

00-W-00860E (GSA-FSS)

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INTERIM REVISION OF

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## INTERIM FEDERAL SPECIFICATION

WASHING MACHINE AND DRYING TUMBLERS, HOUSEHOLD LAUNDRY,

POWER OPERATED AND LAUNDRY COMMERCIAL (SELF-SERVICE)

This interim Federal specification was prepared by the General Services Administration, Federal Supply Service, Washington, DC 20406, based upon currently available technical information. It is recommended that Federal agencies use it in procurement and forward recommendations for change to the preparing activity.

### 1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers electric washing machines (washers ) and electric and gas drying tumblers (dryers) of the household and commercial type. The term appliance is used for both washers and dryers in this specification.

1.1.1 Federal specification coverage: Federal specifications do not cover all varieties of the commodity indicated by the title of this specification, or which are commercially available, but are intended to cover only those generally used by the Federal Government.

### 1.2. Classification.

1.2.1 Types, classes and styles. The appliances covered by this specification shall be furnished in the following types, classes, styles, and sizes as specified (see 6.2 and 6.4).

Type I - Washing Machine

Class 3 - Household, automatic

Style A - Two wash and two rinse water temperatures,  
minimum

Style B - Three wash and one rinse water temperatures,  
minimum

DISTRIBUTION STATEMENT A: Approved for public release,  
distribution is unlimited.

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Class 4 - Self-Service, automatic  
Size 1 - 14 pounds (dry weight)  
Size 2 - 18 pounds (dry weight)

Type II - Drying tumblers (Household, automatic)

Class 1 - Electric heating  
Style B - Selective drying temperature  
Class 2 - Gas heating  
Style B - Selective drying temperature

Type IV - Drying tumblers (Self-service; automatic)

Class 1 - Electric heating  
class 2 - Gas heating

## 2. APPLICABLE DOCUMENTS

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

### Federal Specifications:

QQ-S-766 - Steel Plates, Sheets, and Strip Corrosion Resisting  
PPP-P-600 - Porcelain enamel Products and household Appliances, Electrical and Mechanical. Requirements for Packaging and Packing  
PPP-T-60 - Tape: Packaging, Waterproof

### Federal Standard:

FED-STD-123 - Marking for Shipment (Civil agencies)

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

(Single copies of this specification and other Federal specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service centers at the General Semites Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.)

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Specifications.

- MIL-P-116 - Preservation-packaging, Methods of
- MIL-T-152 - Treatment, Moisture and Fungus Resistant of Communication, Electronic and associated Electrical Equipment
- MIL-V-173 - Varnish, Moisture and Fungus Resistant (For the treatment of Communication, Electronic and Associated Electrical Equipment)

Military Standards:

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD 461 - Electromagnetic Interference Characteristics Requirements for Equipment
- MIL-STD-462 - Electromagnetic Interference Characteristics, Measurements of

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

2.2 Non-Government publications The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply:

American National Standards Institute (ANSI) Standards:

- 221-5.1 Type I Gas Clothes Dryer
- 221-5.2 Type II Clothes Dryer

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

American Society for Testing and Materials (ASTM):

- C286 - Definition of Terms Relating to Porcelain Enamel
- C347 - Reflectivity and Coefficient of Scatter of White Porcelain Enamels
- E97 - 45 Deg, 0 Degree Directional Reflectance of Opaque, Specimens by Filter Photometry

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

Porcelain Enamel Institute, Inc. (PEI) Bulletin:

T-25 - Test for Alkali Resistance of Porcelain Enamel

(Application for copies should be addressed to the Porcelain Enamel Institute, Inc., 1911 North Fort Myer Drive, Arlington, VA 22209.)

Underwriters' Laboratories, Inc. (UL) Standards:

UL-560 - Home-Laundry Equipment  
UL-1206 - Coin operated and commercial-clothes washing equipment

(Application for copies should be addressed to the Underwriters Laboratories, Inc., 1285 Walt Whitman Road, Melville, Long Island, NY 11749; 207 Last Ohio Street, Chicago, IL 60611; or 1655 Scott Boulevard, Santa Clara, CA 95050.)

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Associations, Inc., Traffic Department, 1616 P Street, N.W., Washington, DC 20036.)

