

INCH-POUND

MIL-B-53003B(ME)
 6 April 1993
 SUPERSEDING
 MIL-B-53003A(ME)
 10 January 1984

MILITARY SPECIFICATION

BOAT, BRIDGE ERECTION, TWIN JET, ALUMINUM HULL,
 MODEL US CSB, MK-1 and MK-2

This specification is approved for use within the USA Belvoir Research, Development, and Engineering Center, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification establishes the requirements for manufacture and acceptance of the twin water jet bridge erection boat.

1.2 Classification. Boats acquired under this specification may be of the following types (see 6.2):

- | | |
|---------|--|
| Type I | - Boats with partially closed cooling system, (MK 1, TA13226E0300) |
| Type II | - Boats with totally closed cooling system, (MK 2, TA13226E0450) |

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: USA Belvoir Research, Development, and Engineering Center, ATTN: SATBE-TSE, Fort Belvoir, VA 22060-5606 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 1940

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

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SPECIFICATIONS

FEDERAL

- UU-T-81 - Tags, Shipping and Stock.
- PPP-B-601 - Boxes, Wood, Cleated Plywood.
- PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner.
- PPP-B-636 - Boxes, Shipping, Fiberboard.

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- MIL-P-116 - Preservation Method of.
- MIL-T-704 - Treatment and Painting of Materiel.
- MIL-L-2104 - Lubricating Oil, Internal Combustion Engine, Tactical Service.
- MIL-L-2105 - Lubricating Oil, Gear, Multipurpose (Metric).
- MIL-E-10062 - Engine: Preparation for Shipment and Storage of.
- MIL-G-10924 - Grease, Automotive and Artillery.
- MIL-L-21260 - Lubricating Oil, Internal Combustion Engine, Preservative and Break In.
- MIL-T-83133 - Turbine Fuel, Aviation Kerosene Type, NATO F-34 (J4P-8) and NATO F-25.

STANDARDS

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-889 - Dissimilar Metals.
- MIL-STD-1186 - Cushioning, Anchoring, Bracing, Blocking and Waterproofing; with Appropriate Test Methods.
- MIL-STD-1190 - Minimum Guidelines for Level C Preservation, Packing and Marking.
- MIL-STD-1472 - Human Engineering Design Criteria for Military Systems.
- MS3367 - Strap, Tiedown, Electrical Component, Adjustable, Self-Clinching, Plastic, Type I, Class 1.

(Unless otherwise indicated, copies of federal and military specifications and standards are available from the Standardization Document Order Desk, Building 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 in effect on the date of the solicitation.

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DRAWINGS

ME

- TA13226E0300 - Boat, Bridge Erection, Twin Jet, Aluminum Hull, Model US
CSB, MK 1.
- TA13226E0450 - Boat, Bridge Erection, Twin Jet, Aluminum Hull, Model US
CSB, MK 2.

MANUALS

- TM 5-1940-277-10 - Operator's Manual.
- TM 5-1940-277-20 - Organizational Maintenance Manual.
- TM 5-1940-277-34 - Direct and General Support Maintenance Manual.
- TM 5-2090-202-12 & P - Cradle, Bridge Erection Boat, Twin Water Jet,
Aluminum Hull.

(Copies of drawings and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the USA Belvoir Research, Development, and Engineering Center. ATTN: SATBE-JBS, Fort Belvoir, VA 22060-5606.)

PUBLICATIONS

Federal Regulation 46 CFR 95 - Fire Protection Equipment.

(Copies of Government publications can be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

2.2 Non-Government publications. The following documents 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 WELDING SOCIETY, INC. (AWS)

AWS D1.2 Structural Welding Code - Aluminum

(Application for copies should be addressed to the American Welding Society, Inc., 555 NW 42nd Street, Miami, FL 33126.)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

Boiler and Pressure Vessel Code, Section IX, Qualification Standard for Welding and Brazing Procedures, Welders, Brazers and Welding and Brazing Operators.

(Application for copies should be addressed to the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017.)

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AMERICAN SOCIETY FOR TESTING AND MATERIAL (ASTM)

- D 3951 Packaging, Commercial.
- D 3953 Strapping, Flat Steel and Seals.
- D 4675 Selection and Use of Flat Strapping Materials.

(Application for copies should be addressed to the American Society for Testing and Materials, 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, 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 Description. The boat shall be in accordance with TA13226E0300 or TA13226E0450. The boat shall be diesel powered and have sufficient thrust to enable two boats to safely propel and maneuver a five-bay ribbon bridge raft with a class 60 load across a stream with currents up to 2.50 meters per second. The free running speed of the boat without load shall be approximately 25 statute miles per hour.

