

Installation instructions for the HESTAL roof height adjustment system **LiftMaster 771N** (version from January 2019)

These installation instructions are intended for vehicle operators and trained qualified personnel.
Do NOT have installation work carried out by laymen!
If you have any uncertainties or questions regarding installation, we will be glad to assist you over the telephone.

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1. General information

The HESTAL *LiftMaster 771N* 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 771N* is equipped with a lifting arrest for driving mode with different roof positions.

2. Technical description

2.1 Application area

The HESTAL *LiftMaster* 771N is used to raise the roof of a commercial vehicle superstructure at each corner in any increments up to 550 mm, by means of a single hydraulic pump. The drive is achieved manually using a swivelling hand lever in several single strokes, with up to 19 mm lifting of the roof per single stroke.

The lifted roof is secured in each position.

2.2 Basic instructions

Since lifting or lowering is done separately on every corner, the overall construction of the vehicle roof must be designed by the superstructure manufacturer in a way that prevents jamming or collisions.

The HESTAL *LiftMaster* 771N has a standard length of 2480 mm.

This product is designed for a lifting height of up to max. 550 mm in unrestricted increments and a roof weight of up to max. 1200 kg.

The roof weight is the sum of the weight of the roof structure, the entire tarpaulin(s) and all central pillars. (sum of the weights of all components to be lifted).

One HESTAL *LiftMaster* 771N (width 60 mm, depth 30 mm, each measured in the attachment area) is mounted in each of the corner pillars of the vehicle superstructure.

The doors of the rear frame must always be opened before lifting the vehicle roof.
Additional loads such as snow, ice etc. must be removed before operation owing to the risk of slipping!

The lowered roof should be secured with a positive-fit using appropriate technical measures.

All central pillars must be fitted with telescopes which permit a lighting height of up to 500 mm and are fitted with a pull-out brake or fall brake (e.g. HESTAL *VarioMaster* 900 or 901 with telescope).

The lighting height may not be mechanically limited by additional technical measures!

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

When in driving mode with the roof lifted, the hand lever must be engaged in the desired position of the plug-in unit.

Any modification of the HESTAL *LiftMaster* 771N or deviation from the installation or operating instructions shall render any form of liability null and void!



3. 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 "Load Securing on Road Vehicles"

Assembly guidelines of the vehicle manufacturer

4. System overview

For more detailed information, please refer to our homepage on the HESTAL *LiftMaster 771N* as well;

6.810.221.00 for the system with a plug-in unit in the 50mm grid and

6.810.231.00 for the system with a plug-in unit in the 60mm grid.

