



SURFACE VEHICLE STANDARD

J2845™

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(R) R-12 (CFC-12), R-134a (HFC-134a), R-1234yf (HFO-1234yf),
R-744, and R-152a (HFC-152a)
Technician Training for Service and Containment of
Refrigerants Used in Mobile A/C Systems

RATIONALE

This SAE Standard is intended to identify the requirements for service technicians to be professionally trained when required to service MAC systems that use refrigerant. Updates are being made to add R-152a and revise some requirements for other refrigerants.

1. SCOPE

Mobile air conditioning (MAC) systems used in passenger cars and light duty trucks are covered by these SAE Standards when servicing the refrigerant system. Technician training is required to ensure that recommended procedures are used for service and repair of MAC systems using R-12, R-134a, R-1234yf, R-744, and R-152a refrigerants. Unique requirements for each refrigerant are detailed within this standard. Technicians may be trained in any or all refrigerants. The technician shall be trained to recognize which refrigerant is being handled and how to handle it safely, and be equipped with the essential information, proper equipment, and tools which are unique to these refrigerants. This standard outlines minimum content requirements for such training programs. Training programs designed in accordance with this standard are not intended to ensure or assess the technical skills of technicians regarding the diagnosis and repair of motor vehicle air conditioners. Rather, the goal of such programs is to provide information to technicians about safely handling refrigerants and control of emissions during service.

2. REFERENCES

2.1 Applicable Documents

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

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

2.1.1.1 System Design Guidelines

SAE J639 Safety and Design Standards for Motor vehicle Refrigerant Vapor Compression Systems

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https://www.sae.org/standards/content/J2845_202111

2.1.1.2 System Components

- SAE J2064 Coupled Automotive Refrigerant Air Conditioning Hose Assemblies
- SAE J2196 Service Hose for Automotive Air Conditioning
- SAE J2197 HFC-134a (R-134a) Service Hose Fittings for Automotive Air Conditioning Service Equipment
- SAE J2842 R-1234yf and R744 Design Criteria and Certification for OEM Mobile Air Conditioning Evaporator and Service Replacements
- SAE J3062 Automotive Refrigerant Air Conditioning Hose Requirements

2.1.1.3 Technician Service Procedures

- SAE J1628 Technician Procedures for Refrigerant Leak Detection in Service of Mobile Air Conditioning Systems
- SAE J1989 Recommended Service Procedure for the Containment of CFC-12 (R-12)
- SAE J2211 Recommended Service Procedure for the Containment of HFC-134a (R-134a)
- SAE J2298 Ultraviolet Leak Detection: Procedure for Use of Refrigerant Leak Detection Dyes for Service of Mobile Air Conditioning Systems

2.1.1.4 Service Equipment

- SAE J1771 Criteria for Refrigerant Identification Equipment for Use with Mobile Air Conditioning Systems
- SAE J2296 Retest of Refrigerant Container
- SAE J2297 Ultraviolet Leak Detection: Stability and Compatibility Criteria of Fluorescent Refrigerant Leak Detection Dyes for Mobile R-134a and R-1234yf (HFO-1234yf) Air Conditioning Systems
- SAE J2299 Ultraviolet Leak Detection: Performance Requirements for Fluorescent Refrigerant Leak Detection Dye Injection Equipment for Aftermarket Service of Mobile Air Conditioning Systems
- SAE J2670 Stability and Compatibility Criteria for Additives and Flushing Materials Intended for Aftermarket Use in R-134a (HFC-134a) and R-1234yf (HFO-1234yf) Vehicle Air Conditioning Systems
- SAE J2791 HFC-134a Refrigerant Electronic Leak Detectors, Minimum Performance Criteria
- SAE J2888 R-1234yf Service Hose, Fittings, and Couplers for Mobile Refrigerant Systems Service Equipment
- SAE J2912 Performance Requirements for R-134a and R-1234yf Refrigerant Diagnostic Identifiers (RDI) for Use with Mobile Air Conditioning Systems
- SAE J2913 R-1234yf [HFO-1234yf] Refrigerant Electronic Leak Detectors, Minimum Performance Criteria
- SAE J2927 R-1234yf Refrigerant Identifier Installed in Recovery and Recycling Equipment for Use with Mobile A/C Systems
- SAE J2970 Minimum Performance Requirements for Non-Refrigerant Tracer Gases and Electronic Tracer Gas Leak Detectors

2.1.1.5 Recovery/Recycle Equipment

- SAE J1732 HFC-134a (R-134a) Refrigerant Recovery Equipment for Mobile Automotive Air Conditioning Systems
- SAE J1990 Recovery and Recycle Equipment for Mobile Automotive Air Conditioning Systems
- SAE J2209 CFC-12 (R-12) Refrigerant Recovery Equipment for Mobile Automotive Air Conditioning Systems
- SAE J2788 HFC-134a (R-134a) Recovery/Recycle/Recharging Equipment for Mobile Air Conditioning Systems
- SAE J2810 HFC-134a (R-134a) Refrigerant Recovery Equipment for Mobile Automotive Air Conditioning Systems
- SAE J2843 R-1234yf (HFO-1234yf) Recovery/Recycling/Recharging Equipment for Flammable Refrigerants for Mobile Air Conditioning Systems
- SAE J2851 Recovery Equipment for Contaminated R-134a or R-1234yf Refrigerant from Mobile Automotive Air Conditioning Systems
- SAE J3030 Automotive Refrigerant Recovery/Recycling/Recharging Equipment Intended for Use with Both R-1234yf and R-134a

2.1.1.6 Replacement Refrigerant Requirements

- SAE J1657 Selection Criteria for Retrofit Refrigerants to Replace CFC-12 (R-12) in Mobile Air Conditioning Systems
- SAE J1659 Vehicle Testing Requirements for Replacement Refrigerants for CFC-12 (R-12) Mobile Air Conditioning Systems
- SAE J1991 Standard of Purity for Use in Mobile Air Conditioning Systems
- SAE J2099 Standard of Purity for Recycled R-134a (HFC-134a) and R-1234yf (HFO-1234yf) for Use in Mobile Air Conditioning Systems
- SAE J2683 Refrigerant Purity and Container Requirements for Carbon Dioxide (CO₂ R-744) Used in Mobile Air Conditioning Systems
- SAE J2776 Refrigerant Purity and Container Requirements for New HFC-134a 1,1,1,2 - Tetrafluoroethane Refrigerant Used in Mobile Air Conditioning Systems
- SAE J2844 R-1234yf (HFO-1234yf) New Refrigerant Purity and Container Requirements Used in Mobile Air Conditioning Systems

2.1.1.7 Publication Certification

- SAE J2911 Procedure for Certification that Requirements for Mobile Air Conditioning System Components, Service Equipment, and Service Technician Training Meet SAE J Standards

2.1.2 ISO Publications

Copies of these documents are available online at <http://webstore.ansi.org/>.

- ISO 13043 Road Vehicles - Refrigerant Systems Used in Mobile Air Conditioning Systems (MAC) - Safety Requirements