National Electrical Manufacturers Association:

NEMA MG-1

(Application for copies should be addressed to the Standards Publications Editor, National Electrical Manufacturers Association, 2101 L Street, N.W., Washington, D.C. 20037.)

Uniform Classification Committee, Agent:

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

### 3. REQUIREMENTS

#### 3.1 Conformance.

3.1.1 Conformance to UL Inc.Inc. Electrical appliances shall conform to UL-560 and UL-1206, as applicable. For 120 volt, 60 hertz appliances, the UL label or listing mark shall be affixed to the appliance. For 220 volt, 50 hertz appliances, the manufacturer shall provide a certified test report from a recognized independent testing laboratory acceptable to the Government, indicating that the appliance has been tested and conforms to the applicable requirements of the UL standard.

3.1.2 Conformance to ANSI. Gas dryers shall conform to ANSI 221-5.1, Type I Gas clothes dryer. A Certificate of Compliance shall be provided to the Government.

3.1.3 Contractor compliance. Compliance with the requirements of 3.1.1 and 3.1.2 shall not absolve the contractor from compliance with all requirements of this specification.

3.2 Materials. Materials used in the construction of appliances shall be as specified herein. When materials are not specified, the materials shall be of the same quality normally used in the manufacturer's standard commercial practice for the applicable purpose. All materials shall be new, unused, and free from any defects or imperfections which affect appearance, serviceability, or durability. Asbestos shall not be used as a material in any part of an appliance.

3.2.1 Corrosion-resistant steel. Corrosion-resistant steel shall be in accordance with QQ-S-766.

3.3 Design. Appliances shall be in accordance with the contractor's current production design. All parts subject to wear shall be accessible for repair, replacement, or adjustment.

3.3.1 Definition of operational cycle. When the term "operational cycle" is used in this specification, it means a complete functional cycle. A functional cycle for washers consists of the complete wash, rinse, and damp dry operation. A functional cycle for dryers consists of the complete drying operation.

3.3.2 Mounting. When specified (see 6.2), appliances shall contain provisions for bolting to the floor. Without being bolted to the floor, appliances shall be capable of completing an operational cycle without walking or moving on the floor, when tested as specified in 4.4.5.

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3.4 Color and finish. The portion of the appliance's outer tub and clothes basket that comes in contact with the wash water shall be steel finished with porcelain enamel, baked on enamel, corrosion-resistant steel, or a suitable durable plastic. Exterior visible surfaces of the appliance cabinet, not including the trim, shall be finished with white porcelain enamel or baked-on white enamel. The appliance's cabinet back and all interior surfaces shall be of corrosion resistant material or coated to resist corrosion. The appliance's exterior trim shall be that which is furnished in standard commercial practice by the contractor.

3.4.1 Porcelain enameling. Porcelain enamel finishes shall have a total thickness of not more than 0.018 inch. The reflectance of white porcelain enamel shall be not less than 75 percent when measured as specified in 4.4.1.3. The alkali resistance of the porcelain enamel shall limit the loss of enamel to a maximum of 12 milligrams per square inch when tested as specified in 4.4.1.1.

3.5 Electrical requirements. Type I, Class 3 and 4; Type II, Class 2; and Type IV, Class 2 appliances shall operate on a nominal 120 volt, 60 hertz single phase power supply. Type II, Class 1 and Type IV, Class 1 appliances shall operate on a nominal 120/240 volt, 60 hertz single phase power supply. When specified (see 6.2), appliances shall operate satisfactorily on a 50 hertz single phase power supply within plus or minus 5 percent of the manufacturer's design voltage. The use of an external transformer is not acceptable. Appliances shall have a maximum current rating of 16 amps and a maximum power rating of 3300 watts.

3.5.1 Wiring The wiring, cord, plug, and grounding shall be in accordance with UL-560, UL-1206 or ANSI 221-5.1, as applicable. Unless otherwise specified (see 6.2), the cord shall have an attachment plug and a minimum free length of 5 feet, measured from the point of entry into the cabinet. When 50 hertz operation is specified (see 6.2), a 3 wire electric cord shall be provided with a schuko-type plug.

