

Operating Instructions

for the HESTAL roof height adjustment system

LiftMaster 770N (version from 2019)

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1. General information

The HESTAL *LiftMaster 770N* is a mechanical device for raising and lowering commercial vehicle roofs in order to utilise the full volume of the load compartment and facilitate the loading and unloading procedure. The HESTAL *LiftMaster 770N* is equipped with a lift arrest for driving mode with different roof positions.

2. Regulations

The following regulations and directives must be observed:
 DGUV Regulation 1 "Accident Prevention Regulation - Principles of Prevention" (formerly BGV A1)
 DGUV Regulation 70 "Vehicles" (formerly BGV D 29)
 DGUV Principles 314-002 "Monitoring of Vehicles by Driving Personnel" (formerly BGG 915)
 DGUV Principles 314-003 "Inspection of Vehicles by Experts" (formerly BGG 916)
 DGUV Rules 109-009 "Vehicle Maintenance" (formerly BGR 157)
 StVZO (German Road Traffic Ordinance)
 VDI Directive 2700 "Securing of Loads on Road Vehicles"
 Assembly guidelines of the vehicle manufacturer

3. Important information

Any modification of the HESTAL *LiftMaster 770N* or deviation from the operating instructions shall render any form of liability null and void!

Compliance with the operating instructions will ensure the proper functioning of the HESTAL *LiftMaster 770N*.

For reasons of functional, traffic and occupational safety, it is permissible to combine only the HESTAL parts shown here!

Driving with raised roof is only permissible using the lift arrest (supported by the arrest saddle) and up to max. 300 mm lift depending on the version! The central pillars must also be pitched corresponding to the selected roof position.

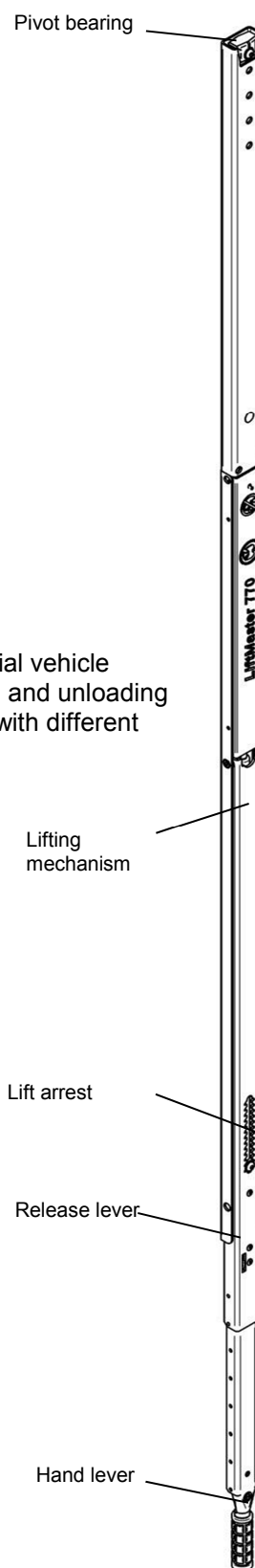


Figure 1

4. Technical description of the system

The HESTAL *LiftMaster* 770N is used to raise the roof of a commercial vehicle superstructure continuously at each corner by 300, 400 or 500 mm via a toggle lifting mechanism. The drive is achieved manually using a swivelling hand lever in several individual lifts with up to 50 mm inclination of the roof per individual lift. The raised roof is secured by a blocking element in each position.

Driving mode with vehicle roof raised up to 300 mm is possible using the lift arrest. The maximal possible roof position depends on the type of LiftMaster used.

However, the max. permissible total vehicle height of 4.0 m must not be exceeded!
(See StVZO §32 Para. 2)

The roof is lowered by closing the hand lever.

When the roof is fully lowered, it is positioned in driving mode interlocking on the guiding channel of the HESTAL *LiftMaster* 770N, thereby relieving the toggle lifting mechanism. The hand lever is also secured by a spring element against unintentionally swinging out.

