

This copy is a reprint which includes current pages from changes 1 and 2.

TECHNICAL MANUAL
UNIT, INTERMEDIATE DIRECT
SUPPORT
AND INTERMEDIATE GENERAL
SUPPORT
MAINTENANCE INSTRUCTIONS
GYRO AND MAGNETIC
COMPASS SYSTEMS
FOR
LANDING CRAFT UTILITY (LCU)
NSN 1905-01-154-1191

INTRODUCTION 1-1

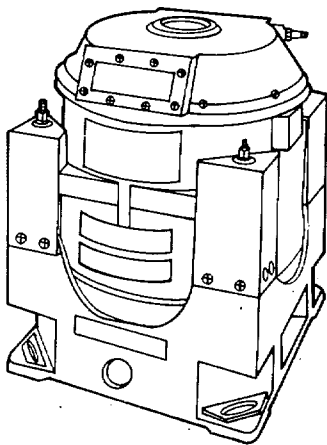
UNIT MAINTENANCE 2-1
INSTRUCTIONS

INTERMEDIATE DIRECT SUPPORT 3-1
MAINTENANCE INSTRUCTIONS

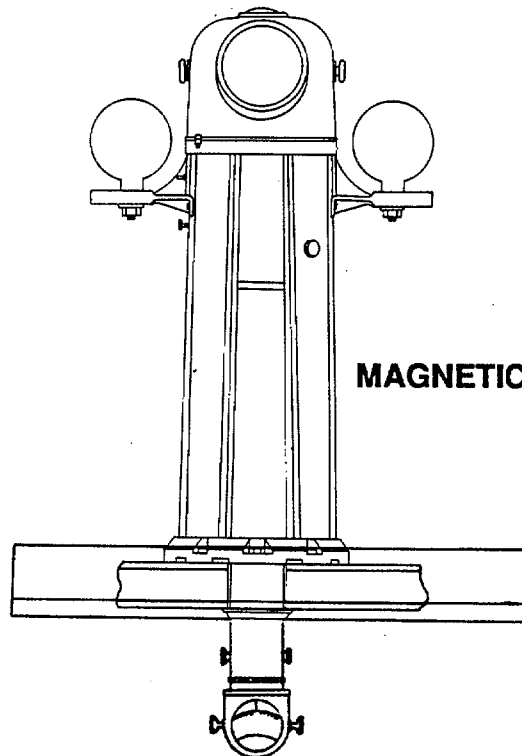
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GYRO COMPASS



MAGNETIC COMPASS

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HEADQUARTERS, DEPARTMENT OF THE ARMY
17 JANUARY 1989

**UNIT, INTERMEDIATE DIRECT SUPPORT,
AND INTERMEDIATE GENERAL SUPPORT
MAINTENANCE INSTRUCTIONS
FOR THE
GYRO AND MAGNETIC COMPASS SYSTEM
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 the procedures, please let us know. Mail your letter, 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, U S. Army Troop Support Command; Attention: AMSTR-MCTS; 4300 Goodfellow Blvd.; St. Louis, Missouri 63120-1798. A reply will be sent 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:

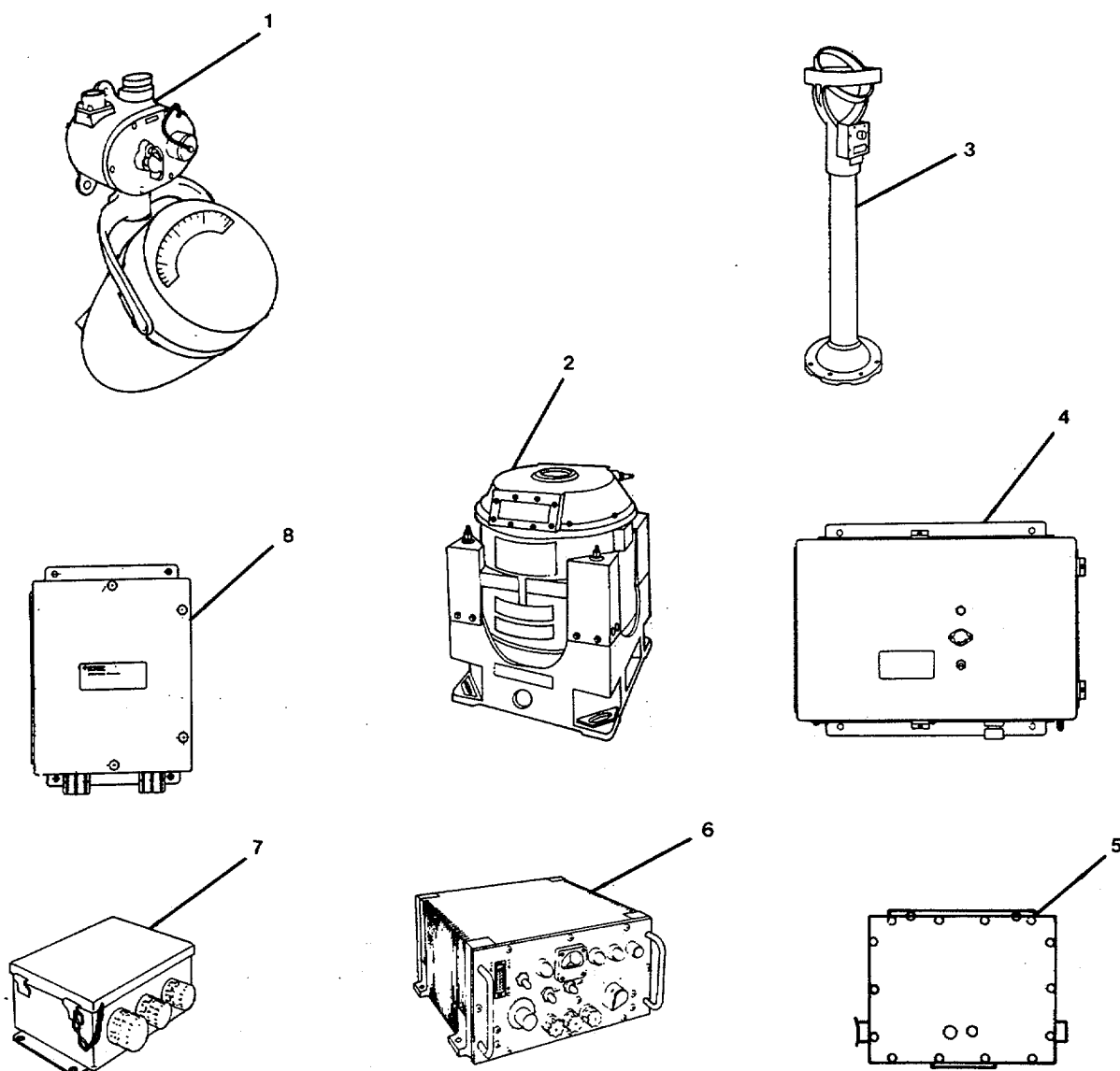
- a. Type of Manual. Unit, intermediate direct support, and intermediate general support maintenance manual.
- b. Model Number and Equipment Name. Gyro Compass System MK 27 Mod 1 (FIGURE 1-1) and Magnetic Compass System (FIGURE 1-2).
- c. Purpose of Equipment. The Gyro Compass System provides data for navigating the Landing Craft Utility (LCU) 2000 Class watercraft. The Magnetic Compass System provides backup navigation data.

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. Sent 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; ATTM: AMSTR-QX; 4300 Goodfellow Blvd.; St., Louis, Missouri 63120-1798. We'll send you a reply.

