

BEDIENUNGSANLEITUNG OPERATING INSTRUCTIONS



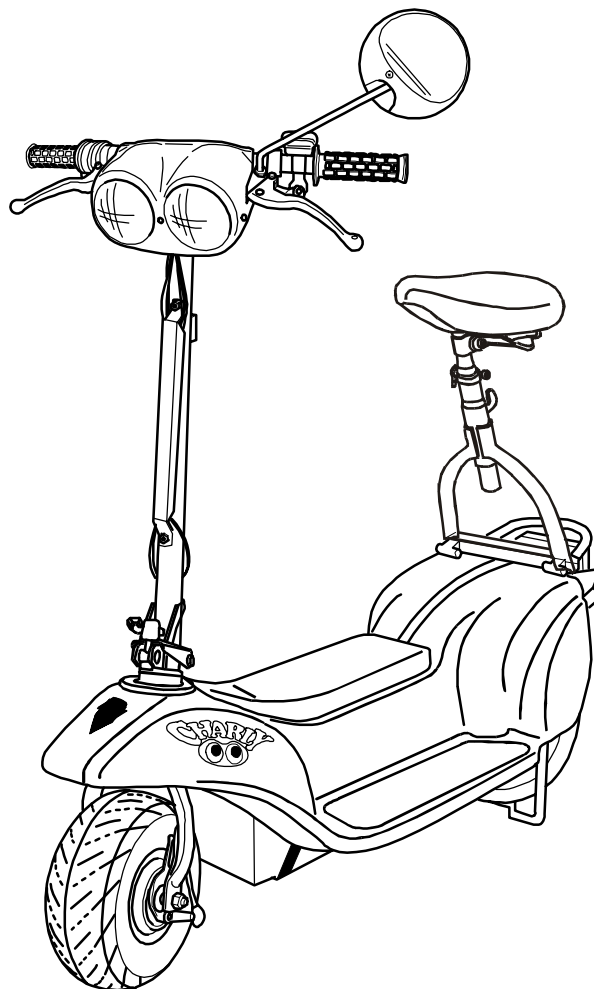
Solarlink GmbH

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ELEKTROROLLER / ELECTRIC SCOOTER

CHARLY

08/2002



MOTORRAD- UND ZWEIRADWERK GMBH
9014128000

OPERATING INSTRUCTIONS

***ELECTRIC SCOOTER
CHARLY***

08/2002

MOTORRAD- UND ZWEIRADWERK GMBH

The CHARLY electric scooter is a product of MZ GmbH.

The operating instructions have been written by the Technical Customer Service Department of MZ GmbH. We reserve any right to modify vehicle design and equipment with a view to further technical development.

The contents of the present operating instructions correspond to the information available at the time of going to press.

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Post Box 1170
D- 09401 Zschopau- Hohndorf, Germany

Press date: 15.08.2002

Congratulations to your new CHARLY.

The CHARLY electro scooter belongs to the vehicle category of small motorcycles (less than 50 cm³ capacity). It will take you quicker to your destination on short distances.

The scooter CHARLY enables you to be mobile and carry baggage on the devices provided for this on roads, in leisure centres, on exhibitions and airports, on the premises of your company, and even in offices.

CHARLY's electric drive ensures that it is quiet, clean and odourless. So, both you and the environment can have a good time. CHARLY is small and handy. It fits even into small corners, and it can be folded up and carried easily.

In brief: CHARLY is the modern and environmentally compatible means of transport for short distances.

To keep going all the time, please observe the following recommendations on handling and care.

Before starting and running this vehicle, you should read the present operating instructions thoroughly, observe the instructions given on proper handling, have a valid licence to drive this vehicle if required by your country's legislation, and both know and observe the conditions under which the vehicle may be used.

In Germany:

Persons born after 01 April 1965 need a driving licence for motorcycles of less than 50 cm³ capacity (minimum age: 15 years), or any other valid driving licence. Persons born before 01 April 1965 do not need a driving licence. But they must know the rules of driving on public roads. In addition, an insurance for motorcycles of less than 50 cm³ capacity must be taken out prior to using the vehicle on public roads (insurance registration number).

In Germany, there is **no** legal obligation to wear a helmet or special protective clothing pursuant to the 6th exceptional ordinance regulating the German Highway Code as of 24 March 1994 (20 km/h) or 12.5 mph maximum speed). But you should consider your own safety and take any appropriate precautions.

You have to make certain that the vehicle is kept in the same technical condition as delivered by the manufacturer. The manufacturer is not liable for any damage due to any non-observance of instructions and regulations, any installation of untypical spare parts or accessories, or any improper repair work.

Interventions in the electronics box (charging and control equipment) **may only** be carried out by the manufacturer of this unit.

Enjoy riding your scooter!



MZ


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General safety instructions

The notes on safety and warnings included in these operating instructions are marked as shown below.

 DANGER!	
	Immediate danger causing serious injury to persons or death.

 WARNING	
	Possible danger which may cause serious injury to persons or death.





CAUTION	
	Possible danger or risky handling of the vehicle which may cause injury to persons or damage to property.

Each one of these safety precautions informs you of the following:

- *which danger exists,*
- *what may happen,*
- *what you can do to avoid or reduce the risk of injury or damage to equipment.*

Please pay special attention to these statements and instructions.

Symbols used and their meaning:

	DANGER!, WARNING, ATTENTION in general
	Warning against hazardous voltage
	Warning against crushing by the driving belt
	Warning against corrosive liquids

Basic Safety Advice

Rules for safe riding

- *Only persons who meet the required conditions are allowed to drive CHARLY. These conditions are regulated by the specific laws and regulations of every country.*
- *Observe all local laws and regulations of the country you are riding in. This refers especially to compulsory insurance.*
- *The basic requirement to be met by every road user is to be cautious and show courtesy on the road.*
- *Check the vehicle before every ride: The required checks are listed on page 8.*
- *Make yourself easy to see to help avoid accidents caused by other road users: Wear bright or reflective clothing.
Do not ride in the blind spot of other motorists.
Signal well before you make a turn or change lanes.*
- *Only use the traffic lanes stipulated for motorcycles of less than 50 cm³ capacity like CHARLY.*
- *Always keep both hands on the handlebar while driving.*

Protective clothing

- *Obligations of wearing protective clothing may be laid down in country-specific regulations.*
- *We recommend wearing a helmet, protective goggles and gloves whenever you drive.*
- *Do not wear any loose clothing. Such clothing may get caught in the handlebar or in operating elements.*

Amendments

Do not make any modifications to CHARLY apart from the installation of original MZ accessories (Section 10).

Any removal of original parts or the installation of spare parts not authorized by the manufacturer can make your vehicle unsafe and cause danger to both health and life.

Intended Usage

CHARLY is designed for use by one person sitting on the saddle, and carrying baggage within the limits of the admissible overall payload of 102 kg (225 lbs). Baggage may only be carried when it is put on the baggage carrier.

Any other use is contrary to specification and prohibited.

