Haulotte GROUP

CE

OPERATING AND MAINTENANCE INSTRUCTIONS

SELF-PROPELLED LIFT
H14T(X) - H16TP(X)

242 032 1790 - E 01.07 GB

Registered Quality System ISO 9001 V2000 Haulotte GROUP CERTIFIED COMPANY

WWW.HAULOTTE.COM

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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.

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 **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 **Haulotte**. The EEC declaration will become null and void and **Haulotte** will disclaim regulation responsibility.

2. END OF THE WARRANTY

The contractual warranty offered by **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 **Haulotte**.

FOR YOUR SECURITY, REQUIRE HAULOTTE ORIGINAL SPARE-PARTS

4. QUALITY

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

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

5. AVAILABILITY

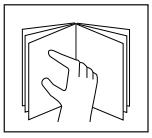
Using Haulotte original spare-parts allows you to take advantage of 40 000 references available in our permanent stock and a 98% service rate.

WHY NOT TAKE ADVANTAGE ?

CONTENTS

1 - GENERAL RECOMMENDATIONS - SAFETY

1.1 - GENERAL WARNING



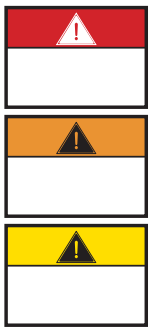
1.1.1 - Manual

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 instructioelelns 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

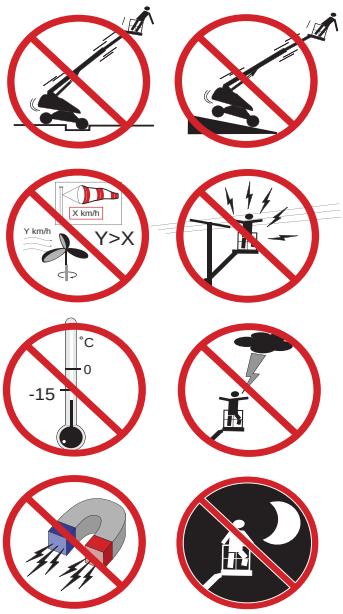
1.2.1 - Operators

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:

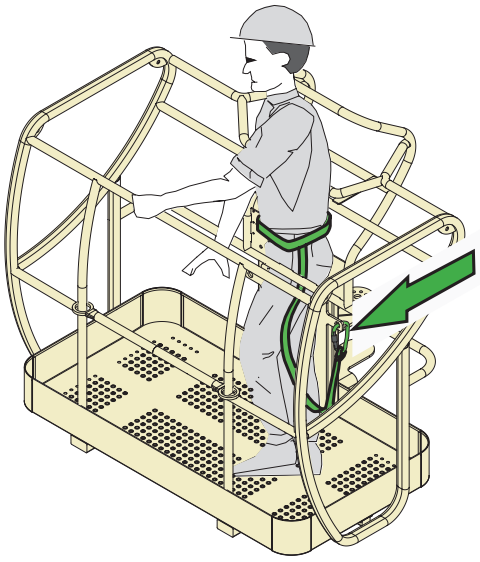
- On ground that is soft, unstable, congested.
- On a ground that has a slope greater than permissible limit.
- In winds greater than the permissible limit. If used outside, use an anemometer to ensure that the wind speed does not exceed the permissible limit.
- Near power lines (check minimum safe approach 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.
- Anyone working onboard the platform must wear a safety harness which should be attached to the usual fixing point with a strap. Attach one strap only per fixing point.
- 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.

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

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.

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.

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 2005-04 dated 24 March 2005 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 mainteance operation table
- look out for any danaged, 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

1.8 - MINIMUM SAFETY DISTANCES

Our machines are not insulated, hence, it is important to maintain a safety distance from the electrical power cables and devices according to applicable government regulations and the following diagram :

Voltage	Minimum safety distance meters	
	meters	feet
Up to 300V	avoid contact	
from 300 V to 50 kV	3	10
from 50 kV to 200 kV	5	15
from 200 kV to 350 kV	6	20
from 350 kV to 500 kV	8	25
from 500 kV to 750 kV	11	35
from 750 kV to 1000 kV	14	45

2 - PRESENTATION

Self-propelled platforms, models H14TX and H16TPX, are designed for all types of overhead work within the limits of their characteristics (Chap 2.4, “technical characteristics”, page 11) and provided all the safety recommendations specific to the equipment and operating environment are respected.

The main control panel is situated in the platform.

The control panel situated on the turntable is to be used in emergencies or cases of machine failure.

2.1 - IDENTIFICATION

A plate, fixed to the rear of the chassis on the right, is engraved with all the indications necessary for machine identification.

Fig. 1 - Manufacturer’s plate

Haulotte GROUP

PINGUELY HAULOTTE, La Péronnière, BP9
42152 L'Horme - France

CE

EQUIPMENT	
TYPE	
SERIAL N°	
TOTAL WEIGHT	kg
YEAR OF MANUFACTURE	
NOMINAL POWER	kW
MAXIMUM LOAD	kg
NUMBER OF PERSONS + LOAD	P + kg
LATERAL FORCE MAX.	N
WINDSPEED MAX.	m/s
SLOPE OPERATION MAX.	degres
GRADEABILITY	%

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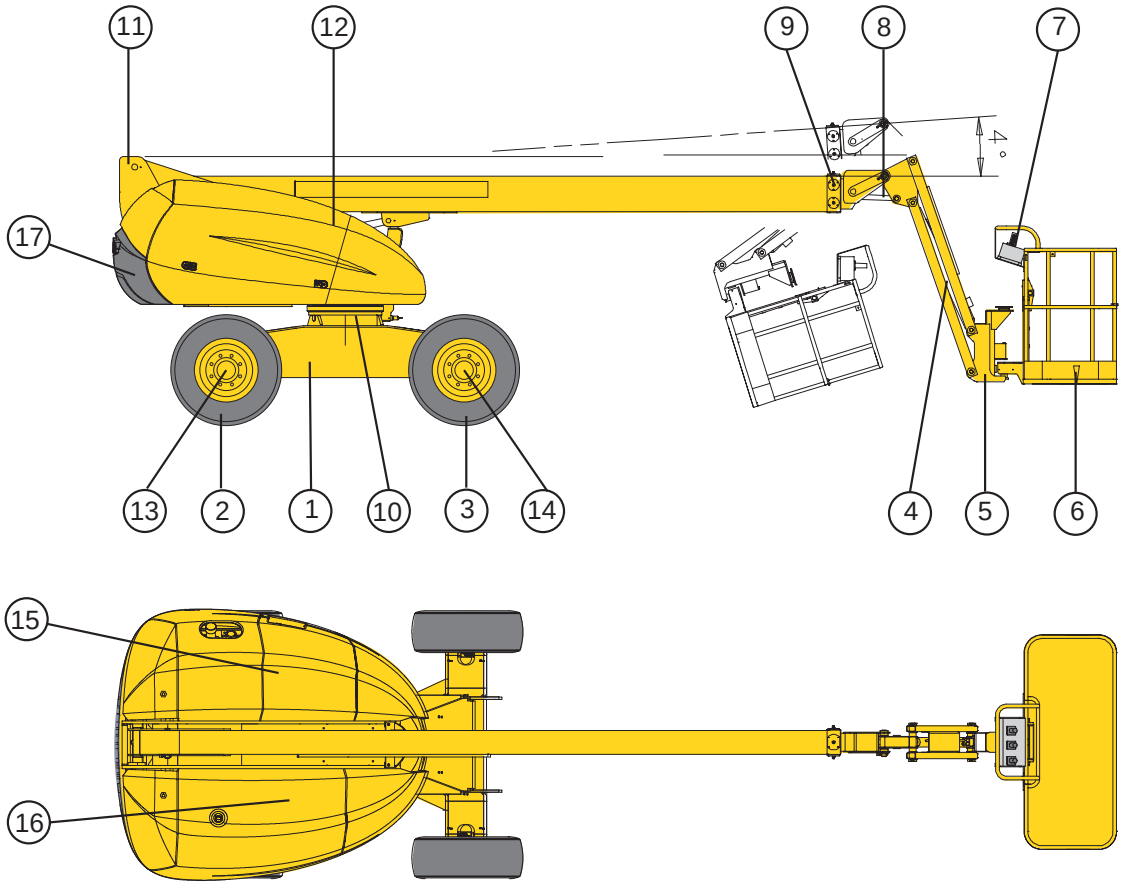
REMINDER: For all requests for information, intervention or spare parts, please specify the machine type and serial number.

2.2 - MAIN COMPONENTS

Fig. 2 - Main components

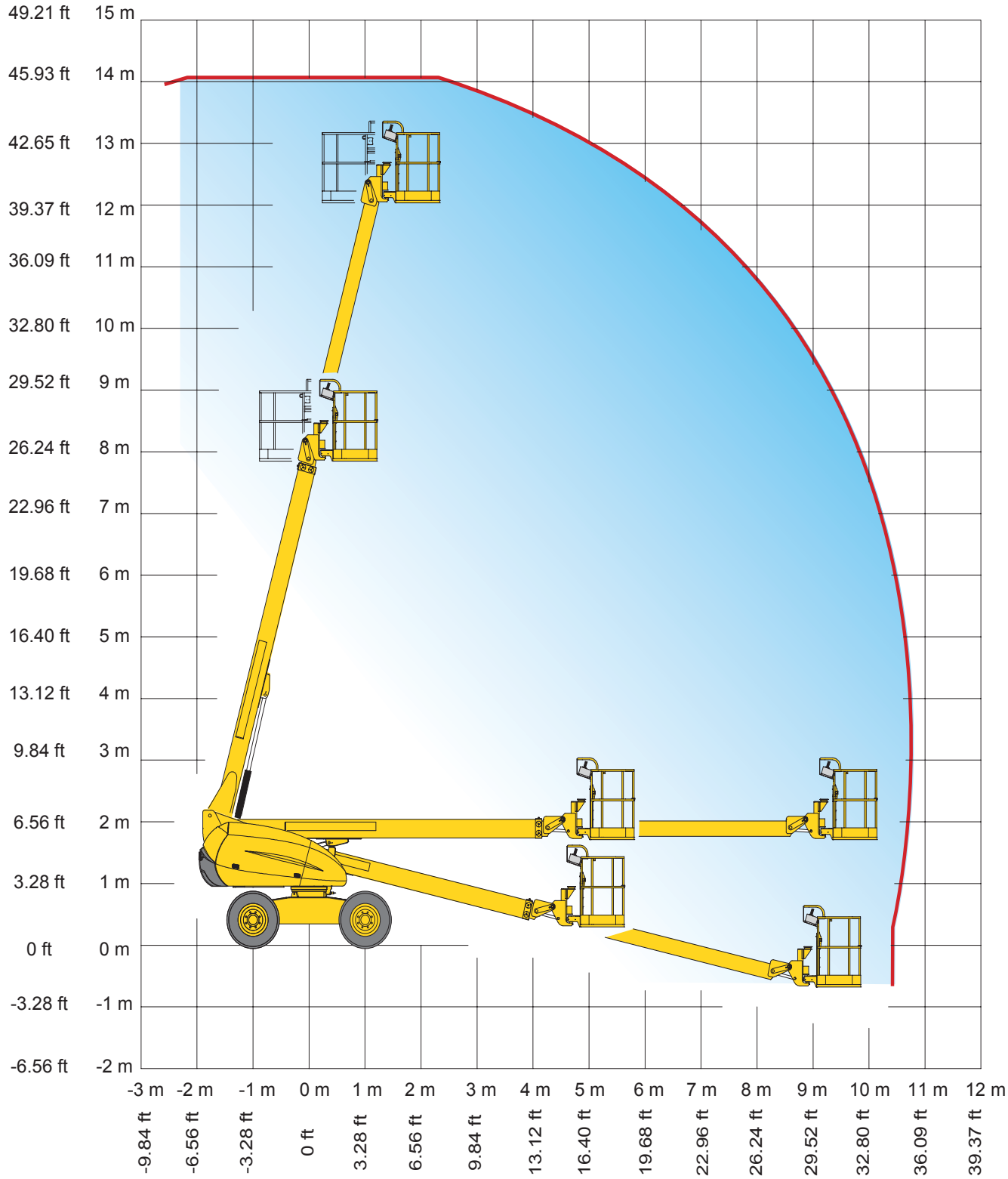


1 -rolling chassis	10 -slew ring
2 - front drive wheels	11 -turntable
3 - rear drive (version 4x4) and steering wheels	12 -covers
4 - jib	13 - hydraulic travel motors and reducer
5 - platform support with load limiter	14 -hydraulic travel motors and reducer (version 4x4)
6 -platform	15 - right compartment (control panel diesel and hydraulic tank)
7 - platform control desk	16 -left compartment (motor + pump + ignition battery)
8 - compensation receiving cylinder	17 - counter-weight
9 -two-element boom	

2.3 - WORK AREA

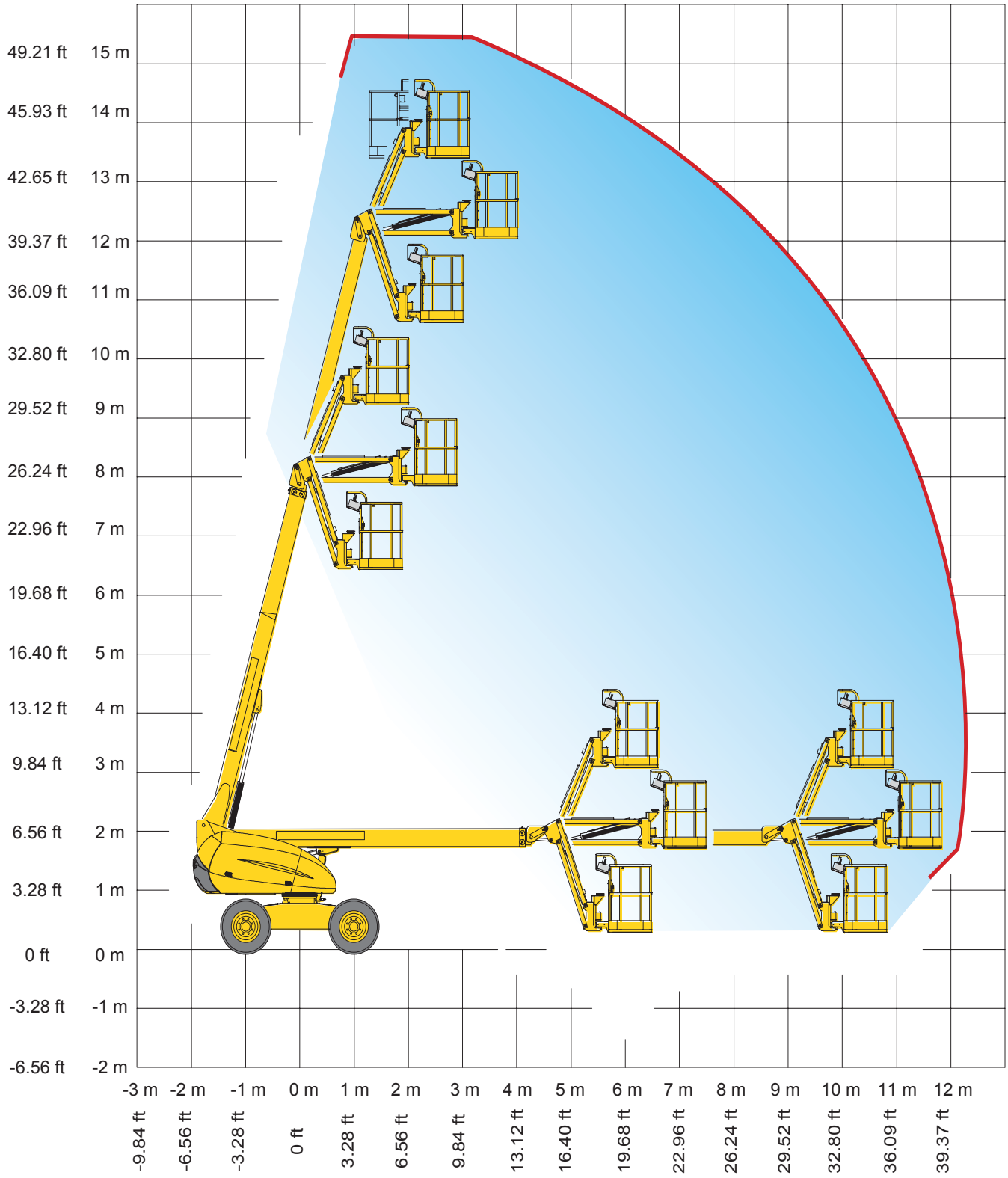
2.3.1 - H14T(X) work area

Fig. 3 - I H14T(X) work area



2.3.2 - H16TP(X) work area

Fig. 4 - H16TP(X) work area



2.4 - TECHNICAL CHARACTERISTICS

2.4.1 - H14T(X) technical characteristics

DESCRIPTION	H14T(X)	Unit
Load	230 2 people	Kg
Max. lateral manual force	400	N
Max wind speed	60	Km/h
Floor height	12.07	m
Working height	14.07	m
Overall length	7.58	m
Overall width	2.27	m
Overall height	2.20	m
Wheel base	2.00	m
Floor clearance	0.346	m
Max bearing distance	10.6	m
Boom range	-13°/75°	°
Telescoping (travel)	4.33	m
Turntable rotation	360° continuous	°
Reducer (torque)	950	m.N
Max travel slope 4*4	 50	%
Tyre dimensions	14 - 17.5 SKS HAULER	
Interior turning radius	2	m
Max allowed tilt	5	°
Hydraulic tank	150	l
Fuel tank	150	l
Total weight 4*4	 6040	Kg
Number of drive wheels 4*4	 4	
Number of steering wheels	2	
Differential blocking	yes	
Hydraulic brakes	2	
Freewheel	yes	
Tightening torque: - Wheel nuts - Slew ring	 320 87 (§ 5.3.2)	m.N
DEUTZ diesel motor - Power - Idling power - Consumption - Idling consumption	F3L1011F 38 CV/28.33 hp / 28 Kw at 2400 rpm 20.4 CH/15.21 hp / 15KW at 1250 rpm 2309 kwh 2309 kwh	
Hydraulic pump 45 cm^3/rev	yes 85 l/min max	
Hydraulic pressure: - General - Travel - Steering - Slew	 24 24 24 10	MPa
Travel speed Low speed Medium speed High speed	 1.6 3 6	Km/h
Max. force on one wheel	3100	Kg

