

# **User Manual**

(translation of original version)

## **Combistar Scissor Lifts**

HL-190 D25 4WD/P/N / B-165DL25 4WD/P/N

HL-220 D25 4WD/P/N / B-195DL25 4WD/P/N

© 2011, **HOLLAND LIFT INTERNATIONAL B.V., Hoorn, the Netherlands.**

No part of this publication may be copied and/or published by means of printing, photocopying, microfilm or any other way whatsoever, without the prior written permission of HOLLAND LIFT INTERNATIONAL B.V.

<b>Contents</b>		<b>Page</b>
<b>1</b>	<b>General information .....</b>	<b>5</b>
1.1	Use of this instruction manual .....	5
1.1.1	Objective .....	5
1.1.2	Symbols used in this instruction manual .....	5
1.2	Standard equipment .....	5
1.3	Additional documentation .....	5
1.4	Optional extras .....	5
1.5	CE marking.....	6
1.6	Scissor lift identification (type plate) .....	6
1.6.1	Location of the type plate .....	6
1.7	Delivery conditions and warranty .....	7
1.7.1	Delivery conditions .....	7
1.7.2	Warranty.....	7
1.8	Intended use and modifications.....	7
1.8.1	Intended use.....	7
1.8.2	Modifications .....	7
1.9	Service and technical support .....	8
<b>2</b>	<b>Safety.....</b>	<b>9</b>
2.1	Emergency procedures .....	9
2.1.1	Emergency stop .....	9
2.1.2	Contact with electrical (high voltage) cables .....	9
2.2	Safety instructions .....	9
2.2.1	General information.....	9
2.2.2	Safety instructions during normal use .....	10
2.2.3	Safety regulations during maintenance .....	11
2.2.4	Safety regulations when working on the electrical system .....	11
2.2.5	Safety regulations when working on the hydraulic system .....	11
2.3	Liability .....	11
2.4	Users .....	11
2.5	Intended use.....	12
2.6	Stickers on the scissor lift.....	13
2.6.1	Stickers on the front of the scissor lift.....	13
2.6.2	Stickers on the left-hand side of the scissor lift .....	14
2.6.3	Stickers on the right-hand side of the scissor lift .....	15
2.6.4	Stickers on the platform.....	16
2.6.5	Stickers in the valve/electrical compartment. ....	17
2.6.6	Sticker on the engine.....	18
2.6.7	Sticker on the control box.....	18
2.7	Location of the safety devices on the scissor lift .....	19
2.7.1	Emergency stop button .....	20
2.7.2	Safety bracket .....	20
2.7.3	Protective scissor skirt.....	20
2.7.4	Driving alarm - visual.....	20
2.7.5	Emergency descent device .....	21
2.7.6	Driving alarm – acoustic .....	22
2.7.7	Speed limiter .....	22
2.7.8	Tilt indicator .....	22
2.7.9	Overload safety device.....	23
2.7.10	Lifting cylinder safety device .....	23
2.7.11	Pipe/hose break safety device .....	24

3	Controls.....	25
3.1	Overview .....	25
3.2	The control box.....	26
3.2.1	The main control panel.....	27
3.2.2	Prop control panel .....	28
4	Valve and electrical compartment.....	29
4.1	Main switch.....	29
4.2	Control box .....	30
4.2.1	Control panel on the control box .....	30
4.2.2	Fuses.....	30
5	Engine compartment.....	31
6	Normal use.....	32
6.1	Preparations before use .....	32
6.2	Starting .....	32
6.3	Turning off .....	32
6.4	Sliding door safety device (optional) .....	33
6.5	Platform during transport.....	33
6.6	Oscillating axle .....	33
6.7	Automatically levelling the prop cylinders.....	34
7	Transport.....	35
7.1	Towing.....	35
7.1.1	Introduction.....	35
7.1.2	Releasing the multiple disc brakes.....	35
7.1.3	Points of attention.....	36
7.2	Transport .....	36
7.2.1	Introduction.....	36
7.2.2	Preparation.....	37
7.2.3	Points of attention.....	37
8	Maintenance .....	38
8.1	Maintenance overview.....	38
8.2	Overviews.....	39
8.2.1	Protective scissor skirt.....	39
8.2.2	Lubrication points .....	39
8.2.3	Tightening torques.....	41
8.3	Maintenance procedures .....	41
8.3.1	Installing and removing the safety brackets .....	41
8.3.2	Topping up the hydraulic system.....	42
8.3.3	Lubrication.....	42
8.3.4	Check the tilt safety device.....	42
8.3.5	Inspecting the scissor mechanism .....	42
9	Rectifying faults.....	44
10	Disposal .....	45
10.1	Introduction.....	45
10.2	Disposal procedure .....	45
11	Technical specifications .....	46
11.1	Technical specifications for HL-190 D25 4WD/P/N / B-165DL25 4WD/P/N.....	46
11.2	Technical specifications for HL-220 D25 4WD/P/N / B-195DL25 4WD/P/N.....	47
12	EC Declaration.....	48

# 1 General information

## 1.1 Use of this instruction manual

### 1.1.1 Objective

This instruction manual is intended for the users of the following scissor lifts:

- HL-190 D25 4WD/P/N / B-165DL25 4WD/P/N
- HL-220 D25 4WD/P/N / B-195DL25 4WD/P/N

### 1.1.2 Symbols used in this instruction manual



#### **Comment**

A comment gives additional information.



#### **Note!**

If an instruction with this symbol and title is ignored, it may result in the scissor lift becoming damaged.



#### **Warning**

If an instruction with this symbol and title is ignored, it may lead to serious physical injury or serious damage to the scissor lift.

## 1.2 Standard equipment

1. Control box with a plug-in connection, which can be used on the bottom carriage and on the platform.
2. Auxilliary switch for raising and lowering in the valve/electrical compartment.
3. Proportional drive.
4. Unidirectional extendable platform.

## 1.3 Additional documentation

- HATZ® diesel engine documentation set.
- Parts catalogue.
- Electrical and hydraulic diagram.
- Logbook.

## 1.4 Optional extras

- 230 V AC connection on the platform.
- Flashing lights in addition to the acoustic driving alarm.
- Sliding door on the side of the platform.
- Possibility to drive the scissor lift when fully extended.
- Easylube® lubrication system (10 lubrication points).

- Automatic lubrication system (78/90 lubrication points).
- Generator.
- Non-marking tyres.

## 1.5 CE marking

See the Declaration of Conformity.

## 1.6 Scissor lift identification (type plate)



### Note!

Never remove the type plate.

The type plate contains information specific to the scissor lift.

### 1.6.1 Location of the type plate

The scissor lift's type plate can be found on the bottom carriage.

<b>HOLLAND LIFT</b>	
Holland Lift International BV · Anodeweg 1 · NL 1627 LJ Hoom · Tel.+31(0)229-285555	
Model / Modell	Totaal / Total  Kg
Chassis nr. / no.	Bouwjaar / Year of manufacture / Baujahr
Nominaal vermogen / Nominal power / Nominale Wirkungsgrad kW	
- Ingeschoven / Retracted / Eingeschoben	Kg ( x ↑ + /kg )
- Uitgeschoven / Extended / Ausgeschoben	Kg ( x ↑ + /kg )
Max. horizontale kracht / max. sideforce / Seitenkraft	400 N Max.
Max. windsnelheid / wind speed / Windgeschwindigkeit	m/s Max.
Max.  hoogte / height / Höhe	m Max. rijhoogte / driving height / Fahrhöhe
Min. temp. / all. temp. / Zul. Tiefsttemp.	-15° C Max. bedr. dr. / work. pres. / Betr. Dr.
Bar	

*Type plate*

The type plate contains the following information:

- The manufacturer's name, address and telephone number.
- The model.
- The total weight (kg).
- The chassis number.
- The year of construction.
- The nominal power (kW).
- The maximum permissible weight on the platform when retracted (kg).
- The maximum permissible weight on the platform when extended (kg).
- The maximum horizontal force (N).
- The maximum angle of inclination (°).
- The maximum wind speed (m/s).
- The maximum tilt (°).

- The maximum height (m).
- The maximum height when mobile.
- The minimum permissible temperature (° C).
- The maximum operating pressure (bar).

## 1.7 Delivery conditions and warranty

### 1.7.1 Delivery conditions

**HOLLAND LIFT INTERNATIONAL B.V.** delivers products in accordance with the delivery and payment conditions issued by the Metaalunie, dated 1st January 2008.

### 1.7.2 Warranty

For the warranty period, see the delivery conditions.

## 1.8 Intended use and modifications

### 1.8.1 Intended use

The scissor lift is only intended to be used to allow people to work at a height. The platform's maximum load (see type plate) must not be exceeded under any circumstances. Any other use is contrary to the scissor lift's intended use.

### 1.8.2 Modifications

Modifications to the scissor may only be made lift after written permission has been given by the management of **HOLLAND LIFT INTERNATIONAL B.V.**

The information contained in this instruction manual is based on information regarding constructions, material properties and work methods known by us at the time of publication. We, therefore, reserve the right to make construction alterations. For this reason, **HOLLAND LIFT INTERNATIONAL B.V.** also reserves the right to make alterations to the content of the instruction manual without the need to give prior notification.

Components may only be replaced by components provided by **HOLLAND LIFT INTERNATIONAL B.V.** or components which can be considered to be of an equal quality. **HOLLAND LIFT INTERNATIONAL B.V.** reserves the right to decide whether these components are of an equal quality. The manufacturer can only be held liable if a written declaration stating that the components are of an equal quality has been received from the manufacturer.

