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MIL-D-8804B
 25 July 1993
 SUPERSEDING
 MIL-D-8804A
 26 September 1958

MILITARY SPECIFICATION

DEICING SYSTEM, PNEUMATIC BOOT, AIRCRAFT,
 GENERAL SPECIFICATION FOR

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

1. SCOPE

1.1 Scope. This specification covers the general requirements for pneumatic deicing systems for wings, empennages, radomes, radio masts, air induction system entrance cones, and ducts of aircraft. Deicing boots shall be of one type, operating at 15 to 22 psig pressure.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issue 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

FEDERAL

PPP-B-585	-	Boxes, Wood, Wirebound
PPP-B-591	-	Boxes, Shipping, Fiberboard, Wood Cleated
PPP-B-601	-	Boxes, wood, Cleated Plywood

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commanding Officer, Naval Air Warfare Center Aircraft Division Lakehurst, Code SR3, Lakehurst, NJ 08733-5100, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 1650

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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- PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner
- PPP-B-636 - Boxes, Shipping, Fiberboard

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- MIL-C-104 - Crates, Wood, Lumber and Plywood Sheathed, Nailed and Bolted
- MIL-P-116 - Preservation, Methods of
- MIL-W-5088 - Wiring, Aerospace Vehicle
- MIL-P-5518 - Pneumatic Systems, Aircraft, Design and Installation
General Specification For
- MIL-T-5842 - Transparent Areas, Anti-Icing, Defrosting, and Defogging Systems, General Specification For
- MIL-E-6051 - Electromagnetic Compatibility Requirements, Systems
- MIL-P-8564 - Pneumatic System Components, Aeronautical, General Specification For
- MIL-S-8879 - Screw Threads, Controlled Radius Root With Increased Minor Diameter, General Specification For
- MIL-L-10547 - Liners, Case, and Sheet , Overwraps, Water Vaporproof or Waterproof, Flexible
- MIL-B-18927 - Environmental Control Systems, Aircraft, General Requirements For
- MIL-B-81365 - Bleed Air Systems, General Specification For

STANDARDS

MILITARY

- MIL-STD-100 - Engineering Drawing Practices
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-130 - Identification Marking of U.S. Military Property
- MIL-STD-280 - Definitions Of Item Levels, Item Exchangeability, Models and Related Terms

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- MIL-STD-461 - Electromagnetic Emission and Susceptibility Requirements For the Control of Electromagnetic Interference
- MIL-STD-470 - Maintainability Program Requirements (For Systems and Equipment)
- MIL-STD-471 - Maintainability Demonstration
- MIL-STD-704 - Aircraft Electric Power Characteristics
- MIL-STD-785 - Reliability Program for Systems and Equipment Development and Production
- MIL-STD-810 - Environmental Test Methods and Engineering Guidelines
- MIL-STD-1186 - Packaging and Packing for Overseas Shipment General Specification
- MIL-STD-2069 - Requirements For Aircraft Nonnuclear Survivability Program
- MIL-STD-2073-1- DOD Material Procedures For Development And Application Of Packaging Requirements
- MIL-STD-2089 - Aircraft Nonnuclear Survivability Terms

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

PUBLICATIONS

Navy Department Specification

- SD-8706 - Data And Tests, Engineering Contract Requirements For Aircraft Weapon Systems

(Copies of documents are available from the Navy Aviation Supply Office, Code 03443, 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

2.1.2 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.

UNITED STATES GOVERNMENT PRINTING OFFICE

GPO Style Manual

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(Application for copies should be addressed to the Superintendent of Documents, Government Printing Office, Washington, DC 20402-0001.)

PUBLICATIONS

DEPARTMENT OF TRANSPORTATION/FEDERAL AVIATION ADMINISTRATION HANDBOOKS

DOT/FAA/CT-88/8-1 - Aircraft Icing Handbook Volume 1

DOT/FAA/CT-88/8-2 - Aircraft Icing Handbook Volume 2

(Unless otherwise indicated, copies of the above handbooks are available from U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.)

2.2 Non-Government publication. The following document forms 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D3951 - Packaging, Commercial

(Applications for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.)

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

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

3. REQUIREMENTS

3.1 First article. When specified (see 6.2) a sample shall be subjected to first article inspection (see 6.4) in accordance with 4.4.2.

3.2 Component design. All pneumatic components used in the system shall conform to the design and operating requirements as specified in MIL-P-8564.

