INSTRUCTIONS FOR THE USE OF STARTER BATTERIES

1. Storage and transport
- Store batteries in a dry, light-protected and cool environment (frost-free).
- At the latest, recharge starter batteries in the case of open-circuit voltage ≤12.5 V (see Note 3).
- Declaration of all conventional starter batteries wet and filled with acid in accordance with UN 2794. All recombination batteries (AGM, GEL, VRLA) correspond with UN 2800.
- Wet floaded batteries must be transported in an upright position, as otherwise acid may escape.
- During transportation secure the battery to prevent it falling over or sliding around.
- First in, first out (FIFO) receipt.

2. Installation and removal from the vehicle.
Only install batteries with an open-circuit voltage of > 12.5 V.
- Follow the vehicle instructions.
- Switch off the engine and all power consumers prior to installing or removing the battery.
- Avoid short circuits due to tools.
- When removing the battery, first disconnect the negative (-) terminal and then the positive (+) terminal.
- Interruptions to the power supply may result in data loss. The Memory Saver can help.
- Prior to installing the battery, clean the battery compartment.
- Ensure that the battery is secured tightly.
- Clean terminals and battery clips and lubricate slightly with acid-free grease.
- When fitting the battery first connect the positive (+) terminal and then the negative (-) terminal. Ensure that the clips are secured.
- Some vehicle batteries are fitted with a hose and an elbow attachment for the discharge of the battery gases. Should this be the case in your vehicle, the hose is to be inserted into the corresponding degassing vent in the battery via the elbow. If a degassing vent exists on the other side, this must be closed with a sealing plug.
- Should you require a replacement sealing plug, or a degassing hose, please contact your local automotive specialist.

3. Battery recharging
- Before recharging wet „non maintenance free" batteries, check the electrolyte level and top up if necessary with deionised or distilled water to the max. acid level mark or 15 mm above the upper edge of the plates at a maximum.

We recommend that standard wet batteries be charged outside the vehicle for 24 hours.
Warning! Many chargers have a type of refresh mode for deeply discharged Ca/Ca batteries. However, these only maintain a charging voltage of 16 V for a short period.
AGM batteries. Always recharge with a voltage-controlled charger (max. 14.8 V). The use of a standard charger without voltage control destroys the battery due to overcharge and causes the electrolyte to escape.
Warning! Follow the vehicle manufacturer's instructions when disconnecting the terminals.
- Batteries must only be charged with direct current. Connect the positive (+) battery terminal to the positive (+) terminal of the charger, and the negative (-) battery terminal to the negative (-) terminal of the charger.
- Do not switch on the charger until the battery has been connected. First switch off the charger when charging is completed.
- It is recommended that the charging current be equal to at least one tenth of the capacity (e.g. 44 Ah: 10 = 4.4 A charging current).
- The temperature of the acid must not be higher than 55°C during charging. If the temperature exceeds this level, the charging process must be discontinued.
- Charging is finished when the current drops to 0 or stops falling, or if the automatic charger switches off.
- Charging must be performed in a well-ventilated room.
- The battery screws must not be opened.
- Ensure that recharging amounts to 1.2 times the consumed capacity (e.g. Consumed capacity 30 Ah, recharge 36 Ah).

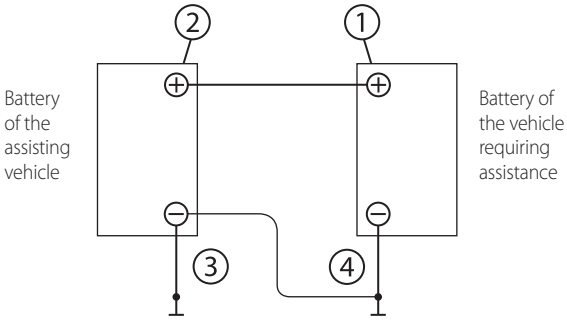
Warning! Oxyhydrogen gas is formed during charging! Fire, sparks, open flames and smoking are strictly prohibited!
Recharging batteries in the vehicle.
As a rule, fully automatic chargers (max. charging voltage 14.8 V) are well suited to the charging of batteries installed in the vehicle. Should the charger have an automatic mode with > 14.8 V voltages, the battery must be separated from the vehicle electrical system or removed from the vehicle. Otherwise, in a worst-case scenario the installed control devices can be destroyed due to overvoltage with huge resultant damage. Please take careful note of the battery charger type. Useful tips regarding charging in the vehicle are often contained in the operating instructions of the vehicle manufacturer or those of the charger producer.