3.1.1 Drawings. The drawings forming a part of this specification are end product drawings. No deviation from the prescribed dimensions or tolerances is permissible without prior approval of the contracting officer. Where tolerances could cumulatively result in incorrect fits, the contractor shall provide tolerances within those prescribed on the drawings to ensure correct fit, assembly, and operation of the boat. Any data (e.g., shop drawings, layouts, flow sheets, processing procedures, etc.) prepared by the contractor or obtained from a vendor to support fabrication and manufacture of the production item shall be made available, upon request, for inspection by the contracting officer or the designated representative.

3.2 First article. Unless otherwise specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.3.

3.3 Materials. Materials shall be as specified herein and on the drawings. Materials not specified shall be selected by the contractor, and shall be subject to all provisions of this specification.

3.3.1 Material deterioration prevention and control. The boat shall be fabricated from compatible materials, inherently corrosion resistant or treated to provide protection against the various forms of corrosion and deterioration that may be encountered in any of the applicable operating and storage environments to which the boat may be exposed.

3.3.1.1 Dissimilar metals. Dissimilar metals shall not be used in intimate contact with each other unless protected against galvanic corrosion. Dissimilar metals and methods of protection are defined and detailed in MIL-STD-889.

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3.3.1.2 Identification of materials and finishes. The contractor shall identify the specific material, material finish or treatment for use with component and subcomponent, and shall make information available upon request to the contracting officer or designated representative.

3.3.2 Recovered materials. For the purpose of this requirement, recovered materials are those materials which have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials. The components, pieces and parts incorporated in the boat may be newly fabricated from recovered materials to the maximum extent practicable, provided the boat produced meets all other requirements of this specification. Used, rebuilt or remanufactured components, pieces and parts shall not be incorporated in the boat.

3.3.3 Cleaning, treatment and painting of material. Cleaning, treatment and painting shall be in accordance with MIL-T-704, type G.

3.4 Reliability. When tested as specified in 4.5.2.7, the specified mean-time-between-failure (MTBF) shall be 90 hours.

3.5 Performance. The boat shall be capable of obtaining a horizontal static towline pull of not less than 4,200 pounds forward and 2,200 pounds in reverse at full throttle (maximum engine rpm). The boat shall maintain the pull for 1/2 minute minimum. Under all test conditions specified herein, the coolant temperatures, the engine oil pressure, and any other instrumented function shall be within the ranges specified in the operator's manual. The hull, cooling systems, and fuel systems shall not leak as a result of tests specified herein. All operable features shall function without binding or interference of movement. Under all test conditions specified herein, the boat shall start, run, and stop without any component loosening, failing, or permanently deforming.

3.6 Government-furnished property. When specified (see 6.2), the following property (see table I) in the quantities included will be furnished by the Government (see 6.4):

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TABLE I. Government-furnished property.

Item No.	Description	Identification	Quantity f/ea boat
1	Operation and Maintenance Publication Case	NSN 7520-00-559-9618	1
2	Preservation and De-preservation Guide for Marine Equipment	DA3256	1
3	Operator's Manual, Boat, Bridge Erection, Twin Jet, Aluminum Hull	TM 5-1940-277-10	1
4	Organizational Maintenance Manual for Boat, Bridge Erection, Twin Jet, Aluminum Hull	TM 5-1940-277-20	1
5	Cradle, USCSB	NSN 2090-01-106-9789	1
6	Direct and General Support Maintenance Manual, Boat, Bridge Erection, Twin Jet, Aluminum Hull	TM 5-1940-277-34	1
7	Lubrication Order	LO 5-1940-277-10	1

3.7 Government-loaned property. When specified (see 6.2), the Government will loan to the contractor (see 6.5) the five-bay ribbon bridge components required to perform the rafting test (see 4.5.2.6).

3.8 Workmanship.

3.8.1 Fabrication and assembly requirements. Fabrication and assembly of the boat shall be in accordance with the drawings and specifications. Materials, manufacturing processes, and workmanship used shall provide an end product free of defects.

3.8.2 Welders and welding operators. Welder and welding operators assigned to manual welding work covered by this specification shall be qualified in accordance with AWS D1.1 or the ASME Boiler and Pressure Vessel Code for the materials joined and the type of welding operation to be performed. The contractor is responsible for determining that automatic welding equipment operators are capable of producing quality welds in accordance with AWS and ASME codes (see 6.9).

