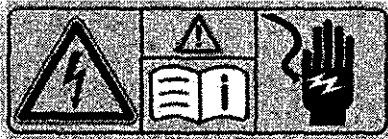




Date: December 9, 2014
Order No.: SM-B-54.10/12
Group: 54

SUBJECT: MY-All, Models 451.390/391/392/490/491/492
Personal Protective Equipment for Working on High-Voltage On-Board Electrical Systems



WARNING! Risk of death and personal injury may occur when touching components on vehicles with high-voltage on-board electrical system if not done properly. Do not touch components and open lines of the high-voltage on-board electrical system.

Persons who are carriers of electronic implants (e.g. cardiac pacemakers) should not carry out any work on high-voltage on-board electrical systems due to increased risk of death or personal injury. Work on a high-voltage system or on hybrid components may only be conducted by certified workshop personnel. NO OTHER WORKSHOP PERSONNEL may perform work on the high voltage system or hybrid components.

MBUSA High-Voltage Awareness e-Learning course, TECH717 must be successfully completed before diagnosing a HV vehicle and proceeding with service has even further requirements. Service work that is not HV-related, such as tire replacement, can also be done by professionals meeting the same minimum requirement of high voltage awareness training.

Protective Scope

The personal protective equipment (PPE) provides protection against potential hazards when working on vehicles on which the condition of the HV on-board electrical system cannot be clearly determined (e.g. accident vehicles).

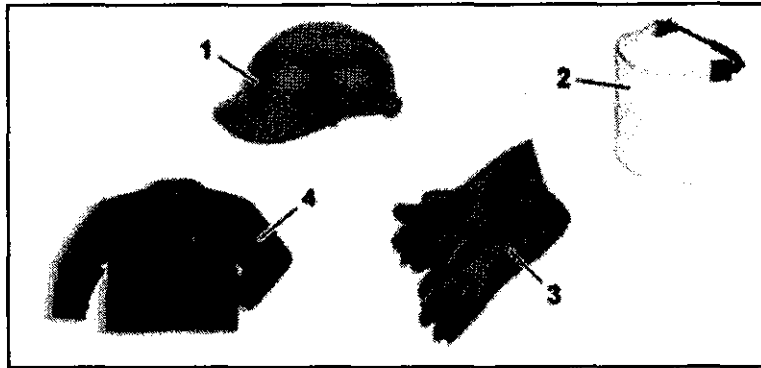
- Potential Hazards
- Electrical hazards through electric shock (e.g. through contact protection that is no longer fully effective).
- Thermal hazards through electric arcing in event of short circuit or when detaching plug-in connectors.

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- Chemical hazards caused by leaking media (e.g. electrolyte from a mechanically damaged high-voltage battery).

Use

- Manual disabling.
- Initial diagnosis of accident vehicles.
- Handling mechanically damaged high-voltage batteries (removal, assessment, storage in secure containers).



Requirements and Standards for Protective Gloves

- Voltage sustaining capability of at least 1000 V AC/1500 V DC (maximum voltage in vehicle 750 V DC, as at 2014).
- Thermal protective effect as per DIN EN 60903:2012 Section 5.8.2 must be documented.
- Resistance to acids and oils.

The above-mentioned requirements are deemed to be sufficient, because a thermal resistance is also given. In Europe, protective gloves must be used that comply with the DIN EN/IEC 60903 standard, protection class 0 (R (Acids + oil + ozone) + C (low temperature)). The appropriate identification for the requirements are listed in the table below. We in the U.S. meet or exceed these standards.

Requirements and Standards for Electric Arcing Jacket and Face Protection with Industrial Safety Helmet

The requirements as per EN ISO 11612 are valid for electric arcing jackets.

- Face/eye protection is subject to the requirements as per EN 166.

NOTE : Face protection with an industrial safety helmet as per EN 397 may also be worn as an option.

Procurement

NOTE : Personal protective equipment (PPE) should have been pushed to your dealership or you can obtain via the SSEP.

Testing

1. All tooling, equipment, protection products and aids, which are specified for safe operation and working on, with or in the vicinity of electrical systems, must be suitable for such use, be in proper working condition and be deployed as intended.
2. Visual inspection of protective gloves before each use for cracks, piercing, abrasion or any other form of damage.

3. Check protective gloves for leaks before each use through trapping air in the glove and rolling it up (or by using a pneumatic glove tester).
4. Additional tests as specified by manufacturer.

Color Code Marking

Color code, protection classes and protective glove standards are indicated in Figure 2.

Protective gloves: Color code as per protection class 0, red (as per EN 60903)

3 Protective gloves

A Protection class

B DIN standard

C Symbol: Suitable for working under applied voltage

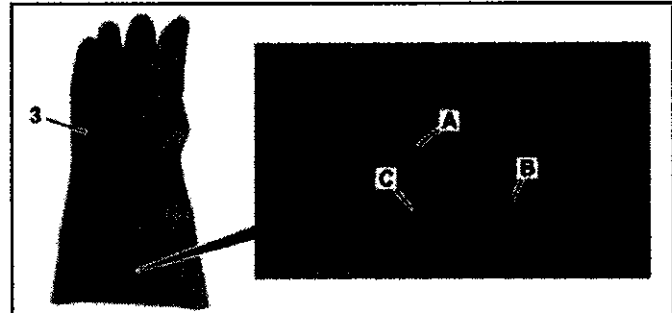


Figure 2.

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Voltage class as per IEC 60903		Categories (resistance) as per IEC 60903
AC	DC	
00: 500 V	00: 750 V	A: Acid
0: 1000 V	0: 1500 V	H: Oil
1: 7500 V	1: 11250 V	Z: Ozone
2: 17000 V	2: 25500 V	R: A + H + Z
3: 26500 V	3: 39750 V	Composite: RC + mechanical protection
4: 36000 V	4: 54000 V	C: Very low temperatures