

MIL-F-38762 (USAF)

26 April 1966

Superseding

'See Section 6.'

MILITARY SPECIFICATION

FLUORESCENT PENETRANT INSPECTION UNITS

1. SCOPE

1.1 Scope. This specification covers three types of fluorescent penetrant inspection units.

1.2 Classification. Fluorescent penetrant inspection units covered by this specification shall be of the following types, as specified (see 6.2):

TYPE	INTERNAL TANK SIZE
MA-1	33 inches wide, 16 inches long, 14 inches deep
MA-2	29 inches wide, 43 inches long, 26 inches deep
MA-3	44 inches wide, 67 inches long, 26 inches deep

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

Federal

TT-P-664 Primer coating, synthetic, rust-inhibiting, lacquer-resisting.

Military

MIL-C-104 Crates, wood; lumber and plywood sheathed, nailed and bolted.
 MIL-P-116 Preservation, methods of
 MIL-D-1000 Drawings, engineering and associated lists
 MIL-E-7729 Enamel, gloss
 MIL-P-8585 Primer coating; zinc-chromate, low-moisture sensitivity.
 MIL-L-9909 Light, ultraviolet, metals examining.
 MIL-C-11218 Conveyors, roller and wheel, gravity and conveyor supports.
 MIL-C-20696 Cloth, coated, nylon, waterproof
 MIL-I-25135 Inspection materials, penetrant.

FSC 6635

MIL-F-38762 (USAF)**STANDARDS****Federal****FED-STD-595 Colors****Military****MIL-STD-129 Marking for shipment and storage.****MIL-STD-130 Identification marking of U.S. Military Property.****MIL-STD-143 Specifications and standards order of precedence for the selection of.****MIL-STD-1186 Cushioning, anchoring, bracing, blocking and waterproofing; with appropriate test methods.**

(Copies of specifications, standards, publications and drawings 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 document forms a part of this specification. Unless otherwise indicated, the issue in effect on date of invitation for bids shall apply.

National Board of Fire Underwriters

National Electrical Code

(Copies of the National Electrical Code may be obtained from the National Fire Protection Association, 60 Batterymarch Street, Boston, Mass. 02110).

3. REQUIREMENTS

3.1 Selection of specifications and standards. Specifications and standards for necessary commodities and services not specified herein shall be selected according to MIL-STD-143, except as provided in 3.1.1 and 3.1.2.

3.1.1 Commercial parts. Commercial parts having suitable properties may be used where, on the date for bids, there are no suitable standard parts. In any case, commercial utility parts, like screws, bolts, nuts, and cotter pins, having suitable properties may be used provided:

- a. They can be replaced by the standard parts (MS or AN) without alteration.
- b. The corresponding standard part numbers are referenced in the parts list and, if practical, on the contractor's drawings.

3.1.2 Standard parts. With the exception in 3.2, MS and AN standard parts shall be used where they suit the purpose. They shall be identified on the drawings by their part numbers.

3.2 Design and construction. The units shall be designed and constructed to facilitate efficient inspection of parts and assemblies capable of being penetrant inspected. They shall be so constructed as to hold aircraft parts and inspection medium without deformation of the components. Basic structures, including tanks, shall be fabricated with welded joints.

3.3 Type MA-1. This inspection unit shall consist of the following: Penetrant, emulsification, drain, rinse, dryer (which shall be above and to the rear of the rinse station), developer and inspection stations.

3.3.1 Penetrant, emulsification, and developer stations. These stations shall consist of a tank, cover, and expanded metal grille.

3.3.1.1 Tank size. Minimum 33 inches wide, 16 inches long, and 14 inches deep.

3.3.1.2 Metal grille. The metal grille shall be removable and shelf mounted to cover rear half of the tank.

3.3.2 Rinse station. This station shall consist of a tank with hand hose and nozzle.

3.3.2.1 Tank size. Minimum 14 inches wide, 31 inches long, and 22 inches deep.

3.3.3 Drain station. This station shall consist of drain pan and expanded metal grille.

3.3.3.1 Drain pan size. Minimum 32 inches long and 33 inches wide.

3.3.3.2 Metal grille. The metal grille shall be removable and there shall be at least 1 inch of space between the grille and drain pan.

