MIL-T-26069C (USAF)
10 June 1969
SUPERSEDING
MIL-T-26069B (USAF)
22 January 1963

MILITARY SPECIFICATION

TRAILER, OXYGEN CYLINDER, AF/M32R-3, HIGH AND LOW PRESSURE, 2 WHEEL 8 CYLINDER CAPACITY

1. SCOPE

1.1 This specification covers an eight-cylinder-capacity, 2-wheel, high and low pressure trailer designated AF/M32R-3.

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

L-S-300	Sheet and Tape, Reflective, Nonexposed Lens, Adhesive Backing
QQ-P-416	Plating, Cadmium (Electrodeposited)
QQ-Z-325	Zinc Plating (Electrodeposited)
RR-C-901	Cylinder; Steel, Seamless, Type 3A (For Compressed Gases)
TT-C-490	Cleaning Method and Pretreatment of Ferrous Surfaces for Organic Coatings
TT-P-636	Primer Coating, Synthetic, Wood and Ferrous Metal
UU-T-81	Tags; Shipping and Stock
PPP-B-601	Boxes, Wood, Cleated Plywood
PPP-B-621	Boxes, Wood, Nailed and Lock Corner

Military

MIL-C-104	Crates, Wood, Lumber and Plywood Sheathed, Nailed and Bolted
MIL-P-116	Preservation, Methods Of
MIL-T-704	Treatment and Painting of Material
MIL-M-3171	Magnesium Alloy, Process for Corrosion, Protection Of
MIL-C-3774	Crates, Open Wood (2500 to 10,000 Pounds)

MIL-V-4719	Valve, Oxygen Line, High Pressure Aircraft Servicing
MIL-C-4810	Cylinder, Oxygen Purifier, Type MB-1
MIL-W-8005	Wheels and Hubs, for Industrial Pneumatic Tires
MIL-A-8421	Air Transportability Requirements, General Specification For
MIL-P-8585	Primer Coating, Zinc Chromate, Low-Moisture-Sensitivity
MIL-C-15074	Corrosion, Preventive, Fingerprint Remover
MIL-B-22182	Brakes, Parking, Mobile Ground Support Equipment.
MIL-B-26195	Boxes, Wood-Cleated, Skidded, Load Bearing Base
MIL-H-26633	Hose Assembly, Polytetra Fluoroethylene, Oxygen
MIL-T-27602	Trichloroethylene, Oxygen Propellant Compatible (By Flushing Methods)
MIL-T-27730	Tape, Antiseize, Polytetrafluoroethylene with Dispenser

STANDARDS

Military

MIL-STD-129	Marking for Shipment and Storage
MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-143	Specifications and Standards, Order of Precedence
MIL-STD-281	Automobile, Trucks, Truck-Tractors, Trailers and Trailer Dollies, Preservation and Packaging Of
MIL-STD-808	Finishes, Protective, and Codes for Finishing Schemes for Ground and Ground Support Equipment
MIL-STD-1186	Cushioning, Anchoring, Bracing, Blocking and Waterproofing with Appropriate Test Methods
MS33586	Metals, Definition of Dissimilar
MS33656	Fitting End, Standard Dimensions, for Flared Tube Connection and Gasket Seal
MS51336	Lunette, Coupler, Drawbar, Ring

Air Force-Navy Aeronautical

AN780	Nipple-Union
AN800	Cone-Union
AN805	Nut-Union
AN912-1	Bushing, Reducer
AN910	Coupling
AN6027	Filler Adapter
AN917-2	Tee
AN911	Nipple-Union

2.2 Other publications. The following documents form a part of this specification. Unless otherwise specified, the issue in effect on date of invitation for bids shall apply.

Interstate Commerce Commission

49 CFR 71-78	Interstate Commerce Commission Rules and Regulations for the Transportation of Explosives
3AA	and Other Dangerous Articles
3AA2400	Seamless Steel Cylinders

(The Interstate Commerce Commission regulations are not a part of the Code of Federal Regulations, 1949 Edition-Revised 1950, available from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. Orders for the above publication should cite "49 CFR 71-78, Rev 1950").

Compressed Gas Association, Incorporated

Pamphlet V-1	Compressed Gas Cylinder Valve Outlet and Inlet Connections

(Copies of the CGA pamphlet may be obtained from the Compressed Gas Association, Incorporated, 11 West 42nd Street, New York 18, New York.)

3. REQUIREMENTS

3.1 Preproduction. This specification makes provisions for preproduction testing.

3.2 Components. The trailer shall consist of the following major components:

Description	See Requirement
a. Trailer chassis	3.7
b. Storage cylinders	3.8
c. Manifold system	3.9
d. Purifier	3.10
e. Regulator	3.11
f. Servicing hose assembly	3.12
g. Servicing valve	3.13
h. Filler adaptor	3.14

i.	Connecting lines	3.15
j.	Control panel	3.16
k.	Utility box	3.17

3.3 Selection of specifications and standards. Specifications and standards for necessary commodities and services not specified herein shall be selected in accordance with MIL-STD-143, except as specified in 3.3.1.

3.3.1 Standard parts. MS and AN standard parts shall be used where they suit the purpose. They shall be identified on the drawings by their part numbers.

3.4 Materials.

3.4.1 Protective treatment. When materials are used in the construction of the trailer 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 performance requirements of this specification. The use of any protective coatings that will crack, chip or scale with age or extremes of climatic and environmental conditions shall be avoided.

