DINOlift

OPERATING INSTRUCTIONS

DINO XTB II
160 • 180 • 210

Manufacturer:

Dinolift Oy
Raikkolantie 145 | FI-32210 LOIMAA
Tel. + 358 20 1772 400 | info@dinolift.com | www.dinolift.com

ORIGINAL OPERATING INSTRUCTIONS

Valid from the serial numbers

160XTB II 160922->
180XTB II 40563->
210XTB II 210358->

SERIAL NUMBERS	CHANGE	DATE
160XTB II 160879-> 180XTB II 40542->** 210XTB II 210349->	EN280 upgrade: emergency stop bypass	6.2.2025
160XTB II 160922->** 180XTB II 40563->** 210XTB II 210358->	Mechanical chain indicators	12.11.2025

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1. TO THE OPERATOR

Keep this manual on the work platform of the lift in the box reserved for it. If the instruction manual gets lost, damaged, or for some other reason becomes unreadable, order a new manual from the manufacturer.

This manual is intended to familiarise the user with the structure and functions of the work platform, as well as with its appropriate use. The manual provides guidance on the service measures that are the responsibility of the user of the work platform.

Other maintenance procedures on the work platform require special skills, special tools or accurate knowledge about measurements or adjusted values. Guidance for these measures is provided in a separate service manual. For situations that require service or repair measures, contact the authorised service provider, importer or manufacturer.

DANGER

Read all the instructions in this manual before using the aerial work platform. Make sure that you have understood all the instructions. The instructions must absolutely be followed during operation and maintenance of the aerial work platform.

When handling the unit, in addition to the instructions in this manual, the user must also observe the local legislation, the guidelines stipulated by the employer, and regulations valid at the work site.

NOTICE

Information that only applies to a specific model version, feature or equipment, will have the identification included in the title. Check the applicability of such information to your machine.

Dinolift Oy is constantly developing its products. For this reason, the contents of this manual might not always be in full compliance with the most recent version of the product. Dinolift Oy reserves the right to modify the product without prior notice. Dinolift Oy assumes no liability for any problems caused by changed or missing data or mistakes in this manual.

Please consult your dealer or the manufacturer for more information and detailed instructions.

NOTICE

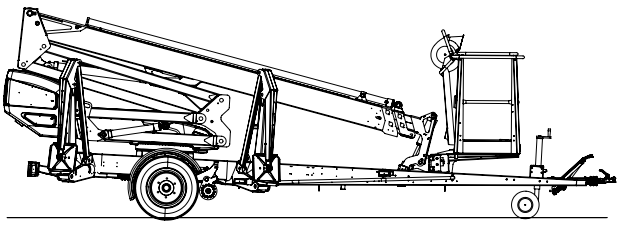
USA only

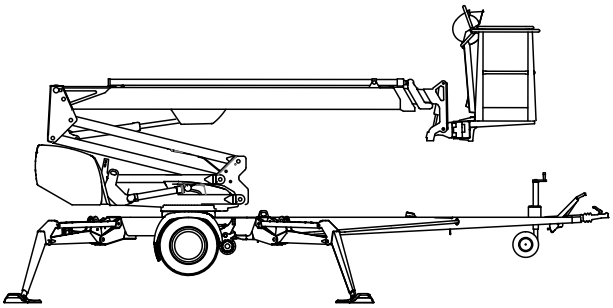
Dealers, installers, owners, users, operators, lessors, lessees and brokers must fulfill the responsibilities stated in the manual of responsibilities according to ANSI A92.20 and ANSI A92.22 standards for boom-supported elevating work platforms.

1.1. OVERVIEW OF THE UNIT

This unit is a trailer mounted, towable aerial work platform.
This aerial work platform complies with the standard EN280 type 1. Moving the lift by means of the driving device or by towing is possible only when the lift is in the transport position.

For the operation, the tyres of the lift shall be raised off the ground by means of the hydraulic outriggers.





The primary power source of the lift is the electric motor. The outriggers and the boom system are hydraulically powered.

As an option, the lift can be equipped with a hydraulic driving device.

Consult the chapters “Technical data” and “Structure and functions of the work platform” in this manual for more detailed information about the lift.

1.2. INTENDED USE OF THE WORK PLATFORM

The aerial work platform is exclusively intended for lifting people and tools to the work position to carry out work from the work platform. It can be used as a work platform within its permissible load-bearing capacity and reach (refer to the “Technical Specifications” table and the “Reach Diagram”) under normal operating conditions. Access to and from the work platform shall only take place in the access position at ground level.

The intended use also covers:
- Following all the instructions in the Operating Instructions
- Performance of the inspections and maintenance operations.
- Observation of the occupational safety regulations and road traffic regulations.

This aerial work platform is NOT insulated, and does not offer protection against contact with electric current. The aerial work platform must not be used for work on electric systems.

Observe the safety instructions concerning the operating environment, and the restrictions given in them.

NOTICE

The operator must receive instructions and consent from the manufacturer for all such specific work methods or conditions that the manufacturer has not explicitly defined in the unit's operation and maintenance instructions.

2. TECHNICAL SPECIFICATIONS

NOTICE

The information is valid for the machine in standard configuration. Different installed equipment or optional accessories may affect the given data! Such changes are marked on the machine and on the fitted equipment.

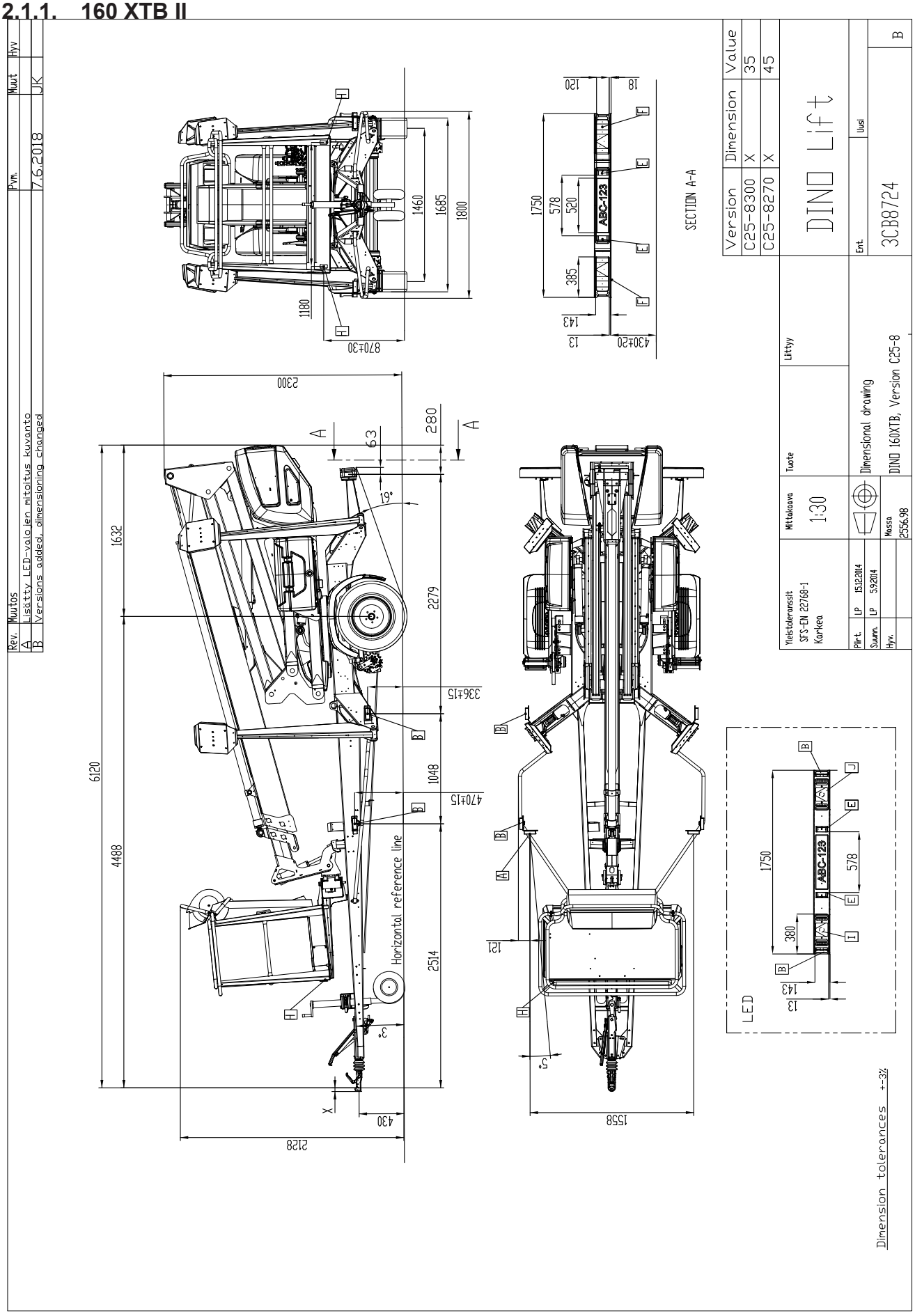
	160XTB II	180XTB II	210XTB II
Max. working height	16,0 m 52 ft 5 in	18,0 m 59 ft	21,0 m 68 ft 10 in
Max. platform height	14,0 m 45 ft 10 in	16,0 m 52 ft 5 in	19,0 m 62 ft 5 in
Max. outreach	9,1 m 29 ft 10 in	11,2 m 36 ft 9 in	11,7 m 38 ft 5 in
Boom rotation	continuous		
Platform rotation	180°		
Turn area	refer to the reach diagram		
Support width / Footprint	3,80/4,20 m 12 ft 6 in / 13 ft 9 in	3,90/4,30 m 12 ft 10 in / 14 ft 1 in	3,90/4,30 m 12 ft 10 in / 14 ft 1 in
Transport width	1,80 m 5 ft 11 in	1,95 m 6 ft 5 in	1,95 m 6 ft 5 in
Transport length	6,16 m 20 ft 2 in	6,67 m 21 ft 10 in	7,95 m 25 ft 12 in
Transport height	2,30 m 7 ft 7 in	2,30 m 7 ft 7 in	2,33 m 7 ft 7 in
Weight	2196 kg 4839 lb	2380 kg 5247 lb	2610 kg 5754 lb
Max. allowed load on platform	215 kg (475 lb)		
Max. number of persons + additional load	2 persons + 55 kg 121 lb		
Max. allowed sideways load (caused by persons)	400 N / 90 lb		
Max. lateral inclination (chassis)	±0,3°		
Max. allowed gradient of ground to the side	2,7°	6,7°	6,7°
Max. allowed gradient of ground lengthwise	4,2°	8,0°	8,3°
Max. wind speed during operation	12,5 m/s (28mph)		
Min. ambient temperature when working	- 20 °C (- 4 °F)		
Max. support force on the outriggers	16800 N 3777 lb	16800 N 3777 lb	22800 N 5126 lb
Max. ground pressure on outriggers	1,9 kg/cm2 (19 N/cm2)		2,6 kg/cm2 (26 N/cm2)
Max ground pressure with optional outrigger pads	0,7 kg/cm2 (7,0 N/cm2)		0,9 kg/cm2 (9,0 N/cm2)
Platform size	0,7 x 1,3 m (2ft 4" x 4ft 3")		

Gradeability		25% (14°)
Power supply		
- battery powered		24V/3kW, 4x6V 235Ah
	Sound pressure level	< 70 dB
	Whole-body vibration	Not detectable
- mains current, battery charging		230 V / 50 Hz / 10 A*
Socket outlets on the platform		2 x 230V/50Hz/16A*