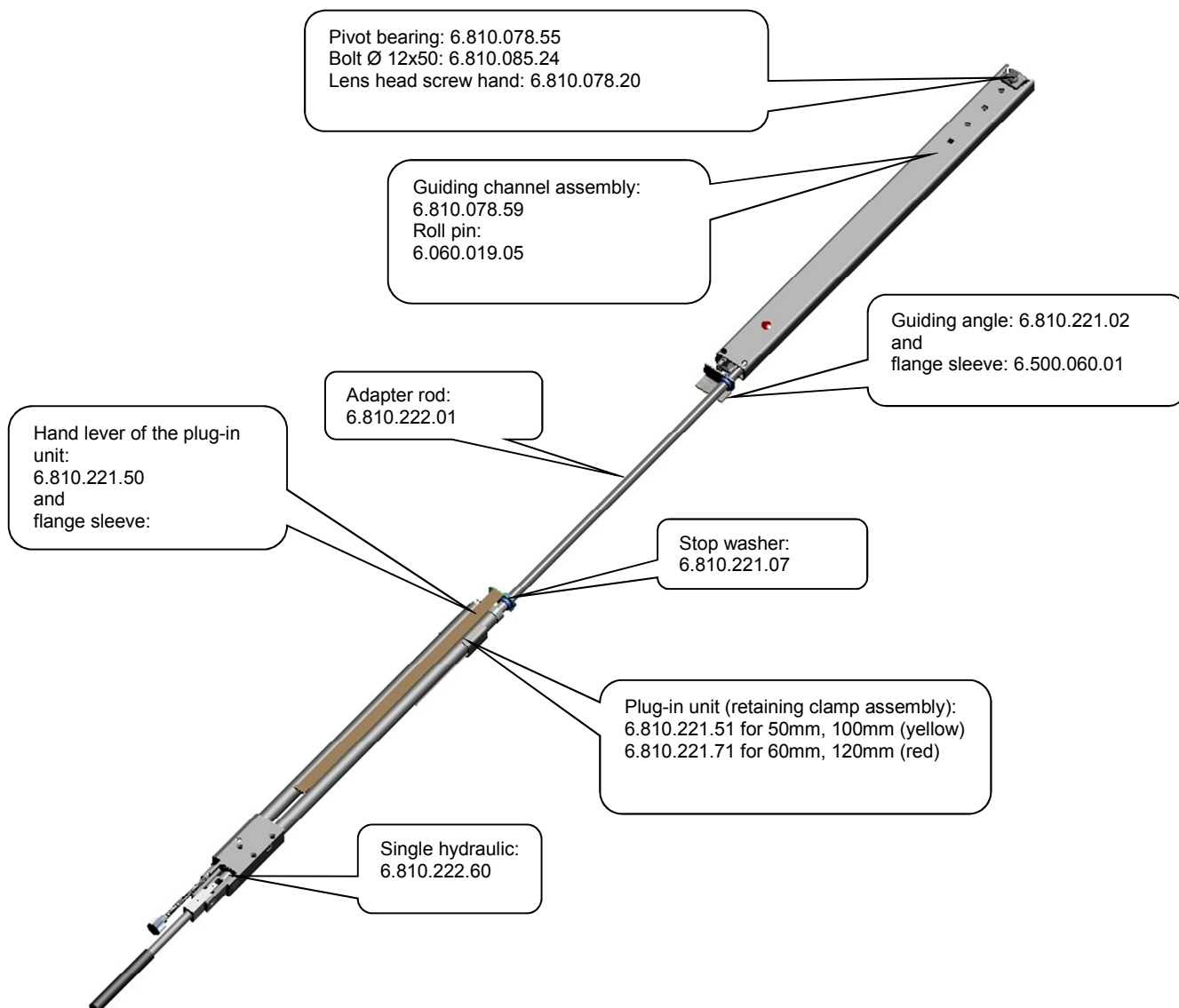
















Figure 1



No.	Designation	Drawing No.	Scope of delivery	Figure	Note
1	Guiding channel assembly	6.810.078.59	1 piece		For attachment Ø 6.8 mm holes required
2	Adapter rod	6.810.222.01	1 piece		
3	Guiding angle	6.810.221.02	1 piece		For attachment Ø 6.8 mm holes required
4	Flange sleeve 12mm	6.500.060.01	2 piece		
5	Stop washer	6.810.221.07	1 piece		
6	Lifting arrest (hand lever assembly, complete)	6.810.221.50	1 piece		
7	Retaining clamp	6.810.221.51, yellow (50mm grid) 6.810.221.71, red (60mm grid)	1 piece		For attachment Ø 6.8 mm holes required
8	Lifting mechanism assembly (single hydraulic)	6.810.222.60	1 piece		Attachment by means of M6 screws
9	Pine tree clip	6.810.221.11	1 piece		
10	Pivot bearing	6.810.078.55	1 piece		
