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MILITARY SPECIFICATION

INSTRUMENT SYSTEMS, PITOT TUBE AND FLUSH STATIC PORT OPERATED, INSTALLATION OF

This specification was approved by the Departments of the Army, the Navy, and the Air Force for use of procurement services of the respective Departments.

1. SCOPE

1.1 This specification covers the general requirements for the installation of all types of pitot tube and flush static port-operated instrument systems for use on aircraft to provide a source for dynamic and static pressures.

2. APPLICABLE SPECIFICATIONS, OTHER PUBLICATIONS, AND DRAWINGS

2.1 The following publications, of the issue in effect on date of invitation for bids, shall form a part of this specification to the extent specified herein:

2.1.1 Specifications.-

Federal

WW-T-787	Tubing, Aluminum-Alloy (AL-52) (Aluminum-Magnesium-Chromium); Round, Seamless

Military

MIL-P-6889	Primer; Zinc Chromate
JAN-A-669	Anti-Seize Compound; White Lead Base, General Purpose (For Threaded Fittings)

Air Force-Navy Aeronautical

AN-QQ-A-696	Anodic-Films; Corrosion-Protective (For) Aluminum Alloys

2.1.2 Other Publications.-

Air Force-Navy Aeronautical Bulletin

No. 143	Specifications and Standards; Use of

Naval Air Experimental Station

Report No. NAES-INSTR. 16-44	Dual Sighting Stand and Other Methods of Calibrating Altimeter and Airspeed

(Copies of this publication may be obtained from the Technical Information Branch, Bureau of Aeronautics, Navy Department, Washington 25, D. C.)

National Advisory Committee for Aeronautics

Tech. Note No. 1605 — Accuracy of Airspeed Measurements Calibration Procedures

(Copies of this report may be obtained from the National Advisory Committee for Aeronautics, 1724 F Street, N. W., Washington, D. C.)

2.1.3 Drawings.-

Air Force-Navy Aeronautical Standard Drawings

AN929	Cap - Pressure Seal Flared Tube Fitting
AN5811	Tube - Pitot, Electrically Heated, "L" Shaped, Inverted
AN5812	Tube - Pitot, Electrically Heated, "L" Shaped
AN5813	Tube - Pitot, Electrically Heated
AN6270	Hose Assembly - Detachable Swivel Fitting, Low Pressure
AND10056	Fitting End - Standard Dimensions for Flared Tube Connection and Gasket Seal
AND10375	Colors - Fluid Line Identification
AND10398	Metals - Definition of Dissimilar
AND10410	Pitot-Static and Pitot Tube - Wiring Diagram for

(Unless otherwise specified, copies of this specification and copies of other publications referenced herein or required for Government procurement, and the Index of Military Aeronautical (AN or MIL) Standards, may be obtained upon application to the Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio, or the Commanding Officer, U. S. Naval Air Station, Johnsville, Pennsylvania.)

3. REQUIREMENTS

3.1 Materials - Materials used in the installation of pitot tube and flush static port-operated instrument systems in military aircraft shall be of high quality, suitable for the purpose, and shall conform to applicable Government specifications. Materials conforming to contractor's specifications may be used provided they are released by the Government and contain provisions for adequate tests. The use of contractor's specifications will not constitute waiver of Government inspection.

3.1.1 Metals.- All metals used in the construction of pitot tube and flush static port-operated instrument systems in military aircraft shall be suitably protected to resist corrosion during normal service life

3.1.1.1 Dissimilar Metals.- Where practicable, dissimilar metals such as defined by Drawing AND10398 shall not be used in intimate contact with each other. Where such contacts are unavoidable, as the connection between the pitot tube and the mount or base, both contact surfaces shall be painted with zinc-chromate primer conforming to Specification MIL-P-6889. The installation shall be made with cadmium-plated mounting screws while the primer is still wet, care being exercised to keep primer off the electrical connections.

3.1.2 Selection of Materials.- Specifications and standards for all materials, parts, and Government certification and approval of processes and equipment, which are not specifically designated herein and which are necessary for the execution of this specification, shall be selected in accordance with ANA Bulletin No. 143, except as provided in the following paragraph.

3.1.2.1 AN or JAN Standard Parts.- AN or JAN Standard parts shall be used wherever they are suitable for the purpose, and shall be identified on the drawing by their part numbers. Commercial utility parts such as screws, bolts, nuts, cotter pins, etc., may be used, provided they possess suitable properties and are replaceable by the AN or JAN Standard parts without alteration, and provided the corresponding AN or JAN part numbers are referenced in the parts list and, if practicable, on the contractor's drawings. In the event there is no suitable corresponding AN or JAN Standard part in effect on date of invitation for bids, commercial parts may be used provided they conform to all requirements of this specification.

3.2 Design and Construction.-

3.2.1 Pitot Tubes.- Each airplane shall be equipped with an electrically heated pitot tube or tubes, conforming to Drawings AN5811, AN5812, and AN5813.

3.2.2 Multiple Pitot Tube Installations.- Airplanes in which the services of both a pilot and copilot are required at all times for operation of the aircraft shall have a dual pitot system, and each system shall be operated from an individual pitot tube. One tube shall furnish pressure for the pilot's instruments, and the other shall furnish pressure for the copilot's instruments. In no case shall lines carrying pressure from two separate pitot tubes be connected together.