3.3.4 Dryer station. The dryer station shall consist of a dryer cabinet, heater compartment with heater element and fan, and black light.

3.3.4.1 Dryer cabinet. The dryer cabinet shall have two removable expanded metal shelves. One shelf shall serve as the floor and other shelf shall divide the cabinet into two compartments. Each compartment shall be at least 29 inches long, 14 inches wide and 14 inches high. The cabinet shall be open at the front and this opening covered with a split curtain.

3.3.5 Inspection station. The inspection station shall consist of a table top, canopy and black light.

3.3.5.1 Table top. The table top shall be constructed of rigid, abrasion resistant, non-metallic material. It shall be 33 inches wide and 31 inches long.

3.3.5.2 The inspection station shall be at least 32 inches long, 52 inches wide and 78 inches high overall.

3.3.6 Frame. All stations shall be attached to one frame to form a single integral unit. The frame shall be no more than 36 inches wide and 154 inches long and a table height of 36 inches.

3.3.7 Baskets. Six square, wire baskets with handles made of corrosion resistant materials shall be provided for handling small parts. The basket shall be 11 inches wide, 11 inches long and 4 inches deep and shall have a maximum mesh opening of 3/4 inch square.

3.4 Type MA-2 and MA-3. These inspection units shall consist of the following: Penetrant, penetrant drain, emulsification, emulsification drain, rinse, developer, developer drain, dryer, cooler and inspection stations.

3.4.1 Penetrant, emulsification, developer stations. These stations shall consist of frame, tank and cover. A pump, hand hose, slatted wooden grille and junction box shall be provided, when specified by the procuring activity.

MIL-F-38762 (USAF)

3.4.1.1 Station size.

3.4.1.1.1 Type MA-2. The usable area inside the tank shall be at least 29 inches wide, 43 inches long and 26 inches deep. The frame shall be 34 inches wide, 48 inches long and 36 inches high over-all.

3.4.1.1.2 Type MA-3. The usable area inside the tank shall be at least 44 inches wide, 67 inches long and 26 inches deep. The frame shall be 50 inches wide, 72 inches long and 36 inches high over-all.

3.4.2 Rinse station.

3.4.2.1 Type MA-2. The rinse station shall consist of a frame, tank, cover, junction box, black light, and a hand hose with nozzle.

3.4.2.1.1 The usable area inside the tank shall be at least 29 inches wide, 43 inches long, and 24 inches deep. The frame shall be 34 inches wide, 48 inches long and 36 inches high over-all.

3.4.2.2 Type MA-3. The rinse station shall consist of a frame, tank with fully enclosed rear and split-top roof, black light, a full roller grille junction box and a hand hose with nozzle.

3.4.2.2.1 The usable area inside the tank shall be at least 44 inches wide, 67 inches long and 24 inches deep. The frame shall be 50 inches wide, 72 inches long and a table top height of 36 inches over-all.

3.4.2.2.2 The enclosed area of back splash above the grille shall be at least 44 inches wide, 67 inches long and 44 inches high.

3.4.2.2.3 The sides shall be curtains. The curtains shall be at least 44 by 44 inches, split and conforming to MIL-C-20696, Type II, Class 3.

3.4.3 Penetrant, emulsification and developer drain stations. The drain stations shall consist of a frame, drain pan and a full roller top grille.

3.4.3.1 The length and width of the roller top grille shall conform to the length and width of the station and there shall be a space of 5/8 inch or more between the drain pan and the extreme lower line of the grille.

3.4.3.2 Frame size.

3.4.3.2.1 Type MA-2. The frame shall be 34 inches wide, 48 inches long. The table height shall be 36 inches.

3.4.3.2.2 Type MA-3. The frame shall be 50 inches wide, 72 inches long. The table height shall be 36 inches.

3.4.3.2.3 The front and rear top edge of the frame shall be 2 inches above the top of the rollers and the ends of the frame shall be 1 inch below the top of the rollers.

