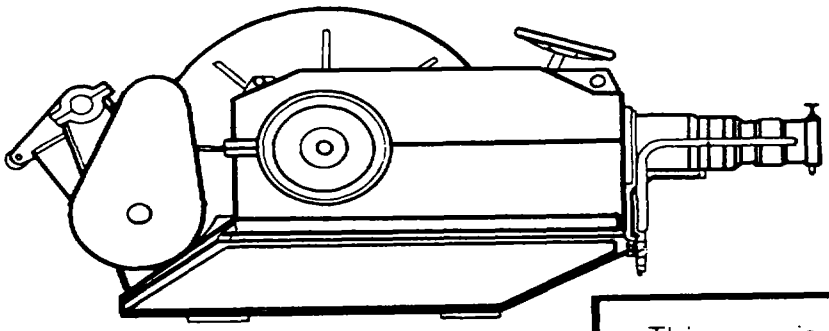
TECHNICAL MANUAL

UNIT, INTERMEDIATE DIRECT SUPPORT AND INTERMEDIATE GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

STERN ANCHOR WINCH

FOR

LANDING CRAFT UTILITY (LCU)
NSN 19O5-01-154-1191



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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

SECTION I. GENEAL INFORMATION

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

a. Type of Manual. Unit, intermediate direct support, and intermediate general support maintenance manual.

b. Model Number and Equipment Name. Stern Anchor Winch, Model 540 HAW-15/7.5, installed aboard the LCU 2000 Class Watercraft.

c. Purpose of Equipment. To provide payout and haulback of the stern anchor. Also, to provide haulback power for mooring and warping.

1-2. **Maintenance Forms, Records, and Reports**. Department of the Army forms and procedures used for equipment maintenance are those 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. Repacking of equipment for shipment or short term storage is covered in paragraph 2-19.

SECTION II. EQUIPMENT DESCRIPTION AND DATA

1-6. General. The McElroy model 540 HAW-15/7.5 stern anchor winch is a hydraulic driven anchor winch designed for use with 1-1/4 inch nominal diameter wire rope. The spool stores 1200 feet of wire rope. The winch is rated for 50,000 pound line pull applied to the first layer of cable. The brake is rated at 60,000 pounds, and the dog is rated at 119,000 pounds at the first layer of cable.

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

a. Characteristics.

(1) Electrically driven, hydraulically operated, with a triple reduction gearbox.

(2) Manually operated clutch and brake.

(3) Automatic failsafe brake.

b. Capabilities and Features.

(1) Raises and lowers the anchor.

(2) Winds and stores 1200 feet of wire rope.

(3) Usable for other kinds of hauling besides anchor handling.

(4) Handles 35 ft/minute first wrap.

1-8. **Location and Description of Major Components**. The stern anchor winch is made up of the winch and hydraulic power pack assemblies. These major components are illustrated in FIGURES 1-1 and 1-2, and described below.

a. Winch Assembly.

(1) Spool and levelwind. Winds up and stores the anchor wire rope.

(2) Brake handwheel. Manually operated brake handwheel for braking during spool operation.

(3) Failsafe brake.

(a) Automatically brakes the hydraulic motor assembly when winch is at neutral position or during loss of hydraulic pressure.

(b) Automatically brakes the hydraulic motor assembly when there is a loss of or too little pilot pressure from hydraulic valve assembly.

(4) Flow (speed control) valve. When activated, controls the output rate of speed to the triple reduction gearbox.

(5) Hydraulic motor assembly. Provides the drive torque to the triple reduction gearbox.

