

OPERATING AND MAINTENANCE INSTRUCTIONS



SELF-PROPELLED TELESCOPIC PLATFORM H21TX - H23TPX - H25TPX

242 032 4880 - E 10.04 GB

ISO 9001
GROUPE
PINGUELY
HAULOTTE



ARTICULEES



MATS



TELESCOPIQUES



CISEAUX



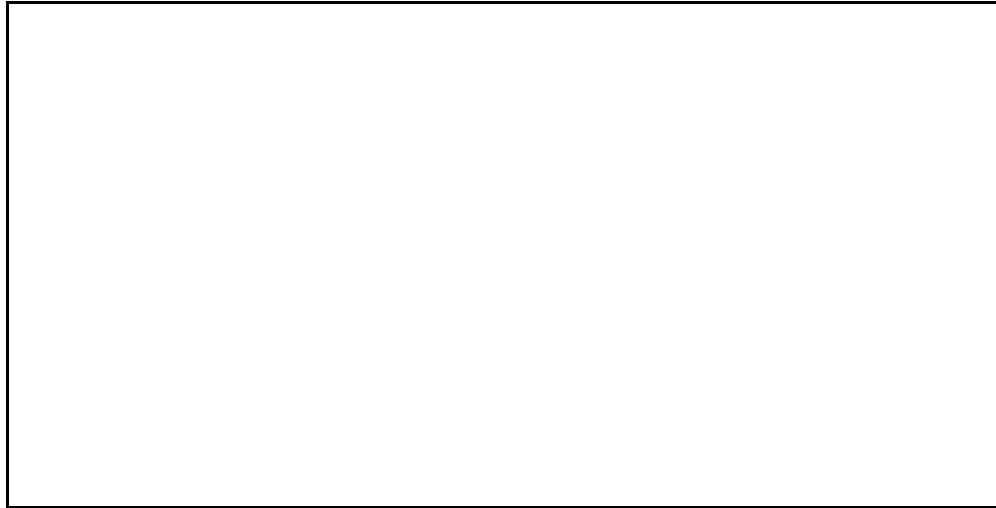
TRACTEES

Haulotte 

L'ACCES A L'ESPACE

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Why use only Haulotte original spare-parts ?

1. RECALLING THE EEC DECLARATION OF CONFORMITY IN QUESTION

Components, substitutions, or modifications other than the ones recommended by **Pinguely-Haulotte** may recall in question the initial security conditions of our **Haulotte** equipment. The person who would have intervened for any operation of this kind will take responsibility and recall in question the EEC marking validity granted by **Pinguely-Haulotte**. The EEC declaration will become null and void and **Pinguely-Haulotte** will disclaim regulation responsibility.

2. END OF THE WARRANTY

The contractual warranty offered by **Pinguely-Haulotte** for its equipment will no longer be applied after spare-parts other than original ones are used.

3. PUBLIC AND PENAL LIABILITY

The manufacture and unfair competition of fake spare-parts will be sentenced by public and penal law. The usage of fake spare-parts will invoke the civil and penal liability of the manufacturer, of the retailer, and, in some cases, of the person who used the fake spare-parts.

Unfair competition invokes the civil liability of the manufacturer and the retailer of a “slavish copy” which, taking unjustified advantage of this operation, distorts the normal rules of competition and creates a “parasitism” act by diverting efforts of design, perfection, research of best suitability, and the know-how of **Pinguely-Haulotte**.

FOR YOUR SECURITY, REQUIRE HAULOTTE ORIGINAL SPARE-PARTS



4. QUALITY

Using **Pinguely-Haulotte** original spare-parts means guarantee of :

- High quality parts
- The latest technological evolution
- Perfect security
- Peak performance
- The best service life of your **Haulotte** equipment
- The **Pinguely-Haulotte** warranty
- **Pinguely-Haulotte** technicians' and repair agents' technical support

5. AVAILABILITY

Using Haulotte original spare-parts allows you to take advantage of 40 000 references available in our permanent stock and a 98% service rate.

WHY NOT TAKE ADVANTAGE ?



GENERAL

You have just taken delivery of your mobile elevating work platform

It will give you complete satisfaction if you follow the operating and maintenance instructions exactly.

The purpose of this instruction manual is to help you in this.

We stress the importance:

- of complying with the safety instructions relating to the machine itself, its use and its environment,
- of using it within the limits of its performances,
- of proper maintenance upon which its service life depends.

During and beyond the warranty period, our After-Sales Department is at your disposal for any service you might need.

Contact in this case our Local Agent or our Factory After-Sales Department, specifying the exact type of machine and its serial number.

When ordering consumables or spares, use this documentation, together with the «Spares» catalogue so as to receive original parts, the only guarantee of interchangeability and perfect operation.

This manual is supplied with the machine and is included on the delivery note.

REMINDER: You are reminded that our machines comply with the provisions of the «Machines Directive» 89/392/EEC of June 14th 1989 as amended by the directives 91/368/EEC of June 21st 1991, 93/44/EEC of June 14th 1993, 93/68/EEC of July 22nd 1993 and 89/336/EEC of May 3rd 1989, directive 2000/14/CE and directive EMC/89/336/CE.



Caution !

The technical data contained in this manual cannot involve our responsibility and we reserve the right to proceed with improvements or modifications without amending this manual.

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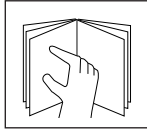
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1 - GENERAL RECOMMENDATIONS - SAFETY

1.1 - GENERAL WARNING



1.1.1 - Manual

This manual is designed to familiarise the operator with HAULOTTE self-propelled platforms in order to ensure efficient and safe use. However, it cannot replace the basic training required by any user of site equipment.

The site manager is bound to inform the operators of the instructions contained in the manual. He is also responsible for applying the «user regulations» in force in the country of use.

Before using the machine, it is essential to understand all these instructions in order to ensure safe and efficient operation.

This manual must be kept available for all operators.

1.1.2 - Label

Potential dangers and machine instructions are indicated on labels and plates. All instructions on such plates must be read.

All labels conform to the following colour code:

- Red indicates a potentially fatal danger.
- Orange indicates a danger of causing serious injury.
- Yellow indicates a danger that may cause material damage or slight injury.

The site manager must ensure that these labels are in good condition and remain legible.



1.1.3 - Safety

Ensure that any persons entrusted with the machine are fit to meet the safety requirements that its use imposes.

Avoid any working method that may jeopardise safety. Any use not compliant with the instructions may cause risk and damage to persons and property.



Caution !

To attract the reader's attention instructions are signalled by this sign.

This manual must be kept by the user throughout the machine's service life, including in the case of loan, lease and resale.

Ensure that all plates or labels relative to safety and hazards are complete and legible.

1.2 - GENERAL SAFETY INSTRUCTIONS

1.2.1 - Operators

Operators must be aged over 18, and hold an operating permit issued by their employer after undergoing a medical check and a practical test that prove they are apt to operate the machine.



Caution !

Only trained operators can use Haulotte self-propelled platforms.

There must always be at least two operators present, so that one can always:

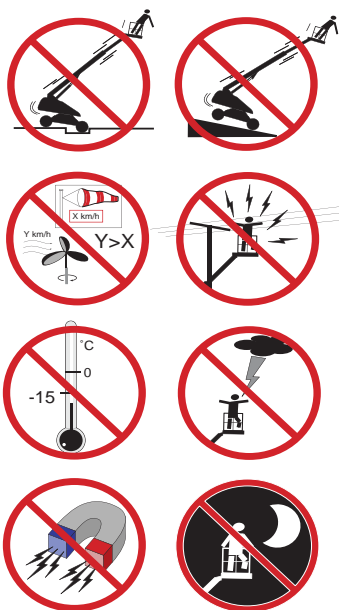
- Take fast action if necessary.
- Take over the controls in case of accident or malfunction.
- Monitor and prevent movement of vehicles and people near the platform.
- Guide the platform operator if required.

1.2.2 - Environment

Never use the machine:

- On ground that is soft, unstable, congested.
- On a ground that has a slope greater than permissible limit.
- In winds greater than the permissible limit. If used outside, use an anemometer to ensure that the wind speed does not exceed the permissible limit.
- Near power lines (check minimum safe approach distances according to voltage carried)
- In temperatures less than -15°C (especially in refrigerated chambers). Consult us if it is necessary to work below -15°C .
- In explosive atmospheres.
- In poorly-ventilated areas, since the exhaust fumes are toxic.
- During storms (risk of lightning).
- In the dark, unless the optional floodlight is fitted.
- In the presence of intense electromagnetic fields (radar, moving and high currents).

DRIVING ON PUBLIC ROADS IS PROHIBITED.



1.2.3 - Using the machine

Do not use the machine:

- with a load greater than allowed load,
- if wind speed exceeds the maximum,
- with more than maximum authorised number of occupants in platform,
- with a side load in the platform greater than permissible limit.

To reduce the risks of **serious falls**, operators **must respect the following instructions**:

- Hold the guardrail firmly when lifting or driving the platform.
- Remove any traces of oil or grease from the platform steps, floor or guardrails.
- Wear personal protective equipment suited to working conditions and conform to local regulations, particularly when working in hazardous areas.
- Never disable the limit switches of the safety devices.
- Avoid contact with stationary or moving obstacles
- Do not increase the platform operating height by means of ladders or other accessories.
- Never use the guardrails to climb into or out of the platform (use the steps provided).
- Never climb on the guardrails when the platform is up.
- Avoid driving the machine at high speed in narrow or congested areas.
- Never use the machine without putting in place the platform safety bar or closing the safety gate.
- Never climb on the covers.



Caution !

Never use the platform as a crane, hoist or lift.

Never use the machine to pull or tow.

Never use the boom as a ram or thruster or to lift the wheels



To reduce the risks of tipping over, operators **must follow these instructions**:

- Never disable the limit switches of the safety devices.
- Never move the control handles from one direction to the other without stopping in the «O» position. (To stop when travelling, gradually move the handle to «O», keeping your foot down on the pedal.)
- Do not exceed the maximum load or the number of occupants allowed in the platform.
- Spread the load and if possible place in the centre of the platform.
- Check that the ground resists the pressure and load per wheel.
- Avoid contact with stationary or moving obstacles.
- Do not drive the platform at high speed in narrow or congested areas.
- Avoid contact with stationary or moving obstructions.
- Do not drive the platform in reverse gear (poor visibility).
- Do not use the machine with a congested platform.
- Do not use the machine with equipment or objects hanging from the guardrails or boom.
- Do not use the machine with items liable to increase the wind load (e.g. panels).
- Never carry out maintenance on the machine with the platform raised, without first installing the required safety provisions (overhead crane, crane).
- Perform the daily checks and monitor the machine's good working order during periods of use.

NOTA : *Do not tow the platform (it is not designed to be towed and must be transported on a trailer).*

1.3 - RESIDUAL RISKS



Caution !

Operation direction may be inverted on a turntable machine after 180° rotation. Bear in mind the colour of the arrows on the chassis, in relation to the colour shown on the platform control panel (green and red).

Thus, moving the manipulator in the direction of the green arrow on the control panel will move the machine according to the direction indicated by the green arrow on the chassis. Similarly, moving a manipulator in the direction of the red arrow on the control panel, will move the machine in the direction of the red arrow on the chassis.



Caution !

If the machine has a 220 V 16A max. plug, the extension must be connected to a mains socket protected by a 30 mA differential circuit breaker.

1.3.1 - Risks of jerky movements and tipping over

Risks of jerky movement and tipping over are high in the following situations:

- Sudden action on the controls.
- Overloading of the platform.
- Uneven ground (Be careful during thaw periods in winter).
- Gusts of wind.
- Contact with an obstacle on the ground or at a height.
- Working on platforms, pavements, etc.
- Inversion of travel direction after turntable rotation.

Allow sufficient stopping distances: 3 metres at high speed and 1 metre at low speed.

Do not alter or neutralise any components connected in any way to the machine's safety or stability.

Do not place or fasten a load so that it overhangs the machine's parts.

Do not touch adjacent structures with the elevator arm.

1.3.2 - Electrical risk

Electrical risks are high in the following situations:

- Contact with a live line (check safety distances before operation near electricity lines).
- Use during storms.

1.3.3 - Risk of explosion or burning

The risks of explosion or burning are high in the following situations:

- Working in explosive or inflammable atmosphere.
- Filling the fuel tank near naked flames.
- Contact with the hot parts of the motor.
- Use of a machine generating hydraulic leakage.

1.3.4 - Risks of collision

- Risk of crushing people in the machine operation zone (when travelling or manoeuvring equipment).
- The operator must assess the risks above him before using the machine.
- Pay attention to the position of the arms during turntable rotation.
- Adapt movement speed to conditions related to the ground, traffic, slope and movement of people, or any other factor that may cause a collision.
- When driving down the ramp of a truck, ensure sufficient space is available for safe unloading.
- Check brake pad wear regularly to avoid all risk of collision.

1.4 - INSPECTIONS

Comply with the national regulations in force in the country of machine use.
For FRANCE: Order dated 01/03/2004 + circular DRT 93 dated 22 September 1993 which specify:

1.4.1 - Periodic inspections

The machine must be inspected every 6 months in order to detect any defects liable to cause an accident.

These inspections are performed by an organisation or personnel specially designated by the site manager and under his responsibility (whether or not they belong to the company) Articles R 233-5 and R 233-11 of the French Labour Code.

The results of these inspections are recorded in a safety register kept by the site manager and constantly available to the labour inspector and the site safety committee (if one exists) and the list of specially designated personnel (Article R 233-5 of the French Labour Code).

Moreover, before each use, check the following:

- the operator's manual is in the storage compartment on the platform,
- the stickers are placed according to the section concerning "Labels and their positions",
- oil level and any elements in the maintenance operation table
- look out for any damaged, incorrectly installed, modified or missing parts.

NOTE : *This register can be obtained from trade organisations, and in some cases from the OPPBTP or private prevention agencies.*

The designated persons must be experienced in risk prevention (Articles R 233-11 or order n° 93-41).

No member of personnel is allowed to perform any check whatsoever during machine operation (Article R 233-11 of the French Labour Code).

1.4.2 - Examination of machine suitability

The manager of the site where the machine is operated must ensure the machine is suitable, i.e. capable of performing the work in complete safety, and in compliance with the operating manual. Furthermore, the French order of 01/03/2004 addresses problems relative to leasing, examination of the state of conservation, checking upon operation after repairs, and test conditions (static test coefficient 1.25; dynamic test coefficient 1.1). All users must consult this order's requirements and comply with them.

1.4.3 - State of conservation

Detect any deterioration liable to cause hazardous situations (concerning safety devices, load limiters, tilt sensor, cylinder leaks, deformation, welds, bolt tightness, hoses, electrical connections, tyre state, excessive mechanical gaps).

NOTA : *In the case of rental, the user of the rented device is responsible for the machine condition and suitability inspection. He must check with the renting party that the general periodic checks and checks prior to operation have been carried out.*

1.5 - REPAIRS AND ADJUSTMENTS

These cover major repairs, and work on or adjustments to safety systems or devices (of a mechanical, hydraulic or electrical nature).

These must be performed by personnel from or working for PINGUELY-HAULOTTE who will use only original parts.

Any modification not controlled by PINGUELY-HAULOTTE is unauthorised.

The manufacturer cannot be held responsible if non-original parts are used or if the work specified above is not performed by PINGUELY-HAULOTTE-approved personnel.

1.6 - VERIFICATIONS WHEN RETURNING TO SERVICE

To be performed after:

- extensive disassembly-reassembly operation,
- repair affecting the essential components of the machine.
- any accident caused by the failure of an essential component.

It is necessary to perform a suitability examination, a state of conservation examination, a static test, a dynamic test (see coefficient in paragraph 1.4.2, 5).

1.7 - BEAUFORT SCALE

The Beaufort Scale of wind force is accepted internationally and is used when communicating weather conditions. It consists of number 0 - 17, each representing a certain strength or velocity of wind at 10m (33 ft) above ground level in the open.

Description of Wind		Specifications for use on land	MPH	m/s
0	Calm	Calm; smoke rises vertically	0-1	0-0.2
1	Light Air	Direction of wind shown by smoke	1-5	0.3-1.5
2	Light Breeze	Wind felt on face; leaves rustle; ordinary vanes moved by wind	6-11	1.6-3.3
3	Gentle Breeze	Leaves and small twigs in constant motion; wind extends light flag	12-19	3.4-5.4
4	Moderate Breeze	Raises dust and loose paper; small Branches are moved	20-28	5.5-7.9
5	Fresh Breeze	Small trees in leaf begin to sway; crested wavelets form on inland waterways	29-38	8.0-10.7
6	Strong Breeze	Large branches in motion; whistling heard in telephone wires; umbrellas used with difficulty	39-49	10.8-13.8
7	Near Gale	Whole trees in motion; inconvenience felt when walking against wind	50-61	13.9-17.1
8	Gale	Breaks twigs off trees; generally impedes progress	62-74	17.2-20.7
9	Strong Gale	Slight structural damage occurs (chimney pots and slates removed)	75-88	20.8-24.4

2 - PRESENTATION



Self-propelled platforms, models H21TX, H23TPX, and H25TPX, are designed for all height work within the limit of their characteristics (see Chapter 2.4, page 12) and in compliance with all safety instructions specific to the machine and work areas.

The main operating station is in the platform.

The turntable operating station is for rescue or emergency assistance operation.

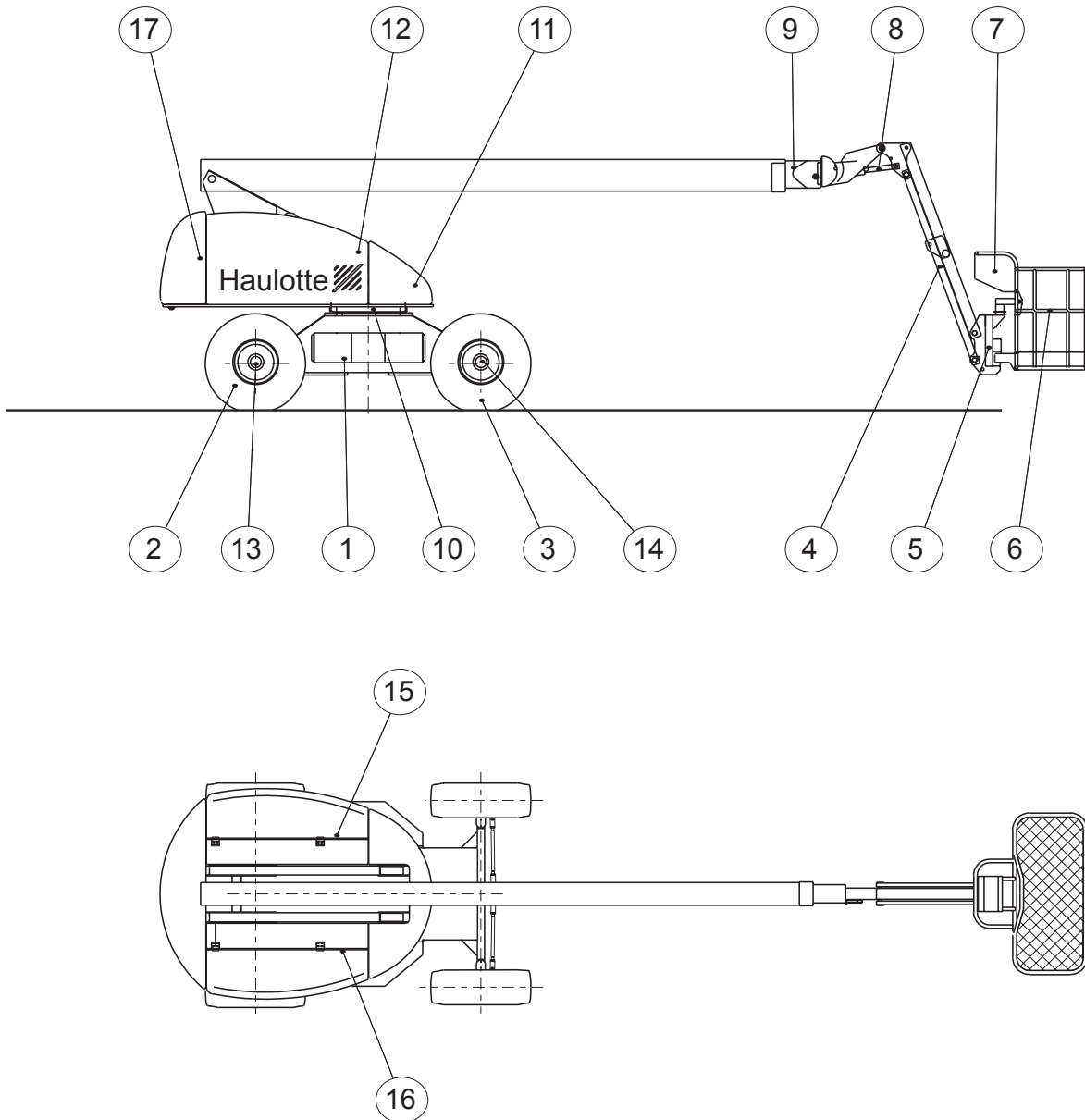
2.1 - IDENTIFICATION

A plate affixed on the rear right of the chassis shows all indications (engraved) allowing machine identification.