3.8.3 Safety. All parts shall be clean, free from rust, tool marks, pits and other injurious defects. External surfaces shall be free of burrs, sharp edges and corners except where sharp edges or corners are required or where they are not

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detrimental to safety. All moving parts, hot surfaces and live electrical parts, which are exposed during operation and maintenance, shall be guarded, insulated or covered to prevent fire hazards and injury to personnel.

3.9 Human factors engineering. The boat shall conform with applicable portions of MIL-STD-1472.

3.10 Fire protection equipment. The boat shall conform with applicable portions of 46 CFR 95, about fixed fire extinguishing system and hand portable fire extinguisher and semiportable fire extinguishing system.

3.11 Engine. The boat shall be furnished with an engine capable of operating on diesel fuel conforming to VV-F-800 (DF-2); turbine fuel conforming to MIL-T-83133 (JP-8); and lubricating oil conforming to MIL-L-2104.

3.12 Lubrication. Lubrication means shall be provided for all moving parts that require lubrication, except where sealed permanent lubricant is provided. Each boat shall be serviced and run-in with applicable lubricants conforming to MIL-L-2104, MIL-G-10924, and MIL-L-2105.

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 the specification when such inspections are deemed necessary to ensure 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 ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of 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 acceptance of defective material.

4.1.2 Component and material inspection. The contractor is responsible for ensuring that components and materials used are manufactured, examined, and tested in accordance with referenced specifications, standards, and drawings, as applicable.

4.2 Classification of inspections. Inspections are classified as follows:

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).
- c. Inspection of packaging (see 4.6).

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4.3 First article inspection.

4.3.1 Examination. Two first article boats shall be examined as specified in 4.5.1 and table II. The presence of one or more defects shall be cause for rejection.

4.3.2 Tests. Two first article boats shall be tested as specified in 4.5.2.1 through 4.5.2.7. Failure of any test shall be cause for rejection.

4.4 Quality conformance inspection.

4.4.1 Examination. Each boat shall be examined as specified in 4.5.1 and table II. The presence of one or more defects shall be cause for rejection.

4.4.2 Tests.

4.4.2.1 Sampling. The sample size for tests specified in 4.5.2.1 through 4.5.2.7 shall be determined by using MIL-STD-105, table I and table IIa. A lot shall be accepted when zero defects are found and rejected when one or more defects are found.

TABLE II. Test schedule.

FIRST ARTICLE	QUALITY CONFORMANCE	TEST	TEST PARAGRAPH
X	X	Docking	4.5.2.2
X	X	Operation	4.5.2.3
X	X	Endurance <u>1/</u>	4.5.2.4
X	X	Thrust Measurement	4.5.2.5
X		Rafting	4.5.2.6
X		Reliability <u>2/</u>	4.5.2.7

1/ Operation time for tests 4.5.2.2, 4.5.2.3 and 4.5.2.5 will be included in the endurance time.

2/ All operating time for tests 4.5.2.2 through 4.5.2.6 will be included in the reliability time.

4.4.2.2 Other tests. Boats not tested in accordance with 4.4.2.1 shall be tested as specified in 4.5.2.2.

4.5 Inspection procedure.

4.5.1 Examination. The boat shall be examined as specified herein for the following defects:

101. Dimensions not as specified (see 3.1.1).
102. Material not as specified (see 3.3).
103. Materials are not corrosion resistant or treated to be corrosion resistant for the applicable storage and operating environment (see 3.3.1).
104. Dissimilar metals, as defined in MIL-STD-889 are not effectively insulated from each other (see 3.3.1.1).

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105. Contractor does not have documentation for identification of material, material finishes or treatments (see 3.3.1.2).
106. Used, rebuilt or remanufactured components, pieces or parts incorporated in the boat (see 3.3.2).
107. Cleaning, treatment, and painting not as specified (see 3.3.3).
108. Government-furnished property not mounted as specified (see 3.6).
109. Assembly not as specified (see 3.8.1).
110. Metal fabrication not as specified (see 3.8.1).
111. Welders and welding operators not qualified as specified (see 3.8.2.1).
112. Welding not as specified (see 3.8.2).
113. Safety not as specified (see 3.8.3).
114. Fire extinguishing equipment not as specified (see 3.10).
115. Lubricants not applied as specified or not as specified (see 3.12).
116. Torque not as specified (see drawings).
117. Identification not as specified (see drawings).
118. Hydrojet buckets not adjusted as specified (see drawings).
119. Warning and instruction plates not as specified (see drawings).
120. Components missing (see drawings).