## **1.9 Service and technical support**

**HOLLAND LIFT INTERNATIONAL B.V.**

Anodeweg 1

1627 LJ Hoorn

The Netherlands

**T** +31 (0)229-285555

**F** +31 (0)229-285550

**E** [service@hollandlift.com](mailto:service@hollandlift.com)

**W** [www.hollandlift.com](http://www.hollandlift.com)

## 2 Safety

### 2.1 Emergency procedures

#### 2.1.1 Emergency stop

To disable all of the scissor lift's functions:

- Press the emergency stop button.

#### 2.1.2 Contact with electrical (high voltage) cables

If the scissor lift comes into contact with electrical (high voltage) cables:

1. Remain on the platform.
2. Move the scissor lift out of the danger area.
3. Make sure bystanders do not touch the scissor lift.
4. Disconnect the electrical (high voltage) cables.
5. Only exit the scissor lift after the electrical (high voltage) cables have been disconnected.

### 2.2 Safety instructions

#### 2.2.1 General information

- Avoid any situation that may endanger the users of the scissor lift or any bystanders.
- It is strictly forbidden to:
  - Attach overhanging loads to the scissor lift.
  - Attach advertising boards or banners to the scissor lift.
  - Increase the working platform's surface area.
  - Stand on the platform's railings.
  - Raise the height of the platform's floor.
  - Tow the scissor lift on public roads.
- After every (large) repair, the scissor lift must be inspected and approved by an expert.
- If any modifications or repairs are carried out which may affect the scissor lift's stability, strength or performance, the scissor lift must be reinspected and approved by **HOLLAND LIFT INTERNATIONAL B.V.**
- Any inspections, tests, repairs or alterations must be recorded in the scissor lift's logbook.
- The weighted root mean square acceleration value (vibrations) that the user is subjected to during use of the scissor lift is not greater than  $2.5 \text{ m/s}^2$ .
- The airborne noise produced by the scissor lift in the work area at a distance of 7 metres and at a maximum load is not greater than 87 dB(A).
- Exposure to the airborne noise over a long period of time may have a harmful effect on the ears if ear protection is not worn.

## 2.2.2 Safety instructions during normal use

- Only use the scissor lift under the following conditions:
  - There is no visible damage to the scissor lift.
  - All the functions work.
  - All the safety devices work.
  - The hydraulic system does not leak.
  - The hydraulic system has the correct quantity of oil.
- Lock the covers of the boxes on the bottom carriage.
- Do not touch the scissor lift's moving parts or hinged components (e.g. the scissor mechanism or the steering gear).
- Make sure the driving area and the work area are:
  - Sufficiently flat and able to take the weight of the scissor lift.
  - Sufficiently lit.
  - Free of obstacles.
  - Free of snow and ice.
- Make sure the scissor lift cannot touch any fixed or moving obstacles.
- Make sure no objects can fall from the platform (e.g. tools).
- If tools which may cause a fire are used on the platform, then there must be a fire extinguisher on the platform.
- The scissor lift may only be driven when fully extended (16.7/19.7 m) if it is driven on a flat surface which is able to take the weight of the scissor lift. The user must be aware of this before using the scissor lift. As an extra safety requirement, the scissor lift must always be used by two people, where one person is on the platform and one person remains on the ground. They must have a suitable means of communication. In the standard situation, the 8-metre cut-off must be set using the key switch. Position "0" is the setting where the scissor lift can be driven when at a height of 8 meters and "1" is the setting where the scissor lift can be driven at a height of 16.7/19.7 meters. The speed will not be greater than 0.5 km/h. The key switch is located on the electrical box.
- Only charge the scissor lift's battery in an area that is well ventilated and where a naked flame and smoking are forbidden.
- Important conditions concerning driving up or down inclines in the scissor lift's longitudinal direction:
  - See the technical information in the instruction manual for the maximum inclination.
  - The maximum load when driving up an incline is 80 kg (1 person).
  - Place the platform in the lowest position.
  - Select the slowest speed.
  - Do not make any sharp steering movements when driving up an incline.
  - Do not drive up an incline with the non-driven wheels.
- It is strictly forbidden to:
  - Operate the scissor lift from the ground using the control panel (except for transport reasons or carrying out maintenance on the scissor lift).
  - Use the scissor lift to carry out work on or near electrical (high voltage) cables.
  - Use the scissor lift to work in an area where there is a risk of an explosion.

### 2.2.3 Safety regulations during maintenance

- Always wear the required safety equipment (e.g. safety goggles, ear protection, helmet) when carrying out maintenance work on the scissor lift.
- Prevent the scissor lift from being able to roll away. For example, place chocks against the wheels.
- Prevent the risk of becoming trapped in the scissor mechanism. Make sure the safety brackets have been fitted before working, for example, on the scissor mechanism (e.g. lubricating the scissor mechanism).
- If the scissor lift was turned off during maintenance work and must remain turned off, take measures to prevent the scissor lift from unexpectedly or unintentionally being turned on. Make sure others cannot undo the measures that have been taken.
- Before cleaning the scissor lift with steam, water or other liquids, protect all the components that must not be exposed to liquids. Remove the protection after cleaning the scissor lift.
- Make sure oil, grease and other substances that are harmful to the environment are disposed of in a safe and environmentally-friendly manner.

### 2.2.4 Safety regulations when working on the electrical system

- Turn off the scissor lift before working on the electrical system.

### 2.2.5 Safety regulations when working on the hydraulic system

- Make sure the correct fire extinguisher is available. Leaking oil can be hot and cause a fire.
- Lower the platform as far as possible before carrying out work on the hydraulic system.
- Remove the pressure before working on the hydraulic system.
- Do not touch the hydraulic system's lines. Leaking, hot oil can cause burns or penetrate the skin. If you come into contact with oil, immediately see a doctor who has experience with this type of wound.

## 2.3 Liability

**HOLLAND LIFT INTERNATIONAL B.V.** cannot be held liable for:

- Damage resulting from negligent use and/or maintenance of the scissor lift.
- Any printing errors in the documentation or their consequences.

## 2.4 Users

- The management is obliged to instruct the users of the scissor lift in its use and maintenance with the aid of the instruction manual, additional instructions and directions.
- The instruction manual must be easily accessible to the user at all times in a tube that has been fitted in the scissor lift's valve/electrical box for that purpose. If necessary, **HOLLAND LIFT INTERNATIONAL B.V.** can provide a new copy of the instruction manual on request.
- The scissor lift may only be operated by people who are 18 years of age or older and who have read and understood the operating instructions and regulations that are applicable to the **HOLLAND LIFT INTERNATIONAL B.V.** scissor lift.

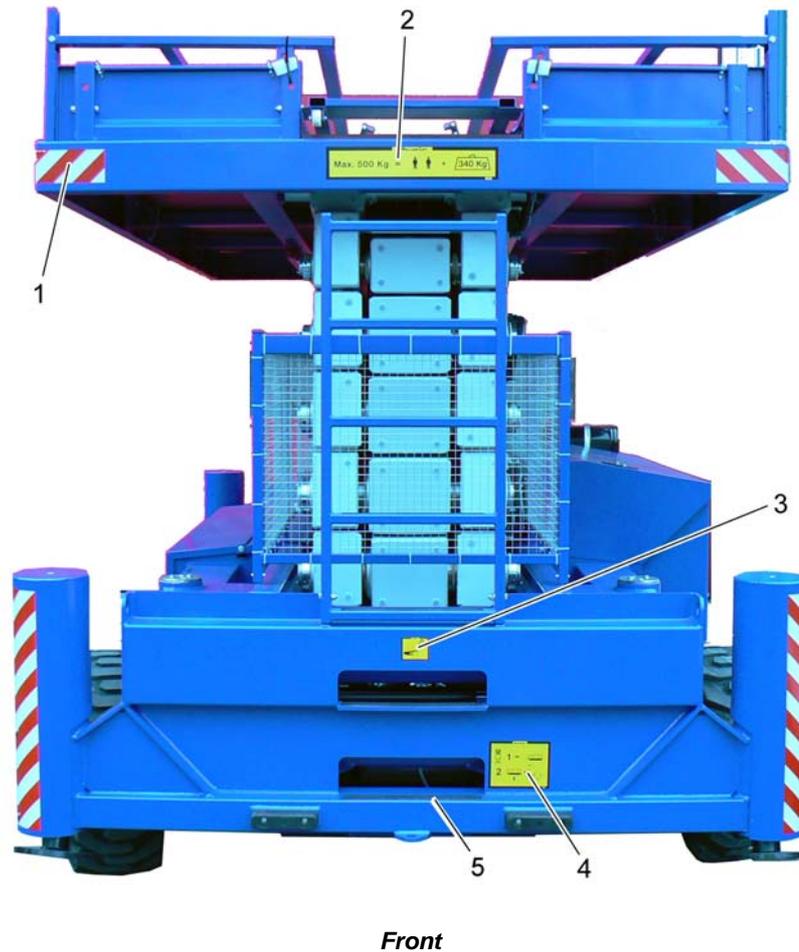
- It is strictly forbidden for people operate the scissor lift when they are under the influence of alcohol, drugs or medicine that makes them drowsy.
- In the Netherlands: Operators are recommended to have the “Veiligheidscertificaat Hoogwerker”. This is recognized by the Stichting Toezicht Certificatie Verticaal Transport (TCVT).  
The IPAF mobile elevated working platforms operator course is recognized internationally.
- Maintenance may only be carried out by people who have read and understood the instructions contained in the instruction manual and who have specific knowledge of the operation and construction of the scissor lift manufactured by **HOLLAND LIFT INTERNATIONAL B.V.**.

