

17 June 1974

MILITARY SPECIFICATION

DUMMY LOAD, ELECTRICAL DA-662/UPQ-5

This specification has been approved by the
Naval Air Systems Command, Department of the Navy

1. SCOPE

1.1 Scope - The equipment covered by this specification shall be for intermediate (shop) use and shall provide resistive loading for the operation of Static Frequency Converter CV-2933/UPQ-5.

1.2 Classification - The equipment covered by this specification shall consist of the following item:

<u>Drawing or Model Number</u>	<u>Nomenclature</u>	<u>Reference Paragraph</u>
DA-662/UPQ-5	Dummy Load, Electrical	N/A

1.3 Associated Equipment - The equipment shall operate with the following associated equipment:

Frequency Counter, H61-5245L (FSN4G6625-179-8981)
Multimeter VOM, AN/USM-311 (FSN2Z6625-160-1301)
Oscilloscope, General Purpose, AN/USM-296
or AN/USM-281A (FSN4G6625-228-2201)

2. APPLICABLE DOCUMENTS

2.1 General - The following documents of the issue in effect on the date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-E-17555	Electronic and Electrical Equipment and Associated Repair Parts, Preparation for Delivery of
MIL-T-18303	Test Procedures; Preproduction and Inspection, for Aircraft Electronic Equipment, Format for
MIL-N-18307	Nomenclature and Nameplates for Aeronautical Electronic and Associated Equipment

MIL-D-81976(AS)

MIL-T-21200 Test Equipment for Use with Electronic and
Electrical Equipment, General Specification
for

STANDARDS

Military

MIL-STD-129 Marking for Shipment and Storage

MIL-STD-461 Electromagnetic Interference Characteristics
Requirements for Equipment

MIL-STD-749 Preparation and Submission of Data for
Approval of Nonstandard Electronic Parts

MIL-STD-794 Parts and Equipment, Procedures for Packing
and Packaging of

MS24264 Connector, Receptacle, Electrical Flange
Mount, Miniature

2.1.1 Availability of Documents -

(1) When requesting specifications, standards, drawings, and publications, refer to both title and number. Copies of this specification and applicable specifications required by contractors in connection with specific procurement functions may be obtained upon application to the Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120

3. REQUIREMENTS

3.1 Testing - This specification makes provisions for testing (see 4.).

3.2 Materials, Parts, and Processes - The materials, parts, and processes shall be in accordance with MIL-T-21200.

3.2.1 Selection of Parts, Materials, and Processes - Excepts as specified herein, MIL-T-21200 shall apply for the selection of parts, materials and processes.

3.2.2 Approval of Nonstandard Parts and Materials - Approval for the use of nonstandard parts and materials shall be in accordance with MIL-T-21200. Nonstandard parts and materials data shall be in accordance with Step I and Step II only of MIL-STD-749.

3.3 Design and Construction - The design and construction of the equipment shall be in accordance with MIL-T-21200.

3.3.1 Total Weight - The total weight of the equipment, shall be a minimum consistent with good design and shall not exceed 23 pounds.

3.3.2 Connectors - The equipment shall provide for the use of connectors in accordance with MIL-T-21200.

3.3.2.1 External Connectors - External connectors shall provide for the following:

<u>Reference Designation</u>	<u>Connector Type</u>	<u>Function</u>
J1	MS24264G12B3P6	Power input to Dummy Load, Electrical DA-662/UPQ-5

3.3.3 Test Points - Two front panel test points shall be provided to monitor the input voltage and frequency from the CV-2933/UPQ-5 under load conditions. The test points shall be identified as 115V 400 Hz.

3.3.4 Human Engineering - Human engineering shall be in accordance with MIL-T-21200.

3.4 Availability -

3.4.1 Reliability - When specified by the procuring activity, the contractor shall conduct a reliability program in accordance with MIL-STD-454, Requirement 35. The program plan shall be approved by the procuring activity.

3.4.2 Maintainability - When specified by the procuring activity, the contractor shall conduct a maintainability program in accordance with MIL-STD-454, Requirement 54. The program plan shall be approved by the procuring activity.

3.4.3 Interference Control - The generation of electromagnetic interference by the equipment and the vulnerability of the equipment to electromagnetic interference shall be controlled within the limits of MIL-STD-461 unless otherwise specified.

3.4.4 Maintenance Provisions and Field Testing - Provisions for maintenance shall be as specified in MIL-T-21200. Specific test points and test facilities shall be provided to the greatest extent practicable for ease of field testing and maintenance.

