

MIL-S-6852B

13 January 1971

SUPERSEDING

MIL-S-6852A

8 November 1951

MILITARY SPECIFICATION**SPLICE, CONDUCTOR, ELECTRIC, DISCONNECT**

This specification is mandatory for use by all Departments and Agencies of the Department of Defense. Inactive for new design for Air Force airborne applications - use MS27429.

1. SCOPE

1.1 Splices furnished in accordance with this specification shall be one type, disconnect splice assembly, of the sizes shown in Figure 1 as specified (see 6.2).

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

SPECIFICATIONSFederal

QQ-C-533	Copper-Beryllium Alloy Strip
QQ-S-365	Silver Plating, Electrodeposited, General Requirements for
PPP-B-636	Box, Fiberboard

Military

MIL-P-116	Preservation, Methods of
MIL-W-5086	Wire, Electric, Hook-up and Interconnecting, Poly-Vinyl Chloride-Insulated, Copper or Copper Alloy Conductor
MIL-C-45662	Calibration System Requirements

FSC 5940

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STANDARDS

Military

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-202	Test Methods for Electronic and Electrical Component Parts
MS17776	Crimping Tool - Electric Wire Terminal, Hand, 22-10 Capacity
MS20659	Terminal, Lug, Crimp Style, Copper, Uninsulated, Ring Tongue, Type I, Class 1

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issues in effect on date of invitation for bids, or request for proposal, shall apply.

American Society for Testing and Materials

ASTM B 140-68	Copper-Zinc-Lead (Leaded Red Brass or Hardware Bronze) Rod, Bars, and Shapes
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(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.)

Uniform Classification Committee

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Room 202, Union Station, 516 West Jackson Boulevard, Chicago, Illinois 60606.)

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3. REQUIREMENTS

3.1 First article. The electrical disconnect splice furnished under this specification shall be a product which has been inspected, and passed the first article inspections specified herein (see 4.2 and 4.3).

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

3.3 Materials. 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.

3.4 Design and construction.

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

3.4.2 Tips. Tips shall be of the solderless type suitable for installation with an MS17776 crimping tool.

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

3.4.2.2 Material. Tips shall be fabricated from copper or copper alloy (leaded commercial bronze) in accordance with ASTM B 140-68, copper alloy No. 314.

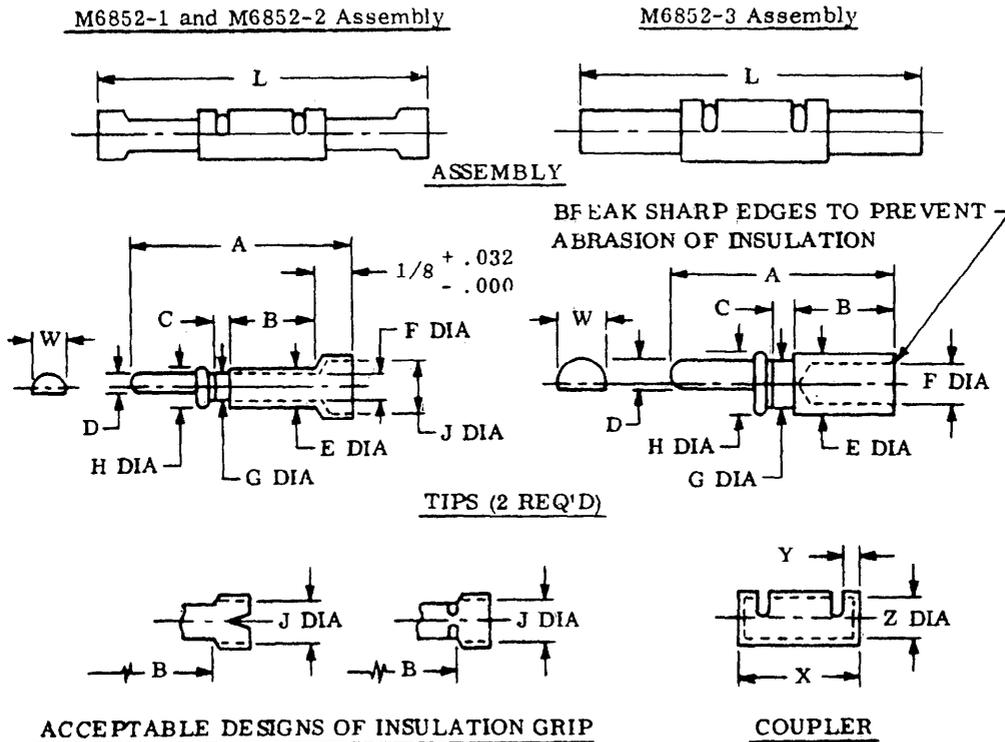
3.4.3 Couplers. Couplers shall be suitable for connecting and holding two identical tips.

