

Summary Report for Individual Task  
551-8ST-3016  
Conduct Operations of an Emergency Steering System  
Status: Approved

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**Distribution Restriction:** Approved for public release; distribution is unlimited.

**Destruction Notice:** None

**Foreign Disclosure: FD1** - The materials contained in this course have been reviewed by the course developers in coordination with the Transportation School, Fort Lee, Virginia 23801 foreign disclosure authority. This course is releasable to students from all requesting foreign countries without restrictions.

**Condition:** Given a vessel underway in an Operational Environment (OE), during both day and night, under all weather conditions, as part of a drill or in response to actual emergency. You are required to operate the emergency steering.

**Standard:** Operated Emergency Steering System in accordance with TM 55-1925-273-10-2, or TM 55-1915-200-10, or TM 55-1905-223-24-9, or TM 55-1905-223-10, or TM 55-1925-236-12 and SOP's without injury to personnel or damage to equipment. The vessel is fully mission capable at task completion.

**Special Condition:** None

**Safety Risk:** Medium

**MOPP 4:**

<b>Task Statements</b>
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**Cue:** None

<b>DANGER</b>
None

<b>WARNING</b>
<b>HIGH PRESSURE HYDRAULIC SYSTEM HAZARDS</b>
Hydraulic systems can cause serious injuries if high pressure lines or equipment fail.
Never work on hydraulic systems or equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment, and who can give first aid. A second person should stand by controls to turn off hydraulic pumps in an emergency. When the technicians are aided by the operators, the operations must be warned about dangerous areas.
<b>ELECTRIAL HAZARDS</b>
Whenever possible, the power supply to the equipment must be shut off before beginning work on the equipment. Do not be misled by the term "low voltage." Potentials as low as 50 volts may cause death under adverse conditions.
Be careful not to contact 115-Vac input connections when installing or operating this equipment.
Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through the body.

## CAUTION

Identifies an operating or maintenance procedure, practice, condition, or statement, etc., which if not strictly followed could result in destruction of, or damage to equipment, or serious impairment of system operation.

**Remarks:** None

**Notes:** None

## Performance Steps

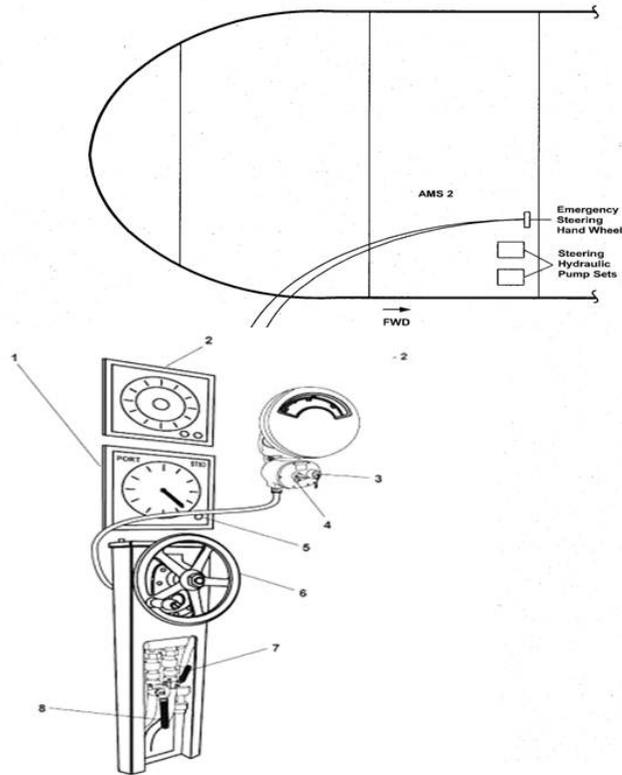
### 1. Conduct emergency steering operations on a Large Tug (LT).

Note: Emergency steering can be accomplished by Hand-Hydraulic steering and Manual power hydraulic steering.

#### a. Perform Hand Hydraulic Steering.

Note: Hydraulic steering is accomplished when power is lost at the steering hydraulic power pack.

