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10 March 1987
SUPERSEDING
MIL-C-3702A
27 July 1979

MILITARY SPECIFICATION

CABLE, POWER, ELECTRICAL: IGNITION, HIGH-TENSION

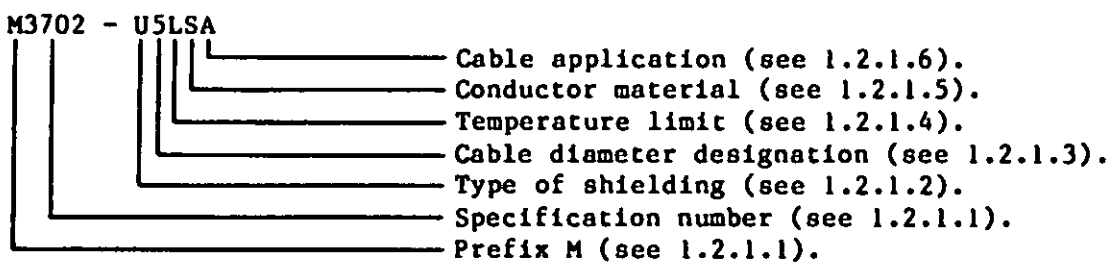
This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers shielded and unshielded electrical power cable for use on high-tension ignition systems (see 6.1).

1.2 Classification.

1.2.1 Type designation. The type designation shall include specification number-based cable configuration identifying system (see 1.3 and 6.2). Example of type designation:



1.2.1.1 Military specification number. The military specification designation shall consist of the specification number with the prefix M.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: US Army Tank-Automotive Command, ATTN: AMSTA-GDS, Warren, MI 48397-5000, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document, or by letter.

AMSC N/A FSC 6145

1.2.1.2 Type of shielding. The type of shielding is identified by the letter U or S as follows (see 3.3):

U - Unshielded
S - Shielded

1.2.1.3 Cable diameter designation. The cable diameter shall be designated as follows (see 3.5.1):

5 - 5 millimeter (mm) nominal diameter
7 - 7 mm nominal diameter

1.2.1.4 Upper temperature limit. The upper temperature limit shall be designated in degrees Fahrenheit (°F) as follow:

L - Plus 250°F to minus 65°F
M - Plus 450°F to minus 65°F
H - Plus 600°F to minus 65°F

1.2.1.5 Conductor material. The conductor material shall be designated as follows (see 3.2.1):

C - Copper - 19 strands for low and medium temperature
- 37 strands for high temperature
S - Steel - 7 strands, corrosion resistant

1.2.1.6 Cable applications. Cable applications shall be designated as follows:

A - Air Force aircraft (see 4.4.1)
B - Other than Air Force aircraft

1.3 Limitation of configurations. To simplify logistics and, unless otherwise specified (see 6.2), qualification and procurement of cable will be limited to the following configurations to which type designations have been assigned. Low temperature cable will not be procured for aircraft ignition systems.

TYPE DESIGNATIONS

M3702-U5LS*	M3702-S5MS*
M3702-U5LC*	M3702-S5MC*
M3702-U5MS*	M3702-S7LC*
M3702-U5MC*	M3702-S7MC*
M3702-U7LC*	M3702-S7MS*
M3702-U7MC*	M3702-S7HC*
M3702-U7HC*	

NOTE: REPLACE THE ASTERISK "(*)" WITH THE LETTER A OR B, AS APPLICABLE.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS
FEDERAL

O-A-548	- Antifreeze/Coolant, Engine Ethylene Glycol, Inhibited, Concentrated.
QQ-W-343	- Wire, Electrical, Copper (Uninsulated).
TT-I-735	- Isopropyl Alcohol.
TT-S-735	- Standard Test Fluids; Hydrocarbon.

MILITARY

MIL-G-3056	- Gasoline, Automotive, Combat.
MIL-H-5606	- Hydraulic Fluid, Petroleum Base; Aircraft, Missile, and Ordnance.
MIL-T-5624	- Turbine Fuel, Aviation, Grades JP-4 and JP-5.
MIL-L-6082	- Lubricating Oil; Aircraft Reciprocating Engine (Piston).
MIL-L-7808	- Lubricating Oil, Aircraft Turbine Engine, Synthetic Base, NATO Code number O-148.
MIL-A-8243	- Anti-Icing and Deicing - Defrosting Fluids.
MIL-F-13927	- Fungus Resistance Test; Automotive Components.
MIL-L-23699	- Lubricating Oil, Aircraft Turbine Engines, Synthetic Base.
MIL-C-43616	- Cleaning Compound, Aircraft Surface.
MIL-E-51454	- Ethyl Alcohol (Ethanol).
MIL-T-81533	- Trichlorethane, 1, 1, 1, (Methyl Chloroform) Inhibited, Vapor Degreasing.
MIL-C-87936	- Cleaning Compounds, Air Craft Exterior Surfaces, Water Dilutable.

STANDARDS
MILITARY

MIL-STD-105	- Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129	- Marking for Shipment and Storage.
MIL-STD-130	- Identification Marking for US Military Property.
MIL-STD-45662	- Calibration Systems Requirements.

(Copies of specifications and standards required by the contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Other publications. The following document(s) form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A580	- Standard Specification for Stainless and Heat-Resisting Steel Wire.
ASTM B33	- Standard Specification for Trimmed Soft or Annealed Copper Wire for Electrical Purposes.
ASTM B355	- Standard Specification for Nickel-Coated Soft or Annealed Copper Wire.
ASTM D1153	- Standard Specification for Methyl Isobutyl Ketone.

(Application for copies should be addressed to American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA, 19103.)

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

AS 1241A	- Fire Resistant Phosphate Ester Hydraulic Fluid for Aircraft.

(Application for copies should be addressed to the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.)

(Nongovernment standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Qualification. The cables furnished under this specification shall be products which are authorized by the qualifying activity for listing on the applicable qualified products list (QPL) at the time set for opening of bids (see 4.4 and 6.3).

3.2 Materials. Materials shall be as specified herein and in referenced specifications and standards. Materials shall be free of defects which adversely affect performance of the finished product (see 4.7.1 and 6.6).

3.2.1 Conductor. The conductor shall consist of either copper or steel stranded wire (see 3.3.3).

3.2.1.1 Copper strands.

3.2.1.1.1 Low, medium, and high temperature cable. The copper wire strands used in the conductors for low, medium, and high temperature cable shall be soft or drawn-annealed copper conforming to QQ-W-343 (see 4.7.1.1).

3.2.1.1.2 Tin coating. The low temperature copper wire strands shall be coated with commercially pure tin in accordance with ASTM B33 (see 4.7.1.1.1).

3.2.1.1.3 Nickel coating. The medium and high temperature copper wire strand shall be coated with nickel in accordance with ASTM B355. The thickness of the coating shall be not less than 50 microinch (see 4.7.1.1.2).

3.2.1.1.3.1 Adhesion of nickel coating. Adhesion of nickel coating shall be such that after subjection to the test specified in 4.7.1.1.2.1, the strands shall pass the continuity of coating test in accordance with ASTM B355 (see 4.7.1.1.2.1).

3.2.1.2 Steel strands. The steel wire strands used in a steel conductor shall be annealed corrosion resistant steel wire conforming to ASTM A580, type 302 or 304 (see 4.7.1).

3.2.2 Insulation. The insulation shall be of a nonhygroscopic, virgin material (see 4.7.1).

3.2.3 Braid. The braid shall be of glass or other nonhygroscopic, fungus resistant material (see 4.7.1).

3.2.4 Sheath. The sheath (covering) shall be of nonhygroscopic, flexible, seamless, non-cracking, waterproof, slow burning or non-flammable, oil and fungus resistant material (see 4.7.1).

3.2.5 Shielding. Unless otherwise specified (see 6.2), shielding for low temperature cable shall be tin plated copper. Unless otherwise specified, shielding for medium temperature cable shall be silver or nickel plated copper wire having a plate thickness of not less than 100 microinch. Unless otherwise specified, high temperature cable shielding shall be nickel or nickel-clad copper having a plate thickness of not less than 100 microinch (see 4.7.1).

