

MIL-G-6019C  
1 FEBRUARY 1969

Superseding  
MIL-G-6019B  
19 July 1955

## MILITARY SPECIFICATION

### GAGES, PRESSURE, DIAL INDICATING, LOW-PRESSURE OXYGEN

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

#### 1. SCOPE

1.1 Scope. - This specification covers low-pressure oxygen system pressure gages for aircraft use.

1.2 Classification. - Low-pressure oxygen system pressure gages shall be of the following types, as specified (see 6.2):

Type I	AN6026	Gage-Regulator Mounting Low-Pressure Oxygen
Type II	AN6021	Gage-Panel Mounting Low-Pressure Oxygen

#### 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 to the extent specified herein:

#### SPECIFICATIONS

##### Federal

BB-N-411	Nitrogen, Technical
BB-O-925	Oxygen, Technical, Gas and Liquid
PPP-B-636	Box, Fiberboard

##### Military

MIL-P-116	Preservation, Methods of
MIL-D-1000	Drawings, Engineering and Associated Lists
MIL-L-25142	Luminescent Material, Fluorescent
MIL-P-5425	Plastic, Sheet, Acrylic, Heat Resistant

FSC 6685

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MIL-P-19834 Plates, Identification, Metal Foil, Adhesive Backed  
 MIL-P-7105 Pipe Threads; Taper, Aeronautical National Form, Symbol ANPT  
 MIL-S-7742 Screw Threads, Standard, Optimum Selected Series, General  
 Specification for

STANDARDSMilitary

MIL-STD-129 Marking for Shipment and Storage  
 MIL-STD-130 Identification Marking of US Military Property  
 MIL-STD-143 Specifications and Standards, Order of Precedence for  
 the Selection of  
 MIL-STD-1386 Cushioning, Anchoring, Bracing, Blocking and Waterproofing;  
 With Appropriate Test Methods  
 MS28105 Window, Dial - Aircraft Instrument Cover, Glass  
 MS33653 Bosses: Pipe - Thread for Oxygen Systems

DRAWINGSAir Force-Navy

AN6021 Gage - Panel Mounting Low Pressure Oxygen  
 AN6026 Gage - Regulator Mounting low Pressure Oxygen

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

2.2 Other publications. - The following document forms a part of this specification. Unless otherwise indicated, the issue in effect on date of invitation for bids shall apply

Uniform Classification CommitteeUniform Freight Classification Rules

(Application for copies of the above publication should be addressed to the Uniform Classification Committee, 202 Chicago Union Station, Chicago, Ill., 60606)

**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).

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### 3.2 Materials. -

3.2.1 Nonferrous. - Nonferrous materials shall be used for all parts of the gage, except where ferrous materials are essential and do not come in direct contact with the oxygen.

3.2.2 Nonmagnetic. - Nonmagnetic materials shall be used for all parts of the instrument, except where magnetic materials are essential.

3.2.3 Luminescent material. - The fluorescent-luminescent material specified shall be in accordance with MIL-L-25142.

3.2.4 Metals. - Metals shall be of the noncorrosive type unless suitably protected against corrosion during normal service life.

3.2.5 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 MIL-STD-143.

3.3 Design. - The gages shall be so designed that no parts will work loose in service. They shall be leakproof, and shall be built to withstand without failure, the strains, jars, vibrations, and other conditions incident to shipping, storage, installations, and service. Pivots, bearings, and gears shall neither bind nor shake, and shall be as near frictionless as practicable. The gages shall be so designed that minor repairs, such as replacement of cover glasses and pointers, can be easily made by the personnel of the operating units without the aid of special tools.

### 3.4 Construction. -

#### 3.4.1 Threads. -

3.4.1.1 Screw threads. - Screw threads shall conform to MIL-S-7742.

3.4.1.2 Pipe threads. - Pipe threads shall conform to MIL-P-7105.

3.4.2 Cases. - The cases for both the type I and type II shall be raintight, except for a small vent hole on the bottom or underside.

3.4.2.1 Type I. - The case shall be made of either a suitable ferrous or nonferrous low-density metal, and shall have a smooth surface with a durable dull black finish.

3.4.2.2 Type II. - The case shall be made of either nonferrous low-density metal or of a synthetic material, and shall have a smooth surface with a durable dull black finish. The synthetic material shall be of the thermal-setting type, composed of a suitable filler and phenol-condensation product binder. The case shall be of a durable construction, in order to prevent damage to the gage mechanism under conditions incident to shipping, storage, installation, and service.

