INTERNATIONAL MARITIME ORGANIZATION

IMO

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SUB-COMMITTEE ON STANDARDS OF TRAINING AND WATCHKEEPING
31st session
Agenda item 3

STW 31/INF.2
27 September 1999
ENGLISH ONLY

VALIDATION OF MODEL COURSE CONTENT

Note by the Secretariat

SUMMARY

Executive summary:	This document provides information on new and revised model courses which provide guidance on the implementation of the training and assessment provisions of the revised STCW Convention.
Action to be taken:	Paragraph 5
Related documents:	STW 30/3, STW 31/3

1 The 1995 Conference of Parties to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) adopted resolution 13 "Revision of model courses published by the International Maritime Organization" in which the Organization is invited to take steps to revise and update those model courses which provide guidance on the implementation of the training and assessment provisions of the STCW Convention, as amended.

2 At its thirtieth session, the Sub-Committee validated nine existing model courses that had been revised and updated to meet the requirements of the revised STCW Convention (STW 30/3). Subsequently, eight model courses including the existing model course No. 3.12, Examination and Certification of Seafarers, have been revised and updated (see STW 31/3). As agreed at its last session this model course now titled: Assessment, Examination and Certification of Seafarers is under consideration by the validation panel and will be submitted to the Sub-Committee for consideration prior to its publication.

3 The Secretariat also identified the following new courses for development:

.1 Crowd Management, Passenger Safety and Safety Training for Personnel providing direct services to Passengers in Passenger Spaces;

.2 Crisis Management and Human Behaviour Training including Passenger Safety, Cargo Safety and Hull Integrity Training;

.3 Proficiency in Fast Rescue Boats;

.4 Personal Safety and Social Responsibility; and

.5 Maritime English.

Expressions of interest in developing these model courses were sought from a number of maritime training institutes worldwide and the work assigned on the basis of available expertise and cost. The Secretariat would like to express its gratitude to the Governments of Norway, Singapore and India and the International Shipping Federation (ISF) for contributing expertise and funding for the development of these courses.

4 Drafts of these model courses have been received by the Secretariat and have been forwarded to members of the validation panel for their comments. Comments on the drafts of the following courses have been received from the validation panel:

.1 Crowd Management, Passenger Safety and Safety Training for Personnel providing direct services to Passengers in Passenger spaces;

.2 Crisis Management and Human Behaviour Training including Passenger Safety, Cargo Safety and Hull Integrity Training; and

.3 Proficiency in Fast Rescue Boats.

These drafts are attached at annex and include the validating panel's comments, as appropriate. The remaining courses listed in paragraph 3 above will be issued as addenda to this document when they have been revised following comments from the validation group.

Action requested of the Sub-Committee

5 The Sub-Committee is invited to consider the above information and decide as appropriate.

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Model Course .....

Proficiency in Fast Rescue Boats

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Contents

Model Course .....

Introduction

■ Purpose of the model courses

The purpose of the IMO model courses is to assist maritime training institutes and their teaching staff in organizing and introducing new training courses, or in enhancing, updating or supplementing existing training material where the quality and effectiveness of the training courses may thereby be improved.

It is not the intention of the model course programme to present instructors with a rigid "teaching package" which they are expected to "follow blindly". Nor is it the intention to substitute audiovisual or "programmed" material for the instructor's presence. As in all training endeavours, the knowledge, skills and dedication of the instructor are the key components in the transfer of knowledge and skills to those being trained through IMO model course material.

Because educational systems and the cultural backgrounds of trainees in maritime subjects vary considerably from country to country, the model course material has been designed to identify the basic entry requirements and trainee target group for each course in universally applicable terms, and the skill necessary to meet the technical intent of IMO conventions and related recommendations.

■ Use of the model course

To use the model course the instructor should review the course plan and detailed syllabus, taking into account the information provided under the entry standards specified in the course framework. The actual level of knowledge and skills and prior technical education of the trainees should be kept in mind during this review, and any areas within the detailed syllabus which may cause difficulties because of differences between the actual trainee entry level and that assumed by the course designer should be identified. To compensate for such differences, the instructor is expected to delete from the course, or reduce the emphasis on, items dealing with knowledge or skills already attained by the trainees. He should also identify any academic knowledge, skills or technical training which they may not have acquired.

By analyzing the detailed syllabus and the academic knowledge required to allow training in the technical area to proceed, the instructor can design an appropriate pre-entry course or, alternatively, insert the elements of academic knowledge required to support the technical training elements concerned at appropriate points within the technical course.

Adjustment of the course objectives, scope and content may also be necessary if in your maritime industry the trainees completing the course are to undertake duties which differ from the course objectives specified in the model course.

Within the course plan the course designers have indicated their assessment of the time which should be allotted to each learning area. However, it must be appreciated that these allocations are arbitrary and assume that the trainees have fully met all the entry requirements of the course. The instructor should therefore review these assessments and may need to reallocate the time required to achieve each specific learning objective.

■ Lesson plans

Having adjusted the course content to suit the trainee intake and any revision of the course objectives, the instructor should draw up lesson plans based on the detailed syllabus. The detailed syllabus contains specific references to the textbooks or teaching material proposed to be used in the course. An example of a lesson plan is shown in the instructor manual on page 38. Where no adjustment has been found necessary in the learning objectives of the detailed syllabus, the lesson plans may simply consist of the detailed syllabus with keywords or other reminders added to assist the instructor in making his presentation of the material.

■ Presentation

The presentation of concepts and methodologies must be repeated in various ways until the instructor is satisfied, by testing and evaluating the trainee's performance and achievements, that the trainee has attained each specific learning objective or training outcome. The syllabus is laid out in learning objective format and each objective specifies a *required performance* or, *what the trainee must be able to do* as the learning or training outcome. Taken as a whole, these objectives aim to meet the knowledge, understanding and proficiency specified in the appropriate tables of the STCW Code.

■ Implementation

For the course to run smoothly and to be effective, considerable attention must be paid to the availability and use of:

- properly qualified instructors
- support staff
- rooms and other spaces
- equipment
- textbooks, technical papers
- other reference material.

Thorough preparation is the key to successful implementation of the course. IMO has produced a booklet entitled "Guidance on the implementation of IMO model courses", which deals with this aspect in greater detail.

■ Training and the STCW 1995 Convention

The standards of competence that have to be met by seafarers are defined in Part A of the STCW Code in the Standards of Training, Certification and Watchkeeping for Seafarers Convention, as amended in 1995. This IMO model course has been revised and updated to cover the competences in STCW 1995. It sets out the education and training to achieve those standards set out in Chapter VI Table A-VI/2-2.

Part A provides the framework for the course with its aims and objectives and notes on the suggested teaching facilities and equipment. A list of useful teaching aids, IMO references and textbooks is also included.

Part B provides an outline of lectures, demonstrations and exercises for the course. A suggested timetable is included but from the teaching and learning point of view, it is more important that the trainee achieves the minimum standard of competence defined in the STCW Code than that a strict timetable is followed. Depending on their experience and ability, some students will naturally

take longer to become proficient in some topics than in others. Also included in this section are guidance notes and additional explanations.

A separate IMO model course addresses Assessment of Competence. This course explains the use of various methods for demonstrating competence and criteria for evaluating competence as tabulated in the STCW Code.

Part C gives the Detailed Teaching Syllabus. This is based on the theoretical and practical knowledge specified in the STCW Code. It is written as a series of learning objectives, in other words what the trainee is expected to be able to do as a result of the teaching and training. Each of the objectives is expanded to define a required performance of knowledge, understanding and proficiency. IMO references, textbook references and suggested teaching aids are included to assist the teacher in designing lessons.

Part D gives guidance notes and additional explanations.

The Convention defines the minimum standards to be maintained in Part A of the STCW Code. Mandatory provisions concerning Training and Assessment are given in Section A-I/6 of the STCW Code. These provisions cover: qualification of instructors; supervisors as assessors; in-service training; assessment of competence; and training and assessment within an institution. The corresponding Part B of the STCW Code contains non-mandatory guidance on training and assessment.

As previously mentioned a separate model course addresses Assessment of Competence and use of the criteria for evaluating competence tabulated in the STCW Code.

■ Responsibilities of Administrations

Administrations should ensure that training courses delivered by colleges and academies are such as to ensure those completing training do meet the standards of competence required by STCW Regulation VI/2.

■ Validation

The information contained in this document has been validated by the Sub-Committee on Standards of Training and Watchkeeping for use by technical advisors, consultants and experts for the training and certification of seafarers so that the minimum standards implemented may be as uniform as possible. Validation in the context of this document means that the Sub-Committee has found no grounds to object to its content. The Sub-Committee has not granted its approval to the documents, as it considers that this work must not be regarded as an official interpretation of the Convention.

In reaching a decision in this regard, the Sub-Committee was guided by the advice of a Validation Group comprised of representatives designated by ILO and IMO.

Part A: Course Framework

Aims

This model course aims to provide the training for candidates to launch and take charge of a fast rescue boat, in accordance with Section A-VI/2 of the STCW Code.

Objective

This syllabus covers the requirements of the 1995 STCW Convention Chapter VI, Section A-VI/2, Table A-VI/2-2. On meeting the minimum standard of competence in fast rescue boats, a trainee will be competent to handle and take charge such boats during or after launch in adverse weather and sea conditions. They will also be able to operate a fast rescue boat engine.

Trainees will know the correct use of all locating devices, including communication and signalling equipment between the rescue boat and a helicopter and the ship; and how to carry out search patterns.

Entry standards

For admission to the course seafarers must be medically fit and the holder of a certificate of Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats in accordance with Regulation VI/2, paragraph 1 of STCW 1995.

Course certificate

On successful completion of the course and demonstration of competence, a document may be issued, in accordance with Regulation VI/2, paragraph 2, certifying that the holder has met the standard of competence specified in Table A-VI/2-2 of STCW 1995.

A certificate may be issued only by centres approved by the Administration.

Course intake limitations

The maximum number of trainees attending each session will depend on the availability of instructors, equipment and facilities available for conducting the training. It should not exceed the number of persons which the fast rescue boat to be used is permitted to carry, and should not, at any time, exceed that which will allow sufficient opportunity for each trainee to have adequate practical instruction in procedures for the proper use of systems and equipment.

Staff requirements

The instructor shall have appropriate training in instructional techniques and training methods (STCW Code A-I/6, para 7).

All training and instruction should be given by properly qualified personnel. The instructors should have the necessary knowledge, training and experience in preparation, embarkation, launching and operation of fast rescue boats with equipment which is used on board ships. Depending on the number being trained, assistant instructors may be needed to supervise groups of trainees during drills and to take charge of the fast rescue boats and standby rescue boat. All instructors should be qualified in first aid and resuscitation techniques.

Training facilities and equipment

Ordinary classroom facilities and an overhead projector are required for the lecturers. When making use of audiovisual material such as videos or slides, make sure the appropriate equipment is available.

A large table or benches on which equipment can be demonstrated should be provided. Showers, a changing room with lockers for trainee's dry clothing and a drying room for wet gear should be provided near the exercise area.

The practical lesson require harbour or estuarial waters with access to open sea.

The following items of equipment are required:

1 glass-reinforced plastic fast rescue boat, approximately 8 metres in length, fitted with an inboard or outboard diesel engine or jet propulsion with a set of oars complying with chapter V of LSA Code). Inflated rescue boats may be acceptable.

1 set of davit to house the fast rescue boat, sited so as to allow launching into the water;

1 portable hoist unit suitable for recovery of the fast rescue boats;

1 glass reinforced plastic survival craft boat / rescue boat / fast rescue boat with inboard motor engine and a set of oars with a set of launching davits to house the boat sited so as to allow launching into the water;

1 portable hoist unit suitable for recovery of boats;

Sufficient drysuits and wet suits, lifejackets for all trainees, instructors for survival craft and fast rescue boats; thermal protective aids, anti-exposure suit;

3 2-way radiotelephones approved for use in the boats and shore rescue team;

1 helicopter rescue sling;

1 complete set of fast rescue boats equipment;

1 complete set of equipment for boat listed in item 4 above.

1 stretcher of suitable type for use in exercises

Safety/first aid equipment comprising:
- standby rescue boat
- first aid kit
- stretcher
- resuscitation kit with oxygen/suction unit

Teaching aids (A)

A1 Instructor Manual (Part D of the course)

A2 Specimen muster list

A3 Specimen training and survival manual and on-board maintenance manual

A4 Videos

V1 Cold Water Casualty (Code No. 527)
V2 Man Overboard (Code No. 644)
V3 Search and Rescue Co-ordination (Code No. 574)
V4 Helicopter Assistance at Sea (Code No. 106)

Available from: Videotel Marine International Ltd
84 Newman Street
London W1P 3LD, UK
Tel: +44 (0)207 299 1800
Fax: +44 (0)207 299 1818
e-mail: mail@videotelmail.com
URL: www.videotel.co.uk

IMO references (R)

R1 The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1995 (STCW 1995), 1998 edition (IMO Sales No. 938)
R2 International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974), as amended (IMO Sales No. 110)
R3 IMO Life Saving Appliances Code (LSA) (IMO Sales No. 982)
R4 International Aeronautical and Maritime Search and Rescue Manual (IAMSAR Manual) (IMO Sales No. 960)
R5 Assembly Resolution A.656(16) - Fast Rescue Boats
R6 Assembly Resolution A.771(18) - Training requirements for crews of fast rescue boats

Details of distributors of IMO publications that maintain a permanent stock of all IMO publications may be found on the IMO webside at http://www.imo.org

Textbooks (T)

No specific textbooks are recommended for trainee use.

Bibliography (B)

Since this is essentially a practical course, no textbook has been recommended for trainee use. Supplementary information, which may be of assistance to instructors in preparing lessons, is contained in the following publications

B1 C.H. Wright, Proficiency in Survival Craft Certificates (Glasgow, Brown, Son and Ferguson, 1988) (ISBN 0 85174 540 7) OUT OF PRINT
B2 D.J. House, Marine Survival and Rescue Systems (London, Witherby & Co. 1997) (ISBN 1 85609 1279)

Secondhand copies of out of print books may be available from the Warsash Nautical Bookshop, 6 Dibles Road, Warsash, Southampton SO31 9HZ, UK. Tel: +44 1489 572 384 Fax: +44 1489 885756 E-mail:orders@nauticalbooks.co.uk URL: www.nauticalbooks.co.uk

Safety routines

Safety precautions during drills should be drawn up by the instructors, having regard to the nature of the drills and the facilities in use. Trainees should be fully aware of the safety precautions and be closely supervised at all times.

During abandon ship drills and exercises in handling fast rescue boats, a standby rescue boat must be in constant attendance. Night drills must not be performed unless all trainees and instructors have been provided with lifejackets having retro-reflective material complying with LSA Code, section 1.2.2.7 fitted in accordance with the recommendation in Assembly Resolution A.658(16). The practice area must be illuminated by searchlights.

Part B: Course Outline and Timetable

Lectures

As far as possible, lectures should be presented within a familiar context and should make use of practical examples. They should be well illustrated with diagrams, photographs and charts where appropriate, and be related to matter learned during seagoing time.

An effective manner of presentation is to develop a technique of giving information and then reinforcing it. For example, first tell the trainees briefly what you are going to present to them; then cover the topic in detail; and, finally, summarize what you have told them. The use of an overhead projector and the distribution of copies of the transparencies as trainees handouts contribute to the learning process.

Course Outline

The tables that follow list the competencies and areas of knowledge, understanding and proficiency, together with the estimated total hours required for lectures and practical exercises. Teaching staff should note that timings are suggestions only and should be adapted to suit individual groups of trainees depending on their experience, ability, equipment and staff available for training.

Course Outline

Competence 1: Take charge of a fast rescue boat during and after launch

Course Outline	Approximate time (Hours)
Knowledge, understanding and proficiency	**Lectures, demonstrations and practical work**
Introduction and Safety	0.5
1 Construction and Outfit of Fast Rescue Boats and Individual Items of their Equipment 1.1 Construction and outfit of fast rescue boats 1.2 Individual items of equipment	1.0
2 Particular Characteristics and Facilities of Fast Rescue Boats	1.0
3 Navigational and Safety Equipment Available in a Fast Rescue Boat 3.1 Boat equipment 3.2 Navigation equipment 3.3 Safety equipment 3.4 Emergency equipment	0.5
4 Safety Precautions during Launch and Recovery of a Fast Rescue Boat 4.1 Launching arrangements 4.2 Launching and recovery 4.3 Launching and recovery in rough seas 4.4 Drills in launching and recovery of fast rescue boats	2.0
5 How to Handle a Fast Rescue Boat in Prevailing and Adverse Weather and Sea Conditions 5.1 Clearing the ship's side and coming alongside 5.2 Manoeuvring at slow speed 5.3 Manoeuvring at fast speed 5.4 Boat handling in adverse weather 5.5 Towing 5.6 Pacing and transfer 5.7 Helicopter operation 5.8 Drills in boat handling 5.9 Drills in towing 5.10 Drills in pacing and transfer	4.0
6 Procedures for Righting a Capsized Fast Rescue Boat 6.1 Capsize and righting 6.2 Drills in righting a capsized boat	1.5
7 Search Patterns and Environmental Factors affecting their Execution 7.1 Initial information and action 7.2 Search pattern 7.3 Rescuing survivors from sea 7.4 Casualty care 7.5 Drills in search and rescue	2.5
8 Assessment of the Readiness of Fast Rescue Boats and Related Equipment for Immediate Use 8.1 Boat readiness 8.2 Equipment readiness	0.5

9 ***Knowledge of the Maintenance, Emergency Repairs, Normal Inflation and Deflation of Buoyancy Compartments of Inflated Fast Rescue Boats***	0.5
Sub-Total	14.0

Competence 2: Operate a fast rescue boat engine

Course Outline	**Approximate time (Hours)**
Knowledge, understanding and proficiency	**Lectures, demonstrations and practical work**
10 ***Method of Starting and Operating a Fast Rescue Boat Engine and its Accessories*** 10.1 Inboard motor engines 10.2 Outboard motor engines 10.3 Water jet propulsion 10.4 Drills in engine operation	1.5
Sub-Total	1.5
TOTAL	15.5

Note: Teaching staff should note that outlines are suggestions only as regards sequence and length of time allocated to each objective. These factors may be adapted by lecturers to suit individual groups of trainees depending on their experience, ability, equipment and staff available for training.

Course Timetable

Period/Day	1st Day	2nd Day	3rd Day
1st Period (1.5 hours)	Introduction and Safety 1 Construction and Outfit of Fast Rescue Boats and Individual Items of their Equipment	8 Assessment of Readiness of Fast Rescue Boats and Related Equipment for Immediate Use 5 How to Handle a Fast Rescue Boat in Prevailing and Adverse Weather and Sea Conditions	7 Search Patterns and Environmental Factors affecting their Execution
2nd Period (1.5 hours)	2 Particular Characteristics and Facilities of Fast Rescue Boats 3 Navigation and Safety Equipment Available in a Fast Rescue Boat 10 Method of Starting and Operating a Fast Rescue Boat Engine and Accessories	5 How to Handle a Fast Rescue Boat in Prevailing and Adverse Weather and Sea Conditions (continued)	7 Search Patterns and Environmental Factors affecting their Execution (continued) 9 Maintenance and Repairs
LUNCH BREAK			
3rd Period (1.5 hours)	4 Safety Precautions During Launch and Recovery of Fast Rescue Boats	5 How to Handle a Fast Rescue Boat in Prevailing and Adverse Weather and Sea Conditions (continued)	
4th Period (1.5 hours)	4 Safety Precautions During Launch and Recovery of Fast Rescue Boats (continued) 10 Method of Starting and Operating a Fast Rescue Boat Engine and Accessories (continued	6 Procedures for Righting a Capsized Fast Rescue Boat	

Teaching staff should note that the hours for lectures and exercises are suggestions only as regards sequence and length of time allocated to each objective. These factors may be adapted by lecturers to suit individual groups of trainees depending on their experience, ability, equipment and staff available for teaching.

Part C: Detailed Teaching Syllabus

Introduction

Introduction

The detailed teaching syllabus has been written in learning objective format in which the objective describes what the trainee must do to demonstrate that the competence has been achieved and that knowledge has been transferred.

All objectives are understood to be prefixed by the words, "The expected learning outcome is that the trainee ..... "

In order to assist the instructor, references are shown against the learning objectives to indicate IMO references and publications, textbooks, additional technical material and teaching aids, which the instructor may wish to use when preparing course material. The material listed in the course framework has been used to structure the detailed teaching syllabus; in particular,

Teaching aids (indicated by A),
Bibliography (indicated by B),
IMO references (indicated by R), and
Textbooks (indicated by T)
Audiovisuals (indicated by V)

will provide valuable information to instructors. The abbreviations used are:

Ch.	chapter
Pa.	paragraph
p, pp	page, pages
Reg.	regulation.

The following are examples of the use of references:

R2-Reg. III/3.4 refers to Regulation III/3, paragraph 4, of the 1974 SOLAS Convention;

R4-p.19-25 refers to pages 19 to 25 of IAMSAR Manual.

■ Note

Throughout the course, safe working practices are to be clearly defined and emphasized with reference to current international requirements and regulations.

It is expected that the national institution implementing the course will insert references to national requirements and regulations as necessary.

Proficiency in Fast Rescue Boats	IMO Reference	Textbooks, Bibliography	Detailed Teaching Syllabus Reference
Competence 1: Take charge of a fast rescue boat during and after launch	R1 Section A-VI/2 Table VI/2-2		
Knowledge, understanding and proficiency			
Construction and outfit of fast rescue boats and individual items of their equipment			1
Particular characteristics and facilities of fast rescue boats.			2
Safety precautions during launch and recovery of a fast rescue boat			4
Procedures for righting a capsized fast rescue boat			6
How to handle a fast rescue boat in prevailing and adverse weather and sea conditions			5
Navigational and safety equipment available in a fast rescue boat			3
Search patterns and environmental factors affecting their execution			7
Assessment of the readiness of fast rescue boats and related equipment for immediate use			8
Knowledge of the maintenance, emergency repairs, normal inflation and deflation of buoyancy compartments of inflated fast rescue boats			9
Objectives are: 1. control safe launching and recovery of a fast rescue boat 2. right a capsized fast rescue boat 3. handle a fast rescue boat in prevailing weather and sea conditions 4. swim in special equipment 5. use communication and signalling equipment between the fast rescue boat and a helicopter and a ship 6. use the emergency equipment carried 7. recover a casualty from the water and transfer a casualty to a rescue helicopter or to a ship or to a place of safety 8. carry out search patterns, taking account of environmental factors			
Competence 2: Operate a fast rescue boat engine	R1 Section A-VI/2 Table VI/2-2		
Knowledge, understanding and proficiency			
Methods of starting and operating a fast rescue boat engine and its accessories			10
Objectives are: 1. engine is started and operated as required for manoeuvring			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
Introduction and Safety (1 hour)			A1 p.33

Required performance:

Introduction

.1 states the requirements for carriage of fast rescue boats

.2 states STCW regulation — R2 Ch. V — B1

.3 lists requirements of Resolution A.656(16) — R1, Reg VI/2

.4 lists training requirements as stipulated in Resolution A.771(18)

Required performance:

Safety guidance

.1 explains layout plan

.2 lists emergencies and alarms

.3 lists action to be taken on hearing the alarm

.4 identifies emergency muster stations

.5 states that the safety rules laid down by the instructor must be obeyed during the course

.6 lists safety rules

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
Competence 1: Take charge of a fast rescue boat during and after launch	R1 Section A-VI/2 Table VI/2-2		
1 Construction and outfit of fast rescue boats and individual items of their equipment (1 hour)	R5	B2	A1 p.33
Required performance:			
1.1 Construction and outfit of fast rescue boats			
.1 describes the fast rescue boat designs based on hull forms, sheer line and dead rise angle			
.2 explains the use of strakes, pads and sponsons on the hull			
.3 explains the characteristics of hull forms with emphasis on performance predictability, reliability, survivability, user support, maintenance			
.4 describes the construction and outfit of following fast rescue boats: - rigid boats - inflated boats - combination of rigid and inflated boats			
.5 states that inflated fast rescue boats should at all times be maintained in fully inflated condition	R6		
.6 states the length of fast rescue boats			
.7 interprets the markings on a fast rescue boat as to the normal/maximum number of persons it is permitted to carry			
.8 demonstrates the outfit of fast rescue boats			
Required performance:			
1.2 Individual items of equipment			
.1 lists the personal life-saving appliances of a fast rescue boat's crew as: - lifejackets - lifebuoys - immersion suits - thermal protective aids - anti-exposure suits			
.2 demonstrates handling and maintenance of personal life-saving appliances			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
2 Particular characteristics and facilities of fast rescue boats (0.5 hour)	R1 Table A-VI/2-2		A1 p.33
Required performance:	R5		
.1 describes the particular characteristics of fast rescue boats in planing and displacement modes			
.2 explains the reasons of aeration and its result on behaviour of the boat			
.3 describes the facilities in fast rescue boats			
.4 states that arrangements for towing are permanently fitted in rescue boats			
.5 demonstrates particular characteristics and facilities of fast rescue boats			
		B2	A1 p.34
3 Navigation and safety equipment available in a fast rescue boat (0.5 hour)	R1 Table A-VI/2-2		
Required performance:	R5		
3.1 Boat equipment			
.1 lists the normal equipment of rigid fast rescue boats			
.2 lists the normal equipment of inflated and rigid/inflated gast rescue boats			
.3 describes the stowage of equipment			
.4 explains that the equipment not actually in use shall be stowed in lockers so that they are not lost in the seaway or in the event of a capsize	R6		
.5 describes how to use th equipment for normal inflation and deflation of buoyancy chambers of inflatable fast rescue boats			
Required performance:			
3.2 Navigation Equipment	R6		
.1 lists the fast rescue boat equipment as: - magnetic compass - VHF - additional equipment may include GPS, radar	R1 Table A-VI/2-2		
.2 magnetic compass: - describes the errors on the magnetic compass, its effect on steering a course and the difficulties when effecting a search pattern			

Knowledge, understanding and proficiency		IMO Reference	Textbooks, Bibliography	Teaching Aid
.3	two-way VHF radiotelephone apparatus: - outlines the requirements of two-way VHF radiotelephone apparatus carried on fast rescue boats - states that the equipment is hands-free and watertight capable of being used for on-scene communication between survival craft and rescue unit - states that fixed two-way VHF radiotelephone may be fitted on fast rescue boats - states that apparatus is capable of operation on frequency 156.8 MHz (VHF channel 16) and on at least one additional channel - demonstrates the controls and indicators of the equipment - states that the equipment is operational within 5 seconds of switching on - explains the transmitter power, receiver parameters, antenna type and receiver output - states that power supply has sufficient capacity for 8 hours operation - describes the arrangement of power supply	R1 Table A-VI/2-2 Res.A.656(16) LSA Code Sect 5.1.2		

Required performance:

3.3 Safety equipment

R6

.1 lists devices for signalling or attracting attention as:

- pyrotechnics
- torch suitable for morse signalling
- daylight signalling mirror
- whistle
- searchlight

.2 states the requirement for carrying SART in fast rescue boats

.3 states the requirement for carrying EPIRB in fast rescue boats — R2 Reg.II/6.22

.4 describes how to extinguish a fuel fire with the extinguisher provided in the boat

.5 demonstrates the use of signalling equipment — R1 Table A-VI/2-2

Required performance:

3.4 Emergency Equipment

R1 Table A-VI/2-2

.1 lists the emergency equipment

.2 explains the use of emergency equipment as fire control, righting the capsized boat, towing, bellow for inflation of inflated fast rescue boats

.3 demonstrates the ability to use emergency equipment

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
4 Safety precautions during launch and recovery of a fast rescue boat (2 hours)	R1 Table A-VI/2-2		A1 p.34
Required performance:			
4.1 Launching arrangements			
.1 lists the types of launching arrangements used for the boats	LSA Code Sec.6.1.1., 6.1.2		
.2 describes the construction and arrangements for stowage, securing, gripes, tracing pendants and the methods of launching and recovering fast rescue boats			
.3 describes methods of disengaging lifting hooks	R3 Sec.4.4.1		
.4 lists the device to dampen the forces during launch and recovery			
.5 states that wire tensioning devices are fitted in the equipment			
.6 outlines on-board maintenance of davits, falls and disengaging gear			
Required performance:			
4.2 Safety precautions during launching and recovery	R1 Table A-VI/2-2		
Launching	R6		
.1 lists pre-launching checks			
.2 lists hazards during launching of fast rescue boats			
.3 describes the safety precautions during launch and recovery of fast rescue boats			
.4 lists personal preparation for manning the fast rescue boat			
.5 states that the person in command of fast rescue boat should check that all crew are present and are suitably dressed and have correctly donned the lifejackets			
.6 describes the preparations which should be made for launching and recovery of fast rescue boats			
.7 states that all occupants should be seated, with safety belts fastened where appropriate, before lowering			
.8 states that a check should be made to ensure that hands and arms are clear of the boat's sides			
.9 states that inboard engines of fast rescue boats should be started			
.10 states that outboard motor should never be started out of the water			
.11 states the importance of seeing that it is clear below before fast rescue boats are lowered			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
.12 explains that boats should only be lowered on instructions from the master			
.13 lists action to be taken when called to fast rescue boats stations			
.14 explains what the person in charge should do if it proves impossible to launch a fast rescue boat			
Recovery:	R3 Sec.5.1		
.1 explains the method of handling boats under power while coming alongside a ship or quay	Reg.III/21		
.2 states that painter is an aid to keeping fast rescue boats alongside	Reg.III/31		
.3 lists the safety precautions during recovery of fast rescue boats	R6		
.4 states that disembarkation from rescue boats should be in an orderly manner giving priority to injured persons, ladies and children			
.5 states that checks should be made and crew cautioned prior to giving signal to hoist			
.6 states that coxswain should ensure that boat is properly stowed and it would be his or her responsibility to check that the boat is secure			
Required performance:			
			A1 p.34
4.3 Launching and recovery in rough seas	R2 Reg.III/12.17 23,33 R3 Sec.6.1		
Launching			
.1 explains how to reduce the risk of danger to fast rescue boats or injury to occupants during lowering if the ship is rolling heavily			
.2 states that oil may be used to quell breaking seas along the ship's side			
.3 explains how to lower a boat into heavy swell			
.4 states that blocks may be lifted as soon as unhooked to prevent injury to occupants			
.5 explain the use of on-load release system			
.6 describes method of getting clear from ship's side			
Recovery	R2 Reg.III/17.5		
.1 describes arrangements for recovery strops			
.2 describes the method of recovery of fast rescue boats in rough seas			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
Required performance:			
4.4 Drills in launching and recovery of fast rescue boats (1.5 hours)	R1 Table A-VI/2-2		A1 p.34
.1 acts as an efficient member of the launching crew			
.2 ensure that all the boat's crew are present and are appropriately dressed			
.3 takes charge and allocates duties for launching, handling and recovery			
.4 gives correct commands for launching and boarding the boats, clearing the ship's side and handling and disembarking persons from boats			
.5 performs pre-launch checks			
.6 prepares and safely launches fast rescue boats and clears the ship's side quickly			
.7 demonstrates the ability to start and operate an inboard engine, outboard engine or jet-propelled engine as fitted in fast rescue boats			
.8 acts as coxswain in handling fast rescue boats under power and paddle/oars			
.9 streams a sea-anchor			
.10 demonstrates the ability to: - use individual items of fast rescue boats - rig devices to aid location			
.11 demonstrates the ability to safely recover the boats			
5 How to handle a fast rescue boat in prevailing and adverse weather and sea conditions (4 hours)	R1 Table A-VI/2-2 R6		A1 p.35
Required performance:			
5.1 Clearing the ship's side and coming alongside			
.1 describes how to get clear of the ship's side in fast rescue boats			
.2 describes how the painter can be used to assist in clearing the ship's side			
.3 explains the particular difficulty of getting away from the weather side of a ship			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
Required performance:			
5.2 Manoeuvring at slow speed	R1 Table A-VI/2-1		
.1 explains displacement and planning mode and the effect on performance of fast rescue boats in slow manoeuvring and handling	R6		
.2 explains pivot point and its shift with fast rescue boat in motion			
.3 describes effect of external forces that affect boat handling			
.4 lists factors for overall decrement of performance of fast rescue boats			
Required performance:			
5.3 Manoeuvring at fast speed			
.1 states that to maintain adequate control of the craft the fast rescue boat must always be driven with one hand on the helm and one on the throttle			
.2 states that fast turning the boat at high speed may capsize the boat even in calm weather			
Required performance:			
5.4 Boat handling in adverse weather			
.1 explains characteristics that influence control			
.2 states that for the success of operation, the degree of maximum speed should be such that ensures overall safety and comfort of crew			
.3 describes the use of the oar when lying to a sea-anchor			
Required performance:			
5.5 Towing			
.1 demonstrates equipment provided on fast rescue boats to effect a tow			
.2 states that establishment of communications is essential and complete information shall be obtained to ensure that towing operation can be successfully executed			
.3 explains types of tow that can be effected by fast rescue boats			
.4 describes the preparations for a tow			
.5 states that all preparation must be made prior to approaching the tow			
.6 explains the factors to consider when making an approach			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
Required performance:	R1 Table A-VI/2-1		
5.6 Pacing and transfer			
.1 lists reasons for pacing			
.2 explains hazards involved with pacing and transfer			
.3 states that the hazards and benefits must be weighed and transfer of persons must only be attempted in emergency	R6		
.4 explains factors to consider for approach, pacing, transfer and departure			
.5 explains the need for control of steering while pacing and transfer			
.6 lists safety rules while pacing and transfer			
.7 describes pacing and correct positioning of vessels for coming alongside			
.8 states that fresh attempt for an approach should be made in case of failure to correctly position the fast rescue boats on initial approach			
Required performance:			V4
5.7 Helicopter operation	R1 Table A-VI/2-2		
.1 describes: - communication - signalling - preparation - method of transfer			
.2 lists hazards and general safety rules			
Required performance:			
5.8 Drills in boat handling (1.5 hours)	R1 Table A-VI/2-2		
Drills in coming alongside and getting away			
.1 acts as coxswain in handling fast rescue boats under power and paddle/oars			
.2 prepares and safely launches rescue boats and clears the ship's side quickly	R6		
.3 demonstrates the ability to get away and come alongside a parent vessel or to a place of safety ashore			
Drills in manoeuvring in calm seas			
.4 demonstrates the ability to steer fast rescue boats and steer by compass			
Drills in manoeuvring in adverse weather			
.5 demonstrates operation of fast rescue boat in open sea			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
.6 streams a sea anchor	R6		

Required performance:

5.9 Drills in towing (1 hour)

.1 demonstrates fastening for side and stern tow

.2 demonstrates action for control of towing

.3 demonstrates release of tow and transfer to parent vessel/ashore

.4 drills in side towing:

- takes charge of the boat and gives correct commands for executing a side tow
- communicates and establishes the type of tow and procedure to adopt
- makes preparation for a side tow
- makes correct approach for coming alongside
- comes alongside and makes fast a disabled boat
- tows the boat a short distance
- controls the steering to let go the tow or transfers to parent vessel or ashore

.5 drills in stern towing:

- takes charge of the boat and gives correct commands for executing a stern tow
- communicates and establishes the type of tow and procedure to adopt
- makes preparation for a stern tow
- makes correct approach for taking in the tow line
- takes in the tow line and makes fast a disabled boat
- tows the boat a short distance
- controls the steering to let go the tow or transfer to parent vessel or ashore

Required performance:

5.10 Drills in pacing and transfer (1 hour)

R1
Table A-VI/2-2

.1 takes charge of the boat and gives correct commands to the crew for pacing and transfer

.2 uses communication to establish procedure — R6

.3 makes correct approach for pacing

.4 positions correctly for coming alongside

.5 comes alongside and executes transfer

.6 departs safely

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
6 Procedures for righting a capsized fast rescue boat (1.5 hours)	R1 Table A-VI/2-2		A1 p.35
Required performance:			
6.1 Capsize			
.1 lists most probable reasons for capsize			
.2 lists implications of a capsize			
.3 explains actions to take in the event of a capsize			
.4 describes means of righting capsized fast rescue boats			
.5 lists actions to take after righting the boat			
Required performance:			
6.2 Drills in righting capsized fast rescue boats (1 hour)			
.1 dons the wet suit correctly and participates in capsize drill	R1 Table A-VI/2-2		
.2 takes correct actions after capsize			
.3 swims away from capsized boat	R6		
.4 group themselves(groups with others?) away from the boat	R6		
.5 rights the capsized boat			
.6 boards the boat			
.7 helps others board the boat			
.8 starts the boat engines			
7 Search patterns and environmental factors affecting their execution (2.5 hours)	R1 Table A-VI/2-2		A1 p.36 V3
Required performance:			
7.1 Initial information and action			
.1 states that fast rescue boats can be deployed to: - search, locate, retrieve and care for casualties in water - marshal liferafts - tow the liferafts, lifeboats, rescue boats	R3 Sec.4.4.6		
.2 describes action on receipt of initial information			
.3 states that the coxswain is responsible for crew safety, boat safety, casualty safety and must therefore decide if it is safe to carry out the rescue operation			
.4 explains contingency planning for rescue operations			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
Required performance:			
7.2 Search pattern			
.1 lists common types of search pattern	R1 Table A-VI/2-2		
.2 describes the search patterns with emphasis on: - assessment of dangers - lookout by crew - search speed - track spacing - line of drift	R4 R6		
.3 states the disadvantages of sector search pattern with respect to fast rescue boats			
.4 explains the criteria for selection of sweep width as: - type of object - visibility - height of eye			
.5 states that during search, the coxswain must only concentrate on navigation and the crew on lookout and signalling			
.6 lists factors that affect search in fast rescue boats as: - difficulty in maintaining course due to limitations of magnetic compass - effect of wind and current on fast rescue boats - shadow areas between waves			
.7 states that orientation in fast rescue boats can best be maintained with the help of transits, bearing of conspicuous objects in vicinity, swell direction, wind direction, sun reflection, propeller wash			
Required performance:			V2
7.3 Rescuing survivors from the sea			
.1 explains that fast rescue boats should be used to marshal liferafts clear, tow survival crafts and pick up survivors and persons in the water			
.2 describes how to pick up a survivor from the water			
.3 describes how to bring an injured or exhausted survivor aboard fast rescue boats			
.4 states that anyone entering the water to assist a survivor must have a line attached			
.5 explains method of retrieving casualty from water with emphasis on: - signal by crew - approach speed - approach course with respect to wind and current control of steering - preparation by crew			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
.6 states that it is important that the coxswain contol the steering while crew organizes and picks up the survivor			
.7 lists methods of retrieving casualty from water in: - vertical position - horizontal position - rescue net/basket			
.8 demonstrates methods of retrieving casualty from water			
.9 describes recovery of man overboard technique as: - assessment of situation - maintaining lookout - selection of pickup side on the basis of wind and current - heading into the wind/current - aiming for man - taking way off - steering control - final checks - abort and continue			

