DINOlift
Up to the Job

OPERATING INSTRUCTIONS

DINO 160XT II • 180XT II • 210XT II

Manufacturer:

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

Dealer:

TRANSLATION OF THE ORIGINAL INSTRUCTIONS

Valid from serial number

160XT II	**17250 -**
180XT II	**30111 -**
210XT II	**3465 -**

CONTENTS

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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.

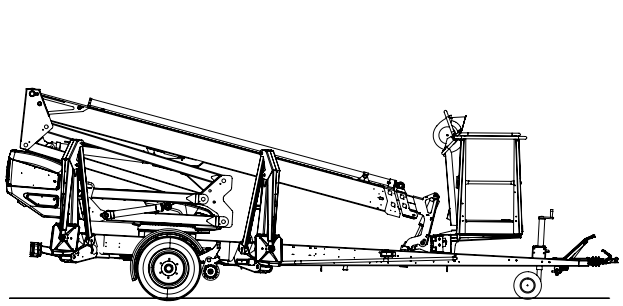
Dinolift Oy is constantly developing its products. For this reason, the contents of this manual might not always be in full compliance with the most recent version of the product. Dinolift Oy reserves the right to modify the product without prior notice. Dinolift Oy assumes no liability for any problems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

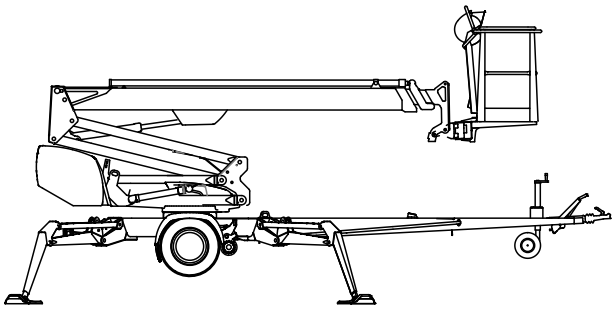
Please consult your dealer or the manufacturer for more information and detailed instructions.

1.1. OVERVIEW OF THE UNIT

This unit is a trailer mounted, towable aerial work platform.
It is an aerial work platform, which complies with the EN280 type 1, where travelling is only allowed with the platform in transport configuration.

For the operation the lift shall be supported by its hydraulic outriggers, extended so that the wheels of the trailer lift off the ground.





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

As an option, the lifts can be equipped with a driving device that can be controlled from the ground.

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 transferring people and tools and acting as a work platform within its permissible load-bearing capacity and reach (refer to the “Technical Specifications” table and the “Reach Diagram”).

The intended use also covers:
- Following all the instructions in the Operating Instructions
- Performance of the inspections and maintenance operations.

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

	160XT II	180XT II	210XT II
Max. working height	16,0 m	18,0 m	21,0 m
Max. platform height	14,0 m	16,0 m	19,0 m
Max. outreach	9,1 m	11,2 m	11,7 m
Boom rotation	continuous		
Platform rotation	180°		
Turn area	refer to the reach diagram		
Support width	3,80/4,20 m	3,90/4,30 m	3,90/4,30 m
Transport width	1,80 m	1,95 m	1,95 m
Transport length	6,15 m	6,66 m	7,92 m
Transport height	2,30 m	2,30 m	2,33 m
Weight (incl. Honda power unit)	1992 kg	2315 kg	2478 kg
Max. allowed load on platform	215 kg		
Max. number of persons + additional load	2 persons + 55 kg		
Max. allowed sideways load (caused by persons)	400 N		
Max. lateral inclination (chassis)	±0,3°		
Max. allowed gradient of ground to the side	2,2°	6,7°	6,7°
Max. allowed gradient of ground lengthwise	3,8°	8,0°	8,3°
Max. wind speed during operation	12,5 m/s		
Min. ambient temperature when working	- 20 °C		
Max. support force on the outriggers	16800 N	16800 N	22800 N
Platform size	0,7 x 1,3 m		
Gradeability	25%		
Socket outlets on the platform	2 x 230V/50Hz/16A		
Power supply	0	0	0
- mains current	230V/50Hz/10A		
Sound pressure level	< 70 dB		
Whole-body vibration	Not detectable		

Optional engines

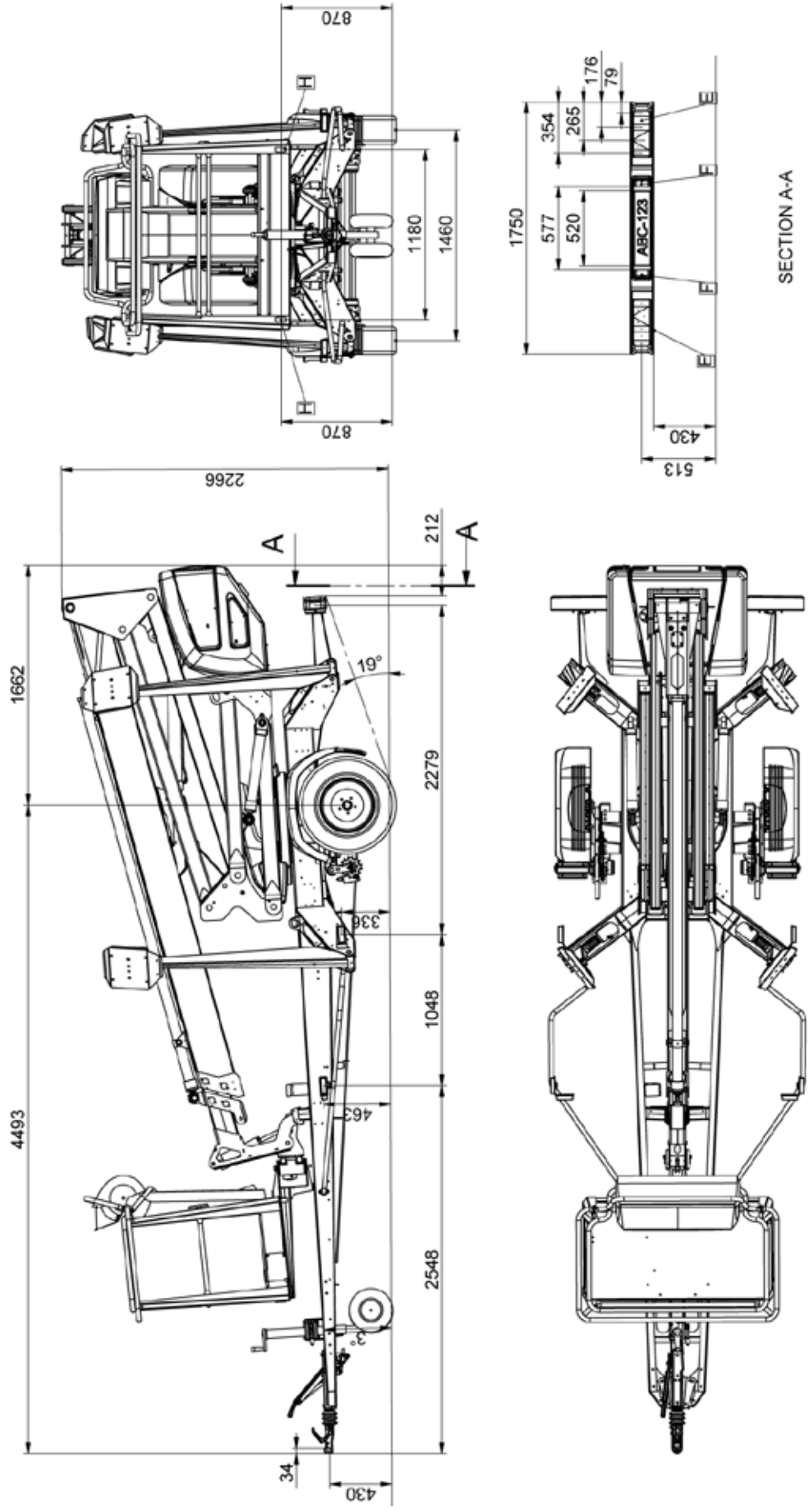
Hatz 1B30	EPA / CARB Tier 4 Final
Fuel	Diesel
Net power	4,4 kW (6 hv) / 2800 r/min
Oil tank volume	1,1 l
Sound pressure level	101 dB
Whole-body vibration	< 0,5 m/s2

Honda GX200SXE	
Fuel	Petrol
Net power	4.1 kW (5,5 hp)
Fuel tank volume	3,1 l
Oil volume	0,6 l
Fuel consumption	1,7 l/h
Sound pressure level	98 dB
Whole-body vibration	< 0,5 m/s2

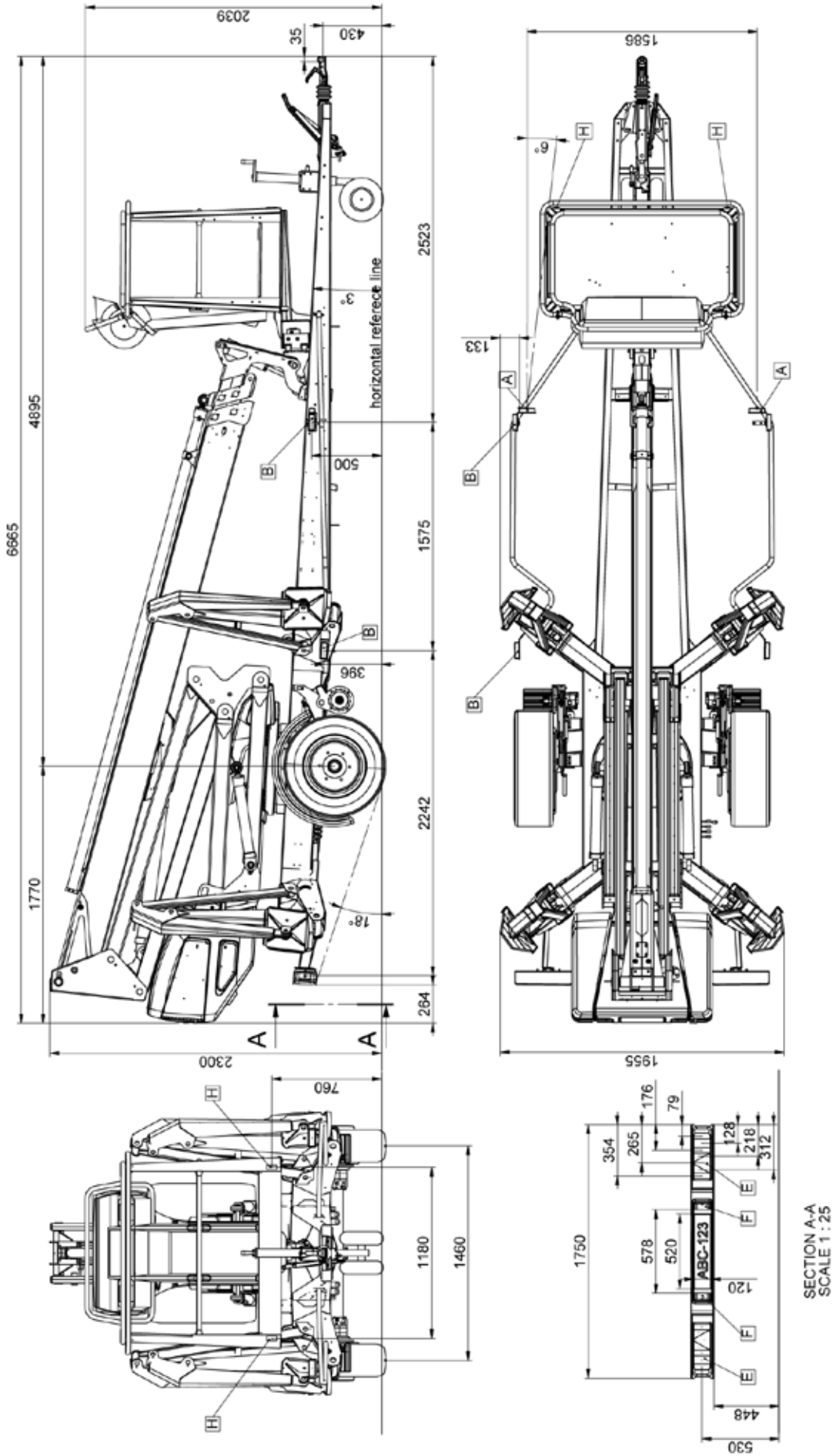
Subaru EX21	
Fuel	Petrol
Net power	3,7 kW (4,9 hp) / 3600 r/min
Fuel tank volume	3,6 l
Oil volume	0,6 l
Fuel consumption	1,7 l/h
Sound pressure level	98 dB
Whole-body vibration	< 0,5 m/s2

