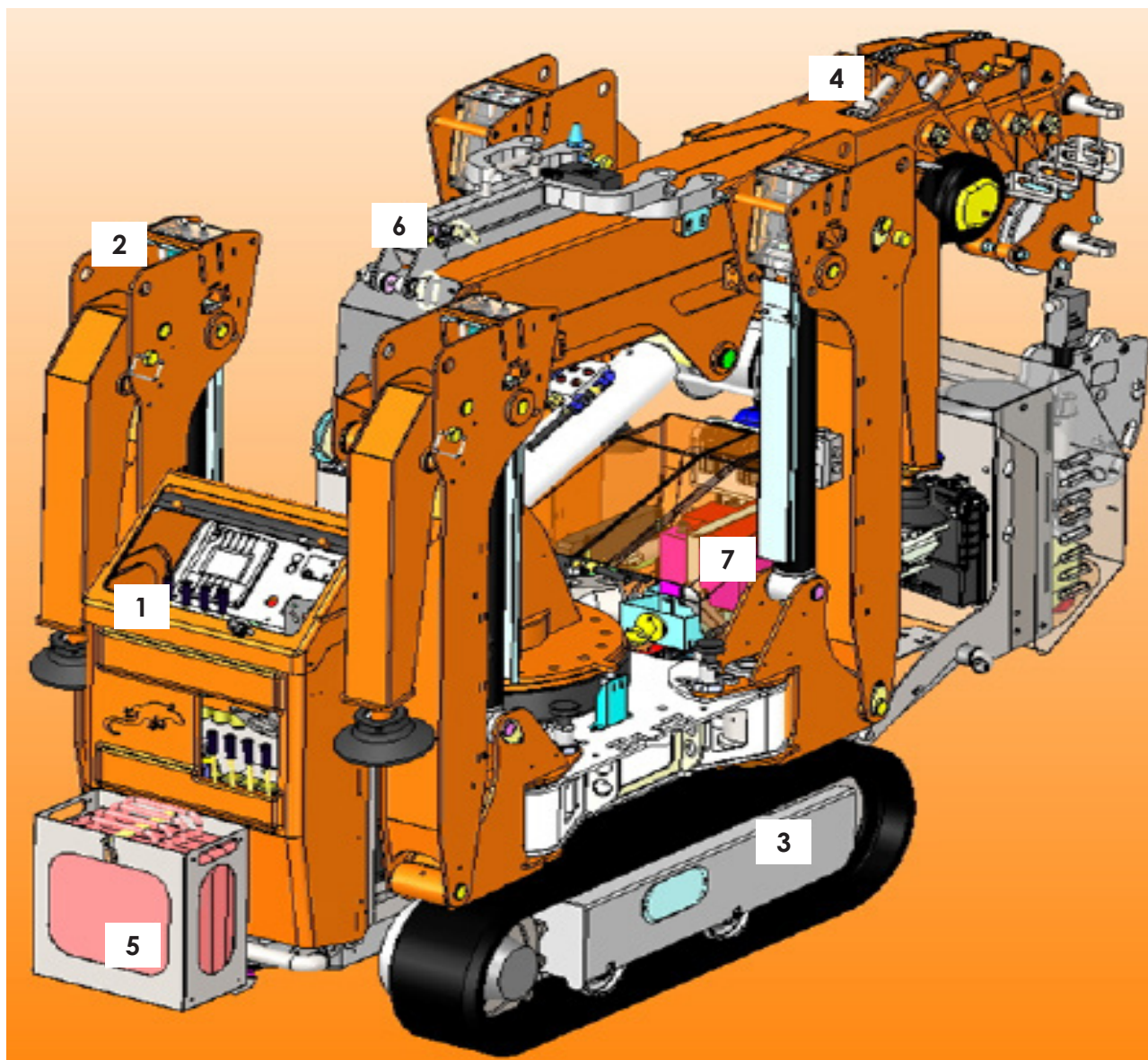
Reset emergency push-buttons

The emergency situation remains such to prevent accidentally re-starting, until resetting.

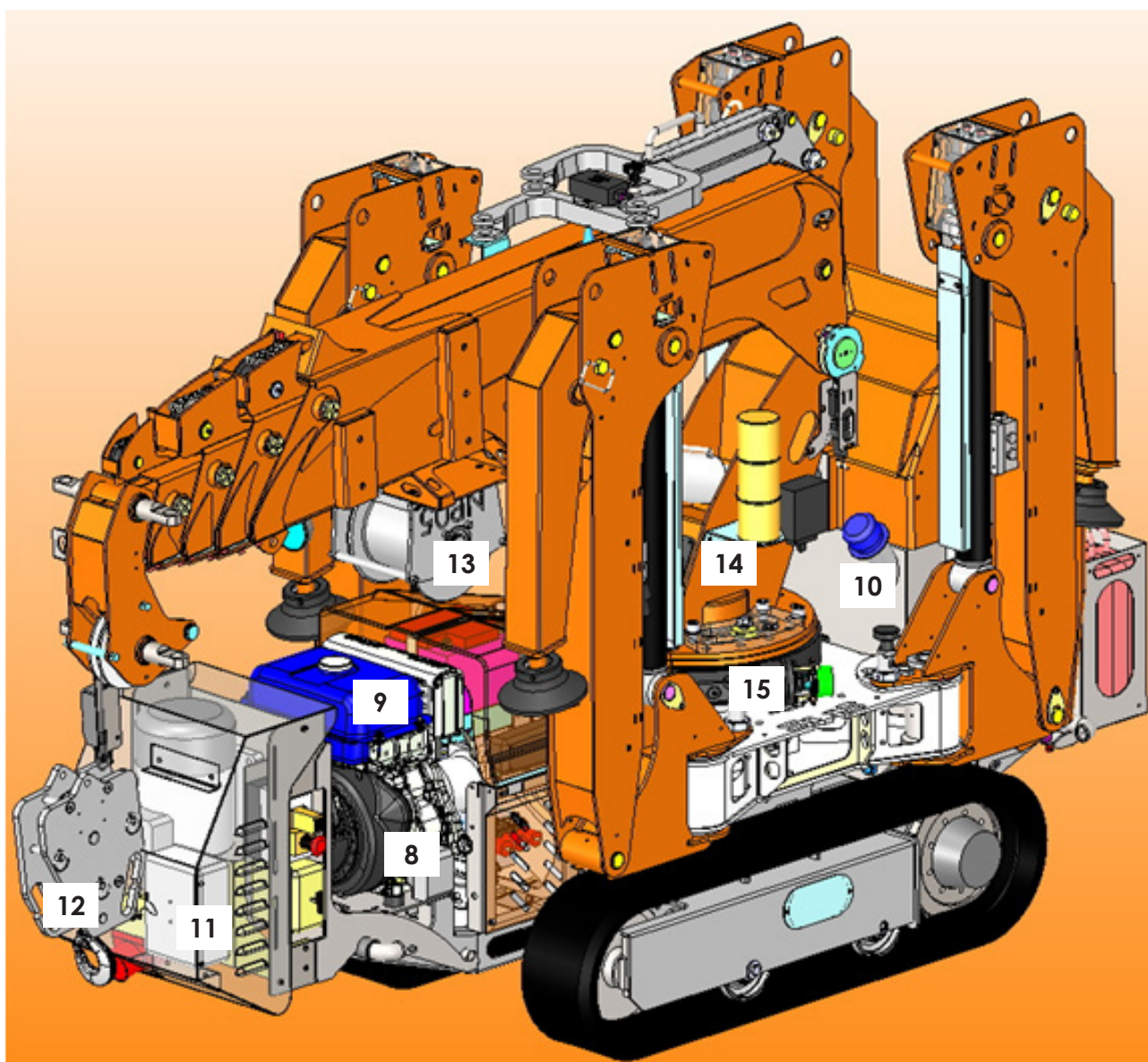
To reset proceed as follows:

- identify the button which has activated the emergency status;
- rotate the red "mushroom" in the direction indicated by the engraved arrows;
- the button resets and the machine is ready for the starting-up procedure;
- enable the plant.

3 MAIN PARTS SPB209CP

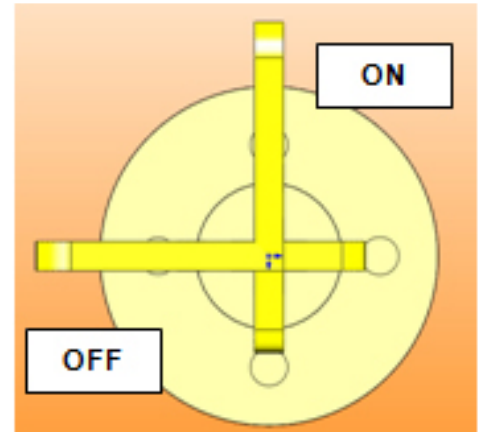


Ref.	Description
1	Control station
2	Outrigger
3	Crawler carrier
4	Boom pack
5	Platform carrier (optional)
6	Mechanical jib (optional)
7	Battery compartment

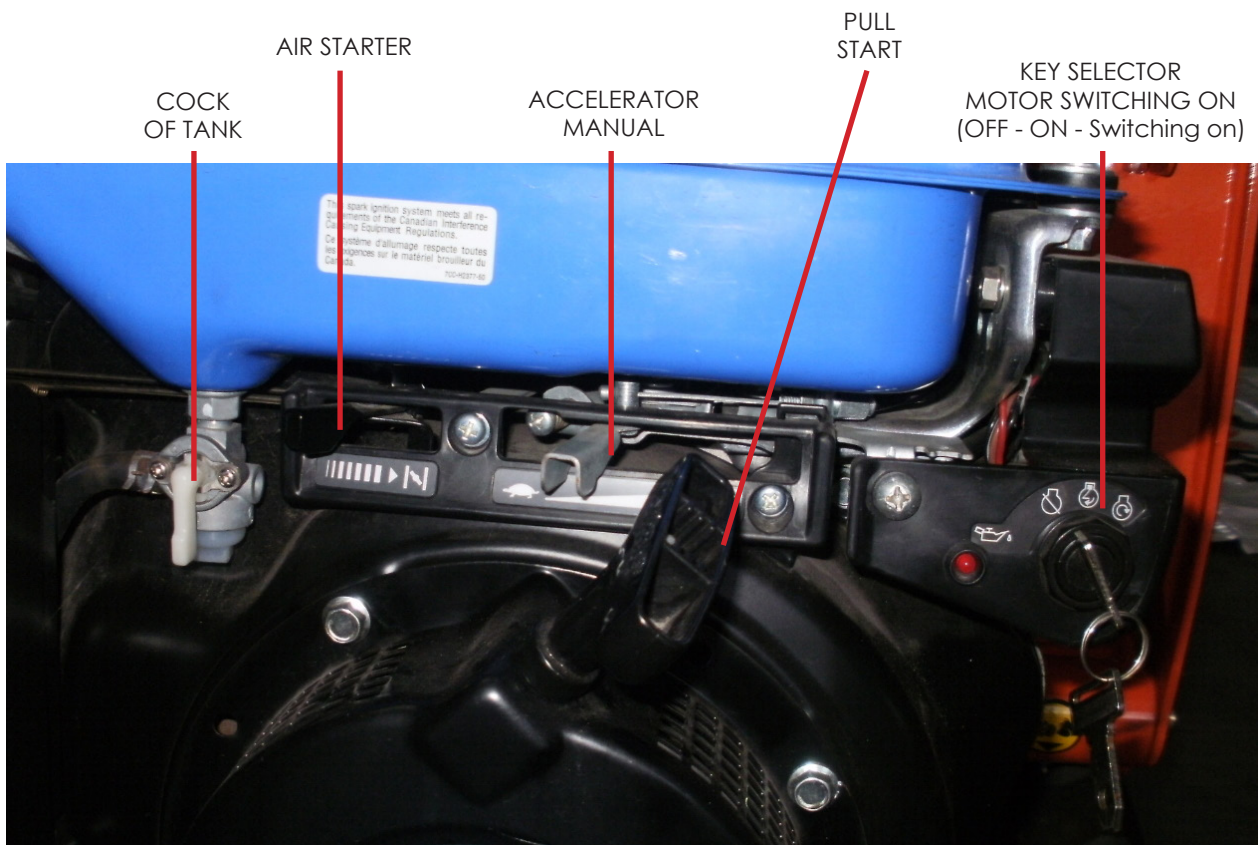


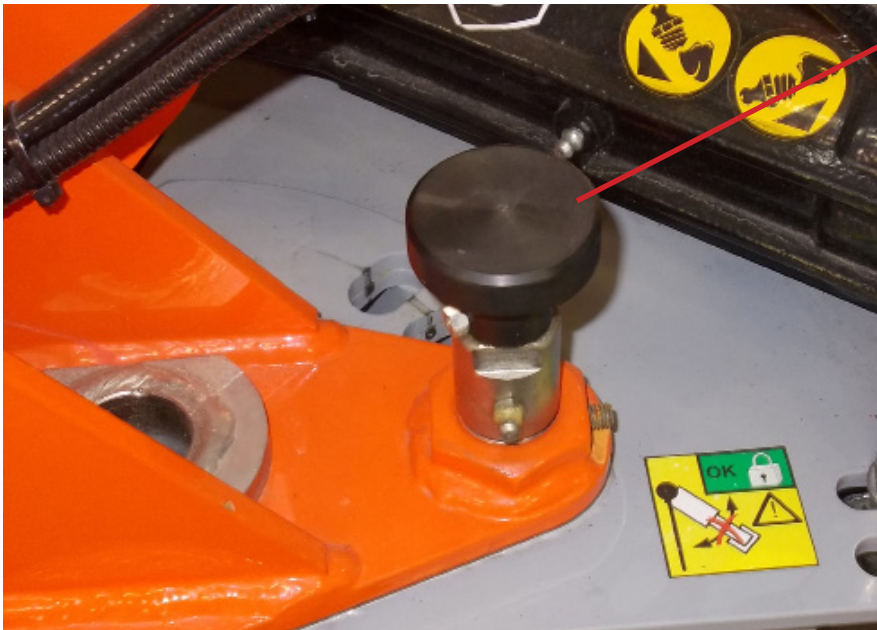
Ref.	Description
8	Motor assembly
9	Petrol tank
10	Oil tank
11	Power pack (optional)
12	Block (optional)
13	Winch
14	Crane pillar
15	Slewing ring

BATTERY SWITCHES



MOTOR CONTROLS





SLEWING LOCKING
OUTRIGGER (X 4)



FLOOR OPENING PIN
OUTRIGGER (X 4)



SEMAPHORE.
INDICATES STATUS OF
MOMENT LIMITER AND
LIFTED LOAD
- GREEN (OK)
- RED (OVERLOAD)



SET OF ANGLE
SENSORS
BOOM LIFTING



STABILITY SENSORS GROUP



OIL TANK CAP

RETURN OIL FILTER

OIL LEVEL GAUGE



CENTRING SENSOR
PILLAR ROTATION



WINCH

PETROL TANK

AIR FILTER



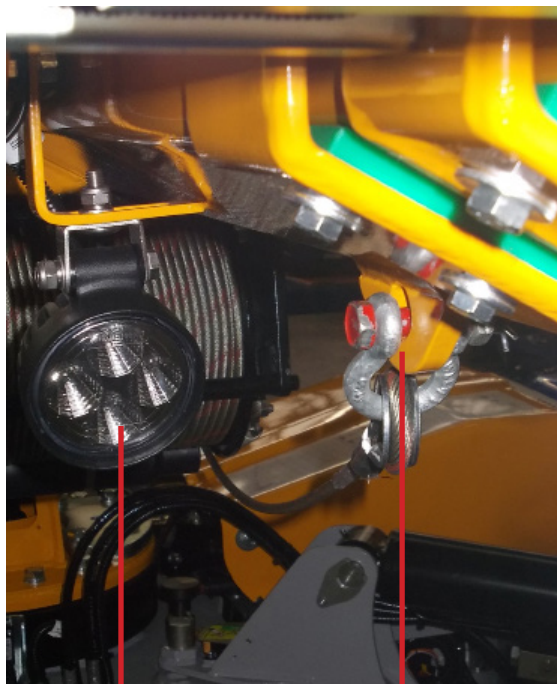
HORN



QUICK OIL CONNECTORS
FOR POWER PACK (ACCESSORY)

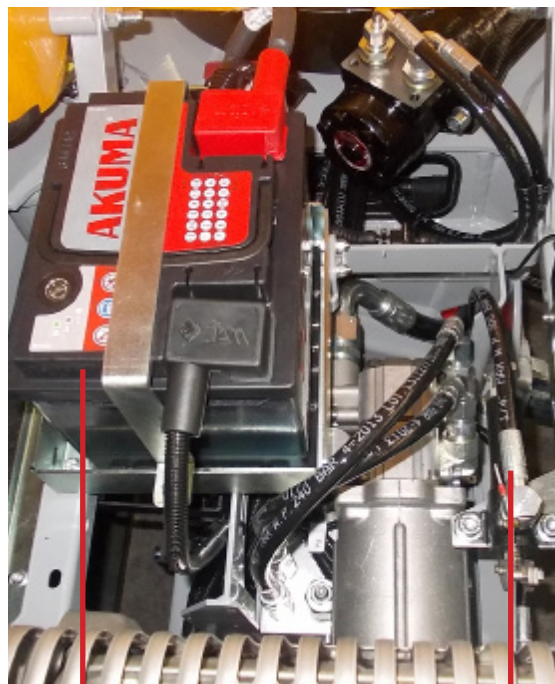


ELECTRICAL
CONNECTION
POWER PACK



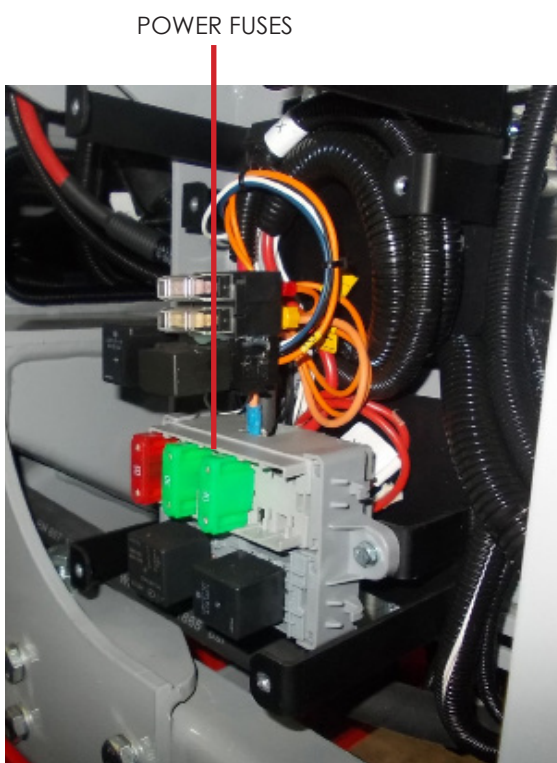
WORK LIGHT

HOOK FOR
SETTING ROPE ASIDE
(NO LIFTING!)



