INCH-POUND

MIL-C-52788B(ME)
15 December 1992
SUPERSEDING
MIL-C-52788A(ME)
3 August 1979

MILITARY SPECIFICATION

CONTAINER, REFRIGERATED:

8 FEET X 8 FEET X 20 FEET, INSULATED

This specification is approved for use within the USA Belvoir Research, Development and Engineering Center, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers a 20 foot refrigerated container equipped with a 9,000 Btu per hour electric-motor-driven refrigeration unit powered by a self-contained 10 kW diesel-engine-driven tactical quiet generator set or external power source.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

A-A-1558	- Paint, Stencil.
P-D-680	- Dry Cleaning Solvent.
PPP-B-601	- Boxes, Wood, Cleated, Plywood.
PPP-T-60	- Tape, Packaging, Waterproof.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: USA Belvoir Research, Development, and Engineering Center, ATTN: SATBE-TSE, Fort Belvoir, VA 22060-5606 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 8115

MILITARY

MIL-P-116	- Preservation,, Methods of.
MIL-B-121	- Barrier Material, Greaseproofed, Waterproofed, Flexible.
MIL-P-514	- Plate, Identification, Instruction and Marking, Blank.
MIL-T-704	- Treatment and Painting of Materiel.
MIL-G-10924	- Grease, Automotive and Artillery.
MIL-L-21260	- Lubricating Oil, Internal Combustion Engine, Preservative and Break-In.
MIL-G-28554	- Generator Set, Mobile Electric Power and Supplemental Equipment; Packaging of.
MIL-R-43891	- Refrigeration Unit, Electric for Insulated Military Van Containers.
MIL-C-46168	- Coating, Aliphatic Polyurethane, Chemical Agent Resistant.
MIL-C-53039	- Coating, Aliphatic Polyurethane, Single Component, Chemical Agent Resistant.
MIL-C-62218	- Corrosion Preventive Compounds, Cold-Application (for Fielded Motor Vehicles and Trailers).

STANDARDS

FEDERAL

FED-STD-595	- Colors Used in Government Procurement.

MILITARY

MIL-STD-105	- Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129	- Marking for Shipment and Storage.
MIL-STD-810	- Environmental Test Methods and Engineering Guidelines.
MIL-STD-889	- Dissimilar metals.
MIL-STD-1366	- Material Transportation System, Dimensional and Weight Constraints, Definition of.
MIL-STD-1472	- Human Engineering Design Criteria for Military Systems, Equipment and Facilities.
MIL-STD-1474	- Noise Limits for Military Materiel.
MIL-STD-1791	- Designing for Internal Aerial Delivery in Fixed Wing Aircraft.

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

2.1.2 Other Government documents. The following other Government documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DEPARTMENT OF TRANSPORTATION (DOT)

Code of Federal Regulations

49 CFR - Transportation, Parts 450 and 451.
OSHA 29 CFR 1910 - Occupational Safety and Health Administration Standards.

(Application for copies should be addressed to the Department of Transportation, Superintendent of Documents, Government Printing Office, Washington, DC 20402.)

2.2 Non-Government publications. The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (ANSI)

INTERNATIONAL STANDARDS ORGANIZATION

ISO 668 - Series 1 Freight Containers - Classification External Dimensions and Ratings.
ISO 830 - Terminology Relating to Freight Containers.
ISO 1161 - Specification of Corner Fittings for Series 1 Freight Containers.
ISO 1496/2 - Series 1 Freight Containers - Specification and Testing - Part 2: Thermal Containers.
ISO 6346 - Freight Containers - Coding, Identification and Marking.

(Application for copies should be addressed to the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018).

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

J514 - Hydraulic Tube Fittings.

(Application for copies should be addressed to the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096.)

AMERICAN WELDING SOCIETY, INC. (AWS)

D1.1 - Structural Welding Code - Steel.
D1.2 - Structural Welding Code - Aluminum.

(Application for copies should be addressed to the American Welding Society, Inc., 2501 NW Seventh Street, Miami, FL 33125.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 1229 - Rubber Property - Compression Set at Low Temperatures.

(Application for copies should be addressed to the American Society of Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

15 - Safety Code for Mechanical Refrigeration.

(Application for copies should be addressed to the American Society of Heating, Refrigerating and Air-Conditioning Engineers, 1791 Tullie Circle, NE, Atlanta, GA 30329.)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

Boiler and Pressure Vessel Code, Section IX, Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators.

(Application for copies should be addressed to the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, (except for related associated detail specifications, specification sheets or MS standards), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Description. The container shall be of permanent construction suitable for repeated use for the transportation and storage of cargo requiring controlled temperatures. Unless otherwise specified (see 6.2), the container shall be equipped with a contractor furnished refrigeration unit conforming to MIL-R-43891 and a Government-furnished 10 kW diesel engine tactical quiet generator set. The refrigeration unit shall meet all requirements of MIL-R-43891 prior to acceptance and installation of the unit on the container for system tests. In addition the refrigeration unit shall be adjustable thru a range of not less than -10 to +50 °F. Meeting the requirements of MIL-R-43891 does not negate the contractor's responsibility of meeting the applicable refrigeration unit portion requirements of this specification.

3.1.1 Terms and definitions. The terms used in this specification shall be as defined in ISO 830.

3.1.2 Weight, ratings, and dimensions. The weight of the container with restraint system and without the refrigeration unit and engine tactical quiet generator set shall not exceed 6500 pounds. The gross weight rating for each container shall be 20 long tons or 44,800 pounds. Dimensions, tolerances, and diagonal differences of the container shall meet the requirements for 20-foot nominal length containers as specified in ISO 668, except as specified in table I. All inside dimensions shall be the maximum attainable, consistent with design and material, but shall not be less than those specified in table I.

3.1.2.1 Tare weight. The tare weight to be marked on the container (see 3.8) shall be the average weight of the first ten production containers plus the weight of a 9,000 Btu per hour refrigeration unit plus the weight of a 10 kW diesel engine tactical quiet generator set. The remaining production containers shall be within ±35 pounds of the stamped weight.

TABLE I. Dimensions.

Inside width, minimum	87 inches
Inside length, minimum	191 inches
Inside height, minimum	83 inches

3.2 First article. Unless otherwise specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.3.

3.3 Materials. Materials shall be as specified herein.

3.3.1 Material deterioration prevention and control. The container shall be fabricated from compatible materials, inherently corrosion resistant or treated to provide protection against the various forms of corrosion and deterioration that may be encountered in any of the applicable operating and storage environments to which the container may be exposed.

3.3.2 Dissimilar metals. Dissimilar metals shall not be used in intimate contact with each other unless protected against galvanic corrosion. Dissimilar metals and methods of protection are defined and detailed in MIL-STD-889.

3.3.3 Identification of materials and finishes. The contractor shall identify the specific material, material finish or treatment for use with component and subcomponent, and shall make information available upon request to the contracting officer or designated representative.

3.3.4 Cadmium plated fasteners. Cadmium plated fasteners shall not be used unless deemed absolutely necessary (see 6.8 and 6.8.1).

