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REFER TO DSCC -VAI (Mr. Antonelli/ (DSN 850) 614-692-0576/ra)

August 5, 2004

SUBJECT: Initial Drafts of MIL-DTL-55302/166B, /167B, /168B, /169B, /170B and /171B, Connectors, Printed Circuit Subassembly and Accessories, Low Mating Force, Male and Female Brush, Various, Polarized for Multilayered Printed Wiring Boards (.100 inch spacing), Project number 5935-4553-000 through 4558-000.

Military/Industry Distribution

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If you do not have access to the world wide web or you have problems downloading this document, please notify Mr. Ralph Antonelli at either the above e-mail address or fax number or by telephone at (614) 692-0576.

Sincerely,

/ signed /

RICHARD L. TAYLOR
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cc:
VQP (Tony Carnevlæ)
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INCH-POUND

MIL-DTL-55302/167B
 DRAFT
 SUPERSEDING
 MIL-C-55302/167A(USAF)
 10 June 1986

DETAIL SPECIFICATION SHEET

CONNECTORS, PRINTED CIRCUIT SUBASSEMBLY AND ACCESSORIES:
 LOW MATING FORCE, MALE BRUSH, STRAIGHT-THROUGH, POLARIZED,
 WITH WRAPPOST TERMINATION (.100 SPACING)

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

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-DTL-55302.

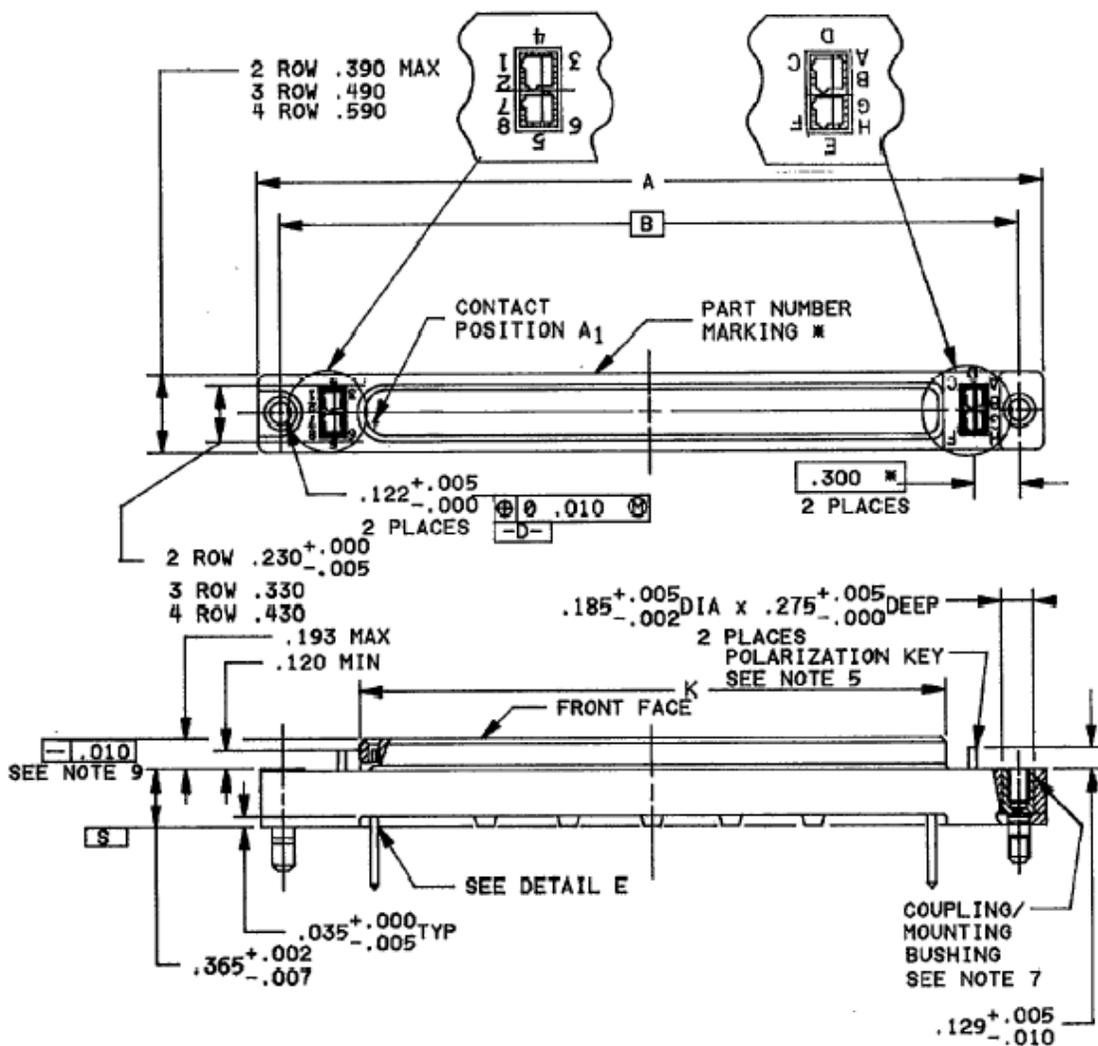
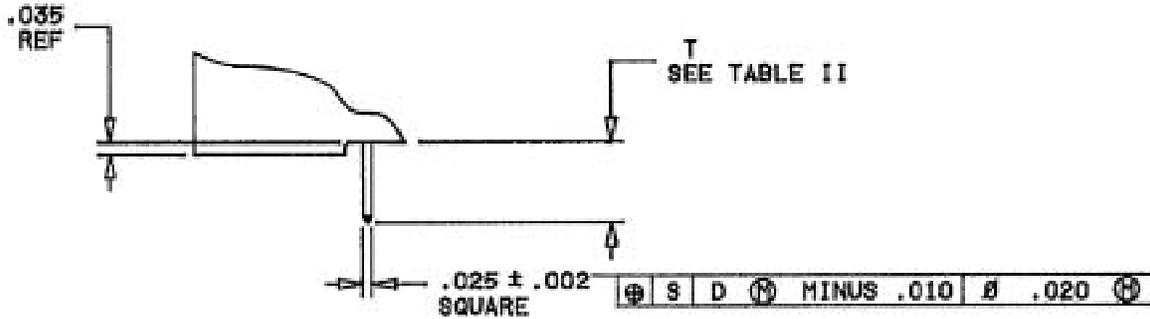


