

Use activities: Army ME, SL, WC  
Navy  
Air Force

Reviewer activities: Army MU, ML, AV, EL, SL  
Navy EC, MC, AS  
Air Force 14, 15, 17, 80

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5935

**PURPOSE:**

The purpose of this drawing is to define the cable preparation and connector assembly instructions for flat conductor cable plugs per MIL-C-55544/9. Following the instructions of this drawing will assure that the completed plug assembly will meet the performance requirements of MIL-C-55544, "CONNECTORS, ELECTRICAL, ENVIRONMENT RESISTANT, FOR USE WITH FLEXIBLE, FLAT CONDUCTOR CABLE."

**MATERIALS:**

The materials required for assembly of the flat conductor cable plug consist of the following:

Standard cables in accordance with the requirements of MIL-C-55543 or as specified on the using cable assembly drawing.

Plug parts per MIL-C-55544/9 consisting of 1 each: coupling ring, window piece, conductor spacer, insulator, shell, insert, seal, potting compound, and bonding agent.

These materials shall be processed and assembled in accordance with the following instructions:

**PROCESS AND ASSEMBLY INSTRUCTIONS:**

1. Cable Preparation:

The flat conductor cable shall be that specified on the applicable cable assembly drawing and shall be prepared as follows:

- A. Prepare the cable ends of the two flat conductor cables by removing the insulation as shown in Figure 1 (Cable Stripping).
- B. Plate the bared copper conductors, if non-plated, with a minimum of 50 microinches of stress-free nickel, then superimpose gold plating in accordance with requirements of MIL-G-45204; type 2, class 1 to 50 microinches maximum thickness. If the bare conductors are already plated, only the gold plating is required.

2. Plug Assembly:

The cable, as prepared above, and the flat conductor cable plug parts defined by MIL-C-55544/9 and furnished as the complete MIL-C-55544/9 part number are assembled as follows:

Note - This is a design standard; not to be used as a part number; no materials are to be purchased per this drawing.

APPROVED 26 DEC. 1968 REVISED (A) 25 June 1971

|  |                        |   |                   |
|--|------------------------|---|-------------------|
| P.A. EL<br>Other Cust AS, II             | International Interest | TITLE<br>METHOD DRAWING, M55544/9<br>PLUG ASSEMBLY, CYLINDRICAL<br>FLAT CONDUCTOR CABLE | MILITARY STANDARD |
|  |                        |   | MS75080           |
| Procurement Specification<br>MIL-C-55544 |                        | SUPERSEDES:   | SHEET 1 OF 7      |

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- A. Thread bared conductors (both cables) through the rear of the coupling ring and small opening of the shell. (Figure 2, Cable Insertion). Move coupling ring and shell back on cables far enough to give liberty in working with each cable.
- B. Insert the bare conductors through respective openings (beveled side) of the window piece (Figure 2, Cable Insertion).
- C. Separate conductors of one cable from those of the other cable and insert the conductor spacer into the window piece. See Figure 3 (Conductor Spacer Installation).
- D. Using a tool to hold the bare conductors in the respective slots of the conductor spacer, bend conductors of one cable at right angle and then into the insulator groove. See Figure 4 (Conductor Forming). Repeat bending operation for conductors of other cable.
- E. Press insulator into the conductor spacer groove and trim the insulator flush with the sides of the conductor spacer. See Figure 5 (Insulator Installation).
- F. Mold the insert around the assembled parts.

SUGGESTED PROCEDURE:

- a. Install proper mold halves into the molding machine and heat the mold halves to 140°C. (284°F).
- b. Load hopper with dry molding material and heat the material to between 310 and 320°C. (590° and 608°F).
- c. Purge machine and charge cylinder with approximately 20% more material than is required for the part.
- d. Insert cable spacer and place the assembled parts properly in the lower mold half.
- e. Close the mold halves and apply 10,000 to 14,000 psi pressure. Hold pressure for 15 to 20 seconds.
- f. Release pressure and recharge cylinder.
- g. Allow 40 seconds cooling time between pressure release and opening of mold halves. (Cycle requires approximately 1 minute).

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|   |                           |  |                   |
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|   |                           |  | MS75080           |
| Procurement Specification<br>MIL-C-5544 |                           | SUPERSEDES:  | SHEET 2 OF        |

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- h. Open mold halves about 1/2 inch and pull bottom insert out. Open mold halves more to eject the molded part.
- G. Remove molded part from machine, cable spacer from between cables, and trim sprues from molded plug body with a special tool. See Figure 6 (Molded Insert).
- H. Allow 4 hours to cool, move shell onto body, dimple shell with a spring-loaded punch to keep shell on molded body. Dimples must be 120 degrees apart and 0.094 inch from front rim of shell. See Figure 7 (Potting and Seal Installation).
- I. Apply potting compound around and between the cables at the rear of the plug. See Figure 7, (Potting and Seal Installation).
- J. Apply adhesive to groove around plug body and carefully seat the seal into the groove. See Figure 7 (Potting and Seal Installation).