DESCRIPTION	H14T(X)	Unit
Max pressure on the floor - hard floor (concrete) - soft floor (beaten earth)	 8,3 3,1	daN/cm²
Ignition battery	12 V - 95 Ah - 450 A	
Supply voltage	12	V
Acoustic power	104	dB
Sound level at 10 m	71.5	dB

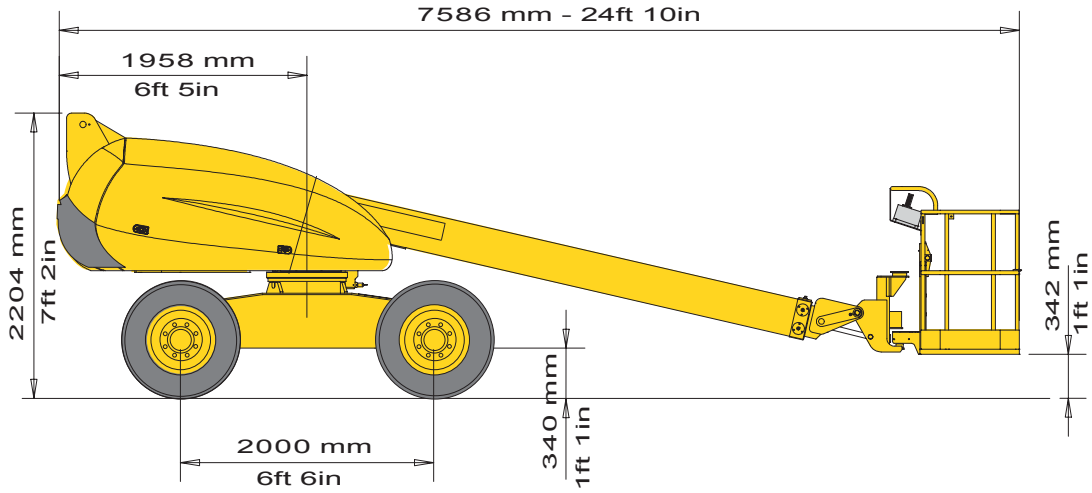
2.4.2 - Technical characteristics H16TP(X)

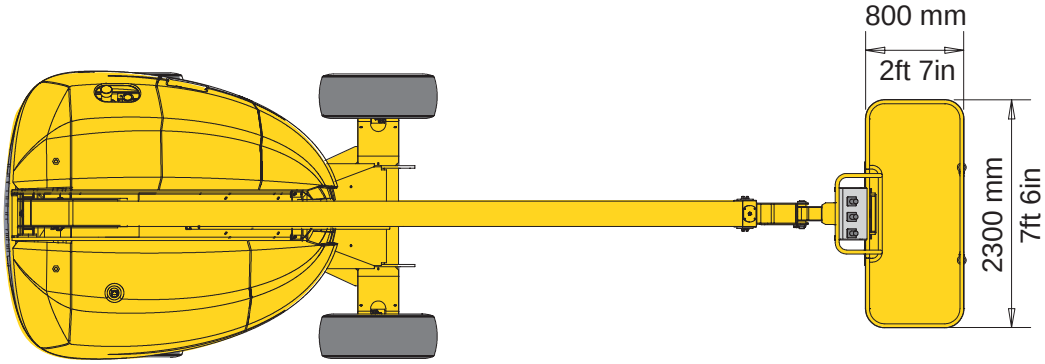
DESCRIPTION	H16TP(X)		Unit
	Standart basket 1800*800	Option basket 2300*800	
Load	230 (2 persons)	230 (2 persons)	Kg
Max. lateral manual force	400		N
Max wind speed	45		Km/h
Floor height	13.44		m
Working height	15.44		m
Overall length	8.42		m
Overall width	2.30		m
Overall height	2.21		m
Wheel base	2 .00		m
Floor clearance	0.35		m
Max bearing distance	12.30		m
Boom range	-1°/+75°		°
Turntable rotation	360° continue		°
Max travel slope 4*4	 50		%
Tyre dimensions	14 - 17.5 SKS HAULER		
Interior turning radius	2		m
Max allowed tilt	5		°
Hydraulic tank	150		l
Fuel tank	150		l
Total weight 4*4	 6600		Kg
Number of drive wheels 4*4	 4		
Number of steering wheels	2		
Differential blocking	oui		
Hydraulic brakes	2		
Freewheel	oui		
Tightening torque: - Wheel nuts - Slew ring	 320 87 (§ 5.3.2)		m.N
DEUTZ diesel motor - Power - Idling power - Consumption - Idling consumption	F3L1011F 38 CH/ 28.33 hp/ 28 Kw à 2400 tr/mn 20.4 CH/ 15.21 hp / 15KW à 1250 tr/min 2309 kwh 2309 kwh		
Hydraulic pump 45 cm^3/rev	85 l/min maxi		
Hydraulic pressure: - General - Travel - Steering - Slew	 24 24 24 10		MPa

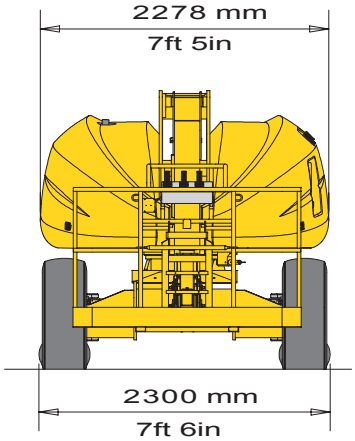
DESCRIPTION	H16TP(X)	Unit
Travel speed Low speed Medium speed High speed	 1.6 3 6	Km/h
Max. force on one wheel	3596	Kg
Max pressure on the floor - hard floor (concrete) - soft floor (beaten earth)	 9,3 3,4	daN/cm²
Ignition battery	12 V-95Ah-450A	
Supply voltage	12	V
Acoustic power	104	dB
Sound level at 10 m	71.5	dB

2.5 - SIZE

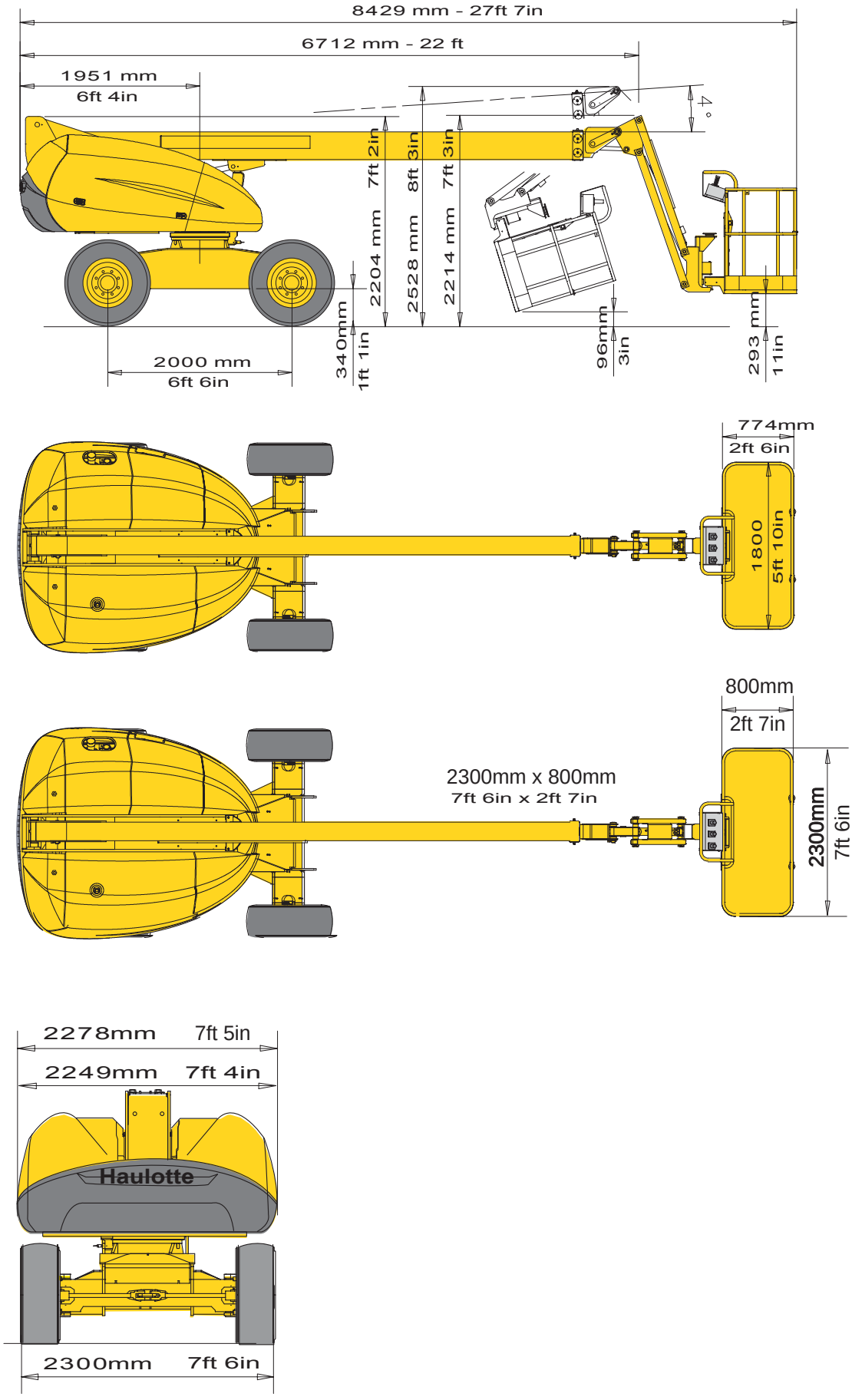
2.5.1 - H14T(X) size







2.5.2 - H16TP(X) size



2.6 - LABELS

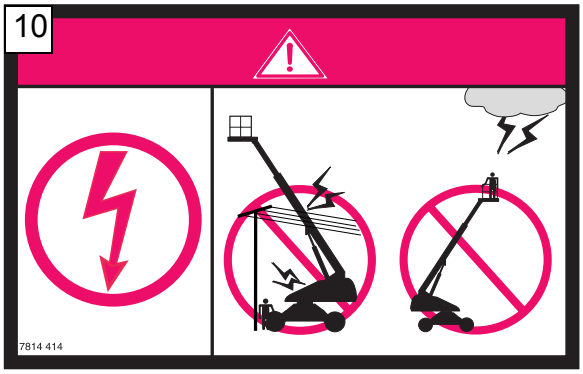
2.6.1 - Label references

Ref	Code	Qty	Description
2	3078148220	2	H14TX logo
2	3078148210	2	H16TPX logo
5	3078146020	2	H14TX floor height + load
5	3078149210	2	H16TPX floor height + load
7	3078143450	1	Operating instructions
8	307P218080	1	Manufacturer's plate
9	3078144130	2	Do not park in the work area
10	3078144140	1	Danger of electrocution
11	3078143520	1	Hydraulic oil
12	3078145070	1	Danger, travel direction
13	3078143590	1	Oil level
17	3078143640	1	Do not stand on the cover
19	3078143600	2	Do not use as an earth
20	3078143540a	1	Socket 220V
21	3078143680b	1	Read operating manual
30	2420505950	1	Warranty activation
31	3078145180	1	Do not exchange
33	3078144490	4	Sling load capacity for Australia
34	3078144510	1	Fuel tank filling for Australia
40	2421808660	1	Yellow and black reflective adhesive marking
41	3078143570	1	Greasing the slew ring
42	3078143530	1	Remove the pin
44	3078143630	2	Danger of body crushing
47	3078146480	2	Vertical H16TP logo
48	3078143930	1	Green arrow
49	3078143940	1	Red arrow
50	307P217770	1	Haulotte logo
52	3078144530	1	Emergency operation for Australia
53	3078144520	2	Harness load for Australia
54	307P217080	2	Large size Haulotte logo
55	307P218290	1	Manual trouble-shooting
56	3078144930	1	Basket load conform to standard EN280 for Australia
14	3078143620	2	Risk of injury to hand and fingers
51	3078148700	1	Acoustic power
11	3078148890	1	Biodegradable oil in option
29	307P217840	1	220 V socket for Holland only
24	307P217850	1	Platform control panel label
23	3078152520	1	Turntable control panel label
27		1	Operating and servicing manual
28		1	Parts manual
7	3078144560	1	Diesel operating instructions for Australia
10	3078144430	1	Danger of electrocution for Australia
60	3078149240	2	Do not spray water near the built-in generator
61	3078150500	1	Built-in generator ON button
12	3078145230	1	Danger: Direction of movement Australia
58	307P216290	2	Fixing point of harness
59	3078145200	1	Pressurised fluid for Australia

Ref	Code	Qty	Description
60	7815351	1	Safety
100	3078151570 3078151580	4	H14TX H16TPX

2.6.2 - Common "red" labels

10



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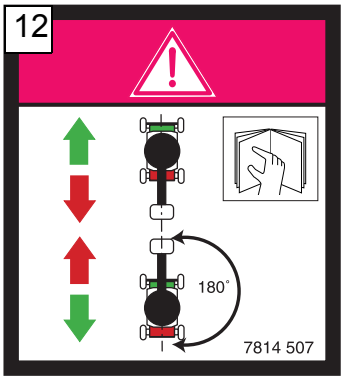

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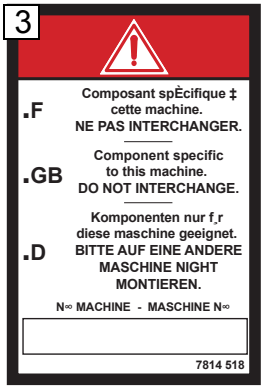

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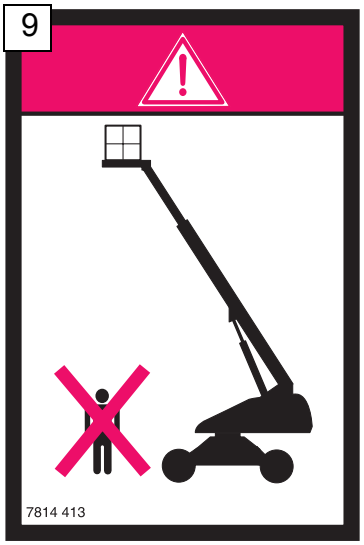

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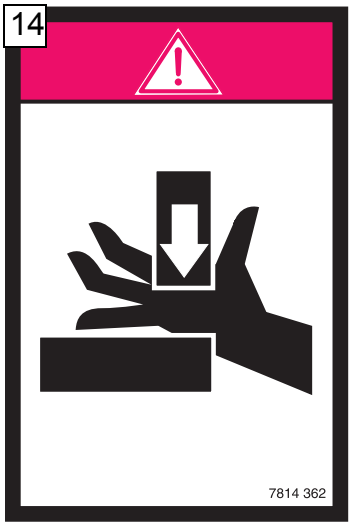

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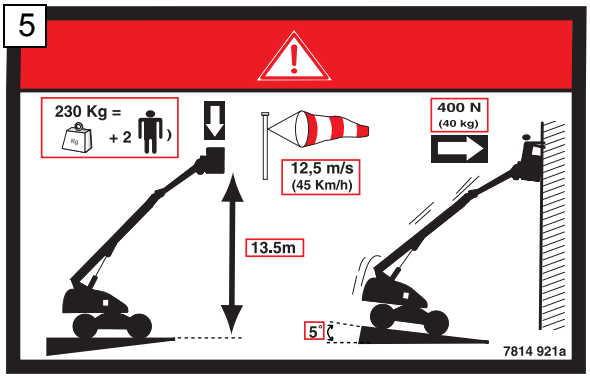

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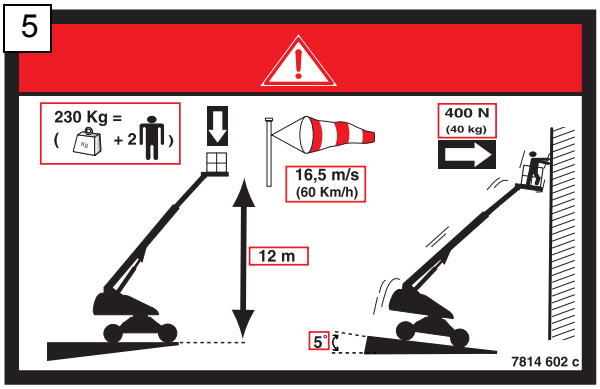

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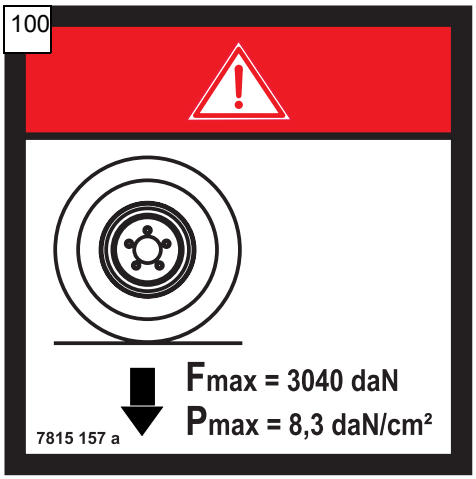