(1) Ensure Soldier opens HAND PUMP valves SH-7 and SH-8 (figure 1, item 8 and 8).



Emergency Steering Station  
Figure 551-8ST-3016-05

(2) Ensure the Soldier secures both steering pumps (figure 2, item 1).

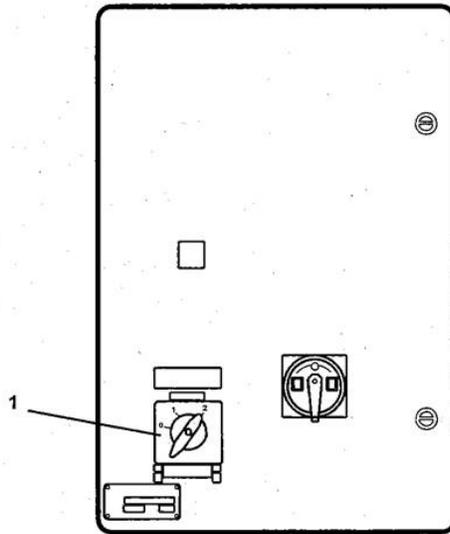


Figure 551-8ST-3016-10  
Steering Motor Controller

(3) Ensure the Soldier steers the vessel with the handwheel (figure 1, item 6).

Note: Steering the vessel under unusual conditions will require two crewmembers. One to steer the vessel and one to communicate with the pilothouse via telephone headset for all course changes.

(4) Ensure the Soldier refers to the gyro compass repeater to displays the vessel's heading (figure 1, item 2).

(5) Ensure Soldier refers to the rudder angle indicator to view the rudder angle in degrees (figure 1, item 1).

(6) Ensure one Soldier communicate via telephone headset with the pilothouses for any course changes.

(7) Return steering system to normal operations.

Note: Once the malfunction is repaired, the steering system can return to normal operations.

(a) Ensure Soldier secures HAND PUMP valves SH-7 and SH-8.

(b) Ensure Soldier turns on steering pumps.

#### b. Perform Manual Power-Hydraulic Steering

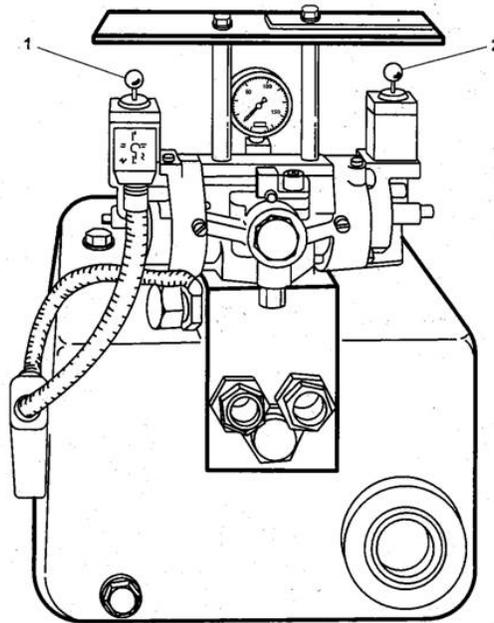
Note: Manual power hydraulic steering mode is used when a malfunction results in loss of control in the pilothouse, but power is still available at the steering hydraulic power pack Auxiliary Machinery Space (AMS).

(1) Ensure Soldier changes both steering gear motor controller to LOCAL CONTROL (figure 2, item 1).

Note: No change to valve alignment is necessary for this steering method.

(2) Ensure the Soldier steers the vessel using the control valve handles on each power pack.

(a) Ensure the Soldier uses the port control valve handles on each power pack to change course heading to the LEFT(Figure 3, item 1).



