INCH-POUND

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PERFORMANCE SPECIFICATION

SWITCHES, PRESSURE, BULKHEAD MOUNTED, 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 requirements for aircraft pressure actuated electrical switches.

1.2 Classification. Pressure switches covered by this specification are of the following classes as specified (see 6.2).

1.2.1 Classes.

Class 1 - Absolute pressure switch (see 6.3.2).
Class 2 - Differential pressure switch (see 6.3.3).
Class 3 - Gauge pressure switch (see 6.3.4).
Class 4 - Approximate gauge pressure switch (see 6.3.5).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Air Warfare Center Aircraft Division, Code 414100B120-3, Highway 547, Lakehurst, NJ 08733-5100, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 1650

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

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

DEPARTMENT OF DEFENSE

MIL-PRF-5624	-	Turbine Fuel, Aviation, Grades JP-4, JP-5, and JP-5/JP-8ST
MIL-PRF-83282	-	Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base, Metric, NATO Code Number H-537
MIL-PRF-87257	-	Hydraulic Fluid, Fire Resistant; Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile

STANDARDS

DEPARTMENT OF DEFENSE

MIL-STD-130	-	Identification Marking of US Military Property
MIL-STD-704	-	Aircraft Electric Power Characteristics
MIL-STD-810	-	Environmental Test Methods

(See supplement 1 for list of specification sheets and MS sheets)

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

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated specifications or specification sheets), 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 Specification sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheet. In the event of any conflict between the requirements of this specification and the specification sheet, the latter shall govern.

3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.2.

3.3 Materials. Materials shall be compatible with fuel and hydraulic fluids conforming to MIL-PRF-5624 and MIL-PRF-83282 or MIL-PRF-87257.

3.3.1 Non-magnetic materials. Non-magnetic materials shall be used for all parts of the switch.

3.3.2 Metals. Metals shall be corrosion resistant or protected from corrosion. If materials other than metals are used, they shall be treated to resist corrosion. Materials having finishes and coatings which can crack, chip or scale due to fuels, salt spray, or atmospheric conditions to which the switch may be subjected in storage or during normal service life shall not be used.

3.3.2.1 Dissimilar metals. Where dissimilar metals are used in contact with each other protection shall be provided (see 6.7).

3.3.2.2 Electrical contact parts. The electrical contact parts shall carry the electrical loads specified in the applicable specification sheets.

3.3.2.5 Magnesium alloy parts. Magnesium alloy parts shall not be used.

3.3.2.6 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.3.3 Fungus proof materials. Materials which are nutrients for fungi shall not be used.

3.4 Characteristics. The external switches shall conform to the dimensions shown on figure 1 and the applicable specification sheets. The manufacturer's discretion shall govern the internal design of the switch.

3.4.1 Adjustments. Switches shall be provided with means of adjustment. Means of adjustments shall be externally accessible and shall be designed to meet the requirements specified in table I of the applicable specification sheets. All adjustments shall be provided with a locking mechanism for securely locking them after initial adjustments have been made to prevent loosening due to jars, strains, vibrations, and other conditions incident to shipping, storage, installation, and service. All adjustment mechanisms shall be designed in such a way that adjustment can be made without damaging the hermetic seal of the switch case. Switch shall be set at the factory during manufacture to the switching point(s) as specified in the applicable specification sheets.

3.4.1.1 Pressure adjustment. Switches shall provide means for accurately adjusting the actuation or deactuation of the switch valve or similar device. The adjustment shall incorporate a recessed slot or hex socket, which shall be filled with a potting compound. The switch shall be completely adjustable throughout the specified range so that the operating setting at which the switch operates, shall be set anywhere within the pressure range and tolerances specified in the applicable specification sheets.

3.4.2 Pressure ports. Pressure ports for all switches shall be provided. When a separate port is required for the case pressure release, it shall interface with a connecting adapter.