3.3 Design and construction.

3.3.1 Unshielded cable. The construction of unshielded cable shall be in accordance with the applicable conductor material as follows:

a. Copper conductor cable shall be;
Stranded copper wire (see 1.2.1.5 and 3.2.1.1)
Insulation (see 3.2.2)
Layer of braid (see 3.2.3)
Sheath (see 3.2.4)

b. Steel conductor cable shall be;
Stranded corrosion resistant steel (see 3.2.1.2)
Insulation (see 3.2.2)
Layer of braid (see 3.2.3)
Sheath (see 3.2.4)

3.3.2 Shielded cable. The construction of shielded cable shall consist of unshielded cable covered with a shielding (see 3.2.5 and 3.3.1).

3.3.3 Conductor. The conductor shall be continuous throughout its length, except that individual wires may be spliced (see 3.3.3.2). The number of individual wires and the diameter of the wire in the conductor shall be in accordance with table I. Conductor shall be free of abrasions, kinks, and flats. Individual wires shall be free of lumps, kinks, splits, abrasions, and scraped or corroded surfaces.

TABLE I. Conductor wire.

Conductor material	Number of wires (min)	Wire diameter (inches)		AWG 1/
		(min)	(max)	
copper	19	0.0111	0.0116	#29
copper	37	0.0111	0.0116	#29
steel	7	0.0126	0.0134	#28

1/ American Wire Gage (AWG) number.

3.3.3.1 Stranding. All stranding for conductors shall be left hand lay. The stranding for copper conductors shall be bunched or concentric. The stranding for steel conductors shall be concentric. When an uninsulated portion of the conductor is cut, the stranding shall not tend to unlay and the completed conductor shall not tend to spread out.

3.3.3.2 Splicing. The splicing of individual wires is acceptable provided the splicing is accomplished in such a manner that the diameter of the conductor and the performance of the cable are not affected. The splices shall conform to the requirements of QQ-W-343.

3.3.3.3 Eccentricity. The eccentricity of the conductor (at any specified cross-section) in relation to the completed cable shall not exceed 6 percent of the cable diameter when calculated by the following formula:

$$\text{Eccentricity, percent} = \frac{(X - Y)\ 100}{2D}$$

Where: X = Maximum cable wall thickness, inch

Y = Minimum cable wall thickness, inch

D = Diameter of cable, inch

3.3.4 Insulation. An insulation (see 3.2.2) shall be applied over the entire cable length, concentric with the conductor (see 3.3.4.1). The insulation shall form a close fit over the conductor without adherence, and, when stripped, it shall leave the conductor clean and in condition for soldering. As applied, the elastomeric insulation shall be seamless and free of foreign material. Semirigid insulation shall be free of foreign material.

3.3.4.1 Wall thickness ratios. The wall thickness of the insulation (at any specific cross-section) in relation to the conductor, as calculated by the following formula, shall be not greater than 12 percent:

$$\text{Thickness ratio, percent} = \frac{(X - Y)\ 100}{X + Y}$$

Where: X = Maximum wall thickness, inch

Y = Minimum wall thickness, inch

3.3.5 Braid. A braid shall be added over the insulation (see 3.2.3).

3.3.6 Sheath. A sheath (outer covering) shall be extruded over the braid. The sheath shall have a thickness of not less than 0.018 inch when formed from an elastomeric material, and a thickness of not less than 0.006 inch when formed from a semi-rigid material (see 3.2.4).

3.3.7 Shielding. Shielding for shielded cable shall consist of a close and uniform woven wire applied directly over the sheath (see 3.2.5). Each carrier shall have not less than five 0.0063 inch diameter (number 34 AWG) wires.

3.3.7.1 Splices. Spliced wires shall average not more than 1 per 10 feet of cable.

3.3.7.2 Coverage. The shielding shall provide not less than 85 percent coverage of the underlying sheath. Percent of coverage shall be calculated as follows:

$$\text{Coverage percent, } = (2F - F^2)\ 100$$

Where:

$$F = \frac{ND}{P\ (\text{Cos of Angle of Advance})}$$

N = Number of parallel strands between successive turns of selected marker strand, plus the selected strand.

D = Diameter of a single strand - 0.0063 inch.

Angle of Advance = Angle whose tangent is P/C.

P = Pitch of braid measured along axis of cable.

C = 3.14 (Outside diameter of cable minus 2D).

3.3.8 Dimensions.

3.3.8.1 Outside diameter. The outside diameter of unshielded completed cable shall be in accordance with table II. When portions of the cable are slightly flattened or of oval cross-section, the average of two diameters measured 90° apart at any section shall be within the specified dimensions (see 4.7.1 and 4.7.2).

TABLE II. Outside diameters.

Cable Diameter designation	Diameter (inch)		
	Nominal	Actual	
		Minimum	Maximum
5	0.197	0.196	0.206
7	0.276	0.270	0.285

3.3.8.2 Length. The maximum length of any piece of cable longer than 200 feet shall be determined by the size of the reel or spool with relation to convenience in handling, shipping, and storing. The drum of the reel or spool shall be not less than 8 inches in diameter. Not more than 30 percent of the cable in each order shall be delivered in lengths of 50 to 200 feet, and the remaining cable shall be in lengths not less than 200 feet (see 4.7.2 and 6.2).

3.4 Performance.

3.4.1 Tensile load. The cable shall withstand a tensile load of 55 pounds for not less than 1 minute. There shall be no evidence of rupture or separation of cable components during or after being subjected to the tensile load and immersion in an aqueous sodium chloride solution (see 4.7.3.1).

3.4.2 Maximum voltage. The cable shall resist, without failure, maximum voltage with the potentials as follows (see 4.7.3.2):

Cable size	5 - 30 kilovolts, root mean square (rms)
Cable size	7 - 34 kilovolts rms

3.4.3 Insulation flaws. Unshielded and shielded cables, before shielding is applied, shall be free of insulation flaws. Certification shall be provided with the completed cables that insulation flaws detected have been removed from the defective sections of the cable (see 4.7.3.3).

3.4.4 Capacitance. The dielectric constant of the insulation used on the completed cable shall be such that the capacitance is not more than the values shown in table III (see 4.7.3.4).

TABLE III. Capacitance.

Cable diameter designation	Capacitance per foot of cable picofarads (pf)		
	Copper conductor 19 strands	Copper conductor 37 strands	Steel conductor 7 strands
5	46		37
7	40	52	33

3.4.5 Life cycle. The unshielded and shielded cables, before shield is applied, shall resist all the life cycle applications and exposures. The cable shall meet the maximum voltage requirements specified in 3.4.2 (see 4.7.3.5 through 4.7.3.5.5.1).

3.4.6 Environmental. The cable shall meet the environmental requirements of 3.4.6.1 through 3.4.6.7 after exposure to the conditions as specified (see 4.7.3.6).

3.4.6.1 Low temperature. The cable, when exposed to a low ambient temperature of minus 65°F shall evidence no cracking, breaking, or separation, and shall subsequently meet all the requirements of 3.4.2 (see 4.7.3.6.1).

3.4.6.2 High temperature and altitude. The cable, when exposed to temperatures up to 600°F and an altitude of 70,000 feet, shall evidence no sheath or insulation breakdown, or corrosion of the conductor (see 4.7.3.6.2).

3.4.6.3 Hot oil. The cable, after immersion in hot oil at a temperature of 195°F, shall have a swell of not more than 20 percent (30 percent for medium temperature cable) of the diameter (see 4.7.3.6.3).

3.4.6.4 Flammability. The cable, when exposed to an open flame, shall evidence no burning or charred particles falling from the cable and the flame shall not travel along the cable at a rate of more than 1/2 inch per minute (see 4.7.3.6.4).

3.4.6.5 Fungus. The cable, after exposure to fungus conditions, shall evidence no cracking, breaking, or separation, and shall subsequently meet the requirements of 3.4.2 (see 4.7.3.6.5).

3.4.6.6 Anti-icing fluid. The cable, after immersion in anti-icing fluid, shall evidence no cracking, breaking, or separation and shall subsequently meet the requirements of 3.4.2 (see 4.7.3.6.6).

3.4.6.7 Corona effect. The cable, after exposure to the corona effect, shall evidence no cracking, rupture, or burning over of the ends, and shall subsequently meet the requirements of 3.4.2 (see 4.7.3.6.7).