3.4.3.1 Material. Couplers shall be fabricated from beryllium copper, heat-treated to spring temper in accordance with QQ-C-533.

3.5 Interchangeability. All M6852 parts manufactured under this specification shall be equal to and interchangeable with units referenced in 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 QQ-S-365, Type III, Grade B.

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ASSEMBLY AND COUPLER DIMENSIONS

ASSEMBLY PART NO.	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

ASSEMBLY PART NO.	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

DIMENSIONS IN INCHES

Figure 1. Assembly and components of the electrical disconnect splice

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3.7 Performance.

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

TABLE I

PERFORMANCE REQUIREMENTS

Assembly part number	MIL-W-5086 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.

3.8 Identification of product.

3.8.1 Coupler. Each coupler for assembly part numbers M6852-1 and M6852-2 shall have permanently marked on its surface M6852-1/-2 and limiting wire range 22-14. Each coupler for assembly part number M6852-3 shall have permanently marked on its surface M6852-3 and limiting wire range 12-10. Couplers shall bear the manufacturer's name or trade-mark if space permits.

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3.8.2 Tips. Each tip shall have permanently marked on its surface the M6852 assembly part number and limiting wire range. Tips shall bear the manufacturer's name or trade-mark if space permits.

3.9 Workmanship. Splices shall be uniform in quality and free from all defects which may affect their serviceability and appearance.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Test equipment and inspection facilities. The supplier shall establish and maintain a calibration system in accordance with MIL-C-45662.

4.2 Classification of inspection. Inspection of the electrical disconnect splice shall be classified as follows:

- (a) First article inspection. First article inspection shall be performed on products submitted for approval after the award of a contract, but prior to regular production (see 4.3).
- (b) Quality conformance inspection. Quality conformance inspection shall be performed on products which have been submitted for acceptance under contract (see 4.4).

4.3 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.

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

4.3.2 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 samples.

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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			<u>1/</u>			<u>1/</u>			<u>1/</u>
Endurance	5	5	10	5	5	10	5	5	10
Corrosion resistance	5	5	10	5	5	10	5	5	10
Inter-changeability 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.

4.4 Quality conformance inspection. The quality conformance inspection shall consist of the following tests:

- (a) Sampling tests (see 4.4.1)
- (b) Special tests (see 4.4.2)
- (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.

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4.4.1 Sampling tests. Sampling shall be in accordance with MIL-STD-105, 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 (4.6.1)
- (b) Millivolt drop "A" (see Figure 2) across assembled disconnect splice at rated currents (4.6.2)
- (c) Separation force (4.6.3)

4.4.2 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

4.5 Test conditions.

4.5.1 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.

4.5.2 Preparation of samples. To facilitate determination of disconnect splice millivolt drops, sufficient test jumpers as per Figure 2 shall be prepared. Standard MIL-W-5086 aircraft wire from the same lot and MS20659 terminals of the same construction and manufacture shall be used.

4.6 Test methods.

4.6.1 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.

4.6.2 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.

4.6.2.1 Points of measurement.

4.6.2.1.1 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.

