

SPECIFICATION CONTROL DRAWING

CONTACTS, ELECTRICAL CONNECTOR, SOCKET,
SOLDERTACTS[®], REMOVABLE, SHIELDED, SIZE 16, M39029/77 TYPE
(FOR MIL-C-38999 SERIES I, III AND IV CONNECTORS)

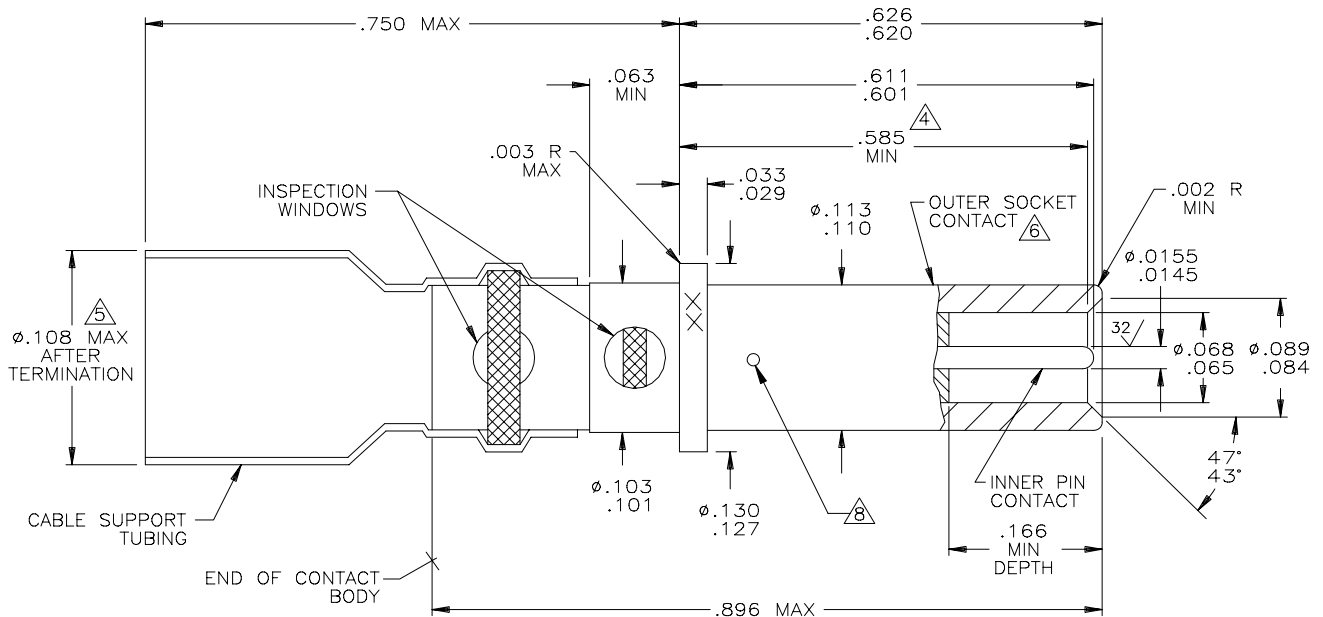


FIGURE 1.

NOTES:

1. DIMENSIONS ARE IN INCHES.
2. METRIC EQUIVALENTS CAN BE CALCULATED BASED UPON 1.00 INCH=25.4mm.
3. DIMENSIONS SHOWN APPLY AFTER PLATING.
4. POINT AT WHICH A SQUARE ENDED PIN OF THE SAME BASIC DIAMETER AS THE MATING CONTACT FIRST ENGAGES THE OUTER CONTACT SPRING. PROVISION FOR CLEARANCE HOLE SHALL BE PROVIDED.
5. SLEEVE RECOVERY: THE DIAMETER OF THE SHRINK TUBING OVER THE CABLE SHALL NOT EXCEED THE DIAMETER SHOWN.
6. MATES WITH .0635/.0615 DIA PIN
7. CONTACT WEIGHT: 0.687 GRAMS MAXIMUM UNTERMINATED.
8. THE FEATURES SHOWN ARE TWO HOLES REQUIRED TO ACCOMMODATE THE CONTACT MANUFACTURING PROCESS (REF).

