

# Accessories and Tools for MIL-DTL-38999 Series III, II, I and SJT

## F



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Amphenol offers a full range of accessories that are designed to enhance the performance of Amphenol 38999 connectors, both military and non-military.

Backshells are an integral part of any circular connector when it comes to reliable cable connections. Amphenol divisions team up globally to provide a very large assortment of backshells for use with 38999 Series of connectors, as well as other circular series.

This Accessories and Tools section covers what is offered from Amphenol Aerospace, Sidney, NY. For MIL-DTL-38999 Series III, II, I and SJT (reference table of contents on preceding page).

**38999**

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The section of this catalog called "Backshells" covers the backshell and adapters that are provided through the Amphenol PCD/Amphenol India divisions. Please refer to this section for:

- Backshells for Connector Family "L", which includes MIL-DTL-38999 Series III and Series IV
- Backshells for Connector Family "K", which includes MIL-DTL-38999 Series I and Series II
- Backshells for Connector Family "J", which includes MIL-DTL-24682 (Matrix, Series 2), MIL-DTL-5015 (Matrix, MS3400 Series), MIL-DTL-83723 (Series I & III), MIL-DTL-81703 (Series III)



The variety of types of backshells and adapters covered in the Backshells section of this catalog include:

- Non-environmental backshells
- Environmental backshells
- Non-environmental EMI/RFI backshells
- Environmental EMI/RFI backshells
- Shrink boot adapters
- Crimp ring adapters
- Band lock adapters
- Pre-shield adapters

For more information contact:

Amphenol Aerospace: [www.amphenol-aerospace.com](http://www.amphenol-aerospace.com) (phone: 800-678-0141)  
or visit [www.backshellworld.com](http://www.backshellworld.com) or email: [sales@backshellworld.com](mailto:sales@backshellworld.com)

# MIL-DTL-38999, Series III TV Receptacle Protection Cap

38999

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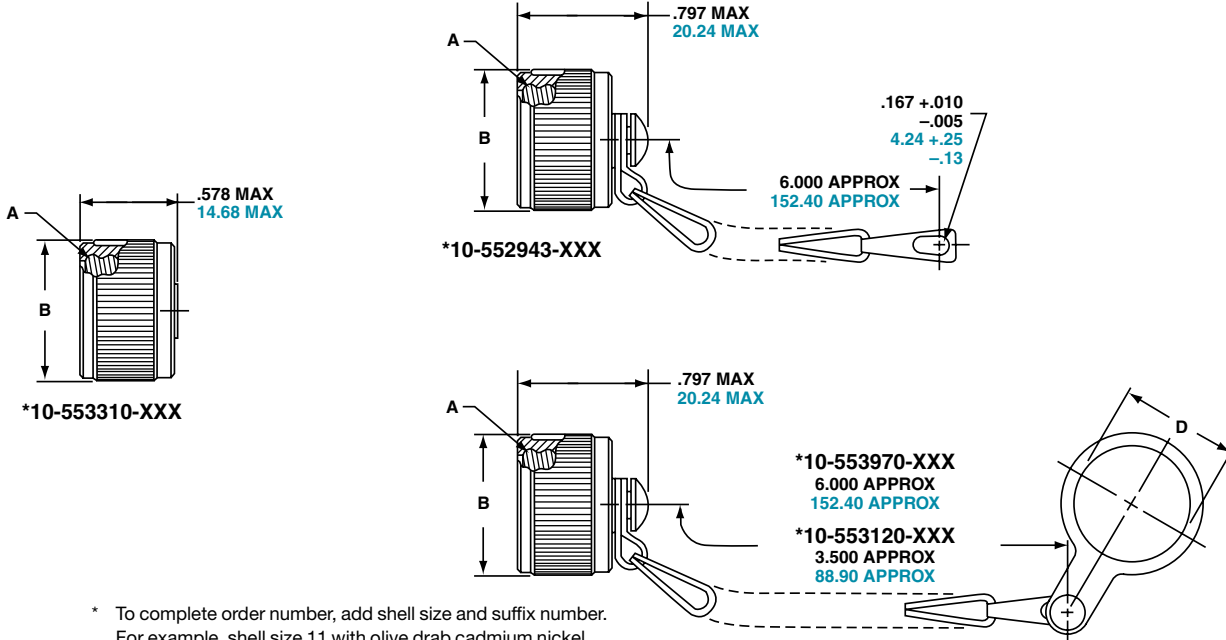
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Accessories



\* To complete order number, add shell size and suffix number.  
For example, shell size 11 with olive drab cadmium nickel base, 10-552943-119

Inches				Millimeters			
Shell Size	A Thread Class 2B 0.1P-0.3L-TS	B Dia. Max.	D Dia. +.010 - .000	Shell Size	MS Shell Size Code	B Dia. Max.	D Dia. +.25 - .00
9	.6250	.875	.703	9	A	22.23	17.86
11	.7500	1.000	.844	11	B	25.40	21.44
13	.8750	1.125	1.016	13	C	28.58	25.81
15	1.0000	1.250	1.141	15	D	31.75	28.98
17	1.1875	1.438	1.266	17	E	36.53	32.16
19	1.2500	1.500	1.391	19	F	38.10	35.33
21	1.3750	1.625	1.516	21	G	41.28	38.51
23	1.5000	1.750	1.641	23	H	44.45	41.68
25	1.6250	1.875	1.766	25	J	47.63	44.86

All dimensions for reference only.

## TV SERIES III MS METAL PROTECTION CAPS

Shell Size	MS Shell Size Code	MS Receptacle Protection Cap
9	A	D38999/33W9X*
11	B	D38999/33W11X*
13	C	D38999/33W13X*
15	D	D38999/33W15X*
17	E	D38999/33W17X*
19	F	D38999/33W19X*
21	G	D38999/33W21X*
23	H	D38999/33W23X*
25	J	D38999/33W25X*

\* To complete order number, replace X with applicable letter as follows:  
R - designates eyelet type  
N - designates washer type

MS metal protection caps are supplied with service class W which designates corrosion resistant olive drab cadmium plate aluminum.  
Consult Amphenol Aerospace for more detailed information on ordering MS Metal protection caps.

Finish	10-No Suffix
Olive Drab, Cadmium, Nickel base	-XX9
Electroless Nickel	-XXG

Consult Amphenol Aerospace for availability of stainless steel protection caps.

## TV SERIES III PLASTIC PROTECTION CAPS

Shell Size	Receptacle
9	10-70500-10
11	10-70500-12
13	10-70500-14
15	10-70500-16
17	10-70500-19
19	10-70500-20
21	10-70500-22
23	10-70500-24
25	10-70524-1

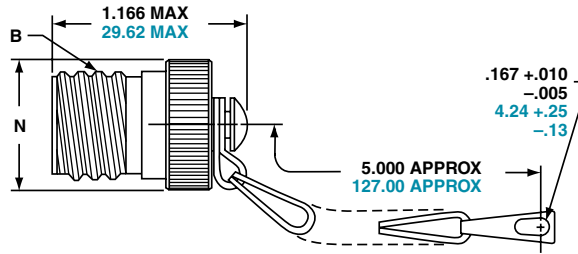
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# MIL-DTL-38999, Series III TV Plug Protection Cap

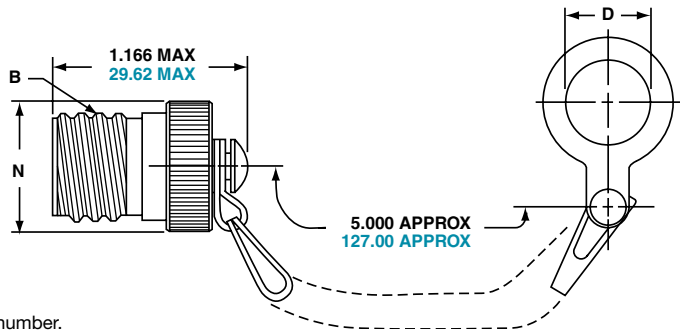
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\*10-552944-XXX



\*10-553998-XXX



\* To complete order number, add shell size and suffix number.  
For example, shell size 11 with olive drab cadmium nickel base, 10-552944-119

Inches				Millimeters			
Shell Size	A Thread Class 2B 0.1P-0.3L-TS	D Dia. +.010 -.000	N Dia. Max.	Shell Size	MS Shell Size Code	D Dia. +.25 - .00	N Dia. Max.
9	.6250	.516	.895	9	A	13.11	22.73
11	.7500	.641	1.000	11	B	16.28	25.40
13	.8750	.766	1.171	13	C	19.46	29.74
15	1.0000	.891	1.299	15	D	22.63	32.99
17	1.1875	1.016	1.436	17	E	25.81	36.47
19	1.2500	1.141	1.543	19	F	28.98	39.19
21	1.3750	1.266	1.670	21	G	32.16	42.42
23	1.5000	1.343	1.787	23	H	34.11	45.39
25	1.6250	1.516	1.914	25	J	38.51	48.62

All dimensions for reference only.