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3.3 Material. Materials for deicing components shall be in accordance with the aircraft detailed specification. For any material used which is not covered in the aircraft detailed specification, the manufacturer may use his material with the approval of the contracting activity.

3.4 Icing conditions. The atmospheric conditions for icing occurrence shall be those as specified in MIL-T-5842.

3.5 Threads. Threads used on the deicing components shall be in accordance with MIL-S-8879. Pipe threads shall not be used.

3.6 Environment. All components used in the system shall operate without system failure or performance degradation in all the environments for which the aircraft is designed. Any equipment installed in locations where explosive vapors may exist shall be safe for operation in this location.

3.7 Design and construction.

3.7.1 Deicing boots. The deicing boots shall be designed with pneumatically inflated tubes which, when fully expanded, shall not distort the outer surface of the wing such that excessive transient aerodynamic degradation is incurred or cause the formation of an unstable turbulent boundary layer (see Figure 1). Inflatable boots shall be designed to operate at extremes of design pressure \pm 10 percent and shall be able to extend chordwise or spanwise along the leading edges and fillets of the wings, fins, stabilizers, radio masts, radomes, and scoops. Typical installation of deicing boots are shown in Figure 2, and Figure 3 for fixed wing and rotary wing aircraft.

3.7.2 Air and vacuum source. An air, and if required, a vacuum source shall be provided which will meet the pressure and vacuum requirements of the deicing boot on the aircraft. When a separate air pump is used, it shall operate the boot deicing system at the design pressure from sea level to 25,000 feet. In turbo-propeller or turbojet aircraft, the engine compressor air may be used as the pressure source and air from the same pressure source used in an ejector to provide the required vacuum. A heat exchanger consisting of the pressure manifold itself, shall be provided when required to prevent allowable boot inlet air temperature being exceeded above the maximum operating temperature. The air source system shall be in accordance with MIL-E-18927 for air distribution and MIL-B-81365 for compressor bleed air.

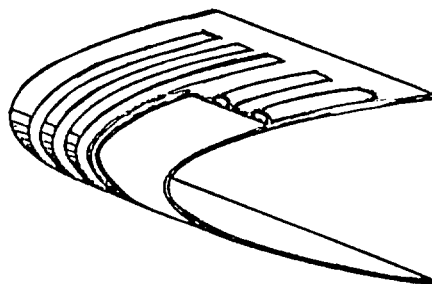
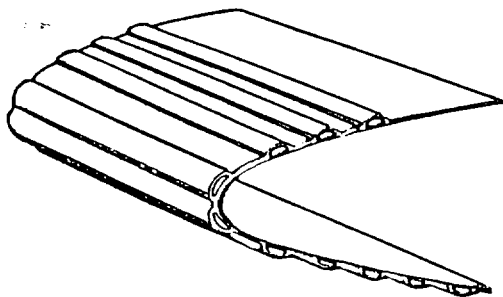
3.7.3 Electrical power. Electrical power required in the operation of the deicing system shall be in accordance with the aircraft electrical system specification.

3.7.3.1 Electromagnetic compatibility. The electromagnetic emission and susceptibility requirements for electronic equipment and components installed in deicing systems aboard aircraft and aircraft ground interface equipment shall be in accordance with the aircraft specification. Electromagnetic emission and susceptibility requirements shall be in accordance with MIL-STD-461 part 2, category A1b and A1c respectively.

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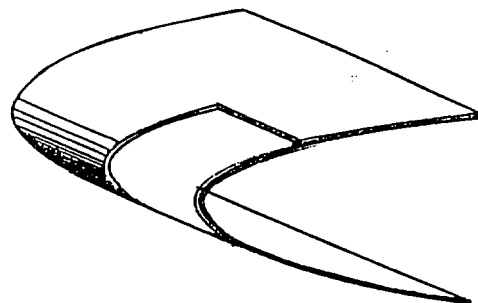
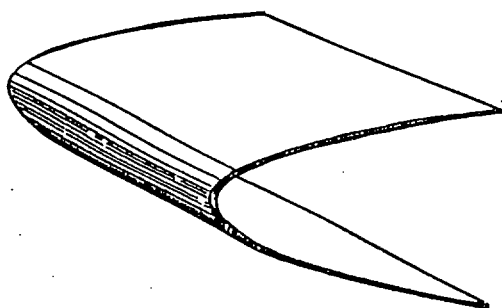
SPANWISE DIRECTION

CHORDWISE DIRECTION



TUBES INFLATED

TUBES INFLATED



TUBES DEFLATED

TUBES DEFLATED

FIGURE 1. Inflatable deicing tubes.