3.4.2 Dissimilar metals. Insofar as practicable, dissimilar metals in contact with each other shall be avoided. However, metal plating or metal spraying of dissimilar base metals, to provide similar or suitable abutting surfaces, shall be permitted. The use of dissimilar metals separated by suitable insulating material shall be permitted. Dissimilar metals are defined in MS33586.

3.5 Design and construction. The trailer shall be designed and constructed so that no parts will work loose in service. It shall be built to withstand the strains, jars, vibrations, and other conditions incident to shipping, storage, installation and service.

3.5.1 Adjustments and repairs. The trailer shall be constructed so that adjustments and repairs can be easily made by the personnel of operating units and overhaul bases.

3.5.1.1 The trailer shall be designed to permit operation and routine maintenance by personnel wearing arctic clothing. The requirements for routine maintenance shall be minimized.

3.5.2 Center of gravity. The weight of the complete trailer with full cylinders properly mounted shall be so distributed that an approximate weight of 75 pounds is placed on the retractable wheel.

3.5.2.1 Ground clearance. The trailer shall have a minimum ground clearance of 8 inches for lunette eye heights ranging from 12 to 26 inches.

3.5.3 Acceleration forces. The trailer shall be designed and constructed to withstand the acceleration forces incident to operating under prescribed conditions and the acceleration forces specified in MIL-A-8421.

3.6 Performance. The trailer shall be capable of operating under the following conditions:

a. Operating temperatures from -20 to +130 degrees F, unless otherwise specified (see 6.2).

b. Storage temperatures from -20 to +160 degrees F, unless otherwise specified (see 6.2).

c. Being towed at speeds of 20 to 30 mph over improved roads (see 6.3a).

d. Being towed at speeds of 10 to 15 mph over unimproved roads (see 6.3b).

e. Right and left turns at minimum radius of 18 feet at a speed of 10 mph.

f. Exposure to airborne sand and dust particles encountered in normal and desert operation.

g. Exposure to atmosphere containing salt-laden moisture.

h. Exposure to freezing rain.

i. Subjection to sudden stops from an initial speed of 30 mph over improved roads.

3.6.1 Hydrostatic pressure. The manifold and piping system shall be capable of withstanding a hydrostatic pressure of 4000 psi.

3.7 Trailer chassis. The trailer components shall be mounted on a two-wheel trailer chassis having a caster-type retractable third wheel for mobility purposes and for facilitating the hitching of the trailer to the towing vehicle. The space on the chassis shall accomodate eight high-pressure oxygen storage cylinders as shown on figure 1.

3.7.1 Towbar. The chassis shall have a towbar designed for towing by vehicles having a pintle height of 12 to 26 inches and equipped with a lunette eye conforming to MS51336. The lunette eye shall not weigh more than 4 pounds and shall have a wall thickness of not less than 1/8 inch.

3.7.2 Parking brakes. Two-wheel parking brakes shall be provided conforming to MIL-B-22182. The parking brakes shall be capable of locking the wheels so that the tires will slide relative to the ground and not roll on dry, level concrete when the trailer is subjected to a towing force sufficient to move the vehicle. The parking brakes shall be capable of holding the loaded trailer stationary on a 30 percent grade.

3.7.3 Wheels and hubs. The two main wheels and hubs with not less than 6-ply tires and tubes shall be size 6.00-9. The retractable third wheel shall be of the two position type equipped with a hand crank for elevating to the locked up and down position. The third wheel shall be capable of carrying three times the imposed load, easily rolling over temporary metal runways and shall be of the non-sparking type. Main wheels, hubs, tires and tubes shall conform to MIL-W-8005. This will be free running, non-directional, rib type tread tires.

3.8 Storage cylinders. Eight oxygen storage cylinders shall be furnished conforming to RR-C-901 and ICC Specification 3AA. Each storage cylinder shall have an internal water volume of not less than 2630 cubic inches. Each storage cylinder shall have a working pressure of 2400 psi.

3.8.1 Cylinder valve. Each storage cylinder shall be provided with an oxygen cylinder valve conforming to National Cylinder Gas Company No. 202 or equal.

3.8.2 Cylinder mounting racks. The cylinders shall be mounted lengthwise on the trailer so that each cylinder can be removed separately without disturbing the other cylinders. This shall be accomplished by mounting the cylinders on individual troughs with adequate supporting framework, one cylinder above the other as shown in fig. 1. The troughs shall be adequately perforated to prevent accumulation of water therein in the normal position of the trailer. Provisions shall be made to permit easy loading of the cylinders with rollers or other devices.

3.8.2.1 Cylinder clamps. A quick acting and easily accessible bar clamping arrangement, designed to hold the cylinders in place shall be provided.

3.8.2.2 Bulkhead. A storage cylinder bulkhead with openings for each cylinder neck shall be provided as shown in figure 1.

3.9 Manifold system. The cylinder manifold system shall be constructed of materials entirely suitable for the purpose and shall be designed for a working pressure of 2400 psi. The cylinders shall be manifolded together and connected to the high-pressure and low-pressure system as shown on figure 2.

3.9.1 Individual pressure gages. Individual moisture proof pressure gages shall be provided for each storage cylinder. The gages shall have a pressure range of 0 to 4,000 psi and shall be 2 1/2 inches in size. The gages shall be a part of the manifold system and valves (see figure 2). Gages will be accurate to within 1 percent. Pressure gages shall be the manufacturer's standard type including dials and marking of dials.

