

MIL-G-25308B(USAF)
2 December 1971
 Superseding
 MIL-G-25308A(USAF)
 2 July 1968

MILITARY SPECIFICATION

GAGE, PRESSURE, DIAL INDICATING, HYDRAULIC, TYPE ME-1

1. SCOPE

1.1 This specification covers the requirements for one type of hydraulic, dial indicating, pressure gage, designated Type ME-1.

*2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

Federal

| | |
|-----------|-------------------------------------|
| QQ-P-416 | Plating, Cadmium (Electrodeposited) |
| PPP-B-601 | Box, Wood Cleated-Plywood |
| PPP-B-636 | Box, Fiberboard |

Military

| | |
|-------------|---|
| MIL-P-116 | Preservation, Methods of |
| MIL-C-5541 | Chemical Films and Chemical Film Materials for Aluminum and Aluminum Alloys |
| MIL-L-6085 | Lubricating Oil, Instrument, Aircraft, Low Volatility |
| MIL-S-7742 | Screw Threads, Standard, Optimum Selected Series: General Specification for |
| MIL-A-8625 | Anodic Coatings for Aluminum and Aluminum Alloys |
| MIL-B-17497 | Bearing, Jewel, Sapphire or Ruby, Synthetic |

STANDARDS

Federal

| | |
|-------------|--------|
| FED-STD-595 | Colors |
|-------------|--------|

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Military

| | |
|--------------|--|
| MIL-STD-100 | Engineering Drawing Practices |
| MIL-STD-129 | Marking for Shipment and Storage |
| MIL-STD-130 | Identification Marking of US Military Property |
| MIL-STD-143 | Standards and Specifications, Order of Precedence for the Selection of |
| MIL-STD-781 | Reliability Tests, Exponential Distribution |
| MIL-STD-810 | Environmental Test Methods |
| MIL-STD-831 | Test Reports, Preparation of |
| MIL-STD-889 | Dissimilar Metals |
| MIL-STD-1186 | Cushioning, Anchoring, Bracing, Blocking, and Waterproofing, with Appropriate Test Methods |
| MS28105 | Window, Dial - Aircraft Instrument Cover, Glass |
| MS33585 | Pointers, Dial, Standard Design of Aircraft Instrument |
| MS33639 | Case, Instrument, Clamp-Mounted, Aircraft |
| MS33649 | Bosses, Fluid Connection - Internal Straight Thread |

(Copies of documents required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 Qualification. The gages furnished under this specification shall be products which are qualified for listing on the applicable qualified products list at the time set for opening of bids (see 4.4 and 6.3).

3.2 Selection of standards and specifications. Standards and specifications for necessary commodities and services not specified herein shall be selected in accordance with MIL-STD-143.

3.3 Materials

3.3.1 Nonmagnetic materials. Nonmagnetic materials shall be used for all parts of the gage except where magnetic materials are essential.

3.3.2 Nonferrous materials. Nonferrous materials shall be used for all parts of the gage except where ferrous materials are essential.

3.3.3 Metals. Metals shall be corrosion-resistant or suitably treated to resist corrosion due to fuels, salt spray, or atmospheric conditions likely to be met in storage or normal service.

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*3.3.4 Dissimilar metals. Unless suitably protected against electrolytic corrosion, dissimilar metals shall not be used in intimate contact with each other. Dissimilar metals are defined in MIL-STD-889.

3.3.5 Toxic and corrosive fumes. The gage shall be of such material and construction that fumes, when burned, or gases that combine with the atmosphere to form acid or corrosive alkali will not be liberated.

3.3.6 Protective treatment. When materials are used in the construction of the gage that are subject to deterioration when exposed to climatic and environmental conditions likely to occur during service usage, they shall be protected against such deterioration in a manner that will in no way prevent compliance with the requirements of this specification. The use of any protective coating that will crack, chip, or scale with age or extremes of climatic and environmental conditions shall be avoided.

3.3.7 Fungus-proof materials. Materials that are nutrients for fungi shall not be used where it is practical to avoid them. Where used and not hermetically sealed, they shall be treated with a fungicidal agent acceptable to the procuring activity. However, if they will be used in a hermetically sealed inclosure, fungicidal treatment will not be necessary.

