

OCEAN ENGINEERING DIVISION
UNITED STATES COAST GUARD
WASHINGTON, D.C.

JUNE 2002

SPECIFICATION FOR FABRICATION
OF
BUOY BELL AND GONG TAPPERS

SPECIFICATION NO. 360

REVISION H

1. SCOPE

1.1 Scope. This specification defines the requirements for the fabrication of buoy bell and gong tappers for use on aids to navigation buoys. The items covered by this specification are as follows:

ITEM	NSN
Long Standard Tapper Assembly (Large Ball)	2050-01-025-3527
Short Standard Tapper Assembly (Large Ball)	2050-01-025-3526
Short Standard Tapper Assembly (Small Ball)	2050-01-019-0107
Large Tapper Ball	2050-01-392-0939
Small Tapper Ball	2050-01-391-6302

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are referenced in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification which are recommended for additional information or used as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements cited in sections 3 and 4 of this specification, whether or not the referenced documents are listed here.

2.2 Government Documents. The following documents form a part of this specification to the extent referenced herein. Suffixes denoting the specific issue of each document are omitted from future references to the documents in this specification.

SPECIFICATIONS

MIL-PRF-24647C 24 SEP 2001	Paint System, Anticorrosive and Antifouling, Ship Hull
QPL-24647-6 14 APR 2000	Qualified Products List of Products Qualified Under Military Specification MIL-P-24647, Paint System, Anticorrosive and Antifouling, Ship Hull
DOD-C-24176B (1) 22 AUG 1983	Military Specification, Cement, Epoxy, Metal Repair and Hull Smoothing

2.3 Industry Publications. The following documents of the issues specified form a part of this specification to the extent referenced herein. Suffixes denoting the specific issue of each document will be omitted from future references to the document in this specification.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

A36/A36M-01	Standard Specification for Carbon Structural Steel
A276-02	Standard Specification for Stainless Steel Bars and Plates
A312/A312M-01a	Standard Specification for Seamless and Welded Austenitic Stainless Steel Pipes

A576-90b(2000) Standard Specification for Steel Bars, Carbon, Hot Wrought,
Special Quality

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M Structural Welding Code – Steel
31 AUG 2001

STEEL STRUCTURES PAINTING COUNCIL (SSPC)

SSPC-SP-10 Near White Blast Cleaning
01 SEP 2000

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)

ANSI/ASQC Quality Systems - Model for Quality Assurance in
Q9002-1994 Production, Inspection, and Servicing

2.4 Drawings. The latest revision of the following United States Coast Guard Ocean Engineering drawing forms a part of this specification to the extent referenced herein, and shall be referred to as "the drawing" throughout this specification:

<u>Drawing Number</u>	<u>Title</u>
121159	Standard Buoy Tappers

2.5 Source of Documents. The documents may be obtained from the following sources:

Government Documents.

Standardization Documents Order Desk
Building 4, Section D
700 Robbins Avenue
Philadelphia, PA 19111-5094

Industry Publications.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
1916 Race Street
Philadelphia, PA 19103-1187

AMERICAN WELDING SOCIETY (AWS)
550 NW LeJeune Road
PO Box 351040
Miami, Florida 33135

STEEL STRUCTURES PAINTING COUNCIL (SSPC)
4400 Fifth Avenue
Pittsburgh, PA 15213

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)
310 West Wisconsin Avenue
Milwaukee, Wisconsin 53203

2.6 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 First Article Inspection. When specified (paragraph 6.1), buoy bell and gong tappers shall be subjected to first article inspection in accordance with paragraph 4.3.

3.2 Materials.

3.2.1 Steel Bars, Shapes, and Plates. All steel bars, shapes, and plates shall meet the requirements of ASTM A36, unless otherwise specified.

3.2.2 Stainless Steel.

3.2.2.1 Stainless Steel Rod. All stainless steel rods shall meet the requirements of ASTM A276, type 316 or 316L.

3.2.2.2 Stainless Steel Pipe. All stainless steel pipe shall meet the requirements of ASTM A312, Grade TP316 or TP316L.

3.2.2.3 Stainless Steel Hardware. All stainless steel hardware (nuts, bolts, pins, washers, etc.) shall meet the requirements of ASTM A276, type 316 or 316L.

3.2.3 Wrought Iron. All taper balls shall meet the requirements of ASTM A576.

3.3 Design and Construction.

3.3.1 Design, Dimensions, and Dimensional Tolerances. All items shall conform to the design, dimensions, and tolerances shown in the drawing.