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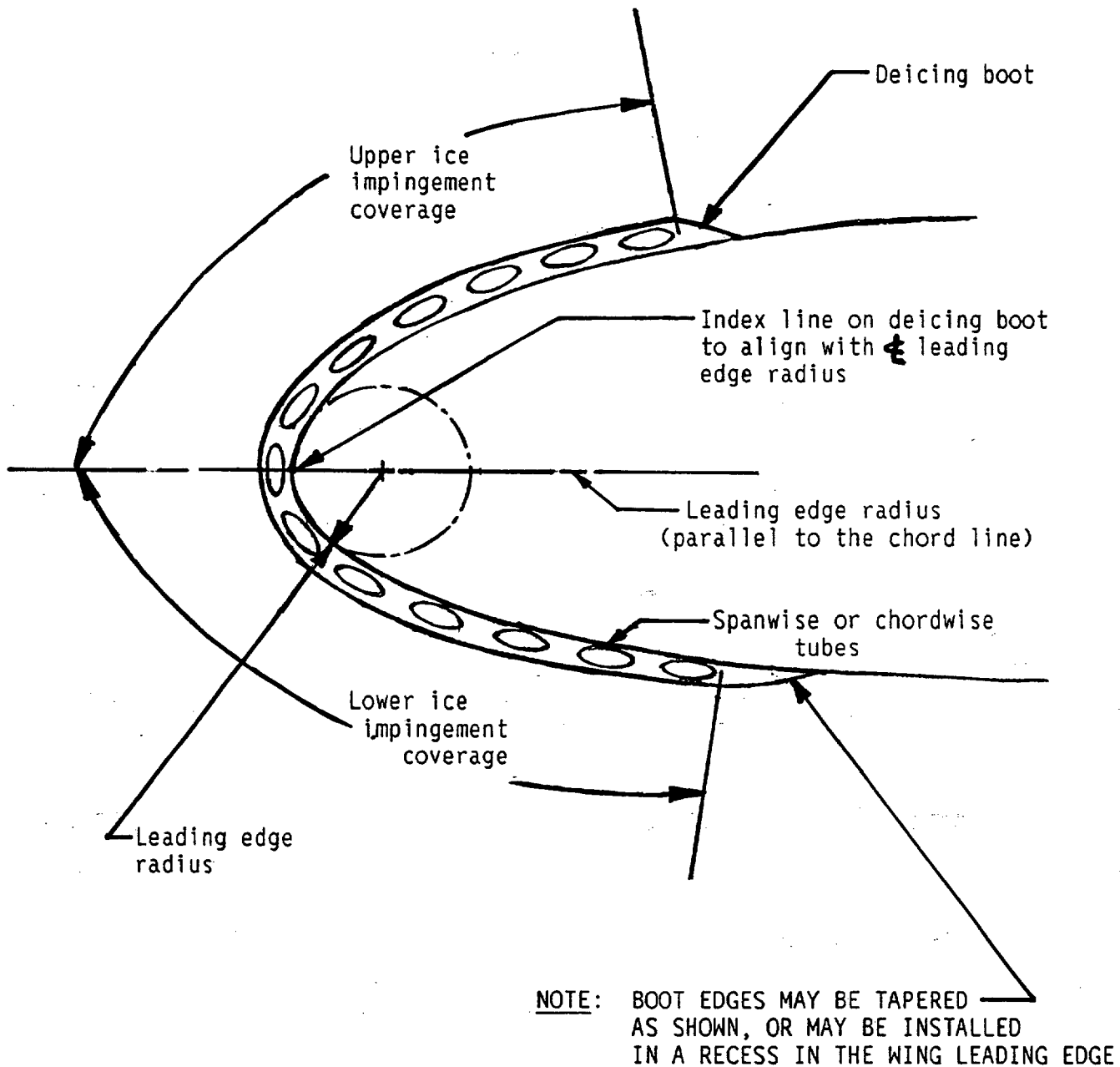


FIGURE 2. Typical deicing boot installation
fixed wing aircraft.

