

MIL-F-68F (SHIPS)
 20 February 1975
 SUPERSEDING
 MIL-F-68E (SHIPS)
 28 March 1958
 (See 6.5)

MILITARY SPECIFICATION

FANS, CIRCULATING, BRACKET, NONOSCILLATING,

NAVAL SHIPBOARD

This specification is approved for use by the Naval Sea Systems Command and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers nonoscillating, class high-impact (HI) shock-proof, bracket fans for use on Naval surface ships and submarines.

1.2 Classification. Fans shall be of the following types and classes, as specified (see 6.2.1):

Type TA12 - Two-speed, 115-volt alternating current (a.c.), 12-inch.
 Type TD12 - Two-speed, 115-volt direct current (d.c.), 12-inch.
 Type SA8 - Single-speed, 115-volt a.c., 8-inch (submarine use).
 Type SD8-24 - Single-speed, 24-volt d.c., 8-inch.
 Type SD8-12 - Single-speed, 12-volt d.c., 8-inch.
 Class 1 - Magnetic.
 Class 2 - Nonmagnetic (see 3.22.1).

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

FEDERAL

TT-C-490 - Cleaning Methods and Pretreatment of Ferrous Surfaces for Organic Coatings.
 TT-P-645 - Primer, Paint, Zinc-Chromate, Alkyd Type.

MILITARY

MIL-S-901 - Shock Tests, H.I. (High-Impact); Shipboard Machinery, Equipment and Systems, Requirement for.
 MIL-E-917 - Electric Power Equipment, Basic Requirements For (Naval Shipboard Use).
 MIL-B-3743 - Brush, Electrical Contact.
 MIL-P-15024 - Plates, Tags and Bands for Identification of Equipment.
 MIL-P-15024/5 - Plates, Identification.
 MIL-E-15090 - Enamel, Equipment, Light Gray (Formula No. 11).
 MIL-I-17214 - Indicator, Permeability; Low Mu (Go-No-Go).
 MIL-E-17555 - Electronic and Electrical Equipment, Accessories, and Repair Parts; Packaging and Packing of.
 MIL-P-81390 - Plastic, Molding Material, Polycarbonate, Glass Fiber Reinforced.

STANDARDS

MILITARY

MIL-STD-167-1 - Mechanical Vibrations of Shipboard Equipment (Type I - Environmental and Type II - Internally Excited).

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

MIL-F-68F (SHIPS)

AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (ANSI)
 SI.4-71 - Sound Level Meters.
 SI.13-71 - Methods For The Measurement of Sound Pressure Levels.

(Application for copies should be addressed to the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.)

STEEL STRUCTURES PAINTING COUNCIL (SSPC)
 Painting Manual, Volume 2, Systems and Specifications, Surface Preparation
 Specification SP-10 - Near White Blast Cleaning.

(Application for copies should be addressed to the Steel Structures Painting Council, 440 5th Avenue, Pittsburgh, PA 15213.)

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

3. REQUIREMENTS

3.1 Qualification. Fans furnished under this specification shall be products which are qualified for listing on the applicable qualified products list at the time set for opening of bids (see 4.3 and 6.3).

3.2 Material. Cast iron shall not be used.

3.2.1 Class 1 magnetic fans. When class 1 fans are specified (see 6.2.1), the parts may be constructed of paramagnetic materials.

3.2.2 Class 2 nonmagnetic fans. When class 2 fans are specified (see 6.2.1), parts, except the magnetic circuit, shall be of nonmagnetic material. Nonmagnetic material is defined as material which has a maximum permeability of less than 2.0 after fabrication.

3.3 Blades. Fans shall have at least three blades of diameters as applicable, which shall be corrosion-resisting metal, polished and lacquered; or of a metal treated in accordance with MIL-E-917 to resist corrosion and finished to match frame, base, and guard; or of a plastic conforming to MIL-P-81390. Fan blades shall be of such design that normal cleaning will not result in their being bent out of alignment.