4. Maintenance
In order to ensure long battery life, the following instructions should be followed:
- Keep the surfaces of the battery clean and dry.
- Check the acid levels regularly at „non maintenance free batteries" and if necessary top up with deionised or distilled water. Never top up with acid. If a substantial water loss occurs, an expert should check the voltage regulator inside the car.
- Do not put so-called „additives" into the battery acid.
- **Warning!** Should the open-circuit voltage fall to ≤12.5 V, recharge immediately in order to prevent lasting battery damage.

AGM batteries must not be opened.
Acid density measurement and topping up with distilled water are neither possible nor necessary.
Tip. Quarterly recharging of the battery greatly prolongs its lifetime.

5. Assisted starting
- In view of the sensitive electronic components in the vehicle, as a rule starting assistance should only be provided by means of a Booster.
- Starting assistance from vehicle to vehicle can lead to voltage peaks during disconnection, which can damage or even destroy vehicle electronic systems.
- Therefore, it is essential that the following procedure be strictly observed when using starter cables!
- Standardised starter cables (e.g. in accordance with DIN 72 553) should always be used for giving starting assistance.
- Observe the instructions for use of the starter cables.
- Only connect batteries with the same nominal voltage.
- **When connecting the terminals, switch off both vehicle engines!**

First connect the two positive terminals (1) with (2). Then connect the negative terminal of the assisting vehicle (3) with (4), the blank metallic point on the vehicle needing assistance, away from the battery. (Observe the instructions of the vehicle manufacturer.)



- Now start the vehicle needing assistance for a maximum of 15 seconds. Do not start the assisting vehicle.
- When disconnecting the terminals, remove the cables in the reverse sequence to the above.

6. Decommissioning
- Charge the battery (see Note 3) and store in a cool dry place.
- Should the battery be left in the vehicle, disconnect the negative terminal.
- Regularly check the open-circuit voltage (see Note 4).

7. Influence of high temperatures
If batteries are subjected to high temperatures for long periods, this promotes increased water consumption and grid corrosion. A corroded grid is no longer able to conduct current and therefore the battery fails. Resultant grid growth can also result in battery short circuits.

INSTRUCTIONS FOR THE USE OF STARTER BATTERIES

Warnings and Safety Rules for Lead-Acid Batteries

Take note of the information on the battery, the instructions for use and the operating instructions of the vehicle.

Wear eye protection.

Keep children away from acid and batteries.

Explosion danger:
- A highly explosive oxyhydrogen gas is emitted during battery charging therefore:

No naked flames, sparks, naked lights or smoking:
- Avoid sparking when handling cables and electronic devices.
- Avoid short circuits.

Chemical burns danger:
- Acid is highly caustic therefore:
- Wear gloves and eye protection.
- Do not tilt the battery, as acid could spill out from the degassing vents.

First Aid:
- If acid splashes into the eyes rinse immediately with clear water for several minutes. Then consult a physician.
- If acid splashes onto the skin or clothes neutralise immediately by using an alkaline solution or soap and rinse with large amounts of water.
- If acid is swallowed consult a physician immediately.

Warning:
- Do not expose batteries to direct sunlight without protection.
- Always store batteries in a frost-free area, as discharged batteries can freeze.

Disposal:
- Hand in used batteries at a collection centre. During transportation take note of the instructions contained in Item 1. Never dispose of old batteries with domestic waste.