



CE

GB

OPERATING MANUAL

OPTIMUS 2

OPTIMUS 2 S

MODEL 2.322

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FOREWORD

We thank you for the trust that you have placed in us by selecting this electronic wheelchair, *model 2.322*.

Like any other vehicle, the electronic wheelchair is a technical aid. It is subject to explanations, requires regular care and can cause danger when used improperly. The correct handling must therefore be learned.

This manual is to help you get accustomed to the handling of the Electronic wheelchair as well as to prevent accidents.

Note:

 Please note that the illustrated equipment variants can deviate from your model.

Caution:

 Read and observe the following documentation belonging to the electronic wheelchair before first use:

- this operating manual,
- the operating manual < *Operating modules* >.
- the safety informations < *Electronic wheelchairs* >.

Note:

Children should read the documentation belonging to the electronic wheelchair together with their parents respectively a supervisor or attendant before first use.

ACCEPTANCE

All products are checked for faults in the factory and packed in special boxes.

Note:

However, we request that you check the vehicle for possible transport damage immediately on receipt – preferably in the presence of the carrier.

Please arrange the following if you believe damage occurred during transport:

- a) Draw up a DAMAGE REPORT – the carrier is required to do this.
- b) Draw up a LETTER OF SUBROGATION – you assign to the supplier all claims resulting from this damage.
- c) Send back the BILL OF LADING, the DAMAGE REPORT and the LETTER OF SUBROGATION to us.

We are unable to accept any claims for compensation if you fail to observe these instructions or notify us of damage after the goods have been accepted.

Note:

The packaging of the Electronic wheelchair should be stored for a further transport that might become necessary.

ADJUSTMENT

The specialist workshop will hand out the electronic wheelchair to you under consideration of all relevant safety instructions, ready for operation and adjusted to your needs.

Note:

-  The electrical adjustments are to be set for drive mode so that a safe operation of the vehicle is ensured.
-  The tools required for adjustments and maintenance is listed under chapter < *Technical Data* >.

SPECIFICATIONS

The electronic wheelchair is an environment-friendly electric vehicle. It was developed to extend the mobility of persons with health-related or age-related restrictions.

-  The model is assigned to user category B (Optimus 2) resp. C (Optimus 2 S) according to the norm EN12184.

USE

The electronic wheelchair is suited for driving indoors as well as and especially on paved surfaces outdoors. It served solely for the transport of one sitting person on the seat (with attached legrests) and not as a pulling aid, transporting device or else.

HIGH-FREQUENCY RADIATION

-  Mobile telephones should be switched off during the use of the electric vehicle. – A mobile telephone also transmits in stand-by mode, i.e. during the periods between calls.
-  A mobile telephone also transmits in stand-by mode, i.e. during the periods between calls.

SAFETY INFORMATION

- Clean lighting is required for driving in public traffic!
 - Extreme inclinations or slopes are to be driven on with adequate final speed.
 - The maximum obstacle height that can be overcome may be restricted by the position of the legrests.
 - Do not throw or drop parts belonging to the wheelchair!
– Detachable parts like e.g. operating module and legrests have to be used properly to guarantee their function.
 - Excessively high operating and storage temperatures can cause damage!
-  **Note:**
Please observe the < *Technical data* >!

OVERVIEW

MODEL 2.322

The overview (fig. 1 and 2) shows the important components and control devices of the wheelchair.

Pos.	Description
------	-------------

- | | |
|----|--|
| 1 | Backrest |
| 2 | Armrest |
| 3 | Seat |
| 4 | Legrest |
| 5 | Seat lock |
| 6 | Leg strap |
| 7 | Footplate |
| 8 | Headlamp |
| 9 | Drive wheel |
| 10 | Front indicator |
| 11 | Steering wheel |
| 12 | Front transport attachment |
| 13 | Angle adjustment of the back support |
| 14 | Operating module |
| 15 | Selection lever drive-/push mode |
| 16 | Rear transport attachment |
| 17 | Direction indicator light / rear light |

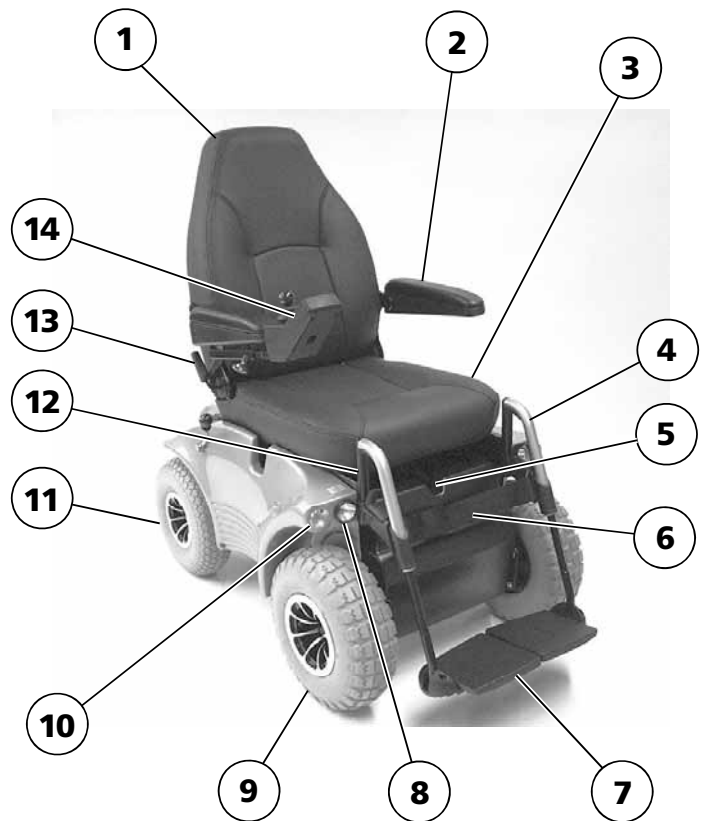


Fig. 1

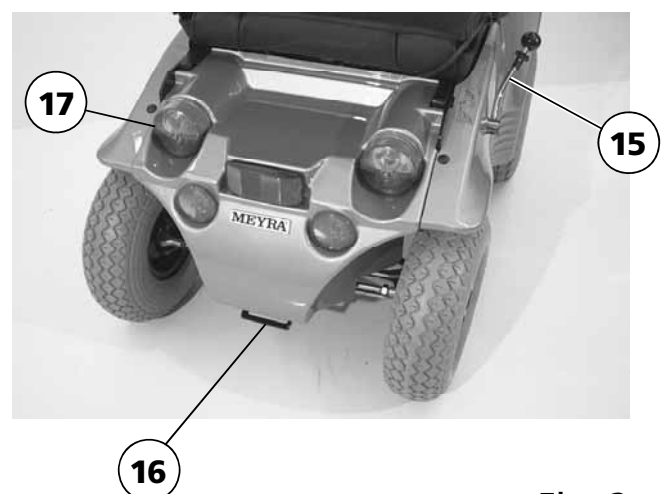


Fig. 2

STATUTORY REGULATIONS

Please comply with the legal requirements of the country in which the wheelchair is used.

LEGAL REQUIREMENTS FOR GERMANY

Note:

A driving licence is not required for electronic wheelchairs with a top speed of 15 km/h.

-  The minimum age for driving this vehicle is 15 years. An exemption certificate for younger persons can be applied for at the relevant administrative authority.
-  Public passages such as sidewalks may be driven on at fair walking speed.
-  Vehicles starting at 6 km/h must be fit at the back with a rear marking plate according to ECE-R69.

Electronic wheelchairs up to 6 km/h

A liability insurance is only mandatory (in Germany) for an electronic wheelchair with a speed in excess of 6 km/h but is nevertheless recommendable.

-  Electronic vehicles such as scooters, electronic wheelchairs, auxiliary drives, electro-mobiles that achieve a maximum speed of no more than 6 km/h are included in the private liability insurance at no extra cost. For this you only need to present a formless application to your responsible insurance.

Electronic wheelchairs more than 6 km/h

Opposed to the model with a maximum speed of up to 6 km/h, the following is required of the model with a maximum speed of up to 15 km/h by the Straßenverkehrszulassungsordnung (StVZO = German road traffic permit regulations):

-  Acquisition of liability insurance.
-  An operating licence of the vehicle by the local vehicle admission office.
-  The operating licence always has to be carried along while participating in public traffic.

The operating permit certificate of conformity required for the admission is enclosed with the electronic wheelchair.

Contact your insurance office first. There you will receive an insurance licence plate (moped plate), which is to be attached to the rear panel with two screws.

The electronic wheelchair equipped in such a fashion is then to be presented to the local vehicle admission office. The vehicle registration centre will check that the type approval report conforms with the vehicle and then stamp it.

The application of the operating permit depends on the respective vehicle admission office.

In general it is sufficient to send the operating permit certificate of conformity to the local vehicle admission office to apply for the operating permit.

The stamped operating permit is then sent back.

A previous clarifying telephone conversation can save unnecessary errands. Afterwards the vehicle may be driven in public traffic according to the road traffic regulations (Straßenverkehrsordnung (StVO resp. StVZO).

 Note:

All modifications of the vehicle invalidate the type approval.

CE REGULATIONS

 Note:

This vehicle corresponds to the respective demands of the EC-directive 93/42 EWG.

However, the possibility of interference from high-frequency radiation from other electrical equipment cannot be excluded.

High-frequency radiation exists in the proximity of, for example, radar and broadcasting stations, all types of radio sets and radio telephones. Should the electronic wheelchair react uncontrollably in case of an error or other electronic devices are disturbed by the electronic wheelchair, Stop immediately and switch off the vehicle.

 Note:

The electronic wheelchair can disturb highly sensitive, electromagnetic fields of other electronic devices, as for example antitheft devices in stores.

The connection of other electrical devices can also cause malfunctions.

Attention:

 Never drive the electronic wheelchair in the proximity of electronic medical equipment with a high danger potential and/or life-supporting function or in the proximity of diagnostic equipment.

HANDLING THE ELECTRONIC WHEELCHAIR

Caution:

- ! Observe the operating manual < *Operating module* > and the safety informations < *Electronic wheelchairs* >!

DRIVING

Drive especially carefully during your first journey!

Bearing this in mind, set the pre-selectable final speed to the lowest setting.

You determine the speed and driving direction yourself when driving through the movement of the joystick and the maximum top speed setting of your electronic wheelchair.

Safety informations

- Do not touch the ON/OFF button while driving. The electronic wheelchair brakes with maximum delay.

Bring the seat and backrest into their home positions before the start of the journey.

- The attachment/detachment of accessories/components can alter the driving behaviour.

Automatic break time

The electronic wheelchair is fit with an automatic switch-off period in order to save battery power.

Is the joystick not moved within the set switch-off period and no other key of the operating module is pressed the wheelchair automatically turn off.

Note:

- ☞ The automatic switch-off period is at a standard setting of 10 minutes.
- ☞ The specialist workshop can adjust the switch-off period from 1 to 999 minutes or completely turn it off through the service program.

Functional checks

Before each ride the vehicle is to be checked for function and safety.

- ☞ For this observe chapter < *Inspections before starting to drive* > in the *Operating manual of the Operating module*.

Attention:

- ! The frame, cables and the batteries should be checked for damage after a collision with an obstacle. - With visual and / or audible damage immediately call upon a specialist workshop for maintenance.

TIPS FOR ACCIDENT PREVENTION

With the drive mode switched off (selection lever drive- / push mode in position < push >) the electronic wheelchair can no longer be driven or braked through the joystick. – Danger of accidents!

- ☞ In this case swivel the selection lever drive- / push mode into the < drive > position.

Secure the electronic wheelchair against unintentional wheelchair movements

Before maintenance as well as re-assembly, settings and adjustments on the electronic wheelchair push the selection lever drive- / push mode into the „drive“ position and switch off the operating module! – Accident risk resulting from inadvertent movement of the wheelchair!

First driving exercises

A low maximum speed must be pre-selected on the control unit for the initial driving practice. Get accustomed to the driving behaviour of the vehicle step by step.

The vehicle may only then be driven outside of your familiar surroundings or on public paths when it is safely mastered.



2.1

Driving in street traffic

The valid traffic regulations must be observed and abided when participating in public traffic.

- ☞ Check the functioning of the lighting system before each journey.
- ☞ Carry out a brief braking and steering test – at a very low speed – after the initial movement.
- ☞ Approach and overcome obstacles slowly and at a right angle (fig. 2.1).

Safety informations

- Curves and slopes are to driven on with adequate speed.
- Danger of tilting while driving in curves or when turning around. Especially on slopes and inclinations!
- Do not drive on higher inclinations and slopes than noted in the technical data.
- When driving downhill forwards there is a danger of falling over when braking!
- Never drive with more than the permitted maximum speed!
- Avoid impulsive changes to the driving conditions on slopes and obstacles.
- Temperature influences through lamps, sun or other sources of warmth can damage the upholstery parts, handgrips and paneling or heat them up so much that it may lead to scorching when they come in contact with bare skin.
 - Protect bare and heat sensitive skin accordingly.
- Never expose the electronic wheelchair to extreme weather conditions.
- For safety reasons, never operate a mobile phone or other transmitting device whilst the electronic wheelchair is switched on.

DECELERATING/STOPPING THE ELECTRONIC WHEELCHAIR

The electronic wheelchair stops when you release the joystick. Always ensure an adequate braking distance when applying the electronic wheelchair brakes.

Note:

The shortest braking distance depending on the surface condition and speed is about 1.0 m at 6 km/h, about 2.0 m at 10 km/h and about 3.5 m at 15 km/h.

– For this reason, ensure that you brake the electronic wheelchair in good time when you encounter other people or obstacles.

Attention:

- ! Braking the electronic wheelchair when traveling downhill at high speed can cause it to skid. – Danger of accidents!
- When driving downhill forwards there is a danger of falling over when braking!
- Avoid tight curves and spontaneous braking actions on slopes, especially with critically set parameters (especially a high set delay value). – Danger of overturning!

BRAKES

The brakes are one of the most important safety features of an electronic wheelchair.

The electronic wheelchair is serially fit with two independent braking systems, optionally also with a drum brake.

THE MAGNETIC BRAKE

An electronic service brake which brakes the electronic wheelchair gently without jerking.

THE SAFETY SPRING PRESSURE BRAKE

It only serves as a parking brake. At the same time it guarantees the automatic braking of the electronic wheelchair in case of a power failure.

Through the selection lever drive- / push mode at the side the safety spring pressure brake and the steering gear are switched from drive mode to push mode! – Also view stickers.

Attention:

- ! After switching the selection lever drive- / push mode to drive mode the safety spring pressure brake is immediately effective. – No controlled braking!
- Please observe the Safety Information!

Engaging the safety spring pressure brake

For this swivel the selection lever drive- / push mode as far forward as possible (fig.3).

Attention:

- ! It is impossible to push the electronic wheelchair when in drive mode.
- The brake performance reduces with the brake pads are worn.

With reducing brake function immediately have the electronic wheelchair serviced in a specialist workshop.

Disengaging the safety spring pressure brake

Therefore activate the pulling button on the selection lever drive- / push mode and swivel the selection lever drive- / push mode back as far as possible (fig.4).

Attention:

- ! Only transfer into or out of the electronic wheelchair when it is turned off and the selection lever drive- / push mode is in the „drive“ position!

Inadvertently knocking the joystick will set the electronic wheelchair in motion without control! – Danger of accidents!



THE DRUM BRAKE

The optional drum brake only serves as a parking brake, resp. emergency brake.

The brake lever to activate the drum brake is located opposite of the selection lever drive- / push mode of the safety spring pressure brake. – Also view stickers.

Attention:

- ! While driving only activate in case of emergency. – Danger of accidents!

Locking the drum brake

Therefore swivel the brake lever at the side as far back as possible (fig. 3.1).

Attention:

- ! Your electronic wheelchair may not let itself be pushed.
- The brake performance reduces with the brake pads are worn.

With reducing brake function immediately have the electronic wheelchair serviced in a specialist workshop.



3.1



4.1

Releasing the drum brakes

For this swivel the brake lever at the side as far forward as possible (fig. 4.1).

Attention:

- ! Only transfer into or out of the electronic wheelchair when it is turned off and the selection lever drive- / push mode is in the „drive“ position!

Inadvertently knocking the joystick will set the electronic wheelchair in motion without control! – Danger of accidents!

PREPARING THE ELECTRONIC WHEELCHAIR FOR OPERATION

Follow the instructions below in the stated order.

SHIFT TO DRIVE MODE

Swivel the selection lever drive- / push mode forward as far as possible (fig. 3).

Attention:

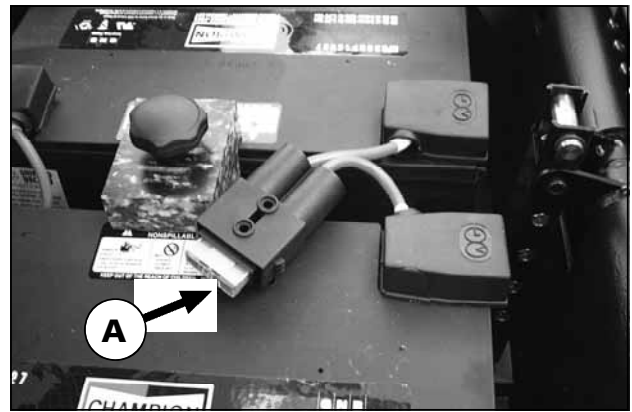
- ! Never switch to push mode while driving!

