

Instructions for use and safety

12V Flooded Lead-Acid Batteries



Read these instructions carefully before proceeding with installation or maintenance.



Always wear eye protection when handling batteries.



Keep batteries away from children.



No smoking, avoid naked flames or creating sparks near batteries.



Explosion hazard. Batteries emit an explosive mixture of hydrogen and oxygen during and after charging.



Corrosive hazard. Wear protective equipment to shield eyes, hands, and clothing.



Batteries contain lead and should be recycled. Never dispose in domestic waste.



Return used lead-acid batteries to your local battery supplier or deposit at nearest recycling centre.

GENERAL RECOMMENDATIONS FOR FILLED AND CHARGED LEAD-ACID BATTERIES

The symbols on the battery indicate the safety warnings. Batteries not handled and used correctly can be a danger, read the instructions in full prior to carrying out any work on the battery. Batteries are heavy; take care for lifting and carrying. Please read and follow carefully all the instructions in this document, on the battery and in the vehicle handbook. Avoid clothing that may create static electricity. Keep the battery upright to prevent spillage. If acid is ingested seek immediate professional medical attention. Do not induce vomiting and drink a lot of water. In the event of contact with skin or eyes wash immediately with copious amounts of water for several minutes. Seek immediate medical attention for eyes. For spillages again wash immediately with water or soapy water or acid neutraliser such as soda. Dry charged batteries should be filled and charged only in approved workshops. Lead-Acid batteries produce an explosive mixture of oxygen and hydrogen in use and on charge. Any spark, including electrostatic discharge, could ignite these gasses. Use antistatic cloths and insulated tools when fitting. Lead acid batteries should only be used for the purpose for which they are designed. Improper uses can be dangerous and can create a safety risk

A. STORAGE AND HANDLING. Batteries are filled with acid and should be kept upright at all times. Batteries should have at least one terminal covered to prevent accidental shorts. Store in a cool dry well ventilated place. Exclude storage where sparks may be generated.

B. CONNECTING/DISCONNECTING. Switch off all vehicle electrical components. Wear goggles and suitable protective clothes including rubber gloves (self protection and spark avoidance). When removing battery disconnect earth lead (usually negative) first. Avoid short circuits by careful use of any metal tools. Clean battery tray and clamp new battery securely; do not over tighten. Clean terminal clamps and lightly grease terminals (petroleum jelly). On reinstalling ensure correct connection to the live (usually positive) terminal first (any incorrect connection can instantly damage the vehicle's electrics). Check connections are tight. Where available fit terminal cover to live (usually positive) terminal to prevent shorts. Ensure terminals and connectors will be clear of closed bonnet (hood). Use components from replaced battery such as pipes, elbows, terminal covers to ensure secure and safe fit. Where hold-down adaptors are fitted ensure these are removed when the fitment does not require them to help ensure secure fitting.

C. MAINTENANCE. Ensure the battery and connections are kept clean and dry. Use antistatic damp cloth to wipe the battery down. If there is access to refill, check electrolyte level regularly. If necessary refill deionised

or demineralised water to ensure that plate/separator stacks are covered by electrolyte. If the battery has consumed not only water but apparently electrolyte (acid) seek advice. Do not overfill. The battery may need recharging in the event the car does not start. (See battery charging "D").

D. CHARGING (using charging devices). Sparks can cause explosions especially during and after charging. Only charge off vehicle in a well ventilated area. Disconnect and connect as described in "B". Only use direct current (DC) automatic regulated chargers. Charge voltage should be 14.4 volts maximum. Follow the charger instructions. With charger not connected to the mains connect (+) cable to (+) battery terminal and (-) cable to (-) battery terminal. Switch on charger from as remote a position as possible. Charging is sufficient to allow battery to be refitted when the voltage has been stable (14.4 volts) for two hours or more. Switch off power supply to charger before disconnecting. If the battery temperature becomes hot to the touch cease charging and seek professional advice. It is important not to create any sparks after charging the battery, as this is the time when the accumulation of explosive gasses is at its maximum. It is recommended that batteries are left for at least 12 Hours after the charge current is switched off.

E. JUMP STARTING FOR CARS. It is not a recommended procedure. If it is deemed essential, follow the instructions in the car manual.

F. TEMPORARY STORAGE. If the vehicle or battery is not required for an extended period the battery should be disconnected as in "B" (check no damage will be done to the vehicle by long periods of storage without power), carry out charge as "D" and store as "A". Before refitting ensure voltage is above 12.4 volts. Refit as in "B". If the vehicle requires power during storage check the battery voltage monthly and recharge if battery drops below 12.3 volts.

G. DISPOSAL. Old batteries should be recycled through a registered scheme. The supplier of the new battery will have access to such a scheme. We advise that this is the best way to correctly dispose of failed batteries

WARRANTY. Products are warranted against faulty workmanship and/or material according to applicable law only. Proof of purchase is required to claim. Warranty does not cover incorrect fitment, inadequate charging, accidental damage or faults on vehicle electrical systems and other forms of abuse. A battery replaced under warranty is only warranted to the end of the original battery warranty period. Batteries left for long periods out of use will fail owing to neglect.

Instructions for use and safety

12V AGM (VRLA) (Valve Regulated Lead-Acid) Batteries



Note operating instructions and retain with vehicle handbook.



Always protect eyes when handling batteries.