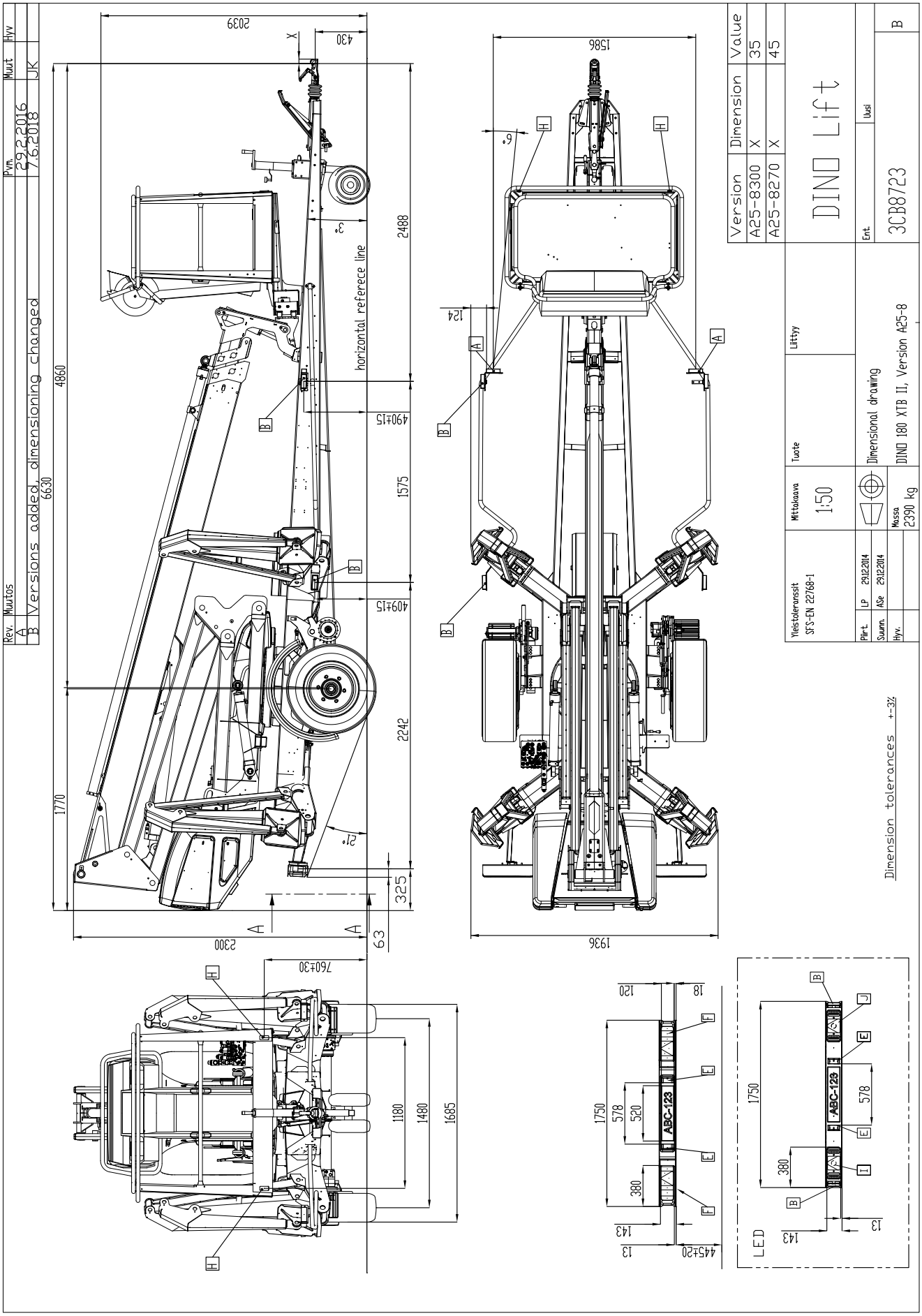
*Varies by region

2.1. DIMENSION DRAWINGS

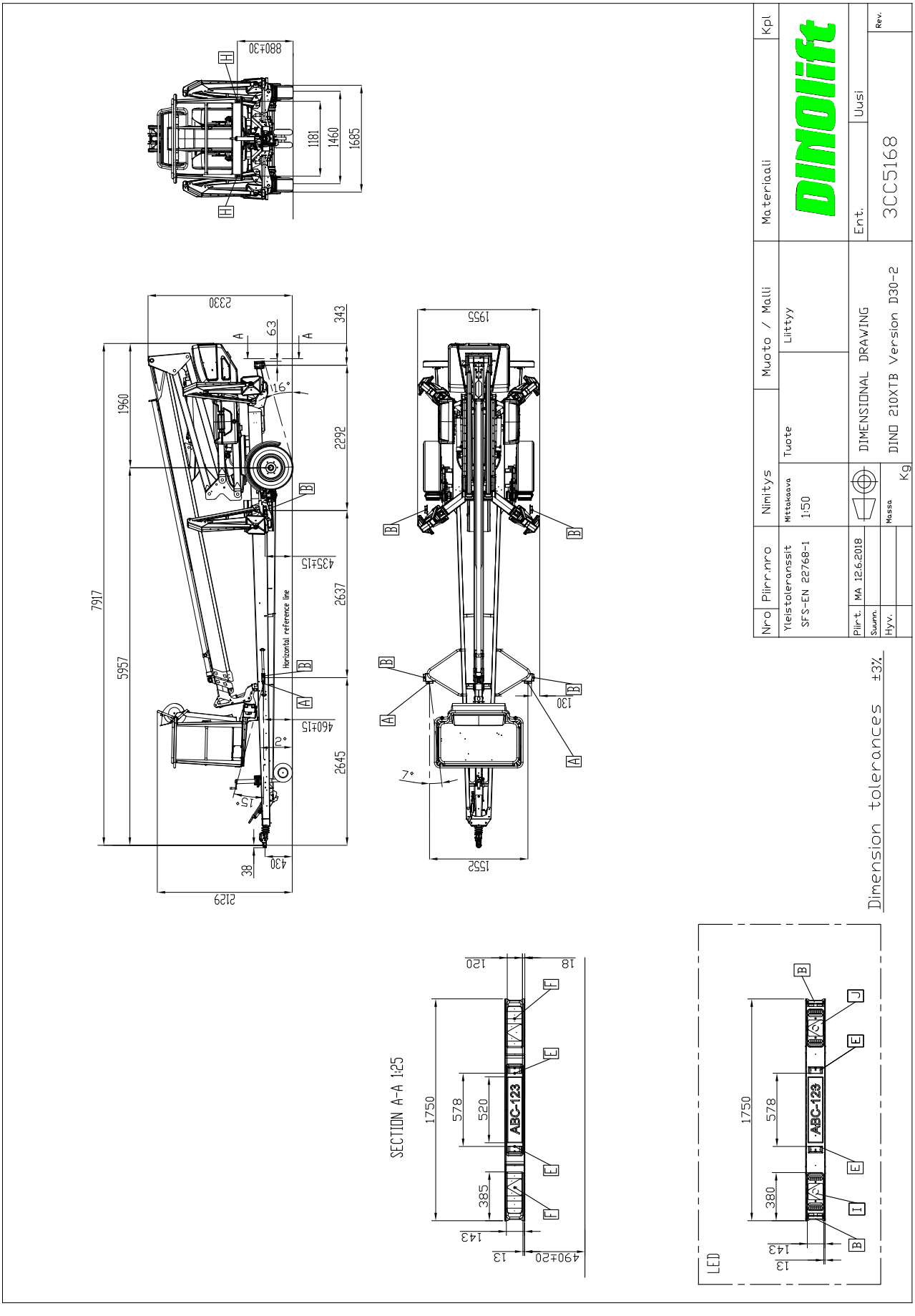
2.1.1. 160 XTB II



2.1.2. 180 XTB II

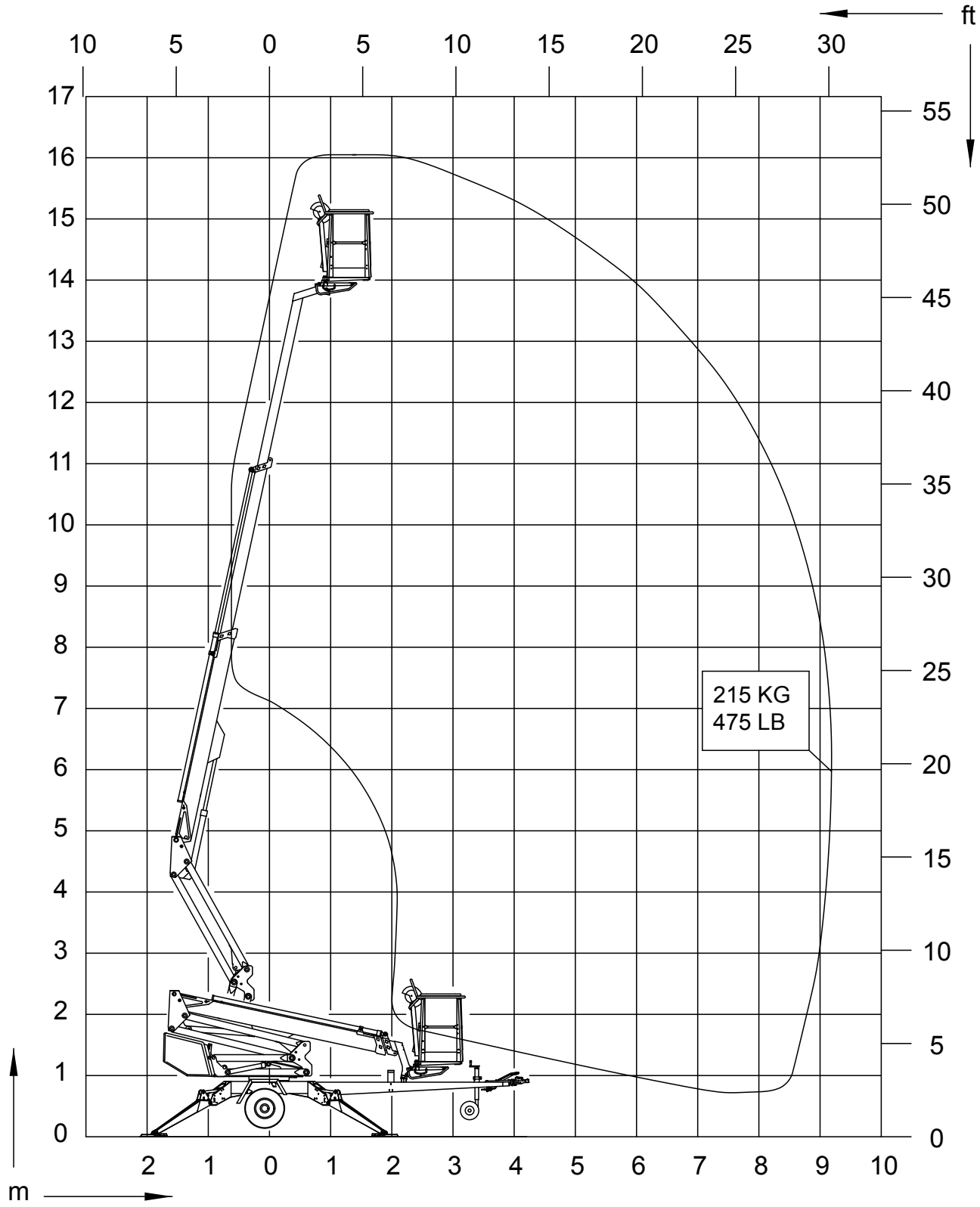


2.1.3. 210 XTB II

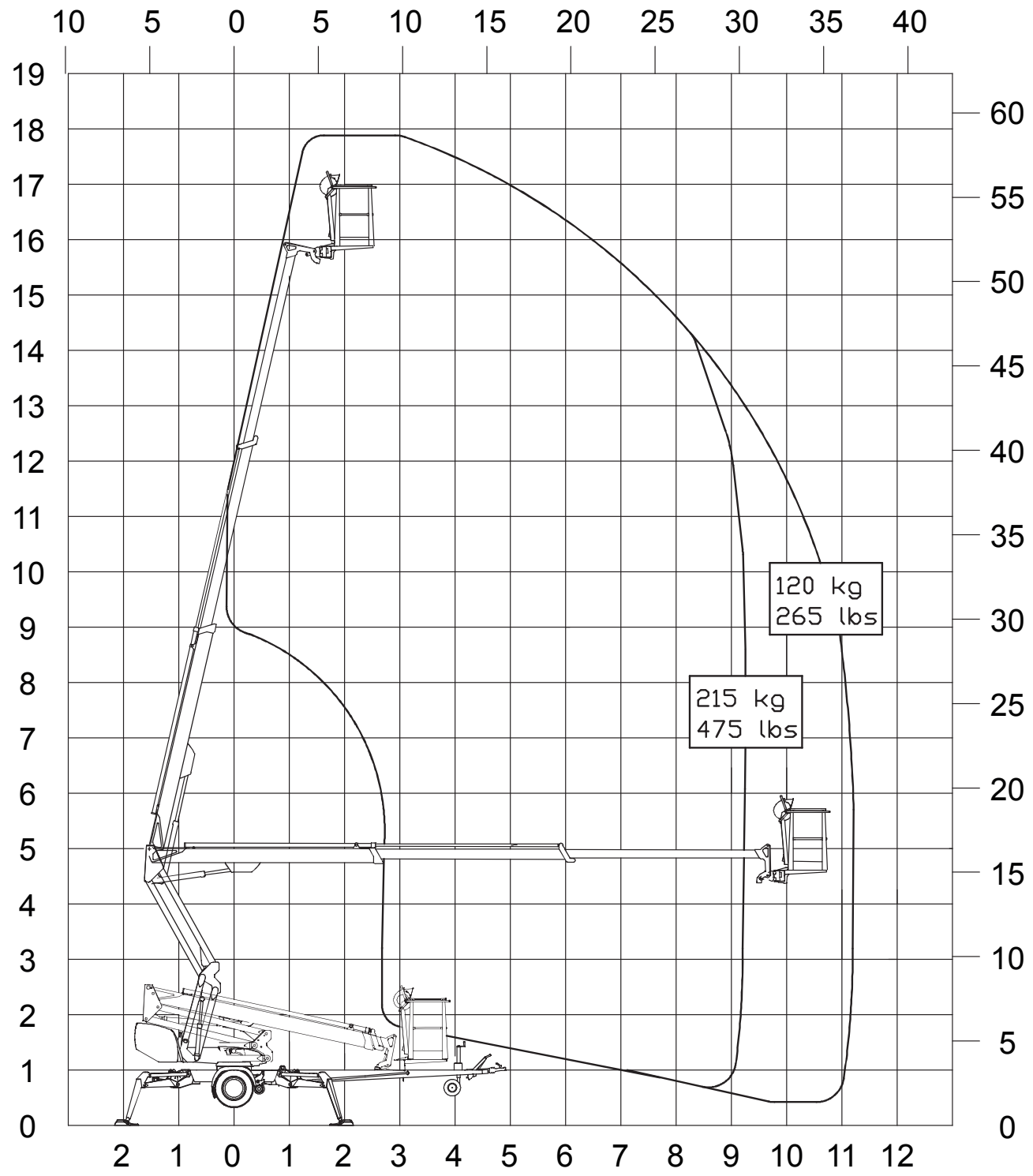


2.2. REACH DIAGRAM

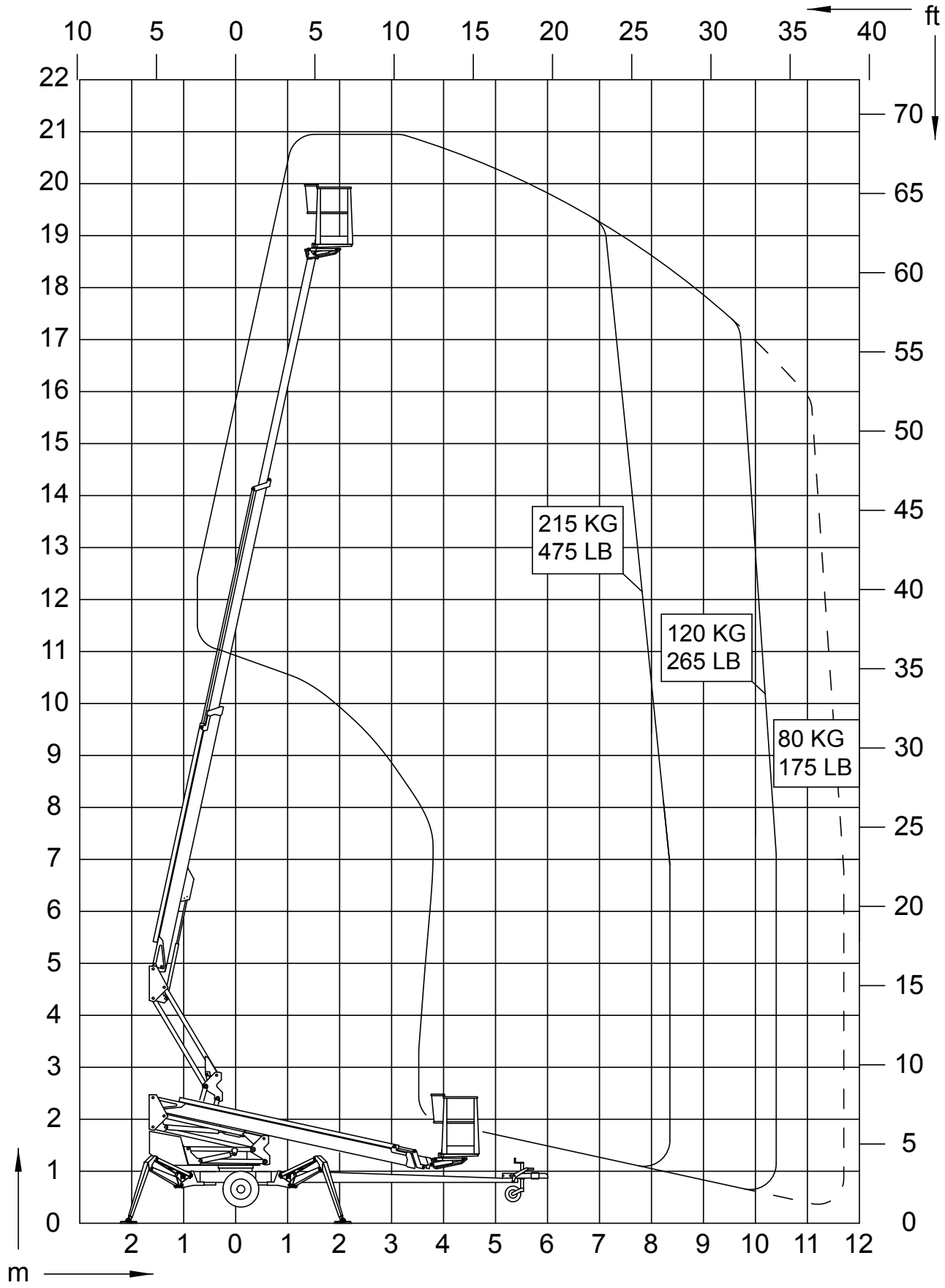
2.2.1. 160 XTB II



2.2.2. 180 XTB II

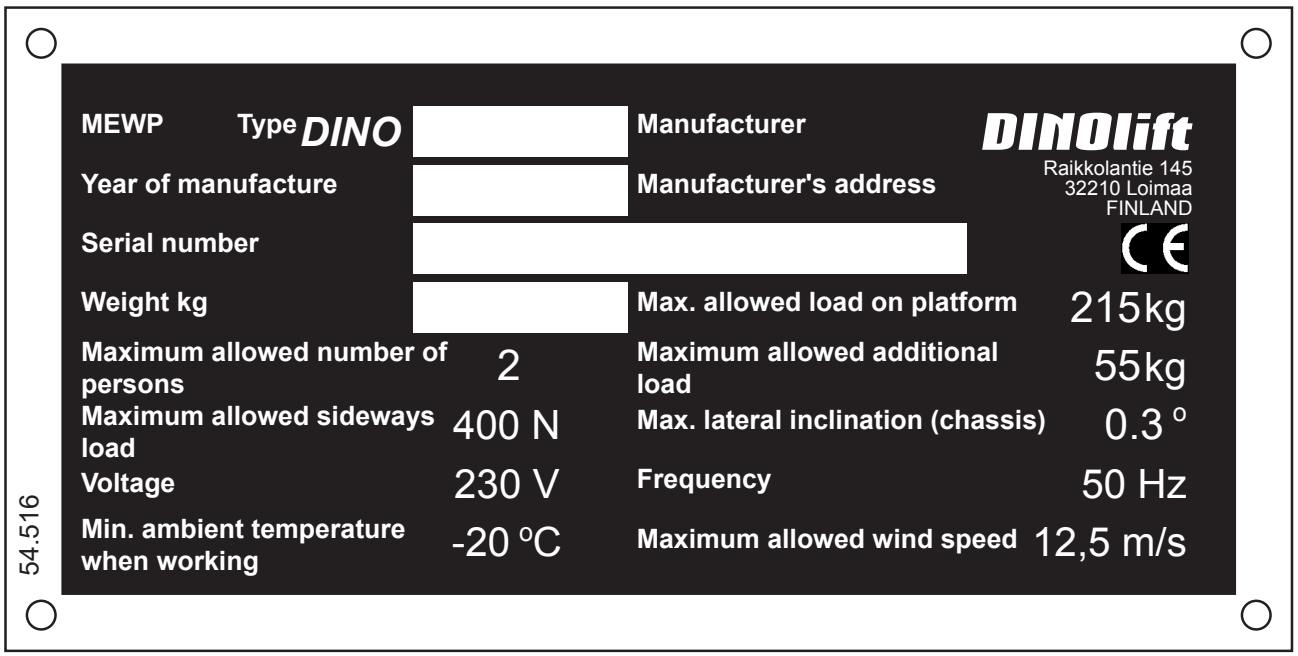


2.2.3. 210 XTB II



2.3. EXAMPLE OF THE MACHINE'S NAMEPLATE

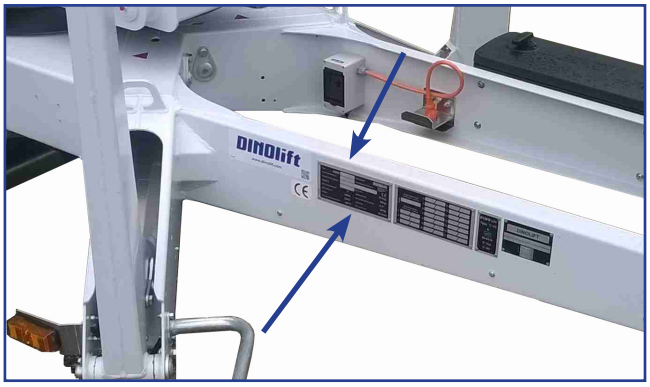
The name of the manufacturer, and the production number and serial number of the machine have been marked on the nameplate as shown in the picture below.



Description of the machine marked on the plate MEWP = "Mobile Elevating Work Platform"

The nameplate of the MEWP is located on the right-hand side of the drawbar as shown in the picture.

The serial number is also engraved in the lift's chassis, on the upper surface of the right-hand drawbar.



The vehicle identification plate of the trailer is located on the drawbar, on the right-hand side of the nameplate of the lift, as shown in the picture.



Following data is written on the plate:

EU Type Approval Number (if available)		
Serial number		
	Total weight	kg
0	Maximum allowed weight on the towing hitch	kg
1	Maximum allowed axle weight	kg
2		kg

The ANSI compliance information of the MEWP is located on the right-hand side of the drawbar as shown in the picture.



Equipment has been designed, manufactured and tested in accordance with
CSA B354.6-17
ANSI A92.20-2021
54.1864

160 XT/XTB II

Equipment has been designed, manufactured and tested in accordance with
CSA C225:20
ANSI A92.2-2021
54.1870

210 XT/XTB II

2.4. EXAMPLE OF EU DECLARATION OF CONFORMITY

EU declaration of conformity for machine

Manufacturer
Dinolift Oy
Raikkolantie 145
FI-32210 Loimaa, FINLAND

declares that

DINO 160XTB-2 Access Platform no. YGC160XTBFXXXXXXX

is in conformity with the provisions of Machinery Directive **2006/42/EC** as amended and with national implementing legislation.

2006/42/EC Conformity assessment procedure followed: Annex VIII: internal control of production as confirmed in certificate No. **DCE D015176A**

Access platform also fulfils the requirements of the following EEC directives:
2014/30/EU

Following harmonized standards have been applied in designing the machine:
SFS-EN 280-1:2022, SFS-EN 60204-1:2018, SFS-EN-ISO 12100:2010, EN ISO 4413:2010, EN13001-3-1:2012+A2:2018, EN 61310-1:2008, EN ISO 13849-1:2015, EN ISO 13850:2015, EN ISO 4871:2009, EN ISO 11201:2010,

Person authorized to draw up the Technical File: Santtu Siivola
Chief Engineer
Dinolift Oy, Raikkolantie 145,
FI-32210 Loimaa, FINLAND

Loimaa XX.XX.2024

Santtu Siivola
Chief Engineer

2.5. SAMPLE OF INSPECTION PROTOCOL FOR THE ACCESS PLATFORM

DINOlift

www.dinolift.com

TEST CERTIFICATE

DATE:

START-UP TESTS:

Inspection place: **Dinolift Oy**

Inspector's signature: Reunanen Jari NT0226

BASIC KNOWLEDGE

Manufacturer: **Dinolift OY** Place of manufacture: **Finland**

Address: **Raikkolantie 145**
32210 LOIMAA

Importer:

Type of lift:	☑ Boom platform	☐ Scissor platform	☐ Mast platform
Chassis:	☐ Car	☑ Self propelled	☑ Trailer mounted
Boom:	☐ Articulated boom	☐ Telescope boom	☑ Articulated telescope boom
	☐ Scissor	☐ Fixed mast	☐ Telescope mast
Outriggers:	☑ Hydraulic turning	☐ Hydraulic pushing	☐ Mechanical

TECHNICAL SPECIFICATIONS

Machine and type:	**DINO 180XTBII**	Max. platform height	**16 m**
Number of manufacture	**YGC180XTB F2040001**	Max. outreach: depend on load:	**Depend on load**
Year of manufacture	**2014**		
Max. lifting capacity:	**215 kg**	Boom rotation:	**Continuous**
Max. person number:	**2**	Support width:	**3,8 m**
Max. additional load:	**55 kg**	Transport width:	**1,95 m**
Power supply:	**24 VDC**	Transport length:	**6,65 m**
Lowest temperature:	**-20 °C**	Transport height:	**2,31 m**
Weight:	**2390 kg**	Basket size:	**0,7 x 1,3 m**

Inspection points: (Y = meet standards N = do not meet standards)

	Y	N
A. STRENGTH		
1. Certificate of material	☑	☐
2. Certificate of strength	☑	☐
B. STABILITY		
1. Certificate of stability test	☑	☐
2. Working space diagram	☑	☐
C. GENERAL REQUIREMENTS		
1. User's manual	☑	☐
2. Place for safekeeping for user's manual	☑	☐
3. Machine plate - checking plate	☑	☐
4. Load plate	☑	☐
5. Warning plate	☑	☐
6. Plate for supports	☑	☐
7. Safety colours	☑	☐
D. SAFETY REQUIREMENTS		
1. Indicating device for horizontal position	☑	☐
2. Locking device and lockings	☑	☐
3. Stop device for lifting	☑	☐
4. Stop for opening of support	☑	☐
5. Safety distances	☑	☐
6. Position of working face	☑	☐
7. Structure of working face	☑	☐
8. Emergency descent system	☑	☐
9. Limit devices	☑	☐

E. ELECTRIC APPLIANCES		G. SAFETY DEVICE	
1. Electric appliances	☑ ☐	1. Safety limit switch	☑ ☐
		2. Sound signal	☑ ☐
F. CONTROL DEVICES			
1. Protections	☑ ☐	H. LOADING TEST	
2. Symbols / directions	☑ ☐	1.Dynamic = 237 kg	☑ ☐
3. Placings	☑ ☐	2. Static = 323 kg	☑ ☐
4. Emergency stop	☑ ☐	3. Work movements	☑ ☐
	☑ ☐		

FAILINGS AND NOTES _____

Failings have been repaired. Date: _____ Signature: _____

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The initial inspection and test loading of the Dino aerial work platforms is performed by the manufacturer. A protocol, drawn up during the inspection, will accompany the lift.

The protocols of the start-up and periodic inspections must be kept with the lift or its immediate proximity for at least five years.

3. SAFETY

All the essential safety instructions and warnings, relevant to transport, use and maintenance of the lift, are described in this chapter.

DANGER

Failure to observe these instructions and safety regulations may cause a severe injury or even death. Familiarise yourself with all the safety regulations, operating instructions and signs affixed to the machine, and follow them.

Make sure that you understand all the safety instructions and regulations. Also make sure that others operating the machine or working on the work platform are familiar with these instructions.

3.1. SAFETY INSTRUCTIONS

Only specially trained personnel with authorisation in writing, who are well familiarised with the device, and at least 18-years old, are allowed to operate the unit.

Keep the lift free of any dirt, which may impair safe operation, and impede the inspection of the structures.

The device must be serviced and inspected regularly.
Only skilled persons, familiar with the service and repair instructions, are allowed to carry out servicing and repair work.

It is strictly prohibited to use a lift which is out of order!

Never remove or disable any safety devices of the machine.

WARNING

The device must neither be altered without the manufacturer’s consent nor be used under conditions, which do not meet the manufacturer's requirements.

The operator must receive instructions and consent from the manufacturer for all such specific work methods or conditions that the manufacturer has not explicitly defined.

