

INCH-POUND

MIL-S-955D(SH)  
 17 February 1988  
 SUPERSEDING  
 MIL-S-955C(SHIPS)  
 11 November 1964  
 (See 6.6)

## MILITARY SPECIFICATION

## SHOWER HEADS AND OUTFITS (SHIPBOARD USE)

This specification is approved for use within the Naval Sea Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

## 1. SCOPE

1.1 Scope. This specification covers shower heads and outfits for shipboard use.

## 2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

## SPECIFICATIONS

## FEDERAL

L-P-375	- Plastic Film, Flexible, Vinyl Chloride.
QQ-B-637	- Brass, Naval: Rod, Wire, Shapes, Forgings, and Flat Products with Finished Edges (Bar, Flat Wire and Strip).
QQ-C-320	- Chromium Plating (Electrodeposited).
QQ-N-290	- Nickel Plating (Electrodeposited).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 5523, Department of the Navy, Washington, DC 20362-5101 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 4510

DISTRIBUTION STATEMENT A

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## SPECIFICATIONS

## FEDERAL

- WW-P-351 - Pipe; Red Brass, (Copper Alloy No. 230), Seamless Standard Pipe Size, Regular and Extra-Strong.
- PPP-B-566 - Boxes, Folding, Paperboard.
- PPP-B-576 - Boxes, Wood, Cleated, Veneer, Paper Overlaid.
- PPP-B-585 - Boxes, Wood, Wirebound.
- PPP-B-591 - Boxes, Shipping, Fiberboard, Wood-Cleated.
- PPP-B-601 - Boxes, Wood, Cleated-Plywood.
- PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner.
- PPP-B-636 - Boxes, Shipping, Fiberboard.
- PPP-B-640 - Boxes, Fiberboard, Corrugated, Triple-Wall.
- PPP-B-665 - Boxes: Paperboard, Metal Edged and Components.
- PPP-B-676 - Boxes, Set-Up.

## MILITARY

- MIL-P-116 - Preservation, Methods Of.
- MIL-F-1183 - Fittings, Pipe, Cast Bronze, Silver-Brazing.
- MIL-G-16491 - Grommet, Metallic.
- MIL-T-24107 - Tube, Copper (Seamless) (Copper Nos. 102, 103, 108, 120, 122, and 142).

## STANDARDS

## MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.

## FEDERAL

- FED-STD-H28 - Screw-Thread Standards for Federal Services.

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

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted shall be those listed in the issue of the DoDISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- B 61 - Standard Specification for Steam or Valve Bronze Castings. (DoD adopted)
- B 62 - Standard Specification for Composition Bronze or Ounce Metal Castings. (DoD adopted)
- B 568 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Flexible Plastics in a Vertical Position. (DoD adopted)
- B 4066 - Standard Specification for Nylon Injection and Extrusion Materials (PA). (DoD adopted)

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

(Nongovernment standards and other publications are normally available from the organizations which prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

