Preparation of SAE Technical Reports—Surface Vehicles: Standards, Recommended Practices, Information Reports—SAE J1159

SAE Recommended Practice
Approved July 1976

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1 Rules, Nomenclature and UNS

PREPARATION OF SAE TECHNICAL REPORTS—SURFACE VEHICLES: STANDARDS, RECOMMENDED PRACTICES, INFORMATION REPORTS—SAE J1159

SAE Recommended Practice

Report of Publications Advisory Committee approved July 1976.

Foreword—This SAE recommended practice has been developed by the Publications Advisory Committee of the SAE Technical Board. The Publications Advisory Committee was formed as the Publications Policy Committee of the Technical Board in 1956. The objectives of the Committee are (1) to guide and promote efficient dissemination of material produced under the Technical Board and (2) to recommend immediate and long-range policies to the Technical Board to assure that Technical Board information will be available to those who need it in a form suitable for their work.

Purpose and Scope—The purpose of this recommended practice is to provide guidance for Technical Committees in the preparation of Technical Reports. It applies to reports of Surface Vehicle Technical Committees only. Aerospace technical reports are covered by editorial practices of the Aerospace Council.

Close adherence to this recommended practice by technical committees of SAE will help to assure uniform technical reports. Should questions on format, style, or other matters pertaining to the organization and editorial practices of technical reports be raised within technical committees of the Technical Board, they should be referred to the chairman of the Publications Advisory Committee for interpretation or for discussion by the full Publications Advisory Committee.

PART 1—BASIC RESPONSIBILITIES

A Technical Committee Chairman is responsible for seeing that his committee and all subcommittees or working group members understand their responsibilities relative to publications, particularly

(a) accuracy of technical content and references

(b) conformance to policies and guidelines outlined in this report

(c) clearance through Technical Committee Chairman of all subcommittee or committee work, whether major or minor (including editorial changes and corrections).

It is the Chairman's responsibility to see that the following actions are taken relative to reports.

1. Classification—This shall be recommended by the time technical agreement has been reached on the content of the report. See Part 2 of this report.

2. Legal Aspects—The report shall be checked against rules prepared by the Society's legal counsel. See Technical Committee Guideposts, Section 7.

3. Publication Method—This shall be recommended based on the following methods.

3.1 SAE Handbook—The Handbook is used for reports (Standards, Recommended Practices, Information Reports) of value to a substantial number of SAE members.

3.2 Handbook Supplements—Supplements are used for descriptive or educational material of broad interest to SAE members and other engineers in the automotive and allied industries. They are also used to provide groups of related reports from the SAE Handbook.

3.3 Separate Reports—A properly approved report may be issued separately in addition to publishing in the Handbook, either because the subject is timely and must not wait for the next Handbook issue, or because of major interest.

4. Organization and Format—The draft of the report shall be prepared using details given in Part 3 of this report.

5. Metrication—The report shall be checked to make sure that metric units have been included or used as the basis for the report. Details of use shall be checked for conformance with SAE J916.

6. Key Index Words—Along with the report, the committee shall submit a list of key words to provide a basis for index preparation by staff. A list of three to ten words is suggested, depending on the nature of the report. Instructions are given in Part 4 of this report.

7. Explanation of Proposed Report—When the report is submitted to the Technical Board Council, a statement shall be included outlining:

(a) significance of report

(b) background information (rationale)

(c) reason for choice of classification

(d) recommendation for method of distribution.

The statement will be retained in the document file by the SAE Technical Division.

8. Cut-Off Date—When beginning the final approval process, the approved committee draft report should be submitted to SAE staff in time to meet the deadline for publication of the Handbook. Time must be allowed for Technical Board Council approval to be completed by June 30 of each year. Staff should be consulted on adequate lead time.

PART 2—CLASSIFICATION AND NUMBERING OF REPORTS[1]

1. Classification—Technical reports are approved for publication by the Technical Board, and must be based on sound technology and cooperative engineering work. Before publication, a report must be classified into one of the following three classifications:

1.1 SAE Standards—These reports are a documentation of broadly accepted engineering practices or requirements for a material, product, process, procedure, or test method.

1.1.1 A product standard may be primarily a descriptive standard covering dimensions, composition, and other details or it may be a functional or performance standard, or both.

