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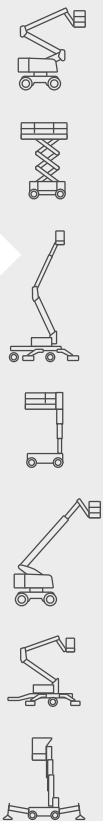
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OPERATOR'S MANUAL

OPTIMUM 8 - OPTIMUM 1931 E

Color screen display



Contents

A-Foreword

1	Foreword.....	3
2	User responsibility.....	4
2.1	Owner's responsibility.....	4
2.2	Employer's responsibility.....	4
2.3	Trainer's responsibility.....	4
2.4	Operator's responsibility.....	4
3	Safety.....	5
3.1	Safety instructions.....	5
4	Safety inquiries.....	11
5	Incident notification.....	12
6	Compliance.....	13
6.1	Product modification.....	13
6.2	Product specifications.....	13
6.3	Change of Ownership Notification.....	13
6.4	Declaration of conformity.....	14

B-Familiarization

1	General safety.....	3
1.1	Intended use.....	3
1.2	Decal content.....	3
1.3	Level of severity.....	4
1.4	Symbols legend and definitions.....	5
1.5	Symbols and colors.....	7
2	Models description.....	8
3	Primary machine components.....	9
3.1	Layout.....	9
3.2	Maintenance support.....	11
3.3	Extension deck.....	11
3.4	Ground control box.....	12
3.5	Platform control box.....	18
4	Performance Specifications.....	21
4.1	Technical characteristics.....	21
4.2	Working area / Range of motion.....	25
5	Decals and markings locations.....	26

C-Pre-operation inspection

1	Recommendations.....	3
2	Working area assessment.....	4
3	Inspection and Functional test.....	5
3.1	Daily inspection.....	5
4	Safety functional checks.....	9
4.1	E-Stop button check.....	9
4.2	Activation of controls.....	9
4.3	Fault detector.....	9

Contents

4.4	Overload sensing system.....	10
4.5	Slope warning device.....	10
4.6	Travel speed limitation.....	11
4.7	Electronic variable speed drive.....	11
4.8	Machine braking.....	11
4.9	Wheel motor brake release.....	11
4.10	Pothole protection system.....	11
4.11	On-board charger (For OPTIMUM 8 - OPTIMUM 1931 E only)	11
4.12	Anti-crush system when lowering.....	11
4.13	Braking test.....	11
4.14	Overload test.....	12

D-Operation instructions

1	Operation.....	3
1.1	Introduction.....	3
1.2	Major description.....	3
1.3	Operation from the ground control box (Auxiliary station).....	3
1.4	Operation from the platform control box (Main station).....	4
2	Ground control box.....	5
2.1	To start and stop the machine.....	5
2.2	Movement control.....	5
2.3	Additional controls from the ground control box.....	6
3	Platform control box.....	7
3.1	To start and stop the machine.....	7
3.2	Drive and steer control.....	7
3.3	Movement control.....	8
4	Rescue and emergency procedures.....	9
4.1	In case of power loss.....	9
4.2	To rescue operator in platform.....	9
5	Transportation.....	10
5.1	Transport configuration.....	10
5.2	Machine stowage for transport- OPTIMUM 8 - OPTIMUM 1931 E - OPTIMUM 8 LI - OPTIMUM 1931 E LI.....	10
5.3	Unloading.....	11
5.4	Towing.....	11
5.5	Storage.....	12
5.6	Loading by ramp.....	13
5.7	Unloading by ramp.....	14
5.8	Lifting operation.....	14
5.9	Loading and unloading with forklift.....	16
6	Cold Weather Recommendations.....	17
6.1	Environmental conditions.....	17
7	Battery care and maintenance (For OPTIMUM 8 - OPTIMUM 1931 E only)	18
7.1	Battery recharge.....	18
7.2	Battery care and maintenance.....	21
7.3	Optimise battery life.....	26
8	Battery care and maintenance (For OPTIMUM 8 LI - OPTIMUM 1931 E LI only - For machines equipped with the lithium-ion battery option)	27
8.1	Battery recharge.....	27

Contents

8.2	Optimise battery life.....	30
-----	----------------------------	----

E-General Specifications

1	Machine dimensions.....	3
2	Major component masses.....	5
3	Acoustics and vibrations.....	6
4	Wheel/Tire assembly.....	7
4.1	Technical specifications.....	7
4.2	Inspection and maintenance.....	8
5	Options.....	12
5.1	Compatibility.....	12
5.2	Advanced Access Management - Access control and usage restriction.....	12
5.3	Swing gate.....	21
5.4	Folding guardrails.....	22
5.5	Pipe holder option.....	25
5.6	Panel carrier.....	29
5.7	SGS - Secondary guarding system	34

F-Maintenance

1	General.....	3
2	Maintenance Schedule.....	4
3	Inspection program.....	5
3.1	General program.....	5
3.2	Daily inspection.....	5
3.3	Periodic inspection.....	6
3.4	Reinforced inspection.....	6
3.5	Major inspection.....	6
4	Repairs and adjustments.....	7

G-Other information

1	Conditions of warranty.....	3
2	Subsidiary contact information.....	4

H-Records

1	Intervention register.....	3
---	----------------------------	---

Contents

A - Foreword

1 Foreword.....3

2 User responsibility..... 4

2.1 Owner's responsibility..... 4

2.2 Employer's responsibility.....4

2.3 Trainer's responsibility..... 4

2.4 Operator's responsibility..... 4

3 Safety..... 5

3.1 Safety instructions.....5

4 Safety inquiries..... 11

5 Incident notification..... 12

6 Compliance..... 13

6.1 Product modification.....13

6.2 Product specifications..... 13

6.3 Change of Ownership Notification..... 13

6.4 Declaration of conformity..... 14



Notes

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1 Foreword

You have just purchased a HAULOTTE® product and we would like to thank you for your business.

The aerial work platform is a device for lifting people designed and manufactured with the intent to enable users to access overhead elevated temporary workplaces with the necessary tools and equipment. All other uses or alterations/modifications to the aerial work platform must be approved by HAULOTTE®.

This manual shall be considered a permanent component of the machine and shall be kept with the aerial work platform in the designated Manual Holder, at all times.

Safe operation of this product can only be assured if you follow the operating instructions contained in this manual. To ensure the safe and appropriate use of this equipment, only trained personnel are authorised to use and carry out maintenance on the aerial work platform.

We would particularly like to draw your attention to 2 essential points:

- Comply with safety instructions.
- Use this equipment within the performance limits specified by this user manual.

With regard to the designation of our equipment, we stress that this is purely for commercial purposes and not to be confused with the technical specifications. Only the specifications in this manual should be used to study the suitability of the equipment for the intended use.

This operator's manual is specific to the HAULOTTE® products listed on the cover page of this manual.



Original language and version: Manuals in English and French are the original instructions. Manuals in other languages are translations of the original instructions.

The user manual does not replace the necessary training that is required for all of this machine's operators. HAULOTTE® has compiled this manual to assist in safe and efficient operation of the products covered in the manual.

The manual must be available to all operators and must be kept in a legible condition. Additional copies can be ordered from HAULOTTE Services®.

Stay Safe and keep working with HAULOTTE®!

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2 User responsibility

2.1 Owner's responsibility

The owner (or hirer) has the obligation to:

- To inform operators of the instructions contained in the Operator's Manual.
- Follow local regulations regarding operation of the machine.
- Replace all manuals or labels that are missing or in poor condition. Additional copies can be ordered from HAULOTTE Services®.
- To establish a preventive maintenance program in accordance with the manufacturer's recommendations, taking into account the environment and severity of use of the machine.
- To perform periodic inspections in accordance with HAULOTTE® recommendations and local regulations.

All malfunctions and problems identified during the inspection shall be corrected before the aerial work platform is returned to service.

2.2 Employer's responsibility

The employer (or plant superintendent) is required:

- To train and check the training of users.
- To authorise the trained user(s) to use the machine.
- To inform and familiarize the operator with the local regulations.
- Forbid anyone from operating the machine if:
 - Under the influence of drugs, alcohol, etc.
 - Subject to fits, convulsions, dizziness, etc.

2.3 Trainer's responsibility

- The trainer must be qualified to provide training to operators in accordance with applicable local regulations.
- The training must include all of the instructions in this manual.
- The training must be given in an obstacle-free area until the trainee is considered competent as defined by the training program undertaken.

2.4 Operator's responsibility

The operator has the obligation to:

- Read and understand the contents of this manual and familiarize himself/herself with the decals affixed on the machine.
- To inspect the machine before use according to HAULOTTE®'s recommendations..
- Inform the owner (or hirer) if the manual or any decals are missing or are not legible.
- Inform the owner (or hirer) of any machine malfunction.

Operators must ensure that the inspections have been carried out by the owner and that they can use the machine for the purpose intended by the manufacturer.



All users (driver, passenger, maintainer, transporter, etc.) must familiarise themselves with the emergency controls and machine operation in case of an emergency.

The operator has the obligation to stop using the machine in the event of malfunction or safety problems on the machine or in the work area and report the problem immediately to his/her supervisor.

A - Foreword

3 Safety

3.1 Safety instructions

3.1.1 Incorrect use

- Do not use the machine outside of the conditions specified in this manual.
- Do not use the machine as a crane, material lift or elevator.



- Do not use the work platform as a hoisting machine (crane) by suspending a load outside of the platform.
- Do not tie the platform to an adjacent fixed or mobile structure.
- Do not use/operate the machine when alone. A survey person or immediate Supervisor must be present on the ground in case of emergency.
- Do not use a faulty or poorly maintained machine. Remove defective/damaged machine from service.
- Do not climb onto the compartment covers of the machine.
- Do not replace items critical to machine stability with items of different weight or specification.
- Do not replace the wheels installed in the factory with wheels with different characteristics.
- Do not alter or disable machine components that in any way affect safety and stability.
- Do not disable the safety devices.
- Do not use the machine if a label is missing or illegible.
- Do not damage, modify or hide machine labels or inscriptions.

3.1.2 Falling Hazards

N.B.: -THE GUARDRAIL IS THE MAIN PROTECTION SYSTEM AGAINST FALLS FROM THE MOBILE LIFTING PLATFORM (PEMP) .

Before commencing operation:

- Ensure that guard rails are correctly installed and secured.
- Ensure that gate or sliding bar is in its securely locked position.
- If using a machine that has a swing gate, check that the entry gate closes by itself and gate latches and locks.



- Remove oil or grease from the steps, floor, handrail and the guardrails.
- Clean the floor of the platform (no debris).

To enter or exit from the platform:

- The machine must be completely stowed (Access configuration) .
- Face the machine to access the opening to the platform.
- Keep 3 points of contact (both hands and a foot) on the steps and the guardrail.
- Keep fingers away from moving parts near entry gate.



A - Foreword

When in the platform:

- Where personal fall protection equipment (FPE) is required by the employer, a competent authority or local regulations, we recommend using a full harness with a safety line.
- Personal fall protection equipment must only be fastened to approved fall protection anchoring points on the platform provided for this purpose.
- Refer to this decal located on the platform.
- Safety lines must never be attached to an object or structure outside of the work platform.
- Hold on securely to the guardrails.
- Always keep your feet firmly on the floor of the platform.
- Do not sit, stand, or climb on the platform guard rails.
- Do not lean on the gate or sliding bar.
- Do not lean over the guard rails or climb over them. Only work in the platform area within the guard rails.
- Do not exit the platform until it is in the completely stowed position.
- Do not use the guardrail as a means of access to climb in or out of the platform.

**3.1.3 Overturning / Tip-over Hazards****Before positioning and operating the machine:**

- Ensure that the surface is capable of supporting the machine weight including the rated capacity. 
- B 4.1 - Technical characteristics.
- Do not exceed the maximum rated capacity that includes the weight of both material and allowed number of occupants. Do not exceed the allowable number of occupants.
- Do not increase the working height (using extensions, ladder, etc.).
- Do not place ladders or scaffolds in the platform or against any part of this machine.
- Position loads uniformly in the centre of the work platform.
- Do not use the machine at wind speeds that are above the permissible threshold. Refer to the display on the work platform to view the permissible wind speed.
- Do not increase the surface area of the platform exposed to wind. This includes adding panels, mesh, banners. Failure to follow this instruction may lead to a loss of stability and as a result, the machine could tip over.
- Do not raise the platform or move the machine with the platform raised on a slope with a gradient greater than the machine's permissible limit.
- Do not drive the machine on slopes or grades exceeding the specified limits.



A - Foreword

- Do not pull or push towards any object outside of the platform. Do not exceed the maximum allowable side force stated in the performance specifications.
- Do not use the machine to support any external structure.
- Do not use the machine to tow other machines or to drag materials.

- **Using the machine on a slope:**



Do not drive the machine on slopes with gradients exceeding the authorised transversal and lateral limits for the machine.  B 4.1 - Technical characteristics.

WIND: the aerial work platform can be used up to the maximum wind speed indicated in the specifications in this manual. To identify the local wind speed, use the Beaufort scale below, a wind gauge or an anemometer.

N.B.:-THE BEAUFORT SCALE OF WIND FORCE IS ACCEPTED INTERNATIONALLY AND IS USED WHEN COMMUNICATING WEATHER CONDITIONS. A WIND SPEED RANGE AT 10 M (32 FT 9 IN) ABOVE FLAT, CLEAR LAND IS ASSOCIATED WITH EACH DEGREE.

Beaufort scale

Force	Meteorological description	Observed effects	m/s	km/h	mph
0	Calm	Smoke rises vertically.	0 - 0,2	0 - 1	0 - 0,62
1	Very light breeze	Smoke indicates the wind direction.	0,3 - 1,5	1 - 5	0,62 - 3,11
2	Light breeze	Wind felt on the face. Leaves rustle. Weather vanes turn.	1,6 - 3,3	6 - 11	3,72 - 6,84
3	Slight breeze	Leaves and small twigs in constant motion. Flags move slightly.	3,4 - 5,4	12 - 19	7,46 - 11,8
4	Nice breeze	Raised dust and loose papers. Small branches are moved.	5,5 - 7,9	20 - 28	12,43 - 17,4
5	Nice breeze	Small trees in leaf to sway. Crested wavelets form on inland waterways.	8,0 - 10,7	29 - 38	18,02 - 23,6
6	Cool wind	Large branches in motion. Power lines and chimneys 'sing'. Umbrellas used with difficulty.	10,8 - 13,8	39 - 49	24,23 - 30,45
7	Near gale	Whole trees in motion. Inconvenience felt when walking against wind.	13,9 - 17,1	50 - 61	31 - 37,9
8	Gale	Some branches break. Generally we cannot walk against the wind.	17,2 - 20,7	62 - 74	38,53 - 45,98
9	Strong gale	The wind causes slight damage to buildings. Tiles and chimney stacks are blown off.	20,8 - 24,4	75 - 88	46,60 - 54,68

3.1.4 Risk of electric shock (electrocution)



Risk of death or serious injuries.

The machine is not electrically insulated and does not provide protection from contact or proximity to electrically charged conductors.

Always position all parts of the aerial work platform, the occupants, accessories and tools at a reasonable distance from power lines to ensure that no part of the work platform accidentally comes into contact with a power line.

Apply local regulations pertaining to safety distances. If this is not possible, follow the distances in the table below at a minimum:

Minimum safe approach distances

Electric voltage	Minimum safety distance	
	Mètre	Feet
0 - 300 V	Avoid contact	
300 V - 50 kV	3	10
50 - 200 kV	5	15
200 - 350 kV	6	20
350 - 500 kV	8	25
500 - 750 kV	11	35
750 - 1000 kV	14	45

- Do not operate the machine when close to live power lines, consider the movement of the machine and the sway of the electric power lines particularly in windy conditions.
- Do not operate the machine during lightning, thunderstorms, snow/ice or any weather condition that could compromise operator safety.
- The machine must not be used while charging the batteries.
- When using the platform AC power supply, ensure it is protected with a circuit breaker and residual current device.
- Do not use the machine as a ground for welding.
- Do not weld on the machine without first disconnecting the battery terminals.
- Always disconnect ground cable first.



Keep away from the machine if it contacts energized power lines. Personnel on the ground or in the platform must not touch or operate the machine until energized power lines are shut off.



The user must not leave the platform if it comes into contact with a power line.

A - Foreword

3.1.5 Explosion / Fire Hazards

Always wear protective clothing and eye wear when working with batteries and power sources/systems.

N.B.-:ACID IS NEUTRALIZED WITH SODIUM BICARBONATE AND WATER.

- Do not work on or operate a machine in an explosive or flammable atmosphere / environment.
- Do not touch hot components.
- Do not bridge the battery terminals with metallic objects.
- Do not service the battery in proximity of spark, open flame, lit cigarettes.
- Do not open the batteries.
- ALWAYS avoid contact with battery acid. Battery acid causes serious burns and should be kept away from skin or eyes. If contact occurs, flush with water and consult a physician immediately.



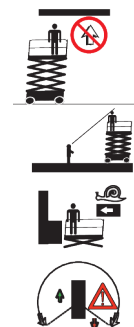
3.1.6 Crushing / Collision Hazards



Before using the machine, mark out the machine's work and circulation area using a marking system appropriate to the task at hand and the work environment.

When in the platform:

- Check the work area for overhead clearance, for any obstacles besides and below the platform when raising/lowering the platform and or before driving.
- During movement, keep all the parts of the body inside the platform. Hold onto the guardrails on the opposite side to any surrounding structures.
- To position machine close to a building/structure, use extension deck feature, instead of driving machine closer to structure.



- Warn personnel not to work, stand, or walk under a raised boom/platform.
- Always ensure that the chassis is never kept any closer than 1 m (3 ft 3 in) to holes, bumps, slopes, obstructions, debris and ground coverings that may hide holes and other dangers.
- Maintain a distance of at least 1 m (3 ft 3 in) or any signs on the worksite.
- Keep non-operating personnel at least 5 m (16 ft 5 in) away from the machine when driving.
- Be aware of driving direction.
 - Check the driving direction with the help of the red or white arrows on the chassis and the platform control box.
 - Also note that when changing the driving direction (Forward <> Reverse) the joysticks or switches must return to the neutral position before reversing the drive direction and for movement to occur.
- When driving, position the platform so as to provide the best possible visibility and to avoid any blind spots.
- Hold on securely to the guardrails.
- Personal Protection Equipment (EPI) :
 - The occupants of the aerial work platform must wear personal protection equipment and comply with local regulations in force.
 - Operators must comply with the safety standards of the job site and the employer, as well as the applicable state regulations relating to the use of personal protective equipment.
 - All personal fall protection equipment (PFPE) must comply with current regulations, must be inspected and used in accordance with the manufacturer's instructions.
- Avoid contact with fixed or mobile obstacles (other machines).

- Other machines (crane, aerial work platform, etc.) operating in the work area increase the risk of crushing or collision. Restrict the operation of machines moving within the aerial work platform work area.
- Take into consideration the stopping distance, reduced visibility and blind spots of the machine.
- Limit travel speed to suit the ground surface condition, slope (incline), and people in the vicinity.

3.1.7 Risk of involuntary movements

Never use a damaged or malfunctioning machine.

Always respect the following rules:

- Maintain clearance from high voltage lines.
- Maintain clearance from generators, radar, electromagnetic fields.
- Never expose the batteries or electrical components to water (high pressure washer, rain).

4 Safety inquiries

Inquiries relating to design criteria/specifications of a product, standards compliance, or overall machine safety should be sent to the HAULOTTE® PRODUCT SAFETY department.

Each inquiry or request should include all relevant information; including contact name, telephone number, mailing address, email address, plus the machine model and serial number.

The HAULOTTE® Product Safety department will evaluate each request/inquiry and will provide a written response.

5 Incident notification

Notify HAULOTTE® immediately when a HAULOTTE® product has been involved in an incident/accident leading to personal injury or death, or when there is a major property damage.

HAULOTTE Group - EUROPE Product Safety Department

Address: Rue Emile Zola - 42420 Lorette - France

Tel: +33 (0)4 77 29 24 24

Email: productsafety.europe@haulotte.com

HAULOTTE Group - Australia, India and Asia Product Safety Department

Address: No.26 Changi North Way - Singapore 498812 - Singapore

Tel: +65 6546 0123

Email: productysafety.apac@haulotte.com

HAULOTTE Group - North & South America Product Safety Department

Address: 3409 Chandler Creek Rd. - Virginia Beach, VA 23453 - United States

Tel: +1 757 689 2146

Email: productsafety.americas@haulotte.com

Connect to our website: www.haulotte.com



6 Compliance

6.1 Product modification

It is strictly forbidden to modify a HAULOTTE® product. Any modification may violate Haulotte design parameters, local regulations and industry standards.

Any requests for modification must be formulated in writing (form) and be approved by the manufacturer.

Do not hesitate to contact HAULOTTE Services®, should you have any questions relating to the issued bulletin(s) or with questions on the policy itself.

6.1.1 Implementing manufacturer safety campaigns

It is essential to implement the safety campaigns issued by the manufacturer. All of these campaigns are accessible on our website.

Connect to our website: www.haulotte.com



Never market (or sell) a machine without first having carried out all of the safety campaigns.

6.2 Product specifications

HAULOTTE® cannot be held liable for any changes to the technical characteristics/specifications contained in this manual. HAULOTTE® has a continuous improvement policy in place for its product range. Given this policy, the Company reserves the right to modify products technical characteristics / specifications without notice.

6.3 Change of Ownership Notification

It is important and necessary to keep HAULOTTE Services® updated with current ownership of the machine. This way, HAULOTTE® will be able to provide the necessary support for the product. If you have sold or transferred this machine(s); it is your responsibility to notify HAULOTTE Services®. It is not required to include Lessees/Renters of Leased/Rented machines on this form.

Connect to our website: www.haulotte.com



6.4 Declaration of conformity



The CE declarations of conformity only apply to machines that have been approved and commissioned within the European Community (EC).

6.4.1 Declaration of conformity - All machines



The UKCA declarations of conformity only apply to machines that have been approved and commissioned within the United Kingdom (UK).

Declaration of conformity - UKCA and CE standards

Haulotte

UKCA / EC DECLARATION OF CONFORMITY

HAULOTTE Factory



Declares under our own responsibility that the machine described below :

Mobile Elevating Work Platform

Commercial name
Type
Serial number

Commercial name of the concerned machine
Model type of concerned machine
Serial number of the machine

Conforms with provisions of the Regulations listed below :

CE

EC Machinery Directive 2006/42/CE
EC Directive electromagnetic compatibility 2014/30/EU
EU RED Directive on radio equipment (if machine equipped) 2014/53/UE

UKCA

Supply of Machinery (safety) 2008 SI2008/1597 amended SI2011/1043/2157 2019/696
Electromagnetic compatibility 2016 SI 2016/1091 amended SI 2017/1206, 2019/696
Radio equipment (if machinery equipped) 2017

This machine has been type examined by :

Name of the Authorized body :

Name of the Approved body :

Certificate number :

Certificate number :

Harmonized standard(s) used as reference(s) :
EN280

Designed standard(s) used as reference(s) :
BS EN280

Person authorised to compile the technical file :

HAULOTTE GROUP
Compliance Manager
RUE EMILE ZOLA
CS 30045 42420 LORETTE FRANCE

HAULOTTE UK Ltd
General Manager UK and Ireland
Unit 1 Gravelly Way, Four Ashes
Wolverhampton, West Midlands WV10 7GW
ENGLAND

Name and Signature
Division Director

Date and place

haulotte.com

6.4.2 Declaration of conformity - Electric platforms

Declaration of conformity - CE standard



DECLARATION CE DE CONFORMITE
(EC DECLARATION OF CONFORMITY)



Fabricant et personne autorisée à constituer le dossier technique : <i>(Manufacturer and the person authorised to compile the technical file.)</i>	Compliance & Regulation Director HAULOTTE GROUP S.A. RUE EMILE ZOLA
HAULOTTE GROUP	42420 LORETTE FRANCE
Adresse du site de production <i>(Address of the Division)</i>	Nacelle élévatrice de personnel <i>(Mobile Elevating Work Platform)</i>
en conformité avec le modèle type <i>(In compliance with the Model Type)</i>	Modèle type de la machine concernée <i>(Type model of the concerned machine)</i>
Nom commercial <i>(Commercial name)</i>	Nom commercial de la machine concernée <i>(Commercial name of the concerned machine)</i>
Numéro de série <i>(Serial number)</i>	Numéro de série de la machine <i>(Serial number of the machine)</i>
Organisme notifié <i>(Notified body)</i>	Nom et adresse de l'organisme notifié <i>(Name and address of the notified body)</i>
Numéro de certificat <i>(Certificate number)</i>	Numéro de certificat du type de machine <i>(Certificate number of the type of machine)</i>
Charge maximale d'utilisation <i>(Rated capacity)</i>	Charge maximale d'utilisation de la machine concernée <i>(Rated capacity of the concerned machine)</i>

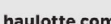
Nous déclarons que cette machine est conforme aux dispositions des Directives suivantes
(We hereby declare that this machine conforms with all the relevant provisions of the Directives listed below)

Directive CE Machine <i>(EC Machinery Directive)</i>	2006/42/CE
Se conforme aux principales exigences de la norme harmonisée <i>(This machine also fulfils the principles of the harmonised standard)</i>	EN280
Directive CE concernant la compatibilité électromagnétique <i>(EC Directive on electromagnetic compatibility)</i>	2014/30/EU
Directive CE RED concernant les équipements radioélectriques (si machine équipée) <i>(RED EC Directive on radio electrical equipment (if machine equipped))</i>	2014/53/EU

Cette déclaration porte exclusivement sur la machine dans l'état où elle a été placée sur le marché
(This declaration relates exclusively to the machinery in the state in which it was placed on the market)

Toute modification de la machine décrite ci-dessus a pour effet d'invalider cette déclaration
(Any modification to the above described machine violates the validity of this declaration)

Nom et signature du Directeur du site de production <i>(Name and signature of the Division Director)</i>	Lieu <i>(Place)</i> Date <i>(Date)</i>
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B - Familiarization

1	General safety.....	3
1.1	Intended use.....	3
1.2	Decal content.....	3
1.3	Level of severity.....	4
1.4	Symbols legend and definitions.....	5
1.5	Symbols and colors.....	7
2	Models description.....	8
3	Primary machine components.....	9
3.1	Layout.....	9
3.2	Maintenance support.....	11
3.3	Extension deck.....	11
3.4	Ground control box.....	12
3.5	Platform control box.....	18
4	Performance Specifications.....	21
4.1	Technical characteristics.....	21
4.2	Working area / Range of motion.....	25
5	Decals and markings locations.....	26

B - Familiarization

1 General safety

1.1 Intended use

Do not operate the product in the following situations:

- On soft, unstable or cluttered ground.
- With wind blowing faster than the permissible limit:
 - Check the allowable wind speed specified in the performance specifications tabulation.
 - Consult the Beaufort scale.
- Close to power lines. Keep a safe distance.
- If the machine is stored at a temperature out of range - 20°C / + 50°C (- 4°F / + 122°F).
- In an explosive atmosphere / environment.
- During storms.
- In the presence of strong electromagnetic fields.

N.B.-:USE THE MACHINE UNDER "NORMAL" CLIMATIC CONDITIONS. IF YOU NEED TO USE THE MACHINE IN CLIMATIC CONDITIONS LIKELY TO CAUSE DETERIORATION (EXTREME : HUMIDITY, TEMPERATURES, SALINITY, CORROSIVENESS, ATMOSPHERIC PRESSURE), CONTACT HAULOTTE SERVICES®. REDUCE INTERVALS BETWEEN SERVICING.

N.B.-:IN HARSH ENVIRONMENTS (HIGH LEVELS OF SALINITY IN THE ATMOSPHERE: CLOSE TO THE SEA, INDUSTRIAL ENVIRONMENT WITH CHLORIDE EMISSIONS AND/OR HUMIDITY > 70%), WE RECOMMEND APPLYING SOLVENT-BASED OIL TO THE ENTIRE MACHINE.

1.2 Decal content

The purpose of the labels on the machine is to alert the user to the conditions of use and risks related to aerial work platforms.

Decals provide the following information:

- The level of severity.
- The specific hazard.
- A method to avoid, suppress or reduce the hazard.
- Descriptive text (where required).

Familiarize yourself with the decals and the hazard severity levels.

The labels must be kept in good condition, otherwise they must be replaced.

Familiarize yourself with the decals and their respective color codes.

Additional decals can be ordered from HAULOTTE Services®.

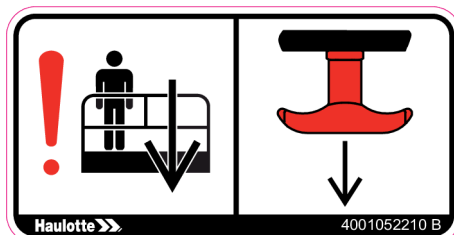
CE, UKCA, AS and EAC standards - Label warning risk



Marking	Description
1	Risk identification symbol
2	Avoidance symbol pictorial

B - Familiarization

CE, UKCA, AS and EAC standards - Label informing about an important function of the machine



ANSI and CSA standards



Marking	Description
1	Risk identification symbol
2	Level of severity
3	Avoidance symbol pictorial
4	Avoidance text

1.3 Level of severity

Color	Title	Description
		Danger: Indicates a hazardous situation which if not avoided, WILL result in death or serious injury.
		Warning: Indicates a hazardous situation which if not avoided, COULD result in death or serious injury.
		Caution: Failure to comply could result in minor or moderate injury.
		Notice: Indicates recommended practices if not followed, may result in a malfunction or damage the machine or its components.
		Procedure: Indicates a maintenance operation.

B - Familiarization

1.4 Symbols legend and definitions

Symbols are used throughout this manual to depict hazards, avoidance measures and indicate when information is required.

Refer to the following table to familiarize yourself with these symbols.