26		
Pinguely - Haulotte		
La Péronnière, BP9, 42152 L'Horme - France		
EQUIPMENT	<input style="width: 100%;" type="text"/>	
TYPE	<input style="width: 100%;" type="text"/>	
SERIAL N°	<input style="width: 100%;" type="text"/>	
TOTAL WEIGHT	<input style="width: 80%;" type="text"/>	kg
YEAR OF MANUFACTURE	<input style="width: 100%;" type="text"/>	
NOMINAL POWER	<input style="width: 80%;" type="text"/>	kW
MAXIMUM LOAD	<input style="width: 80%;" type="text"/>	kg
NUMBER OF PERSONS + LOAD	P +	<input style="width: 20%;" type="text"/> kg
LATERAL FORCE MAX.	<input style="width: 80%;" type="text"/>	N
WINDSPEED MAX.	<input style="width: 80%;" type="text"/>	m/s
SLOPE OPERATION MAX.	<input style="width: 80%;" type="text"/>	degrees
GRADEABILITY	<input style="width: 80%;" type="text"/>	%
		7814 327 a

REMINDER: For all requests concerning information, maintenance or spare parts, specify machine type and serial number.

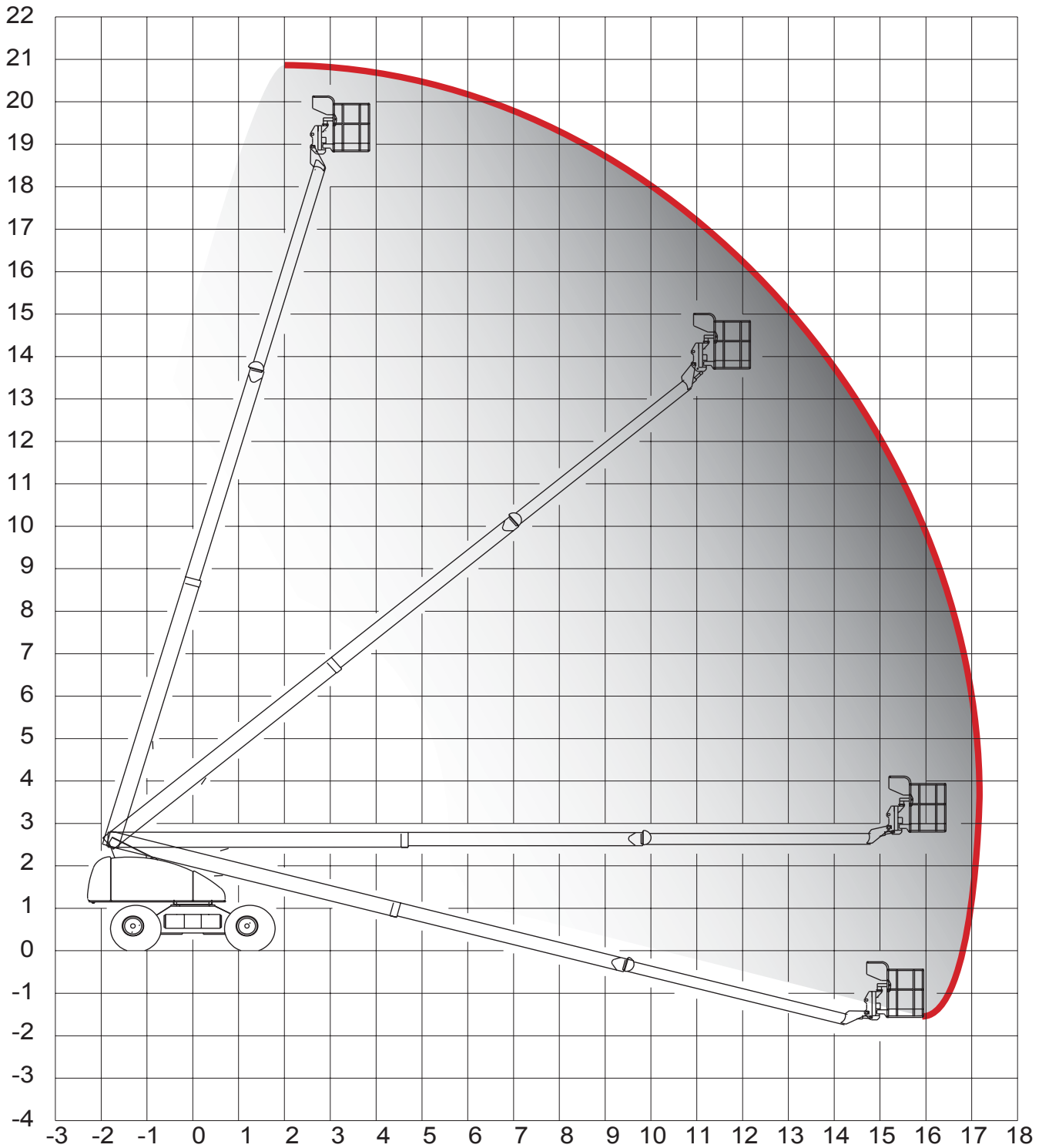
2.2 - MAIN COMPONENTS



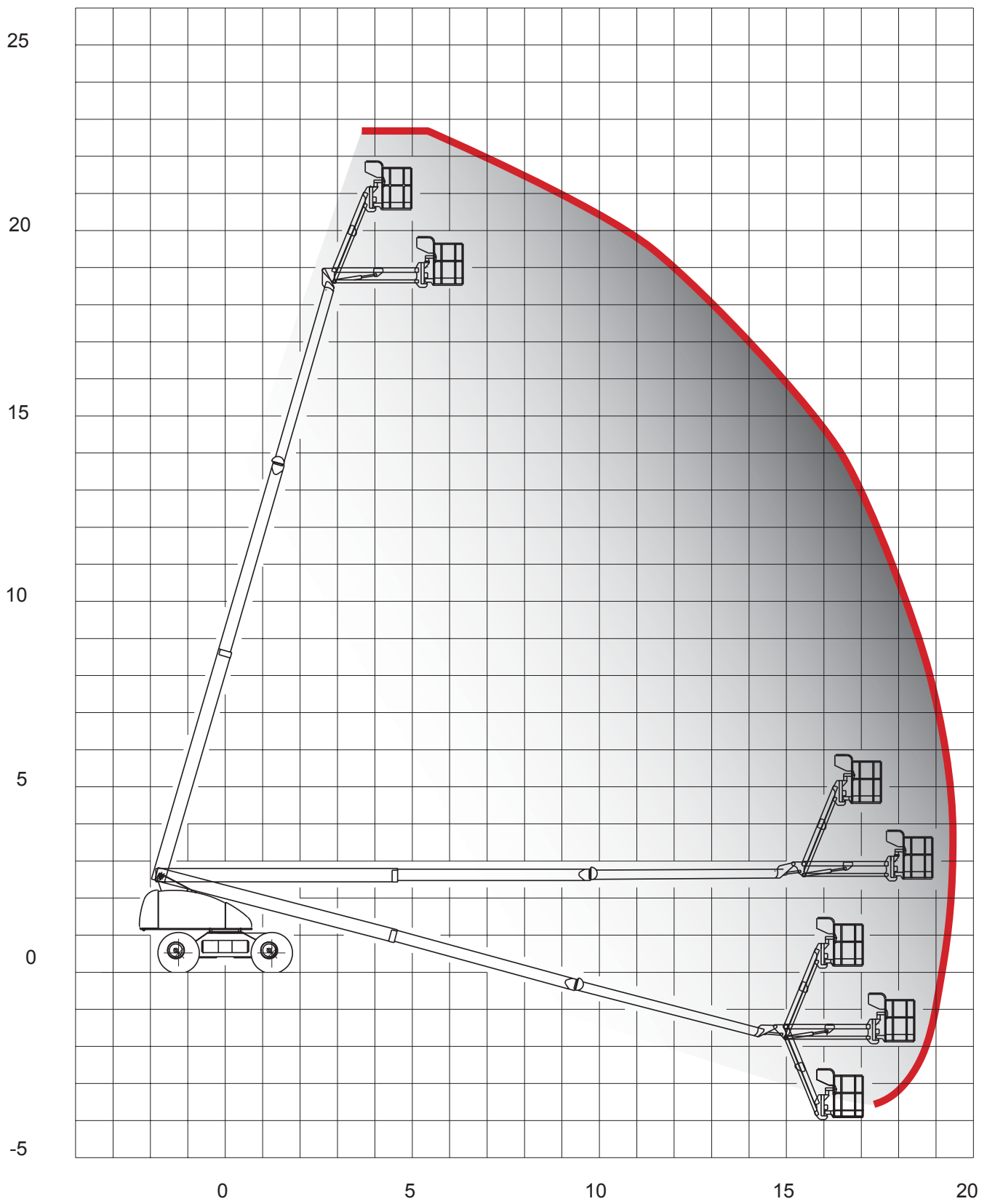
- 1 - drive chassis
- 2 - front drive wheels
- 3 - rear drive (4x4 version) and steer wheels
- 4 - jib
- 5 - platform support with load limiter
- 6 - platform
- 7 - platform control panel
- 8 - compensation receiver jack
- 9 - three-piece boom
- 10 - slew ring
- 11 - turntable
- 12 - covers
- 13 - hydraulic travel motors and reducer
- 14 - hydraulic travel motors and reducer (4x4 version)
- 15 - right compartment (diesel tank and hydraulic reservoir, control panel)
- 16 - left compartment (motor + pump + starting battery)
- 17 - counterweight.

2.3 - WORK AREA

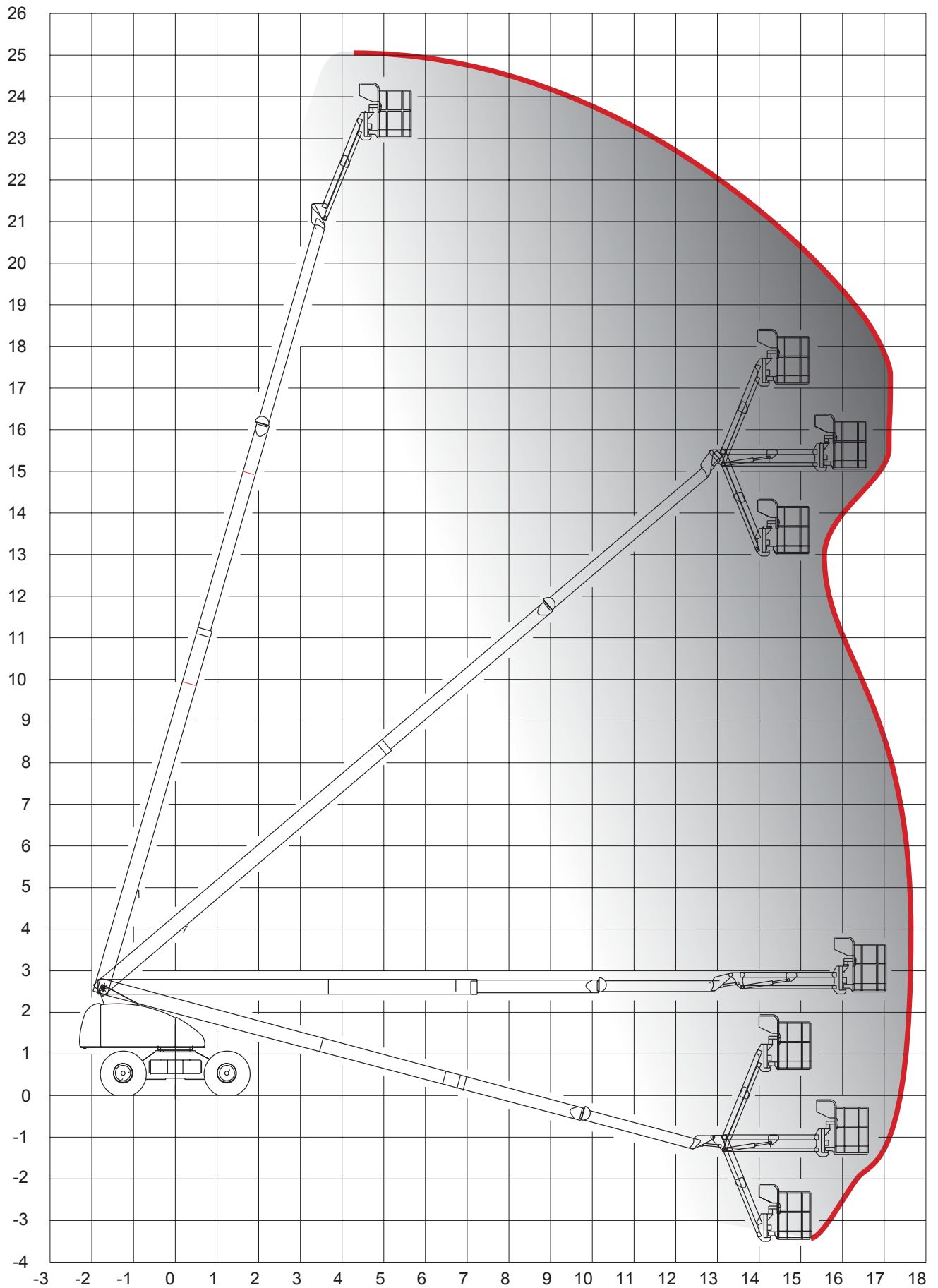
2.3.1 - H21TX work area



2.3.2 - H23TPX work area



2.3.3 - H25TPX work area



2.4 - TECHNICAL CHARACTERISTICS

2.4.1 - H21TX technical characteristics

<i>DESIGNATIONS</i>	<i>H21TX</i>
Load	230 kg including 2 people
Max manual side force	400 N (40 kg)
Max. wind speed	45 km/h
Floor height	18,8 m
Working height	20,8 m
Overall length	9,10 m
Overall width	2,46 m
Overall height	2,86 m
Wheel base	2,49 m
Ground clearance	350 mm
Max. reach	16,65 m
Boom range	+75° -15°
Telescoping (stroke)	4,76 m
Turntable rotation	Continuous
Reducer	22.4
Max. slope in travel	40%
Pneumatic dimensions	15 R 22
Outer turning radius	6.15 m
Max. permitted tilt	5° (approx. 9%)
Hydraulic tank	150 l
Fuel tank	150 l
Total weight	11750 kg
Number of drive wheels	4
Number of steer wheels	2
Differential lock	YES
Hydraulic brakes	YES
Free-wheel enable	YES
Tightening torque: - wheel nuts - slew ring	32 m.daN 21,5 m.daN
Vibrations: - foot level - hand level	< 0.5 m/s ² < 2.5 m/s ²
HATZ diesel motor - Power - Power, idling - Consumption - Consumption, idling	Type 3L41C 43,6 CH / 32,1 kW - 2400 rev/min 33.3 CH / 22.9 kW - 1500 rev/min 240 g/kWh 240 g/kWh
Hydraulic pump 45 cm ³ /rev	85 l/min maxi (LOADSENSING)
Hydraulic pressure: - General - Travel - Steering - Rotation - Equipment	240 bars 240 bars 240 bars 100 bars 240 bars
Travel speed	PV=1,5 km/h - GV=5 km/h
Max. load on one wheel	6010 kg (5894 daN)
Max. pressure on floor - hard floor (concrete) - loose ground (packed earth)	with 230 kg in platform 12,5 daN/cm ² 6,5 daN/cm ²
Start battery	1 x 12 V - 95 A.h
Supply voltage	12 V
Acoustic power	99 dB(A)
Noise level at 10 meters	66,5 dB(A)

2.4.2 - H23TPX technical characteristics

DESIGNATIONS	H23TPX
Load	230 kg including 2 people
Max manual side force	400 N (40 kg)
Max. wind speed	45 km/h
Floor height	20,6 m
Working height	22,6 m
Overall length	10,60 m
Overall width	2,47 m
Overall height	3,00 m
Wheel base	2,49 m
Ground clearance	350 mm
Max. reach	19,05 m
Boom range	+75° -15°
Telescoping (stroke)	4,76 m
Turntable rotation	Continuous
Reducer	22.4
Max. slope in travel	40%
Pneumatic dimensions	15 R 22
Outer turning radius	6.15 m
Max. permitted tilt	5° (approx. 9%)
Hydraulic tank	150 l
Fuel tank	150 l
Total weight	13110 kg
Number of drive wheels	4
Number of steer wheels	2
Differential lock	YES
Hydraulic brakes	YES
Free-wheel enable	YES
Tightening torque: - wheel nuts - slew ring	32 m.daN 21,5 m.daN
Vibrations: - foot level - hand level	< 0.5 m/s ² < 2.5 m/s ²
HATZ diesel motor - Power - Power, idling - Consumption - Consumption, idling	Type 3L41C 43,6 CH / 32,1 kW - 2400 rev/min 33.3 CH / 22.9 kW - 1500 rev/min 240 g/kWh 240 g/kWh
Hydraulic pump 45 cm ³ /rev	85 l/min maxi (LOADSENSING)
Hydraulic pressure: - General - Travel - Steering - Rotation - Equipment	240 bars 240 bars 240 bars 100 bars 240 bars
Travel speed	PV=1,5 km/h - GV=5 km/h
Max. load on one wheel	6980 kg (6845 daN)
Max. pressure on floor - hard floor (concrete) - loose ground (packed earth)	with 230 kg in platform 13 daN/cm ² 6,5 daN/cm ²
Start battery	1 x 12 V - 95 A.h
Supply voltage	12 V
Acoustic power	99 dB(A)
Noise level at 10 meters	66,5 dB(A)

