MIL-R-2357P
30 September 1985
SUPERSEDING
MIL-R-2357G
29 March 1974

MILITARY SPECIFICATION

RANGES, GAS (COMMERCIAL), HEAVY DUTY

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

1. SCOPE

1.1 Scope. This document covers commercial heavy duty gas ranges.

* 1.2 Classification. Ranges shall be of the following types and grades as specified (see 6.2).

Type I - Fry top
Type II - Hot top
Type III - Open top

Grade A - Stainless steel on front, sides and back
Grade B - Carbon steel with manufacturer's commercial finish

2. APPLICABLE DOCUMENTS

* 2.1 Government documents. Unless otherwise specified, the following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this document to the extent specified herein.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research and Development Center, Natick, MA 01760-5014, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 7310

SPECIFICATIONS

MILITARY

MIL-R-11337 - Ranges; Packaging and Packing Of
MIL-S-46055 - Steel, Sheet and Strip, Low-Carbon, Chromized

STANDARDS

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes

(Copies of documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

* 2.2 Other publications. Unless otherwise specified, the following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this document to the extent specified herein.

NATIONAL SANITATION FOUNDATION (NSF)

Standard No. 4 - Commercial Cooking and Hot Food Storage Equipment.

Listing of Food Service Equipment.

(Application for copies should be addressed to the National Sanitation Foundation, NSF Building, Ann Arbor, MI 48105.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

A 167 - Stainless and Heat Resisting Chromium-Nickel Steel Plate, Sheet and Strip.
A 176 - Stainless and Heat Resisting Chromium Steel Plate, Sheet and Strip.

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

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

Z83.11 - Gas Food Service Equipment-Ranges and Unit Broilers

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

AMERICAN GAS ASSOCIATION, INC. (A.G.A.)

Directory of Certified Appliances and Accessories.

(Application for copies should be addressed to the American Gas Association, Inc., 8501 East Pleasant Valley Road, Cleveland, OH 44131.)

(Technical society and technical association documents are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

* 2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document shall take precedence.

3. REQUIREMENTS

3.1 Standard product. The gas range shall, as a minimum, be in accordance with the requirements of this document and shall be the manufacturer's standard commercial product with any added features needed to comply with the requirements of this document. Modifications to add features shall not incorporate different parts unless such parts are used on other current commercial models. Standard or modified commercial products furnished in accordance with this document shall be identifiable by all regular manufacturers or commercial service organizations servicing the brand involved. Service organizations shall be capable of providing complete parts and repair services on models furnished to the government consistent with their normal commercial practices.

* 3.2 Codes and standards. The ranges shall conform to the applicable requirements of ANSI Standard No. Z83.11 and NSF Standard No. 4. Satisfactory evidence that these requirements have been met shall be submitted to the contracting officer or his authorized representative prior to the start of production (see 4.3).

3.3 Materials (see 6.3) and components. Materials and components shall be as specified herein. Materials not definitely specified shall be of the quality normally used by the manufacturer in his standard commercial range provided the completed item complies with all provisions of this document.

3.3.1 Stainless steel sheet. Stainless steel sheet shall conform to any of the type 300 series of ASTM A 167 or any of the type 400 series of ASTM A 176.

* 3.3.2 Low carbon chromized steel sheet. Low carbon chromized steel sheet shall conform to type I of MIL-S-46055.

* 3.4 Design. The gas range shall consist of a body, a fry top (type I), hot top (type II), or open top (type III) as specified and equipped with 6-inch minimum adjustable NSF approved legs. Each range shall have an oven, burners with controls, and a flue riser to vent the oven. The tops of the ranges shall abut and shall be in the same horizontal plane when ranges are in battery arrangement.

* 3.4.1 Dimensions. The overall dimensions of the body and the inside dimensions of the oven shall be as follows:

	Dimensions	
Body	Minimum (inches)	Maximum (inches)
Width	31	36
Depth, excluding flue box and front overhang of top	30-1/2	36
Depth, including flue box and front overhang of top	38	42
Height, including legs	34	36-1/2

Oven	Minimum dimensions (inches)
Width	26
Depth with door closed	27-1/4
Door opening height, exclusive of capillary tube protector	13-1/2

* 3.5 Construction.

3.5.1 Body. The range body shall be of welded-frame or double-shell construction. All metal parts of the range body for both grade A and grade B ranges shall be carbon steel, except the exterior front, sides and back panels of the grade A ranges shall be stainless steel specified in 3.3.1.

* 3.5.2 Top heating surface. The top of the fry top (type I) range shall be made from hot rolled steel plate or common grey cast iron. The top of the hot top (type II) range shall be made from a commercial grade of cast iron which is normally used by the manufacturer in his commercial range. The top of the open range (type III) shall consist of cast iron grates, in accordance with the manufacturer's commercial practice. The top as designated herein is the cooking surface of the range.