3.4 Guard. The guard shall be corrosion-resisting steel, polished and lacquered; or of a metal treated in accordance with MIL-E-917 to resist corrosion and finished to match the frame and base. The guard shall enclose the entire blade (perimeter, and front and back sides) such that a 1-2-inch sphere shall be rejected at all points of the guard except that, for 8-inch diameter blades, sufficient opening may be left in the rear of the guard to permit entrance of the fan blade. Where the guard is constructed with wire, the wire shall be not smaller than 0.0915 inch diameter (number 13 gage, steel wire gage). Where wire is used as supporting ribs for the guard, the wire shall be not smaller than 0.1350 inch diameter (number 10 gage, steel wire gage). For 12-inch diameter blades, the guard may be constructed as two parts, but the two parts shall be firmly attached together such as to remain together under HI shock conditions and shall be readily disassembled to permit cleaning or removal of the blades. The guard shall adequately protect personnel from injury and shall not become distorted or vibrate excessively under normal operating conditions. The guard shall be securely fastened to the motor by screws or other means to permit ready removal.

3.5 Motor.

3.5.1 Bearings. Bearings may be ball or sleeve type. The bearings and bearing housing shall be so designed as to prevent dripping or throwing of the lubricant and to permit re-lubrication of the bearing without any disassembly of the fan.

3.5.2 Temperature rise. The temperature rise of the motor, when measured by a thermometer in contact with the windings, shall not exceed 40°C (Celsius) and, when measured by change in resistance, shall not exceed 50°C.

3.5.3 A.C. motors. The design shall be such that commutators, collector rings, or automatic starting devices shall not be used.

3.5.4 D.C. motors.

3.5.4.1 Brushes. Brushes shall be rectangular in shape and shall conform to MIL-B-3743 except that the brand marking may be omitted. The sides of the brushes shall be smooth and free from saw marks.

MIL-F-68F (SHIPS)

3.5.4.2 Brush holders. Brush holders shall be readily accessible for the renewal of brush or spring. The brush-feeding device shall insure proper brush contact under all conditions of brush and commutator wear. The brush holder caps shall be so constructed that no live parts are exposed.

3.5.4.3 Commutator. The commutator shall be of sufficient depth to allow turning down to an extent of 0.10 inch reduction in diameter. The insulation between commutator bars shall be undercut.

3.6 Directional adjustment. Unless otherwise specified in the contract or order, the axis of revolution shall have a vertically adjustable range of at least 90 degrees below the horizontal; and a horizontally adjustable range of at least 90 degrees. It shall be possible to make adjustments by hand while the fan is operating at full speed. The swivel joints or any other similar means of adjustment shall be firmly constructed, and shall permit being securely locked by hand.

3.7 Mounting. Fans shall be suitable for operation in the bracket position, that is, with base plate in the vertical plane. The number and arrangement of the mounting holes shall be as specified in 3.8. The mounting shall be solid. Grommets or isolation mounts shall not be used. For sheathed quarters onboard ship where special mounting is required, the details for mounting shall be as specified (see 6.2.1).

3.8 Fan characteristics. Each fan type shall have characteristics as specified in table I.

Table I - Fan characteristics.

| Item | Type TA12 | Type TD12 | Type SA8 | Type SD8-24 | Type SD8-12 | Reference paragraph |
|--|------------------------|------------------------|------------------------|----------------|----------------|------------------------|
| Voltage, volts | 115V a.c. +10 volts | 115V d.c. +10 volts | 115V a.c. +10 volts | 24 d.c. | 12 d.c. | 4.7.5 |
| Frequency, hertz (Hz) | 60 | | 60 | | | |
| Input watts, maximum | 67 | 56 | 48 | 40 | 40 | 3.11, 4.7.3 |
| Output, pounds thrust, minimum | 0.25 | 0.25 | 0.28 | 0.12 | 0.12 | 3.13, 4.7.6 |
| Ratio watts input over pounds thrust, maximum | 230 | 175 | 172 | 200 | 200 | 3.13 |
| Switch, number of positions | 3 | 3 | 2 | 2 | 2 | 3.14 |
| Switch, positions | Off, low, high | Off, low, high | Off, on | Off, on | Off, on | 3.14 |
| Life, hours | 5000 | 5000 | 5000 | 5000 | 5000 | 3.18 |
| A-weighted sound pres- sure level (L _A); decibels (dB) | 54 | 54 | 54 | 54 | 54 | 3.10, 4.7.8 |
| Weight, pounds, maximum | 15 | 15 | 7-1/4 | 9 | 9 | |