#### 3.1 Materials.

3.1.1 Piping. Piping shall conform to WW-P-351.

3.1.2 Tubing. Tubing shall conform to MIL-T-24107.

3.1.3 Castings. Castings shall be in accordance with the chemical requirements of ASTM B 61 or ASTM B 62, as applicable.

3.1.4 Forgings. Forged parts shall be of Naval brass conforming to the chemical requirements of QQ-B-637.

3.1.5 Threads. Threads for threaded parts shall conform to the applicable requirements of FED-STD-H28.

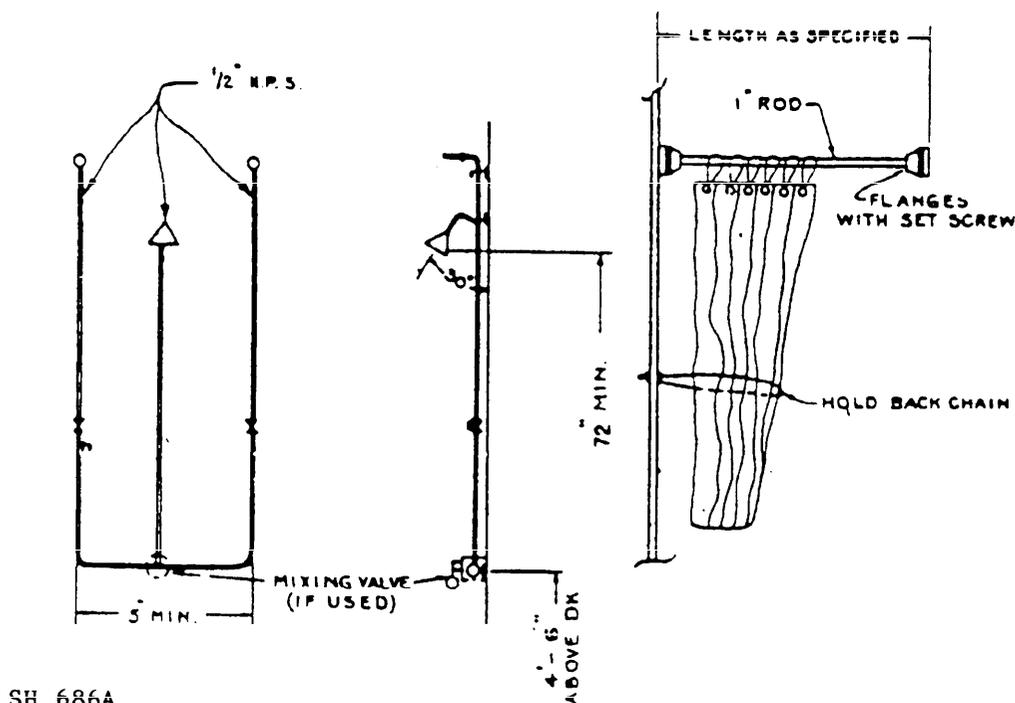
3.1.6 Recovered materials. Unless otherwise specified herein, all equipment, material, and articles incorporated in the products covered by this specification shall be new and may be fabricated using materials produced from recovered materials to the maximum extent practicable without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. None of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification unless otherwise specifically specified.

3.2 Shower outfits. Shower outfits shall be as shown on figure 1 and shall consist of the following parts:

- (a) Shower head.
- (b) Exposed risers and supply pipes.
- (c) Bulkhead supports.
- (d) Compression valves.
- (e) Tees and elbows.

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- (f) Mixing valve (if used).
- (g) Curtain.
- (h) Curtain rings.
- (i) Curtain rod.
- (j) Hold-back hook and chain.



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FIGURE 1. Shower outfits.3.3 Shower heads.

3.3.1 Material. The shower head shall be made of cast, forged, or tubular brass, nickel chrome plated; or of plastic composition in accordance with ASTM B 4066.

3.3.2 Construction. The shower head shall be not more than 2-1/2 inches in diameter. The water pattern may be obtained by aspiration or by drilled and notched face plate or other suitable design. Face plates, if used, shall be not less than 1/8 inch thick, and shall have external lugs, or knurled or slotted knob, or lever handle with shaft assembled through the body to permit adjustment and partial removal of face plate for cleaning. Means shall be provided to limit the movement of the stud to prevent the removal of the face plate. The waterways designed to separate the spray into numerous individual streams shall consist of not less than 24 grooves machined in either the edge of the face plate or plates or the inner wall in way of the adjustable face plate. The shower heads shall have a ball-joint 1/2 inch nominal pipe size (nps) threaded inlet connection to the supply pipe or tubing. Where springs are used and exposed to water they shall be made of phosphor bronze or other corrosion-resisting material. Shower heads which differ in details of construction from that specified shall be approved by the Command or agency concerned.

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3.3.3 Performance. Shower heads give an even conical spray pattern having approximately a 1-1/2 to 2-foot spread in a 6-foot vertical drop under flow conditions specified in 3.3.4.

3.3.4 Flow control fitting. Each shower head shall be provided with a flow control fitting integral with the head. The fitting shall be constructed in such a way as to prevent falling out or being inserted improperly during installation, or causing interference with the threaded connection to the supply pipe. The flow control fitting shall consist of a diaphragm or disc which will automatically change the size of the inlet opening and maintain a constant flow of  $1.7 \pm 0.6$  gallons per minute (gal/min) with gauge pressures varying between 15 and 100 pounds per square inch (lb/in<sup>2</sup>) and temperatures between 80 and 120 degrees Fahrenheit (°F) at the fitting inlet. The inlet connection shall have installed over the flow control fitting a piece of approximately 16 mesh stainless steel or brass screen permanently attached that shall protect the orifice from foreign object plugging, tampering, or removal.