11	Bolt Ø12x50	6.810.085.24	1 piece		
12	Lens head screw M8x10	6.810.078.20	1 piece		
13	Roll pin Ø8x50	6.060.019.05	1 piece		
14	Adhesive label for stroke scale	6.810.221.31 (50mm grid) 6.810.231.31 (60mm grid)	1 piece		

5. Drilling pattern in the corner pillars

To install the *LiftMaster* in the corner pillar profile, the corresponding fastening hole pattern must be inserted into the rear pillar beforehand. The hole diameter is 6.8 mm.

Depending on the type and property of the rear and bulkhead pillars, the horizontal position of the system, as shown in Figure 2, can be selected by the vehicle manufacturer. If the pillars have an approx. 60 mm wide channel, then the LiftMaster fits exactly in the centre of this channel.

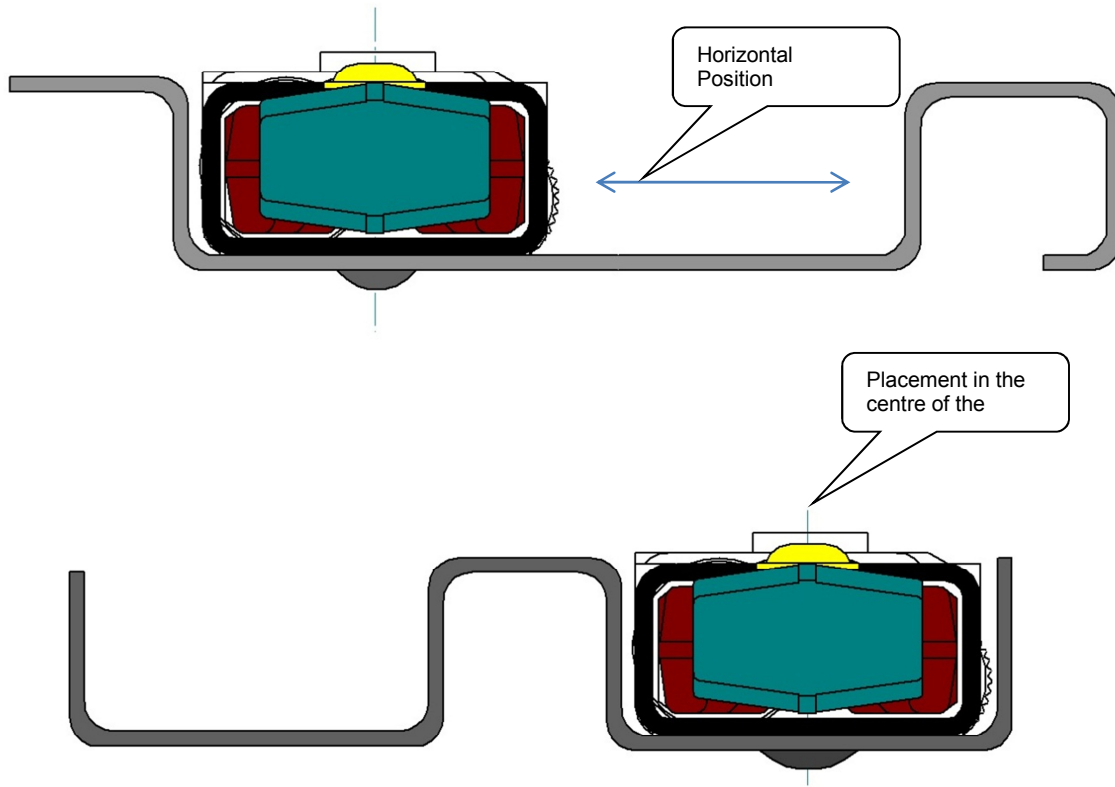
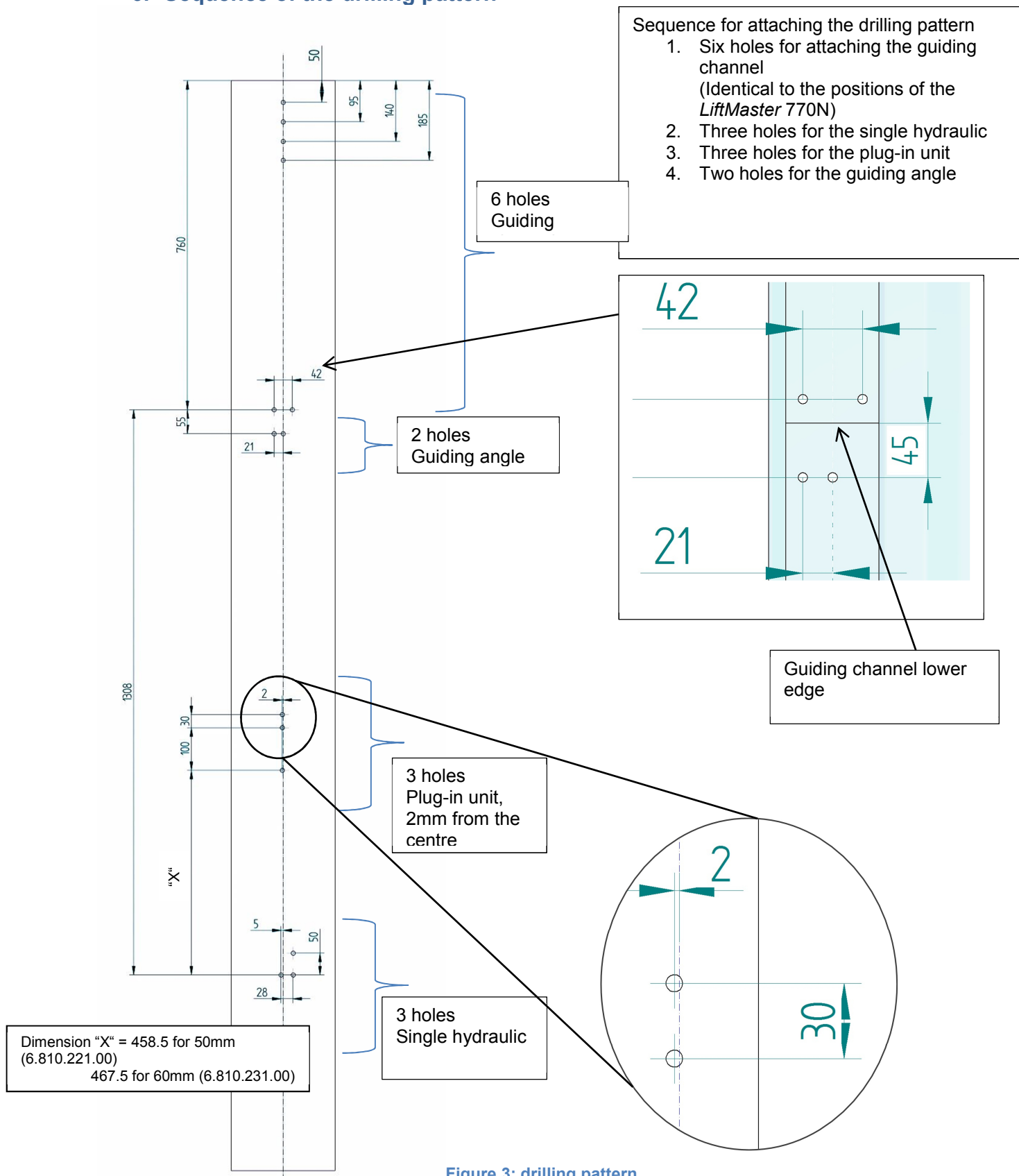