BATTERY

ACCELERATOR
HYDRAULIC



POWER FUSES



HYDRAULIC OIL FILTER

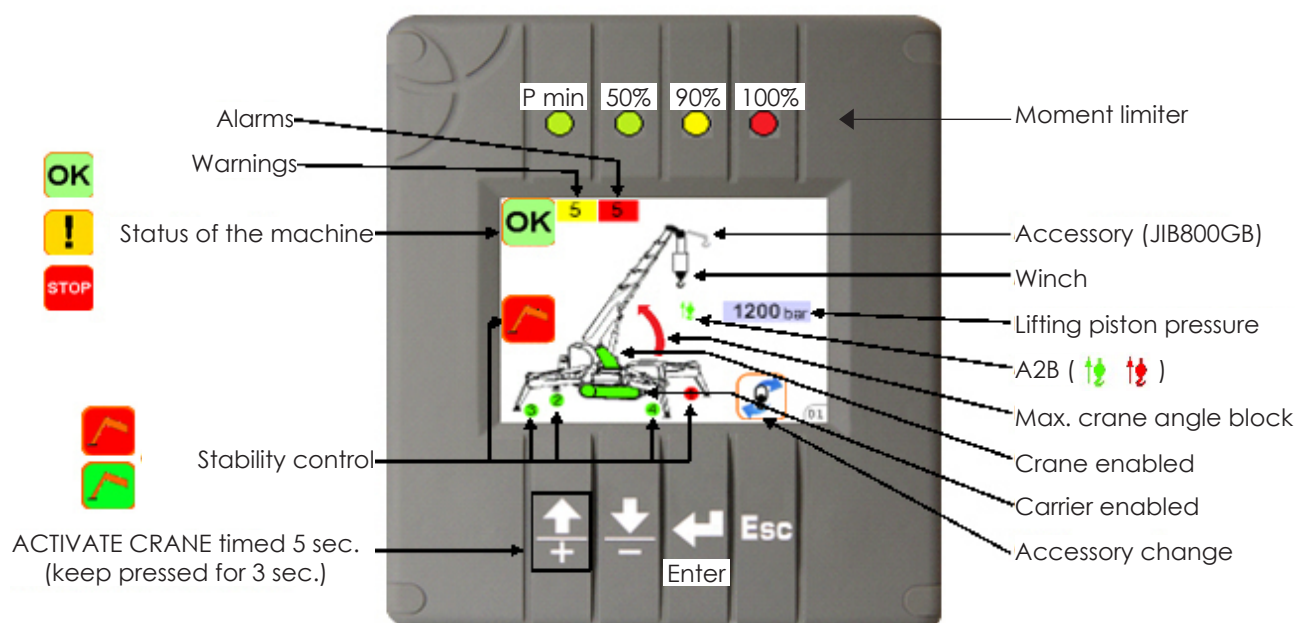
4 MACHINE SIGNALLING AND CONTROL INSTRUMENTS

4.1 Main control panel

MAIN PANEL



DISPLAY

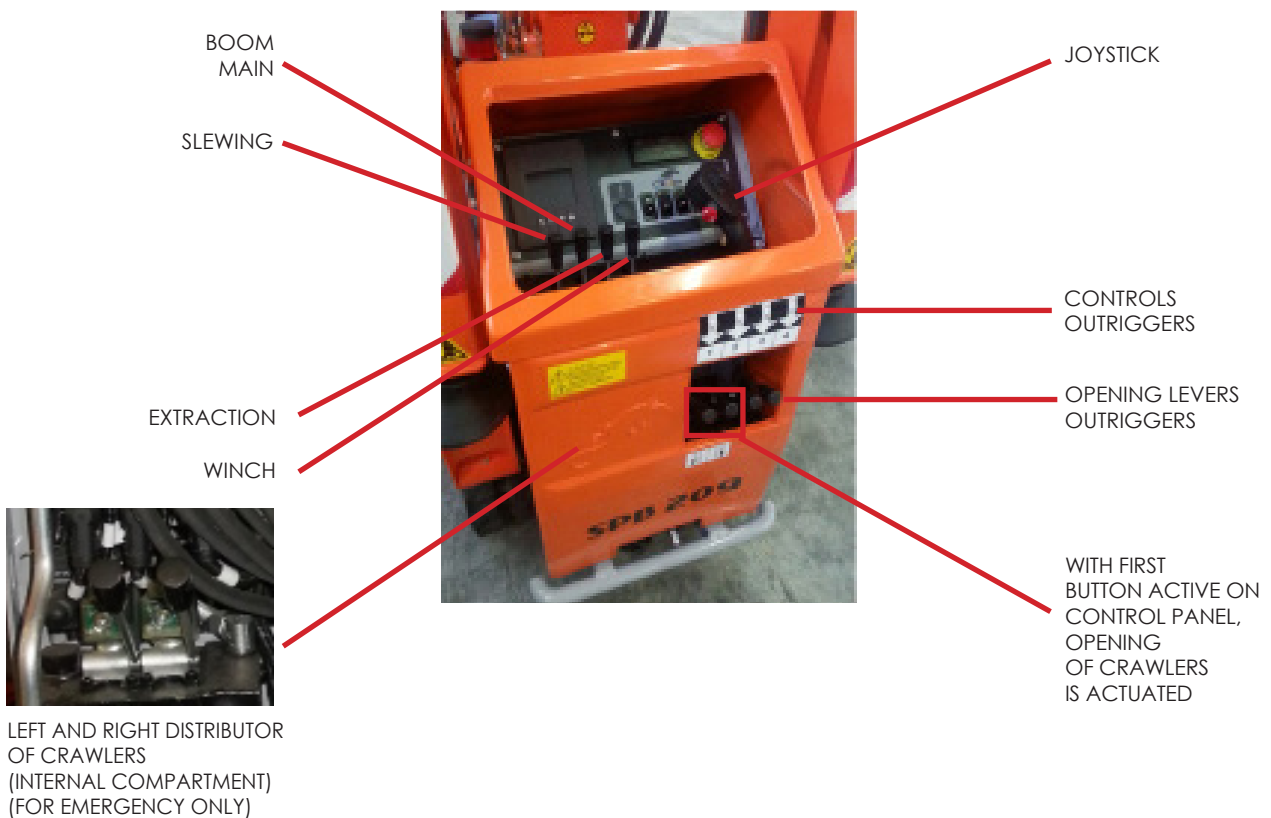


4.2 Control instruments

JOYSTICK

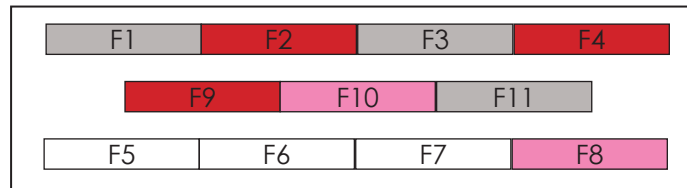


DISTRIBUTORS



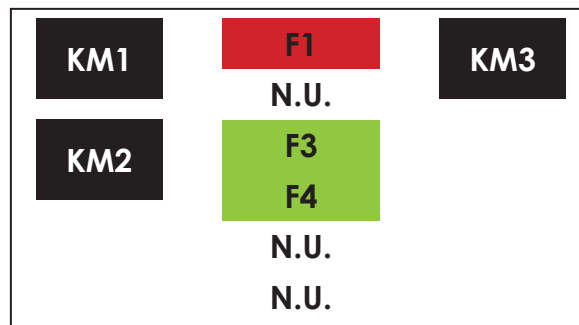
LEFT AND RIGHT DISTRIBUTOR OF CRAWLERS (INTERNAL COMPARTMENT) (FOR EMERGENCY ONLY)

FUSE BOX ON CONTROL PANEL



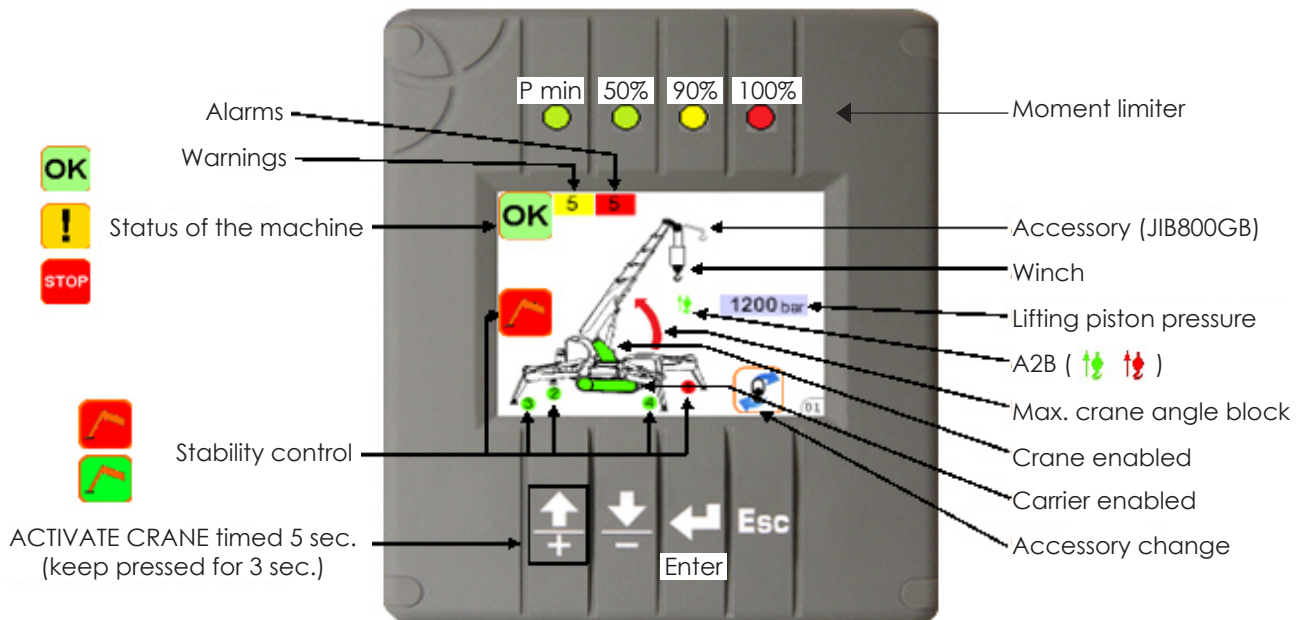
F1	2A	CLS logic supply
F2	10A	CLS power outputs supply
F3	2A	IOEXT logic supply
F4	10A	IOEXT power outputs supply
F5	N.U.	
F6	N.U.	
F7	N.U.	
F8	3A	Carrier sensors supply
F9	10A	Accessories supply Work light Horn button
F10	3A	Crane sensors supply
F11	2A	Emergency line supply

MOTOR FUSE BOX



F1	50A	Plant supply
F2	N.U.	
F3	30A	Power supply (outputs conditioned by emergency)
F4	30A	Starter power supply
F5	N.U.	
F6	N.U.	
KM1		Power lines relay
KM2		Starter relay
KM3		Motor switch off relay

5 DESCRIPTION OF DISPLAY CLS INTERFACE PAGES



Button to move within a screen or to change pages



Button to SELECT and CONFIRM

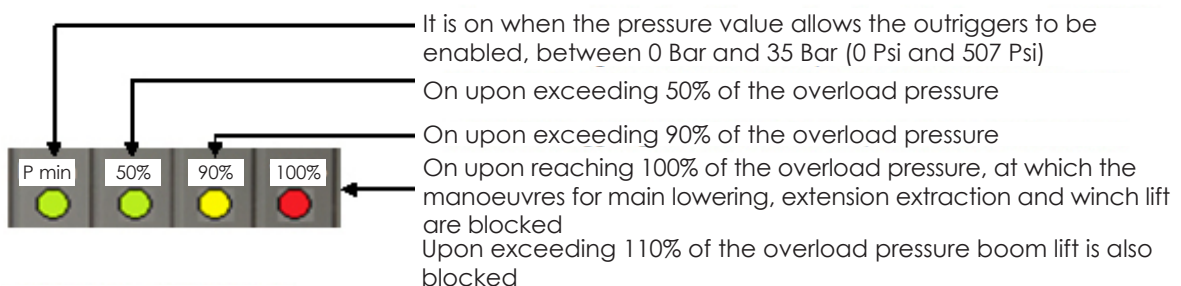


Button to move within a screen or to change pages.



