

 <b>SURFACE VEHICLE STANDARD</b>	<b>SAE</b> J2810	<b>ISSUED OCT2007</b>
	Issued 2007-10	Superseding J1732 NOV1998
<b>HFC-134a (R-134a) Refrigerant Recovery Equipment for Mobile Automotive Air-Conditioning Systems</b>		

## RATIONALE

Not applicable.

## FOREWORD

Because of environmental concerns, SAE J2788 recovery/recycle standard established more stringent equipment performance features and requirements for on-site recovery, recycle and recharge of HFC-134a (R-134a) in mobile air-conditioning (A/C) systems. This standard is for HFC-134a (R-134a) recovery (extraction)-only equipment that is intended to be used in conjunction with the on-site recovery/recycling (R/R) equipment used at service facilities, for off-site refrigerant reclamation or other environmentally legal use, such as destruction of refrigerants or in another compound.

### 1. SCOPE

The purpose of this SAE Standard is to provide minimum performance and operating feature requirements for the recovery of HFC-134a (R-134a) refrigerant to be returned to a refrigerant reclamation facility that will process it to the appropriate ARI 700 Standard or allow for recycling of the recovered refrigerant to SAE J2788 specifications by using SAE J2788-certified equipment. It is not acceptable that the refrigerant removed from a mobile air-conditioning (A/C) system with this equipment be directly returned to a mobile A/C system.

This information applies to equipment used to service automobiles, light trucks, and other vehicles with similar HFC-134a (R-134a) A/C systems.

- 1.1 Improved refrigerant recovery equipment is required to ensure adequate refrigerant recovery to reduce emissions and provide for accurate recharging of mobile air conditioning systems. Therefore, 12 months following the publication date of these standard, it supercedes, SAE J1732.

### 2. REFERENCES

#### 2.1 Applicable Publications

The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated, the latest revision of SAE publications shall apply.

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### 2.1.1 SAE Publications

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

- SAE J639 Safety Standards for Motor Vehicle Refrigerant Vapor Compressions Systems
- SAE J1739 Potential Failure Mode and Effects Analysis in Design (Design FMEA) and Potential Failure Mode and Effects Analysis in Manufacturing and Assembly Processes (Process FMEA) and Effects Analysis for Machinery (Machinery FMEA)
- SAE J1771 Criteria for Refrigerant Identification Equipment for Use with Mobile Air-Conditioning Systems
- SAE J2196 Service Hose for Automotive Air Conditioning
- SAE J2296 Retest of Refrigerant Container
- SAE J2788 HFC-134a (R-134a) Recovery/Recycling Equipment and Recovery/Recycling/Recharging for Mobile Air-Conditioning Systems

### 2.1.2 ARI Publication

Available from Air-Conditioning and Refrigeration Institute, 4100 North Fairfax Drive, Suite 200, Arlington, VA 22203, Tel: 703-524-8800, [www.ari.org](http://www.ari.org).

- ARI 700 Specifications for Fluorocarbon Refrigerants

### 2.1.3 CGA Publication

Available from Compressed Gas Association, 4221 Walney Road, 5th Floor, Chantilly VA 20151-2923, Tel: 703-788-2700, [www.cganet.com](http://www.cganet.com).

- CGA S-1.1 Pressure Relief Device Standard Part 1—Cylinders for Compressed Gases

### 2.1.4 DOT Specification

Available from the Superintendent of Documents, U.S. Government Printing Office, Mail Stop: SSOP, Washington, DC 20402-9320.

- CFR 49, Section 173.304 Shippers—General Requirements for Shipments and Packagings

### 2.1.5 UL Publication

Available from Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096, Tel: 847-272-8800, [www.ul.com](http://www.ul.com).

- UL 1769 Cylinder Valves

## 3. SPECIFICATIONS AND GENERAL DESCRIPTION

- 3.1 The equipment must be able to recover (extract) HFC-134a (R-134a) refrigerant from a mobile A/C system per the test procedure of Sections 7 and 8.
- 3.2 The equipment shall be suitable for use in an automotive service garage environment as defined in 6.8.

### 3.3 Equipment Certification

The equipment shall be certified by an EPA-listed laboratory to meet this standard. SAE J2810.

### 3.4 Label Requirements

The equipment shall have a label with bold type, minimum 3 mm high, saying "Design Certified by (certifying agent, EPA listed laboratory) to meet SAE J2810 for use only with HFC-134a (R-134a). If it is to be re-used in an A/C system, the refrigerant recovered with this equipment must be processed to the appropriate ARI 700 specifications or to specifications by using equipment certified to perform to SAE J2788."

### 3.5 SAE J1739

Potential Failure Mode and Effects Analysis in Design (Design FMEA), Potential Failure Mode and Effects Analysis in Manufacturing and Assembly Processes (Process FMEA), and Potential Failure Mode and Effects Analysis for Machinery (Machinery FMEA) shall be applied to the design and development of service equipment.

## 4. SAFETY REQUIREMENTS

- 4.1 The equipment must comply with applicable federal, state, and local requirements on equipment related to the handling of HFC-134a (R-134a) material. Safety precautions or notices, labels, related to the safe operation of the equipment shall also be prominently displayed on the equipment and should state "CAUTION—SHOULD BE OPERATED ONLY BY CERTIFIED PERSONNEL." The safety identification shall be located on the front near the controls.
- 4.2 The equipment must comply with applicable safety standards for the electrical and mechanical systems.

## 5. OPERATING INSTRUCTIONS

- 5.1 The equipment manufacturer must provide operating instructions that include information required by SAE J639, necessary maintenance procedures, and source information for replacement parts and repair.
  - 5.1.1 The instruction manual shall include the following information on the lubricant removed. Only new lubricant, as identified by the system manufacturer, should be replaced in the mobile A/C system. Removed lubricant from the system and/or the equipment shall be disposed of in accordance with the applicable federal, state, and local procedures and regulations.
- 5.2 The equipment must prominently display the manufacturer's name, address, the type of refrigerant it is designed to extract (R-134a), a service telephone number, and any items that require maintenance or replacement that affect the proper operation of the equipment. Operation manuals must cover information for complete maintenance of the equipment to assure proper operation.
- 5.3 The equipment manufacturer shall provide a warning in the instruction manual regarding the possibility of refrigerant contamination from hydrocarbons, leak sealants and refrigerants other than R-134a in the mobile A/C system being serviced.
- 5.4 Recovery equipment having refrigerant identification equipment shall meet the requirements of SAE J1771.
- 5.5 Recovery equipment not having refrigerant identification capability shall have instructions warning the technician that failure to verify that the system contains only R-134a potentially exposes him or her to danger from flammable refrigerants and health hazards from toxic refrigerants. The instructions also shall alert to possible contamination problems to the recovery equipment from sealants and refrigerants other than R-134a, and to the fact that a refrigerant other than R-134a would require special handling by someone with specific expertise and equipment.