* 3.5.2.1 Fry top (type I). Fry tops may be provided with or without reinforcing ribs. Tops shall be flat within 1/8 inch (see 4.4.1). The top shall be designed to permit draining of grease into a trough, draining into an easily removable grease receptacle located at the front of the range. The top shall be provided with a splash guard.

* 3.5.2.2 Hot top (type II). Each hot top shall be composed of two or four half moon sections, and either one or two rings, and lids. Means shall be provided for easy removal and replacement of the lid by a furnished lid lifter. Each component of the hot top (half moon sections, the ring, and the lid) shall be flat within 1/16 inch (see 4.4.1). When the complete hot top is in place on the range, the surfaces of the components shall be flush within 1/8 inch (see 4.4.1).

3.5.2.3 Open top (type III). The open top shall be composed of four identical grates with each grate located over a burner, or two identical grates with each grate located over two burners. Removable drip trays shall be located beneath the burners.

* 3.5.3 Ovens. The oven shall be located beneath the top burner section. The oven shall be equipped with a drop door. The oven, including door, shall be insulated with solid or blanket type insulation. No insulation shall be required between the oven and oven flue, when the flue is located inside or directly adjacent to the oven. The oven temperatures shall be thermostatically controlled. Oven interiors shall be aluminized steel, porcelainized steel, or stainless steel specified in 3.3.1.

* 3.5.4 Fuel system. The range shall be designed to burn natural or liquid petroleum gas. Ranges shall be equipped to burn natural gas. Orifices for liquid petroleum gas and instructions for conversion from natural to liquid petroleum gas shall be provided with each range.

* 3.5.4.1 Automatic ignition. All burners shall be equipped with a means for automatic ignition of the gas. An automatic pilot, including a 100-percent shut off device, shall be provided on each oven burner.

3.5.5 Flue riser. A flue riser shall be located at the rear of each range.

3.6 Operation. Ranges shall not leak gas, and burners, controls and moving parts shall operate and perform satisfactorily when tested as specified in 4.4.2.

* 3.7 Finish. The gas range shall be clean with no foreign matter imbedded in the finish. The finish shall have no scratches, gouges, pits, chips, grit, rust, or scale.

3.8 Marking.

3.8.1 User's instruction plate. Each gas range shall be equipped with a user's instruction plate, permanently fastened to the outside front of the oven door. The user's instruction plate shall be constructed of stainless steel having a nominal thickness of 0.025 inch, and shall be of sufficient overall size to contain the following information etched or die stamped thereon in legible characters. The instructions shall be in characters not less than 3/32 inch high except that the words "RANGE, GAS-FIRED" shall be in characters not less than 3/16 inch high and the words "USER'S INSTRUCTIONS" shall be in characters not less than 1/8 inch high.

RANGE, GAS-FIRED

USER'S INSTRUCTIONS

1. Range tops. Clean cooking top daily. Clean underside of cooking top monthly. Dress cooking surface of griddle top range twice weekly. DO NOT USE WATER ON HOT RANGE TOPS.

2. Top burners. If burner fails to light due to failure of pilot flame, reignite pilot. When range is used, check appearance of burner and pilot flame. Turn flame down when food begins to boil. Turn off burner when through cooking. Do not force burner cocks.

3. Oven. If oven burner fails to light due to failure of pilot flame, wait 5 minutes with oven door open, then reignite the automatic pilot according to manufacturer's instructions. Use thermostat to control oven heat. Turn gently, do not force. Clean around oven door frame and inside surface daily. Do not operate oven with door ajar as escaping heat will cause top burner valves to stick.

4. Valves. Keep all burner valves clean and well lubricated. Lubricate burner valves with valve lubricant furnished with range at least once every three months.

* 3.8.2 Identification plate. Identification marking shall be etched or die stamped on a stainless steel or aluminum plate and shall include the information required by ANSI Z83.11. The plate shall be so located as to be readily seen.

3.9 Workmanship. All components and assemblies of the range shall be free from dirt and other harmful extraneous material, burrs, slivers, rough die, tool and grind marks, dents, and cracks. Castings, molded parts, and stampings, if used, shall be free of sand, fins, pits, blow holes, and sprues. External surfaces shall be free from sharp edges and corners, except when corners are required.

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 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 document where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

* 4.1.1 Certificate of compliance. When certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

* 4.2 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

* 4.2.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this document or applicable purchase document.

* 4.2.2 End item visual examination. The end item shall be examined for the defects listed in table I. The lot size shall be expressed in units of ranges of one type and grade. The sample unit shall be one completely assembled range. The inspection level shall be II and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 2.5 for major defects and 6.5 for total (major and minor combined) defects.