Button to EXIT a screen or for ACCESSORY CHANGE

1. LED BAR - MOMENT INDICATOR



2. STATUS OF THE MACHINE

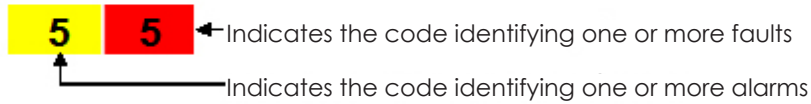


Machine enabled and ready for use

Indicates that one or more alarms are active

Indicates that alarms are active concerning the fault of one or more units

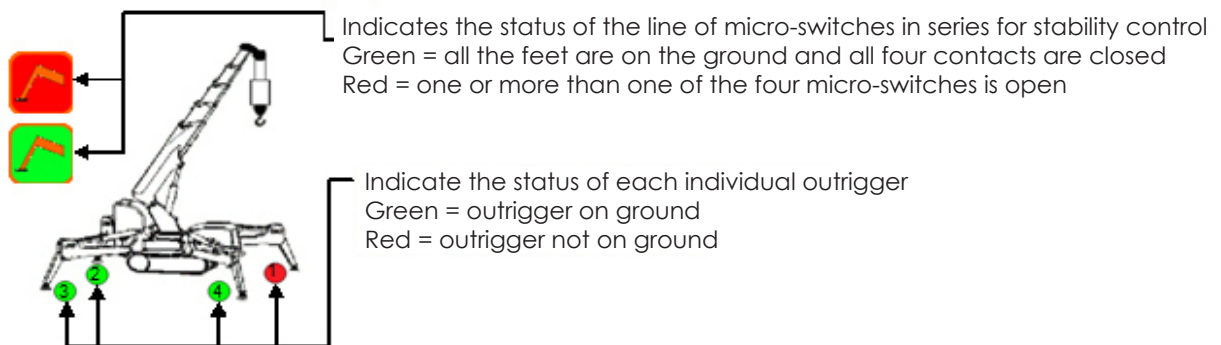
3. WARNINGS AND ALARMS



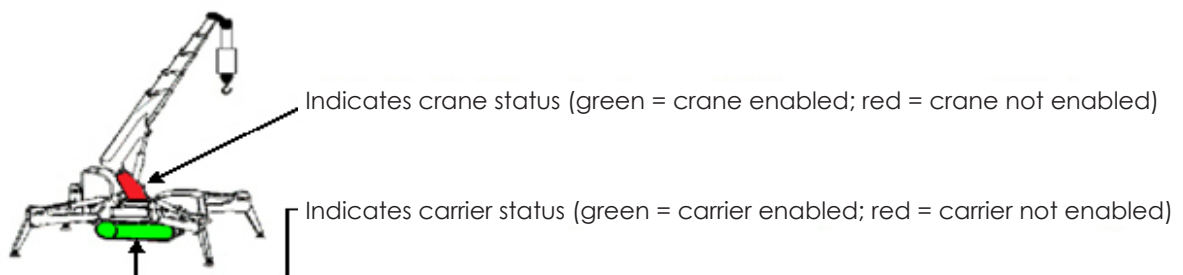
4. LIFTING PISTON PRESSURE (BPI)



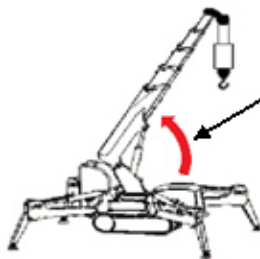
5. STABILITY CONTROL (SCI)



6. CARRIER-CRANE ENABLE (CCI)



7. MAXIMUM ANGLE (BMA)

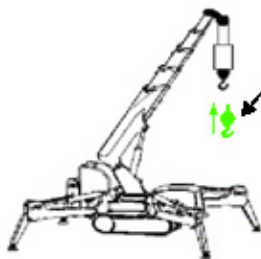


Indicates whether the maximum angle block is active

Red = maximum angle block active (boom lift is blocked)

Grey = maximum angle block not active

8. ROPE LIFT MICRO-SWITCH (A2B)



Indicates whether the rope lift block is active

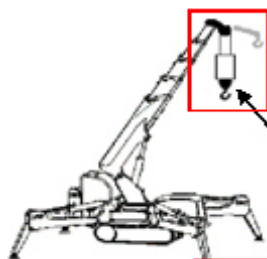
Green = rope lift block disabled

Red = rope lift block enabled, rope lift and extension manoeuvres are blocked

9. CRANE CONFIGURATION (CWM)



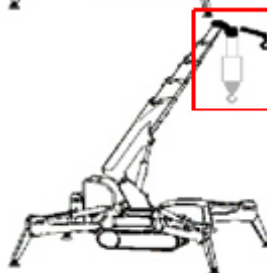
To change crane configuration (or select accessory) from the LMI page press ESC then ENTER to confirm



Indicates crane configuration or selected accessory

The selected configuration is highlighted in black

Rope configuration



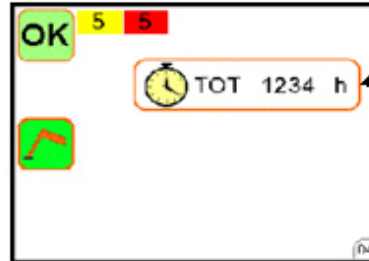
Hook configuration (JIB800GB)

In this configuration the winch is blocked the spooled rope block is ignored

To go to the next page press



PAGE 2 TIMER



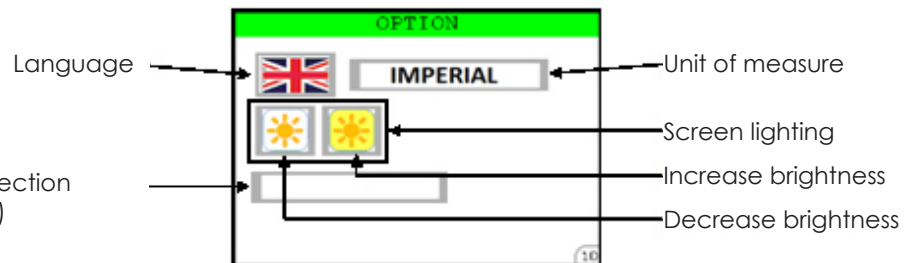
Timer of the machine

The timer increases only when crane status is **OK**

To move to the next page press and hold ENTER for a few seconds



PAGE 3 OPTIONS

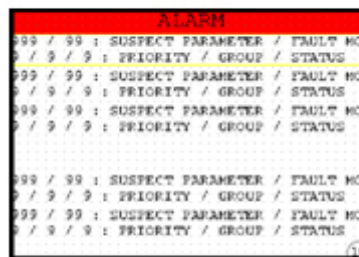


Accelerator mode selection
(not present in SPB209)

To go to the next page press



PAGE 4 ALARMS



Active alarms

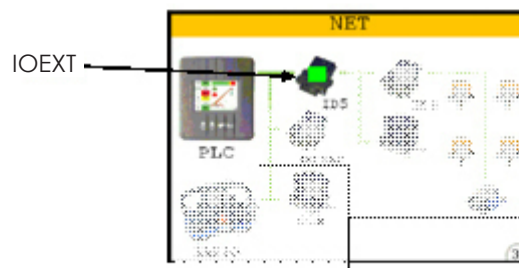
The current alarms are displayed with code and description

From this page it is possible to reset the alarms of current faults (PRESS enter FOR 3 SEC.)

To go to the next page press



PAGE 5 NETWORK



In this page it is possible to check status of networked units. Units with a green icon work correctly.

Units with a grey icon are not working correctly or are not used.

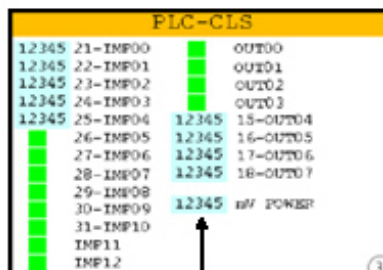
E.g.: as you can see in the picture here, the first unit (IOEXT) is networked and operating correctly, while the other two units (MIDAC CCR and...) which in SPB 209 are not used, are highlighted in grey.

To go to the next page press



PAGE 6 CLS DIAGNOSTICS

In this page it is possible to carry out diagnostics of inputs and outputs both proportional and on-off and check the CLS unit supply voltage



Unit supply voltage

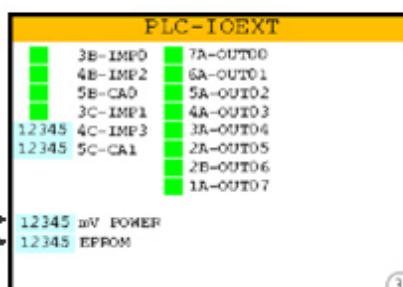
PIN	ID CODE	FUNCTION
11	OUT0	Acoustic alarm
15	OUT4	RH crawler forward
16	OUT5	LH crawler forward
17	OUT6	RH crawler backward
18	OUT7	LH crawler backward
21	INP00	Spool sensor 1 (slewing lever)
22	INP01	Spool sensor 2 (main lever)
23	INP02	Spool sensor 3 (extraction lever)
24	INP03	Spool sensor 4 (winch lever)
25	INP04	Pressure transducer
26	INP05	Outrigger 1
27	INP06	Outrigger 2
28	INP07	Outrigger 3
29	INP08	Outrigger 4
30	INP09	Set of outriggers l.s. (series N.O.)
31	INP10	Parallel outriggers lever l.s.+dead man button translation joystick

To go to the next page press



PAGE 7 IOEXT DIAGNOSTICS

In this page it is possible to carry out diagnostics of inputs and outputs both proportional and on-off and check the IOEXT unit supply voltage



Unit supply voltage

Status of internal unit diagnostics

PIN	ID CODE	FUNCTION
1A	OUT 7	Motor stop (electro-stop)
2A	OUT 5	Semaphore red light output
3A	OUT 4	Spooled out rope micro-switch supply
4A	OUT 3	Carrier Bypass Valve
5A	OUT 2	Crane Bypass Valve
6A	OUT 1	NO Carrier-Crane Exchange Valve
7A	OUT 0	NC Carrier-Crane Exchange Valve
2B	OUT 6	Semaphore green light output
3B	INP 0	Centred crane l.s. set+boom lowering l.s.
4B	INP 2	Boom lifting l.s.
5B	CA 0	Rope lifting l.s.
3C	INP 1	Emergency button re-reading
4C	INP 3	X Axis crawler joystick
5C	CA 1	Y Axis crawler joystick

To go to the next page press



PAGE 8 PASSWORD PROTECTED MENU



Page to enter password to access the bypass, reset timer, reset spool sensor and joystick activation menus

To go to the next page press



PAGE 8 CRANE OR CARRIER ACTIVATION

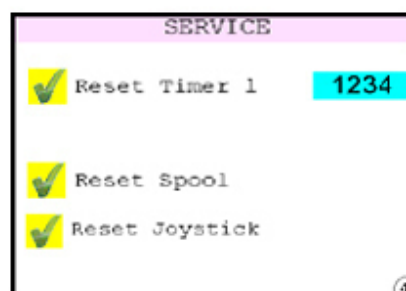


Page to activate the crane and carrier bypass valves. This page is accessible under level 1 PW. The duration of the bypasses activated by this page is two minutes with unlimited repeatability

To go to the next page press



PAGE 8 RESET TIMER, SPOOL SENSORS AND JOYSTICK



Page to reset the joystick maintenance timer and to calibrate the spool sensors. This page is accessible under level 2 PW

6 USING THE MACHINE IN NORMAL CONDITIONS

6.1 Inspection before use

The machine is delivered fully assembled, therefore it can safely perform all the functions described by the manufacturer.

Before operating the machine, you must read the operating instructions in this manual, verify the perfect integrity of the machine (visual inspection) and have the operators complete an adequate training course. The following checks must be carried out prior to every time the machine is used:

- assess load condition before lifting it;
- check required crane capacity;
- ensure the type of ground supports the outrigger's maximum pressure (see table page 47-48);
- check adequacy of the working area to use of the crane.
Visibility of the load and working area must be clear and unrestricted.
Otherwise, ensure the communication system between the supervisor and the crane operator assures operation in safe conditions;
- assess crane placement;
- ensure the outrigger feet are in good condition;
- ensure the crawlers are in good condition;
- check conditions of the lifting chain: winch, rope, pulleys, eyebolts, block and hook;
- check hydraulic oil level in the tank and absence of any oil leaks from the oil-hydraulic system;
- check engine operation, oil level and fuel level;
- check correct operation of safety devices (stability sensors set, boom lifting angle sensors set, pillar rotation centring sensor, rope lock sensor);
- check efficiency of the outriggers' locking system;
- ensure controls and gauges are perfectly efficient (e.g. load condition, fluid level, engine operation, hydraulic pressure, electrical power supply, wear limitations);
- visual inspection of the structural metal frame condition;
- ensure the structure does not show any evident defects (check the welds of the lifting structure);
- check greasing;
- ensure there are no persons other than the operator in the machine's operating range;
- when working in public areas, close off the work area with barriers or other suitable signs;
- the key selector to switch on the motor, must be in "Off" position (see motor controls page 27).



In the event the machine should be working on floor slabs, check bearing capacity according to the specifications of the "Technical data" paragraph.

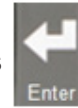
CAUTION!!

Do not work on floor slabs of which the bearing capacity is not known. The manufacturer is not liable for damage or collapses caused by insufficient floor slabs.

6.2 Starting up the machine

- Turn the battery switch ON.
- Power the machine by rotating the main key selector on the control panel in position I,

wait a few seconds for the initial screen to load and press



to confirm the utilisation configuration.

To modify it you must press



until the required accessory



is highlighted

then confirm with



If the Jib is installed and is not selected, the rope moves.

Danger!!! If the Jib is not installed and is selected, the rope moves.

- When the machine is enabled, the warning light  and relevant green semaphore light switch on.
- When the machine is enabled, the motor may be started by turning the key on start and releasing upon start.



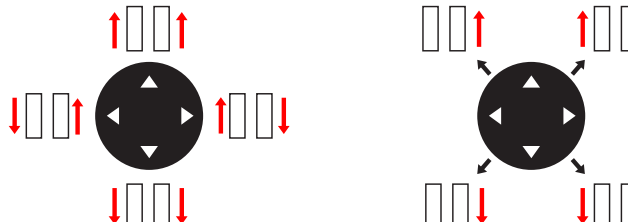
For cold starting, move the engine air lever on closed and back to open as soon as the engine has started



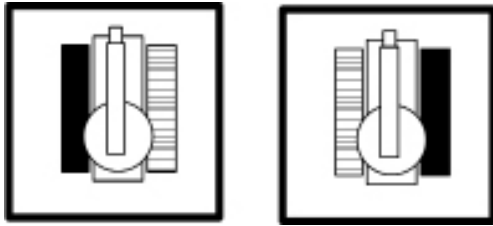
To make starting easier it is also recommended to move one of the levers of the outriggers' distributors at the same time as the start-up key is turned.

6.3 Moving the machine

- Start the machine (see ch. 6.2).
- Hold the joystick and press the "DEAD MAN" button and move the central lever forward and backward to translate the machine.



- CRAWLER OPENING (OPTIONAL): to increase machine stability during translation, if the machine is fitted with it, the crawlers may be widened by pressing and holding the button "OUTRIGGERS SELECTION/CRAWLERS OPENING-CLOSING" on the control panel and pushing up or down the first two levers of the control panel to open or close the crawlers (see page 35).

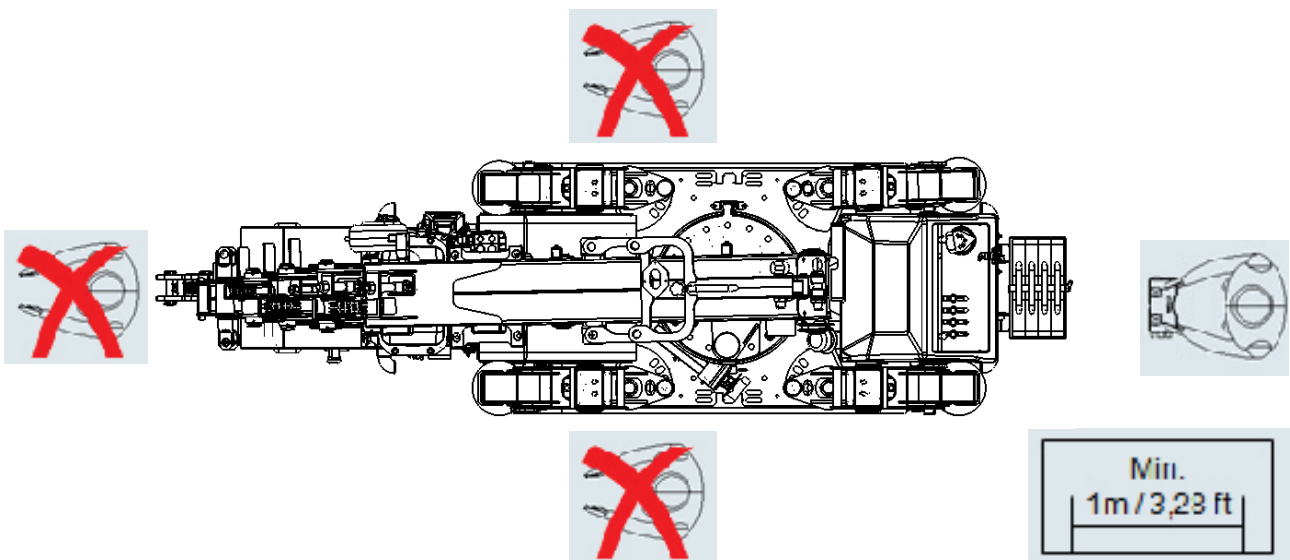


- After positioning the machine in the desired point, release the button "OUTRIGGERS SELECTION/CRAWLERS OPENING-CLOSING"
- Ensure the crawlers on the picture in the display are highlighted in green.



CAUTION!

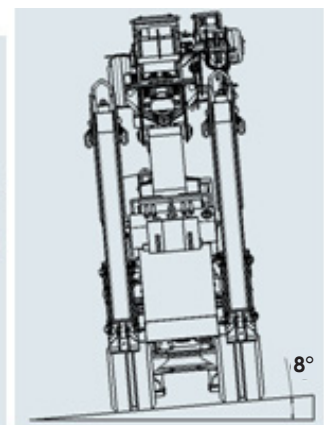
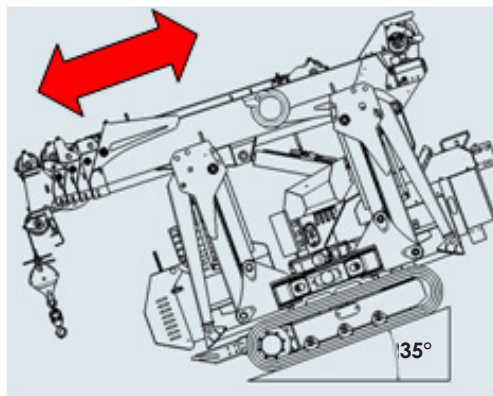
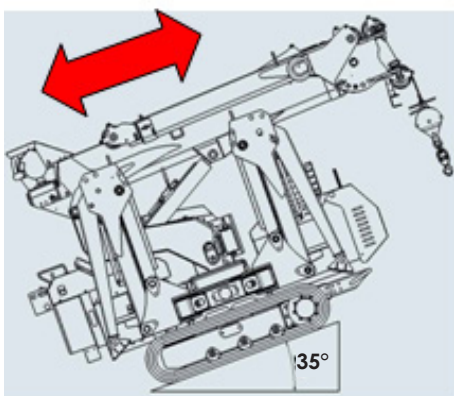
During translation, the only safe station is the rear one.



