

OO-W-860D

April 27, 1967

SUPERSEDING

Fed. Spec. OO-W-860C

August 30, 1968 and

Int. Fed. Spec. OO-W-0020B(GSA-FSS)

August 30, 1968

FEDERAL SPECIFICATION

WASHING MACHINE AND DRYING TUMBLERS, HOUSEHOLD LAUNDRY,

POWER OPERATED AND LAUNDRY COMMERCIAL (SELF-SERVICE)

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers electric washing machines and electric and gas drying tumblers of the household and commercial type, herein designated by type designation or as the "appliance" or "machine".

1.2 Classification.

1.2.1 Types, classes, and styles. The appliances covered by this specification shall be furnished in the following types, classes, and styles, as specified (see 6.2 and 6.5).

Type I - Washing machine

Class 3 - Household, automatic

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

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

Class 4 - Self-Service, automatic

Size 1 - 14 pounds (dry weight)

Size 2 - 18 pounds (dry weight)

FSC 3510

00-W-860D

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 The following documents, of the issue in effect on date of invitation for bids or requests 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 Services 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-130 - Identification Marking of US Military Property
- MIL-STD-461 - Electromagnetic Interference Characteristics Requirements For Equipment
- MIL-STD-462 - Electromagnetic Interference Characteristics, Measurements of
- MIL-STD-1474 - Noise Limits for Army Material

(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 Other 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

(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

00-W-860D

(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) Standard

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 East 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., Tariff Order Section, 1616 P Street, N.W., Washington, DC 20036.)

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. Electrical appliances shall conform to UL-560 and 1206, as applicable. Certificate of compliance shall be made available to the Government.

3.1.2 Conformance to ANSI. Gas appliances shall conform to ANSI Z21-5.1, type I clothes dryer. Certificate of compliance shall be made available.

3.1.3 Contractor compliance. Compliance with the preliminary requirements of 3.1.1 and 3.1.2 does not absolve the contractor from complete compliance with the other requirements of this specification.

3.2 Materials. Materials used in the construction of these appliances shall be as specified herein. When materials are not definitely specified, they shall be of the quality normally used for the purpose in commercial practice. All materials shall be new and unused, and free from any defects or imperfections which might affect appearance or serviceability.

3.2.1 Corrosion-resistant steel. When applicable, corrosion-resistant steel shall be in accordance with QQ-S-766.

3.3 Design. The appliances covered herein shall be of the contractor's current production design. All parts subject to wear shall be accessible for repair or adjustment.

3.3.1 Definition of operational cycle. Whenever the term "operational cycle" is used in this specification, it refers to a complete wash, rinse, and damp-dry operation, as applicable, for a specific appliance.

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

3.4 Color and finish. The outer tub and clothes basket coming into contact with the wash water shall be steel finished with porcelain enamel or made of corrosion-resistant steel. Exterior visible surfaces of the cabinet, not including the trim, shall be finished with white porcelain enamel or baked-on white enamel. The cabinet back and all interior surfaces shall be of corrosion-resistant material or coated to resist corrosion. The exterior trim shall be that which is normally furnished 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 provide a maximum loss of enamel of 12 milligrams per square inch when tested as specified in 4.4.1.1.

00-W-860D

3.5 Electrical requirements. Type I, class 3 and 4; type II, class 2; and type IV, class 2 machines shall operate on a nominal 120 volt, 60 Hertz single phase power supply. Type II, class 1 and type IV, class 1 machines shall operate on a nominal 120/240 volt, 60 Hertz single phase supply. When specified (see 6.2), machines designed for 50/60 Hertz electric current operation shall operate satisfactorily at 50 Hertz within plus or minus 10 percent of the manufacturer's design voltage. Any special transformers required to meet specified voltage requirements shall be furnished with each machine. When transformers are required, the transformer capacity shall be 10 percent higher than full load rating of the machine motor.