Required performance:

7.4 Casualty care

.1 states that for survival of casualty quick assessment of condition of casualty must be made			
.2 states that priority must be given to his breathing and circulation			
.3 lists action for restoring respiration and circulation			
.4 lists symptoms of hypothermia and frostbite	Table A-VI/2-2		
.5 states that heartbeat and breathing may be very feeble and difficult to detect in severe cases but heart compression and artificial respiration will do more harm than good	R5		
.6 demonstrates casualty care on unconscious person by: - donning him thermal protection apparatus - positioning him safely in boat			
.7 demonstrates casualty care on conscious persons by seating them safely in the boat			

Required performance:

7.5 Drills in search and rescue (2 hours)

	R1 Table A-VI/2-2		V3
.1 takes charge of the boat and gives correct command for lookout and signalling	R6		
.2 carries out search patterns			
.3 makes correct approach for the casualty			
.4 controls steering and engine on arrival at site and during recovery			
.5 picks up survivor from the water			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
.6 places survivor in stretcher			
.7 departs safely from the site			
.8 safely brings rescue boats alongside		R6	
.9 demonstrates the ability to safely disembark the survivor			
.10 uses foul weather strop for recovery of rescue boats			
8 Assessment of readiness of fast rescue boats and related equipment for immediate use (0.5 hour)		R1 Table A-VI/2-2 R6 R2 Reg.II/20 LSA Code	A1 p.36
Required performance:			
8.1 Boat readiness			
.1 states the requirement for operational readiness			
.2 describes the checks for boat readiness			
Required performance:			
8.2 Equipment readiness			
.1 states that batteries for engine starting, searchlight and fixed radio installation shall be maintained in fully charged state at all times			
.2 states that batteries can be charged from the boat's engine			
.3 describes arrangements for charging batteries from the ship's power supplies			
.4 states that radio VHF should be tested periodically and confirmed of operational readiness			
.5 states that the fuel shall be replenished after every use and fuel tank maintained full			
9 Knowledge of the maintenance, emergency repairs, normal inflation and deflation of buoyancy compartments of inflated fast rescue boats (0.5 hour)		R6	A1 p.36
Required performance:			
.1 describes routine maintenance on hull, sponsons and equipment			
.2 describes the onboard maintenance of outboard motor engine and water jet propulsion			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
.3 describes the engine trouble shooting and action			
.4 explains emergency repairs			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid

Competence 2: Operate a fast rescue boat engine

10 Method of starting and operating a fast rescue boat engine and its accessories (1.5 hours)	R1 Table A-VI/2-2		A1 p.36-37

Required performance:

10.1 Inboard motor engines

.1 lists the prestart checks of inboard motor engines

.2 states the need for priming the engine

.3 explains the manufacturer's instructions for setting controls

.4 explains how to start the engines and adjusts throttle

.5 states the need to check oil pressure and cooling system

.6 explains the means to operate ahead and on stern propulsion

.7 explains how to stop the engine and turn off fuel

.8 describes the emergency stop device and method of operation

.9 states the quality of fuel required for the engines

.10 states the use of sea anchor

.11 describes the emergency steering system

Required performance:

10.2 Outboard motor engines

.1 describes the fast rescue boats' outboard engine with special emphasis on:

- securing arrangements, normal position during operation and tilted position when stowed
- arrangements of fuel tank, connections and priming
- cooling system
- use of chock
- starting, throttle and stopping the engine
- hanging the gear

.2 lists the prestart checks

.3 explains how to start a cold outboard motor engine

.4 states that the manufacturer's specification for petrol/oil mixture should always be followed to avoid damage to the engine

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
.5 lists the checks that are made when: - engine does not start - engine power is reduced - normal running of engine			
.6 states that starting of outboard motor out of water will quickly heat the engine and will result in seizing of the engine			
.7 explains that outboard engines should never be laid horizontally, when transporting or stowing, as cooling water may drain into the engine			
.8 describes the emergency stop device and method of operation			
.9 describes the emergency steering system			

Required performance:

10.3 Water jet propulsion

.1 describes the jet propulsion system			
.2 describes the means of steering ahead and reversing the boat			
.3 lists the prestart checks			
.4 explains the setting of controls			
.5 explains how to start the engines and adjust throttle			
.6 states that it is important to check the jet pressure			
.7 describes the controls for steering ahead, neutral, stern and pivoting about a point			
.8 describes how to stop the engine			
.9 describes the emergency stop device and method of operation			
10 explains the boat handling with water jet propulsion			
.11 explains the means of emergency steering system			
.12 compares the boat handling implication of various propulsion systems	R1 Table A-VI/2-2		

Required performance:

10.4 Drills in engine operation (1 hour)

.1 performs the prestart checks including communication			
.2 follows manufacturer's instructions and sets controls			
.3 starts engines and adjusts throttle			
.4 checks jet pressure			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
.5 operates controls for steering ahead, neutral, stern and pivoting about a point			
.6 stops the engine			
.7 demonstrates the emergency stop device and method of operation			
.8 demonstrates the ability to handle the boat with motor engine and water jet propulsion			

Part D: Instructor Manual

Introduction

The instructor manual provides guidance on the material that is to be presented during the course. The course material reflects the requirements for the issue of certificates of proficiency in fast rescue boats, as specified in regulation VI/2 paragraph 2 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1995.

The material has been arranged in two competencies preceded by a brief introduction:

1 Take charge of a fast rescue boat during and after launch

2 Operate a fast rescue boat engine

The consolidated text of the 1974 SOLAS Convention, the 1978 SOLAS Protocol and amendments (R2) and International Life Saving Appliance Code (R3) are used as a basic reference throughout the course. Reference is particularly made to those sections which directly concern the person in charge of the survival craft.

The course outline and timetable provide guidance on the time allocation for the course material, but the instructor is free to make adjustments as necessary. The practical exercises in launching and recovery of boats, allowing each trainee to be in charge of the operation, are very demanding of time. If facilities and instructors are available, the class may be split into two groups to reduce the overall time needed for these exercises. Where that is not possible, the number admitted to the course should be set at a level which will allow each trainee sufficient time in charge. Alternatively, the course could be extended, allowing more time for the final exercises and evaluation, to accommodate a larger number of trainees.

Throughout the course it is important to stress that safety rules and regulations must be strictly observed and all precautions taken to maximize safety. Where appropriate trainees should be given advice on the avoidance of accidents.

The detailed teaching syllabus must be studied carefully and lesson plans or lecture notes compiled where appropriate. An example of a lesson plan is given on page 38.

Instruction should be made as practical as possible and actual equipment should be used, where available, to illustrate lessons in the classroom. To illustrate the range of boats and davit types, photographs, manufacturers' drawings, videos or models can be used.

Trainees should be advised to bring with them a change of clothes, including suitable footwear, for use in wet drills with liferafts and in other practical sessions.

Guidance Notes

Introduction and safety 0.5 hour

Introduction

Trainees should be given a brief description of the course and how it will be conducted. They should be advised what clothing to wear for the wet drills and practical sessions, and be informed of arrangements for changing and drying clothes.

Safety guidance

The chief instructor should explain the safety rules to be followed by trainees during practical sessions. He should also explain the measures taken by instructors for the safety of trainees and how to attract attention if they are in difficulties. On hearing the order 'STILL' issued by the trainee in charge of an operation or by an instructor, everything should be stopped and trainees should keep quiet and listen for further instructions. When ready to continue, the order 'CARRY ON' should be given.

Trainees should draw up a muster list for the class as a boat's crew; this list can be used in the practical exercises.

Competence 1: Take charge of a fast rescue boat during and after launch (14 hours)

1 Construction and outfit of fast rescue boats and individual items of their equipment (1 hour)

Emphasis should be on the particular problems or difficulties which may be encountered in the various emergency situations. In the case of a fire that threatens to damage survival craft they should be launched, to preserve them. If possible, liferafts should be moved to a safe place on board or placed in the boats in their containers, so that they can be returned on board ready for use if abandonment is unnecessary. They can be launched and inflated from the boat should it be necessary to abandon the ship.

The boats to be used in practical drills should be used to demonstrate the construction and fittings. Photographs or drawings of other types of boats should be used.

2 Particular characteristics and facilities of fast rescue boats (1 hour)

The instructor should remind trainees that they are training to act as the person in charge of a survival craft and as such they will be responsible for ensuring that their own crews are familiar with their duties.

A training manual should be available for this session, preferably one based on the equipment fitted at the training establishment. Trainees should have access to a copy of this manual throughout the course.

3 Navigational and safety equipment available in a fast rescue boat

(0.5 hour)

Trainees should have undertaken a course in proficiency in survival craft and rescue boats other than fast rescue boats, which included use of boat equipment and navigation equipment, prior to this course. This section should be treated as an opportunity to check that they still are able to use these equipment correctly. Trainees should be asked to demonstrate their use. A set of dummy pyrotechnics should be available for demonstration purposes.

Fast rescue boats must have fixed two-way VHF radiotelephones fitted. Each trainee should demonstrate how to operate the radio and should be required to make a routine, safety, urgency and distress call, giving appropriate information. The instructor must take care that alarm and distress messages are not transmitted during practices. The use of portable two-way radiotelephones should also be practised. Where possible, they should also be carried during drills in the fast rescue boats and by the instructor in charge. Care should be taken not to use them on channel 16. Radiotelephones could be modified so that the channel 16 setting provides a working channel acceptable locally to the Administration.

Global maritime distress and safety system (GMDSS)

The amendments to SOLAS 1974 regulation III/6, 'Communications', entered into force on 1 February 1992. The regulation stipulates that all passenger ships and cargo ships of 500 tons gross tonnage and upwards will require at least three portable two-way VHF radiotelephones and, in addition, a radar transponder on each side of the ship, stowed so that they can be rapidly placed in any survival craft and rescue boats that must be carried when the survival craft are more than 100 metres from the stem or stern. Cargo ships of 300 tons gross tonnage and upwards but less than 500 tons will require at least two-way VHF radiotelephones and one radar transponder.

Distress alerting will be carried out by the ship's satellite EPIRB, which would be transferred to a survival craft on abandoning the ship. No transmission should be possible from the EPIRB used for demonstration purposes.

4 Safety precautions during launch and recovery of a fast rescue boat

(2 hours)

Subject areas 4.1 and 4.2 are in preparation for the practical exercises in launching and clearing the ship's side. Bowsing-in tackles and tricing pendants are not fitted to boats which are launched from the stowed position. These sections could well be dealt with at the same time as section 1. For example, a particular type of fast rescue boat and its launching arrangements could be treated together. The trainees will act as member of a rescue boats crew for the drills. Each trainee should take charge of a launching operation and clear the rescue boat away from alongside. A trainee’s duties will be changed to cover all the activities of the boat’s crew.

Launching survival craft and rescue boats in rough weather

A ship stopped in a high wind will probably lie with the wind approximately abeam and will drift quite rapidly to leeward. On the weather side conditions will be much rougher and it will be difficult to hold the craft alongside for transfer.

5 How to handle a fast rescue boat in prevailing and adverse weather and sea conditions (4 hours)

The trainees will act as members of the boat's crew or passengers for the drills. Use should be made of the muster list drawn up on the first morning. Each trainee should take charge of fast rescue boats and clear the boat away from alongside. A trainee's duties will be changed to cover all items in the muster list in the course of the drills.

Each trainee should also take a turn as coxswain to practise handling the boat, including coming alongside for recovery of the boat.

The instructor should stress the need to keep clear of the area for launch of ramp launched lift-boats when fast rescue boats are on stand - by for rescue. If launched, they are likely to damage the fast rescue boats by their great impact.

The sea anchor should be streamed and recovered at some point during the practices to ensure that trainees know what is involved.

Finally the recovery of rescue boats should be carried out with the help of foul weather strops, demonstrating the transfer of the weight of boat between the strop and fall wire.

Handling fast rescue boats in rough weather

Trainee should be explained that short choppy seas will inevitably lead to a 'wet' ride in the fast rescue boats. The pounding of the hull and resultant vibrations can lead to the crew becoming injured and possibly fall overboard. Great care is needed till crafts arrived a safe area.

Methods of helicopter rescue

Procedures for rescue from the ship, from survival craft and from the water should be covered. Search and rescue helicopters are mostly equipped to communicate on VHF channel 16, which allows direct communication between the helicopter and a ship or a survival craft carrying a portable two-way radiotelephone.

Each trainee should demonstrate how to don a rescue sling and signal that he is ready to be lifted.

Fast rescue boats are affected by down-draft of wind from a helicopter. Boat handling in such situation should be explained.

In all cases it is important to try to follow any instructions from the helicopter crew as closely as possible.

6 Procedures for righting a capsized fast rescue boat (1.5 hours)

Part of subject area 6.1 could be covered with section 1. Causes of capsize, it's implications and actions should be covered at some stage prior to the drill. All trainees should participate in Capsize-reversal drill which will be within equipment limition. Totally enclosed boats depend for their self-righting properties on the occupants remaining securely in place when capsized.

7 Search patterns and environmental factors affecting their execution

(2.5 hours)

The subject area covered here is of great importance. Behaviour of fast rescue boats greatly depends on weather conditions. IAMSAR should be refered for preparation of lecture on search pattern and SAR organization.

Practice drills for picking up survivors in water should be carried out with emphasis on recovery in various postures. In one or two drills, the evacuation of a stretcher case should be practised. The stretcher should be padded and weighted to realistically represent the casualty.
Trainees should have undertaken a course in basic first aid which included resuscitation early in their sea-going careers. This section should be treated as an opportunity to check that they can still apply the methods correctly. Some trainees should be asked to demonstrate resuscitation in the confined space of a fast rescue boat.

Demonstration of covering an unconscious casualty in thermal protective aid shall be demonstrated. There is a need to recognize and treat a person suffering from hypothermia, particularly with survivors who have been immersed. A Pocket Guide to Cold Water Survival (R5) and videos V1 and V2 deal with the avoidance and treatment of hypothermia.

The seating of persons should be demonstrated where recovery/transfer of more than one casualty is involved.

8 Assessment of readiness of fast rescue boats and related equipment for immediate use

(0.5 hour)

A training manual should be available for this session, preferably based on the equipment fitted at the training establishment. Trainees should have access to a copy of the manual. Quality and quantity of fuel carried on fast rescue boats shall be stated.

Trainees should be referred to the manufacturers' manuals for details concerning the fast rescue boat on board the ship in which they sail.

9 Knowledge of the maintenance, emergency repairs, normal inflation and deflation of buoyancy compartments of inflated fast rescue boats

(0.5 hour)

Model of engine or a chart detailing the parts of engine shall be used for illustration of maintenance on engines.

Competence 2: Operate a fast rescue boat engine (1.5 hours)

10 Method of starting and operating a fast rescue boat engine and its accessories (1.5 hours)

The instruction should be made as practical as possible, using the engine in the lifeboat or an engine in a workshop. Details of operating procedures and maintenance for the engines installed in a ship's lifeboats are contained in the training manual and instructions for on-board maintenance. Starting and operating instructions are also mounted near the engine starting controls.

Trainees should be aware of the amount of fuel carried, to enable them to plan its use to best advantage.

Rescue boat outboard engine

The instructions should be made as practical as possible. Details of securing, priming, starting, throttling and stopping the engine should be demonstrated using an outboard engine and a water tub.

EXAMPLE OF A LESSON PLAN

COURSE: PROFICIENCY IN FAST RESCUE BOATS DURATION: 15 Minutes

TRAINING AREA: 4 **Safety precautions during launch and recovery of a fast rescue boat**

MAIN ELEMENT Specific learning objective (in teaching sequence, with memory keys)	TEACHING METHOD	IMO REFERENCE	A/V AIDS	INSTRUCTOR GUIDELINES	TIME (MINS)
4 4 Safety precautions during launch and recovery of a fast rescue boat					
.1 Launching arrangements - lists types of launching arrangements as gravity davits, luffing davits, single arm davits/cranes, motion compensating davits /cranes, cradle system, stern ramp system - describes the construction and arrangement for stowage, securing, gripes, tricing pendant for type of davit used at the training institution - descibes method of disengaging lifting hooks without injury to the fingure and the arrangement of hook recovery line - lists force dampening device, wire tensioning device - outlines maintenance of davits, falls and disengaging gear	Classroom lecture	Tb. A - VI/2-1 Col.2		A1 - Para. 7	3

Model Course No:

Crowd Management, Passenger Safety and Safety Training for Personnel Providing Direct Services to Passengers in Passenger Spaces

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Contents

Model Course

Introduction

■ Purpose of the model courses

The purpose of the IMO model courses is to assist maritime training institutes and their teaching staff in organizing and introducing new training courses, or in enhancing, updating or supplementing existing training material where the quality and effectiveness of the training courses may thereby be improved.

It is not the intention of the model course programme to present instructors with a rigid "teaching package" which they are expected to "follow blindly". Nor is it the intention to substitute audio-visual or "programmed" material for the instructor's presence. As in all training endeavours, the knowledge, skills and dedication of the instructors are the key components in the transfer of knowledge and skills to those being trained through IMO model course material.

The educational systems and the cultural backgrounds of trainees in maritime subjects vary considerably from country to country. For this reason the model course material has been designed to identify the basic entry requirements and trainee target group for each course in universally applicable terms, and to specify clearly the technical content and levels of knowledge and skill necessary to meet the technical intent of IMO conventions and related recommendations.

This is the first manual written for this Model Course. In order to keep the training programme up to date in future, it is essential that users provide feedback. New information will provide better training in safety at sea and protection of the marine environment. Information, comments and suggestions should be sent to the Head of the STCW and Human Element Section at IMO, London.

■ Use of the model course

To use the model course the instructor should review the course plan and detailed syllabus, taking into account the information provided under the entry standards specified in the course framework. The actual level of knowledge and skills and the prior technical education of the trainees should be kept in mind during this review, and any areas within the detailed syllabus which may cause difficulties, because of differences between the actual trainee entry level and that assumed by the course designer, should be identified. To compensate for such differences, the instructor is expected to delete from the course, or reduce the emphasis on, items dealing with knowledge or skills already attained by the trainees. He should also identify any academic knowledge, skills or technical training which they may not have acquired.

By analysing the detailed syllabus and the academic knowledge required to allow training in the technical area to proceed, the instructor can design an appropriate pre-entry course or, alternatively, insert the elements of academic knowledge required to support the technical training elements concerned at appropriate points within the technical course.

Adjustment of the course objective, scope and content may also be necessary if in your maritime industry the trainees completing the course are to undertake duties which differ from the course objectives specified in the model course.

Within the course plan the course designers have indicated their assessment of the time which should be allotted to each area of learning. However, it must be appreciated that these allocations are

arbitrary and assume that the trainees have fully met all entry requirements of the course. The instructor should therefore review these assessments carefully and may need to re-allocate the time required to achieve each specific learning objective or training outcome.

■ Lesson plans

Having adjusted the course content to suit the trainee intake and any revision of the course objectives, the instructor should draw up lesson plans based on the detailed syllabus. The detailed syllabus contains specific references to the textbooks or teaching material proposed to be used in the course. Where no adjustment is found necessary in the learning objectives of the detailed syllabus, the lesson plans may simply consist of the detailed syllabus with keywords or other reminders added to assist the instructor in making his presentation of the material.

■ Presentation

The presentation of concepts and methodologies must be repeated in various ways until the instructor is satisfied, by testing and evaluating the trainee's performance and achievements, that the trainee has attained each specific learning objective or training outcome. The syllabus is laid out in learning objective format and each objective specifies a *required performance* or, *what the trainee must be able to do* as the learning or training outcome. Taken as a whole, these objectives aim to meet the knowledge, understanding and proficiency specified in the appropriate tables of the STCW Code.

■ Implementation

For the course to run smoothly and to be effective, considerable attention must be paid to the availability and use of:

- Properly qualified instructors
- Support staff
- Rooms and other spaces
- Equipment
- Suggested references, textbooks, technical papers
- Other reference material.

Thorough preparation is the key to successful implementation of the course. IMO has produced a booklet entitled "Guidance on the implementation of IMO model courses", which deals with this aspect in greater detail.

In certain cases, the requirements for some or all of the training in a subject are covered by another IMO model course. In these cases, the specific part of the STCW Code which applies is given and the user is referred to the other model course.

■ Training and the STCW 1995 Convention

The standards of competence that have to be met by seafarers are defined in Part A of the STCW Code in the Standards of Training, Certification and Watchkeeping for Seafarers Convention, as amended in 1995. This IMO model course has been written to cover the competences in STCW 1995. It sets out the education and training to achieve those standards set out in Chapter V Section A-V/2 and Section A-V/3, pa.1, 2 and 3.

This course covers the minimum standard of competence for:

> masters, chief mates, chief engineers, second engineer officers and any other person assigned immediate responsibility for embarking and disembarking passengers, for loading, discharging or securing cargo, or for closing hull openings and any other person having responsibility for the safety of passengers in emergency situations

on ro-ro passenger ships.

The course also covers the minimum standard of competence for the above personnel on passenger ships other than ro-ro passenger ships

Part A provides the framework for the course with the aims and objectives and notes on the suggested teaching facilities and equipment. A list of useful teaching aids, IMO references and textbooks is also included.

Part B provides an outline of lectures, guidance notes and lesson plans for the course. A detailed timetable is suggested. From the teaching and learning point of view, it is important that the trainee achieves the minimum standard of competence defined in the STCW Code. Depending on their experience and ability, some students will naturally take longer to become proficient in some topics than others.

Part C gives the Detailed Teaching Syllabus. This is based on the theoretical and practical knowledge specified in the STCW Code. It is written as a series of learning objectives, in other words what the trainee is expected to be able to do as a result of the teaching and training. Each of the objectives is expanded to define a required performance of knowledge, understanding and proficiency. IMO references, textbooks references and suggested teaching aids are included to assist the teacher in designing lessons. Assessment check lists are contained in Appendix 3.

These new training requirements were incorporated in STCW 95 following major casualties involving the Herald of Free Enterprise, Scandinavian Star and Estonia. Case studies of these casualties can be found in Appendix 1.

The Convention defines the minimum standards to be maintained in Part A of the STCW Code. Mandatory provisions concerning Training and Assessment are given in Section A-I/6 of the STCW Code. These provisions cover: qualification of instructors; supervisors as assessors; in-service training; assessment of competence; and training and assessment within an institution. The corresponding Part B of the STCW Code contains guidance on training and assessment.

The criteria for evaluating competence specified in the minimum standard of competence tables of Part A of the STCW Code are to be used in the assessment of all competences listed in those tables.

A separate model course addresses Assessment of Competence and Use of the criteria for evaluating competence tabulated in the STCW Code.

■ Responsibilities of Administrations

Administrations should ensure that training courses delivered by colleges and academies are such as to ensure officers completing training do meet the standards of competence.

■ Refresher training

In reality training is never completed and crews are required to receive refresher training. In accordance with Regulation V/2 and V/3, seafarers are required to undertake appropriate refresher training, at intervals not exceeding five years, or be required to provide evidence of having achieved the required standard of competence within the previous five years. (Regulation V/2 pa. 3 and Regulation V/3 pa. 3.)

Part A: Course Framework

Aims

This model course aims to meet the mandatory minimum requirements for the training of masters, officers, ratings and other personnel on ro-ro passenger ships and on passenger ships other than ro-ro passenger ships in Regulation V/2, pa.4, 5 and 6 and Regulation V/3, pa.4, 5 and 6 and specified in the STCW Code Sections A-V/2 and A-V/3, pa.1, 2, and 3.

Objective

A trainee successfully completing this training will be able to:

1. Control a crowd in an emergency situation on board
2. Locate essential safety and emergency equipment on board
3. Communicate effectively with passengers during an emergency
4. Demonstrate the use of personal life-saving appliances
5. Comply with the ship's safety and emergency procedures

Entry standards

There are no specific entry standards, for the training in this Model Course. However, all personnel having responsibilities on board must undertake training dependant on those duties and responsibilities as detailed in 1, 2, and 3 below.

1. Crowd management training is required for masters, officers, ratings and other personnel on ro-ro passenger ships and on passenger ships (STCW Code Section A-V/2 pa.1, and Section A-V/3 pa.1).
2. Familiarization training is required for masters, officers and other personnel assigned specific duties and responsibilities on ro-ro passenger vessels and on passenger vessels (STCW Code Section A-V/2 pa.2, and Section A-V/3 pa.2).
3. Safety training is required for personnel providing direct service to passengers in passenger spaces (STCW Code Section A-V/2 pa.3, and Section A-V/3 pa.3).

Course certificate

Administrations shall ensure that documentary evidence of the training which has been completed is issued to every person found qualified under the provisions of Regulation V/2 for ro-ro passenger ships, or Regulation V/3 for passenger ships other than ro-ro passenger ships.

Course intake limitations

The maximum number of trainees attending each session will depend on the availability of instructors, equipment and facilities available for conducting the training. The number should not, at any time, exceed that which will allow sufficient opportunity for each trainee to have adequate practical instruction in procedures for the proper use of systems and equipment.

Staff requirements

All training and instructions should be given, and assessments carried out, by qualified personnel who understand the specific objectives of the training, and have experience of the procedures established for the ships for embarking and disembarking passengers, for loading and discharging cargo, and for closing hull openings.

Instructors shall be qualified in this task for which the training is being conducted and have appropriate training in instructional techniques and training methods (STCW Code Section A-I/6).

Training facilities and equipment

For tutorial sessions an ordinary classroom or lounge, messroom or cinema aboard should be provided for instruction. An overhead projector and audio visual equipment for videos may be required.

The practical training required by the regulations is ship specific. Therefore, whilst the theory maybe conducted in a classroom or lecture room ashore, all practical training must be held on board ship. This will ensure that those being trained become proficient in handling situations onboard the ship on which they will perform their duties.

Teaching aids (A)

A1 Instructor Manual (Part D of this course)
A2 Overhead transparencies
A3 Videos:

V1 Basic Instincts (Passenger Mustering and Crowd Control) (Code No. 603)
V2 Shipboard Familiarization (Code No. 593)

Available from: Videotel Marine International Limited
84 Newman Street
London W1P 3LD, UK
Tel: +44 (0)207 299 1800
Fax: +44 (0)207 299 1818
e-mail: mail@videotelmail.com
URL: www.videotel.co.uk

IMO references (R)

R1 International Convention for Safety of Life at Sea, 1974 (SOLAS 1974) Consolidated Edition 1997. (IMO Sales No. 110)
R2 SOLAS 1996 Amendments (IMO Sales No. 167)
R3 International Maritime Dangerous Goods Code, 1994 (IMDG Code) (IMO - 200). IMDG Code Amendments 28-96 (IMO Sales No. 224)
R4 IMDG Code Amendments 28-96 (IMO Sales No. 224)
R5 IMDG Code Supplement, 1994. (IMO Sales No. 210)
R6 Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (MFAG), 1994. (IMO Sales No. 251)
R7 Code of Safe Practice for Cargo Stowage and Securing, 1992. (IMO Sales No. 292)
R8 1994/1995 Amendments to the Code of Safe Practice for Cargo Stowage and Securing. (IMO Sales No. 295)
R9 STCW 95, 1996. (IMO Sales No. 938), and 1997 Amendments, (IMO Sales No. 945)

R10 International Safety Management Code, 1994. (ISM Code) (IMO Sales No. 186)
R11 International Code of Safety for High Speed Craft, 1995. (HSC Code) (IMO Sales No. 187)
R12 IMO Resolution MSC/Circ. 735. Recommendation on the design and operation of passenger ships to respond to elderly and disabled person's needs
R13 IMO Resolution A.489 (XII). Safe stowage and securing of cargo units and other entities in ships other than cellular contained ships
R14 IMO Resolution A.533 (13). Elements to be taken into account when considering the safe stowage and securing of cargo units and vehicles in ships
R15 IMO Resolution A.581 (14). Guidelines for securing arrangements for the transport of road vehicles on ro-ro ships
R16 IMO Resolution A.714 (17). Code of safe practice for cargo stowage and securing
R17 IMO Resolution A.770 (18). Minimum training requirements for personnel nominated to assist passengers in emergency situations on passenger ships

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Details of distributors of IMO publications that maintain a permanent stock of all IMO publications may be found on the IMO website at http://www.imo.org

Textbooks (T)

T1 Lloyds Register Classification of Ships' Rules and Regulations. Part 3 and Part 4, Ship Structures. January 1998

T2 Course Compendium.
Summary of the disasters aboard:
1. Herald of Free Enterprise
2. Scandinavian Star
3. Estonia

Condensed versions of the above reports can be found in Appendix 1 of Part D: Instructors Manual.

Bibliography (B)

B1 Flin Rhona. Sitting in the Hot Seat. Leaders and Teams for Critical Incident Management. 1996. John Wiley & Sons (ISBN 0-471-95796-8)
B2 Easingwold Papers No. 2. Crises and the Media. (The Emergency Planning College, 1994) (ISBN 1-874-321-01-9)
B3 Easingwold Papers No. 4. Lessons Learnt from Crowd-related Disasters. (The Emergency Planning College, 1992) (ISBN 1-874-321-04-3)
B4 Easingwold Papers No. 5. Conference: Problems Associated with Large Scale Evacuations. (The Emergency Planning College, 1994.) (ISBN 1-874-321-06-X)
B5 Easingwold Papers No. 6. Disaster Preparedness, Some Myths and Misconceptions. (The Emergency Planning College, 1992) (ISBN 1-874-321-02-7)
B6 Easingwold Papers No. 7. Crises in a Complex Society. (The Emergency Planning College, 1994) (ISBN 1-874-321-08-6)
B7 Easingwold Papers No. 8. A Digest of Some Well Known Disasters. (The Emergency Planning College, 1994) (ISBN 1-874-321-07-8)

Note: Reference material is spread throughout the Easingwold Papers, which is too numerous to itemise in the Textbooks/Bibliography column. Included in the above papers is information relevant to this course.

All Easingwold Papers are available from:

Prontaprint,
92 Grange Road,
Middlesborough TS1 2LS, UK
Tel: +44 (0)1642 249 869
Fax: +44 (0)1642 247 393

B8 Leach, John. Survival Psychology. 1994. MacMillan Press Ltd (ISBN 0-333-51855-1).
B9 Ro-ro Stowage and Securing of Vehicles - Code of Practice. 1997. (ISBN 011-550-995-X).

Part B: Course Outline and Timetable

Lectures

As far as possible, lectures should be presented within a familiar context and should make use of practical examples. They should be well illustrated with diagrams, photographs and charts where appropriate, and be related to matter learned during seagoing time.

An effective manner of presentation is to develop a technique of giving information and then reinforcing it. For example, first tell the trainees briefly what you are going to present to them; then cover the topic in detail; and, finally, summarize what you have told them. The use of an overhead projector and the distribution of copies of the transparencies as trainees handouts contribute to the learning process.

The training provided must be specific to the ship concerned. Below is a course outline and timetable for personnel on ro-ro passenger ships. A separate course outline and timetable follows for personnel on passenger ships other than ro-ro passenger ships.

Select the training which is applicable to the personnel to be trained.

Course Outline

The tables that follow list the competencies and areas of knowledge, understanding and proficiency, together with the estimated total hours required for lectures and practical exercises. Teaching staff should note that timings are suggestions only and should be adapted to suit individual groups of trainees depending on their experience, ability, equipment and staff available for training.

Crowd Management and Safety Training on Ro-ro Passenger Ships

This course covers four specific areas of training for personnel having particular duties and responsibilities:

1. **Introduction to STCW 95**

2. **Crowd management training** is required for masters, officers, ratings or any other personnel who are designated on muster lists to assist passengers in emergency situations. (Reg. V/2 pa.4, Section A-V/2 pa.1 of the STCW Code).

3. **Familiarization training** is required for masters, officers and other personnel assigned specific duties and responsibilities who shall at least ensure attainment of the abilities that are appropriate to the capacity to be filled and the duties and responsibilities to be taken up. (Reg. V/2 pa.5, Section A-V/2 pa.2 of the STCW Code).

4. **Safety training** is required for all personnel providing a direct service to passengers in passenger spaces on board. (Reg. V/2 pa.6, Section A-V/2 pa.3 of the STCW Code).

Competence: Control passengers in emergency situations

Course Outline for Ro-ro Passenger Ships		
Knowledge, understanding and proficiency	**Lecture Hours**	**Shipboard Practical Exercise Hours**
1 Introduction to STCW 95		
2 Crowd management training 2.1 Life-saving appliances and control plans 2.2 Assist passengers en route to assembly and embarkation stations 2.3 Mustering procedures	1.00	1.50
3 Familiarization training 3.1 Design and operational limitations 3.2 Procedures for opening, closing and securing hull openings 3.3 Legislation, codes and agreements affecting ro-ro passenger ships 3.4 Stability and stress requirements and limitations 3.5 Procedures for the maintenance of special equipment on ro-ro passenger ships 3.6 Loading and cargo securing manuals and calculators 3.7 Dangerous cargo areas 3.8 Emergency procedures	2.50	1.50
4 Safety training for personnel providing direct service to passengers in passenger spaces 4.1 Communication 4.2 Life-saving appliances	0.50	0.75
5 Review and assessment		
Subtotals	**4.00**	**3.75**
Total	**7.75**	

Course Timetable for Ro-ro Passenger Ships	
Topic	**Period**
1. Introduction 2. Crowd management training	1st Period (1.5 hours)
2. Crowd management training (continued) 3. Familiarization training	2nd Period (1.5 hours)
3. Familiarization training (continued)	3rd Period (1.5 hours)
3. Familiarization training (continued)	4th Period (1.5 hours)
3. Familiarization training (continued) 4. Safety training	5th Period (1.5 hours)
5. Review and assessment	

Teaching staff should note that the hours for lecturers and exercises are suggestions only as regards sequence and length of time allocated to each objective. These factors may be adapted by lecturers to suit individual groups of trainees depending on their experience, ability, equipment and staff available for teaching.

Crowd Management and Safety Training on Passenger Ships other than Ro-ro Passenger Ships

This course covers four specific areas of training for personnel having particular duties and responsibilities:

1. **Introduction to STCW 95**

2. **Crowd management training** is required for masters, officers, ratings or any other personnel who are designated on muster lists to assist passengers in emergency situations. (Reg. V/3 pa.4, Section A-V/3 pa.1 of the STCW Code.)

3. **Familiarization training** is required for masters, officers and other personnel on board passenger vessels who shall at least ensure attainment of the abilities that are appropriate to the capacity to be filled and the duties and responsibilities to be taken up. (Reg. V/3 pa.5, Section A-V/3 pa.2 of the STCW Code.)

4. **Safety training** is required for all personnel on board passenger vessels who provide a direct service to passengers in passenger spaces on board, eg. bar, restaurant, catering department, and shop staff. (Reg. V/3 pa.6, Section A-V/3 pa.3 of the STCW Code.)

Competence: Control passengers in emergency situations

Course Outline for Passenger Ships other than Ro-ro Passenger Ships		
Knowledge, understanding and proficiency	**Lecture Hours**	**Shipboard Practical Exercise Hours**
1. Introduction to STCW 95		
2 Crowd management training 2.1 Life-saving appliances and control plans 2.2 Assist passengers en route to assembly and embarkation stations 2.3 Mustering procedures	1.00	1.50
3 Familiarization training 3.1 Design and operational limitations	0.25	
4 Safety training for personnel providing direct service to passengers in passenger spaces 4.1 Communication 4.2 Life-saving appliances	0.50	0.75
5 Review and assessment		
Subtotals	**1.75**	**2.25**
Total	**4.00**	

Course Timetable for Passenger Ships other than Ro-ro Passenger Ships	
Topic	**Period**
1. Introduction 2. Crowd management training	1st Period (1.5 hours)
2. Crowd management training (continued)	2nd Period (1.0 hour)
3. Familiarization training 4. Safety training	3rd Period 1.5 hours)
5. Review and assessment	

Teaching staff should note that the hours for lecturers and exercises are suggestions only as regards sequence and length of time allocated to each objective. These factors may be adapted by lecturers to suit individual groups of trainees depending on their experience, ability, equipment and staff available for teaching.

Part C: Detailed Teaching Syllabus

Introduction

The detailed teaching syllabus has been written in learning objective format in which the objective describes what the trainee must do to demonstrate that knowledge has been transferred.

All objectives are understood to be prefixed by the words, "The expected learning outcome is that the trainee ..... "

In order to assist the instructor, references are shown against the learning objectives to indicate IMO references and publications, textbooks, additional technical material and teaching aids, which the instructor may wish to use when preparing course material. The material listed in the course framework has been used to structure the detailed teaching syllabus; in particular,

Teaching aids (indicated by A),
IMO references (indicated by R), and
Textbooks (indicated by T)

will provide valuable information to instructors. The abbreviations used are:

Ch.:	chapter
pa.:	paragraph
Reg.:	regulation

the following are examples of the use of references:

‘A1' refers to the Appendices in the Instructor Manual in Part D of this model course

‘R2 - Reg.II-2/2' refers to regulation 2 of chapter II-2 of the SOLAS Convention.

Note: Throughout the course, safe working practices are to be clearly defined and emphasised with reference to current international requirements and regulations.

It is expected that the national institution implementing the course will insert references to national requirements and regulations necessary.

