INCH-POUND
MIL-C-17944A(SH)
27 January 1992
SUPERSEDING
MIL-C-17944(SHIPS)
30 April 1954
(See 6.8)

MILITARY SPECIFICATION
CAPSTANS, ELECTRIC (FOR SHIPBOARD USE)

This specification is approved for use by 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 electric capstans for use on Naval ships.

1.2 Classification. Capstans are of the following classes, as specified (see 6.2):

Class 1. Capstan head mounted on weather deck with motor and gear reduction mounted on deck below.
Class 2. Capstan head mounted on weather deck with motor and gear reduction mounted below deck in underhung position.
Class 3. Capstan head, gear reduction, and motor mounted on weather deck.

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 55Z3, 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 3950

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

FF-B-171	- Bearings, Ball, Annular (General Purpose).
FF-B-185	- Bearings, Roller, Cylindrical; and Bearings, Roller, Self-Aligning.
FF-B-187	- Bearing, Roller, Tapered.
FF-S-85	- Screw, Cap, Slotted and Hexagon Head.
FF-S-86	- Screw, Cap, Socket-Head.
FF-S-92	- Screw, Machine: Slotted, Cross-Recessed or Hexagon Head.
FF-S-107	- Screws, Tapping and Drive.
FF-S-200	- Setscrews: Hexagon Socket and Spline Socket, Headless.
FF-S-210	- Setscrews: Square Head (Inch) and Slotted Headless (Inch and Metric).
HH-L-361	- Lining, Brake; and Lining Material, Brake: Automotive.
QQ-C-390	- Copper Alloy Castings (Including Cast Bar).
TT-E-490	- Enamel, Silicone Alkyd Copolymer, Semigloss (For Exterior and Interior Non-Residential Use).
TT-E-781	- Ethylene Glycol Monoethyl Ether, Technical.
PPP-F-320	- Fiberboard: Corrugated and Solid, Sheet Stock (Container Grade), and Cut Shapes.

MILITARY

MIL-S-1222	- Studs, Bolts, Hex Cap Screws, Socket Head Cap Screws and Nuts.
MIL-C-2212	- Contactors and Controllers, Electric Motor A.C. or D.C., and Associated Switching Devices.
MIL-M-3184	- Machinery: Deck and Vehicle Mounted with Associated Equipment and Provisioned (Repair Parts) Items; Packaging of.
MIL-F-3541	- Fittings, Lubrication, General Specification for.
MIL-P-15024	- Plates, Tags and Bands for Identification of Equipment.
MIL-P-15024/5	- Plates, Identification.
MIL-B-16392	- Brakes, Magnet, Naval Shipboard.
MIL-M-17060	- Motors, 60-Hertz, Alternating Current, Integral - Horsepower, Shipboard Use.
MIL-M-17413	- Motors, Direct Current, Integral H.P., Naval Shipboard.
MIL-L-19140	- Lumber and Plywood, Fire-Retardant Treated.

MILITARY (Continued)

MIL-S-22698 - Steel Plate, Shapes and Bars, Weldable Ordinary Strength and Higher Strength: Structural.
MIL-P-24441 - Paint, Epoxy-Polyamide General Specification for.
MIL-P-24441/1 - Paint, Epoxy-Polyamide, Green Primer, Formula 150, Type I.
MIL-P-24441/3 - Paint, Epoxy-Polyamide, Topcoat, White, Formula 152, Type I.
MIL-C-24707 - Castings, Ferrous, General Specification for.
MIL-C-24707/1 - Castings, Ferrous for Machinery and Structural Applications.
MIL-C-24707/5 - Castings, Ductile Iron and Austenitic Ductile Iron.

STANDARDS

FEDERAL

FED-STD-H28 - Screw-Thread Standards for Federal Services.
FED-STD-595 - Colors Used in Government Procurement.

MILITARY

MIL-STD-130 - Identification Marking of U.S. Military Property.
MIL-STD-278 - Welding and Casting Standard.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, BLDG. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DRAWINGS

NAVAL SEA SYSTEMS COMMAND (NAVSEA)

805-860303 - Capstan and Gypsy Head, Tabulation of Sizes.