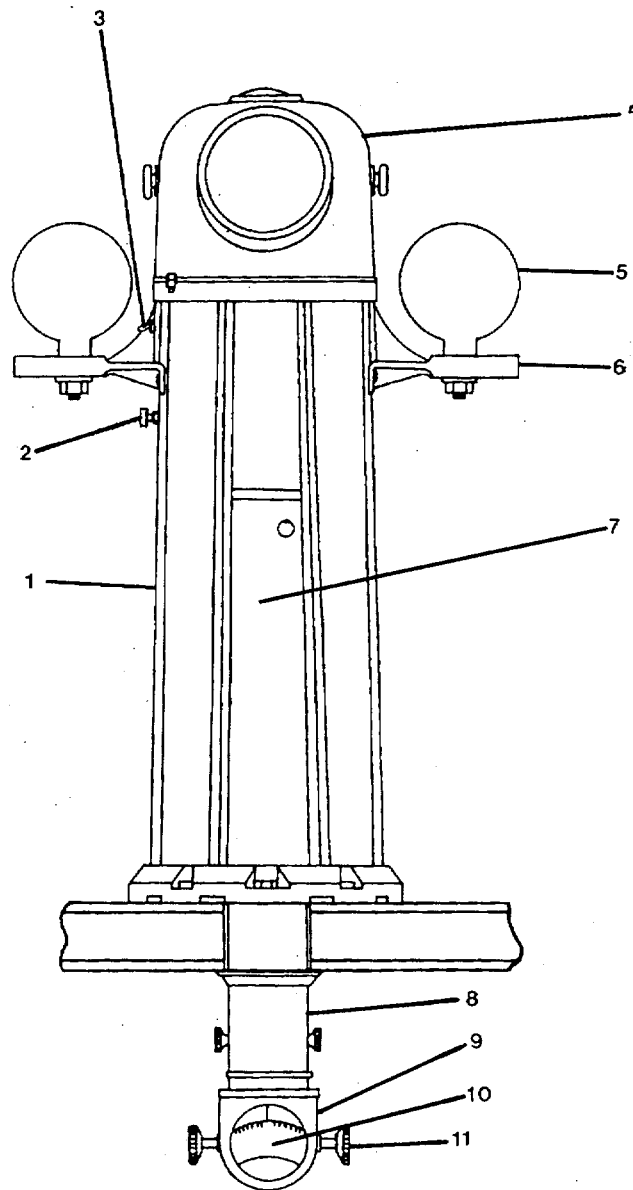
1-5. Preparation for Storage or Shipment. Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the Preventive Maintenance Checks and Services (PMCS) charts before storing. When removing the equipment from administrative storage, the PMCS should be performed to assure operational readiness. Repacking of equipment for shipment or short term storage, are covered in paragraph 2-22.



LEGEND

1. OPEN SCALE REPEATER AND BULKHEAD MOUNTING BRACKET
2. GYRO COMPASS
3. BEARING REPEATER AND PELORUS STAND
4. RELAY TRANSMITTER
5. POWER CONVERTER UNIT
6. GYRO CONTROL AND POWER ASSEMBLY
7. SWITCH UNIT
8. POWER TRANSFER UNIT

FIGURE 1-1. Gyro Compass System Equipment.



LEGEND

1. PEDASTAL
2. RHEOSTAT KNOB
3. TOGGLE SWITCH
4. HOOD
5. QUADRANTAL SPHERES
6. BRACKETS
7. ACCESS DOOR
8. REFLECTOR TUBE ASSEMBLY
9. REFLECTOR
10. REFLECTOR MIRROR
11. ADJUSTING KNOB

FIGURE 1-2. Magnetic Compass System Equipment.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-6. Gyro Compass.

a. Equipment Characteristics, Capabilities, and Features. These are very broad points about the Gyro Compass System.

(1) Characteristics:

- o Gyro compass can give true north.
- o Gyro compass electronics compensate for earth's magnetic fields.
- o Gyro compass is an electric compass.
- o Ship's emergency power source provides 24 Vdc backup capability.