3.5 Marking.

3.5.1 Cable. The cable shall be marked with information listed below in accordance with MIL-STD-130. The type designation, manufacturer's name or trade-mark, manufacturer's designation, and the date of manufacture, shall be applied to the exterior surface of the cable at intervals of not more than 2 feet. The date shall be shown by indicating the calendar year quarter in which the cable was manufactured, followed by the year, that is, 4Q 1986.

3.5.2 Spools or reels. Each spool or reel shall be plainly marked on both ends with the information listed below in accordance with MIL-STD-129. If paper labels are used, they shall be protected by a transparent compound to prevent deterioration of marking. The positioning and length of all pieces shall be indicated on the spool or reel.

National Stock No.

CABLE; IGNITION, HIGH-TENSION.

Type Designation "M3702 _____"

Length (ft.).

Contract or Order No.

Date of manufacture.

Manufacturer's name or trademark.

US Government property.

3.6 Age. The age of the cable submitted to a bulk cable purchaser for acceptance shall be not more than 1 year old at the time of submission.

3.7 Finish. Unshielded cable shall have an even, smooth exterior finish enabling easy assembly of the cable in conduit (shielding). The finish shall also insure that adjacent layers of the cable do not adhere, when wound on reels or spools for shipment or storage, at temperatures up to 160°F.

3.8 Workmanship. Workmanship for the cable shall be such as to meet all applicable requirements of 3.2 through 3.7 when subjected to the examinations specified in 4.5.2.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order (see 6.2), the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform or witness any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply wih all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 Inspection equipment. Unless otherwise specified in the contract (see 6.2), the contractor is responsible for the provision and maintenance of all inspection equipment necessary to assure that supplies and services conform to contract requirements. Inspection equipment shall be capable of repetitive measurements to an accuracy of 10 percent of the measurement tolerance. Calibration of inspection equipment shall be in accordance with MIL-STD-45662.

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

a. Qualification inspection (see 4.4).
b. Quality conformance inspections (see 4.5).
    1. Examination (see 4.5.2).
    2. Tests (see 4.5.3).

c. Control tests (see 4.6).

4.3 Inspection conditions. Unless otherwise specified (see 6.2), all inspections shall be conducted under the following conditions:

a. Air temperature 77 ± 15°F
b. Barometric pressure 28.5 + 2.0 inches mercury (Hg)
- 3.0
c. Relative humidity 50 ± 30 percent

4.4 Qualification inspection. Qualification inspection shall be performed on a 100 foot length of cable of the type designation to be qualified, shall be submitted for qualification testing (see 6.3). The qualification sample shall be inspected as specified in table IV, in the order listed in table V. Samples shall be divided as necessary to provide the specimen size required for each test (see table V). The cable shall be representative of the cable proposed to be furnished under contract. Qualification testing shall be conducted under Government surveillance by the contractor, or an authorized testing facility, at a site approved by the Government.

4.4.1 Air Force aircraft qualification sample. Air Force aircraft qualification samples will require an additional 114 feet of cable (see 1.2.1.6) for liquid immersion tests specified in 4.7.3.5.4.

TABLE IV. Classification of inspections.

Title	Requirement	Inspection	Qualification samples	Quality conformance		Control
				Examination	Acceptance	
Materials and construction	3.2 thru 3.3.8.2	4.7.1	X	X		
Copper strands (coating)	3.2.1.1 thru 3.2.1.1.3.1	4.7.1 thru 4.7.1.1.2.1	X		X	
Defects	3.3	4.7.2	X	X		
Tensile load	3.4.1	4.7.3.1	X		X	
Maximum voltage	3.4.2	4.7.3.2	X		X	
Insulation flaws	3.4.3	4.7.3.3	X			
Capacitance	3.4.4	4.7.3.4	X		X	
Life cycle (see 4.4.1)	3.4.5	4.7.3.5 thru 4.7.3.5.5.1				X
Low temperature	3.4.6.1	4.7.3.6.1	X			
High temperature and altitude	3.4.6.2	4.7.3.6.2	X			
Hot oil	3.4.6.3	4.7.3.6.3	X			
Flammability	3.4.6.4	4.7.3.6.4	X		X	
Fungus	3.4.6.5	4.7.3.6.5	X			
Anti-icing fluid	3.4.6.6	4.7.3.6.6	X			
Corona effect	3.4.6.7	4.7.3.6.7	X		X	

TABLE V. Qualification test sequence.

Specimen number	Test sequence number	Test description
1	4.7.1.1	Copper strands (coating)
2	4.7.3.1	Tensile load
3	4.7.3.4	Capacitance
4 1/	4.7.3.5	Life cycle
	4.7.3.2	Maximum voltage
5	4.7.3.6.1	Low temperature
	4.7.3.2	Maximum voltage
6	4.7.3.6.2	High temperature and altitude
	4.7.3.2	Maximum voltage
7	4.7.3.6.3	Hot oil
	4.7.3.2	Maximum voltage
8	4.7.3.6.4	Flammability
9	4.7.3.6.6	Anti-icing fluid
	4.7.3.2	Maximum voltage
10	4.7.3.6.5	Fungus
	4.7.3.2	Maximum voltage
11	4.7.3.6.7	Corona effect
	4.7.3.2	Maximum voltage

1/ See 4.4.1.

4.4.2 Retention of qualification. Certification shall be requested every two years from each manufacturer listed on the QPL to retain listing on the QPL. This certification shall be forwarded to the qualifying activity and shall be signed by a responsible official of management, attesting that the listed product still meets the requirements of the current issue of the specification, is available from the listed plant, and can be produced under the same conditions as originally qualified; that is, same process, materials, construction, design, manufacturer's part number or designation. Failure to provide certification shall be cause for removal from the QPL.

4.4.3 Failure. Failure of a qualification sample to pass any of the inspections specified herein may be cause for the Government to refuse to conduct additional inspections until the faults revealed by the inspection have been corrected.

4.5 Quality conformance inspection.

4.5.1 Sampling.

4.5.1.1 Lot formation. An inspection lot shall consist of all coils, spools, or reels of cable of one type and part number, from an identifiable production period, from one manufacturer, submitted at one time for acceptance. The cable shall be not greater than a total length of 10,000 feet.

4.5.1.1.2 Unit of product. A unit of product shall consist of one coil, spool, or reel of cable.

4.5.1.1.3 Specimen. A specimen shall consist of a specified length of cable selected in accordance with the applicable sampling procedure for performance of an examination or test.

4.5.1.2 Sampling for examination. Samples for quality conformance examination shall be selected in accordance with general inspection level II of MIL-STD-105.

4.5.1.3 Sampling for test. Samples for test from units of product that have been subjected to, and have passed, the examination specified in table VI, a 20 foot length of cable shall be taken for each 2,000 feet and fraction thereof of cable in the lot.

4.5.2 Examination.

4.5.2.1 Acceptable quality level. Each sample selected in accordance with 4.5.1.2 shall be examined to determine conformance to the following acceptable quality levels (AQL).

Classification	AQL
Major	1.0
Minor	2.5

4.5.2.2 Classification of defects. For examination purposes, defects shall be classified as listed in table VI.

TABLE VI. Classification of defects.

Category	Defect	Method of examination
Critical	None	
Major	AQL 1.0% Defective	
101	Design and construction, nonconformance (see 3.3).	Visual and SIE 1/
102	Dimensions, out of tolerance (see 3.3).	Visual and SIE 1/
103	Marking, improper (see 3.5).	Visual
104	Age, improper (see 3.6).	Visual
Minor	AQL 2.5% Defective	
201	Finish, improper (see 3.7).	Visual
202	Workmanship, faulty (see 3.8).	Visual

1/ SIE = Standard Inspection Equipment.

4.5.3 Test. Samples selected in accordance with 4.5.1.3 shall be subjected to the quality conformance tests specified in table IV in the sequence as listed in table VII.

TABLE VII. Test sequence.

Specimen number	Test sequence number	Test description
1	4.7.3.4	Capacitance
	4.7.3.2	Maximum voltage
2 and 3	4.7.3.6.7	Corona effect
	4.7.3.2	Maximum voltage
4	4.7.3.6.4	Flammability
5	4.7.3.1	Tensile load

4.5.3.1 Failure. Failure of any specimen to pass any inspection listed in table VII shall be cause for reinspection of twice the original number of specimens for that test failed. These specimens shall be selected from the unit of product from which the 20 foot length of cable that failed had been originally taken. Failure of any specimen during reinspection shall be cause for rejection of the lot.