3.9.2 Intermediate control valves. Intermediate control valves shall be furnished for each cylinder between the pressure gage (see 3.9.1) and the manifold as shown on figure 2. Intermediate control valves shall be Circle Seal Part Nr. B923T-2PP(P) or equal.

3.9.3 Recharging valve. A recharging valve shall be incorporated in the manifold system to provide facilities for recharging the storage cylinders without removing the cylinders from the trailer. The valve shall be Circle Seal Part Nr. B923T-2PP(P) or equal. The valve control shall be located on the control panel and the valve outlet shall be located behind the control panel. The valve outlet shall be compressed Gas Association outlet No. 541 with cover. The valve shall be designed for a working pressure of 2400 psi.

3.9.4 Manifold shut-off valve. A manifold shutoff valve, Circle Seal Part Number B923T-2PP(P) or equal shall be provided between the purifier cylinder and the regulator as shown on figure 2.

3.9.5 Servicing pressure gage. A pressure gage with a 4 1/2 inch dial diameter shall be provided to indicate the servicing and regulator outlet pressure. The gage shall have a scale range of 0 to 3000 psi, shall be accurate to within one percent of full scale and shall have a safety back. The gage face shall have figure intervals indicating each 500 psi increment plus intermediate interval graduations indicating 50 psi increments throughout the entire range. The gage shall be redlined above 2400 psi.

3.9.6 Thread sealer. Tetrafluoroethylene tape conforming to MIL-T-27730 or other pipe thread sealing materials specifically approved by the procuring activity shall be applied to all pipe thread fittings before assembly.

3.10 Purifier. One Type MB-1 purifier cylinder conforming to MIL-C-4810 shall be placed in the line as shown on figure 2.

3.11 Regulator. A regulator shall be provided for a normal working pressure of 2400 psi. It shall be adjustable to any outlet pressure setting between 0 psig and 2400 psig inclusive. The inlet and outlet shall be permanently marked.

3.12 Servicing hose assembly. The servicing hose assembly shall conform to MIL-H-26633. High pressure (2000 psig) and low pressure (475 psig) service hoses and outlets shall be provided in accordance with figure 2.

3.12.1 Safety wiring. All components of the servicing system from the filler adapter back to and including the outlet on the trailer shall be safety wired and sealed as shown on figure 3. The safety wire shall be drawn taut and sealed as shown. Safety wire shall be 0.032 inch steel wire. Seals shall be lead, approximately 3/8 inch in diameter.

3.12.2 Servicing relief valve. A safety relief valve shall be incorporated in the low pressure servicing hose immediately downstream of the servicing hose shutoff valve as shown on figure 3. The relief valve shall have the following characteristics:

a. Venting shall start at a pressure of not less than 475 psi.

b. Valve shall reach a rate of not less than 25 cubic feet per minute (cfm) free oxygen before the pressure exceeds 535 psi.

c. Valve shall reseal after venting at a pressure of not less than 400 psi.

3.12.3 Servicing valve (low pressure). A servicing valve shall be provided in the low pressure system. The valve shall be Circle Seal Part No. B923T-2PP(P) or equal. The valve shall be attached to the filler adapter end of the low pressure servicing hose assembly.

3.12.4 Filler adapter (low pressure). An AN6027-1 filler adapter shall be attached to the servicing valve on the low pressure servicing hose (see figure 3).

3.13 Servicing valve (high pressure). A servicing valve shall be provided in the high pressure system. The valve shall be Circle Seal Part No. B923T-2PP(P) or equal.

3.14 Filler adapter (high pressure). A filler adapter as shown on figure 3 shall be attached to the servicing valve on the high pressure servicing hose.

3.15 Connecting lines. Flexible hose assemblies in accordance with MIL-H-26633 shall be furnished as connecting lines from the storage cylinders to the cylinder pressure gages. Other connecting lines shall be constructed of stainless steel for a working pressure of 2400 psi. The minimum inside diameter of the connecting lines shall be 1/4 inch. End fittings shall conform to MS33656, stainless steel.

3.15.1 Lubricants and thread compounds. To insure maximum safety in AGE (Aerospace Ground Equipment) oxygen and associated systems, the use of lubricants and thread compounds shall be in accordance with BSD/SSD Exhibit 62-135.

3.16 Control panel. A control panel shall be mounted forward of the storage cylinders at a distance sufficient to provide accessibility for maintenance. The valves, pressure gages, manifold, regulator, purifier, and hose connection shall be mounted securely on the panel, so as not to interfere with or obstruct the use of adjoining items and arranged so that no item or portion thereof shall extend beyond the edges of the panel. Low pressure and high pressure outlet valves and service hose connections shall be located on opposite sides of the control panel and identified as such.

3.17 Utility boxes.

3.17.1 Servicing hose storage box. A metal storage box shall be furnished for storing the servicing hoses. Means shall be provided for securing the filler adapters and servicing valves to the box so that they will not be hanging loose. The storage box shall be placed across the front of the trailer. The storage box shall be not less than 8 inches high, 10 inches wide and 50 inches long.

3.18 Interchangeability. All parts having the same manufacturer's part number shall be functionally and dimensionally interchangeable.

3.19 Dimensions. The overall dimensions of the trailer shall not exceed the following:

a. Length, including towbar - 122 inches

b. Width - 65 inches

c. Height - 40 inches

3.20 Weight. The weight of the complete trailer without cylinders shall not exceed 700 pounds.

3.21 Finishes and protective coatings.

3.21.1 Exposed parts and surfaces. All exposed parts and surfaces of the trailer, including parts within the trailer body, shall be given protective coatings as specified herein.

