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STARTER BATTERIES USER MANUAL [EN]

SAFETY, USE AND MAINTENANCE

PRECAUTIONS AGAINST THE RISK OF EXPLOSION

The batteries contain a diluted sulphuric acid solution and produce explosive mixtures of hydrogen and oxygen during operation. The following rules must be observed when operating on batteries, so as to prevent potentially dangerous situations:

- Always wear suitable protective equipment for the eyes, face and hands.
- Avoid sparks and flames near the battery and do not smoke.
- Do not open or force a battery equipped with pressure relief valves or non-removable terminal covers.
- Make sure that the environment is adequately ventilated.
- Never lean over the battery during charging or jump-starting operations.
- Take care when using metal equipment or conductors in order to prevent short-circuits and sparks near the battery.

PRECAUTIONS WHEN HANDLING ACID

The battery acid is a diluted sulphuric acid solution that may damage clothing and burn the skin. **HANDLE THE ACID WITH CARE** and keep a neutralising solution on hand, such as sodium bicarbonate or ammonia for domestic use diluted with water. When operating with sulphuric acid, the following precautions should be taken:

- Always wear suitable protective equipment for the eyes, face and hands.
- If the acid comes into contact with the eyes, rinse them for several minutes with clean water then seek medical aid urgently.
- In case of ingestion of the electrolyte, drink plenty water or milk. **NEVER** attempt to vomit. Consult a doctor immediately.
- In case of contact with the skin or clothing, immediately neutralise the affected area with soapy water or acid neutralising agent, then rinse thoroughly.
- Neutralise any electrolyte splashes on the vehicle or in the work environment with sodium bicarbonate. After neutralising the acid, rinse the contaminated area.

CHARGING THE BATTERY SAFELY

NEVER CHARGE A BATTERY WITHOUT HAVING FIRST READ THE BATTERY CHARGER INSTRUCTIONS.

For safe battery charging, observe the following general precautions:

- Always wear adequate protective equipment for the eyes, face and hands.
- Comply with the battery chargers instructions.
- Switch the battery charger off prior to connecting the leads to the battery clamps.
- Avoid charging a battery that is frozen or evidently damaged, or whose temperature is above 45°C (40°C in case of AGM hermetic batteries).
- Connect the battery charger leads as follows: the red positive (+) lead to the positive battery clamp (+) and the black negative lead (-) to the negative clamp (-). If the battery is installed on the vehicle, connect the negative lead to the engine block which functions as a ground connection. When the engine is started, make sure that the engine block and all the electrical accessories are switched off (if the vehicle has positive ground, connect the positive lead to the engine block).
- Check that the leads are not broken, worn or loose.
- The most common types of battery chargers available on the market adjust automatically to the type of battery to be charged (free acid, AGM, gel.). These types of battery chargers should be preferred. In case of a different system, charge the battery with constant voltage (max. 16 V) or constant current equal to 1/10 of the battery capacity, until reaching 16 V during charging (50Ah batteries with 5 A). In case of AGM hermetic batteries, charge with power equal to 1/4 of the battery capacity, limiting the voltage to 14.8V (70Ah batteries with 17.5A). Following this treatment, the battery at rest and at ambient temperature will have a voltage between 12.7 V and 12.9 V at the terminals.
- If the battery overheats, or in case of violent gas emissions or electrolyte spills, reduce the charging intensity or temporarily suspend charging.
- Disconnect the battery charger leads only after having cut the power supply.
- It's important to avoid that the temperature exceeds 55°C during charging.

BATTERY MAINTENANCE

Keep the surfaces of the battery clean and dry using a damp or anti-static cloth.

Regularly check that the battery and connection cables are clean, by eliminating any dust and corrosion by-products from the clamps and terminals.

Corrosion of the battery terminals may adversely affect battery performance and cause potential dangers. If any signs of corrosion appear, disconnect the battery, loosen and remove the clamps and

eliminate the corrosion by-products by brushing the terminals and clamps using a diluted solution of sodium bicarbonate and water. Apply anti-corrosion grease to the terminals prior to reconnecting and tightening the clamps. Mark the date on which maintenance was carried out.

IN CASE OF MAINTENANCE-FREE SEALED OR HERMETIC BATTERIES, DO NOT OPEN OR FORCE THE TERMINAL COVERS.

STORAGE

Store in a cool, dry and well-ventilated location. Avoid storing the battery in areas where sparks may occur. The battery must be carried by its handle, if present. Never tilt the battery to avoid spilling the acidic solution contained in it.