Insert the battery fuse of necessary (main fuse)

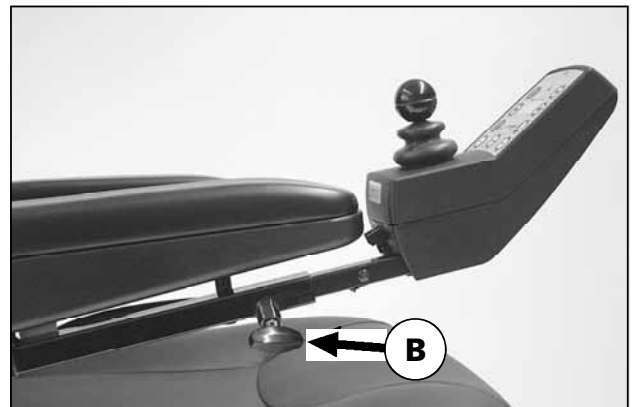
Blade-type fuse:

The blade-type fuse for the main current is located in the fuse bracket underneath the battery lid (A, fig. 5).

- ☞ Therefore observe the chapter < *Battery maintenance* >.



5



6

CHECKING THE POSITION OF THE OPERATING MODULE

☞ Note:

Check the position of the operating module for optimal operating comfort and adjust if necessary.

The operating module should be positioned in such a way that you can comfortably and safely steer the electronic wheelchair.

Longitudinal adjustment:

The longitudinal adjustment of the operating module is set with the clamping screw (B, fig. 6).

Attention:

- ! Tighten the adjusting screws again.

SWITCHING THE OPERATING MODULE ON

Press the ON/OFF-key on the key field of the control panel (fig. 7).

☞ Therefore observe operation manual < *Operating modules* >.

☞ **Note:**

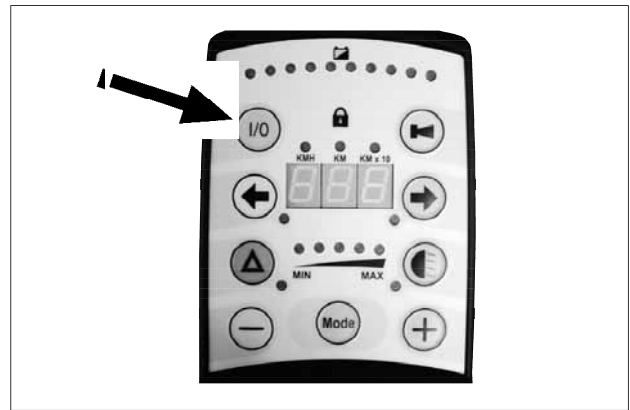
Only transfer into or out of the electronic wheelchair when it is turned off and the selection lever drive- / push mode is in the „drive“ position!

Inadvertently knocking the joystick will set the electronic wheelchair in motion without control! – Danger of accidents!

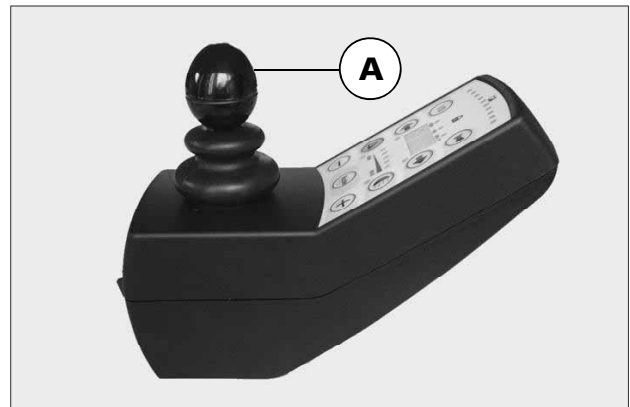
- Only activate the joystick (A, fig. 8) when after about 3 seconds the self-test of the electronic has been completed and 0.0 is shown in the display.

Check before drive start:

- the battery charge level and
- the pre-selected top speed setting. (See the operating manual < *Operating modules – Pre-operation checks* >).



7



8

MECHANICAL ONE HAND OPERATION, CODE 531

In this version the driving direction is not defined servo-electric, but manually with a steering lever (A).

In order to be able to operate all driving functions with one hand while driving, these are integrated into a switchbox (D) on the hand lever. The basic function such as on, light, warning lights as well as the speed display etc. are carried out on the operating module.

Note:

Observe the operating manual < *Operating module* >.

Attention:

 Do not move the driving lever (B) out of the zero position before the self-test of the electronic has ended. – The signal bar of the LED-display stops blinking. See *Fault clearance part of Service* section if blinking continues.

Switchbox

(Fig. 9.2)

The following functions can be selected via the mini-joystick (C) of the switchbox (D), on the steering lever (A):

Left indicator

Steer the mini-joystick to the left.

Right indicator

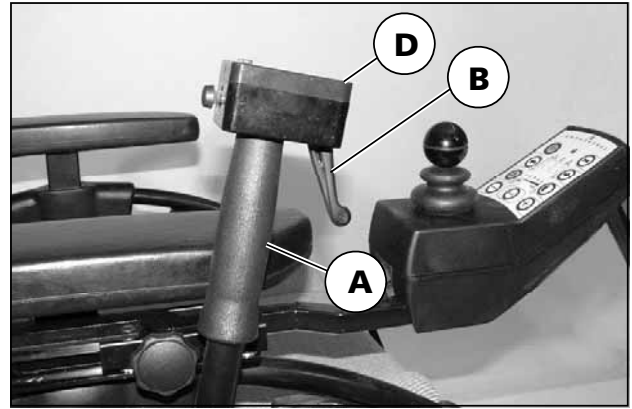
Steer the mini-joystick to the right.

Horn sound

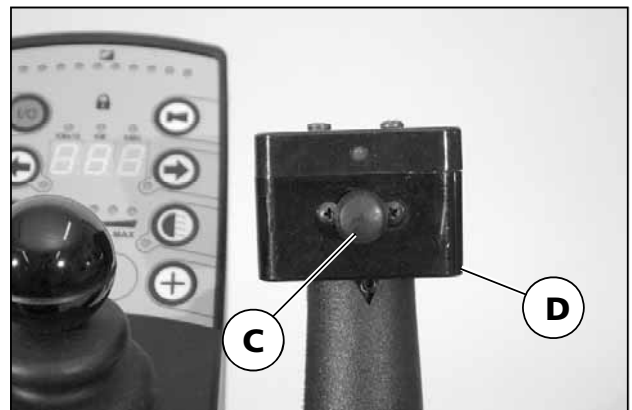
Steer the mini-joystick down.

Travel direction reversing

Steer the mini-joystick upward.



9.1



9.2

Driving

The determination of the pre-selected value of the driving speed is carried out with the driving lever (B, fig. 9.1), that is integrated in the handgrip. Depending on the selected driving direction the wheelchair accelerates to a driving speed corresponding to the setting of the driving lever when the driving lever is pulled with the index and middle finger and brakes back to stillstand when released.

Attention:

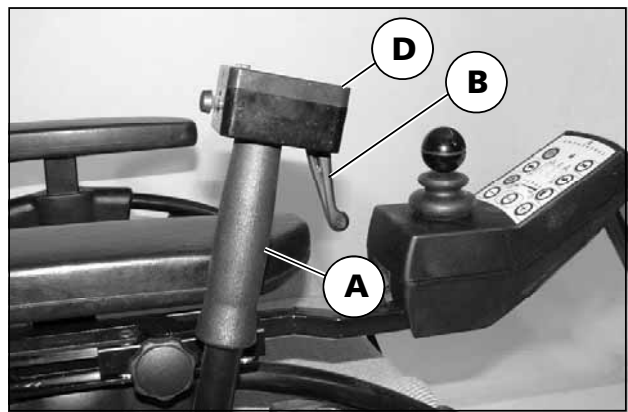
- ! Never release the steering lever (A) as long as the vehicle is still rolling!

Driving direction (forward/backward)

To switch the driving direction steer the mini-joystick upward. With backwards direction selected the display of the operating module shows „UUU“.

Attention:

- ! Do not switch while driving!



9.1



9.3

Braking to a standstill

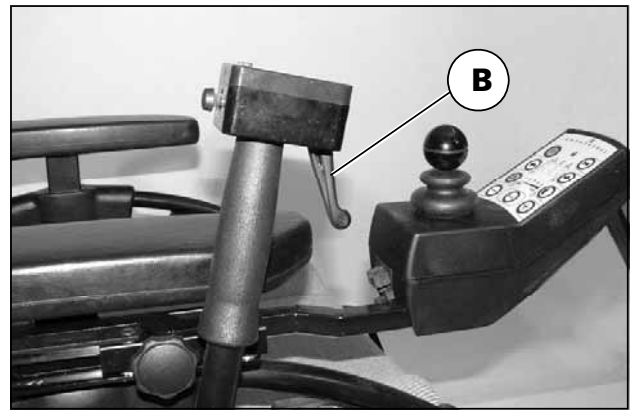
Controlled braking:

Lead the driving lever (B, fig. 9.4) back into its original position according to the desired braking force.

Emergency braking:

Let the driving lever (B, fig. 9.4) snap back into place by itself. – The wheelchair will then brake over the shortest possible distance. When carrying out this braking manoeuvre, take into account a braking distance of approx. 1.0 m for the 6 km/h version and approx. 2.1 m for the 10 km/h version.

This standard values may differ, depending on the condition of the tyres, the overall weight of the wheelchair and the condition of the road surface.



9.4

Curve driving

Steering lever on the right side of the vehicle

To conduct a left turn the steering lever (A) is swivelled forward in driving direction out of the centre position and depending on the desired curve angle of the wheels (fig. 9.5), for a right turn accordingly to the back (fig. 9.6).

Steering lever on the left side of the vehicle

To conduct a right turn the steering lever (A) is swivelled forward in driving direction out of the centre position and depending on the desired curve angle of the wheels, for a left turn accordingly to the back.

Note:

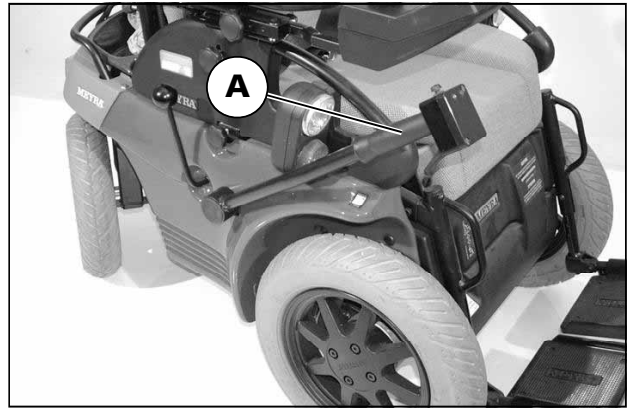
The driving safety especially of manually directly steered vehicles generally depends on the sensitive and practiced behaviour during the steering procedure.

Attention:

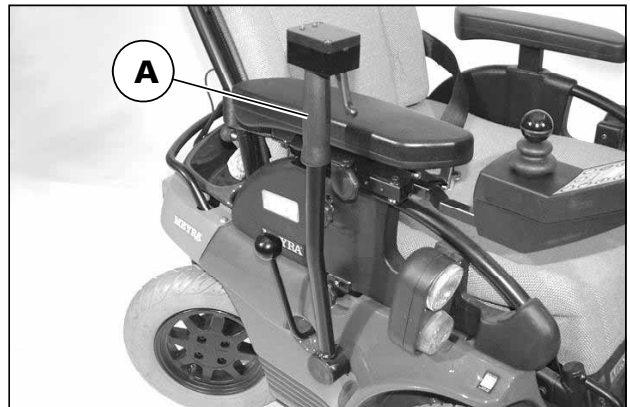
- ! Jerky steering movements are to be refrained from especially in higher driving speeds. – Risk of over-turning!

Note:

-  Electronic aids (e.g. curve speed reduction) can only provide supporting safety due to the laws of physics.
-  Observe that the vehicle will return accelerate back to the predetermined driving speed when coming out of the curve.



9.5



9.6

LEGRESTS

Attention:

- ! Legrests are loose, removable parts that are not suited as tools for lifting or carrying the electronic wheelchair.

Calf belt

The calf belt (A, fig. 9) prevents the feet from slipping off the back of the footplates.

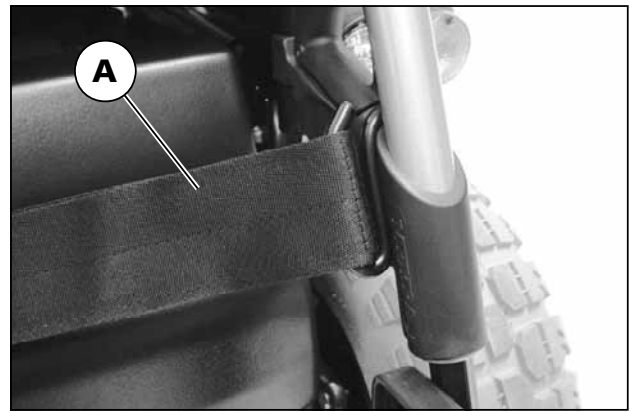
It is guided around special ligament (B, fig. 10) and adjusted in length with a velcro fastener.

Removing / attaching the calf belt

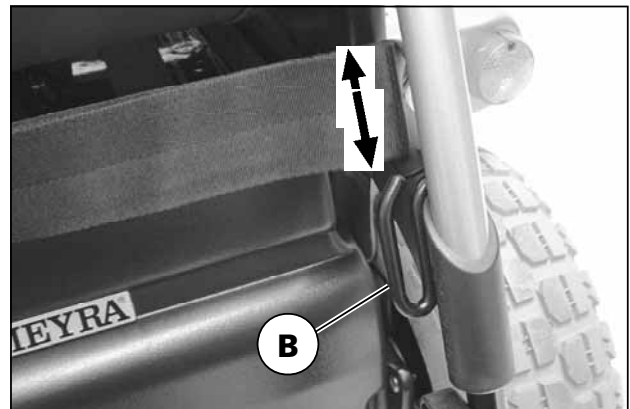
Removing / attaching of the calf belt is achieved by pulling it upward or lowering it (fig. 10).

Note:

- Do not drive without the calf belt.
- The leg strap is omitted for height adjustable legrests and is replaced by a leg padding.



9



10

Folding up the foot plates

- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.
- Remove lower leg strap, if present.
- Remove both feet from the foot plates.
- Fold up foot plates (fig. 11).



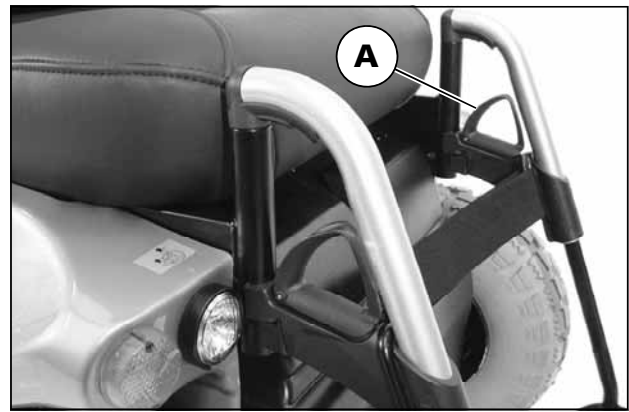
11

Turning the legrests to the side

- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.
- Remove lower leg strap, if present.
- Remove both feet from the foot plates.
- Fold up foot plates (fig. 11).
- Pull or press the locking lever backward (A, fig. 12). – Legrests have now been released.
- Swivelling the leg support inward.

Attention:

- ! Swivelled-away leg stump supports are automatically unlocked and can easily fall off. Note this when handling (e.g. transport).
- After swivelling the leg support back inward do not forget to check the locking device and replace the calf belt!
 - Check the locking points!



12

Removing the legrests

- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.
- Remove lower leg strap, if present.
- Remove both feet from the foot plates.
- Fold up foot plates (fig. 11).
- Pull or press the locking lever backward (A, fig. 12). – Legrests have now been released.
- First swivel the legrests slightly inward and then remove toward the top (fig. 13).

Attention:

- ! After swivelling the leg support back inward do not forget to check the locking device and replace the calf belt!
- Check the locking points!



13

Adjusting the length of the legrests

The length of the legrests is adjustable.

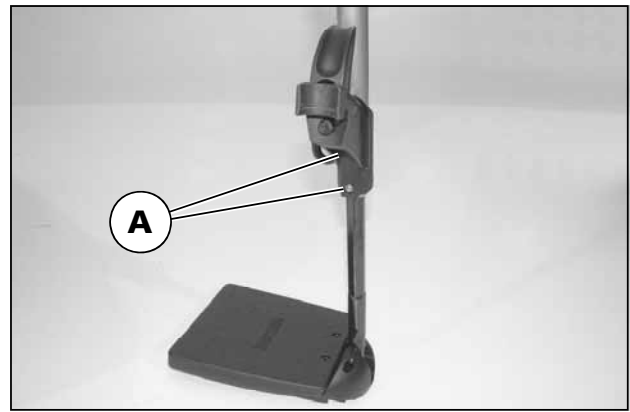
- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.
- Slacken the adjustment screws (A, fig. 14).
- Extend the lower part of the legrest with footrest to the desired length.
- Tighten clamping screws (A, fig. 14) again.