MIL-P-68F (SHIPS)

Table I - Fan characteristics (con.).

| Item | Type TA12 | Type TD12 | Type SA8 | Type SD8-24 | Type SD8-12 | Reference paragraph |
|---|--------------|--------------|--|----------------|----------------|------------------------|
| Dimensions, overall, inches: Guard diameter, maximum Height, maximum Depth, maximum | | | 10-1/2 10-1/2 10 | 10-1/2 | 10-1/2 | |
| Mounting holes: Number Size, inches Vertical spacing, inches Horizontal spacing, inches | 3 (minimum) | 3 (minimum) | 4 3/8 1-3/4 2-1/2 | 3 (minimum) | 3 (minimum) | 3.7 |

3.9 Shock. Fans shall withstand the shock tests specified in 4.7.11.

3.10 Airborne. Fans shall meet the A-weighted sound level specified in 3.8.

3.11 Input variation. The power input of any individual fan in a lot shall not vary more than 15 percent from the average obtained when tested as specified in 4.7.3.

3.12 Speed variation. The speed of any individual fan in a lot shall not vary more than 5 percent from the average obtained when tested as specified in 4.7.2.

3.13 Output. The output shall be considered proportional to the thrust reaction of the fan, and shall be in accordance with the limits specified in 3.8. The ratio of watts input over pounds thrust shall not exceed the values specified in 3.8 at rated voltage.

3.14 Switch. The fan shall have a two or three position switch, as specified in 3.8, and shall be clearly marked and designated by symbols. The switch shall be mounted as an integral part of the bracket assembly, and when the fan is mounted on a bulkhead, the bracket assembly shall be located below the centerline of the motor shaft.

3.15 Low speed. Where the fan is required to have two speeds (see 1.2 and 3.8), the low speed of the fan shall be between 60 and 80 percent of the nominal high speed, when operated at the nominal operating voltage.

3.16 Grounding. Each fan shall be designed such that an electrical conducting path shall exist between exposed metal parts and the mounting bracket. The conducting path shall not use grounding wire except where the grounding wire will not be subject to wear, fatigue or tension, and will not in any way interfere with proper operation of the fan. The mounting bracket shall be grounded by a ground conductor which shall be one of the conductors of the input cables.

3.17 Cable entrance. The design shall provide for entrance of the power cable from the front or sides of the base; entrance of the power cable from the back of the base is not permitted. A cable clamp shall be provided.

3.17.1 Cable clamp material. The cable clamp shall be made of malleable iron or sheet steel and shall be treated to resist corrosion in accordance with MIL-E-917; or (for class 2 fans) shall be made of nonmagnetic material; or shall be a nylon, snap-in, strain relief bushing.

3.17.2 Duty requirements. The cable clamp shall be sufficiently strong to adequately hold the power cable withstanding a steady pull of 100 pounds for 5 minutes. The cable clamp shall not become loose under constant strain, vibration or such changes in temperatures as may be encountered in service.

MIL-F-68F (SHIPS)

3.18 Life. Fans shall operate at rated voltage without defects or undue wear for the life period specified in table I. At the end of the life period, the wear shall not exceed the following:

- (a) Commutator - 0.030 inch in diameter.
- (b) Sleeve bearings - 0.003 inch diameter.
- (c) Brushes shall not be worn to the extent of causing the fan to become inoperative during the life test (see 4.7.10).

3.19 Dielectric. The insulation shall withstand the dielectric test specified in 4.7.4.

3.20 Insulation resistance.

3.20.1 Cold. The insulation resistance shall be at least 16 megohms when measured in accordance with 4.7.1.1.

3.20.2 Hot. The insulation resistance shall be at least 2 megohms when measured in accordance with 4.7.1.2.

3.21 Vibration. Fans shall withstand the vibration test specified in 4.7.12.

3.21.1 Fans shall be balanced in accordance with the requirements of MIL-STD-167-1, type II.

3.22 Designation and markings.

3.22.1 Designation of class 2 fans. For class 2 fans, the letters "NM" shall follow the type designation, for example "Type TA12NM".