Figure 2

6. Sequence of the drilling pattern





The superstructure manufacturer can also select different respective dimensions for "X" should the first roof position deviate from +50 mm or +60 mm.

7. Assembly sequence

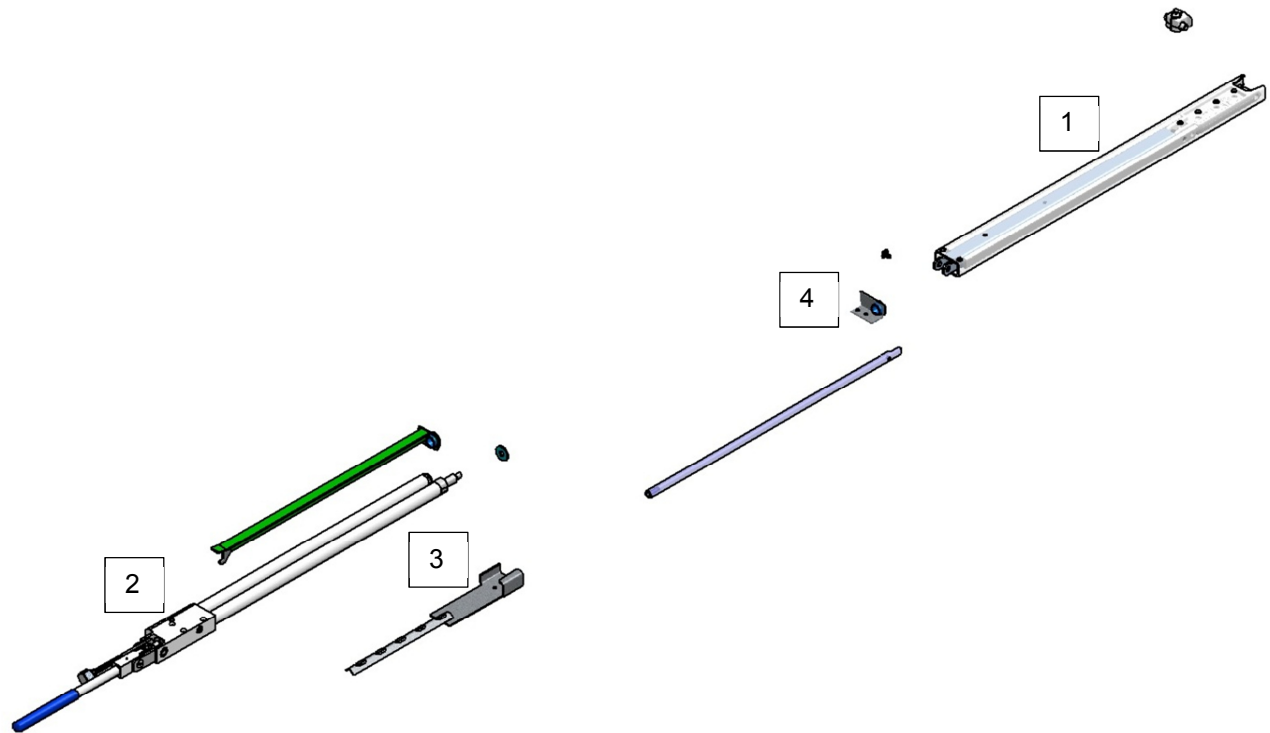


Figure 4: assembly sequence

For assembly on the vehicle, 11 blind rivets and 3 lens head screws M6x30 with a minimum strength of 8.8 are required. (The fixing material is not included in the scope of supply)

To attach the HESTAL *LiftMaster* 771N in the superstructure manufacturer's corner pillar profile, we recommend the blind rivet versions given in the table. When selecting blind rivets, the material thickness of the corner pillar profile (clamping length) and the desired head shape are critical; if a protrusion of the rivet head into the loading compartment is not desired, the listed blind rivets with countersunk heads can then be used (countersunk hole in corner pillar required).