3.4 Design and construction. The gage shall be designed to indicate directly the pressure in aircraft hydraulic and pneumatic systems. The gage shall be so constructed that no parts will work loose in service and shall be built to withstand the strains, jars, vibrations, and other conditions incident to shipment, storage, installation, and service.

3.4.1 Pivots, bearings, and gears shall neither bind nor shake and shall be as frictionless as practicable.

3.4.2 Adjustment mechanism. When the gage is so designed as to permit adjustment, it shall be provided with a means for adjusting or correcting the indications which shall be simple to manipulate and so designed that adjustments can be made without the use of special tools. The means of adjustment need not be outside the case.

3.4.3 The gage mechanism shall be comprised of units distinct from the case. The gage shall be sufficiently rugged that small distortions of the case will not affect accuracy of the indication.

3.4.4 Reliability. The gage shall have a minimum acceptable mean-time-between-failures (MTBF) of 2,000 hours based upon a discrimination ratio of 1.5 and a confidence factor of 90 percent.

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3.5 Performance. The gage shall operate satisfactorily after subjection to the following conditions:

- a. Temperatures - operating temperatures ranging from -54° to +100°C and nonoperating temperatures ranging from -65° to +145°C
- b. Vibration - vibration of 2g from 5 to 500 Hz
- c. Temperature-altitude - pressure altitude of 100,000 feet at -55°C
- d. Salt fog - exposure to salt sea atmosphere for 48 hours without evidence of corrosion or deterioration
- e. Humidity - relative humidity of 95 percent
- f. Fungus - fungus growth as encountered in tropical climates
- g. Dust - exposure to dry dust-laden atmosphere
- h. Overpressure - overpressure of 5,000 psi.

3.5.1 Tolerances. The gage shall operate within the tolerances specified in tables I and II.

TABLE I. Scale Error

Scale Error Tolerance \pm PSI

| Test Pressure | Dust Room temp Salt fog Humidity | Low temp; Low temp exp; High temp (100°C) Altitude Vibration | High temp exp (145°C) |
|---------------|---|--|--------------------------|
| 0 | 50 | 75 | 100 |
| 500 | 50 | 100 | 125 |
| 1,000 | 50 | 100 | 125 |
| 1,500 | 50 | 100 | 125 |
| 2,000 | 50 | 125 | 150 |
| 2,500 | 50 | 125 | 150 |
| 3,000 | 50 | 125 | 150 |
| 3,500 | 75 | 125 | 150 |
| 4,000 | 75 | 125 | 150 |

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TABLE II. Test Pressures and Tolerances

| Test | Test Pressure | Tolerance PSI |
|----------------------------|---------------|------------------------|
| Friction error - all tests | ----- | 75.0 |
| Position error | 2,000 | 30.0 |
| Overpressure | 5,000 | 80.0 (+ room temp tol) |
| Seasoning | ----- | 20.0 (+ room temp tol) |
| Vibration | 2,000 | 100 |
| Pointer oscillation | | 100 |
| Pointer variation | | |

3.6 Part numbering of interchangeable parts. All parts having the same manufacturer's part number shall be functionally and dimensionally interchangeable. The item identification and part number requirements of MIL-STD-100 shall govern the manufacturer's part numbers and changes thereto.

3.7 Case. The case shall consist of a body and a bezel ring and shall conform to figure 1. The case body shall be made of either nonferrous low-density metal or of synthetic material, shall be uniform in texture, and shall have a smooth surface. The bezel and that part of the case visible from the cockpit side of the instrument panel shall be finished in flat black, color No. 37038 of FED-STD-595. The remainder of the case may be finished in black and shall be adequately protected to satisfactorily withstand the environmental conditions specified herein. Synthetic material shall be of the thermal-setting type composed of a suitable filler and phenol condensation product binder.

3.8 Mounting nuts. When attached insert nuts are used, each mounting lug shall be fitted with 0.138-32 UNC-2B self-locking insert nuts which shall be so attached as to prevent loosening under an axial load of 25 pounds and prevent turning under a torque of 10 inch-pounds.

3.9 Boss. The boss on the gage shall conform to MS33649-4. Flats shall be provided on the side of the boss for a minimum distance of 3/8 inch to permit use of a wrench to tighten the mating fittings.

3.10 Cover glass. The cover glass shall be in accordance with MS28105. The thickness shall be the minimum practicable and entirely suitable for the purpose.

3.11 Dial to cover glass distance. The distance between the inner surface of the cover glass and the dial shall be the minimum practicable and shall not exceed 0.125 inch.