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3.4.3 Bosses. - Bosses shall be in accordance with MS33653. Wrench flats shall be provided on the sides of the boss.

3.4.4 Operating mechanism. - The indicating and the pressure elements shall comprise a unit distinct from the case. This unit shall be sufficiently rugged in order that small distortions of the case will not affect the accuracy of the indications.

3.4.4.1 Mechanism adjustment. - The mechanism shall be provided with a means to adjust or correct the indications in case this becomes necessary during the service of the gage. Adjustment shall require no special tools. The mechanism and dial shall be capable of being easily removed from the case as a unit, in order to facilitate adjustment of the gage.

3.4.4.2 Pointer adjustment. - The pointer shall be light and sufficiently rigid to prevent oscillation under vibration, and shall be free to swing beyond either end of the range without being engaged by a mechanical stop. Suitable stops shall be incorporated within the mechanism to prevent the sector from being disengaged from the pinion. The pointer shall be firmly attached to the mechanism, yet shall be readily adjustable.

3.4.4.3 Overpressure stop. - An overpressure stop shall be provided on the gage, designed in such a manner as to restrain the mechanism rather than the pointer. The overpressure stop shall allow pointer travel beyond full scale to  $525 \pm 25$  psi. When extreme overpressure occurs, the stop shall not allow the pointer to move beyond the bottom center of the dial.

3.4.4.4 Hair springs. - The hair springs shall be made from phosphor bronze.

3.4.4.5 Surge-pressure restriction. - A restriction of 0.020 inch diameter shall be provided between the gage connection and gage mechanism.

3.4.5 Dial. - The dial shall be fastened securely upon the frame of the mechanism by at least two screws, in such a manner that it will not loosen or turn when the gage is vibrated.

3.4.5.1 Dial to cover glass distance. - The distance between the dial and inside of the cover glass shall be the minimum practicable and shall not exceed 0.125 inch.

3.4.5.2 Face. - The dials shall be as shown on AN6021 and AN6026, and shall be sufficiently durable to withstand usage encountered in service.

3.4.6 Pointers. - The pointer for the type I gage shall be as shown on AN6026. The pointer for the type II gage shall be as shown on AN6021.

3.4.7 Cover glass. - The cover glass shall be clear and free from flaws which will affect the readability of the gage.

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3.4.7.1 Type I. - The cover glass for the type I gage shall be fabricated from 0.100-inch plastic conforming to finish A of MIL-P-5425.

3.4.7.2 Type II. - The cover glass for the type II gage shall conform to MS28105.

3.4.8 Snap rings. - Snap rings, or any other means suitable to the procuring activity, shall be used to hold the cover glass in the case. Means shall be provided to permit easy removal of the cover glass without breakage.

3.4.9 Mounting nuts. - Each mounting lug shall be fitted with a self-locking threaded nut, as specified on the applicable drawing.

3.4.10 Contractor-furnished equipment. - The contractor shall furnish sufficient mounting screws for installing the type II gage. The screws shall be No. 6-32 roundhead, brass machine screws of sufficient length for mounting on a panel 3/16 inch thick. They shall have a durable dull black finish.

3.5 Interchangeability. - All parts having the same manufacturer's part number shall be directly and completely interchangeable with each other with respect to installation and performance. Changes in manufacturer's part numbers shall be governed by the drawing number requirements of MIL-D-1000.

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

3.7 Dimensions. - Type I gages shall conform to the dimensions shown on AN6020. Type II gages shall conform to the dimensions shown on AN6021.

3.8 Weight. -

3.8.1 The maximum weight of the type I, AN6020 gage shall not exceed 0.18 pound.

3.8.2 The maximum weight of the type II, AN6021 gage shall not exceed 0.33 pound.

3.9 Performance. -

3.9.1 Low temperature. - The gage shall function properly to a temperature as low as -65° F.

3.9.1.1 Vibration. - The gage shall be capable of operating while being vibrated at a double amplitude of 0.18 to 0.20 inch at a frequency varying from 500 to 2,500 cpm while being maintained at a temperature of -65° F.

3.9.2 Cold resistance. - The pointer shall move smoothly through the range without damage to the gage while being exposed to a temperature of -85° F.

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3.9.3 High temperature. - The gage shall function properly at a temperature of +160° F.