Rudder Power Pack  
Figure 551-8ST-3016-20

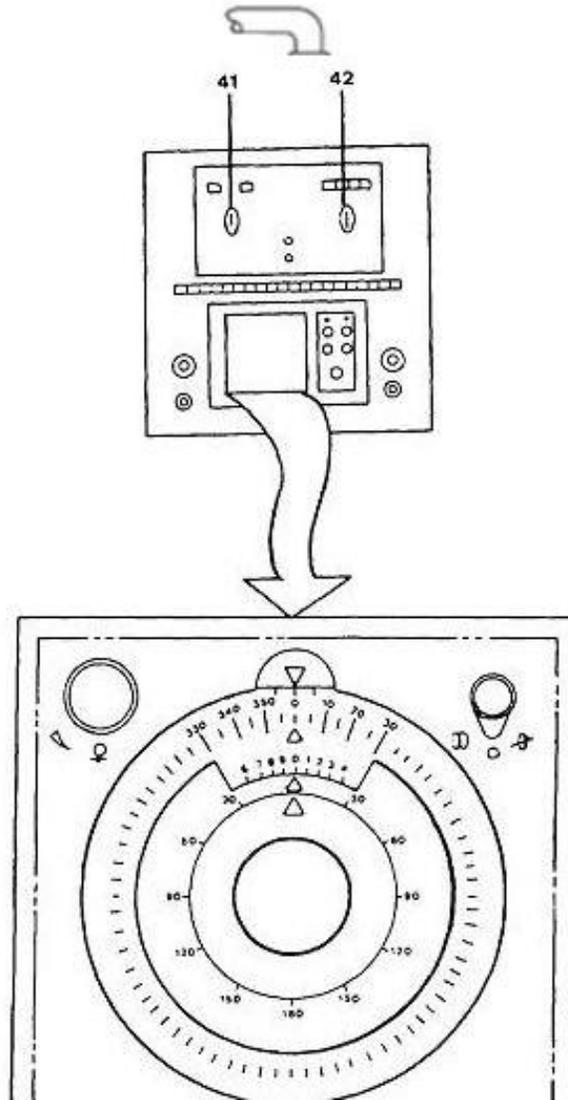
(b) Ensure the Soldier uses the starboard control valve handles on each power pack to change course heading to the RIGHT(Figure 3, item 2).

(3) Return steering system to normal operations.

Note: Once the malfunction is repaired, the steering system can return to normal operation.

2. Conduct the operation of emergency steering on a Logistic Support Vessel (LSV):

a. Ensure the Soldier selects the #2 pump position at the steering console PUMP SELECTOR switch (Item 41) or if you are operating on the #2 pump, select the #1 pump position. (refer to Figure 551-8ST--3016-30)



Pilothouse Steering Cabinet  
Figure 551-8ST-3016-30

b. Ensure the Soldier attempts to steer the vessel. If unable to steer, select the non-follow-up (NFU) mode with the MODE SELECT switch (Item 42).

## CAUTION

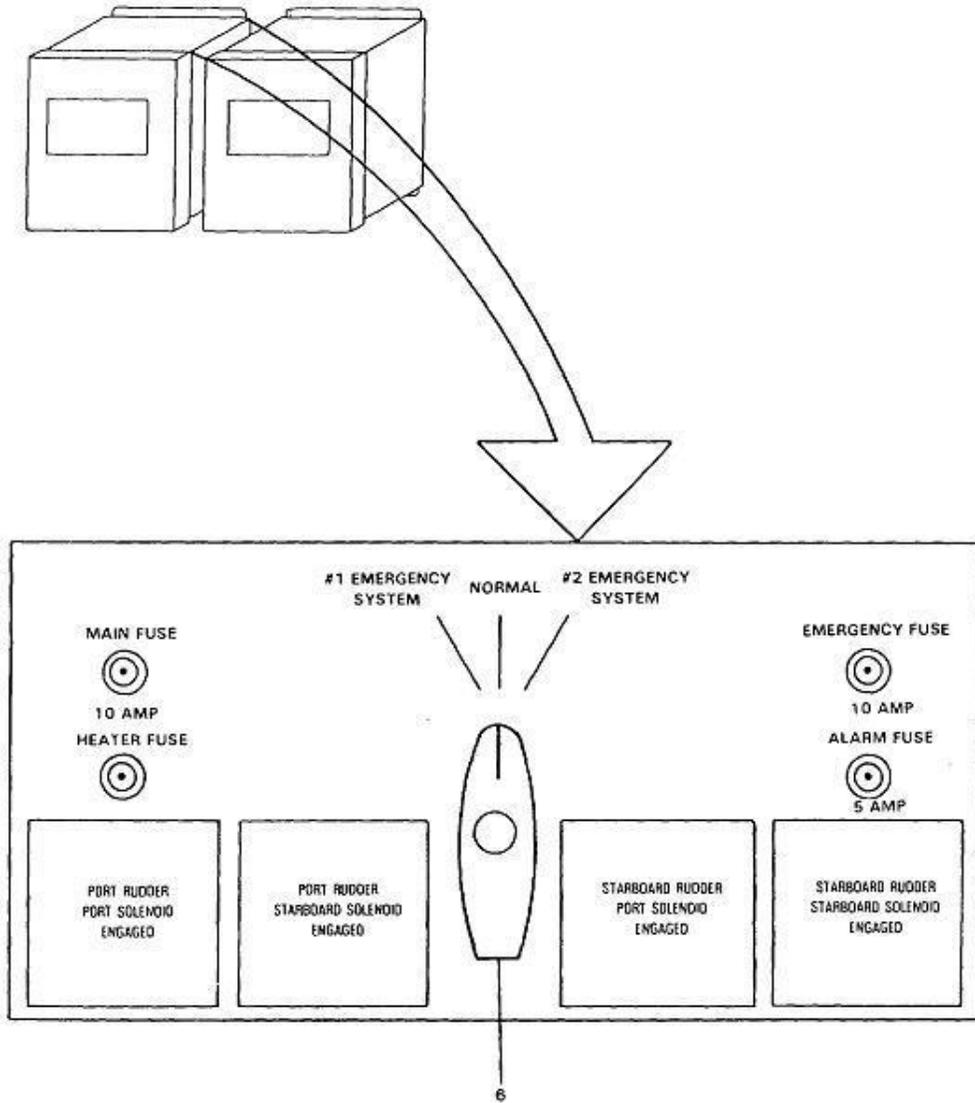
If a low hydraulic fluid level alarm is present, steer the vessel with as little rudder movement as possible. The low level may have been caused by a leak which could deplete the hydraulic fluid of the power unit in use.

c. Ensure the Soldier dispatches an engineer to determine the cause of the loss of steering if steering is available.

d. Ensure the Soldier isolates any leaks by closing appropriate valves.

e. Ensure the Soldier dispatches a crew member to the Emergency Steering System Station and establish communication on the sound powered telephone system if steering is not possible from the pilothouse.

f. Ensure the Soldier switches the Emergency Transfer selector (Item 6) located in the Emergency Steering System Station, to #1 Emergency System position. (refer to Figure 551-8ST-3016-40)