3.4.4 Dryer station. The dryer station shall consist of a frame, dryer cabinet with full roller grille, a heater compartment with heater and fans.

3.4.4.1 Dryer cabinet. The dryer cabinet shall be designed with a split roof and with both ends opened. Split curtains shall be provided for each end.

3.4.4.2 Dimensions.

3.4.4.2.1 Type MA-2. The interior area above the grille shall be at least 28 inches wide, 87 inches long and 24 inches high. The curtain opening shall be at least 28 inches by 24 inches. The frame shall be 34 inches wide and 72 inches long. The table top height shall be 36 inches.

3.4.4.2.2 Type MA-3. The interior area above the grille shall be at least 44 inches wide, 67 inches long and 44 inches high. The curtain opening shall be at least 44 inches by 44 inches. The frame shall be 50 inches wide and 72 inches long. The table top height shall be 36 inches.

3.4.4.3 Heater capacity.

3.4.4.3.1 Type MA-2. The heater capacity shall not be less than 8000 watts.

3.4.4.3.2 Type MA-3. The heater capacity shall not be less than 16000 watts.

3.4.4.4 Fans.

3.4.4.4.1 Type MA-2. Two fans required

3.4.4.4.2 Type MA-3. Four fans required.

3.4.5 Cooler station. The cooler station shall consist of a frame and full roller grille with no bottom.

3.4.5.1 The length and width of a roller top grille shall conform to the length and width of the station.

3.4.5.2 Frame size.

3.4.5.2.1 Type MA-2. The frame shall be 34 inches wide, 48 inches long. The table height shall be 36 inches.

3.4.5.2.2 Type MA-3. The frame shall be 50 inches wide, 72 inches long. The table height shall be 36 inches.

3.4.5.2.3 The front and rear top edge of the frame shall be 2 inches above the top of the rollers and the ends of the frame shall be 1 inch below the top of the rollers.

3.4.6 Inspection station. The inspection station shall consist of a frame, a full roller grille table top, dust pan, exhaust fan, 2 black lights, junction box and a canopy with a split-roof.

3.4.6.1 The dust pan shall be directly under the table top for the exclusion of light.

3.4.6.2 Dimensions.

3.4.6.2.1 Type MA-2. The full roller grille table top shall be 34 inches wide and 72 inches long. The table top height shall be 36 inches. The overall dimension shall be 72 inches long, 58 inches wide and 78 inches high.

3.4.6.2.2 Type MA-3. The full roller grille table top shall be 50 inches wide, 72 inches long. The table top height shall be 36 inches. The over-all dimension shall be 72 inches long, 88 inches wide and 90 inches high.

3.5 Frames. Frames for all inspection units shall be constructed of structural steel angles.

3.6 Tanks and drain pans.

MIL-F-38762 (USAF)**3.6.1. Material.**

3.6.1.1 The penetrant and emulsification tanks and connecting drain pans shall be fabricated from 16 gauge carbon steel.

3.6.1.2 The developer and rinse tank and connecting drain pans shall be fabricated from 16 gauge stainless steel.

3.6.2 The bottom of all tanks shall be constructed so that the contents can be completely drained through a valved outlet. The outlet shall be welded into the tank. A valve or stopcock shall be provided and shall be capable of withstanding a hydrostatic pressure of 50 PSI.

3.6.3 The drain pan shall drain into the preceding station. They shall have a pitch toward the preceding station of not less than 1/8 inch and not more than 1/4 inch per linear foot.

3.7 Roller top grilles. All roller top grilles shall conform to MIL-C-11218.

3.8 Dryer stations. All dryers shall be of the hot-air recirculating type, electrically heated and thermostatically controlled.

3.8.1 Thermostats. The thermostat shall be scaled from 50°F to 500°F in increments of 10°F.

3.8.2 Heater compartment. The heater compartment shall be located below the dryer cabinet and shall be baffled so as to direct the flow of air over the heater elements and recirculate the air throughout the entire drying chamber.