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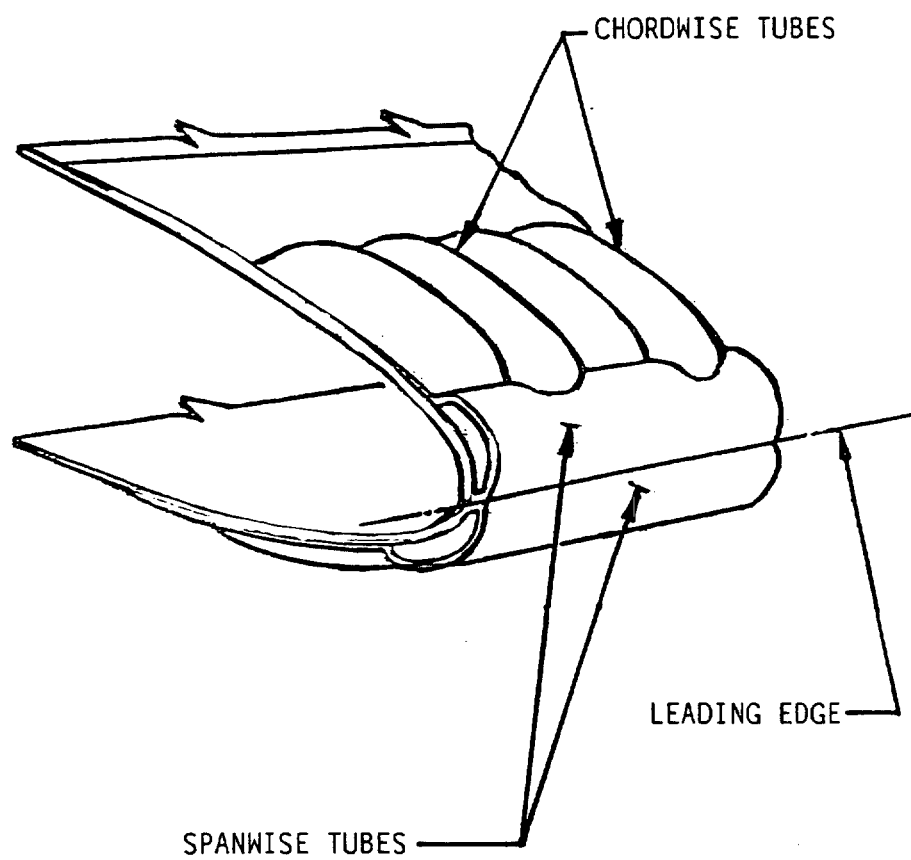


FIGURE 3. Rotorcraft blade pneumatic boot
rotary wing aircraft.

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3.7.3.2 Electrical wiring. All electrical wiring for deicing equipment shall be in accordance with the aircraft specification.

3.7.4 Valve safety. A safety valve, or valves, shall be installed to prevent damage to the deicing system in the event of failure of the pressure regulating valve. The safety valves shall be set to relieve pressure no more than 10 percent above normal operating pressure of the deicing system.

3.7.5 Valve check. On multiengine aircraft, check valves shall be installed in the manifolds or compressor bleed lines to ensure the operation of the deicing system in the event of engine failure.

3.7.6 Valve regulating and unloading. The predetermined pressure shall be regulated to vary not more than 1 percent of the operating pressure. The capacity of the unloading valve shall be sufficient to dump overboard the output of the pump when the engine is operating at takeoff rpm. The pressure regulating valve in a turbo-compressor bleed-type system shall not incorporate dump provisions.

3.7.7 Valve distribution. The distributor valve, or valves in the case of a manifold-type system, shall operate instantaneously and shall be able to operate at the operating pressure with a minimum of pressure drop.

3.7.8 Valve vacuum relief. On a system which uses the intake side of the air pump compressor as the vacuum source, a vacuum relief valve shall be provided with sufficient capacity to regulate the vacuum pressure to 1.5 percent of the design value when the engine is operating at takeoff rpm. When the vacuum is provided by an ejector, a vacuum relief valve is not required.

3.7.9 Valve selection and installation. All valves used in the deicing system shall be selected and installed in accordance with MIL-P-5518.

3.7.10 Timer. The timer shall be installed in the deicing system to automatically control of the deicing boot (see 3.11). The time required to inflate and deflate the pneumatic tubes shall be as rapid as possible in order to minimize the effects on the aerodynamic performance.