Knowledge, understanding and proficiency	IMO reference	Textbooks, Bibliography	Teaching aid
Competence: Control passengers in emergency situations **Knowledge, understanding and proficiency:** *A practical appreciation in the use of all techniques, information and equipment supplied to deal with an emergency* *Familiarization with all safety aspects of the ship* *The ability to effectively communicate with passengers and fully prepare them for an emergency* **Training objectives for this course are:** 1. Control a crowd in an emergency situation on board. 2. Locate essential safety and emergency equipment on board. 3. Communicate effectively with passengers during an emergency. 4. Demonstrate the use of personal life-saving appliances. 5. Comply with the ship's safety and emergency procedures.	R9 Section A-V/2 pa.1, 2, 3 Section A-V/3 pa.1, 2, 3		

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
1. Introduction (0.25 hour)			
Required performance:			A2 Pl.1.1, 1.2
To explain course requirements:			
.1 explains the training requirements governed by STCW 95 and flag state regulations			
.2 explains that effective training will result in a safer ship operation			
.3 states that during emergencies, outside assistance is often unavailable			
2. Crowd Management Training (2.25 hours)	R9 Reg. V/2 pa.4 Reg V/3 pa.4		V1 A2 Pl.2.1
2.1 Life-saving appliances and control plans (0.25 hour)			
Required performance:			A3-2, 3 & 4
.1 lists details on muster lists and emergency instructions including:			
- the general emergency alarm, remember this is not the abandon ship alarm	R1 Reg 111/50 R11 Reg. 8.2.2		
- duties required e.g. stairway guide	R12, R2 Reg. 111/6		
- familiarization with the general layout of the ship with special emphasis on the assigned assembly station	Reg.111/8, 53		
- location of adult and infant life jackets	R1 Reg.11/2, 41-2		
- location of extra abandon ship supplies e.g. blankets			
- location, content and use of equipment in emergency locker	R11 Reg.8.4, 18.5		
- elementary first aid and transportation of casualties			
- ensure that passengers, especially children, are warmly dressed			
- the lifeboat/raft assigned to	Reg. 2 111/18		
- the order to abandon ship			
- abandon ship duty if applicable	R2 Reg. 111/51		
- man overboard alarm and procedures	R11 Reg. 18.2.3		
- different types of lifebuoys (lines, lights)			
- awareness of the location and contents of the training manual	R1 Reg. 11-2/28-1		
.2 lists emergency exits:			
- be familiar with your location	R2 Reg. 11-2/28		
- should your exit be unavailable, e.g. smoke, be aware of alternative exits	R11 Reg. 4		
.3 states the restrictions on the use of elevators:	R1 Reg. 11-2/28		
- power failure with people trapped			
- smoke may travel rapidly up elevator shafts			
- the elevator may be requested for a deck which is dangerous because of smoke or fire, whereas stairway guides will direct passengers to the assembly stations by a safe route			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- elevators may become overloaded caused by the rush to escape - too many people attempting to enter the elevator may mean that doors cannot be closed leading to further distress			
2.2 Assist passengers en route to assembly and embarkation stations (1 hour)			V1
Required performance:	R2 Reg.111/53		A2 Pl.2.2
.1 demonstrates how to give clear and reassuring orders:	R17		
- speak with confidence and authority - be assertive, then passengers will have confidence in you - speak slowly and concisely, and ensure that everyone can hear - passengers will always request more information - only tell the passengers what you know, do not guess - listen carefully to public address announcements and pass on information that may not have been heard or understood by the passengers	R1 Reg.11-2/28		A3-6 & 7
.2 demonstrates how to take control of passengers in corridors, staircases and passageways:			
- give clear and calm directions on the route to take - keep the flow of passengers moving - if asked questions reply if the answer is simple, however say that information will be given at the assembly station. This should ensure that there are no delays - close any doors that may allow passengers to deviate from the prescribed route - be aware of the emergency lighting that is installed - if family groups become separated, keep them calm and get information on the location of the other members. Reassure them that every effort is being made to reunite the group - procedures for personnel having direct control of children's activities	R1 Reg. 11-2/41-1, 41-2 R1 Reg.11-2/28-1 R11 Reg.18.3.6, 18.6		A3-10
.3 maintains escape routes clear of obstructions:	R1 Reg.11-2/28-1		
- ensure that cleaning trolleys, temporary maintenance equipment e.g. ladders, are not blocking entrances, exits and accesses	R12		A3-5
.4 states the methods available for evacuation for disabled persons and persons needing special assistance:			
- crew work parties to assist disabled persons using lightweight evacuation chairs if available - their location, e.g. cabin lists, and messages on the Public Address system advising crew members where assistance is required - other disabilities may involve drunks, injured, worried/anxious or very noisy people - assign personnel to look after them, suitable passengers may be of help - keep them as calm as possible - call for extra assistance if required - know where to get assistance from			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
.5 organizes a search of accommodation spaces: - crew members allotted on the muster list to search specific spaces - a thorough check of all public and private areas, lounges, cabins, toilets - understands the ship's emergency procedures which ensures that an area has been searched, e.g. direct message to a control point, bridge or local, door marking, plans marked to show area has been searched	R2 Reg. 111/53		A3-8.2
2.3 Mustering procedures (1 hour)			A2 Pl.2.3
Required performance:			
.1 demonstrates the importance of keeping order: - be prominent, stand on a stage, table or chair - wear highly visible clothing, jackets, caps - use a microphone or loud hailer if available			A3-8
.2 describes the procedures for reducing and avoiding panic: - inform the first arrivals that patience is needed until everyone has arrived - keep passengers towards the centre or extremities so that entry points do not become blocked - be confident then others will have confidence in you - leadership is essential, in its absence rumours will spread and stronger-willed but ill-informed passengers may attempt to influence events - do not leave your position, detail off the muster personnel or responsible passengers for assistance in supportive roles - awareness that separated family groups will need information on missing members - look for changes in behaviour, send someone to calm them down - never be aggressive	R1 Reg.111/1		A2 Pl.2.4
.3 describes the use, where appropriate, of passenger lists for evacuation counts: - the required numbers counted for each lifeboat/raft - passengers directed to the embarkation stations in single file - the number of passengers evacuated to be passed to the bridge - passengers may not have been allocated to specific assembly stations on certain ships, however the thorough accommodation search should ensure that passengers are accounted for	R2 Reg.111/24-2		A3-9 V2
.4 describes how to ensure that the passengers are suitably clothed and have donned their life jackets correctly: - prior instructions on public address system to passengers to proceed to the assembly stations wearing extra clothing - precise instructions and demonstration of donning life jackets - extra life jackets available at assembly stations and extra blankets available			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
3. Familiarization training (4 hours)			
3.1 Design and operational limitations (0.25 hour)			
Required performance:			A2 Pl.3.1
.1 observes any operational limitations imposed on the ship and to understand and apply performance restrictions, including speed limitations in adverse weather, which are intended to maintain the safety of life, ship and cargo:	R9 Reg. V/2 Reg.V/3		
- duration of the voyage - geographical area of the voyage - sea conditions which may be expected; wave height/wind - size, design and characteristics of the ship, manoeuvring characteristics - dynamic forces under the expected weather conditions - types of cargo units including vehicles to be carried - intended stowage pattern for the cargo units including vehicles - mass of the cargo units and vehicles - restrictions in permissible loads, trim, speed - lists compiled, detailing any limitations, before the ship is put into service and held on board and in the Company office - effects of icing on stability	R1 Reg. V/23 R11 Reg.18.1, Annex 5		
3.2[1]* Procedures for opening, closing and securing hull openings (1.25 hours)	R1 Reg. 11-1/20-1, 20-1 and 20-4		A2 Pl.3.2 A3-11
Required performance:			
.1 lists the procedures established for the ship regarding the opening, closing and the securing of bow, stern, side doors and ramps, and to correctly operate the related systems:			
- a competent nominated operator shall unlock, open, close and lock all doors - all communications relating to doors and ramps must be clear and a positive acknowledgement received by the Master - an officer will report, prior to departure, that doors are closed and secured - check that door indicator lights show door(s) is closed and locked (locally and on bridge) - look at closed circuit television monitor as a further check - make an entry in the log book of the time all doors were closed, locked and secured - all doors to be kept closed and locked until secure alongside at next port - keys for the control boxes to be always kept in a secure position	R1 Reg.11-1, 23-2		

[1] Sections 3.2-3.8 are not required for personnel on passenger ships other than ro-ro passenger ships

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
3.3* Legislation, codes and agreements affecting ro-ro passenger ships (0.25 hour)			
Required performance:			
.1 describes how to apply international and national requirements for ro-ro passenger ships relevant to the ships concerned and the duties performed:	R1 Reg. v/23 R1 Reg. Annex 5, Res. 11, Res.14		A2 Pl.3.3
- a list of all operational limitations imposed by the flag Administration including exemption from SOLAS Regulations, restrictions in: - operating areas - weather restrictions - sea state restrictions - permissible loads - trim, speed - the list shall be updated and kept on board - locally imposed restrictions by other Administrations - a list containing the loading and discharging berths for cargo and vehicles for each port	R11 Reg.18.1		
3.4* Stability and stress requirements and limitations (0.5 hour)			A2 Pl.3.4
Required performance:			
.1 describes how to take proper account of stress limitations for sensitive parts of the ship such as bow doors and other closing devices that maintain watertight integrity, and of special stability considerations which may affect the safety of ro-ro passenger ships:	R1 Reg.11-1, 8, 8-1, 8-2		
- ship's intact and damaged stability criteria - data approved by the Administration for the ship - proper procedures for securing all doors prior to departure - positive reports acknowledged that all openings are secured - all cargo is secure for the intended voyage - observe sea conditions and weather reports - take note of any restrictions imposed by the classification society, or Administration e.g. speed, wave height, wind, ice etc - ensures that departure and arrival stability is within the prescribed limits	R11 Reg.2 R7, R8		
3.5* Procedures for the maintenance of special equipment on ro-ro passenger ships (1 hour)			
Required performance:			
.1 states how to apply the shipboard procedures for the maintenance of equipment peculiar to ro-ro passenger ships such as bow, stern, side doors, ramps, scuppers and associated systems:	R10 pt.111(6)		A2 Pl.3.5
- be aware of the ship's planned maintenance programme			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- adequate lubrication of all moving parts, hinges, cleats etc - securing cleats are not worn and are all making contact - locking pins locate efficiently into position - constant visual checks, especially on the condition of door seals - scuppers kept clear with no loose gear on decks which may prevent water draining away - inspection of hydraulic cylinders and hoses			
3.6* Loading and cargo securing manuals and calculators (0.25 hour)			A2 Pl.3.6
Required performance:			
.1 describes how to make proper use of the loading and securing manuals in respect of all types of vehicles and rail cars, where applicable, and to calculate and apply stress limitations for vehicle decks: - consult cargo securing manual which is ship specific - adequate and well maintained securing equipment in quantity and strength is available for the intended voyage - adequate well positioned and clearly marked securing points are available - consult qualified shore staff to assess the securing of cargo units if required - the predominant stresses will be found during transverse (rolling) motions - the principles of good seamanship and experience in stowage and securing practice shall not replace methods described in national or international regulations, or codes of practice - consult ship's plans for maximum axle loading permitted for cargo units. A main deck may be designed to support 13 tonnes/axle whereas this could be reduced to 2 tonnes/axle on a platform. If the deck axle loading is likely to be exceeded seek advice from the classification society	R1 Reg.V1/5 R7 R8 R13 R14 R15 R16		
3.7* Dangerous cargo areas (0.25 hour)			A2 Pl.3.7
Required performance:			
.1 observes special precautions and limitations applying to designated cargo areas: - adequate ventilation - no possibility of any gases or liquids being drawn into the accommodation and engine room - stowage compatibility with adjacent dangerous goods - adequate separation of certain dangerous goods - all emergency response equipment readily available after consulting dangerous goods manifest	R1 Reg. 11-2/37, 1.6, 11-2/53, 54, VII/5.5, VII/6 VII/7 R3 Reg. IMDG Code Section 15, 17 R5 Reg. IMDG Code Emergency Procedures (Ems) R6 Reg.MFAG		

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
3.8* Emergency procedures (0.25 hour)			
Required performance:			
.1 states the need to ensure proper application of any special procedures	R1 Reg.11/1, 20-1, 20-2		A2 Pl.3.8
.2 prevents or reduces the ingress of water to vehicle decks:	R11 Reg.7.8.6.1, 10.3, 10.9		
- correct procedures on departure so that hull integrity is maintained - observance of weather forecasts - early reduction of speed - seek shelter - monitors vehicle deck television systems - monitors leak detection systems in way of shell doors leading directly to ro-ro spaces	R1 Reg.11-1/23.2 R1 11-1/21 Reg.11-2/37		
.3 removed water from vehicle decks:			
- scuppers, storm valves all operational - portable pumps available - cross flooding arrangements - progressive flooding controls			
.4 minimises effects of water on vehicle decks:	R1 Reg.11-1/20-1,20-2,20-4		A2 Pl.3.9
- where vehicle ramps give access to spaces below the bulk head deck their openings shall be weather tight, alarmed and indicated on the bridge - accesses may be fitted to spaces below the bulkhead deck provided they are necessary for the working of the ship and are weather tight - watertight doors below the bulkhead deck shall be kept closed on any voyage unless opened in accordance with the procedures written in the operational instructions - any such door shall be kept clear of obstructions which may prevent its rapid closure			
4. Safety training for personnel providing direct service to passengers in passenger spaces (1 hour)	R9 Reg. v/2 Reg.V3		
4.1 Communication (0.5 hour)			
Required performance:			
.1 recognises the language or languages appropriate to the principal nationalities of passengers carried on the particular route:			
- bilingual or multilingual announcements made over the public address system - train personnel or identify others who can communicate in the appropriate languages - strategically place these personnel in assembly areas - use of pictorial or video information			A2 Pl.4.1 A3-12

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
.2 realises the likelihood that an ability to use an elementary English vocabulary for basic instructions can provide means of communicating with a passenger in need of assistance, whether or not the passenger and crew member share a common language: - train personnel to be able to use basic phrases e.g. identify decks, directions to take or where further information can be obtained - identify other passengers who can translate and pass on information - in certain circumstances public address announcements can be made to locate people with this expertise	R1 Reg. v/13c R1 Reg.Annex 5 Res.10		
.3 demonstrates how to communicate during an emergency by some other means such as demonstration or hand signals, or calling attention to the location of instructions, assembly stations, life saving devices or evacuation routes, when oral communication is impractical: - be visible, use arm signals to clearly direct the route to take - understand all of the signs on board and bring passengers' attention to them as required - torches are useful and will draw attention not only to you but also to the stowage of life-saving devices and evacuation routes			
.4 identifies the extent to which complete safety instructions have been provided to passengers in their native language or languages: - trading routes have changed and some signs are not understood - training booklets and emergency information are not in the appropriate language - use of international symbols			A2 Pl.4.2
.5 recognizes the requirement for languages in which emergency announcements may be broadcast during an emergency or drill to convey critical guidance to passengers and to facilitate crew members in assisting passengers: - bi- and perhaps multilingual announcements are essential - companies must consider training extra personnel in languages required by the trading routes - stress will be reduced if passengers can understand information passed or have their queries understood and reassuringly answered			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid

4.2 Life-saving appliances (0.5 hour)

Required performance:

.1 demonstrates to passengers the use of personnel life-saving appliances:

- there are many life-saving appliances worldwide
- diagrams and instructions on their use will be posted in the assembly areas
- ensure that the donning procedure is remembered
- practise the procedure and demonstrate to another crew member
- be confident in demonstrating donning procedures to passengers using simple, clear instructions and hand signals
- finally, clear instruction leads to fewer questions and removes passenger confusion

Part D: Instructor Manual

Introduction

The Instructor Manual provides guidance on the material that is to be presented during the course. Personnel aboard may only be required to undertake part or all of the course depending on their duties and responsibilities.

The section headings correspond with the STCW 1995 Code Section A-V/2, (ro-ro passenger ships) and Section A-V/3 (passenger ships other than ro-ro ships) for:

1. Crowd Management training
2. Familiarisation training
3. Safety training for personnel providing direct service to passengers in passenger spaces.

The course outline and time table provide guidance on the allocation of time for the course material, but adjustments will be required according to the ability and experience of personnel being trained. The teaching syllabus must be studied carefully and lesson plans compiled to aid the instructor's delivery. Lecture notes are usually very helpful to the student either as a permanent reference or revision material prior to an assessment.

It will be necessary to prepare material for use with an overhead projector. Examples of this material can be found in Appendix 2.

Guidance Notes

1. Introduction 0.25 hour

When the 1978 STCW Convention entered into force in 1984 it was expected that its requirements would ensure the competence of masters, officers and ratings of all seagoing ships and their safe operation through efficient watchkeeping. As with all IMO conventions it reflected the highest practicable standards which could be globally agreed at the time of its adoption.

Despite its broad global acceptance, it was realized in the late 1980s that the Convention was not achieving its purpose. Instead, the Convention was gradually losing credibility as its acceptance widened. The main cause for this appeared to be the general lack of precision in its standards, the interpretation of which was left 'to the satisfaction of the Administration'. This resulted in widely varying interpretation of standards and many Parties failed to effectively administer and enforce Convention requirements. STCW certificates could no longer be relied upon as evidence of competence.

It was decided in 1993 to give high priority to a comprehensive review. The main aims of the revision were:

.1 to transfer all detailed technical requirements to an associated code;

.2 to clarify the skills and competence required and to take account of modern training methods;

.3 to require Administrations to maintain direct control over and endorse the qualifications of those Masters, officers and radio personnel they authorise to serve on their ships;

.4 to make parties to the Convention accountable to each other, throughout IMO, for their proper implementation of the Convention and the quality of their training and certification activities; and

.5 to have the amendments enter into force for all Parties to the Convention with the least possible delay.

The trainees must be made aware of the human-related causes of shipping disasters.

The inclusion of parts of Chapter V of the Code in the revised Convention is mainly as a result of the tragic loss of the 'Herald of Free Enterprise', Scandinavian Star' and 'Estonia'. Summaries of these are included in Appendix 1.

Outside assistance is rarely immediate and often not available. It must be stressed to trainees that they must always consider their actions and continually operate a safe working system.

2. Crowd Management Training 2.25 hours

This section applies to knowledge of the ship's procedures, equipment, control and assistance of passengers. Location and distribution of all equipment required for an emergency is essential. Reaction to the various alarms should be immediate and familiarity with the main and alternative escape routes is a pre-requisite for directing passengers to assembly stations.

The section is divided into three parts:

2.1 Life-saving appliances and control plans

The muster list must be explained in detail to ensure that personnel know the meaning and correct response to the various alarms that may be sounded. They must also have a very clear understanding of the ship's layout with special attention paid to emergency exits, escape routes and their duties during an emergency, which may include:

- location and use of emergency equipment
- casualty handling
- being aware of the restrictions on elevator use.

2.2 Assist passengers en route to assembly and embarkation stations

The trainees may need to be shown and to practice how to deliver simple, clear and reassuring orders to passengers. The recommended video is very useful in demonstrating this objective. The group can now role play with one person in charge, who reacts to a given scenario, whilst the others act as 'passengers'. Some of these 'passengers' should be given specific tasks eg. be concerned about missing relatives, continue to ask the leader questions, deviate from route etc. Public address announcements may be made by the instructor, and obstructions can be placed in corridors. A short debrief after each exercise, involving the whole group, will ensure that all points have been covered and the standard achieved.

Disabled persons and persons needing special assistance require care and are labour intensive. The ship's emergency plans will have detailed certain crew members to assist, however resources can be stretched when other casualties appear eg. injured, drunks. Extra assistance must be called for otherwise the situation could seriously deteriorate.

Searching the accommodation should be straightforward, but above all it must be methodical, documented and results relayed. Plans of the training area can be easily drawn and systematic searches carried out. A system must be devised which prevents an area from being searched twice or omitted altogether.

2.3 Mustering procedures

Trainees must now be able to give clear orders which will maintain control providing all of the passenger group are rational and well behaved, however greater control needs to be exercised should panic start or be perceived to be starting. Role playing exercises once again, can be used where the leader must be prominent and other members are appointed to assist eg. allotting a crew member to deal with one passenger. A short debrief must follow.

Passengers must be controlled, directed and counted by door checkers as they leave their assembly station for the embarkation deck. This is best achieved by passengers proceeding in single file following a crew member. Once the lifeboat/raft is loaded the number on board should be relayed to the bridge.

When passengers have reached the assembly area crew members must ensure that they have sufficient clothing. It may well be dangerous to return to baggage areas or cabins, so extra clothing, mainly in the form of blankets, must be available. Donning life jackets should be undertaken by following a clear, visible demonstration from the leader with assistance provided by other crew members who should be evenly spaced throughout the assembly station. The instructor must ensure that all trainees can undertake this procedure.

3. Familiarization Training

On Passenger Ships 0.25 hour
On Ro-ro Passenger Ships 4 hours

3.1 Design and operational limitations

This section of familiarization training applies to both passenger ships and ro-ro passenger ships. This will be specific to each ship and may vary depending on the route, time of the year and will only be required to be known to Masters, officers and other personnel assigned specific duties. All of these personnel must be aware of all limitations and kept informed of any adjustments or changes.

The sections that follow are applicable only to:

Ro-ro Passenger Ships

3.2 Procedures for opening, closing and securing hull openings

The water tight integrity of the ship is absolutely fundamental for operational safety. Those responsible for opening and closing the hull must be supervised until they are competent, and then certificated to undertake this procedure. Although the procedure is similar on many ships, there are often differences which require the certificate to be ship specific. The original should be kept aboard and the copy kept in the personnel file ashore.

3.3 Legislation, codes and agreements affecting ro-ro passenger ships

These will vary depending on the ship's area of operation. Various restrictions may be imposed, a list of which must be kept posted, updated and the appropriate personnel informed.

3.4 Stability and stress requirements and limitations

All ship details should be available in an easily understood and straightforward form. This will enable rapid determination of the ship's present and future stability condition. Lists of procedures for opening and closing hull openings, securing cargo etc. will ensure that no part of the operation has been forgotten or overlooked.

3.5 Procedures for the maintenance of special equipment on ro-ro passenger ships

Planned maintenance programmes and frequent inspections should ensure that all equipment is kept safe and operational. Omissions or poor maintenance will be noted and may be acted upon by the Port State Control officers (see Estonia summary), however such events should never arise.

3.6 Loading and cargo securing manuals and calculators

Cargo securing will depend on the type of cargo and trade. On some short crossings it may be the practice that only the lorries are lashed. The ship's cargo securing manual and the IMO 'Code of Safe Practice for Cargo Stowage and Securing' should always be consulted. Assistance from ashore may be sought when outsized or unusual loads are accepted. The ship's plans will show the axle loading for each deck which can easily be calculated from the number of axles and the gross weight of the cargo unit. Many ports have weigh bridges but some do not, so the axle loading must be calculated using the driver's papers. If the axle loading is exceeded the cargo should not be loaded

or advice sought. Means of spreading the tyre print loadings or extra support from beneath may be required.

3.7 Dangerous cargo areas

Ro-ro passenger ships are restricted in the amount and type of dangerous goods that can be carried as cargo. Cars with overfilled petrol tanks or the contents of repair firm vans and caravans may present their own hazards. The segregation tables in the International Maritime Dangerous Goods Code, (section 15), must be referred to. Dangerous goods which are well separated cannot react with one another. Dangers arise, however, especially with vapours being given off, or liquid spillages caused by heavy weather or poor loading and stowage. Ventilation fans must always be efficient, operational and all doors to accommodation or engine room spaces must be firmly closed. When dangerous vapours are being exhausted, the Master must always consider the effects of wind in relation to the accommodation and engine room air intakes.

3.8 Emergency procedures

The main thrust of this part involves prevention or removal of water from the vehicle decks. Operational procedures under 2.2 are designed to prevent ingress of water. Should this occur, leak detection and television systems will give early warning of the amount and extent of the leakage. Early reductions of speed and possible course alterations are essential. All cargo space internal doors and ramps either to accommodation, engine room or cargo spaces below the bulkhead deck, must be firmly closed whilst scuppers are constantly inspected for possible blockages. All crew members who have responsibility in this area, should not only be totally conversant with all means of retaining stability using portable pumps or cross flooding arrangements, but must be alerted in the very early stages of water ingress, in case the situation deteriorates.

4. Safety Training for Personnel Providing Direct Service to Passengers in Passenger Spaces 1 hour

4.1 Communication

Case histories, certainly with the ‘Estonia’ and ‘Scandinavian Star’, show that the crews aboard may not have the ability to communicate effectively in English or the native language of the passengers. The personnel who are in contact with passengers are often, but not restricted to, shop, restaurant, bar and catering staff. These people maybe ideally positioned to direct passengers to the assembly stations. Whilst it is recognised that a fluency in English is not essential, basic safety phrases for directions, deck identification and general realisation of what the emergency entails, should be attained. However evacuating passengers to the assembly stations must be effected quickly yet safely. Urgency can be instilled by motivating passengers with basic commands whilst using directional hand signals on the route to take. The bridge must broadcast in bi or multi-lingual announcements taking into account the main nationalities carried. The finding of the ‘Estonia’ enquiry revealed that announcements in Estonian could not be understood by the Scandinavians. In general it is very likely that some passengers who have a good knowledge of several languages, may be able to assist during the emergency.

4.2 Life-saving appliances

The procedures for donning a lifejacket must be known by every crew member, see V2. It is essential therefore that personnel, especially those with responsibilities in assembly stations, can confidently demonstrate the donning procedures.

5. Review and Assessment

Guidelines for use in assessing the competence of trainees are given in Appendix 3 in the form of questions and checklists. Some examples of role play exercises that may be used for assessment are given in Appendix 4.

IMO Model Course 3.12 Assessment, Examination and Training of Seafarers covers this aspect in detail.

SAMPLE LESSON PLAN

COURSE: Crowd Management, Passenger Safety and Safety Training for Personnel Providing Direct Services to Passengers in Passenger Spaces

TRAINING AREA: 2.2 Assist passengers en route to assembly and embarkation stations Duration: 1 hour

MAIN ELEMENT Specific learning objective (in teaching sequence with memory keys)	Teaching Method	IMO ref	Textbook	A/V aid	Instructor guidelines	Time (mins)
2.2 Assist passengers en route to assembly and embarkation stations .1 demonstrates how to give clear and reassuring orders: -- speak confidently and assertively to passengers to control them and provide information when received; hand held radios; telephones; messengers; devise exercises for class	Class/ practical	R2 Reg.111/53 R17		V1 A2 Pl.2.2	Utilise the teaching area so that class members can act as passengers; demonstrate the requirements, then put each in charge to demonstrate the skills, e.g. speaking and directing, passing on information received	15
.2 demonstrates how to take control of passengers in corridors, staircase and passageways: -- give ideas to class how to direct passengers to the assembly station; close doors enourte to prevent deviation; family groups may become separated; devise exercises for class	Class/ practical	R1 Reg.11-2/28 R1 Reg.11-2/41-1, 41-2 R1 Reg.11-2/28-1 R11 Reg.18.3.6, 18.6		A3-6 & 7 A3-10	Practical exercises	15
.3 maintains escape routes clear of obstructions: -- stress that escape routes must not be impeded; show problems that could arise in teaching areas	Class	R1 Reg.11-2/28-1				5
.4 states the methods available for evacuation of disabled persons and persons needing special assistance: -- emphasize the problems of physically assisting people; evacuation exercise; wheel chairs; numbers of crew required	Class/ practical	R12		A3-5	Practical exercise	15
.5 organises a search of accommodation spaces; passengers may delay escape; look everywhere they may hide; they may not hear alarms; certain crew members will have a muster list duty to search specific areas. Hatch off plans to show areas that have been searched	Class	IMO R2 Reg.111/53		A3-8.2		10

Appendix 1

Case Studies

Herald of Free Enterprise

Scandinavian Star

Estonia

Introduction

This section includes three case histories: Herald of Free Enterprise, Scandinavian Star and Estonia, which collectively alerted the authorities to serious human failings.

As a consequence it was deemed necessary that training for 'Crowd Control' and 'Crisis Management' were included in the STCW Convention.

Although the case histories are intentionally brief, they are laid out to enable the instructor to copy the main text and retain the reports' main points or recommendations. This will allow handouts to be given to the trainees who can discuss the cases individually, or in groups.

Each case history covers:

-- the trading pattern and ship routine
-- the development of the incident
-- the consequences
-- shortcomings of the crew
-- recommendations and improvements required

The instructor can then give a summary and discuss the main points of the official recommendations.

The Formal Investigation into the Capsize of the Ro-Ro Passenger Vessel 'Herald of Free Enterprise' 6th March 1987

Report No. 8074, Formal Investigation. HMSO Publications Centre, P O Box 276, London SW8 5DT, UK

Approximately 459 passengers had embarked for the voyage from Zeebrugge to Dover. The ship proceeded to sea with the bow doors open. In a light easterly breeze and very little sea or swell the 'HERALD' passed the outer mole at 1824 and capsized 4 minutes later resulting in 188 fatalities.

When loading and unloading at high water springs in Zeebrugge, it was necessary to trim the ship by the head, however the bow doors could be closed at the berth. These duties were different to those on the Dover-Calais run. No thought was given to this, and the Chief Officer felt under pressure to go immediately to harbour stations once loading was complete.

Three crews and five sets of officers were employed in manning the 'Herald', accordingly the officers did not always have the same crew. This made it not merely desirable, but essential that there should be uniformities in the duties of each set of officers and of the members of each crew.

It was stated that when entering or leaving Zeebrugge, trimmed by the head, care was taken to restrict the speed to a level which would avoid water coming over the bow spade. On departure speed was built up to between 14 and 18 knots. Experiments showed that the bow wave would be about 2 metres up the bow doors. The rate of inflow of water was considerable and as the bow spade dug deeper the ship lurched to port due to free surface instability, and soon sank on her beam in the shallow water outside the channel.

The questions arise, as a consequence of the casualty; why was the absence of the assistant bosun from his harbour station, not noticed? Why was there not a foolproof system which would ensure that the vital task of closing the bow doors was performed irrespective of the potential failure of any one individual, especially as this had happened before.

The sense of urgency to sail from Zeebrugge as soon as possible in order to maintain schedules, was exemplified by a memorandum from the Zeebrugge operations manager. He indicated that pressure should be put on the Chief Officer if he was not moving fast enough, concluding:

> 'let's put the record straight, sailing late from Zeebrugge isn't on. It's 15 minutes early for us'!

Although it did not apply to this voyage, concern had been raised by other Masters on the Dover-Calais route, that ships had been carrying more passengers than allowed by the Passenger Safety Certificate. In fact one memorandum indicated varying excess passenger numbers of between 40 and 250.

The 'HERALD' had proceeded to sea before with bow or stern doors open. One Master advised the office in October 1983 that indicator lights on the bridge could be fitted to show that the hull integrity was complete. This sensible proposal was met by derision from some superintendents.

It is a legal requirement that the Master should know the drafts of his ship, and that these be entered into the official logbook before putting to sea. It was particularly important for the Master of the 'HERALD' to know the draft of his ship, because of the restrictions on the numbers of passengers that could be carried, and of equal importance the trim on departing Zeebrugge. No attempts had been made to read the drafts, fictitious figures were always entered into the log book which always showed that 'HERALD' sailed on an even keel!

A Brief Synopsis of the Recommended Immediate Actions

1. Failsafe indicator lights should be fitted on the bridge, to all superstructure doors, such as passenger access, bunkering, storing and cargo loading doors.

2. The condition of the indicator lights should be logged before departure.

3. Closed circuit TV surveillance of the car deck should be fitted to monitor doors and cargo.

4. Freight vehicles should always be secured.

5. All doors and ramps should be secured at the berth, however, if this is not possible doors should be secured once the ship has cleared the berth.

6. It is desirable that each berth should carry an approved certificate specifically listing the ships which can operate from it, and can shut their bow and stern doors without moving from the berth.

7. Mechanical, pneumatic, electrical or hydrostatic draft gauges or indicators must be fitted. Desirably they should show the forward, aft and midships draft at location of loading positions and on the bridge.

8. Draft gauges should be interfaced with the loadicator at a suitable central position with, if possible, work stations at the two loading stations and on the bridge.

9. Operators should be encouraged to provide weigh bridges.

10. As a matter of urgency, sufficient self contained, watertight, maintained emergency lighting should be fitted.

11. Escape windows which are reliable, uncomplicated and able to be opened from either side.

12. Means of escape are often fore, aft and at the top of the vessel which could be very high. An audit of the escape routes should therefore be undertaken.

13. Parties agreed that:

    1. lockers to be fitted on the upper deck containing axes, torches, ladders, ropes, lifting devices and harnesses, including some for small children.

    (b) glass partitions designed with intermittent gaps.

    (c) permanent footholds are fitted to assist movement at extreme angles of keel.

14. Various recommendations are now covered by the ‘Code on Intact Stability’, see R6.

It can be seen that many of the recommendations have now been adopted internationally.

The Scandinavian Star disaster of 7th April 1990

Norwegian Official Reports 1991. (ISBN 82-583-0236-1).

On 30th March 1990 the 'Scandinavian Star''was put into service on voyages from Frederikshavn (Denmark) to Oslo (Norway). Of the 99 crew all were new to the ship except for 9. On Friday 6th April the ship left Oslo with 383 passengers and between 0145 and 0200 hours on the following morning a fire started in a pile of bedclothes on deck 4. After the fire was extinguished a new fire started on deck 3 which rapidly spread to deck 4, 5 and further upwards. 158 people died, mostly from smoke inhalation, probably by 0245 hours.

Manning

The crew possessed the necessary qualifications but as for safety functions, the Committee stated that the navigating officers should have had a better training in safety routines. One had no training in fire fighting and others had received training many years before. As a whole the crew had little or no knowledge of English.

Preparation for service

Many of the crew were not familiar with the emergency plan or their functions in it. The original emergency plan was difficult to apply to the new operation of the ship and the relevant officers did not devote the necessary care and attention to the changes required. The evacuation group had too few members to be able to function efficiently, and there were several areas where the resources of the crew had not been properly deployed. The crew should have familiarised themselves with the use of equipment by means of drills and other methods. The training of the fire patrol was to a very large extent defective. No fire or abandon ship drills were held within 24 hours of the ship leaving Frederikshavn on 1st April, which was a clear infringement of SOLAS regulations. The ship was clearly subjected to **severe commercial pressures.**

The first fire was discovered and extinguished quickly but although the officer of the watch and Captain suspected arson, no search was made of the accommodation. The second fire, however, spread rapidly to the decks above leaving many passengers trapped in their cabins. Many people aboard did not hear the fire alarm. Some bells were fairly quiet and were sounded relatively few times over short periods. During this fire some of the crew, mostly on their own initiative, played significant roles in sounding the alarm and evacuating passengers however through lack of organisation, they never responded as a unit. No real attempts were made to put out the fire because the fire party was never assembled or established.

The Captain ordered the lifeboats to be prepared but the evacuation was undertaken by crew who lacked experience in working together and in handling the ship's equipment. The most serious consequence, due to the lack of organisation, remained with the ship's command who had no idea of how many people had left the ship in lifeboats, nor did they seem to be aware that they ought to have known this.

The Captain had a duty to remain longer on board the ship, especially as he had the opportunity to do so without exposing himself or any other crew members to unacceptable risks.

Recommendations

1. Sprinkler system and smoke detectors should be fitted to all accommodation spaces on passenger ships.

2. Safety training should be undertaken by all personnel aboard passenger ships, the standard of which to be dictated by their responsibilities. The benefits of 5 yearly refresher training should be evaluated.

3. The Port State Control in Scandinavian countries was inadequate and must be improved. It should incorporate:

   (a) inspection with or without prior notification.

   (b) satisfactory performance of fire and boat drills.

   (c) sufficient command of a common language for the crew to be able to communicate with each other and with the passengers.

4. Fire patrols making rounds every half an hour.

5. An alarm should continue to function until it is manually turned off or is temporarily interrupted by messages on the public address system.

6. An alarm system with a strength in every cabin of at least 75 decibels and at least 10 decibels above the background noise.

7. All decks and stairways on a passenger ship should have the same design and layout.

8. The escape route from cabin door to exit to a sheltered escape stairway or open deck should not involve more than one change of direction.

9. There should be escape routes on both sides of the ship so that passengers do not have to cross over.

10. The number of stairs to be climbed should be limited.

11. Stairways and corridors should have an increasing width in the main direction of the escape route.

12. Stairways should be continuous, interrupted only by landings.

13. There should be a continuous bannister.

14. Dead end corridors should not be allowed.

15. The number of stairs to be climbed should be limited.

16. Ventilators should keep stairwells free of smoke.

17. Provision should be made to keep exits, assembly stations and lifeboat areas free of smoke.

18. Requirements should be laid down for the fitting of ventilation systems to extract smoke.

19. Audible signals distinct from the alarm bells should be installed by exit doors.

20. A uniform system of signs is used.

21. Smoke masks are supplied in cabins.

22. Evacuation analysis is carried out on all passenger ships.

23. Alarmed smoke detectors should be able to close fire doors.

24. Indicators should show whether fire doors are open or closed.

25. More breathing apparatus sets with integral communications and a compressor should be supplied.

26. More stringent requirements should be applied to the use of non combustible materials.

It can be seen that many of these requirements have now been incorporated into SOLAS.

The Final Report on the Capsizing of the Ro-Ro Passenger Vessel M. V. Estonia 28th September 1994

Ref: Final Report on the Capsizing on 28th September 1994, in the Baltic Sea, of the Ro-Ro passenger vessel 'M.V. Estonia', 1997. Edits Ltd. Helsinki. (ISBN 951-53-1611-1).

The 'Viking Sally' was built in 1979 for the rapidly expanding ferry traffic between Finland and Sweden. However after several name changes the ship transferred to the Talinn - Stockholm route and was renamed Estonia.

Surveys and maintenance.
Survey of the bow visor and ramp for class was part of the continuous hull survey scheme. Just before transfer to the Estonian flag, attention had been paid to the strength of the ramp and visor locking devices, however no work was undertaken.

Operations on board

The work schedule for the crew of approximately 150 was two weeks service aboard followed by two weeks leave. The working language was Estonian but English was compulsory for all persons in positions involving work contact with passengers.

Circumstances of the voyage

Prior to departure at 1900 hours on 27th September 1994, a Port State Control exercise was undertaken in Talinn, under the supervision of Swedish inspectors. (No deficiencies would have warranted detention.) It was noted that the bow visor rubber seals were worn, torn and required replacement. Watertight hatch covers on the car deck were open and at least one indicated that it was never closed.

