

MIL-T-24398(SHIPS)  
AMENDMENT 2  
14 February 1983  
SUPERSEDING  
AMENDMENT 1  
13 June 1979

MILITARY SPECIFICATION

TURBINE, STEAM AND REDUCTION GEAR,  
AUXILIARY, GENERATOR-DRIVE (NAVAL  
SHIPBOARD USE)

This amendment forms a part of Military Specification MIL-T-24398(SHIPS), dated 29 January 1971, and 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.

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At the bottom of page: Add:

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

PAGE 2

- \* 2.1, under "SPECIFICATIONS, MILITARY": Delete reference to "MIL-L-15719".

PAGES 2 and 3

- \* 2.1, under "SPECIFICATIONS, MILITARY": Add:  
"MIL-N-6710 - Nickel-Chromium-Iron Alloy; Bars, Rods and Forgings.  
"DOD-G-24508 - Grease, High Performance, Multi-Purpose (Metric)."

PAGE 3

- 2.1, under "STANDARDS, MILITARY": Add:  
"MIL-STD-1552 - Provisioning Technical Documentation, Uniform DOD Requirements for.  
"MIL-STD-1561 - Provisioning Procedures, Uniform DOD."

PAGE 4

- 2.2, under "AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)": Add:  
"B16.5 - Steel Pipe Flanges and Flanged Fittings."

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- \* Table I, Section "(u) Valves control, (1) Disc (poppets and seats)":  
Add the following:

Applicable documents	Material and properties	Temperature limit (°F) (maximum) (see 3.2.2)	Remarks
MIL-N-6710	Ni-Cr-Fe alloy	1050	See 3.4.52.11 (Seats only)

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- \* 3.2.7, item (c): Add "Valve seat seal weld area shall be weld inlaid with nickel-chromium-iron alloy (73-15-7) of sufficient thickness to prevent the occurrence of a heat affected zone in the 12 chrome base material when making the valve seat to casing weld."
- \* 3.2.7, item (h): Add "or entire seat shall be constructed from nickel-chromium-iron alloy in accordance with MIL-N-6710".

3.2.7: Add as item (i):

"(i) Lead or lead containing lubricants shall not be used on assembly or parts in steam path."

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- \* 3.4.32.4: Delete and substitute:

"3.4.32.4 Other component piping and connections. Other component piping and connections may be welded, if take-down joint is not required for maintenance and overhaul. Where take-down joint is required, it shall be flanged using male-female flanges or it shall have a straight thread adapter with O-rings and O-ring face seal type unions (CPV Mark VIII or equal). The wall thickness of tubing used shall be not less than 0.065 inch in sizes above 1/2 inch. Where flanges are used in oil piping, male-female flanges conforming to ANSI B16.5 shall be used. Tapered pipe threads shall not be used. Steel socket welding fittings in accordance with ANSI B16.11, schedule 40, may be used for 50 lb/in<sup>2</sup> self-contained lube oil systems. Face-feed silver-braze fittings in sizes 1/2 inch and above shall not be used. Only preinserted ring fittings shall be used in sizes 1/2 inch and above. Face-feed fittings may be used in sizes below 1/2 inch. Brazing shall be accomplished in accordance with NAVSEA 0900-LP-001-7000. Mechanical flareless (bite-type) fittings shall not be used. The gasket seating surfaces or flanged joints shall meet the requirements of MIL-STD-438 or MIL-STD-777, as applicable."

3.4.34: Add: "Only unclassified information is to be contained on identification plates."

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- \* 3.4.51.9.6: Delete and substitute:

"3.4.51.9.6 Purification. Two flanged connections shall be provided. The piping shall permit purification of the lube oil with the turbine operating. One connection shall permit complete draining of the sump and shall also serve as the suction to the ship's purification system. A vacuum breaker shall be provided to preclude, during oil purification, lowering the sump operating oil level below the minimum safe level for operation of the equipment serviced from the sump. The vacuum breaker shall be positioned such that the sump tank low oil level alarm shall be activated before suction is broken with the ship at an even keel. Features shall be included in the design of the vacuum breaker to prevent clogging of the vacuum breaker. Manipulation of a locked valve in the piping shall be required to defeat the vacuum breaker and permit pumping down the sump tank. The other connection shall be for return of purified oil by a separate line."

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- \* 3.4.51.20, item (b): Add "The alarm shall occur before the sump suction break is uncovered and shall be set as close to the normal operating level as practical without resulting in spurious alarms during design list and trim angles."
- \* 3.4.51.21: Delete and substitute:

"3.4.51.21 Sight flows. Sight flows shall not be located on pressurized oil supply piping. Each journal bearing cap and each thrust bearing cover or housing shall be fitted with a sight flow integral therewith or bolted thereto. Sight-flows shall provide visual indication of oil discharge from bearing pressure pad or loaded area of the bearing during operation. Bolted-on fittings shall be bronze or brass and windows shall be shock-resistant glass in accordance with MIL-G-2860 (1/4 inch minimum thickness)."

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- \* 3.4.51.26, line 2: Delete "MIL-L-15719" and substitute "DOD-G-24508".

PAGE 43

- \* 3.4.52.11, last sentence: Delete and substitute: "For saturated steam applications, expansion lips or rings used for absorbing expansion between seat and body shall be constructed of nickel-chromium-iron alloy (73-15-7 nominal) or entire seat shall be constructed from nickel-chromium-iron alloy in accordance with MIL-N-6710."