3.5.2 Motors. Motors shall conform to the requirements of NEMA MG-1.

3.6 Name and data. plate The appliance's name and data plate shall be in accordance with the manufacturer's standard commercial practice, provided it is legible and permanently marked. The manufacturer's name or trademark of such known character that the source of manufacture of the appliance may be readily determined, the type/model nomenclature, and the electrical and gas characteristics, as applicable, shall be delineated on the name and data plate.

3.7 Lubrication. Unless otherwise specified (see 6.2), permanent lubrication shall be provided. When periodic lubrication is required, all bearings shall be adequately lubricated upon assembly and shall be mounted so they may be lubricated by normal maintenance procedures.

3.8 Interchangeability. All appliance parts shall be manufactured to definite standards, tolerances, and clearances in order that any part of a particular type or model may be replaced or adjusted without requiring modification.

3.9 Electromagnetic compatibility. When specified (see 6.2), appliances shall be designed and equipped for electromagnetic compatibility in accordance with Class III requirements of MIL-STD-461 (see 4.4.6).

3.10 Moisture and fungus-resistant treatment. When specified (see 6.2), electrical components of appliances shall be moisture and fungus-resistant. They shall be treated with material conforming to and applied in accordance with the requirements of MIL-V-173 and MIL-T-152, as applicable.

3.11 Operating instructions. Operating instructions shall be accurate, complete, clear, and legible. They shall be permanently affixed to the appliance in accordance with the manufacturer's standard commercial practice and shall be discernible to the operator.

3.12 Plumbing requirements. Water inlet hoses shall have connections to fit standard 3/4 inch hose fitting threads. The hoses shall be of sufficient length to permit connection to faucets a minimum of 2 feet to the left or right of the appliance and 42 inches above the floor. The hoses shall be capable of withstanding the 500 pound hydrostatic pressure test (see 4.4.2) without any leaks, ballooning, or other discernible defects. During the test, the ferrule shall not creep more than 1/16 inch. The drain hose shall have a "U" shaped discharge end and shall be of sufficient length to permit discharge into a laundry tub or standpipe positioned a minimum of 6 inches from either side and 36 inches high. Washers shall be provided with connections and inlets for hot and cold water and with an outlet for draining. They shall be furnished with a hose for each of these three connections and shall be equipped with a pump for draining the tub.

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### 3.13 Detailed requirements.

3.13.1 Type I, class 3. This automatic washing machine shall be provided with the proper number of controls for automatic operations. When preset and without further attention of the operator, these controls shall cause water to be delivered at the selected temperature, volume, and agitation for the proper time duration to clean regular, delicate, and wash and wear or permanent press fabrics. The washer, after filling the tub with water to a predetermined level, shall start and wash a minimum of 14 pounds of dry clothes for a period of time selected by the operator. The washing and rinsing action shall cause an agitation of the wash water and flexing of the clothes. After completion of the wash phase, the clothes basket shall automatically empty the wash water, refill with rinse water, and begin the rinse phase. At the end of the rinse phase, the clothes basket shall automatically empty the rinse water and commence spinning the clothes to a damp-dry state. At the completion of this spin-dry, the washer shall shut off automatically and the clothes shall be washed and cleaned, ready for removal by the operator. Means for leveling the washer shall be provided. The washer shall be of the top loading, agitator type.

3.13.1.1 Plumbing. This washer shall be provided with plumbing in accordance with the requirements of 3.12.

3.13.1.2 Cabinet. This washer's cabinet shall be made of steel and finished in accordance with the requirements of 3.4.

3.13.1.3 Outer tub and clothes basket. This washer's outer tub and clothes basket shall be made of steel and finished in accordance with the requirements of 3.4. To prevent snagging and ripping of the clothing, any part of this washer which comes in contact with the clothes shall have a smooth-finished surface and shall be free from burrs.

3.13.1.4 Style A. This style automatic washing machine shall be provided with controls for manual presetting. When preset to a desired combination, these controls shall provide water of predetermined temperature and volume and for the proper time duration to permit any one of two or more operational cycles corresponding to the settings. The style washer shall provide for a selection of at least the following water temperatures; hot wash, warm or cold rinse; cold wash, cold rinse; or hot wash, cold rinse; warm wash, cold rinse; cold wash, cold rinse.