The ship sank in the northern Baltic Sea during the early hours of 28th September 1994. Of the 989 people aboard 137 survived. The wind was south westerly force 8 with a wave height of 4 metres on the port bow. The locking devices and the hinges of the bow visor failed under one or two wave impacts shortly after 0100, allowing water to enter the car deck, and led to the eventual capsize.

Two reports of unusual sounds from the bow area were given to the officers of the watch, and attempts were made to find the reasons. Speed was not reduced from 14 knots until a list developed.

The time available for evacuation was very short, between 10 and 20 minutes, and was not organised. Evacuation was hampered by the rapid increase of the list, narrow passageways, transverse staircases, objects coming loose and by crowding. The life saving equipment, in many cases, did not function as intended and lifeboats could not be lowered.

Reports from the survivors vary considerably on the behaviour and conduct of crew and passengers. It is difficult to comprehend the feelings of people suddenly awakened and possibly trapped in unfamiliar surroundings. Statements included:

> 'Many were in panic, shouting and screaming..... they ran back and forth searching for staircases and colliding with one another'
>
> 'Some of them were standing still, apparently in shock'

'Häire, häire, laeval on häire' meaning 'Alarm, alarm there is alarm on the ship', in Estonian, which could not be understood by the Swedes.

'There were many panic stricken crew members in the corridor'

'On the deck there were plenty of lifejackets and by the open doors a crew member was trying to lead people out. People formed a human chain, helping each other out to the port side of the deck'

One witness said that the chain was mostly made up of crew members.

Some were not able to distinguish what messages they heard, and others stated that they could not possibly hear the alarms due to the screaming.

'Under the bridge was a small crowd who were quite calm'

'There were 20 people as well as drunken youngsters'

Some passengers said that there was panic, others said not.

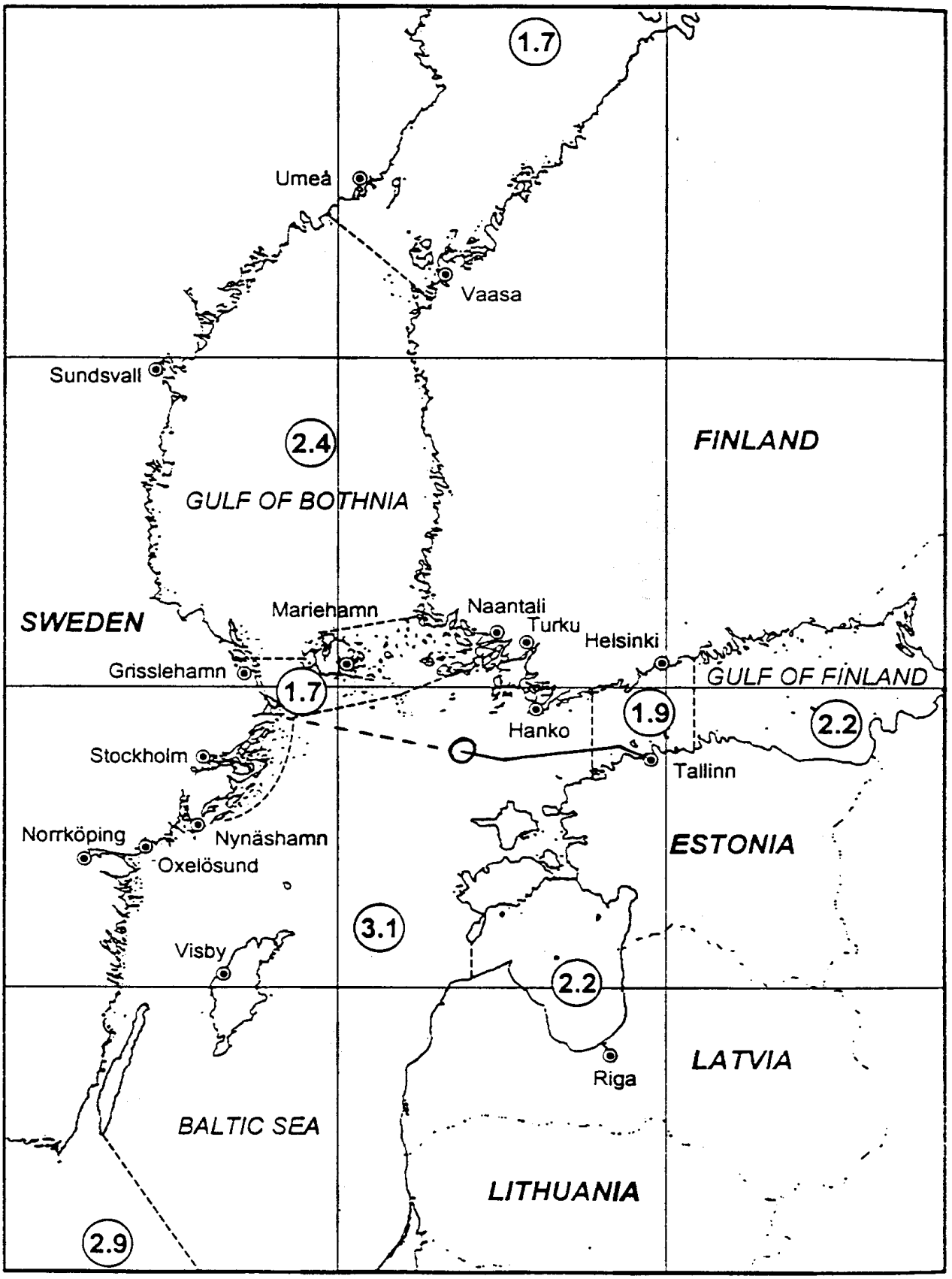
'On deck a crew member talked calmly to the others and together with other crew members tried unsuccessfully to release a lifeboat'

Another witness reported seeing a man standing composed and assured trying to calm those who were frightened.

The boatswain was seen doing a heroic job helping many passengers and releasing rafts.

A few of those who survived behaved in a irrational way, but most did not. A number of people reacted incredulously to the very early signs. They slowly realised that the sounds they heard were abnormal, or rather they failed to persuade themselves that the situation was still normal. When they became clear about the situation they acted promptly and with a clear goal to get out to the deck and were the first to evacuate.

SIGNIFICANT WAVE HEIGHTS IN METRES, WITH 10% EXCEEDANCE PROBABILITY.



The main points

1. The bow visor locking devices failed due to wave induced impact loads.

   Was the ship going too fast in the prevailing conditions?

2. The bow visor locking devices should have been several times stronger to have a reasonable level of safety for the regular passage between Talinn and Stockholm. The wave height probability on this route, was significantly higher than the ship's previous 12 years trading on much shorter and more sheltered routes, see chart.

3. Bow visor incidents had occurred on her near sister ship 'DIANA II', but this did not lead to systematic inspection and requirements for reinforcement of visor attachments on existing vessels.

4. Information on bow visor incidents was not generally sent to the shipping industry, thus Masters had little knowledge of the potential dangers.

5. The initial action by the officers on the bridge indicates that they did not realise that the bow was fully open when the list started to develop.

6. The bridge officers did not reduce speed after receiving two reports of metallic sounds and investigation of the bow area. A rapid decrease of speed at this time would have significantly increased the chances of survival: was this commercial pressure to maintain the schedule or lack of basic seamanship?

7. The visor could not be seen from the conning position which the Commission considered a significant contributing factor to capsize.

8. The bridge crew apparently did not look at the TV monitor which would have shown them water was entering the car deck, nor did they ask those in the control room from where the ingress was observed, or get information from them.

9. The lifeboat alarm was not given until about five minutes after the list developed, nor was any information given to passengers over the public address system. By the time the alarm was given, the list made escaping from inside the vessel very difficult. This, together with problems using lifesaving equipment, contributed to the tragic outcome.

Appendix 2

Supporting Material for the Instructor

This Appendix contains plates and diagrams which may be used in producing overhead projector transparencies or to copy for handouts.

List of Plates

Plate No.	Title
1.1	Subject list
1.2	Introduction
2.1	Life saving appliances and control plans
2.2	Passenger assistance
2.3	Maintain order
2.4	Passenger list evacuation counts
2.5	Clothing and lifejackets
3.1	Design and operational limitations
3.2	Opening, closing and securing hull openings
3.3	Legislation affecting ro-ro passenger ships
3.4	Stability and stress
3.5	Maintenance of special equipment
3.6	Loading and securing manuals and calculators
3.7	Dangerous cargo areas
3.8	Emergency procedures
3.9	Minimises effect of water
4.1	} Communication
4.2	
4.3	Life saving appliances

MODEL COURSE No....
CROWD MANAGEMENT, PASSENGER SAFETY, AND SAFETY TRAINING FOR PERSONNEL PROVIDING DIRECT SERVICES TO PASSENGERS IN PASSENGER SPACES

SUBJECTS

1. Introduction, STCW 95
2. Crowd Management Training
3. Familiarisation Training
4. Communication
5. Review and Assessment

Plate 1.1

INTRODUCTION

— **Training required by STCW 95**

— **Effective training results in a safe ship**

— **Outside assistance may be unavailable**

Plate 1.2

LIFE SAVING CONTROL PLANS

— **Ship Familiarisation**

layout
emergency exits
location of equipment

— **Procedures**

training manual
alarms
emergency duties
restrictions on elevator use

Plate 2.1

PASSENGER ASSISTANCE

— **Clear Reassuring Orders**

— **Take Control**

— **Escape Routes Kept Clear**

— **Assist or Organise Assistance for Disabled Passengers**

— **Accommodation Search**

Plate 2.2

MAINTAIN ORDER

— **Prominence**

— **Highly Visible**

— **Avoid Panic**

leadership
confidence
entrance points to assembly
station kept clear
reassure separated family groups
maintain position when in charge
avoid aggressiveness

Plate 2.3

PASSENGER LISTS EVACUATION COUNTS

— **Passengers Counted**

— **Passenger Numbers in Each Boat Passed To Bridge**

Plate 2.4

CLOTHING AND LIFEJACKETS

— **Passengers Suitably Clothed**

— **Donning of Lifejackets**

— **Extra Blankets**

Plate 2.5

DESIGN AND OPERATIONAL LIMITATIONS

- **Voyage Duration and Area**
- **Expected Sea Conditions**
- **Ship Characteristics and Limitations**
- **Type of Cargo**
- **Icing**

Plate 3.1

OPENING, CLOSING AND SECURING HULL OPENINGS

— **Ship's Procedures**

— **Certified Operators**

— **Positive Reports**

— **Indicator Lights and Closed Circuit Television Checked**

— **Entries in Log Book**

Plate 3.2

LEGISLATION AFFECTING RO-RO PASSENGER SHIPS

— **National and International Regulations**

— **Restrictions**

— **Approved Loading and Discharging Berths**

Plate 3.3

STABILITY AND STRESS

— **Intact and Damaged Stability Criteria**

— **Procedures to Maintain Watertight Integrity**

— **Cargo Secured**

— **Observe Sea Conditions**

— **Ship Restrictions**

Plate 3.4

MAINTENANCE OF SPECIAL EQUIPMENT

— **Planned Maintenance Programme**

— **Constant Visual Checks**

— **Scuppers Clear**

Plate 3.5

LOADING AND SECURING MANUALS AND CALCULATORS

— **Ship's Cargo Securing Manual**

— **Adequate and Maintained Equipment**

— **Adequate Securing Points**

— **Rolling Stresses**

— **Good Seamanship**

— **Maximum Axle Loading**

Plate 3.6

DANGEROUS CARGO AREAS

— **Adequate Ventilation**

— **Doors from Car Deck Securely Closed**

— **Correct Stowage**

— **Emergency Response Equipment Maintained and Ready for Use**

Plate 3.7

EMERGENCY PROCEDURES

— **Prevent or Reduce Ingress of Water**
  - all shell openings securely closed
  - weather forecasts
  - speed
  - seek shelter
  - monitor television system
  - monitor leak detection system

— **Remove Water**
  - scuppers clear
  - portable pumps
  - cross flooding arrangements

Plate 3.8

MINIMISES EFFECT OF WATER

— **Access to Spaces Below the Bulkhead Deck Secure**

— **Watertight Doors Closed**

— **Doors Kept Clear of Obstruction**

Plate 3.9

COMMUNICATION

— **Appropriate Languages Used**

— **Train Personnel**

— **Use Pictorial or Video Information**

— **Select Bi-Lingual Passengers**

— **Use Hand Signals**

— **Bring Attention to Signs**

Plate 4.1

COMMUNICATION

— **Remind Passengers of the Safety Information in Their Cabins**

— **Use of International Symbols**

— **Clear Announcements to Keep Passengers and Crew Informed**

Plate 4.2

LIFE SAVING APPLIANCES

— **Demonstrate Their Use**

— **Clear Instructions**

— **Draw Attention to Donning Instructions**

— **Confidence in Their Use**

Plate 4.3

Appendix 3

Examples of certificates, duty lists and check lists

Examples of:

	Title
1.	Specimen certificate
2.	Assembly Lists
3.	Ship familiarisation
4.	Check list for Ship familiarisation
5.	Instructions for passenger assistance party
6.	Instructions for stairway guides
7.	Assessment of stairway guides
8.	Instructions for passenger assembly personnel and search plan
9.	Zone Commander check list
10.	Instructions to parents and personnel in charge of children
11.	Check list and certificate for personnel having specific responsibilities
12.	Check list for safety training

1. Specimen certificate

Administrations shall ensure that documentary evidence of the training which has been completed is issued to every person found qualified under the provisions of STCW Regulation V/2 for ro-ro passenger ships, or Regulation V/3 for passenger ships other than ro-ro passenger ships.

SPECIMEN CERTIFICATE FOR SPECIAL TRAINING REQUIREMENTS FOR PERSONNEL ON CERTAIN TYPES OF SHIPS

(To be produced and registered locally by the Issuing Authority)

Vessel Name:..... ..... No: (*Issuing Authority to allocate)*

Issuing Authority

Tel: Fax:

CROWD MANAGEMENT, PASSENGER SAFETY AND SAFETY TRAINING FOR PERSONNEL PROVIDING DIRECT SERVICES TO PASSENGERS IN PASSENGER SPACES

This is to certify that *[full name of candidate]*

Date of birth [ ]
Discharge Book No [
or other national ID
has successfully completed a programme of training approved by the *(Name]*
meeting the requirements laid down in:

STCW 95 Regulations V/2 and V/3, (pa.4, 5 and 6) and STCW Code Sections A-V/2 and A-V/3 (pa.1, 2 and 3) as appropriate.

This Certificate is issued under the authority of (*name authority)*

Signature of Authorised Representative of Company or Centre

Issuing Authority Stamp and Date

Signature of person to whom the certificate is awarded

Enquiries concerning this certificate should be directed to the Issuing Authority at the address above.

2. Assembly lists

SYMBOLS USED IN ASSEMBLY LISTS

KEY	
SYMBOL	**MEANING**
I/C	IN CHARGE
2/I/C	2ND IN CHARGE
C	CPSC HOLDER
E	ENGINE OPERATOR
LWR	BOAT LOWERER
▲	CONTAINMENT PARTY
S/G	STAIRWAY GUIDE
S. LDR	SECTION LEADER
S.PSNL	SECTION PERSONNEL
ZN	ZONE
EMC	EMERGENCY MEDICAL CENTRE

DECK DEPARTMENT ASSEMBLY LIST (D)

NUMBER	RANK/RATING	EMERGENCY DUTY	ASSEMBLY POSITION	BOAT/RAFT
▲ D1	CAPTAIN	IN COMMAND	BRIDGE	LRSF
▲ D2	STAFF CAPTAIN	SECOND IN COMMAND	BRIDGE	LRPF
LWR◀ *C* D3	SAFETY OFFICER	I/C DECK FIRE PARTY	AT SCENE	I/C LRSF 2
LWR ◀*C* D4	FIRST OFFICER	STATUS BOARD	BRIDGE	I/C LRPF 2
LWR ◀ *C* D5	SECOND OFFICER	I/C BOAT + RAFT PREP PARTY STBD	DECK 4, STBD FWD	2 I/C LRSF 2
etc.				

ENGINE DEPARTMENT ASSEMBLY LIST (E)

NUMBER	RANK/RATING	EMERGENCY DUTY	ASSEMBLY POSITION	BOAT/RAFT
? E1	CHIEF ENGINEER	I/C MACHINERY SPACES	CONTROL ROOM	LRSF
? E2	FIRST ENGINEER	I/C ENGINE FIRE PARTY	AT SCENE	LRPF
EC E3	SECOND ENGINEER	2/I/C ENGINE FIRE PARTY	No. 1 FIRE LOCKER	I/C 12
EC E 4/5/6	3 ENGINEER (LAST ON)	ENGINE FIRE PARTY	No. 1 FIRE LOCKER	I/C 6
etc.				

CRUISE DEPARTMENT ASSEMBLY LIST (C)

NUMBER	RANK/RATING	EMERGENCY DUTY	ASSEMBLY POSITION	BOAT/RAFT
C35	SHOP STAFF 1	S/G DECK 3 No. 5 STAIRWAY	THEN ASSEMBLY STATION B	N/A
C36	SHOP STAFF 2	S/G DECK 6 No.7 STAIRWAY	THEN ASSEMBLY STATION C	N/A
C37	SHOP STAFF 3	S/G DECK 5 No. 2 STAIRWAY	THEN ASSEMBLY STATION A	N/A
C38	SHOP STAFF 4	S/G DECK 5 No.3 STAIRWAY	THEN ASSEMBLY STATION A	LRSM
C39	SHOP STAFF 5	S/G DECK 5 No. 4 STAIRWAY	THEN ASSEMBLY STATION A	N/A
etc.				

3. Ship Familiarization

EXAMPLE OF SHIP FAMILIARIZATION INDUCTION TRAINING

	Time Indicator
HEAD OF DEPARTMENT INSTRUCTION TO THOSE PERSONS NOMINATED TO ASSIST PASSENGERS IN AN EMERGENCY.	as required

TOUR OF ALL PASSENGER ASSEMBLY STATIONS

1. This should include pointing out all exits/entrances.

EXPLANATION OF HOW PASSENGERS ARE EVACUATED TO LIFEBOATS

1. Door checkers assigned to exit doors.
2. A Stairway Guide would lead out passengers to the lifeboat they are told by the Door Checker.
3. Door Checker counts out designated number of passengers behind Stairway Guide.

LOCATION OF LIFEBOATS, LIFERAFTS AND SPARE LIFEJACKETS

1. Walk along both sides of boat deck pointing out lifeboat numbering, liferaft stations and spare LIFEJACKETS lockers.
2. Explain total capacity of lifeboats/liferafts totals 125% of maximum number of persons a ship could ever carry.

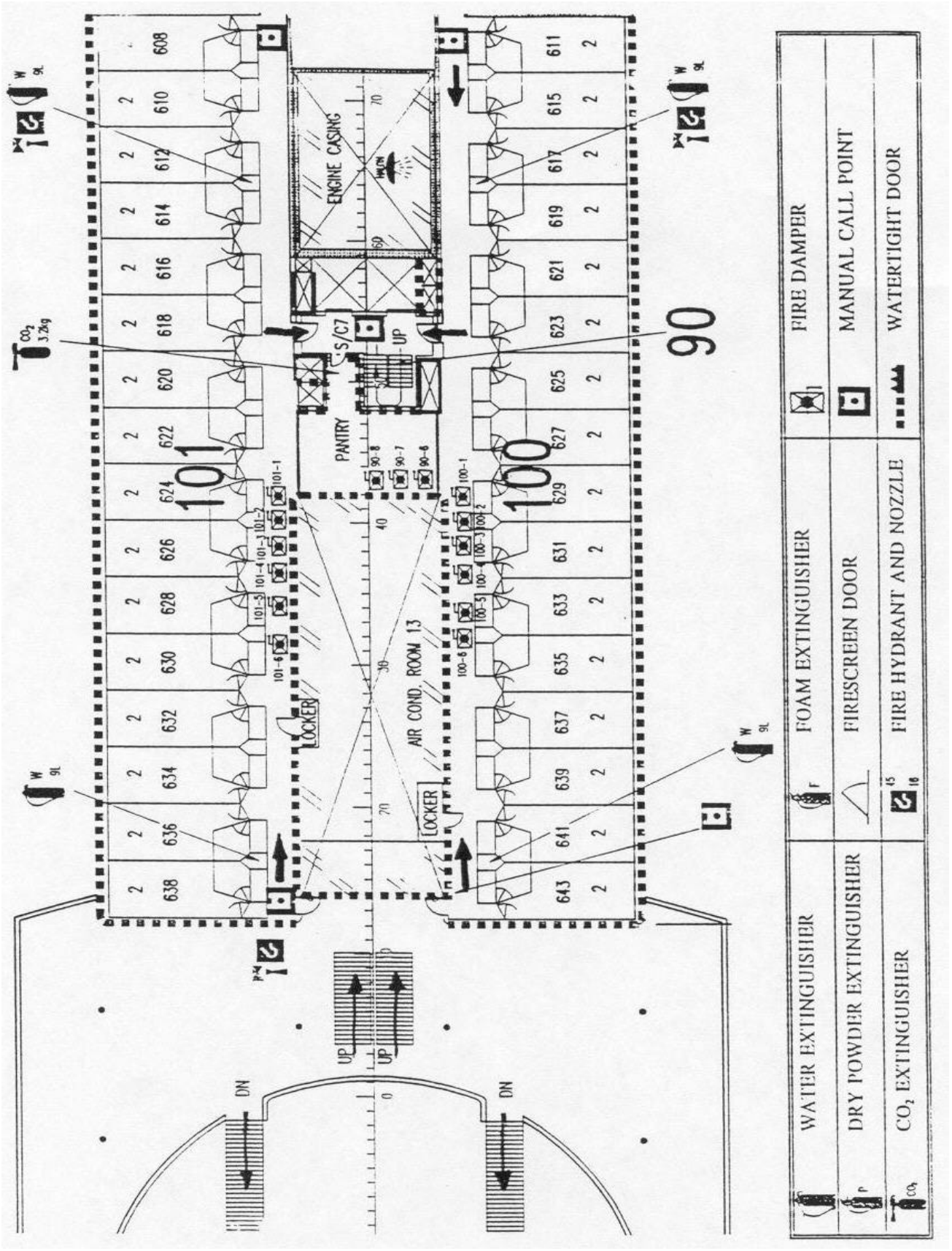
LOCATION OF ASSEMBLY CONTROL PARTY

1. Show where Assembly Control Party are based.
2. Explain that they coordinate Assembly and evacuation of passengers.
3. If any problems, they should contact the Assembly Control Party.

EXPLAIN FULL INSTRUCTIONS ARE IN THE BOOKLET IN THEIR CABIN 'INSTRUCTIONS TO STAIRWAY GUIDES AND ASSEMBLY PERSONNEL'.

TOTAL TIME

ESCAPE ROUTES



3 Check list for ship familiarization

EXAMPLE

Company and Ship Name _____

Name _____ Rank _____ Date of Joining _____

	REQUIRED PERFORMANCE	**OFFICER'S INITIALS**	**DATE**
1.	Understand all of the instructions on the muster list including duties and procedures.		
2.	General shipboard knowledge especially routes to assembly areas.		
3.	Location and use of all lifejackets and extra supplies, numbering of lifeboats and liferafts.		
4.	Man overboard procedures.		
5.	Location and contents of the training manual.		
6.	Awareness of alternative escape routes.		
7.	Operation and restrictions imposed on elevator use.		
8.	Speaks with authority reassurance and confidence when controlling or informing a crowd.		
9.	Keeps escape routes clear.		
10.	States the ship's procedures for evacuation of disabled passengers.		
11.	Relates to ship's plans to identify areas that have been searched.		
12.	Use of passenger lists for evacuation counts.		
	Signature.....Date.....		
	Masters' Signature.....Date.....		
	Original to be retained aboard. 1 copy for personnel file ashore.		

4 Instructions for passenger assistance party

P15 ASS. PURSER IN CHARGE	
P166 HEAD WAITER 2ND IN CHARGE	
P197 RESTAURANT STAFF	P204 RESTAURANT STAFF
etc.	

TOTAL: .....

ASSEMBLE: At the Lima Foyer, Port side, Deck 7

REPORT: To Zone Commander, Zone 3 (Tel. 4990)

DUTIES: Assist handicapped and/or infirm passengers from their cabins to their designated Assembly Station. Passenger evacuation chairs are available when necessary.

The list of infirm passengers will be kept by: 1) Ass. Purser
2) Purser's Office
3) Bridge

After mustering at crew alert, 2 crew members, or more if passenger is disabled, should go to each cabin on the list and wait by the cabin door. If the general emergency signal is sounded, they should assist the passengers from the cabin to their Assembly Station. They then remain in the Assembly Station with the passengers and assist them to their boat if required. If extra personnel are required they should be requested for through the Bridge (Tel. 3600).

6. Instructions for stairway guides

INSTRUCTIONS FOR STAIRWAY GUIDE COORDINATOR, CHECKER AND STAIRWAY GUIDES INSTRUCTIONS

P5 - is the Stairway Guide Coordinator. P27 is the Stairway Guide Checker. They are responsible for ensuring all guides are in position and rectifying any shortfall. In addition, if it is necessary to vary evacuation routes, they are responsible for re-positioning guides as necessary. P5 checks stairways 1, 2, 3 and 4 and P27 checks stairways 5, 6 and 7.

P27 reports the status of his stairways to P5, who then reports to the Bridge (Tel. 3600).

STAIRWAY GUIDES

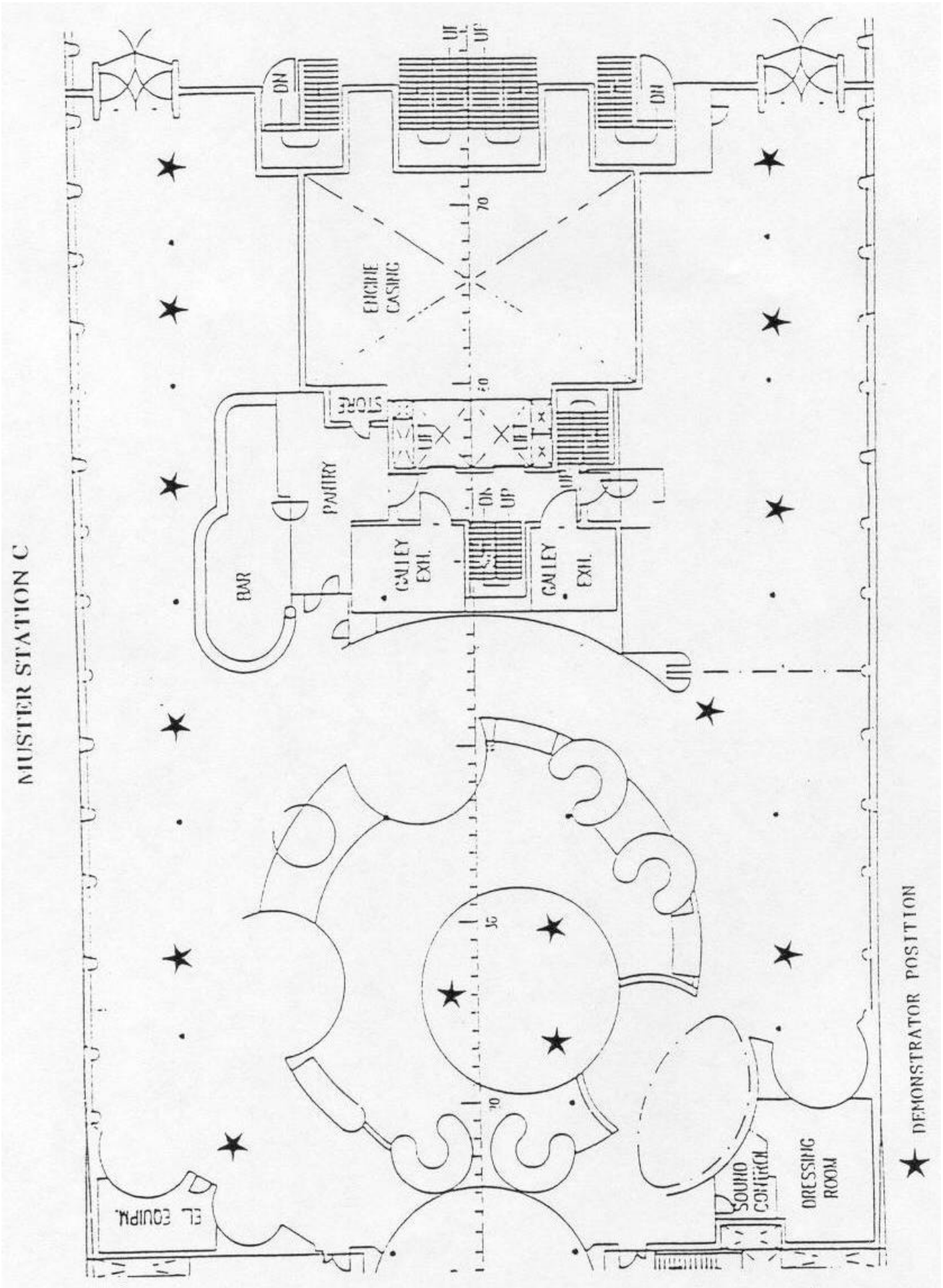
At Crew Alert you should wear your lifejacket and hat correctly. You must be positive and clear with your guidance to passengers.

Each passenger cabin is allocated to one of the 3 Assembly Stations and the lifejackets kept within are marked appropriately; therefore if you look at each passenger's lifejacket you will know which Assembly Station to direct the passenger to.

Assembly Station A -
Assembly Station B -
Assembly Station C -

Know how to close a Firescreen Door to stop smoke entering a stair tower. After passengers are clear of the accommodation and stairways you will be called to your Assembly Station. You must report promptly as you will be required to mix with passengers to offer them comfort and guidance.

POSITIONS TO BE TAKEN BY ASSEMBLY STATION PERSONNEL



STAIRWAY GUIDES

CO-ORDINATOR: P5
CHECKERS: P27

No.	RANK	DECK	STAIRWAY	ASSEMBLY STATION
C43	SHOP STAFF 9	4	1	A
C53	CASINO STAFF 8	3	1	A
C25	MUSICIAN 12	6	2	A
C37	SHOP STAFF 3	5	2	A
etc.				

7. Assessment of stairway guides

ASSESSMENT OF STAIRWAY GUIDES		
The purpose of this plan is to have a standard whereby persons in charge, Chief Officers or those nominated to instruct, can follow the plan and it will be of a uniform basis throughout the fleet.	**RESOURCES**	**TIME**
1. RE-AFFIRM THAT THEY CAN IDENTIFY AND UNDERSTAND THE FOLLOWING SIGNALS		
Assessment Party Crew Alert General Emergency Signal Ship's Company to Boat Assembly Stations Abandon Ship Man Overboard		5 minutes
Expected learning outcomes: Crew members will be able to demonstrate a working knowledge of all the signals and their actions once they have been heard.		
2. WHAT THEY DO AT CREW ALERT		
Where do you assemble? Who is responsible for your check-off? What do you do if you have not been checked off?		5 minutes
Expected learning outcomes: Crew members will know where to assemble and who to report to if they have not been seen by one of the Stairway Guide Checkers		
3. GENERAL QUESTIONS		
What must you do if you have smoke in your stair tower? Who will you report any problems to? What will be the easiest way of contacting somebody? Where do the children assemble? at Crew Alert GES? How do we identify which Assembly Station a passenger should go to? At GES, what do we do if the passenger does not have a lifejacket? When will you go to your Assembly Station? What equipment do we have inside the Assembly Station? To which lifeboats/rafts do you evacuate passengers from your Assembly Station? Why are the Passenger Assembly Drills so important?		25 minutes
Expected learning outcomes: Crew members will know what to do if smoke is in their area, how to report effectively, where the children will be in an emergency, be able to identify which Assembly Station a passenger should be sent to, when they should go to their Assembly Station, what equipment is available in the Assembly Station, which boats and rafts passengers will be sent to from their Assembly Station and why the Passenger Drill is so important.		
4. RECAP ON ALL OF THE ABOVE		
Expected learning outcomes: At the end of this session, the crew member will be able to carry out their emergency duties fluently.		5 minutes

8. Instructions for passenger assembly personnel

The crew member I/C of each Assembly Station will check off the personnel designated to his Assembly Station and then reports to the Purser when he arrives.

SHIP'S ORGANISATION

In an emergency, passengers are assembled with lifejackets, warm clothing, head coverings and any medications they may be taking, at one of the three Assembly Stations:

ASSEMBLY STATION 'A':
ASSEMBLY STATION 'B':
ASSEMBLY STATION 'C':

Should it become necessary to abandon ship, the officer in charge of each Assembly Station will evacuate his room as per instructions in the ship's Emergency File, assisted by the Assembly Personnel and Stairway Guides.

DUTIES

At Crew Alert you should wear your lifejacket and hat correctly. You must be positive and clear with your instructions to passengers as they look to you for leadership and guidance.

The Crew Member In Charge or 2nd In Charge of the room will use a microphone or megaphone to give instructions and information to the passengers, however, all Passenger Assembly Personnel will be required to participate and give out the more standard instructions.

Passengers must be instructed to:

(1) Fill the extremities of the room first keeping entrance points clear
(2) Stay calm and quiet so that they can hear any instructions or information
(3) Put on their lifejackets

If you are short of lifejackets inform the Bridge (Tel. 3600) and they will be provided by the Lifejacket Work Party.

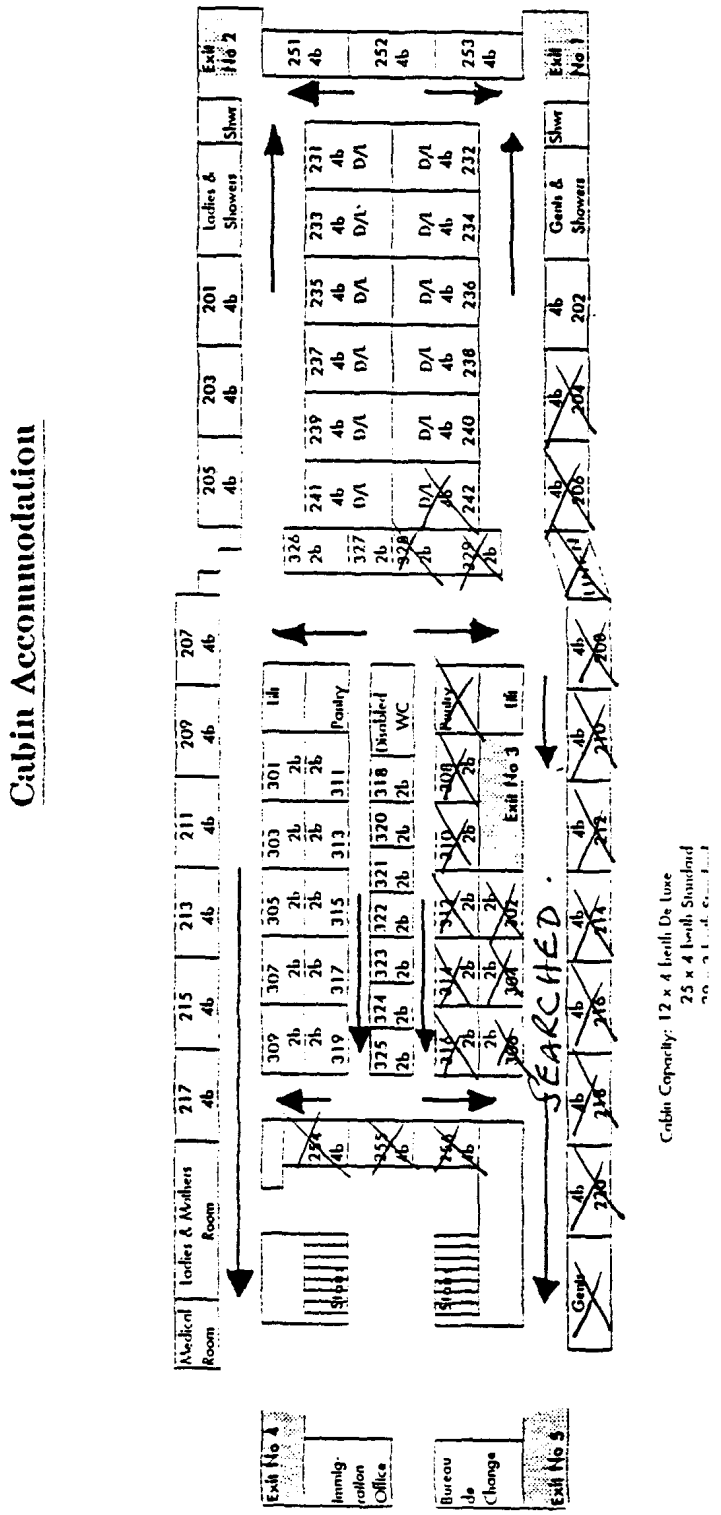
Spare lifejackets are situated on the outside of Deck 4 Port and Starboard.

Door checkers are used to count the passengers out of the room to ensure the correct number go to each boat. The door checkers should be positioned at their designated exit door, inside the assembly station, not outside.