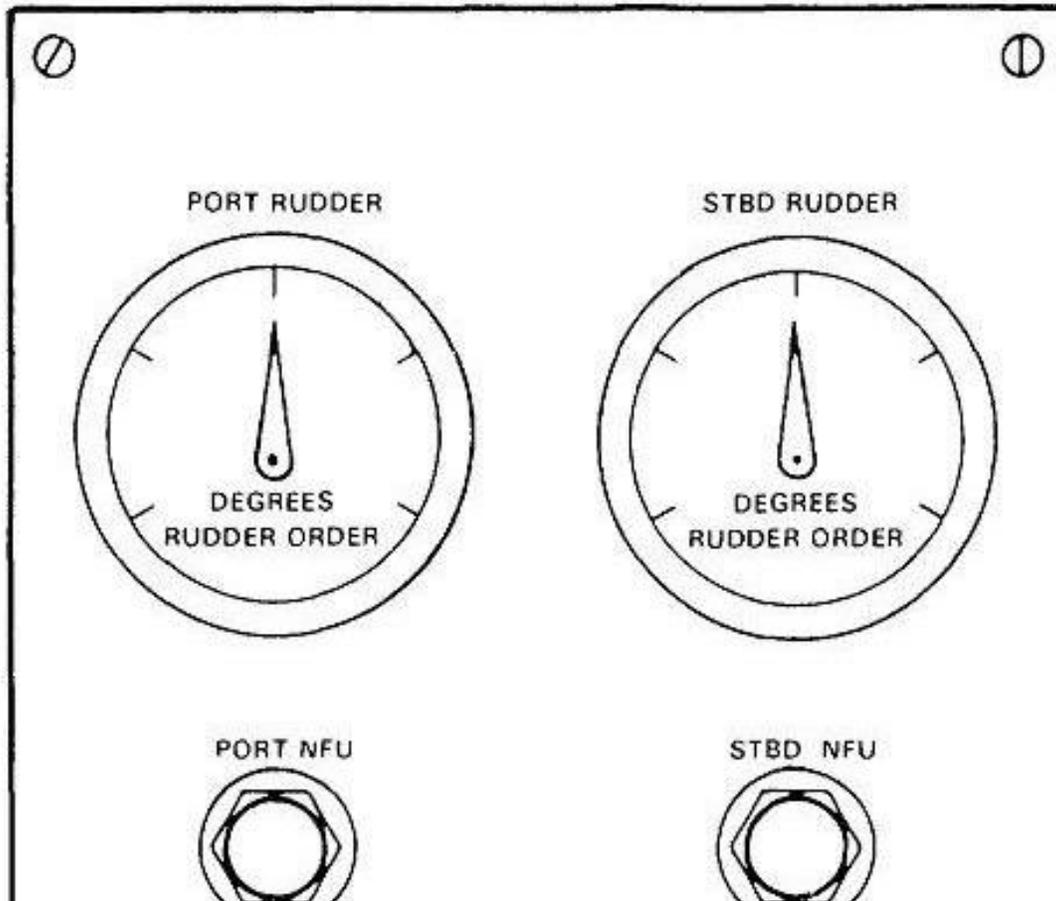
Emergency Transfer Panel with Port Displayed  
Figure 551-8ST-3016-40

g. Ensure the Soldier attempts to steer the vessel using the Emergency Steering Station joysticks (refer to Figure 551-8ST-3016-50, Items 3 and 4) at the direction of the helmsman by performing the following steps:

- (1) Move the joystick(s) to the left for left rudder or to the right for right rudder.
- (2) Keep moving the joysticks until the rudders are in the desired direction until the joysticks are released.

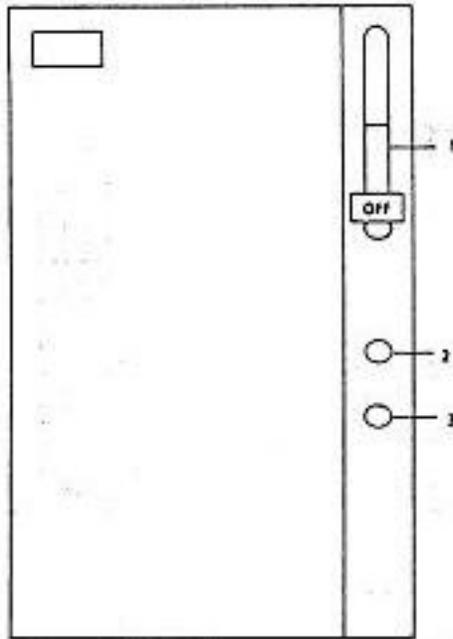
Note: The PORT NFU joystick controls the port set of rudders and the STBD NFU joystick controls the starboard set of rudders. NFU indicates the rudders are in Non Follow Up mode and are independently operated by the joysticks.

NOTE: The joysticks are spring loaded and will return to the middle when released.