Type designation	Clamping length	Mat. strength, corner pillar	Minimum strengths		Order No. Hesterberg
			Shear (N)	Tension (N)	
Blind rivet Ø6.5 x 16.3 steel/steel with truss head Ø13.1 x 2.6	6 mm	3 mm	12500	9000	6.800.040.23
Blind rivet Ø6.5 x 18.3 steel/steel with truss head Ø13.1 x 2.6	7 – 8 mm	4 - 5 mm	15000	9000	6.800.040.24
Blind rivet Ø6.4 x 13.5 steel/steel with (90°) countersunk head Ø10 x 2	6 – 7 mm	3 - 4 mm	10300	5490	On request
Blind rivet Ø6.4 x 15.5 steel/steel with (90°) countersunk head Ø10 x 2	8 – 9 mm	5 - 6 mm	10300	5490	On request

8. Installing the system

The first installation step is to weld the pivot bearing under the roof connection plate. The centre of the pivot bearing must be positioned so that it aligns with the guiding channel.

The roof connection plate (profile sheet) must be selected by superstructure manufacturer based on the roof design.

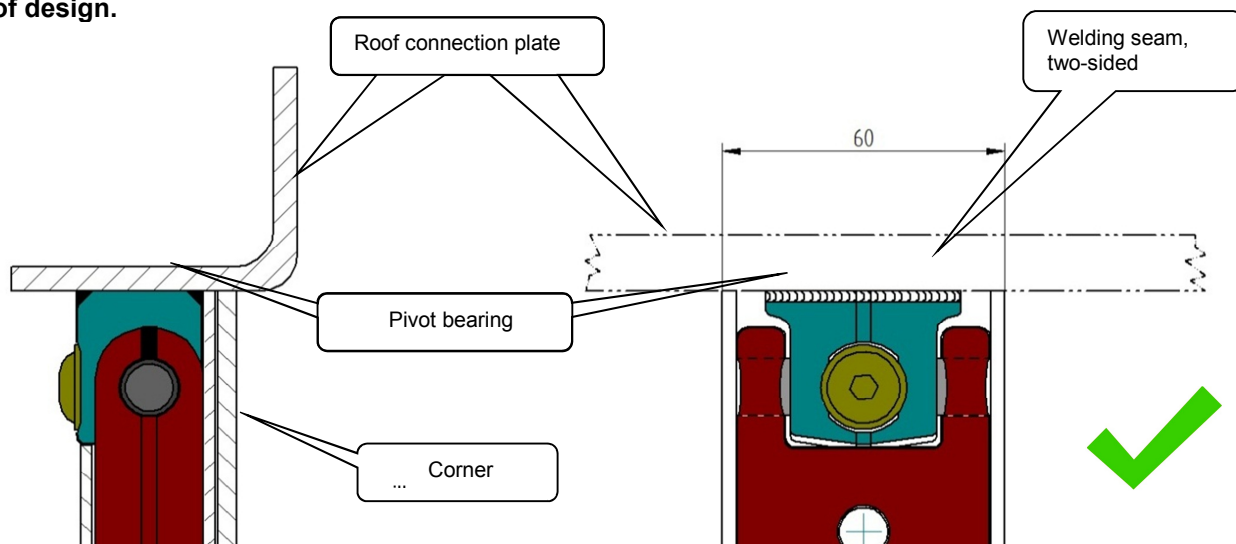


Figure 5

The next step you attach the guiding channel module which has a rivet version described in the table. 6 rivets are required.

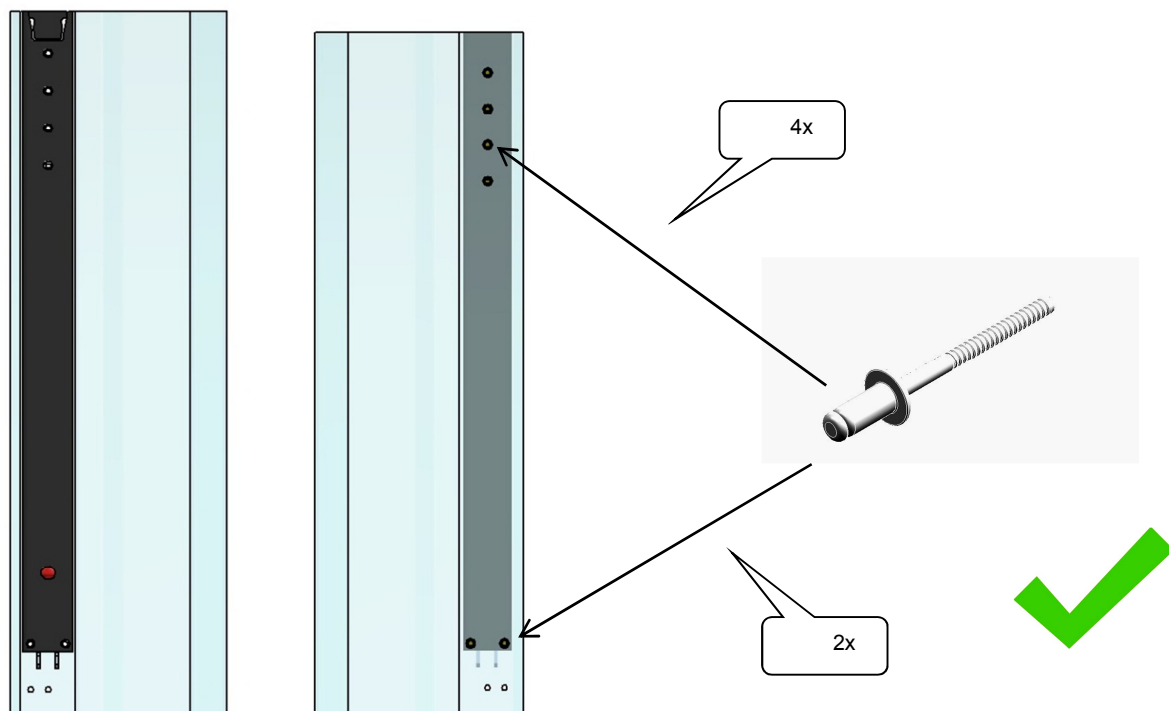


Figure 6



After assembly the guiding channel module, mount the guiding angle.