EXAMPLE OF CHECK LIST FOR ASSEMBLY STATION PERSONNEL

	ACTION	CHECK
1.	MAINTAIN CALM. SEAT ALL PASSENGERS IF POSSIBLE	
2.	EXPLAIN LIFEJACKET ISSUE IS PRECAUTIONARY ONLY	
3.	ISSUE LIFEJACKETS	
4.	SILENCE - STAND WHERE YOU CAN BE SEEN - DEMONSTRATE	
5.	INSTRUCT PASSENGERS TO DON LIFEJACKETS	
6.	ASSIST WHERE NECESSARY. ENSURE ALL ARE WORN CORRECTLY	
7.	MAINTAIN CALM - RESEAT PASSENGERS - ASK FOR SILENCE	
8.	COMMENCE PASSENGER AND CREW COUNT	
9.	DETAIL CREW MEMBERS TO ASSIST OLD AND INFIRM PASSENGERS	
10.	EXPLAIN WHAT IS HAPPENING. (Use 'Incident' not Fire). (a) Control parties dealing with an incident. (b) Captain on bridge in full control. (c) Boat Prep. preparing boats as precaution. (d) Passengers may be moved around for convenience. (e) Update information as required.	
11.	EXPLAIN EVACUATION PROCEDURE AND INDICATE EXITS	
12.	REASSURE PASSENGERS THAT THE SHIP IS THE BEST LIFEBOAT	
13.	EXPLAIN THE ABANDON SHIP PROCEDURE	
14.	PASS PASSENGER AND CREW HEADCOUNT TO INFORMATION DESK	
15.	CONTINUE TO MAINTAIN CALM AND REASSURE PASSENGERS	

ACCOMMODATION SEARCH PLAN



9. Zone commander check list

ZONE COMMANDER CHECKLIST

ZONE 1

DECK	SECTION LEADER	SECTION HQ	TIME ASSEMBLED	ABSENTEES	REMARKS	PASSENGERS CLEAR	CREW CLEAR
8	P77 SRS/ASSIST 1	CHIEF OFFICER'S OFFICE (TEL.8910)					
7	P78 SRS/ASSIST 2	OFFICER'S WARDROOM (TEL.7800)					
6	P78 SRS/ASSIST 3	FORWARD PASSENGER PANTRY (TEL.6991)					
5	P78 SRS/ASSIST 4	FORWARD PASSENGER PANTRY (TEL.5851)					
4	P78 SRS/ASSIST 5	FORWARD PASSENGER PANTRY (TEL.4991)					
3	P78 SRS/ASSIST 6	SAP'S CABIN (TEL.3005)					
2	P78 SRS/ASSIST 7	DECK STORES (TEL.2900)					
1	P78 SRS/ASSIST 8	CREW RECREATION ROOM (TEL.1800)					

Reported Assembly Complete/Absentees/Remarks to Zone Co-ordinator (Tel. 8902) at
Reported Passenger Evacuation Complete to Zone Co-ordinator (Tel. 8902) at
Reported Crew Evacuation Complete to Zone Co-ordinator (Tel. 8902) at

10. Instructions to parents and personnel in charge of children

EXAMPLE OF INSTRUCTIONS TO PERSONNEL WHO ARE IN CHARGE OF CHILDREN'S ACTIVITIES

SAFETY OF CHILDREN IN AN EMERGENCY

To ensure that there is no misunderstanding in the method used to inform parents of the action that will be taken to safeguard the children, the following procedures are to be adopted.

1. At Crew Alert

The children in the …….. should be retained for collection by their parents. If children are at an organised event such as the Cinema, swimming, etc., those children with parents present should be returned to their parents whilst the remainder should be returned to the …….. to await collection. The bridge is to make an announcement through the whole ship to advise parents to collect their children from the ……..

At General Emergency Stations

Any children remaining in the …… are to be given a lifejacket and taken as a group by the children's staff to the ……. Room (Deck 3) to await collection by their parents. The member of ship's company in charge of the children must ensure that the Purser is informed of the identities of the children so that efforts can be made to locate parents.

2. Check Off Lidst

In the event of an emergency, those children remaining in, or returned to, the …… must have their names and the relevant details filled in on the Board. The Board should have the details below as a minimum requirement.

CHILD'S NAME	CABIN NUMBER	RETURNED TO PARENTS

When a child is collected, the time is entered in the right-hand column. The checklist should be taken to the ……. Room, Deck 3, so that the Purser can use the information to locate missing parents.

3. At Assembly Stations

Any children remaining unclaimed should be evacuated with the passengers from the Assembly Station in the normal way.

4. Information for Parents

When the parents use the …….. for the first time, the staff are to explain what actions will be taken in the event of an emergency and what is expected of the parents. They are alsos to be given notice giving details of the procedures that will be followed and showing clearly which Assembly Station the children will be taken to at General Emergency Stations.

Note: '…….' indicates the room being used as the headquarters of children's activities on that particular cruise.

PLEASE READ THE FOLLOWING CAREFULLY: IT AFFECTS YOUR CHILD'S SAFETY

1 **If you hear the Crew Alert Signal, which is THE CONTINUOUS RINGING OF THE ALARM BELLS and your children are in the ……., please proceed straight away and collect them.**

If you are with your children at an organized youth event, such as the Cinema or swimming, etc., your children will be handed back to you.

At this stage there is nothing further required of you.

2 **If you hear the General Emergency Signal, which is SEVEN OR MORE SHORT RINGS FOLLOWED BY ONE LONG RING ON THE ALARM BELLS, or the same signal on the ship's whistle, and you have not got your children, you should proceed to the ……. Room on Deck 3 - Assembly Station C (…… Club) - and collect your children from the Youth Counsellor.**

Please then go to your allocated Assembly Station with your children.

3 **If it is necessary to Abandon Ship and you have not collected your children from either the ……., as in '1' above, or from the …….. Room in '2' above, your children will be evacuated and looked after by the Youth Counsellor.**

11. Check list and certificate for personnel having specific responsibility

EXAMPLE OF CHECK LIST FOR PERSONNEL HAVING SPECIFIC RESPONSIBILITIES

Company and Ship Name _____

Name _____ Rank _____ Date of Joining _____

	REQUIRED PERFORMANCE	OFFICER'S INITIALS	DATE
1.	Lists all restrictions and limitations placed on the ship.		
2.	Safe operation of all watertight and weathertight doors and ramps.		
3.	Stress limitations of certain parts of the ship, e.g. bow doors.		
4.	Application of the ship's maintenance programme for bow, stern, side doors, ramps, scupper and associated systems.		
5.	Ship's procedures for cargo securing.		
6.	Applies dangerous cargo stowage procedures.		
7.	Requirements for hull integrity, removal of water or minimalizing its effects.		
	Signature ……. Date ……		
	Masters Signature ……. Date ……		
	Original to be retained aboard. 1 copy for personnel file ashore.		

Certificate Of Competence To Operate
Ship's Lifting Appliances and Shell Door Openings

Name of Holder _____ *Discharge Book No.* _____

Signature of Holder _____

This is to certify that the above named person has received adequate theoretical instruction and practical training in the use of the ship's equipment specified below. He has been tested in the use of such appliances and is competent to use them when so authorised by a responsible ship's officer.

This certificate applies ONLY to the operation of the following lifting appliances on the vessel named below:

Name of Ship _____

Details of Appliances	Date of Test	Signature of Examining Officer
• Deck Gangway P and S	_____	_____
• Pilot Doors P and S	_____	_____
• Stern Door	_____	_____
• Bow Door and Ramp	_____	_____
• Hoistable Car Decks	_____	_____
• Stores Elevator	_____	_____
• Stores Cranes	_____	_____
• Main Engine Room Crane	_____	_____

Signed _____ Date _____
Master

- *Delete those not applicable*

COMPANY STAMP

12. Check list for safety training

CHECK LIST EXAMPLE FOR SAFETY TRAINING

Company and Ship Name _____

SAFETY TRAINING FOR PERSONNEL PROVIDING DIRECT SERVICE TO PASSENGERS IN PASSENGER SPACES

Name _____ Rank _____ Date of Joining _____

	REQUIRED PERFORMANCE	OFFICER'S INITIALS	DATE
1.	Recognises the languages of passengers carried and the need to communicate with them during an emergency.		
2.	Use basic phrases in the appropriate language, especially English, to enable passengers to evacuate safely to an assembly point.		
3.	Use alternative means to direct passengers safely to an assembly point by alerting passengers to the signs and route to take.		
4.	Has a thorough knowledge of the personnel life saving appliance on board and can confidently demonstrate the donning procedures.		
	Signature ……. Date ……		
	Masters Signature ……. Date ……		
	Original to be retained aboard. 1 copy for personnel file ashore.		

Appendix 4

Exercises for Trainees

SIMULATION AND ROLE PLAY EXERCISES INVOLVING CROWD CONTROL

These exercises can be undertaken by using the trainee group or class as ship's personnel and rotating roles as passengers.

Exercises can be varied by restricting escape routes, musters incomplete, searches, corridors blocked, assisting disabled persons, explanation of embarkation procedures, difficulties in communication.

Instructors will be able to determine whether the objectives have been achieved by observation and questioning. The use of trainees as observers and commentators will also assist their learning processes. If certain areas are below standard then the opportunity to repeat that part must be offered.

The following IMO Model Courses may be of assistance in the preparation of courses:

.1 IMO Model Course 6.09 - Training Course for Instructors.

.2 IMO Model Course 3.12 - Examination and Certification of Seafarers.

Example:

		Roles
1. Cards	-	in charge muster station
2. indicating	-	stairway guide(s) and back up muster station personnel
3. role	-	does not understand announcement
4. required	-	does not respond, stays seated
5.	-	partly drunk
6.	-	cannot find their children so
7.	-	move against the flow
8.	-	wants to retrieve baggage or return to cabin
9.	-	obeys instructions
10.	-	obeys instructions
11.	-	observers who will be
12.	-	making comments at the debrief.

A debrief will bring out the good and bad points of the exercise. This can be used with a check list. Where some points have not been covered questions can be asked to find out what had been considered.

Assessment of Exercises Involving Crowd Control.

Exercise for Personnel in Charge of Assembly Stations

ESTABLISHMENT/SHIP _____

STUDENT _____

ASSESSOR _____

DATE _____

Code
- ✓ Objective achieved
- ✸ Unable to demonstrate competence as objective did not arise, but was considered (debrief)
- **X** Objective not achieved

ASSESSMENT INDICATOR	CODE	INSTRUCTOR'S COMMENTS
1. Responds to general emergency alarm. 2. Understands and relays information from the public address system. 3. Selects a prominent position. 4. Speaks slowly, concisely with confidence and authority. 5. Keeps passengers informed 6. Re-assures passengers and monitors their behaviour. 7. Details crew to assist passengers as required. 8. Stays in the same prominent position		

ASSESSMENT INDICATOR	CODE	INSTRUCTOR'S COMMENTS
9. Organises distribution of life saving appliances if required. 10. Demonstrates the donning procedures. 11. Allows passengers to don at the same pace as the demonstration. 12. Continues to keep passengers occupied. 13 Identifies those in distress whether anxious noisy or quiet, and details crew members to assist. 14. Keeps everyone at the assembly point preventing passengers searching for missing relatives. 15. Re-assures them that this is already being done.		

Model Course No.

Crisis Management and Human Behaviour Training including Passenger Safety, Cargo Safety and Hull Integrity Training

ACKNOWLEDGEMENTS

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Contents

Model Course

Introduction

■ Purpose of the model courses

The purpose of the IMO model courses is to assist maritime training institutes and their teaching staff in organizing and introducing new training courses, or in enhancing, updating or supplementing existing training material where the quality and effectiveness of the training courses may thereby be improved.

It is not the intention of the model course programme to present instructors with a rigid "teaching package" which they are expected to "follow blindly". Nor is it the intention to substitute audio-visual or "programmed" material for the instructor's presence. As in all training endeavours, the knowledge, skills and dedication of the instructors are the key components in the transfer of knowledge and skills to those being trained through IMO model course material.

The educational systems and the cultural backgrounds of trainees in maritime subjects vary considerably from country to country. For this reason the model course material has been designed to identify the basic entry requirements and trainee target group for each course in universally applicable terms, and to specify clearly the technical content and levels of knowledge and skill necessary to meet the technical intent of IMO conventions and related recommendations.

This is the first manual written for this Model Course. In order to keep the training programme up to date in future, it is essential that users provide feedback. New information will provide better training in safety at sea and protection of the marine environment. Information, comments and suggestions should be sent to the Head of the STCW and Human Element Section at IMO, London.

■ Use of the model course

To use the model course the instructor should review the course plan and detailed syllabus, taking into account the information provided under the entry standards specified in the course framework. The actual level of knowledge and skills and the prior technical education of the trainees should be kept in mind during this review, and any areas within the detailed syllabus which may cause difficulties, because of differences between the actual trainee entry level and that assumed by the course designer, should be identified. To compensate for such differences, the instructor is expected to delete from the course, or reduce the emphasis on, items dealing with knowledge or skills already attained by the trainees. He should also identify any academic knowledge, skills or technical training which they may not have acquired.

By analysing the detailed syllabus and the academic knowledge required to allow training in the technical area to proceed, the instructor can design an appropriate pre-entry course or, alternatively, insert the elements of academic knowledge required to support the technical training elements concerned at appropriate points within the technical course.

Adjustment of the course objective, scope and content may also be necessary if in your maritime industry the trainees completing the course are to undertake duties which differ from the course objectives specified in the model course.

Within the course plan the course designers have indicated their assessment of the time which should be allotted to each area of learning. However, it must be appreciated that these allocations are

arbitrary and assume that the trainees have fully met all entry requirements of the course. The instructor should therefore review these assessments carefully and may need to re-allocate the time required to achieve each specific learning objective or training outcome.

■ Lesson plans

Having adjusted the course content to suit the trainee intake and any revision of the course objectives, the instructor should draw up lesson plans based on the detailed syllabus. The detailed syllabus contains specific references to the textbooks or teaching material proposed to be used in the course. Where no adjustment is found necessary in the learning objectives of the detailed syllabus, the lesson plans may simply consist of the detailed syllabus with keywords or other reminders added to assist the instructor in making his presentation of the material.

■ Presentation

The presentation of concepts and methodologies must be repeated in various ways until the instructor is satisfied, by testing and evaluating the trainee's performance and achievements, that the trainee has attained each specific learning objective or training outcome. The syllabus is laid out in learning objective format and each objective specifies a *required performance* or, *what the trainee must be able to do* as the learning or training outcome. Taken as a whole, these objectives aim to meet the knowledge, understanding and proficiency specified in the appropriate tables of the STCW Code.

■ Implementation

For the course to run smoothly and to be effective, considerable attention must be paid to the availability and use of:

- Properly qualified instructors
- Support staff
- Rooms and other spaces
- Equipment
- Suggested references, textbooks, technical papers
- Other reference material.

Thorough preparation is the key to successful implementation of the course. IMO has produced a booklet entitled "Guidance on the implementation of IMO model courses", which deals with this aspect in greater detail.

In certain cases, the requirements for some or all of the training in a subject are covered by another IMO model course. In these cases, the specific part of the STCW Code which applies is given and the user is referred to the other model course.

■ Training and the STCW 1995 Convention

The standards of competence that have to be met by seafarers are defined in Part A of the STCW Code in the Standards of Training, Certification and Watchkeeping for Seafarers Convention, as amended in 1995. This IMO model course has been written to cover the competences in STCW 1995. It sets out the education and training to achieve those standards set out in Chapter V Section A-V/2 and Section A-V/3, pa.4 and pa.5.

This course covers the minimum standard of competence for:

> masters, chief mates, chief engineers, second engineer officers and any other person assigned immediate responsibility for embarking and disembarking passengers, for loading, discharging or securing cargo, or for closing hull openings and any other person having responsibility for the safety of passengers in emergency situations

on ro-ro passenger ships.

The course also covers the minimum standard of competence for the above personnel on passenger ships other than ro-ro passenger ships

Part A provides the framework for the course with the aims and objectives and notes on the suggested teaching facilities and equipment. A list of useful teaching aids, IMO references and textbooks is also included.

Part B provides an outline of lectures, guidance notes and lesson plans for the course. A detailed timetable is suggested. From the teaching and learning point of view, it is important that the trainee achieves the minimum standard of competence defined in the STCW Code. Depending on their experience and ability, some students will naturally take longer to become proficient in some topics than others.

Part C gives the Detailed Teaching Syllabus. This is based on the theoretical and practical knowledge specified in the STCW Code. It is written as a series of learning objectives, in other words what the trainee is expected to be able to do as a result of the teaching and training. Each of the objectives is expanded to define a required performance of knowledge, understanding and proficiency. IMO references, textbooks references and suggested teaching aids are included to assist the teacher in designing lessons. Assessment check lists are contained in Appendix 3.

These new training requirements were incorporated in STCW 95 following major casualties involving the Herald of Free Enterprise, Scandinavian Star and Estonia. Case studies of these casualties can be found in Appendix 1.

The Convention defines the minimum standards to be maintained in Part A of the STCW Code. Mandatory provisions concerning Training and Assessment are given in Section A-I/6 of the STCW Code. These provisions cover: qualification of instructors; supervisors as assessors; in-service training; assessment of competence; and training and assessment within an institution. The corresponding Part B of the STCW Code contains guidance on training and assessment.

The criteria for evaluating competence specified in the minimum standard of competence tables of Part A of the STCW Code are to be used in the assessment of all competences listed in those tables.

A separate model course addresses Assessment of Competence and Use of the criteria for evaluating competence tabulated in the STCW Code.

■ Responsibilities of Administrations

Administrations should ensure that training courses delivered by colleges and academies are such as to ensure officers completing training do meet the standards of competence specified in Chapter V of the STCW Code.

■ Refresher training

In reality training is never completed and crews are required to receive refresher training. In accordance with Regulation V/2 and V/3, seafarers are required to undertake appropriate refresher training, at intervals not exceeding five years, or be required to provide evidence of having achieved the required standard of competence within the previous five years. (Regulation V/2 pa. 3 and Regulation V/3 pa. 3).

Part A: Course Framework

Aims

This model course aims to meet the mandatory minimum requirements for the training of personnel aboard ro-ro passenger ships, and the training of personnel on and passenger ships other than ro-ro passenger ships as follows.

1. Ro-ro passenger ships

The training for masters, chief mates, chief engineer officers, second engineer officers, and any person assigned immediate responsibility for embarking and disembarking passengers, loading, discharging or securing cargo, or closing hull openings, and any other person having a responsibility for the safety of passengers in emergency situations required by Regulation V/2, pa.7 and 8, of the STCW Convention, and specified in Section A-V/2 pa.4 and 5.

2. Passenger ships other than ro-ro passenger ships

The training for masters, chief mates and persons assigned immediate responsibility for embarking and disembarking passengers, including chief engineer officers, second engineer officers and any other person having responsibility for embarking and disembarking passengers and for the safety of passengers in emergency situations required by Regulation V/3 pa.7 and 8. of the STCW Convention and specified in Section A-V/3 pa.4 and 5.

A separate model course addresses crowd management, passenger safety and safety training for personnel providing direct services to passengers in passenger spaces.

Objective

1. Ro-ro passenger ships

A trainee successfully completing the training will be able to:

1. Organise the safe movement of vehicles and passengers when embarking and disembarking.
2. Control all elements of cargo safety and hull integrity.
3. Monitor and control atmosphere in ro-ro cargo spaces.
4. Organize shipboard emergency procedures.
5. Optimize use of resources.
6. Control response to emergencies.
7. Control passengers and other personnel during emergency situations.
8. Establish and maintain effective communications.

2. Passenger ships other than ro-ro passenger ships

A trainee successfully completing the training will be able to:

1. Organise the safe movement of passengers when embarking and disembarking.
2. Organize shipboard emergency procedures.
3. Optimize use of resources.
4. Control response to emergencies.
5. Control passengers and other personnel during emergency situations.
6. Establish and maintain effective communications.

Entry standards

There are no specific entry standards for the training in this Model Course. However, all personnel having specific responsibilities on board detailed in Section A-V/2 and Section A-V/3 pa: 4 and 5 must undertake this training.

Course certificate

Administrations shall ensure that documentary evidence of the training which has been completed is issued to every person found qualified under the provisions of
Regulation V/2 or Regulation V/3 as appropriate.

Course intake limitations

The maximum number of trainees attending each session will depend on the availability of instructors, equipment and facilities available for conducting the training. The number should not at any time, exceed that which will allow sufficient opportunity for each trainee to have adequate practical instruction in procedures for the proper use of systems and equipment.

Staff requirements

All training and instructions should be given, and assessments carried out, by qualified personnel who understand the specific objectives of the training, and have experience of the procedures established for the ships for embarking and disembarking passengers, for loading and discharging cargo, and for closing hull openings.

Instructors shall be qualified in this task for which the training is being conducted and have appropriate training in instructional techniques and training methods (STCW Code Section A-I/6).

Teaching facilities and equipment

For tutorial sessions an ordinary classroom, or lounge, messroom, or cinema aboard should be provided for instruction. An overhead projector and audio visual equipment for videos may be required.

As the 'Crisis Management and Human Behaviour Training', Table A-V/2, contains Column 3 'Methods for demonstrating competence', several adjacent rooms may be required which can simulate different locations aboard the ship. Means of communication between the rooms will be needed eg. hand held radios, telephones etc., although messengers may also be used.

Teaching aids (A)

A1 Videos:

V1 Basic Instincts (Passenger Mustering and Crowd Control) (Code No. 603)

V2 Crisis Management Part 1 (Code No. 507)

Available from: Videotel Marine International Limited
84 Newman Street
London W1P 3LD, UK
Tel: +44 (0)207 299 1800
Fax: +44 (0)207 299 1818
e-mail: mail@videotelmail.com
URL: www.videotel.co.uk

IMO references (R)

R1 STCW '95 (1996 Edition) IMO 938, and Amendments, 1997 (IMO Sales No. 945)
R2 International Maritime Dangerous Goods Code (IMDG Code) 1994, as amended (IMO Sales No. 200) Volume 1
R3 International Convention for Safety of Life at Sea, 1974 as amended (SOLAS 1974). (IMO Sales No. 110)
R4 Code of Safe Practice for Cargo Stowage and Securing. 1992 Edition (IMO Sales No. 292)
R5 Amendments to the Code of Safe Practice for Cargo Stowage and Securing 1994/1995. (IMO Sales No. 295)
R6 Code on Intact Stability (IMO Sales No. 874)
R7 International Code for Safety for High Speed Craft (HSC Code) 1995. (IMO Sales No. 187)
R8 Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (MFAG), 1994. (IMO Sales No. 251)
R9 Resolution A.489 (XII). Safe stowage and securing of cargo units and other entities in ships other than cellular contained ships
R10 Resolution A.581 (14). Guidelines for securing arrangements for the transport of road vehicles on Ro-ro ships
R11 Resolution A.533 (13). Elements to be taken into account when considering the safe stowage and securing of cargo units and vehicles in ships
R12 Resolution A.714 (17). Code of safe practice for cargo stowage and securing
R13 Resolution A.770 (18). Minimum requirements for personnel nominated to assist passengers in emergency situations on passenger ships
R14 MSC/Circ. 735. Recommendations on the design and operation of passenger ships to respond to elderly and disabled persons' needs

Textbooks (T)

T1 Lloyds Register Classification of Ships' Rules and Regulations. Part 3 and Part 4, Ship Structures. January 1998

Summary of the following reports is to be found in Appendix 1 Instructors Manual (Part D of this course):

T2 M.V. Herald of Free Enterprise. Report No. 8074, Formal Investigation. HMSO Publications Centre, P O Box 276, London SW8 5DT
T3 M. V. Scandinavian Star. Norwegian Official Reports 1991. (ISBN 82-583-0236-1)
T4 M.V. Estonia. The Final Report on the capsizing of the Ro-Ro vessel. M.V. Estonia. 1997, Edits Ltd. Helsinki. (ISBN 951-53-1611-1)

Bibliography (B)

B1 Flin Rhona. Sitting in the Hot Seat. Leaders and Teams for Critical Incident Management. 1996. John Wiley & Sons. (ISBN 0-471-95796-8).
B2 Easingwold Papers No. 2. Crises and the Media. The Emergency Planning College. 1994. (ISBN 1-874-321-01-9).
B3 Easingwold Papers No. 4. Lessons Learnt from Crowd-related Disasters. The Emergency Planning College. 1992. (ISBN 1-874-321-04-3).
B4 Easingwold Papers No. 5. Conference: Problems Associated with Large Scale Evacuations. The Emergency Planning College. 1994.(ISBN 1-874-321-06-X).
B5 Easingwold Papers No. 6. Disaster Preparedness, Some Myths and Misconceptions. The Emergency Planning College. 1992. (ISBN 1-874-321-02-7).
B6 Easingwold Papers No. 7. Crises in a Complex Society. The Emergency Planning College. 1994. (ISBN 1-874-321-08-6).
B7 Easingwold Papers No. 8. A Digest of Some Well Known Disasters. 1994. The Emergency Planning College. (ISBN 1-874-321-07-8).

Note: Reference material is spread throughout the Easingwold Papers, which is too numerous to itemise in the Textbooks/Bibliography column.

All Easingwold Papers are available from:

Prontaprint
92 Grange Road
Middlesborough TS1 2LS, UK.
Tel: +44 (0)1642 249 869
Fax: +44 (0)1642 247 393.

B8 Leach, John. Survival Psychology. 1994. MacMillan Press Ltd. (ISBN 0-333-51855-1)
B9 Ro-ro Stowage and Securing of Vehicles - Code of Practice. 1997. (ISBN 011-550-995-X)

Part B: Course Outline and Timetable

Lectures

As far as possible, lectures should be presented within a familiar context and should make use of practical examples. They should be well illustrated with diagrams, photographs and charts where appropriate, and be related to matter learned during seagoing time.

An effective manner of presentation is to develop a technique of giving information and then reinforcing it. For example, first tell the trainees briefly what you are going to present to them; then cover the topic in detail; and, finally, summarize what you have told them. The use of an overhead projector and the distribution of copies of the transparencies as trainees handouts contribute to the learning process.

The training provided must be specific to the ship concerned. Below is a course outline and timetable for personnel on ro-ro passenger ships. A separate course outline and timetable follows for personnel on passenger ships other than ro-ro passenger ships.

Select that which is applicable to the personnel to be trained.

Course Outline

The tables that follow list the competencies and areas of knowledge, understanding and proficiency, together with the estimated total hours required for lectures and practical exercises. Teaching staff should note that timings are suggestions only and should be adapted to suit individual groups of trainees depending on their experience, ability, equipment and staff available for training.

The tables that follow provide an outline of the training for crisis management and human behaviour training in passenger safety, cargo safety and hull integrity training on ro-ro passenger ships.

The training is organized in two parts and may be delivered in any sequence. The first part is ship specific. This covers passenger safety, cargo safety and hull integrity training. The second part also contains elements which are ship specific; for example, ship design, layout and emergency plans.

The document issued certifying that the trainee has completed the training and meets the minimum standard of competence must indicate the ship to which the training applies, see Appendix 3 for a specimen certificate.

Crisis Management and Human Behaviour Training including Passenger Safety, Cargo Safety and Hull Integrity Training

Competence: **Control passengers in emergencies, implement safety procedures for passengers, cargo and hull integrity**

Course Outline for Ro-ro Passenger Ships		
Knowledge, understanding and proficiency	**Lecture Hours**	**Shipboard Practical Exercise Hours**
1. Introduction to STCW 95		
Passenger Safety, Cargo Safety and Hull Integrity Training **2. Loading and embarkation procedures** .1 Procedures for loading and discharging vehicles, rail cars and other transport units, including related communications .2 Procedures for safely lowering and hoisting ramps, setting up and stowing vehicle decks .3 Procedures for safely embarking and disembarking passengers, with special attention to the disabled, and persons needing assistance	0.50 0.25 **0.75**	 0.5 0.5 **1.0**
3. Carriage of dangerous goods .1 Special safeguards, procedures and requirements regarding the carriage of dangerous goods on board ro-ro passenger ships	0.5 **0.5**	
4. Securing cargoes .1 Provisions of the Code of Safe Practice for cargo stowage and securing .2 Use of cargo securing equipment and materials	0.75 **0.75**	 0.5 **0.5**
5. Stability, trim and stress calculations .1 The use of stability and stress information .2 Stability and trim for different conditions of loading .3 Load factors for decks .4 Impact of ballast and fuel transfers on trim, stability and stress		 0.5 0.75 0.25 0.5 **2.0**

Course Outline - Continued

Knowledge, understanding and proficiency	Lecture Hours	Shipboard Practical Exercise Hours
6. Opening, closing and securing hull openings		
.1 Procedures established for the ship		0.50
.2 Sealing surveys		0.50
		1.00
7. Ro-ro deck atmosphere		
.1 Equipment to monitor the atmosphere in ro-ro cargo spaces		0.25
.2 Procedures for ventilation of ro-ro cargo spaces	0.25	
	0.25	**0.25**
Crisis Management and Human Behaviour Training		
8. Ship design, layout, emergency plans, procedures and drills		
.1 General design and layout of the ship	0.2	
.2 Safety regulations	0.2	
.3 Emergency plans and procedures	0.2	
.4 Shipboard emergency drills	0.2	
.5 The need for all personnel to be aware of and adhere to pre-planned emergency procedures	0.2	
	1.0	
9. Optimisation of resources		
.1 Emergency resources available	0.25	
.2 Make full use of personnel and equipment available	0.25	
.3 Organise realistic drills to maintain a state of readiness		0.5
	0.5	**0.5**
10. Control response to emergencies		
.1 How to lead and direct others in emergencies		0.50
.2 Focus decision making	0.1	
.3 Motivation of passengers and other personnel	0.1	
.4 Stress	0.2	
.5 The effects of stress	0.1	
	0.5	**0.5**

Course Outline - Continued

Knowledge, understanding and proficiency	Lecture Hours	Shipboard Practical Exercise Hours
11. Human behaviour and responses .1 Passenger response	1.0 **1.0**	
12. Establish and maintain effective communications .1 The importance of effective communications	0.75 **0.75**	0.25 **0.25**
Practical exercises		**2.0**
Review and assessment		
Sub Totals	**6.0**	**8.0**
Total	**14.0**	

Course Timetable for Ro-Ro Passenger Ships Day 1

Topic	Period
Passenger Safety, Cargo Safety and Hull Integrity Training 1. Introduction 2. Loading and embarkation procedures	1st Period (1.75 hours)
3. Carriage of dangerous goods 4. Securing cargoes	2nd Period (1.75 hours)
5. Stability, trim and stress calculations	3rd period (2 hours)
6. Opening, closing and securing hull openings 7. Ro-ro deck atmospheres	4th period (1.5 hours)
Review and assessment	

Course Timetable for Ro-Ro Passenger Ships Day 2	
Topic	**Period**
Crisis Management and Human Behaviour Training 8. Ship design, layout, emergency plans, procedures and drills	1st period (1 hour)
9. Optimisation of resources	2nd period (1 hour)
10. Control emergency situations	3rd period (1 hour)
11. Human behaviour and responses	4th period (1 hour)
12. Establish and maintain effective communications	5th period (1 hour)
13. Case histories, role play exercises Appendix 2	6th period (2 hours)
Review and assessment	

Teaching staff should note that the hours for lecturers and exercises are suggestions only as regards sequence and length of time allocated to each objective. These factors may be adapted by lecturers to suit individual groups of trainees depending on their experience, ability, equipment and staff available for teaching.

The tables that follow provide details of training for crisis management and human behaviour training including passenger safety on passenger ships other than ro-ro passenger ships.

The training is organized in two parts and may be delivered in any sequence. The first part is ship specific. This covers passenger safety training. The second part also contains elements which are ship specific; for example, ship design, layout and emergency plans.

The document issued certifying that the trainee has completed the training and meets the minimum standard of competence must indicate the ship to which the training applies, see Appendix 3 for a specimen certificate.

Crisis Management and Human Behaviour Training including Passenger Safety

Competence: Control passengers in emergencies and implement safety procedures for passengers

Course Outline for Passenger Ships other than Ro-ro Passenger Ships		
Knowledge, understanding and proficiency	**Lecture Hours**	**Shipboard Practical Exercise Hours**
1. Introduction to STCW 95		
Passenger Safety Training **2. Passenger safety** .3 Procedures for safely embarking and disembarking passengers, with special attention to the disabled, and persons needing assistance	0.25 **0.25**	0.5 **0.5**
Crisis Management and Human Behaviour Training **8. Ship design, layout, emergency plans, procedures and drills** .1 General design and layout of the ship .2 Safety regulations .3 Emergency plans and procedures .4 Shipboard emergency drills .5 The need for all personnel to be aware of and adhere to pre-planned emergency procedures	0.2 0.2 0.2 0.2 0.2 **1.0**	
9. Optimisation of resources .1 Emergency resources available .2 Make full use of personnel and equipment available .3 Organise realistic drills to maintain a state of readiness	0.25 0.25 **0.5**	0.5 **0.5**
10 Control response to emergencies .1 How to lead and direct others in emergencies .2 Focus decision making .3 Motivation of passengers and other personnel .4 Stress .5 The effects of stress	0.1 0.1 0.2 0.1 **0.5**	0.5 **0.5**

Course Outline for Passenger Ships - Continued		
Knowledge, understanding and proficiency	**Lecture Hours**	**Shipboard Practical Exercise Hours**
11. Human behaviour and responses .1 Passenger response	1.0 **1.0**	
12. Establish and maintain effective communications .1 The importance of effective communications	0.75 **0.75**	0.25 **0.25**
13. Practical exercises		**2.0**
Review and assessment		
Sub Totals	**4.0**	**3.75**
Total	**7.75**	

Course Timetable for Passenger Ships other than Ro-ro Passenger Ships	
Topic	**Period**
1. Introduction **Passenger Safety Training** 2. Loading and embarkation procedures	1st Period (1.75 hours)
Crisis Management and Human Behaviour Training 8. Ship design, layout, emergency plans, procedures and drills	
9. Optimisation of resources	2nd Period (1 hour)
10. Control emergency situations	3rd period (1 hour)
11. Human behaviour and responses	4th period (1 hour)
12. Establish and maintain effective communications	5th period (1 hour)
13. Case histories, role play exercises	6th period (2 hours)
Review and assessment	

Teaching staff should note that the hours for lecturers and exercises are suggestions only as regards sequence and length of time allocated to each objective. These factors may be adapted by lecturers to suit individual groups of trainees depending on their experience, ability, equipment and staff available for teaching.

Part C: Detailed Teaching Syllabus

Introduction

The detailed teaching syllabus has been written in learning objective format in which the objective describes what the trainee must do to demonstrate that knowledge has been transferred.

All objectives are understood to be prefixed by the words, "The expected learning outcome is that the trainee ..... "

In order to assist the instructor, references are shown against the learning objectives to indicate IMO references and publications, textbooks, additional technical material and teaching aids, which the instructor may wish to use when preparing course material. The material listed in the course framework has been used to structure the detailed teaching syllabus; in particular,

Teaching aids (indicated by A),
IMO references (indicated by R), and
Textbooks (indicated by T)

will provide valuable information to instructors. The abbreviations used are:

App.: Appendix
Ch.: chapter
pa.: paragraph
pl.: plate
Reg.: regulation

the following are examples of the use of references:

‘A1' refers to the Instructor Manual in Part D of this model course

‘R2 - Reg. II-2/2' refers to regulation 2 of chapter II-2 of the SOLAS Convention.

Note: Throughout the course, safe working practices are to be clearly defined and emphasised with reference to current international requirements and regulations.

It is expected that the national institution implementing the course will insert references to national requirements and regulations necessary.

