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INCH-POUND
MIL-STD-1399(N NAVY
SECTION 102A
5 February 1988
SUPERSEDING
MIL-STD- I399(NAVY)
SECTION 102
1 December 1970
(See 9.2)

MILITARY STANDARD

INTERFACE STANDARD FOR SHIPBOARD SYSTEMS

SECTION 102
LOW PRESSURE DRY AIR SERVICE FOR SURFACE SHIPS

AMSC N/A FSC 1990

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DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND

Washington, DC 20362-5101

Interface Standard for Shipboard Systems,
Low Pressure Dry Air Service for Surface Ships

1. This Military Standard is approved for use by the Naval Sea Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 5523, Department of the Navy, Washington, DC 20362-5101 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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FOREWORD

The purpose of this section is to define the standard interface requirements that are a constraint upon the design of shipboard electronic equipment which will utilize ships low pressure dry air support systems.

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FIGURE

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1. GENERAL, SCOPE, INTERFACE AND APPLICABILITY

1.1 General. This section is an integral part of MIL-STD-1399. When the interface between the ships low pressure dry air support system and user equipment is under consideration this section and the standard shall be viewed as a single document. The policies and procedures established by MIL-STD-1399 are mandatory.

1.2 Scope. This section establishes interface requirements for shipboard equipment utilizing low pressure dry air support systems to ensure compatability between such equipment and the ships dry air support systems.

1.3 The interface. The interface which is the concern of this section is shown symbolically on figure 1 (see definitions of MIL-STD-1399):

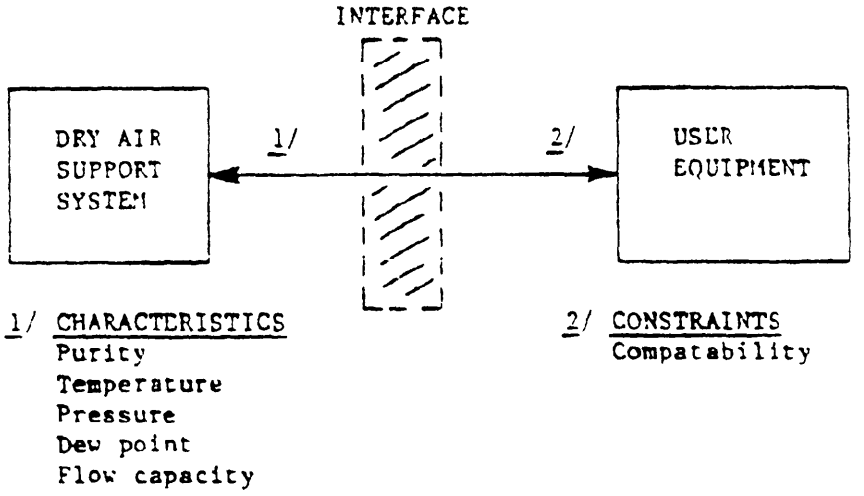

FIGURE 1. Interface.

1.4 Applicability. This section was developed primarily for use in establishing interface requirements for shipboard electronic equipment requiring a continuous source of high quality (nonconductive) gas under pressure such as antenna waveguides, however, this section is also applicable to low pressure equipment requiring compressed air of greater purity than is available from the ship service low pressure air system specified in MIL-STD-1399, section 106.

2. REFERENCED DOCUMENTS

2.1 Government documents.

2.1.1 Standards. Unless otherwise specified, the following standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this standard to the extent specified herein.

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STANDARDS

Military

MIL-STD-1399 - Interface Standard for Shipboard Systems.
MIL-STD-1399, Section 106 - Cnmpressed Air Service for Surface Ships.

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

2.2 Order of precedence. In the event of a conflict between the text of this standard and the references cited herein, the text of this standard shall take precedence.

3. DEFINITIONS

3.1 Shipboard dry air support system. A shipboard dry air support system is a system specifically designed to provide high quality dry air with standard characteristics as specified herein, Each system is composed of the necessary dehydrators, filters, dew point indicators, control panels, temperature, flow and pressure indicators, piping, valves, and all other accessories required to ensure 8 continuous supply of dry, oil-free air to user equipment. Shipboard dry air support systems are usually pressurized by the ship service low pressure air compressors (see MIL-STD-1399 section 106).

4. REQUIREMENTS

4.1 The interface requirements and constraints established herein are mandatory (see requirement of MIL-STD-1399).

5. INTERFACE CHARACTERISTICS AND CONSTRAINTS

5.1 Interface characteristics. The interface characteristics of the ships dry air support system are given below. Each shipboard system will provide dry, oil-free air with the characteristics of 5.1.1 through 5.1.5 to the equipment interface.