Clean up any oil, fuel and chemical spills properly. Absorb oils in absorbent material and dispose of oily waste properly. Neutralize spilled battery acid with baking soda or other suitable material. Find out the cause of the leak and fix it.

If the machine has an internal combustion engine, always turn off the engine while refueling. Do not start the engine if you notice any signs of fuel or oil leakage on the machine.

Do not use the internal combustion engine indoors unless exhaust removal is ensured.

Charging lead-acid batteries emits dangerous chemicals. Make sure that the batteries are always charged in well-ventilated areas. Never charge a damaged batteries.

Keep the machine away from possible sources of ignition. Hot work operations are strictly prohibited in the vicinity of batteries or fuel tanks.

WORK AREA AND PREPARATIONS BEFORE LIFTING WORK

When working in busy areas, the operating range of the lift must be clearly marked by using either warning lights or fencing. Also check local regulations on working on public roads.

Ensure the unobstructed range of movement before operating the outriggers.

The load-bearing capacity and the gradient of the base must be taken into account when supporting the machine. Do not use the machine on a lorry, a railway car, a floating vessel or any other potentionally unstable platform.

Ensure that the outriggers cannot slide while on a gradient.

Additional support plates of adequate size must be used under the outriggers, when working on soft ground. Only use such additional support plates, on which the metallic outriggers will not slide.
While in the support position, ensure that the wheels are off the ground.

Always ensure the level position of the machine before starting the operation.

Always ensure that the work area is clear of outsiders. Danger of getting squeezed between rotating and fixed structures.

While operating the boom from the control centre on the turning device, beware of getting pressed against the outriggers or other structures that do not turn with the boom.

TRANSFERS

Observe the maximum allowed gradient when transferring the lift. During transfer in rough terrain, always try to position yourself higher than the machine.

Beware of fixed or moving obstacles in the terrain or near the lift while driving. Make sure that you have a clear view of the driving path.

Do not use the machine for towing.

LIFTING AND WORKING ON THE PLATFORM

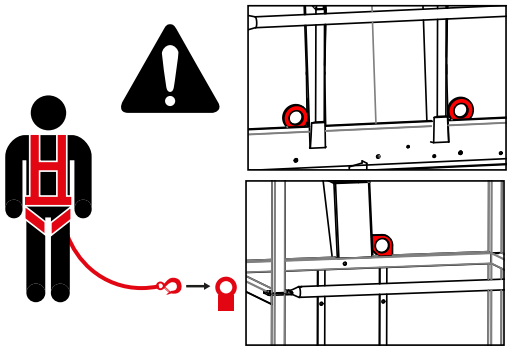
Never exceed the maximum number of persons, maximal loading or hand force, allowed for the lift. Never add load onto the platform while in the upper position.

Before operating, always ensure that the safety devices and the emergency descent system are in working order.

Use the safety harness! Fix the safety harness to the fixing points, intended for the purpose.

Note! The platform is fitted with a fixing point for the safety harness of each user. Only one harness per fixing point.

Do not use ladders, steps or other similar equipment on the platform.



Ensure that the gates are properly closed before starting the operation. If the work platform is equipped with ladder, these must be locked in the upper position.

Never throw or drop any objects from the platform. All the tools must be transported on the inside of the platform. Never leave the tools hanging outside the work platform, supported only by their power cord.

Do not lift the tools, accessories or other material on the railing of the platform or attached to the railing.

The aerial work platform must not be used as a crane.
The work platform must not be used for transferring goods or persons between different floors or working levels. Stepping on or off the platform in motion or elevated is prohibited.

When the boom is in its lowest positions, make sure it cannot clash during rotation with structures that do not turn with the boom.

Always make sure, before lowering the platform, that the area under it is clear.

Avoid damaging the platform by lowering it on the ground, or bringing it in contact with any structures.

Never use a lift alone. Make sure that there is always someone on the ground, who can call for help in case of an emergency.

OPERATING CONDITIONS

The weather conditions, such as wind, visibility and rain, must always be taken into account so that these will not adversely affect the safe performance of the lifting operations.

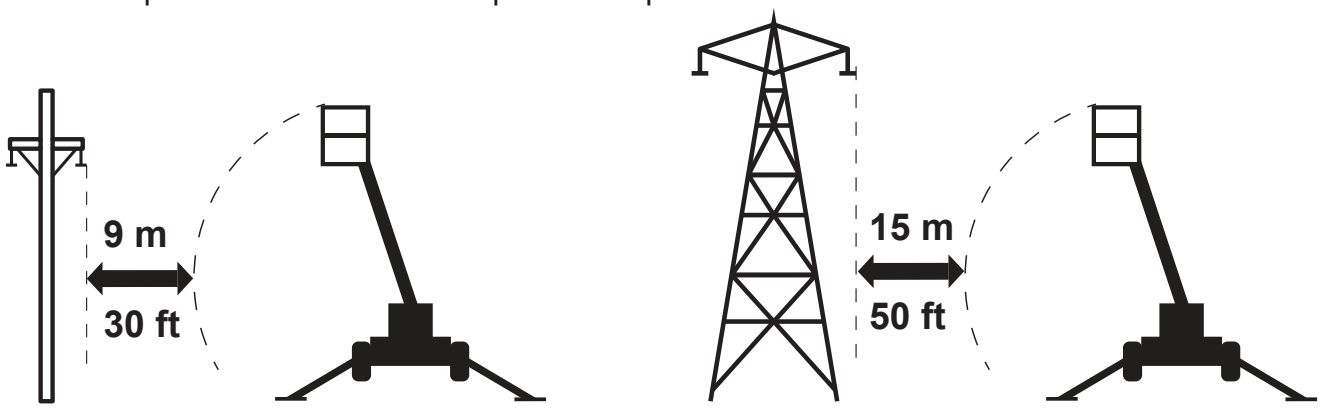
The use of the lift is prohibited, if the temperature drops under -20 °C, the wind speed exceeds 12.5 m/s or it's thundering.

Wind speed (m/s)		Conditions on land
0	Calm	Smoke rises vertically
1-3	Light breeze	Smoke moves with the wind and the wind feels on exposed skin. Leaves rustle.
4-7	Gentle breeze	Leaves and small branches of trees are moving. Flag is flying. Wind lifts dust and loose pieces of paper from the ground.
8-13	Strong breeze	Small broad-leaved trees and large branches sway. Wind whistles as it hits houses or other fixed objects. Umbrella is difficult to use.
14-17	Strong	All the trees are swaying. It is difficult. to walk against the wind.

NOTE! The wind speed can be much higher at a higher altitude than on the ground level.

Do not take tools/material of large surface area onto the platform. The increase in wind load may jeopardize the stability of the device.

Beware of the live aerial power lines in the area! Keep a safe distance from live overhead power lines and other exposed live parts.



Follow these distances if more detailed local instructions and information about the voltage level are not available. Always check local instructions and safe distances with an expert on a site-specific basis. The safe working distance depends on the voltage level of live parts.

This aerial work platform is NOT insulated, and does not offer protection against contact with electric current. The aerial work platform must not be used for work on electric systems.

3.2. SAFETY-RELATED NOTIFICATIONS

The following safety alert symbols and safety signal words are used in this manual.

Observe all the safety instructions that follow these symbols, in order to avoid dangerous situations and personal injuries.



This is a general safety alert symbol and it is used to alert you about a potential hazard. Observe the additional instructions given in form of text or symbols that follow this symbol.

DANGER

Red DANGER-message warns for an imminent or potential hazardous situation which, if not avoided, may result in death or serious injury.

WARNING

Orange WARNING -message is used in connection with potential risk factors, which if not avoided, under certain conditions, may result in death or serious injury.

CAUTION

Yellow CAUTION -message is used to warn about a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Blue notice-message is used to draw your attention to special notifications or instructions that are related to the operation or maintenance. Such messages include, for example, instructions that are related to reliability of the machine or aim to avoid material losses.



Risk of getting crushed - moving parts



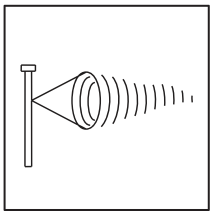
Risk of getting crushed - moving parts



Risk of getting crushed - falling objects



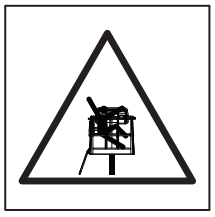
Harmful exhaust gas emissions



Wind speed



Risk of turning over



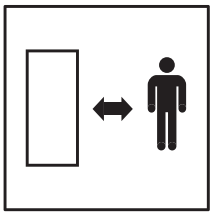
Risk of falling



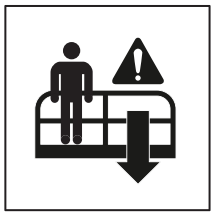
Support force



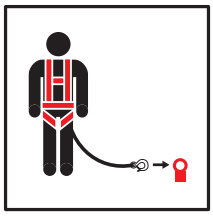
Smoking prohibited



Keep safe distance



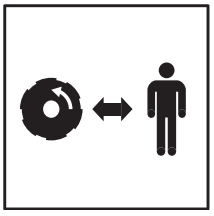
Emergency descent



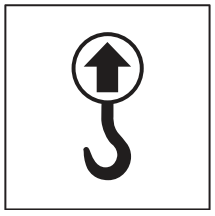
Fixing point for the falling guard



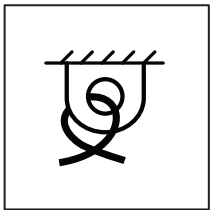
Open flame prohibited



Keep safe distance



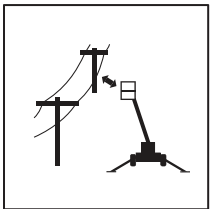
Lifting point



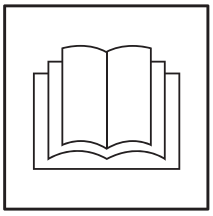
Fixing point



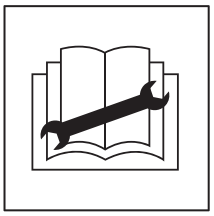
Running the engine indoors prohibited



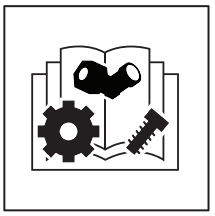
Keep safe distance to the power lines



Operating instructions



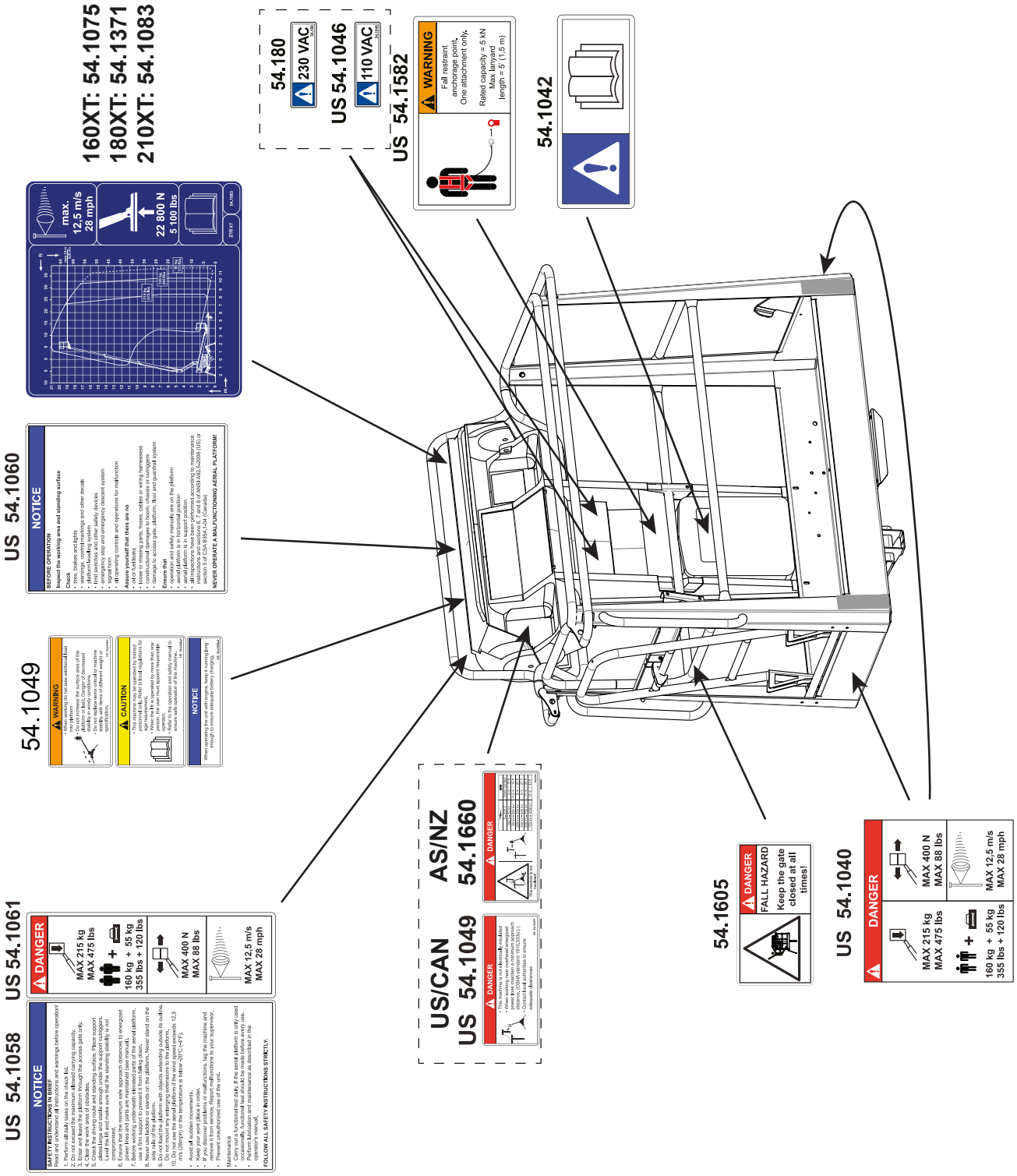
Maintenance instructions



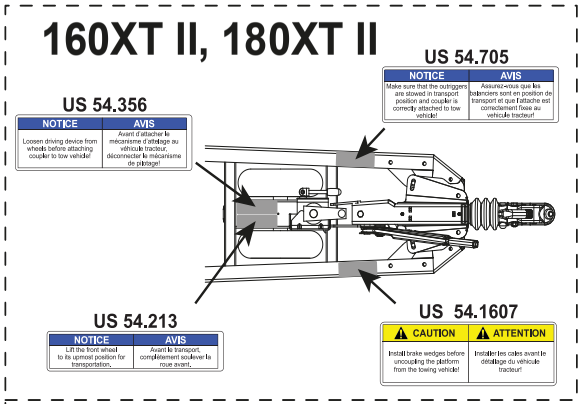
Spare parts catalog

3.3. SAFETY LABELS

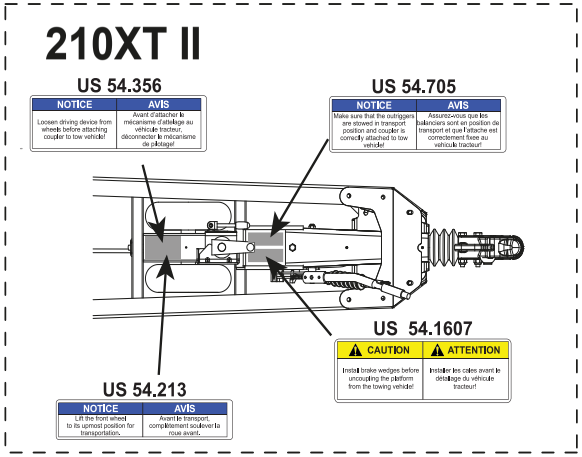
(ANSI/CSA/AS/NZS) The following safety labels must be intact, clean and legible. Replace the labels if necessary. CE Safety labels and all instructional labels are listed in the spare parts list.