2.1. DIMENSION DRAWINGS

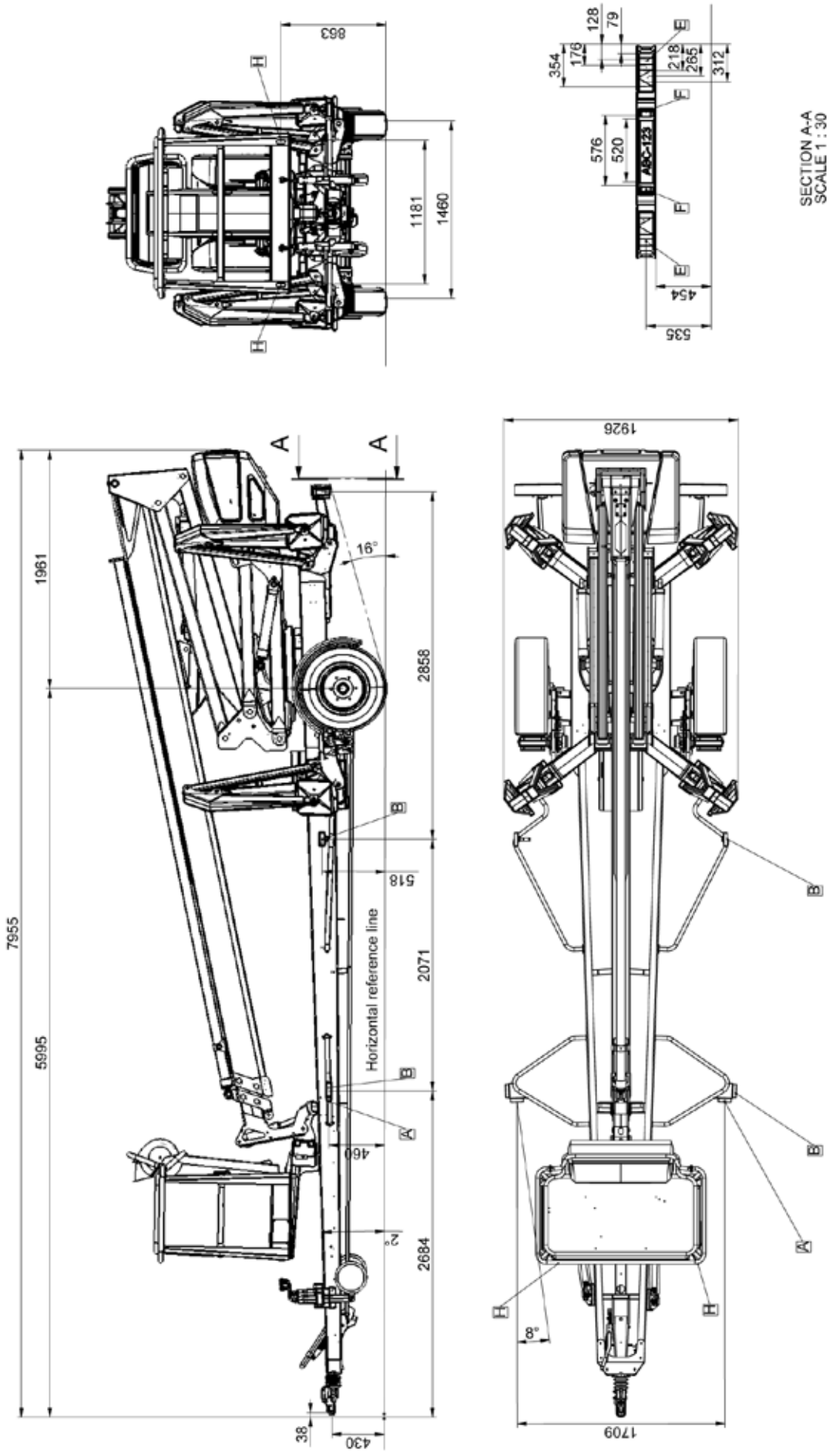
2.1.1. 160 XT II



2.1.2. 180 XT II

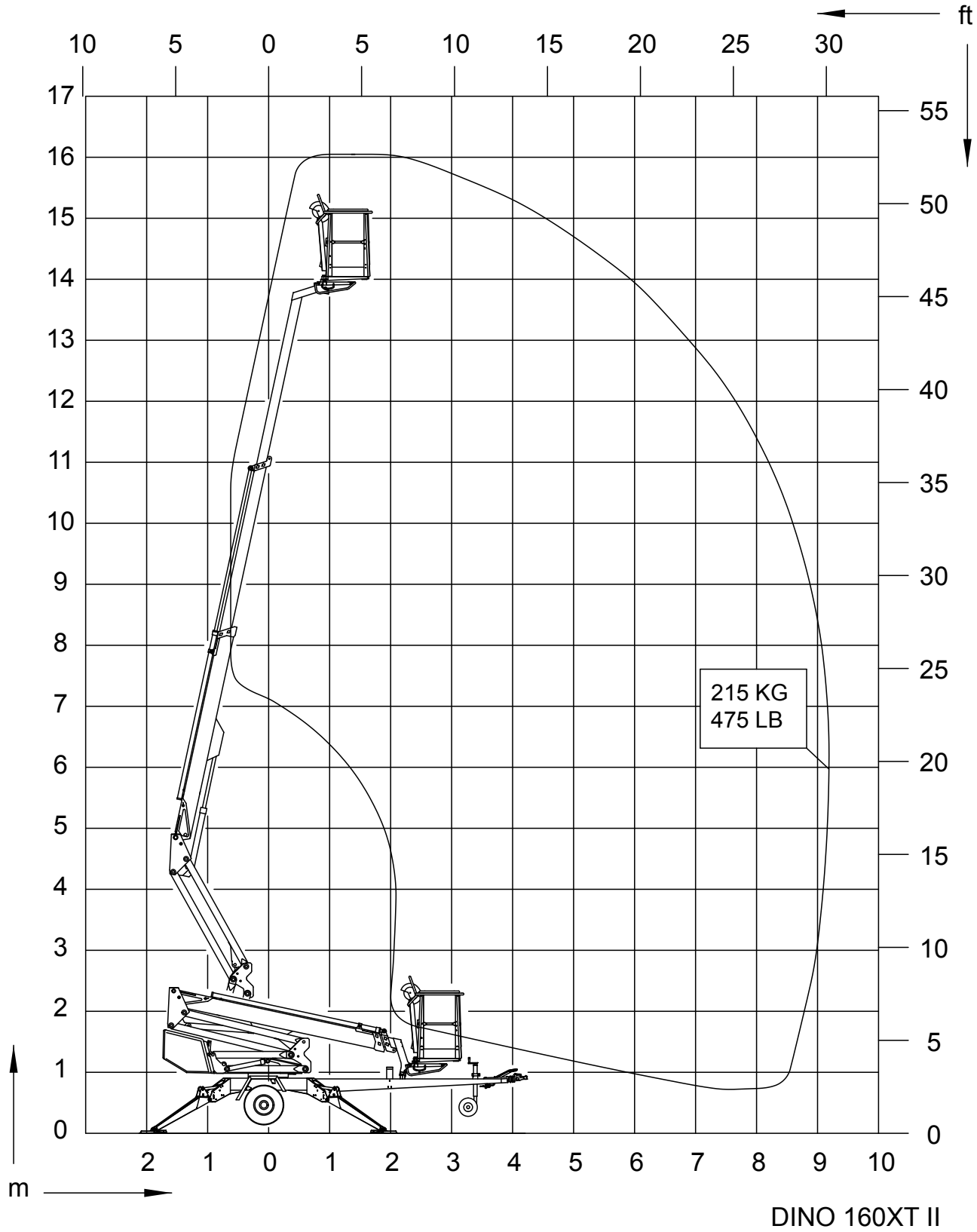

2039
35
430
horizontal referece line
2523
3°
500
4895
6665
1575
396
2242
1770
18°
264
2300
A
A
1586
6°
H
H
133
A
A
B
B
B
B
1955
760
H
H
1180
1460
176
79
354
265
128
218
312
E
F
1750
578
520
ABC-123
120
F
E
448
530
SECTION A-A
SCALE 1 : 25

2.1.3. 210 XT II

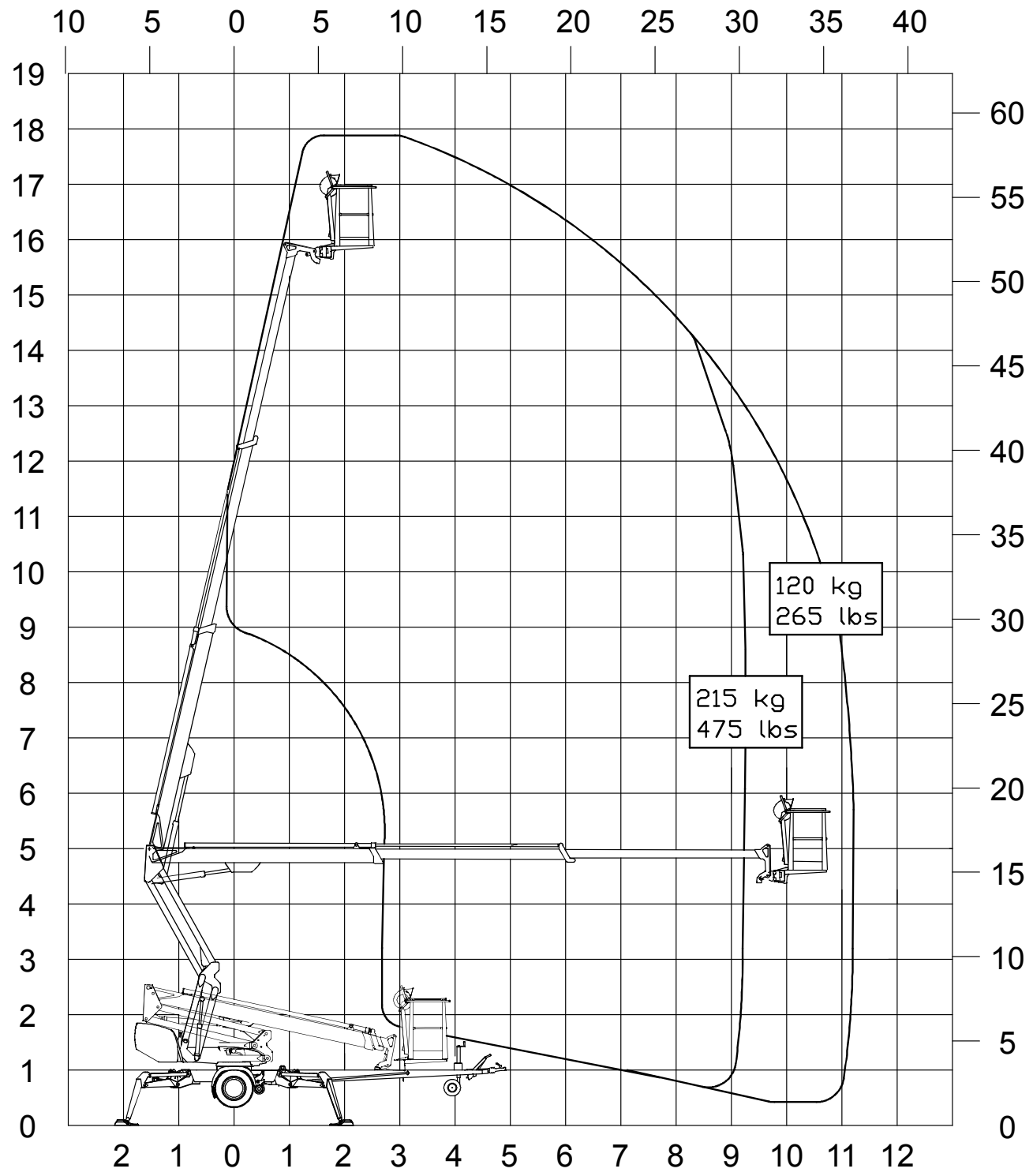

863
1181
1460
128
79
176
354
218
265
312
576
520
454
535
SECTION A-A
SCALE 1 : 30
1926
1961
7955
5995
16°
2858
518
2071
Horizontal reference line
460
2°
2684
38
430
8°
1709