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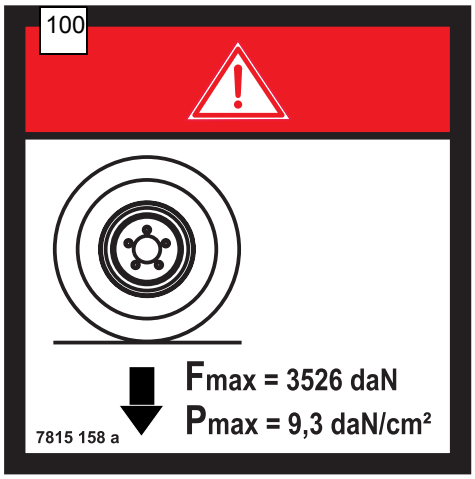

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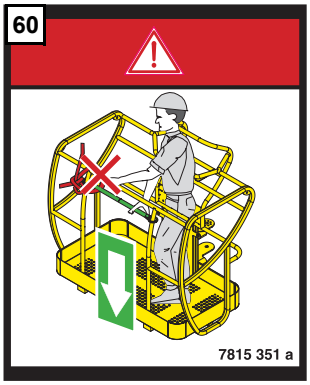
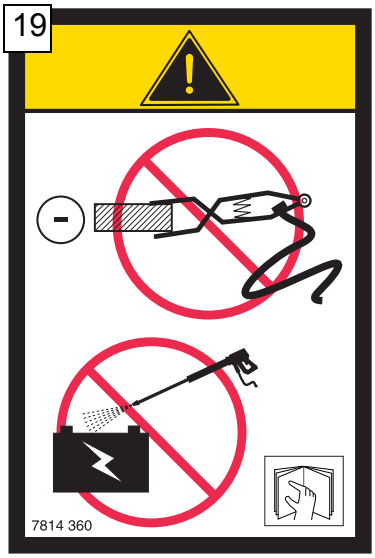


2.6.3 - Common "yellow" labels

19



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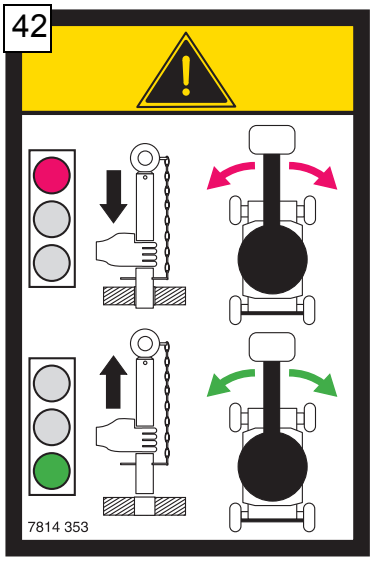

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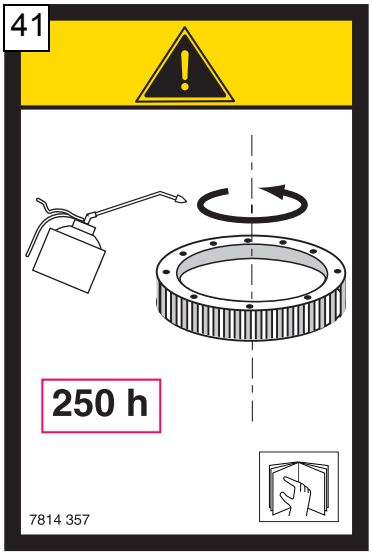

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2.6.4 - Various common labels

7

CONSIGNE D'UTILISATION

POUR UTILISER CET APPAREIL
L'OPERATEUR DOIT

1 - Lire et comprendre les informations contenues dans le manuel de conduite et les inscriptions apposées sur la machine, se familiariser avec les commandes.
2 - Etre formé et entraîné pour la conduite de celui-ci, sous la responsabilité de son employeur.
3 - Assurer correctement l'entretien suivant le catalogue constructeur.
4 - Ne pas utiliser l'appareil en cas de disfonctionnement.
5 - Ne pas laver sous pression les composants électriques.
6 - Ne rien démonter, la stabilité serait modifiée.
7 - Ne pas modifier l'appareil sans accord du constructeur.
8 - Ne pas utiliser la machine comme masse de soudure.
9 - Ne pas souder sur la machine sans déconnecter les cosses des batteries, se référer à la notice de conduite et d'entretien.

INSPECTION JOURNALIERE

1 - Vérifier le niveau d'huile hydraulique et le liquide des batteries.
2 - Vérifier s'il n'y a pas de signe apparent de défectuosité (fuite hydraulique, boulonnerie, liaisons électriques).
3 - Vérifier le fonctionnement de l'indicateur de devers en faisant fonctionner l'alarme sonore.

INSTRUCTION AVANT UTILISATION

1 - Enlever la broche de blocage d'orientation (s'il y a une tourelle).
2 - IMPORTANT. La prise doit être raccordée sur une installation électrique protégée par un disjoncteur différentiel 30 mA (NORME C15 100)

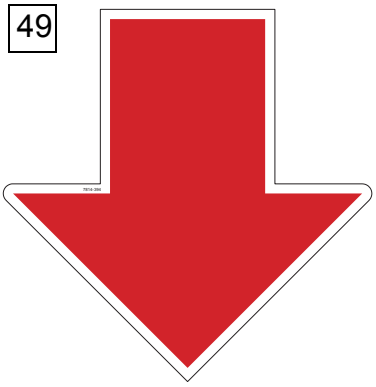
MISE EN ROUTE

1 - Déverrouiller l'arrêt d'urgence, puis actionner le bouton de démarrage.
2 - En cas de non fonctionnement, attendre 10 s et renouveler l'opération.

INTERDICTION
D'UTILISER L'APPAREIL
PENDANT LA CHARGE DES BATTERIES

7814 342

49



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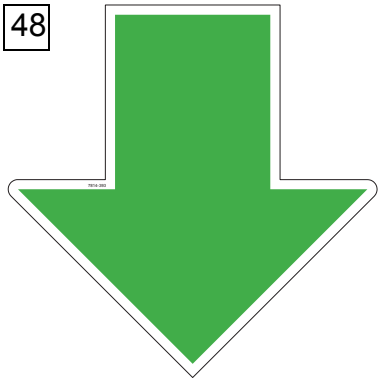

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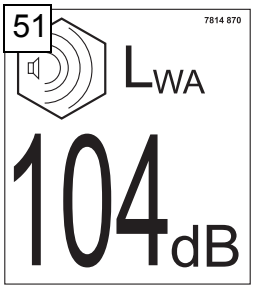

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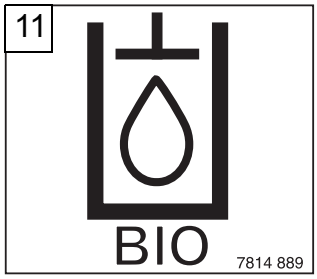

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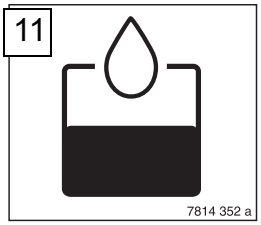

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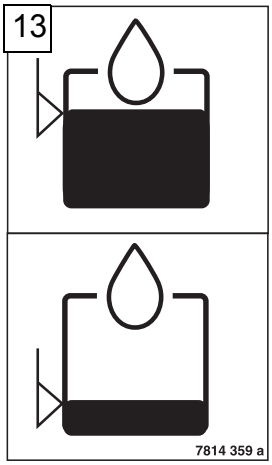

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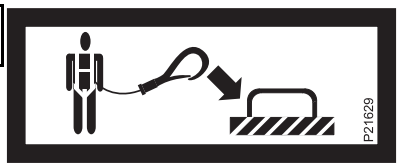

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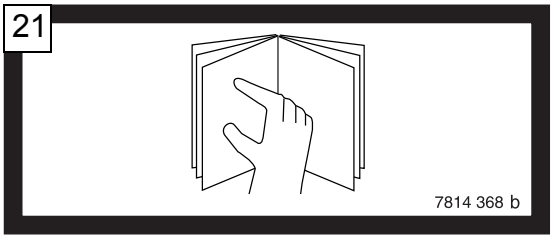

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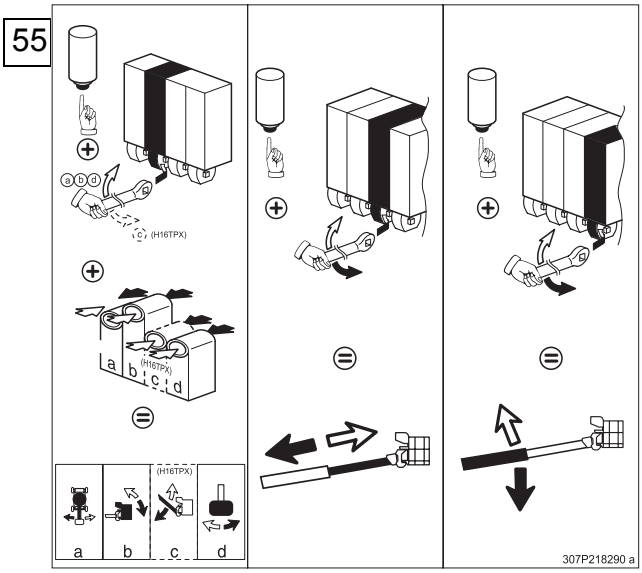


2.6.5 - Labels specific to Australia

56

Basket design loading is in accordance with EN 280

7814 454

52

RESCUE OPERATIONS

- Turn the key-operated selector to turntable position
- Activate and hold the switch and use the emergency lever on the distributor corresponding with the movment required

USE OF STANDBY UNIT

- Turn the key-operated selector to turntable position
- Be carefull that the emergency stop button is released
- Activate the switch in the triangle and activate the lever or the switch corresponding to the movment required in the same time

7814 453

3

FUEL

FUELLING WITH A FILLER ONLY

7814 451

33

LIFTING POINT

USE 4000 Kg MIN. RATED HOOK

7814 449 a

12

WARNING

IF DIRECTION OF TRAVEL IS OBSCURED, ROTATE UNIT THROUGH 180 DEGREES AND NOTE COLOUR OF DIRECTION OF TRAVEL ARROWS ON THE CHASSIS IN RELATION TO TRAVEL CONTROL JOYSTICK ARROWS

7814 523

7

RECOMMENDATIONS FOR USE

BEFORE USING THIS MACHINE
THE OPERATOR MUST

1 - Read and understand the information in the Operators 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 in accordance with the manufacturer's instructions contained in the Operators Manual.
4 - Refrain from using the machine in the event of any malfunction.
5 - Avoid contact with electrical components when using high pressure cleaning equipment around the machine.
6 - Not remove any machine parts which might affect the stability.
7 - Not modify the machine without the manufacturer's written approval.
8 - Do not use the machine as a welding earth.
9 - Not carry out repairs on the machine involving welding without first disconnecting the battery.

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 manually tilting the switch with the power on.

INSTRUCTIONS BEFORE USE

1 - Remove the rotation locking pin (if fitted).
2 - **IMPORTANT** : when connecting AC power supply to the work platform, the wall power supply must be protected by 30 mA circuit breaker

START-UP

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

THE MACHINE
MUST NOT BE USED
WHILE CHARGING THE BATTERIES

7814 456

59

WARNING
This accumulator contains pressurised oil. Care must be taken whilst carrying out maintenance on this component.

7814 520

53

CAUTION

FULL BODY HARNESS MUST BE USED

7814 452

10

DANGER

BEWARE OF OVERHEAD ELECTRICAL HAZARDS

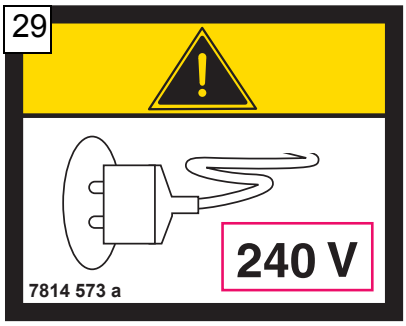
REGULATION 133A of the CONSTRUCTION SAFETY ACT 1912 REQUIRES

a. Minimum approach of an appliance to live electrical apparatus.
- 3 m for voltages up to 132,000
- 6 m for voltages above 132,000 and up to 330,000
- 8 m for voltages above 330,000

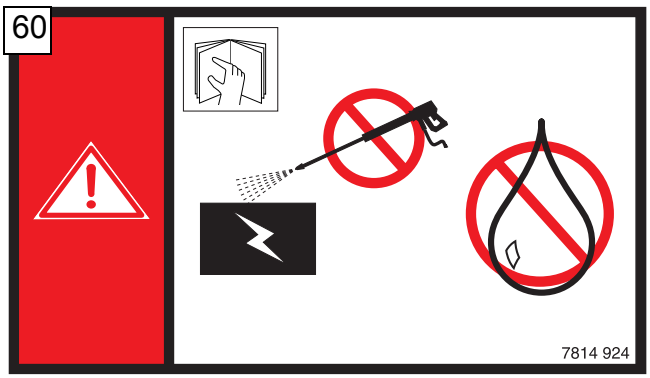
b. Inspection of the work site for electrical hazards before commencing to use the appliance.

c. Constant vigilance and an observer required whilst working or travelling the appliance in the vicinity of live electrical apparatus.

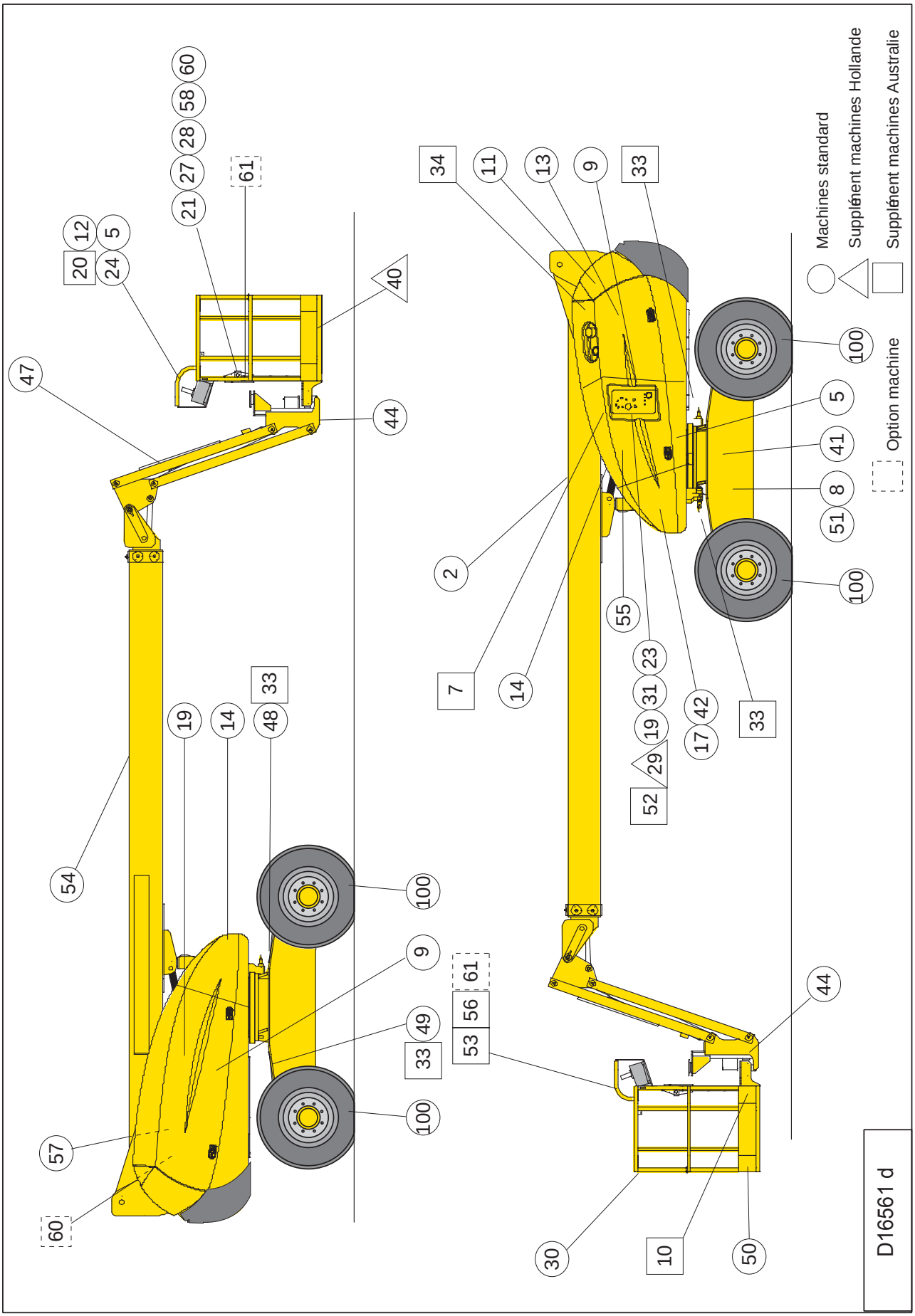
2.6.6 - Labels specific to Holland



2.6.7 - Built-in generator in option



2.6.8 - Label positioning



3 - OPERATING PRINCIPLE

3.1 - HYDRAULIC CIRCUIT

All the machine's movements are powered by hydraulic energy from a self-regulating open circuit piston pump, equipped with a "LOAD SENSING" capacitor.

