

INCH-POUND

MIL-PRF-62122C(AT)

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SUPERSEDING

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PERFORMANCE SPECIFICATION

CABLE ASSEMBLY, INTERVEHICLE POWER: PLUG, RECEPTACLE, AND ADAPTER

This specification is approved for use by the US Army Tank-automotive and Armaments Command, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers cable assemblies, plugs and receptacles used for a temporary connection between electrical system of two vehicles for the purpose of starting the main engine of a disabled vehicle from an operating vehicle.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents in other section of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

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

AMSC N/A

FSC 2920

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2.2 Government documents.

2.2.1 Specifications, standards and handbooks. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

DEPARTMENT OF THE DEFENSE

- A-A-52039 - Lubricating Oil, Automotive Engine, API Service SG.
- A-A-52306 - Lubricating Oil, Heavy Duty Diesel.
- MIL-F-13927 - Resistance Test; Automotive Components.

STANDARDS

DEPARTMENT OF THE DEFENSE

- MIL-STD-202 - Test Methods for Electronic and Electrical Component Parts.
- MIL-STD-810 - Environmental Test Methods and Engineering Guidelines.

(Unless otherwise indicated, copies of the above specifications and standards are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DRAWINGS

ARMY

- 11674728 - Vehicle Receptacle Assembly Installation Drawing (NATO STANAG 4074).
- 11677570 - Adapter, Connector.
- 11682336 - Cable & Plug Assembly, Intervehicle Power.
- 11682337 - Cable Assembly, Intervehicle Power.
- 11682338 - Cable Assembly, Intervehicle Power Cable.
- 11682345 - Vehicle Receptacle Assembly NATO Intervehicle Power.

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- 11682350 - Vehicle Receptacle Assembly NATO Intervehicle Power.
- 7321299 - Receptacle Assembly, Slave.

(Copies of these drawings are available from the U.S. Army Tank-automotive and Armaments Command, AMSTA-TR-E/BLUE, Warren, MI 48397-5000.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)

- ANSI/NCSL Z540-1 - General Requirements for Calibration Laboratories and Measuring and Test Equipment (DoD Adopted).

(Application for copies should be addressed to American National Standard Institute, 11 West 42nd Street, New York, NY 10036.)

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)

- ASQC Z1.4 - Sampling Procedures and Tables for Inspection by Attributes (DoD Adopted).

(Application for copies should be addressed to American Society for Quality Control, 611 East Wisconsin Avenue, Milwaukee, WI 53202-4606.)

SOCIETY OF AUTOMOTIVE ENGINEERS, INC. (SAE)

- AS748 - Identification Marking Methods.

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

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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3. REQUIREMENTS

3.1 First article. Unless otherwise specified (see 6.2), the contractor shall furnish samples of the cable assemblies, plugs and receptacles which shall be subjected to first article inspection (see 4.3). First article inspection samples, properly marked with identifying information shall be representative of the cable assemblies to be furnished to the Government. All subsequent cable assemblies delivered to the Government shall conform to these samples in all of their pertinent physical and performance attributes.

3.2 Materials. Materials shall be as specified herein, and in applicable specifications. Materials not specifically designated shall be suitable for use in the cable assemblies, plugs and receptacles provided that their use does not cause any change in physical, electrical or dimensional properties that would result in performance of any of these components falling outside of the limits specified herein (see 4.7.1).

3.2.1 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.3 Design and construction. Cable assemblies, plugs and receptacles shall be designed and constructed to the form and dimensions in the applicable drawings as follows (see 4.7.1 and 4.7.2):

11674728	- Vehicle Receptacle Assembly Installation Drawing (NATO STANAG 4074).
11677570	- Adapter, Connector.
11682336	- Cable and Plug Assembly, Intervehicle Power.
11682337	- Cable Assembly, Intervehicle Power.
11682338	- Connector Assembly, Intervehicle Power Cable.
11682345	- Vehicle Receptacle Assembly NATO Intervehicle Power.
11682350	- Vehicle Receptacle Assembly NATO Intervehicle Power.
7521299	- Receptacle Assembly, Slave.

3.3.1 Voltage. The cable assemblies, plugs and receptacles shall be designed for use in a 24 volt (V) direct current (dc) vehicle electrical system.