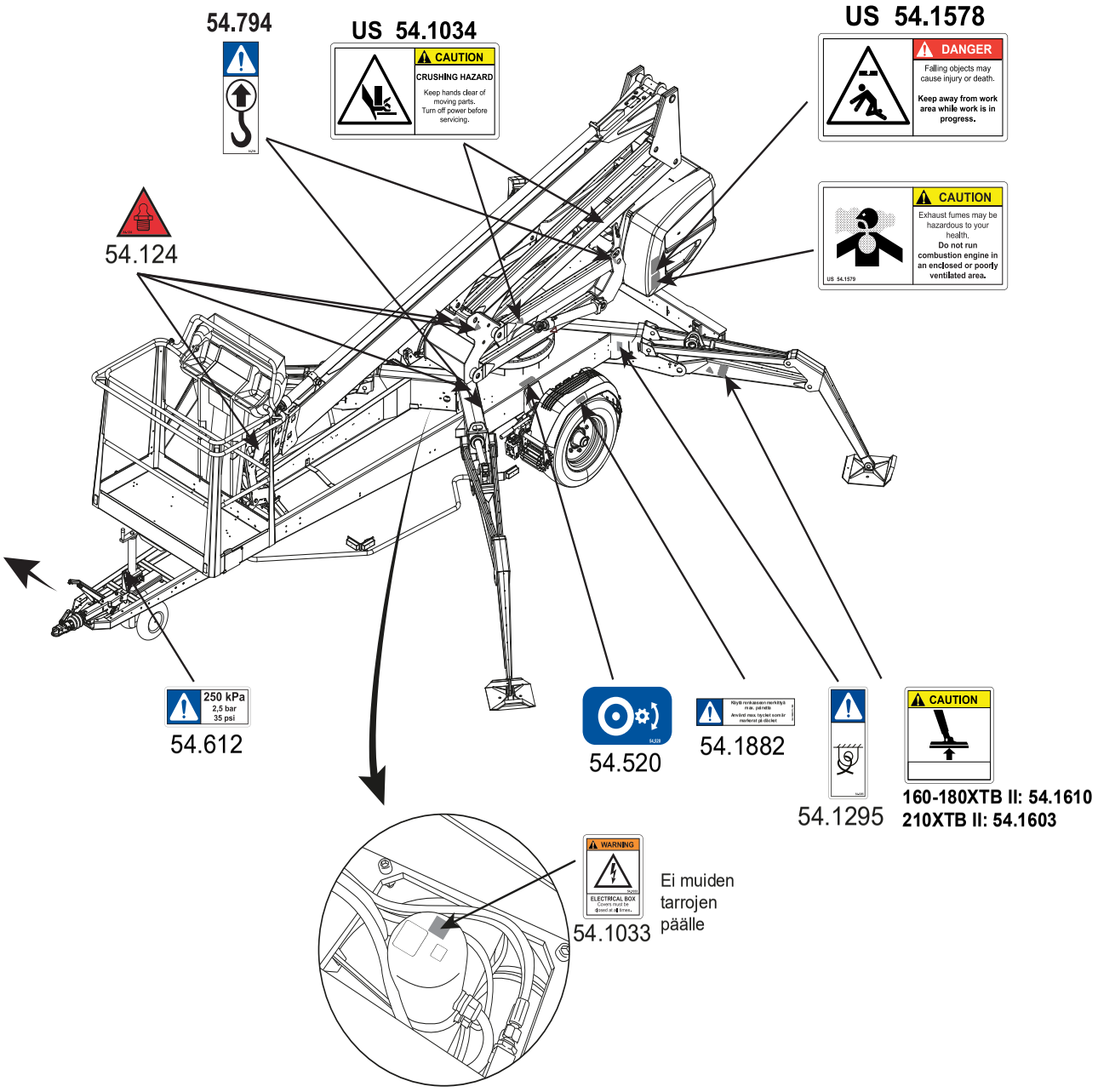


160XT II, 180XT II

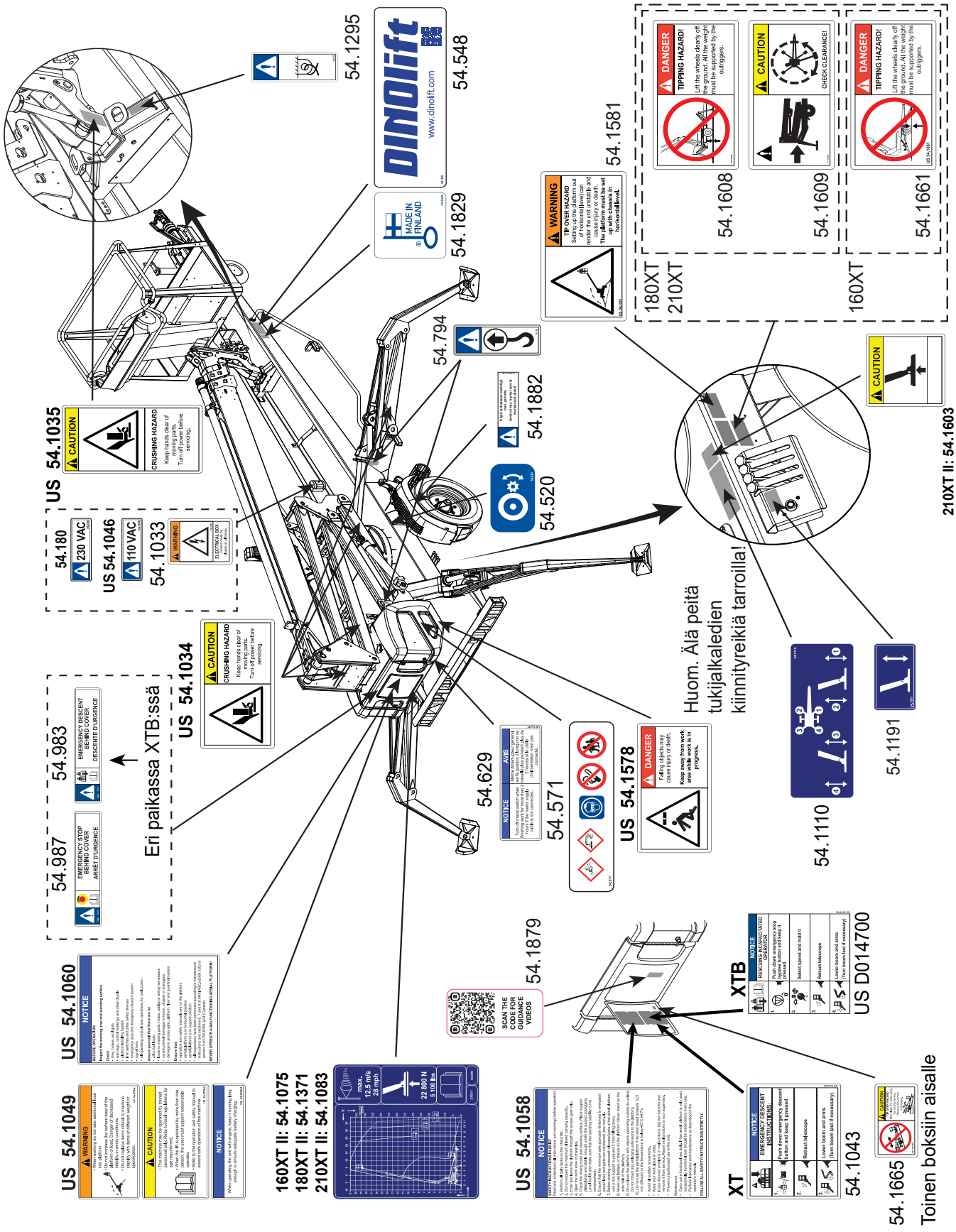


210XT II

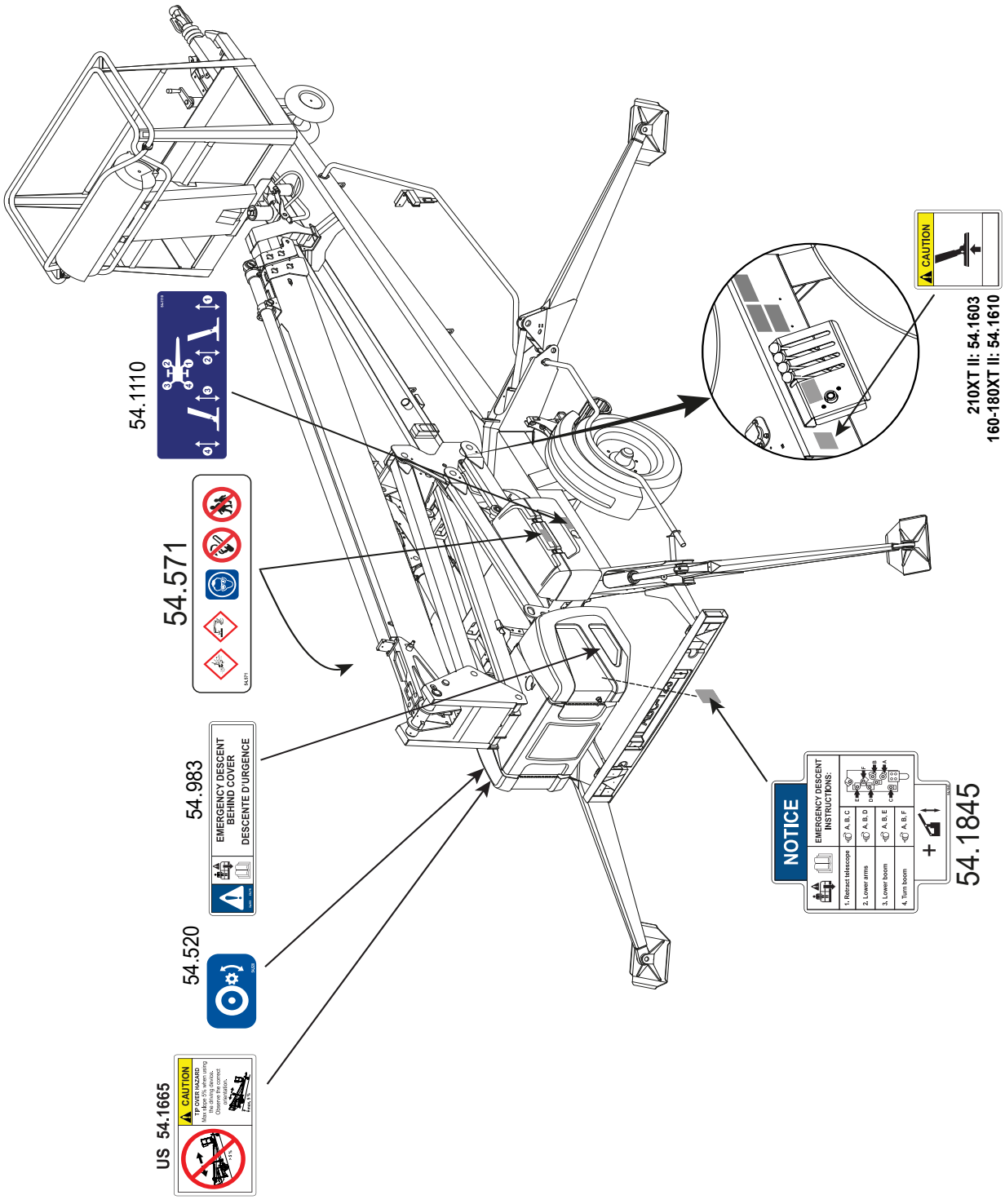




DINOlift


US 54.1049
US 54.1060
160XT II: 54.1075
180XT II: 54.1371
210XT II: 54.1083
US 54.1058
XT
54.1043
54.1665
Toinen boksiin aisalle
54.1879
SCAN THE CODE FOR GUIDANCE VIDEOS
XTB
US D014700
54.1110
54.1191
Huom. Älä peitä tukijalkaleden kiinnityreikiä tarroilla!
54.1578
54.629
54.571
54.794
54.1882
54.520
54.1829
54.548
54.1295
US 54.1035
US 54.180
US 54.1046
54.1033
US 54.1034
54.987
54.983
Eri paikassa XTB:ssä
54.1581
180XT
210XT
54.1608
160XT
54.1609
54.1661
210XT II: 54.1603

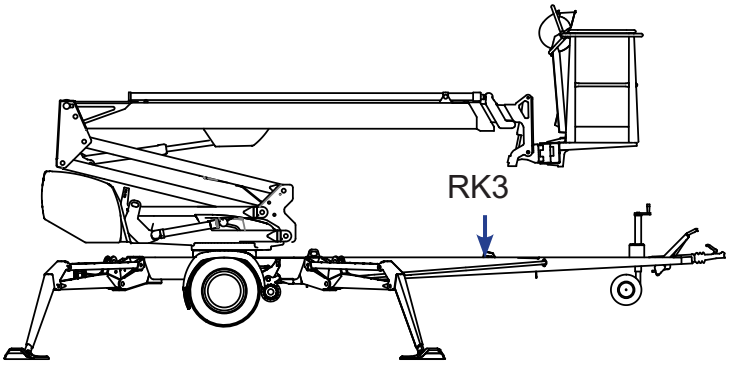
In addition in XTB



3.4. SAFETY DEVICES

1. Supervision of transport position of the boom

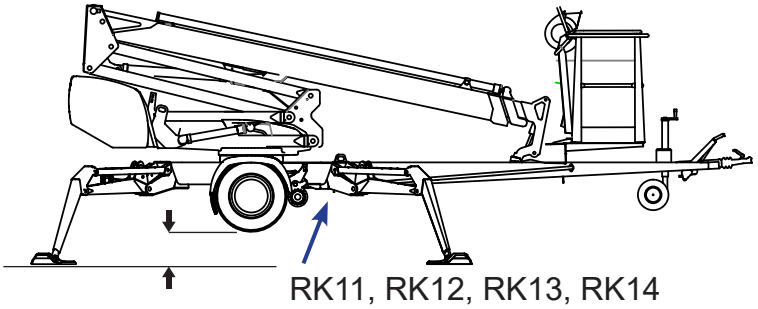
The safety limit switch RK3 prevents the operation of the outriggers and the driving device when the boom is not resting on the transport support. The switch is located on the drawbar at the transport support.



If the supervision of transport position is not functioning properly, the engine will stop. The defect must be repaired before the operation can be resumed.

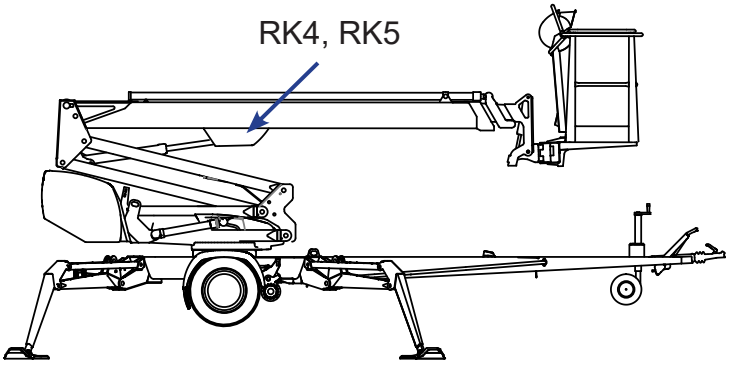
2. Supervision of supporting

The lift's all support outriggers must be in the support position before the boom is lifted. Make sure that the wheels are off the ground.
The safety limit switches RK11, RK12, RK13 and RK14 are located on the support outriggers.



3. Overload control of the boom

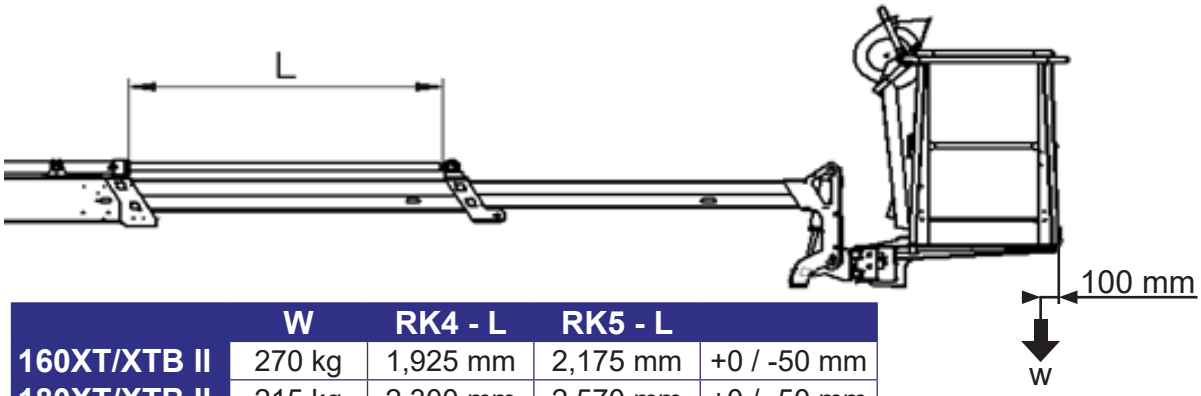
The outreach limit switch RK4 and overload limit switch RK5 prevent the lift from being overloaded by limiting the outreach of the lift to the side.
The limit switches are located under the cover at the top end of the lifting cylinder. During operation, the cover must be intact and in place.



The green light in the control centre on the platform is lit, when the platform is within the allowed operating range.

The reach limit switch **RK4** will stop the movements, which impair the stability of the lift (extending the telescope and lowering the boom), at a predetermined position.

Adjusted values of the limits:

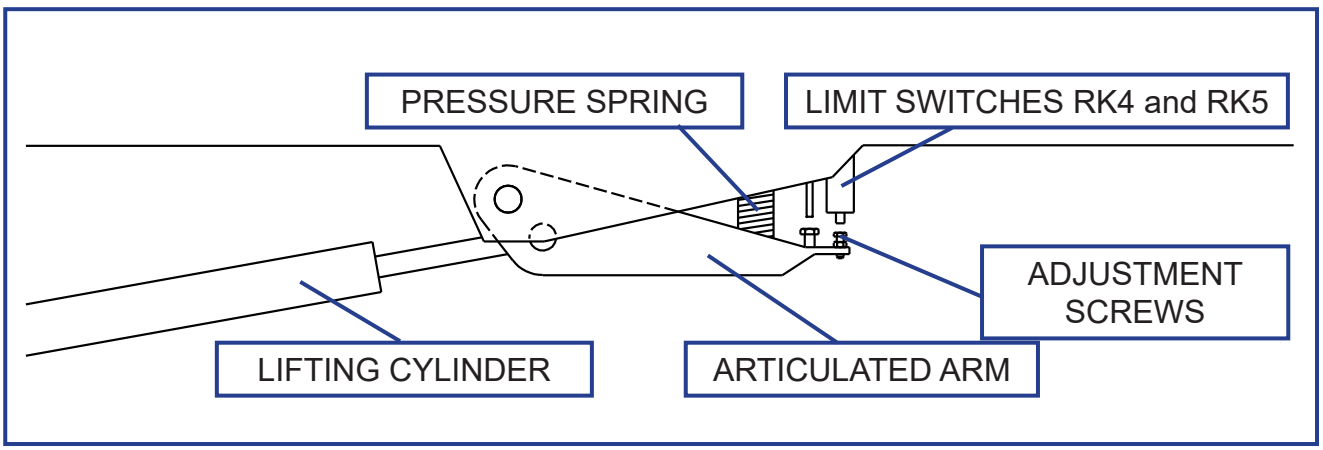


	W	RK4 - L	RK5 - L	
160XT/XTB II	270 kg	1,925 mm	2,175 mm	+0 / -50 mm
180XT/XTB II	215 kg	2,300 mm	2,570 mm	+0 / -50 mm
210XT/XTB II	80 kg	3,025 mm	3,525 mm	+0 / -50 mm

As soon as the **RK4** has stopped the movement, the red warning light on the ground control centre will start to flash and on the platform control centre the red warning light for overloading and the green signal light will start to flash in turns. In this situation, the lift can be operated in the direction, in which it remains inside the permitted outreach area.

The overload limit switch **RK5** backs up, if the **RK4**, for some reason, does not work. Once the RK5 is activated, the red warning light for overloading in both control centres will be continually illuminated, and a warning buzzer will sound on the platform.

The operation of the overload limit switches is based on monitoring of the boom's lifting torque.

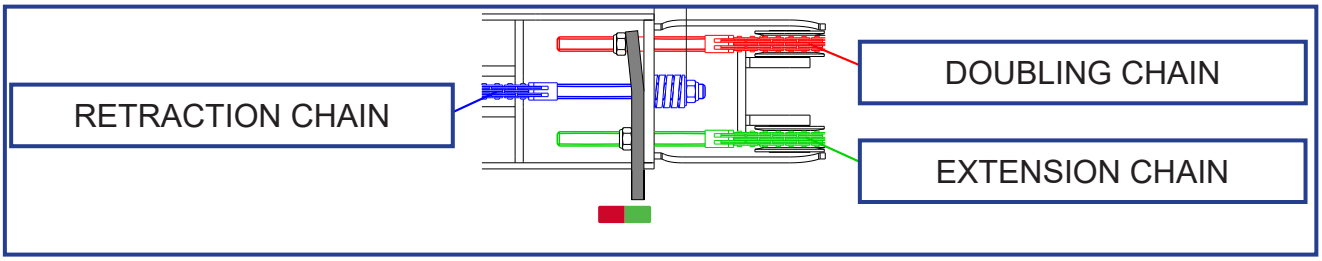


DANGER

The limit switches must never be readjusted, nor the operation of the mechanism be impeded. **Risk of turning over the lift!**

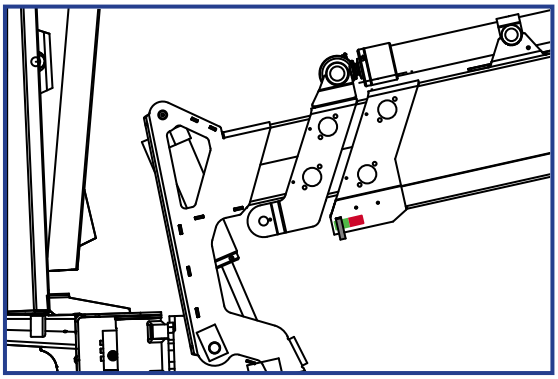
5. Indicator for the telescope chains

The extension chains for the telescope are doubled. If the load-bearing chain slackens or breaks, the doubling chain prevents the movements of the telescope.



The levers at the top end of the outer boom indicates possible rupture of one of the load bearing chains for the telescope.

If the levers are inside the green area, the chains are intact.

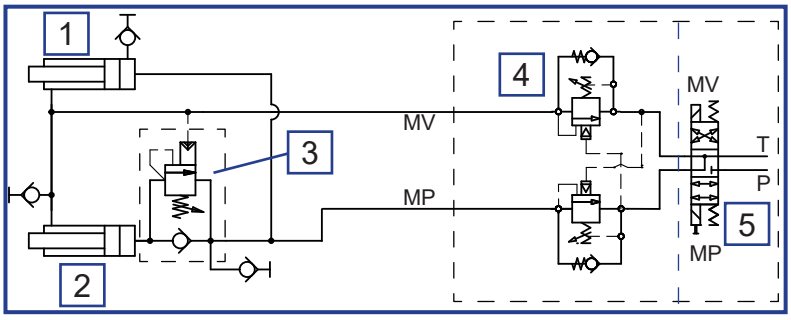


If the lever is inside the red area, one of the chains has ruptured and the telescope must not be used! The chains have to be replaced and the required adjustments carried out before continuing operation.

6. Preventing the inclination of the platform

The platform is levelled hydraulically by means of a so-called slave cylinder system, where the master cylinder controls the slave cylinder that inclines the work platform.
The levelling system comprises the following parts:

1. Master cylinder
2. Slave cylinder
3. Load regulation valve
4. Double load regulation valve
5. Electric directional valve



7. Safety devices for hose rupture

All the load-bearing cylinders are equipped with valves for rupture or leak in the hydraulic system, which prevent the load from falling.

Outrigger cylinders	Lock valves	Prevent the inching of the outriggers in either direction.
Lifting cylinder of the boom	Load regulation valve	Prevents the load from falling
Lifting cylinder of the articulated arms	Load regulation valve	Prevents the load from falling
Telescope cylinder	Load regulation valve	Prevents the inching of the telescope in either direction.
Levelling system	Load regulation valves	Prevents the inclination of the platform

8. Emergency stop buttons

Pressing the emergency stop button, stops all the movements immediately and turns off the power unit. The button can be found at each control station. Once the button has been pressed, only the emergency descent functions with the emergency stop bypass remain operational for rescuing an incapacitated operator.

The emergency stop button locks in the lower position, and it must be released before starting the power unit.

NOTICE

If the unit does not start, make sure that the emergency descent button is not in the lower position at any of the control stations.

The emergency stop button in the ground control centre is fitted with a signal light, which remains illuminated while the lift is in the normal operating mode. The light will go out, if the emergency stop function is activated by any of the emergency stop switches or by the safety device.

3.5. OPTIONAL SAFETY DEVICES

The following types of safety devices intended for different applications and operating environments are available for the machine.

NOTE! The availability of options varies by machine, model, and region. Not all options or combinations can be installed on all machines.

