

SPECIFICATION CONTROL DRAWING

CONTACTS, ELECTRICAL CONNECTOR, SOCKET, SOLDERCONTACTS REMOVABLE, TWISTED PAIR, SHIELDED, SIZE 16, M39029/78 TYPE (FOR MIL-C-38999 SERIES II AND MIL-C-24308 CONNECTORS)

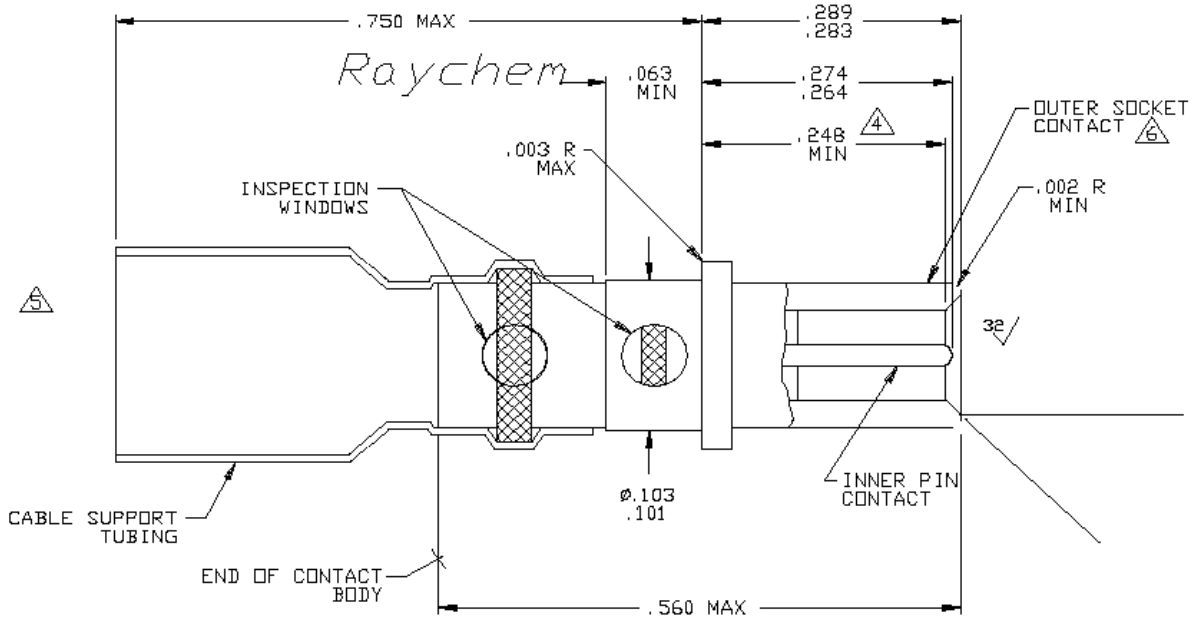


FIGURE 1.

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

6 MATES WITH .0635/.0615 DIA PIN

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

DECIMALS

.XXX ± [mm]

.XX ± [mm]

ANGLES ±

PREPARED BY:

CAD NAME:

CHECKED:

APPROVED:

DOCUMENT NUMBER:

D-602-0174

DATE:

DATE:

DEV MGR.

SPECIFICATION CONTROL DRAWING

REQUIREMENTS:

DIMENSIONS (FIGURE 1), DESIGN CHARACTERISTICS, AND CONFIGURATIONS MEET THE REQUIREMENTS OF M39029/78 EXCEPT THAT THE TEMPERATURE RATING IS 125°C INSTEAD OF 200°C. TERMINATION IS BY SOLDERING INSTEAD OF CRIMPING, AND THE CABLE ACCOMMODATED IS TWISTED PAIR INSTEAD OF COAXIAL. SEE TABLE I FOR CABLE ACCOMMODATIONS.

THIS CONTACT IS QUALIFIED TO RAYCHEM SPECIFICATION D-6002

MATING CONTACT: D-602-0142 (M39029/76)

TOOLS: SEE TABLE II.

TABLE I. DESIGN CHARACTERISTICS

| CABLE ACCOMMODATED ^{1/} | CONTACT CAVITY SIZE | TYPE | CLASS |
|---|---------------------|------|-------|
| TWISTED PAIR 26 AWG TWISTED PAIR 28 AWG TWISTED PAIR 30 AWG | 16 | D | A |

^{1/} OTHER APPLICATIONS USING DIFFERENT CABLES MAY BE ACCOMMODATED. CONSULT CONTACT MANUFACTURER FOR DETAILS.

TABLE II. TOOLS

| HEATING TOOLS ^{2/} | REFLECTORS ^{2/} | STANDARD FIXTURE ^{2/} | | REPAIR FIXTURE ^{2/} | INSTALLING TOOLS | REMOVAL TOOLS | FOLDING TOOL |
|--------------------------------|----------------------------------|--------------------------------|------------|---------------------------------|-----------------------------------|-----------------------------------|--------------|
| | | BASIC FIXTURE | ADAPTER | | | | |
| AA-400 SUPER HEATER | #979663 MINI SOLDER SLEEVE | AD-1319 OR AD1567 | AT-1319-27 | AD-1572 | M81969/8-07 OR M81969/14-03 | M81969/8-08 OR M81969/14-03 | AD-1575-1 |
| CV-5300 MINI GUN | MG-1 SOLDERSLEEVE | | | | | | |

^{2/} SEE TERMINATION PROCEDURE: RAYCHEM ES-61224

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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 TABLE I FOR CABLE ACCOMMODATION.