3.3.5 Rubber materials. All rubber components shall not be more than 12 months old on date of acceptance by the Government.

3.3.6 Recovered materials. For the purpose of this requirement, recovered materials are those materials which have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials. The components, pieces and parts incorporated in the container may be newly fabricated from recovered materials to the maximum extent practicable, provided the container produced meets all other requirements of this specification. Used, rebuilt or remanufactured components, pieces and parts shall not be incorporated in the container.

3.4 Design. The container shall be insulated to conform to the requirements of 3.11.10 and 3.11.11 and shall be equipped with a 9,000 Btu per hour refrigeration unit in accordance with MIL-R-43891. When specified (see 6.2), the refrigeration unit shall be Government-furnished property. The refrigeration unit and 10 kW diesel engine driven tactical quiet generator set shall be mounted at the non-door end of the container. The insulated end wall for mounting the refrigeration unit

shall be located a distance of 35 inches measured from the outside face of the corner fitting. Both sides, top, bottom, and the extreme front of the container near the refrigeration unit shall be open to allow maximum air circulation. Gussets may be installed on the front part of the container frame. Provisions shall be made in the insulated wall of the container for mounting a refrigeration unit. The container frame shall not restrict installation and removal of the refrigeration unit and tactical quiet generator set. When specified (see 6.2), a 1/2 inch exterior grade plywood cover-plate shall be mounted over the refrigeration unit opening. Provisions shall be made at the base of the frame to mount and secure the 10 kW skid-mounted tactical quiet generator set. If nuts are used, they shall be captive. The refrigeration unit and tactical quiet generator set shall be secured to withstand the loads imposed during testing and usage of the refrigerated container. Provisions shall be made to prevent forward, backward, and vertical movement, adjacent to the insulated wall, of the tactical quiet generator set.

3.4.1 Construction. Containers shall be constructed so as to be free of any recesses and voids in which contraband can be concealed or where moisture, dirt and food particles can accumulate. No part of the container shall protrude beyond the outside surfaces of the corner fittings. The yield point of materials shall not be exceeded when the container is tested as specified in 4.5.2. Wood on the interior and exterior surface of the container shall not be acceptable. The insulation shall be applied in such a manner as to be closed cell, uniform consistency and free of voids. The void space in any panel shall be less than 2.5 percent (see 4.5.2.2.18). Exterior sheeting material shall be corrosion resistant.

3.4.1.1 Side walls and front wall. The exterior side walls and front wall may be of the interior or exterior post type, corrugated, or of smooth skin construction. On all types of construction, lap splices are permitted on metal skin. Provisions shall be made for air flow in the vertical direction at the inside walls. Vertical ribs shall have a maximum spacing of 16 inches.

3.4.1.2 Restraint system. Each container shall be provided with an internal cargo restraint system. The restraint system shall consist of a total of ten horizontal rails and twenty shoring beams. Five horizontal rails shall be attached to each interior side wall of the container and shall extend the entire interior length of the container. The horizontal rails shall be located so that the top surfaces of the shoring beams, when installed to the side rails, shall be 10, 20, 30, 40, 50 ±1/4 inches above the floor. When installed, the horizontal rails shall be parallel to the container floor.

3.4.1.3 Floor construction. The container floor shall have four drains, one located at each corner. The drains shall be protected by corrosion resistant screens and have self-closing fittings. Provisions shall be made for air flow in the longitudinal and transverse direction in the floor. A floor with air flow ribs having a minimum depth of 1.25 inches shall be provided. The floor shall be extruded aluminum. The door end of the floor shall be reinforced with an aluminum member welded across the end ribs. The floor of the container shall be leakproof. The floor drains shall be located so as to provide complete and total drainage of the container.

3.4.1.4 Understructure. All cross-members shall be of the same configuration and strength and shall conform to the requirements of ISO 1496/2.

3.4.1.5 Roof construction. The roof shall be self-draining and shall conform to the requirements of ISO 1496/2.

3.4.1.6 End doors. Two doors shall be hung within the rear end frame and shall be in accordance with ISO 668. Heavy duty pin hinges, recessed within the corner structure shall be provided on each door allowing the door to fold back against the sides of the container. Steel hinges shall have corrosion resistant steel pins. Each door shall be provided with two heavy-duty, handle operated camlocking devices with anti-rack provisions. Handles shall be 12 to 18 inches above the bottom plane of the bottom corner fittings. Means shall be provided to hold the doors in the full open position. Means shall be provided to hold the doors in the full open position and shall not scrape or chafe the container when the doors are closed. The doors, when closed, shall be sealed in such a manner as to prevent water entry into the container. An adhesive method of securing the inner seals to the door shall not be acceptable. All moving parts of the door locking mechanism and door hinges, if not permanently lubricated, shall be lubricated with grease conforming to MIL-G-10924. Provisions shall be made for air flow in the vertical direction at the inside of the doors. A 14-inch wide by 22-inch high clear hatch opening shall be provided in the lower half of the last door to be closed. the hatch opening shall be capable of being opened from the inside without the use of tools.

3.4.1.7 Corner fittings. The corner fittings shall conform to the dimensional requirements of ISO 1161 and withstand loading in accordance with ISO 1496/2.

3.4.1.8 Anti-pilferage provisions. The hinge pins and screws, bolts, and other fasteners used for securing the hinges and closing devices to the container and for holding the essential parts of the sides, ends, and roof, shall be welded or otherwise secured in such a manner as to prevent access to the interior of the container without leaving visible signs of tampering. Where such welding destroys protective coating or the items being welded or on other container parts, the weld and surrounding area shall be thoroughly cleaned, treated, and painted as specified in 3.5. All locking device handles shall be furnished with provisions for padlocking and customs sealing.

3.4.1.9 Insulation material. Insulation shall be blown in place, sandwich panel, or a combination thereof. The insulation shall adhere to the exterior and interior walls. Insulation shall be odor free, fire- retardant and self-extinguishing. The words "fire retardant and self-extinguishing" shall be construed to mean that the flame shall extinguish within 60 seconds after removal of the burner. Further, no insulation sample shall burn for a distance greater than 2.25 inches from the end exposed to the test flame. No dripping, flaming particles, or droplets shall be emitted from the samples. Certification of fire retardant characteristics shall be provided.

3.4.1.10 Temperature recording system. A shock-mounted 31-day temperature recorder mounted in a weatherproof case having a minimum reading range of -20 to +60 °F shall be provided to automatically record the interior temperature. The recorder shall be mounted on the insulated exterior wall of the refrigeration unit area of the container and located so as to be accessible and readable when two like containers are positioned on a 40 foot highway chassis, front end of one container to back end of the other container. The temperature sensing device shall be mounted within 2 inches of the inside ceiling of the front insulated wall fully exposed to the refrigerated space and shall be protected to prevent damage

from loading and cleaning operations. No fewer than 20 temperature recording chart sheets for the recorder shall also be provided. A sleeve or other means shall be installed into the container to facilitate the removal and replacement of the temperature recording device remote bulb.

3.4.1.11 Door gasket material. The container door gasket material shall be constructed for satisfactory use (see 4.5.2.2.17) in ambient temperatures of -40 to +120 °F. The material shall not exceed a 60 percent set when tested in accordance with ASTM D 1229 for 96 hours at 40 °F.