3.2.3 Number of Instruments Connected to Sources of Pitot and Static Pressure.-

3.2.3.1 Number of Instruments per Pitot Tube.- Pitot pressure for additional instruments (including navigator's, engineer's, and bombardier's) may be furnished by either tube; or if more convenient, some of the additional instruments may be connected to one tube and some to the other. Other pitot pressure-operated equipment, such as airspeed switches, Mach number limit switches, or armament controls, shall be supplied by the copilot's pitot tube if a copilot's pitot tube is used. Additional pitot tubes may be required to insure reliability in very large aircraft.

3.2.3.2 Number of Instruments per Pair of Static Ports.- Not more than six instruments consisting of a combination of altimeters, airspeed indicators, and rate of climb indicators, and other instruments of similar volume shall be connected to one line leading from the "T" between the static ports. If there are more than 6 but not more than 12 such instruments installed, a cross shall be installed between the static ports instead of a "T" and a second static line shall be led to the additional instruments. If more than 12 instruments are installed, a second pair of static ports shall be installed to provide the static pressure for the additional instruments. If a cross is used, the pilot's instruments shall be connected to one side and the copilots to the other unless there are two independent static systems in which case the pilot's shall be connected to one and the copilot's to the other.

3.2.4 Location.- The pitot tubes shall be installed to project forward in such a location that impact pressure is obtained without interference. They shall be located so as to be clear of the slip stream and, insofar as possible, in a position free from aerodynamic interference, spray, and dirt. Pitot tubes shall be so located that no oscillation of the airspeed pointer is caused by firing the guns or rockets. The tube shall be so located as not to interfere with the necessary movements of the operating personnel in placing or removing the chocks from the wheels or in entering or leaving the airplane. The tubes shall be so installed that satisfactory water drainage will be accomplished for all attitudes of the airplane while in flight and on the ground, and so installed that no rain, or melted snow or ice will flow into the lines. "L" shaped tubes drain satisfactorily when located on the bottom of a tube making an angle of less than 45 degrees with the vertical downward. Inverted "L" shaped tubes are designed for installation on the end of a tube making an angle of less than 45 degrees with the vertical upward. The tubes may be installed either on the wing or on the fuselage. Under circumstances where it is necessary, the tube may be installed on the leading edge of the vertical fin, but due to difficulty of maintenance this location should be avoided except under extraordinary circumstances.

3.2.4.1 Wing.- Pitot tubes installed on the leading edge of the wing shall be of the straight type and shall be located as far out as possible to avoid the slip stream and blanketing in a 15-degree yaw. The tubes shall be sufficiently far forward of the leading edge to avoid errors due to high local angle of attack which may be encountered at low speeds. A position at least 1/2 of the chord length forward of wing on the extension of the chord line is usually necessary. The lateral distance in from the wing tip may be as little as 1/2 of the same chord length. The lower wing surface may be a desirable location for the "L" shaped pitot tube.

3.2.4.2 Fuselage.- Pitot tubes installed on the fuselage may be either straight or "L" shaped, and the same precautions as listed for the installation on the wing shall be observed against blanketing in yaw.

3.2.5 Mounting.- The method of mounting shall be such that the tube shall not vibrate with an amplitude greater than that of the point on the wing or the fuselage to which the mount is attached under all conditions of engine operation on the ground and in flight. The pitot tubes shall be mounted and located in such a position that no oscillation of the instrument pointers will be produced by the firing of guns or rockets, etc. Figure 1 illustrates a typical pitot-tube installation on a wing. Figure 2 illustrates a typical pitot-tube installation on the underside of the fuselage or wing. The supporting tube for either the straight or the "L" shaped pitot tube shall be so designed that in the event of breakage, the tube, the inside pitot-pressure line and the heater wires shall break clean at the attachment surface without leaving any parts dangling or without opening any hole in the surface through which air may enter.

3.2.5.1 Wing and Fuselage Mounting.- The pitot tubes shall be installed in such a manner that removal and replacement of the tubes can be accomplished easily and without disassembling any other part of the airplane or installed equipment.

3.2.6 Static Ports.- The installation of static port covered by this specification shall consist of seven holes through the skin of the airplane, with provisions to attach the tubing leading to the instruments requiring static pressure. The static ports shall be built to withstand without failure the normal strains, jars, vibrations, and other conditions as are incident to service.

3.2.6.1 Drainage.- The port shall be so designed that water will drain from the port and not be conducted into the static line under flight or ground conditions.

