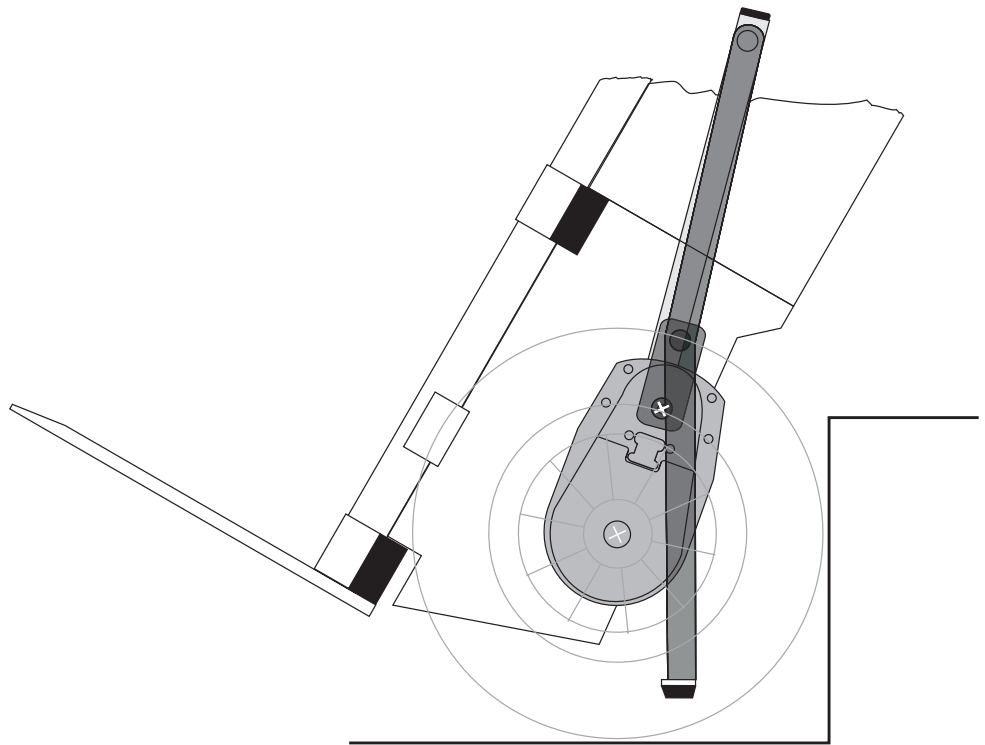


Operator's Manual



CargoMaster C 141 C 141 Vario





1

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2

Introduction

Congratulations, you acquired a powerful and versatile machine to transport loads

The **CargoMaster** will shortly be an indispensable help to you.

However, in order to transport heavy loads effortlessly up and downstairs, it is necessary to acquire a certain skill in using the **CargoMaster**.

For this reason we ask you to read the operator's manual carefully and pay particular attention to all warning and safety instructions before using the **CargoMaster** for the first time.

We further suggest that, in order to get used to this stairclimbing device, you practise handling it first without loads. Please practice at the lowest speed possible.

For safety reasons it is mandatory to observe strictly the maximum limit for loads.

For damage done by exceeding the maximum load or improper use such as...

- warped axles
- deformed frame
- deformed handles

...we do not assume any warranty.

3

Brief Survey

3.1 General Information

Everybody who sees the CargoMaster in action for the first time is fascinated by its climbing mechanism.

Precisely those people who are technically inclined end up shaking their heads as they try to understand how it works. If one did not see the **CargoMaster** actually climb up and downstairs, one would reach the conclusion that this couldn't possibly work, and yet it does.

3.2 The Functional Principle

The major focus lies at the axle (D3) of the **CargoMaster's** power unit (A) around which the levers (B1 und B2) rotate (please see also 3.3 "Functional Sequence").

The big wheels and the braking wheels are not powered, but rotate freely on their own axles.

A chain and tooth wheel system integrated in motor lever (B2) and lifting lever (B1) transfer the rotation of the motor's axle in such a way that the lever (B2) rotates around the motor's axle (D3) and the lever (B1) in an opposite direction around the connecting axle (D2). The axle (D1), connected to the climbers, thus makes the up and down movement necessary for the **CargoMaster's** climbing process. The climbers, guided on the rail (E), follow that movement.

Depending on how levers (B1 and B2) climbers (C) and frame are located in relation to each other there are certain positions in which the **CargoMaster** should preferably be driven or parked.

How the up and down movement of the **CargoMaster's** climbers and frame can be used to climb stairs is described and explained as you read on.

Fig. 1

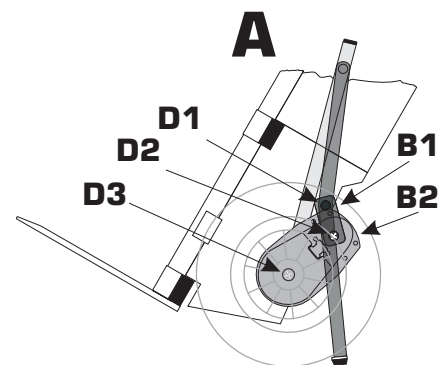
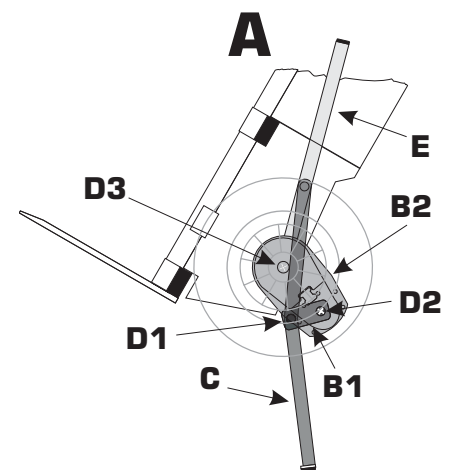