3.5.1 Wiring. All wiring, cord, plug, and grounding shall be in accordance with UL-560, UL-1206 or ANSI Z21-5.1, 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 UL approved 3 wire electric cord shall be provided with a plug. Enclosed terminals shall be provided in lieu of cord and plug for type II, class 1 appliances.

3.6 Name and data plate. Except on procurement for Civil agencies, each end item covered by this specification shall be marked for identification in accordance with end item marking requirements of MIL-STD-130. For procurement of Civil agencies, the plate may be in accordance with the manufacturer's standard practice, provided it is legible and permanently marked with the manufacturer's name or trademark of such known character that the source of manufacture of the appliance may be readily determined and contains the type or model and electrical and gas characteristics, as applicable.

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

3.8 Interchangeability. All 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), the appliances shall be designed and equipped for electromagnetic compatibility in accordance with class IIB requirements of MIL-STD-461 (see 4.4.6).

3.10 Moisture and fungus-resistant treatment. When specified (see 6.2), electrical components of equipment covered by this specification shall be moisture and fungus-resistant treated with material conforming to and applied as required by MIL-V-173 and MIL-T-152, as applicable.

3.11 Operating instructions. Operating instructions shall be located on the machine in accordance with standard commercial practice.

3.12 Plumbing hoses and connections. The 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 left or right of machine and 42 inches above the floor. The hoses shall be capable of withstanding the 500 pound hydrostatic pressure test, specified in 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 a minimum of 6 inches from either side and 36 inches high.

3.13 Detail requirements.

3.13.1 Type I, class 3. The type I, class 3 automatic washing machine shall have connections for two water supplies; hot and cold. It shall be provided with the proper number of controls for automatic operations. When preset, these controls shall, without further attention of the operator, cause water to be delivered at the selected temperature, volume, and agitation for the proper time duration to clean any specific fabric. The automatic washing machine, after filling the tub with water to a predetermined level, shall start and wash a minimum of 8 pounds of dry clothes (minimum of 14 pounds dry clothes for Navy procurement), 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 empty automatically of wash water and refill with rinse water then go into the rinsing phase. At the end of this phase, the clothes basket shall empty out the rinse water and commence spinning the clothes to a damp-dry state. At the completion of the spin-dry, the appliance shall shut off automatically and the clothes shall be ready to be removed by the operator for drying. Means for leveling the machine shall be provided. At the option of the contractor, the machine may be of the revolving drum type, agitator type, or any similar type meeting the requirements of this specification.

3.13.1.1 Plumbing requirements. The washing machine shall be provided with inlets for hot and cold water and with an outlet for draining. It shall also be furnished with a hose for each of these three connections in accordance with 3.12. The appliance shall be equipped with a pump for draining the tub.

3.13.1.2 Cabinet. The cabinet of the automatic washing machine shall be made of steel and finished, as specified in 3.4.

00-W-860D

3.13.1.3 Outertub and clothes basket. The outer tub and clothes basket in this appliance shall be made of steel and finished, as specified in 3.4. Any part of the appliance which comes in contact with the clothes shall have a smooth-finished surface and be free from burrs so as to prevent snagging and ripping of the clothing.

3.13.1.4 Style A. Style A automatic washing machines shall be provided with controls for manual presetting. These controls, when preset to a desired combination, 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 A automatic washing machine shall provide for a selection of at least the following water temperatures: Hot wash, warm rinse; warm wash, cold rinse; cold wash, cold rinse.

3.13.1.5 Style B. Style B automatic washing machines shall have sufficient controls to provide water of a predetermined temperature and volume for the proper time duration to afford three or more operational washing cycles. The style B automatic washing machine shall provide for a selection of at least the following combination of wash and rinse water temperatures: Hot wash, warm rinse; warm wash, warm rinse, or cold rinse; cold wash, cold rinse. The appliance shall be furnished with controls for time and water selection for at least the following cycles; regular cycle, delicate fabric cycle, wash and wear or permanent press cycle.