2.4.3 - H25TPX technical characteristics

DESIGNATIONS	H25TPX
Load	230 kg including 2 people
Max manual side force	400 N (40 kg)
Max. wind speed	45 km/h
Floor height	23,3 m
Working height	25,3 m
Overall length	13,10 m
Overall width	2,48 m
Overall height	3,00 m
Wheel base	2,49 m
Ground clearance	350 mm
Max. reach	16,9 m
Boom range	+75° -15°
Telescoping (stroke)	4,76 m
Turntable rotation	Continuous
Reducer	22,4
Max. slope in travel	40%
Pneumatic dimensions	15 R 22
Outer turning radius	6.15 m
Max. permitted tilt	5° (approx. 9%)
Hydraulic tank	150 l
Fuel tank	150 l
Total weight	13720 kg
Number of drive wheels	4
Number of steer wheels	2
Differential lock	YES
Hydraulic brakes	YES
Free-wheel enable	YES
Tightening torque: - wheel nuts - slew ring	32 m.daN 21,5 m.daN
Vibrations: - foot level - hand level	< 0.5 m/s ² < 2.5 m/s ²
HATZ diesel motor - Power - Power, idling - Consumption - Consumption, idling	Type 3L41C 43,6 CH / 32,1 kW - 2400 rev/min 33.3 CH / 22.9 kW - 1500 rev/min 240 g/kWh 240 g/kWh
Hydraulic pump 45 cm ³ /rev	85 l/min maxi (LOADSENSING)
Hydraulic pressure: - General - Travel - Steering - Rotation - Equipment	240 bars 240 bars 240 bars 100 bars 240 bars
Travel speed	PV=1,5 km/h - GV=5 km/h
Max. load on one wheel	6960 kg (6830 daN)
Max. pressure on floor - hard floor (concrete) - loose ground (packed earth)	with 230 kg in platform 13 daN/cm ² 6,5 daN/cm ²
Start battery	1 x 12 V - 95 A.h
Supply voltage	12 V
Acoustic power	99 dB(A)
Noise level at 10 meters	66,5 dB(A)

2.4.4 - H21TX option: 360 kg - 60 km/h

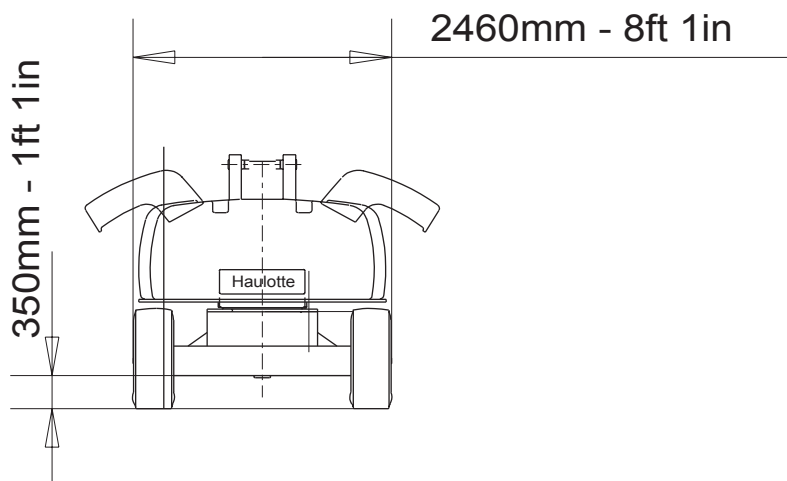
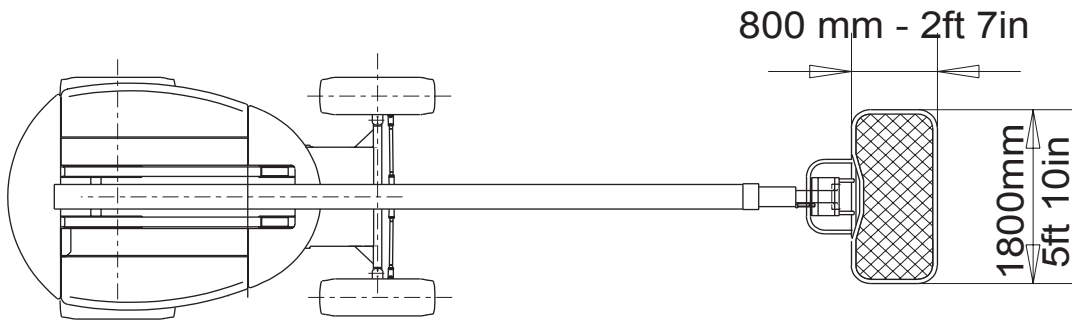
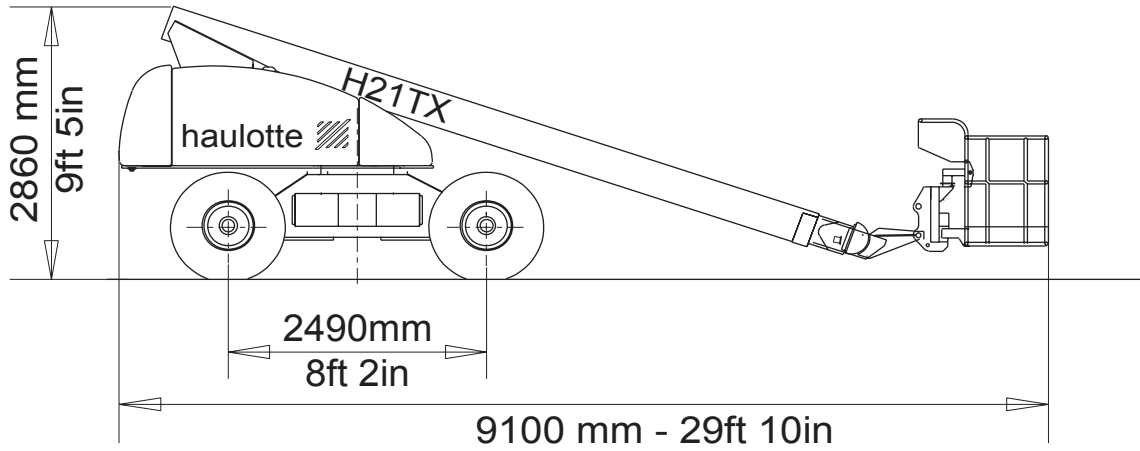
<i>DESIGNATIONS</i>	<i>H21TX</i>
Load	360 kg including 3 people
Max. wind speed	60 km/h
Total weight	12640 kg
Max. load on one wheel	6720 kg (6590 daN)
Max. pressure on floor - hard floor (concrete) - loose ground (packed earth)	with 360 kg in platform 15,9 daN/cm ² 5,8 daN/cm ²

2.4.5 - H23TPX option: 250 kg - 60 km/h

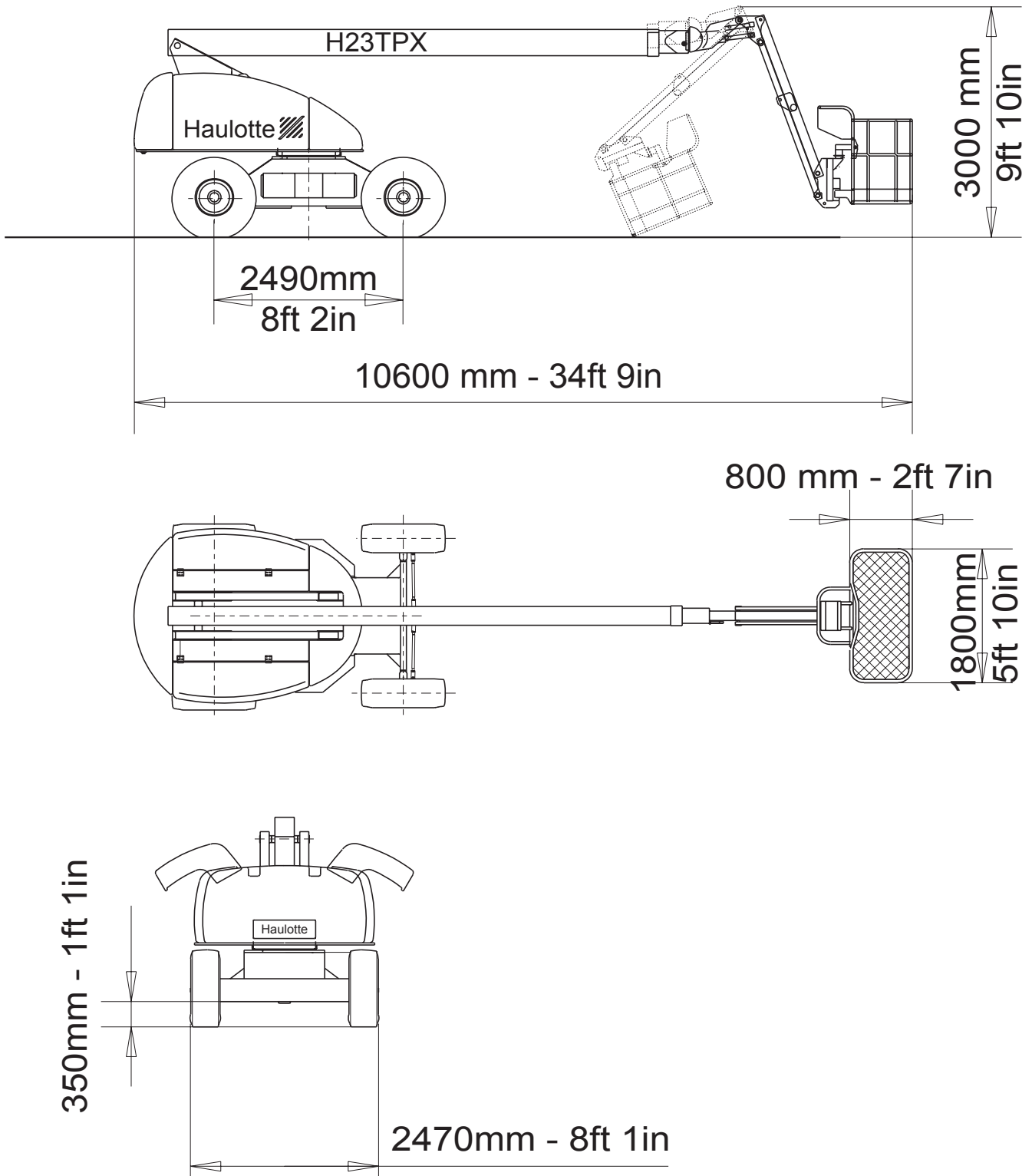
<i>DESIGNATIONS</i>	<i>H23TPX</i>
Load	250 kg including 2 people
Max. wind speed	60 km/h
Total weight	13640 kg
Max. load on one wheel	6600 kg (6472 daN)
Max. pressure on floor - hard floor (concrete) - loose ground (packed earth)	with 250 kg in platform 12,4 daN/cm ² 4,5 daN/cm ²

2.5 - OVERALL DIMENSIONS

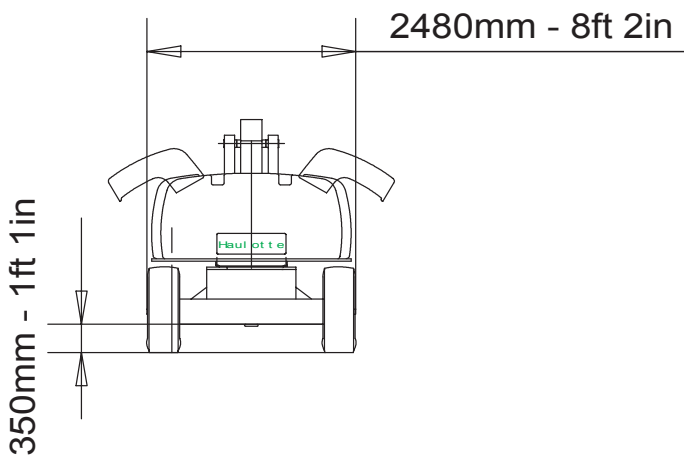
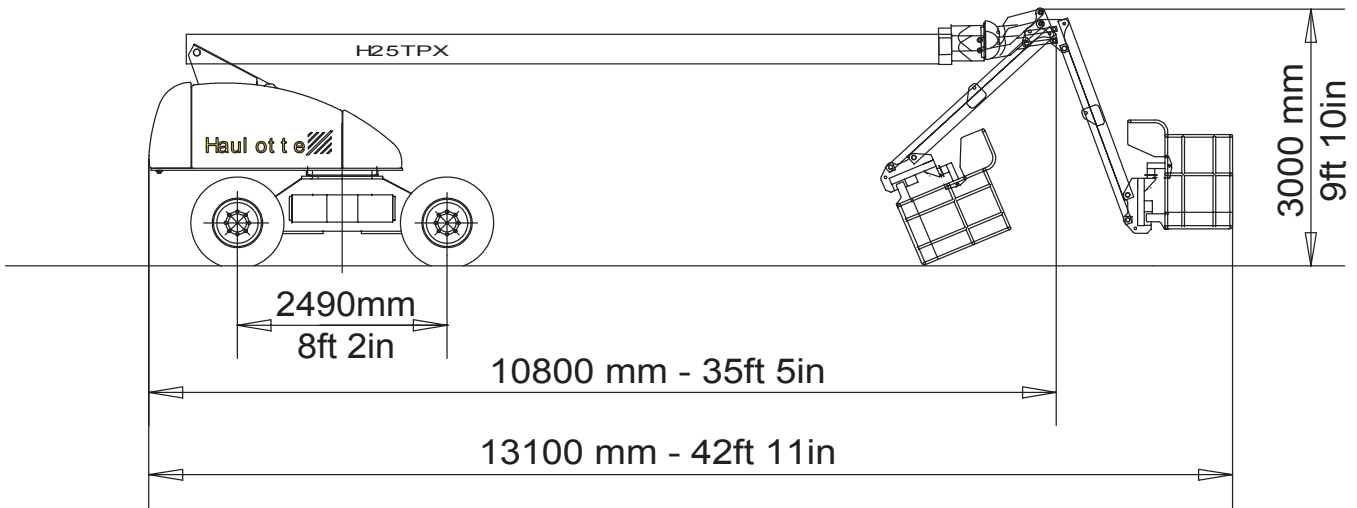
2.5.1 - H21TX overall dimensions



2.5.2 - H23TPX overall dimensions

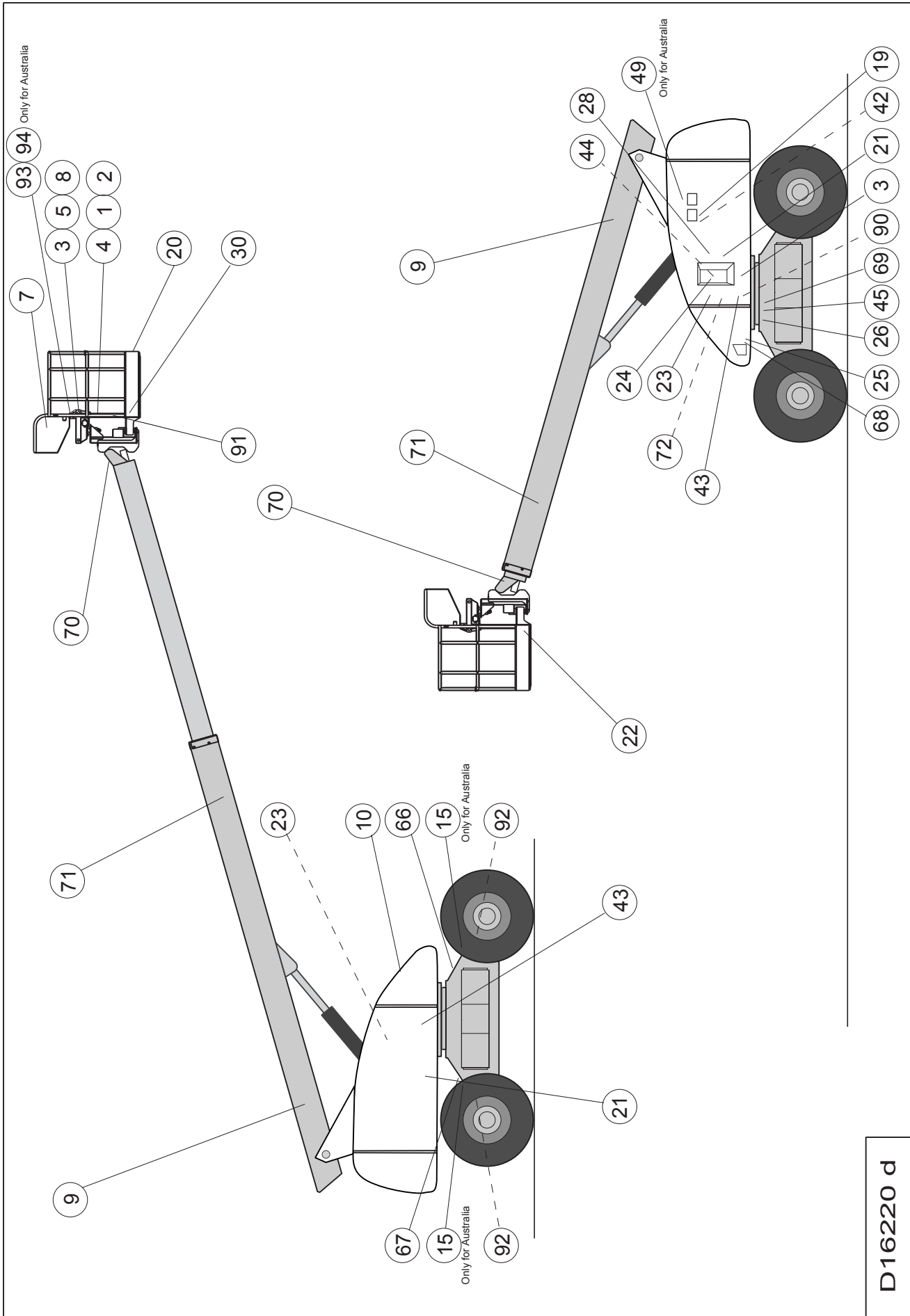


2.5.3 - H25TPX overall dimensions



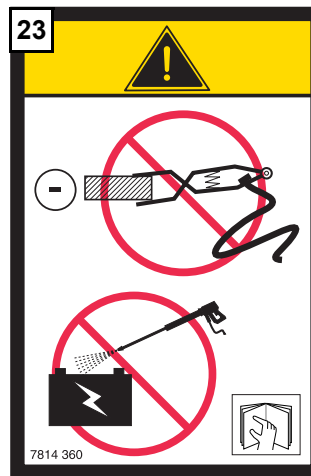
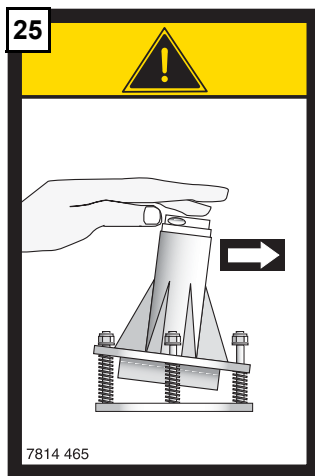
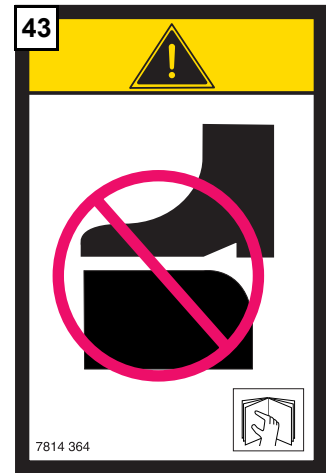
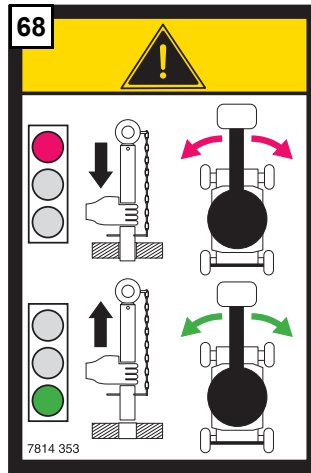
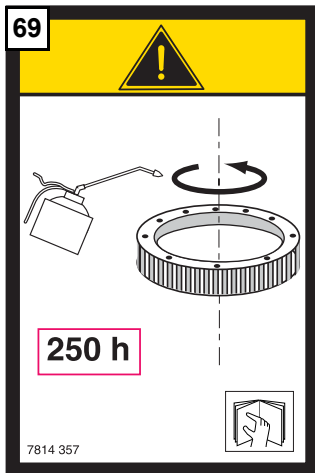
2.6 - LABELS**2.6.1 - Label positions**