5. Versions

With lift arrest 120 mm: *LiftMaster* 770N, 300 mm lift 6.810.179.00
LiftMaster 770N, 400 mm lift 6.810.168.00
LiftMaster 770N, 500 mm lift 6.810.169.00

With lift arrest 170 mm: *LiftMaster* 770N, 500 mm lift 6.810.183.00

With lift arrest 300 mm: *LiftMaster* 770N, 500 mm lift 6.810.199.00

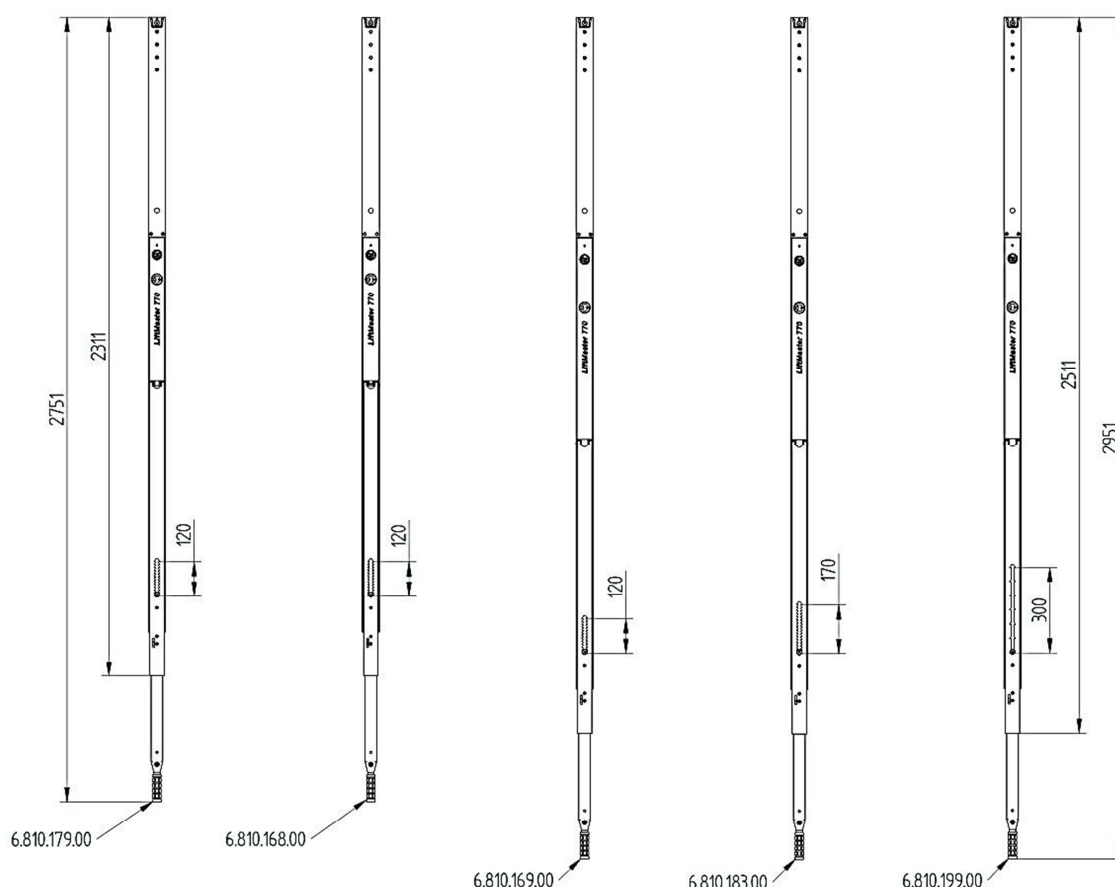


Figure 2, Overview of the different LiftMaster variants

6. Raising and lowering the vehicle roof

Raising:

Grip the handle of the hand lever (see Figure 1) and pull out of the holder against the spring force. As soon as it is fully swivelled out of the holder, the roof can be raised.