Attention:

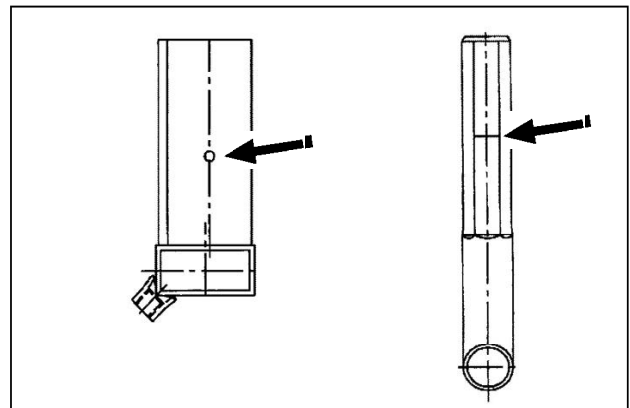
- ! Check the clamping for tight fit!
- Never extend the legrests over the marker (fig. 14.0)!

☞ Note:

Observe that extremely extended legrests reduce the ground clearance and therefore also the obstacle clearance.



14



14.0

ELECTRICALLY HEIGHT-ADJUSTABLE LEGREST, CODE 86

(Fig. 14.1)

The electrically adjustable leg support has an automatic length alignment and automatic electrical contact upon being mounted.

Attention:

- ! Do not reach into the adjustment mechanism. – Danger of crushing!

Height adjustment

For the height adjustment of the legrests (fig. 14.2) view the users manual < *Operating module* >.

- Whilst sitting in the wheelchair, raise or lower the legrest (fig. 14.2) to the desired height via the operating module.

Attention:

- ! Observe the safety informations < *Electronic wheelchairs* >!

Adjusting the leg support angle with the CAN-bus operating module

- Select the corresponding function by pressing the MODE key.

Swivelling the leg support upward

- Press the plus-key or
- steer the joystick to the right or
- activate the right turn signal.

The leg support swivels upward, (max. 80°).



14.1



14.2

Swivelling the leg support downward

- Press the minus-key or
- steer the joystick to the left or
- activate the left turn signal.

The leg support swivels down.

Adjusting the length of the legrests

The legrests can be adjusted via a telescopic tube.

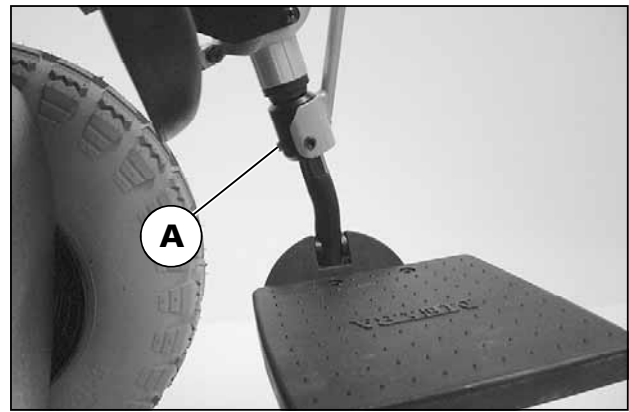
- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.
- Loosen the respective clamping screw (A, fig. 14.3).
- Extend the lower part of the legrest with footrest to the desired length.
- Retighten the respective clamping screw (A, fig. 14.3).

Attention:

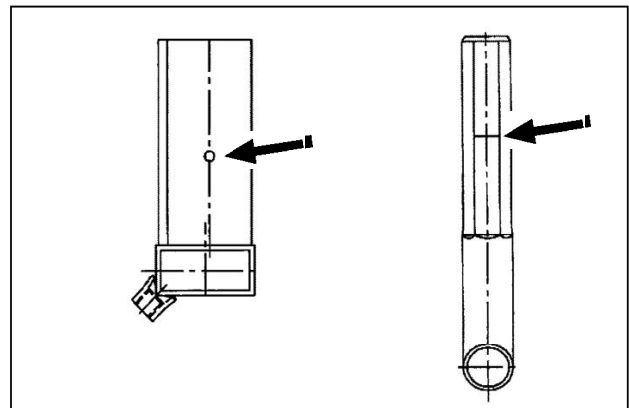
- ! Check the clamping for tight fit!
- Never extend the legrests over the marker (fig. 14.31)!

☞ Note:

Observe that extremely extended legrests reduce the ground clearance and therefore also the obstacle clearance.



14.3



14.31

Dismantling the electrical legrests

- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.
- Remove both feet from the foot plates.
- Fold up foot plates.
- Pull or press the locking lever backward (A, fig. 14.4). – Legrests have now been released.
- Remove the legrests toward the top.

☞ **Note:**

- Check the locking points!

Attention:

- ! With the electrically height adjustable legrests removed, only the now visible electric contact in the frame tube is to be protected from dampness, wetness as well as dust and dirt! – Function error of the electrical adjustment.



14.4

Attaching the electrical legrests

Assembly of the electric leg support is done in reverse order to the removal of the electric legrests.

Attention:

- ! After replacing the legrests do not forget to check that they are securely locked in place (A, fig. 14.4)!
- Conduct a function test of the electrical adjustment!

Depth adjustment of the calf cushion

(electric legrests)

The screws (A, fig. 14.5) must be loosened for the depth adjustment.

Retighten the screws (A, fig. 14.5) after the adjustment.



14.5

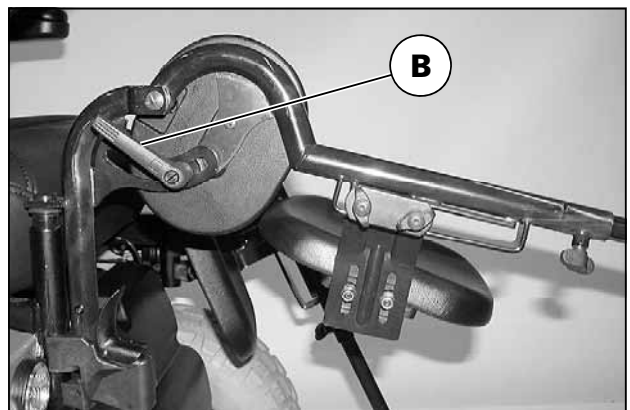
MECHANICALLY HEIGHT-ADJUSTABLE LEGREST, CODE 92

☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.

Adjusting the height of the legrests

While seated have the legrest secured by an attendant against falling down.

- Loosen the clamping lever (B, fig. 14.6) and lift or lower the leg support to the desired height.
- After the adjustment retighten the clamping lever.



14.6

Attention:

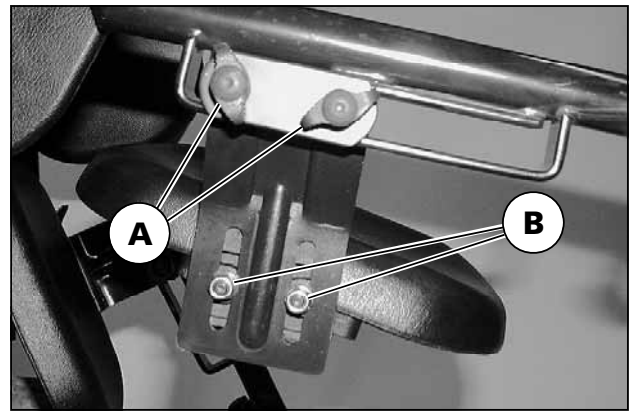
! Never put the free hand into the adjustment mechanism while adjusting the height adjustable legrest.

Height adjustment of the calf plates

- Slacken the adjustment screws (A, fig. 14.7). Adjust the calf plate to the desired height.
- Retighten the clamping screws (A, fig. 14.7) after the adjustment.

Depth adjustment of the calf plates

- Loosen the screwed connection (B, fig. 14.7). Adjust the calf plate to the desired depth.
- Retighten the screws (B, fig. 14.7) after the adjustment.



14.7

ARMRESTS

Attention:

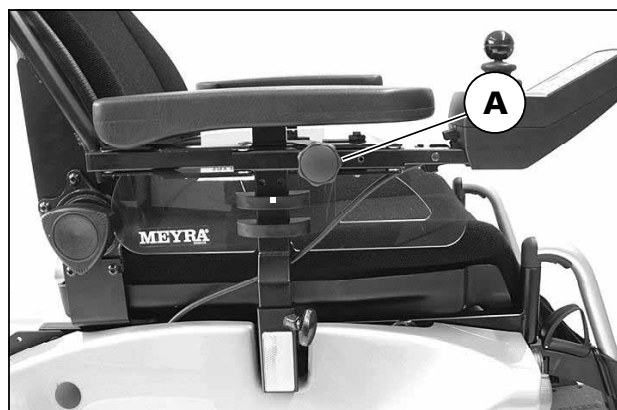
- ! Arm supports are loose parts that are not suited as tools to lift or carry the electronic wheelchair (view warning on the arm supports).

REMOVE THE OPERATING MODULE

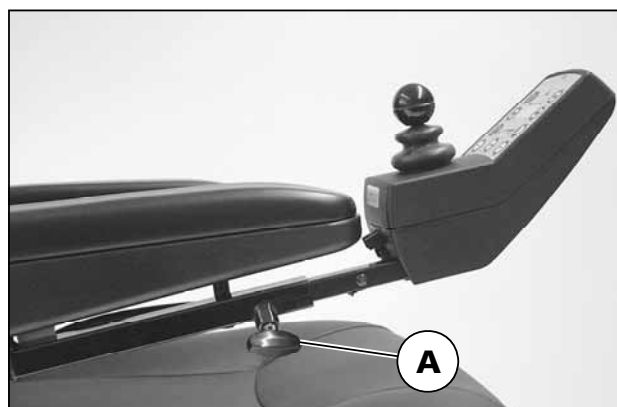
- To remove the operating module loosen the clamping screw (A, fig. 14.8) and pull the operating module out to the front.

FITTING OF THE OPERATING MODULE

- Loosen the clamping screw (A, fig. 14.8) if necessary and insert the operating module from the front into the bracket.
- Adjust the operating module to the desired position and tighten clamping screw (A, fig. 14.8).



14.8



14.8

ARMRESTS, CODE 106

Remove the armrest

- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.
- Remove the armrest in an upwards direction (fig. 14.9). – This is carried out by loosening the relevant adjusting screw (A, fig. 14.10) on the clamping guide.

☞ **Note:**

The cable must be withdrawn carefully in the case of an armrest with an operating module!

Attention:

- ! Removed armrests must be carefully replaced before the wheelchair is used again!
- Never use the electronic wheelchair unless the armrests are mounted!

Mounting the arm supports

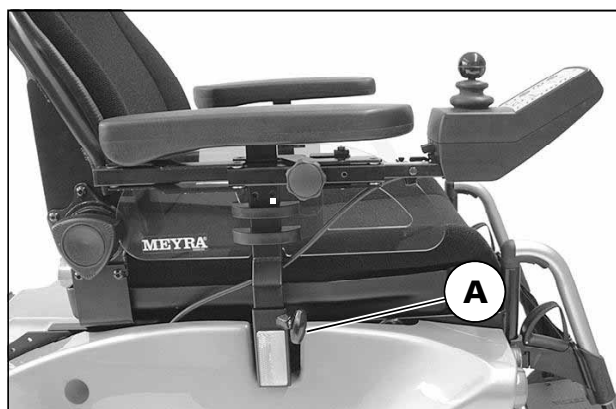
- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.
- Insert the armrests into their guides (up to the end stop) and then tighten the adjusting screws (B, Fig. 14.10).

Attention:

- ! Danger of crushing!



14.9



14.10

Height adjustment of the armrests

- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.
- Loosen clamping screw (A, fig. 14.11).
- Position the armrest at the required height (but no higher than the guiding mark).

Attention:

- ! Observe the minimum insertion depth of 5 cm (marking)!
 - Danger of crushing!
- Tighten the clamping screw (A, fig. 14.11).



14.11



14.12

Adjustment of seat width

- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.

Push the armrest outwards/inwards

To reposition the arm supports loosen the clamping screw (B, fig. 14.12) of the clamping guide.

Attention:

- ! Only move the armrest outwards as far as the guiding mark on the tube (fig. 14.121)!
- Tighten clamping screw (B, fig. 14.12) again. – Check the tight fit of the arm supports!

Height adjustment of the clothing guards

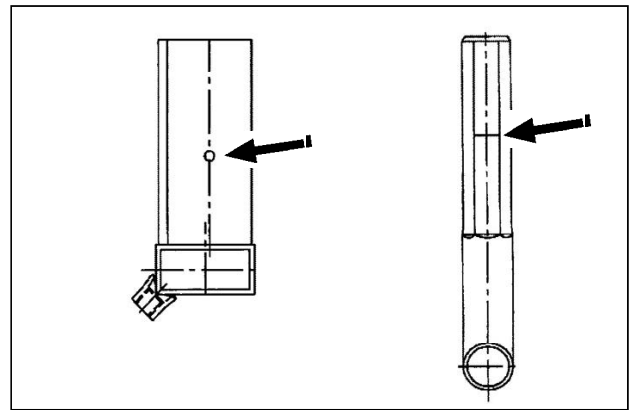
- Loosen the screw of the plastic studs (A, fig. 14.122).
- Reposition the clothes guard.
- Retighten the screws of the plastic studs (A, fig. 14.122).

Repositioning the armrest cushion

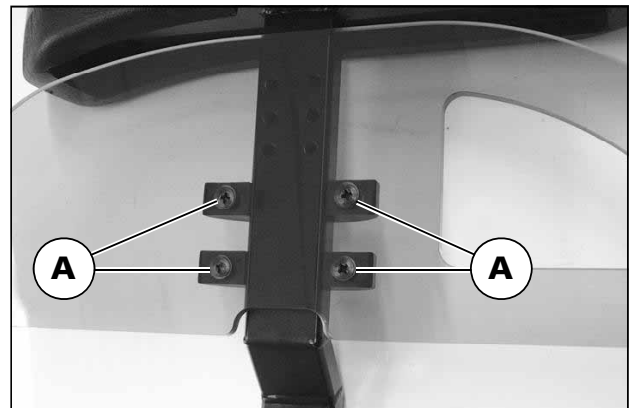
By displacing the armrests the resting position can be adapted for example to a changed seat depth.

Attention:

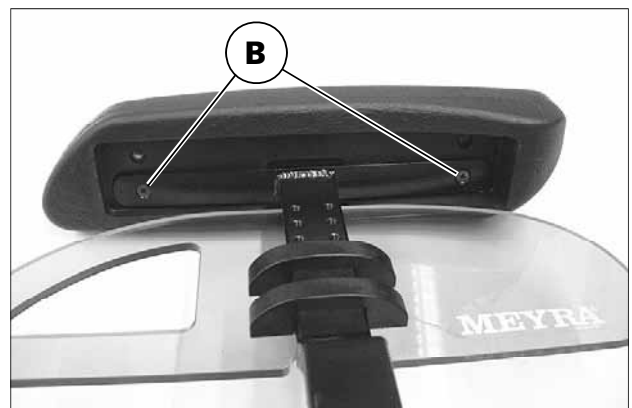
- ! Retrospective refitting should be carried out by a specialist workshop!
- After removing the countersunk screws (B, fig. 14.123) the armrest can be displaced.



14.121



14.122



14.123

ARMRESTS, CODE 24

Swivel up the armrests

The armrest can be swivelled up for an easier transfer to/from the seat (fig. 14.13).

Adjusting the angle of the arm support

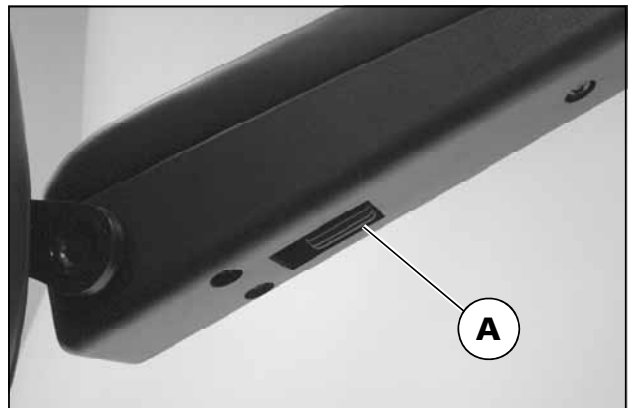
By turning the adjustment wheel (A, fig. 14.14) the angle of the arm support can be adjusted.

Adjusting the height of the arm support

The height of the arm support can be adjusted in three steps by repositioning on the back support (fig. 14.15).



14.13



14.14



14.15

SEAT

SWIVELLING UP THE SEAT

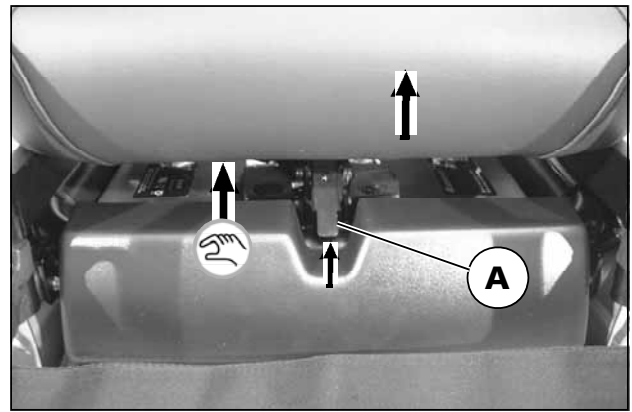
☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.

☞ **Note:**

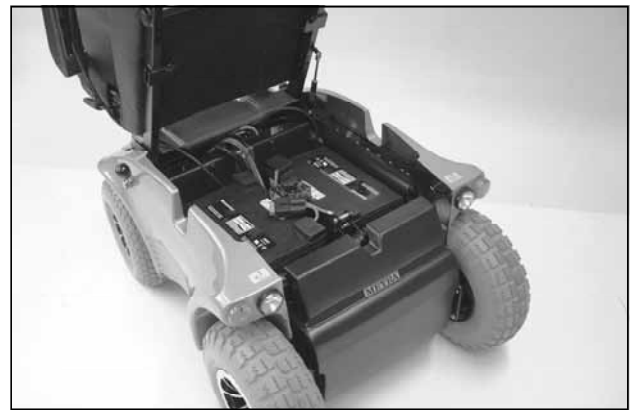
- ☞ Remove the legrests if necessary.
- ☞ Always remove the electrical legrests.
- ☞ Grab underneath the front edge of the seat cushion to fold up the seat.

