

OO-A-372F
Sept. 3, 1992
SUPERSEDING
OO-A-372E
March 16, 1988

FEDERAL SPECIFICATION

AIR CONDITIONERS
(ELECTRIC MOTOR DRIVEN, SELF CONTAINED FOR SHORE USE)

This specification is 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 air conditioners which mount in a window, through a wall, or on a floor and deliver conditioned air to an enclosed space. This includes the cooling, dehumidifying, circulating, filtering and ventilation of the air.

1.2 Classification. Air conditioners covered by this specification shall be of the following types, styles, classes, models, electrical ratings, and sizes (see Table I)(see 6.2).

Type I - Window mounted type.

Style 1 - Double-hung sash window unit.

Style 2 - Casement window unit.

Type II - Floor mounted type.

Type III - Through the wall mounted type.

Class A - Cooling Only.

Class B - Combination cooling and heating.

Model (1) - 115 volts, single phase.

Model (2) - 230/208 volts, single phase.

Electrical Rating a - 50 hertz.

Electrical Rating b - 60 hertz.

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

FSC 4110

OO-A-372F

Table I

Sizes	Nameplate ratings BTU/H
1	5,000 - 6,399
2	6,400 - 7,999
3	8,000 - 9,999
4	10,000 - 12,499
5	12,500 - 15,499
6	15,500 - 18,999
7	19,000 - 22,999
8	23,000 - 27,499
9	27,500 - 32,499
10	over 32,500

2. APPLICABLE DOCUMENTS

2.1 Government documents. 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 the date of invitation for bids or request for proposals shall apply.

Federal Specifications:

- F-F-300 - Filter, Air Conditioning, Viscous-Impingement and Dry Types, Cleanable
- PPP-B-636 - Boxes, Shipping, Fiberboard
- PPP-P-600 - Porcelain Enamel Products and Household Appliances, Electrical and Mechanical Requirements for Packaging and Packing

Federal Standard:

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

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

OO-A-372F

(Single copies of this specification and other Federal specifications and commercial item descriptions required by activities outside the Federal Government for bidding purposes are available without charge from General Services Administration, Business Service Centers in Boston, MA; New York, NY; Philadelphia, PA; Washington, DC; Atlanta, GA; Chicago, IL; Kansas City, MO; Fort Worth, TX; Houston, TX; Denver, CO; San Francisco, CA; Los Angeles, CA; 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 Standards:

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD 461 - Electromagnetic Emission and Susceptibility requirement for the Control of Electromagnetic Interference
- MIL-STD-462 - Electromagnetic Interference Characteristics, Measurement of

(Copies of Military 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 the date of invitation for bids or request for proposals shall apply.

Underwriters Laboratories Inc. (UL) Publications:

- Standard No. 484 - Room Air Conditioners
- Standard No. 900 - Air Filter Units

(Application for copies should be addressed to the Underwriters Laboratories Inc., Publication Stock, 333 Pfingsten Road, Northbrook, IL 60062.)

American National Standards Institute (ANSI):

- ANSI/AHAM RAC-1 - Room Air Conditioners

(Application for copies should be addressed to the Association of Home Appliance Manufacturers, 20 North Wacker Drive, Chicago, IL 60606.)

OO-A-372F

Association of Home Appliance Manufacturers (AHAM):
Directory of Certified Room Air Conditioners

(Application for copies should be addressed to the Association of Home Appliance Manufacturers, 20 North Wacker Drive, Chicago, IL 60606.)

National Motor Freight Traffic Association, Inc., Agent:
National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Association, Inc., Traffic Department, 1616 P 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 Fire and casualty hazards. The contractor shall submit proof, satisfactory to the contracting agency, that the air conditioners conform to the applicable requirements of Underwriters Laboratories Inc., UL Standard No. 484. Acceptable evidence that the air conditioners have been tested and conform to the requirements of the UL standard, shall be the UL label or listing mark or a certified test report from a recognized independent laboratory acceptable to the Government. Compliance with this preliminary requirement in regard to fire and casualty hazards does not absolve the contractor from compliance with the requirements of this specification.

3.2 Performance requirements.

3.2.1 ANSI/AHAM RAC-1. Unless otherwise specified herein, the air conditioner shall conform to the recommended levels of performance specified in ANSI/AHAM RAC-1, when tested in accordance with 4.4.1.

3.2.1.1 Cooling Capacity. The air conditioner shall have a cooling capacity within the range specified in Table I for the applicable size.

