



AEROSPACE STANDARD

AS81969™

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Reaffirmed 2022-09

Installing and Removal Tools, Connector Electrical Contact,
General Specification for

FSC 5120

RATIONALE

AS81969 has been reaffirmed to comply with the SAE Five-Year Review policy.

NOTICE

The requirements for procuring the tools described herein shall consist of this specification and the latest issue of: SAE AS81969.

1. SCOPE

- 1.1 AS81969 covers the general requirements for installing and removal tools for use in installing and removing electrical contacts used in connectors and other electrical and electronic components (see section 6)
- 1.2 Classification. Installing and removal tools covered by this specification shall be of the following types, classes, and compositions, as specified (see 3.1 and 6.2):

TYPE

- I - Installing tool
- II - Removal tool
- III - Combination installing and removal tool.

CLASS

- 1 - Front release of contacts.
- 2 - Rear release of contacts.
- 3 - Side release of contacts.

COMPOSITION

- A - Metal.
- B - Plastic.
- C - Combination metal and plastic.

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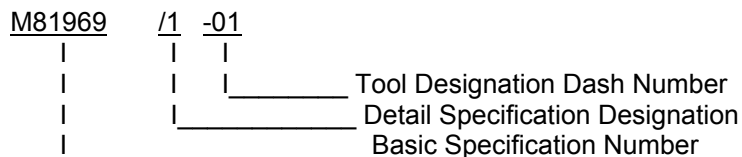
SAE WEB ADDRESS:

Full document details: SAE AS81969

For more information on this standard, visit
<https://www.sae.org/standards/content/AS81969/>

Documents
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1.3 Part number. The part shall be shown as follows:



2. APPLICABLE DOCUMENTS

2.1 The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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.

AIR1351	Manufacturers' Identification of Electrical Connector Contacts, Terminals and Splices
AMS-QQ-S-763	Steel Bars, Wire, Shapes, and Forgings; Corrosion Resistant
AS22520	Crimping Tools, Terminal, Hand or Power Actuated, Wire Terminal, and Tool Kits
*AS81969/1	Installing and Removal Tools, Connector Electrical Contact, Type III, Class 2, Composition C
*AS81969/2	Installing and Removal Tools, Connector Electrical Contact Type I, Class 1, Composition C
*AS81969/3	Installing and Removal Tools, Connector Electrical Contact, Type II, Class 1, Composition C
*AS81969/4	Installing and Removal Tools, Connector Electrical Contact, (Fork Type, Wrappost/Crimp Removable), Type II, Class 1, Composition C
*AS81969/5	Installing and Removal Tools, Connector Electrical Contact, (Fork Type, Crimp Removable), Type I, Class 1, Composition A
*AS81969/6	Installing and Removal Tools, Connector Electrical Contact, (Type Cr Connector), Type II, Class 1, Composition A
*AS81969/7	Installing and Removal Tools, Connector Electrical Contact, (Type D Connector) Type III, Class 1 And 2, Composition A
*AS81969/8	Installing & Removal Tools, Connector Electrical Contact, Types 1 & II, Class 2, Composition A
*AS81969/9	Installing and Removal Tools, Connector Electrical Contact, Type II, Class 1, Composition A
*AS81969/10	Installing and Removal Tools, Connector Electrical Contact, Types I and II, Class 2, Composition B
*AS81969/11	Installing and Removal Tools, Connector Electrical Contact, (Fork Type, Wrappost/Crimp Removable), Type II, Class 1, Composition C
*AS81969/12	Installing and Removal Tools, Connector Electrical Contact, Type III, Class 2, Composition A
*AS81969/13	Installing and Removal Tools, Connector Electrical Contact (Type Cr), Type I, Class 1, Composition A

- *AS81969/14 Installing and Removal Tools, Connector Electrical Contact, Type III, Class 2, Composition B
- *AS81969/15 Installing and Removal Tools, Connector Electrical Contact Type II, Class 2, Composition A
- *AS81969/16 Installing and Removal Tools, Connector Electrical Contact, Type III, Class 1, Composition B
- *AS81969/17 Installing and Removal Tools, Connector Electrical Contact, Type I, Class 1, Composition C
- *AS81969/18 Installing and Removal Tools, Connector Electrical Contact, Type I, Class 1, Composition C
- *AS81969/19 Installing and Removal Tools, Connector Electrical Contact Type II, Class 1, Composition C
- *AS81969/20 Installing and Removal Tools, Connector Electrical Contact, Type II, Class 1, Composition A or B
- *AS81969/21 Installing and Removal Tools, Connector Electrical Contacts, Interfacial Seal, Type III, Class 1, Composition A
- *AS81969/22 Installing and Removal Tools, Connector Electrical Contact, (Crimp Removable), Type II, Class 1, Composition A
- *AS81969/23 Installing and Removal Tools, Connector Electrical Contact, (Crimp Removable), Type I, Class 1, Composition A
- *AS81969/25 Installing and Removal Tools, Connector Electrical Contact, Type III, Class 2, Composition C
- *AS81969/26 Installing and Removal Tools, Connector Electrical Contact, Type II, Class 1 Or 2, Composition A, (For Removal of Integrated Circuit Packages and Similar Devices from Sockets, Receptacles, or Printed Wiring Boards)
- *AS81969/27 Installing and Removal Tools, Connector Electrical Contact, Type II, Class 1, Composition A
- *AS81969/28 Installing and Removal Tools, Connector Electrical Contacts, Type II, Class 2, Composition C
- *AS81969/29 Installing and Removal Tools, Connector Electrical Contact, Type II, Class 1, Composition B
- *AS81969/30 Installing and Removal Tools, Connector Electrical Contact, Type II, Class 2, Composition C
- *AS81969/31 Installing and Removal Tools, Connector Electrical Contact, Type III, Class 1, Composition A
- *AS81969/33 Installing and Removal Tools, Connector Electrical Contact, Type I, Class 1, Composition A (For Use with Mil-C-28840 EC Connectors)
- *AS81969/34 Installing and Removal Tools, Connector Electrical Contact, Type II Class 1 Composition A (For Use on Mil-C 28840 EC Connectors)
- *AS81969/39 Installing and Removal Tools, Connector Electrical Contact, Type III Class 2 Composition B
- *AS81969/43 Installing and Removal Tools, Socket Head, Electronic Components Type II, Class I, Composition C
- *AS81969/45 Installing Tool, Solderless Spring Contact, Type I, Composition A
- *AS81969/46 Installing and Removal Tools, Fiber Optic, Type I, Class 2, Composition C, Size 16 Termini
- *AS81969/47 Installing and Removal Tools, Fiber Optic, Type II, Class 2, Composition C, Size 16 Termini
- *AS81969/48 Installing and Removal Tools, Fiber Optic, Type III, Alignment Sleeve, Class 2, Composition C, Size 16 Termini