Attention:

- ! Never grab onto the legrests to lift up the seat!
- First press the lever for the seat lock (A, fig. 15) up, then swivel the seat unit backward and up (fig. 16).



15



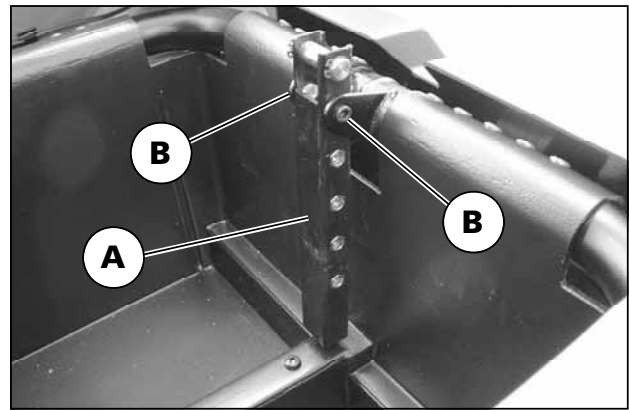
16

MECHANICAL SEAT ANGLE ADJUSTMENT

The mechanical seat gradient angle can be set into 4 further positions by repositioning the support brace (A, fig. 17).

☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.

- Swivel the seat upward (fig. 16).
- Unscrew the screwed connections (B, fig. 17) and reposition the support brace into the desired new screw position.
- Reinsert the screws (B, fig. 17) and tighten.



17

ELECTRICAL SEAT-ANGLE ADJUSTMENT, CODE 118

(Option)

For the electrical seat angle adjustment also view the operating manual < *Operating module* >.

Attention:

- ! Do not grab into the adjustment area. – Danger of crushing!
- Observe the safety informations < *Electronic wheelchairs* !

Adjusting the seat angle through the CAN-bus operating module

- Select the corresponding function by pressing the MODE key.

Swivelling the edge of the seat up

- Press the plus-key or
- steer the joystick to the right or
- activate the right turn signal.

Swivelling the edge of the seat down

- Press the minus-key or
- steer the joystick to the left or
- activate the left turn signal.

SEAT ERGOFORM

Adjusting the seat depth

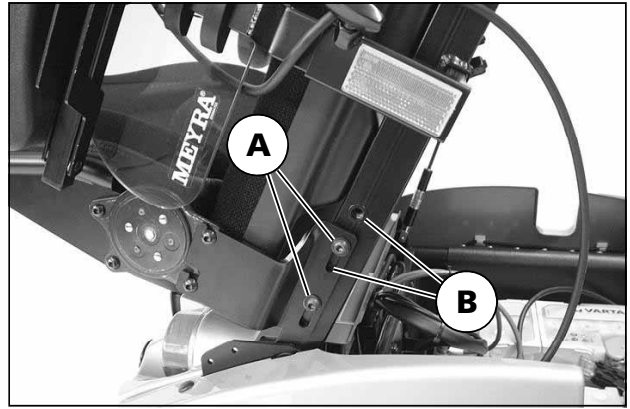
- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.
- Loosen screwed connections (A, fig. 18) on both sides.
- Adjust the backrest equally to the desired depth.
- Retighten the screws (A, fig. 18) on both sides.

☞ **Note:**

A further seat depth adjustment is possible by additionally repositioning the screwed connections (A, fig. 18) into another hole (B, fig. 18).

Attention:

- ! After the adjustment check to ensure that the back is secure!



18

Mechanical angle adjustment of the back support

The angle adjustment of the unstrained back support is achieved through the hand wheel located at the side (A, fig. 19).

Electrical angle adjustment of the back support

The angle adjustment of the back support is done through the operating module.

☞ Observe the operating manual < *operating module* >.

Removing the back

First loosen the screwed connections (B, fig. 20) on both sides before removing the back support.

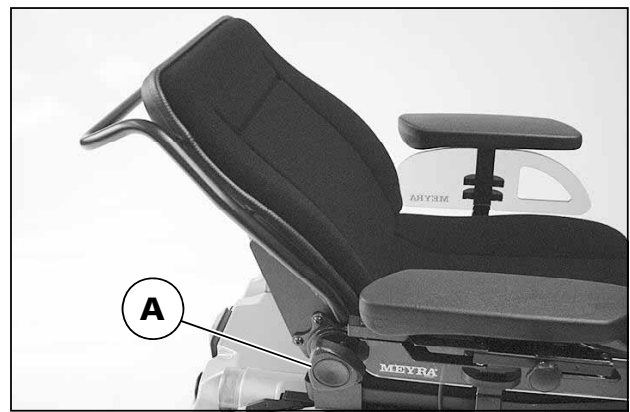
Afterwards first push the back support forward before removing it toward the top (fig. 21).

☞ Make sure that the screws (B, fig. 20) are not lost.

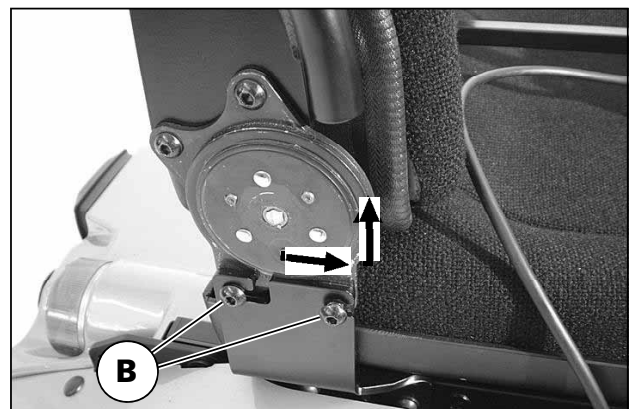
Mounting the back

To mount the back support first place it into the brackets from the top and then push it toward the back (fig. 20). Afterwards tighten the screws (B, fig. 20) on both sides.

☞ Check the back support fir tight fit!



19



20



21

SEAT ERGOSTAR

(Fig. 22)

Adjustment of the back support angle

To adjust the angle of the back support the locking lever (A, fig. 23) must be pressed downward.

When reaching the back support angle let the locking lever (A, fig. 23) lock into the next locking position.

Note:

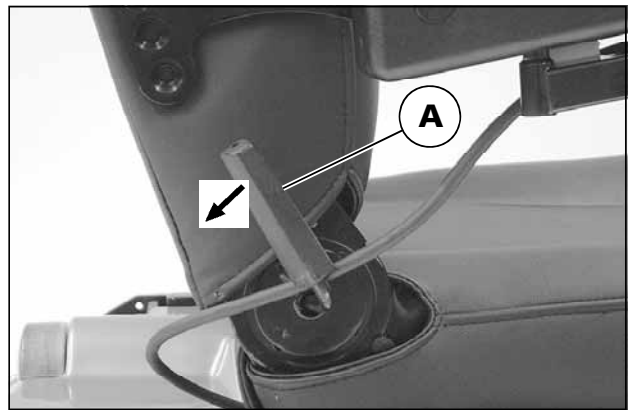
Check the lock of the back support.

Lordosis adjustment

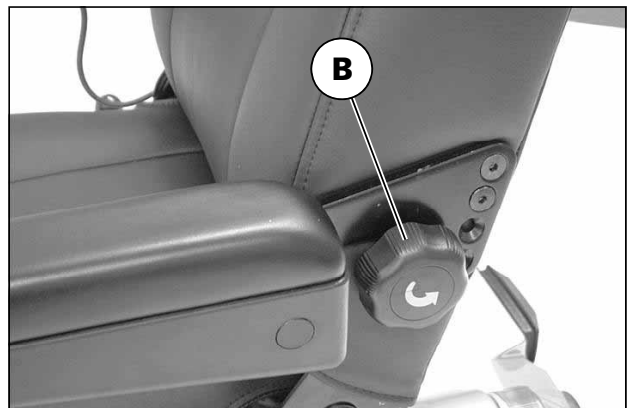
To adjust the lordosis support turn the hand wheel (B, fig. 24) counter-clockwise into the desired position.



22



23



24

PUSH MODE

For manual shunting the electronic wheelchair can be set to push mode.

Attention:

- ! Only shunt the electronic wheelchair on level surfaces.

After switching the selection lever drive- / push mode to drive mode the safety spring pressure brake is immediately effective. – No controlled braking!

PUSH MODE

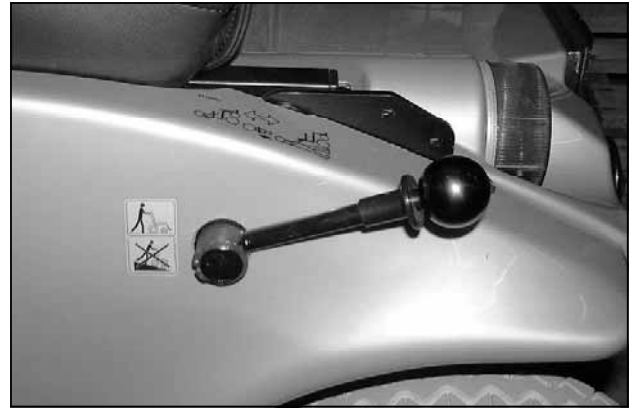
- Switch off the electronic wheelchair before changing to the push mode. – Do this by pressing the ON/OFF key on the operating module.

Attention:

- ! Observe the safety informations < *Electronic wheelchairs* > and the operating manual < *Operating module* >!

Note:

First activate the pulling button on the selection lever drive- / push mode and then swivel the selection lever drive- / push mode back (fig.25).



25



26

DRIVE MODE

Swivel the selection lever drive- / push mode forward (fig.26).

OPTIONS

Options are not a part of the standard scope of supply.

 Note:

Options from other companies can cause malfunctions.

SEAT BELT Code 833

(Fig. 27)

The seatbelt serves to strap in a person sitting in the electronic wheelchair.

- Additional stabilization of the sitting position.
- Prevents the user from slipping forwards out of the seat (e.g. during abrupt braking).

Both ends of the belt are screwed onto the side of the seat frame with a bracket.

 Note:

The subsequent assembly of a lap seatbelt must be carried out by a specialist workshop!

Attention:

-  The retaining strap is not part of the retaining system for the electronic wheelchair and/or user during transport in a handicapped vehicle.



27

Closing the seatbelt

- Pull both belt halves to the front and slide the catch halves together so that they latch together (fig. 28).
- Then carry out a pull test.

Attention:

- ! Make sure that no objects are trapped between belt and the body! – Thus you avoid painful pressure points

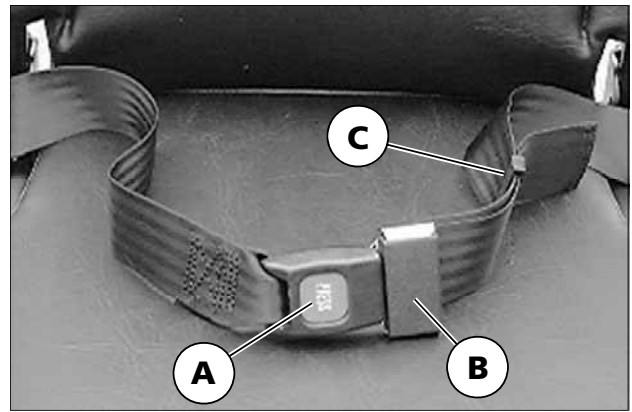
Opening the seatbelt

- To open the seatbelt press the red unlocking button inside the buckle (A, fig. 28).

Adjustment of belt length

Note:

- The lap seatbelt should not be too tight.
- Depending on the version hold the buckle or the latch (B, fig. 28) at a right angle to the strap.
- Push or pull the strap in the respective direction in order to extend or shorten the strap.
- Absorb excessive strap by repositioning the plastic slider (C, fig. 28).



28

HEADREST

The headrest is swivel proof, height adjustable and removable.

Attention:

! We recommend the fitting of two rear-view mirrors for driving with a headrest.

- Observe the brochure < *Safety information electronic vehicles* >!

For seating system **ERGOform**

(Fig. 29)

The headrest can be detached or adjusted in height after the clamping lever (A, fig. 29.1) has been slackened.

Slacken the clamping screws (B, fig. 29.1) and position the headrest at the desired height. Tighten the screwed connections (B, fig.29.1).

Attention:

! The maximum height adjustment is indicated by the marking!

For seating system **RECARO**

The headrest can be adjusted in height by sliding it up or down.

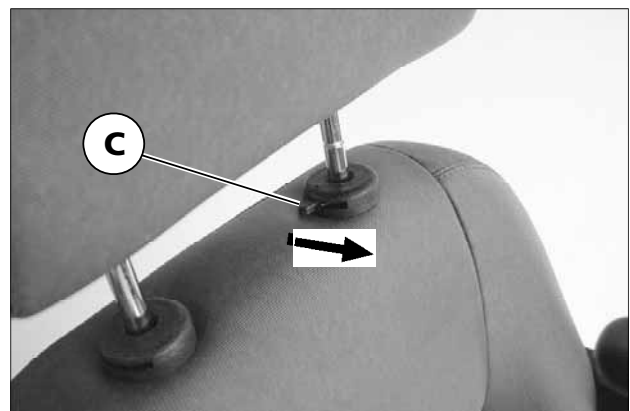
- ☞ After opening the lock (C, fig. 29.2) push or pull the headrest to the next engagement point.



29



29.1



29.2

LOADING AND TRANSPORTATION

Safety informations

For the transport in vehicles, you must leave the electronic wheelchair and sit in a suitable seat in the vehicle. – During accidents forces occur for which the wheelchair is not designed so that you as the driver are at a high risk.

- ▲ Use the rims of the wheels (fig. 30) to lift the electronic wheelchair and not the back support, legrests or parts of the panels!

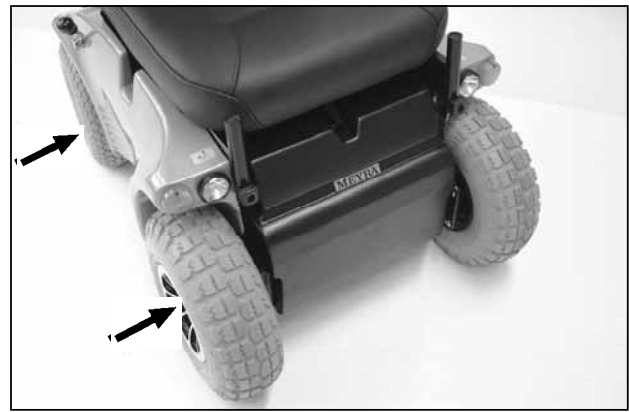
Attention:

- ! The electronic wheelchair must be switched off and the parking brake engaged before lifting!

Transport in vehicles

The following items may be necessary due to lack of space for the transport in vehicles (fig. 30).

- 1. Taking off the legrests**
see section entitled < *LEGRESTS* >
- 2. Folding down the backrest**
see section entitled < *Backrest* >



30

Mounting the electronic wheelchair

The parts detached for the transport must be carefully stowed and carefully attached again before the next journey!

Loading

The electronic wheelchair can be loaded with the aid of ramps or lifting platforms.

Note:

Observe the chapter < *Ramps and lifting equipment* >.

Transport security

Carry out the following steps when the electronic wheelchair is located in the transport vehicle:

1. Establish electrical safety

☞ For this observe the regulations of the respective transport company.

– Switch off the electronic wheelchair

Press the ON/OFF-key on the key field of the control panel (fig. 31).

☞ Observe the operating manual < *Operating module* >.

Shift to drive mode

Swivel the selection lever drive- / push mode forward as far as possible (fig. 32).

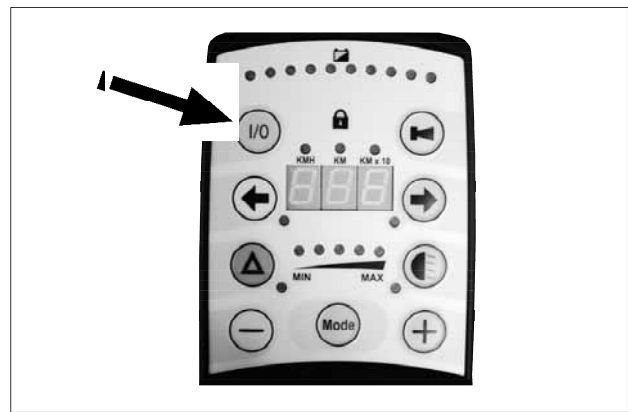
– If possible pull the main fuse

The blade-type fuse for the main current is located in the fuse bracket underneath the battery lid (A, fig. 33).

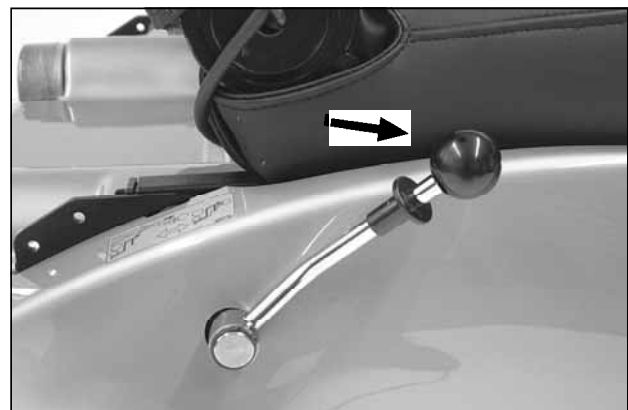
☞ Therefore observe the chapter < *Battery maintenance* >.