3.2.1.2 Moisture removal capacity. The air conditioner shall have a moisture removal capacity between 0.14 to 0.40 pints per hour for each 1,000 BTU/H of rated cooling capacity.

OO-A-372F

3.2.1.3 Recirculated air quantity. The air conditioner shall have the capacity to recirculate air at rates not less than 20 cubic feet per minute (CFM) per 1,000 BTU's per hour of rated capacity.

3.2.1.4 Ventilating and exhaust air quantity. Unless otherwise specified (see 6.2), the air conditioner shall be capable of controlled exhausting of room air or the controlled admitting of fresh air or both but not simultaneously. The air conditioners shall have provisions to prohibit entry of insects or animals through the ventilation openings.

3.2.1.5 Enclosure sweat test. The enclosure sweat test shall be performed as specified in ANSI/AHAM RAC-1. Change the recommended level of performance to read "no moisture shall drip, run, or blow off of the unit on the room side."

3.3 General. The air conditioner shall be a complete self-contained unit ready for operation after removal of packing and connection to utilities. The unit shall deliver conditioned air to the room and utilize outside air to cool the condenser.

3.3.1 Type I. Unless otherwise specified (see 6.2), Type I air conditioners shall be designed for and provided with all mounting devices necessary for installation as Style 1 or Style 2 as applicable.

3.3.2 Type II. The Type II air conditioners shall be designed for and provided with all mounting devices necessary for installation on the floor in front of a window within the room it is to serve.

3.3.3 Type III. The Type III air conditioners shall be designed for and provided with all mounting devices necessary for installation through wood or masonry walls.

3.4 Design and construction. The air conditioner shall consist of air circulating, refrigeration, and electrical equipment assembled within an outer case cabinet. Asbestos shall not be used as a material in any part of the air conditioner.

3.4.1 Outer case cabinet. The outer case cabinet shall include grilles and insulation where required. It shall be of a design and style suitable for installation in an office space. The inlet and outlet grille color shall harmonize with the cabinet color. The outlet grilles shall be furnished with controls for air flow direction.

OO-A-372F

3.4.2 Chassis. The chassis shall support and maintain alignment of the machinery and component parts. The outer case cabinet and chassis shall be insulated to prevent dripping and moisture run off, and reduce noise transmission.

3.4.3 Mounting. All mounting hardware shall be made of corrosion resistant material or protected by a corrosion resistant finish. Sealing gaskets shall prevent outside air and moisture from leaking into the room.

3.4.3.1 Through the wall. When specified (see 6.2), a zinc primed mounting sleeve or other device shall be furnished for through the wall mounting in wood or masonry walls.

3.4.3.2 Dimensions. The Type I air conditioners shall not exceed the dimensions in Tables II and III. The dimensions of Type II and III air conditioners shall be as specified (see 6.2).

Table II, Style 1, Double-hung sash window unit.

Size *	Height inches (mm)	Width inches (mm)	Depth inches (mm)
1	26 (660)	29 (740)	26 (660)
2	26 (660)	29 (740)	28 (710)
3	26 (660)	29 (740)	32 (810)
4	28 (710)	30 (760)	34 (860)
5	31 (790)	30 (760)	36 (910)
6	32 (810)	32 (810)	37 (940)
7	33 (840)	36 (910)	38 (970)
8	37 (940)	37 (940)	39 (990)
9	39 (990)	39 (990)	41 (1040)
10	41 (1040)	41 (1040)	43 (1090)

Table III, Style 2, Casement window unit.

Sizes *	Height inches (mm)	Width inches (mm)	Depth inches (mm)
1	20.5 (520)	14.5 (370)	22.6 (575)
2	20.5 (520)	14.5 (370)	22.6 (575)
3	20.5 (520)	14.5 (370)	22.6 (575)

* Sizes are referenced in Table I.

OO-A-372F

3.4.4 Ducts. The Type II air conditioners shall be equipped with metal window ducts that harmonize with the cabinet. Outside duct openings shall be provided with screens for draining and preventing rain water from entering the unit or room. A base, if required (see 6.2), shall be provided to suit the sill height.

3.4.5 Filters. Recirculated air shall be filtered before entering any air conditioning coil or room. Air filters shall be replaceable and commercially available. The filter shall be free of odors and in accordance with UL Standard No. 900 - Air Filter Units. When specified (see 6.2), air filters shall be of the permanent washable type conforming to F-F-300.

