

**Valve Regulated
Lead Acid Battery**



Lead Acid Battery Terminology Glossary

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"Making More Power"

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Absorbed Electrolyte		The electrolyte in a battery is absorbed in an Absorbent Glass Mat between the plates to ensure that there is no free liquid electrolyte to spill or leak from the cell. The battery using this technology is typically referred to as an AGM battery.
Absorbent Glass Mat	AGM	A blotter-type separator used between the plates in an AGM battery. The absorbent glass mat separator absorbs all the free liquid electrolyte, thus immobilizing the electrolyte.
Acceptance Test		A controlled discharge of a new battery at either a constant current (expressed in amperes) or constant power (expressed in watts) rate to determine its actual capability as compared to the user's specification or manufacturer's ratings.
Accumulator		See Battery
Active Material		The material in a lead acid battery involved in the electrochemical reaction to produce a current. Materials include the lead dioxide (PbO_2) of the positive plate, sulfuric acid (H_2SO_4) in the electrolyte and sponge lead (Pb) of the negative plate.
Ampere	A	A unit of measure of electron current flow through a conductor. The flow of 1×10^{26} electrons per second in a conductor. Amperes are measured by an ammeter.
Ampere-Hour	AH	The product of multiplying the ampere flow by the time over which it flows. For example, five amperes flowing for eight hours produce 40 ampere-hours.
Antimony	Sb	A metal alloyed with lead to improve the strength and castability of the grids. Antimony is normally used only in lead acid batteries in cycle service, and where make-up water may be added. It is not normally used in VRLA batteries due to its relatively high gassing rate.
Autonomy		The time during which the battery must supply power to the load.

Average Voltage		The average of the battery terminal voltage during a discharge. Battery terminal voltage will actually decline during discharge from the open circuit voltage to the end point voltage.
Battery	B	Two or more cells connected in series. The nominal open circuit voltage is two volts per cell. For example, a 12 volt battery would have six two volt cells connected in series. See Cell .
Battery Rack		A stand on which individual batteries are installed. Racks are typically rated for their seismic capabilities and act to support the batteries.
BCI		The acronym for Battery Council International, consisting of a group of Starting, Lighting and Ignition (SLI) battery manufacturers who issue standards related to SLI batteries and establish standard dimensions (group sizes) for batteries used in automotive applications.
Boost Charge		Charging the battery at a maximum allowable voltage for a defined period to ensure the battery is at maximum capacity.
Bunsen Valve		A type of pressure relief valve based on a rubber cap or ring, which, under normal conditions, closes an opening in a cell and temporarily deflects to provide pressure relief upon the buildup of excessive cell pressure within the cell. Bunsen valves are typically used in Valve Regulated Lead Acid (VRLA) batteries.
Cable		An insulated group of flexible twisted wires, usually copper, used to interconnect individual or groups of batteries. Examples include: inter-unit cable connectors, inter-tier cable connectors and inter-rack cable connectors.
Cabinet Battery System		An enclosed metal case containing a complete battery system of individual series connected batteries. It may or may not include required fuses or circuit breakers for protection of the connecting cable.

Calcium	Ca	A metal alloyed with lead to improve the strength and castability of the lead grid. Normally used with maintenance free and VRLA batteries due to its minimal impact on the battery gassing rate.
Capacitor	C	An electrical component capable of storing and releasing a charge via the action of an electrostatic field between two parallel metal plates. Typically used in filter networks, along with inductors or chokes, to smooth the AC ripple voltage which may appear at the output of a DC power source.
Capacity		The ampere-hour or watt-hour rating of a cell. Lead acid batteries are typically rated in ampere-hours at either a 5, 8, 10 or 20 hour discharge rate. For example, a battery that could produce five amperes of current for 20 hours to a minimum voltage of 1.75 volts per cell would be rated as a 100 ampere hour battery at the 20 hour rate ($C_{20} = 100 \text{ Ah}$).
Capacity Test		A constant current or constant power load is applied to a battery under standard temperature conditions to determine its actual ampere-hour or watt-hour capacity at the particular discharge rate.
Cell	B	An individual electrochemical device composed of two electrodes of dissimilar metals (active materials) and an electrolyte. When the electrodes are immersed in an electrolyte, the cell will produce a voltage differential between electrodes. When connected to electrodes, the cell will produce a current through an external circuit. In the lead acid battery, the electrodes are lead dioxide (PbO_2) and sponge lead (Pb). The electrolyte is a solution of sulfuric acid (H_2SO_4) and water (H_2O). The lead acid battery has a nominal voltage of two volts per cell.
Cell Reversal		When the normal positive (+) to negative (-) polarity of a cell is reversed due either to incorrect connection of the charger or the discharge of the lowest capacity cell in a series-connected group of cells beyond the recommended end point voltage.