FIGURE 1. Connector, male brush, straight-through with wrappost termination .100 (2.54 mm) spacing.



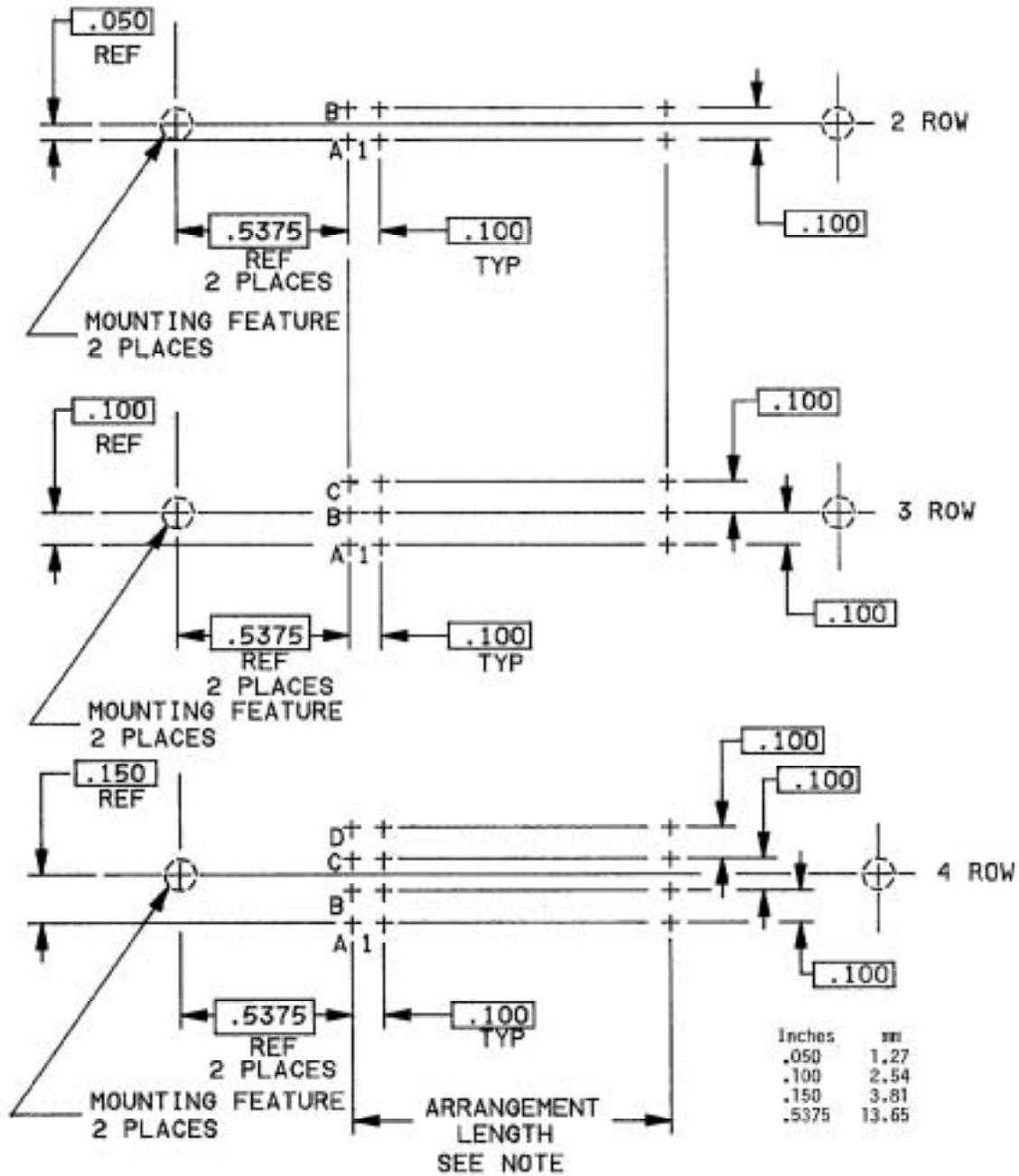
DETAIL E

Inches	mm	Inches	mm	Inches	mm	Inches	mm
.002	0.05	.035	0.89	.193	4.90	.365	9.27
.005	0.13	.112	2.84	.200	5.08	.390	9.91
.007	0.18	.120	3.04	.230	5.84	.430	10.92
.010	0.25	.122	3.10	.275	6.98	.490	12.45
.020	0.51	.129	3.28	.300	7.62	.590	14.99
.025	0.64	.185	4.70	.330	8.38		

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is $\pm .010$ (0.25 mm).
4. These connectors mate with connectors specified in MIL-DTL-55302/169 and MIL-DTL-55302/170 and are primarily for use with single-sided, double-sided, or multilayered printed wiring boards.
5. The polarization feature, utilizing four M55302/78-02 polarizing keys which are not supplied with the connector, will provide 256 unique polarizing positions.
6. For dimensions A through K, see table I.
7. Coupling/mounting bushings are not supplied with the connector. See MIL-DTL-55302/172-01 and -02.
8. Contact rows are identified by molded letters on the front and rear face. Numbers indicating every fifth contact per row appear on rear face, except for arrangements consisting of 10 contacts per row which lack numerals. Up to 9 contact locations at the high numeral end of the contact row will not be identified.
9. Perform form at MMC not required. Dimension for user installation purposes only.

FIGURE 1. Connector, male brush, straight-through with wrappost termination
.100 (2.54 mm) spacing – Continued.