3.21.2 Corrosion resistant metal parts. Metal parts and surfaces which are installed within the trailer body and which are fabricated of corrosion resistant materials, need not be given protective coatings if such coatings interfere with their proper functions.

3.21.2.1 Rubber components. Tires shall not be painted.

3.21.3 Chemical treatment and priming.

3.21.3.1 Ferrous materials. Ferrous parts and surfaces shall be cleaned and chemically treated in accordance with TT-C-490. A primer coat conforming to TT-P-636 shall be applied.

3.21.3.1.1 All exposed ferrous parts such as screws, bolts, nuts, washers, et cetera, shall either be cadmium applicable in accordance with QQ-P-416, or zinc plated in accordance with QQ-Z-325.

3.21.3.2 Aluminum materials. Aluminum and aluminum alloy parts and surfaces shall be cleaned and chemically treated in accordance with MIL-M-3171. Two primer coats conforming to MIL-P-8585 shall be applied.

3.21.3.3 Magnesium materials. Magnesium base alloy parts and surfaces shall be cleaned and chemically treated in accordance with MIL-M-3171. Two primer coats conforming to MIL-P-8585 shall be applied.

3.21.3.4 Other surfaces. Other surfaces shall be cleaned and chemically treated in accordance with MIL-T-704. A primer coat conforming to MIL-P-8585 shall be applied.

3.21.4 Finish coats. Installed equipment, exterior surfaces, and parts of the chassis body shall be finished with yellow gloss, color no. 13538 in accordance with MIL-STD-808.

3.22 Operating instructions plate. When specified (see 6.2) an operating instructions plate, permanently and legibly marked, shall be provided and

in a conspicuous location on or near the control panel. Clear, concise, step-by-step instructions clearly defining all necessary operating instructions shall be included. The instructions plate shall be of such composition that exposure to oil, dirt, water, light, heat, etc, will not cause it to fade or become eradicated. Proposed operating instructions shall be approved by the procuring agency.

3.22.1 Identification plates. All manually controlled items and gages located on the forward side of the control panel shall be identified with individual plates. The plates shall be permanently mounted on the control panel completely visible to the operating personnel. The plates shall be of such composition that exposure to oil, dirt, water, light and heat will not cause it to fade or become eradicated.

3.23 Identification of product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130. The lettering "U.S. AIR FORCE" and the registration number shall be applied in one line with 1 3/4 inch silver reflective letters on a trailer frame. The lettering "U.S. AIR FORCE" and the registration number shall be applied in two lines with 1 3/4 inch silver reflective letters on a 5 1/2 inch red reflective background on a non-corrosive metal plate centered at the rear of the trailer frame. Marking shall be accomplished by applying reflectorized tape conforming to L-S-300.

3.23.1 The trailer shall be conspicuously marked OXYGEN, NO SMOKING, and OXYGEN, USE NO OIL.

3.24 Workmanship.

3.24.1 General. The trailer, including all parts and accessories, shall be fabricated and finished in a thoroughly workmanlike manner. Particular attention shall be given to freedom from blemishes, defects, burrs and sharp edges; accuracy of dimensions, radii of fillets and marking of parts and assemblies; thoroughness of soldering, welding, brazing, painting, wiring and riveting; alignment of parts and tightness of assembly screws and bolts.

3.24.2 Riveting. Riveting operations shall be carefully performed to insure that the rivets are tight and satisfactorily headed.

3.24.3 Cleaning. The trailer shall be thoroughly cleaned, and loose, spattered or excess solder, metal chips and other foreign material removed during and after final assembly. All trailer components which come in contact with compressed gases shall be free of hydrocarbon, oil and grease, or other combustible materials and moisture.

3.24.4 Air Standardization Agreement. Breathing oxygen characteristics, supply pressure hoses for servicing aircraft shall be in accordance with American-British-Canadian (ABC) Air Standardization Agreement ABC-AIR-STD-14/9.

4. QUALITY ASSURANCE PROVISIONS

4.1 The supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own or any other inspection facilities and services acceptable to the Government. Inspection records of the examination and tests shall be kept complete and available to the Government as specified in the contract or order. 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.

4.1.1 Classification of tests. The inspection and testing of the trailer shall be classified as follows:

a. Acceptance tests . . . . . See 4.2

b. Preproduction testing. . . . . See 4.5

4.2 Acceptance tests. The acceptance tests shall consist of the individual tests.

4.2.1 Individual tests. Each trailer shall be subjected to the following tests as described under 4.4.

a. Examination of product . . . . . See 4.4.1

b. Operational check. . . . . See 4.4.2

c. Hydrostatic test . . . . . See 4.4.7

4.3 Test conditions.

4.3.1 Standard atmospheric conditions. Unless otherwise specified, tests shall be made at atmospheric pressure (approximately 29.92 inches Hg) and at room temperature (approximately 70 degrees F). 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 conditions.

4.4 Test methods.

4.4.1 Examination of product. The trailer shall be inspected to determine compliance with applicable drawings and the requirements specified herein with respect to materials, workmanship, weights, dimensions and markings.

4.4.2 Operational check. The servicing systems shall be operated and thoroughly checked to insure that the manifold systems, valves, and components operate as intended. Valves shall deliver 25 cfm of free oxygen with an inlet pressure of 100 psi.