2.2. REACH DIAGRAM

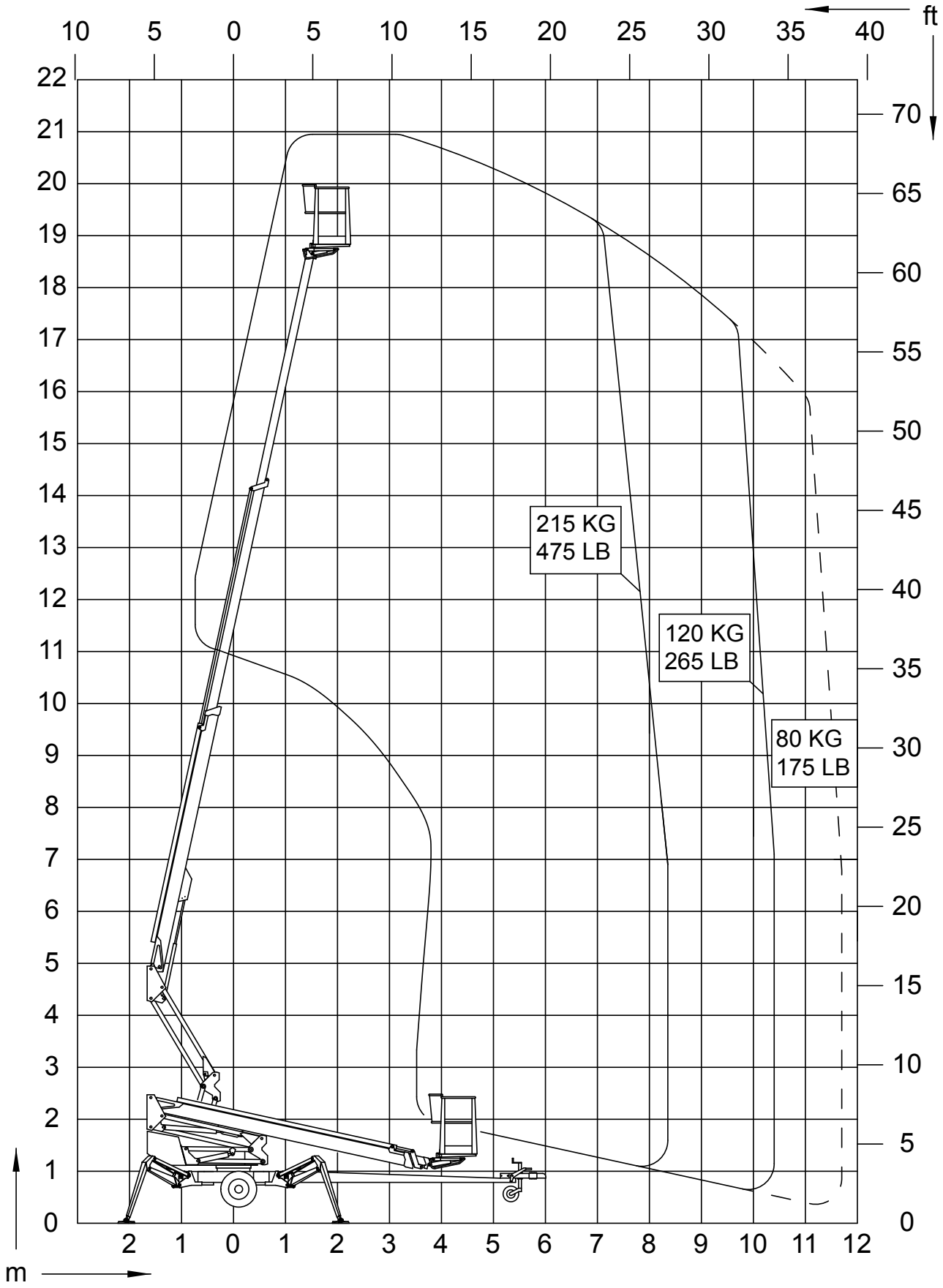
2.2.1. 160 XT II



2.2.2. 180 XT II

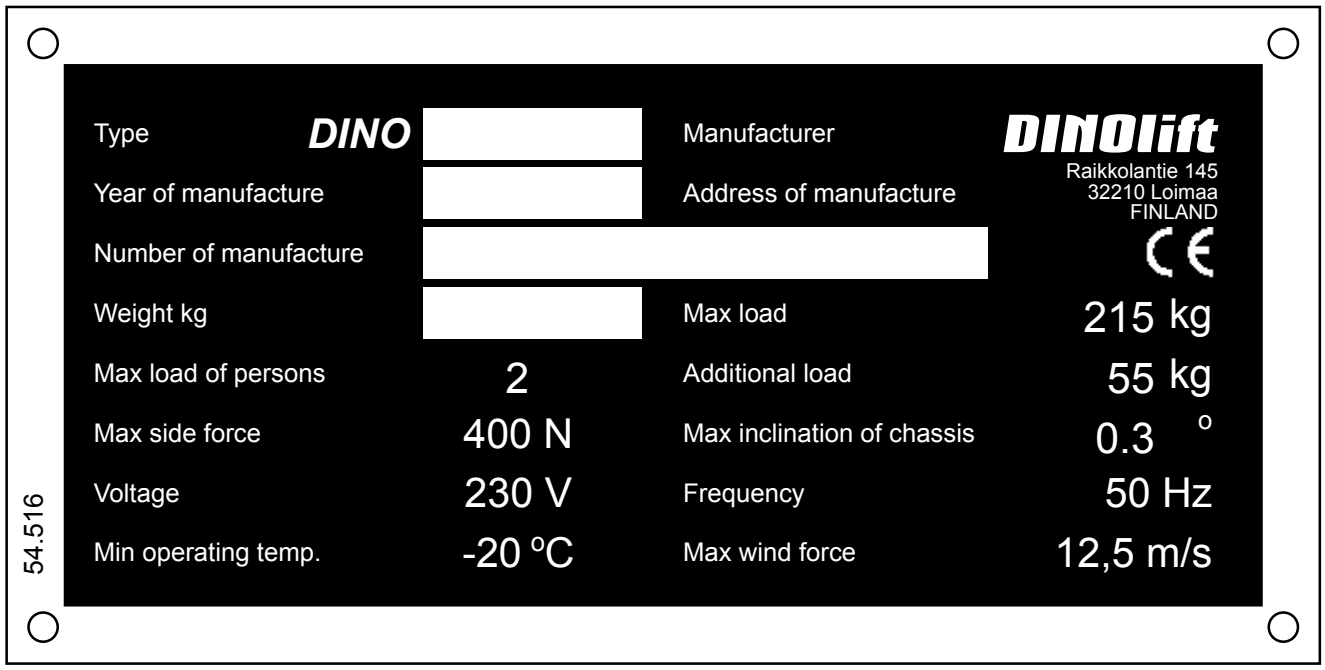

10 5 0 5 10 15 20 25 30 35 40
19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
60 55 50 45 40 35 30 25 20 15 10 5 0
120 kg
265 lbs
215 kg
475 lbs
2 1 0 1 2 3 4 5 6 7 8 9 10 11 12

2.2.3. 210 XT II


ft
10 5 0 5 10 15 20 25 30 35 40
22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
70 65 60 55 50 45 40 35 30 25 20 15 10 5 0
215 KG
475 LB
120 KG
265 LB
80 KG
175 LB
2 1 0 1 2 3 4 5 6 7 8 9 10 11 12
m

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.



The nameplate of the lift is located on the right-hand side of the tow-bar, as shown in the picture.

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

The nameplate of the trailer is located on the tow-bar, 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

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 180XT II Aerial Work Platform, no. YGCD180XTE2030011

complies with the provisions of the Machine Directive **2006/42/EC** and its amendments as well as the national decree **(VNA 400/2008)**, through which they have been brought into effect.

The inspection in accordance with Annex IX to the directive 2006/42/EC has been carried out by the notified body no. 0537,

VTT
P.O.Box 1300
FI-33101 Tampere, FINLAND

has granted the certificate no. **VTT 183/524/14**

In addition, the aerial work platform also complies with the provisions of the following European Directives:
2006/95/EC, **2000/14/E**C, **2004/108/EC**

Measured sound power level Lwa (petrol/diesel)	(96+1,5) 97,5 dB / (98,5+1,5) 100 dB
Quaranteed sound power level Lwa (petrol/diesel)	97,5 + 0,5 dB / 100+0,5 dB

2000/14/EC Conformity assessment procedure followed: Annex V: Internal control of production.

In designing the machine, the following harmonised standards have been applied:
SFS-EN 280:2013, SFS-EN 60204-1/A1, SFS-EN-ISO 12100

The person, who has compiled the technical construction file: Santtu Siivola
Chief Engineer
Dinolift Oy, Raikkolantie 145,
FI-32210 Loimaa, FINLAND

Loimaa 06.11.2014

Antti Tuura
Foreman

2.5. SAMPLE OF INSPECTION PROTOCOL FOR THE ACCESS PLATFORM

DINOlift TEST CERTIFICATE

DATE: 16.9.2014

www.dinolift.com

START-UP TESTS:

Inspection place: **Dinolift Oy** Inspector's signature: 1074

Koivisto Pekka NT0153

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 180XT II**	Max. platform height	**16 m**
Number of manufacture	**YGCD180XT E2030004**	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:	**230VAC**	Transport length:	**6,65 m**
Lowest temperature:	**-20 °C**	Transport height:	**2,31 m**
Weight:	**2315 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. Overload test = 323 kg (150%)	☑ ☐
3. Placings	☑ ☐	2. Funktional test = 237 kg (110%)	☑ ☐
4. Emergency stop	☑ ☐		☐ ☐
	☑ ☐		

FAILINGS AND NOTES _____

Failings have been repaired. Date: _____ Signature: _____

Dinolift Oy
Raikkolantie 145
FIN-32210 LOIMAA, FINLAND
Tel. +358 - 20 - 1772 400, Fax +358 - 2 - 7627 160, e-mail: info@dinolift.com

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 for the lift, 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 be given instructions and consent from the manufacturer for all such specific work methods or conditions that the manufacturer has not explicitly defined.

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.

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 observe the regulations of the Road Traffic Act.

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 chassis.
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 verify the horizontal position of the machine.

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.

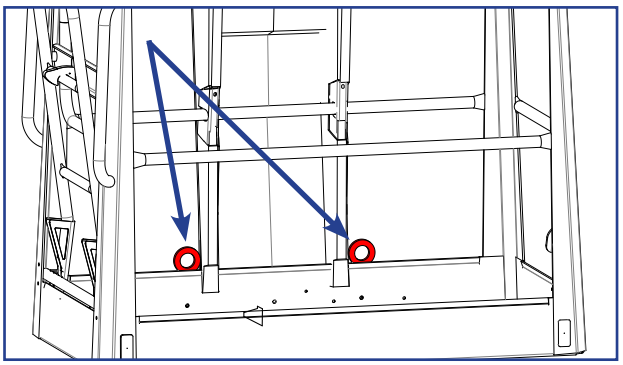
LIFTING AND WORKING ON THE PLATFORM

Never exceed the maximum number of persons, maximal loading or lateral 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.

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.

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.

Never throw or drop any objects from the platform.

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

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 or
the wind speed exceeds 12.5 m/s

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.
14-16	Strong	All the trees are swaying. It is difficult. to walk against the wind.

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 – observe the minimum safety distances:

Voltage	Min. distance below (m)	Min. distance at the side (m)
100-400 V hanging spiral cable	0.5	0.5
100400 V open-wire cable	2	2
6-45 kV	2	3
110 kV	3	5
220 kV	4	5
400 kV	5	5

3.2. SAFETY-RELATED NOTIFICATIONS

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

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.

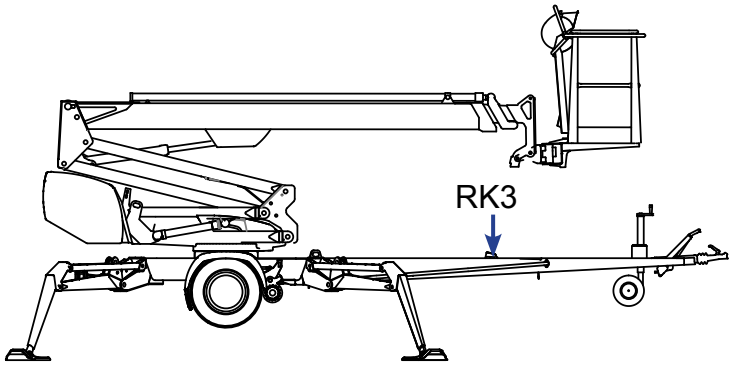
NOTICE

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.

3.3. SAFETY DEVICES

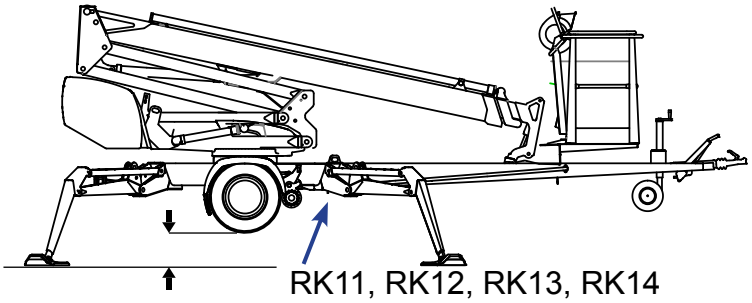
1. Supervision of transport position of the boom

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 tow-bar at the transport support.



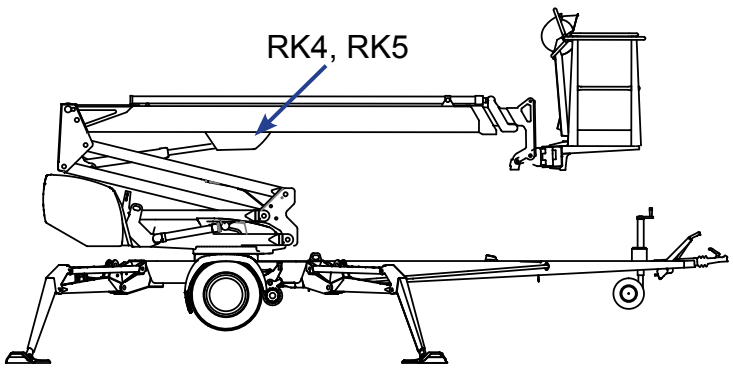
2. Supervision of supporting

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

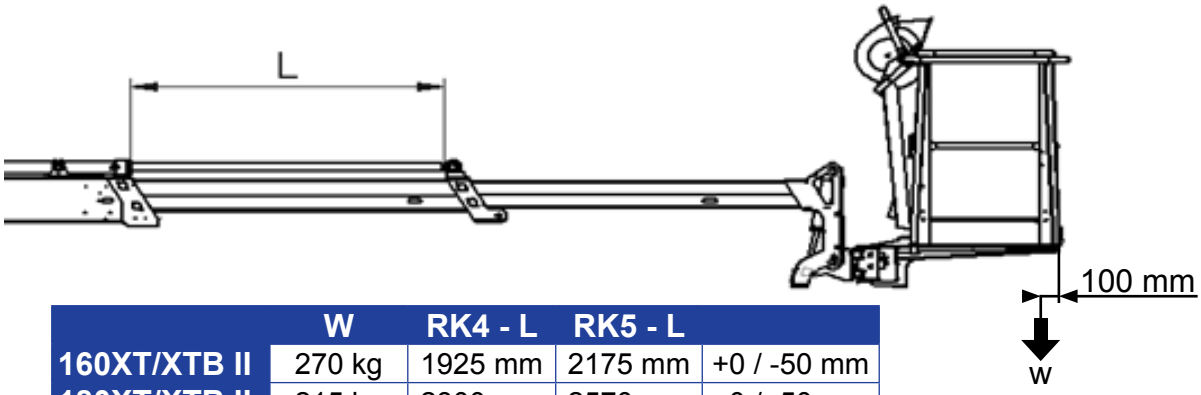
The outreach limit switch RK4 and overload limit switch RK5 prevent the lift from being overloaded by limiting the outreach of the lift to the side.
The limit switches are located under the cover at the top end of the lifting cylinder. During operation, the cover must be intact and in place.



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

The reach are limit switch **RK4** stops the movements that impair the stability of the lift (extending the telescope and lowering the boom) at a predetermined position.

Adjusted values of the limits:

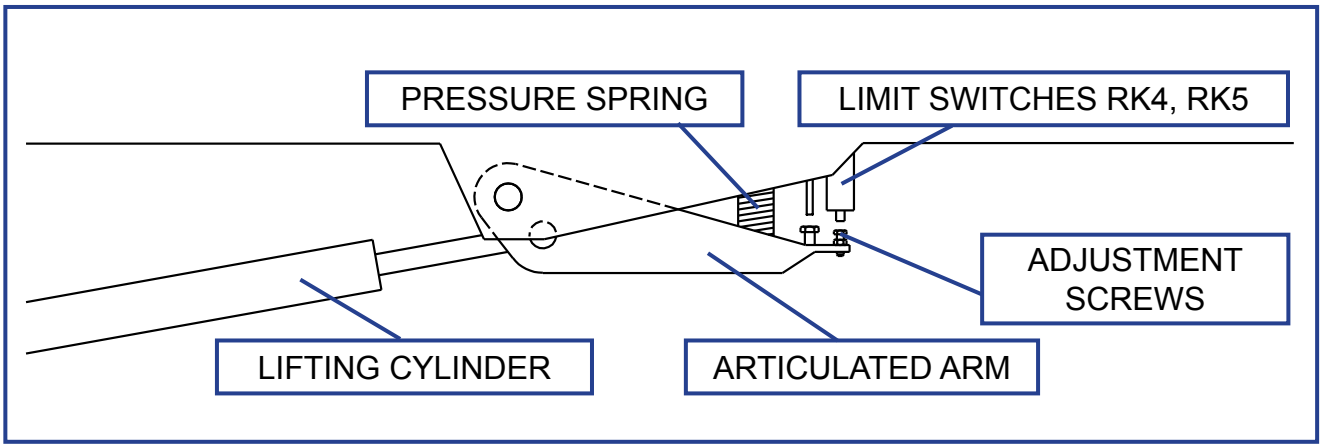


	W	RK4 - L	RK5 - L	
160XT/XTB II	270 kg	1925 mm	2175 mm	+0 / -50 mm
180XT/XTB II	215 kg	2300 mm	2570 mm	+0 / -50 mm
210XT/XTB II	80 kg	3025 mm	3525 mm	+0 / -50 mm

The red warning light for overloading will illuminate as soon as the **RK4** has stopped the movement. While at the outreach limit, the red warning light and the green signal light will 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.