3.4.3 Switch case. The switch case dimensions shall be as shown on figure 1 and the applicable specification sheets (see 6.2). The case shall be hermetically sealed and the switch case design shall be such that the internal mechanisms shall be able to be removed from the case, replaced, and the case resealed. Switches designed for normal system pressures (see 6.3.6) above 150 pounds per square inch gauge (psig) shall incorporate a pressure release valve.

3.4.4 Weight. The maximum weight of the completely assembled switch, without fittings, mounting bolts, nuts, screws, and clamps shall be not greater than the maximum weight specified in the applicable specification sheets.

3.4.5 Port location and dimensions. The location and dimensions of the switch ports shall be in accordance with figure 1 and the applicable specification sheets.

3.4.6 Soldering. Low temperature solders shall not be used in joints where failure would permit the escape of the fluid actuating the switch.

3.4.7 Electrical characteristics.

3.4.7.1 Number of contacts. The pressure sensing mechanism shall operate either two or four contacts (one or two sets) as required in the applicable specification sheet.

3.4.7.2 Voltage. The switches shall operate in aircraft electrical systems in which the applied voltage does not exceed the limits specified in MIL-STD-704, Category B.

3.4.7.3 Current rating. The maximum current ac or dc rating of the switch shall be as specified in the applicable specification sheets.

3.4.7.4 Relays. Relays shall not be used inside the switch case. If a relay is incorporated in the circuit design, it shall be located in such a manner that it is totally independent of the switch case.

3.4.7.5 Electrical connector. The electrical connector shall mate with MS3443. The electrical connector used shall be in accordance with figures 1 and 2 of the applicable specification sheet.

3.4.8 Finish. Protective coatings and finishes, shall not crack, chip, or scale during normal service life or from extreme atmospheric conditions.

3.5 Performance.

3.5.1 Examination. When examined as specified in 4.5, the switches shall meet the dimensional requirements of this specification and the applicable specification sheets.

3.5.2 Proof pressure and drift. When subjected to the proof pressure and drift test as specified in 4.6.1, the switches shall operate within the tolerances specified in table 1 of the applicable specification sheets.

3.5.3 Dielectric strength. The switch shall withstand 500 vac. When tested as specified in 4.6.2, there shall be no breakdown of insulation or any permanent damage to the switch as a result of the test.

3.5.4 Leakage. When tested as specified in 4.6.3, the detected leakage shall be not greater than 0.1-micron cubic foot per hour at one atmosphere.

3.5.5 Repeatability. When tested as specified in 4.6.4, the pressure at which the switches actuate and deactuate shall be not greater than the tolerances specified in the applicable specification sheets.

3.5.6 Operating pressure range. When tested as specified in 4.6.5, the switches shall be within the operating range as specified in the applicable specification sheets.

3.5.7 Operating differential (see 6.3.7). When tested as specified in 4.6.6, the difference between the actuation and deactuation values (reference values) shall be not greater than the tolerances specified in the applicable specification sheets.

3.5.8 Position. When tested as specified in 4.6.7, the reference values shall be not greater than the tolerances specified in the applicable specification sheets.

3.5.9 Room temperature endurance. When tested as specified in 4.7.1, the operating points shall not differ from the reference values by more than the tolerances specified in the applicable specification sheets.

3.5.10 High temperature operation. When tested as specified in 4.7.2, the high temperature operating points shall not differ from the reference values by more than the tolerance specified in the applicable specification sheet.

3.5.11 Low temperature operation. When tested as specified in 4.7.3, the operating points shall not differ from the reference values (see 6.3.8) by more than the tolerance specified in the applicable specification sheet.

3.5.12 Vibration. When tested as specified in 4.7.4, there shall be no opening of closed contacts or closing of open contacts during the test. At the conclusion of the test, the switch shall be electrically operative without damage to the internal parts.

3.5.13 Shock. When tested as specified in 4.7.5, there shall be no opening of closed contacts or closing of open contacts during the test. At the conclusion of the test the switch shall be electrically operative and there shall be no damage to the internal parts.