Symbol	Description	Symbol	Description	Symbol	Description
	Risk of crushing or pinning		Foot crushing hazard		High pressure fluid ejection hazard
			Hand crushing hazard		Crushing hazard
			Health/safety hazards related to chemicals		Burn hazard
	Risk of electrocution		Burns and scalds from contact with flames, explosion or radiation from heat sources		Injury from Electric arcs - Energy supply disconnecting devices - Batteries fire, emissions, etc
	Fall hazard		Tip over due to excessive loading / wind load and excessive ground slope		Relate and coordinate directional arrows on the chassis with those on the control box
	Do not put foot in this area		Do not put your hand in this area		Keep away from product working area
	Use of high-pressure cleaners prohibited		Ensure entry drop rail is down		

B - Familiarization

Symbol	Description	Symbol	Description	Symbol	Description
	Flames prohibited		Maintain safe clearance from high voltage electrically charged conductors as described in manual - Do not use in thunderstorms		Overload
	Refer to operator manual		Safety belt		Use appropriate lanyard attached to dedicated anchor point.
	Wheel pressure		Enable switch		Use safety prop before attempting any maintenance work
	Tow point		Tie down point		Lift point
	Keep away from hot surfaces		Wear protective equipment		

B - Familiarization

1.5 Symbols and colors

Symbols and colors are used to alert the operator of safety precautions and/or to highlight important safety information.

The following safety symbols are used throughout this manual to indicate specific hazards and the hazard severity level when operating or maintaining the Aerial Work Platform.

Symbol	Description
	Danger: Risk of injury or death
	Caution: Risk of material damage
	Prohibited action
	Reminder to use good practice or follow pre-operation checks
	Cross-reference to another part of the manual
	Cross-reference to another manual
	Cross-reference to repair (contact HAULOTTE Services®)
N.B.:	Additional technical information

B - Familiarization

2 Models description

Models	Regulations						
	CE	UKCA	ANSI	CSA	EAC	AS	JIS
OPTIMUM 8	✓	✓	✗	✗	✓	✓	✓
OPTIMUM 1931 E	✗	✗	✓	✓	✗	✗	✗
OPTIMUM 8 LI	✓	✓	✗	✗	✓	✓	✓
OPTIMUM 1931 E LI	✗	✗	✓	✓	✗	✗	✗

Legend

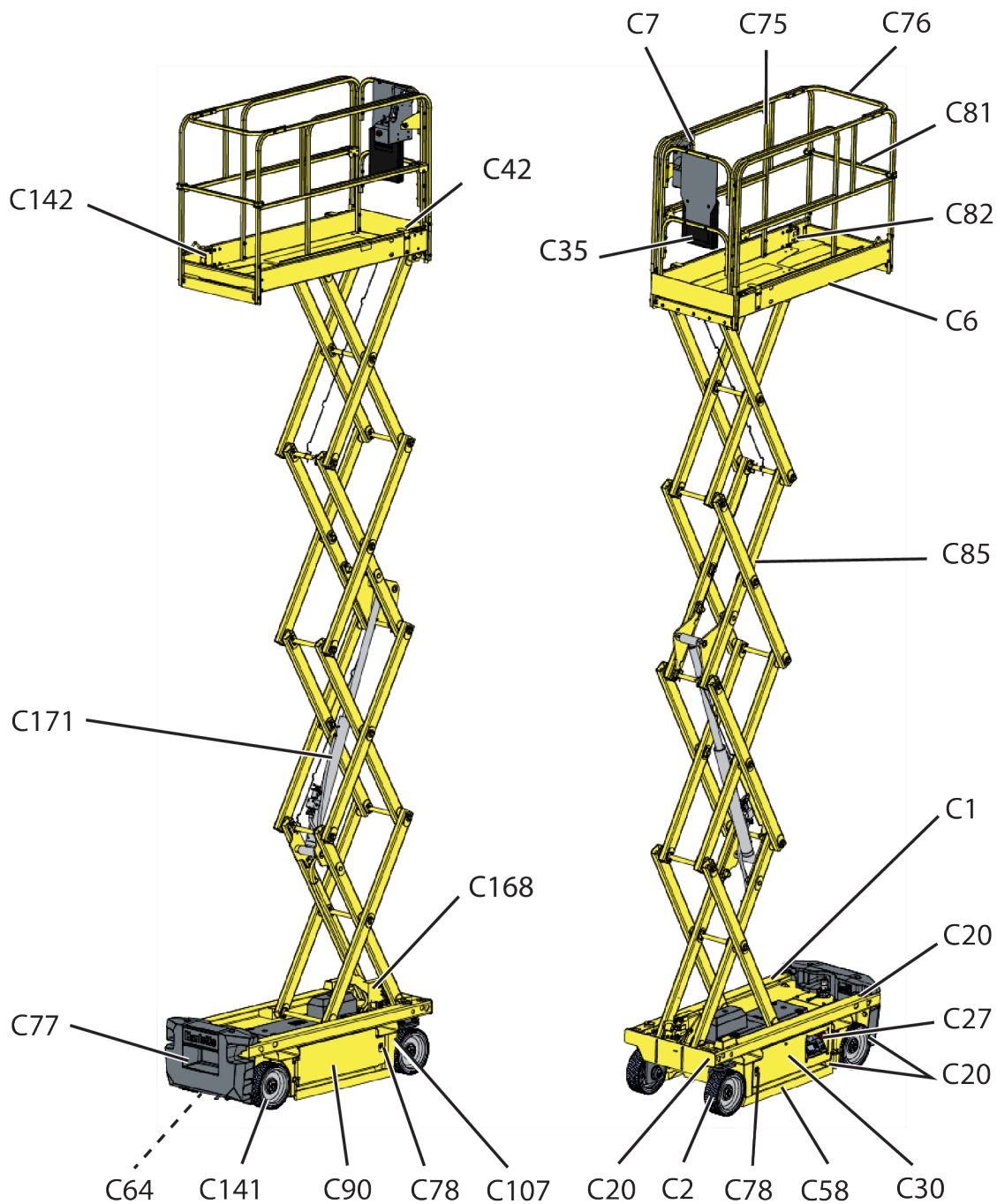
✓	Available
✗	Not available

B - Familiarization

3 Primary machine components

3.1 Layout

OPTIMUM 8 - OPTIMUM 1931 E - OPTIMUM 8 LI - OPTIMUM 1931 E LI



B - Familiarization

Marking	Description	Marking	Description
C1	Chassis	C77	Platform access ladder
C2	Front drive wheels	C78	Compartment locking latch
C6	Platform	C81	Sliding guardrail
C7	Platform control box	C82	Extension deck lock pin
C20	Tie-down (and/or forklift loading)	C85	Scissors
C27	Ground control box+Universal plug	C90	Battery tray
C30	Hydraulic oil tank	C107	Pull T-handle for emergency lowering
C35	Document holder	C141	Rear wheel
C42	Foot Switch (For Japan only)	C142	Anchorage point - Fall restraint
C58	Pothole protection	C168	Maintenance support
C64	Tilt sensor	C169	Folding guardrails / Swing gate (Optional - Not shown)
C75	Extension deck	C171	Scissors lifting cylinder
C76	Guardrail		

Universal plug



B - Familiarization

3.2 Maintenance support

The maintenance stand must be in place before any maintenance operation is begun.

Placing the machine in maintenance configuration:

- Lift scissor arms to a sufficient height (floor of the platform at around 2,5 m / 8 ft 2 in from the ground).
- Pull the plastic handle and put the stand in the vertical position.
- Release the handle. The stand should remain in the vertical position.
- Lower the scissor arms.
- Scissor arm pivoting rod should rest on the V groove of the stand.

Putting in use position:

- To put back the machine into its normal operation, reverse the steps used above.



3.3 Extension deck

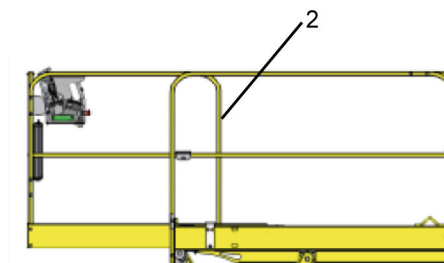
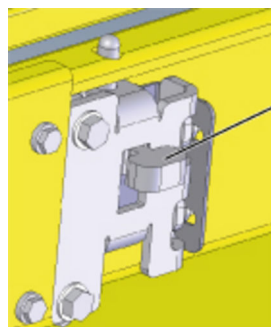
N.B.-:DO NOT LOAD THE EXTENSION DECK, FOR EASE OF MANOEUVRING.

Ensure that gate or sliding bar is in it's proper closed position.

Perform the extending and retracting operations of the extension deck on flat, horizontal ground.

To extend the extension deck:

- Press the pedal (1) to release the extension deck lock pin.
- With pedal (1) pressed, push the extension deck guard rails (2) to the extended position.
- Keep hands clear of pinch points.



Make sure that the extension deck is in locked position. Be aware of the extended platform position when moving the machine.

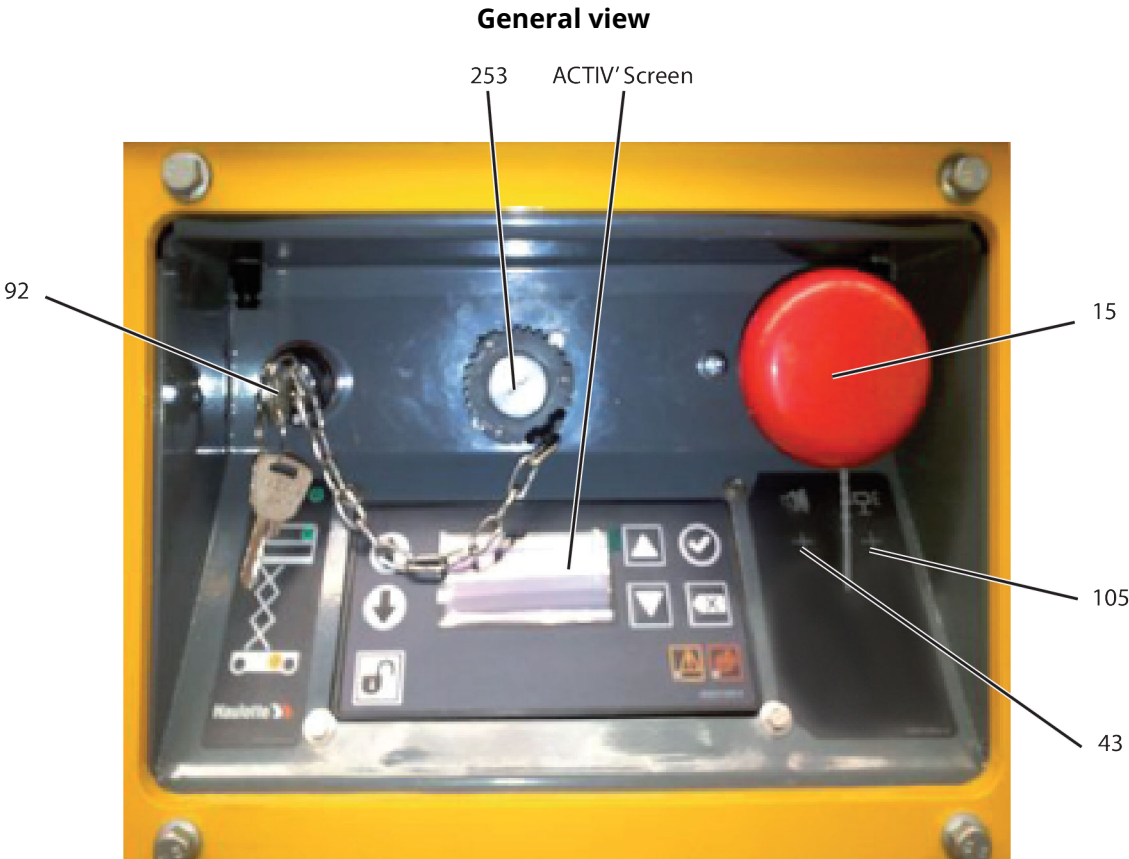
To retract the extension deck:

- Press pedal (1) and pull the extension deck rails (2) inwards to the locked position.
- Release the pedal.

B - Familiarization

3.4 Ground control box

3.4.1 Layout



Controls and indicators

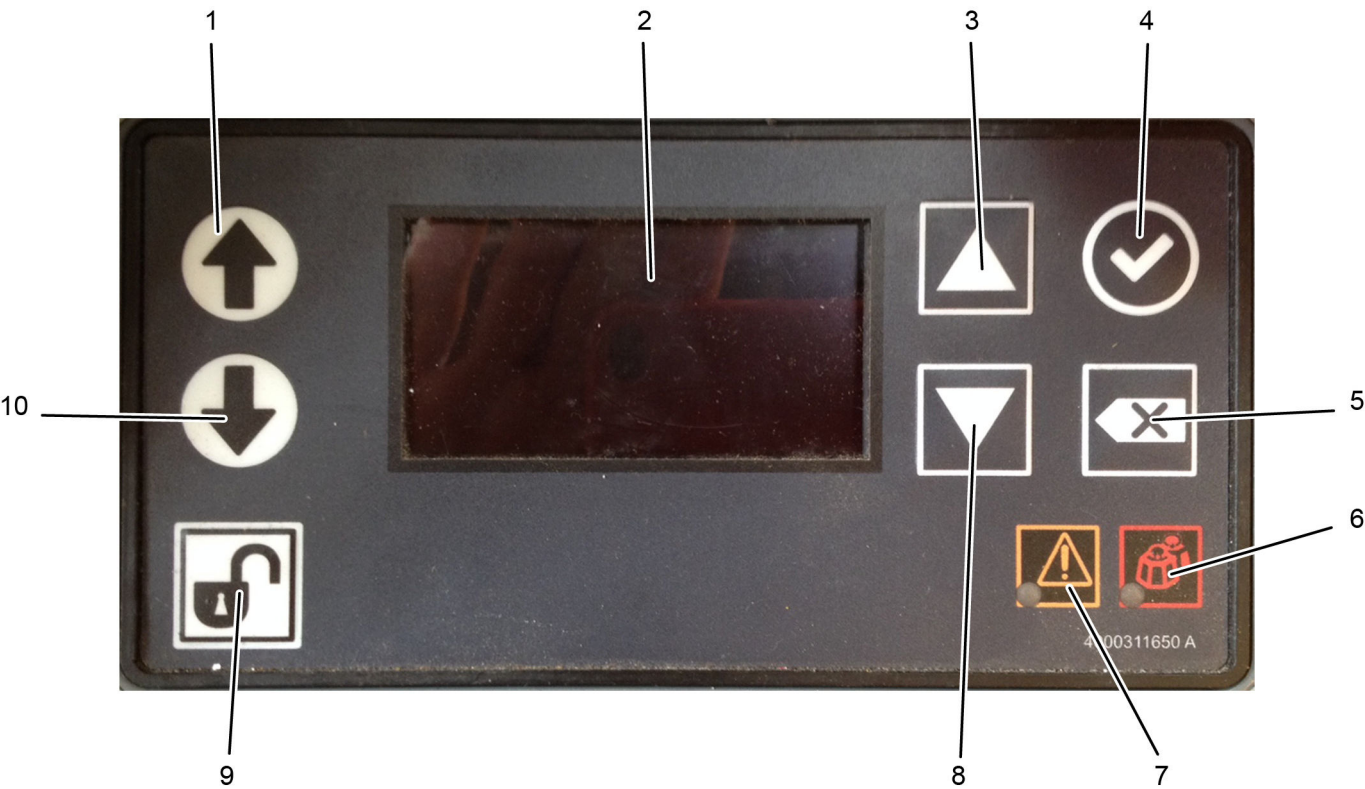
Marking	Description	Function
15	E-stop button	Pulled out: Ground control box energized
		Pushed in: De-energizes control system
43	Horn button	Not used
92	Control box activation key switch	Right: Ground control box energized
		Center: De-energizes control system
		Left: Platform control box energized
105	Beacon light (Optional)	Move upwards: Flashing light turn ON
		Move downwards: Flashing light turn OFF
253	Diagnostic tool socket	Connection to the diagnostic tool (HaulotteDiag)

B - Familiarization

3.4.2 HAULOTTE Activ'Screen

Upon starting and during operation of the machine, the LCD screen "Activ'Screen" located on the ground control box displays in real time the machine operating status.

HAULOTTE Activ'Screen



Controls and indicators

Marking	Description	Function
1	Platform raising control	Platform raises
2	LCD screen	Display status of operation of the machine
3	Navigation button	Navigation of menu to select function - Scroll up
4	Confirmation button	Confirmation of the selected function
5	Cancellation button	Go back

B - Familiarization

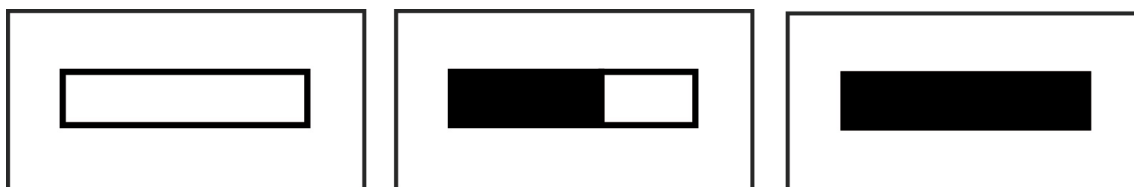
Marking	Description	Function
6	Platform overload indicator	Platform overload indicator
7	Machine fault indicator	Constantly lit in the event of an operation malfunction
8	Navigation button	Navigation of menu to select function-Scroll down
9	Enable Switch	Press in and hold: Enable switch
10	Platform lowering control	Platform lowers

3.4.2.1 LCD screen

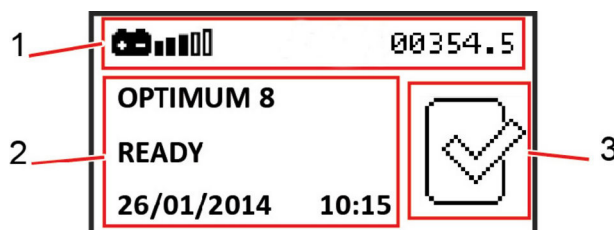
At startup:

At startup with the ground or platform controls selected; system initiates a self check:

- Bar gets filled up.



- Home screen comes on with status icon of the machine - okay to proceed functioning the controls.

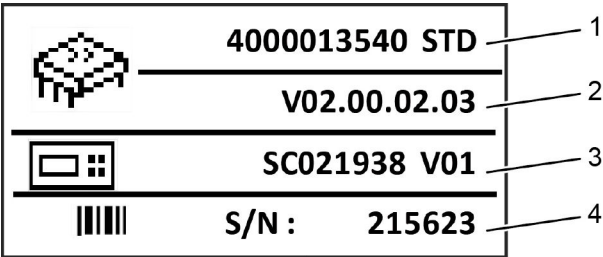


Symbol	Description
1	Information icons
2	Information text
3	Status icon of the machine

B - Familiarization

Symbol	Description
	Battery status
	Maintenance use
	Fault/ alarms
	Hour meter

- After pressing on   :



Symbol	Description
1	Software part number
2	Software version+Screen software version+Screen version
3	Screen identification+Screen software version
4	Machine serial number displayed

- After again pressing on  
- Access code screen comes on - refer to maintenance manual for entering the access code



- Validation by pressing on is active only if access code is known and entered - refer to maintenance manual for the procedure for the different level code usage

B - Familiarization

Alarm status:

Alarm status displayed as applicable - samples shown below:

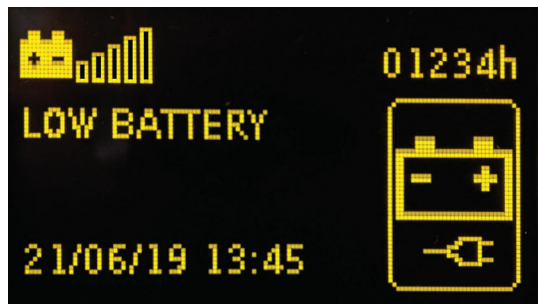
Tilt:



Overload:



Low battery:



Recharge the batteries:



B - Familiarization

Fully recharge the batteries.

Low battery water level (If machine equipped with the option ACTIV'ENERGY MANAGEMENT):



Low water tank level (If machine equipped with the option ACTIV'ENERGY MANAGEMENT):



Present fault:

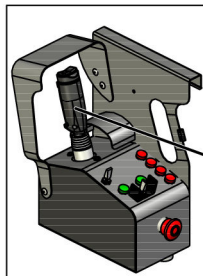


B - Familiarization

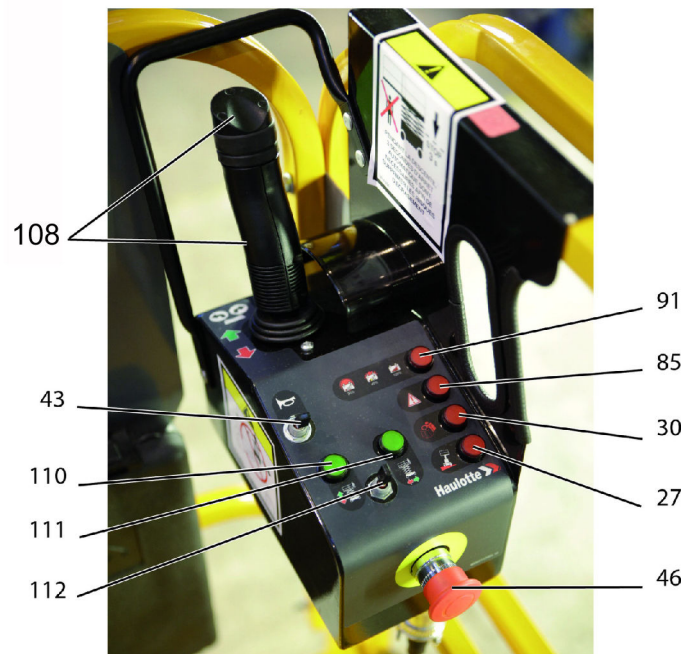
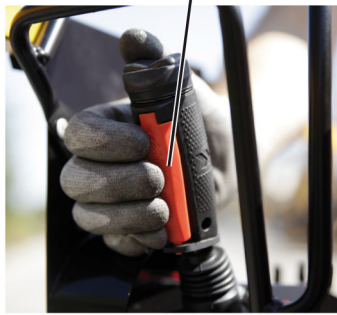
3.5 Platform control box

3.5.1 Layout

General view



123



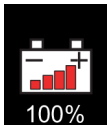
245



Controls and indicators

Marking	Item	Description	Function
27	HL800	Tilt indicator	Machine on excessive slope
30	HL802	Overload indicator	Platform overloaded
43	SA907	Horn button	Move upwards and hold to activate horn
46	SB802	E-stop button	Pulled out: Platform control box power supply energized
			Pushed in: De-energizes control system
85	HL903	Fault indicator	Fault indicator Faulty or tilting or overloaded machine

B - Familiarization

Marking	Item	Description	Function
91	HL904	Battery charging indicator	 100%
			Battery charged
			 40%
			Flashing: Batteries have 40 % charge left
			 20%
			Constantly on: Batteries have only 20 % charge left
108	SM901	Movement joystick	Move forward: Forward drive or platform raising
			Move backwards: Reverse drive or platform lowering
		Front axle steering selector	Press right side of button: Right-hand steering
			Press left side of button: Left-hand steering
110	HL420	Raising / lowering selector	On: Raising / Lowering selection activated
			Off: Raising / Lowering movement is not selected
111	HL100	Driving selection indicator	On: Driving function activated
			Off: Driving movement is not selected

B - Familiarization

Marking	Item	Description	Function
112	SA908	2-position selector	Move to the left: Platform raising / lowering
			Move to the right: Drive movements
123	SA905	Enable Switch	Press in and hold: Associated command is validated
			Press in and hold: Enable switch
			Press in and hold: Enable switch
			Release: Associated command movement is halted
245	SB800	Foot Switch (For Japan only)	Press in and hold: Enable switch

B - Familiarization

4 Performance Specifications

4.1 Technical characteristics

Use the table to select the right Haulotte machine for the job.



Do not replace parts that are essential to the stability of the machine, such as batteries or tyres, with parts that have a different weight or different specifications. The stability of the machine could be affected.

CE, UKCA, AS, EAC, CSA and ANSI A92.20 standards

Machine	OPTIMUM 8 - OPTIMUM 1931 E	
Characteristics - Dimensions	SI	Imp.
Maximum working height	7,77 m	25 ft 6 in
Maximum platform height	5,77 m	18 ft 11 in
Total weight	1590 kg	3505 lbs
Maximum platform capacity	230 kg	507 lbs
Maximum number of occupants	Indoor use: 2 Outdoor use: 1	
Maximum wind speed	Indoor use: 0 km/h (0 m/s) Outdoor use: 45 km/h (12,5 m/s)	Indoor use: 0 mph (0 ft/s) Outdoor use: 28 mph (41 ft/s)
Manual force	Indoor use: 400 N (90 lbf) Outdoor use: 200 N (45 lbf)	
Gradeability	25 %	
Maximum side rated slope	1,5°	
Maximum longitudinal rated slope	3°	
Maximum load on wheel	960 kg	2120 lbs
Maximum ground pressure of wheel on paved ground	16,6 kg/cm ²	34100 lb/ft ²
Drive speed:		
- Folded machine maximum speed	4,5 km/h	2.79 mph
- Unfolded machine maximum speed	0,5 km/h	0.3 mph
Maximum freewheel speed during towed operation	4,5 km/h	2.79 mph
Outside turning radius	1,5 m	4 ft 11 in
Inside turning radius	1 m	3 ft 3 in
Power source - Electric		
Standard	Option	Battery weight
		System voltage
		Capacity

B - Familiarization

Machine			OPTIMUM 8 - OPTIMUM 1931 E	
X		28 kg(62 lb)	24V	180Ah (C5)
	X	30 kg(66 lb)	24V	195Ah (C5)
	X	30 kg(66 lb)	24V	182Ah (C5)
	X	30 kg(66 lb)	24V	185Ah (C5)

For Japan only

X		32 kg(71 lb)	24V	170Ah (C5)
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For Australia only

X		28 kg(62 lb)	24V	185Ah (C5)
Hydraulic tank capacity			6 l	1.6 gal US

Characteristics - Performance

Operating temperature	From - 20°C to + 50°C (From - 68°F to + 122°F)
Operating temperature For EAC only - If machine equipped with the option	From - 30°C to + 50°C (From - 22°F to + 122°F)
Storage temperature	From - 40°C to + 70°C (From - 104°F to + 158°F)

B - Familiarization

CE, UKCA, AS, EAC, CSA and ANSI A92.20 standards

Machine		OPTIMUM 8 LI - OPTIMUM 1931 E LI	
Characteristics - Dimensions		SI	Imp.
Maximum working height		7,77 m	25 ft 6 in
Maximum platform height		5,77 m	18 ft 11 in
Total weight		1590 kg	3505 lbs
Maximum platform capacity		230 kg	507 lbs
Maximum number of occupants		Indoor use: 2 Outdoor use: 1	
Maximum wind speed		Indoor use: 0 km/h (0 m/s) Outdoor use: 45 km/h (12,5 m/s)	Indoor use: 0 mph (0 ft/s) Outdoor use: 28 mph (41 ft/s)
Manual force		Indoor use: 400 N (90 lbf) Outdoor use: 200 N (45 lbf)	
Gradeability		25 %	
Maximum side rated slope		1,5°	
Maximum longitudinal rated slope		3°	
Maximum load on wheel		960 kg	2120 lbs
Maximum ground pressure of wheel on paved ground		16,6 kg/cm2	34100 lb/ft2
Drive speed: - Folded machine maximum speed - Unfolded machine maximum speed		4,5 km/h 0,5 km/h	2.79 mph 0.3 mph
Maximum freewheel speed during towed operation		4,5 km/h	2.79 mph
Outside turning radius		1,5 m	4 ft 11 in
Inside turning radius		1 m	3 ft 3 in
Energy storage			
Type of battery		Li-ion	
Power source - Electric			
Standard	Option	Battery weight	System voltage
		Capacity	

B - Familiarization

Machine			OPTIMUM 8 LI - OPTIMUM 1931 E LI	
X		40 kg(88 lb) per block	25,6 V	100 Ah

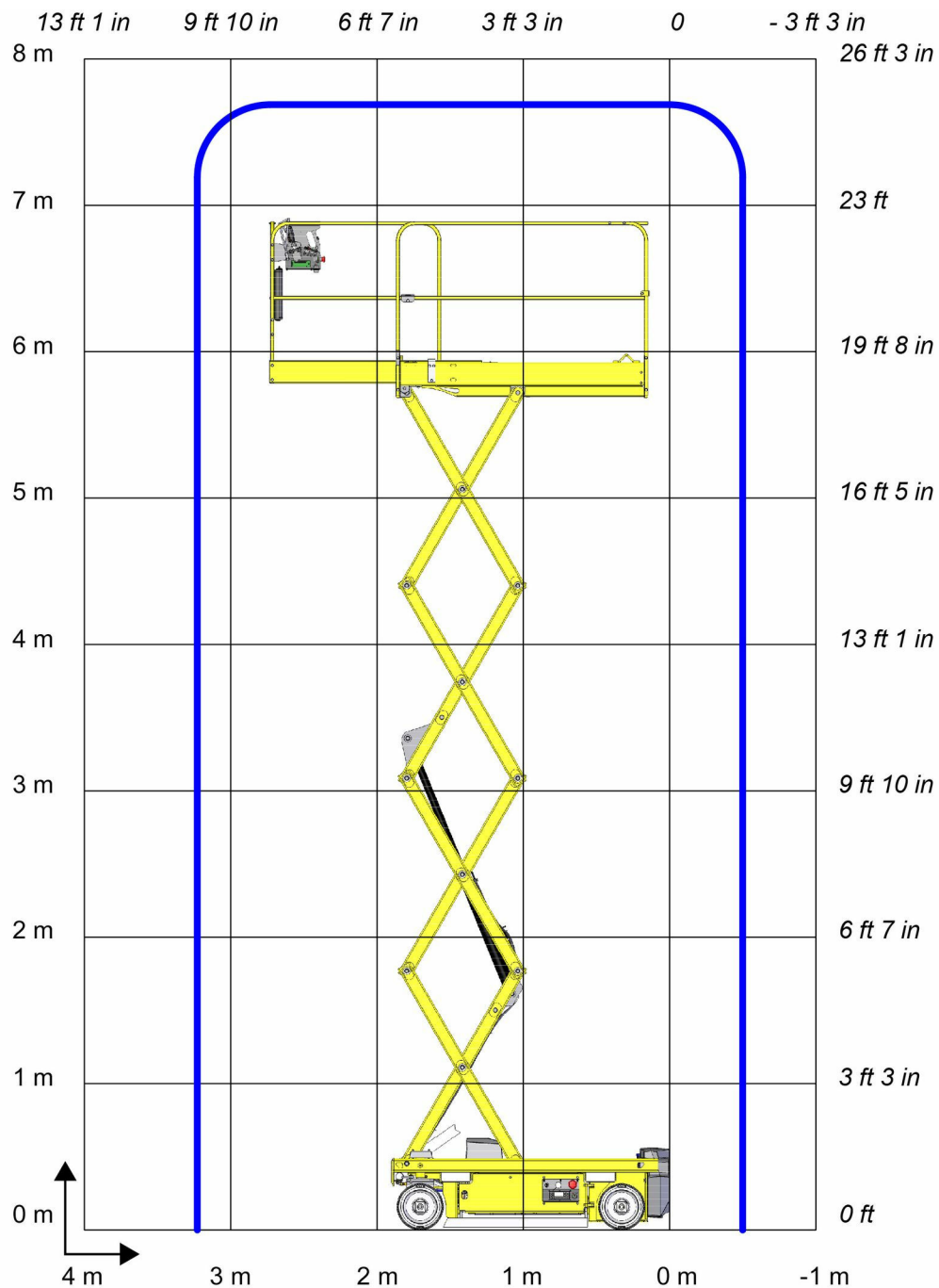
Characteristics - Performance

Operating temperature	From - 20°C to + 50°C (From - 68°F to + 122°F)	
Storage temperature	From - 40°C to + 70°C (From - 104°F to + 158°F)	
Hydraulic tank capacity	6 l	1.6 gal US

