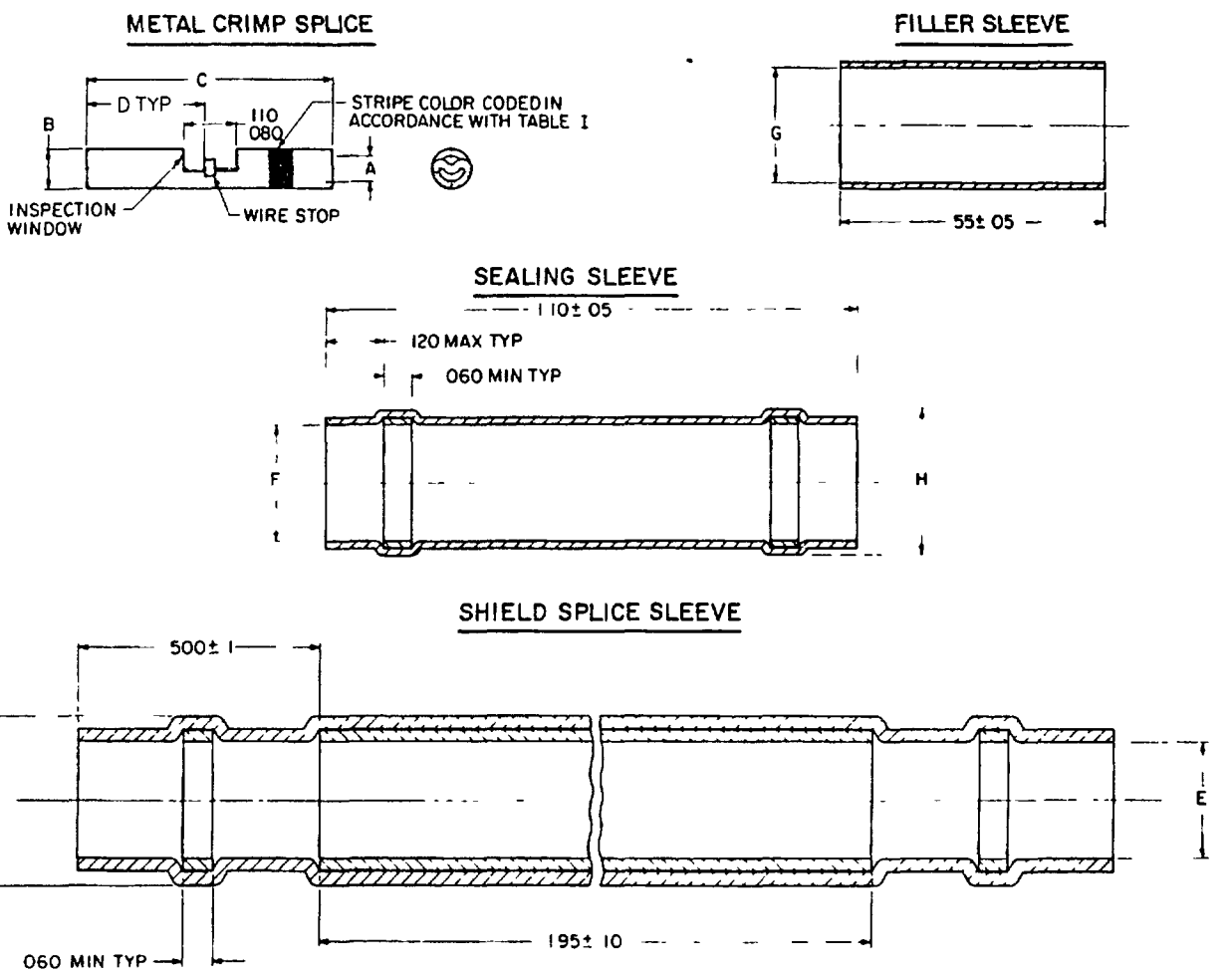
MILITARY SPECIFICATION SHEET

SPLICE, COAXIAL CABLE, ELECTRIC, PERMANENT, CRIMP STYLE COPPER, INSULATED, ENVIRONMENT RESISTANT, CLASS 1

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

The complete requirements for acquiring the splice, described herein shall consist of this specification sheet and the latest issue of MIL-S-81824.



NOTES:

1. Dimensions are in inches.
2. "B" Diameter shall not include color stripe.
3. Metric equivalents (to the nearest .01 mm) are given for general information only and are based upon 1 inch = 25.4 mm.

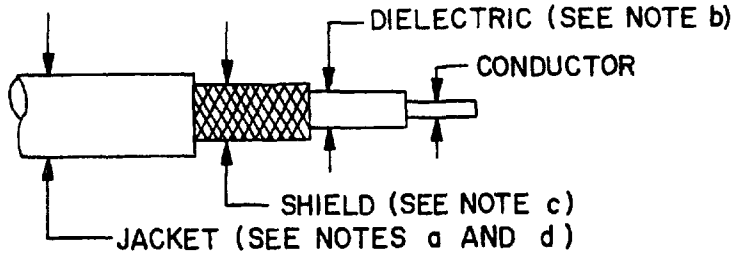
FIGURE 1. Splice assembly.