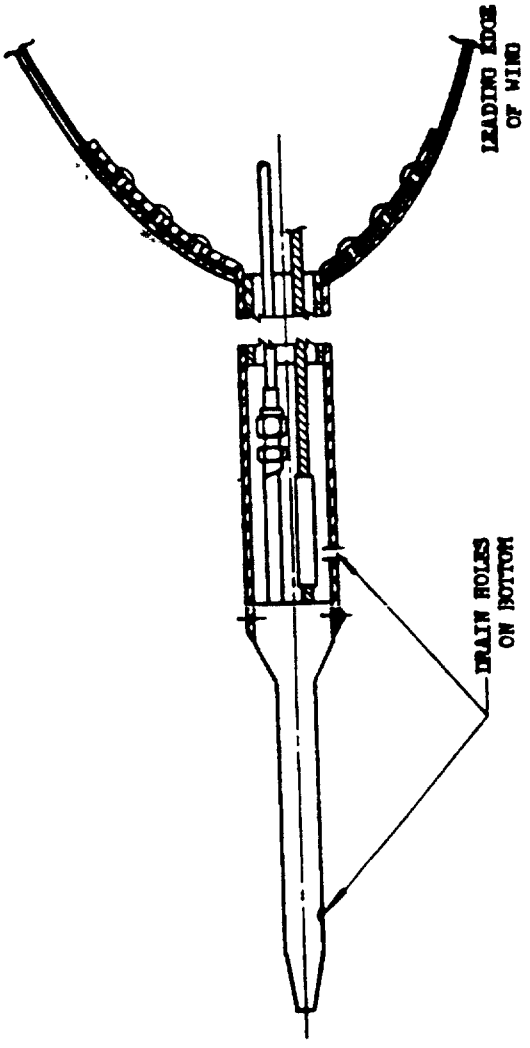
3.2.6.2 Static Holes.- The static holes shall be 3/64 inch in diameter, located as shown on figure 3. The edges of the holes shall be free from burrs.

3.2.6.3 Rivets.- Rivets, if used, shall fulfill the following requirements:

(a) If practicable no rivets shall be placed closer than 1/4 inch to the fore and aft centerline of the port holes for a distance of at least 3 inches forward and 2 inches aft of the port holes. No rivets shall be placed within a radius of 1 inch of the center of the port holes.

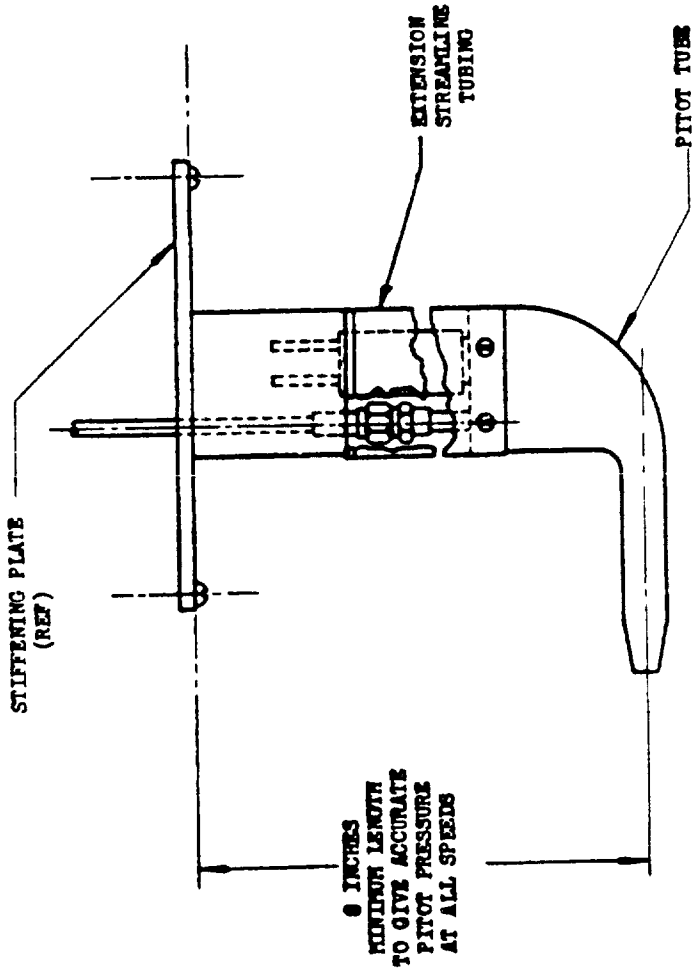
(b) All rivet holes shall be machine countersunk to suit the rivet head.

(c) After the rivets have been peened, the excess material on the outer end shall be removed so that the top of the rivet is flush with the skin surface within ±0.001 inch.