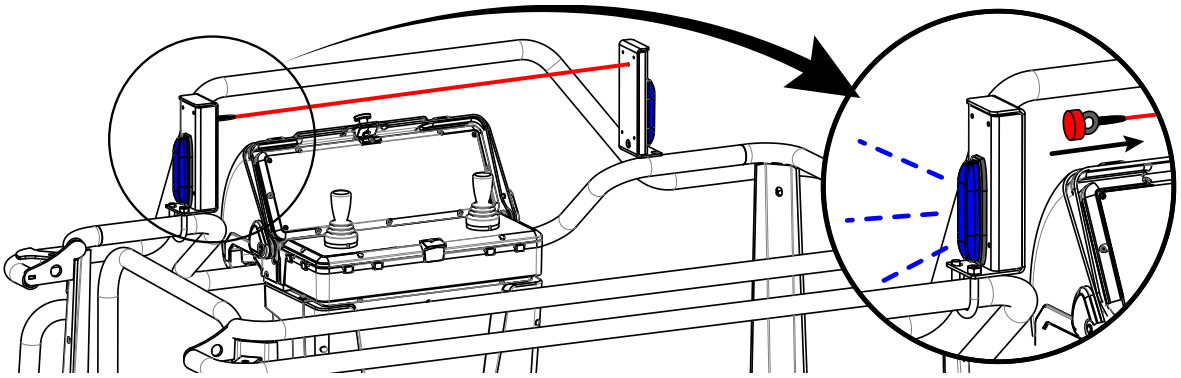
WARNING

The optional equipment listed in this chapter may be mandatory safety devices depending on the equipment of the machine and the country of operation. It is strictly prohibited to remove or disable any safety devices installed on the machine.

3.5.1. DINO SAFE-GUARD (OPTION)

The platform control centre may be equipped with a SafeGuard squeeze protection unit. The unit is intended for protecting the operator against trapping or crushing when the machine must be used in confined spaces with a risk of getting squeezed between the platform and the surrounding structures.

The SafeGuard system stops the machine if the safety rope above the control centre is pushed so that the magnet at the end of the rope comes off its counterpart.



When the magnet is detached from its counterpart, the SafeGuard unit stops all the movements and prevents the use of motion controls in the upper control centre Only the “telescope in” movement (emergency lowering) and the emergency stop button will remain operational in the platform control centre. These movements can be operated normally from the ground control centre.
The SafeGuard system also triggers an audible alarm and turns on warning lights on both sides of the control centre.

The normal operation of the machine may be resumed as soon as the magnet is returned back in place.

3.5.2. Frost guard (OPTION)

The lowest permissible operating temperature of the lift is -20 °C

The lift may be equipped with a switch that measures the temperature. The switch is located in the LCB control centre, where its display indicates the operating temperature in the Celsius temperature scale.

The switch prevents the use of the lift if the temperature is below the permitted value.

3.5.3. Wind speed meter (OPTION)

If the wind speed exceeds 12.5 m/s, the lift must not be used.

The platform can be equipped with a wind speed meter. The meter triggers an alarm signal if the wind speed exceeds 12.5 m/s. This option is in particular intended for aerial access platforms with a working height over 22 m.

3.5.4. Alarm signal for lowering of the boom (OPTION)

Warns with a sound signal during lowering of the boom or the articulated arms.
The sound signal that is audible at the ground level warns the passers-by moving in the area

3.5.5. Sound warning of the chassis movements (OPTION)

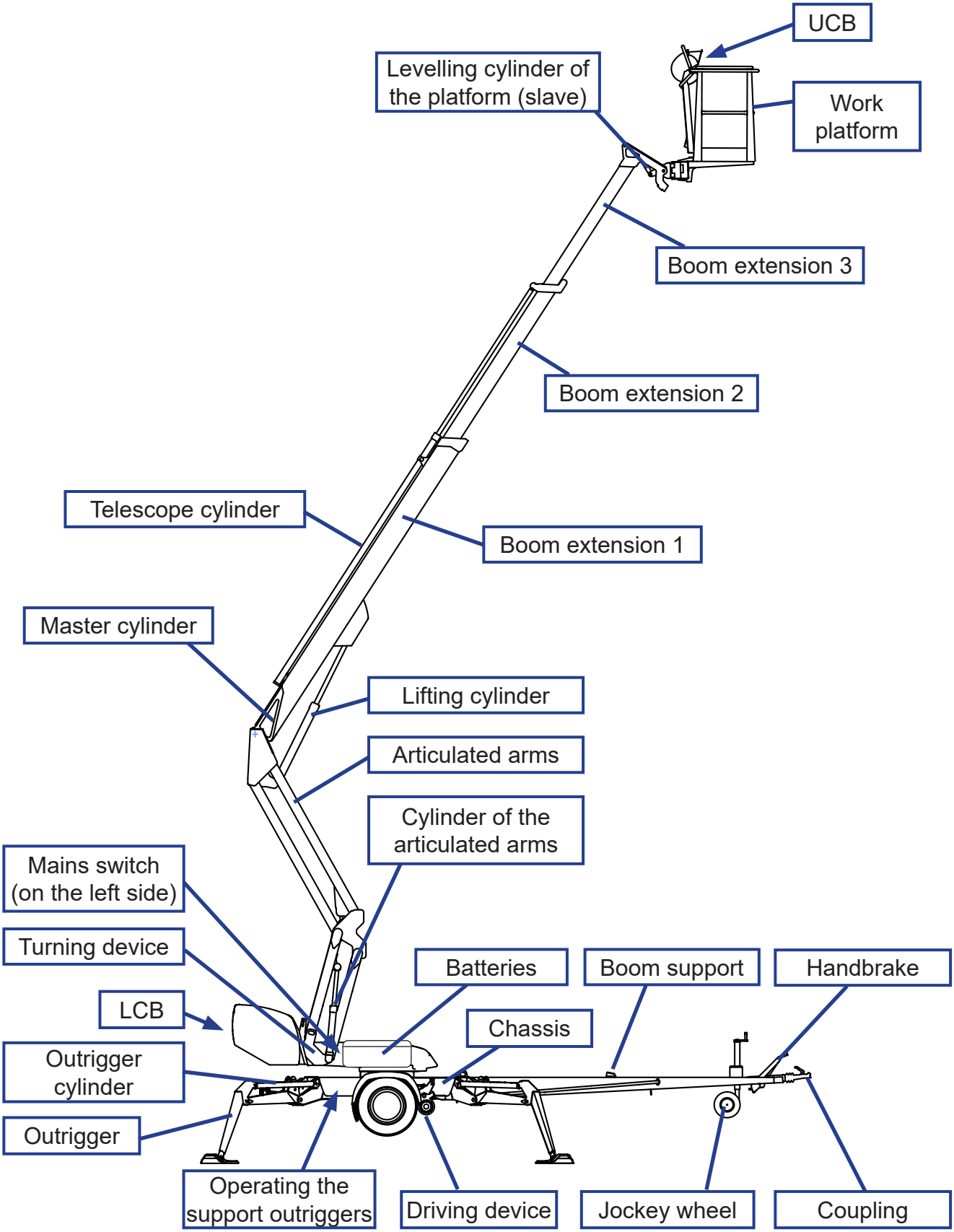
Gives an audible warning signal during transferring and when the outriggers are being operated.
The sound signal that is audible at the ground level warns the passers-by moving in the area

BLANK

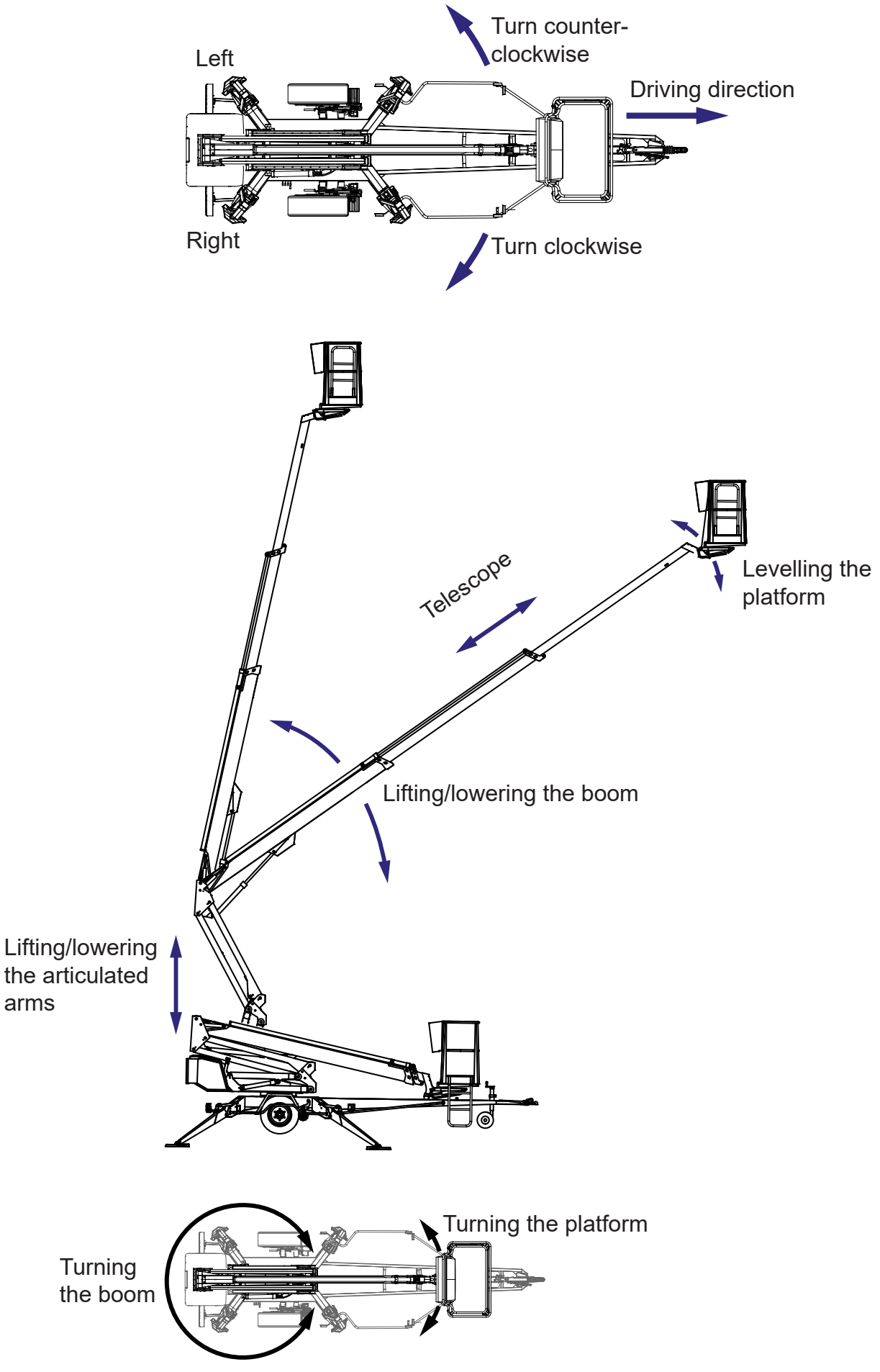
4. BASIC STRUCTURE AND FUNCTIONS

The denominations of the machine's essential parts and concepts, which are used later in these instructions, are described on the following pages.

4.1. STRUCTURE

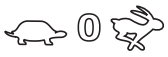


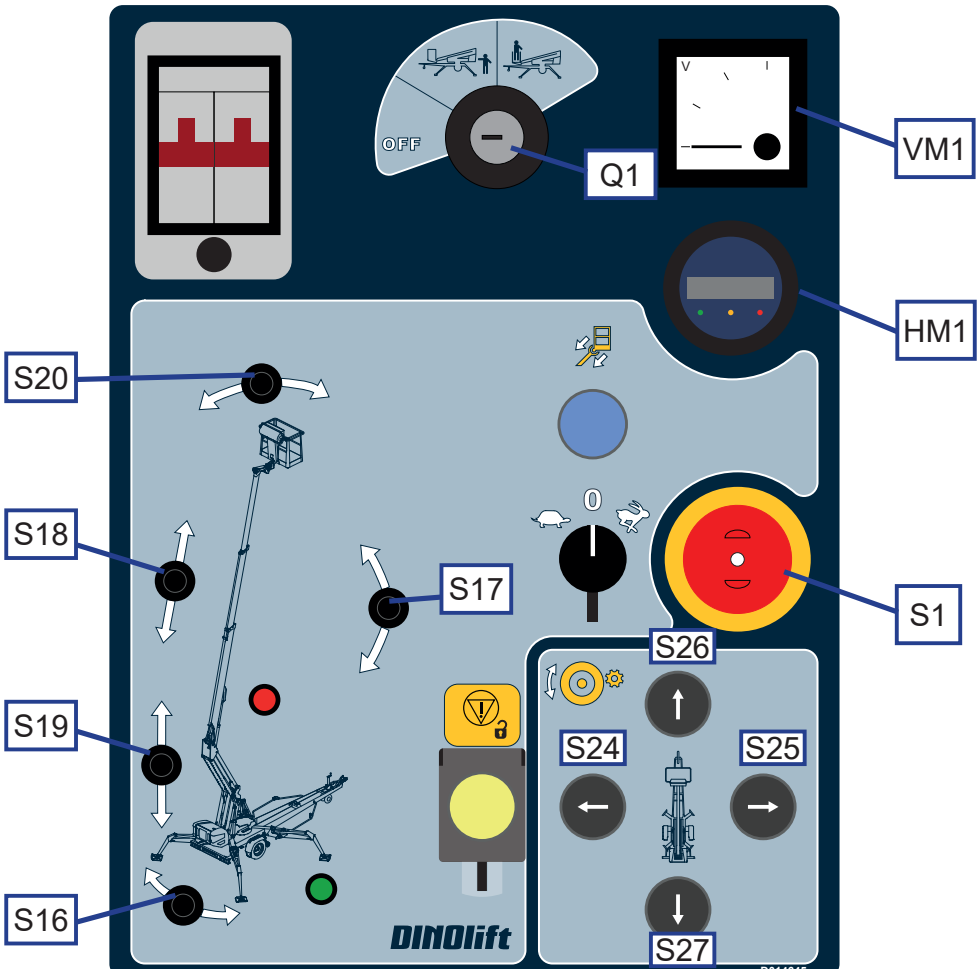
4.2. BASIC FUNCTIONS



4.3. OPERATING CONTROLS

4.3.1. Ground control centre LCB

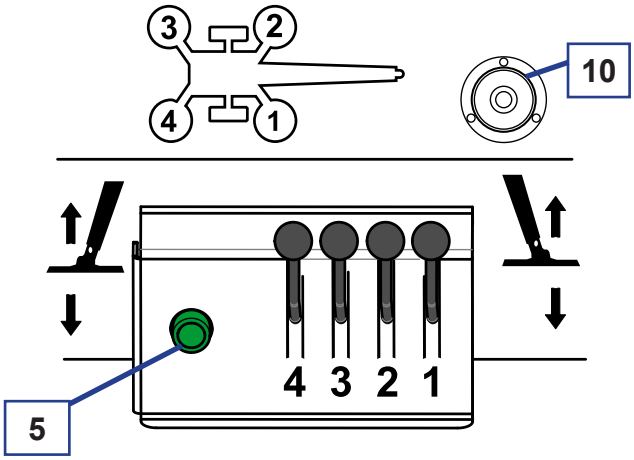
S1	Emergency stop + signal light		VM1	Voltage meter
Q1	Selector switch			Fuses for socket outlets
OFF	Power off		**Rocker switches for platform and boom:**	
	Ground control centre (LCB)		S16	Turning the boom
	Platform control centre (UCB)		S17	Lifting/lowering the boom
	Button for retracting the telescope		S18	Retracting/extending the telescope
	Movement speed selector		S19	Lifting/lowering the articulated arms
	Emergency stop bypass		S20	Levelling the platform
Signal lights and gauges:			**Pushbuttons for driving:**	
	The outriggers are in the support position and the operation of the boom is enabled.		S26	Drive forward
	The load is at the outreach limit		S27	Drive backward
	The load is at the overload limit		S24	Turning to the left
HM1	Battery voltage / Hour meter / Display of error codes of the engine controller		S25	Turning to the right.



4.3.2. Operating controls for the outriggers

Control levers for the outriggers

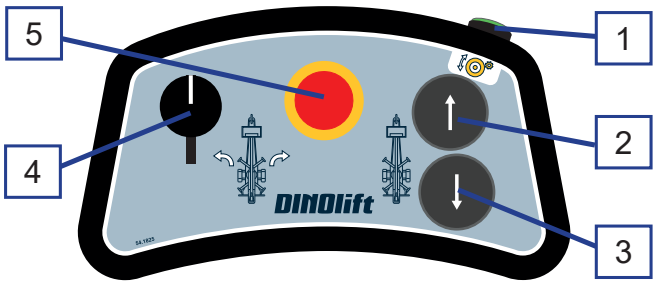
The control levers for the outrigger valve are located on the right-hand side of the lift's chassis.



1	Front outrigger, right
2	Front outrigger, left
3	Rear outrigger, left
4	Rear outrigger, right
5	Start button for the outriggers
10	Position indicator of chassis

4.3.3. Remote control cable for the driving device

The additional control unit is located in the toolbox on the drawbar.

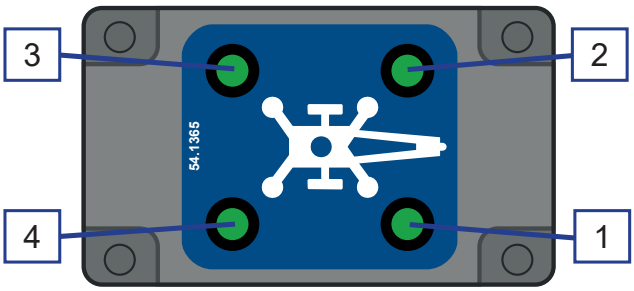


1	Activation switch for the driving control
2	Drive forward
3	Drive backward
4	Swinging to the right/left
5	Emergency stop

4.3.4. Optional controls on the chassis

Signal lights for the outriggers

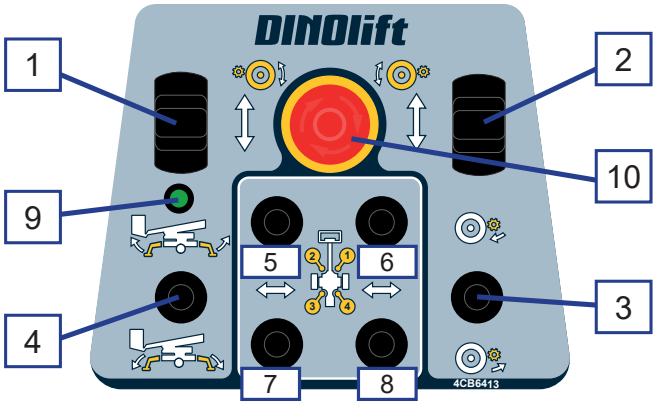
The signal lights at the outrigger control centre indicate separately the status of each outrigger limit switch.