3.8.3 Dryer cabinet. The drying cabinet shall be of the double-wall type and shall be fabricated from 16 gauge carbon steel. There shall be 1 inch of glass fabric insulation between the walls.

3.8.4 Dryer switch. Each dryer shall be equipped with a line disconnect switch. All wiring shall be external to the dryer.

3.8.5 Air supply. Outside air shall be drawn into the heater compartments through ducts which shall be of sufficient size to provide a minimum air change of two drying-chamber volumes per minute.

3.9 Canopies. The canopies shall consist of a frame, 3/4 plywood roof and fabric conforming to MIL-C-20696, Type II, Class 3. The canopies shall form an enclosure and shall be split to facilitate entry of personnel and parts. The edges shall overlap at least 4 inches to preclude the entrance of outside light.

3.10 Split-top rinse, dryer, and inspection stations. The top of the station shall be split to provide for the use of overhead conveyers. The split shall be 5 inches wide, symmetrical with the center line of the station, and parallel to the direction of the travel of parts.

3.11 Covers. Covers for tanks shall be folding and self-storing and shall be the same as the tank material or fabricated from aluminum alloy having a minimum thickness of 0.090 inches. They should be so fabricated as to preclude warping and buckling.

3.12 Panels. Access or cover panels in outer shells shall be fabricated from 16-gauge sheet carbon steel or from aluminum alloy having a minimum thickness of 0.090 inches.

3.13 Slatted wooden grilles.

3.13.1 Type MA-1. The slates or strips shall be 1/4 by 1 inch and shall be spaced at 1/2 inch centers.

3.13.2 Type MA-2 and MA-3. The slates or strips shall be 1/2 by 1 1/2 inches and shall be spaced on 1 inch centers.

3.13.3 The slatted wooden grilles shall be fabricated from maple. They shall conform to the contour of the tank. The length and width of the grille shall be within 1 inch of the internal dimensions of the tank.

3.14 Voltage. The line operating voltage shall be as specified by the procuring activity, normally either 220V or 440V. The heater elements shall be the only components to operate directly from the line voltage. A transformer system shall be built into the equipment so as to supply 110V - 120V power for the operation of the main panel controls on all equipment.

3.15 Wiring and insulation. Wiring, insulation and electrical components shall be installed in accordance with the National Electrical Code requirements for general purpose electrical equipment. All electrical components, both equipment and circuits, shall meet the applicable requirements of the Underwriters' Laboratories, Inc., the National Electrical Manufacturers Association, and the American Standards Association. No wiring, either bare or insulated, shall be exposed except at low voltage terminals. All wiring, contacts, switches, instruments, and other electrical devices shall be entirely suitable for the rated electrical capacity of the equipment. All control circuit wires shall be properly identified and the identification of each wire shall be affixed at or near the terminals.

3.16 Receptacles. Receptacles shall be provided where specified and shall be fitted so as to protrude no more than 1/4 inch from the surface of the panel mount. They shall be of the standard 250V, 10 ampere plug type.

3.17 Controls. Each pump, black light, white light, and exhaust fan shall operate independently of any other similar unit and shall have a separate control or switch. Each line control and heater or dryer control shall be equipped with an indicator light.

3.18 Fans. Each fan, including dryer, cooler and exhaust fans, shall be 12 inches in diameter and shall operate from a 110V - 120V, single-phase, 60 cycle ac power. The rpm shall be not less than 1250 nor more than 1750. The blades shall be pitched so as to deliver air motion of at least 1000 cfm per fan.

3.19 Pumps. When specified by the procuring activity, pumps shall be provided. The pumps shall be of the self-unloading type and shall not build up a pressure of more than 6 psi on the discharge side. Each pump shall be installed with shutoff valves or stopcocks so as to facilitate removal of or maintenance on the pump without draining the tank. The pumps, including strainers, shall be so designed and built as to preclude stalling or damage from grit, metallic particles, et cetera. They shall be of the direct-drive type, not less than 1/8 hp, and shall operate at not less than 1500 rpm and not more than 2000 rpm, from 110V - 120V 1 phase, 60 cycle ac power. Each pump shall deliver a minimum liquid flow of 8 gallons per minute, and the temperature rise of the motor shall be not more than 55° C above ambient temperature.