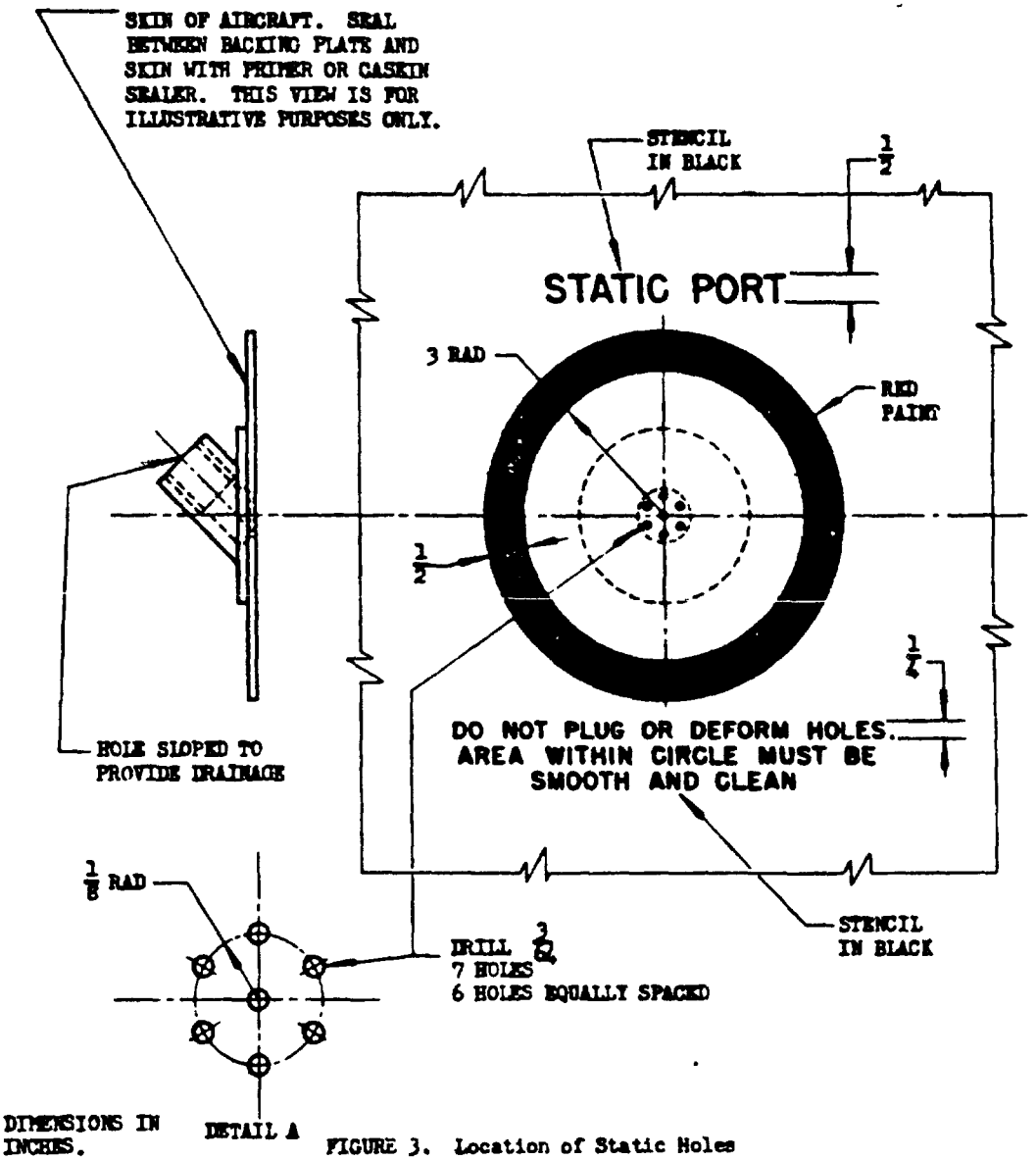
NOTE: THIS FIGURE IS FOR ILLUSTRATIVE PURPOSES ONLY.

FIGURE 1. Wing Installation



NOTE: THIS FIGURE IS FOR ILLUSTRATIVE PURPOSES ONLY.

FIGURE 2. Typical Pitot Tube Installation on Underside of Fuselage or Wing



DIMENSIONS IN INCHES.

FIGURE 3. Location of Static Holes

3.2.6.4 Structural Strength.- The static port shall be so constructed that the skin of the airplane will not be distorted at the port by fittings attached thereto or by stresses encountered in operation, service, and maintenance.

3.2.6.5 Plates.- Any backing plate which is attached to the inner surface of the skin, shall conform to the contour of the skin at the place at which it is to be attached. A suitable means shall be provided to prevent leakage between the inner surface of the skin and the backing plate.

3.2.6.6 Exterior Surface.- The exterior surface of the static port within a 3-inch radius of the port holes shall be smooth within ±0.005 inch of the mold line.

3.2.6.7 Finish.- Protective coatings and finishes which will crack, chip, or scale during normal service life or due to extremes of atmospheric conditions shall not be used.

3.2.6.7.1 Aluminum-Alloy Parts.- Aluminum-alloy parts shall be covered with an anodic film conforming to Specification AN-QQ-A-696.

3.2.6.7.2 Painting.- If the outer surface of the skin adjacent to the static holes is painted, the primer only shall extend to the ring of static port holes. Finish coats shall not be applied within a radius of 3/4 inch of the static port holes. The edge of the finished coat shall be carefully smoothed and blended into the primer.

3.2.6.8 Marking.- The static port installation shall be marked as shown on figure 3.

3.2.6.9 Location of Static Ports.- The static ports shall be placed on the surface of the fuselage in such a location that accurate static pressures will be furnished in accordance with the flight test requirements specified in Section 4. The location of the static port for each type of airplane shall be determined experimentally. The static ports shall be located in such a position that no oscillation of the instrument pointers will be produced by the firing of guns or rockets. The static ports shall not be blanketed by windows, flare chutes, gun mountings, or other obstructions which may be located forward of the ports, and the ports shall not be disturbed by removal and replacement of inspection doors.

3.2.6.9.1 Fuselage.- The choice of location of the static ports on the sides of the fuselage aft of the wing shall be such as to minimize the effect of lowering flaps, landing gear, and bomb bay doors, and also the effect of airflow around the fuselage and vertical tail surfaces in yaw and pitch.