## 2.5 Intended use

- Only use the scissor lift for the intended use.

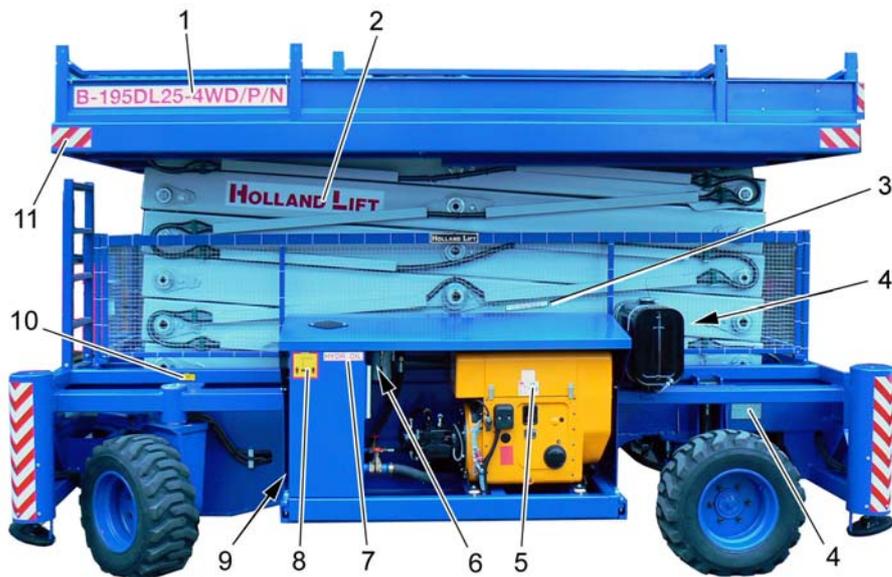
## 2.6 Stickers on the scissor lift

### 2.6.1 Stickers on the front of the scissor lift



1. Reflective material (on all the corners).
2. Max. 2 persons + load.
3. Risk of hands becoming trapped.
4. Emergency descent procedure.
5. Anti-slip material.

## 2.6.2 Stickers on the left-hand side of the scissor lift



*Left-hand side*

1. Scissor lift type number.
2. Brand name.
3. Sticker for the safety bracket.
4. Fire risk. Diesel.
5. Engine maintenance instructions.
6. Shell Tellus 32.
7. Hydraulic oil
8. Not permitted to be in the danger zone.
9. Inspection sticker.
10. Lubrication advice.
11. Reflective material (on all the corners).

### 2.6.3 Stickers on the right-hand side of the scissor lift



*Right-hand side*

1. Brand name.
2. Scissor lift type number.
3. Safety bracket.
4. Main switch.
5. Main switch symbol.
6. Not permitted to be in the danger zone.
7. 230 V AC (optional).
8. Lubrication advice.
9. Reflective material (on all the corners).

## 2.6.4 Stickers on the platform



*Stickers on the inside of the platform*

1. Concise operating instructions.



*Sticker on the 230 V AC switch box (optional).*



*Sticker on the 230 V AC socket (optional).*

### 2.6.5 Stickers in the valve/electrical compartment.

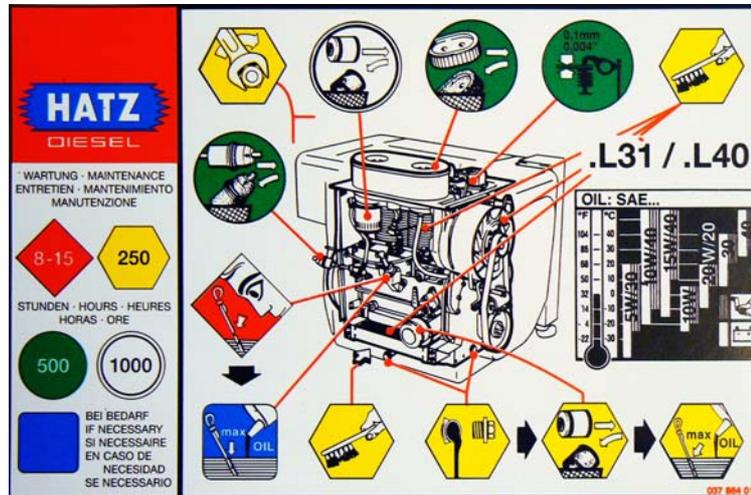


*Valve / electrical compartment*

1. Extendable platform emergency procedure.
2. Battery pole location.

### 2.6.6 Sticker on the engine

This sticker uses pictures to explain the maintenance instructions for the diesel engine.



*Diesel engine maintenance instructions*

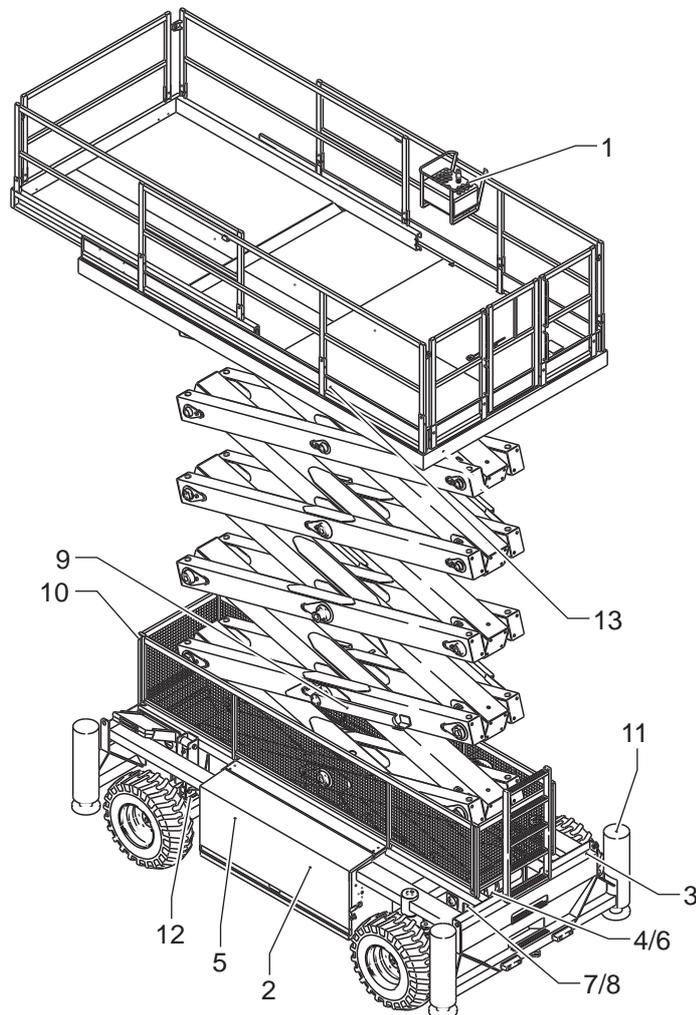
### 2.6.7 Sticker on the control box



*The control box*

1. Only lower the scissor lift when the platform has been retracted.

## 2.7 Location of the safety devices on the scissor lift



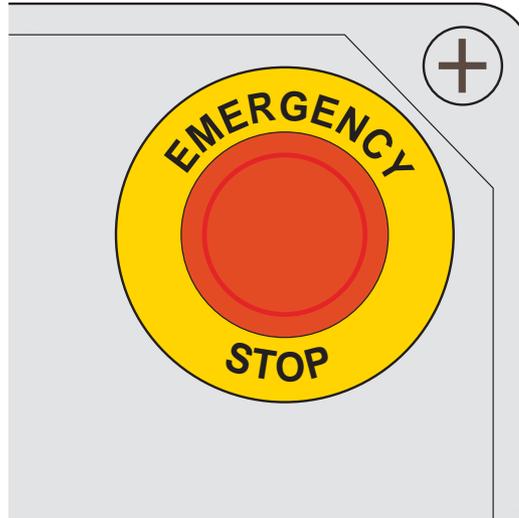
**Safety devices**

1. Emergency stop button
2. Driving alarm - acoustic
3. Driving alarm – visual (optional extra)
4. Limit switch – 4/8 metres
5. Tilt indicator
6. Proximity switch – lifting cylinder
7. Emergency descent valve
8. Pipe/hose break safety device
9. Safety bracket (both sides)
10. Protective scissor skirt
11. Controlled one-way valves in prop cylinders
12. Oscillating axle lock
13. Sliding door switch

### 2.7.1 Emergency stop button

The emergency stop button can be used to turn off all of the scissor lift's functions.

- All of the functions stop when the emergency stop button is pressed.
- If the emergency stop button is pulled out and rotated a quarter of a revolution, then all the functions will be turned back on after 2 seconds.



*Emergency stop button*

### 2.7.2 Safety bracket

The safety brackets prevent people from becoming trapped in the scissor mechanism when work must be carried out on it.

### 2.7.3 Protective scissor skirt

The protective scissor skirt prevents people from coming into contact with the scissor mechanism's moving parts.

### 2.7.4 Driving alarm - visual

The visual driving alarm is activated when the scissor lift is being driven: two lights will flash when it is being driven.