TABLE I CONSTRUCTION DETAILS

Military Part Number	Center Conductor Diameter Range	Color Code	A	B	C	D	Shield Splice E			Sealing Sleeve F		Filler Sleeve G			H	J	MIL-C-17 Applicable Cables
							(a) min	(d) min	(c) max.	(a) min	(b) max	(a) min	(e) max	(f) nom	max.	max.	
M81824/3-1	.020 / .010	Yellow	.032 / .022	.080 / .075	.510 / .490	.245 / .225	118	060	070	118	.025	NONE			.200	270	/94 RG-179 /113 RG-316 /172
M81824/3-2	.020 / .010	Yellow	.032 / .022	.080 / .075	.510 / .490	.245 / .225	157	.075	080	157	050	157	070	105	.250	315	/95 RG-180
M81824/3-3	.040 / .020	Red	.053 / .045	.080 / .075	.510 / .490	.245 / .225	236	.118	137	236	075	236	070	118	300	.350	/110 RG-302 /111 RG-303 /170

INCHES	mm	INCHES	mm	INCHES	mm
.010	0.25	.075	1.91	.225	5.72
.020	0.51	.080	2.03	.230	5.84
.022	0.56	.105	2.67	.236	5.99
.025	0.64	.110	2.79	.245	6.22
.026	0.66	.118	3.00	.250	6.35
.032	0.81	.135	3.43	.270	6.86
.040	1.02	.137	3.48	.300	7.62
.045	1.14	.155	3.94	.315	8.00
.050	1.27	.157	3.99	.350	8.89
.053	1.35	.200	5.08	.490	12.45
.060	1.52	.210	5.33	.510	12.95
.070	1.78				

SELECTION GUIDE



(a) As supplied. Cable jacket diameter must be less than this value.

(b) Recovered I.D., through meltable inserts of sealing sleeve. Cable dielectric diameter must be greater than this value.

(c) Recovered I.D., through shrinkable shield of shield splice sleeve. Cable shield diameter must be greater than this value. Shield may be folded back over cable jacket to increase its diameter.

(d) Recovered I.D., through meltable inserts of shield splice sleeve. Cable jacket diameter must be greater than this value.

(e) Recovered I.D.

(f) Recovered O.D. measured when installed on metal crimp splice.

TABLE II. CRIMP TOOLS

Splice Part No.	Basic Crimp Tool No.	Die No.
M81824/3-1 /3-2 /3-3	M22520/5-01 or M22520/10-01	M22520/5-103 USE RED DIE or AWG 26-20 M22520/10-104

MATERIAL: METAL CRIMP SPLICE: Copper per ASTM B75-81a, Tin-plated.

SEALING SLEEVE:

Sleeve Material: Transparent blue poly(vinylidene fluoride) or equivalent. See 3.3.3.

Sealing Material: Fluorocarbon-based thermoplastic, or equivalent.

FILLER SLEEVE: Heat-shrinkable polyolefin based thermoplastic.

SHIELD SPLICE SLEEVE:

Sleeve Material: Transparent blue poly(vinylidene fluoride) or equivalent. See 3.3.3.

Sealing Material: Fluorocarbon-based thermoplastic, or equivalent.

Shield Splice: Copper-wire braid, coated with solder and flux. Type Sn63 RA (QQ-S-571) preferred.

Qualification:

Test Specimens: Splice shall be installed in the center of a four foot length of the cables listed in Table I. The cable shall be the smallest diameter applicable for the splice tested. The Inner Conductor splice shall be installed using the crimp tool listed in Table II. The sealing sleeve, filler sleeve, and shield splice sleeve shall be installed using a standard forced air heat gun.

Requirements: All requirements shall be as specified except the following:

(1) The Tensile Strength of the test specimen shall be not less than 75% of the unspliced cable. The unspliced cable shall be tested the same as the spliced cable.

(2) Group IV: Not applicable.

(3) Voltage Drop: Not applicable. Substitute Attenuation and Structural Return Loss. These tests shall be run per the applicable paragraphs of MIL-C-17. These tests shall be run initially on four foot lengths of cable and then the same pieces of cable shall be cut in half, spliced, and retested prior to conditioning.

Test	Requirement
Attenuation (Insertion Loss)	Not more than 1db increase over unspliced cable. Measured at 3 GHz.
Structural Return Loss	2db maximum decrease over unspliced cable across band 0 to 3 GHz.

REQUIREMENTS:

1. No etching or solvent treating of the associated cable insulation shall be permitted.

2. Operating frequency range: 50 MHz to 3 GHz.

3. Complete assembly instructions shall be furnished by the vendor with each splice assembly (Figure 1) acquired under this specification. The instruction sheet shall be approved by the qualification activity.

Custodians:
Army - ER
Navy - AS
USAF - 85

Review Activity:
Army - AV
Navy -
USAF - 11, 99
DSA - GS

User Activity:
Army - MI
Navy - EC, MC, SH, OS

Preparing Activity:
Navy - AS
(Project No. 5940-0963)

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1 DOCUMENT NUMBER
MIL-S-81824/3

2 DOCUMENT TITLE SPLICE, COAXIAL CABLE, ELECTRIC, PERMANENT, CRIMP STYLE COPPER, INSULATED, ENVIRONMENT RESISTANT, CLASS 1

3a. NAME OF SUBMITTING ORGANIZATION

b ADDRESS *(Street, City, State, ZIP Code)*

4 TYPE OF ORGANIZATION *(Mark one)*

- ☐ VENDOR
- ☐ USER
- ☐ MANUFACTURER
- ☐ OTHER *(Specify)* _____

5 PROBLEM AREAS

a. Paragraph Number and Wording

b Recommended Wording

c Reason/Rationale for Recommendation

6 REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional

b WORK TELEPHONE NUMBER *(Include Area Code)* – Optional

c MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional

8 DATE OF SUBMISSION *(YYMMDD)*

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