Fig. 2

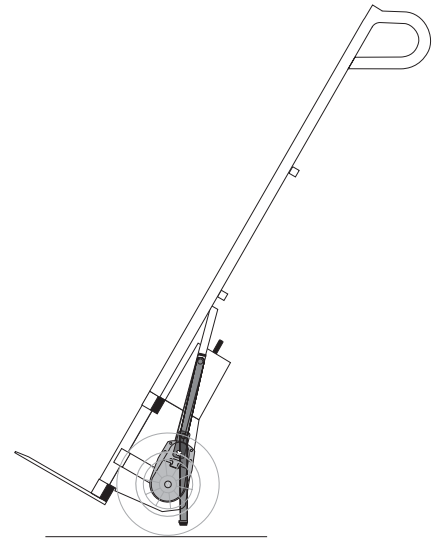


3.3 Functional Sequence

Fig. 3

For the description of the functional sequence we assume that the **CargoMaster**'s climbing mechanism and the climbers are at their highest position as shown in Fig. 3

This is the position in which one drives the **CargoMaster** on level ground. It is further the position in which one can rest the **CargoMaster** on its toe plate. In the following description of the functional sequence this neutral or starting position of the CargoMaster is called position 0°.



The First Phase

Drive the **CargoMaster** to the first step of the stairs in position 0°. Push the UP/DOWN switch "UP" and the motor begins to rotate. Both levers of the climbing system rotate as well and the climbers move downward.

The climbers touch the ground and take over the load. The motor continues to rotate, and because the rotating movement is transferred to the climbers, the frame is pushed upward, i.e. lifted.

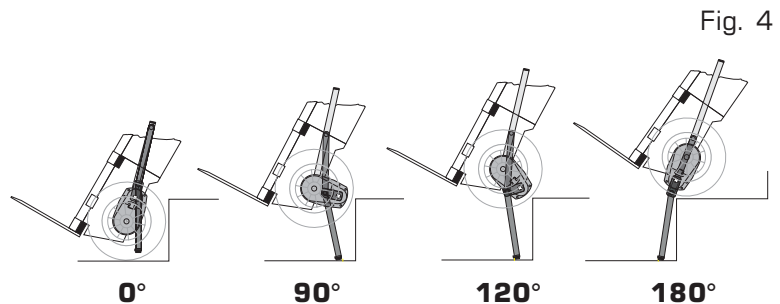


Fig. 4

The motor lever's rotation moves from 90° to 120° and you notice that the big wheels pass over the edge to the next step. At approximately 180° the climbing mechanism lifts the frame to the next step, and the big wheels take over the load once more (see Fig. 4). This concludes the first phase.

The Second Phase

Once the big wheels take over the load on the next step at approximately 180°, the climbers are lifted as well passing 210° and 270°.

At 330° the climbers are "retracted" sufficiently so that the **CargoMaster** can be pulled back to the edge of the following step (see Fig. 5). The final position, 360°, coincides with the starting position 0°, which concludes the second phase. Now you can repeat the process.

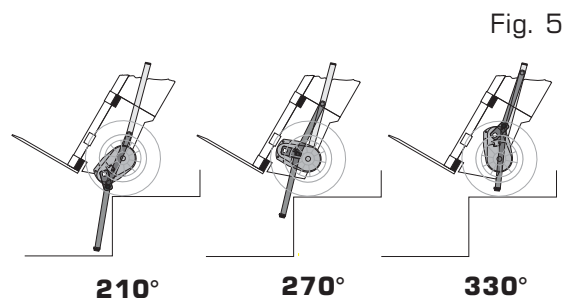
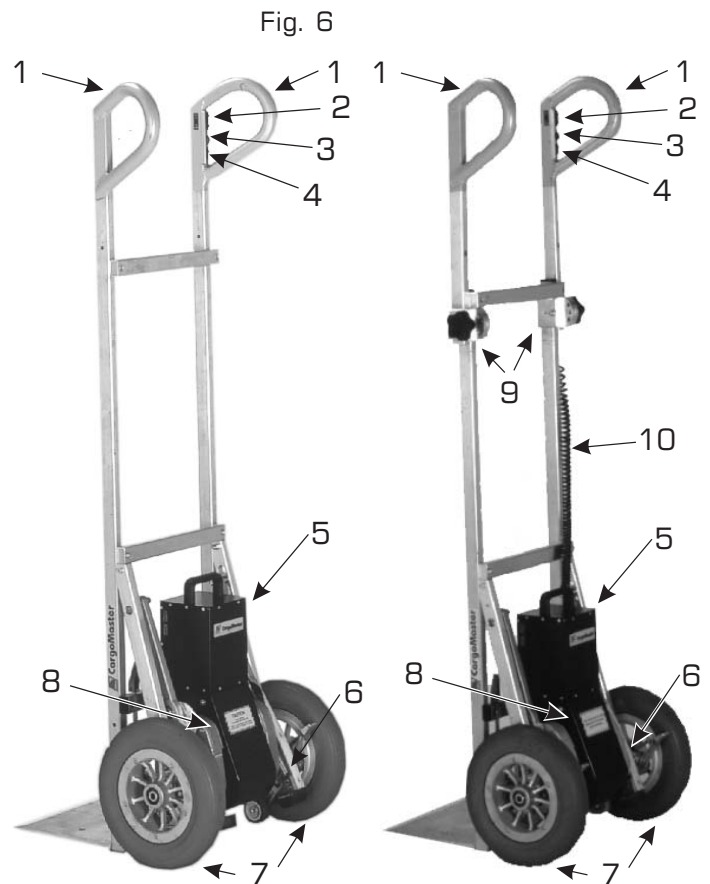


