TECH CHECK

Drive Motor Battery Cooling Fans

Refer to the authorized original equipment service manual for detailed installation instructions. If you do not have the experience, proper tools or manuals, please seek the services of a qualified technician.

Replacement Time: <1 hr

BEFORE YOU INSTALL

- Some battery cooling fans are located within the high-voltage battery. If this is the case, it is vital to follow the following safety warnings.
- WARNING! This is a high-voltage system, which can be identified by orange cables, connectors or components. Use of Personal Protection Equipment (PPE) i s necessary before handling the battery, cables or any other component in a high-voltage system. Failure to follow these warnings along with the O.E. Manufacturer's safety precautions may result in serious personal injury or death.
- Remove all jewelry.
- Wear electrically insulated safety gloves with a Class "0" 1000-volt rating. Gloves must be certified and expiration date must be current. Leather outer gloves are also required.
- Inspect gloves for cracks, tears and other damage before every. Before using class "0" gloves, they must be checked by using the "roll method" or the "air pump" method. NOTE: High-voltage Class "0" gloves should be tested every 6 months even if damage is not detectable. Gloves can also be sent to a certified lab for testing on or before expiration date.
- Other forms of PPE, such as an insulated safety hook, goggles, face shield, apron and shoes should be considered for use when working with hybrid & electric vehicles. Follow the O.E. Manufacturer's recommendations.
- Only use designated CAT III test leads, probe tips and digital multimeter (DMM) rated @ 1000 volts or higher when testing any part of the high voltage system. Insulated hand tools are required as a necessary precaution to avoid electric shock.

SKILL LEVEL: Service Technician **A** ASE L3 Certified or equivalent

TIPS

- Refer to and follow authorized original equipment service information for the specific vehicle for detailed instructions. Failure to follow the original equipment (OE) manufacturer's safety precautions may result in serious personal injury or death and or property loss. If you do not have the experience, training, proper tools and safety equipment or access to authorized OE service information, please seek the services of a qualified technician.
- Follow the O.E. Manufacturer's approved procedures for disabling and enabling the high-voltage system to avoid serious personal injury or death. When servicing hybrid & electric vehicles, the interlock service disconnect plug must be removed. Some vehicles will have a switch that must be toggled off. If removing the service plug, place it in a safe location to prevent reconnection while servicing the vehicle.
- WARNING! After disconnecting plug or toggling switch, wait at least 5 to 10 minutes before touching any high-voltage cable, connector or terminal. This time is necessary for the high-voltage capacitors to discharge. While wearing Class "0" safety gloves, use a CAT III DMM to verify voltage at the orange cable connectors or terminals. Voltage must be below 30 volts Direct Current (VDC) before removing high-voltage cables or battery. Leaked battery liquid can be present in the battery area, so always wear safety gloves and eye protection when removing battery. Place battery on a safe, non-metallic surface.

BEST MAINTENANCE PRACTICES

- Proper operating temperature through passive or active systems is vital to the life of the battery. Normal HV battery operating temperature is approximately 98°F. Temperatures above this point will accelerate battery charge depletion, and tempera- tures above 140°F will damage the battery. It is vital that the battery's cooling system is operating as designed.
- Visually inspect and use a vacuum to clean the battery cooling system, filters, ducts, and fans at least every 24K miles or every 2 years. Do not use compressed air to clean the fan blades. Using compressed air can cause the fan motor to over-spin which may result in failure of the motor.
- Replace high-voltage battery air inlet filter, if equipped, according to specified intervals stated in the service manual, or if the filter is dirty.
- Some vehicles use the HVAC system to heat and cool the battery. Make sure this system is working as designed.