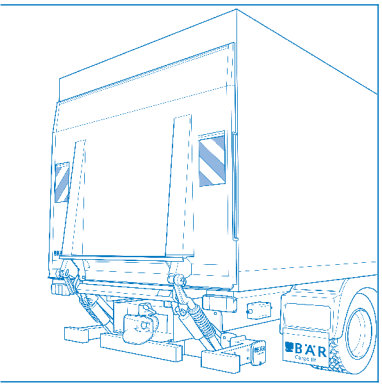
Operating Manual

Keep in:
Glove compartment
in truck

Bär Cargolift®
Standard

BC 1000S4 -A
BC 1500S4 -B
BC 2000S4 -C
BC 2000S4A -D
BC 2000S4U -C
BC 3000S4 -S



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1. General Information

This manual should provide you with details of the handling and working method of the Bär Cargolift.

Therefore, please read this manual carefully before taking the Cargolift into operation.

Reason for the conversion of the Alpha model to Alpha 1 (BC...-1):
In future, all lorry manufacturers will be providing the possibility of a direct, uniform connection via an electric interface for lifting platforms as stipulated in VDHH (Federation of German Platform Manufacturers) regulations. This guarantees a simple electrical connection via plug-in connections with no additional interference with the electrical system being required.

The operation of the Cargolift by non-trained personnel can result in the operator and third parties being at great risk. The adherence to the pertinent safety regulations and safety-conscious work must also be a requirement for the operator.

The Cargolifts supplied by ourselves, especially the supporting framework and safety devices are not to be converted. Should amendments be required in exceptional cases, prior written approval is to be obtained from ourselves.

In addition, we refer to the extracts from the accident prevention regulation - platforms and the sections in the text marked with a ⚠. (UVV VBG – German Accident Prevention Regulations of the Mutual Indemnity Associations).

It is important for the operator that he knows how the Cargolift is to be correctly operated and treated. A fault occurrence can often be the result of insufficient care or incorrect operation.

For this reason, the manual is to be kept in the vehicle at all times.

The following information is required when ordering spare parts:

- Serial number (7 figures)
- BC Model (20 figures)
- Year of construction.

The rating plate is mounted on the right-hand side of the supporting beam, with the BC S4U-C1 on the UFS lateral part, in the direction of travel. The data can be discerned by referring to the master sheet in the inspection book. The serial number is situated on the rating plate, the rating plate for the under-run guard and in the supporting beam, with the BC S4U-C1 in the unit housing, on the back of the central electrical system mounting device (refer to p. 11, 35).

Spare parts can also be ordered using the article number and order description stated in our spare parts catalogue. This can be ordered from our service department.

Repairs are only to be carried out using original spare parts!

We reserve the right to make amendments concerning the form, equipping and technology together with errors. No claims can be asserted as a result of the information, illustrations and descriptions in this manual.

The data stated in this manual refers to the series situation at the time of going to print.

Guarantee performances are provided within the scope of our General Terms of Payment and Delivery (ALZB).

2. Description

Bär Cargolifts meet the requirements of DIN EN 1756-1 and the EC Machine Directive 98/37/EG assuming that the country in which the Cargolift is operated is a EU member state. In this case the scope of delivery also includes the declaration of conformity and the CE symbol which is mounted on the operating unit.

The lifting gear is manufactured using high-tensile steel and it is constructed in a robust form. It is supplied in a cathodic immersion painted (CIP) design.

The pivoting bearings comprise tenifer treated bolts or stainless steel bolts and maintenance – free or low - maintenance bearing shells. The bearing shells are lubricated with a specialgrease and sea led with sealing elements in our factory .
Low – maintenance bearings have to be greased after mounting. For maintenance and care see capture 4.

The complete hydraulic system and the corresponding electronic system are optimally protected due to them being situated in a lifting gear supporting beam which is suited to this purpose, with the BC S4U-C1 in the unit housing.

The operating speed for "lower" is controlled by the countertorque brake valve (SB 1). The speed is adjusted in accordance with DIN EN 1756-1, i.e. constant lowering speed.

The lifting cylinders are single-acting. A high quality tenifer coating has been applied to the piston rods of the hydraulic cylinder.

When open, the platform always forms a level surface with the loading bed.

It is possible to tilt the platform towards a lower ramp by means of a tilting cylinder.
When in a lowered position, the platform tilts in the floor of the road automatically.

All models have a double action tilting cylinder. In this case, the opening movement is carried out by motor-hydraulic means.

The opening force is meaningfully restricted by means of a separate bypass orifice plate.

The Cargolift is controlled by means of a specially developed two-hand external control system (operating unit) with lever switches with handles which are advantageously positioned and which can be used in a manner which is easy to understand. The control system is situated in a sealed housing.

The functions "lower" and "lift" are possible from the platform (safety two-foot control system), these being referred to as a 2-button foot control.

Due to the stable design, loads can also travel over this with load. It is accordingly sealed against dirt, water or other environmental influences.

When lowering, an automatic tilting of the tip of the platform takes place after contact is made with the floor. When lifting off the road, the platform automatically tilts downwards before the lifting process starts.

The main power fuse is situated in the battery box. The drive is electro-hydraulic with either 12 V or 24 V operating voltage depending on the vehicle and BC model.

2.1 Recommended Alternators

A alternator with a minimum of 600 Watts (14 V/45 A or 28 V / 35 A) is standard for the operation of Cargolifts. For exclusive local distribution traffic, a three-phase alternator with approx. 1000 Watts (14 V / 80 A or 28 V / 55-80 A) is recommended for use with all Cargolifts as from model BC 1000 S4-A1.

When using a lorry-trailer combination an additional battery system is required on the trailer/semi-trailer. The dimensions of the alternator and battery size depend on the use. However, we recommend that you use the next largest generator when using a trailer.

In all cases, on technical and economical grounds, we recommend that the same battery sizes and designs be used for both the lorry and the trailer.

If the Cargolift is subjected to intensive use, a min. capacity of 2 x 170 Ah per battery set and an alternator capacity of approx. 1500 Watts (28 V / 55-80 A) are required. This does not take additional units such as heating and refrigeration into account.

A suitable device is to be provided in order to ensure that the additional battery system is supplied with power, i.e. charged.

The complete additional battery system (a kit without batteries) which is available from ourselves meets these requirements in a secure manner.
The use of battery and alternator sizes which are much smaller can, especially in winter, result in operational disturbances and subsequent damage such as a defect power relay or electric motor.

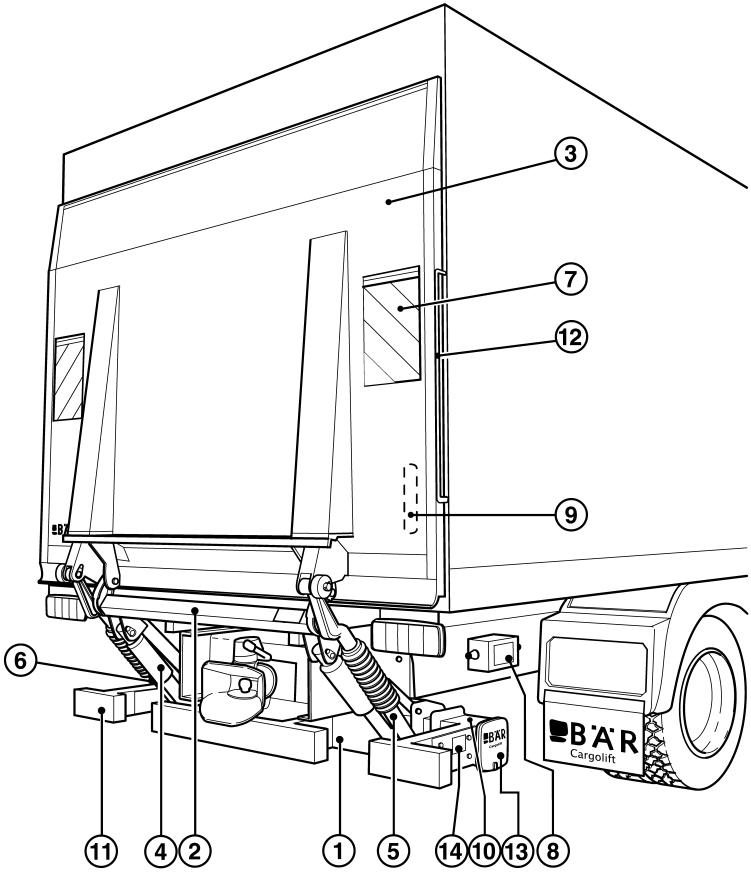
The Cargolift is connected to the existing vehicle battery. Normally, the following **battery sizes** should exist:

Load Capacity kg	Battery Size	Task
1000-1500	12 V : 1 x 143 Ah 24 V : 2 x 110 Ah	Standard
1500	12 V : 1 x 180 Ah 24 V : 2 x 143 Ah	Distribution Traffic
2000-3000	24 V : 2 x 170 Ah	Standard

Available optional equipment

- Mechanical supports
- Hydraulic jack legs
- Platform with retainers against rolling away generally stipulated for railway freight in accordance with DIN EN 1756-1
- ADR/GGVS (European regulations pertaining to the transportation of hazardous goods by road/German Hazardous Goods Regulations Road) design.
- Additional battery system
- Platform with non-slip corundum surface
- Light brackets
- Bär sealing system
- Customs seal

Description



(1)	Supporting beam	(8)	Operating unit
(2)	Lifting shaft	(9)	Foot control on the platform
(3)	Platform	(10)	Type plate with serial number
(4)	Lifting cylinder	(11)	Under-run guard
(5)	Tilting cylinder	(12)	Hold rail
(6)	Hydraulic power pack (in main beam)	(13)	Central electronics
(7)	Warning markers	(14)	Type plate EC under-run guard with serial number

3. Operation

3.1 Accident Prevention Regulations

Lifting platforms are covered by the German accident prevention regulations (UVV) BGR 500. These stipulate the inspection and the operation. We recommend that the lift operator obtains a copy of the accident prevention regulations from the responsible mutual indemnity association.
An UVV inspection is to be carried out on an annual basis, this being certified by a knowledgeable person or an expert (UVV plaque).

An extract from the regulations:

Operating Personnal Requirements
Only people who are at least 18 years old, instructed in the operation of the lifting platform and who have proven to the company that they are qualified to do so are to use the platform independently. They must be properly trained in the operation. The training for the operation of the lifting platform must be issued in writing.

Supervisor
Should more than one person work on lifting platforms at the same time, a supervisor is to be nominated.

Operating Manual
The operating manual is to be adhered to when using lifting platforms.

Usage
(1) Travelling lifting platforms are to be rendered stable as stipulated in the operating manual and so erected that no pinching and shearing positions are formed between the lifting platform and parts of the environment, thereby ensuring that work which is to be carried out on the load suspension device or the load itself can be completed without impairment.

(2) The correct positioning of supports in suitable ground is to be checked prior to the operation of the lifting platform. Powered supports are to be observed during extension and retraction.

(3) Lifting platforms which protrude into space reserved for traffic are to be secured against traffic risks by suitable means.

(4) Before work is commenced on the lifting device, the devices provided to prevent people from falling and objects falling to the ground are to be placed in position.

Handling and Conduct During Operation
(1) Lifting platforms are not to be subjected to a load which exceeds the permissible load (adhere to the load clearance and load).

(2) Loads are to be placed on the lifting device in such a way that an accidental alteration of the position is avoided.

(3) Lifting platforms are only to be climbed onto or off via the means provided for this purpose.

(4) Lifting platforms are only to be controlled from the control positions provided for this purpose.

(5) Each time the lifting platform moves, the operating personnel is to ensure that this does not place themselves or other persons at a risk.

(6) Remaining under the lifting platform or within its moving area is prohibited.

The following are also prohibited:
1. remaining under the load suspension device and the load,
2. walking on the load suspension device,
3. travelling on the load suspension device,
4. the use of the lifting platform as a lifting working platform assuming that the lifting platform is not designed for this purpose.

(7) Travelling lifting platforms are only to move if the load suspension device is in the travel direction. This is not applicable if the required stability is given and is certified in the inspection book.

(8) Load suspension devices are not to be subjected to vibration on purpose. Objects are neither to be thrown onto the load suspension device nor thrown off it.

Taking out of Operation

After being taken out of operation, power operated and power-moved lifting platforms must be secured against unauthorised use.

Maintenance

(1) Raised lifting platform components are to be secured against accidental movements prior to any maintenance work underneath them.

(2) Should a supporting component break, the supporting constructions and driving gear including the safety devices are to be inspected in order to prevent a falling or lowering of the load suspension device if a cable, chain, drive or supporting nut break or if the hydraulic or pneumatic lines leak. Damaged parts are to be replaced!

(3) Pressure hoses are to be replaced after 6 years at the latest.

With spindle lifting gears which have a supporting nut which is secured by a no-load back-up nut, the back-up nut is always to be replaced together with the supporting nut. An entry is to be made in the inspection book that the pressure hoses and supporting and back-up nut have been replaced.

3.2 Area of use

The standard Cargolift is designed for the lifting and lowering of packaged goods and a single operating person.

3.3 General Information

- Secure the vehicle against accidental movements (handbrake, putting into gear, wheel chock).
- When the Cargolift is in use, this must be easily discernible for the following traffic by means of warning marks and flashing hazard lamps (compare with §53b subpar. 5 StVZO (German Road Traffic Regulations)
- The Cargolift is to be continuously observed during opening, closing, lifting and lowering.
- The Cargolift moving area is to be kept free of people and objects.
- The pinching and shearing zones between the platform and vehicle body and the platform and road are especially to be taken into consideration.
- Secure any open body doors.
- Use the hold-on device provided. Keep the intended standing space clear.
- Only the operator may ride on the standing space which is to be kept clear.
- Do not exceed the permissible load capacity. Adhere to the load capacity diagram. Place the load centre as close to the vehicle as possible.
- One-sided loading with max. 50% of the corresponding load capacity.
- Loads are only to be lifted and lowered on a horizontal platform.
- When loading platform is not to be lowered.
- On the ground use the automatic tilting system (use the lift or lower command).
- Secure loads against them sliding and rolling away!
- The Cargolift without the fitted retention device is not to be used for transporting roll containers without brakes.
- Climbing onto loads and the platform is prohibited.
- Crossover plates or swivel ramps are not to burden the platform excessively.
- The vehicle is not to be driven with an open platform.
- The Cargolift is not to be used as a lifting work platform.
- In the case of a fault occurring, the Cargolift is to be taken out of operation and secured against unauthorised use. The Service department is to be informed.
- When unloading on an incline do not forget that rolling cargo will gather inertia strongly.
- We recommend that the loading space be illuminated with a spotlight in such a way that on the one hand the working area of the Cargolift is sufficiently illuminated and on the other, the moving traffic can recognise the obstacle more readily.

Caution - Hazard Instruction:

Should the Cargolift suffer a defect and it is lifted and/or closed with the assistance of other persons there is an acute risk to life!

When it is lifted with the help of external means neither is the cylinder filled with oil, nor are the joints in the locking position. This means that all safety devices do not have a braking effect. When opening the seal, the Cargolift can suddenly fall back into its original position.

After the seal has locked into position, additionally secure it against opening using wire, etc. The enclosed instruction sticker is to be clearly positioned and re-ordered.

Only drive to the next service centre.

The service centre is to be explicitly informed of this fact. It is only to be opened with additional means such as a crane or fork-lift truck.
It is better if the platform packet is only opened after it has been repaired and the lifting cylinder pressure filled.

CAUTION!

The Platform has been closed with the help of external means
The cylinders have not been completely filled with oil.
This means that safety devices which prevent sudden movements are not working.
Only open with a crane or fork-lift truck!

- RISK OF ACCIDENTS -

BÄR Cargolift®

Art.-No.: 01.101000

3.4 Operation of the standard Cargolift

(Special designs can deviate from the operation described here!).
The main power fuse (fig. 3.4.1) is directly positioned on the plus terminal on the battery. It is also a battery isolating switch (loosen by turning it to the right). Refer to chapter 5 for information on replacing

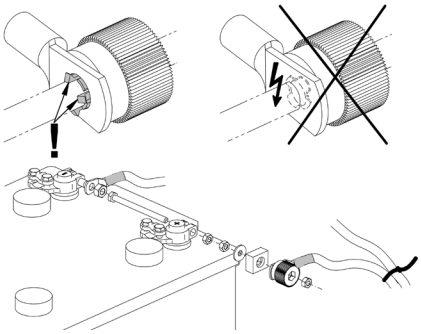


Fig. 3.4.1
Main power fuse - battery box.

Taking into operation

- Press the button (fig. 3.4.2) in the cabin - a red control lamp indicates the activated position. The control lamp is also illuminated if the platform is not stowed in the driving position (closed) or if hydraulic jack legs have been extended (see support devices).

- If the Cargolift is switched on, the starter power circuit is not broken! The lorry can be started up! If required, a starter interruption can be activated by means of an additional relay.

Fig. 3.4.2
Activation of the Cargolift lorry from the cabin.

- With a trailer or semi-trailer, no cabin safety switch was be fitted. The activation is carried out by means of a key-operated switch on the operating unit (fig. 3.4.3).

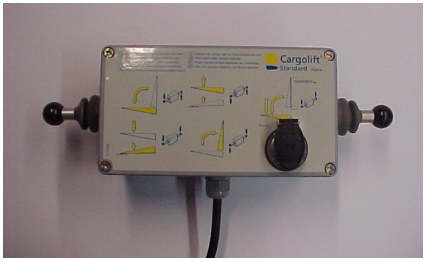


Fig. 3.4.3
Key-operated Switch on the Operating Unit

- Open, lower, lift and close as described below.

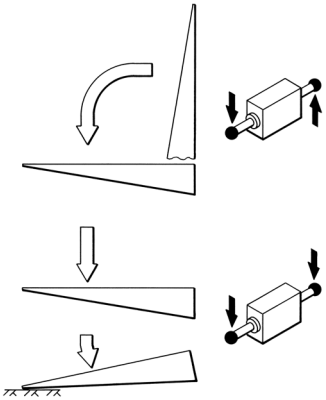
- When loading heavy loads (from the vehicle to the platform) ensure that the vehicle is jounced at the rear and the platform is diagonally inclined backwards (gives). For this reason, a corresponding preinclination is to be pre-set.

3.4.1 Hand control

When loading heavy loads always drive against the body or if using an interchangeable body drive against the stops. This pre-tensions the mechanical and hydraulic systems and prevents the platform from springing away.

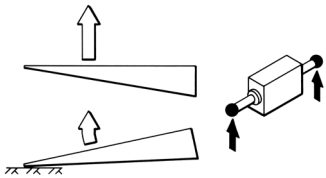
The QuickShift automatic control system enables the platform to be opened and lowered simultaneously. It is possible to make a selection between normal operation and QuickShift. QuickShift is activated in a switching process.

Normal operation:

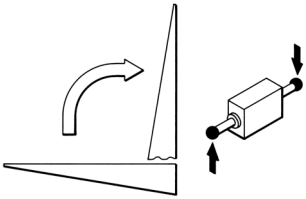


Open: Cabin safety switch on.
Move the lever switch in the corresponding direction of the arrows.

Lower: Push both of the lever switches downwards.
After the platform makes contact with the ground the tip of the platform automatically tilts downwards (also from the foot control). With the BC S4U-C1, the URG first traverses to its top end position.

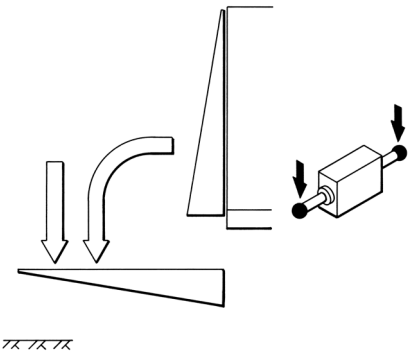


Lift: Push both of the lever switches upwards.
If the platform is still tilted downwards it initially returns to the horizontal position and then changes to the lifting function.



Close: Push both of the lever switches in the corresponding direction of the arrows.

QuickShift Operation:
(Simultaneous opening and lowering)



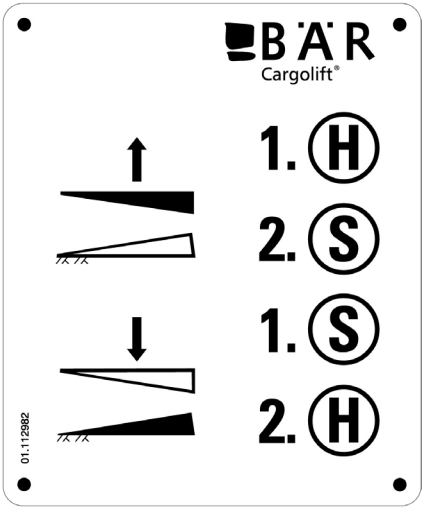
Open+ Lower: Push both of the lever switches downwards. When the platform is horizontal, let go of the lever switches and then press them downwards until the platform is tilted downwards on the ground.

Note: The QuickShift function can only be activated while the indicators are switched off when the platform is opened.
(Opening angle of the platform 0... approx. 30°).
If the lever switches are released when the indicators are switched on, the Quickshift function is aborted and reverts to normal operation.
In order to open the platform, the QuickShift function is activated only once after switching the Cargolift on. Afterwards only after repeated switching on of the Cargolift.

With the BC S4U-C1, no QuickShift operation is possible!

3.4.2 Foot control – Triangle foot switch

When loading heavy loads always drive against the body or if using an interchangeable body drive against the stops. This pre-tensions the mechanical and hydraulic systems and prevents the platform from springing away.



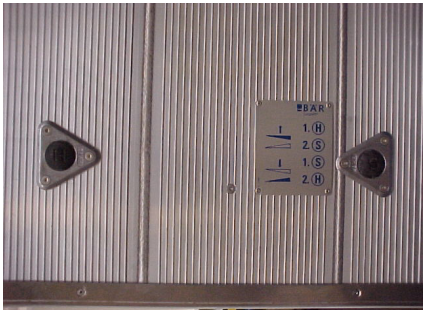


Fig. 3.4.2.1

Lift:
Press 1st button "H" then confirm with 2nd button "S".
The platform is lifted.

Lower:
Press 1st button "S" then confirm with 2nd button "H".
The platform is lowered.

The required function (1st arrow) must always be pre-selected, i.e. press the 1st button "H" or "S" continuously then press the second button ("S" or "H"). Generally, the function is activated which corresponds to the first button pushed. Here, it is expedient to operate the button "H" and "S" with the heel of the shoes.
The time which is to expire between the first and second pushing must be between 0.5 and 3 seconds.

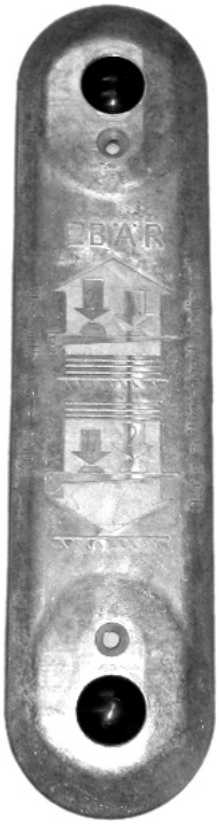
Automatic tilt downwards/upwards.
After the platform is positioned on the ground, this is automatically lowered if the "lowering" [S] function is not interrupted but pressed for an additional period.
The upwards tilt is inevitably automatically carried out when activating the function "lift" [H].

Information: sensor-controlled foot switch electronic system
When equipped with a sensor-controlled foot switch electronic system, the blinkers cannot be deactivated with the cabin activation. In this case, both of the foot switches must be simultaneously pressed for 5...10s.
The blinkers are activated automatically if the platform inclination is changed by more than 10° or a foot switch is activated.

3.3.2 Foot control – Bär foot switch unit

When loading heavy loads always drive against the body or if using an interchangeable body drive against the stops. This pre-tensions the mechanical and hydraulic systems and prevents the platform from springing away.

Lower (S)



Lift (H)

Fig. 3.4.3.1

Lift:
Press 1st button "H" then confirm with 2nd button "S".
The platform is lifted.

Lower:
Press 1st button "S" then confirm with 2nd button "H".
The platform is lowered.

The required function (1st arrow) must always be pre-selected, i.e. press the 1st button continuously then press the second button. Generally, the function is activated which corresponds to the first button to be pushed. Here, it is best to operate the buttons with the heel of the shoes.
The time which is to expire between the first and second pushing must be between 0.5 and 3 seconds.

Automatic tilt downwards/upwards.

After the platform is positioned on the ground, this is automatically lowered if the "lowering" function is not interrupted but pressed for an additional period.

The upwards tilt is automatically carried out when activating the function "lift".

3.4.4 Load capacity

The load capacity of a Cargolift depends on the following factors:

- Cargolift series
- Load clearance = b

The actual acceptable load is always assigned to a certain load clearance (clearance between the rear edge of the body and the centre of gravity of the applied load).

The load comprises the weight of the cargo, the operator, the industrial trucks and all other loads which have been applied to the platform.

An exceeding of the permissible load and/or the corresponding load clearance (refer to the load capacity diagram) can result in a risk of falling and expensive damage! In this case no warranty claims will be asserted!

The values shown in the diagram are valid for loads which are applied to the centre of the platform width. Should the load be applied one-sided, the corresponding load G which is entered is reduced by half (50%).

The maximum load for the maximum load clearance is permanently shown by markings on the surface of the platform (Fig. 3.4.4.4).

Example: the maximum load for a BC 2000S4-C1 amounts to 2000Kg in a load clearance range of 0/1000 mm. In accordance with the diagram, with a load clearance of 1100mm only approx. 1800 Kg may be applied to the platform!