Charge Efficiency		The ratio of the ampere-hours removed during discharge to ampere-hours recharge required to restore 100% state of charge multiplied by 100%
Charge Retention		The capacity retained following specific storage conditions and a specified period of time. See Self Discharge , Shelf Life , and Local Action .
Charger		A Direct Current (DC) power supply used to supply current to a battery to restore the ampere-hours capacity removed during the discharge.
Charging		The process of restoring the ampere-hours removed from a battery during discharge. Approximately 108% to 115% of the ampere-hours discharged must be restored to attain a full state of charge.
Choke	L	See Inductor .
Circuit		A closed path that can conduct an electric current.
Circuit Breaker	CB	An electro-mechanical device, similar to a switch, which will automatically open a circuit when excessive current is flowing in the circuit. It is used to protect the circuit components and wiring from overload damage. A circuit breaker can also be manually operated like a switch.
Cladded Battery Rack		An open battery stand to which metal or plastic sides have been added to prevent access by unauthorized personnel. These provide easy removal of the sides for maintenance.
Closed Circuit		A completed circuit through which current can flow when a switch in the circuit is either "On" or "Closed."
Cold Cranking Amperes	CCA	The number of amperes a battery can supply at 0°F (-17.8°C) for 30 seconds to an end point voltage of 1.2 volts per cell. This rating is typically used with automotive (SLI) lead acid batteries.
Conductance	Mho	A measure of a material's ability to conduct current. It is the reciprocal of resistance.

Conductance Meter		A test instrument that applies an AC voltage across the electrodes of a battery and measures the resulting AC current flow to determine the conductance of a battery.
Conductor		A material with the capability to carry a current or flow of electrons. For example, copper wire is a conductor.
Constant Current	cc	An electron flow through a conductor (a current) that does not vary significantly from a present value. During discharge, a constant current drain can be maintained by reducing the resistive load as the battery voltage normally declines. To recharge a battery at a constant current level, the charging voltage must increase as the battery cell voltages increase.
Constant Voltage	cv	A voltage that does not vary significantly from a preset value. When recharging a battery at constant voltage, the current acceptance will decline as the battery cell voltage rises. The battery cannot be discharged at a constant voltage. The battery voltage normally declines during the discharge.
Constant Power	cP	DC power in watts is equal to the product of voltage multiplied by current in amperes. A constant power discharge occurs when the load current is increased during the discharge by an amount proportional to the normal decline in battery voltage.
Container		See Jar .
Counter Electromotive Force	CEMF	The battery voltage plus and voltage drop occurring due to the battery's internal resistance and current flow in the battery.
Critical Load		The equipment to which the battery supplies power during a commercial power failure.
Current	or	The flow of electrons or amperes through a conductor.
Cut-Off Voltage		See End Point Voltage .