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
For ro-ro passenger ships: **Competence: Control passengers in emergencies and implement safety procedures for passengers, cargo and hull integrity** **Knowledge understanding and proficiency:** *A practical knowledge of embarking and disembarking passengers following the ship's procedures for loading and discharging all ro-ro vehicles and transport units* *Maintain the ability to safely carry dangerous goods, secure cargoes, undertake stability, trim and stress calculations* *Effectively ensure hull integrity and safety of ro-ro deck atmospheres* *Applies a thorough knowledge of shipboard organization, use of equipment, emergency control and communication skills* **Training objectives are:** 1. Organise the safe movement of vehicles and passengers when embarking and disembarking 2. Control all elements of cargo safety and hull integrity 3. Control passengers and other personnel during emergency situations 4. Establish and maintain effective communications	R1 Section A-V/2 pa.4, 5		
For passenger ships other than ro-ro passenger ships: **Competence: Control passengers in emergencies and implement safety procedures for passengers** **Knowledge understanding and proficiency:** *A practical knowledge of embarking and disembarking passengers* *Applies a thorough knowledge of shipboard organization, use of equipment, emergency control and communication skills* 1. Organise the safe movement of passengers when embarking and disembarking 2. Control passengers and other personnel during emergency situations 3. Establish and maintain effective communications	Section A-V/3 pa.4, 5		

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
1. Introduction (0.25 hour)			
Required performance:	R1 Reg.V/2 pa.7, 8		
.1 explains the training requirements mandated in STCW 95 and flag state regulations	Reg.V/3 pa.7, 8		
.2 explains that effective training will result in a safer ship operation			A4 Pl.1.1, 1.2
.3 states that during emergencies, outside assistance is often unavailable			
Passenger Safety, Cargo Safety and Hull Integrity Training			
2. Loading and Embarkation Procedures (1.75 hours)			A4 Pl.2.1, 2.2, 2.3
Required performance:	R1 Reg.V/2 pa.7		
2.11[1]* Procedures for loading and discharging vehicles, rail cars and other transport units, including related communications		B9 Ch.2	
.1 demonstrates procedures for loading and discharging including elements as listed below:			
- need for liaison with shore personnel for controlled and continuous flow of traffic			
- recognizes height restrictions on and under platforms applicable to vehicle movements			
- appreciates the lengths of passenger and freight vehicles and wide loads			
- manages the risk to personnel working on the car decks			
- ensures that car deck personnel wear high visibility clothing			
- ensures that drivers are controlled in their speed and alerted to any dangers that may be developing			
- emphasis that over-filled petrol tanks may lead to liquid and vapour spillage			
- highlights need to preplan to avoid vessel listing			
- describes the use of heeling tanks			

[1] Sections 2.1 and 2.2 are not required for personnel on passenger ships other than ro-ro passenger ships

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- describes the stowage of vehicles with special requirements including: - livestock lorries - refrigerated lorries			
- emphasises need to keep deck clear of chains and other securing devices			
- instructs personnel controlling loading in location and use of escape routes and safety rules			
- emphasises need to keep in the driver's line of sight			
- demonstrates communication with drivers who may be tired, stressed, unfamiliar with their surroundings and the operations involved			
- demonstrates use of clear directional signals using hi-glow illuminated batons, or arm signals		B9 Ch.2, 3	

Required performance:

2.2* Procedures for lowering and hoisting ramps, setting up and stowing retractable vehicle decks

.1 demonstrates how to lower and hoist ramps and set up and stow retractable vehicle decks in a safe manner			
- operating instructions and any warning notices are prominently displayed			
- a certified, nominated operator(s) only shall use the controls for the lowering and hoisting operation			
- the operator shall always ensure the control boxes are locked and power switched off, when not in use, to prevent unauthorized operation			
- the operator must always have a clear view of the operation			
- if this is not possible, a nominated person who has an uninterrupted view shall give the operator clear signals			
- all ramps and decks must be well lit and free of water, oil or other substances liable to cause slipping			
- ensure that adequate absorbent material is available			
- check that there is no loose gear around, e.g. stores, securing equipment, refuse			
- check no crew member is on or underneath the ramp or deck until it is secured	R3 Reg.11-1/20-3		
- check all guard chains are in position			
- check all passengers have left their vehicles			

*Sections 2.1 and 2.2 are not required for personnel on passenger ships other than ro-ro passenger ships

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid

Required performance:

2.3 Procedures for embarking and disembarking passengers, with special attention to disabled persons and persons needing assistance

R1 Reg.V/3 pa.7

.1 demonstrates how to embark and disembark passengers with special attention to disabled persons and persons needing assistance

- a safe means of access must be provided between the ship and the quay
- the access is prop erly rigged, secured and deployed
- it is adjusted as required to maintain a safe means of access at all times
- the area is adequately illuminated
- safety nets are provided
- a life buoy with a self-activating light and safety line is provided at the point of access
- the angle of the slope should be no more than 55°
- the maximum slope of ramps for wheelchairs should be 1:20
- provide personnel with suitable training and standarized information and instruction on how to assist disabled passengers
- access points for the disabled should be marked with the international symbol
- accesses should not have stairs or steps
- for ro-ro ships, means shall be available for the person in charge at the marshalling area or on the quay to communicate with the person in charge of operations on board
- organize ship's crew to guide disabled passengers to a special parking space on board and give assistance
- demonstrates handling a wheelchair in/out of a vehicle
- there should be a barrier-free passage for wheelchair users from parking spaces to the elevator and passenger facilities
- all visual instructions and safety information shall be displayed in as large and clear form as possible for the hearing impaired
- spoken announcements should be preceded by a tone to attract the attention of passengers with sight impairment

MSC Circ.735

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- special areas shall be designated where assistance and interpretation facilities are available for sensory impaired passengers			
- details of persons who have declared a need for special care or assistance in emergency situations shall be recorded and communicated to the Master prior to departure	R3 Reg.111/24-2		
- all passengers need to be counted prior to departure			
- names and gender of all persons on board distinguishing between adults, children and infants, shall be recorded for search and rescue purposes, certain ships will be exempt from this if it is impracticable			
- all the above information must be kept ashore if search and rescue services are needed			

3. Carriage of Dangerous Goods (0.5 hour)

Required performance:

3.1 Special safeguards, procedures and requirements regarding the carriage of dangerous goods on board ro-ro passenger ships

A4 Pl.3.1

.1 applies any special safeguards, procedures and requirements regarding the carriage of dangerous goods on board ro-ro passenger ships

R2 Reg.IMDG Code Vo.1 Sections 14,15,17

B9 Ch.6

- stowage and segregation plan agreed
- loading and unloading operations supervised by responsible ship's personnel
- regular inspections are made during the voyage so that early detection of any hazard is immediately reported

R3 Reg.11-2/37
R3 Reg.VII part A

- passengers and unauthorized members of the crew should be excluded from these decks
- entry may be made only if accompanied by an authorized crew member

R3 Reg.11-1, 20-3

- notices prohibiting entrance to such decks should be conspicuously displayed

R2 Reg.IMDG Code Vol.1, 17.5.1.2

- openings between vehicle decks, machinery and accommodation spaces shall be closed and secured in order to prevent the ingress of dangerous vapours and liquids

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- flammable gases or liquids of 23°C closed cup should not be stowed in a closed ro-ro space or special category space unless it complies with SOLAS	R3 Reg.11-2/54 R2 Reg. IMDG Code Vol.1, 17.5.3		
- ensure that a closed ro-ro or a special category space is mechanically ventilated where this is part of the carriage requirements	R3 Reg.11-2/37		
- mechanically operated refrigeration or heating equipment fitted to any unit should not be operated during the voyage when stowed in a ro-ro space or a special category space	R2 Reg. IMDG Code Vol. 1,17.5.5.		
- electrically operated refrigeration or heating equipment fitted to any unit stowed in a closed ro-ro cargo space or a special category space should not be operated when flammable gases or liquids having a flash point of 23°C closed cup or less may be present unless SOLAS regulations are complied with	R2 Reg.IMDG Code Vol.1 17.5.6.		
- empty cargo units containing residues shall be stowed as if they were full	R2 Reg.IMDG Code Vol.1,17.5.8		
- units should be stowed so that they are always accessible especially for fire fighting	R2 Reg.IMDG Code Vol.1,17.6.1.1. R1 Reg.11-2/4		
- water supplies shall be capable of supplying four nozzles	R2 Reg.IMDG Code Vol.1, Section 12,14		
- stowage of units shall comply with the IMDG Code			
- marine pollutants should preferably be stowed under deck or in well protected sheltered areas	R2 Reg.IMDG Code Vol.1, Reg.23		
- any unit found to be damaged, leaking or sifting (shifting??) should not be loaded	R2 Reg.IMDG Code Vol.1,17.7.4		

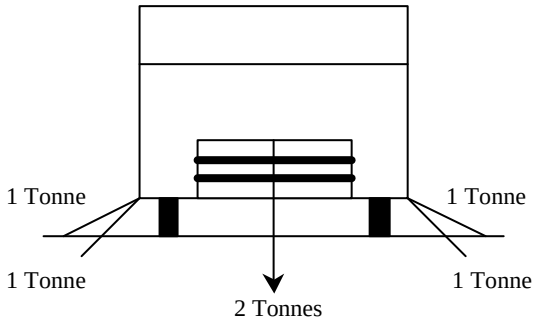
4. Securing Cargoes (1.25 hours)

Required performance

4.1 Provisions of the Code of Safe Practice for cargo stowage and securing

.1 states the provisions of the Code of Safe Practice for cargo stowage and securing applicable to vehicles, rail cars and other cargo transport units carried	R3 Reg.VI/5	B9 Ch.5, 7	A4 Pl.4.1, 4.2
- administrations should ascertain that where applicable a cargo securing manual appropriate to the ship's characteristics, trading area and cargo composition is carried aboard	R4 Reg.App. 2 R3 Reg.VI/2 Annex 5		A5
- cargo should be loaded taking account of stability remaining within acceptable limits and structural strength is not impaired	R5 Reg.1.8, 2.2		
- as transverse motions (rolling) are normally greater than longitudinal or vertical motions, cargo units should preferably be stowed fore and aft	R5 Reg.Annex 4, 2.9		

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- forces should be distributed as evenly as possible between cargo securing devices	R5 Reg.2.3		
- if this is not feasible securing arrangements must be upgraded and verified by calculation if required	R5 Reg.4,5,6		
- rule of thumb method Maximum securing load (MSL) = 2 tonnes of securing equipment	R5 Reg.6		A4 Pl.4.2 App.4 Pl.4.2



- for transverse accelerations, this rule applies to nearly any size of ship regardless of:
  - ocation of stowage
  - stability
  - loading condition
  - season and area of operation
- it does not take into account:
  - adverse effects of lashing angles
  - unequal distribution of forces among securing devices
  - favourable effect of friction
- transverse lashings should be at an angle of no more than 60° to the deck
- higher lashing may be required to prevent tipping, but must not be counted in the 'rule of thumb' method
- stowing and securing should be properly supervised during loading and if possible lashings should be regularly inspected during the voyage

Required performance:

B9 Ch.5, 7

4.2 Use of cargo securing equipment and materials

.1 demonstrates the use of cargo securing equipment and materials provided taking into account their limitations

R3 Reg.VI/5

- extract and apply information from the ship's cargo securing manual

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- personnel should be aware of the type, number, location, limitations and safe working loads of all securing devices aboard	R4 App.2		
- lashings should be secured only to the chassis of the road vehicle	R4 Reg. App.4		
- only one lashing should be attached to any one aperture of the securing point of the vehicle, preferably between an angle of 30° and 60° to the deck			
- ships must have adequate securing points and equipment of sufficient strength for their usual trades			
- where non-standardised cargo is carried the securing points and equipment may be inadequate. Attention must be paid to optimum loading position for an adequate number of securing points of sufficient strength	R4 Reg. Ch.5		
- secured by lashings made of material having strength and elongation characteristics at least equivalent to steel chain or wire, reference to any methods in publications is supplementary to the principles of good seamanship, always seek advice from qualified shore personnel if required	R4 Reg. Annex 4 R5 Reg.1		
			A4 Pl.5.1

5. Stability, trim and stress calculations
(2 hours)

Required performance:

5.1 The use of stability and stress information

.1 demonstrates the use of the ship's stability and stress information provided

- each ship shall be provided with an approved stability booklet which will enable a rapid and simple process to obtain accurate guidance as to the stability of the ship under varying conditions of service	R3 Reg.11-1/22 pa.1		
- understand the instructions on the use of the booklet and contents of the stability booklet	R6 Reg. Ch.2.2.1.1		
- extract and apply the information on allowable deck loading should non-standardised cargo be carried	R7 Reg.2.7.2		

Required performance:

5.2 Stability and trim for different conditions of loading

.1 calculates stability and trim for different conditions of loading, using the stability calculators or computer programmes provided		T2	

- a s

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- practise stability calculations, preferably manually and by computer on the stability conditions on previous sailings or check with the standard operating conditions and examples for developing other acceptable loading conditions using the information contained in the stability booklet	R6 Reg.Ch.2.2.1.4		
- the computer should be validated periodically by running four loading conditions taken from the stability booklet, and checked manually, and the print outs kept aboard as check conditions for future reference			
- compare all stability calculations with the information on loading restrictions contained in the stability book, such as maximum KG or minimum GM curve or table that can be used to determine compliance with the applicable stability criteria	R6 Reg.Ch.2, 2.1.8		
- pre-calculate changes of stability and trim during partial discharge if it is anticipted that this will cause any problems	R6 Reg.Ch.2, 2.1.3.7, Ch.3, 3.1		

Required performance:

5.3 Load factors for decks

.1 calculates load factors for decks

- check the tonnage of cargo to be loaded
- determine the axle loading from the weight of the cargo unit e.g. 8 tonnes per axle
- consult the ship's plans for maximum axle loading permitted for cargo units, e.g.

  Main deck 13 tonnes/axle
  Platforms 2 tonnes/axle

R3 Reg.VI/5 pa.3

T1

- details of the deck loading resulting from the proposed stowage or operation of vehicles are to be supplied by the ship builder. These details include wheel load, axle and wheel spacing, tyre point dimensions and type of tyre for the vehicle
- the deck and supporting structures are designed on the maximum loading to which they are planned to carry in service. The vehicles types and axle loads for which the vehicle carrying decks have been approved, are stated in the loading manual and are shown on a notice displayed on each deck
- if the deck axle loading is likely to be exceeded, advice should be sought on how to compensate for this
- always liaise with the shore side freight marshall as the link span will also have a safe working load
- damage or overloading of the link span may compromise the safety of the ship

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
Required performance:			
5.4 Impact of ballast and fuel transfers on trim, stability and stress			
.1 calculates the impact of ballast and fuel transfers on trim, stability and stress			
- refer to general arrangement plans for the type and location of ballast and fuel tanks			
- consult stability booklet for tank sounding tables showing capacities, centre of gravity and free surface data for each tank			
- use the examples in the stability book for determining the stability and trim in different loading conditions			
- it should be recognised that during transfer of fuel and ballast the effects of free surface in partially filled or slack tanks may seriously affect the stability of the ship			
6. Opening, closing and securing hull openings (1 hour)			
Required performance:			
			A4 Pl.6.1
6.1 Procedures established for the ship		T2	
.1 demonstrates the procedures established for the ship regarding the opening, closing and securing of bow, stern and side doors and ramps, and to correctly operate the associated systems			
- a competent nominated operator(s) shall unlock, open, close and lock all shell openings and ramps	R3 Reg.11-1. 23-2 pa.4		
- operating procedures for closing and securing all shell doors or any other closing appliance which could lead to flooding, shall be posted in appropriate places	R3 Reg.11-1, 20-1 pa.4		
- all communications relating to doors and ramps must be clear, and a positive acknowledgement received by the Master			
- where a door cannot be opened or closed while the ship is at the berth, it may be opened or left open leaving or approaching the berth, however the inner bow door must be kept closed	R3 Reg.11-1, 20-1 pa.2.4		
- indicators shall be provided on the bridge for all shell openings or closing appliances to show that they are either open or closed and secure	R3 Reg.11-1, 23-2 pa.1		
- the times of opening and closing all doors shall be recorded in the log book			
- all power sources to doors and ramps shall be isolated to prevent unauthorised operation	R3 Reg.11-1, 25		

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- keys for all the control boxes shall be removed and kept in a secure position			

Required performance:

6.2 Sealing surveys

.1 conducts surveys on proper sealing

- monitor by television surveillance
- monitor water leakage detection system which is designed to indicate any leakage through inner and outer bow doors, stern doors or any other shell doors
- conduct constant inspections of any seal that may be perished, worn or not making firm contact with the framework of the closing appliance and not able to be immediately replaced
- an operating and maintenance manual for the bow and inner doors is to be provided on board and is to contain:
  - main particulars and design drawings
  - service conditions eg. service area restrictions,

acceptable clearances for supports, maintenance and function testing register of inspections and repairs, recorded inspections of the door supporting and securing devices to be carried out by the ship's staff at monthly intervals or incidents that could result in damage

A4 Pl.7.1

7. Ro-ro deck atmosphere (0.5 hour)

Required performance:

7.1 Equipment to monitor atmosphere in ro-ro cargo spaces

B9 Ch.2

.1 demonstrates equipment, where carried, to monitor atmosphere in ro-ro cargo spaces — R3 Reg.VI/3

- when there is any doubt about the freshness of the air, arrangements should be made for testing the atmosphere
- where equipment is carried to monitor the atmosphere in ro-ro cargo spaces it should be operated by a competent person who is aware of the possible dangers and knows what gases to test for
- a steady reading of 21% oxygen and a carbon monoxide content below 50 parts per million should be obtained
- if there is any indication of hydrocarbon vapours, loading and discharging should be stopped until the space has been thoroughly ventilated and tested for a safe atmosphere

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
Required performance:			
7.2 Procedures for ventilation of ro-ro cargo spaces			
		B9 Ch.2	
.1 states the procedures established for the ship for ventilation of ro-ro cargo spaces during loading and discharging of vehicles, while on voyage and in emergencies			
- to reduce the accumulation of fumes, drivers should be instructed to stop their engines as soon as practicable after embarking and to avoid starting up prior to departure until instructed to do so			
- during loading and discharging ventilation may be improved by keeping both bow and stern doors open, provided there is adequate freeboard at these openings	R3 Reg.37 pa.1.6		
- there must be an effective power ventilation system for special category spaces sufficient to give at least 10 air changes per hour	R3 Reg.38 pa.3.1		
- in cargo spaces, other than special category spaces, intended for the carriage of motor vehicles with fuel in their tanks, where not more than 36 passengers are carried this is reduced to 6 changes per hour			
Crisis Management and Human Behaviour Training			
8. Ship design, layout, emergency plans, procedures and drills (1 hour)			V1, V2
Required performance:	R1 Reg. STCW Table A-V/2		A4 Pl.8.1
8.1 General design and layout of the ship			
.1 describes the general design and layout of the ship:			
- study the ship's plans including:			
- the deck reference system - numbering on the doors and stairways - emergency exists and alternative means of escape - reference system for the assembly stations - location and use of all life-saving equipment - any specific or unusual features relating to the ship			
Required performance:			
8.2 Safety regulations			
.1 extracts and applies information from safety legislation codes and regulations including:			
- company fleet regulations			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- ship specific procedures including any limitations of equipment, stability etc			
- cargo securing manual			
- ISM Code			
- IMDG Code			
- Codes of Safety Working Practice			
- national regulations			
Required performance:			
8.3 Emergency plans and procedures			
.1 describes the emergency plans and procedures:		T4	
- emergencies may include: - structural failure - machinery failure - collision - grounding/stranding - fire - bomb threats - pollution	R3 Reg.111/ 24-4		
- checklists available to ensure that the correct procedures are followed, i.e. decision support system for Masters of passenger ships			
- emergency power supplies			
- ballasting, de-ballasting			
- emergency repair equipment			
- communications for assistance			
- breathing apparatus procedures			
- containment of smoke or extraction activated			
- search procedures for suspicious packages			
- location of pollution prevention equipment and procedures for notifying port or nearest coastal authorities			
Required performance:			
8.4 Shipboard emergency drills	R3 Reg.111/18, 25		
.1 recognises the need to pre-plan drills for shipboard emergencies:			
- national and international requirements for shipboard emergency procedures		T3	
- crew members assigned and familiar with emergency duties before voyage begins			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- muster of passengers where required - safety brief - familiarity with all life saving equipment - scenarios set for drills with specific objectives to achieve - a conditioned response, to pre-set emergencies, where everyone is familiar with their duties will often lead to a rapid, successful conclusion			
Required performance:			
8.5 The need for all personnel to be aware of and adhere to pre-planned emergency procedures			
.1 states the need for all personnel to be aware of and adhere to pre-planned emergency procedures as carefully as possible in the event of an emergency situation: - immediately go to emergency stations so that missing persons can be identified - frequent drills will lead to the correct procedures being followed - be prepared to take charge if the leader is missing			
9. Optimisation of resources (1 hour)	A4 Pl.9.1		
Required performance:			
9.1 Emergency resources available			
.1 recognises that resources available in an emergency may be limited - equipment should be well separated and have safe access should an emergency occur - immediately move any emergency equipment from a potentially unsafe area eg. medical equipment, spare BA. sets and cylinders - age and fitness may limit certain personnel to less arduous, yet essential positions - immediately plan ahead to obtain assistance and back up resources from ashore or other ships - carefully rotate personnel who have strenuous tasks, allowing time for adequate rest periods and refreshments - advise Company who can activate their emergency response plan and send further details on stability, structural strength and assist in co-ordination of any other assistance that is required			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
Required performance:			
9.2 Make full use of personnel and equipment available			
.1 recognises the need to make full use of personnel and equipment immediately available and if necessary to improvise: - ensure that all equipment is serviced, fully operational and ready for use including: - protective clothing, fire, chemical, oil spill, breathing apparatus cylinders are full, back up equipment, hoses, B.A cylinders, foam, oil dispersant, first aid equipment resuscitators and any other equipment required - emergency party leaders are in place to take charge - ensure that personnel are suitable for their emergency positions, eg. adequately trained, sufficient experience, physical and mental ability etc. - be aware that often the rank of personnel automatically dictates a particular position on the muster list which may be inappropriate for them - appoint personnel best suited to the position			
Required performance:			
9.3 Organise realistic drills to maintain a state of readiness		T3	
.1 demonstrates how to organise realistic drills to maintain a state of readiness, taking into account lessons learn from previous accidents involving ships carrying passengers; de-briefing after drills: - each exercise is planned by a different officer, who may co-ordinate and debrief the exercise - advice is sought from more senior personnel if required - do not plan unannounced drills, always give forewarning - prefix public address announcement, when available with 'this is a drill' or 'for exercise purposes' - remove key personnel to allow 'second in charge' to take over - place observers in strategic positions to observe the drill - ensure that all equipment is restowed and ready for use - de-brief all of the crew using the observers to comment on the actions taken in their particular area	R3 Reg.111/18		

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- encourage the crew to discuss how the incident developed and what actions were taken - summarise the good and bad points and note which areas require further training - it may be appropriate, on some ships, for an officer to talk with the crew separately after theinitial de-brief with senior personnel - compile a port folio of exercises that are ship specific but can still be varied - exercises may be undertaken having discussed the plan which can then proceed after all equipment has been prepared - incorrect procedures can be repeated until the basics have been achieved - discuss incidents and lessons learnt from other passenger ship incidents - use company incident reports if available			V1
10. Control response to emergencies (1 hour)			
Required performance:			
10.1 How to lead and direct others in emergencies		B1 Ch.5	A4 Pl.10.1, 10.2
.1 demonstrates how to lead and direct others in emergency situations - sets an example during emergency situations - takes immediate control - remains calm - is decisive - is dependable and gains the respect of other members of the group			
Required performance:			
10.2 Focus decision making			
.1 focuses decision making, given the need to act quickly in an emergency - listens to information gathered by personnel already at the scene - assess the situation - allocate tasks			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- plan ahead for extra equipment and personnel - adjust plan as required - leadership style is required, autocratic, dictatorial, directive - be aware that consultation may not be appropriate in a crisis			

Required performance:

10.3 Motivation of passengers and other personnel

.1 motivates, encourages and reassures passengers and other personnel:

- stimulates interest
- give support to the team
- is enthusiastic
- energy shown will spread to others
- always pass on the basic, truthful developments
- convey to others that a concerted effective response is being undertaken
- always be positive

Required performance:

B1 Ch.4 B5 — A4 Pl.10.3

10.4 Stress

.1 recognises the development of symptoms of excessive personal stress and those of other members of the ship's emergency team

- the brain detects a change in the environment which it interprets as highly threatening
- this leads to flight/fight reaction: run away or deal with the problem
- the heart beats faster and breathing rate increases
- people will sweat more than normal

Required performance:

10.5 The effects of stress

.1 identifies that stress generated by emergency situations can affect the performance of individuals and their ability to act on instructions and follow procedure

- attention is focussed on one area and the overall plan is not considered

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- there is a lack of concentration - over reliance on trial and error rather than established procedures - constructive suggestions are ignored - reduced ability to solve complex problems due to a narrowing of attention - consideration of fewer alternative solutions - the strain of responsibility leads to : - over delegating - being impossible to contact - general loss of control			
11. Human Behaviour and Responses (1 hour)			V1
Required performance:		B3 pp 16-46	
11.1 Passenger response			
.1 acknowledges that it takes some time before people accept the fact that there is an emergency situation - attention is not paid to announcements, written instructions and familiarisation with the area - passengers believe that disasters will never happen to them - disbelief of even the most obvious signs of danger - passengers are afraid of being seen as foolish by drawing attention to themselves when reacting to a non apparent danger - continual false alarms result in no response - passengers are reluctant to issue warnings for fear of starting a panic - passengers will try to find some way of confirming that the warning is correct rather than making an escape			
.2 describes how some people may panic and not behave with a normal level of rationality, that their ability to comprehend may be impaired and they may not be as responsive to instructions as in non-emergency situations - panic involves not only anxiety but genuine fear - the fear is not irrational but well founded - there is a perception that action must take place immediately and people move as quickly as possible to an escape route - it also involves escape without concern for others - panic may also occur when people make decisions on false information		B4 B5 T3 T4	

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- as the mind is focussed only on escape, often in unfamiliar surroundings, direction by personnel or information broadcast are ignored			
.3 acknowledges that passengers and other personnel may start looking for relatives, friends and/or their belongings as a first reaction when something goes wrong		B3 pp 47-58	
- instinctive reaction to look for members of the group especially those who are vulnerable, eg. children, elderly, disabled			
- passengers are normally content that children will be safe on a ship as trained staff are always available			
- family groups will have different interests, play areas, gaming machines, bars, cinemas etc.			
- a group could easily be spread throughout the ship			
- passengers on passenger ships will have dedicated assembly stations so groups will re-unite			
- passengers on ro-ro passenger ships will be directed to the nearest assembly station, re-allocation of passengers to other assembly stations will be undertaken by the crew should one area become overcrowded			
- muster personnel must reassure family groups that every effort to locate other members is being made			
- announcements on the public address system, telephone or radio communication between those in charge of the assembly areas must be made			
- personnel may also be sent to other assembly stations to locate missing members and escort them to the family group			
- once passengers have assembled they must not be allowed to leave			
- continually reassure them that the ship's organisation is designed to resolve this problem			A4 Pl.11.2
.4 describes how passengers may seek safety in their cabins or in other places on board where they think they can escape danger			
- all cabins, public spaces and other areas must be searched to ensure that the evacuation to assembly stations is complete			
- follow the ship's emergency procedures to ensure that all areas have been searched either by direct messages to a control point, or marking plans and/or doors, so that no time is wasted in duplicate searches			
.5 appreciates that passengers will tend to move to the upper side of the ship			
- effective marshalling of passengers to their lifeboat/raft station			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- appreciate that passengers may go to the high side where, because of the ship's list, some life-saving appliances may be outside of their launching limits	R3 Reg.111-13		
- appreciate the possible problem of panic resulting from separating families			
- family members will be concerned for the safety of their group			
- group leaders may go to areas that are dangerous to search			
- orders from muster personnel may be ignored			
- orders must be calm, clear, informative and reassuring			
- assign a specific crew member to calm those concerned and explain the ship's procedures			

12. Establish and maintain effective communications
(1 hour)

Required performance:

12.1 The importance of effective communications

.1 demonstrates delivery of clear and concise instructions and reports:		B4 pp 4-7 B5	
- speak slowly and clearly			
- do not attempt to give too much information			
- only tell passengers what you know			
- do not invent information or pass on rumours that they may be spreading			
.2 encourages exchange of information with, and feedback from, passengers and other personnel			
- be attentive to their needs and delegate other personnel to give extra assistance if required			
- answer their questions			
- if the request is relevant and important advise them that you will obtain the information			
- bear in mind that passengers will continually ask what is happening, so keep them occupied			
.3 communicates in the language or languages appropriate to the principal nationalities of passengers and other personnel carried on the particular route	Res.A.770 (18)		A1
- identify crew members who can communicate in more than one language			

Knowledge, understanding and proficiency	IMO Reference	Textbooks, Bibliography	Teaching Aid
- place them in strategic positions eg. assembly areas			
- train personnel to use basic phrases eg. identifying decks, directions to take, and simple reassuring information regarding the emergency			
- select other passengers who may be able to translate			
.4 identifies the possible need to communicate by some other means such as demonstration, by hand signals, calling attention to the location of instructions, assembly stations, life saving devices or evacuation routes when oral communication is impracticable			
- be prominent, stand on a platform, chair or table			
- indicate the illuminated emergency signs and other instructions using extended arm signals possibly holding a baton or a torch			
- use a life jacket to demonstrate slowly the donning procedures		T4	
.5 selects the language in which emergency announcements may be broadcast during an emergency or drill to convey critical guidance to passengers and to facilitate crew members in assisting passengers			
- identify personnel who can make bi-lingual or multi-lingual announcements locally or on the public address system			
- standardise expected announcements that could be used during an emergency on written cards on the bridge			
- ensure announcements made in different languages are identical or very similar to the main language spoken aboard			
- ensure that announcements that are made are fully understood by the crew especially those who are assisting passengers			
- ask crew members during drills to explain the announcement and detail the action taken after it has been made			

Part D: Instructor Manual

Introduction

The Instructor Manual provides guidance on the material that is to be presented during the course. The course material reflects the requirements for the training of Ro-ro passenger ship personnel as detailed in Section A-V/2, pa: 4 and 5.

(1) Passenger safety, cargo safety and hull integrity training.

(2) Crisis management and human behaviour training.

and passenger ship personnel as detailed in Section A-V/3 pa: 4 and 5.

(1) Passenger safety.

(2) Crisis management and human behaviour training.

The course outline and time table provides guidance on the allocation of time for the course material, but adjustments will be required according to the ability and experience of the personnel being trained. The teaching syllabus must be studied carefully and lesson plans compiled to aid the instructor's delivery. Lecture notes are usually very helpful to the trainee, either as a permanent reference or revision material prior to an assessment.

It will be necessary to prepare material for use with the overhead projectors which can be found in Appendix 2.

Guidance Notes

1. Introduction 0.25 hour

When the 1978 STCW Convention entered into force in 1984 it was expected that its requirements would ensure the competence of masters, officers and ratings of all seagoing ships and their safe operation through efficient watchkeeping. As with all IMO conventions it reflected the highest practicable standards which could be globally agreed at the time of its adoption.

Despite its broad global acceptance, it was realized in the late 1980s that the Convention was not achieving its purpose. Instead, the Convention was gradually losing credibility as its acceptance widened. The main cause for this appeared to be the general lack of precision in its standards, the interpretation of which was left 'to the satisfaction of the Administration'. This resulted in widely varying interpretation of standards and many Parties failed to effectively administer and enforce Convention requirements. STCW certificates could no longer be relied upon as evidence of competence.

It was decided in 1993 to give high priority to a comprehensive review. The main aims of the revision were:

.1 to transfer all detailed technical requirements to an associated code;

.2 to clarify the skills and competence required and to take account of modern training methods;

.3 to require Administrations to maintain direct control over and endorse the qualifications of those Masters, officers and radio personnel they authorise to serve on their ships;

.4 to make parties to the Convention accountable to each other, through IMO, for their proper implementation of the Convention and the quality of their training and certification activities; and

.5 to have the amendments enter into force for all Parties to the Convention with the least possible delay.

The trainees must be made aware of the human-related causes of shipping disasters.

The inclusion of Chapter V of the Code is mainly as a direct result of the tragedies suffered by the 'Herald of Free Enterprise', Scandinavian Star', and 'Estonia'. Summaries of these are included in Appendix 1.

Outside assistance is rarely immediate and often not available. It must be stressed to trainees that they must always consider their actions and continually operate a safe working system.

2. Loading and embarkation procedures 1.75 hours

Loading and discharging cargo units can be dangerous if the proper procedures are not followed. Some pre-planning may have been undertaken before arrival however the ship's officers must not proceed until they are sure that the ship is ready to load or discharge safely. Because the operation can be undertaken quite quickly, car deck personnel must be highly visible, and totally familiar with

the area. Drivers may be tired, stressed and unfamiliar with their surroundings, so personal safety and the safety of others is essential. Noise levels are high which often inhibits effective communications.

Car decks are dangerous working areas for crew members and drivers and passengers as they leave their vehicles. The risks to each can be controlled: to crew, by ensuring that only authorized crew are present and that they wear high visibility working gear. Decks must be kept clear of chains and other securing devices.

Drivers and their passengers should be marshalled clear of moving traffic and the speed of traffic flow controlled. Crew should be alert to petrol spillage from over-filled tanks that can lead to liquid and vapour spillage. Absorbents should be ready to tackle such events.

Operating ramps and retractable vehicle decks must be strictly controlled. The operator(s) must be competent and proved this having completed training. On occasions the operator's view may be restricted and so before the operation, he should liaise closely with another crew member who can then give verbal instructions, or clear hand signals, to lower and hoist. The ship will have operating procedures on board which must always be followed or checked if in doubt. Control boxes must always be locked and power isolated to prevent inadvertent use and use by unauthorized persons.

The safety of passengers whilst embarking and disembarking is essential. Access must be well lit, secure, unrestricted and easy to use, especially for those with disabilities. Cars should be allocated spaces near to lifts for disabled passengers, so that the least inconvenience is suffered. Full details on these procedures can be found in the Annex.

3. Carriage of dangerous goods 0.5 hour

Passenger Ro-ro ships will be restricted in the amount and type of dangerous goods that can be carried as cargo, however overfilled petrol tanks or vehicles whose contents may present their own dangerous risk need to be monitored. The segregation tables in the International Maritime Dangerous Goods Code, (section 15), must be referred to. Dangerous goods which are well separated, stowed and secured, cannot react with one another. Dangers arise, however, especially with vapours being given off, or liquid spillages caused by heavy weather or poor loading and stowage. Ventilation fans must always be efficient and operational, and all doors to accommodation or engine room spaces must be firmly closed. When dangerous vapours are being exhausted, the master must always consider the effects of wind in relation to accommodation and engine room air intakes.

Once loading is complete no access should be made by passengers or unauthorised crew members, unless accompanied by an authorised crew member. Notices stating this regulation should be conspicuously displayed.

Regular patrols and closed circuit television monitoring will help to ensure that early detection of any hazard is promptly noted.

4. Securing cargoes 1.25 hours

Cargo transport units are normally stowed fore and aft because transverse motions are usually greater than longitudinal ones. A variety of securing equipment and securing points will be available. Stowage must conform with the ship's cargo securing manual and IMO Code of Safe Practice for Cargo Stowage and Securing (R4). Securing arrangements vary from deck to deck and from ship to

ship. Those responsible must be familiar with arrangements on their ship. Further information can be found in the Annex.

5. Stability, trim and stress calculations 2 hours

Ship specific considerations
Personnel who are responsible for this area will have had prior knowledge of the subject, however, conditions will be ship specific. The ship's stability booklet, and computer, will be provided to enable a rapid calculation of the ship's present and future condition.

The ship's plans show the axle loading for each deck which can easily be calculated from the number of axles and the gross weight of the cargo unit. This is an easy calculation, however if there is any doubt advice should be sought from the classification society.

6. Opening, closing and securing hull openings 1 hour

Competent, nominated operators will follow the ship's procedure for maintaining hull integrity and positive reports made to the bridge once this is complete. Inspection of hull opening seals and the condition of all moving parts must be frequently monitored in addition to the planned maintenance programme.

Those responsible must be familiar with the specific arrangements on their ship for opening, closing and securing bow, stern and side doors and ramps. They must be able to correctly operate the associated systems and conduct surveys to ensure that proper sealing is achieved.

7. Ro-ro deck atmosphere 0.5 hours

There is no specific requirement for carrying equipment to monitor the atmosphere on vehicle decks however it is necessary for those responsible to effectively operate such equipment. Air changes will be effected by the vehicle deck fans and enhanced, when safe to do so by opening the other bow or stern door. It is apparent that drivers prefer to start their vehicles a long time before it is possible to proceed. This must be stopped until disembarkation is required, especially when considering the noxious gases that could pocket or accumulate.

Crisis Management and Human Behaviour Training

8. Ship design, layout, emergency plans, procedures and drills 1 hour

Ship familiarisation is so essential before any emergency plans can be formulated or considered. (see 'Scandinavian Star' condensed case history, (T2)).

The location of BA teams or search parties must be fully appreciated so that ships plans can be marked and updated on the bridge. The bridge may also be in a position to warn of any possible dangers eg. ship stores or cargo.

International and national regulations are further supported by Company and ship specific procedures. Certain personnel will be required to hold a thorough overview of these. Emergency plans and checklists will need to be devised for all possible eventualities fire, pollution, bomb threats etc. and specific training should focus on these areas. Obtaining a full muster should be straight forward, but crew and passengers will often delay for many reason: retrieving possessions from

cabins, looking for relatives or because the situation appears normal in their location they do not respond. Enormous amounts of energy and time can be wasted looking for people who are safe as against those that require assistance.

9. Optimisation of resources 1 hour

The amount of emergency equipment available has increased but the personnel required to use this equipment has generally remained the same. Allocation of task roles is often dependant on rank/position which for senior positions would generally remain the same, however exercises will reveal those ideally suited for particular jobs.

Responses to many shipboard emergencies have been lacking because of poorly trained crews who have been unable to react effectively.

Legislation requires training however, **motivation** must come from the senior ranks.
Drills can operate in two forms:

Reaction to the alarm

The crew will respond to the unknown emergency and a realistic exercise will ensue. Problems and mistakes will **always** occur but these can be discussed and rectified at the de-brief. An independent crew observer, who has devised the drill, can take charge of the de-brief.

A pre-planned drill

The emergency is discussed and equipment prepared. The drill can then proceed at whatever pace is required. This allows for mistakes to be rectified and although slower, the learning process and outcomes for some crews, initially, may be beneficial. As always this must be followed by a full de-brief.

Maintenance of emergency equipment is essential and continuous. Even if some of it is not used at a drill, it must be inspected. Equipment used during the drill must be made ready for immediate use, eg. BA cylinders recharged.

10. Control response to emergencies 1 hour

Emergencies require good leaders which is not restricted to the master on the bridge, but to all support group leaders, eg. on-scene commander, engine room control, back-up parties, first aid, zone commanders etc. All are essential. Information can be very sparse in the early stages however the mobilisation of all personnel and resources must be started under a calm, decisive leader. When the picture begins to form, as more information is received, tasks can be allotted and forward planning can begin. Leadership style must be firm, decisive and perhaps autocratic and some degree of consultation may be appropriate, but this is not the time to form committees! Extracts from video V1 may be used to illustrate points.

Personnel will respond to well motivated leaders as they will to motivated instructors. Energy and enthusiasm generally tends to spread throughout the group, however any emergency will heighten stress levels. The heart beats faster, the breathing rate is rapid and sweating increases. This must be identified as soon as possible so that work loads can be lessened, tasks re allocated and extra support requested. Unless the leadership can be firm and directional the teamwork and general response will start to disintegrate.

11. Human behaviour and responses 1 hour

People never believe that emergencies are going to happen to them. How many passengers show complete disinterest during the safety brief on an aircraft or continue to talk on a ship during the safety announcements? When escape is delayed exits can become blocked and visibility may be decreased; this is when genuine fear and panic can arise. Panic is not as common as is reported because this involves escape without concern for others. In fact, people are desperately attempting to escape from a danger but can often be seen assisting one another.

Concern is always likely when family groups become split up. Members force their way against the escape flow causing more delays. Although this is completely understandable every effort must be made by announcements, coupled with the efforts of the stairway guides and assembly station personnel to direct passengers to safety and reassure them that every effort will be made to reunite groups.

Thorough searches of the accommodation must be made for people who may not have heard the alarm or failed for some reason to respond. Plans can be marked off to show areas that have been searched so that time and personnel are not wasted by double searches.

If a ship does begin to list passengers will tend to move to the high side however if the list increases it may become more difficult, or impossible to launch life saving appliances on the high side. Effective marshalling and control of passengers in the assembly stations is essential.

12. Establish and maintain effective communications 1 hour

There is often a reduced ability to understand complicated messages in stressful situations, so they must be kept simple and as concise as possible. The voice pitch can rise and also speed up leading to more confusion.

Passengers will always be requesting more information but that said they do need to be informed, and if possible, in their native language. This may cause problems for the crew who are assisting, however basic phrases can easily be learnt to identify decks, or directions and signs can be pointed out. Prominence is essential when controlling crowds both in an elevated position and wearing highly visible clothing. Always maintain this position and allocate crew members to do specific tasks as required.

Concern is raised when passengers do not know what is going on. They do not need to know detail but they must not be told lies. If breathing apparatus teams are seen proceeding through passenger spaces, passengers will know that things are not normal! Announcements, therefore, need to be calm informative and the degree of response required should be upgraded if the emergency begins to deteriorate.