3.4.5 Nomenclature and Nameplates - Nomenclature assignment and nameplate approval for equipment identification shall be in accordance with MIL-N-18307.

3.4.6 Service Conditions - Service conditions (environmental) shall be in accordance with MIL-T-21200 for Class 3 equipment.

3.4.7 Standard Conditions - The following conditions shall be used to establish normal performance characteristics under standard conditions and for making laboratory bench tests.

Temperature	Room ambient
Altitude	Normal ground
Vibration	None
Humidity	Room ambient
Input power voltage	115 VAC, 400 Hz

3.5 Performance Characteristics - The performance of the equipment shall be as specified herein.

3.5.1 Electrical Power Source - The equipment shall operate from a 115 VAC \pm 10 percent, 380 to 420 Hz, single phase power source.

3.6 Detail Requirements -

3.6.1 Function - The equipment shall be an item of peculiar ground support equipment which shall simulate average load conditions for the Static Frequency Converter, CV-2933/UPQ-5. This average load condition shall be 250 watts at 115 VAC.

3.6.2 Content - The equipment shall contain in the below listed subassemblies:

- (1) Resistive Load - The load shall be 250 watts at 115 VAC.
- (2) Air Blower - The blower shall deliver 40 cubic feet of air per minute against a static pressure of 0.20 inches of water.

3.7 Dimensions - The equipment shall not exceed 13-1/8 inches wide by 4-3/8 inches high by 18 inches deep, excluding carrying handles, and shall be capable of being mounted in the Mission Recorder Mount, MT-4557/UPQ-5.

3.8 Finish - Finishes shall be in accordance with MIL-T-21200.

3.9 Interchangeability - Interchangeability shall be in accordance with MIL-T-21200.

3.10 Workmanship - Workmanship shall be in accordance with MIL-T-21200.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection - Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. The Government reserves the right to perform any inspections deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Classification of Tests - Items covered by this specification shall be subjected to the following tests to determine compliance with all applicable requirements:

First article (preproduction) tests

Initial production tests

Acceptance tests

4.2 First Article (Preproduction) Tests - First article (preproduction) tests shall be made on an equipment representative of the production equipments to be supplied under the contract. The tests shall be accomplished under the responsibility of the contractor and shall be conducted in accordance with the approved test procedure of 4.5. The government inspector and the procuring activity shall be advised when tests are to be conducted so that a representative may be designated to witness or supervise the tests when so desired. Contractors not having adequate facilities to conduct all required tests shall obtain the services of a commercial testing laboratory acceptable to the Government.

4.2.1 First Article (Preproduction) Test Data - The contractor shall submit all data collected in conducting these tests to the procuring agency for review and approval.

4.2.2 Scope of Tests - The tests shall include all tests deemed necessary, by the procuring activity, to determine that the equipment meets all the requirements of this specification, other applicable specifications and the contract.

4.2.3 First Article (Preproduction) Approval - Approval of the test sample shall be by the procuring activity upon satisfactory completion of all tests. No production equipments shall be delivered prior to the approval of the test sample. Prefabrication of production equipment prior to the approval of the test sample is at the contractor's own risk. The approved test sample shall be retained by the

contractor for his use in the fabrication and testing of equipment to be submitted for acceptance. The test sample shall not be considered as one of the equipments under the contract.

4.2.4 Production Equipments - Equipments supplied under the contract shall in all respects, including design, construction, workmanship, performance and quality, be equivalent to the approved test sample. Each equipment shall be capable of successfully passing the same tests as imposed on the test sample. Evidence of non-compliance with the above shall constitute cause for rejection and for equipment already accepted by the Government, it shall be the obligation of the contractor to make necessary corrections as approved by the procuring activity.

4.3 Initial Production Tests - When specified by the procuring activity, one of the first ten production equipments shall be selected and sent at the contractor's expense to a designated Government laboratory for tests. This equipment shall be selected by the procuring activity after the equipment has successfully passed all individual tests. The test sample shall not be selected for this test.

4.3.1 Scope of Tests - This equipment may be subjected to any and all tests the procuring activity deems necessary to assure that the production equipment is equivalent to the previously approved test sample in design, construction, workmanship, performance and quality and that it meets all applicable requirements.

4.3.2 Accessory Material - In addition to the complete equipment submitted for Initial Production Tests, the contractor shall also submit such accessory material and data necessary to test the equipment.

