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SURFACE VEHICLE DRAFT TECHNICAL REPORT

SAE J2223/1

Issued 1994-02-14
Committee Draft

CONNECTIONS FOR ON-BOARD ROAD VEHICLE ELECTRICAL WIRING HARNESSES— PART 1: SINGLE-POLE CONNECTORS—FLAT BLADE TERMINALS— DIMENSIONAL CHARACTERISTICS AND SPECIFIC REQUIREMENTS

This document is technically equivalent to ISO 8092/1.

The purpose of this Draft Technical Report is to give the technical community an opportunity to review, comment on, and use the Draft Technical Report prior to its final approval by SAE.

This Draft Technical Report represents the current thinking of the sponsoring Technical Committee. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringements arising therefrom, is the sole responsibility of the user.

Comments on this draft are welcome and should be submitted in writing to secretary, Technical Standards Board, SAE Headquarters, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

This document shall have a life span of no more than 3 years from approval which may not be renewed.

Foreword—SAE J2223 consists of the following parts:

- SAE J2223/1—Connections for On-Board Road Vehicle Electrical Wiring Harnesses—Part 1: Single Pole Connectors—Flat Blade Terminals—Dimensional Characteristics and Specific Requirements
- SAE J2223/2—Connections for On-Board Road Vehicle Electrical Wiring Harnesses—Part 2: Tests and General Performance Requirements
- SAE J2223/3—Connections for On-Board Road Vehicle Electrical Wiring Harnesses—Part 3: Multipole Connectors—Flat Blade Terminals—Dimensional Characteristics and Specific Requirements
- SAE J2223/4—Connections for On-Board Road Vehicle Electrical Wiring Harnesses—Part 4: Single and Multipole Connectors—Pin Terminals—Dimensional Characteristics and Specific Requirements (DRAFT)
- SAE J2223/5—Connections for On-Board Road Vehicle Electrical Wiring Harnesses—Part 5: Connectors for Electronic Applications (DRAFT)

1. Scope—This SAE Draft Technical Report specifies dimensional characteristics of flat blades of single-pole connectors and specific requirements for on-board electrical harnesses of road vehicles, which can be fitted into female connectors such as those given as in Appendix A.

This document applies to connectors designed to be disconnected after mounting in the vehicle in the case of repair and/or maintenance only.

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

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2. References

2.1 Applicable Documents—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 J2223/2—Connections for On-Board Road Vehicle Electrical Wiring Harnesses—Part 2—Tests and General Performance Requirements

SAE J2223/3—Connections for On-Board Road Vehicle Electrical Wiring Harnesses—Part 3: Multipole Connectors—Flat Blade Terminals—Dimensional Characteristics and Specific Requirements

SAE J2223/4—Connections for On-Board Road Vehicle Electrical Wiring Harnesses—Part 4: Single and Multipole Connectors—Pin Terminals—Dimensional Characteristics and Specific Requirements (DRAFT)

SAE J2223/5—Connections for On-Board Road Vehicle Electrical Wiring Harnesses—Part 5: Connectors for Electronic Applications (DRAFT)

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

ISO 8092/1—Single pole connector tabs—Dimensions and specific requirements

2.2 Terminology and Definitions—See SAE J2223/2, paragraph 2.3.

3. Dimensional Characteristics—Blades shall conform to dimensions given in Figure 1 and Table 1.

NOTE—Details not specified are left to the manufacturer's choice.

4. Specific Performance Requirements—Blades for single-pole connections shall be in conformity with the general performance requirements of SAE J2223/2, and shall meet the following specific requirements.

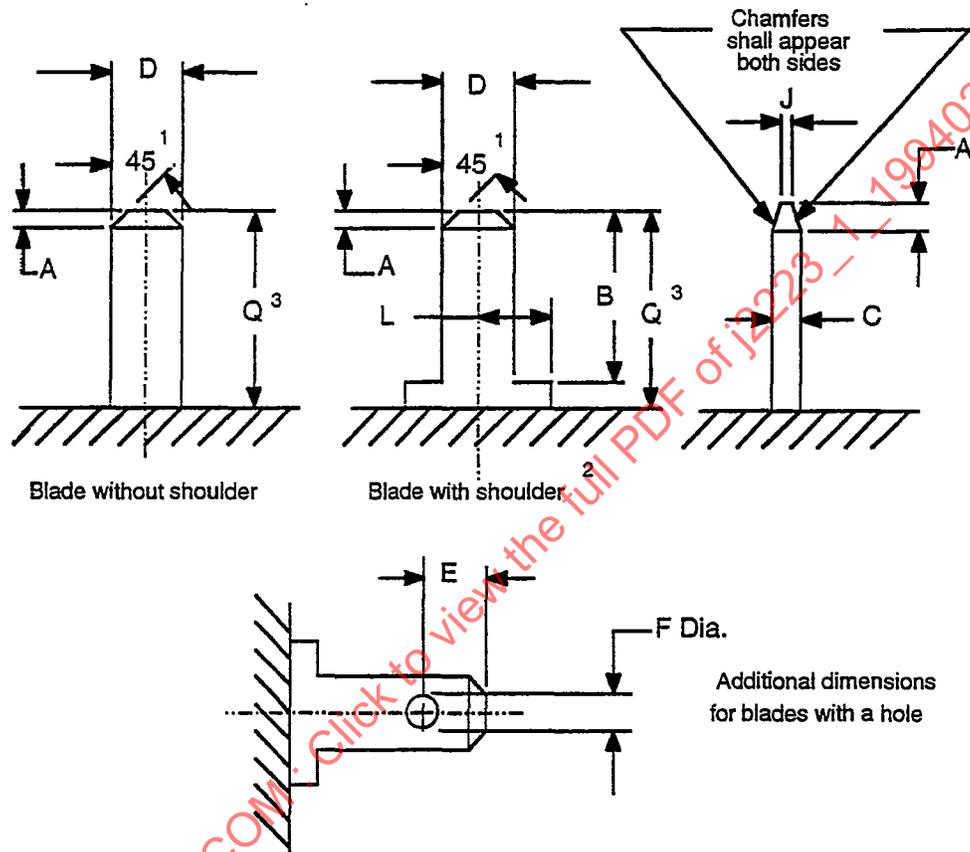
NOTE—A blade without a hole requires external means of retention to the mating part.

