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R/V Tanganyika Explorer: Guidelines and Procedures (Revision 1)

by

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FINNISH INTERNATIONAL DEVELOPMENT AGENCY

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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The conclusions and recommendations given in this and other reports in the Research for the Management of the Fisheries on Lake Tanganyika Project series are those considered appropriate at the time of preparation. They may be modified in the light of further knowledge gained at subsequent stages of the Project. The designations employed and the presentation of material in this publication do not imply the expression of any opinion on the part of FAO or FINNIDA concerning the legal status of any country, territory, city or area, or concerning the determination of its frontiers or boundaries.

PREFACE

The Research for the Management of the Fisheries on Lake Tanganyika project (LTR) became fully operational in January 1992. It is executed by the Food and Agriculture Organization of the United Nations (FAO) and funded by the Finnish International Development Agency (FINNIDA).

LTR's objective is the determination of the biological basis for fish production on Lake Tanganyika, in order to permit the formulation of a coherent lake-wide fisheries management policy for the four riparian States (Burundi, Tanzania, Zaïre and Zambia)

Particular attention is given to the reinforcement of the skills and physical facilities of the fisheries research units in all four beneficiary countries as well as to the buildup of effective coordination mechanisms to ensure full collaboration between the Governments concerned.

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TABLE OF CONTENTS

1. INTRODUCTION

The Certificate of Acceptance and Delivery of *R/V Tanganyika Explorer* was signed on 4.1995. As a result, the LTR is now responsible for her operation for the duration of the charter.

The operation of a research vessel is a complex task. In order to facilitate it, comprehensive guidelines, procedures and forms were prepared and are now presented in two sections. Section A has two parts. Part 1 details the responsibilities, duties and authority of the key personnel *i.e.* the Master, Chief Engineer, Officer of the Watch and Senior Scientist and provides 'Ship Discipline Guidelines' as well. Part 2 specifies the vessel operational procedures and practices. These were adopted from the 'Guide to the Management and Operation of Marine Research and Survey Vessels'[1]. Section B contains examples of the administrative forms required to facilitate cruise planning and evaluation as well as provides the examples of the required logbooks. These were also adopted either from the above mentioned Guide and/or from previous FAO projects.

The preparation of this Field Guide and Manual was possible thanks to kind and effective assistance from the International Centre for Ocean Development and that of colleagues from FAO's Fishery Industry Division, namely its Director, Mr. John Fitzpatrick, and his senior officers, Jeremy Turner and Engval Jan de Boer. In addition, Mr. Germain Pajot, LTR consultant (Fisheries Technologist) made use of previously prepared FM/15, subsequently simplified it, added a new section on 'Responsibility, Duty and Authority of Deck Officer/masterfisherman' and modified Section B (List of Forms) of this Guide.

[1] ICOD. 1991. A guide to the management and operation of marine research and survey vessels. Halifax, Nova Scotia; International Centre for Ocean Development: 18 sections, 1441 p.

SECTION A

PART 1 PERSONNEL

A. Responsibility, Duty and Authority of the Master

Application:

This Instruction applies to all Masters, Reliefs Masters, and Officers (when assuming command in the absence or incapacity of the Master), employed aboard the LTR vessel.

General

Responsibilities of the Master:

The Master shall be responsible for the safety and efficient navigation of the ship, the safety and well-being of supernumeraries, passengers and crew, the proper handling, stowage and correct delivery of any cargo or supplies carried, compliance with any Regulations or fleet Instructions and Guidelines applicable to the ship and the service or operation engaged upon.

Although the actual performance of many of the Master's duties may be delegated to the ship's officer, the Master shall be held ultimately responsible for the entire management of the ship. The Master shall ensure that all officers are conversant with all Regulations, Deck Log Book Instructions, Fleet Instructions and Guidelines, and Standing Orders, relevant to their particular duties and that these duties are carried out in accordance with the normal good practice of seamen.

Duties of the Master:

The Master shall plan, organize and command the operation of the vessel to provide such services and facilities as may be determined and required by the LTR in support of and in cooperation with the LTR's programmes, activities and responsibilities.

The Master shall plan, organize and direct the management of the vessel to ensure that the ship's complement, material and equipment are supervised so that the vessel is operated within budgeted costs and in accordance with applicable plans, schedules, regulations, directions, standards and procedures.

The Master shall direct the operational control of the vessel and its navigation, pilotage and handling. In this regard, the Master shall ensure that all Watch Keeping Regulations and Log Book Instructions are understood and complied with by officers, and that officers make themselves aware of current Notices to Mariners, which shall be made readily available.

Authority of the Master:

The Master's authority is equal to his responsibility. The Master's authority to command the vessel is derived from the LTR. The nature and scope of this authority are defined in his Terms of References.

Ship Safety

General Guidelines

The Master's primary and essential responsibility is for the safety and well-being of the vessel, her pasengers and crew. It follows that those duties directly concerned with ensuring the safe operation of the vessel take precedence over any of the Master's other activities. Further, this concern for safety must govern all shipboard activity and create a safety-conscious context for the LTR and its management of all ship's business and operations.

The Master's authority with regard to matters of safety is commensurate with the burden of responsibility and authority both by promulgating those Regulations and instructions relevant to safety, and by setting an example of safety-consciousness to both officers scientists and crew.

Pertinent Regulations:

The Master shall be conversant with Regulations, Instructions, and standing orders relevant to the safety of the vessel and to the health and welfare of all persons on board, and shall ensure that all officers are familiar with the same.

Where applicable, the Master shall be conversant with and ensure that the vessel is operated in conformity with the safety of Life at Sea (SOLAS) Regulations, and especially with the following sections:

a) Chapter III - Life-Saving Appliances, etc. and

b) Chapter V - Safety of Navigation.

The Master shall be conversant with and ensure that the vessel is operated in conformity with the Collision Regulations, its Rules, Annexes and Schedules.

The Master shall be conversant with the following Regulations and Instructions, and ensure that the practices and procedures contained therein are complied with:

a) Load-Line Regulations;

b) Life-Saving Appliances Regulations;

c) Fire Detection and Extinguishing Equipment Regulations; and

d) Regulations governing Boat and Fire Drills.

Injuries and Illness:

The Master shall supervise the treatment of injuries and illness in the absence of medical staff, and shall ensure that he is kept informed of any medical treatment carried out on board. The Master shall investigate all accidents, determining the causes, implementing the necessary corrective measures to prevent recurrence and reporting them in accordance with the Deck Log Book Instructions.

Maintenance:

The Master shall coordinate the conduct of the husbandry, maintenance, survey and repair of the vessel, her associated small craft, machinery, facilities and equipment, with a due regard for the safety of the vessel, her passengers and crew.

The Master shall conduct a thorough inspection of all parts of the vessel at least once a week, and shall personally see that accommodation, galleys, storerooms, etc. are maintained in a ship-shape and sanitary condition. The Master shall ensure that dangerous goods are afforded proper stowage. A report of this inspection shall be entered in the Log Book and in the monthly report that is forwarded to the LTR Coordinator.

The Master shall take every possible precaution to ensure that stores and provisions are properly cared for, used, and expended.

Alcohol, Drugs and Firearms:

Due to the "self-contained" nature of ships, it is essential for the safety and security of the vessel that some general control be exercised in the areas of alcohol, drugs, and firearms. In Keeping with this, all personnel reporting on board a vessel shall not bring alcohol, narcotic or other controlled drugs, or firearms on board the vessel without the knowledge and consent of the Master.

The Master shall establish standards to be followed, which may be altered as circumstances dictate. Such standards shall determine the appropriateness of granting permission to bring such items on board the vessel at request of an individual.

Any alcohol, drugs, or firearms brought on board a vessel without the knowledge and consent of the Master shall be confiscated and the individual or individuals shall be subject to disciplinary action.

B. Responsibilities, Duties and Authority of the Chief Engineer

Policy:

Close cooperation should exist between Master and Chief Engineer; this is essential to the effective operation of the vessels. It is the duty of the Chief Engineer to support the Master and to help ensure that all orders are carried out, since the Master carries the ultimate legal responsibility for the vessel, its equipment and personnel.

Subject to the overriding authority of the Master, the Chief Engineer shall have authority over the Engine Room Department and its personnel, and be in full charge of the operation and maintenance of all its machinery.

Application:

This Instruction applies in general to all Chief Engineers.

Roles and Responsibilities:

The Chief Engineer shall be responsible to the Master:

a) **for the safe and reliable operation of the ship's engine room machinery as required by the Master**; for advising the Master of the capabilities, limitations and conditions of this machinery and the consequences of exceeding these conditions;

b) **for ensuring that the fuel supply and all other engine room commodities are adequate to meet the requirements of the ship's schedule**;

c) for the working efficiency and economical operation of the engine room machinery;

d) for the initiation and execution of preventive maintenance programs pertaining to all engine room and deck machinery, for the unscheduled repair of this equipment as required;

e) for the compilation of machinery defect lists and the submission of refit specifications for he scheduled refits;

f) for the requisitioning of machinery spares and materials necessary for the maintenance and operation of the ship's machinery and machinery spares;

g) **for the maintenance of engine room log books, records, reports and abstracts;**

h) for the compilation of probationary and annual assessments of engine room personnel; and

i) for the control, deportment and discipline (within the terms of the Organization's discipline code) of engine room personnel, while they are on duty in engine room.

The Master and Chief Engineer shall regularly confer regarding the quantity of fuel required and the propulsion mode desirable, having regard to prevailing winds, state of sea, and service requirements, in order to obtain the desired combination of speed and economy of the fuel consumption.

The Master or Officer in charge shall advise the Chief Engineer **in writing** when the vessel is to proceed to the lake.

The Engine Room Department should be allowed as much times as possible to prepare the machinery; any change in sailing plans shall be immediately reported to the Chief Engineer.

Duties of the Chief Engineer

Work Records and Engine Room Log Book:

The Chief Engineer shall keep a complete loose-leaf record of work done in the Engine Room Department, it shall be kept in such a manner that the information on adjustments and repairs can be readily ascertained.

The Chief Engineer shall keep the Engine Room Log Book and abstracts of the Logs. The abstract shall be forwarded, in duplicate, to the LTR Coordinator on completion of a voyage. Particular attention shall be given to making log entries as soon as possible following the events. They are intended to be descriptive; all pertinent sections of the log shall be completed to ensure a thorough record of how the ship is operating.

