

User activities: Army -  
Navy -  
Air Force -

Review activities: Army - CR  
Navy -  
Air Force - 99, 11

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FED. SUP CLASS 6150									
TABLE I.									
Dash no.	Wire size	Jumper type	Terminal stud hole size options						
-7 ***	10	Bonding	Aluminum						
-1	10	Bonding	Aluminum						
TABLE II.									
Stud hole designation	Stud hole I.D.			M Min	W		Y		Z Max
	For stud size	Max	Min		Max	Min	Max	Min	
A	No. 4 or 6	.152	.142	.218	.406	.313	.083	.037	1.172
B	No. 8 or 10	.203	.193	.250	.540	.450	.090	.038	1.390
C	.250	.285	.250	.281	.741	.531	.090	.038	1.626
D	.3125	.343	.320	.329	.741	.531	.090	.038	1.390
E	.375	.410	.385	.343	.741	.531	.090	.038	1.626
TABLE III.									
Length (inches)	Wire size designation	Terminal to terminal resistance ohm max		Tensile strength					
		Initial	After test	Lb	Min				
6	10	.0029	.0036	75					
7		.0033	.0040						
8		.0037	.0045						
9		.0042	.0049						
10		.0046	.0053						
<p>MS25083-7 may be used to replace MS25083-1 but MS25083-1 parts cannot replace MS25083-7 parts since MS25083-1 is not compatible with fuel.</p> <p>Pages 1 &amp; 2 apply to aluminum jumpers only.</p> <p>Pages 3, 4 &amp; 5 apply to copper jumpers only.</p> <p>*** For example of part number see page 2.</p>									
(K) Entire standard revised and redrawn.									
P.A. Navy - AS Other Cust USAF - 11 ARMY - CR	International Interest	TITLE JUMPER ASSEMBLY, ELECTRIC, BONDING AND CURRENT RETURN			MILITARY STANDARD  MS25083				
Procurement Specification		SUPERSEDES: AN749, AN751, AN752 AND SPECIFICATION AN-J-1			(PAGE 1 OF 5)				

APPROVED 30 JUN 54 REVISED (K) 8 MAY 80

FED. SUP CLASS  
6150

The following requirements apply to aluminum jumpers MS25083-7 \*\*\* and MS25083-1.

**Material:** Wire: wire size no: 10 AWG - (37/0.0167) concentric stranded, electrical grade aluminum alloy or 7X23/.008 aluminum, 5056 and 5052 alloy, wire pitch 3/4 to 1 inch.

**Terminal:** MS25083-7 and -1 jumpers, aluminum alloy, QQ-A-225/2, temper 0; WW-T-700/2, Temper 0 or QQ-A-250/2 temper 0.

MS25083-7 only: apply a chromate conversion coating per MIL-C-5541, class 3, to the jumper assembly.

MS25083-7 only: identification band: Polyolefin, class 2, clear, heat shrinkable per MIL-I-23053/5.

Example of part number:

MS25083-7 A B 6

Length "L" of 6 inches  
Terminal with hole for no. 10 stud  
(see table II)  
Terminal with hole for no. 6 stud  
(see table II)  
Type (aluminum bonding)

First dash number designates type of jumper.

First and second letters designate terminal stud hole size.

Second number designated length "L" in inches in 1 inch increments.

Stamp the MS part number on the band. (MS25083-7 only) if ink or fluid is used, it must be compatible with aircraft fuels.

The -7 and -1 jumper assembly is not for Air Force use.

**Fabrication:** Aircraft and equipment manufacturers:

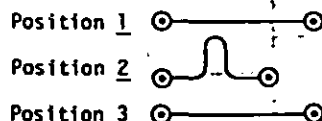
Aircraft and equipment manufacturers may install jumpers fabricated from material meeting the material and test requirements of the standard.

**Application note:** Only MS25083-7 jumpers are authorized for use in fuel cells. Do not use types -1 thru -6 in such applications as it will contaminate fuel.

Additional twist and flex tests - prior to the tensile test and resistance test of table III, the following tests are to be performed:

Test No. 1 - Twist test - 3 full twists in a direction to tighten the wire weave.

Test No. 2 - Flex 20 times.