Fig. 5

3.4 Description C 141 C 141 Vario

- 1 = Handlebars
- 2 = UP/DOWN-Switch
- 3 = Knob for continuous speed control
- 4 = On/Off Switch
- 5 = Battery pack
- 6 = Climber
- 7 = Big Wheels
- 8 = Climbing mechanism
- 9 = Clamp plus locking screw
- 10 = Helix cable



Technical Data:	C 141	C 141 Vario
Dimensions (toe plate folded in / out)	Height: 1390 mm Width: 440 mm Depth: 300 / 550 mm	Height: 1060-1400 mm Width: 440 mm Depth: 300 / 550 mm
Weight	Frame = 23,5 kg (51,8 lbs) Batteries = 4,5 kg (9,9 lbs)	Frame = 20,5 kg (45,2 lbs) Batteries = 4,5 kg (9,9 lbs)
Lifting Capacity	140 kg (308 lbs)	140 kg (308 lbs)
Sealed lead acid batteries	2 x 12 V / 5 Ah (sealed)	2 x 12 V / 5 Ah (sealed)
D.C. Motor	24 V	24 V
Climbing Rate	8 - 30 steps per minute, continuously adjustable	8 - 30 steps per minute, continuously adjustable
Capacity with one charge of the batteries	15 - 30 stories, depending on the load	15 - 30 stories, depending on the load

We reserve the right for technical and/or optical changes as well as for changes in outfit.

4

Before Operation

Before you use the **CargoMaster** for the first time, please make sure the batteries are completely charged, as shown in chapter 8.2 "Charging the Lead batteries".

 **Please check the safety brakes each time before you use the CargoMaster.**

4.1 Checking the Safety Brakes

Retract the climbers entirely by pushing the UP/DOWN switch.

Unlock the safety brakes with the tip of your foot. You need to push the stopping levers upward until the locking mechanism opens. Now the brake levers move down unencumbered, and the braking wheels touch the ground as shown in Fig. 7

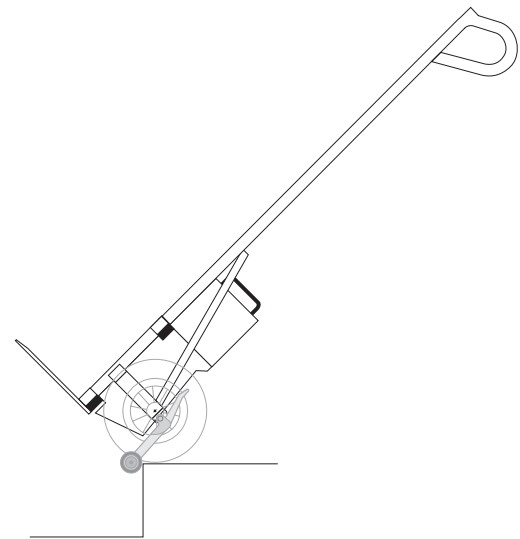


Fig. 7

Then, tilt the machine towards you until the frame's loading surface is almost in a horizontal position. At this point the safety brakes must engage and lock the running wheels. If the machine cannot be pushed forward, but only rolled backward, then the braking effect for a safe use of the **CargoMaster** is achieved.

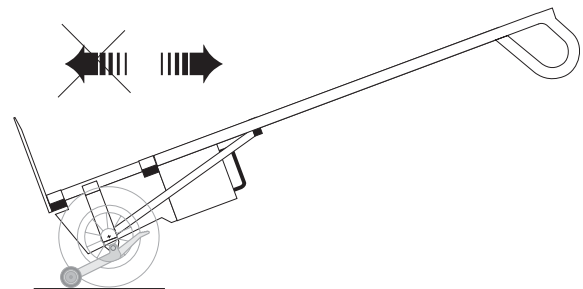

















Fig. 8

 **If this braking effect does not set in, the CargoMaster may not be used under any circumstances. Please contact your local dealer or the manufacturer immediately.**

 **To climb up- or downstairs you must always unlock the safety brakes.**

5 Operating the CargoMaster

5.1 Safety Instructions

-  For the safe operation of the **CargoMaster**, it is imperative to observe all requests for caution and all instructions of the operator's manual as well as all safety measures and instruction labels on the machine itself.
-  The **CargoMaster** may only be used by a trained person.
-  During operation, never put your hand underneath the toe plate.
-  Check the safety brakes each time you use the machine.
-  to climb up- or downstairs always unlock the safety brakes.
-  The maximum load, see label on the machine, may never be exceeded.
-  Each load you transport must be secured with the safety belt.
-  If any of the power-driven elements of the **CargoMaster** lock, turn off the machine immediately.
-  Never transport people with the **CargoMaster**.
-  Only operate the **CargoMaster** in conjunction with the safety devices that belong to the particular machine.
-  Please turn off the **CargoMaster**, i.e. put the power switch in position "0", when you stop the machine or take a break in transporting a load.
-  Repair work on the **CargoMaster** may only be done by the manufacturer or authorized dealers.
-  Only use original spare parts by AAT Alber Antriebstechnik GmbH.
-  People under age are not allowed to operate the **CargoMaster** (except those over 16 who are trained under supervision).
-  Make sure that the batteries are recharged after each operation.



5.2 Parking With/Without Loads

Handle the **CargoMaster C 141** like a regular sack trolley.

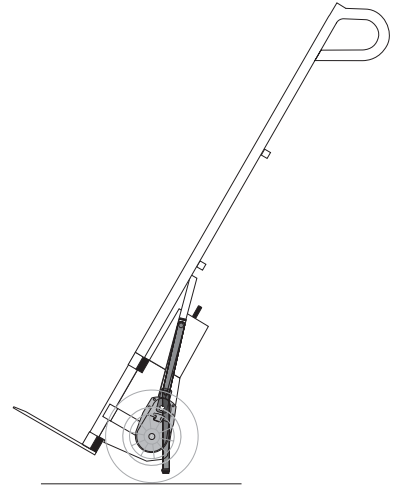
5.3 Moving on Level Ground

Fig. 9

Retract the climbers as much as possible using the UP/DOWN switch (see Fig. 9), and lock the brakes.