Table of Contents

1.	Vehicle identification	6
2.	Operation	7
3.	Driving	8
4.	Speedometer	9
5.	Possible range	10
6.	Battery indicator	11
7.	Exhaustive discharge protection	12
8.	Automatic shutdown	12
9.	Overload protection	12
10.	How to wheel CHARLY	13
11.	How to park the vehicle	13
12.	How to carry baggage	14
13.	How to carry CHARLY	14
14.	Handlebar, saddle and seat support fastenings	16
15.	Care and maintenance	18
15.1.	Tyre pressure	19
15.2.	Tyre and inner tube change	19
15.3.	Toothed belt tension	20
15.4.	Light bulb replacement in the headlight	21
16.	Battery	22
16.1.	Batteries and Fuses	22
16.2.	Battery charging	23
16.3.	Battery pack	24
17.	Fault display on battery condition indicator	26
18.	Shutdown	27
19.	Technical data	28
20.	Accessories	29
21.	Approvals	29
	Wiring diagram at the end of the operating instructions	

1. Vehicle identification



This number and the nameplate allow the unequivocal identification of the vehicle. The operating permit assigned to the vehicle also refers to this number.

Fig. 1 **VEHICLE IDENTIFICATION NUMBER**
(FIN or VIN) and nameplate (1)

Key

CHARLY has two keys. The big key is used to turn the master switch located on the handlebar. The small key is used to open and close the lid for the cable and battery compartment.

2. Operation



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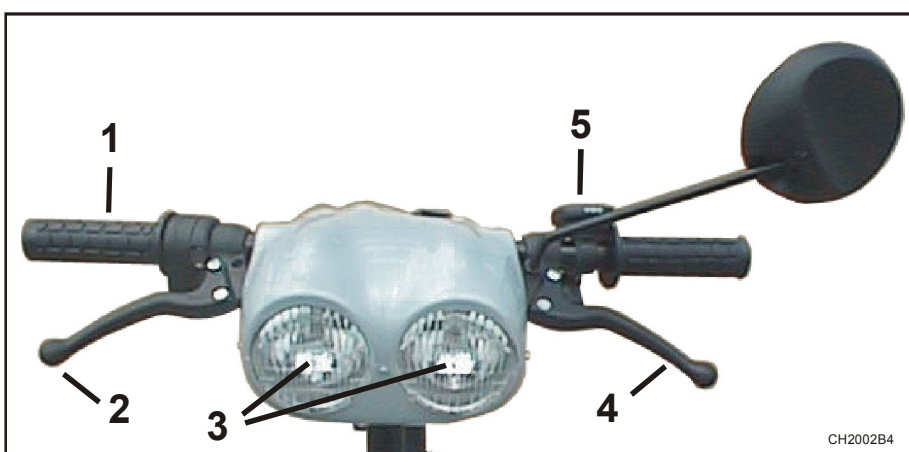


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Fig. 2: CHARLY

- 1) Headlights
- 2) Locking bow
- 3) Steering rod mount
- 4) Battery compartment lid
- 5) Seat support mount
- 6) Baggage carrier
- 7) Hook for security clamp
- 8) Seat pillar adjustment

Fig. 3 Baggage carrier shown with folding baggage basket (available as an accessory)



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Fig. 4 Controls

- 1) Turning handle for speed regulator
- 2) Front wheel brake lever
- 3) Headlights
- 4) Rear wheel brake lever
- 5) Speedometer

3. Driving

⚠ DANGER!

Insufficient roadworthiness can lead to accidents with CHARLY. Before starting any ride, please check:

- Seat, seat support and steering rod must be tightly secured.
- Tyre air pressure.
- Brakes.
- Discharge degree of battery.
- Vehicle stand locked in top position.
- Payload limit of 102 kg (225 lbs) observed.

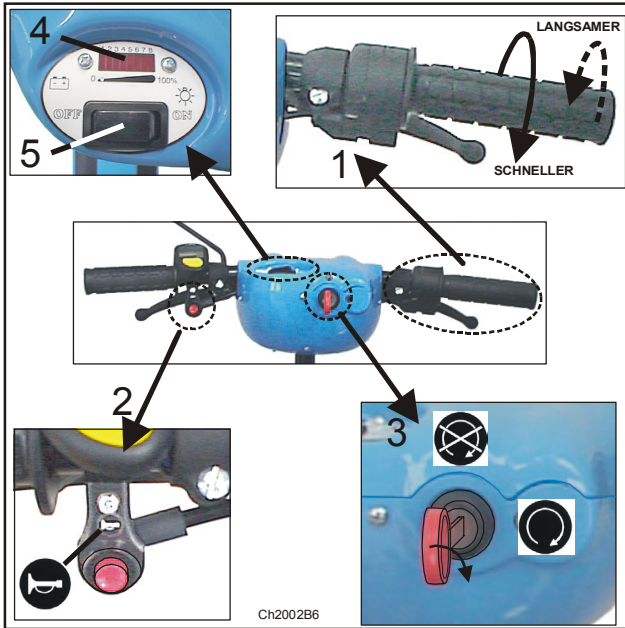






Fig. 5 Handlebar controls

- 1 Turning handle for speed regulator
- 2 Horn push button
- 3 Main switch
-  Master switch OFF
-  Main switch on
- 4 Battery indicator
- 5 Light switch
- „ON“ Light on
- “OFF“ Light off

- Unlock and safely store the cable lock. (A cable lock is available as an accessory).
- Push CHARLY off the main stand. The main stand must fold up completely.
- Sit down on the seat and turn the key in arrow direction to turn the master switch (3) ON.
- To drive, rotate the turning handle (1) in arrow direction (FASTER). CHARLY will go faster as the turning handle is turned on further.

- *Reduce speed*

 DANGER!	
	<p>Braking will lead to a strong vehicle slowdown. Braking strongly and on one side only may affect CHARLY's riding stability. When braking, always use the front and rear wheel brakes carefully and both at the same time. After taking over the vehicle, please try out the effect of braking outside of public roads.</p>

Rotate the turning handle toward the dashed line (SLOWER), and use the brakes to slow down.

For braking, **both** brakes must be actuated always at the same time. **Right brake lever for front wheel brake, left brake lever for rear wheel brake**

Attention! The brakes will lead to a very strong slowdown of the vehicle. So, please always use the brakes moderately and never actuate the front wheel brake alone as a crash might be the consequence.

- *Driving with the lights ON (see figure 5)*

Use the toggle switch (5) to actuate both headlights and the taillight when the master switch is ON.

- *Horn (see figure 5)*

The horn button (2) is located under the speedometer at the left handlebar end. The horn only works when the master switch is ON.

4. Speedometer

On the speedometer, you can check the speed and the distance covered or mileage. Before putting CHARLY into operation, insert the enclosed battery into the speedometer, and adjust the speedometer. See the enclosed speedometer operating instructions for an explanation of the steps needed to set the speedometer.

Enter a wheel circumference of **0790** (0.79 m) for CHARLY.