B - Familiarization

4.2 Working area / Range of motion

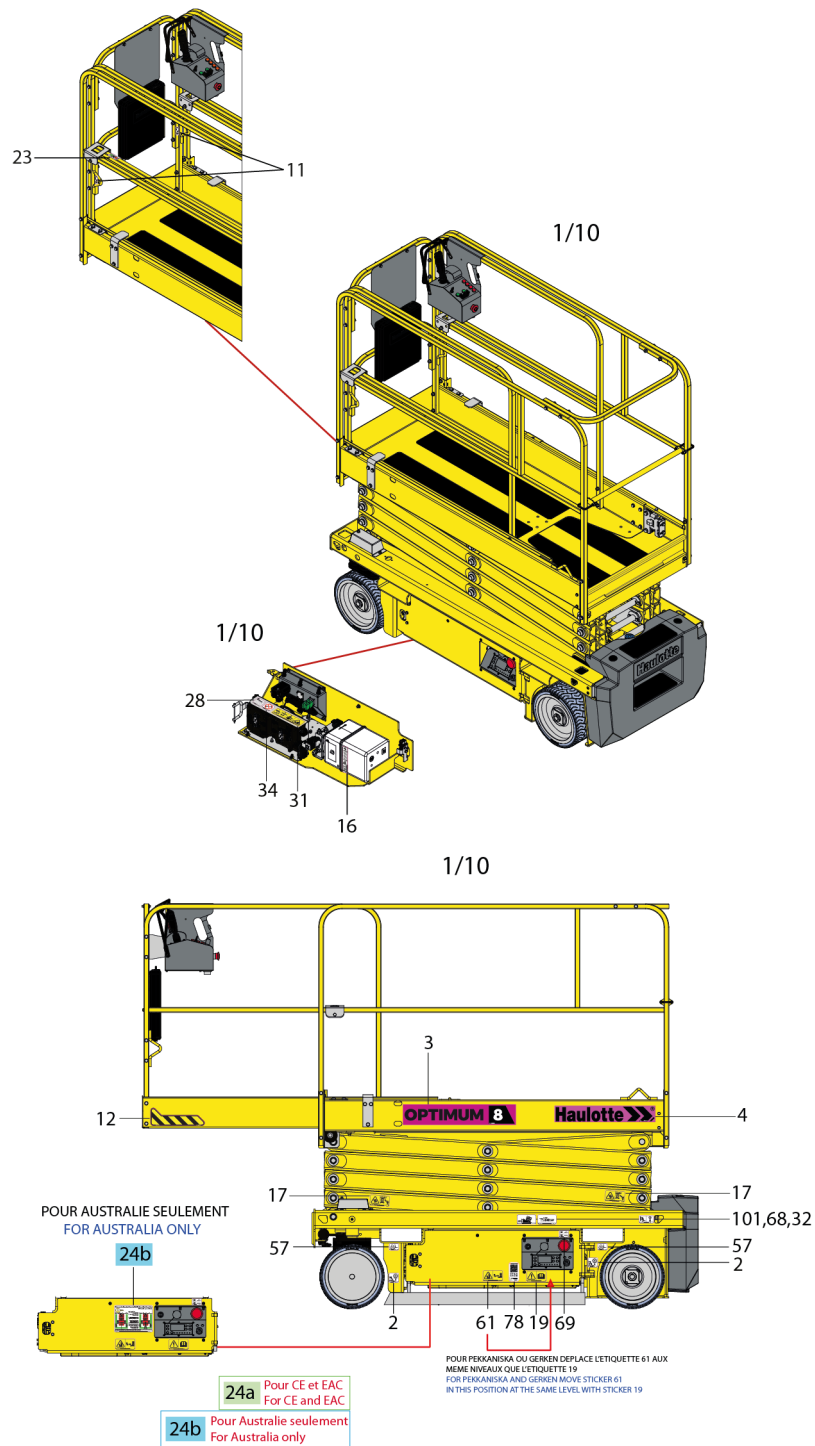
OPTIMUM 8 - OPTIMUM 1931 E - OPTIMUM 8 LI - OPTIMUM 1931 E LI



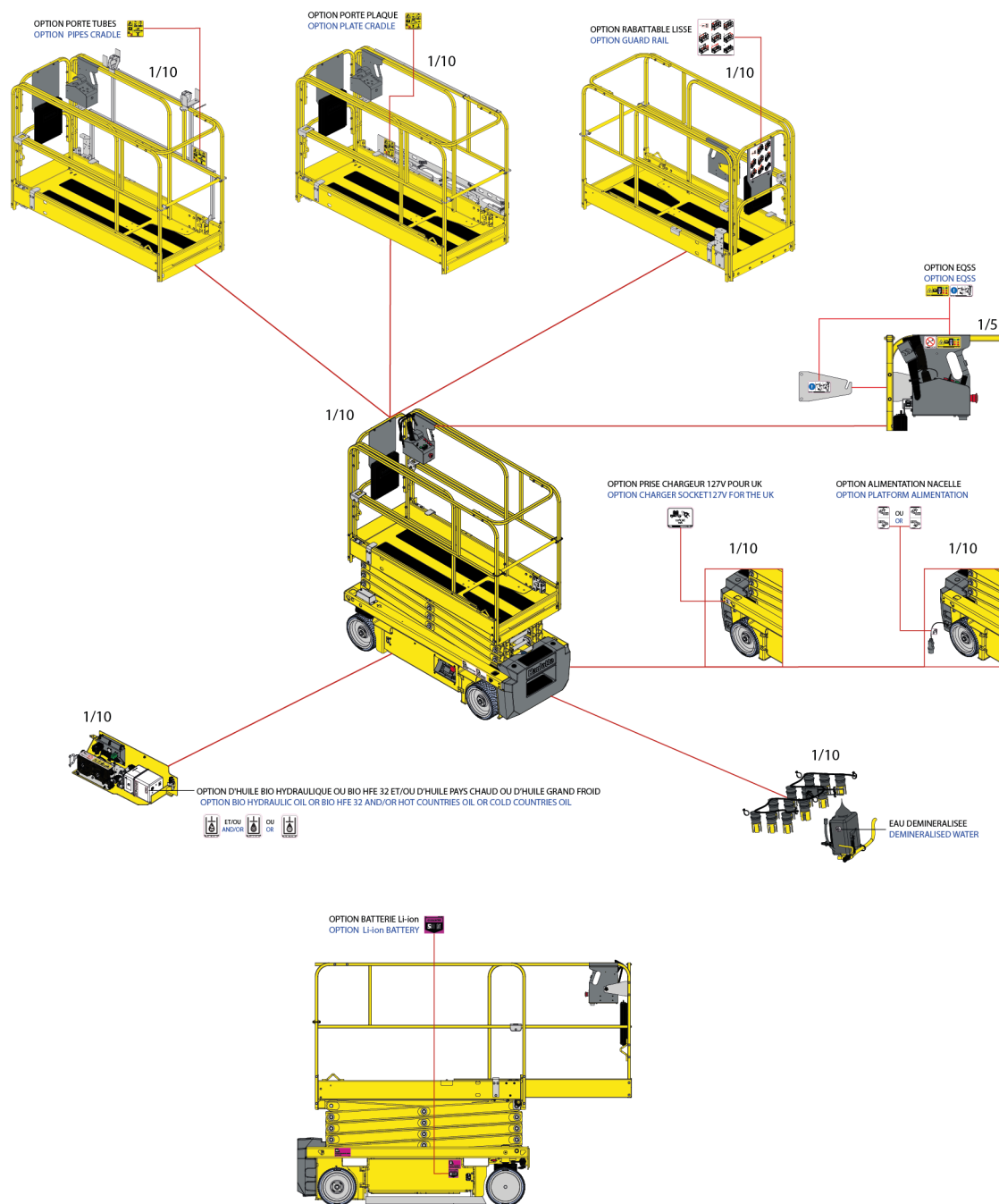
CE, UKCA, AS and EAC standards - 4000390350T - OPTIMUM 8 - OPTIMUM 8 LI



B - Familiarization



B - Familiarization



B - Familiarization

CE, UKCA, AS and EAC standards

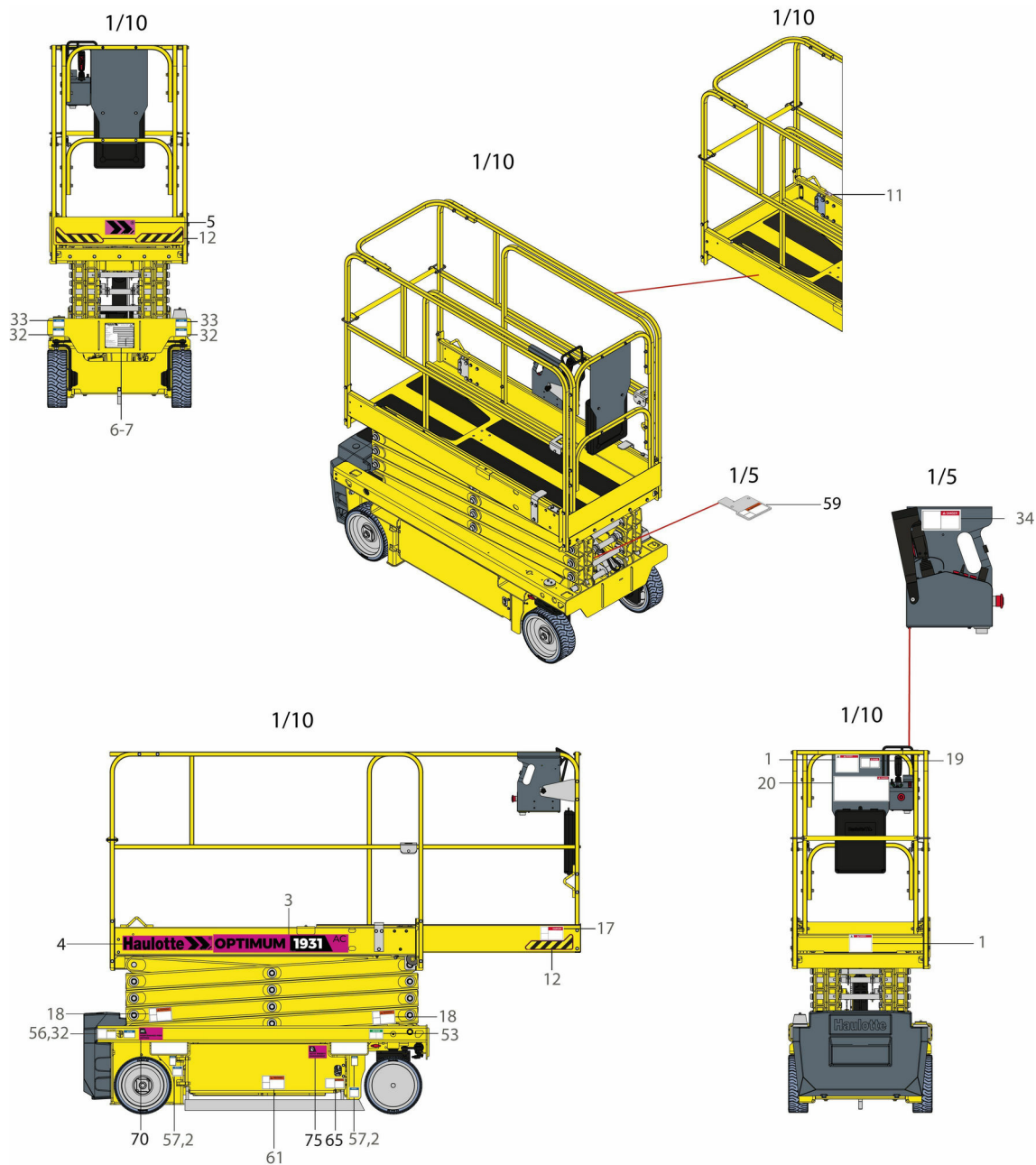
Marking	Description	Quantity	OPTIMUM 8 - OPTIMUM 8 LI
1	Height of the floor and load	2	4001095310
2	Maximum Pressure per Tire - Floor Loading	4	4001052010
3	Commercial name - Bright machine	2	4001183330
3	Commercial name - Dark machine	2	4001183340
4	Decal HAULOTTE® - 495 x 80 - Bright machine	2	4001072210
4	Decal HAULOTTE® - 495 x 80 - Dark machine	2	4001072220
5	Decal HAULOTTE® - 165 x 80 - Bright machine	1	4001072250
5	Decal HAULOTTE® - 165 x 80 - Dark machine	1	4001072260
6	Identification plate	1	For CE, UCKA and AS standards only: 4001243970 For Russia: 4000388680 For Ukraine: 4000054150
11	Lanyard attachment points	3	4001052020
12	Material risk - Yellow and black adhesive tape	4	4001052030
16	Max and min oil level	1	4001052060
17	Risk of crushing	4	4001052070
19	Operation instructions	2	4001052090
23	Risk of crushing - Driving direction	2	4001052100
24a	Danger of electrocution	1	For CE standard only: 4001052120
24b	Danger of electrocution	2	For AS standard only: 4001052140
25	Risk of crushing - Closing drop rail	1	4001052150
28	Do not interchange	1	4000504670
31	Brake release	1	4001052170
32	Anchorage point - Traction	4	4001052180
34	Risk of electrocution - Water projection	2	4001052200

B - Familiarization

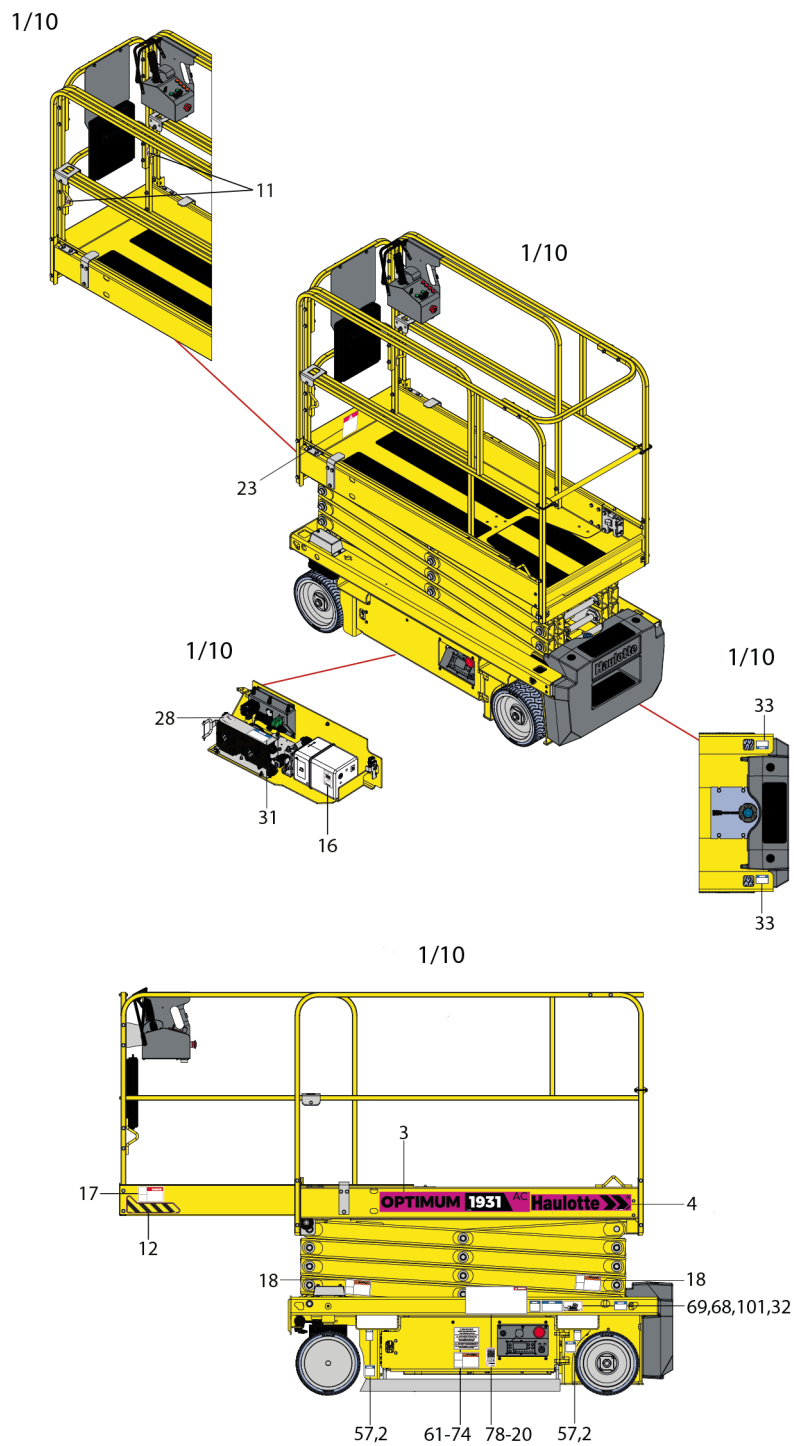
Marking	Description	Quantity	OPTIMUM 8 - OPTIMUM 8 LI
53	Emergency lowering location	1	4001052210
55	Charger - 240 V	1	4001052220
57	Position of the lift truck forks	4	4001052230
59	Scissors safety	1	4001052240
61	Risk of crushing	2	4001052260
65	Fire Hazard	1	4001052270
68	Transport height	1	4001052280
69	Battery isolation switch	1	4001052290
70	Information - AC MAINTENANCE-FREE MOTORS - Bright machine	1	4001053450
70	Information - AC MAINTENANCE-FREE MOTORS - Dark machine	1	4001053500
75	Information - ACTIV' ENERGY MANAGEMENT - Bright machine	1	4001053460
75	Information - ACTIV' ENERGY MANAGEMENT - Dark machine	1	4001053510
78	QR Code ( https://www.e-technical-information.com)	1	4001281820
101	Maximum climbable slope - 25%	1	4001351730
Not illustrated	Biodegradable hydraulic oil option	1	4001052380
Not illustrated	Biodegradable hydraulic oil option - Cold country	1	4001052390
Not illustrated	Power plug option	1	4001052350 / 4001052360
Not illustrated	Option - 127 V UK charger socket	1	4001052130
Not illustrated	Centralized filling option	1	4001052340
Not illustrated	Option - Folding guardrails	1	4000557230
Not illustrated	Option -Decal - Tube holder	1	4001057070
Not illustrated	Option - Decal- Plate holder	1	4001057080
Not illustrated	Option - SGS	1	4001211600
Not illustrated	Option - SGS	1	4001344960
Not illustrated	Option - Li-ion	1	4001247630 / 4001247640

B - Familiarization

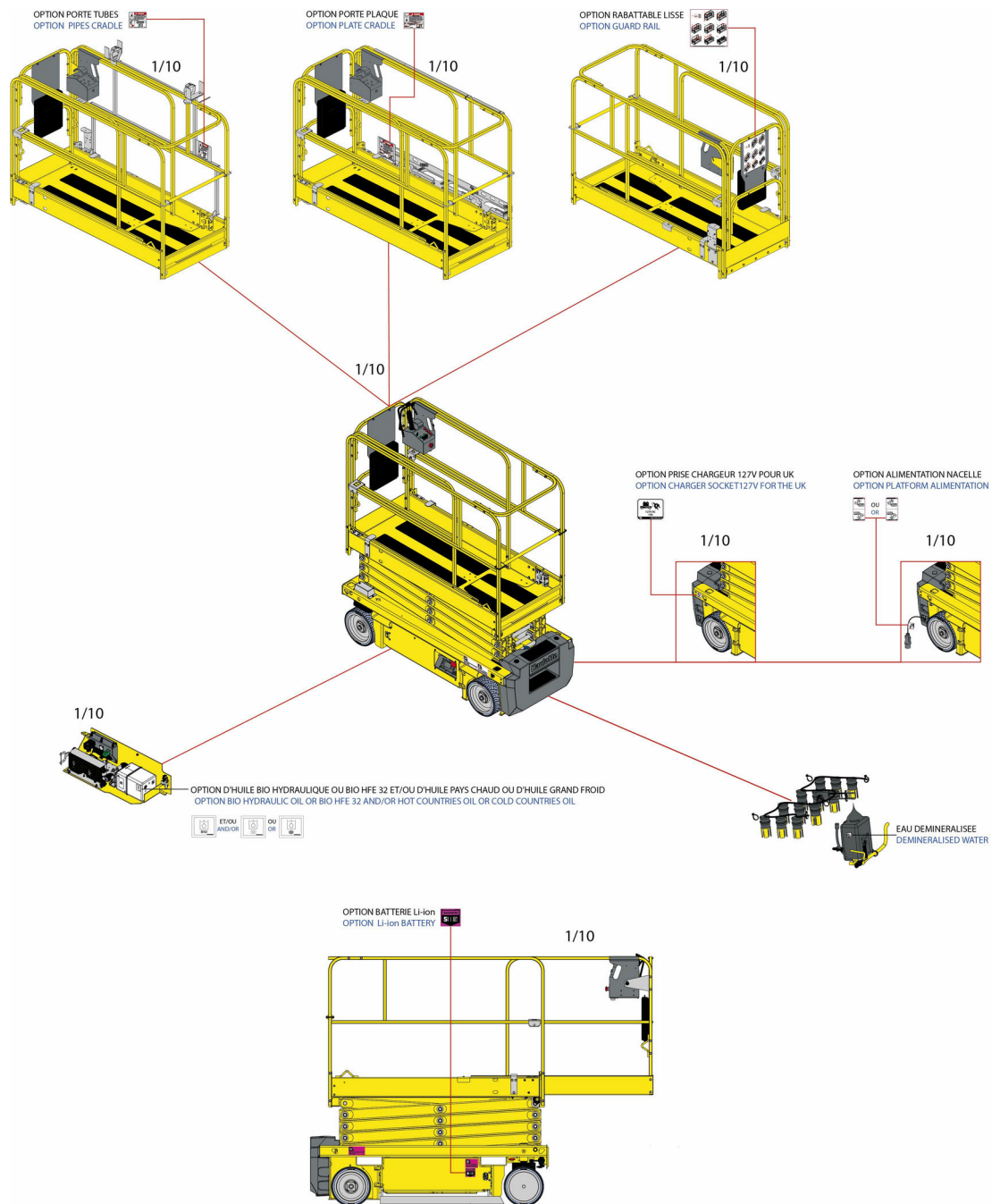
ANSI and CSA standards- 4000427210T - OPTIMUM 1931 E - OPTIMUM 1931 E LI



B - Familiarization



B - Familiarization



B - Familiarization

ANSI and CSA standards

Marking	Description	Quantity	OPTIMUM 1931 E - OPTIMUM 1931 E LI
1	Height of the floor and load	2	4000706390
2	Maximum Pressure per Tire - Floor Loading	4	4000761670
3	Commercial name - Bright machine	2	4001183350
3	Commercial name - Dark machine	2	4001183360
4	Decal HAULOTTE® - 495 x 80 - Bright machine	2	4001072210
4	Decal HAULOTTE® - 495 x 80 - Dark machine	2	4001072220
5	Decal HAULOTTE® - 165 x 80 - Bright machine	1	4001072250
5	Decal HAULOTTE® - 165 x 80 - Dark machine	1	4001072260
6	Identification plate	1	4000700150
11	Lanyard attachment points	3	4001052020
12	Material risk - Yellow and black adhesive tape	2	4001052030
16	Max and min oil level	1	307P221060
17	Risk of crushing	2	In english: 4000130190 In french: 4000130200 In spanish: 4000130210
18	Hand crushing hazard - Risk of crushed hands	4	In english: 4000024770 In french: 4000067710 In spanish: 4000086490
19	Operation instructions	1	4000025140
20	Operation instructions	2	In english: 4000243670 In french: 4000243680 In spanish: 4000243690
23	Risk of crushing - Driving direction	1	3078145100
28	Do not interchange	1	4000504670
31	Brake release	1	4000361570
32	Anchorage point - Traction	4	4000027310

B - Familiarization

Marking	Description	Quantity	OPTIMUM 1931 E - OPTIMUM 1931 E LI
33	Anchorage point - Lifting eyes	4	4000027330
34	Risk of electrocution - Water projection	2	4000025130
53	Emergency lowering	1	4000227200
56	Charger - 110 V	1	In english: 4001134690 In french: 4001288060 In spanish: 4001288070
57	Position of the lift truck forks	4	3078143830
59	Scissors safety	1	In english: 4000024850 In french: 4000068070 In spanish: 4000086500
61	Risk of crushing	2	In english: 4000024780 In french: 4000067700 In spanish: 4000086480
65	Fire Hazard	1	In english: 4000025030 In french: 4000068120 In spanish: 4000086550
68	Transport height	1	4000417380
69	Battery isolation switch	1	4000420660
70	Information - AC MAINTENANCE-FREE MOTORS - Bright machine	2	4001053450
70	Information - AC MAINTENANCE-FREE MOTORS - Dark machine	2	4001053500
74	California warning - P65	1	4001026850
75	Information - ACTIV' ENERGY MANAGEMENT - Bright machine	2	4001053460
75	Information - ACTIV' ENERGY MANAGEMENT - Dark machine	2	4001053510
78	QR Code ( https://www.e-technical-information.com)	1	4001281820
101	Maximum climbable slope - 25%	1	4001281820
Not illustrated	Biodegradable hydraulic oil option	1	3078148890

B - Familiarization

Marking	Description	Quantity	OPTIMUM 1931 E - OPTIMUM 1931 E LI
Not illustrated	Biodegradable hydraulic oil option - Cold country	1	307P223700
Not illustrated	Power plug option	1	4001052350 / 4001052360
Not illustrated	Option - 127 V UK charger socket	1	4001052130
Not illustrated	Centralized filling option	1	4001052340
Not illustrated	Option - Folding guardrails	1	4000557230
Not illustrated	Option - Decal - Tube holder	1	4000415300 / 4000426060 / 4000426070
Not illustrated	Option - Decal - Plate holder	1	4000676050 / 4000676060 / 4000676070
Not illustrated	Option - Li-ion	1	4001247630 / 4001247640

C - Pre-operation inspection

1	Recommendations.....	3
2	Working area assessment.....	4
3	Inspection and Functional test.....	5
3.1	Daily inspection.....	5
4	Safety functional checks.....	9
4.1	E-Stop button check.....	9
4.2	Activation of controls.....	9
4.3	Fault detector.....	9
4.4	Overload sensing system.....	10
4.5	Slope warning device.....	10
4.6	Travel speed limitation.....	11
4.7	Electronic variable speed drive.....	11
4.8	Machine braking.....	11
4.9	Wheel motor brake release.....	11
4.10	Pothole protection system.....	11
4.11	On-board charger (For OPTIMUM 8 - OPTIMUM 1931 E only)	11
4.12	Anti-crush system when lowering.....	11
4.13	Braking test.....	11
4.14	Overload test.....	12

C - Pre-operation inspection



Notes

Notes section with 18 horizontal lines for writing.

C - Pre-operation inspection

1 Recommendations

The owner, the site manager, the supervisor and the operator are all responsible to ensure the machine is fit for the work it is to perform; i.e. that the machine is suitable to carry out the work in complete safety and in compliance with this Operator's Manual. All managers who are responsible for persons operating the machine must be familiar with the local regulations currently applicable in the country of use and ensure that they are adhered to.

Before using the machine, read the previous chapters in this manual. Ensure that you have understood the following points:

- Safety precautions.
- Operator's responsibilities.
- Conditions and the operating principles of the machine.

C - Pre-operation inspection

2 Working area assessment

Before carrying out any operations, ensure that the machine corresponds to the work to be done and the working environment:

- Carry out a thorough inspection of the site to identify any potential risks within the work zone.
- Take the necessary precautions to avoid collisions with other machinery or people within the work area.
- Mark out the work area.
- **Ensure that:**
 - The weather conditions (wind, rain, etc.) allowing the machine to be used.
 - The ground withstands the weight of the machine and has not been affected by the poor weather conditions.
- Check that the authorisations to work with the machine on the site in question have been obtained (.g. chemical product factories).
- Define a rescue plan for all the risks, including the risk of falls and crushing.

C - Pre-operation inspection

3 Inspection and Functional test

3.1 Daily inspection

Each day before the beginning of a new work session and with each change of operator, the machine must be subjected to a visual inspection and a complete functional test.



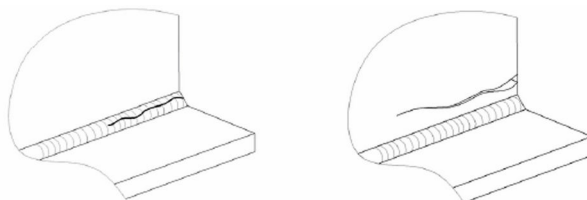
- Never use a defective or a malfunctioning aerial work platform.
- If any item on the check list is marked "No" during the inspection; machine must be tagged and placed out of service.
- Do not operate the machine until all identified items are corrected and it has been declared safe for operation.

In case of loose fasteners, refer to torque table value in maintenance book.

In case of leaks, replace the damaged part before use.