4.6 Control tests. Unless otherwise specified in (see 6.2), control tests shall be conducted at a rate of six feet from each 10,000 feet of cable produced, except that not more than two lengths of six feet each shall be selected in any 30 day period. The cable shall be subjected to the control tests specified in table IV.

NOTE: See 4.7.3.5.4 for Air Force test samples.

4.6.1 Failure. Failure of a control test sample to pass the specified test shall be cause for the Government to refuse to accept subsequent lots until it has been proved to the satisfaction of the Government that corrective action on the materials or process, or both, as warranted, has been taken and is successful.

4.7 Methods of inspection.

4.7.1 Materials and construction. Conformance to 3.2 and 3.3 shall be determined by inspection of contractor records providing proof or certification that design, construction, processing, and materials conform to requirements. Applicable records shall include drawings, specifications, design data, receiving inspection records, processing and quality control standards, vendor catalogs and certifications, industry standards, test reports, and rating data.

4.7.1.1 Copper strands. To determine conformance to 3.2.1.1.1 the sample shall be tested as specified in QQ-W-343.

4.7.1.1.1 Tin coating. To determine conformance to 3.2.1.1.2, the sample shall be tested as specified in ASTM B33.

4.7.1.1.2 Nickel coating. To determine conformance to 3.2.1.1.3, the sample shall be as specified in ASTM B355.

4.7.1.1.2.1 Adhesion of nickel coating. To determine conformance to 3.2.1.1.3.1, two 6 inch specimens shall be cut from the sample of nickel coating strand. One specimen shall be wrapped over its own diameter for eight close turns. The second specimen shall remain in its straight form. Both specimens shall than be subjected to ten continuous cycles of temperature change. Each cycle of temperature change shall consist of 4 hours at 482 ± 5.4°F followed by 4 hours at room temperature. Upon completion of the thermal cycling, the straight specimen shall be wrapped over its own diameter for eight close turns in a manner identical to that of the first specimen. Both wrapped specimens shall then be tested for continuity of coating in accordance with the procedure as specified in ASTM B355.

4.7.2 Defects. Conformance to 3.3, 3.5, 3.6, 3.7, and 3.8 shall be determined by examination for defects listed in table VI.

4.7.3 Performance.

4.7.3.1 Tensile load. To determine conformance to 3.4.1, a test specimen consisting of a 3 foot length of unshielded cable, or shielded cable from which the shielding has been removed shall be clamped in a test setup similar to that shown in figure 1. A dead weight load equivalent to 55 pounds shall be applied to that portion of the cable being tested for a period of 1 minute. At the conclusion of the 1 minute period the specimen shall be inspected for evidence of mechanical rupture or of separation of components. Each end of the test specimen shall be stripped of insulation for a distance of 1 inch. The bare ends of the conductor shall be twisted together causing the specimen to assume the shape of a loop. That portion of the test specimen which was subjected to the tensile load shall be immersed, bare conductor ends up, in a grounded, 5 percent (by weight) aqueous sodium chloride solution (common salt in water) at room temperature for 30 minutes. The ends of the specimen shall protrude 3 1/4 ± 1/4 inches above the surface of the solution as shown in figure 2. After soaking, and while still immersed in the salt solution, voltage at a frequency of 60 hertz (Hz), shall be applied between the conductor and the solution beginning at zero voltage and increased at the rate of 1 kilovolt, rms, per each 5 seconds of time to not more than 15 kilovolts, rms. The applied voltage shall be held for a period of 5 minutes. At the conclusion of the voltage application, the specimen shall be removed from the solution and inspected for insulation failure.

4.7.3.2 Maximum voltage. To determine conformance to 3.4.2, the maximum voltage test cable specimen shall be prepared in accordance with figure 3 and then subjected to the potential as specified at a frequency of 60 Hz, applied between the cable conductor and the mandrel and metal test sleeves, at room temperature. The potential shall be increased 1 kilovolt rms per second from zero until the specified potential is reached.

4.7.3.3 Insulation flaws. To determine conformance to 3.4.3, during the process of manufacture, each length of cable shall be subjected to the insulation flaws test. The length of cable shall be passed through a suitable beadchain or fine link-mesh electrode-spark devices that shall be not less than 30 kilovolts rms at a frequency of 60 Hz to 100 percent of the surface of the cable. Every point on the surface of the cable shall be in contact with an electrode for a period of not less than 0.6 second. An examination shall be made for evidence of flaws.

4.7.3.4 Capacitance. To determine conformance to 3.4.4, a test specimen consisting of 1 piece of completed cable, not less than 36 inches in length shall be dried in an oven at a temperature of 176 ± 4°F for a period of 18 hours. After removal from the oven and cooled to room temperature, the specimen shall be immersed in mercury with each end of the specimen protruding a distance 2 inches. The capacitance shall be measured between the conductor of the specimen and the mercury, by means of a capacitance bridge, at a frequency of 1,000 Hz.

4.7.3.5 Life cycle. To determine conformance to 3.4.5, the life cycle test specimen shall consist of a 6 foot length of completed cable for test applications other than Air Force aircraft. For Air Force aircraft test application see 4.4.1 and 4.7.3.5.4. The life cycle tests shall be performed in the order and sequence as follows.

4.7.3.5.1 Flexing. The test specimen shall have a 10 pound weight firmly attached to one end of the conductor. The free end of the specimen shall then be firmly attached to a smooth, cylindrical mandrel in such a manner that the specimen with attached weight is permitted to hang freely. The mandrel shall be rotated at a rate of 20 turns per minute against the gravitational pull exerted by the suspended weight, winding the cable around the mandrel with the coils touching. The specimen shall then be unwound, and rewound in the opposite direction, with the opposite side of the specimen in contact with mandrel. During winding, the specimen shall not be constrained against normal twisting. The above procedure shall be repeated once. The diameter of the mandrel shall be 3/8 inch for cable size 5 and 1/2 inch for cable size 7.

4.7.3.5.2 Insertion in metal test sleeve. Upon completion of flexing, the specimen shall be wound on a 1-inch-diameter metal mandrel in such a manner that there will be nine turns 3/4 inch apart, and not less than 1 foot of cable shall extend at each end beyond the points of attachment to the mandrel. A 5-pound weight shall be used during this preparation. The wound specimen shall then be placed in a snugfitting, belled ends, metal sleeve in such a manner that the ends of the specimen will protrude from the belled ends of the sleeve. The metal sleeve shall be electrically connected to the mandrel as shown in figure 3.

4.7.3.5.3 Liquid immersion for other than Air Force aircraft. Liquid immersion for the cable specimen, other than Air Force aircraft, while still wound on the mandrel and confined by the metal sleeve, shall be subjected successively to an uninterrupted sequence of tests as follows (for Air Force aircraft see 4.7.3.5.4):

4.7.3.5.3.1 Salt-water solution. The specimen shall be heated for 5 hours in an oven at a temperature of 600 ± 8°F for high temperature cable, 450 ± 4°F for medium temperature cable and 250 ± 4°F, for low temperature cable. At the end of the 5 hour period, the specimen with mandrel and metal sleeve in position, shall be removed from the oven and immediately immersed for 18 hours in a 5 percent (by weight) aqueous sodium chloride solution (common salt in water). The test liquid shall be maintained at a temperature of 120 ± 2°F, throughout the period of immersion. At the conclusion of the 18 hour period of immersion, the specimen shall be removed from the salt solution and drained for 30 minutes.

4.7.3.5.3.1.1 Voltage application. A potential of 15 kilovolts, rms, at a frequency of 60 Hz, shall be applied between the cable conductor and the mandrel and metal test sleeve for period of 30 minutes. The specimen, while still wound on the mandrel but with metal sleeve removed, shall then be inspected visually for evidence of burning over the ends, rupture of insulation, material deterioration, or other damage.

4.7.3.5.3.2 Engine oil. At the conclusion of the salt-water solution test specified in 4.7.3.5.3.1, the same specimen with mandrel and metal test sleeve in position shall be reheated for 5 hours at the temperatures specified in 4.7.3.5.3.1. At the end of the heating period, the specimen with mandrel and test sleeve in position shall be immersed for 18 hours in oil conforming to grade 1100 of MIL-L-6082. The oil shall be maintained at a temperature of 195 ± 5°F, throughout the period of immersion. At the conclusion of the 18 hour period of immersion in oil, the specimen shall be removed from the oil, drained for 30 minutes and subjected to the voltage application test specified in 4.7.3.5.3.1.1.