## TV SERIES III MS METAL PROTECTION CAPS

Shell Size	MS Shell Size Code	MS Plug Protection Cap
9	A	D38999/32W9X*
11	B	D38999/32W11X*
13	C	D38999/32W13X*
15	D	D38999/32W15X*
17	E	D38999/32W17X*
19	F	D38999/32W19X*
21	G	D38999/32W21X*
23	H	D38999/32W23X*
25	J	D38999/32W25X*

\* To complete order number, replace X with applicable letter as follows:

R - designates eyelet type

N - designates washer type

MS metal protection caps are supplied with service class W which designates corrosion resistant olive drab cadmium plate aluminum.

Consult Amphenol Aerospace for more detailed information on ordering MS Metal protection caps.

Finish	10-No Suffix
Olive Drab, Cadmium, Nickel base	-XX9
Electroless Nickel	-XXG

Consult Amphenol Aerospace for availability of stainless steel protection caps.

## TV SERIES III PLASTIC PROTECTION CAPS

Shell Size	Plug
9	10-70506-14
11	10-70506-16
13	10-70500-18
15	10-70500-20
17	10-70500-22
19	10-70500-24
21	10-70524-1
23	10-70506-28
25	10-70500-28

Accessories

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# MIL-DTL-38999, Series III TV Dummy Receptacle

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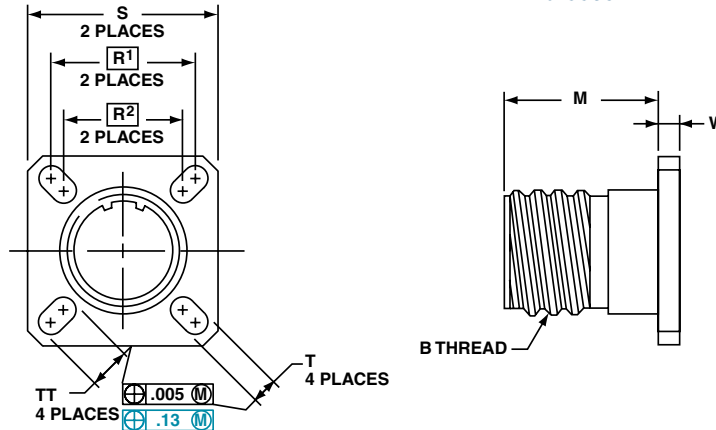
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Accessories

PART NUMBER REFERENCE.  
SEE NOTE BELOW TO COMPLETE.

\*10-553974-XXX



\* To complete order number, add shell size and suffix number.  
For example, shell size 11 with olive drab cadmium nickel base, 10-553974-119

Inches

Shell Size	MS Shell Size Coded	B Thread 0.1P-0.3L-TS (Plated)	M $+0.020$ $-0.000$	R <sup>1</sup>	R <sup>2</sup>	S $\pm 0.010$	T $\pm 0.008$ $-0.006$	W $\pm 0.010$	TT $\pm 0.008$ $-0.006$
9	A	.6250	.822	.719	.594	.938	.128	.098	.216
11	B	.7500	.822	.812	.719	1.031	.128	.098	.194
13	C	.8750	.822	.906	.812	1.125	.128	.098	.194
15	D	1.0000	.822	.969	.906	1.219	.128	.098	.173
17	E	1.1875	.822	1.062	.969	1.312	.128	.098	.194
19	F	1.2500	.822	1.156	1.062	1.438	.128	.098	.194
21	G	1.3750	.791	1.250	1.156	1.562	.128	.125	.194
23	H	1.5000	.791	1.375	1.250	1.688	.154	.125	.242
25	J	1.6250	.791	1.500	1.375	1.812	.154	.125	.242

Millimeters

Finish	10-No Suffix
Olive Drab, Cadmium, Nickel Base	-XX9
Electroless Nickel	-XXG

Shell Size	MS Shell Size Coded	M $+0.51$ $-0.00$	R <sup>1</sup>	R <sup>2</sup>	S $\pm 0.25$	T $+0.20$ $-0.15$	W $\pm 0.25$	TT $+0.20$ $-0.15$
9	A	20.88	18.26	15.09	23.83	3.25	2.49	5.49
11	B	20.88	20.62	18.26	26.19	3.25	2.49	4.93
13	C	20.88	23.01	20.62	28.58	3.25	2.49	4.93
15	D	20.88	24.61	23.01	30.96	3.25	2.49	4.93
17	E	20.88	26.97	24.61	33.32	3.25	2.49	4.93
19	F	20.88	29.36	26.97	36.53	3.25	2.49	4.93
21	G	20.09	31.75	29.36	39.67	3.25	3.18	4.93
23	H	20.09	34.93	31.75	42.88	3.91	3.18	6.15
25	J	20.09	38.10	34.93	46.02	3.91	3.18	6.15

All dimensions for reference only.

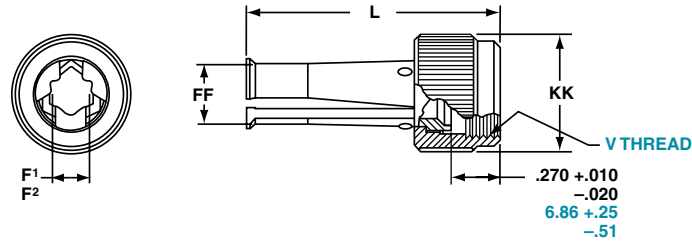
Designates true position dimensioning.

# MIL-DTL-38999, Series III TV Cable Clamps

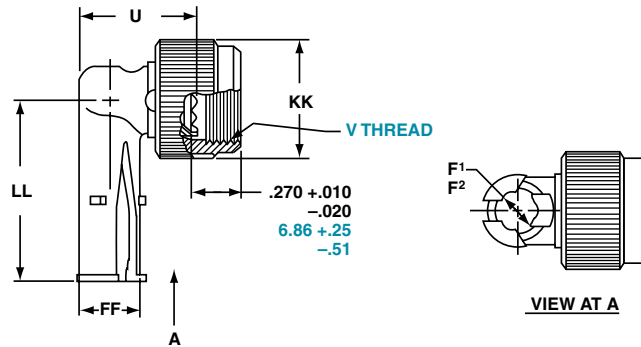
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**Straight Style**  
\*10-552681-XXX metal coupling



**90 Degree Elbow Style**  
\*10-552682-XXX metal coupling



\* To complete order number, see suffix chart below. Examples:  
Clamp with metal coupling nut for shell size 11 with olive drab cadmium nickel base, 10-552681-119.