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UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
METRIC DIMENSIONS ARE
IN BRACKETS.

DECIMALS
.XXX ± [mm]
.XX ± [mm]
ANGLES ±

| | | | | |
|--|---------------------------------|-----------------------|------------------------------------|---------------------------------------|
| PREPARED BY: <i>TJ</i> | CAD NAME: <i>T17891a.DWG</i> | CHECKED: <i>ZT</i> | APPROVED: <i>CP</i> DEV MGR. | DOCUMENT NUMBER: D-602-0141 |
| DATE: <small>If this document is printed it becomes uncontrolled. Check for the latest revision.</small> | DATE: | DATE: | DATE: | SHEET 1 of 6 |

SPECIFICATION CONTROL DRAWING

REQUIREMENTS:

DIMENSIONS (FIGURE 1), DESIGN CHARACTERISTICS, AND CONFIGURATIONS MEET THE REQUIREMENTS OF M39029/77 EXCEPT THAT THE TEMPERATURE RATING IS 125°C INSTED OF 200°C. TERMINATION IS BY SOLDERING INSTED OF CRIMPING. SEE TABLE I FOR CABLE ACCOMODATIONS.
THIS CONTACT IS QUALIFIED TO RAYCHEM SPECIFICATION D-6002.
MATING CONTACT: D-602-0140 (M39029/76)

TOOLS: SEE TABLE II.

TABLE I. DESIGN CHARACTERISTICS

| CABLE ACCOMODATED <u>1/</u> | CONTACT CAVITY SIZE | TYPE | CLASS |
|--|---------------------|------|-------|
| M17/093 - RG 178 <u>2/</u> M17/094 - RG 179 M17/113 - RG 316 RAYCHEM 5026A1X*X RAYCHEM 5026D1X*X RAYCHEM 5028A1X*X RAYCHEM 5030A1X*X RAYCHEM 7528A1X*X RAYCHEM 7530A1X*X | 16 | D | A |

1/ OTHER APPLICATIONS USING DIFFERENT CABLES MAY BE ACCOMODATED. CONSULT CONTACT MANUFACTURER FOR DETAILS.

2/ ADDITIONAL DIELECTRIC BARRIER IS REQUIRED. (RAYCHEM P/N D-600-0018 OR EQUIVALENT).

* DESIGNATION CAN BE REPLACED WITH NUMBER 1 OR 2.

TABLE II. TOOLS

| HEATING TOOLS <u>3/</u> | REFLECTORS <u>3/</u> | STANDARD FIXTURE <u>3/</u> | | REPAIR FIXTURE <u>3/</u> | INTALLING TOOLS | REMOVAL TOOLS |
|----------------------------|----------------------------------|----------------------------|------------|-----------------------------|-----------------------------------|-----------------------------------|
| | | BASIC FIXTURE | ADAPTER | | | |
| AA-400 SUPER HEATER | #979663 MINI SOLDER SLEEVE | AD-1319 OR AD1567 | AT-1319-78 | AD-1565 | M81969/8-07 OR M81969/14-03 | M81969/8-08 OR M81969/14-03 |
| CV-5300 MINI GUN | MG-1 SOLDERSLEEVE | | | | | |