Cycle		The discharge of a battery followed by recharging to full capacity. See Deep Cycle and Shallow Cycle .
Cycle Life		The number of times a battery can be discharged and re-charged under a specific set of conditions until the battery capacity declines to a specified minimum value (usually 80% of the battery's rated capacity).
Cycle Service		An application where the battery is the primary source of power, such as in portable instruments, wheelchairs and golf carts. The life of batteries in cycle service is usually defined in terms of the number of deep cycles to be delivered.
Deep Cycle		A battery discharge consuming more than 80% of the battery's rated capacity. Deep cycling typically occurs in recreational vehicle, wheel chair and golf cart applications. See Cycle .
Depth of Discharge	DOD	The product, expressed as a percentage, achieved by dividing the ampere-hours removed during discharge by the total rated ampere-hour capacity of the battery.
Diode	D	A semi-conducting crystal that restricts the flow of current to just one direction. It is commonly used to convert AC current to DC current.
Direct Current	DC	An electron flow through a conductor that travels in only one direction. A battery produces a DC voltage and current.
Discharge		The operational state during which the battery is delivering current to a load. The rate of discharge is the number of amperes being delivered.
Dry-Charged		An individually formed plate or a completed lead acid battery drained of all electrolyte that has undergone a special drying process. The plate or battery can then be stored for indefinite periods of time with only minor degradation due to sulfation. At a later date, the plate or battery is activated by the addition of the electrolyte and application of a special charging regimen.

Dry-Out		Resulting from significant overcharging, dry-out refers to the total loss of electrolyte due to gassing.
Dual Rate Charger		A charger with two output voltages used to charge batteries. One is usually at the lower recommended float voltage, while the other is usually at the higher recommended equalization voltage.
Duty Cycle		The battery's sequence, magnitude and duration of loads.
Efficiency		The ratio of output power of a device to the power applied. Efficiency = power out/power in
Electric Circuit		A conductive path through which current can flow. A copper wire can form an electric circuit.
Electricity		The flow of electrons through a conductive medium such as a copper wire.
Electrode		The positive or negative plate of a lead acid battery
Electrolyte		Any acidic, basic, or salt solution capable of conducting current. In a lead acid battery, the electrolyte is a dilute solution of sulfuric acid (H_2SO_4) in water (H_2O).
Electrolyte Reserve		When a battery has more electrolyte acid available than that required to fully react the active materials of the plates. When fully discharged, there will still be sufficient conductive acid available in the electrolyte to carry significant recharge current.
Electrolyte Starved		When a battery has insufficient electrolyte acid available to fully react all the active material of the plates. When fully discharged, the acid is almost fully consumed from the electrolyte, and initial recharge current acceptance may be reduced. This is typical of SLI and VRLA batteries.
Electron	e^-	A negatively charged particle that orbits the nucleus of an atom. When displaced from the orbit, the electron is free to flow as an electric current.

Element		The assembled set of positive and negative plates and separators that comprise a cell when inserted into a container.
End of Life	EOL	The point in the operational life when a battery can only deliver 80% or less of rated capacity.
End Point Voltage	EPV	At a battery's specific discharge rate, the voltage under load when the discharge is considered complete.
Equalize Charge		The restoration of power in a battery at a maximum allowable voltage for a defined period of time. This brings all series-connected cells to a maximum state of charge and equalizes the charging voltage across the individual cells. See Charge .
Fast Charge		A recharge occurring at higher voltage and current capability to restore the battery to 95% state of charge in one to five hours.
Float Charge		Having a battery on continuous charge at a low recommended voltage to maintain the battery at a full state of power while minimizing overcharge. See Charge .
Float Service		An application where the battery is continuously connected to a charger and is seldom required to deliver any significant Ampere-Hours to the load. Typically, Float Service batteries are used for standby power in emergency lighting, cable TV, telecommunications, UPS systems, and automotive engine starting.
Float Voltage	V_f	The voltage at which the battery is maintained on float charge. See Float Charge .
Floating Ground		The voltage reference point for an automobile, usually being the frame of the vehicle. See Ground .
Flooded Cell		A lead acid battery with a liquid electrolyte, or a vented cell where the gasses produced through overcharging are vented directly to the atmosphere.