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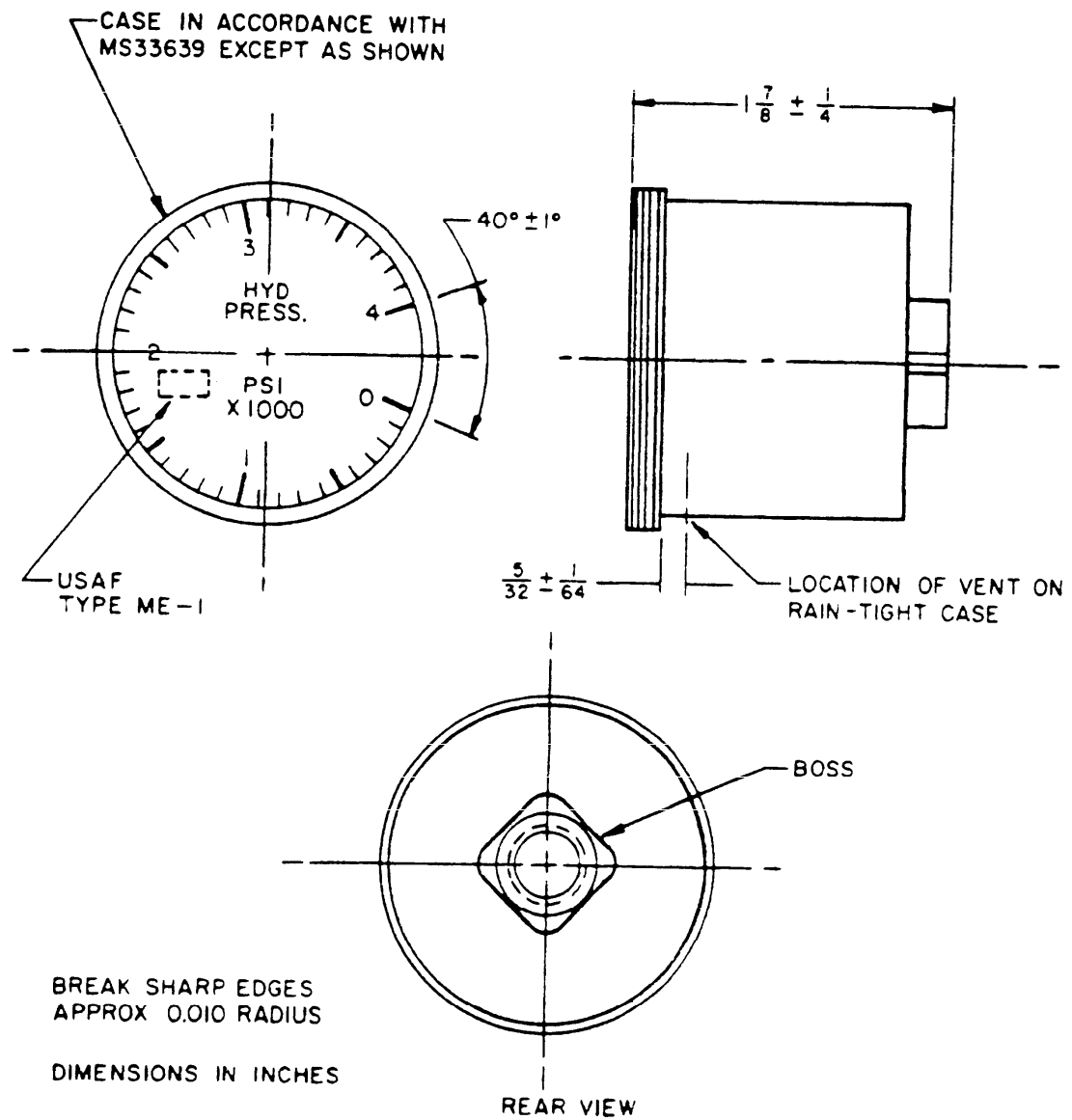


FIGURE 1. Case and Dial

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3.12 Cover glass to edge of case distance. The distance between the outer surface of the cover glass and the front edge of the case shall be the minimum practicable and shall not exceed 1/32 inch.

3.13 Pointer. The pointer shall conform to MS33585-8 except that the length shall be such that the tip will extend into the scale a distance equal to one- to two-thirds the length of the shortest graduation.