3.7.11 Oil separator primary and secondary. The pneumatic boot deicing systems shall have a primary and secondary oil separator. The primary oil separator shall remove 75 percent of the oil from the air and shall return the oil to the engine sump. The secondary oil separator shall remove the remaining oil from the system. The requirement for an oil separator in a turbo-compressor bleed system shall be individually determined for each application.

3.7.12 Test connection. A test connection, or connections, shall be provided in the deicing system for ground checking.

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3.7.13 Instruments. A pressure and vacuum indicator (multifunctional displays) for the deicing system shall be provided in aircraft for the pilot and crew members. When these indicators are mounted in a pressurized compartment, the indicator (functional display) shall measure the difference between system pressure and ambient.

3.8 Component coverage. Deicing boot coverage shall extend along the leading edge of the components to be deiced including root and fairing areas. The entire empennage leading edge surface shall be protected by deicing boots. In cruise condition, fixed wing chordwise coverage shall be not less than 15 percent on lower surfaces and 5 percent on upper surfaces except in locations where it is impracticable because of leading edge cutouts or other interfering structure. For propellers and rotors, the deicing boot coverage ranges 10 percent upper and 24 percent lower of the surface areas of propellers. Detailed airfoil coverage for a specific shape component shall be calculated by a droplet trajectory and impingement analysis.

3.9 Attachment. Deicing boots shall be attached to the surfaces of the aircraft by an adhesion system. The adhesion material used shall permit the removal of the deicing boots without damage to the aircraft.

3.10 Boot thickness. The thickness of the boot shall be designed such that design complexity and interference is minimal. The boot and deicing component leading edge surface interface shall be a smooth transition and shall be less than or equal to 60 percent of aerodynamic displacement thickness at that chordwise and spanwise location. Deicing boots shall be designed to withstand an internally applied pressure of 25 percent above the normal design pressure without distortion, blowout, or any damage.

3.11 Controls. The pneumatic boot system shall inflate and deflate rapidly in order to function effectively and minimize deicing system performance degradation. The system shall be controlled by a three position switch with "OFF", "MANUAL", and "AUTO CYCLE" modes of operation. When the switch is in the manual position, all boots shall inflate and shall remain inflated until the switch is released. When the "AUTO CYCLE" position is selected, an electronic timer shall be installed to control the inflation, deflation, timing and sequence of the system. For fixed wing aircraft, the time to reach full pressure shall be 6 seconds. During moderate icing a 60 second cycle shall be used, while for light icing, longer accretion times of 3 to 4 minutes shall be used. For rotorcraft the boot inflation time shall be 2 seconds.

3.12 Reliability. The deicing system reliability is an integral part of the reliability requirements of the total air vehicle. The overall system reliability program shall be in accordance with MIL-STD-785. Component or subsystem performance reliability is impacted by basic design, material selection, production processing, installed environment, subsystem or component interfaces and maintenance. Therefore, all modes of failure shall be anticipated and analyzed.

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3.13 Air filter. The pneumatic boot deicing system shall include air filter to remove debris for safe operation of the deicing boot without damage. Filter selection and installation shall be in accordance with MIL-P-5518.

3.14 Weight. The weight of pneumatic components installed in aircraft deicing system shall be as light as the function and design parameters permit. The distribution of system weight shall not significantly affect the aircraft balance and the total weight of the deicing boot shall not cause any design performance degradation of the aircraft.

3.15 Maintainability. All parts which require periodic inspection or replacement shall be accessible for inspection and readily removable to facilitate maintenance. The deicing system maintainability requirements shall be integrated with the overall system maintainability programs and shall comply with the requirements of MIL-STD-470. Details relating to component and subsystem performance maintainability demonstration shall be in accordance with MIL-STD-471. Deicing system components shall be designed for adjustment and repair at the lowest level of maintenance.

3.16 Survivability. The deicing system shall be capable of operating and maintenance functions performed in radiological, biological, and chemical environments. External and internal surfaces shall be resistant to chemical reaction and the adherence or absorption of contaminants. General aircraft combat survivability guidelines are provided in MIL-STD-2069 and MIL-STD-2089.

3.17 Performance. Deicing boot systems when installed in the aircraft shall operate with the aircraft at rest, taxiing, takeoff, landing, or in flight, under the following conditions:

- a. When installed in single engine aircraft with the engine operating at 50 percent cruise manifold pressure and with the engine operating at maximum endurance rpm.
- b. When installed in twin engine aircraft with one engine operating and the other engine at rest.
- c. When installed in aircraft equipped with four or more engines with any of the two engines operating.
- d. The operation of the boots, when pulsating, shall not affect the stall characteristics or handling characteristics of the aircraft during takeoff, landing, cruise, or high-speed conditions.