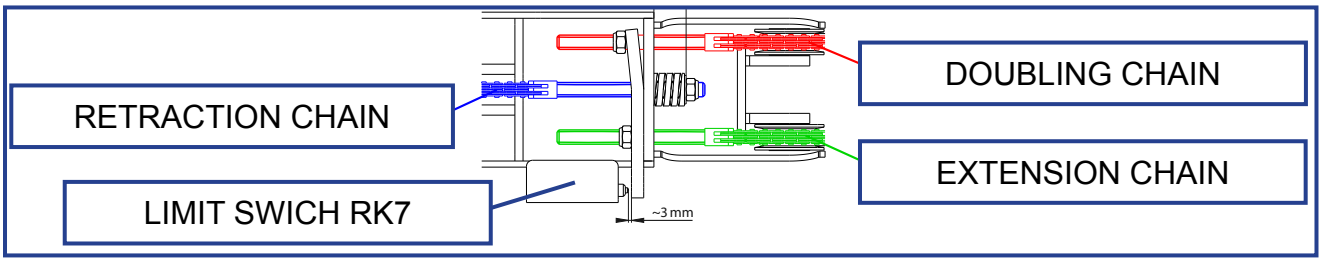


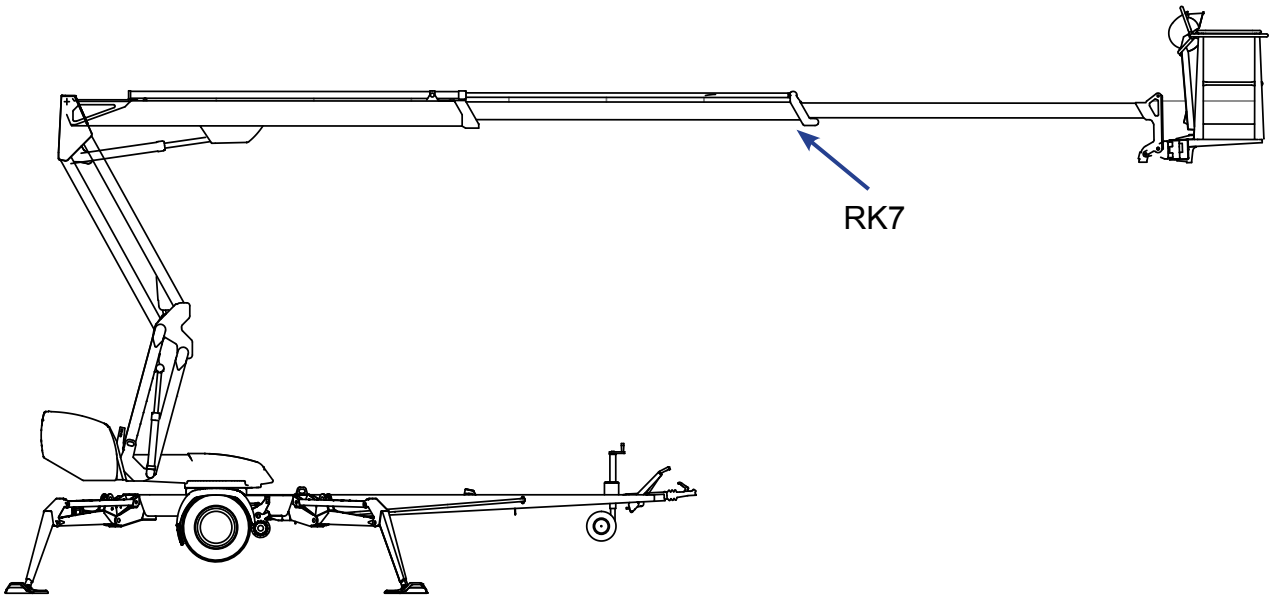
DANGER

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

5. Supervision of the telescope chain

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, and the safety switch RK7/RK8 breaks the emergency stop circuit.



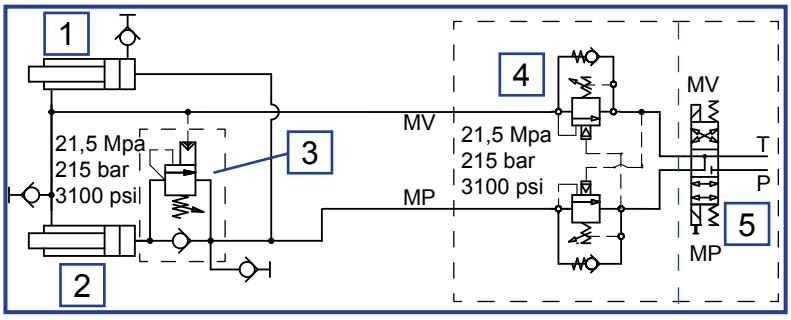


6. Preventing the inclination of the platform

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

7. Emergency stop buttons

Depressing 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 depressed, only the emergency descent functions remain operational.

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

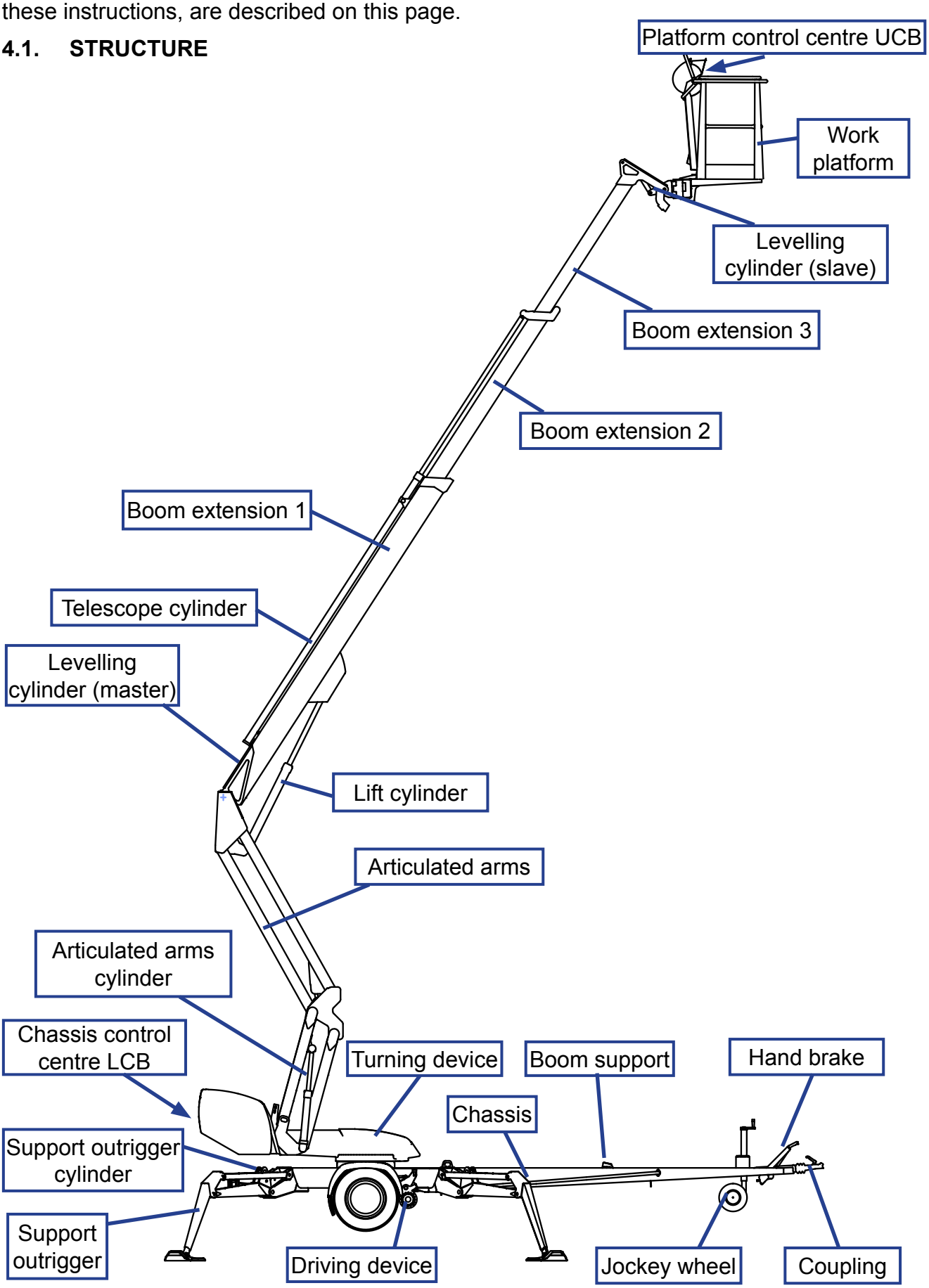
NOTICE

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.