3.3.2 Polarity. The cable assemblies, plugs and receptacles shall be designed for use in a negatively grounded vehicle electrical system.

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3.4 Performance.3.4.1 Electrical.

3.4.1.1 Continuity. The conductors shall provide an electrical path between like poles of the plugs, receptacles and adapters (see 4.7.3.1).

3.4.1.2 Current, continuous. When tested (see 4.7.3.2), cable assemblies, plugs and receptacles shall be capable of carrying 500 amperes (amp) at 24 Vdc for a period of 15 minutes continuous duty. Adapters shall be capable of carrying 300 amps for a period of 15 minutes continuous duty. There shall be no shorting or loss of continuity, burning, rupture or other damage to the connectors or cables throughout the test. Smoking shall not be a cause for failures provided performance is not impaired.

3.4.1.3 Current, overload. When tested (see 4.7.3.3), the cable assemblies, plugs and receptacles shall be capable of carrying a current of 1000 amp at 24 Vdc for a period of 360 seconds. Adapters shall be capable of carrying a current of 600 amps dc for a period of 120 seconds continuous duty. There shall be no shorting or loss of continuity, burning, rupture or other damage to the connectors or cables throughout the test. Smoking shall not be a cause for failures provided performance is not impaired.

3.4.1.4 Dielectric withstanding voltage. When the plugs, receptacles and adapters are tested (see 4.7.3.4), the insulation shall evidence no cracking, charring, burning, smoking, shorting or other damage and shall subsequently meet the requirement of 3.4.1.1.

3.4.1.5 Contact resistance. When the plugs and receptacles are tested (see 4.7.3.5) the voltage drop across the contacts of the mated connectors shall be no greater than 250 millivolts at 500 amp. For adapters the average voltage drop shall not exceed 100 millivolts at 200 amp dc for either the positive or the negative circuits.

3.4.2 Environmental.

3.4.2.1 Waterproofness. When tested (see 4.7.4.1), the plugs shall evidence no leakage or damage which would adversely affect performance. Subsequently, the plugs shall meet the performance requirements of 3.4.1.

3.4.2.2 Corrosion resistance. When tested (see 4.7.3.5), the plugs, receptacles and adapters shall show no evidence of corrosion that would adversely affect performance. Subsequently, the plugs, receptacles and adapters shall meet the requirements of 3.4.1.5.

3.4.2.3 Resistance to petroleum products. When tested (see 4.7.4.2), the cable assemblies shall show no evidence of damage that would adversely affect performance.

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Subsequently, the cable assemblies, plugs and adapters shall meet the requirements of 3.4.1 and 3.4.2.4.

3.4.2.4 Mating. When tested at an ambient temperature of 77 ± 15 degrees Fahrenheit ($^{\circ}\text{F}$) (25 ± 8 degrees Celsius ($^{\circ}\text{C}$)) the forces required to fully engage and disengage the plugs shall be between 20 and 40 pounds (lbs) (9.1 and 18.2 kilograms (kg)). When either the plug or receptacle is at -65°F (-55°C), the force shall be between 20 and 45 lbs (9.1 and 20.4 kg). Maximum 30 degree rotation to facilitate engagement and disengagement is permitted (see 4.7.4.3).

3.4.2.5 Resistance to low temperature (cold bend). When subjected to the low temperature (cold bend) test, the cable shall show no evidence of cracking, breaking, separation or other damage (see 4.7.4.4).

3.4.2.6 Fungus resistance. After exposure to fungus the cable assemblies, plugs and receptacles shall not exhibit fungus growth that affects performance (see 4.7.4.5).

3.4.2.7 Resistance to ozone exposure. When tested for ozone resistance, the cable shall show no evidence of cracking, rupture or any other deterioration (see 4.7.4.6).

3.4.2.8 Temperature resistance. When tested as limited in 4.7.4.7, plugs and receptacles shall evidence no distortion, cracking or shorting.

3.4.3 Mechanical.

3.4.3.1 Crimp strength. When subjected to the pull test, the crimped terminal attached to the conductor cable shall withstand a pull test of 750 lbs (340.5 kg) (see 4.7.5.1).

3.4.3.2 Clamp strength. When tested (see 4.7.5.2), the cable insulation shall withstand a pull test of 200 lbs (91 kg). The displacement of cable insulation away from the intervehicle connector housing shall be not more than 1/16 inch (1.6 millimeter (mm)).

