



Presents

Diagnosing Electrical Problems on Today's Motor Vehicles **PART 3**

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Your Instructor For This Class



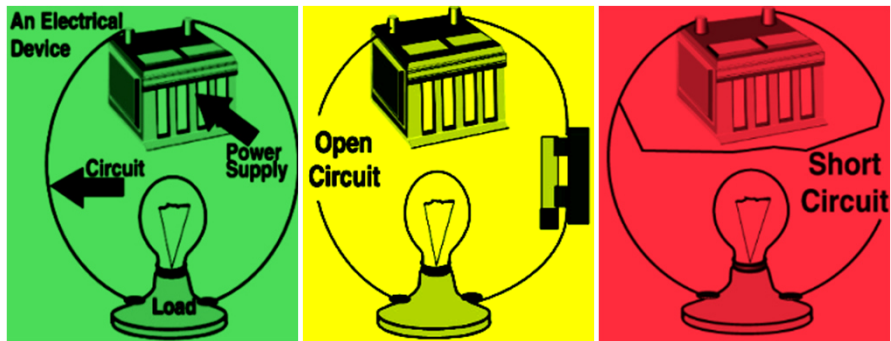
"G" Jerry Truglia

- National Trainer, ASE World Class, Master: Auto, Truck, School Bus, L1, L3, CNG and...
- **ATTP Master Instructor, New York State, CT and New Jersey**
- STS (Service Technician Society) 2003 President
- **TST (Technicians Service Training) Founder and President**
- Author / Co Author/ Technical adviser on 25 plus books including OBD II and Mode 6, and Understanding and Diagnosing Hybrid Vehicles
- **Published articles for multiple newsletters, and magazines**
- Picked as one of the Top Instructors in the country by EPA & SAE
- **Numerous Radio, TV, Internet, and SAE Video appearances**
- PTEN, MotorAge and TST Webcast Instructor
- **Motor Magazine Top 20 award winner**
- Provider of OBD II Training for 13 states, Ontario Canada and the US EPA
- **Guest speaker at SAE Congress, IM Solutions and Clean Air Conference**