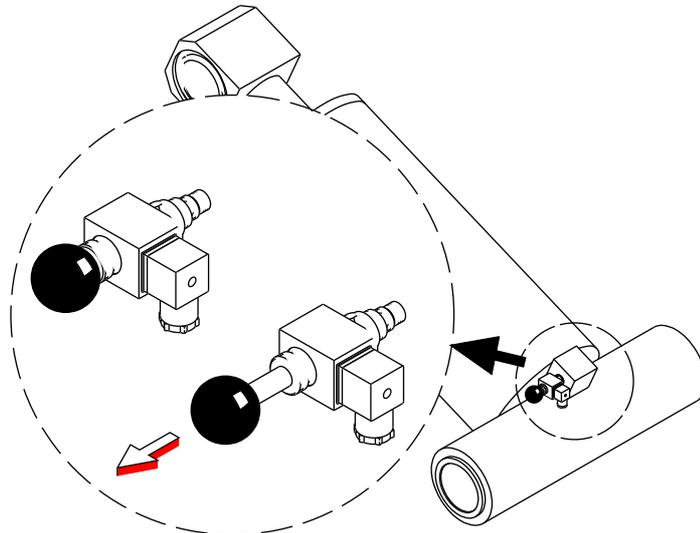


**Comment**

Only for scissor lifts with the "visual driving alarm" option.

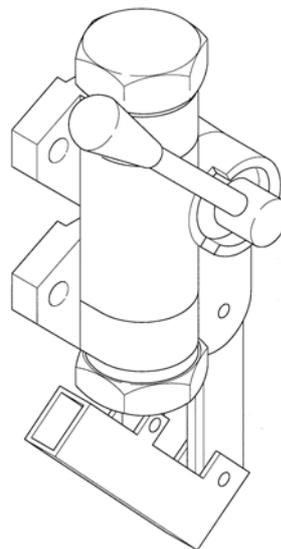
### 2.7.5 Emergency descent device

The emergency descent valve allows the platform to be lowered in the event of an emergency. It is activated by pulling the button on the valve.



**Emergency descent device**

If the platform is still extended, it can be retracted using the hand pump in the valve box.



**Platform hand pump**

### 2.7.6 Driving alarm – acoustic

The acoustic driving alarm sounds when the scissor lift is being driven: an acoustic warning signal is given.

### 2.7.7 Speed limiter

The speed limiter prevents the scissor lift from being driven too fast when the platform is raised.

- The slow driving speed is automatically activated when the platform is at a height of more than 4 metres. The faster driving speed can only be activated again once the platform is at a height of less than 4 metres.
- The driving and steering functions are automatically disabled when the platform is at a height of more than 8 metres. The driving and steering functions can only be activated again once the platform is at a height of less than 8 metres.



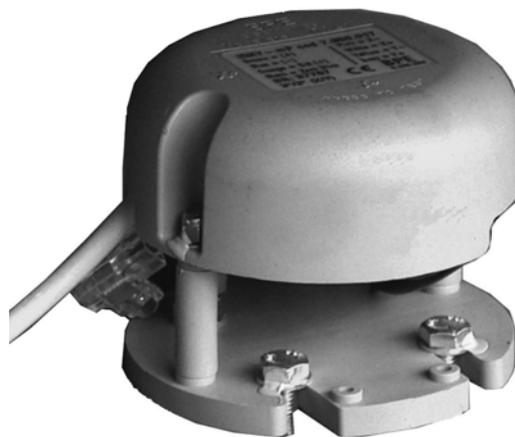
#### Comments

Only for scissor lifts with the “Drive at full height” option.

- It is possible to activate the driving and steering functions again when the platform is at a height of more than 8 metres by placing the key switch in the “1” position.

### 2.7.8 Tilt indicator

If the scissor lift exceeds the specified maximum tilt when the platform is at a height of more than 4 metres, a warning signal will sound and all the movement functions will be disabled, with the exception of the descend function and the retraction of the platform (manual or hydraulic).



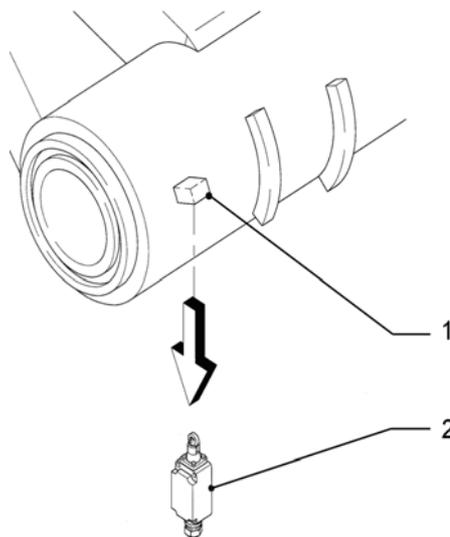
*Tilt indicator*

## 2.7.9 Overload safety device

The overload safety device informs the operator when the platform is overloaded. If the permitted load is exceeded (between 100-120%), all of the scissor lift's movement functions will be deactivated. An acoustic signal will also sound for 5 seconds every minute and the overload light will be lit. When the overload safety device is activated the excess load must be removed, after which the scissor lift's movement functions will become active again. It is recommended that persons on the platform take communication equipment with them for use in the event of a malfunction.

## 2.7.10 Lifting cylinder safety device

- A proximity switch prevents an internal mechanical stop from being hit in the lifting cylinder just before the maximum stroke is reached.

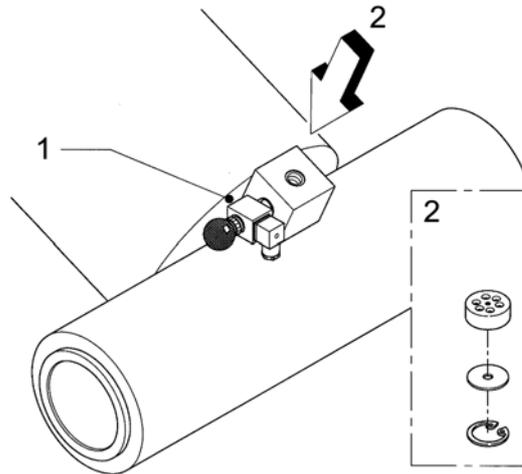


**Lifting cylinder safety device**

1. Knob
2. Proximity switch

### 2.7.11 Pipe/hose break safety device

An electronically controlled valve is fitted on the lifting cylinder. It is only possible to lower the platform with a control signal from the control box, even in the event of a pipe/hose break. The maximum descent speed is limited by a constriction in the cylinder.

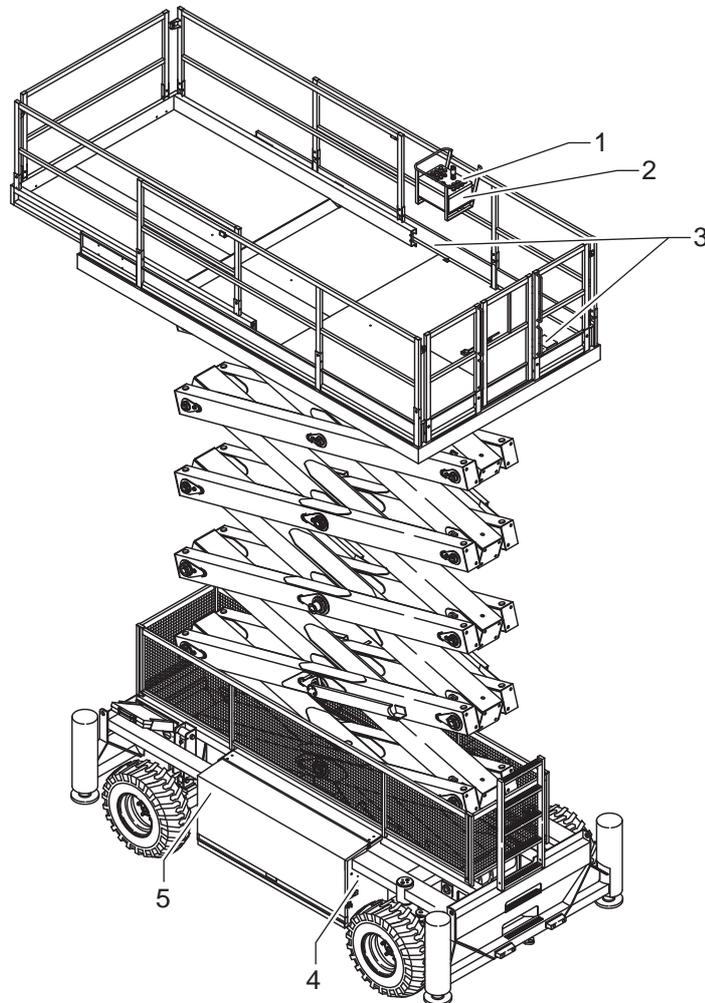


***Pipe/hose break safety device***

1. Descent valve with operating button
2. Hose break safety device (constriction)

## 3 Controls

### 3.1 Overview



**Overview of the controls**

1. Emergency stop button
2. Control box
3. Connection for the control box
4. Main switch
5. Connection for the bottom carriage control box