Inches

Shell Size	MS Shell Size Code	F <sup>1</sup> Min. Dia. Cable	F <sup>2</sup> Max. Dia. Cable	L Max.	U Max.	FF Dia. Max.	KK Dia. Max.	LL Max.
9	A	.094	.203	1.431	.656	.347	.629	1.015
11	B	.141	.250	1.431	.688	.394	.756	1.062
13	C	.172	.323	1.431	.750	.467	.883	1.125
15	D	.203	.422	1.431	.859	.566	1.011	1.328
17	E	.234	.500	1.431	.937	.644	1.138	1.392
19	F	.265	.562	1.431	1.000	.706	1.265	1.453
21	G	.297	.625	1.492	1.062	.769	1.393	1.609
23	H	.328	.703	1.492	1.141	.847	1.488	1.656
25	J	.359	.765	1.492	1.203	.909	1.616	1.719

Millimeters

Finish	10-No Suffix	Shell Size	MS Shell Size Code	F <sup>1</sup> Min. Dia. Cable	F <sup>2</sup> Max. Dia. Cable	L Max.	U Max.	V Thread Metric	FF Dia. Max.	KK Dia. Max.	LL Max.
Olive Drab, Cadmium Nickel Base	-XX9	9	A	2.39	5.16	36.35	16.66	M12X1-6H	8.81	15.98	25.78
		11	B	3.58	6.35	36.35	17.48	M15X1-6H	10.01	19.20	26.97
		13	C	4.37	8.20	36.35	19.05	M18X1-6H	11.86	22.43	28.58
		15	D	5.16	10.72	36.35	21.82	M22X1-6H	14.38	25.68	33.73
		17	E	5.94	12.70	36.35	23.80	M25X1-6H	16.36	28.91	35.36
		19	F	6.73	14.27	36.35	25.40	M28X1-6H	17.93	32.13	36.91
		21	G	7.54	15.88	37.90	26.97	M31X1-6H	19.53	35.38	40.87
		23	H	8.83	17.86	37.90	28.98	M34X1-6H	21.51	37.80	42.06
		25	J	9.12	19.43	37.90	30.56	M37X1-6H	23.09	41.05	43.66
Electroless Nickel	-XXG										

# 38999, Series III TV Breakaway Fail Safe Backshells, Dummy Contacts, Wire Combs

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Accessories

Amphenol offers a full range of accessories that are designed to enhance the performance of Amphenol Breakaway connectors.

## Low Profile Backshells in shell size 25 with the following features:

- Olive drab cadmium finish
- 90 degree termination
- Low profile design with three heights ranging from 1.010 to 1.660
- Rear access covers to help ease harness assembly and repairability
- Amphenol part numbers: 10-640000-XXX



BACKSHELLS ARE OFFERED FOR USE WITH BREAKAWAY FAIL SAFE CONNECTORS IN THREE HEIGHTS

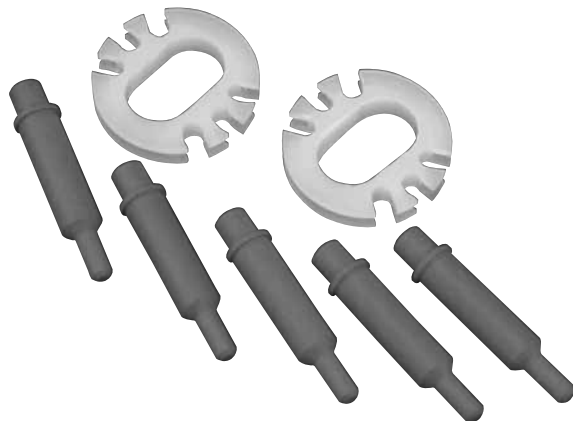
## DUMMY CONTACTS

- Available in size 12 and size 8
- Provide a cost effective alternative for sealing unused contact cavities
- Size 8 part number: T3-4008-59P
- Size 12 part number: T3-4012-59P

## WIRE COMBS

- Available for the 25-20 insert pattern to help to stabilize and prevent contact side loading
- Amphenol part number: 21-33626-XXX

For information on how to order these accessory products for Breakaway Fail Safe connectors, consult Amphenol Aerospace.



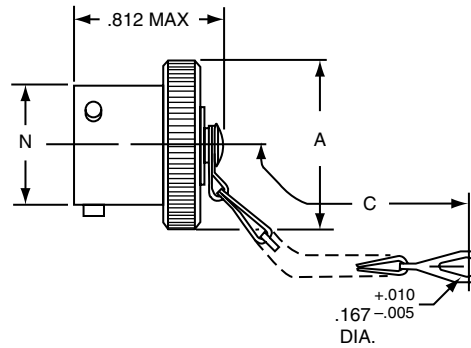
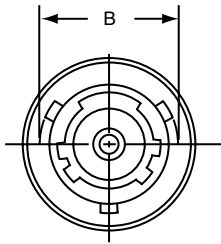
ACCESSORY PRODUCTS FOR BREAKAWAY CONNECTORS:  
DUMMY CONTACTS AND WIRE COMBS

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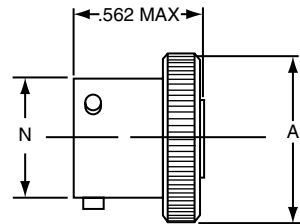
# MIL-DTL-38999, Series II JT Plug Protection Cap

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**\*10-547138-XXX (MS27510XXXC)**



**\*10-241853-XXX (MS27510XXXA)**

Accessories

For MS stamping identification, accessories must be ordered by MS part number. If ordered by 10- part number, they will be stamped with said number.

\* To complete order number, add shell size and suffix number. For example, shell size 10 with cadmium plate, nickel base would be 10-241853-107, MS27510A10C or MS27510A10A.

Shell Size	A Dia. Max.	A' Dia. Max.	B +.000 - .016	C Approx.	N Dia. +.001 - .005
8	.719	.703	.563	3.000	.473
10	.844	.828	.680	3.000	.590
12	1.000	.984	.859	3.500	.750
14	1.125	1.109	.984	3.500	.875
16	1.250	1.234	1.108	3.500	1.000
18	1.375	1.359	1.233	3.500	1.125
20	1.500	1.484	1.358	4.000	1.250
22	1.625	1.609	1.483	4.000	1.375
24	1.750	1.734	1.610	4.000	1.500

All dimensions for reference only.

Finish	10-Number Suffix	MS Number Suffix with chain	MS Number Suffix without chain
Chromate Treat	-XX0		
Anodic Coating	-XX5	CXXC	CXXA
Cadmium Plate Nickel Base	-XX7	AXXC	AXXA
Olive Drab, Cadmium, Nickel Base	-XX9	BXXC	BXXA
Electroless Nickel	-XXG	FXXC	FXXA

## SERIES II JT PLASTIC PROTECTION CAPS

Shell Size	Plug
8	10-70500-10
9	10-70506-14
10	10-70506-14
11	10-70506-16
12	10-70506-16
13	10-70506-18
14	10-70506-18
15	10-70506-20
16	10-70506-20
17	10-70506-22
18	10-70506-22
19	10-70506-24
20	10-70506-24
21	10-70576-24
22	10-70576-24
23	10-70506-28
24	10-70506-28
25	10-558651-25



# MIL-DTL-38999, Series II JT Receptacle Protection Cap

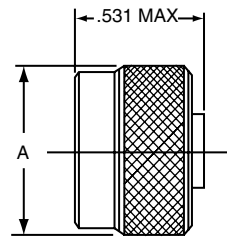
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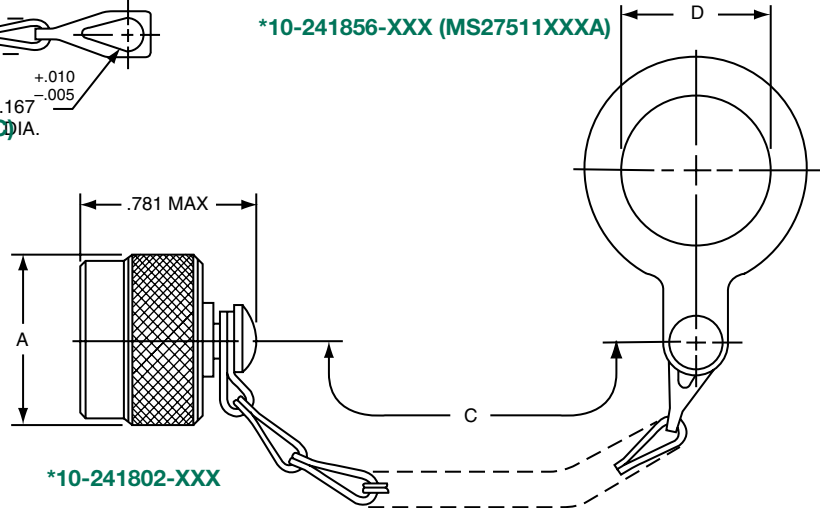
Accessories



**\*10-547136-XXX (MS27511XXXQ)**



**\*10-241856-XXX (MS27511XXXA)**



**\*10-241802-XXX**

For MS stamping identification, accessories must be ordered by MS part number. If ordered by 10- part number, they will be stamped with said number.