3.4.1.12 Auxiliary fuel tank. A auxiliary diesel fuel tank with a volume not less than 30.6 gallons shall be provided. The tank dimensions and location shall allow sufficient space to permit connection to the slave receptacle and 120 VAC power receptacles of the Government-furnished tactical quiet generator set secured to the container. The tank design shall include a radial dial type fuel level gage, baffle plates as required, essential pressure relief valves, filler cap, captively retained inlet fuel screen, and shall be so designed to prevent fuel spillage when the container is operated on a 40 percent grade forward and backward along the longitudinal axis; and 20 percent side slope on each side. The fuel line fitting shall be a male type, dash 5 size hose fitting, 1/2-20 UNF conforming to SAE J514. A captively retained cap for the fuel line fitting shall also be provided. The auxiliary fuel tank shall be bolted to the container frame to facilitate easy removal. Provisions shall be made for storage of the excess length of generator auxiliary fuel line at a place near the auxiliary fuel tank and shall be a minimum of 500 cubic inches.

3.4.1.13 Electric power cable. A four wire electric cable of 5 foot length shall be provided. The cable shall be of a size compatible with a type I female electric connector as specified in ISO 1496/2. A type I male electric connector of the ISO standard type shall also be provided. One end of the cable shall be connected to the electric generator. The cable with connector shall be secured on the container wall above the engine tactical quiet generator set and shall be accessible for connecting with the refrigeration unit electric supply connection.

3.4.1.14 Engine exhaust line extension. A heavy duty flexible engine exhaust extension shall be furnished to connect to the engine exhaust lines. The exhaust line extension outlet shall be vertical in direction, not less than 7 feet above ground level, and so positioned to facilitate correct engine exhaust when two like containers are positioned front end to door end. The exhaust extension shall include a rain cap of the pivot type or other means to shed rainfall. The engine exhaust line extension shall be positioned to allow clearance for the refrigeration unit. The exhaust extension shall be covered with insulation material of sufficient thickness to prevent heat damage to operating personnel and other container parts. The exhaust extension shall be connected to the engine to facilitate installation and removal. The exhaust lines shall be made of stainless steel material. The lines shall be securely fastened in the operating mode against the front insulated wall. A nominal 1-inch air space between the insulated wall and the pipes shall be maintained. The exhaust system shall be sufficiently strong to guard against surface movement, vibrations, and all other requirements of this specification. Clamps for securing the exhaust pipes to the tactical quiet generator set shall be provided. The exhaust lines shall be constructed to create a back pressure of not more than 2 inches of water peak measured at the muffler discharge.

3.4.1.15 General maintenance requirements. When compatible with requirements as specified in 3.4, the container design shall facilitate service and maintenance of refrigeration and power equipment as a single unit. Design for maintainer shall conform to the requirements of 3.4.18.

3.4.1.16 Interior lighting. The container shall be equipped with an interior lighting system. The electric characteristics of the system shall be compatible with the container refrigeration unit and tactical quiet generator set. The lights shall be operable when the container is operating from either the tactical quiet generator set or external power. One light fixture equipped with a minimum of 100 watt bulb shall be provided at the door end, near the inside container ceiling. A manually operated light switch shall be provided. Guards or other means shall be provided to protect the lighting system from shifting cargo.

3.4.1.17 Noise limits. The noise produced by the system shall conform to MIL-STD-1474 requirements with the exception of MIL-STD-1474, 5.2, 5.3, and 5.4, when tested in accordance with 4.5.2.2.19. The provisions of MIL-STD-1474, 4.2 and 4.3 shall be provided if and only if MIL-STD-1474, 5.1.1.3 procedures have been pursued and documented to the satisfaction of the procuring activity and written permission to exceed the 85 dB(A) limit is obtained from the procuring activity. Hazard signs shall comply with MIL-STD-1474, 4.2.

3.4.1.18 Human factors engineering. The container, refrigeration unit, generator, and all ancillary equipment shall conform to accepted human factors engineering design criteria as described in MIL-STD-1472. Special design emphasis shall be given, but not limited to, to general requirements (4), control/display integration (5.1), visual displays (5.2), controls (5.4), labeling (5.5), ground workspace design (5.7), environment (5.8), design for maintainer (5.9), and hazards and safety (5.13) of MIL-STD-1472, as applicable.

3.4.1.19 Transportability. The container shall be capable of being transported by military or commercial trailers and trains without damage or permanent deformation.

3.4.1.19.1 Highway transportability. The container, when loaded on a semitrailer/tractor, shall be within the highway permit limits of all states.

3.4.1.19.2 Rail transportability. The container shall be rail transportable in CONUS and NATO countries without restrictions. When loaded on a 50-inch (127 cm) high rail car, the container shall have a dimensional profile within the AAR outline diagram and the Gabarit International de Chargement (GIC) or PPI, as specified in MIL-STD-1366. The container shall be capable of withstanding the shock loads resulting from rail impact testing specified in 4.5.2.2.21.2 without failure, damage, or permanent deformation.

3.4.1.19.3 Air transportability. The container shall meet the requirements of MIL-STD-1791 for air transport. When required (see 6.2), the contractor shall provide sufficient information (dimensions and weight) to the Government to confirm that the container being supplied can be loaded and transported by the C-141 and C-5.

3.5 Cleaning, treating, and painting.

3.5.1 Cleaning, treating, and painting. Metal surfaces of the container shall be cleaned, treated, and primed in accordance with MIL-T-704, type F or G as applicable. After cleaning, treating and priming, all exterior surfaces shall be painted in accordance with MIL-C-46168 or MIL-C-53039, color camouflage green 383.

3.5.2 Wood surfaces. All wood surfaces shall be cleaned in accordance with MIL-T-704 prior to preservation treatment.

3.5.2.1 Interior wood. Wood used for core framing shall be treated in accordance with P-D-680, type II, and shall contain 1 percent solubilized copper-8-quinolinolate free of amines and naphenic acid or its derivative.

3.5.3 Undercoating. The entire underside of the container floor, including crossmembers, floor, side rails, and bottom end rails, shall be coated after painting of the metal surfaces, with a type I coating conforming to MIL-C-62218. Floor drains shall remain free and open.

3.5.4 Plastics. When used in exterior applications, plastics shall be pigmented and finished to produce a color conforming to 24087 or 14087 of FED-STD-595.