 **Driving with unlocked brakes can lead to more wear and tear as well as to damage of the braking mechanism.**

Handle the **CargoMaster C 141** like a regular sack trolley. You can also use it without the power unit on level ground.



5.4 Picking up Loads

Fig. 10

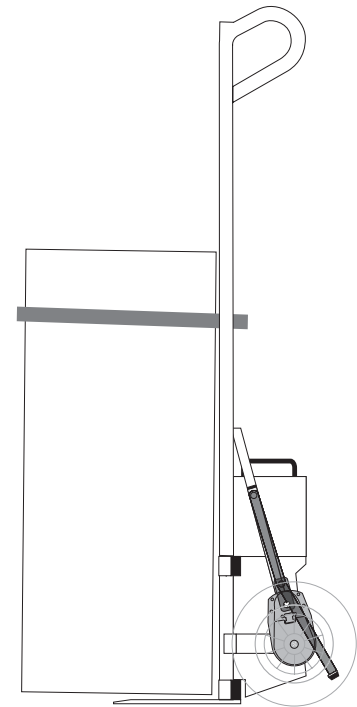
To pick up loads retract the **CargoMaster's** climbers as much as possible as shown in Fig. 10

- ☞ **Drive the CargoMaster's toe plate under the load you want to pick up, and secure it with the safety belt**

Then pick up the load by pressing your foot against the motor housing (on the back side in the middle of the climbing mechanism).

- ☞ **Your other foot must rest firmly on the ground**

Finally pull at the handlebars and tilt the **CargoMaster** plus load toward you, as you would with a regular sack trolley.



5.5 Loading a Vehicle

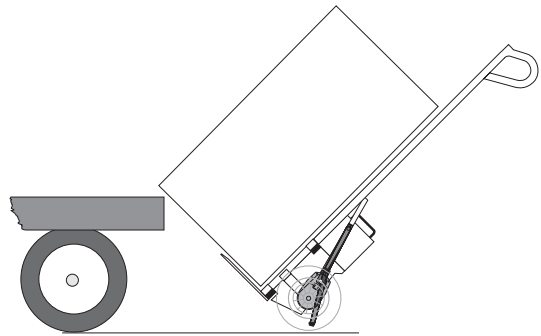
Fig. 11

Tilt the **CargoMaster** backwards as low as possible and drive straight forward to the loading platform. Remove the safety belt.

Push the UP/DOWN switch “**UP**” lifting the load to its highest possible position.

☞ **Using “UP” instead of “DOWN” makes it easier to keep the CargoMaster balanced.**

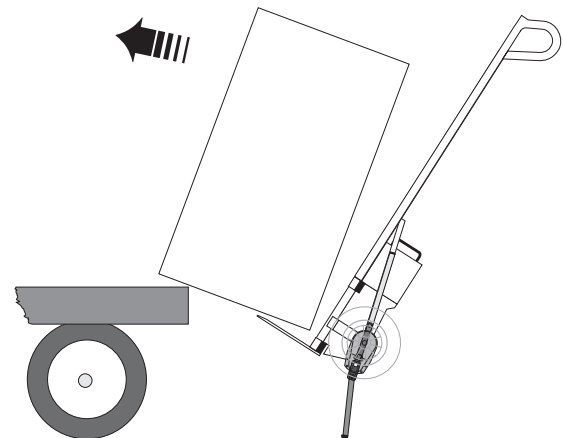
☞ **By letting your arms climb with the CargoMaster you keep the device plus its load balanced, regarding a potential shift of the center of gravity.**



While the **CargoMaster** lifts the load, tilt it forward towards the loading platform so that the load touches the loading platform.

Then push it entirely onto the loading platform.

Fig. 12



☞ **For your safety and convenience we recommend using the AAT Alber portable stairs (see chapter 6.1 “Portable Stairs”).**

5.6 Unloading a Vehicle

Fig. 13

Push the load as far as possible over the edge of the loading platform.

Put the **CargoMaster** into its highest position as shown in Fig. 13, and drive with the toe plate as closely as possible under the load to the edge of the loading platform.

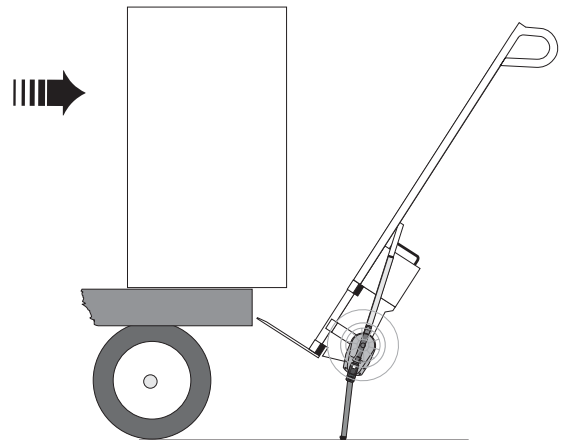
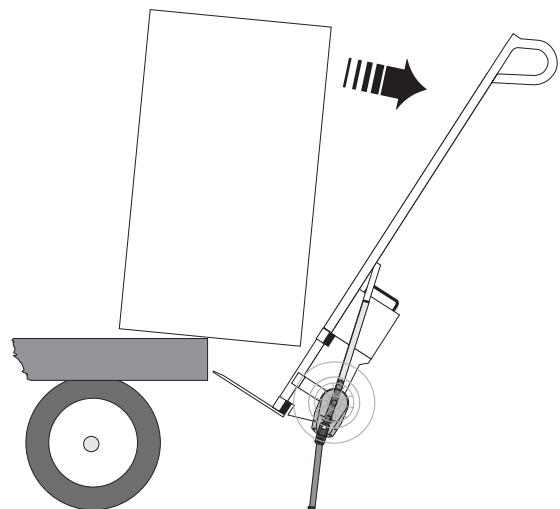


Fig. 14

Tilt the load onto the **CargoMaster** and secure it with the safety belt, see Fig. 14.