Ref.	Code	Qty	Description
1	2420324490	1	SP catalogue H21TX
1	2420324500	1	SP catalogue H23TPX
1	2420324510	1	SP catalogue H25TPX
2	2420324880	2	CE Manual
3	3078153200a	2	Floor height + load capacity for H21TX
3	3078153210a	2	Floor height + load capacity for H23TPX
3	3078153220a	2	Floor height + load capacity for H25TPX
4	3078143680b	1	Refer to the Operating Manual
5	3078145070	1	Danger: direction of travel
7	P20406c	1	«Basket» panel
8	3078143540a	1	The plug must be connected
9	3078138990	2	H21T
9	3078140080	2	H23TP
9	3078139010	2	H25TP
9	3078136770	2	"X"
10	3078143620	2	Risk of crushing (hands and fingers)
19	3078143520a	1	Hydraulic oil
19	3078148890	1	Biodegradable hydraulic oil (option)
20	3078148770	1	Haulotte
21	3078144130	2	Do not park in the area in which the machine is working
22	3078144140	1	Risk of electrocution: this machine is not isolated
23	3078143600	2	Do not wash... Do not use the machine...
24	P20402a	1	Turret panel
25	3078144650	1	Risk of overturning : check tilt
26	3078143270a	1	Name plate
28	3078143450	1	User instructions
30	2421808660	1	Yellow and black adhesive marking
42	3078143590a	1	«High and low level» hydraulic oil
43	3078143640	1	Do not climb onto the hood
44	3078145180	1	Multi-language, do not interchange
45	3078148750	1	Acoustic power
66	3078143930a	1	Green arrow (forwards)
67	3078143940a	1	Red arrow (backwards)
68	3078143530	1	Before slewing, remove the rod
69	3078143570	1	Greasing of the rotation ring
70	3078143630	2	Risk of crushing of body
71	3078148970	2	Haulotte
72	3078149220a	1	Manual emergency operation assistance label
90	3078149240	1	Built-in generator (option)
91	3078150500	1	Built-in generator button (option)
92	3078153390a	4	Load on one wheel for H21TX
92	3078153230a	4	Load on one wheel for H23TPX
92	3078153500a	4	Load on one wheel for H25TPX
98	3078144310b	2	Floor height + load capacity for H21TX (option)
98	3078144340d	2	Floor height + load capacity for H23TPX (option)
99	3078151610a	4	Load on one wheel for H21TX (option)
99	3078151620a	4	Load on one wheel for H23TPX (option)



D16220 d

2.6.2 - «Yellow» labels



2.6.3 - «Orange» labels

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RECOMMENDATIONS FOR USE

BEFORE USING THIS MACHINE
THE OPERATOR MUST

- 1 - Read and understand the information in the operator's manual and the information marked on the machine, and become familiar with the controls.
- 2 - Receive training and practical experience in operating the machine, under the employer's supervision.
- 3 - Ensure that maintenance is performed according to the manufacturer's instructions.
- 4 - Refrain from using the machine in the event of any malfunction.
- 5 - Not wash the electrical components with a washer pressure.
- 6 - Not remove any parts which might affect the stability.
- 7 - Not modify the machine without the manufacturer's approval.
- 8 - Not use the machine as a welding earth.
- 9 - Not weld on the machine without first disconnecting the battery terminals. See the instructions in the maintenance manual.

DAILY INSPECTION

- 1 - Check the level of diesel fuel (for diesel engine platforms).
- 2 - Check that there are no apparent defects (hydraulic leaks, loose bolts, loose electric connections)
- 3 - Check that the tilt indicator operates correctly by sounding the buzzer.

INSTRUCTIONS BEFORE USE

- 1 - Remove the rotation locking pin (if there is a turntable).
- 2 - **IMPORTANT** when using the AC power line to the work platform, the power plug must be connected to an electrical installation protected by a 30 mA circuit breaker (C15 100 standard).

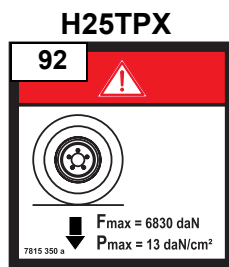
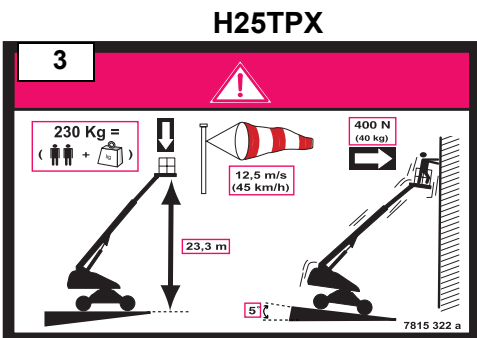
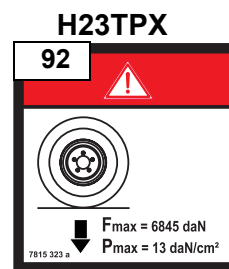
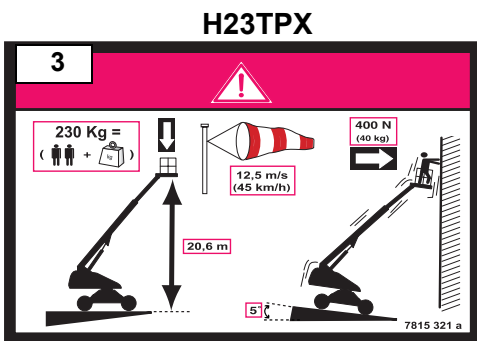
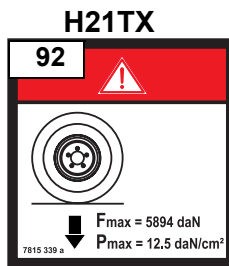
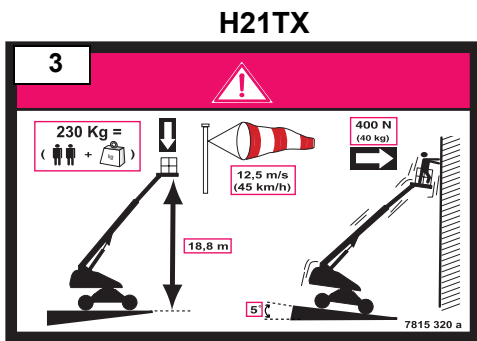
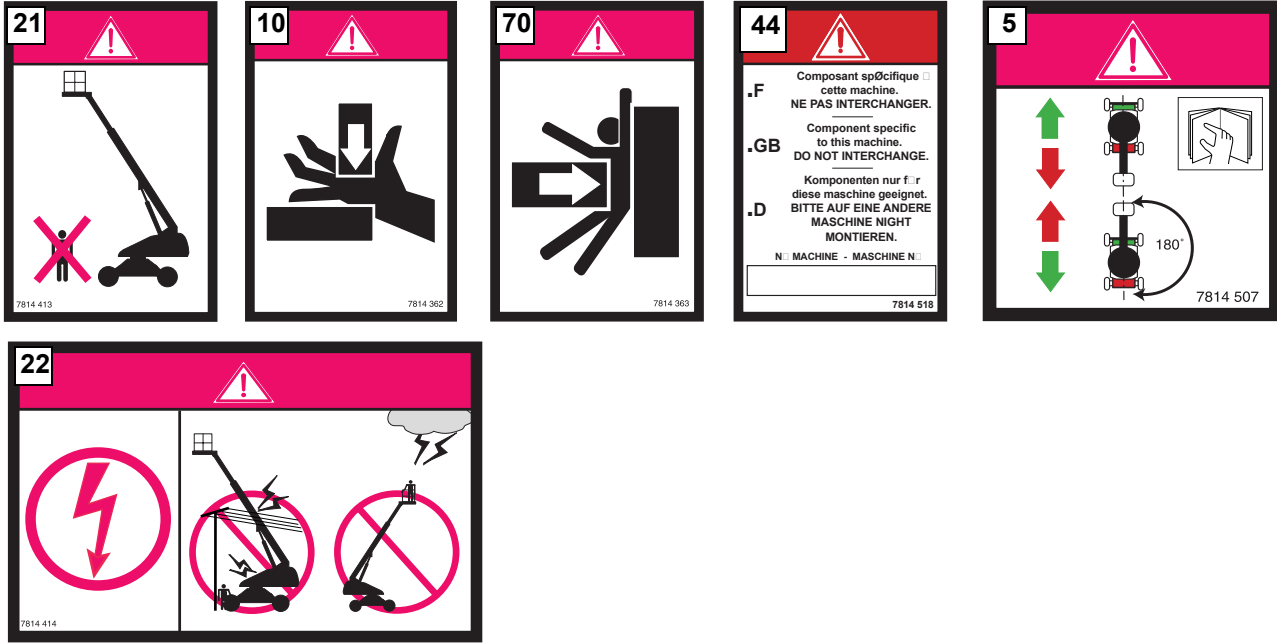
START-UP

- 1 - Turn the battery isolator switch to the "on" position.
- 2 - Unlock the emergency stop button then press the starter button.
- 3 - If the machine does not start, wait 10 seconds then repeat the operation.

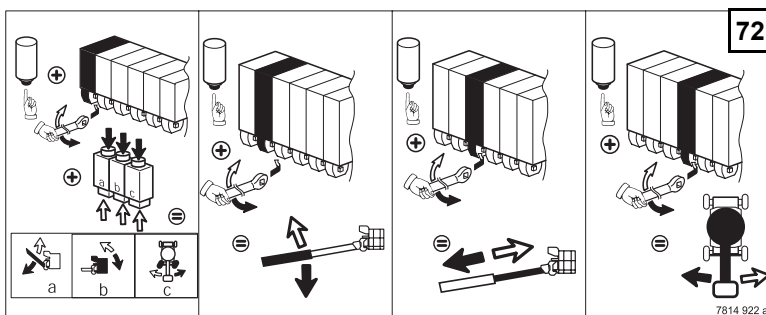
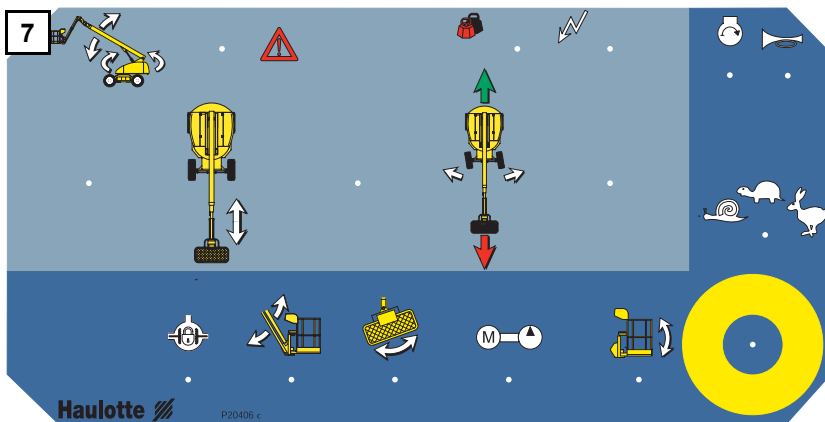
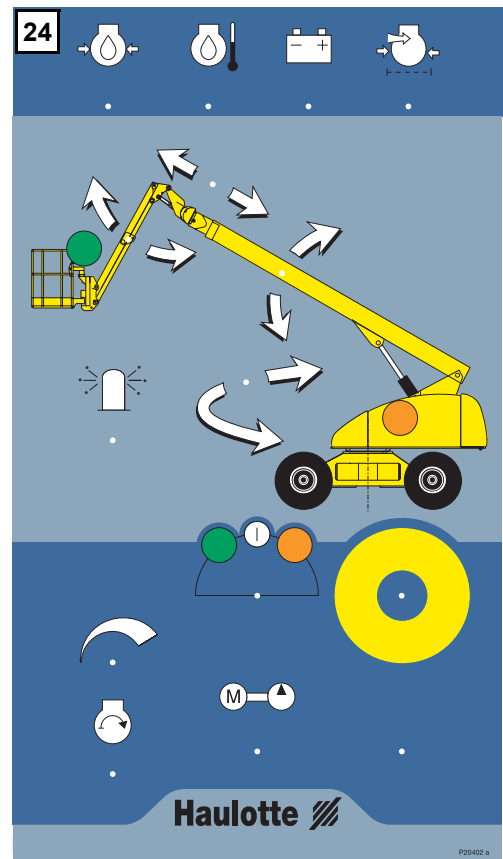
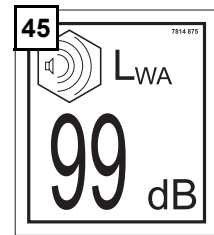
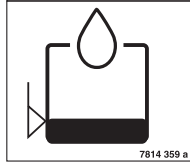
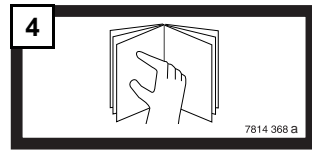
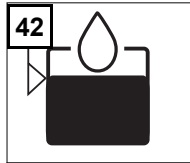
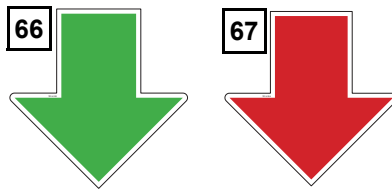
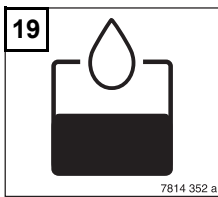
THE MACHINE
MUST NOT BE USED
WHILE CHARGING THE BATTERIES

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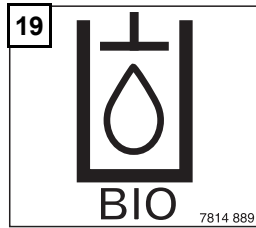
2.6.4 - «Red» labels



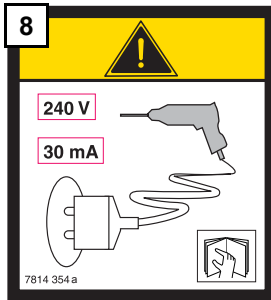
2.6.5 - Other labels



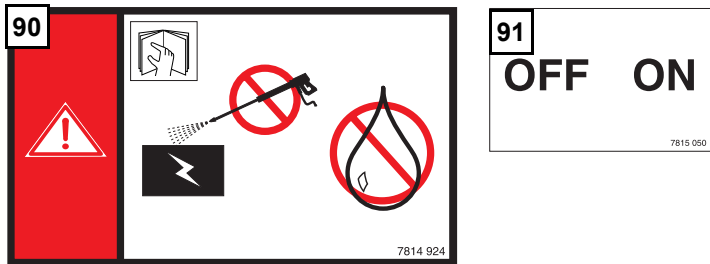
2.6.6 - Option : biodegradable hydraulic oil



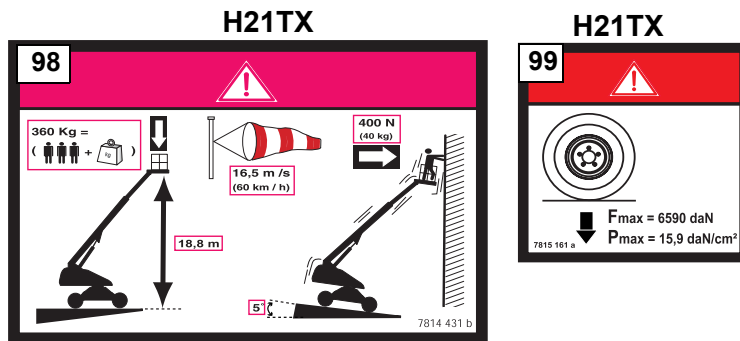
2.6.7 - Option : 220V Plug



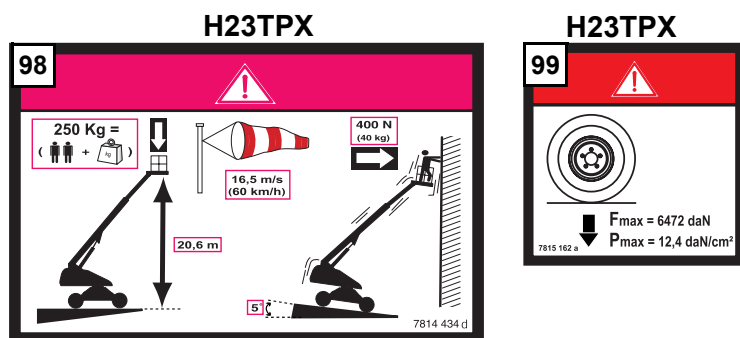
2.6.8 - Built-in generator in option



2.6.9 - H21TX option: 360 kg - 60 km/h



2.6.10 - H23TPX option: 250 kg - 60 km/h



3 - PRINCIPLE OF OPERATION

3.1 - HYDRAULIC CIRCUIT

All the machine's movements are performed by the hydraulic energy supplied by an open-circuit self-regulating piston pump, equipped with a «LOAD SENSING» compensator.

3.1.1 - Movement control

3.1.1.1 -Travel, rotation, boom lifting and telescoping.

These controls are made in proportional distribution (compensated in pressure for travel and boom lifting). Pump output adapts automatically to the demand by the «LOAD SENSING» channel. In neutral, there is no pump output.

3.1.1.2 -Jib lifting, basket rotation, compensation and steering

These movements are controlled by the ON/OFF 4-channel electro-valve. A proportional distributor tray provides the output required for these movements.

3.1.2 - Actuators

The type of actuator depends on the movement.

3.1.2.1 -Steering, telescoping, boom lifting and jib lifting

These movements are controlled by cylinders equipped with tight and flanged balancing valves.

3.1.2.2 -Platform rotation

The platform is rotated by a hydraulic motor. Rotation speed can be adjusted by flow regulators.

3.1.2.3 -Compensation

Compensation works by oil transfer between two cylinders with similar characteristics. The compensation receiver cylinder is equipped with a double-flanged controlled valve.