3.2.6.9.2 Nose.- A possible location of the static ports, which is indicated for use particularly in amphibian aircraft, is forward of the leading edge of the wing on the sides of the nose. In most cases, this location will yield static pressure which will have a larger error varying with airspeed, although it will not be appreciably affected by movement of flaps, landing gear, and bomb bay doors. In single-engine aircraft, this location is also subject to a slipstream effect.

3.2.7 Connecting Lines.- The connections between the pitot tube, the static ports, and the instruments shall be in accordance with figure 4.

3.2.7.1 Pitot and Static Lines.- The pitot and static pressure lines connecting the pitot tube and static ports to the instruments shall be seamless aluminum tubing, conforming to Specification WW-T-787, 1/4-inch outside diameter, having a wall thickness of 0.032 inch and anodized in accordance with Specification AN-QQ-A-696. Bends shall be uniform (without kinks), and the minimum bend radius shall be not less than 9/16 inch.

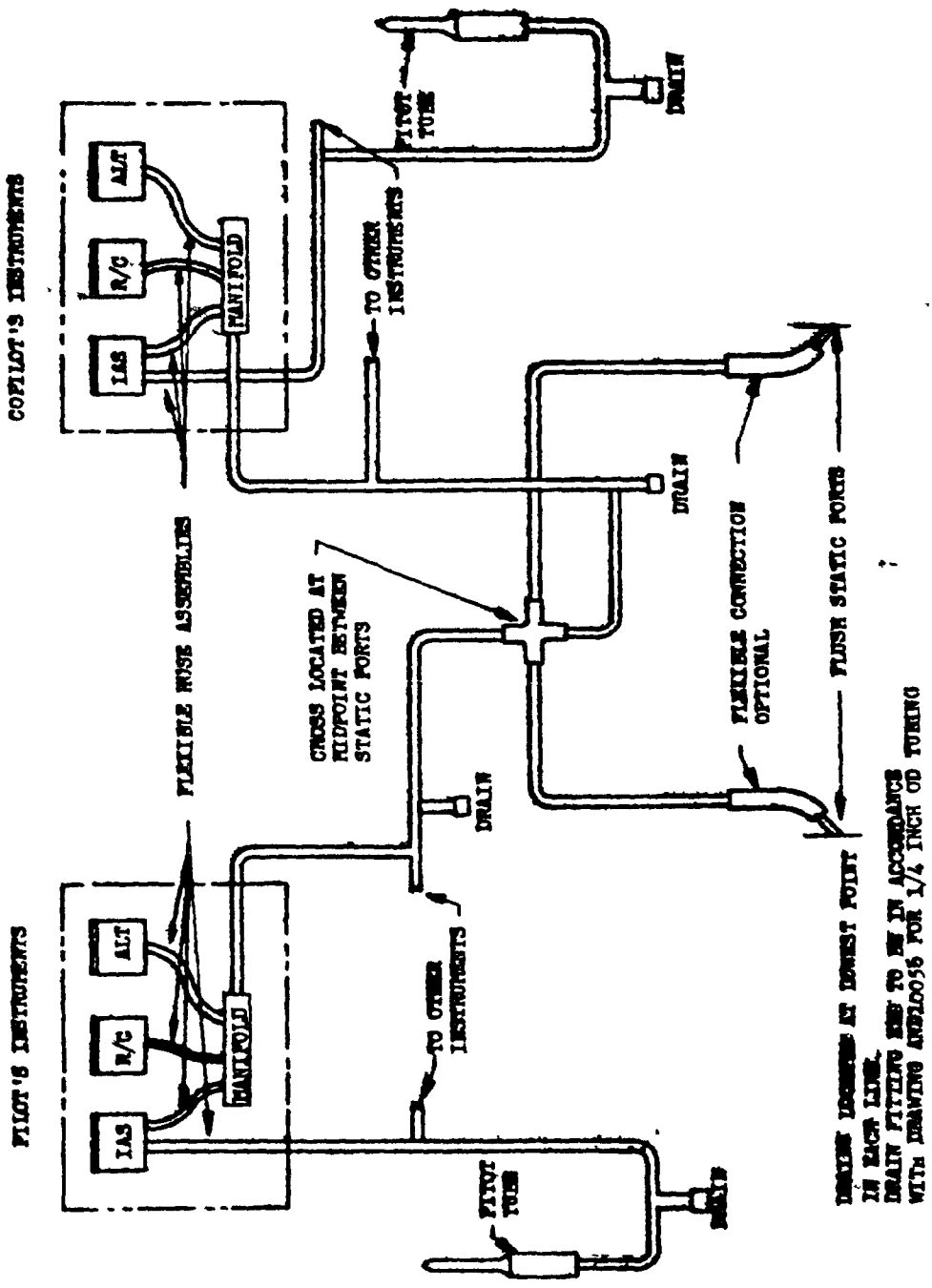


FIGURE 4. Connection of Flight Instruments to Pitot Static Tubes.