2. Put the operating module in a safe place or replace it on the wheelchair.

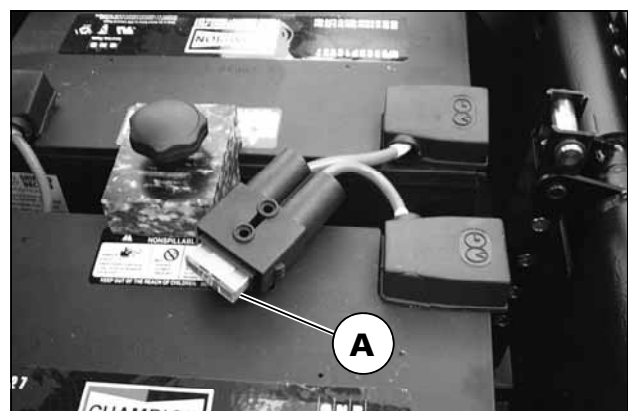
3. Dismantled parts of the electronic wheelchair are to be stored safely and protected.



31



32



33

4. Secure the electronic wheelchair with spanning belts.

Only attach the spanning belts to parts of the vehicle as well as the electronic wheelchair designed for this purpose (fig. 34 and 35 – arrow)!

☞ Therefore also observe the markings / stickers.

▲ Only use permitted fastening material.

☞ **Note:**

☞ Suited brackets are described in the operating manual of the vehicle.

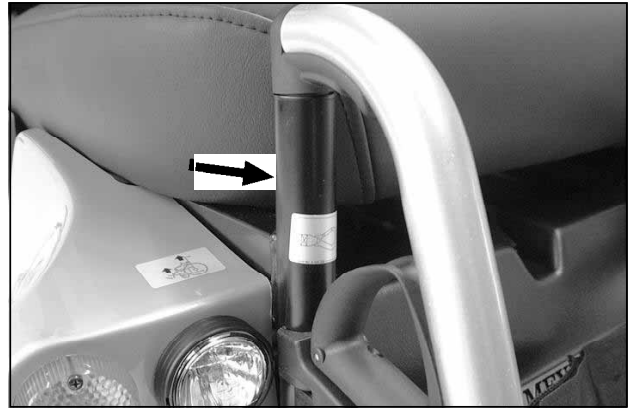
☞ Before transporting the wheelchair, ask your car dealer how to secure it without risk to the existing fixtures or other safety fittings!

Attention:

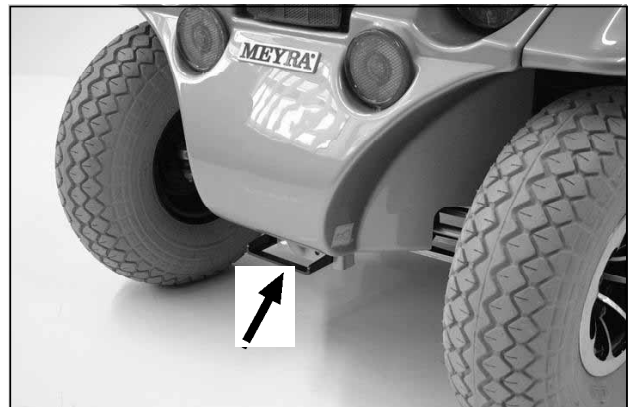
! Make sure that the operating module is switched off and that the selection lever drive- / push mode is set to drive mode.

Safety informations

☞ Loose objects are to be stored securely.



34



35

RAMPS AND LIFTING EQUIPMENT

When the electronic wheelchair is loaded with the help of ramps or lifting platforms, the following safety information are to be observed:

- ▲ The safety informations < *Electronic wheelchairs* >.
- ▲ The operating manual for the transport vehicle.
- ▲ The manufacturer's information for the ramp or lifting equipment.

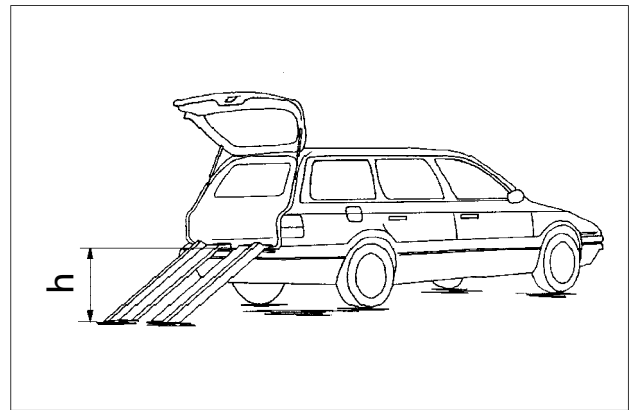
Attention:

- ! The maximum bearing height specified for the ramp must be greater than the height 'h' from the ground to the loading surface, e.g. of the car (fig. 36).

The electronic wheelchair can be driven into the transport vehicle over ramps with its own propulsion power.

Note:

- ☞ During the process the operating module has to be guided accordingly.
- ☞ Do not pull on the connector cable.



36



36.1

Ramp version

1. A parted ramp consists of a minimum of 2 slim, transportable driving tracks (fig. 36.1).
2. A one-piece ramp consists of one wide transportable driving track.
3. A firm ramp consists of one wide driving track that is connected firmly with the surface.

Special safety informations

- ▲ For safety reasons, the electronic wheelchair must be unloaded (without baggage and without user) during its loading into a car or when a split ramp is used.
- ▲ Ensure that the electronic wheelchair can roll back for a short distance (neutral zone) if forward motion on the ramp is interrupted or when setting in motion at the bottom of the ramp.
- ▲ Cars and vans should be parked on a level and firm surface with the handbrake on to prevent them from rolling away.
- ▲ Ensure that the ramp cannot slip at the ground end or at the transport vehicle end.
- ▲ Ramps should be positioned so as to leave enough space for electronic wheelchair steering correction without one of the wheels protruding over the edge of the ramp.
- ▲ Only use the wheelchair on dry, clean and undamaged ramps or lifting equipment.
- ▲ Select the lowest forward speed.

Caution:

- ! The minimum load of ramps or lifting equipment are to be read in the *< technical data >* of the manufacturer!

- ▲ Only approved ramps or lifting equipments may be used.

Attention:

- ! The loading capacity per ramp or lifting equipment must be designed for the electronic wheelchair as follows:

without driver

- ☞ minimum 150 kg:
 - for parted, one-piece and firm ramps as well as lifting equipment. (In fig. 36.1 all parted ramps are shown).

with driver

- ☞ minimum 330 kg:
 - for one-piece and firm ramps as well as lifting equipment.
- Only tested and approved ramps or lifting platforms intended for wheelchair loading may be used.

TRANSPORT IN HANDI-CAPPED TRANSPORT AUTOMOBILE

Note:

For transport in vehicles we recommend to leave the electronic wheelchair and sit on a suitable seat in the vehicle.

If a transport in the electronic wheelchair is inevitable, the electronic wheelchair needs to have securing systems complying with DIN 75078 Part 2.

The transport vehicle (handicapped transport vehicle) needs to have the equipment for transporting wheelchairs according to DIN 75078 Part 1.

This norm describes a „power-knot-system“. With this system the unit wheelchair and user is secured in a handicapped transport vehicle. The system is divided into two components:

- Personal retaining system (PRS)
- Wheelchair retaining system (WRS)

The retaining system should fulfil the following technical requirements:

- Strap course of the PRS in the area of the pelvis and shoulder with as little as possible risk of injuries of inner organs.
- Simple, clear and quick operation through the driving service and good accessibility within the transport vehicle.

The power-knot-system is a firm, retrofittable element on the wheelchair, on which the PRS and WRS merge.

These requirements are fulfilled by a 4-point-system that consists of 2 front standardized latches for spanning retractor and 2 rear standardized latches for spanning retractor and lap seat belt.

The lap seat belt must be length adjustable and fit with a latch to connect with the receptacle of the vehicle shoulder strap.

The standardized latches are on the one side connected to the wheelchair and on the other hand with the spanning loops or hole grid of permitted strap reactors that are countersunk into the floor of the vehicle according to DIN 75078 part 1.

The restraint system only offers sufficient safety in regular traffic situations (sharp braking manoeuvres and similar) but not during collisions outside of the normative testing values. Especially not during a boot crash.

Note:

The headrest on the electronic wheelchair serves as a support for the posture of the head, not as a transport security. Therefore a handicapped transport vehicle-firm headrest is necessary!

Attention:

-  Angle adjustable back supports are to be adjusted into an upright position.
- Tipped seats are to be set horizontal.
- Is a securing system in compliance to DIN 75078 Part 2 required for the electronic wheelchair, contact a specialist dealer.

Product liability instructions

-  Transport in the electronic wheelchair with a handicapped transport automobile is done at own risk!
-  We do not accept liability for damages or other possessions that occurred through the transport in a handicapped transport automobile.

Safety informations

-  When transporting a person, make sure that there are no objects jammed underneath the straps! – Thus you avoid painful pressure points
-  As far as possible use a vehicle-installed seat during transportation.
-  Only transport the electronic wheelchair in driving direction.
-  The driver, resp. the attendant is responsible for the professional securing of the electronic wheelchair in the handicapped transport automobile.
-  For professional transport in a handicapped transport automobile the electronic wheelchair and person have to be placed on the therefore determined space and secured with the corresponding securing system.
-  Loose object are to be stored securely.

SERVICE

As any other technical product, the electronic wheelchair also requires regular care and maintenance. The following care instructions and the maintenance manual describe the measures that are to be carried out so that the electronic wheelchair provides the following advantages even after a longer period of use:

- the safety for you and others,
- the operational readiness,
- the value conservation.

Note:

The vehicle driver is responsible for the correct functioning and safe condition of the vehicle when driving on public highways.

An incorrect or neglected cleaning and maintenance results in a limitation of the product liability.

Tyres:

A difference in tyre pressure between the wheels on one axle causes the vehicle to pull to one side and makes straight-on driving difficult. With too little tyre pressure the rolling resistance increases and more energy is drawn from the batteries in order to power the electronic wheelchair. Always inflate the tyres to the max. permitted tyre pressure but never exceed the max. permitted tyre pressure. But never exceed the max. permitted tyre pressure.

▲ Check the tyres regularly.

-  See the < *Technical data* > for the tyre pressure.
-  Always protect the tyre valves against dust with the valve caps.
-  Tread/condition: Worn tread impairs the driving behaviour.
-  In case of a change of tyres: Always change the tyres of an axle in pairs.

CLEANING AND MAINTENANCE

Note:

-  Keep the lighting components clean at all times and check for correct functioning before each journey.
-  Do not clean the electric wheelchair with a high-pressure cleaner!
– Danger of short circuit!
-  Keep water and moisture away from electrical components and cabling!
–Water jets can cause damage to the electronics and the operating module.
-  For care you should use silicon free cleansing or care agents on a warm water basis such as the *leather care emulsion* from *Sonax*. – In doing so the manufacturers instructions are to be observed.
-  Do not use aggressive cleaning agents e.g. solvents, or hard brushes etc.

Upholstery and covers

Clean the upholstery with warm water and hand washing liquid.

- Remove spots with a sponge or a soft brush.
- Wash off persistent dirt with commercial fine detergent.
- Follow-up with clean water and allow to dry.

Plastic parts

The plastic panels and parts are made of high-quality plastic.

-  Only clean the plastic parts with warm water and neutral detergent or soft soap.

Caution:

-  The plastic panels are made of polystyrene and are affected by non-ionic tensides as well as through solvents and especially alcohol.

-  When using commercial plastic cleansers the manufacturers application instructions are to be observed.

Finish

The high quality finish ensures an optimum of protection against corrosion.

-  If the surface finish is damaged by scratches or similar, touch it up with a varnish pen available from us.

An occasional slight greasing of movable parts (also view the maintenance manual) provides for a long functioning.

DESINFECTION

For disinfection you should use agents on a water basis such as *Terralin*, *Quartamon Med* or *Sagrotan Original Concentrate*.

☞ In doing so the manufacturers instructions are to be observed.

☞ **Note:**

Before disinfection the upholstery and handles are to be cleaned.

REINSTALLMENT

For reinstallment no further measures other than those described in chapter < *Maintenance* > are necessary.

REPAIRS

You can trustingly contact your authorised workshop for any necessary maintenance. It is briefed in carrying out the work and has educated personnel.

CUSTOMER SERVICE

In case you have any questions or need help please contact your specialist dealer who can assume counselling, service and repairs.

SPARE PARTS

Spare parts can only be ordered from specialist dealers. In case of repair work, only original spare parts are to be used!

The spare parts list with the respective part numbers and drawings is available at the specialist dealer.

Attention:

- ! Safety relevant parts or assembly groups are only to be assembled in a specialist workshop. – Danger of accidents!

You must state the serial number (Fz-I-Nr.) of the electronic wheelchair when ordering spare parts in order to ensure that the correct spare part is supplied! You will find this on the type plate.

Whenever an electronic wheelchair change/modification is carried out by the dealer, the supplementary information, e.g. assembly/operating instructions must be attached to the operating manual for the electronic wheelchair, the date of the modification must be recorded and stated when ordering spare parts.

This should prevent wrong order details on future spare parts orders.

Disposal

The vehicle packing material can be disposed of as recyclable material.

The metal parts can be disposed of as recyclable scrap metal.

The plastic parts can be disposed of as recyclable plastic.

Electrical parts and printed circuit boards can be disposed of as electrical scrap.

The disposal must occur in accordance with the respective national regulations.

Please enquire about local disposal arrangements at your municipal authority.

BATTERIES

The batteries should be charged immediately after the daily use in order to have the full driving distance available on the next day.

The batteries should be recharged once a month when the electronic wheelchair is not used for a long period of time. The electronic wheelchair will then always be ready for use.

When are the batteries charged

- before long tours
- after long periods of disuse
- when the battery indication light of the battery symbol (LED display) goes permanently on or blinks.
- When the battery symbol for approx. 10% battery capacity appears on the LED display.

☞ Recharge the batteries as often as possible.

☞ Recharge over a sufficient period of time.

It is best to charge the battery overnight. A complete charge of the batteries requires at least 12 hours.

☞ **Note:**

In exceptions, the charging cycle can be extended to up to 22 hours. Afterwards the operating module shows an error. – In this case contact your dealer.

Charging before long periods of non-use

You should fully charge the batteries of the electronic wheelchair before a long period of non-use. – This lengthens the service life of the batteries. Pull out the main fuse after the charging and re-insert it into the fuse holder the other way round. This prevents the fuse being lost.

Battery instructions for storage

Before storage, for example before a winter pause, the following instructions are to be observed:

- ☞ Completely charge the batteries.
- ☞ Pull off the drive key (if available).
- ☞ Pull the main fuse and store it safely. – This prevents the fuse being lost.
- ☞ Loosen and remove one battery clamp.

Battery instruction during extended pauses of use

To increase the life cycle the batteries are also to be charged when not fully used or during pauses in use (retaining charge). – Therefore observe the following information:

- ☞ Charge the batteries at least once a month for a period of more than 16 hours.

Charging procedure

Do not recharge the batteries in a damp room or enclosed space. – The charging process can produce toxic fumes. Ensure that the room is well-ventilated!

- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.
- Insert the battery charger plug into the operating module (A, fig. 38).
- Insert the mains plug of the battery charger into an appropriate mains socket.

The battery is now charging.

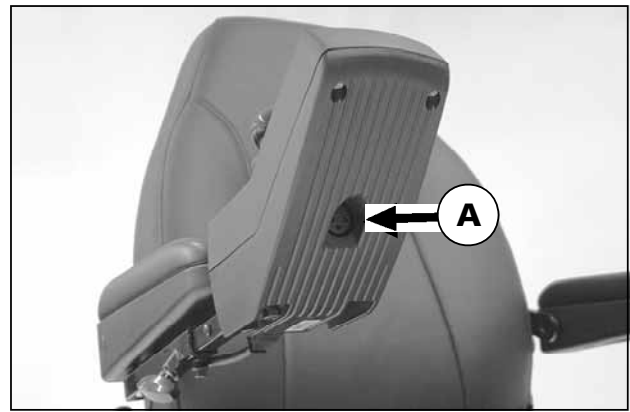
- ☞ Therefore observe the operating manual of the charger!

Attention:

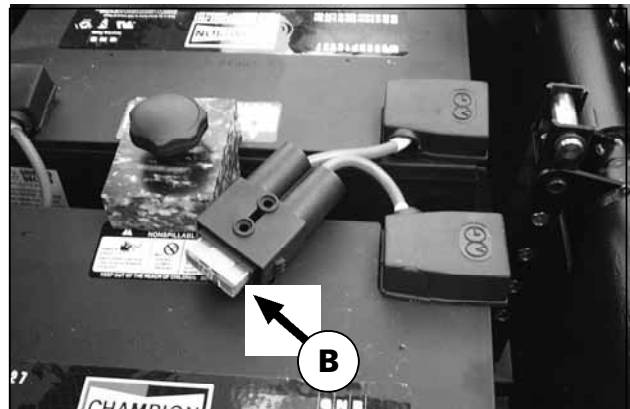
- ! Do not insert any objects other than the supplied charging plug into the battery charger. – Danger of short circuit!
- Do not insert charging plugs on other wheelchairs into the battery socket!

☞ Note:

The charging process only runs with an intact battery fuse (B, fig. 39)!



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☞ Note:

After the charging has been completed first separate the battery charger from the power supply and afterward pull the battery charging plug from the charging socket.