(Application for copies should be addressed to: Commander, Portsmouth Naval Shipyard, Code 202.2, Portsmouth, NH 03801.)

PUBLICATIONS

NAVAL SEA SYSTEMS COMMAND (NAVSEA)

S9086-VD-STM-000 - Chapter 631: Preservation of Ships in Service (Surface Preparation and Painting).

(Application for copies should be addressed to the Standardization Documents Order Desk, BLDG. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Non-Government publications. The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN GEAR MANUFACTURER'S ASSOCIATION (AGMA)
Standards.

(Application for copies should be addressed to the American Gear Manufacturer's Association, 1500 King Street, Suite 201, Alexandria, VA 22314.)

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
B 46.1 - Surface Texture (Surface Roughness, Waviness, and Lay). (DoD adopted)

(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)
A 27 - Standard Specification for Steel Castings, Carbon, for General Application. (DoD adopted).
A 131 - Standard Specification for Structural Steel for Ships.
A 148 - Standard Specification for Steel Castings, High Strength, for Structural Purposes. (DoD adopted).
A 668 - Standard Specification for Steel Forgings, Carbon and Alloy, for General Industrial Use. (DoD adopted).
D 1640 - Standard Test Methods for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature. (DoD adopted)

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

STEEL STRUCTURES PAINTING COUNCIL (SSPC)
SP 5 - Surface Preparation Specification No. 5 - White Metal Blasting Cleaning. (DoD adopted)

(Application for copies should be addressed to the Steel Structures Painting Council, 4400 Fifth Avenue, Pittsburgh, PA 15213.)

(Non-Government standards and other publications are normally available from the organizations that 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 document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Material. Material shall conform to the following requirements as applicable:

(a) Forged steel shall be in accordance with ASTM A 668, grade D.
(b) Cast steel shall be in accordance with MIL-C-24707, MIL-C-24707/1, ASTM A 27, or ASTM A 148.
(c) Structural steel components shall be in accordance with MIL-S-22698, Grade DH36 or ASTM A 131.
(d) Cast iron shall be in accordance with MIL-C-24707/5. Cast iron shall not be used for fabrication of the capstan head.
(e) Copper alloy castings shall be in accordance with QQ-C-390, alloy 865 or 923.

3.1.2 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 Construction. Each capstan shall consist of a capstan head, shaft, gear reduction, electric motor, controller, electric brake, and all operating accessories necessary for operation independent of anything except power leads (see 6.3).

3.2.1 Capstan arrangements. The capstan arrangement shall be of the class specified (see 1.2). It shall provide for clear leads of mooring and warping lines at all working angles to be handled by the capstan head. Unless otherwise specified, pawls will not be required (see 6.2). Construction of the capstan shall be such as to eliminate hazards of exposed parts becoming inoperative due to frequent soaking by salt spray and extreme atmospheric conditions occurring on the weather deck of the vessel. Where capstan shafts pass through a deck, provision shall be made to obtain thorough watertightness. Flexible couplings or slip joints shall be provided as necessary to compensate for deck deflections.

3.2.2 Welding. Welded fabrication properly made and stress relieved is acceptable in lieu of castings. Fabrication, welding, and inspection shall be in accordance with MIL-STD-278.

3.2.3 Weight. The unit shall be as compact and light as is consistent with adequate strength and rigidity. Full use shall be made of welded construction to obtain lightest weight.

3.2.4 Fasteners. Positive means shall be provided for securing keys, feathers, splines, nuts, screws, and collars to prevent their working loose. The use of setscrews shall be avoided. When setscrews are used, they shall have positive locking devices to prevent their working out. Fasteners shall be in

accordance with MIL-S-1222, FF-S-85, FF-S-86, FF-S-92, FF-S-107, FF-S-200, or FF-S-210. Use of fasteners conforming to ANSI standards is permitted. Fasteners with a nominal diameter of 1/2 inch or less, and exposed with the unit in operating position, shall be of stainless steel material. Screw threads shall be unified, coarse or fine thread series in accordance with FED-STD-H28.

3.2.5 Capstan head. The capstan head shall be proportioned as shown on Drawing 805-860303 in accordance with the capstan head and rope size specified (see 6.2). The wearing surface shall be hardened to a minimum of 350 Brinell. Finished surface of the capstan head in contact with rope shall have surface roughness of 125 microinches or less. Surface roughness shall be as defined in ANSI B46.1.