3.13.1 Pointer finish. The visible portion of the pointer shall be white, color No. 37875 of FED-STD-595.

3.13.2 Overpressure stop. An overpressure stop shall be provided to restrain the prime mover and to prevent disengagement of the pinion and sector gears during service use and under the tests conditions specified herein. The stop shall allow the pointer to travel beyond full scale and to a point within $\pm 10^\circ$ from the horizontal centerline of the dial. Two range marks conforming to color No. 37038 of FED-STD-595 shall be located 10° on either side of the horizontal centerline on the right-hand side of the dial.

3.14 Dial. The dial shall conform to figure 1 and shall be constructed of metal. The minimum diameter across the outside ends of the graduations shall be 1-3/4 inches. The 2000-psi graduation shall be located on the horizontal centerline at the left side of the dial. If screws are used to fasten the dial, they shall also be located on the horizontal centerline of the dial.

3.14.1 Markings. The following markings shall be finished in color No. 37875 of FED-STD-595. Marking dimensions shall be as specified.

| | Height or Length Inch $\pm 1/64$ | Width of Line or Graduation Inch ± 0.005 |
|-------------------------|-------------------------------------|--|
| Numerals 0, 1, 2, 3, 4 | 5/32 | 0.025 |
| Major graduations | 3/16 | 0.031 |
| Minor graduations | 3/32 | 0.020 |
| Lettering HYD PRESS | 1/8 | 0.025 |
| Lettering PSI and X1000 | 3/32 | 0.020 |

3.14.1.1 The markings USAF and Type MF-1 shall be permanently and legibly marked on the dial in 1/16-inch letters. The color of these markings and the color of all dial surfaces not otherwise specified shall be in accordance with color No. 37038 of FED-STD-595. Locations of these markings on the dial shall be optional.

3.15 Screw threads. Unless otherwise specified, screw threads shall be in accordance with MIL-S-7742.

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3.16 Lubricants. Lubricants shall conform to MIL-L-6085.

3.17 Weight. The weight of the gage shall not exceed 0.5 pound.

3.18 Jewel Bearings. When synthetic sapphire or ruby bearings are used, they shall conform to MIL-B-27497.

3.19 Finishes and protective coatings

3.19.1 Aluminum-alloy parts. Aluminum-alloy parts shall be covered with an anodic film conforming to MIL-A-8625, except as follows:

3.19.1.1 Dials, small holes, and case inserts need not be anodized.

3.19.1.2 Aluminum alloys which do not anodize satisfactorily shall be coated with a chemical film in accordance with MIL-C-5541.

3.19.1.3 Where the primary purpose of the treatment is to afford a suitable paint base, chemical treatments in accordance with MIL-C-5541 may be used in lieu of anodizing.

3.19.1.4 Castings containing nonaluminum alloy integral inserts may be treated with a chemical film in accordance with MIL-C-5541 in lieu of anodizing.

3.19.1.5 When abrasion resistance is a factor, chemical films in accordance with MIL-C-5541 shall not be used in lieu of anodizing.

3.19.2 Steel parts. Cadmium plating of steel parts, when used, shall be in accordance with QQ-P-416, type II or III, as applicable, and of a class that is adequate to achieve the degree of protection required.

3.20 Identification of product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

3.21 Workmanship. The gage shall be constructed and finished in a thoroughly workmanlike manner. Particular attention shall be given to neatness and thoroughness of soldering, wiring, marking of parts and assemblies, and freedom of parts from burrs and sharp edges.

3.21.1 Dimensions. Dimensions and tolerances not specified shall be as close as is consistent with the best shop practices. Where dimensions and tolerances may affect the interchangeability, operation, or performance of the gage, they shall be held or limited accordingly.

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3.21.2 Gears. Gear assemblies shall be properly aligned and meshed and shall be operable without interference, tight spots, loose spots, or other irregularities. Where required for accurate adjustments, gear assemblies shall be free from backlash.

3.21.3 Screw assemblies. Assembly screws and bolts shall be tight. The word tight means that the screw or bolt cannot be appreciably tightened further without damage or injury to the screw or bolt or threads.

3.21.4 Cleaning. The gage shall be thoroughly cleaned of loose, spattered, or excess solder, metal chips, and other foreign materials after final assembly. Burrs and sharp edges, as well as resin flash that may crumble, shall also be removed.

