

 SURFACE VEHICLE STANDARD	SAE J2911 FEB2011
	Issued 2011-02
Procedure for Certification that Requirements for Mobile Air Conditioning System Components, Service Equipment, and Service Technician Training Meet SAE J Standards	

RATIONALE

This document details the requirements for certification to certain SAE standards and the process to document these on the SAE International website. It also documents the conditions for use of the SAE name by companies that meet these standards.

1. SCOPE

This SAE Standard provides manufacturers, testing facilities and providers of technician training with a procedure for certifying compliance with the appropriate standards. Manufacturers who advertise their products as Certified to an SAE J standard shall follow this procedure. Certification of a product is voluntary, however, this certification process is mandatory for those advertising meeting SAE Standard(s) requirements. Only certifying to this standard allows those claiming compliance to advertise that their product (unit), component, or service meets all requirements of the specific SAE standard. Certification of compliance to this and the appropriate standard and use of the SAE label on the product shall only be permitted after all the required information has been submitted to SAE International and it has been posted on the SAE web site. This process is mandatory for those advertising as being "Certified to SAE JXXXX [appropriate SAE Standard] requirements or any advertising or labeling language that implies such certification. SAE International will post the results in the official SAE on-line database. SAE J2911 provides manufacturers, testing facilities, and technician training providers with a procedure for certifying compliance with the appropriate SAE standard. Regulatory agencies will also have access to the SAE International public posting of the results in the official SAE database.

1.1 Purpose

The purpose of this Standard is to certify that the requirements of SAE J Standards for MAC system components, MAC service equipment and MAC service technician training are met. Certification provides a means to assure a customer or a Regulatory Agency that the equipment, the components, or the training service delivers the performance required by the SAE standards to which it is certified. This procedure also identifies the data required for each SAE J Standard that is to be submitted to SAE International to be recorded and available in the public domain.

1.2 Field of Application

This certification process is applicable to all component testing, service equipment testing, and technician training testing. This standard is not required if PPAP certification is already on file at the supplier.

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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 724-776-4970 (outside USA), www.sae.org.

2.1.1.1 System Components

- SAE J2064 R-134a and R-1234yf Refrigerant Automotive Air-Conditioning Hose and Assemblies
- SAE J2842 R-1234yf and R744 Design Criteria and Certification for OEM Mobile Air Conditioning Evaporator and Service Replacements

2.1.1.2 Service Equipment

- SAE J2788 HFC-134a (R-134a) Recovery/Recycling Equipment and Recovery/Recycling/Recharging for Mobile Air-Conditioning Systems
- SAE J2791 HFC-134a Refrigerant Electronic Leak Detectors, Minimum Performance Criteria
- SAE J2810 HFC-134a (R-134a) Refrigerant Recovery Equipment for Mobile Automotive Air Conditioning Systems
- SAE J2843 R-1234yf Recovery/Recycling/Recharging Equipment for Flammable Refrigerants for Mobile Air-Conditioning Systems
- SAE J2851 R-1234yf Refrigerant Recovery Equipment for Mobile Automotive Air-Conditioning Systems
- SAE J2912 R-1234yf Refrigerant Identification Equipment for Use with Mobile Air Conditioning Systems
- SAE J2913 R-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

2.1.1.3 Technician Service Procedures

- SAE J2845 Technician Training for Safe Service and Containment of Refrigerants Used in Mobile A/C Systems (R-744, and R-1234yf)

2.1.1.4 General Requirements

- SAE J1739 Potential Failure Mode and Effects Analysis in Design (Design FMEA), Potential Failure Mode and Effects Analysis in Manufacturing and Assembly Process FMEA)

2.1.1.5 Other Standards

ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
ISO 9000	Quality management systems - Fundamentals and vocabulary
ISO 9001	Quality management systems - Requirements
ISO 9002	Quality systems - Model for quality assurance in production, installation and servicing
ASHRAE 34	Safety and Classification of Refrigerants

3. REQUIREMENTS FOR MEETING SAE STANDARD COMPLIANCE

This Standard provides general guidelines and requirements for certifying compliance to SAE Standards. This includes requirements for laboratory testing facilities and instrumentation, Mobile Air Conditioning [MAC] system components, Mobile Air Conditioning service equipment, and Mobile air Conditioning technician training programs.

3.1 General Certification Requirements

- 3.1.1 Qualified testing personnel shall verify all supporting documentation as required for compliance, and the document transmittal to SAE International shall be signed by the highest level company executive verifying compliance of certification to that SAE Standard(s).
- 3.1.2 The manufacturer can state certification of compliance with this Standard and the associated component or equipment standard only after meeting these requirements and completion of posting on the SAE International website.
- 3.1.3 It is the manufacturer's responsibility to update the certification submittal information prior to the expiration date.