To do this, 2 blind rivets are likewise required. The supplied plastic bushing must be pressed into the Ø24 mm bore hole in the guiding angle.

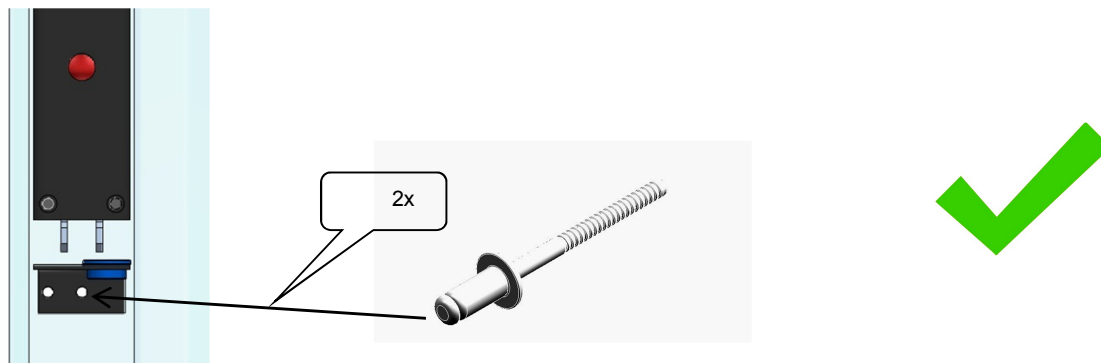


Figure 7

The retaining clamp module, which also contains the plug-in unit, must then be attached to the rear pillar. 3 blind rivets are required for this work step.

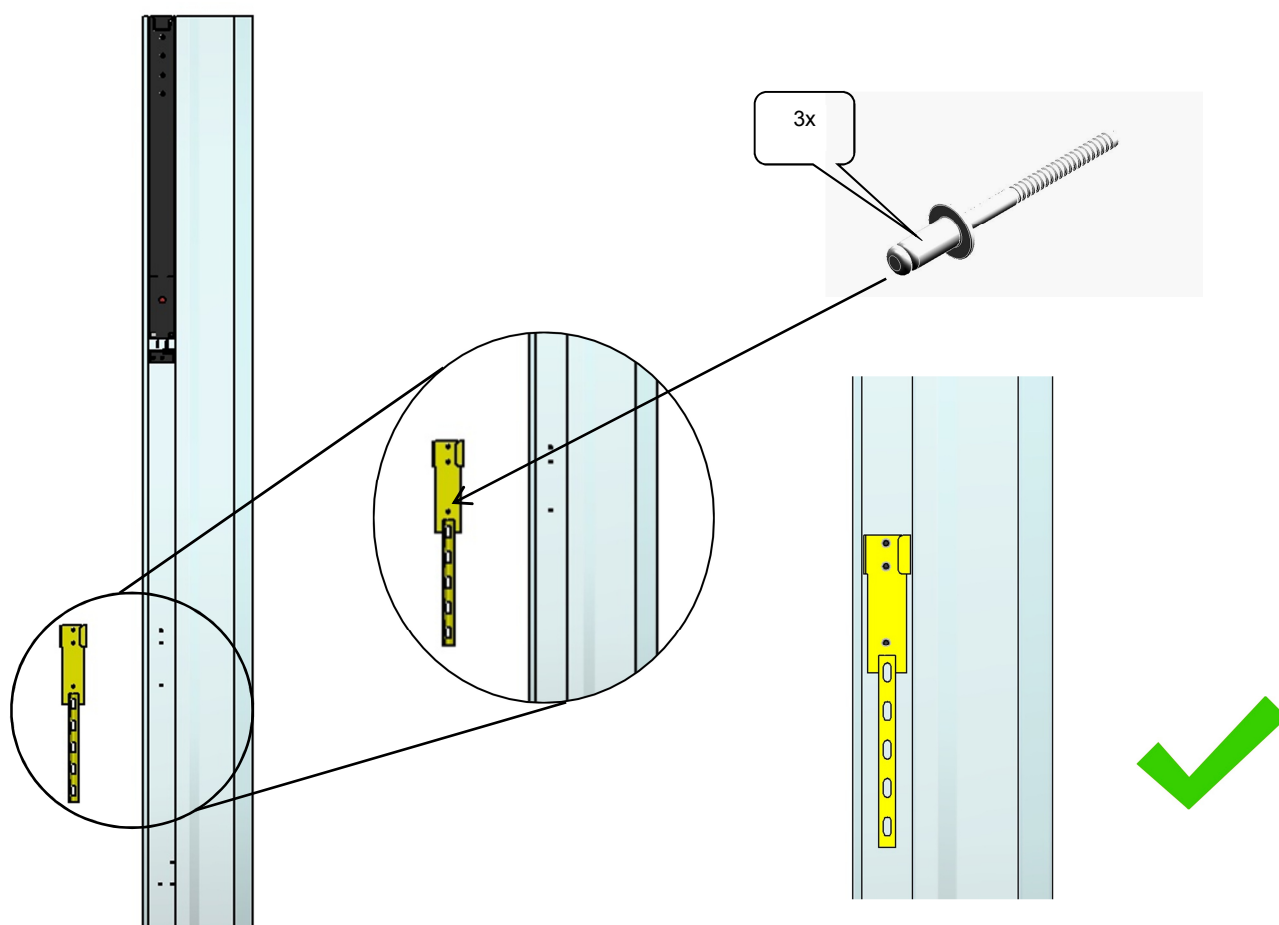


Figure 8

9. Assembling the LiftMaster system



Figure 9

The first step is to press the flange sleeve into the corresponding hand lever bore hole. Then slide the hand lever with the inserted flange sleeve over the cylinder pushrod. Then put the stop washer on the thread and unscrew the adapter rod.