13. Practical exercises

Suggestions for practical exercises are shown in Appendix 2. To be of value these should be as realistic as possible. The ship plans utilised should be those of the vessel to which the training applies.

SAMPLE LESSON PLAN

COURSE: Proficiency in Crowd Management, Passenger Safety and Safety Training for Personnel Providing Direct Services to Passengers in Passenger Spaces

TRAINING AREA: 8 **Ship design, layout, emergency plans, procedures and drills** Duration: 1 hour

MAIN ELEMENT Specific learning objective (in teaching sequence with memory keys)	Teaching Method	IMO ref	Textbook	A/V aid	Instructor guidelines	Time (mins)
8.1 General design and layout of the ship .1 describes the general design and layout of the ship: -- describes the general design and layout of the ship: - study the ship's plan - memorise the deck (1, 2, 3 etc.) and assembly stations (A, B, C etc.) reference system; numbering of doors and staircases so that position of personnel can be identified; positions of any life-saving equipment	Class	R1 STCW Table A-V/2		A4 Pl.8.1		10
8.2 Safety regulations .1 lists the safety regulations: -- give examples of fleet regulations; refer and show manuals that will be kept aboard; any specific national regulations, e.g. Codes of Safe Working Practice	Class				Have a range of manuals in the classroom which would normally be carried	10
8.3 Emergency plans and procedures .1 describes the emergency plans and procedures: -- refer to decision support systems for masters of passenger ships which need only be a checklist; show an example; discuss various emergencies that may occur; means for smoke extraction where people are trapped; general principles of ventilation		R4 Reg.111/24-4	T4			10

MAIN ELEMENT Specific learning objective (in teaching sequence with memory keys)	Teaching Method	IMO ref	Textbook	A/V aid	Instructor guidelines	Time (mins)
8.4 Shipboard emergency drills .1 pre-plan drills for shipboard emergencies: -- design drills to achieve certain objectives; practise in all areas of the ship; vary the drills and alternate those in charge; monitor the actions taken		R4 Reg.111/18, 25				20
8.5 The need for all personnel to be aware of and adhere to pre-planned emergency procedures .1 personnel adhere to pre-planned procedures: -- stress the need to muster immediately; be aware of alternative requirements; other escape routes or assembly stations						10

Appendix 1

Case Studies

Herald of Free Enterprise

Scandinavian Star

Estonia

Introduction

This section includes three case histories: Herald of Free Enterprise, Scandinavian Star and Estonia, which collectively alerted the authorities to serious human failings.

As a consequence it was deemed necessary that training for 'Crowd Control' and 'Crisis Management' were included in the STCW Convention.

Although the case histories are intentionally brief, they are laid out to enable the instructor to copy the main text and retain the reports' main points or recommendations. This will allow handouts to be given to the trainees who can discuss the cases individually, or in groups.

Each case history covers:

-- the trading pattern and ship routine
-- the development of the incident
-- the consequences
-- shortcomings of the crew
-- recommendations and improvements required

The instructor can then give a summary and discuss the main points of the official recommendations.

The Formal Investigation into the Capsize of the Ro-Ro Passenger Vessel 'Herald of Free Enterprise' 6th March 1987

Report No. 8074, Formal Investigation. HMSO Publications Centre, P O Box 276, London SW8 5DT, UK

Approximately 459 passengers had embarked for the voyage from Zeebrugge to Dover. The ship proceeded to sea with the bow doors open. In a light easterly breeze and very little sea or swell the 'HERALD' passed the outer mole at 1824 and capsized 4 minutes later resulting in 188 fatalities.

When loading and unloading at high water springs in Zeebrugge, it was necessary to trim the ship by the head, however the bow doors could be closed at the berth. These duties were different to those on the Dover-Calais run. No thought was given to this, and the Chief Officer felt under pressure to go immediately to harbour stations once loading was complete.

Three crews and five sets of officers were employed in manning the 'Herald', accordingly the officers did not always have the same crew. This made it not merely desirable, but essential that there should be uniformities in the duties of each set of officers and of the members of each crew.

It was stated that when entering or leaving Zeebrugge, trimmed by the head, care was taken to restrict the speed to a level which would avoid water coming over the bow spade. On departure speed was built up to between 14 and 18 knots. Experiments showed that the bow wave would be about 2 metres up the bow doors. The rate of inflow of water was considerable and as the bow spade dug deeper the ship lurched to port due to free surface instability, and soon sank on her beam in the shallow water outside the channel.

The questions arise, as a consequence of the casualty; why was the absence of the assistant bosun from his harbour station, not noticed? Why was there not a foolproof system which would ensure that the vital task of closing the bow doors was performed irrespective of the potential failure of any one individual, especially as this had happened before.

The sense of urgency to sail from Zeebrugge as soon as possible in order to maintain schedules, was exemplified by a memorandum from the Zeebrugge operations manager. He indicated that pressure should be put on the Chief Officer if he was not moving fast enough, concluding:

> 'let's put the record straight, sailing late from Zeebrugge isn't on. It's 15 minutes early for us'!

Although it did not apply to this voyage, concern had been raised by other Masters on the Dover-Calais route, that ships had been carrying more passengers than allowed by the Passenger Safety Certificate. In fact one memorandum indicated varying excess passenger numbers of between 40 and 250.

The 'HERALD' had proceeded to sea before with bow or stern doors open. One Master advised the office in October 1983 that indicator lights on the bridge could be fitted to show that the hull integrity was complete. This sensible proposal was met by derision from some superintendents.

It is a legal requirement that the Master should know the drafts of his ship, and that these be entered into the official logbook before putting to sea. It was particularly important for the Master of the 'HERALD' to know the draft of his ship, because of the restrictions on the numbers of passengers that could be carried, and of equal importance the trim on departing Zeebrugge. No attempts had been made to read the drafts, fictitious figures were always entered into the log book which always showed that 'HERALD' sailed on an even keel!

A Brief Synopsis of the Recommended Immediate Actions

1. Failsafe indicator lights should be fitted on the bridge, to all superstructure doors, such as passenger access, bunkering, storing and cargo loading doors.

2. The condition of the indicator lights should be logged before departure.

3. Closed circuit TV surveillance of the car deck should be fitted to monitor doors and cargo.

4. Freight vehicles should always be secured.

5. All doors and ramps should be secured at the berth, however, if this is not possible doors should be secured once the ship has cleared the berth.

6. It is desirable that each berth should carry an approved certificate specifically listing the ships which can operate from it, and can shut their bow and stern doors without moving from the berth.

7. Mechanical, pneumatic, electrical or hydrostatic draft gauges or indicators must be fitted. Desirably they should show the forward, aft and midships draft at location of loading positions and on the bridge.

8. Draft gauges should be interfaced with the loadicator at a suitable central position with, if possible, work stations at the two loading stations and on the bridge.

9. Operators should be encouraged to provide weigh bridges.

10. As a matter of urgency, sufficient self contained, watertight, maintained emergency lighting should be fitted.

11. Escape windows which are reliable, uncomplicated and able to be opened from either side.

12. Means of escape are often fore, aft and at the top of the vessel which could be very high. An audit of the escape routes should therefore be undertaken.

13. Parties agreed that:

    2. lockers to be fitted on the upper deck containing axes, torches, ladders, ropes, lifting devices and harnesses, including some for small children.

    (b) glass partitions designed with intermittent gaps.

    (c) permanent footholds are fitted to assist movement at extreme angles of keel.

14. Various recommendations are now covered by the ‘Code on Intact Stability’, see R6.

It can be seen that many of the recommendations have now been adopted internationally.

The Scandinavian Star disaster of 7th April 1990

Norwegian Official Reports 1991. (ISBN 82-583-0236-1).

On 30th March 1990 the 'Scandinavian Star' 'was put into service on voyages from Frederikshavn (Denmark) to Oslo (Norway). Of the 99 crew all were new to the ship except for 9. On Friday 6th April the ship left Oslo with 383 passengers and between 0145 and 0200 hours on the following morning a fire started in a pile of bedclothes on deck 4. After the fire was extinguished a new fire started on deck 3 which rapidly spread to deck 4, 5 and further upwards. 158 people died, mostly from smoke inhalation, probably by 0245 hours.

Manning

The crew possessed the necessary qualifications but as for safety functions, the Committee stated that the navigating officers should have had a better training in safety routines. One had no training in fire fighting and others had received training many years before. As a whole the crew had little or no knowledge of English.

Preparation for service

Many of the crew were not familiar with the emergency plan or their functions in it. The original emergency plan was difficult to apply to the new operation of the ship and the relevant officers did not devote the necessary care and attention to the changes required. The evacuation group had too few members to be able to function efficiently, and there were several areas where the resources of the crew had not been properly deployed. The crew should have familiarised themselves with the use of equipment by means of drills and other methods. The training of the fire patrol was to a very large extent defective. No fire or abandon ship drills were held within 24 hours of the ship leaving Frederikshavn on 1st April, which was a clear infringement of SOLAS regulations. The ship was clearly subjected to **severe commercial pressures.**

The first fire was discovered and extinguished quickly but although the officer of the watch and Captain suspected arson, no search was made of the accommodation. The second fire, however, spread rapidly to the decks above leaving many passengers trapped in their cabins. Many people aboard did not hear the fire alarm. Some bells were fairly quiet and were sounded relatively few times over short periods. During this fire some of the crew, mostly on their own initiative, played significant roles in sounding the alarm and evacuating passengers however through lack of organisation, they never responded as a unit. No real attempts were made to put out the fire because the fire party was never assembled or established.

The Captain ordered the lifeboats to be prepared but the evacuation was undertaken by crew who lacked experience in working together and in handling the ship's equipment. The most serious consequence, due to the lack of organisation, remained with the ship's command who had no idea of how many people had left the ship in lifeboats, nor did they seem to be aware that they ought to have known this.

The Captain had a duty to remain longer on board the ship, especially as he had the opportunity to do so without exposing himself or any other crew members to unacceptable risks.

Recommendations

1. Sprinkler system and smoke detectors should be fitted to all accommodation spaces on passenger ships.

2. Safety training should be undertaken by all personnel aboard passenger ships, the standard of which to be dictated by their responsibilities. The benefits of 5 yearly refresher training should be evaluated.

3. The Port State Control in Scandinavian countries was inadequate and must be improved. It should incorporate:

   (a) inspection with or without prior notification.

   (b) satisfactory performance of fire and boat drills.

   (c) sufficient command of a common language for the crew to be able to communicate with each other and with the passengers.

4. Fire patrols making rounds every half an hour.

5. An alarm should continue to function until it is manually turned off or is temporarily interrupted by messages on the public address system.

6. An alarm system with a strength in every cabin of at least 75 decibels and at least 10 decibels above the background noise.

7. All decks and stairways on a passenger ship should have the same design and layout.

8. The escape route from cabin door to exit to a sheltered escape stairway or open deck should not involve more than one change of direction.

9. There should be escape routes on both sides of the ship so that passengers do not have to cross over.

10. The number of stairs to be climbed should be limited.

11. Stairways and corridors should have an increasing width in the main direction of the escape route.

12. Stairways should be continuous, interrupted only by landings.

13. There should be a continuous bannister.

14. Dead end corridors should not be allowed.

15. The number of stairs to be climbed should be limited.

16. Ventilators should keep stairwells free of smoke.

17. Provision should be made to keep exits, assembly stations and lifeboat areas free of smoke.

18. Requirements should be laid down for the fitting of ventilation systems to extract smoke.

19. Audible signals distinct from the alarm bells should be installed by exit doors.

20. A uniform system of signs is used.

21. Smoke masks are supplied in cabins.

22. Evacuation analysis is carried out on all passenger ships.

23. Alarmed smoke detectors should be able to close fire doors.

24. Indicators should show whether fire doors are open or closed.

25. More breathing apparatus sets with integral communications and a compressor should be supplied.

26. More stringent requirements should be applied to the use of non combustible materials.

It can be seen that many of these requirements have now been incorporated into SOLAS.

The Final Report on the Capsizing of the Ro-Ro Passenger Vessel M. V. Estonia 28th September 1994

Ref: Final Report on the Capsizing on 28th September 1994, in the Baltic Sea, of the Ro-Ro passenger vessel 'M.V. Estonia', 1997. Edits Ltd. Helsinki. (ISBN 951-53-1611-1).

The 'Viking Sally' was built in 1979 for the rapidly expanding ferry traffic between Finland and Sweden. However after several name changes the ship transferred to the Talinn - Stockholm route and was renamed Estonia.

Surveys and maintenance.
Survey of the bow visor and ramp for class was part of the continuous hull survey scheme. Just before transfer to the Estonian flag, attention had been paid to the strength of the ramp and visor locking devices, however no work was undertaken.

Operations on board
The work schedule for the crew of approximately 150 was two weeks service aboard followed by two weeks leave. The working language was Estonian but English was compulsory for all persons in positions involving work contact with passengers.

Circumstances of the voyage
Prior to departure at 1900 hours on 27th September 1994, a Port State Control exercise was undertaken in Talinn, under the supervision of Swedish inspectors. (No deficiencies would have warranted detention.) It was noted that the bow visor rubber seals were worn, torn and required replacement. Watertight hatch covers on the car deck were open and at least one indicated that it was never closed.

The ship sank in the northern Baltic Sea during the early hours of 28th September 1994. Of the 989 people aboard 137 survived. The wind was south westerly force 8 with a wave height of 4 metres on the port bow. The locking devices and the hinges of the bow visor failed under one or two wave impacts shortly after 0100, allowing water to enter the car deck, and led to the eventual capsize.

Two reports of unusual sounds from the bow area were given to the officers of the watch, and attempts were made to find the reasons. Speed was not reduced from 14 knots until a list developed.

The time available for evacuation was very short, between 10 and 20 minutes, and was not organised. Evacuation was hampered by the rapid increase of the list, narrow passageways, transverse staircases, objects coming loose and by crowding. The life saving equipment, in many cases, did not function as intended and lifeboats could not be lowered.

Reports from the survivors vary considerably on the behaviour and conduct of crew and passengers. It is difficult to comprehend the feelings of people suddenly awakened and possibly trapped in unfamiliar surroundings. Statements included:

> 'Many were in panic, shouting and screaming..... they ran back and forth searching for staircases and colliding with one another'
>
> 'Some of them were standing still, apparently in shock'

'Häire, häire, laeval on häire' meaning 'Alarm, alarm there is alarm on the ship', in Estonian, which could not be understood by the Swedes.

'There were many panic stricken crew members in the corridor'

'On the deck there were plenty of lifejackets and by the open doors a crew member was trying to lead people out. People formed a human chain, helping each other out to the port side of the deck'

One witness said that the chain was mostly made up of crew members.

Some were not able to distinguish what messages they heard, and others stated that they could not possibly hear the alarms due to the screaming.

'Under the bridge was a small crowd who were quite calm'

'There were 20 people as well as drunken youngsters'

Some passengers said that there was panic, others said not.

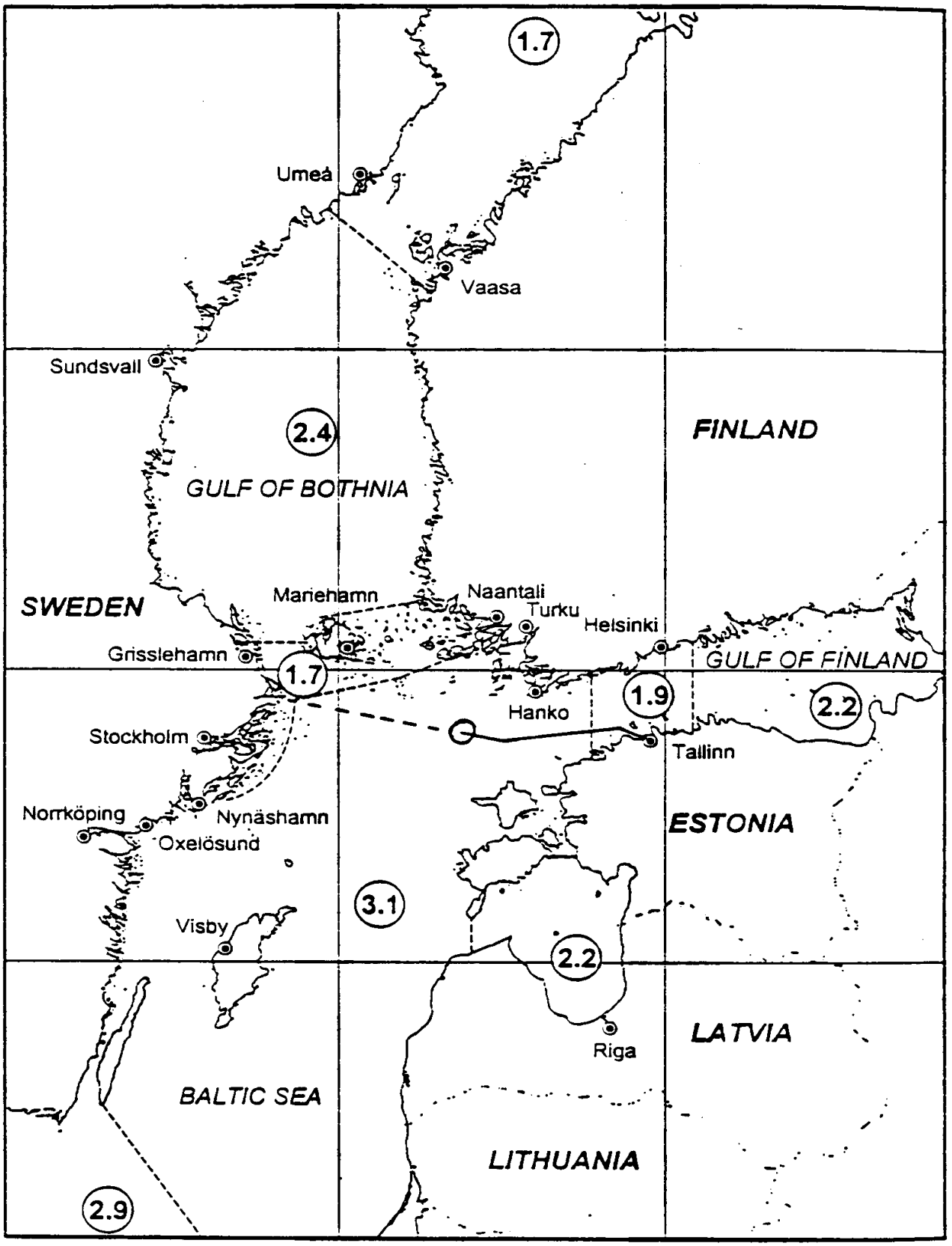
'On deck a crew member talked calmly to the others and together with other crew members tried unsuccessfully to release a lifeboat'

Another witness reported seeing a man standing composed and assured trying to calm those who were frightened.

The boatswain was seen doing a heroic job helping many passengers and releasing rafts.

A few of those who survived behaved in a irrational way, but most did not. A number of people reacted incredulously to the very early signs. They slowly realised that the sounds they heard were abnormal, or rather they failed to persuade themselves that the situation was still normal. when they became clear about the situation they acted promptly and with a clear goal to get out to the deck and were the first to evacuate.

SIGNIFICANT WAVE HEIGHTS IN METRES, WITH 10% EXCEEDANCE PROBABILITY.



The main points

1. The bow visor locking devices failed due to wave induced impact loads.

   Was the ship going too fast in the prevailing conditions?

2. The bow visor locking devices should have been several times stronger to have a reasonable level of safety for the regular passage between Talinn and Stockholm. The wave height probability on this route, was significantly higher than the ship's previous 12 years trading on much shorter and more sheltered routes, see chart.

3. Bow visor incidents had occurred on her near sister ship 'DIANA II', but this did not lead to systematic inspection and requirements for reinforcement of visor attachments on existing vessels.

4. Information on bow visor incidents was not generally sent to the shipping industry, thus Masters had little knowledge of the potential dangers.

5. The initial action by the officers on the bridge indicates that they did not realise that the bow was fully open when the list started to develop.

6. The bridge officers did not reduce speed after receiving two reports of metallic sounds and investigation of the bow area. A rapid decrease of speed at this time would have significantly increased the chances of survival: was this commercial pressure to maintain the schedule or lack of basic seamanship?

7. The visor could not be seen from the conning position which the Commission considered a significant contributing factor to capsize.

8. The bridge crew apparently did not look at the TV monitor which would have shown them water was entering the car deck, nor did they ask those in the control room from where the ingress was observed, or get information from them.

9. The lifeboat alarm was not given until about five minutes after the list developed, nor was any information given to passengers over the public address system. By the time the alarm was given, the list made escaping from inside the vessel very difficult. This, together with problems using lifesaving equipment, contributed to the tragic outcome.

Appendix 2

Practical training sessions and assessment of competence in crisis management

Example:

Facilities:

3 or more rooms or room partitioned off.
Communication between rooms by VHF radio and telephone if possible.

Laminated ship's plans of a passenger and/or a Ro-ro passenger.
Equipment list of number of BA. sets, spare cylinders, protective clothing and location.
Logbook on bridge for recording events.
Bridge checklist of procedures for:

- Muster list for each station.
- Ventilation facilities, recirculation, extraction.
- Electrical isolation.
- Manoeuvring required.
- Messages for outside assistance or notification of shore authorities.

Devise a scenario

- Ship's position, nearest authorities, port, coastguard.
- Time, wind direction, course, sea state.
- Number of crew and passengers.
- Number of cars/lorries.
- Dangerous goods manifest.

Example

Time	
1040	Message from crew member to bridge that a passenger is on the car deck '3' aft acting suspiciously.
Expected Response	Bridge sends other crew members to the car deck to assist.
1045	Message from car deck that person acting suspiciously cannot be found.
1047	Message from ticket office '4' deck' to information desk '5' deck "There is a pungent smell in the entrance hall '4' deck".
1050	Passenger arrives at information desk with her daughter who is coughing badly. Information passed to bridge.
Expected reaction from Bridge Team	To mobilise emergency teams and **consider** use of air extraction systems, broadcasts to passengers, first aid teams. As yet, cause of problem is unknown.
1054	"Car deck to bridge, port aft door '3' deck wedged open, strong smell of chemicals in stairway to entrance hall '4' deck". Messages from Purser to bridge, "'4' deck area in vicinity of entrance to staircase hall being evacuated". Passengers in distress. Port door entrance hall '4' deck to '3' deck blocked open, unable to close because of fumes.
1100	BA teams close doors on '4' and '3' decks to contain chemical in stairway. Progressive rescue of passengers from entrance hall area, mother's and ladies rooms. Numbers to be determined by the instructor, perhaps 4. The condition of the casualties can be adjusted depending on the urgency of the bridge team asking for assistance.
1120	BA teams make an initial entry into the stairway from '3' deck and notice a spilt drum with UN No. 2829 visible.

Reference to the Index in Vol. 1 IMDG Code shows this to be an undeclared hazardous CAPROIC ACID maliciously emptied into the staircase.

Emergency schedule 8-08 shows that full protective clothing and breathing apparatus is required. All information passed onto On Scene Commander (OSC).

Reference to table 700 in the Medical First Aid Guide R8 shows the emergency treatment for acids which can be passed onto the first aid team and outside medical assistance.

Progressive development and expected responses from various control groups;

(1) Searches wearing breathing apparatus to search entrance and staircase hall. Casualties can be rescued from mother's and ladies rooms.

(2) Availability of escape sets for rescue.

(3) Location set up in a safe area for first aid party to receive casualties, medical information received from ashore.

(4) Musters incomplete in assembly stations.

(5) Outside assistance requested.

(6) Course alterations, reduction in speed.

(7) Communication with other vessels.

(8) Announcements to passengers.

(9) Extraction systems activated.

Ensure that the exercise is achievable.

Do not increase pressure or devise too many problems especially if the bridge or other control points are becoming overwhelmed. Allow a realistic time for the emergency to develop although it may be a little faster than real time. The times set against the development are purely for guidance and can be adjusted as required.

CLASS 8 – Corrosives

CAPROIC ACID
HEXANOIC ACID
HEXYLIC ACID
HEXOIC ACID

UN No. 2829 **Formula** $CH_3(CH_2)_4COOH$

Properties
Oily, colourless or yellowish liquid.
Melting point: – 4°C.
Partially miscible with water.
Corrosive to mild steel.

Observations
Irritating to skin, eyes and mucous membranes.

Packing
See table 1 in the introduction to this class.
For IBCs see section 26 of the General Introduction.
For tanks see section 13 of the General Introduction.

Stowage
Category A.

Packing, Stowage & Segregation
See also General Introduction and introduction to this class.

Packaging group: III

Label

CAUSTIC ALKALI LIQUIDS, N.O.S.

ALKALINE CAUSTIC LIQUIDS, N.O.S.

UN No. 1719 **Formula**

Properties
MARINE POLLUTANT
Applicable only to products containing 10% or more of substance(s) identified with "P" or 1% or more of substances identified with "PP" in the General Index to this Code.
Corrosive to aluminium, zinc and tin.
React violently with acids.
React with ammonium salts, evolving ammonia gas.

Observations
Causes severe burns to skin, eyes and mucous membranes.

Packing
See table 1 in the introduction to this class.
For IBCs see section 26 of the General Introduction.
For tanks see section 13 of the General Introduction.

Stowage
Category A.

Packing, Stowage, Segregation & Marine Pollution Aspects
See also General Introduction and introduction to this class.

Packaging group: I, II or III, according to corrosivity criteria

Label

Mark

For marine pollutants only

14. STOWAGE

14.1 Except in class 1 – Explosives, ships have been considered under two groupings for the purpose of making appropriate stowage recommendations:

.1 Cargo ships or passenger ships carrying a number of passengers limited to not more than 25, or to 1 passenger per 3 metres of overall length whichever is the greater number.

.2 Other passenger ships in which the limited number of passengers carried is exceeded.

14.2 Substances, materials and articles should be stowed as indicated in the individual schedules in the various classes in accordance with one of the categories specified below (see also appendix to this section).

14.2.1 *Stowage category A*

Cargo ships or passenger ships carrying a number of passengers limited to not more than 25, or to 1 passenger per 3 metres of overall length whichever is the greater number	ON DECK OR UNDER DECK
Other passenger ships in which the limiting number of passengers carried is exceeded	ON DECK OR UNDER DECK

14.2.2 *Stowage category B*

Cargo ships or passenger ships carrying a number of passengers limited to not more than 25, or to 1 passenger per 3 metres of overall length whichever is the greater number	ON DECK OR UNDER DECK
Other passenger ships in which the limiting number of passengers carried is exceeded	ON DECK ONLY

14.2.3 *Stowage category C*

Cargo ships or passenger ships carrying a number of passengers limited to not more than 25, or to 1 passenger per 3 metres of overall length whichever is the greater number	ON DECK ONLY
Other passenger ships in which the limiting number of passengers carried is exceeded	ON DECK ONLY

14.2.4 *Stowage category D*

Cargo ships or passenger ships carrying a number of passengers limited to not more than 25, or to 1 passenger per 3 metres of overall length whichever is the greater number	ON DECK ONLY
Other passenger ships in which the limiting number of passengers carried is exceeded	PROHIBITED

2 IMDG Code Vol: 1, General Index used to find IMDG page number from United Nations Number (UN No.).

UN NUMBERS / IMDG CODE PAGE NUMBERS / EmS NUMBERS / MFAG TABLE NUMBERS

UN No.	...0	...1	...2	...3	...4	...5	...6	...7	...8	...9
280.	8121 8-10 none	8168 8-04 760*	8147 8-08 740	8178 8-12 none	/	4348 4.3-01 160	4349 4.3 05 160, 725	1	/	8191 8 12 none
281.	6231 6.1-02 A	6236 6.1 04 A	1	4368 4.3-08 A	6321 ** not applicable	8110 8 05 325	/	8112 8 06 760	8113 8 06 225	8114 8 05 700
282.	8133 8-06 100	6225 6.1 02 710	6110 6.1-02 325	8154 8-06 700	/	/	8169 8 04 740	/	/	8136 8 07 700
283.	4347 4.3-03 160, 605	6272 6.1-02 340	/	/	8206 8 08 700	4361 4.3-01 705	/	8224 8-08 700	3289 3 07 330	8065 6.1-02 300
284.	3317 3-07 300	6119 6.1-01 320	3369 3 06 335	/	4337 4.3-03 705	4254 4.2-01 760*	4255 4.2 01 760*	/	/	6110 6.1 02 740
285.	3378 3-07 310	8129 8 06 760	4143 4.1 01 376	6250 6.1-04 750	6250 6.1-04 750	6250 6.1-04 750	6260 6.1 04 750	2176 2-13 360	4183 4.1 02 none	6066 6.1-04 135
286.	8277 6.1-04 135	6068 6.1-04 135	6277 6.1-04 135	6252 6.1 04 135	8243 6.1-04 135	8185 8-06 none	/	/	/	8238 8-06 700
287.	4222 4.2 01 245	6071 6.1-01 130	6120 6.1-02 345	6122 6.1-02 320	6155 6.1-02 305	6160 6.1-04 711	6248 6.1-04 710	/	4177 4.1 02 none	8220 8-06 175, 700
288.	5138 6.1-00 741	4245 4.2 02 none	/	/	/	/	/	/	/	/
289.	/	/	/	/	/	/	/	/	/	/

NOTES:

A If an MFAG number is not supplied by the shipper, refer to subsection 4.2 of the MFAG.

1 Classified as hazardous for air transport only.

* In addition, refer to subsection 4.3 of the MFAG.

** Emergency procedures to be declared by the shipper after agreement with the competent authority of the country concerned. For action to be taken in the event of damage to or leakage from a package containing infectious substances, refer to section 10 of the introduction to class 6.2.

IMDG CODE – PAGE 10526
Amdt. 25-89

3 (a) Emergency Schedule, procedures to follow and protective equipment to use.
(b) Medical First Aid Guide Table.

EMERGENCY SCHEDULE 8-08

MILD CORROSIVE SUBSTANCES, NON-COMBUSTIBLE

Special Emergency Equipment to be carried

Protective gloves and goggles.
Self-contained breathing apparatus.

EMERGENCY PROCEDURES

Wear protective gloves and goggles when dealing with SPILLAGE.
Wear protective gloves and self contained breathing apparatus when dealing with FIRE.

EMERGENCY ACTION

	On deck	*Under deck*
SPILLAGE	Wash overboard with copious quantities of water.	Collect spillage, where practicable, using absorbent material for liquids, for safe disposal.
FIRE	If possible remove receptacles likely to be involved or keep them cool with water.	Adopt action as for "On deck".

First Aid – See IMO Medical First Aid Guide (MFAG)

UN No.	Substance or Article	Remarks
1845	CARBON DIOXIDE, SOLID	Avoid all skin contact. No action necessary in fire situation.

TABLE 700

ACIDS

General information

These chemicals are all corrosive, but they vary in the degree of their severity. They may cause severe chemical burns.

RADIO FOR MEDICAL ADVICE.

SIGNS AND SYMPTOMS	TREATMENT
Skin contact There will be redness and irritation. Strong acids cause chemical burns with severe pain.	*Skin contact* IMMEDIATE ACTION IS REQUIRED. Emergency treatment: see 8.1.
Eye contact There is redness, irritation and pain. Chemical burns may occur.	*Eye contact* IMMEDIATE ACTION IS REQUIRED. Emergency treatment: see 8.2.
Inhalation Weak acids and low concentration of strong acids produce a cough, tightness in the chest and shortness of breath. High concentrations of any acid may cause breathlessness with frothy sputum (pulmonary oedema). Bronchitis or pneumonia can occur.	*Inhalation* Emergency treatment: see 8.3. Pulmonary oedema: see 8.1.2. Bronchitis: see 8.1.3. Pneumonia: see 8.1.4.
Ingestion Weak acids will give a burning sensation in the mouth with nausea and vomiting. Strong acids can produce severe vomiting with blood. Perforation of the gut can occur.	*Ingestion* Emergency treatment: see 8.4. Internal bleeding: see 8.4.3. Perforation of the gut: see 8.4.4.

Evaluation of Exercises Involving Crisis Management and Human Behaviour Guidelines

ESTABLISHMENT

TRAINEE .....

ASSESSOR .....

DATE .....

Code ✓ Objective achieved

✸ Unable to demonstrate competence as objective did not arise, but was considered and discussed during the debrief.

X Objective not achieved

Note An 'X' in the code should not mean failure, either opportunities are given to revisit that area or satisfactory understanding can be achieved at the de-brief.

ASSESSMENT INDICATOR	CODE	INSTRUCTOR'S COMMENTS
1. Pre-incident. General design and layout of the ship, safety regulations, emergency plans and procedures.		Familiarisation
(a) Makes an initial assessment to provide an effective response		Initial details of the incident passed to the Master by the Officer of the Watch eg. the nature and location of the alarm, verbal, telephone, V.H.F. Communications received on the bridge.
(b) Determination of initial options		Prioritise: life risk, fire, evacuation
(c) Briefing crews		Information passed to On-Scene, Commander (OSC), public address to crew accommodation

ASSESSMENT INDICATOR	CODE	INSTRUCTOR'S COMMENTS
2. Communications		
(a) Collates appropriate information.		Compares information: VHF, telephone, bridge record of events, emergency checklist.
(b) Updates information as necessary.		Continually reassesses the various options and emergency development.
(c) Establish link with muster groups.		Groups mustered and reported in as all present or incomplete if rescue of a crew member is the objective. Evaluate correct communication procedures.
(d) Be aware of passenger reaction patterns and keep the whole ship advised and re assured on any developments.		Use the public address system to keep everyone informed and calm.
(e) Messages are brief and concise.		Monitor all messages to determine that (a) it was relevant. (b) it was received correctly and understood. (c) it was acted upon as required. (d) it was brief and concise.
3. Development of the emergency.		
(a) Use and maintain communication links.		Keep messages to the essential minimum. Use 'standby' if more important information is awaited, about to be transmitted or the control point is being overloaded. Override 'standby' if message is essential.
(b) Additional information requested and utilised.		Development of manpower, equipment and receipt of situation reports.
(c) Establish a control point for the emergency.		Advise OSC of the most appropriate safe position in clean breathable air to establish a control and entry point on information received. Give specific instructions on the safe way to proceed to this point if the most direct route is smoke logged (or obstructed).

ASSESSMENT INDICATOR	CODE	INSTRUCTOR'S COMMENTS
4. Assessment of the emergency.		
(a) Identify priorities of strategy, tactics and risk.		Strategy is the role of command to co-ordinate all other groups in the sequence of actions intended to achieve the objectives. Tactics are the operational procedures at the emergency (OSC). Tasks are the operational actions taken to fulfill the tactics and help to achieve the strategy. (Breathing apparatus team).
(b) Hazards are identified.		Advise OSC of any hazardous stores or cargo that may be encountered, cylinders (air, CO_2, oxygen, acetylene), cleaning fluids, pyrotechnics, reference to dangerous goods manifest and Emergency Schedules in the IMDG Code..
(c) Information to determine nature and potential development is gathered. Are unjustified risks likely to be undertaken? Evacuation		Ascertain or decide if control of the emergency is achievable or likely to deteriorate.
5. Resource requirements.		
(a) Assessment of resources relative to the incident, with the need to act quickly.		Be aware that resources may be limited. Appreciate that a fast safe response may preserve resources.
(b) Resources requirements are appropriate and timely.		Once the initial emergency control point has been established immediately plan for back up personnel and equipment to be available.
(c) Projected depletion of personnel and resources.		Once the nature and extent of the emergency has been determined, consider broadcasting a PAN, PAN, PAN; and upgrade the emergency request sooner than later. Advise local coastguard and port authorities. **Always** immediately call the Fire Brigade in port unless the emergency is of a minor nature.

ASSESSMENT INDICATOR	CODE	INSTRUCTOR'S COMMENTS
6. Establishment of a command structure. (a) Undertake command responsibilities using appropriate procedures.		Follows Company or ship procedures to assist the emergency teams, eg. Muster list checked (advise OSC of persons missing), electricity isolated, any recirculated air switched off etc. Allow the various parties to undertake their tasks but ask or check if the appropriate information is not received. Control point to pass on information to OSC which he may be unaware eg. need to alter course, relevant developments in engine room, hot bulkheads, power reduction.
7. Deployment of resources (a) Needs of the incident and safety of personnel are balanced.		Are the required number of personnel in the most appropriate positions? Are unnecessary risks being taken that could lead to injuries? Are essential risks being undertaken, though minimised, to ensure the safety of the ship, passengers and crew?
(b) Specific tasks are delegated and full use is made of personnel and equipment.		The most trained and appropriate crew members are deployed.
8. Maintain safety of personnel. (a) Incident monitored for hazards.		Electrics are isolated. Communications from the BA. team is closely monitored.
(b) Correct safety measures are determined.		Is the task reasonable and safely achievable? Correct procedures are always followed.

ASSESSMENT INDICATOR	CODE	INSTRUCTOR'S COMMENTS
9. Dealing with casualties, and those suffering from stress.		
(a) Distress is minimised.		First aid party briefed and mobilised. Personnel keep passengers fully informed especially with public address announcements. Control is maintained.
(b) Needs of casualties identified.		Are the medical facilities adequate? Is a MEDIVAC required? Does the ship need to deviate to the nearest port?
10. Leadership skills.		
(a) Sets an example.		Takes immediate control, remains calm and decisive.
(b) Motivates, encourages and reassures all aboard.		Stimulates interest, gives support and is generally enthusiastic.
(c) Recognises stress in others and its effects on individuals.		Takes some of the work load off those who seem overloaded or stressed. Reallocates responsibilities, obtains extra assistance.
11. Incident conclusion.		
(a) Determine final status of the emergency.		Can the ship be restored to full normal operation? Are there any possibilities of the emergency shortly re occurring? Has a fire watch been set?
(b) All team members accounted for.		Re-muster of all personnel.
(c) Status of equipment.		Has all equipment used been maintained, ready and stowed for re-use.
(d) Specialist advice.		Company informed. Is advice required on damage stability in the present condition and the possibility of it worsening? Pollution?
(e) Reports.		Details of incident recorded. Was the incident suspicious? Does an internal enquiry need to be set up? Are police or investigators required? Arson investigation?