NOTES:

1. The arrangement length is determined by subtracting one contact from the number of contacts per row (see table I) and multiplying the result by 0.100 inch (2.54 mm).
2. Arrangement length - 0.100(2.54 mm) times (N-1), where N equals the number of contacts per row.

FIGURE 2. Insert arrangement for .100 (2.54 mm) contact spacing, male brush connectors (engaging face).

MIL-DTL-55302/167B

REQUIREMENTS:

Dimensions and configuration: See figures 1 and 2 and tables I and II.

Contacts: Each contact shall contain 7 brush wires with a tolerance limit of ± 1 ~~providing the average outgoing quality limit (AOQL) at each tolerance extreme does not exceed 1 percent~~. Each brush wire diameter shall be .0073 to .0085 inch (0.185 mm to 0.216 mm).

Material:

Body: Glass filled thermoplastic molding material in accordance with ASTM D5948, type GPT-15F.

Contacts: In accordance with MIL-C-55302 or ASTM-B187 AND ASTM-B272.

Plating: The contact termination plating shall be in accordance with table III. Brush wire plating shall be gold in accordance with ASTM B488, type II, code C, class 1.27 over nickel in accordance with SAE-AMS-QQ-N-290. Cut ends or brush wires need not be plated.

Contact identification: See figure 1 (note 8) and figure 2.

Oversized pin exclusion: Not applicable.

Contact engagement and separation forces: Not applicable, see mating and unmating.

Mating and unmating: The maximum mating and unmating force shall be 1.5 ounces times the total number of contacts.

