

Fusible Links

RATIONALE

This document is being revised to include the following:

- Update format
- Conversion of document back to SAE Conductor Size No.'s to eliminate industry confusion and differentiate from ISO metric standards

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1. SCOPE

This standard covers supplemental requirements for low tension primary cable intended for use as Fusible Links (Fuse Links) at a nominal system voltage of 60 V DC (25 V AC) or less in surface vehicle electrical systems. These supplemental requirements are intended to qualify cables for an extreme current overload.

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.

SAE J537	Storage Batteries
SAE J1127	Low Voltage Battery Cable
SAE J1128	Low Voltage Primary Cable
SAE J1678	Low Voltage Ultra Thin Wall Primary Cable

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org

ASTM B 1	Standard Specification for Hard-Drawn Copper Wire
ASTM B 3	Standard Specification for Soft or Annealed Copper Wire
ASTM B 8	Concentric-Lay-Stranded Copper conductors, Hard, Medium-Hard, or Soft
ASTM B 33	Standard Specification for Tinned Soft or Annealed Copper Wire
ASTM B 174	Standard Specification for Bunch-Stranded Copper Conductors for Electrical Conductors
ASTM B 263	Method for Determination of Cross-Sectional Area of Standard Conductors
ASTM B 298	Standard Specification for Silver-Coated Soft or Annealed Copper Wire
ASTM B 354	Definitions of Terms Relating to Uninsulated metallic Electrical Conductors
ASTM B 355	Standard Specification for Nickel-Coated Soft or Annealed Copper Wire

ASTM B 452	Standard Specification for Copper-Clad Steel Wire for Electronic Application
ASTM B 787	19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation
ASTM D 412	Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers - Tension
ASTM D 471	Standard Test Method for Rubber Property - Effect of Liquids
ASTM D 573	Standard Test Method for Rubber - Deterioration in an Air Oven
ASTM E 145	Standard Specification for Gravity-Convection and Forced-Ventilation Ovens

3. DEFINITIONS

3.1 COATED WIRE

Wire comprised of a given metal covered with a relatively thin application of a different metal. (ASTM B 354)

3.2 FUSIBLE LINK (FUSE LINK)

A section of low tension cable designed to open the circuit when subjected to an extreme current overload. Its purpose is to minimize wiring system damage when such an overload occurs.

3.3 LOW VOLTAGE

Usually considered to be ≤ 60 V DC (25 V AC).

3.4 SHORT CIRCUIT

An accidental electrical connection between a feed circuit and a return circuit resulting in an extreme current overload.

4. GENERAL REQUIREMENTS

The cable should meet the applicable requirements of SAE J1127, SAE J1128, or SAE J1678. Cables other than those defined in SAE J1127, SAE J1128, or SAE J1678 may be used if they meet the functional requirements described in Sections 4.3 and 4.4.

4.1 Conductor

When bare or coated copper conductor is used, the conductor shall meet the requirements of SAE J1128 or SAE J1678. When conductors other than copper or coated copper are used, the conductors must meet the functional requirements described in Section 5.

4.2 Insulation

Regardless of the type of insulating material used, the fusible link shall meet the performance requirements of SAE J1128, Type TWP for sizes 8 gauge and smaller or SAE J1127 Type STT for 6 gauge and larger. When the conductor size of the fusible link does not match one found in SAE J1128, SAE J1127, or SAE J1678, the next larger size shall be used.