3.18 Identification of product. The deicing equipment, assemblies and parts shall be marked for identification in accordance with MIL-STD-130. The following special characteristics shall be added:

- (a) Model airplane.
- (b) Date of manufacture of the model airplane.

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3.18.1 Marking method. Marking shall be impressed or embossed in a location where markings shall remain visible after the component is installed.

3.18.2 Markings. All deicing components shall be marked with the manufacturer's name or trademark, the material identification code and complete part number as detailed in the applicable specification sheet. If space permits, the manufacturer's part number and the manufacturer's CAGE code shall be marked to ensure positive identification.

3.19 Part numbering of interchangeable parts. All parts having the same design activity, Contracting and Government Entity (CAGE) code and part number shall be interchangeable as defined in MIL-STD-280. The item identification and part number requirements of MIL-STD-100 shall govern the design activity part numbers and changes thereto.

3.20 Engineering drawings. Engineering drawings covering the design and installation of deicing boots including detailed sectional drawings, calculation, weights, and related equipment shall conform to the requirements of MIL-STD-100 (see 6.3).

3.21 Workmanship. The pneumatic boot used in the deicing system, including all parts and assemblies shall be fabricated and finished with the accuracy of dimensions shown in the detailed applicable specification and drawing. The adhesion surfaces of the boot shall be smooth, clean, and dry and shall be readily available to install in the aircraft.

4. QUALITY ASSURANCE PROVISIONS

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

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

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

- a. First article inspection (see 4.4).
- b. Quality conformance inspection (see 4.5).

4.3 Inspection conditions. Unless otherwise specified in the contract, all inspections shall be performed in accordance with the test conditions specified in 4.4.3.

4.4 First article inspection.

4.4.1 Sampling instructions. The first article samples shall consist of a representative item of each item of equipment used in the system.

4.4.2 First article tests. The first article tests shall be conducted in accordance with the demonstration tests 4.4.2.1, the system performance tests 4.4.2.2, and the environmental tests 4.4.3.

4.4.2.1 Demonstration tests. The demonstration tests shall be performed to demonstrate ice removal under conditions specified in 3.4. The demonstration tests shall include ground tests and flight tests as specified in 4.6 and 4.7 (see 6.3).

4.4.2.2 System performance tests. The contractor shall develop a detailed test plan and the performance of deicing system component shall be tested prior to installation in aircraft. Air flows, pressures, and temperatures shall be recorded under simulated flight conditions (see 6.3). The system test data shall be compared to the system design analysis. All discrepancies shall be resolved to the extent that the analytical system performance and laboratory test data are in reasonable agreement and demonstrate the performance requirements have been achieved.

<u>Tests</u> (per DOT/FAA/CT-88/8-2)	<u>Test methods</u> (reference tables)
Fixed wing aircraft	4.1
Engine induction system	4.2
Turbojet jet engine	4.3
Model icing test	4.4
All weather systems	4.6
Airframe icing test	4.7
Engine inlet icing test	4.8

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Aircraft and engine icing test	4.10
Engine nacelle icing tests	4.12
Wind boot certification (pneumatic boot system)	4.14

4.4.3. Environmental tests. The following environmental tests shall be performed in accordance with MIL-STD-810 (see 6.3):

- a. High temperature, Procedure I, Method 501.3.
- b. Low temperature, Procedure I, Method 502.3.
- c. Humidity, Procedure I, Method 507.3.
- d. Altitude, Method 500.3.
- e. Salt spray, Procedure I, Method 509.3.
- f. Vibration, Procedure I, Method 514.4.
- g. Fungus resistance, Procedure I, Method 508.4.
- h. Sunshine, Procedure I, Method 505.3 (applicable only to boots).
- i. Explosive atmosphere, Procedure I, Method 511.1.
- j. Gunfire, Procedure I, Method 519.2.
- k. Shock, Procedure I, Method 516.2.
- l. Leakage, Procedure I, Method 512.2.
- m. Rain, Procedure I, Method 517.1.

