

TECHNICAL MANUAL
UNIT, INTERMEDIATE DIRECT
SUPPORT
AND INTERMEDIATE GENERAL
SUPPORT
MAINTENANCE INSTRUCTIONS
BOWTHRUSTER WATERJET

FOR
LANDING CRAFT UTILITY (LCU)
NSN 1905-01-154-1191

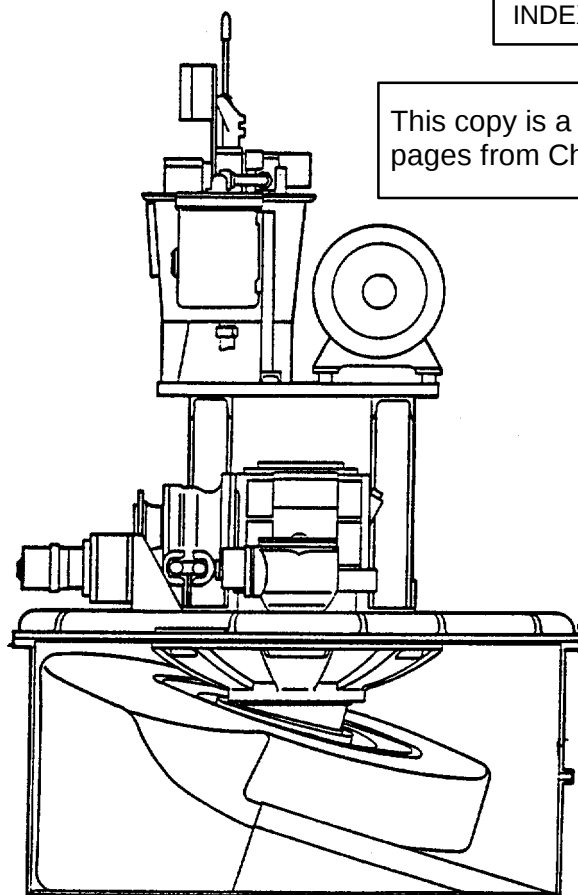
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UNIT MAINTENANCE INSTRUCTIONS

BOWTHRUSTER WATERJET
For
LANDING CRAFT UTILITY (LCU)
NSN 1905-01-154-1191

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished directly to you.

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CHAPTER 1

INTRODUCTION

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Section I. GENERAL INFORMATION

1-1. **Scope.** The scope of this manual is as follows:

a. Type of Manual. Unit maintenance manual.

b. Name of equipment: Bowthruster waterjet, Model SPJ-55 (FIGURE 1-1) installed aboard the LCU 2000 Class watercraft.

c. Purpose of Equipment. Provides steerable thrust at the bow for maneuvering the vessel in close quarters.

1-2. **Maintenance Forms, Records, and Reports.** Department of the Army forms and procedures used for equipment maintenance are prescribed by DA Pam 738-750, the Army Maintenance Management System.

1-3. **Destruction of Army Materiel.** Refer to TM 750-244-3 for instructions covering the destruction of Army materiel to prevent enemy use.

1-4. **Reporting Equipment Improvement Recommendations (EIR).** If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, U.S. Army Troop Support Command; ATTN: AMSTR-QX; 4300 Goodfellow Blvd.; St., Louis, Missouri 63120-1798. We'll send you a reply.

1-5. **Preparation for Storage or Shipment.** Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the Preventive Maintenance Checks and Services (PMCS) charts before storing. When removing the equipment from administrative storage, the PMCS should be performed to assure operational readiness. Preparation of equipment for shipment or short term storage is covered in paragraphs 2-15 and 2-16.