3.5.14 Salt spray. When tested as specified in 4.7.6, there shall be no evidence of corrosion.

3.5.15 Burst pressure. When tested as specified in 4.7.7, there shall be no evidence of leakage.

3.5.16 Proof pressure. The proof pressure of the switch case shall be 75 $\pm$ 5 psi. When tested as specified in 4.7.8, there shall be no evidence of valve leakage or damage to the valve.

3.5.17 Endurance. When tested as specified in 4.7.9, the switch contacts shall break a power load and the operating pressures shall not differ from the reference values by more than the tolerances specified in the applicable specification sheet.

3.5.18 Case pressure release. A device to discharge excessive case pressure shall be provided in each pressure switch within the pressure ranges of 0-500 psi to 0-5,000 psi. This device shall operate to release the internal case pressure through an orifice whenever the internal case pressure, relative to

the atmosphere, reaches 90 ± 30 psi. If a metal blowout device is used it shall not damage hermetic sealing. When tested as specified in 4.7.10, the case pressure release device shall operate at a pressure of 90 ± 30 psi. There shall be no damage to the switch or leakage from the switch case.

3.5.19 Filling medium. The filling medium shall contain not more than .006 milligram of water vapor per liter (dew point –65 °C) at the filling pressure. The absolute pressure of the filling medium in the case shall be 1.0 ± 0.1 atmosphere.

3.6 Workmanship. The switch, including all parts and accessories, shall be constructed and finished to produce an item free from all defects, which would affect proper functioning in service and freedom from burrs and sharp edges.

4. VERIFICATION

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

a. First article inspection (see 4.2).

b. Conformance inspection (see 4.3).

4.2 First article inspection. The first article inspection consists of examinations and tests (see table I). The sample shall be representative of the design, configuration, and performance of the switches which shall be produced on the manufacturer's production line.

4.2.1 First article inspection sample. First article inspection samples shall consist of three switches manufactured in accordance with this specification (see 6.2).

4.3 Conformance inspection. Conformance inspection shall consist of examinations (see table I) performed in the order listed.

4.3.1 Sampling for conformance inspection.

a. Sampling plan A
b. Sampling plan B

4.4 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in 4.4.1.

4.4.1 Atmospheric conditions. Unless otherwise specified in the contract, all tests required by this specification shall be performed in accordance with ASTM-E171.

4.4.2 Operating conditions. Actuation of the switch shall always be achieved under conditions of rated current and voltage. The pressure variation necessary to produce actuation shall be as specified in the applicable specification sheets. Unless otherwise specified by the acquisition activity, applied pressure shall not exceed the proof pressure. On switches that have two or more independent sets of contacts, which operate at different pressures, the operating pressure for each set of contacts shall be determined when tests involve the determination of the operating pressures.

TABLE I. First article inspection.

Item	Item name	Requirements paragraph	Test paragraph
1	Examination	3.5.1	4.5
2	Proof pressure and drift	3.5.2	4.6.1
3	Dielectric strength	3.5.3	4.6.2
4	Leakage	3.5.4	4.6.3
5	Repeatability	3.5.5	4.6.4
6	Operating pressure range	3.5.6	4.6.5
7	Operating differential	3.5.7	4.6.6
8	Position	3.5.8	4.6.7
9	Room temperature endurance	3.5.9	4.7.1
10	High temperature operation	3.5.10	4.7.2
11	Low temperature operation	3.5.11	4.7.3
12	Vibration	3.5.12	4.7.4
13	Shock	3.5.13	4.7.5
14	Salt spray	3.5.14	4.7.6
15	Burst pressure	3.5.15	4.7.7
16	Proof pressure	3.5.16	4.7.8
17	Endurance	3.5.17	4.7.9
18	Case pressure release	3.5.18	4.7.10

4.4.3 Procedure for operation. The pressure connection(s) for each sensor shall be connected to a pressure source. The pressure shall be slowly increased until the switch actuates. The pressure shall then be increased to the normal system pressure and slowly decreased until the switch deactuates.

