INCH-POUND
MIL-DTL-6852C
08 March 2014
SUPERSEDING
MIL-S-6852B
13 January 1971

DETAIL SPECIFICATION

SPLICE, CONDUCTOR, ELECTRIC, DISCONNECT GENERAL SPECIFICATION FOR

Reinstated after 21 August 2012 and may be used for new and existing designs and acquisitions.

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for splices furnished in accordance with this specification will be one type, disconnect splice assembly, of the sizes shown on figure 1 as specified (see 6.2).

1.2 Part or Identifying Number (PIN). The connector PIN will be designated in the following manner:

M6852-X

The letter "M" followed by the basic specification number.

Assembly designator.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 or 4 of this standard. This section does not include documents cited in other sections of this standard or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 or 4 of this standard, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

Comments, suggestions, or questions on this document should be addressed to: DLA Land and Maritime, Attn: VAI, P.O. Box 3990, Columbus, Ohio, 43218-5000 or emailed to: Sound@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.dla.mil.

AMSC N/A FSC 5940

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-129	-	Military Marking for Shipment and Storage
MIL-STD-202	-	Electronic and Electrical Component Parts
MIL-STD-1916	-	DoD Preferred Methods for Acceptance of Product

(Copies of these documents are available online at http://quicksearch.dla.mil.)

2.3 Non-Government publications. The following documents from a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ASTM INTERNATIONAL

ASTM-B140/B140M	-	Copper-Zinc-Lead (Red Brass or Hardware Bronze) Rod, Bars, and Shapes
ASTM-B194	-	Copper-Beryllium Alloy Plate, Sheet, Strip, and Rolled Bar
ASTM-B700	-	Electrodeposited Coatings of Silver for Engineering Use

(Copies of these documents are available at http://www.astm.org.)

SAE INTERNATIONAL

SAE-AS50861	-	Wire, Electric, Hook-up and Interconnecting, Poly-Vinyl Chloride-Insulated, Copper or Copper Alloy Conductor
SAE-AS50881	-	Wiring, Aerospace Vehicle
SAE-AS20659	-	Terminal, Lug, Crimp Style, Copper, Uninsulated, Ring Tongue

(Copies of these documents are available from http://www.sae.org.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the 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.

3. REQUIREMENTS

3.1 First article. When specified, a sample shall be subjected to first article inspection in accordance with 4.2.

3.2 Disconnect splice assembly. The disconnect splice assembly shall consist of two tips which are identical, and a coupler, as shown on figure 1.

3.3 Materials.

3.3.1 Materials requirements. Materials and finish shall be as specified herein. Other types of materials possessing superior characteristics may be used which will enable the disconnect splice assembly to meet the specified performance requirements when substantiated with acceptable test data. Acceptance or approval of a constituent material shall not be construed as a guarantee of the acceptance of the finished product.

3.3.2 Recycled, recovered, environmentally preferable, or biobased materials. Recycled, recovered, environmentally preferable, or biobased materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.4 Design and construction.

3.4.1 Dimensions. The dimensions of the disconnect splice assembly, tips and coupler shall be as shown on figure 1.

3.4.2 Tips. Tips shall be of the solderless type.

3.4.2.1 Insulation grip. Tips for assemblies M6852-1 and M6852-2 shall be provided with an insulation grip as shown on figure 1.