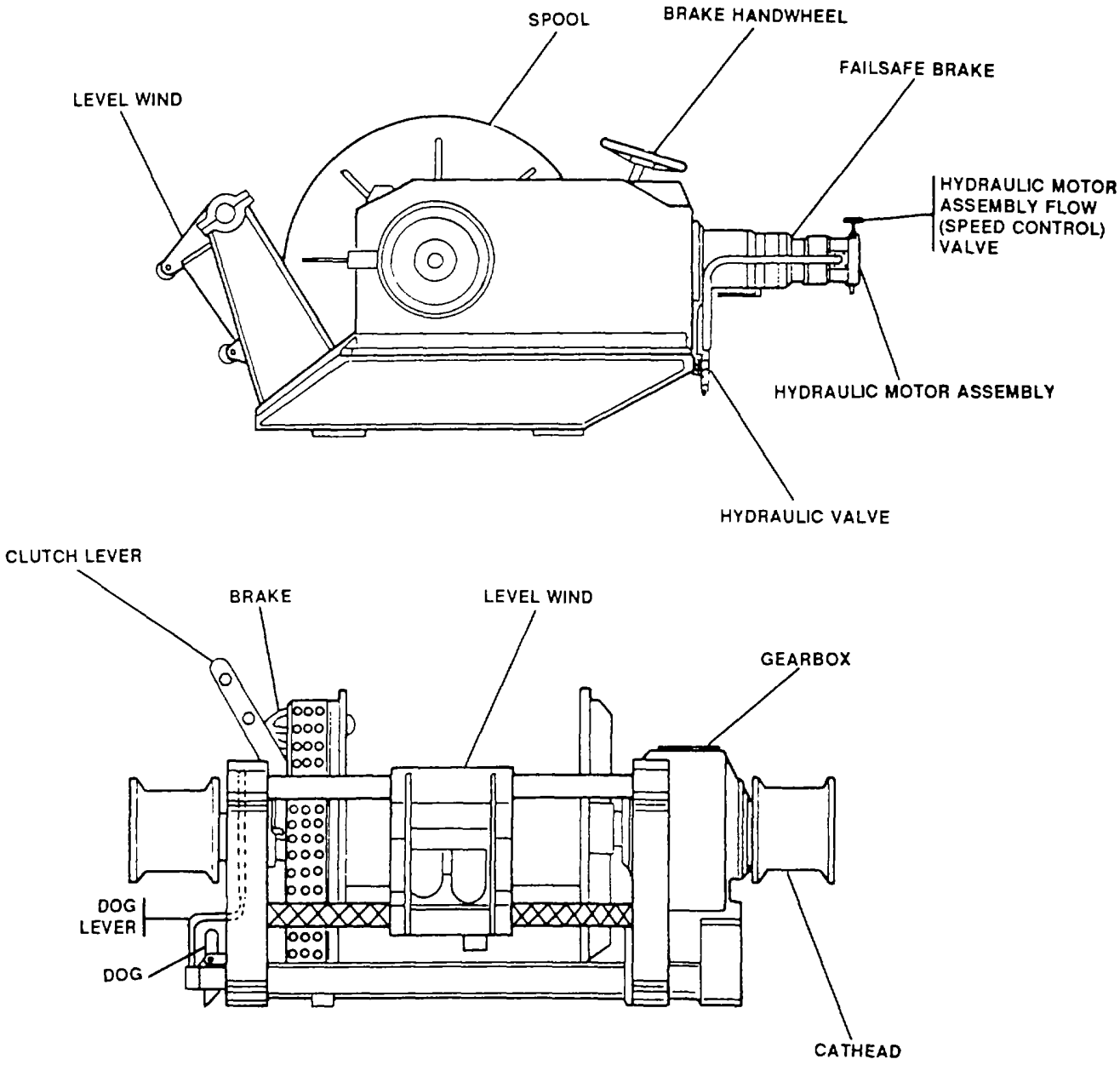

FIGURE 1-1. Stern Anchor Winch Assembly Component Location.