1	Signal light, outrigger 1
2	Signal light, outrigger 2
3	Signal light, outrigger 3
4	Signal light, outrigger 4

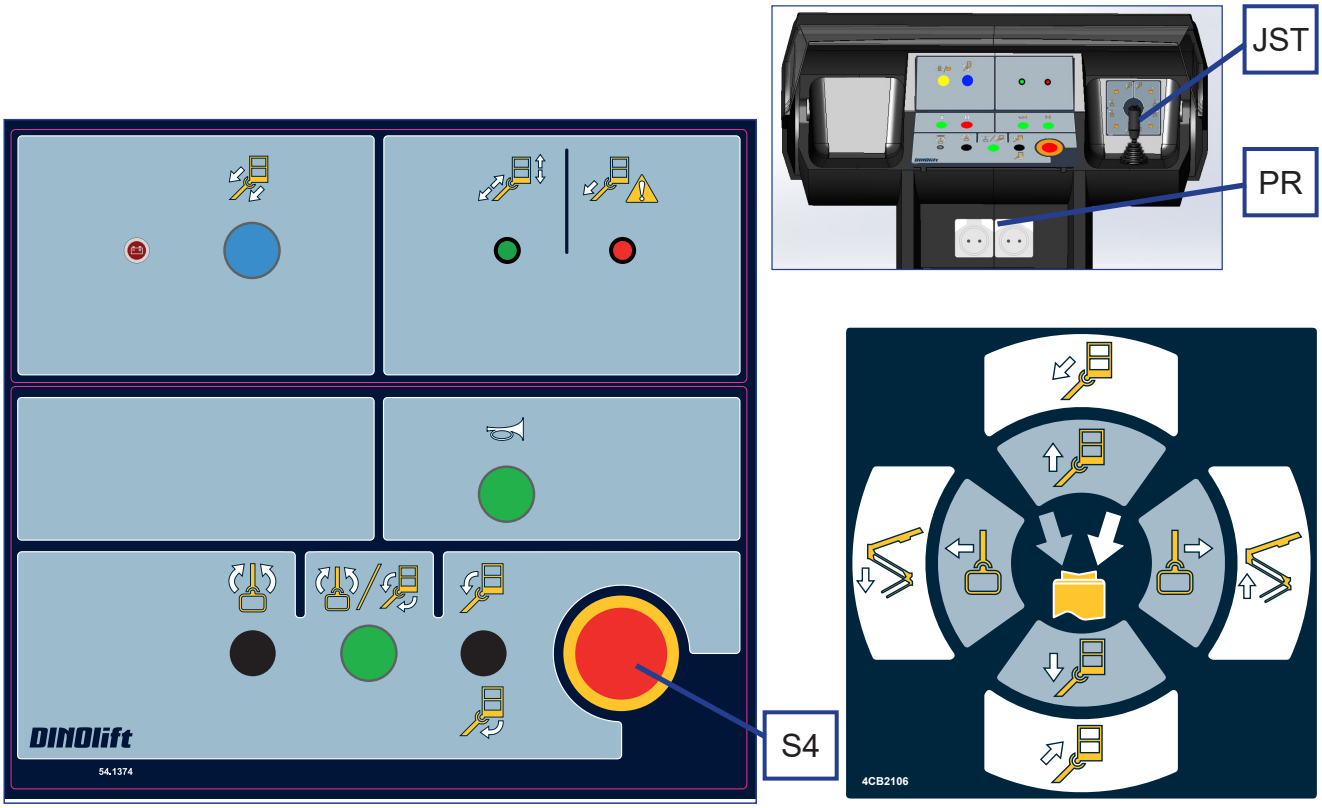
Remote control cable for the driving device and the automatic levelling

The additional control unit is located in the toolbox on the drawbar.



1	Operating the left driving device roller
2	Operating the right driving device roller
3	Depressing the driving rollers
4	Lever switch for automatic levelling
5-8	Levers for individual control of the outriggers
9	Signal light for the outriggers
10	Emergency stop

4.3.5. Platform control centre UCB

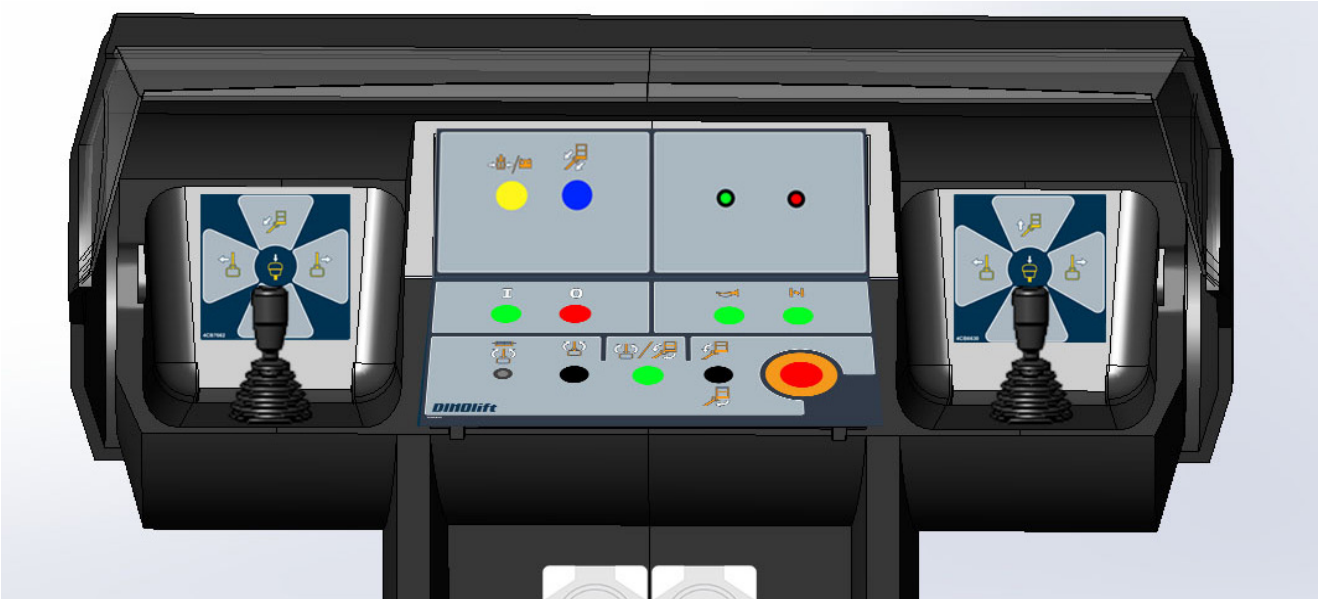


S4	Emergency stop			Activation switch for the platform movements
	Button for retraction of the telescope			Levelling of platform
	Sound signal			Turning of platform
	Work lights (option)		JST	Control lever - Boom movements
PR	Socket outlets 230V/110V USB			Retraction/extension of the telescope
Signal lights:				Lifting/lowering of the boom
	The load is within the outreach range.			Turning of the boom
	The load is at the outreach limit			Lifting/lowering of the articulated arms
	The load is at the overload limit			
	Empty batteries			

Note! The desired functions of the boom are selected by means of the activation switches at the end of the joystick. Always press the button first, and only after that, turn the handle. The safety connection prevents the movements, if the handle is turned before pushing down the button.

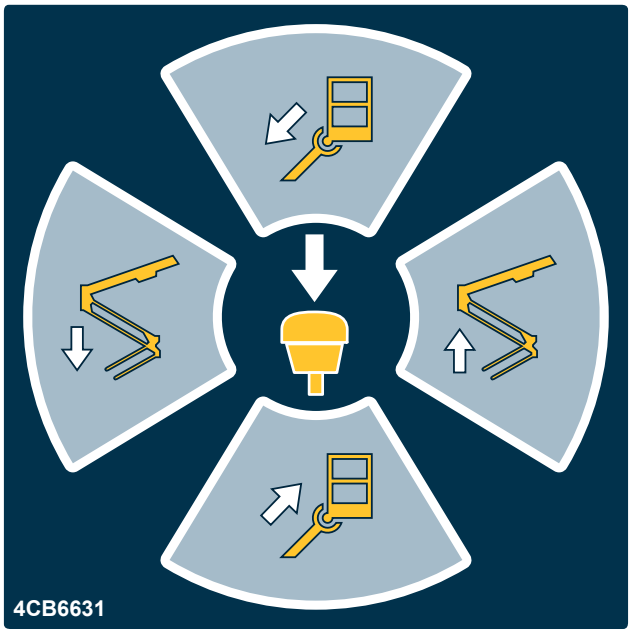
4.3.6. Setup with two control levers (option)

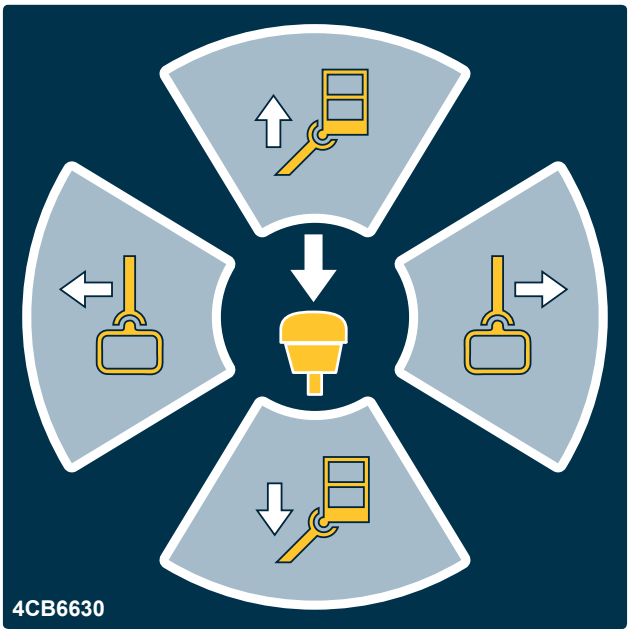
A setup with two control levers is available as an option for the platform control centre.



The left and right control levers (JST right/left) replace the normal control lever.

Press first the activation button, and only after that, move the handle. The safety connection prevents the movements, if the handle is moved before depressing the button.





NOTES

5. OPERATION

5.1. START-UP

NOTICE

All the regular servicing measures must be carried out before using the lift.

The operator must do a worksite inspection and daily maintenance:

- at the beginning of each workday
- before operating the lift at a new worksite
- when the operator changes in the middle of a workday

5.1.1. Worksite inspection

1. General information
   - Is the lift suited for the intended job?
   - Is the performance of the lift sufficient for the job? (reach, loadability etc.)
   - Is the lighting on the worksite sufficient?
   - Is the position of the lift safe?
   - Is the standing surface free from potholes, pits or too inclined areas?
   - Is the movement area of the outriggers and the boom, as well as the area under the outriggers, free from obstacles, which could cause collision or turn the machine over?
   - Is the terrain suitable for using the lift (evenness and load-bearing capacity)?

Soil material	Density	Max. ground pressure P kg/cm² (N/cm²)
Gravel	High density	6 (59)
	Medium density	4 (39)
	Loose	2 (20)
Sand	High density	5 (49)
	Medium density	3 (29)
	Loose	1.5 (15)
Fine sand	High density	4 (39)
	Medium density	2 (20)
	Loose	1 (10)
Sand/ mud	High density (very hard to work)	1.00 (10)
	Medium density (hard to work)	0.50 (5)
	Loose (easily worked)	0.25 (3)

DANGER

Risk of overturning! If needed, use sufficiently large and sturdy additional plates under the support outriggers. Do not use on soft or unstable ground.

2. Documents
    - Are the Operation and Service Instructions for this lift present?
    - Are inspections and servicing carried out in accordance with the instructions and have the defects affecting the safety been checked as repaired? (Inspection protocols)

3. Operator
    - Is the operator old enough?
    - Has the operator received the required training?
    - Is the operator in a suitable condition to operate the machine? The operator must not be under the influence of alcohol or drugs or be otherwise in a state of reduced physical and mental control.

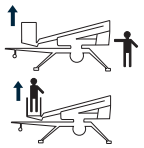
4. Special issues on the worksite
    - Are there any additional regulations relevant to the worksite or the work?
    - Does the worksite have special hazards (bridge cranes, drop-offs, ATEX-areas, enclosed spaces etc.) to avoid during operation?
    - Is there a need for special marking or fencing of the work area to keep personnel from walking under a raised boom and platform?

5. Condition of the machine
    - Perform all the daily maintenance tasks according to instructions
    - Never use a malfunctioning machine

5.2. INSTRUCTIONS FOR WORKING

5.2.1. Starting up

1. Switch on the main switch. **ON**
2. To access the operating controls, open the cover of LCB centre on the turning device.



3. Select the control centre (LCB/UCB) using the selector switch.

5.2.2. Charging

When the system is activated the meter shows operating hours of the motor for the first five seconds and then batteries' state of charge.



The state of charge of the batteries can be checked from the battery meter before charging and from the signal light for charging while charging. If the batteries are not charged to full the lift needs to be used before the battery meter calibrates to the right state of charge initially appearing as a rapidly decreasing state of charge.

Charging starts automatically after connecting the mains cable to the power supply. However, after fully charging, the lift must be disconnected momentarily from the mains before the charger starts to charge again.

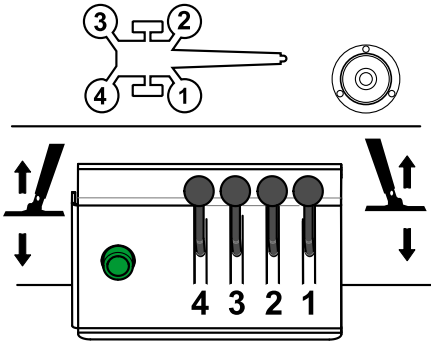
Capacity of the batteries is affected by the operating temperature.
100 % is reached at the temperature of 30 °C, at 0 °C the capacity is 80 % of normal, at -20 °C the capacity is 50 % of normal.

NOTICE

When the charger is connected to mains, the display immediately shows 100 % even if the batteries are not fully charged. You can check the state of charge of the batteries before charging.
Always keep the charger connected for a sufficiently long time irrespective of the readout on the display! The recharger is equipped with overcharge protection.

5.2.3. Supporting the lift

1. Press the activation button for the outrigger operation.
2. Lower the front support outriggers (on the drawbar side).
3. Lower the support outriggers in the rear. Be careful not to press the drawbar jockey wheel against the ground.



Do not damage the drawbar or jockey wheel! Make sure the wheel stays off the ground during levelling!

4. Level the chassis with the outriggers with the help of the spirit level. The air bubble must be located inside the inner ring.
5. Check that the green signal light in the lower control centre LCB is illuminated. It lights up when all the outriggers are in the support position and the limit switch circuit of the outriggers is closed.
6. Lift the boom from the ground control center and turn the boom 360° to ensure the stable support.



Supporting the lift using the automatic levelling function (option)

1. Lower the outriggers from the DCB control centre via the lever switch. The automatic levelling function positions the outriggers on the ground and levels the chassis.
2. Keep the lever turned until the signal light above the switch stops flashing. If you release the lever, the operation will be interrupted and the light will go out. The levelling can be resumed by turning the lever again.
3. If the signal light remains illuminated, the function has been successfully completed. Ensure the levelling from the level gauge. The air bubble must be located inside the inner ring.
4. Lift the boom from the ground control center and turn the boom 360° to ensure the stable support.

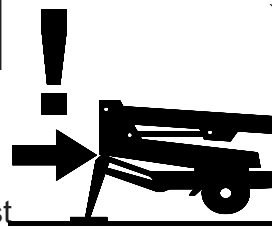


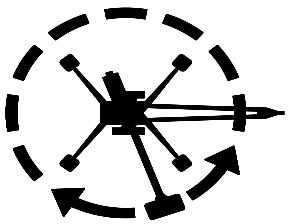




DANGER

Risk of tipping over! Using the lift is prohibited unless it is properly supported. Observe the effect of ice, possible rain and inclination of the surface on the support force (the stabilisers must not slip on the surface).





Test the stability by turning the boom around loaded but the telescope fully retracted. If you notice that the chassis inclines during the test, you must not continue the use. Also ensure that the turning device does not collide with obstacles or outriggers due uneven ground.

Before operation, check that:
- the chassis is level, using the spirit level
- the wheels are off the ground
- the outriggers are firmly supported on the ground, and the green LED in the lower control centre is illuminated.

WARNING

Carry out all the daily maintenance routines and inspections in accordance with the maintenance instructions before operating the lift. **Failure to check the safety devices may cause a serious injury or make the consequences of an accident worse.**

All faults in safety devices or emergency lowering system must be repaired before operating the lift.

5.2.4. Operating the boom from the ground control centre

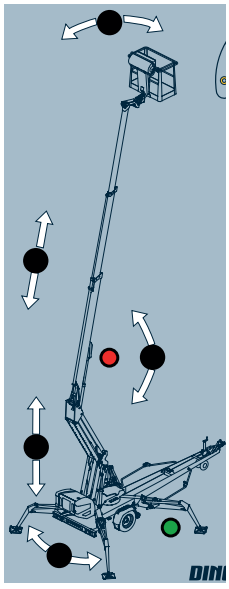




1. Turn the selector switch Q1 to the position LCB – ground control centre.
2. Select the movement speed using the speed selector switch. If the lift is operated from the control centre LCB, the movement speed cannot be proportionally adjusted.
3. Drive the boom using the controls in the lower control centre:

   - extending and retracting the telescope
   - lifting and lowering the boom
   - turning the boom
   - lifting and lowering the articulated arms
   - inclination control of the platform

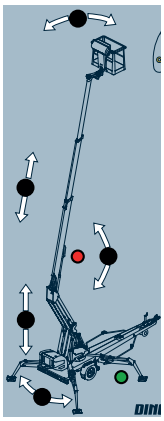
   The movement will stop as soon as the speed selector switch or the selector switch for the movement is released.
4. Before starting the operation, lift the platform from the drawbar and turn it to the side. Extend the telescope and lower the boom closer to the ground for easy entry.



Do not damage the drawbar or jockey wheel! Make sure the boom doesn't collide with the boom support, drawbar jockey wheel or the hand brake lever.

Adjusting the levelling of the platform from the lower control centre:

The levelling system of the platform will automatically keep the platform level during the movements. The position can be corrected if necessary.



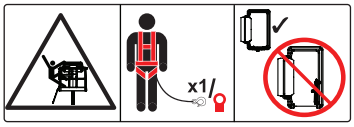
The position of the platform may be adjusted from the ground control panel:

1. Turn the speed selector switch.
2. Select the direction of the correction movement using the control lever (S20).

5.2.5. Operating the boom from the platform control centre

DANGER

Risk of falling! Wear a safety harness while on the platform, and fix it to the point marked for it.
Make sure that the platform gate remains closed during the operation.



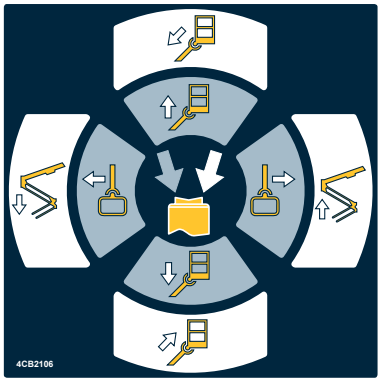
1. Turn the selector switch to the position “Platform control centre UCB”, and remove the key. Close the protective cover for the ground control centre.



2. Step onto the platform and fix the safety harness to the attachment point intended for it.



3. **Operate the boom movements using the control lever**.
   To operate the movements of the boom system, press first the rocker switch at the end of the control lever, and after that, move the control lever carefully in the desired direction of movement of the boom. The movement speed can be adjusted proportionally.
   If you move the lever before pressing the rocker switch, the action will be deterred.



Activation button – Operating direction of the lever	Movement	Symbol
JSL - up / down	Boom up/down	
JSL - to the left / right	Turning the boom clockwise/ counter-clockwise	
JSR - up / down	Retracting/extending the telescope	
JSR - to the left / right	Articulated arms down/up	
Always try to keep the boom short during the lifting and lowering movements.		

4. **Operate the platform movements using the lever switches.**

Push the activation switch for the platform movements, and keep it depressed throughout the movement.	
Select the movement and its direction using the lever switches	

As required, see the point ”Operating controls in the platform control centre” for more information.

DANGER

Risk of overturning! Do not overload the machine.
It is strictly prohibited to take additional load in the upper position.
Do not exceed the allowed manual force (400N), or load the platform more than allowed.



Never add load onto the platform, while the green and red signal lights are flashing or red signal light is illuminated for overloading. The overload control device prevents hazardous movements if the platform is overloaded or out of outreach area.
Measures to be taken after an event of overloading:
Retract the platform to inside the operating range of the RK4 by pressing the “telescope in” button (the green light will be illuminated). After this, the lift may be operated normally.



When moving the platform, remember the following

- be careful of the high voltage power lines
- do not touch open electric wires
- do not drop or throw objects from the platform
- do not damage the lift
- do not damage other devices

WARNING

Crushing hazard! Monitor the chain indicator for the flyer chain during operation. If the indicator shows that there may be a problem with the chains, do not operate the boom system.

WARNING

Crushing hazard! Keep a safe distance to the moving parts of the lift and to buildings and other obstructions around the lift. Hands and legs must be kept inside the work platform while the platform is moving. Beware of any obstacles above the platform.

IF THE SAFETY DEVICES OR THE EMERGENCY DESCENT SYSTEM ARE NOT WORKING, HAVE THEM REPAIRED BEFORE OPERATING THE LIFT.

The platform movements can be operated with proportionally adjustable speed from the platform control centre (not from the ground control centre). Only one movement can be operated at a time. If several control levers are operated simultaneously, only the movement with the least resistance will operate.

Observe when lifting the platform

- the operating range of the platform depends on the load (see “Technical Data”) and is monitored by the safety limit switches RK4 and RK5 located under the protective cover
- The limit switches must not be adjusted or modified. The inspection and adjustment may only be carried out by an authorized serviceman.