 **For your safety and convenience we recommend using the AAT Alber portable stairs (see chapter 6.1 “Portable Stairs”).**

5.7 Climbing Upstairs

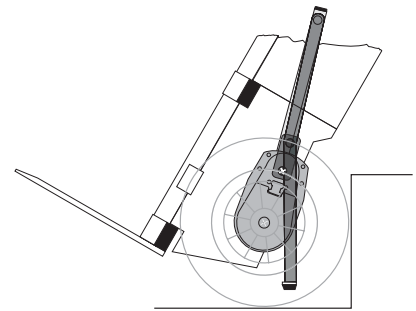
You will manage the climbing process without problems and in next to no time, if you follow instructions closely. At first you should practice climbing stairs up and down with the **CargoMaster** without loads to get familiar with the device and how it works.

1. To climb stairs, drive with the **CargoMaster** backwards toward the stairs and then you climb 2 to 3 steps. Please make sure that the **CargoMaster**'s big wheels are touching the edge of the lowest step and the climbers are in their utmost position (see Fig. 15).

 **Always make sure that the safety brakes are unlocked when you climb stairs.**

 **During the entire climbing process, always pull the **CargoMaster** slightly backwards towards you, i.e. keep the device always under tensible force.**

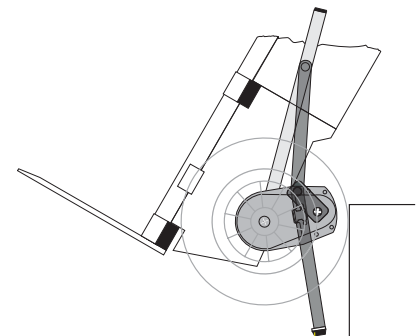
Fig. 15



2. Push the UP/DOWN switch “UP” to initiate the climbing process. The motor rotates while the climbers lift the frame plus load.

 **Imitate the frame's climbing process with your arms and hold the handlebars in such an angle that the wheels can grip the next step.**

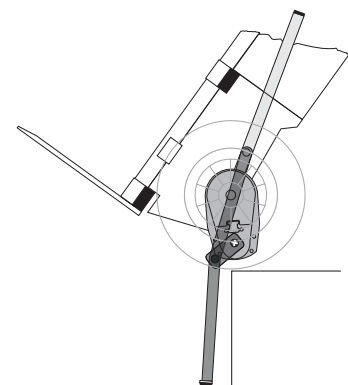
Fig. 16



3. The climbing process takes place in two phases per step. The first phase is finished when the running wheels touch down on the next step and take over the load from the climbers.

 **Do not hold the handlebars too low because in such case the running wheels do not reach the next higher step.**

Fig. 17



4. The second phase starts with “retracting” the climbers before the lifting process begins.

Fig. 18

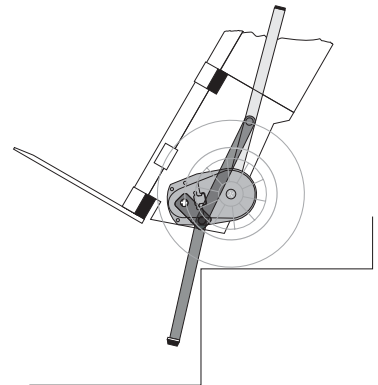
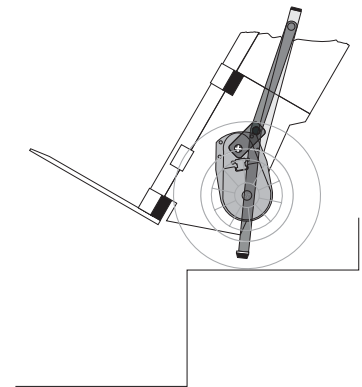
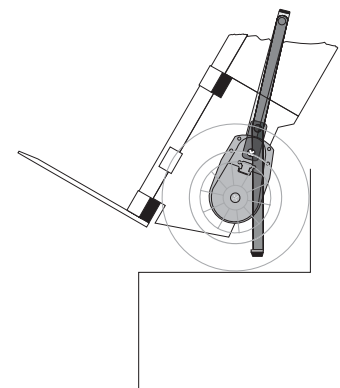


Fig. 19




It ends when the climbing mechanism has reached the next step and is in its neutral position.

Fig. 20



Because the **CargoMaster** is always pulled slightly backward, it rolls automatically to the next step (see Fig. 20). The climbing process repeats itself as described in 5.2.

5.8 Climbing Downstairs

 **Please make sure that the safety brakes are always unlocked when you are climbing stairs.**

1. Push the **CargoMaster**, climbers in utmost position, all the way to the edge of the stairs. The unlocked safety brakes make it impossible that the **CargoMaster** goes over the edge of the stairs.

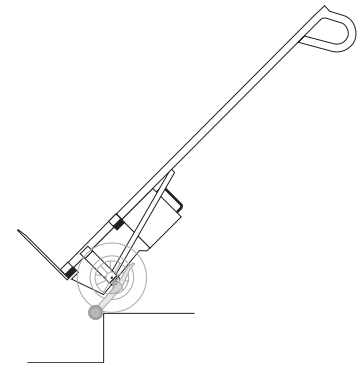


Fig. 21

2. Push the UP/DOWN switch "**DOWN**" and the **CargoMaster** begins its decent. The downward movement starts with the lowering of the climbers to the next step.

