

SURFACE VEHICLE RECOMMENDED PRACTICE

Submitted for recognition as an American National Standard

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DEC1998

Issued 1993-03
Reaffirmed 1998-12

Superseding J2242 MAR93

Automotive Starter Solenoid Remanufacturing Procedures

Foreword—This reaffirmed document has been changed only to comply with the new SAE Technical Standards Board Format. Definitions have been changed to Section 3. All other section numbers have changed accordingly.

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1. **Scope**—These remanufacturing procedures are recommended guidelines for use by remanufacturers of starter solenoids to promote consistent reliability, durability, and safety of remanufactured starters. Installation of remanufactured or rebuilt products is often an economical way to repair a vehicle even though the products may not be identical to original equipment parts. Before processing any part, a remanufacturer should determine if the original design and present condition of the core is suitable for remanufacturing so as to provide durable operation of the part as well as acceptable performance when installed on the vehicle. The remanufacturer should also consider the safety aspects of the product and any recommendations of the original manufacturers related to remanufacturing or rebuilding their product.

While these procedures are meant to be universal in application, various product types have unique features of dimension and design which may require special remanufacturing processes and tests that are either not covered by or are exceptions to these procedures.

2. References

- 2.1 **Related Publications**—The following publications are provided for information purposes only and are not a required part of this document.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J2073—Automotive Starter Remanufacturing Procedures
SAE J2240—Starter Armature Remanufacturing Procedures
SAE J2241—Automotive Starter Drive Assembly Remanufacturing Procedures

2.1.2 FEDERAL TRADE COMMISSION REGULATION—Available from Federal Trade Commission, FTC Building, 6th Street and Pennsylvania Avenue, NW, Washington, DC 20580.

Federal Trade Commission Regulation: 16CFR20- 2/27/79 Para 39.051 "Rebuilt, Recon....."

3. Definitions

- 3.1 Drawings shown in this SAE Recommended Practice are intended for illustration only and not meant to depict any specific unit manufacturer.

4. **Remanufacturing Procedure**—This document provides a procedure for remanufacturing starter solenoids for automobiles and light trucks, similar to the solenoid shown in Figure 1.

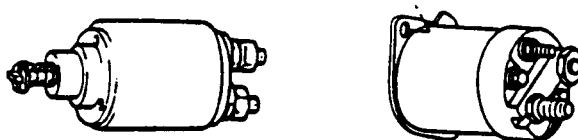


FIGURE 1—STARTER SOLENOID ASSEMBLY

The selection of replacement parts used in the remanufacturing process is critical to the quality, durability, and reliability of the end product. All replacement parts should be carefully evaluated prior to use.

5. Disassembly

- 5.1 Disassemble cap assembly.
- 5.2 Remove contactor assembly.
- 5.3 Remove coil from housing.
- 5.4 Clean all components, insuring that damage is not done to electrical componentry.

6. Solenoid Coil

- 6.1 Inspect coil for open, short, and ground. Insure that hold-in coil ground is proper.
- 6.2 Check the resistance of the hold-in and pull-in coils. Allow for resistance variations due to temperature fluctuations. The coil resistance should be within 10% of the original equipment value.
- 6.3 Discard the coil if it does not meet the criteria stated in 6.1 and 6.2.
- 6.4 Inspect coil sleeve for wear. Replace all worn sleeves.

7. Solenoid Contactor Assembly

- 7.1 Check contactor for wear or burned spots. If these conditions exist, the contactor must be turned over, repaired, resurfaced, or replaced.
- 7.2 Check for bent or worn contactor assembly rod.
- 7.3 Check contactor assembly insulators for cracks and usability.

8. Solenoid Cap Assembly

- 8.1 Use new or properly cleaned caps.
- 8.2 Motor terminal and battery terminal posts may be reclaimed if threads and contact surface areas have been processed so that they are equivalent to new terminals.
- 8.3 It is recommended the "S" and "R" terminals be replaced with new. If on some versions of solenoids, terminals have to be reclaimed, then the terminals need to be processed so that they will be equivalent to new.
- 8.4 All threaded fasteners are to be tightened to the torsional yield strength for the grade thread being used.

9. Assembly

- 9.1 Install the coil assembly and plunger stop in housing and crimp or hold in place equivalent to original equipment solenoid.
- 9.2 Install contactor disc assembly.
- 9.3 Install correct gasket.
- 9.4 Install cap on housing assembly. Insure proper termination of "S" and motor terminals. Secure cap to housing assembly. Assure fasteners are tightened to meet SAE torsional yield strength.

10. Testing/Packing

- 10.1** Test the solenoid to insure proper operation of pull-in and hold-in coil, contactor, and "R" terminal. Test to insure that the voltage drop across the battery and motor terminal will not exceed 0.2 V during the performance test of the starter.
- 10.2** Provide proper installation and trouble-shooting instructions along with all hardware required to install solenoid on starter and vehicle.
- 10.3** Package solenoid per requirements of customer.

11. Marking

- 11.1** Unit is to be marked to comply with FTC regulations.

PREPARED BY THE SAE AUTOMOTIVE STARTER REMANUFACTURING COMMITTEE

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SAE J2242 Reaffirmed DEC1998

Rationale—This reaffirmed document has been changed only to comply with the new SAE Technical Standards Board format. Definitions have been changed to Section 3. All other section numbers have changed accordingly.

Relationship of SAE Standard to ISO Standard—Not applicable.

Application—These remanufacturing procedures are recommended guidelines for use by remanufacturers of starter solenoids to promote consistent reliability, durability, and safety of remanufactured starters. Installation of remanufactured or rebuilt products is often an economical way to repair a vehicle even though the products may not be identical to original equipment parts. Before processing any part, a remanufacturer should determine if the original design and present condition of the core is suitable for remanufacturing so as to provide durable operation of the part as well as acceptable performance when installed on the vehicle. The remanufacturer should also consider the safety aspects of the product and any recommendations of the original manufacturers related to remanufacturing or rebuilding their product.

While these procedures are meant to be universal in application, various product types have unique features of dimension and design which may require special remanufacturing processes and tests that are either not covered by or are exceptions to these procedures.

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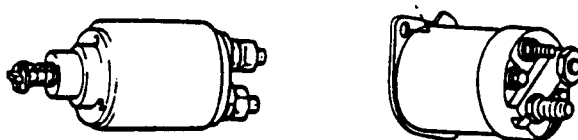


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