3.13.2 Type I, class 4. The type I, class 4 washing machine shall be automatic top leading, continuous duty, self-service laundry type and shall have connections for two water supplies, one hot and one cold. It shall be provided with push to start mechanism ( or a blank slide box) for automatic operation. A water temperature switch providing the selection of hot wash, warm rinse; warm wash, warm rinse; cold wash, cold rinse shall be furnished. These controls, shall be preset, and shall, without further attention of the operator, cause water to be delivered at the selected temperature, volume, and agitation for the proper time duration to clean any specific fabric. Once the cycle has been started it shall continue unaltered for the duration of the cycle. The automatic washing machine, after filling the tub with water to the proper level, shall start and wash the rated load (14 pounds for size 1 and 18 pounds for size 2). 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 empty automatically of wash water and refill with rinse water and then go into the rinsing phase. At the end of this phase, the clothes basket shall empty of 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 clean, ready to be removed by the operator for drying. Leveling legs or other means for leveling the machine shall be provided. The machine may be of the agitator type, or any similar mixing device meeting 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. 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), the machine 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. The cabinet top and cover shall be made of heavy gauge steel with porcelain enamel finish as specified in 3.4.1. The cabinet front, rear and side panels shall be made of zinc-coated steel with white acrylic or polyester enamel finish in accordance with standard commercial practice. Front, top or rear panels to be removable for easy servicing of the washing machine.

3.13.2.2 Outer tub and clothes basket. The outer tub shall be made from steel with porcelain enamel finish as specified in 3.4.1. The clothes basket (inner tub) shall be made from corrosion-resisting steel or steel with porcelain as specified in 3.4.1. Corrosion-resisting steel basket is required for Navy procurement.

3.13.2.3 Transmission. 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, cast iron or sintered iron material.

3.13.2.4 Type I, class 4, size 1. The type I, class 4, size 1 washing machine shall have a rated clothes capacity for at least 14 pounds (dry weight). Unless otherwise specified (see 6.2), the washer shall be designed to require no bolting down or permanent installation. The machine shall be designed so that if an unbalanced (load) condition occurs during the spin or extract phase, this condition will be automatically compensated for within the machine, or a switch shall be provided to cut the machine off so that the unbalanced condition can be adjusted and corrected by the operator. The washer shall have overall dimensions of not more than 45 inches in height, 30 inches in width and 29 inches in depth.

3.13.2.5 Type I, class 4, size 2. The type I, class 4, size 2 automatic washing machine shall be the same as 3.13.2.4 above except that the machine shall have a rated clothes capacity for at least 18 pounds (dry weight).

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

3.14.1 Cabinet. The drying-tumbler cabinet shall be made of steel and finished, as specified in 3.4. Height including control panel shall not

00-W-860D

exceed 45 inches; the floor surface area shall not exceed 900 square inches; the width shall not exceed 32 inches.

3.14.2 Interior. The drying-tumbler 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 or steel finished with porcelain. Corrosion-resisting steel or zinc-coated steel basket is required for Navy procurement. Any part of the appliance which comes in contact with the clothes shall have a smooth-finished surface and be free from burrs so as to prevent snagging and ripping of clothing. 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. Type II, class 1 drying-tumbler shall conform to the requirements of 3.14 through 3.14.2 and shall be operated completely by electricity.

3.14.3.1 Plumbing requirements. The drying-tumblers using a condensing unit in lieu of exterior ventilation shall be equipped with a cold water inlet and drain. Each plumbing connection shall be equipped with hoses and connections conforming to 3.12. Drying-tumblers employing a ventilation system shall have provisions for exterior ventilation from side or back of cabinet.

3.14.3.2 Type II, class 1, style B. Type II, class 1, style B drying-tumbler shall conform to the requirements of 3.14 through 3.14.3.1 and shall be equipped with a temperature selector control. The appliance 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. Type II, class 2 drying-tumbler shall conform to the requirements of 3.14 through 3.14.2 and shall dry the clothes by heating the circulating air with gas fired heat exchanger. This class of appliance shall be equipped with a gas inlet of not less than 3/8 inch in diameter. The appliance shall include a pressure-regulation control to maintain the required gas pressure. The gas drying-tumbler shall be capable of operating on manufactured, mixed, natural, LP, or LP-air-gas, as specified (see 6.2).