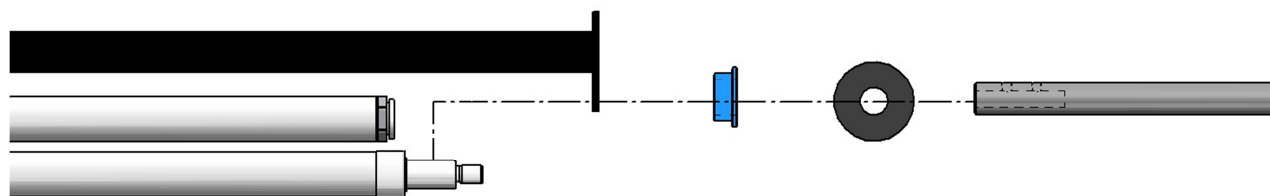


Figure 10

10. Installing the single hydraulic in the corner pillar

The single hydraulic is secured against unintentional activation by a factory installed wooden peg. It must be removed now. Then lift the mechanics into the channel and place it so that the fastening holes in the rear pillar align with the holes in the single hydraulic.

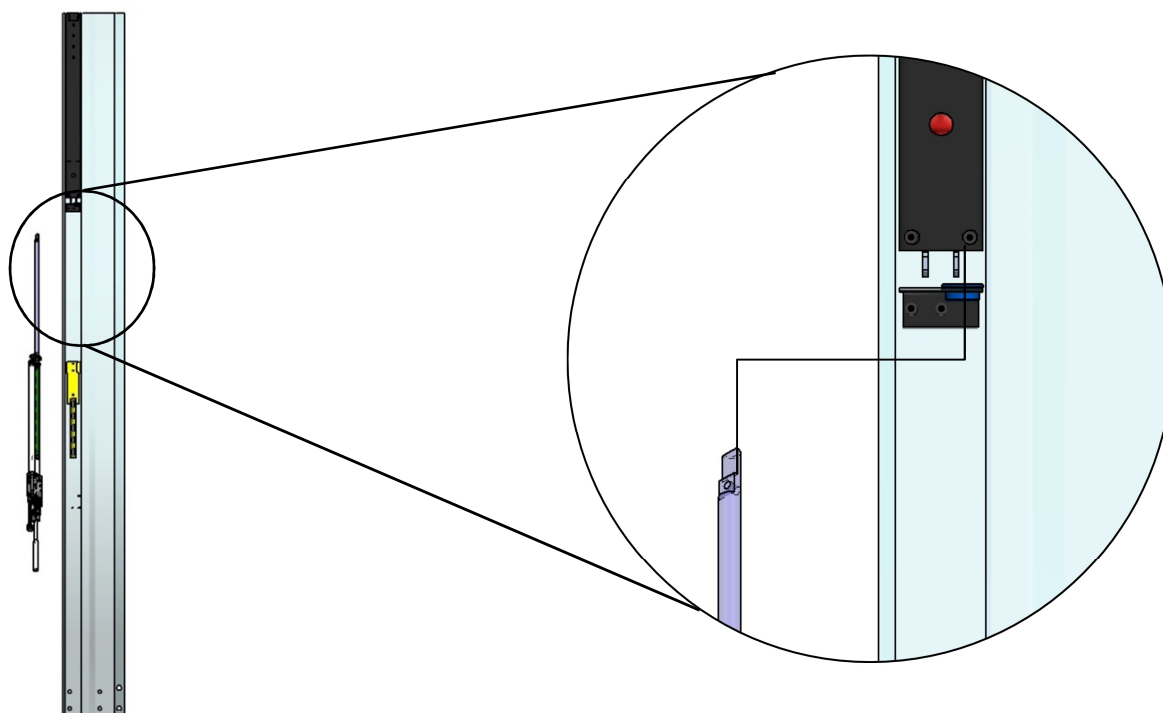


Figure 11

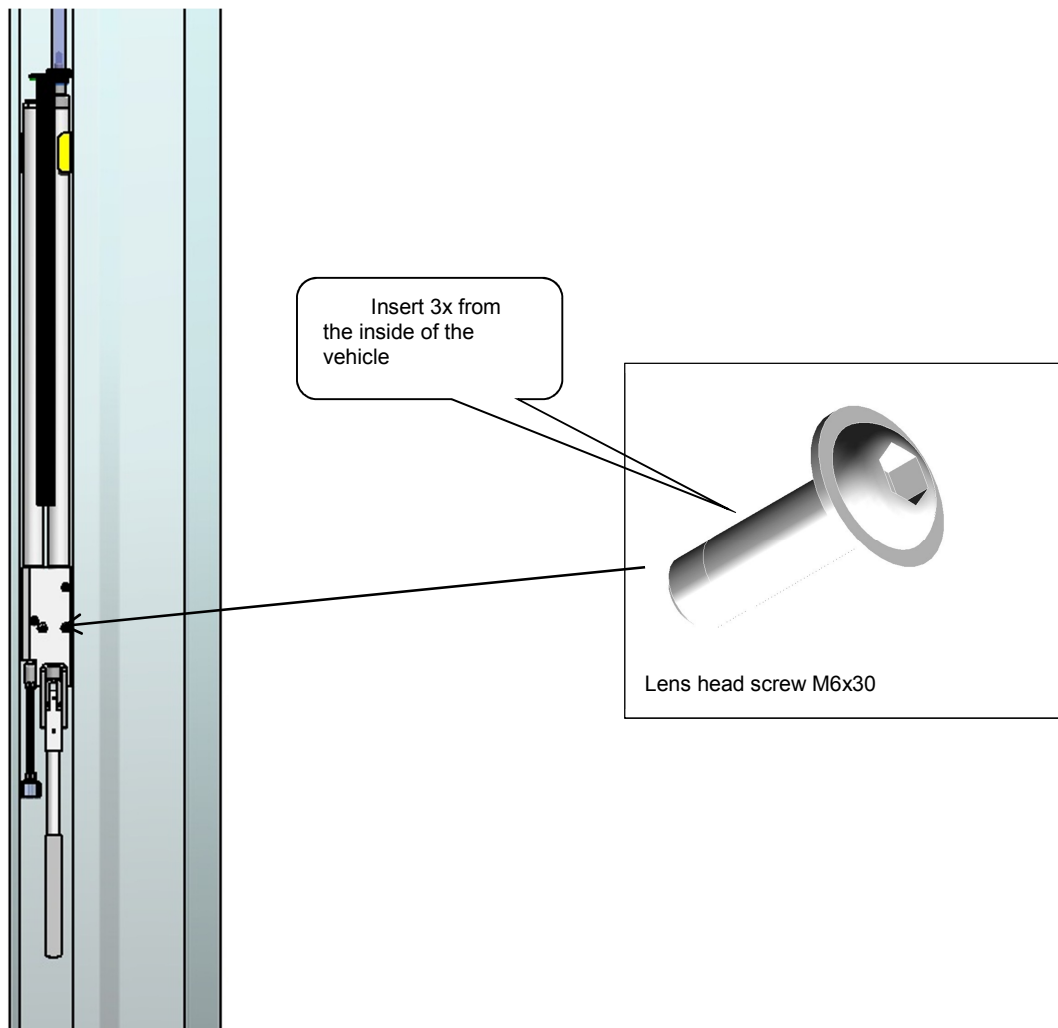


Figure 12

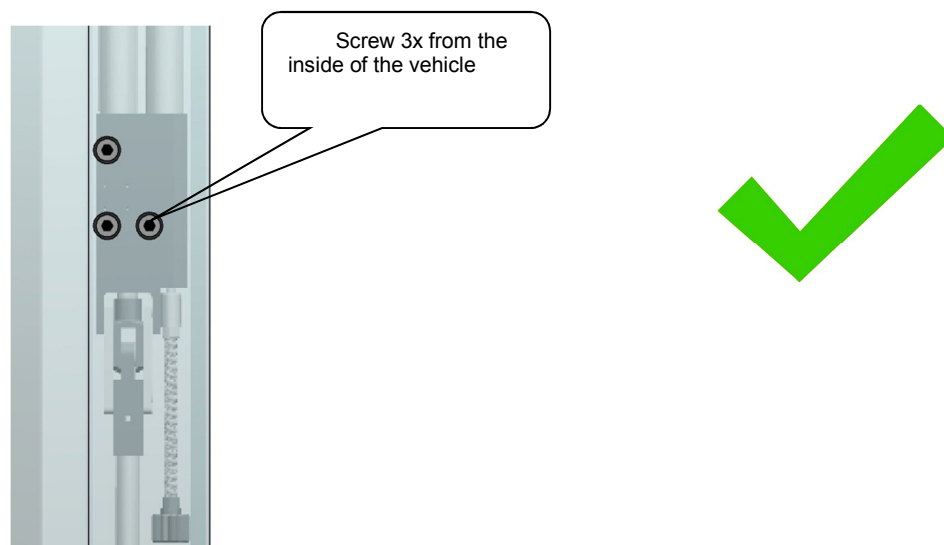


Figure 13

11. Venting the LiftMaster system

Since the system is topped up beforehand with oil, the hydraulic tank air vent must be opened after it is attached.

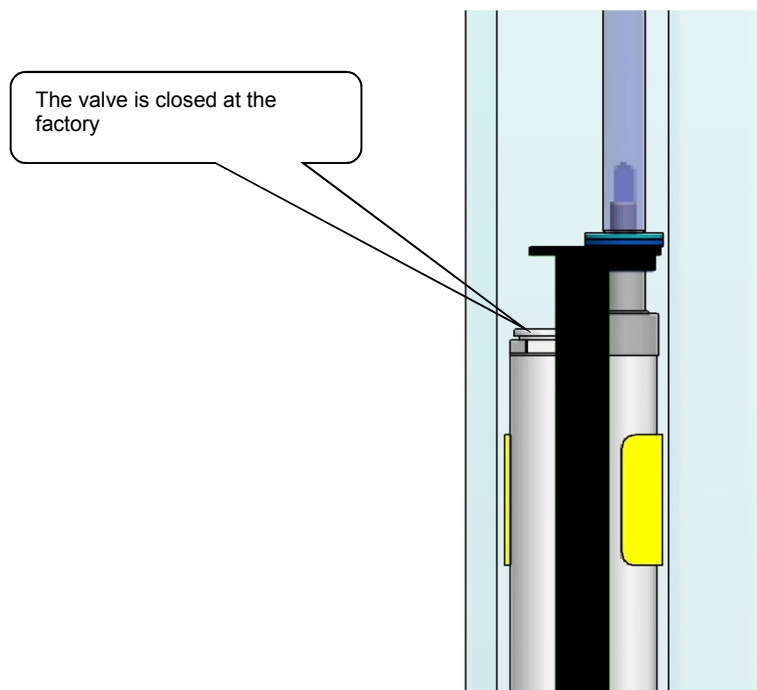


Figure 14

The air vent may only be opened after it has been installed on the vehicle.