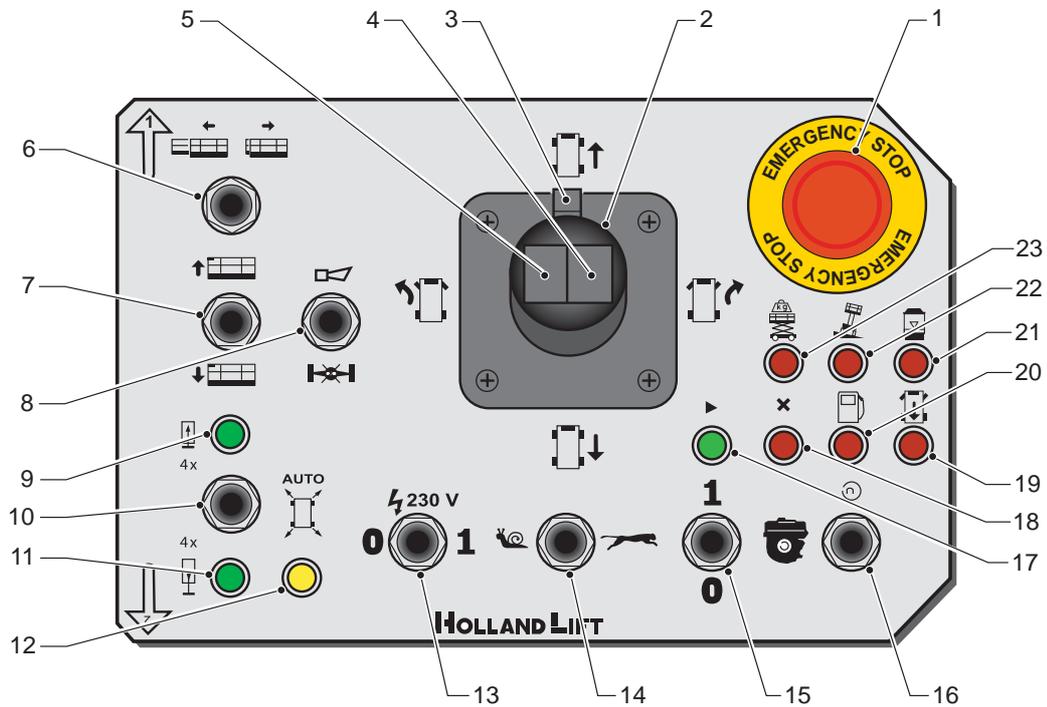
## 3.2 The control box

A plug-in connection makes it possible to use the control box both on the platform and on the bottom carriage.



**Control box with 2 control panels**

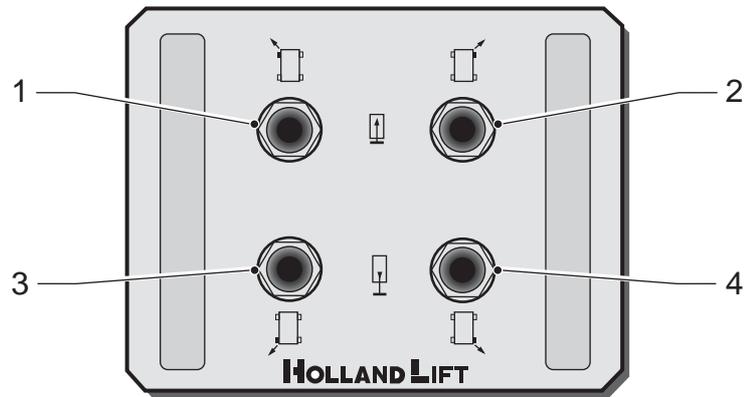
### 3.2.1 The main control panel



*Main control panel*

1. Emergency stop button
2. Forwards/backwards control handle
3. Dead man's switch
4. Steer to the right
5. Steer to the left
6. Extend/retract platform
7. Raise/Descend
8. Horn/Locking function
9. Outriggers retracted indicator light
10. All outriggers in-out/Automatic levelling
11. Outriggers extended indicator light
12. Automatic leveling indication light
13. 230 V AC generator On/Off switch (optional)
14. Driving speed Fast/Slow
15. Diesel engine On/Off
16. Diesel engine speed Fast/Slow
17. In operation light
18. Fault indication light
19. Oscillating axle
20. Fuel indicator light
21. Grease reservoir empty indicator light (optional)
22. Tilt indicator light
23. Overload indicator light

### 3.2.2 Prop control panel

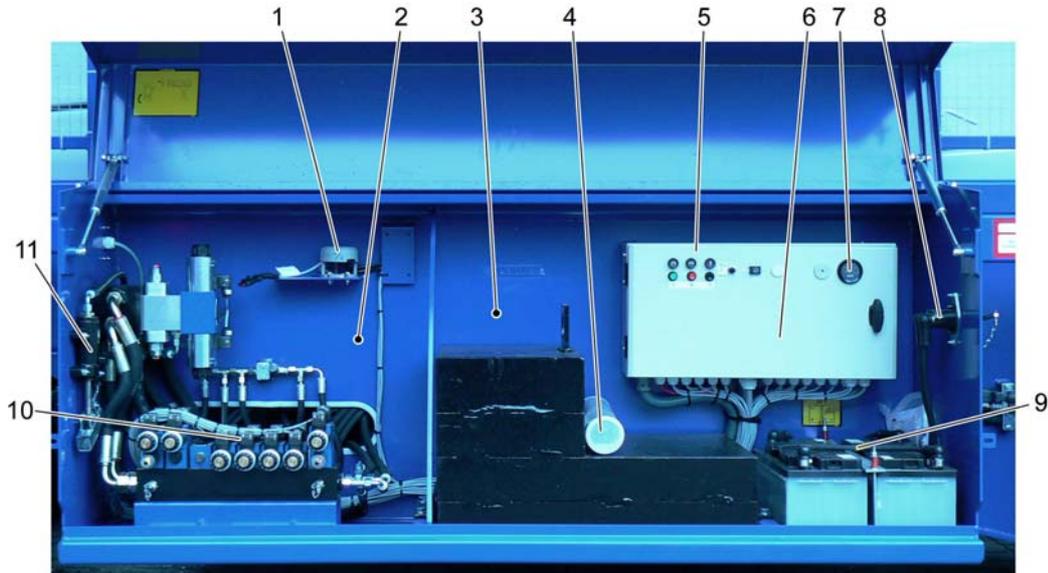


*Prop control panel*

1. Front left-hand prop
2. Front right-hand prop
3. Rear left-hand prop
4. Rear right-hand prop

## 4 Valve and electrical compartment

The valve/electrical compartment is located behind the flap on the right-hand side of the bottom carriage.

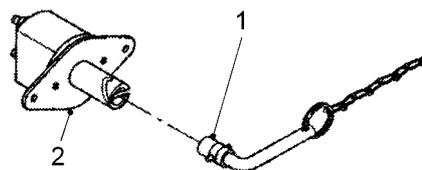


*Valve/electrical compartment*

1. Tilt indicator
2. Valve compartment
3. Electrical compartment
4. Document tube
5. Control panel
6. Control box
7. Hour counter
8. Main switch
9. Battery start
10. Valve block
11. Emergency hand pump for the extendable platform

### 4.1 Main switch

The main switch turns the power supply for the scissor lift on and off.



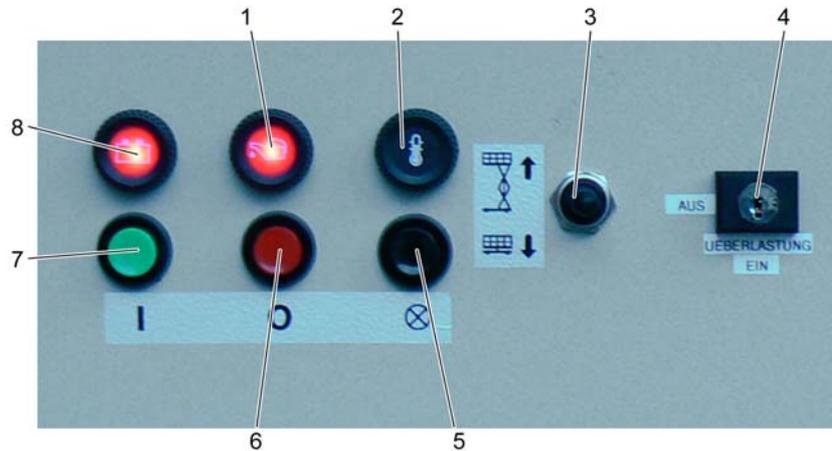
*Main switch*

1. Key with chain
2. Main switch

## 4.2 Control box

### 4.2.1 Control panel on the control box

There are a number of indication lights and buttons for the operating functions on the control box. These are intended for experts when carrying out maintenance work.

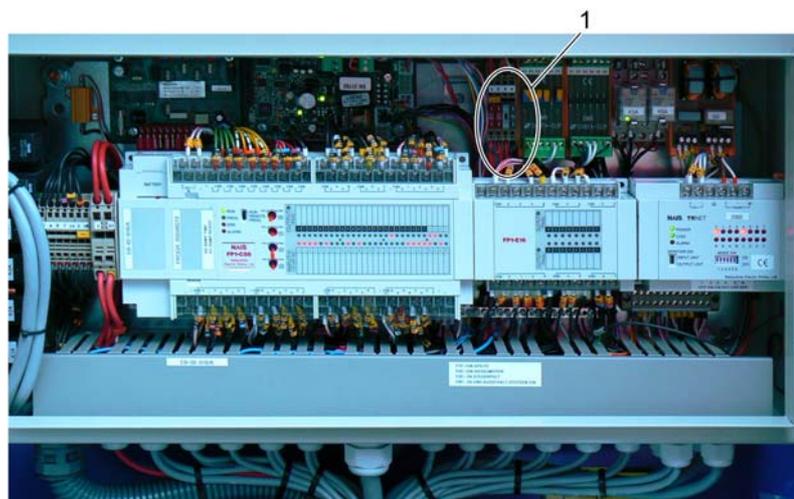


**Control panel on the electrical box**

1. Engine oil pressure indication light
2. Engine temperature indication light
3. Emergency switch for raising/descending
4. Key switch for bridging the overload safety device
5. Test button for the indication lights
6. Diesel engine stop button
7. Diesel engine start button
8. Charge current inspection light

### 4.2.2 Fuses

There are a number of important control current fuses in the control box.