4. QUALITY ASSURANCE PROVISIONS

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

4.2 Classification of tests. The inspection and testing of gages shall be classified as follows:

- a. Qualification tests
- b. Quality conformance tests.

4.3 Test conditions

4.3.1 Standard atmosphere conditions. Wherever the pressure and temperature existing at the time of the test are not specified definitely, it is understood that the test is to be made at atmospheric pressure (approximately 29.92 inches Hg) and at room temperature (approximately 25°C). When tests are made with atmospheric pressure or room temperature differing materially from the above values, proper allowance shall be made for the difference from the specified condition.

4.3.2 Attitude. Unless otherwise specified, the gage shall be tested with the mounting surfaces in an upright vertical position.

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4.3.3 Tapping. Unless otherwise specified, the gage shall be lightly tapped or vibrated before each reading.

4.4 Qualification testing

4.4.1 Test samples. The test samples shall consist of 10 gages representative of the production equipment. Seven of the samples shall be subjected to the reliability test only and the other three samples shall be subjected to all the tests except reliability. The samples shall be identified with the manufacturer's part number and such other information as required by the qualifying activity.

4.4.2 Test report. The contractor shall prepare and submit a test report in accordance with MIL-STD-831.

4.4.3 Qualification tests. The qualification tests shall consist of all the tests specified under 4.6.

4.5 Quality conformance tests. Quality conformance tests shall consist of:

- a. Individual tests
- b. Sampling tests.

4.5.1 Individual tests. Each gage shall be subjected to the following tests as described under 4.6:

- a. Examination of product
- b. Scale and friction error
- c. Position error.

4.5.2 Sampling tests

4.5.2.1 Sampling plan A. One gage shall be selected at random from each 100 or less produced on the contract or order and subjected to the following tests as described under 4.6:

- a. Individual tests
- b. Vibration
- c. Low temperature
- d. High temperature.

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4.5.2.2 Sampling plan B. Unless otherwise specified, 3 gages shall be selected at random from the first 15 on the contract or order and subjected to the following tests as described under 4.6:

- a. Sampling plan A tests
- b. Seasoning
- c. Temperature-altitude
- d. Low temperature exposure
- e. High temperature exposure
- f. Humidity
- g. Salt fog
- h. Fungus
- i. Dust
- j. Overpressure.

4.6 Test methods

4.6.1 Examination of product. The gage shall be examined to determine compliance with requirements specified herein with respect to materials, markings, dimensions, and workmanship.

4.6.2 Scale and friction error. The gage shall be tested for scale error at ambient temperature at the test points specified in table I. The gage shall be lightly tapped or vibrated before each reading to remove normal friction. The difference between the readings before and after the gage is tapped or vibrated shall constitute friction error. The scale and friction errors shall not exceed the tolerances specified in tables I and II. This test shall be conducted both up-scale and down-scale at the specified test points.

4.6.3 Position error. The gage shall be pressurized to obtain a scale reading of approximately one-half scale. The maximum change in indication produced by rotating the gage from the normal operating position to a position 90° both clockwise and counterclockwise (longitudinal axis vertical) shall not exceed the position error tolerance specified in table II.

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4.6.4 Vibration. The gage shall be subjected to a vibration test in accordance with MIL-STD-810, method 514, procedure I, equipment category (a), curve B. An indication of approximately 2,000 psi shall be maintained on the gage during this test. Pointer oscillation and variation shall not exceed the tolerances specified in table II. At the conclusion of this test, the gage shall be subjected to the scale and friction error test. The errors shall not exceed the tolerances specified in tables I and II. No damage to the gage shall result from this test.

4.6.5 Low temperature. The gage shall be subjected to a low temperature test in accordance with MIL-STD-810, method 502, procedure I, at $-54^{\circ} \pm 2^{\circ}\text{C}$ for a period of 4 hours. During this test, an indication of approximately 2,000 psi shall be maintained on the gage. At the end of this period and while still at the specified temperature, the gage shall be subjected to the scale and friction error test. The errors shall not exceed the tolerances specified in tables I and II.

4.6.6 High temperature. The gage shall be subjected to a high temperature test in accordance with MIL-STD-810, method 501, procedure I, at $100^{\circ} \pm 2^{\circ}\text{C}$ for a period of 6 hours. During this test an indication of approximately 2,000 psi shall be maintained on the gage. At the end of the 6-hour period and while still at the specified temperature, the gage shall be subjected to the scale and friction error test. The tolerances shall not exceed those specified in tables I and II.