4.5.2 Tests.

4.5.2.1 Conditions. The boats shall be prepared for testing and operated in accordance with TM 5-1940-277-10. The boats shall be maintained in accordance with TM 5-1940-277-34. Launching of boats using transporter and cradle is not required.

4.5.2.2 Dock. Launch the boat and secure it to the dock. Start the engines and bring to idle speed. Check engine instruments, alarm systems, electric bilge pump, and lights for operation. After engine temperature readings are stable, operate in forward gear at 2,000 rpm (revolutions per minute) until inspections are completed. Inspect the engine cooling systems, fuel systems, the bilge and the hull for leakage. Check the engine oil pressures and coolant temperatures. Nonconformance to 3.5 shall constitute failure of this test.

4.5.2.3 Operation. The crew shall consist of two people. Cast off and take the boat into an unrestricted area. Maneuver the boat in accordance with 4.5.2.4 for one complete cycle. Observe the reaction of the boat to throttle and helm changes and check engine oil pressures and coolant temperatures for conformance to the operator's manual. At the end of the trial run, stop both engines, disconnect the portside batteries at the series connection wire (No. L) and restart the port engine by activating the "emergency link" solenoid and starter switch for the port engine. Start the starboard engine in the same manner using the starboard starter switch. Inability to start either engine within 5 minutes, or nonconformance to 3.5 shall constitute failure of this test.

4.5.2.4 10 hours endurance. Test the boat through the sequence of maneuvers a, b, c, and d in 4.5.2.4.1 until a total of ten hours has been accumulated.

4.5.2.4.1 Procedure.

- a. (1) Run straight until maximum speed is attained.
- (2) Execute a sudden 90 degree port turn and run 1 minute at 2,000 rpm.
- (3) Execute a sudden 90 degree port turn and run up to maximum rpm.
- (4) Execute a sudden 90 degree port turn and run 1 minute at 2,000 rpm.

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- (5) Execute a sudden 90 degree port turn and run up to maximum rpm.
 - (6) Execute a sudden 90 degree starboard turn and run 1 minute at 2,000 rpm.
 - (7) Execute a sudden 90 degree starboard turn and run up to maximum rpm.
 - (8) Execute a sudden 90 degree starboard turn and run 1 minute at 2,000 rpm.
 - (9) Execute a sudden 90 degree starboard turn and run until maximum rpm is attained.
- b. (1) Execute a sudden hard over starboard turn after maximum rpm has been attained on a straight run and continue in a circle for two complete circles.
 - (2) Repeat the above maneuver with a hard over port turn.
- c. Run a tight figure-eight pattern at maximum rpm for 5 minutes.
 - d. Run in forward gear at 2000 rpm for 1 hour. No maneuvers necessary.
 - e. Inspect the boat at the end of each day. Failure to conform to 3.5 shall constitute failure of this test.
 - f. Determine and record maximum free running speed.

4.5.2.5 Thrust measurement. Measure the forward and reverse thrust as specified in 4.5.2.5.1. The conditions will be as follows:

- a. Water depth shall be 6 foot minimum.
- b. The trim of the boat shall be level fore and aft and on even keel during the test.
- c. For the reverse thrust test, connect the line to the bow stem for level trim.
- d. The crew shall be two inspectors and one boat operator.
- e. The boat shall carry full fuel tanks and all defined loose equipment, e.g., lifebelt, boathook, etc.
- f. The towline shall be rigged to fixed bollard.
- g. The dynamometer shall have a minimum capacity of 5,000 pounds pull with an accuracy of no less than $\pm 1/2$ percent of full scale.
- h. The test will be done when the engine temperatures have reached a steady state.
- i. If any adjustments to the power system are required either in water or on land, the boat will be retested.

4.5.2.5.1 Thrust measurement test. The boat shall be tied to a fixed bollard with a line connected to the stern towing bit. The line shall include a dynamometer. Operate both engines simultaneously in forward gear at slowly increasing speeds until maximum rpm is reached. Reverse thrust shall be measured by securing the line to the bow stem and operating the boat in reverse at maximum rpm. Minimum thrust specified shall be maintained in both directions for 1/2 minute. Inability to obtain the towline pull specified in 3.5 shall constitute failure of this test.