*AS81969/49 Installing and Removal Tools, Fiber Optic, Hand, Right Angle, Type I, Class 2, Composition A, Size 16 Termini

* AS81969 Detail specifications

2.1.2 ASTM International 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 D2240 Standard Test Method for Rubber Property and #8212 Durometer Hardness

ASTM D3935 Standard Specification for Polycarbonate (PC) Unfilled and Reinforced Material

ASTM D4673 Acrylonitrile-Butadiene-Styrene (ABS) Molding and Extrusion Materials

ASTM D5948 Standard Specification for Molding Compounds, Thermosetting

ASTM D6778 Standard Classification for Polyoxymethylene (POM, Acetal) Molding and Extrusion Materials

ASTM E18 Methods of Test for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

2.1.3 ASQ Publications

Available from American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203, Tel: 800-248-1946 (United States or Canada)) or +1-414-272-8575 (International), www.asq.org.

ASQC Z1.4 Sampling Procedures and Tables for Inspection by Attributes

2.1.4 EIA Publications

Available from Electronic Industries Alliance, 2500 Wilson Boulevard, Arlington, VA 22201-3834, Tel: 703-907-7500, www.eia.org.

EIA RS-359 Standard Colors for Color Identification and Coding

2.1.5 National Conference of Standards Laboratories (NCSL) Publications

National Conference of Standards Laboratories, 2995 Wilderness Place, Suite 107, Boulder, CO 80301-5404, Tel: 303-440-3339, www.ncsli.org.

NCSL Z540-1 General Requirements for Calibration Laboratories and Measuring and Test Equipment

2.1.6 U. S. Government Publications

Available from the Document Automation and Production Service (DAPS), Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-9495, <https://assist.daps.dla.mil/quicksearch/>.

L-P-410 Plastic, Polyamide (Nylon), Rigid: Rods, Tubes, Flats Molded and Cast Parts

MIL-A-8625 Anodic Coatings, for Aluminum and Aluminum Alloys

MIL-STD-202 Test Methods for Electronic and Electrical Component Parts

SD-6 Provisions Governing Qualification

3. REQUIREMENTS

- 3.1 Detail specification requirements. The components requirements shall be as specified herein and in accordance with the applicable detail specification. In the event of any conflict between the requirements of this specification and the detail specification, the latter shall govern (see 2.1).
- 3.2 Qualification (see section 6.0). The components shall be a product which has been tested and has passed the qualification tests specified herein, and has been listed on or approved for listing on the applicable Qualified Products List.
- 3.3 Materials. Materials shall be as specified herein. However, when a definite material is not specified (see 3.1), a material shall be used which will enable the tools to meet the performance requirements. Acceptance or approval of any constituent material shall not be construed as a guaranty of the acceptance of the finished product.
- 3.3.1 Metal (aluminum and steel). All aluminum parts shall be anodized in accordance with MIL-A-8625 or equivalent to meet the requirements as specified herein. All steel parts shall be in accordance with AMS-QQ-S-763 or equivalent, unless otherwise specified. Aluminum and steel parts shall be corrosion resistant to meet the requirements specified herein. Cadmium plating shall not be used (see 3.1).
- 3.3.2 Plastic. Plastic parts shall be in accordance with D6778, D3935, L-P-410, D4673 (see 6.14), or D5948 unless otherwise specified.
- 3.4 Design and construction (see 4.8.1). Tools shall be of the design, construction, and physical dimensions specified (see 3.1).
- 3.4.1 Handles. Metal or plastic handles shall be designed as specified (see 3.1).
- 3.4.2 Tool tips. All tool tips shall have a smooth finish and round edges. Metal tool tips shall be polished and free from nicks and burrs. Unless otherwise specified (see 3.1), break all sharp edges 0.0005 radiuses on metal tool tips.
- 3.4.3 Color Marking. All tools will be color coded as indicated in the detail specification, with the exception of Type III, which will be color coded as indicated in Table 1.

TABLE 1- TYPE III TOOL COLORS

Tool Color (Insertion end)	Tool Color (Removal end)	Contact Size (per EIA RS-359)
Yellow	White	23
Green		22 or 23/22
Red		20
Blue		16
Yellow		12
Red		8
Blue		4
Yellow		0
Red		00
Blue		0000