5. Possible range

This electric scooter has a range of about 20 km (12.5 miles) at a speed of approximately 20 km/h (12.5 mph) on a flat road. The range will be reduced when riding on a mix of flat roads and gradients, and performing many starting and acceleration processes.

The range can be reduced by 10 %, approximately, when driving with the lights ON.

The above-mentioned driving performance is conditional upon the following:

1. Fully charged new value battery pack
2. Tyre air pressure, front and rear, 3 bars
3. Correct toothed belt tension (4 mm or 0.16 inch deflection when exerting a manual force of about 14 ... 15 N).
4. Temperatures not lower than 5 °C (41 °F).
5. Good and dry road surface
6. Scooter loaded with one person (75 kg or 165 lbs)

6. Battery indicator

The battery condition indicator on the handlebar covering shows the amount of energy currently available from the battery, and it also indicates the charging mode and any fault in the vehicle network. The display consists of 8 light-emitting diodes (LEDs). LEDs 1 to 8 are ON when the battery is full. The LEDs go out one after the other starting with LED 8 as the batteries are discharged.

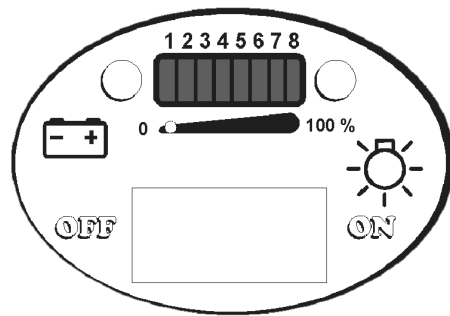


Fig. 6: Battery condition indicator

Legende □ Diode leuchtet nicht ■ Diode leuchtet ■ Diode blinkt

LEDs 1 to 8 are ON (100 %)

LED 1 is ON, LED 2 is flashing.

Batteries are fully charged or new battery pack is installed *

Discharge degree of battery is approximately 30 %

* The real discharge degree of the batteries will only be shown after several minutes of driving time whenever partially discharged battery packs have been installed.

LED 1 and LED 2 are flashing alternately

LED 1 and LED 2 are flashing alternately
Up to 5 minutes after turning the master switch OFF


The driving performance is reduced considerably when the battery has been discharged to approximately 15 %. **Stop! Charge batteries. The drive will switch OFF when you try to drive on.**

Drive switched OFF! Discharge batteries!

Charge the battery pack immediately!

7. Exhaustive discharge protection

The vehicle’s battery can be damaged when it is discharged completely. The exhaustive discharge protection system integrated into the electronic circuit will switch the motor OFF when the charge is low.

CAUTION	
	A sudden failure of the motor may cause disturbances in road traffic. Make certain that the battery always has a sufficient charge.

CHARLY has an exhaustive discharge protection for the batteries. The electronic circuit will switch the motor power supply OFF whenever the battery voltage falls below a defined value. CHARLY stops.

Charge the batteries immediately!

You cannot drive on. LEDs 1 and 2 will continue flashing for up to 5 minutes after the master switch is OFF.

Attention! The exhaustive discharge protection can also switch the system OFF in the event of a short voltage cut-off between battery and vehicle. Insert a new 35 A fuse in this case. If this does not help, ask the dealer to correct the fault.

8. Automatic shutdown

The motor control switches the motor power supply OFF after about 5 minutes when CHARLY is parked without turning the master switch OFF.

Horn and lights are still operational.

Before driving on, turn the master switch OFF and ON again.

9. Overload protection

Motor output is reduced by half to protect the electrical installation when CHARLY is **overloaded** (e.g., by driving up long gradients). Full output is available again after waiting a sufficient time to allow the electronics box to cool down.

10. How to wheel CHARLY

CAUTION



The scooter starts when the turning handle is rotated while the master switch is ON. This may lead to danger both to the pushing person and to other road users when CHARLY is wheeled. Only wheel CHARLY when the master switch is in the OFF position.

To wheel CHARLY, the master switch must be in the OFF position. (Turn the key completely to the left.)

11. How to park the vehicle

CAUTION



Damage may be caused to the main stand when a person sits down on CHARLY while it is in the parking position. Do not sit or stand on the vehicle when the main stand is in the parking position.

Prop up CHARLY on the main stand. Secure CHARLY using a cable lock (not included in the scope of supply, but available as an accessory). Slide the cable through the baggage carrier or around the steering rod and secure it at a lamp post etc. Pull the speedometer backwards from its holding and take it along.

Attention!

Do not sit down on CHARLY when it is on the main stand. The main stand is not designed for such loads.

12. How to carry baggage

⚠ DANGER!	
⚠	<p>Any piece of baggage attached at the handlebar or at the security clamp (figure 2, item 2) is a safety hazard and affects roadworthiness.</p> <p>Do not carry any baggage on the handlebar. Only carry baggage on the baggage carrier or in the baggage basket.</p> <p>Observe the admissible payload of 102 kg (225 lbs), including both the driver and the baggage.</p>

A baggage carrier fixed to the seat support is provided for this purpose. The baggage carrier is designed for a maximum load of 10 kg (22 lbs). A tightening belt can be used to fasten the baggage. In addition, a retrofittable baggage basket is available as an accessory.

Attention!

Do not exceed the admissible laden weight of the vehicle!

Do not use the hook for the security clamp (item 2 in figure 3) at the steering column to carry any loads.

13. How to carry CHARLY

⚠ WARNING	
⚠	<p>Only transport CHARLY in a safe position to prevent any damage to both CHARLY and the carrier vehicle.</p> <p>Turn the master switch OFF and remove the key before folding CHARLY up.</p> <p>Engage the security clamp at the seat pillar hook (figure 10).</p>

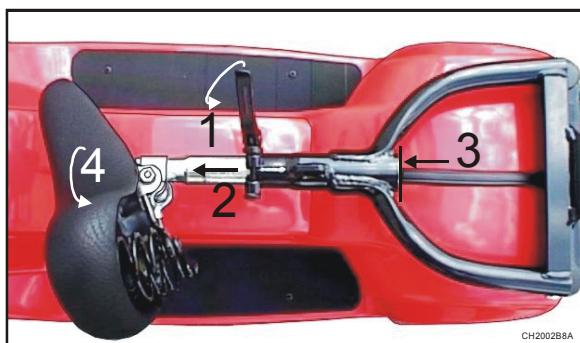
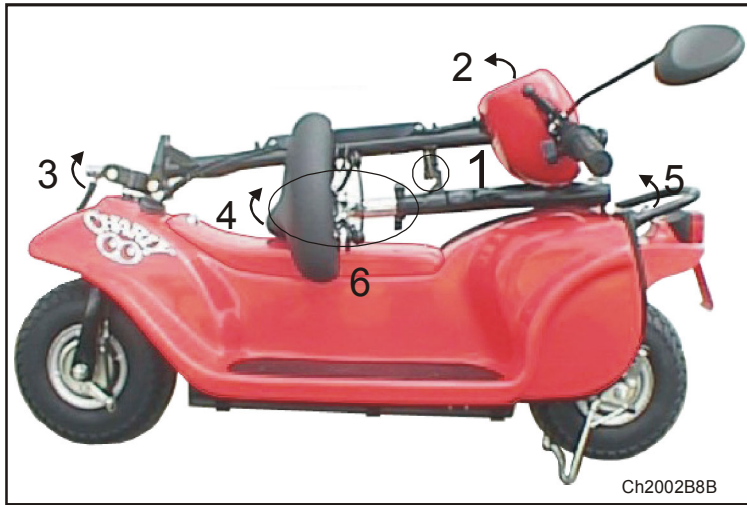