4.5.2.6 Rafting. A Government-loaned five bay ribbon bridge raft shall be assembled consisting of three interior bays and two ramp bays. Secure two boats

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to the raft in accordance with TM 5-1940-277-10 and maneuver as depicted in figure 1 at full throttle (when possible) for a total of 50 hours. A description of the operational sequence of events is as follows:

- a. Move the transporting convoy from the storage area to the launch site with the required interior bays and ramp bays.
- b. Launching the boat.
- c. Launch and assemble the required interior bays and ramp bays to form a raft.
- d. Secure the boat to the raft.
- e. Maneuver the boat/raft combination as shown in figure 1, at full throttle and observe the following procedures:
 - (1) Two landings per hour will be made by beaching the ramp where it is possible to "on load" and "off load".
 - (2) The period between landings will be spent running the course, as shown in figure 1, by alternately executing starboard or port turns (on succeeding runs), and returning to the landing site.
- f. Failure to conform to 3.5 shall constitute a failure of this test.

4.5.2.7 Reliability. Using the MTBF specified in 3.4, two initial production boats shall be tested as specified in 4.5.2.1 thru 4.5.2.6. Occurrence of 6 or more failures constitutes failure of this test. A failure is defined as any malfunction which cannot be crew corrected within five minutes by adjustment, repair, or replacement action using controls, on-board equipment tools or parts, and which causes or may cause:

- a. Failure to commence operation, cessation of operation, or degradation of performance below level specified in 3.5.
- b. Damage to the boat(s) by continued operation.
- c. Safety hazards to personnel.

Malfunctions which would not affect mission performance shall not be considered failures.

4.5.2.7.1 Test plan.

- a. Decision risks - 20%.
- b. Discrimination ratio - 2.0.
- c. ⁰ - 90 hours.
- d. ¹ - 45 hours.
- e. Test duration - 351 hours. Each boat shall operate not less than 165 hours.
- f. Reject if 6 or more failures as specified in 4.5.2.7.
- g. Accept if 5 or less failures as specified in 4.5.2.7.
- h. Repeat 4.5.2.1 through 4.5.2.6 until a decision is made.

4.6 Inspection of packaging.4.6.1 First article pack inspection.

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4.6.1.1 Examination. The first article pack shall be examined for the defects specified in 4.6.2.3. Presence of one or more defects shall be cause for rejection.

4.6.1.2 Test. The first article pack shall be subjected to the guided-impact test (railroad car) specified in MIL-STD-1186, appendix A.

4.6.2 Quality conformance inspection of pack.

4.6.2.1 Unit of product. For the purpose of inspection, a completed pack prepared for shipment shall be considered a unit of product.

4.6.2.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105, table I and table IIa. A lot shall be accepted when 0 defects are found and rejected when 1 or more defects are found.

4.6.2.3 Examination. Samples selected in accordance with 4.6.2.2 shall be examined for the following defects. Presence of one or more defects shall be cause for rejection.

121. Disassembly not as specified (see 5.2.1.1).
122. Bolts, nuts, screws, pins, and washers not installed in mating parts and secured to prevent loss (see 5.2.1.1).
123. Matchmarking not as specified (see 5.2.1.2).
124. Unpainted exterior metal surfaces not coated with preservatives as specified (see 5.2.1.3 and 5.2.1.4).
125. Engine, components, and accessories not preserved as specified (see 5.2.1.5 and 5.2.2.1).
126. Engine crankcase and transmission not filled to operating level with preservative lubricating oil and tagged as specified (see 5.2.1.5).
127. Electrolyte, when furnished, not packed and secured as specified (see 5.2.1.5).
128. Boat hook not placed and secured as specified (see 5.2.1.6).
129. Rope not coiled, secured, and stowed as specified (see 5.2.1.7).
130. Anchor light and bow light mast not placed and secured (see 5.2.1.8).
131. Drain plug not removed, secured, and tagged as specified (see 5.2.1.9).
132. Spotlight not properly secured (see 5.2.1.10).
133. Ring buoy not placed and secured in the brackets provided.
134. Fire extinguisher not placed and secured in its mounting bracket (see 5.2.1.12).
135. Repair parts and tools, when furnished, not preserved as specified (see 5.2.1.13).
136. Technical publications not preserved as specified (see 5.2.1.14).
137. Consolidation not as specified (see 5.2.1.16).
138. Boat not secured in cradle, if furnished, as specified (see 5.3).
139. Cradle not provided with provisions for securing to carrier as specified (see 5.3).
140. Cradle not provided with lifting and handling provisions as specified (see 5.3).
141. Depreservation guide not prepared and attached as specified (see 5.4).
142. Marking missing, illegible, incorrect, or incomplete (see 5.5).
143. Engine coolant warning tags not attached as specified (see 5.2.1.5).

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4.7 Welding inspection.