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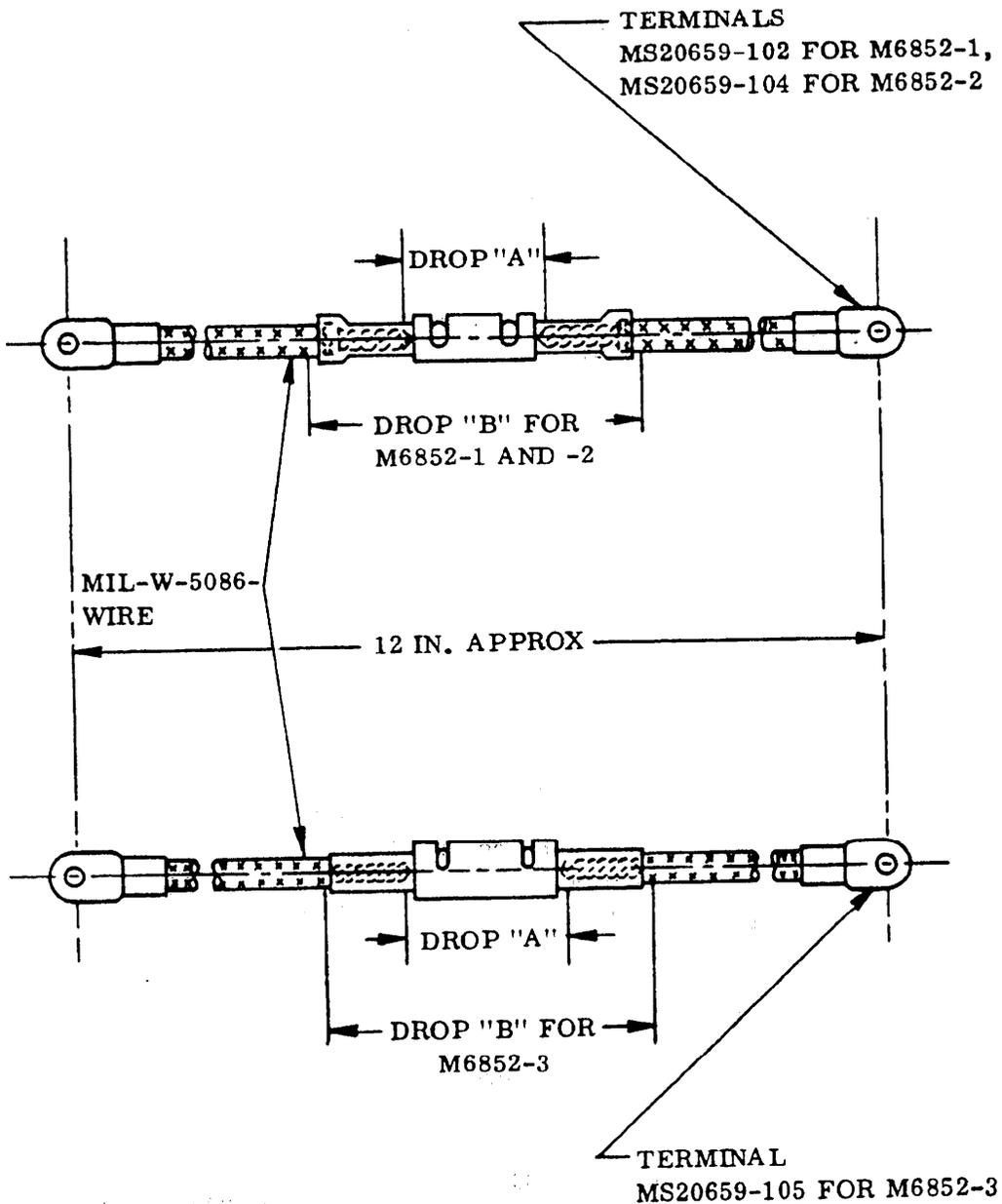


Figure 2. Suggested test jumper

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4.6.2.1.2 Voltage drop "B". Drop "B" shall be measured from points on the MIL-W-5086 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 MIL-W-5086 wire conductor as close as practicable to the end of the tip barrels without touching the tip barrels, as illustrated on Figure 2.

4.6.3 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.

4.6.4 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.

4.6.5 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. Samples shall be suspended to permit free movement of salt spray around each sample.

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-105.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging. Preservation and packaging shall be Level A or C, as specified (see 6.2).

5.1.1 Level A. Unless otherwise specified in the contract or order, disconnect splices consisting of two tips and one coupler shall be fastened together as one complete assembly. Complete assemblies shall be packaged Method IC-1 in accordance with MIL-P-116. The quantity per unit package shall be as specified (see 6.2).

5.1.2 Level C. Assembled units shall be prepared for shipment to afford adequate protection against damage during shipment from the supply source to the first receiving activity.