3.2.6 Gearing. Gearing shall be in accordance with AGMA standards, shall have machine cut teeth, and shall be provided with rugged and ample guards for the protection of personnel and the gears. Gears shall be totally enclosed in an oil-tight case and shall be lubricated by an oil bath. Oil fill, drain, and vent fitting shall be provided. Housings containing gears shall be provided with oil-tight covered openings in sufficient number to allow visual examination of the teeth on all gears. Such openings shall expose to view at least two gear teeth at a time. The opening shall permit viewing the mesh between gears, if practical. A dipstick, sightglass or plug shall be provided for indicating the oil level. Dipsticks shall be marked to indicate "full" and "add oil".

3.2.7 Bearings. Anti-friction bearings, in accordance with FF-B-171, FF-B-185, or FF-B-187, as applicable, shall be used throughout, if practicable, and where not practicable, bronze bushings shall be used. Where bronze bushings are used, positive means shall be provided to prevent the bushing from turning and cutting off the supply of lubricant. Each bearing, except those lubricated by an oil bath, shall be fitted with pressure type grease fittings in accordance with type I, III, IV of MIL-F-3541.

3.2.8 Bedplates. The bedplates shall be of adequate strength to maintain alignment without aid from the deck foundations. The hold-down bolt spacing shall in general not exceed 15 times the bolt diameter, and the thickness of the flange at these bolt holes shall be at least equal to the diameter of the bolt used. Foundation bolt holes shall be drilled 1/16 inch small for reaming out at installation to fit body bound bolts. The configuration shall eliminate pockets in which water can stand or collect.

3.2.9 Accessibility. Capstan shafts, gears, bearings, and head shall be constructed to permit inspection, adjustment, or removal without dismantling the entire unit.

3.2.10 Motors. Motors and motor characteristics shall be in accordance with MIL-M-17060 or MIL-M-17413 as specified (see 6.2). One hundred percent of the motor load rating shall not be exceeded under the capstan rated load and speed. Unless otherwise specified (see 6.2), alternating current (ac) electric capstans shall be powered by two-speed alternating current motors rated at full and one-half speeds and constant horsepower.

3.2.11 Motor controllers. Controllers and master switches shall be in accordance with MIL-C-2212 as specified (see 6.2). An emergency run feature shall be provided in the control. Master switches shall be spring return to "off" and shall be deck mounted as near as practicable to the capstan they control without jeopardizing the safety of the operator from synthetic line snapbacks. For direct current capstans, the control shall provide at least three speeds in both directions of rotation.

3.2.12 Electric brake. Brakes shall be in accordance with MIL-B-16392 as specified (see 6.2). Brake shall be capable of stopping and holding within 3 feet the capstan with 150 percent rated line pull. Brake linings shall be in accordance with HH-L-361 of non-asbestos material.

3.3 Painting and preservation procedure. Machinery and equipment shall be painted and preserved as specified herein, unless otherwise specified in referenced specifications. Unless otherwise specified (see 6.2), interior surfaces not intended to remain bright shall be painted in accordance with 3.3.1(a) through 3.3.1(c). Equipment shall be painted in ambient conditions as follows: air surface temperature between 50 and 100 degrees Fahrenheit (°F), and relative humidity not greater than 80 percent.

3.3.1 Painting procedures for steel and iron surfaces. Painting procedures for steel and iron surfaces shall be as follows:

(a) Mask all surfaces not to be painted. Unless otherwise specified (see 6.2), these areas include: bearing surfaces that are required to move with respect to each other, such as threads, bearings, pins, and slides; mating surfaces relating to component alignment, proper seating and mounting, such as counter bores and keyways; non-metallic surfaces, such as rubber and plastic; and all press force, drive, and slip fits.

(b) Sandblast to white metal in accordance with SSPC SP 5. Blast to achieve a paint anchor surface profile of 1 to 2-1/2 mils (25 to 65 micrometers).