Information: Upon special customer request and in order to take the vehicle-related body requirements into account, there is the possibility of „reducing the load capacity" of the rated load of the BC 1000S4... to 750 kg, of the BC 1500S4... to 1000 kg and of the BC 2000S4... to 1500 kg. The operating pressure is hereby reduced accordingly.
The information is clear from the rating plate and the hydraulic circuit diagram.

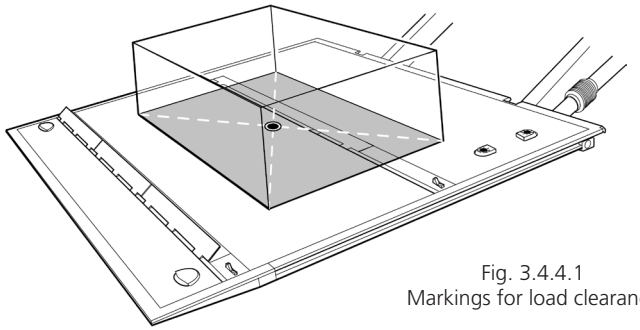


Fig. 3.4.4.1
Markings for load clearance

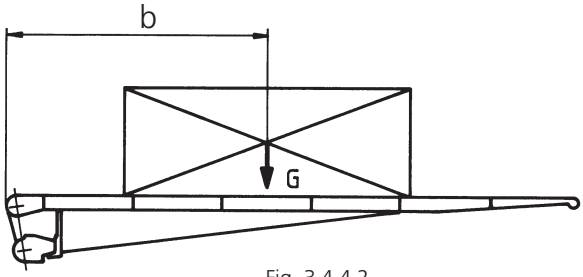


Fig. 3.4.4.2
Clearance from the load centre of gravity

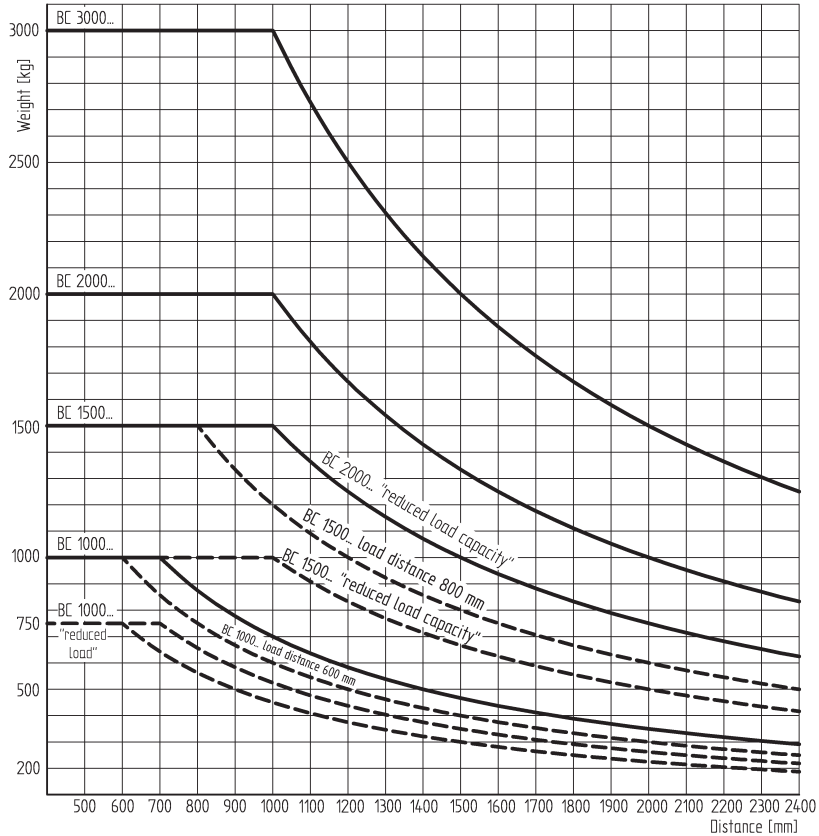


Fig. 3.4.4.3 – Load Capacity Table

Taking out of operation (bringing the Cargolift into the driving position)

- Align the platform with the loading floor.
- Close the platform.
- With interchangeable bodies without a platform seal, use the support securing device should one exist.
- Should they exist, bring the supports into the driving position.
- Deactivate the switch in the cabin or deactivate the key-operated switch on the operating unit respectively and remove the key.
- If the platform is not closed, the red control lamp of the cabin activation is illuminated for safety reasons (even if the Cargolift is switched off).

Semi-trailers or trailers with Cargolift

With a trailer or semi-trailer, no cabin safety switch has been fitted. Energising is by means of a key-operated switch on the control box or near vacinity.

When disconnecting the manifold it is to be ensured that the trailer connector is live. Contact with metal components can result in a destruction of the main fuse. The batteries will then be no longer charged. For this reason, the charging connector is to be stored in a metal holder with an opening at the bottom.

Should the semi-trailer or trailer respectively not have their own battery and the Cargolift is supplied via a main current line and earth line then these are also to be disconnected when disconnecting the trailer and the ends of the current line and earth line on the towing vehicle are each to be sealed off. Ensure that the points of separation are clean. If necessary, clean and spray with contract spray.

Under no circumstances are the ends of the main current line of the towing vehicle to be connected to each other (short circuit!)

Loading and unloading at the ramp

In principle, Bär standard Cargolifts without folding platforms are suitable for use with ramps. However, the maximum bearing capacity is not to be exceeded when using the platform as a cross-over ramp (refer to the bearing capacity diagram) of the pertinent Cargolift, irrespective of the resting position of the tip of the platform.

In order to ensure that the resting position is safe, ensure that the platform sufficiently overlaps.

During loading, the vehicle bounces and the platform gives way (floating position upwards).

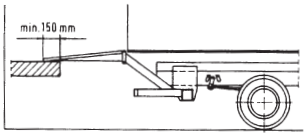
Before driving away from the ramp close the platform, otherwise it falls the same distance as the bounce.

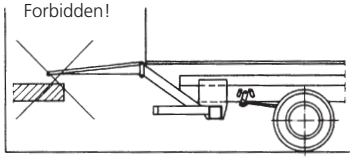
When unloading, the vehicle rebounds but the platform is unable to compensate. For this reason, numerous follow-ups (opening) are required.

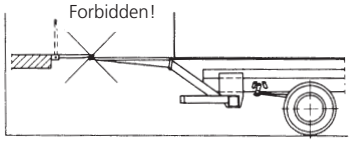
Should the follow-ups not be carried out, this will result in the load being transferred to the tip of the platform, thereby possibly causing a multiple overloading and ultimately damage as a result of force.

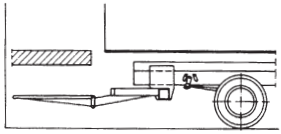
Under no circumstances is a cross-over plate or even a cross-over ramp to be placed on the free tip of the platform.

The platform is to have a secure and solid resting position in all cases.







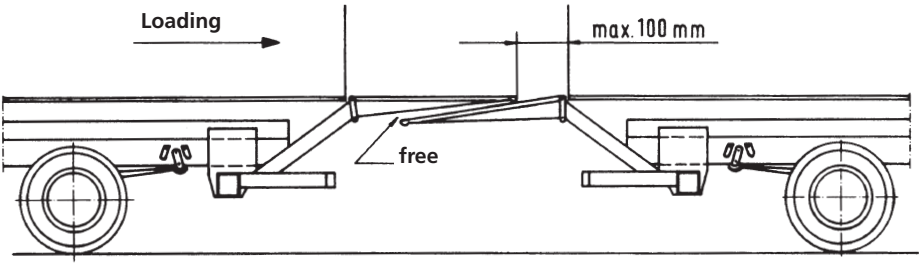


The maximum bearing capacities are also to be adhered to in these circumstances.

Should this not be possible, other loading possibilities are to be used, e.g. driving under a ramp which is sufficiently cantilevered or the use of a cantilever cross-over bridge.

No loading rails which are hooked into the side wedge profiles of the platform are to be used for the loading onto and unloading from the ramp as due to the jouncing of the vehicle there is a risk that they can be forced out of their anchoring and fall onto the ground.

Loading from vehicle to vehicble



If both vehicles are fitted with a Cargolift:

the platform fitted to the vehicle which is to be loaded serves as a support. The tip of the platform is to be kept clear in all loading situations.
When transferring loads do not forget that the vehicle which is being offloaded rebounds. Therefore, numerous follow-ups are necessary!

If only one of the vehicles is equipped with a Cargolift:

the first requirement in this case is that the tip of the platform is perfectly positioned on the bed of the body. This is not the case if both of the vehicles are of the same width. In this case an incision must be made in the tip of the platform (special request) so as to ensure that the support is of an optimum.

If the vehicle is unloaded using a Cargolift follow-ups are required as described above.

No transfer is possible should the above situation not be given.

Additional operation instructions:

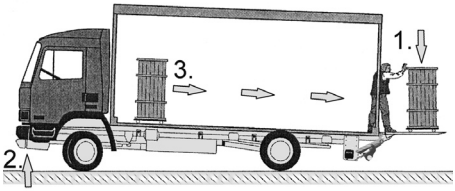
the drive motor is fitted with a thermal switch which deactivates the functions "lower" and "open" if the motor overheats due to continuous operation or a weak battery (empty or defect). After cooling off (approx. 5 minutes) the thermal switch is automatically reactivated.

As a short-term emergency measure, the lorry engine can continue to run. It is imperative that the battery be charged or replaced.

3.5 Working with additional devices

Load fixing

Without appropriate support of the vehicle an upward deflection of the front axle of part-loaded vehicles can take place for example with loading of roll containers. In extreme cases this can lead to slipping of the load and thus to an endangerment of persons.



Caution: Secure load on loading area versus sliding!

For warning against such dangers, which may appear with loading and unloading over the Cargolift, the danger sign "load fixing" (art.-no. 01.129472) has to be attached on a free surface over the control box well visible. If this is not possible, the danger sign has to be attached inside the vehicle body in driving direction right near the control box.

3.5.1 Support devices

Both hydraulic and mechanical supports are used. Should it really be necessary to use supports (excessive protrusion, heavy loads on a comparatively light vehicle) then hydraulic jack legs are to be used.

Mechanical supports

Apply the handbrake in order to ensure that the vehicle is unable to roll away. Take hold of the support footplate and loosen the cotter pin. Lock the support into position shortly before it reaches the road. Hereby, ensure that the cotter pin is secured against falling out by twisting it just behind the securing angle.

After loading, the vehicle must be moved a short distance forwards before the cotter pin is loosened so that the supports are freely folded. Push the supports in and secure them in the same manner described above using the cotter pin.

Hydraulic jack legs

The supports are retracted and extended using the crosshead lever switch in the hand control system. Note the following:

1. With air-suspended vehicles, place the air suspension control lever in the blocking position (not the driving position!) otherwise due to an automatic control of the air-suspension there is the risk of the complete axle relief and weight displacement thereby applying the weight to the hydraulic jack legs.

   1.1 If the supports are retracted in this situation and the vehicle is fully loaded, there is a risk of collapse.

   1.2 The inevitable relative movement of the support disk on the ground (the centre of motion of the lorry tilt is the front axle) results in extreme lateral powers which overload the support cylinder.

1.3 Should there be a complete axle relief due to inattentiveness the lorry must be lifted using the air suspension before the supports are retracted so that the supports are completed relieved.

Then retract the supports.

2. Should the supports not be fully retracted, the red control lamp for the Cargolift activation is illuminated in the cab.

3. The hydraulic jack legs are so adjusted that they extend pressure controlled. However, in relation to the vehicle the supporting effect is infinitely high.

4. Therefore, if the supports are not subsequently adjusted the chassis frame can be overloaded.

5. Never lift the vehicle with hydraulic jack legs!

6. The ground must have a satisfactory bearing capacity.

7. When loading leaf-suspended place the supports approx. 50 mm above the ground and when unloading, place them firmly on the ground.

8. Both of the support cylinder adapt themselves to the ground.

Before driving off ensure that the two support cylinders have been fully retracted.

3.5.2 Retention devices

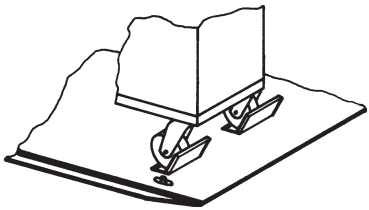
In accordance with DIN EN 1756-1, retention devices are to be used for the transportation of roll containers.
The standard design is suitable for roller diameters of max. approx. 125 mm.
The retention devices are not suitable for use with pallet stackers. Here, the load is to be fixed in position by it being lowered. The non-loaded pallet stacker can be blocked using the retention device.
Types of retention devices other than those described here will only be delivered subject to an explicit customer request, the customer also assuming all responsibility for their use.

3.5.2.1 Model "A"

The retention device comprises either a single continuous wings or two wings which are joined by means of a shaft. They are opened by activating the lever with the tip of the foot.

In the direction of the platform tip, the retention device provides a perfect retention for larger roller diameters. The roll container is only secured against it rolling backwards or to the side to a certain extent. The securing in these directions is provided by the wheels sinking into the indentations and is independent of the corresponding tilting position of the platform.

For this reason, when loading and unloading the vehicle should be parked in as level a position as possible.



3.5.2.2 Model „R"

Operational sequence

Loading
Open the securing flaps by activating the operating elements R1 and R2.

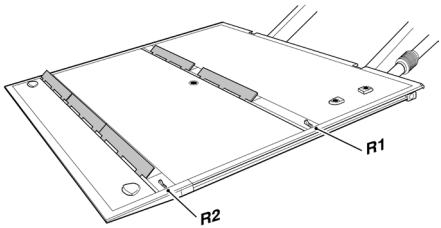
The roll containers are simply pushed over the spring-loaded securing flaps, after the containers have passed them, the flaps automatically snap outwards and secure the containers.

Unloading
Activate R2 - 3 roll containers loaded.
Activate R1 - 2 roll containers loaded.
Enable the roll container to "run" off by pushing the pertinent securing flap on the floor (remains down).

Note:
So that the roll containers are secured the platform should have a slightly negative inclination when being loaded (at least horizontal). The recesses for the securing flaps should be kept free from coarse dirt, stones, snow, etc.

When using in winter, the retention device should remain open when the vehicle is at a standstill for longer periods (icing).

The retention devices are released by the securing flaps be pushed down once more.



3.5.3 Pivoted under-run guard BC 2000S4U-C1

Mechanical

The pivoted under-run guard is required when the trailer draw beam is uncoupled.
When towing a trailer the under-run guard must be folded up. This is automatically carried out by the platform being lowered onto the ground.

When driving without a trailer it is imperative that the under-run guard is folded down.
This is carried out by the platform being lowered onto the ground and the under-run guard being pushed down by it being stood on. The "lift" function is then to be activated. This results in the under-run guard being brought into the bottom position whilst the lifting rocker travels upwards. The under-run guard is now in the correct position for driving without a trailer.

With a solo journey, it is imperative that the under-run guard is folded down. The driving with a folded up under-run guard is a infringement of the German Road Traffic Regulations (StVO)!

Hydraulic

identical to mechanical, however, retracting and extending is by means of the right-hand cross-shaped lever switch of the hand control.
if the „lower" function is activated while the under-run guard is folded down, the under-run guard first traverses to the upper end position.

4. Maintenance and Care

4.1 Cleaning

All Cargolift components can be cleaned using a high-pressure cleaner.
When cleaning using a high-pressure cleaner it is possible that dirt and sand particles can be flushed into the bearing shells. Therefore, when cleaning here, this should be carried out with care under observance of a suitable nozzle clearance and the direction!

Maintenance-free bearing shells
All of the bearing shells are maintenance-free and do not therefore need to be re-lubricated. These bearings have been filled with a permanent lubricant filling which only need to be refilled when overhauling. When doing so only use the lubricant which is to be obtained from our service department.

Low- maintenance bearings
All bearings have to be relubricatet by use of the grease nipples following the lubrication plan. Lubrication interval is once a year with one shift use and twice a year with more shift use.

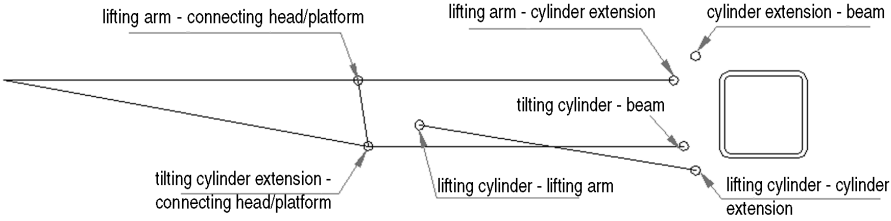
Battery
The batteries should be checked at regular intervals depending on the use.

Hydraulics
The power pack is situated in the supporting tube on the left-hand side in the direction of travel. After the fastening screw on the supporting tube has been loosened the power pack can be pulled out as far as the filler necks.

Checking the oil level: the platform must be completely lowered (for the oil level refer to the tank mark). The oil is to be changed at least once per year, preferably together with the accident prevention regulations inspection.

With the BC S4U-C1, the unit is located in the direction of travel to the left in a stainless steel housing. Remove the hood by unscrewing the two wing screws.

Fig. 4.1.1



Pic 4.1.2 – lubricaton plan (bearings with grease nipples) Recommended grease: Avilup special grease LDW or equivalent in accordance to K – PF 2 G DIN 51 502. The compatibility with other greases must be tested by own responsibility.

Cylinder venting

Lifting cylinder Ø 50, 60, 70, 85
The lifting Cylinder does not need to be ventilated.

Tilting cylinders Ø 50/36, 60/40, 70/50, 90/50
These cylinders are not fitted with a vent screw.

Position the lifting arms so that the piston rods are slightly inclined in a downwards direction. By repeatedly adjusting the platform from the max. negative inclination to + 30° the cylinders are automatically vented.

Operating speed

Checking of the opening, closing, lowering speed.

Max. opening and closing speed 10° per sec. = 9 sec. for 90°, max. lifting and lowering speed 15 cm per sec. The checking and adjustment is only to be carried out by qualified personnel.

Electromotor

The carbon brushes are to be inspected for wear and smooth running as worn carbon brushes result in a heating of the motor. If necessary, the carbon brushes are to be replaced. In order to do so, the collector must also be turned as to the diameter and the insulation routed.

Regular inspections

In accordance with the German accident prevention regulations the Cargolift is to be inspected on an annual basis (UVV inspection). All hydraulic hoses are to be replaced every 6 years at the latest (UVV BGR 500).

The inspection is to be entered in the inspection book.
Repair work carried out on bearing components are to be entered in the inspection book.

4.2 Oil recommendation

In order to change the oil lower the platform onto the ground, Drain the oil out of the tank. Clean the suction filter at each oil change, if necessary it should be replaced. It can be accessed by screwing the tank off. Fill with new oil. When carrying out a normal oil change, the residual oil need not be drained from the cylinders. For this reason it is not necessary to vent the cylinder. The same oil can be used for both the summer and winter operation of the Bär Cargolift. Suitable oils are listed below. The sequence is no indication of evaluation, the list lays no claim to be exhaustive.

ARAL	Vitam GF 10	BP	HLP 10
AVIA	Avilub 516	AVIA	RSL 10
ESSO	Nuto H 10	OEST	H.LP 10
FUCHS	Renolin MR 3 LP	SHELL	Tellus 10

Synthetic oils:

(biodegradable, diester basis)
Panolin HLP 15 Synth
Fuchs PLANTOHYD 15 S

When mixing with mineral oils the biodegradability is no longer given.

These hydraulic oils are of the viscosity class 10.

Different types of oil should not be mixed.

Please consult us before using other oils.

The approximate top-up quantities are as follows depending on the model:

BC 1000S4-A1	2.25 l
BC 1500S4-B1	4.2/5.6* l.
BC 2000S4-C1/D1	7.1 l.
BC 2000S4U-C1	5.6 l
BC 3000S4-S	9,2 l

* with hydraulic supports

Caution!

Should it be necessary for cylinder oil to be drained (e.g. when repairing the cylinders) the platform must be closed.

When doing so the platform is to be secured. The oil can then be drained as long as the cylinders have an oil drain/vent screw.

As far as the other cylinders are concerned the electrically pilot- controlled check valve must be removed.

This work is not necessary if the seal is to be changed on the lifting cylinder. After the pressure has been relieved/lowering one removes the bolts from the piston rod and swivels the lifting cylinder on to a secure support. The piston rod can then be pulled out. Collect the drained oil in an oil pan.

When starting the equipment special is to be taken to ensure that the lift and tilting cylinders have been filled with oil and that they are pressurized (the triggering of the pressure control valve when lifting and closing/relieving the seals is audible).

If necessary, the tank must be topped-up with oil.

5. Faults and their Remedies

5.1 General Information

Fault: the Cargolift neither reacts to hand control nor to foot control.

5.1.1 Inspection by the driver

Is the cabin safety switch switched on (red control lamp) ?

If not the safety cut-out has opened the control current circuit. Replace the fuse.

Is the connection for the Cargolift electrical interface in working order ?

The connectors must be firmly inserted and the nuts tightened until they lock into place.

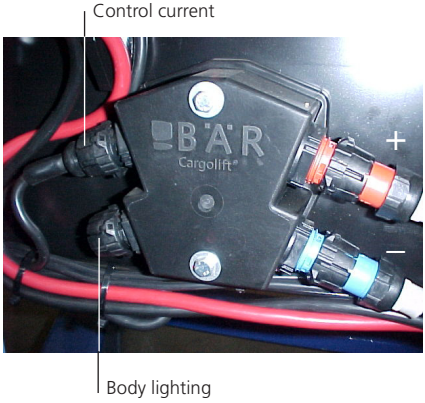


Fig. 5.1.1.1

Is the main current fuse defect or the main current deactivated due to an open (red) knurled nut?

Before a defect fuse is replaced, always first eliminate the cause of the fault.

Motor	Main Current Fuse	
1.7 / 2 kW	12 V + 24 V	150 A
3 kW	24 V	200 A

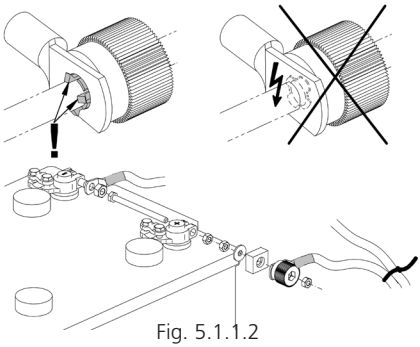


Fig. 5.1.1.2
Main Current Fuse

Is the battery sufficiently charged ?

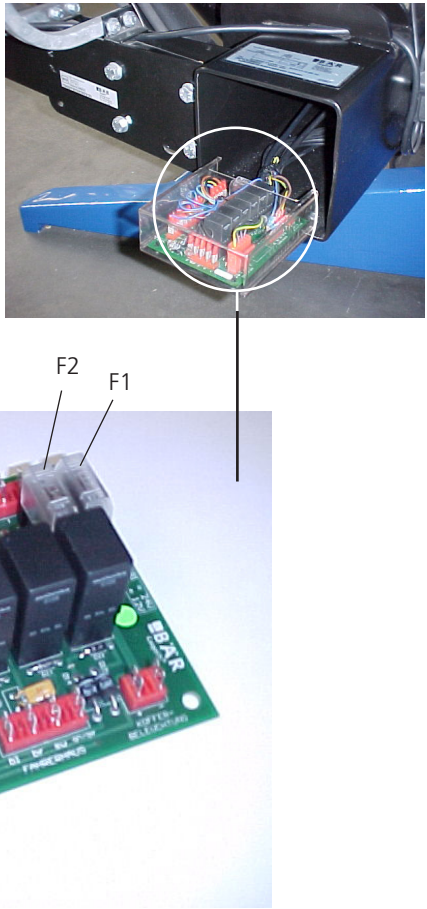
Check each of the cells with an acid tester.

Density 1.23 = empty
Density 1.28 = full

5.1.2 Standard central electrical system equipment

The central electrical system is situated in the right-hand supporting beam, with the BC S4U-C1 in the unit housing to the left in the direction of travel, it being protected against water by means of a rubber cover.

Among others, it comprises a control current fuse (7.5A) and an additional fuse (7,5A for the body lighting). All cable connections (platform, hand control, foot control, power supply, etc.) are brought together in the central electrical system.



Central electrical system in the right-hand supporting beam in the direction of travel.

Fuses for control current F1 and body lighting F2 = 7.5 A

Fig. 5.1.2.1

5.1.3 Emergency action

Should the hand or foot control be subjected to an electrical defect the following emergency action can be taken:

Remove the rubber cover from the right-hand supporting beam, with the BC S4U-C1 the unit housing hood to the right in travel direction.

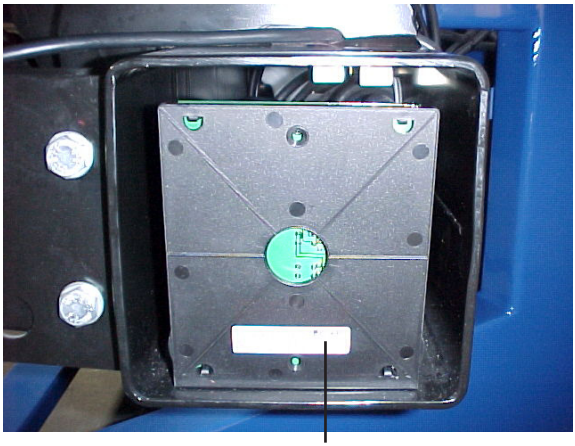
Defect of hand control:

Trigger the required function by using the cable bridge to bypass the terminals concerned.