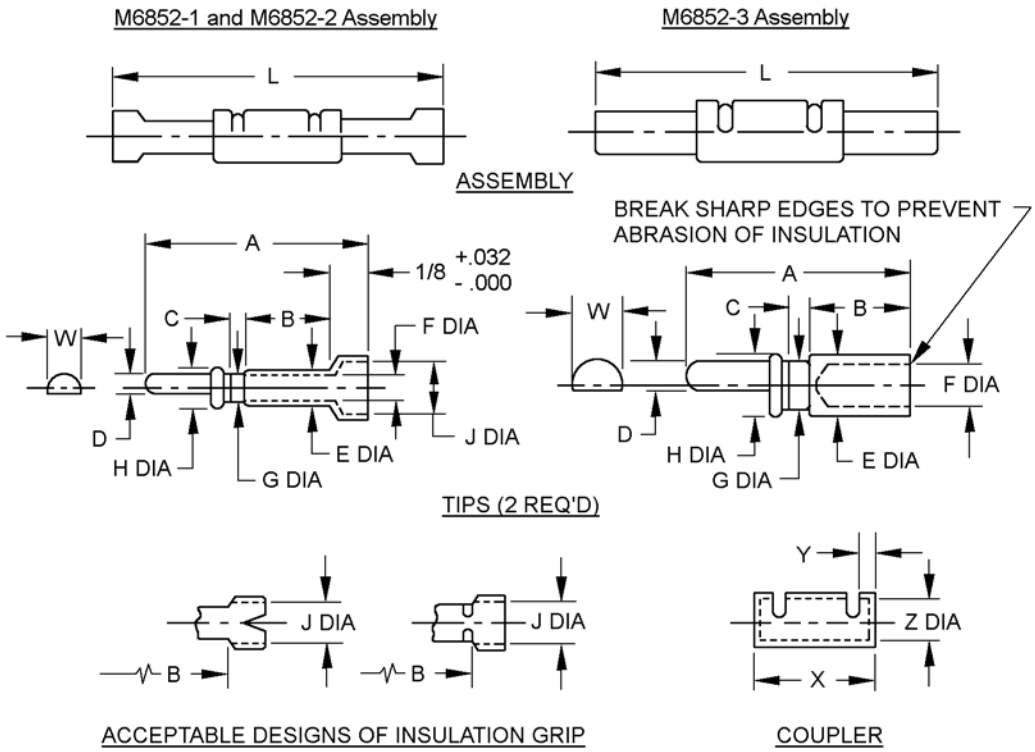
3.4.2.2 Material. Tips shall be fabricated from copper or copper alloy (leaded commercial bronze) in accordance with ASTM B140B/140M, UNS Alloy No. 31400.

3.4.3 Couplers. Couplers shall be suitable for connecting and holding two identical tips.

3.4.3.1 Material. Couplers shall be fabricated from beryllium copper, heat-treated to spring temper in accordance with ASTM-B194.

3.5 Interchangeability. All M6852 parts manufactured under this specification shall be equal to and interchangeable with units referenced on figure 1.

3.6 Finish. The components of the disconnect splice assembly shall be silver-plated (and burnished) .0003 to .0005 inch thickness range over a suitable underplating in accordance with ASTM-B700, Type III, Grade B.



Assembly and coupler dimensions

PIN	L MAX	X ±0.005	Y ±0.004	Z ±0.001
M6852-1	1.500	0.500	0.085	0.109
M6852-2	1.500	0.500	0.085	0.109
M6852-3	1.500	0.625	0.099	0.180

Tip dimensions

PIN	Wire size	A MAX	B ±0.010	C ±0.004	D ±0.003	E ±0.003	F	G ±0.003	H ±0.003	J ±0.005	W ±0.003
M6852-1	22-20-18	0.812	0.312	0.095	0.058	0.125	0.062 0.056	0.107	0.116	0.115	0.103
M6852-2	16-14	0.812	0.312	0.095	0.058	0.140	0.090 0.081	0.107	0.116	0.150	0.103
M6852-3	12-10	0.875	0.406	0.114	0.093	0.205	0.135 0.129	0.175	0.188	--	0.178

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for information only.

FIGURE 1. Assembly and components of the electrical disconnect splice.

3.7 Performance characteristics.

3.7.1 Separation force. The force required to separate the disconnect splice shall be in accordance with table I.

TABLE I. Performance requirements.

PIN	SAE-AS50861 wire size	Wire test rating amperes	Separation force pounds		Max initial millivolt drop		Max milli-volt drop after 100 separations		Max millivolt drop after corrosion	
			Max	Min	"A"	"B"	"A"	"B"	"A"	"B"
M6852-1	22	9	15	3	3	10	3	10	4	12
	18	16			4	10	4	10	5	12
M6852-2	16	22	15	3	5	15	6	16	8	18
	14	32			7	15	8	16	8	18
M6852-3	12	41	28	5	5	12	7	14	7	16
	10	55			7	12	8	14	8	16

3.7.2 Millivolt drop. Voltage drop readings at rated test current shall not exceed specified values in table I.

3.7.3 Endurance. The disconnect splice shall satisfactorily pass the endurance test specified in 4.6.4.

3.7.4 Corrosion resistance. The disconnect splice shall satisfactorily pass the corrosion resistance test specified in 4.6.5.

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. First article inspection (see 4.2).
b. Conformance inspection (see 4.3).

4.2 First article inspection. The first article inspection shall be made on electrical disconnect splice assemblies representative of the production splices to be supplied under the contract or order. The first article inspection of the electrical disconnect splice assemblies shall consist of the examinations and tests specified in Table II.

4.2.1 First article inspection data. The contractor shall submit all data collected in conducting these inspections to the contracting officer for review and approval.

4.2.2 First article approval. Approval of the first article samples shall be by the procuring activity upon satisfactory completion of all tests. No production disconnect splice assemblies shall be delivered prior to the approval of the first article sample.

TABLE II. Distribution of first article test samples.