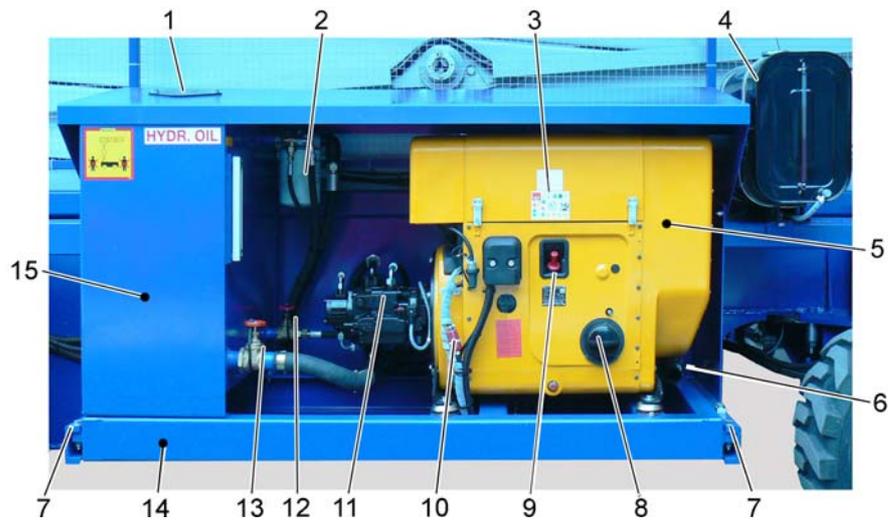


**Opened electrical box**

1. Control current fuses (see the electrical diagram)

## 5 Engine compartment

The engine compartment is located on the left-hand side of the bottom carriage. The Hatz Silentpack diesel engine and the hydraulic pump system are located here. Everything is fitted to a pull-out frame. The frame is kept in place by two bolts. The closed position is detected by a proximity switch.



*Engine compartment*

1. Hydraulic oil tank filler opening
2. Filter element for hydraulic oil
3. Sticker for periodic engine maintenance (filters, oil, etc.)
4. Fuel tank
5. Diesel engine
6. Proximity switch
7. Lock bolt
8. Engine oil filter
9. Oil filler plug with dipstick
10. Fuel filter
11. Hydraulic oil pump
12. Hydraulic oil tank tap
13. Hydraulic oil tank tap
14. Pull-out frame
15. Hydraulic oil tank

## 6 Normal use

### 6.1 Preparations before use

See the diesel engine's instruction manual for instructions on how to prepare the engine.

### 6.2 Starting

1. Insert the key (1) into the main switch.
2. Rotate the key a quarter of a turn clockwise.
  - The power for the scissor lift will now be turned on.



**Main switch and key**

3. Access the platform via the step.
4. Set the scissor skirt and all the locks in the correct positions.
5. Check whether the control box is connected.
6. Pull out the emergency stop button.
  - The scissor lift will check the overload safety device. A warning signal will sound for 10 seconds.  
Once the warning sound no longer sounds, the scissor lift can be operated via the control box.

### 6.3 Turning off

1. Retract the platform (if necessary).
2. Lower the platform.
3. Turn off the engine.
4. Press the emergency stop button.
5. Disconnect the control box and store it safely.
6. Rotate the key in the main switch a quarter of a turn anticlockwise.
7. Remove the key from the main switch.

## 6.4 Sliding door safety device (optional)

If the scissor lift has a sliding door, then there is also a proximity switch that detects whether the door is open. If the proximity switch detects that the door is open, the scissor lift can no longer be operated. It will also not be possible to lower the platform.

The control box can be operated again when the door has been closed.

When working on the platform, always make sure the door is locked.

## 6.5 Platform during transport

If the platform railings are folded down during transport, then it is necessary to make sure they are fitted correctly before the scissor lift is used again.

If the scissor skirt is removed for transport, then the plug for the sliding door must be disconnected.

Do not forget the extra locks for the scissor skirt.



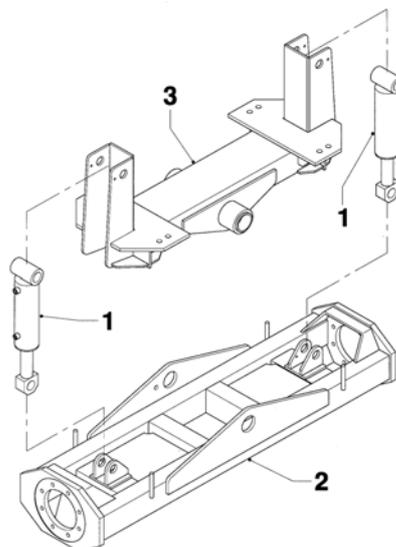
### Note!

- Never use the scissor lift if all the locks have not been secured.
- The scissor skirt may never be removed when using the scissor lift.
- The platform must be fully retracted during transport.

## 6.6 Oscillating axle

The scissor lift has an oscillating axle. This makes it possible to drive on an uneven floor with four driven wheels.

The moment that the oscillating axle is not level and the platform is at a height of more than 4 metres, all the driving and lifting functions will be automatically disabled. The fault indication light on the control box will also flash. To return the oscillating axle to the horizontal position, the scissor lift must be moved to a flatter surface and the platform must be at a height of less than 4 metres.



1. Oscillating cylinder
2. Rocking part of the oscillating axle
3. Fixed part of the oscillating axle

*Oscillating axle*

## 6.7 Automatically levelling the prop cylinders

The props can be used to level the scissor lift when it is on an uneven surface.

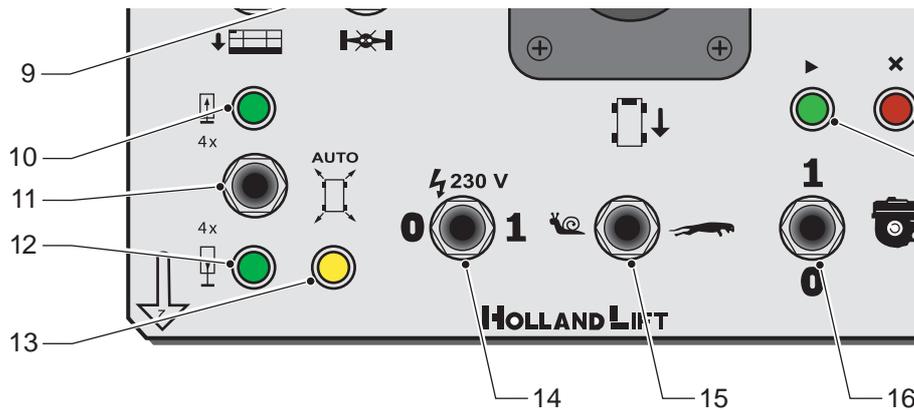
The props can only be operated when the platform is at a height of less than 4 metres. It is not possible to drive the scissor lift when the props are not fully retracted.

The "Props retracted" light on the control panel will then not be lit.

Push the switch forwards until the light is lit continuously and the safety device is deactivated.

The switch on the control panel must be pushed backwards before the props can be extended.

Press the switch (11) until the "Props extended" light (12) is lit continuously.



### *Automatic levelling*

All 4 props will now be touching the ground. The scissor lift will be automatically levelled if the switch is kept pressed. This is indicated by the flashing "Automatic levelling" light (12).

Keep the switch pressed until the light is lit continuously. The scissor lift will then be level.

## 7 Transport

### 7.1 Towing

#### 7.1.1 Introduction

The scissor lift has a multiple disc brake with a towing function, which allows the scissor lift to be towed. The multiple disc brake is applied when the scissor lift is stationary. The multiple disc brake must be released before the scissor lift can be towed.



*Bolt for the multiple disc brake*

#### 7.1.2 Releasing the multiple disc brakes



**Warning**

Prevent the scissor lift from being able to roll away. For example, place chocks against the wheels.



**Note!**

Do not continue rotating past the towing stop.

- Unscrew the bolt (1) (key width 30 mm) until the stop can be felt (approx. 14 mm). Repeat this for the other wheels. The scissor lift can now be towed. The wheels can now no longer be braked.



**Warning**

Reset the brakes for all the wheels after towing the scissor lift.

### 7.1.3 Points of attention

When towing the scissor lift, pay attention to the following:

- The scissor lift may never be towed at a speed faster than the scissor lift's maximum speed.