5.1.1 [illegible]

(a) Hydrocarbons- 50 parts per million by weight
(b) Particulates - 5 microns

5.1.2 Temperature. The temperature will be 150 degrees Fahrenheit (^{0}F) maximum

5.1.3 Pressure. The pressure from the discharge of the dry air system dehyrators may range from 67 to 150 pounds per square inch (lb/in^2) gauge. If lower pressures are required, standard dry air control panels o an approved pressure reducing station shall be used The maximun pressure drop in the pip from the ship service LP plant receiver (see MIIL-STD-1399, section 106) to each dry air system user, shall not exceed 10 lb/in^2 gauge.

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5.1.4 Dew point, The maximum moisture content shall not exceed 1.5 x 10-5 pounds of water per pound of dry air, which corresponds to a dew point of minus 40°F at 80 lb/in^2 gauge. Navy standard desiccant dehydrators will produce the specified dew point requirements of air at minus 40°F at 80 lb/in^2 gauge Any requirement for a lower dew point is not desirable since it kill entail considerable development effort and cost. In such instance, the need to deviate from this dew point interface characteristic must be fully justified (see section 7).

5.1.5 Flow Capacity. System capacity will be based on the use equipment requirements as documented in 6.1, with an allowance for standby capacity and future growth.

5.2 Interface constraints. The interface characteristics of the ships dry air support system impose certain constraints on the design and installation of equipment utilizing such support. These constraint l re described in 5.2.1 and 5.2.2

5.2.1 Compatibility. The design and installation of equipment utilizing ships dry air support must be compatible with the interface characteristics given in 5.1.

5.2.2 User air requirements The dry air requirements for each user shall be reported as specified in 6.1.

6. DOCUMENTATION REQUIREMENTS

6.1 DD Form 1423. When this standard is invoked, the following data requirements, as applicable, shall be specified by the Principal Development Activity (PDA) On Contract Data Requirement List (CDRL) DD Form 1423 attached to the contract or order. NAVSEA, Code 56Y31, shall be included in the distribution listed in block 14 of DD Form 1423 for data specified.

(a) Dry air requirements - individual user system and equipment. This documentation applies to each individual user system and equipment which will utilize compressed air from a shipboard dry air support system. It shall include the following information:

(1) Operating pressure (lb/in^2 gauge), including tolerances
(2) Flow rate in standard cubic feet per minute (ft3/8in) (maximum)
(3) Estimated duration and frequency of flow for intermittent services
(4) Dew point, if incompatible with the air quality standards specified in 5.1
(5) Aerosol content, if incompatible with the air quality standards specified in 5.1
(6) Particulate matter, if incompatible with the air quality standards specified in 5.]

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(b) Dry air service requirements - total ship. This documentation applies to the Total ship dry air support system, it shall include the following Information:

(1) User equipment identification
(2) Number installed
(3) Operating pressure (lb/in^2 and tolerances
(4) Flow race (ft^3/min) (maximun per unit
(5) Total ft^3/min (all units)
(6) Estimated duration and frequency of (low for intermittent services

7. DEVIATIONS

7.1 Conditions. In achieving the purpose o: this section it is recognized that there must be some flexibility of application During the early design stage of equipment utilizing the ships dry air support system it may become apparent that significant advantages in the overall design and operation of such equipment can be achieved by deviating from the standard characteristics specified herein. In such Instance, the provisions of the deviations requirements of MIL-STD-1399 must be complied with,

7,2 Deviation procedure. When invoking deviations to this section, reports shall be made in accordance with 8. 1.

8. REPORTS AND CORRESPONDENCE

8.1 Reports, correspondence and similar information shall be submitted to NAVSEA by the contracting activity for action with copies to:

(a) NAVSEA 56Y31
(b) Program manager

9. NOTES

9.1 Subject term (key word) listing.

Dehydrator
Flow capacity
User equipment

9.2 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Review activities:
AS, OS, EC

User activity:
Yb

Preparing activity:
Navy - 5H
(Project 1990-N066)

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NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER
MIL-STD-1399 (NAVY)
SECTION 102A

2. DOCUMENT TITLE INTERFACE STANDARD FOR SHIPBOARD SYSTEMS
LOW PRESSURE DRY AIR SERVICE FOR SURFACE SHIPS

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)

DD FORM 82 MAR 1426

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