

Body Repair Tech Note: High Voltage Gloves and Electrical Safety Hook Requirements

Body Repair Tech Notes provide information about Tesla-approved methods and practices for body repair. These instructions assume knowledge of motor vehicle and high voltage electricity repairs, and should only be executed by trained professionals. Tesla Motors assumes no liability for injury or property damage due to a failure to properly follow these instructions or for repairs attempted by unqualified individuals.

This Body Repair Tech Note supersedes BR-14-00-004, dated 20-Nov-14. Each content change is marked by a vertical line in the left margin. Discard the previous version and replace it with this one.

⚠ WARNING: Failure to follow all high voltage (HV) safety precautions, including the use of personal protective equipment, when working on or around HV components may result in serious injury or property damage. Only technicians who have completed Tesla's Mechanical, Electrical, and Trim training course should diagnose, repair, or replace HV components. In addition, all repair and operating instructions should be reviewed and understood before working on Tesla vehicles or associated repair equipment.

Tesla Approved Body Shops are required to stock and maintain the following HV safety equipment:

- HV gloves
- Electrical safety hook

Electrical Safety Hook Specifications

An electrical safety hook (Figure 1) is used to remove an injured person from a live high voltage circuit without risking additional injury.



Figure 1

Each Tesla Approved Body Shop must have an electrical safety hook in a location that is known to all technicians and near the areas of the body shop in which HV repairs are performed. Depending on the size and layout of the body shop, it might be necessary to have more than one electrical safety hook.

Each Tesla Approved Body Shop must have an electrical safety hook that is at least 6 feet (1.83 m) in length and that meets the requirements of ASTM F711-89, as well as any other local or national requirements. According to ASTM F711-89, electrical safety hooks must withstand the following minimum tests:

- **For electrical safety hooks made of fiberglass-reinforced plastic:** 100,000 volts per foot of length (3,281 volts per centimeter of length) for 5 minutes
- **For electrical safety hooks made of wood:** 75,000 volts per foot of length (2,461 volts per centimeter of length) for 3 minutes

Electrical Safety Hook Inspection Procedure

Refer to TN-15-92-003, “High Voltage Awareness Care Points” for instructions on electrical safety hook inspection.

HV Glove Specifications

Tesla Approved Body Shops are required to provide HV gloves to technicians for their personal protection while working on HV circuits and components in or around vehicles.

When technicians perform services that involve potential proximity to high voltage, they must wear Class 00 insulated rubber HV gloves and outer protection gloves (Figure 2). The insulated rubber HV gloves must meet the requirements of ANSI/ASTM D120 and NFPA 70E. The outer protection gloves must meet the requirements of ASTM F696-91.

⚠ WARNING: Use of gloves that fail to meet these specifications could result in serious injury.



Figure 2

NOTE: HV gloves that meet the standards listed above meet United States and European Union (EU) standards. Body shops outside these regions should confirm with local authorities that the gloves ordered comply with local laws and regulations.

Insulated rubber HV gloves must be replaced every 6 months. Some personal protective equipment (PPE) vendors might manage the replacement, but it is ultimately the responsibility of body shop managers to make sure that all insulated rubber HV gloves are replaced every 6 months.

NOTE: There is no expiration date for the outer protection gloves; replace them if they become torn or otherwise damaged.

Body Shop Manager HV Glove Responsibilities

- Order an initial pair of Class 00 insulated rubber HV gloves and a pair of outer protection gloves for each technician. Tesla recommends ordering 1 or 2 extra pairs.
- Make arrangements to replace insulated rubber HV gloves every 6 months.
- Maintain a list of technicians and their glove sizes.
- Train personnel on the proper testing of HV gloves using the recommended method and tools (refer to TN-15-92-003, “High Voltage Awareness Care Points”).
- Maintain all necessary books and records to allow for appropriate inspections and audits.

- Replace gloves as a pair, not individually.
- Properly dispose of all replaced, damaged, or expired gloves. Do not retain or reuse gloves (refer to TN-15-92-003. “High Voltage Awareness Care Points”). Some vendors might offer this service.
- Maintain all vendor relations for training, replenishing supplies, and replacing insulated rubber HV gloves every 6 months.

HV Glove Inspection Procedures

Refer to TN-15-92-003, “High Voltage Awareness Care Points” for instructions on glove inspection.

Discarding Insulated Rubber HV Gloves

Refer to TN-15-92-003, “High Voltage Awareness Care Points” if an insulated rubber HV glove becomes damaged (for example: leak, crack, cut) or expires.

For feedback on the accuracy of this document, email collision-techinfo@teslamotors.com.