3.4 Piping. The supply piping shall be 1/2 inch nps brass pipe or tubing, nickel chrome plated. The lengths shall be as specified (see 6.2).

3.5 Fittings. Pipe fittings shall be of brass conforming to MIL-F-1183, nickel chrome plated. The kinds and type shall be as specified (see 6.2).

3.6 Valves. Valves shall be of brass, nickel chrome plated, with 1/2 nps silver brazing union ends. Compression valves shall be of heavy pattern, suitable for 100 pounds working pressure, with raised metal seat and removable composition disk, suitable for hot and cold water. Valve stems shall have suitable packing and cross type indexed handle.

3.7 Hand mixing valves. When specified in the contract or order, hand mixing valves shall be supplied. They shall be of brass, heavy pattern and of the compression type. The valves shall deliver not less than 6 gallons of cold, hot, or tempered water per minute, through a pressure range of 50 to 25 lb/in<sup>2</sup>. Mixing valves shall have replaceable seats or valve units. Mixing valves shall admit cold water first. The valves shall have 1/2 inch silver brazing union ends. External surfaces shall be heavily nickel chrome plated. Mixing valves shall be of a type satisfactory to the Command or agency concerned.

3.8 Bulkhead supports. Bulkhead pipe supports shall be of brass, nickel chrome plated.

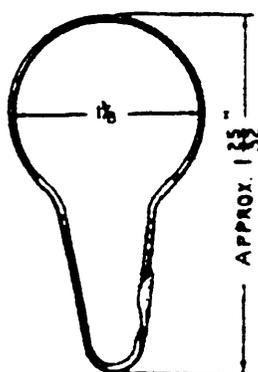
3.9 Curtain. Showers shall be provided with a curtain of vinyl plastic film,  $0.008 \pm 0.0008$ -inch thick, type I, class 1 in accordance with L-P-375. The contractor shall certify in writing that the plastic sheet furnished is a product which is self-extinguishing as determined by ASTM D 568. Such certification shall include actual test, inspection or other verifiable quality data satisfactory to the Command or agency concerned.

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3.9.1 Curtain dimensions. The sides and bottom of the curtain shall have a 1-inch heat sealed hem. The top heading shall be reinforced with an  $0.020 + 0.008$ -inch thick vinyl strip and shall have a  $1\text{-}3/4 + 1/4$ -inch heat sealed hem. Unless otherwise specified in the contract or order, the curtains shall be 72 inches long. Curtain widths shall be suitable for the curtain rod or rail (see 3.11). Curtains shall have the top edge fitted with nickel chrome finish grommets. Grommets shall be type III with spur washer number 2, class 1, conforming to MIL-G-16491 and shall be spaced on 6-inch centers.

3.10 Curtain hooks or rings. Curtain hooks or rings shall be 0.080 inch in diameter (No. 12 AWG) brass wire, nickel chrome plated as shown on figure 2.

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FIGURE 2. Curtain hooks or rings.

3.11 Curtain rod or rail. The curtain rod or rail shall be one-piece or sectional, and of a length to accommodate the installation as specified (see 6.2). The rod shall be of 1-inch diameter nickel chrome plated tubing having a wall thickness not less than 0.045 inch. The tubing shall be in accordance with the chemical requirements of MIL-T-24107. Mounting flanges of cast, forged, or wrought brass, nickel chrome plated, suitable for attachment to bulkhead or stanchion, shall be provided as specified (see 6.2).

3.12 Hold-back hook and chain. Showers shall be provided with a nickel-chrome plated hold-back hook and chain that shall hold the curtain in folded position when not in use.

3.13 Plating. Except as otherwise specified herein, plating shall be applied as required to surfaces normally visible including exposed bolts, nuts and screws. Minimum thickness of plating shall conform to grade C of QQ-N-290 and class 1, type I of QQ-C-320.

3.14 Workmanship. The workmanship shall be first class in every respect. The shower assembly components shall be free from any defects or blemishes that may affect their appearance or serviceability.

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## 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.2 Quality conformance inspection.

4.2.1 Lot. All shower heads or outfits offered for delivery at one time shall be considered a lot for purposes of inspection. All outfits shall consist of items which have come from the same source.