3.4.6 Refrigerant. The refrigerant shall meet the requirements of UL Standard No. 484. The refrigerant shall not leak more than 1/2 ounce (14 grams) per year.

3.4.7 Electrical equipment. All motors and controls shall have voltage, phase and frequency ratings as specified (see 6.2). Wiring design and practices shall conform to UL Standard No 484.

3.4.7.1 Controls. Manual and automatic controls shall be mounted in the cabinet so they are easily accessible. Manual controls shall permit operation of either the fan or the fan and refrigeration equipment. The fan control shall provide two or more fan speed settings. Automatic controls shall include a thermostat for controlling the air temperature. The thermostat shall have an adjustable range, including 72 to 80 degrees Fahrenheit (F) (22 to 27 degrees Celsius (C)) and shall automatically turn the refrigeration system on or off to maintain the preselected temperature within plus or minus 4 degrees F (2 degrees C).

3.4.7.2 Cable assembly. The cable assembly shall consist of a cord with 2 conductors and an integral ground connected to a grounding plug. The assembly shall conform to UL Standard No. 484. The cable assembly color shall harmonize with the cabinet.

3.4.7.3 Heating Capacity. When specified (see 6.2), the unit shall have a heating capacity not less than 50 percent of the BTU's per hour cooling capacity. When heating is specified, an adjustable thermostat shall be provided to automatically control the temperature from 60 to 80 degrees F (15 to 27 degrees C) within plus or minus 4 degrees F (2 degrees C).

3.5 Energy efficiency ratio (EER). The air conditioner shall meet the minimum Energy Efficiency Ratio (EER) specified in the Energy Conservation Standards, Title 10, Chapter II, Part 430, Subpart C, dated 1/1/92 when operating in the cooling mode.

OO-A-372F

3.6 Instructions for care and operation. The contractor shall furnish complete instructions for installation, maintenance, and operation with each unit.

3.7 Spare parts and maintenance tools. Spare parts and maintenance tools where required, shall be as specified in the contract or order (see 6.2).

3.8 Finish. Unless otherwise specified (see 6.2), the manufacturers commercial finish shall be acceptable.

3.9 Identification marking. The air conditioner shall be marked in accordance with UL Standard No. 484.

3.10 Electromagnetic interference. When specified (see 6.2), the electromagnetic interference shall be in accordance with MIL-STD-461, Class C3, Group III.

3.11 Workmanship. All components and assemblies of the air conditioner shall be free from dirt or other extraneous materials, burrs, slivers, rough die marks, tool marks, grind marks, dents, and cracks. When castings, molded parts, or stampings are used, they shall be free from sand fins, pits, blow holes and sprues. Welds shall be smooth and free of cracks, holes, undercuts, and incomplete fusion. All scale and flux shall be removed from the finished weld area. Threaded fasteners shall not be missing, broken, cracked, or stripped.

3.12 Regulatory requirements. The offerer/contractor is encouraged to use recovered materials in accordance with Public Law 94-580, as amended, to the maximum extent practicable.

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 specified herein. 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 that supplies and services conform to the prescribed requirements.

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

- a. First article inspection (see 4.2.1).
- b. Quality conformance inspection (see 4.2.2)

OO-A-372F

4.2.1 First article inspection. One air conditioner of each Type, Style, Class, Model, Electrical Rating, and Size shall be inspected in accordance with the examinations specified in 4.3, and the tests specified in 4.4 (the test of 4.4.3 shall be performed only when required (see 6.2)).

4.2.2 Quality conformance inspection. The quality conformance inspection shall consist of the examinations specified in 4.3 and the test specified in 4.4.2. Sampling for the quality conformance inspection shall be performed in accordance with MIL-STD-105 with an inspection level of Special Inspection Level S-2, with an Acceptable Quality Level (AQL) of 2.5 expressed in terms of defects per hundred units.

4.3 Examinations.

4.3.1 Component and material examination. The components and materials shall be examined in accordance with the requirements of referenced specifications and standards unless otherwise excluded, amended, modified or qualified in this specification or the applicable purchase document.

4.3.2 Intermediate visual and dimensional examination. The intermediate product or assemblies which cannot be checked or measured after final assembly shall be examined at various stages of manufacture for compliance with this specification. Examination will be made at an appropriate intermediate station for defects in construction, workmanship, dimensions, and material. Any deviation from specified requirements shall be classified as a defect.

