

BATTERY



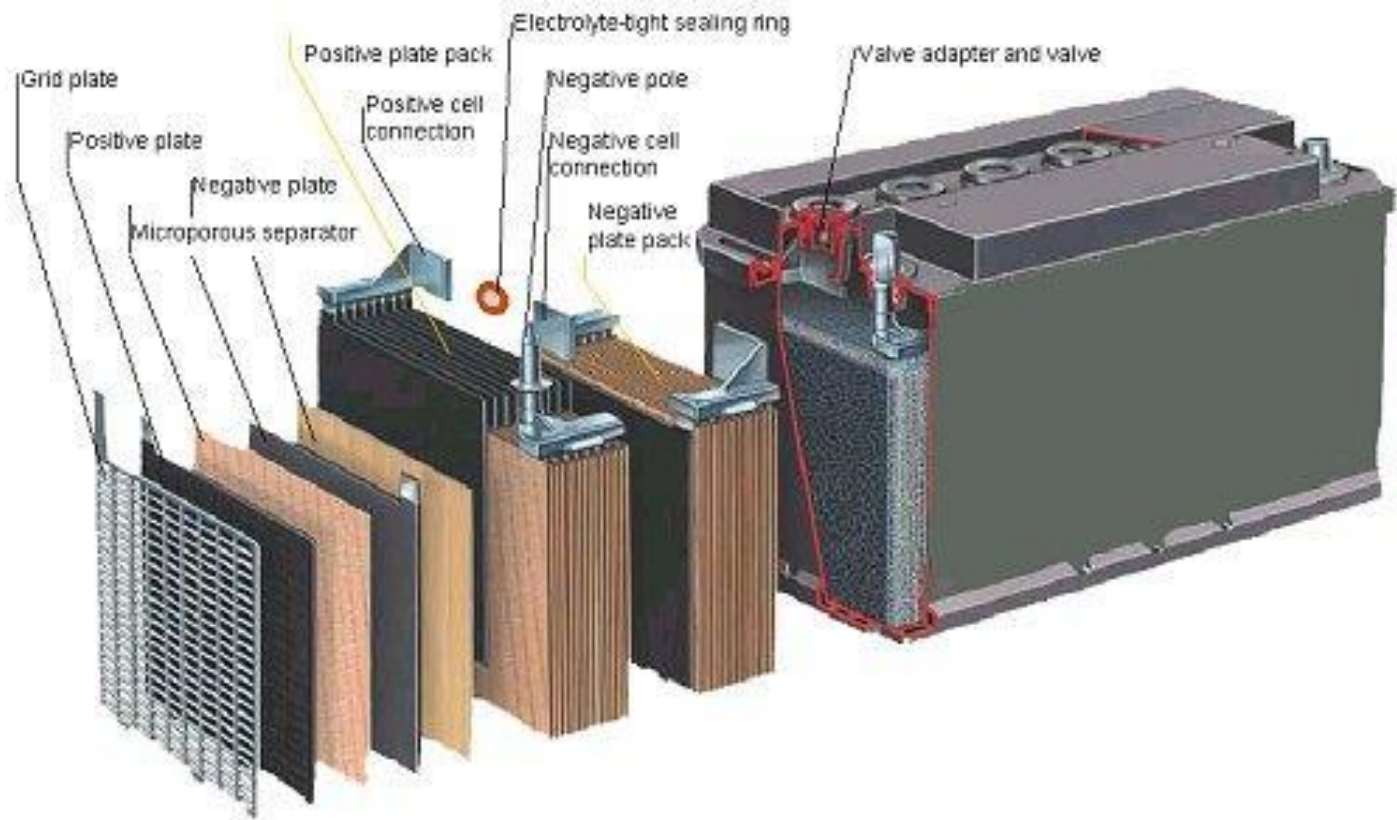
BATTERY



- Converts chemical energy into electrical energy.
- Stores energy
- Starts engine, operates accessories (*only when engine is not running*)
- Automotive battery is 12.6 volts

BATTERY

- Six cells, each 2.1 volts.
- Each cell has a negative and a positive plates
- Plates are immersed in electrolyte (*60% Water & 40% Sulfuric Acid*)



BATTERY

- Two posts – Negative (*Ground/black*); Positive (*Power/red*)

- Top post battery



- Side post battery



- Maintenance-free



- Maintenance



BATTERY

- During charging, battery produces Hydrogen.
- Electrolyte is lost during charging
 - Only water vaporizes
 - Add water

Specific gravity of a battery is checked with a hydrometer.

- Water if specific gravity is 1.000
- Electrolyte if specific gravity is 1.275



- ***Do not let electrolyte to come in contact with clothes or skin**
- **Wear proper eye protection when working with or around battery.**

BATTERY RATING

- **20 hours rate** amount of current a battery can deliver for 20 hrs. without cell voltage dropping below 1.75 volts.
 - **Cold Cranking Rating** current a fully charged battery can deliver at 0°F, for 30 seconds, at 7.2 volts.
 - **Reserve Capacity** time required to reduce voltage of a battery from 12.6 volts to 10.5, when sustained load of 25 Amps is applied at 80°F.
- ** Battery is discarded if voltage drops less than 9.6 volts.

BATTERY TEST

LOAD TEST



- Load to three times the amps/hour rating for 15 seconds
or
- Load half of CCA for 15 seconds

If battery is good, voltage should stay above 9.6 volts.