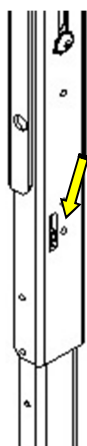


Figure 3

Pull hand lever towards your body, the vehicle roof is raised. Each individual lift is max. 40 mm, but can be interrupted at any time! Then swivel the hand lever back and pull it towards your body again. This process can be repeated until the desired roof position or the maximum roof lift is reached (see lift display).

After reaching the maximum roof lift, the mechanism is protected against overload by a free run, i.e. further hand lever swivel movements do not raise the vehicle roof any further.

After completing the raising process, the hand lever must be swivelled back and inserted loosely into the U-profile!

If it is necessary to close the hand lever completely when the roof is raised during the loading process, the part of the release lever protruding at the front must be pressed in at the same time. (see Figure 3) In this way, the lowering mechanism is deactivated until the next opening procedure.

Lowering:

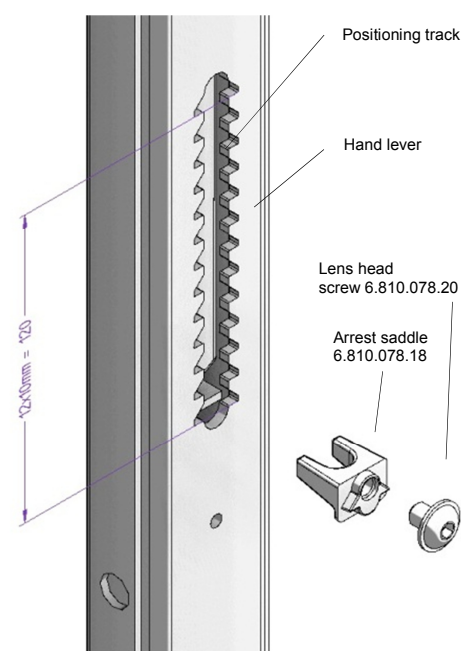
Close the hand lever completely against the spring force of the securing clamp, the vehicle roof lowers at the lowering speed set by the vehicle manufacturer. The lowering process can be interrupted at any time by opening the hand lever again.

Before closing the hand lever a minimum lift must take place in order to make space for the arrest saddle again. (Depending on the roof weight, the cylinder casing lowers up to 2 mm depending on the system, until the internal hydraulic blocking occurs)

7. Adjusting the lift arrest

The lift arrest can be used to pre-select the lowered position of the vehicle roof and thus increase the clear inner height of the load compartment by min. 10 mm to max. 300 mm (10 mm grid as standard at +120 mm and +170 mm ride height, at +300 mm ride height in 50 mm grid). A hexagon key (SW 5) is required for the adjustment. The arrest saddle (positioning bumper) should be adjusted as described below:

Open hand lever and raise vehicle roof by min. 150 mm.
Loosen lens head screw while the hand lever is open using the hexagon key (SW 5) and unscrew 4 to 5 mm.
Pull arrest saddle inwards out of the positioning track (screw flange is supported again).
Push arrest saddle inside the track into the desired position and press from inside into the positioning track of the hand lever.
Tighten lens head screw hand-tight.
Swivel hand lever back and close until it engages (releases the lowering mechanism).
The vehicle roof lowers as far as the bumper of the mechanism on the arrest saddle.
Tighten the lens head screw using the hexagon key.
The plug-in unit of the central pillars must then be adjusted!