TWISTED PAIR CABLE ACCOMMODATION

1. SOLDERCONTACTS CONTACTS CAN BE TERMINATED TO TWISTED-PAIR CABLE OF THE FOLLOWING CONSTRUCTION.

SIZE.....AWG 26 THROUGH AWG 30
 PLATING.....TIN OR SILVER
 CONSTRUCTION.....SOLID OR STRANDED
 INSULATION DIAMETER..... ϕ .045 INCH. MAX.

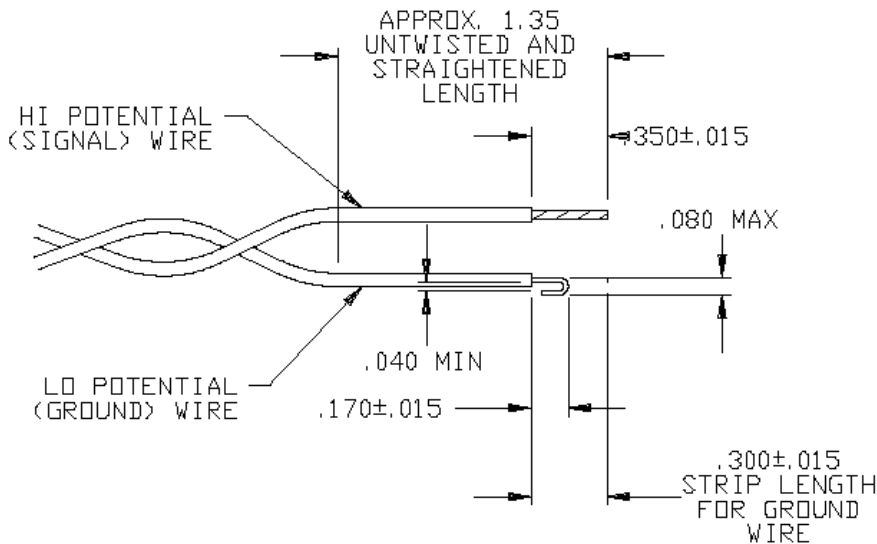


FIGURE 2

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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.

Raychem 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° $\begin{matrix} +3° \\ -0° \end{matrix}$ C | | 25° $\begin{matrix} +3° \\ -0° \end{matrix}$ C <u>3/</u> | | 125° $\begin{matrix} +3° \\ -0° \end{matrix}$ C | | | |
| | CONTACT | | CONTACT | | CONTACT | | CONTACT | |
| | INNER | OUTER | INNER | OUTER | INNER | OUTER | INNER | OUTER |
| 26 AWG T.P./TC | 52 | 52 | 63 | 63 | 78 | 78 | 2.0 | 2.0 |
| 28 AWG T.P./TC | 54 | 54 | 65 | 65 | 81 | 81 | 1.5 | 1.5 |
| 30 AWG T.P./TC | 60 | 60 | 73 | 73 | 90 | 90 | 1.0 | 1.0 |
| 26 AWG T.P./SHSC | 52 | 52 | 63 | 63 | 78 | 78 | 2.0 | 2.0 |
| 28 AWG T.P./SHSC | 54 | 54 | 65 | 65 | 81 | 81 | 1.5 | 1.5 |
| 30 AWG T.P./SHSC | 60 | 60 | 73 | 73 | 90 | 90 | 1.0 | 1.0 |

3/ AFTER CONDITIONING.

TC = TIN PLATED COPPER
TP = TWISTED PAIR
SHSC = SILVER PLATED HIGH STRENGTH COPPER

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LOW 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) | | TENSILE STRENGTH (POUNDS) (MINIMUM) | |
|------------------|--|--------------------|-------------------------------------|---------------|
| | INITIAL | AFTER CONDITIONING | INNER CONTACT | OUTER CONTACT |
| 26 AWG T.P./TC | 31 | 38 | 5.0 | 5.0 |
| 28 AWG T.P./TC | 50 | 60 | 3.0 | 3.0 |
| 30 AWG T.P./TC | 75 | 88 | 1.5 | 1.5 |
| 26 AWG T.P./SHSC | 31 | 38 | 5.0 | 5.0 |
| 28 AWG T.P./SHSC | 50 | 60 | 4.0 | 4.0 |
| 30 AWG T.P./SHSC | 75 | 88 | 2.0 | 2.0 |

TC = TIN PLATED COPPER
TP = TWISTED PAIR WIRE
SHSC = SILVER PLATED HIGH STRENGTH COPPER

| | | |
|-----------|--|---|
| 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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