Contact current rating: The connector may have any combination of current flow and ambient temperature provided the contact or connector temperature does not exceed 125°C. The test current shall be 5 amperes for individually connected contacts and 3 amperes for series wired contacts.

Contact resistance: The average resistance of all contact pairs measured on row A contacts shall not exceed 0.016 ohm, and no individual pair shall have a resistance exceeding 0.020 ohm. To allow for increased terminal lengths, add 0.001 ohm for each contact row beyond row A. The point of measurement shall be the point of terminal exit from the printed wiring board.

Contact retention: 3 pounds per contact minimum when the force is applied in the forward direction. The displacement shall not exceed 0.005 (0.13 mm). The displacement shall be recorded after a 1 pound preload is used to determine the zero displacement reference.

Dielectric withstanding voltage:

Sea level: 1,300 volts rms, 60 Hz, ac.

High altitude: 325 volts rms, 60 Hz, ac.

Extended contact life: Connector shall meet the performance requirements of MIL-C-55302, contact life, when subjected to 20,000 insertion and withdrawal cycles during qualification inspection.

Insert arrangement: See figure 2.

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TABLE I. Indicators and dimensions.

2 Contact rows		3 Contact rows		4 Contact rows		Dimensions 1/		
Indicator	Total contacts	Indicator	Total contacts	Indicator	Total contacts	A Max	B	+ .004 K - .006
A10 ^{2/}	20	B10 ^{2/}	30	C10 ^{2/}	40	2.295 (58.29)	1.975 (50.17)	1.115 28.32
A11	22	B11	33	C11	44	2.396 (60.86)	2.075 52.71	1.215 30.86
A12	24	B12	36	C12	48	2.495 (63.37)	2.175 55.25	1.315 33.40
A13	26	B13	39	C13	52	2.595 (65.91)	2.275 57.79	1.415 35.94
A14	28	B14	42	C14	56	2.695 (68.45)	2.375 60.33	1.515 38.48
A15	30	B15	45	C15	60	2.795 (70.99)	2.475 62.87	1.615 41.02
A16	32	B16	48	C16	64	2.895 (73.53)	2.575 65.41	1.715 43.56
A17	34	B17	51	C17	68	2.995 (76.07)	2.675 67.95	1.815 46.10
A18	36	B18	54	C18	72	3.095 (78.61)	2.775 70.49	1.915 48.64
A19	38	B19	57	C19	76	3.195 (81.15)	2.875 73.03	2.015 51.18
A20	40	B20	60	C20	80	3.295 (83.69)	2.975 75.57	2.115 53.72
A21	42	B21	63	C21	84	3.395 (86.23)	3.075 78.11	2.215 56.26
A22	44	B22	66	C22	88	3.495 (88.77)	3.175 80.65	2.315 58.80
A23	46	B23	69	C23	92	3.595 (91.31)	3.275 83.19	2.415 61.34
A24	48	B24	72	C24	96	3.695 (93.85)	3.375 85.73	2.515 63.88
A25	50	B25	75	C25	100	3.795 (96.39)	3.475 88.27	2.615 66.42
A26	52	B26	78	C26	104	3.895 (98.93)	3.575 90.81	2.715 68.96
A27	54	B27	81	C27	108	3.995 (101.47)	3.675 93.35	2.815 71.50
A28	56	B28	84	C28	112	4.095 (104.01)	3.775 95.89	2.915 74.04
A29	58	B29	87	C29	116	4.195 (106.55)	3.875 98.43	3.015 76.58
A30	60	B30	90	C30	120	4.295 (109.09)	3.975 100.97	3.115 79.12
A31	62	B31	93	C31	124	4.395 (111.63)	4.075 103.51	3.215 81.66
A32	64	B32	96	C32	128	4.495 (114.17)	4.175 106.05	3.315 84.20
A33	66	B33	99	C33	132	4.595 (116.71)	4.275 108.59	3.415 86.74
A34	68	B34	102	C34	136	4.695 119.25	4.375 111.13	3.515 89.28
A35	70	B35	105	C35	140	4.795 (121.79)	4.475 113.67	3.615 91.82
A36	72	B36	108	C36	144	4.895 (124.33)	4.575 116.21	3.715 94.36
A37	74	B37	111	C37	148	4.995 (126.87)	4.675 118.75	3.815 96.90
A38	76	B38	114	C38	152	5.095 (129.41)	4.775 121.29	3.915 99.44

See footnotes at end of table.