(c) Within 2 hours of sandblasting, and while white metal conditions as defined above still exist, apply one coat, 2 to 4 mils dry film thickness, of self-cure type solvent base inorganic zinc silicate primer in accordance with NAVSEA S9086-VD-STM-000, chapter 631, applicable to surface ships, paint systems for exterior, vertical, and horizontal surfaces above boottopping.

(d) Apply two coats of formula 150 (green) epoxy paint in accordance with MIL-P-24441 and MIL-P-24441/1. Mixing shall be in accordance with the paint manufacturer's instructions. The first coat shall be a mist coat to fill the porosity in the zinc silicate. The mist coat only or equal shall be thinned 10 to 15 percent with ethylene glycol monoethyl ether (Cellosolve) thinner in accordance with TT-E-781 and applied to a wet film thickness of 1 to 2 mils. The second coat shall be applied when the first coat is between the condition "dry to recoat" and "tack-free" as defined in ASTM D 1640 (but in no case longer than 24 hours) and shall be applied to a dry film thickness of 2 to 4 mils.

(e) Apply two coats of color no. 26270 (navy-haze-gray in accordance with FED-STD-595) silicone alkyd enamel conforming to TT-E-490. The first coat shall be applied when the last coat of formula 150 is between the condition "dry to recoat" and "tack-free" as defined in ASTM D 1640. The enamel shall be applied to a dry film thickness of 1 mil minimum per coat.

3.3.2 Painting procedures for gear oil ferrous surfaces. Painting procedures for gear oil ferrous surfaces shall be as follows:

(a) Sandblast to white metal in accordance with SSPC SP 5. Blast to achieve a paint anchor surface profile of 1 to 2 mils (25 to 65 micrometers).
(b) Mask all surfaces not to be painted. Unless otherwise specified (see 6.2), these areas include: bearing surfaces that are required to move with respect to each other, such as threads, bearings, pins, and slides; mating surfaces relating to component alignment, proper scaling and mounting, such as counter bores and keyways; non-metallic surfaces, such as rubber and plastic; and all press force, drive, and slip fits.
(c) Within 2 hours of sandblasting and while white metal conditions as defined in (a) above still exist, apply one coat of formula 150 (green) epoxy paint in accordance with MIL-P-24441/1 to a dry film thickness of 2 to 4 mils.
(d) Apply two coats of formula 152 (white) epoxy paint in accordance with MIL-P-24441/3 to a dry film thickness of 2 to 4 mils. Each coat shall be applied when the preceding coat is between the condition "dry to recoat" and "tack-free" as defined in ASTM D 1640.

3.3.3 Painting procedures for external surface touch-up. Painting procedures for external surface touch-up shall be as follows.

(a) Unless otherwise specified (see 6.2) areas to be touched-up include all chipped and scratched painted external surfaces. Prepare surfaces to be touched up by thorough solvent cleaning and sanding with 100-grit sandpaper to roughen surface and feather edges. Mask surfaces shall not be painted. Apply one coat of formula 150 (green) epoxy paint in accordance with MIL-P-24441/1 to a wet film thickness of 2 mils minimum. Follow mixing in accordance with instructions of the paint manufacturer.
(b) Apply one coat of haze-gray silicone alkyd enamel conforming to TT-E-490 when the formula 150 (green) epoxy paint is between the condition "dry to recoat" and "tack-free" as defined in ASTM D 1640. The haze gray enamel shall be applied to a dry film thickness of 1-1/2 mils minimum.
(c) Solvent clean and thoroughly dry all previously painted surfaces of the unit, part, or assembly. Mask all previously unpainted surfaces, including label plates.
(d) Apply one coat of haze-gray silicone alkyd enamel in accordance with TT-E-490, to a dry film thickness of 1-1/2 mils minimum.

3.4 Capstan performance. Capstan performance requirements shall be as specified herein and in the contract on order (see 6.2). Capstans shall be of the reversible type and shall be operable and develop specified line pulls and speeds in both directions of rotation. The installed capstan head, shafting, bearings, gears, and bedplate shall withstand a static load equal to the minimum breaking strength of the specified size rope applied as a bitt to the capstan head at its midheight and normal to its axis. Each part of the capstan shall withstand a torque causing slippage of the brake or stalling of the driving machinery, whichever is greater. This torque and the static load shall not be considered to act simultaneously.