3.1.1 - Controlling machine movements

3.1.1.1 -Travel, slewing, boom lifting and telescoping

These controls use proportional distribution (compensated in pressure). The pump flow adapts automatically to demand by the "LOAD SENSING" channel. In neutral, there is no pump flow.

3.1.1.2 - H16TP(X) jib lifting, basket rotation, compensation and steering

These movements are controlled by 4-channel on/off electro-valves. A proportional distributor tray supplies the flow required for these movements.

3.1.2 - Actuators

The type of actuator depends on the type of movement.

3.1.2.1 -Steering, telescoping, boom lifting, H16TP(X) jib lifting

These movements are controlled by cylinders equipped with tight, covered balancing valves (except for steering).

Caution!
Adjustments must be made by specialised personnel only.

3.1.2.2 -Platform rotation

Platform rotation uses a hydraulic motor. Rotation speed can be adjusted by flow limiters.

3.1.2.3 -Compensation

Compensation operates by oil transfer between 2 cylinders with similar characteristics. The receiver compensation cylinder is equipped with a double-covered controlled valve.

3.1.2.4 -Travel (moving the machine)

Two hydraulic motors mounted in the wheels drive the front wheels via epicyclic reducers (4x2 version). For the 4x4 version, motors are mounted on the steering wheels.

When the motors are supplied with pressure, the brakes on the front wheels are released. As soon as movement stops, the brakes are re-applied by spring action.

A hydraulic differential blocking system is fitted on each axle.

The three speeds (high, medium and low) are controlled by a switch. .

Speed	4*4 version principle
High speed	The steering axle is switched to freewheel and the flow supplied by the pump goes through the two motors mounted in series on the front wheels.
Medium speed	The steering axle is switched to freewheel and the flow supplied by the pump goes through the two motors mounted in parallel on the front wheels.
Low speed	The pump flow is divided between the rear and front axle The flow arriving on each axle supplies the hydraulic motors of the axles placed in parallel.

3.2 - ELECTRICAL CIRCUIT AND SAFETY MECHANISMS

3.2.1 - General points

The electric power used for controlling and starting the thermal motor is supplied by a 12V battery.

The operating time is recorded by an hour meter.

Caution!

Do not perform any manoeuvres until you have fully understood the instructions in section 4.

To prevent the machine from being used in excess of its capabilities, safety mechanisms have been integrated to protect personnel and the machine. These immobilise the machine or neutralise the movements.

In either case, if knowledge of the characteristics and operation of the machine is insufficient a machine failure may be diagnosed, when in fact the safety mechanisms are operating correctly. It is therefore necessary to fully understand the instructions in the following chapters.

If standby or emergency manual operation is necessary, the safety mechanisms are neutralised.

3.2.2 - Automatic motor stop

The motor is automatically stopped when:

- the generator stops operating.
- oil pressure is too low
- oil temperature is too high.

3.2.3 - Platform load check

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.

3.2.4 - Tilt control

In the work position (machine extended), the tilt detector box emits an audible signal when the maximum allowed tilt is reached. If the sitation persists after a time delay of 1 to 2 seconds, the following movements are disabled: boom lifting, jib lifting, telescope extension and travel.

To restore travel movements, all the lifting elements must be folded. The machine can then be moved to an allowed tilt.

NOTA: When the machine is folded (telescope in, boom lowered and jib below the horizontal), tilt is tolerated. No alarm is sounded.

3.2.5 - Travel speeds

To move the machine, the "fail-safe" safety mechanism must be activated, by holding down the manipulator button. Releasing the fail-safe causes travel to stop.

3.2.5.1 -Transport position (platform folded)

Three proportional travel speeds are available. The speed must be adapted 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 0.7 km/h.
- travel is disabled if the tilt exceeds the allowed limit.

NOTA: During travel, it is not possible to make boom lifting, telescoping and turntable rotation movements.

To approach an obstacle, use control proportionality.

3.2.6 - Standby and emergency operation

Caution!
Only a skilled operator may perform standby and emergency manoeuvres.

3.2.6.1 -Emergency

If the operator in the platform is no longer able to control movements although the machine is operating correctly, a skilled operator on the ground can use the turntable control panel to bring the operator in the platform back down to the ground.

3.2.6.2 -Standby

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.

A standby electropump unit controlled from the platform or turntable can be used if the main pump fails.

If an operating incident prevents the operator in the platform from coming back down to the ground, a skilled operator can use the electric pump and the electric controls on the turntable control panel to do so.

Instructions:

- Turn the key to the "turntable station" position (Ref 14 , Photo: "Turntable" control panel, page 35)
- Activate the standby unit control switch (Ref 9, Photo: "Turntable" control panel, page 35).
- Activate the switches corresponding to the movements required (Ref 7-5-6-8, Photo: "Turntable" control panel, page 35).

3.2.6.3 -Manual standby system

If the diesel motor is operating, in the event of failure of the turntable and platform control panel controls, the movements can be made using the mechanical levers and pushing the manual control of the electrovalve on the general distribution unit.

Help label for manual standby operation

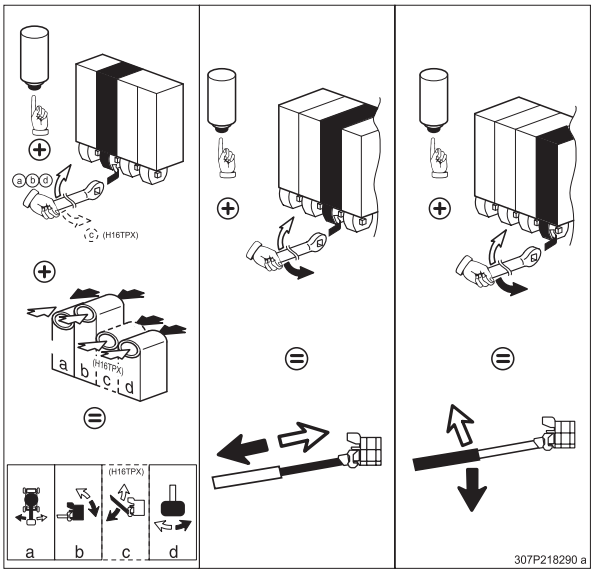
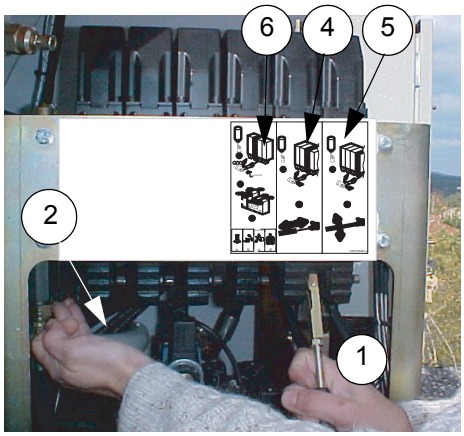


Photo 1: Manual standby operation



- Manual standby operation for turntable rotation: (Distributor no. 6, Photo: Manual standby operation, page 29)

Instructions:

- Remove the covers,
- Take hold of the lever, (Ref 1, Photo: Manual standby operation, page 29)
- Position the lever on distributor no. 3, (Ref 1, Photo: Manual standby operation, page 29)
- Press the manual control of the electrovalve, (Ref 2, Photo: Manual standby operation, page 29)
- Hold down the manual control and:
  * Move the lever upwards to rotate the turntable to the right, as seen from the basket.
  * Move the lever downwards to rotate the turntable to the left, as seen from the basket.

- Manual standby operation for the telescope: (Distributor no.4, Photo: Manual standby operation, page 29)

Instructions:

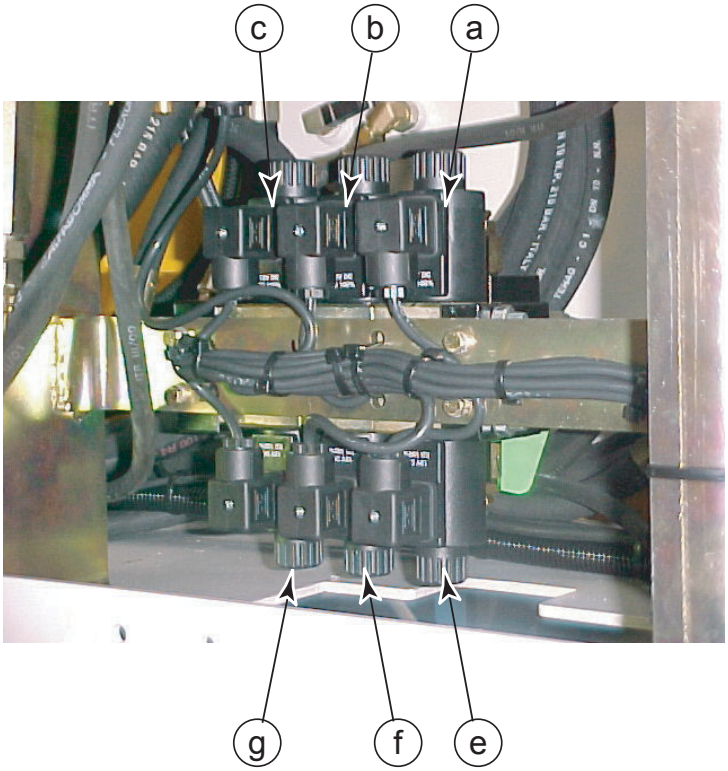
- Remove the covers,
- Take hold of the lever, (Ref 1, Photo: Manual standby operation, page 29)
- Position the lever on distributor no. 4, (Ref 1, Photo: Manual standby operation, page 29)
- Press the manual electrovalve control, (Ref 2, Photo: Manual standby operation, page 29)
- Hold down the manual control and:
  * Move the lever upwards to extend the telescope.
  * Move the lever downwards to retract the telescope.

- Manual standby operation for boom lifting: (Distributor no. 5, Photo: Manual standby operation, page 29)

Instructions:

- Remove the covers,
- Take hold of the lever, (Ref 1, Photo: Manual standby operation, page 29)
- Position the lever on distributor no. 5, (Ref 1, Photo: Manual standby operation, page 29)
- Press the manual electrovalve control, (Ref 2, Photo: Manual standby operation, page 29)
- Hold down the manual control and:
  * Move the lever upwards to lift the boom.
  * Move the lever downwards to lower the boom.

Photo 2: Distribution block on/off



- Manual standby operation for the other movements: (Distributor no. 6, Photo: Manual standby operation, page 29)

Jib movement:

Instructions:

- Remove the covers,
- Take hold of the lever, (Ref 1, Photo: Manual standby operation, page 29)
- Position the lever on distributor no. 6, (Ref 1, Photo: Manual standby operation, page 29)
- At the same time, press the manual electrovalve control (Ref 2, Photo: Manual standby operation, page 29) and the distributor corresponding to jib movement (Distributor "a", Photo: Distribution block on/off, page 30)
- Holding down the manual control and the distributor corresponding to jib movement,
  * Move the lever downwards to lift the jib.
  * Move the lever downwards and press the opposite distributor to lower the jib. (Distributor "e", Photo: Distribution block on/off,

page 30).

Compensation movement:

Instructions:

- Remove the covers,
- Position the lever on distributor no. 6, (Ref 1, Photo: Manual standby operation, page 29)
- At the same time, press the manual electrovalve control (Ref 2, Photo: Manual standby operation, page 29) and the distributor corresponding to the compensation movement (Distributor "b", Photo: Distribution block on/off, page 30)
- Holding down the manual control and the distributor corresponding to the compensation movement,
  * Move the lever upwards to lift the basket.
  * Move the lever upwards, hold down the manual control and press the opposite distributor to lower the basket. (Distributor "f", Photo: Distribution block on/off, page 30).

Basket rotation movement:

Instructions:

- Remove the covers,
- Take hold of the lever (Ref 1, Photo: Manual standby operation, page 29)
- Position the lever on distributor no. 6 (Ref 1, Photo: Manual standby operation, page 29)
- At the same time, press the manual electrovalve control (Ref 2, Photo: Manual standby operation, page 29) and the distributor corresponding to the basket rotation movement (Distributor "c", Photo: Distribution block on/off, page 30)
- Holding down the manual control and the distributor corresponding to the basket rotation movement,
  * Move the lever upwards to move left, as seen from the basket.
  * Move the lever upwards, hold down the manual control and press the opposite distributor to move right, as seen from the basket. (Distributor "g", Photo: Distribution block on/off, page 30).

4 - OPERATION

4.1 - UNLOADING - LOADING - MOVING - PRECAUTIONS

Caution!

During machine transport, the turntable must be blocked using the rotation pin on the turntable. (See , Photo: Rotation pin, page 37)

Before any operation, check that the machine is in good condition, and that it has not been damaged during transport. If damage has occurred, make any necessary reserves in writing to the transport company.

Caution!

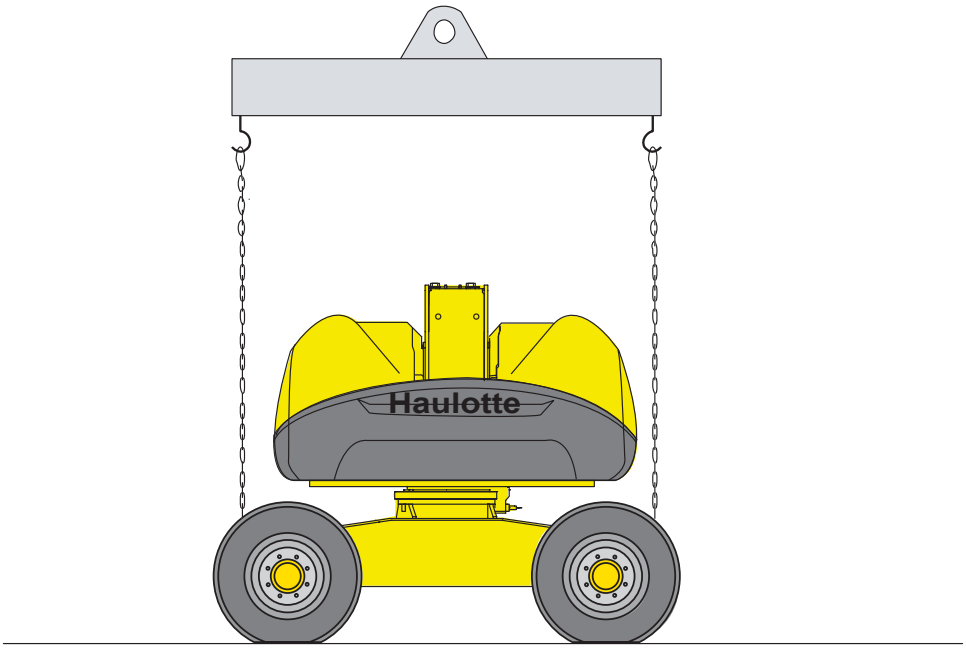
A false manoeuvre may cause the machine to fall, causing very serious bodily injury and material damage.

Unload the machine on a stable, sufficiently resistant (see floor pressure - section 2.4.), flat and clear surface.

4.1.1 - Unloading by lifting

Access to the lifting lugs requires rotating the turntable to position the boom perpendicular to the chassis axle. Use a lifting beam with 4 slings.

Fig. 5 - Lifting



Ensure that the following precautions have been taken:

- the lifting equipment is in good condition and of sufficient capacity,
- the slinging accessories can bear the load and show no signs of abnormal wear,
- the slinging lugs are clean and in good condition,
- the personnel carrying out the manoeuvre is qualified to use lifting equipment.

To unload:

- hook the 4 slings to the 4 slinging lugs,
- lift slowly, ensuring the load is evenly distributed, slowly lower the machine.

Caution!
Never stand underneath or too close to the machine during manoeuvres.

Caution!
This method requires the machine to be started: see section 4.3 to avoid all risk of false manoeuvre.

4.1.2 - Unloading with ramps

Select low travel speed.

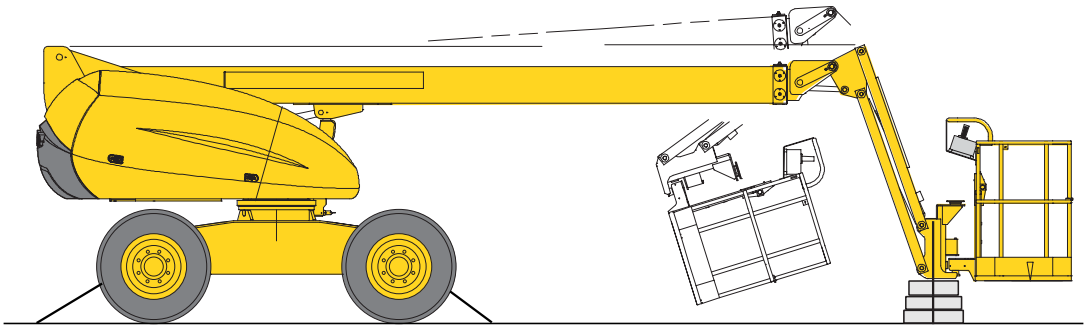
Precautions: ensure that the ramps can bear the load, that they are properly fixed and that adhesion is sufficient to prevent any risk of slipping during the manœuvre.