CAUTION!

Always move along the maximum slope direction.

MAXIMUM GRADEABILITY (ONLY IN CARRIER MODE):



6.4 Outrigging the machine

- Open the outriggers by removing the locking pin, placing it in the maximum opening hole and reinsert the safety pin.



- Move the outrigger out, opening the "OUTRIGGER ROTATION LOCK", up to maximum opening 45° (as indicated in the sticker) to obtain maximum capacity.

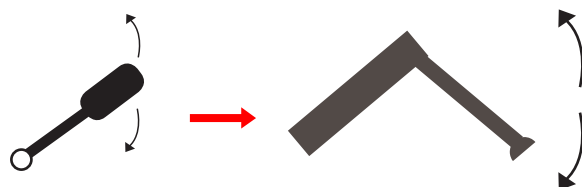
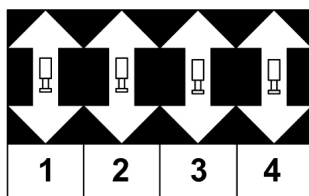


Check successful blocking moving the outrigger manually.

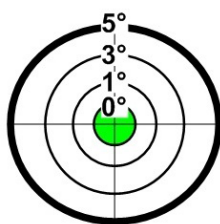
An incorrectly outriggered machine may tilt over.



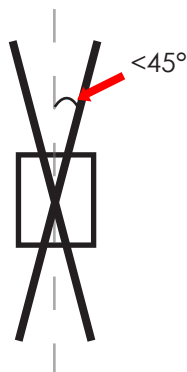
- Lower the outriggers with the suitable levers until the crawler is raised.



- Place the platforms (OPTIONAL) before the foot touches the ground.
- If the machine is correctly outriggered, the red dots and the outriggers icon on the display will turn green.
- Ensure the machine is suitably levelled.



CAUTION! With maximum outriggers opening (45°), the machine must not work with crawlers on the ground. **MAXIMUM HEIGHT OF CRAWLERS FROM THE GROUND 100 mm (0'3").** With outriggers' opening less than 45°, **THE MAXIMUM CRAWLERS HEIGHT FROM THE GROUND is 1 cm (0'03").**



The machine is equipped with a control system of the outrigger feet ground support. When all the feet are resting on the ground, all movements are allowed except the crawlers control.

Do not tamper with the outrigger positioning detection system to alter machine operation.

The manufacturer disclaims all liability!



Do not work on floor slabs of which the structural features are not known.

Do not use incorrectly sized platforms.

The owner of the machine and/or the safety manager are responsible for verifying that starting up, movement and outrigging operations are carried out by qualified personnel.

During placement, either on floor slab or soil, it is the operator's responsibility to have adequate support for the outriggers.

The following table provides indicative values of the bearing capacity of various types of soil. These values are purely indicative and do not provide binding information on the actual bearing capacity of the various types of soil in various compositions and conditions. The actual bearing capacity data of each type of soil may only be obtained through penetration tests carried out by an experienced professional.

INDICATIVE TABLE ON THE BEARING CAPACITY OF SOME SOIL TYPES

TYPE OF SOIL	BEARING CAPACITY IN Kg/cm ² (lb/ftq)
Non-compacted filling soil	0 - 1 (0 - 2080)
Mud, peat etc.	0 (0)
Sand	1,5 (3120)
Gravel	2 (4160)
Loose soil	0 (0)
Soft soil	0,4 (832)
Hard soil	1 (2080)
Semi-solid soil	2 (4160)
Solid soil	4 (8320)
Rock	15 - 30 (31200 - 62400)

In order to correctly size a support plate to be inserted underneath the outrigger plate - once the actual bearing capacity of the soil is known - follow this expression:

MAX OUTRIGGER REACTION [kg-lbs]/SOIL BEARING CAPACITY [kg/cm²-lbs/ftq]= MINIMUM PLATE SURFACE [cm²-ftq]

Example:

Max. reaction exerted by individual outrigger (check "Technical Data" paragraph) = 1050 kg (2310 lbs)

Soil bearing capacity = 4 kg/cm² (8320 lb/ftq)

Minimum surface required for the support plate = 1050 / 4 = 262.5 cm² (2310 / 8320 = 0.278 ftq)

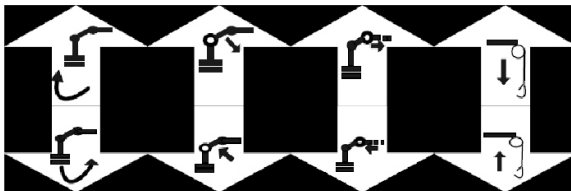


CAUTION !!!

Only use certified and suitably sized plates.

6.5 Use of the crane

Use the manual levers on the control unit (see page 35).



Safety requirements during operation:

- assess load condition before lifting it;
- correctly use the harness (rope or chain), correctly sized for the load to be lifted, and the vertical hook above the the load's centre of gravity;
- before starting and stopping movements, ensure there are no persons and/or obstacles in the hazardous area of the crane and moving load;
- stop movements in case of emergency;
- pay attention when actuating several operations at the same time;
- pay attention to the semaphore on the machine or to the lights at the top left of the display in the controls area;
- it is forbidden to drag loads, including lifting an overload by luffing inward;
- take precautions to avoid contact between the load (or the load lifting equipment) and the structure;
- it is forbidden to work in adverse weather conditions such as storm or lightning storm. Immediately close the machine and take it to a sheltered area;
- should the crane be hit by lightning, stop with emergency button and contact the support service for complete testing;
- do not perform welding on lifted loads that have not been properly insulated.

6.6 Switching off and setting aside the machine

- Ensure the crane boom is in central, horizontal position and with no applied loads.

To be sure the boom pillar is in the central position, it must be perfectly aligned with the "PILLAR ROTATION CENTRING SENSOR"

- When the pillar and carrier on the display are green, the outriggers may be retracted
- Retract the outriggers and park the machine
- Move the key on the control panel to 0 position
- Turn the battery switch OFF
- To avoid machine deterioration, keep it away from weathering and cover it with a waterproof tarpaulin.



At the end of the work, to avoid use of the machine by unauthorised persons, the keys must be extracted from the control panel and placed in a safe place.

6.7 Manual electrical starting combustion engine

In the event the engine should not start from the control panel, it may be started manually with the electrical starter motor on the engine.

- Turn the battery switch ON.
- Ensure the engine tank cock is open.



TANK COCK

- First turn the engine key ON (first click) then on starting up (second click).
When the key is released, it automatically goes back to ON.
- In case of first ignition or particularly cold climates, move the engine's "MANUAL ACCELERATOR" lever to the maximum. When the machine has started up, move the lever back to minimum.

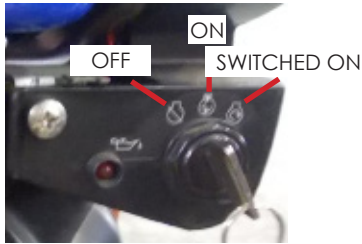


- To accelerate manually, use the suitable lever on the engine compartment.

6.8 Pull start / Emergency start

In the event the engine should not start from the control panel, it may be started manually by pull starting.

- Turn the key to the ON position.



- Pull the rope with the handle.

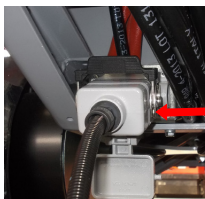


- In case of first ignition or particularly cold climates, move the engine's "MANUAL ACCELERATOR" lever to the maximum. When the machine has started up, move the lever back to minimum (see 6.7).

6.9 Low temperature starting

Heating kit:

- Heat the hydraulic oil. Connect the grey plug under the control unit.
- Connect the blue plug to power supply.
- Press the button and wait 30 min. for the heating. When the temperature is reached, the light goes out.



6.10 Use in emergency

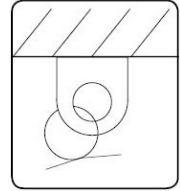
CAUTION!!
IN THE EVENT THE ELECTRONIC CONTROL UNITS
SHOULD NOT WORK, CALL TECHNICAL SUPPORT!!

For emergency use, some seals must be removed from the solenoid valves and one must act directly on the hydraulic distributors, by manually actuating the individual manoeuvres.

7 HANDLING AND TRANSPORT

7.1 Anchoring for transport

Each machine has four fastening points indicated by a suitable sticker for anchoring the machine during transport:



Turn off the machine, turn the battery switch OFF and close the petrol tank valve before performing transport. No person is allowed to stand near or on the machine to avoid risks connected with sudden movements.

For safety reasons, never lift or toe the machine by means of the booms.

Perform the loading operation on a flat surface and with adequate bearing capacity.

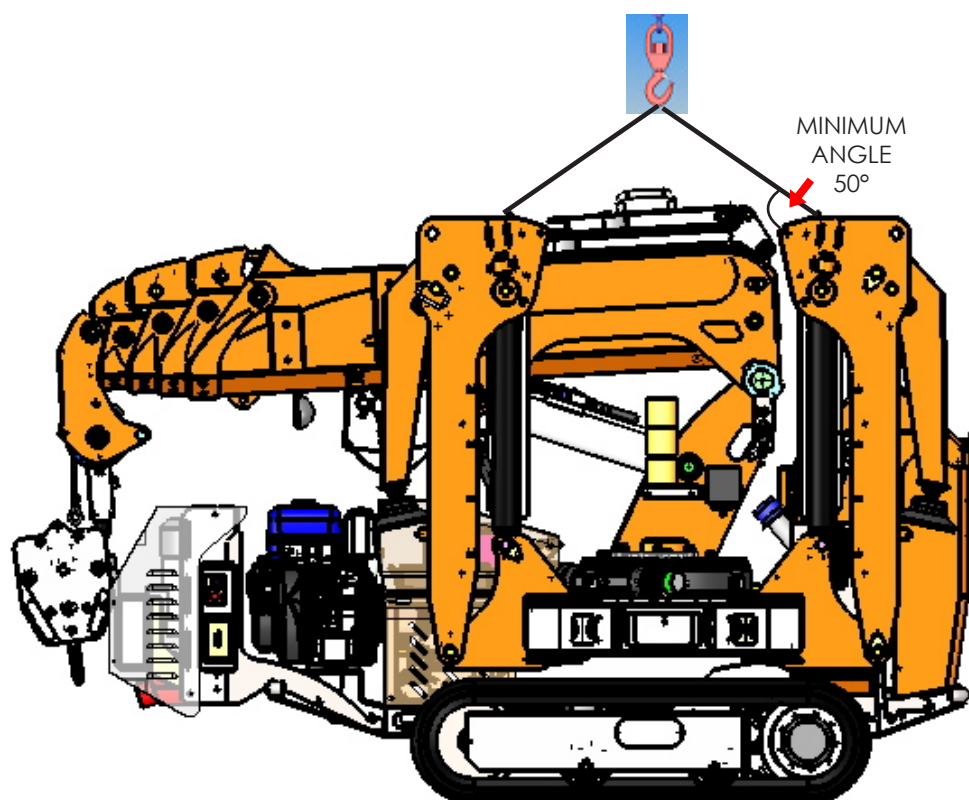
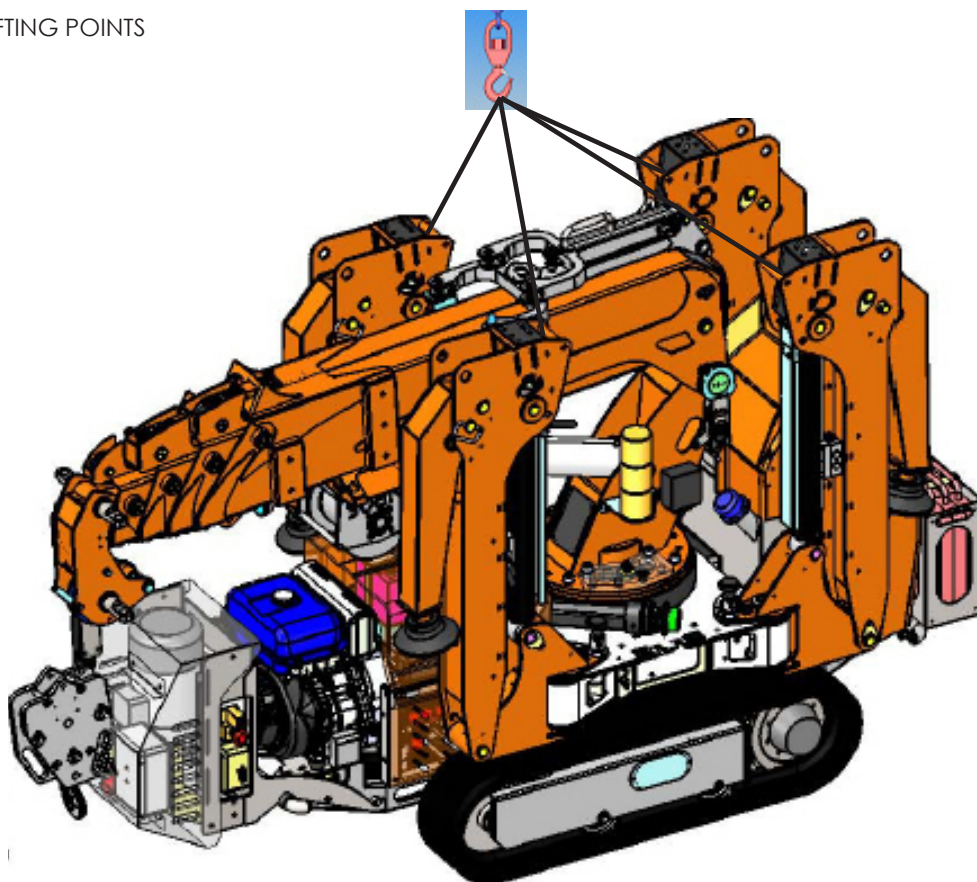
7.2 Lifting anchors

Each machine has four anchoring points indicated by a suitable sticker for lifting the machine:



Before performing any removal operation, ensure there are no persons near the machine and, in any case, proceed with the utmost caution.

LIFTING POINTS





IT IS FORBIDDEN to lift the machine with other systems than indicated in the points above.

Before every machine removal it is necessary to ensure that any connection plugs are detached from the power supply point.

Before proceeding with transport, ascertain the degree of stability.

Do not use the machine on uneven and non-solid ground to avoid possible instability. To prevent the machine from tipping over, you must comply with the maximum admissible slope set out in the relevant paragraph.

In any case movement on slopes must be carried out with the utmost caution.

The machine must not be used directly for road transport.

Check the work area to ensure there are no obstacles or other dangers.

Do not use the machine to tow other equipment.

8 MALFUNCTIONING SELF-DIAGNOSIS

8.1 Machine alarms and warnings

The file delivered separately and attached to this manual, provides the tables with alarms (viewed on the display, see 4.1) and possible solutions.

Note: every time a fault or alarm occurs, after carrying out the appropriate diagnostics and removing the cause, the alarm must be reset:

- by pressing ENTER from the alarms page
- or
- power cycle the machine after pressing and releasing the emergency
- or
- upon switching on the machine, the green light switches on only after the machine is enabled, by pressing the ENTER button.

9 COMMISSIONING

9.1 Inspection before commissioning / Periodic checks / Check after a long period of inactivity

Below is a list of all specific and accurate measures to be taken before, during and after a long period of inactivity for the mobile crane.

SPB209CP			
	INSPECTION BEFORE COMMISSIONING	PERIODIC CHECKS	INSPECTION AFTER A LONG PERIOD OF INACTIVITY
check cleanliness of all components	X	X	X
check correct operation of safety devices	X	X	X
ensure the outrigger feet are in good condition	X	X	X
ensure the crawlers are in good condition	X	X	X
check conditions of the lifting chain: winch, rope, pulleys, eyebolts, block and hook	X	X	X
check hydraulic oil level in the tank and absence of any oil leaks from the oil-hydraulic system	X	X	X
check engine operation, oil level and fuel level	X	X	X
ensure controls and gauges are perfectly efficient (e.g. load condition, fluid level, engine operation, hydraulic pressure, electrical power supply, wear limitations)	X	X	X
check all electrical components	X	X	X
check isolating parts of external cables	X	X	X
visual inspection of the state of the metal structure	X	X	X
check braking system efficiency	X	X	X
ensure the structure does not show any evident defects (check the welds of the lifting structure)	X	X	X
check correct slewing and lifting movement of the boom	X	X	X
check correct lifting movement of the jib (accessory)	X	X	X
check greasing	X	X	X

10 MAINTENANCE

10.1 Scheduled maintenance

This section describes the routine maintenance that the operator can perform on his/her own. Please note that regular and careful maintenance maintains and prolongs machine performance. Failures and malfunctions often entail higher costs in terms of time and money compared to those incurred with proper maintenance.