In case of structural part deformation (cracks, broken weld, paint chips) replace the part before use.

Examples of cracked welds



We recommend these forms to be completed daily and stored to assist with your maintenance schedule.

Each action is depicted in the daily inspection sheet using the following symbols.

Use the detailed program below.

	Oil change		Lubrication-Lubrication		Tightening
	Levelling		Systematic replacement		Functional adjustments / Checks / Cleaning
	Visual inspection		To check by test		

Serial number: Hours of operation: HAULOTTE Services® contract reference: Intervention record number: Date: Name:	Model: Signature:
--	----------------------

C - Pre-operation inspection

OPTIMUM 8 - OPTIMUM 1931 E - OPTIMUM 8 LI - OPTIMUM 1931 E LI

Haulotte		Daily	OK	NOK	Corrected	Comments
Chassis assembly: Wheel, reducer, steering, wheel pivot						
Check state of tires/tyres and inflations						
Clean the pads slide						
Batteries						
Check the physical condition of the battery (i.e. Damage, corrosion, ...)						
Hydraulic : oils, filters and hoses						
Check the hydraulic oil level (Top up the oil if necessary ; Machine stowed)						
Check the clogging indicator on the hydraulic pressure filter (change if clogged)						
Check the hoses, blocks and pumps, fittings, cylinders and the tank for the absence of leaks, deformations and damage						
Platform						
Ensure that the gate or sliding bar shall be designed to either return automatically to the closed and latched position						
Check that the harness anchor points are not cracked or damaged						
Clean the platform extension						
Check the quick ties and the good location of the guardrail						

C - Pre-operation inspection

OPTIMUM 8 - OPTIMUM 1931 E - OPTIMUM 8 LI - OPTIMUM 1931 E LI

Haulotte	Daily	OK	NOK	Corrected	Comments
General					
Check for the presence, cleanliness and readability of the manufacturer's plates, security labels, user manual and maintenance manual					
Check the cleanliness and readability of the control box					
Test the opening and closure of covers (chassis, turntable, upper control box)					
Check the condition of electrical harnesses, cables and connectors					
Check for the absence of abnormal noise and jerky movements					
Check for the absence of visible deterioration and damage					
Check for the absence of cracks, broken welds and chipped paintwork on the structure					
Check for the absence of missing or loose screws and bolts					
Check for the absence of deformation, cracking and breakage of axis stops, bushing and axes					
Check for the absence of foreign bodies in joints and sliding parts					
Safety devices					

C - Pre-operation inspection

Haulotte	Daily	OK	NOK	Corrected	Comments
Test the operation of the upper and lower control boxes: manipulators, switches, buttons, horn, emergency stops, screens and lights					
Check the absence of visual and audible alarms					
Test the operation of the tilt system					
Test the operation of the emergency lowering system					
Test the operation of the load control system - Calibrate if necessary					

C - Pre-operation inspection

4 Safety functional checks

To protect the user and the machine, safety systems prevent the movement of the machine beyond its operating limits. These safety systems when activated immobilize the machine and prevent further movement.

The operator must be familiar with this technology and understand that is not a malfunction but an indication that the machine has reached an operation limit.

The aerial work platforms are equipped with a platform control box (main control box) and a ground control box (auxiliary control box) enabling users to use the machine in complete safety. An auxiliary device (T-handle) is available on the chassis to assist with the emergency lowering of the machine.

The following checks describe the operation of the machine and the specific controls required.

The speed selector buttons at the ground control box and the platform control box act as the enable switch.



For the location and description of these controls: refer to section B 3.2 and D 2 - Ground control box and B 3.3 and D 3 - Platform control box.

4.1 E-Stop button check

Ground control box E-stop button

Step	Action
1	Pull the E-stop button (15) at ground.
2	Turn the control box activation key switch (92) to the right to energize the ground control box. The indicators light up.
3	Push the E-stop button (15). The indicators go out.

Platform control box E-stop button

Step	Action
1	Pull both E-Stop buttons (15) at ground box and (46) at platform box.
2	Turn the control box activation key switch (92) to the left to energize the platform control box. The indicators light up.
3	Push the E-stop button (46). The indicators go out.

4.2 Activation of controls

The enable foot pedal (enable switch) must be activated to allow any movement.

The "Enable Switch" system depends on the machine configuration and will consist of one of the following:

- Enable switch on the ACTIV'Screen on ground control box (9).
- Enable trigger on platform control joystick (123).
- Foot pedal (enable switch) in the platform (Optional (245)).

N.B.:-THE ENABLE SWITCH MUST BE ACTIVATED FIRST BEFORE ANY ACTION ON THE JOYSTICK OR SWITCHES.

4.3 Fault detector

The machine is equipped with an on-board fault detection system, which indicates the type of fault to the operator.

The fault is identified by a default code.

The default code is displayed at the ground control box.

C - Pre-operation inspection

According to the type of fault, the machine MAY switch into DOWNGRADEMODE mode and certain movements are prevented to maintain Operator's safety.

Do not use the machine until the fault has been corrected.

4.3.1 Buzzers test

From the ground control box

Step	Action
1	Pull the E-Stop buttons (15) at ground control box and (46) on the platform control box
2	Turn the control box activation selector key (92) to the left or right to activate a control box. An audible signal (beep) sounds.

4.4 Overload sensing system

If the platform load exceeds the maximum allowed load, no movement is possible from the 2 control boxes.

At ground and platform control boxes a buzzer sounds and an indicator light warns the operator.

To return the machine to normal operation remove weight from the platform until the load is below the maximum allowed load.

Daily check that the LED's illuminate when the machine is switched on:

- Verify that the Overload system is active: Refer to Indicators (6) at ground and (30) at platform.

- Verify that the buzzers are functioning: Refer to  Buzzers test

A periodic inspection of this device must be performed according to the recommendation in  Maintenance Schedule.

4.5 Slope warning device

From each control box, a buzzer alerts the operator that the machine is not folded/stowed and is positioned on a slope exceeding the slope allowed.

N.B.-:THE SLOPE SENSOR IS ONLY ACTIVE WHEN THE PLATFORM IS NOT IN THE STOWED POSITION.

When machine is on a slope greater than the rated slope, with extending structure out of the stowed position:

- The DRIVE and LIFTING (RAISING) commands are deactivated.

The lowering speeds are reduced.

In this case, fully lower the platform and reposition the machine on level ground before raising the platform again.

To check the tilt sensor at ground level, perform the following steps:

Daily check

Step	Action
1	Put the machine in stowed position on a slope with an angle greater than the permitted inclination (Refer to  B 4.1 Technical specifications) .
2	Check that the tilt indicator is on (27).

C - Pre-operation inspection

4.6 Travel speed limitation

Drive speed is proportional to control until the maximum speed is reached (machine in fully stowed position).

The only speed allowed when not in stowed position is microspeed (This speed is a default speed programmed into the machine).

4.7 Electronic variable speed drive

The machines are equipped with 2 electronic variable speed regulators configured for each function and manages the required power needed for each motor.



Do not interchange the speed controllers/regulators between machines even if they are the same model.

4.8 Machine braking

When electric power is cut off, the machine stops automatically.

Performance levels may be reduced in the following situations:

- Descending a bumpy ramp.
- Worn tires/tyres.
- Damp or muddy ground conditions.

Check that the brakes are applied automatically when the Drive joystick is released to the neutral position.

4.9 Wheel motor brake release

Each time a drive command is activated, electric power releases the brakes.

4.10 Pothole protection system

The machine is equipped with a pothole mechanism under the chassis that is deployed automatically when the platform is out of the stowed position.

Check the system for damage and ensure that it deploys when the platform is raised.

4.11 On-board charger (For OPTIMUM 8 - OPTIMUM 1931 E only)

Battery charging starts as soon as an external supply is connected to the battery charger.



When the battery pack is being charged with an external power supply, the machine's electric system is automatically deactivated.

4.12 Anti-crush system when lowering

A device alerts people on the ground of a risk of crushing:

- Between the lifting systems.
- Under platform extension.

This device automatically operates between the transport height position limit and the lower position (Refer to Driving speed).

All versions, lowering control from the platform and ground control boxes:

- Slows the downward movement and emits an audible signal.

Standard CE, lowering movement from platform control box:

- At the end of the lowering operation, a 3 (second) automatic delay is initiated before resuming lowering, to avoid the risk of crushing.

4.13 Braking test



Check that there are no hazards in the test area:

- Position the machine on a flat and firm surface, clear of obstructions (beware of power lines).

C - Pre-operation inspection

- Ensure that there is sufficient distance to stop the machine in complete safety.
- Position the steered wheels so that they are straight.
- To set up a beaconing of safety around the test area.

Platform control box

Step	Action
1	Pull both E-Stop buttons; at ground box and at platform box.
2	Turn the ground control box selector key to platform control box position.
3	Select low drive speed , then slowly move the drive joystick.
4	Drive the machine forward in low speed on a ramp inclined at less than the maximum authorized slope.
5	Release joystick.
6	The machine comes to a complete stop. Keep the machine immobilized for 5 seconds.
7	Check the ability of the brakes to keep the machine immobilized. The machine must remain immobile.

4.14 Overload test

The overload system is an essential part of machine safety. The following tests must be performed periodically-

You will need:

	- Personal protective equipment - DO NOT OPERATE tag - Standard tool kit - Lifting equipment adapted and suitable for placing and removing the load from the platform - 2 loads of 100% and 120% of the nominal load: Refer to section B  - Technical specifications.		- Place barriers around the perimeter of the work area
	1 person		

Procedure:

C - Pre-operation inspection

Platform control box

Step	Action
1	Position the machine on a flat and firm surface, clear of obstructions (beware of power lines).
2	Put the machine in stowed position.
3	Mark out the work area (barriers, cones, marking tape) .
4	Restrict access to the area (restricted access sign).
5	Place a do not operate tag at the start/stop switch location to inform personnel that the equipment is being worked on.
6	Push the machine to the location beneath where aerial working is required.
7	Start the machine.
8	Use an external weight lifting device to place 100% of the nominal weight in the center of the platform.
9	From the ground control box: Check that there is no overload alarm.
10	Remove the weight from the platform.
11	Use an external weight lifting device to place 120% of the nominal weight in the center of the platform.
12	Check the overload / fault indicator light is ON.
13	Check the overload alarm is displayed on the .
14	Remove all load from the platform.

C - Pre-operation inspection



Notes

Notes section with horizontal lines for writing.

D - Operation instructions

1	Operation.....	3
1.1	Introduction.....	3
1.2	Major description.....	3
1.3	Operation from the ground control box (Auxiliary station).....	3
1.4	Operation from the platform control box (Main station).....	4
2	Ground control box.....	5
2.1	To start and stop the machine.....	5
2.2	Movement control.....	5
2.3	Additional controls from the ground control box.....	6
3	Platform control box.....	7
3.1	To start and stop the machine.....	7
3.2	Drive and steer control.....	7
3.3	Movement control.....	8
4	Rescue and emergency procedures.....	9
4.1	In case of power loss.....	9
4.2	To rescue operator in platform.....	9
5	Transportation.....	10
5.1	Transport configuration.....	10
5.2	Machine stowage for transport- OPTIMUM 8 - OPTIMUM 1931 E - OPTIMUM 8 LI - OPTIMUM 1931 E LI.....	10
5.3	Unloading.....	11
5.4	Towing.....	11
5.5	Storage.....	12
5.6	Loading by ramp.....	13
5.7	Unloading by ramp.....	14
5.8	Lifting operation.....	14
5.9	Loading and unloading with forklift.....	16
6	Cold Weather Recommendations.....	17
6.1	Environmental conditions.....	17
7	Battery care and maintenance (For OPTIMUM 8 - OPTIMUM 1931 E only)	18
7.1	Battery recharge.....	18
7.2	Battery care and maintenance.....	21
7.3	Optimise battery life.....	26
8	Battery care and maintenance (For OPTIMUM 8 LI - OPTIMUM 1931 E LI only - For machines equipped with the lithium-ion battery option)	27
8.1	Battery recharge.....	27
8.2	Optimise battery life.....	30

D - Operation instructions

1 Operation

1.1 Introduction

Only trained and authorized personnel shall be permitted to operate this aerial work platform.

Prior to operation:

- Read, understand and obey all instructions and safety precautions in this manual and attached to the aerial work platform.
- Read, understand and obey all local regulations.
- Become familiar with the proper use of all controls and emergency systems.

1.2 Major description

All the machines are equipped with:

- Platform control box.
- Ground control box.

N.B.-:-

- **AN E-STOP BUTTON IS PRESENT AT EACH CONTROL BOX.**
- **AN E-STOP BUTTON AT THE GROUND CONTROL BOX STOPS ALL MOVEMENTS WHEN PRESSED IN.**
- **AN E-STOP BUTTON AT THE PLATFORM CONTROL BOX STOPS ALL MOVEMENTS WHEN PRESSED IN AND SELECTED. AN E-STOP BUTTON AT THE PLATFORM CONTROL BOX IS NEUTRALIZED WHEN THE LOWER CONTROL PANEL IS SELECTED.**

1.3 Operation from the ground control box (Auxiliary station)

The ground control box is designed for maintenance and emergency rescue operations only.

- Turning "ON" and "OFF" of the machine is performed with the Control box activation key switch (92).
- Activation of a desired control box is achieved by turning the Control box activation key switch (92) to

the desired position .

- The ground control box is energized and is active ONLY when:
 - The emergency stop on the ground control box is not pushed in.
 - The machine is switched on.
 - Ground control box is selected.

N.B.-:-AN E-STOP BUTTON PRESSED IN DOES NOT TURN OFF THE MAIN POWER SUPPLY TO THE MACHINE.

- An Enable Switch (9) provided must be activated and maintained to authorize one or more function movements. If Enable Switch (9) is kept engaged without selecting a function movement for more than 8 s; Enable Switch is automatically de-activated.

N.B.-:-THE ENABLE SWITCH (9) MUST BE ACTIVATED FIRST BEFORE ANY ACTION ON THE JOYSTICK OR SWITCHES.

- The release of "Enable switch" (9) while performing a movement stops all the movements. The stop of movements is progressive. If the Enable Switch system is re-pressed, the movement doesn't restart. It could restart only when the selected function switch/joystick is released to neutral position.
- Drive and steer movements are not possible from the ground control box.
- All switches and joystick operating a movement, return automatically to neutral when released.
- The ground control box is designed for maintenance and emergency rescue operations only. Refer to  D 4.2 - To rescue operator in platform.
- The status of the switches is tested automatically when the machine is switched on, and checked at every starting. A switch will be active only after it has been detected to be in neutral position. The following switches are not controlled:
 - Beacon light (if fitted)
- A buzzer beeps in the following conditions:
 - When power is switched on.

D - Operation instructions

- Overload.
- Slope if machine is out of stowed position.
- Hydraulic oil overheating.
- Movement buzzer option.
- Drive buzzer option.
- Indicators / Cluster: All indicators are checked after powering on the machine.

1.4 Operation from the platform control box (Main station)

- The platform control box can only be used if:
 - The E-stop buttons on both ground and platform control boxes are not pressed in.
 - Machine switched on at ground control box.
 - Platform control box selected from ground control box.
- A faulty joystick is not taken into account to control a movement. If this fault disappears, the movement is authorised again.
- An Enable switch (123) or Foot Switch in the basket (245) is present and should be activated to authorize one or more function movements. If the Enable Switch is kept active for more than 8 seconds without selecting a function movement, then movement is disallowed. The enable switch must be released (reset) before movement can occur.

N.B.: -THE ENABLE SWITCH (123) (245) MUST BE ACTIVATED FIRST BEFORE ANY ACTION ON THE JOYSTICK OR SWITCHES.

- The release of "Enable switch" (123) or Foot pedal switch in the basket (245) while performing a movement stops all the movements. The stop of movements is progressive. It could restart only when the selected function switch/joystick is released to neutral position.
- All switches and joystick operating a movement, return automatically to neutral when released.
- The status of the switches and joysticks is tested automatically when the machine is switched on. A switch or joystick will be active only after it has been detected in neutral position.
- A buzzer beeps in the following conditions:
 - When power is switched on.
 - Overload.
 - Slope if machine is out of stowed position.
 - Hydraulic oil overheating.
 - Movement buzzer option.
 - Drive buzzer option.
- Indicators: All indicators are checked when the machine is powered ON.



While driving on a slope:

- Always orientate the machine in the direction of the slope.
- Stow the machine completely.
- Do not travel down slopes in high speed.
- Do not drive fast in narrow or cluttered areas. Keep speed under control while making turns or sharp bends.

D - Operation instructions

2 Ground control box

2.1 To start and stop the machine

- Ensure that the E-Stop buttons (15) and (46) at the ground and platform control boxes are pulled out.
- Turn the key of the control box activation switch (92) to the right to energize the ground control box.

To shut-down the machine from the ground control box

- Turn the control box activation selector (92) key to the center.
- Push in the E-stop button (15).

N.B.:-THE ACTIV'SCREEN AUTOMATICALLY GOES INTO STANDBY IF IT IS NOT USED FOR AN EXTENDED PERIOD. TO SWITCH THE ACTIV'SCREEN BACK ON, TURN THE KEY SELECTOR TO POSITION OFF THEN FOLLOW THE START-UP PROCEDURE.

2.2 Movement control



Even at low movement speeds, use the controls with caution.

N.B.:-THE ENABLE SWITCH (9) MUST BE ACTIVATED FIRST BEFORE ANY ACTION ON THE JOYSTICK OR SWITCHES.

N.B.:-RELEASING THE ENABLE SWITCH (9) WILL STOP ALL MOVEMENTS.

Ground box controls (emergency station)

Command		Action
Platform raising / lowering		Push the platform raising / lowering selector (106) upwards to raise the platform.
		Press the platform raising / lowering selector (106) downwards to lower the platform.
Emergency lowering / Emergency platform lowering halted		Pull the T-handle (C107) to lower the platform.
		Release the T-handle (C107) to stop platform lowering.



Once rescue operations are complete, write an incident report.

D - Operation instructions

Pull T-handle for emergency lowering



N.B.:--PULLING ON TO THE T-HANDLE, IMMEDIATELY ACTIVATES THE EMERGENCY LOWERING OF THE PLATFORM.



ALWAYS keep personnel and obstructions clear of the aerial work platform that might block the lowering.

2.3 Additional controls from the ground control box

For the machines equipped with beacon light

- Push the beacon light selector switch (105) upwards to turn ON the beacon light.
- Push the beacon light selector switch (105) downwards to turn OFF the beacon light.

D - Operation instructions

3 Platform control box

3.1 To start and stop the machine

To start the machine:

At the ground control box:

- The E-stop button on the ground control box must be in ON position (pulled out / activated).
- Turn the key on the control box activation selector switch (92) to the left to energize the platform control box.

At the platform control box:

- Pull the E-stop button(46).

To stop the machine:

- Push in the E-stop button (46).

N.B.-:THE ACTIV'SCREEN AUTOMATICALLY GOES INTO STANDBY IF IT IS NOT USED FOR AN EXTENDED PERIOD. TO SWITCH THE ACTIV'SCREEN BACK ON, PRESS THE EMERGENCY STOP BUTTON THEN FOLLOW THE START-UP PROCEDURE.

3.2 Drive and steer control

To control the direction and drive

- Move the 2-position selector (112) to the right.
- The drive indicator (111) lights up.
- Simultaneously operate drive joystick (108) with joystick trigger (Enable switch (123)) pressed in and maintained.

N.B.-:THE ENABLE SWITCH (123) MUST BE ACTIVATED FIRST BEFORE ANY ACTION ON THE JOYSTICK OR SWITCHES.

N.B.-:FOR JAPAN ONLY - BOTH THE ENABLE SWITCH (123) AND FOOT PEDAL (245) MUST BE PRESSED TO ACTIVATE A FUNCTION. THE ENABLE SWITCH (123) (245) MUST BE ACTIVATED FIRST BEFORE ANY ACTION ON THE JOYSTICK OR SWITCHES.

N.B.-:FOR JAPAN ONLY - DRIVE AND STEER RESTRICTION WHEN ELEVATED, DEPENDING ON THE OPTION SELECTED AS SHOWN BELOW:

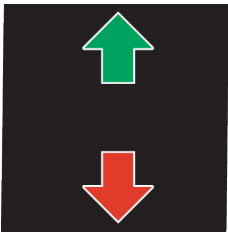
- **OFF - DRIVE AND STEERING FUNCTIONS ARE ALLOWED AT FULL HEIGHT.**
- **ON IF > 0.5 M (1.6 FT) - DRIVE AND STEER FUNCTIONS ARE CUT OFF.**
- **ON IF > 1.5 M (5.0 FT) - DRIVE AND STEER FUNCTIONS ARE CUT OFF.**

N.B.-:FOR KOREA ONLY - DRIVE AND STEER RESTRICTION WHEN ELEVATED, DEPENDING ON THE OPTION SELECTED AS SHOWN BELOW:

- **OFF - DRIVE AND STEERING FUNCTIONS ARE ALLOWED AT FULL HEIGHT.**
- **ON IF > 0,1 M (0.32 FT) - DRIVE AND STEER FUNCTIONS ARE CUT OFF.**

N.B.-:THE DRIVE AND LIFT SPEEDS ARE PROPORTIONAL TO THE POSITION OF THE JOYSTICK. PUSHING THE JOYSTICK COMPLETELY FORWARD OR BACKWARD, WILL RESULT IN MAXIMUM SPEED.

D - Operation instructions

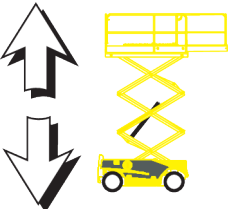
Command		Action
Driving		Move the drive joystick (108) forwards to drive the machine forwards.
		Move the drive joystick (108) backwards to drive in reverse.
Front-axle steering		Push the front-axle steering selector thumb switch (108) to the right to steer to the right.
		Push the front-axle steering selector thumb switch (108) to the left to steer to the left.

3.3 Movement control

To operate raising/lowering function, move 2 position selector switch (112) to the left. Activate raising/lowering selector (110). Simultaneously operate joystick (108) with joystick trigger (Enable switch (123)) pressed in and maintained.

N.B.:-THE ENABLE SWITCH (123) MUST BE ACTIVATED FIRST BEFORE ANY ACTION ON THE JOYSTICK OR SWITCHES.

N.B.:-FOR JAPAN ONLY - BOTH THE ENABLE SWITCH (123) AND FOOT PEDAL (245) MUST BE PRESSED TO ACTIVATE A FUNCTION. THE ENABLE SWITCH (123) (245) MUST BE ACTIVATED FIRST BEFORE ANY ACTION ON THE JOYSTICK OR SWITCHES.

Command		Action
Platform raising / lowering		Push the movement joystick (108) forwards to raise the platform.
		Push the movement joystick (108) backwards to lower the platform. ⁽¹⁾⁽²⁾⁽³⁾

⁽¹⁾ When the platform is lowered to a height of 1,50 m(4 ft11 in) from the ground; a time delay is automatically activated for a few seconds, before any further lowering of the platform can commence.

⁽²⁾ This is to avoid any risk of crushing.

⁽³⁾ The alarm sounds.

D - Operation instructions

4 Rescue and emergency procedures

4.1 In case of power loss

In case of loss of the main power source, lower the basket (or platform) using the T-handle on the chassis.

In an emergency, if the operator has to exit the platform while it is elevated, the transfer of the operator must respect the following recommendations.

- Exit onto a sturdy and safe structure.
- The occupant(s) must ensure that 2 lanyards are used for security/safety. One must be attached to the designated anchorage point on platform the occupant(s) is in and the other attached to the structure intended to get on.
- Occupant(s) must exit the current platform through the normal access.

N.B.: -DO NOT DETACH THE LANYARD FROM THE CURRENT PLATFORM IF THE TRANSFER TO THE NEW STRUCTURE POSES ANY DANGER OR UNTIL THE TRANSFER IS SAFELY COMPLETED. DO NOT ATTEMPT TO CLIMB DOWN FROM THE PLATFORM. WAIT FOR ASSISTANCE TO LEAVE THE CRADLE SAFELY.

4.2 To rescue operator in platform

In a situation where an operator located in the platform needs to be rescued (for example in case of illness, injury or trapped against a structure making the control box inaccessible), the rescue personnel at ground level needs to obtain rapid and direct access to operating functions.

HAULOTTE® has implemented a control system for safely lowering the operator to the ground in the event of an emergency to enable him to receive the necessary treatment.



The system allows occupant(s) to be lowered to the ground level, even if an E-Stop is engaged or if an overload is detected.

1. Turn the key of the control box activation switch (92) to the right to energize the ground control box. The platform box controls are de-energized.
2. Lower the platform from the ground control box.
3. Lower the platform using the platform raising/lowering selector (1) while simultaneously pressing and maintaining the Enable Switch (9).
4. Release it to halt lowering.

If a safety systems do not allow normal movement from the ground control box, lower the basket (or platform) using the T-handle on the chassis.



Once rescue operations are complete, write an incident report.

D - Operation instructions

5 Transportation

5.1 Transport configuration



During loading, ensure that:

- The loading ramp can support the machine weight.
- The loading ramp is correctly attached to transport vehicle.
- The loading ramp has sufficient grip surface.
- The transport vehicle must be parked on a level surface and must be secured to prevent rolling away while machine is being loaded or unloaded.

To climb the slope, move progressively the drive joystick (108).

If the slope is too steep, use a winch in addition to traction.

Do not place yourself below or too close to the machine during loading.

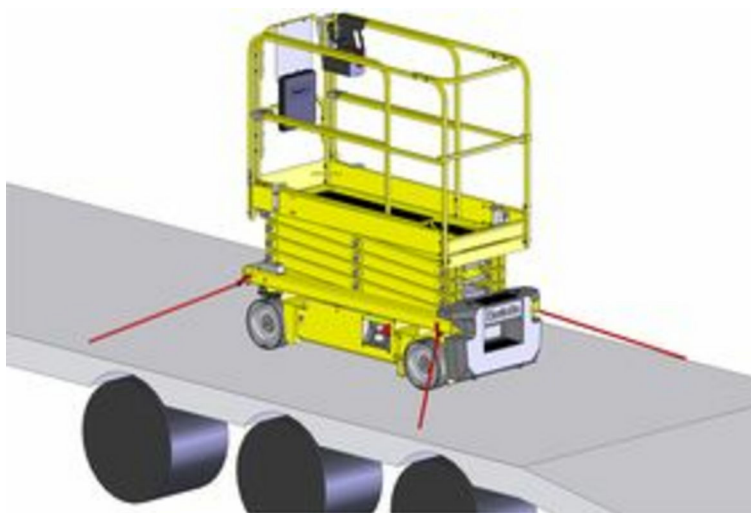
The machine must be completely in the stowed configuration:

- Check the platform is completely empty.
- Platform extension must be retracted in the locked position.
- Drive the machine onto the truck bed. While constantly checking the wheel position.
- Secure the machine to the tie down points provided (See picture) .



The manual extension (if fitted) must be retracted and locked during transport or towing.

5.2 Machine stowage for transport- OPTIMUM 8 - OPTIMUM 1931 E - OPTIMUM 8 LI - OPTIMUM 1931 E LI



D - Operation instructions

5.3 Unloading

Before unloading, check that the machine is in good condition and that it has not suffered any damage during transport.

- Remove the tie downs.
- At ground control box turn control box activation switch (92) to the left to energize platform box.
- At the platform controls, with 2 position selector (112) turned to the right, carefully and progressively move drive joystick (123) with Enable switch (108) pressed and maintained.



Upon starting a machine that has been secured and transported, the safety system may detect a false overload preventing all movement from the platform control box.

To reinstate the system, lift the platform a few centimetres (inches) from the ground control box.

5.4 Towing



In the event of a machine breakdown, the machine can be towed a short distance to load it onto a transport vehicle:

- Ensure that no one is in the platform during towing.
- Before towing, ensure that the platform is fully lowered.
- The platform must be empty.
- ALWAYS keep personnel and obstructions clear of the aerial work platform when brakes are released.

To tow a broken-down machine, release brake (Refer to  D 5.4.1 - Brake release) .

In the towing configuration, the machine braking system is inactive. Use a drawbar to avoid any risk of accident:

- Do not exceed the maximum freewheel speed (Refer to  B 4.1 - Technical specifications) .
- Do not use on a slope with a gradient greater than 25%.



Perform these operations on flat, horizontal ground. Block the wheels to immobilize the machine. The machine is in free wheel mode, so the braking system is not active.

D - Operation instructions

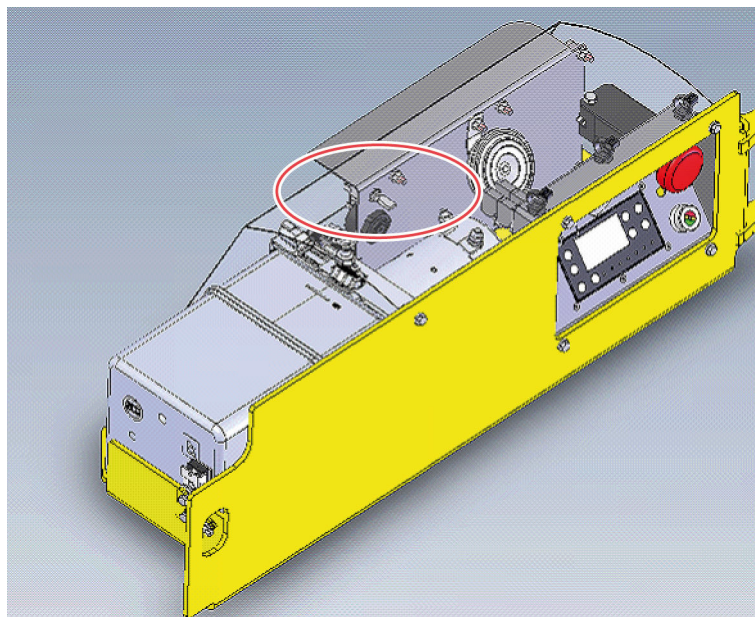
5.4.1 Free wheel mode

To tow a broken-down machine, release brake.



Perform these operations on flat, horizontal ground. Failing that, block the wheels to immobilize the machine. During brake release operation, the machine is in free wheel mode and the brake system no longer functions.

If the machine is towed, the brakes on the drive wheels can be released using the switch located in the motor pump unit compartment.



To release the machine's brakes, the following conditions must be met:

- The platform control box or the ground control box must be selected.
- The machine must be completely stowed.
- No movement selected.
- The machine must not be tilted.