3.4.3.3 Insert retention. When tested (see 4.7.5.3), the threaded inserts in the plug shall withstand a pull strength of not less than 45 lbs (20.4 kg) without being separated from the main body of the intervehicle connector.

3.5 Identification marking. The following information shall be permanently marked or stamped on the plugs and receptacles (see 4.7.2.1):

- a. Military part number
- b. Manufacturer's identification
- c. US.

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3.6 **Workmanship.** The workmanship shall be of a quality to assure that the cable assemblies, plugs and receptacles conform to the drawings and detail specifications. The products shall be free of defective connectors, scratches, chips, sharp edges, loose or defective seals, cracked insulation or other defects which affect serviceability or appearance (see 4.7.2).

4. VERIFICATION

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

- a. First article inspection (see 4.3).
- b. Conformance inspection (see 4.4).
 1. Examination (see 4.4.2).
 2. Tests (see 4.4.3).
- c. Control tests (see 4.5).

4.1.1 **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 must be capable of repetitive measurements to an accuracy of 10 percent (%) of the measurement tolerance. Calibration of inspection equipment shall be in accordance with ANSI/NCSL Z540-1. Required measuring instrument tolerances are as listed in table I.

4.1.1.1 **Apparatus.** In addition to standard measuring equipment (see 4.1.1, table I and applicable test specifications), test apparatus shall include test chambers for conducting low temperature (-65°F) tests, submersion tank, incubation cabinets (fungus) and ozone chamber.

TABLE I. **Measuring instrument tolerance.**

Measuring instrument	Accuracy
Voltmeter dc 0-30 V	$\pm 0.25\%$ of reading
Ammeter dc 0-2000 amp	$\pm 0.50\%$ of reading
Millivoltmeter dc 0-500 millivolts	$\pm 0.50\%$ of reading

4.2 **Inspection conditions.** Unless otherwise specified herein, all inspections shall be conducted under the following conditions:

- a. Air temperature: $77 \pm 15^\circ\text{F}$ ($25 \pm 8^\circ\text{C}$).
- b. Barometric pressure: 28.5 (+2, -3) inches (743.9 (+50.8, -76.2 mm)) mercury.
- c. Relative humidity: 50 ± 30 percent.
- d. Test specimens shall be thermally stabilized for one hour prior to being subjected to tests.

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4.3 First article inspection. Unless otherwise specified (see 6.2), the Government shall select three cable assemblies produced under the production contract for first article inspection. When plugs and receptacles are procured separately from the cable assemblies, six plugs and six receptacles shall be submitted for first article inspection. First article samples shall be inspected as specified in table II in the order specified in table III (plugs and receptacles) and table IV (cable assemblies). Approval of the first article sample by the Government shall not relieve the contractor of his obligation to supply samples that are fully representative of those inspected as a first article sample. Any changes or deviation of the production units from the first article sample shall be subject to the approval of the contracting officer.

TABLE II. Classification of inspections.

Title	Requirement	Inspection	First article	Quality conformance		Control
				Examination	Tests	
Materials and construction	3.3 and 3.2	4.7.1	X	X		
Defects (see 4.7.2 and table V)	3.3, 3.5 and 3.6	4.7.2	X	X		
Continuity	3.4.1.1	4.7.3.1	X		X	
Current, continuous	3.4.1.2	4.7.3.2	X		X	
Current, overload	3.4.1.3	4.7.3.3	X		X	
Dielectric withstanding voltage	3.4.1.4	4.7.3.4	X		X	
Contact resistance	3.4.1.5	4.7.3.5	X		X	X
Waterproofness	3.4.2.1	4.7.4.1	X		X	X
Corrosion resistance	3.4.2.2	4.7.3.5	X		X	
Resistance to petroleum products	3.4.2.3	4.7.4.2	X		X	
Mating	3.4.2.4	4.7.4.3	X		X	X
Resistance to low temperature	3.4.2.5	4.7.4.4	X		X	
Fungus resistance	3.4.2.6	4.7.4.5	X		X	
Resistance to ozone exposure	3.4.2.7	4.7.4.6	X		X	
Temperature resistance	3.4.2.8	4.7.4.7	X		X	
Crimp strength	3.4.3.1	4.7.5.1	X		X	
Clamp strength	3.4.3.2	4.7.5.2	X		X	
Insert retention	3.4.3.3	4.7.5.3	X		X	

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TABLE III. Order of first article inspection (plugs, receptacles, and adapters).