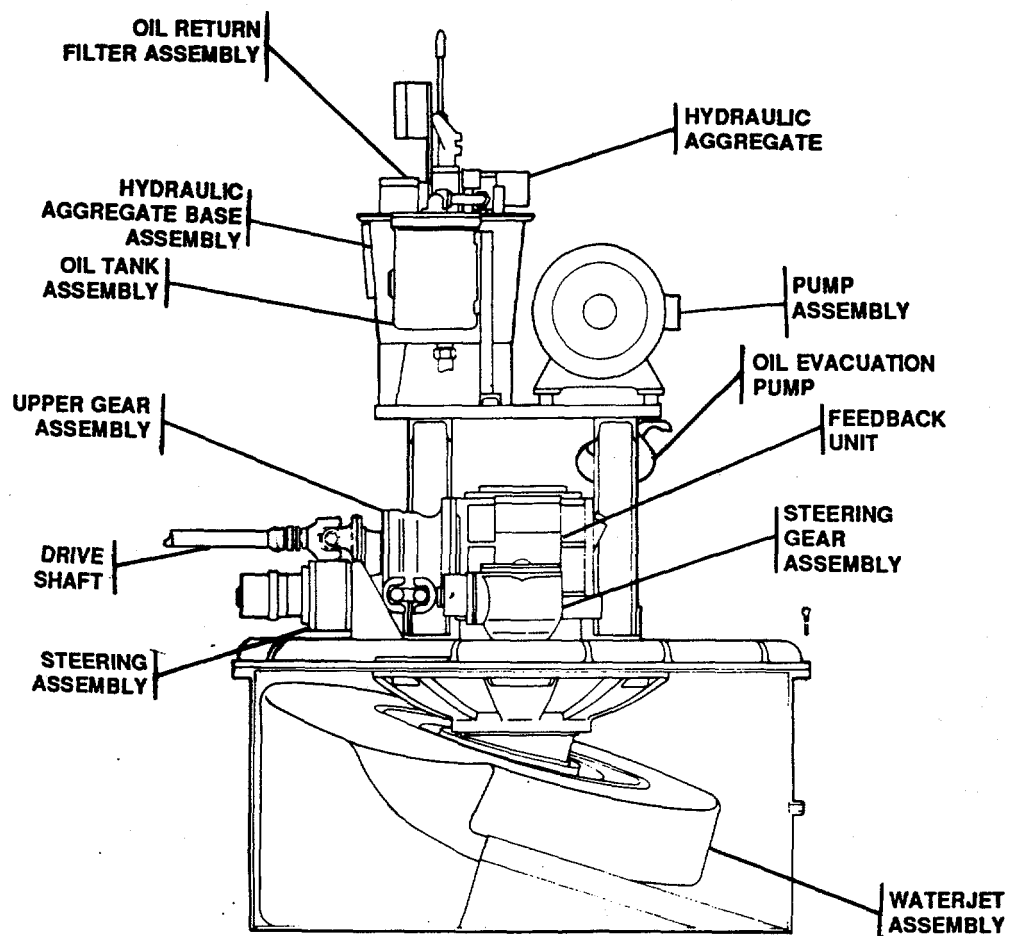


FIGURE 1-1. Model SPJ-55 Bowthruster Waterjet.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-6. **General.** The bowthruster system installed aboard the LCU 2000Class watercraft is a Schottel Model SPJ-55 steerable waterjet powered by a 300 horsepower Cummins Model NT855M diesel engine. Operation of this jet applies directionally controlled thrust near the bow to help maneuver the vessel in close quarters.

1-7. **Characteristics, Capabilities, and Features.** A very broad view of the bowthruster waterjet is as follows:

a. Characteristics.

- (1) Both a propulsion and steering system.
- (2) High volume jet pump provides propulsion.
- (3) Used with ship's twin propellers and rudders.

b. Capabilities and Features.

- (1) Ejects seawater through a steerable nozzle.
- (2) Bowthruster engine is also auxiliary fire pump.
- (3) Controls are at ship control console in pilothouse and in bowthruster room.

1-8. **Location and Description of Major Components.** (FIGURES 1-2 and 1-3). The bowthruster waterjet is a high displacement centrifugal water pump. System machinery includes drive shafting to the pump plus steering machinery for the nozzle. This machinery is integrated into a compact unit installed in the bowthruster room. The well cover is the watertight closure and the structural support for both the external and internal components.

a. Hull Interface. The waterjet is installed over a cylindrical well (FIGURE 1-2) in the ship's bottom. This protects external components from grounding damage. A grid over the intake throat protects the impeller from trash ingestion. An upper flange forms the foundation for the waterjet.

b. Bowthruster Engine Interface. The bowthruster engine is installed between the bowthruster waterjet (forward) and fire pump No. 1 (aft) (FIGURE 1-3). Power takeoff couplings and independently operated clutches allow the same engine to power either the waterjet or the fire pump. Engine controls and primary waterjet controls are remoted to the ship control console in the pilothouse.

c. Drive Shaft. (FIGURE 1-4). A drive shaft transfers engine torque to the waterjet upper gear assembly. This steel tube has a U-joint at each end. One bolts to a flexible coupling on the engine power takeoff shaft (FIGURE 1-5). The other incorporates a flange which mates with the drive flange of the upper gear assembly. One end of the tube also includes a spline. Grease fittings are provided at each U-joint and at the spine.

