



SURFACE VEHICLE STANDARD	TSB002	NOV2014
	Issued	1986-02
	Cancelled	2014-11
Superseding TSB002 JUN1992		
Preparation of SAE Technical Reports		

RATIONALE

This document is superseded by current version of the SAE Technical Report Style Manual.

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SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

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Foreword—This Technical Standards Board document (TSB) has been developed in accordance with instructions from the SAE Technical Standards Board to provide Technical Committees under its jurisdiction with documents that will assist in the expeditious development of SAE technical reports in a consistent and uniform manner.

This TSB supersedes SAE Recommended Practice: "Preparation of SAE Technical Reports—Surface Vehicles and Machines: Standards, Recommended Practices, Information Reports - SAE J1159 JUN86". It also incorporates pertinent material from an SAE report "Format Guidelines for Electronic Capture of SAE Documents."

Any questions or comments on format, style, or other editorial aspects of SAE technical reports should be referred to SAE staff.

1. **Scope**—The scope of this SAE Technical Standards Board document (TSB) is to provide uniform guidelines for Technical Committees of the SAE Technical Standards Board in the development, preparation, and issuance of technical reports. Adherence to this TSB can expedite the processing of uniform and consistent SAE technical reports, and will facilitate their use and reference by government, industry, and other organizations.

2. **References**

2.1 **Applicable Publications**—The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

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

SAE TSB 001—SAE Technical Standards Board Rules and Regulations

SAE TSB 003—Rules for the Use of SI (Metric) Units

SAE J1115—Guidelines for Developing and Revising SAE Nomenclature and Definitions

SAE Report—Format Guidelines for Electronic Capture of SAE Documents

SAE Committee Guidelines Manual

2.1.2 ISO PUBLICATIONS—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ISO Directives—Part 3: Drafting and Presentation of ISO Standards—International Standards Organization

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2.1.3 AIIM PUBLICATIONS—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ANSI/AIIM MS35—Original Black-and-White Documents That May be Microfilmed Requirements and Characteristics of

3. Technical Committee Chairman Responsibilities—A technical committee chairman is responsible for seeing that committee and subgroup members understand their responsibilities relative to the development and issuance of technical reports, particularly as regards:

- a. Accuracy of technical content and references
- b. Conformance to policies and guidelines in this TSB
- c. Clearance and approval of all reports in accordance with the provisions of Section 8 "Approval of Technical Reports" in the SAE Technical Standards Board Rules and Regulations
- d. Classification of a technical report (see Section 5 of this TSB)
- e. Legal aspects, in accordance with the provisions of Section 7 of the Technical Standards Board Rules and Regulations

4. Publication Method

4.1 Land and Sea Vehicle Reports—Reports developed under the auspices of any of the Councils of the Technical Standards Board responsible for projects pertaining to land and sea vehicles or equipment may be published in one or more of the following forms:

4.1.1 SAE HANDBOOK—An annual publication of Land and Sea Vehicle Standards, Recommended Practices, and Information Reports. In order for a report to be published in the SAE Handbook it must be fully approved by a cognizant Council/Division and transmitted to the SAE Publication Department no later than June 30 of the year prior to the next annual edition of the Handbook.

4.1.2 J-REPORTS—Individually issued Standards, Recommended Practices, Information Reports, or Research Reports, which may also appear in the Handbook. J-Reports offer a means for more timely issuance of a report.

4.1.3 HANDBOOK SUPPLEMENT (HS)—Handbook Supplements are used for technical information of specialized interest to SAE members and other individuals and groups in the engineering community. HSs are also used for publication of collections of J-Reports covering related subject matter (e.g., HS34 - SAE Ground Vehicle Lighting Manual).

4.1.4 SPECIAL REPORTS (SP)—This category of publications covers collections of various types of reports developed by technical committees, including those defined in Section 5, but also background information, rationale statements, documentation of supporting research, and papers on the subject matter at SAE meetings (e.g., SP456 - Vehicle Noise Reduction and Regulation).

4.2 Air and Space Reports

Reports developed under the auspices of Aerospace Council will be published as individually issued Specifications, Standards, Recommended Practices, Information Reports, or Resource Documents.