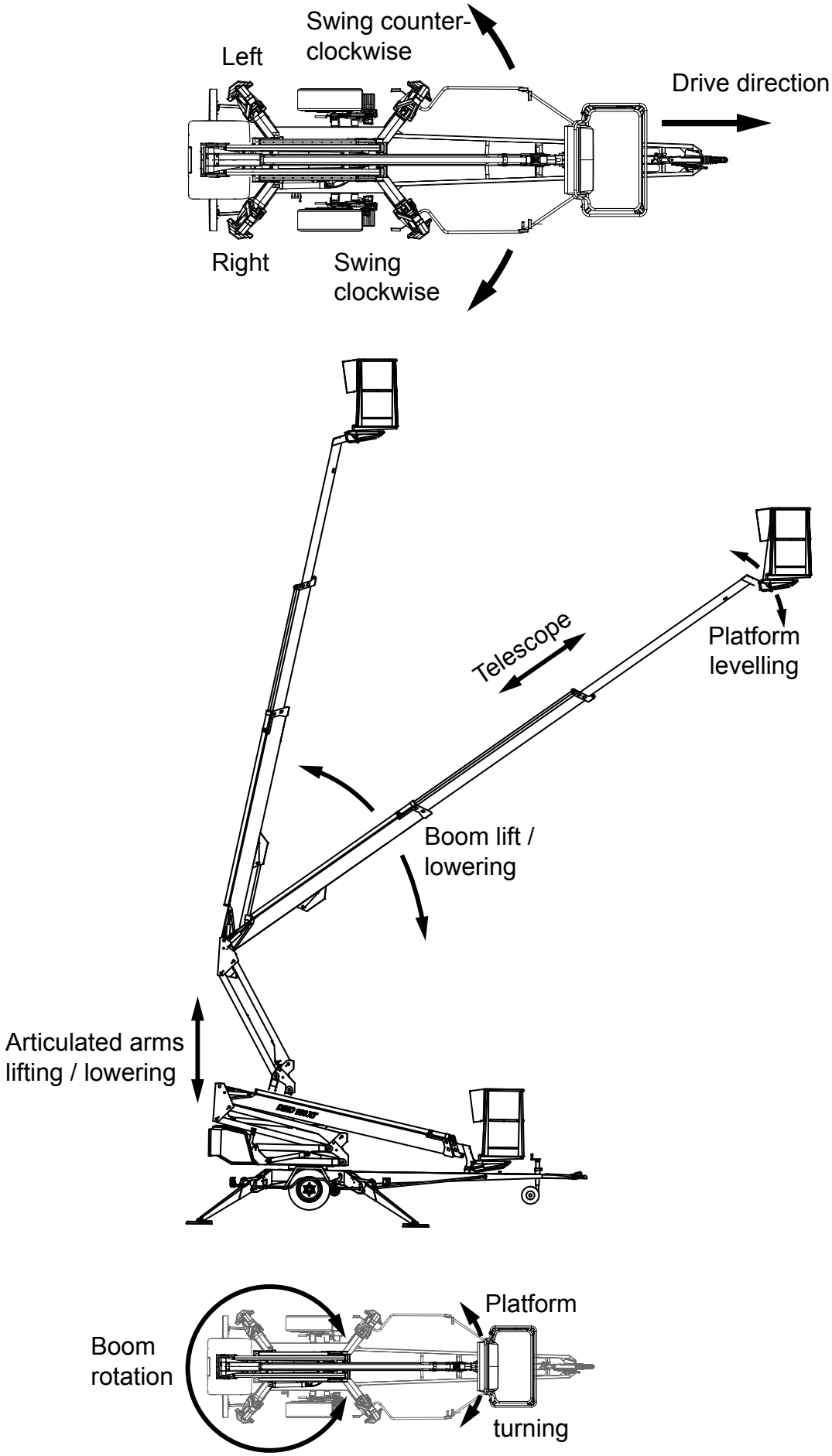
4. BASIC STRUCTURE AND FUNCTIONS

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

4.1. STRUCTURE



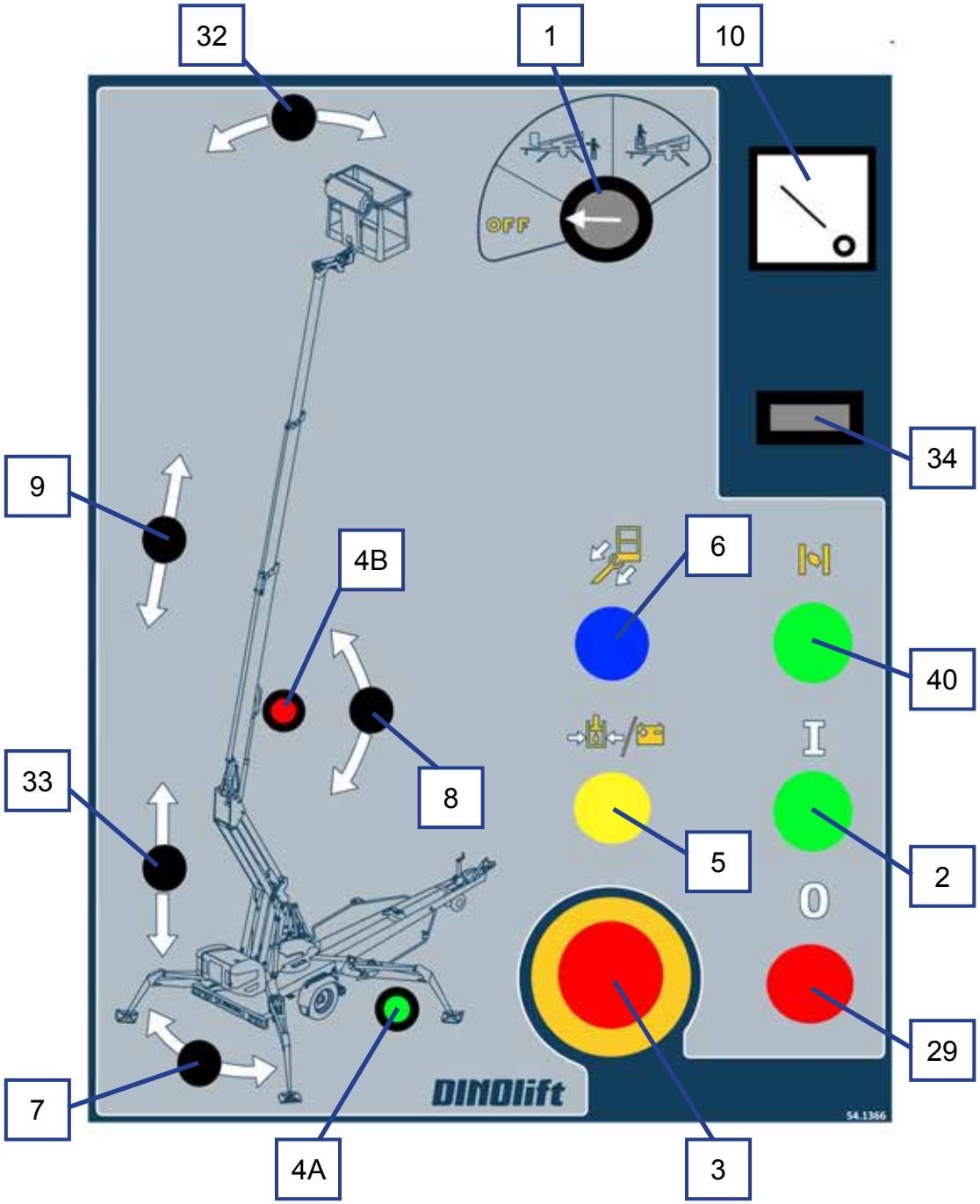
4.2. BASIC FUNCTIONS



4.3. OPERATING CONTROLS

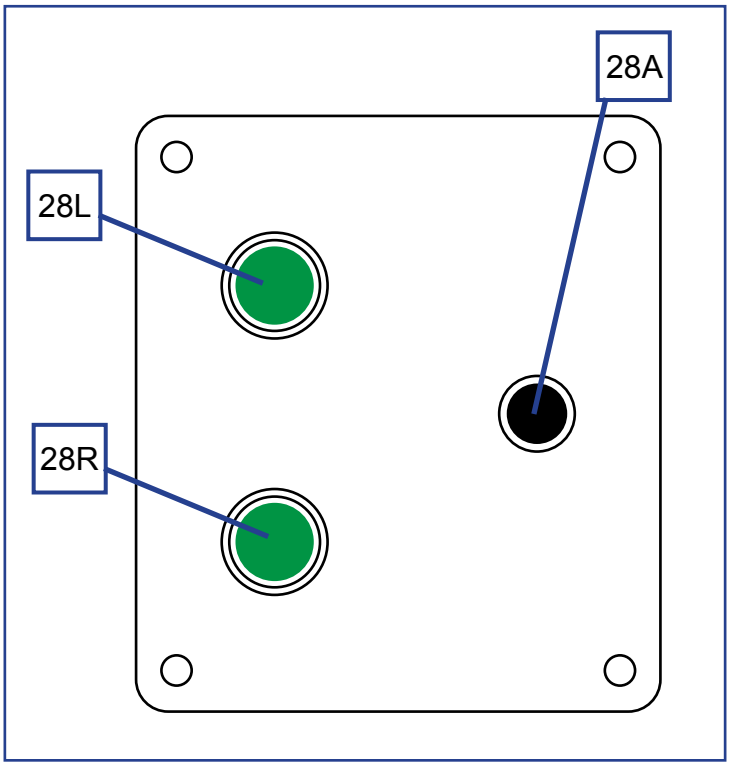
4.3.1. Operating controls in chassis control centre LCB

1	Selector switch	7	Lever switch for turning
Q1.1	OFF-power off	8	Lever switch for boom system
Q1.2	LCB-control centre – outriggers – hydraulic drive	9	Lever switch for telescope
Q1.3	UCB-platform control centre	10	Voltage meter
2	Start button	29	Stop button
3	Emergency stop	32	Lever switch for levelling of platform
4A	Signal light for the outrigger limit switch	33	Lever switch for articulated arms
4B	Signal light for safety device (RK5)	34	Hour meter
5	Start button for emergency descent system	40	Choke
6	Pushbutton for retracting the telescope		



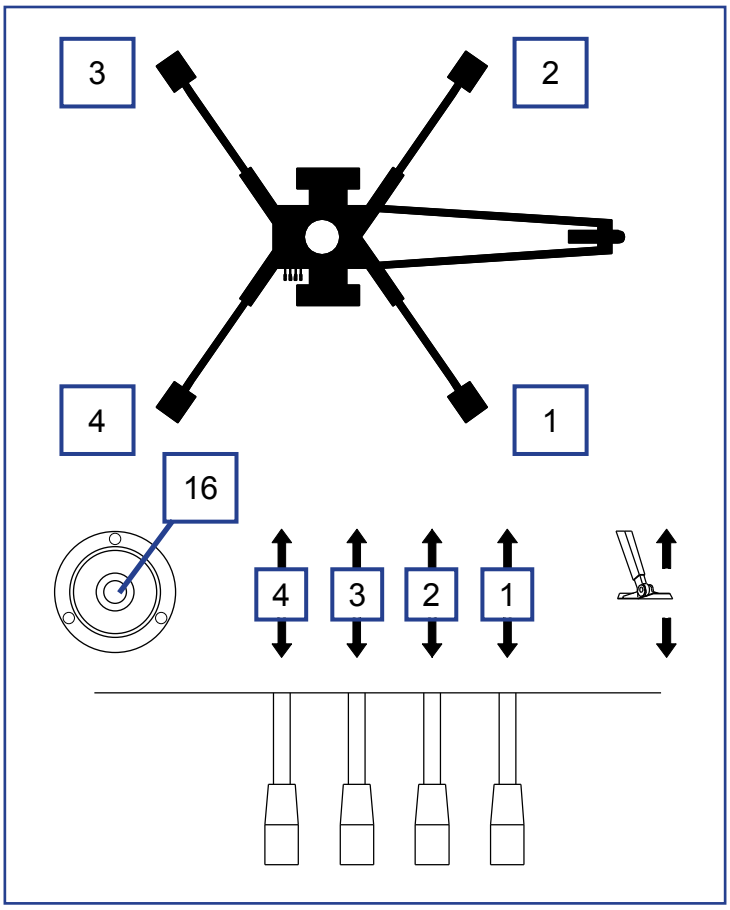
4.3.2. Operating controls of drive system

28A.	Forward - backward
28A + 28L	drive to the left
28A + 28R	drive to the right



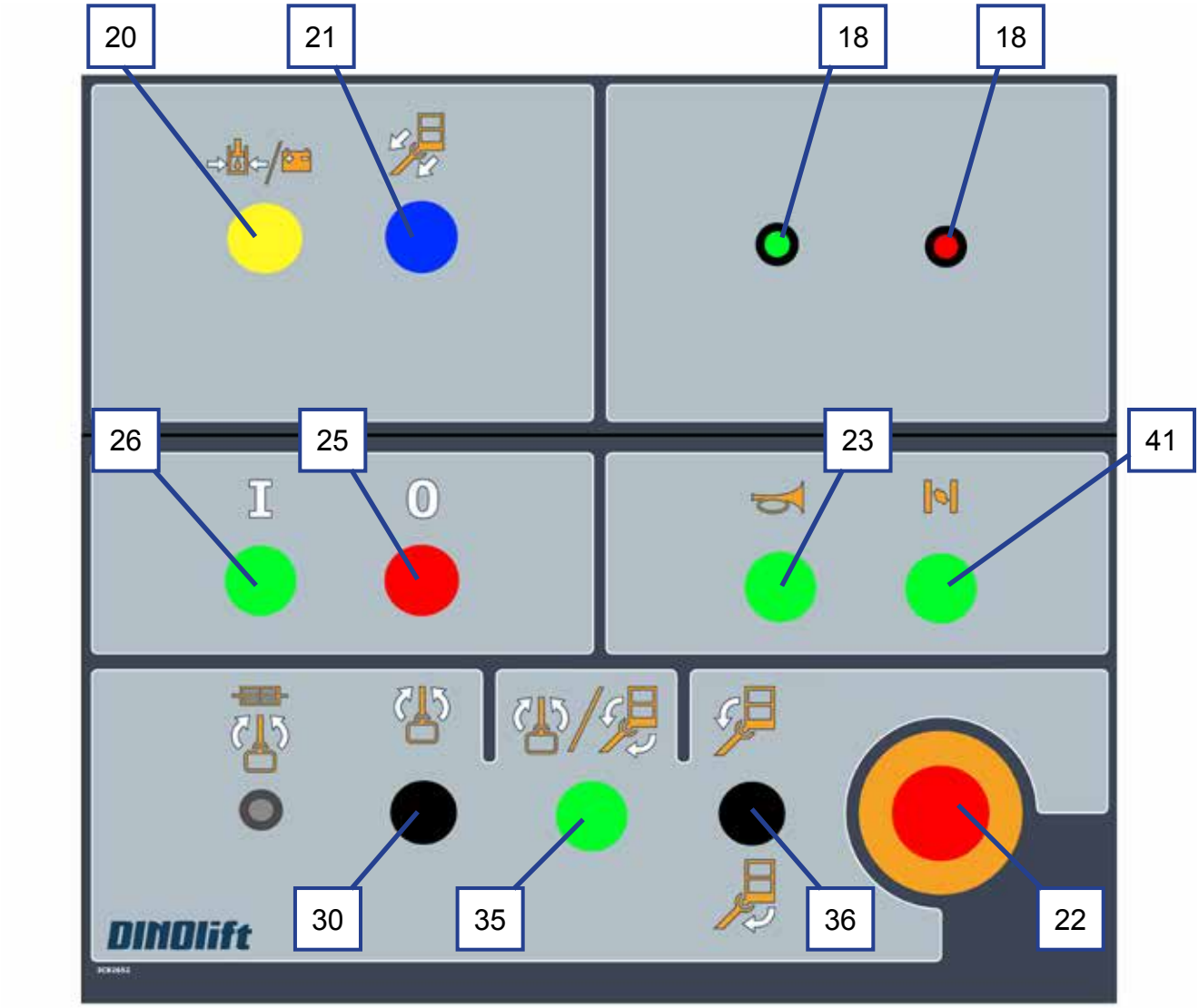
4.3.3. Operating controls of outriggers

1	Front outrigger, right
2	Front outrigger, left
3	Rear outrigger, left
4	Rear outrigger, right
16	Position indicator of chassis



4.3.4. Operating controls in platform control centre UCB

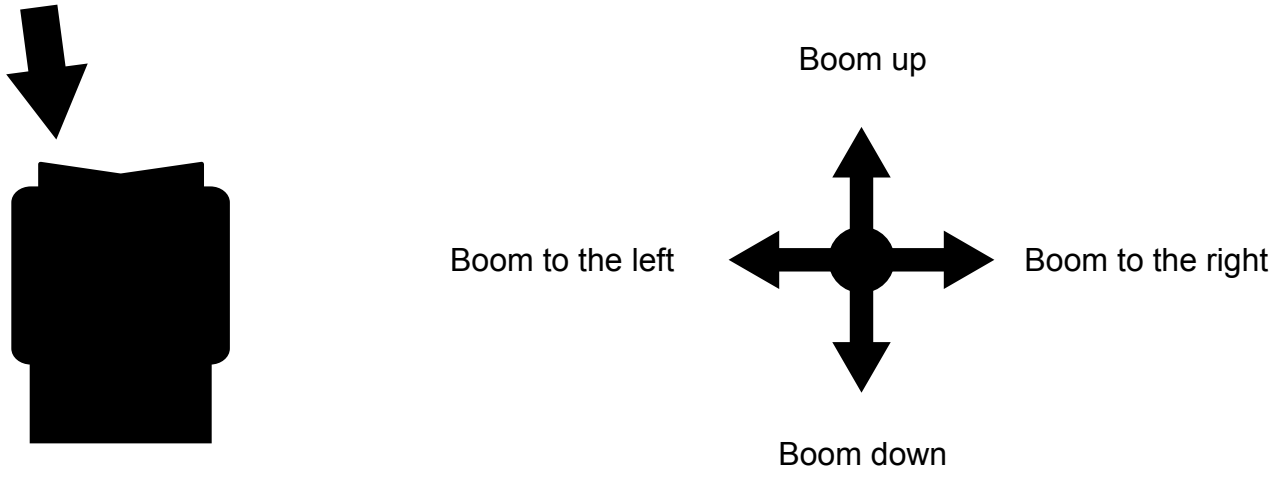
Close the cover of the chassis control centre before operating the controls on the platform. The cover must not be locked while the lift is in operation.

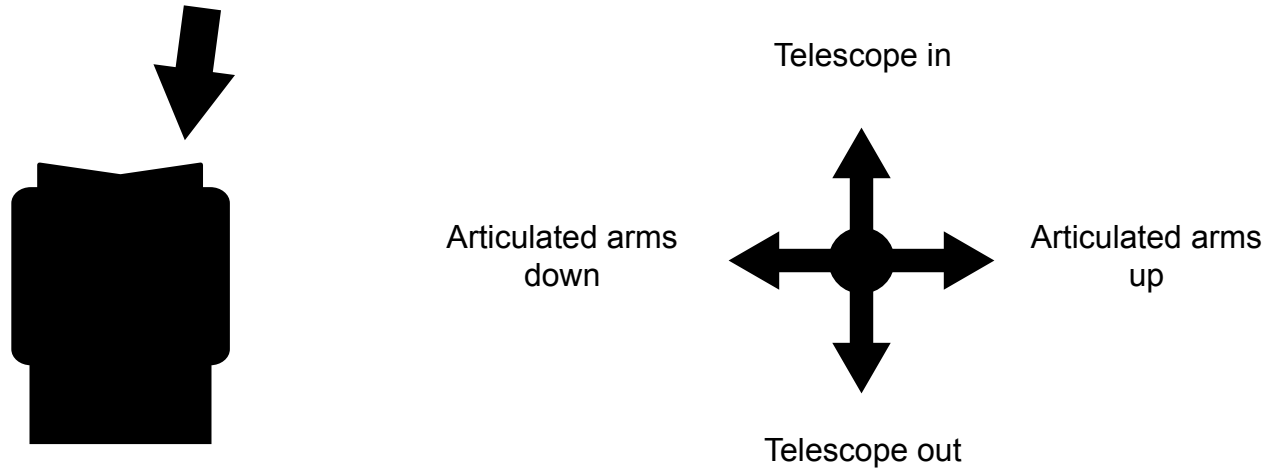


18	Signal lights	25	Stop button for the engine
	Green – inside the allowed outreach range	26	Start button for the engine
	Red – at the border of the allowed outreach range	30	Lever switch for turning the platform
20	Start button for the emergency descent system	35	Dead-man-button
21	Pushbutton, retracting the telescope	36	Lever switch for levelling the platform
22	Emergency stop	41	Choke
23	Sound signal button		

17. Control lever

The functions to be controlled are selected using the ”dead-man-buttons” 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 depressing the button.