4.4.3 Mobility. The trailer shall satisfactorily complete the following tests. At intervals during and at the conclusion of these tests, the trailer

shall be examined for any damage or strain, improper operation of any components, leaks, instability, and unsatisfactory towing characteristics. Any evidence of these conditions shall be cause for rejection.

4.4.3.1 Turning. The trailer shall be towed through 10 right and 10 left turns at a minimum turning radius of 18 feet at a speed of 10 mph.

4.4.3.2 Towing over smooth surface. The trailer shall be towed 100 miles over a smooth, paved road at speeds ranging from 20 to 30 mph.

4.4.3.3 Towing over unpaved surface. The trailer shall be towed a distance of 50 miles at speeds ranging from 10 to 15 mph over unpaved surfaces approximating open-field or rough-road conditions.

4.4.3.4 Sudden stops. The trailer shall be subjected to 25 sudden stops from an initial speed of 30 mph over smooth roads. The trailer shall be subjected to 25 sudden stops from an initial speed of 10 to 15 mph over unimproved roads.

4.4.4 Parking brakes. The trailer shall be parked on a 30 percent grade facing upward and downward. The brakes shall hold the trailer stationary. With the trailer parked on dry, level concrete and the brakes applied, the trailer shall be subjected to a force sufficient to move the trailer. The wheels shall skid, not roll.

4.4.5 Acceleration forces. The trailer shall be subjected to the acceleration forces specified in MIL-A-8421.

4.4.6 Hydrostatic test. All parts of the manifold and piping systems shall be subjected to a hydrostatic pressure of 4000 psig for a period of one minute. Any distortion, damage, or leaks resulting from this test shall be cause for rejection of the components affected. The preproduction model shall be hydrostatically tested after the tests specified in 4.4.1 through 4.4.5 have been completed.

4.5 Preproduction testing.

4.5.1 Preproduction test sample. The preproduction test sample shall consist of one trailer complete with eight cylinders. The cylinders shall be full and properly mounted on the trailer. The trailer shall be tested for design approval by the procuring activity, or when so specified in the contract, at the contractor's plant under the supervision of the procuring activity.

4.5.2 Preproduction tests. The preproduction tests shall consist of all tests described under 4.4.

4.6 Inspection for prepraration of delivery. Preservation, packaging, packing and marking shall be inspected to verify conformance to the requirements of Section 5 herein and the contract.

5. PREPARATION FOR DELIVERY

5.1.1 Level A.

5.1.1.2 Cleaning, drying and application of preservatives shall be performed by personnel familiar with the type of the equipment involved and in particular with the operational hazards, perils and risks that will result from careless or improper cleaning, preservation and packaging. The presence of oil, dust or other incompatible substance on any part that might come in contact with high-purity oxygen could cause a malfunction or an explosive hazard on the equipment for which it is used. Atmospheric air surrounding and in the vicinity of the packaging operation should be adequately filtered to prevent contamination and humidity controlled to minimize oxidation.

5.1.1.3 Parts, fittings, et cetera, that will come in contact with high-purity oxygen shall be thoroughly cleaned by one or a combination of the following methods or equal effective methods:

Method a. Vapor degreasing process followed by fingerprint removal. Use stabilized trichloroethylene conforming to Specification MIL-T-27602 in a standard commercial vapor degreaser. The operation of a commercial vapor degreaser shall be in accordance with the manufacturer's recommendations. Fingerprint remover used shall conform to Specification MIL-C-15074. Following application of the fingerprint remover the surface shall be thoroughly rinsed with clean trichloroethylene. All solvents shall be removed after the cleaning operation by purging with hot filtered oil-free air or nitrogen, or by vacuum evacuation.

Method b. Solvent degreasing process followed by fingerprint removal. Using stabilized trichloroethylene or commercial oxygen-safe cleaning solvent at ambient temperatures, thoroughly wash all surfaces requiring degreasing. If the solvent contains more than one percent of oil after cleaning and being drained from the component, the degreasing operation shall be repeated with clean solvent. Fingerprint remover used shall conform to Specification MIL-C-15074. Following application of the fingerprint remover the surface shall be thoroughly rinsed with clean trichloroethylene. All solvents shall be removed after the degreasing operation by purging with hot filtered oil-free air or nitrogen, or by vacuum evacuation. Precaution shall be taken to insure that solvents do not contact plastic and other incompatible materials.

Method c. Detergent degreasing process, in which the components to be cleaned are flushed with hot inhibited alkaline cleaner until free from oil, grease and other combustible materials. Following this treatment, all surfaces (internal and external) shall be rinsed thoroughly with fresh, clean hot water and dried by blowing with filtered and dry air or by baking at a temperature of 250° to 300°F until all water is removed.

CAUTION: Carbon tetrachloride shall not be used in cleaning of components contacting high-purity oxygen.

5.1.1.4 Immediately after the cleaning operations large components or parts (where configuration permits) shall be sealed by means of stainless steel

plugs in the threaded openings or polethylene, "Hex Caps" or equivalent or "B" nut fittings, and flanges and gaskets or flanges fittings. Other openings shall be sealed in a manner that insures an airtight seal.

