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N42

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OPNAV INSTRUCTION 9010.305A

From: Chief of Naval Operations

Subj: APPROVED CHARACTERISTICS FOR THE FLEET TUG (T-ATF)

Ref: (a) OPNAVINST 9010.300A
(b) COMSCINST 4000.2A
(c) NATO STANAG 1074

Encl: (1) Fleet Tug POWHATAN Class Fleet Tug (T-ATF) Approved Characteristics

1. Purpose. To promulgate the approved characteristics for the POWHATAN Class Fleet Tug (T-ATF). This is a complete revision and should be reviewed in its entirety.

2. Cancellation. OPNAVINST C9010.305.

3. Discussion. Enclosure (1) and attached appendices provide the necessary details to describe the approved characteristics for the POWHATAN Class T-ATF.

4. Action. Fleet commanders shall periodically review enclosure (1) and recommend changes to the Chief of Naval Operations, Strategic Mobility and Combat Logistics Division (OPNAV (N42)) when updates to characteristics of this platform are required. Change recommendations should include comments on the expected activity manpower document impact upon personnel assigned to the ship.

5. Records Management. Records created by this instruction, regardless of media and format, will be managed in accordance with Secretary of the Navy Manual 5210.1.

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(Fleet Readiness and Logistics)

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FLEET TUG

POWHATAN CLASS FLEET TUG (T-ATF)

APPROVED CHARACTERISTICS

Department of the Navy

Deputy Chief of Naval Operations
(Fleet Readiness and Logistics)

Enclosure (1)

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CHARACTERISTICS FOR THE POWHATAN CLASS FLEET TUG (T-ATF)

1. Mission and Tasks

a. Mission. As a unit of the Mobile Logistic Support Force, to salvage and take in tow ships of the fleet, which are battle damaged or non-operational.

b. Tasks

(1) To perform towing at sea operations.

(2) To perform salvage, diving and emergency towing at sea operations. Can perform repair if augmented with material, equipment, and personnel.

(3) Act as support ship for portable, self-sustaining, deep diving equipment.

(4) Capable of providing fire fighting assistance to other ships.

(5) Capable of performing all defensive functions simultaneously while maintaining readiness condition I. Requires embarked Mobile Security Force.

(6) To perform open sea oil spill pollution abatement operations.

(7) To perform and act as support ship for submarine rescue and intervention at sea operations.

2. General Design Considerations

a. The design is based on a basic stock commercial offshore/tug supply boat.

b. The ship, its machinery, and its outfitting shall meet the requirements of the American Bureau of Shipping, the United States Coast Guard (USCG), Federal Communications Commission and the U.S. Public Health Service. Compliance with general

specifications for ships of the U.S. Navy, Naval Ships Technical Manual and other military requirements is not required, except where specifically required in these characteristics.

c. Primary consideration shall be given to the towing requirements and to providing a large free working area on the after deck for carrying portable payloads for salvage, diving, oil spill pollution abatement and submarine rescue operations.

d. The ship will be manned by a civilian Military Sealift Command (MSC) crew. Provisions will be made for full military manning in time of national emergency. Additional personnel will be placed aboard for salvage, diving or pollution abatement operations.

3. Hull Size

a. The hull is designed with the following approximate dimensions and displacements:

- (1) Length overall: 208 feet
- (2) Beam: 42 feet
- (3) Depth: 20 feet
- (4) Full displacement: 2000 tons
- (5) Maximum draft: 15 feet

b. Subdivision and stability. One compartment subdivision in accordance with USCG requirements. Machinery space to have wing tanks. Stability requirements shall be to USCG requirements.

c. The hull will be Class C ice strengthened.

4. Speed

- a. Maximum sustained speed of not less than 15 knots.
- b. Normal economical cruising speed 13 knots.
- c. Optimum towing speed of 6 knots.

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5. Endurance. 10,000 miles at 13 knots free steaming.