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5.2 Packing. Packing shall be Level A, B, or C as specified (see 6.2).

5.2.1 Level A. Multiple units packaged as specified shall be packed in snug-fitting shipping containers conforming to PPP-B-636, class weather resistant. Closure, sealing, taping, and reinforcement shall be in accordance with the appendix of the box specification. The contents of the box shall not exceed the specified weight and size limitations of the type, class, and grade of the container selected.

5.2.2 Level B. Multiple units packaged as specified shall be packed in snug-fitting shipping containers conforming to PPP-B-636, class domestic. Closure shall be in accordance with the appendix of the box specification. The contents of the box shall not exceed the size and weight limitations of the type, class, and grade of the container selected.

5.2.3 Level C. Assemblies packaged as specified in 5.1 shall be packed in a manner which will insure acceptance by common carrier at the lowest rate. The shipping container, and methods of packing shall conform to the Uniform Freight Classification Rules and Regulations or other carrier regulations as applicable to the mode of transportation.

5.3 Marking. Marking shall be in accordance with MIL-STD-129 and shall include the following special requirements:

- (a) Applicable part number.
- (b) Wire sizes.
- (c) Specification MIL-S-6852
- (d) Name of the manufacturer
- (e) Name of the contractor (if different than manufacturer)

5.4 General. Exterior containers shall be of a minimum tare and cube consistent with the protection required and shall contain equal quantities of identical items to the greatest extent possible.

6. NOTES

6.1 Intended use. The disconnect splices covered by this specification are intended for use as disconnects for aircraft wiring in accordance with MIL-W-5088.

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6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number, and date of this specification
- (b) Sizes, by M6852 part number, required
- (c) Whether first article inspection is waived (see 6.2.1)
- (d) Selection of applicable levels of packaging and packing (see 5.1 through 5.1.2 and 5.2 through 5.2.3)
- (e) Quantity per unit package (see 5.1.1)
- (f) Whether any special markings are required (see 5.3)

6.2.1 First article inspection. Contracts or orders should specify whether first article inspection is required. When a contractor is in continuous production from contract to contract, consideration should be given to waive first article inspection. If first article inspection is required, indicate:

- (a) Where the first article inspection is to be conducted.
- (b) That approval of first article samples or the waiving of the first article inspection shall not relieve the supplier of his obligation to fulfill all other requirements of this specification and contract.

6.3 Supersession data. A cross reference of the assembly part numbers of this specification with the superseded AN753 assembly part number follows:

M6852 assembly part number	Superseded AN753 assembly part number
M6852-1	AN753-1
M6852-2	AN753-2
M6852-3	AN753-3

6.4 Changes from previous issue. The extent of changes (deletions, additions, etc.) preclude the annotation of the individual changes from the previous issue of this document.

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Custodians:

Army - EL

Navy - AS

Air Force - 80

Preparing activity:

Navy - AS

(Project No. 5940-0607)

Review activities:

Army - AV

Navy - MC, CG, EC

Air Force -

Review/user information is current as of the date of this document. For future coordination of changes to this document, draft circulation should be based on the information in the current DODISS.

SPECIFICATION ANALYSIS SHEET		Form Approved Budget Bureau No. 22-R255
<p>INSTRUCTIONS: This sheet is to be filled out by personnel, either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.</p>		
<p>SPECIFICATION MIL-S-6852B SPLICE, CONDUCTOR, ELECTRIC, DISCONNECT</p>		
<p>ORGANIZATION</p>		
<p>CITY AND STATE</p>		<p>CONTRACT NUMBER</p>
<p>MATERIAL PROCURED UNDER A <input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT</p>		
<p>1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE? A. GIVE PARAGRAPH NUMBER AND WORDING.</p>		
<p>B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES</p>		
<p>2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID</p>		
<p>3. IS THE SPECIFICATION RESTRICTIVE? <input type="checkbox"/> YES <input type="checkbox"/> NO (If "yes", in what way?)</p>		
<p>4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)</p>		
<p>SUBMITTED BY (Printed or typed name and activity - Optional)</p>		<p>DATE</p>

DD FORM 1426
1 JAN 66

REPLACES EDITION OF 1 OCT 64 WHICH MAY BE USED.

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