5.1.1.5 As a contact preservative of any kind shall not be used on surfaces of any item that will come in contact with high-purity oxygen, these items shall be packaged by one of the following procedures:

a. Nitrogen purged, filled and sealed. Items cleaned and dried by the applicable method as specified herein shall be purged with nitrogen and sealed against entrance or corrosive elements.

b. Nitrogen purged, sealed, nitrogen pressurized. Items cleaned and dried by the applicable method specified herein shall be purged with nitrogen, filled with nitrogen at a pressure of 5 psig and sealed.

c. Component parts, which cannot be purged and sealed as described herein, shall be wrapped, cushioned and packaged in accordance with Method II of Specification MIL-P-116. Whenever possible the use of hygroscopic material within water-vaporproof packs will be avoided.

5.1.1.6 The trailer chassis shall be preserved and packaged in accordance with Standard MIL-STD-281, Level A.

5.1.2 Level C. Not applicable to cleaning, preservation and packaging.

5.2 Packing.

5.2.1 Level A. The trailers shall be packed one each in containers conforming to Specification PPP-B-601, PPP-B-621, MIL-C-104, MIL-C-3774, or MIL-B-26195. Closure and strapping shall be in accordance with the container specification or appendix thereto.

5.2.1.1 Blocking and bracing. Blocking, bracing and cushioning shall be in accordance with Specification MIL-STD-1186.

5.2.2 Level C. The trailers shall be shipped unboxed (mobile) and shall meet Uniform Freight Classification Rules, National Motor Freight Classification Rules or other common carriers applicable to the mode of transportation.

5.3 Marking. A tag conforming to Specification UU-T-81, Class A, shall be attached to each trailer and shipping container bearing the following information:

THIS TRAILER HAS BEEN CLEANED AND PACKAGED FOR OXYGEN SERVICE. DO NOT TAMPER WITH VALVES OR OTHER COMPONENTS WHILE IN TRANSIT OR STORAGE.

In addition to any special marking required, units and shipping containers shall be marked in accordance with Standard MIL-STD-129.

6. NOTES

6.1 Intended use. The AF/M32R-3 trailer covered by this specification is intended for use in recharging high-pressure oxygen breathing systems in aircraft.

6.2 Ordering data. Procurement documents should specify the following:

a. Title, number, and date of this specification.
b. Level of preparation for delivery (see Section 5).
c. Level of packaging and packing desired (see Section 5).
d. Operating instruction plate (see 3.22).

6.2.1 Cylinders. Trailers shall be furnished with eight uncharged cylinders.

6.3 Definitions.

a. Improved roads. An improved road is a road of level concrete or macadam, steel landing mat, or smooth, hard-packed dirt.

b. Unimproved roads. An unimproved road is an unsurfaced road of dirt, gravel, et cetera.

c. Pressure. Unless otherwise specified as absolute or denoted by the symbol psia, all pressure referred to herein will be interpreted as pounds per square inch gage (psig).

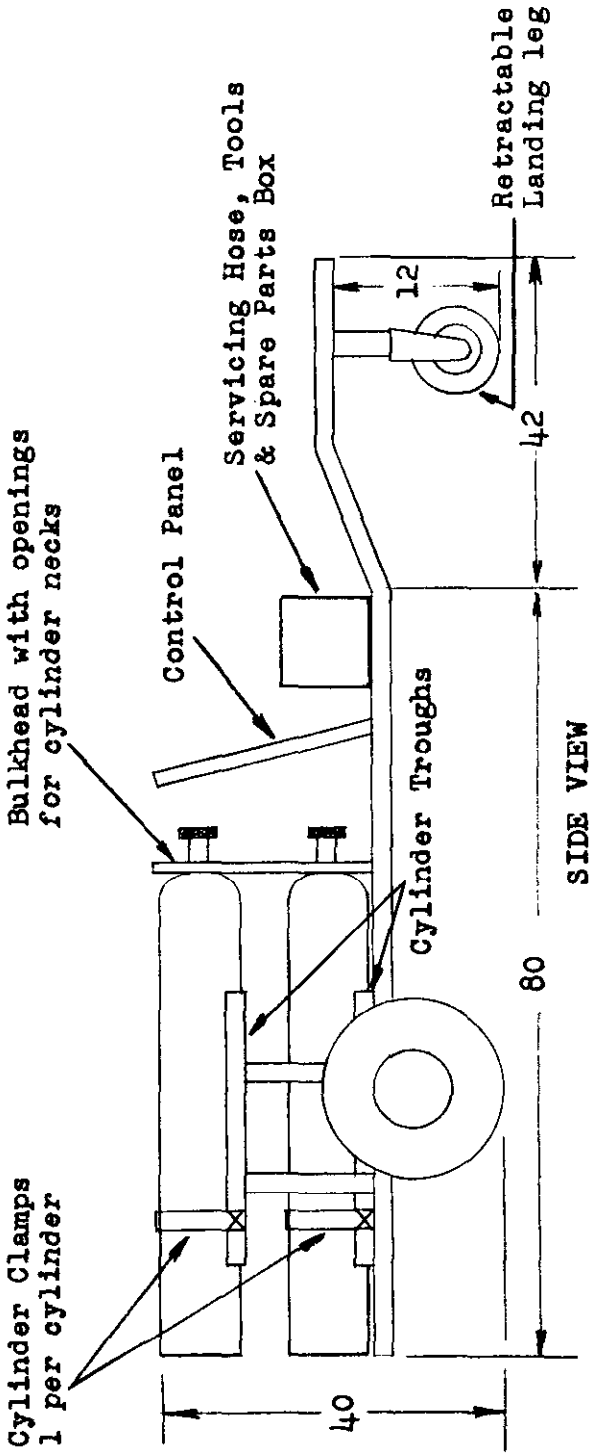
d. Preproduction unit. The preproduction unit is defined as a production unit of the product which the manufacturer shall produce in fulfillment of the contract. As soon as practicable after award of the contract or order and prior to submission of any complete units for final acceptance, the contractor shall furnish a complete assembly to determine conformance to the requirements contained herein. Examination and tests shall be as specified herein. Approval of the preproduction unit by the activity concerned shall not relieve the contractor of his obligation to supply equipment contained herein. Any changes or deviations of the production units from the preproduction unit shall be subject to the approval of the contracting officer.

