

recharge Battery Revitalizer and Conditioner

How does your battery work?

A 12-volt battery comprises six cells connected in series, with each cell supplying 2 volts. Each cell contains a positive and negative plate, interspaced with separators and an electrolyte (sulphuric acid and water).

When a discharged or flat battery is being recharged, it produces hydrogen at the negative plate and oxygen at the positive plate. Particles of lead sulphate are converted into 'sponge' lead at the negative electrodes and lead dioxide at the positive electrode. During charging, the lead sulphate combines with the electrolyte to restore the battery's specific gravity (charge).

How does your battery wear?

During discharge, each plate is slowly converted to lead sulphate, which uses up the supply of sulphuric acid. As this occurs, small amounts of hydrogen are produced at the positive plates and oxygen at the negative plates.

The sulphuric acid actually enters the plates and reduces the acid concentration in the electrolyte. The active material in both plates is converted to lead sulphate. When this process has progressed to the state where there is little chemical difference in the positive and negative terminals, the voltage collapses and the battery becomes discharged.

If the battery is left in a discharged condition for any period of time, the lead sulphate will convert to a crystalline form that then becomes difficult to remove just by recharging the battery. The crystalline lead sulphate builds up as a battery ages and gradually reduces the battery's efficiency to the point where it will no longer hold its charge. Sulphation can also cause mechanical faults by distorting internal plates.

How does recharge work?

recharge has been especially formulated to strip away this crystalline lead sulphate, allowing the battery to accept and retain its charge more efficiently. It is possible for discarded, seemingly worn-out batteries to be returned to full working condition using recharge. recharge reduces sulphation of the plates, reduces the shedding of lead particles from the plates and inhibits corrosion.

Directions

Wear protective clothing (see CAUTION below). Remove the battery from the in-use situation and place in a well-ventilated area. Remove the cell caps and check the electrolyte level, add distilled water if necessary, taking care not to overfill the cells.

Add the recommended amount of recharge to each cell using the dispenser provided. Rinse the dispenser thoroughly with water after use. Put the battery on a slow charger for 24 hours. Take care to leave the cell caps loose so the battery can breathe while charging.

Note: Put recharge into battery cell before charging the battery. Do not over charge the battery as this can cause battery failure.

Recommended Dosage

Batteries come in many shapes and sizes. The following table is intended as a guide only.

Battery type / size	Dosage per cell		
motorbike/lawnmower battery	2 - 3 ml/cell		
9 - PLATE - NS40 equivalent	smaller car battery	4 cylinder cars	3 - 4 ml/cell
11 - PLATE - NS70 equivalent	standard car battery	6 - 8 cylinder cars	4 - 5 ml/cell
15 - PLATE	light commercial	diesel vans & utes	7 - 8 ml/cell
17 - PLATE	medium commercial	tractors/light trucks	8 - 10 ml/cell
21 - PLATE - N120 equivalent	heavy commercial		10 - 12 ml/cell
21 - PLATE - N150 equivalent			12 - 15 ml/cell
21 - PLATE - N200 equivalent	(For larger batteries use 10 ml of recharge per litre of electrolyte)		15 - 20 ml/cell

CAUTION

Lead acid batteries contain a sulphuric acid electrolyte. Care should be taken to avoid skin or eye contact with this electrolyte, recharge, or any cleaning formulations recommended on this information sheet. Gloves, eye protection and protective clothing should be worn whenever handling batteries (if contact or poisoning occurs, see FIRST AID overleaf). Avoid exposing batteries to sparks or naked flame, especially while charging. In the case of a spill, dilute with a fine mist of water.

recharge as a conditioner (sulphation preventative)

Sulphation often causes mechanical faults in a battery by expanding and distorting the internal plates. Ideally, recharge should be used to prevent sulphation build-up before these mechanical faults occur, as this will help extend battery life.

Conditioning Process

Once the battery is out of warranty (approx 2 years), it is recommended you drain most of the current from the battery. As most people know, leaving headlights on (or something similar) can achieve this. It is not necessary to completely flatten the battery.

Put the correct amount of recharge into each cell and charge the battery for 24 hours as per instructions. Provided the battery is used occasionally (i.e. some current is passing through the battery), recharge will keep fighting sulphation build-up for 18 months to 2 years.

If the battery is sitting for long periods unused, place it on a trickle charger overnight occasionally. Repeat treatment every 18 months to 2 years. It is recommended that recharge should be used no more than three times in the life of the battery, otherwise the specific gravity of the electrolyte may become unbalanced.