4.6.7 Seasoning. The gage shall be operated for 10,000 cycles at a rate of 30 ± 10 cpm from zero indication to 80 ± 5 percent of full scale and back to zero indication. Within 1 hour after the conclusion of this test, the gage shall be subjected to the scale error test. The scale errors shall not exceed the tolerances specified in table II. The gage shall then be examined to determine that no undue wear has occurred.

4.6.8 Temperature-altitude. The temperature-altitude test shall be conducted in accordance with MIL-STD-810, method 504, procedure I, except the temperature shall be -55°C and the chamber pressure shall be equivalent to an altitude of 100,000 feet. The rate of pressure change shall not exceed an average of 3 feet per second while under these conditions. At the end of a 1-hour period, the scale and friction error test shall be conducted. The errors shall not exceed the tolerances specified in tables I and II. This test may be conducted concurrently with the low temperature exposure test.

4.6.9 Low temperature exposure. The low temperature exposure test shall be conducted in accordance with MIL-STD-810, method 502, procedure I. The gage shall be exposed to a temperature of $-65^{\circ} \pm 2^{\circ}\text{C}$ for a minimum of 48 hours after which it shall be operated throughout its range while at the specified temperature. The temperature shall then be raised to $-54^{\circ} \pm 2^{\circ}\text{C}$ and the gage

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tolerances shall be within those specified for low-temperature in table I. The gage shall be returned to room temperature for a minimum period of 4 hours and then subjected to the scale error test. The scale errors shall not exceed the tolerances specified in table I for room temperature.

4.6.10 High temperature exposure. The gage shall be placed in a temperature chamber and subjected to $145^{\circ} \pm 2^{\circ}\text{C}$ for a period of 24 hours. It shall then be returned to room temperature for a minimum of 4 hours after which it shall be subjected to the scale error test at room temperature. The scale error shall not exceed the room temperature tolerances specified in table I.

4.6.11 Humidity. The gage shall be subjected to a humidity test in accordance with MIL-STD-810, method 507, procedure I. External connections to the gage shall be made to simulate installed conditions. Immediately after completion of this test, the gage shall be subjected to the scale and friction error test. The scale and friction error shall not exceed the tolerances specified in tables I and II.

4.6.12 Salt fog. The gage shall be subjected to a salt fog test for a period of 48 hours in accordance with MIL-STD-810, method 509, procedure I. There shall be no evidence of external corrosion or deterioration that might affect subsequent operation. The scale errors after this test shall not exceed the tolerances specified in table I for scale error at room temperature.

4.6.13 Fungus. The gage shall be subjected to a fungus test in accordance with MIL-STD-810, method 508, procedure I after completion of qualification testing and after the gage has been subjected to the salt fog test. The gage shall be disassembled so that the internal mechanism will be exposed to the fungus spores. At the end of the test period, the gage shall be examined to determine that no fungus growth has occurred.

4.6.14 Dust. The gage shall be subjected to a dust test in accordance with MIL-STD-810, method 510, procedure I. At the completion of this test, the gage shall be removed from the test chamber, allowed to cool to room temperature, and then subjected to the scale error test (at room temperature) and friction error test. The scale and friction error shall not exceed the tolerances specified in tables I and II.

4.6.15 Overpressure. The gage shall be subjected to the pressure specified in table II for a period of 10 minutes. Not less than 1 hour after application of the specified pressure, the gage shall be subjected to the scale error test at room temperature. Scale error shall not exceed the tolerance specified in table I.

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4.6.16 Reliability. Seven gages shall be tested for reliability. Acceptance permitting production and the total test time shall be in accordance with MIL-STD-781, test plan I. Recording, data handling, and reporting shall also be in accordance with MIL-STD-781.