3/ SEE TERMINATION PROCEDURE: RAYCHEM ES-61226

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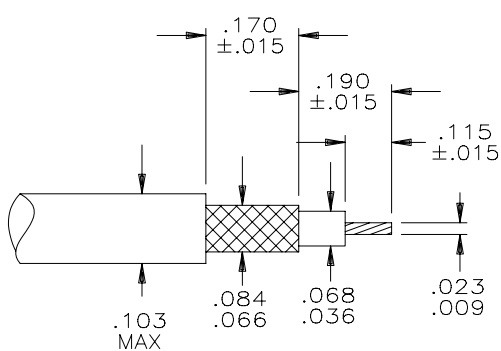
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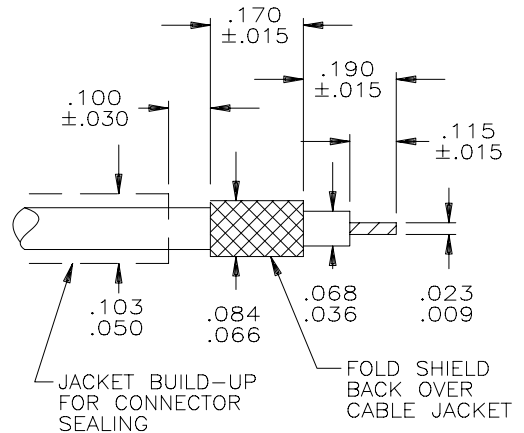
ASSEMBLY INSTRUCTIONS

1. STRIP CABLE AS SHOWN ON FIGURE 2.
2. INSERT CABLE INTO CONTACT UNTIL IT IS FULLY SEATED.
3. HEAT CONTACT WITH APPROPRIATE TOOLS AS SHOWN ON TABLE II UNTIL SOLDER MELTS AND FLOWS AND STRAIN RELIEF TUBING CONFORMS TO CABLE.
4. SEE TABLES I FOR CABLE ACCOMMODATION.

PREPARATION OF COAXIAL CABLE 30 AWG AND LARGER CENTER CONDUCTOR

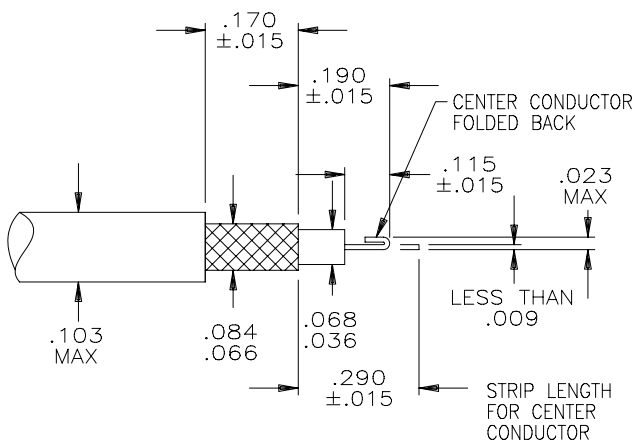


CABLE PREPARATION FOR
STRAIGHT SHIELD

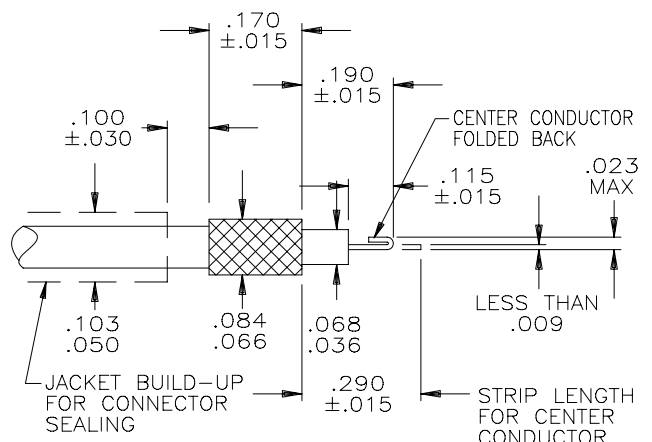


CABLE PREPARATION FOR
FOLDBACK SHIELD

PREPARATION OF COAXIAL CABLE 32 AWG AND SMALLER CENTER CONDUCTOR



CABLE PREPARATION FOR
STRAIGHT SHIELD
FOLDBACK CENTER CONDUCTOR



CABLE PREPARATION FOR
FOLDBACK SHIELD
FOLDBACK CENTER CONDUCTOR

FIGURE 2.