3.1.2.4 -Travel (machine movement)

Motors are installed on the steering wheels.

The pressure supply of these motors eliminates the action of the brake on the front wheels. As soon as movement stops, the brake returns to its position under the action of springs.

A hydraulic differential locking system is provided on each axle.

The three speeds (high, medium or low) are selected by a switch.

 **Caution !**
Adjustment must only be performed by specialist personnel.

Speed	Principle
High speed	The steering axle is switched into freewheel and the output from the pump goes through the two motors mounted in series on the front wheels.
Medium speed	The steering axle is switched into freewheel and the output from the pump goes through the two motors mounted in parallel on the front wheels.
Low speed	Pump output is divided between the front and rear axles. The output reaching each axle supplies the hydraulic axle motors placed in parallel.

3.1.3 - Emergency assistance and rescue



Caution !

Emergency assistance and rescue operations to be carried out by trained and competent personnel.



Caution !

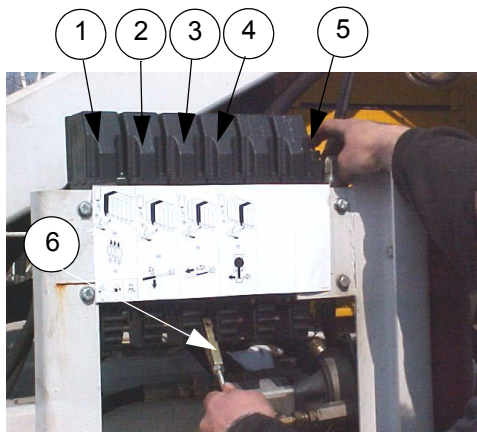
Use of the emergency unit is exclusively reserved for rescuing personnel if the main hydraulic power supply fails. Any other use may cause damage.



Caution !

To make these operations, there must be three operators on the ground.

Photo 1- Manual emergency system



3.1.3.1 -Rescue

This is a situation where the operator in the platform is no longer able to control the movements although the machine is working normally. A qualified operator on the ground can use the turntable control panel with the main diesel power supply to bring the operator in the platform down.

3.1.3.2 -Emergency assistance

An emergency electric-pump unit operated from the platform or the turntable is used to counter a failure of the main pump.

If an operating problem prevents the user on the platform from coming down to the floor, a competent operator can control this movement this using the electric pump and the turntable control panel.

3.1.3.3 -Manual emergency assistance system

If the diesel motor is working, and in case of breakdown of the turntable and platform controls, it is possible to perform these movements using the mechanical levers, and pushing the manual control of the electro-valve situated at the top on the general distribution block.

• **Manual emergency system for turntable orientation :**

Instructions:

- Take hold of the lever, (Ref 6, Photo 1, page 26).
- Position the lever on the distributing valve (Ref 4, Photo 1, page 26).
- Press the manual control on the electrovalve, (Ref 5, Photo 1, page 26).
- Press the manual control and at the same time,
 - * move the lever up to turn the turntable to the right, as seen from the basket,
 - * move the lever down to turn the turntable to the left, as seen from the basket.

• **Manual emergency system for the telescope :**

Instructions:

- Take hold of the lever, (Ref 1, Photo 1, page 26).
- Position the lever on the distributing valve (Ref 3, Photo 1, page 26).
- Press the manual control on the electrovalve, (Ref 5, Photo 1, page 26).
- Press the manual control and at the same time :
 - * move the lever up, to extend the telescope,
 - * move the lever down, to retract the telescope.

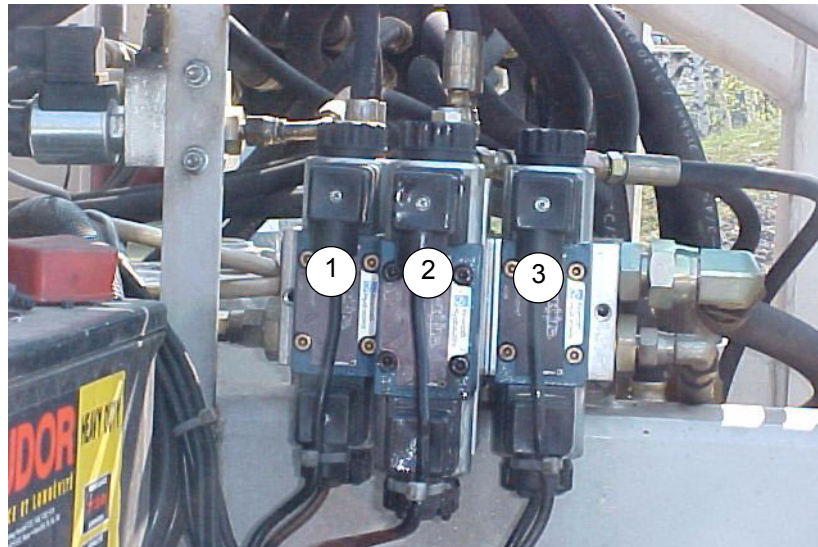
• **Manual emergency system for boom lifting :**

Instructions:

- Take hold of the lever, (Ref 1, Photo 1, page 26).
- Position the lever on the distributing valve (Ref 2, Photo 1, page 26).
- Press the manual control on the electrovalve, (Ref 5, Photo 1, page 26).
- Press the manual control and at the same time :

- * move the lever up, to lift the boom.
- * move the lever down, to retract the boom.

Photo 2 - Distribution unit on / off



- **Manual emergency system for jib :**

Instructions:

- Take hold of the lever, (Ref 5, Photo 1, page 26).
- Position the lever on the distributing valve (Ref 1, Photo 1, page 26).
- At the same time, press the manual electrovalve control, (Ref 6, Photo 1, page 26) and the distributor corresponding to jib movement (Ref 1, Photo 2, page 27)
- Holding down the manual control and the distributor corresponding to jib movement :
 - * move the lever down, to lift the jib,
 - * move the lever up and press the opposite distributor to lower the jib.

- **Manual emergency system for compensation :**

Instructions:

- Take hold of the lever, (Ref 5, Photo 1, page 26).
- Position the lever on the distributing valve (Ref 1, Photo 1, page 26).
- At the same time, press the manual control on the electrovalve, (Ref 6, Photo 1, page 26) and the distributing valve corresponding to compensation movement (Ref 2, Photo 2, page 27)
- Press the manual control and the distributing valve corresponding to the compensation movement at the same time :
 - * move the lever up, to lift the basket,
 - * move the lever down hold down the manual control and press the opposite distributor to lower the basket.

- **Manual emergency system for steer :**

Instructions:

- Take hold of the lever, (Ref 5, Photo 1, page 26).
- Position the lever on the distributing valve (Ref 1, Photo 1, page 26).
- At the same time, press the manual electrovalve control, (Ref 6, Photo 1, page 26) and the distributor corresponding to the steering movement (Ref 3, Photo 2, page 27)

- Holding down the manual control and the distributor corresponding to the steering movement :
 - * Move the lever up to move the wheels left,
 - * Move the lever down and press the opposite distributor to move the wheels right.

3.2 - ELECTRIC CIRCUIT AND OPERATION SAFETY SYSTEMS

3.2.1 - General

The electric power used to control and start the thermal motor comes from a 12V battery.

Hours are counted by an hour-meter.



Caution !

Do not attempt to operate the machine until you have read and understood the instructions in Chapter 4, page 31

To prevent the machine from being used above its capacity, it is equipped with safety systems designed to protect personnel and the machine. These systems immobilise the machine or neutralise its movements.

In this case, inadequate knowledge of the machine's operation and characteristics may lead the operator to diagnose a breakdown, whereas in actual fact the safety systems are merely operating properly. It is therefore essential that all the instructions in these chapters are fully understood.

If an emergency assistance or rescue operation is necessary, the safety systems are neutralised.

3.2.2 - Automatic motor stop

The motor is automatically stopped when:

- the generator no longer operates.
- oil pressure is too low.

3.2.3 - Platform load control

If the load in the platform exceeds the maximum authorised load, no movements are possible from the platform control station. The overload light indicator on the platform panel and the buzzer alert the operator. Load must be removed to reset the assembly.

3.2.4 - Tilt control

In the work position (machine extended) the tilt sensor emits a sound when the maximum allowable tilt is reached. If this state continues after a period of 1 to 2 seconds, the following movements are disabled: boom-lift and lowering, jib lifting, telescoping and travel.

When the telescope is fully withdrawn, boom lifting and lowering movements are enabled.

The travel function is disabled until all elevation elements are stowed. The machine can then be moved to an allowed tilt.

NOTA : Once the machine is stowed (telescope withdrawn, boom lowered and jib below the horizontal), tilt is tolerated and no alarm is sounded.

3.2.5 - Travel speeds

In order to move the machine, it is necessary to put the «dead man's» safety device into service by keeping your foot pressed on the pedal.

Releasing the «dead man's» pedal causes travel to stop.

3.2.5.1 -Transport position (platform stowed)

Three proportional travel speeds can be selected. Adapt the speed to the environment (obstacles, bends, etc.).

3.2.5.2 -Work position

As soon as the machine leaves the transport position:

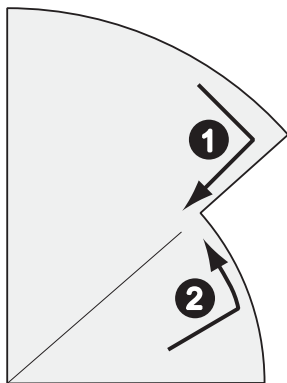
- micro-speed is automatically selected. The machine must not exceed 1 km/h.
- travel is cut out if tilt exceeds the permitted limit.

NOTA : In travel, no boom lifting, telescoping or turntable rotation movements are possible.

To approach an obstacle, use control proportionality.

3.2.6 - Range limitation for the H25TPX

To reduce the risk of tipping, the range is reduced while the boom is in the low position. While boom angle is less than 41°, telescoping is limited.



3.2.6.1 -Case 1: Boom in the high position

When the angle limit of 41° is reached, the telescope must be sufficiently retracted to continue to lower the boom.

3.2.6.2 -Case 2: Boom in the low position

When the telescope extension limit is reached, the only possible movements are boom lifting (or lowering) and telescope retraction.

When the range limit is reached, the fault light indicator (rep. 17, Photo 7, page 33) comes on fixed. This light goes out as soon as the selector is released (rep.2, Photo 7, page 33).

Check operation of the range safety systems every day and check that they correspond to the work area, Chapter 2.3, page 9.

To do so, place the machine in the low position, on a flat, horizontal floor. Telescope the boom from the turntable control panel. The range should be disabled before the cam welded on the inner element of the boom becomes visible at the end of the boom base (Photo 3, page 29).

If not (Photo 4, page 29), the safety system is malfunctioning. Stop the machine and call a PINGUELY-HAULOTTE after-sales technician.

Telescope out authorised



Photo 3

Telescope out disabled



Photo 4

3.2.7 - HEAD computer battery

**Caution !**

A tamper-proof label is affixed on the computer. If, when returned to After-Sales or on intervention by a Pinguely-Haulotte technician or agent, it is apparent that the label has been removed or that it is defective, the computer manufacturer warranty shall not be applicable.

**Caution !**

Simultaneous flashing of the light indicators stops to indicate a fault occurring on their original function.

Low power in the HEAD computer battery is indicated by simultaneous flashing of 2 (or 3) light indicators on the turntable control panel.

These light indicators are:

- Motor oil pressure
- Motor temperature
- Clogging indicator

As soon as low battery power is detected, please contact our After-Sales department immediately.

4 - OPERATION

4.1 - UNLOADING - LOADING - TRAVEL - PRECAUTIONS

Prior to any operation, check that the machine is in good condition and was not damaged in transit. If damage is observed, make the necessary reservations in writing to the carrier.



Caution !

A false manoeuvre can cause the machine to fall, causing very serious physical or material accidents.



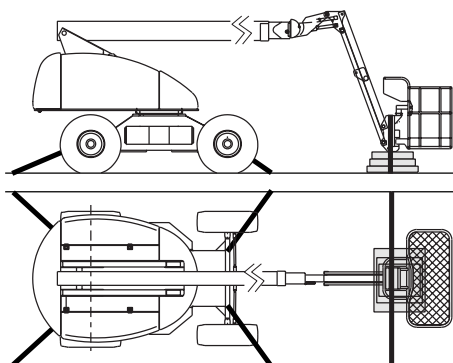
Caution !

Never stand under or too near the machine during manoeuvres.



Caution !

Because this method requires starting the machine motor, refer to Chapter 4.3, page 36 to prevent any risk of false manoeuvres.



Perform unloading manoeuvres on terrain that is stable, sufficiently resistant (see ground pressure, Chapter 2.4, page 12.), flat and uncongested.

4.1.1 - Unloading with ramps

Select the low travel speed.

Precautions: ensure that the ramps can withstand the load, that they are properly secured, and that grip is sufficient to prevent skidding during manoeuvres.

NOTA : *Because the ramp is almost always greater than the maximum allowable slope (5°), the boom must be lowered to enable travel. In this case, the buzzer will sound but travel is possible. If the slope is greater than the maximum slope allowed in travel (see Chapter 2.4, page 12), use a hoist to assist traction.*

4.1.2 - Loading

The precautions for unloading are applicable.

Secure according to the diagram opposite:

- one sling per lug
- a chain over the basket to hold it on the ground.

To go up the ramps of a lorry, use low speed.

4.2 - OPERATIONS BEFORE FIRST USE

REMINDER: Before use, familiarise yourself with the machine using this manual, the motor manual and the instructions on the machine plates.



Caution !

During high pressure washing, do not direct the jet onto the electric boxes and cabinets.

4.2.1 - Familiarisation with the control stations

4.2.1.1 - «Turntable» control station

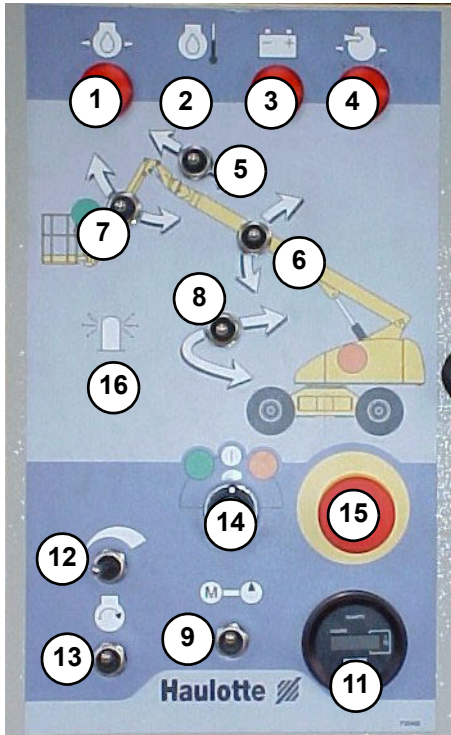


Photo 5

The turntable control station includes the following elements:

- 1 - Motor oil pressure light indicator
- 2 - Motor temperature light indicator
- 3 - Battery charge indicator
- 4 - Filter blocking indicator
- 5 - Boom telescoping control
- 6 - Boom lifting control
- 7 - Jib control
- 8 - Turntable rotation control
- 9 - Emergency unit control
- 11 - Hour-meter
- 12 - Motor state switch
- 13 - Motor start button
- 14 - Turntable station / stop / platform station selection
- 15 - Emergency stop button
- 16 - Flashing light control
- 17 - 220 V single phase - 16 A power supply plug
- 18 - Tilt sensor

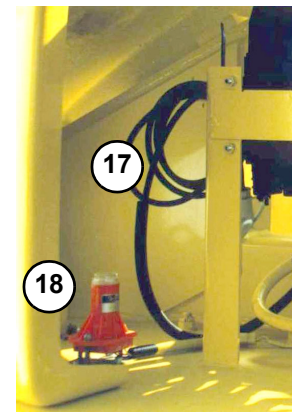


Photo 6

4.2.1.2 -«Platform» control station

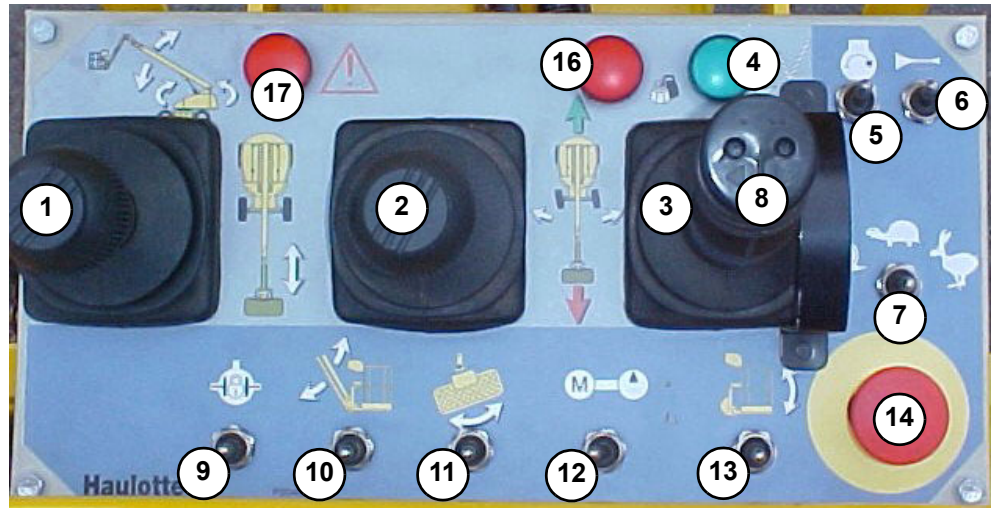


Photo 7

1. Boom lifting and rotation controller
2. Telescoping controller
3. Travel controller
4. Power on light indicator
5. Start switch
6. Horn switch
7. Low, medium and high speed
8. Steering indicator
9. Differential blocking switch
10. Jib switch
11. Platform rotation switch
12. Emergency control
13. Compensation switch
14. Emergency stop button
15. 220 V single phase 16 A plug
16. Platform overload indicator
17. Fault indicator



Photo 8

4.2.2 - Pre-operation inspection

4.2.2.1 -Operation zone

- Ensure that the machine is on flat, stable ground able to withstand the weight of the machine (see Chapter 2.4, page 12 - ground pressure))



Caution !

See characteristics table for max. allowed tilt.

- Ensure that no obstacles can impede the following movements:
 - travel (driving the machine)
 - turntable rotation
 - telescoping and lifting: see «work area» drawing (Chapter 2.3, page 9)

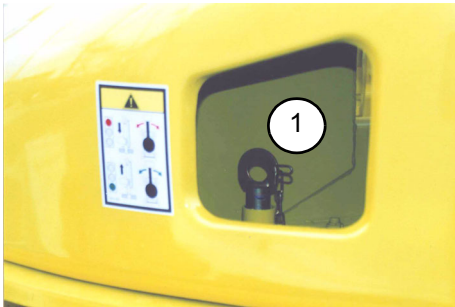


Photo 9

4.2.2.2 -General appearance

- Ensure that the turntable rotation blocking pin is withdrawn (item 1 Photo 9, page 34).
- Visually inspect the entire machine: take note of any paint flecks or battery acid leaks.
- Check that there are no loose bolts, nuts, couplings or hoses; no oil leaks; no severed or disconnected electrical wires.
- Check the boom and platform: there must be no visible damage and no signs of wear or deformation.
- Check there are no leaks, signs of wear, dents, scratches, rust or foreign bodies on the cylinder rods.
- Check that the wheel reducers are not leaking.
- The hydraulic pump and motor must be free of leaks, and have no loose parts.
- Check the reducers are not disconnected.
- Check that wheel nuts are tight and tyres not excessively worn.