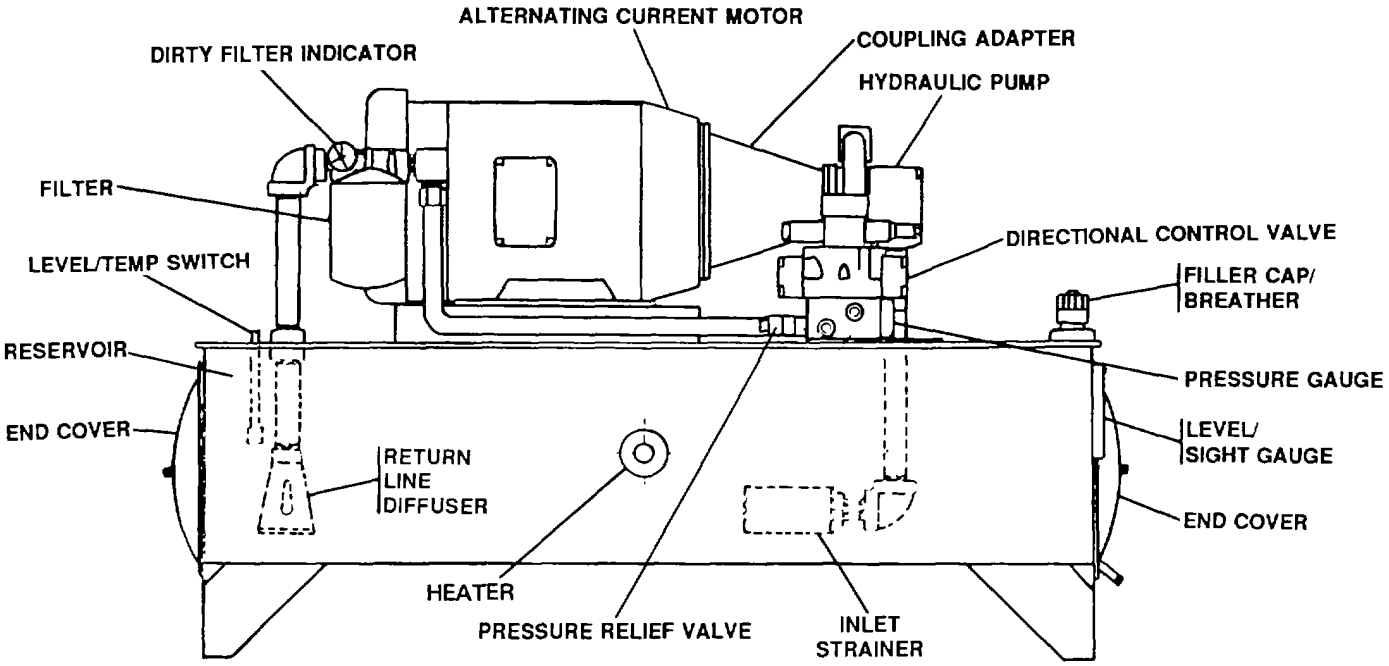

FIGURE 1-2. Hydraulic Power Pack Assembly Component Location.

(6) Hydraulic valve assembly.

(a) This valve functions as a deceleration control and serves as a safety device. It locks the load in case of hydraulic line breakage, or in the event of (accidental or unauthorized) operation of winch controls when hydraulic power pack assembly is shut down.

(b) Pilot pressure setting of the valve makes sure that enough pilot pressure is available to keep the automatic failsafe brake released during winch operation.

(7) Clutch. Manually operated lever that engages the spool for payout or haulback operation.

(8) Brake. Used to brake the spool during operation. Manually operated.

(9) Hydraulic Motor Assembly. Provides the gear reduction between the spool and the hydraulic motor assembly.

(10) Cathead. Used for hauling, independent of the anchor operation.

(11) Dog and dog lever. Lever-operated dog manually activates the locking device for the spool.

b. Hydraulic Power Pack Assembly.

(1) Alternating current motor. This constant-speed, alternating current motor drives the vane-type hydraulic pump through a coupling adapter.

(2) Coupling-adapter. Couples alternating current motor mechanical output to vane-type hydraulic pump.

(3) Hydraulic pump. During operation, the pump supplies fluid under high pressure to the directional control valve.

(4) Directional control valve.

(a) Output ports A and B connect to the hydraulic motor assembly/failsafe brake.

(b) Provides payout, haulback and neutral operation of winch. Under noload conditions, fluid is circulated through the reservoir.

(5) Filler cap/breather. Provides access to fill reservoir with hydraulic fluid and also acts as a breather for the reservoir.

(6) Pressure gauge. Indicates operating hydraulic pressure within the system.

(7) Level sight gauge. Indicates level of fluid within the reservoir.

(8) End covers. Provide for access inside the reservoir.

(9) Inlet strainer. Traps impurities inside reservoir before hydraulic fluid reaches directional control valve.

(10) Pressure relief valve. Controls hydraulic pressure (2900 to 3000 psi) within the system.

(11) Heater. Maintains the proper operating temperature of fluid within the system.

(12) Return line diffuser. Permits the system hydraulic fluid to freely return to the reservoir.

(13) Reservoir. Stores hydraulic fluid for use as required by the system.

(14) Level/temp switch. Transmits low level and hot oil conditions to the winch control box.

(15) Filter. Cleans the hydraulic fluid from the reservoir before entering the system.

(16) Dirty filter indicator. Indicates the condition of the filter.

1-9. **Equipment Data**. Table 1-1 lists the characteristics and reference data of the stern anchor winch. Also, see the equipment data given in the operator's manual, TM 55-1905-223-10.

1-10. **Safety, Care, and Handling**. Safety precautions must be observed at all times while performing maintenance. General WARNINGS and first-aid data appear in the front of this manual. Review all safety information before starting any task. Carefully read through an entire maintenance procedure before performing any maintenance function. Make sure the task can be done safely. All WARNINGS, CAUTIONS, and NOTES are of great importance to your safety and the safety of the equipment.

Table 1-1. Equipment Data

Characteristics	Reference Data
Weight	3950 lb
Spool Capacity	1200 feet of 1-1/4 inch diameter rope.
Levelwind	
Type	Diamond screw
Drive	Chain driven from spool; staggered vertical rollers
Dog	Rated at 119,000 lb when applied to first layer of cable.
Cathead	Manually activated
Dimensions	12 in diameter; fixed to shaft
Clutch Type	Manually operated, four jaw locking mechanism
Brake Type	External contracting band, hand wheel operated. Rated at 60,000 lb on first layer of cable.
Hydraulic Power Pack Assembly	Electric motor driven
Type	Remotely mounted
Hydraulic Pressure	3000 psi maximum
Performance	13,500 lb pull at 35 ft/min first layer (high speed) 40,000 lb pull at 7 ft/min second layer (low speed)
Hydraulic Fluid Reservoir	75 gallon capacity