3.6 Exterior marking. The container shall be identified and marked with white stencil paint conforming to A-A-1558 in accordance with ISO 6346 with the following additional requirements:

a. The owner's code and serial number (see 6.2).
b. The maximum net cargo weight in pounds and kilograms shall be stencilled in characters not less than 2 inches proportional width and thickness on the right hand door of the container.
c. "CENTER OF BALANCE" shall be stenciled at the longitudinal center of balance of the empty container equipped with restraint system refrigeration unit, and an engine tactical quiet generator set. The container shall be stencilled on both sides with a 4-inch high vertical arrow and letters 2 inches high at the longitudinal center of balance.
d. "RETAIN GENERATOR POWER CONNECTOR CABLE AT ALL TIMES" shall be stencilled above the cable in letters 2-inches high (see 3.4.1.13).
e. "DIESEL FUEL" shall be stencilled on the auxiliary fuel tank in letters 2-inches high (see 3.4.1.11).
f. "DO NOT FILL ABOVE THIS LINE" shall be stencilled in letters 2-inches high on the auxiliary fuel tank. Two horizontal white lines, one on each side, not less than 10 inches long and 1 inch wide shall also be stencilled on the tank and located 2 inches below the bottom of the tank neck (see 3.4.1.12).
g. "MANUAL HOLDER" shall be stencilled on the manual holder in white lettering 0.50 inch high (see 3.10).
h. "CAUTION: DO NOT FORKLIFT" shall be stencilled on each side of the container above the bottom frame in 4-inch high lettering.
i. Any other safety markings required to warn personnel concerning safety hazards that may be encountered upon removal of barriers, guards or doors.

3.7 Interior marking. The owners identification code and the container serial number shall be stamped or stencilled in characters at least 0.50 inch high on an interior surface of top rail at the door end. The number shall be located within an area 18 inches from the corner post where it will not be obscured. The following will be stencilled in 1-inch high white lettering on the interior surface under the evaporation exit:

"WARNING: DO NOT BLOCK AIR CIRCULATION."

3.8 Data plates. A nonferrous data plate conforming to MIL-P-514, type I, style 3, composition C material shall be affixed to the center of the external surface of the right hand door. The method of attachment shall be by either riveting or bolting. The data plate shall contain the following information:

U.S. Container, Refrigerated
Specification: MIL-C-52788
NSN:_____

Control Number:_____
Tare Weight, Equipped: LBS_____ KG_____
Contract Number:_____
MFD By:_____
Date (Month & Year)_____
Technical Manual_____

3.9 CSC plate. A Convention for Safe Containers (CSC) plate shall be applied for and obtained from a designated approval authority, attached and displayed as required by the convention in accordance with CFR 49, parts 450 and 451.

3.10 Manual holder. One waterproof, manual holder shall be securely fastened to the exterior of the front insulated wall of the container. The closing and latching devices of the box shall be capable of repeated opening and closing, without tools and without impairing their sealing quality. the door of the manual holder shall be captive to the manual holder when opened. The interior dimensions of the box shall be not less than 12 inches long by 9 inches wide by 3 inches deep.

3.11 Performance. The container shall meet the following requirements when tested as specified in 4.5.2. Structural loading conditions shall be met without depending on the structural integrity of the refrigeration unit or the engine tactical quiet generator set.

3.11.1 Stacking. Stacking capability shall be in accordance with ISO 2496/2.

3.11.2 Lifting from top. Lifting from the top capability shall be in accordance with ISO 1496/2.

3.11.3 Lifting from the bottom. Lifting from the bottom capability shall be in accordance with ISO 1496/2.

3.11.4 Longitudinal restraint. Longitudinal restraint capability shall be in accordance with ISO 1496/2.

3.11.5 Floor. The floor shall withstand loading in accordance with ISO 1496/2.

3.11.6 Roof. The container roof shall withstand loading in accordance with ISO 1496/2.

3.11.7 Walls. Each of the end walls and side walls shall withstand loading in accordance with ISO 1496/2.

3.11.8 Transverse and longitudinal rigidity. The container shall withstand racking loads in accordance with ISO 1496/2.

3.11.9 Weatherproofing. The container shall show no signs of water penetration when tested in accordance with ISO 1496/2.

3.11.10 Heat leakage. The heat leakage of the container equipped with a 9,000 Btu per hour refrigeration unit installed (see 3.12) shall not exceed 44 Btu per hour per degree F with a mean wall temperature of 50 °F; or 48 Btu per hour per degree F with a mean wall temperature of 100 °F when tested as specified in 4.5.2.2.11.

3.11.11 Air tightness. Air shall be in accordance with ISO 1496/2.

3.11.12 Pull down. When tested as specified in 4.5.2.2.13, the container equipped with a 9,000 Btu per hour refrigeration unit and operated in an ambient temperature of 100 °F shall reduce the interior of the container from 100 to 0 °F in not more than 4 hours without overloading the Government-loaned 10 kW diesel engine tactical quiet generator set or the compressor electric motor (see 3.13).

3.11.13 Heat dissipation, container positioned front end to door end with a like container. The container will be so constructed that when two like containers are positioned front end to door end and 54 inches above ground, movement of air around and through the refrigeration unit and tactical quiet generator set located near the contacting containers shall be sufficient to allow sufficient heat rejection to reduce the temperature of the interior of the container from 100 to 0 °F in no more than 5 hours when operating in an ambient temperature of 100 °F. Power to operate the refrigeration unit shall be utilized from the container engine tactical quiet generator set (see 4.5.2.2.14).

3.11.14 Maintainability

3.11.14.1 Maintenance ratio. The refrigerated container system shall have a maintenance ratio of not more than 0.11. Maintenance ratio is defined as the ratio of the total active maintenance manhours required (scheduled and unscheduled), to the total operation time of the system. Manhours scheduled before and after operation checks are excluded. The breakout of major components shall be as follows: Refrigeration unit 0.04 and container 0.015. The Government-furnished tactical quiet generator set shall be assumed to be 0.055. A maintenance schedule shall be furnished prior to the start of any testing. The mean time to repair shall not exceed 1 hour for organizational maintenance and 3 hours for direct support maintenance.

3.11.14.2 Ease of maintenance. All assemblies and installed attachments shall be accessible for preventive maintenance actions without requiring the removal of other major assemblies and installed attachments not normally removed. Provisions shall be made for drainage of all fluids of the container system into an appropriate receptacle. Integral tubes, hoses, or troughs may be used to convey

the fluids from the drain outlet. The drain outlets for the engine lubrication system shall provide complete drainage of the system when in a level position. Design for maintainer shall conform to the requirements of 3.4.1.18.

3.11.15 Reliability. The specified Mean-Time-Between-Failure (MTBF) shall be 400 hours when the containers are tested as specified in 4.5.2.2.16. The MTBF of the supplier furnished refrigerator unit and container portion of the system shall be 560 hours (see 6.6).

3.12 Government-loaned property. When specified, the following property in the quantities indicated will be loaned by the Government (see 6.5):

Item No.	Description	Identification	Quantity
1	9,000 Btu per hour refrigeration unit for insulated containers	MIL-R-43891	2
2	10 kW diesel engine tactical quiet generator set	NSN 6115-01-275-5061	2

3.12.1 Government-furnished property. Unless otherwise specified (see 3.1), one 10 kW diesel engine tactical quiet generator set, NSN 6115-01-275-5061 will be furnished by the Government for installation on each container.

3.13 Workmanship. All parts, components, and assemblies of the container including castings, forgings, molded parts, stampings, seals and sealing agents, machined surfaces, and welded parts shall be clean and free from any defects that will reduce the capability of the container to meet the requirements specified herein. Any components and assemblies which have been repaired or modified to overcome deficiencies shall not be used without prior approval of the contracting officer. External surfaces shall be free from burrs, slag, sharp edges, and corners except where sharp edges and corners are required. The internal cargo space shall be free from sharp protrusions that could damage the cargo. The interior of the container shall be cleared and cleaned of any excess building material.