The requirement is that voltage has been applied to terminal "+". So that this is possible the cabin safety switch must be switched on.

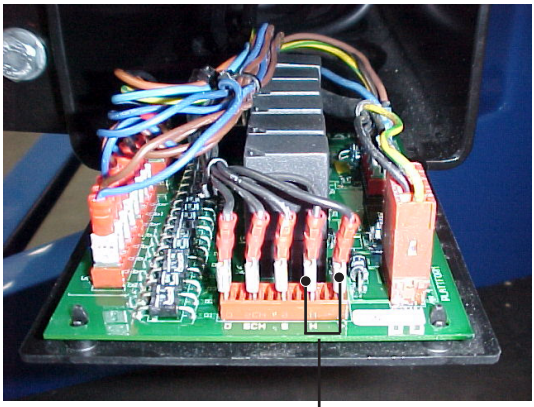
The terminals have the following functions:

Terminal +:	control current (from control current fuse)
Terminal H:	lift
Terminal S:	lower
Terminal SCH:	close (platform "tilt upwards")
Terminal Ö:	open (platform "tilt downwards")
Terminal A:	extend (URG hydr. supports)
Terminal E:	Retract (URG hydr. supports)

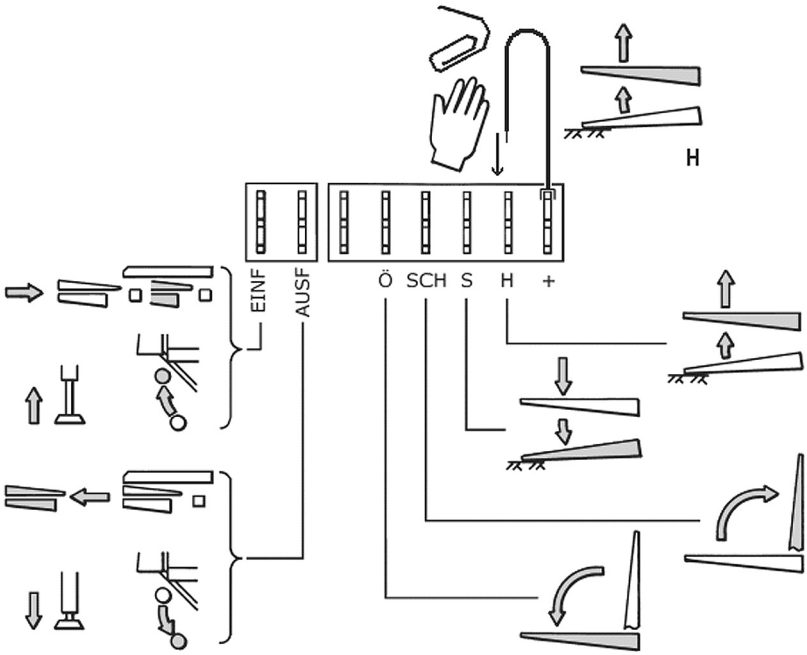


Serial number plate on the reverse, with the BC S4U-C1 in the unit housing front, the board retainer (hinge).

Fig. 5.1.3.1



Cable bridge for emergency operation



5.2 Trouble shooting and repair in the service workshop

Repairs are only to be carried out using original Bär spare parts!

In most cases, Cargolift faults are normally of an electrical nature. A standard test lamp (with bulb) can be used for electrical inspections. A magnet anomaly detector for the testing of the solenoid valves/power relays/relays provides a good service.

Hand control

The hand control works fully independent of the foot control.

Should the hand control not work correctly although there is a function when the terminals are bypassed there is presumably a cable interruption to the central electronic system. Therefore, test the individual cable strands first for continuity.

Should the continuity be free from faults the control housing is to be checked. Open the housing. No water is to be in the housing. If this should be the case look for and remedy the cause.

Foot control

With regard to the foot control, two foot switches work in connection with the central electrical system.

Should faults occur take the following action:

1. Deactivate the control voltage. Activate the foot switches one after the other. Both the activation and letting go should be easily audible. Should it not be audible the complete foot control power unit should be screwed off.

   The synthetic material cover on the back of the foot control unit must be screwed off. The rubber element, the micro-switch and the compression spring can then be checked.

2. If necessary replace the rubber element and the micro-switch.

3. If the micro-switch and electrical connection are in working order the foot control cable must be inspected.

   First of all, inspect this cable for signs of external damage or squeezing. If no damage is visible it is possible that there is an internal single conductor break. In this case the foot control unit should be completely replaced.

4. Such a fault can especially occur if the foot control fails at a certain area on the platform movement. If the cable has been correctly laid in accordance with our assembly instructions this is very improbable. Therefore, the cause is to be determined.

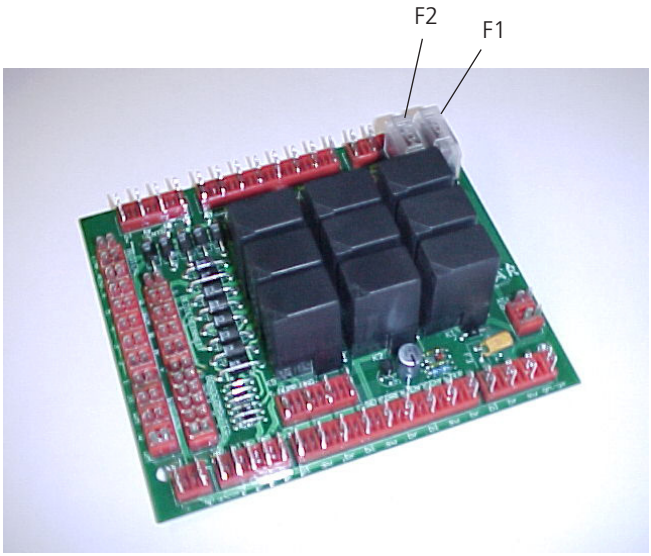
No guarantee claims will be accepted if the cable is incorrectly laid or pinched.

5.2.1 Optional central electrical system equipment

This module includes both the electrical control of hydraulic supporting cylinders, or hydraulically operated under-run guard, as well as an interface in order to report movements and operating status of the Cargolift to the lorry's board computer.

The interface comprises six flat plug contacts which are either isolated or which conduct 24 V (12 V) "+" or "-" potential depending on the condition of the Cargolift. All outlets are capable of carrying loads of approx. 300 mA so that the board computer can either be directly triggered or if necessary, this can be carried out via the standard lorry relays.

All outlets are protected by the control current fuses on the base module, i.e. an impermissible attempt to manipulate the outlets in that they are rendered current-less make a continued activation of the Cargolift impossible. If the outlets are positioned on a signal time pattern, an almost continuous tracking of the Cargolift is possible.



Optional central electrical system equipment in supporting beam right-hand in travel direction, with the BC S4U-C1 in the unit housing left-hand in travel direction.
Fusesa for control fuse F1 and body lighting F2 = 7.5 A

Fig. 5.2.2.1

5.2.2 Terminal assignments of central electronics – Standard equipment

Control unit:

1	"+" control power
2	Function "Lift"
3	Function "Lower"
4	Function "Close"
5	Function "Open"

Body lighting:

+	"+" if platform is still open (20-30°) and cab switching on is switched on
-	Ground

Cab:

Gn/ge	"-" feedback cab
Sw	"+" control power to cab
Brown	Ground to cab switching on
Blue	"+" control power from cab

Valves:

31	Ground
VH	"+" Solenoid valves of lifting cylinder
VN	"+" Solenoid valves of tilting cylinder

Platform:

Gn/ge	"-" feedback from platform
1	"+" control power
2	Function "Lift"
3 F	Function "Lower"
4	Ground flashing lamps/flashing sensor

Power unit:

+	"+" vehicle battery
(-)	Ground
M	"+" Motor (or solenoid switch)
VH_1	"+" solenoid valve of control valve

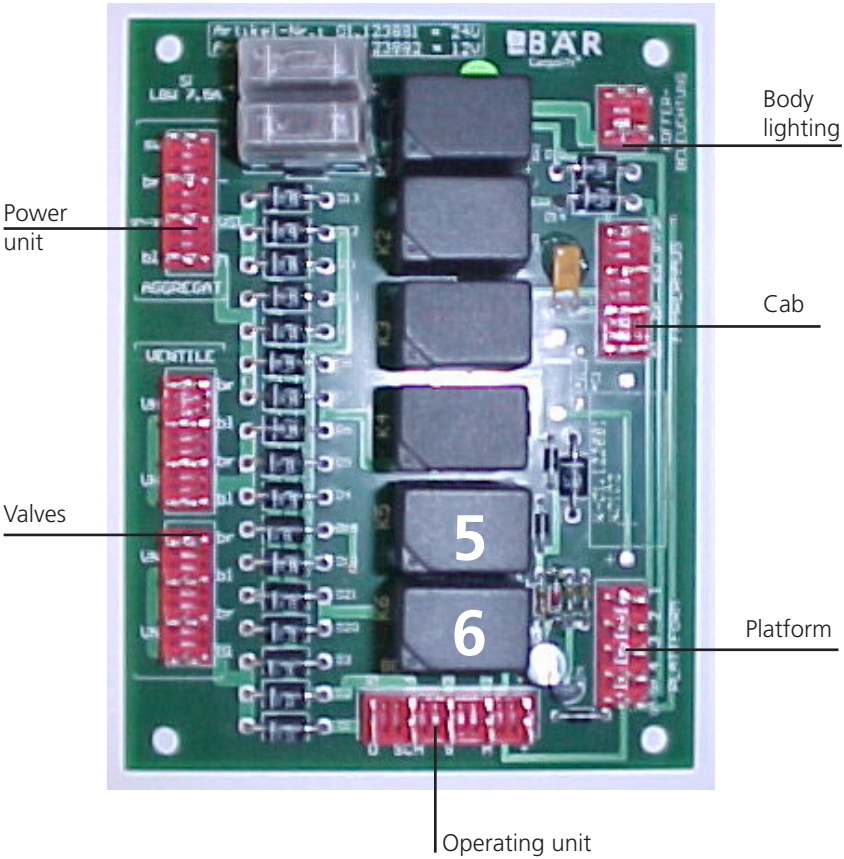


Fig. 5.2.2.1
Standard main electrical system equipment

Note: With the BC S4U-C1 with mechanical URG, neither relay 5 nor 6 are available!

5.2.3 Terminal assignments of central electronics – Optional equipment

Control unit I:

1	"+" control power
2	Function "Lift"
3	Function "Lower"
4	Function "Close"
5	Function "Open"

Control unit II:

1	"+" control power
2	Function "Lift"
3	Function "Lower"
4	Function "Close"
5	Function "Open"
6	Bridge to Operating unit I

Body lighting:

+	"+" if platform is still open (20-30°) and cab control is switched on
-	Ground

Cab:

Gn/ge	"-" feedback cab
Sw	"+" control power to cab
Brown	Ground to cab switching on
Blue	"+" control power from cab

Onboard computer:

RM	"-" if platform is open
+	"+" if cab switching on ON
H	"+" for Lifting
S	"+" for Lowering
Sch	"+" for Closing
O	"+" for Opening

Valves:

31	Ground
VH	"+" Solenoid valves of lifting cylinder
VN	"+" Solenoid valves of tilting cylinder
V2	"+" Solenoid valves of supplementary block
V1	"+" Solenoid valves of supplementary block

Platform:

Gn/ge	"-" feedback from platform
(1)	"+" control power
2	Function "Lift"
3	Function "Lower"
4	Ground flashing lamps /flashing sensor

Power unit:

+	"+" vehicle battery
(-)	Ground
M	"+" Motor (or magnetic switch)
VS_1	"+" solenoid valve of control valve

Supports:

(31)	Ground
RM	Feedback from support cylinder
Einf.	Function Retract supports
Ausf.	Function Extend supports

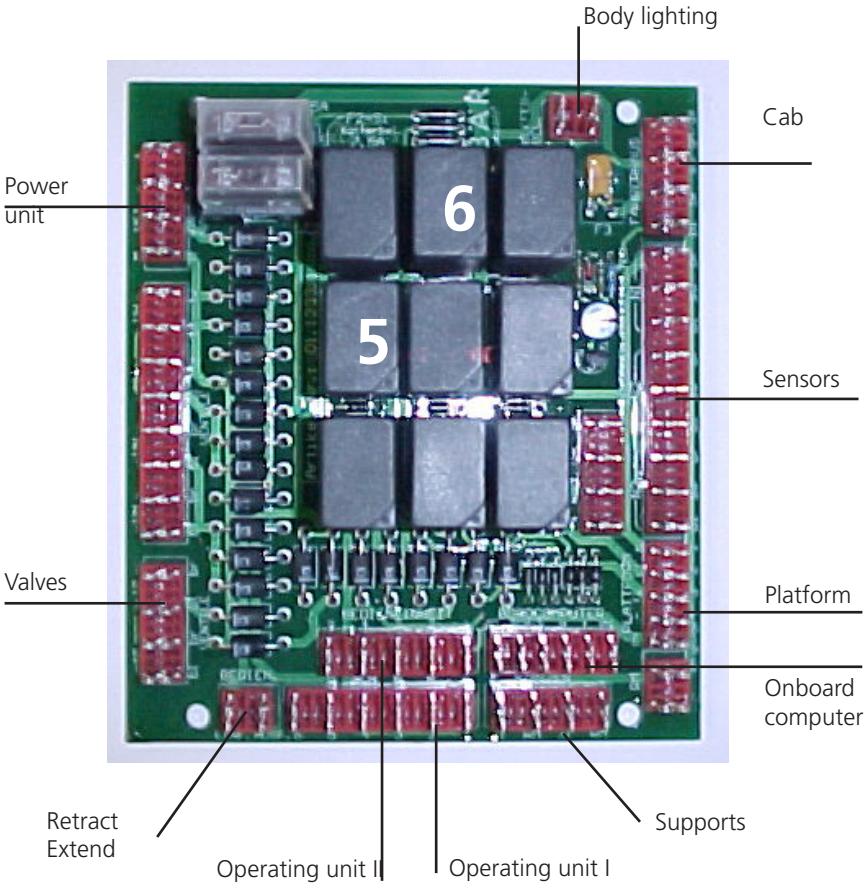


Fig. 5.2.3.1
Optional central electrical system equipment

Note: With the BC S4U-C1 with mechanical URG, neither relay 5 nor 6 are available!

Malfunction
solenoid valves/power relays

Different valves each and the drive motor must work together so that the various functions such as lifting, lowering, closing and opening work.

The designations in the wiring diagrams and action charts are as follows:

M	Motor activated by performance relay (magnetic switch)
$V_1 - V_2$	Control valve/shut-off valve for hydraulic supports
VS_1	Control valve at power unit
V_H	solenoid valve at lifting cylinders
V_N	solenoid valve at tilting cylinders

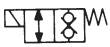
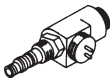
A defect coil can be determined with an ohmmeter by the inductive resistance. The following values have validity:

12 V coil = 6 Ohm +/- 10% at 20°C
24 V coil = 23 Ohms +/- 10% at 20°C

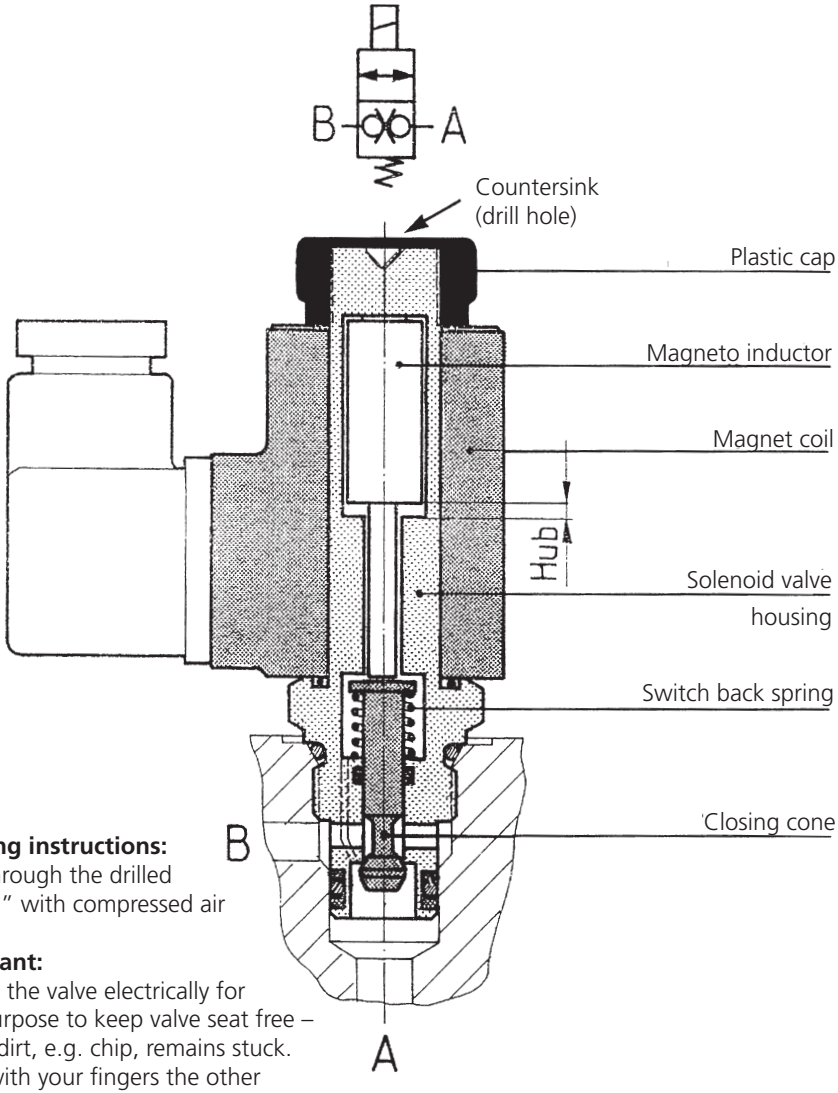
The coils from the valve make Flutec can be interchanged so coils can be changed for emergency operation. When changing it is imperative that the coils be sealed at both ends using O-ring seals.

Should the correct voltage have been applied and the required function still does not work the existence of the voltage and earth are to be checked at the corresponding solenoid valve (coil) or power relay (possible line disconnection).

The solenoid valves have the following features:

Valve denomination such as:	Symbol	Function	Outside marking under plastic cap
VH ; V1 VN ; V2		Double shut-off valve	 With drilled hole
VS1		4/2-way distributor	

Functional principle
Double shut-off solenoid valve
Both sides sealed



Cleaning instructions:
Blow through the drilled hole "B" with compressed air

Important:
Control the valve electrically for such purpose to keep valve seat free – or else dirt, e.g. chip, remains stuck. Close with your fingers the other openings "B" as well as possible during blowing.

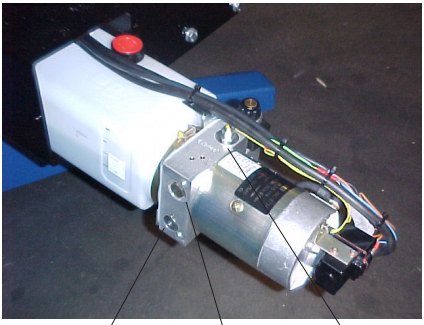
In order to test the pressure a manometer is to be connected to the test connection.

In order to test the pressure the lift function can be used by moving against the body or the close function can be used when the platform is already completely closed. The pressure is progressively adjustable.

Never screw in the adjustment screw completely. This results in the valve being blocked and the pump can be destroyed.

After carrying out repairs on the hydraulic system (cylinder change, valve change, hose change) we recommend that the oil also be changed.

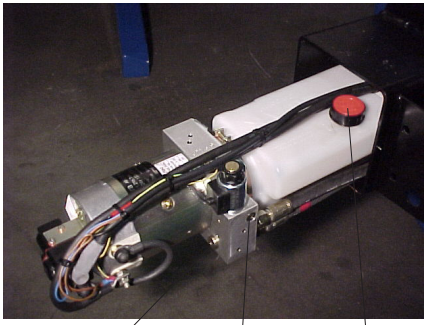
Flutec „FL“:



Countertorque brake valve SB1

Check valve RV

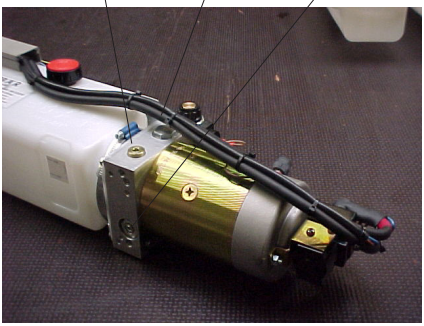
Pressure control valve DBV

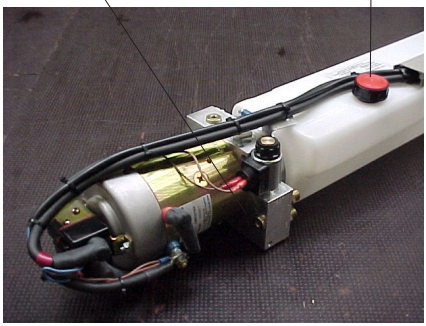


Test Connection G 1/4

Orifice DB1

Oil filler neck

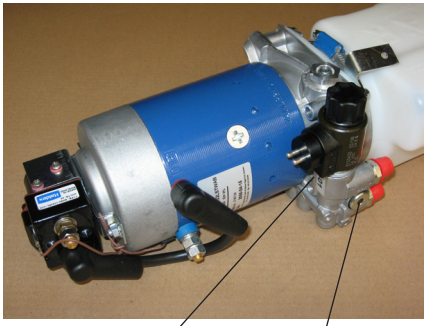




Haldex „HA“:

Haldex „HX“:

Pressure control valve DBV



4/2 way valve VS1

Test Connection G 1/4 (Check valve RV)

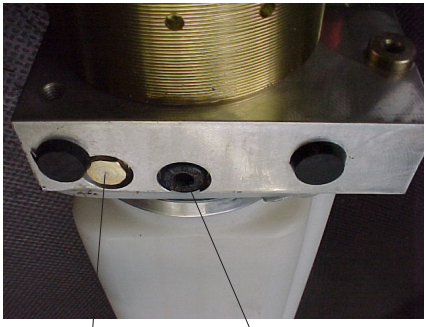
POWER PACK UNDERSIDE

Check valve RV1

Flutec „FL“:

Oil drain

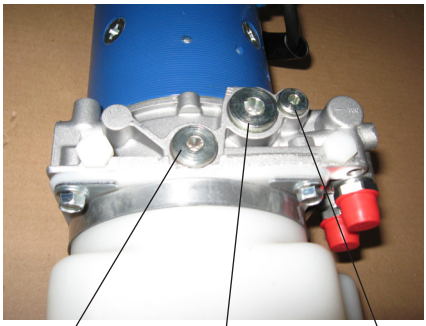
Haldex „HA“:



Orifice DB1

Oil drain

Haldex „HX“:



5.3 Possible faults and their remedies

Fault	Cause	Remedy
Cargolift does not respond to manual control and neither to foot control - audibly	Switching on in the cab is not switched on or faulty; Control power fuse is faulty; Control power circuit is interrupted	 Replace (max.7.5 A) Check, repair
Function „Lift" is not working or only works slow, pump is working normally	Too little oil in the tank, pump is sucking air Pump is faulty Pressure-relief valve is set too low	Top up oil Replace pump by new one Check the pressure
Function „Lift" is not working or only works slow, pump is working audibly slowlier	Battery insufficiently charged Battery discharged Alternator too weak	Recharge battery, inspect individual cells for usability, if necessary replace battery. Inspect charging cable fuse in lorry and trailer. Inspect charging cable and their push-in connections in lorry and trailer. A larger cable cross-section may be required for the trailer. Makeshift: keep vehicle engine running Fit alternator with a higher performance

Faults and their Remedies

Fault	Cause	Remedy
Function „Lift“ is not working or only slowly	Main power cable on power pack defect due to incorrect assembly	Replace main current connection Adhere to assembly instructions!
	Motor carbons worn	Repair motor; do not use the power pack as this can damage the electric motor
Pump motor not running	Cabin safety switch or key switch not activated or defect	Activate or replace
	Main current switch/fuse holder defect	Replace
	Control current safety cut-out defect	Replace (max. 7.5A)
	Main current fuse defect	Replace (observe rating)
	Lever switch or foot switch defect	Replace
	Control cable interrupted, worsened contact	Mount
	Earth cable or main current cable interrupted. Battery terminal loose	Mount

Faults and their Remedies

Fault	Cause	Remedy
Pump motor not running	Connecting line terminal „M" – power relay interrupted	Reconnect
	Battery voltage too low	Recharge with alternator
	Power relay (Magnetschalter) defekt	Replace
Function „Close" not working	VN does not switch	Check if magnets are live when „Close" is activated, and if magnetic coils are working Check earth connection.
Pump motor does not deactivate	Lever switch or foot switch defect	Replace
	Power relay catches	Makeshift: Switch off main power switch in battery box, replace power relay
Platform does not open	Activate cab safety switch or key switch	
	Cable to solenoid valve VN on tilting cylinder defect	Replace cable
	Solenoid valve VN or Spule defect	Replace valve or coil
	Platform frozen to trunk body	Defrost. Treat sealing against freezing
	VS1 does not switch	Check if magnets are live when „Close" is activated, and if magnetic coils are working Check earth connection..