*4.6.16.1 Test. The test equipment and fixtures shall include provisions for vibration and temperature cycling at periodic intervals specified herein. During this test, input pressure shall be applied to the gage at a rate of 2 to 3 cycles per minute from 25 to 75 percent of full scale and return. Completion of 4 hours of operation shall include at least 480 operational cycles. For at least 10 minutes out of every hour of ON time, the gage shall be vibrated in accordance with test level J of MIL-STD-781. The temperature cycles shall be conducted in the following sequence: 4 hours at -20°C, 14 minutes for temperature change to +50°C at a minimum rate of 5°C per minute; 4 hours at +50°C, 14 minutes for temperature change to -20°C, and 4 hours at -20°C. In case of malfunction, the malfunction shall be recorded and the test interrupted while repairs are made. Upon completion of each 250 hours of cycling, the gage shall be checked for scale error. The scale error reading shall not exceed twice the room temperature tolerance in table I. No calibration shall be performed on the units during this test. The test may be interrupted for weekend shutdown. The contractor shall prepare a report in accordance with MIL-STD-781 which shall contain test procedures, details of any malfunctions and corrective actions taken.

4.7 Inspection of preservation, packaging, and packing. The inspection of preservation, packaging, and packing shall be in accordance with section 5 herein.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging. Preservation and packaging shall be level A or C, as specified (see 6.2).

5.1.1 Level A. Unless otherwise specified in the contract or order, gages shall be individually preserved and packaged in accordance with MIL-P-116, method III, and placed in a snug-fitting unit container conforming to PPP-B-636.

5.1.2 Level C. Gages shall be individually preserved and packaged in a manner that will afford adequate protection against corrosion, deterioration, or physical damage during shipment from the supply source to the first receiving activity. This level may conform to the supplier's standard practice provided the latter meets the requirements of this level.

5.2 Packing. Packing shall be level A, B or C, as specified (see 6.2).

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5.2.1 Level A. Gages preserved and packaged as specified in 5.1.1 shall be packed in weather-resistant shipping containers conforming to PPP-B-636. Shipments that exceed the weight limitations of this specification shall be packed in overseas-type containers conforming to PPP-B-601. The gross weight of each PPP-B-601 container shall not exceed 200 pounds. Where practicable, exterior shipping containers shall be of uniform shape and size and of minimum cube and tare. Closure and strapping shall be in accordance with the appendix of PPP-B-636 or PPP-B-601, as applicable. Waterproofing shall be in accordance with MIL-STD-1186.

5.2.2 Level B. Gages preserved and packaged as specified in 5.1.1 shall be packed in domestic shipping containers conforming to PPP-B-636. Where practicable, exterior shipping containers shall be of uniform shape and size and of minimum cube and tare. The gross weight of each shipping container shall not exceed the weight limitations of the specification. Closure and strapping shall be in accordance with the appendix of PPP-B-636.

5.2.3 Level C. Packages that require overpacking for acceptance by the carrier shall be placed in exterior-type shipping containers in a manner that will insure safe transportation at the lowest rate to the point of delivery. Containers shall comply with Uniform Freight Classification Rules or regulations of other carriers as applicable to the mode of transportation.

5.3 Physical protection. Cushioning, blocking, bracing, and waterproofing shall be in accordance with MIL-STD-1186. Waterproofing requirements for cushioning materials and containers shall be waived for domestic shipments. The drop tests of MIL-STD-1186 shall be waived when the item is preserved, packaged, and packed for immediate use or when the drop tests of MIL-P-116 are applicable.

5.4 Marking. Interior packages and exterior shipping containers shall be marked for shipment in accordance with MIL-STD-129. The nomenclature shall be as follows:

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5.4.1 Reinspection date markings. Reinspection date markings shall be in accordance with the instructions of the procuring activity.

6. NOTES

6.1 Intended use. The Type ME-1 gage covered by this specification is intended for use in indicating directly the pressure in hydraulic and pneumatic aircraft systems and for use in locations other than the cabin or cockpit of aircraft where the temperature does not exceed 100°C when the gage is operating nor 145°C when the gage is not operating.

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6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number, and date of this specification
- b. Information, if any, to be submitted with qualification samples
- c. When sampling plan B tests will not be conducted
- d. Levels of packaging and packing required and reinspection date markings (see section 5).

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time set for opening of bids, qualified for inclusion in the applicable Qualified Products List whether or not such products have actually been so listed by that date. The attention of suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is the Aeronautical Systems Division, Attn: ENFIP, Wright-Patterson Air Force Base, Ohio 45433, and information pertaining to qualification of products may be obtained from that activity.

6.4 Marginal indicia. The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodian:
Air Force - 11

Preparing activity:
Air Force - 11

Review activity:
Air Force - 82

Project No. 6685-F439

FOLD

POSTAGE AND FEES PAID



OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

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