Push the brake release button for at least 3 s. An audible signal (beep) sounds.

Releasing the button disengages the brakes.

The brake release procedure stops automatically if the brake release button is pushed again, any actions are taken at the control boxes, the machine is turned off, or the control box in use is changed.



In the towing configuration, the machine is no longer slowed down. Use a drawbar to avoid any risk of accident.



Do not exceed 4.5 km/h(2.79 mph).

5.5 Storage



The machine can be stored in a designated area when not in use. If it is stored for more than 3 months without being used, an inspection must be carried out before it is put back into service.



Keep the batteries charged. Refer to  Section D - Optimise battery life.

D - Operation instructions

Turn the energizing key selector switch (92) at the ground control box to the "center" position to shut OFF the power.

Remove the energizing key to prevent unauthorized operation of the machine.



Storing of the machine with an obstacle under the extended platform is forbidden.



When machine is stored and not used for more than 1 week, check the battery's state of charge, recharge if necessary.



To avoid any risk of corrosion on rods of cylinders during a storage period of more than 1 month:

- In a normal atmospheric environment: perform a complete cycle for the cylinders every 2 months while they are in storage.
- In harsh environments (high levels of salinity in the atmosphere: close to the sea, industrial environment with chloride emissions and/or humidity >70%), we recommend applying the following protection process:
 - Wash and rinse the entire machine with plenty of clean water.
 - Dry all the cylinder rods using an air gun.
 - Apply a solvent-based oil leaving an oily film after evaporation of the solvent directly to all rods left exposed when the machine is in storage position.
 - Re-apply the product every month.



After washing the machine, make sure it is fully air-dry and does not contain moisture on corrosive parts (cylinders rods for example). Do not wash electrical components with a high pressure washer. Wipe away dirt from around electrical components with a dry cloth.

5.6 Loading by ramp



To avoid any risk of sliding during loading, ensure that:

- The loading ramp can bear the load.
- The loading ramp is correctly attached.
- The loading ramp has sufficient grip.



If the slope exceeds 25% grade, use a winch to assist in loading on to the ramp.



Never place yourself below or too close to the machine during loading. A wrong move can lead to the tipping over of the machine and cause serious bodily and material accidents.

D - Operation instructions

5.7 Unloading by ramp



Before operating, check that the machine is in good condition. If the machine has been damaged during transportation, contact the transporter in writing

1. Remove the tie downs.
2. Start the machine.
3. The ramp is in good condition and of sufficient capacity. The lifting equipment ie. slings, shackles, hooks, lifting beam etc. are in good condition and of sufficient capacity.

5.8 Lifting operation

During loading / unloading operation, if it becomes necessary to lift the machine using an overhead crane, it is important to respect the following:

- Put the machine in stowed position (Extension retracted) .
- Ensure the platform is empty.
- Verify that lifting accessories are in good operation and match the technical specifications listed below. It is important that the lifting devices are attached only to the designated lifting eyes.
- Each of the slings used for lifting the machine must be adjusted to keep the machine level and to minimize the risk of damage to the machine.



- Anchorage point for lifting are identified / labeled by the following symbol .
- ONLY trained and authorized personnel should attempt to lift the machine.



Never lift the machine with slings attached to counterweight.

D - Operation instructions

Procedure for the use of slings



Number of shackles	Number of slings	Length	Maximum load per sling and shackle
4	4	2 m / 6 ft 7 in	1000 kg/ 2,205 lbs

D - Operation instructions

5.9 Loading and unloading with forklift

- Lower the platform.



The machine must be in the fully stowed transport position.

- Ensure that the machine controls are in the OFF position.
- Forklift used to load and unload must have adequate capacity (Refer to  B 4 Technical specifications) .
- Adjust the forklift forks spread to match with the machine fork pockets.
- Carefully insert the forklift forks in the designated machine fork pockets.



Never place yourself below or too close to the machine during loading. A wrong move can lead to machine tipping over and may cause serious injuries and material damage.

Unloading:

- Carefully lift the machine and make sure that the machine weight is properly balanced.
- Slowly lower the machine and place it on the ground.

D - Operation instructions

6 Cold Weather Recommendations

In extreme cold conditions, machines should be equipped with optional cold start kits.

N.B.:-INITIAL STARTING SHOULD ALWAYS BE PERFORMED FROM THE GROUND CONTROL BOX.

N.B.:-FOR MACHINES EQUIPPED WITH THE LITHIUM-ION BATTERY OPTION: IN COLD WEATHER, THE MACHINE MAY HAVE REDUCED PERFORMANCE. THE REDUCTION IN PERFORMANCE IS MANAGED AUTOMATICALLY BY THE MACHINE AND HELPS TO PRESERVE THE BATTERIES.

6.1 Environmental conditions

6.1.1 Hydraulic oil

External environmental conditions can reduce performance of the machine if the hydraulic oil temperature does not reach its optimum range.

It is recommended to use the hydraulic oil according to weather condition. Refer to the table below.

Environmental conditions	SAE Viscosity grade
Ambient temperature between - 15°C (5°F) and + 40°C (+ 104°F)	HV 46
Ambient temperature between - 35°C (- 31°F) and + 35°C (+ 95°F)	HV 32
Ambient temperature between 0°C (+ 32°F) and + 45°C (+ 113°F)	HV 68

N.B.:-IT IS RECOMMENDED TO REPLACE LOW TEMPERATURE OIL AS THE AMBIENT TEMPERATURE REACHES + 15°C (59°F). IT IS NOT ADVISABLE TO MIX OILS OF DIFFERENT BRANDS OR TYPES.

D - Operation instructions

7 Battery care and maintenance (For OPTIMUM 8 - OPTIMUM 1931 E only)

7.1 Battery recharge

7.1.1 On-board charger

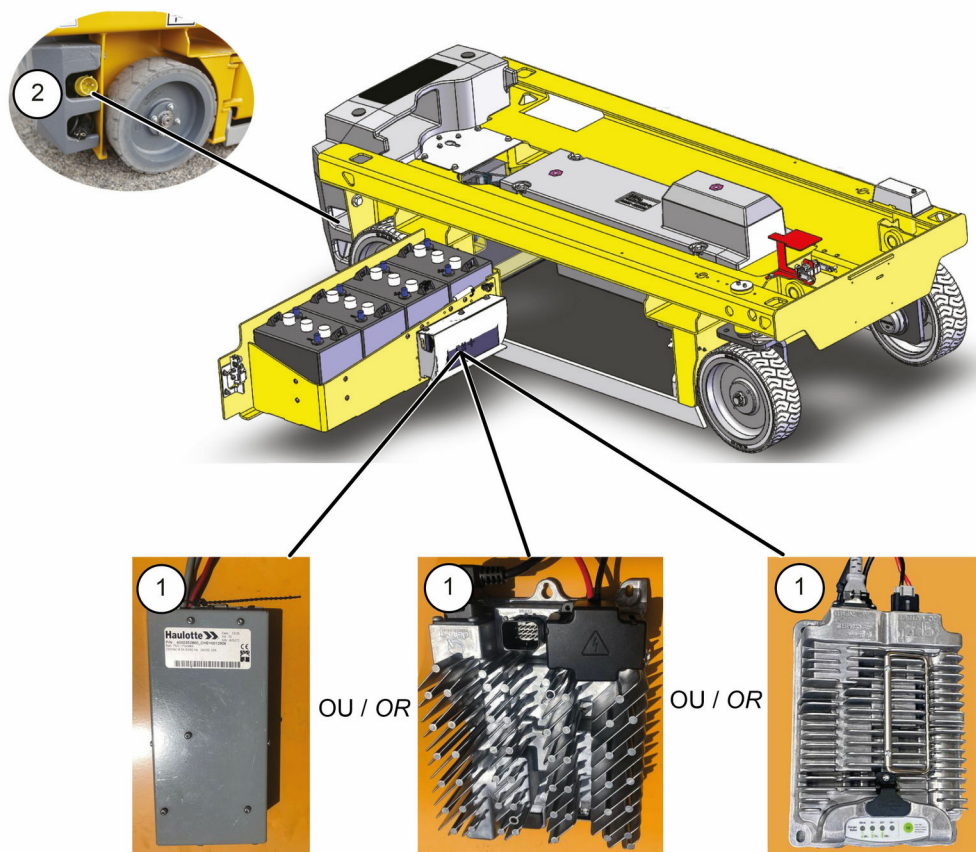
The on-board charger is used to charge the semi-drive batteries. The charger's power is 750W-1000W and the maximum intensity is 10A for 220V - 240V and 110V networks. Battery charging starts as soon as it is connected via the mains supply.

N.B.: -NO MOVEMENTS ARE ALLOWED DURING BATTERIES CHARGING CYCLE AND WHILE CONNECTED TO AN EXTERNAL POWER OUTLET.

			
Battery charger	36V / 35A	24V / 27A	24V / 30A
Electric power supply	190 - 265 Vac / 50Hz / 10A	85 - 265 Vac / 50-60Hz / 8A max	100 - 240 Vac / 50-60Hz / 10,5A
Battery voltage	24V		
Charging time	10h		

D - Operation instructions

Locations



Marking	Description
1	On-board charger
2	Battery charger mains cable



Never replace the charging cable without written permission from HAULOTTE®.

7.1.2 Battery charging



- Do not use an external charger or jump the batteries.
- Ensure the mains supply is compatible:
 - Do not use a cable reel with the cable wound up.
 - The socket must be able to deliver a current of 10 A.

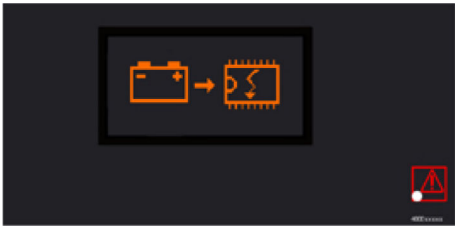
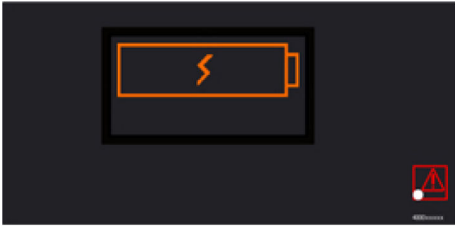
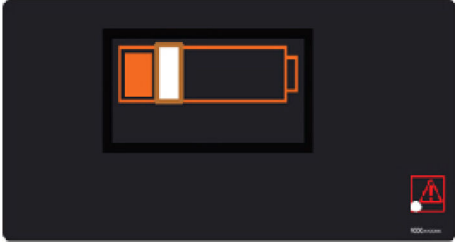
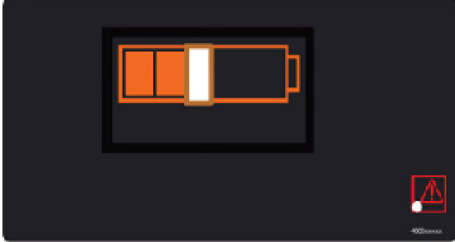
Duration of charge cycle

- 10 hours approximately, on 220 - 240 V AC network.

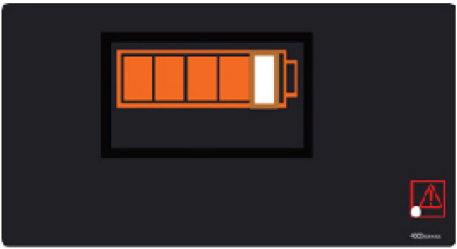
The charge cycle stops automatically when charging is complete.

It can take up to 24 hours for a full charge if the battery levels are very low (Charge status less than 5 %).

D - Operation instructions

Procedure	Visual indicator	Comments
Internal parameter update		
Charging is going to start		
The first segment flashes		Charge from 0 % to 20 %
The second segment flashes		Charge from 20 % to 40 %
The third segment flashes		Charge from 40 % to 60 %
The fourth segment flashes		Charge from 60 % to 80 %

D - Operation instructions

Procedure	Visual indicator	Comments
The fifth segment flashes		Charge from 80 % to 100 %
Battery equalisation		Leave the batteries on charge (3h)
Charging is complete		Unplug the charging cable from the machine

7.2 Battery care and maintenance

7.2.1 Filling batteries

The procedure described below only applies to open lead acid batteries. 6 V open lead-acid battery blocks are composed of 3 2 V single cells connected together in series. The cells are immersed in an electrolyte composed of 1/3 sulfuric acid and 2/3 deionized water.



The batteries must **ONLY** be filled after charging them fully. Failure to comply with these instructions may lead to the electrolyte overflowing, etc...



The batteries **MUST** be filled when necessary or the batteries may be irreparably damaged. The lead plates oxidize in the air. They must always be covered with electrolyte.

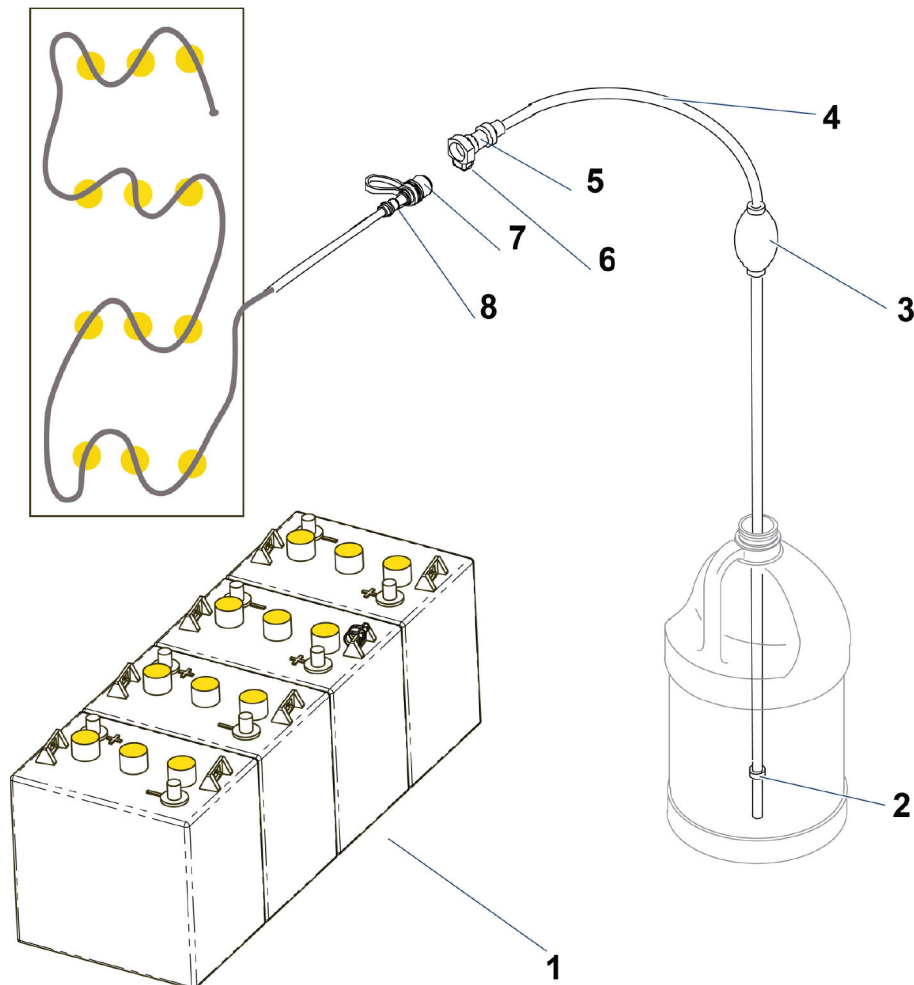


The water level in the batteries cannot be topped up if the temperature is lower than 0° as the distilled or deionized water freezes in the centralized filling system.

D - Operation instructions

7.2.1.1 Procedure to fill the batteries manually-Option

Single-Point Watering System



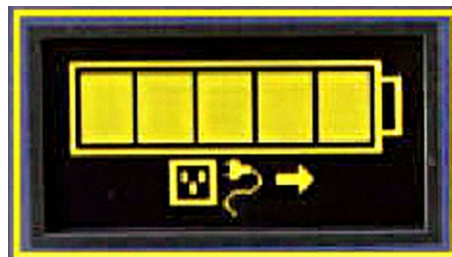
Marking	Description
1	Battery
2	Filtered intake
3	Hand pump
4	Hose
5	Female adapter
6	Push-button
7	Dust cover
8	Male adapter

N.B.:-COMPLETELY CHARGE THE BATTERIES BEFORE CONNECTING THE DISTILLED-WATER-FILLING UNIT.

D - Operation instructions

Procedure:

1. Launch a full charge of the battery and check the charge indicator.
2. Disconnect the batteries charger and put back the plug in its housing.



Levelling of the elements should always be done after charging the batteries. Watering a battery before charge (or with a low charge level) can lead to boil-over, resulting in potential bodily injury and potential damage to the watering system and the battery.

1. Open the battery compartment.



1. Immerse the filtered inlet (2) of the transparent hose (4) fitted with a hand pump (3) in a demineralized water canister (Supplied with the machine) .
2. Press the hand pump (3) to prime it until the water rises in the hose (4)
3. Once the hand pump (3) is primed, remove the male connector (8) cap (7) from the black supply tube assembly
4. Connect the female connector (5) quick-hitch from the centralized filling system, including the hand-pump, to the male connector (8) .
5. Press firmly on the hand pump to bring the distilled water to the batteries (1) .
6. When the bulb (3) becomes resistant, this means that all the battery cells are filled appropriately.
7. Then uncouple the female connector (5) from the male connector (8) filling tube by pressing on the yellow button (6) , then replace the cap (7) on the machine hose.
8. Close the battery compartment again.

D - Operation instructions

7.2.1.2 Procedure to fill the batteries automatically-Option

1. Open the battery compartment.



1. Open the cap.
2. Fill the can with demineralized water.
3. Correctly close the plug and battery compartment.
4. Fully recharge the batteries in order to restart an automatic filling or activate the automatic filling from the Activ'Screen of the ground control box.



D - Operation instructions

7.2.2 Desulfation charge

Normal battery use leads to sulfatation of the lead plates during discharge (Formation of lead sulfate) . Recharging the battery dissolves the lead sulfate. The plates are desulfated.

Moreover, sulfatation also appears if the battery self-discharges during storage in a low state-of-charge (< 70%).

As the battery ages, the lead sulfate may become harder and harder and increasingly difficult to eliminate by normal charging. This leads to a loss of autonomy. The desulfation charge is a way of regenerating the battery.



To improve the efficiency of the desulfation charge, you are advised to launch it for a battery discharged to a state-of-charge less than 30%.

Procedure:

- Go to the machine set-up menu-> 3.3Machine config-> 3.3.1Option setting->Desulfation charge.

Desulfation charge



- The option is active and will be implemented during the next mains charge.
- Charging time is increased up to 72 h.
- For high efficiency in this charging mode, the batteries must be below 30%.

D - Operation instructions

7.3 Optimise battery life

To optimize battery performance and life-time, you are advised to follow the recommendations below:

- Carry out regular battery maintenance as described.
- Do not store the machine discharged (Duration greater than 72 hours).
- Carry out full charges regularly.
- Do not keep a machine in a state-of-charge less than 70% for no useful purpose.



- A full recharge of the batteries is recommended every 30 days that the machine is used.

Keep the top of the batteries clean and dry. Incorrect connection or corrosion may cause a high loss of power.

	Full charge	Filling control	Desulfation charge
In use			
As soon as possible	X		
If state-of-charge < 50% at the end of a working day	X		
Every 30 days of use	X		
Before placing in storage	X		
1 time a week	X	X	
1 time every 2 weeks		X	
1 time a month		X	
1 time every 6 months			X
In storage			
1 time a month	X		



The battery's water consumption depends on its use. You are advised to check the water level 1 time a week.

D - Operation instructions

8 Battery care and maintenance (For OPTIMUM 8 LI - OPTIMUM 1931 E LI only - For machines equipped with the lithium-ion battery option)

8.1 Battery recharge

8.1.1 On-board charger

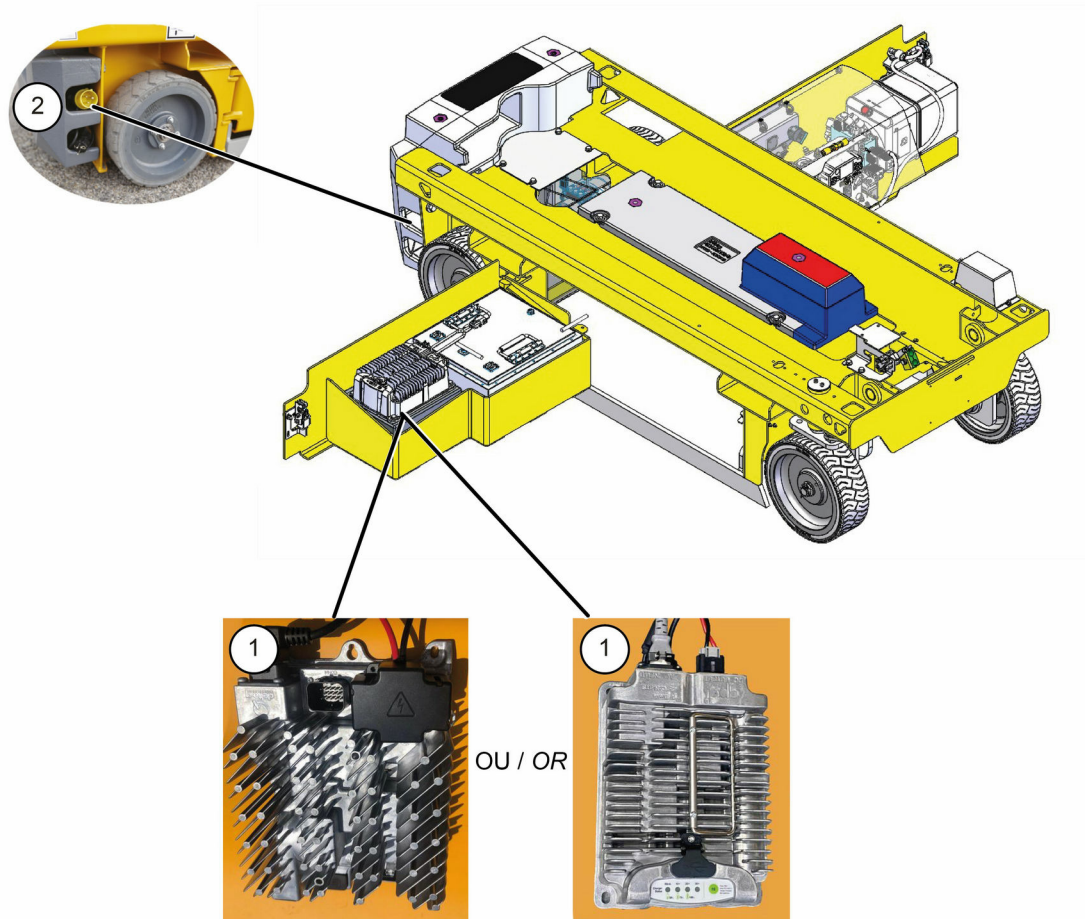
The on-board charger is used to charge the batteries. The maximum charger's power is 1000W and the maximum intensity is 10.5A for 220V - 240V and 110V networks. Battery charging starts as soon as it is connected via the mains supply.

N.B.: -NO MOVEMENTS ARE ALLOWED DURING BATTERIES CHARGING CYCLE AND WHILE CONNECTED TO AN EXTERNAL POWER OUTLET.

		
Battery charger	24V / 30A	24V / 27A
Electric power supply	100 - 240 Vac / 50-60Hz / 10.5A	85 - 265 Vac / 50-60Hz / 8A max
Battery voltage	25.6 V	
Charging time	6h	

D - Operation instructions

Locations



Marking	Description
1	On-board charger
2	Battery charger mains cable

 Use only approved HAULOTTE® charging cable to avoid possible damage to battery, charging performance loss and risk of overheating.

8.1.2 Battery charging

-  - Do not use an external charger or jump the batteries.
- Ensure the mains supply is compatible:
- Do not use a cable reel with the cable wound up.
 - Plug the charger into a properly installed and grounded outlet that is suitable for the voltage/ current of the charger  D 7.1.1 -On-board charger.

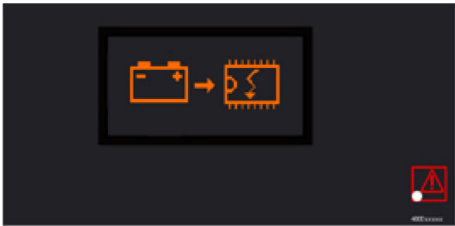
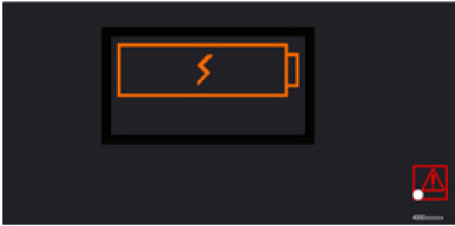
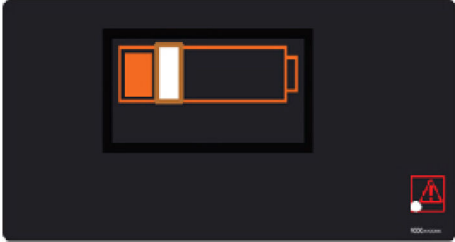
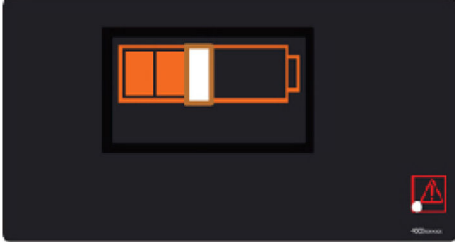
Duration of charge cycle

- 6 hours approximately.

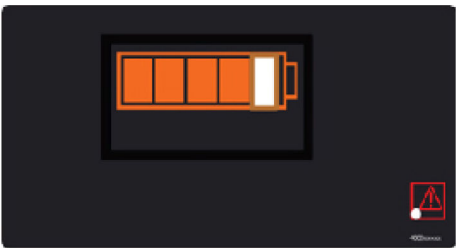
N.B.-:-CHARGING TIME CAN BE UP TO 8 HOURS LONGER IN COLD WEATHER

The charge cycle stops automatically when charging is complete.

D - Operation instructions

Procedure	Visual indicator	Comments
Internal parameter update		
Charging is going to start		
The first segment flashes		Charge from 0 % to 20 %
The second segment flashes		Charge from 20 % to 40 %
The third segment flashes		Charge from 40 % to 60 %
The fourth segment flashes		Charge from 60 % to 80 %

D - Operation instructions

Procedure	Visual indicator	Comments
The fifth segment flashes		Charge from 80 % to 100 %
Batteries balancing		Leave the batteries on charge
Charging is complete		Unplug the charging cable from the machine

8.2 Optimise battery life

To optimize battery performance and life-time, you are advised to follow the recommendations below

- Carry out regular battery maintenance as described:

In use	
Full charge	When needed or at least once a month
Opportunity charge	When needed
Partial charge	Allowed
Long term storage (More than 1 month)	
Optimal state of charge for storage	40 to 60 %
Optimal temperature during storage	- 20°C(- 68°F) to 25°C(77°F)
Full charge	Every 6 months

N.B.-:KEEP THE TOP OF THE BATTERIES CLEAN AND DRY. INCORRECT CONNECTION OR CORROSION MAY CAUSE A HIGH LOSS OF POWER.

E - General Specifications

1	Machine dimensions.....	3
2	Major component masses.....	5
3	Acoustics and vibrations.....	6
4	Wheel/Tire assembly.....	7
4.1	Technical specifications.....	7
4.2	Inspection and maintenance.....	8
5	Options.....	12
5.1	Compatibility.....	12
5.2	Advanced Access Management - Access control and usage restriction.....	12
5.3	Swing gate.....	21
5.4	Folding guardrails.....	22
5.5	Pipe holder option.....	25
5.6	Panel carrier.....	29
5.7	SGS - Secondary guarding system	34

E - General Specifications



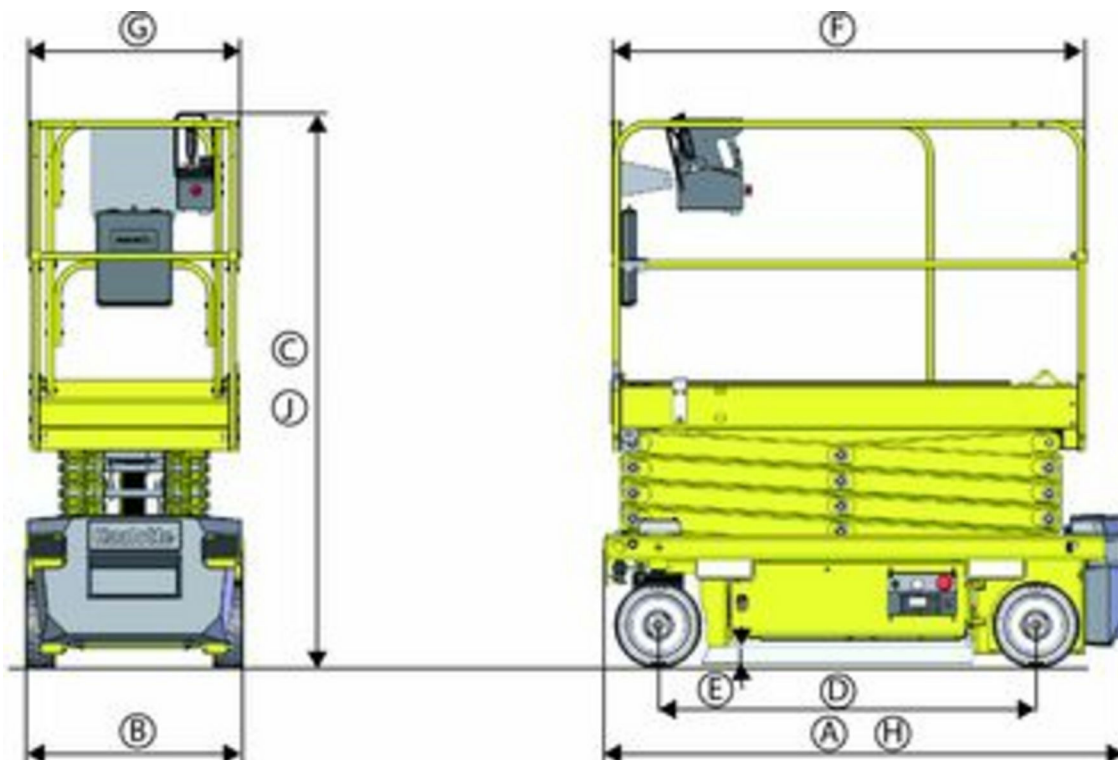
Notes

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E - General Specifications

1 Machine dimensions

Stowed / Transport position: Configuration that takes the minimum floor space necessary for storage and / or delivery of the machine-Access position.