1.1.2 Performance standards involve requirements or levels against which the functions can be evaluated. This frequently involves the need to define test methods by which these requirements are measured. Preferably, performance standards and test procedure standards should be in separate reports. If this is not practical, they should be in separate sections of the same report. Where performance standards are given, it is desirable to publish the rationale simultaneously as an SAE Information Report in order to provide all users with the basis for selection of performance levels.

1.2 SAE Recommended Practices—These reports are documentation of the same nature as SAE standards. The contents are intended as guides to standard engineering practice, but may be of a more general nature, or may cover practices or requirements that have not yet gained broad acceptance.

1.2.1 A Technical Committee preparing such a report may add an introductory note stating "This SAE Recommended Practice is intended as a guide toward standard practice but may be subject to frequent change to keep pace

[1]The Society also approves and issues reports for the aerospace industry. These are called Aerospace Standards (AS), Aerospace Recommended Practices (ARP), Aerospace Information Reports (AIR), and Aerospace Material Specifications (AMS). Their definitions are similar to the above.

with experience and technical advances, and this should be kept in mind when considering its use."

1.3 SAE Information Reports—These reports are compilations of engineering reference data or educational material useful to the technical community.

1.4 Examples

STANDARD—Automotive Carburetor Flange. A product standard based on dimensions.

RECOMMENDED PRACTICE—Surface Texture Control. Description of the techniques of control, including preparation of standards, etc.

INFORMATION REPORT—Mechanical Properties of Heat Treated Steels. General information giving guidance on the relationship of various properties.

2. Numbering—Prior to submission to the appropriate Technical Board Council, SAE staff will assign a nonsignificant "J" number to all Reports. Revisions of existing reports will be assigned appropriate suffix letters in sequence.

PART 3—GUIDE FOR PREPARATION OF TECHNICAL REPORTS

1. Organization of Report

1.1 Title—Each report shall have a title which does not duplicate an existing title. It should be as short, concise, and descriptive as possible.

1.2 Report Classification—See Part 2.

1.3 Approval Note—Includes credit to originating committee, approval date, and date of last revision or reaffirmation. Latest editorial revision, if any, is included. For example:

Report of Iron and Steel Technical Committee approved April 1963 and last revised June 1975. Editorial change March 1976.

1.4 Purpose or Scope—As applicable, the lead paragraphs of a technical report should include the purpose and/or scope of the report. The purpose will explain the objectives or end to be attained by use of the report. The scope will briefly give the extent of treatment and applicability of the report.

1.5 Text of Report—Includes text, illustrations, and tables.

1.5.1 PARAGRAPH NUMBERING—A decimal numbering system should be used where practical to aid organization in long or complicated reports. Use decimal point to indicate successive subheadings (example 1., 1.1, 1.1.1).

1.6 Appendices—As required. Having the status of SAE Information Reports, appendices are not considered a part of an SAE Standard or Recommended Practice.

1.7 References—Where desirable, list all documents referenced in the report.

2. Preparation of Reports

2.1 New Reports—Double space drafts of new reports. Mark and date each successive draft legibly.

2.2 Revisions to Existing Reports[2]—Revisions may be handled in several ways. The best method depends upon the extent of the revisions. A major revision, for example, would probably best be handled by complete retyping as in 2.1. Other approaches in handling are:

(a) Cut and paste or mark copies of printed report, indicating deletions and insertions clearly.

(b) Double space new copy, describing clearly where it is to be inserted in existing report.

3. Artwork—These instructions are based on a 50% reduction for final size. A one-column figure has a final maximum width of 92 mm (3.62 in). Largest maximum final width is 178 mm (7.00 in).

(a) Typewriter lettering and pencil drawings are unacceptable as both fade and drop out in reproduction process. Please use ink.

(b) Clear, sharp glossy prints of specified original artwork are acceptable if originals must be kept in Committee's files.

3.1 Line Drawings (excluding graphs)

Main lines—Equiv. 0 Leroy pen (0.3 mm width)

Inside lines
Dimension line leaders
Phantom line, etc. } Equiv. 00 Leroy pen (0.2 mm width)

3.2 Graphs—The heaviest line weight used on graphs should be the curves.

Curves—Equiv. 1 Leroy pen (0.4 mm width)

Ordinate and Abscissa—Equiv. 0 Leroy pen (0.3 mm width)

Grid lines
Tic marks } Equiv. 00 Leroy pen (0.2 mm width)

3.3 Lettering (excluding section and reference letters)—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.

3.3.1 All lettering should be placed outside visible outline of part. Label, with line and arrowhead to area being identified, should be kept reasonably close to figure.