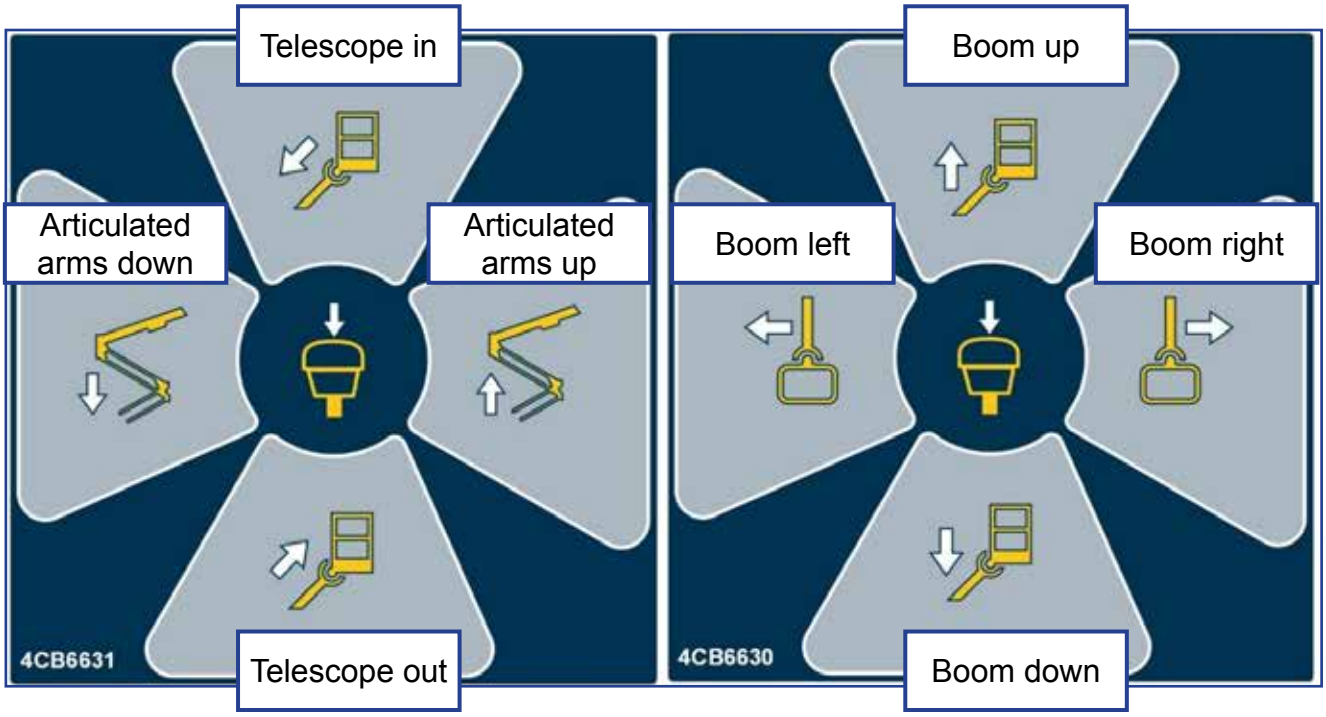




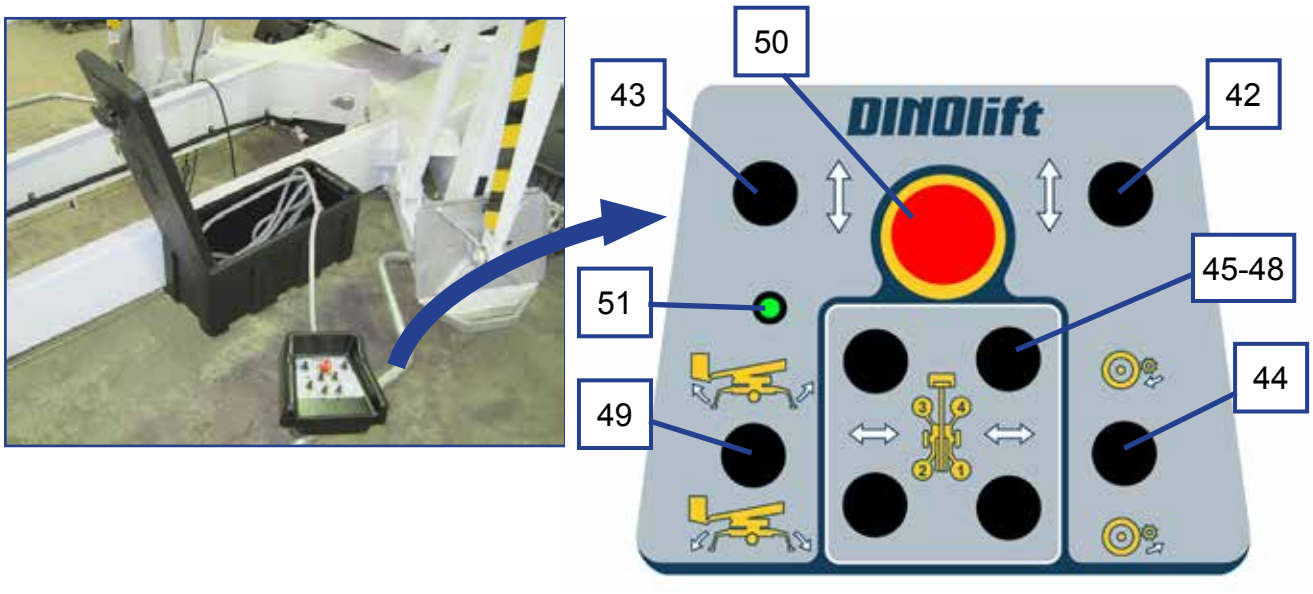
4.3.5. Setup with two control levers (option)

Platform contol centre UCB can be fitted with two control levers as an option.

Right and left control lever (17 right/left) replace the normal control lever (17). Different functions are selected by turning the joystick in the desired direction of movement. Always press the button first, and only after that, turn the handle. The safety connection prevents the movements, if the handle is turned before depressing the button.



4.4. AUTOMATIC LEVELLING AND ELECTRIC CONTROL OF DRIVING DEVICE – DCB CENTRE (OPTION)



42	Lever switch for driving, right (to the front-rear)	49	Lever switch for automatic levelling
43	Lever switch for driving, left (to the front-rear)	50	Emergency stop
44	Depressing the driving device rollers (option)	51	Light for automatic levelling
45-48	Lever switches for outriggers 1-4		

5. OPERATING INSTRUCTIONS

5.1. START-UP

NOTICE

Before operating the lift, perform all daily maintenance measures listed in the maintenance schedule.

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 position of the lift safe?
   - Is the lighting on the worksite sufficient?

2. Documents
   - Are the Operation and Service Instructions for this lift present? (Manufacturer´s instructions)
   - 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. Structure (Visual inspection and operational test)
   - General condition of the lift
   - Operation and protection of the controls
   - Emergency stop, signal horn and limit switches
   - Electrical appliances and wiring
   - Oil leaks
   - Load markings and signs

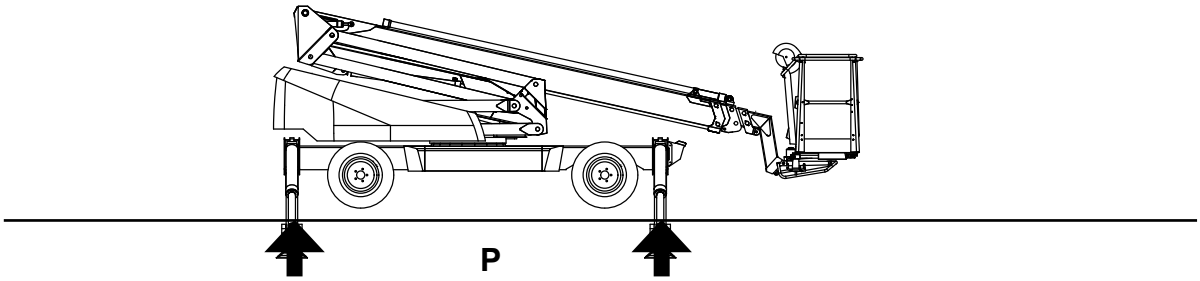
4. Operator
   - Is the operator old enough?
   - Has the operator recieved the required training?

5. Special issues on the worksite
   - Are there any additional regulations relevant to the worksite or the work?

5.1.2. Positioning the lift

1. make sure that the ground is even and hard enough to support the lift in a steady, level position.

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

If the ground is soft, use sufficiently large and sturdy additional plates under the support outriggers.

2. Drive the lift to the inspected lifting site
3. Engage the parking brake
4. Disconnect the lift from the towing vehicle

5.1.3. Connecting the power supply to the lift

A. POWERED BY AC-SUPPLY
While the mains voltage is plugged in, the operating voltage of 12 VDC is supplied by a power source.

- connect the mains cable to the power supply
- switch on the main current switch 52
- with the electric motor at maximum load, the voltage must be 230 VAC (-10%/ +6%), the frequency 50 Hz, and rating of the fuse 10A (the length of the connecting cable has some effect)

B. POWERED BY COMBUSTION ENGINE (OPTION)
In the absence of mains current, the operating voltage of 12 VDC is supplied by a battery.

- do not connect the mains cable (230 VAC)
- switch on the main current switch 52
- open the fuel cock
- switch on the choke for the start by depressing the button on the cover of the centre

If the battery is flat, start the power unit by pulling the starter grip, and at the same time, keeping the button at the power unit's bed depressed. Pull the starter grip lightly until you feel resistance, then pull briskly. Do not allow the starter grip to snap back against the engine.

Leave the combustion engine running between the operations, because the battery will not be recharged, unless the combustion engine is running.

Close the fuel cock when stopping the combustion engine.
The fuel cock must be closed during towing of the lift.

B. POWERED BY DIESEL ENGINE (OPTION)

- do not connect the mains cable (230 VAC)
- switch on the main current switch 52
- Refer to the separate user manual for the diesel engine, delivered with the lift, for instructions about starting up the engine, when the battery is flat.
- Leave the combustion engine running between the operations, because the battery will not be recharged, unless the combustion engine is running.

To avoid damaging the electronic devices, do not connect the mains cable while the diesel engine it running.

To access the operating controls, open the LCB centre cover on the turning device

Check the condition of the battery to ensure the operation of the emergency descent system. Depress the yellow button (5), and simultaneously, retract the telescope using the lever switch (9). Then the emergency descent motor must not stall.

Use ear protection while using the lift with a petrol engine or diesel engine. Sound pressure level at chassis control centre: 98 dB.

5.1.4. Starting up

1. Turn the selector switch (1) to position ”LCB centre”.

2. Start the engine with start -button

The electric timer of the lift automatically disconnects the supply voltage (12 VDC) in about 1 hour after the electric motor or the combustion engine has been turned off.
Re-activate the power supply by pressing the start button either in the chassis control centre or in the platform control centre.

Petrol engine:
- turn off the choke
- adjust the engine speed

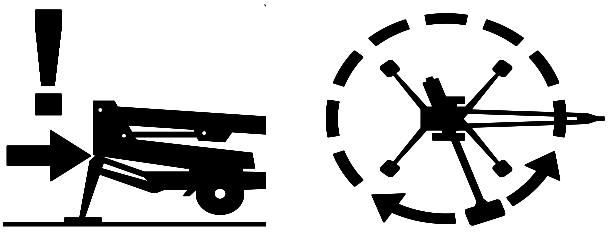
5.1.5. Levelling the lift

1. Lower the front support outriggers 1-2 (on the tow-bar side)
2. Lower the rear support outriggers 3-4 (d onot damage the jockey wheel).
3. Level the chassis with the outriggers with the help of the level gauge (16). The air bubble must be located inside the inner ring.
4. the signal light (4A, green) in the chassis control centre LCB is illuminated, when all the outriggers are in the support position and the limit switch circuit of the outriggers is closed

Levelling with the automatic levelling (option)
1. Lower the outriggers from DCB control centre using the lever switch 49.
   The automatic levelling function positions the outriggers on the ground and levels the chassis. The signal light 51 will flash as long as the levelling is in progress.
2. Switch 49 must be kept depressed throughout the levelling. If the lever is released, the operation will be interrupted. The levelling can be resumed by turning the lever anew.
3. The signal light 51 will remain lit once the function has been successfully completed.

NOTICE

If you have levelled the chassis of the lift ON A GRADIENT, turn the boom around carefully in the lower position to make sure that the boom does not bang against the support outriggers or other obstacles.



Before using the lift, check that:

- the cassis is level
- the wheels are clearly off the ground
- all outriggers are firmly supported on the ground

DANGER

The operation is prohibited if the lift is not properly supported and in a level position. observe the effect of ice, possible rain and inclination of the surface on the support (the support outriggers must not slip on the surface.

5.2. INSTRUCTIONS FOR WORKING

WARNING

Do all daily maintenance tasks and operational inspections stated in the maintenance manual before operating the lift. **Failure to check the correct functioning of safety devices may cause serious injury or make the consequences of an accident worse.**

All malfunctions in safety devices must be repaired before operating the lift

5.2.1. Operating the lift from the chassis control centre LCB

1. Turn the selector switch (1) to position ”chassis control centre LCB”.

2. Lift the platform from the tow-bar and turn it to the side so that you can lower the boom.
3. Extend the telescope if necessary to ensure that stepping onto the platform is safe.

4. Drive the boom functions from control levers 7, 8, 9, 33 and the platform from lever 32

NOTICE

Do not damage the tow-bar jockey wheel!

The boom movements are noticeably slower when the emergency descent system is used. The speed of the boom movements cannot be adjusted continually with the control levers when the lift is operated from the chassis control centre.

5.2.2. Operating the lift from the platform control centre UCB

Lift the platform from the tow-bar and turn it to the side so that you can lower the boom. Extend the telescope as much as is necessary to ensure that stepping onto the platform is safe.

5. Turn the selector switch (1) to position ”Platform control centre UCB”, and take away the key. Do not lock the protective cover of the chassis control centre.