4.2.2 Sampling.

4.2.2.1 Sampling for examination. A random sample of shower heads or outfits shall be selected from each lot in accordance with inspection level I of MIL-STD-105. The acceptable quality level shall be 1.5 percent defective.

4.2.2.2 Sampling for performance test. A random sample of shower heads or outfits shall be selected from each lot in accordance with inspection level I of MIL-STD-105.

4.2.3 Examination. Each of the sample shower heads or outfits selected in accordance with 4.2.2.1 shall be examined to verify compliance with all of the requirements of this specification not involving tests. Examination shall be conducted as specified in table I. Any sample containing one or more defects shall not be offered for delivery. If the number of defective samples exceeds the acceptance number for that sample, the lot represented by the sample shall not be offered for delivery.

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TABLE I. Classification of defects.

Categories	Defects
Critical	
1	Hand mixing valve (if used) does not admit cold water first.
Major:	
101	Outfit not complete; component parts missing.
102	Evidence of use of unauthorized materials.
103	Exposed surfaces not plated; plating not type specified; evidence of peeling, incomplete or uncoated areas; not smooth.
104	Shower head diameter nonconforming.
105	Face plate (if used) thickness less than specified minimum.
106	Assembly, to permit adjustment, nonconforming; external lugs, knob or handle not provided.
107	Movement of stud not limited; face plate removable.
108	Spray separation waterways not provided; number of grooves less than minimum.
109	Shower head not fitted with ball joint supply connection; size nonconforming.
110	Mixing valve (if used) not type, pattern specified; does not have replaceable seats or valve units; union ends nonconforming.
111	Piping and fittings nonconforming.
112	Valves nonconforming; not type, pattern specified; seat, discs, handles nonconforming; stems not packed.
113	Burrs, sharp edges not removed.
Minor:	
201	Curtain not length, width not suitable; top edges not provided with specified grommets; grommet nonconforming; hold back hook and chain not provided.
202	Curtain hook diameter not as specified; hook configuration not in accordance with approved figure.
203	Curtain rod length, diameter and wall thickness nonconforming.
204	Bulkhead pipe supports not provided.

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4.2.4 Tests.

4.2.4.1 Performance. Each of the sample shower heads or outfits selected in accordance with 4.2.2.2 shall be assembled and tested to determine conformance with 3.3.3 and 3.3.4.

4.2.4.2 Possible test failures. Possible performance test failures are defined as follows:

- (a) Shower spread not as required.
- (b) Flow control fitting does not maintain correct flow at varying pressures.

4.2.4.3 If any item in the sample fails any test the lot represented by the sample shall not be offered for delivery.

4.3 Inspection of packaging. Sample packages and packs, and the inspection of the preservation-packaging, packing and marking for shipment and storage shall be in accordance with the requirements of section 5 and the documents specified therein.

## 5. PACKAGING

(The packaging requirements specified herein apply only for direct Government acquisition. For the extent of applicability of the packaging requirements of referenced documents listed in section 2, see 6.3.)

5.1 Packaging. Packaging shall be level A or C as specified (see 6.2).

5.1.1 Level A. Each complete outfit shall be unit protected and packaged in accordance with method III of MIL-P-116 as follows:

- (a) Shower heads, valves, hardware, supports, curtain rings and hold back hooks and chains shall be separately packaged in folding or set-up paperboard boxes conforming to PPP-B-566, PPP-B-665 or PPP-B-676 at the option of the contractor. Box closure shall be as specified in the applicable box specification or appendix thereto.
- (b) Curtains shall be folded and enclosed in heat sealed transparent plastic bags.
- (c) Piping and rods shall be securely bundled together by means of pressure sensitive tape.

5.1.1.1 Each complete outfit shall be placed in a fiberboard box conforming to PPP-B-636. Fiberboard die-cuts, separators, supports or other devices shall be provided to accomplish a snug fitting package and to prevent damage from handling and shipment.

5.1.2 Level C. Packaging shall afford adequate protection against corrosion, deterioration and physical damage during shipment from the supply source to the using activity until early installation and may conform to the contractor's commercial practice when such meets these requirements.