P.A.  
NAVY - AS  
Other  
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ARMY - CR

International  
Interest

TITLE

JUMPER ASSEMBLY, ELECTRIC,  
BONDING AND CURRENT RETURN

MILITARY STANDARD

MS25083

Procurement Specification

SUPERSEDES:  
AN749, AN751, AN752 AND SPECIFICATION AN-J-1

PAGE 2 OF 5

REVISED (K) For changes see pages 1 through 5

APPROVED 30 JUN 54

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Air Force -

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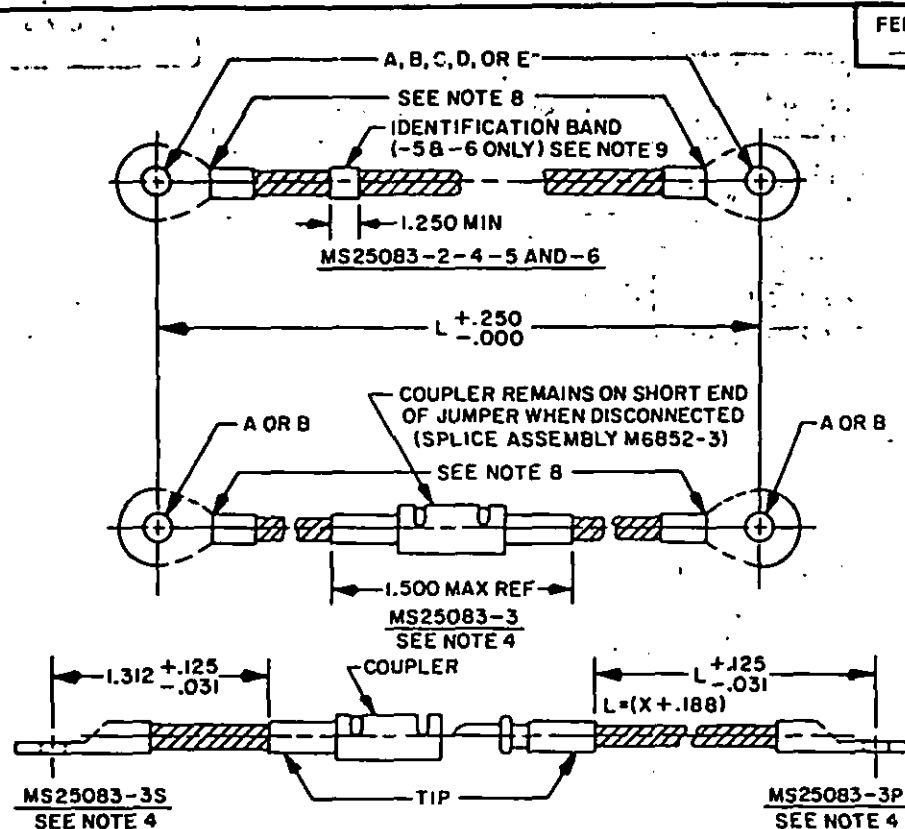


TABLE IV.

First dash no.	Type	Terminal stud size (optional)	Ident band color	Copper wire size	Term. to Term. resistance Ohms - Max*		Tensile strength Lb Min
					Initial	After test	
-2	Bonding	A, B, C, D, E	No band	12	.00016 X L +.00024	.00016 X L +.00034	110
-3 1/	Quick disconnect	---	No band		.00016 X L +.00085	.00016 X L +.00120	
-3S 1/	Short end of -3	A, B	No band		---	---	
-3P 1/	Long end of -3		No band		---	---	
-4	Current return	D, E	No band	8	.00006 X L +.00013	.00006 X L +.00016	225
-5	Bonding (lightning)	A, B, C, D, E	Yellow	12	.00016 X L +.00024	.00016 X L +.00034	110
-6	Current return (lightning)	D, E	Yellow	8	.00006 X L +.00013	.00006 X L +.00016	225

\*L in inches.

1/ See note 4.

P.A NAVY - AS Other Cust USAF - 11 ARMY - CR	Interchangeable Interest	TITLE JUMPER ASSEMBLY, ELECTRIC, BONDING AND CURRENT RETURN	MILITARY STANDARD
Procurement Specification		SUPERSEDES: AN749, AN751, AN752 AND SPECIFICATION AN-J-1	MS25083
		PAGE 3	OF 5

REVISED (K) For changes see pages 1 through 5

APPROVED 30 JUN 54

TABLE V.			
Stud hole designation	Stud size	Terminal (ref.)	
		MS25036	MS20659 <sup>3/</sup>
A	No. 4 or No. 6	-111	-165
B	No. 8 or No. 10	-112	-105
C	.250	-157	---
D	.3125	1/ -113 2/ -117	1/ -106 2/ -108
E	.375	1/ -114 2/ -118	1/ -128 2/ -129

FED. SUP CLASS  
6150

1/ See note 5.

2/ See note 6.

3/ See note 7.

The following requirements apply to copper jumpers MS25083-2, -3, -4, -5, and -6.

Material: Wire; MS25083-2, -3, and -5 jumpers, pure tinned stranded soft copper wire, size AWG 12, conforming to ASTM B172 except conductors shall consist of 7 x 37 AWG size 36 strands.

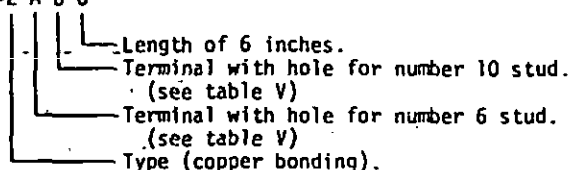
MS25083-4 and -6 jumpers, pure tinned stranded copper wire, size AWG 8, conforming to ASTM B172 except conductors shall consist of 7 x 95 AWG size 36 strands.