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SPECIFICATION CONTROL DRAWING

PREPARATION OF COAXIAL CABLE: RG-178B/U COAXIAL CABLE

1. STRIP THE RG-178B/U COAXIAL CABLE AS SHOWN.
2. SLIP THE D-600-0018 DIELECTRIC BARRIER BETWEEN THE SHIELD BRAID AND THE CABLE DIELECTRIC (FIGURE 3.)

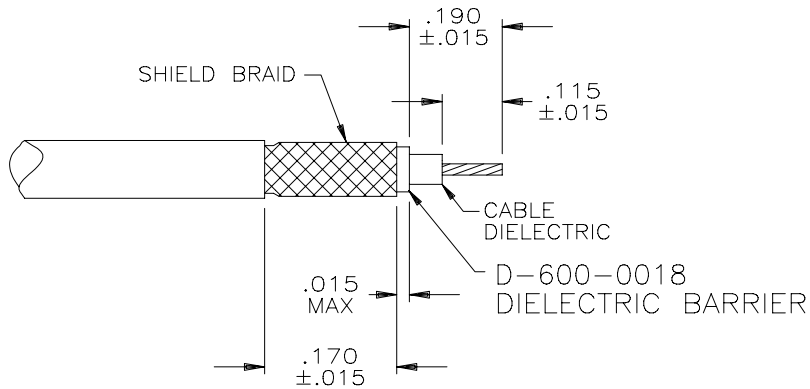


FIGURE 3.

SPECIFICATION CONTROL DRAWING

CONTACT ENGAGEMENT AND SEPARATION FORCES (OUTER SOCKET CONTACT ONLY): THE ENGAGEMENT DEPTH SHALL BE AS ENCOUNTERED IN NORMAL SERVICE. THE TEST PINS SHALL BE IN ACCORDANCE WITH MS3197 EXCEPT THE DIAMETERS SHALL BE AS SPECIFIED IN THE FOLLOWING, AND SURFACE ROUGHNESS SHALL NOT EXCEED 3 MICROINCHES. PROVISIONS FOR CLEARANCE HOLE SHALL BE PROVIDED.

TABLE III

| TEST PIN DIAMETER (INCH) | MINIMUM SEPARATION FORCE (OUNCES) | | MAXIMUM ENGAGEMENT FORCE (OUNCES) | |
|--|--------------------------------------|-----------------------|--------------------------------------|-----------------------|
| | INITIAL | AFTER CONDITIONING | INITIAL | AFTER CONDITIONING |
| .0635 $\begin{matrix} +.0002 \\ -.0000 \end{matrix}$ | N/A | N/A | 30.0 | 36.0 |
| .0615 $\begin{matrix} +.0000 \\ -.0002 \end{matrix}$ | 2.0 | 1.5 | N/A | N/A |

DIELECTRIC WITHSTANDING VOLTAGE (APPLIED BETWEEN INNER AND OUTER CONTACT):
TEST VOLTAGE:

AT SEA LEVEL: 800 VAC. RMS.
AT 50,000 FEET: 250 VAC. RMS.

CONTACT RESISTANCE: SEE TABLE IV.