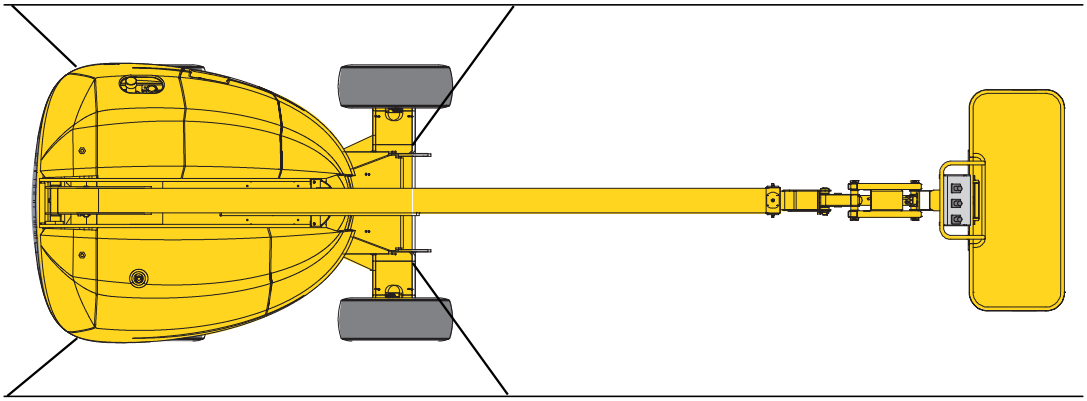
NOTA: The slope of the ramp is almost always greater than the maximum work slope, which means the boom must be lowered to authorise travel. In this case, the buzzer sounds but travel remains possible.
If the slope is greater than the maximum slope in travel (see section 2.4), use a winch as additional traction means.

4.1.3 - Loading

The same precautions as for unloading apply.

Fig. 6 - Loading





Ensure that the machine is secured as shown in the above diagram:
- a sling at each lug
- a chain above the basket to hold it on the ground.

To climb the ramps of a truck, select the low speed.

4.2 - OPERATIONS PRIOR TO FIRST USE OF THE MACHINE

IMPORTANT: Before using the machine or after a period of storage, refer to the operations prior to first use of the machine listed in the (Chap 4.3.1 -, “Ground operations”, page 39) in order to test the various levels and check certain maintenance points of the machine.

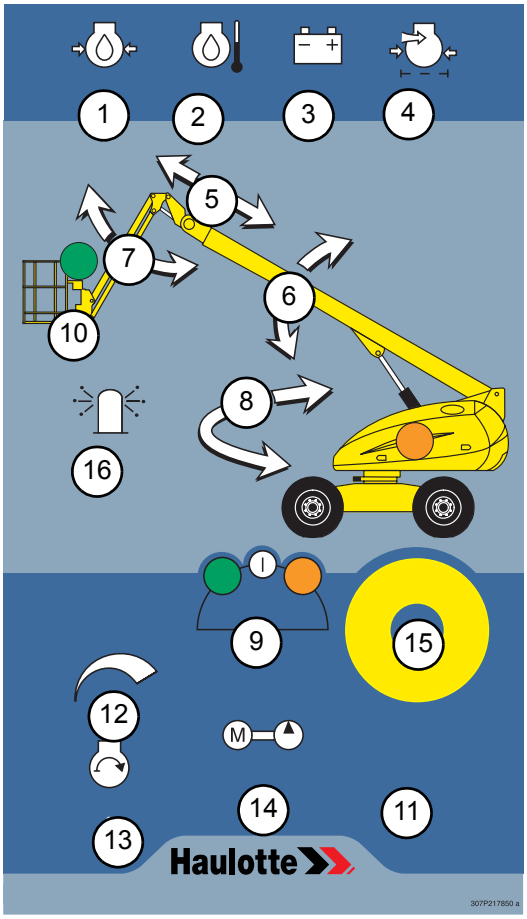
REMINDER: Before any operation, get to know the machine by reading this manual, the motor manual and the instructions on the various plates.

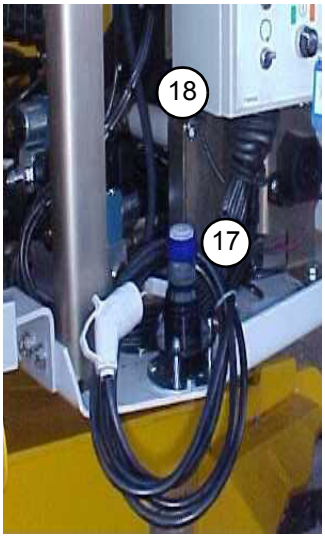
Caution!
When using a high pressure cleaner, avoid pointing the jet directly at the electric boxes and cubicles.

4.2.1 - Getting to know the control stations

4.2.1.1 -"Turntable" control station

Photo 3: "Turntable" control panel





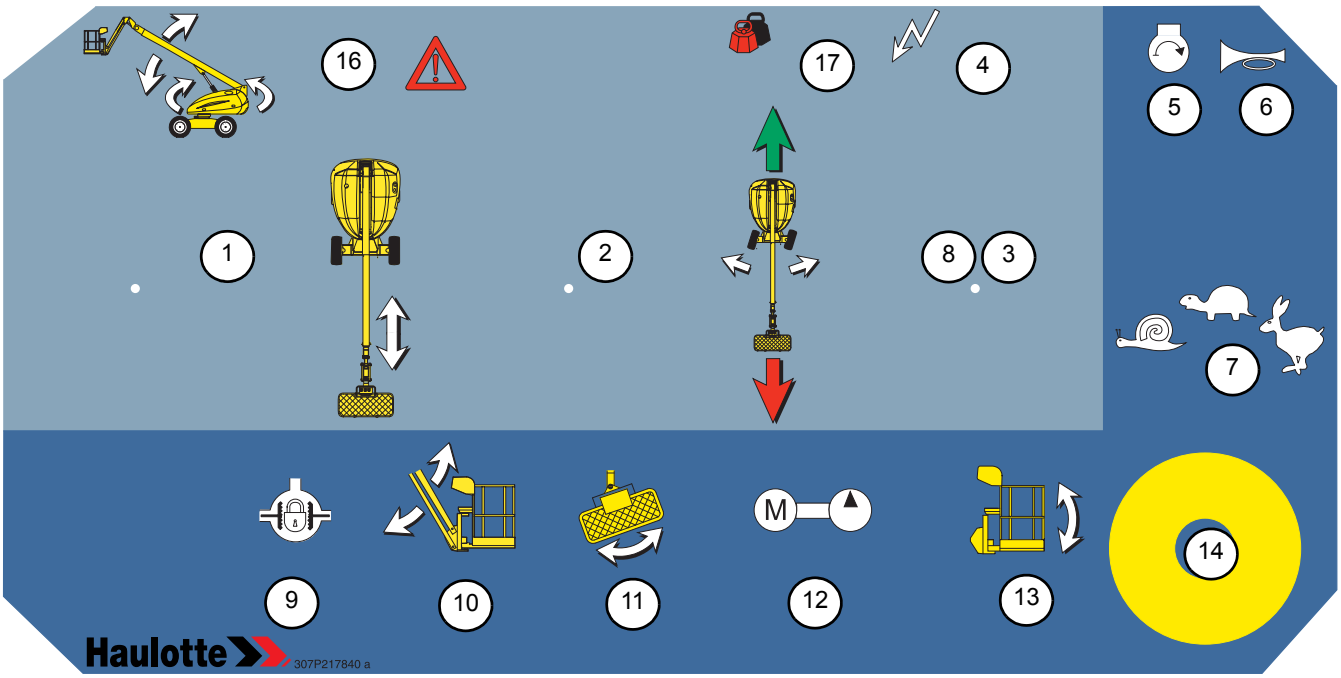
The turntable control station includes the following elements:

1 - Motor oil pressure light indicator	10 - .Compensation switch
2 - Motor temperature light indicator	11 - Hour meter
3 - Battery charge indicator	12 - Motor regime switch
4 - Filter clogging indicator	13 - Motor ignition button
5 - Boom telescoping control	14 - Turntable station / stop / platform station selection
6 - Boom lifting control	15 - Emergency stop button
7 - Jib control	16 - Flashing light control
8 - Turntable rotation control	17 - 220 V single - 16 A supply plug
9 - Standby unit control	18 - Tilt detector box

4.2.1.2 -"Platform" control station

NOTA: Before starting a movement, you must raise the boom a few metres to prevent the basket scraping along the ground during movement.

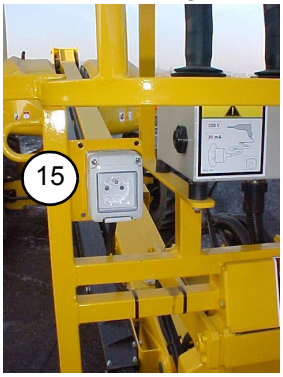
Photo 4: "Platform" control panel



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

NOTA: The manipulators are equipped with a "fail-safe" safety contact.

Photo 5:: 220V plug



4.2.2 - Checks before using the machine

4.2.2.1 -Operation zone

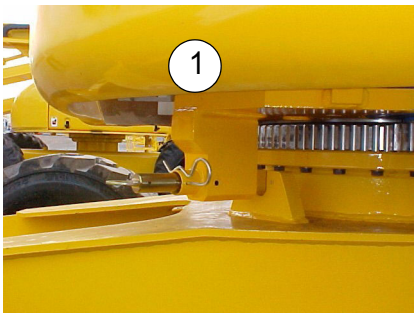
- Ensure that the machine is on flat, stable and sufficiently resistant ground (see section 2.4 - floor pressure)

Caution!
See table of characteristics for maximum authorised slopes.

- Ensure that no obtables can obstruct machine movement:
  - travel (machine movement)
  - turntable rotation
  - telescoping and lifting: see "Working area" diagram.

4.2.2.2 -General appearance

Photo 6: Rotation pin



- Ensure that the pin blocking turntable rotation (rep. 1, Photo: Rotation pin, page 37) has been removed.
- Visually inspect the whole machine: pay particular attention to paint chips or battery acid leaks.
- Check that there are no loose bolts, nuts, connections or hoses, no oil leaks, no cut or disconnected electric conductors.
- Check the boom and platform: no visible damage, no signs of wear or deformation.
- Check that there no leaks, no signs of wear, impacts, scratches, rust or foreign matter on the cylinder rods.
- Check that there are no leaks on the wheel reducers.
- Pump and hydraulic station; no leaks, components tight.
- Check that the wheel reducers are not disconnected.
- Check the tightness of wheel nuts and the degree of tyre wear.

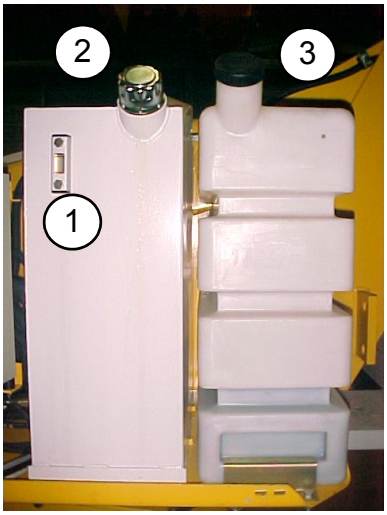
Caution!
These machines are not insulated and must not be used near electric lines.

4.2.2.3 -Electricity

- Check that the battery terminals are clean and tight: loose or corroded terminals may result in loss of power.
- Respect battery manufacturer's safety instructions.
- Check that the platform control panel power cable is in good condition.
- Check that the emergency stop devices are working properly.
- Check that the tilt detector works properly (ref.19 , Photo: "Turntable" control panel, page 35) by tilting the support plate. Beyond the maximum value, an alarm should sound if the machine is unfolded.

4.2.2.4 -Tank compartment

Photo 7: Tanks

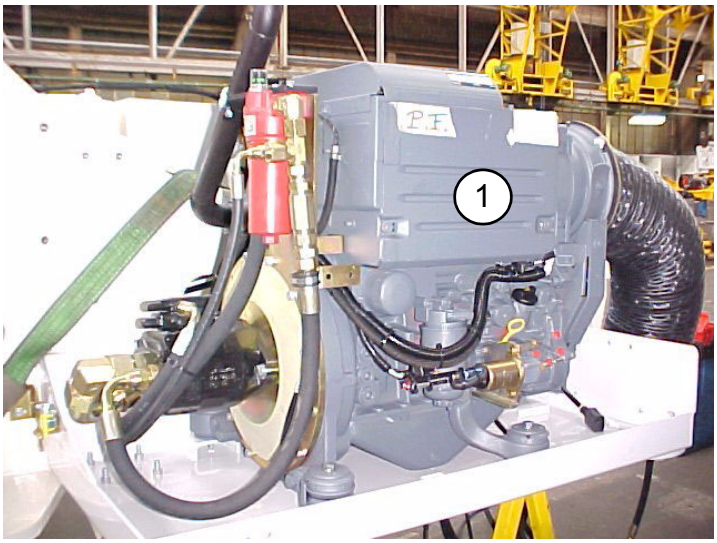


- Check the levels
  - hydraulic oil: a light indicator shows the level when the cover is closed (ref 1, Photo: Tanks, page 38), if necessary, fill up via the plug (ref 2, Photo: Tanks, page 38).
  - diesel: 2 light indicators show the min and max levels when the cover is closed. Fill up if necessary (plug ref. 3, Photo: Tanks, page 38).

NOTA: To fill up, use the products recommended in section (Chap 5.2.1 -, "Consumables", page 46).

4.2.2.5 -Motor compartmen

Photo 8: Motor



- Check that the air filter is clean - see motor manual.
- Check the level of motor oil: gauge (ref 1, Photo: Motor, page 38), if necessary, fill up (see motor manual).
- Check the hydraulic oil filter clogging indicator (ref. 4 , Photo: "Turntable" control panel, page 35). If the red indicator is visible, replace the filtration cartridge (Chap 5.3.1 -, "Summary table.", page 48).
- Check the level of battery electrolyte: the level should be approximately 10 mm above the plates. Fill up if necessary with distilled water.

4.3 - STARTING OPERATION

IMPORTANT:

Use of the machine should only begin when all of the instructions given in the previous section have been followed scrupulously.

To become familiar with the machine carry out the first few manoeuvres from ground level, keeping the machine in its transport configuration: counterweight forward, boom lowered.

Caution!

When the counter-weight is placed over the steering wheels, the travel and steering controls react in the oppostie direction.

REMINDER: The main control panel is on the platform. Under normal operating conditions, the "turntable" control panel is only used only if absolutely necessary, such as an emergency or machine failure.

4.3.1 - Ground operations

4.3.1.1 -Motor ignition

(See, Photo: "Turntable" control panel, page 35))

- Ensure that the emergency stop button (ref 15) is pulled.
- Put the operating station selection key switch (ref 14) in the "ground control" position (pictograms). In this position, the "platform" control panel controls are cancelled.
- The motor oil pressure (ref 1) and battery charge (ref 3) light indicators are on. The air filter clogging light indicator (ref 4) is off.
- Press the ignition button (ref 13). The motor starts, the light indicators (ref. 1 and 3) go out.

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

- Leave the motor to warm up, using the time to check that the hourmeter, (ref 11) motor and pump are working properly.

4.3.1.2 -Movement tests

(See , Photo: "Turntable" control panel, page 35)

Caution!

Before making any movement, check that there are no obstacles to hinder manœuvres.

- Test the lifting movement in the up and then down direction (control ref. 6).
- Stop boom lowering when the boom reaches the horizontal position.
- Then test the turntable rotation movements in both directions (control ref. 8) and telescoping in/out movement (control ref. 5) then lower the boom completely.

4.3.1.3 -Passage to "platform" control

- Move the key selector switch (ref.14 , Photo: "Turntable" control panel, page 35) to the "platform" position (green rectangle).
- Check correct operation of the tilt detector box (ref.18, Photo: "Platform" control panel, page 36).

4.3.2 - Operations from the platform

NOTA: Before starting a movement, you must raise the boom a few metres to prevent the basket scraping along the ground during movement.

(See , Photo: "Platform" control panel, page 36))

Climb into the basket, respecting the maximum load instructions and distributing, if necessary, the load over the whole platform.

Caution!
MAXIMUM LOAD:

H14T(X): 230 kg (including 2 people).
*H16TP(X): 230 kg (including 2 people) for basket 2300*800 option and basket 1800*800.*

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

- Before making any manoeuvre, ensure that the green light indicator (ref.4) is on, showing that the machine power is on and that the "platform" station has been selected
- Ensure that the emergency stop button (ref 14) is unlocked.
- Check that the buzzer works properly.

4.3.2.2 -Movement test

- To make a movement, the corresponding manipulator or selector must be selected.
- Press the "fail-safe" contact and activate the chosen manipulator.
- The speed and angle of tilt of the manipulators will enable gradual movement.
- If the base is not horizontal, correct the platform position using the corresponding selection switch.
- Test the telescoping, jib (H16TP), basket rotation movements with the associated selector.
- Test the rear axle steering movement using the selector on the travel manipulator handle.
- With the machine in the folded position, try the three travel speeds by activating the speed selector.
- The direction of movements is indicated by coloured arrows.

Work can now begin.

