

INCH-POUND

MIL-DTL-6852C
w/Amendment 2
11 June 2019
SUPERSEDING
MIL-DTL-6852C
w/Amendment 1
23 February 2016

DETAIL SPECIFICATION

SPLICE, CONDUCTOR, ELECTRIC, DISCONNECT
GENERAL SPECIFICATION FORReinstated 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). This splice is not intended for manned and unmanned aircraft, helicopters, lighter-than-air vehicles, missiles and external pods.

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

The letter "M" followed by the
basic specification number. ↑ M6852-X ↑ 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



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DEPARTMENT OF DEFENSE STANDARDS

- MIL-STD-1285 - Marking of Electrical and Electronic Parts
- MIL-STD-202 - Electronic and Electrical Component Parts
- MIL-STD-202-101 - Method 101, Salt Atmosphere (Corrosion)

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

(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.

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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 B140/B140M, UNS Alloy No. 31400.

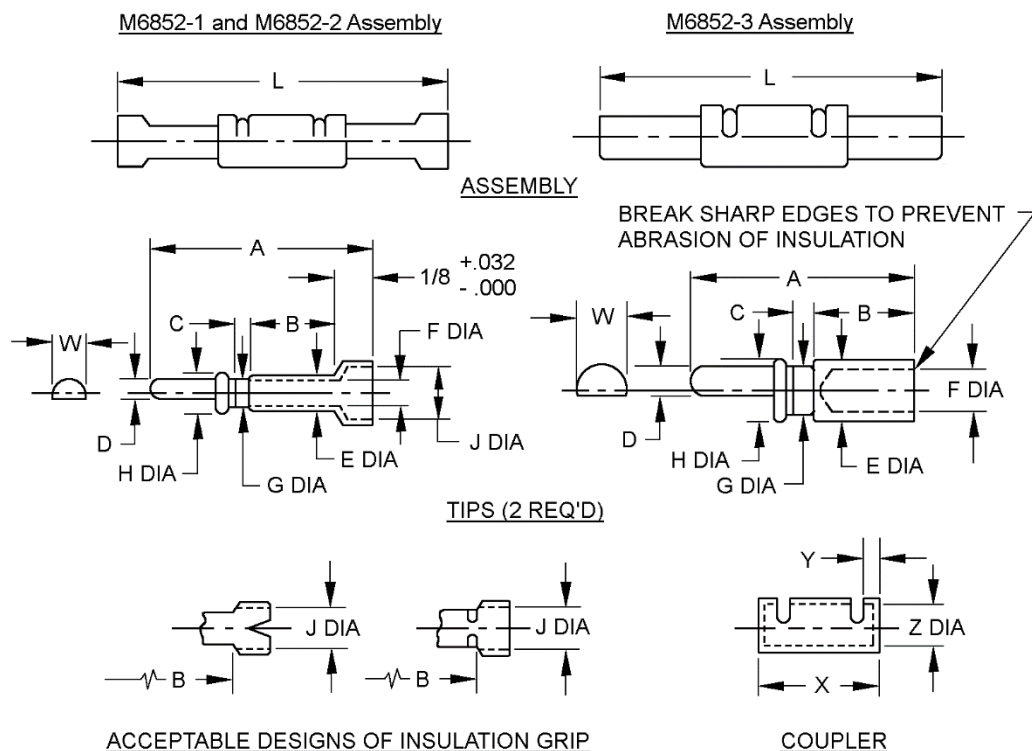
3.4.3 Couplers. Couplers shall be suitable for connecting and holding two identical tips.

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.

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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.

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

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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 millivolt 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 4.5.4.

3.7.4 Corrosion resistance. The disconnect splice shall satisfactorily pass the corrosion resistance test specified in 4.5.5.

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. DELETED.

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.

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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
Interchangeability 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. DELETED.

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 random and in accordance with Table III. Tests shall be performed on a production lot basis. If one or more defects are found, the lot shall be rescreened and defects removed. A new sample, as specified in table III, shall then be randomly selected. If one or more defects are found in this second sample, then the lot shall not be supplied to this specification. 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).

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Lot size	Sample size
1 – 25	2
26 – 150	3
151 – 1200	5
1201 – 35000	8
35001 and over	13

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 specified in Figure 2 shall be prepared. Standard SAE-AS50861 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.