3.2.7.2 Location and Support.- All tubing and related equipment shall be inside the fuselage and wing construction, to prevent damage. There shall normally be no unsupported lengths greater than 18 inches for 1/4-inch tubing, except where flexible connections are used. Supports shall not interfere with expansion or other movements of the tubing in flight or on the ground.

3.2.7.3 Identification.- All pitot and static tubing shall be marked with identifying colors in accordance with Drawing AND10375.

3.2.8 Connection Fittings.- Connection fittings used throughout the installation of pitot and static instrument systems shall conform to Air Force-Navy Aeronautical Standards.

3.2.9 Flexible Connections.- Flexible hose assemblies in accordance with Drawing AN6270 shall be used to connect the instruments to the pitot and static lines, in order to completely insulate the instrument panel from the vibration of the airplane structure. Flexible connections in accordance with Drawing AN6270 shall be used in other places where flexible connections are required. At the option of the aircraft manufacturer, the flush static ports may be connected to the static system through flexible connections conforming to Drawing AN6270 immediately at the static ports in order to prevent stresses being imposed on the fuselage skin by the static lines.

3.2.10 Anti-Seize Compounds- Anti-seize compound in accordance with Specification JAN-A-669 shall be applied to all threaded parts on all the connection fittings.

3.2.11 Drain and Test Fitting.- A drain and test fitting shall be located at the lowest points in the static and pitot pressure lines and at any other low points at which water may collect. The drain fitting end shall be in accordance with Drawing AND10056 for 1/4-inch outside diameter tubing and provided with an AN929-4 cap which may be removed to drain the lines and to attach Leakage test equipment. The fittings shall be accessible. An inspection door shall be provided in the fuselage, or wing, if necessary. If the pitot lines are "self-draining," no test fitting shall be installed; however, a test fitting shall be installed in the static line regardless of its ability to drain itself. The capacity of the traps shall not cause any appreciable increase in error due to pressure lag in the pitot or static lines.

3.2.12 Accessibility of Joints.- Each joint in the pitot and static pressure lines shall be readily accessible for inspection and maintenance. Inspection doors may be provided if necessary.

3.2.13 Removal of Tube.- A union shall be installed in the pitot and static lines at the point of attachment of the mounting strut to the wing or fuselage to permit the removal and replacement of the pitot tube and flush static port.

3.2.13.1 Modification.- The pitot tube shall not be modified in form or color by the attachment of any rings, sleeves, or other additions of paint or finish.

3.2.14 Clearing of Lines.- The pitot and static lines shall be blown clear with dry, high-pressure air immediately before the pitot and static tube or tubes are connected and the instruments are installed in the system or systems. All drain plugs shall be removed, and all instrument connections shall be vented to the atmosphere while the air is being blown through all lines.

3.2.15 Electrical Circuit.- The electrical circuit for the pitot tubes provided with heater elements shall be in accordance with Drawing AND10410. Circuit breakers shall be located where they can be conveniently reset in flight.

3.3 Performance.- The installation of pitot tubes and flush static port-operated instrument systems shall satisfy the performance requirements as specified in Section 4 when subjected to the tests headed as follows:

Electrical Wiring
Compass Deviation
Leakage
Flushness and Smoothness
Determination of Pitot Tube and Flush Static Port System Installation Error
Effect of Maneuver

4. SAMPLING, INSPECTION, AND TEST PROCEDURES

4.1 General.- All the tests required for the testing of these installations are classified as Inspection tests, for which necessary sampling techniques and methods of testing are specified in this section. The contractor shall be responsible for accomplishing the required tests. When inspection is conducted at the contractor's plant, all inspection and testing shall be under the supervision of the Government Inspector. Acceptance or approval of material during course of manufacture shall in no case be construed as a guaranty of the acceptance of the finished product.

4.1.1 Individual Tests.- Each installation shall be subjected to the following tests, as described herein under "Test Methods":

(a) Examination of Installation
(b) Electrical Wiring
(c) Compass Deviation
(d) Leakage
(e) Flushness and Smoothness

In addition, all installations shall be subjected to any of the other tests specified herein which the Inspector considers necessary to determine conformance with the requirements of this specification.

4.1.2 Special Tests.- The first pitot tube and flush static port installation on an airplane model of any design and the first installation embodying a change in the airplane model design submitted for acceptance under contract, shall be subject to all the tests described herein under "Test Methods." This shall be done prior to the fabrication of the installation for the remaining airplanes on the order, to determine suitability of design and compliance with performance requirements of this specification.

4.1.3 Rejection and Retest.- The individual installations failing to meet their respective tests shall be rejected. Installations which have been rejected may be reworked or replaced to correct the defects and resubmitted for acceptance. Before resubmitting, full particulars concerning previous rejections shall be furnished the Inspector.

4.2 Test Methods.-

4.2.1 Examination of Installation.- All pitot tube and flush static port-system installations shall be visually examined to determine conformance with the requirements of this specification not covered by tests.

4.2.2 Electrical Wiring.- The electric circuit installation shall be such that with the heating elements of the tube properly connected and operating from a combined generator and battery source of 28.5V, the voltage as measured across the terminal of a 24V tube shall be not less than 24V. (For 115V a-c tubes the voltage at the tube shall be not less than 110V.)

