| INCH-POUND |

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SUPERSEDING
MIL-W-28547B
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FEDERAL SPECIFICATION

WINCHES, DRUM, HAND-OPERATED, SAFETY TYPE, FOR PONTOON BARGES

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

1. SCOPE

1.1 Scope. This specification covers hand-operated winches for use on pontoon barges.

1.2 Classification. Winches shall be of the following types and sizes, as specified (see 6.2).

Type I - Anchor handling

Size 5 - 10,000 pounds working load

Type II - Deck machinery

Size 2 - 4,000 pounds working load

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards 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).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commanding Officer (Code 156), Naval Construction Battalion Center, 621 Pleasant Valley Road, Port Hueneme, CA 93043-4300, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 3950

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

Federal Specifications

RR-W-410 - Wire Rope and Strand
TT-C-490 - Cleaning Methods For Ferrous Surfaces & Pretreatments For Organic Coatings
TT-P-664 - Primer Coating, Alkyd, Corrosion-Inhibiting, Lead & Chromate Free, VOC-Compliant Lacquer-Resisting
PPP-B-601 - Boxes, Wood, Cleated-Plywood
PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner
PPP-B-636 - Boxes, Shipping, Fiberboard

Federal Standard

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

Military Specifications

MIL-P-116 - Preservation and Packaging, Methods of
MIL-S-196 - Support Items, Accessories, & Kits, Mechanical, Packaging of
MIL-P-514 - Plates, Identification, Instruction and Marking Blank

Military Standards

MIL-STD-129 - Marking for Shipment and Storage
MIL-STD-2073-1 - DOD Material Procedures For Development & Application Of Packaging Requirements

(Unless otherwise indicated, copies of federal and military specifications and standards are available from 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 which are current on the date of the solicitation (see 6.2).

ASTM:

A36/A36M - Specification for Structural Steel
D3951 - Practice for Commercial Packaging

(Application for copies should be addressed to ASTM, 1916 Race Street, Philadelphia, PA 19103.)

(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 (except for associated detail specifications, specification sheets or MS standards), the text of this

specification takes precedence. Nothing in this specification, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Description. Winches shall be complete with wire rope installed on the drums, removable drive-nut crank or handwheel, rope end load hook or hook attachment provision, and 4-bolt drilling pattern for mounting, as specified herein.

3.2 First article. When specified (see 6.2), the contractor shall furnish a winch for first article inspection and approval (see 4.2.1 and 6.4).

3.3 Standard commercial product. The equipment shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this specification but which are a part of the manufacturer's standard commercial product, shall be included in the unit being furnished. A standard commercial product is a product which has been sold or is being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs, or brochures, and represents the latest production model(s).

3.4 Materials. Materials used shall be free from defects which would adversely affect the performance or maintainability of individual components or of the overall assembly. Materials not specified herein shall be of the same quality used for the intended purpose in commercial practice. Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this specification are to be new and fabricated using materials produced from recovered materials to the maximum extent possible 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 specified.

3.5 Interchangeability. All parts having the same manufacturer's part number shall be functionally and dimensionally interchangeable, and shall be designed to facilitate maintenance and repair operations.

3.6 Cleaning, treatment, and painting. Unless otherwise specified (see 6.2), surfaces normally painted in good commercial practice shall be cleaned, treated, and painted as specified herein. When specified (see 6.2), the unit shall be cleaned, treated, and painted in accordance with TT-C-490. The color of the finish coat shall be as specified (see 6.2). Surfaces to be painted shall be cleaned and dried to insure that they are free from contaminants such as oil, grease, welding slag and spatter, loose mill scale, water, dirt, corrosion product, or any other contaminating substances. As soon as practicable after cleaning, and before any corrosion product or other contamination can result, the surfaces shall be prepared or treated to insure the adhesion of the coating system. The painting shall be applied to a clean, dry surface as soon as practicable after cleaning and treating. Painting shall be with manufacturer's current materials according to manufacturer's current

processes and the total dry film thickness shall be not less than 2.5 mils over the entire surface. The paint shall be free from runs, sags, orange peel, or other defects.