Charger for charging the batteries

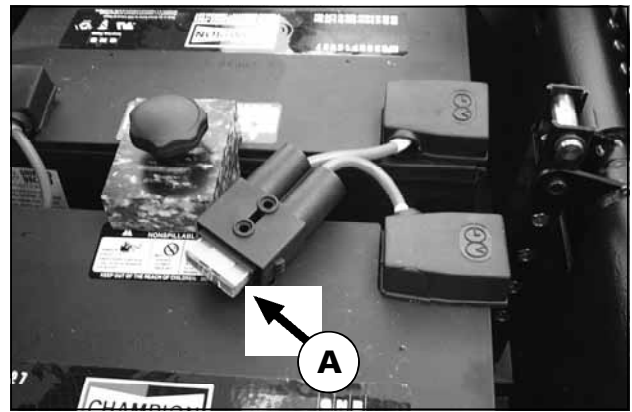
Batteries should only be charged with a battery charger that is suitable for the type and rating of the batteries. The guarantee is only preserved to its full extent when battery chargers supplied and recommended by us are used.

- ▲ Observe the safety informations < *Electronic wheelchairs* >!
- ▲ Avoid spark build up through electrical static (for example caused by synthetic floor covers).
- ▲ Observe the contents of the operating manual for the battery charger.

Maintenance the batteries

For all work on the batteries or electrical/ electronic components the main fuse (A, fig. 40) underneath the battery lid has to be pulled!

- ☞ Therefore observe subchapter < *Removing the battery lid* >.



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Attention:

- ! Do not touch the battery terminals with tools, cable ends or other metallic items. – Risk of short circuit and explosion!
- Avoid naked flames and sparks in the vicinity of the batteries. – Risk of explosion!
- Observe the < *Safety informations* >, section entitled < *General information on electrical systems* > and < *Service* >!

Safety informations

- ▲ Keep children away from batteries, accessory parts and packing material.
- ▲ Avoid naked flames and sparks in the vicinity of the batteries.
 - Risk of explosion!
- ▲ Re-usable batteries should only be used in the same wheelchair model.
- ▲ The battery poles should be covered with the respective battery pole caps.

- ▲ Pull out the battery plug before working on the electrical system.
- ▲ Never touch the battery terminals with tools, cable ends or other metal objects when working on the batteries.

Caution:

- ! Sparking due to a short-circuit of the battery terminals can cause the batteries to explode!
- Battery acid is very caustic! Skin and eyes can be injured, clothing and flooring can be damaged.

Note:

Immediately wash all skin areas or body parts that have come in contact with acid under running water for a lengthy period of time. Then see a doctor. Immediately remove clothing wetted with acid. Wash clothing with soapsuds and then rinse with plenty of water.

- ▲ Always wash your hands after working on the batteries.

Maintenance-free batteries

Maintenance free batteries with bound electrolytes as for example gel-batteries

- These batteries do not require maintenance,
- are leak proof,
- vent plugs are not visible,
- acid-tightness cannot be measured.

Maintenance of lead-acid batteries

Lead-acid batteries have visible sealing plugs. A regular battery maintenance contributes to the full utilisation of the service life of the batteries.

Attention:

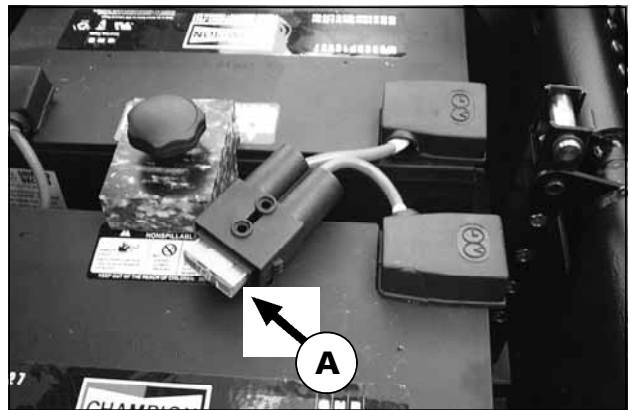
- ! Battery acid is caustic!
 - In event of acid droplets on the skin, in the eyes or on clothing, rinse immediately under running water!
- ☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.
- Remove the calf belt and legrests.
 - Swivel the seat upward (fig. 41).

Attention:

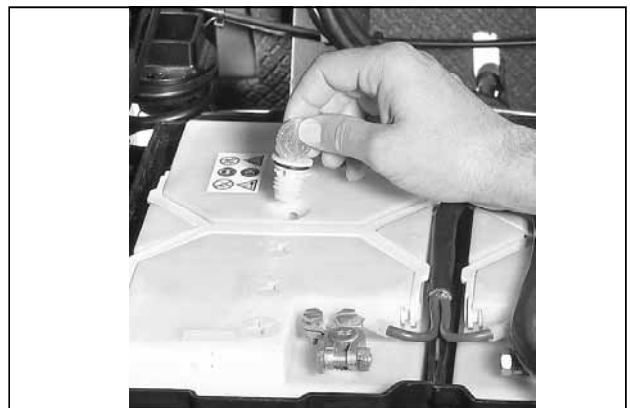
- ! Therefore observe the chapter < *Swivelling up the seat* >.
 - Remove the battery lid.
- ☞ Therefore observe subchapter < *Removing the battery lid* >.
- Remove the main fuse (A, fig. 41.1).



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41.1



42

- Wipe the surface of the battery with a dry cloth.
- Only ever remove the sealing plug of one battery cell (fig. 42).

Checking the acid level

First charge discharged batteries and, if necessary, then top up with distilled water.

The battery acid level falls due to evaporation of water, especially during high ambient temperature.

The acid level is correct when it is

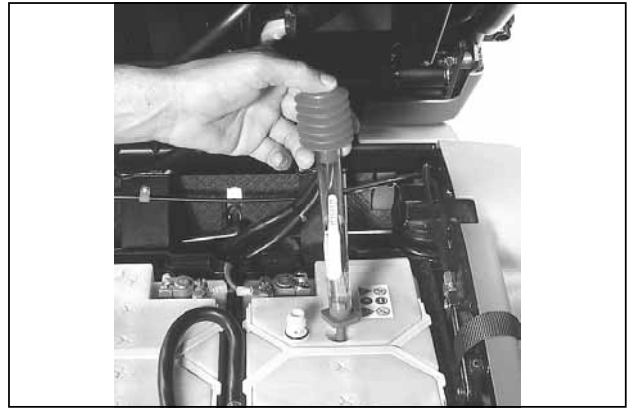
- just above the filling hole insert or
- approx. 5 mm above the top edges of the plates.

Measuring the acid density

The measurement of the acid density with the acid tester gives an insight into the actual charge state of the batteries.

Observe the brochure < *Safety information* >, section entitled < *General information on electrical systems* >!

- With compressed ball pump, insert the tube for sucking out the acid into the cell opening and submerge it into the acid (as in fig. 43).
- Suck out the acid by releasing the ball pump (fig. 43).
- The indicator float must swim freely in the acid (fig. 43).
- Compare the acid density with the charging scale of the floater.



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Immediately charge the battery when the acid density of one cell reads off under the scale value of 1.18 kg/dm^3 .

Battery fully charged when the acid density of all cells is above the scale value of 1.28 kg/dm^3 .

The differences between the individual cell values should not exceed an acid density of 0.02 to 0.03 kg/dm^3 . If it does, this can be due to battery damage. Seek the assistance of a specialist workshop!

Replacing the batteries

The drive batteries are highly strained through the daily use of the electronic wheelchair and can only fulfil their job when they are cared for and charged. Batteries undergo a normal ageing process. Both batteries must be replaced when they no longer give the full power or are defective despite correct charging.

The use of batteries with different capacities is not permitted.

Note:

Have a battery replacement carried out by an authorised workshop because they know about the possible risk situations and can correctly dispose of defective batteries.

Preparations to disassemble the batteries

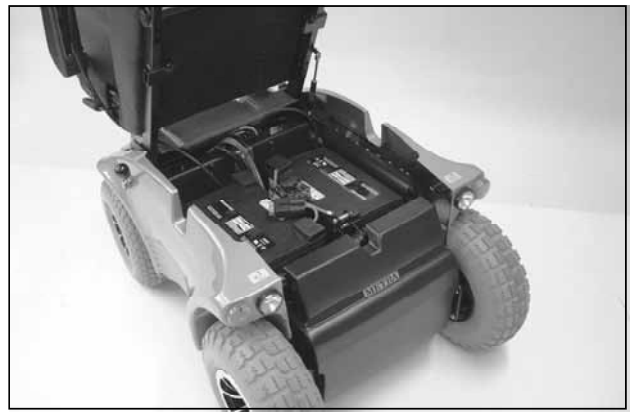
 Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.

1. Remove the calf belt and legrests.
2. Swivel the seat upward (fig. 44).
3. Remove the battery lid (A, fig. 44.1).

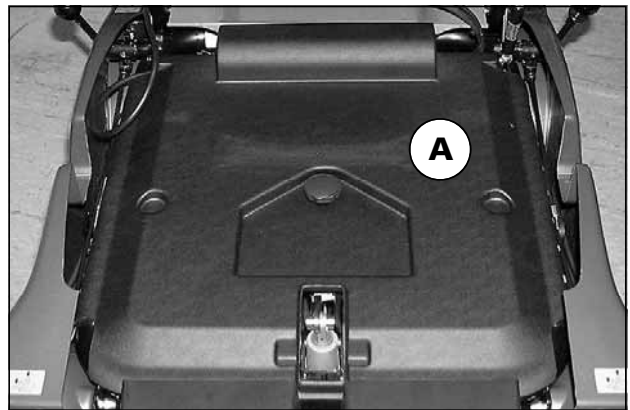
 Therefore observe subchapter < *Removing the battery lid* >.

4. Remove the main fuse (B, fig. 45).

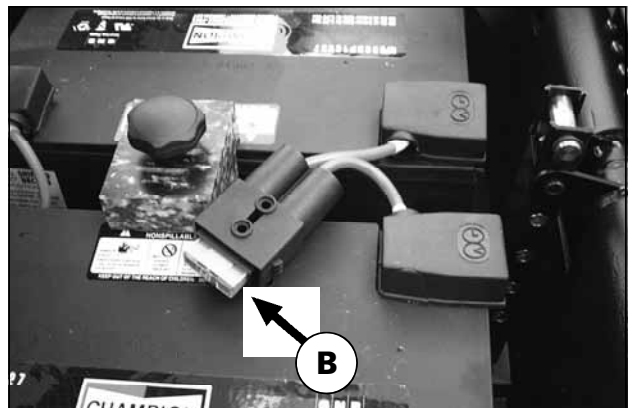
 Continue with section < *Battery removal* >.



44



44.1

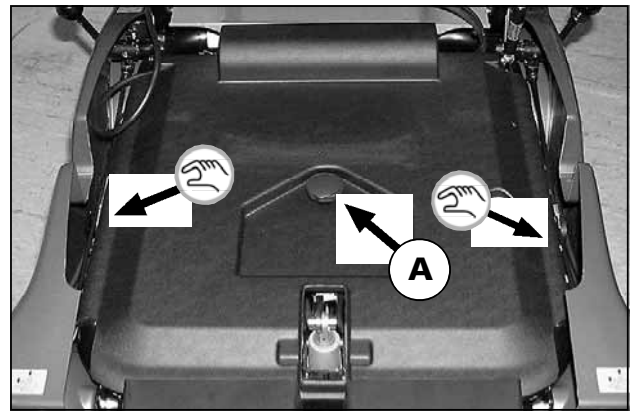


45

Removing the battery lid

1. Unscrew hand wheel (A, fig. 46).
2. Lift the battery cover and pull forward, then
3. Lift the rear battery cover and remove it slightly slanted to the top.

Replace the battery cover in reverse order.

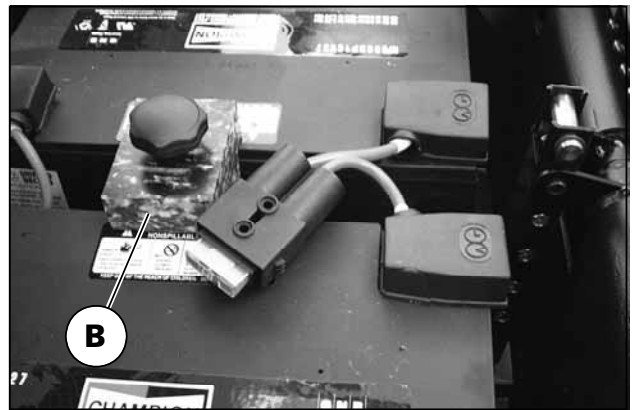


46

Battery removal

1. Wipe the surface of the battery with a dry cloth.
2. Remove the battery clamping block (B, fig. 46.1).
3. Dismantle the battery terminal clips.
4. Remove batteries.

When replacing the batteries in reverse order watch for the correct pole assignment (view sticker on frame / battery case).



46.1

Assembly

Assembly of the previously dismantled parts is done in reverse order.

BATTERY CHARGER

The electronic wheelchair requires a special charger.

- ☞ Only chargers suited for the electronic wheelchair may be used!
- ☞ Observe the operating manual of the charger!

Technical requirements:

for the following batteries,

- max. charging voltage: 28.5 V
- from 40 Ah – 5 h / 50 Ah – 20 h
- Charging current: 8 A
- from 65 Ah – 5 h / 82 Ah – 20 h
- Charging current: 12 A

Pin assignment of the charging plug:

(Fig. 46.1)

Pin 1: +24V (Conduit red)

Pin 2: minus (Conduit black)

Pin 3: minus (Bridge on Pin 2 – view arrow in fig. 46.2)

- ☞ Therefore observe the operating manual of the charger!

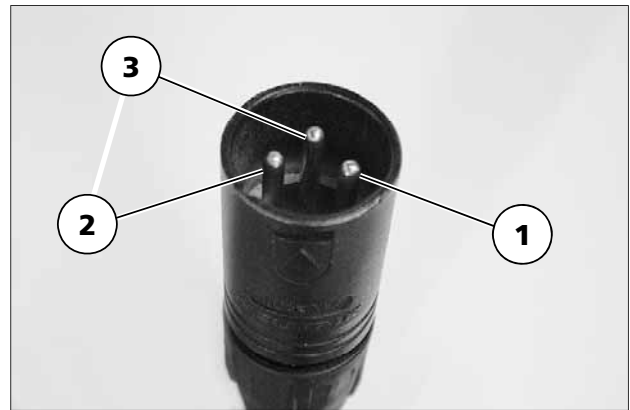
Pin assignment of the charging socket:

(Fig. 46.3)

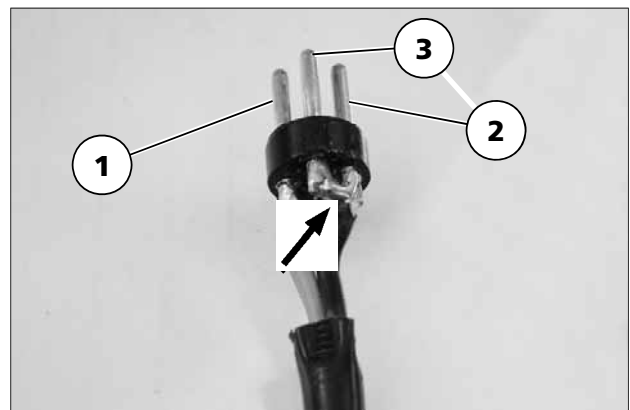
Pin 1: +24V (Conduit red)

Pin 2: minus (Conduit blue)

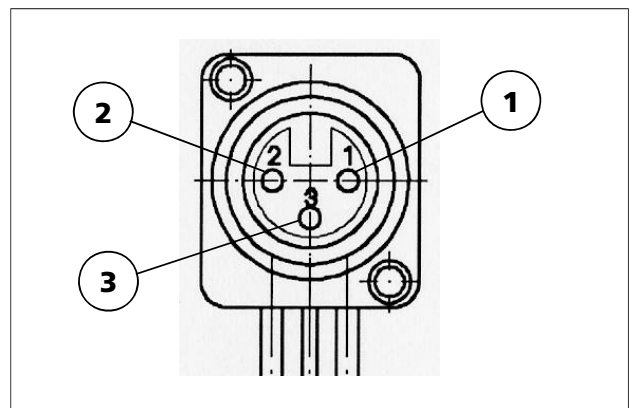
Pin 3: Lock (Conduit black)



46.1



46.2



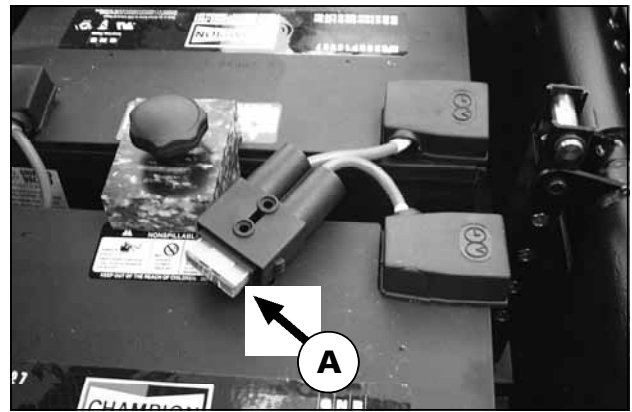
46.3

LIGHTING

Switch off the electronic wheelchair and pull out the main fuse (A, fig. 47) before replacing a defective bulb.

 Note:

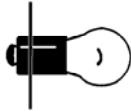
If a turn-signal bulb is defective, the remaining one blinks at double frequency.