4.7.3.5.3.3 Turbine fuel, aviation. At the conclusion of the engine oil test specified in 4.7.3.5.3.2, the same specimen, with mandrel and metal test sleeve in position, shall be reheated for 5 hours at the temperatures specified in 4.7.3.5.3.1. At the end of the heating period, the specimen, with mandrel and metal sleeve in position, shall be cooled to room temperature for a minimum of 1 hour and immersed for 18 hours in aviation turbine fuel conforming to grade JP-5 of MIL-T-5624. The test liquid shall be maintained at room temperature throughout the period of immersion. At the conclusion of the 18 hour period of immersion, the specimen shall be removed from the test liquid, drained for 1 hour, and subjected to the voltage application test specified in 4.7.3.5.3.1.1.

4.7.3.5.3.4 Antifreeze compound. At the conclusion of the aviation turbine fuel test specified in 4.7.3.5.3.3, specimen, with mandrel and sleeve in position, shall be immersed for 2 hours in antifreeze compound conforming to O-A-548, maintained at 185 ± 5°F. After immersion, specimen shall be drained for 30 minutes and immediately subjected to the voltage application test specified in 4.7.3.5.3.1.1.

4.7.3.5.4 Liquid immersion for Air Force aircraft. Liquid immersion for the Air Force aircraft specimens of cable shall be immersed in each of the fluids of table VIII, using a separate specimen for each fluid, at the temperature and for the immersion period specified for each fluid. Each test specimen shall consist of a 6 foot length of completed cable and shall be

subjected to the following test sequence 4.7.3.5.1, 4.7.3.5.2, and immersion in the test fluids of table VIII for the specified time and temperature. Specimen shall subsequently be removed from the test fluid, drained for 30 minutes, and then subjected to the voltage application test specified in 4.7.3.5.3.1.1.

TABLE VIII. Immersion test fluids.

Cable specimen no.	Test fluid	Test temperature	Immersion period
1	MIL-L-23699, Lubricating oil synthetic base	118-122°F	20 hrs
2	MIL-H-5606, Hydraulic fluid, petroleum base	118-122°F	20 hrs
3	TT-I-735, Isopropyl alcohol	68-77°F	168 hrs
4	MIL-T-5624, Grade JP-4 turbine fuel, aviation	68-77°F	168 hrs
5	MIL-A-8243, Anti-icing & deicing-defrosting fluid, undiluted	118-122°F	20 hrs
6	MIL-A-8243, Anti-icing and deicing-defrosting fluid, deluted 60/40 (fluid/water) ratio	118-122°F	20 hrs
7	MIL-C-43616, Cleaning compound, aircraft surface, undiluted	118-122°F	20 hrs
8	ASTM D1153, Methyl Isobutyl Ketone	68-77°F	168 hrs
9	AS 1241A, Fire resistant phosphate ester hydraulic fluid for aircraft	118-122°F	20 hrs
10	MIL-L-7808, Lubrication oil, aircraft turbine engine, synthetic base	244-250°F	5 min
11	MIL-C-87936, Cleaning compounds, aircraft exterior surfaces, water dilutable, undiluted	145-154°F	20 hrs

TABLE VIII. Immersion test fluids - Continued.

Cable specimen no.	Test fluid	Test temperature	Immersion period
12	MIL-C-87936, Cleaning compound, aircraft exterior surfaces, water dilutable, diluted 25/75 (fluid water) ratio	145-154°F	20 hrs
13	TT-S-735, Standard test fluids; hydrocarbon, type I	68-77°F	168 hrs
14	TT-S-735, Standard test fluids; hydrocarbon, type II	68-77°F	168 hrs
15	TT-S-735, Standard test fluids; hydrocarbon, type III	68-77°F	168 hrs
16	TT-S-735, Standard test fluids; hydrocarbon, type VII	68-77°F	168 hrs
17	Dielectric-coolant fluid, synthetic silicate ester base, Monsanto coolanol 25 or equivalent	68-77°F	168 hrs
18	MIL-T-81533, 1.1.1 Trichloroethane (methyl chloroform) inhibited, vapor degreasing	68-77°F	168 hrs
19	Azeotrope of trichloro-trifluoroethane and methylene chloride, Dupont freon TMC or equivalent	68-77°F	168 hrs
20	MIL-G-3056, Gasoline Automotive, Combat	68-77°F	168 hrs

4.7.3.5.5 Altitude. At the conclusion of the antifreeze test specified in 4.7.3.5.3.4, or the tests specified in table VIII, the same specimens, with mandrel and test sleeve in position, shall be placed in an altitude chamber and the pressure therein shall be reduced to the equivalent of 70,000 feet plus 5,000 minus 0 feet altitude, and maintained within these limits for the voltage application test specified in 4.7.3.5.5.1.

NOTE: Only medium and high temperature cables shall be subjected to this test.

4.7.3.5.5.1 Voltage application. A potential of 12 kilovolts, rms, at a frequency of 60 Hz, shall be applied between the cable conductor and the mandrel and test sleeve, as shown on figure 3, for a period of 2 hours. The specimen shall then be inspected and shall evidence no insulation rupture, cracking, or other damage. After inspection, the specimen with mandrel and metal test sleeve shall then be subjected to the test specified in 4.7.3.2 to determine conformance to 3.4.5.

4.7.3.6 Environmental.

4.7.3.6.1 Low temperature. To determine conformance to 3.4.6.1, the low temperature test specimen, a 4 foot length of unshielded cable, or shielded cable with the shielding removed shall be prepared and tested as follows.

4.7.3.6.1.1 Preparation. A 5 pound weight shall be attached to one end of the specimen. The other end shall be attached to a 1 inch diameter smooth, cylindrical mandrel. The specimen, not wound on the mandrel, shall be placed in a cold chamber and subjected to minus 65 $\pm$ 5°F, for 24 hours.

4.7.3.6.1.2 Flexing. Following the refrigeration period, while still in the cold chamber, the specimen shall be wound around the attached mandrel against the pull exerted by the weight at the rate of 20 turns per minute, for not less than 5 complete wraps or turns. Examination shall then be made for evidence of cracking, breaking, or separation.

4.7.3.6.1.3 Voltage application. The specimen shall be immediately subjected to the maximum voltage test specified in 4.7.3.2 to determine conformance to 3.4.6.1. The specimen may be removed from the cold chamber for this test.

4.7.3.6.2 High temperature and altitude. To determine conformance to 3.4.6.2, the high temperature and altitude test specimen shall consist of a 4 1/2 foot length of cable prepared in accordance with figure 4. The test assembly mounted on the mandrel, shall be placed in a circulating air oven capable of reaching a temperature of 600 $\pm$ 8°F for high temperature cable, 450 $\pm$ 4°F for medium temperature cable, and 250 $\pm$ 4°F for low temperature cable within a period of not less than 1 hour, or more than 3 hours. The specimen shall be subjected to this temperature for a period of 125 hours except that, for high temperature cable, the first 50 hours and the last 25 hours, the test shall be conducted at 450°F as follow:

4.7.3.6.2.1 Voltage application. A potential of 12 kilovolts rms, at a frequency of 60 Hz, shall be applied for the first and last 5 hours of the 125 hour test specified in 4.7.3.6.2. The initial voltage application shall be made at room temperature simultaneously with the start of the oven heating units. At the conclusion of this test, the insulation braid, and sheath shall be examined for damage that might affect subsequent performance.

4.7.3.6.2.2 Altitude. At the conclusion of the voltage application test specified in 4.7.3.6.2.1, the test specimen, as set up in figure 4 shall be placed in an altitude chamber and the pressure therein shall be reduced to the equivalent of 70,000 feet plus 5,000 minus 0 feet altitude, and maintained within these limits for the voltage application test specified in 4.7.3.6.2.2.1.

NOTE: Only medium and high temperature cables shall be subjected to this test.

4.7.3.6.2.2.1 Voltage application. A potential of 12 kilovolts, rms, at a frequency of 60 Hz, shall be applied between the cable conductor and the conduit assembly as shown on figure 4, for a period of 2 hours. The specimen shall then be inspected for evidence of insulation rupture, cracking, or other damage.