3.14.4.1 Type II, class 2, style B. Type II, class 2, style B appliance shall conform to the requirements of 3.14.3.2 except that gas fired heat exchanger shall be used to heat the air in lieu of electricity.

3.15 Type IV drying-tumbler. The type IV drying-tumbler shall be the same as type II except it shall dry a full washing machine load for type I, class 4, size 1 or 2 washer as specified (see 6.2). Dryer shall be designed for self-service, continuous duty operation similar in exterior design to match washer.

3.15.1 Type IV, class 1. Type IV, class 1 drying-tumbler shall conform to the requirements of 3.14.3.2 except as stated in paragraph 3.15 above.

3.15.2 Type IV, class 2. Type IV, class 2 drying-tumbler shall conform to the requirements of 3.14.4.1 except as stated in paragraph 3.15 above.

3.16 Workmanship. End item 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 tub or tumbler basket shall be smooth and free of burrs or sharp edges.

3.16.1 Application of finish. The finish applied to the end item shall be continuous (when required), smooth, adherent without discoloration or foreign material imbedded and 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 coating.

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 (when flux is used) shall be removed from the finished welds.

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, and 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. The machine shall meet the noise limits specified in MIL-STD-1474 and where practicable, shall not exceed 85 decibels (A) weighted at the normal operator position. For noise test (see 4.4.7).

#### 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 order, the contractor may use his own or any other

OO-W-860D

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 applicable purchase document.

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

- 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 3.15.2).

4.2.3 End item inspection. The inspection lot shall consist of all appliances of same type, class, style, and size (when applicable) 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 with an inspection level of II and 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

Examine	Defect	Classification	
		Major	Minor
Finish	Not finished where required	X	
	Color not as specified		X
	Type of finish not as specified or not continuous, smooth and adherent	X	

TABLE 1. Classification of defects (cont'd)

Examine	Defect	Classification	
		Major	Minor
Finish (cont'd)	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	X	
	Any component fractured, split, punctured, torn, dented, creased or malformed	X	
	Any burr, sharp edge or sliver	X	
Welding and brazing (where applicable)	Missing, incomplete, burn holes, cracked, fractured, or not fused	X	
	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		X
	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	

OO-W-860D

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

4.2.3.3 End item testing. Each appliance shall be tested as specified in 4.4.3. Failure of this test shall be cause for rejection of the item. Sample appliances shall be tested as specified in 4.4.1 and 4.4.2 using an inspection level of S-1. Failure of either test shall be cause for rejection of the lot. The tests as specified in 4.4.4, 4.4.5, and 4.4.6, when applicable, shall be performed on one representative production unit. Failure of any test shall be cause for rejection of the inspection lot.

4.2.4 Examination of preparation for delivery. An examination shall be made to determine preservation, packaging, packing and marking comply with section 5 of this specification. 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 preparation for delivery

<u>Examine</u>	<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 of 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 Certificate examination. Certificates of compliance, certified test reports, approval labels, or listing marks for codes and standards, as applicable, that are submitted as proof of conformance with the specification requirements, shall be examined and validated.

#### 4.4 Tests.

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

4.4.1.1 Alkali resistance. The representative component shall be alkali tested in accordance with PEI T-25, dated June 1965, with the maximum loss of porcelain enamel limited to 12 milligrams per square inch, nonconformance shall constitute failure of this test.

4.4.1.2 Thickness of enamel. The thickness of the procelain enamel on the representative component shall be measured at three locations with a magnetic thickness gage or other suitable means, accurate to plus or minus 0.001 inch, and the average of the three dimensions shall be equal to or less than the specified thickness, see 3.4.1. Nonconformance shall constitute failure of this test.

4.4.1.3 Reflectance test. To determine compliance with the requirements of 5.1 the porcelain (vitreous) enamel finish shall be tested for reflectance in accordance with ASTM C347 and ASTM E97. Failure to meet the 75 percent reflectance shall be cause for rejection of the item.