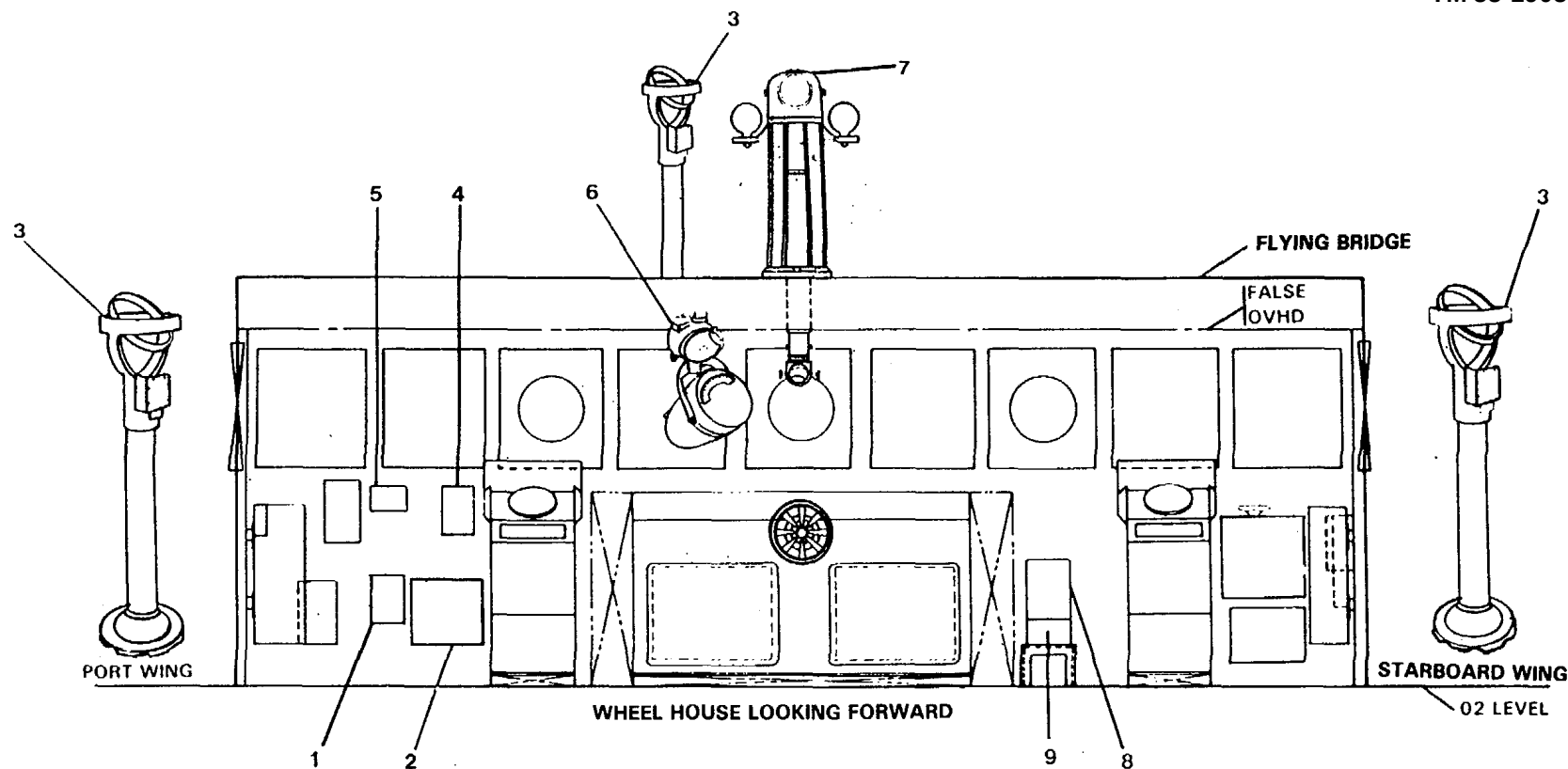
(2) Capabilities and features:

- o Gyro compass transmits the ship's heading to external repeaters.

b. Location And Description Of Major Components. The basic MK 27 Mod 1 Gyro Compass System consists of the gyro compass, gyro control and power assembly, power converter, and switch unit. In addition to the basic equipment, the system also utilizes a power transfer unit, a relay transmitter (MK 37 Mod E transmission unit), three bearing repeaters mounted in pelorus stands, two open scale repeaters mounted in bulkhead mounting brackets, a standard Navy type azimuth circle, and three bearing repeater covers to be placed over the bearing repeaters to protect the repeaters when not in use. Ship's cabling connects the system. The major components of the system are illustrated in FIGURE 1-1.

(1) Gyro Compass. The gyro compass is located in the pilothouse, FIGURES 1-3 and 1-4. The gyro compass (FIGURE 1-5) consists of a shock-mounted, fluid-filled binnacle which houses the gyroscope (sensitive element). The unit is sealed and is mounted on top of the gyro control and power assembly. The gyroscope can be caged (suspended from operation) by pressing a button on the top of the unit to prevent damage when not in use. The viewing window for the compass card is on the aft end of the compass. The dial is red lighted and its brightness is adjusted at the gyro control and power assembly.

(2) Gyro Control and Power Assembly. The gyro control and power assembly is located in the pilot house, as shown in FIGURE 1-3. The gyro control and power assembly (FIGURE 1-6) is a watertight, deck-mounted unit which houses the control panel, power supply, servoamplifier, latitude compensation circuit, and alarm circuit. Power amplifier transistors are attached to the cabinet frame for adequate heat dissipation. The unit is mounted directly under the gyro compass to permit ease of operation when starting or adjusting dial illumination.