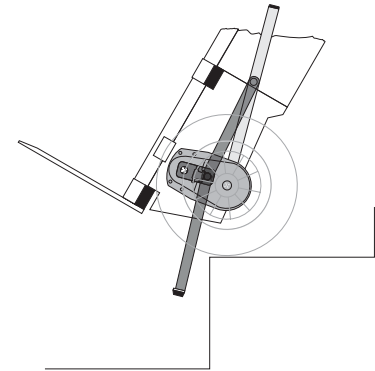


Fig. 22

3. As soon as the climbers touch the surface of the next step, the frame begins to move downward until the big wheels also touch the step. Now push the device again to the curb of the following step and repeat the process described in point **2**.

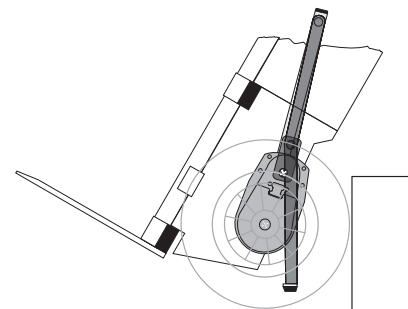



Fig. 23

 **As soon as the climbers take over the load, you feel a definite pull forward in the handlebars. Counteract this movement by briefly lowering the CargoMaster's handlebars.**



5.9 Continuously Adjustable Climbing Speed

Select a climbing speed that suits you by the knob underneath the UP/DOWN switch. When transporting loads that are difficult to handle or when you use the **CargoMaster** the first couple of times, choose the lowest speed possible.

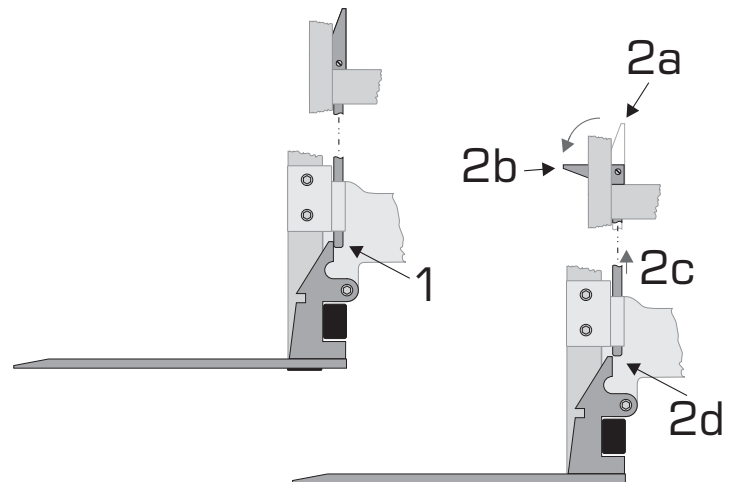
 **Note that the CargoMaster is equipped with an automatic turn off function. Once the device has turned itself off (e.g. during a break) you need to turn the CargoMaster first off and then on again with the ON/OFF switch.**

5.10 Foldable toe plate

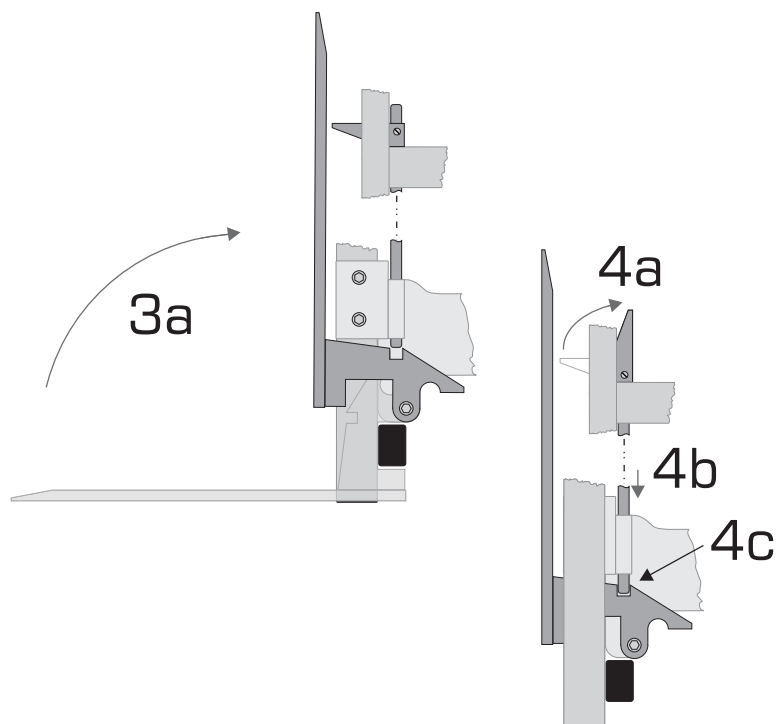
The **CargoMaster model C 141** is equipped with a foldable toe plate thus storage and transportation of the device is comfortable and easy because it does not take up much space.

In a regular position the toe plate is locked by a bolt (1).

If you flip the lever (2a) from a vertical to a horizontal position (2b), the bolt (2c) moves upward, unlocking the toe plate (2d).



The thus unlocked toe plate can be moved up by 90° (3a).



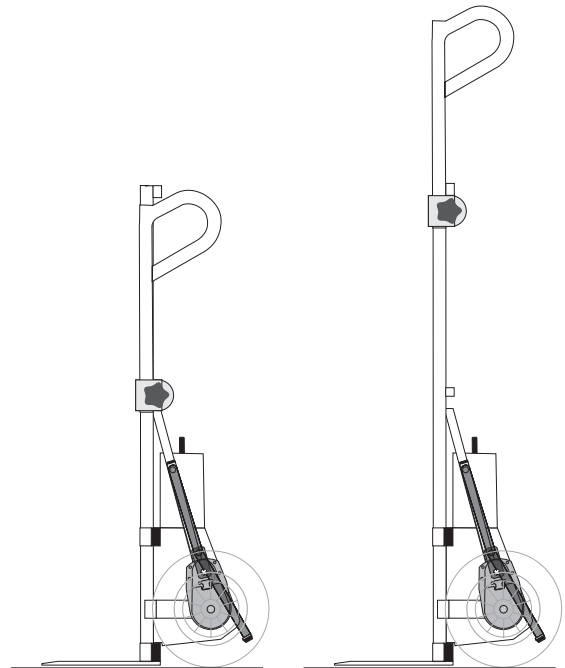
In this position you can fix the toe plate by flipping the lever (4a) in a horizontal position so that the bolt (4b) lowers itself into the aperture at the toe plate and locks it (4c).

