

# MOBILE ELECTRONICS INSTALLATION



## PURPOSE

To evaluate each contestant's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of mobile electronic installation.

First, download and review the General Regulations at: [updates.skillsusa.org](http://updates.skillsusa.org).

## ELIGIBILITY

Open to active SkillsUSA members enrolled in technology programs that include mobile electronics installations.

## CLOTHING REQUIREMENT

**For men:** Official SkillsUSA white polo shirt with black dress slacks, black socks and black leather shoes.

**For women:** Official SkillsUSA white polo shirt with black dress slacks or skirt, black socks or black or skin-tone seamless hose and black leather dress shoes.

**All:** Safety glasses with side shields or goggles. (Prescription glasses can be used only if they are equipped with side shields. If not, they must be covered with goggles.)

These regulations refer to clothing items that are pictured and described at: [www.skillsusastore.org](http://www.skillsusastore.org). If you have questions about clothing or other logo items, call 800-401-1560 or 703-956-3723.

**Note:** Contestants must wear their official contest clothing to the contest orientation meeting.

## EQUIPMENT AND MATERIALS

- Supplied by the technical committee:
  - Necessary materials, schematics and equipment required for the contest
- Supplied by the contestant:
  - Pencils
  - Safety glasses
  - Calculator

- Soldering iron
- Wire crimpers (Kline type)
- Wire strippers
- Digital multimeter (DMM)
- All competitors must create a one-page résumé and submit a hard copy to the technical committee chair at orientation. Failure to do so will result in a 10-point penalty.

**Note:** Your contest may also require a hard copy of your résumé as part of the actual contest. Check the Contest Guidelines and/or the updates page on the SkillsUSA website at [updates.skillsusa.org](http://updates.skillsusa.org).

## SCOPE OF THE CONTEST

- The scope of the contest will be consistent with the industry standards outlined in the competencies listed for the Mobile Electronics Certified Professional Basic Installation Technician exam produced by the Consumer Electronics Association (CEA). See [www.mecp.com](http://www.mecp.com). Following are the major skills areas:

### Section 1 — Basic and Advanced Electrical

- Electrical laws and formulas for the mobile electronics environment
- Electrical components
- Basic electrical troubleshooting
- Filters
- Relays, batteries and cable
- Semiconductors
- Automotive, electrical and charging systems
- Troubleshooting

### Section 2 — Mobile Electronics Installation Knowledge and Techniques

- Basic installation practices
- Noise troubleshooting
- Battery troubleshooting
- Meters and test equipment
- General installation and equipment
- Shop safety
- Troubleshooting guide

### **Section 3 — Introduction to Autosound, Security, Wireless and Navigation**

- a. Introduction to audio — autosound basics
  - b. Introduction to security
  - c. Wireless communications: The basics of installation
  - d. Navigation basics
  - e. Satellite radio  
The current MECP Basic Mobile Electronics Installer competency standards are available on the Web at: [www.mecp.com](http://www.mecp.com).
2. Contestants will demonstrate their ability to perform jobs or skills selected from the competencies listed below as determined by the SkillsUSA Championships technical committee.
3. **Installing, Diagnosing and Servicing:**  
This section of the competition consists of several test-station activities. Contestants must successfully complete assigned tasks at each station. The tasks are designed to provide a variety of challenges based on the MECP recommended practices. Approximately 45 minutes are allowed at each station.

#### **Knowledge Performance**

The written test is based on the Mobile Electronics Certified Professional Basic Installation Technician exam produced by the Consumer Electronics Association (CEA). See [www.mecp.com](http://www.mecp.com).

#### **Skill Performance**

The event includes a professional interview and five hands-on applications that include taking electrical measurements, installing consumer electronic equipment in a mobile environment, soldering, working with relay circuits and troubleshooting electronic circuitry.

#### **Standards and Competencies**

##### **MEI 1.0 — Charging and Electrical System Measurements**

Comprised of one task associated with using standard test instruments to establish a State of Health report for a given vehicle.

##### **MEI 2.0 — Removing and Replacing Headunits**

Comprised of one task related to removing an existing head unit and replacing it with an OEM upgrade head unit.

##### **MEI 3.0 — Installing Audio Amplifiers**

Comprised of one task related to physically adding an audio amplifier to an existing mobile audio installation and configuring it for safe usage by the customer.

##### **MEI 4.0 — Using Relays**

Comprised of one task requiring the contestant to design and configure a relay-based circuit to perform the requested mobile installation related to upgrading consumer electronic systems in a vehicle.

##### **MEI 5.0 — Locating and Diagnosing Open and Short Circuits**

Comprised of one task related to locating and repairing an open circuit and/or a short circuit condition. Judged on ability to locate, identify and repair all malfunctions; and adherence to safety and ESD procedures.

##### **MEI 6.0 — Electronics Installer Theory Exam**

Contestants will take an examination covering their knowledge of basic and advanced electrical theory, installation knowledge and techniques, and mobile consumer electronics systems. Questions cover basic 12-volt circuits and devices, mobile consumer electronics systems and subsystems (sound, security, wireless and navigation), and basic mobile electronics diagnostic and troubleshooting questions. The exam consists of multiple-choice questions and lasts up to two hours.

##### **MEI 7.0 — Customer Service**

Contestants will respond to questions related to providing professional customer service techniques.

##### **MEI 8.0 — Personal Interview**

A business/industry preliminary interview will be conducted with an industry professional, focusing on the customer service culture.

### **MEI 9.0 — Determining Winners**

Winners will be determined on the basis of total scores, including diagnosis and troubleshooting, soldering, assembly, customer service and personal interview interaction, and theory exam.

### **MEI 10.0 — Items Evaluated**

Relative point values for each item below will be determined by the technical committee.

- 10.1 Installing, diagnosing and service scoring
  - 10.1.1 Read and understand the manufacturer's training literature about the device
  - 10.1.2 Use test equipment to make specified measurements
  - 10.1.3 Follow recommended manufacturer's sequence of installation procedures and troubleshooting practices
  - 10.1.4 Identify the scope of the task or problem
  - 10.1.5 Identify any defective component
- 10.2 Practical Skills
  - 10.2.1 Soldering techniques
  - 10.2.2 Workmanship and assembly techniques
  - 10.2.3 Final operation of installations tasks
  - 10.2.4 Ability to locate, identify and/or repair malfunctions
  - 10.2.5 Safety and ESD procedures
- 10.3 Customer Service
- 10.4 Personal Interview
- 10.5 Written Exam