Fig. 8: Fold down the seat strut

CHARLY can be folded up for transport, after removing the main key. Before this, remove the baggage basket if it is mounted as an accessory. Loosen the clamp at the seat pillar (1). Pull seat and seat pillar upwards (2) until the seat pillar tube is just at the level of the seat fastening tube (3), and turn the seat by 90° either to the left or to the right (4). Loosen the seat fastening, and fold the seat down to the scooter body. Loosen the steering rod fastening, fold the handlebar backwards, and engage the safety clamp. Tighten seat fastening and steering rod fastening.



Attention!
 Only carry the scooter when the master switch is **OFF** and the key is removed. Fold the mirror back. CHARLY can be carried in any position. It is easier to carry when the battery is removed beforehand (see Section 16.3, battery pack). Without the battery pack, CHARLY's weight is reduced to only 60 % (25 kg or 55 lbs).

Make certain that the hook for the security clamp (1) is always safely locked in place during transport.

Fig. 9: CHARLY folded up

- 1) Security clamp 2) Headlight
- 3) Steering rod fastening 4) Cable compartment for accessories and battery charge cables
- 5) Seat fastening 6) Saddle fastening

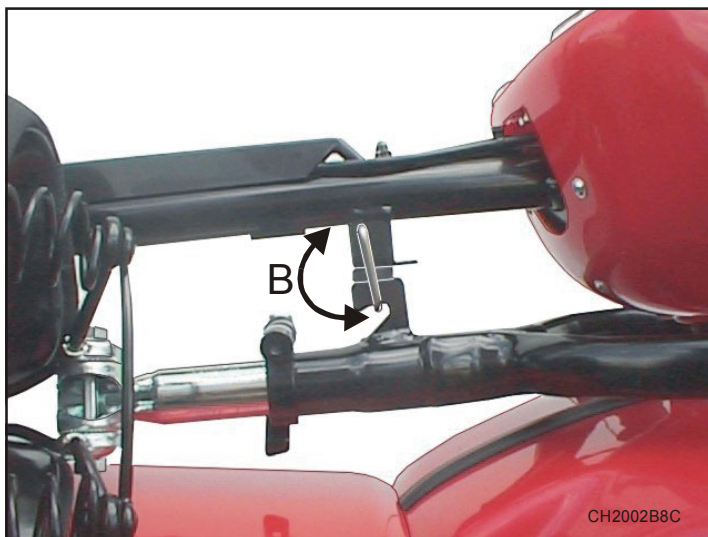


Fig. 10: safety measures clamp locking

14. Handlebar, saddle and seat support fastenings

DANGER!



An unsafe hinge fastening affects CHARLY's roadworthiness.

Check the tight fit of the clamping levers for:

- Steering rod fastening, figure 9, item 3
- Seat support, figure 12
- Seat pillar, figure 11.

Each clamping lever must be pushed to the final position, exerting a strong manual force (swivel by 90°).

Swivel the steering rod to its locked position. Put the fastening element (3) to the fastening position, and tighten the lever in arrow direction. The lever should point backwards, i.e., against the direction of travel. To loosen the fastening, turn the lever against the arrow direction.

Turn the saddle to the riding position, adjust the seat pillar to the correct height, and press the clamping lever to its limit position.

Readjust the mirror.

Set the adjusting screw (4) of the seat pillar fastening such that clamping screw and clamping lever (1) are on a straight line.

To lock the seat strut, turn the clamping lever (1) in the direction (5).



Fig. 11: Clamping lever setting

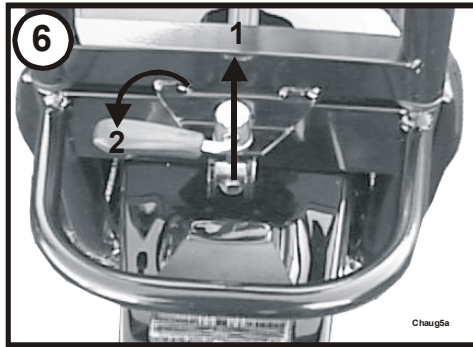


Fig. 12: Rear fastening cam

Put the seat support to the full upright position.

Swing the fastening cam upwards in arrow direction (1) over the fixing strap at the rear frame.

Tighten the cam lever downwards to the left (arrow 2).


Reinstall and connect the battery if it was removed before transport.



Very important!

Before driving CHARLY again, make certain that the clamping levers used to fasten steering rod, seat pillar and seat have really been tightened.

If a clamping lever does not hold any longer, turn the nut located below the clamping cam clockwise by about one turn until a sufficient clamping effect is achieved.

15. Care and maintenance

CAUTION	
	<p>The battery can cause damage in the vehicle during maintenance and repair work.</p> <p>To protect the vehicle against short-circuit, proceed in the following sequence to disconnect the battery:</p> <ul style="list-style-type: none"> - Unplug the plug connections on the battery (fig. 18). - Turn the master switch and the lights ON until all LEDs go out. - Turn the master switch OFF. <p>Prevent water from entering in contact with the battery, the charging set or the electronics box during cleaning.</p>

 DANGER!	
	<p>To ensure roadworthiness, CHARLY's technical condition must be checked at least once per year.</p> <p>This inspection is carried out by your authorized MZ dealer as specified in the repair instructions.</p>

Attention!

Prior to any maintenance or repair work, pull out the battery plug to disconnect the battery! Then, turn the master switch and the lights ON until all LEDs go out. Turn the master switch OFF again.

The scooter does not need much maintenance apart from occasional cleaning using commercially available paint or plastics care products.

Be careful when using water. Do not use any steam or water jets. The vehicle must remain dry under the covering.

The vehicle must be inspected for its technical condition at least once per year. Check all accessible screw connections for tight fit, and inspect steering tube bushes, wheels, brakes, drive system, electrical installation and battery pack for functional capability and wear. Replace any worn or faulty parts if necessary.

As a general rule, such work should be left to your dealer who has repair instructions which include a description of the required operations that is more detailed than what would be possible here.