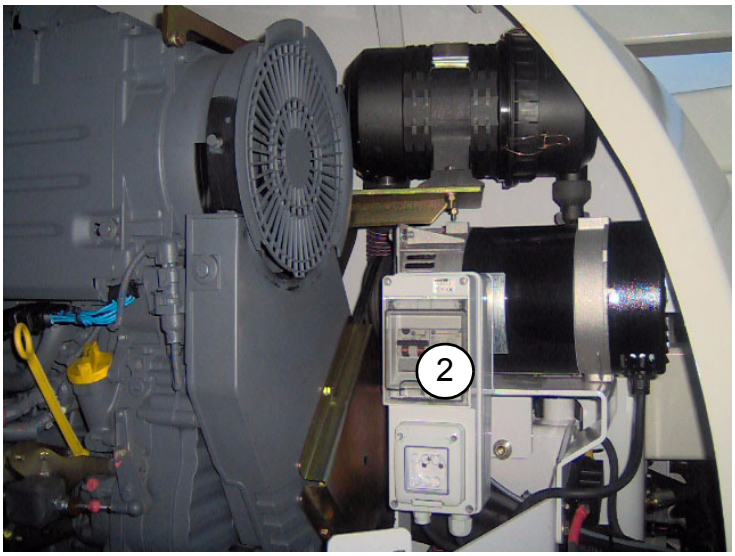
4.3.3 - Built-in generator (option)

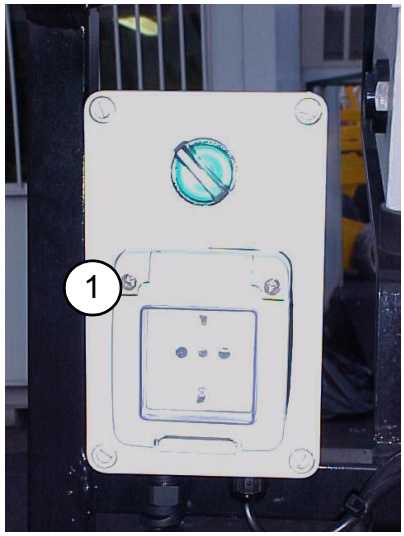
Caution!
Do not expose the built-in generator to direct contact with a jet of water or a high pressure cleaner.

(See photo Built-in generator and socket in the basketr, page 41)

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 KW.

Photo 9:Built-in generator and socket in the basketr





4.3.3.1 -Instructions:

- Switching on the built-in generator:

  - Activate the circuit breaker (Ref 2 , Photo: Built-in generator and socket in the basketr, page 41)
  - Put the selector is in the "platform" position (green circle)
  - Put the button above the power socket in the ON position and the button's green light indicator comes on (Ref. 1, See photo Built-in generator and socket in the basketr, page 41).
  - 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).

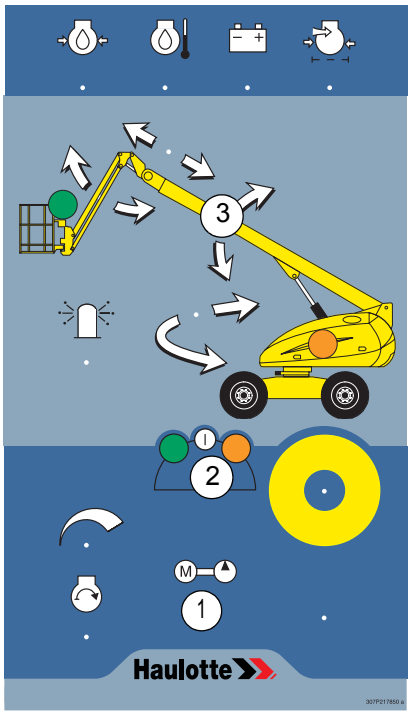
- Switching off the built-in generator:

  - Disconnect the tool from the socket.
  - Put the button above the power socket in the OFF position and the green light indicator goes out (Ref. 1, See photo Built-in generator and socket in the basketr, page 41).
  - Movement is active once again, you can make any movements.

4.4 - STANDBY OPERATION WITH THE STANDBY ELECTROPUMP 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.

Photo 10:Standby control operation



It is possible to make movements when the main source of power is not operating correctly. There is an electropump unit supplied by the ignition battery. This battery can be controlled from both the turntable and the platform control panels.

The standby electropump control operates on both control panels in the same way.

- Instructions:
  - Select the control panel that you want to validate (orange or green) (ref 1, Photo: Standby control operation, page 42)
  - Activate and hold the standby control switch (ref 2, Photo: Standby control operation, page 42))
  - Activate and hold the switch corresponding to the required movements (Ref 3, Photo: Standby control operation, page 42).

4.5 - EMERGENCY OPERATION

If the machine is operating normally but the operator in the platform is unable to lower the platform, the operator on the ground can do so:

- Switch the selection key to the "platform" position (ref. 14, Photo: "Turntable" control panel, page 35).
- Control the movements required using the controls corresponding to normal operation.

4.7 - UNCOUPLING

It is possible to uncouple the reducing gears on the drive wheels to be able to tow the machine if it breaks down.

Caution!
In this configuration, the machine is no longer braked.

Uncoupling procedure:

- Undo central screw (ref. 1, , Photo: , page 43)) to the end.Do not force it, because it can break the gear motors definitively. Now the machine is uncoupled.

Caution!
To tow the machine, it is essential to use a rigid bar and not to exceed 5 kph.

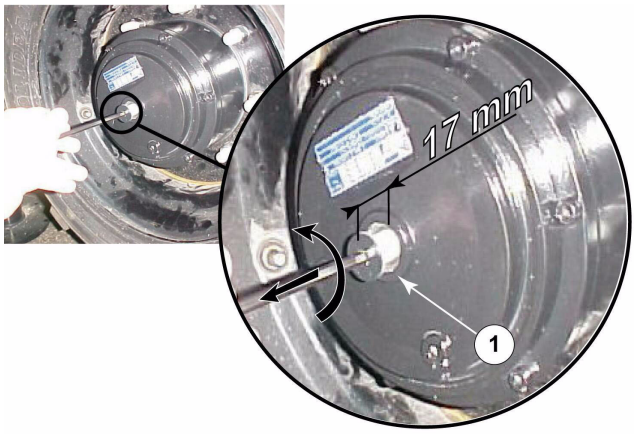


Photo 14

Caution!
The coupling of gear motors must be carried out by competent operators.

Coupling procedure:

- Machines with stabilisers:
  - Reassemble the machine upon stabilisers.
  - Put central screw back on without forcing it to engage the gear clutches. If you note any resistance, move the wheel so that its teeth connect with those of the gear clutches.
- Once the gear clutches have connected, tighten central screw to the end.Machines without stabilisers:
  - Put central screw back on without forcing it to engage the gear clutches. If you note any resistance, very gently activate the control for translation into micro speed.
  - Once the gear clutches have connected, tighten central screw to the end.

NOTA : *Handling is facilitated when it is carried out with 2 people*

Caution!
This operation is to be carried out on even ground.

Caution!
As long as the 4 gear clutches are not in place, the machine does not slow down properly.

5 - MAINTENANCE

5.1 - GENERAL RECOMMENDATIONS

The maintenance operations given in this manual apply when the machine is used in ordinary conditions.

Under difficult conditions: extreme temperatures, high humidity, a polluted atmosphere, high altitude, etc. some of these operations should be carried out more frequently and special precautions should be taken: for more details check the motor manufacturer's notice and consult the local PINGUELY-HAULOTTE agent.

Only qualified and competent personnel may carry out interventions on the machine and they must respect the safety instructions relating to the 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 part, consult the instructions in the Manufacturer's manual.

Safety mechanisms should be checked regularly:

- Tilt: buzzer and movements disabled.
- Platform overload: The overload system is set so that it trips before 120% permitted load.
- Change to micro-speed when the machine is unfolded.

5.2 - MAINTENANCE PLAN

The plan (following page) shows the frequency of maintenance, the area to be worked on, and the ingredients to use.

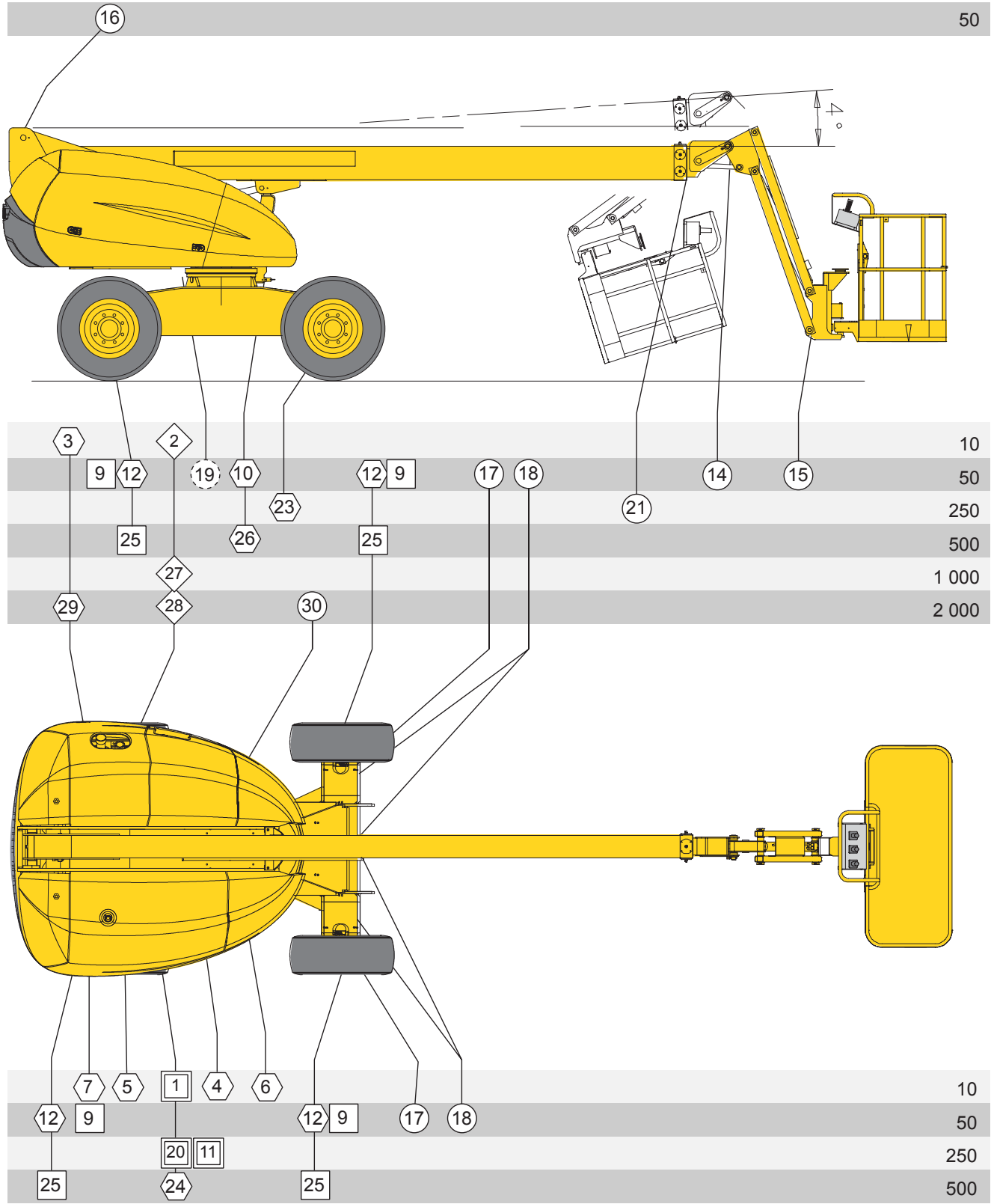
- The reference shown in the symbol shows the area maintained based on the frequency.
- The symbol represents the consumable to use (or the operation to carry out).

5.2.1 - Consumables

Consumable	Specification	Symbol	Lubriants used by Pinguely-Haulotte	ELF	TOTAL
Motor oil	SAE 15W40				
Gearbox oil	SAE 90		ESSO EP 80 W 90	Tranself EP 80 W 90	TM 80 W/90
Hydraulic oil	AFNOR 48602 ISO VG 46		BP SHF ZS 46	HYDRELF DS 46	EQUIVIS ZS 46
Biodegradable Hydraulic oil in option	Bio ISO 46				
Lithium grease	KP 2 K		ESSO Beacon EP2	Epaxa 2	
Lithium grease	NLGI 2 EP		ESSO Moly Multi-Purpose Grease	Cadrexa GR1 AL	
Lead-free grease	Grade 2 or 3		ESSO GP GREASE	Multimotive 2	Multis EP 2
Exchange or specific operation					

5.2.2 - Maintenance plan.

Hours



16	50
3 2	10
9 12 19 10 23 12 9 17 18 14 15 21	50
25 26 25	250
27	500
29 28 30	1 000
	2 000
7 5 1 4 6	10
12 9 12 9 17 18	50
20 11	250
25 24 25	500

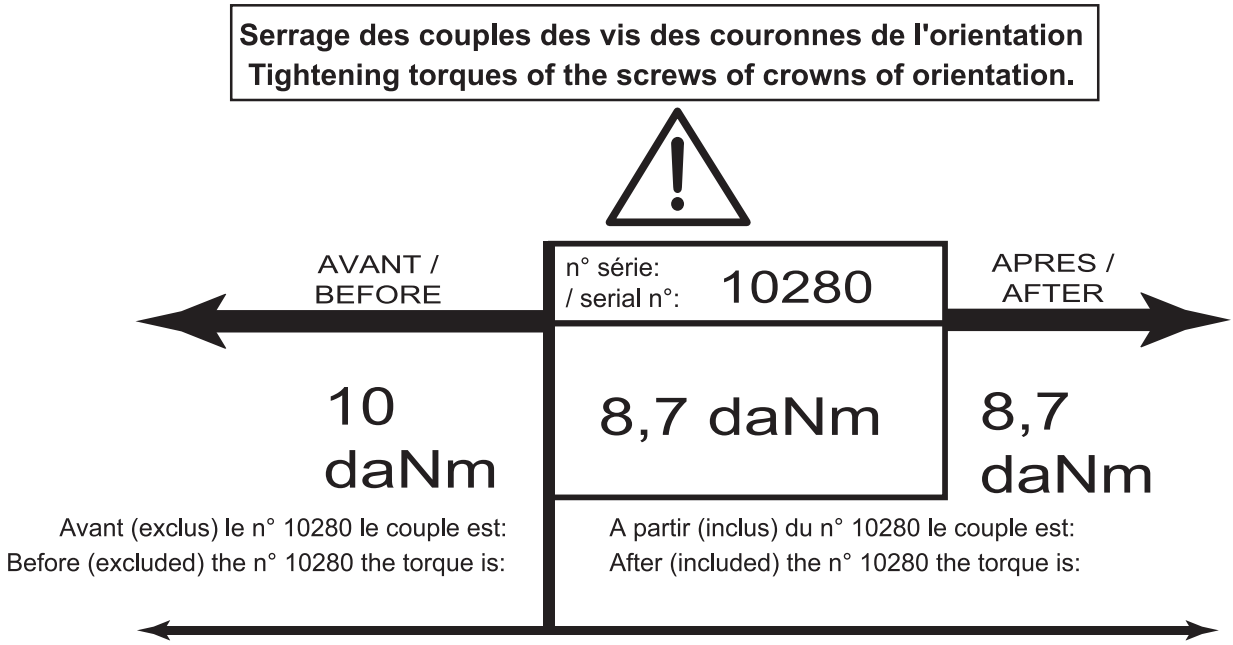
5.3 - OPERATIONS.

5.3.1 - Summary table.

Frequency	Ref.	Operation
Every day or before each start of operations		Check the following levels
	1	• motor oil
	2	• hydraulic oil,
	3	• diesel.
	4	• electric batteries.
		Check the cleanliness
	5	• disel pre-filter, replace it if water or impurities are found.
	6	• motor air filter.
		• machine (in particular, check the tightness of connections and hoses), use the opportunity to check the condition of the tyres, cables and all accessories and equipment.
	7	Check the hydrualic oil filter for clogging.
		Change the cartridge if the clogging indicator is visible.
		Check the state of wear of the articulation axles.
The first 50 hours	9	Change the hydraulic oil filter cartridge (see frequency 250 hours).
	10	Change the oil of the drive wheel reducers (see frequency 500 hours) (2 points for 4x2 model - 4 points for 4x4 model).
		Check the tightness of the slew ring screws (torque 8.7 daN.m).
Every 50 hours	11	Motor: see manufacturer's manual.
	12	Check the level of the drive wheel reducers (see section 5.3.2.2).
		Grease:
	14	• jib articulation axle (for H16TPX): 2 points.
	15	• basket link part articulation axle: 4 points.
	16	• boom base axle: 1 point.
	17	• wheel pivot pin axles: 8 points.
	18	• steering axle, central pivot pin and clevis pin: 10 points.
	19	• slew ring: bearing 2 points.
Every 250 hours	20	Motor: see manufacturer's manual.
	21	Grease the friction parts of the telescope (spatula). At the same time, check the condition of the friction pads.
	23	Check the tightness of the wheel nuts (torque 32 daN.m).
		Change the hydraulic filter cartridge.
		Check condition of rings (condition and positioning) and exchange them if damaged or broken
		Check 'wear and tear' indicator of the telescope feet; to be replaced if indicator not visible
Every 500 hours	24	Motor: see manufacturer's manual.
	25	Change the wheel reducer oil. Fill up (capacity 4 x 1.4 litres.for 4*4 and capacity 2 x 1.4 litres for 4*2).
	26	Ring screws check the tightness and tighten if necessary. (torque 8.7 daN.m).
Every 1000 hours or every year	11	Motor: see manufacturer's manual.
	27	Empty the hydraulic oil tank.
Every 2000 hours	28	Empty the tank and the whole hydraulic oil circuit.
	29	Empty and clean the diesel tank.
	30	Grease the rotation reducer: 1 point.
Every 3000 hours		Check the condition of the telescope friction pads, the electric cables and hydraulic hoses.

REMINDER: The frequencies given above are to be reduced in the case of work in difficult conditions (consult the After-Sales department if necessary).

5.3.2 - Tightening torque table



5.3.3 - Instructions

IMPORTANT:

- Only use the lubricants recommended in the table (Chap 5.2.1 -, “Consumables”, page 46) for filling and greasing operations.
- Collect used oil to prevent environment contamination.