Upon reaching an extraordinary maintenance deadline, when the display turns on it shows the suitable deadline warning icon.

The basic set deadlines are at 500 working hours.



The owner of the machine and/or the safety manager are responsible for verifying that maintenance and/or repairs are carried out by qualified and instructed personnel.

Perform maintenance with the machine stopped.

Only perform the maintenance and adjustments described in this manual. In case of need (e.g. fault, crawler replacement), exclusively contact technical support.



Perform engine maintenance operations when it has been turned off and has cooled sufficiently (with the exception of those operations - such as oil change - that require hot engine). Burn hazard in contact with hot parts. (Refer to the relevant engine manual).

Do not use petrol or other flammable materials to clean the engine.

For engine maintenance operations, always refer to the instructions booklet of the engine manufacturer provided upon purchasing the machine.

Do not tamper with or modify the setting of any components of the electric and hydraulic system.

CAUTION!! IT IS STRICTLY FORBIDDEN TO MODIFY OR TAMPER WITH MACHINE COMPONENTS AFFECTING.

Washing

Avoid using degreasers and/or acid detergents. The plant is suitable to be washed with detergents for painted surfaces, taking care to adequately protect:

- the controls area;
- the battery compartment area;
- the electrical panel and all electrical boxes in general;
- the electrical motors.



IT IS STRICTLY FORBIDDEN TO USE DIRECT WATER SPRAY ON WIRING, PLUGS, ELECTRIC MOTORS AND ELECTRONIC BOARDS.

Once the machine washing process is completed, it is important to:

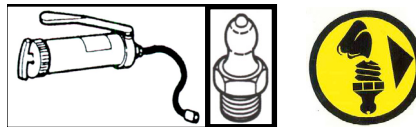
- dry the machine;
- verify the integrity of plates and adhesives;
- lubricate the pivot points fitted with grease nipples.

Lubrication



All greasing operations must be performed with machine stationary and emergency button pressed.

The greasing areas provided by the manufacturer are fitted with suitable greasing nipple and marked by a suitable sticker:



The pivot points must be greased at least once a month.

Furthermore, remember to grease the pivot points:

- after washing the machine;
- before using the machine again after a long downtime;
- after using the machine in particularly harsh environmental conditions (high humidity, very dusty, coastal areas, etc.)

RECOMMENDED GREASE:

LITHIUM BASED GREASE for temperatures between -20°C (-4°F) and +50°C (+122°F).

Welding

Welding operations do not fall within routine maintenance.

Welding operations must be performed only at authorised centres.

Engine (PETROL)

- For information on maintenance, refer to the relevant use and maintenance manual

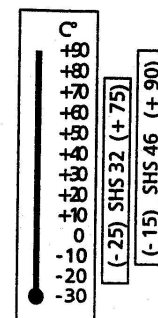
Hydraulic oil

For any top-ups or to replace the hydraulic oil, only use: **FUCHS PLANTOFLUX AT/46-S.**



CAUTION!!

If operating in especially cold climates with temperatures dropping considerably below zero, it is recommended to use oil with viscosity VG32.





Waste oil must exclusively be disposed of through an authorised collection centre.



10.2 Battery recharge

The machine is equipped with an automatic battery charger to be used during operation with motor off.



Do not perform temporary or anomalous electrical connections.

Properly check the battery charge status.

The battery is automatically recharged with combustion engine on.

Leaving the control panels on for a long time with engine off, may lead to discharging the battery.

The terminals must be properly tightened and free from scaling/oxidation.

The cables must have isolating parts in good conditions.

Avoid taking the battery to the discharge limit (<10.5 Volt) since recharging times would subsequently extend significantly and there is the risk of damaging it.

At the end of the work day, or when long inactive periods are scheduled for the machine, always remember to switch off the battery switch in order to prevent having the battery completely down.

Warnings on the battery charger and recharging

- Ensure the type of available power supply matches the stated voltage in the battery charger plate
- In the event of using an extension cord or power strip, ensure these support the total required current
- Disconnect the power supply before connecting or disconnecting connections to the battery
- To recharge Lead batteries: ATTENTION !!!:EXPLOSIVE GAS > Avoid the formation of flames and sparks. The battery must be positioned in a well ventilated area
- Ensure the rated voltage of the battery to be recharged matches that indicated in the battery charger plate
- Do not attempt repairing the battery charger.
Opening the cover might expose you to the risk of electrical shocks
- In the event the battery charger should not work correctly or be damaged, immediately disconnect it from the power outlet and the battery socket and contact the dealer

- Always wear personal protection equipment (gloves, goggles,...) when operating on the batteries
- Never add acid to the batteries
- Always keep the batteries clean and dry
- Do not expose to heat sources
- Ensure the electrolyte caps are closed well

How to extend battery life

- Ensure the electrolyte level is above the plates
- Close the caps well before recharging
- Do not interrupt the charge cycle
- Never recharge a cold battery
- Only perform recharging in well ventilated areas
- Only add water after completely recharging the battery
- Never let the electrolyte level go below the plates
- Exclusively use distilled water or with low mineral content
- Do not let anything fall into the battery
- Exclusively clean with water and dry
- Protect the cables with anti-corrosion products
- Place in a cool and dry area
- Avoid exposing it to heat sources



Keep the battery clean, dry and free from oxidation products using anti-static cloths.

Do not place tools or any other metal object on the battery.

In the presence of operation anomalies attributable to the battery, avoid intervening directly and warn the Technical Support Service.

In order to limit battery self-discharge during periods of inactivity, store the machine in premises with temperatures lower than 30°C.

Replace the old batteries only with models having identical voltage, capacity, dimensions and mass.

The batteries must be approved by the manufacturer.

10.3 General safety warnings for maintenance operations

- ∞ The machine must be parked on a level surface
- ∞ Operate when cold.
- ∞ Do not perform repairs or maintenance when the machine is connected to the power supply.
- ∞ The lifted machine should be placed on blocks and must not remain suspended
- ∞ All removed parts must be supported by solid surfaces and placed so they do not fall if the hydraulic pressure drops
- ∞ All lifting equipment must comply with regulations in force
- ∞ Avoid climbing on the machine if possible
- ∞ Use suitable lifting platforms for work at height
- ∞ Protect yourself with appropriate PPE (gloves, goggles, clothing, etc.)
- ∞ Do not wear jewellery or other items that may be lost while working
- ∞ Pay attention to damaging hydraulic piping and electric cables during repair operations, check

- their condition upon completing the work
- ∞ Only use correct equipment
- ∞ During maintenance, do not disperse any waste in the surrounding environment, but comply with the provisions of the regulation in force
- ∞ For engine maintenance (Petrol), integrate the instructions of this manual with the instructions in the engine's manual

10.4 Extraordinary maintenance



Maintenance to be carried out only by the authorised technical service centre.

The next page shows the maintenance sheet with hourly deadlines.
Extraordinary maintenance operations are those with 500, 1000 hour intervals and yearly.
The operator must contact the support service upon reaching a deadline in order to avoid voiding the warranty.

10.4.1 Maintenance sheet

SPB209CP MAINTENANCE CARD					
MODEL	CUSTOMER	SERIAL NUMBER:			
COMPONENT	TYPE OF CHECK	Daily	Weekly	500 hours	
1. STRUCTURE					
• Main supports	Lack of cracking		X	X	
• Crane boom frame and extensions	Lack of cracking-Greasing		X	X	
• Outriggers	Lack of cracking-Greasing		X	X	
• Extensible chains	Wear-Greasing-Fastening		X	X	
• Pins	Conditions-Fastening			X	
• Carrier	Conditions and wear of crawlers			X	
• Carrier fastening bolts	Conditions-Tightening			X	
• Crane fastening bolts	Conditions-Tightening			X	
• Structure fastening bolts	Conditions-Tightening			X	
2. LIFTING SYSTEM					
• Lifting hook	Lack of cracking	X			
• Winch cable	Conditions and wear	X			
• Lifting chains	Lubrication-Elongation check-Loading tests		X		
3. HYDRAULIC SYSTEM					
• Pumps	Oil leaks-Noise level			X	
• Oil tank	Oil level-Oil conditions			X	
• Hydraulic oil	Replacement			X	
• Filters	Replacement			X	
• Crane jacks valves	Seepage-Operation	X			
• Outriggers valves	Seepage-Operation	X			
• Carrier and crane distributor	Seepage-Operation			X	
• Flexible piping	Seepage-Wear			X	
• Hydraulic pressure	Check			X	
4. ELECTRICAL COMPONENTS					
• All boards	Oxidation			X	
• Power line	Conditions			X	
• Battery charger	Conditions and operation	X		X	
• Batteries	Electrolyte level		X	X	
• Electric motor	Conditions and operation			X	
• Pressure transducer	Operation	X			
• Extension and angle transducer	Operation	X			
• Proximity sensors	Operation	X			
5. SAFETY DEVICES					
• Emergency button	Operation	X			
• Control panel signals	Operation	X			
• AntiTwoBlock	Triggering	X			
• Limiter	Triggering			X	
• Rope limit switch	Triggering			X	
6. ACCESSORIES					
• Winch	Lubrication			X	
• Three-phase kit	Operation-Absence of seepage		X	X	
7. SAFETY SIGNALS					
• Crane and accessories "CE" plate	Status and visibility		X	X	
• Stickers and visual signs	Status and visibility		X	X	
8. ENGINE (PETROL) SPX312CP					
• Crankcase oil level*	Check	X			
*Refer to the relevant use and maintenance manual of the engine (petrol) for additional details on its maintenance.					

10.4.2 Check of chains measurement, wear, tensioning



The chains must be checked by skilled and instructed personnel.

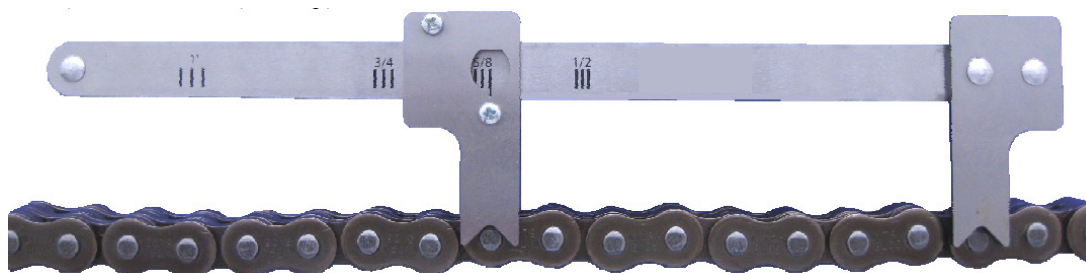
The machine is equipped with flyer chains type DIN LH 0844 - BL 444, DIN LH 1244 - BL 644, DIN LH 1266 - BL 666.

Due to the friction between pins and plates in flyer chains, the chains are subject to elongation; **maximum allowed elongation is 3%, beyond this limit the chain must be replaced (3% = 30 mm/m)**. The chains must also be replaced if visible damage is present.

- The chain must be tensioned.
- Perform the check as close as possible to the transmission pulley, on a straight chain stretch.
- Perform the check by measuring 8 chain pitches.
- Position appendices 1 and 2 on the protruding pins of the chain.

Suitable instruments which may be purchased on the market are used for the check.

Below is an example:

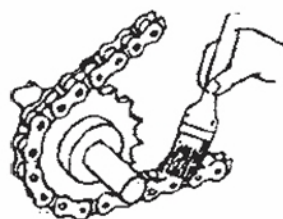
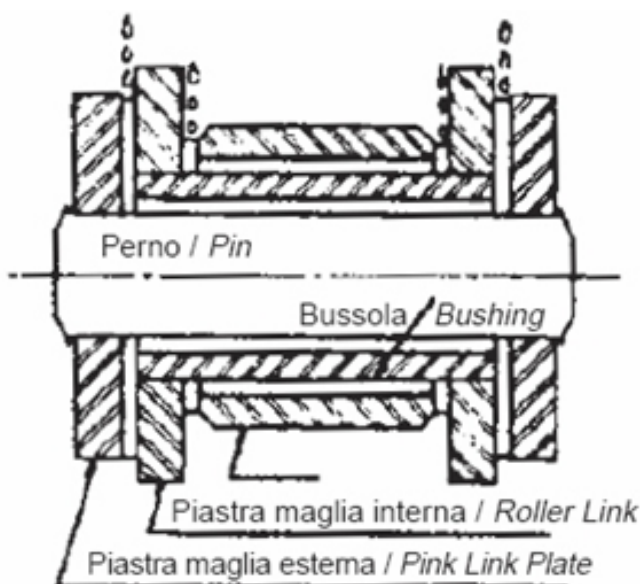


The marks will indicate:

- new chain with length close to nominal value
- chain with 1.5% elongation
- **chain with 3% elongation to be replaced according to the regulations**

The oil is applied with paintbrush or sprayer, in the gap between the chain roller and pin.

It shall be applied at approx. 40-hour cycles or shorter intervals in the event the application should lead the parts to dry early.



Temperatura °C
Temperature

Da / From -6	a / to +5
Da / From +5	a / to +38
Da / From +38	a / to +49
Da / From +49	a / to +60

Lubrificante consigliato
Recommended lubricant

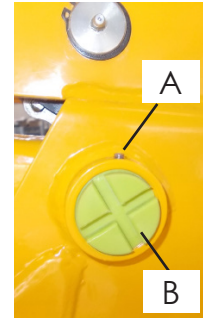
SAE 20
SAE 30
SAE 40
SAE 50

10.4.3 Adjustment of shoe and boom play

Check yearly the wear condition of the boom sliding shoes.

The correct play between shoes and boom is 0.5 - 1 mm (0'002" - 0'003"); in the event of high play, tighten the shoes as follows:

- unscrew the locking grub screw (A);
- tighten the shoe (B) with a screwdriver until achieving the play mentioned above.



IN VIEW OF THE IMPORTANCE OF THE OPERATION, IT IS RECOMMENDED IT IS CARRIED OUT ONLY BY SKILLED TECHNICAL PERSONNEL. CONTACT TECHNICAL SUPPORT.

10.4.4 Check crawler condition and tension

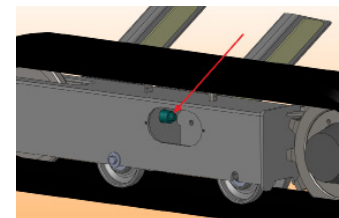
The duration of the rubber crawlers depends on the type of terrain on which the machine is used.

Crawler replacement is necessary in the event tread grooves reach a height less than or equal to 10-12 mm (0'03" - 0'04"), or when cuts and/or tears are apparent.

For longer duration of the crawlers, tensioning must be checked at least once a month.

To check crawler tensioning:

- lift the carrier off the ground with the outriggering control;
- visually check the play of the crawlers;
- in the event of higher play than stated, tension the crawlers by pumping lubricating grease into the suitable valve (see photo). (refer to relevant crawler manual).



**CAUTION!!
ANY CRAWLER REPLACEMENT MUST BE PERFORMED BY SKILLED PERSONNEL. CONTACT TECHNICAL SUPPORT.**

10.4.5 Rope checks

The procedures to check a rope are detailed below, listing the cases when it must be replaced, in order to assure efficiency and safety of lifting operations.

The rope is a component that must be replaced every time the inspection should prove that its resistance has decreased to the point that any use would be dangerous.

The life of a rope varies in relation to the special conditions of use.

The ropes may be permanently marked even after performing few lifts or even after the first lift if they work on sharp edges or very narrow curvature radii of the material, thus decreasing their rated capacity up to more than 50 %.

At any event, safe handling of loads always requires regularly checking the rope to allow it to be replaced properly in time.

Furthermore, at times the ropes are used in special settings or in difficult conditions where the rope might be exposed to risks of accidental damage. (e.g. collision with other blocks).

In these cases, the rope must be checked with special care and it must be immediately replaced should critical damage conditions be found.

The ropes for handling loads must undergo daily visual inspection to identify any deterioration and deformation.

The criteria to check and replace a rope are as follows:

- check connecting points at both ends;
- check for broken wires of the strands;
- check all parts of the rope that might be subject to abrasion (contact with the material);
- check the internal part of the rope (corrosion and fatigue).

When a modification in the rope's original condition is detected, a more detailed inspection must be carried out by competent personnel, who shall decide whether to replace the rope or not.