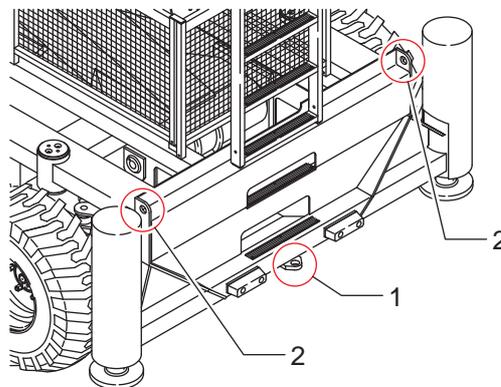
## 7.2 Transport

### 7.2.1 Introduction

The towing eyes and the lashing eyes must be used when transporting the scissor lift. The towing eyes are located on the front and the rear of the scissor lift. The lashing/hoisting eyes are located on the top corner points of the bottom carriage.

The following must be taken into consideration when using a different means of transport to move the scissor lift:

- If the scissor lift is hoisted onto another vehicle, then the lifting eyes that are located on every corner of the bottom carriage must be used.
- The weight of the scissor lift is stated on the type plate. Take this into consideration when deciding which means of transport to use.
- The bottom carriage must be secured to the means of transport in such a way that it cannot make any unintended movements in any direction. Use the lashing eyes for this.
- If the railings were folded away during transport, then they must be unfolded again before using the scissor lift.



***Towing, lashing and lifting eyes***

1. Towing eye (front and rear)
2. Lashing and lifting eyes (front and rear)



**Note!**

Read the chapter entitled Safety for more information concerning safety when transporting the scissor lift.

### 7.2.2 Preparation

1. Check the scissor lift's brakes.
2. Retract the platform and use the transport lock to lock it in position.

### 7.2.3 Points of attention

When transporting the scissor lift, pay attention to the following:

- If the incline is steeper than 25%, use a winch to drive the scissor lift onto the means of transport. Secure the winch to the towing eye on the bottom carriage.
- Only use the lashing/lifting eyes on the corners of the bottom carriage to hoist the scissor lift.



**Comment**

**HOLLAND LIFT INTERNATIONAL B.V.** does not recommend hoisting the scissor lift without using special hoisting equipment. If necessary, contact the manufacturer for more information.

## 8 Maintenance

### 8.1 Maintenance overview



**Comment**

The maintenance intervals given below are based on normal use of the scissor lift under normal circumstances.

If the scissor lift is subjected to extreme conditions (such as dust, algae, bacteria or salt deposits), then the frequency must be increased.

We count on your responsibility and expertise.

Component	Action	Frequency
Scissor lift	Check the entire scissor lift for damage.	Every day
	Make sure the scissor lift works correctly.	Every day
	Make sure the safety devices work correctly.	Every day
	Make sure the stickers are legible. If necessary, replace them.	Every day
	Lubricate the scissor lift according to the overview of the lubrication points.	Once a month
	Check all the bolt connections. If necessary, tighten them.	Once every 3 months
	Check the maximum permitted lifting pressure at the maximum working load and the maximum driving pressure. Contact the manufacturer if the measured maximum permitted lifting pressure is greater than the stated maximum driving pressure.	Once every 3 months
	Check all the sealed settings. Contact the manufacturer if any seals are broken.	Once every 3 months
	Have the scissor lift inspected by an expert.	Once a year
Scissor mechanism	Check the locks and the attachments.	Once every 3 months
	Have the scissor mechanism inspected by an expert.	Every 5 years
Lifting cylinder	Check the locks and the attachments.	Once every 3 months
Hydraulic system	Check for damage and leaks. Repair any damage or leaks.	Every day
	Check the oil level. If necessary, top it up.	Every week
	Replace the filter element.	Once a year
	Change the oil.	Once a year

Component	Action	Frequency
Diesel engine	Check the oil level. If necessary, top it up.	Every day
	Other: follow the instructions given on the maintenance sticker on the diesel engine.	See the sticker
Battery	Check the liquid level. If necessary, top it up.	Every week
	Recharge the battery if the scissor lift has not been used for more than 2 weeks.	Every two weeks when not in use.
Proximity switches Height stops	Check the operation and the setting.	Every week
Tilt safety device	Make sure it works correctly.	Every day
Wheels	Tighten the wheel bolts according to the tightening torque overview.	Once every 3 months
	Do not rest the wheels on the ground if the scissor lift is not going to be used for a long period of time.	-
PLC operation	Replace the battery. Only do so if the PLC is connected to a power supply, because the program will then be saved in the memory.	Every 4 years
Overload safety device	Make sure the scissor cannot lift more than the specified work load.	Once a month
EasyLube®	Check the quantity in the reservoir. If necessary, top it up.	Once a month
Automatic lubrication system	Check the quantity in the reservoir. If necessary, top it up.	Once a month

## 8.2 Overviews

### 8.2.1 Protective scissor skirt

The protective scissor skirt on the bottom carriage prevents body parts from becoming trapped by the moving scissor arms.



**Note!**

If the scissor skirt is removed during maintenance work, then it must be put back correctly once the maintenance work has been completed.

It is not permitted to use the scissor lift if the protective scissor skirt has not been fitted or if it does not work as intended.

### 8.2.2 Lubrication points

EP NLGI-kl.2 + Teflon® (< 2% drying agent) must be applied to the lubrication points at least once a month.

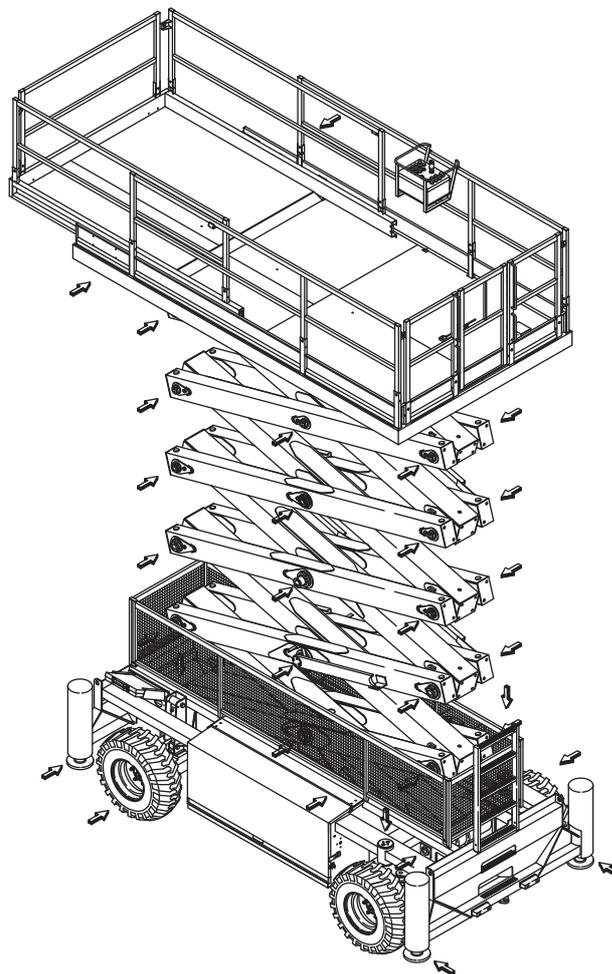


The protective scissor skirt must be removed before lubrication.

Make sure the scissor skirt is properly replaced before the scissor lift is used again.

The lubrication points are located:

- On all of the scissor mechanism's hinged points.
- In the shafts used to attach the scissor mechanism and the lifting cylinder to the bottom carriage (both sides).
- On the swivel axles.
- On the hinged points of the moving part and the fixed part of the oscillating axle.
- On the prop plates' joints.
- On the moving parts of the platform's extending mechanism.



**Lubrication points**

### 8.2.3 Tightening torques

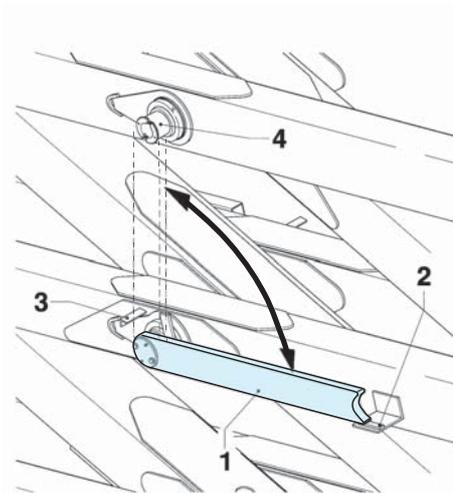
Bolt connection	Tightening torque
Swivel axle's drag rod	41 Nm
Control cylinder on the drag rod	41 Nm
Control cylinder on the bottom carriage	60 Nm
Wheel nuts	250 Nm
Gear casing on the swivel axles	200 Nm
Gear casing on the rear axle	210 Nm
Fixed part of the rear axle on the bottom carriage	390 Nm
Oscillating axle's shackle pin	240 Nm
Prop cylinder's assembly links	300 Nm

## 8.3 Maintenance procedures

### 8.3.1 Installing and removing the safety brackets

#### Introduction

The safety brackets prevent people from becoming trapped in the scissor mechanism when carrying out work on the scissor lift.



**Safety bracket**

1. Safety bracket
2. Lock bolt
3. Stop
4. Axle stump

### Installing the safety brackets

1. Make sure there is no load on the platform.
2. Make sure the scissor mechanism is opened far enough so that the safety brackets (1) can be installed.
3. Remove the lock bolts (2).
4. Rotate the safety brackets a quarter of a turn upwards as far as the stops (3).
5. Lower the platform until the scissor axle stumps (4) fall into the recess in the brackets.

### Removing the safety brackets

1. Raise the scissor mechanism slightly so that the safety brackets come free.
2. Rotate the safety brackets a quarter of a turn back into the rest position.
3. Use the lock bolts to lock the safety brackets.