4.7.1 Welding samples. The welding samples shall be subjected to simple bend testing over a mandrel. The specimen shall be bent 180 degrees so that the weld will be approximately at the center of the bending. The specimen shall be firmly clamped on one end so that there will be no sliding of the specimen during bending. The testing apparatus shall be in accordance with the bending fixtures shown in section IX of ASME Boiler and Pressure Vessel Code or AWS D1.2, or the testing jig may be contractor designed. The convex surface of the specimen shall be examined for the appearance of cracks or other open defects. Any specimen exhibiting crack or other defect, exceeding .125-inch measured in any direction, shall be considered as having failed. Cracks which originate at the edges of the specimens which are less than .250-inch measured in any direction shall be disregarded unless defects are observed therein which in themselves would be considered cause for failure, i.e., lack of penetration, lack of fusion, undercuts or inclusions. All specimens shall be examined the day they are welded. Sampling of specimens shall not be permitted. If a specimen fails to pass, the welder shall be permitted one new specimen. Should a second specimen fail the welder, having twice failed, shall be required to requalify in accordance with certification requirements in section IX of ASME Boiler and Pressure Vessel Code of AWS D1.2.

4.7.2 Production welding. Production welding sampling and inspection shall be in accordance with the contractor WPS. Acceptance shall be in accordance with the applicable welding drawing referenced on the engineering detail drawings.

5. PACKAGING

5.1 First article pack. Unless other specified (see 6.2), the contractor shall furnish a first article pack for examination and test within the time frame specified (see 6.2) to prove prior to starting production packaging, that the applied preservation, packing, and marking comply with the packaging requirements of this specification. Examination shall be as specified in section 4 and shall be subject to surveillance and approval by the Government (see 6.6). The first article pack may be accomplished utilizing either the first article model boat or production boat. If a first article model boat is utilized, any preservation and packing shall be removed by the contractor at no expense to the Government, when requested by the Government, to facilitate the comparison between the first article model boat and production boats.

5.2 Preservation. Preservation shall be level A or commercial specified (see 6.2).

5.2.1 Level A.

5.2.1.1 Disassembly. The cab shall be removed, further disassembly shall be confined to those items or parts vulnerable to damage or loss, or necessary to accomplish the preservation specified herein. Bolts, nuts, screws, pins, and washers removed shall be reinstalled in mating parts and secured to prevent loss.

5.2.1.2 Matchmarking. Removed items or parts shall be matchmarked when necessary to facilitate reassembly. Matchmarking information shall be on tags conforming to UU-T-81, type A, grade optional and the tags attached to mating parts. Information on the tags shall be applied with waterproof ink.

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5.2.1.3 Preservatives. Preservative specified shall conform to the applicable specifications listed in and shall be applied in accordance with MIL-P-116.

5.2.1.4 Unprotected surfaces. Unpainted exterior metal surfaces of items, accessories, or equipment requiring the application of a contact preservative in accordance with MIL-P-116 shall be coated with type P-1 preservative.

5.2.1.5 Engines. The engines, components, and accessories shall be preserved in accordance with MIL-E-10062, level A, as specified for type III classification, except the dry-charged batteries shall be consolidated as specified in 5.2.1.16, and the battery acid shall be packed and marked separately. In the MK 1 boats, the fresh water systems shall be filled with antifreeze and water. In the MK 2 boats, all cooling systems shall be filled with antifreeze and water. Warning tags shall be per MIL-E-10062.

5.2.1.6 Boat hook. The boat hook shall be placed in the engine compartment or secured in a manner to prevent pilferage or loss.

5.2.1.7 Rope. Each length of rope shall be coiled secured with not less than three evenly spaced ties of cotton tape or plastic tie-down straps conforming to MS3367-2-9. The coils of rope shall be consolidated as specified in 5.2.1.16. The ends of all rope will be appropriately finished to prevent unraveling.

5.2.1.8 Navigation light mast. The navigation light mast shall be secured in the lowered position.

5.2.1.9 Drain plug. The drain plug shall be removed and secured to prevent movement. A tag conforming to UU-T-81, type A shall be attached in a conspicuous location in the cockpit indicating: "Drain plug removed; install before placing boat in water."

5.2.1.10 Spotlight. The spotlight shall be removed, placed in a close-fitting box conforming to PPP-B-636, class weather resistant, style optional, and cushioned or secured within the box to prevent movement and damage. Box closure and sealing shall be as specified for method V in the appendix to the box specifications.

5.2.1.11 Pushing knees. The pushing knees shall remain installed.

5.2.1.12 Fire extinguisher. The portable fire extinguisher shall be placed in a close-fitting box conforming to PPP-B-636, class weather resistant, style optional, and cushioned or secured as applicable to prevent movement and damage. Box closure and sealing shall be as specified for method V in the appendix to the box specification.