5. Working a long time in the same position

- It is not necessary to let the engine run if the platform is kept for a longer period of time in the same position.
- When the weather is cold, it is recommended to let the engine run to keep the hydraulic oil warm.
- ensure that the battery remains sufficiently charged even during long-term work in the same position. As necessary, use either the mains or the power pack to maintain the sufficient state of charge of the battery.
- check the stability and condition of the base regularly during the operation, taking into account the weather and ground conditions

6. Lowering the platform to the transport position

- Before lowering the boom onto the transport support, retract the telescope completely and turn the platform perpendicular to the boom.

NOTICE

Do not damage the handbrake lever or the drawbar jockey wheel while lowering the platform to the transport position!

7. When leaving the lift

- drive the lift to a safe position, preferably to the transport position
- switch off the power unit
- prevent unauthorized use of the lift by locking the control centre cover

5.2.6. Measures to be taken at the end of the working day

At the end of the workday:
1. Retract the telescopic boom fully.
2. Check that the platform is perpendicular to the boom.
3. Lower the boom/platform onto the support on the drawbar. The limit switch on the transport support prevents the operation of the support outriggers if the platform is not down.
4. Close the control centre cover on the work platform.
5. Turn the selector switch to position OFF, and turn off the main switch.
6. If you want to recharge the battery, leave the mains cable connected; otherwise disconnect the lift from the mains supply.
7. Make sure that the covers are locked.

NOTICE

To ensure proper operation and long service life of the batteries, it is recommended to always recharge them at the end of each workday, even though there was still plenty of charge left. Storing the batteries flat shortens their service life, and flat batteries also freeze easily.

5.2.7. Special instructions for cold weather operation

The lowest allowed operating temperature of the lift is -20 °C

In cold conditions, carry out the following special actions in addition to the normal start-up procedure:
1. If the temperature is below zero, let the power unit run for a few minutes before starting the movements.
2. To ensure the proper operation of the valves, do first a few warm-up movements to change warm oil in the cylinders.
3. Check that the limit switches and the emergency descent devices are operational and clean (from dirt, snow, ice, etc.).
4. Repeat the warm-up movements regularly during working in the same position for a long time
5. Protect the control centre and the platform from snow and ice when the lift is not in use.
6. Take care of the battery charge. Cold weather weakens the battery capacity significantly and exposes partially charged battery to the risk of failure due to freezing.



Always keep the lift free from dirt, snow, ice, salt, etc. Accumulation of grit may cause malfunctions, paint damage, corrosion and excessive wear of components and structures.

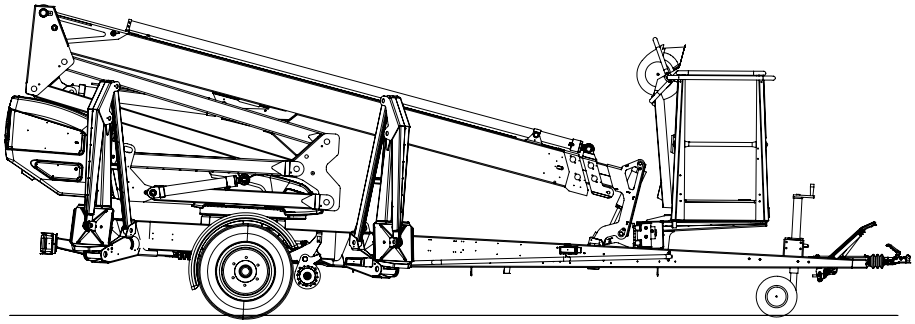
5.3. TRANSFERRING THE LIFT

The lift can be transferred by towing or using its own driving device.

The lift may only be moved in the transport position. No persons or load are allowed on the platform during the transportation.

5.3.1. Preparing the lift for transport

During transfer, the lift must always be in the transport position.



Prepare the lift for the transfer as follows:

1. Retract the telescopic boom fully.
2. Check that the platform is perpendicular to the boom.
3. Lower the boom/platform onto the support on the drawbar. The limit switch on the transport support prevents the operation of the support outriggers if the platform is not down.
4. Close the control centre cover on the work platform.
5. Lift the support outriggers.
   Lift first the rear support outriggers (do not damage the rear lights), and then the front support outriggers (do not damage the jockey wheel).
6. Make sure that the covers are locked and all tools and materials are removed from the platform.

WARNING

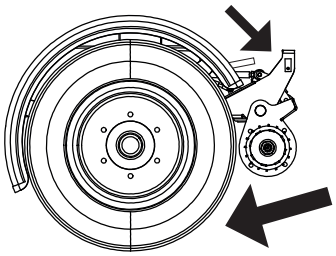
Rollaway risk! Before lifting the outriggers, make sure the machine can not roll away. Prevent movement using the handbrake and wheel chocks.

5.3.2. Using the driving device

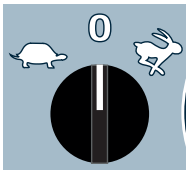
The hydraulic driving device is intended for moving the lift within the work area if the towing vehicle cannot be used.

During transfer in rough terrain, always try to position yourself higher than the machine.

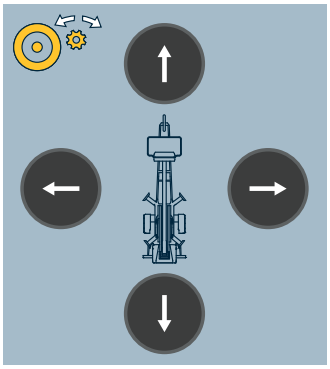
1. Make sure that the platform is in the transport position and the outriggers have been lifted to the upper position.
2. Make sure that the mains cable is long enough to cover the whole travel distance – or that the cable has been disconnected.
3. Switch the driving device to the drive position.
4. Release the handbrake.



5. Turn the speed selector to activate the movement.
   The switch must be kept turned throughout the operation.
   The driving device operates at a constant speed.

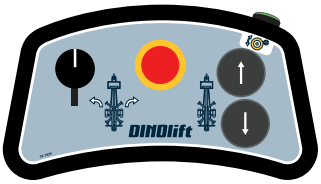


6. Select the driving direction via the pushbuttons.
7. Steer the lift via the pushbuttons during driving.



OR use the cable-operated remote controller for the driving device

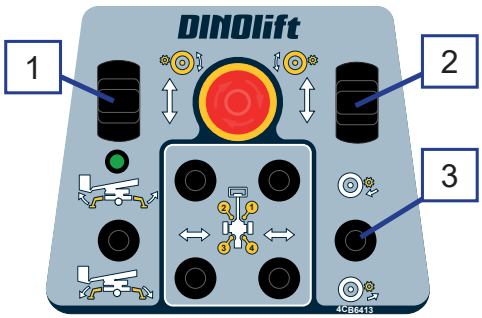
1. Press and hold the green activation switch.
2. Drive forward/backward by pressing the buttons for the driving device
3. Steer the machine using the lever switch for turning



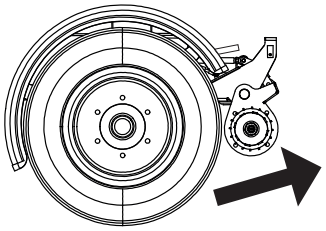
CAUTION

Risk of sudden movements! Do not drive the jockey wheel into obstacles or potholes. If one of the wheels bumps into an obstacle, the lift may turn abruptly.

Operation using the cable-operated remote controller for driving and automatic levelling (option)



1. Bring the drive rollers into the driving position using their operating levers (3).
2. Release the handbrake.
3. Rotate the drive rollers forward or backward using the control levers (1 and 2)



After the driving:
- Apply the handbrake.
- Disconnect the driving device from the tyre.

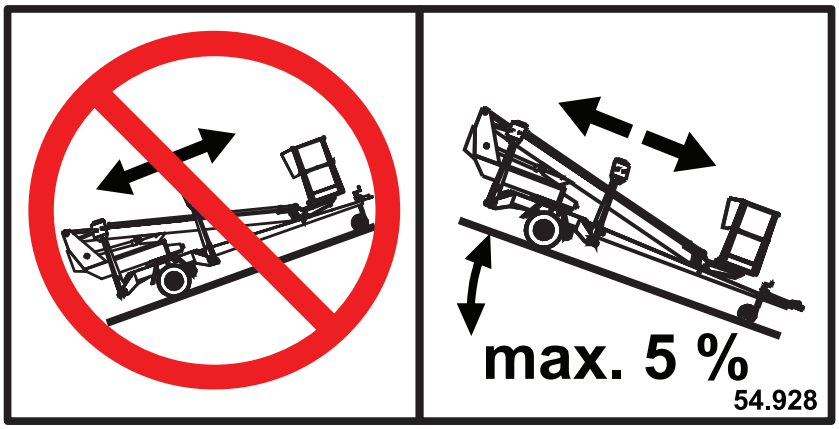
NOTICE

If the batteries are flat, using the charger for driving the machine is not recommended. The load may grow too high. Continue the charging for at least half an hour before starting the operation.

NOTICE

Be careful not to damage the jockey wheel tube by extending it too much.
When moving the lift using the driving device, a suitable length for the jockey wheel's stem can be achieved by adjusting the gap between the lower surface of the drawbar/brake rod and the wheel to 1-3 cm. Then the wheel may turn freely.

On a slope:
1. When driving on a slope, the drawbar must always point towards the descent. Never drive with the driving device with the drawbar pointing towards the ascent.
2. Always place chocks under the wheels before disconnecting the device from the towing vehicle.
3. Always apply the handbrake before disconnecting the lift from the towing vehicle.
4. Only use the handbrake as a parking brake or for emergency stopping.
5. When transferring the lift using the driving device:
   - take care not to allow the wheel to roll over your foot
   - look out for sudden sideways movements of the drawbar
   - be careful not to cause danger to other people and the environment
6. Do not move the device on a slope using only hand-power. You may lose control over it and cause an injury.
7. Never park a vehicle combination on a slope.
   Never leave the lift on a slope being supported only by the self-braking action of the driving device.



Do not drive downhill with the driving device, if the inclination of the surface is more than 5 per cent, (corresponding to a descent of 0.5 m over a distance of 10 m). If the gradient of the surface is greater than this, you may lose control of the device.

5.3.3. Towing the lift

Always ensure before towing:
- transport position of the outriggers
- the road lights are turned back to wide position
- condition and pressure of the tyres The correct pressure ratings are marked on the tyres.
- that there is no load on the platform and all covers are closed and locked.

Connecting to the towing vehicle
1. Lift up and push forward (in the driving direction) the handle of the ball-coupling. Now the ball-coupling is released.
2. Press the ball-coupling onto the towball using only a little force. The connection locks automatically.

Always make sure after connecting that the ball-coupling is properly locked.

3. Connect the emergency brake cables and light plug to the vehicle. Check the light cable for chafing and proper operation of the brake cables.
4. Check the operation of the lights.
5. Carefully release the parking brake and make sure that its locking is in order and that its handle stays in the lower position.
6. Disconnect the driving device on both sides
7. Lift up the jockey wheel to the transport position. Tighten carefully.

Clean and lubricate the ball-coupling and adjust the brakes regularly according to the service instructions.

NOTICE

Observe the national traffic regulations, the local and worksite-specific instructions, as well as the instructions concerning the towing vehicle.

WARNING

Risk of tipping over! Drive at an appropriate speed in turns, considering the lift's high center of gravity.

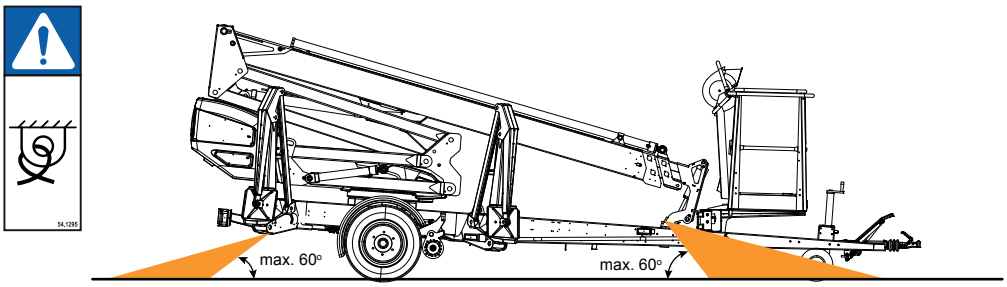
After towing

1. Apply the parking brake as firmly as possible
2. Lower the jockey wheel. Tighten carefully.
3. Disconnect the ball-coupling, light plug and brake cable from the vehicle
4. Place chocks under the wheels as an additional precaution.

Always check locking of the brakes after transportation. Use chocks under the wheels when disconnecting the lift from the car.

5.3.4. Tying down

If the lift is transported by other means than towing, it must be tied down at the marked points for the transport. The tying points are symmetrically located on either side of the lift.

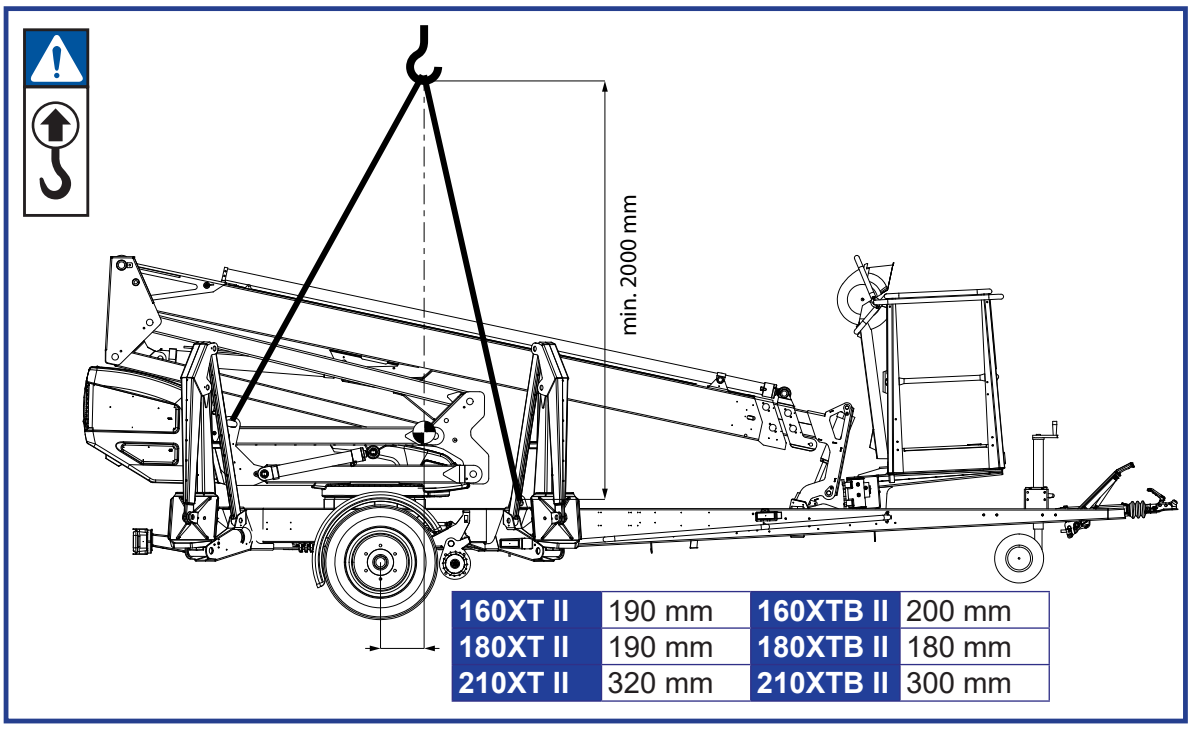


CAUTION

Risk of falling! Tie down the lift to the vehicle for the transport. The chassis of the lift is fitted with specific, marked lugs for tying. To avoid structural damage, use only the marked tying points.

5.3.5. Lifting the device

The device can be lifted using the lugs shown in the picture. The lifting lugs are located symmetrically on both sides of the lift.



160XT II	190 mm	**160XTB II**	200 mm
180XT II	190 mm	**180XTB II**	180 mm
210XT II	320 mm	**210XTB II**	300 mm

During lifting the aerial work platform must be in the transport position. Remove all loose material from the top of the frame structures and the work platform before lifting.

Use for lifting a suitable crane with sufficient capacity and relevant accessories. Make sure that the crane and other lifting equipment are strong enough for the weight of the device. Check the weight of the lift in the technical specifications.

Be careful not to damage the unit during the lifting operation.

5.4. LONG-TERM STORAGE

Clean the machine carefully, lubricate it and apply protective grease to it before putting it into storage for a longer period of time (see point “Lubrication plan”). Repeat the cleaning and lubrication procedures when you resume the operation.

Make sure to maintain the charge of the batteries during storage to minimize degradation and prevent battery failure. Maintaining the charge is especially important during cold storage to prevent battery failure due to freezing. It is sufficient to connect the lift to the mains electricity for a few hours once a month.

NOTICE

If you leave the lift standing for a longer period of time, for example over the winter, we recommend propping it up to release any load from the wheels.

The periodic inspections must be executed following the steps described in the instructions.

6. IN CASE OF EMERGENCY

6.1. WHEN AT RISK OF LOSING STABILITY

Reduced stability can be caused by a fault in the lift, the wind or other lateral force, collapse of the standing base or negligence in providing sufficient support. In most cases one sign of reduced stability is the inclination of the lift.



1. If there is time, try to find out the reason for the reduced stability and the direction of its effect. Warn other people on the worksite using the alarm signal.
2. If possible, reduce the load from the platform in a safe manner.



3. Reduce the outreach to the side by retracting the telescopic boom using the emergency descent system. Avoid abrupt movements.



4. Turn the boom away from the danger zone, i.e. to a position where the stability of the lift is normal.



5. Lower the boom.

If the stability has been lost as a result of a fault in the lift, repair such a fault immediately.



Do not use the lift until the fault has been repaired and the condition of the lift has been verified.

6.2. IN CASE OF OVERLOADING



1. If there is time, try to find out the reason for the reduced stability and the direction of its effect. Warn other people on the worksite using the alarm signal.
2. If possible, reduce the load from the platform in a safe manner.

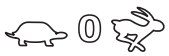


3. Reduce the outreach to the side by retracting the telescopic boom using the emergency descent system.
4. The green light will illuminate as soon as the overloading situation is reset. After this, the machine may be operated normally.

6.3. IN CASE THE OPERATOR IS INCAPACITATED ON THE PLATFORM



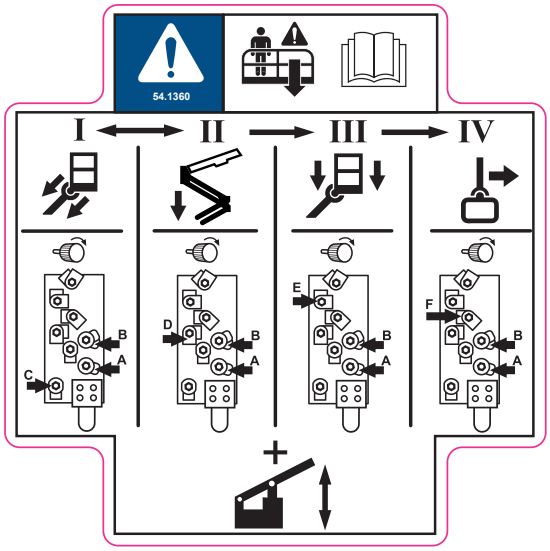
1. Break the seal of the emergency stop bypass button.
2. Press and hold the emergency stop bypass button.



3. Select and hold speed.
4. Drive movement

6.4. IN CASE THE POWER SUPPLY IS INTERRUPTED

Operation:
The lift is equipped with an emergency descent system with a hand-operated pump. It is located under the left side cover, viewed from the ground control centre. The operating lever of the pump is fixed inside of the side cover. Always check the condition of the emergency descent system before starting to use the lift.



NOTE Using the emergency descent, retract first the telescope completely, then lower the articulated arms and the boom, and finally, turn the boom.

1. Retracting the telescope
- Turn the finger screws A, B and C all the way down clockwise
- using the hand pump, retract the telescope completely.
- Turn the screws fully open counter-clockwise after the pumping.



2. Lowering the articulated arms
- Turn the finger screws A, B and D all the way down clockwise
- using the hand pump, lower the articulated arms completely.
- Turn the screws fully open counter-clockwise after the pumping.

3. Lowering the boom
- Turn the finger screws A, B and E all the way down clockwise
- using the hand pump, lower the boom completely.
- Turn the screws fully open counter-clockwise after the pumping.

4. Turning the boom
- Turn the finger screws A, B and F all the way down clockwise
- using the hand pump, turn the boom counter-clockwise.
- Turn the screws fully open counter-clockwise after the pumping.