Full particulars of any damage or accident to the machinery shall be immediately entered in the Engine Room Log Book (together with any operational restrictions recommended by the Chief Engineer), and the Master is to be notified. The LTR Coordinator shall be informed of such damage on arrival in port.

Rules and Regulations:

The Chief Engineer shall be familiar with the rules and regulation of the national vessel Safety Inspection Authority and shall also be familiar with any rules and regulations pertaining to the vessel's classification.

Standing Orders and Supervision:

The Chief Engineer shall ensure that the engine room is properly manned at all times.

The Chief Engineer shall issue standing orders for the operation of the Engine Room Department and shall ensure that engine room staff are aware of and understand these instructions. A copy shall be forwarded to the Master.

The Chief Engineer shall be responsible for the welfare of engine room personnel.

The Chief Engineer shall lay out the schedule of work to be performed by Engine Room personnel.

The Chief Engineer shall be responsible for the conduct of the members of the Engine Room and shall report breaches of discipline to the Master.

The Chief Engineer shall ensure that junior engineers have a thorough knowledge of the propulsion machinery, auxiliary machinery, piping systems, valves, connections, and the location and use of fire fighting appliances. (Fire drills should include instruction in the use of fire fighting equipment.)

Watch-keeping and Maintenance:

The Chief Engineer shall make a daily inspection of all machinery spaces while the vessel is at the lake, so arranged that the operation of the machinery is monitored.

The Chief Engineer shall ensure that an Engineer Officer is on watch in the engine room or machinery control room whenever the propulsion machinery is operating.

The watch will be ensured on rotation of 4 hours by the Chief Engineer and the Assistant Engineer.

All irregular or unusual occurrence shall be logged by the Engineer Officer-of-the-Watch and reported to the Chief Engineer.

The Chief Engineer shall report to the Master any irregular or unusual occurrence that is cause for concern.

The Chief Engineer shall ensure that this duty is distributed fairly.

The Chief Engineer or other engineer in charge shall ensure that general maintenance of main engines and auxiliaries is efficiently carried out and that parts opened up for overhaul are properly reassembled.

Monitoring Fuel and Fuel Reports:

The Chief Engineer shall (after consultation with the Master, if necessary) compute the quantities of fuel and

lubricating oil required and regulate their consumption.

At noon each of operational day, the Chief Engineer shall supply the Master with a daily report indicating the amount of fuel consumed during the previous twenty-four hour period and the amount of fuel remaining. On passage, a report of the average revolutions during the preceding twenty-four hour period shall also be made to the Master daily at noon.

The Chief Engineer shall immediately report to the Master any discrepancies in fuel remaining, due to oil spillage or other accident, in order that the Master is kept fully advised of the quantity of fuel aboard at any given time.

Fuelling:

In concert with the Master, the Chief Engineer shall give special attention to fuelling, shall be responsible for ensuring that the proper quantities and grades of fuel are received, and that the fuel is not contaminated.

The Chief Engineer shall ensure that relevant oil pollution regulations are at all times carefully observed and complied with in an exemplary manner. The Chief Engineer shall attend, or ensure that an engineer attends, at the loading of fuel oil.

Before taking on board fuel or gasoline, the Chief Engineer shall ensure that the necessary fire prevention precautions are taken.

The Chief Engineer is responsible for ensuring that the proper quantities and grades of fuel are received. The Chief Engineer shall note on all copies of signed receipts any appreciable discrepancy between shore and ship's measurements, if immediate adjustment is not possible.

Stores:

The Chief Engineer shall be responsible for all Engine Room Department stores and equipment, and shall ensure that an adequate inventory and accounting system is kept.

Refit, Repair and Docking Lists:

The Chief Engineer shall:

i) be responsible for the coordination of the ship's machinery defect list,

ii) in conjunction with the Master, assist in the preparation of any proposals for alternatives and additions, and

iii) write up a practical description of the work required to correct each defect, or to make a proposed alteration and addition.

Report on Repair Work:

A copy of the specification for contracted work shall be supplied to the Chief Engineer and the Master.

Prior to a ship leaving a shipyard or repair-yard, and at regular intervals during the course of the contract, the Chief Engineer will report to the Master on the quality of, an/or the deficiencies in the contracted work.

Watertight Doors

The Chief Engineer shall ensure that all Engine room Department watertight doors are kept in good condition and working order, ready for immediate use.

All watertight doors are to be operated at least once a week, and a record of this test entered in the Engine Room Log Book.

Appliances for manual operation of waterlight doors shall be kept securely nearby for use in case of emergency. The Chief Engineer shall report any failure of watertight integrity to the Master.

Fire alarms, low pressure alarms and similar alarm and safety devices shall be tested weekly, or as recommended by the manufacturer, and maintained in good working order. These tests shall be noted in the Engine Room Log Book.

c. Responsibility, Duty, and Authority of Deck Officer/Masterfisherman

The Deck Officer of the Watch is responsible to the Master for the safety of the ship as required by the ordinary practice of seamen, and shall:

a. remain on duty until properly relieved, and

b. make the necessary notations in the navigational Note Book and Log Book, in accordance with the Log Book instructions and prior to going off duty.

The Officer of the Watch shall exercise delegated command over all persons on board except the Master and Chief Engineer.

The Ship's Deck Watch Regulations require that each deck watch of a ship shall consist of:

a. a person in charge of the deck watch; and

b. a person qualified in the use of a radio-telephone, except where the person in charge of the deck watch is also international radio-telephone operating procedures.

Other responsibilities of the Deck Officer:

The deck officer shall also be acting as masterfisherman. When carrying out fishing operation close cooperation should exit between team leader, master and masterfisherman. It is essential to the effective fishing operation of the mid-water trawl.

Subject to the overriding authority of the master, the deck officer/masterfisherman shall be fully responsible for the maintenance and operation of the mid-water trawl and the keeping the Fishing Log Book.

Duties of the Officer of the Watch:

The Officer of the Watch shall:

a. at frequent intervals ascertain and record the position of the ship;

b. ensure that the ship is properly steered;

c. inform the Master, or cause the Master to be informed, of all:

i) strange objects or occurrences;
ii) potentially dangerous traffic situations;
iii) messages that in the officer's opinion, or in accordance with the Master's instructions, the Master should be made aware of;

d. when approaching land or pilotage waters, comply with the Master's instructions;

e. give the orders necessary to prevent any person being on the weather deck due to:
   i) adverse weather;
   ii) any alteration of course in bad weather; or
   iii) any other reason.

Responsibilities of the Officer of the Watch when Relieved by the Master:

a. All the duties and the responsibilities of the Officer of the Watch at sea referred to in this Section shall remain with that officer wherever the Master may be, unless relieved of all or any of them by specific order of the Master. **IF THE MASTER GIVES A DIRECT HELM OR ENGINE ORDER, THE MASTER IS DEEMED TO HAVE ASSUMED THE WATCH RESPONSIBILITIES, DURING THE MANOEUVERING OF THE SHIP.**

b. When the Master has assumed all or part of the Officer of the Watch's duties and responsibilities, the Officer of the Watch is not to resume those duties and responsibilities until the Master specifically orders the Officer of the Watch is ready and able to resume all duties of the Watch.

c. The Officer of the Watch shall immediately inform the Master when information received is insufficient to fully discharge the duties of an Officer of the Watch.

A lookout shall at all times be maintained by sight and hearing as well as by all available means appropriate to the prevailing circumstances and conditions. Reference: Collision Regulations (1972) - Rule 5.

No lights shall be visible from outboard which could cause the regulatory lights of the ship to be obscured or misconstrued.

Every precaution shall be taken to avoid damage to fishing gear deployed, laid, or moored by other ships.

Any indications of the following should be reported to the Master immediately:

a. foul cable; and

b. any other situation that may give cause for concern.

No person shall go aloft without permission from the Officer of the Watch. Rounds shall be made as requested by the Master.

Procedure for Taking Charge of the Watch

The taking charge of the Watch is a formal procedure requiring the effective integration of the following responsibilities and duties.

The Officer of the Watch being relieved shall inform the Relieving Officer of:

a. information pertinent to the safe navigation of the ship; and

b. orders or instructions in effect, or which remain uncompleted.

At night, Relieving Officers shall not take over night watches until their eyes have become accustomed to the dark.

The Relieving Officer shall ascertain:

a. that the ship is:

   i) in the charted position as determined by the most accurate means available;
   ii) not in danger of collision with another vessel or object;
   iii) being operated in compliance with the Master's orders.

b. that when uncertainty exists as to the position of the ship, the Master is informed without hesitation;

c. if danger of collision exists. In such circumstances, the relieving officer shall not take charge of the watch until the situation has been corrected, or the Master has been informed and the Relieving Officer has orders to take charge; and

d. the position, status and operational activity of each launch under the authority of the Master.

Procedure for Taking Charge of the Watch in Harbour:

The taking charge of the Watch in harbour is a formal procedure requiring the effective integration of the following responsibilities and duties:

The Officer of the Watch being relieved shall ensure that the Relieving Officer is fully conversant with:

a. the ship's harbour program;

b. the position, status and operational activity of each launch under authority of the Master; and

c. the Master's instruction.

The Relieving Officer shall:

a. be fully conversant with the ship's harbour program;

b. ascertain the position, status and operational activity of each launch under the authority of the Master;

c. be fully conversant with the Master's instructions.

Authority and Responsibility Aboard Small Craft or Boats

Coxswains or others in charge of small craft or boats are deemed the "Masters" of the craft to which they are assigned. While manning such vessels they are responsible for their safety and the safety of all those persons on board.

Where any small craft are concerned, it must be made absolutely clear to all persons on board or going aboard as to who is in charge of the craft. This must be done before the craft gets underway.

Authority and Responsibility in Absence of Master

When the Master is temporary absent, the next most senior deck officer by rank shall, on behalf of the master, exercise the powers and perform the duties of the Master.

Authority and Responsibility in Extraordinary Circumstances

when a ship has been wrecked or otherwise lost or destroyed, the order of command among the Master and the officers and crew shall remain unchanged.

When the Master Ceases to exercise Command:

Command of a ship or craft shall be assumed in the following order under the circumstances given:

a. When the Master has ceased to command, the next most senior deck officer by rank shall assume command.

b. In ships or craft which do not carry officers, command shall be assumed by the highest ranked deck department crew member present.