4.5 Examination of product. Each switch shall be examined externally to determine conformance with the applicable specification sheets and with the requirements of 3.5.1.

4.6 Method of tests.

4.6.1 Proof pressure and drift. The switch shall be subjected to the following procedure:

a. The switch shall be operated and the pressure at which it actuates noted. A pressure equal to the normal system pressure shall be slowly applied and released. One minute after release of pressure, the actuation pressure shall once again be determined and it shall not differ from the previously noted value by more than the tolerance specified in the applicable specification sheets.

b. A pressure equal to a proof pressure shall be slowly applied and released after 2 minutes. Two minutes after the pressure release, the actuation pressure shall be determined, and it shall not differ from the value specified in 4.6.1a by more than the tolerance specified in the applicable specification sheets.

4.6.2 Dielectric strength. During production, prior to sealing the case, a 500 volts alternating current (VAC) at 60 Hz shall be applied for 1 minute between any two terminals not electrically connected and between any terminal and ground (see 3.5.3). After the case is sealed, a voltage of 200 VAC at 60 Hz shall be applied for 5 seconds between any two terminals not electrically connected and between any terminal and ground.

4.6.3 Leakage. Each switch shall be tested for case leakage with a mass spectrometer or an equivalent, quantitative leak test. If a nitrogen-helium mixture is utilized as the filling medium, the detected leak rate shall not exceed the limit as specified in 3.5.4. The immersion test of MIL-STD-810, Method 512, shall be used.

4.6.4 Repeatability. The switch shall be connected for operation to a pressure source. The switch shall not be connected to a relay. The procedure shall be as follows:

a. With the pressure applied, the adjustment screw shall be turned so that actuation of the switch is caused at the lower portion of the operating range. The switch shall then be operated in accordance with 4.4.3. A pressure sufficient to actuate the switch shall be applied 10 times, the pressure at which the switch actuates and deactuates shall be recorded. These values and the operating differential shall not differ from the initial operating pressure settings by more than the tolerance specified in the applicable specification sheets.

b. Repeat procedure (a) with the actuating point set near the middle of the operating range of the switch.

c. Repeat procedure (a) with the actuating point set in the high portion of the operating range of the switch.

4.6.5 Operating pressure range of adjustment. The switch shall be set to the upper and lower limits of adjustment and pressure shall be applied to determine if the adjustable range (see 6.3.1) is within the operating range specified in the applicable specification sheets.

4.6.6 Operating differential.

4.6.6.1 Initial setting. If the pressure at which the switch shall operate is specified by the acquiring activity, the switch shall be set as near to the specified value as possible. If the value at which the switch shall operate is not specified by the acquiring activity, the operating point shall be set at any value within the potential operating range that is desired. All switches shall not be tested at the same pressure and the setting shall be varied on different samples.

4.6.6.2 Procedure. The switch shall be operated as specified in 4.4.3. The actuation and deactuation pressures and the operating differential shall be noted. The operating differential shall be not greater than the tolerances specified in the applicable specification sheets.

4.6.7 Position. The switch shall be operated to determine its actuation pressure in each of three mutually perpendicular axes. The actuation and deactuation pressures shall be determined as specified in 4.4.3 and noted in each position. They shall not differ from the reference values by more than the tolerances specified in the applicable specification sheets.

4.7 Environmental.

4.7.1 Room temperature endurance. The switch shall be operated for 20,000 cycles under rated current with the pressure applied ranging from 0 to 80 percent of the range specified in the applicable specification sheet. The cycling rate shall be not greater than 60 cycles per minute (cpm). Upon completion of each 5,000 ± 100 cycles, the operating points of the switch shall be determined as specified in 4.4.3, and they shall not differ from the reference values by more than the tolerance specified in the applicable specification sheet.