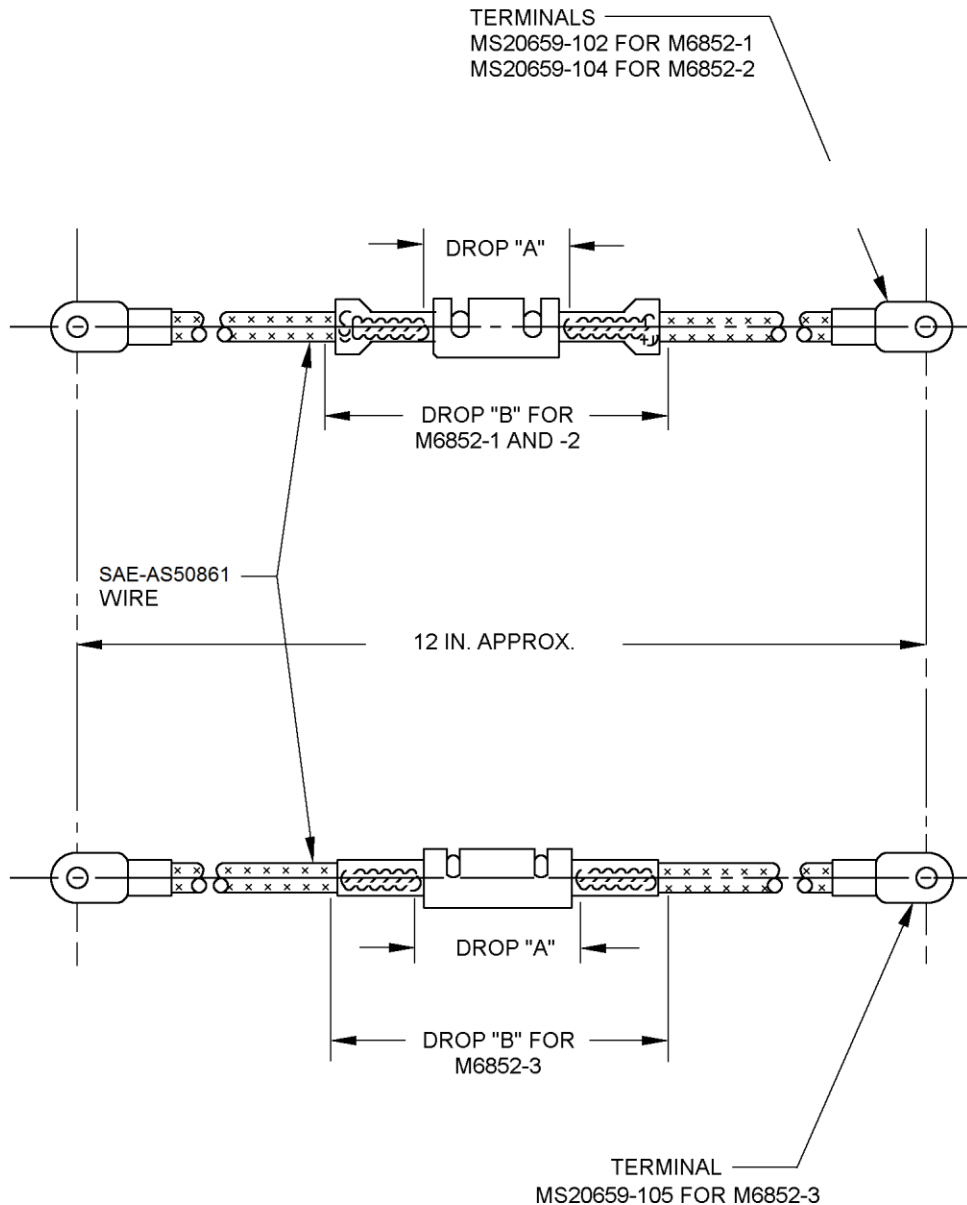
4.5.2.1.2 Voltage drop "B". Drop "B" shall be measured from points on the SAE-AS50861 wire conductor as close as practicable to the insulation grip without touching the grip for splices M6852-1 and M6852-2, as illustrated on Figure 2. Drop "B" for M6852-3 splices shall be measured from points on the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

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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-202-101. 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.



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FIGURE 2. Suggested test jumper.

4.6 Examination of preparation for delivery. DELETED.

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. This splice is intended for ground support equipment where a wire quick disconnect capability is needed. The splice is not intended for manned and unmanned aircraft, helicopters, lighter-than-air vehicles, missiles and external pods.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Packaging (see 5.1).

6.3 Subject term (key word) listing.

Jumper, test
Ground strap
Solder

6.4 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this specification. As of the dating of this document, the U.S. Environmental Protection Agency (EPA) is focusing efforts on reducing 31 priority chemicals. The list of chemicals and additional information is available on their website <http://archive.epa.gov/epawaste/hazard/wastemin/web/html/priority.html>. Included in the EPA list of 31 priority chemicals are cadmium, lead, and mercury. Use of these materials should be minimized or eliminated unless needed to meet the requirements specified herein (see Section 3).

6.5 Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

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CONCLUDING MATERIAL

Custodians:

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

Preparing activity:
DLA - CC

(Project 5940-2019-005)

Review activities:

Navy – CG, EC, MC
DLA – GS

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>.