3.5 Identification plates. Identification plates and other designated marking plates shall be in accordance with MIL-P-15024 and MIL-P-15024/5. Plates, including operating and lubrication charts exposed to the weather, shall be fabricated from corrosion-resistant steel, and shall be type A, B, or C. Charts shall be mounted by being fully bedded with adhesive and attached with corrosion-resistant steel fasteners.

3.5.1 Identification and marking. Identification and marking shall be in accordance with MIL-STD-130.

3.6 Special tools. If specified (see 6.2), a set of special tools necessary for the proper maintenance of the equipment shall be included. Each special tool shall be marked for the service for which it is intended. Markings shall be in accordance with MIL-STD-130. Special tools are defined as those tools not listed in the Federal Supply Catalog (copies of this catalog may be consulted in the office of the Defense Contract Management Area Operations (DCMAO)).

3.7 Allowable stresses.

3.7.1 Under rated conditions specified (see 6.2), the combined stresses in any part shall not exceed 35 percent of the tensile yield point of the ductile materials used for capstans. Rated conditions for these calculations for ac multiple speed drives shall be those for low speed operation.

3.7.2 When the capstan head is subjected to the specified horizontal static load (see 6.2) acting at midheight of the capstan head, through and normal to the axis of the shaft, the combined stresses shall not exceed 70 percent of the tensile yield point in any part of the machine.

3.7.3 When the capstan head is subjected to a pull equal to the stalling torque of the motor the combined stresses shall not exceed 70 percent of the tensile yield point in any part of the machine.

3.8 In stress calculations the following strength relationship shall exist:

Design strength	Percent of tensile yield point
Direct shear	60
Torsional shear	60
Compression (bearing)	160

Other values may be used if substantiated by tests and approved by NAVSEA or agency concerned.

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 (examinations and tests) 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 this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall 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 ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of the manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Test conditions. Unless otherwise specified (see 6.2), all inspections shall be performed in accordance with the test conditions specified herein (see 4.3).

4.3 Quality conformance inspection. Capstans shall be examined and tested as specified in 4.3.1 through 4.3.3 (see 6.3). Tests shall be conducted in ambient conditions.

4.3.1 Examination. Each capstan shall be examined to verify conformance to the requirements of this specification.

4.3.2 Tests at place of manufacture. Capstans shall be subjected to the following tests at the place of manufacture under the observation of the Government inspector:

(a) Each unit shall be run under no load for a period of one-half hour at each speed in each direction and observed to determine that no abnormal heating, wear, or noise shall occur.
(b) One unit shall be selected from each lot offered for delivery and tested at rated load at rated speeds for one-half hour in both directions of rotation. The electric brake shall be tested by stopping and holding within 3 feet the capstan with 150 percent rated line pull.

4.3.3 Shipboard tests. After installation aboard ship, each capstan will be tested as specified in 4.3.2 (a) and (b) to determine conformance to specified requirements. Also, each capstan head shall be tested statically by using the head as a bitt to hold a load equal to the minimum breaking strength of the synthetic rope (see 3.4) for 10 minutes. The capstan driving mechanism shall not be required to raise this static load.

4.4 Inspection of packaging. Sample packs, and the inspection of the preservation, packing, and marking for shipment, stowage, 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 6.5.)

5.1. Preservation, packing, and marking. Equipment shall be preserved level A, C, or commercial; packed level A, B, C, or commercial; as specified and marked (see 6.2), in accordance with MIL-M-3184.

5.1.1 Navy shipboard stowage fire-retardant requirements. For navy acquisitions the following shall apply:

(a) Treated lumber and plywood. Unless otherwise specified (see 6.2), all lumber and plywood including laminated veneer material used in shipping containers and pallet construction, members, blocking, bracing, and reinforcing shall be fire-retardant treated material conforming to MIL-L-19140 as follows:

Levels A and B - Type II - weather resistant.
Category 1 - general use.
Level C - Type I - non-weather resistant.
Category 1 - general use.

(b) Fiberboard. Fiberboard used in the construction of class-domestic, non-weather resistant fiberboard, cleated fiberboard boxes including interior packaging forms shall meet the flame spread index and the specific optic density, requirements of PPP-F-320 and amendments thereto.

