What is Voltage Drop?

Voltage drop is the difference in voltage from one point in a current path to any other point in the *same* current path.

Voltage drop is a maintenance pressure equal in value to the product of current flowing and resistance encountered.

Voltage drop is the *result* that happens to a voltage value when it meets with resistance in any current path while current is flowing.

Voltage drop only happens when *flowing* current meets *resistance* in a current path, the higher the value of current flowing, the higher the voltage drop across any conductor, connection, or contact in the current path.

The value of any voltage drop is based on Ohm's law: it takes one volt to push one amp through one ohm of resistance.

The *location* of a voltage drop in a parallel circuit determines the affect it will have on the loads that are in parallel.

When a voltage drop occurs *before*, or *ahead of* the last parallel splice in a parallel circuit, it will provide less than source voltage to *all loads in parallel* beyond the last parallel splice.

When a voltage drop occurs *after the last parallel splice* in a parallel circuit, the same value of voltage drop has an identical affect on the load in the affected branch whether it appears on the voltage feed side, or on the ground side of the branch load.

Voltage drop can be measured. Voltmeters are designed to show the difference in voltage that exists between their probes.

Many voltage drops have been measured and recorded. We have lists of acceptable voltage drops.

To locate and read any voltage drop, the circuit must be on. If there is no current flowing, there will be no voltage drop.

Resistance that causes a voltage drop has *no affect* on voltage readings in an open circuit.

Even when the generator (alternator) and battery are working as designed, voltage drops in any load's current path can show up.

Voltage Drops can occur with:

Loosening of the mechanical bonding of connector to connections.
Deterioration of the chemical or mechanical bonding of a wire to its connector.
Corrosion of conductors (wires pierced and never sealed, porous insulation or mechanical abrasion of the insulation).
Chemical corrosion between any connection points in a current path.
Electrolysis between dissimilar metal used in the same current path.

If any load has to share its current path with a non-engineered resistance the result is always a drop in voltage - the load will not receive the voltage value that exists across the battery terminals. Some of the voltage value will be dropped across each non-engineered resistance always in accordance with Ohm's law for a series circuit.

This reaction or phenomena we call "Voltage Drop".

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