Title	Inspection	Specimens		
		1 & 2	3 & 4	5 & 6
Mating	4.7.4.3			X
Current, continuous	4.7.3.2	X	X	X
Current, overload	4.7.3.3	X	X	X
Fungus resistance	4.7.4.5	X		
Dielectric withstanding voltage	4.7.3.4	X		
Contact and corrosion resistance	4.7.3.5		X	
Waterproofness (plugs only)	4.7.4.1			X
Insert retention	4.7.5.3			X
Resistance to petroleum products	4.7.4.2			X
Temperature resistance	4.7.4.7		X	
Dielectric withstanding voltage	4.7.3.4		X	

TABLE IV. Order of first article inspection (cable assemblies) 1/.

Title	Inspection	Specimens		
		1	2	3
Mating	4.7.4.3			X
Continuity	4.7.3.1	X	X	X
Current, continuous	4.7.3.2	X	X	X
Current, overload	4.7.3.3	X	X	X
Resistance to low temperature	4.7.4.4	X		
Fungus resistance	4.7.4.5		X	
Resistance to ozone exposure	4.7.4.6	X		
Resistance to petroleum products	4.7.4.2	X		
Clamp strength	4.7.5.2			X
Dielectric withstanding voltage	4.7.3.4	X	X	
Crimp strength	4.7.5.1			X

1/ Receptacles used in testing the cable assemblies shall have passed the tests as specified in table III for specimens 3 and 4.

4.3.1 First article inspection failure. Deficiencies revealed by first article inspection shall be cause for rejection of the cable assembly. All prior produced cable assemblies shall be considered similarly deficient unless contrary evidence satisfactory to the contracting officer is furnished by the contractor. The Government shall not accept cable assemblies until all deficiencies are corrected and first article inspection is completed to the satisfaction of the Government.

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4.4 Conformance inspection.4.4.1 Specimen control.

4.4.1.1 Lot formation. Unless otherwise specified (see 6.2), an inspection lot shall consist of all plugs, receptacles or cable assemblies manufactured during an identifiable production period, from one manufacturer, submitted at one time for acceptance.

4.4.1.2 Selection. Specimens selected for conformance testing shall be made in accordance with contractor's Government approved test plan.

4.4.1.2.1 Selection method. Contractor shall use ANSI-ASQC Z1.4 to develop test program to assure quality of the production lot.

4.4.2 Examination.

4.4.2.1 Classification of defects. For examination purposes, defects shall be classified as specified in table V.

TABLE V. Classification of defects.

Category	Defect	Method of examination
<u>Major:</u>		
101	Dimensions out of tolerance affecting interchangeability (see 3.3).	SIE 1/
102	Identification marking - missing or incomplete (see 3.5).	Visual
103	Faulty workmanship affecting performance (see 3.6).	Visual
<u>Minor:</u>		
201	Dimensions out of tolerance not affecting interchangeability (see 3.3).	SIE

1/ SIE = Standard Inspection Equipment.

4.4.3 Test. Quality conformance tests shall include testing as shown in table II using the sequences shown in tables III and IV.

4.5 Control tests.

4.5.1 Specimen selections. The contractor is responsible for determination of how selection shall be made from production during a particular period and the quantity tested for defects in table V then tested per table II in the order of table VI.

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TABLE VI. Control test sequence (plugs, receptacles, and adapters).

Title	Inspection
Contact resistance	4.7.3.5
Waterproofness	4.7.4.1
Mating	4.7.4.3

4.6 Failure. Failure of any specimen to pass any of the specified control tests shall be cause for the Government to refuse acceptance of the production quantity represented, until action taken by the contractor to correct defects and prevent recurrence has been approved by the Government.

4.7 Method of inspection.

4.7.1 Materials and construction. Conformance to 3.2 through 3.3.2 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.

4.7.2 Defects. Conformance to 3.3, 3.5 and 3.6 shall be determined by examination for the defects listed in table V. Examination shall be visual, tactile, or by measurement with standard inspection equipment.