4.7.2 High temperature operation. The switch shall be subjected to the high temperature operation test as specified in the following procedures:

4.7.2.1 Procedure I. The pressure switch shall be placed in a test chamber. The internal temperature of the chamber shall be 265 ± 10°F (125° ± 5°C) for a minimum of 16 hours. While the test pressure switch is still at the high temperature, the pressure at which the switch operates shall be determined as specified in 4.4.3. The pressure shall not differ from the reference values by more than the tolerance specified in table I of the applicable specification sheet. If the switch operates at full performance, it shall then be subjected to 3,000 cycles of operation, at a cycling rate of 30 ± 10 cpm with rated current applied. At the conclusion of the 3,000 cycles of operation, the pressure at which the switch operates shall be determined as specified in 4.4.3, and shall not differ from the reference values by more than the tolerance specified in the applicable specification sheet. With the temperature still maintained at 265 ± 10°F (125 ± 5°C), 97 ±3 percent of the normal system pressure specified in the applicable specification sheets shall be applied to the pressure sensor(s) for 20 hours. At the conclusion of the 20 hour period, the

pressure at which the switch operates (see 4.4.3), shall be within the reference values and tolerances specified in the applicable specification sheets.

4.7.2.2 Procedure II. Whenever II is specified (see 6.2), the testing methods specified in Procedure I shall be repeated, except that a temperature of 425 ± 10°F (200° ± 5°C) shall be substituted for 265 ±10°F (125° ± 5°C).

4.7.3 Low temperature operation. The switch shall be placed in a chamber, which is then cooled to and maintained at -85 ±10°F (-65 ± 5°C) for 20 hours. At the completion of the 20 hour period the temperature shall be raised to -67 ± 10°F (-55 ± 5°C) for 4 hours. At the end of this period and while still at this temperature, the pressure at which the switch operates, determined as specified in 4.4.3, shall not differ from the reference values by more than the tolerance specified in the applicable specification sheet.

4.7.4 Vibration. The switch shall be subjected to vibration testing in accordance with MIL-STD-810, Method 514, test Procedure I, and test conditions I-3.2.5. The switch shall be mounted on a vibration test stand and connected to a pressure source. A pressure equal to the pressure value that is midway between the on and off value(s) of the switch shall be applied. While operating, the switch shall be subjected to vibration in each of the mutually perpendicular axes. The switch shall have the pressure slowly increased and decreased, while being vibrated. As the pressure approaches the operating point, the switch shall be carefully observed to see if contact flutter exists. The transition from "on" to "off" and "off" to "on" shall be positive (without flutter). The resonant frequencies of the switch shall be determined for each axis while varying the frequency of the applied vibration slowly through the range and at vibratory acceleration specified at the test Procedure I. When resonance is revealed, the switch shall be vibrated in the axis at which it is revealed for 2 hours and with the applied double amplitude or vibratory accelerations specified. This period of vibration shall be accomplished in sequence for each of the two remaining mutually perpendicular axes of vibration. When more than one resonant frequency is encountered with vibration applied along any one axis, the test shall be conducted at the most severe resonant frequency. When resonant frequencies are not apparent within the specified frequency range, the switch shall be vibrated twice as long as those specified for resonance at a frequency of 55 Hz and at amplitude of 0.060 inch. During the vibration period, the switch shall be observed for contact chattering or switch operation (see 3.5.12). At the end of the test period, the switch shall be free of any defects produced by the testing procedure. The operating points shall be determined as specified in 4.4.3 and they shall not differ from the reference values by more than the tolerance specified in the applicable specification sheet.

4.7.5 Shock. The switch shall be subjected to shock test in accordance with MIL-STD-810, Method 516 using an acceleration of 25g. Prior to each application of shock, the switch shall be pressurized to a point just below the actuating point, and then to a point just above the deactuating point and observed for switch operation (see 3.5.13). At the conclusion of the test,

the pressure at which the switch operates shall be determined as specified in 4.4.3, and shall not differ from the reference values by more than the tolerance specified in the applicable specification sheets.