All new and revised reports are compiled and issued in updates. The Aerospace Materials Specifications (AMS) update is issued quarterly and the Aerospace update is issued three times a year.

4.3 Technical Standards Board Document

Reports that are developed under the auspices of the Technical Standards Board containing a prefix of TSB.

5. Classification of Technical Reports—Technical reports are approved for SAE publication by a cognizant Council of the Technical Standards Board, and must be based on sound technology and cooperative engineering work. Before publication, a report must be classified by the originating group in one of the following categories, established in Section 7.3 of the Technical Standards Board Rules and Regulations:

5.1 SAE Standard—A documentation of broadly accepted engineering practices, or a specification for a material, product, process, procedure, or test method. Standards fall into broad categories:

5.1.1 **PRODUCT STANDARD**—This is primarily a descriptive report covering dimensions, composition, and/or other details.

5.1.2 **PERFORMANCE STANDARD**—This is a documentation of requirements or levels against which a product or function can be evaluated. It may define test methods by which the requirements can be measured. Performance requirements and test methods should preferably be in separate reports. If this is not practical, they should be in distinct and separate sections of the same report.

5.2 SAE Recommended Practice—A documentation of practices, procedures, and technology that are intended as guides to standard engineering practice. The content may be of a more general nature, or may present data that have not yet gained broad engineering acceptance.

5.2.1 A Technical Committee developing a recommended practice may add an introductory note stating:

"This SAE Recommended Practice is intended as a guide toward standard practice and is subject to change to keep pace with experience and technical advances.

5.3 SAE Information Report—A compilation of engineering reference data or educational material useful to the technical community.

5.4 SAE Draft Technical Report—A Draft Technical Report may be identical to an SAE Standard or Recommended Practice, except that it has not had consensus approval by the sponsoring Division/Council or the Technical Standards Board. It may be an existing company or government standard or an existing international standard.

5.4.1 EACH DRAFT TECHNICAL REPORT SHALL INCLUDE THE FOLLOWING NOTE IN THE FOREWORD: —"The purpose of this Draft Technical Report is to give the technical community the opportunity to review, comment on and use its content prior to final approval by SAE. Comments on this draft are welcome and should be submitted in writing to Secretary, Technical Standards Board, SAE, 400 Commonwealth Dr., Warrendale, PA 15096."

5.4.2 The words "COMMITTEE DRAFT" shall be appended to the document number and date on the top of every page.

5.5 SAE Technical Data Report—A documentation of technical and nontechnical information that is intended to support the content of an SAE Technical Report. Examples include: rationale reports, results of round robin or field testing, and compilations of industry research results. They may also report on state-of-the-art technology or be a technology needs-assessment.

Technical Data Reports are published as ARDs (Aerospace Resource Documents) in Aerospace documents, and as RJs (Research J) in Surface Vehicle documents.

5.5.1 Research reports shall have a maximum life of 5 years. They cannot be revised or reaffirmed.

5.5.2 Research reports need not be in the format outlined in Section 7. However, they shall have at least the following content:

5.5.3 A statement of Scope indicating the nature of the report.

6. **Numbering of SAE Technical Reports**

6.1 Number Assignment—Prior to the submission of a new (as opposed to revised) technical report to an appropriate Council/Division, SAE staff will assign an identifying number to the report (i.e., J4500 or AS4704).

6.2 Revisions

6.2.1 When a J report is revised, the year digits shall be changed to reflect the year that the revision was approved. The J-number shall not be changed. The revised date suffix shall be shown in all indexes, and should be used as appropriate in all references.

6.2.2 When an Air and Space report is revised, the revisions shall be indicated by a Gothic letter following the document number; e.g., AS9999A. The first revision shall be marked with the letter "A" and succeeding revisions shall be indicated by the other letters in alphabetical sequence, except that the letters I, O, Q, S, X, and Z shall not be used.

6.3 Integrity of SAE Document Numbers—Changes to an SAE technical report that will alter it sufficiently to affect its interchangeability or interchangeable application shall require a new number. The superseded number shall continue to exist unless the report is canceled. When a report is canceled, its number shall continue to be listed in the appropriate index with its suffix, classification, cross-reference to any superseding number, and an indication of its last date and method of publication.