6. Start the normal operation of the lift
   Step on the platform and drive the boom and platform movements as follows
   - Start the engine with start-button

   - Operate the boom system with control levers in the UCB control centre.
   - If possible, keep the telescope short while lifting and lowering movements

- To operate the movements of the boom system, press first the rocker switch 17 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 of the platform can be continually adjusted. If you move the lever before pressing the rocker switch, the action is deterred.
- Operate the work platform movements with lever switches 30 and 36.
- Moving the platform via the lever switches 30 and 36 requires that the dead-man-button 35 be depressed simultaneously.
- Stop the engine with stop-button.

For further instructions, see point “Operating controls in platform control centre UCB”

WARNING

Do not add load (e.g. another person) onto the platform, while the red overload light (18) is illuminated. Risk of tipping over!
Measures to be taken after an event of overloading: Retract the platform to inside the operating range of the RK4 by depressing the “telescope in” button (6 or 21)(the green light will be illuminated). After this, the lift may be operated normally

7. With the boom slightly lifted and the telescope extended, make sure that the platform does not lower by itself while the operating controls are not being used.
8. Move the platform to the work object

CAUTION

The platform, buildings around it and other obstructions may cause a crushing hazard. Hands and legs must be keps inside the work platform at all times when moving the platform. Beware of obstacles above the platform.

Start/stop automation

The start/stop automation is operational, when driving from the platform control centre UCB. The operation is started by depressing the rocker switch at the end of the control lever 17 to start the engine. After that, turn the control lever 17 carefully in the desired direction of movement of the boom. The engine will stop automatically in about 3 seconds after the movement of the boom has stopped. The engine will restart as soon as the dead-man-switch is depressed, and the desired movement of the boom is resumed.

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 continually adjustable speed from the platform control centre (not from the chassis 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, which are located under the protecting cover
- The limit switches must not be adjusted or modified. The inspection and adjustment may only be carried out by an authorized serviceman.

Working in the same position for a long time

- there are pushbuttons for both stopping and starting in both the platform and the chassis control centres
- When the weather is warm, and the platform is kept for a longer period in the same position, it is not necessary to let the engine run continuously.
- when the weather is cold, it is, however, recommended to let the engine run to keep the hydraulic oil warm
- It is recommended to also leave the combustion engine running between the operations, to ensure the battery remains well charged
- check the stability and condition of the base regularly during the operation, taking into account the weather and ground conditions
- the electric timer of the lift automatically disconnects the supply voltage (12 VDC) in about 1 hour after the electric motor or the combustion engine has been turned off.
- Re-activate the power supply by pressing the start button either in the chassis control centre or in the platform control centre.

When moving the platform, remember the following

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

DANGER

Do not take additional load in the upper position.
Do not exceed the max. allowed lateral force (400N) or load the platform vertically more than what is allowed

Lowering the platform to 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 tow-bar jockey wheel while lowering the platform to transport position

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

5.2.3. Special instructions for winter use

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

In cold conditions do the following special actions in addition to 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. start with a few movements to warm-up oil in the cylinders and to ensure proper operation of the valves
3. check that the limit switches and the emergency descent devices are operational and clean (from dirt, snow, ice, etc.)
4. protect the control panel and the platform from snow and ice whenever they are not in use
5. Make sure the batteries are charged. Flat batteries freeze easily.

Always keep the lift free from dirt, snow etc.

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

At the end of a workday:

1. Retract the telescope boom completely.
2. Check that the platform is perpendicular to the boom.
3. Lower the boom/platform onto the support on the chassis.
   The limit switch on the transport support prevents operation of the support outriggers if the platform is not down
4. Close the cover on the platform control panel.
5. Turn the key switch to OFF-position 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

With respect to the operation and durability of the batteries, it is beneficial to connect them for recharging at the end of each workday, irrespective of their remaining level of charge. Keeping the batteries in storage without charging them first shortens their service life and flat batteries also freeze easily.

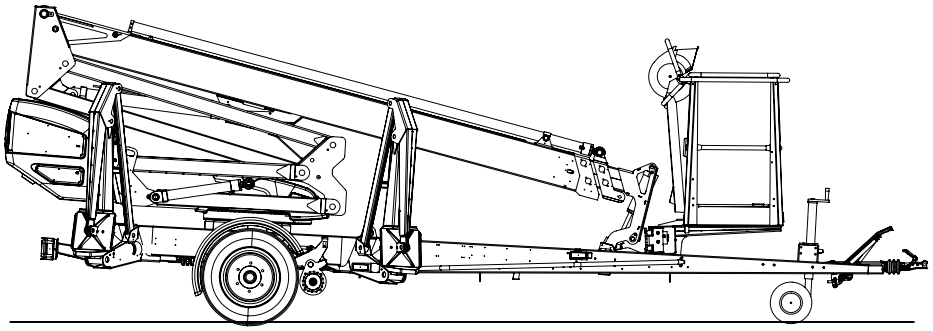
5.3. TRANSPORT

The lift can be moved by towing or with the platforms driving device.

Moving the lift is only allowed in the transport position. No persons or other additional load is allowed on the platform while transport.

5.3.1. Preparing the lift for transport

The lift must be in transport position.



Prepare the lift for transport 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 tow-bar. The limit switch on the transport support prevents the operation of the support outriggers if the platform is not down
4. Close the cover of the platform control centre.
5. Turn the selector switch (1) to position ”chassis control centre LCB”.
6. Lift the support outriggers.
   - first the rear support outriggers 3-4 (do not damage the rear lights)
   - then the front support outriggers 1-2 (do not damage the jockey wheel)
7. Make sure that the covers are locked.

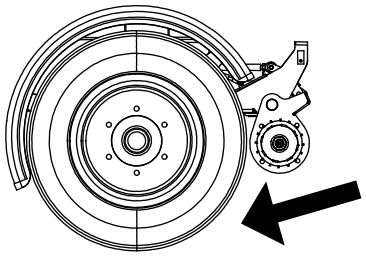
If you intend to tow the lift:
1. Apply the parking brake.
2. Make sure that the driving device is disconnected.
3. Turn the selector switch to position OFF and disconnect the lift from the power supply.

5.3.2. Driving with 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, try to stay above the machine.

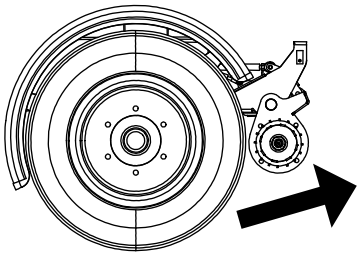
1. Turn the selector switch (1) to position ”chassis control centre LCB”.
2. Start the motor
   Honda: set the engine revolutions at 3/4 of the maximum speed.
3. Make sure that the platform is in the transport position and the outriggers are lifted in the upper position
4. Make sure that the mains cable is long enough to cover the whole travel distance (power supply from mains).
5. Switch the driving device to the drive position
6. Release the parking brake
7. Drive the lift with the drive controls



CAUTION

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

After driving:
1. Apply the parking brake
2. Disconnect the driving device from the wheel

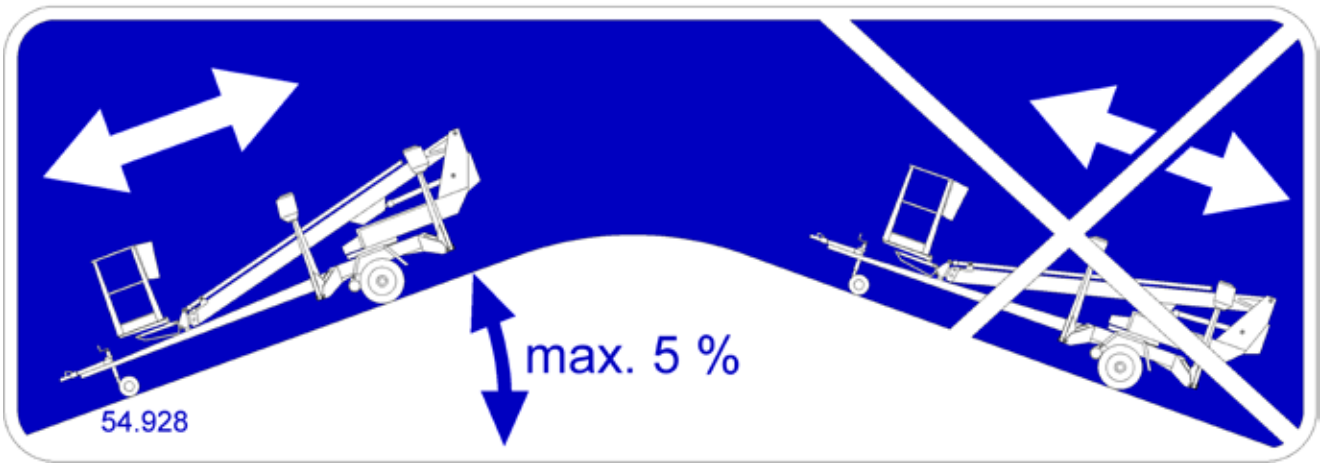


NOTICE

Do not extend the jockey wheel too much. It increases the risk of damage.
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 tow-bar/brake rod and the wheel to 1-3 cm. Then the wheel may turn freely.

When driving on a slope:

1. When driving on a slope, the tow-bar must always point towards the descent. Never drive with the driving device with the tow-bar pointing towards the ascent.
2. 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 tow-bar
   - 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.
8. 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, i.e., more than 1/20 (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

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 and locking take place automatically.

Always make sure, after the connection, that the ball-coupling is properly locked

3. Connect the emergency stop wires and light plug to the vehicle. Check the cable for chafing and proper operation of the wires.
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. Lift up the jockey wheel to the transport position.

Clean and lubricate the ball-coupling regularly.

In particular, if you are parking or disconnecting the lift from the towing vehicle on a slope, apply the parking brake as firmly as possible. After having applied the parking brake, push the lift backward to make the reverse automatics release the brake shoes. The spring cylinder pulls the parking brake tighter, and the brakes of the vehicle will again be properly engaged.
Adjust the brakes according to the service instructions.
Place chocks under the wheels as an additional precaution.

NOTICE

While towing, in addition to the instructions in this manual, the user must also observe the road traffic legislation, regulations valid at the work site and towing instructions of the towing vehicle.

Always ensure before towing:

- transport position of the outriggers
- locking of the ball-coupling
- operation of the lights, connection of the cable
- that the parking brake is disengaged
- condition and pressure of the tyres
  rear axle 450 kPa (4.5 bar)
  jockey wheel250 kPa (2.5 bar)
- attachment of the safety wire
- locking of the brakes after the transportation
- locking of the jockey wheel in its upper position
- **that the driving device is disconnected from the wheel**
- that there is no additional load on the platform

Place chocks under the wheels while disengaging the lift from the towing vehicle.

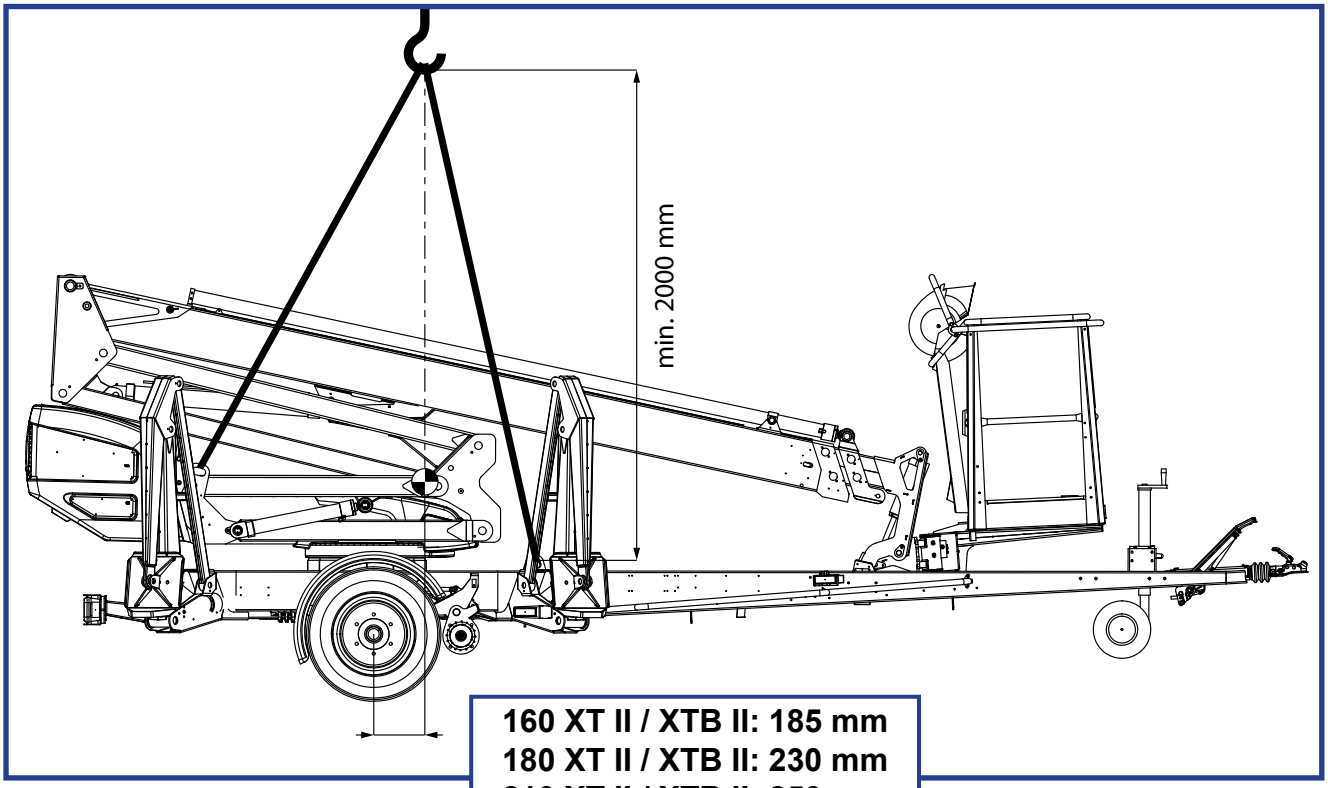
5.4. LIFTING THE DEVICE

The device can be lifted from the lugs shown in the picture. Lugs are placed symmetrically on both sides. Lifting lugs are also marked in the machine with instructional labels.

During lifting the platform must be in transport position. Remove all loose material and other excess load from the platform before lifting.

Use a suitable crane and lifting accessories. Make sure that the crane and other lifting equipment are strong enough for the weight of the device. Check the weight from the technical specifications.

Be careful not to damage the device during the lifting!



5.5. 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. Repeat the cleaning and lubrication procedures while resuming the operation.

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.

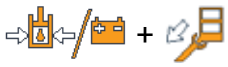
The periodic inspections must be executed following the steps described in the instructions.