4.7.6 Salt spray. The switch shall be subjected to salt spray test in accordance with MIL-STD-810, Method 509. All ports shall be closed during this test. The switch case and all internal parts shall not be corroded (see 3.5.14).

4.7.7 Burst pressure. The switch shall withstand a burst pressure equal to 1.5 times the normal operating system pressure for 3 minutes (see 3.5.15).

4.7.8 Proof pressure. A pressure of 75 ± 5 psig shall be applied to the case pressure release valve for 10 minutes. The pressure shall then be released and the leakage test of 4.6.3 shall be performed (see 3.5.16).

4.7.9 Endurance. The switch shall be subjected to 100,000 cycles of pressure, each cycle ranging from zero to 80 percent of normal system pressure. The pressure cycling shall be conducted at the rate of not more than 60 cpm. During this test, the switch contacts shall break a power load, which shall be equal to the values specified in table I of the applicable specification sheet. At the conclusion of the test, the switch shall be operated to determine the operating pressures as specified in 4.4.3. These pressures shall not differ from the reference values by more than the tolerances specified in the applicable specification sheets. The 23,000 cycles accomplished as specified in this paragraph and 4.7.10 shall be considered as part of the 100,000 total cycles (see 3.5.17).

4.7.10 Case pressure release. The pressure blowout device shall be tested by actual injection of pressure into the switch case. The device shall operate at a pressure of 90 ± 30 psi. There shall be no evidence of fracture to the switch or switch case (see 3.5.18).

4.8 Conformance tests. The conformance tests shall consist of the individual tests (see 4.8.1) and the sampling tests (see 4.8.2) performed on switches manufactured and submitted for acceptance under contract.

4.8.1 Individual tests. The individual tests of the switches shall consist of the tests specified in table II, which shall be conducted on each switch.

TABLE II. Individual tests.

Item	Name of test	Requirement paragraphs	Test paragraphs
1	Examination of product	3.5.1	4.5
2	Proof pressure and drift	3.5.2	4.6.1
3	Dielectric strength	3.5.3	4.6.2
4	Leakage	3.5.4	4.6.3

4.8.2 Sampling tests.

4.8.2.1 Sampling plan A. Sample shall consist of 3 switches selected randomly from each lot of 100 or less, which have passed the individual tests. A lot shall consist of identical switches with the same manufacturer's part number, manufactured under the same conditions and submitted at the same time.

4.8.2.1.1 Sampling plan A tests. The sampling plan A shall consist of the tests specified in table III, which shall be conducted on each sample.

4.8.2.2 Sampling plan B. Three switches shall be selected randomly from the first 15 switches (see 6.2).

4.8.2.2.1 Sampling plan B tests. Sampling plan B test shall consist of the tests specified in table IV, which shall be conducted on each sample:

TABLE III. Sampling plan A test.

Item	Name of test	Requirement paragraphs	Test paragraphs
1	Position	3.5.8	4.6.7
2	Repeatability	3.5.5	4.6.4
3	Operating pressure range and adjustment	3.5.6	4.6.5
4	Operating differential	3.5.7	4.6.6
5	Room temperature endurance	3.5.9	4.7.1
6	High temperature operation	3.5.10	4.7.2
7	Low temperature operation	3.5.11	4.7.3
8	Vibration	3.5.12	4.7.4

TABLE IV. Sampling plan B test.