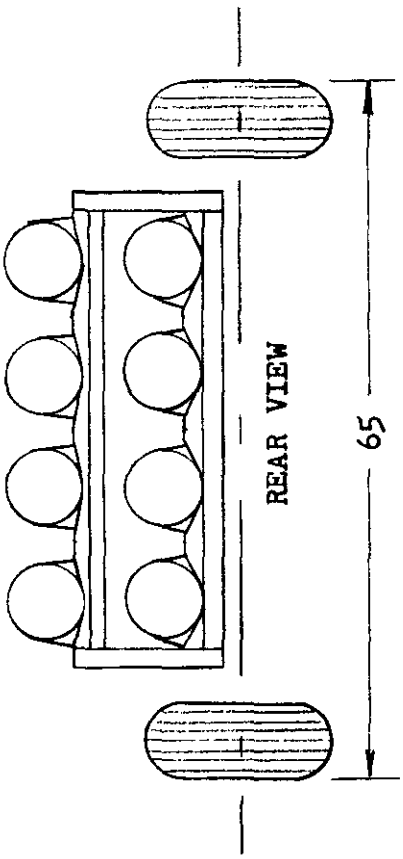
6.4 International standardization agreements. Certain provisions of section 3 of this specification are subject to international standardization agreement ABC/AIR-STD-14/9, American-British-Canadian Air Standardization Agreement. When amendment, revision or cancellation of this specification is proposed, the departmental custodians will inform their respective Departmental Standardization Offices so that appropriate action may be taken respecting the international agreement.