D. Responsibilities and Relationships of Ship's Personnel and Scientific Personnel

Policy:

Science activities aboard vessels must be cooperative in nature and involve interlocking responsibilities on the part of Masters, and Scientists, ship's personnel, and technicians. The following instructions and guidelines define these responsibilities when scientific work is being conducted aboard *R/V Tanganyika Explorer* that carry certificated Masters or ship's officers.

Roles and Responsibilities

Responsibility of the Master:

The Master shall be responsible for:

a) the safety, the efficient navigation of the ship, the maintenance of discipline and the well being of all personnel on board, in terms of pertinent regulations;

b) the management and proper conduct of ship's business, such as signing the crew and supernumeraries on or off, pilotage, customs, etc.;

c) ensuring that all reasonable requirements of the Senior Scientist, in charge of the research or survey, aboard ship are efficiently, enthusiastically and expeditiously met, and helping to foster an effective working atmosphere on board;

d) informing the Officer of the Watch each day of the areas in which the Senior Scientist proposes to work;

e) ensuring that the responsibility which is delegated to coxswains for the safety of small craft is clearly understood by all crew members and supernumeraries.

Responsibility of the Senior Scientist:

The Senior Scientist is responsible for sending a list of the members of the scientific party to the LTR Coordinator, who will arrange for their introduction to the Master and their embarkations aboard the vessel.

The Senior Scientist is responsible for:

a) carrying out the projects assigned by his or her sub-component Coordinator;

b) the efficient management of scientific field parties;

c) fostering an effective working relationship between scientific, staff and ship personnel;

d) complying with all relevant operational policies, Instructions and Guidelines and the LTR Coordinator's precruise instructions.

Liaison with the Master:

The senior Scientist will inform the Master as the purposes and requirements of the operation.

The Senior Scientist will ensure that the Master is informed each day of the areas in which work is proposed.

The Senior Scientist will discuss with the Master the proposed movements of the vessel, and indicate the limits of soundings with regard to possible danger areas. The precautions to be maintained to avoid possible dangers to navigation shall be decided together.

E. Ship Discipline Guidelines

Principles of Conduct:

The effective operation of the vessels depends on ships' personnel observing the following principles of conduct.

a) Obedience to lawful order.
b) Punctuality.
c) Attentiveness.
d) Sobriety.
e) Consideration for the well-being of others.
f) Care of the vessel and the accommodations it offers.

The following types of behaviour are not acceptable, and may result in disciplinary action being taken against the offender:

a) Insubordination.

b) Combining with others to impede the progress of the voyage or navigation of the ship.

c) Coercion of others to impede the progress of the voyage or navigation of the ship, or to perform their duties improperly.

d) Conduct, including disobedience, endangering the ship or persons on board.

e) Bringing an unauthorized person on board.

f) Absence without leave at scheduled time of sailing.

g) Being asleep on duty or being absent from the place of duty without a proper relief, or without proper authority.

h) Bringing or being in possession of unauthorized liquor or unprescribed drugs that act on the mind (e.g. stimulants, depressants, hallucinogens.etc.) on board.

i) Being impaired while on duty as a result of drunkenness or of taking a drug otherwise than in accordance with medical advice.

j) Drunkenness.

k) Assault.

l) Bringing an offensive weapon on board, or being in possession of an offensive weapon on board.

m) Theft, or possession of stolen property.

n) Behaviour which seriously detracts from the well-being of the others.

o) Wilful damage to the ship, her fittings, stores, or cargo.

p) Damaging accommodation or recreation facilities.

The list is not exhaustive and does not in any way limit the Master's authority to discipline.

Policy

Discipline Standards:

The Master shall ensure that all personnel listed in the Ship's Crewlist are aware of the standard of behaviour expected of them.

Master's Responsibilities:

The Master is responsible for the safety and good order of the vessel and all who sail in her. In the case of supernumeraries, while the Master is legally responsible for their safety and conduct, he would be wise to attempt corrective action through the Senior Scientist first. If all else fails, the Master must be prepared to deal with the situation directly.

Because of the good order and discipline that must be maintained in the confines of a vessel, the commission of a disciplinary offence on board a vessel is often of greater significance than if the same offence were committed on shore. For example, it might endanger the lives of others on board or increase the possibility of significant losses of property.

Procedural Guidelines

Purpose of Discipline:

The principal purpose of disciplinary action, with the exception of discharge action, is to correct employee behaviour that is not acceptable to the LTR. It is neither possible nor desirable to issue a complete code of behaviour, and as a result, disciplinary action may be taken for unacceptable behaviour even though it may not be recorded as a rule or regulations. On the other hand, it is extremely important to ensure that employees are made aware of specific rules that are considered to be mandatory, such as safety rules.

Timing of Discipline:

Timing is very important. Disciplinary action should normally not be applied in the "heat of the moment", but rather only after a careful consideration of all aspects of the situation, including consultation with the LTR Coordinator. At the same time, it is important to begin the disciplinary action with the offense.

Interviewing the Employee:

All Masters should ensure that before taking disciplinary action the employee is interviewed and given the opportunity to explain or defend his actions or position. Any such explanation must be carefully considered when determining disciplinary action.

Taking Disciplinary Action:

Disciplinary action should be suited to the infraction, and should be taken firmly, fairly and with consistency. Each case must be considered on its own merits, taking into account the nature of the offence and the circumstances that may have a bearing on the appropriateness of disciplinary action. This can include length of service, past record, the seriousness of the offence, the frequency with which it occurred in the past, and the probability of being repeated in the future.

Masters should avoid any sudden change in the application of the rules from one of leniency to one severe strictness. If a change in application of the rules is necessary, employees should be informed of the reason for the change before the change is implemented.

When imposing disciplinary action, the Master should tell the employee why the action is considered as misconduct, and how it should be corrected.

Since the main purpose of discipline is the maintenance of good order, it is essential that any corrective action taken is followed up to ensure that further breaches of discipline do not occur.

Maintaining Records:

In administering disciplinary action, Masters must always ensure that clear and complete documentation is maintained. Should the employee choose to grieve the disciplinary action, it will be incumbent to the Master to justify the action. As all disciplinary action depends, in part, on the past performance of the employee concerned, comprehensive records are essential for the effective administration of the system.

PART 2 OPERATIONS

A. Navigational and Bridge Practices

Introduction

Purpose and Scope: These instructions are designed as an aid to Masters in the function of command. It outlines practices and procedures of Deck department operations which may form the basis of Masters'standing orders. It provides background and references bearing on the safe, efficient and effective navigation of vessels, their security, and the maintenance of an appropriate level of operational documentation.

General

Navigational References:

The International Regulations for Preventing Collisions at Sea, 1972 (Collision Regulations), Hydrographic Charts and standard text books on navigation are the main navigational references. Deck watch keeping officers should study and be guided by the remarks relating to the use of charts as aids to navigation and the remarks relating to practical navigation contained in the Sailing directions.

Operations/Project Planning:

The Master, or appointed representative, should consider in planning each stage of an operation or voyage:

a) relevant information contained in the nautical publications carried on the vessel;

b) cautionary notes and other relevant information appearing on the chart carried on the vessel;

c) water level information, currents and water level predictions caused by meteorological conditions;

d) the effect of heel, trim, water density and squat on under keel clearance;

e) visibility and weather;

f) the power and manoeuverability of the vessel; and

g) the accuracy with which the ship can be navigated along the intended route. The Master is responsible for determining the safe position of the vessel at all times when on the lake.

The Master is responsible for ensuring that the ship carries up-to-date and corrected copies of all the charts and other navigational aids that are needed for the voyage.

Navigational Equipment Tests:

The Master, or appointed representatives, shall ensure that all navigational equipment on the board is in the efficient working order and calibrated, and that deck officers are thoroughly conversant with and proficient in all navigational methods likely to be used.

The Master, or the person designated by the Master, or the person in charge of the deck watch, shall test or check:

a) all navigational equipment required by any regulations, and

b) any additional navigational equipment fitted on the vessel for operations.

These tests and checks shall be carried out:

a) at least one hour before getting underway unless the equipment has been tested or checked within the previous 24 hours and has not been shut down; and

b) as often as necessary when underway and preferably at least once every 24 hours.

The performance of these tests and checks should be noted in the Deck Log book. At the discretion of the Master, a list of equipment requiring such tests may be drawn up to assist the person in charge of the deck watch in performing this task.

Tests or checks prohibited by local rule or regulation, or because they may cause fire or explosion, should be carried out as soon as permissible and safe.

The Master shall ensure that clocks and chronometers used in navigation of the ship are regularly checked for accuracy by radio navigational time signals. All clocks, especially those in the engine room, are to be synchronized with the bridge.

Navigational Records:

A record of the movements and activities of vessels shall be kept in the Deck Log Book; ensure that:

a) **information is recorded at the time that the movement, incident or activity occurs, or as sooner as after as possible;**

b) the log shows the time being kept on the board; and

c) the log is readily referenced to each calendar day.
The Deck Log shall note the following movement, incidents or activities, together with the time of occurrence:

a) engine movements of navigational importance;

b) passing principal points and navigation marks;

c) principal course alterations and courses steered;

d) gyro compass error, magnetic variation and deviation;

e) the setting and discontinuance of radar and radio watches;

f) navigational equipment testing;

g) any malfunction of navigational equipment;

h) operating errors in navigational equipment, if of a temporary nature;

i) incidents affecting the safe navigation of the ship;

h) entering and leaving port under difficult navigation conditions including;

i) restricted visibility;

ii) ice in a concentration so as to require extra- ordinary manoeuvers;

iii) adverse weather;

l) the observation of another vessel standing into danger (and action taken);

m) the change of the deck watch and the names of the watch keepers;

n) sounding of tanks and bilges;

o) draft before and after arrival in port; and

p) bunkers remaining.

Fitness to Perform Duties:

The Master, or person in charge of the deck watch, shall ensure that no person performs any duty or task that may affect the safe navigation of the vessel if:

a) the ability of that person is apparently impaired by alcohol or by any other drug; or

b) that person suffers by any unknown physical or mental disability that may prevent him from carrying out his duties effectively.

The Master shall ensure that no language difficulties exit between the person in charge of the deck watch and members of the crew.

Orders

Master's orders:

Orders respecting steering, engine movements, mooring lines or anchors should be given and responded to in a seamanlike manner.

Steering orders should reflect:

a) the amount and direction of the helm to be applied or taken off;

b) the direction of the helm and new course to be steered; or

c) the direction and rate of turn or swing required.