4.7.3.6.3 Hot oil. To determine conformance to 3.4.6.3, the hot oil test specimen shall consist of two 4 foot length of unshielded cable, or shielded cable with the shielding removed, shall be prepared and tested as follows.

4.7.3.6.3.1 Procedure. The specimens shall each be wound on a mandrel in the manner described in 4.7.3.6.7.1. The average diameter of the cable shall be determined for that portion of the free ends of the cable specimen which shall be submerged during the immersion period specified in 4.7.3.6.3.2. For obtaining the average diameter, measurements shall be taken 90 degrees apart at the location selected.

4.7.3.6.3.2 Oil immersion. Each test specimen, as thus wound on the mandrel, shall be immersed for 40 hours in oil with not less than 3 inches of each end protruding above the surface. The oil shall be maintained at a temperature of 195 $\pm$ 5°F during the period of immersion. Each test specimen shall be tested respectively, in oil conforming to grade 1100 of MIL-L-6082 or in oil conforming to MIL-L-7808. Only medium and high temperature cable shall be subjected to the test using oil conformance to MIL-L-7808. At the conclusion of the 40-hour immersion period, the wound specimen shall be removed from the oil, and allowed to cool. Measurements of the cable diameter shall then be repeated at the same locations as determined in 4.7.3.6.3.1. The diameters shall be averaged and the percentage of swell calculated as follows:

$$\frac{(Y - X)\ 100}{X} = \text{Percentage of swell}$$

Where:

Y = diameter average after oil immersion.
X = diameter average prior to oil immersion.

4.7.3.6.4 Flammability. To determine conformance to 3.4.6.4, the flammability test specimen shall consist of a 20 inch length of cable prepared and tested as follows:

4.7.3.6.4.1 Apparatus. The testing apparatus shall consist of a Bunsen burner having a 1/4 inch inlet, a nominal bore of 3/8 inch, a length of 4 inches above the primary inlets, and equipped with wingtop flame spreader having a 1/16 by 2 inch opening fitted to the top of the burner.

4.7.3.6.4.2 Preparation. The specimen shall be suspended taut in a horizontal position within a partial enclosure which shall allow a flow of air sufficient for complete combustion but which will be free of drafts.

4.7.3.6.4.3 Procedure. The tip of a 2 inch gas flame, with an inner-cone of 3/4 inch, shall be applied to the center of the length of cable as shown in figure 5. The flame shall be applied for 15 seconds, after which time the cable shall be observed for evidence of separation or burning particles, and the rate of travel of the flame along the cable shall be observed.

4.7.3.6.5 Fungus. To determine conformance to 3.4.6.5, the fungus test specimens shall consist of 5 lengths of cable, each 4 feet long. Tests shall be conducted in accordance with MIL-F-13927, class 3, method A, except that no performance test shall be conducted during exposure. At the end of the 90 day test, each specimen shall be subjected to the test specified in 4.7.3.2.

4.7.3.6.6 Anti-icing fluid. To determine conformance to 3.4.6.6, the anti-icing test specimen shall consist of a 4 foot length of completed cable prepared and tested as follows:

4.7.3.6.6.1 Preparation. The specimen shall be wound on a mandrel in the manner specified for the corona effects test (see 4.7.3.6.7.1).

4.7.3.6.6.2 Immersion. The specimen, as thus wound on the mandrel with metal test sleeve in position, shall be immersed for 16 hours in anti-icing fluid (50 percent alcohol, 50 percent water) at room temperature, with not less than 3 inches of each end protruding above the surface. Anti-icing fluid used for testing shall conform to MIL-E-51454. After immersion, specimen shall be removed and drained for 30 minutes and subsequently tested in accordance with 4.7.3.2.

4.7.3.6.7 Corona effect. To determine conformance to 3.4.6.7, the corona effect test specimens shall consist of 2 lengths, each 4 feet long, of unshielded cable, or shielded cable with the shielding removed, prepared and tested as follows:

4.7.3.6.7.1 Preparation. The two specimens shall be prepared as follows: A 5 pound weight shall be firmly attached to the conductor of one end of the specimen. The other end of the specimen shall be attached to a 1 inch diameter, smooth, cylindrical mandrel in such a manner that the weight will be freely suspended by the specimen. The mandrel shall be rotated to wind the specimen against the gravitational pull exerted by the attached weight for five full wraps or turns spaced 3/4 inch apart as shown in figure 3. During winding, the specimen shall not be constrained against normal twisting.

4.7.3.6.7.2 Aging. One of the specimens on the mandrel shall be heated for a period of 1 hour in an oven at a temperature of 600 ± 8°F for high temperature cable, 450 ± 4°F for medium temperature cable, and 250 ± 4°F for low temperature cable, and thereafter cooled for 1/2 hour in air at room temperature.

4.7.3.6.7.3 Insertion in metal test sleeve. The specimen previously heated shall be fitted snugly inside a metal sleeve having belled ends, in such manner that the ends of the specimen shall protrude from the belled ends of the sleeve (see figure 3). The specimen wound at room temperature and not aged shall also be fitted in the same manner.

4.7.3.6.7.4 Voltage application. With mandrel and metal test sleeve in position, immediately after insertion in sleeve, each specimen shall be subjected to a potential of 15 kilovolts rms, applied between the cable conductor and the mandrel and sleeve at a rate of 60 Hz. Specimens shall be subjected to the voltage application for 6 hours, after which examination shall be made for burning over the ends, insulation rupture, deterioration, or other resulting damage. The specimens shall then be subjected to the test specified in 4.7.3.2.

5. PACKAGING

5.1 Preservation, packaging, packing, and marking. Preservation, packaging, packing, and marking for the desired level shall be in accordance with the applicable packaging standard or packaging data sheet specified by the contracting authority (see 6.2).

6. NOTES

6.1 Intended use. The cable covered by this specification is intended for use on ignition systems of internal combustion engines for aircraft, automotive vehicles, marine, and portable power service.

6.1.1 Unshielded. Unshielded cable is intended for use in high-tension ignition systems and requires the use of shielding or other methods for radio-interference suppression.

6.1.2 Shielded. Shielded cable is intended for use where shielding of individual cables for radio interference is required.

6.2 Ordering data. Acquisition documents should specify the following:

a. Title, number, and date of this specification.
b. Type designation (see 1.2.1 and 1.3).
c. Shielding, if other than specified (see 3.2.5).
d. Cable length, if other than as specified (see 3.3.8.2).
e. If responsibility for inspection shall be other than as specified (see 4.1).
f. If responsibilty for inspection equipment shall be other than as specified (see 4.1.2).
g. If inspection conditions shall be other than as specified (see 4.3).

h. If control test sampling shall be other than as specified (see 4.6).
i. Selection of applicable levels of preservation, packaging, packing, and marking (see 5.1).

6.3 Qualification. With respect to products requiring qualfication, awards will be made only for products which are, at the time set for opening of bids, qualified for inclusion in Qualified Products List (QPL No.) whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase order for the products covered by this specification. The activity responsible for the Qualified Products List is the Commanding General, US Army Tank-Automotive Command, ATTN: AMSTA-GDS, Warren, MI 48397-5000 and information pertaining to qualification of products may be obtained from that activity (see 3.1 and 4.4).

6.4 Extension of qualification. Qualification of unshielded cable submitted by a manufacturer will establish qualification for shielded cable of the same size and construction by the same manufacturer. Qualification of one cable conductor material in a particular temperature range will establish qualification approval for all conductor material in the same temperature range.

6.5 Subject term (key word) listing.

Electrical
Ignition
High-Tension

6.6 Recycled materials. The use of recycled materials which meet the requirements of the applicable material specifications without jeopardizing the intended use of the item shall be encouraged (see 3.2).