\* To complete order number, add shell size and suffix number.

For example, shell size 10 with cadmium plate, nickel base would be 10-241802-107, MS27511A10C, MS27511A10A

Shell Size	A Dia. Max.	C Approx.	D +.010 -0.000
8	.719	3.000	.891
10	.844	3.000	1.016
12	1.000	3.500†	1.141
14	1.125	3.500	1.266
16	1.250	3.500	1.391
18	1.375	3.500	1.516
20	1.500	4.000	1.641
22	1.625	4.000	1.766
24	1.750	4.000	1.891

† 3.000 for MS27511  
All dimensions for reference only.

## SERIES II JT PLASTIC PROTECTION CAPS

Shell Size	Receptacle
8	10-70506-10S
9	10-70500-10
10	10-70506-12
11	10-70500-12
12	10-70506-14
13	10-70500-14
14	10-70506-16
15	10-70500-16
16	10-70506-18
17	10-70500-18
18	10-70506-20
19	10-70500-20
20	10-70506-22
21	10-70500-22
22	10-70506-24
23	10-70500-24
24	10-70576-24
25	10-70506-28

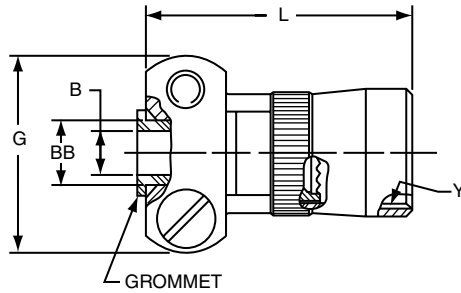
Finish	10-Number Suffix	MS Number Suffix with chain	MS Number Suffix without chain
Chromate Treat	-XX0		
Anodic Coating	-XX5	CXXC	CXXA
Cadmium Plate Nickel Base	-XX7	AXXC	AXXA
Olive Drab, Cadmium, Nickel Base	-XX9	BXXC	BXXA
Electroless Nickel	-XXG	FXXC	FXXA

F

MIL-DTL-38999, Series II JT  
MIL-DTL-38999, Series I LJT  
**Strain Relief (Crimp Type)**

38999

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**\*10-405982-XXX (MS27506XXX-2 REFERENCE M85049/49)**

For MS stamping identification, accessories must be ordered by MS part number.  
If ordered by 10-part number, they will be stamped with said number.  
\*To complete order number, add shell size and suffix number.

Finish	10-Number Suffix	MS27506 Suffix	M85049/49 Suffix
Chromate Treat	-XX0		NA
Anodic Coating	-XX5	CXX-2	(-2-XXA)
Cadmium Plate Nickel Base	-XX7	AXX-2	NA
Olive drab, Cadmium, Nickel base	-XX9	BXX-2	(-2-XXW)
Electroless Nickel	-XXG	FXX-2	(-2-XXN)

For example: Shell size 10 with cadmium plate, nickel base would be 10-405982-107 or M85049/49-2-10W

Shell Size	B Dia. +.010 -.025	G Max.	L Max.	Y Thread (Modified)		BB Dia. +.000 -.011	Screw Size
				Size Class 2B	Modified Minor Dia.		
8	.125	.775	.984	.4375-28UNEF	.399 – .405	.250	6-32UNC
10	.188	.837	.984	.5625-24UNEF	.524 – .529	.312	6-32UNC
12	.312	.963	.984	.6875-24UNEF	.649 – .654	.438	6-32UNC
14	.375	1.087	1.234	.8125-20UNEF	.766 – .771	.562	6-32UNC
16	.500	1.150	1.234	.9375-20UNEF	.891 – .896	.625	6-32UNC
18	.625	1.400	1.234	1.0625-18UNEF	1.002 – 1.007	.750	8-32UNC
20	.625	1.400	1.234	1.1875-18UNEF	1.135 – 1.140	.750	8-32UNC
22	.750	1.587	1.359	1.3125-18UNEF	1.252 – 1.257	.938	8-32UNC
24	.800	1.681	1.281	1.4375-18UNEF	1.377 – 1.382	1.000	8-32UNC

All dimensions for reference only.  
Note: For solder type cable clamp 10-241055-XXX (M85049/49) consult Amphenol Aerospace.

Accessories

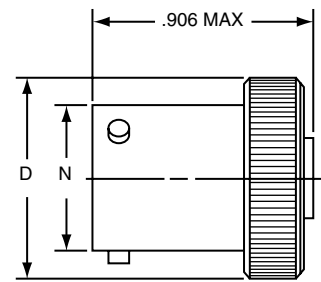
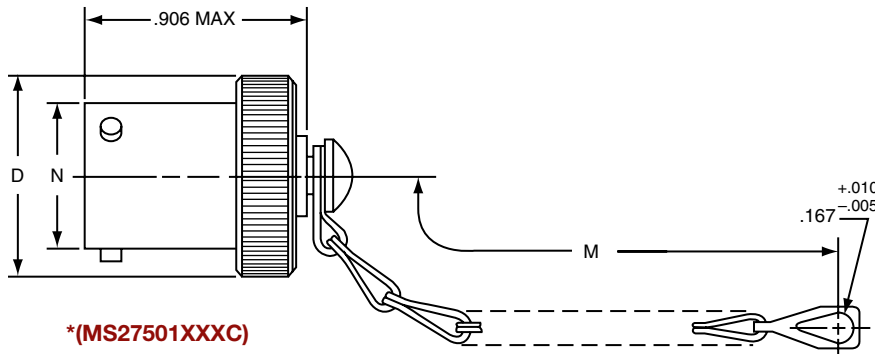
F

# MIL-DTL-38999, Series I LJT Plug Protection Cap

38999

- III
- Dualok
- II
- I
- SJT
- Access
- Aquacon

Accessories



\* To complete order number, add shell size and suffix number.  
For example, shell size 11 with cadmium plate, nickel base would be 10-421399-117, MS27501A11C, MS27501A11A.

Shell Size	B Dia. Ref	D Dia. Max.	M ±.250	N Dia. +.001 - .005
9	.180	.812	3.000	.572
11	.180	.938	3.000	.700
13	.180	1.062	3.500	.850
15	.180	1.188	3.500	.975
17	.180	1.312	3.500	1.100
19	.209	1.438	3.500	1.207
21	.209	1.562	4.000	1.332
23	.209	1.688	4.000	1.457
25	.209	1.812	4.000	1.582

## SERIES I LJT PLASTIC PROTECTION CAPS

Shell Size	Plug
8	10-70500-10
9	10-70506-14
10	10-70506-14
11	10-70506-16
12	10-70506-16
13	10-70506-18
14	10-70506-18
15	10-70506-20
16	10-70506-20
17	10-70506-22
18	10-70506-22
19	10-70506-24
20	10-70506-24
21	10-70576-24
22	10-70576-24
23	10-70506-28
24	10-70506-28
25	10-558651-25

Finish	10- Number Suffix	MS Number Suffix with chain	MS Number Suffix without chain
Chromate Treat	-XX0		
Anodic Coating	-XX5		
Cadmium Plate Nickel Base	-XX7	AXXC	AXXA
Olive Drab, Cadmium, Nickel Base	-XX9	BXXC	BXXA
Electroless Nickel	-XXG	FXXC	FXXA