5.11 Adjustable Handles C 141 Vario

Due to the handles adjustable in height and angle the device can be adapted ideally to any situation of transportation. The storage dimensions of the device itself are considerably smaller than those of the standard model.

The handles can be adjusted in height by loosening the locking screws of the clamps.

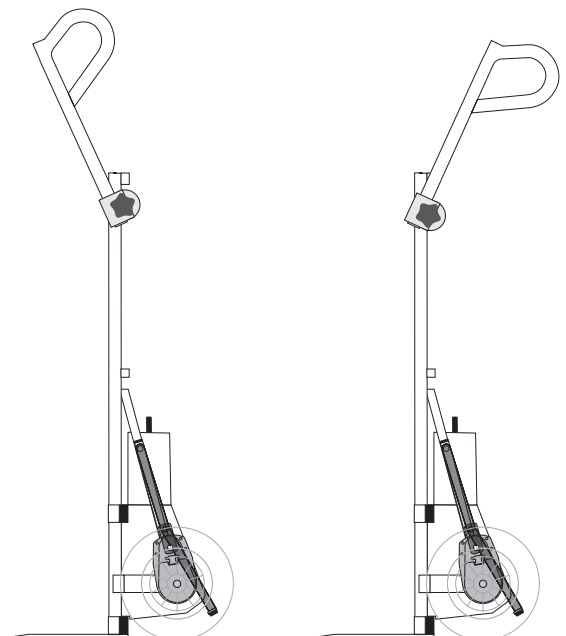
 **After adjusting the handles retighten the locking screws.**



If you unscrew the locking screws approximately 6 mm the plates of the clamps can be pulled apart so that a locking bolt clears. At that point the handle that is in a vertical position can be moved forward or backward.

Adjust the handles in such a way that the locking bolt is inserted in one of the three drilled holes in the clamp.

 **After adjusting the handles retighten the locking screws**



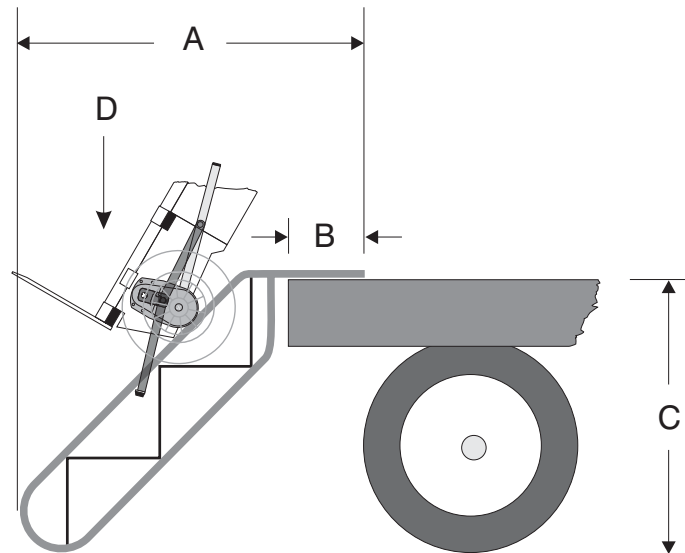
6

Accessories

6.1 Portable Stairs

Fig. 24

The portable stairs are especially developed for the **CargoMaster** to overcome obstacles higher than 50 cm (~20") such as e.g. ramps, platforms or loading areas of trucks (see Fig. 24)



Technical Data

	Portable stairs O 42	Portable stairs O 43
number of steps	3	4
height of loading area (C)	30 cm to max. 52 cm	52 cm to max. 66 cm
maximum dynamic load (D)	350 kg (771 lbs)	350 kg (771 lbs)
protrusion (A)	80 cm	100 cm
minimum support (B)	15 cm	15 cm
weight	~12,5 kg (27,5 lbs)	~16,5 kg (36,3 lbs)

- 👉 **The portable stairs must be put up securely, i.e. you need to make sure they cannot tilt or slide. If necessary, you need to secure the stairs on the loading area by screws.**
- 👉 **Make sure that the minimum support (see Fig. 28, B) of the portable stairs is at least 15 cm (~6") on the loading area and rests there securely.**






6.2 Spare Batteries

If you need your **CargoMaster** continuously, i.e. if there are not enough breaks to recharge the batteries, we recommend you get a spare set of batteries. While one set is in use, the second set can be recharged.

The standard **CargoMaster** C 141 is conceptualized to be used with spare batteries. It is delivered with one set of batteries. A second set is available as an accessory.

To change the batteries, park the **CargoMaster** C 141. Pull the battery pack upward and lift it from its fixture. Simply put the new, fully charged battery pack into its fixture.

-  **In order to prolong its lifetime, the spare set of batteries should always be connected to the battery charger (see chapter 7 “Care and Maintenance”)**
-  **To charge the batteries, please use the AAT Alber battery charger exclusively.**
-  **Note that the CargoMaster is equipped with an automatic turn off function. Once the device has turned itself off (e.g. during a break) you need to turn the CargoMaster first off and then on again with the ON/OFF switch.**

7 Care and Maintenance

7.1 General Information

Your **CargoMaster** is not a maintenance-intensive device. On the contrary, it is easy to take care of. Clean it now and then with a moist (not wet) cloth. The sealed lead acid batteries are maintenance-free. There are no oiling points; however, you should tighten the driving chain once in a while as described in 7.2 "Tightening Chain".