Terminal: MS25083-2, -3, -4, -5, and -6 jumpers, completely tinned copper, specification WW-T-799, type N.

Contour indicated by phantom lines may vary from that shown to suit individual manufacturer's design.

Example of part numbers:

MS25083-2 A B 6



First dash number designated type of jumper.

First and second letters designate terminal stud hole size, except for types 3S and 3P where letters S or P replace first terminal size designation.

Second number designates length L in inches and in 1 inch increments, except the length designation shall be omitted for type 3S. For type 3P, the second number equals dimension X in even inch increments. Refer to drawing for definition of X.

Fabrication:

Aircraft and equipment manufacturers:

Aircraft and equipment manufacturers may install jumpers fabricated from material meeting the material and test requirements of this standard. Jumpers shall be identified on the installation drawing or parts list by the applicable MS part number.

Military services:

Military services shall stock component parts only (bulk wire, appropriate terminals and quick-disconnect splice assemblies) and shall fabricate jumpers from stocked component parts.

P.A. NAVY - AS Other, Cust USAF - 11 ARMY - CR	International Interest	TITLE  JUMPER ASSEMBLY, ELECTRIC, BONDING AND CURRENT RETURN	MILITARY STANDARD
			MS25083
Procurement Specifications		SUPERSEDES: AN749, AN751, AND SPECIFICATION AN-J-1	PAGE 4 OF 5

Fabrication  
(continued)FED. SUP CLASS  
6150

To fabricate MS25083-2 and -3 jumpers, military services shall use MS25036-111, -112, -113, and -114 terminals or MS20659-105, -106, -128, and -165 terminals as applicable, attached to the tinned wire size AWG 12 conforming to ASTM B172 the terminals shall be attached to the wire with the MIL-C-22520/5 or /24 crimping tools as applicable.

To fabricate MS25083-4 jumpers, use MS25036-117 and -118 terminals or MS20659-108 and -129 terminals as applicable, attached to the tinned wire size AWG 8 conforming to ASTM B172. The terminals shall be attached to the wire with the MS25441 tool equipped with MS23002 crimping dies or MS90485 dies as applicable.

For attaching quick-disconnect assembly M6852-3 to wire, use crimping tool MIL-C-22520/24

## Application note:

Only MS25083-7 jumpers are authorized for use in fuel cells. Do not use types -1 thru -6 in such applications as it will contaminate fuel.

## Test requirements:

## Prefabricated and fabricated jumpers:

Jumpers shall conform to the corrosion resistance test requirements of specification MIL-T-7928.

Jumpers shall conform to the following flexure endurance requirements:

One end of the jumper shall be held stationary under a tension of  $2 \pm 1$  pounds while the other end of the jumper is rotated in a cycle which forms the base of a cone having an included angle of 22 degrees  $\pm 2$  degrees. A cycle shall consist of one complete revolution. After a minimum of 300,000 cycles the jumper shall meet the specified resistance and tensile strength requirements of table IV without breaking of strands. Lightning current test for -5 and -6 jumpers.

Two jumpers in parallel shall be subjected to two (2) successive simulated lightning waveforms of the following characteristics. The jumpers shall not be subjected to a direct arc.

Peak current:	100,000 amperes
Width at 90 percent point:	5 to 10 microseconds
Width at 50 percent point:	Not less than 20 microseconds
Rate of rise:	20,000 amperes per microsecond

INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
.031	.79	.152	3.86	.285	7.24	.385	9.78	1.250	31.75
.037	.94	.188	4.78	.3125	7.938	.406	10.31	1.300	33.02
.038	.97	.193	4.90	.313	7.95	.410	10.41	1.312	33.32
.083	2.11	.214	5.44	.320	8.13	.450	11.43	1.390	35.31
.090	2.29	.250	6.35	.329	8.36	.504	12.80	1.500	38.10
.125	3.18	.263	6.68	.343	8.71	.531	13.49	1.626	41.30
.142	3.61	.281	7.14	.375	9.52	1.172	29.77		

## NOTES:

- Dimensions are in inches.
- Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
- Resistance reading shall be taken between these points.
- MS25083-3, -3S and -3P inactive for Air Force Airborne applications after 9 December 1963.
- Applicable for MS25083-2.
- Applicable for MS25083-4.
- MS20659 optional to MS25036 as shown.
- Resistance readings shall be taken at the junction of terminal barrels and tongues.
- Identification band shall be polyolefin, class 1, heat shrinkable, per MIL-I-23053/5, stamp the MS part number on the band.
- For design feature purposes, this standard takes precedence over procurement documents referenced herein.
- Referenced documents shall be of the issue in effect on date of invitation for bid.

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