3.13.1.5 Style B. This style automatic washing machine shall provide for a selection of at least hot, warm, and cold wash and cold rinse water temperatures. This washer shall be furnished with controls for time and water temperature selection.

3.13.2 Type I, class 4. This automatic washing machine shall be a continuous duty, self-service, laundry type. It shall be provided with a push or pull start mechanism (or a blank slide box) , and shall operate without the use of coins or slugs. A water temperature switch providing for selection of hot wash, warm rinse; warm wash, warm or cold rinse; cold wash, cold rinse; hot wash, cold wash, and cold rinse shall be furnished. These controls shall be preset and without further attention of the operator, shall cause water to be delivered at the selected temperature, volume, and agitation for the proper time duration to clean regular, delicate, and wash and wear or permanent press fabrics. The timing mechanism shall be concealed so the operator cannot manipulate it. Once a cycle has been started, it shall continue unaltered for the duration of the cycle. This washer, after filling the tub with water to the proper level, shall start and wash the rated load. The washing and rinsing action shall cause an agitation of the wash water and flexing of the clothes. After completion of the wash phase, the clothes basket shall automatically empty the wash water and refill with rinse water and then go into the rinsing phase. At the end of this phase, the clothes basket shall automatically empty the rinse water and commence spinning the clothes to a damp-dry state. At the completion of the spin-dry, the washer shall shut off automatically and the clothes shall be washed and cleaned, ready for removal by the operator. Leveling legs or other commercially used means for leveling this washer shall be provided. This washer may be of the agitator type or utilize a similar mixing device which meets the requirements of this specification. An agitator, if used, shall be attached with a cap requiring the use of special tools for removal to preclude easy removal or loosening. The agitator drive shaft bushing shall be fabricated from nylon or brass material. The operational cycle shall provide at least one wash and two rinses. When specified (see 6.2), this washer shall be the coin-operated type and shall be furnished with a coin-mechanism coin box and key. Also when specified (see 6.2), additional controls for two or three water levels shall be provided.

3.13.2.1 Cabinet. This washer's cabinet top and cover shall be made of heavy gage steel with a porcelain enamel finish in accordance with the requirements of 3.4.1. The cabinet front and side panels shall be made of steel. The rear panel may be steel or any other material which meets the requirements of the appropriate UL standard. Excluding the trim, exterior visible surfaces shall be finished with white acrylic or polyester finish in accordance with the manufacturer's standard commercial practice. Front, top or rear panels shall be removable for servicing of the washer.

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3.13.2.2 Outer tub and clothes basket. This washer's outer tub shall be made of steel with a porcelain enamel finish in accordance with the requirements of 3.4.1 or a suitable durable plastic. The clothes basket (inner tub) shall be made of corrosion-resisting steel or steel with porcelain in accordance with the requirements of 3.4.1. A corrosion-resisting steel basket is required for Navy procurements.

3.13.2.3 Transmission. This washer's transmission shall be permanently lubricated in a sealed casing and designed for self-service, automatic, continuous duty operation. Gears, if used, shall be flame or case hardened steel, celcon or sintered iron material.

3.13.2.4 Plumbing requirements. This washer shall be provided with plumbing in accordance with the requirements of 3.12.

3.13.2.5 Type I, class 4, size 1. This automatic washing machine shall have a rated clothes capacity of at least 14 pounds (dry weight). Unless otherwise specified (see 6.2), this washer shall not require bolting down or permanent installation. If an unbalanced (load) condition occurs during the spin or extract phase, this condition shall be automatically compensated for within the washer or a switch shall be provided to cutoff the washer so that the operator can correct the unbalanced condition. This washer shall have overall dimensions of not more than 45 inches in height, 30 inches in width and 29 inches in depth.

3.13.2.6 Type I, class 4, size 2. This automatic washing machine shall be the same as a Type I, class 4, size 1 (see 3.13.2.4) except that the washer shall have a rated clothes capacity of at least 18 pounds (dry weight).

3.14 Type II drying-tumbler. This drying tumbler shall dry a full clothes load for a type I, class 3 washer, in the time interval recommended by the manufacturer and selected by the operator. This dryer shall shut off automatically when the operation is completed. This dryer shall have provisions for collecting lint accumulated during the drying cycle. Means for leveling the machine shall be provided.