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TABLE I. Indicators and dimensions – Continued.

2 Contact rows		3 Contact rows		4 Contact rows		Dimensions 1/		
Indicator	Total contacts	Indicator	Total contacts	Indicator	Total contacts	A Max	B	+ .004 K - .006
A39 ^{2/}	78	B39 ^{2/}	117	C39 ^{2/}	156	5.195 131.95	4.875 123.83	4.015 101.98
A40	80	B40	120	C40	160	5.295 134.49	4.975 126.37	4.115 104.52
A42	82	B41	123	C41	164	5.395 137.03	5.075 128.91	4.215 107.06
A42	84	B42	126	C42	168	5.495 139.57	5.175 131.45	4.315 109.60
A43	86	B43	129	C43	172	5.595 142.11	5.275 133.99	4.415 112.14
A44	88	B44	132	C44	176	5.695 144.65	5.375 136.53	4.515 114.68
A45	90	B45	135	C45	180	5.795 147.19	5.475 139.07	4.615 117.22
A46	92	B46	138	C46	184	5.895 149.73	5.575 141.61	4.715 119.76
A47	94	B47	141	C47	188	5.995 152.27	5.675 144.15	4.815 122.30
A48	96	B48	144	C48	192	6.095 154.81	5.775 146.69	4.915 124.84
A49	98	B49	147	C49	196	6.195 157.35	5.875 149.23	5.015 127.38
A50	100	B50	150	C50	200	6.295 159.89	5.975 151.77	5.115 129.92
A51	102	B51	153	C51	204	6.395 162.43	6.075 154.31	5.215 132.46
A52	104	B52	156	C52	208	6.495 164.97	6.175 156.85	5.315 135.00
A53	106	B53	159	C53	212	6.595 167.51	6.275 159.39	5.415 137.54
A54	108	B54	162	C54	216	6.695 170.05	6.375 161.93	5.515 140.08
A55	110	B55	165	C55	220	6.795 172.59	6.475 164.47	5.615 142.62
A56	112	B56	168	C56	224	6.895 175.13	6.575 167.01	5.715 145.16
A57	114	B57	171	C57	228	6.995 177.67	6.675 169.55	5.815 147.70
A58	116	B58	174	C58	232	7.095 180.21	6.775 172.09	5.915 150.24
A59	118	B59	177	C59	236	7.195 182.75	6.875 174.63	6.015 152.78
A60	120	B60	180	C60	240	7.295 185.29	6.975 177.17	6.115 155.32
A61	122	B61	183	C61	244	7.395 187.83	7.075 179.71	6.215 157.86
A62	124	B62	186	C62	248	7.495 190.37	7.175 182.25	6.315 160.40
A63	126	B63	189	C63	252	7.595 192.91	7.275 184.79	6.415 162.94
A64	128	B64	192	C64	256	7.695 195.45	7.375 187.33	6.515 165.48
A65	130	B65	195	C65	260	7.795 197.99	7.475 189.87	6.615 168.02
A66	132	B66	198	C66	264	7.895 200.53	7.575 192.41	6.715 170.56

See footnotes at end of table.

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TABLE I. Indicators and dimensions – Continued.

2 Contact rows		3 Contact rows		4 Contact rows		Dimensions 1/		
Indicator	Total contacts	Indicator	Total contacts	Indicator	Total contacts	A Max	B	+ .004 K - .006
A67	134	B67	201	C67	268	7.995 203.07	7.675 194.95	6.815 173.10
A68	136	B68	204	C68	272	8.095 205.61	7.775 197.49	6.915 175.64
A69	138	B69	207	C69	276	8.195 208.15	7.875 200.03	7.015 178.18
A70	140	B70	210	C70	280	8.295 210.69	7.975 202.57	7.115 180.72
A71	142	B71	213	C71	284	8.395 213.23	8.075 205.11	7.215 183.26
A72	144	B72	216	C72	288	8.495 215.77	8.175 207.65	7.315 185.80
A73	146	B73	219	C73	292	8.595 218.31	8.275 210.19	7.415 188.34
A74	148	B74	222	C74	296	8.695 220.85	8.375 212.73	7.515 190.88
A75	150	B75	225	C75	300	8.795 223.39	8.475 215.27	7.615 193.42
A76	152	B76	228	C76	304	8.895 225.93	8.575 217.81	7.715 195.96
A77	154	B77	231	C77	308	8.995 228.47	8.675 220.35	7.815 198.50
A78	156	B78	234	C78	312	9.095 223.10	8.775 222.89	7.915 201.04
A79	158	B79	237	C79	316	9.195 233.55	8.875 225.43	8.015 203.58
A80	160	B80	240	C80	320	9.295 236.09	8.975 227.97	8.115 206.12
A81	162	B81	243	C81	324	9.395 238.63	9.075 230.51	8.215 208.66
A82	164	B82	246	C82	328	9.495 241.17	9.175 233.05	8.315 211.20
A83	166	B83	249	C83	332	9.595 243.71	9.275 235.59	8.415 213.74
A84	168	B84	252	C84	336	9.695 246.25	9.375 238.13	8.515 216.28
A85	170	B85	255	C85	340	9.795 248.79	9.475 240.67	8.615 218.82