The person in charge of the deck watch shall ensure that all orders respecting the manoeuvering of the vessel are properly carried out.

Use of Navigation Equipment

Use of Radar and Other Navigation Equipment:

Radar should be considered a navigational aid and not a sole means of navigation. Initial radar fixes are often not reliable when making a landfall, identification at long range is difficult. Sounding should also be taken and meteorological conditions leading to super-and sub-refrections and "cluttered" lake conditions should be considered at all times. Officers are cautioned not to depend solely on the information supplied by radar for the safe navigation of the vessel.

Officers using radar shall familiarize themselves with the limitations of the equipment and the conditions under which certain targets may not be detected.

Navigational radar sets should be calibrated at intervals

recommended by the manufacturer, and as circumstances dictate.

The person in charge of the deck watch of a vessel with operational radar equipment shall ensure that an efficient radar watch is maintained:

a) in all conditions of reduce visibility;

b) from sunset to sunrise;

c) whenever radar information can be effectively used:

   i) in the navigation of the vessel, and

   ii) to provide early warnings of the approach of or to other ships; and

d) when the vessel is located within 5 nautical miles, or other distance stipulated by the Master, of any known potential hazard.

When using radar equipment, the person in charge of the deck watch shall ensure that:

a) the radar observer has received adequate training, and is familiar with the limitations of radar for anti-collision purposes;

b) the equipment is operational and correctly adjusted to prevailing conditions;

c) undue reliance is not placed on radar information;

d) information used is checked for accuracy by adequate observation;

e) the range scale selected is appropriate to the location and speed of the ship. Controls should be adjusted:

   i) to detect targets as early as possible,and

   ii) to the optimum settings for detection of weak echoes;

f) the observer is familiar with the performance, characteristics, and accuracy of the equipment, and makes adequate compensation for any known error;

g) the effect of any evasive action is evaluated by radar plotting or equivalent systematic analysis;

h) it is not assumed that a vessel detected:

   i) has radar information,
   ii) is experiencing similar visibility conditions,
   iii) can be identified by any fog signal heard or V.H.F. navigation safety signal received,
   iv) will maintain its course and speed, or
   v) will pass clear because the radar bearing is changing;

Use of Automatic Steering:

When automatic steering equipment is used in the navigation of a vessel, the Master or person in charge of the deck watch shall ensure that it is possible to establish manual control of the steering of the vessel immediately.

The person in charge of the navigation of the vessel shall make or supervise the automatic steering changeovers and adjustments; the mode of steering employed shall be clearly indicated at all times.

The Master, or the person in charge of the deck watch, shall ensure that another member of the deck watch is ready to assume steering duties without delay when the ship is:

a) in visibility conditions that may require prompt helm action;

b) in areas of high traffic density;

c) in a close quarters situation with another vessel; and

d) located within a prescribed distance, to be determined by the Master, of a navigational hazard of any nature.

Navigation Practices

Navigational Checks:

The Master should ensure that all important navigational decisions taken by one person are checked independently by another person when the ship is being navigated in:

a) the approaches to a harbour, port, river or narrow channel;

b) a harbour, port, river or narrow channel; or

c) an area of high traffic density.

Determination of Position:

The Master, the person in charge of the deck watch,shall:

a) determine the position of the vessel:

i) at intervals sufficiently frequent to ensure that the vessel closely follows the planned course, and
ii) as soon as possible when any doubt exists as to the position of the ship;

b) determine the depth of water whenever such information may contribute to the safe of navigation of the vessel;

c) not place undue reliance upon any ship-borne navigational aid or aid to navigation, especially those that are floating.

The Master, the person in charge of the deck watch,shall calculate vessel position and water depth (see (a) and (b) above)independently of navigational information received from a traffic control centre.

Speed:

The person in charge of the deck watch is responsible for ensuring that the vessel does not exceed the speed at which she can be safely navigated.

The following factors are among those taken into account in determining a safe speed:

a) by all vessels:

i) the state of visibility;
ii) the traffic density, including concentrations of fishing or any other vessels;
iii) the manoeuverability of the vessel, with special reference to stopping distance and turning ability in the prevailing conditions;
iv) at night, the presence of background light (i.e. from shore lights, or from back scatter of the vessel's own lights);
v) the state of wind, current, and the proximity of navigational hazards;
vi) the draught in relation with the available depth of water;
vii) the Collision Regulations and Deck Log Book;
viii)local rules;
iv) the characteristics and the dimensions of any channel being navigated;

b) additionally, by vessels with operational radar:

i) the characteristics,efficiency and limitations of the radar equipment;
ii) any constraints imposed by the radar scale in use;
iii) the effect on radar detection of the state of the lake, weather, and other sources of interference;
iv) the possibility that small vessels and other floating objects may not be detected by radar at an adequate range;
v) the number, location and movement of vessels detected by radar.

Lookout:

The Master shall ensure that at least one person in the deck watch keeps a continual and vigilant lookout. The Collision Regulations, Rule 5, require that every vessel shall at all times maintain a proper look-out by sight and hearing, and all other means appropriate to prevailing circumstances, so as to fully appraise the situations and the risk of collision.

When the vessel is underway, the person in charge of the watch shall ensure that a proper lookout is kept over an arc of 360° from close alongside to the horizon.

Navigation in Restricted Visibility:

The work engaged in by the LTR will not normally require that vessels maintain full speed in restricted visibility. In such conditions, strictly observe Rules 19 and 35 of the International Regulations for the Prevention of Collisions at Sea (1972).

The Master, or the person in charge of the deck watch, shall bear in mind that:

a) radar information has its limitations. Deadheads and similar floating objects may not be detected;

b) as vessel navigating in restricted visibility must go at a speed that is safe in the circumstances.

Navigation in Pilotage Waters:

Where a vessel is proceeding under the conduct of a pilot, the Master or the person in charge of the deck watch shall:

a) provide the pilot with all pertinent information respecting the vessel's:

   i) manoeuvering characteristics;
   ii) drafts;
   iii) navigational equipment; and
   iv) propulsion and steering systems; and

b) ensure that the pilot has all the assistance necessary for the safe conduct of the vessel.

The pilot and the Master should communicate in a mutually language.

When the person in charge of the deck watch is in any doubt as to the safety of the vessel, he shall immediately inform the Master and the pilot.

The fact that the vessel is under the conduct of a pilot does not relieve the Master or the person in charge of the deck

watch from the necessity of complying with the usual Regulations and Instructions.

Narrow Channels, Rivers, Harbour and Anchorages:

Before committing a vessel to a narrow channel, the Master or the person in charge of the deck shall ensure that it is safe to do so in the prevailing and predicted circumstances.

The Master or the person in charge of the deck watch of the vessel approaching an anchorage, or approaching and navigating a channel, harbour or river shall:

a) have the anchors cleared away and, where necessary, buoyed; and

b) make suitable arrangements so that an anchor can be let go without a delay.

Coastal Navigation:

Navigation by "seaman's eye" when in sight of land is to be discouraged. Master should ensure the frequent plotting (at half hour intervals or less where possible) of the vessel's position by recognized navigational techniques. Proper navigational records must be kept at all times.

The Deck Watch:

When the ship is underway:

a) the person in charge of the deck watch should be on the bridge, except when properly relieved;

b) another member of the deck watch should be steering the vessel except where:

   i) automatic steering is used; or
   ii) under the ship's Deck Watch Regulations, the only person required to be in the deck watch is the person in charge.

When a person relieves another person from a duty relating to the navigation or conduct of a vessel:

a) the person taking over:

   i) shall clearly indicate to the person relieved that the duty is being assumed;

b) the person being relieved:

   i) shall clearly indicate to the person taking over that the duty is being relinquished;

ii) shall give every assistance necessary to ensure that the person taking over has a proper appreciation of the situation.

Relieving the Person of a Deck Watch:

Before taking a charge of the deck watch the person taking over shall ensure that:

a) the following are fully understood:

i) the Master's orders, any relevant bulletin, forecast or warning, or navigation safety signal that has been received;

ii) the Collision Regulations, any local rules, or other appropriate rules; and

iii) the course to be followed by the vessel including any compulsory or recommended route;

b) all charts and navigational publications needed for sale navigation are in working order and readily available;

c) the operation of navigational equipment in use is checked;

d) all relevant circumstances are adequately appreciated, including:

i) the position, course and speed of the vessel;

ii) the tidal current, weather and visibility conditions to be encountered;

iii) the nature of, and probable time of encountering, any navigational hazard;

iv) any charter route to be crossed;

v) the movement of vessels in sight or known to be in the vicinity, and target echoes appearing on the radar display,

vi) any risk of collision that exists;

e) during the hours of darkness the person taking over has fully adjusted to night vision.

Where the person taking charge of the watch has any doubt as to the safe navigation of the vessel the following steps must be followed immediately:

a) inform the person to be relieved;and

b) call the Master.

When any danger to navigation or collision requires immediate action, the relief shall be differed until such action

has been completed and its effect evaluated.

Keeping the Deck Watch:

The person in charge of the deck watch shall:

a) ensure that members of the deck watch are fit for duty and properly carry out their duties;

b) maintain a vigilant watch on the position, course and speed of the ship including compass comparisons;

c) Where possible, determine compass errors at least once every 4 hours and as otherwise required for safe navigation;

d) take precautions in the light of any change in conditions affecting safe navigation;

e) call the Master, or officer designated by the Master, whenever any doubt exists as to

   i) the safety of the ship, or

   ii) the sufficiency or the efficiency of officers on watch; and

f) summon additional crew members whenever any doubt exists as to sufficiency or the efficiency of the watch.

Each member of the deck watch shall, in accordance with ordinary practice of seamen:

a) acknowledge and carry out all lawful orders; and

b) immediately report any malfunction of equipment or other occurrence that may affect the security of the ship.

No person shall leave the place of duty until relieved.

Anchoring and Anchor Watches

Before the anchoring the Master should ensure that:

a) the anchorage is

   i) safe in prevailing and predicted conditions,

   ii) well clear of any underwater pipeline, cable or similar installation, and

   iii) not foul;

b) the vessel is not prohibited by law from anchoring in the area; and

c) the position of the ship is continually assessed during the

approach period.