3.7 Identification marking. An identification plate and a transportation data plate conforming to MIL-P-514 shall be permanently affixed to the winch in a conspicuous place. Plate shall be of nonferrous type.

3.8 Instruction plates. The winch shall be equipped with instruction plates suitably located, describing any special or important procedure to be followed in operating and servicing the equipment. Plates shall be of a material which will last and remain legible for the life of the equipment, and shall be securely affixed thereto with nonferrous screws, bolts, or rivets of not less than 1/8-inch diameter.

3.9 Performance. The rated load shall be lifted smoothly, by application of not more than 15 pounds of continuous force for type II (2-ton capacity winch) to the crank handle in extended position (14 inch handle for type II), or 35 pounds of continuous force for type I (5-ton capacity winch) to the handle in extended position (24 inch handle or 24 inch diameter handwheel for type I). For both winches, except when lowering effort is applied to the crank or handwheel, with 1.25 times the applicable working load suspended, the load shall not free-fall. Application of the handbrake shall bring a falling load suspended by a type I winch to a smooth stop without grab or chatter. Type II winch shall have no noticeable backlash between gear teeth when reversing direction of the handcrank motion without load.

3.10 Design and construction. The winch shall be of steel construction, assembled as a unit. Unless otherwise specified (see 6.2), the base or adaptor frame shall be drilled with four 11/16-inch diameter holes. Bolt spacing shall be 16 inches center-to-center by 11-1/2 inches center-to-center, with the centerline of the winch drum mounted parallel to the long dimension. The base or base frame shall be flat for mounting to the steel deck or platform. Drive shaft ends shall be fitted with a crank or handwheel. Bearing surfaces shall be protected from entrance of water and wind-blown sand. Cranking handgrips shall rotate freely without binding, under normal operating conditions. Drum surfaces shall be smooth. Drum diameter shall be not less than 4 inches. Flange clearance shall be not less than 2 inches, with storage capacity of wire rope wound on, and anchored to the drum. Wire rope shall conform to RR-W-410, type I, class 2, 6 by 19, extra improved plow steel, with characteristics in accordance with table XI. Rope ends shall be seized.

3.10.1 Type I - anchor handling. The type I winch shall have a horizontally mounted drum with wire rope overwind, and shall be complete with not less than 160 feet of 5/8-inch nominal diameter wire rope and a 10,000 pound rated capacity hook attachment provision. The winch shall be provided with either a 2-position crank with adjustments in handle length between 12 and 24 inches, and not less than 2-speed gearing with speed change by replacement of the crank on intermediate gear drive shafts; or a circular handwheel of 24-inch diameter with cranking handgrip 12 inches from the axle, and not less than two speeds with shifting provisions. The gear train shall incorporate an automatic safety-type load lowering brake of the self-energizing type, released only by lowering effort applied to the drive shaft; and a band type handbrake, with locking provision. The automatic brake shall have a ratchet release provision of free

spooling, with control by handbrake application. The automatic load brake shall be designed so that load tension tightens the clutch pressure plate, and controlled downward effort applied to any gear train drive shaft results in controlled downward motion. The automatic brake may be installed in the crank handle in lieu of the gear train. Removal of brake installed handles for shifting shall not result in lost control of the load.

3.10.2 Type II - deck machinery. The type II winch shall have a horizontally mounted drum, with wire rope overwind, and shall be complete with not less than 200 feet of 1/2-inch nominal diameter wire rope and 4,000 pound rated capacity hook attachment provision. The drum shaft shall be keyed to a driven gear. The drive shall have 2-speed gearing with speed change by selection of drive shaft; and a removable one-piece crank, approximately 14 inches long.