3.3.2 Threads. The threads on all nuts and bolts shall be Unified Course Thread Series (UNC).

3.4 Welding. The plates, bars, rods and other shapes forming the various components of the items shall be fitted and faired prior to being welded in place. All welds shall be performed as indicated on the drawing. Shielded Metal Arc Welding (SMAW), Flux-Cored Arc Welding (FCAW), Gas Metal Arc Welding (GMAW), or Submerged Arc Welding (SAW) shall be used to weld all steel parts. All welding procedures and weld quality shall meet the requirements of AWS D1.1. All welders employed for welding under this specification shall be qualified by the Contractor using procedures which meet the requirements of AWS D1.1.

3.5 Marking.

3.5.1 Identification Marking. For tracking purposes, each item shall be identified by an identification marking. The marking shall be stamped, engraved, or otherwise permanently affixed to each item. The marking shall consist of ½ inch tall block alphanumeric characters and be clearly visible after the items have been painted. The marking shall be of the form 00-XX. The first two digits are the last two digits of the

calendar year built and the last two letters are the Contractor's designation, which will be furnished by the Contracting Officer after contract award.

3.5.2 Serial Number. For inspection purposes, the Contractor shall assign each item a unique serial number. The serial number shall be stamped, engraved, or otherwise permanently affixed to each item. The serial number shall consist of ½ inch tall block alphanumeric characters and be clearly visible after the items have been painted.

3.6 Surface Preparation. Prior to surface preparation, all stainless steel parts shall be protected (i.e. taped, masked, etc). All exterior steel surfaces shall be blast cleaned to near-white metal in accordance with SSPC-SP-10. Prior to painting, all surfaces shall be free of contaminants such as oil, water, grease, dirt, blasting residue, weld spatter, slag, and flash rust.

3.6.1 Epoxy Repair Compound. After all surfaces have been blasted clean, any weld containing porosity shall be filled with an epoxy repair compound meeting the requirements of DOD-C-24176B. The epoxy repair compound shall only be used to fill porosity discontinuities that are within the allowable maximums stated in table 6.1 of AWS D1.1.

3.7 Painting. Prior to painting, all stainless steel parts shall be protected (i.e. taped, masked, etc). The items shall be painted with the coating system outlined below. All painting shall be performed after the items have been cleaned in accordance with paragraph 3.6. All welding, machining, cutting, drilling, forming, or any other operation which would damage the coating system shall be performed prior to painting. The Contractor shall follow the manufacturer's instructions for correct application of the coating system. In addition, the Contractor shall be responsible for implementing appropriate worker safety procedures for the application of the coating system, and for ensuring that the procedures are strictly followed by the paint applicators.

3.7.1 Epoxy primer. All exterior surfaces shall be coated with an epoxy primer. The epoxy primer shall meet the requirements of MIL-P-24647, Type I, Class 1A, Grade A or B, Application 1 or 2, and shall be listed in QPL-24647. The color shall be either haze gray or off-white (manufacturers' standard colors are acceptable). Apply by spraying two coats, 5 mils minimum dry film thickness each. Sharp corners, edges, and other hard-to-coat areas shall be striped before each full coat is applied.

3.8 Documentation.

3.8.1 Quality Assurance Inspection Form. The Contractor shall develop and provide a Quality Assurance Inspection Form (QAIF). The QAIF shall be used to document the inspections and tests performed on every item throughout its fabrication process. The form shall be typewritten on standard (i.e., 8½x11 inch) white paper. Inspection results may be handwritten on the form. The form shall be prepared in the Contractor's format and shall be legible, in English, and suitable for reproduction. The form shall be made available to the Contracting Officer's Technical Representative (COTR) for review.

3.8.1.1 QAIF Content. At a minimum the QAIF shall include:

- a) Item serial number.
- b) Date of test or inspection.
- c) Test or inspection to be performed (list every test and inspection require by section 4.0).
- d) Result of test or inspection.

- e) Accept/Reject criteria for each test or inspection.
- f) Corrective action taken (if any).
- g) Notes.
- h) Initials or signatures of Contractor's test personnel.

3.8.2 Material Certifications. When requested by the COTR, the Contractor shall furnish material certifications, either from the material manufacturers or an independent testing laboratory, to the effect that all of the material described in paragraphs 3.2.1 through 3.2.3 have been tested and found to meet the requirements of the applicable sections of this specification. The material certifications shall be stored by the Contractor for the life of the contract.