4.5 Quality conformance inspection. The quality conformance inspection shall be conducted on each deicing boot system component in accordance with the system performance tests (see 4.4.2.2) and the environmental tests (see 4.4.3). In addition, component installation shall be visually inspected to ensure fabrication and assembly are constructed in accordance with approved engineering design and meet the requirements of this specification.

4.6 Ground tests. Ground tests of the deicing system shall be conducted with the airplane at rest, using the design pressure and a suction of at least 4 in. Hg to demonstrate safe operation of the deicing system for flight test as specified in 4.7 and control system operation as specified in 3.11. The systems shall also be checked for leaks by inflating deicing tubes to the design pressure. The pressure shall not decrease by more than 30 percent of the design pressure in 1 minute with the pressure source disconnected and the system sealed (see 6.3).

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4.7 Flight tests. Tests shall be conducted as part of the flight test program of the aircraft on which the boots are installed, to evaluate the effect of the boot system operation on performance and handling characteristics of the aircraft. The handling characteristics of the aircraft at various gross weights (including maximum gross weight) during takeoff, landings, cruise, and at high speed conditions shall be demonstrated. Operation of the boots shall not cause adverse effect on the performance of the aircraft. The stall speed of the aircraft shall be substantially the same with or without the boots pulsating. The deicing boot system shall be observed during flight in regard to the rate of cycling and uniformity of tube inflation under the conditions specified in 3.17 (see 6.3).

4.8 Inspection of marking and packaging. Except when commercial packaging is specified, the sampling and inspection of preservation and interior package marking shall be in accordance with groups A and B quality conformance inspection requirements of MIL-P-116. The sampling and inspection of the packing for shipment and storage shall be in accordance with the quality assurance provisions of the applicator container specification shown in section 5. The inspection of marking for shipment and storage shall be in accordance with MIL-STD-129 (see 6.2).

5. PACKAGING

5.1 Preservation. Preservation shall be Level A or Commercial as specified in MIL-STD-2073-1 (see 6.2).

5.1.1 Level A.

5.1.1.1 Cleaning. All parts shall be free from grease, oil, dirt or any other foreign material. Any process or combination of processes that will accomplish thorough cleaning without damage to the parts shall be acceptable.

5.1.1.2 Preservative. Preservation for deicing boots shall be in accordance with MIL-P-116, basic method II, submethod IIb.

5.1.1.3 Drying. Deicing boot shall be dried in accordance with MIL-P-116.

5.1.2 Commercial preservation. Commercial preservation shall be in accordance with ASTM D3951.

5.2 Packing. Packing shall be Level A, Level B, or Commercial as specified (see 6.2).

5.2.1 Level A. The components shall be packed in overseas type shipping containers conforming to PPP-B-601, PPP-B-591, PPP-B-621, or MIL-C-104. Unless otherwise specified, exterior shipping containers shall be of uniform shape and size of minimum cube and tare and shall contain identical quantities. The gross weight of each pack shall be limited to approximately 200 pounds.

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Strapping and closures shall be in accordance with the appendix of the container specification. Containers shall be provided with a case liner conforming to MIL-L-10547 and sealed in accordance with the appendix thereto.

5.2.2 Level B. The components shall be packed in domestic- type exterior shipping containers conforming to PPP-B-591, PPP-B-621, PPP-B-585, PPP-B-636, or PPP-B-601. Exterior shipping containers shall be of minimum cube and tare consistent with the protection required. Unless otherwise specified, exterior shipping containers shall be of uniform shape and size and shall contain identical quantities. The gross weight of each pack shall be limited to approximately 500 pounds. Strapping and closure shall be in accordance with the appendix of the applicable container specification. When fiberboard containers are used, the fiberboard shall conform to the special requirements table of PPP-B-636 as applicable.

5.2.3 Commercial packing. Unit packs preserved as indicated in 5.1.2 and packages which require packing for acceptance by the carrier shall be packed in commercial exterior shipping containers in accordance with ASTM D3951 and in a manner that it will ensure safe transportation, at the lowest rate, to the point of delivery. Containers shall meet the Consolidated Freight Classification Rules or regulations of other common carriers as applicable to the mode of transportation.

5.3 Physical protection. Cushioning, blocking, bracing, and bolting, as required, shall be in accordance with MIL-STD-1186, except that for domestic shipments, waterproofing requirements for cushioning materials and containers shall be waived. When preservation, packaging, and packing are for immediate use or when the drop tests conforming to MIL-P-116 are applicable, the drop tests of MIL-STD-1186 shall be waived.