47

Replacing a headlight bulb

Filament bulb:
6V/2.4W PX13.5s



Removal:

- Turn the rear lamp housing counter-clockwise by about 15° (fig. 49) and remove it (fig. 50). – In doing so hold onto the dispersion disc to prevent it from also turning.
- Pull the defective bulb out of the dispersion disc.

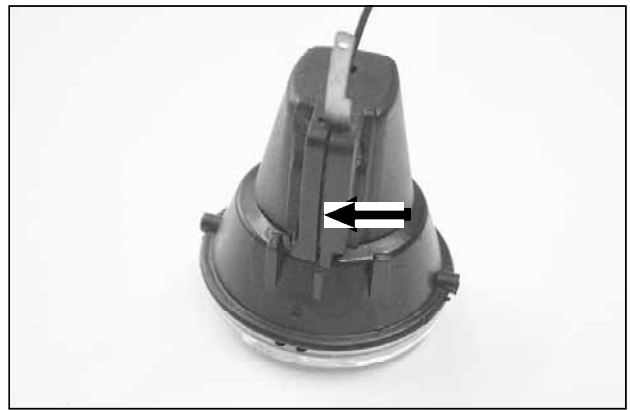
Mounting:

- Insert the new bulb into the dispersion disc (fig. 50).

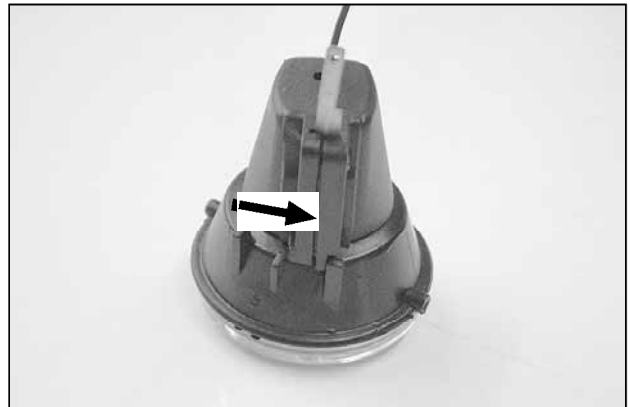
Note:

Do not touch the halogen bulb with bare hands.

- Place the rear lamp housing onto the dispersion disc with an about 15° counter-clockwise turn (fig. 49) and turn clockwise about 15° to let it lock into place (fig. 48). – In doing so hold onto the dispersion disc to prevent it from also turning.
- Mount the lens (fig. 55.1). – First insert the top pins, then press the lens downwards and screw into place.



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49



50

Front indicator

Spherical bulb:
12V/10W BA15s

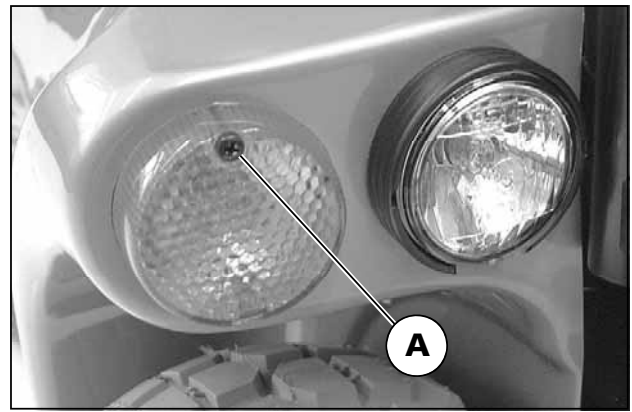


Removal:

- Loosen fastening screw (A, fig. 51) and remove the headlight lens, (fig. 52).
- Press the faulty spherical bulb slightly inwards, turn and remove from the socket.

Mounting:

- Insert a new spherical bulb. – Push the side pins (bayonet catch) into the recesses of the bulb holder, press lightly against the spring and then turn the bulb until the bayonet catch clicks into place.
- Mount the lens. – First insert the lower pivot, press on the dispersion disc and screw it on (fig. 51).



51



52

Rear indicator

Spherical bulb:
12V/21W BA15s

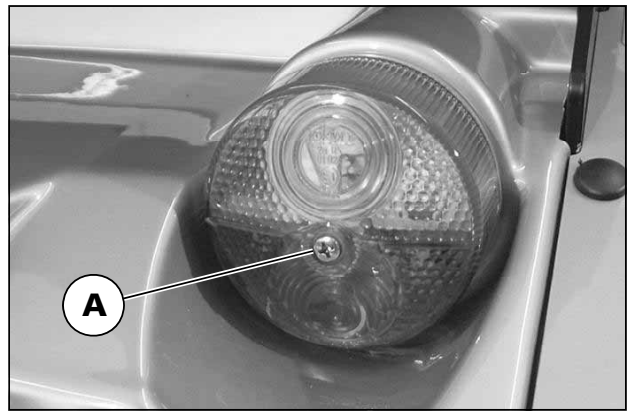


Removal:

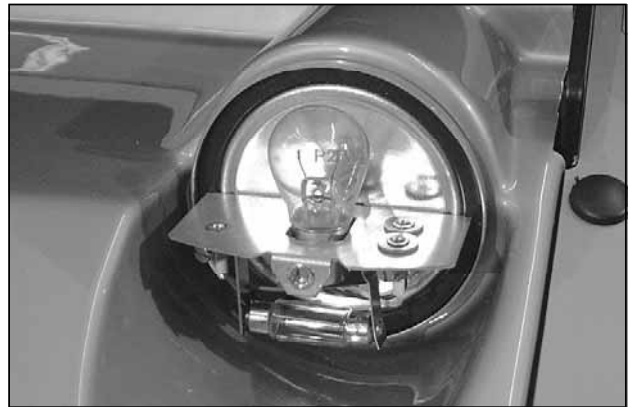
- Loosen fastening screw (A, fig. 53) and remove the headlight lens, (fig. 54).
- Press the defective spherical bulb lightly into the holder against the spring and then turn the bulb and pull it out of the bulb holder (fig. 55).

Mounting:

- Insert a new spherical bulb. – Push the side pins (bayonet catch) into the frame, exert slight pressure against the spring and turn until the bayonet catch clicks into place (fig. 54).
- Mount the lens. – First insert the top pins, then press the lens downwards and screw into place (fig. 53).



53



54

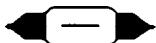


55

Back light

Filament bulb:

Festoon bulb 6 V/C5W S8.5

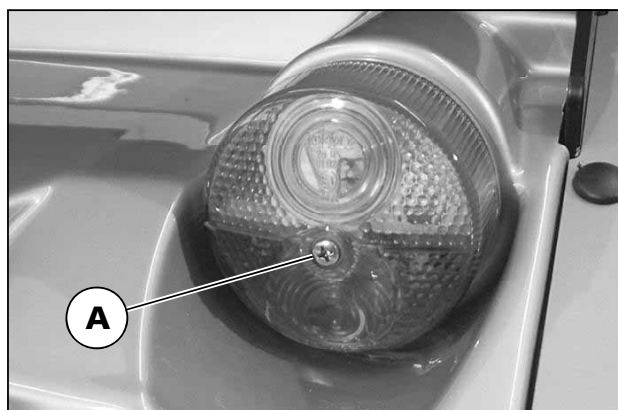


Removal:

- Loosen fastening screw (A, fig. 56) and remove the headlight lens (fig. 57).
- Press the faulty bulb against a holding frame and remove (fig. 58).

Mounting:

- Insert a new bulb. – Place one tip into one hole on the fixture, then the other tip into the other hole (fig. 57).
- Mount the lens. – Press in the lens and fasten it with the securing screw (fig. 56).



56



57



58

FUSES

Replacing a defective safety fuse

Attention:

- ! Only replace the safety fuse with a safety fuse of the same type!

New safety fuses are available at all petrol stations.

If the safety fuse blows again, take the battery to your specialist dealer for repair.

Main safety fuse for the battery circuit:

The blade-type fuse for the battery current is located in the fuse holder under the seat (A, fig. 59).

Main fuse:

100 amp maxi-fuse (lilac, blade-type).

☞ Therefore observe subchapter < *Securing the wheelchair against unintentionally rolling away* >.

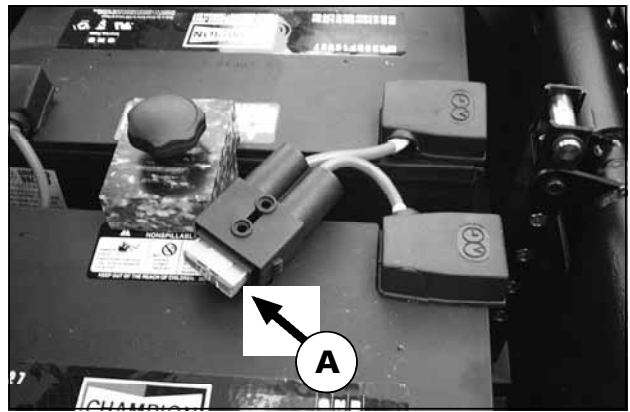
- Remove the legrests.
- Swivel the seat up.

Attention:

- ! Therefore observe the chapter < *Swivelling up the seat* >.

- Remove the battery lid.

☞ Therefore observe subchapter < *Removing the battery lid* >.



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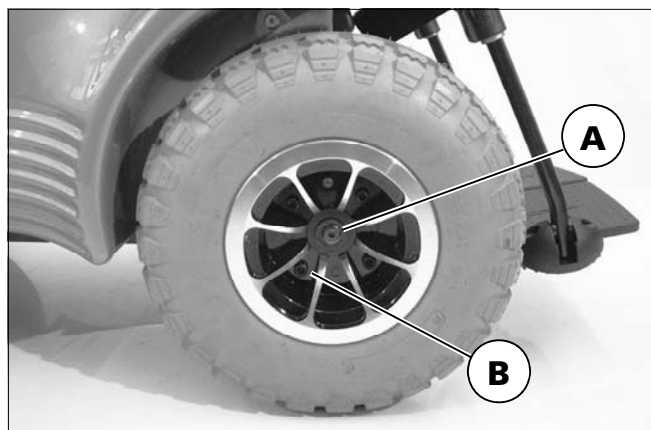
WHEEL CHANGE

A wheel/tyre change requires technical knowledge. You should therefore have this work carried out by a specialist workshop. No person may be sitting in the wheelchair when changing a tyre. The electronic wheelchair must stand on a level and firm surface. Before starting the disassembly work, support the frame to prevent the electronic wheelchair from tipping over and secure it to prevent an unwanted movement or tipping over.

Always change tyres in pairs. Because: differently worn tyres can impair the straight-on travel of the electronic wheelchair.

Caution:

- ! Never loosen the connection screws of the rim halves (B, fig. 60 and 61) to disassemble the wheel.
 - Danger of injury!
- 👉 The connection screws are marked with red caps.
- Never loosen the screws (B, fig. 60 and 61) for disassembly of the wheel before previously completely deflating the wheel!



60

Disassembly of the drive wheels

Before replacement or repair the drive wheel is to be dismantled by unscrewing the centre screw (A, fig. 60).

👉 Note:

- 👉 After replacing the drive wheel is to be screwed on again with the centre screw (A, fig. 60).
- 👉 Torque 45 Nm.
- 👉 The valve points outwards.

Disassembly of the steering wheels

Before replacement or repair the steering wheel is to be dismantled by unscrewing the centre screw (A, fig. 61).

Note:

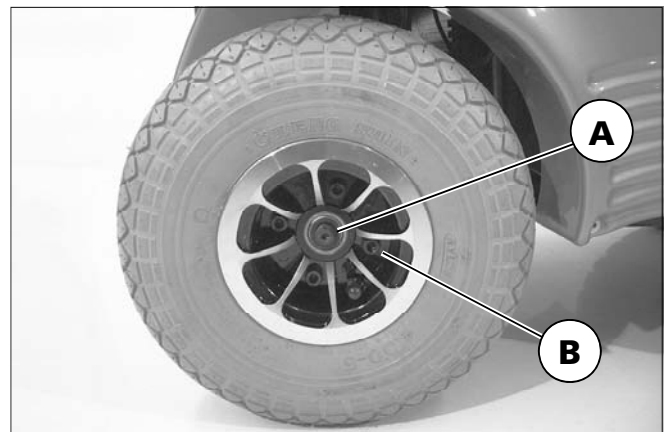
 After replacing the steering wheel is to be screwed on again with the centre screw (A, fig. 61).

 Torque 45 Nm.

 The valve points outwards.

Changing the tyres

To change the tyre, fully deflate the tyre and then screw out the screws at the outer edge of the rim (B, fig. 61) and separate the rim halves.



61

Disassembly of the tyres

1. Completely deflate the respective tyre.
2. Disassemble the wheel.
3. Remove the red caps of the rim-half connection screws.
4. Unscrew the rim-half connection screws.

Assembly of the tyres

1. Place the tyre with crease free tube between the rim-halves. If necessary observe the running direction of the tyre (view arrow).
 2. Tighten the rim-half connection screws evenly.
-  For this new safety nuts are to be used as well as the torque observed (view technical data).
3. Place the red caps onto the rim-half connection screws.
 4. Assemble the respective wheel.

INFORMATION FOR THE AUTHORISED DEALER

A service manual containing a check list for the annual inspection is available on request.

The functional tests necessary for the inspection are listed in the check list.

They are a guide for the performance of the inspection work.

Note:

They do not give information about the actual extent of work required on the electronic wheelchair.

After the successful completion of an annual inspection the inspection should be recorded in the operating manual.

Programming the driving behaviour

The driving behaviour of the electronic wheelchair can be adjusted through the programming device.

 Therefore observe the respective < *Service manual* >.

The driving features of the electronic wheelchair should be adjusted to the individual requirements and the learning process of the respective user at regular intervals.

In doing so the driving experience, the physical limits of the user and the main field of operation must be considered:

- ▲ When programming the delay value it is to be observed that on the one hand hard braking can endanger the driver on the other hand the braking distance may not exceed 1.0 m at 6 km/h, 2 m at 10 km/h and 3.5 m at 15 km/h (according to EN 12184).
- ▲ The programming must be specially tailored to the user. The capacity of reaction, the constitution as well as physical and psychical abilities are to be considered. A talk with the doctor or therapist can be very helpful.

Driving programs

The software installed on the power module contains five driving programs with different driving behaviour. You can for example call on separate programs for indoor and outdoor use. The user can change the driving behaviour of the wheelchair at any time by changing into a different driving program. The manufacturer settings of these driving programs can be viewed in table 1.

Each of the driving programs is defined through the respective setting of the 9 parameters. The parameters are set by the manufacturer to the values shown in table 2.

The values serve for orientation and should as a rule be maintained. Should the demands of the user vary from the manufacturer settings, the values for amending the driving characteristics are to be changed.

☞ Therefore observe the respective *< Service manual >*.

Standard settings

The parameter values in the following table are selected so that the inspection requirements of the EC-certification are fulfilled. Programming that differs from these requirements might not fulfil the regulations.

Independent of this the safety of the electronic wheelchair and especially the driver must be guaranteed after a change of the parameters.

☞ **Note:**

- ☞ All changes to the parameters underlie solely the responsibility of the person making the modifications.
- ☞ It is possible to set dangerous parameters.
- ☞ Possible danger of tilting in curves.

Table 1: Standard manufacturer setting of the driving programs

Program	Characteristic
Program 1:	Indoor soft - Operating indoors ☞ soft driving behaviour - very slow and very soft
Program 2:	Indoor normal - Operating indoors ☞ normal driving behaviour - slow and soft
Program 3:	Outdoor soft - Operation outdoors ☞ soft driving behaviour - slightly faster and slightly harder
Program 4:	Outdoor normal - Operation outdoors ☞ normal driving behaviour - full speed and harder
Program 5:	Outdoor hard - Operation outdoors ☞ hard driving behaviour - full speed and extremely hard

Table 2: Standard manufacturer setting of the parameters

Programs					Parameter	
P1	P2	P3	P4	P5	No.	Description
04	05	07	09	09	1	top speed forward
03	03	04	05	05	2	top speed backward
02	03	03	05	05	3	Driving acceleration
02	03	04	04	05	4	Driving brake acceleration
03	03	03	03	05	5	Curve speed
02	03	03	04	05	6	Steering acceleration
02	03	03	04	05	7	Steering brake acceleration
09	08	06	05	05	8	Zero-zone steering
03	03	03	05	05	9	Sensitivity of the steering

MAINTENANCE

The following maintenance Instructions give you a guide for carrying out the maintenance work.

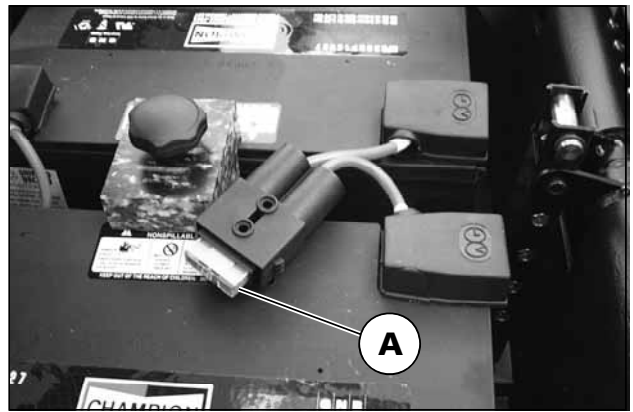
Attention:

- ! Maintenance work as well as adjustments on the electronic wheelchair is only to be conducted with the electronic wheelchair switched off!
- The main fuse (A, fig. 62) must also be removed when working on the electrical system! – Accident risk resulting from inadvertent movement of the wheelchair!