4.2.3 Compass Deviation.- With the airplane pointed to each of the four cardinal headings, the compass reading of all compasses in the airplane shall be noted with the electrical circuit "OFF" and with the electrical circuit "ON." The difference in readings on any heading with the electrical circuit "OFF" and with the electrical circuit "ON" shall be not more than 1 degree.

4.2.4 Leakage.-

4.2.4.1 Pitot Pressure Line.- The drain holes of the pitot tube shall be sealed for this test. With the instruments properly connected to the pitot pressure line, the pitot pressure opening of the pitot tube shall be suitably connected to a source of pressure. A pressure sufficient to produce approximately 3/4 of full-scale deflection on the lowest range airspeed indicator connected to the pitot line shall be applied and the pressure cut off. After 1 minute, the indicated airspeed shall have decreased not more than 5 knots. NOTE DO NOT APPLY VACUUM TO PITOT LINES.

4.2.4.2 Static Pressure Line.- With the instruments properly connected to the static pressure line, and the static pressure openings of the flush static port sealed off, the test fitting shall be suitably connected to a source of vacuum. A vacuum shall be drawn on the system (at a rate within the range of the rate of climb indicator) sufficient to cause the standard altimeter to indicate 10,000 feet, and the source of vacuum cut off. After 1 minute the indicated altitude on the altimeter shall not fall below 7,000 feet. NOTE. DO NOT APPLY PRESSURE TO STATIC PRESSURE LINES.

4.2.4.3 The static port as a whole shall be tested for leakage between the inner fitting and the static port holes. The inner fitting shall be connected to an evacuating device and to a calibrated standard altimeter or a mercury manometer, and the static port holes shall be sealed in such a manner that the seal will not extend into the port holes more than the thickness of the skin of the airplane. The evacuating device shall then be operated until the standard altimeter indicates 10,000 feet increase in altitude or the manometer indicates 9.10 inch Hg differential pressure. The evacuating device shall then be cut off. After 1 minute, the indicated altitude on the altimeter shall have fallen not more than 200 feet or the differential pressure shall have changed not more than 0.2 inch Hg.

4.2.5 Flushness and Smoothness.- The flushness of rivets and the smoothness of the static port shall be measured with a suitable device in which the contacting element has a spherical shape with a maximum radius of 1/32 inch. The exterior surface of the static port within a 3-inch radius of the port shall be smooth within ±0.005 inch of the mold line.

4.2.6 Determination of Pitot Tube and Flush Static Port System Installation Error.-

4.2.6.1 The installation error shall be determined by any one or a combination of the following methods. They are described more completely in the NACA Technical Note 1605, and Bureau of Aeronautics Report No. NAES INSTR. 16-44.

(a) The speed course method in which the time to cover a given distance is measured.

(b) The suspended head or trailing tube method in which the readings of the system under calibration are referred to those of a suspended pitot-static head which is either free from error or has known errors.

(c) The altimeter method, which provides a calibration of the static system only, in which the error is determined by comparing the altimeter reading (corrected for scale error) with the known flight level pressure altitude.

(d) Pacer airplane method in which the airplane with the installations to be calibrated is flown in formation with one which has an airspeed installation already calibrated by method (a), (b), or (c).

4.2.6.2 An outline of the method and instrumentation to be used shall be submitted to the Procuring Service and approval obtained prior to the actual beginning of the tests. The results of the tests shall be furnished to the Procuring Service in a form substantially as outlined in figure 5.

4.2.6.3 Airspeed and Altitude Indication Errors.- The airspeed and altitude indication errors due to the location of the pitot tube and flush static port, corrected to standard sea level conditions, shall not exceed the limits specified in table I when tested in flight.

TABLE I
Tolerances on Airspeed Indicator and Altimeter Readings
(Corrected to Standard Sea Level Condition 29.92 Inches Hg and 15°C)

Configuration	Speed Range	Gross Weight	Tolerances	
			A. S. Ind.	Altimeter
Approach 1/	Stalling to 50 knots (58 mph) above stalling	Landing	±4 knots ±4.5 mph	25 ft per 100 knots IAS
Approach 1/	Stalling to 50 knots (58 mph) above stalling	Normal	±4 knots ±4.5 mph	25 ft per 100 knots IAS
Clean	Speed for maximum range to speed at normal rated power	Normal	±1/2 percent of indicated airspeed	25 ft per 100 knots IAS
Clean	Stalling to maximum	Normal	±4 knots ±4.5 mph	25 ft per 100 knots IAS
Clean	Stalling to maximum	Overload	±4 knots ±4.5 mph	25 ft per 100 knots IAS
Dive	Maximum speed with brakes full open	Normal	±6 knots ±7 mph	50 ft per 100 knots IAS

1/ The "Approach" configuration shall include (in addition to wing flaps and landing gear down) such conditions as "canopy open," "tail hook down," etc., which may vary with or be peculiar to certain model airplanes.

4.2.7 Effect of Maneuvers.

4.2.7.1 Pull-Up.- A rate of climb indicator shall be connected to the static pressure system. (The pilot's and copilot's instruments may be used.) The variation of static pressure during pull-ups from straight and level flight shall be determined at a safe altitude above the ground and at least three widely separated indicated airspeeds. During an abrupt "pull-up" from level flight, the rate of climb indicator shall indicate "Up" without excessive hesitation and shall not indicate "Down" before it indicates "Up."

