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## Vehicle Electrification System Standards

### II. High Voltage Safety and Personal Protective Equipment

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#### II.d High Voltage Electrical Measurement Equipment

(Voltmeter, Oscilloscope, Differential Oscilloscope Probe, AC/DC Current Probe)

##### OEM Acronyms:

DVOM – Digital Volt-Ohm Meter

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##### Description:

Performing live measurements on high voltage systems using voltmeter, oscilloscope, and current clamps that meet the minimum standard safety requirement.

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##### Outcome (Goal):

Students shall be able to visually identify and confirm if the equipment being utilized to perform electrical measurements meets the minimum CAT safety requirements.

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##### Objective:

When provided with electrical measurement equipment, the student will be able to confirm that the equipment meets the minimum safety requirements to safely perform electrical measurements on a hybrid, plug-in, or electric vehicle.

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**Task:**

Using the electrical measurement equipment provided, visually confirm that all equipment and ancillary accessories are Category (CAT) III compliant.

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**Required Special Tools and/or Equipment to Complete Task:**

DVOM, oscilloscope, current probe, test leads, test clips, test probes

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**Instructor Demonstrations (System Operation, Testing, Servicing, Repair):**

Use representative DVOM, oscilloscope, differential oscilloscope probe, current probe, test lead, test clip, and test probe to instruct students on where to locate the CAT rating.

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**Information Resources to support Tasks, Demonstrations, Repairs, etc.:**

OEM service information; equipment manufacturer technical information

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**Suggested Vehicle for Tasks and Demonstrations:**

n/a

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**Governing Standards (Safety, Testing, Diagnostics or Repair):**

IEC 61010; IEC 1010; UL3111

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**Industry Resource Organization:**

- Society of Automotive Engineers (SAE)
- Institute of Electrical & Electronic Engineers (IEEE)
- √ International Electrotechnical Commission (IEC)
- American Society for Testing and Materials (ASTM)
- Occupational Safety & Health Administration (OSHA)
- National Fire Protection Association (NFPA)
- √ Underwriters Laboratories (UL)



NSF / ATE Grant Award # 1700708

Northwest Engineering and Vehicle Technology Exchange (NEVTEX)

Advanced Vehicle Technician Standards Committee (AVTSC)

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