7. Format of Technical Reports—The following recommendations for the content and sequence of items to be included in SAE Technical Reports are all-inclusive. Accordingly, all items may not be required for every type of report. Requirements for standard parts drawings are covered in the SAE Style Manual for Technical Reports. To assist in the electronic capture of all other SAE technical reports, 7.1.1, 7.2.1, 7.2.2, and 7.2.7 shall be included in all SAE Technical Reports.

This format corresponds to an international standards format issued by the International Standards Organization (ISO). Its usage for SAE technical reports can facilitate International acceptance.

7.1 Front Matter

7.1.1 **TITLE**—Each report shall have a title that does not duplicate an existing title. The title will appear in the title block on SAE format paper. Reference to equivalent ISO standards will also be made in the title block separate and distinct from the title. If more room is required than is available in the title block, a footnote shall reference the appropriate paragraph in the NOTES section.

7.1.2 **CLASSIFICATION**—See Section 5 of this report.

7.1.3 **APPROVAL NOTE**—Includes original approval date and date of the last revision or reaffirmation. A statement indicating what this revision supersedes is also included here.

7.1.4 **FOREWORD**

7.1.5 **TABLE OF CONTENTS**

7.2 Body of the Report

7.2.1 **SECTION 1—SCOPE**—Can include subsections describing scope, purpose, and application of the report.

- 7.2.2 SECTION 2—REFERENCES—Section 2 shall be titled References if this section contains Related Publications (as in a Bibliography), Definitions, Symbols, and/or Abbreviations as described in 7.2.2.2 and 7.2.2.3. If this section contains only Applicable Documents, the title of this section shall be Applicable Documents.
- 7.2.2.1 *Paragraph 2.1—Applicable Documents*—Lists the publications referenced in the report.
- 7.2.2.2 *Paragraph 2.2—Definitions*—Includes definitions used in the report. May also include systems of classification, designation, and/or coding of products or processes.
- 7.2.2.3 *Paragraph 2.3—Symbols and Abbreviations*—Lists symbols and abbreviations used in the report.
- 7.2.3 SECTION 3—REQUIREMENTS—Can include subsections on requirements, materials, design, performance, and manufacturing.
- 7.2.4 SECTION 4—QUALITY ASSURANCE PROVISIONS—Can include subsections covering quality assurance sampling quantities and procedures.
- 7.2.5 SECTION 5—TEST METHODS—Can include subsections covering test equipment, environment, and procedures.
- 7.2.6 SECTION 6—LABELING, MARKING, AND PACKAGING—Can include subsections covering marking (e.g., manufacturer's trademark or model number), and requirements for labeling and packaging of product.
- 7.2.7 SECTION 7—NOTES—Can include subsections covering explanatory or general information, installation guidelines, health and safety warnings, rationale statements, etc. Key Words shall be provided in this section.
- 7.3 **Back Matter**—Can include, as appropriate, appendices, index, rationale statement, explanation of relationship to ISO standards as referenced in title block, etc.
- 7.4 Table 1 summarizes the recommended and required sectional arrangement for SAE Technical Reports.
8. **Preparation of SAE Technical Reports**
- 8.1 **Paragraph Numbering**—A decimal numbering system shall be used in numbering sections of a report. Decimals shall be used to indicate successive subheadings, e.g.:

- 1 Section Heading
- 1.1 Primary Paragraph
- 1.1.1 Sub(s)paragraph (Numbering of paragraphs beyond x.x.x is not recommended)
- 1.1.1.1 Sub-subparagraph (If this level is essential)

TABLE 1—SECTIONAL ARRANGEMENT

Element	Status
Foreword	Optional
Table of Contents	Optional
1. Scope	Required
1.1 Purpose	Required in AMS; optional in others
1.2 Field of Application	Required in AMS; optional in others
1.3 Product Classification	Required in AMS; optional in others
1.4 Form	Required in AMS; optional in others
2. References	Required
2.1 Applicable Documents	As applicable
2.2 Other Applicable References	As applicable
2.3 Related Publications	As applicable
3. Definitions ¹	As applicable
3.1 Symbols ⁽¹⁾	As applicable
3.2 Terminology ⁽¹⁾	As applicable
4 XXXXXXXXXXXXXXXX	To be determined by the preparing committee; for technical requirements of specific document types, refer to the SAE Style Manual for Technical Reports
x. XXXXXXXXXXXXXXXX	Subsequent sections as determined by the preparing committee
y. Notes	Required; the last numbered section of all documents shall be Notes:
y.1 Marginal Indicia	As required
y.x XXXXXXXXXXXXXXXX	As determined by the preparing committee
y.x Key Words	Required; the last numbered paragraph of all documents shall be Key Words