TABLE IV. CONTACT RESISTANCE

| TEST CABLE | MAXIMUM VOLTAGE DROP (MILLIVOLTS) | | | | | | TEST CURRENT (AMPS) | |
|-------------------------|---|-------|---|-------|--|-------|---------------------------|-------|
| | $25^{\circ} \begin{matrix} +3^{\circ} \\ -0^{\circ} \end{matrix} C$ | | $25^{\circ} \begin{matrix} +3^{\circ} \\ -0^{\circ} \end{matrix} C$ _{4/} | | $125^{\circ} \begin{matrix} +3^{\circ} \\ -0^{\circ} \end{matrix} C$ | | | |
| | CONTACT | | CONTACT | | CONTACT | | CONTACT | |
| | INNER | OUTER | INNER | OUTER | INNER | OUTER | INNER | OUTER |
| M17/093 – RG 178 | 120 | 69 | 144 | 83 | 180 | 104 | 1.0 | 7.5 |
| M17/094 – RG 179 | 120 | 44 | 144 | 53 | 180 | 66 | 1.0 | 7.5 |
| M17/113 – RG 316 | 110 | 47 | 132 | 57 | 165 | 71 | 2.0 | 7.5 |
| RAYCHEM | | | | | | | | |
| 5026A1311 | 55 | 54 | 66 | 65 | 83 | 81 | 2.0 | 7.5 |
| 5026D1028 _{5/} | 115 | 54 | 138 | 65 | 172 | 81 | 2.0 | 7.5 |
| 5028A1114 | 65 | 69 | 78 | 83 | 98 | 104 | 1.5 | 7.5 |
| 5030A1114 | 60 | 110 | 72 | 132 | 90 | 165 | 1.0 | 7.5 |
| 7528A1317 _{5/} | 135 | 47 | 162 | 57 | 203 | 71 | 1.5 | 7.5 |
| 7530A1118 _{5/} | 120 | 54 | 144 | 65 | 180 | 81 | 1.0 | 7.5 |

4/ AFTER CONDITIONING.

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5/ CENTER CONDUCTOR PLATED STEEL

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SPECIFICATION CONTROL DRAWING

LOW SIGNAL LEVEL CONTACT RESISTANCE (INNER CONTACT ONLY): SEE TABLE V.

TENSILE STRENGTH (INNER AND OUTER CONTACT SOLDER JOINT): SEE TABLE V.

TABLE V. LOW SIGNAL LEVEL CONTACT RESISTANCE
(INNER CONTACT ONLY) AND TENSILE STRENGTH

| TEST CABLE | MAXIMUM CONTACT RESISTANCE (MILLIOHMS) | | MINIMUM TENSILE STRENGTH (POUNDS) | |
|---------------------|--|--------------------|-----------------------------------|---------------|
| | INITIAL | AFTER CONDITIONING | INNER CONTACT | OUTER CONTACT |
| M17/093 – RG 178 | 120 | 144 | 3.5 | 10.0 |
| M17/094 – RG 179 | 120 | 144 | 3.5 | 15.0 |
| M17/113 – RG 316 | 55 | 66 | 10.0 | 15.0 |
| RAYCHEM | | | | |
| 5026A1311 | 33 | 40 | 6.0 | 15.0 |
| 5026D1028 <u>5/</u> | 58 | 70 | 6.0 | 15.0 |
| 5028A1114 | 45 | 54 | 6.0 | 15.0 |
| 5030A1114 | 66 | 80 | 3.5 | 10.0 |
| 7528A1317 <u>5/</u> | 93 | 112 | 6.0 | 15.0 |
| 7530A1118 <u>5/</u> | 120 | 144 | 3.5 | 15.0 |

5/ CENTER CONDUCTOR PLATED STEEL.

| | | |
|-----------|--|---|
| MATERIAL: | CONTACT BODY | BERYLLIUM COPPER, ALLOY 173, CONDITION H PER ASTM B196 |
| | INNER CONTACT | BERYLLIUM COPPER, ALLOY 173, CONDITION H PER ASTM B196 |
| | PLATING (CONTACT BODY AND INNER CONTACT) | GOLD PLATE PER MIL-G-45204 TYPE II, GRADE C 50 MICROINCHES MINIMUM OVER NICKEL PER QQ-N-290A 50 MICROINCHES MINIMUM OVER COPPER STRIKE – 40 MICROINCHES MAXIMUM |
| | SOLDER | Sn63 PER QQ-S-571 |
| | FLUX | TYPE RMA PER QQ-S-571 |
| | SHRINK TUBING | HEAT-SHRINKABLE, RADIATION-CROSSLINKED POLYVINYLIDENE FLUORIDE |
| | DIELECTRIC | ETFE FLUOROPOLYMER PER ASTM D3159 |

SHIPPING FIGURE 1 INDICATES THE ONE-PIECE ASSEMBLY. TERMINATION INSTRUCTIONS ARE TO BE SHIPPED WITH THE UNIT PACKAGE.

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