Caution !

These machines are not insulated and must not be used near electricity lines.

4.2.2.3 -Electricity

- Check that battery terminals are clean and tight: slack or corrosion reduce power.
- Respect the safety instructions provided by the battery manufacturer
- Check that the main control panel power cable is in good condition.
- Check that the emergency stop systems work properly.
- Check that the tilt sensor works properly (item18, Photo 6, page 32) by tilting the support plate. Beyond the maximum tilt valve, it should emit an alarm if the machine is extended.

4.2.2.4 -Reservoir compartment

- Check the levels:
 - of hydraulic oil (item 1 Photo 10, page 34) and top up if necessary via the plug (item 2, Photo 10, page 34) (see Chapter 5.3.2, page 43).
 - of diesel: when the cover is closed, two lights indicate the min. and max. levels. Fill up if necessary (item 3, Photo 10, page 34).

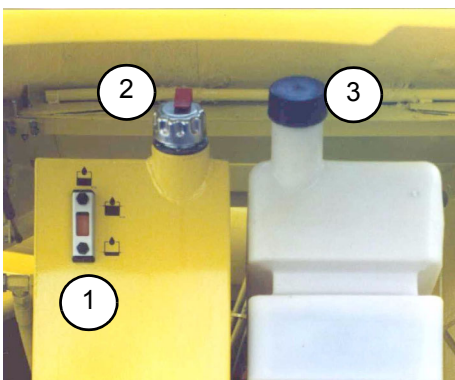


Photo 10

NOTA : *To fill up, use the products recommended in Chapter 5.2.1, page 40.*

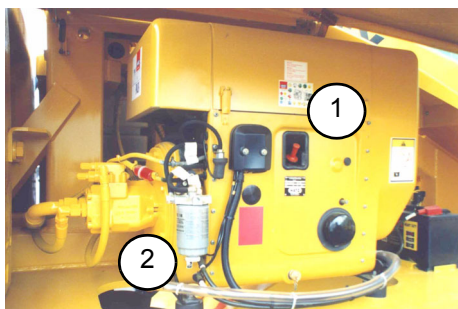


Photo 11

4.2.2.5 -Motor compartment

- Check that the air filter is clean - see the motor manual.
- Check the level of motor oil: gauge (item 1, Photo 11, page 35), and top up if necessary (see motor manual).
- Check the hydraulic oil filter clogging indicator (item 2, Photo 11, page 35). If the red indicator is visible, replace the filter cartridge (see Chapter 5.3.2, page 43).
- Check the level of electrolyte in the batteries: the level should be approximately 10 mm above the plates. Fill up if necessary with distilled water.

NOTA : To fill up, use the products recommended in Chapter 5.2.1, page 40.

4.2.3 - Built-in generator (option)



Caution !

Do not expose the built-in generator to direct contact with a jet of water or a high pressure cleaner.

The built-in generator enables voltage supply (220V or 110V depending on the option chosen) in the platform to enable connection of a tool, with maximum power 3.3 KW.

Photo 12 - Built-in generator

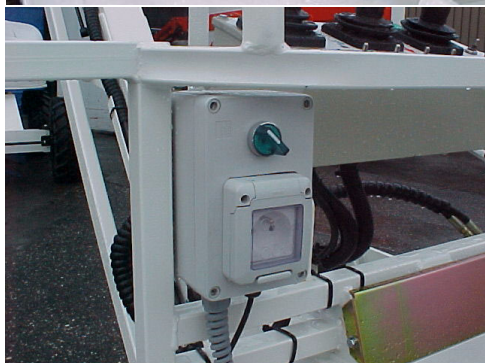
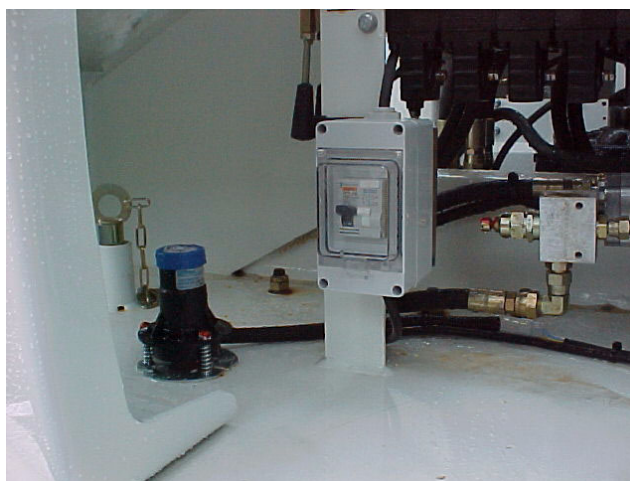
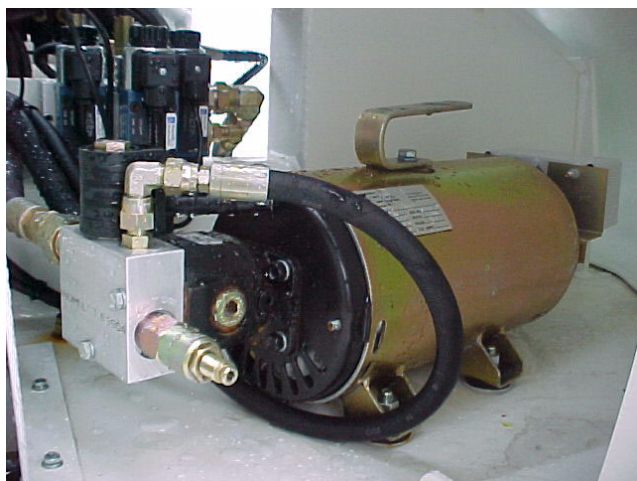


Photo 13 - Built-in generator

4.2.3.1 -Instructions

- Switching on the built-in generator
 - Start the machine and allow the motor to warm up for 15 minutes before use.

- Turn the button (Photo 13, page 35) over the power socket in the OFF position.
- Connect the tool to the socket.
- At any time, you can change the tool.

NOTA : *When using the built-in generator, you cannot make any machine movements. To make a movement, you must switch off the built-in generator (see instructions below).*

- Switching off the built-in generator
 - Disconnect the tool from the socket
 - Turn the button (Photo 13, page 35) above the power socket in the OFF position.
 - Movement is active once again, you can make any movements.
 - Put the button above the power socket in the ON position (the motor accelerates) and the button's green light indicator comes on

4.3 - OPERATION

IMPORTANT:

Operation can only be started once all the actions described in the previous chapter have been performed.

To get used to the machine, the first movements should be carried out on the ground, leaving the machine in the transport position: counter-weight at the front, boom lowered.



Caution !

When the counter-weight is placed above the steer wheels, the travel and steer controls react in the opposite direction.

REMINDER: The main operating station is in the platform. In normal use, the «turntable» control station is an emergency or rescue station and is only used if absolutely necessary.

4.3.1 - Ground operations

4.3.1.1 -Start the motor: (Photo 5, page 32)

- Make sure the emergency stop button (item 15) is pulled out.
- Move the key-operated control station selection switch (item 14) to the «ground» position (pictograms). In this position, the platform controls are disabled.
- The indicator lights for motor oil pressure (item 1) and battery charging (item 3) are on. The air filter clogging indicator light (item 4) is off.
- Press the start button (item 13). Once the motor has started, the lights (items 1 and 3) go out.

NOTA : *If the motor does not start, cut the contact by pressing the emergency stop button and repeat the operation.*

- Let the motor warm up, and use the time to check that the hour-meter (item 11), motor and pump are working properly.

4.3.1.2 -Movement tests (Photo 5, page 32)

- Test the boom functions, up then down (switch, item.6)
- Stop the boom when horizontal.
- Then, test the turntable rotation function in both directions (switch, item 8) and the telescope extend/retract function (switch, item 5), then fully lower the boom.



Caution !

Before any movement, check that no obstacles can impede the manoeuvres.

4.3.1.3 -Switching to «platform» control (Photo 5, page 32)

- Move the key-operated select switch (item 14) to the platform position (green round).
- Check that the tilt sensor is working properly (item 18, Photo 6, page 32).

4.3.2 - Operations from the platform (Photo 7, page 33)

Climb into the basket, respecting the maximum load allowance: if necessary, spread the load all over the platform.

 **Caution !**
MAXIMUM LOAD:

H21TX H23TPX H25TPX: 230 kg
(including 2 people).

NOTA : *If the load in the platform exceeds the maximum authorised load, no movements are possible from the platform control station. The overload light indicator on the platform panel and the buzzer alert the operator. Load must be removed to re-enable the machine. There is no load restriction on the reach.*

4.3.2.1 -Control station test

- Prior to any manoeuvre, ensure that the green indicator light (item 4) is on, signalling that the machine is energised and that the ground/platform select switch is set to platform control.
- Ensure that the emergency stop button (item 14) is released.
- Check the horn is working properly.

4.3.2.2 -Movement test

- To carry out a movement, choose the corresponding controller or selector switch.
- Press the «dead man» pedal and operate the relevant controller.
- The tilting angle and speed of the controllers make the movement gradual.
- If the floor is not horizontal, correct the platform position with the corresponding selector switch.
- Test the telescoping, jib and basket rotation movements with the associated selector switch.
- Test the front axle steering movement using the selector switch located on the travel controller handle, and test the rear axle using the selector switch located on the platform control panel.
- Test the 3 travel speeds by operating the speed selector switch.
- The direction of the movements is indicated by coloured arrows.

NOTA : *High speed is only possible if the machine is stowed.*

Work can now begin.

4.4 - EMERGENCY ASSISTANCE AND RESCUE OPERATIONS

4.4.1 - Emergency assistance using the emergency electric-pump unit



Caution !

Use of the emergency unit is exclusively reserved for rescuing personnel if the main hydraulic power supply fails. Any other use may cause damage.

Movement is possible when the main source of power is operating incorrectly using an electric-pump unit powered by the starter battery. This unit can be activated from either the turntable or the platform control panel.

4.4.2 - Rescue

If the machine is in normal operation and the operator, in the platform, is unable to lower the platform to the ground, an operator at ground level can do so:

- Switch the selection key to the «turntable» position (item 14, Photo 5, page 32).
- Make the movements requires using the controls corresponding to normal operation.

4.4.3 - Uncoupling

Photo 14

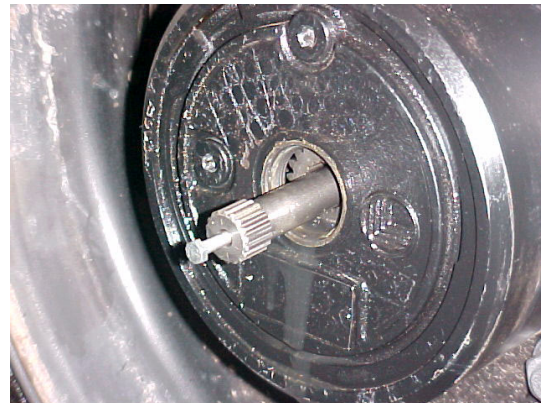
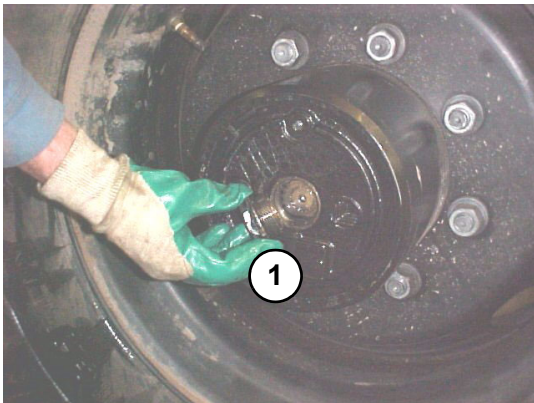


Photo 15

It is possible to uncouple the reducers of the wheels so as to be able to tow the machine.

To tow the machine, use a rigid tow bar in order to avoid any risk of accident.

- Unscrew the cap (item 1 - Photo 14, page 38) (central nut).
- Using a 6 x 50 screw, remove the grooved central pin (item 2 - Photo 15, page 38).
- Screw the cap back into place.

When the cap is removed, oil flows from the reducer.



Caution !

In this configuration, the machine is no longer braked. To tow the machine, it is essential to use a rigid bar and not to exceed 5 kph.

NOTE : *After repair work on the machine it will be necessary :*
** to correctly reposition the cap on each wheel.*
** to top up according to the instructions in Chapter 5.3.2, page 43.*

5 - MAINTENANCE

5.1 - GENERAL RECOMMENDATIONS

The maintenance operations described in this manual are for normal operating conditions.

In harsh conditions (extreme temperature, high humidity, polluting atmosphere, high altitude, etc.) some operations must be performed more frequently and special precautions must be taken. On this subject, consult the motor manufacturer or your local PINGUELY-HAULOTTE agent.

Only authorised, competent personnel are allowed to maintain the machine. They must comply with safety instructions concerning protection of personnel and the environment.



Caution !

-Do not use the machine as a welding earth.

-Do not weld without disconnecting the (+) and (-) terminals of the batteries.

-Do not start other vehicles with the batteries connected.

For the motor, refer to the manufacturer's instructions.

Regularly check that the safety devices are in good working order:









- Tilt: buzzer + stoppage of all movement functions.
- Platform overload: The overload system is set so that it trips before 120% permitted load.
- Switch to micro-speed when the machine is extended.

5.2 - MAINTENANCE CHART

The chart on the next page specifies the frequencies, maintenance areas (devices) and products to be used.

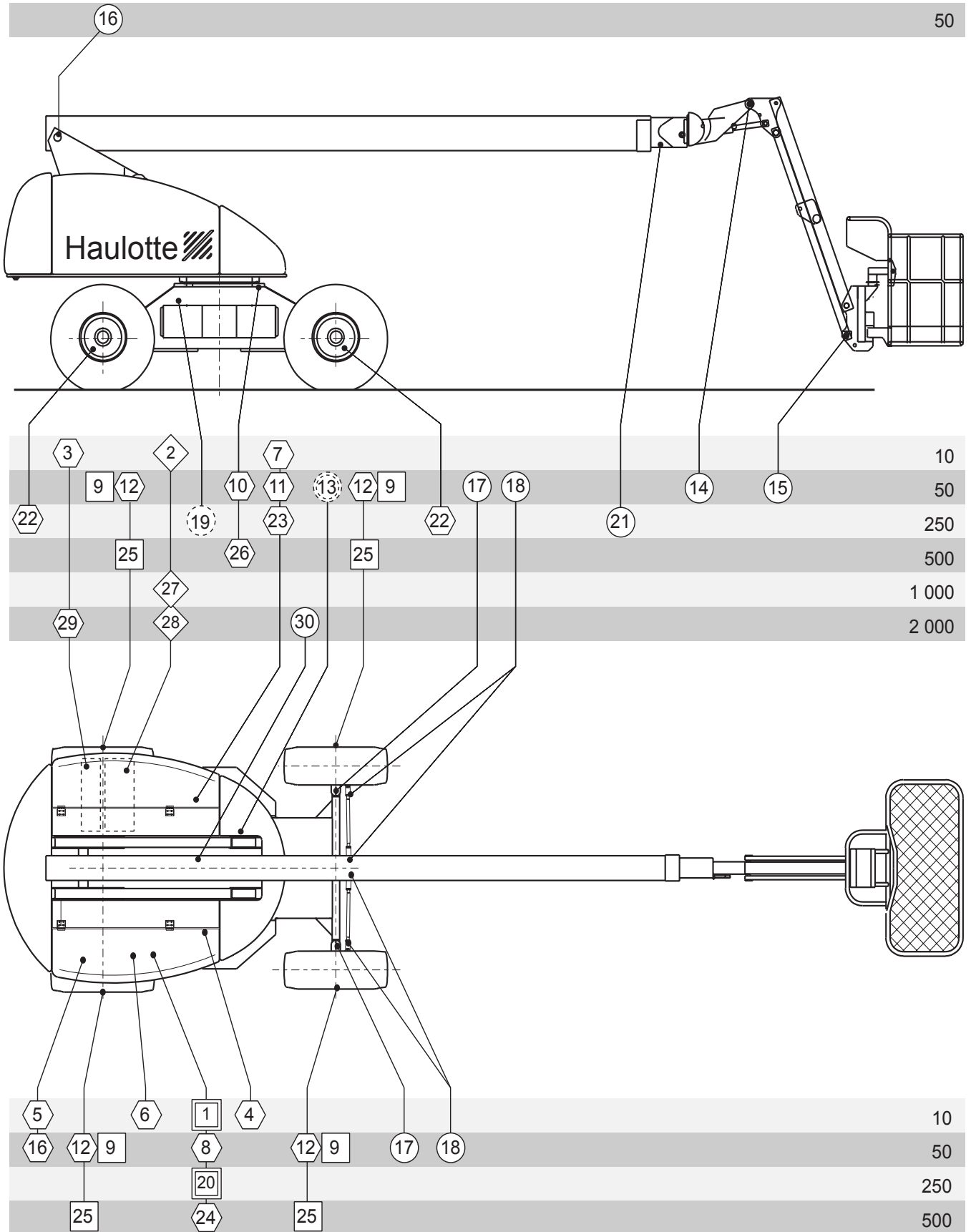
- The mark in the symbol indicates the maintenance point according to frequency.
- The symbol represents the product to use (or the operation to perform).