Item	Name of test	Requirement paragraphs	Test paragraphs
1	Sampling plan A tests	-	4.8.2.1.1
2	Shock	3.5.13	4.7.5
3	Salt spray	3.5.14	4.7.6
4	Burst pressure	3.5.15	4.7.7
5	Case pressure release	3.5.18	4.7.10
6	Endurance	3.5.17	4.7.9

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

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

6.1 Intended use. The pressure switches covered by this specification are used in the production and maintenance of military aircraft exposed for prolonged periods to extreme seagoing environments not encountered by commercial aircraft.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.

b. The specification sheet number.

c. Type and class of switch (see 1.2).

d. Packaging and marking requirements (see 5.1).

e. Name and address of the laboratory and the activity or agency conducting the first article inspections program (see 4.2.1).

f. Type of fluid or gas to be used for pressurization of the switches.

g. Sample size and lot acceptance and rejection criteria.

h. Test Procedure I or Procedure II (see 4.7.2.1 and 4.7.2.2).

i. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2 and 2.3).

6.3 Definitions.

6.3.1 Adjustable range. The adjustable range of a switch is the limiting range of pressures within which both the actuation and the deactuation point may be adjusted.

6.3.2 Class 1 absolute pressure switch. A switch which responds to the difference between applied pressure and a vacuum. The applied pressure acts through a pressure port against one side of a pressure sensor. The vacuum is sealed in the switch and acts against the opposing side of the pressure sensor (see 1.2.2).

6.3.3 Class 2 differential pressure switch. A switch which responds to the difference between two pressures applied through separate ports against opposing sides of a pressure sensor (see 1.2.2).

6.3.4 Class 3 gauge pressure switch. A switch which responds to the difference between an applied pressure and a pressure of one atmosphere. The applied pressure acts through a pressure port against one side of a pressure sensor. The opposing side of the sensor is vented to the atmosphere (see 1.2.2).

6.3.5 Class 4 approximate gauge pressure switch. A switch which responds to the difference between an applied pressure and a pressure of one atmosphere. The applied pressure acts through a pressure port against one side of the sensor. The pressure of one atmosphere acts against the opposing side of the sensor and is sealed into the switch (see 1.2.2).

6.3.6 Normal system pressure. The maximum pressure to which a pressure switch is subjected throughout its service life. It serves as a basis for the calculation of proof and surge pressures.

6.3.7 Operating differential. The operating differential is the difference between the two pressures at which the switch actuates and deactuates.

6.3.8 Reference values. The term "reference values" is used in this specification to mean the pressure at which the switch is set to actuate or deactuate.

6.4 Electronic parts. Electronic parts cited in MIL-HDBK-5400 should be considered. MIL-HDBK-179 offers some practical advice on selecting components.

6.5 Type I pressure switch. The type I pressure switches are obsolete and no longer used by Navy. The document has been canceled dated 22 April, 1988.

6.6 Dissimilar metal. MIL-STD-889 provides method for protecting joints of dissimilar metals (see 3.3.2.1).

6.7 Subject term (key word) listing.

Gauge
Indicator cabin
Instrument

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

CONCLUDING MATERIAL

Custodians:
Army - AV
Navy - AS
Air Force - 99

Review activities:
Army - MI
Navy - MC
Air Force - 71
DLA – CC

Preparing activity:
Navy - AS
(Project 1650-0596)