3.11 Lubrication. Lubrication means shall be provided for all moving parts requiring lubrication. Pressure lubrication fittings shall not be employed where normal lubrication pressure may damage grease seals or other parts, unless pressure relief is provided. The winch shall be lubricated prior to delivery, and shall be tagged in a conspicuous place to identify the lubricants used and their operating temperature ranges.

3.12 Workmanship.

3.12.1 Steel fabrication. The steel used in fabrication shall be free from kinks, sharp bends, and other conditions which would be deleterious to the finished product. Manufacturing processes shall not reduce the strength of the steel to a value less than intended by the design. Manufacturing processes shall be done neatly and accurately. All bends shall be made by controlled means to insure uniformity of size and shape.

3.12.2 Bolted connections. All bolt holes shall be accurately punched or drilled and shall have the burrs removed. Washers or lockwashers shall be provided. All nuts, bolts, and screws shall be of proper size for their intended holes to prevent movement and shall be torqued tight.

3.12.3 Riveted connections. All rivet holes shall be accurately punched or drilled and shall have the burrs removed. Rivets shall completely fill the hole. Rivet heads shall be of an approved shape and shall be concentric with the rivet. The rivets shall be so fabricated as to develop a joint strength not less than the design value.

3.12.4 Welding. Surfaces to be welded shall be free from foreign matter which would be injurious to the weld. Welding procedures shall be in accordance with a nationally recognized code. Welds shall be of sufficient size and shape to develop the full design strength of the parts connected by the welds. Welds shall transmit imposed stresses without permanent deformation or failure when subjected to proof or service loadings.

3.12.5 Castings. All castings shall be sound and free from patching, misplaced coring, warping, or any other defect which reduces the casting's ability to perform its intended function.

4. QUALITY ASSURANCE PROVISIONS

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

4.2 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).

4.2.1 First article inspection. First article inspection shall be performed on one winch when a first article sample is required (see 3.2). This inspection shall include the examination of 4.3 and the tests of 4.4. The first article may be a standard production item from the supplier's current inventory provided the winch meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining winches to be furnished under the contract.

4.2.2 Quality conformance inspection. This inspection shall include the examination of 4.3, the applicable test of 4.4, and the requirements of 4.5.

4.3 Examination. Each winch shall be examined for compliance with the requirements specified in section 3 of this specification. Any redesign or modification of the supplier's standard product to comply with specified requirements, or any necessary redesign or modification following failure to meet specified requirements, shall receive particular attention for adequacy and suitability. This element of inspection shall encompass all visual examinations and dimensional measurements. Noncompliance with any specified requirements or presence of one or more defects preventing or lessening maximum efficiency shall constitute cause for rejection.

4.4 Tests. Winches shall be tested in accordance with 4.4.1 and 4.4.2 as applicable to the type. All defects shall be corrected. Uncorrectable defects shall be cause for rejection.

4.4.1 First article test. First article winches, when included in the contract (see 3.2), shall be tested for all applicable performance characteristics by use of wire rope rigging arranged to provide rated working load tension, and tested at 1.25 times rated working load tension, as measured between the winch and the first fairlead.

4.4.2 Production winch tests. Production winches and working parts shall be assembly line tested for fit and function. Source and characteristic data as proof of conformance, for materials and items not manufactured by the supplier and for conformance to referenced documents, shall be available to the contracting officer.

4.5 Preparation for delivery inspection. The preservation, packaging, packing, and marking of the winches shall be inspected to verify conformance to the requirements of section 5.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging. Preservation and packaging shall be level A or commercial as specified (see 6.2).

5.1.1 Level A.

5.1.1.1 Disassembly. Disassembly shall be the minimum necessary to protect parts subject to damage or loss, and to accomplish reduction in cube. Removed bolts, nuts, pins, screws and washers shall be reinstalled in mating parts and secured to prevent their loss.

5.1.1.2 Matchmarking. Parts removed and mating parts on the equipment and attachments shall be matchmarked to facilitate reassembly. Parts and accessories removed, and mating parts on the equipment, shall be identified with weatherproof tags attached to mating parts and locations. Markings shall be applied to the tags with a waterproof material.