3.22.2 Identification plates. Identification and information plates shall be provided in accordance with type A, B, C, D, or H of MIL-P-15024 and MIL-P-15024/5, except that plastic material is not permitted and aluminum alloy is permitted only for type H. The plates shall be installed on and furnished as a part of the equipment for which they are intended. The plates shall be attached, with metal fasteners other than self-tapping screws, to a part of the equipment which will not ordinarily be renewed during its normal service life and shall be located in a readily accessible position where they can be read at all times without danger to personnel.

3.22.3 Identification plate markings. The information shown on the identification plates shall include fan nomenclature, type, rated voltage, rated wattage, rated amperage, Hz (or the designation d.c., if applicable), manufacturer, applicable contract number, the National stock number (to be shown as a fourteen character number preceded by the designation NSN), the Component Identification Number (to be shown as a nine digit number preceded by the designation CID), and the designation USN.

3.23 Finish. Where applicable, the frame, base, and guard shall be:

- (a) Given a prime coat of zinc-chromate primer, formula number 84 of TT-P-645. Finished coatings shall be applied in accordance with formula III, type III, class 2 of MIL-E-15090. For optimum performance, the prime coat shall be applied to a near-white surface as defined in SSPC SP10; or
- (b) The surface shall be prepared in accordance with type I or type III of TT-C-490 and given one coat each of zinc-chromate primer, formula number 84 of TT-P-645, and formula III, type III, class 2 of MIL-E-15090. Each coat shall be one mil thick when dry.

3.23.1 Final coatings shall be in accordance with MIL-E-15090; however, substitute paint formulations may be used if accepted by the Naval Ship Engineering Center (NAVSEC).

3.24 Technical data. The supplier shall prepare engineering drawings in accordance with the data ordering document included in the contract or order (see 6.2.2).

3.24.1 Drawings. In addition to the drawing content required by the data ordering document (see 6.2.2), the unique technical features specified in 3.24.1.1 and 3.24.1.2 shall be included.

MIL-F-60F (SHIPS)

- 3.24.1.1 Class 1 fans. Drawings shall contain the following:
- (a) An outline drawing giving front and side view, dimensions, and mounting hole diameter and spacing.
 - (b) Brush length, width and thickness, and number of brushes per stud, number of studs, manufacturer's and Navy grade, name of manufacturer and NSN (if applicable).
 - (c) Weight of complete fan in pounds.
 - (d) List of insulation materials.
 - (e) Type of bearings and NSN (if applicable), if ball bearings, manufacturer's name and identification.
 - (f) Detail showing means provided for installing incoming cable.
 - (g) Manufacturer's name, identification and rating, and NSN (if applicable) of the switch.
 - (h) Permissible reduction in commutator diameter.
 - (i) Nominal power input and speeds.
 - (j) Schematic circuit diagram.
- 3.24.1.2 Class 2 fans. Drawings shall contain the information specified in 3.24.1.1 and the following:
- (a) Sectional view, with additional detailed and sectional views as necessary, showing and identifying parts of the fan.
 - (b) Material identification of metal parts.
 - (c) Unit weights of magnetic parts (parts whose permeability is equal to or greater than 2.0 after fabrication).
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 in the contract or order, the supplier 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 any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.
- 4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:
- (a) Qualification inspection (see 4.3).
 - (b) Quality conformance inspection (see 4.5).
- 4.3 Qualification inspection. Qualification inspection shall be conducted at a laboratory satisfactory to NAVSEC. Qualification inspection shall consist of the examination specified in 4.6 and the tests specified in 4.7.1 through 4.7.8.1.2, and 4.7.9 through 4.7.13.
- 4.3.1 Samples for qualification. One fan of each type and class for which qualification is desired shall be subjected to the qualification inspection specified in 4.3. Qualification approval will be granted only for the fan which has been submitted and which has successfully passed the qualification inspection specified in 4.3.
- 4.4 Sampling for quality conformance.
- 4.4.1 Lot. For purposes of sampling, an inspection lot shall consist of all fans of the same type and class offered for delivery at one time; a production lot shall consist of all fans of the same type and class produced in a given period of time.
- 4.4.2 Sampling for group A examination and tests. A random sample of fans shall be selected from each inspection lot and shall be subjected to the group A examination and tests specified in 4.5.1, with lot acceptance based on table II.
- 4.4.3 Sampling for group B tests. A random sample of fans shall be selected from each production lot in accordance with table III and shall be subjected to the group B tests specified in 4.5.2. Each production lot shall be one month's production unless such lot size would normally exceed 5000, in which case each production lot shall be one week's production.