Keep batteries away from children.



No smoking, naked flames or sparks near batteries.



Explosion hazard. Batteries emit an explosive gas mixture into the air.



Corrosive hazard. Battery acid, if spilled, is corrosive to skin, clothes and goods.



Valve-regulated lead-acid battery. Never manipulate to open cells.



Batteries contain lead and should be recycled. Never dispose in domestic waste.



Batteries contain lead and should be recycled. Never dispose as domestic waste.

GENERAL RECOMMENDATIONS FOR 12V VRLA (VALVE REGULATED LEAD-ACID) BATTERIES

The symbols on the battery indicate the safety warnings. Batteries not handled and used correctly can be a danger – read and follow carefully the instructions in this document, on the battery and in the vehicle handbook in full prior to carrying out any work on the battery. Lead acid batteries should only be used for the purpose for which they are designed. Improper uses can be dangerous and can create a safety risk. Batteries are heavy – take care lifting and carrying them. In case of battery breakage, immediately wash any spillage with water, soapy water or an acid neutraliser such as baking soda. VRLA batteries can eventually release small amounts of an explosive gas mixture during use, storage and charge, so air-tight containers are not recommended. For battery banks, a proper grounding is recommended to prevent electrostatic charge generation.

A. STORAGE, HANDLING and INSTALLATION.

Batteries are filled with acid and should be protected against any impact able to break its case. Batteries should have at least one terminal covered to prevent accidental shorts. Store in a cool, dry, well-ventilated place. Do not store where sparks may be generated. AGM (VRLA) batteries contain only a limited amount of acid. It is important to make sure that they are not exposed to temperatures above 60° during use and installation. Temporary peaks of up to 80°C can be tolerated for limited periods not exceeding 3 hours.

B. CONNECTING/DISCONNECTING. Switch off all vehicle electrical components.

Wear goggles and suitable protective clothes, including rubber gloves. When removing a battery, disconnect earth lead (usually negative) first. Avoid short circuits through careful use of any metal tools. Clean battery tray and clamp new battery securely; do not over-tighten. Clean terminal clamps. On reinstalling, ensure correct connection to the live (usually positive) terminal first (any incorrect connection can damage sensitive electrics). Check connections are tight, and lightly grease terminals with petroleum jelly. Where available, fit terminal cover to live (usually positive) terminal to prevent shorts. Ensure terminals and connectors will be clear of closed compartment cover. Check that protective terminal caps are covering all unused terminals.

C. MAINTENANCE. VRLA batteries don't require any water addition. Ensure the battery and connections are kept clean and dry. Use an antistatic damp cloth to wipe the battery down to prevent electrostatic sparks. Do not open or remove vents. Never add acid or distilled water. The battery may need recharging when voltage drops below 12.4V (50% state of charge) as described in D.

D. CHARGING (using charging devices). Sparks can cause explosions, especially during and after charging. Only charge in a well-ventilated area. Disconnect and connect as described in B. Only use direct current (DC) automatic regulated chargers approved for VRLA products. Follow the charger instructions. With charger not

connected to the mains, connect (+) cable to (+) battery terminal first and then (-) cable to (-) battery terminal. Switch charger on from as remote a position as possible and, after charging, switch off before disconnecting. An optimised charging method (D1) is recommended, but special applications could require other particular procedures as follows (referenced to 25°C ± 10°C).

D1. Charging: Initially charge at 10–20A of constant current until reaching 14.4V, followed by a regulated Voltage charge at 14.4V without current limitation until supplied current is below 2% nominal Capacity; finish at constant current of 2% nominal Capacity during 2h. During all charging, battery temperature can't exceed 50°C.

D2. Float Charging only for Stationary: Apply a floating voltage of 13.8V during the whole charging time and consider applying D1 once per month. Never apply this method to deeply-discharged batteries.

D3. Fast Charging only for Emergencies: Use a max. current of 50% nominal Capacity for periods shorter than 1 hour. In all cases voltage must be limited to 15V maximum. Never apply this method to deeply-discharged batteries.

D4. Recovering from deep discharge. When battery voltage is below 12.1V, proceed as described in D1 but prolong total duration for step one and two up to 48h. During all charging, battery temperature can't exceed 50°C.

E. JUMP STARTING FOR CARS. This is not a recommended procedure. If it is deemed essential, follow the instructions in the car manual.

F. TEMPORARY STORAGE. If the battery is not required for an extended period it should be disconnected as in B (check that no damage will be done to the equipment by long periods without power), carry out charge as in D and store as in A. Before refitting, ensure voltage is above 12.4V. Refit as in B. If equipment requires power during storage, keep the battery connected but check the voltage monthly and recharge if it drops below 12.4V.

G. DISPOSAL. Old batteries should be recycled through a registered scheme. The supplier of the new battery will help to you to find such a scheme. We advise that this is the best way to correctly dispose of failed batteries.

WARRANTY. Products are warranted against faulty workmanship and/or material according to applicable law only. Proof of purchase is required to claim. Warranty does not cover incorrect fitment, inadequate charging, accidental damage or faults on vehicle electrical systems and other forms of abuse. A battery replaced under warranty is only warranted to the end of the original battery warranty period. Batteries left for long periods out of use will fail owing to neglect. Distributed by EXIDE Technologies, Unit 2 Pisces, Mosley Road – Trafford Park, M17 1PF, Manchester, UK.