3.13.1 Metal fabrication. Metal used in the fabrication of equipment shall be free from kinks and sharp bends. The straightening of material shall be done by methods that will not cause injury to the metal. Shearing and clipping shall be done neatly and accurately. Corners shall be square and true. Flame cutting, using a tip suitable for the thickness of the metal, may be employed instead of shearing and sawing. Burned surfaces of flame-cut material shall be free of slag. All bends of a major character shall be made with controlled means in order to insure uniformity of size and shape. Precautions shall be taken to avoid overheating, and heated metal shall be allowed to cool slowly.

3.13.2 Fiberglass. Fiberglass or fiberglass coated plywood used in the fabrication of the container shall be smooth and free from bubbles, glazing cracks, and discontinuities. All edges of fiberglass reinforced plywood shall be completely sealed to prevent water intrusion between the laminates.

3.13.3 Bolted and riveted connectors. Bolt and rivet holes shall be accurately punched or drilled and shall have the burrs removed. Washers, lockwashers, or lock nuts shall be provided where necessary and all bolts, nuts, and screws shall

be tight. Rivet heads, when not countersunk or flattened, shall be of uniform size and shape for the same diameter rivet, concentric with the rivet holes, and in full contact with the surface of the members.

3.13.4 Welders and welding.

3.13.4.1 Welders and welding operators. Welder and welding operators assigned to manual welding work covered by this specification shall be qualified in accordance with AWS D1.1, ASW D2.1, or the ASME Boiler and Pressure Vessel code for the materials joined and the type of welding operation to be performed. The contractor is responsible for determining that automatic welding equipment operators are capable of producing quality welds in accordance with AWS and ASME codes (see 6.9).

3.13.4.2 Welding. The surfaces of parts to be welded shall be free from rust, scale, paint, grease, and other foreign matter. Weld penetration shall be such as to provide transference of maximum design stress through the base metal juncture. Fillet welds shall be provided when necessary to reduce stress concentration. Welding procedures shall be qualified in accordance with ASME or AWS code, and all welding and welds shall be in accordance with ASME or AWS code.

3.13.5 Machined work. All parts shall be manufactured to gage through the use of jigs and fixtures and shall provide interchangeability of parts as manufactured.

3.13.6 Castings. Castings shall be sound and free from patching, misplaced coring, warping, or defects which might render the castings unsound for use.

3.14 Ladder. A ladder with 12 inch long rungs shall be located between the top and bottom container side frame rails and on the left side of the container. The ladder shall be located in front of the front insulated wall. All steps shall be sufficiently strong to hold a 600 pound weight and the distance between each step shall be a maximum of 12 inches. In addition, a swing down type step ladder shall be provided with a step height of not more than 30 inches above ground level. In the use position, the swing type ladder shall be constrained to prevent lateral and longitudinal movement. A heavy duty positive lock shall be provided to secure the swing ladder mechanism in the stowed position. The ladder shall be located a minimum of 11 inches from the front insulated wall to allow for battery removal. The ladder steps shall be treated with abrasive material to prevent slipping or shall be designed with a serrated surface.

3.15 Safety. Unless otherwise specified herein, the container and equipment design shall comply with OSHA 29 CFR 1910 and ASHRAE 15 safety requirements.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor 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 ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 Component and material inspection. The contractor is responsible for insuring that components and materials used are manufactured, examined, and tested in accordance with referenced specifications and standards, as applicable.

4.2 Classification of inspections. The inspection requirements are classified as follows:

a. First article (see 4.3).
b. Quality conformance inspection (see 4.4).
c. Inspection comparison (see 4.6).
d. Inspection of packaging (see 4.7).

4.3 First article inspection.

4.3.1 In-process inspection. The two first produced containers shall receive an in-process inspection by the contractor under the direction and surveillance of the Government. This inspection shall be conducted to evaluate materials and workmanship as specified in 3.3 and 3.14. Nonconformance to 3.3 or 3.14 shall be cause for rejection.

4.3.2 Examination. The two first produced containers shall be examined as specified in 4.5.1. Presence of one or more defects in either container shall be cause for rejection of both containers.

4.3.3 Tests. The two first produced containers shall be tested as specified in 4.5.2 through 4.5.2.2.20 except 4.5.2.2.16. Failure on any test shall be cause for rejection of both containers and shall be cause for the Government to defer future acceptance until objective evidence furnished by the contractor indicates that deficiencies revealed by the tests have been corrected.

4.4 Quality conformance inspection

4.4.1 Examination. Each container shall be examined for the defects listed in 4.5. One or more defects shall be cause for rejection.

4.4.2 Test. Each container shall be tested for weatherproofness in accordance with 4.5.2.2.9 before application of finish painting or undercoating or installation of insulation and liner.

4.5 Inspection procedure.

4.5.1 Examination. The containers shall be examined for the following defects:

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101. Dimensions not as specified (see 3.1.2).
102. Weight and ratings not as specified (see 3.1.2)
103. Tare weight not marked on the containers as specified (see 3.1.2.1).
104. Materials not as specified (see 3.3).
105. Material deterioration prevention not as specified (see 3.3.1).
106. Dissimilar metals as defined in MIL-STD-889 are not effectively insulated from each other (see 3.3.2).
107. Documentation not available for identification of materials and material finishes (see 3.3.3).
108. Use of cadmium plated fasteners not as specified (see 3.3.4)
109. Rubber components not as specified (see 3.3.5).
110. Used, rebuilt, or remanufactured components, pieces, or part incorporated in the plant (see 3.3.6).
111. Basic requirements as to design not as specified (see 3.4).
112. Basic requirements as to construction not as specified (see 3.4.1).
113. Side walls and front wall not constructed as specified (see 3.4.1.1).
114. Restraint system not as specified (see 3.4.1.2).
115. Floor construction not as specified (see 3.4.1.3).
116. Under structure not as specified (see 3.4.1.4).
117. Roof construction not as specified (see 3.4.1.5).
118. End doors not constructed as specified (see 3.4.1.6).
119. Corner fittings not as specified (see 3.4.1.7).
120. Anti-pilferage provisions not furnished as specified (see 3.4.1.8).
121. Insulation material not as specified (see 3.4.1.9).
122. Temperature Recording System not furnished as specified (see 3.4.1.10).
123. Door gasket material not furnished as specified (see 3.4.1.11).
124. Auxiliary fuel tank not furnished as specified (see 3.4.1.12).
125. Electric power cable not furnished as specified (see 3.4.1.13).
126. Engine exhaust line extension not furnished as specified (see 3.4.1.14).
127. Interior lighting system not furnished as specified (see 3.4.1.16).
128. Human factors engineering not as specified (see 3.4.1.18).
129. Transportability not as specified (see 3.4.1.19).
130. Cleaning, treatment and painting not as specified (see 3.5.1).
131. Cleaning of wood surfaces not as specified (see 3.5.2).
132. Interior wood framing not treated as specified (see 3.5.2.1).
133. Undercoating not as specified (see 3.5.3).
134. Plastics not pigmented and finished as specified (see 3.5.4).
135. Exterior marking not as specified (see 3.6).
136. Interior marking not as specified (see 3.7).
137. Data plate not as specified (see 3.8).
138. CSC plate not as specified (see 3.9).
139. Manual holder not as specified (see 3.10).
140. Workmanship not as specified (see 3.13).
141. Metal fabrication not as specified (see 3.13.1).
142. Fiberglass not as specified (see 3.13.2).
143. Bolted and riveted connections not as specified (see 3.13.3).
144. Welders and welding operators not certified as specified (see 3.13.4.1).