5.2 Technical manuals. Technical manuals which accompany shipments shall be packaged in a transparent waterproof plastic bag, minimum four mil thick. Closure shall be by heat sealing. Technical manuals shall not be placed with any flexible sealed barrier enclosing components. The copy(s) of the manual shall be placed in the shipping container housing the main unit. Packing lists shall indicate which container contains the technical manual(s) and shall state the approximate location therein. The manual shall be readily accessible when the container is opened. Technical manuals, when shipped in bulk quantities, shall not be individually wrapped, but shall be packed in accordance with the requirements of the applicable technical manual specifications.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. It is intended that this specification be used for reference in Ship Specifications and for direct reference in contracts or orders for capstans. The intent is to set forth the requirements within which the equipment must operate satisfactorily and reliably.

6.2 Acquisition requirements. Acquisition documents must specify the following:

(a) Title, number, and date of this specification.
(b) Class required (see 1.2).
(c) Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
(d) If pawls are required (see 3.2.1).
(e) Capstan head and rope size (see 3.2.5).
(f) Characteristics of motors (see 3.2.10).
(g) If ac electric capstans are to be powered other than as specified (see 3.2.10).
(h) Characteristics of controllers (see 3.2.11).
(i) Characteristics of brakes (see 3.2.12).
(j) If interior surfaces are to be painted other than as specified (see 3.3).
(k) If areas not to be painted are other than as specified (see 3.3.1 and 3.3.2).
(l) If areas to be touched-up are other than as specified (see 3.3.3).
(m) Performance requirements (see 3.4 and 3.7).

(1) Rated load and line speed.
(2) Maximum load at no specified speed.
(3) Static loaded at midheight of capstan head.

(n) Special tools, if required (see 3.6).
(o) If test conditions are other than as specified (see 4.2).
(p) Preservation, packing, and marking requirements (see 5.1).
(q) Navy fire-retardant requirements (see 5.1.1).

6.3 Consideration of data requirements. The following data requirements should be considered when this specification is applied on a contract. The applicable Data Item Descriptions (DID's) should be reviewed in conjunction with the specific acquisition to ensure that only essential data are requested/provided and that the DID's are tailored to reflect the requirements of the specific acquisition. To ensure correct contractual application of the data requirements, a Contract Data Requirements List (DD Form 1423) must be prepared to obtain the data, except where DoD FAR Supplement 27.475-1 exempts the requirement for a DD Form 1423.

Reference Paragraph	DID Number	DID Title	Suggested Tailoring
3.2	DI-DRPR-81000	Product drawings and associated lists	----
3.2	DI-MISC-80296	Design data and calculations	----
4.3	DI-NDTI-80604	Test report	----

The above DID's were those cleared as of the date of this specification. The current issue of DoD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL), must be researched to ensure that only current, cleared DID's are cited on the DD Form 1423.

6.4 Technical manuals. The requirement for technical manuals should be considered when this specification is applied on a contract. If technical manuals are required, military specifications and standards that have been cleared and listed in DoD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL) must be listed on a separate Contract Data Requirements List (DD Form 1423), which is included as an exhibit to the contract. The technical manuals must be acquired under separate contract line item in the contract.

6.5 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.

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

6.6.1 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.

6.7 Subject term (key word) listing.

Capstan head
Electric brake
Gear reduction
Master switch

6.8 Changes from previous issue. Marginal notations 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 3950-N016)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of 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.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE (YYMMDD)
	MIL-C-17944A(SH)	1992 January 27

3. DOCUMENT TITLE
CAPSTANS ELECTRIC (FOR SHIPBOARD USE)

4. NATURE OF CHANGE *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)*

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	e. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

a. NAME	b. TELEPHONE (Include Area Code)	
Technical Point of Contact(TPOC): Mr. Marion Bartoszyk, SEA 56W23 PLEASE ADDRESS ALL CORRESPONDENCE AS FOLLOWS:	(1) Commercial TPOC: (703) 602-1937	(2) AUTOVON 8-332-1937
c. ADDRESS (Include Zip Code) Commander, Naval Sea Systems Command Department of the Navy (SEA 55Z3) Washington, DC 20362-5101	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	