First article tests	M6852-1			M6852-2			M6852-3		
	No. 22 wire	No. 18 wire	Total assembly	No. 16 wire	No. 14 wire	Total assembly	No. 12 wire	No. 10 wire	Total assembly
Examination of product Initial Mv drop Separation force			1/			1/			1/
Endurance	5	5	10	5	5	10	5	5	10
Corrosion resistance	5	5	10	5	5	10	5	5	10
Interchange-ability test samples			25			25			25
Supplementary tests if necessary			5			5			5
Total samples required for first article inspection			50			50			50

1/ All first article samples to be subjected to these tests.

4.3 Conformance inspection. The conformance inspection shall consist of the following tests:

a. Sampling tests (see 4.3.1).
b. Special tests (see 4.3.2).
c. Inspection of preparation for delivery (see 4.7).

The supplier shall furnish test reports, in duplicate, showing quantitative results for all tests required by this specification, and signed by an authorized representative of the supplier or laboratory, as applicable.

4.3.1 Sampling tests. Sampling shall be in accordance with MIL-STD-1916, Acceptable Quality Level (AQL) of 1.0 percent defective using the multiple sampling plans for normal inspection. The Inspection Level shall be S-2. The samples shall be subjected to the following tests:

a. Examination of product (4.5.1).
b. Millivolt drop “A” (see figure 2) across assembled disconnect splice at rated currents (4.5.2).
c. Separation force (see 4.5.3).

4.3.2 Special tests. The Government inspector shall require the manufacturer to select at random five samples as he deems advisable, but not more often than every 5,000 assemblies, and shall subject these samples to the following tests:

a. Millivolt drop “A” (see figure 2) across assembled disconnect splice at rated current.
b. Millivolt drop “A” (see figure 2) across assembled disconnect splice after 100 separations.

4.4 Test conditions.

4.4.1 Standard test conditions. Unless otherwise specified herein, all inspections shall be made at ambient temperature, pressure, and humidity, as specified in the General Requirements of MIL-STD-202.

4.4.2 Preparation of samples. To facilitate determination of disconnect splice millivolt drops, sufficient test jumpers as as specified in Figure 2 shall be prepared. Standard SAE-AS50861 aircraft wire from the same lot and SAE-AS20659 terminals of the same construction and manufacture shall be used.

4.5 Test methods.

4.5.1 Examination of product. Each component submitted for acceptance under contract shall be carefully examined to determine conformance to this specification with respect to material, workmanship, design and construction, and dimensions.

4.5.2 Millivolt drop. Voltage drop readings shall be taken at rated test current as outlined in Table I after test jumper has been subjected to rated current flow for 2 hours. Voltage drops “A” and “B” initially, after 100 separations, and after corrosion tests shall not exceed maximum values specified in Table I. Precision laboratory instruments and techniques shall be used in measuring millivolt drops.

4.5.2.1 Points of measurement.

4.5.2.1.1 Voltage drop “A”. Drop “A” shall be measured from points on the tip barrels as close as practicable to the coupler without touching the coupler as illustrated on Figure 2.

4.5.2.1.2 Voltage drop “B”. Drop “B” shall be measured from points on the SAE-AS50861 wire conductor as close as practicable to the insulation grip without touching the grip for splices M6852-1 and M6852-2, as illustrated on Figure 2. Drop “B” for M6852-3 splices shall be measured from points on the SAE-AS50861 wire conductor as close as practicable to the end of the tip barrels without touching the tip barrels, as illustrated on Figure 2.

4.5.3 Separation force. The force required to separate the disconnect splice shall be determined by a suitable tensile tester at a uniform rate of speed of 12 inches per minute. The separation force shall be within the limits specified in Table I.

4.5.4 Endurance. The disconnect splices shall be subjected to 100 cycles of insertion and withdrawal at a uniform rate of 8 to 10 cycles per minute. After completion of this test, the disconnect splice shall meet the requirements for the Millivolt drop test and Separation force test as specified in Table I.

4.5.5 Corrosion resistance. The disconnect splice assembly shall be subjected to a continuous salt spray corrosion test in accordance with Method 101, Test Condition B, (salt spray solution 5%), of MIL-STD-202. Millivolt drop after the Corrosion test shall not exceed the specified value in Table I. Corrosion shall not affect the silver plating to the extent of exposing the base metal or cause any damage which would seriously affect electrical or mechanical characteristics. Sample shall be suspended to permit free movement of salt spray around each sample.