Table II - Sampling for group A examination and tests,
AQL (approx.) = 1.5 percent defective.

| Number of fans in inspection lot | Number of fans in sample | Number of fans nonconforming on any group A tests | |
|----------------------------------|--------------------------|---|------------------|
| | | Acceptance number | Rejection number |
| 2 to 15 | 2 | 0 | 1 |
| 16 to 25 | 3 | 0 | 1 |
| 26 to 90 | 5 | 0 | 1 |
| 91 to 150 | 8 | 0 | 1 |
| 151 to 280 | 13 | 0 | 1 |
| 281 to 500 | 20 | 0 | 1 |
| 501 to 1200 | 32 | 1 | 2 |
| 1201 to 3200 | 50 | 2 | 3 |
| 3201 to 10,000 | 80 | 3 | 4 |
| 10,001 and over | 125 | 5 | 6 |

Table III - Sampling for group B tests.

| Production lot size | Number of fans to be selected for group B tests |
|---------------------|---|
| 90 and under | 1 |
| 91 to 500 | 2 |
| 501 to 1200 | 3 |
| 1201 to 3500 | 4 |
| 3501 and over | 6 |

4.5 Quality conformance inspection.

4.5.1 Group A examination and tests. The sample fans, selected in accordance with 4.4.2, shall be subjected to the examination and tests specified in table IV. Failure to conform to the specification requirements for any group A examination or test shall be counted as a defect, and the fans shall be rejected. If the number of such nonconforming fans in any sample exceeds the acceptance number for that sample, the lot represented by the sample shall be rejected.

Table IV - Group A examination and tests.

| Group A | Requirement paragraph | Test paragraph |
|------------------------------|-----------------------|----------------|
| Visual examination | -- | 4.6 |
| Insulation resistance (cold) | 3.20.1 | 4.7.1.1 |
| Speed | 3.12 and 3.15 | 4.7.2 |
| Power input | 3.3 and 3.11 | 4.7.3 |
| Dielectric strength | 3.19 | 4.7.4 |

4.5.2 Group B tests. The sample fans, selected in accordance with 4.4.3, shall be subjected to the tests specified in table V. In the event of failure to conform to the specification requirements for the group B tests the supplier shall correct the cause of failure on future production units and repair the deficiency in any fans not yet shipped. After all fans in the production lot have been repaired, the production lot shall be subjected to those tests specified in table V on which failures occurred. None of the fans of the production lot previously tested shall be retested.

4.6 Visual examination. The fan shall be subjected to a visual examination to ascertain that the structural details and character of workmanship conform to this specification. The fan shall also be checked against the accepted drawing.

4.7 Test procedures.

4.7.1 Insulation resistance.

MIL-F-68F(SHIPS)

Table V - Group B tests.

| Group B | Requirement paragraph | Test paragraph |
|--|-----------------------|----------------|
| Output | 3.8 and 3.13 | 4.7.6 |
| Operation for 4 hours to cause heating | -- | 4.7.7 |
| Airborne noise | 3.10 | 4.7.8.2 |
| Insulation resistance (hot) | 3.20.2 | 4.7.1.2 |
| Operation for 100 hours | -- | 4.7.9 |
| Permeability | 3.2.2 | 4.7.13 |

4.7.1.1 Cold. The insulation resistance of the fan shall be measured to determine compliance with 3.20.1.

4.7.1.2 Hot. The insulation resistance of the fan shall be measured at the conclusion of the 4-hour operation test (sec 4.7.7) to determine compliance with 3.20.2.

4.7.2 Speed. The actual speed shall be determined by any convenient means to determine compliance with 3.12 and 3.15.

4.7.3 Power input. The power input at full load shall be measured by any convenient means to determine compliance with 3.8 and 3.11.