4.7.2.1 Marking. Identification marking shall be inspected to verify conformance to ANSI/SAE AS478.

4.7.3 Electrical.

4.7.3.1 Continuity. To determine conformance to 3.4.1.1, correct marking of polarity of the plugs, receptacles, and adapters shall be verified. The continuity test records for each circuit of the cable assembly, including the plugs at either end, shall be provided to assure assembly correctness upon test acceptance by the Government.

4.7.3.2 Current, continuous. To determine conformance to 3.4.1.2, the cable assemblies shall be mated to receptacles conforming to Drawing 11682345 or 11682350 and a current of 500 amp at 24 Vdc shall be passed through all conductors and contacts simultaneously for a period of 15 minutes. A current of 300 amperes dc shall be passed through adapters and its mating items, and its associated circuits for a duration of 15 minutes.

4.7.3.3 Current, overload. To determine conformance to 3.4.1.3, unmated plugs and receptacles shall be subjected to a potential of 500 V root mean square (rms) between pin and

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contact and any other metallic portion of the plug. When testing receptacles the 500 V rms potential shall be applied between the central socket and the junction box or other metallic parts. For adapter, mating items, and associated circuit current shall be 600 amperes for a duration of 120 seconds.

4.7.3.4 Dielectric withstanding voltage. To determine conformance to 3.4.1.4, unmated plugs, receptacles, and adapters shall be subjected to a potential of 500 V root mean square (rms) between the central pin of the plug and adjacent contact and between pin and contact and any other metallic portion of the plug. When testing receptacles the 500 V rms potential shall be applied between the central socket and the junction box or other metallic parts.

4.7.3.5 Contact and corrosion resistance. To determine conformance to 3.4.1.5 and 3.4.2.2, the plugs and receptacles with their protective covers removed and adapters shall be subjected to the salt fog and in accordance with method 509 of MIL-STD-810, using a 5% salt solution. At the conclusion of the exposure to the salt fog the connectors shall be tested in accordance with method 307 of MIL-STD-202 for contact resistance. Contact resistance shall be measured between the points of connection of cable in the plug and point of connection of cable in the receptacle. Measurement shall be made through the positive as well as the negative circuit.

4.7.4 Environmental.

4.7.4.1 Waterproofness. To determine conformance to 3.4.2.1, the plugs shall be tested for waterproofness in accordance with method 512 of MIL-STD-810. The following conditions shall apply:

- a. Protective caps shall be installed in place.
- b. Eight (8) inches (203.2 mm) long cables along with terminals (see 11682337) shall be normally attached to the plugs. During the test, free ends of both the cables shall be flexed by not less than 3 inches (76.2 mm) displacement from their straight position and shall be left in that position for 15 minutes before switching to the next 45 ± 5 degree position. Flexing shall be done for each 45 ± 5 degree position, with a total rotation of 360 degrees. Free ends of the cables shall be properly sealed.
- c. Immersion depth shall be 40 inches (101.6 centimeters (cm)) in 5% salt water solution.

4.7.4.2 Resistance to petroleum products. To determine conformance to 3.4.2.3, the receptacles, plugs, and adapters shall be tested for resistance to the effect of exposure to petroleum products by submersion of the cable assemblies and plugs in the fluids specified for the indicated time period.

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a. A-A-52039	Lubricating Oil, Auto.	20 hours
b. A-A-52306	Fuel Oil, Diesel	20 hours

At the conclusion of the submersion period, the receptacles and plugs shall be wiped free of the fluids and shall subsequently meet the requirements of 3.4.1.2, 3.4.1.4 and 3.4.2.4.

4.7.4.3 Mating. To determine conformance to 3.4.2.4, receptacles shall be rigidly mounted. The central pin of the plug shall be aligned to permit free entry of the pin to the full depth of the socket in the receptacle. A force shall be applied to the plug to effect full engagement of the connectors. The engaging and disengaging forces required shall be measured in pounds. This test shall be conducted with plug, receptacle and adapter stabilized at a room ambient temperature of $77 \pm 15^{\circ}\text{F}$ for at least 1 hour. Immediately upon removal from the cold chamber, a plug, which has been conditioned at -65°F for 6 hours, shall be mated with a standard receptacle which has been at room ambient temperature of $77 \pm 15^{\circ}\text{F}$ for at least 1 hour. The force required to effect complete engagement and disengagement shall be measured. Receptacles which have been conditioned at -65°F for 6 hours, immediately upon removal from the cold chamber, shall be mated with a plug maintained at room ambient temperature of $77 \pm 15^{\circ}\text{F}$. The force required to effect complete engagement and disengagement shall be measured in pounds.