3.14.1 Cabinet. This dryer's cabinet shall be made of steel and finished as specified in 3.4. Height including control panel shall not exceed 45 inches, the floor surface area covered by the dryer shall not exceed 900 square inches, and the width shall not exceed 32 inches.

3.14.2 Interior. This dryer's basket shall be of the revolving type. The opening to the basket shall be from the front side. The basket shall be made of corrosion-resisting steel, zinc-coated steel, steel finished with porcelain or high temperature baked on enamel. Corrosion-resisting steel or zinc-coated steel basket is required for Navy procurements. To prevent snagging and ripping of clothes, any part of the dryer which comes in contact with the clothes shall have a smooth-finished surface and be free from burrs. The walls of the basket shall have vanes to give the clothes motion in a path about the axis of the basket.

3.14.3 Type II, class 1. This drying-tumbler shall conform to the requirements of 3.14 through 3.14.2 and shall be operated completely by electricity. Dryers employing a ventilation system shall have provisions for exterior ventilation from the side or the back of their cabinet.

3.14.3.1 Plumbing. Drying tumblers using a condensing unit in lieu of exterior ventilation shall be equipped with a cold water inlet and drain. The plumbing shall be in accordance with the requirements of 3.12.

3.14.3.2 Type II, class 1, style B. This drying tumbler shall conform to the requirements of 3.14 through 3.14.3.1 and shall be equipped with a minimum of three temperature selections, a minimum of three cycle selections, and shall shut off automatically at the end of the operational cycle. This dryer shall have provisions for exterior ventilation or employ a system of no exterior ventilation, as specified (see 6.2).

3.14.4 Type II, class 2. This drying tumbler shall conform to the requirements of 3.14 through 3.14.2 and shall dry the clothes by heating the circulating air as specified in ANSI 221.5.1. The basic design of this dryer shall be certified by the American Gas Association and shall be equipped with automatic ignition system or standing pilot light. This dryer shall be equipped with a built-in safety dryer stop which shall stop the dryer and the gas flow when the flame is extinguished. This dryer shall be equipped with a gas inlet of not less than 3/8 inch in diameter. This dryer shall include a pressure-regulation control to maintain the required gas pressure. This dryer shall be capable of operating on manufactured, mixed, natural, LP, or LP-air-gas, as specified (see 6.2). Dryers designated for natural gas or LP gas shall be capable of either being converted from Natural to LP gas or LP to Natural gas without additional kits/parts or the contractor shall provide the required conversion kits/parts with each dryer.

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3.14.4.1 Type II, class 2, style B. This drying tumbler shall conform to the requirements a Type II, Class 1, Style B (see 3.14.3.2) except that a gas fired heat exchanger shall be used to heat the air in lieu of electricity.

3.15 Type IV drying tumbler. This drying tumbler shall be the same as the Type II dryer tumbler (see 3.14) except it shall dry a full clothes load for a Type I, Class 4, Size 1 or 2 washing machine as specified (see 6.2). This dryer shall be equipped with a temperature control to provide for a selection of at least regular (heavy/permanent press) and low (knits/delicate fabrics) drying heat. This dryer shall be designed for self-service, continuous-duty operation. The operator shall have no control of the timing mechanism except with a push or pull start timer device, which shall operate without the use of coins or slugs. Each start timer activation shall provide an additional fixed increment of drying time. The start timer device may be mounted externally.

3.15.1 Type IV, class 1. This drying tumbler shall conform to the requirements of a Type II, Class 1, Style B (see 3.14.3.2) except as stated in paragraph 3.15.

3.15.2 Type IV, class 2. This drying tumbler shall conform to the requirements of Type II, Class II, Style B (see 3.14.4.1) except as stated in paragraph 3.15.

3.16 Workmanship. Each appliance shall be free from defects such as fractures, splits, punctures, tears, dents, creases, deterioration or malformation. There shall be no sharp edges, slivers, burrs or projections. The inside of the washer tub or dryer tumbler basket shall be smooth and free of burrs or sharp edges.

