

EVT II Study Guide (Rev 09-2022)

- **NFPA Study Guide for 1901, 1911, 1071**
- **Review all EVT 1 Study Guides for classes EVT 1A, 1B & 1C**

EVT 2A Class Study Guide

1. Review DVOM uses and what it can measure.
 - Ranges
 - DVOM procedure
- 2) Chassis voltage systems
 - a. A relay system
 - b. A solenoid system
 - c. A lighting system
 - d. A starting system
 - e. A charging system
 - f. A DC motor system
 - g. A warning system
- 3) Parasitic loads
 - a. Vehicle-based
 - b. Agency/body builder-added
- 4) Testing Electrical Systems and Electronic Controls
 - Chassis Voltage Systems
 - Parasitic Loads
 - Individual Circuit Load
 - Reference Voltage
 - Signal Voltage
- 5) Review the impact of:
 - Magnetic fields
 - Impacts of magnetic fields
 - Proper wire routing
 - Voltage drop
 - Sensor failure
 - Circuit driver failure
 - Radio frequency effects
 - Parasitic drain
- 6) Low voltage electric system vs Line voltage electric systems
- 7) Electronic Controls
 - Throttle position sensor
 - Manifold absolute pressure sensor
 - Mass airflow sensor
 - Intake air temperature sensor
 - Coolant temperature sensor

- Oxygen sensor
 - Interlocks
 - Pump control systems
 - Load control devices
- 7) Electronic Controls (cont)
- Sequencers
 - Interfaces
- 8) Schematics
- Basic schematic symbols
 - Manufacturer-specific schematic symbols
 - As-built schematics (per vehicle)
- 9) Applying the principals of electricity to electronic control devices
- Kirchhoff's laws
 - Watt's law
 - Ohm's law
 - Series and parallel circuits
 - Shared current paths
 - Electronic engine
 - Input, output, and regulations devices
 - Transmission
 - Input, output, and regulation devices
 - Brake controls
 - Input, output, and regulation devices

The function, construction, operation, and requirements of:

- Instrumentation
 - Load control devices
 - Sequencers
 - Interfaces
 - Interlocks
- 10) Defects and deficiencies and problems associated with electronic controls and instrumentation
- Open circuit
 - Short to power
 - Short to ground
 - Cross short
 - Excessive resistance
 - Shielding and cable routing