3.19.1 The wet developer pumps shall serve to agitate the solution and keep the solids in suspension, as well as to deliver the developer medium to the nozzle of the hand hose.

3.20 Hand hose. Each pump and rinse station shall be furnished with a suitable oil-resistant flexible hose. Unless otherwise specified by the procuring activity, the hose for each station shall be of sufficient length to reach any point 24 inches above the top of the tank. The inside diameter of the hose shall be not less than 5/8 inch and not more than 7/8 inch.

MIL-F-38762 (USAF)

3.20.1 Nozzles. Each hand hose shall be equipped with a nozzle made of corrosion-resistant metal. The nozzles shall have a sprint-operated, lever-type hand valve. Nozzles in the wet developer and penetrant stations shall be of the liquid flow type. Nozzles in the rinse stations shall be of the spray type.

3.20.1.1 Delivery rate of liquid. The delivery rate of the liquid-flow type nozzles shall be not less than 1 1/2 gallons per minute and not more than 3 gallons per minute. The delivery rate of the spray-type nozzles shall be not less than 3 gallons per minute and not more than 6 gallons per minute at 40 psi pressure.

3.21 Black lights. The black lights which are employed to fluoresce the inspection medium shall be built according to MIL-L-9909 (USAF). The line cord shall be at least 8 ft. long. The lights shall be supported on adjustable swivel brackets which shall permit the lights to be directed or aimed toward the part to be inspected. Unless otherwise specified, the lights shall be readily demountable from the adjustable brackets without removing or loosening any fasteners or fixtures.

3.22 Optional automatic rotary wash. When specified, an automatic rotary wash shall be provided to automatically rotate and wash a basket of parts.

3.22.1 Turntable. A turntable of corrosion resistant material shall be centrally mounted in the tank with the center on the center line of the front-to rear dimension. Nozzles shall be incorporated in the tank and so arranged as to spray parts on the turntable from above, below, and at the side.

3.22.1.1 Turntable motor. The turntable motor shall be not less than 1/4 hp, shall be mounted under the drain area, and shall rotate the turntable at not less than 50 rpm and not more than 70 rpm. There shall be no leakage around the turntable axle.

3.22.2 Tank cover. A rigid cover shall be provided for the tank. The cover shall be hinged at the rear of the station, shall remain in an approximate vertical position when open, and shall be constructed so that it can be opened and closed by the operator.

3.22.3 Grille. A stainless steel grille shall be at the same height as, and adjacent to, the turntable to support parts when the automatic rotary wash is not used.

3.22.4 Parts. The parts to be accommodated shall be specified by the procuring activity, and devices shall be provided to center and retain those parts during rotation on the turntable. They shall be thoroughly rinsed during automatic operation, provided the water supply pressure is 35 psi or more. Water consumption shall be not more than 30 gallons per minute at 40 psi pressure.

3.22.5 Sequence of operation. The necessary components shall be incorporated to provide the following sequence of operation for automatic rinsing when initiated by the operator with a push switch: The turntable shall begin rotating; after a pre-set period of time, adjustable from 0.25 second to 3 minutes, the water sprat shall begin automatically; after a pre-set period of time, adjustable from 0.25 second to 3 minutes, the water spray shall stop automatically; after a pre-set period of time, adjustable from 0.25 second to 3 minutes, the turntable shall stop automatically.

3.22.6 Controls. The controls and devices listed below, in addition to any other such items of equipment deemed necessary, shall be provided and shall be mounted on the front of the station below the drain area.

- a. Red "line" pilot light
- b. White "rinse" pilot light
- c. Rinse "start" push switch
- d. Rinse "stop" push switch

- e. Black light "on-off" switch
- f. Spray "on-off" switch

3.22.7 The white "rinse" pilot light shall glow when water spray is on. The rinse "stop" push switch, when pressed, shall stop all operations. The spray "on-off" switch, when "off" shall prevent water spray. When stopped automatically or with the rinse "stop" switch, the turntable shall come to rest within two revolutions.