Faults and their Remedies

Fault	Cause	Remedy
Platform does not open or opens slowly	You filled in hydraulic oil of too high viscosity ydrauliköl	Change oil
	Platform bearing points are restricting	Disassemble bolts on platform. Clean
	Platform rubs on the body	Briefly activate „Lower“ then „Open“
Cargolift lowers too fast or too slowly. Permissible 15 cm/sec., independent of load	Countertorque brake valve SB1 in the valve block wrongly adjusted or soiled A solenoid valve VH on a lifting cylinder does not open	Set according to hydraulic diagram. Clean. Magnetic coil/cable defect Inspect/replace
Cargolift stops when lowered from the foot control	Cable interruption at cable platform/supporting beam	Replace cable. Check cable laying in accordance with the assembly instructions.
Cargolift clearly lowers of its own accord horizontally (e.g. 20-30 mm in 5 min.)	Solenoid valves VH on both lifting cylinders and check valve in power unit leaking	Check if magnets are live when „Close“ is activated, and if magnetic coils are working Check earth connection.
Cargolift does not lower from above	Cable to solenoid valve VH on lifting cylinder defect. Solenoid valve VH defect Shuttle valve VS1 jams	Before removing the valves it is imperative that the lowering path be determined for 5 min. If necessary, repeat in different positions. If a lowering is detected clean/replace valves. Replace
Cargolift does not lower and does not open, power unit starts up.	Shuttle valve VS1 of thermal switch disconnected	Replace or clean valve Clean VS1 Inspect if magnetic core is live After a cooling period of 5 min, VS1 is once again ready for service

Faults and their Remedies

Fault	Cause	Remedy
Cargolift is springing during lifting movement Lifting cylinder springs	Air in lifting cylinder. Pump sucks air and creates an air-oil mixture.	Check oil level. Vent both lifting cylinders at top of piston rod simultaneously. Inspect suction line.
Platform tip is springing when loaded. Tilting cylinder springs	Air in tilting cylinder. Pump sucks air and creates an air-oil mixture.	Vent both tilting cylinders at top of piston rod simultaneously.
Cargolift lifts above bed level	Body pushed forwards Rear sillboard deformed	Push body back Adjust rear sillboard
Cargolift does not lift to bed level	Body pushed too far back Cargolift mounted too steeply	Push body forwards. Align in accordance with assembly drawing
Cargolift cannot close fully	Tilting cylinder wrongly adjusted. Too little oil in tank. Pump sucks air	Adjust tilting cylinder Top up with oil

Faults and their Remedies

Fault	Cause	Remedy
Cargolift does not lift the full load	Load too heavy or too far from the side of the vehicle	Check the load, observe bearing capacity diagram
	Pressure relief valve set too low	Check pressure (test connection)
	Control valve VS1 leaking	Check, replace, if necessary. Observe tightening torque, replace
	Pump defect	Replace
Red control lamp in cab is not extinguished when platform closed	Central electric system safety switch in cab is wrongly connected	Exchange places according to switch diagram Replace complete foot control unit.
	Tilting switch in foot control unit defect/wrongly installed	Install correctly
and / or hazard lights do not switch off when the platform is closed.	The foot switch electronics unit is not positioned horizontally to the tip of the platform	Correct the position of the foot switch electronics unit.

Note:

When horizontally positioned the platform should be connected to the feedback circuit.

6. Electrical charging system

6.1 Operating instruction of electrical charging system

6.1.1 Area of use:

The electronic charging system was especially developed in order to charge an additional battery pack mounted on a trailer or semi-trailer by a towing vehicle by intelligent means.

The charging system is suitable for both 12 V and 24 V systems.
An integrated voltage monitoring system protects the vehicles battery from being dis-charged too deep during the charging process of the additional battery pack. Errors are simultanieously indicated in the drivers cabin by a flashlight signal. That´s the reason, why it is important to connect the 2 pin-connector! The cable length may not be shorter than 10 metres. An ground-free electrical system is required. If a system should be grounded, suit-able protective measures (e.g. fuses) must be used for all vehicle-connecting cables (including ground cables).

If there is additional material needed, it has to be delivered by the body-builder.
Attention: the truck / body mounting directives must be kept!

When using the electronic charging system in special applications, no guarantee can be given for correct function or damages.

It is absolutely forbidden, to connect the charging electronic´s plus and minus in the wrong way, because by connecting with a additional battery pack it causes shot circuit and seri-ous damages.
It is absolutely necessary to mount the cube-fuse with the knurled nut correctly. If there are damaged pins or noses, the knurled nut must be replaced.

6.1.2 Function:

The cable in front of the truck socket contains a compound-filled electronics system in a cylinder-shaped housing which connects or disconnects the two battery packs, depending on the situation. The electronics system hereby initially diagnoses the systems voltage of each of the battery packs which are to be connected during the connection process.
In case of different system voltages (12V/24V), no coupling of the battery packs takes place. Instead of this, a fault message is outputted and only the feedback light of the tail-gate lift of the trailer works. Different system voltages are detected at a mimimum voltage of at least 8,5 Volts.
No charging takes place in hybrid operation with different system voltages!

If the charging system plug has been inserted and the vehicle engine started up, the on-board voltage increases above the switch on threshold value and the battery packs are connected to each other. The diagnosis-LED hereby illuminates green.

In order to avoid a permanent switching on and switching off in case of voltage fluctua-tions, the electronic only disconnects the battery packs after a duration of 10 sec (even if voltage is lower than switch off voltage).

If the engine of the towing vehicle is switched off and the on-board voltage falls below the switch off threshold value, the battery packs are disconnected. The electronic switches the diagnosis-LED off. If the battery packs are extremely fully charged, there can be a delay in disconnection of the battery packs as the voltage drops much more slowly.
Two control pins are provided in order to signalise the electronics system whether a trailer cable is connected or not: The blue wire of the charging system plug at the trailer with 1mm² on pin 5 and the brown wire at pin 6. For the charging function, one of these wires (e.g. in the battery box on the trailer) must be connected to minus. This coding connection not only results in a turn-on signal for charging of the additional battery pack, the feedback system for the platform on the trailer is furthermore determined (blue [5] = quiescent cur-rent principle with minus signal, brown [6] operating current principle with minus signal).

If plug is removed, the electronics system does not connect the battery packs even if the switch on voltage is reached. If a test plug with a coding bridge but without a voltage con-nection is inserted, the electronics system also does not connect the battery packs as the system voltages are checked first for safety reasons.

If there is a voltage at the socket without a plug inserted, the electronic may be dam-aged and must be replaced.

If the engine of the towing vehicle is running while the plug is pushed into the socket, the electronics system only connects the battery packs after a delay of 2 sec., in order to pre-vent sparks forming at the contacts.

When the 7-pin plug is removed, the shorter pins in the plug initially disconnect the ground signal, thereby switching the electronic off before the contacts of the charging current pins are disconnected.
To avoid dirty and corroted contacts it´s necessary to use a parking socket for all plugs!

The 50 A-fuses attached to the battery poles purely act as cable fuses. The electronic dis-connects the charging system at all times if the charging current exceeds (overload) 50 A for a duration of 0.1 seconds and carries out cyclic checks by switching on in order to de-termine whether this overload has still been applied. The battery packs are also discon-nected after a longer high peak current phase (>30 A and >4 min). This necessitates an inspection of the battery pack!
If a short-circuit should occur, the electronic also disconnects the charging system if the current exceeds 100 A for a duration of 0.05 s.

Should one of the following errors occur in the charging system, a uniform flashing light signal with a frequency of approx. 0.5 Hz is displayed via the feedback unit in the driver's cabin:

1. *Non-reaching of the charging current:*
   During the first 2 sec. of the charging process:
   This fault is displayed for a duration of 10 min. If the charging current exceeds 1 A, the fault is automatically reset. If the voltages are approximately identical (above the switch on voltage), a current is unable to flow when inserting the plug. In this special case, the error signal is therefore suppressed.
   No voltage from the towing vehicle:
   This fault is monitored every 5 min. after insertion of the charging plug into the socket. This fault is displayed until it has been remedied.

2. *No voltage from the trailer:*
   The correct charging operation is monitored every 5 min. by the trailer voltage being monitored for a period of 0.1 sec. as a result of a brief disconnection and checking of the trailer voltage. This fault is displayed until it has been remediated or until the next correct measurement.

3. *Exceeding the charging current*
   In case of an exceeding of the charging current above 30 A or 50 A, the power switch is disconnected and reconnected after a short break.
   The error message (charging current) is outputted and after the fault has been reme-died, it is reset with a short time delay. If this fault occurs several times, the connection will be blocked until the error is repaired. The error message (short circuit) is dis-played. For an error-reset, the connection has to be unplugged.

4. *Short-circuit:*
   In case of a short-circuit, the electronics system disconnects immediately if the current should exceed 100 Ampere. In this case, the charging system remains permanently dis-connected. The warning signal (short circuit) is also permanently outputted. Before the charging operation can be recommenced after a repair has been successfully carried out. For an error-reset, the connection has to be unplugged.

5. *Different system voltages:*
   This fault is displayed at a minimum voltage of 8,5 Volts. Before charging operation can be recommenced after the system has been changed, the electronic must be reset by removing and replacing the plug-type connector at the charging socket.

In addition to the uniform flashing light signal in the driver's cabin, each of the faults are also directly displayed at the electronic in form of a coded flashing light signal on the in-ternal LED.
The following charts provide an overview of the various fault codes.

6.1.3 Fault messages overview table

Operating state	Monitoring duration	Display Type	Display duration
charging operation, battery pack connected	permanently as soon as switch-on conditions are met	LED illuminates green	permanently as long as the battery packs are connected
charging operation interrupted, no fault	permanently as soon as switch-on conditions are not met	LED does not illuminate	always when there is no fault or no charging operation
charging current less than 2A	in the first 2 seconds of the charging process	 LED flashes red	10 minutes
no voltage from towing vehicle	permanently, if the plug is inserted	 LED flashes red	permanently or as long as there is a fault
no voltage from trailer	with charging operation all 5 min. for 0.1 sec.	 LED flashes red	as long as there is a fault or until next measurement
charging current > 50A	permanently	 LED flashes red	permanently or as long as there is a fault
short-circuit	permanently	 LED flashes red	permanently until reset
different system voltages / voltages outside the working range	after connection when minimum Voltage is reached	 LED flashes red	permanently until reset

6.1.4 Pin occupancy for the socket

Pin no.	Occupancy	Wire colour
1	positive charging current	red 6 mm²
2	positive charging current	white / red 6 mm²
3	minus charging current	brown 6 mm²
4	minus charging current	white / brown 6 mm²
5	bridge at minus = trailer feedback according to quiescent current principle	blue 1 mm²
6	bridge at minus = trailer feedback according to operating current principle	brown 1 mm²
7	feedback signal trailer	yellow 1 mm²

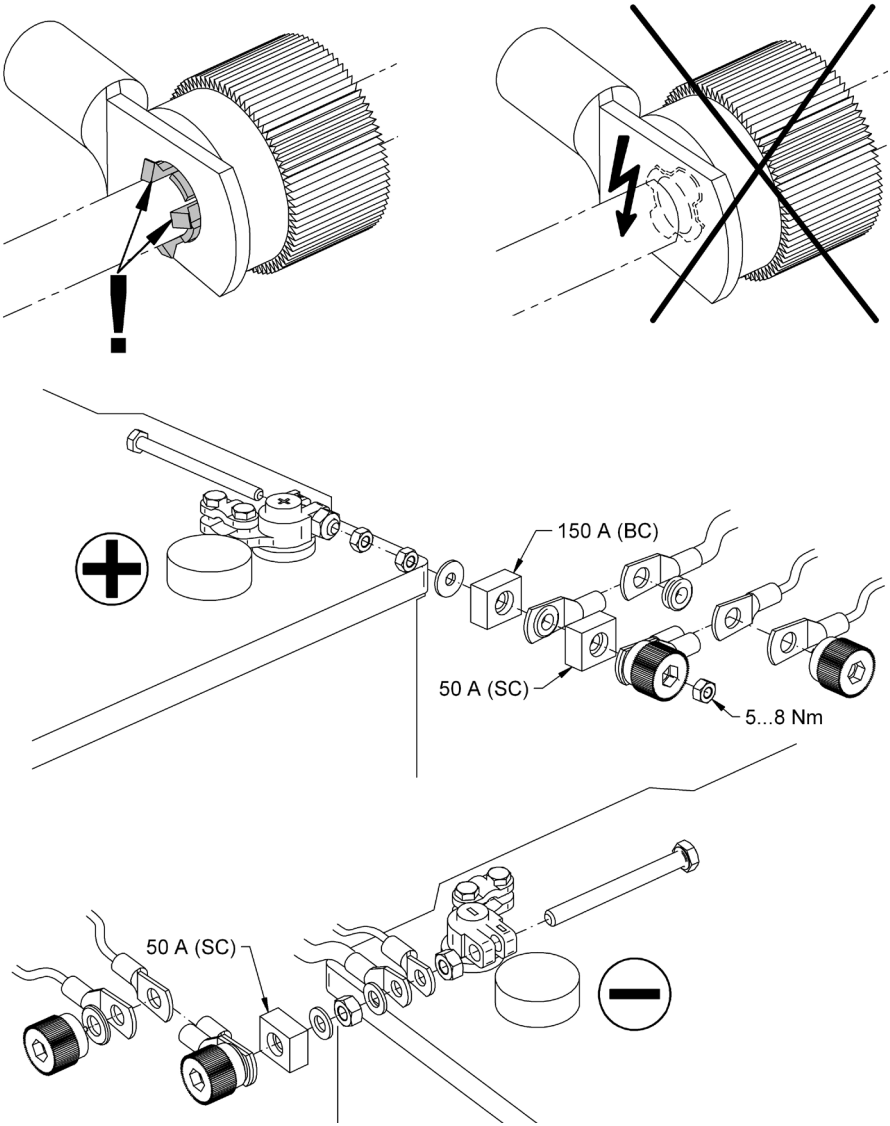
With a hybrid operation (i.e. the towing vehicle and trailer have platforms from different ma-nufacturers), the correct coding of Pin 5 or 6 will result in the switching principle of the feedback to the trailer being automatically detected by the electronic on the towing vehicle.

This means that trailers with minus feedbacks from all manufacturers can be combined with each other as required.

At the towing vehicle minus operating current principle is always output as a feedback.

At the 2-pin plug of the electronic, a permanent voltage supply is applied to Pin 2 as minus is switched for the feedback. This enables a control/feedback lamp to be operated without any additional access having to be made.

6.2 Mounting instruction fuse unit charging system



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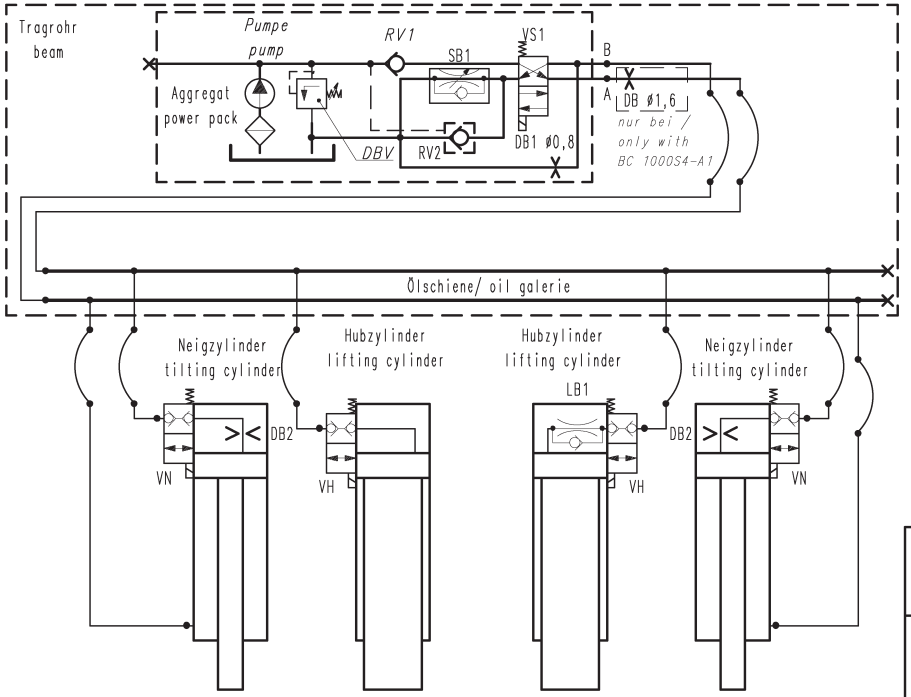


Typ BC/Einstellung / type of lift/adjustment

	Ventil valve		1000S4-A1	1500S4-B1	2000S4A-D1	2000S4-C1	2000S4U-C1
SB1	Senkbremsventil safety flow restrictor		4,7 l Minute	7,5 l Minute	8,75 l Minute	8,75 l Minute	7,5 l Minute
LB1	Senkbremsventil safety flow restrictor		4,0 l Minute	5,6 l Minute	6,3 l Minute	6,3 l Minute	6,3 l Minute
DB2	Drosselblende orifice		ø 0,8	ø 1,0	ø 1,2	ø 1,2	ø 1,2
	Pumpe cm^3 pump cm^3		1,2	2,0	2,6	2,6	2,0
Nennlast nominal load	Druckbegrenzungsventil DBV in bar pressure relief valve	Armlänge arm lenght 1100				240	240
		Armlänge arm lenght 1000		240	240	220	220
		Armlänge arm lenght 900	230	220	220	220	
		Armlänge arm lenght 800	220	220	190	190	
abgelastet reduced load	Druckbegrenzungsventil DBV in bar pressure relief valve	Armlänge arm lenght 1100				180	180
		Armlänge arm lenght 1000		160	180	165	165
		Armlänge arm lenght 900	170	145	165	165	
		Armlänge arm lenght 800	165	145	145	145	

Heben/up	= M + VH
Senken/down	= VH + VS1
Schliesen/close	= M + VN
Öffnen/open	= M + VS1 + VN
QuickShift	= M + VS1 + VN + VH

Zugehöriger Elektroschaltplan

18489.000-3

Hydraulikschaltplan Bär Cargolift

BC 1000S4-A1 / BC 1500S4-B1 / BC 2000S4-C1
BC 2000S4A-D1 / BC 2000S4U-C1

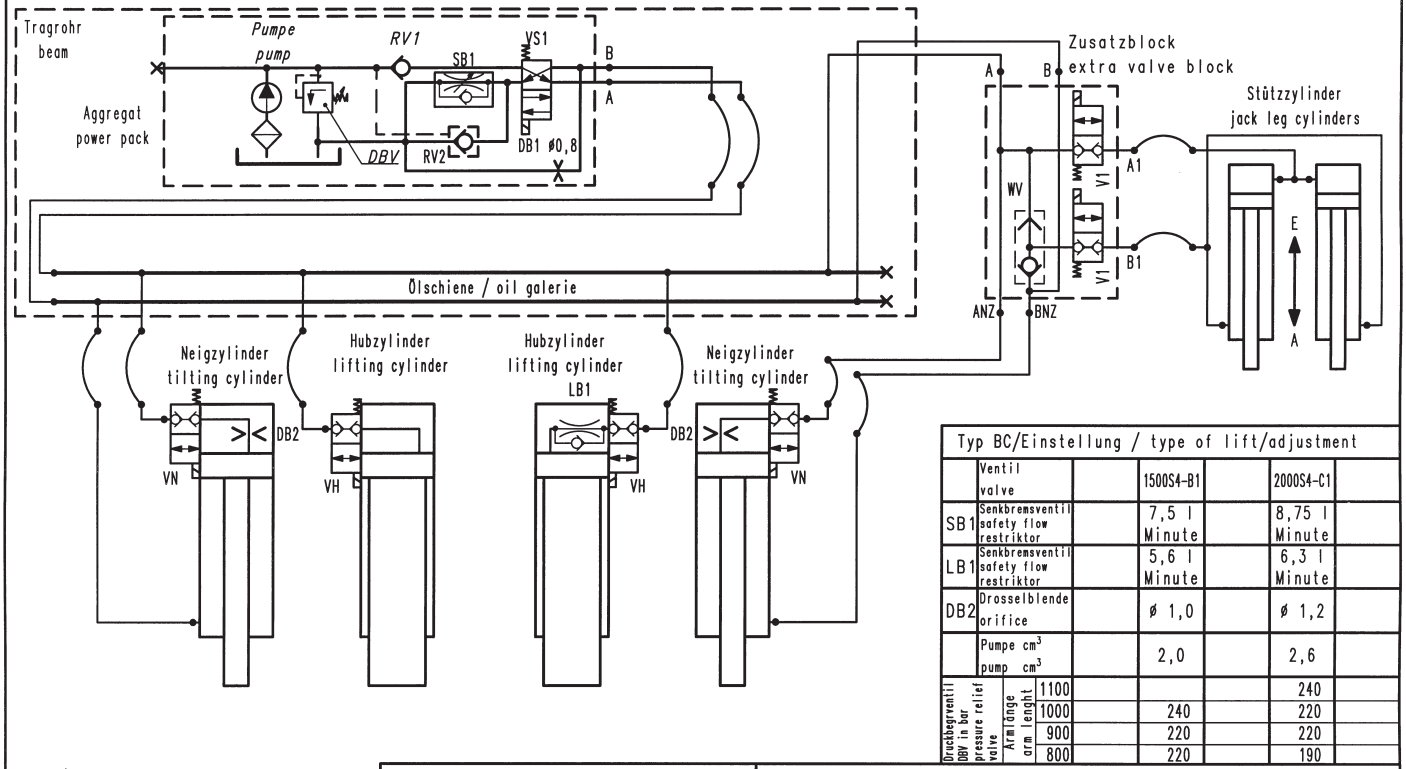
Änderungsmitteilung : 05/061 | *Index : 02*

BÄR Cargolift®
D-74078 Heilbronn

18490.000-4-02

27.07.2005
Lohmann

Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden



Typ BC/Einstellung / type of lift/adjustment

	Ventil valve		1500S4-B1		2000S4-C1	
SB1	Senkbremsventil safety flow restriktor		7,5 l Minute		8,75 l Minute	
LB1	Senkbremsventil safety flow restriktor		5,6 l Minute		6,3 l Minute	
DB2	Drosselblende orifice		ø 1,0		ø 1,2	
	Pumpe cm^3 pump cm^3		2,0		2,6	
Druckbegrenzventil DBV in bar pressure relief valve / Armlänge arm lenght	1100				240	
	1000		240		220	
	900		220		220	
	800		220		190	

Heben/up = M + VH
Senken/down = VH + VS1
Schließen/close = M + VN
Öffnen/open = M + VS1 + VN
QuickShift = M + VS1 + VN + VH
Ausfahren/drive out = M + V1
Einfahren/pull in = M + VS1 + V1

Zugehöriger Elektroschaltplan

18486.000-2

Hydraulikschaltplan Bär Cargolift

BC 1500S4-B1 / BC 2000S4-C1
mit hydralischen Stützen / with jack legs

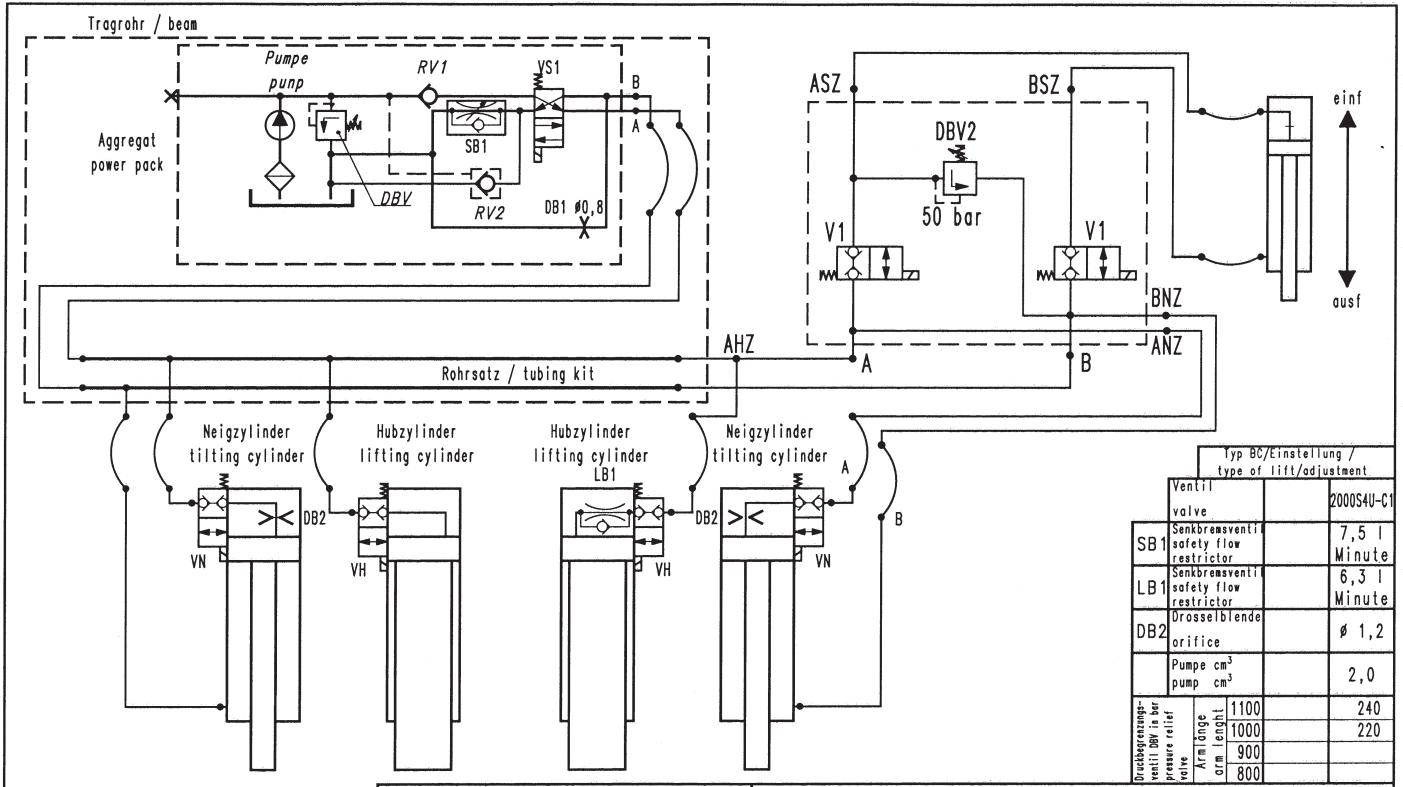
Änderungsmitteilung :01/118 | Index : 00