LEGEND

- | | |
|---------------------------------------|--|
| 1. POWER TRANSFER UNIT | 5. SWITCH UNIT |
| 2. RELAY TRANSMITTER (MK 37 MOD E) | 6. OPEN SCALE REPEATER AND BULKHEAD MOUNTING BRACKET |
| 3. BEARING REPEATER AND PELORUS STAND | 7. BINNACLE AND MAGNETIC COMPASS |
| 4. POWER CONVERTER | 8. GYRO COMPASS |
| | 9. GYRO CONTROL AND POWER ASSEMBLY |

FIGURE 1-3. Gyro and Magnetic Compass Equipment Location (Pilothouse).

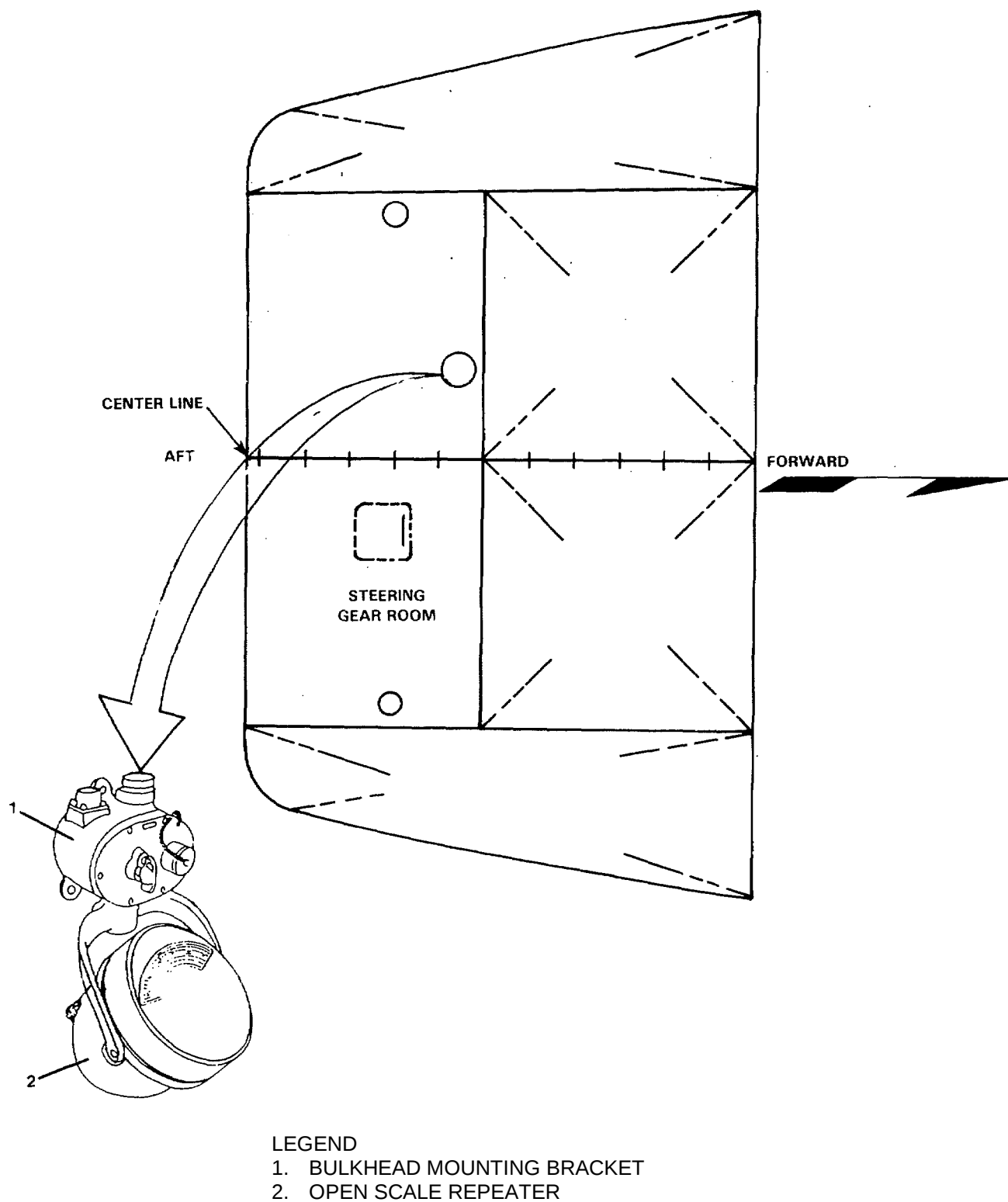
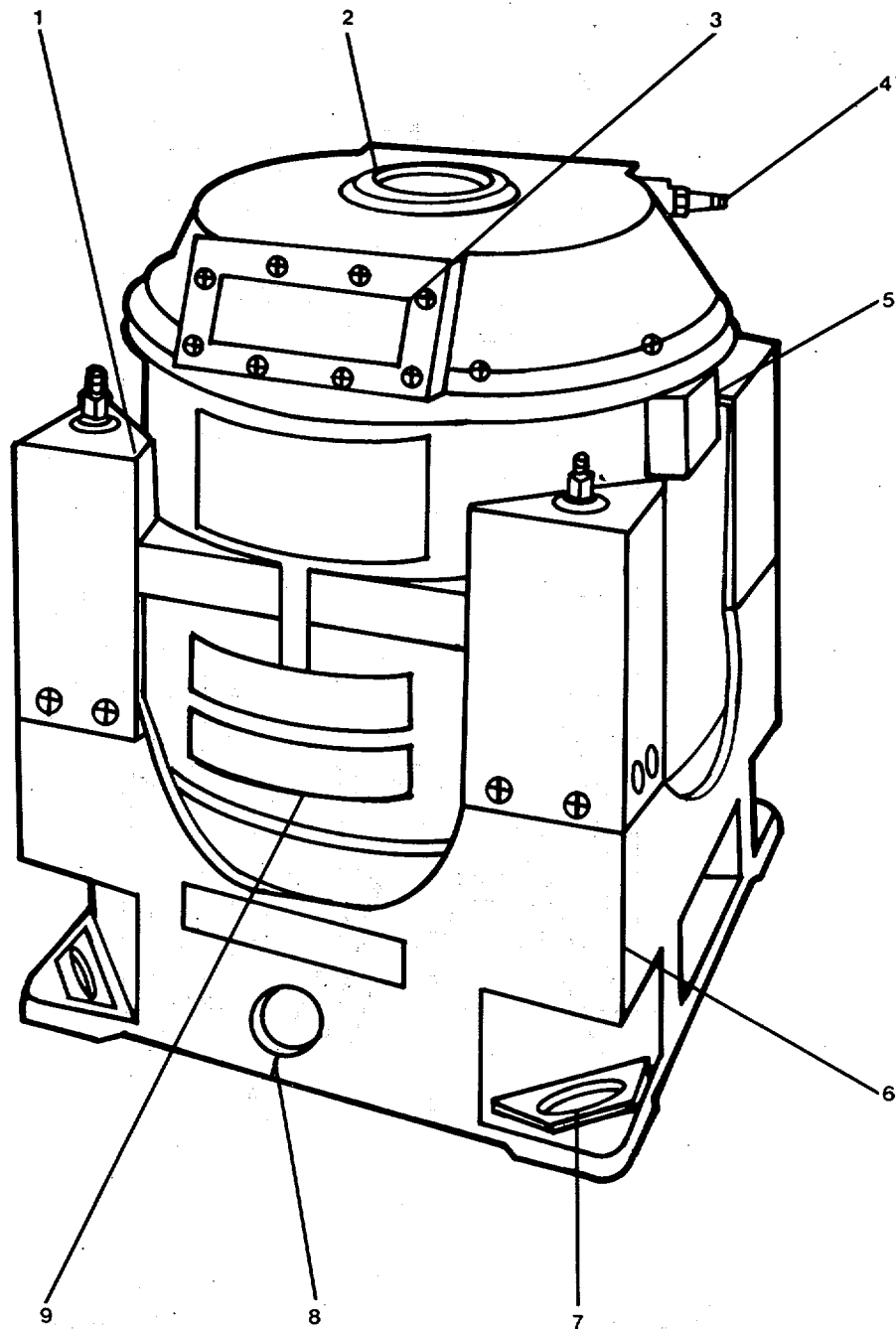


FIGURE 1-4. Gyro Compass Equipment Location (Below Decks - AFT).



LEGEND

- 1. VIBRATION SHOCK MOUNTS
- 2. CAGER BUTTON
- 3. VIEWING WINDOW
- 4. FILL AND DRAIN VALVE (COVER REMOVED)

- 5. JACK (J1)
- 6. MOUNTING BASE
- 7. MOUNTING BOLT HOLES
- 8. ALIGNMENT MARK
- 9. BINNACLE

FIGURE 1-5. Gyro Compass.