3.22.8 Baskets. Six round, wire baskets, with handles, made of corrosion resistant material shall be provided. Unless otherwise specified, the baskets shall be 11 inches internal diameter, 4 inches deep and maximum mesh opening of 3/4 inches square.

3.22.9 Miscellaneous equipment. A 2-inch, or larger, pipe connection for draining the tank shall be provided at the lower rear of the component. A 1-inch pipe connection shall be provided at the lower rear of the component to supply water for rinsing. A hand hose as specified in 3.20 with spray nozzle as specified in 3.20.1 shall be provided for manual rinsing. A portable black light conforming to 3.21 shall be provided. Fuses, thermal overload protection, and under-voltage protection shall be provided for the motor. A junction box shall be provided at the rear of the component for electric power connections. Unless otherwise specified, this component shall operate from 110V - 120V, 60-cycle, 1 phase power.

3.23 Interchangeability. All parts having the same manufacturer's part number shall be directly and completely interchangeable with each other with respect to installation and performance. The drawing number requirements of MIL-D-1000 shall govern changes in a manufacturer's part number.

3.24 Color and finish.

3.24.1 All exposed edges of metal and wood shall be contoured and finished so as to minimize injury to clothing and operating personnel.

3.24.2 Steel. Exterior steel surfaces shall be primed with primer conforming to TT-P-664 and finished with enamel as specified in MIL-E-7729, Type I.

3.24.3 Aluminum. Exterior aluminum surfaces shall be primed with primer conforming to MIL-P-8585 and finished with enamel as specified in MIL-E-7729, Type I.

3.24.4 Canopy roofs. Canopy roofs shall be painted dull black.

3.24.5 Color. The color shall be No. 14110, Table VI, FED-STD-595, or as specified by the procuring activity.

3.25 Identification of product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

3.26 Workmanship.

3.26.1 General. The inspection units, including all parts and accessories, shall be fabricated and finished in a workmanlike manner.

3.26.2 Cleaning. The inspection units shall be thoroughly cleaned. Loose, spattered, or excess solder, metal chips, and other foreign material shall be removed during and after final assembly.

4. QUALITY ASSURANCE PROVISIONS

MIL-F-38762 (USAF)

4.1 Classification of tests. The inspection and testing of the inspection units shall be classified as acceptance tests.

4.2 Acceptance tests shall consist of individual tests.

4.2.1 Individual tests. Each inspection unit shall be subjected to all of the tests described under 4.3.

4.2.1.1 Rejection. Inspection units failing to meet the requirements of this specification shall be rejected. Acceptance or approval during the course of manufacture or construction will in no case be construed as a guaranty of the acceptance of the finished product.

4.3 Test methods.

4.3.1 Examination of product. Each inspection unit shall be inspected during manufacture and upon completion to determine compliance with the requirements of the contract and this specification with respect to material, workmanship, dimensions and marking.

4.3.2 Tanks. All tanks shall be penetrant inspected. The penetrant Type MA-3, MIL-I-25135, shall be applied to the interior of the tank on all seams, bends and connections. The developer Type MC-5 or MC-6, MIL-I-25135 shall be applied to the exterior of these seams, bends and connections. All exterior seams, bends and connections shall be inspected under black light for indications of penetrant leakage. Any leakage shall be cause for rejection.

4.3.3 Dryer stations.

4.3.3.1 Temperature rise. The thermostat controlling the dryer cabinet shall be set at 250°F. The dryer shall reach a temperature of 225°F from a room temperature of 70°F in a maximum of 40 minutes. This shall be checked by use of a ASTM-EI Type, or its equivalent, thermometer hung on the thermostat element.