5.6. IN CASE OF EMERGENCY

5.6.1. When at risk of losing the 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. Aja teleskooppi sisään sivu-ulottuman pienentämiseksi. 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.

5.6.2. 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. Avoid abrupt movements.
4. The green light will illuminate as soon as the overloading situation is reset. After this, the machine may be operated normally.

5.6.3. In case of power failure

As a precaution against power failure or other malfunction of energy supply, the lift is equipped with a battery operated emergency descent system.

1. Start the emergency descent system via the pushbutton. The emergency descent system is operational only when the pushbutton is being depressed.

2. Use the “telescope in” pushbutton, if the set value of the RK5 has been exceeded.
3. In any other case, operate the movements using their regular control levers. Using the emergency descent, retract first the telescope completely, then lower the boom. Finally, turn the boom.
4. Establish the reason why the energy supply was interrupted.

Note! The emergency descent system can also be used for raising the support outriggers to the transport position

Always check the condition of the battery for the emergency descent system before putting the lift into operation.
(See point “Operation of the safety devices”)

Setup of the emergency descent system
- 12 V, 44 Ah
- recharger
- hydraulic unit 12 VDC

The hydraulic unit comprises
- pressure relief valve, set value 16 MPa (160 bar)
- check valve
- direct current motor of 800 W

5.6.4. 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
- make the emergency descent system operational by, for example, changing the battery
- resume the lift's normal operation by other means

Always check the condition of the emergency descent system battery before putting the lift into operation (see point “Operating from the chassis control centre”).

6. INSTRUCTIONS FOR FAULT-FINDING

FAULT	REMEDY

1. The electric motor does not start from its start button although the selector switch 1 is in the position that enables operation from either the chassis or the platform control centre

The emergency stop button has jammed in the lower position.	Pull up the button and re-start the motor from the start button.
Fuse F1 has blown.	Replace the fuse (10A).
No mains supply (230 VAC) to the selector switch.	Check the extension cords, possible distribution boards and fuses.
Fault current safety switch has tripped.	Reset the fault current safety switch.
No direct-current supply (12VDC).	Main switch has been turned off, turn on the switch.

2. No power supply to the lift, although the main switch is on and the selector switch is in the position that enables operation from either the chassis or the platform control centre

Power supply has not been activated.	Press the start button to activate the power supply.
Battery is flat.	Recharge the battery.

3. Power unit does not start

Battery is flat.	Recharge the battery.
The mains cable is plugged.	Disconnect the plug from the mains.
No supply of direct-current (12VDC), because the main switch is disengaged.	Switch on the main switch.

4. Power unit cranks but does not start

Fuel tank is empty.	Fill the fuel tank.	
Choke is off.	Press the choke button (cold engine).	
Throttle lever is in idling position.	Increase the engine revolutions.	

6. None of the boom movements is operational, although the electric motor is running and the selector switch is in the correct position (operation from the chassis control centre or the platform control centre)

The lift has been overloaded.	Reduce the platform load or	
	Retract the telescope until the platform returns inside its operating range (the green light in the platform control centre is illuminated).	

FAULT	REMEDY

7. Outriggers do not move

The 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.
Limit switch on the boom support has not closed.	Drive the boom onto the transport support.

8. 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 chassis control centre, and the buzzer is audible.	The boom has been overloaded; retract the telescope and retry the operation (automatic reset).

18. Driving device is not operational, although the selector switch is in the correct position

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

NOTES

NOTES

7. SERVICING AND MAINTENANCE

Maint.	Schedule	Person responsible	Reference
A	Daily	Operator	Operating instructions
B	1 month / 100 hours*	Competent person who is familiar with the lift	Maintenance instructions
C	6 months / 400 hours*	Competent person who is familiar with the lift	Maintenance instructions
D	Annually / 800 hours*	Skilled technician who is well familiar with the structure and operation of the lift	Maintenance instructions
E	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 comes first.			

NOTICE

In addition to daily maintenance, every user must do a worksite inspection before operating the lift.

C = Check (general checking of condition).
I = Thoroug Inspection. Performed according to separate prochedure described in maintenance instructions.
G = Grease
D = Do the replacements, repairs or other maintenance tasks described in the instructions

	Maintenance item	A	B	C	D	E
1	Condition of chassis structures, boom and work platform	C	C	C	I	
2	Bearings of the overload protection device joint		G	C/G	C/G	
3	Bearings of outriggers and outrigger cylinders		G	C/G	I/G	
4	Bearings of outrigger footplates and moving parts of outrigger limit switch system		G	C/G	I/G	
5	Bearings of boom and articulated arms		G	C/G	C/G	
6	Bearings of the platform		G	C/G	C/G	
7	Bearings of the levelling cylinders		G	C/G	C/G	
8	Bearings of the lifting cylinder		G	C/G	C/G	
9	Sliding surfaces / rolls of the telescope		C/G	C/G	C/G	
10	Bearings of the telescope cylinder			C/G	C/G	
11	Condition of cylinders				I	
12	Flyer-chain			G	I/G	
13	Slide pads and sliding pad clearances		C	C	C	
14	Turning device			G	I/G	
15	Electro-hydraulic rotating adaptor				C	
16	Tyres and tyre pressures	C	C	I	I	
17	Coupling / overrun device		C	G	I/G	
18	Jockey wheel slide and threads				I/G	
19	Brakes			C	C	

	Maintenance item	A	B	C	D	E
20	Axles and suspension				I	
21	Driving device		C	G	I	
22	Lights	C	C	C	I	
23	Hydraulic oil	C	C	C	D	
24	Hydraulic hoses, pipes and fittings	C	C	C	I	
25	Condition and attachment of battery, electrical devices and wiring		C	C	I	
26	Hydraulic pressure				I	
27	Condition of safety limit switches				C	
28	Operation of safety limit switches	C	C	C	I	
29	Operation of overload protection device			C	I	D
30	Load holding and load regulation valves			C	C	
31	Platform levelling system		C	C	C	
32	Platform control devices	C			I	
33	Emergency descend, emergency stop and sound signal	C	C	C	C	
34	Signs, labels and machine plates	C	C	C	C	
35	Instruction manuals	C	C	C	C	
36	Test loading				I	
37	Corrosion protection				C	D
38	Movement speed adjustment					D
39	Special inspection					D

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

Special inspection is required if the lift has been damaged in a manner which may affect its load-bearing capacity or safe operation. For further instructions, see the maintenance instuctions manual.

NOTICE

If the platform has a combustion engine power pack, check the engine manual for information on maintenance prochedures required by the engine.

NOTICE

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.

7.1. INSPECTIONS REQUIRED BY 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.

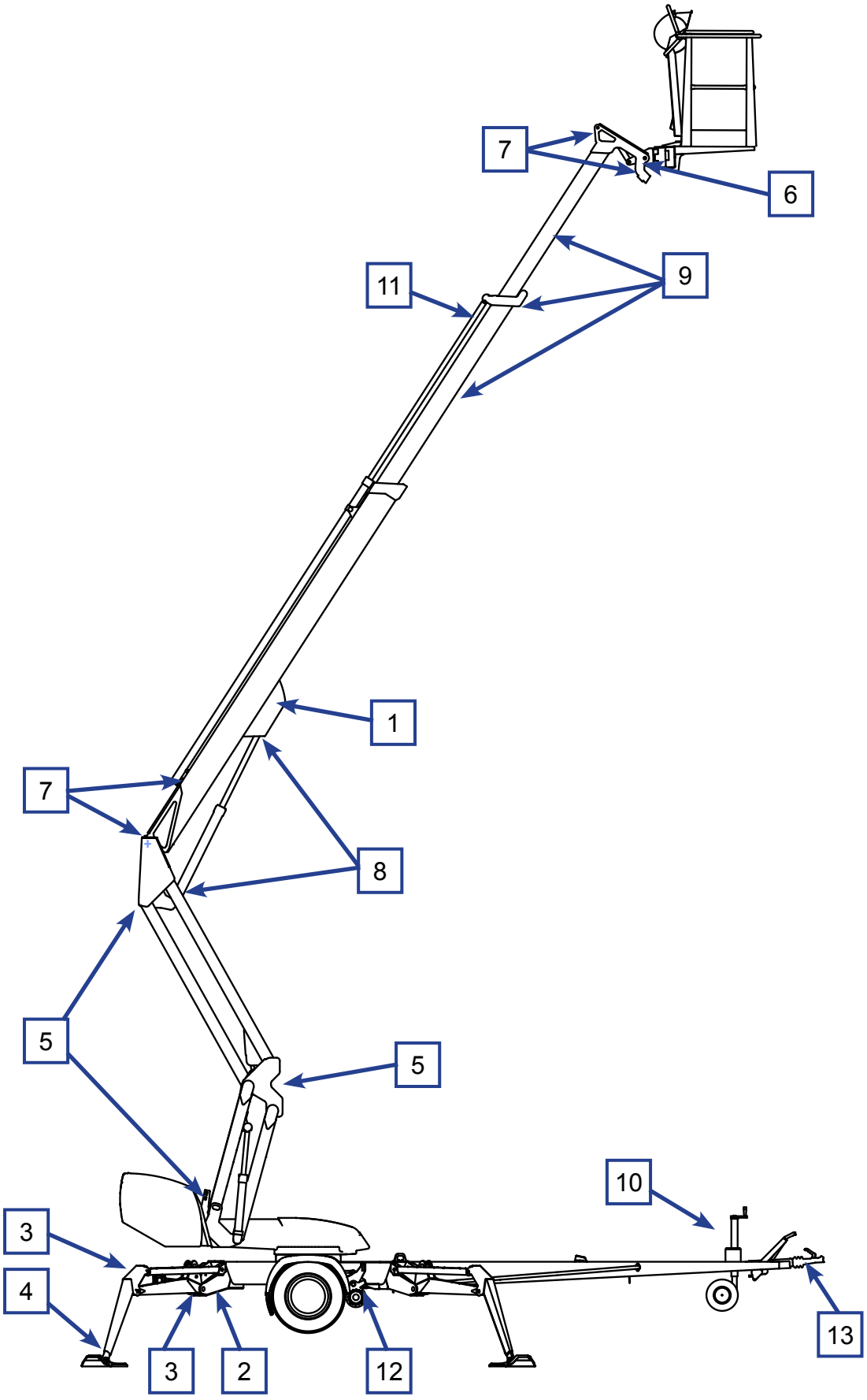
Major and special inspections shall be carried out by a competent person or competent body, who is familiar with the operation and structure of the lift. The competent person sould periodically update their knowledge and be able to demonstrate their competency if so required.

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

NOTICE

Always check the local, state or federal regulations about aerial platform inspections and inspector qualifications from local authorities.

7.2. LUBRICATION PLAN



8. ROUTINE MAINTENANCE DURING OPERATION

This chapter describes the service and maintenance operations that the operator of the platform is responsible for.

Other maintenance operations require special training, tools and materials or specific measurements and adjustment values. They are separately described in maintenance instructions manual. Please contact your maintenance partner, dealer or manufacturer.

Make sure that all service and maintenance prochedures are performed in time and according to instructions.

WARNING

Any faults which may affect the operational safety of the unit must be repaired before the lift is used for the next time

Keep the lift clean. Clean the lift carefully before any service and maintenance operations or inspections. Impurities may cause serious problems in for example in the hydraulic system.

Use original spare parts and service kits. See spare part list for detailed information on spare parts.

The first service after 20 hours of operation

- change the pressure filter element
- 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 performance of the periodic servicing and the inspections is absolutely mandatory, because their negligence may impair the operational safety of the lift.

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

8.1. DAILY MAINTENANCE TASKS

8.1.1. Condition of chassis, boom and work platform

Inspect visually the condition of access systems, work platform, platform gate and handrails.
Check that the chassis and boom have no visible signs of structural damage.

8.1.2. Check the tyres and tyre pressure

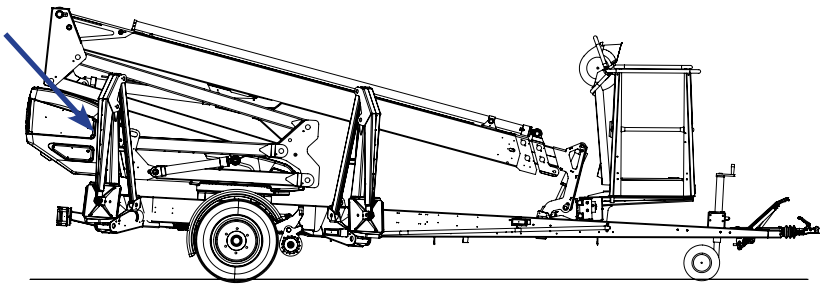
Inspect the condition of tyres visually and chack that they are not flat.

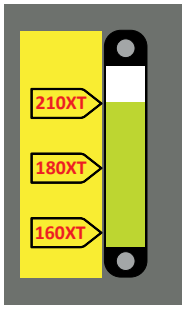
8.1.3. Check the lights

Check all the warning and signal lights and trailer lights for road traffic.

8.1.4. Check the hydraulic oil

Check the hydraulic oil level while the platform is in transport position. Add oil if needed.





The oil tank is located under a cover on the rights side of the device.

Chech that the oil visible from the oil meter looks clean and normal (no excess foam etc.)

8.1.5. Check the hydraulic hoses, pipes and connectors

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

Any externally damaged hoses or clashed pipes and connections must be changed.

8.1.6. Check the operation of safety limit switches

Test the correct operation of safety limit switches that prevent the boom and outrigger movements unless the platform is in a correct position.

1. Platform must be in transport position, outriggers up and the driving device connected.
2. Lift the boom from lower controls.
   The boom must not work in any position of the control device.
3. Drive the outriggers down to operating position
4. Lift the boom so that the boom is not on the support
5. Drive the outriggers.
   The outriggers must not work in any position of the control device.

8.1.7. Check the emergency descent, emergency stop and sound signal

Test the correct operation of emergency stop, emergency descent system and the sound signal from the lower controls and platform controls.

- lift the boom up approximately 1-2 meters and drive the telescope out 1-2 meters. While driving the movement, push down the emergency stop button. The movement should stop.
- Drive the telescope in and lower the boom by using emergency descent
- lift up the emergency stop button
- test the sound signal

8.1.8. Signs, labels and machine plates

Make sure, thet all the plates, adhesive tapes and instructional labels on control stations are intact, clean and legible.

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

Product numbers of labels are marked on the labels or they can be found in the spare part lists.

8.1.9. Instruction manuals

Check that the instruction manuals accompanying the platform are correctly stored on the platform and that they are legible.

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9. 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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