4.7.4.4 Resistance to low temperature (cold bending). To determine conformance to 3.4.2.5, the test specimen shall be conditioned as specified in 4.7.4.4.1 and tested as specified in 4.7.4.4.2.

4.7.4.4.1 Cooling. The specimen shall be laid out straight in a suitable low temperature chamber and subjected to an ambient temperature of $-65 \pm 3^{\circ}\text{F}$ ($-55 \pm 1.7^{\circ}\text{C}$) for 96 hours for first article and control tests and for 24 hours for quality conformance tests.

4.7.4.4.2 Bending. At the conclusion of the refrigeration period and while at $-65 \pm 3^{\circ}\text{F}$, the specimen shall be bent 180° around a mandrel having a diameter of 2-1/4 inches (57.2 mm) within 10 seconds after removal from the cold chamber. The specimen shall be observed for the defects specified in 3.4.2.5.

4.7.4.5 Fungus resistance. To determine conformance to 3.4.2.6, the specimens shall be subjected to fungus as specified in MIL-F-13927. One specimen shall be removed from incubation after 90 days. The item shall then be subjected to test 4.7.3.4.

4.7.4.6 Resistance to ozone exposure. To determine conformance to 3.4.2.7, the test procedure specified in 4.7.4.6.2 shall be followed using the apparatus specified in 4.7.4.6.1.

4.7.4.6.1 Apparatus. The apparatus shall include an exposure chamber containing air mixed with ozone in the proportion of 50 ± 5 parts per 100,000,000 of atmosphere air by volume, and mandrels of the size appropriate for the test specimen as specified below:

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<u>Cable outside diameter</u>	<u>Mandrel diameter</u>
Less than 2 inch (12.7 mm)	4 x cable OD (outer diameter)
At least 2 inch but less than 3/4 inch (19.1mm)	5 x cable OD
At least 3/4 inch but less than 1-1/4 inch (31.8 mm)	6 x cable OD
At least 1-1/4 inch but less than 1-3/4 inch (44.5 mm)	8 x cable OD
At least 1-3/4 inch and above	10 x cable OD

4.7.4.6.2 Procedure. The test specimens shall be wrapped once around the appropriate mandrel and the two ends of the cable shall be bound together with twine or tape at the end at the point where they intersect. After being placed on the mandrel, the specimens shall be conditioned at ambient room temperature for 45 minutes. The specimens shall then be placed in the test exposure chamber for 300 hours for the first article test and for 168 hours for the control test. The tests shall be conducted at a temperature of $100 \pm 5^{\circ}\text{F}$ ($38 \pm 3^{\circ}\text{C}$). Immediately after the completion of the test period each sample shall be examined for evidence of cracking, using seven power magnification. The bound and taped portion of the cable and the area adjacent thereto shall not be examined. Immediately after the examination, each sample shall be subjected to the test specified in 4.7.2.4 to determine conformance to 3.4.1.4.

4.7.4.7 Temperature resistance. To determine conformance to 3.4.2.8, plugs and receptacles, with their respective caps, shall be tested in accordance with the following procedure:

- a. Specimens shall be stabilized in a chamber at a temperature of $-45 \pm 5^{\circ}\text{F}$ ($-42.8 \pm 2.7^{\circ}\text{C}$) for 6 hours.
- b. Immediately after removal from the chamber, specimens shall be dropped on a concrete surface from a height of 36 inches (915 mm). Drops shall be made in four different attitudes within a time period of 5 minutes. Attitudes shall be not less than 90 degrees apart.
- c. Steps a and b shall be repeated at a temperature of $140 \pm 5^{\circ}\text{F}$.

4.7.5 Mechanical.

4.7.5.1 Crimp strength (pull test). To determine conformance to 3.4.3.1, specimens shall be tested in accordance with the following procedure:

- a. Connectors from the cable assemblies shall be disconnected.
- b. Conductor cables shall be cut into 12-inch (305 mm) lengths including the terminals to obtain four specimens.
- c. The insulation and sheathing shall be removed from the specimen.
- d. A tensile pull shall be applied between the terminal eye and the bare conductor cable.