Formation	The electro-chemical process through which the lead oxide (PbO) pasted onto the grids in manufacturing is converted to the active materials of lead dioxide (PbO ₂) on the positive plate and porous metallic lead (Pb) on the negative plate.
Freshening Charge	The charging of batteries in storage to assure they are maintained in a near maximum state of charge and to ensure there is no deterioration of the battery plates due to self-discharge and sulfation. This process is usually performed using the recommended equalization or cycle service charging voltage.
F	A circuit overload protective device containing a metallic component that melts when prescribed current limits are exceeded, thus opening the circuit.
Gassing	The evolution of hydrogen and oxygen, along with other gasses, from the lead acid battery during periods of overcharging as a result of electrolysis of the water in the electrolyte.
Gassing Voltage	The charging voltage at which the cell will start to generate and expel gas.
Gelled Electrolyte	A liquid electrolyte with fumed silica added as an immobilization technique. The result is a spill-proof battery capable of supporting an oxygen recombination cycle. See Oxygen Recombination Cycle.
Gravity	See Specific Gravity. The lead alloy frame to which active materials are pasted . The grid provides the conductive path for the electron current during charging and discharging of the battery. The assembly of the grid and pasted active materials form the plate of the battery.
Ground	A voltage reference point. In an automobile, the ground (See Floating Ground) is the frame of the vehicle, referred to as a floating ground. In a dwelling, it may be a conducting path connected directly to earth.

Ground Fault Detection		The monitoring of voltage from a battery's terminals to ground in order to identify whether a short circuit to the ground exists.
Group		An assembly of plates with like polarity, (either positive or negative) connected in parallel via a strap within a cell.
Half Cell Voltage		The voltage of the positive and negative plates with respect to a third electrode, such as a mercury-mercuric sulfate probe, when immersed in the electrolyte.
High Rate Discharge		A discharge at a current greater than that of the one hour discharge rate. Typically this is the one through 30 minute rates.
Hydration Short		When a cell is over-discharged and not recharged within a short period, the plates' lead sulfate, which is more soluble in water than in acid, can go into solution with the low specific gravity electrolyte, and then penetrate the separators. Upon recharging, the lead sulfate in the separators is converted to lead and a short circuit develops through the separator.
Hydrogen	H₂	A colorless, odorless gas given off at the negative plate of a lead acid battery due to electrolysis of the water in the electrolyte during periods of overcharge. Hydrogen can reach an explosive level at a 4% concentration in air.
Hydrometer		An instrument used to measure the specific gravity of a liquid electrolyte. See Specific Gravity .
IEEE		The acronym for the Institute of Electrical and Electronic Engineers, a group who publishes standards manuals concerning the selection, sizing, application, installation and maintenance of lead acid batteries.

Immobilized Electrolyte		Typically, liquid electrolyte is either absorbed into a blotter-type separator of glass fibers (AGM) or is converted to a gel, rendering it immobile. This ensures that there is no free liquid electrolyte and allows the battery to be used in any orientation without spillage. See Gelled Electrolyte .
Impedance	Z	The resistive and reactive characteristics of a material that opposes the flow of current through the material. An AC signal is used to measure impedance.
Inductor	L	Numerous turns of wire, usually wrapped around some type of iron core, which present inductive reactance to the flow of an AC current. Also referred to as a choke, an inductor is typically used in circuits to eliminate the AC ripple from the output of a DC power source.
Initial Charge		The charge applied to a battery when it is first installed. The initial charging voltage is typically the same as that used for equalization.
Initial Voltage	V_i	The minimum voltage to which a battery first declines when a current is drawn from the battery.
Insulator		A non-conducting material such, as glass fibrous matting, plastic, or rubber.
Inter-cell Connector		An electrically conductive wire, buss bar or strap used to connect two individual cells in series or parallel.
Internal Resistance	R_i	Expressed in ohms, the total DC resistance to the flow of current through the internal components (grids, active materials, separators, electrolyte, straps, intercell welds and terminals) of the battery.
Ion		An atom with more or fewer electrons than required to remain in equilibrium. Out of equilibrium, the atom becomes negatively or positively charged and can act as a current carrier. Ions, rather than electrons, are the current carriers of an electrolyte.

IR Drop	IR	The reduction in total voltage appearing at the terminals of a battery when a load is applied. It is the product of the battery's current, expressed in amperes (A or I), multiplied by the internal resistance, expressed in ohms.
Jar		The container in which the cell element and electrolyte are contained.
Jumper Cables		Portable cables used to convey current from one battery to another. See Cable .
Kilo-	K	Metric prefix for 1000. For example, one kilovolt would be 1000 volts.
Kilowatt	KW	One thousand watts.
Kilovolt - Ampere	KVA	One thousand volt-amperes. The output of a UPS is typically rated in volt-amperes.
Lead Alloy		A mixture of lead and another metal, (commonly antimony, tin or calcium) created to enhance certain characteristics of the metals during either the manufacturing process or its application.
Lead Acid Battery		A rechargeable electro-chemical device used to store and produce electrical energy. The active materials are lead dioxide, sulfuric acid and metallic lead. The individual cell has a nominal voltage of two volts DC.
Lead Oxide	PbO	Particles of oxidized lead are combined with water and sulfuric acid and made into a paste. They are then applied to the lead acid battery grids. Later, the lead oxide is converted to active material through the formation process. See Formation .
Lead Dioxide	PbO₂	The active material of the positive plate in a battery.
Lead Sulfate	PbSO₄	The product resulting from the discharge of the active materials of the plates. This may be the result of an active discharge of the battery or local action.
Load		The amount of current supplied by a battery to the device being powered.

Load Bank		An assembly of resistive elements connected in parallel or series-parallel to present a load of pre-determined amperes to the battery. There are both DC and AC rated load banks, and they may not be used interchangeably.
Load Tester		Hand-held resistive device used to place a test current on the battery while the resulting battery terminal voltage drop is monitored.
Local Action		A reaction between the sulfuric acid electrolyte and the active materials of the plates resulting in the slow discharge of the plates and in the formation of lead sulfate on the plates and consumption of the acid in the electrolyte. Evidence of local action includes declining electrolyte specific gravity and terminal voltage. The condition can be reversed by application of a freshening charge to the battery. Local action is increased at elevated temperatures.
Marine Cranking Amps	MCA	The current a battery produces for 30 seconds at 32°F without the terminal voltage declining to below 1.2 volts per cell.
		A unit of electrical conductance equal to the reciprocal of resistance. Mho is the backward spelling of Ohm.
Micro-	u	Metric prefix meaning 1/1,000,000. One microampere is equal to 0.000001 amperes.
	m	Metric prefix meaning 1/1,000. One milliampere is equal to 0.001 amperes.
Maintenance Free	MF	In terms of electrolyte maintenance, VRLA batteries require no addition of water.
Monoblock		A battery consisting of two or more series-connected cells in a single container. A 12 volt battery is a monoblock consisting of 6 series-connected 2 volt cells.
Monocell		A single-cell battery. Several monocells may be connected to provide increased voltage or capacity.

Mossing		Mossing can occur in vented cells where sloughed active positive material will circulate in the electrolyte and reform as negative material as it touches and adheres to the negative plate. It can result in shorted cells when it occurs at the top of the plates and bridges the separators. This process is also referred to as treeing.
Multicell		See Monoblock .
Negative Plate		The gray plate in a lead acid battery. It contains the metallic lead active material, and expels the electron current during discharge.
Negative Terminal	NEG(-)	The terminal of a battery connected to the negative plates and to which the external load and charger connections are made.
Nominal Voltage		The approximate open circuit voltage of a cell or battery. For example, the nominal voltage of a lead acid battery is 2 volts per cell, but the actual voltage is higher and is a function of the electrolyte specific gravity.
Ohm	Ω	A unit of electrical resistance. When one volt is applied across a resistor with one ohm of resistance, a current of one ampere will flow through the resistor.
Ohm's Law	$I = V/R$	Equation used in circuit analysis which states that the current flowing through a circuit is proportional to the voltage applied and is inversely proportional to the resistance of the circuit.
Open Circuit		An interrupted conductive path or circuit. The circuit's switch would be in the OFF position, and current could not flow.
Open Circuit Voltage	OCV	The voltage at the battery terminals when no load is connected. The OCV is equal to the electrolyte SG +0.84. See Load .
Open Battery Rack		A frame on which individual batteries are mounted. They are totally exposed to view for ease of visual inspection and maintenance.

Opportunity Charging	Used with batteries in cycle service, it is the charging of the battery between partial discharges rather than waiting for the battery to be completely discharged.
Overcharging	Continued charging of the battery after it has reached 100% capacity.
Over-Discharge	Discharge of a battery to a voltage lower than that recommended for the particular discharge rate.
Oxygen Evolution	The production of oxygen gas at the positive plate as a result of the electrolysis of water in the electrolyte during overcharging.
Oxygen Recombination Cycle	In a VRLA battery, the process whereby the oxygen evolved at the positive plate diffuses through the separator to react with the negative plate and suppresses water loss. This is the characteristic that distinguishes the VRLA battery from vented lead acid batteries.
Parallel Connection	Individual cells or batteries of the same voltage interconnected with all the Pos (+) terminals connected together and all the Neg (-) terminals connected together. The capacities of the individual units are cumulative.
Pasting	The process of applying a paste consisting of lead oxide, water and sulfuric acid to the lead alloy grid of the plate.
Pasted Plate	A lead alloy grid to which the active materials, in a paste form, have been applied.
Performance Capacity Test	A capacity test performed under the same conditions as the original acceptance capacity test to determine what, if any, degradation of capacity has occurred. Any capacity below 80% of rating is indicative of the need to replace the battery. See Acceptance Capacity Test .
Pilot Cells	Cells within a battery selected to represent the state of the entire battery. See Cells .

Planté Plate		Named for its 1859 developer, Gaston Planté this is one type of positive plate used in a lead acid battery. It is a solid lead plate on which the active materials are electrochemically formed rather than having been pasted onto the plate.
Positive Plate	Pos. (+)	The thick, brown to black plate in a lead acid battery containing the lead dioxide active material. Typically, the characteristics of the positive plate will determine the life and performance of the battery.
Positive Terminal		The terminal attached to the battery positive plate group and to which external load and charger connections are made.
Power	W (watt)	During discharge, the battery output power in watts is equal to the terminal voltage multiplied by the output current in amperes.
Power Factor	p.f.	A term related to AC circuits. The ratio of real power to apparent power. $pf = \text{watts/volts} \times \text{amperes}$.
Primary Battery		A battery that cannot be recharged.
Rated Capacity		The ampere-hours or watt-hours a battery delivers under standard conditions at a specified discharge rate to a specified end point voltage. See Standard Conditions and Standard Discharge Rate .
Recombinant		The process whereby the oxygen formed at the positive plate diffuses to the negative plate, reacts with the lead and suppresses water loss.
Rectifier		As a circuit component, it converts AC power to DC power. It is also used to describe a DC power supply used to charge the battery and power the critical load.
Recycling		The recovery of reusable lead, acid and plastic from spent lead acid batteries.
Reserve Capacity		A measurement of the minutes a battery can supply 25 amperes to an end point voltage of 1.75 volts per cell. This rating is used with automotive (SLI) and marine batteries.

Resistor	R	A circuit component used to oppose the flow of current.
Retainer		A glass fiber mat attached to the ribbed side of a separator and placed against the positive plate in the assembled element. A retainer's function is to hold the sloughed positive active material in place and thus improve the plate cycle life.
Secondary Cell		A rechargeable cell.
Sediment		The material shed from the positive and negative plates in a vented (liquid electrolyte) cell. It settles to the bottom of the cell into the sediment basin.
Seismic Rack		A reinforced battery stand with cell retaining rails designed to withstand the forces imposed during a earthquake.
Self Discharge		See Local Action .
Separator		An insulating material, usually rubber, plastic or glass fibrous matting, used to isolate the positive and negative plates and prevent them from touching one another or shorting out.
Series Connection		Individual cells or batteries of the same capacity interconnected with the Neg (-) terminal to the Pos (+) terminal of the next battery in the sequence. The voltages of cells or batteries will be cumulative.
Shallow Cycle		Cycles where the battery consumes less than 5% of its capacity during the discharge. Automotive (SLI) batteries typically experience shallow cycles during engine starting.
Shelf Life		The period of time a battery can be in inventory without the requirement of a boost or freshening charge.
Short Circuit		An unintended conductive path between poles of different polarity. When a short circuit exists within a cell, its open circuit voltage will eventually decline to zero.

SLI		The acronym for a Starting, Lighting and Ignition battery. An SLI battery's design is optimized for high rate cranking current delivery and is used in automotive applications. It is not designed to provide long life in continuous float service.
Slow Charge		Recharging a battery at a low current rate; for example, charging a battery at the C/20 rate or lower would be a slow charge.
Specific Gravity	SG	Specific Gravity (SG), or gravity, is a measure of the density of a liquid as compared to that of water, which has a SG of 1.000. For example, pure sulfuric acid has a specific gravity of 1.835. Lead acid battery electrolyte is a mixture of water and sulfuric acid, which typically has a specific gravity of between 1.200 and 1.300.
Standard Conditions		Varying between countries, a widely recognized and specific set of temperatures and end point voltages by which a battery's output is measured. In North America, standard conditions are 77°F (25°C) to an end point voltage of 1.75 volts per cell. In some countries, the standard conditions are 68°F (20°C) to an end point voltage of 1.8 volts per cell. See Standard Discharge Rate and Rated Capacity .
Standard Discharge Rate		A function of the intended application, the accepted rate at which the battery delivers current. For example, an 8 hour rate is normally used for telecommunications batteries, a 20 hour rate is used for general purpose batteries, and a 15 minute rate is used for UPS batteries.
Stationary Battery		A battery used in a fixed position and usually mounted in a rack, cabinet or stand, as opposed to a battery used in a mobile application.
Service Life		The period of time during which the battery continues to meet the requirements of the application but is not at less than 80% of the rated capacity.

State of Charge	SOC	Expressed as a percentage, the quotient of the remaining ampere hours (AH) in a battery divided by the rated capacity of the battery.
Strap		The lead casting that joins the element plates of like polarity in parallel.
Stratification		The tendency of the heavier sulfuric acid in the electrolyte solution to separate from the water and settle to the bottom of the container.
Sulfuric Acid	H₂SO₄	The active material of the electrolyte in a lead acid battery.
Sulfation		The creation of lead sulfate (PbSO ₄) on the positive and negative plates of the lead acid battery during normal discharge and self discharge.
Switch		A device placed in an electric circuit to open (disconnect) or close (connect) the conductive path
Taper Charge		A cycle service charging technique using an unregulated charger. As the current acceptance of the battery declines, the charger's output voltage rises.
Thermal Runaway		A condition where a battery generates more heat than can be dissipated and eventually melts the plastic jar. This is often the result of float charging in a hot environment with either little ventilation or shorted cells. See Float Charge .
Transformer		Normally used to obtain a voltage higher or lower than the commercial line voltage and to provide circuit isolation from the source, it is composed of primary and secondary coils of wire wrapped around an iron core. The transformer provides an AC voltage on the secondary coil equal to the ratio of turns of wire on the primary to secondary windings.
Treeing		See Mossing .
Trickle Charge		A very low rate constant current charge to maintain a battery at a full state of charge.

The acronym for Uninterruptable AC Power Supply, a UPS battery has a component battery emergency power source to supply power during commercial AC power outages.

VRLA

The acronym for Valve Regulated Lead Acid battery. See **Valve Regulated Lead Acid Battery**.

Valve Regulated Lead Acid Battery

VRLA

A lead acid battery with an immobilized electrolyte and a one way self-resealing valve type of vent which implements an oxygen recombination cycle to minimize gassing and water consumption.

An opening allowing for the free escape of gasses from the lead acid battery. It may have a condensing chamber to minimize exhaust of electrolyte mist and/or a flame arresting device to prevent ignition of gasses within the cell by an outside source, but is otherwise open to the atmosphere.

Provides for release of excessive pressure developed within the cell and prevents entry of the outside atmosphere into the cell.

Volt - Ampere

VA

The product of output AC voltage multiplied by AC current.

V

A unit of force sufficient to carry one ampere of current through one ohm resistance. See **Volt Ampere, Current, and Ohm**.

W

A unit of power. It is the product of voltage (expressed in volts) multiplied by current (expressed in amperes). For example, 120 volts X 3 amperes = 360 watts.

Watt - Hour

WHr

A unit of work. The product of power, expressed in watts, multiplied by the time, expressed in hours, over which the power is produced.