BÄR Cargolift® D-74078 Heilbronn

18487.000-4-00

10.11.2001
Siegel

Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden



Typ BC/Einstellung / type of lift/adjustment

	Ventil / valve			2000S4U-C1
SB1	Senkbremsventil / safety flow restrictor			7,5 l Minute
LB1	Senkbremsventil / safety flow restrictor			6,3 l Minute
DB2	Drosselblende / orifice			ø 1,2
	Pumpe cm^3 / pump cm^3			2,0
Druckbegrenzungsventil DBV in bar / pressure relief valve	Armlänge / arm lenght	1100		240
		1000		220
		900		
		800		

Heben/up	= M + VH
Senken/down	= VH + VS1
Schließen/close	= M + VN
Öffnen/open	= M + VS1 + VN
QuickShift	= M + VS1 + VN + VH
Ausfahren/drive out	= M + V1
Einfahren/pull in	= M + VS1 + V1

Zugehöriger Elektroschaltplan

18652.000-2

Hydraulikschaltplan Bär Cargolift

BC 2000S4U-C1

hydraulisch schwenkbarer Unterfahrschutz

D

BÄR Cargolift D-74078 Heilbronn

07.10.2003 Siegel

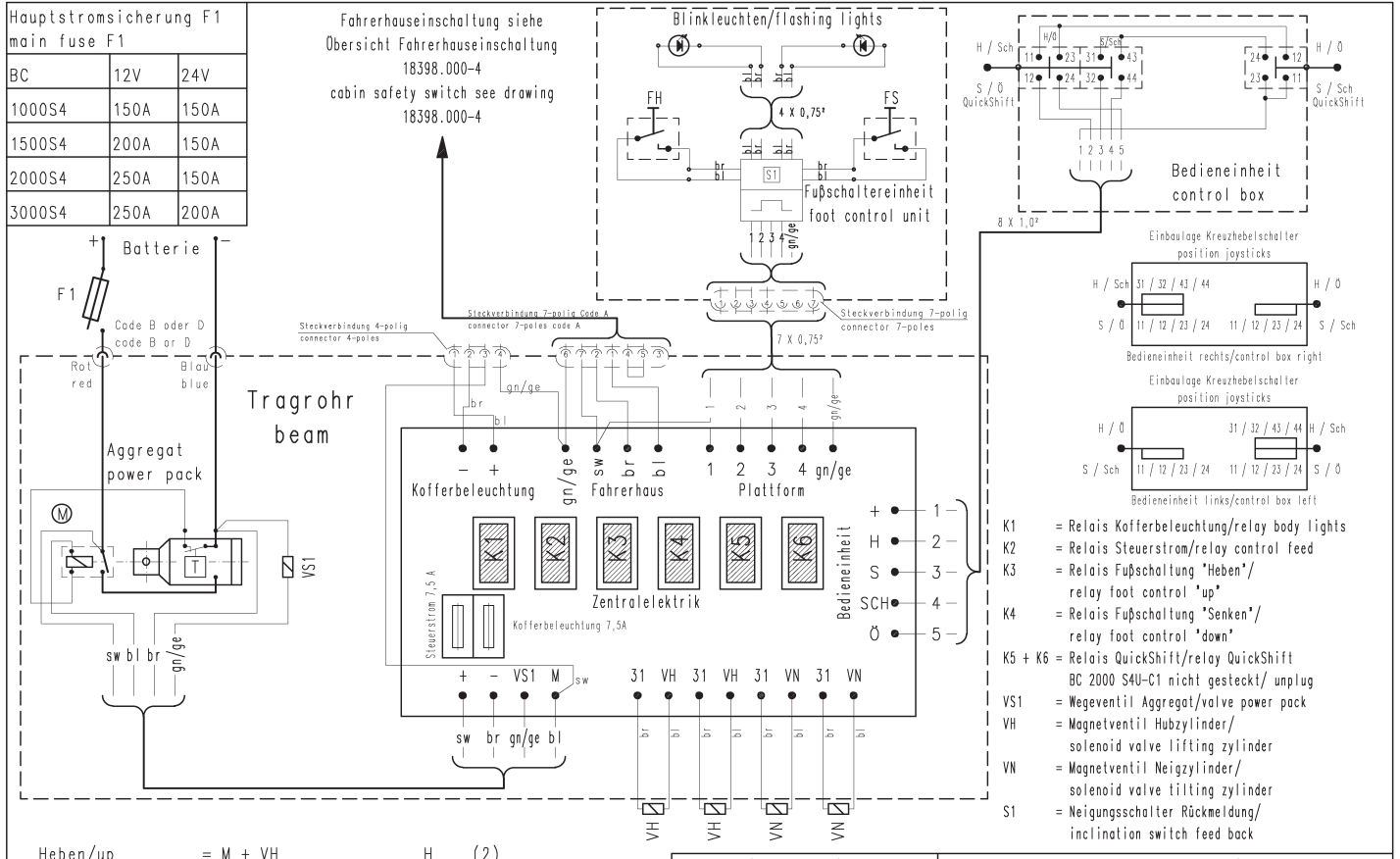
Änderungsmitteilung : 03/138 | Index : 01

18650.000-4-01 01.124217

Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden

Hauptstromsicherung F1 main fuse F1		
BC	12V	24V
1000S4	150A	150A
1500S4	200A	150A
2000S4	250A	150A
3000S4	250A	200A

Fahrerhauseinschaltung siehe
Übersicht Fahrerhauseinschaltung
18398.000-4
cabin safety switch see drawing
18398.000-4



K1 = Relais Kofferbeleuchtung/relay body lights
K2 = Relais Steuerstrom/relay control feed
K3 = Relais Fußschaltung "Heben"/
relay foot control "up"
K4 = Relais Fußschaltung "Senken"/
relay foot control "down"
K5 + K6 = Relais QuickShift/relay QuickShift
BC 2000 S4U-C1 nicht gesteckt/ unplug
VS1 = Wegeventil Aggregat/valve power pack
VH = Magnetventil Hubzylinder/
solenoid valve lifting zylinder
VN = Magnetventil Neigzylinder/
solenoid valve tilting zylinder
S1 = Neigungsschalter Rückmeldung/
inclination switch feed back

Heben/up	= M + VH	H	(2)
Senken/down	= VH + VS1	S	(3)
Schließen/close	= M + VN	SCH	(4)
Öffnen/open	= M + VS1 + VN	Ö	(5)
QuickShift	= M + VS1 + VN + VH		

Zugehöriger Hydraulikschaltplan
18490.000-4

Elektroschaltplan Bär Cargolift
BC 1000S4-A1 / BC 1500S4-B1 / BC 2000S4-C1
BC 2000S4A-D1 / BC 2000S4U-C1

BÄR Cargolift®
D-74078 Heilbronn

12 V oder 24 V

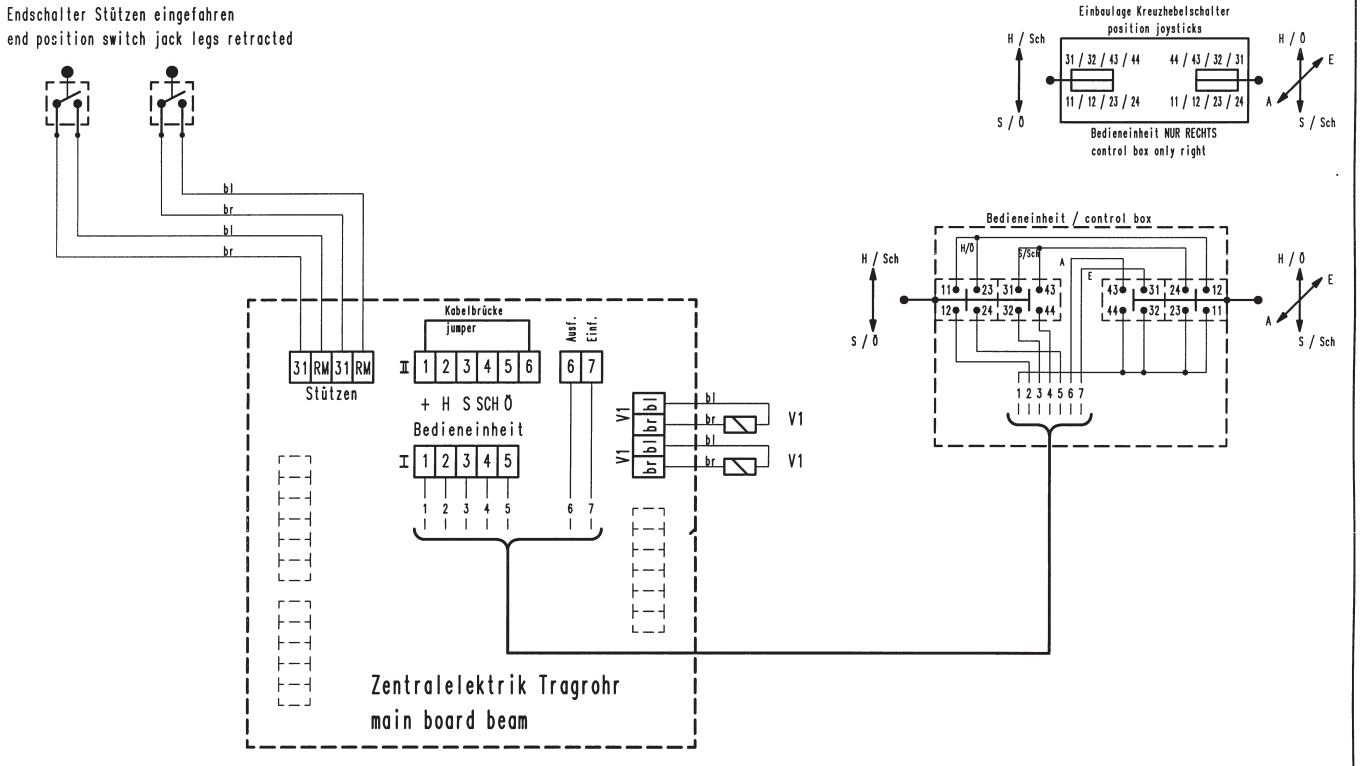
14.10.2005 Lohmann

Blatt

18489.000-3-03

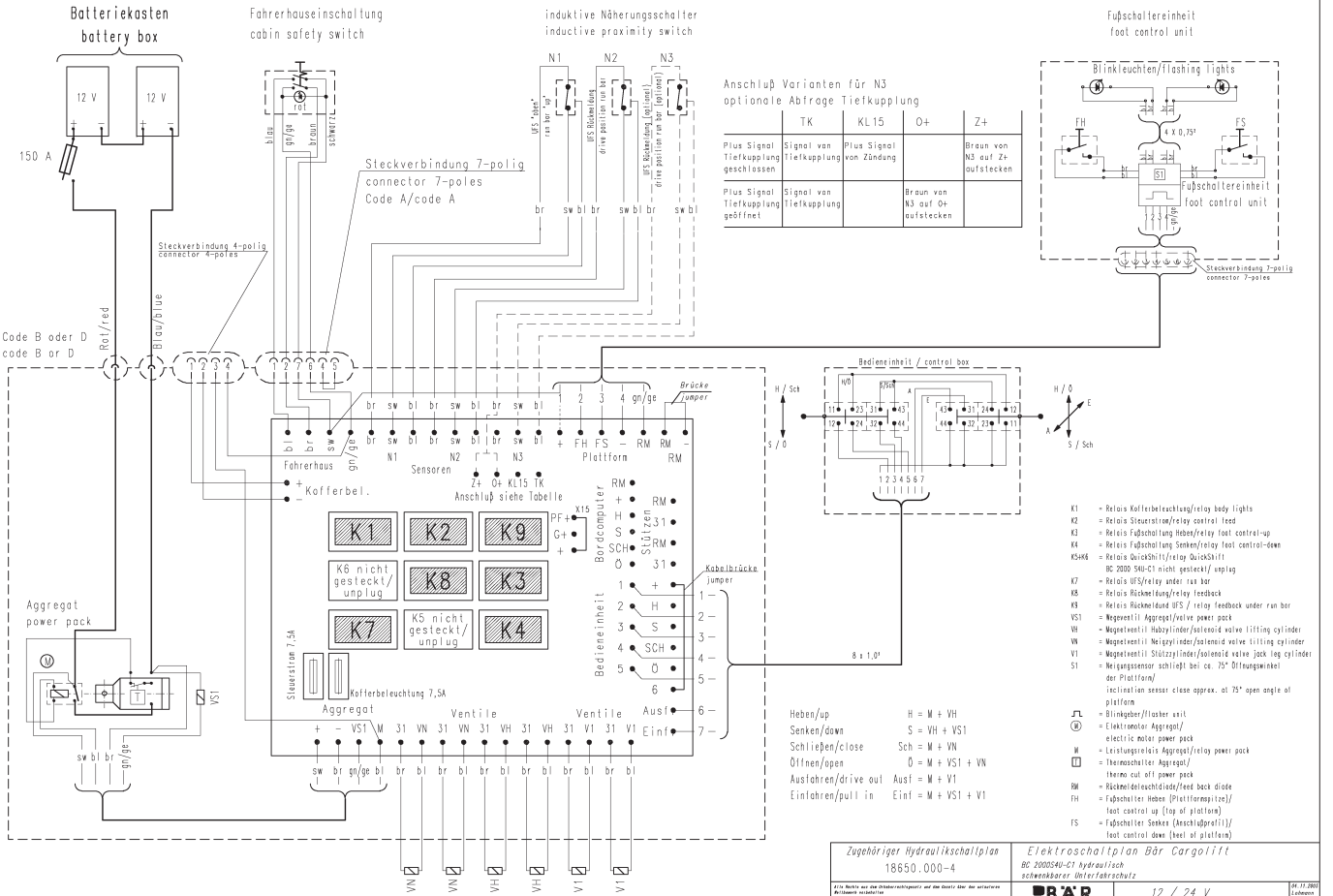
Änderungsmitteilung : 05/088 | Index : 03

Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden



Ausfahren/drive out = M + V1 (6)
Einfahren/pull in = M + VS1 + V1 (7)

Zugehöriger Hydraulikschaltplan 18487.000-4	Elektroschaltplan Bär Cargolift BC 1500S4-B1 / BC 2000S4-C1 mit hydraulischen Stützen / with jack legs	
Alle Rechte aus dem Urheberrechtsgesetz und dem Gesetz über den unlauteren Wettbewerb vorbehalten. Ohne unsere schriftliche Zustimmung darf diese Zeichnung weder vervielfältigt noch Dritten zugänglich gemacht werden.	BÄR Cargolift® D-74078 Heilbronn	24 V 18486.000-3-00
Änderungsmitteilung : 01/118 Index : 00		10.11.2001 Siegel Blatt
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden		



Anschluß Varianten für N3
optionale Abfrage Tiefkupplung

	TK	KL15	O+	Z+
Plus Signal Tiefkupplung geschlossen	Signal von Tiefkupplung	Plus Signal von Zündung		Braun von N3 auf Z+ aufstecken
Plus Signal Tiefkupplung geöffnet	Signal von Tiefkupplung		Braun von N3 auf O+ aufstecken	

Heben/up	H = M + VH
Senken/down	S = VH + VS1
Schließen/close	Sch = M + VN
Öffnen/open	Ö = M + VS1 + VN
Ausfahren/drive out	Aust = M + V1
Einfahren/pull in	Eint = M + VS1 + V1

K1 = Relais Kofferbeleuchtung/relay body lights
K2 = Relais Steuerstrom/relay control feed
K3 = Relais Fußschaltung Heben/relay foot control-up
K4 = Relais Fußschaltung Senken/relay foot control-down
K5+K6 = Relais QuickShift/relay QuickShift
BC 2000 S4U-C1 nicht gesteckt/ unplug
K7 = Relais UFS/relay under run bar
K8 = Relais Rückmeldung/relay feedback
K9 = Relais Rückmeldung UFS / relay feedback under run bar
VS1 = Wegeventil Aggregat/valve power pack
VH = Magnetventil Hubzylinder/solenoid valve lifting cylinder
VN = Magnetventil Neigzylinder/solenoid valve tilting cylinder
V1 = Magnetventil Stützzylinder/solenoid valve jack leg cylinder
S1 = Neigungssensor schließt bei ca. 75° Öffnungswinkel der Plattform/ inclination sensor close approx. at 75° open angle of platform
= Blinkgeber/flasher unit
(M) = Elektromotor Aggregat/ electric motor power pack
W = Leistungsrelais Aggregat/relay power pack
= thermoschalter Aggregat/ thermo cut off power pack
RM = Rückmeldeleuchtdiode/feed back diode
FH = Fußschalter Heben (Plattformsitze)/ foot control up (top of platform)
FS = Fußschalter Senken (Anschlußprofil)/ foot control down (feet of platform)

Zugehöriger Hydraulikschaltplan
18650.000-4

Elektroschaltplan Bär Cargolift
BC 2000S4U-C1 hydraulisch schwenkbarer Unterfahrschutz

Alle Rechte wie dem Urheberrechtsgesetz und dem Gesetz über den unlauteren Wettbewerb vorbehalten. Ohne unsere schriftliche Zustimmung darf diese Zeichnung weder vervielfältigt noch Dritten zugänglich gemacht werden.

Änderungsmitteilung : 05/088 Index : 01

BÄR Cargolift® D-74078 Heilbronn

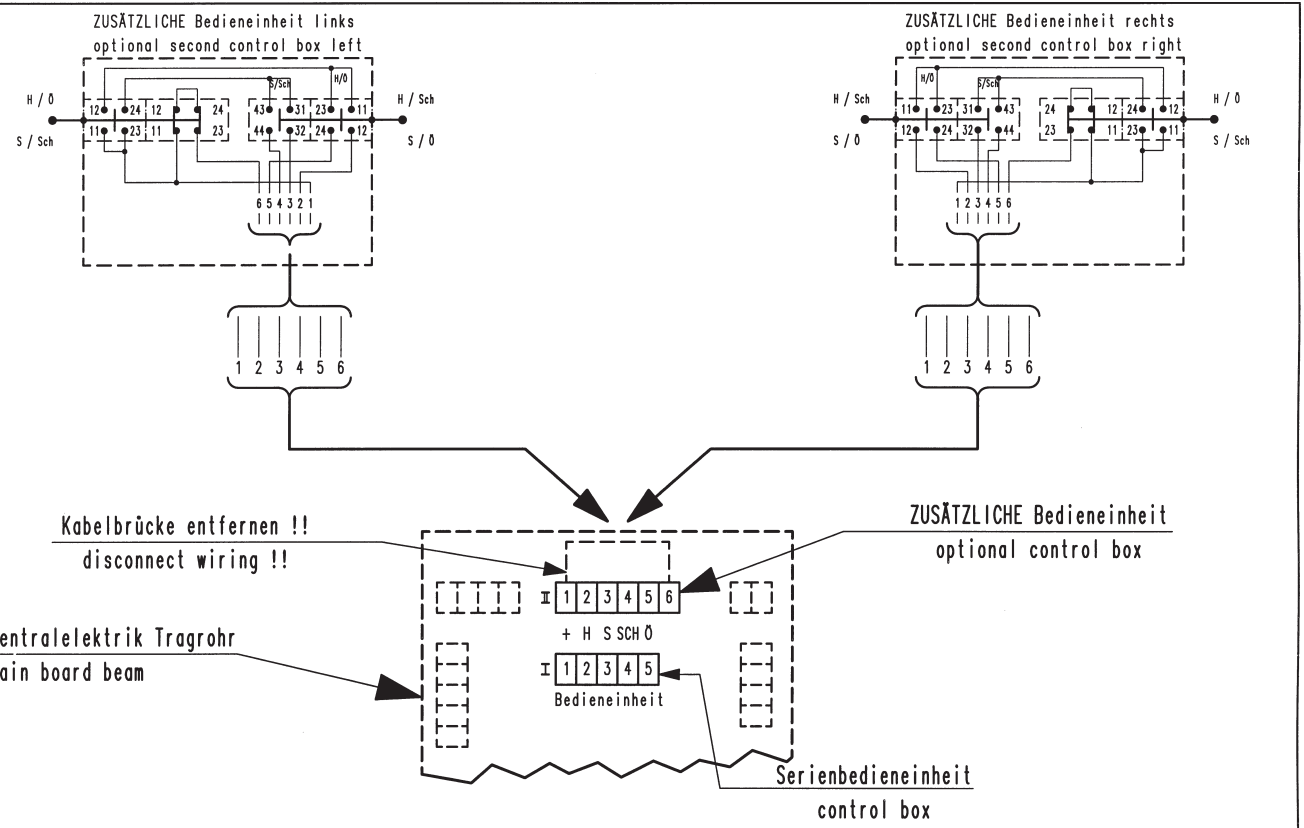
12 / 24 V

18652.000-2-01

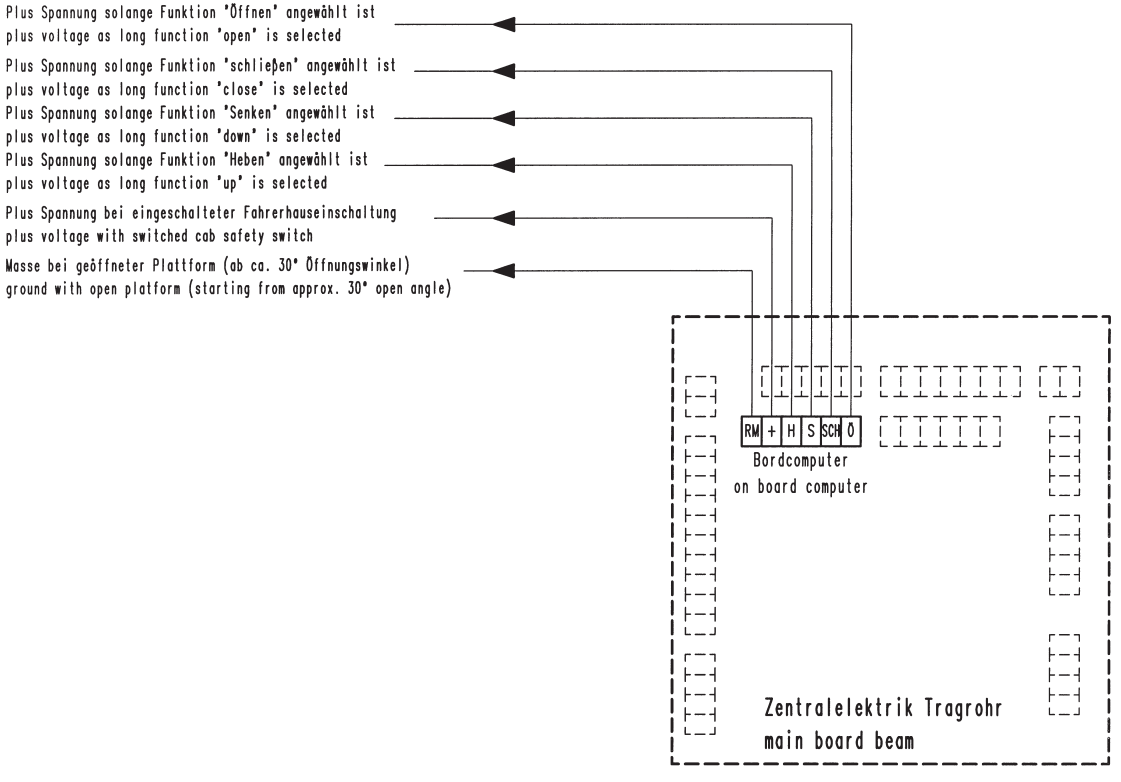
04.12.2003 Lohmann

BÄR

Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden

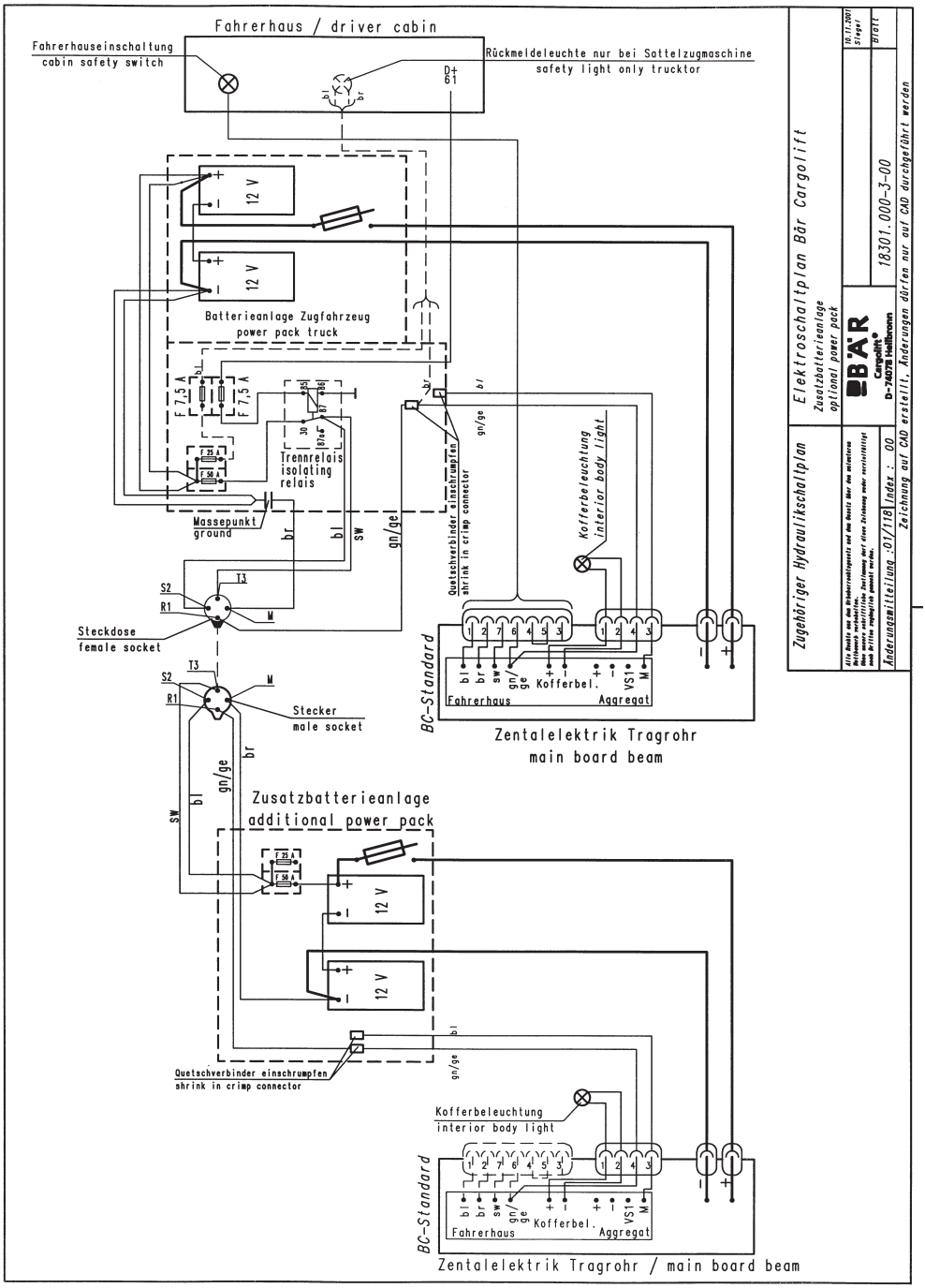


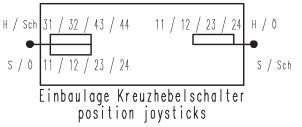
Zugehöriger Hydraulikschaltplan 18490.000-4	*Elektroschaltplan Bär Cargolift* *zusätzliche Bedieneinheit Alpha S4-1* *optional control box Alpha S4-1*		
Alle Rechte aus dem Urheberrechtsgesetz und dem Gesetz über den unlauteren Wettbewerb vorbehalten. Ohne unsere schriftliche Zustimmung darf diese Zeichnung weder vervielfältigt noch Dritten zugänglich gemacht werden.	BÄR Cargolift® D-74078 Heilbronn	24 V	10.11.2001 Siegel
Änderungsmitteilung : 01/118 *Index : 00*		18580.000-3-00	Blatt
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden			