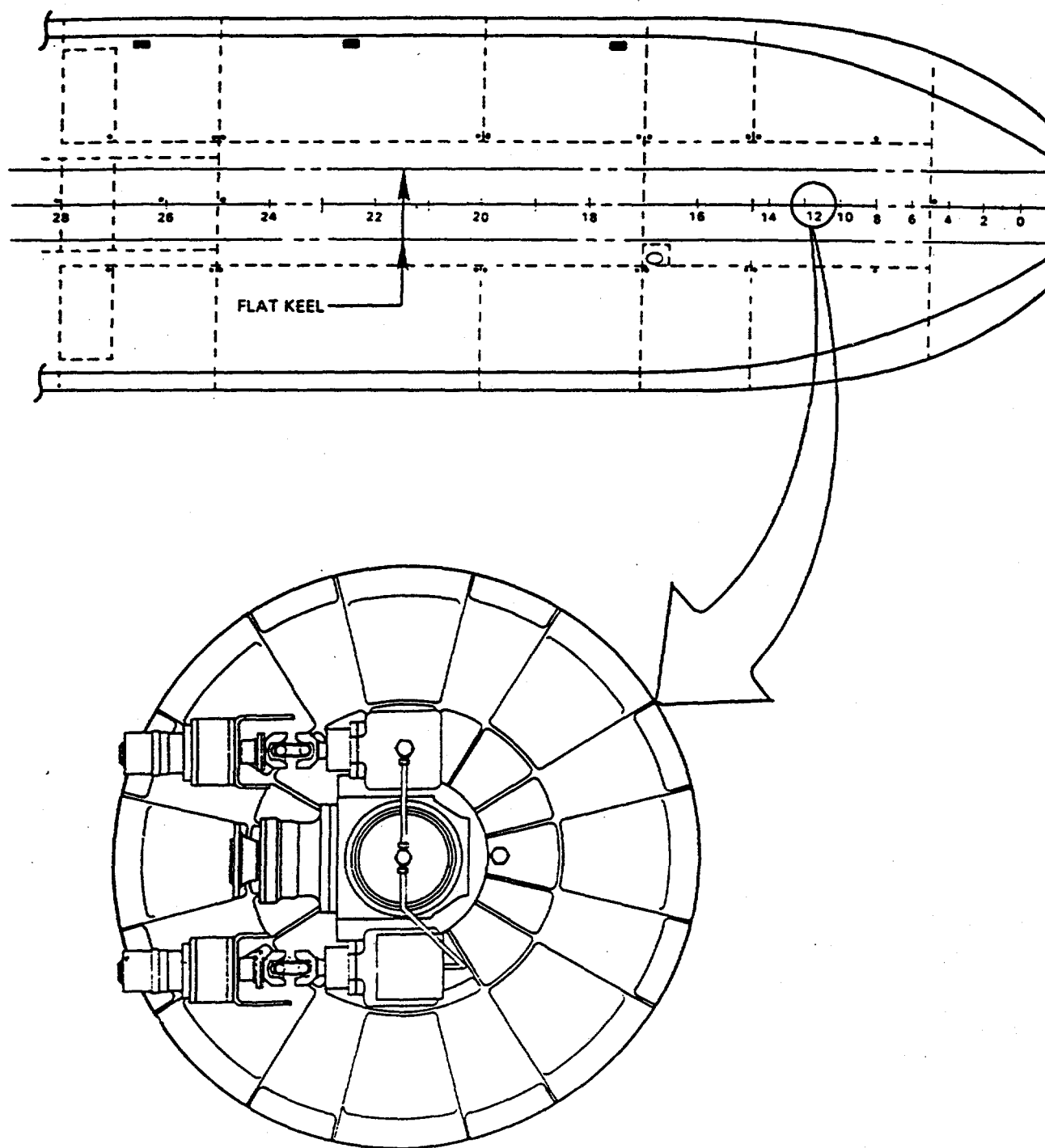


FIGURE 1-2. Installation Plan View.