3.2 Laboratory Testing Facilities and Instrumentation

- 3.2.1 The laboratory test facilities used for testing of system components and service equipment shall comply with the appropriate SAE standards for components and service equipment as well as this Standard.
- 3.2.2 The testing shall be conducted by an industry-recognized facility having all the appropriate instrumentation to certify the compliance to the applicable SAE Standard. This includes any facility that is recognized within the industry it serves, or one conforming to ISO 9000/9002, or one listed by The US EPA for Section 609 Certified Equipment, per <http://www.epa.gov/Ozone/title6/609/technicians/appequip.html>, or one meeting ISO/IEC 17025 and/or ISO/TS 16949 and has the ability to meet the requirements identified in the appropriate J Standard as well as this document. When applicable, the testing facility shall also comply with requirements addressing mildly flammable refrigerants (A2L as defined in ASHRAE34).
 - 3.2.2.1 All testing must be done by qualified technicians, and if testing is conducted by an independent facility, the manufacturer's own personnel may provide no more than purely physical assistance.
 - 3.2.2.2 The manufacturer of a component, if accredited, by meeting specific ISO 17025 requirements, can provide test results from their own laboratory facility. The manufacturer/marketer of service equipment must provide results of tests performed by a qualified independent laboratory, although the independent laboratory may use a laboratory facility of the manufacturer/marketer if it also is qualified as required by this SAE Standard.
- 3.2.3 If the facility is certified to ISO 9000/9002, the facility shall attach a valid certificate of compliance to the test results. If testing is done in a facility which is not ISO certified, they shall provide documentation to establish the capability of the facility to conduct testing as specified in the appropriate standard.

- 3.2.4 All tests that are required for verifying certification claims made as to the system component or service equipment compliance are outlined in the specific SAE Standard requirements
- 3.2.5 Certification is subject to normal production variation. If an SAE standard for the system component or service equipment being certified has a minimum performance requirement, these requirements take priority over those in this standard.
- 3.2.6 The laboratory facility's technician(s) shall be qualified in the use of all the equipment required to perform the tests.
- 3.2.7 The laboratory performing the testing shall ensure that all sensing and measuring instrumentation and metering devices shall meet the accuracy requirements of the standard to which the equipment or component is being certified. The test facility shall have and maintain the necessary instrumentation certification program and keep calibration records for the testing equipment. The test facility shall verify all measuring devices and instruments are within the calibration cycle before starting the test.
- 3.2.8 When testing Mobile Air Conditioning service equipment for certification, the technician shall be trained by the service equipment manufacturer in the proper use and adjustment and shall have access to service equipment operating manuals.
- 3.2.9 The manufacturer or independent testing lab shall identify and list the testing equipment and instrumentation used in house or in the independent testing laboratory where the certification tests were conducted.
- 3.2.10 All requirements/information submitted for certification, to SAE International, shall meet the requirements of the individual Standard and SAE J2911.
- 3.3 MAC System Components
- 3.3.1 Submission of component compliance data shall be done after successful completion of the requirements outlined in the specific SAE J standard.
- 3.3.1.1 For component certification [for hoses and evaporators for example] certification to this standard is not required if a customer approved PPAP certification is already on file at the supplier.
- 3.3.2 The manufacture shall provide the name of the testing facility, in house or independent testing facility. Those having multiple facilities, the manufacturing testing location(s) shall be identified with the submission of compliance data.
- 3.3.3 Certification to this standard of a production-tooled unit(s) shall be valid for five years from the date certification of compliance information is posted on the SAE website. The manufacturer shall furnish certification of compliance, to SAE, prior to sale of the first production unit that has the SAE certification label attached to the unit.

3.4 MAC Service Equipment

3.4.1 Certification Process for Recovery/Recycle/Charging Equipment and MAC Service Equipment

3.4.1.1 Definition of Equipment Used for Certification

Prototype or pre-production: Defined as design intent of the product being certified.

When certifying pre-production or prototype units (not complying with requirements in 3.4.1.2) they shall not be marketed with a label indicating that they meet the appropriate SAE standard. The SAE label shall not be applied to these units until the independent laboratory has confirmed that the manufacturer has made, in the first month's serial production, at least the following number of completed serial production units: 50 units for recovery/recycle/recharge machines built to SAE J2843, 25 units for recovery-only units built to SAE J2851, 50 units for refrigerant identifiers built to SAE J2927, 150 units for "hand-held" testers, such as refrigerant diagnostic identifiers built to SAE J2912 and electronic leak detectors built to SAE J2913. Based upon the first month's serial production a random selection by the certification laboratory representative from at least 50% of the units produced, a unit shall be selected for the purpose of meeting certification requirements. All units shall have been assembled on the manufacturer's serial production assembly line; using only serial production components. The manufacturer shall not select or recommend a specific unit for test certification, and the independent testing laboratory representative shall make the selection, secured with tamper-evident packaging, and ensures it is not modified prior to testing to the standard. Any product which falls under an agency test program which includes fully documenting the product construction as originally tested and a quarterly manufacturing facility assembly line inspection by the test agency to assure that there has been no deviation in construction, shall not be subject to random selection testing. The product can only be marked as compliant and marketed upon written notification by the test agency. Any requested changes to the product must be submitted to the test agency and cannot be implemented or marketed without agency approval, including required retesting at the agencies discretion.