The rope must be replaced based on the following:

- a) nature and number of the broken wires;
- b) broken metal wires in the connecting point;
- c) broken strands;
- d) diminished elasticity;
- e) degree of wear (external and internal);
- f) degree of corrosion (external and internal);
- g) deformation.

a) Nature and number of broken wires

The broken wires visible on the outside of the rope must be counted, obviously taking under consideration the most worn stretch of rope.

The count must be done on both lengths and the rope must be replaced if the broken wires exceed the stated minimum values even in one length only.



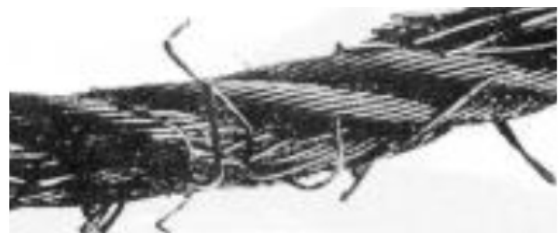
Broken wires in a strand together with slight wear, in a parallel lay rope.
Keep the rope under control, remove the broken wires so that the ends are flush against the outer profile.
Replace the rope



Broken wires and wires moving in two adjacent strands in a cross-lay rope.
Replace the rope



Broken wires in a number of strands.
Immediately replace the rope



Rope strained by continuous rubbing, leading to flattening and deformation with wear and broken wires.
Immediately replace the rope



High number of broken wires, together with severe wear, in a cross-lay rope.

Immediately replace the rope



Cumulative effects of several deterioration factors. Wear of outer wires, their deformation in a birdcage and many broken wires.

Immediately replace the rope

b) Broken metal wires in the connecting point

Broken metal wires in connecting points, or close to them, indicate that the tension exerted there is high and may have been caused by incorrect fitting of the connecting terminals.

The exact cause of the damage must be sought and, if possible, remake the connection very accurately, shortening the rope, as long as a sufficient length remains for the subsequent use.



Broken wires in two strands, close to the connecting point due to strain.

Replace the rope

c) Broken strand

If a strand breaks, the wire rope must be replaced.

d) Diminished elasticity

In some cases a rope may undergo a substantial decrease in elasticity, which will make its subsequent use dangerous. The decrease in elasticity is hard to assess, in case of doubt it will be necessary to request the opinion of an expert in the matter of ropes.

This fault is generally associated to the presence of the following symptoms:

- reduction of the rope diameter;
- rope elongation;
- lack of space between individual wires and between strands, caused by mutual compression of the various elements;
- appearance of a fine dark dust within the strands;
- although no rupture is visible, the rope is a lot stiffer to handle and certainly features diameter reduction, greater than that caused by wear of individual wires.

This type of condition may lead to sudden rupture under dynamic load and this is enough to lead to immediate replacement.

e) Degree of wear (external and internal)

Another cause which might bring about rope replacement is wire wear.

Flattening of the wire foretells their rupture in a short time.

When a rope is worn therefore, the interval between inspections must be reduced in order to keep under control the wires and, in the event the worn wires should feature a reduction in diameter equal to 50%, the rope must be replaced.

Wear decreases rope resistance, when the outer rope diameter is reduced by 7% or more with respect to the rope's nominal diameter, it must be replaced, even if no broken wires are visible.

Wear may take place in two ways:

- internal wear and denting (caused by friction between individual strands and rope wires);
 - external wear (rubbing under pressure of the rope with the pulley grooves and drums, this phenomenon is especially evident in moving ropes, in points of contact with the pulley, when the load is in the starting or braking stage and is highlighted by flattening of the surface of outer wires).
- In order to prevent this phenomenon, it is recommended to lubricate correctly the rope and reduce to the minimum the presence of sand and dust.

f) Degree of corrosion (external and internal)

Corrosion may also lead to broken wires, but diameter reduction being equal, corrosion brings about more severe deterioration and wear.

The rule set out in the previous paragraph is thus valid but it should be applied with more caution since if corrosion is inside the rope, it requires much experience for its identification (opening the strands with appropriate clamps).

Corrosion may not only decrease breaking strength, due to the reduction in the rope's metal section, but also accelerate phenomena due to fatigue, thus bringing about unevenness on the surface.

Corrosion may take place in two ways:

- external corrosion (may be visually detected);
- internal corrosion.

It is harder to detect, but may be recognised through the following phenomena:

- a) change in the rope diameter;
- b) decreased space between strands in the rope's outer layer.

In the event internal corrosion is suspected, the rope must undergo an internal inspection, carried out by skilled personnel.

Confirmation of internal corrosion calls for immediate replacement of the rope.

g) Deformation

"Rope deformation" is a visible distortion with respect to its normal composition.

There are various types of distortion which, based on their appearance are divided into the following main deformations:

1. HELICAL DISTORTION

This deformation occurs when the axis of the rope looks like a helix.

This distortion, if of a certain severity, may transmit a vibration which brings about irregular rope control, and may cause wear and rupture of wires in the long term.

Replace the rope in case:

$$d1 \geq 4 d / 3$$

"d1" is the diameter corresponding to the envelope of the deformed rope;

"d" is the rope diameter;

the length of the rope taken under consideration must not exceed 25 d.



Helical distortion: a deformation where the longitudinal axis of the rope takes a helix shape. The rope must be replaced when the deformation exceeds the value set out in point a) "Nature and number of wire ruptures".

2. BIRDCAGE DISTORTION

This type of deformation occurs in ropes with metal core, it is brought about when the layer of outer wires shifts or when the outer strands are longer than the inner ones. When "birdcage distortion" occurs, the rope must be replaced immediately.



Protrusion of the metal core, generally associated to birdcage distortion in the adjacent area.

Immediately replace the rope



Birdcage distortion of a multi-strand rope.

Immediately replace the rope

3. PROTRUSION OF STRANDS

This phenomenon is often associated to birdcage distortion, when rope imbalance is indicated by core protrusion. When strand protrusion occurs, the rope must be immediately replaced.



Strand wire protrusion due to repeated "Tearing".

Immediately replace the rope

4. PROTRUSION OF STRANDS

This phenomenon arises when some wires or groups of wires separate on the side of the rope opposite the pulley groove, with formation of knots. This case usually occurs when the load is subject to a sudden shock. When the protrusion of wires is significant, it is justified to replace the rope.

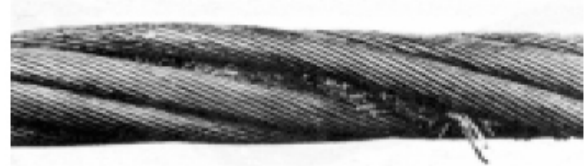


Protrusion of wires from a strand, normally this anomaly occurs on the same strand in the length equal to one winding.

Replace the rope

5. LOCALISED ROPE DIAMETER INCREASE

Occurrence of this phenomenon normally involves core distortion, bringing about an imbalance in the outer strands. An excessive increase may justify rope replacement.



Rope diameter increase due to the textile core protruding.

Replace the rope



Protrusion of the metal core due to a distortion arising from sudden load.

Immediate rope replacement

6. LOCALISED ROPE DIAMETER DECREASE

This phenomenon arises when some wires or groups of wires separate on the side of the rope opposite the pulley groove, with formation of knots. This case usually occurs when the load is subject to a sudden shock. When the protrusion of wires is significant, it is justified to replace the rope.



Localised decrease in the rope diameter as the outer strands occupy the place of the textile core which has been destroyed.

Immediately replace the rope



Localised crushing with presence of broken wires.

Replace the rope

7. FLATTENED PARTS

It is the result of a mechanical damage. If the flattened parts are of a certain extent, the rope must be replaced.



Flattened multi-strand rope due to incorrect spooling onto the drum, this causes tension imbalance in load conditions.

Replace the rope

8. TWISTING

This deformation is caused by a kink in the rope, when it remains taut without being able to rotate around its axis. An imbalance occurs in the laying length, which causes excessive wear and in the most severe cases, the rope will be distorted to the point of retaining only a minimal portion of its resistance. Twisting is grounds for immediate replacement.



Severe rope twisting which causes the textile core protruding.
Immediately replace the rope



Twisted rope during installation but equally mounted, features localised wear with loosening of the strands.
Immediately replace the rope

9. KINKS

These are angular distortions which arise from external causes. This phenomenon justifies immediate rope replacement.



Severe bend.
Immediately replace the rope

10.5 Spare parts

All spare parts required in case of breakage or during routine machine maintenance are available by directly accessing service.jekko.it.



If components are replaced, use only original spare parts.

10.6 Tools required for maintenance

All activities related to preventive and routine machine maintenance are carried out using standard equipment (e.g. screwdrivers, spanners, etc.) with the exception of bolts, for which we recommend using a torque spanner.

11 TOOLS REQUIRED FOR MAINTENANCE

11.1 Introduction

Directive 2006/42/EC stipulates the obligation of the machine user, to maintain a log where routine and extraordinary maintenance operations will be noted, as well as the obligatory hourly servicing required for the validity of the warranty on structural parts, (see specific warranty certificate) and the required annual audits by the body responsible for the checks.

JEKKO S.r.l. has thought to provide you with this log which will be up to you to preserve and keep updated.

Routine maintenance will, be carried out by carefully following the instructions provided in the individual instruction manuals attached to the machine.

Extraordinary maintenance not covered in the manuals, such as the replacement of a component or the repair of safety devices, will be performed by highly specialised personnel and at service centres authorised by the manufacturer.

The care and compilation of this log has an important function, as it allows you to keep the system under control, with clear benefits for your safety and that of others, and to demonstrate its efficiency and proper operation to any inspectors.

The instructions in this log and in the user manuals are provided in accordance with the provisions known at the time of the first start-up. New provisions could intervene to change your obligations. Our company, to the best of their skills and knowledge, will be at your full disposal for any clarifications.

The following can be noted in this log:

- The faults pertaining to a certain entity and its repairs, periodic checks.
- The replacement of structural, hydraulic and safety components.
- The transfers of ownership.



This log and operation manuals are an integral part of the machine and must accompany it throughout its service life.

This log includes the following:

- Use and storage.
- Maintenance and periodic check card.
- Service reports with sequential numbers and attachments.
- Transfer of information in the event of a sale or change of operator.

11.2 Cases that relieve the manufacturer from responsibility

THE FITTER SHALL BE RELIEVED FROM ANY LIABILITY IN THE FOLLOWING CASES:

1. IMPROPER USE OF THE MACHINE
2. TAMPERING
3. USE BY PERSONNEL NOT TRAINED IN PROFESSIONAL UTILISATION
4. SERIOUS DEFICIENCIES IN SCHEDULED MAINTENANCE
5. FULL OR PARTIAL BREACH OF INSTRUCTIONS
6. FAILURE TO COMPLETE OR UNDERWRITE PERIODIC INSPECTION CARD AND RELATIVE REPORTS
7. NO PERIODIC CHECKS
8. USE OF NON-ORIGINAL SPARE PARTS
9. UNAUTHORISED MODIFICATIONS AND INTERVENTIONS
10. EXCEPTIONAL EVENTS

11.3 Maintenance log

Among the following attachments are some pages to assist the operator in documenting the various interventions involving the machine during its service life.



Be sure to complete and to keep constantly updated.

[illegible]

11.5 Detailed maintenance operation cards

SERVICE REPORT No	date / /
-------------------	--------------------

(The service reports with corresponding sequential number are attached to the maintenance operation card)

Machine type: **Serial No. :**

WORKSHOP THAT CARRIED OUT THE SERVICE

Company:

City: postal code:

street address: no.

DESCRIPTION OF OPERATION

.....

.....

.....

.....

.....

STAMP AND SIGNATURE

.....

SERVICE REPORT No	date / /
-------------------	--------------------

(The service reports with corresponding sequential number are attached to the maintenance operation card)

Machine type: **Serial No. :**

WORKSHOP THAT CARRIED OUT THE SERVICE

Company:

City: postal code:

street address: no.

DESCRIPTION OF OPERATION

.....

.....

.....

.....

.....

STAMP AND SIGNATURE

.....

11.6 Detailed mandatory periodic inspection data sheets provided by the owner

INSPECTION		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
• Visual inspection		Rust, oil leaks, pin retaining nuts on the structure, external cable insulation parts, welding, fuel leaks	
	DATE	COMMENTS	STAMP and SIGNATURE
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			
• Sundry adjustments		Nuts retaining pins on the structure, hydraulic fittings, bolts fastening the carrier, the crane and the structure	
	DATE	COMMENTS	STAMP and SIGNATURE
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

INSPECTION		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
• Deformation of pipes and cables		Check that the pipes and cables have no visible defects, especially in the pivot points	
	DATE	COMMENTS	STAMP and SIGNATURE
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			
• Greasing (weekly operation; log a report at least once every 6 months)		See page 68	
	DATE	COMMENTS	STAMP and SIGNATURE
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

INSPECTION		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
• Adhesive and plate check (monthly operation; log a report at least once a year)		See chapter 15. Check the presence and legibility of all the adhesives and any aluminium plates.	
	DATE	COMMENTS	STAMP and SIGNATURE
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			
• Oil level check and top-up		Keep under control the relevant oil level gauge on the machine and top up as needed, unscrewing the suitable tank cap	
	DATE	COMMENTS	STAMP and SIGNATURE
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

INSPECTION		DESCRIPTION OF OPERATIONS TO BE PERFORMED	
• Lifting ropes wear conditions		See pages 62-63-64-65-66-67-68	
	DATE	COMMENTS	STAMP and SIGNATURE
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			
• Boom shoe play adjustments		See page 62	
	DATE	COMMENTS	STAMP and SIGNATURE
1st YEAR			
2nd YEAR			
3rd YEAR			
4th YEAR			
5th YEAR			
6th YEAR			
7th YEAR			
8th YEAR			
9th YEAR			
10th YEAR			

12 SHEET FOR THE TRANSFER OF INFORMATION

TRANSFER OF KNOWLEDGE OF THE MANUAL

Date:.....

The undersigned, Mr.:

resident in postal code.:

street address: no.

Phone:

DECLARES UNDER THEIR OWN RESPONSIBILITY TO:

- ☒ have received and understood the machine operating instructions;
- ☒ have taken delivery of the manual and have mastered its content.

from Mr.:

resident in postal code.:

street address: no.

Phone:

AND AGREES TO THE TRANSFER OF KNOWLEDGE AND THE HANDOVER OF THE MANUAL TO ITS SUCCESSOR OR NEW OWNER.

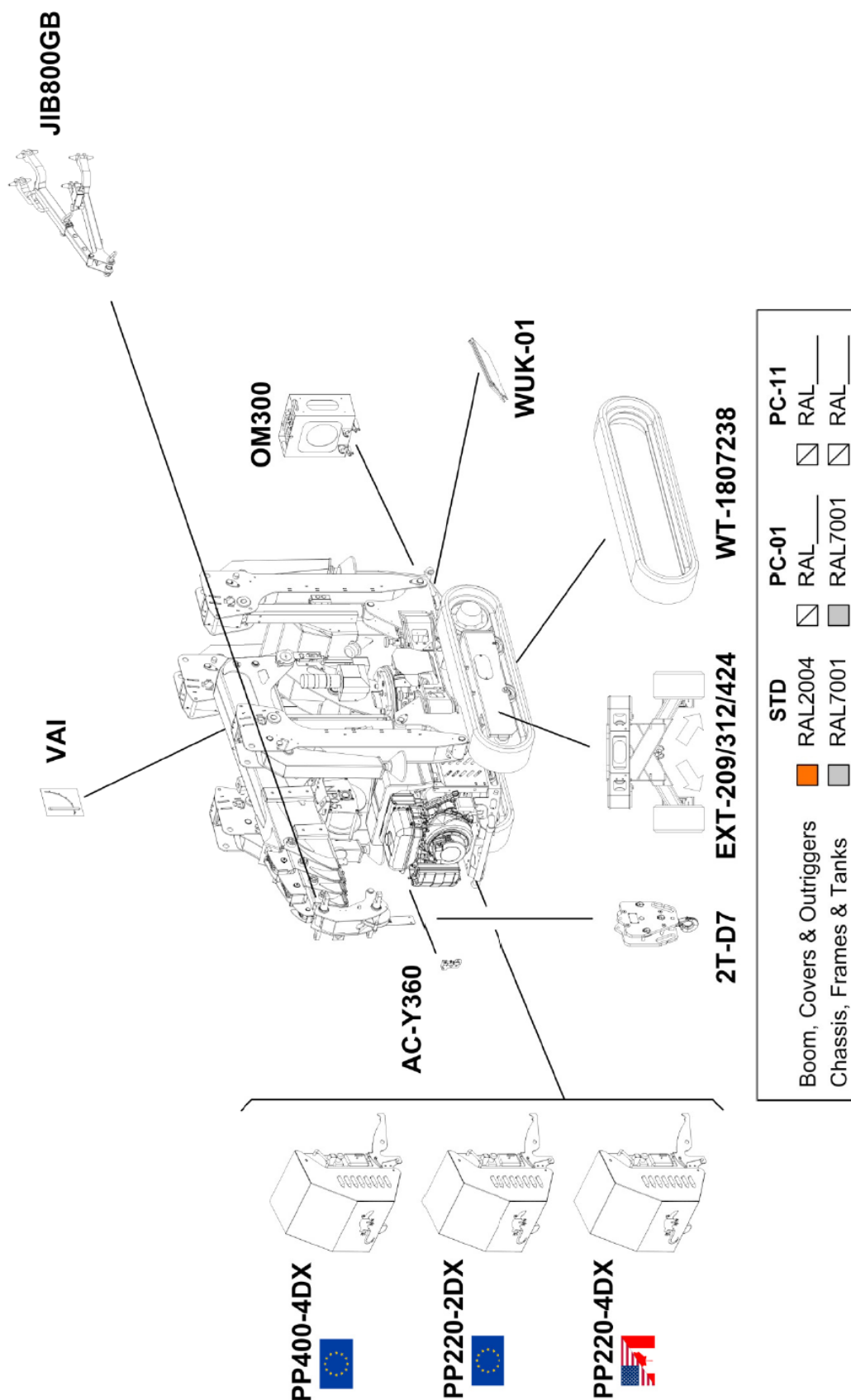
IN WITNESS THEREOF
PREVIOUS OPERATOR

.....