5.4 Marking for shipments. Unit packs, intermediate containers and shipping containers shall be marked in accordance with MIL-STD-129. In addition to the requirements of MIL-STD-129, the unit packs, intermediate containers, and shipping containers shall include the following information:

- Manufacturer's name or trademark
- Manufacturer's part number and CAGE code
- Acquiring activity code number (if applicable)
- Military standard part number
- Date of packaging

6. NOTES

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

6.1 Intended use. The deicing equipment covered under this specification is intended for use on both fixed wing and rotary wing aircraft to reduce flight hazards under cold weather conditions.

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6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Military standard part number.
- c. Manufacturer's part number and CAGE code.
- d. Type of aircraft.
- e. Drawing number or part number of the component if the drawing number and part number are the same.
- f. Sampling instruction for first article tests and test reports.
- g. Level of preservation and packing (see 5.1 and 5.2) including marking requirements (see 5.4).
- h. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1).

6.3 Consideration of data requirements. The following data requirements should be considered when this specification is applied on a contract. The applicable Data Item Descriptions (DID's) should be reviewed in conjunction with the specific acquisition to ensure that only essential data are requested/provided and that the DID's are tailored to reflect the requirements of the specific acquisition. To ensure correct contractual application of the data requirements, a Contract Data Requirements List (DD Form 1423) must be prepared to obtain the data, except where DOD FAR Supplement 277.475-70 exempts the requirement for a DD Form 1423.

<u>Reference Paragraphs</u>	<u>DID number</u>	<u>DID title</u>	<u>Suggested Tailoring</u>
4.4.2.1, 4.4.2.2, 4.4.3, 4.6, 4.7	DI-NDTI-80809A	Test/Inspection Reports	Use contractor format
3.20	DI-DRPP-81003	Commercial drawings and associated lists	Use contractor format

6.4 First article. When first article inspection is required, the contracting officer should provide specific guidance to offerors whether the item(s) should be a preproduction sample, a first article sample, a first production item, a sample selected from the first production items, a standard production item from the contractor's current inventory, and the number of items to be tested as specified in 4.4.1. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first articles.

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Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.5 Design consideration. DOT/FAA/CT-88/8-1, Aircraft Icing Handbook, Volume 1 and DOT/FAA/CT-88/8-2, Aircraft Icing Handbook, Volume 2 shall be used as a general guideline for determining the following requirements of the deicing systems of aircraft.

<u>HANDBOOKS</u>	<u>REFERENCE PARAGRAPHS</u>	<u>REQUIREMENT PARAGRAPHS</u>
DOT/FAA/CT-88/8-1	Chapter 1 Section 1.0	3.4 Icing conditions
DOT/FAA/CT-88/8-2	Chapter III Section 1.0 Figures 1, 2, and 3	3.7.1 Deicing boot
	Chapter III Section 1.0 Figures 1-3, 1-4, and 1-6	3.7.4 Valve safety 3.7.7 Valve distribution 3.7.9 Valve selection and installation
	Chapter V Section 2.0	3.8 Component coverage
	Chapter III Section 1 Figures 1-3, 1-4 and 1-6	3.7.9 Valve selection and installation
	Chapter III Section 1.0	3.14 Weight calculation
	Chapter V Section 4.0	4.4.2.1 Demonstration test
	Chapter V Section 4.0	4.4.2.2 System per- formance test

MIL-D-8804B

6.6 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.

6.7 Subject term (key words) listing.

Air Impulse
Air Induction
Anti Icing
Flight Hazard Protection
Ice Prevention
Ice Protection
Ice Removeable Equipment
Leading Edge Surfaces Protection

Custodians:

Army - AV
Navy - AS
Air Force - 99

Preparing activity:

Navy - AS

(Project 1650-0453)

Review activities:

Air Force - 71
DLA - CS

User activities:

Marine Corps - MC

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

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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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I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
MIL-D-8804B

2. DOCUMENT DATE (YYMMDD)
930725

3. DOCUMENT TITLE

DEICING SYSTEM, PNEUMATIC BOOT, AIRCRAFT, GENERAL SPECIFICATION FOR

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 COMMANDING OFFICER, NAVAL AIR
WARFARE CENTER AIRCRAFT DIVISION LAKEHURST
SYSTEMS REQUIREMENTS DEPARTMENT

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