INCH-POUND

MIL-C-17/176D
7 June 1990
SUPERSEDING
MIL-C-17/176C
18 July 1985

MILITARY SPECIFICATION SHEET

CABLES, RADIO FREQUENCY, FLEXIBLE, TWIN, M17/176-00002 and M17/176-00003

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 the issue of the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-C-17.

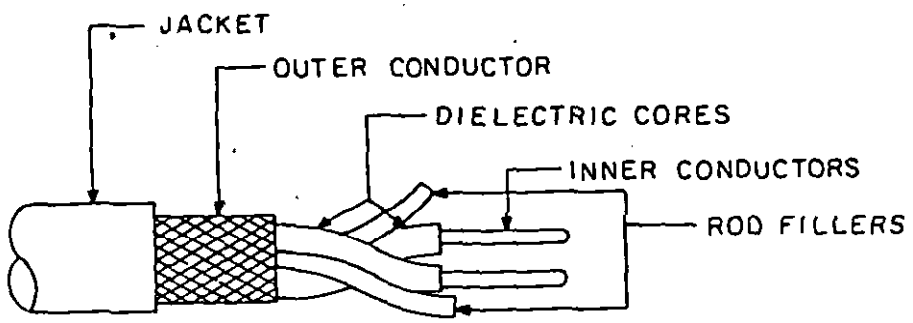

FIGURE 1. Configuration M17/176-00002 and M17/176-00003.

TABLE I. Description.

Component	Construction details
Inner conductors 1/	Two number 24 AWG conductors, each consisting of nineteen strands of number 36 AWG silver-coated, high strength copper alloy wire. Diameter of each strand: 0.0050 inch. Overall diameter of each conductor: .023 inch minimum, .024 inch maximum.
Dielectric cores (M17/176-00002)	Two PTFE cores twisted together with a left hand lay of 11 to 14 twists/foot. Fill to round with two PTFE rod fillers. Diameter of each dielectric core: .042 ±.002 inch. Core colors: One blue, one white.
Dielectric cores (M17/176-00003)	Two ECTFE or ETFE foam cores twisted together with a left hand lay of 11 to 14 twists/foot. Fill to round with two ECTFE or ETFE rod fillers. Diameter of each dielectric core: .042 ±.002 inch. Core colors: One blue, one white.
Outer conductor 1/	Single braid of AWG number 38, silver-coated, high strength copper alloy wire. Diameter: .102 inch maximum. Coverage: 93.3 percent nominal, 90 percent minimum Carriers: 16 Ends: 6 Picks/inch: 11.2 ±10 percent Braid angle: 22° nominal
Jacket (M17/176-00002)	Type XIII: PFA. Overall diameter: .129 ±.005 inch. Color: Translucent blue.
Jacket (M17/176-00003)	Type: PFA, FEP, ETFE or ECTFE. Overall diameter: .125 ±.005 inch. Color: Translucent blue, white, or clear.

1/ Silver-coated in accordance with ASTM-B-298, high strength copper alloy in accordance with ASTM-B-624.

ENGINEERING INFORMATION:

Continuous working voltage: 750 V rms, maximum.

Operating frequency: 10 MHz, maximum.

Velocity of propagation: 68 percent nominal for M17/176-00002.
72 percent nominal for M17/176-00003.

Operating temperature range: -55°C to +200°C for M17/176-00002.
-55°C to +150°C for M17/176-00003.

Inner conductor properties:

DC resistance (maximum at 20°C): 2.84 ohms per 100 feet.

Elongation: 6 percent, minimum.

Tensile strength: 50,000 lb_f/in^2, minimum.

Engineering note: This cable is useful in general, high temperature applications. (Used in 1 MHz multiplex applications in accordance with MIL-STD-1553.)

REQUIREMENTS:

Dimensions, configuration, and description: See figure 1 and table I.

Environmental and mechanical:

Visual and mechanical:

Out-of-roundness: Applicable.

Eccentricity: 10 percent, maximum.

Adhesion of conductors:

Inner conductor to core: 1 pound, minimum; 6 pounds, maximum.

Aging stability: Not applicable.

Stress crack resistance: 230°C ±5°C. Mandrel size is five times the jacket diameter for M17/176-00002.
150°C ±5°C. Mandrel size is 10 times the jacket diameter for M17/176-00003.

Outer conductor integrity: Not applicable.

Cold bend: -55°C ±2°C.

Dimensional stability: +200°C ±5°C for M17/176-00002.
+150°C ±5°C for M17/176-00003.

Inner conductor from core: .125 inch, maximum.

Inner conductor from jacket: .187 inch, maximum.

Contamination: Not applicable.

Bendability: Not applicable.

Flammability: Not applicable.

Weight: 18 pounds per 1,000 feet, maximum for M17/176-00002.
16 pounds per 1,000 feet, maximum for M17/176-00003.

Electrical:

Continuity: Applicable.

Spark test: 2,000 V rms +10 percent, -0 percent.

Voltage withstanding: 1,000 V rms, +10 percent, -0 percent.

Insulation resistance: 5,000 megohms per 1,000 feet.

Corona extinction voltage: Not applicable.

Characteristic impedance: 77 ohms ±7 at 1 MHz.

Attenuation: 1.4 dB per 100 feet maximum at 1 MHz.

Structural return loss: Not applicable.

Capacitance: 24 pF per foot, maximum.

Capacitance stability: Not applicable.

Capacitance unbalance: 5 percent, maximum.

Transmission unbalance: Not applicable.

Mechanically induced noise voltage: Not applicable.

Time delay: Not applicable.

Phase stability: Not applicable.

Inductance: 118 nH per foot, minimum.

Measure inductance (L) at 1 MHz of a 10 foot 2 inch test cable using any suitable test instrument. The shield shall be floated. The end of the cable shall be shorted. The impedance (Z) shall then be calculated using the following formula: Where inductance = L (in henrys) and capacitance = C (in farads):

$$Z = \sqrt{\frac{L}{C}}$$

Part number: See table II.

Supersession data: See table II.

TABLE II. Cross-reference of part number.

Part number	Superseded part number or type designation
M17/176-00002	M17/176-00001
M17/176-00003	8712812-1 1/

1/ Air Force Drawing 8712812.

Revision letters are not used to denote changes due to the extensiveness of the changes.

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - EC
Air Force - 85

Review activities:
Army - MI
Navy - TD
Air Force - 11, 17, 99
DLA - ES, IS

User activities:
Army - AR, AT, ME
Navy - AS, MC, OS, SH
Air Force - 19

Preparing activity:
Army - CR

Agent:
DLA - ES

(Project 6145-1150)