Custodian:
Air Force - 84

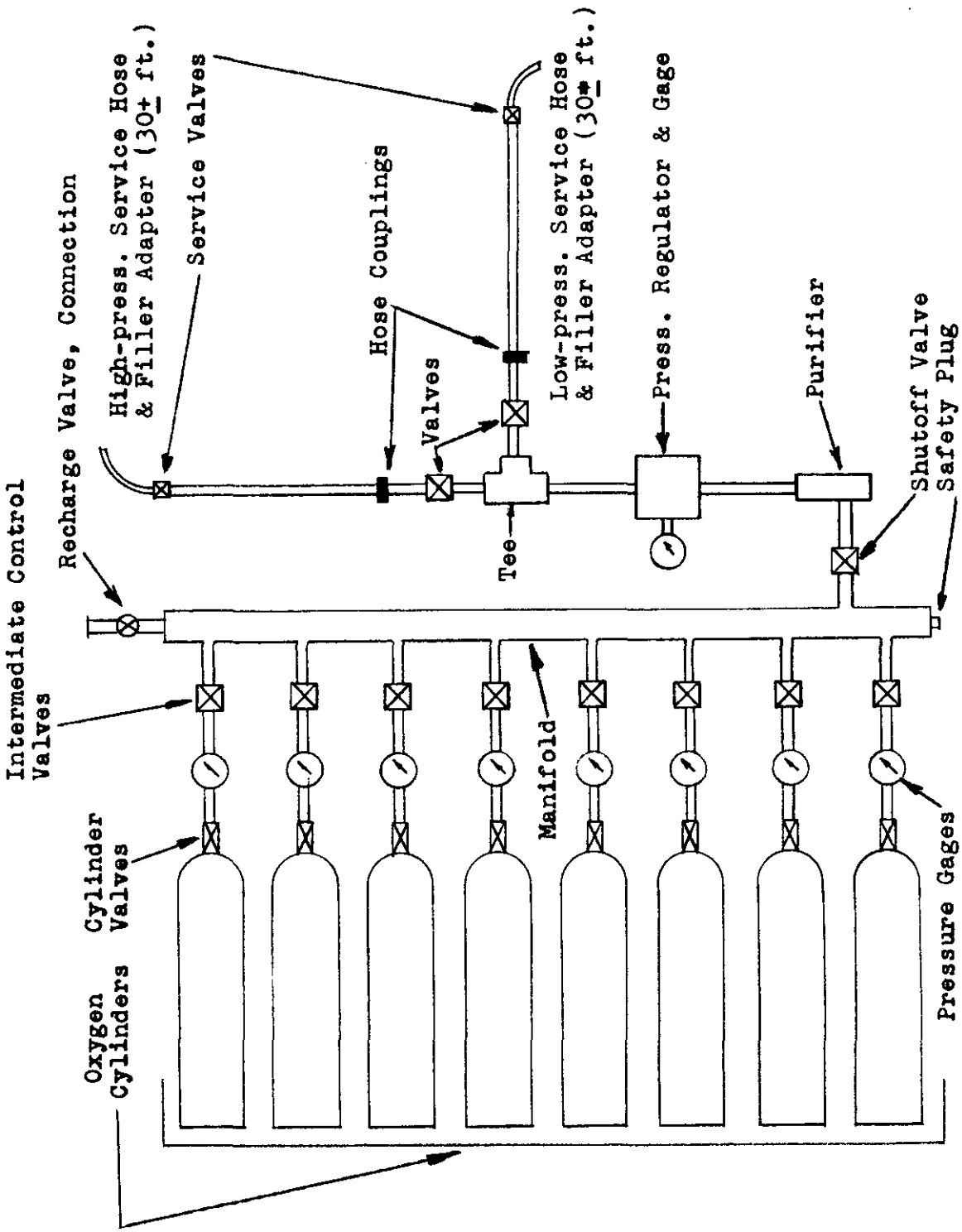
Preparing Activity:
Air Force - 84

Project Number:
2330-F481

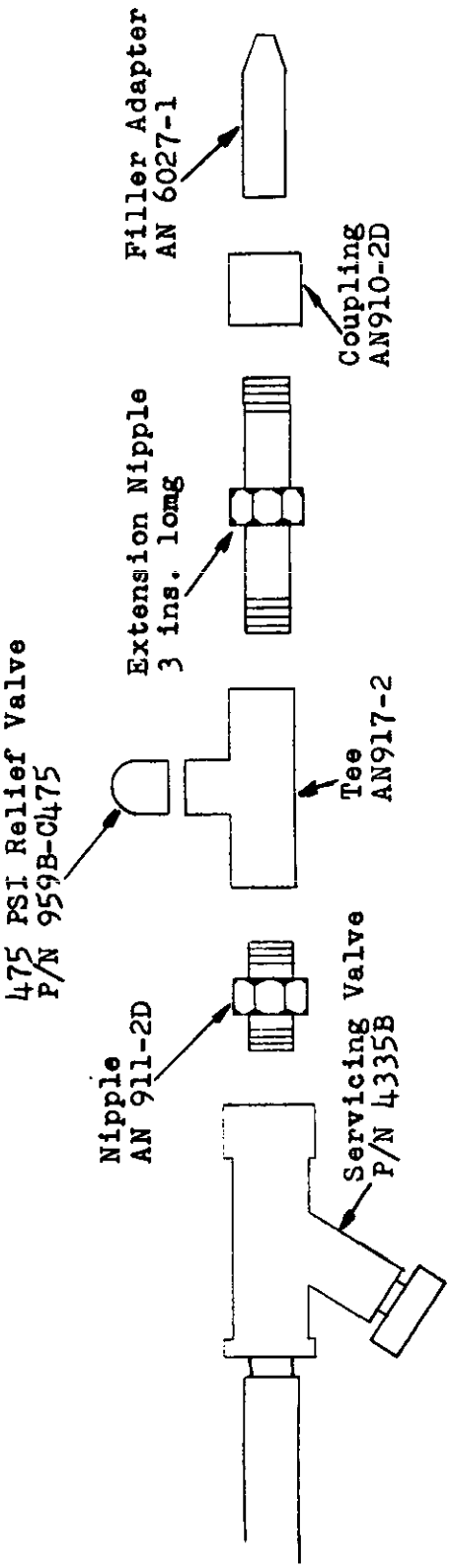




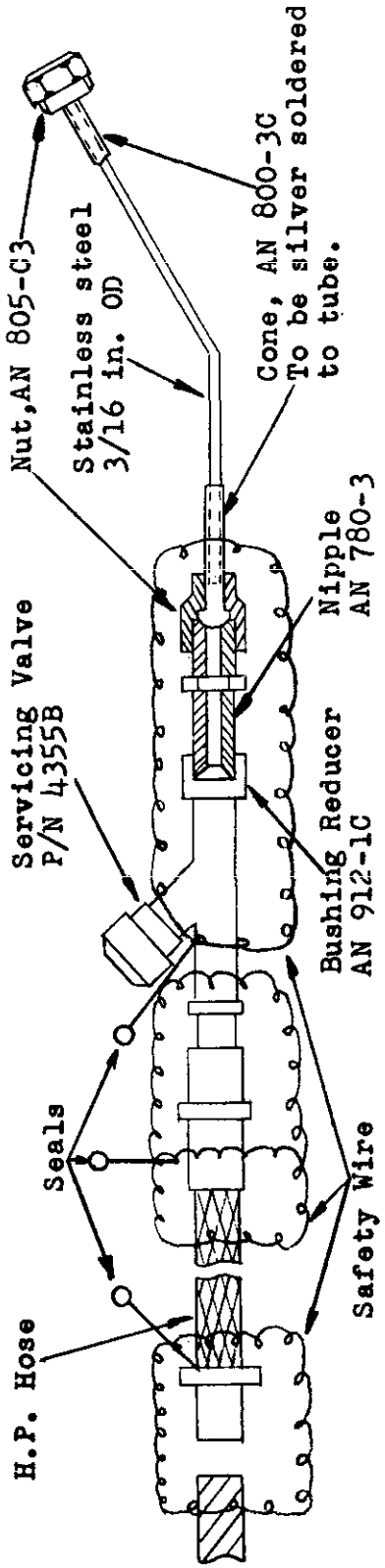
DIMENSIONS AND CONFIGURATION SKETCH - FIGURE 1



FLOW DIAGRAM - FIGURE 2



LOW PRESSURE SERVICING ADAPTER



HIGH PRESSURE SERVICING ADAPTER

FIGURE 3

☆U.S. GOVERNMENT PRINTING OFFICE: 1969-343-229/1561