145. Welding and welds not as specified (see 3.13.4.2).
146. Machine work not as specified (see 3.13.5).
147. Castings not as specified (see 3.13.6).
148. Ladder not furnished as specified (see 3.14).
149. Safety requirements not as specified (see 3.15).

4.5.2 Tests.

4.5.2.1 Test conditions. The test loads within the container shall be uniformly distributed, except as otherwise specified herein. Test loads may be precooled to avoid delay in testing. On completion of each test, the container shall be examined to determine compliance with the performance requirements specified in 3.11. During tests, tare weight of container is the empty weight of container equipped with refrigeration unit and engine tactical quiet generator set. When the contractor is not required to provide a refrigeration unit and mount the Government-furnished tactical quiet generator set, as a part of the container, these items will be loaned by the Government and installed by the contractor for required testing. When the contractor is required to furnish the refrigeration unit qualification inspection in accordance with MIL-R-43891 shall be completed prior to commencing system tests.

4.5.2.2 Test procedures.

4.5.2.2.1 Stacking. A stacking test shall be conducted in accordance with ISO 1496/2.

4.5.2.2.2 Lifting from the top. Top lifting capability shall be tested in accordance with ISO 1496/2.

4.5.2.2.3 Lifting from the bottom. Bottom lifting capability shall be tested in accordance with ISO 1496/2.

4.5.2.2.4 Longitudinal restraint. Longitudinal restraint shall be tested in accordance with ISO 1496/2.

4.5.2.2.5 End wall strength. End wall strength shall be tested in accordance with ISO 1496/2. The container shall be held in the test load position for not less than 5 minutes.

4.5.2.2.6 Side wall strength. Side wall strength shall be tested in accordance with ISO 1496/2. The container shall be held in the test load position for not less than 5 minutes.

4.5.2.2.7 Roof strength. Roof strength shall be tested in accordance with ISO 1496/2 with the additional requirement that test loading shall be applied for not less than 5 minutes.

4.5.2.2.8 Floor strength. Floor strength shall be tested in accordance with ISO 1496/2.

4.5.2.2.9 Weatherproofness. Weatherproofness shall be tested in accordance with ISO 1496/2. The test shall be conducted for not less than 15 minutes.

4.5.2.2.9.1 Floor waterproofness. The container floor with drains sealed shall be tested for waterproofness by completely filling the floor with water to a depth of not less than 1 inch. Duration of the test shall be not less than 8 hours. Any water leakage as indicated by a reduction in the water depth shall constitute nonconformance to 3.4.1.3 and shall constitute failure of this test.

4.5.2.2.10 Transverse and longitudinal rigidity. Tests shall be conducted in accordance with ISO 1496/2.

4.5.2.2.11 Heat leakage. Heat leakage shall be tested in accordance with ISO 1496/2.

4.5.2.2.12 Air tightness. Air tightness shall be tested in accordance with ISO 1496/2.

4.5.2.2.13 Pull down. The container shall be placed in a controlled temperature room with the container doors open. The test chamber shall be heated until the test chamber and the inside container wall temperature have reached 100 °F. The doors shall be closed and the refrigeration unit shall be started and operated. With the test chamber maintained at 100 °F, the refrigeration unit shall be operated until the average interior temperature as indicated by temperature reading instruments is 0 °F. Nonconformance to 3.12.11 shall constitute failure of the test or shall be cause for disassembly of the equipped container to the extent necessary to determine the cause of the failure. Determination attributable to the Government-loaned property will require repair or replacement of the defective property by the Government and the test will be re-run. Determination that the failure is attributable to the container itself shall constitute failure of the test. When the container interior temperature is 0 °F, continue to operate at a temperature of 0 °F, and raise the ambient humidity to a nominal 80 percent; hold for 12 hours and observe any outside container wall for sweat patterns that develop. Any patterns that are due to other than those of high conductive container structures shall be considered insulation voids. This shall constitute failure of this test and nonconformance to 3.4.1.

4.5.2.2.14 Heat dissipation, container positioned front end to door end with a like container. The pull down test (see 4.5.2.2.13) shall be repeated with the additional requirement that the test container shall be positioned 54 inches above ground level. In addition, an 8 x 8 foot plywood panel shall be positioned 3 inches in front of the front end of the test container to simulate container operation as a coupled (40 foot) configuration on a highway chassis. Nonconformance to 3.11.13 shall constitute failure of the test or shall be cause for disassembly of the equipped container to the extent necessary to determine the cause of the failure. Determination that the failure is attributable to the Government-loaned property will require repair or replacement of the defective property and the test shall be re-run. Determination that the failure is attributable to the container itself shall constitute failure of the test.

4.5.2.2.15 Maintainability.

4.5.2.2.15.1 Maintenance ratio. The maintenance ratio shall be computed during testing. Nonconformance to 3.11.14.1 shall constitute failure of this test.

4.5.2.2.16 Reliability. Using the MTBF specified in 3.12.15, the container shall be tested as specified herein with "accept" and "reject" criteria in

accordance with figure 1. Continue testing until either an "accept" or "reject" decision is reached. A failure is defined as any malfunction which cannot be corrected within 30 minutes (all waiting periods excluded) by adjustment, repair, or replacement action using controls and on-equipment tools or parts available to the organizational element, as prescribed in the maintenance allocation charts and is a malfunction which causes or may cause one or more of the following:

a. Failure to commence operation, cessation of operation or degradation of performance below specified levels.
b. Damage to the container or installed equipment by continued operation.
c. Safety hazards to personnel.

4.5.2.2.16.1 Test procedure. The refrigerated 20-foot container equipped with refrigeration unit and engine tactical quiet generator set shall be mounted on a single chassis with tandem bogie uniformly loaded to a gross container weight of 44,800 pounds. As an alternate, the test can be conducted in a dual container/40-foot trailer configuration by reducing the gross weight of each container to 22,400 pounds. Test cycle shall be as follows: The container shall be towed for 7 hours at variable speeds up to 50 miles per hour over hard surface roads, and for 45 minutes at variable speeds up to 35 miles per hour over unpaved roads and 15 minutes at variable speeds up to 25 miles per hour over moderate cross country terrain. During the test, the container interior shall be maintained at 0 °F. At the conclusion of the road test, the container refrigeration unit shall be connected to an external power source and operated for 16 hours under stationary conditions. Where more than one container is under test, tandem configuration for the road portion of the test is permitted, provided suitable transport equipment is available. Cyclic operation of not less than 4 cycles per hour of the refrigeration unit during testing shall be effected by imposed heat loads as required. Each cycle shall include not less than 5 minutes cooling time.