4.3.3 Visual and dimensional examination.

4.3.3.1 Visual examination. One complete air conditioner shall be examined for the defects listed in Table V.

Table V, Classification of defects

Examine	Defects
General	Type and Style not as specified (3.3).
Outer case, chassis	Not as specified (3.4.1, 3.4.2).
Mounting	Not as specified (3.4.3, 3.4.3.1, 3.4.3.2).
Motor	Not as specified (3.4.7).

OO-A-372F

Internal wiring	Not as specified (3.4.8).
Filters	Not in accordance with UL 900 (3.4.5).
Controls	Missing or Not as specified (3.4.7.1).
Cable assembly	Not as specified (3.4.7.2).
EER (COP)	Below minimum specified (3.5).
Instructions for care and delivery, identification marking	Missing, incomplete illegible (3.6, 3.9).
Spare parts and maintenance tools	Not as specified (3.7).
Finish	Not as specified (3.8).
Construction and workmanship (applicable to all components and assemblies)	Any part missing, broken, deformed, dented, deteriorated or otherwise seriously impaired. Component misplaced, loose, or out of alignment. Dirt or extraneous material present. Any component that will not operate as intended. Any functioning component that requires abnormal force to operate.
Welding and brazing	Missing, incomplete, burn holes, cracked, undercut, or otherwise not fused (3.11). Slag inclusion, gas pocket, not smooth and uniform, scale or flux deposit not removed (3.11).
Threaded components	Missing, broken, stripped, or fractured (3.11).

OO-A-372F

Wiring	Not in accordance with UL 484 (3.4.7).
--------	--

4.3.3.2 Dimensional examination. One complete air conditioner shall be examined to determine conformance with the specified dimensions. Any dimension that does not conform to the specified requirements shall be classified as a defect.

4.3.4 Examination of preparation for delivery. One shipping container fully prepared for delivery shall be examined to determine that the packaging, packing, and marking are as required in section 5. Defects shall be as specified in Table VI.

Table VI, Examination of preparation for delivery

Examine	Defects
Marking	Omitted, incorrect, illegible, of improper size, location, sequence, or method of application.
Materials	Component missing, damaged, or otherwise defective.
Contents	Contents per container not as required.
Preservation	Not as specified (5.1).
Packaging	Not as specified (5.1).

4.3.4.1 Examination of shipping containers. When shipping containers are required for spare parts or maintenance tools, they shall be in accordance with PPP-B-636. The examination for defects in closure, waterproofing, and banding shall be in accordance with the appendix of Federal Specification PPP-B-636.

OO-A-372F

4.4 Tests.

4.4.1 Performance tests. The following tests shall be performed in accordance with the latest version of ANSI/AHAM RAC-1:

- Cooling capacity test (3.2.1.1)
- Ventilation and exhaust air quantity test (3.2.1.4)
- Moisture removal capacity test (3.2.1.2)
- Recirculated air quantity test (3.2.1.3)
- Electrical input test (3.2.1)
- Maximum operating conditions test (3.2.1)
- Freeze-up tests (3.2.1)
- Enclosure sweat test (3.2.1.5)
- Heating capacity test (3.4.7.3)

4.4.1.1 Certification. The contractor shall make available to the Contracting Officer or their authorized representative evidence of completion of the performance tests and compliance with the requirements of ANSI/AHAM RAC-1. A certificate of compliance stating that the requirements of these tests are met will be considered acceptable evidence when substantiating evidence (i.e. recent test reports or listing in the latest issue of the AHAM Directory of Certified Air Conditioners) is supplied. The Government reserves the right to examine and test all air conditioners to determine the validity of the certification.

4.4.2 Operational test. Air conditioner samples shall be tested in accordance with the cooling capacity test and the heating capacity test (when required) as described in the latest version of ANSI/AHAM RAC-1. The air conditioner shall meet the performance requirements specified in 3.2.1.1 and 3.4.7.3 for the cooling capacity test and the heating capacity test respectively. At no time during this test shall the leakage of refrigerant exceed 1/2 ounce per year as detected by a halogen leak detector. This test may be combined with the manufacturer's final test when all elements of the specified test requirements are included in the manufacturer's quality control procedures.

4.4.3 Electromagnetic interference tests. When the electromagnetic interference levels stated in 3.10 are required, the first production unit shall be tested in accordance with MIL-STD-462 to verify compliance with the pertinent provisions of MIL-STD-461. The manufacturer may upon approval of the contracting officer furnish a Certificate of Compliance (see 6.3) as part of the first production unit in lieu of the test that the air conditioners meet the requirements, together with a list of the suppression devices installed. The list shall be sufficiently detailed to allow visual determination that the devices are installed.