4. Connection Forces and Disconnection Forces—Single-pole connectors, tested as in SAE J2223/2 (see 3.3), shall meet the requirements as in Table 2.

NOTE—Disconnection forces of positive locking connections shall be performed with the locks disengaged.

4.2 Connection Resistance—Single-pole connectors, tested as in SAE J2223/2 (see 3.8), shall meet the requirements as in Table 3.

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1. Bevel $A \times 45^\circ$ need not be a straight line but shall not be a concave curve if it is within the confines shown; it may be a radius of A .
2. Blades with one shoulder are optional.
3. Functional length of the blade. Retention features of the blade must not be within this length.

NOTE— Q is the blade length required for engaging the female connector (functional area of blade).

FIGURE 1—FLAT BLADE DIMENSIONS

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TABLE 1—BLADE DIMENSIONS

Dimensions are in millimeters

Dimension	Dimension	Size 2.8 x 0.5 ¹	Size 2.8 x 0.8	Size 4.8 x 0.5 ¹	Size 4.8 x 0.8	Size 6.3 x 0.8	Size 9.5 x 1.2
D	max	2.9	2.9	4.9	4.9	6.4	9.6
D	min	2.7	2.7	4.7	4.7	6.2	9.4
C	max	0.54	0.84	0.54	0.84	0.84	1.23
C	min	0.47	0.77	0.47	0.77	0.77	1.17
B	max	7.3	7.3	6.5	6.5	8.1	12.5
B	min	7.0	7.0	6.2	6.2	7.8	12.0
Q	max	—	—	—	—	—	—
Q	min	8.1	8.1	8.0	8.0	10.1	14.5
A	max	0.6	0.6	0.9	0.9	1.0	1.3
A	min	0.3	0.3	0.6	0.6	0.5	0.7
J	max	0.3	0.5	0.3	0.5	0.5	0.7
J	min	0.1	0.3	0.1	0.3	0.3	0.5
L	max	2.3	2.3	3.5	3.5	4.7	6.5
L	min	2.0	2.0	3.0	3.0	4.0	5.5
E ²	max	1.8	1.8	3.4	3.4	4.7	5.5
E ²	min	1.3	1.3	3.0	3.0	4.0	4.5
F ²	max	1.3	1.3	1.5	1.5	2.0	2.0
F ²	min	1.1	1.1	1.3	1.3	1.6	1.7

1. Non-preferred blade thickness.

2. For blades with hole only.

TABLE 2—PERFORMANCE REQUIREMENTS FOR CONNECTION AND DISCONNECTION FORCES OF SINGLE-POLE CONNECTIONS

Connection and Disconnection	Force (N)						
	Blade Size						
	2.8 P	2.8 F	4.8 P	4.8 F	6.3 P	6.3 F	9.5 F
1st connection force, max	27	53	30	67	45	80	100
1st disconnection force, max	27	53	30	67	45	80	100
10th disconnection force, min	4	6	7	15	9	18	30

NOTES

1 P refers to positive locking female terminals.

2 F refers to female terminals (without positive locking), e.g., detents or nibs.

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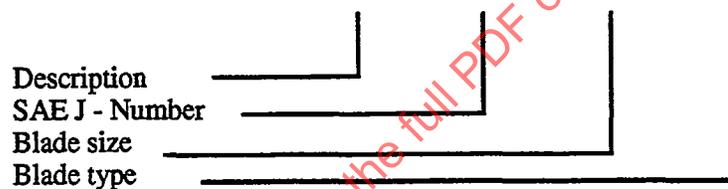
TABLE 3—MAXIMUM PERMITTED CONNECTION RESISTANCES

Connection Resistances Initial Permitted	Connection Resistances After Endurance	Connection Resistances After Endurance
	1 ¹	2 ¹
milliohms maximum	milliohms maximum	% of initial measured value maximum
5	10	150

¹ 1 and/or 2 to be selected by supplier and user.

5. **Designation**—Blades in accordance with this document may be designated as follows in Figure 2:

EXAMPLE BLADE SAE J-2223 6.3 X 0.8 1H



First digit:

- 1 = blade with one shoulder
- 2 = blade with two shoulders
- 0 = blade without a shoulder

Second digit:

- H = blade with a hole
- N = blade without a hole

FIGURE 2—BLADE DESIGNATION

PREPARED BY THE SAE LOW TENSION TERMINALS TASK FORCE OF THE SAE
ELECTRICAL DISTRIBUTION SYSTEMS STANDARDS COMMITTEE