TABLE I. End item visual defects

Examine	Defect	Classification Major	Minor
Finish	Not finished as required	X	
	Foreign matter imbedded in finish		X
	Scratches, gouges, pits, chips, grit, rust, or scale	X	
Construction and workmanship (general)	Any component fractured, split, punctured, dented, bowed, deteriorated, malformed, or otherwise defective	X	
	Rough or sharp edges, corners, or slivers	X	
	Any adjustable assembly that cannot be adjusted	X	
	Any adjustable component that cannot be properly adjusted to perform the function intended		X
	Component not properly assembled	X	
	Component inoperative or will not operate as intended	X	
	Any component missing or not specified type	X	

TABLE I. End item visual defects (cont'd)

Examine	Defect	Classification Major	Minor
Construction and workmanship (general) (cont'd)	Ranges in battery arrangement do not abut; or tops are not in the same plane	X	
	Grates of open top not identical	X	
	Unit perceptibility out of square or alignment	X	
Marking (identification; users instructions)	Missing, incomplete, not legible	X	
	Not specified type		X

* 4.2.3 End item dimensional examination. The end item shall be examined for conformance to dimensions specified in 3.4.1. Any dimension not within the specified tolerance shall be classified as a defect. The lot size shall be expressed in units of ranges. The sample unit shall be one completely assembled range. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 6.5.

* 4.2.4 End item testing. The ranges shall be tested as specified in 4.4.1 and 4.4.2. The lot size shall be expressed in units of ranges. The sample unit shall be one completely assembled range. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 6.5. This AQL does not apply to gas leaks, and any gas leak shall constitute failure of end item testing, and rejection of the lot.

* 4.2.5 Packaging inspection. The inspection shall be in accordance with the quality assurance provisions of MIL-R-11337.

* 4.3 Certification compliance examination. Certifications, certified test reports, or listing marks for codes and standards, as applicable, submitted in accordance with 3.2, shall be examined and validated as proof of compliance (see 4.3.1 and 4.3.2).

* 4.3.1 ANSI. Acceptable evidence of meeting the requirements of Z83.11 shall be a reproduced copy of the American Gas Association, Inc. (A.G.A) Appliances Certificate; a listing of the gas range in the latest A.G.A. "Directory of Certified Appliances and Accessories"; or a certified test report from a recognized independent testing laboratory, acceptable to the Government stating that the gas range has been tested and conforms to the applicable requirements of ANSI Standard No. Z83.11.

* 4.3.2 NSF. Acceptable evidence of meeting the requirements of NSF Standard No. 4 shall be one of the following:

(1) A listing in the current edition of the NSF "Listing of Food Service Equipment" and display of the NSF seal on the finished range, or

(2) A certification for the range issued by NSF under their special one-time contract evaluation/certification service, or

(3) A certified test report acceptable to the contracting officer with the advice of the Army Surgeon General from an independent testing laboratory indicating that the gas range has been tested and conforms to the specified NSF Standard.

4.4 Methods of inspection.

4.4.1 Range tops flatness test (types I and II only). A straightedge shall be placed diagonally over the fry tops (type I) and each component of hot tops (type II) to determine conformance with the tolerances specified in 3.5.2.1 and 3.5.2.2, respectively. A straightedge shall be placed diagonally over all components of the hot top (type II) when in place on the range to determine conformance with the tolerance specified in 3.5.2.2. Any nonconfomance with the tolerances as specified in 3.5.2.1 and 3.5.2.2 shall constitute a defect.

4.4.2 Operation test. The assembled range shall be connected to the applicable gas supply and tested to determine compliance with 3.6. The range shall be checked for gas leaks. Burners shall be tested by ignition to determine that they function properly, and controls shall be tested by turning then to "OFF" and "ON". Any nonconformance with 3.6 shall constitute a defect.

5. PACKAGING

5.1 Preservation, packaging, packing and marking. Each complete range shall be preserved, packaged, packed and marked in accordance with the applicable requirements of MIL-R-11337. Preservation and packaging shall be level A or C, and packing shall be level A, B, or C (see 6.2).

6. NOTES

* 6.1 Intended use. The gas ranges are intended for use in food preparing establishments where large scale roasting and cooking operations are performed. The ranges are not for use in Germany.

* 6.2 Ordering data. Acquisition documents should specify the following:

a. Title, number, and date of this document.
b. Type, and grade of range required (see 1.2).
c. Level of preservation and packaging, and level of pa[illegible] required (see [illegible]).

* 6.3 Recycled material. It is encouraged that recycled material be used when practical as long as it meets the requirements of this document (see 3.3).

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

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Project No. 7310-0697

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
MIL-R-2357H	Ranges, Gas (Commercial), Heavy Duty

3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION *(Mark one)*
	☐ VENDOR
	☐ USER
b. ADDRESS *(Street, City, State, ZIP Code)*	☐ MANUFACTURER
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5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

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NATICK OP, 20 Nov 84