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| Procurement Specification<br>MIL-C-55544 |                        | SUPERSEDES:   | SHEET 3 OF                          |

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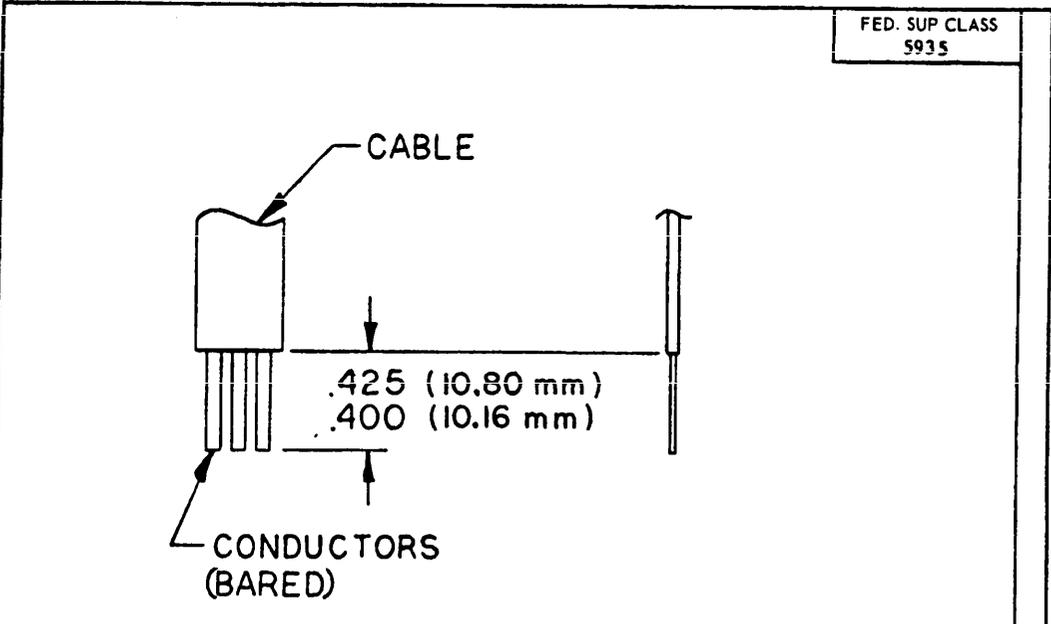


FIGURE 1. Cable stripping.

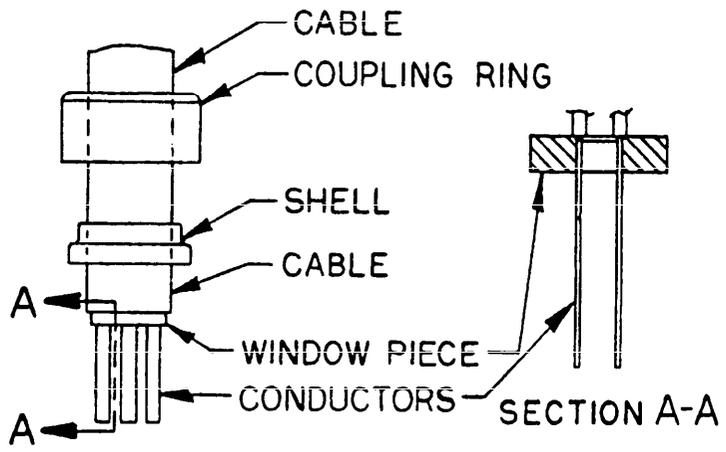


FIGURE 2. Cable insertion.

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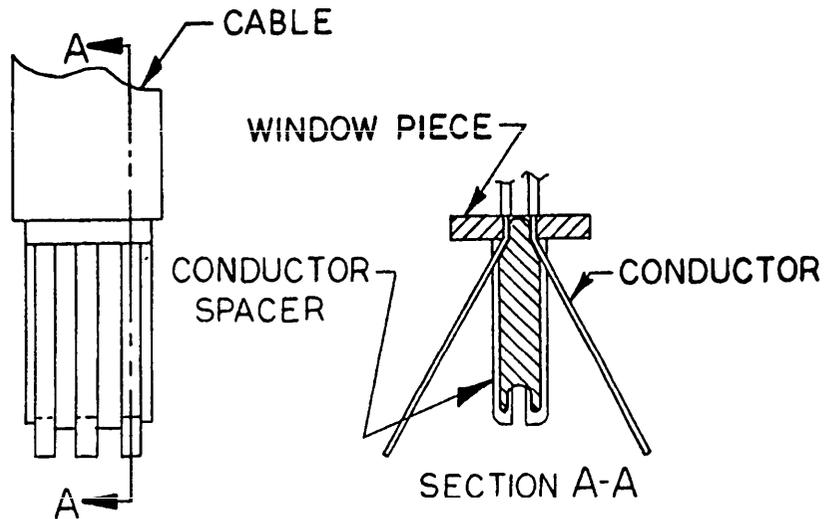


FIGURE 3. Conductor spacer installation.