5.2.1 - Consumables

Consumable	Specification	Symbol	Lubricant used by Pinguely-Haulotte	ELF	TOTAL
Motor oil	SAE 15W40		SHELL RIMULAX		
Casing oil	SAE 80W-90		SHELL SPIRAXA EP80W90	TRANSELF EP 80 W 90	TM 80 W/90
Hydraulic oil	AFNOR 48602 ISO VG 46 catégorie HV		SHELL HYDRAU PW	HYDRELF DS 46	EQUIVIS ZS 46
Biodegradable hydraulic oil (option)			SHELL Naturelle HF-E46		
Lithium grease	KP 2 K		ESSO Beacon EP2	Epaxa 2	
Lithium grease	NLGI 2 EP		ESSO Moly Multi-Purpose Grease	Cadrex GR1 AL	
Lead-free grease	Grade 2 ou 3		ESSO GP GREASE	Multimotive 2	Multis EP 2
Exchange or specific operation					

5.2.2 - Maintenance chart

Hours



5.3 - OPERATIONS

5.3.1 - Summary table

<i>Frequency</i>	<i>Item</i>	<i>Operation</i>
Every day or before each operation start	1	Check levels: <ul style="list-style-type: none"> • motor oil
	2	<ul style="list-style-type: none"> • hydraulic oil
	3	<ul style="list-style-type: none"> • diesel
	4	<ul style="list-style-type: none"> • electric batteries
	5	Check cleanliness: <ul style="list-style-type: none"> • diesel pre-filter, replace if water or impurities are found
	6	<ul style="list-style-type: none"> • motor air filter
	-	<ul style="list-style-type: none"> • machine (in particular, check leak tightness of couplings and hoses), also check state of tyres, cables and all equipment and accessories.
After first 50 hours	7	Check hydraulic oil filter for clogging. Replace the filter cartridge if the clogging indicator is visible.
	-	Check the degree of wear on the swing joint pins.
	8	Change the hydraulic filter cartridge (see frequency 250 hours)
Every 50 hours	9	Empty the drive wheel reducers (see frequency 500 hours) (4 points for the 4x4 model)
	10	Check that the slew ring screws are tight (torque 21,5 daN.m)
	11	Motor: see Manufacturer's manual
Every 250 hours	12	Check the oil level of the drive wheel reducers (see Chapter 5.3.2.2, page 43)
		Lubricate:
	14	<ul style="list-style-type: none"> • jib swing joint pin (for H23TPX and H25TPX): 2 points
	15	<ul style="list-style-type: none"> • basket link part swing joint pin: 4 points
	16	<ul style="list-style-type: none"> • boom base pin: 1 point
	17	<ul style="list-style-type: none"> • wheel pivot pins: 8 points
Every 500 hours	18	<ul style="list-style-type: none"> • steering axle, central pivot and clevis pin: 10 points
	19	Lubricate slew ring : bearing 2 points
	20	Motor: see Manufacturer's instruction sheet
	21	Grease the parts of the telescope mechanism rubbing against each other (spatula). Use the opportunity to check the condition of the friction pads.
	21	Grease the telescoping cable.
OPTION : every 500 hours or every 6 months	22	Check tightness of the wheel nuts (torque: 32 daNm)
	23	Change the hydraulic filter cartridge
	24	Motor: see Manufacturer's instruction sheet
Every 1000 hours or every year	25	Drain the wheel reducers. Fill up: capacity 4 x 1.4 l.
	26	Ring screws: check tightness and retighten if necessary (torque 21,5 daN.m)
Every 2000 hours	27	Empty the hydraulic oil tank completely if you have the «biodegradable hydraulic oil» option
	27	Motor: see manufacturer's manual Drain hydraulic tank Check the tension of the telescoping cables.
Every 3000 hours	28	Drain hydraulic tank and entire circuit
	29	Drain and clean diesel tank
	30	Grease rotation reducer: 1 point
		Check the condition of the safety cable, the telescoping cables and friction pads and the electric cables and hydraulic pipes.

REMINDER: Reminder: All these frequencies must be reduced in the event of work in difficult conditions (consult After-sales service if necessary).

5.3.2 - Procedure

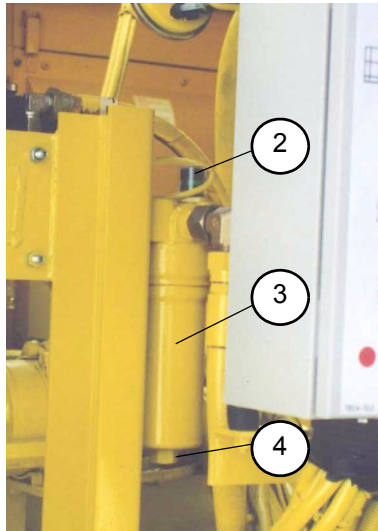


Photo 16

IMPORTANT:

- Only use the lubricants recommended in the table in Chapter 5.3.1, page 42 for filling and greasing.
- Recover the drained oils to avoid environmental pollution.

5.3.2.1 - Hydraulic oil filter: (Photo 16, page 43)

Filter with a clogging indicator.

- change the cartridge (3) if the indicator (2) shows that the filter is clogged.

NOTA : *The clogging check must be carried out while the circuit is hot; otherwise, the light may come on due to oil viscosity.*

- unscrew base nut (4) and remove cartridge
- screw the new cartridge back on.



Caution !

Before removing the filter, ensure that the oil circuit is no longer pressurised and the oil has cooled down sufficiently.

5.3.2.2 -Drive wheel reducers

Photo 17: Wheel reducer



To check the oil level and to do an oil change it is necessary to remove the wheel. To do this, immobilise the machine and raise it using a jack or a hoist.

- Checking the oil level:
 - Rotate the wheel so as to put 1 plug (1) on a horizontal line and 1 plug (2) on a vertical line.
 - Undo the plug (1) and check the level which must be flush with the hole, if necessary top up.
 - Tighten the plug.
- Doing an oil change :
 - In the same position, undo the 2 plugs and let the oil run out.
 - Fill as indicated above.
 - Tighten the plugs.

5.3.2.3 -Slew ring

If the slew ring is dismantled, use a brush to apply grease to the inner teeth. Use the consumables recommended in Chapter 5.2.1, page 40.

5.3.3 - List of consumables

- Hydraulic filter cartridge
- Air filter element
- Diesel pre-filter
- Diesel filter
- Motor oil filter

6 - TROUBLESHOOTING

REMINDER: You can prevent most incidents by respecting the machine operation and maintenance instructions. However, an incident may still occur. Before attempting to repair, it is essential to check the chart in Chapter 6, page 45 to see if the problem is listed. If it is, just follow the instructions.

Otherwise, contact the PINGUELY-HAULOTTE agent or the factory After-Sales Department.

Before diagnosing a malfunction, check that:

- the fuel tank is not empty
- the batteries are properly charged
- the emergency stop buttons on the turntable and platform control panels are unlocked.

INCIDENTS	LIKELY CAUSES	SOLUTIONS
Motor does not start or stops	<ul style="list-style-type: none"> • Fuel tank empty • Electric batteries discharged • Fuse on PCB (in electrics box) defective • Emergency stop button pressed down • Motor safety device activated: oil pressure, overheat, alternator charge • Charging light bulb burnt out • Air filter clogging light on • Motor safety relay defective • Battery cables and terminals poorly connected 	<ul style="list-style-type: none"> • Fill tank • Recharge batteries • Replace defective fuses • Reset • See manufacturer's manual or call After-Sales Department • Change bulb • Change cartridge • Replace relay • Unscrew terminals and clean
Lack of pressure or power at pump	<ul style="list-style-type: none"> • Air filter clogged • Motor speed too low • Oil leak from coupling, hose, part • Clogged oil filter 	<ul style="list-style-type: none"> • Change the filter • Adjust speed (call ASD) • Repair or replace (call ASD) • Replace oil filter cartridge
No functions working from platform (no buzzer)	<ul style="list-style-type: none"> • Turntable key selector switch in wrong position • Dead man safety device not activated • Controller operating fault • Electrovalve fault on selected movement • Lack of hydraulic oil 	<ul style="list-style-type: none"> • Move switch to platform position • Press Dead man pedal and hold down during movement • Replace controller (consult ASD) • Replace electrovalve or coil • Fill up
No functions working from platform (buzzer)	<ul style="list-style-type: none"> • Platform overload • Too much tilt 	<ul style="list-style-type: none"> • Unload • Withdraw the telescope, lower the boom and restore tilt to reset
No high speed	<ul style="list-style-type: none"> • Platform slightly up 	<ul style="list-style-type: none"> • Lower the boom totally
No steering movement	<ul style="list-style-type: none"> • Lack of hydraulic oil 	<ul style="list-style-type: none"> • Top up
Turntable not rotating	<ul style="list-style-type: none"> • Lock pin is engaged in chassis 	<ul style="list-style-type: none"> • Remove pin
Hydraulic pump making a noise	<ul style="list-style-type: none"> • Lack of oil in tank 	<ul style="list-style-type: none"> • Top up
Cavitation in hydraulic pump	<ul style="list-style-type: none"> • Oil viscosity too high 	<ul style="list-style-type: none"> • Drain circuit and replace by specified oil
One drive wheel not gripping	<ul style="list-style-type: none"> • Insufficient load on one wheel 	<ul style="list-style-type: none"> • Press the lock button

INCIDENTS	LIKELY CAUSES	SOLUTIONS
Buzzer sounding	<ul style="list-style-type: none">• Slope or tilt > allowed limit• Platform load near cut-out threshold• Hydraulic oil temperature too high	<ul style="list-style-type: none">• Reset by withdrawing the telescope and lowering boom• Reduce load• Leave to cool
Motor pump not working	<ul style="list-style-type: none">• Battery cut-out open• Fuses faulty• Batteries faulty or discharged• Battery cables not making contact	<ul style="list-style-type: none">• Close battery cut-out• Replace fuses• Replace or recharge batteries• Clean and tighten terminals

7 - SAFETY SYSTEM

7.1 - FUNCTIONS OF RELAYS AND FUSES IN TURNTABLE CABINET

(see wiring diagram)

<i>Item</i>	<i>Description</i>
KA2	Starting of thermal motor
KA43	Emergency unit breaking
KP1	Stopping of thermal motor
KT2	Accelerator
KMG	Mains supply
KM4	Electropump contactor
FU01-10 A	Motor stop circuit fuse
FU04-30 A	General circuit fuse
FU05-3 A	Fuse for circuit for controlling movements from turret
FU06-3 A	Fuse for circuit for controlling movements from platform
FU07-20 A	Solenoid valve supply circuit fuse
FU08-5 A	Turret/platform control circuit fuse
FU09-20 A	Accessories circuit fuse
FU10-3 A	Circuit fuse
FU13-250 A	Emergency pump circuit fuse

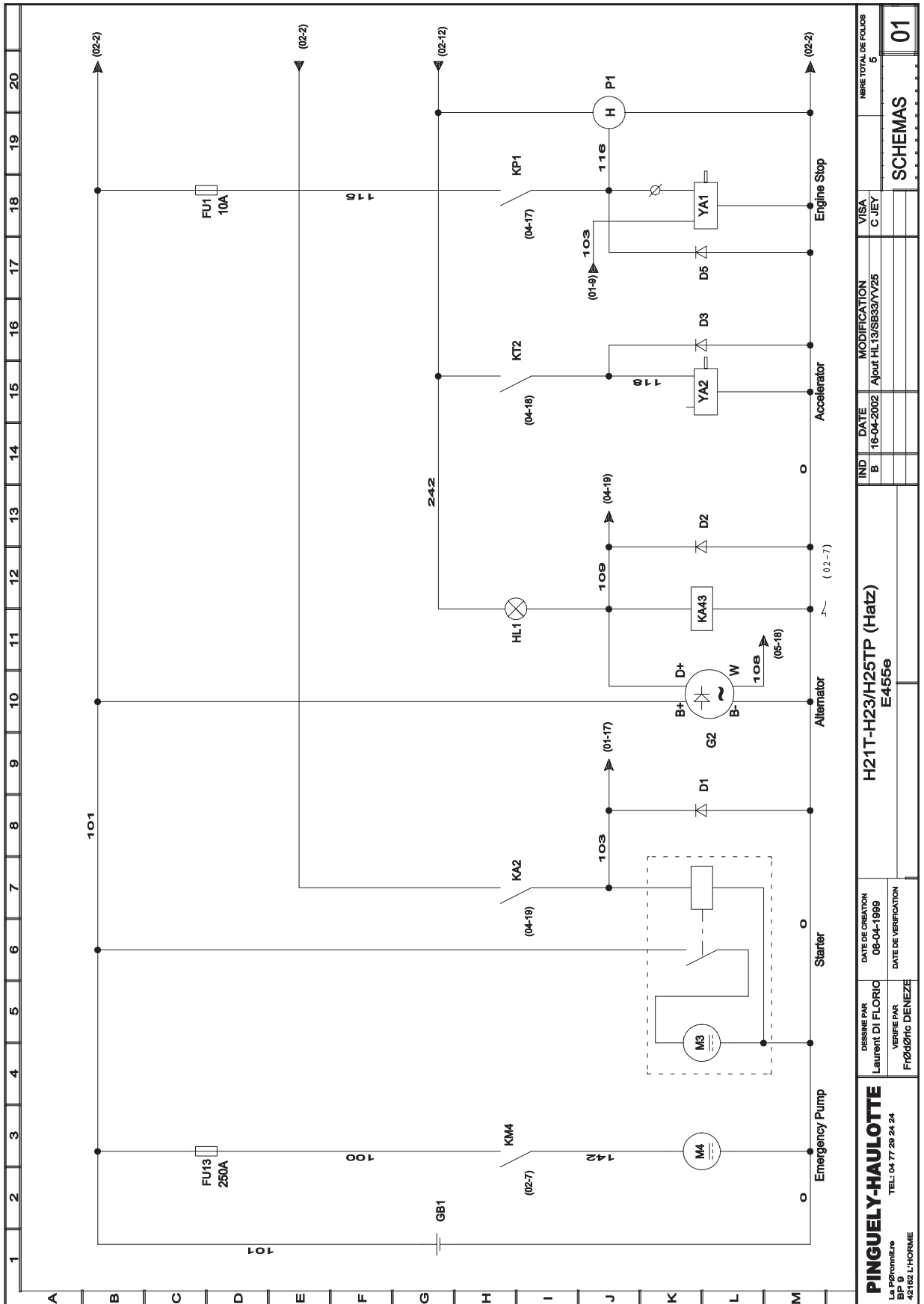
7.2 - FUNCTIONS OF SAFETY CONTACTS

(see wiring diagram)

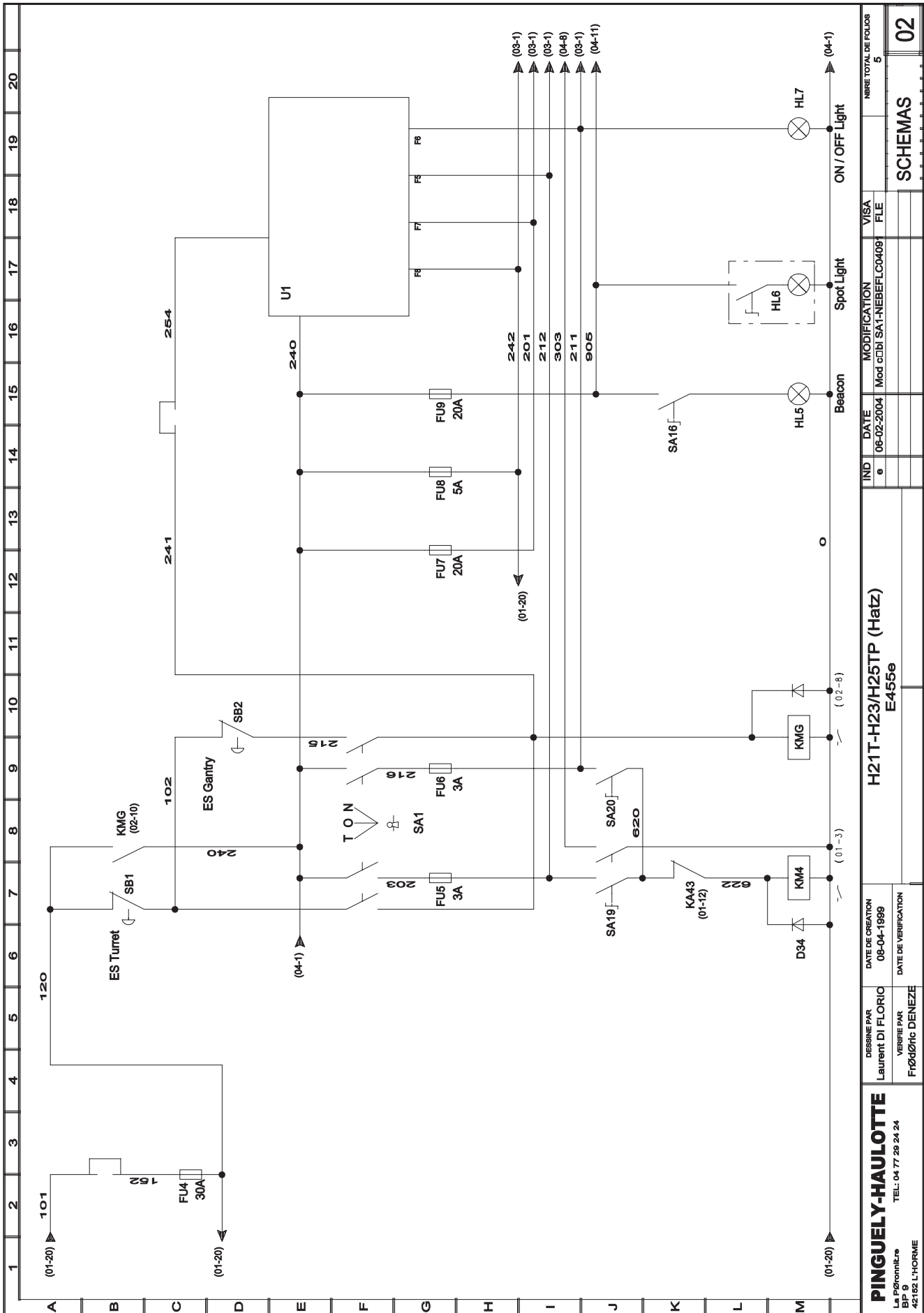
<i>Repère</i>	<i>Désignation</i>
B1	Air filter switch: Engine cut-out if air filter clogged
B3	Engine oil pressure switch: Engine cut-out if pressure insufficient
B4	Hydraulic oil temperature switch: audible warning if temperature too high
SB1	Mushroom-headed emergency stop button (turret)
SB2	Mushroom-headed emergency stop button (platform)
SB6	Fail-safe pedal
SQ1	Tilt unit, prohibits by a cut, the arm lifting, boom raising, telescoping, pendular raising and travel movements
SQ2	Jib
SQ3	Tilt reset, if machine boom lowered .
SQ5/ SQ6	Overload
SQ7	Range limitation
SQ8	Range limitation
SQ9	Telescope
SQ10	Limitation de portée
SQ11	Limitation de portée
SQ14	Cable break
SQ20/ SQ21	Basket rotation breaking