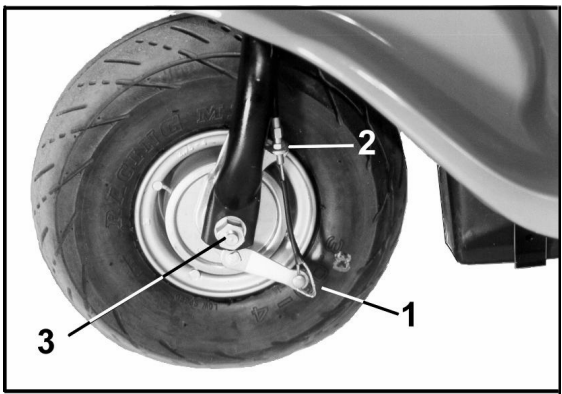


Fig. 13 Front wheel brake
Cable fastening

1. Brake Bowden cable adjusting screw
2. Left axle nut

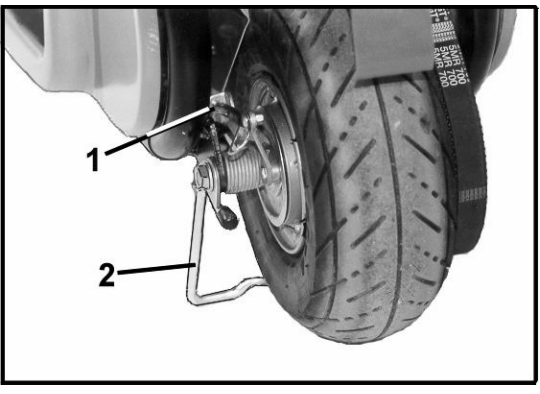


Fig. 14 Rear wheel
Brake Bowden cable adjusting screw
Main stand with vehicle in propped up position

15.1. Tyre pressure

 **DANGER!**

The internal tyre pressure determines CHARLY's roadworthiness. Check the tyre pressure on a regular basis, i.e., every 14 days when the scooter is used frequently.

The specified internal pressure is 300 kPa (3 bars) for both tyres. This air pressure must be checked from time to time, i.e., approximately every two weeks if the vehicle is used daily. The air pressure should be adjusted correctly whenever the vehicle is put in the garage for a longer period of time.

How to inflate the tyres

The valves are located on the right side of the wheels. A tyre pump can be used directly on the front wheel.


A valve extension (fastened at the battery) must be screwed to the valve on the rear wheel. The driving wheel has a sufficiently big opening for this purpose. Inflate the tyre, then unscrew the **valve extension** and store it in the cable compartment again.

15.2. Tyre and inner tube change

Dismount the corresponding wheel to change the inner tube and/or tyre. To dismount the wheel, unscrew the axle nuts on both sides, and take out the wheel and the brake assembly. Tyre and inner tube can be replaced when both wheel half rims are separated. Reassemble the wheels correctly at the end of the process.

Axle nut tightening torque: 25⁺⁵ Nm.

15.3. Toothed belt tension

⚠ WARNING	
	<p>The useful life of the toothed belt essentially depends on the appropriate tension. Check the toothed belt tension every 500 km (300 miles) run. The toothed belt causes a risk of personal injury if CHARLY is test run when the covering is not secured in place. Test runs without covering are prohibited.</p>

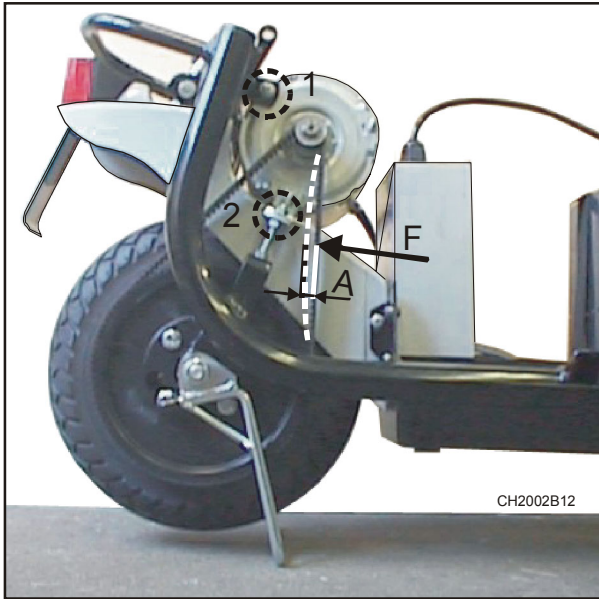


Fig. 15 Toothed belt tightening
 1) Motor fastening screws
 2) Adjusting screws

Check the tension of the toothed belt every 500 km (300 miles) run or earlier in case of heavier use. Readjust the tension if necessary. If this is not done, the drive cannot work without loss, and it is exposed to greater wear and tear.

To tighten the belt, first remove seat support and scooter body. The belt must allow a deflection of approximately $A = 4 \text{ mm}$ (0.16 in) when applying a force (F) of 14...15 N at the centre as indicated by the point shown in the photograph. If this value is not reached, loosen the motor fastening screws (1) and turn both nuts (2) to readjust the belt tension to the correct value. Then, reinstall all parts and tighten all appropriate screws.

15.4. Light bulb replacement in the headlight

CAUTION



Disconnect the battery before removing the covering to replace the light bulbs.

To disconnect the battery, proceed in the following sequence:

- Unplug the plug connections on the battery (fig. 18).
- Turn the master switch and the lights ON until all LEDs go out.
- Turn the master switch OFF.

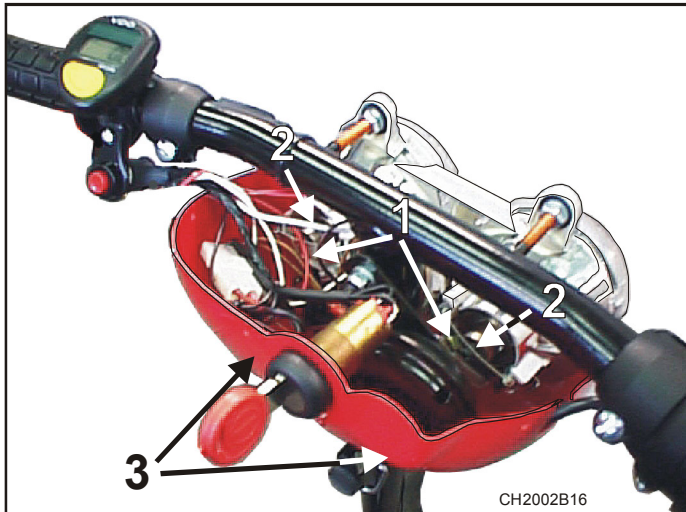


Fig. 16: Light bulb replacement
 Light bulb fitting
 Bulbs
 Headlight housing. bottom

Attention!



Prior to removing the top covering, pull out the battery plug to disconnect the battery! Then, turn the master switch and the lights ON until all LEDs go out. Turn the master switch OFF again.

Unscrew the top covering.

Snap off the light bulb fitting (1), and remove the light bulbs (2) backwards. Install the new light bulb in reverse order.