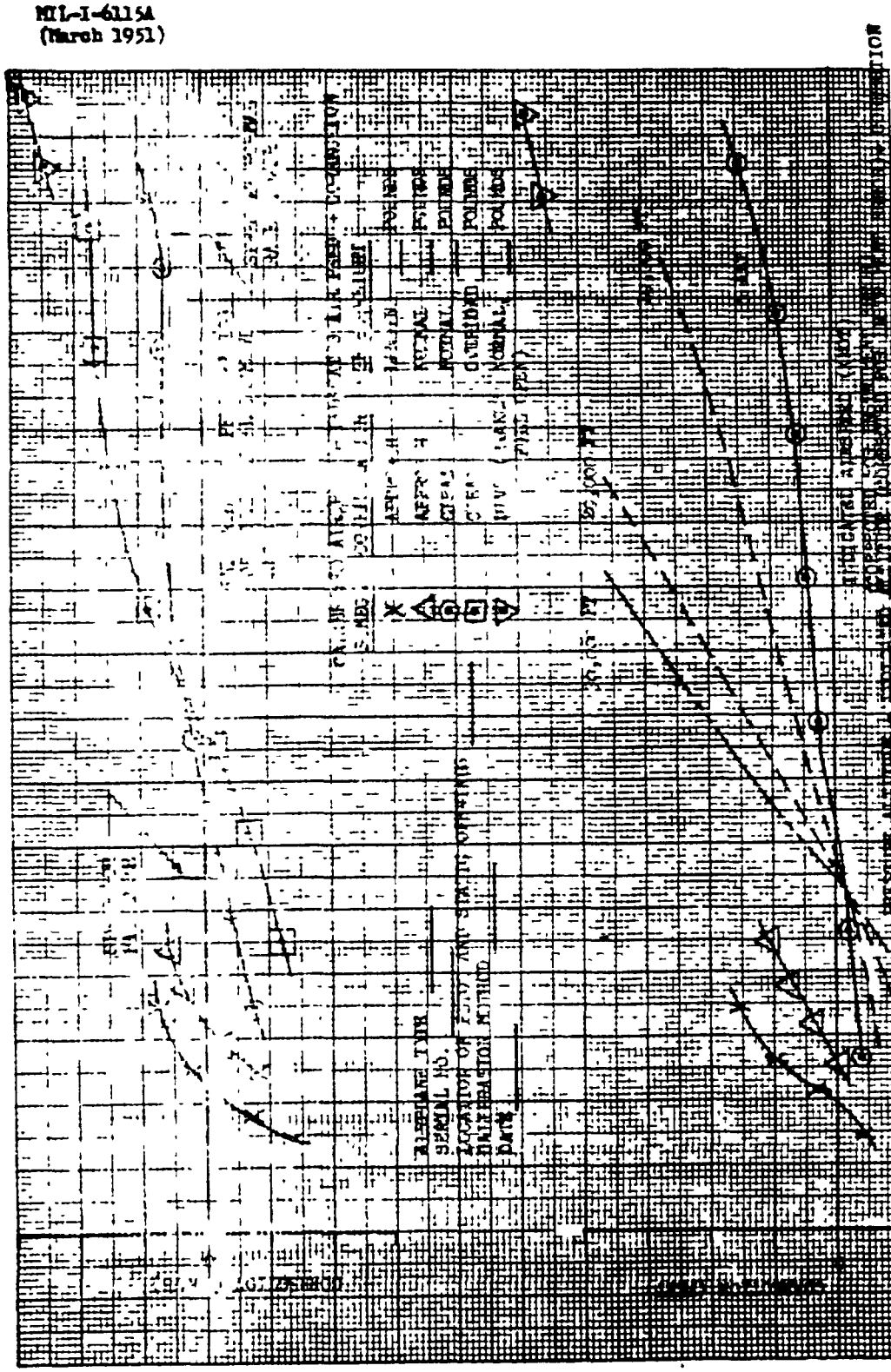


FIGURE 5. Form for Test Data

4.2.7.2 Push-Over.- A rate of climb indicator shall be connected to the static pressure system. (The pilot's and copilot's instrument may be used.) The variation of static pressure during push-over from straight and level flight shall be determined at a safe altitude above the ground and at three or more widely separated indicated airspeeds. During an abrupt "push-over" from level flight the rate of climb indicator shall indicate "Down" without excessive hesitation and shall not indicate "Up" before it indicates "Down."

4.2.7.3 Yawing.- Sufficient maneuvering shall be done in flight to determine that the installation of the pitot tube and flush static port shall provide accurate static pressure to the flight instruments during yawing maneuvers of the airplane.

4.2.7.4 Rough Air.- Sufficient maneuvering shall be done in flight to determine that the installation of the pitot tube and flush static port shall produce no objectionable instrument pointer oscillation in rough air. Pointer oscillation of the airspeed indicator shall not exceed 3 knots (4 mph).

5. NOTES

5.1 Ordering Data.- Requisitions, contracts, and orders should specify the type of aircraft and drawing numbers which are to be used.

Custodian
Air Force

Other interest:
Navy - BuAer