See footnotes at end of table.

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TABLE I. Indicators and dimensions - Continued.

2 Contact rows		3 Contact rows		4 Contact rows		Dimensions 1/		
Indicator	Total contacts	Indicator	Total contacts	Indicator	Total contacts	A Max	B	+ .004 K - .006
A86 ^{2/}	172	B86 ^{2/}	258	C86 ^{2/}	344	9.895 251.33	9.575 243.21	8.715 221.36
A87	174	B87	261	C87	348	9.995 253.87	9.675 245.75	8.815 223.90
A88	176	B88	264	C88	352	10.095 256.41	9.775 248.29	8.915 226.44
A89	178	B89	267	C89	356	10.195 258.95	9.875 250.83	9.015 228.98
A90	180	B90	270	C90	360	10.295 261.49	9.975 253.37	9.115 231.53
A91	182	B91	273	C91	364	10.395 264.03	10.075 255.91	9.215 234.06
A92	184	B92	276	C92	368	10.495 266.57	10.175 258.45	9.315 236.60
A93	186	B93	279	C93	372	10.595 269.11	10.275 260.99	9.415 239.14
A94	188	B94	282	C94	376	10.695 271.65	10.375 263.53	9.515 241.68
A95	190	B95	285	C95	380	10.795 274.19	10.475 266.07	9.615 244.22
A96	192	B96	288	C96	384	10.895 276.73	10.575 268.61	9.715 246.76
A97	194	B97	291	C97	388	10.995 279.27	10.675 271.15	9.815 249.30
A98	196	B98	294	C98	392	11.095 281.81	10.775 273.69	9.915 251.84
A99	198	B99	297	C99	396	11.195 284.35	10.875 276.23	10.015 254.38
A00	200	B00	300	C00	400	11.295 286.89	10.975 278.77	10.115 256.92

1/ All dimensions are in inches. Metric equivalents may be calculated based on 1 inch = 25.4 mm.

2/ Indicators consist of, a letter designating number of contact rows and two digits indicating number of contacts per row. Indicators A00, B00, and C00 denotes 100 contacts per row.

TABLE II. Contact tail termination length.

Indicator	T dimension
Z	.542 ± .025
Y	.700 ± .025

TABLE III. Contact tail plating.

Indicator	Plating
1	Tin lead per <u>SAE-AMS-P-81728</u> , 50 to 70 percent tin, .0001 minimum thick over copper in accordance with <u>SAE-AMS-2418</u> per <u>MIL-C-14550</u> .
2	Gold per <u>ASTM B488</u> , type II, <u>code C</u> , class <u>0.51</u> over nickel per <u>QQ-N-290</u> .

MIL-DTL-55302/167B

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. 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 and relationship to the last previous issue.

Referenced documents. In addition to MIL-DTL-55302, this document references the following:

MIL-DTL-55302/78
MIL-DTL-55302/169
MIL-DTL-55302/170
MIL-DTL-55302/172
ASTM B187
ASTM B272
ASTM B488
ASTM D5948
SAE-AMS-2418
SAE-AMS-QQ-N-290
SAE-AMS-P-81728

CONCLUDING MATERIAL

Custodian:
Air Force – 11
DLA – CC

Preparing activity:
DLA - CC

(Project 5935-4454-000)

Review activities:
Air Force – 19, 99

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RECOMMENDED DISPOSITION OF COMMENT:		[] ACCEPTANCE [] NON-ACCEPTED-SEE REASON [] WITHDRAW [] MODIFY [] DISCUSS		
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DESC FORM 155

PROJECT NUMBER		COMPILATION OF COMMENTS		COMMENT NUMBER
DOCUMENT		COMMENTOR IND NAME OR CODE	[] MFR [] USER [] IND ASSOC	
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