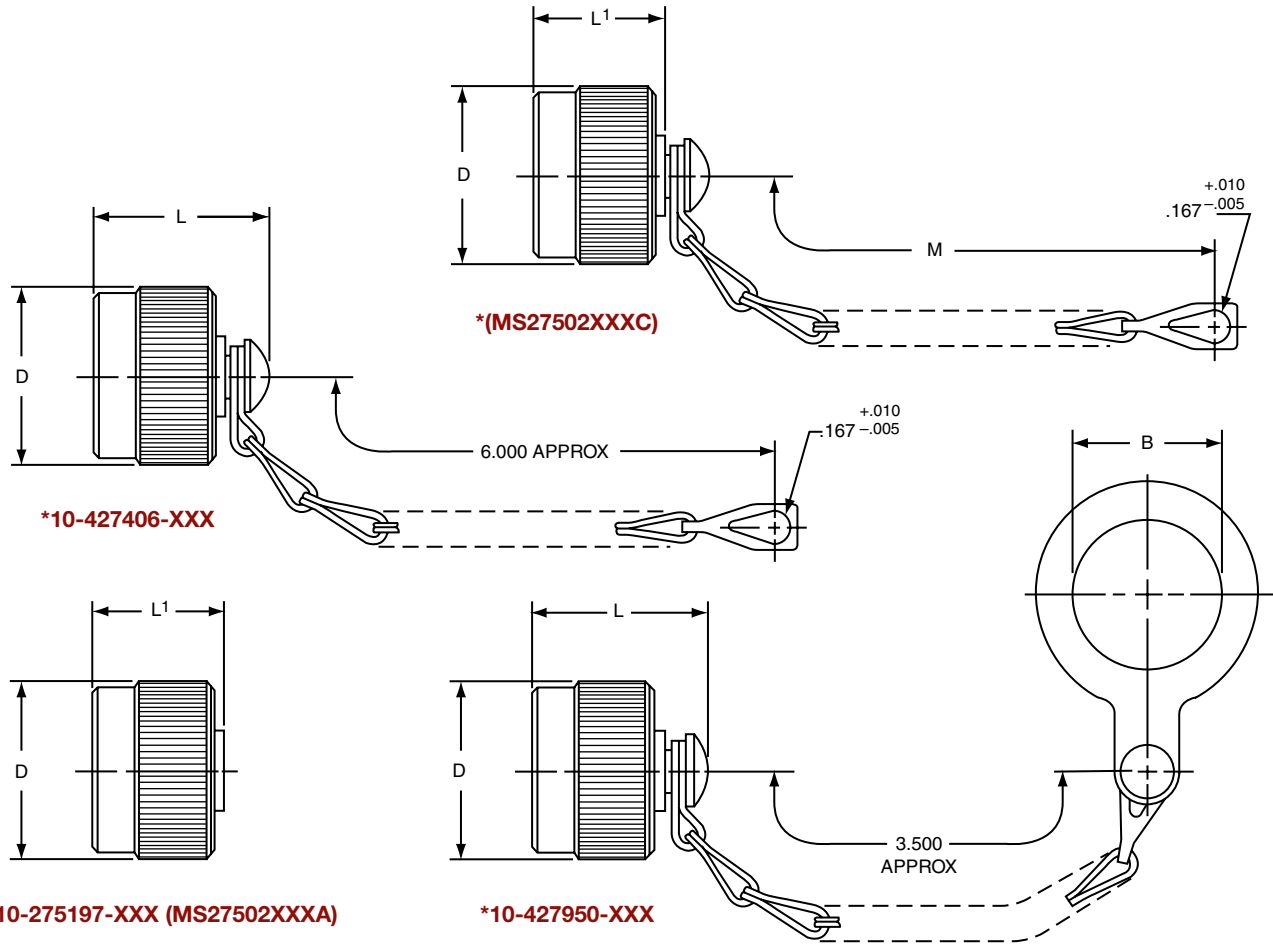
All dimensions for reference only.

F

# MIL-DTL-38999, Series I LJT Receptacle Protection Cap

38999

III  
Dualok  
II  
**I**  
SJT  
Access  
Aquacon



\* **10-275197-XXX (MS27502XXXA)**      \* **10-427950-XXX**

For MS stamping identification, accessories must be ordered by MS part number.  
 If ordered by 10- part number, they will be stamped with said number.  
 \*To complete order number, add shell size and suffix number.  
 For example, shell size 11 with cadmium plate, nickel base would be 10-427406-117, MS27502A11C, MS27502A11A.

## SERIES I LJT PLASTIC PROTECTION CAPS

Shell Size	B Dia. +.010 -0.000	D Dia. Max.	L Max.	L' Max	M ±.250
9	.703	.844	1.070	.844	3.000
11	.844	.969	1.070	.844	3.000
13	1.016	1.125	1.070	.844	3.500
15	1.141	1.250	1.070	.844	3.500
17	1.266	1.406	1.070	.844	3.500
19	1.391	1.500	1.070	.844	3.500
21	1.516	1.625	1.070	.844	4.000
23	1.641	1.750	1.070	.844	4.000
25	1.766	1.875	1.089	.875	4.000

Shell Size	Receptacle
8	10-70506-10S
9	10-70500-10
10	10-70506-12
11	10-70500-12
12	10-70506-14
13	10-70500-14
14	10-70506-16
15	10-70500-16
16	10-70506-18
17	10-70500-18
18	10-70506-20
19	10-70500-20
20	10-70506-22
21	10-70500-22
22	10-70506-24
23	10-70500-24
24	10-70576-24
25	10-70506-28

Finish	10-Number Suffix	MS Number Suffix with chain	MS Number Suffix without chain
Chromate Treat	-XX0		
Anodic Coating	-XX5	CXXC	CXXA
Cadmium Plate Nickel Base	-XX7	AXXC	AXXA
Olive Drab, Cadmium, Nickel Base	-XX9	BXXC	BXXA
Electroless Nickel	-XXG	FXXC	FXXA

All dimensions for reference only.

# MIL-DTL-38999, Series I LJT Strain Relief (Solder Type)

38999

III

Dualok

II

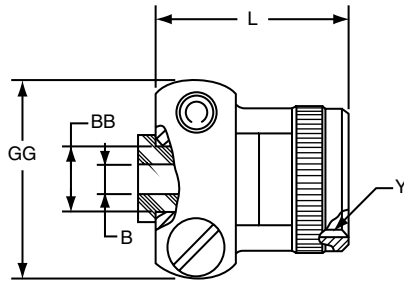
I

SJT

Access

Aquacon

Accessories



**\*10-436792-XXX**

For military type cable clamp see MS27506 or M85049/49 on page 173.  
\*To complete order number, add shell size and suffix number.

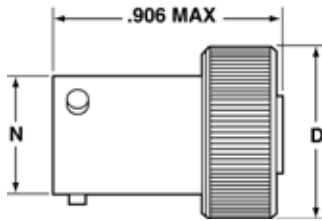
Finish	10-Number Suffix
Chromate treat	-XX0
Anodic coating	-XX5
Cadmium Plate Nickel Base	-XX7
Olive Drab, Cadmium, Nickel Base	-XX9
Electroless Nickel	-XXG

For example: Shell size 11 with cadmium plate, nickel base would be 10-436792-117.

Shell Size	B Dia. +.010 -.025	L Max.	Y Thread Class 2B (Plated)	GG Max.	BB Dia. +.000 -.011
9	.125	.859	.4375-28 UNEF	.775	.250
11	.188	.859	.5625-24 UNEF	.837	.312
13	.312	.859	.6875-24 UNEF	.963	.438
15	.375	1.109	.8125-20 UNEF	1.087	.562
17	.500	1.109	.9375-20 UNEF	1.150	.625
19	.625	1.109	1.0625-18 UNEF	1.400	.750
21	.625	1.109	1.1875-18 UNEF	1.400	.750
23	.750	1.234	1.3125-18 UNEF	1.587	.938
25	.800	1.234	1.4375-18 UNEF	1.681	1.000

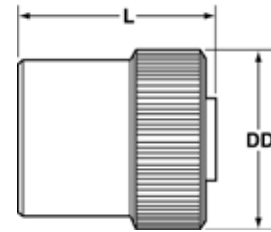
All dimensions for reference only.