5.2.1.13 Repair parts and tools. When furnished, repair parts and tools shall be preserved in accordance with the preservative application criteria and applicable methods of preservation of MIL-P-116.

5.2.1.14 Technical publications. Technical publications shall be preserved in accordance with MIL-P-116, method IC-1 or IC-3 and consolidated as specified in 5.2.1.16.

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5.2.1.15 Other components. Other components not specifically mentioned herein requiring protection from corrosion or physical or mechanical damage shall be preserved as specified for components of similar design and construction.

5.2.1.16 Consolidation. The removed cab shall be secured to the floor of the front compartment. Loose components such as the dry-charged batteries, spotlight, ring buoy, fire extinguisher, and any disassembled item or part shall be consolidated in one or more closefitting boxes conforming to PPP-B-621, class 2, style optional; or PPP-B-601, overseas type, style I or J. The contents shall be cushioned, blocked, braced, or anchored as applicable to prevent movement or damage. When repair parts and tools are shipped with the boat, they shall be packed in a separate box as specified herein and the box shall be secured to the box containing the consolidated components. The boxes shall be placed and secured in the boat in the most convenient location that will not interfere with shipping. Securing shall be accomplished by the use of strapping in accordance with ASTM D 3953, type 1 or 2, zinc-coated, size as applicable and ASTM D 4675.

5.2.2 Commercial.

5.2.2.1 Engines. The engines, components, and accessories shall be preserved in accordance with MIL-E-10062, level C, as specified for alternate preservation and packing. The dry charged batteries shall be consolidated as specified in 5.2.1.16, and the battery acid shall be packed and marked separately. In the MK 1 boats, the fresh water systems shall be filled with antifreeze and water. In the MK 2 boats, all cooling systems shall be filled with antifreeze and water. Warning tags shall be per MIL-E-10062.

5.2.2.2 Other components. Components of the boat, other than the engines (see 5.2.2.1), shall be preserved in accordance with ASTM D 3951. The bow compartment shall be utilized to the greatest extent for the placement and securement of loose compartments.

5.3 Packing (see 6.8). When a boat cradle is furnished (see 3.6, 6.2 and 6.4) the boat shall be placed in the cradle and secured as specified in TM 5-2090-202-12 & P. When a boat cradle is not furnished, the contractor shall provide a means for shipping the boat, including lifting, securing, and handling provisions, that meets common carrier acceptance and will provide safe delivery to destination without damage to the boat. A boat prepared for shipment which passes the test specified in 4.6.1.2 shall be considered as meeting these requirements.

5.4 Depreservation guide. A depreservation guide shall be prepared and placed in a waterproof envelope marked "Depreservation Guide" and the envelope secured in a conspicuous location on the boat. Unless otherwise specified (see 6.2), DA Form 3256, "Preservation and Depreservation Guide for Marine Equipment", shall be used (see 6.7).

5.5 Marking. Marking for shipment and storage shall be in accordance with MIL-STD-129.

6. NOTES

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

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6.1 Intended use. The boats are intended for pushing maneuvering components of military floating bridges and rafts.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Type of boats being acquired (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 model is required (see 3.2).
- e. When the Government will conduct any or all of the first article model examinations and tests, the contracting officer should specify which examinations and tests shall be conducted by the contractor (see 3.2).
- f. When Government will furnish the property listed in 3.6.
- g. When Government will loan the property specified in 3.7.
- h. When a first article pack is not required (see 5.1).
- i. Time frame required for submission of the first article pack (see 5.1).
- j. Degree of preservation required (see 5.2).
- k. When other than DA Form 3256 shall be used (see 5.4).

6.3 First article. When a first article inspection is required, the item(s) should be a production model. The first article should consist of one or more units. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of the first article test results and disposition of the first articles. Invitation for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.4 Government-furnished property. When specified, the contracting officer should arrange to furnish the property specified in 3.6.

6.5 Government-loaned property. When specified, the contracting officer should arrange to loan the property specified in 3.7.

6.6 First article pack. Any changes or deviation of first article packs from the approved first article pack will be subject to the approval of the contracting officer. Approval of the first article pack will not relieve the contractor of his obligation to preserve, pack, and mark the boats in accordance with this specification.

6.7 DA Form 3256. The contracting officer should arrange to furnish DA Form 3256 when requested by the contractor.

6.8 Level of packing. For the purpose of marking, the level of packing specified in 5.3 shall be designated as level A.

6.9 Welders and welding operators. The contracting officer should consider requalifying welders or welding operators in the event of evidence of poor welds.