The Master or the person in charge of the deck watch of a vessel at anchor shall:

a) determine and plot the vessel's position on the appropriate chart as soon as possible and at sufficiently frequent intervals to ensure that the vessel remains securely at anchor;

b) take precautions against

   i) a foul hawser,

   ii) excessive steering,

   iii) dragging;

c) ensure that the steering system and main engines are ready and that further precautions required by the ordinary good practice of seamen or the prevailing or predicted circumstances are taken.

Navigational Warnings and Forecasts:

The Master should ensure that relevant navigational warnings, traffic and routing information and weather recasts and similar navigational information are obtained:

a) prior to getting underway; and

b) when underway, by maintaining an appropriate radio listening watch without interrupting the continuous watch.

B. Engine Room Practices

Policy:

It should be policy that:

a) The Engine Room Department is responsible for the maintenance and upkeep of

   i) all machinery, except that the Deck Department will look after paint work of deck machinery;

   ii) all ships' piping systems, except that the Deck Department will look after paint work of the parts of systems of outside the compartments assigned to the Engine Room Department;

   iii) all internal alarm, monitoring, control and communication systems;

   iv) all electrical supply and distribution equipment as detailed by the Marine Super-intendent;

v) all machinery spaces, fuel and lubricating oil tanks, and fan, refrigeration, air conditioning, and sewage equipment;

vi) all ladders and companionways leading into or contained within spaces for which the Engine Room Department is responsible.

b) These areas of responsibility shall be maintained, and the work in them performed, in accordance with this instruction, good engineering practice and the LTR's concern for safety and efficiency.

Definition:

"Machinery Space" includes the main engine room, auxiliary engine room, steering gear rooms and other spaces containing machinery for the vessel.

Safety

Cleanliness:

Keep Engine Room bilges clean and free from oil. They shall be inspected regularly by the Engineer on watch, and the source of any oil leakage stopped.

Drip trays, tank tops, floor plates, gratings, ladders and handrails shall also be kept clean and oil, grease or water drippage, oil raggs, waste or garbage of any kind.

Fire-fighting and Safety Equipment:

In cooperation with the Deck Department, ensure that fire-fighting and safety equipment is maintained in good operating condition at all times.

When ship's power is not available, provide fire protection by an external source.

Prevention of Personal Injury:

Secure all floor plates, gratings, ladders, handrails, tools and movable equipment and where applicable assure that protective guards against moving machinery are in place. When floor plates, manhole covers, ladders or other similar equipment are removed for any purpose, make provisions to prevent personal injury.

Lifting Gear (used in the operation or maintenance of the Engine Room and its machinery):

Inspect chain blocks, rope tackles and slings before use, and ensure that the gear is adequate for its intended function.

Inspect strong backs, eyebolts and shackles before use; they should be of size adequate for the lift to be made. Screw threads

on all lifting gear and lifting hole must be in good condition.

Use only chainblocks, wire slings and special lifting gear for heavy machinery lifts.For difficult lifts requiring the use of exceptional rigging, the Chief Engineer may request the assistance of the Deck Department.

Fuel Oil Leakage:

Promptly correct fuel oil leakage from bunkers, tanks, burners, valves, pipelines, or other parts of the oil fuel equipment in order to prevent the accumulation of vapour. Lagging on pipelines and heaters that becomes saturated by fuel oil must be removed immediately.

Entering Tanks:

No one shall enter a tank or an enclosed space without first notifying the Master, or an officer who the Master designates as responsible. Prior to entering such a tank or space, take all precautions to ensure that the tank or enclosed space is gas-free and has been ventilated. If the space has contained any liquid other than water, the Master or responsible officer shall ensure that a competent person test the atmosphere using an approved testing device. If doubt exists, wear an approved breathing apparatus. The use of an adequate lifeline tended by a responsible person is mandatory in all cases.

Pressure Gauges and Indicators:

Pressure Gauges and other indicating instruments on equipment or systems in service shall be closely monitored at all times. Test instruments when any defect is suspected and calibrate after the correction of any known defect.

Work on Machinery:

No one shall be permitted to enter crankcases, or work on machinery until:

a) they are isolated from sources of power;

b) drains of vents are opened to provide adequate ventilation;

c) the machinery is completely free of any pressure or vacuum which could cause movement; and

d) turning gear, brakes or other blocking arrangements are properly connected.

As soon as turning gear has been engaged, a notice reading "TURNING GEAR IN" shall be posted at the starting controls of the machine.

Post warning or danger signs where necessary, and secure firmly. Signs should clearly indicate the warning or danger, and

be large enough to be easily seen and read.

Cleaning Agents :

The use of all cleaning agents which may create an explosive or toxic condition shall be closely controlled. In general, such cleaning agents should bear the approval of the National Standards Association and should used only as directed.Keep liquid and vapours from cleaning agents from creating a toxic or explosion hazard.In general, the use of gasoline, kerosene or other volatile hydrocarbons is prohibited in machinery areas. Parts (e.g. air filters and air compressors) cleaned outside these areas must be thoroughly dried prior to reassembly to prevent the possibility of explosion.

Smoke Nuisance:

Heavy fines can be imposed for contravening harbour regulations against the emission of smoke from vessels. Take precautions at all times to prevent such smoking.

Operations - General

Role of Master and Chief Engineer:

The safety of the vessel, its equipment and personnel, are the responsibility of the Master, and he has full authority over its operation, in port and at the lake. The Chief Engineer shall operate the main propulsion machinery as required by the Master; he shall, however, advise the Master on its safe, efficient and economical operation, pointing out any limitations, and explaining the likely consequences of operating outside these limitations.

Duty of Engineer:

Consistent with the foregoing paragraph, it shall be the prime duty of the Chief Engineer, and of each watch keeping Engineer, to operate the vessel's main and auxiliary machinery safety, efficiently and economically.

Auxiliary Machines:

The number of auxiliary machines in operation shall be selected to give the most efficient and economical operation; howerever, the Master may require the use of additional machinery when entering or leaving harbour, when manoeuvering in confined waters, or at any time he sees fit.

Responsible Operation of Machinery:

Machines should be operated in accordance with any manufacturer's instructions provided. Note, and maintain where possible, recommended temperatures, pressures, vacuum, speed, etc.

Prevention of Waste:

All sources of waste, such as improper combustion, leaks, water, air, fuel, lubricating oils, and electrical grounds, shall be rigidly controlled. Attend to observed defects promptly.

Presence of Chief Engineer in Machinery Space:

The Chief Engineer shall be present at or in close contact with the machinery controls when the vessel is manoeuvering in confined waters, entering or leaving harbour, or at close quarters with another vessel.

The Chief Engineer shall carry out a daily inspection of machinery spaces.

The Chief Engineer shall ensure that the Engineer on watch known when they should call the Chief Engineer bellow.

The presence of the Chief Engineer does not relieve the Engineer on watch of any responsibilities, unless the chief Engineer official takes charge and informs the Master accordingly.

Machinery Defects - Report to Master:

The Chief Engineer shall report to the Master any defects in, damage to, or failure of, machinery and monitoring equipment which may affect the seaworthiness, speed or normal operation of the vessel. Except in an emergency, the Chief Engineer shall inform and consult the Master whenever it appears advisable or necessary to stop or slow the main propulsion machinery. The Master shall determine the best course of action and instruct the Chief Engineer accordingly.

Machinery in Use - Entering and Leaving Port:

When entering and leaving port, or manoeuvering in restricted waters, the full power of the propelling machinery should be available. Do not restrict power by running power take-off or by other means.

Ensure that standby auxiliary machines, such as generators, steering gear pumps lubricating oil pumps, circulating pumps, etc., are in operation or immediately available, in addition to the normal sea operating machines.

Machinery Overhaul at Anchor:

While the vessel is at anchor, the Chief Engineer must receive permission from the Master for any overhaul of main engines, steering gear, or other auxiliary machinery which may be required for use.

When permissible overhaul is being carried out, the Engineer in Charge shall advise the Deck Officer on watch of the anticipated and actual times of completing of work.

Inspection of Machinery:

The Chief Engineer shall make personal inspection of all machinery and equipment that is opened up for overhaul or repair. The Chief Engineer may require machinery or parts to be opened up if inspection is considered necessary or advisable.

Painting:

The Chief Engineer will issue instructions for painting in the machinery spaces.

Watertight Doors:

Maintaining watertight doors in machinery spaces in good working order and test by closing and opening once per week at the time of the lifeboat drill. Note this test in the Engine Room Log Book.

Doors to spaces not normally in use shall be kept closed except when staff are working in or entering such spaces.

Keep operating gears for doors free of obstructions.

Alarms, Safety Devices, Tests:

Fire alarms, low pressure alarms and safety devices shall be tested weekly or as recommended by the manufacturer, and maintained in good working order. **Tests shall be noted in the Engine Room Log book.**

Storerooms, Spare Parts, Tools:

Storerooms and machine shops should be clean and orderly. Keep stores, tools, equipment an spare parts in bins, lockers, racks or otherwise securely stowed. Special tools, bridge and similar gauges should be readily available when required.

Preparations for Getting Underway

Warnings Up Engines:

Before getting underway, the engines shall be thoroughly warmed up and turned over in accordance with the manufacturers recommendations. Open all vents and drain cocks when blowing around. Except in case of an emergency, the Master shall notify the Chief Engineer at least two hours before getting underway.

In case of an emergency the Chief Engineer shall use the best judgement, consistent with the circumstances, in warning up engines.

The Engineer on watch shall see to the warning up of engines. Engines shall be turned by turning gear only during warm

up.

Turning Propellers:

Before turning propeller while warning up engines, the Engineer on watch shall check with the Deck Officer on watch that it is safe to do so.

The Engineer in charge shall promptly stop engines on signal from the bridge.

Before turning engines at any other time, the Engineer in charge shall ensure that the propeller is clear.

Testing Equipment:

Before getting underway, the Engineer on watch shall arrange, in conjunction with the Deck Officer on watch, to test engines telegraphs, telephones, whistles, navigation lights, steering gear, and the propulsion machinery monitoring system.

Lubricating Oil and Fuel Oil

Lubricating Oil Treatment:

Keep lubricating oil in engine systems clean and free from impurities and water. When fitted, lubricating oil separators or coalescers shall be daily.

Periodic samples of lubricating oil, from the bottom of each engine or gear sump and from each engine circulation system, shall be taken for laboratory testing, as required by the Chief Engineer.