### PLUG PROTECTION CAP

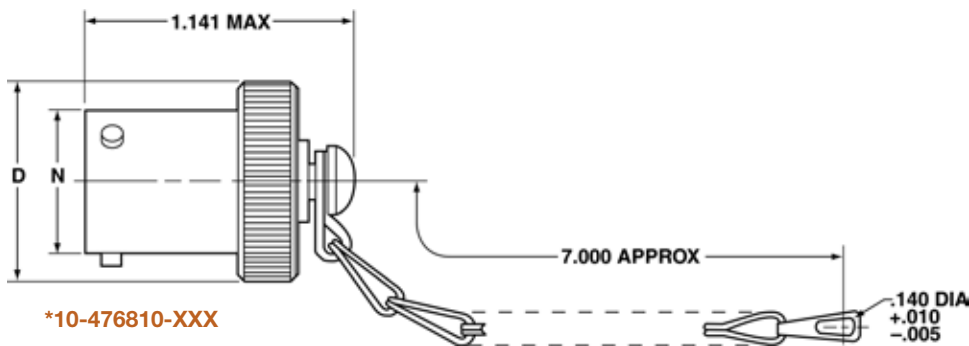


\*10-476801-XXX

### RECEPTACLE PROTECTION CAP



\*10-325943-XXX



\*10-476810-XXX

\* To complete order number, add shell size and suffix number. For example, shell size 10 with bright cadmium plated nickel base, 10-476810-107.

\* To complete order number, add shell size and suffix number. For example, shell size 10 with bright cadmium plated nickel base, 10-325943-107.

Plug Shell Size	D Dia. Max.	N Dia. +.001 - .005
8	.688	.473
10	.812	.590
12	.969	.750
14	1.094	.875
16	1.219	1.000
18	1.344	1.125
20	1.469	1.250
22	1.594	1.375
24	1.719	1.500

All dimensions for reference only

Receptacle Shell Size	DD Dia. Max.	L Max.
8	.734	.828
10	.844	.828
12	1.016	.828
14	1.141	.828
16	1.265	.828
18	1.391	.828
20	1.500	.828
22	1.625	.828
24	1.750	.859

### SJT

#### PLASTIC PROTECTION CAPS

Protection Cap Finish	Suffix
Bright Cadmium Plated Nickel Base	XX7
Anodic Coating (Alumilite)	XX5
Chromate Treated (Iridite 14-2)	XX0
Olive Drab Cadmium Plate Nickel Base	XX9
Electroless Nickel Coating	XXG

Shell Size	Plug	Receptacle
8	10-70500-10	10-70506-10S
10	10-70500-14	10-70506-12
12	10-70500-16	10-70506-14
14	10-70500-18	10-70506-16
16	10-70500-20	10-70506-18
18	10-70500-22	10-70506-20
20	10-70500-24	10-70506-22
22	10-70524-1	10-70506-24
24	10-70506-28	10-70524-1

# SJT – Accessories

## Dummy Receptacle, Cable Clamp

38999

III

Dualok

II

I

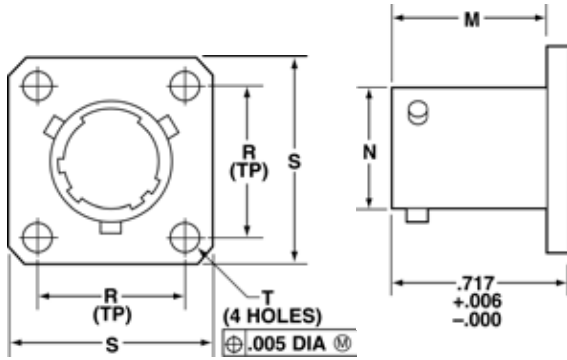
SJT

Access

Aquacon

Accessories

### DUMMY RECEPTACLE



\*10-476807-XXX

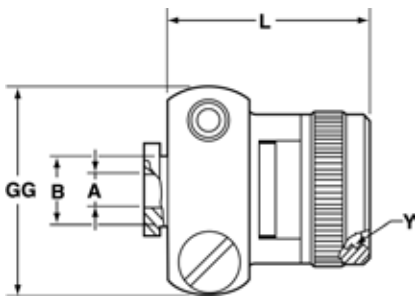
Dummy Receptacle Finish	Suffix
Bright Cadmium Plated Nickel Base	XX7
Anodic Coating (Alumilite)	XX5
Chromate Treated (Iridite 14-2)	XX0
Olive Drab Cadmium Plate Nickel Base	XX9
Electroless Nickel Coating	XXG

\* To complete order number, add shell size and suffix number. For example, shell size 10 with bright cadmium plated nickel base, 10-476807-107.

Dummy Receptacle Shell Size	D Dia. Max.	L Max.
8	.734	.828
10	.844	.828
12	1.016	.828
14	1.141	.828
16	1.265	.828
18	1.391	.828
20	1.500	.828
22	1.625	.828
24	1.750	.859

All dimensions for reference only

### CABLE CLAMP



\*10-476808-XXX

Cable Clamp Finish	Suffix
Bright Cadmium Plated Nickel Base	XX7
Anodic Coating (Alumilite)	XX5
Chromate Treated (Iridite 14-2)	XX0
Olive Drab Cadmium Plate Nickel Base	XX9
Electroless Nickel Coating	XXG

\* To complete order number, add shell size and suffix number. For example, shell size 10 with bright cadmium plated nickel base, 10-476808-107.

Cable Clamp Shell Size	A Dia. +.010 - .025	B Dia. +.000 - .011	L Max.	Y Thread Class 2B UNEF (Plated)	GG Max.
8	.125	.250	.922	.4375-28	.775
10	.188	.312	.922	.5625-24	.837
12	.312	.438	.922	.6875-24	.963
14	.375	.562	1.172	.8125-20	1.087
16	.500	.625	1.172	.9375-20	1.150
18	.625	.750	1.172	1.0625-18	1.400
20	.625	.750	1.172	1.1875-18	1.400
22	.750	.938	1.297	1.3125-18	1.587
24	.800	1.000	1.297	1.4375-18	1.681

All dimensions for reference only

F

# MIL-DTL-38999, Series III TV, II JT, I LJT

## Universal “Header Assembly” for Flex Print or PC Board

### MOUNTS TO ALL MIL-DTL-38999

The universal header assembly from Amphenol provides for easy separation of the connector from the board.

The header assembly is comprised of a short pin/socket contact. The tail end of the contact is soldered to the through hole of the flex or printed circuit board. The socket is embedded in the insulator, making electrical contact with the printed circuit tail of the connector.



**HEADERS PROVIDE EASY SEPARATION OF THE CONNECTOR FROM THE PC BOARD.**

### FEATURES AND BENEFITS:

- Circular and square header assemblies available
- Cost and time savings in the manufacturing process
- Assemblies can be vapor phase or wave soldered to flex/printed circuit board
- Allows electrical testing when installed properly.
- Connector assemblies can be easily removed from and reattached to the header assembly.

### MOUNTING APPLICATIONS

- Amphenol **square** universal headers are slotted to allow mounting to all series of MIL-DTL-38999 or MIL-DTL-26482 connectors without special alterations.
- Amphenol **circular** universal headers are designed to accommodate the rear flange of PCB Board Mount shells, series MIL-DTL-38999 connectors without special alterations.
- The header assembly can be attached to connectors with standard flange placement or directly to the circuit board.
- Connectors with dual flange mounting hardware can be provided to allow easy mounting to the panel or the header assembly.
  - Forward flange would mount the connector to the panel
  - Rear flange would be used to mount to the header assembly.
- Various types of captivated or loose attaching screws can be utilized for unique applications.

\* For information on Header Assemblies for MIL-DTL-26482 connector, consult Amphenol Aerospace.

### MOUNTING TO RECTANGULAR ARINC CONNECTORS

- Headers for ARINC connector arrangements accommodate up to 150 pins
- Consult Amphenol Canada, Ontario for ARINC configurations.

### MATERIALS

- Body is molded or machined from FR-4.
- Electrical engagement areas of the header contact are plated with .00003 inches minimum of gold over .00005 inches minimum of nickel.

See drawing of standard header on next page.