Emergency Steering Station  
Figure 551-8ST-3016-50

3. Conduct the operation of emergency steering on a Landing Craft Utility (LCU).
  - a. Ensure the Soldier selects Unit A if control of pumpset A is desired.
  - b. Ensure the Soldier selects Unit B if control of pumpset B is desired.
  - c. Ensure the Soldier checks to verify that the power switch (Item 1) is in the On position. The power indicator light (Item 2) will be lit if the power is applied to the pumpset. (refer to Figure 551-8ST-3016-60)

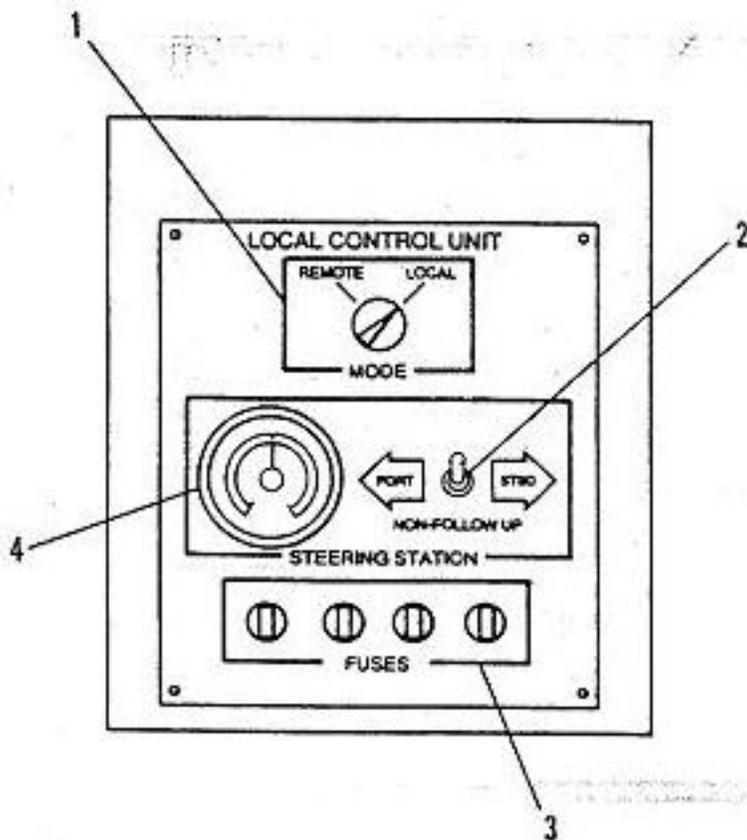


Steering Gear Motor Controller  
Figure 551-8ST-3016-60

d. Ensure the Soldier switches the control transfer switch to LOCAL to provide rudder control (Item 3).

Note: When maneuvering the ship in close quarters, the bow thruster water jet will normally be operated in conjunction with the steering gear. Refer to the LCU Operator's Manual (TM 55-1905-223-10) and the bow thruster water jet maintenance manual (TM 55-1905-223-24-6) for additional information about the bow thruster system.

e. Ensure the Soldier sets the LOCAL/REMOTE CONTROL switch (Item 1) to LOCAL. (refer to Figure 551-8ST-3016-70)



Steering Gear Room Local Control Unit  
Figure 551-8ST-3016-70

- f. Ensure the Soldier operates rudders using the spring loaded switch in the STEERING STATION block.
- g. Ensure the Soldier moves the switch to the left for left rudder control or to the right for the right rudder control (Item 2).
- h. Ensure the Soldier provides protection for electrical circuits (Item 3).
- i. Ensure the Soldier releases the switch when the rudder has reached the desired angle as indicated in the rudder indicator (Item 4).

(Asterisks indicates a leader performance step.)

**Evaluation Guidance:** Score the soldier a GO if all performance measures are correctly completed/pass (P). Score the Soldier a NO-GO if any of the performance measures are missed or incorrectly performed/fail (F).

**Evaluation Preparation:** Test this task in conjunction with Basic Navigation assessment. Ensure Soldier understands why this task is important to the overall safe navigation of the vessel

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Conducted the operation of emergency steering on a Large Tug (LT).			
2. Conducted the operation of emergency steering on a Logistic Support Vessel (LSV):			
3. Conducted the operation of emergency steering on a Landing Craft Utility (LCU).			