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6.10 Subject term (keyword) listing.

Aluminum hull boat
Boat, aluminum hull
Boat hull
Floating bridge
Floating rafts
Twin engine boat

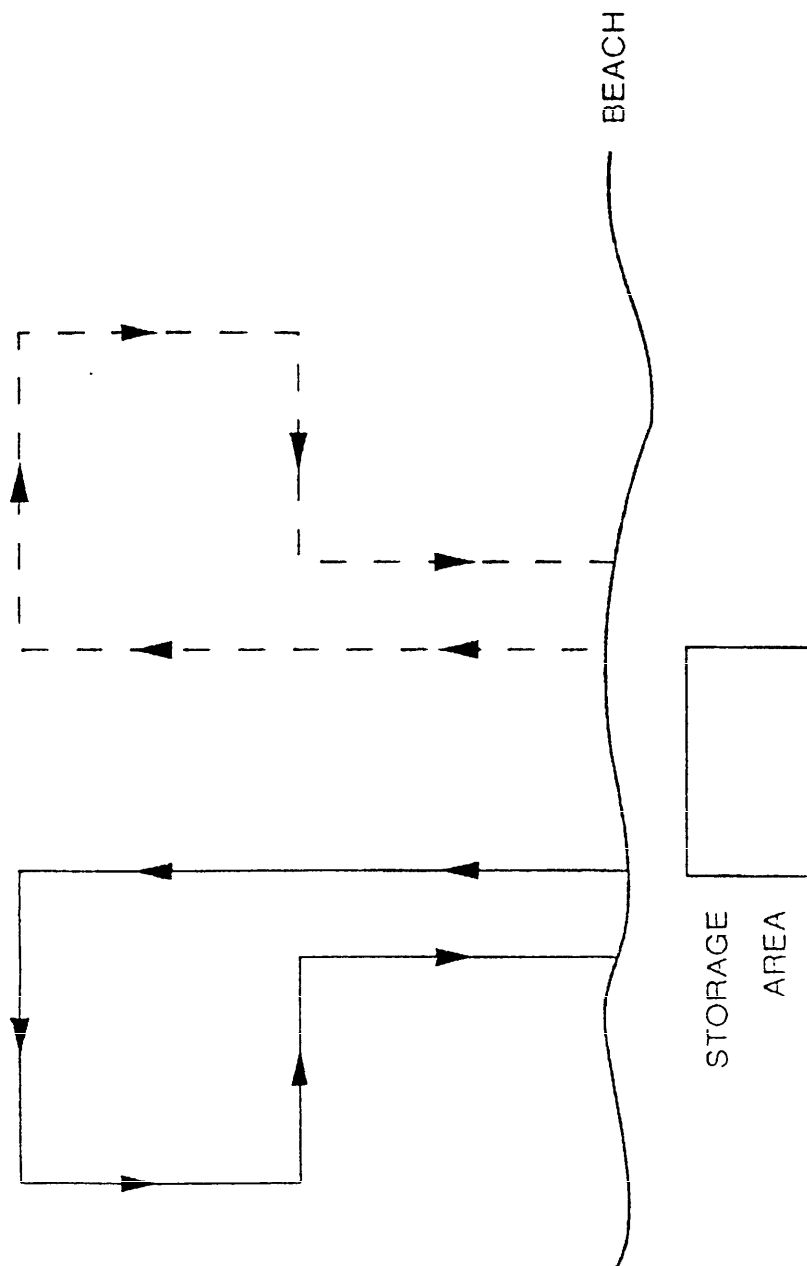
6.11 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodian:
Army - ME

Preparing activity:
Army - ME

Project 1940-A077

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X-4138

FIGURE 1. RAFTING OPERATIONS.

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.

1. RECOMMEND A CHANGE:		1. DOCUMENT NUMBER MIL-B-53003B(ME)	2. DOCUMENT DATE (YYMMDD) 93/04/06
3. DOCUMENT TITLE Boat, Bridge Erection, Twin Jet, Aluminum Hull, Model US CSB, MK-1 and MK-2			
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)	7. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY			
a. NAME Carolyn Johnson		b. TELEPHONE (Include Area Code) (1) Commercial (703) 704-3468 (2) AUTOVON 654-3468	
c. ADDRESS (Include Zip Code) 115 Army Belvoir RDE Center Attn: SATBE-TSE Belvoir, VA 22060-5606		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	