4.7.4 Dielectric strength. Following the examination and tests specified in 4.6 through 4.7.3, the fan shall be subjected to an a.c. potential of 1000 volts for 1 minute applied between current carrying parts and the frame.

4.7.5 Effect of variations in power supply. All types except SD8-24, SD8-24NM, SD8-12, and SD8-12NM shall operate satisfactorily between the limits of 105 and 125 volts.

4.7.6 Output. The thrust shall be measured in the following manner: the fan shall be suspended by two small wires 150 inches long in the form of a swing with the upper ends of the wires at the ceiling, spread about 30 inches. The fan shall fit into a cradle at the lower end, with the base of the fan about 1/2 inch from the floor and a sheet of cross-section paper under the fan. The cross-sections shall be 1 inch square with 1/10-inch graduations allowing readings to 1/10 inch. For long suspensions and small angles of deflection up to 5 degrees, the thrust shall be calculated as follows:

$$\text{Thrust in pounds} = \frac{\text{deflection, inches}}{\text{length of suspension, inches}} \text{ times weight of fan, pounds}$$

Note. - Length of suspension shall be measured from the point of suspension to base of fan.

4.7.6.1 Methods other than that specified in 4.7.6, for making thrust measurements will be permissible, provided calibration can be made so that thrust readings will agree with the procedure specified in 4.7.6.

4.7.7 Operation for 4 hours. Operation for 4 hours at rated voltage shall be conducted to ascertain satisfactory operation of the following:

- (a) Bearings.
- (b) Input.
- (c) Speed.
- (d) Temperature rise.
- (e) Voltage.
- (f) Directional adjustment.
- (g) Speed control (two speed fans).

4.7.8 Airborne noise.

4.7.8.1 Qualification inspection. Sound level measurements shall be made on the fans when operating at full speed to determine compliance with 3.10.

MIL-F-68F (SHIPS)

4.7.8.1.1 Instrumentation. Measurements shall be made with a sound level meter conforming to type 2 of ANSI S1.4-71.

4.7.8.1.2 Measurement procedure. Measurements shall be made in accordance with ANSI S1.13-71 and as specified herein. The microphone positions shall be one meter from the smallest imaginary parallelepiped that will just enclose the fan. In addition to the horizontal array, a vertical array of microphone positions shall be used, with measurement points located directly above the center of the parallelepiped and at two of the horizontal array positions. Ambient noise shall be at least 10 dB below the sound level of the fan and corrections for ambient are not permitted.

4.7.8.2 Quality conformance inspection. Observation (no instruments required) shall be made of the fans to determine that the fans operate without objectionable airborne noise at rated speeds.

4.7.9 Operation for 100 hours. Operation for 100 hours at rated voltage shall be conducted to ascertain satisfactory operation of the following:

- (a) Bearings.
- (b) Input.
- (c) Speed.

4.7.10 Life test.

4.7.10.1 The fans shall be run continuously for 5,000 hours at rated voltage and frequency. Upon completion of the life test, input, output, speed and airborne noise shall be measured to determine conformance with 3.10.

4.7.10.2 Dielectric. Upon the expiration of the 5,000 hour run, the fans shall be subjected to an a.c. potential of 1000 volts for 1 minute applied between the current-carrying parts and the frame.

4.7.10.3 Wear. Upon the completion of the dielectric test, the fans shall be dismantled and examined for wear and defects to determine whether wear is excessive (see 3.18).

4.7.11 Shock. The fans shall be subjected to class HI shock in accordance with MIL-S-901. The features of test shall be as follows:

- (a) Type - Type A.
- (b) Class - Class I.
- (c) Grade - Grade B.
- (d) Weight designation - Light.
- (e) Principal functions - Circulating air.
- (f) Cause for rejection - Any breakage or damage which would permit the fan or a part thereof to become airborne and cause injury to personnel.
- (g) Mounting - The fan shall be mounted as shown on fixture 4A of MIL-S-901.
- (h) Exceptions to MIL-S-901 - None.

Note. - Starting or stopping of the fan due to the switch changing position during shock shall not be a cause for rejection.