Inspection

For safety reasons and to prevent accidents which can result from wear not detected in good time, an annual inspection is necessary in the case of normal operating conditions.

Have this work carried out by a specialist workshop in order to ensure that the electronic wheelchair offers the highest level of safety and reliability. The employee of the specialist workshop knows the technique of the electronic wheelchair and has appropriate tools. They can identify the start of wear in good time and use only original spare parts.



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Note:

Shorter intervals for brakes and chassis checks are recommended in the case of severe operating conditions, e.g. daily driving on uphill/downhill gradients or use by a nursing service – with frequently changing users.

An incorrect or neglected care and maintenance of the electronic wheelchair results in a product liability restriction.

Caution:

- ! When participating in public traffic the driver is responsible for the functional- and operationally safe condition of the electronic wheelchair.

MAINTENANCE INSTRUCTIONS

WHEN	WHAT	Remark
Before starting out Especially before driving in the dark	General Test for faultless operation. Checking the magnetic brake Switch the selection lever drive- / push mode to drive mode. Checking the drum brake Switch the selection lever drive- / push mode to push mode. Activate the drum brake lever. Lighting	Carry out test yourself or with a helper. It should now be impossible to push the electronic wheelchair. If this is not the case, have the brake repaired by a specialist workshop. Replacing defective filament bulbs view chapter < <i>Lighting</i> >.
Every 2 weeks (depending on distance covered)	Check air pressure of the tyres Full tyre pressure – steering wheel 2.5 bar = 35 psi Full tyre pressure – drive wheel 2.5 bar = 35 psi Lighting and direction indicating system Test for faultless operation.	Do it yourself or with the aid of a helper. Use a tyre gauge. Observe the safety instructions chapter < <i>Driving in public traffic</i> >.

Every 2 months (or more frequently depending on charging frequency and ambient temperature) (depending on distance covered)	Maintenance the batteries open batteries: – acid level – acid density – clean battery terminals and clamps sealed batteries: – No maintenance Check tyre profile Minimum tread = 1 mm	Do it yourself or with the aid of a helper. Observe the contents of the < <i>Battery maintenance</i> > section! Carry out visual check yourself. If the tyre profile is worn down or if the tyre is damaged, consult a specialist workshop for repairs.
Every 6 months (depending on frequency of use)	Check: Cleanness General condition	See Care See Repairs. Do it yourself or with the aid of a helper.
Manufacturer recommendation: Every 12 months (depending on frequency of use)	Safety inspection – Vehicle – Battery charger	To be carried out by the specialist dealer.

FAULT CORRECTION

If treated properly, your electronic wheelchair will not malfunction. To ensure that your electronic wheelchair gives you many years of service, especially if it is your first electronic wheelchair, we have listed possible faults and remedial action to be taken in the following table.

Every 12 months we recommend an inspection of the electronic wheelchair and its charger in order to be able to find and repair any causes of failure not listed here in due time. The following inspection certificates should then be stamped by your specialist dealer.

Attention:

- ! Work on the internal mechanics of the joystick and electronic parts should only be carried out by a specialist workshop.

Fault	Cause	Remedy
LED display does not light up after the electronic wheelchair has been switched on.	The main fuse for the battery circuit is defective (blade-type fuse) or not inserted deep enough.	Change the blade-type electric fuse or insert it properly.
	Batteries or power supply defective.	Have the fault corrected by a specialist workshop.
Lighting not active.	Bulb defective.	Fit new bulb.
	Cable defective.	Have the fault corrected by a specialist workshop.
The electronic wheelchair does not start off.	The selection lever drive-/push mode is set to push mode.	Switch the selection lever drive- / push mode to drive mode.
	Main fuse defective.	Replace fuse.
Error code display.	E54 / E55.	Immediately recharge deep-discharged batteries.
	Other code displays. (View operating manual <i>Operating module</i>).	Switch the vehicle off. Wait a moment and switch back on. With display remaining contact a specialist workshop for maintenance.

TECHNICAL DATA

KILOMETRIC PERFORMANCE

Kilometric performance depends to a large extent on the following factors:

- battery condition,
- weight of the driver,
- driving speed,
- driving style,
- road surface condition,
- driving conditions,
- ambient temperature.

The nominal values given by us are realistic under the following conditions:

- ambient temperature of 27°C
- 100% rated battery capacity as per the DIN standards.
- new condition of the batteries with more than 5 charging cycles
- Straightforward course with maximum speed.
- Norm strain of 75 kg.
- No repeated acceleration.
- Level, firm driving surface.

The kilometric performance is greatly reduced by:

- frequent uphill driving,
- poor battery charge condition,
- low ambient temperature (e.g. in winter)
- frequent acceleration and braking (e.g. in city traffic)
- old, sulphated batteries.
- frequent steering manoeuvres,
- reduced driving speed (especially at walking speed).

In practical use, the kilometric performance under 'normal conditions' is then reduced to approx. 40 % of the nominal value.

Hill climbing ability

Refer to the technical data for the permitted values for driving on gradients.

The system determined climbing capacity of the vehicle is greater for a short period of time as this capacity needs to be provided to safely overcome obstacles.

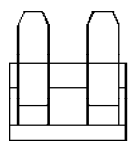
Attention:

- ! The driving performance characteristics may exceed the safety limits.
- Gradients in excess of the permitted values (e.g. ramps) should only be driven when the wheelchair is empty!

TECHNICAL DATA

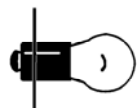
FUSES

 Hereto observe chapter < Fuses >.



Main fuse: 100 A

LIGHTING



Headlight bulb (Halogen): Filament bulb 6V/2.4W PX 13.5s



Rear light: Festoon bulb 6V/C5W S 8.5



Rear indicator: Spherical bulb 12V/P21W BA 15s



Front indicator: Spherical bulb 12V/R10W BA 15s

TOOLS

The following tools are required for adjustments and maintenance:

Open-end or ring spanner Wrench width 10 / 13 / 17 / 19 mm

Hexagonal stud wrench Wrench width 3 / 4 / 5 / 6 mm

Phillips screw driver Size PH resp. PZ 0 / 1 / 2

Slot screw drivers Size small 2.5 mm

TIGHTENING TORQUE FOR SCREWED CONNECTIONS

If not noted otherwise the screwed connections are to be tightened with the corresponding torque.

Thread diameter M 4 3 Nm

Thread diameter M 5 5 Nm

Thread diameter M 6 10 Nm

Thread diameter M 8 25 Nm

Thread diameter M 10 50 Nm

Thread diameter M 12 85 Nm

TECHNICAL DATA

MODEL 2.322

All data within the following table relates to the standard version of the stated model.

Dimensional tolerance ± 1.5 cm, $\pm 2^\circ$.

Model: electronic wheelchair **model 2.322**

Type plate: rear right on the main frame

Class of use as per DIN EN 12184: B - Optimus 2 / C - Optimus 2 S

Electrical system:

Drive control: 24 Volt

Lighting: 6 / 12 Volt

Dimensions with seat Ergoform (Code 600 / 602 without head support):

Length incl. footplates: 116 cm

General width: 68 cm

Height: 105 cm

Seat depth (min. / max.): 45 / 49 cm

Seat depth (manufacturers setting): 49 cm

Seat width with code 24: 50 cm

Seat width with code 836 (min. / max.): 38 / 56 cm

Seat width with code 836 (manufacturers setting): 43 cm

Seat height: 56 cm

Seat inclination (min. / max.): 5 / 20 °

Seat inclination (manufacturers setting): 5°

Backrest height: 54 cm

Arm support height from upper edge of seat

with code 24 (min. / max.): 21 / 25 cm

with code 836 (min. / max.): 22 / 28 cm

Transport dimensions with seat Ergoform (without legrests, without head support):

Length: 103 cm

Length (back support toward the back): 116 cm

Width: 68 cm

Height (back support toward the back, without armrests): 72 cm

Height (back support toward the back, with armrests): 76 cm

Dimensions with seat Ergostar (Code 961 without head support):

Length incl. footplates:	116 cm
General width:	68 cm
Height:	117 cm
Seat depth:	50 cm
Seat width with code 24:	50 cm
Seat width with code 836 (min. / max.):	38 / 56 cm
Seat width with code 836 (manufacturers setting):	43 cm
Seat height:	59 cm
Seat inclination (min. / max.):	7 / 22 °
Seat inclination (manufacturers setting):	7°
Backrest height:	64 cm
Arm support height from upper edge of seat with code 24 (min. / max.):	21 / 25 cm
with code 836 (min. / max.):	19 / 25 cm

Transport dimensions with seat Ergostar (without legrests, without head support):

Length (back support toward the front):	103 cm
Length (back support toward the back):	134 cm
Width:	68 cm
Height (back support toward the front):	95 cm
Height (back support toward the back):	72 cm

Dimensions with seat Recaro:

Length incl. footplates:	116 cm
General width:	68 cm
Height (min. / max.):	130 / 136 cm
Height (without headrest):	113 cm
Seat depth:	48 cm
Seat width code 836 (min. / max.):	46 / 56 cm
Seat width code 836 (manufacturers setting):	46 cm
Seat height:	63 cm
Seat inclination (min. / max.):	20 / 35 °
Seat inclination (manufacturers setting):	20°
Backrest height (with headrest) (min. / max.):	81 / 87 cm
Backrest height:	64 cm
Arm support height from upper edge of seat with code 836 (min. / max.):	23 / 29 cm

Transport dimensions with seat Recaro (without legrests, without head support):

Length (back support toward the front): 103 cm
Length (back support toward the back): 126 cm
Width: 68 cm
Height (back support toward the front): 90 cm
Height (back support toward the back): 80 cm

Tyres:

Steering wheel (rear): 4.00 – 5 (12.5" = ø 320 mm)
Drive wheel (front): 5.30/4.50 – 6 (14" = ø 360 mm)

Tyre filling pressure:

Steering wheel: 2.5 bar (35 psi)
Drive wheel: 2.5 bar (35 psi)

Temperature data:

Ambient temperature: -25°C to +50°C
Storage temperature (without batteries): -40 °C to +65 °C
Storage temperature (with batteries): -25 °C to +50 °C

Batteries:

Sealed drive batteries (gel): 2 x 12 V approx. 50 Ah – 5 h / 60 Ah – 20 h
Sealed drive batteries (gel): 2 x 12 V approx. 100 Ah – 5 h / 110 Ah – 20 h
Open drive batteries (acid) 2 x 12 V approx. 60 Ah – 5 h / 80 Ah – 20 h
Max. battery dimensions (LxWxH): 393 x 175 x 190 mm
or 345 x 175 x 230 mm
Permissible battery tilting angle: 55°

Range (also view remarks range performance):

Drive batteries (gel) 50 Ah (5h) at 6 km/h: 45 km
Drive batteries (gel) 50 Ah (5h) at 10 km/h: 40 km
Drive batteries (gel) 100 Ah (5h) at 6 km/h: 100 km
Drive batteries (gel) 100 Ah (5h) at 10 km/h: 90 km
Drive batteries (gel) 100 Ah (5h) at 15 km/h: 75 km
Drive batteries (acid) 60 Ah (5h) at 6 km/h: 55 km
Drive batteries (acid) 60 Ah (5h) at 10 km/h: 48 km

Battery charger:

for batteries from 40 Ah – 5 h 24 V / 8 A
for batteries from 65 Ah – 5 h 24 V / 12 A

Performance (also view remarks range performance):

Max. driving speed: 6 km/h / 10 km/h / 15 km/h
Motor–continuous power rating (6 km/h / 10 km/h): 550 Watt at 2800 1/min
Motor–continuous power rating (15 km/h): 700 Watt at 4100 1/min
max. current of the power electronic (6 km/h / 10 km/h): 130 A
max. current of the power electronic (15 km/h): 150 A (180 A starting current)

Max. obstacle height upwards: approx. 11 cm
(with 0.5m start-up distance)
Max. obstacle height downwards: approx. 13 cm
Ground clearance (drive unit / frame): 11 / 14 cm
min. turning radius diameter: approx. 2.4 m
min. turning area: approx. 1.4 m

Max. permissible rising gradient: 18 %
Max. technical inclination ability: 30 %
Permissible rising/falling gradien: 18 %
Max. permissible transverse gradient: 18 %
Max. continuous hill-climbing ability: 15 %
Static tilting safety in all directions: 28 %

Weights (basic equipment):

The values in () are valid for vehicles with 15 km/h and for vehicles without drum brake:

Max. permissible total weight 6 km/h / 10 km/h / (15 km/h): 330 (300) kg
Permitted axle load front: 210 / (190) kg
Permitted axle load rear: 140 / (130) kg

Max. permissible user weight:
up to 10 km/h: 150 kg
up to 15 km/h: 120 kg

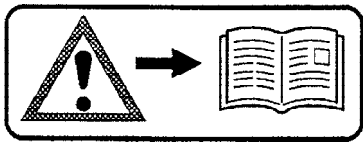
Max. additional loading: 10 kg

Empty weight (with 60 Ah gel-batteries): approx. 112 kg
Empty weight (with 100 Ah gel-batteries): approx. 150 kg
Empty weight (with 60 Ah acid-batteries): approx. 113 kg
Empty weight without batteries: approx. 74 kg

Weight of the heaviest single component:
Legrest (code 86): 4.4 kg

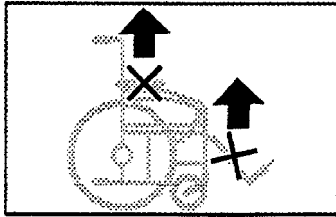
The CE-mark corresponds to the EG-regulation 93/42 EWG for medical devices, corresponding to the medical device directive.

STICKERS ON THE ELECTRONIC WHEELCHAIR



Caution:

! Read the operating manuals and other provided documentation.

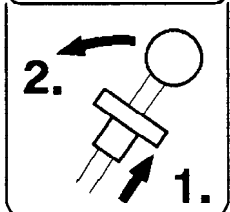


Caution:

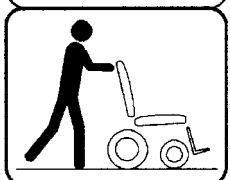
! Do not lift the electronic wheelchair on the arm supports and/or legrests.



Drive mode



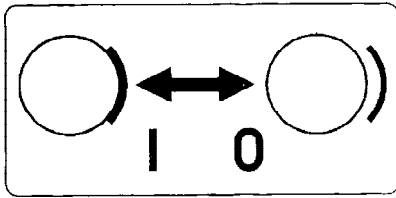
Switching to push mode



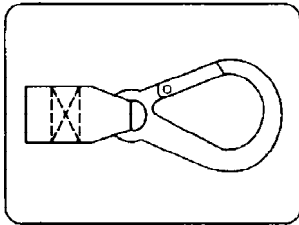
Push mode



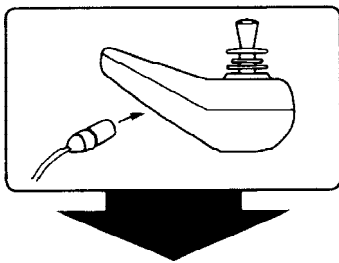
Only switch to push mode on level surfaces.



Drum Brake
braked / released



Attachment possibility of the transport securing system.



Indication for charging socket

SYMBOLS



The arrow with the hand shows to areas where you should touch.

INSPECTION CERTIFICATE

Vehicle data:

Model:

Delivery note no.:

Vehicle identification No.

Pre-delivery inspection

Stamp of authorised dealer:

Signature: _____

Place, date: _____

Next safety inspection in 12 months

Date: _____

**Recommended safety inspection
(at least every 12 months)**

Stamp of authorised dealer:

Signature: _____

Place, date: _____

Next safety inspection in 12 months

Date: _____

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(at least every 12 months)**

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Signature: _____

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**Recommended safety inspection
(at least every 12 months)**

Stamp of authorised dealer: _____

Signature: _____

Place, date: _____

Next safety inspection in 12 months

Date: _____

GUARANTEE

We accept a guaranty for this product according to the legal regulations. Apart from this we warrant:

- **4 years** for frame.
- **2 years** on the electronic and vehicle parts.
- **1 year** on batteries.

We reserve the right to make technical improvements.

In case you find fault in this product or parts thereof, send in the following guarantee-segment with your description of the fault.

Do not forget to include the requested information regarding model description, delivery note number with date of delivery, vehicle identification number (Fz-I-Nr.) and your retailer.

The vehicle identification number (Fz-I-Nr.) is indicated on the type plate.

Pre-condition in any case is the intended use of the product, the use of original spare parts by authorised dealers as well as maintenance and inspections in regular intervals.

Damage to surfaces, tyres, damage due to screws and washers which have worked loose or worn out attachment holes due to frequent assembly and dismantling are not covered by this guarantee.

Furthermore, damage to the drive and electronics caused by improper cleaning using steam cleaning equipment or the deliberate or accidental flooding of the components are also excluded.

Malfunctions due to sources of interference, such as mobile phones with high transmission power and other sources of radiation outside the standard specifications are not covered by the guarantee.

Attention:

! Failure to observe the instructions in the operating manual, improperly carried out maintenance work and, especially, technical changes and additions (add-ons) carried out without our prior consent will lead to a general loss of guarantee and product liability.

Note:

This operating manual as a part of the product is to be handed out in case of a change of owner.



The product conforms with the EC Directive 93/42/EEC (MDD) for medical products

GUARANTEE COUPON

Fill in the details! If necessary, copy and return.

Guarantee

Model designation:

Delivery note no.:

Vehicle ID No. (Fz-I-Nr.) (view type plate):

Date of delivery:

Stamp of the authorized dealer:



┐ Your specialist dealer: ┐

└

└

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