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Electrical Circuits



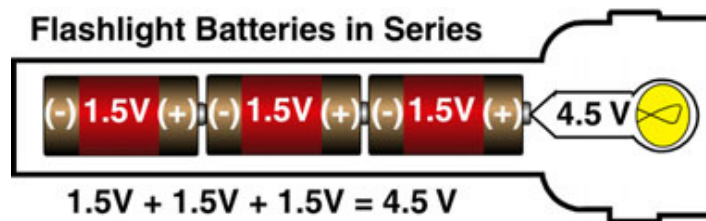
Think of electricity as a circle

Everything flows from Negative to Positive

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Battery In Series

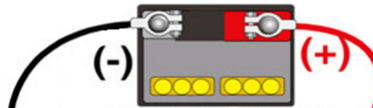


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Battery Parallel

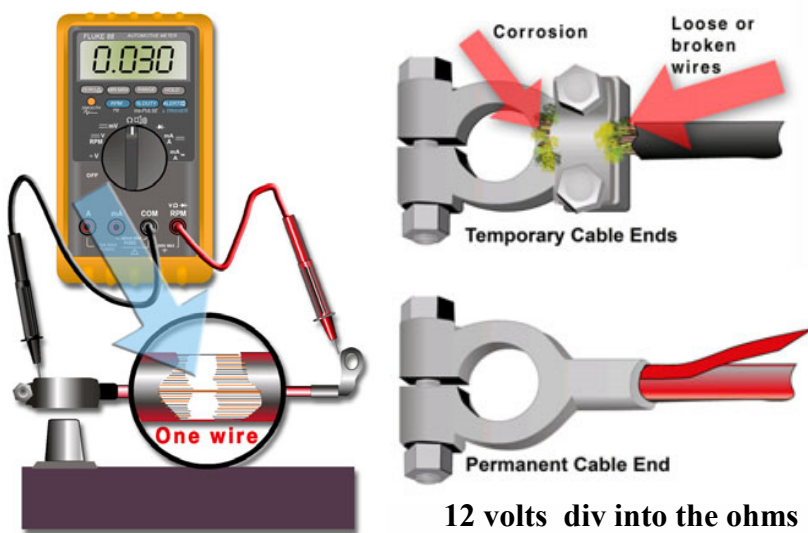
Parallel Connection



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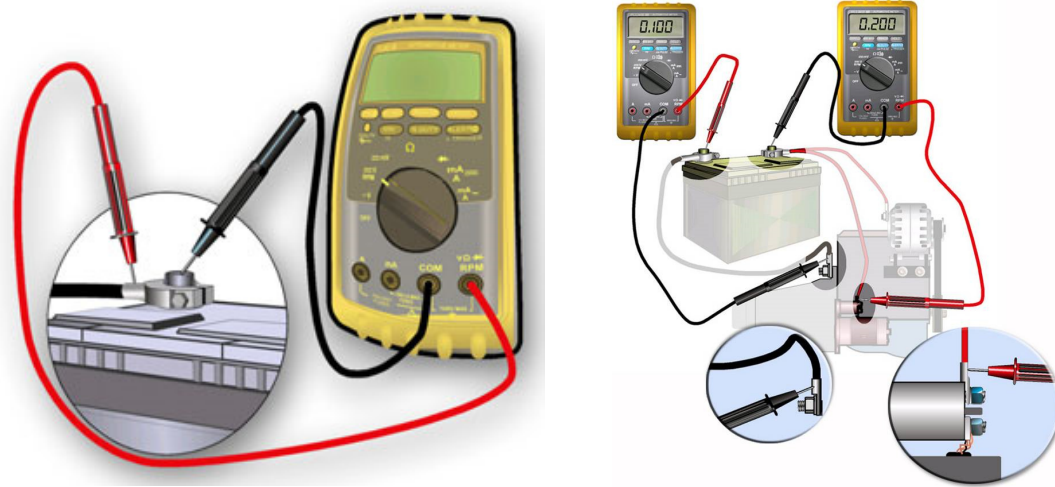
Voltage Drop



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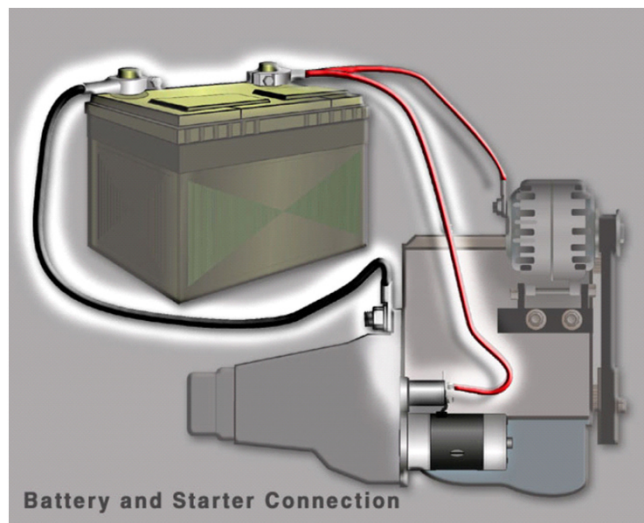
Voltage Drop



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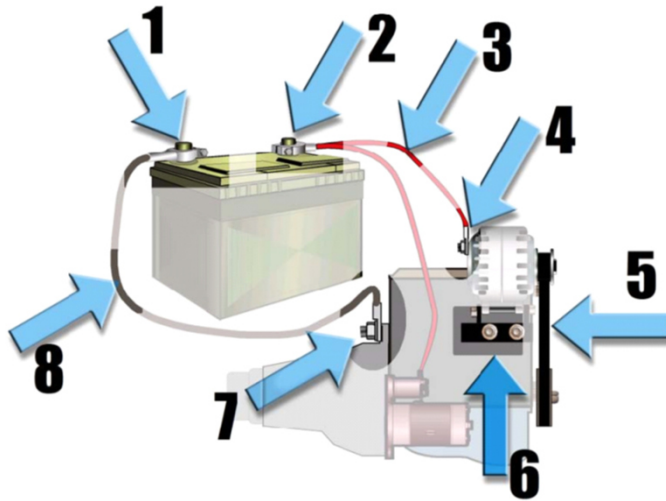
Voltage Drop



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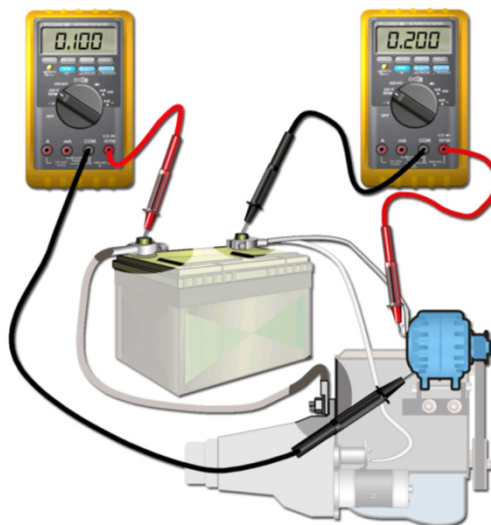
Voltage Drop



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Voltage Drop



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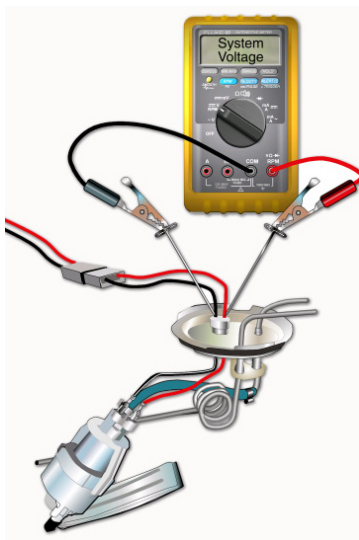
Voltage Drop



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Voltage Drop



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Voltage Drop

Measuring voltage drop is a method of checking circuit resistance. Connect Vantage across suspected area as in picture above;

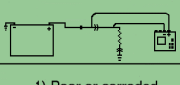
Excessive unwanted circuit resistance may also cause circuit components to operate poorly or not at all;

Unwanted circuit resistance causes circuit voltage to drop below normal. This may occur before or after load & cause the same problem.