3.8.3 Material Inspection and Receiving Report (DD Form 250). A form DD-250 shall be used as a certification of product quality assurance, as a packing list, and as a certification of acceptance. The Contractor shall prepare a separate DD-250 for each shipping lot. Prior to shipment, the DD-250 must be signed by the COTR.

4. VERIFICATION

4.1 General. The Contractor's quality assurance program shall meet the requirements of ANSI/ASQC Q9002. However, the Contractor does not have to be Q9002 certified.

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

- a. First article inspection (paragraph 4.3)
- b. Contractor production inspection (paragraph 4.4)
- c. Coast Guard production inspection (paragraph 4.5)

4.3. First Article Inspection. When first article samples are required (see paragraphs 3.1 and 6.1), the Contractor shall perform a first article inspection in accordance with paragraph 4.6.

4.3.1 First Article Tests and Inspections Notification. The Contractor shall notify the Contracting Officer in writing at least 7 calendar days prior to the scheduled commencement of any inspections and tests required by this specification.

4.3.2 Waiver of First Article Requirements. The Contracting Officer reserves the right to waive all or part of the first article requirements specified herein.

4.3.3 Rejection Criteria. The results of the first article inspection will be reviewed by the Contracting Officer to determine compliance with the requirements of this specification. Failure of any of the tests or inspections described herein will be cause for rejection of the first article. If the first article is rejected, the Contractor will be notified in writing by the Contracting Officer and allowed 14 calendar days to fix or resubmit a new first article. Repair or replacement of the first article shall be by the Contractor at the Contractor's expense.

4.3.4 Authorization to Proceed. Upon successful completion of the first article inspection, the Contracting Officer will provide the Contractor with written authorization to begin fabricating production quantities.

4.3.5 Standardization. Materials, parts, design, and fabrication methods used in the

production quantities shall be identical to those used in the first articles, unless otherwise authorized in writing by the Contracting Officer.

4.4 Contractor Production Inspection. The tests and inspections required by this specification are not intended to supplant any controls, examinations, inspections, or tests normally employed by the Contractor to assure product quality. The Contractor shall perform the tests and inspections specified in paragraph 4.6 to ensure conformance to this specification. The Contractor shall provide space, personnel, and test equipment to conduct all inspection and test requirements.

4.5 Coast Guard Production Inspection. The Coast Guard reserves the right to observe, verify, or perform the tests and inspections outlined in paragraph 4.6.

4.6 Tests and Inspections. The following tests and inspections shall be conducted for each first article unit and subsequent production units:

- a. Visual inspection
- b. Weld inspection
- c. Paint inspection
- c. Documentation review

4.6.1 Visual Inspection. Each item shall be visually inspected for quality of workmanship and conformance to this specification and the drawing. The inspection shall include checks of dimensional conformance, mechanical fit, alignment of parts, and marking.

4.6.2 Weld Inspection. All welds shall be visually inspected for quality in accordance with section 6 of AWS D1.1.

4.6.3 Paint Inspection. The Contractor shall provide written proof that each item was cleaned and painted in accordance with paragraphs 3.6 and 3.7. The Contractor shall check the millage at a minimum of six different locations.

4.6.4 Documentation Review. The documentation required by paragraph 3.8 shall be reviewed for conformance with this specification and provided to the COTR upon request.

4.7 Rejection for Defects. The Coast Guard will reject all items which do not conform to the requirements of this specification. Repair or replacement of the rejected items shall be by the Contractor at the Contractor's expense. All rejected items shall be resubmitted for inspection only when they conform to the requirements of this specification. Resubmitted items shall be identified as such, and shall be kept separate from new items. If defective items are found, no further items will be accepted by the Coast Guard until the Contractor has demonstrated that the defects have been corrected and that the cause of the defects has been eliminated from the production process.

5. PACKAGING.

5.1 Packaging requirements are specified in Section D, Part I, Contract Schedule.

6. NOTES

6.1 First Article Inspection. The type and quantity of first articles required will be listed in Section B, Part I, Contract Schedule. A first article inspection shall be performed by the Contractor and at the Contractor's facility. The first articles shall meet the requirements of this specification and shall pass all the tests and inspections listed in paragraph 4.

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JUNE 2002

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6/10/02