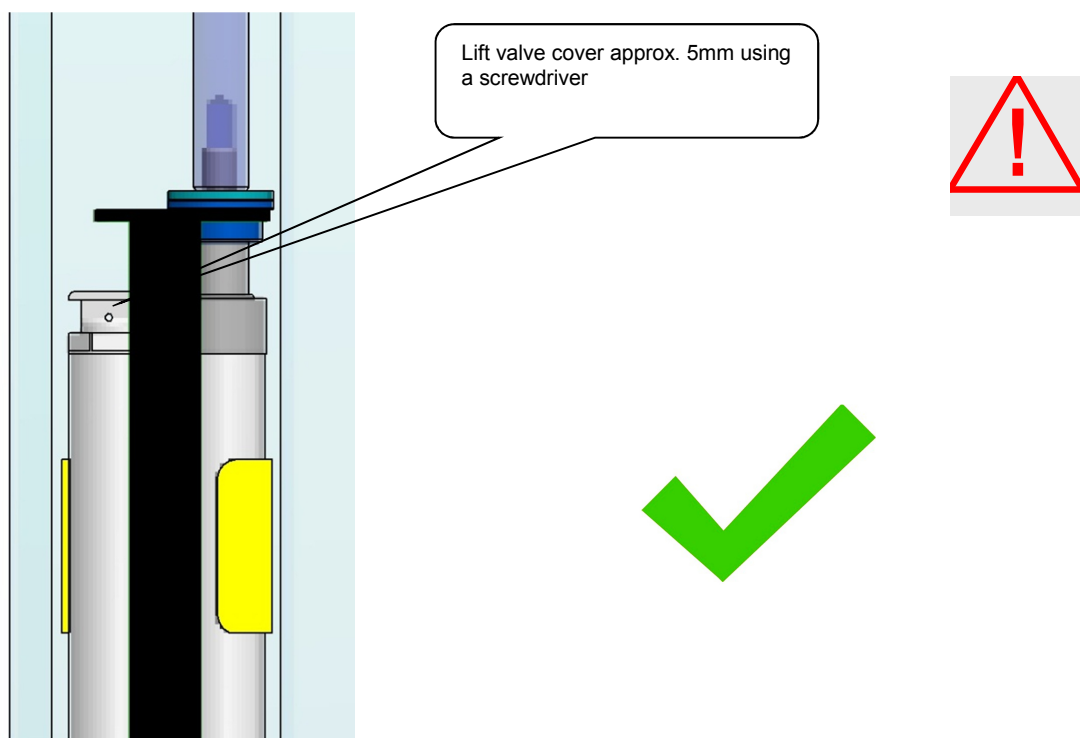


Figure 15

12. Connecting the adapter rod to the guiding channel

To connect the units, insert the supplied plastic nail as shown.

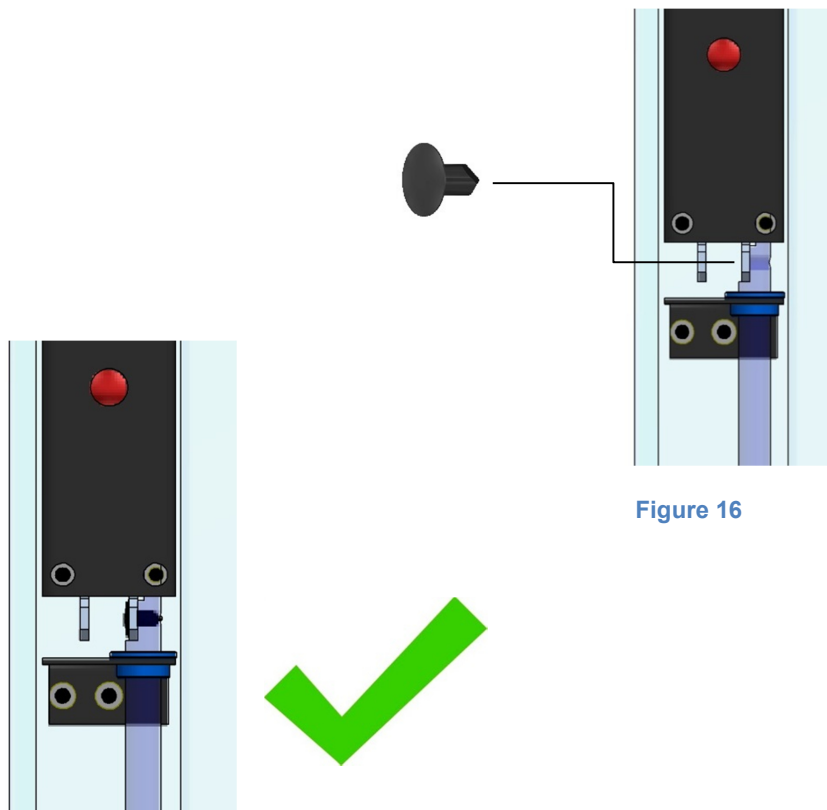


Figure 16

Figure 17

13. Assembling the second roll pin

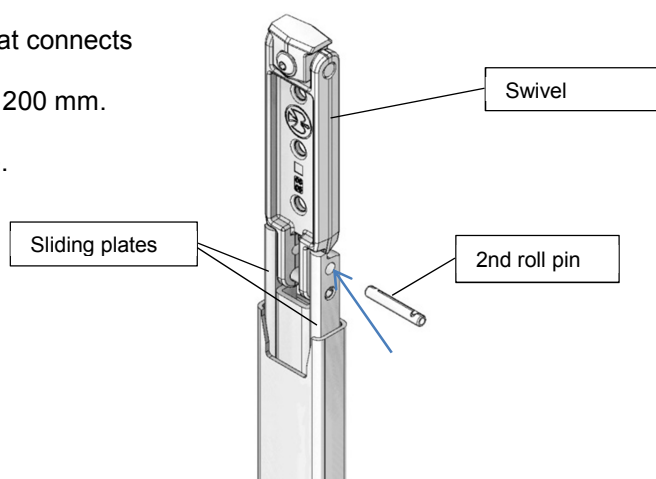
The last assembly step is to set the second roll pin that connects the swivel and sliding plates.

To do this, lift the roof over the hand lever by approx. 200 mm.

(Please note: the release valve must be closed)

Knock the second roll pin (6.810.067.59) into the side.

Release the roof again by opening the valve.



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.



14. Checklist for final inspection by the superstructure manufacturer

Assembly

- ☐ Only HESTAL genuine parts were used
- ☐ Lifting mechanism, pivot bearing and all pin and bolt connections were mounted according to the drawing
- ☐ Pivot bearing was positioned according to specifications
- ☐ Regulations and directives were observed
- ☐ HESTAL *LiftMaster* 771N was mounted on the side of the vehicle and underneath the side tarpaulin
- ☐ Corner load max. 300 kg (measurement or computational proof thereof)
- ☐ Central pillars with telescopic device and pull-out brake or fall brake (gas spring or elastic rope)
- ☐ No mechanical stroke limitation due to additional technical measures present
- ☐ Design and version of riveted joints used according to specifications and correctly
- ☐ Air vent opened

Function

- ☐ Full stroke possible (corner, side, compl. roof)
- ☐ Lowering possible (corner, side, compl. roof)
- ☐ Function check performed and faultless (no clamping, etc.)

Information

- ☐ Operating instructions enclosed with vehicle documents
- ☐ Vehicle owner or user has received training in operation
- ☐ Vehicle owner or user has been informed about maintenance and inspection requirements

Vehicle designation / type:

Chassis No.:

Date of registration:

This checklist is used as a final inspection of the assembly and function of our product before commissioning.

.....
Signature of the tester

.....
Place and date of the final inspection and test