First-time user information

recharge works best in 1. an in-use situation to increase performance and longevity 2. as a battery is just starting to get to the end of its life. recharge is not a cure-all; some batteries have internal damage or are simply worn out.

Do not try to recover batteries that have been left sitting discharged (flat) for long periods of time. Most batteries are unable to be recovered if left discharged for 6 months or more because 1. sulphation will have become so bad that removal is virtually impossible or 2. mechanical faults will have occurred. Even leaving a battery discharged for 2 or 3 months will lower the success rate of recharge. Success rates also depend on the past use of the battery.

recharge is very effective for batteries where the vehicle is not used very often.

Load testing

For the most efficient use of recharge in recovery situations, a load tester should be used on the battery which is to be treated. If the reading falls to zero when the battery is put under load, the battery has a short circuit and recovery is unlikely.

The Recharge conditioning process is:

once a battery has reached one to two years of age turn on the lights or partially drain some power from the battery, treat with the recommended amount and charge the battery on a trickle charger. This will dissolve any sulphation build-up that has occurred in the early part of the battery's life and help reduce any further build-up. Treatment should be repeated every 2-3 years, intermittent charging of the battery every six months or so is also advisable to ensure the battery stays in top condition. Recharge can be used up to three times in the life of the battery.

Handy hints

1/ Once the battery has been dosed with the required amount use the applicator to mechanically stir the Recharge into the electrolyte by sucking up and blowing the electrolyte back into each cell 3 or 4 times. It is very important to mix Recharge into the electrolyte electronically by charging the battery on a mains powered plug in charger. 2/ With tired or dead batteries once the battery has been treated and has been on the charge for a few hours give the battery a good shake up and/or drop it lightly onto a clean hard surface to dislodge any hard to dissolve deposits. 3/ Discharging and recharging the battery a second time often helps.

Battery Volume Calculation

For large deep cycle or odd shaped batteries, dose at 10ml per litre of electrolyte. Electrolyte is generally about 60% of total battery volume. To calculate the volume measure and multiply, height x width x depth of the battery in millimetres, this gives millionths of litres.

Eg. Say a battery measures - 200mm x 200mm x 250mm = 10,000,000 millionths

= 10-Litres total battery volume 10-Litres total volume x 60%

= 6-Litres of electrolyte, treat @ 10ml per litre = 60ml for that battery.

A battery cell is 2-volts so a 12 volt battery has 6 x 2 volt cells, so treat that battery at 10ml/cell.

A six-volt battery has 3 cells, treat at 20ml/cell and a 2-volt battery will get the full 60ml

Disclaimer:

Recharge is acid based and very corrosive. The makers take no responsibility for damage caused by misuse or abuse of this product. Please READ & FOLLOW THE INSTRUCTIONS carefully.

recharge success rates

recharge has been especially formulated to work to strip away lead sulphate crystalline formation from the battery plates, allowing the battery to accept and retain its charge more efficiently. However, it must be noted that batteries wear out for several reasons other than sulphated plates (although sulphation is probably the most common cause).

Tests indicate that 30 to 40% of failing batteries will again accept and retain close to a full charge when treated with recharge. A further 30 to 40% will demonstrate improved performance. 30 to 40% will not improve performance to any significant degree due to other physical or mechanical problems within the battery.

If recharge fails to bring new life to a run-down but otherwise mechanically sound battery, check 1. the terminals 2. the voltage regulator 3. the generator or alternator 4. any electrical connections and switches to ensure there is no electrical discharge or short anywhere in the circuitry.

POISON

Keep out of the reach of children.

First Aid: For ingestion, give a small amount of milk or water and seek medical advice immediately. For eye or skin contact, flush with water for 15 minutes and seek medical advice. The New Zealand National Poisons Centre emergency number is (03) 373 7000. recharge contains Phosphoric Acid as a base, Class 8, UN 1805, PG III, 2R.

Storage: Store in a cool dry place, Avoid incompatible substances (e.g. alkalis, oxidising agents, reducing agents, metals or alloys or any combustible material). Keep away from food.

Spills: In the case of spills, dilute with (a fine mist of) water (2R). Note: Rinse the dispenser thoroughly with water after use.

Disclaimer: Neither Endeavour Marketing Ltd nor Gee & Jay Products Ltd accept responsibility for any damages caused through misuse or abuse of this product, or from any spills or leakage of this product. recharge is a corrosive substance - please handle with care.

Batteries are extremely toxic - please dispose of old batteries at a recycling facility.