[2]See paragraph 9.

3.3.2 Lettering, including Greek, numbers, fractions: 120 Leroy—Equiv. 00 pen (0.120 in [3.05 mm] letter height).

3.4 Section and Reference Letters—All section and reference letters: 140 Leroy—Equiv. 0 pen (0.140 in [3.56 mm] letter height).

3.5 Numbers—Align column of numbers on decimal point.

3.6 Abbreviations—Do NOT use ", ', or °. Use IN, FT, DEG.

4. Tables—Tables shall be numbered consecutively throughout the report, and referred to in the text. Each shall be titled.

(a) Concise descriptions, measurement units, and letter symbols shall be included in column headings.

(b) Be concise in numerical ranges. Do not overlap ranges or leave gaps in ranges. An example of good practice is:

0.75 thru 1.25 mm
Over 1.25 thru 2.00 mm
Over 2.00 thru 3.25 mm

5. Decimal Dimensioning—The dimensions in all new and revised SAE technical reports shall be expressed in decimal units. Nominal sizes shall be expressed as decimals or fractions, as determined by their design basis or historic use. Where these considerations are not decisive, decimal nominal sizes will be used.

5.1 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 $1\frac{3}{16}$ with an intended precision of about ± 0.01 shall be decimalized as 1.19, not 1.1875. A discussion of the precision of a value, and the number of decimals proper to retain, is given in SAE J916, paragraph 7.1.

5.2 Rounding Off—When it is necessary to reduce the number of decimals by rounding off, the method shown in J916 shall be used.

5.3 Zeros—Where decimal values less than 1 appear, a zero shall be placed to the left of the decimal point.

6. Cross-Referencing—As necessary, other SAE reports or reports of other organizations may be referenced.

6.1 Cross-references within the text shall have identification of organization and report number (For example: SAE J804; ASTM D 1405). Preferably, cross-referenced reports should not be dated. If a date is included, it is assumed that a specific report is being referenced, even though it may be obsolete.

6.2 If the SAE report corresponds to but is not identical to a report of another organization, it should be noted in the approval note. Example: This report conforms essentially to American National Standard B18.2.

6.3 Joint development of a report should be indicated in the approval note. Example: This is a joint report of SAE and ASTM . . .

7. Use of Basic Terms

7.1 Surface Vehicle—The term "surface vehicle" is preferred to "automotive" for use in identifying standards which do not apply to the aircraft industry.

7.2 Mechanical Properties—Mechanical properties are those properties of a material that pertain to its elastic and plastic behavior when force is applied: for example, yield strength, ultimate strength, elongation, hardness, etc.

7.3 Physical Properties—Physical properties are those properties other than mechanical properties that pertain to the physics of a material: for example, density, electrical conductivity, thermal expansion, etc., often improperly used to express mechanical properties.

7.4 Use of "Shall" or "Should"—The use of "should" or "shall" has no bearing on the voluntary nature of SAE technical reports. Inclusion of an SAE technical report in a document, standard, or contract by a company or agency is a voluntary act. When a technical report is so cited, the report becomes a requirement within the limitations set forth by the document, standard, or contract. The following shall apply to use of these words:

SHALL—"Shall" is to be used wherever the criterion for conformance with the specific recommendation requires that there be no deviation. Its use shall not be avoided on the grounds that compliance with the report is considered voluntary.

SHOULD—"Should" is to be used wherever noncompliance with the specific recommendation is permissible. "Should" shall not be substituted for "shall" on the grounds that compliance with the report is considered voluntary.

7.5 Use of "Safe" and "Safety"—The words "safe" and "safety" shall be used in SAE technical reports only when they are in whole or in part commonly used engineering terms, such as: fail-safe, factor of safety, safety glass. To preclude any misinterpretation of the words "safe" and "safety," more definite descriptive words shall be used, such as:

"lock wiring *rather than* safety wiring" . . .

"lock nut *rather than* safety nut" . . .

"relief valve *rather than* safety valve" . . .

"the integrity of the painted surface *rather than* the safety of the painted surface" . . .