OO-A-372F

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging. Preservation and packaging shall be level C unless otherwise specified (see 6.2).

5.1.1 Level A.

5.1.1.1 Unit. Each unit shall be protected by wrapping in kraft paper, 40 lb., minimum basis weight, plastic foam wrap, bubble wrap, or with water resistant cellulose wadding or by blocking and bracing using plastic or fiberboard pads. The wrapping paper, cushioning material or pads shall be secured in place with tape or twine. The cable assembly shall be coiled to a minimum safe diameter and the coil tied with not less than two ties of cotton tape or twine. The coil shall be secured to the unit under the wrapping or cushioning with tape or twine.

5.1.1.2 Technical publications. Technical publications, instruction and maintenance manuals shall be packaged in a sulfate kraft envelope having a basis weight of 28 (17 x 22 - 500) and a minimum burst strength of 52 PSI; end opening with gummed flap or metal clasp and reinforced hole, or in a plastic bag, 1 mil. minimum thickness, closed and sealed with heat or tape.

5.1.1.3 Spare parts. The spare parts shall be packaged in a box conforming to Federal Specification PPP-B-636, class domestic. Closure and sealing shall be in accordance with the appendix to the box specification.

5.1.1.4 Maintenance tools. The maintenance tools shall be packaged in a box conforming to Federal Specification PPP-B-636, class domestic. Closure and sealing shall be in accordance with the appendix to the box specification.

5.1.2 Level C. Each complete unit shall be packaged in accordance with the suppliers commercial practice providing that this will insure protection for the unit during shipment and will provide for safe delivery to its destination.

5.2 Packing. Each complete unit shall be in accordance with PPP-P-600, levels A, B, or C as specified.

5.3 Marking.

5.3.1 Civil agencies. In addition to markings required by the contract or order, the interior packages and shipping containers shall be marked in accordance with FED-STD-123.

OO-A-372F

5.3.2 Military requirements. In addition to any special markings required by the contract or order, interior packages and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The air conditioners covered by this Federal Specification shall be capable of cooling dehumidifying, circulating, filtering, and ventilating air. This Federal Specification does not cover all Types and Sizes of air conditioners but only those used by the Federal Government.

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). Type, Style, Class, Model, Electrical Rating, and Size of air conditioners (see 1.2). ANSI/AHAM RAC-1 specifies the cooling capacity of any production unit shall not be less than 95 percent of its nameplate rating. If ratings other than those listed in 1.2 are required, the purchaser should specify the minimum nameplate rating required.
- (c). Ventilating and exhaust air quality test, if other than specified (see 3.2.1.4).
- (d). Mounting (see 3.4.3, 3.4.3.1, 3.4.3.2). For Type I units, specify whether Style 1 or 2. For Type III units, a separate mounting sleeve must be specified, if required. Style 1 units may serve as through-the-wall units by utilizing the outer case cabinet as the mounting sleeve.
- (e). Required dimensions for Type II and III items (see 3.4.3.2).
- (f). Ducts and duct adapters for Type II units (see 3.4.4).
- (g). A base if required for Type II (see 3.4.4).
- (h). Air filters of the permanent washable Type, if required (see 3.4.5).
- (i). Spare parts and tools, if required (see 3.7).
- (j). Finish, if other than specified (see 3.8).
- (k). Electromagnetic interference suppression, if required (see 3.10).
- (l). Inspection responsibility, if other than specified (see 4.1).
- (m). Quality conformance inspection, if other than required (see 4.2.2).
- (n). Selection of applicable levels of preservation, packaging, and packing if other than specified (see 5.1 and 5.2).

OO-A-372F

6.3 Contract data requirements. When this specification is used in an acquisition and data is required to be delivered, the data shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (CDRL), incorporated into the contract. When the provisions of DoD FAR Supplement, Part 27, Sub-Part 27.410-6 (DD Form 1423) are invoked and the DD Form 1423 is not used, the data shall be delivered by the contractor in accordance with the contract or purchase order requirements.

6.4 Supersession Data. This specification supersedes Commercial Item Description A-A-931.

MILITARY INTERESTS:

Military Coordinating Activity

Navy - YD

Custodians

Army - ME

Navy - YD

Air force - 99

Review Activities

Army - CE

Air force - 82

DLA - GS

User Activity

Navy - MC

PREPARING ACTIVITY:

GSA - FSS/6FETE-CO