5.3.3.1 - Hydraulic oil filter

Photo 15: Oil filter

Filter with a clogging indicator.

- change the cartridge if the clogging indicator is visible.

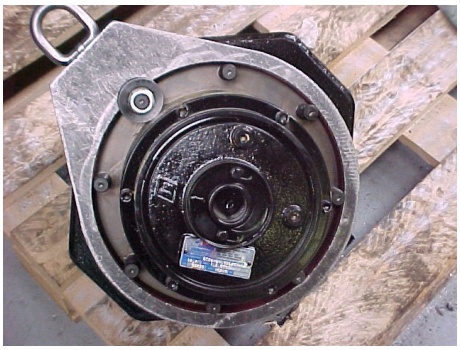
NOTA: check for clogging when the machine is hot, as the indicator may be visible when cold due to oil viscosity.

- unscrew the base nut and remove the cartridge
- screw a new cartridge into place.

Caution!
Before dismantling, ensure that the oil circuit is no longer pressurised and that the oil is not too hot.

5.3.3.2 - Drive wheel reducers

Photo 16:Reducers



The wheel must be dismantled for checks and oil change, to do so immobilise the machine and lift using a jack or a hoist.

Check that the machine is correctly locked in position and that the equipment used for lifting is of sufficient capacity and in good condition

- Level check:
  - Turn the wheel so that one cap (ref 1) is on a horizontal line and one cap (ref 2) is on a vertical line.
  - Unscrew cap (1) and check the level, which should be up to the height of the hole, top up if necessary.
  - Screw the cap back into place.
- Oil change:
  - In the same position, unscrew the 2 caps and allow the oil to flow out.
  - Fill up as indicated above
  - Screw the caps back into place.

5.3.3.3 -Slew ring

After any dismantling of the slew ring (ref 13 on maintenance diagram), ensure that the exterior teeth are greased using a brush. Consult the list of consumables given in section (Chap 5.2.1 -, “Consumables”, page 41).

5.3.4 - List of consumables

- hydraulic oil cartridge
- air filter element
- diesel pre-filter
- diesel filter - motor oil filter

6 - TROUBLE-SHOOTING

REMINDER: If the machine's operating and maintenance instructions are followed, most incidents will be avoided. However, certain incidents may arise and before any intervention, check the table below to see if the problem is listed. Then, simply follow the instructions.

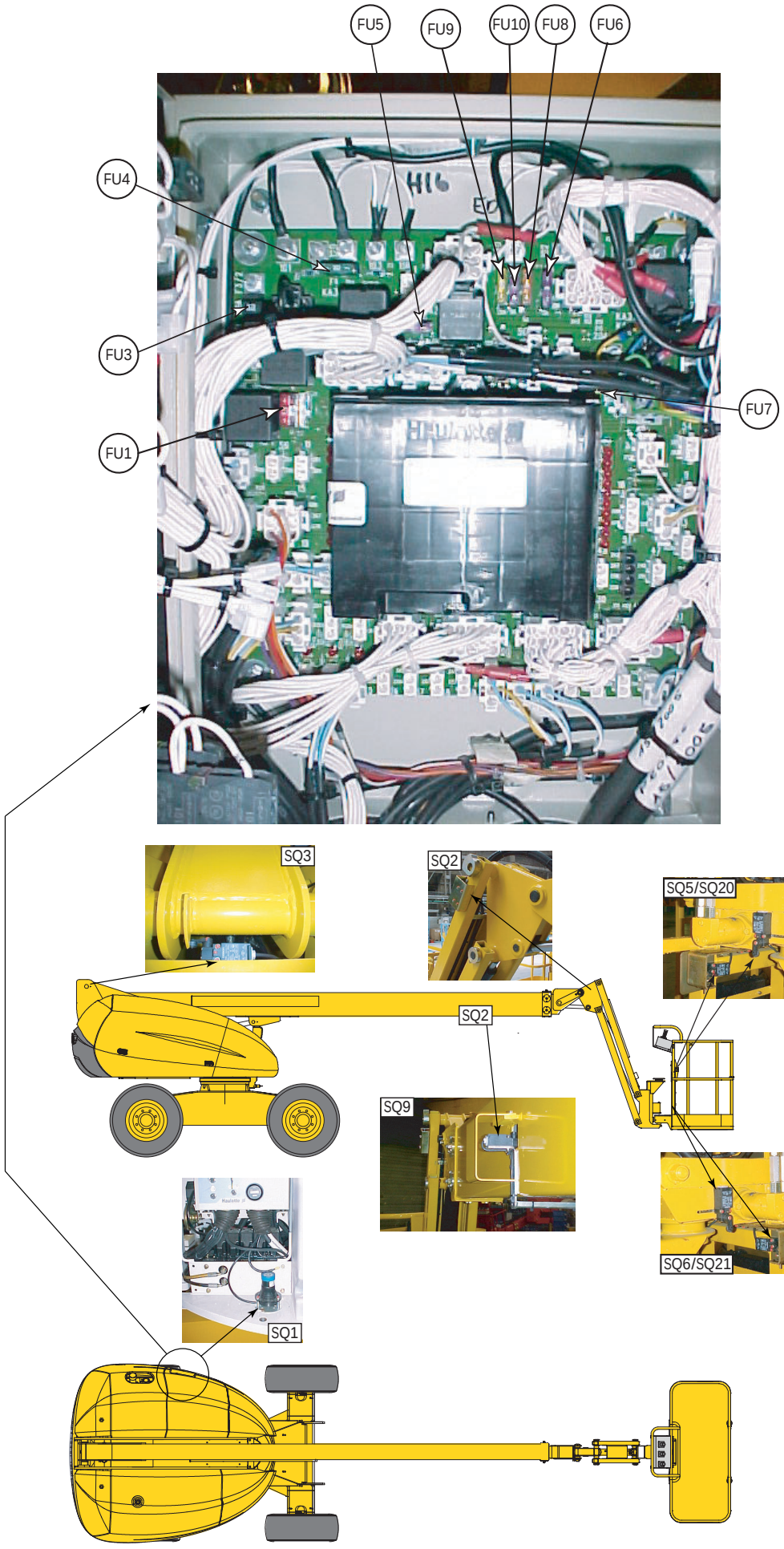
If the problem is not listed, contact the PINGUELY-HAULOTTE agent or the PINGUELY-HAULOTTE After-Sales Department.

Before diagnosing a breakdown, it is essential to check the following:

- the fuel tank is not empty
- the batteries are correctly charged
- the turntable and platform emergency stop buttons are unlocked

INCIDENT	PROBABLE CAUSE	SOLUTION
The motor does not start or stops	• Diesel tank empty. • Electric batteries discharged. • Defective fuse on printed circuit (in electric box). • "Palm" button pressed. • Motor in "safety" situation: oil pressure, overheating, generator charging. • Charging light indicator bulb blown. • Air filter clogging light indicator on. • Defective motor safety relay. • Battery cable and terminal loose contact	• Fill the tank. • Recharge the batteries. • Replace the defective fuses. • Reset. • See manufacturer's manual or call the After-Sales department. • Change the bulb. • Change the cartridge. • Replace the relay. • Unscrew the terminals and clean them.
Insufficient pressure or pump power	• Air filter clogged. • Motor regime too low. • Oil leak on a connection, hose or component. • Clogged oil filter.	• Change the filter. • Adjust the speed (see After-Sales dept.) • Repair or replace (see After-Sales dept.) • Replace the oil filter cartridge.
No movement in platform (no buzzer)	• Turntable key selector switch in the wrong position. • "Fail-safe" safety mechanism not activated • Manipulator operating fault. • Fault on the electrovalve of the chosen movement. • Insufficient hydraulic oil.	• Switch to the platform position • Press the "fail-safe" contact and hold down during movement. • Replace the manipulator (see After-Sales) • Replace the electrovalve or its coil • Fill up
No movement in platform (with buzzer)	• Platform overload. • Tilt too great.	• Remove load. • Retract the telescope, lower the boom and restore tilt to reset.
No high speed	• Platform slightly extended.	• Lower the boom totally.
No steering movement	• Insufficient hydraulic oil.	• Fill up.
The turntable does not rotate.	• The blocking pin is in place on the chassis.	• Remove the pin.
Noisy hydraulic pump	• Insufficient oil in the tank.	• Fill up.
Hydraulic pump cavitation.	• Oil viscosity too high.	• Empty the circuit and refill with the recommended oil.
No adhesion on one drive wheel	• Insufficient load on the wheel.	• Use the differential blocking key.

INCIDENT	PROBABLE CAUSE	SOLUTION
Buzzer sounds	• Slope or tilt > allowed limit. • Platform load close to cut-off. • Hydraulic oil too temperature too high.	• Reset by retracting the telescope and lowering the boom. • Unload. • Leave to cool.
Electropump does not work	• Battery disconnector open. • Faulty fuses. • Defective or discharged batteries. • Battery cables do not make contact.	• Close the battery disconnector. • Replace the fuses. • Replace or recharge the batteries. • Clean and tighten the terminals.


FU5
FU9
FU10
FU8
FU6
FU4
FU3
FU7
FU1
SQ3
SQ2
SQ5/SQ20
SQ2
SQ9
SQ6/SQ21
SQ1

7 - SAFETY SYSTEM

7.1 - MACHINE ELEMENTS

7.1.1 - Motor

Ref	Description
G2	Generator
M3	Starter
YA2	Accelerator
YA1	Motor stop
U3	Frequency module

7.1.2 - Power supplies and fuses

Ref	Description
FU1 10A	**Motor stop**
FU3 80A	**Accelerator**
FU4 30A	**+ Main**
FU5 3A	**212 +Turntable**
FU6 3A	**211 + Platform**
FU7 20A	**201 + Electrovalves**
FU8 5A	**242 +Permanent**
FU9 20A	**+ Accessories**
FU10 3A	**LS Valve**
FU11 250A	**Standby pump**

7.1.3 - Control inputs

SA2	**Accelerator**
SA3	**Differential blocking**
SA4	**Platform basket rotation**
SA5	**Platform compensation**
SA6	**Turntable jib**
SA7	**Platform jib**
SA8	**Turntable telescope**
SA9	
SA11	**LS MS HS**
SB3	**Turntable start**
SB4	**Platform start**
SB5	**Buzzer**
SA13	**Turntable lifting**
SA15	**Turntable rotation**
SM31	**Rotation and lifting**
SM2	**Telescoping**
SM4	**Travel**

7.1.4 - Safety inputs

SQ6	Weight
SQ5	Weight
SQ1	Tilt
SQ2	Jib from 0 to 90°
SQ3	Boom lifted
SQ9	Telescope out
SQ20	Basket rotation
SQ21	Basket rotation
B4	Oil tank temperature
B3	Motor oil pressure
B1	Filter clogged
D+	Generator

7.1.5 - Relay outputs

KP1	Motor stop
KT2	Accelerator
KA2	Starter

7.1.6 - On/off electrovalve outputs

YV1	LS
YV2a	PVG TOR
YV2b	PVG TOR
YV9	Differential blocking
YV13	HS
YV8	HS
YV10	MS HS
YV23	MS HS
YV12	MS HS
YV17	MS HS
YV15a	Compensation up
YV15b	Compensation down
YV18a	Jib down
YV18b	Jib up
YV19a	Left basket rotation
YV19b	Right basket rotation
YV22a	Rear left steering in 4*4
YV22b	Rear right steering in 4*4
YV24	Basket rotation \ compensation
YV11	Braking

7.1.7 - Proportional electrovalve outputs

YV3	Lifting
YV4	Telescoping
YV5	Rotation
YV6	Travel

7.1.8 - Buzzers

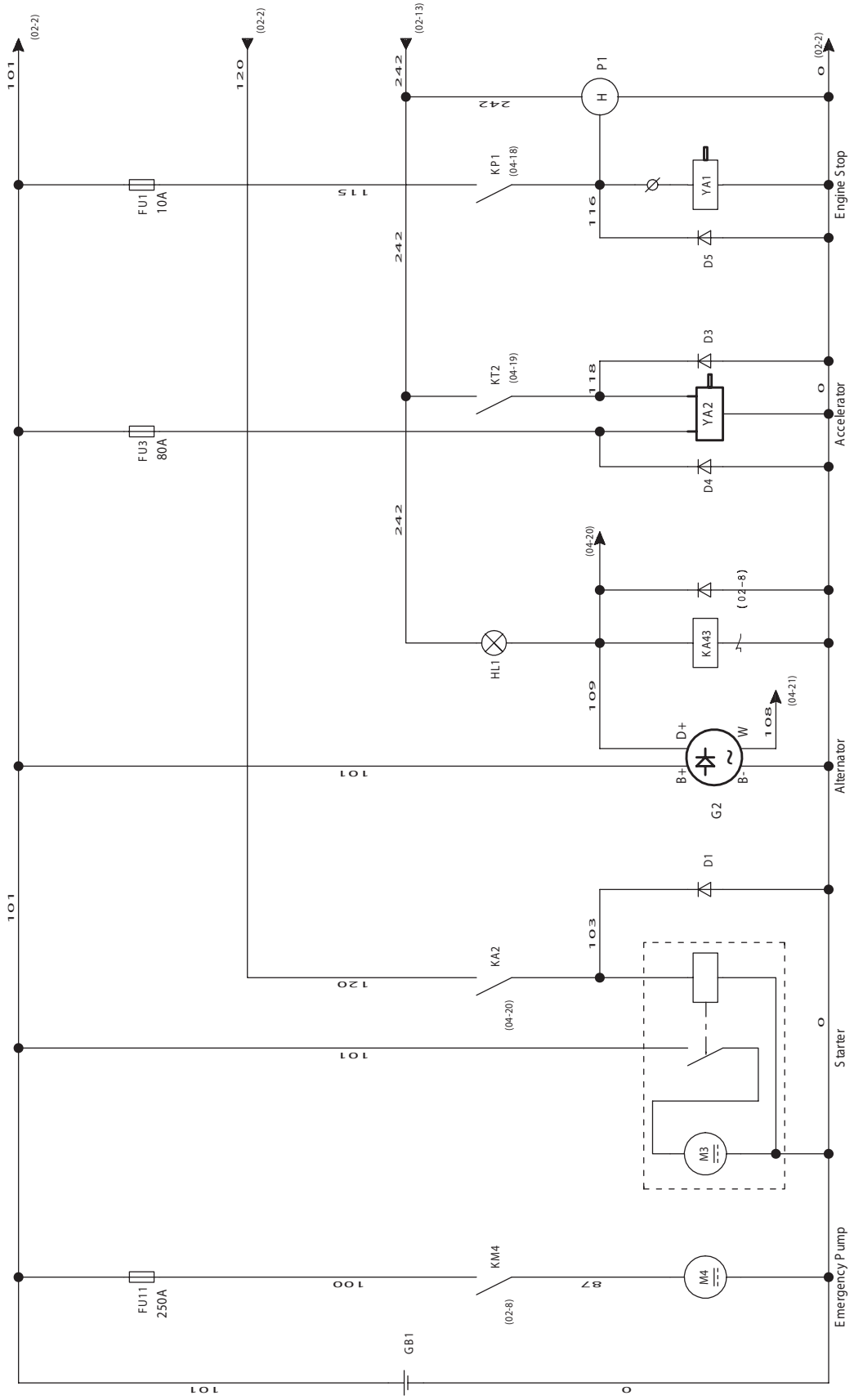
HA1	**Horn**
HA4	**Tilt, overload, temperature buzzer**
HA2	**Overload buzzer**

7.1.9 - Light indicators

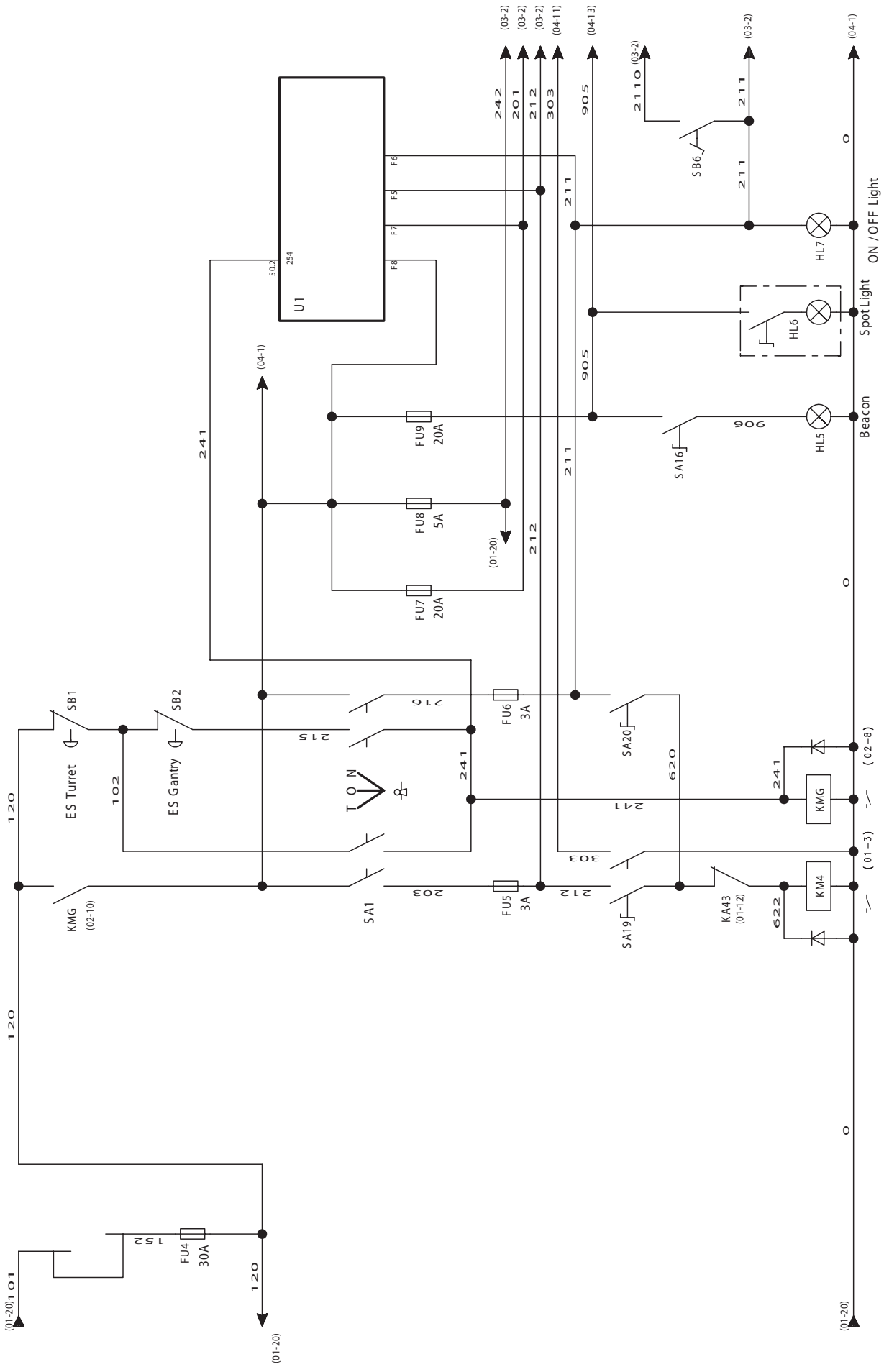
HL1	**Battery charge**
HL2	**Air filter**
HL4	**Motor oil pressure**
HL9	**Fault light indicator**
HL13	**Overload**