CE, UKCA, AS and EAC standards

Machine		OPTIMUM 8 - OPTIMUM 8 LI	
Marking	Specifications-Dimensions	SI	Imp.
A	Overall length of machine	1,89 m	6 ft 2 in
B	Overall width of machine	0,79 m	2 ft 7 in
C	Overall height of machine	1,99 m	6 ft 6 in
D	Wheel base	1,38 m	4 ft 6 in
E	Ground clearance-Pothole mechanism deployed with platform raised	2,2 cm	1 in
	Ground clearance-Pothole mechanism retracted with platform fully lowered	6 cm	3 in
F X G	Platform dimensions	1,73 m x 0,74 m	5 ft 8 in x 2 ft 5 in
H	Storage length	1,89 m	6 ft 2 in
J	Storage height	1,99 m	6 ft 6 in

E - General Specifications

ANSI and CSA standards

Machine		OPTIMUM 1931 E - OPTIMUM 1931 E LI	
Marking	Specifications-Dimensions	SI	Imp.
A	Overall length of machine	1,89 m	6 ft 2 in
B	Overall width of machine	0,79 m	2 ft 7 in
C	Overall height of machine	1,99 m	6 ft 6 in
D	Wheel base	1,38 m	4 ft 6 in
E	Ground clearance-Pothole mechanism deployed with platform raised	2,2 cm	1 in
	Ground clearance-Pothole mechanism retracted with platform fully lowered	6 cm	3 in
F X G	Platform dimensions	1,73 m x 0,74 m	5 ft 8 in x 2 ft 5 in
H	Storage length	1,89 m	6 ft 2 in
J	Storage height	1,99 m	6 ft 6 in

E - General Specifications

2 Major component masses

Specifications	OPTIMUM 8 LI	OPTIMUM 1931 E LI
	SI	Imp.
Frame assembly mass	178 kg	392 lbs
Scissors assembly mass	428 kg	944 lbs
Platform assembly mass	125 kg	275 lbs
Drive wheel mass	21 kg	46 lbs
Steer wheel mass	21 kg	46 lbs
Counterweight mass	416 kg	917 lbs
Mass of the additional counterweight	70 kg	154 lbs

E - General Specifications

3 Acoustics and vibrations

The acoustics and vibrations specifications are based upon the following conditions:

- The airborne noise emissions at workstation are determined per European Directive 2006/42/CE.
- The guaranteed sound power level LWA (displayed on the product) is determined per European Directive 2000/14/CE.
- The vibrations transmitted by the machinery to the hand/arm system and to the whole body are determined per European Directive 2006/42/CE.

Specifications	
Sound pressure level at workstation	< 70 dBA
Vibrations hand/arm	Vibration transmitted by this MEWP to the hand-arm does not exceed 2,5 m/s ² (98,4 in/s ²)
Vibrations whole body	Vibration transmitted by this MEWP to the whole body does not exceed 0,5 m/s ² (19,6 in/s ²)

E - General Specifications

4 Wheel/Tire assembly

4.1 Technical specifications

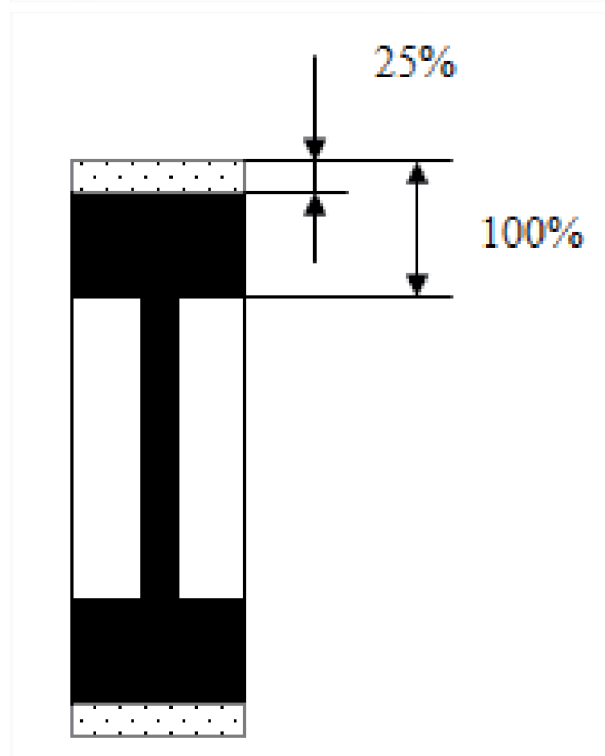
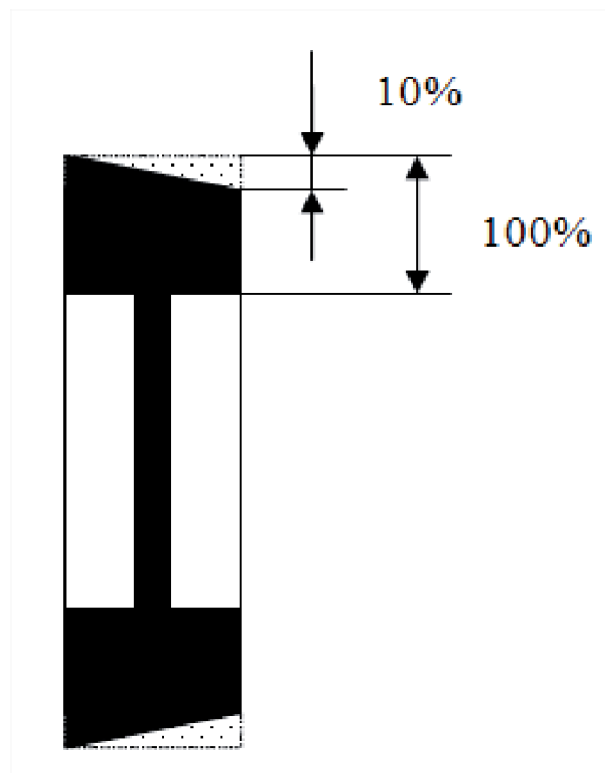
Component	Standard wheel
Reference number	Solideal
Type	Solid tires/tyres
Wheel mass	19 kg - 42 lbs
Size	316 mm / 108 mm (12,5 in / 4,25 in)
Torque	250 Nm (184 ft lbs)

E - General Specifications

4.2 Inspection and maintenance

Replace the wheels and the tires if any of the following conditions exist

- Presence of cracks, damage, deformation or other faults on the hub
- Damage to the tire:
 - Cut or hole > 3 cm (2 in) in the rubber side wall.
 - Blister or pronounced lump on the external and lateral wall.
 - Damaged wheel stud.
 - Damage or wear on the side wall to the extent that the reinforcing wire is visible.
 - Consistent wear of the ground contact surface greater than 25%
- Check that the pin 2352101250 is present and in good condition-Replace as necessary.



Tires and rims are critical components for the stability of the machine. For safety reasons

- Use only HAULOTTE® spare parts according to the technical characteristics of the machine. Refer to the spare parts catalog.
- Do not replace factory-installed tires with tires of different specifications or ply rating.

E - General Specifications

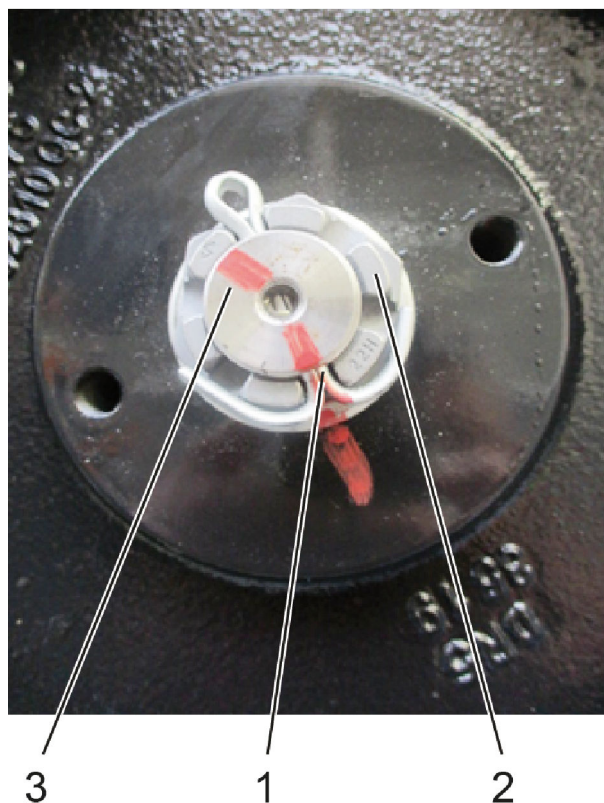
4.2.1 Procedure of replacement

- Slightly lift the machine using the lifting points of the frame.
- Place a wooden spacer under the frame to support the machine after lifting off the ground.

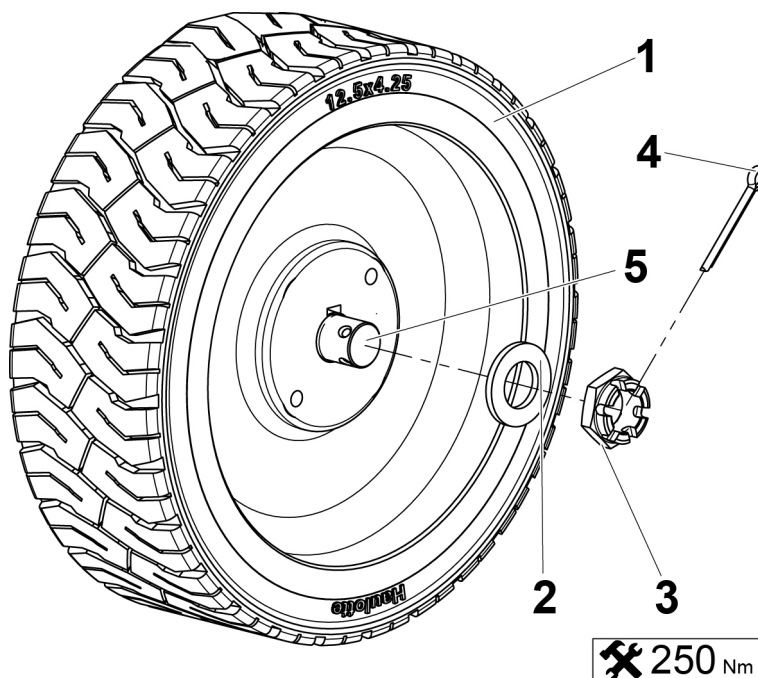


E - General Specifications

- Remove the pin (1), the wheel nut (2) and the flat washer(3).
- Remove the wheel.



Reassembly of the wheel



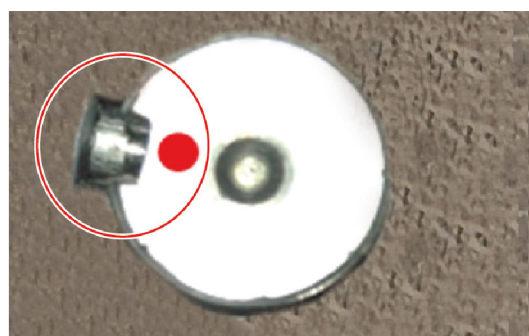
E - General Specifications

Marking	Description
1	Wheel
2	Washer
3	Nut
4	Pin
5	Motor shaft

- Use a new flat washer (2700500110).
- Use a new nut (4000503700).

1. Check that the shaft key is well positioned in the motor shaft.
2. Mount the wheel on the motor shaft.
3. Install the washer first then the nut.
4. Tighten the wheel nut to the recommended torque: 250 Nm (184 ft.lbs).
5. Add tightening until a groove of the nut is in coincidence with one hole of the shaft of the motoreducer.
6. Insert the pin (2352101250) into its seating.
7. Bend over the cotter pin legs to secure the nut.

N.B.:-LOCK IN PLACE WITH A NEW PIN.



E - General Specifications

5 Options

5.1 Compatibility



Before installing any options or accessories, consult HAULOTTE® to check compatibility.

5.2 Advanced Access Management - Access control and usage restriction

5.2.1 Description

Access control and usage restriction are options available on a machine equipped with the SHERPAL solution. These options enable the use of the machine to be limited.

These limitations are set and managed from the MyHaulotte platform by the fleet manager.

5.2.1.1 Access control

The purpose of the access control is to prohibit lifting by an unauthorised operator. Access to the machine is via the RFID code and/or RFID board on the keyboard of the remote RFID reader.

Access control also allows the machine owner to block access to the machine's diagnostic screens for users without the level 3 code (Code available to authorised technicians only) . The level 3 code must be entered on the machine's screen.

5.2.1.2 Usage restriction

The usage restriction is a machine-related limitation. The usage restriction restricts the use of the machine when it is outside of the conditions of use predefined by the manager.

This function can be set from the MyHaulotte platform by those with the appropriate roles and rights.

The configurable conditions of use are as follows:

- GEOFENCE:-Authorisation for geolocalised use
- TIMEFENCE:-Authorisation for use according to defined time slots
- Remote restriction:-Forced activation of a usage restriction, regardless of the GEOFENCE and TIMEFENCE conditions
- Tracker fault:-Activation of the restriction if tracker in default

When the machine is outside of its conditions of use, only movements allowing micro-speed movement and folding are authorized.

When the machine is subject to a restriction, a message indicates this on the screen of the ground control panel. The user in the basket is notified by the indicator light on the control panel  which flashes at a frequency of 1s ON - 1s OFF.

5.2.1.3 GEOFENCE

The manager can activate the GEOFENCING restrictions in order to limit the machine's use inside a so-called AUTHORIZED geographical zone or outside a so-called PROHIBITED geographical zone, which he has defined. If the machine leaves this perimeter, its functionality will be restricted..

5.2.1.4 TIMEFENCE

The manager can activate the TIMEFENCING restrictions in order to restrict the usage during the defined period (Day, Time slot, ...) . If the machine is used outside of the time slot defined by the manager, its functionalities will be restricted.

A GEOFENCING and/or TIMEFENCING restriction becomes active after the machine is folded.

5.2.1.5 Remote restriction

It is also possible for the fleet manager to set a restriction remotely.

This is equivalent to the forced activation of a restriction, independent of the temporary TIMEFENCING or geolocalized GEOFENCING conditions of use.

E - General Specifications

5.2.2 Additional functions

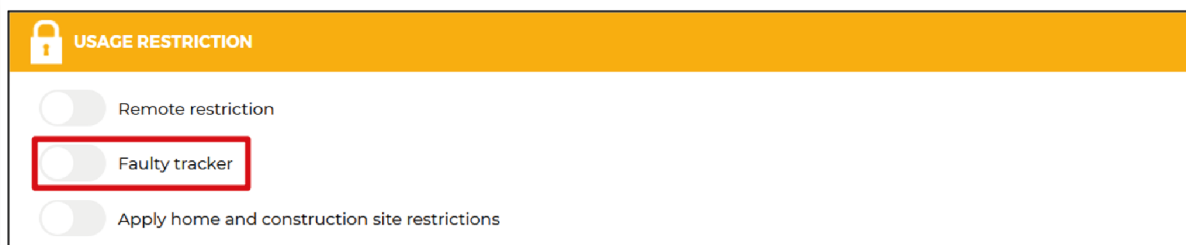
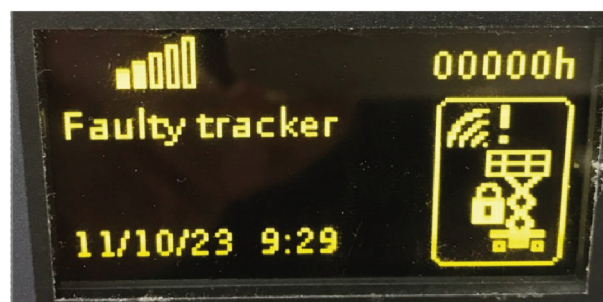
5.2.2.1 Access control and usage restriction combination

The access control can be combined with the machine's usage restriction. If access control and usage restriction are active, the combination of the two applies so that the user is subject to the constraints of the strongest restriction.

5.2.2.2 tracker default function

This function allows you to force activation of the restriction in the event of a problem (e.g. tracker removed, unplugged or defective)..

This function is deactivated by default. This function can be activated on the Machine Sheet from the MyHaulotte platform.



5.2.3 SUPER USER status

The fleet manager can add Super User status to a user from the MyHaulotte platform. The Super User profile enables the machine to be used, even if it is subject to a usage restriction.

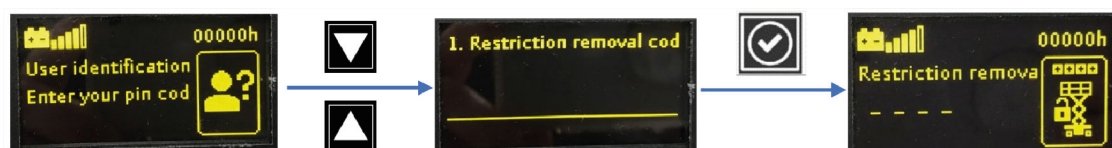
The Super User profile can be connected to one or more machines.

The Super User profile can then start these machines using the PIN code generated by the fleet manager on MyHaulotte or using the RFID card assigned to him.

5.2.4 Code for removing restrictions

This code enables all restrictions to be permanently removed from a machine (Access control, usage restriction and remote restriction).

The code for removing restrictions is generated by the fleet manager on MyHaulotte. This code must then be entered on the machine's Restrictions Removal Code screen to unlock it permanently.

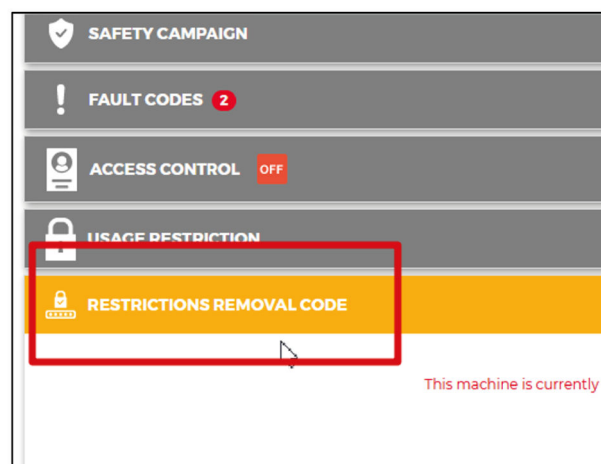


E - General Specifications

Enter the restriction removal code.



Permanently disable the restrictions and access control.



5.2.5 Operation

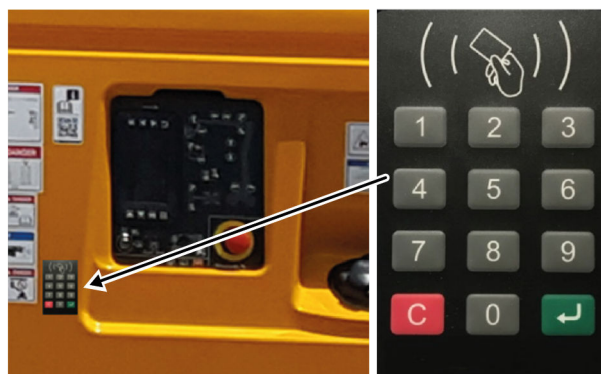
5.2.5.1 Using a machine with access control enabled

The following screen appears when starting up (energizing) the machine.



The machine can then be started by:

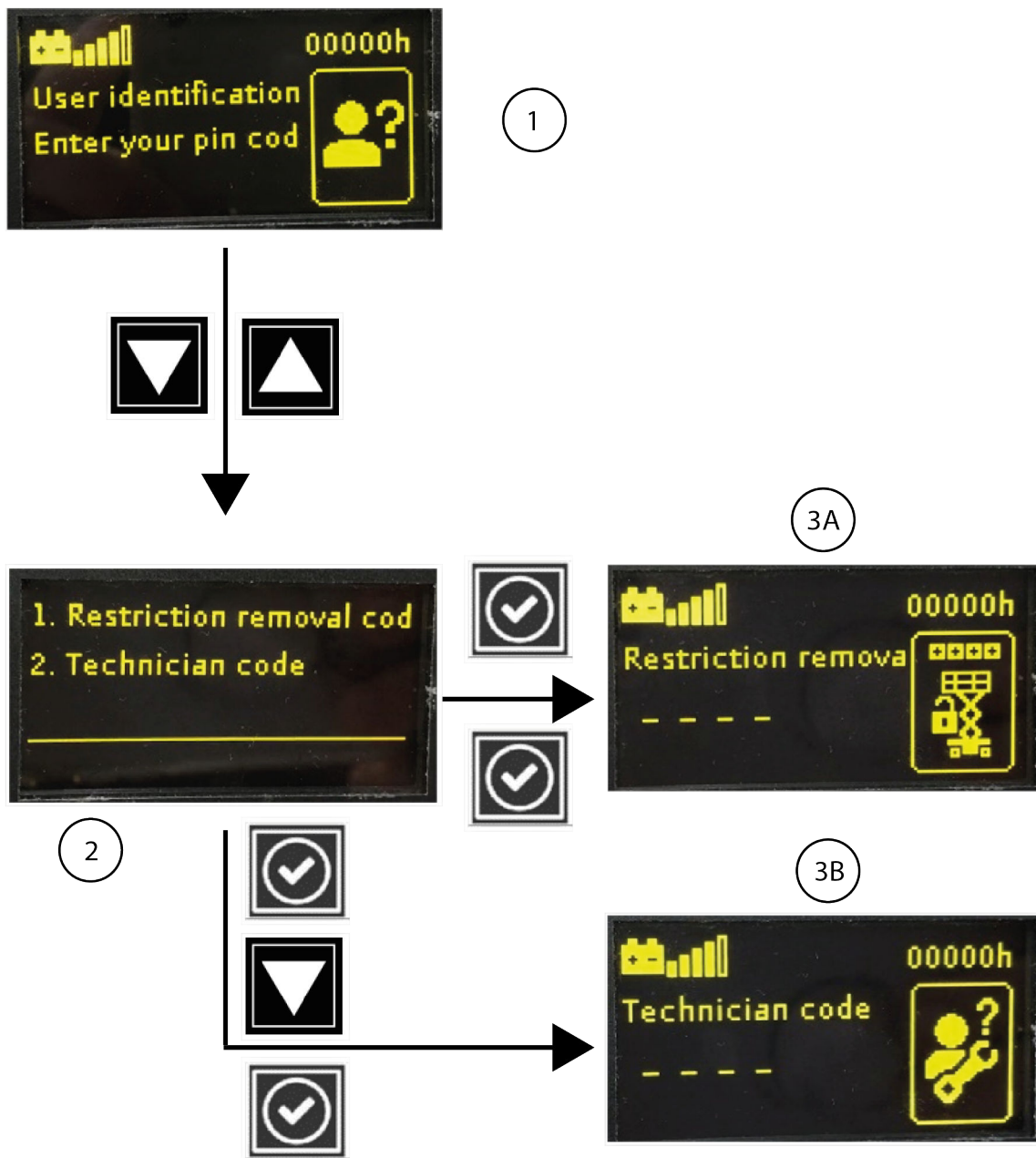
- A user with a User Identification start-up code. This code must be entered on the remote RFID keyboard.
- A Haulotte® technician with a Haulotte technician Identification. The level 3 code must be entered on the machine's screen.
- A user with a Restrictions Removal Code. This code is owned by the fleet manager or machine owner. The code is generated on the MyHaulotte platform and must be entered on the machine's screen. This code cannot be provided by Haulotte®.



Start-up when access control is enabled:

- Enter the access code or use the RFID swipe card.
- Enter the Super User access code or use the Super User RFID swipe card.
- An authorized technician can use the level 3 code.
- Enter the restriction removal code on the machine's screen.

E - General Specifications



Marking	Actions
1	On the RFID keyboard, enter the PIN code or use an RFID card or enter the Super User code
2	/
3A	 Permanently disable the restrictions and access control. Return to normal operation.
3B	Enter the level 3 code  Temporary deactivation (until the machine is switched off) of the restrictions and access control.

E - General Specifications

5.2.5.2 Starting a machine with usage restriction enabled

Timefencing restriction activated and use within the time slot authorized

Conventional start-up without access code:

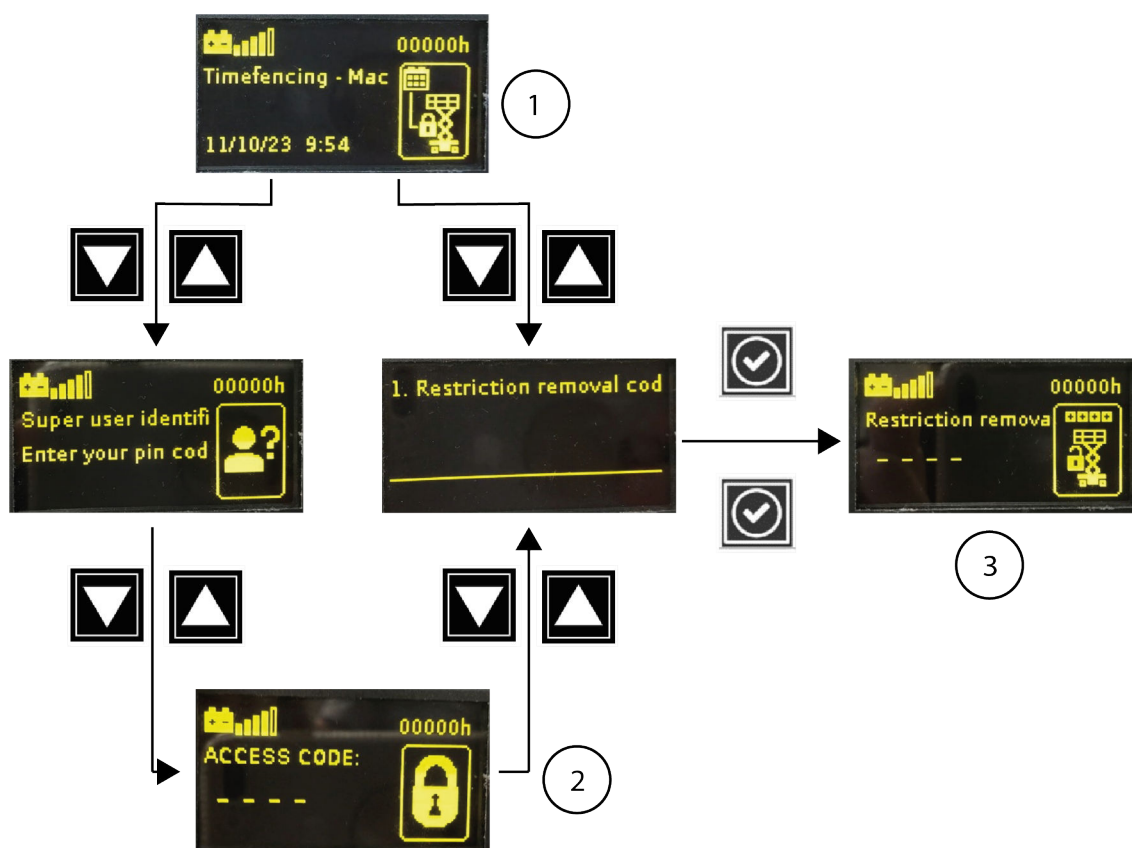
- The following screen indicates that a restriction is in place on the machine.



Timefencing restriction enabled and use outside range is permitted

Start-up when a TIMEFENCING usage restriction is programmed and enabled:

- A message on the screen indicates that a restriction is enabled.
- Enter a Super User access code or use the Super User RFID swipe card.
- An authorized technician can use the level 3 code.
- A user with a code can enter the restriction removal code on the machine's screen.



E - General Specifications

Marking	Actions
1	On the RFID keyboard, enter the PIN Super User code or use an RFID card or enter the Super User code
2	Enter the level 3 code  Temporary deactivation of restrictions and access control.
3	Enter the restriction removal code  Permanently disable the restrictions and access control. Return to normal operation.

Geofencing restriction enabled and used in an authorized geographical zone

Conventional start-up without access code:

- The following screen indicates that a restriction is in place on the machine.