16. Battery

16.1. Batteries and Fuses

 DANGER!	
	<p>The electrical network used to charge the batteries may cause personal injuries. Risk of damage to CHARLY. Only use a socket outlet with earthing/grounding contact to charge the batteries. The socket outlet must have been installed by a skilled person.</p>
	<p>Check that the mains voltage is the same as indicated on the cable compartment rating plate (figure 17). When using an external charging set, proceed according to the following sequence to disconnect the battery from the vehicle network:</p> <ul style="list-style-type: none"> - Unplug the plug connections on the battery (fig. 18). - Turn the master switch and the light ON after 10 seconds, approximately - Turn the master switch OFF

The batteries are enclosed on all sides, maintenance free, and they can be carried and stored in any position. The batteries have a useful life of up to 300 full charges. Lower range and performance indicate battery ageing.

Batteries can be charged using the charging set which is part of the installed electronics box.

External charging sets are also available to charge the battery pack (see Section 20, Accessories).

The power cable of the built-in charging set (1.6 m or 5.25 ft long when fully extended) is stored in the battery compartment of the scooter body, and secured by a lock in the cover.

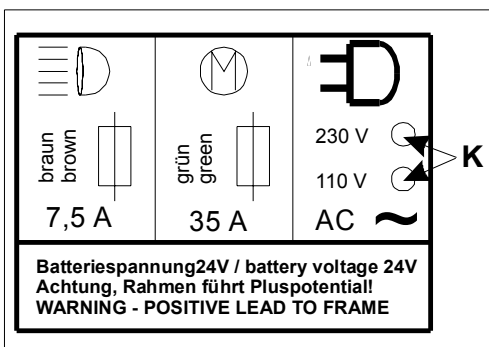


Fig. 17: Notice label in the cable compartment
 A black point (K) in the circle behind the corresponding voltage value indicates whether CHARLY is equipped with a system for 230 V or for 110 V.

A label showing the fuse installation is located next to the fuse holder in the battery compartment, indicating whether CHARLY is equipped with a charging set for 230 V or for 110 V. A black point (K) in the circle behind the corresponding voltage value indicates the mains voltage required.

Do not mix up the fuses!

One spare fuse each for 7.5 A and for 35 A are fastened on the battery. Lift the battery pack out to replace the fuses.

16.2. Battery charging

Please observe the following rules:

- Batteries can be recharged *at any time* and even when they are not discharged completely. They do not have the so-called memory effect.
- Only use either the built-in charging set or the additional external charging set supplied by MZ.
- Never leave the scooter with discharged batteries as this will lead to the destruction of the batteries, with no warranty being granted for this.
- Charge the batteries every day after driving.
- Before you start charging, turn both the light **and** the master switch OFF.
- Insert the small key and turn it to the left to unlock the battery compartment. To remove the cover, pull it forwards at an angle.
- Charging using the built-in charging set:
Insert the *earthing/grounding pin plug* of the power cable into a socket outlet with earthing/grounding contact installed by a skilled person.

Charging using the external charging set:
Disconnect the battery cable from the vehicle network. **Then, turn the master switch and the lights ON until all LEDs go out. Turn the master switch OFF again.**

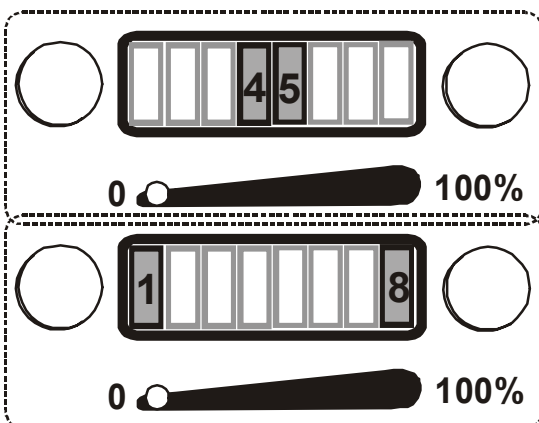
Connect the battery to the charging cable of the charging set. If necessary, remove the battery for this purpose. Connect the power cable of the external charging set to an A.C. network socket outlet (100 V or 230 V). Please observe the operating instructions for the charging set.

Mains voltage:

A.C. network: 230 V or 110 V according to the equipment of CHARLY or of the external charging set to be connected.

Indication of battery condition when charging through the built-in charging set:

LEGEND  DIODE DOESN'T SHIN  DIODE IS SHINING  DIODE IS FLASHING



Light-emitting diodes (LEDs) 4 and 5 are ON:

The batteries are being charged.

LED 1 and LED 8 are ON:

The charging process is completed. The built-in charging set has switched to floating charge mode.

You can now unplug the mains plug, turn the master switch ON and drive on.

Attention!

Wait 10 s before turning the master switch ON after unplugging the mains plug. Otherwise, the battery meter will remain dark.

Corrective measure: Turn the master switch OFF and ON again.

Charging time up to 80 % of the battery capacity (normal charge):

Approximately 5 hours for discharged batteries

Charging time up to 100 % of the battery capacity (full or care charge):

Perform a full battery charge for 16 hours (care charge):

- Every week when the vehicle is used daily.
- Before and after every vehicle shutdown for a period of more than 2 weeks.

To extend the useful life of the batteries, the charging set switches to floating charge when reaching an optimum charge degree (normal charge to 80 % of the battery capacity). This means that the batteries can remain connected to the mains network even after completing a charging time of 5 hours.

16.3. Battery pack

CHARLY is equipped with a battery pack which contains four batteries, and only needs to be plugged in and fastened in the vehicle.

Only use the original battery pack. The battery pack is also available as an accessory.

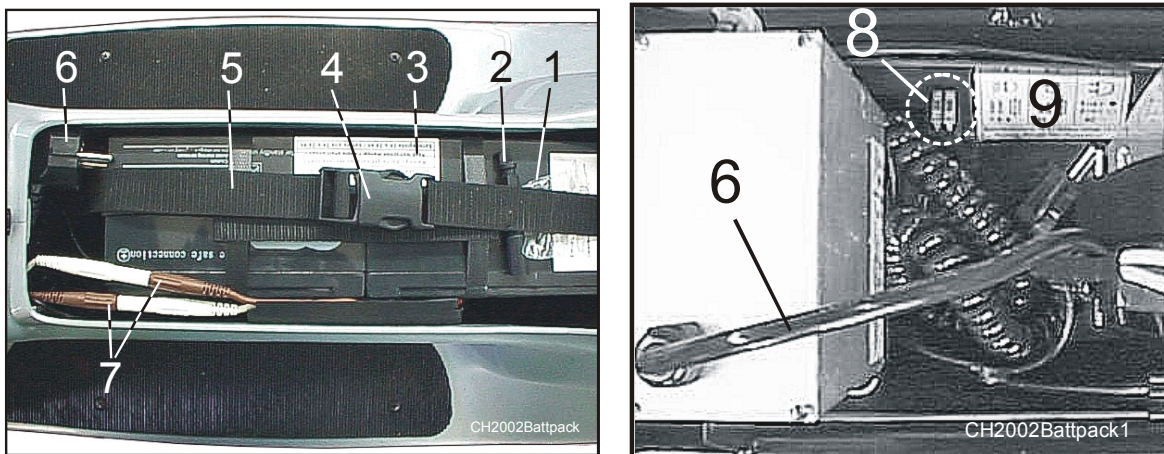


Fig. 18: Battery pack

- | | |
|--------------------------------|--|
| 1) Spare fuses | 6) Power cable for internal charging set |
| 2) Valve extensions | 7) Battery pack cable harness socket connector |
| 3) Battery charge notice label | 8) Fuse box |
| 4) Belt lock | 9) Notice label for fuses and mains voltage |
| 5) Adjustable belt | |