3.16.1 Application of finish. The finish applied to the appliance shall be continuous, smooth, adherent without discoloration or foreign material imbedded. The finish shall contain no sags, runs, drips, creeps, laps, bubbles, streaks, wrinkles, blisters, cracks, scratches, pours, pits, lumps, flux, or orange peel. No rust, rough grinds, or tool marks shall show through the finish.

3.16.2 Welding The surface of parts to be welded shall be free from oxide, scale, paint, grease, and other foreign matter. Welds shall be sound, smooth, and free from porosity, cracks, incomplete fusion, and deformation of material. All scale and flux shall be removed from the finished welds.

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3.16.3 Soldering. Soldering shall be complete and adherent with all flux and residue removed and shall contain no pin holes.

3.16.4 Threaded fasteners. Threaded fasteners shall not be broken, stripped, fractured, or loose.

3.16.5 Electrical wiring Wiring shall not be cut, abraded, or have excessive insulation stripped. Wiring shall be properly and tightly joined at terminals. Wire nuts shall not be used and solderless connectors shall have insulation grip. Wiring shall have adequate slack to provide strain relief.

3.17 Noise limits. When operated, the appliance shall not exceed 85 decibels on the (A) weighted scale at the normal operator positions.

3.18 Instructions. The contractor's standard handbook of operating, installation, and maintenance instructions shall be included with each appliance delivered to the Government.

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#### 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, 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 assure supplies and services conform to prescribed requirements.

4.2 Quality conformance inspection. Except as otherwise specified herein, sampling for inspection shall be performed in accordance with the provisions set forth in MIL-STD-105.

4.2.1 Component and material inspection In accordance with 4.1 above, components and materials shall be inspected and tested in accordance with all the requirements of referenced specifications, drawings and standards, unless excluded, amended, modified, or qualified in this specification or the applicable purchase document.

4.2.2 In-process inspection. Inspection shall be made of the following fabrication processes to ensure conformance with specified requirements. Whenever nonconformance is noted, correction shall be made to the fabrication process and all processed items:

- a. Application of porcelain enamel (see 3.4.1).
- b. Application of bearing lubrication (see 3.7).
- c. Application of moisture and fungus treatment (see 3.10).
- d. Application of welds (see 3.16.2).
- e. Application of soldering (see 3.16.3)
- f. Application of fasteners (see 3.16.4)
- g. Application of wiring (see 3.16.5)

4.2.3 End Item Lot Inspection. When end item lot inspection is required (see 6.2) , the inspection lot shall consist of all appliances of the same type, class, style, and size offered for inspection at one time. The sample unit shall be one complete appliance.

4.2.3.1 Visual examination. The appliance shall be examined for the defects in table I. The inspection level shall be II with an Acceptable Quality Level (AQL) of 4.0 for major defects and 6.5 for total defects expressed in terms of defects per hundred units.

TABLE I. Classification of defects

<u>Examine</u> <u>Minor</u>	<u>Defect</u>	<u>Classification</u>	
		<u>Major</u>	
Finish	Not finished where required	X	
	Color not in specified		X
	Type of finish not as Specified or not continuous, smooth and adherent	X	
	Foreign material, embedded in finish, sags, runs, drips, creeps, laps, bubbles, streaks, wrinkles, blisters, cracks, scratches, pours, pits, lumps, flux or orange peel		X
	Rust, rough grinds or tool marks showing through the coating		X
Construction and workmanship (applicable to all components)	Part missing	<b>X</b>	
	Any component fractured, split, punctured, torn, dented, creased or malformed	<b>X</b>	
	Any burr, sharp edge or sliver	<b>X</b>	
Welding and brazing (where applicable)	Missing, incomplete, burn holes, cracked, fractured, or not fused	<b>X</b>	
	Slag inclusions, undercut, not smooth and uniform, scale or flux deposits not removed		X
Soldering (where applicable)	Missing, incomplete, or not adherent	X	
	Not clean (flux or residue not removed) or contain pinholes		X
Threaded fasteners	Broken, stripped, fractured, or packing not stripped or loose	X	
	Not specified material	X	
	Threaded fastener loose	X	
Electric assembly	Wiring cut, abraded, excessive insulation stripped not properly joined or loose at terminal	X	
	Adequate slack not provided, strain relief or support clip missing		<b>X</b>
	Not as specified	X	
Assembly	Any component not properly assembled or secured	X	
Marking, identification, instruction manual, wiring diagram (where applicable)	Missing, incomplete, not legible, not as specified	X	

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4.2.3.2 Dimensional examination. The appliance shall be examined for the dimensions specified. The inspection level shall be II with an AQL of 6.5 expressed in terms of defects per hundred units. Any dimension not within tolerance shall be considered a defect.