Circuit must be on & component (load) must be energized for voltage drop to be measured;

AMPS CH2 COM

10 MINUTE ELECTRONICS



1) Poor or corroded connection may cause unwanted resistance. This can affect accuracy or sensor inputs & outputs;

Snap-on

Vantage

GRAPHING DMM & DIAGNOSTIC DATABASE

Suggested maximum voltage drops:

- HIGH CURRENT POSITIVE 200-500mV
- HIGH CURRENT NEGATIVE 100mV

Suggested maximum voltage drops:

- ELECTRONIC PCM CIRCUITS 50mV
- LIGHT GAUGE, LOW CURRENT 90-100mV

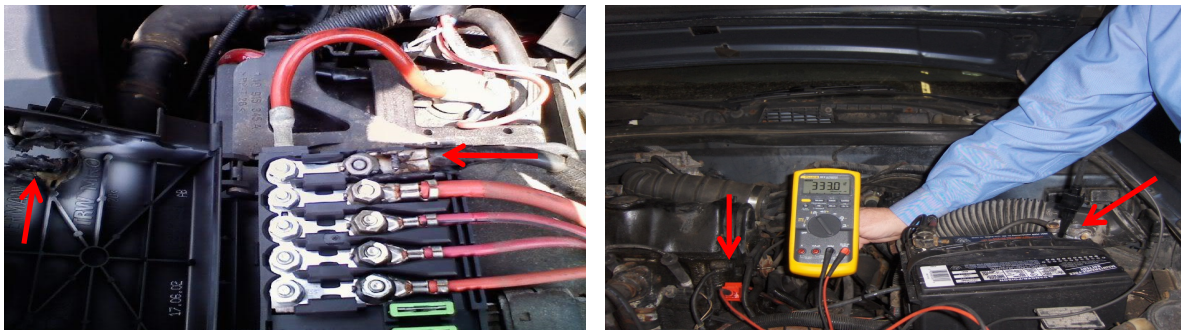
Suggested maximum voltage drops:

- SOLENOID SWITCH CONTACTS 300mV

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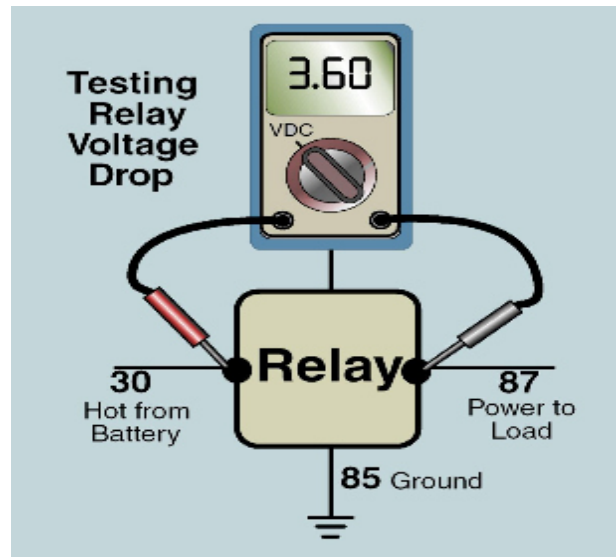
VD Voltage Drop



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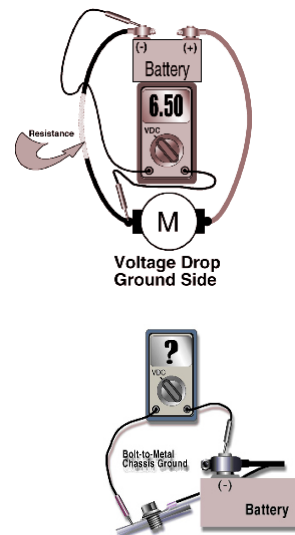
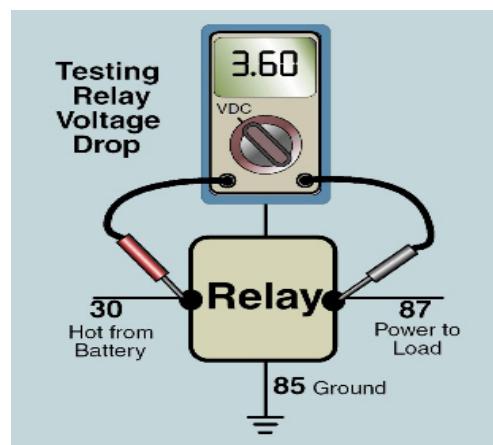
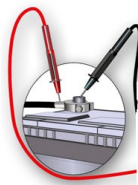
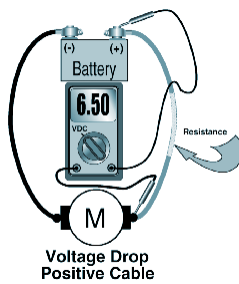
Voltage Drops



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Voltage Drops



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