How to remove the battery pack:

- Turn the master switch OFF
- Insert the small key and turn it to the left to unlock the battery compartment. To remove the cover, pull it forwards at an angle.
- Compress the belt snap lock (3) from both sides, and pull it apart. Hang the belt ends over the scooter body.
- Open the socket connector (5) by pulling the plug and tilting it to the side at the same time, using **both** hands.
Then, turn the master switch and the lights ON until all LEDs go out. Turn the master switch OFF again.
- Pull the carrying handle to lift the battery pack (weighing approximately 16.5 kg or 36 lbs) out of the supports in the battery tray. Move the battery slightly to the right and to the left to make lifting easier.

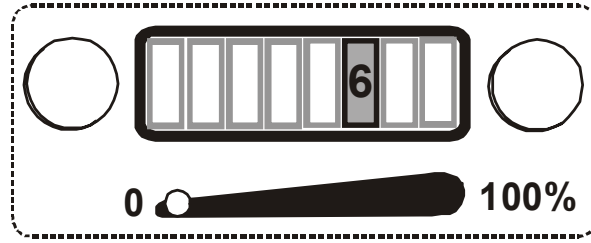
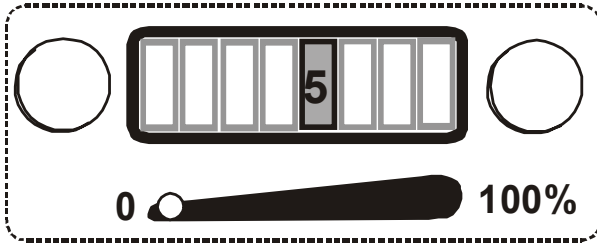
How to install the battery pack:

- Put the tensioning belt to the side, and check the correct fit of the support rubber elements located at the bottom of the battery tray.
- Put the charged battery pack into the battery tray. Insert and compress the plug-and-socket connectors up to the stop, ensuring a correct polarity (as indicated by the plug form). Place the belt on the batteries, snap in the belt lock, and pull on the free end (4) to tighten the belt.
- Insert and close the battery compartment cover.

17. Fault display on battery condition indicator

Some faults in the electric and electronic system can be detected on the battery condition indicator when the master switch is **ON**.

LEGEND  DIODE DOESN'T SHIN  DIODE IS SHINING  DIODE IS FLASHING

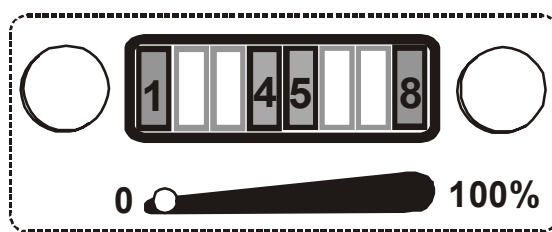
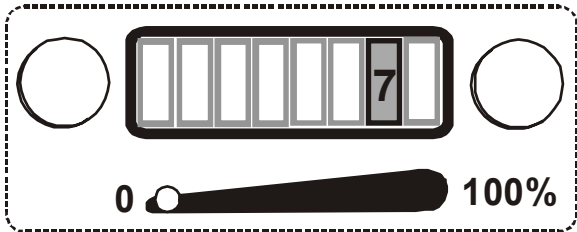


LED 5 is ON only:

Box switched OFF because of faults in the line network or inoperative 35 A fuse. To drive on, replace the fuse, or turn the master switch OFF and ON again.

LED 6 is ON only:

Internal failure in the electronics box, or battery defect.

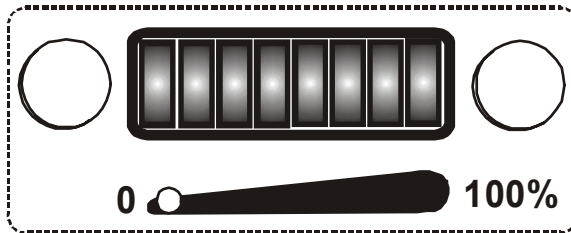
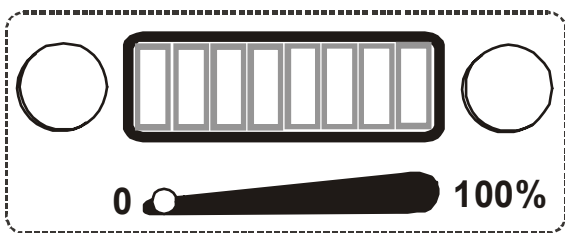


LED 7 is ON only:

Cable interrupted between turning handle and electronics box, or fault in the potentiometer.

LEDs 1, 4, 5 and 8 are ON:

Battery defective. Remedy: Replace the battery pack.



All LEDs are OFF.

Not waited approximately 10 seconds to turn the master switch ON after pulling the mains plug, faulty connection between battery condition indicator and cable harness, or fault in the electronics box.

All 8 LEDs are flashing at the same time.

Master switch not turned OFF before starting battery charge. Charging not possible. Remedy: Turn the master switch OFF. Charging process starts properly.

18. Shutdown

Take the following precautions whenever the scooter is not used for two weeks or more:

- Charge the batteries for 16 hours.

Pull the plug-and-socket connector (fig. 18, item 7) to disconnect the batteries. **Then, turn the master switch and the lights ON until all LEDs go out. Turn the master switch OFF again.**

- Adjust the tyre pressure to 300 kPa ([3 bars (42.3 psi)]).
- Clean CHARLY, cover it and store it in a dry and frost-protected room.
- Before using the scooter again, connect the battery plug-and-socket connector to the vehicle's plug-and-socket connector, and charge the battery pack for 16 hours.
- In the event of longer storage periods without using the scooter, it is necessary to recharge the batteries stored at no more than 20 °C after a maximum period of 3 months.

-

Any accessory battery pack must be treated the same as the complete vehicle as far as storage is concerned.