4.3.3.2 Thermostats. After the test for temperature rise has been completed, the thermostat shall be set at 225°F and the dryer cabinet stabilized at this temperature for 1 hour. The thermometer specified in 4.3.3.1 shall then be used to check the temperature at the thermostat element and at three other locations in the dryer cabinet. The thermometer shall remain in each location for 10 minutes, prior to reading the temperature. The average of the four thermometer readings shall be within $\pm 10^\circ\text{F}$ of the thermostat setting.

4.3.3.3 Temperature recovery. The test for temperature recovery shall be conducted after the thermostat test and shall be performed while the temperature of the dryer cabinet is still stabilized. The curtains of the cabinet shall be opened to maximum for 1 minute, then closed. The temperature shall return to 225° within 8 minutes.

4.3.3.4 Air Volume change shall be measured with an anemometer and shall be as specified in 3.8.5.

4.3.4 Pump performance.

4.3.4.1 Liquid flow. the test for liquid flow shall be conducted as follows: Operate the pump in accordance with 3.19 for a period of 1 hour using a sufficient volume of water to prevent pump cavitation. After pump run-in, check static output pressure of the pump by using a pressure gage which has a range of 0 to 10 psi and an accuracy of at least 2 percent of range. The pressure gage shall be graduated in increments of 1/4 pound. The pump flow shall then be determined by measuring the volume of water pumped in 1 minute.

4.3.4.2 Motor temperature. To test motor temperature rise, place an iron constantan thermocouple of wire, no larger than 22-gauge, in intimate contact with the motor housing at or near the center. The thermocouple shall be connected to a potentiometer and the motor shall operate the pump, through which water is flowing, for 1 hour. The potentiometer reading shall then be taken.

4.3.5 Delivery rate of the liquid through the nozzles. The delivery rate of the liquid shall be tested by measuring the amount of liquid passing through the nozzle for period of one minute.

4.3.6 Black light intensity. The test for light intensity shall be made with a Weston Sight Light Meter No. 703, Type 3 (unfiltered), equipped with 10x multiplier disc or equal. The test shall be performed while the portable black light is operating on 110 to 115 volts and shall meet the requirements specified in 3.21.1.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging.

5.1.1 Level A. Inspection units shall be preserved and packaged as individual stations in accordance with MIL-P-116. The dryer stations shall be packaged in accordance with method III. Electric motors, electrical contacts, and removable items which are fragile or susceptible to corrosion shall be dismantled and packaged in accordance with method II and, where possible, shall be fastened in the crate with the major section from which they were removed. Other fragile or movable components remaining in the major section shall be cushioned, braced, and blocked in accordance with MIL-STD-1186. All critical surfaces shall be protected with rust-preventive compound.

5.1.2 Level C. Inspection units shall be preserved and packaged in accordance with the manufacturer's commercial practice.

5.2 Packing.

5.2.1 Level A. Inspection units preserved and packaged to meet 5.1.1 shall be packed in crates conforming to MIL-C-104.

5.2.2 Level C. Inspection units preserved and packaged as specified in 5.1.2 shall be packed to afford protection against damage during direct shipment from the supply source to the first receiving activity for immediate use. Containers shall comply with Consolidated Freight Classification Rules or other common carrier regulations applicable to the mode of transportation.

5.3 Marking. Interior packages and exterior shipping containers shall be marked in accordance with the requirements of MIL-STD-129.

6. NOTES

6.1 Intended use. Inspection units covered by this specification are intended for fluorescent penetrant inspection of parts.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number, and date of this specification.
- b. Type and size of unit required.
- c. Characteristics of electrical current available at agencies.
- d. Type and size of special equipment.
- e. Number and location of pumps.
- f. Color, special.

MIL-F-38762 (USAF)

- g. Number and location of junction boxes.
- h. Selection of applicable levels of preservation and packaging, and packing.

6.3 Superseding.

MIL-I-9445(USAF)
4 November 1957
MIL-F-25104A
24 March 1960

MIL-I-25105 (USAF)
7 March 1955
MIL-I-25106 (USAF)
3 March 1955

Custodian:

Air Force - 67

Preparing Activity:

Air Force - 67

Reviewer:

Air Force - 67