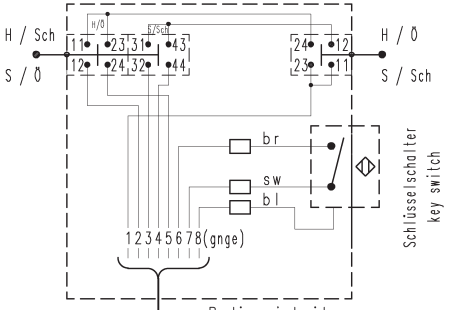
sämtliche Ausgänge sind mit max. 500 mA belastbar
all outputs are loadable with max. 500mA

Zugehöriger Hydraulikschaltplan	Elektroschaltplan Bär Cargolift Schnittstelle Bordcomputer Alpha-1 connector on board computer Alpha-1	
Alle Rechte aus dem Urheberrechtsgesetz und dem Gesetz über den unlauteren Wettbewerb vorbehalten. Ohne unsere schriftliche Zustimmung darf diese Zeichnung weder vervielfältigt noch Dritten zugänglich gemacht werden.	BÄR Cargolift® D-74078 Heilbronn	24 V 18582.000-3-00
Änderungsmitteilung : 01/118 Index : 00		10.11.2001 Siegel Blatt
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden		


Fahrerhaus / driver cabin
Fahrerhauseinschaltung
cabin safety switch
Rückmeldeleuchte nur bei Sattelzugmaschine
safety light only trucktor
D+
61
12 V
12 V
Batterieanlage Zugfahrzeug
power pack truck
F 7,5 A
F 7,5 A
F 35 A
F 50 A
Trennrelais
isolating
relais
Massepunkt
ground
Quetschverbinder einschrumpfen
shrink in crimp connector
Kofferbeleuchtung
interior body light
Steckdose
female socket
Stecker
male socket
T3
S2
R1
M
BC-Standard
Fahrerhaus
Kofferbel.
Aggregat
Zentralelektrik Tragrohr
main board beam
Zusatzbatterieanlage
additional power pack
Quetschverbinder einschrumpfen
shrink in crimp connector
Kofferbeleuchtung
interior body light
Zentralelektrik Tragrohr / main board beam
Elektroschaltplan Bär Cargolift
Zusatzbatterieanlage
optional power pack
Zugehöriger Hydraulikschaltplan
BÄR
Cargolift
D-74078 Heilbronn
18301.000-3-00
Änderungsmitteilung :01/118
Index : 00
Zeichnung auf CAD erstellt. Änderungen dürfen nur auf CAD durchgeführt werden

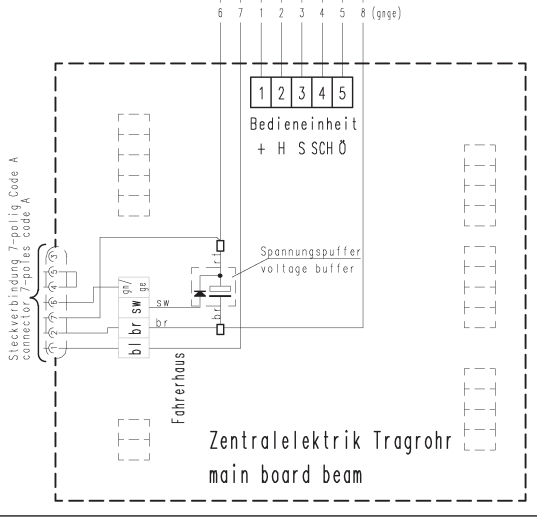


Einbaulage Kreuzhebelschalter
position joysticks



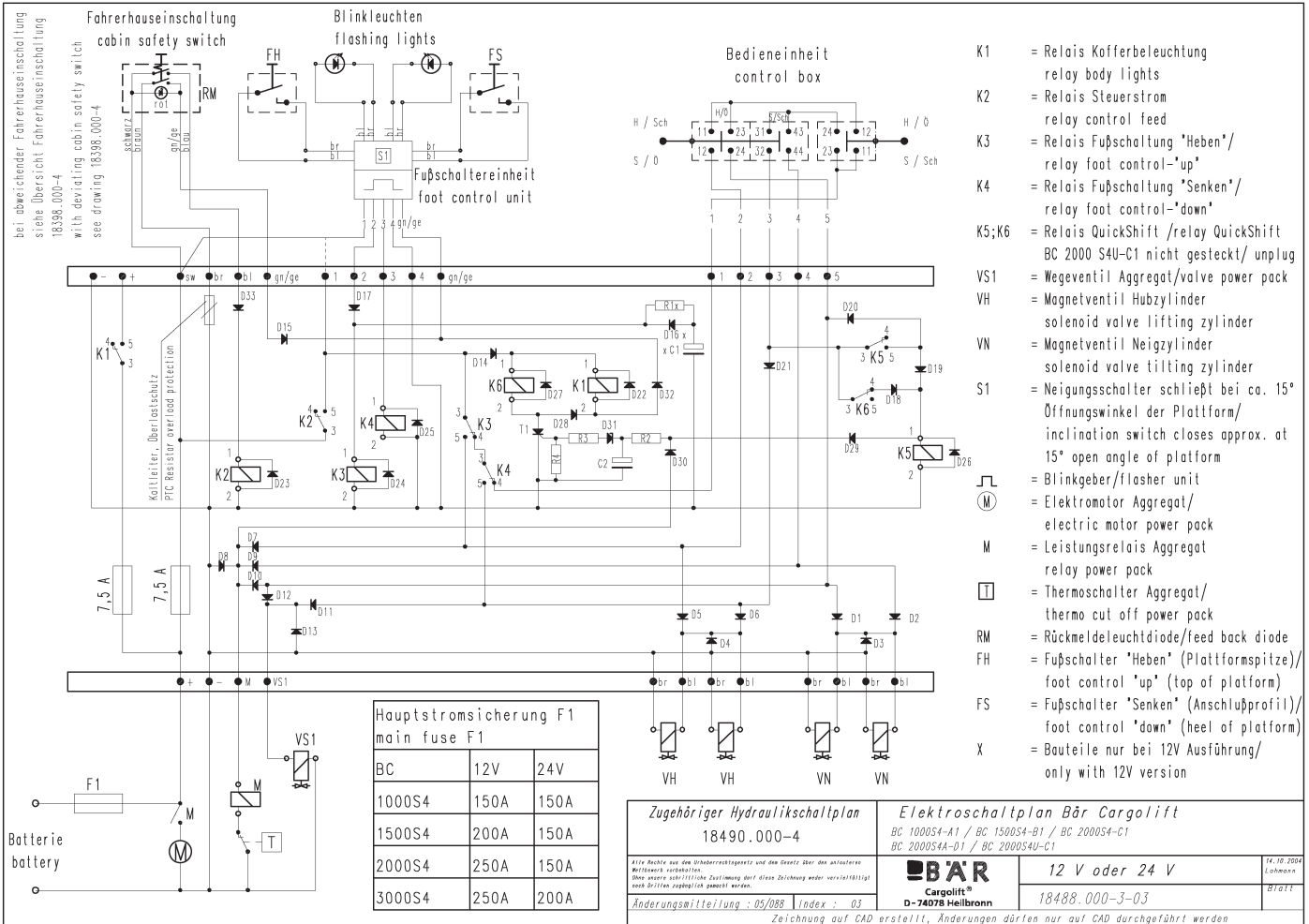
Bedieneinheit
control box

8 x 1 mm²



01.123958

Zugehöriger Hydraulikschaltplan	Elektroschaltplan Bär Cargolift Bedieneinheit mit Schlüsselschalter Alpha-1 control box with key switch Alpha-1	
	BÄR Cargolift® D-74078 Heilbronn	12/24 Volt 3 adrig 18583.000-3-03
Änderungsmitteilung : 05/088 Index : 03		27.09.05 Lohmann Blatt
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden		



Hauptstromsicherung F1 main fuse F1		
BC	12V	24V
1000S4	150A	150A
1500S4	200A	150A
2000S4	250A	150A
3000S4	250A	200A

K1 = Relais Kofferbeleuchtung
relay body lights

K2 = Relais Steuerstrom
relay control feed

K3 = Relais Fußschaltung 'Heben'/
relay foot control-'up'

K4 = Relais Fußschaltung 'Senken'/
relay foot control-'down'

K5;K6 = Relais QuickShift /relay QuickShift
BC 2000 S4U-C1 nicht gesteckt/ unplug

VS1 = Wegeventil Aggregat/valve power pack

VH = Magnetventil Hubzylinder
solenoid valve lifting zylinder

VN = Magnetventil Neigzylinder
solenoid valve tilting zylinder

S1 = Neigungsschalter schließt bei ca. 15° Öffnungswinkel der Plattform/
inclination switch closes approx. at 15° open angle of platform

= Blinkgeber/flasher unit

Ⓜ = Elektromotor Aggregat/
electric motor power pack

M = Leistungsrelais Aggregat
relay power pack

T = Thermoschalter Aggregat/
thermo cut off power pack

RM = Rückmeldeleuchtdiode/feed back diode

FH = Fußschalter 'Heben' (Plattformspitze)/
foot control 'up' (top of platform)

FS = Fußschalter 'Senken' (Anschlußprofil)/
foot control 'down' (heel of platform)

X = Bauteile nur bei 12V Ausführung/
only with 12V version

Zugehöriger Hydraulikschaltplan
18490.000-4

Elektroschaltplan Bär Cargolift
BC 100054-A1 / BC 150054-B1 / BC 200054-C1
BC 200054A-D1 / BC 200054U-C1

Änderungsmitteilung : 05/088 | Index : 03

BÄR Cargolift® D-74078 Heilbronn

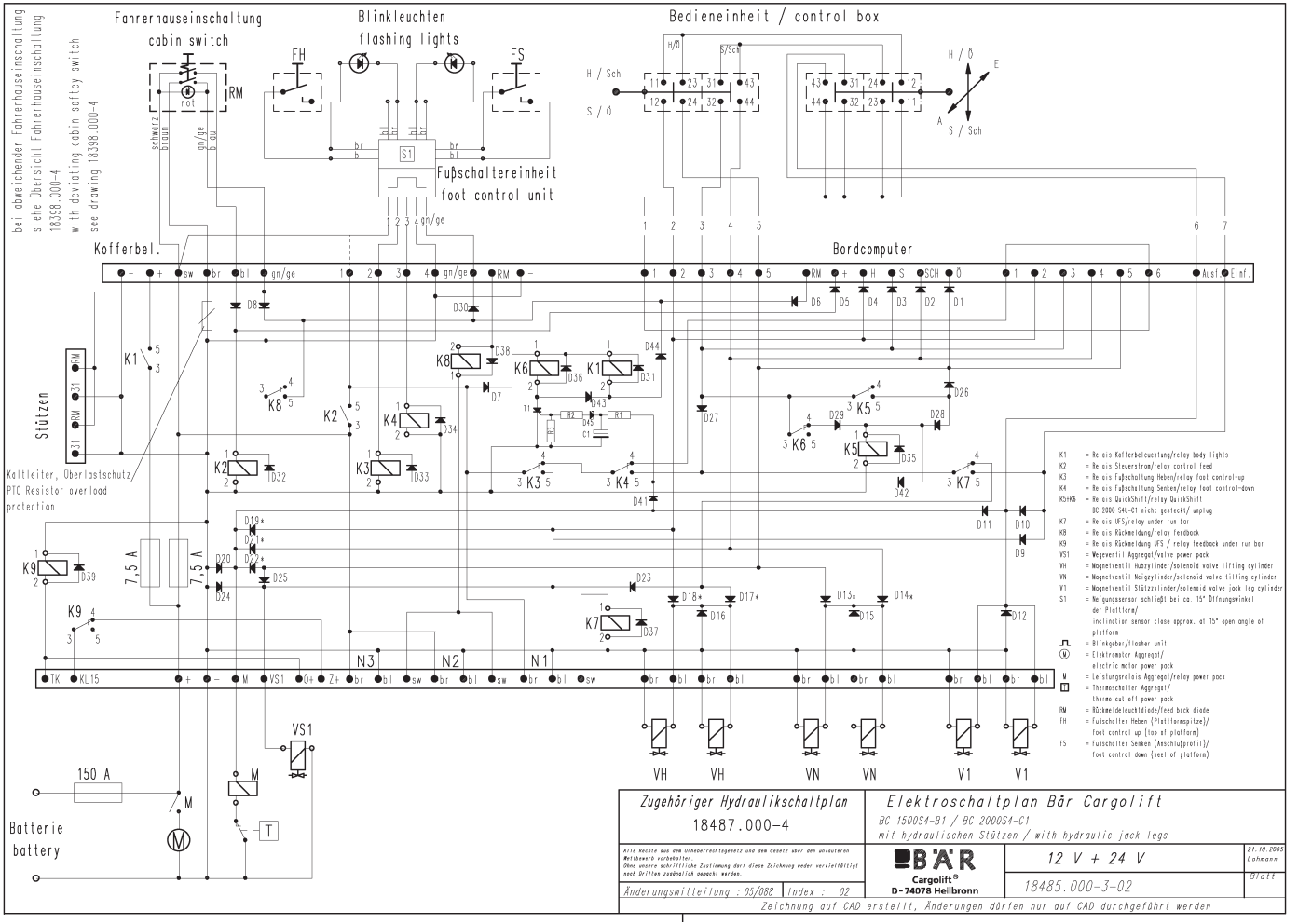
12 V oder 24 V

18488.000-3-03

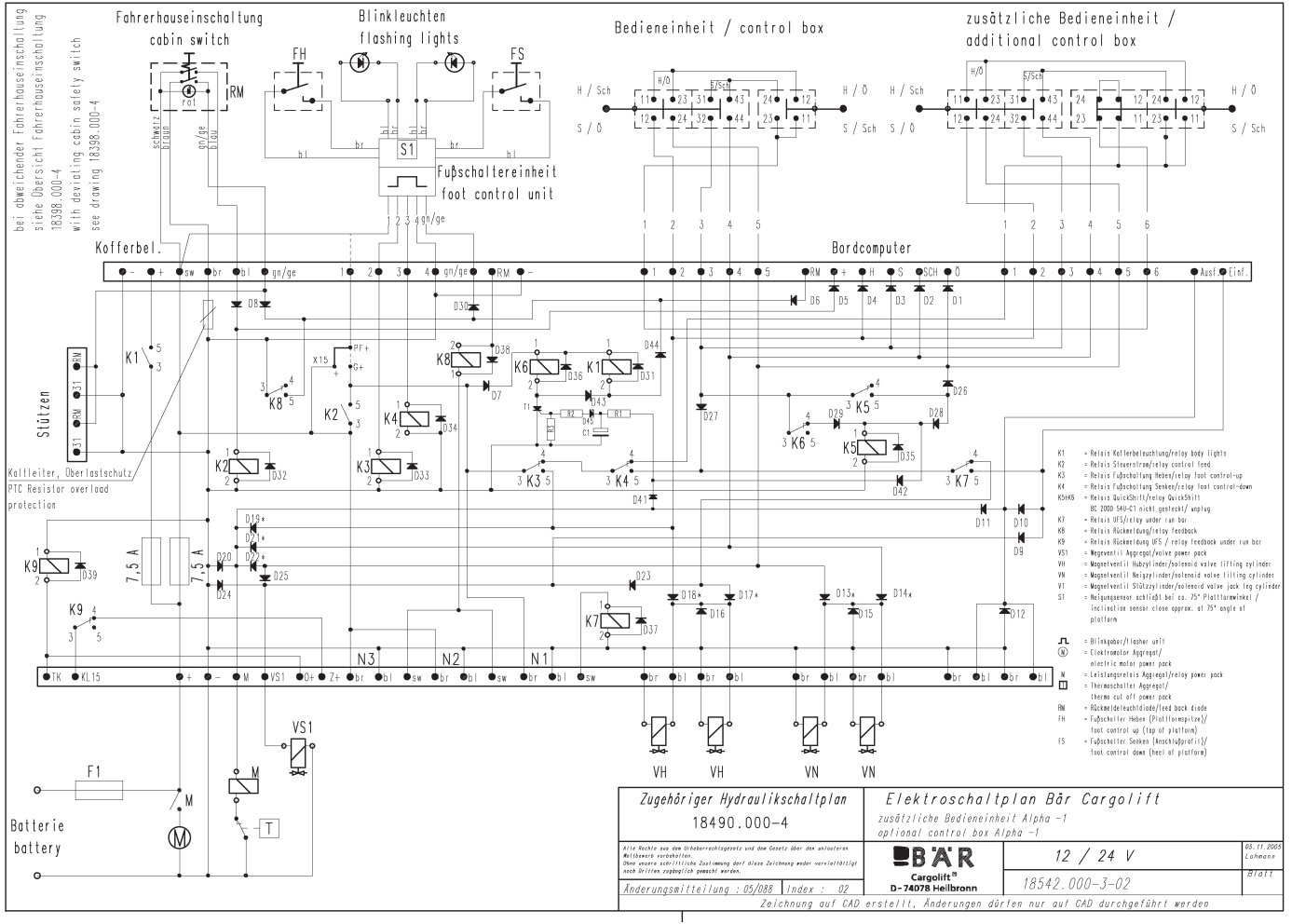
14.10.2004 Lohmann

Blatt

Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden



Zugehöriger Hydraulikschaltplan 18487.000-4	Elektroschaltplan Bär Cargolift BC 1500S4-B1 / BC 2000S4-C1 mit hydraulischen Stützen / with hydraulic jack legs	
Alle Rechte aus dem Urheberrechtsgesetz und dem Gesetz über den unlauteren Wettbewerb vorbehalten. Ohne unsere schriftliche Zustimmung darf diese Zeichnung weder vervielfältigt noch Dritten zugänglich gemacht werden.	BÄR Cargolift® D-74078 Heilbronn	12 V + 24 V 18485.000-3-02
Änderungsmitteilung : 05/088 Index : 02		21.10.2005 Lohmann Blatt
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden		



Zugehöriger Hydraulikschaltplan

18490.000-4

Elektroschaltplan Bär Cargolift

zusätzliche Bedieneinheit Alpha -1

optional control box Alpha -1

BÄR Cargolift
D-74078 Heilbronn

12 / 24 V

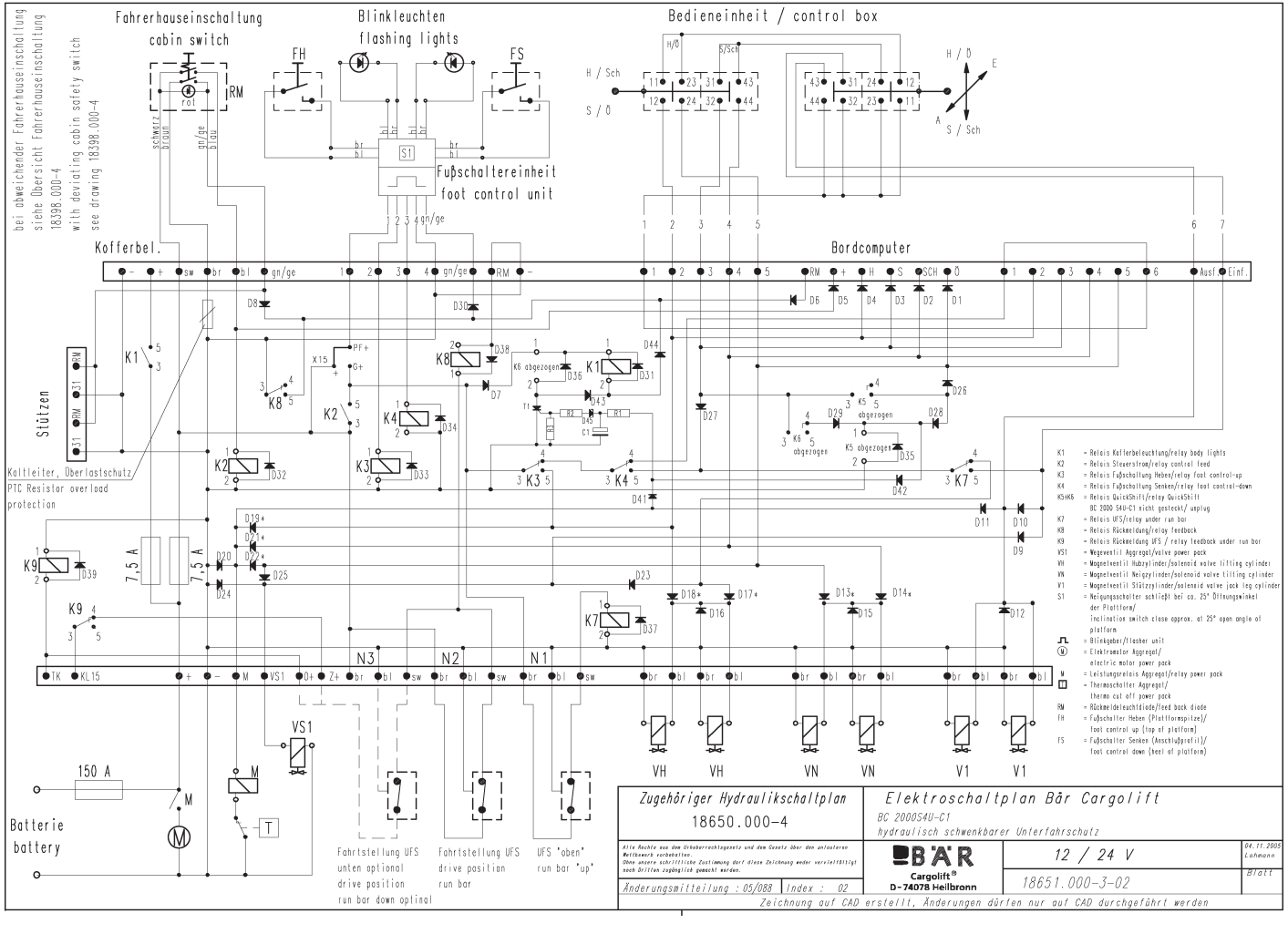
18542.000-3-02

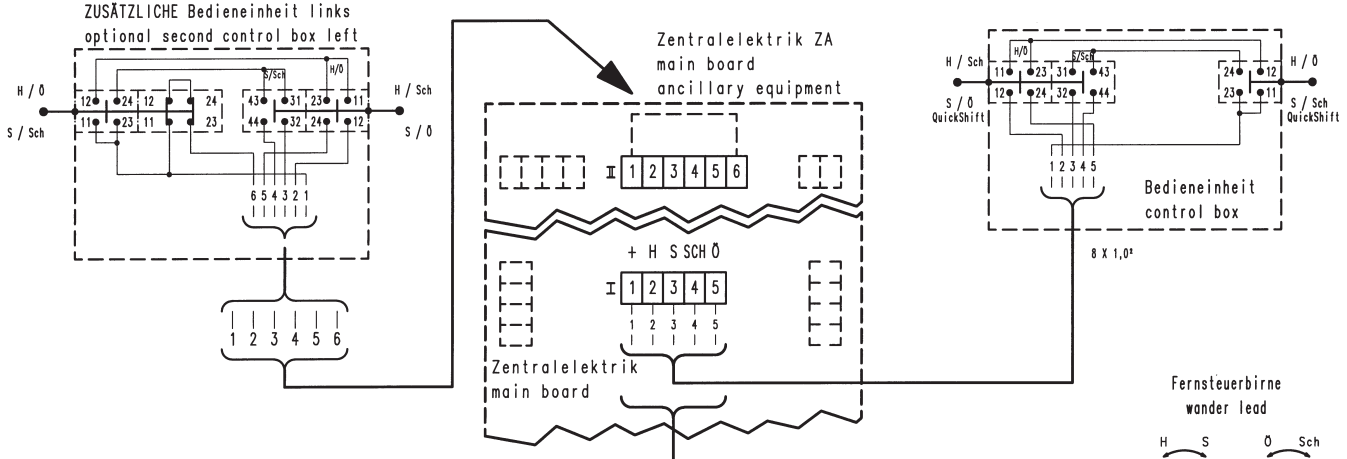
05.11.2005 Lohmann

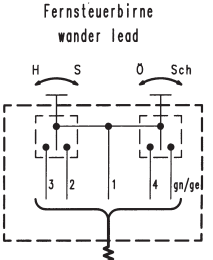
Blatt

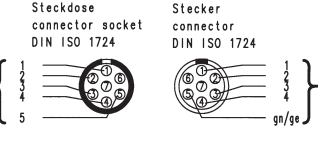
Änderungsmitteilung : 05/088 | Index : 02

Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden


Fahrerhauseinschaltung
cabin switch
Blinkleuchten
flashing lights
Bedieneinheit / control box
bei abweichender Fahrerhauseinschaltung siehe Übersicht Fahrerhauseinschaltung 18398.000-4
with deviating cabin safety switch see drawing 18398.000-4
Fußschaltereinheit
foot control unit
Kofferbel.
Bordcomputer
Stützen
Kaltleiter, Überlastschutz
PTC Resistor overload protection
Batterie
battery
150 A
VS1
VH
VN
V1
Fahrstellung UFS unten optional
drive position run bar down optinal
Fahrstellung UFS
drive position run bar
UFS 'oben'
run bar "up"
K1 = Relais Kofferbeleuchtung/relay body lights
K2 = Relais Steuerstrom/relay control feed
K3 = Relais Fußschaltung Heben/relay foot control-up
K4 = Relais Fußschaltung Senken/relay foot control-down
K5+K6 = Relais QuickShift/relay QuickShift
BC 2000 S4U-C1 nicht gesteckt/ unplug
K7 = Relais UFS/relay under run bar
K8 = Relais Rückmeldung/relay feedback
K9 = Relais Rückmeldung UFS / relay feedback under run bar
VS1 = Wegeventil Aggregat/valve power pack
VH = Magnetventil Hubzylinder/solenoid valve lifting cylinder
VN = Magnetventil Neigzylinder/solenoid valve tilting cylinder
V1 = Magnetventil Stützzylinder/solenoid valve jack leg cylinder
S1 = Neigungsschalter schließt bei ca. 25° Öffnungswinkel der Plattform/
inclination switch close approx. at 25° open angle of platform
= Blinkgeber/flasher unit
= Elektromotor Aggregat/
electric motor power pack
= Leistungsrelais Aggregat/relay power pack
= Thermoschalter Aggregat/
thermo cut off power pack
RM = Rückmeldeleuchtdiode/feed back diode
FH = Fußschalter Heben (Plattformspitze)/
foot control up (top of platform)
FS = Fußschalter Senken (Anschlußprofil)/
foot control down (heel of platform)
Zugehöriger Hydraulikschaltplan
18650.000-4
Elektroschaltplan Bär Cargolift
BC 2000S4U-C1
hydraulisch schwenkbarer Unterfahrschutz
12 / 24 V
18651.000-3-02
Cargolift®
D-74078 Heilbronn
Änderungsmitteilung : 05/088
Index : 02
04.11.2005
Lohmann
Blatt
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden







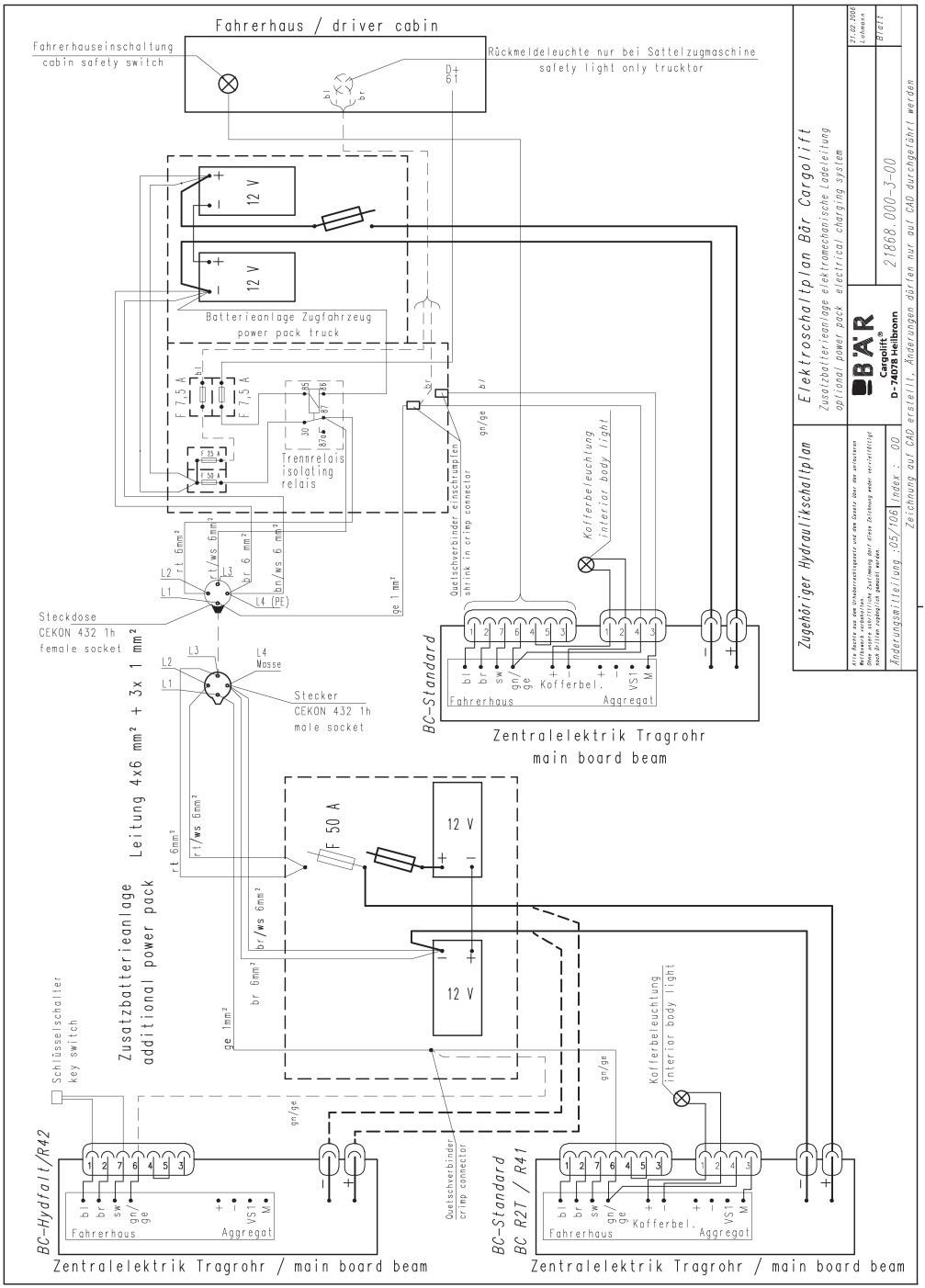
Zur Beachtung:

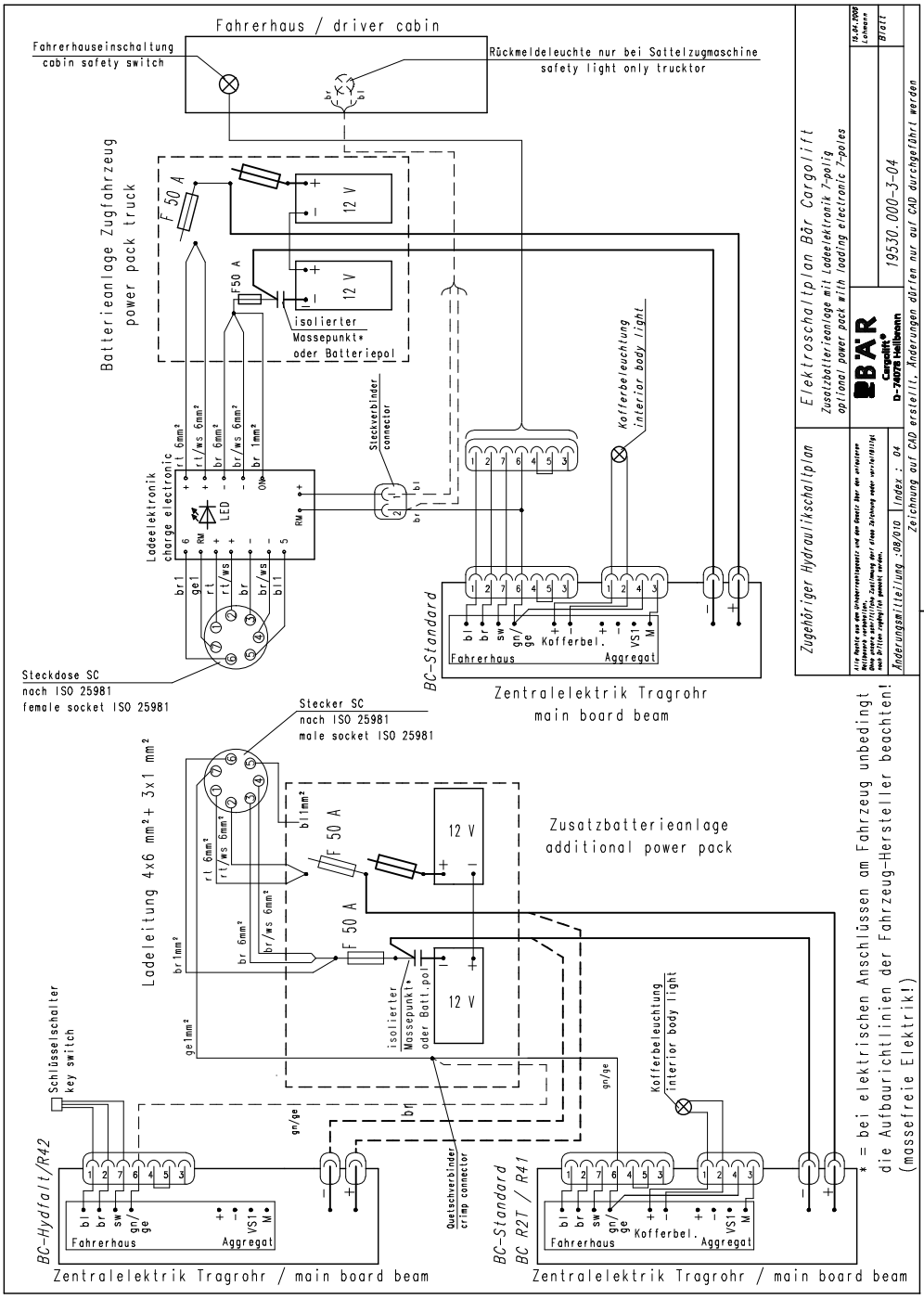
Alle Lösungen mit einer Fernsteuerbirne entsprechen nicht den geltenden europäischen Vorschriften.
Aus diesem Grund werden BCs mit Fernsteuerbirne nur mit einer Herstellererklärung ausgeliefert.
Die Verantwortung für die Konformitätserklärung und eine eventuell fehlerhafte Ausführung muss daher vom Fahrzeugbauer übernommen werden.

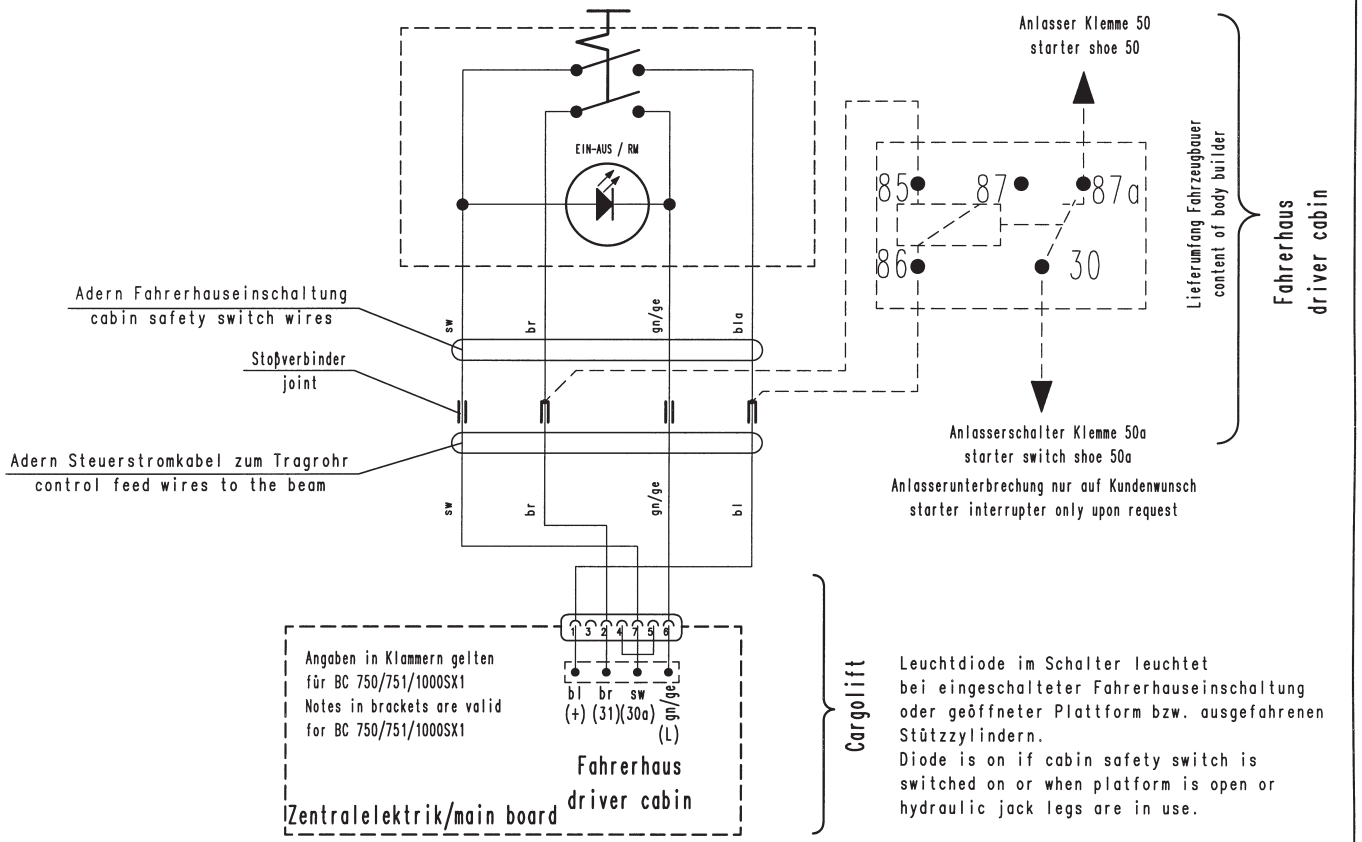
To the attention:

All solutions with a wander lead do not correspond to the valid European regulations!
For this reason we deliver complete BCs with wander lead only with manufacturer declaration.
The responsibility for the declaration of the conformity and for not correct execution is then with the body builder.

Zugehöriger Hydraulikschaltplan	Elektroschaltplan Bär Cargolift Fernsteuerbirne Alpa -1 wander lead Alpha -1	
	BÄR Cargolift® D-74078 Heilbronn	12 V oder 24 V — 28.01.2002 Siegel
Änderungsmitteilung : 02/009 | Index : 00	18721.000-3-00	Blatt
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden		


Fahrerhaus / driver cabin
Fahrerhauseinschaltung
cabin safety switch
Rückmeldeleuchte nur bei Sattelzugmaschine
safety light only trucktor
12 V
12 V
Batterieanlage Zugfahrzeug
power pack truck
F 7,5 A
F 7,5 A
Trennrelais
isolating
relais
Steckdose
CEKON 432 1h
female socket
Stecker
CEKON 432 1h
male socket
Leitung 4x6 mm² + 3x 1 mm²
Quetschverbinder einschraubplatten
shrink in crimp connector
Kofferbeleuchtung
interior body light
BC-Standard
Fahrerhaus
Aggregat
Kofferbel.
Zentralelektrik Tragrohr
main board beam
Zusatzbatterieanlage
additional power pack
F 50 A
12 V
12 V
Schlüsselschalter
key switch
BC-Hydrafit/R42
BC-Standard
BC R2T / R41
Quetschverbinder
crimp connector
Zentralelektrik Tragrohr / main board beam
Zentralelektrik Tragrohr / main board beam
Elektroschaltplan Bär Cargolift
Zusatzbatterieanlage elektromechanische Ladeleitung
optional power pack electrical charging system
Zugehöriger Hydraulikschaltplan
BÄR
Cargolift®
D-74078 Heilbronn
21868.000-3-00
21.02.2006
Lohmann
Blatt
Änderungsmitteilung :05/106 Index : 00
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden


Fahrerhaus / driver cabin
Fahrerhauseinschaltung
cabin safety switch
Rückmeldeleuchte nur bei Sattelzugmaschine
safety light only trucktor
Batterieanlage Zugfahrzeug
power pack truck
F 50 A
12 V
isolierter
Massepunkt*
oder Batteriepol
Steckverbinder
connector
Kofferbeleuchtung
interior body light
Ladeelektronik
charge electronic
LED
Steckdose SC
nach ISO 25981
female socket ISO 25981
BC-Standard
Zentralelektrik Tragrohr
main board beam
Fahrerhaus
Aggregat
Kofferbel.
Stecker SC
nach ISO 25981
male socket ISO 25981
Ladeleitung 4x6 mm²+ 3x1 mm²
Zusatzbatterieanlage
additional power pack
Schlüsselschalter
key switch
BC-Hydfalt/R42
BC-Standard
BC R2T / R41
Quetschverbinder
crimp connector
* = bei elektrischen Anschlüssen am Fahrzeug unbedingt
die Aufbaurichtlinien der Fahrzeug-Hersteller beachten!
(massefreie Elektrik!)
Elektroschaltplan Bär Cargolift
Zusatzbatterieanlage mit Ladeelektronik 7-polig
optional power pack with loading electronic 7-poles
BÄR
Cargolift
D-74078 Heilbronn
19330.000-3-04
Blatt 1
Zugehöriger Hydraulikschaltplan
Änderungsmitteilung 08/010 | Index : 04
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden



bl = blue
br = brown
sw = black
gn/ge = green/yellow

Zugehöriger Hydraulikschaltplan	Elektroschaltplan Bär Cargolift FHE Druckknopf Alpha/Beta mit elektr. Schnittstelle elektric diagram cabin safety switch	
Alle Rechte aus dem Urheberrechtsgesetz und das Gesetz über den unlauteren Wettbewerb vorbehalten. Ohne unsere schriftliche Zustimmung darf diese Zeichnung weder vervielfältigt noch Dritten zugänglich gemacht werden.	BÄR Cargolift® D-74078 Heilbronn	12 V oder 24 V 18397.000-3-01
Änderungsmitteilung : 01/118 / Index : 01		
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden		

10.11.2001 Siegel
Blatt

Pos. 1 , 2 und 3 Lieferumfang Fa. MB
Pos. 1 , 2 und 3 supplied by MB

MB Actros

① = Sicherung (Zündung)
fuse (ignition)
F12 13A

② = Relais K6

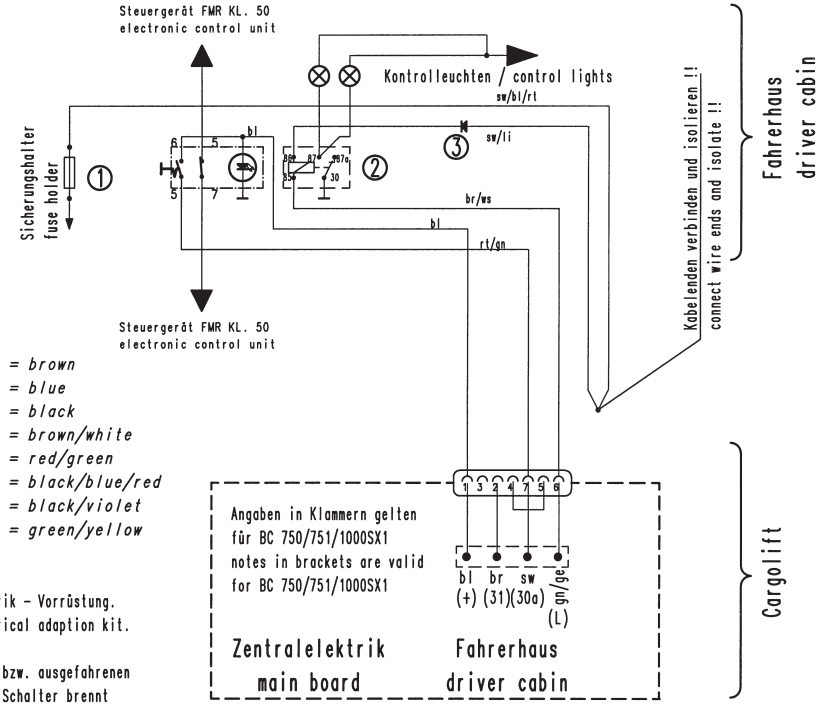
③ = Diode D7

MB Atego

① = Sicherung (Zündung)
fuse (ignition)
F30 15A

② = Relais A3

③ = Diode V7



br = brown
bl = blue
sw = black
br/ws = brown/white
rt/gn = red/green
sw/bl/rt = black/blue/red
sw/li = black/violet
gn/ge = green/yellow

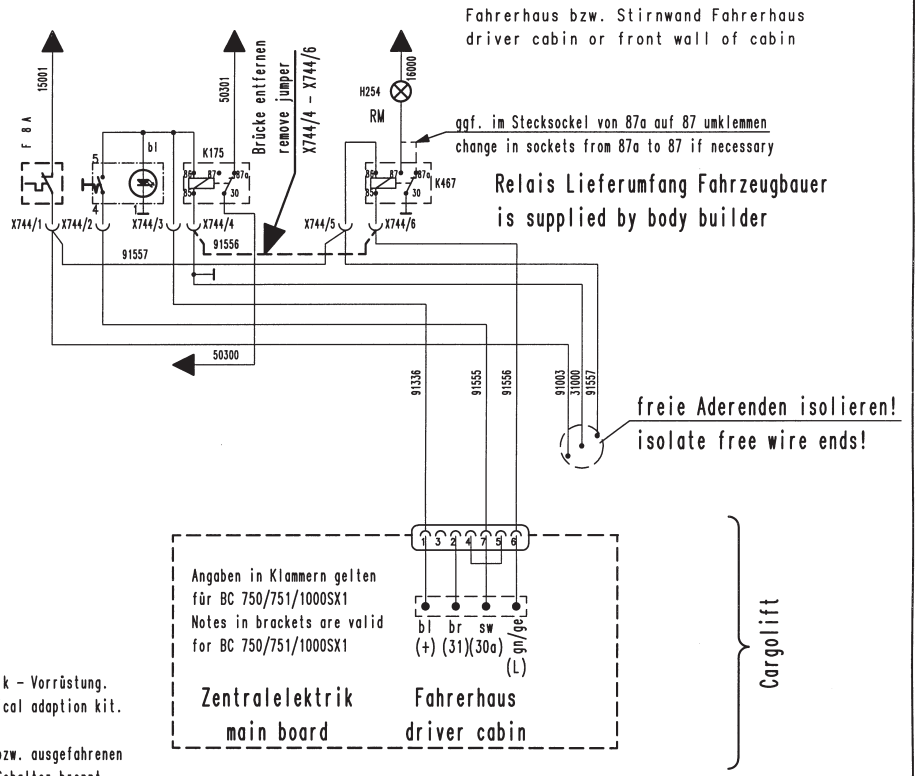
Keine Gewähr für die Aktualität der fahrzeugseitigen Elektrik - Vorrüstung.
No warranty for the actuality of the vehicle-lateral electrical adaption kit.

Die Rückmeldeleuchten brennen nur bei geöffneter Plattform bzw. ausgefahrenen Stützzylindern und eingeschalteter Zündung. Die Leuchte im Schalter brennt bei eingeschalteter Fahrerhauseinschaltung.
Feedback indicator is on if platform is open or jack legs are in use and ignition is on. Light in switch is on if cabin switch is switched on.