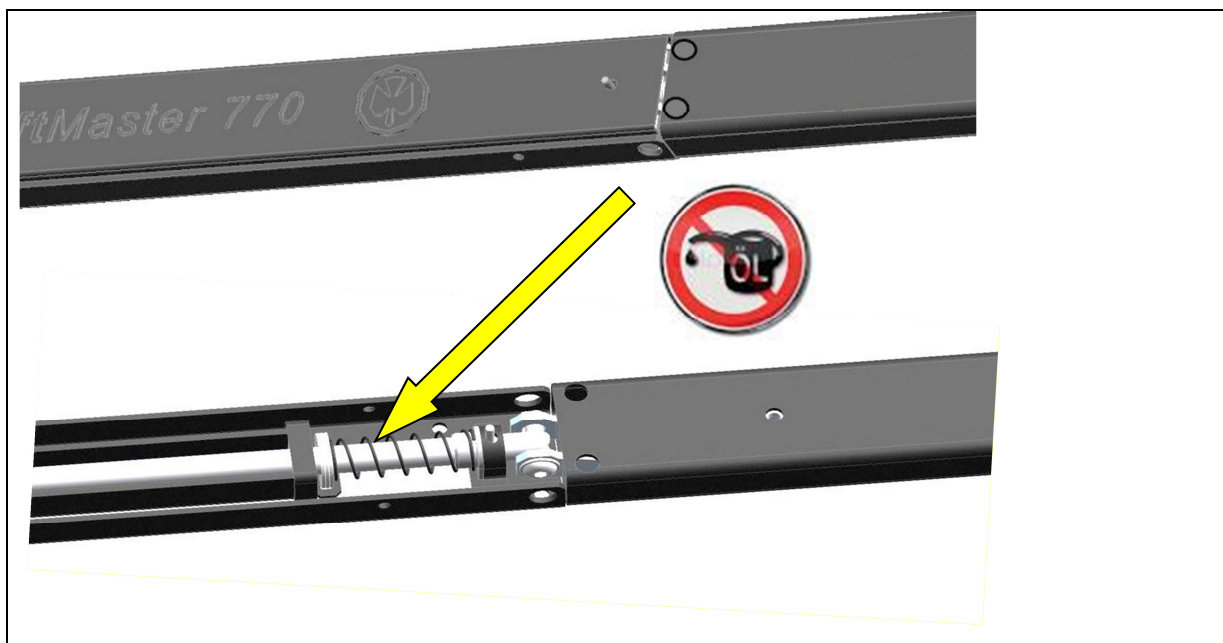


8. Maintenance

The HESTAL *LiftMaster* 770N must be serviced periodically depending on use and time, but at least once a year (lubrication, poss. replacement of wear parts).

Only HESTAL original parts may be used for this.

See also DGUV Regulation 70 "Vehicles" as well as DGUV Rules 109-009 "Vehicle Maintenance"



If, despite careful manufacturing and test procedures, the product malfunctions, repair may only be performed by the vehicle manufacturer or by a specialist company authorised by the manufacturer and only by qualified personnel.

If the vehicle roof can no longer be raised or the vehicle roof does not stay in the raised position, the lifting mechanism assembly is defective. This wear part can be fully replaced or repaired with the spare part set.

Proceed as follows for full replacement of parts:

Secure lifting mechanism assembly to the corner pillar with at least two screw clamps to prevent it from falling down.

Drill out the blind rivet of the lifting mechanism assembly (8 pieces) from the load compartment side and remove.

Loosen screw clamps - **Attention:** the lifting mechanism assembly may fall down - and remove lifting mechanism.

Mount new lifting mechanism assembly as described in Chapter 13 of the installation instructions 6.810.168.45.

The hand lever assembly (see system overview) can continue to be used on the new lifting mechanism assembly

Alternatively, the following spare part sets can be used:

For a *LiftMaster* with 300 mm lift: 6.850.042.03

For a *LiftMaster* with 400 mm lift: 6.850.042.04

For a *LiftMaster* with 500 mm lift: 6.850.042.05

The use of these sets is described in the separate instructions 6.810.085.47.

9. Notes on operation

The HESTAL *LiftMaster* 770N may only be operated by trained personnel!
(See DGUV Regulation 70 "Vehicles")

An appropriate high-visibility jacket must be worn in moving traffic!