If the vehicle is not used for long periods of time, the battery's efficiency can be preserved by:

- Removing the battery from the vehicle by observing the safety precautions.
- Storing the battery in a cool and dry place.
- Ensuring that the battery stays charged by scheduling a recharge roughly every four months.
- Eliminating any corrosion by-products from the terminals, as they may adversely affect battery performance and cause potential dangers. Remove the corrosion by-products by brushing the terminals and clamps using a neutralising solution. Apply anti-corrosion grease prior to reconnecting and tightening the clamps.

REPLACING AND JUMP-STARTING THE BATTERY

REPLACING THE BATTERY ON THE VEHICLE

Check the instructions contained in the vehicle's user manual. Prior to removing a used battery, carefully observe the poles of the battery so as to avoid inverting the connections for the new battery.

Disconnect the ground cable clamp, so as to avoid damaging the electrical wires or battery in case of accidental 'ground connection' with equipment.

Check for any signs of damage or corrosion on the battery support. Make sure that the support and fixing elements are in good mechanical condition and have no signs of corrosion. Corroded parts can be cleaned using a sodium bicarbonate solution by rubbing them with a hard brush. Cleaned parts must be dried and coated. Do not coat the battery terminals.

Clean and tighten the ground cable. Tighten the starter relay and starter cables.

Check the poles of the new battery to ensure they match up with those of the old battery.

Once installed, the new battery must adhere uniformly to its support; check that there are no foreign bodies on the latter which may damage the underside of the battery.

The fixing elements must be tightened to the right degree: not too much, so as to avoid bending or breaking the battery box or cover. Refer to the mechanical load values specified in the vehicle's user manual.

JUMP-STARTING WITH STARTER CABLES

READ THE SAFETY INSTRUCTIONS CONTAINED IN THE MANUAL SUPPLIED WITH THE CABLES.

Carefully observe the safety instructions contained in the battery instruction manual. Verify that the two batteries have the same voltage (6 V, 12 V, etc.).

- When jump-starting a battery, always wear suitable protective equipment for the eyes and never lean over the battery.
- Never jump-start a battery if the latter is damaged; check both batteries prior to connecting the battery cables.
- Make sure that the pressure relief valve caps are securely tightened and level.
- Make sure that the two vehicles do not touch and that both their ignition switches are turned off.
- Switch off all electrical devices (radio, defroster, windscreen wipers, lights, etc.).

It is important to carry out the phases below in the following order:

1. Connect the positive (+) battery cable to the positive (+) terminal of the flat battery.
2. Connect the other end of the positive (+) cable to the positive (+) terminal of the back-up battery.
3. Connect the negative (-) cable to the negative (-) terminal of the back-up battery.
4. Connect the negative cable (-) to the engine block of the broken down vehicle, far from the battery and carburettor.
5. Ensure that the cables do not get caught up in the ventilator fins or belt, or in other moving parts of the two engines.
6. Start the vehicle and disconnect the cables in reverse order with respect to the connection.



ZENO BATTERY

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QUALITY AND FLEXIBILITY

Zeno is very committed in providing the market with a wide range of products, ensuring premium quality and maximum flexibility to satisfy any requirement, also engineering customized solutions. ZENO'S management system is certified according to:
ISO 9001:2008, ISO/TS 16949:2009, ISO 14001:2004, BS OHSAS 18001:2007, SA 8000:2008

ZENO SPA SPA HEADQUARTER, SOAVE, VERONA, ITALY

Unica realtà a produrre batterie avviamento, trazione estazionarie in un singolo stabilimento produttivo, in 25 anni è diventata una delle aziende leader in Europa con prodotti distribuiti in tutto il mondo.

The only company that produces Automotive, Motive power and Stationary batteries in the same manufacturing plant, in less than 25 years it has become one of the leading companies in Europe and its products are sold worldwide.

ZENO PRODUZIONE VERDE

Midac utilizza l'energia pulita prodotta dal proprio impianto fotovoltaico per la produzione di batterie e accumulatori, evitando l'emissione di 945 tonnellate di CO2 ogni anno.

MIDAC GREEN PRODUCTION

Midac utilizza l'energia pulita prodotta dal proprio impianto fotovoltaico per la produzione di batterie e accumulatori, evitando l'emissione di 945 tonnellate di CO2 ogni anno.