3.9.4 Sand and dust. - The gage shall function satisfactorily after being subjected to the sand and dust test.

3.9.5 Humidity. - The gage shall function satisfactorily after being subjected to the humidity cycling test.

3.9.6 Seasoning. - The gage shall function satisfactorily after being subjected to the seasoning test.

3.9.7 Overpressure. - The gage shall function satisfactorily after being subjected to the overpressure test.

3.9.8 Leaks. - The gage shall not leak after completion of all the above performance tests.

3.9.9 Mounting nuts. - The nuts for the type II gage shall not pull from the case when subjected to an axial load of 25 pounds applied in such a manner as to tend to pull the nut out of the lug toward the rear of the case.

3.9.10 Mounting lugs. - The mounting lugs for the type II gage shall withstand a load of 175 pounds for 1 minute without damage.

3.10 Markings. - Markings for the type I and type II gages shall be as shown in tables I and II, respectively, and shall be sufficiently durable to withstand usage encountered in service.

TABLE I. Details of type I gage

Marking	Height or length, inch	Width of line or graduation inch $\pm$ .005	Material or finish
Numerals 0, 100, 200, 300, 400, and 500	1/16	.016	White
Graduations at 50, 75, 125, 175, 225, 275, 325, 375, and 425	1/16	.016	White
Graduations at 150, 250, and 350	3/32	.016	White
Lettering "psi"	1/16	.016	White
Graduation at 450	5/32	.031	Blood red
Graduations at 0, 100, 200, 300, 400, and 500	5/32 (including arc)	.031	Specification MIL-L-25142
Arc from 50 to 100		.094	MIL-L-25142
Arc from 100 to 425		.031	MIL-L-25142
Lettering "Cyl press"	3/32	.021	MIL-L-25142
Shaded part of pointer			MIL-L-25142
Background of dial			Durable dull black
Unshaded part of pointer			Durable dull black

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TABLE II. Details of type II gage

Marking	Height or length, inch	Width of line or graduation inch $\pm 0.005$	Material or finish
Numerals 0, 100, 200, 300, 400, and 500	1/8	0.025	Specification MIL-L-25142
Graduations at 0 and 100	1/8 above arc	.031	MIL-L-25142
Graduations at 200, 300, 400, and 500	3/16 min above arc	.031	MIL-L-25142
Graduations at 50	1/16 above arc	.031	MIL-L-25142
Graduations at 150, 250, and 350	1/8 above arc	.031	Specification MIL-L-25142
Arc from 0 to 100		.094	MIL-L-25142
Arc from 100 to 425		.031	MIL-L-25142
Lettering "Oxygen cyl pressure"	1/8	.021	MIL-L-25142
Shaded part of pointer			MIL-L-25142
Graduation at 450	3/16 min	.031	Blood red
Lettering "Full"	1/16	.016	White or
Lettering "psi"	1/16	.016	Specification MIL-L-25142
Background of dial			Durable dull black
Unshaded part of pointer (AK Part No.)	1/16	.016	Durable dull black

3.10.1 Numerals. - Numerals shall distinctly indicate the graduation to which each applies. Any confusion resulting in doubt as to which graduation the numeral applies shall be cause for rejection. When several numerals are used in one group, the space between the numerals shall be approximately 0.015 inch.

3.11 Identification of product. -

3.11.1 Nameplates. -

3.11.1.1 Type I. - The nameplate for the type I gage shall conform to MIL-STD-130. It shall be securely attached to the instrument case and contain the following information:

Drawing AN6026 (applicable dash number)  
Manufacturer's name or trade-mark

3.11.1.2 Type II. - The nameplate for the type II gage shall conform to MIL-STD-130. It shall be securely attached to the instrument case and contain the following information:

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AN6021 (applicable dash number)

Stock No. (USAF or Navy)

Manufacturer's Part No.

Manufacturer's Serial No.

Contract or Order No.

Manufacturer's name or trade-mark

Name of contractor (if different from manufacturer)

US

3.11.2 Warning note. - A decalcomania or other suitable material marked with 1/8-inch-high red letters reading "USE NO OIL" shall be attached to the case.

3.12 Use of AN or MIL designations. - AN or MIL designations shall not be applied to a product, except for Qualification test samples, nor referred to in correspondence, until notice of approval has been received from the activity responsible for qualification.

3.13 Workmanship. - Workmanship shall be in accordance with high-grade aircraft instrument manufacturing practice. The gage shall be thoroughly cleaned of all oils and foreign matter at the proper stage of assembly.