8 - WIRING DIAGRAM

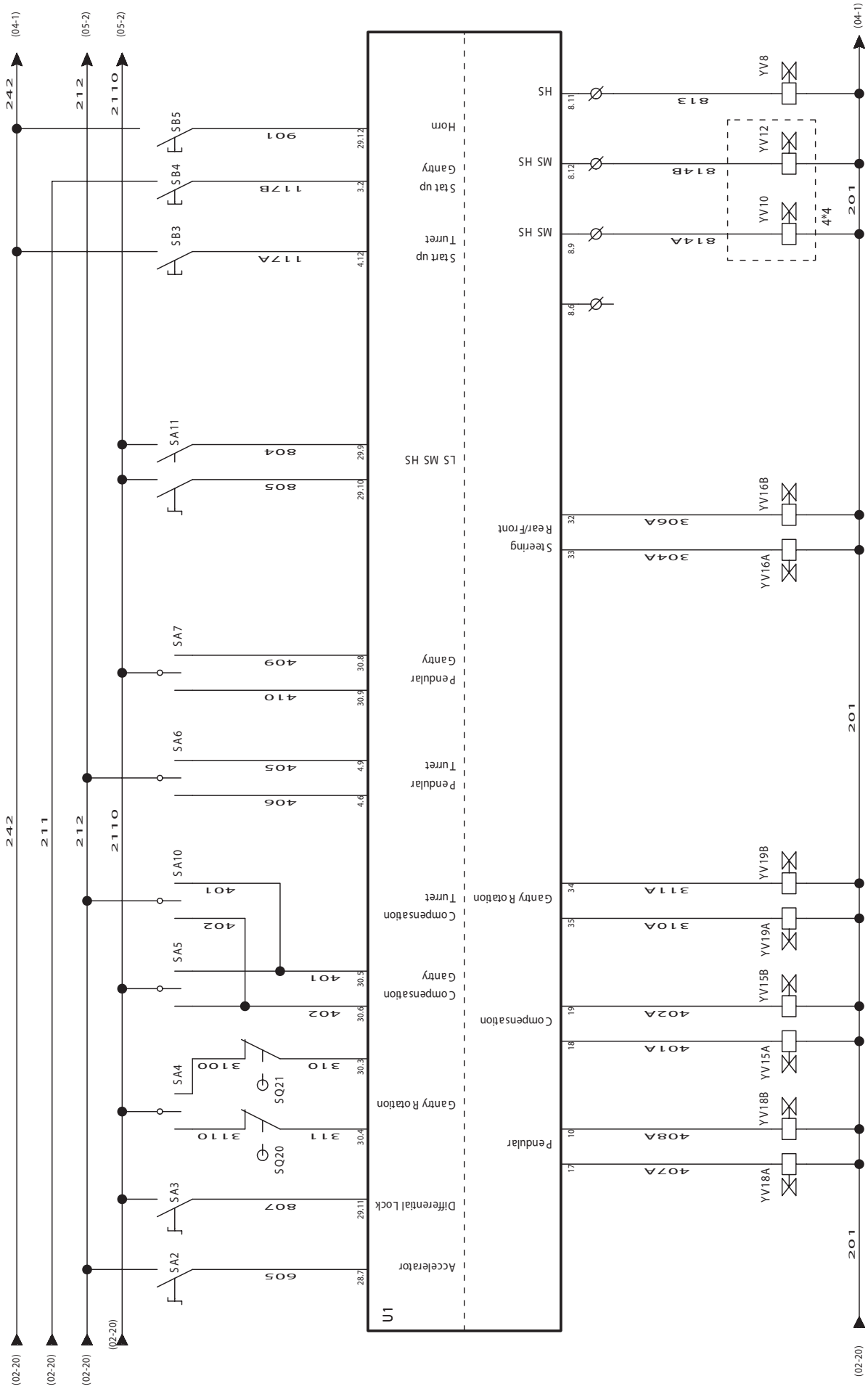
8.1 - DIAGRAM 152P282410 - FOLIO 01/05



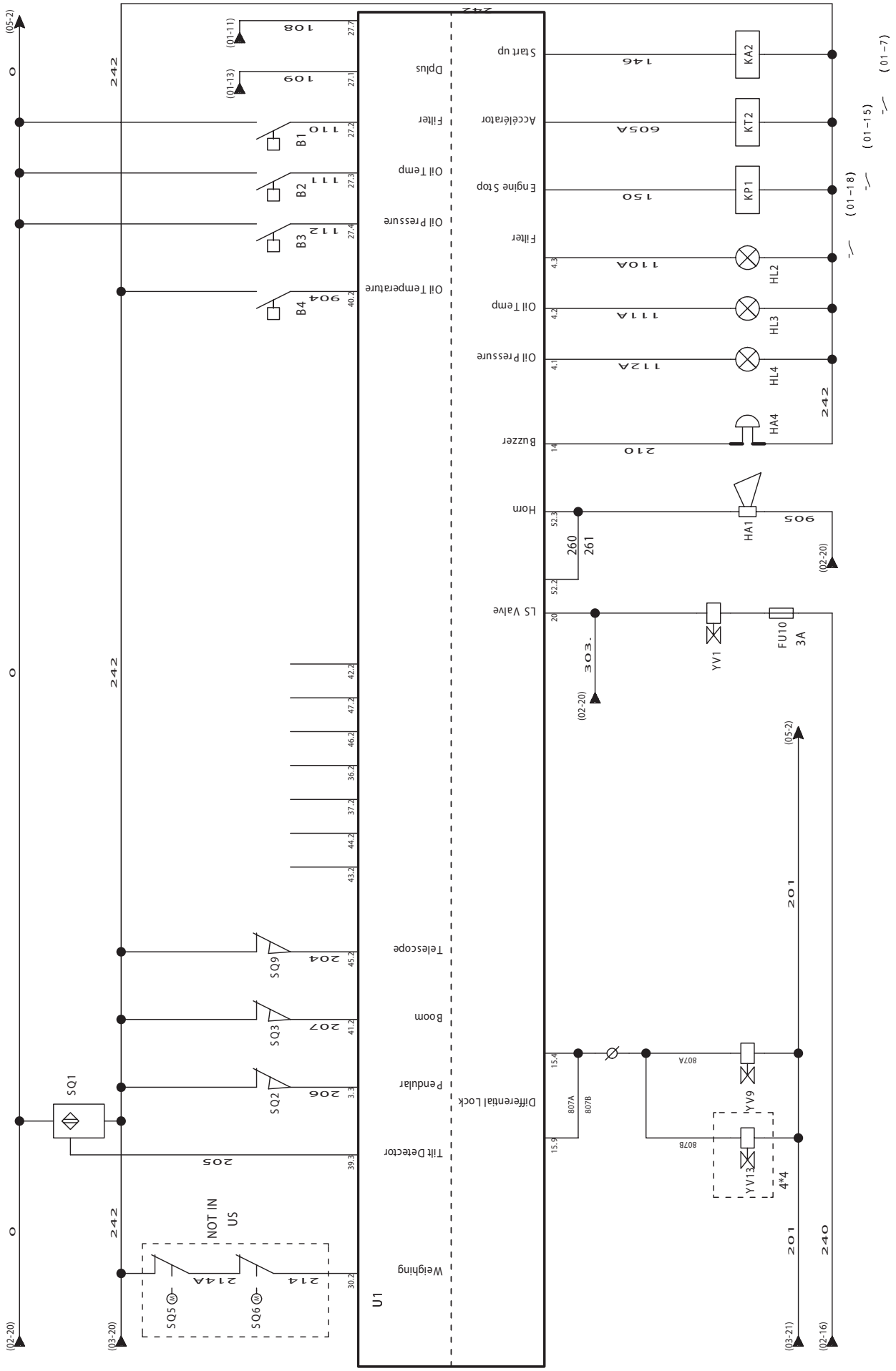
8.2 - DIAGRAM 152P282410 - FOLIO 02/05



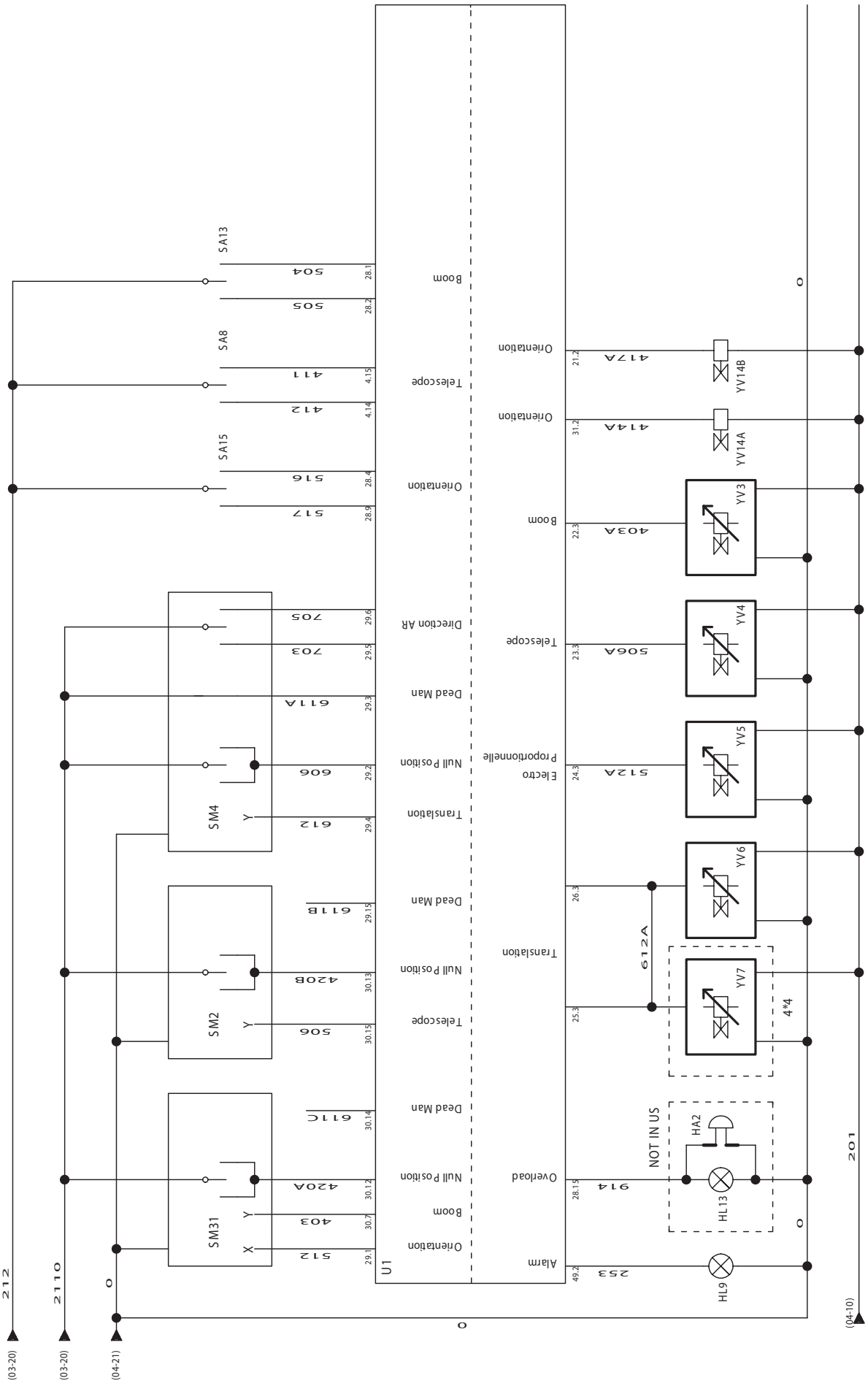
8.3 - DIAGRAM 152P282410 - FOLIO 03/05



8.4 - DIAGRAM 152P282410 - FOLIO 04/05

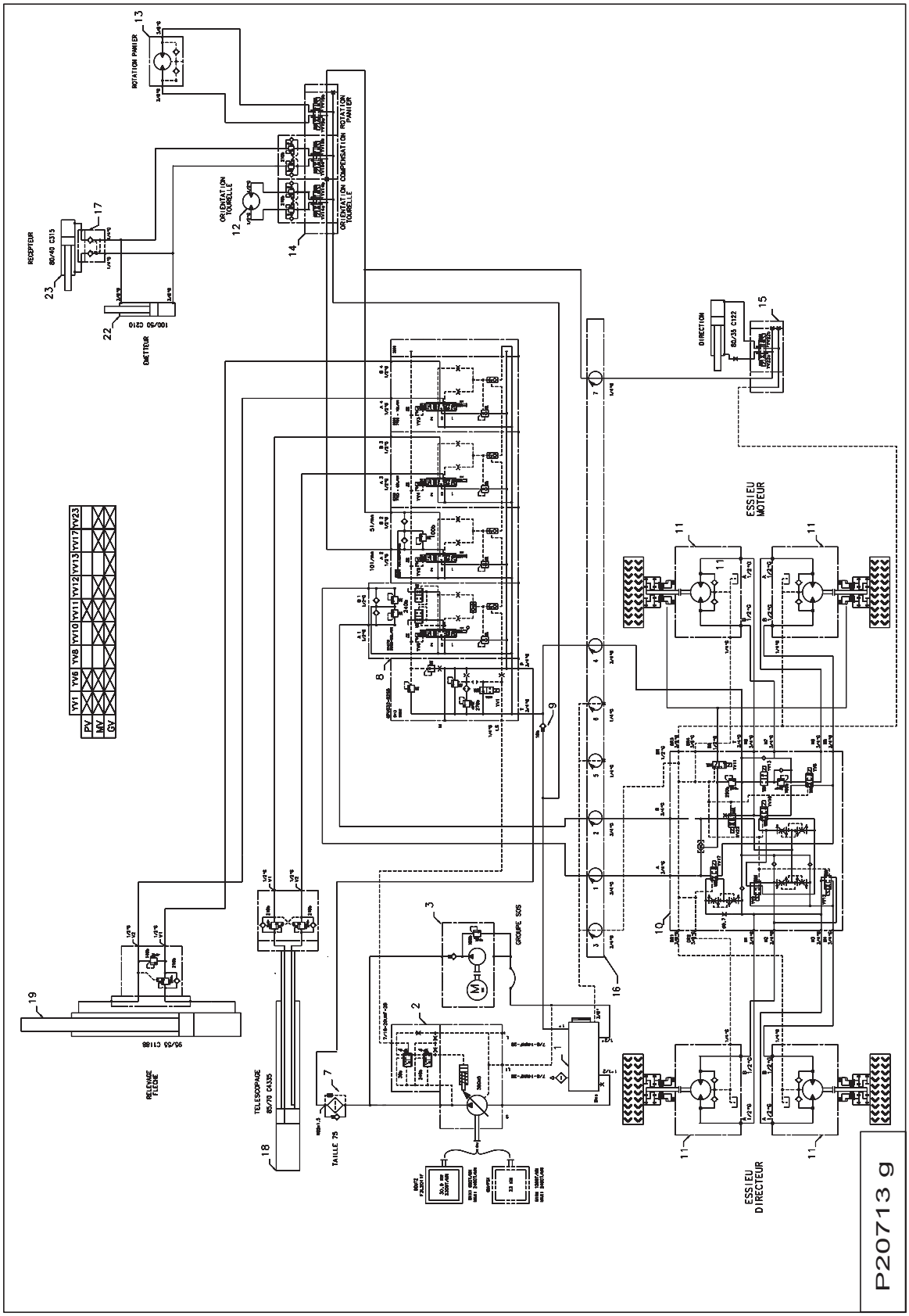


8.5 - DIAGRAM 152P282410 - FOLIO 05/05



9 - HYDRAULIC DIAGRAMS

9.1 - DIAGRAM H14T(X) REFERENCE P20713



9.2 - DIAGRAM H16TP(X) REFERENCE P20534