Soundings of Lubricating Oil and Fuel Tanks:

Soundings of all fuel and lubricating oil tanks shall be made daily on a regular basis and before and after taking on supplies in order to maintain an accurate record of consumption. These soundings should be recorded in the Engine Room Log Book.

Fuelling:

The Chief Engineer shall attend, or ensure that an engineer attends, at the loading of fuel oil. The Chief Engineer shall advise the Master of the quantity of fuel on board and its estimated requirements - consumption and surplus - for the intended voyage. The Master and Chief Engineer shall together determine fuelling stations and quantities required.

A half pint sample of fuel shall be taken at each fuelling and retained on board until the supply received has been consumed.

All fuel receipts should include the specification of the fuel and must be signed by the Chief Engineer.

The high suctions in fuel oil settling tanks should normally be used to prevent impurities from fouling the fuel system.

Do not discourage fuel, lubricating oil bilge water overboard, except in an emergency.

Machinery, Ship-borne Craft, Galley Equipment

Standby and Duplicate Machinery:

Maintain standby and duplicate machinery, unless under repair, ready for immediate use when required.

Standby machinery shall be inspected, lubricated and turned over, or moved by hand, weekly;
When practicable, test this machinery under power.

Duplicate machinery shall be used alternately, that is, changed over either weekly, or by passages, according to circumstances. Idle machinery is overhauled as required; turn over weekly by hand when out of use for period of over a week.

The Chief Engineer will draw up a schedule for the turning over of machinery and is responsible for ensuring that the schedule is strictly adhered to.

Steering Gear:

The Engine Room Department is responsible for the gear compartment and the steering gear.

The Deck Department is responsible for emergency steering gear compartment and the steering gear.

The Deck Department is responsible for emergency steering arrangements involving blocks and tackle. They are also responsible for the auto pilot and the helm angle indicators.

Refrigeration and Air Conditioning Equipment:

Refrigeration and air conditioning equipment is maintained by the Engine Room Department, except that coils in storage rooms are defrosted, under the instructions of the Chief Engineer.

Refrigerators in mess rooms and pantries are maintained by the Engine Room Department. Defrosting and cleanliness are the responsibility of the Chief Engineer.

A daily record of refrigeration unit temperatus shall be maintained.

Deck Machinery:

The Engine Room Department is responsible for the good working condition and repair of all deck machinery.

The Deck Department will paint deck machinery and lubricate it as recommended by the Chief Engineer.

Motorboat Engines:

The Chief Engineer is responsible for the maintenance and good operating condition of motor boat engines. The Chief Engineer is also responsible for ensuring that the concentration of antifreeze is adequate for anticipated weather conditions.

Galley Equipment:

The Engine Room Department is responsible for the mechanical upkeep and repair of oil burning and electrical equipment, steam and water piping in the galley, messrooms and pantries.

Laying Up Machinery

Draining:

Whenever machinery is to be laid up, thoroughly drain all parts subject to water accumulation and leave drains open. Remove packing from machinery stuffing boxes as required.

Open up all cylinders, casings, and valve chests, clean all internal parts and surfaces and coat with lubricating oil. Dismantle parts where this is necessary for complete oiling. Bearings should be well oiled.

Thoroughly drain all steam and water piping and parts where water may accumulate, and leave drain cocks open, or drain plugs out; securely attach drain plugs near the hole to prevent loss. If necessary for complete drainage, flange joints may be broken at the lowest points in pipelines or systems.

Grease Coating:

Clean and coat bright surfaces, other than bearing surfaces, with heavy grease.

Close up machines after complete oiling and greasing.

When available, corrosion inhibitors may be used for internal and external coating of machinery parts in lieu of oil or grease.

C. Maintenance and Upkeep of Vessels

General Policy:

It is the policy of the LTR that its vessels be kept in a

serviceable and exemplary condition up to or exceeding the pursuant to the relevant legislation by:

a) maintenance;

b) docking for underwater repair;

c) periodic refits in designated shipyards or repair shops;

d) emergency repairs.

Definitions:

In this section:

'dry docking' means the period during which a vessel is placed in dry dock, or on a marine railway, or is otherwise removed from the water for the purpose of survey or repair;

'emergency repairs' means those repairs required for work of an urgent nature to ensure the safety of the vessel or her crew, or for work which is necessary to meet an urgent operational requirements;

'notice for service' shall be promulgated by the Master. The notice may be designated 'operational notice for service', 'short notice for service', or 'extended notice for service';

'operational notice for service' means the time by the vessel is to be in all respects ready for the lake;

'short notice for service' means a period of time allocated for the performance of scheduled or non-scheduled maintenance, during which the vessel is non-operational. The downtime requires approval of the Master and should not normally exceed eight hours;

'extended notice for service' normally means a predetermined period of time allocated for a vessel refit programme or self refit;

'refit' means the work done to a vessel during a scheduled period, at which time annual or special surveys are conducted and the vessel and her equipment are brought up to standard for operational for operational readiness;

'repair' means the work done in rectifying damage or defects to restore the efficiency of the vessel or its equipment. This work is usually unscheduled;

'maintenance' means that upkeep work performed regularly by the ship's company;

'scheduled maintenance' means work which has been planned in advance and for which the work period has been established as part of the cyclic maintenance routine to obtain operating certificates from regulatory bodies or equip the vessel for

specific programmes;

'ship defect list' means a list of work required for refit, repair and scheduled maintenance or emergency repairs; this list is prepared by the Master and Chief engineer and forwarded to the LTR Coordinator for approval;

'ship maintenance schedule' means a list of scheduled maintenance routines as recommended by the ship builder and revised by the Master and Chief Engineer to reflect operational experience with equipment and systems.

Roles and Responsibilities:

The LTR Coordinator, Master and Chief Engineers have the joint responsibility of developing and implementing schedules for maintenance and refits, and other related activities when required, as discussed in the following sections.

Maintenance

Maintenance and Schedules:

LTR Coordinator, in conjunction with his Master and Chief Engineer, are to ensure comprehensive maintenance schedules for all vessels. This maintenance shall take place between periodic refits according to the circumstances of work to be done and operational requirements made for any assistance or supervision required from FAO Headquarters.

Notice for Service:

During Maintenance periods ships are to be placed at extended notice for service in order that machinery can be taken down and examined by ship's personnel and technicians be consulted when necessary.

Should the dry docking, stripping-down, or opening of a machinery of a vessel reveal any serious defect not reported the Master shall directly report the circumstances to the LTR Coordinator.

Inspection:

During Maintenance periods the Master and/or Chief Engineer shall ensure that the regulatory inspection requirements are closely observe.

Spare Parts:

When any spare parts are used to effect repairs, replacements are to be immediately requisitioned.

Refit Forecasting:

In the course of examinations during Maintenance periods,

note should be made in the defect lists of items that will be needed for period refits; any spare gear required for refit should also be forecast. These forecasts should minimize the number of supplementary defects.

Ship Defect Lists

Responsibility for Preparation of Ship Defect Lists:

The Master and Chief are responsible for the preparation of the Ship Defect List. The division of responsibility within the ship is normally as follows:

a) Deck Department: to include shell painting , decks, superstructure, anchors, holds, davits, lifting appliances, storage tanks, lifesaving, fire extinguishing and emergency appartus. All navigation equipment including radar, loran, radio, magnetic compasses (including boat's compasses), gyro compasses, ships' sounders, etc.

b) Engine Room Department: to include main and auxiliary machinery, boilers, stern gear, steering gear, deck machinery, including boat winches and windlasses, ship's power and lighting systems, pumping and draining systems, main refrigerators, bow thrusters, air conditioning, mechanical equipment associated with lifesaving, fire extinguishing and emergency appartus, and launch engines.

c) LTR Executive Assistant: to include galley, provisioning, catering equipment, furnishings, laundry, stoves, domestic refrigerators, drinking fountains, etc. (in vessels where no supply officer is carried, these items are usually dealt with by the Master).

Main hull and underwater repairs are within the jurisdiction of the Chief Engineer.

The Chief Engineer is responsible for electrical supply and distribution equipment. Where specialized pieces of electronic equipment are involved, maintenance and repair are the responsibility of the individual in charge of such equipment unless other arrangements have been specifically agreed in writing.

If the fully listed demarcations is not fully feasible, common usage shall prevail where responsibility is not defined.

The Master and the Chief Engineer are to ensure that they both possess a full list of the proposed items, and a list of the authorized items proposed or authorized. They will also ensure that their respective lists are coordinated and that no duplication occurs. Each defect shall be noted as it arises in the Log Books; and each item shall be ruled out as it is made good. That section of the Log Book may be used as a record of work completed and work outstanding.

Docking Lists and Occasions of Docking

Each ship should undergo a complete hull inspection once a year. Where ships have a seasonal 'lay up', periodic docking should take place as soon as possible after the end of the working season.

After a prolonged 'lay up' period, a docking for cleaning and painting should be considered if bottom fouling is suspected.

When proceeding from a berth into dry dock consideration should be given to the use of either the main engines or tugs.

Docking lists should contain an item for the contractor to provide tugs and pilots. If this is done, the responsibility for any delays or damage incurred rests with the contractor.

Approval for Docking or Extended Notice for Service:

No vessel is to be docked or put at extended notice for service **without the prior approval of the LTR Coordinator.**

Exceptional Docking:

If there is any reason to suspect that a vessel which is not due for periodic docking has sustained underwater damage, the Master shall report the circumstances to the LTR Coordinator, who will make the decision whether or not to dock the vessel. If available, reports from divers or R.O.V. operators should be forwarded to the LTR Coordinator.

Certificates

Copies of all principal certificates received from Classification Societies and regulatory bodies for ships and launches following periodical tests and surveys, are to be registered with the LTR.

The principal certificates include:

a) Cargo Ship Safety Radiotelegraphy/Radiotelephony Certificate;

b) Radio Station License;

c) International Load Line Certificate;

Emergency Repairs

When a defect or casuality necessitates repairs to be undertaken to keep a vessel in service, the Master shall immediately report the matter to the LTR Cordinator by the fastest means of communication, giving a full account of the circumstances and, if possible, an estimate of the likely cost and time required to effect repairs.

Masters may arrange for emergency repairs personally if, for any reason, they are not able to communicate with their office. However, the LTR Coordinator shall be advised of the action taken as soon as circumstances permit.

Emergency repairs to vessels, including launches, may be authorized by the LTR Coordinator, to the limit of his signing authority, without reference to higher authority.