BATTERY TEST

If Load Test Fails

3 Minutes Charge Test

If load test is failed, charge at high rate (50 Amps) for three minutes
Checking voltage at completion (while still charging)

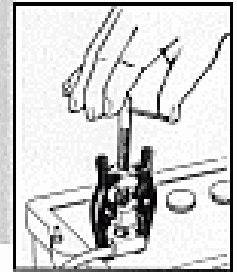
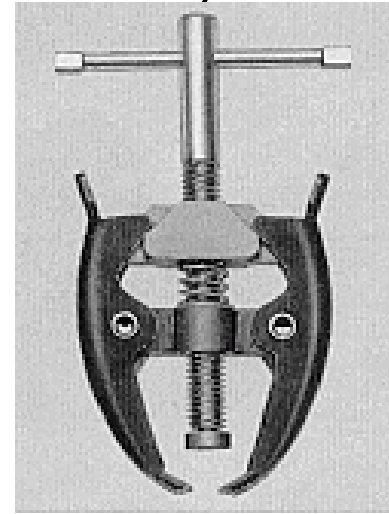
Good battery >> Less than 15.5 Volts



Removing Battery

- Disconnect **Negative (-)** terminal first
- Connect **Positive (+)** terminal first

Use proper puller, **not Screwdriver**



Clean terminals/posts with

Or with baking soda mixed with warm water



Battery Service

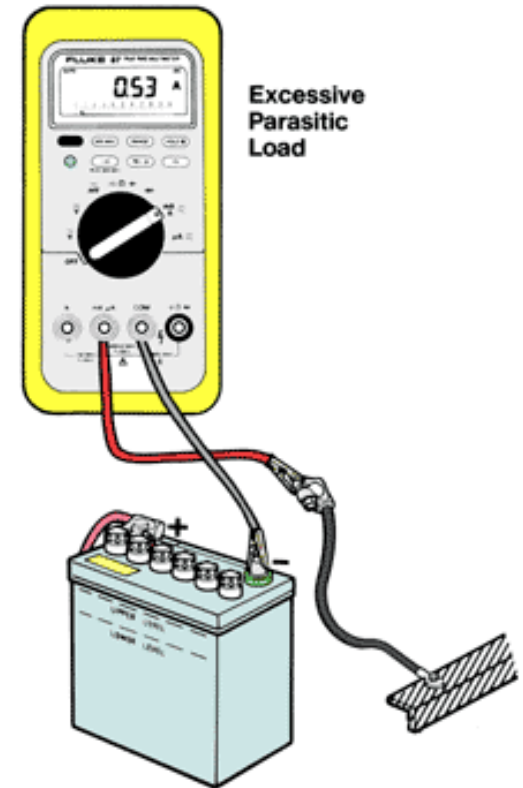
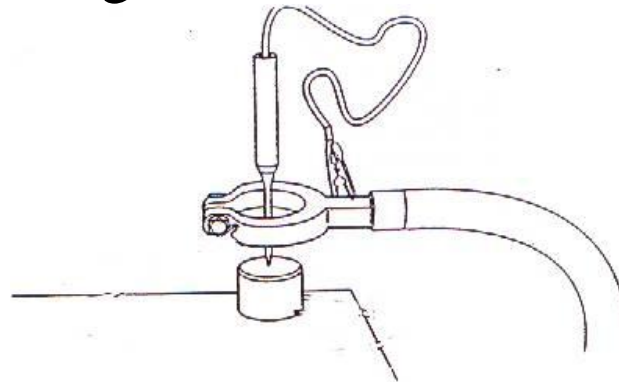
When installing the terminals, use Expander to expand the terminals, **DON'T use hammer.**



Battery Drain Test

If battery is draining over night, you need to perform a battery drain test

- Remove -ve terminal
- Hook DVOM or test light in series with the post/terminal.
- With everything off, no light on/voltage reading.
- If light on/getting voltage reading, battery is being drained.
- Isolate the circuit by pulling one fuse at a time.

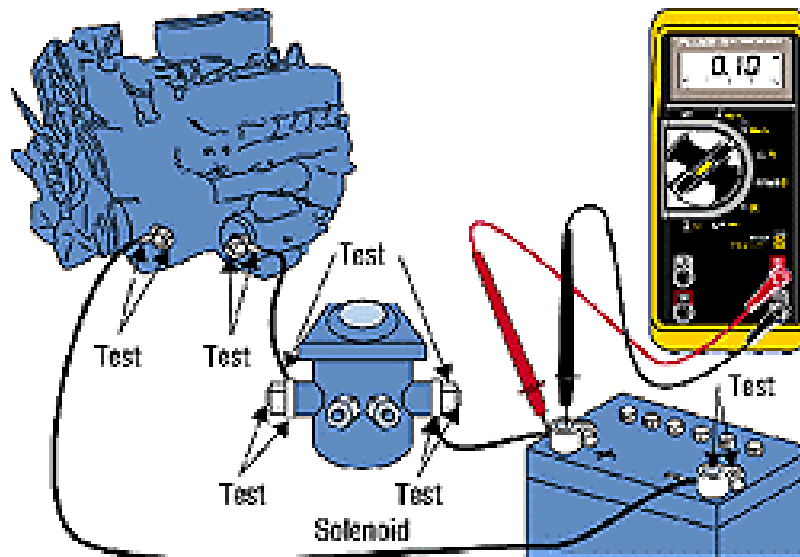


Voltage Drop Test

Quick check to find if terminals needs cleaning:

- Measure voltage drop across post to terminal
- Crank the engine (disable Fuel/ignition)
- While cranking, if reading over 0.5V indicates terminal cleaning.

MAXIMUM 15 seconds



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