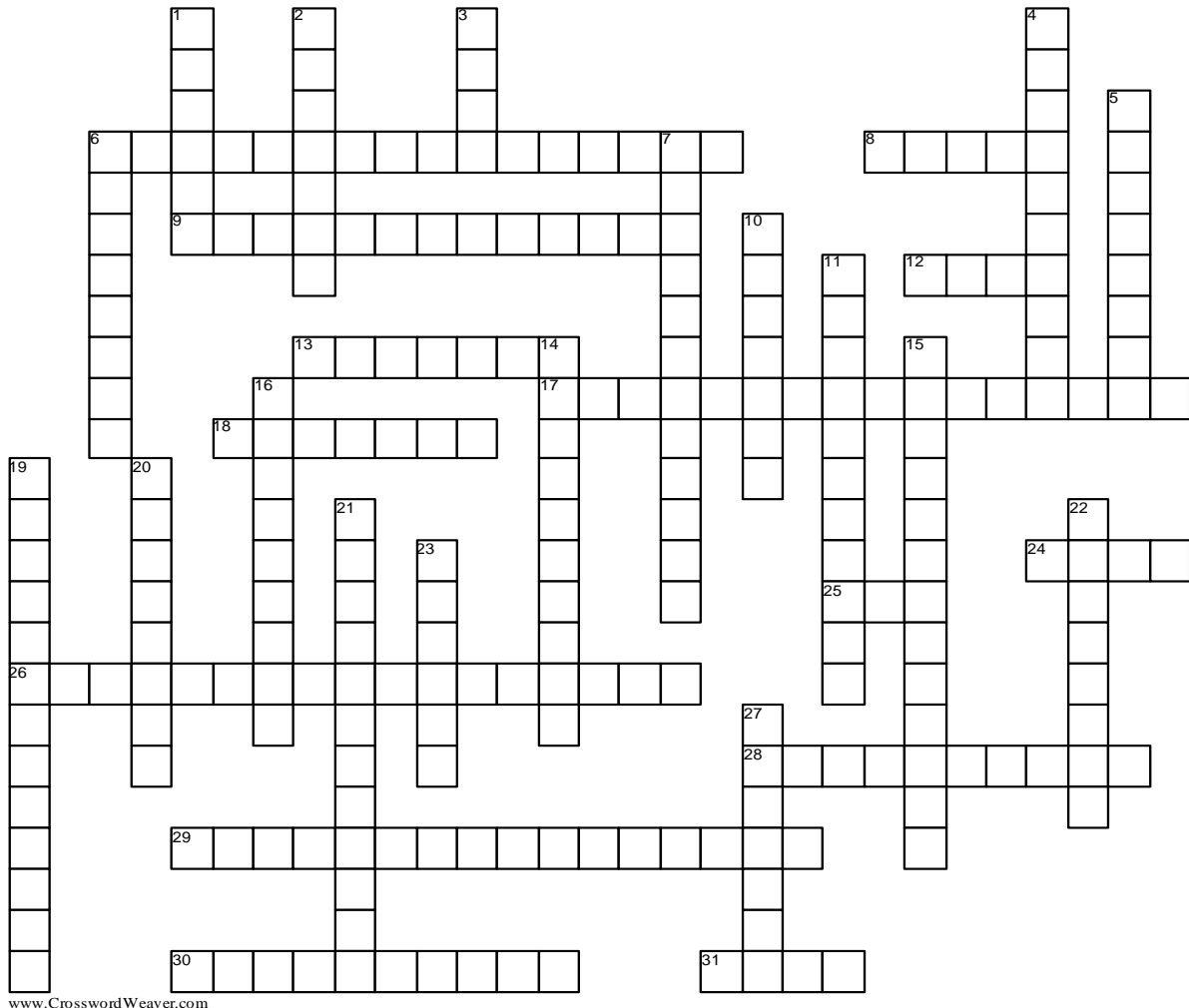


## Automotive Electrical and Engine Performance 9th Edition

### Chapter 2 - Electrical Fundamentals



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#### ACROSS

- 6 Electricity generated by applying mechanical stress to specific crystals.
- 8 \_\_\_\_\_ electrons: Electrons that are tightly held within an atom and do not participate in electrical conduction.
- 9 \_\_\_\_\_ force: A measure of electrical pressure, often used interchangeably with voltage, driving electrons through a conductor.
- 12 The unit of measurement for electrical pressure or potential difference.
- 13 A device used to measure electrical current in a circuit.
- 17 The study of chemical processes that produce electric currents or are driven by electric currents.
- 18 A unit of electric charge representing the quantity of electricity transported by one ampere in one second.
- 24 The unit of measurement for electrical resistance, indicating how much a material resists the flow of electric current.
- 25 A charged particle formed when an atom gains or loses electrons, resulting in a net positive or negative

#### charge.

- 26 Electricity generated by heat, often used in sensors and power generation.
- 28 \_\_\_\_\_ potential: Also known as voltage, it is the potential energy per unit charge available to drive current through a circuit.
- 29 Electricity generated by the exposure of certain materials to light.
- 30 Materials with more than four electrons in their outer shell, making it difficult for electrons to move through them, such as rubber, glass, and wood.
- 31 \_\_\_\_\_ electrons: Electrons that are loosely bound and can easily move between atoms, facilitating electric current flow.

#### DOWN

- 1 The unit of measurement for electrical current flow, indicating the rate at which electrons pass through a conductor.
- 2 \_\_\_\_\_ ring: The outermost shell of electrons in an atom, determining its

#### conductivity properties.

- 3 The unit of power, representing the rate of energy transfer equivalent to one joule per second.
- 4 Materials with fewer than four electrons in their outer shell, allowing easy electron flow, such as copper, aluminum, and silver.
- 5 A device used to measure the electrical resistance in a circuit.
- 6 \_\_\_\_\_ temperature coefficient: A characteristic of some materials where resistance increases with temperature.
- 7 A device that generates electricity from a temperature difference between two dissimilar metals.
- 10 \_\_\_\_\_ charge: A state where the number of protons and electrons in an atom is equal, resulting in no net charge.
- 11 The movement of electrons from one atom to another, typically through a conductor.
- 14 The opposition to the flow of electric current, measured in ohms.
- 15 A material with exactly four electrons in its outer shell, allowing controlled

#### conduction, often used in electronic devices.

- 16 A device used to measure voltage in a circuit.
- 19 A three-terminal variable resistor used to adjust voltage levels in a circuit.
- 20 \_\_\_\_\_ theory: A theory stating that electric current results from the movement of electrons from a negative to a positive terminal.
- 21 \_\_\_\_\_ theory: A theory that describes current as flowing from the positive terminal to the negative terminal of a power source, although electron flow is actually in the opposite direction.
- 22 A two-terminal variable resistor used to control current flow.
- 23 \_\_\_\_\_ electricity: A buildup of electric charge on a surface that can discharge when it contacts another object.
- 27 \_\_\_\_\_ effect: The generation of a temperature difference by applying an electric current across two different materials.