Das Kabel der Fahrerhauseinschaltung ist seitens MB bis ans Rahmenende verlegt
Wire of cabin safety switch is mounted by MB to end of chassis.

Zugehöriger Hydraulikschaltplan	*Elektroschaltplan Bär Cargolift* *Fahrerhauseinschaltung MB Actros / Atego mit Code E33* *Alpha / Beta mit elektrischer Schnittstelle*	
	BÄR Cargolift® D-74078 Heilbronn	24 V 18396.000-3-01
Änderungsmitteilung : 01/118 *Index : 01*		
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden		

10.11.2001
Siegel
Blatt

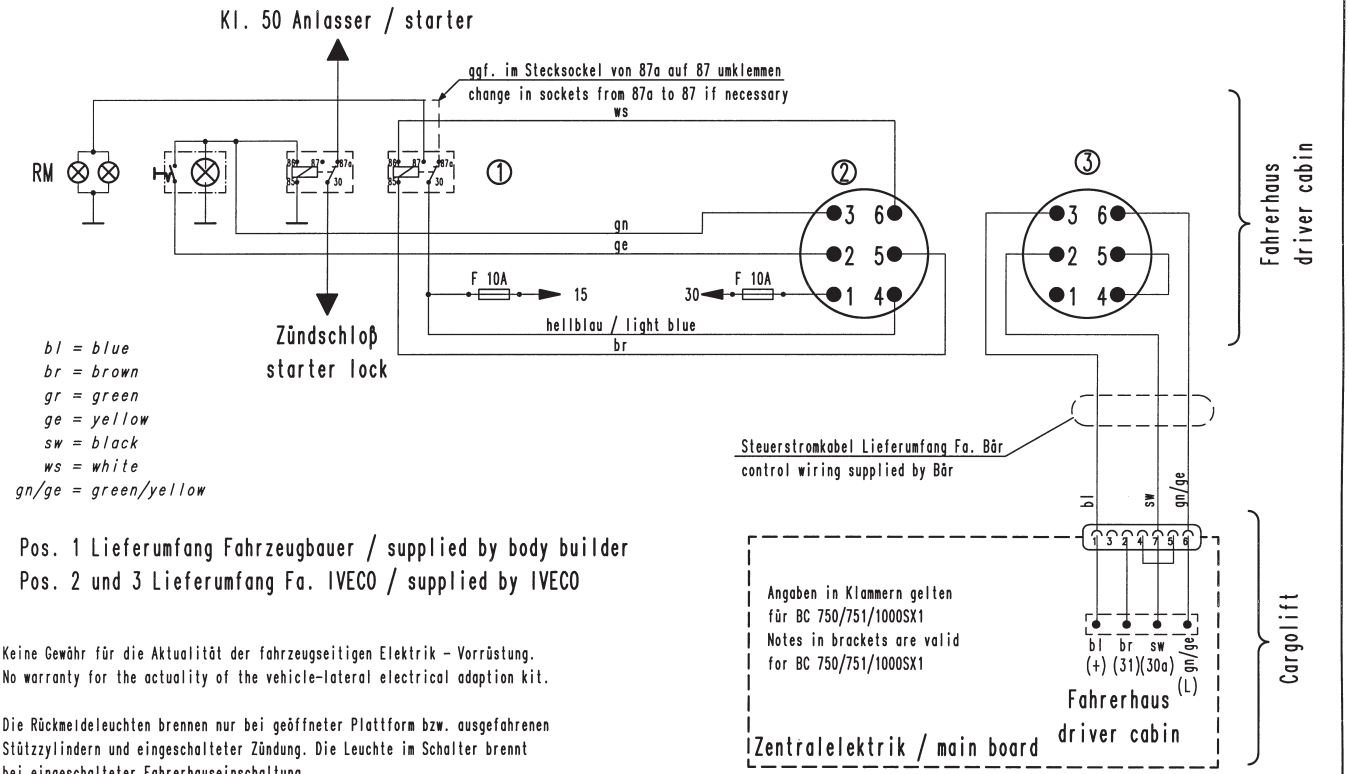


Keine Gewähr für die Aktualität der fahrzeugseitigen Elektrik – Vorrüstung.
No warranty for the actuality of the vehicle-lateral electrical adaption kit.

Die Rückmeldeleuchten brennen nur bei geöffneter Plattform bzw. ausgefahrenen Stützzylindern und eingeschalteter Zündung. Die Leuchte im Schalter brennt bei eingeschalteter Fahrerhauseinschaltung.
Feedback indicator is on if platform is open or jack legs are in use and ignition is on. Light in switch is on if cabin switch is switched on.

Das Kabel der Fahrerhauseinschaltung ist seitens MAN bis ans Rahmenende verlegt
Wire of cabin safety switch is mounted by MAN to end of chassis.

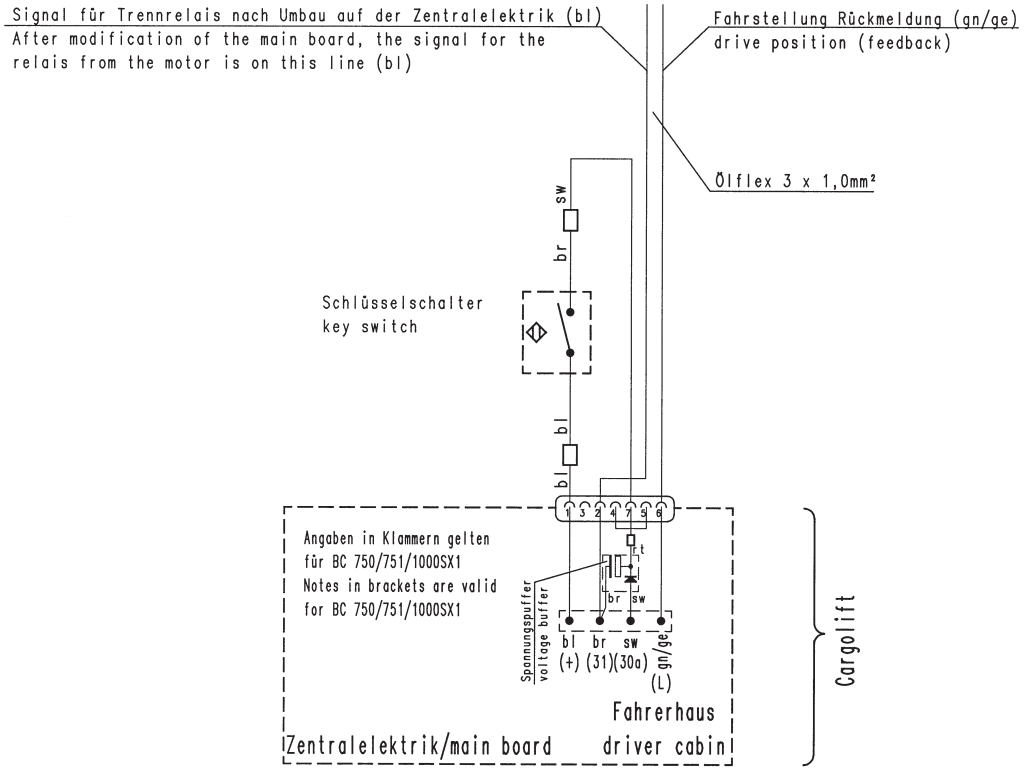
Zugehöriger Hydraulikschaltplan	*Elektroschaltplan Bär Cargolift* *Fahrerhausein. MAN mit Ladebordwandvorbereitung* *Alpha / Beta mit elektrischer Schnittstelle*	
	BÄR Cargolift® D-74078 Heilbronn	24 V — 10.11.2001 Siegel
Änderungsmitteilung : 01/118 *Index : 01*		18395.000-3-01 — Blatt
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden		



Keine Gewähr für die Aktualität der fahrzeugseitigen Elektrik – Vorrüstung.
No warranty for the actuality of the vehicle-lateral electrical adaption kit.

Die Rückmeldeleuchten brennen nur bei geöffneter Plattform bzw. ausgefahrenen Stützzylindern und eingeschalteter Zündung. Die Leuchte im Schalter brennt bei eingeschalteter Fahrerhauseinschaltung.
Feedback indicator is on if platform is open or jack legs are in use and ignition is on. Light in switch is on if cabin switch is switched on.

Zugehöriger Hydraulikschaltplan	Elektroschaltplan Bär Cargolift Fahrerhauseinschaltung IVECO SW 10677 Alpha / Beta mit elektrischer Schnittstelle	
Alle Rechte aus dem Urheberrechtsgesetz und dem Gesetz über den unlauteren Wettbewerb vorbehalten. Ohne unsere schriftliche Zustimmung darf diese Zeichnung weder vervielfältigt noch Dritten zugänglich gemacht werden.	BÄR Cargolift® D-74078 Heilbronn	24 V 18394.000-3-01
Änderungsmitteilung : 01/118 Index : 01		10.11.2001 Stiegel Blatt
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden		



bl = blue
br = brown
sw = black
gn/ge = green/yellow

Zugehöriger Hydraulikschaltplan	Elektroschaltplan Bär Cargolift Schlüsselschalter / Rückmeldung key switch / feedback	
Alle Rechte aus dem Urheberrechtsgesetz und dem Gesetz über den unlauteren Wettbewerb vorbehalten. Ohne unsere schriftliche Zustimmung darf diese Zeichnung weder vervielfältigt noch Dritten zugänglich gemacht werden.	BÄR Cargolift® D-74078 Heilbronn	24V / 18417.000-3-03
Änderungsmitteilung : 03/005 | Index : 03		17.01.2003 Siegel / Blatt
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden		

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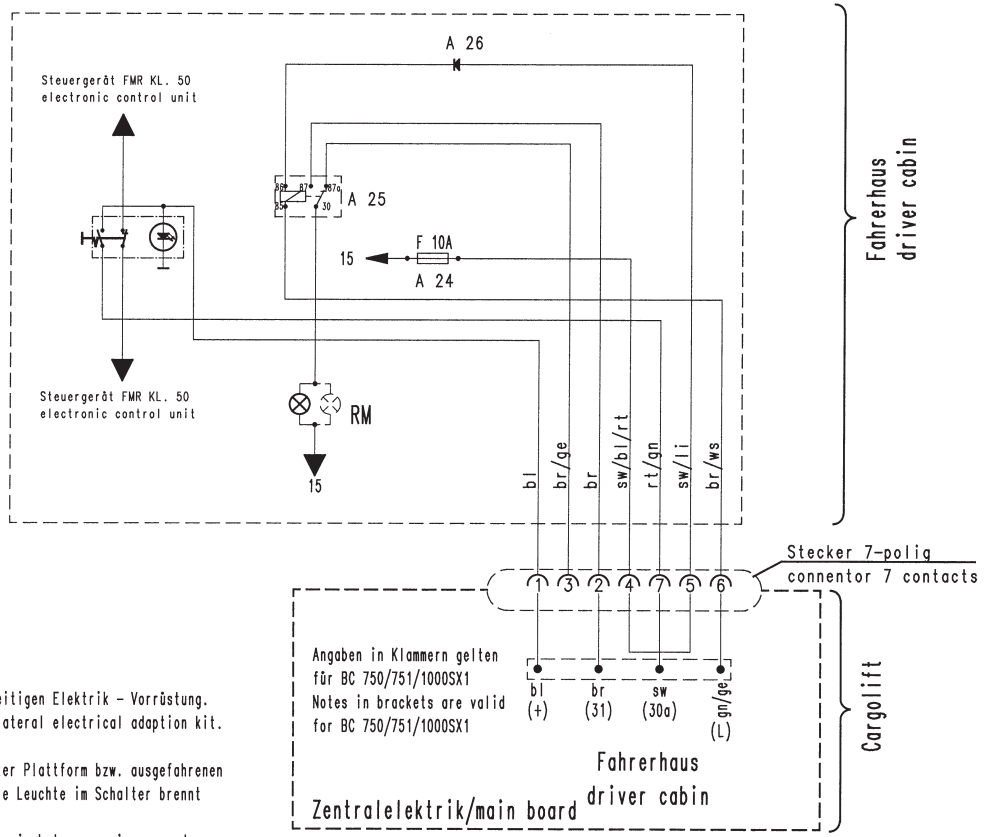
bl = blue
sw = black
br/ws = brown/white
rt/gn = red/green
sw/bl/rt = black/blue/red
sw/li = black/violet
gn/ge = green/yellow
br/ge = brown/yellow



Keine Gewähr für die Aktualität der fahrzeugseitigen Elektrik - Vorrüstung.
No warranty for the actuality of the vehicle-lateral electrical adaption kit.

Die Rückmeldeleuchten brennen nur bei geöffneter Plattform bzw. ausgefahrenen Stützzylindern und eingeschalteter Zündung. Die Leuchte im Schalter brennt bei eingeschalteter Fahrerhauseinschaltung.
Feedback indicator is on if platform is open or jack legs are in use and ignition is on. Light in switch is on if cabin switch is switched on.

Das Kabel der Fahrerhauseinschaltung ist seitens DC bis ans Rahmenende verlegt
Wire of cabin safety switch is mounted by DC to end of chassis.

Zugehöriger Hydraulikschaltplan

Elektroschaltplan Bär Cargolift
Fahrerhauseinschaltung von Daimler Crysler Code E 33
cabin safety switch from Daimler Crysler Code E 33

BÄR Cargolift® D-74078 Heilbronn

24 V

10.04.2003 Siegel

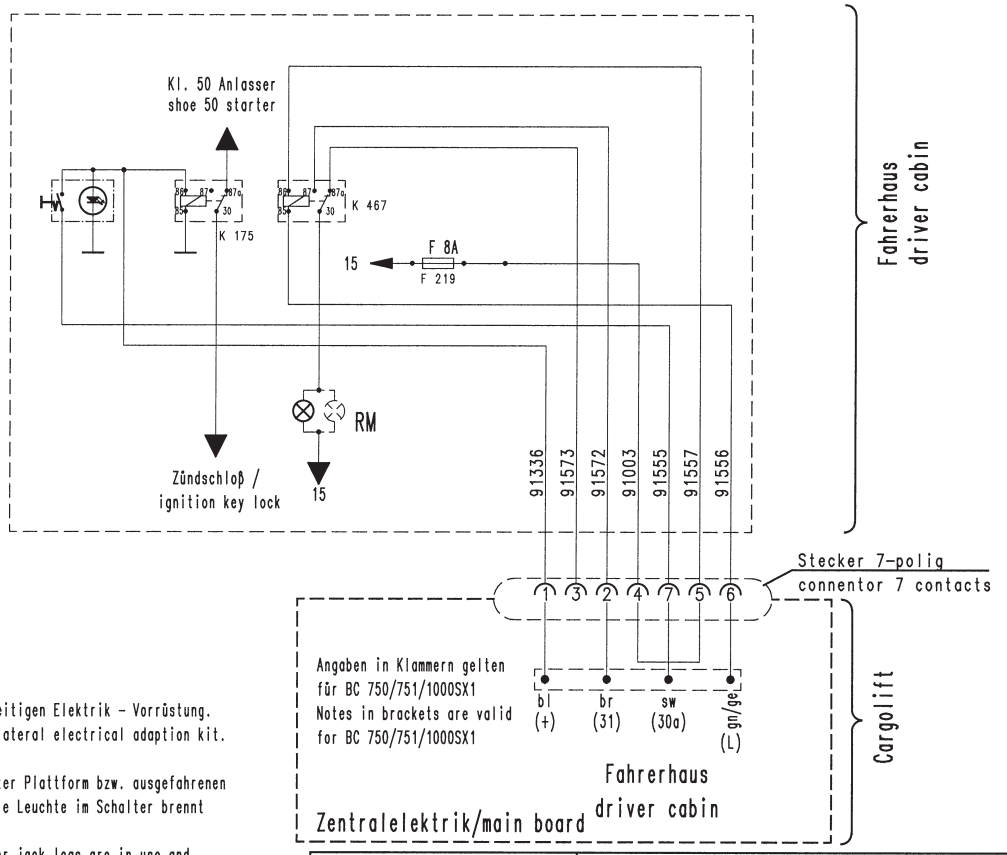
19606.000-3-00

Blatt

Änderungsmitteilung : 03/087 | Index : 00

Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden

br = brown
bl = blue
sw = black
br/ws = brown/white
rt/gn = red/green
sw/bl/rt = black/blue/red
sw/li = black/violet
gn/ge = green/yellow
br/ge = brown/yellow



Keine Gewähr für die Aktualität der fahrzeugseitigen Elektrik - Vorrüstung.
No warranty for the actuality of the vehicle-lateral electrical adaption kit.

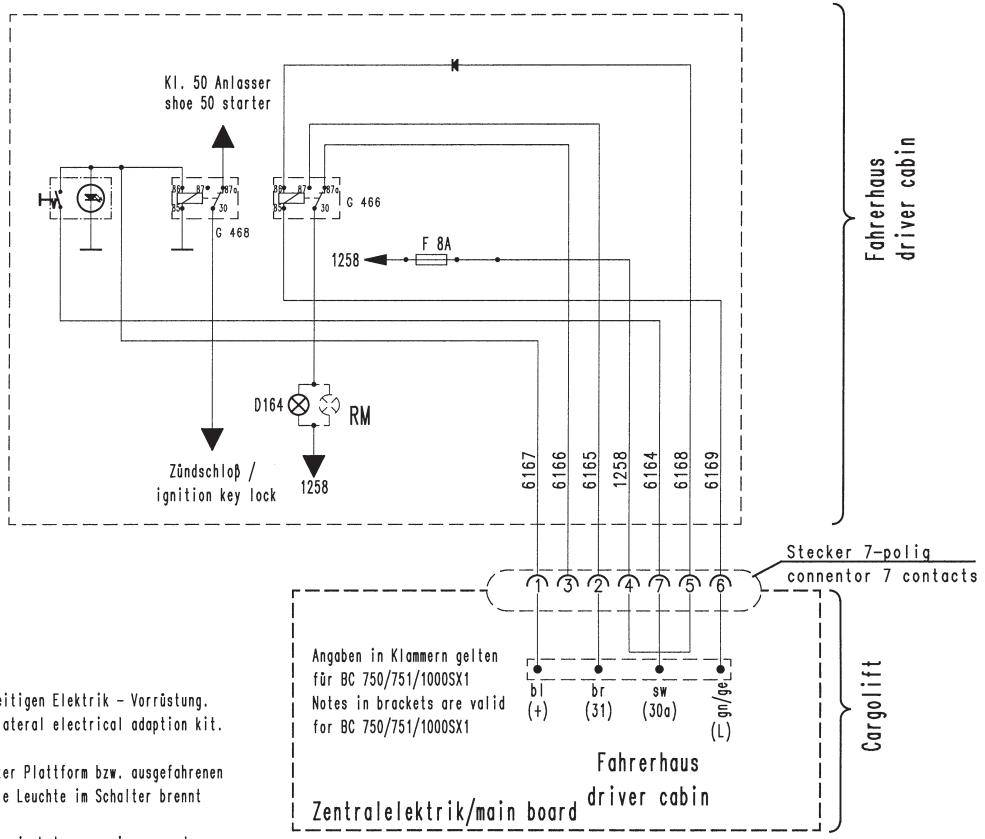
Die Rückmeldeleuchten brennen nur bei geöffneter Plattform bzw. ausgefahrenen Stützzylindern und eingeschalteter Zündung. Die Leuchte im Schalter brennt bei eingeschalteter Fahrerhauseinschaltung.
Feedback indicator is on if platform is open or jack legs are in use and ignition is on. Light in switch is on if cabin switch is switched on.

Das Kabel der Fahrerhauseinschaltung ist seitens MAN bis ans Rahmenende verlegt.
Wire of cabin safety switch is mounted by MAN to end of chassis.

Zugehöriger Hydraulikschaltplan	Elektroschaltplan Bär Cargolift Fahrerhauseinschaltung von MAN Code 320 EC cabin safety switch from MAN Code 320 EC	
	BÄR Cargolift® D-74078 Heilbronn	24 V 19607.000-3-00
Änderungsmitteilung : 03/087 | Index : 00		
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden		

10.04.2003 Siegel
Blatt

br = brown
bl = blue
sw = black
br/ws = brown/white
rt/gn = red/green
sw/bl/rt = black/blue/red
sw/li = black/violet
gn/ge = green/yellow
br/ge = brown/yellow



Keine Gewähr für die Aktualität der fahrzeugseitigen Elektrik - Vorrüstung.
No warranty for the actuality of the vehicle-lateral electrical adaption kit.

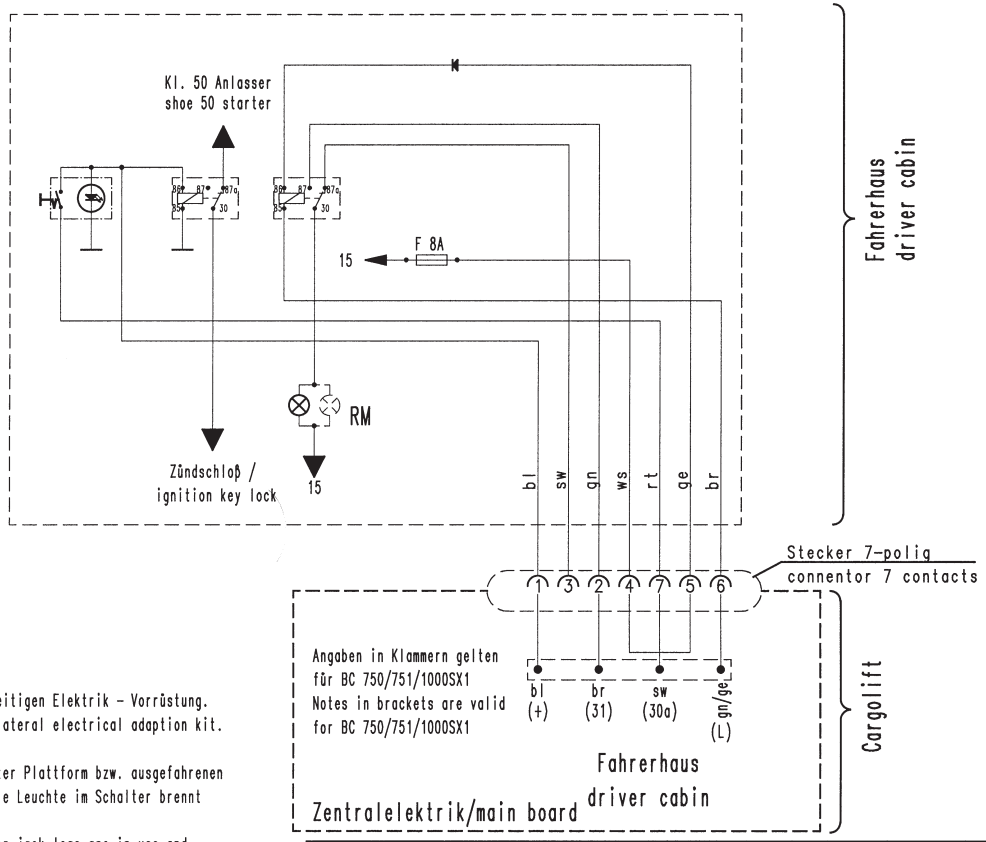
Die Rückmeldeleuchten brennen nur bei geöffneter Plattform bzw. ausgefahrenen Stützzylindern und eingeschalteter Zündung. Die Leuchte im Schalter brennt bei eingeschalteter Fahrerhauseinschaltung.
Feedback indicator is on if platform is open or jack legs are in use and ignition is on. Light in switch is on if cabin switch is switched on.

Das Kabel der Fahrerhauseinschaltung ist seitens DAF bis ans Rahmenende verlegt.
Wire of cabin safety switch is mounted by DAF to end of chassis.

Zugehöriger Hydraulikschaltplan	Elektroschaltplan Bär Cargolift Fahrerhauseinschaltung von DAF Code SELCO 2597 cabin safety switch from DAF Code SELCO 2597	
Alle Rechte aus dem Urheberrechtsgesetz und dem Gesetz über den unlauteren Wettbewerb vorbehalten. Ohne unsere schriftliche Zustimmung darf diese Zeichnung weder vervielfältigt noch Dritten zugänglich gemacht werden.	BÄR Cargolift® D-74078 Heilbronn	24 V 19608.000-3-00
Änderungsmitteilung : 03/087 | Index : 00		
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden		

10.04.2003 Siegel
Blatt

br = brown
bl = blue
sw = black
ws = white
gn = green
rt = red
ge = yellow
gn/ge = gren/yellow



Keine Gewähr für die Aktualität der fahrzeugseitigen Elektrik - Vorrüstung.
No warranty for the actuality of the vehicle-lateral electrical adaption kit.

Die Rückmeldeleuchten brennen nur bei geöffneter Plattform bzw. ausgefahrenen Stützzylindern und eingeschalteter Zündung. Die Leuchte im Schalter brennt bei eingeschalteter Fahrerhauseinschaltung.
Feedback indicator is on if platform is open or jack legs are in use and ignition is on. Light in switch is on if cabin switch is switched on.

Das Kabel der Fahrerhauseinschaltung ist seitens Scania bis ans Rahmenende verlegt. Wire of cabin safety switch is mounted by Scania to end of chassis.

Zugehöriger Hydraulikschaltplan	Elektroschaltplan Bär Cargolift Fahrerhauseinschaltung von Scania Code FFU Nr. 272172 cabin safety switch from Scania Code FFU Nr. 272172		
	BÄR Cargolift® D-74078 Heilbronn	24 V	10.04.2003 Siegel
Änderungsmitteilung : 03/087 Index : 00		19609.000-3-00	Blatt
Zeichnung auf CAD erstellt, Änderungen dürfen nur auf CAD durchgeführt werden			