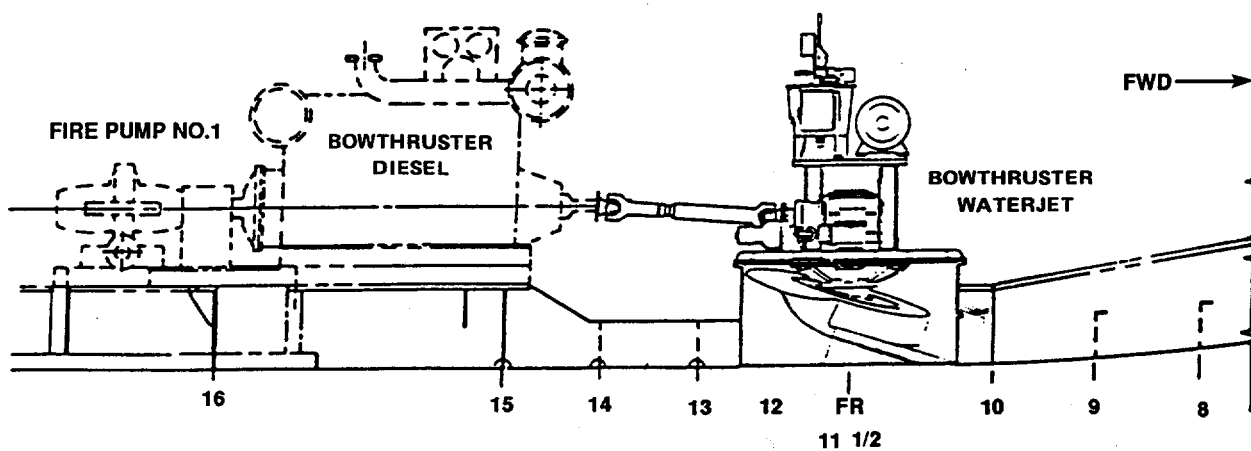
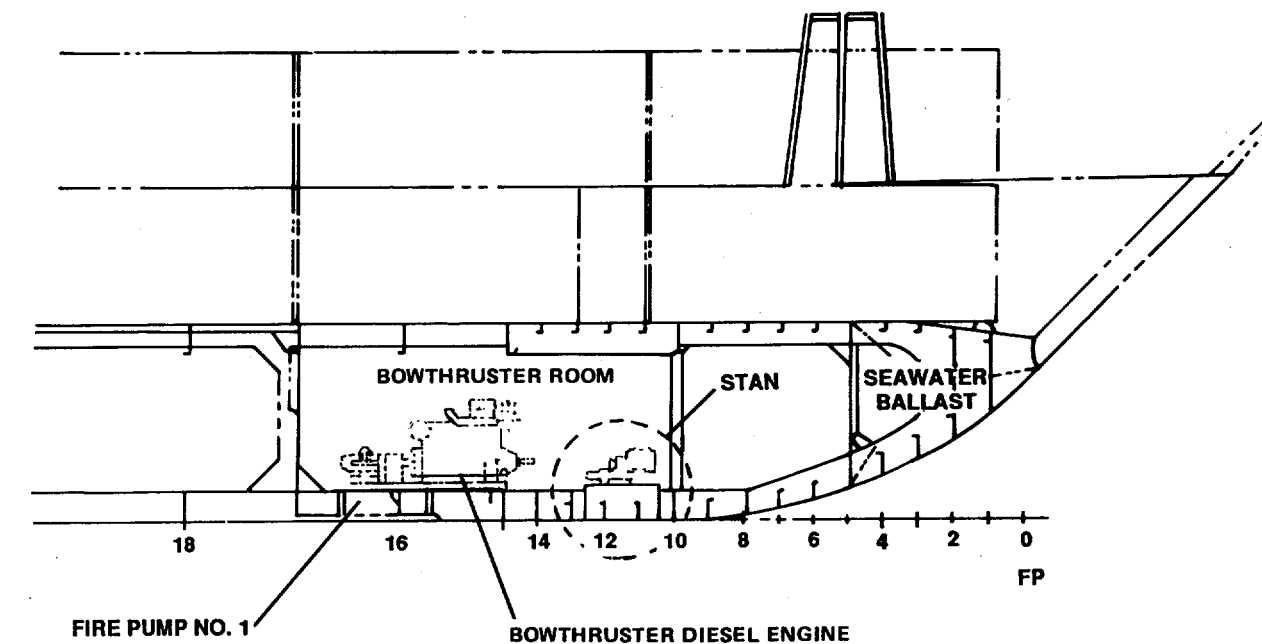


FIGURE 1-3. Installation Profile.