6. Machinery Type and Arrangement

a. Diesel propulsion, 4500 minimum total shaft horsepower. Primary fuel will be diesel fuel marine (F-76) with capability for continuous use of jet propellant (JP-5).

b. Twin shaft and rudders. The propellers are controlled reversible pitch in nozzles.

c. Electric driven bow thruster of 300 horsepower.

d. Three 400 kilowatt diesel generators.

e. The machinery plant shall be designed for unattended operation.

f. The distilling plant shall provide sufficient capacity for 75 gallons per man per day based on the accommodations listed in subparagraph 11a.

7. Armament. Capability exists for two 20 millimeter single mounts plus two .50 caliber machine guns with universal sights and ready service lockers (armament, ammunition and fire control all include space and weight reservations).

8. Ammunition. Standard.

9. Fire Control. Standard for armament.

10. Electronics

a. Communications (all equipment to military requirements, except as noted).

(1) The ship shall have a visual signaling capability. No separate signal shelter is required.

(2) Communications electronics equipment shall be provided to support the Electronics Requirement Plan, appendix A.

(3) Communications shall be based on one shipboard operator schedule for broadcast.

b. Sensors

(1) Navigational radar (3 centimeter (cm)) or equivalent.

(2) Navigational radar (10 cm) (commercial).

c. Navigation. Fathometer (commercial).

d. Coordination. Identification Friend/Foe (IFF) transponder.

11. Accommodations

a. Accommodations shall be provided as follows:

	<u>Occupant</u>	<u>Room Number</u>	<u>Type</u>	<u>Minimum Area square footage per room</u>
Deck	Master	1	Single/Private	160
	First Mate	1	Single/Private	120
	Second Mate	1	Single/Private	120
	Able Bodied Seaman	<u>6</u>	Double/Private	140
	TOTAL DECK	9		
Engineering	Chief	1	Single/Private	160
	Engineers (ENGS)	<u>2</u>	Double/Private	140
	TOTAL ENGS	3		
Cook/Supply	Cook/Baker	2	Double/Private	140
	Utility	<u>2</u>	Double/Private	140
	TOTAL SUPPLY	4		

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Communications <u>4</u>	Double/Private	140
TOTAL NAVY	4	
TOTAL CREW	20	

b. Stowable "Troop type" accommodations for 20 transient salvage and diving detachment shall be provided. Toilet and showers shall also be provided.

c. Habitability standards for ship's crew in accordance with the usual practice on civilian manned ships of this type for furnishings and area requirements per subparagraph 11a. Fire resistant/retardant materials shall be used to the maximum practical extent. Berthing, messing and sanitation facilities for the naval communication unit shall be comparable to those for the MSC crew.

d. Air condition. Living, messing and electronics spaces shall be air-conditioned.

e. Sanitary facilities shall be in accordance with the regulations of the U.S. Public Health Service.

f. Medical facilities in accordance with USCG requirements. An area shall be designated as the medical dressing station for use when salvage/diving personnel are embarked.

g. Potable water. Stowage for at least 120 gallons per man in accordance with the accommodations listed in subparagraph 11a.

h. Accommodations shall be designed with adequate space and weight reservation to accommodate an additional 16 persons to allow for conversion to military manning in the event of national emergency. These accommodations are in addition to the troop berthing in subparagraph 11b.

i. One galley and separate rooms or areas for officer and crew messing are to be provided. There will be 5 seats provided for officer messing and at least 10 seats provided for crew messing.

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j. Laundry facilities shall be self-service.

12. Stores Period. Stores period will be in accordance with reference (b).

a. Chilled provisions (with maximum stowage height of 5 feet) - 156 cubic feet.

b. Frozen provisions - 73 cubic feet.

c. Dry provisions - 210 cubic feet.

d. General stores material (with slop chest area of 18 cubic feet) - 330 cubic feet.

e. Medical stores - 6 cubic feet.

13. Aviation Features. Level III (day visual flight recognition only) Class 4 (Vertical Replenishment (VERTREP)) helicopter types H1, H3, H46, and H60, Class 5 (high hover VERTREP) for helicopter types H53D, H53E.