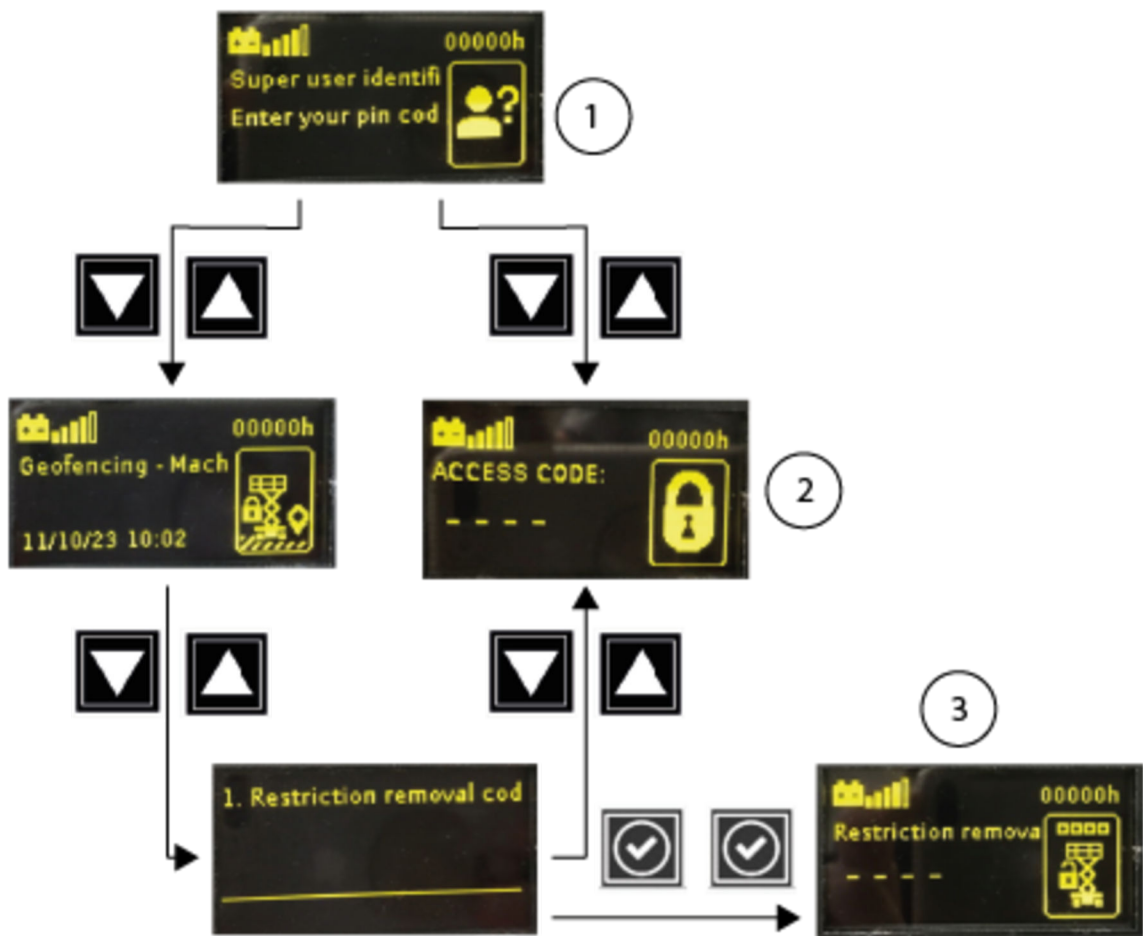


Geofencing restriction enabled and used outside of the authorized geographical zone

Start-up when a GEOFENCING usage restriction is programmed and enabled:

- A message on the screen indicates that a restriction is enabled.
- Enter a Super User access code or use the Super User RFID swipe card.
- An authorized technician can use the level 3 code.
- Enter the restriction removal code on the machine's screen.

E - General Specifications



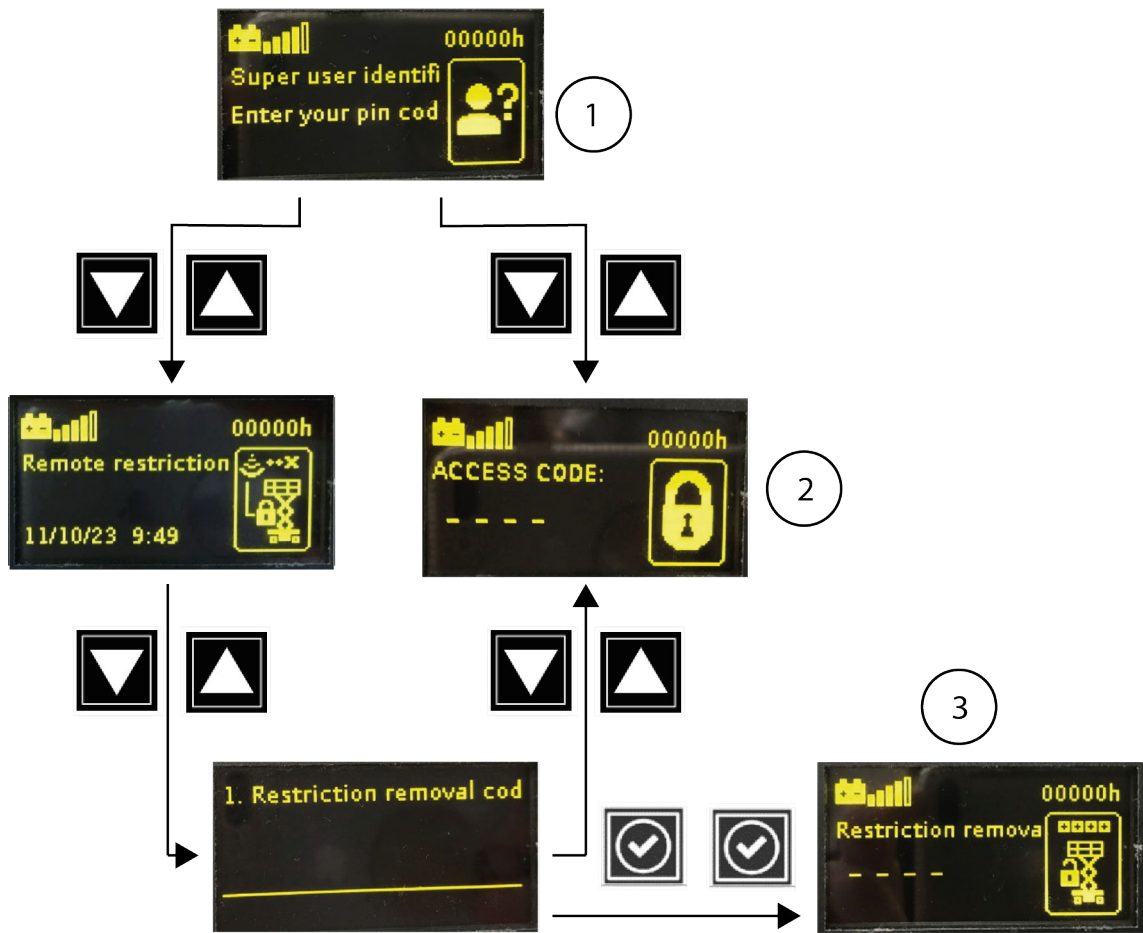
Marking	Actions
1	On the RFID keyboard, enter the PIN Super User code or use an RFID Super User card or enter the Super User code
2	Enter the level 3 code  Temporary deactivation of restrictions and access control.
3	Enter the restriction removal code  Permanently disable the restrictions and access control.Return to normal operation.

E - General Specifications

Remote restriction

Start-up when remote restriction is programmed and enabled:

- A message on the screen indicates that a restriction is enabled.
- Enter a Super User access code or use the Super User RFID swipe card.
- An authorized technician can use the level 3 code.
- Enter the restriction removal code on the machine's screen.

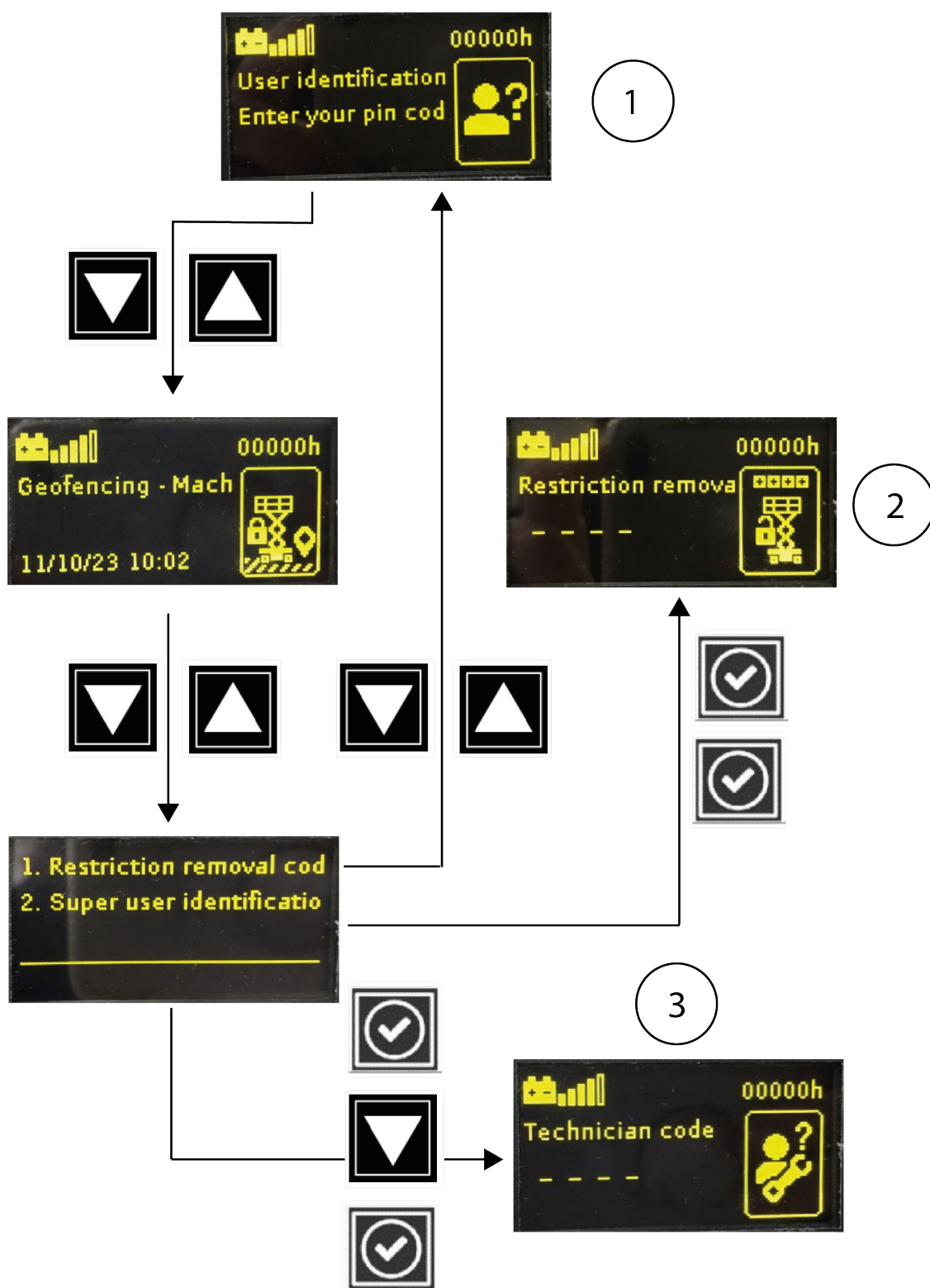


Marking	Actions
1	On the RFID keyboard, enter the PIN Super User code or use an RFID Super User card or enter the Super User code
2	Enter the level 3 code  Temporary deactivation of restrictions and access control.
3	Enter the restriction removal code  Permanently disable the restrictions and access control.Return to normal operation.

Access control and usage restriction combination

- Enter the machine's access code or use the RFID swipe card (the machine remains under restricted use) or use the RFID Super User swipe card or use the Super User code.
- An authorized technician can use the level 3 code.
- Enter the restriction removal code on the machine's screen.

E - General Specifications



E - General Specifications

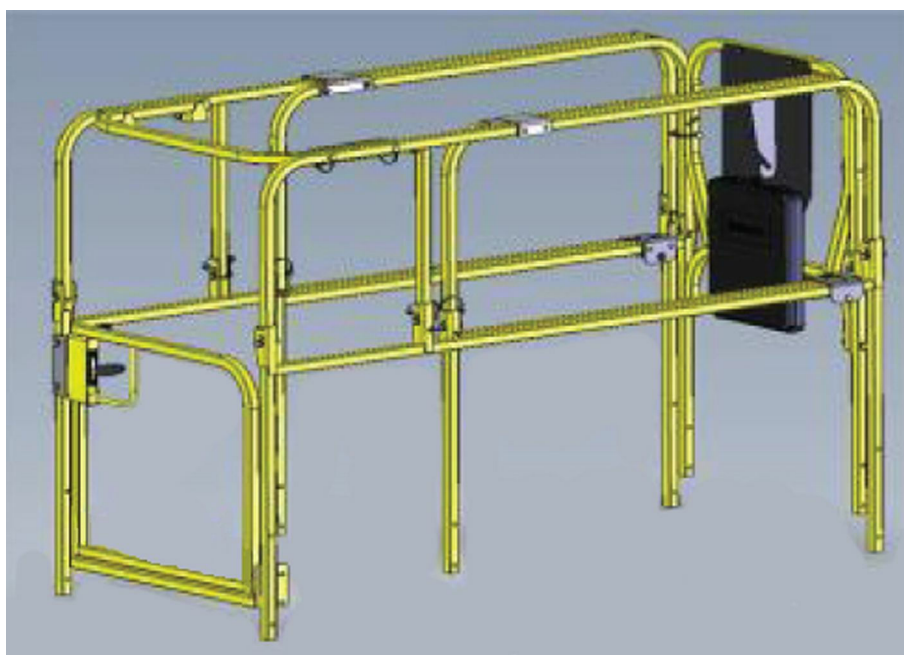
Marking	Actions
1	On the RFID keyboard, enter the PIN code or use an RFID card or enter the Super User code
2	Enter the restriction removal code  Permanently disable the restrictions and access control. Return to normal operation.
3	Enter the level 3 code  Temporary deactivation of restrictions and access control.

5.3 Swing gate

5.3.1 Description

SWING GATE consists of a laterally mounted pivoting $\frac{1}{2}$ gate with closing latch, which enables a better access to platform. Spring loaded hinges and a latching mechanism allows the gate to swing inwards only.

Swing gate



5.3.2 Specifications

Width of the gate: 600 mm / 24 in.

5.3.3 Safety precautions



- The door forms part of the guardrail system and must be closed after entering the platform.



- Pay attention to the toeboard when entering or leaving the platform.

5.3.4 Pre-operation instructions

- Check that the locking mechanism is correctly fastened.
- Check the hinges and latch operate correctly and are not deformed.

E - General Specifications

- Ensure that the gate returns automatically to the closed and fastened position after entering or exiting the platform.

5.4 Folding guardrails

5.4.1 Description

Folding guardrails system is designed to allow guardrails to be lowered to reduce the overall height of the machine.

This system facilitates moving the machine through low height doorways/passages.

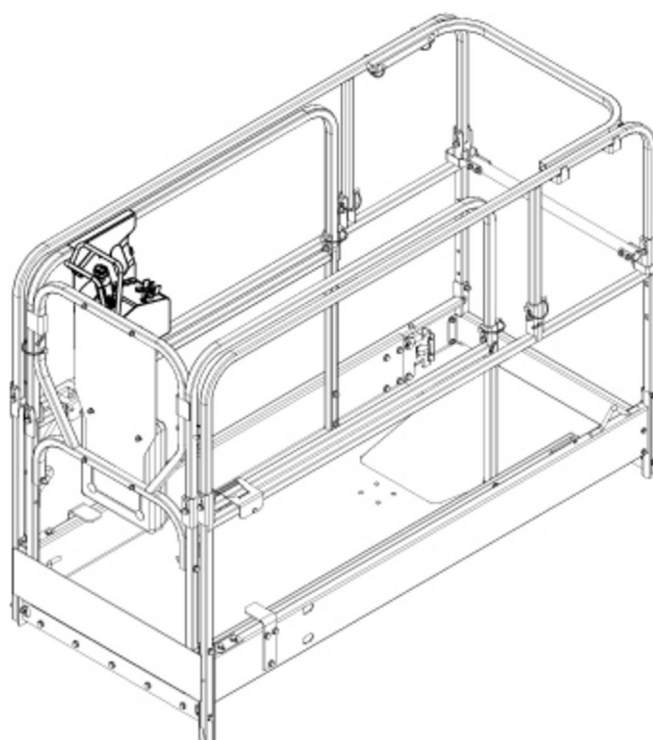
5.4.2 Safety precautions



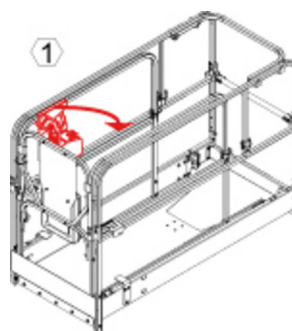
- Fully lower the platform to the stowed position.
- Take care to avoid trapping the hands while folding the guardrails.
- User must wear gloves.
- Keep hands clear of pinch points.
- Perform the folding of the guardrails from outside of the platform.

5.4.3 Fold down operation

- Extension deck must be fully retracted and in locked position.
- The intermediate sliding entrance bar must be at its lowest position.



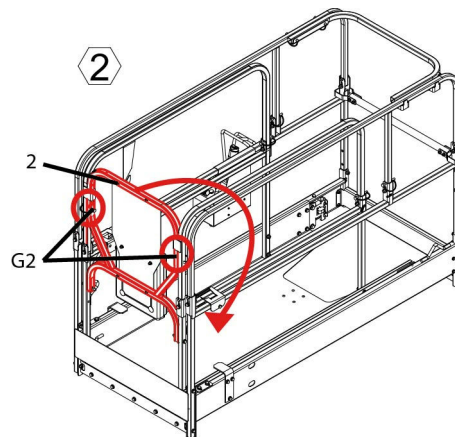
Remove platform control box from its designated position and place it on platform floor



E - General Specifications

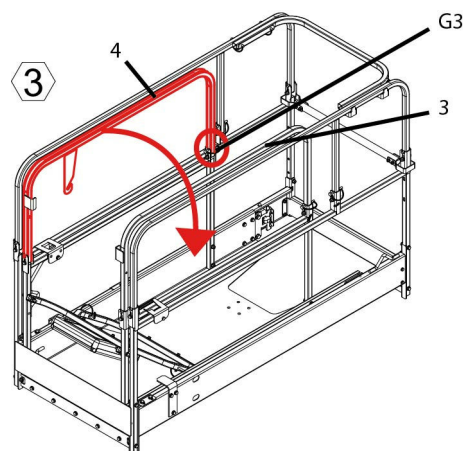
Remove the 2 pins (G2) from the platform front guardrails.

Tip element (2) inwards onto the platform floor.



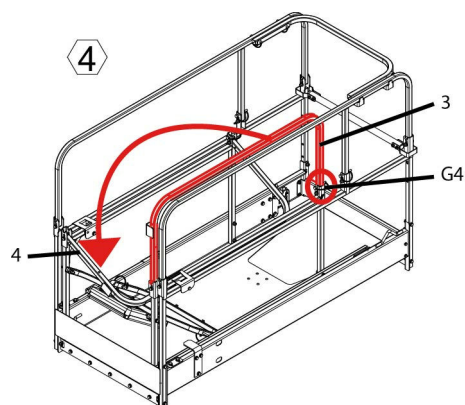
Remove pin (G3) from the right hand extension guardrail.

Lift the guardrail and slowly tip it inwards until it contacts element (3).



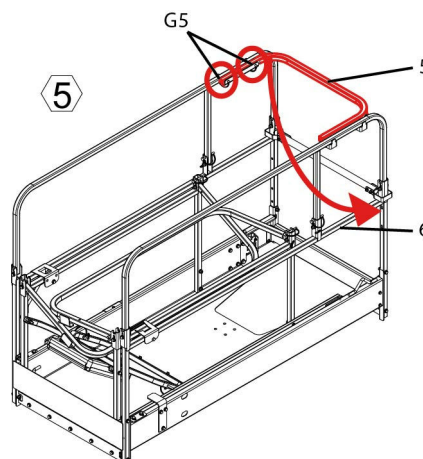
Remove pin (G4) from the left hand extension guardrail.

Lift the guardrail and slowly tip it inwards until it contacts element (4).



Remove the 2 pins (G5).

Lift and tip inwards and down until it contacts the element (6).

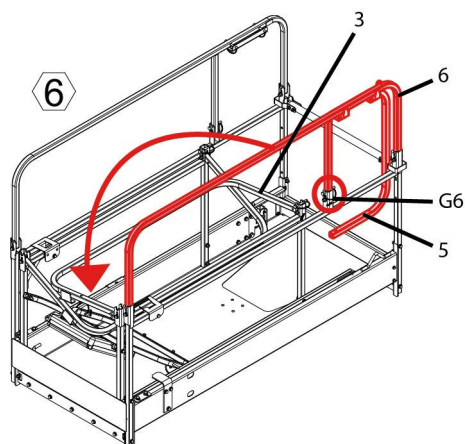


E - General Specifications

Remove the pin (G6).

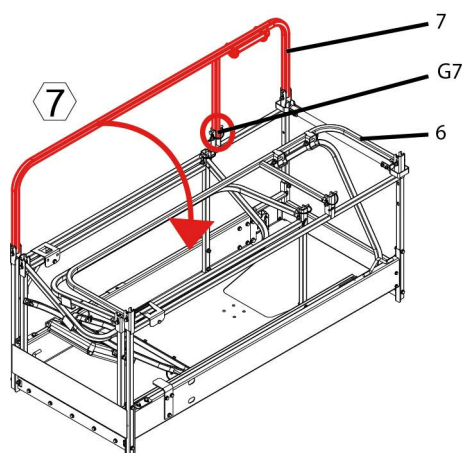
Lift and tip left hand main railing inwards until it contacts the element (3).

Do not release the element (5).



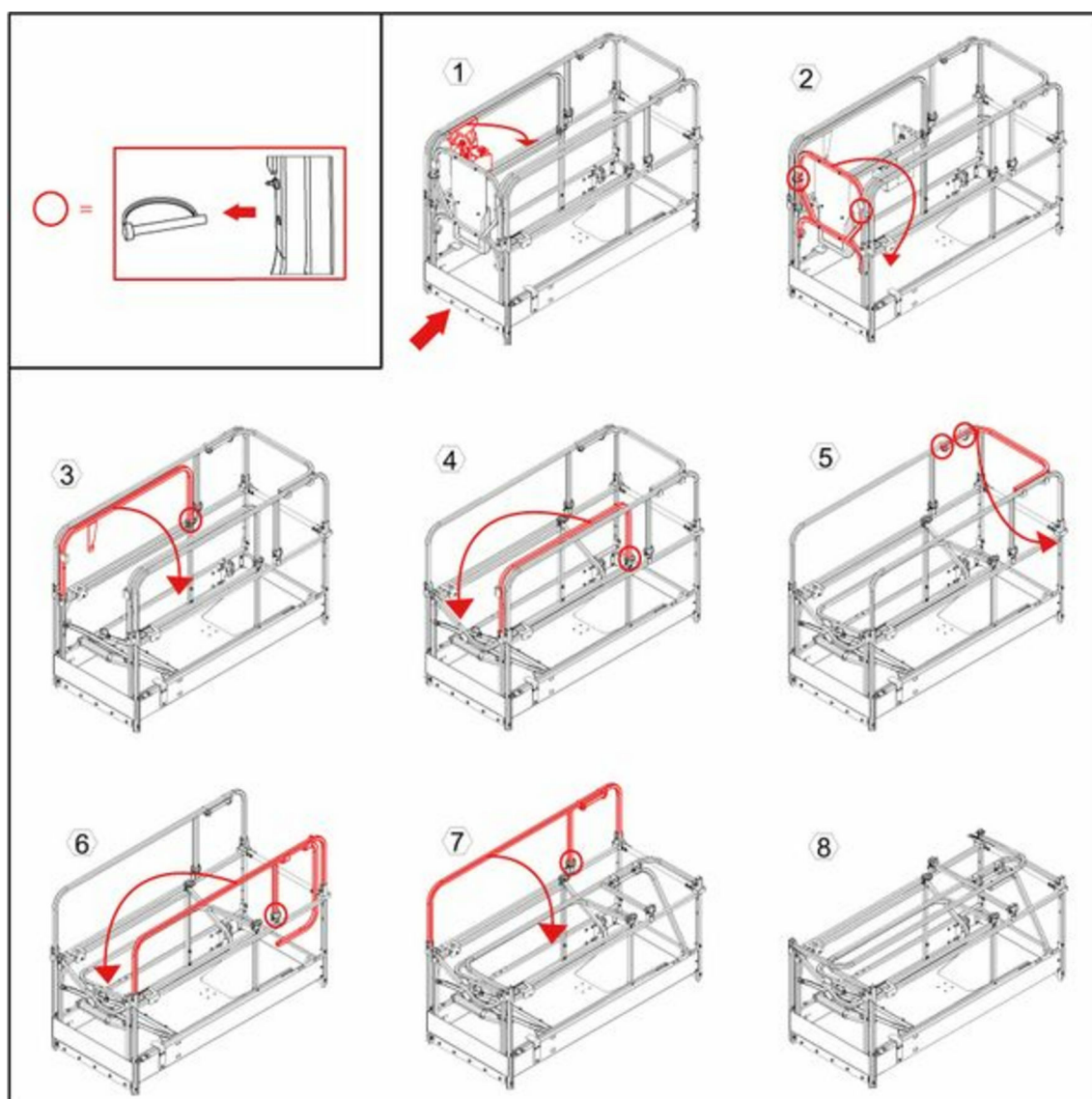
Remove the pin (G7).

Lift and tip right hand main railing inwards until it contacts the element (6).



E - General Specifications

5.4.4 Specific decals



Marking	Description	Quantity	Part number
8	Explanation work and transport positions	1	4000557230

5.4.5 Raising guardrails to working position

To raise the folded guardrails to the vertical working position

- Follow the fold down operational sequence in the reverse order.
- Ensure all pins are installed and secured.

5.5 Pipe holder option

5.5.1 Description

This attachment is an assembly designed to transport pipes and tubes. The assembly comprises of 2 cradles securely attached to the platform. The tube should be placed in the cradles and securely fixed to them with a strap.

E - General Specifications

5.5.2 Characteristics

Specifications	OPTIMUM 8 - OPTIMUM 8 LI	OPTIMUM 1931 E - OPTIMUM 1931 E LI
	SI	Imp.
Weight of the carrier	9 kg	20 lbs
Weight of the equipment on the carrier	50 kg	110 lbs
Maximum load surface	0,6 m ² (Ø 0,2 m x 3 m)	6.46 sq.ft (Ø 8 in x 9 ft 10 in)
Maximum wind speed allowed	0 m/s - 0 km/h	0 mph

5.5.3 Safety precautions



- Please read and assimilate the instructions before using the attachment.
- This attachment is designed for transporting pipes and tubes. Do not use this attachment for transporting other types of load. .
- Do not suspend loads.
- Do not overload the attachment and ensure that the material is correctly attached by straps.
- Do not exceed the maximum allowable platform capacity. The combined weight of the attachment, load, the occupants, the tools and any other equipment must not exceed the maximum allowable platform capacity.
- The cradles should always be positioned such that they are within the platform. Position the bottom end of the cradles such that they are resting on the platform floor.
- When maneuvering, ensure you maintain a safe distance between the load and the obstacles in the work environment.



It is prohibited to use this option outdoors (Wind load on the machine—Loss of machine stability) .

5.5.4 Pre-operation inspection



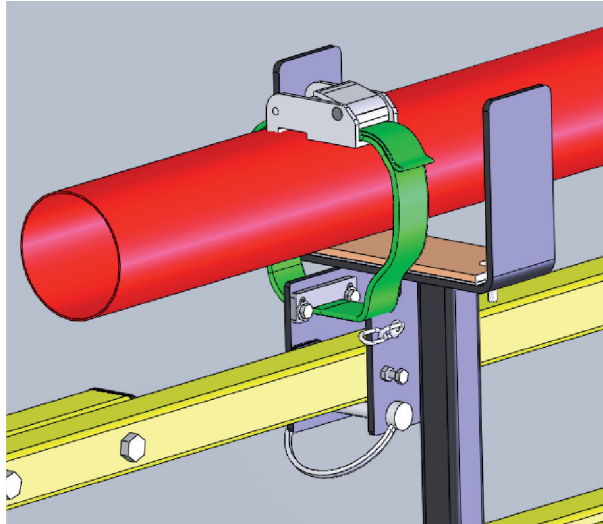
- Check that the cradle has no cracks or other damage.
- Check that the cradle is correctly installed and secured to the platform (Ensure fastening screws are tightened and pins correctly positioned) .
- Check that the information decal is present on the cradle and is legible.
- Check that the strap(s) is(are)not twisted or torn.
- Check that the position of the load and attachment is not obstructing access to the platform or the controls.
- Check that the position of the attachment and the load is not reducing visibility during maneuvers in the work environment.

E - General Specifications

5.5.5 Operation

- Position and centre the load to rest on the 2 cradles.
- Securely attach the load to each cradle with supplied straps.