4.4.2 Plumbing hose test. When the appliance is supplied with inlet water hoses, the hoses from the sample appliance shall be pressure tested at 500 psi hydrostatic pressure using water preheated to a minimum of 190 F. The pressure shall be retained for a minimum of three minutes. Inability of any sample hose to comply with the requirements of 3.12 shall be cause for rejection and failure of this test.

4.4.3 Operational. Each appliance shall be connected to power, and water is required, and operated without load (such as clothes) to determine that the assembly of component parts is complete and of proper interrelationship, moving parts evidence no undue vibration, or overheating of bearings, and that the starting and stopping devices operate smoothly and positively. In the course of the operational testing, determination shall be made to establish compliance with all performance requirements specified in section 3 applicable to the fully assembled item except those that require functional testing such as the processing of clothing through the equipment. Failure to comply with specified requirements shall be cause for rejection of the item and failure of the test.

4.4.4 Functional. The representative sample appliance shall be subjected to functional testing as described herein. The appliance shall be connected to necessary outlets such as electricity, gas when required, water, and drainage

OO-W-860D

and shall operate with a rated load and perform satisfactorily its respective operation as described in 3.13.1, 3.13.1.4, 3.13.1.5, 3.13.2, 3.13.2.4, 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 of any appliance to perform its required operation as specified shall be cause for rejection and failure of the test.

4.4.5 Vibration. The representative sample appliance shall undergo a vibration test by being placed on, and if necessary, adjusted to a level, firm surface and operated with rated load for an operational cycle. The position of the appliance before test and at the conclusion of the test shall be outlined on the floor. Failure to remain in the original position shall constitute failure to comply with the requirements of 3.3.2 and shall be cause for rejection of the item.

4.4.6 Electromagnetic compatibility control tests. When electromagnetic compatibility is required, the unit shall be tested by the supplier in accordance with test Methods CE03 and RE02 of MIL-STD-462. The Government reserves the right to witness tests performed by the supplier or an independent testing agency. The supplier shall furnish the contracting officer written certification that the Interference Control Plan, the EMI/EMC Test Plan, the Electromagnetic Compatibility Test Report and the requirements meet MIL-STD-461. Any noncompliance with the requirements specified in 3.9 shall constitute failure of this test.

4.4.7 Noise test. The representative sample appliance shall be tested for conformance with the noise limits of paragraph 3.16 in accordance with MIL-STD-1474.

## 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. Each machine shall be preserved and packaged as follows (as applicable):

- (a) The electric cord shall be coiled to a suitable diameter and secured to the machine.
- (b) Spare parts shall be packaged together in accordance with MIL-P-116, method IC-2.
- (c) Hoses shall be secured in the basket of the washing machine.
- (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 immobilized to prevent movement during shipment.



5.1.2 Level C. Each machine shall be packaged to insure protection against damage during shipment and safe delivery at destination, while complying 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. Each complete machine shall be packed in accordance with PPP-P-600, as specified for the applicable level.

5.2.2 Level C. Each machine packaged as specified in 5.1.2 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 FED-STD-123.

5.3.2 Military agencies. All marking shall be in accordance with 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 barrack type laundries.

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) The type, class, style, and size (when applicable) 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) When periodic lubrication is required (see 3.7).
- (g) When electromagnetic compatibility is required (see 3.9).
- (h) Fungus resistant, when required (see 3.10).
- (i) When a coin-operated type appliance is required (see 3.13.2).
- (j) When additional controls for 2 or 3 water levels are required (see 3.13.2).
- (k) If specific type II appliance is required, state whether vent or no-vent (see 3.14.3.2 and 3.14.3.3).

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DOCUMENT IDENTIFIER AND TITLE <b>Washing Machine and Drying Tumblers, Household Laundry, Power Operated and Laundry Commercial (Self-Service) 00-W-860D</b>		
NAME OF ORGANIZATION AND ADDRESS	CONTRACT NUMBER	
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