8 - WIRING DIAGRAM

8.1 - E 455 DIAGRAM - PAGE 01/05

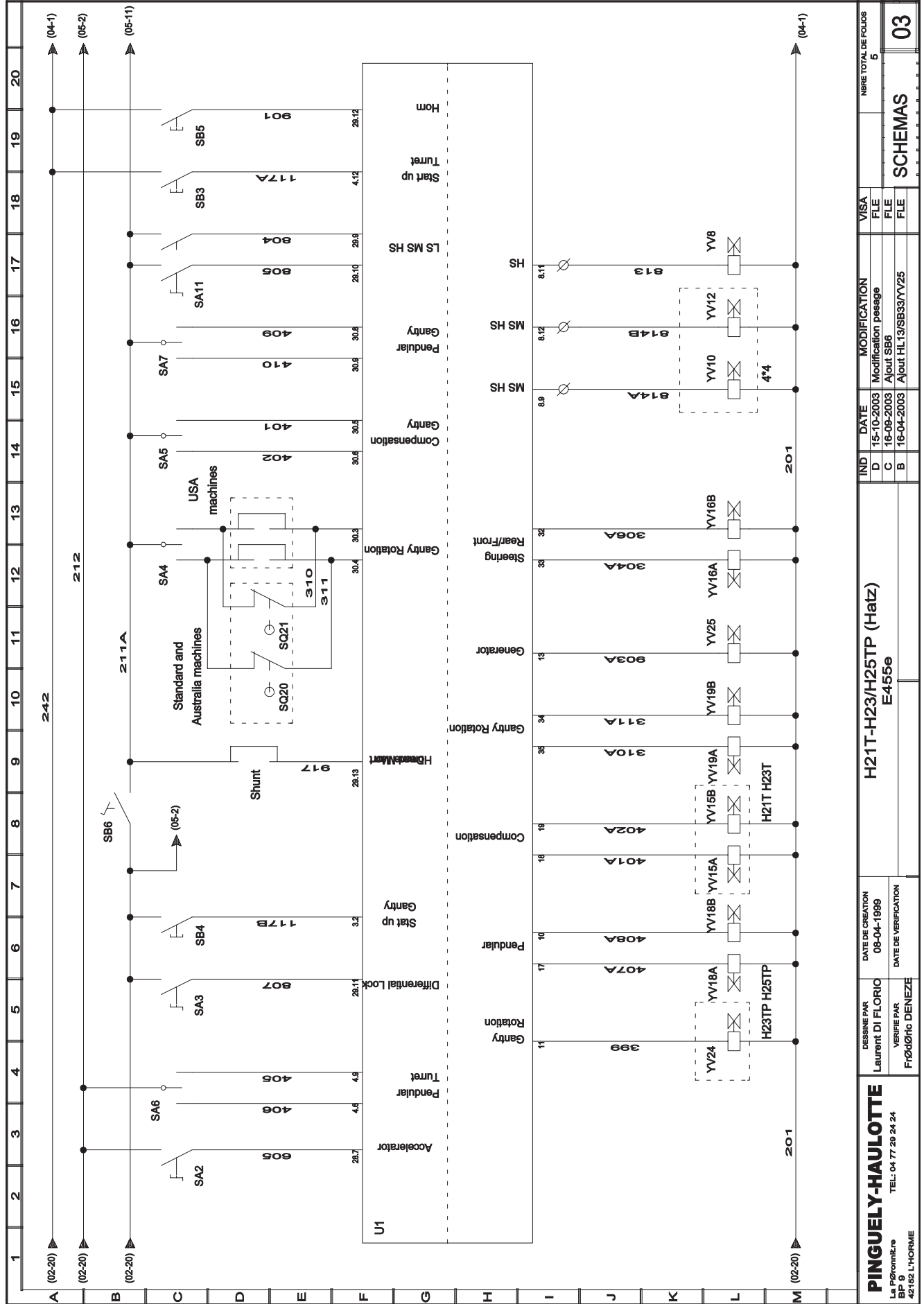


8.2 - E 455 DIAGRAM - PAGE 02/05

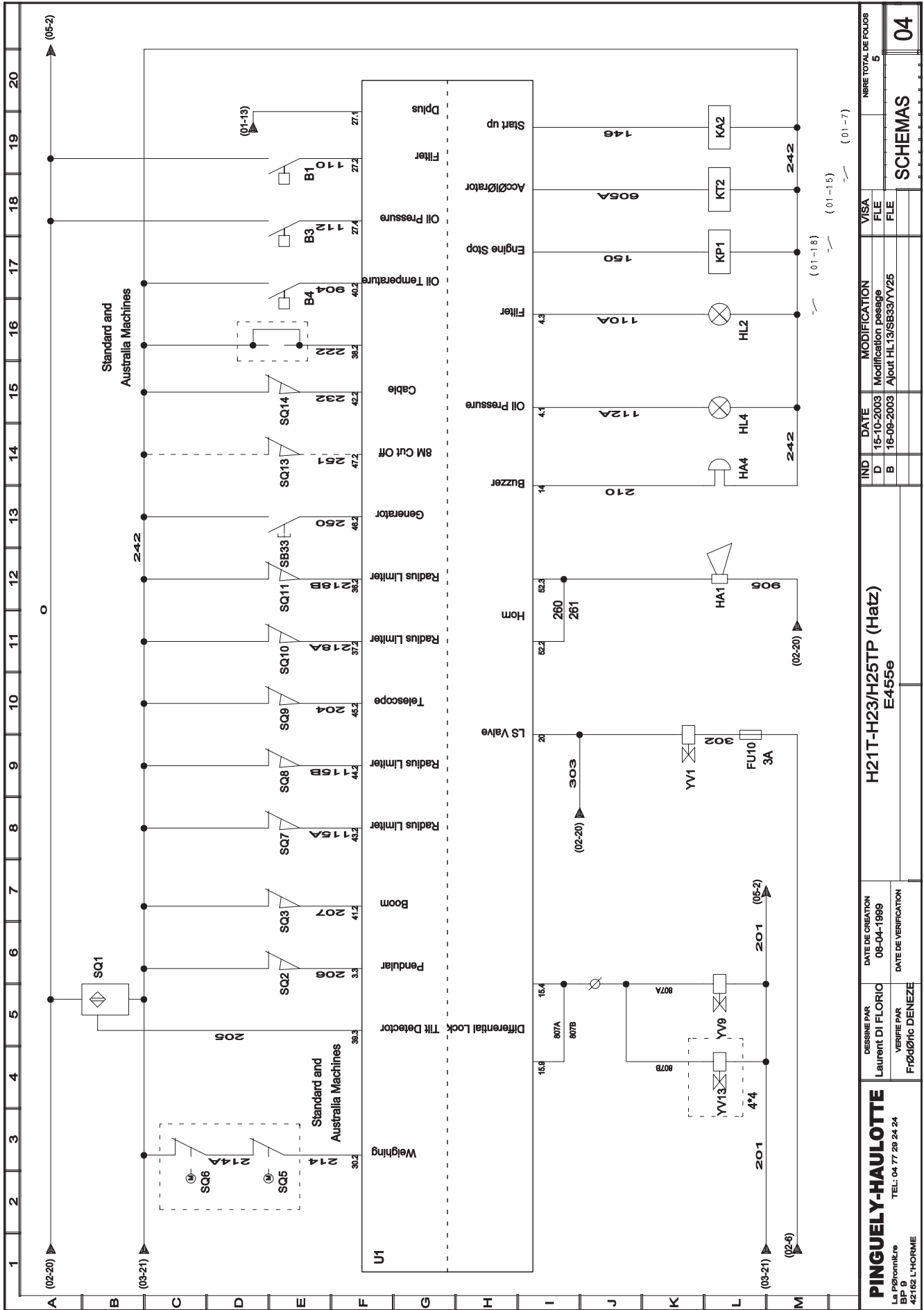


PINGUELY-HAULOTTE La Pinguely BP 9 42152 L'HORME		DESSEIN PAR Laurent DI FLORIC	DATE DE CREATION 05-04-1999	H21T-H23/H25TP (Hatz) E-455e		IND e	DATE 06-02-2004	MODIFICATION Mod c01 SA1-NEBEFLC0409	VISA FILE	NOMBRE TOTAL DE FOLIOS 5	
										SCHEMAS	
										02	

8.3 - E 455 DIAGRAM - PAGE 03/05

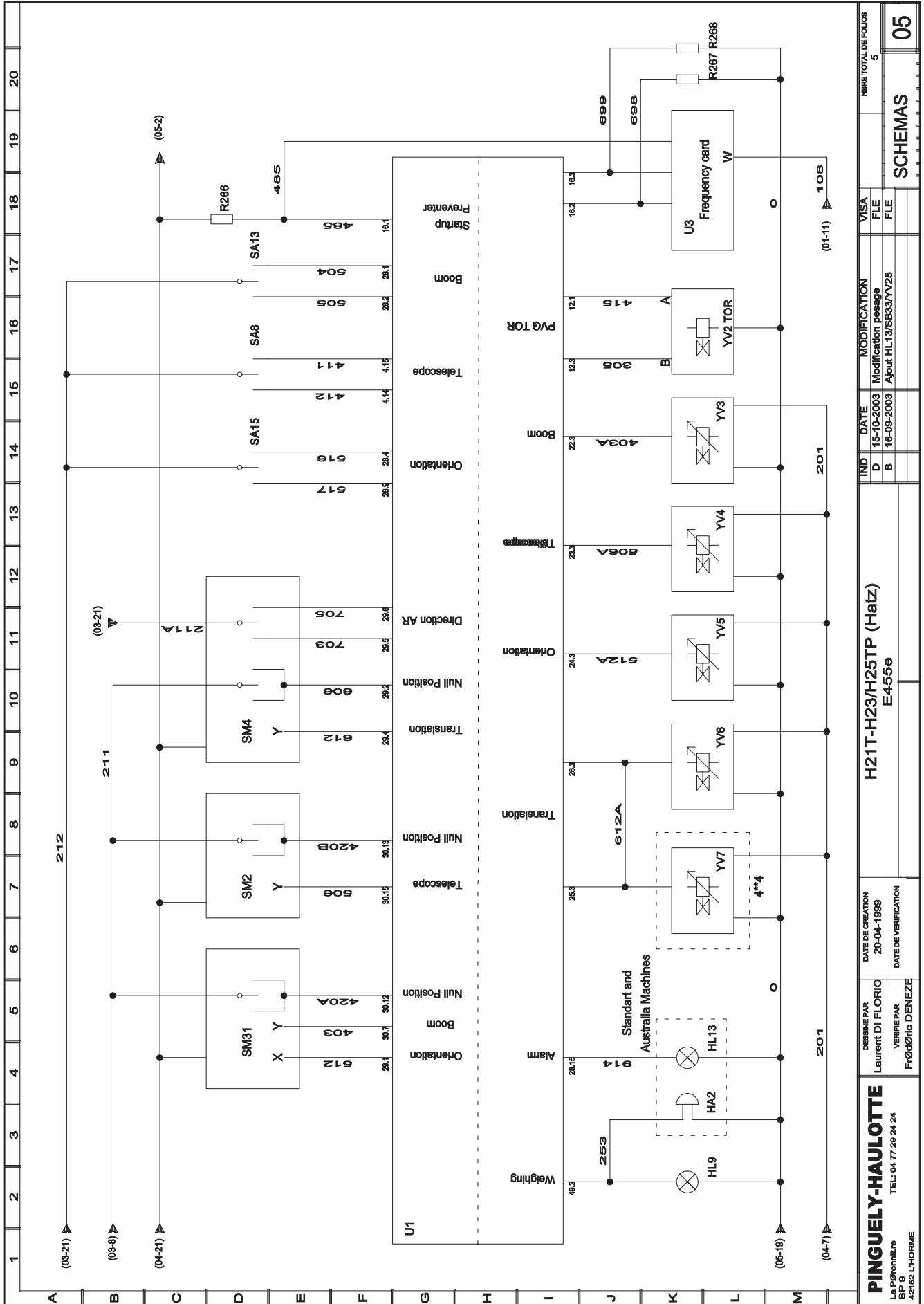


8.4 - E 455 DIAGRAM - PAGE 04/05



PINGUELY-HAULOTTE La Pinguely BP 9 42162 L'HORME		DESSINE PAR Laurent DI FLORIC		DATE DE CREATION 08-04-1999		IND		DATE		MODIFICATION		VISA		NBR TOTAL DE FOLIOS 5			
		VERIFIE PAR F10007C DENEZE		DATE DE VERIFICATION		D		15-10-2003		Modification pesage		FILE					
						B		16-09-2003		Ajout HL13/SB33/YV25		FILE					
H21T-H23/H25TP (Hatz) E-455e														SCHEMAS		04	

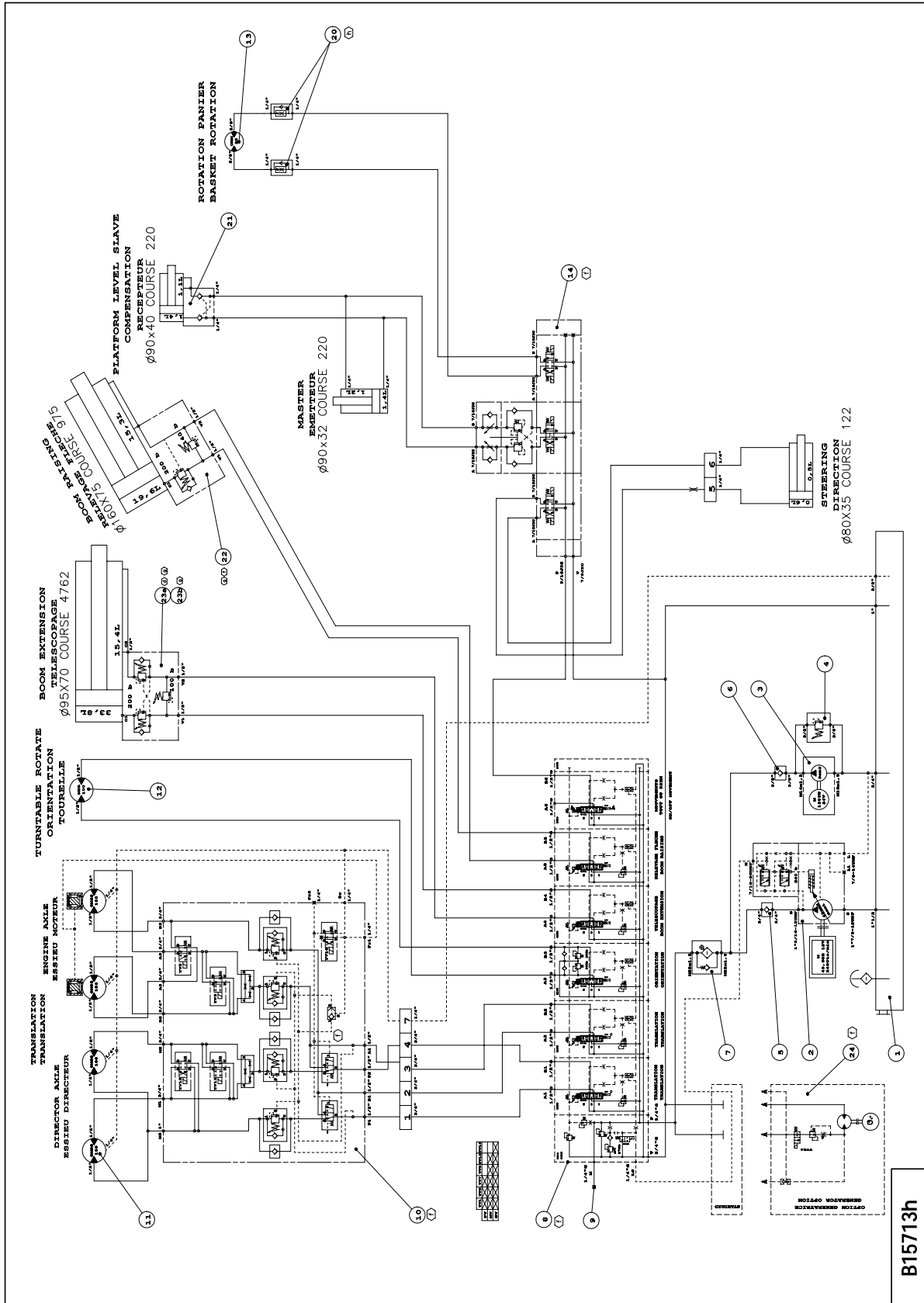
8.5 - E 455 DIAGRAM - PAGE 05/05



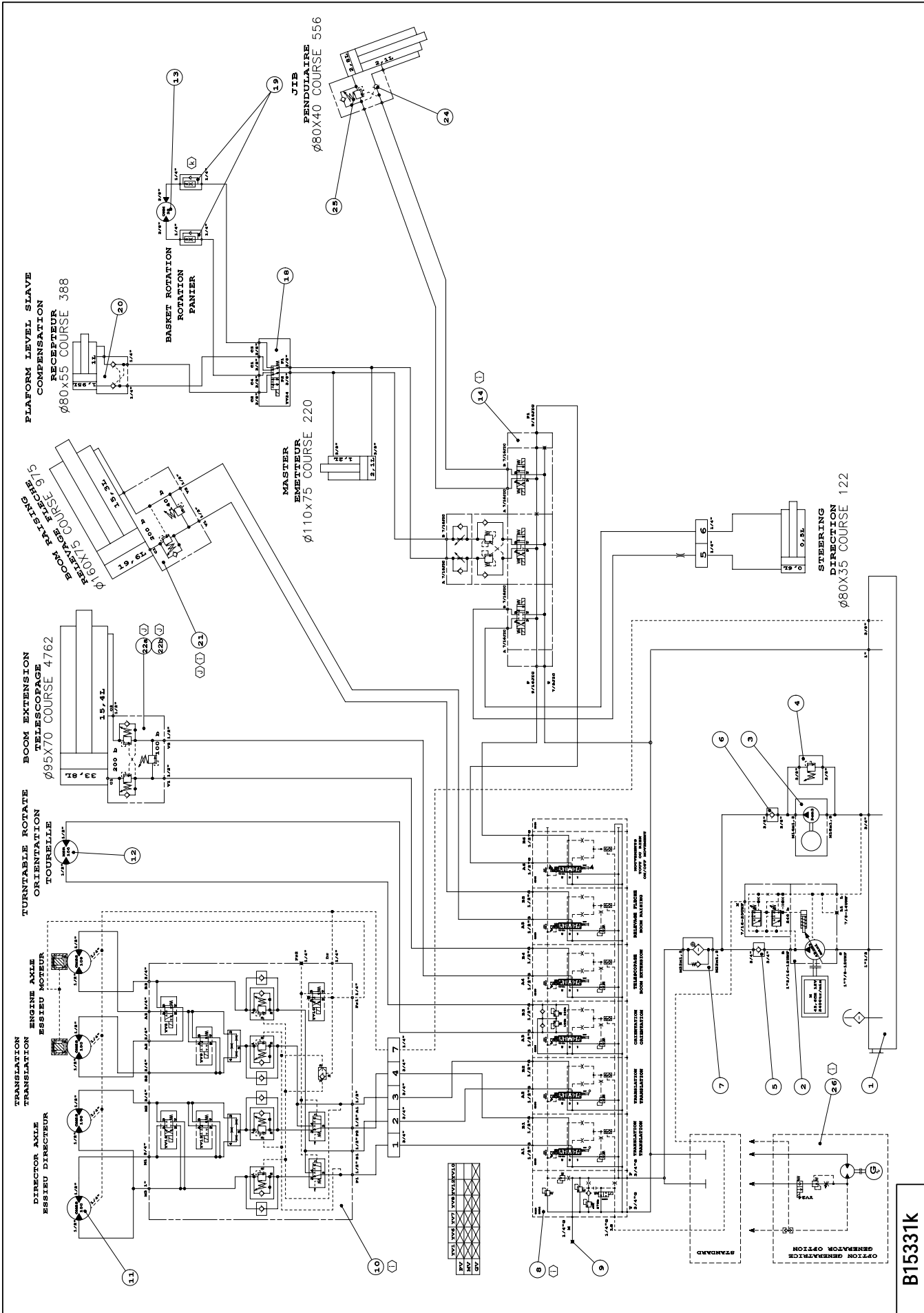
PINGUELY-HAULOTTE La Pinguely BP 9 42152 L'HORME		DATE DE CREATION 20-04-1999		DATE DE VERIFICATION		IND. DATE. DATE. MODIFICATION		VISA		NOMBRE TOTAL DE FOLIOS	
Dessiné par Laurent DI FLORIO		20-04-1999		FRÉDÉRIC DENEZE		D 15-10-2003 B 16-08-2003		Modification passage Ajout HL13/SB33/YV25		5	
VERIFIÉ PAR FRÉDÉRIC DENEZE										SCHEMAS	
										05	

9 - HYDRAULIC DIAGRAMS

9.1 - DIAGRAM H21TX REFERENCE B15713



9.2 - DIAGRAM H23TPX / H25TPX REFERENCE B15331



B15331k