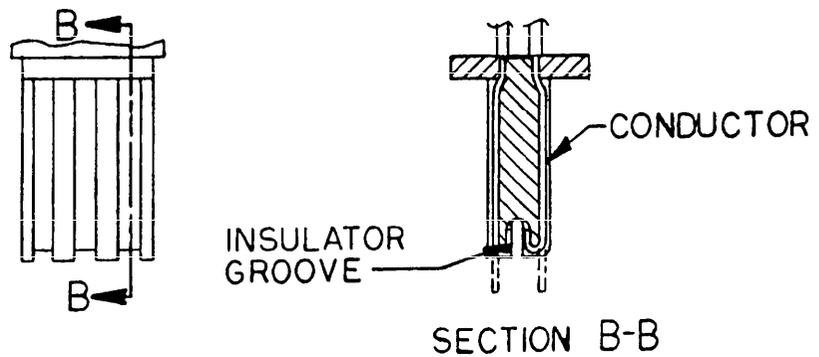


FIGURE 4. Conductor forming.

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|  |                           |  |                                     |
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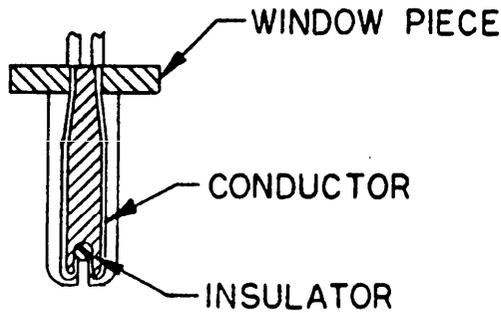


FIGURE 5. Insulator installation.

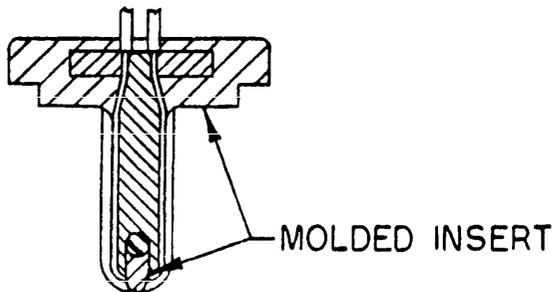


FIGURE 6. Molded insert.

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|  |                           |   |                                     |
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| Procurement Specification<br>MIL-C-55544 | SUPERSEDES:               |   | SHEET 6 OF                          |

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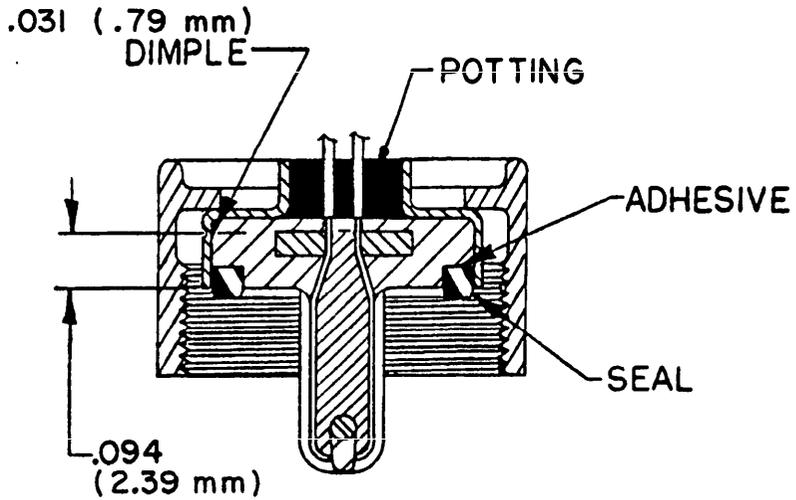


FIGURE 7. Potting and seal installation.

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| SPECIFICATION ANALYSIS SHEET   |  | Form Approved<br>Budget Bureau No. 22-R255 |
|--|--|--|
| <p><b>INSTRUCTIONS:</b> This sheet is to be filled out by personnel, either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.</p> |  |  |
| <p>SPECIFICATION <b>MS75079 METHOD DRAWING, M55544/7 PLUG ASSEMBLY, MOLDED-ON FLAT CONDUCTOR CABLE</b></p>   |  |  |
| ORGANIZATION   |  |  |
| CITY AND STATE   |  | CONTRACT NUMBER                            |
| <p>MATERIAL PROCURED UNDER A</p> <p><input type="checkbox"/> DIRECT GOVERNMENT CONTRACT      <input type="checkbox"/> SUBCONTRACT</p>  |  |  |
| <p>1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?</p> <p>A. GIVE PARAGRAPH NUMBER AND WORDING.</p>   |  |  |
| <p>B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES</p>  |  |  |
| 2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID  |  |  |
| <p>3. IS THE SPECIFICATION RESTRICTIVE?</p> <p><input type="checkbox"/> YES      <input type="checkbox"/> NO (If "yes", in what way?)</p>  |  |  |
| <p>4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)</p>  |  |  |
| SUBMITTED BY (Printed or typed name and activity - Optional)   |  | DATE                                       |

To detach this form, cut along this line

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1 JAN 65

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ESC-FM 1068-68