D. USE OF THE SHIP'S CREW LIST

Application:

This instruction applies to every vessel of or exceeding:

a) 15 tons, register tonnage; or

b) 14 meters in length.

Definitions:

For the purpose of the instructions:

'**Master**' means the person lawfully in command or in charge of a vessel;

'**seaman**' applies to every person employed in any capacity on board a vessel as part of the operating complement, excepting Masters;

'**supernumeraries**' applies to every person who is not a seaman and is embarking on vessel to conduct scientific activities, or is a borne for transit and to whom board and lodging is to be provided;

'vessel' means any ship or craft manned by seamen of the LTR;

'board and lodging' means the provision of food and accommodation and all amenities that may be available on board the vessel.

Policy:

Use of the Ship's crew list is used to obtain the permit for cruise on the Lake Tanganyika from the national inland water authorities.

Master of the vessel continually in service shall prepare a new ship's crew list every cruise.

The ship's crew list is also used to provide a record of all seaman and supernumeraries who have embarked on a vessel. It also provides conclusive evidence of the relative rank of every officer named in it.

Signing the Ship's Crew List:

When a ship's crew list is carried on a vessel, it is mandatory for every seaman to sign when joining the vessel, and for every supernumerary to sign when he will be provided board and lodging. This confirms that the signatory:

a) recognizes the authority of the Master with regard to ship board operations, Safety, and maintenance of discipline; and

b) agrees to abide by the general code of conduct outlined in the Guide Line for Operation of the Vessel.

Maintenance of Disciplinary:

Any person signing the ship's crew list recognizes the authority of the Master with regard to maintenance of discipline. It should be noted that when supernumeraries do not sign the ship's crew list, the Master's authority with regard to shipboard safety, operations, and maintenance of discipline remains unchanged.

Disposal of the Ship's Crew list:

When completed or closed of f, a Ship's crew list is not to be destroyed or discarded, but shall, be retained on board for twelve months.

Procedures

Signing On:

Signing on is to be completed before the vessel sails. When the Master or his representative is obtaining the signature of a seaman or supernumerary signing on, the following procedure should be followed:

a) inform the seaman or supernumerary that the policy requires that the Ship's crew list must be signed, and that by signing the Ship's crew list, the Master's authority with regard to shipboard operations, safety, and maintenance of ship discipline is acknowledged; also that the code of conduct outlined in the Guideline list is obligatory;

b) provide the person signing on with the opportunity to read the general principles of conduct outlined in the Guide line. If there special rules or provisions regarding safety or conduct on board, they should be brought to the person' attention at this point;

c) obtain the necessary particulars to fill in the Ship's crew list, i.e. the person's name and capacity on board the vessel. In the same case of certificated seaman (i.e. a ship's officer), the title and number of the certificate is to be recorded.

E. Ship's Log Book

Introduction

Purpose and Scope:

The purpose of this Instruction is to state the LTR's policy with regard to the use of log book, and to outline those requirements and procedures pertaining to the maintenance of log books developed to establish an adequate and consistent level of documentation on the LTR vessels.

The importance of maintaining log book in good order cannot be overstressed. This documentation is essential in aiding the organization to fulfill its mandate with maximum effectiveness, especially since it provides much of the data for the management, development, maintenance and operation of the fleet. Further, as log books may provide proof that certain events took place or that certain orders were given, they could have an important role if the Master were to be called to answer before a court of law or appear before a court of inquiry.

Given the importance of maintaining log books in good order, the organization requires accuracy and clarity of expression when making entries in log books.

Log Entries

Guidelines:

Entries shall be as soon as possible following the events they describe, and if not made on the day the event occurred, shall be made and dated to indicate both the date of occurence and of entry.

Particular attention shall be given to completing all pertinent sections of the log for each entry to ensure a comprehensive record of all operational activities.

Observations relevant to operational activities shall be recorded under 'Remarks.'

Instructions:

Masters are obliged to endorse the log book each day.

Whenever an alteration to an entry is made it shall be initialled by the person who made the original entry.

Touching Ground, Collisions and Human Casualties: the Deck Log Book entry shall reflect all the essential and relevant particulars of a shipping casualty.

Collision, Grounding, Foundering, Fire or other Miscellaneous Casualties: A message shall be addressed to the LTR

Coordinator of the vessel's home port and dispatched by the fastest possible method (usually via radio). The LTR Coordinator will immediately inform the FAO Headquarters.

A message should be addressed to the LTR Coordinator and dispatched by the fastest possible method (usually via radio) in the case of a person missing at the lake or an accident on board ship that involves:

a) loss of life;

b) a bodily injury that is serious enough to prevent the resumption of normal duties after medical treatment;

c) a temporary asphyxiation;

d) an electric shock that results in temporary loss of consciousness; or

e) the breakage or malfunction of any rigging, structure or machinery on a ship that could have caused serious injury or loss of life.

The LTR Coordinator will immediately inform the FAO Headquarters.

In the event of a collision, the vessel touching ground or sinking, the Master shall ensure the safe custody of the Deck Log Book, Engine Room Log Book; Radar Plot; Course Recorder Trace; applicable charts; the echo sounding Machine Trace, etc.

Subsequent marking or amendment of the chart or plot is permitted only in circumstances where the ship's continued safe navigation demands such action.

All entries must be accuracy as well as clarity of expression, information shall be recorded with precision. All entries must be responsive to the information sought.

The accuracy of the information in an entry is necessary, as the Log Book is an important piece of evidence in processing claims which may be made by or against the State.

F. Fishing Gear Damage Reports

Fishing Gear Damage Reports

Time:

A report of damage to fishing gear set by other ships, or of possible damage to fishing gear shall be made by the Master as soon as possible following the incident.

Content:

The report shall contain the following data:

a) date and time when the damage was caused, or might have been caused;

b) the exact position of the vessel at time, and the depth of the water;

c) course and speed of the vessel;

d) where it can be determined, the manner in which the fishing gear was marked, especially the number, size, shape and colour of buoys and/or lights, together with an evaluation of their visibility;

e) direction and force of wind;

f) state of the lake; and

g) any other information which may assist in the investigation of claims.

Where possible the navigational chart being used at the time of the incident or an explanatory diagram should be given, showing in outline the nearest coastline with the relative position of the vessel and the fishing gear.

Log Book Requirement

The circumstances of the incident shall be recorded in the vessel's Log Book.

When a claim is brought against a vessel in respect of an alleged incident of which the Master is unaware, the LTR receiving the claim will request the Master to render a formal report using extracts from the ship's log for the date and time mentioned in the claim.

G. Boat and Fire Drills

General Policy:

It is the policy of the LTR that:

a) Boat and fire drills shall be held at the intervals specified, where possible, boat and fire drills shall be carried out simultaneously and the drills shall be arranged so that a proportion of the crew is assigned to boat stations at the time fire drills are practiced.

b) All equipment and appliances used in boat and fire drills shall be examined and/or tested during these drills. Defective equipment shall be renewed or replaced as soon as possible.

c) Emergency muster lists and emergency procedures shall be posted on all ships to which this instruction applies.

d) A card, identifying boat and fire station and outlining duties in an emergency, shall be posted near the bunk of every crew member, supernumeraries, or passenger.

e) A drill is not to be considered completed until all gear and equipment is returned to its proper place of stowage, readied for distant use.

Frequency of Practice:

Boat and fire drills shall be practiced at intervals of not more than one month.

The above notwithstanding, a boat and fire drill shall be held **within 24 hours after leaving port** if more than 25 percent of the crew and/or the supernumeraries/passengers have been replaced at that port.

Roles and Representatives

The Master of a ship in which boat and fire drills are held shall:

a) familiarize and instruct the crew in the arrangement and facilities of the ship and their duties in boat and fire drills; and

b) require each member of the crew to demonstrate familiarity and proficiency with the arrangements and facilities of the ship, assigned duties, and any equipment which may be required to be used.

Boat Drills

Boat drills shall include the following:

a) preparation for the launching of lifeboats and other life saving appliances;

b) ensuring that life-saving equipment is in place and properly stowed;

c) where possible, examination of all equipment carried on life appliances, e.g. emergency rations, fresh water, distress signals, etc

d) drilling of the crew in their duties;

e) identification and location of inflatable life rats and any special instructions in their use;

f) test of propulsion gear and verification of fuel supply in motorized lifeboats;

g) test of any emergency power system and connections (e.g. lifeboat radio, emergency generator, emergency lighting, etc.).

Lifeboat Launching:

A drill in port shall include the launching of one or more lifeboats, if fitted, so that all lifeboats shall be lowered into the water at intervals of not more than three months.

Drill at the lake shall include the clearing and swinging out of one or more of the lifeboats, if fitted. Every boat carried in a ship shall be swung out at intervals of not more than one month.

Fire drills

The following shall be included at a fire drill:

a) Each member of the crew shall report at the appropriate emergency station and shall be drilled in the duties at that station.

b) The engine room crew shall be exercised in their special duties in case of fire, i.e. putting the fire pumps into operation and manning the stations allotted to them for the purpose of fitting fire in the engine and boiler rooms, or elsewhere, as required.

c) Where the fire doors, ventilating shafts or oil fuel valves from remote control are required to be closed during a fire, the members of the crew assigned to such duties shall practice the necessary operations and steps shall be taken to ensure that all officers are familiar with them.

Fire-fighting Equipment:

Fire-fighting equipment shall be examined and/or tested as outlined below.

At all fire drills, the fire hose shall be run out and examined and a proportion of hoses carried shall be tested by water pressure, every hose shall be under pressure at least once every two months. Fog nozzles, other spay equipment and emergency fire fighting pumps shall be tested and the crew instructed in their use.

Fire extinguishers shall be checked and at each drill one or more shall be discharged. The crew shall be instructed in the handling of the types of extinguishers carried on the ship.

Smoke helmets and breathing apparatus shall be examined and members of the crew instructed and drilled in their use.

Fire systems:

The various systems (e.g. sprinkler systems, fire alarm systems) together with their electric appliances, shall be tested to ensure that they are in good working order. General alarm bells and klaxons shall be sounded to ensure that they can be heard in ALL parts of the ship.

Examination and Maintenance of Equipment

The equipment used in fire and boat drills shall be examined and/or tested as outlined in the respective sections.

The officer in charge shall ensure that no deterioration in the condition of such equipment has occurred since the issuing of the last certificate of inspection.