**Supporting Reference(s):**

Step Number	Reference ID	Reference Name	Required	Primary
	TM 55-1905-223-24-10	UNIT, INTERMEDIATE DIRECT SUPPORT AND INTERMEDIATE GENERAL SUPPORT MAINTENANCE INSTRUCTIONS FOR BOW RAMP ASSEMBLY FOR LANDING CRAFT UTILITY (LCU) (NSN 1905-01-154-1191) (REPRINTED W/BASIC INCL C1-2) (THIS	No	No
	TM 55-1905-223-24-9	UNIT, INTERMEDIATE DIRECT SUPPORT AND INTERMEDIATE GENERAL SUPPORT MAINTENANCE INSTRUCTIONS STEERING GEAR SYSTEM FOR LANDING CRAFT UTILITY (LCU) (NSN 1905-01-154-1191) (REPRINTED W/BASIC INCL C1-3) (THIS	No	No
	TM 55-1915-200-10	Operator's Manual for Logistic Support Vessel (LSV) (NSN 1915-01-153-8801) (Reprinted W/Basic Incl C1-6)	No	No
	TM 55-1925-223-24&P	UNIT, INTERMEDIATE DIRECT SUPPORT AND INTERMEDIATE GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) FOR MAIN REDUCTION GEAR FOR LARGE TUG (LT) (NSN 1925-01-247-7110) (THIS	No	No
	TM 55-1925-273-10-1	Operator's Manual For Inland Coastal Large Tug (LT) (NSN 1925-01-509-7013)(EIC XAG) (This item is included on EM 0272)	No	No

**Environment:** Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT. Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.

AR 200-1 delineates TRADOC responsibilities to integrate environmental requirements across DOTMLPF and ensures all training procedures, training manuals, and training doctrine includes sound environmental practices and considerations. The Army's environmental vision is to be a national leader in environmental and natural resource stewardship for present and future generations as an integral part of all Army missions. Environmental protection is never completed. Continuously be alert to ways to protect our environment and reduce waste.

Leaders must ensure that their unit has an active and strong environmental program. They must understand the laws and know what actions to take. Leaders bring focus, direction, and commitment to environmental protection. Commanding officers should ensure the following environmental programs are in place and are being maintained: -Hazardous materials program. -Hazardous waste program. -Hazardous communications program. -Pollution prevention and hazardous waste minimization recycling program. -Spill prevention and response plan program.

**Safety:** In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination. All operations will be performed to protect and preserve Army personnel and property against accidental loss. Procedures will provide for public safety incidental to Army operations and activities and safe and healthful workplaces, procedures, and equipment. Observe all safety and/or environment precautions regarding electricity, cable, and lines. Provide ventilation for exhaust fumes during equipment operation and use hearing protection

when required IAW AR 385-10, the Clean Air Act (CAA) and the CAA amendments, and the OSHA Hazard Communication standard.

Accidents are an unacceptable impediment to Army missions, readiness, morale, and resources. Decision makers at every level will employ risk management approaches to effectively preclude unacceptable risk to the safety of personnel and property affiliated with this task. (a) Take personal responsibility. (b) Practice safe operations. (c) Recognize unsafe acts and conditions. (d) Take action to prevent accidents. (e) Report unsafe acts and conditions. (f) Work as a team.

**Prerequisite Individual Tasks :** None

**Supporting Individual Tasks :**

Task Number	Title	Proponent	Status
551-88L-2046	Maintain a Hydraulic System	551 - Transportation (Individual)	Approved

**Supported Individual Tasks :** None

**Supported Collective Tasks :**

Task Number	Title	Proponent	Status
55-2-1506	React to Shipboard Emergency Aboard an Army vessel	55 - Transportation (Collective)	Approved
55-2-1508	Conduct Vessel Operations	55 - Transportation (Collective)	Approved

**ICTL Data :**

ICTL Title	Personnel Type	MOS Data
MOS 88K Watercraft Operator SL3	Enlisted	MOS: 88K, Skill Level: SL3, Duty Pos: TAV
88L40 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL4, Duty Pos: TGB, LIC: EN, SQI: O
88L30 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL3, Duty Pos: TFR, LIC: EN
MOS 88K Watercraft Operator SL 4	Enlisted	MOS: 88K, Skill Level: SL4, Duty Pos: TFJ