IN WITNESS THEREOF
NEW OPERATOR

.....

13 ACCESSORIES





Models SPX312CP/C+ can only be equipped with accessories designed for installation on the machinery concerned. The manufacturer declines all liability deriving from the use of different accessories.



In case of lifting accessories, note that they aren't integrated with the machinery load limiting device therefore they might endanger the stability of the machinery and the safety of the people working around it.

Accessories for SPB209CP*
JIB
JIB800GB
EXTERNAL SUPPLY KIT
PP400-4DX (European market)
PP220-2DX (European market)
PP220-4DX (North-American market)
ACCESSORIES SUPPLIED
Mats
Rope block

*For a more comprehensive list, refer to the accessory list in the Technical Data sheets.



The accessories supplied are exclusively designed and manufactured for installation and use of JEKKO machinery. The manufacturer declines any responsibility arising from non-intended uses and/or installation of different machinery.

13.1 Three-phase supply kit PP 400-4DX



Premise

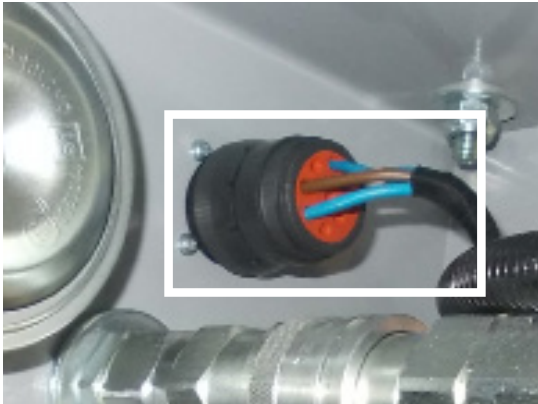
The three-phase kit on SPB209CP allows the crane and carrier to be used with electrical power supply.

Installation

- Anchor the three-phase kit with the quick connectors which are at the front of the mobile crane.



- Connect the relevant connector



- Connect the red plug for three-phase power supply (400V) in the suitable kit socket.



- Fasten the kit by tightening the suitable side bolts.



During installation, pay attention to persons in the surrounding area.

CAUTION!!

Tilting/falling hazard of unsupported sections!

Use

- Switch on the motor by means of the suitable black button and rotate the selector in position 1 or 2 (leave the selector in the position that involves correct rotation of the electric motor - clockwise direction indicated by the arrow).



In the event the motor has started but the machine does not work, invert the selector position (from 1 to 2 or from 2 to 1) in order to invert the motor's rotation direction.

In the event the motor should not start:
ensure the emergency button is not pressed or the rotation direction is correct.

- To switch off the motor, press the red emergency mushroom-headed button or turn the selector to 0

Removal



CAUTION!!

To remove the kit from the machine, **turn off the motor** as indicated above, disconnect the red power supply plug then the relevant fittings and connectors.

A different disconnection procedure might lead to dangers arising from ejection of fluids at high pressure.

13.2 Mechanical jib JIB800GB



Installation

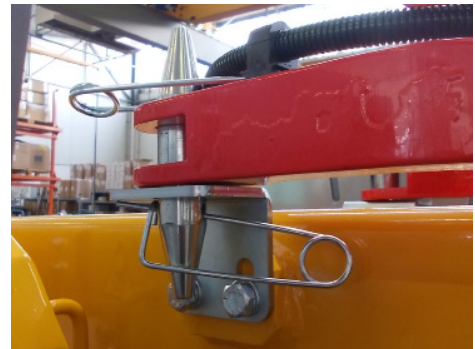


During installation, pay attention to persons in the surrounding area.

CAUTION!!

Tilting/falling hazard of unsupported sections!

Remove the mechanical JIB 800GB from the rear of the boom on which it is fastened, removing the two side pins.



Fasten the JIB at the front-bottom of the boom using the two pins to fasten it to the crane.



IMPORTANT!!

Insert the relevant safety pins

Open the mechanical accessory, loosening the relevant screw knob.



After opening, fasten the JIB also at the front-top of the crane boom by using two more pins.



IMPORTANT!!

Insert the relevant safety pins

Correct position and fastening of the accessory.



Remove the safety pin, unscrew the second bolt, remove the screw and lengthen the accessory to the required extent.



Maximum JIB opening.

Upon reaching the desired opening, place the screw back in the suitable slot, the bolt and the safety pin.



In order to be able to use the accessory, after mounting it, select it on the display of the control panel press **Esc** until the required accessory



is highlighted then confirm with **Enter** (see page 39 point 9.).

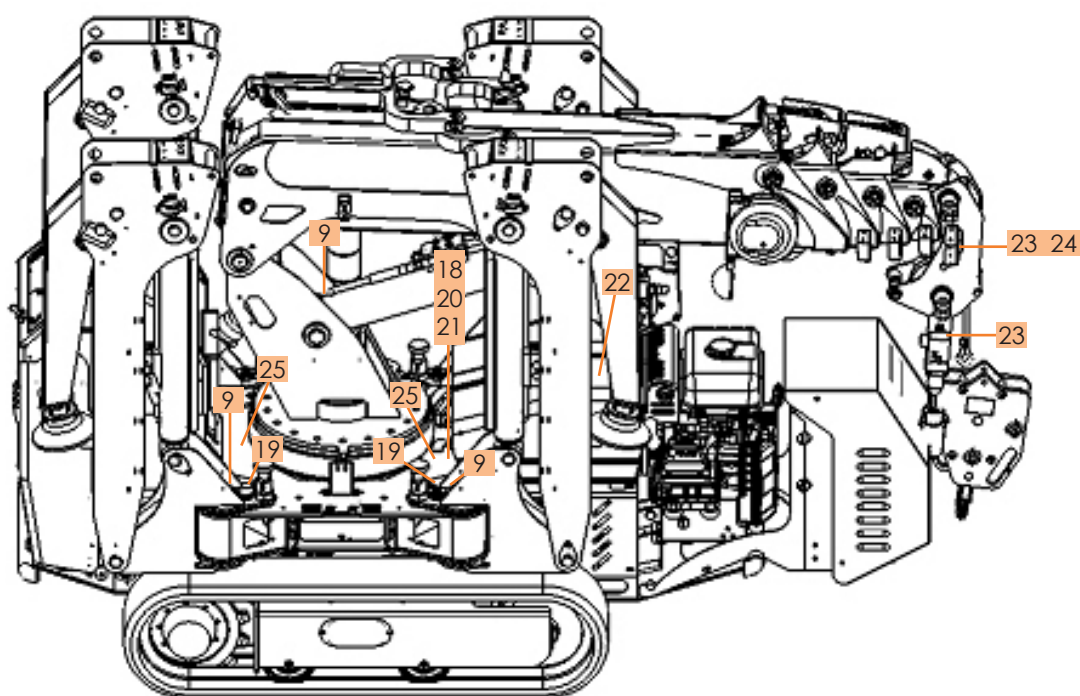
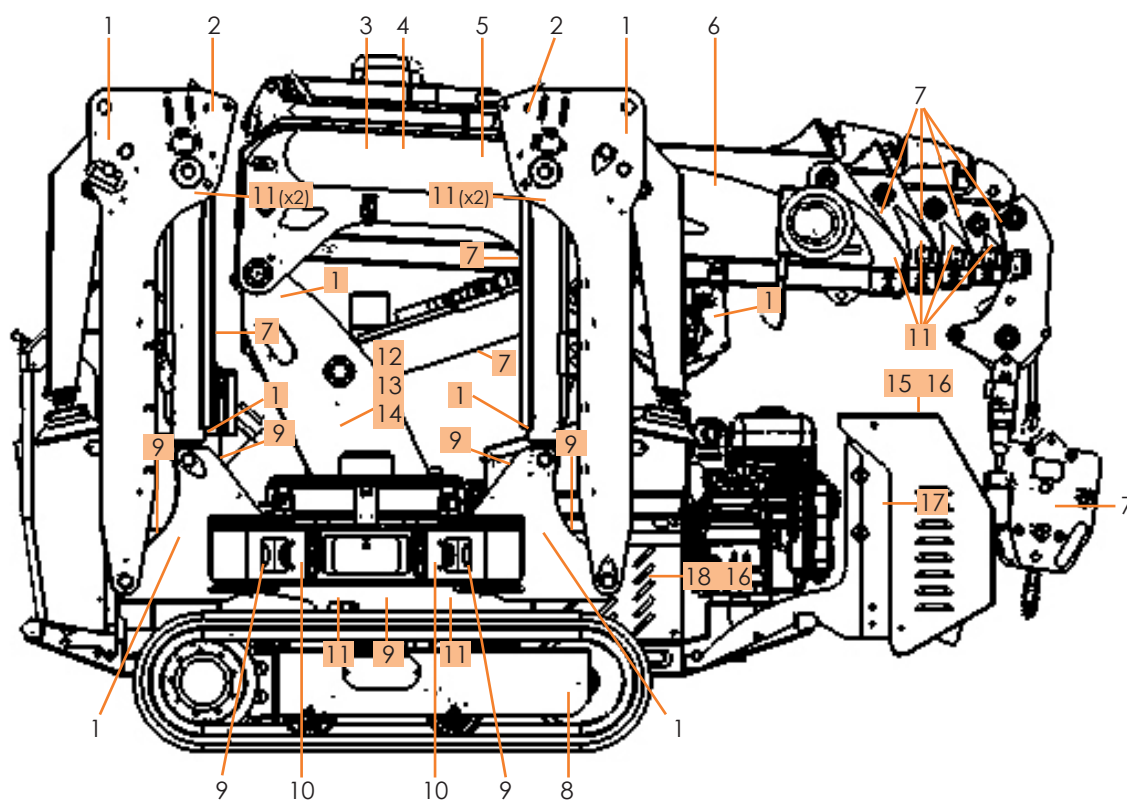


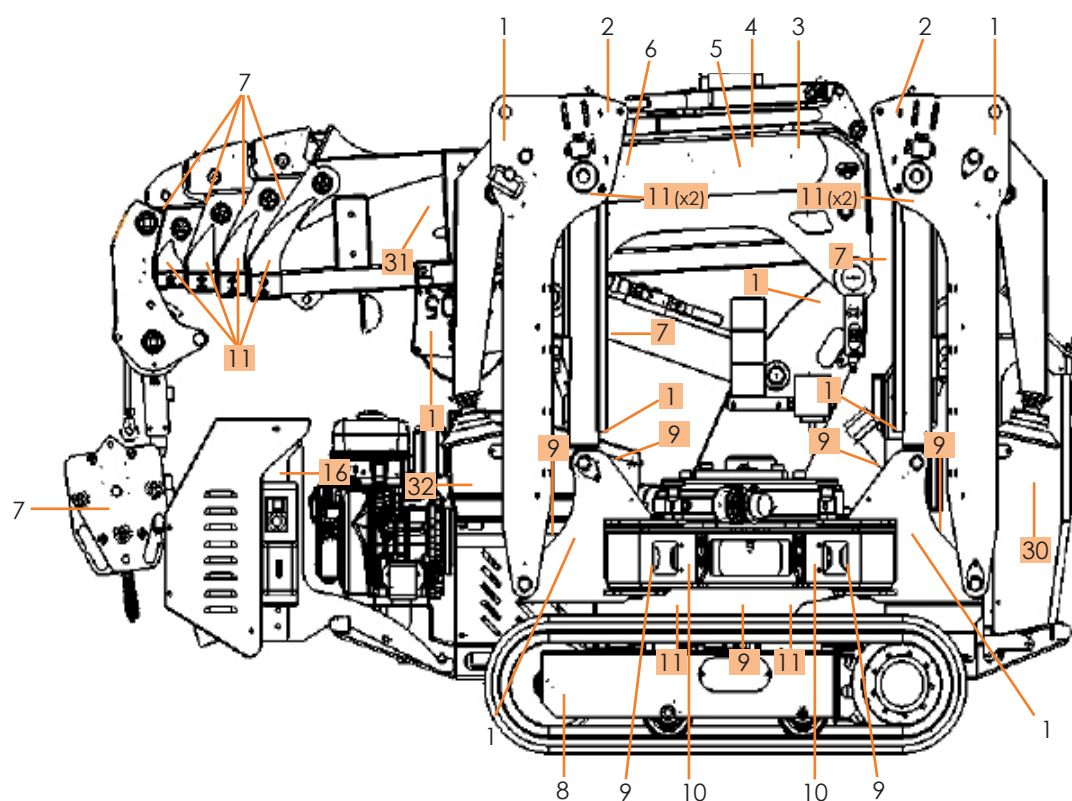
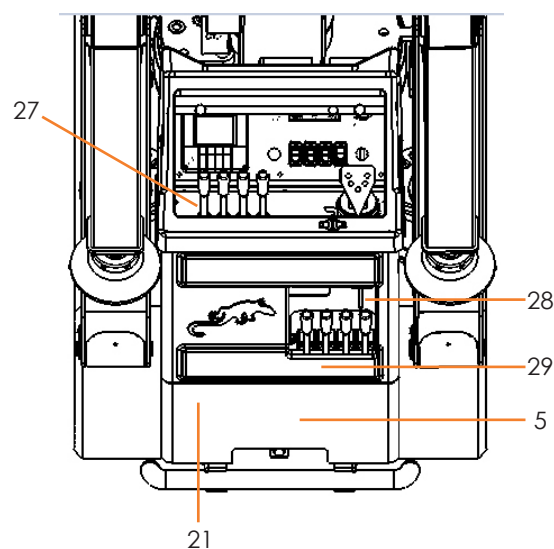
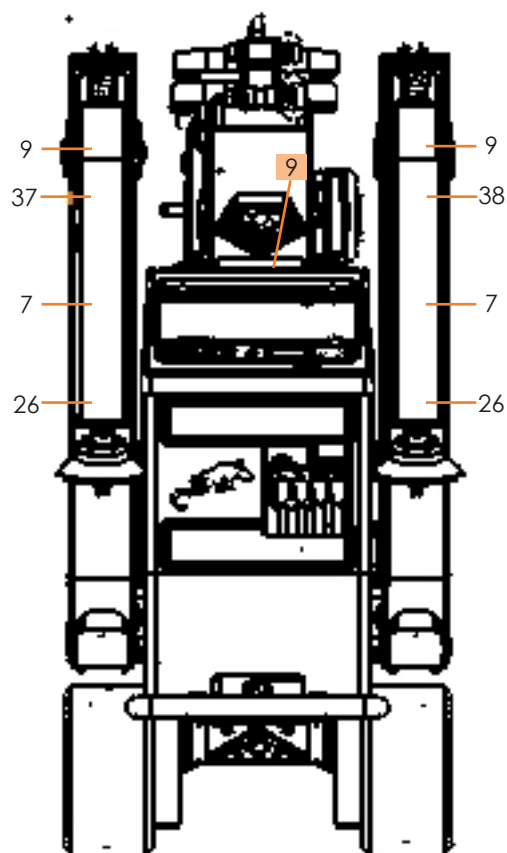
14 ATTACHMENTS