4.5.2.2.16.2 Failure criteria. Nonconformance to 3.12.15 shall constitute failure of this test.

4.5.2.2.17 Door gasket material. A sample not less than 24 inches of the container door gasket shall be subjected to a 24 hour soak at -40 °F. With the test sample at this temperature, the item will be tapped with an 8 ounce hammer four times. The test shall be repeated on the same sample after a +120 °F soak for 24 hours. Any noticeable cracks on the material after each test shall constitute failure of the test and nonconformance to 3.4.1.10. The gasket material shall be subject to a test conducted in accordance with ASTM D 1229 for 96 hours at -40° F. Compression set in excess of 60 percent shall constitute failure of this.

4.5.2.2.18 Insulation voids. The container insulation shall be inspected during production. A door cutout or refrigeration unit cut, when utilized, shall be dismantled to determine compliance with 3.4.1. Where cutouts are not utilized for doors or refrigeration units, plugs may be taken from the internal walls of one of every 20 containers to determine conformance. Nonconformance to 3.4.1 shall constitute failure of this test.

4.5.2.2.19 Noise level test. Noise levels shall be measured in accordance with MIL-STD-1474 requirements and reported in the format indicated by MIL-STD-1474, figure 11. As a minimum, noise levels shall be measured when equipment is operating at full load for each power source (generator and line).

MIL-STD-1474, 5.1.2.1.4 contours shall be taken at not fewer than 12 equal arc increments; one increment shall include data from the noisiest position. Additionally, the noise level at the typical operating position shall be provided as dB(A) level. Failure to comply with MIL-STD-1474 provisions shall constitute failure of this test.

4.5.2.2.20 Hatch. One person shall be closed inside the equipped container. Inability of the individual to open the hatch within 10 minutes without the use of tools shall constitute failure of the test and nonconformance to 3.4.1.6.

4.5.2.2.21 Transportability.

4.5.2.2.21.1 Highway transportability. The container shall be tested to prove conformance with 3.4.1.19.1. Inability to meet the requirements of 3.4.1.19.1 shall constitute failure of this test.

4.5.2.2.21.2 Rail impact test. The container shall be tested in accordance with MIL-STD-810 to prove conformance to 3.4.1.19.2. Inability to meet the requirements of 3.4.1.19.2 shall constitute failure of this test.

4.5.2.2.21.3 Air transportability. The container shall be tested in accordance with MIL-STD-1791 to prove conformance to 3.4.1.19.3. Inability th meet the requirements of 3.4.1.19.3 shall constitute failure of this test.

4.6 Inspection of packaging.

4.6.1 Quality conformance inspection of pack.

4.6.1.1 Unit of product. For the purpose of inspection, a container prepared for shipment shall constitute a unit of product.

4.6.1.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.6.1.3 Examination. Samples selected in accordance with 4.7.1 shall be examined for the characteristics listed in table III. Presence of one or more defects shall be cause for rejection.

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150. Preservation not level A, B, or C as specified (see 5.1).
151. Refrigeration unit opening not preserved for level A or C as specified (see 5.1.1.1).
152. Auxiliary fuel tank not preserved for level A or B as specified (see 5.1.1.2).
153. Electric power cable not preserved for level A or B as specified (see 5.1.1.3).
154. Exhaust lines not preserved for level A or B as specified (see 5.1.1.4).
155. The glass face of the recorder not protected for level A or B as specified (see 5.1.1.5).
156. The recorder charts not preserved for level A or B as specified (see 5.1.1.6).
157. Loose bolts and washers not preserved for level A or B as specified (see 5.1.1.7).

158. Tactical quiet generator set not preserved for level A or B as specified (see 5.1.1.8).
159. Refrigeration unit not preserved for level A or B as specified (see 5.1.1.9).
160. Marking missing, illegible, incorrect or incomplete (see 5.3).

5. PACKAGING

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

5.1.1 Level A.

5.1.1.1 Refrigeration unit opening. When a plywood cover plate is furnished in lieu of the refrigeration unit (see 3.4 and 6.2), it shall be installed over the refrigeration unit opening.

5.1.1.2 Auxiliary fuel tank. Fuel tanks fabricated from materials requiring the application of a preservative in accordance with the criteria of MIL-P-116 shall be filled with preservative oil conforming to type I or type II, grade 30 of MIL-L-21260. The oil shall then be completely drained into a recovery container. Any removed drain plugs shall be coated with the preservative oil specified herein and reinstalled. The fuel line fitting cap shall be installed on the fuel line.

5.1.1.3 Electric power cable. The bare end of the cable shall be wrapped with tape conforming to PPP-T-60. The tape shall extend back over the insulation at least 4 inches. The connector shall be protected from dirt, moisture, and thread damage by a protective cap or by wrapping with tape specified herein.

5.1.1.4 Exhaust lines. The interior surfaces of the exhaust lines shall be atomized sprayed with oil conforming to MIL-L-21260, type I or II, grade 30. Rain caps shall be secured to prevent opening using tape conforming to PPP-T-60.

5.1.1.5 Recorder. The glass face of the recorder shall be protected with a piece of plywood placed over and completely covering the glass area. The plywood shall be held in place with tape conforming to PPP-T-60.

5.1.1.6 Recorder charts. The recorder charts shall be preserved in accordance with MIL-P-116, method IA-8 and secured inside the container.

5.1.1.7 Bolts and washers. Loose bolts and washers shall be preserved in accordance with MIL-P-116, method IC-1 or IC-3 and secured inside the container.

5.1.1.8 Generator set. The tactical quiet generator set, when furnished (see 3.1 and 6.2) shall be preserved in accordance with the level A requirements of MIL-G-28554 except that instead of bolting to a shipping container base, the tactical quiet generator set shall be bolted through the barrier material to the refrigerated container floor frame with the fasteners provided. A cover shall be provided consisting of ends, sides and top constructed in accordance with PPP-B-601 for an overseas type, style I box. An inspection port shall be installed on an end or side of the box in a location convenient for inspection of the humidity indicator. The cover shall be secured using wood wedges and lag screws or nails. The wedges shall be cut to fit the angle of the ends of the generator skids and shall be of sufficient length and width to provide a snug fit

to the inside of the cover. The angle surface of the wedge shall be cushioned with fiberboard where contact with the barrier is required. The lag screws or nails shall be of minimum length required to secure the cover to prevent puncture of the barrier material.

5.1.1.9 Refrigeration unit. The refrigeration unit, when furnished (see 3.1 and 6.2) shall be preserved in accordance with method 1 of MIL-P-116 using P2 or P6 preservative and the exterior portion of the refrigeration unit shall be completely covered with a shroud made from material conforming MIL-B-121, type 1, grade A, class 2. The shroud shall be sealed to the container around the unit with tape conforming to PPP-T-60.

5.1.2 Level B. The container and its components shall be preserved as specified for level A except the tactical quiet generator sets shall be preserved in accordance with the level B requirements of MIL-G-28554 and the generator covers shall be fabricated as specified for a domestic type box.