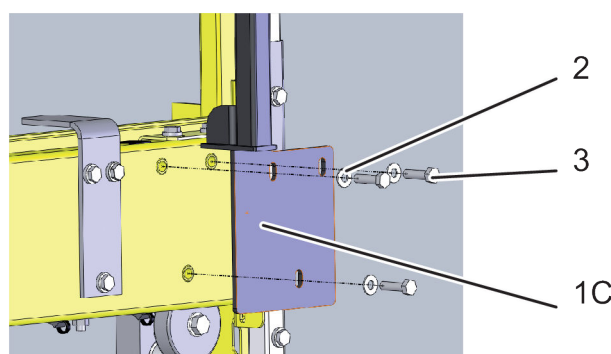
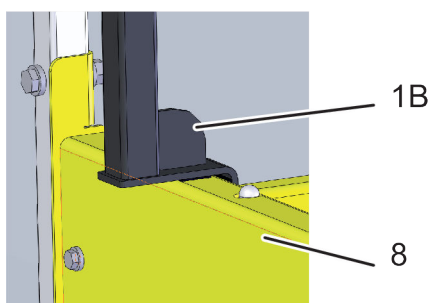
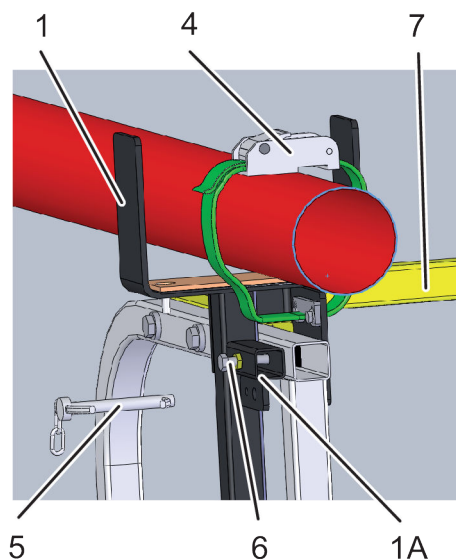
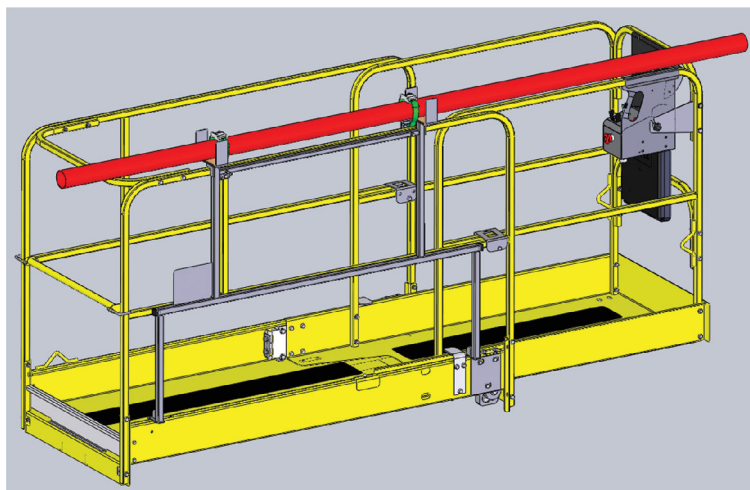
Strapping example(s)



E - General Specifications

5.5.6 Disassembly - Assembly

OPTIMUM 8 - OPTIMUM 1931 E - OPTIMUM 8 LI - OPTIMUM 1931 E LI



Marking	Description
1 - 1A - 1B - 1C	Carrier
2	Spring washer
3	Fastening screw
4	Strap
5	Dowel pin
6	Adjustment screw
7	Guardrail
8	Platform

- Straddle the support pipes (1, 1A, 1B) and (1C) on the structure of the fixed or folding guard rails(7).
- Lock in place with the pin (5).
- Tighten the 3 screws (3) and 3 washers (2) to the recommended torque

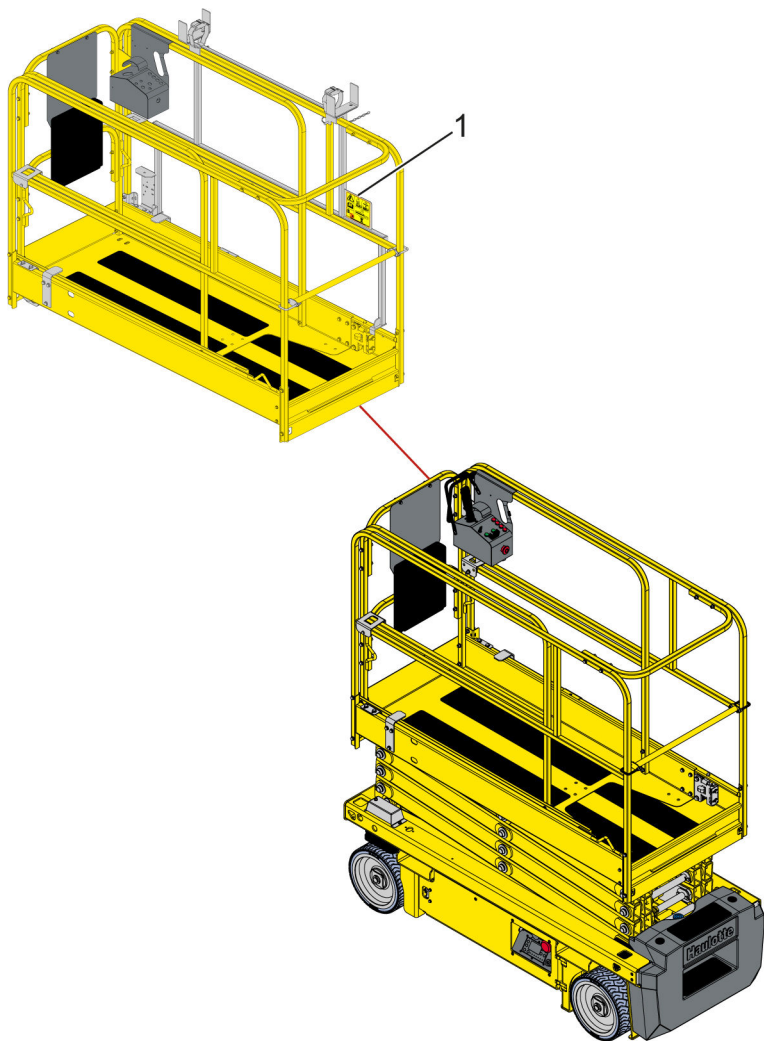
N.B.-:TORQUE REQUIREMENTS: 22 NM (16 FT LBS)

- Pre-operation test: Place and secure the load of 50 kg (110 lbs) max. on the cradle. Ensure that the cradle can support the load and that there is no visual structural damage.

E - General Specifications

5.5.7 Specific decals

Location of the decals



OPTIMUM 8 - OPTIMUM 1931 E - OPTIMUM 8 LI - OPTIMUM 1931 E LI

Marking	Description	Quantity	Part number
1	Risk of overturning	1	CE, UKCA, AS and EAC standards: 4001057070 ANSI and CSA standards: - In english: 4000426070 - In french: 4000415300 - In spanish: 4000426060

5.6 Panel carrier

5.6.1 Description

This attachment is an assembly designed to transport panels. The assembly comprises of a tray that extends along the length of the floor. The panel(s) should be placed in the tray and secured to the guard rail with a strap (not supplied).

E - General Specifications

5.6.2 Characteristics

Specifications	OPTIMUM 8 - OPTIMUM 8 LI	OPTIMUM 1931 E - OPTIMUM 1931 E LI
	SI	Imp.
Weight of the carrier	7 kg	15 lbs
Maximum allowable weight of the panels on the carrier	50 kg	110 lbs
Maximum load surface	3 m ² (L 2,5 m x H 1,2 m)	32 sq.ft (L 8 ft x H 4 ft)
Maximum wind speed allowed	0 m/s - 0 km/h	0 mph

5.6.3 Safety precautions



- Please read and assimilate the instructions before using the attachment.
- This attachment is designed for transporting panels. Do not use this attachment for transporting other types of load.
- Do not suspend loads.
- Centre the panel(s) on the platform.
- Secure the panel in place with the use of strap.
- Do not overload the attachment and ensure that the panels are secured with straps.
- Do not exceed the maximum allowable platform capacity. The combined weight of the attachment, load, the occupants, the tools and any other equipment must not exceed the maximum allowable platform capacity.
- When maneuvering, ensure you maintain a safe distance between the load and the obstacles in the work environment.



It is prohibited to use this option outdoors (Wind load on the machine—Loss of machine stability) .

5.6.4 Pre-operation inspection



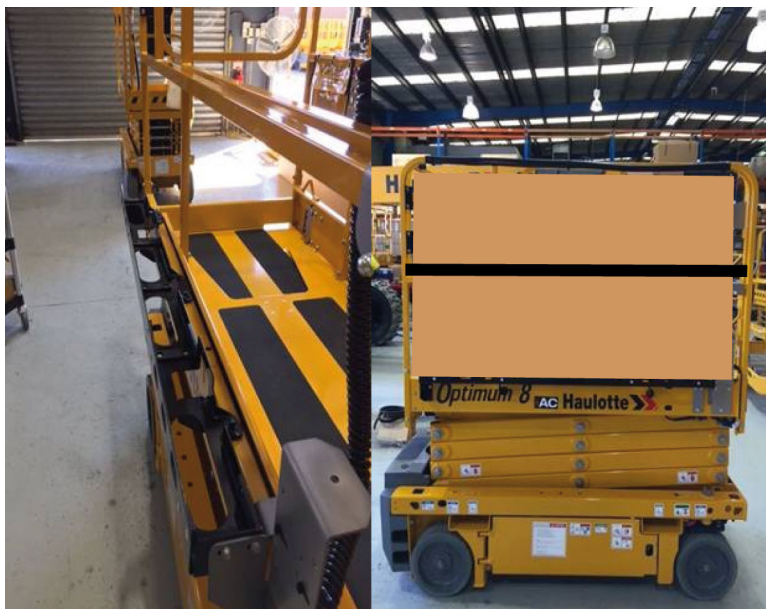
- Check that the cradle has no cracks or other damage.
- Check that the cradle is correctly installed and secured to the platform (Ensure fastening screws are tightened and pins correctly positioned) .
- Check that the information decal is present on the cradle and is legible.
- Check that the strap(s) is(are)not twisted or torn.
- Check that the position of the load and attachment is not obstructing access to the platform or the controls.
- Check that the position of the attachment and the load is not reducing visibility during maneuvers in the work environment.

E - General Specifications

5.6.5 Operation

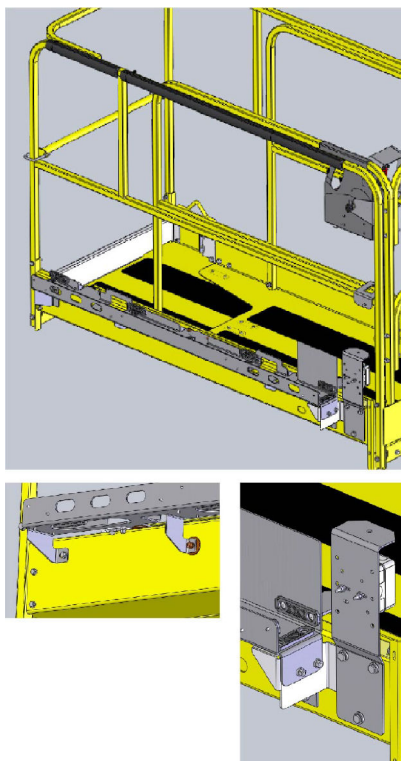
- Position and center the load to rest on the cradle.
- Securely attach the load on the cradle with straps.

Strapping example(s)

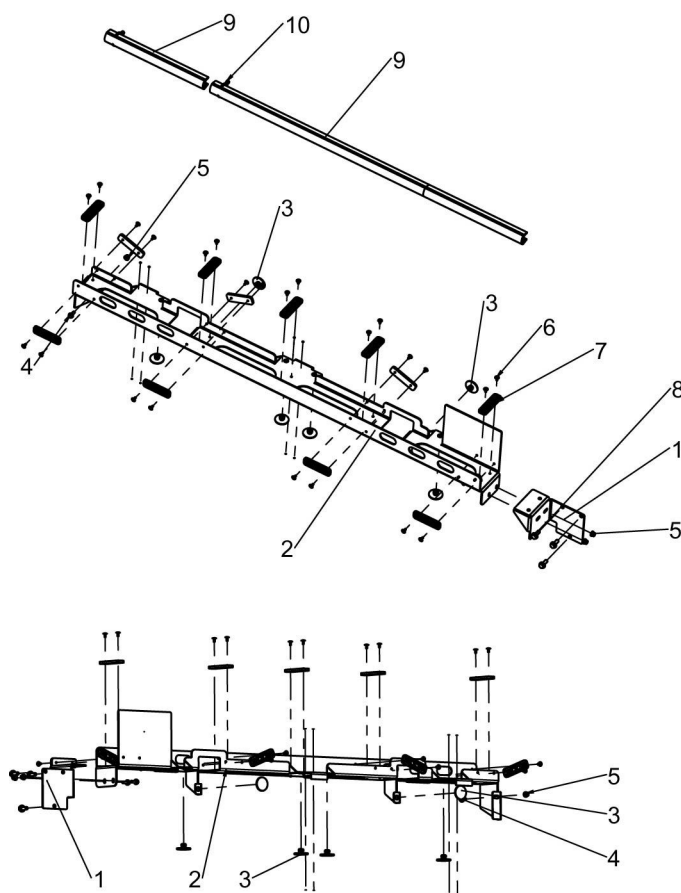


5.6.6 Disassembly - Assembly

OPTIMUM 8 - OPTIMUM 8 LI - OPTIMUM 1931 E - OPTIMUM 1931 E LI



E - General Specifications



Marking	Description
1	Sheet metal support
2	Sheet metal support
3	Stop
4	Screw
5	Nut
6	Rivet
7	Protection pad
8	Screw
9	Bumper
10	Clamp

1. Position the sheet metal support (2) against the sheet metal support (1). Tighten the screws (4) and the nuts (5) to the recommended torque.
2. Place the protection pads (7), the rivets (6) and the stops (3).
3. After checking that the decal is on the cradle, position the sheet metal support (1) on the outside of the guardrail on the side of the control box.

E - General Specifications

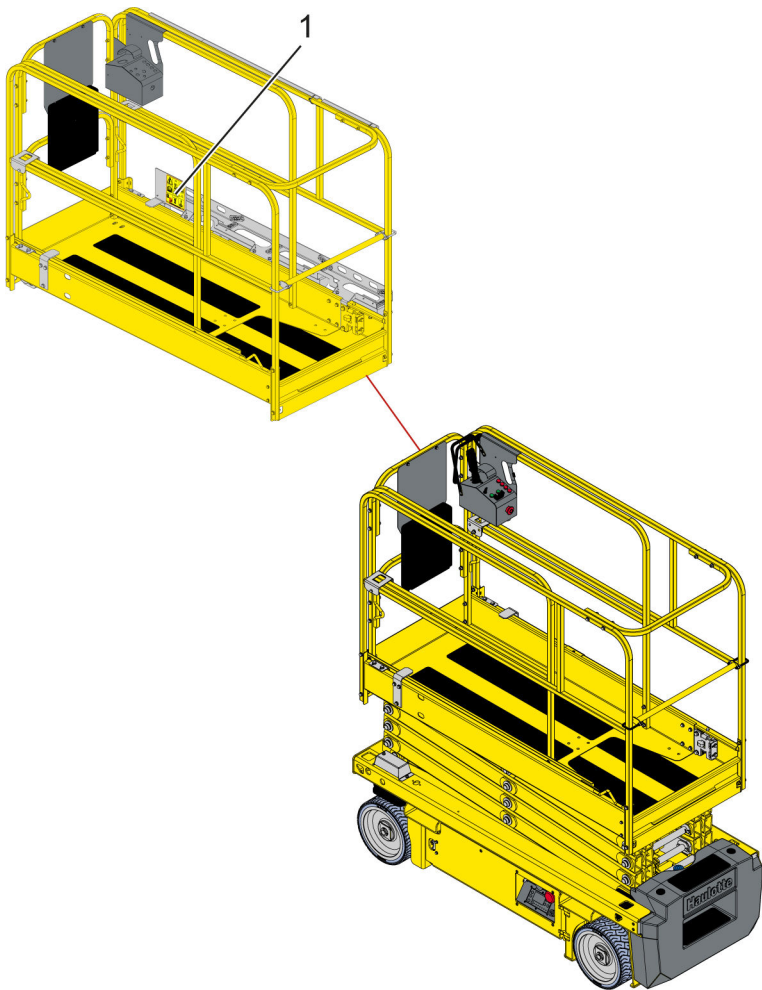
- 4. Tighten the screw (4) and the nut (5) to the recommended torque. Tighten the screws (8) to the recommended torque.
- 5. Position the bumpers (9) and fasten with clamps (10).

N.B.-:-TORQUE REQUIREMENTS: 10 NM (7 LBS/FT) FOR M6 AND 22 NM (16 LBS/FT) FOR M8.

- Pre-operation test: Place and secure the load of 50 kg (110 lbs) max. on the cradle. Ensure that the cradle can support the load and that there is no visual structural damage.

5.6.7 Specific decals

Location of the decals



OPTIMUM 8 - OPTIMUM 8 LI - OPTIMUM 1931 E - OPTIMUM 1931 E LI

Marking	Description	Quantity	Part number
1	Danger	1	CE, UKCA, AS and EAC standards: 4001057080 ANSI and CSA standards: - In french: 4000676050 - In english: 4000676060 - In spanish: 4000676070

E - General Specifications

5.7 SGS - Secondary guarding system

5.7.1 Foreword

The SGS is a secondary protection system that senses the position and movement of the operator near the platform control box and authorizes or limits the movements of the machine.

It can reduce the risk of crushing and incidents when working at height, in a confined space.



This device does not excuse the user from their responsibilities when manoeuvring the machine.

In particular, they must:

- Be trained in the general use of aerial work platforms.
- Be trained in the specific use of the machine referred to in this manual.
- Apply all of the safety rules for using the machine, which are indicated in this machine user manual.
- Ensure that the machine used is adapted to the work to be carried out.
- Take the necessary measures to secure the work environment, particularly when working in confined spaces (Space where machine or operator movements are limited by obstacles, requiring operator vigilance in order to prevent a risk of crushing.) .
- Remain vigilant to machine movements and their work environment.



The SGS is a system that uses voice synthesis technologies. The system's language must correspond to the official language of the country in which the machine is used.

It is the owner's responsibility to ensure that the chosen language is understood by all personnel that will operate the machine. If required, contact HAULOTTE Services® to update the system.

Available languages: French, English, Spanish, Italian, German, Romanian, Portuguese, Korean, Russian, Chinese, Japanese, Turkish.

5.7.2 Safety precautions

- Read and understand the safety guidelines set out in this machine user manual.
- Perform the pre-use checks below.
- Do not use the system as a support. (coat, tools, others) .
- Do not use the system as a handle.
- Do not obstruct the SGS sensor.



Do not drive at high speed near obstacles at or above the height of the guardrails. The machine stops in a shorter distance when travelling slower and could help to prevent crushing or impact.

N.B.: -THE MACHINE STOPPING DISTANCE IS THE SAME WHETHER IT IS TRIGGERED BY RELEASING THE JOYSTICK OR BY THE SGS SYSTEM.

E - General Specifications

5.7.3 Familiarization



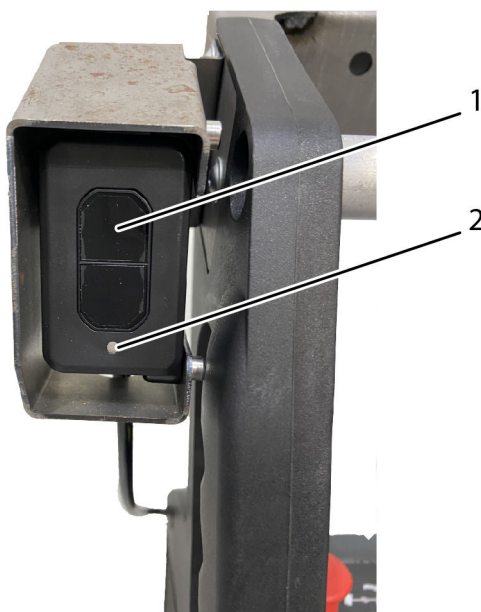
Marking	Description
1	Sensor SGS+Sensor protection film
2	Indicator light ( Summary of the indicator states)
3	Platform control box (Platform)
4	Loudspeaker
5	Protective plate
6	Joystick activation control

E - General Specifications

5.7.4 How the system works

The system works on the premise of detecting the operator's position and movements, with respect to the direction of movement of the machine in real time. This information is used to determine if a crushing or shearing event is about to occur. This is determined by the physical movements and position of the operator's body, with respect to the platform control box.

SGS sensor details



E - General Specifications

Summary of the indicator states

Icon	Description
	Indicator not illuminated - The system is inactive. Operator position monitoring is not operational - LED failure
	Flashing green indicator - Operator position monitoring available - No aerial work platform movement in progress
	Steady green indicator light - Operator position monitoring active - Controlled movement (aerial work platform elevation, chassis movement)
	Flashing orange indicator light - SGS system fault. Speed is reduced.
	Steady orange indicator light - Speed is reduced: • Operator monitoring inactive due to poor positioning at the beginning of movement. • Or the sensor is obstructed
	Flashing red indicator light - A risk of crushing has been detected (Operator too close to the sensor or outside of the detection zone)

E - General Specifications

5.7.5 Inspecting the system before using the machine

Before using the machine each time, ensure that the the system is in a good state of cleanliness and that it is operating correctly.



- Never use the machine if you observe a system malfunction.
- If you observe a fault during the inspection, the machine must be tagged and taken out of service.
- Do not operate the machine until all anomalies are corrected and it has been declared safe for operation.

Step	Action
1	Start the machine from the ground control box .
2	Select the upper console  .
3	Get into the work platform.
4	Ensure that the SGS is clean and free from dust, water, paint, silicone or any other dirt that could affect its operation. Replace the sensor's protective film, if required.
5	Machine in transport position:
6	- The operator should face the sensor.
7	- Select the 'raise' movement by pressing the selector (112): • The sensor's green light flashes.
8	- Press the enable switch (123): • The "Lift" message is heard.
9	- Lift the platform several centimetres.
10	- During the movement, put your left hand on the sensor. The SGS detects a risk of crushing: • The lifting movement is interrupted. • The sensor's red light flashes. • The "Stop movement" message is heard. • The horn is heard after several seconds.
11	- Press the enable switch (123) to return to normal operation: • Set the joystick (108) to neutral. • Release the enable switch (123).

E - General Specifications

5.7.6 Operating and using the SGS



- If the machine is folded or unfolded and the operator position is detected by the sensor the machine will operate normal.
- If the machine is folded and the operator position is not detected by the sensor, elevating is possible only at reduced speed (Lower than micro speed).
- If the machine is unfolded and the operator position is not detected by the sensor, the movements are possible only at reduced speed (Lower than micro speed) except lowering at nominal speed.

Operation if risk of crushing is detected

	Movement in progress	Indicator light status	Buzzer status	Beacon status	Movement allowed
Elevation	Locked	Flashing red	Audible	Active	- Forwards drive - Reverse drive - Lowering
Reverse drive	Locked	Flashing red	Audible	Active	- Forwards drive - Lowering

5.7.7 Evacuation procedure if the operator is crushed or loses consciousness

N.B.:-PLEASE REFER TO PARAGRAPH  D4.2 - TO RESCUE OPERATOR IN PLATFORM.

Procedure:

1. Turn the key of the control box activation switch (92) to the right to energize the ground control box. The platform box controls are de-energized.
2. Lower the platform from the ground control box.
3. Lower the platform using the platform raising/lowering selector (1) while simultaneously pressing and maintaining the Enable Switch (9).
4. Release it to halt lowering.

If a safety systems do not allow normal movement from the ground control box, lower the basket (or platform) using the T-handle on the chassis.



Once rescue operations are complete, write an incident report.

N.B.:-USE THE T-HANDLE (C107) SHOULD THE GROUND CONTROL BOX NOT BE ACCESSIBLE.

E - General Specifications



Notes

Notes section with horizontal lines for writing.

F - Maintenance

1 General.....3

2 Maintenance Schedule.....4

3 Inspection program.....5

3.1 General program.....5

3.2 Daily inspection.....5

3.3 Periodic inspection.....6

3.4 Reinforced inspection.....6

3.5 Major inspection.....6

4 Repairs and adjustments.....7

F - Maintenance



Notes

Notes section with horizontal lines for writing.

F - Maintenance

1 General

As an owner and/or operator of Haulotte equipment, your Safety is of utmost importance to HAULOTTE®, which is why HAULOTTE® places such a high priority on product safety.

INSPECTIONS are not only required by HAULOTTE®, but may also be required by industry standards and/or local regulations.

To ensure your equipment continues to achieve the level of performance set in the factory, it is important to maintain it regularly. We remind you that it is strictly forbidden to make any modifications. Regular and timely inspections will reduce equipment down time as well as prevent possible injury.

N.B.-:DO NOT OPERATE UNLESS YOU ARE FAMILIAR AND TRAINED IN THE PRINCIPLES OF SAFE MACHINE OPERATION.

Overview:

- Walk-around inspections take only a few minutes at the beginning and end of each shift – one of the best ways to prevent mechanical problems and safety hazards.

What to Do:

- Use your senses: sight, smell, hearing and touch.

Frequency:

- Check your machine periodically during your entire workday.
- Make sure to do your inspection the same way every time.
- Complete one of these inspections at the start and end of each shift.

N.B.-:IF DAMAGE OR UNAUTHORIZED MODIFICATIONS ARE DISCOVERED, THE MACHINE MUST BE REMOVED FROM SERVICE UNTIL REPAIRS ARE MADE BY A QUALIFIED SERVICE TECHNICIAN.

It is the owner's responsibility to ensure the required maintenance as recommended by Haulotte is completed prior to the operation of the machine.

If regular maintenance is not carried out, this may:

- Void the warranty.
- Cause machine malfunction.
- Reduce machine reliability and shorten its service life.
- Jeopardize operator safety.

HAULOTTE Services® technicians are specially trained to carry out extensive repairs, interventions or adjustments on the safety systems or elements of HAULOTTE® machines. They carry genuine HAULOTTE spare parts and tools as required, and also provide fully documented reports on all work completed.

The inspection and maintenance table, identifies the role and the responsibilities of each party in periodical machine maintenance.  C 3 - Inspection and Functional test.

2 Maintenance Schedule

This section provides the necessary information needed to place the machine in safe operation. In accordance with the regulations that are currently applicable, this machine is designed to have a 10 year life span in normal usage conditions. The life may be extended or reduced dependent on the severity of operating conditions, the machine condition itself and by conducting effective inspections and maintenance in addition to other external factors. There are a number of factors which can affect the design life including but not limited to, severity of operating conditions/routine maintenance which should be carried out in accordance with this manual.

Severity of operating conditions may require a reduction in time between maintenance periods. Machines that have been out of service or have not been in use for more than 3 months must undergo a periodic inspection before the machine is put back into service.

Maintenance must be carried out by a competent company or person familiar with mechanical procedures.

Maintenance operations performed must be recorded in a register / log book of the machine.

F - Maintenance

3 Inspection program

3.1 General program

The machine must be inspected on a regular basis at intervals of no less than once 1 per year. The purpose of the inspection is to detect any defect which could lead to an accident during routine use of the machine. Local standards and regulations may require more frequent inspections.

HAULOTTE® requires Reinforced and Major Inspections to be carried out on the product to extend its service life.

Inspections must be carried out by a competent company or person.

The inspection results must be recorded in the safety register or machine log book controlled and overseen by the company manager. This register or machine log book and the list of competent repair persons must be made available to the government work inspector and HAULOTTE Services®.

When	Person-in-charge	Stakeholder	What
Before sale	Owner (or renter)	Competent technician or qualified technician HAULOTTE Service®	Periodic inspection
Before rent	Owner (or renter)	Competent technician or qualified technician HAULOTTE Service®	Daily inspection
Before use or every change of user	Operator	Operator	Daily inspection
Annually (1 year)	Owner (or renter)	Competent technician or qualified technician HAULOTTE Service®	Periodic inspection
5 years	Owner (or renter)	Competent technician or qualified technician HAULOTTE Service®	Reinforced inspection
10 years	Owner (or renter)	Competent technician or qualified technician HAULOTTE Service®	Major inspection

3.2 Daily inspection

The Daily inspection includes a visual inspection, operational checks and testing of the safety systems. This must be conducted by the operator before using the machine.

This inspection is the responsibility of the user. Refer to  C 3.1 - Daily inspection.

F - Maintenance

3.3 Periodic inspection

The Periodic inspection is a thorough evaluation of the operation and safety features of the machine.

It must be conducted before the sale / resale of the machine and/or at least once every year.

Local regulations may have specific requirements on frequency, and content of inspections.

The severity of operating conditions may require frequent inspections.

This inspection is the responsibility of the owner, and inspections must be carried out by a competent company or person.

This inspection is in addition to the daily inspection.

This inspection should also be conducted after:

- Extensive dismantling and reassembly of major components.
- Repairs involving the machine's essential components.
- Any accident causing stress to the machine.

3.4 Reinforced inspection

The Reinforced inspection is a thorough evaluation of the machine's structural components, to ensure proper functionality of the machine.

This evaluation must occur at a frequency of 5000 hours or every 5 years.

This inspection is the responsibility of the owner, and it must be conducted by a HAULOTTE Services® technician or by a competent company or person.

This inspection includes:

- Daily inspection
- Periodic inspection

N.B.-:REFER TO THE MAINTENANCE MANUAL FOR DETAILS.

3.5 Major inspection

The Major inspection is a thorough evaluation of the machine's integrity and proper functioning; after a normal service life of 10 years.

This evaluation must take place after 10 years of operation and then repeated every 5 years thereafter.

The severity of operating conditions may require frequent inspections.

This inspection is the responsibility of the owner, and it must be conducted by a HAULOTTE Services® technician or by a competent company or person.

This inspection includes:

- Daily inspection
- Periodic inspection
- Reinforced inspection

N.B.-:REFER TO THE MAINTENANCE MANUAL FOR DETAILS.

4 Repairs and adjustments

Extensive repairs, interventions or adjustments on the safety systems or components must be performed by a HAULOTTE Services® technician. Use original spare parts and components only.

N.B.: -HAULOTTE SERVICES® TECHNICIANS ARE TRAINED PROFESSIONALS TO PERFORM EXTENSIVE REPAIRS, INTERVENTIONS AND ADJUSTMENTS ON THE SAFETY SYSTEMS OR COMPONENTS OF HAULOTTE® MACHINES. THE TECHNICIAN CARRIES GENUINE HAULOTTE® SPARE PARTS AND TOOLS AS REQUIRED, AND ALSO PROVIDES FULLY DOCUMENTED REPORTS ON ALL WORK COMPLETED.

HAULOTTE Services® will not take responsibility for any outcomes resulting from inferior services or repairs performed by other unauthorised personnel.

HAULOTTE® reminds that NO modifications SHALL be carried out without the written permission of HAULOTTE®.

Any unauthorised repairs/modifications will void HAULOTTE® warranty.

To check for safety campaigns, consult our website: www.haulotte.com



N.B.: -WHEN DISPOSING OR SCRAPPING THIS MACHINE, PLEASE CONSIDER APPROPRIATE METHODS OF RECYCLING. ANY ITEMS THAT REQUIRE SPECIFIC DISPOSAL ARE LISTED WITH INSTRUCTIONS IN THE MAINTENANCE MANUAL.

N.B.: -LITHIUM-ION BATTERIES MUST BE COLLECTED AND RECYCLED SEPARATELY FROM OTHER WASTE. DO NOT DISCARD LITHIUM-ION BATTERIES AS MUNICIPAL WASTE. CONTACT YOUR DEALER OR DISTRIBUTOR ON HOW TO CORRECTLY RECYCLE LITHIUM-ION BATTERIES.

F - Maintenance



Notes

Notes section with horizontal lines for writing.

G - Other information

1 Conditions of warranty.....3

2 Subsidiary contact information.....4

G - Other information



Notes

Notes section with horizontal lines for writing.

G - Other information

1 Conditions of warranty

Our warranty conditions and extension contracts are now available on the websites of our sales network: **www.haulotte.com**

G - Other information

2 Subsidiary contact information

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H - Records

1 Intervention register..... 3



Notes

Notes section containing 18 horizontal lines for writing.

1 Intervention register

The intervention register keeps a record of maintenance and repair work carried out inside or outside the maintenance programme.

N.B.-:IN THE CASE OF A HAULOTTE SERVICES® INTERVENTION, THE QUALIFIED TECHNICIAN MUST INDICATE THE HAULOTTE SERVICES® INTERVENTION NUMBER.

Date	Type of intervention	Number of hours	Intervenor	Intervention number

H - Records

Date	Type of intervention	Number of hours	Intervenor	Intervention number