14. Degaussing. None.

15. Miscellaneous and Remarks

a. Pilot house to have maximum practical visibility.

b. A searchlight capable of illuminating the scene of action through an arc of nearly 360 degrees to a distance of 400 yards shall be provided.

c. Towing

(1) The ship shall be capable of not less than 120,000 pounds of bollard pull.

(2) The towing system shall be capable of handling wire rope and synthetic rope. The wire rope shall be handled by a single drum winch with a minimum capacity of 2000 feet of 2¼ inch tow wire. Synthetic rope shall be handled by a traction type winch capable of handling different sizes of rope up to and including 12 inches. Stowage shall be provided for at least three sizes of synthetic line.

(3) The towing pivot point is to be as far forward as practicable.

d. Salvage

(1) The ship shall have a permanently installed quick reaction capability to prevent broaching of another ship and to perform debeaching. In addition to the ship's towing system, this system shall consist of a 9000 pound static anchor capable of being connected to a ship's anchor chain and anchor windlass. The ship's crane is to be capable of taking the anchor aboard the T-ATF.

(2) The ship shall be capable of having loaded aboard two sets of hydraulic puller beach gear as portable payload. The ship shall have the capability of deploying this gear over the bow.

(3) The ship shall have a capability of supporting and deploying the following portable equipment which will normally not be stowed on board:

(a) One salvage compressor (minimum 200 cubic feet per minute)

(b) Two 6 inch salvage pumps with suction and discharge hose

(c) Four 3 inch salvage pumps with suction and discharge hose

(d) One Welding machine (minimum 450 amperes)

(e) One 35 foot workboat (with davit or skid)

(4) Demolition explosives shall be portabilized.

(5) A 10 ton crane arrangement shall be provided that is capable of handling the portable equipment of subparagraphs 15d(3) and 15d(4) above, the workboat and the equipment under subparagraph 15e(2) below.

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e. Diving

(1) The ship shall have a space and weight reservation, and capability to support as portable equipment, U.S. Navy Mark I diving mask, six sets of scuba gear and scuba charging compressor, and a recompression chamber, simultaneously with the items in subparagraph 15d(3) above. Type and quantities of diving equipment shall not exceed the following:

- (a) Three sets of Mark I diving mask equipment
- (b) Six sets of scuba gear
- (c) One scuba charging compressor
- (d) One recompression chamber
- (e) One air compressor suitable for diving air

(2) The ship shall have a space and weight reservation (90 tons), and capability to support as portable equipment, one Deep Dive System (DDS) Mark I Mod I. However, the reservation shall not be on a simultaneous basis with the other portable salvage and diving equipment for which a space and weight reservation is made. Loading on board shall be by off-ship facilities.

(3) The ship shall be capable of taking position in and adjusting position within a multi-point moor of up to 4 points laid/recovered by another ship.

f. An off-ship dewatering capability (1250 gallons per minute minimum) utilizing portable eductors in conjunction with installed fire pumps shall be provided.

g. Pollution control. Provide latest approved commercial pollution abatement systems and equipment including a collection, holding, and transfer system.

h. Boat. One USCG approved rescue boat in davits will be provided. This boat to be a minimum of 24 inches of length and 100 horsepower diesel for use also as a work boat. Lifeboats and life rafts in accordance with USCG regulations.

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i. Tactical diameter of 500 yards at 15 knots.

j. The ship shall be capable of receiving fuel at sea (including probe) and send/receive highline (with 600 pound capacity) port/starboard while towing or cruising.

k. The ship shall be capable of carrying a portable payload of open sea oil spill pollution gear and towing an oil skimmer. At scene of oil spill, the ship shall be capable of towing the oil skimmer for recovery of oil and rigging booms for containing oil spill.

l. The material referred to in subparagraph 15d(3) and 15e(1) shall be treated as outfit supply material. Quantities shall be procured on the ration of one half set per ship. Mark I Mod I DDS referred to in subparagraph 15e(2) shall not be funded by Shipbuilding and Conversion (Navy).

m. Submarine Rescue

(1) The ship shall have a space and weight reservation, and capability to support as portable equipment, the Submarine Rescue Diving and Recompression System (SRDRS). Loading on board shall be by off-ship facilities.