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- e. Travel of the head applying the load shall be at the rate of one inch (25 mm) per minute.
- f. Clamping surfaces may be serrated to provide sufficient gripping force.
- g. The force shall be sufficient to pull the wire out of the terminal or break the wire or terminal.
- h. Steps c through g shall be repeated for specimens 2, 3 and 4.

4.7.5.2 Clamp strength. To determine conformance to 3.4.3.2, both the cables of the cable assembly 11682337 shall be tested in accordance with the following procedure:

- a. Cable assembly shall be attached to intervehicle connector 11682338.
- b. A clamp shall be attached to one cable of the cable assembly at a distance of 6 inches from the point where cable enters intervehicle connector, in a manner such that when a pull force is applied, clamp shall not move with respect to the cable insulation.
- c. The intervehicle connector shall be clamped in a stationary position and a pull force be applied equally to two diametrically opposite points of the clamp.
- d. The displacement of the cable insulation away from the intervehicle connector housing shall be measured.
- e. Steps a through d shall be repeated for the second cable of the cable assembly.

4.7.5.3 Insert retention. To determine conformance to 3.4.3.3, the intervehicle connector 11682338 shall be tested in accordance with the following procedure:

- a. The intervehicle connector shall be clamped in a stationary position.
- b. A pull force shall be applied to each threaded insert located in the body of the intervehicle connector, until insert is pulled out of the connector body. The force at that point shall be measured.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

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6. NOTES

(This section contains information of a general or explanatory nature which may be helpful, but is not mandatory.)

6.1 Intended use. The cable assemblies, plugs and receptacles covered in this specification are intended to provide a temporary connection between electrical systems of two vehicles, to permit the use of an operating vehicle as a power source to start the main engine of the second vehicle.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2.1 and 2.3).
- c. If first article samples are not required (see 3.1).
- d. If responsibility for inspection equipment shall be other than as specified (see 4.1.1).
- e. If the number of lot samples shall be other than as specified (see 4.4.1.1).
- f. Selection of applicable level and packaging standard or packaging data sheet (see 5.1).

6.3 Definitions.

6.3.1 Cable assemblies. Cable assemblies are defined as conductor cables with banding to bind them together and the attached terminals. A complete assembly will include the plugs at either end of the conductor cables.

6.3.2 Plugs. Plug as used herein defines a portion of the cable assembly usually assembled to the cables and mates with a counter part receptacle.

6.3.3 Receptacles. Receptacle as used herein refers to the part of the connector usually mounted on the vehicle that mates with the plug.

6.3.4 Adapter. Adapter is defined as the part which mates with two pin receptacles on one end and the plug on the other end.

6.3.5 Recovered materials. "Recovered materials" means materials that have been collected or recovered from solid waste (see 6.3.5.1).

6.3.5.1 Solid waste. "Solid waste" means (a) any garbage refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; and (b) other

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6.3.5 Recovered materials. "Recovered materials" means materials that have been collected or recovered from solid waste (see 6.3.5.1).

6.3.5.1 Solid waste. "Solid waste" means (a) any garbage refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; and (b) other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. It does not include solid or dissolved material in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Clean Water Act, (33 U.S.C. 1342 et seq.), or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) (Source: Federal Acquisition Regulations, section 23.402).

6.4 Subject term (key word) listing.

Conduit
Electric line
Jumper
Vehicle starting

6.5 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodian:
Army - AT

Preparing activity:
Army - AT

(Project 2920-0461)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
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FSC 2920

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER

MIL-PRF-62122C(AT)

2. DOCUMENT DATE (YYMMDD)

960122

3. DOCUMENT TITLE

Cable Assembly, Intervehicle Power: Plug, Receptacle and Adapter.

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

d. TELEPHONE (Include Area Code)

(1) Commercial

(2) AUTOVON

(If applicable)

7. DATE SUBMITTED

(YYMMDD)

8. PREPARING ACTIVITY

a. NAME

b. TELEPHONE (Include Area Code)

(1) Commercial

(810) 574-8745

(2) AUTOVON

786-8745

c. ADDRESS (Include Zip Code) Commander

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