# MIL-DTL-38999, Series III TV, II JT, I LJT

## Universal "Header Assembly" for Flex Print or PC Board

38999

III

Dualok

II

I

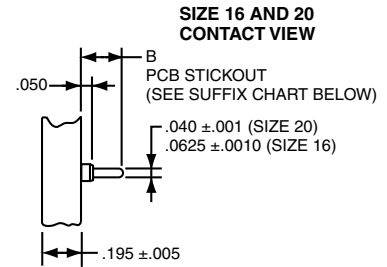
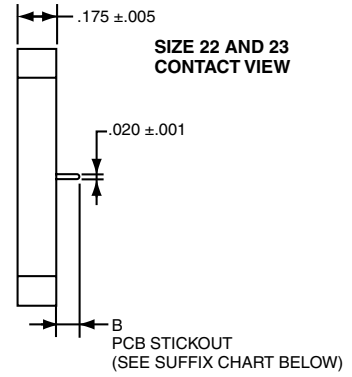
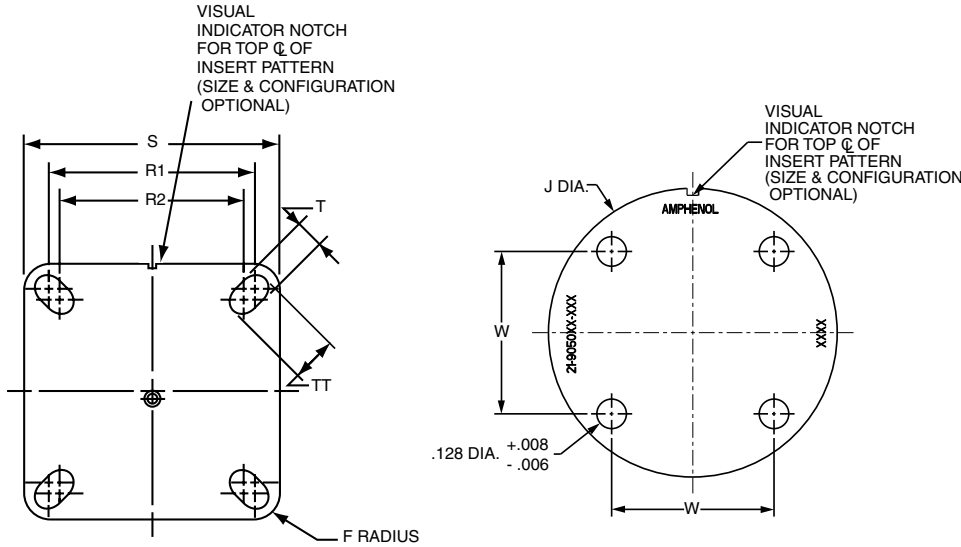
SJT

Access

Aquacon

Accessories

The drawing below shows the standard header assembly for use with MIL-DTL-38999 connectors.



NOTE:  
 Size 16 accepts .048 to .064 dia. PCB tails.  
 Size 20 accepts .037 to .043 dia. PCB tails.  
 Size 22 & 23 accepts .018 to .022 dia. PCB tails.

Square Assembly Part Number	Shell Size	F Radius	S ± .005	T + .008 - .006	R1 TP†	R2 TP†	TT + .008 - .006
21-904008-XX()	8/9	.094	.938	.128	.719	.594	.216
21-904010-XX()	10/11	.094	1.031	.128	.812	.719	.194
21-904012-XX()	12/13	.094	1.125	.128	.906	.812	.194
21-904014-XX()	14/15	.125	1.219	.128	.969	.906	.173
21-904016-XX()	16/17	.125	1.312	.128	1.062	.969	.194
21-904018-XX()	18/19	.125	1.438	.128	1.156	1.062	.194
21-904020-XX()	20/21	.125	1.562	.128	1.250	1.156	.194
21-904022-XX()	22/23	.125	1.688	.154	1.375	1.250	.242
21-904024-XX()	24/25	.125	1.812	.154	1.500	1.375	.242

† TP designates true position dimensioning.

Circular Assembly Part Number	Shell Size	J Dia. ± .005	W
21-905008-XX()	8/9	1.016	.532
21-905010-XX()	10/11	1.062	.601
21-905012-XX()	12/13	1.250	.703
21-905014-XX()	14/15	1.375	.791
21-905016-XX()	16/17	1.500	.875
21-905018-XX()	18/19	1.625	.975
21-905020-XX()	20/21	1.750	1.053
21-905022-XX()	22/23	1.875	1.145
21-905024-XX()	24/25	2.000	1.233

### HOW TO ORDER INFORMATION FOR HEADER ASSEMBLY WITH MIL-DTL-38999 CONNECTORS

1. Series	2. Type	3. Shell Size & Insert Arrg.	4. PCB Suffix
21-	9040	08-03	1

1. SERIES		2. TYPE	
21-	Header Assembly	9040	Square
		9050	Circular

### 3. SELECT A SHELL SIZE & INSERT ARRANGEMENT SEE PAGES 2-5

Shell Size & Insert Arrangements are on pages 2-5. First number represents Shell Size, second number is the Insert Arrangement. The dash is required. See MIL-STD-1560 or 1669 document for coordinates of inserts.

\* Shell size designation for MIL-DTL-38999 Series I, II, III and IV and MIL-DTL-26482 Series 1 and 2.

4. CONTACT PCB STICKOUT		
Suffix	Shell Size*	Contact PCB Stickout Length
		B ± .015 Stickout
1	08	.120
1	09	.120
2	10	.185
3	12	.270
NA	14	
NA	15	
2	16	.185
3	16	.270
	18	
2	20	.185
3	20	.270
1	22	.120
2	22	.185
3	22	.270
1	23	.120
	24	
	25	

## Application Tools

The following data includes information pertaining to the application tools which have been established for crimping, inserting, and removing contacts incorporated in the TV, CTV and MIL-DTL-38999 Series III connectors. For additional information on coax, twinax and triax contact tools, see High Speed Contact section of this catalog.

All crimping tools included are the “full cycling” type and when used as specified in the installation instructions L-624 covering the TV, CTV and MS series connectors, will provide reliable crimped wire to contact terminations. There is a possibility of additional crimping tools other than those included being available at present or in the future for this specific application.

### CRIMPING TOOLS

Contact Size/Type	Crimping Tool	Turret Die or Positioner	Contact Size/Type	Crimping Tool	Turret Die or Positioner
12 Pin and Socket	M22520/1-01	M22520/1-04	8 Coaxial Inner Pin and Socket	M22520/2-01	M22520/2-31
16 Pin and Socket	M22520/1-01 M22520/7-01	M22520/1-04 M22520/7-04		M22520/5-01	M22520/5-05 Die Closure B
20 Pin and Socket	M22520/1-01 M22520/2-01 M22520/7-01	M22520/1-04 M22520/2-10 M22520/7-08	8 Coaxial Outer Pin and Socket	M22520/5-01	M22520/5-41 Die Closure B
22, 22D, 22M Pin	M22520/2-01 M22520/7-01	M22520/2-09 M22520/7-07		M22520/10-01	M22520/10-07 Die Closure B
22, 22D, 22M Socket Series I, III	M22520/2-01 M22520/7-01	M22520/2-07 M22520/7-05	16 Coaxial Inner Pin and Socket	M22520/2-01	M22520/2-35
22D Socket Series II	M22520/2-01 M22520/7-01	M22520/2-06 M22520/7-06	16 Coaxial Outer Pin and Socket	M22520/4-01	M22520/4-02
8 Twinax Center Pin and Socket	M22520/2-01	M22520/2-37	12 Coaxial Inner Pin and Socket	M22520/2-01	M22520/2-34
8 Twinax Intermediate Outer Pin & Socket	M22520/5-01	M22520/5-200	12 Coaxial Outer Pin and Socket	M22520/31-01	M22520/31-02
			10 (Power)	TP-201423	

Where 2 or 3 tools are listed for a contact size, only one tool and its die or positioner are required to crimp the contact. The above crimping tools and positioners are available from the approved tool manufacturer.