6.5. IN CASE OF MALFUNCTION, WHEN EVEN THE EMERGENCY DESCENT SYSTEM IS NOT OPERATIONAL

If not even the emergency system is working, try to warn other personnel present on the site or call for more help. When help arrives, try to

- restore the power supply required for normal operation of the lift
- make the emergency descent system operational
- make the lift operational by, for example, changing the battery

7. INSTRUCTIONS FOR FAULT-FINDING

FAULT	REMEDY

1. The electric motor does not start from its start button or if any of the movements is activated

The correct operating location has not been selected.	Select the correct operating location using the key switch Q1.
Main switch has been turned off.	Switch on the main switch.
The emergency stop button has jammed in the lower position.	Pull up the button and re-start the motor.
No power supply to the main centre – no reading in the battery gauge.	Check the fuse F3 (main centre, 10A glass tube). Check the fuse F12 (left battery housing, 15A car fuse). Check the fuse FG (left battery housing, 150A mega fuse).
Power supply to the main centre is OK – reading in the battery gauge between 100 % and 1 %.	Check the fuse F1 (main centre, 10A glass tube). Check the fuse F4 (main centre, 10A glass tube).
Power supply to the main centre is OK – reading in the battery gauge is 0 %.	Batteries are flat, under about 17 V –> recharge the batteries by connecting the mains cable.

NOTICE

If maintained well, the batteries will last 4-5 years of normal operation. Incorrect use shortens their service life rapidly.

2. Movements "boom up" and "telescope out" are not operational, even though the electric motor starts normally when other movements are being actuated.

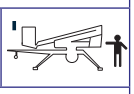
Low battery voltage, under 20.88 V, lifting movements are impeded.	Recharge the batteries by connecting the mains cable.

3. None of the platform movements is operational though the electric motor is running and the selector switch is in the correct position

The lift has been overloaded, indicated by the illuminated red signal light.	Reduce the platform load or	
	Retract the telescope until the platform returns inside its operating range (the green light in the platform control centre lights up).	
The Safeguard (option) prevents the operation from the platform control centre.	Return the magnet of the Safeguard to its counter-piece.	

FAULT	REMEDY

6. Outriggers do not move

Boom is not resting on the transport support.	Drive the boom onto the transport support.
The selector switch is in the wrong position.	Turn the selector switch to the correct position. 
The limit switch on the boom support has not closed.	Drive the boom onto the transport support.

7. Malfunctions of platform movements – only one of the movements can be operated

Lifting and lowering of the boom and the extension of the telescope are not operational, the red light is illuminated on the platform and in the ground control centre, and the buzzer is audible.	The boom has been overloaded; retract the telescope and retry the operation (automatic reset).

18. Driving device does not operate, although the selector switch is in position LCB

Boom is not resting on the transport support.	Drive the boom onto the support.

24. Wheel brakes overheat

Parking brake not completely released.	Release the parking brake completely.

25. Ball-coupling is not locked

Inner parts of the ball-coupling dirty.	Clean and lubricate.
Tow-ball of the towing vehicle too large.	Make sure that the towing ball of the towing vehicle is the right size for the lift's tow hitch. According to DIN74058, the diameter of the ball must be max. 50 mm and min. 49.5 mm.

In all other fault conditions, the lift must be submitted to a qualified DINO service provider.

To avoid malfunctions

- Follow the operating instructions
- Beware of dangerous situations, which can damage the lift
- Keep the lift clean and protect it against moisture

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8. MAINTENANCE SCHEDULE

Schedule	Person responsible	Reference
Daily	Operator	Operating instructions
1 month / 100 hours*	Competent person who is familiar with the lift	Maintenance instructions
6 months / 400 hours*	Competent person who is familiar with the lift	Maintenance instructions
Annually / 800 hours*	Skilled technician who is well familiar with the structure and operation of the lift	Maintenance instructions
As needed	Skilled technician who is well familiar with the structure and operation of the lift	Maintenance instructions
* Service must be performed every indicated month or operating hour interval, whichever		

NOTICE

In addition to the daily maintenance routines according to the maintenance schedule, every operator is obliged to perform a site-specific worksite inspection.

○ = Check (general/visual checking of condition).
● = Thorough Inspection. To be performed following the procedure, described in the separate maintenance instructions.
▲ = Carry out lubrication, services, replacement of parts and repairs in accordance with this point.

Always lubricate the lift and apply a protective grease film immediately after the washing.

The lift must be subjected to an extraordinary inspection always after an exceptional event. An event is exceptional, for example, if the lift has been damaged so severely, that its strength or operational safety may have been endangered. Consult the maintenance manual for more detailed instructions.

NOTICE

If the lift is equipped with a petrol-driven or a diesel power pack, then in addition to the normal maintenance routines must also be carried out the service measures in accordance with the power pack's manual.

NOTICE

Under demanding conditions where moist, corrosive substances or corrosive climate may speed up the deterioration of the structures and induce malfunctions, the maintenance intervals must be shortened, or the influence of corrosion and malfunctions must be reduced by using appropriate protective agents.

	Maintenance item	Daily	100 h / 1mo	400 h / 6mo	800 h / 1yr	As needed	Notes
1	Outriggers						
	Structure	○	○	○	●		
	Foot plates				○		
	Joints		○/▲	○/▲	●/▲		Mobilgrease XHP 222
	Limit switch mechanism				○		
2	Chassis						
	Structure	○	○	○	●		
	Drawbar	○	○	○	●		
	Transport support				○		
3	Boom						
	Structure	○	○	○	●		
	Sliding surfaces		▲	▲	▲		PRF Teflube
	Slide pads		○/▲	○/▲	○/▲		
	Joints		▲	▲	○/▲		Mobilgrease XHP 222
4	Work platform						
	Structure	○	○	○	●		
	Gate	○	○	○	●		
	Platform carrier	○	○	○	●		
	Platform pin				○		
	Anchor points				○		
5	Turning device and rotary adaptor						
	Structure	○	○	●	●		
	Attachment of turning bearing			○	●		Test Tighten M16: 180 Nm 280 Nm M12: 80 Nm 115 Nm
	Lubricate nipples (1-1,5 g x 4 pcs.)			▲	▲		Mobilgrease XHP 222
	Attachment of angular gear				○		
	Play of angular gear				○		
	Lubricate gear rings			▲	▲		Ceplattyn 300
	Axial play of turning bearing				●		Max 1 mm
	Turning motor				○		
	Rotary adaptor				○		
	Lever arm				○		
6	Flyer-chain system						
	Chain indicator(s)	○	○	○	○		
	Lubricate chains			▲	▲		Würth HHS Grease
	Lubricate chain rollers		▲	▲	▲		Mobilgrease XHP 222

	Tightness of chains				●/▲		
	Attachment of backup chain				○		
	Condition of the chains				●		30 links max 486 mm
7	Cylinders						
	Load holding		○	○	●		
	Joints		○/▲	○/▲	○/▲		Mobilgrease XHP 222
	Telescope cylinder joints			○/▲	○/▲		Mobilgrease XHP 222
	Piston rod and wiper ring				●		
	Fittings				●		
	Platform levelling		○	○	○		
8	Driving device						
	Operation		○	○	●		
	Attachment to chassis				○		
	Load holding		○	○	○		
	Lubricate			▲	▲		Mobilgrease XHP 222
9	Hydraulic system						
	Oil filter cartridge				▲		
	Oil	○	○	○	▲		ISO VG 22, 20 litres
	Lines and fittings	○	○	○	●		
	Pressures				●		
10	Axle and wheels						
	Condition of axle				●		
	Attachmet of axle				●		150 Nm
	Tyres	○	○	●	●		Use max inflation pressure marked on the tyre
	Rims				○		
	Wheel bolts / nuts			○	●		Bolts: 90 Nm Nuts: 325 Nm
	Play of wheel bearings				○		
	Grease jockey wheel				▲		
11	Tow ball coupling and overrun brake						
	Ball coupling		○	○/▲	○/▲		Würth HHS Grease
	Locking mechanism				○		
	Attachment				○		
	Overrun		○	○/▲	○/▲		Mobilgrease XHP 222
	Clearance				○		
	Operation				●		
	Operation of brakes			○	○		
	Brake rod and cables			○/▲	○/▲		Würth HHS Grease
	Brake adjustment at every 5 000 km		●/▲	●/▲	●/▲		M10: 24 Nm, M12: 40 Nm
12	Electrical system						
	Control boxes				○		
	Connections				○		
	Limit switches and sensors				○		
	Wiring		○	○	○		
	Cable chain				○		
	Mains plug and socket				○		
	Fault corrent switch				○		
	Battery		○	○	○		

	Electrolyte level (TX & XTB)		○/▲	○/▲	○/▲		
	Road lights and reflectors	○	○	○	○		
13	Control system and safety devices						
	Operation	○	○	○	○		
	Operation of safety limit switches	○	○	○	●		
	Emergency stop	○	○	○	○		
	Emergency descent	○	○	○	○		
	Horn	○	○	○	○		
	Overload protection device		▲	●/▲	●/▲		RK5 800 h / annually
14	Decals, plates and instructions	○	○	○	○		
15	Test loading						
	Loading				▲		110 % of nominal load
	Check structures				●		
16	Corrosion protection				○	▲	
17	Movement speed adjustment					▲	
18	Special inspection					▲	

8.1. SCHEDULE FOR INSPECTIONS REQUIRED BY THE AUTHORITIES

Inspections must be performed in accordance with local, state or federal regulations, legislation, directives, standards. The manufacturer recommends following inspections, as required by local authorities in platforms country of origin.

A pre-use inspection must be done before taking the platform to use for the first time and before first start-up after major repairs and alterations.

A thorough inspection and a test loading of the lift must be carried out at least once every twelve (12) months.

The platform should undergo a major inspection within ten (10) years after having

been originally put into service. A major inspection includes non-destructive testing and inspection while dis-assembled.

A special inspection should be done if the platform has been exposed to exceptional circumstances which may have affected the structural integrity of critical components.

The inspections should be carried out on regular basis throughout the service life of the lift.

If the lift is used under extreme conditions, intervals between the inspections shall be reduced.

The overall operating condition of the lift as well as the condition of the safety-related control devices shall be established in the regular inspections. Particular attention shall be paid to changes which affect the operational safety.

During inspections the notifications given in previous inspections, practical experience from use and information on performed repairs should be taken into account and can be implemented for better safety.

Major and special inspections shall be carried out by a competent person or competent body, who is familiar with the operation and structure of the lift. The competent person sould periodically update their knowledge and be able to demonstrate their competency if so required.

A report should be made of the inspections and the reports should be kept with the unit stored in the space reserved for it.

The report should include

- information about the inspection

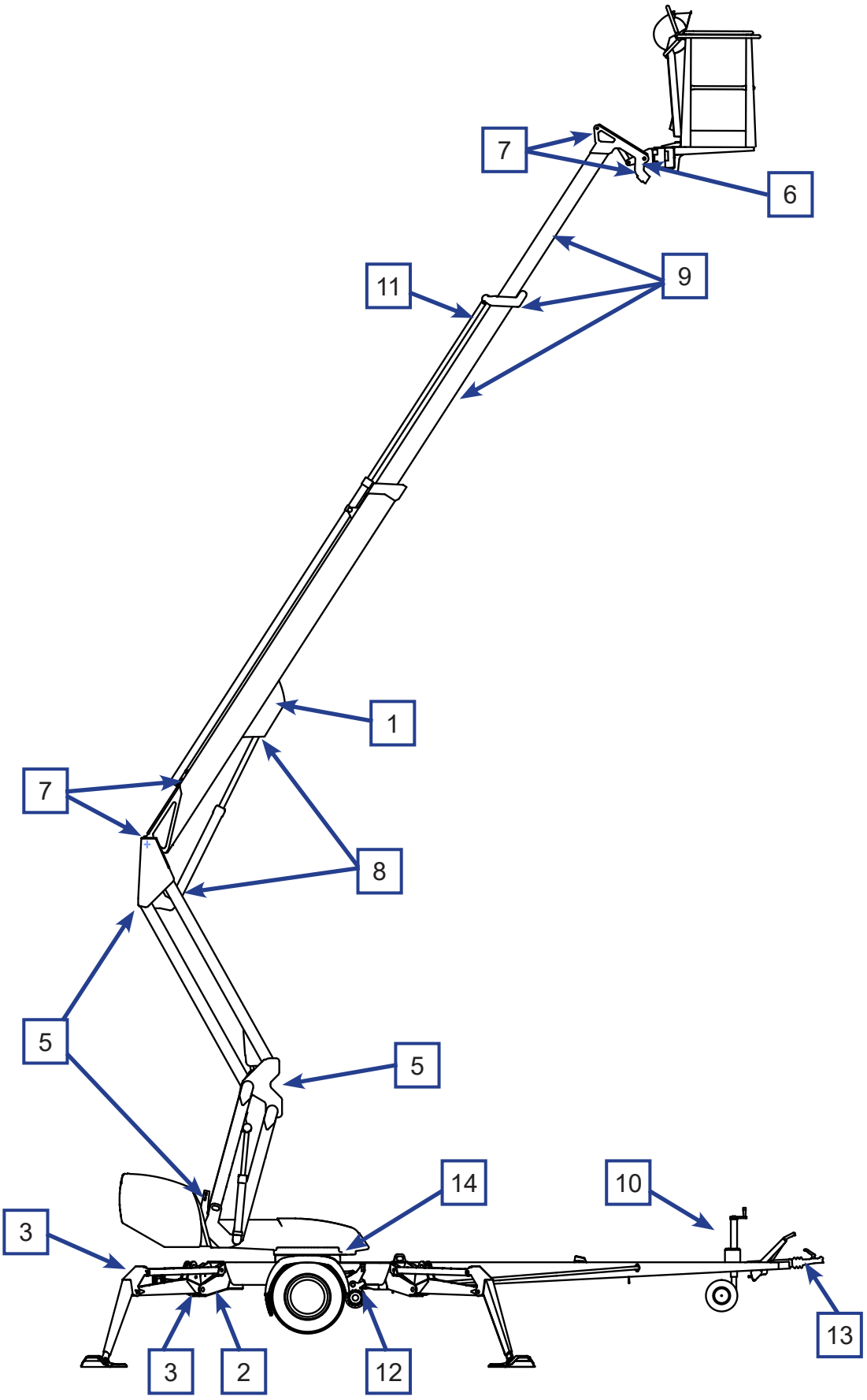
- data of repair welds (date, what was repaired and repaired by whom)

When the lift is ready for operation after annual inspection, the date of inspection shall be marked on the inspection plate affixed to the lift.

NOTICE

Check the regulations for the inspections and the competence of the inspector with the local authorities.

8.2. LUBRICATION PLAN



9. ROUTINE MAINTENANCE DURING OPERATION

The maintenance operations, that are the responsibility of the operator, are described in this chapter.

The more demanding maintenance operations that require special skills, special tools or specific measurements and adjustment values are instructed in the separate Maintenance Instructions. In such maintenance and repair cases, the operator shall contact an authorized service provider, the distributor or the manufacturer.

Make sure that all the service and maintenance procedures of the lift are performed in time and according to the given instructions.

WARNING

Any such faults, observed during operation or periodic service, which affect the operational safety of the unit, must be repaired before the lift is used next time.

Keep the lift clean. Clean the lift especially carefully before services and inspections. Impurities may cause serious problems, for example, in the hydraulic system.

Use original spare parts and consumables. Consult the spare parts list for more detailed information about the parts.

The first service after 20 hours of operation

- adjust the brakes according to the instructions (see point “Wheel brakes and bearings”)
- check the wheel bolts for tightness after about 100 km of driving

If the lift is operated under demanding conditions (in exceptionally humid or dusty environment, corrosive climate, etc.) the intervals between the oil changes and the other inspections shall be shortened to meet the prevailing conditions in order to maintain the operational safety and reliability of the lift.

The timely performance of the periodic servicing and the inspections is absolutely mandatory, because neglecting them may impair the operational safety of the lift.

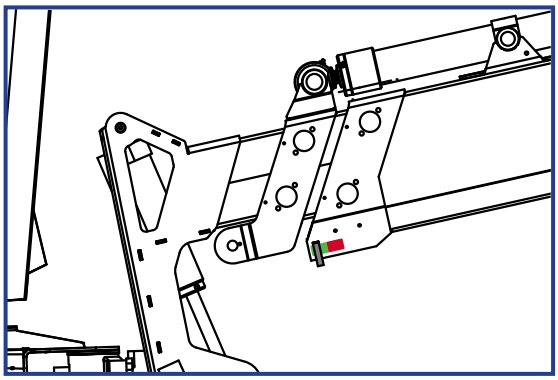
The guarantee will not remain valid, if the servicing and the periodic inspections are not performed.

9.1. INSTRUCTIONS FOR DAILY MAINTENANCE AND INSPECTIONS

9.1.1. Chassis, boom and work platform

Check the overall condition of access systems, work platform, gate and handrails.
Check visually the condition of the boom and the frame structures.

Check, that the mechanical indicators for chain failure are aligned properly.



9.1.2. Axle and wheels

Check visually that the tyres are duly inflated, and do not show any damage.

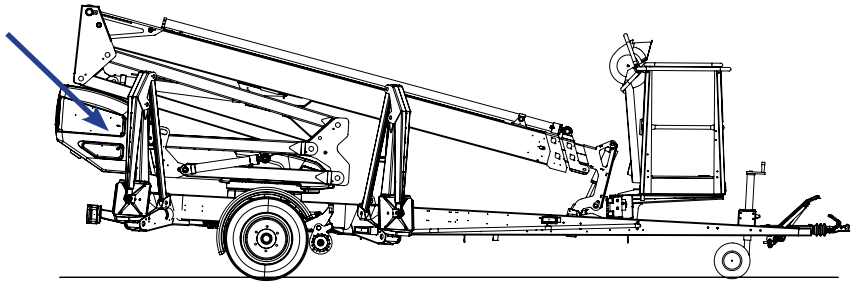
9.1.3. Lights

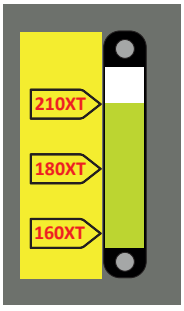
Check the condition of all the warning and signal lights as well as the road traffic lights of the trailer.

9.1.4. Hydraulic oil level

Check the hydraulic oil level while the lift is in the transport position.
If necessary, top up hydraulic oil in accordance with the indicator on the tank.

The hydraulic oil tank is located under a cover on the right-hand side of the lift.





At the same time, check in the level eye of the oil tank that the oil is looking clean and normal (no excess foam etc.).

9.1.5. Electrical and hydraulic systems

Check the condition of hydraulic hoses, pipes and connections visually.
Make sure that there are no visible oil leaks.

Check that the electrical components, housings or wiring do not show any visible signs of damage.

Any externally damaged components, hoses, clashed pipes and connections or loose or damaged wiring must be changed before operation.

9.1.6. Control system and safety devices

Operation of the safety limit switches

Test the operation of the safety limit switches that prevent the movements of the boom and the outriggers as follows:

1. The lift is in the transport position with the outriggers in the upper position, and the driving device connected.
2. Lift the boom via the controls in the ground control centre.
   The boom must not operate in any position of the selector switch.
3. Lower the outriggers to the operating position of the lift
4. Using the controls in the ground control centre, lift the boom so much that it raises from the support
5. Drive the outriggers.
   The outriggers must not operate in any position of the selector switch.

Operation of the emergency descent, the emergency stop and the sound signal

Test the operation of the emergency stop from both the ground control centre and the platform control centre. Test also the emergency descent system and the sound signal from the platform control centre.

- Lift the boom and extend the telescope about 1-2 metres. While driving the movement, push down the emergency stop button. The movement and motor should stop.
- From the platform control centre
  - Pull up the emergency stop button.
  - Using the emergency retraction, retract the telescope.
  - Test the sound signal.

9.1.7. Decals, plates and instructions

Check that all the signs, warning decals and pictorials are in place, intact and clean.

If the labels have started to come off or tear apart, or if the symbols or texts are illegible, then the decals must be replaced.

Product numbers of the decals are visible on the decals or the product numbers of new decal sets can be found in the spare part list.

Check that the user manuals accompanying the lift are legible.

BLANK

BLANK

10. CHANGE OF OWNER

For the owner of the lift:

If you have purchased a used DINO lift from some other than the manufacturer, please post your details to the manufacturer using the form on this page, and send it to:

info@dinolift.com

This information makes it possible for us to provide you with the safety bulletins and other campaigns relevant to your machine.

Note! It is not necessary to inform about a rented machine.

Machine model: DINO _____

Serial number: _____

Previous owner: _____

Country: _____

Date of purchase: _____

Current owner: _____

Address: _____

_____

Country: _____

Contact person

Name and position in the company: _____

Telephone: _____

E-mail: _____

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