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- \* 3.6.2: Add "In no case shall parts be physically interchangeable or reversible unless such parts are also interchangeable or reversible with regard to function, performance and strength."

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## 3.12: Delete and substitute:

"3.12 Equipment variations. Equipment which does not conform to contractual requirements shall be handled in accordance with the provisions of the contract. Other variations, which result in conforming equipment but constitute deviations from the approved configuration, materials, or processes, shall be handled in accordance with the procedures set forth hereinafter. Specific examples of these are as follows:

- (a) Manufacturing errors which necessitate special repair procedures or the use of non-standard repair parts.
- (b) An improperly-applied process procedure or a substitute process which does not adversely affect the end use of the part or assembly involved.

"3.12.1 Disposition. Variations which affect installation, operation, performance, maintainability, repair parts (onboard and shore based), or interchangeability of parts that would be repaired or replaced during maintenance of the equipment require Government approval.

"3.12.2 Conditions for acceptance of parts having variations. Variations will be considered for approval under the following conditions:

- (a) The effect of the variation, either as-is or with the part modified, is technically acceptable to the Government.
- (b) The nature of the part involved is such that replacement is not economically justified.
- (c) Where parts involved are normally on board repair parts, three of each such non-standard parts or sets of parts shall be furnished at contractor's expense, consisting of one of each as on board repair parts and two of each as stock repair parts.
- (d) Where parts involved are normally stock repair parts but not on board repair parts, two of each such special parts or sets of parts shall be furnished at contractor's expense as stock repair parts.
- (e) The repair parts furnished in accordance with (c) and (d) shall consist of the lowest echelon of the parts required to compensate for the variation. For example, the major parts in which the basic error is made, need not necessarily be furnished; if a rotor bearing journal is machined undersize necessitating the installation of a non-standard bearing, spare non-standard bearings shall be furnished, but a spare non-standard rotor need not be furnished.
- (f) Separate provisioning documentation for non-standard repair parts shall be submitted in accordance with MIL-STD-1552 and MIL-STD-1561. The component involved shall be identified by ship, unit, component serial number, and shown at "NO CHARGE" in the documentation.
- (g) An equipment variation summary drawing, together with certification that resultant special parts have been furnished, shall be submitted for all variations permitted herein under each contract.

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- (h) Where the variation results in additional cost to the Government to accommodate a non-standard Government furnished material (GFM) item, such as additional shipyard costs for installation, the contractor shall reimburse the Government for the total amount of such costs involved.
- (i) The requirements of (c) and (d) apply only where the variation affects interchangeability.

"3.12.3 Procedure for approval of variations. The following shall be used for approval of variations:

- (a) Variations shall be referred to NAVSEA for approval via the local Government inspector within thirty days after occurrence. Submittals shall be in the same manner as established for obtaining drawing approval which on shipbuilder furnished equipment, will require submittal via the shipbuilder and cognizant supervisor. While on Government furnished equipment (GFE), submittals shall be made via local inspector directly to NAVSEA. Any work done on equipment with variations prior to obtaining Government approval shall be at the contractor's risk.
- (b) Each variation referred to NAVSEA shall be accompanied by a letter report containing:
  - (1) The contract number and item involved.
  - (2) The date on which the variation was discovered.
  - (3) The circumstances or conditions under which the variation occurred.
  - (4) A complete description (including sketch or drawing to scale) of the nature and extent of the variation.
  - (5) The corrective measures proposed.
    - a. For the part or parts containing variations.
    - b. To prevent the recurrence of similar variations.
  - (6) The effect of the variation (as corrected) on performance, endurance, stress levels, and parameters cited in 3.12.1, including:
    - a. Detailed engineering basis for acceptance.
    - b. Certification of the part or parts as corrected.
  - (7) Identification of the benefit to the Government, if variation is accepted as modified.
- (c) Copies of all correspondence involving repair parts shall be forwarded to Ships Parts Control Center, Ship's Division, Program Manager's Branch, Mechanicsburg, PA 17055."

3.13 and 3.14: Delete.

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Add as paragraph 3.16:

"3.16 Workmanship and quality control records. Machinery errors and equipment variations which do not require Government approval (see 3.12.1) (such as non-significant and non-critical deviations from drawing dimensions or tolerances for castings, forgings, weldments, connections, or machine-processed parts) shall be documented, and a copy shall be furnished to the

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local Government inspector. If the inspector considers that an unclassified deviation does involve contractual requirements, then such deviation shall be classified and treated in accordance with 3.12 through 3.12.3. When a repair restores a part to original drawing dimensions, but involves no change of materials and uses a previously-approved repair process, the local Government inspector shall approve such repair. There shall be periodic reviews between the manufacturer and the inspection activity on the accumulated incidents of machining errors for determination of corrective measures to improve workmanship. The frequency and timing of such reviews shall be as determined by the inspector."

LAST PAGE

\* DD Form 1426, Specification Analysis Sheet; Delete address and substitute:

"COMMANDER  
NAVAL SEA SYSTEMS COMMAND (SEA 55Z3)  
DOD STANDARDIZATION PROGRAM AND DOCUMENTS DIVISION  
DEPARTMENT OF THE NAVY  
WASHINGTON, DC 20362"

NOTE: The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

Preparing activity:  
Navy - SH  
(Project 2825-N019)