The rear and front doors must be opened!

The tarpaulin closures must be opened!

The side tarpaulin should only be pushed together after lifting, and spread out before lowering!

Central pillars with telescope should be locked in the designated attachment points on the vehicle frame.

Central pillars without telescope must be unlocked (opened) before raising the roof!

Additional loads such as snow, ice etc. must be removed before operation owing to the risk of slipping!

A clearance of min. 0.6 m must be available above the vehicle superstructure!

During activation of the HESTAL *LiftMaster* 770N and when the vehicle roof is raised, the load compartment and opposite side of the vehicle are considered hazard zones! It must be ensured that there are no persons in these areas!

(See also DGUV Regulation "Vehicles" BGV D29 §38)



The vehicle roof must be lowered again immediately after loading or unloading!

Operation of the HESTAL *LiftMaster* 770N with defective or modified components is not permissible!

Raising the vehicle roof with external aids (forklift, crane or similar) is not permissible!

Use of the HESTAL *LiftMaster* 770N to lift external loads is not permissible!

The height of the load must not exceed the clear inner height of the load compartment, as otherwise the roof cannot be fully lowered!

Before starting any journey, make sure that ...











- **the vehicle roof is fully lowered and correctly positioned (see lift display)!**
- **the hand levers are fully closed and engaged!**
- **the central pillars are locked in the designated attachment points!**
- **the tarpaulin closures are closed properly!**

Driving with raised roof is only permissible up to max. 300 mm lift and with support by the arrest saddle, depending on the version! The central pillars must always also be pitched corresponding to the selected ride height. The max. permissible total vehicle height of 4.0 m must not be exceeded! (See StVZO §32 Para. 2)

PLEASE NOTE:

The information presented here is based on data considered to be correct at the time of writing these installation instructions. However, no explicit or implicit claim is made to ensure or confirm the correctness or completeness of the data and safety information. No responsibility can be assumed for material damage or physical injury resulting from incorrect use or failure to comply with recommended application methods.

10. Detailed list of the individual components

No.	Designation	Drawing No.	Scope of delivery	Figure	Note
1	Guiding channel assembly for the LiftMaster: Lift 300 mm 6.810.179.00 Lift 400 mm 6.810.168.00 Lift 500 mm 6.810.169.00	6.810.078.59	1 piece		For attachment Ø 6.8 mm holes required
2	Guiding channel assembly for the LiftMaster: Lift 500 mm 6.810.183.00	6.810.067.59	1 piece		For attachment Ø 6.8 mm holes required
3	Guiding channel assembly for the LiftMaster: Lift 500 mm 6.810.199.00	6.810.194.59	1 piece		For attachment Ø 6.8 mm holes required
4	Lifting mechanism assembly	6.810.179.60 (300 mm lift) 6.810.168.60 (400 mm lift) 6.810.169.60 (500 mm lift) 6.810.183.60 (500 mm lift and 170 mm adjustment) 6.810.199.60 (500 mm lift and 300 mm adjustment)	1 piece		
5	Pivot bearing	6.810.078.55	1 piece		Included in the set of small parts ¹
6	Bolt Ø12x50	6.810.085.24	1 piece		Included in the set of small parts ¹
7	Lens head screw M8x10	6.810.078.20	1 piece		Included in the set of small parts ¹
8	Roll pin Ø8x50	6.060.019.05	1 piece		Included in the set of small parts ¹ ; Required if the thrust lug should not swivel out
9	Hand lever assembly	6.810.060.53	1 piece		For attachment Ø 6.8 mm holes required
10	Installation instructions	6.810.168.45	1 piece		See Hestal homepage
15	Operating instructions	6.810.168.46	1 piece		See Hestal homepage
18	Blind rivet	See installation instructions	Not included in scope of delivery (14 pieces required)		Appearance of actual product may vary

¹ Set of small parts: 6.810.085.81