(2) The ship shall have a space and weight reservation, and capability to support as portable equipment, the Submarine Rescue Chamber Fly-away System, to include the Light-weight Mooring System. Loading on board shall be by off-ship facilities.

(3) The ship shall have a space and weight reservation, and capability to support as portable equipment, the Assessment/Underwater Work System (AUWS) of the SRDRS, simultaneously with the items in subparagraph 15m(2) above.

(4) A 10 ton crane arrangement shall be provided that is capable of handling the portable equipment of subparagraph 15m(3) above, and operationally deploying/recovering the AUWS Atmospheric Diving System 2000.

(5) The ship shall be capable of taking position in and adjusting position within a multi-point moor of up to 4 points laid/recovered by another ship, in depths to 2000 feet.

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16. Mock-up/Model Requirements, as follows:

	<u>PRE-DESIGN MOCK-UP</u>	<u>SMALL SCALE MOCK-UP</u>
Navigation Bridge	X	
Main Communication Space	X	
Salvage and diving gear plus anchor - handling		X

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APPENDIX A
ELECTRONIC REQUIREMENTS PLAN
FOR THE POWHATAN CLASS FLEET TUG (T-ATF)

1. Radio Transmit/Receive Facilities. Per mission requirements.
2. Terminal Facilities. Per mission requirements.
3. Radar Facilities
 - a. Two navigational radar.
 - b. One IFF transponder.
4. Sonar Facilities
 - a. One echo sounder with remote indicators.
 - b. One underwater telephone system, complying with reference (c).
5. Navigational Facilities
 - a. One Global Positioning System (GPS) (general purpose).
 - b. One radio direction finder (210-520 kilocycles).
6. Remote Station Facilities
 - a. Pilot House
 - (1) Control and monitoring of three plain/cipher voice channels.
 - (2) Two standard radar displays.
 - (3) Electronic Chart Display and Information System (ECDIS).
 - (4) Control of echo sounder.
 - (5) Control of GPS.

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(6) Control of radio direction finder.

(7) Ultra High Frequency (UHF) channel selector device.

(8) Control and monitoring of bridge to bridge radio.

b. Bridge Wings. Control and monitoring extensions of one pilot house voice channel (one port and one starboard).

c. Communication Center

(1) Control and monitoring of one plain/cipher voice channel. (Note 1)

(2) UHF channel selection device.

d. Helicopter Control Station

(1) Control and monitoring of one plain/cipher voice channel. (Note 1)

(2) UHF channel selector device.

7. Supplementary Radio Facilities. GMDSS Suite (Global Maritime Distress and Safety System for Area 3).

8. Special Facilities

a. One frequency standard.

b. One Manual message processing system.

Note 1: All radio voice remotes shall utilize Single Audio System (SAS).

APPENDIX B
MAJOR ELECTRONICS EQUIPMENT LIST
FOR THE POWHATAN CLASS FLEET TUG (T-ATF)

1. Radar Facilities

- a. One 10 cm radar, (commercial).
- b. One 3 cm radar, (commercial).
- c. One ECDIS.
- d. One AN/APX-72 transponder (IFF).
- e. Two SAT-2 infrared transponder.

2. Sonar Facilities

- a. One 6 foot - 600 Fathom Fathometer, (commercial).
- b. One AN/WQC-2 underwater communications set, or equivalent to meet reference (c).

3. Navigational Facilities

- a. One GPS receiver, (commercial).
- b. One AN/WRN-6(V), military GPS.
- c. One Mark 37 gyrocompass.
- d. One AIS (Automated Identification System).
- e. One SSAS (Ship Security Automated System).

4. Special Features

- a. One AN/URQ-23 frequency standard or equal.
- b. One MSAS (Manual Single Audio System).
- c. One Naval Modular Automated Communication System.