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

5.2.1 Level A. Shower outfits, packaged as specified in 5.1.1 shall be packed in containers conforming to any one of the following specifications at the option of the contractor:

<u>Specification</u>	<u>Classification</u>
PPP-B-576	Class 2
PPP-B-585	Class 3
PPP-B-591	Class II
PPP-B-601	Overseas type
PPP-B-621	Class 2
PPP-B-640	Class 2

All center and edge seams and manufacturer's joint of fiberboard boxes (PPP-B-640) shall be sealed with tape in accordance with the appendix to PPP-B-640. Shipping container closure and strapping shall be in accordance with the applicable box specification or appendix thereto. The gross weight of wood or wood-created boxes shall not exceed 200 pounds; fiberboard boxes shall not exceed the weight limitations of the fiberboard box specification. When specified, unit fiberboard boxes (see 5.1.1.1) conforming to weather resistant class and closed, waterproofed with tape, and banded in accordance with the appendix to the fiberboard box specification may be used as the shipping container.

5.2.2 Level B. Shower outfits, packaged as specified shall be packed in containers conforming to any one of the following specifications at the option of the contractor:

<u>Specification</u>	<u>Classification</u>
PPP-B-576	Class 1
PPP-B-585	Class 1 or 2
PPP-B-591	Class 1
PPP-B-601	Domestic type
PPP-B-621	Class 1
PPP-B-640	Class 1

Box closure shall be as specified in the applicable box specification or appendix thereto. The gross weight of wood or wood-created boxes shall not exceed 200 pounds; fiberboard boxes shall not exceed the weight limitations of the fiberboard box specification. When specified, fiberboard boxes (see 5.1.1.1) closed in accordance with the appendix to the fiberboard box specification may be used as the shipping container.

5.3 Marking. In addition to any special marking required by the contract or order, interior packages and exterior, shipping containers shall be marked for shipment in accordance with MIL-STD-129.

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## 6. NOTES

6.1 Intended use. The shower heads and outfits covered under this specification are intended for shipboard use.

6.2 Ordering data. Acquisition documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Length of piping required (see 3.4).
- (c) Kinds and type of fittings required (see 3.5).
- (d) Whether curtain rods should be one piece or sectional and length required (see 3.11).
- (e) Mounting flanges required (see 3.11).
- (f) Levels of preservation, packaging, packing and marking (see 5.1 and 5.2).

6.3 Sub-contracted material and parts. The packaging requirements of referenced documents listed in section 2 do not apply when material and parts are acquired by the contractor for incorporation into the equipment and lose their separate identity when the equipment is shipped.

6.4 Provisioning. Provisioning Technical Documentation (PTD), spare parts, and repair parts should be furnished as specified in the contract.

6.4.1 When ordering spare parts or repair parts for the equipment covered by this specification, the contract should state that such spare parts and repair parts should meet the same requirements and quality assurance provisions as the parts used in the manufacture of the equipment. Packaging for such parts should also be specified.

6.5 Subject term (key word) listing.

Curtain  
Flow control fitting  
Hand mixing valves  
Supply pressure

6.6 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Preparing activity:  
Navy - SH  
(Project 4510-N003)

**INSTRUCTIONS:** In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

**NOTE:** This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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DEPARTMENT OF THE NAVY

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DEPARTMENT OF THE NAVY  
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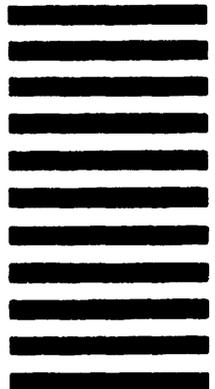
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## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

*(See Instructions - Reverse Side)*

1. DOCUMENT NUMBER MIL-S-955D(SH)		2. DOCUMENT TITLE SHOWER HEADS AND OUTFITS (SHIPBOARD USE)	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION <i>(Mark one)</i>	
b. ADDRESS <i>(Street, City, State, ZIP Code)</i>		<input type="checkbox"/> VENDOR	
		<input type="checkbox"/> USER	
		<input type="checkbox"/> MANUFACTURER	
		<input type="checkbox"/> OTHER <i>(Specify):</i> _____	
5. PROBLEM AREAS			
a. Paragraph Number and Wording:			
b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
6. REMARKS			
7a. NAME OF SUBMITTER <i>(Last, First, MI) - Optional</i>		b. WORK TELEPHONE NUMBER <i>(Include Area Code) - Optional</i>	
c. MAILING ADDRESS <i>(Street, City, State, ZIP Code) - Optional</i>		8. DATE OF SUBMISSION (YYMMDD)	