 **Repairs and any other work done on the CargoMaster are to be performed by authorized personnel only.**

7.2 Changing the Electrical Fuses

Two electrical fuses are located on the left side of the batteries' housing. One fine wire fuse you find at the right of the climbing mechanism.

 **Do not fix or bypass defective fuses but substitute them exclusively with fuses of the same amperage.**

7.3 Changing the Batteries

Remove the battery pack from the device and open it (unscrew). Unplug the contact plugs and take out the batteries.

When you put in new batteries, make sure you connect the polarities properly.

 **Please pay attention to the polarities (black = minus, red = plus) when plugging in the contact plugs of the new batteries.**



7.4 Tightening the Chain

Occasionally the climbing system's chains need tightening. Before you do that loosen the six hexagon socket screws on both climbers. Tighten them again after tightening the chain. A system to tighten the chains is located under the covering plates of each climber (also chain housing). The gearwheel is accessible through an aperture in the covering plate. Tighten the chain by inserting a solid screw driver into the aperture using it as a lever to turn the gearwheel all the way to the right.

8 Sealed lead acid batteries

8.1 General Information

The two sealed lead acid batteries of your **CargoMaster** are maintenance-free, rechargeable and of top quality.

The lifetime of sealed lead acid batteries is largely dependent on the charging and discharging cycles, i.e. if total discharges can be avoided, one is able to get far more than 1000 partial discharges and over 200 times the full capacity out of lead batteries.

Total discharges of sealed lead acid batteries do not only lead to a loss of capacity but also to a lower lifetime of the batteries.

Avoid total discharges - never leave the **CargoMaster** switched on.

The **CargoMaster**'s batteries are supposed to be recharged after each partial discharge, i.e. after each use.

Sealed lead acid batteries are subject to the so-called self-discharge. Therefore, whenever possible, the batteries should always be connected to the AAT Alber Automatic Charger. As soon as the batteries are fully charged, the charger automatically switches to the retaining of the charge, which keeps the batteries from becoming overcharged.

If sealed lead acid batteries are stored for a longer period of time without being charged, they suffer a partial loss of capacity. However, after a few cycles of charging and discharging, they regain their full capacity.

Your **CargoMaster**'s batteries can be charged or discharged in any position. They are considered as safe as dry elements and admitted for air travel by DOT and IATA.

 **Charging your sealed lead acid batteries is a vital part of taking care of them.**



8.2 Charging the Lead Batteries

Remove the batteries from the climbing mechanism and connect it to the AAT Alber charger by the special AAT Alber charging cable.

☞ After each time you use the CargoMaster please always charge or recharge the maintenance-free lead batteries.

You may charge the lead batteries either in your vehicle by plugging the charging cable (available as an accessory) into the socket of your cigarette lighter or into a wall outlet by using a charger. If you charge the batteries in your vehicle you reach a charging capacity of 80 % (charger, 100 %).

☞ Please use exclusively the special AAT Alber Automatic Charger and the AAT Alber charging cable for the car.

As soon as the batteries are fully charged, the AAT Alber Automatic Charger switches to retaining the charge, which means that overcharging is impossible.

☞ Never let the CargoMaster sit with empty lead batteries, but charge them immediately after each use. Frequent charging prolongs lifetime.

☞ In order to retain the charge, always keep your CargoMaster connected to the Alber Automatic Charger, particularly during weekends, holidays or vacations. This does not damage the batteries; on the contrary, it prolongs their lifetime.

9 Warranty and Liability

9.1 Warranty

AAT Alber Antriebstechnik GmbH assumes the warranty of their products type **CargoMaster** and all accessory parts, with the exception of the batteries, for the time period of one year, starting with the date of purchase. During that time Alber Antriebstechnik GmbH guarantees that the above listed products (with the exception of the batteries) are free of material damages or processing defects.

For batteries, provided that they receive the appropriate care, AAT Alber Antriebstechnik GmbH assumes the warranty for the time period of six months from the time of purchase.

The warranty of the **CargoMaster** does not include faults or defects caused by:

- Insufficient or inappropriate maintenance on the part of the customer.
- Unapproved changes or inappropriate use of the **CargoMaster**.
- Using the **CargoMaster** while exceeding the maximum load it is approved to transport.
- Charging of the lead batteries other than described in chapter 8.2.

9.2 Liability

AAT Alber Antriebstechnik GmbH as the manufacturer of the **CargoMaster** is not liable for potential damages if:

- the **CargoMaster** is handled carelessly and unskillfully;
- repairs or assembly were not performed by authorized persons only;
- the **CargoMaster** was not handled and used according to this user's manual;
- third party parts were attached to or connected with the **CargoMaster**;
- any parts of the **CargoMaster** were removed.

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Appendix

Noise / Vibration Data

The A-weighted sound level of this device is typically less than 70 dB (A). Upper parts of the human body are subjected to a weighted RMS value of acceleration typically below 2,5 m/s².

CE Declaration of Conformity

The company **AAT Alber Antriebstechnik GmbH** herewith declares that the products, type **CargoMaster**, coincide with the relevant rules of the European Community, EEC guidelines 89/392/EWG, appendix 1.

CE 95



Markus Alber, Manager

Note

Due to the continuous work on development and construction, **AAT Alber Antriebstechnik GmbH** reserves the right to make changes concerning the technical data made in this user's manual.

AAT Alber Antriebstechnik GmbH
Postfach 10 05 60 · D - 72426 Albstadt
Tel.: +49 - 74 31 - 12 95 - 0 · Fax: 49 - 74 31 - 12 95 - 35
info@aat-gmbh.com
<http://www.aat-gmbh.com>