4.2.3.3 Testing The appliances shall be tested as specified in 4.4.1 through 4.4.3 using an inspection level of S-1 and an AQL of 4.0 expressed in terms of defects per hundred units. The tests specified in 4.4.4 and 4.4.5 shall be performed on one appliance from each lot. Failure of any test shall be cause for rejection of the inspected lot.

4.2.4 Examination of Preparation for delivery. An examination shall be made to determine if preservation, packaging, packing and marking complies with the applicable requirements. Defects shall be scored as set forth in table II. The sample unit shall be one shipping container fully packed except that it need not be sealed. The lot shall be the number of shipping containers offered for inspection at one time. The inspection level shall be S-1 with an AQL of 4.0 expressed in terms of defects per hundred units

TABLE II. Examination of preparartion for delivery

Examine	<u>Defect</u>
Markings	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application
Preservation	Improperly applied or missing
Materials	Components missing, damaged
Workmanship	Inadequate application or components such as incomplete closure of case liners, container flaps, loose strapping, inadequate stapling; bulging or distortion of containers System not completely drained and dried

4.3 First article testing. The first article test shall consist of the examinations of paragraphs 4.2.3.1, 4.2.3.2, and 4.2.4 and the tests of paragraphs 4.4.1 through 4.4.5 and 4.4.7. When required (see 6.2), the test of paragraph 4.6 shall be included as part of the first article testing.

#### **4.4 Tests.**

4.4.1 Test for porcelain enamel. When the appliance contains components finished with porcelain enamel, one representative component from the sample appliance shall be tested for alkali resistance (see 4.4.1.1) , thickness of enamel (see 4.4.1.2) , and reflectance (see 4.4.1.3) for conformance to the requirements of 3.4.1.

4.4.1.1 Alkali resistance The representative component shall be tested for alkali resistant; in accordance with PEI T-25, dated June 1965. The maximum loss of porcelain enamel shall not exceed 12 milligrams per square inch. Nonconformance shall constitute failure of this test.

4.4.1.2 Thickness of enamel. The thickness of the porcelain enamel on the representative component shall be measured at three locations with a magnetic thickness gauge or other suitable means, accurate to plus or minus 0.001 inch. The average of the three measured dimensions shall be equal to or less than 0.018 inch. Nonconformance shall constitute failure of this test.

4.4.1.3 Reflectance test. The porcelain enamel finish of the representative component shall be tested for reflectance in accordance with ASTM C347 and ASTM E97. Failure to meet the 75 percent reflectance requirement shall constitute failure of this test.

4.4.2 Plumbing test. When the appliance is supplied with inlet water hoses, the hoses from the appliance shall be pressure tested at 500 psi hydrostatic pressure using water preheated to a minimum of 190 degrees Fahrenheit. The pressure shall be retained for a minimum of three minutes. Inability of any hose to comply with the plumbing hose requirements (see 3.12) shall constitute failure of this test.

4.4.3 Operational. The appliance shall be connected to the specified electric power, water, gas, and drainage and operated without load (clothes) to determine that the assembly of component parts is complete and of proper interrelationship. There shall be no undue vibration in moving parts; interference fits; leaks; appliance overheating including bearings; excessive noise; or starting and stopping devices operating roughly. In the course of operational testing, compliance with all performance requirements (see 3.) applicable to the fully assembled item shall be accomplished; except those that require functional testing such as the processing of cloths in the appliance. Failure to comply with the specified requirements shall constitute failure of this test.

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4.4.4 Functional. The appliance shall be subjected to functional testing as specified herein. The appliance shall be connected to the specified electrical power, gas, water, and drainage and shall operate with the rated clothes load. The appliance shall perform in accordance with the requirements delineated in 3.13.1, 3.13.1.4, 3.13.1.5, 3.13.2, 3.13.2.5, 3.14, 3.14.3, 3.14.3.2, 3.14.4, 3.14.4.1, 3.15, 3.15.1, and 3.15.2. Failure to perform the required operations as specified shall constitute failure of this test.