5.1.1.3 Brake. The brake drum facing shall be coated with a thin film of primer conforming to TT-P-664.

5.1.1.4 Exposed gears. Exposed gears shall be coated with type P-1 preservative, or a thin film of primer conforming to TT-P-664.

5.1.1.5 Service parts. The preservative application criteria and applicable methods of preservation of MIL-P-116 shall be used to preserve service parts. When specified (see 6.2), the service parts shall be preserved in accordance with level A requirements of MIL-S-196, or when parts are not specifically covered in MIL-S-196, requirements in MIL-STD-2073-1 shall be used.

5.1.1.6 Technical publications. Technical publications for each piece of equipment shall be preserved method IC-1 or IC-3.

5.1.1.7 Consolidated packaging. Repair parts, tools, and technical publications shall be packaged in close fitting boxes conforming to PPP-B-636, class weather-resistant.

5.1.2 Commercial. Preservation and packaging shall be in accordance with ASTM D3951.

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

5.2.1 Level A. Each complete winch shall be packed in a box conforming to PPP-B-621, class 2, or PPP-B-601, overseas type. The contents shall be blocked and braced to prevent movement inside the container or damaging of the contents.

5.2.2 Commercial. Packing shall be in accordance with ASTM D3951.

5.3 Marking.

5.3.1 Military agencies. Shipments to military agencies shall be marked in accordance with MIL-STD-129 (see 6.2).

5.3.2 Civil agencies. Shipments to civil agencies shall be marked in accordance with FED-STD-123 (see 6.2).

6. NOTES

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

6.1 Intended use. The winches specified herein are primarily used on pontoon barge assemblies for anchor and miscellaneous cable control, and are usable anywhere that a bolted base mounting can be prepared.

6.2 Acquisition requirements. Acquisition documents should specify the following:

(a) Title, number, and date of this specification
(b) Type and size of winch 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) When a first article is required for inspection and approval (see 3.2, 4.2.1, and 6.4)
(e) When painting shall be other than as specified (see 3.6)
(f) When cleaning, treatment and painting shall conform to TT-C-490 (see 3.6)
(g) Color of finish coat required (see 3.6)
(h) When mounting bolt hole template is other than as specified (see 3.10)
(i) Level of preservation and packaging, and level of packing and marking required (see 5.1, 5.2, and 5.3)
(j) When service parts shall be preserved in accordance with MIL-S-196 or MIL-STD-2073-1 (see 5.1.1.5)
(k) When preservation of service parts is required (see 5.1.1.5)

6.3 Contract data requirements. When this specification is used in a procurement which incorporates a DD Form 1423 and invokes the provisions of paragraph 7-104.9(n) of the Defense Acquisition Regulations (DAR), the data requirements will be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the Contract Data Requirements List (DD Form 1423) incorporated into the contract. When the provisions of DAR 7-104.9(n) are not invoked, the data shall be delivered in accordance with the contract requirements.

6.4 First article. When a first article is required, it shall be tested and approved under the appropriate provisions of paragraph 7-104.55 of the DAR. The first article should be a first production item consisting of one complete winch, or it may be a standard production item from the contractor's current

inventory as specified in 4.2.1. The contracting officer should include specific instructions in procurement instruments, regarding arrangement for examination, tests, and approval of the first article.

6.5 Supersession data. This specification replaces military specification MIL-W-28547B dated 2 March 1981.

6.6 Classification cross reference. Classifications used in this specification (see 1.2) are identical to those found in the superseded military specification, MIL-W-28547B.

6.7 Subject term (key word) listing.

Anchor handling
Deck machinery

MILITARY INTERESTS:

Military Coordinating Activity

Navy - YD

Review Activity

DLA - CS

CIVIL AGENCY COORDINATING ACTIVITIES:

GSA - FSS

PREPARING ACTIVITY:

Navy - YD

(Project 3950-0296)