## 8.3.2 Topping up the hydraulic system



### Note!

Only top up the hydraulic system with Shell Tellus T32.

- Fill the tank to half of the volume indicated on the gauge glass.

## 8.3.3 Lubrication



### Note!

Only use EP NLGI-kl.2 + Teflon® (< 2% drying agent) grease to lubricate the scissor lift. The warranty will no longer be valid if grease with a different composition is used.

1. Fit the safety brackets.
2. Use the optional automatic lubrication system or manually spray the correct quantity of grease into all of the indicated lubrication points until it escapes from behind the washers.
3. Carefully remove any excess grease.

## 8.3.4 Check the tilt safety device

- Press the top edge of the tilt safety device.
  - A warning signal should be heard.

## 8.3.5 Inspecting the scissor mechanism

The scissor mechanism's hinged points must be checked for play, wear and damage by an expert every five years. A hinged point will be rejected if one or more of the following rejection criteria apply to the shaft or the bearing.

### Rejection criteria:

- The shaft or the bearing has visible damage.
- The surface of the shaft or the bearing has a roughness greater than 1 µm.
- The chrome layer on the shaft or the bearing is damaged.
- The depth of the bearing's grease chamber is less than 0.40 mm.
- The shaft or the bearing is not sufficiently lubricated.
- The shaft or the bearing has become stuck.

- The play between the shaft and the bearing is greater than the specified limit (see table).

Shaft diameter (mm)	Clearance F7 (μm)	Bearing diameter (mm)	Clearance H9 (μm)
120 f7	-43 -83	120 H9	+100 0
110 f7	-36 -71	110 H9	+87 0
100 f7	-36 -71	100 H9	+87 0
90 f7	-36 -71	90 H9	+87 0
75 f7	-30 -60	75 H9	+74 0
60 f7	-30 -60	60 H9	+74 0

## 9 Rectifying faults

Fault	Possible cause	Action
The scissor lift can no longer be turned on.	The main switch has not been turned on.	Turn on the main switch.
	The emergency stop button has been pressed.	Pull out the emergency stop button and wait 10 seconds.
	There is a short circuit or a fuse has blown.	Trace the cause and replace the fuse.
The diesel engine runs, but the scissor lift does not work.	The hydraulic pump does not work, so the hydraulic system cannot build up any pressure.	Contact the technical services department.
	The oil level in the hydraulic system is too low.	Top up the hydraulic system.
	The hydraulic system's pump is broken.	Replace the hydraulic system's pump.
The scissor lift cannot be driven with a raised platform or the platform cannot be raised.	The maximum tilt has been exceeded and the tilt safety device has been activated.	Lower the platform and make sure the scissor lift is on a level surface.
The platform cannot be raised or lowered.	The platform has been overloaded and the overload safety device has been activated.	Reduce the load on the platform or follow the emergency descent procedure.
The scissor lift cannot be driven at a fast speed.	The platform is at a height of more than 4 metres.	Lower the platform to a height of less than 4 metres.
The scissor lift cannot be driven.	The platform is at a height of more than 8 metres.	Lower the platform to a height of less than 8 metres.
The platform cannot be lowered.	A safety bracket is blocking the scissor mechanism.	Remove the safety bracket.
	The electrical system has cut out.	Use the emergency descent valve to lower the platform and check the electrical system.
Fault cannot be rectified.		Contact the manufacturer ( <b>Holland Lift International B.V.</b> ).

## 10 Disposal

### 10.1 Introduction

The scissor lift must be disposed of in an environmentally-friendly manner. For example:

- Trade in the scissor lift when purchasing a new scissor lift.
- Dispose of the scissor lift at a specialist processing company.

### 10.2 Disposal procedure

1. Remove the batteries.
2. Remove the oil from the hydraulic system.
3. If necessary, remove the parts that can be reused.
4. Give the battery, oil and the parts that cannot be reused to a specialist processing company.

## 11 Technical specifications

### 11.1 Technical specifications for HL-190 D25 4WD/P/N / B-165DL25 4WD/P/N

For use in enclosed spaces	No, unless the exhaust fumes are extracted.
For use outdoors	Yes
Max. wind speed	12.5 m/s
Working height (with stabiliser legs)	± 18.9 m
Working height (without stabiliser legs)	± 18.7 m
Max. platform height (with stabiliser legs)	± 16.9 m
Min. platform height	2.23 m
Extendable platform (retracted)	4.50 x 2.30 m
Unidirectional extendable platform (extended)	7.00 x 2.30 m
Platform extension	2.50 m
Transport dimensions (l x w)	4.84 x 2.44 m
Transport height with railings	3.39 m
Transport height with hand rail folded away	2.62 m
Wheel base	3.08 m
Ground clearance (middle)	270 mm
Turning circle (external)	Approx. 4.90 m
Terrain tyres (Solideal)	33 x 15.5 - 16.5
Power source	Hatz 2L41C Diesel
Max. load with retracted platform	1000 kg (2 pers. + 840 kg)
Max. load with extended platform	1000 kg (2 pers. + 840 kg)
Lift/descent time (max. load)	Approx. 72   48 sec.
Driving speed (fast)	3.2 km/h
Driving speed (slow)	0.5 km/h
Climbing capacity (platform lowered)	Approx. 30%
Max. longitudinal/crossways tilt	3° / 3° (mobile up to 8 metres, select position "0")
Max. longitudinal/crossways tilt	1° / 1° (mobile up to 16.5 metres, select position "1")
Own weight	11,390 kg
Max. wheel pressure (at max. tilt and max. height)	9,497 kg (11.4 kg/cm <sup>2</sup> )
Max. prop pressure	17.3 kg/cm <sup>2</sup> (Ø 250 mm)
Max. prop plate pressure	4.5 kg/cm <sup>2</sup> (400 x 400 mm)
Max. towing speed	3.2 km/h (0.89 m/s)

## 11.2 Technical specifications for HL-220 D25 4WD/P/N / B-195DL25 4WD/P/N

For use in enclosed spaces	No, unless the exhaust fumes are extracted.
For use outdoors	Yes
Max. wind speed	12.5 m/s
Working height (with stabiliser legs)	± 21.9 m
Working height (without stabiliser legs)	± 21.7 m
Max. platform height (with stabiliser legs)	± 19.9 m
Min. platform height	2.49 m
Extendable platform (retracted)	4.50 x 2.30 m
Extendable platform (extended)	7.00 x 2.30 m
Platform extension	2.50 m
Transport dimensions (l x w)	4.84 x 2.44 m
Transport height with railings	3.65 m
Transport height with hand rail folded away	2.88 m
Wheel base	3.08 m
Ground clearance (middle)	270 mm
Turning circle (external)	Approx. 4.90 m
Terrain tyres (Solideal)	33 x 15.5 - 16.5
Power source	Hatz 3L41C Diesel
Max. load with retracted platform	750 kg (2 pers. + 590 kg)
Max. load with extended platform	750 kg (2 pers. + 590 kg)
Lift/descent time (max. load)	Approx. 95   45 sec.
Driving speed (fast)	2.8 km/h
Driving speed (slow)	0.5 km/h
Climbing capacity (platform lowered)	Approx. 30%
Max. longitudinal/crossways tilt	3° / 2° (mobile up to 8 metres, select position "0")
Max. longitudinal/crossways tilt	1° / 1° (mobile up to 19.5 metres, select position "1")
Own weight	11,990 kg
Max. wheel pressure (at max. tilt and max. height)	9,523 kg (11.2 kg/cm <sup>2</sup> )
Max. prop pressure	17.3 kg/cm <sup>2</sup> (Ø 250 mm)
Max. prop plate pressure	5.0 kg/cm <sup>2</sup> (400 x 400 mm)
Max. towing speed	2.6 km/h (0.72 m/s)

## 12 EC Declaration

This EC Declaration applies to the scissor lifts produced after 29 January 2015.

**HOLLAND LIFT**

### **EC DECLARATION OF CONFORMITY**

(In accordance with the Machinery Directive 2006/42/EC, annex II, sub a.)

**HOLLAND LIFT INTERNATIONAL B.V.  
ANODEWEG 1  
1627 LJ, HOORN, THE NETHERLANDS**

Declares that:

**Scissor lift series B**  
**Type: HL-190 D25 4WD/P/N / HL-220 D25 4WD/P/N**  
**B-165DL25 4WD/P/N / B-195DL25 4WD/P/N**  
**Machine number: HL190.... / HL220....**  
**B165.... / B195....**

- Complies with the stipulations of the machinery directive; **2006/42/EC**
- Complies with the stipulations of the following additional European Directives:  
**EMC Directive; 2004/108/EC**  
**Noise Emission Directive; 2000/14/EC**  
**Low-voltage Directive; 2006/95/EC**
- Complies with the stipulations of the following harmonised European standards:  
**EN 280:2001+A2:2009, EN-ISO 12100-1:2003, EN-ISO 12100:2010,**  
**EN 349:1+A1:2008, EN-ISO 13850:2008, EN-IEC 60204-1:2006+A1:2009,**  
**EN-IEC 60529:1 1992+A1:2000, EN-IEC 60947-5-1-2004**

HOORN, .....

.....  
Managing Director

Holland Lift International B.V.  
Anodeweg 1  
PO Box 2321  
1620 EH HOORN (THE NETHERLANDS)  
Telephone : \*\*-31-(0)229-285555  
Website : www.hollandlift.com