6.7 Changes from previous issue. Asterisks (or vertical lines) are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

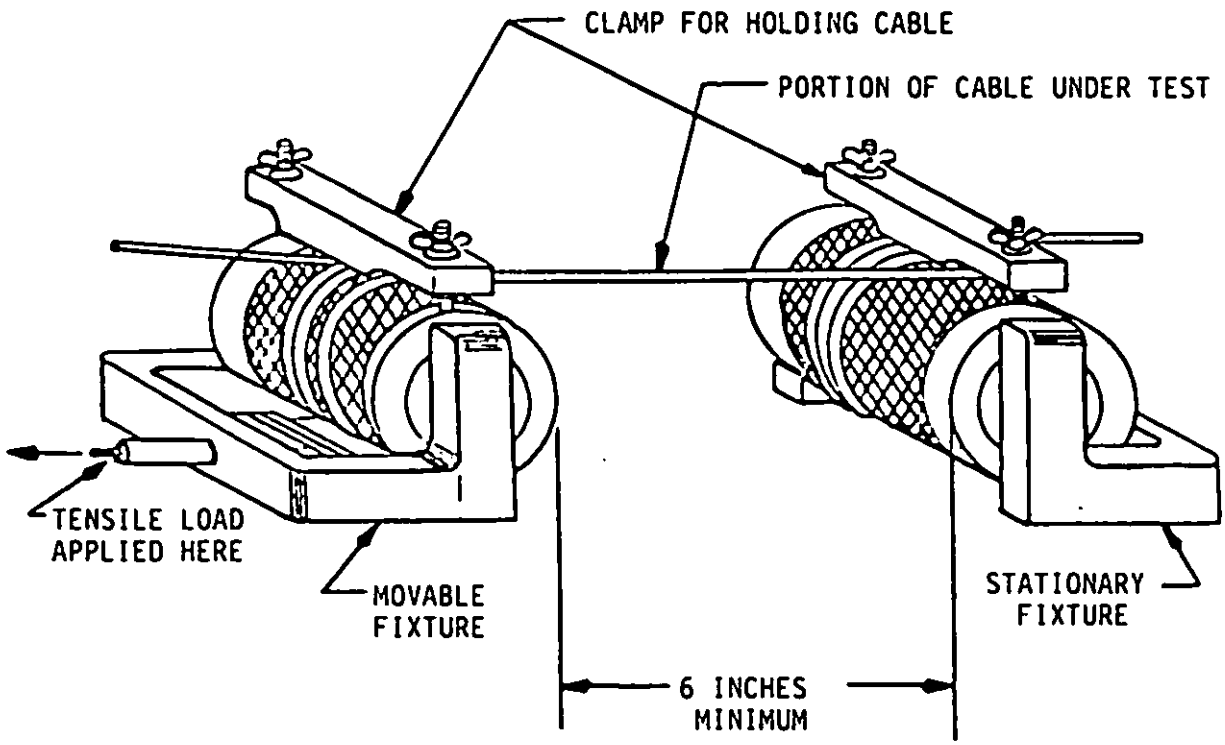


FIGURE 1. Test setup for tensile load test. (see 4.7.3.1.)

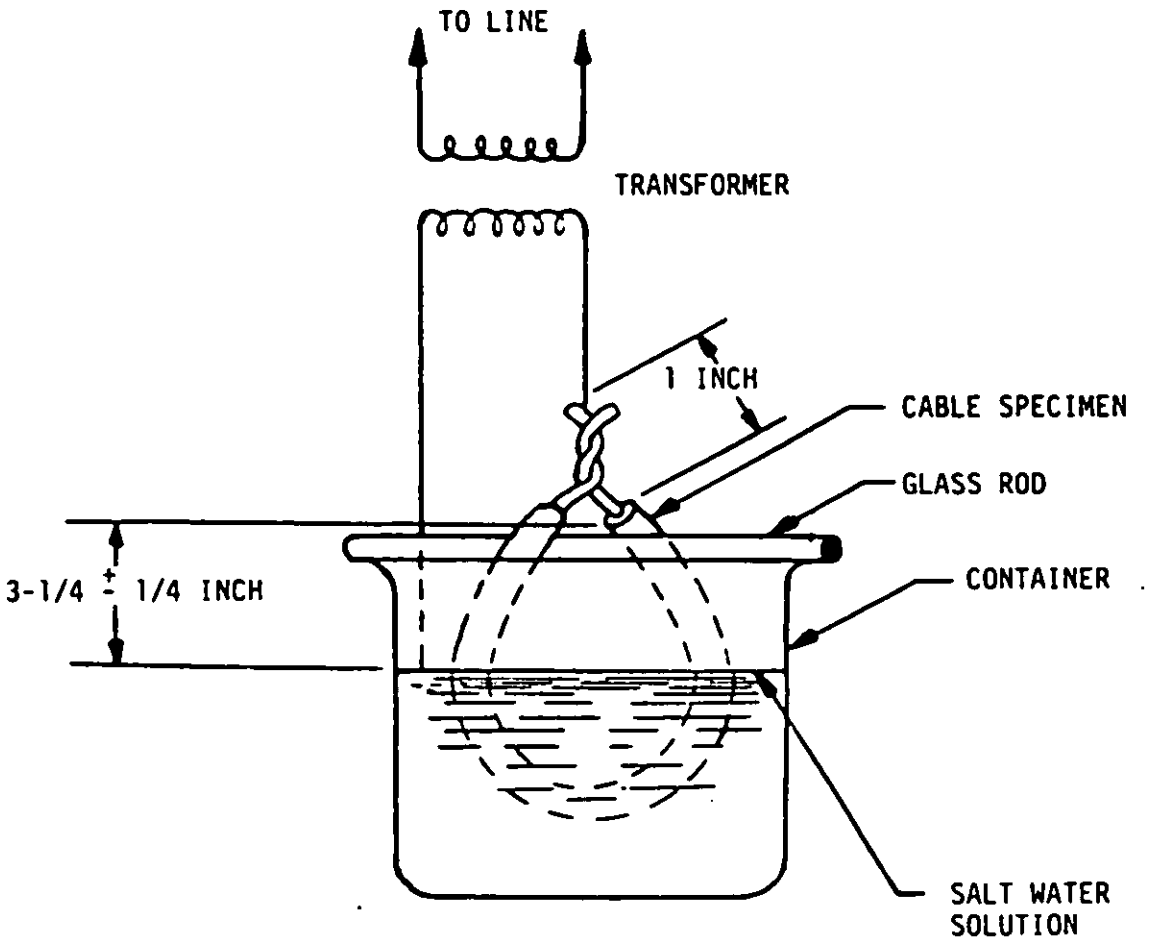


FIGURE 2. Voltage application test for tensile load (see 4.7.3.1).