## 4. QUALITY ASSURANCE PROVISIONS

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

4.2 Classification of inspections. - The inspection and testing of the gages shall be classified as follows:

- |                                    |       |
|------------------------------------|-------|
| (a) Qualification inspection       | (4.4) |
| (b) Quality conformance inspection | (4.5) |

4.3 Test conditions. -

4.3.1 Atmospheric pressure and temperature. - Unless otherwise specified, all tests required by this specification shall be made at an atmospheric pressure of approximately 29.92 in. Hg and a temperature of 77° F. When tests are made with ambient pressure or temperature substantially different from the above values, proper allowance shall be made for the difference from the specified conditions.



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4.3.2 Gas. - The high-pressure gas used in the testing of the gages shall be oxygen conforming to type I, grade A of BB-Q-925, or water-pumped nitrogen conforming to BB-N-411 or water-pumped air equivalent in dryness to nitrogen in accordance with BB-N-411.

4.3.3 Tapping. - Unless otherwise specified, the instrument shall be tested in normal vertical operating position and shall be lightly tapped before a test reading is taken.

4.3.4 Vibration. - Whenever vibration is specified, it shall be at any desired frequency between 300 and 3,000 cpm and at a double amplitude of 0.018 to 0.020 inch.

#### 4.4 Qualification inspection. -

4.4.1 Sampling instructions. - Qualification test samples shall consist of two gages upon which qualification is desired. Samples shall be identified with the manufacturer's own part number and any additional identification required by the letter of authorization. The contractor shall submit with the test samples, certified test reports, in duplicate, from an approved testing facility, showing compliance to the applicable specifications, of each material and component used in the gage. (See 6.3.4)

4.4.2 Tests. - The qualification tests of the gages shall consist of all the tests of this specification.

4.5 Quality conformance inspection. - Quality conformance inspection shall consist of individual tests, sampling tests, and special tests.

4.5.1 Individual tests. - Each gage shall be subjected to the following tests.

4.5.1.1 Examination of product. - Each gage shall be examined to determine conformance with this specification with respect to materials, design, construction, and workmanship.

4.5.1.2 Leaks. - Following completion of all the sampling tests, the gage shall be subjected to a pressure of at least 500 psi. This pressure shall be locked in the gage and the supply disconnected as close to the gage as practicable. The hand shall then be observed for deviation from the original pressure setting. Any drop of pressure that can be attributed to leaks in the gage will be cause for rejection.

4.5.1.3 Scale error at room temperature. - The gage shall be tested for scale error at the points on the scale indicated by an asterisk in table III, and shall not exceed the corresponding tolerances. Tests shall be made by subjecting the gage to the pressures required to produce these readings, first with pressures increasing, then with pressures decreasing. With the pressures increasing, the pressure shall be brought up to, but shall not exceed, the

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pressures required to give the desired readings. With the pressures decreasing, the pressure shall be brought down to, but shall not fall below, the pressure required to give the desired readings. At the discretion of the procuring activity, gages may be tested for scale error at any additional point or points on the scale.

TABLE III. Scale error at room temperature

Test pressure (psi)	Tolerance (psi)
0*	10
50	10
100*	15
150	15
200*	25
250	25
300*	25
350	25
400*	25
450	25
500	25

\* Test points

4.5.1.4 Friction. - The gage shall be tested for friction at all points indicated by an asterisk in table III, beginning with the second asterisk point, and the specified tolerances shall not be exceeded. The pressure shall be increased, in order to bring the pointer approximately to the desired reading and then held constant while two readings are taken, the first before the gage is tapped, and the second after the gage is tapped. The pointer shall move smoothly while the pressure is varied uniformly without vibration of the gage. This test may be combined with the test for scale error at room temperature.

4.5.2 Sampling tests. - One gage shall be selected at random from each lot of 100 or fraction thereof on the order and subjected to the following sampling tests. These tests shall be in addition to the individual tests.

4.5.2.1 High temperature operation. - The gages shall be subjected to a temperature of 160° F for a period of 3 hours. The gages shall be subjected to the individual tests specified in 4.5.1, while at the high temperature. The readings observed for the scale error at room temperature and friction tests shall not differ from the individual test readings by more than 25 psi.

4.5.2.2 Vibration and low temperature. - The gages shall be subjected to a temperature of -65° F and subjected to vibration for a period of 3 hours on a suitably designed vibration stand, duplicating as nearly as practicable an actual installation. The vibration shall be in any plane with respect to the instrument with a double amplitude of from 0.018 to 0.020 inch and frequency of 500 to 2,500 cpm. After the 3-hour period of vibration, and while the gages are still being vibrated at the specified temperature, they shall be tested for scale

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errors as described in the scale error at room temperature test. The readings shall not differ from the individual test readings by more than 25 psi.