Any equipment found to be deficient shall be renewed or repaired as soon as possible, regardless of financial resources or cycles.

All fire extinguishers that are discharged during a drill shall be recharged immediately; sufficient replacement charges must be carried for this purpose.

All equipment shall be returned to its proper location on completion of the examination and checked with the list of equipment on board.

Watertight Doors

Where watertight doors, side scuttles etc. would be operated in case of emergency, such appliances shall be operated at every boat and fire drill, unless the provisions of any regulation should require otherwise. Every valve, the closing of which is necessary to make any compartment watertight, and every

watertight door in a main transverse bulkhead (together with the mechanism and indicators) shall be inspected at each boat and fire drill.

Muster List and Emergency Procedures

Emergency muster lists shall be posted on all ships. In addition, a card listing the station and outlining the duties in case o an emergency shall be posted, in both official languages where appropriate, near the bunk of every crew member, supernumerary or passenger.

Duties of the Crew

The muster list will show the special duties of each crew member in an emergency and the assigned emergency station. Duties will involve:

a) The closing of various doors and mechanisms, including watertight doors, side scuttles, valves, closing mechanisms of scuppers and ash chutes.

b) The equipping of lifeboats and buoyant apparatus, including the provision of portable radio apparatus

c) The launching of lifeboats attached to davits.

d) The general preparation of any other boats, buoyant apparatus, and all other matters referred to elsewhere.

e) The extinction of fire, including the closing of fire doors, testing of spinklers and alarms and all other matters referred to elsewhere.

f) Ensuring that all persons aboard the vessel (crew members, supernumeraries and passengers) leave their cabins, assemble at muster stations, are adequately dressed for protection against exposure, have put on their lifejackets in a proper manner, and are accommodated in lifeboats or instructed in the proper use of other life saving equipment.

In preparing the muster list, care shall be taken that certified lifeboat men are assigned to each lifeboat or other life saving appliance, as required by the Life Savin Equipment Regulations. These certificated lifeboat men shall be assigned to their specific duties in the preparation for launching of lifeboats. One shall be placed in charge of each boat or appliance to which a certificated deck officer is not assigned.

The muster list shall specify the signals for calling crew members to their boat and fire stations. The emergency signal for summoning all persons, crew supernumeraries and passengers, to muster stations shall be a succession of seven or more short blast followed by one long blast on the whistle or siren. In larger ships, where manually controlled alarms are fitted throughout the ship, these must also be sounded to supplement the

whistle or siren.

Printed notices and diagrams showing the location of muster stations, life saving and fire fighting equipment, remote fuel shut-off valves, and air-intake and exhaust fan remote shut-offs (including manually operated fire-flaps in ventilation trunking) shall be posted in conspicuous places throughout the ship; passageways shall be clearly marked to indicate muster stations.

Entries in Log Books

The Master shall ensure that full particulars of each boat and fire drill are entered in the official log book.

If for any reason the boat and the fire drills prescribed are not held, an entry shall be made in the log book, which shall specify the drill(s) not held and state the reason(s) for omission. The fact that the weather is not suitable for a part of a drill (e.g. the swinging out of lifeboats) shall not prevent the carrying out of the remainder of the drill.

LIST OF FORMS

TE/1 - CRUISE SCHEDULE

TE/2 - MANIFESTE

TE/3 - CRUISE PROGRAMME

TE/4 - CRUISE PLAN

TE/5 - CRUISE SUMMARY: SENIOR SCIENTIST

TE/6 - CRUISE DECK SUMMARY REPORT

TE/7 - CRUISE ENGINE ROOM SUMMARY REPORT

DECK LOGBOOK

ENGINE LOGBOOK

FISHING LOGBOOK

ACOUSTIC LOGBOOK

R/V TANGANYIKA EXPLORER

CALENDRIER D'ACTIVITES 1995

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
JANVIER																															
FEVRIER																															
MARS																															
AVRIL																															
MAI																															
JUIN																															
JUILLET																															
AOUT																															
SEPTEMBRE																															
OCTOBRE																															
NOVEMBRE																															
DECEMBRE																															

TYPE DE CROISIERE:

- ■ Hydrodynamic
- ▒ Acoustic/Trawling
- ▒ Multipurpose (Limnology/ Fish biology/ etc.)
- ▬ GEF
- ** Others (sub-charter)

FORM TE/2

LTR - FAO
B.P. 1250
Tél. 22 9760
BUJUMBURA - BURUNDI

MANIFESTE

No. ....

PARTANT DE : le 19 Allant à :

LE RECEVEUR DES DOUANES

LE CAPITAINE DE BATEAU

FORM TE/3

LAKE TANGANYIKA RESEARCH

1995 RESEARCH VESSEL PROGRAMME

PROGRAMME: R/V TANGANYIKA EXPLORER CRUISE 95/....

NAME	POSITION
1.	.....
2.	.....
3.	.....
4.	.....
5.	.....
6.	.....
7.	.....
8.	.....
9.	.....
10.	.....

DURATION

LOCALITY

1. To .....

2. .....

PLAN (all times are Greenwich Mean Time + 2)

LTR Coordinator

Date: .....

INITIALLED .....

DISTRIBUTION: Blessich, TC04
Kapetsky, FIRI
Fitzpatrick/Turner, FIIT
Chrono
Diary: Hanek

CRUISE PLAN **FORM TE/4**

SHIP: R/V TANGANIKA EXPLORER CRUISE NUMBER:

CRUISE ITINERARY REQUIRED: (start, stop, port call(s) track chart)

SENIOR SCIENTIST:

SCIENTIFIC STAFF LIST: (including affiliation

			DATES	
Name	Laboratory	Institution,etc.	Boarding	Disembarking

EQUIPMENT TO BE USED:

1. Equipment supplied by LTR/Bujumbura

2. Equipment supplied by LTR/Kigoma

3. Equipment supplied by LTR/Mpulungu

4. Equipment from other sources:

5. Winch and wire requirements.

SCIENTIFIC OR SURVEY OBJECTIVES:

CRUISE PROCEDURES AND STATION PATTERN REQUIRED:

FORM TE/5

CRUISE SUMMARY - SENIOR SCIENTIST

SHIP: RV/TANGANYIKA EXPLORER CRUISE NUMBER:

SENIOR SCIENTIST:

LIST OF SCIENTIFIC STAFF ACTUALLY PARTICIPATING

			DATES	
Name	Laboratory	Institute, etc.	Boarding	Disembarking

ITINERARY ACCOMPLISHED: (including actual track chart)

SCIENTIFIC OR SURVEY ACCOMPLISHMENTS:
(with brief statements explaining failures to achieve objectives)

PROBLEMS ENCOUNTERED, SUGGESTED improvements, ETC.

FORM TE/06

CRUISE DECK SUMMARY REPORT

VESSEL: CRUISE No.

MASTER:

LIST OF CREW ON BOARD:

NAME: POSITION:

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TESTS AND CHECKS OF NAVIGATIONAL EQUIPMENT BEFORE DEPARTURE:

WHAT IS WORKING OR NOT:

* GPS

* RADAR

* AUTO PILOT

* ECHO SOUNDER

* SONAR

* STEERING

* RADIO

PORT OF REGISTRATION

DEPARTURE: .....

ARRIVAL: .....

PORTS OF CALL: .....

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ANCHORAGES: .....

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WEATHER .....

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MALFUNCTIONS OF .....

NAVIGATIONAL .....

EQUIPMENT .....

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INCIDENTS AFFECTING .....

SAFE NAVIGATION .....

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MALFUNCTION BREAKAGE .....

OF VESSEL .....

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REPAIRS TO BE DONE .....

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PERFORMANCE OF CREW .....

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VESSEL DISCIPLINE .....

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HUMAN INJURIES .....

CASUALTIES .....

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GENERAL REMARKS AND OBSERVATIONS

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ATTACHMENTS: DECK LOG SHEET

FISHING LOG SHEET

FORM TE/07

CRUISE ENGINE ROOM SUMMARY REPORT

VESSEL: CRUISE No.

CHIEF ENGINEER: DATE:

TESTS AND CHECKS OF MACHINERY

MAIN ENGINE

AUXILIARY ENGINE 1

AUXILIARY ENGINE 2

HYDRAULIC DECK EQUIPMENT

HYDRAULIC STEERING

A/C

BILGE ALARM

ELECTRIC SYSTEM

OTHERS

BUNKER:

DIESEL .....

LUB OIL .....

HYDRAULIC OIL .....

DISTILLED WATER .....

PORT OF

REGISTRATION

DEPARTURE .....

ARRIVAL .....

DAMAGES TO MACHINERY

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RESTRICTION OF OPERATION DUE TO DAMAGES

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ACTIONS TAKEN TO CORRECT DAMAGES DURING CRUISE

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LIST OF REPAIRS TO BE DONE IN PORT

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LIST OF SUPPLIES

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GENERAL REMARKS AND OBSERVATIONS

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ATTACHMENT: ENGINE ROOM LOG SHEET

DATE:

DECK LOGBOOK

Hour	Activity	Course GPS	Speed KN	Lat S	Long E	Depth M	Main Engine			Signature and comment
							Temp °C	Lub oil pressure PSI	Rev RPM	
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0100										
0200										
0300										
0400										
0500										
0600										
0700										
0800										
0900										
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1600										
1700										
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1900										
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2100										
2200										
2300										
2400										

DATE:

ENGINE LOGBOOK

D/M/Y	Fuel liters	Lub oil liters	Main Engine hours	Auxiliary Engine 1 hours	Auxiliary Engine 2 hours	Maintenance and repair		
						Filters	Scheduled	Emergency

REMARKS:

FISHING LOGBOOK

Cruise No.						
Date						
Set No.						
Position Latitude						
Position Longitude						
Wind Direction/Beaufort Sc.						
Current Direction/Rate (Knots)						
Sea Condition						
Moon Phase						
Depth (m)						
School Located by						
School Behaviour/Movements						
School Characteristics						
Trawling depths (m)						
Length of warp (m)						
Trawling speed						
Course						
Time of Shooting						
Time of Hauling						
Fishing hours						
Actual Catch (Kgs)						
Catch Composition						

REMARKS:

ACOUSTIC LOGBOOK

Equipment Settings Echosounder Gain Sonar Gain
Range Range
TVG Azimuth
Other Other

Time	Echosounder			Sonar		
	Density of Mark	Depth	Duration	Range Detected	Bearing	Comment