5.1.3 Level C. When a cover plate is furnished in lieu of the refrigeration unit (see 3.4 and 6.2), it shall be installed over the refrigeration unit opening. The fuel line fitting cap shall be installed on the fuel line. The container and its components shall be preserved in a manner to afford protection against deterioration or damage during shipment from the contractor to the initial destination.

5.2 Packing. The containers will not require packing.

5.3 Marking. In addition to any special marking specified in the contract or purchase order, marking shall be in accordance with MIL-STD-129.

6. NOTES

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

6.1 Intended use. The refrigerated container is intended for transporting and storing military and quasi-military refrigerated cargo; both frozen and unfrozen. The container can be lifted from top or bottom corner fittings, and can be carried by highway, railroad, or water modes of transport.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification.
b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
c. Time frame required for submission of first article containers and number required (see 3.2).
d. When the Government will conduct any or all of the first article container examination and tests. When the Government will conduct a portion of the first article examination and tests, the contracting officer should specify which examination and tests will be conducted by the Government and which examination and tests shall be conducted by the contractor (see 3.2).

e. Identification code and unit serial number for each container (see 3.6).
f. When contractor is not required to provide refrigeration unit or mount tactical quiet generator set (see 3.1 and 3.4).
g. When refrigeration unit plywood opening cover plate will be supplied with each container (see 3.4).
h. When a transportability report is required (see 3.4.1.19.3 and 6.2.1).
h. Level of preservation required (see 5.1).
i. When a transportability report is required (see 6.7).

6.2.1 Consideration of data requirements. The following data requirements must be listed, as applicable, on the Contract Data Requirements List (DD Form 1423) when this specification is applied on a contract, in order to obtain the data, except where DOD FAR Supplement 27.475-1 exempts the requirement for a DD Form 1423.

Paragraph No.	DID No.	DID title
3.4.1.19.3	DI-PACK-80880	Transportability Report

The above DID's were those cleared as of the date of this specification. The current issue of DOD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL), must be researched to ensure that only current, cleared DID's are cited on the DD Form 1423.

6.3 First article. When a first article inspection is required, the item(s) should be a first produced model. The first article should consist of one or more units. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of the first article test results and disposition of the first articles. Invitation for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.4 Government-furnished property. The contracting officer should arrange to furnish the tactical quiet generator sets specified in 3.12.1.

6.5 Government-loaned property. The contracting officer should arrange to loan the property specified in 3.12 when specified.

6.6 Reliability. The Government-furnished generator shall be assumed to have a specified MTBF of 468 hours and shall be assumed operational during 8 hours of every 24 hours of testing (see 3.11.15). The container specified MTBF of 400 hours includes apportionment of the refrigeration unit and tactical quiet generator set reliability requirements.

6.7 Transportability report. When specified (see 6.2) the contracting officer should arrange for the contractor to furnish a transportability report in accordance with AR 70-47 and S.O.P. 70-38 for the container 95 days prior to delivery of the first article container.

6.8 Cadmium plated fasteners. The contracting officer should require the contractor to justify the use of cadmium plated fasteners in writing (see 3.3.4). Citing standard DoD or commercial practice will not be considered sufficient justification. A specific rationale is required for each specific/different application of cadmium plated fasteners.

6.8.1 Cadmium plated fasteners part numbers. In those instances where cadmium plated fasteners are required and specified (see 3.3.4), drawings and technical manuals should show these cadmium plated fasteners as separate part numbers to preclude the inadvertent use of zinc coated fasteners.

6.9 Welders and welding operators. The contracting officer should consider requalifying welders or welding operators in the event of evidence of poor welds (see 3.13.4.1).

6.10 Subject term (key word) listing.

Diesel-engine-driven tactical quiet generator
Electric-motor-driven
Refrigeration unit

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

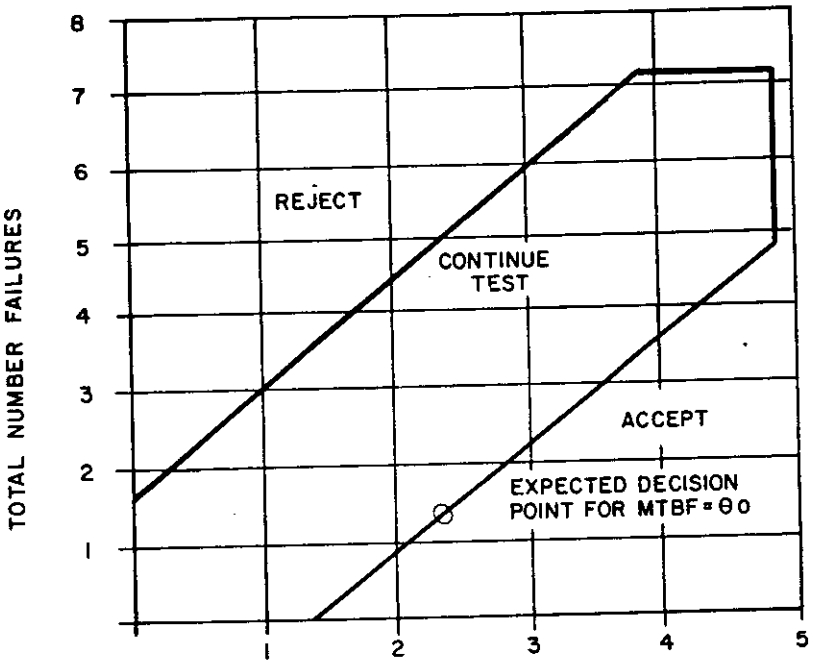
Custodian:
Army - ME

Review activities:
Army - GL, SM

Preparing activity:
Army - ME

Project No. 8115-A521

DECISION RISKS 20%
DISCRIMINATION RATIO 2.0:1



NO. OF FAILURES	TOTAL TEST TIME * REJECT (EQUAL OR LESS)	ACCEPT EQUAL OR MORE
0	N/A	1.40
1	N/A	2.09
2	.35	2.79
3	1.04	3.48
4	1.73	4.17
5	2.43	4.87
6	3.12	4.87
7	3.81	4.87
8	4.87	N/A

* TOTAL TEST TIME IS TOTAL UNIT HOURS OF "EQUIPMENT ON" TIME AND IS EXPRESSED IN MULTIPLES OF THE SPECIFIED MTBF.

FIGURE 1. Accept-reject criteria.

X-3499

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
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RECOMMEND A CHANGE:	1. DOCUMENT NUMBER MIL-C-52788B(ME)	2. DOCUMENT DATE (YYMMDD) 921215

3. DOCUMENT TITLE Container, Refrigerated: 8 Feet X 8 Feet X 20 Feet, Insulated

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) (1) Commercial (if applicable) (2) AUTOVON	7. DATE SUBMITTED

8. PREPARING ACTIVITY

a. NAME Betty Taylor	b. TELEPHONE (Include Area Code) (1) Commercial (703) 704-3466 (2) AUTOVON 654-3466
c. ADDRESS (Include Zip Code US Army Belvoir RDE Center ATTN: SATBE-TSE Fort Belvoir, VA 22060-5606	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340