4.5.2.3 Seasoning. - The gage shall be subjected to 300 applications of pressure from 0 to 500 psi. Not less than 1 hour later, the gage shall be tested for scale error and friction as specified in 4.5.1. The readings obtained after the applications of the differential pressure shall not differ from those obtained in the individual tests by more than 10 psi.

4.5.2.4 Overpressure. - The gage shall be subjected to a pressure of at least 1,000 psi for a period of 10 minutes. Not less than 1 hour after the release of the overpressure, the gage shall be subjected to the individual tests specified in 4.5.1. The readings obtained in the scale error at room temperature and friction tests shall not differ from those obtained in the original individual tests by more than 25 psi.

4.5.3 Special tests. - Three gages shall be selected at random from the first 25 gages produced on the order and subjected to the following special tests. These tests shall be in addition to the individual and sampling tests.

4.5.3.1 Low temperature and cold resistance. - The gages shall be placed in a chamber maintained at a temperature of  $-85^{\circ}$  F for a period of 48 hours. At the end of this period, and while still at that temperature, the gages shall be tested for operation to determine that the pointers move smoothly throughout the entire range of travel and to determine that no component parts have been damaged. The temperature shall then be raised to  $-65^{\circ}$  F for a period of not less than 24 hours, after which time and while at this temperature, the gages shall be tested for scale error and friction as specified in 4.5.1. The readings obtained shall not differ from those obtained in the individual tests by more than 50 psi. Following the return to room temperature, the gages shall be subjected to the individual tests specified in 4.5.1.

4.5.3.2 High temperature. - The gages shall be subjected to a temperature of  $160^{\circ}$  F for a period of 24 hours. The gages shall then be subjected to the scale error at room temperature test specified in 4.5.1.3, while at high temperature and the readings observed shall not exceed the individual test readings by more than 25 psi. Following return to room temperature, the gages shall be subjected to the individual tests specified in 4.5.1. The gages shall then be examined for deterioration or damage caused by the high temperature exposure.

4.5.3.3 Sand and dust. - The gages shall be mounted in any position and subjected to a sand spray for a period of 4 hours. The sand stream shall not directly impinge upon the gages, and the flow of sand shall be approximately 2.5 pounds per hour. Four pounds of foundry moulding sand, or equivalent, which has passed through 150-mesh screen, shall be used. The ambient temperature in the chamber shall be maintained at a temperature of  $160^{\circ}$  F. Each gage shall not contain more than 1 gram of sand at the end of the test.

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4.5.3.4 Humidity cycling. - One complete sample gage, mounted with the dial in a vertical position, shall be subjected to the following humidity cycling test. At the completion of the test, the gage shall be examined for collection of moisture in the interior of the case, for corrosion of metal parts, or for any other damage. A second sample gage, with case removed, shall be subjected to the humidity cycling, and inspection for the same features shall be conducted with the exception of collection of moisture within the case. The gage shall then be placed in a chamber and kept for 6 hours at a temperature of 150° F and relative humidity of 95 percent. After the required time, the chamber shall be shut off, and the gage shall be allowed to cool to room temperature for 18 hours in this atmosphere in which the humidity rises to 100 percent as the temperature decreases. (Precaution shall be taken to prevent dripping on the gage.) The complete procedure shall be performed 15 times. The scale error at room temperature test shall again be performed at the completion of the cycles, and the change in indication shall not exceed the initial scale error at room temperature test by more than 25 pounds. There shall be no excessive corrosion of any of the components.

4.5.3.5 Mounting nuts. - Each attached mounting nut of the completely assembled type II case shall have an axial load of 25 pounds applied, in order to tend to pull the nut out of the lug toward the rear of the case. There shall be no loosening of the nut. A torque of 10 pound-inches shall then be applied, and the rotation of the nut shall be limited by contact between a flat of the insert nut and the case.

4.5.3.6 Mounting lugs. - The type II gage case, with the mechanism and cover glass removed, shall be so mounted in a suitable testing machine with the diameter of the case in a horizontal plane that the mounting lugs receive no added support. A suitable pin shall be inserted through the hole in the mounting nut and attached to a pull strap in the machine. A load of 175 pounds shall be applied to each lug for a period of 1 minute along the mounting hole axis and toward the front of the case. There shall be no fracture.