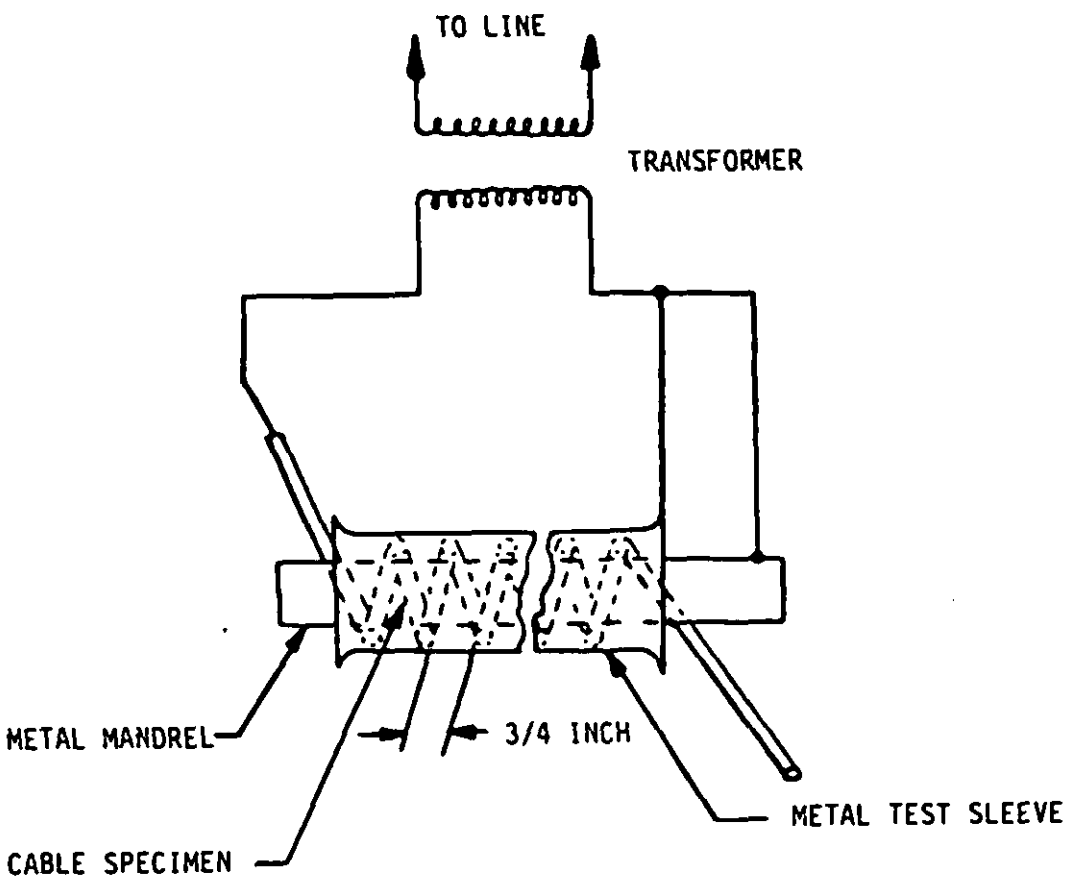


FIGURE 3. Wiring diagram for maximum voltage test, life cycle test, low temperature test, hot oil test, anti-icing fluid test, and corona-effect test (see 4.7.3.2, 4.7.3.5, 4.7.3.6.1, 4.7.3.6.3, 4.7.3.6.6, and 4.7.3.6.7).

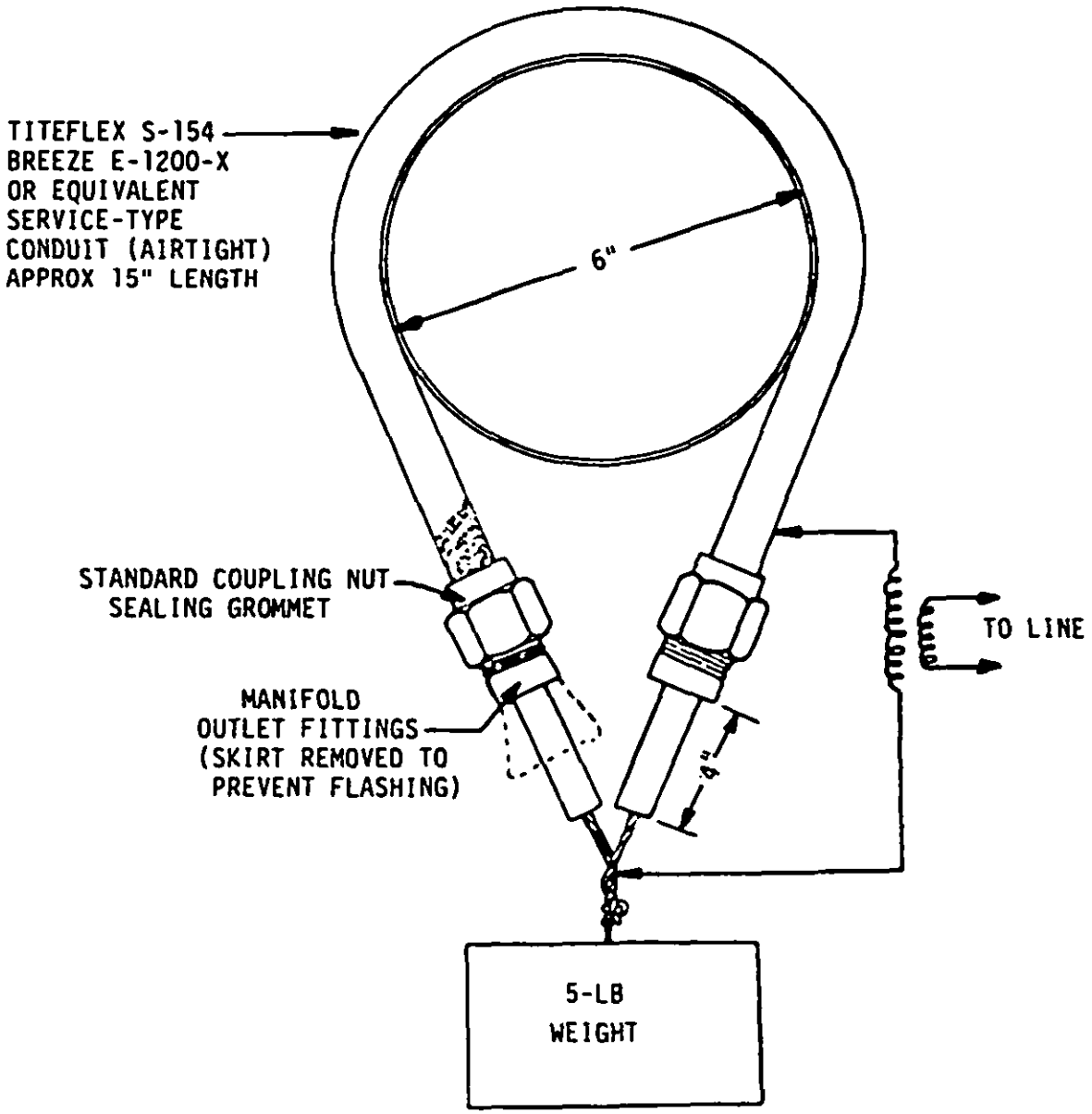


FIGURE 4. High temperature and altitude test setup (see 4.7.3.6.2).

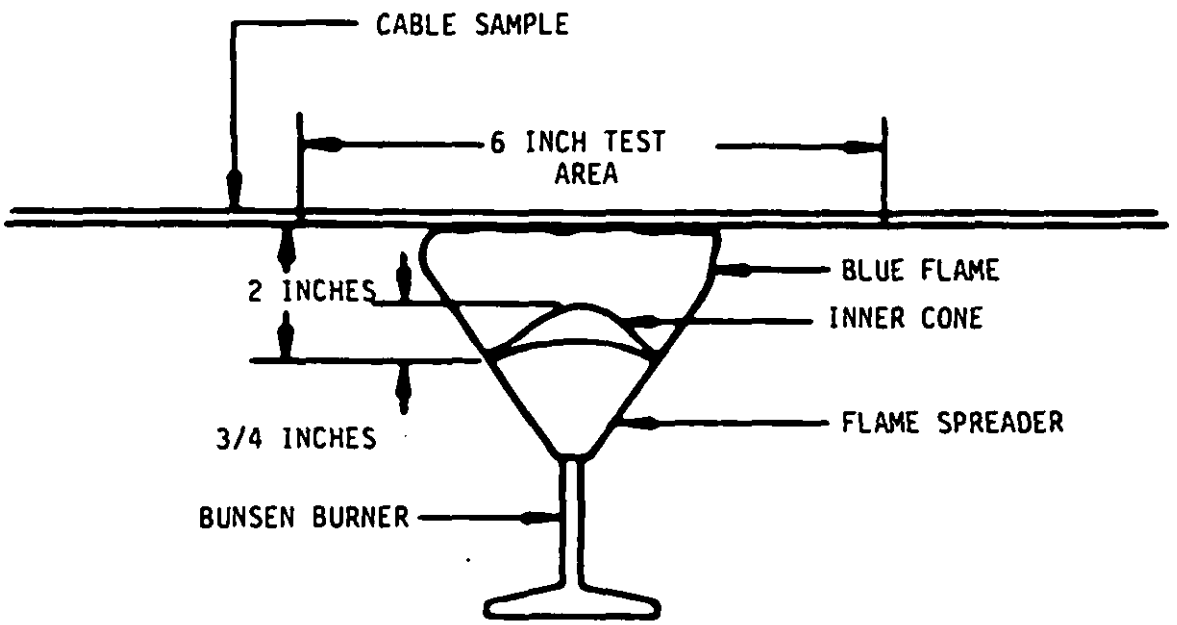


FIGURE 5. Test setup for flammability test. (see 4.7.3.6.4.3)

Custodians:
Army - AT
Navy - AS
Air Force - 85

Review activities:
Army - AV, MI, ME, EA, AR
DLA - IS
Air Force - 99

User activities:
Navy - MC, YD
DLA - CS

Preparing activity:
Army - AT

(Project 6145-1068)

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

DOCUMENT IDENTIFIER *(Number)* AND TITLE

MIL-C-3702B CABLE, POWER, ELECTRICAL: IGNITION, HIGH-TENSION

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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