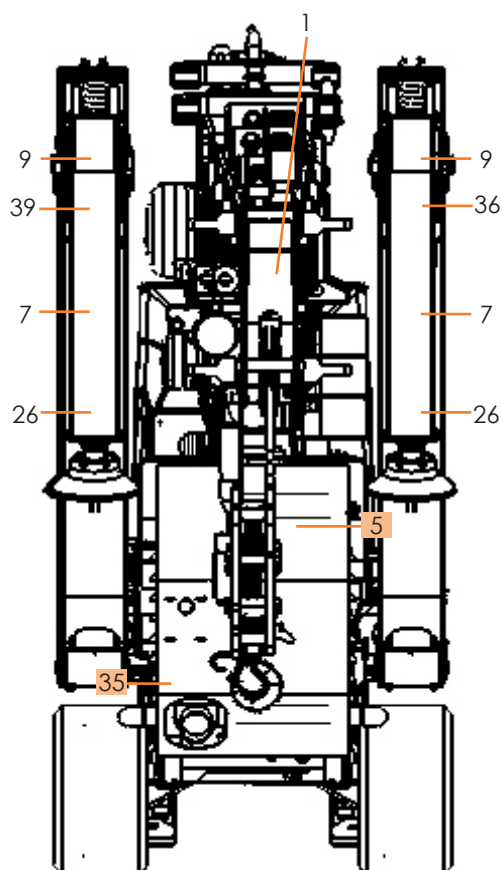
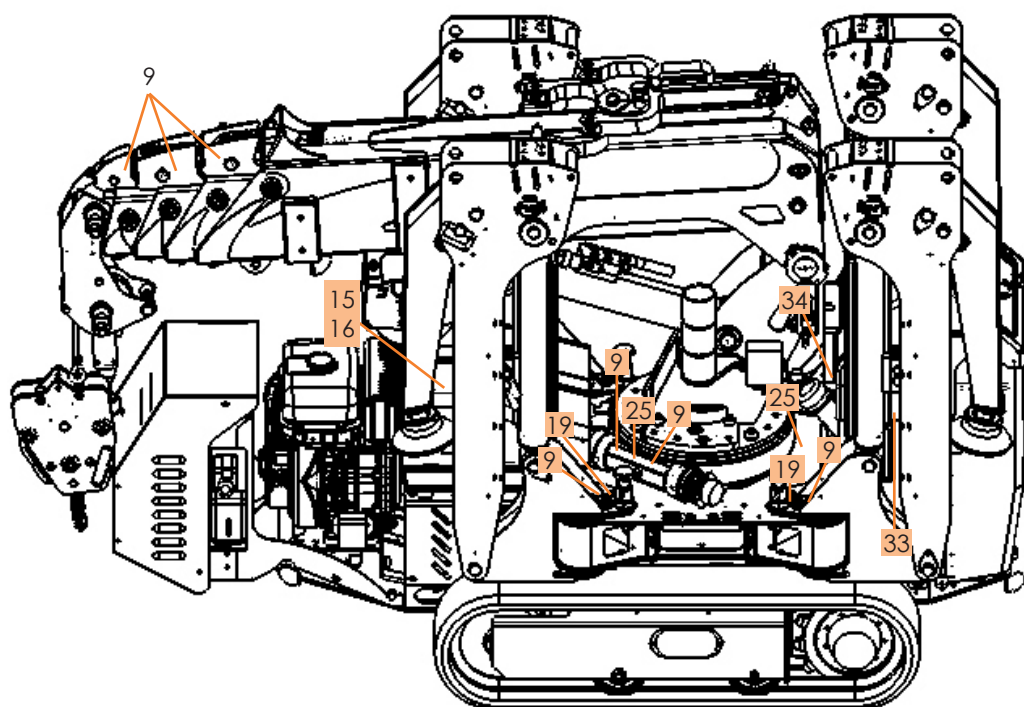
- CE
- OPERATION AND MAINTENANCE MANUAL
- ENGINE MANUAL (DIESEL or PETROL)
- DIAGRAM AND LOAD CHART BOOKLET
- CERTIFICATE OF ORIGIN
- RADIOCONTROL CERTIFICATE
- WINCH CERTIFICATE
- WINCH ROPE CERTIFICATE
- BLOCK CERTIFICATE
- TROUBLE SHOOTING
- HYDRAULIC DIAGRAM (ON DEMAND)
- WIRING DIAGRAM (ON DEMAND)

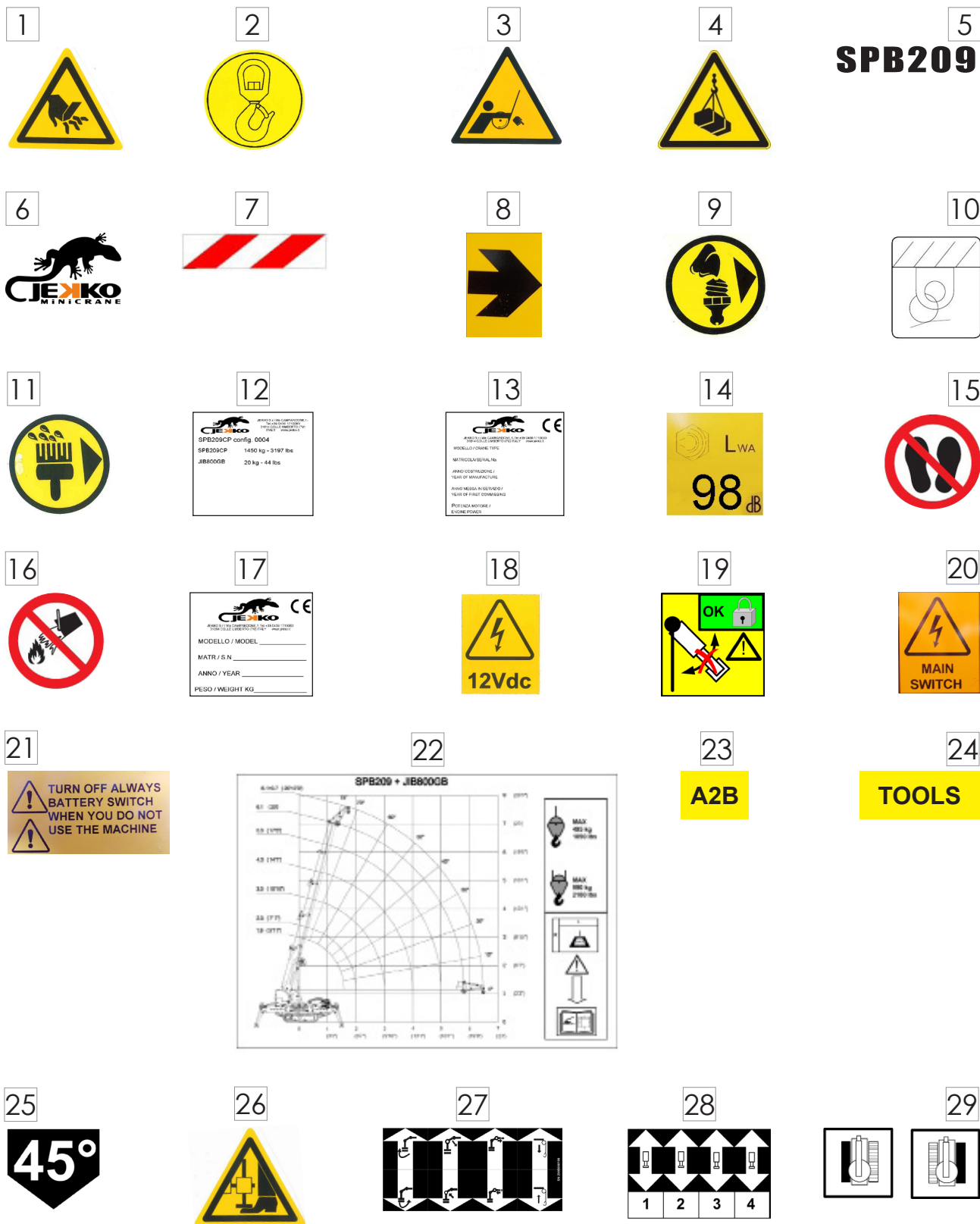
15 LABELS AND PINS

15.1 Position of labels on SPB209CP





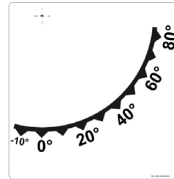




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15.2 Position of safety pins

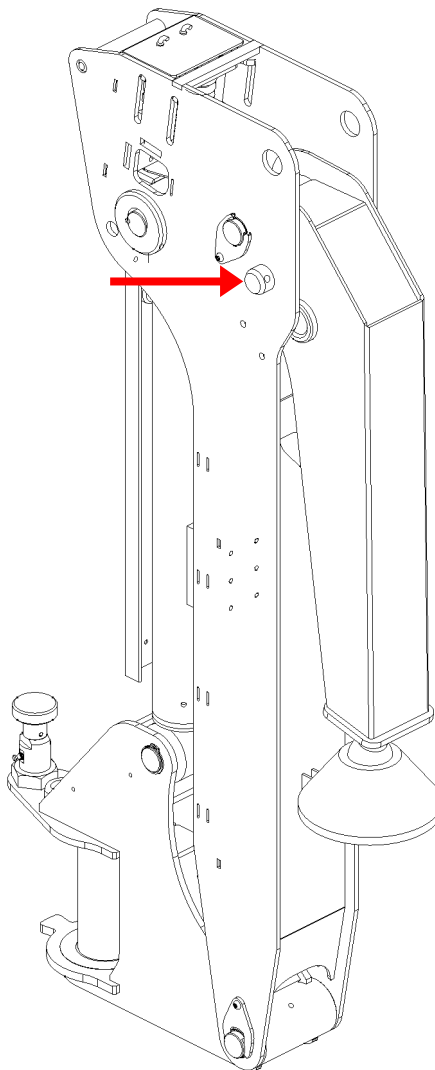
Pins are safety devices that prevent damage to things and humans, and enable the machinery correct use. The positions of the pins on the machinery different parts are shown here below.



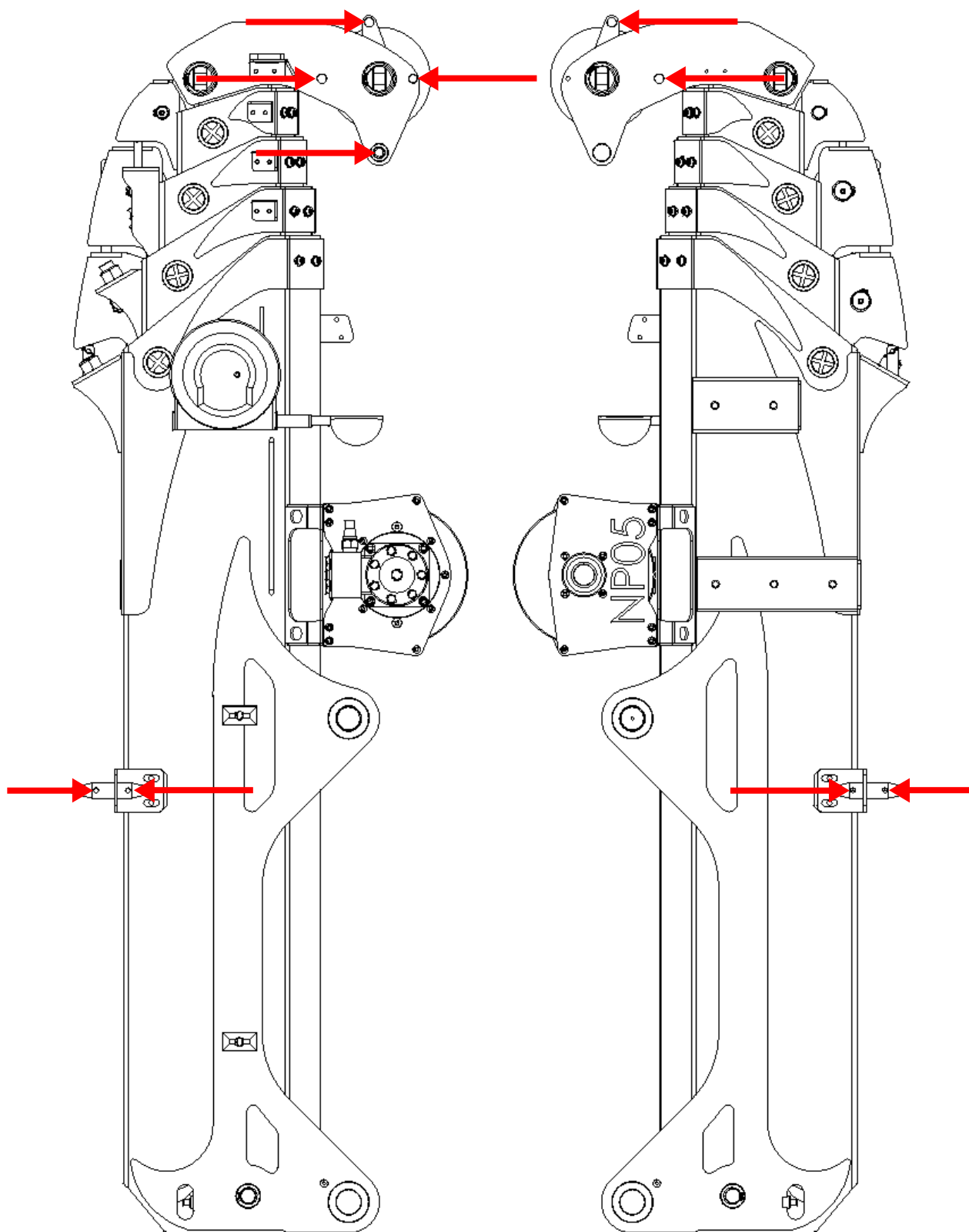
Always place back the safety pins to their original position if they have been moved for any reason.

Do not loose them and, if this is the case, replace them with similar ones.

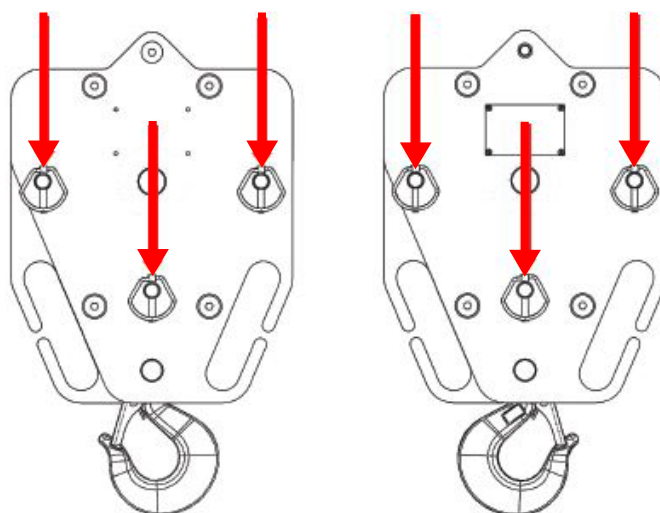
Outriggers



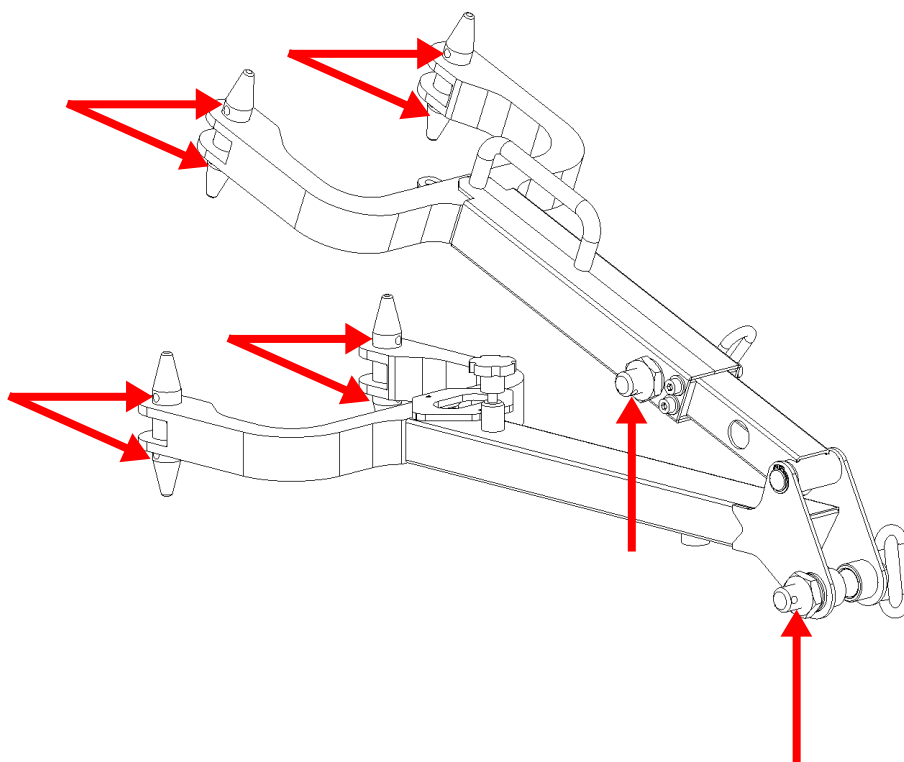
Boom



Block



JIB800GB mechanical jib





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