4.5.4 Rejection and retest. - Any gage failing to meet the individual tests shall be rejected and returned at the contractor's expense. When any routine representative sample fails to meet the requirements of the sampling tests, the lot represented shall be rejected and returned at the expense of the supplier. Gages which have been rejected may be replace or repaired to correct the defects and resubmitted for test. When this has been accomplished, all specified tests shall be repeated. Before resubmitting, full particulars concerning previous rejection and the action taken to correct the original defects shall be furnished to the procuring activity. Units rejected after retest shall not be resubmitted without the specific approval of the procuring activity.

4.5.4.1 When sampling tests are specified on a number of items which are selected as representative of a certain quantity, and one or more of this number fails to meet the specified tests, acceptance of all of the items shall be withheld until the extent and cause of the failure is determined. For operational reasons, individual tests may be continued pending investigation of a sampling test failure, but final acceptance of the product is contingent upon the decision of the procuring activity regarding the over-all conformance of the product to

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specification requirements. Rejected units shall be replaced or reworked to correct the defects, after which all necessary tests shall be repeated. Rejected equipment shall not be resubmitted for inspection without furnishing all particulars concerning previous rejections and the measures taken to correct the defects. If investigation indicates that the defects may exist on items previously accepted, full particulars concerning the defects found, including recommendations for correction, will be furnished to the procuring activity.

## 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 Cleaning. - Gages shall be cleaned for oxygen service. Petroleum and other inflammable solvents shall not be used.

5.1.2 Level A. - Each gage, cleaned as specified in 5.1.1, shall be preserved and packaged in accordance with MIL-F-116, Method 101 (no preservative) and placed in a snug fitting container conforming to grade W6C, PPF-B-636.

5.1.3 Level C. - Each gage, cleaned as specified in 5.1.1, shall be preserved and packaged in a manner which will afford adequate protection against corrosion, deterioration and physical damage during shipment from supply source to the first receiving activity. The supplier may use his commercial practice providing it meets this requirement.

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

5.2.1 Level A. - Gages preserved and packaged as specified in 5.1.2 shall be packed in weather-resistant shipping containers conforming to PPF-B-636. The grade of each shipping container, determined by the gross weight and size, shall comply to the applicable special requirement table of the specification. Interior cushioning, blocking, bracing and waterproofing shall be in accordance with MIL-STD-1186. Closure and strapping shall be in accordance with the container specification. Containers shall be of uniform shape and size and of minimum cube and tare.

5.2.2 Level B. - Gages shall be packed the same as level A, except that waterproofing is not required and domestic containers may be used.

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 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.

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5.3 Marking. - Interior and exterior containers shall be marked in accordance with MIL-STD-129. In addition to any other marking required by order or contract, unit packages shall be marked as follows:

LOX  
CLEANED FOR OXYGEN SERVICE  
DO NOT OPEN UNTIL READY FOR USE

## 6. NOTES

6.1 Intended use. - The pressure gage covered by this specification is intended for use in indicating the pressure in cylinders installed in low-pressure oxygen systems in aircraft.

6.2 Ordering data. - Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) AN part number of the gage (1.2).
- (c) Levels of preservation, packaging, and packing required (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 the suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is Commander, Aeronautical Systems Division, Attn: ASNPS, Wright-Patterson AFB, Ohio 45433, and information pertaining to qualification of products may be obtained from that activity.

6.4 Marginal indicia. - Asterisks are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

CustodianS:

Army - AV  
Navy - AS  
Air Force - 82

Preparing activity:

Air Force - 82

Project No. 6685-0220

## SPECIFICATION ANALYSIS SHEET

Form Approved Budget  
Bureau No. 119-RO04INSTRUCTIONS

This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity.

SPECIFICATION

MIL-G-6019C (ASG), GAGES, PRESSURE, DIAL INDICATING, LOW-PRESSURE OXYGEN  
ORGANIZATION CITY AND STATE

CONTRACT NO.

QUANTITY OF ITEMS PROCURED

DOLLAR AMOUNT

\$

MATERIAL PROCURED UNDER A Direct Government Contract Subcontract

1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES.

2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID.

3. IS THE SPECIFICATION RESTRICTIVE?

 YES NO

IF "YES", IN WHAT WAY?

4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity.)

SUBMITTED BY (Printed or typed name and activity)

DATE

DD Form 1426

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POSTAGE AND FEES PAID

~~OFFICIAL BUSINESS~~

San Antonio Air Materiel Area  
Standardization Branch  
Materiel Services Division  
Directorate of Materiel Management  
Attn: SAAMA (SANSS)  
Kelly AFB, Texas 78241

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