19. Technical data

Dimensions L x W x H	1080 mm x 545 mm x 1030 mm
with mirror	1080 mm x 600 mm x 1160 mm
Wheel base	775 mm
Seat height	760 - 900 mm, adjustable
Weight	approx. 42 kg
Total weight permitted	144 kg
Range	up to 20 km (12.5 miles) on flat roads (see page 8).
Riding speed	up to 20 km/h (12.5 mph) on flat roads (see page 8).
Motor	direct-current motor 24 V / 750 W
Rear wheel drive	toothed belt 5 MR 700/20
Motor- rear wheel transmission ratio	12:101 teeth (1:8,4)
Nominal voltage	
Drive	24 V
Lighting	24 V
Battery set as a complete removable unit	24 V / 24 Ah total capacity, closed on all sides, maintenance-free,
Battery condition indicator	battery charge indicator on handlebar covering
Battery charge	<ul style="list-style-type: none"> • Built-in charging unit for A.C. voltage, 230 V or 110 V (optional) • External charging sets available as accessories for <ul style="list-style-type: none"> • 110 V alternating current voltage • 230 V alternating current voltage
Charging time required for driving (80 %)	about 5 h
Charging time for full charge (care charge)	16 h
Speedometer (cycle computer)	Display functions Daily and total kilometre indicator Current speed
Front and rear tyres	3.00-4 MSC Heidenau with 3.00-4 TR 87 Heidenau hose or comparable types
Wheels	4 x 2.75
Internal tyre pressure	300 kPa (3 bar)
Front and rear brakes	drum brake \varnothing 70 mm
Lighting	
Two headlights (permanent dipped beam)	bulb 12V / 15W P 26 s (connected in series)
Rear light	bulb 24V / 2W BA 9s
fuses (flat-type FK2)	
for riding current	35 A (green)
for lighting, riding control and Horn	7,5 A (brown)
Flasher system (accessories)	3 A (violet)

20. Accessories

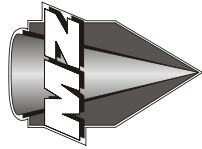
The following accessories are available from your CHARLY dealer to enhance the vehicle's service value.

- Flasher system (turn indicator lights)
- Folding baggage basket
- Battery pack
- External battery charger for
 - 110 V A. C.
 - 230 V A. C.
- Cable lock for theft protection

21. Approvals

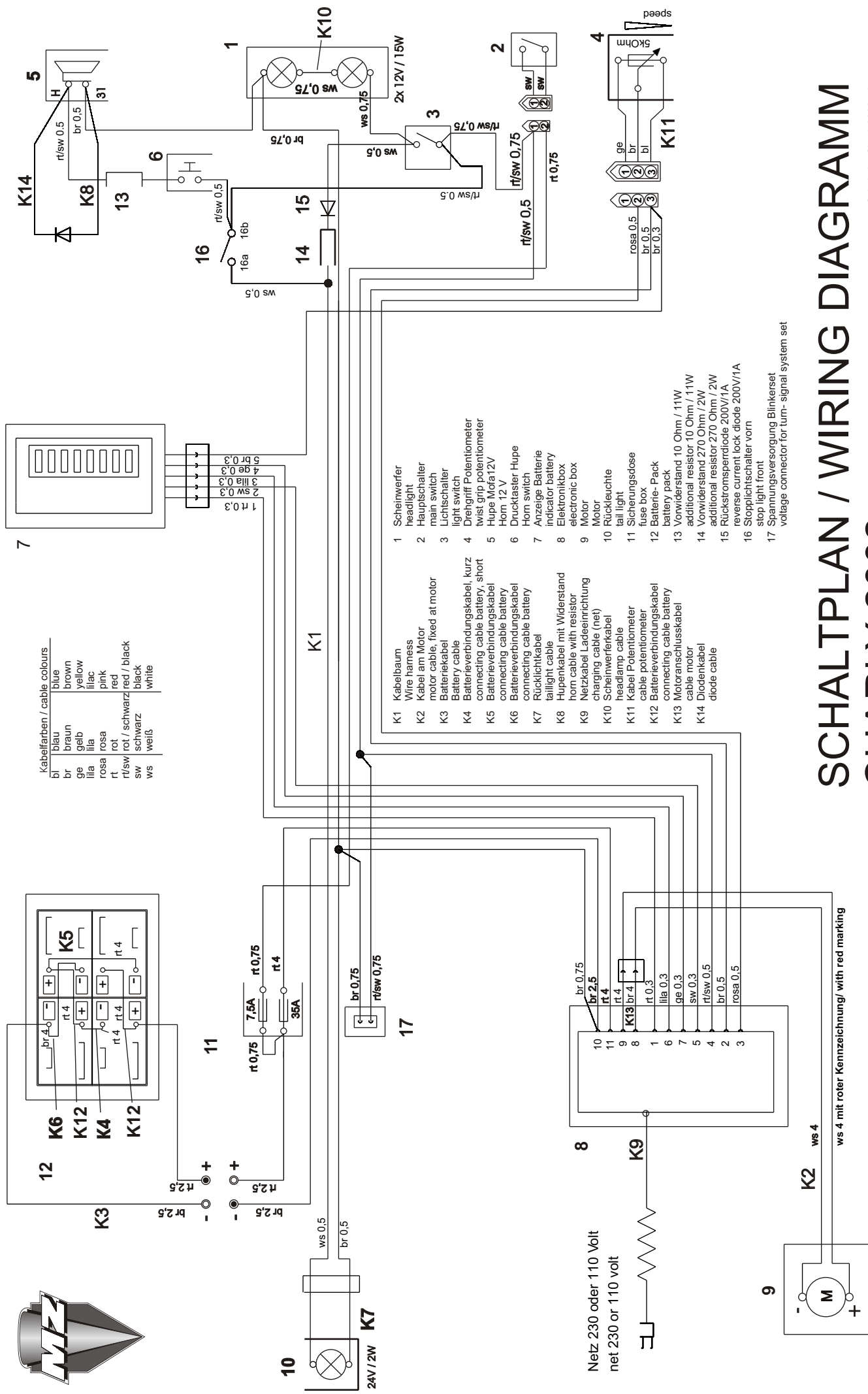
MZ ER "CHARLY" electric scooter:

The vehicle's electromagnetic compatibility complies with directive 97/24/EEC, chapter 8, appendix I to III.



Kabelfarben / cable colours

bl	blau	blue
br	braun	brown
ge	gelb	yellow
lila	lila	lavender
rosa	rosa	pink
rt	rot	red
rt/sw	rot / schwarz	red / black
sw	schwarz	black
ws	weiß	white



- 1 Scheinwerfer headlight
- 2 Hauptschalter main switch
- 3 Lichtschalter light switch
- 4 Drehgriff Potentiometer twist grip potentiometer
- 5 Hupe Mofa12V Horn 12 V
- 6 Drucktaster Hupe Horn switch
- 7 Anzeige Batterie indicator battery
- 8 Elektronikbox electronic box
- 9 Motor Motor
- 10 Rückleuchte tail light
- 11 Sicherungsdose fuse box
- 12 Batterie- Pack battery pack
- 13 Vorwiderstand 10 Ohm / 11W additional resistor 10 Ohm / 11W
- 14 Vorwiderstand 270 Ohm / 2W additional resistor 270 Ohm / 2W
- 15 Rückstromperdiode 200V/1A reverse current lock diode 200V/1A
- 16 Stopplichtschalter vorn stop light front
- 17 Spannungsversorgung Blinkerset voltage connector for turn- signal system set

SCHALTPLAN / WIRING DIAGRAM

CHARLY 2002

SchalplanCharly2002.cdr
28.02.2002