4.3.3 Initial Production Sample Approval - Approval of the initial production sample shall be by the procuring activity upon satisfactory completion of all tests. Any design, material or performance defect made evident during this test shall be corrected by the contractor to the satisfaction of the procuring activity. Failure of the initial production sample to pass any of the tests shall be cause for deliveries of equipment under the contract to cease until proper corrective action is approved and accomplished. Corrective action shall also be accomplished on equipment previously accepted when requested by the procuring activity.

4.3.4 Reconditioning of Initial Production Test Sample - On completion of the initial production test, the equipment shall be reworked by the contractor by replacing all wear or damaged items. After reworking, the contractor shall resubmit the equipment for acceptance.

4.4 Acceptance Tests - The contractor shall furnish all samples and shall be responsible for accomplishing the acceptance tests. All inspection and testing shall be under the supervision of the government inspector. Contractors not having testing facilities satisfactory to the procuring activity shall engage the services of a commercial testing laboratory acceptable to the procuring activity. The contractor shall furnish test reports showing quantitative results for all acceptance tests. Such reports shall be signed by an authorized representative of the contractor or laboratory, as applicable. Acceptance or approval of material during the course of manufacture shall not be constructed as a guarantee of the acceptance of the finished product. Acceptance tests shall consist of the following:

- (1) Individual tests (4.4.1)
- (2) Reliability assurance tests (4.4.2)
- (3) Special tests (4.4.3)

4.4.1 Individual Tests - Each equipment submitted for acceptance shall be subjected to the individual tests. These tests shall be adequate to determine compliance with the requirements of material workmanship, operational adequacy and reliability. As a minimum, each equipment accepted shall have passed the following tests:

- (1) Examination of product (4.4.1.1)
- (2) Operation test (4.4.1.2)
- (3) Manufacturing run-in test (4.4.1.3)

4.4.1.1 Examination of Product - Each equipment shall be examined carefully to determine that the material and workmanship requirements have been met.

4.4.1.2 Operational Test - Each equipment shall be operated long enough to permit the equipment temperature to stabilize and to check sufficient characteristics in accordance with Section 3 of this specification and record adequate data to assure satisfactory equipment operation.

4.4.1.3 Manufacturing Run-In Test - When specified by the procuring activity, each equipment shall be operated under the conditions specified herein for a period of 6 hours without failure. A failure shall be defined as anything which causes malfunctioning of the equipment. Only those adjustments will be permitted which can be made by using such controls and adjustments that are accessible to the operator during the normal use of the equipment.

Temperature	Ambient room
Humidity	Ambient room

4.4.2 Reliability Assurance Tests - When specified by the procuring activity, reliability assurance tests shall be conducted in accordance with MIL-STD-781.

4.4.2.1 Test Details - The test details such as the length of the test cycle, the performance characteristics to be measured, special failure criteria, preventive maintenance to be allowed during the test etc., shall be part of the test procedures to be submitted and approved by the procuring activity prior to the beginning of the Qualification Test Phase of the Reliability Assurance Tests.

4.4.3 Special Tests - Special tests shall be conducted on a quantity of equipments for the purpose of checking the effect of any design or material change on the performance of the equipment and to assure adequate quality control.

4.4.3.1 Special Test Schedule - Selection of equipments for special tests shall be made as follows:

- (1) On an early equipment after an engineering or material change.
- (2) Whenever failure reports or other information indicate additional tests are required. (This will be determined by the procuring activity.).

4.3.3.2 Scope of Tests - Special tests shall consist of such tests as approved by the procuring activity. Test procedures previously approved for the preproduction tests shall be used where applicable. When not applicable, the contractor shall prepare a test procedure and submit it to the procuring activity for approval prior to conducting the tests.

4.4.4 Equipment Failure - Should a failure occur during the special tests, the following action shall be taken:

- (1) Determine the cause of failure.
- (2) Determine if the failure is an isolated case or design defect.
- (3) Submit to the procuring activity for approval, proposed corrective action intended to reduce the possibility of the same failure(s) occurring in failure tests.
- (4) Where practical, include a test in the individual test to check all equipment for this requirement until reasonable assurance is obtained that the defect has been satisfactorily corrected.