4.7.12 Vibration. Vibration tests shall be conducted in accordance with type I vibration of MIL-STD-167-1.

4.7.13 Permeability (class 2 fans only). The permeability of nonmagnetic material shall be determined by the use of permeability indicators conforming to MIL-I-17214.

4.8 Inspection of preparation for delivery. The packaging, packing, and marking shall be inspected for compliance with section 5 of this document.

5. PREPARATION FOR DELIVERY

(The preparation for delivery requirements specified herein apply only for direct Government procurements. For the extent of applicability of the preparation for delivery requirements of referenced documents listed in section 2, see 6.4.)

5.1 Preservation-packaging, packing and marking. Each fan or repair part shall be preserved-packaged, packed and marked in accordance with MIL-E-17555. The level of preservation and packaging shall be A or C, as specified (see 6.2.1); the level of packing shall be A, B or C, as specified (see 6.2.1).

MIL-F-68F(SHIPS)

6. NOTES

6.1 Intended use.

6.1.1 Class 1. Types TA12 and TD12 fans are intended primarily for Naval surface ship use. Type SA8 fans are intended primarily for submarines. Types SD8-24 and SD8-12 are intended primarily for small boats.

6.1.2 Class 2. Class 2 fans are intended for use on nonmagnetic construction mine-sweepers.

6.2 Ordering data.

6.2.1 Procurement requirements. Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Type and class required (see 1.2, 3.2.1 and 3.2.2).
- (c) Special mounting required (see 3.7).
- (d) Level of preservation-packaging, packing and marking required (see 5.1).

6.2.2 Contract data requirements. When this specification is used in a procurement invoking the data requirement clause of the Armed Services Procurement Regulations (ASPR) paragraph 7-104.9(n) and which incorporates a DD Form 1423 Contract Data Requirements List (CDRL), the data requirements identified below will be developed as specified in the cited Data Item Description (DID) and delivered in accordance with such CDRL. When the ASPR provisions are not invoked, the data specified below shall be delivered in accordance with the contract requirements.

| | <u>Specification paragraph</u> | <u>Data requirement</u> | <u>Service</u> | <u>Applicable DID</u> | <u>Options</u> |
|-----|--------------------------------|-------------------------|----------------|-----------------------|-----------------------------|
| (a) | 3.24 | Engineering drawings | SH | UDI-E-23174 | Category F, form I, type II |

(Copies of DID's required by the supplier in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.)

6.3 With respect to products requiring qualification, awards will be made only for products which are at the time set for opening of bids, qualified for inclusion in applicable Qualified Products List QPL-68 whether or not such products have actually been so listed by that date. The attention of the suppliers is called to this requirement, 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 orders for the products covered by this specification. The activity responsible for the Qualified Products List is the Naval Ship Engineering Center, Prince George's Center, Center Building, Hyattsville, Maryland 20782, and information pertaining to qualification of products may be obtained from that activity. Application for Qualification tests shall be made in accordance with "Provisions Governing Qualification SP-6" (see 6.3.1).

6.3.1 Copies of "Provisions Governing Qualification SP-6" may be obtained upon application to Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120.

6.4 Sub-contracted material and parts. The preparation for delivery requirements of referenced documents listed in section 2 do not apply when material and parts are procured by the supplier for incorporation into the equipment and lose their separate identity when the equipment is shipped.

6.5 THE MARGINS OF THIS SPECIFICATION ARE MARKED "*" TO INDICATE WHERE CHANGES (ADDITIONS, MODIFICATIONS, CORRECTIONS, DELETIONS) FROM THE PREVIOUS ISSUE HAVE BEEN MADE. THIS WAS 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 IRRESPECTIVE OF THE MARGINAL NOTATIONS AND RELATIONSHIP TO THE LAST PREVIOUS ISSUE.

Preparing activity:
Navy - SH
(Project 4140-N024)

FOLD

COMMANDER
NAVAL SHIP ENGINEERING CENTER
CENTER BUILDING - SEC 6124
PRINCE GEORGES CENTER
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

POSTAGE AND FEES PAID
DEPARTMENT OF NAVY



DOD 316

COMMANDER
NAVAL SHIP ENGINEERING CENTER
CENTER BUILDING - SEC 6124
PRINCE GEORGES CENTER
HYATTSVILLE, MARYLAND 20782

FOLD