3.4.1.1.1 For the certification of equipment (unit) that does not meet the requirements for the number of serial production units produced in 3.4.1.1, each unit produced by this supplier shall be tested to meet the requirements for certification.

3.4.1.2 Definition of Equipment Used for Certification

Production or Serial Production Defined as:

Units used in the certification process shall be built from only 100% production components with production processes and tooling. Equipment that has a specific calibration requirement(s) to meet a standard shall define the production calibration tolerances as part of the certification requirements. If a preproduction unit can be certified as meeting the requirements the independent testing laboratory shall then visit the final serial production line to confirm it is operational and is producing the equipment that meets the standard by submitting an additional inspection verification report(s) of production unit(s) compliance and shall be supplied to SAE International for posting on the SAE website

3.4.1.2.1 In addition to the certification label permitted by an individual standard, a unit that was certified in accordance with the random selection process described in 3.4.1.2 of this standard shall be permitted to affix a second label. That label, with letters at least 3 mm high, shall read "A serial production unit of this equipment was subject to random selection by (name of independent laboratory) and was the one certified to JXXX.

3.4.1.3 In the case of any unit that fails testing to a standard and requires retest, the manufacturer shall document changes made to correct the failure. Then a random sample unit from the serial production warehouse stock shall be selected by the independent testing facility for certification. It shall be packaged in a secured manner with tamper-evident wrapping and taken to be tested and determine if it meets the appropriate SAE J standard requirements. All documentation shall be submitted to SAE International for public posting in the official SAE database, including the model and serial number of the unit certified, in order to place a label on the equipment that it meets the appropriate SAE Standard. This shall be done for each type and model of equipment being submitted for compliance listing.

- 3.4.1.3.1 It is inevitable that production units will see slight changes from year to year or within a year. An example of such a change might be the resourcing of a component from a different supplier, or the revision of a calibration to correct a problem. When these changes result in a performance change that is less than or equal to 2% of the previously certified values, a manufacturer shall file an amendment to the certification and advertise those values as certified without performing additional complete re-certification testing. In no case shall the amended values deviate downward from the original submitted values by more than 2%. Specifically, amended values can be amended a second time only if the values still remain within 2% of the original certified performance values submitted. If the value change is in excess of 2% complete re-certification is required. The effect of the component change on performance must be verified by a retest of the function involved, such as recovery percentage for a refrigerant recovery compressor modification, by a qualified independent laboratory.
- 3.4.1.3.2 If a random-selected serial production unit fails, the manufacturer shall document product changes made to correct the failure. Subsequent unit testing must be from a current serial production unit, of which an additional 50 to 150 units (number of units required per 3.4.1.1.1) shall be produced for a random selection per 3.4.1.3. The product change, if successful, may be retrofitted to the warehouse stock of 3.4.1.3.
- 3.4.2 The manufacturer of the unit shall list in the certification application the name of the testing laboratory.
- 3.4.3 Certification of a unit meeting this standard shall be valid for five years from the date certification of compliance information is posted on the SAE website. If certified under a test agency that requires and conducts quarterly product construction inspections and requires test of any significant product changes, the 5 year retest shall be waived. However, certification data from these inspections shall be filed with SAE International.
- 3.4.4 The manufacturer shall furnish certification of compliance prior to selling production produced units.
- 3.4.4.1 Labels indicating certification shall not be attached to a production unit until certification is completed. An optional label stating "Certification applied for JXXXX" can be applied to the production unit and when unit design is certified the required label can be applied to all serial production units manufactured prior to unit certification, including those in warehouse stock for the random selection process.
- 3.5 Equipment Subject to US EPA 609 Requirements
- 3.5.1 Certification of recovery/recycle/charging service equipment manufactured within the US or imported for use for the maintenance, service or repair of MACs shall comply and meet the requirements of US EPA 609 40 CFR 82.38 and SAE Standard(s) or the equipment cannot be introduced into interstate commerce for use in the United States of America.
- 3.5.2 Compliance to 40 CFR 82.38 includes supporting documents including process flow sheets, lists of components and any other information that would indicate that the equipment is capable of processing the refrigerant to the standards
- 3.5.3 Compliance to this standard may also meet regulatory requirements. However, it shall meet all of the compliance requirements in this and appropriate Standards in order to attach a label that the unit meets the appropriate SAE Standard requirements.
- 3.5.4 The unit certified under the standard is subject to normal production variation. It is expected that most production units, will produce performance values that are within 2% of their certified values. However, if an SAE standard has a minimum performance requirement, that minimum is absolute, and takes precedence. If the applicable SAE standard has an allowable performance tolerance for a serial production unit, that tolerance shall be applied if necessary