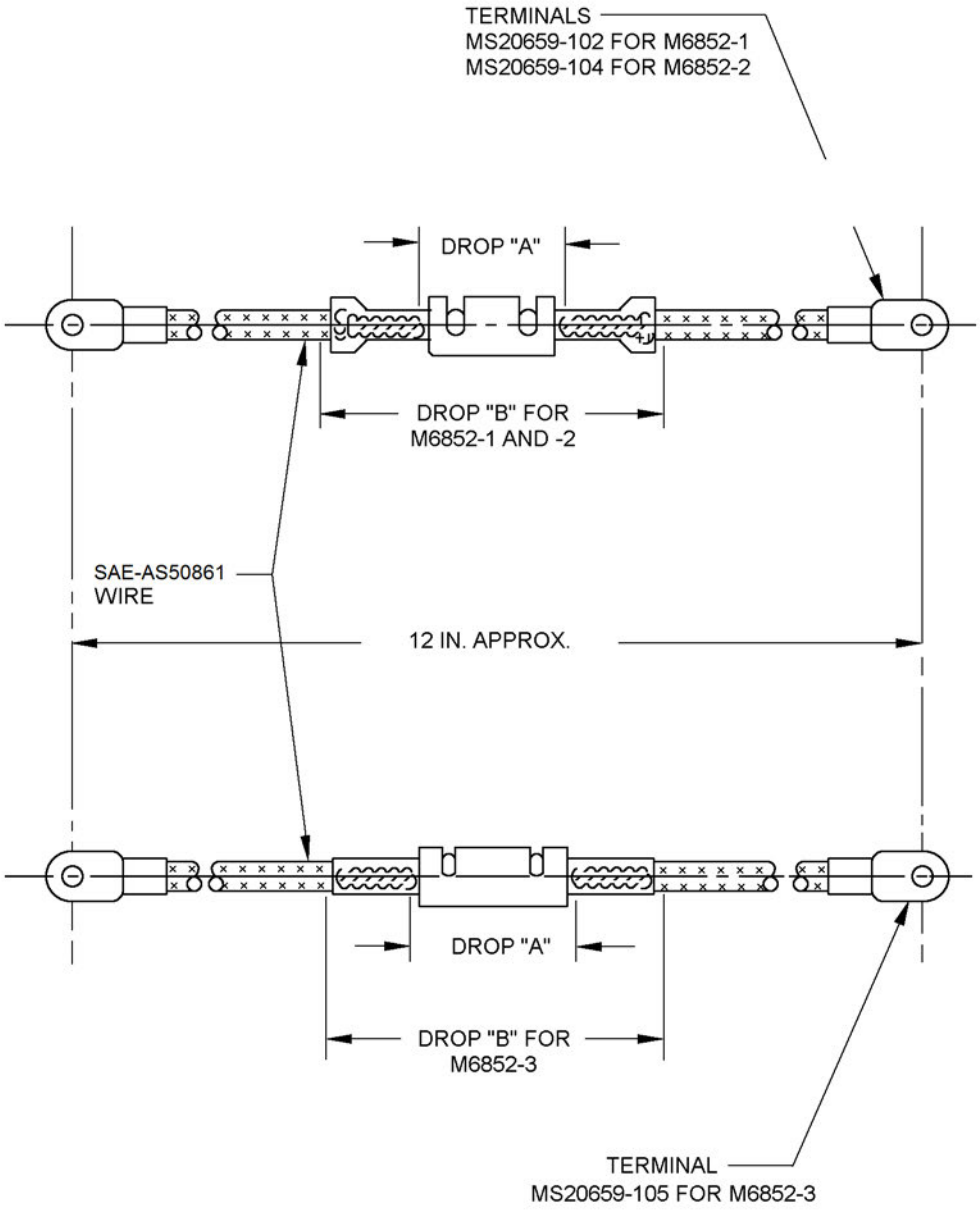


FIGURE 2. Suggested test jumper.

4.7 Examination of preparation for delivery. An examination of the preparation for delivery shall be performed to determine compliance with specified requirements. The lot shall consist of items, packages, or shipping containers, as applicable. The level shall be Level S-2 and the Acceptable Quality Level (AQL) shall be 4.0 expressed as defects per hundred units. Any deviation from the requirements specified shall be classified as a defect. Sampling for inspection shall be in accordance with MIL-STD-1916.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature which may be helpful, but is not mandatory.)

6.1 Intended use. The disconnect splices covered by this specification are intended for use as disconnects for aircraft wiring in accordance with SAE-AS50881.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification.

6.3 Subject term (key word) listing.

Jumper, test
Ground strap
Solder

6.4 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - AS
Air Force - 85
DLA - CC

Review activities:
Navy – CG, EC, MC
Air Force – 99
DLA – GS

Preparing activity:
DLA - CC

(Project 5940-2014-002)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil.