

What is Voltage?

Voltage is electrical pressure.

Voltage is the result of mechanical motion of a generator/alternator that causes interaction of electrically and magnetically generated opposing magnetic fields. Solid-state rectification and regulation keeps the pressure at an acceptable level. Chemistry in a battery provides electron storage.

If everything works as designed, all engineered electrical devices (components) (loads) attached to the battery will be provided - at the regulated pressure - with electrons, at a value determined by the regulated pressure and resistance of each load.

If all contributing factors – generator (alternator) – field excitation voltage, speed of rotation, rectification and regulation, conductors, connections, and battery chemistry work as designed, the electrical potential or pressure (the voltage) across the battery terminals will be impressed across all components (loads) connected in parallel to it.

Voltage is a difference in electrical potential that exists across the entire vehicle electrical system. If no excessive resistance exists in any of the vehicle's current paths, then all components (loads) on the vehicle will have within 1/2 volt to 1 1/2 volts of the battery voltage available to their input pins depending upon circuit design and how much amperage is flowing in any given current path.

Loads in current paths that have no excessive resistance will see source voltage less the nominal amounts mentioned. Once a current path develops an excessive amount of resistance in any section, either on the voltage feed side, or on the ground return side, the phenomena known as "voltage drop" occurs.

The source voltage will divide itself into what ever amount is required to overcome any new, non-engineered resistance that develops any where in the current path. The number of times the source voltage will divide depends on the number of new resistances that show up in a current path.

Think of this voltage as a "maintenance pressure" that is required at each location of resistance. If there is no other resistance in the current path, each load will use almost all of source voltage.

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