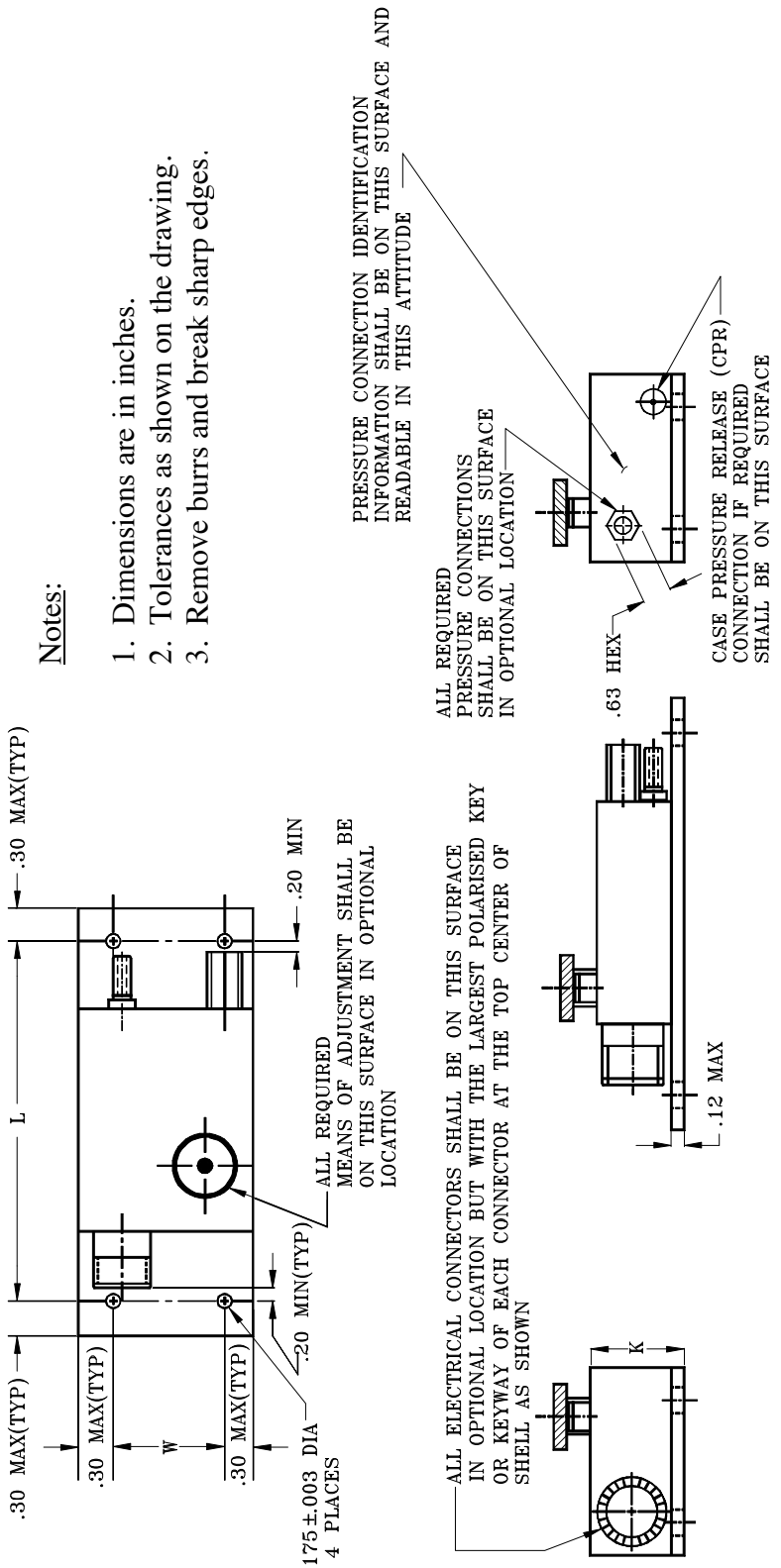

FIGURE 1. Configuration and dimensions of pressure switch.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

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.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
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I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER MIL-PRF-8932B	2. DOCUMENT DATE (*YYMMDD*) 27 August 1998

3. DOCUMENT TITLE
SWITCHES, PRESSURE, BULKHEAD MOUNTED, 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) DSN: (*If Applicable*)	7. DATE SUBMITTED (*YYMMDD*)

8. PREPARING ACTIVITY

a. NAME COMMANDER NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION	b. TELEPHONE NUMBER (*Include Area Code*) (1) Commercial: (732) 323-2947 (2) DSN: 624-2947
c. ADDRESS (*Include Zip Code*) CODE 414100B120-3 HIGHWAY 547 LAKEHURST, NJ 08733-5100	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Logistics Agency (DLSC-LM), Attn: Carla Jenkins/John Tascher 8725 John J. Kingman Road, Ste 2533 Fort Belvoir, VA 22060-6221 Telephone (703) 767-6874