4.4.5 Vibration The appliance shall undergo a vibration test by being placed on a-level, firm surface and operated with the rated clothes load for an operational cycle. The position of the appliance before starting the test and at the conclusion of the test shall be outlined on the floor. Failure to remain in the original position shall constitute failure of this test.

4.4.6 Electromagnetic compatibility control tests When electromagnetic compatibility is required (see 6.2), the appliance shall be tested by the supplier in accordance with test Methods CE03 and RB02 in accordance with the Class III requirements of MIL-STD-462. The contractor shall furnish the contracting officer written certification that the Interference Control Plan, the EMI/EMC Test Plan, and the Electromagnetic Compatibility Test Report meet the requirements of MIL-STD-461. Noncompliance with the requirements shall constitute failure of this test.

4.4.7 Noise test. The appliance shall be tested in accordance with standard commercial practice for conformance with the noise limits specified in 3.17. Failure to comply with the noise limit requirements shall constitute failure of this test.

4.5 Certificate examination. Documentation (e.g., Certificates of Compliance, certified test reports, approval labels, and listing-marks for codes and standards) that is submitted as proof of conformance to the specification requirements, shall be examined and validated.

## 5. PREPARATION FOR DELIVERY

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

5.1.1 Level A. The appliance shall be preserved and packaged as follows:

- (a) The electric cord shall be coiled to a suitable diameter and secured to the appliance.
- (b) Spare parts shall be packaged together in accordance with MIL-P-116, method IC-2.
- (c) Hoses shall be secured in the washer's basket.
- (d) Piping, open vents, and open drains shall be sealed.
- (e) openings to the electric motor shall be sealed with tape conforming to PPP-T-60.
- (f) All moving parts such as agitators, tumblers, and inner clothes baskets shall be secured and adequately secured to prevent movement or damage during shipment.

5.1.2 Level C. The appliance shall be packaged to insure protection against damage during shipment and safe delivery at destination and shall comply with the common carrier rules, as a minimum.

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

5.2.1 Levels A and B. The appliance shall be packed in accordance with PPP-P-600, as specified for the applicable level.

5.2.2 Level C. When packaged as specified in 5.1.2, the appliance shall be packed to assure carrier acceptance and safe arrival at destination in compliance with the National Motor Freight Classification or the Uniform Freight Classification.

## 5.3 Marking.

5.3.1 Civil agencies. All markings shall be in accordance with the requirements of FED-STD-123.

5.3.2 Military agencies. All marking shall be in accordance with the requirements of MIL-STD-129.

## 6. NOTES

6.1 Intended use. The appliances covered by this specification are intended for washing and drying clothes in home and barracks style laundries.

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6.2 Ordering data Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Appliance type, class, style, and size required (see 1.2.1).
- (c) Mounting, if different (see 3.3.2).
- (d) Electrical requirements, if different (see 3.5).
- (e) Wiring or cord length, if different (see 3.5.1).
- (f) Periodic lubrication required (see 3.7).
- (g) Electromagnetic compatibility required (see 3.9).
- (h) Fungus resistance required (see 3.10).
- (i) Coin-operated type appliance required (see 3.13.2).
- (j) Controls for 2 or 3 water levels required (see 3.13.2).
- (k) For Type II appliances, vent or no-vent required (see 3.14.3.2 and 3.14.4.1).
- (l) Type of gas to be used with gas drying-tumbler (see 3.14.4).
- (m) Size of washing machine to be used (see 3.15).
- (n) End item lot inspection required (see 4.2.3).
- (o) Level of preservation, packaging, and packing requirements (see 5.1 and 5.2).

6.3 Contract data requirements. Any data items to be delivered under any contract for items-covered by this specification shall be specifically called for in the contract in accordance with the applicable regulations of the procuring agency.

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Custodians:

Army - GL

Navy - YD

Air Force - 84

Review Activities:

Army - MD

Air Force - 45

DSA-GS

User Activity:

Navy - MC

Preparing Activity:

GSA - FSS

Civil Agency Coordinating Activities:

HEW - FDA, NIH

VA - DMS