### INSERTION TOOLS

Use with Contact Size	Plastic Tools		Metal Tools			
	MS Part Number	Color	Angle Type		Straight Type Commercial Part No.	Color
			MS Part No.	Commercial Part No.		
10 (Power)	M81969/14-05*	Gray / (White)	M81969/8-11	†	†	Green
12	M81969/14-04*	Yellow / (White)	M81969/8-09	11-8674-12††	11-8794-12††	Yellow
16	M81969/14-03*	Blue / (White)	M81969/8-07	11-8674-16††	11-8794-16††	Blue
20	M81969/14-10*	Red / (Orange)	M81969/8-05	11-8674-20††	11-8794-20††	Red
22	M81969/14-09	Brown/White	M81969/8-03	11-8674-22††	11-8794-22††	Brown
22D, 22M	M81969/14-01*	Green / (White)	M81969/8-01	11-8674-24††	11-8794-24††	Black
8 Coaxial	None Required					
8 Twinax	None	None	None	None	None	Red

### REMOVAL TOOLS

Use with Contact Size	Plastic Tools		Metal Tools				
	MS Part Number	Color	For Unwired Contacts Commercial Part No.	Angle Type		Straight Type Commercial Part No.	Color
				MS Part No.	Commercial Part No.		
10 (Power)	M81969/14-05*	(Gray) / White	†	M81969/8-12	†	†	Green / White
12	M81969/14-04*	(Yellow) / White	11-10050-11††	M81969/8-10	11-8675-12††	11-8795-12††	Yellow / White
16	M81969/14-03*	(Blue) / White	11-10050-10††	M81969/8-08	11-8675-16††	11-8795-16††	Blue / White
20	M81969/14-10*	(Orange) / Red	11-10050-9††	M81969/8-06	11-8675-20††	11-8795-20††	Red / Orange
22	M81969/14-09*	(Brown)/White	11-10050-8††	M81969/8-04	11-8675-22††	11-8795-22††	Brown/White
22D, 22M	M81969/14-01*	(Green) / White	11-10050-7††	M81969/8-02	11-8675-24††	11-8795-24††	Green / White
8 Coaxial	M81969/14-12	Green	None	None	11-9170††	DRK264-8†††	N/A
8 Twinax	M81969/14-12	Green	None	None	11-9170††	N/A	N/A

For information about contacts see page 29. The M81969/8, 11-8674, 11-8675, and 11-8794 metal contact insertion and removal tools will accommodate wires having the maximum outside diameter as follows: Contact size 12: dia. is .155, size 16: dia. is .109, size 20: dia. is .077, size 22D: dia. is .050. When wire diameters exceed those specified, the plastic tools must be used.

\* Double end insertion/removal tool.

\*\* Twinax insertion tools are available only in a straight type, metal version.

† To be determined.

†† Contact Daniels Manufacturing Co. or Astro Tool Corp. for availability.

††† Daniels Manufacturing Co. part number

# 38999, Series I LJT, II JT, III TV, & SJT

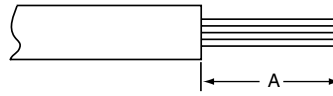
## Assembly Instructions

38999

### WIRE STRIPPING

1. Strip wire to required length. (See Figure at right). When using hot wire stripping, do not wipe melted insulation material on wire strands; with mechanical strippers do not cut or nick strands.
  2. See Table 1 for proper finished outside wire dimensions.
  3. Twist strands together to form a firm bundle.
  4. Insert stripped wire into contact applying slight pressure until wire insulation butts against wire well. Check inspection hole to see that wire strands are visible. If there are strayed wire strands, entire wire end should be re-twisted.
- When wire is stripped and properly installed into contact, the next step is to crimp the wire inside the contact by using the proper crimping tool.

### STRIPPING DIMENSIONS



Wire Size	A
22, 22M, 22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)

Table 1

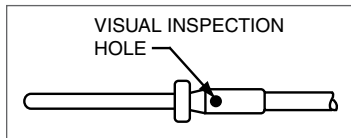
Contact Size	Wire Dimension (inches)**	
	Min.	Max.
10	.135	.162
12	.097	.142
16	.065	.109
20	.040	.077
22	.034	.060
22M, 22D	.030	.050

\*\* Min. diameters to insure moisture proof assembly; max. diameters to permit use of metal removal tools.

### CRIMPING

See table on preceding page for recommended M22520 series crimping tools, turret head or positioner selection settings according to contact size, part number and wire gauge size.

1. Insert stripped wire into contact crimp pot. Wire must be visible through inspection hole.
2. Using correct crimp tool and locator, cycle the tool once to be sure the indentors are open, insert contact and wire into locator. Squeeze tool handles firmly and completely to insure a proper crimp. The tool will not release unless the crimp indentors in the tool head have been fully actuated.
3. Release crimped contact and wire from tool. Be certain the wire is visible through inspection hole in contact.

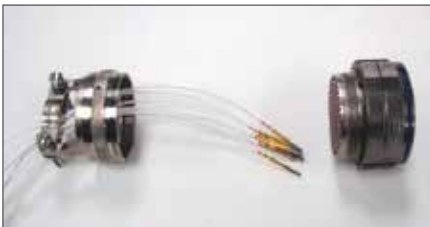


Examples of M22520 Series Crimping Tools: Shown top: tool used for small size 22, 22D and 22M contacts.

Shown bottom: tool used for size 20, 16 or 12 contacts and has a positioner that can be dialed for each contact size.

### CONTACT INSERTION

1. First remove hardware from the plug and receptacle and slide the hardware over wires in proper sequence.



2. Use proper plastic or metal insertion tool for corresponding contact. (Consult Insertion Tool table on preceding page). Slide correct tool (with plastic tool use colored end) over wire insulation and slide forward until tool bottoms against rear contact shoulder.



Plastic tool with contact in proper position.



Metal tool with contact.

3. Next align the tool and contact up to the properly identified cavity at rear of connector plug. Use firm, even pressure; do not use excessive pressure. It is recommended to start at the center cavity. Contact must be aligned with grommet hole and not inserted at an angle. Push forward until contact is felt to snap into position within insert.



Continued on next page.

Note: All plastic tools are double-ended. The colored side is the insertion tool and the white side is the removal tool.

# 38999, Series I LJT, II JT, III TV, & SJT Installation Instructions, cont.

38999

III

Dualok

II

I

SJT

Access

Aquacon

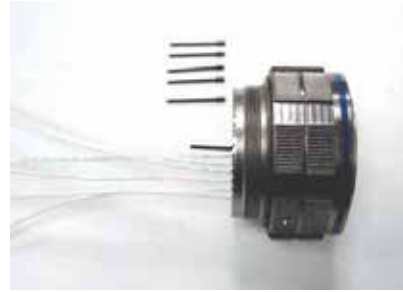
Accessories

## CONTACT INSERTION, CONT.

4. Remove tool and pull back lightly on wire, making sure contact stays properly seated and isn't dragged back with the tool. Repeat operation with remainder of contacts to be inserted, beginning with the center cavity and working outward in alternating rows.



5. After all contacts are inserted, fill any empty cavities with wire sealing plugs. (Refer to sealing plug charts for Series III on page 29, for Series I & II and SJT see page 30-31.)



6. Reassemble plug or receptacle hardware - slide forward and tighten using connector pliers. Connector holding tools are recommended while tightening back accessories. When using strain relief, center wires at bar clamp. Slide clamp grommet into position and tighten clamp bar screws. When tightening screws, pressure should be applied in the same direction that clamp is threaded to rear threads of connector. When not using clamp grommet, build up wire bundle with vinyl tape so clamp bar will maintain pressure on wires.



**CAUTION**, when inserting or removing contacts, do not spread or rotate tool tips.

## CONTACT REMOVAL

1. Remove hardware from plug or receptacle and slide hardware back along wire bundle.



2. Use proper plastic or metal removal tool for corresponding contact. (Consult Removal Tool table on page 167). Slide correct size tool over wire insulation.



Use white end of plastic tool for removal of contacts.

3. Insert plastic or metal removal tool into contact cavity until tool tips enter rear grommet and come to a positive stop. Hold tool tip firmly against positive stop on contact shoulder. Grip wire and simultaneously remove tool and contact. (On occasion, it may be necessary to remove tool, rotate 90° and reinsert.)



Removal of contacts with metal tool.