4.5 Test Procedures - The procedures used for conducting preproduction tests and acceptance tests shall be prepared by the contractor and submitted to the procuring activity for review and approval. The right is reserved by the procuring activity or the government inspector to modify the tests or require any additional tests deemed necessary to determine compliance with the requirements of this specification and the contract. Specification MIL-T-18303 shall be used as a guide for preparation of test procedures. When approved test procedures are available from previous contracts such procedures will be provided and may be used when their use is approved by the procuring activity. However, the right is reserved by the procuring activity to require modification of such procedures, including additional tests, when deemed necessary.

4.6 Reconditioning of Test Equipment - Equipment which has been subjected to acceptance tests shall be reconditioned by the contractor by replacing all wear or damaged items. After reworking, the contractor shall resubmit the equipment for acceptance.

4.7 Presubmission Testing - No item, part or complete equipment shall be submitted by the contractor until it has been previously tested and inspected by the contractor and found to comply, to the best of his knowledge and belief, with all applicable requirements.

4.8 Rejection and Retest - Equipment which has been rejected may be reworked or have parts replaced to correct the defects and resubmitted for acceptance. Before resubmitting, full particulars concerning previous rejection and the action taken to correct the defects found in the original shall be furnished to the government inspector.

5. PREPARATION FOR DELIVERY

5.1 General - All major units and parts of the equipment shall be preserved, packaged, packed and marked for the level of shipment specified in the contract or order in accordance with MIL-E-17555 and MIL-STD-794. In the event the equipment is not covered in MIL-E-17555, the method of preservation for Level A shall be determined in accordance with the selection chart in Appendix D of MIL-STD-794.

5.2 Marking - In addition to any special marking by the contract or order, each unit package and exterior container shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended Use - The Dummy Load shall be peculiar ground support equipment used to simulate average load conditions for the Static Frequency Converter CV-2933/UPQ-5.

6.2 Performance Objectives - Minimum size and weight, simplicity of operation, ease of maintenance, and an improvement in the performance and reliability of the specific functions beyond the requirements of the specification are objectives which shall be considered in the production of this equipment. Where it appears a substantial reduction in size and weight or improvement in simplicity of design, performance, ease of maintenance or reliability will result from the use of materials, parts and processes other than those specified in MIL-T-21200, it is desired that their use be investigated. When investigation shows advantages can be realized, a request for approval shall be submitted to the procuring activity for consideration. Each request shall be accompanied by complete supporting information.

6.3 Precedence of Documents - When the requirements of the contract, this specification, or applicable subsidiary specifications are in conflict, the following precedence shall apply:

- (1) Contract - The contract shall have precedence over any specification.
- (2) This Specification - This specification shall have precedence over all applicable subsidiary specifications. Any deviation from this specification, or from subsidiary specifications where applicable, shall be specifically approved in writing by the procuring activity.
- (3) Referenced Specifications - Any referenced specification shall have precedence over all applicable subsidiary specifications referenced therein. All referenced specifications shall apply to the extent specified.

6.4 Ordering Data - Purchasers should exercise any desired options offered herein, and procurement documents should specify the following:

- (1) Title, number, and date of this specification.
- (2) Reliability requirements (see 3.4.1)
- (3) Maintainability requirements (see 3.4.2).

- (4) Initial production test requirements (see 4.3).
- (5) Manufacturing run-in test requirements (see 4.4.1.3).
- (6) Reliability assurance test requirements (see 4.4.2).
- (7) Selection of applicable levels of packaging and packing (see 5.1).

6.5 Type Designation - The parentheses (*), when used in the type designation, will be deleted or replaced by either a number or letter furnished by the procuring activity upon application by the contractor for assignment of nomenclature in accordance with 3.4.2. The complete type number shall be used on nameplates, shipping records and instruction books, as applicable.

6.6 Revisions - In specification revisions and superseding amendments, an asterisk "*" preceding a paragraph number denotes paragraphs in which changes have been made from the previous issue. This has been done as a convenience only and the government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content as written, irrespective of the asterisk notations and relationship to the last previous issue.

6.7 Associated Equipment - The equipment shall operate with the following associated equipment:

Frequency Counter, H61-5245L (FSN4G6625-179-8981)
 Multimeter VOM, AN/USM-311 (FSN2Z6625-160-1301)
 Oscilloscope, General Purpose, AN/USM-296
 or AN/USM-281A (FSN4G6625-228-2201)

6.8 Specification Cognizance - This specification is under the cognizance of AIR-5342.

Custodians:

Navy - AS

Preparing Activity

Navy - AS
 Project No. 5985-N423

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