8.2 Draft Reports—Drafts of new reports and major revisions of existing reports shall be double spaced.

NOTE—Minor revisions are best handled by marking up the most recent version of the document. New or completely revised reports may be submitted on floppy discs for publication. A hard copy of the report shall also be provided. Floppy discs should adhere to the following guidelines:

- a. "3-1/2" disks are preferred (regular or high-density)
- b. ASCII file version, "generic" file version, or Word Perfect Version 5.0 or 5.1
- c. If submitting an ASCII or generic file, include a copy of your original word processing file and identify the software used; this will enable translation attempts.

8.3 Submission of Draft on Computer Disc—When preparing a disc for submission, all text should be typed flush left. Indents, tabs, etc. will be put in at SAE.

Artwork submitted on a disc should be stored as either a .PCX or .TIF file. Hard copy original artwork should accompany the disc.

¹These paragraphs may be combined at the discretion of the preparing committee.

8.4 Artwork

8.4.1 CAMERA-READINESS—All artwork shall be prepared by the committee or the sponsor. It is recommended that artwork meet the requirements for readability of AIIM MS 35. The art preparation must be readable down to 64% reduction. Clear, sharp glossy prints of specified original artwork are acceptable if originals must be kept in committee's files.

8.4.2 All figures shall be numbered (Arabic) consecutively in order of mention and shall have a title.

8.4.3 LETTERING—Typewriter lettering and pencil drawings are unacceptable as both fade and drop out in the reproduction process. Please use black ink.

All lettering to be capitals unless lower case letters are necessary for a specific term. Lettering shall be vertical except for quantity symbols which shall be in italics. Use only Roman alphabet, except where letters are recognized standard symbols.

8.4.4 NUMBERS IN ARTWORK—Align column of numbers on decimal point.

8.5 Tables—Tables shall be numbered in Arabic numbers consecutively throughout the report, and shall be referred to in the text. Each table shall be titled.

8.5.1 Concise descriptions, measurement units, and letter symbols shall be used in column headings.

8.5.2 Explanatory notes shall be located at the bottom of the table, with distinct reference symbols.

8.5.3 Numerical ranges should be concise. Do not overlap ranges or leave gaps in ranges. An example of good practice is:

0.75 through 1.25 mm
Over 1.25 through 2.00 mm
Over 2.00 through 3.25 mm

8.6 Dimensioning—Dimensions and units of measurement in new and revised SAE technical reports shall be expressed in SI (metric) units (See Section 10). Nominal sizes shall be expressed as determined by their design basis or historical use. Where these considerations are not decisive, decimal nominal sizes shall be used. (See SAE TSB 003.)

8.6.1 SIGNIFICANCY—The number of significant digits used in a dimension should relate to the precision of the quantity stated. This is particularly important in decimalizing dimensions previously expressed as fractions. A dimension of 1-3/16 with an intended precision of about ± 0.01 shall be decimalized as 1.19, not as 1.1875. For further information, consult SAE TSB 003.

8.6.2 ROUNDING OFF—When it is necessary to reduce the number of decimals by rounding off, the method shown in SAE TSB 003 shall be used.

8.6.3 ZEROS—Where decimal values less than 1 appear, a zero shall be placed to the left of the decimal point. Parts or Design Standards, however, that comply with ANSI Y14.5 shall follow the format specified.

8.6.4 LARGE NUMBERS—To facilitate the reading of numbers having five or more digits, the digits shall be placed in groups of three separated by a space instead of a comma, counting both to the left and to the right of the decimal point. In the case of four digits, the space is optional. This style avoids confusion caused by the use of the comma to express the decimal marker in some countries.