

**Chapter 1**

NAME \_\_\_\_\_

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

1. What actions are needed to disable the high-voltage (HV) circuit?

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2. What are the personal safety precautions that service technicians should adhere to when servicing hybrid or electric vehicles?

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3. What are the recommended tools and equipment that should be used when working on the HV circuits of a hybrid or electric vehicle?

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4. What precautions should be taken when hoisting a hybrid or electric vehicle?

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5. When should the HV system be depowered?

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## Answer Key

Testname: EV1SHORT01

1. To safely depower the vehicle, always follow the instructions found in service information for the exact vehicle being serviced. The steps usually include the following:  
STEP 1 Turn the ignition off and remove the key (if equipped) from the ignition and store it in a lock box to prevent accidental starting.  
STEP 2 Remove the 12-volt power source to the HV controller and wait 10 minutes for all capacitors to discharge. This step could involve:
  - Removing a fuse or a relay
  - Disconnecting the negative battery cable from the auxiliary 12-volt batterySTEP 3 Remove the high-voltage fuse or service plug or switch.  
STEP 4 Confirm there is no high-voltage power present before beginning the repair.  
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2. The personal safety precautions that service technicians should adhere to when servicing hybrid or EV include:
  - Wear eye protection
  - Wear high-voltage gloves
  - Wear long sleeves
  - Wear insulated shoes or boots**Page Ref: 4-6**
3. The recommended tools and equipment that should be used when working on the HV circuits of a hybrid or electric vehicle include:
  - Insulated rubber mats and blankets
  - Fire extinguishers
  - Some manufacturers recommend that a 10-foot insulated fiberglass pole be available outside the safety zone to be used to pull a technician away from the vehicle in the unlikely event of an accident where the technician is shocked or electrocuted.
  - CAT III rated digital multimeter
  - Megohmmeter (insulation tester)
  - Insulated hand tools**Page Ref: 5-6**
4. When hoisting or using a floor jack, refer to the manufacturer's service information for proper lift points. Orange cables run under the vehicle just inside the frame rails on most hybrid and electric vehicles.  
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5. If work is going to be performed on any of the following components, service information procedures must be followed to prevent possible electrical shock and personal injury.
  - HV battery pack
  - Any of the electronic controllers that use orange cables, such as the inverter and converters.
  - The air-conditioning compressor, if electrically driven, and has orange cables attached.**Page Ref: 9**