ASSESSMENT INDICATOR	CODE	INSTRUCTOR'S COMMENTS
12. Incident de-brief.		
(a) An open and constructive exchange of information.		This is an essential part of any exercise. Course members may observe and comment constructively on the team. Questions are asked to determine whether the assessment indicators were considered, but were not readily apparent, eg. what further actions would you take after the incident is resolved? Did you consider sending a PAN?
(b) Opportunities to enhance learning are identified and developed.		All of the problems are identified and discussed. Opportunity is available to repeat certain parts of the exercise.
(c) Communications		As many problems are caused or deteriorate through poor communications how effective were they?
(d) Alternative actions are discussed.		Could the objectives have been achieved in: a different way? a more efficient way?
13. Evaluation.		
(a) Correct procedures identified.		
(b) Relevant factors and procedures are analysed.		
(c) For any failures, alternative solutions are formulated.		

Evaluation of Exercises Involving Crisis Management and Human Behaviour Guidelines

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ASSESSMENT INDICATOR	CODE	INSTRUCTOR'S COMMENTS
1. Pre-incident. General design and layout of the ship, safety regulations, emergency plans and procedures. (a) Makes an initial assessment to provide an effective response (b) Determination of initial options (c) Briefing crews		

ASSESSMENT INDICATOR	CODE	INSTRUCTOR'S COMMENTS
2. Communications (a) Collates appropriate information. (b) Updates information as necessary. (c) Establish link with muster groups. (d) Be aware of passenger reaction patterns and keep the whole ship advised and re assured on any developments. (e) Messages are brief and concise.		
3. Development of the emergency. (a) Use and maintain communication links. (b) Additional information requested and utilised. (c) Establish a control point for the emergency.		
4. Assessment of the emergency. (a) Identify priorities of strategy, tactics and risk. (b) Hazards are identified. (c) Information to determine nature and potential development is gathered. Are unjustified risks likely to be undertaken? Evacuation		

ASSESSMENT INDICATOR	CODE	INSTRUCTOR'S COMMENTS
5. Resource requirements. (a) Assessment of resources relative to the incident, with the need to act quickly. (b) Resources requirements are appropriate and timely. (c) Projected depletion of personnel and resources.		
7. Deployment of resources (a) Needs of the incident and safety of personnel are balanced. (b) Specific tasks are delegated and full use is made of personnel and equipment.		
8. Maintain safety of personnel. (a) Incident monitored for hazards. (b) Correct safety measures are determined.		
9. Dealing with casualties, and those suffering from stress. (a) Distress is minimised. (b) Needs of casualties identified.		
10. Leadership skills. (a) Sets an example. (b) Motivates, encourages and reassures all aboard. (c) Recognises stress in others and its effects on individuals.		

ASSESSMENT INDICATOR	CODE	INSTRUCTOR'S COMMENTS
11. Incident conclusion. (a) Determine final status of the emergency. (b) All team members accounted for. (c) Status of equipment. (d) Specialist advice. (e) Reports.		
12. Incident de-brief. (a) An open and constructive exchange of information. (b) Opportunities to enhance learning are identified and developed. (c) Communications (d) Alternative actions are discussed.		
13. Evaluation. (a) Correct procedures identified. (b) Relevant factors and procedures are analysed. (c) For any failures, alternative solutions are formulated.		

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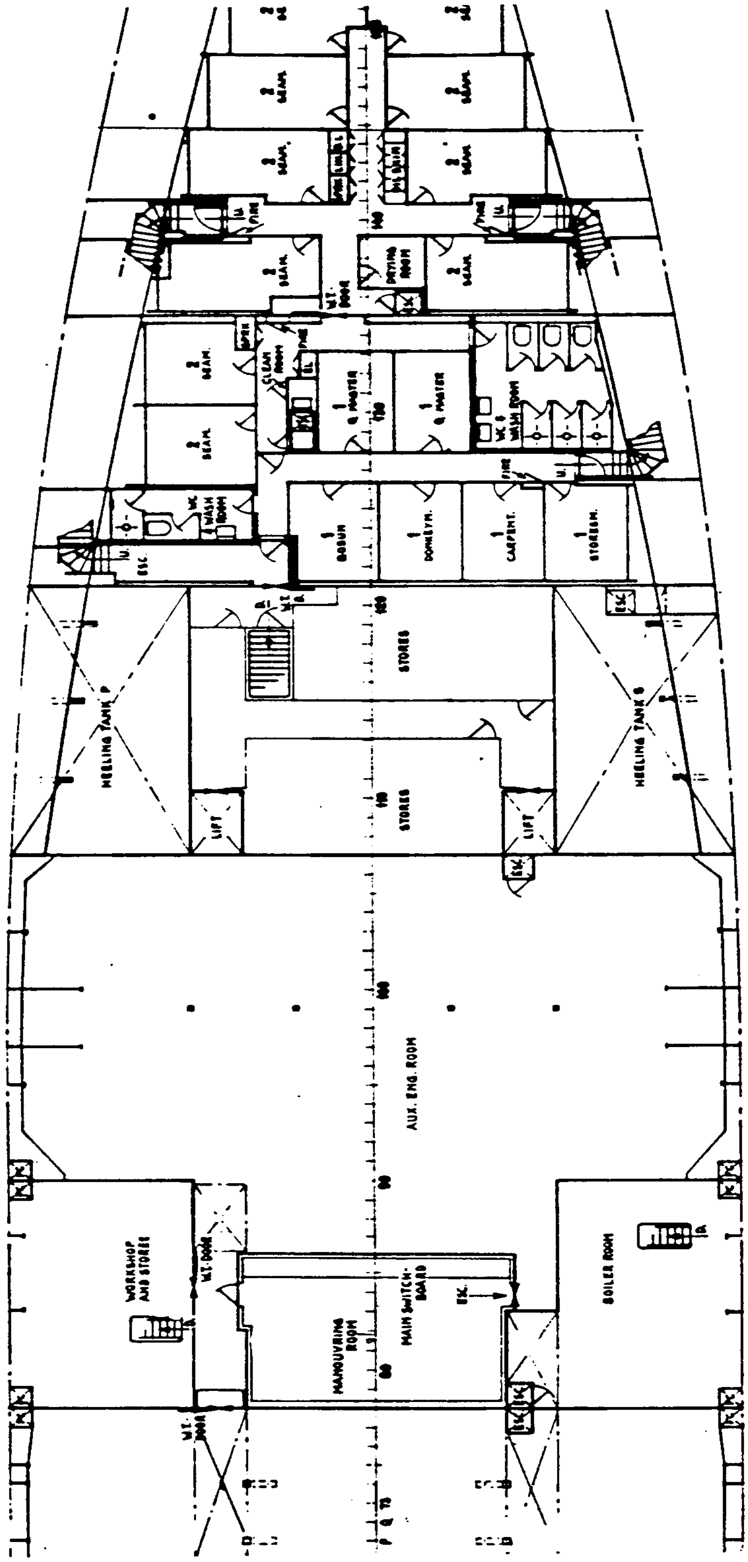
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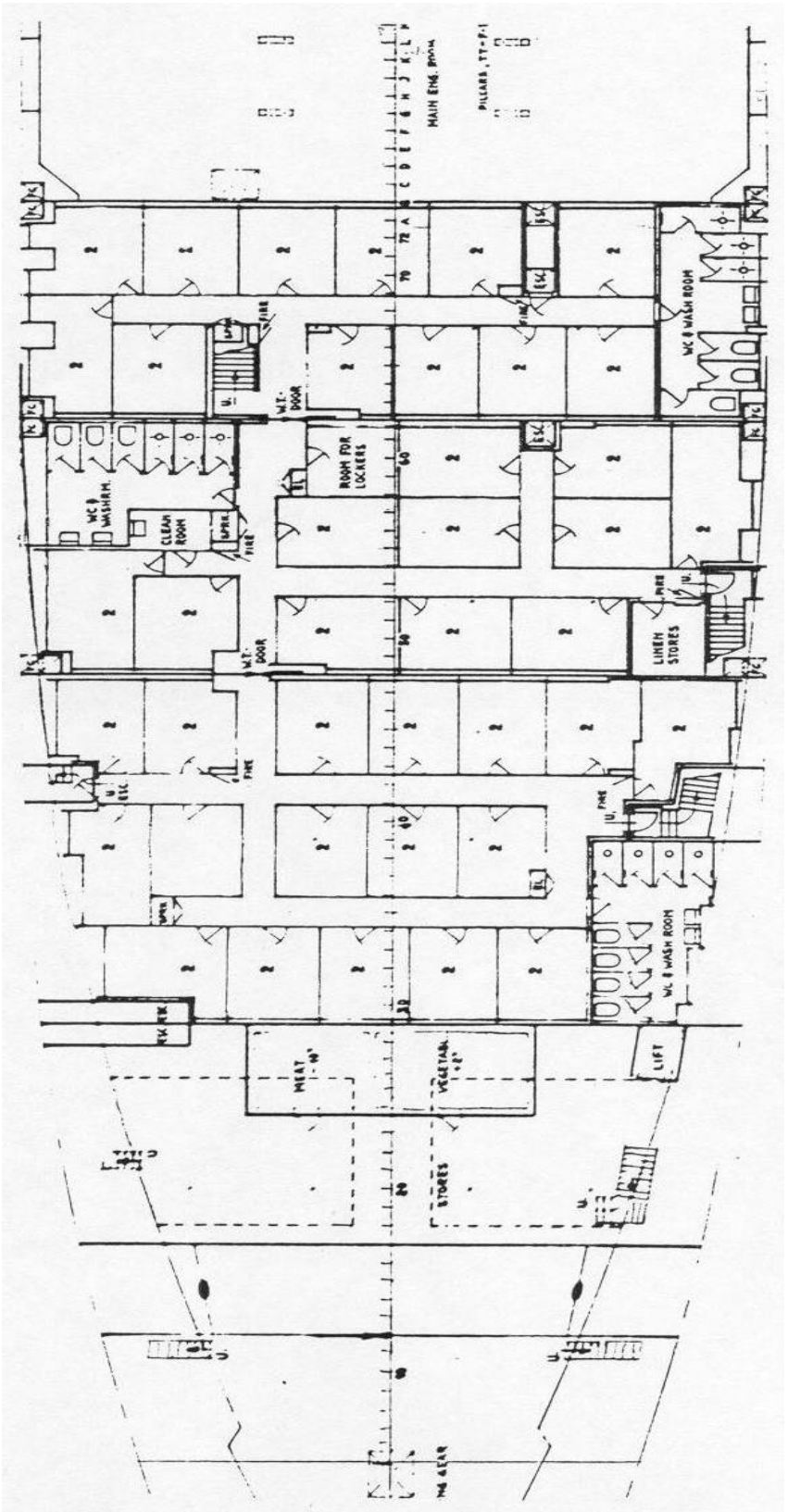
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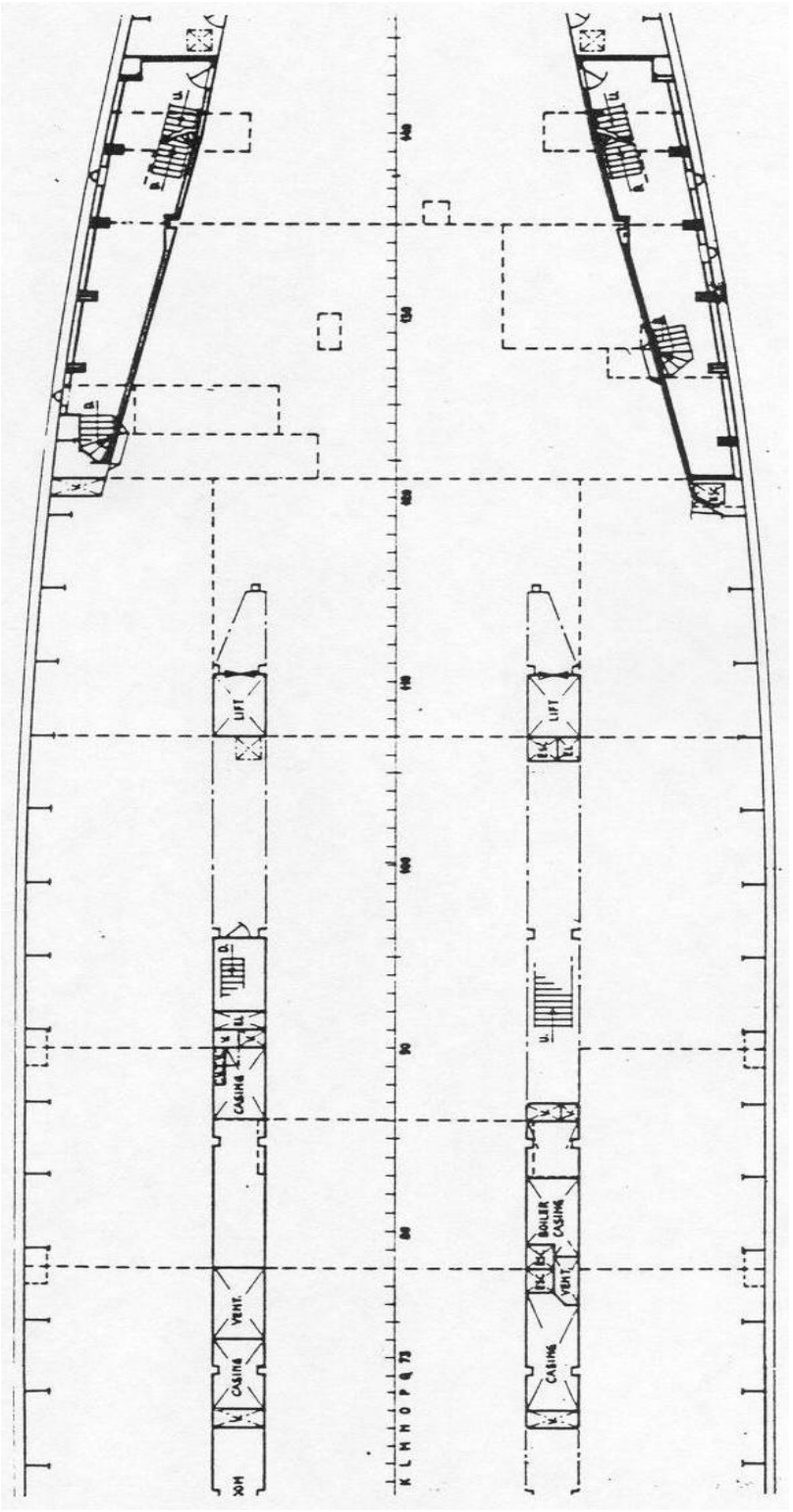
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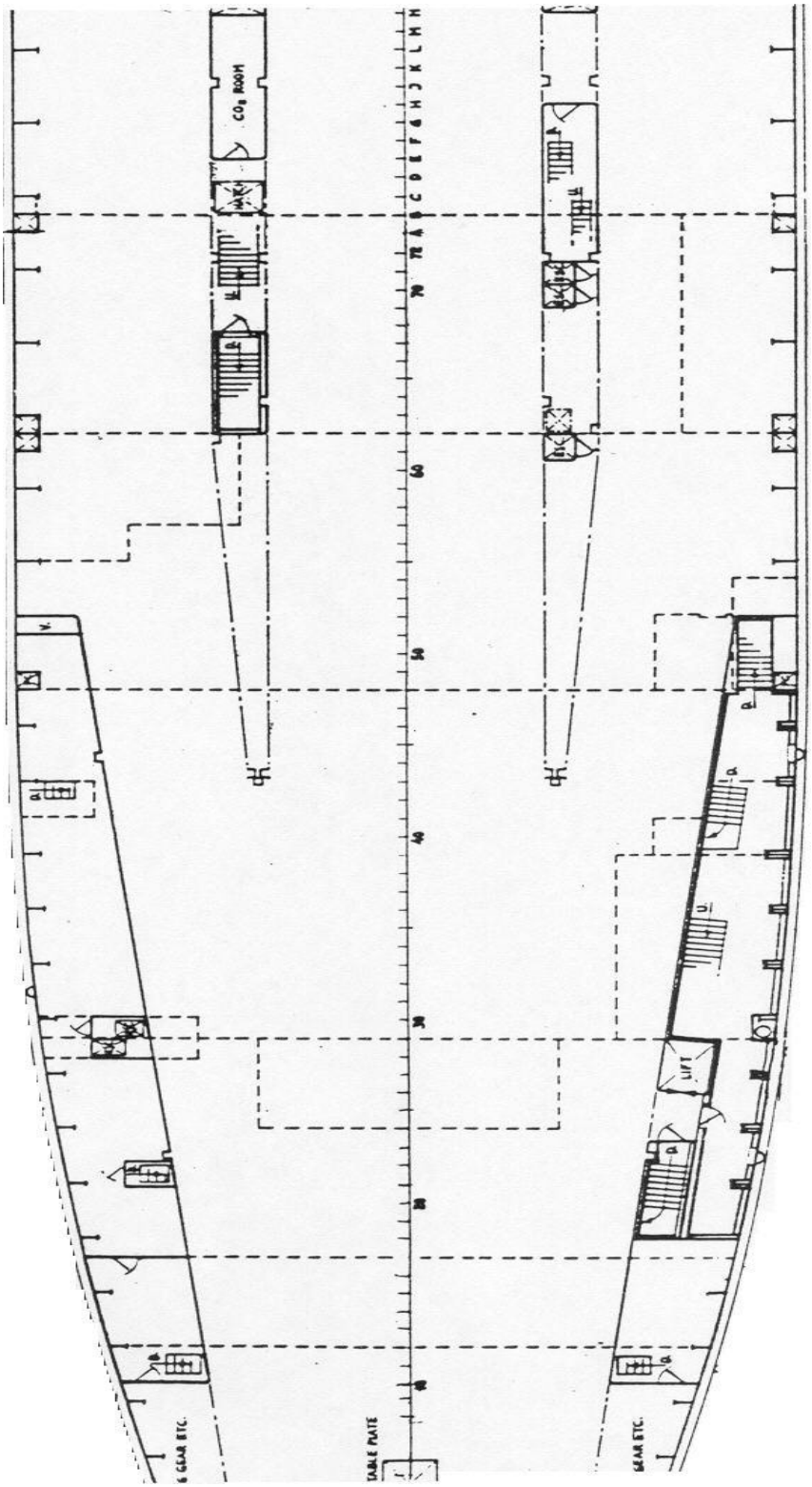
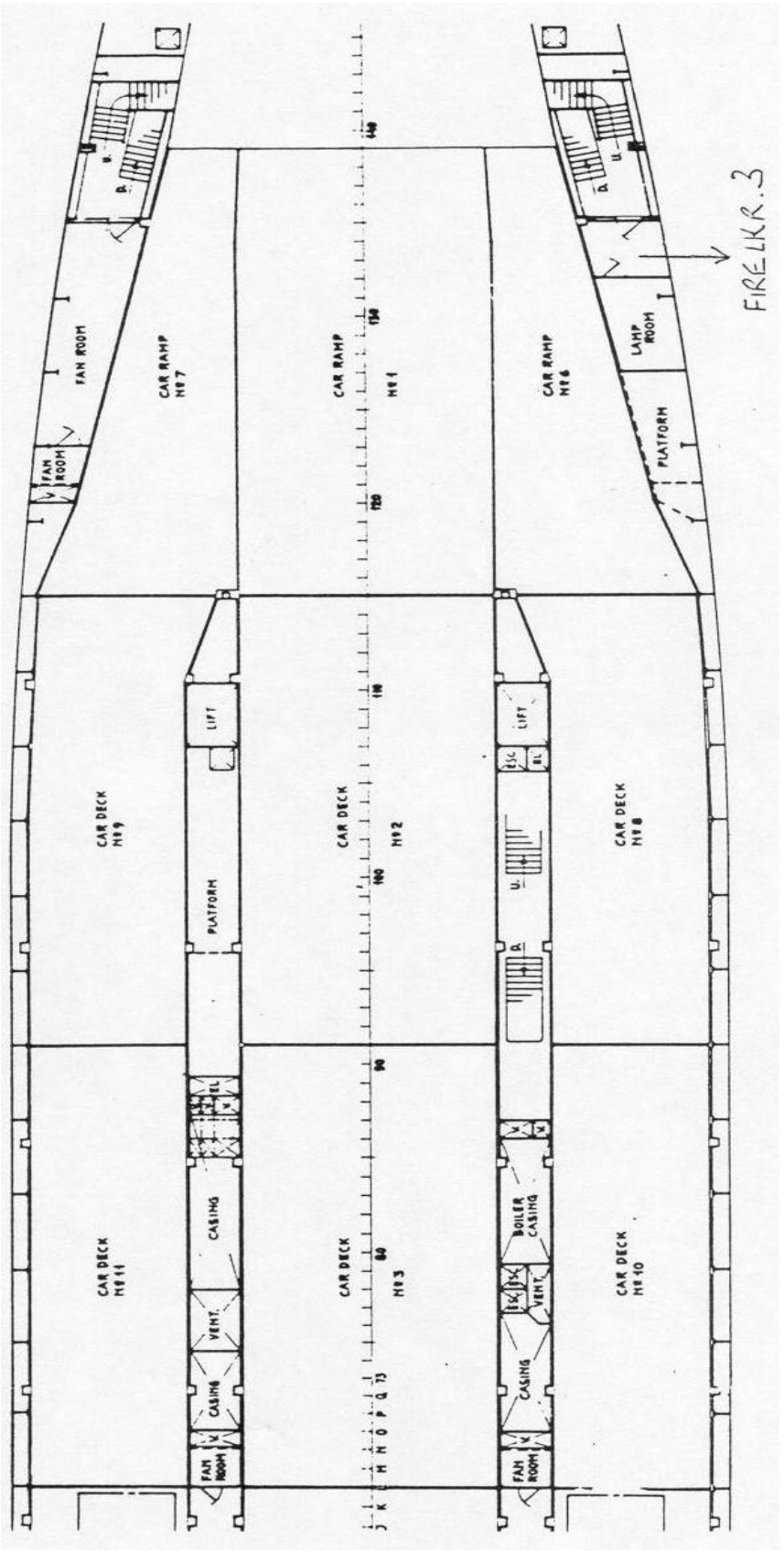
K L M N O P Q 73

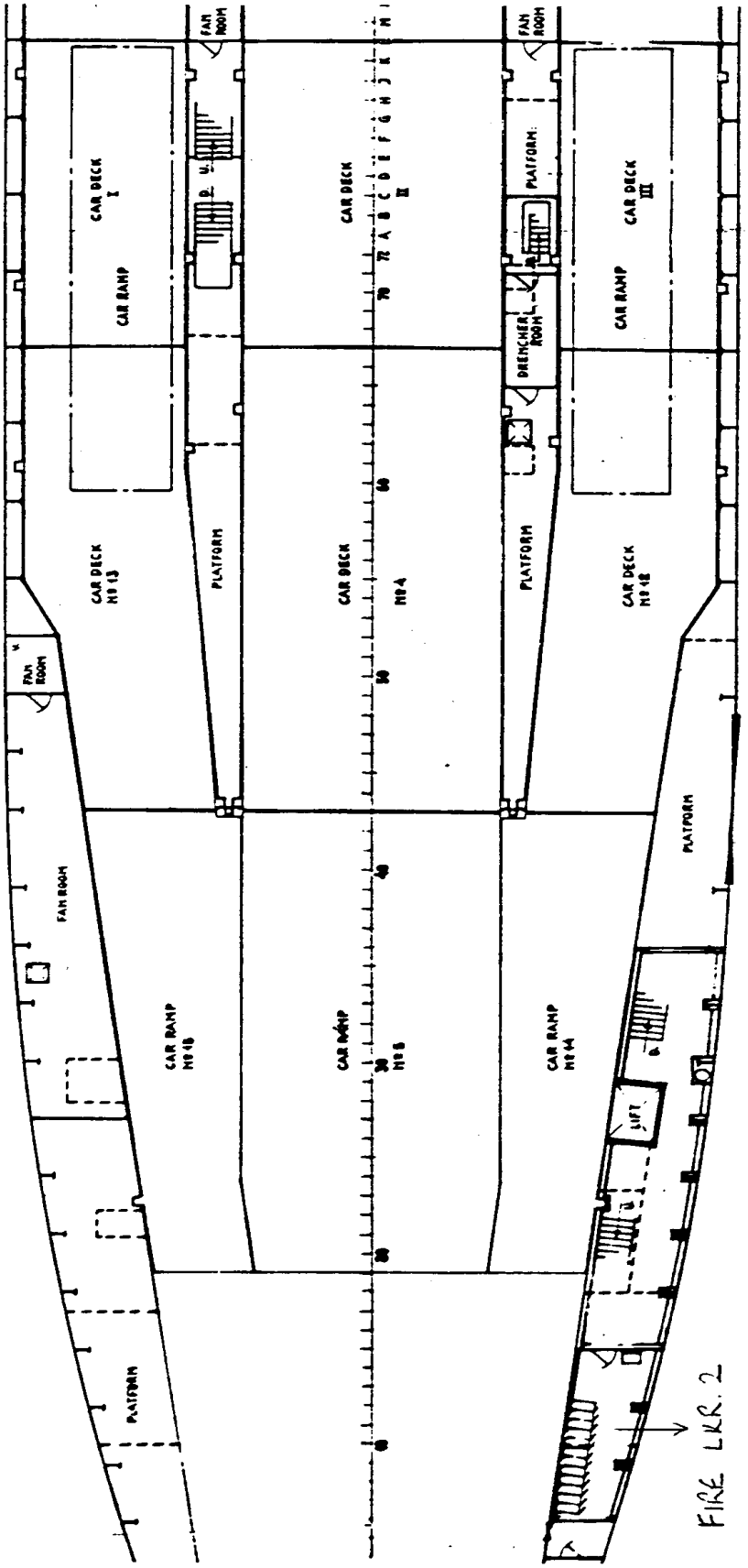
Deck 2 Aft



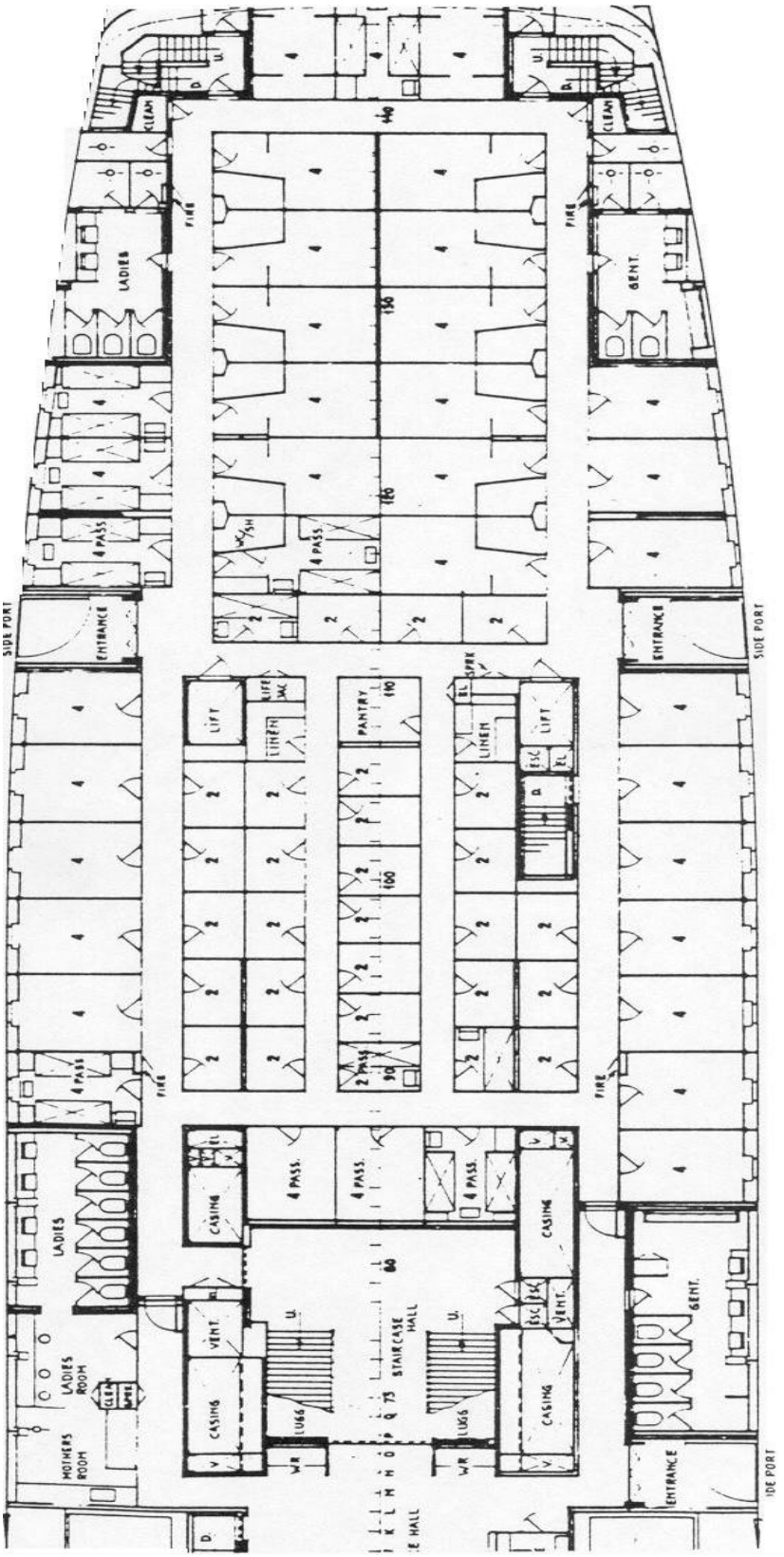
Deck 3 Frd


FIRE LKR. 3
CAR RAMP No 7
CAR RAMP No 1
CAR RAMP No 6
FAN ROOM
FAN ROOM
LAMP ROOM
PLATFORM
LIFT
LIFT
PLATFORM
CAR DECK No 9
CAR DECK No 12
CAR DECK No 8
CAR DECK No 11
CAR DECK No 13
CAR DECK No 10
CASING
VENT.
CASING
FAN ROOM
BOILER CASING
VENT.
CASING
FAN ROOM
ESC
EL
U
A
J K L M N O P Q 13

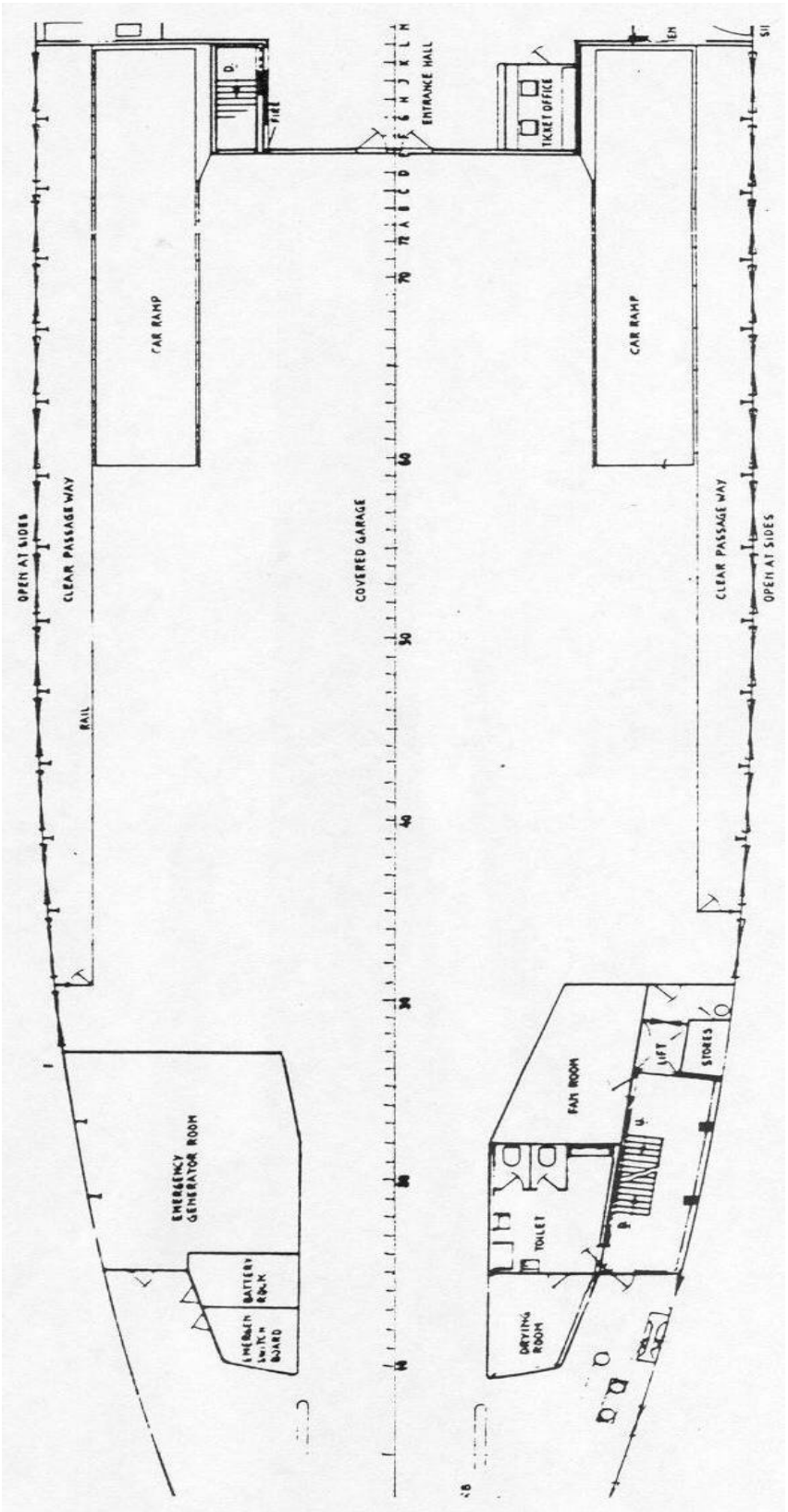
Deck 3 Aft


FAN ROOM
CAR DECK I
CAR RAMP
CAR DECK II
PLATFORM
DRENCHER ROOM
CAR DECK III
CAR DECK No 1
CAR DECK No 4
CAR DECK No 2
CAR RAMP No 1
CAR RAMP No 5
CAR RAMP No 4
LIFT
FIRE LKR. 2

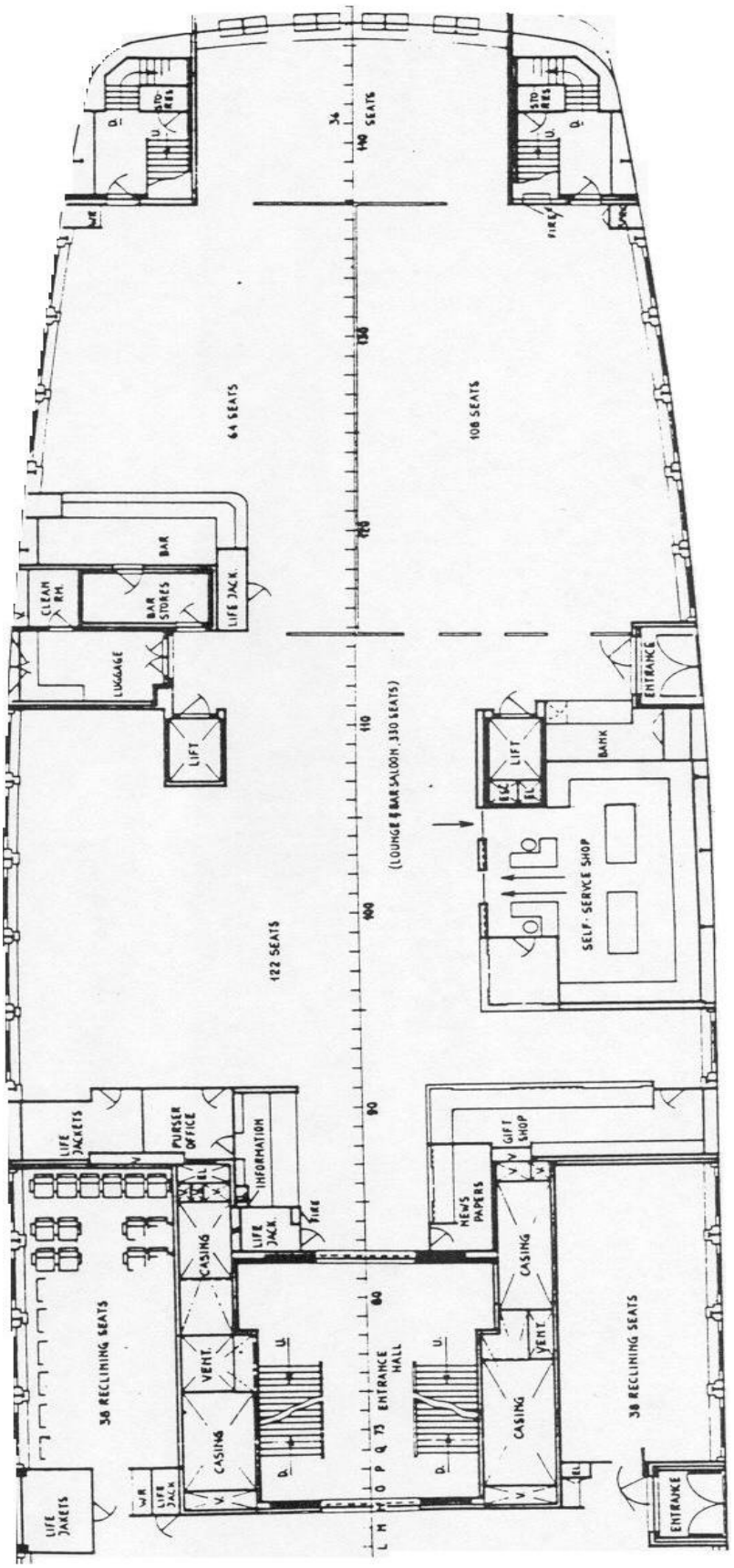
Deck 4 Frd


LADIES
GENT.
ENTRANCE
SIDE PORT
4 PASS
LIFT
PANTRY
LINEN
CASING
VENT.
LADIES ROOM
MOTHERS ROOM
STAIRCASE HALL
LUGG
WR
FIRE
CLEAN

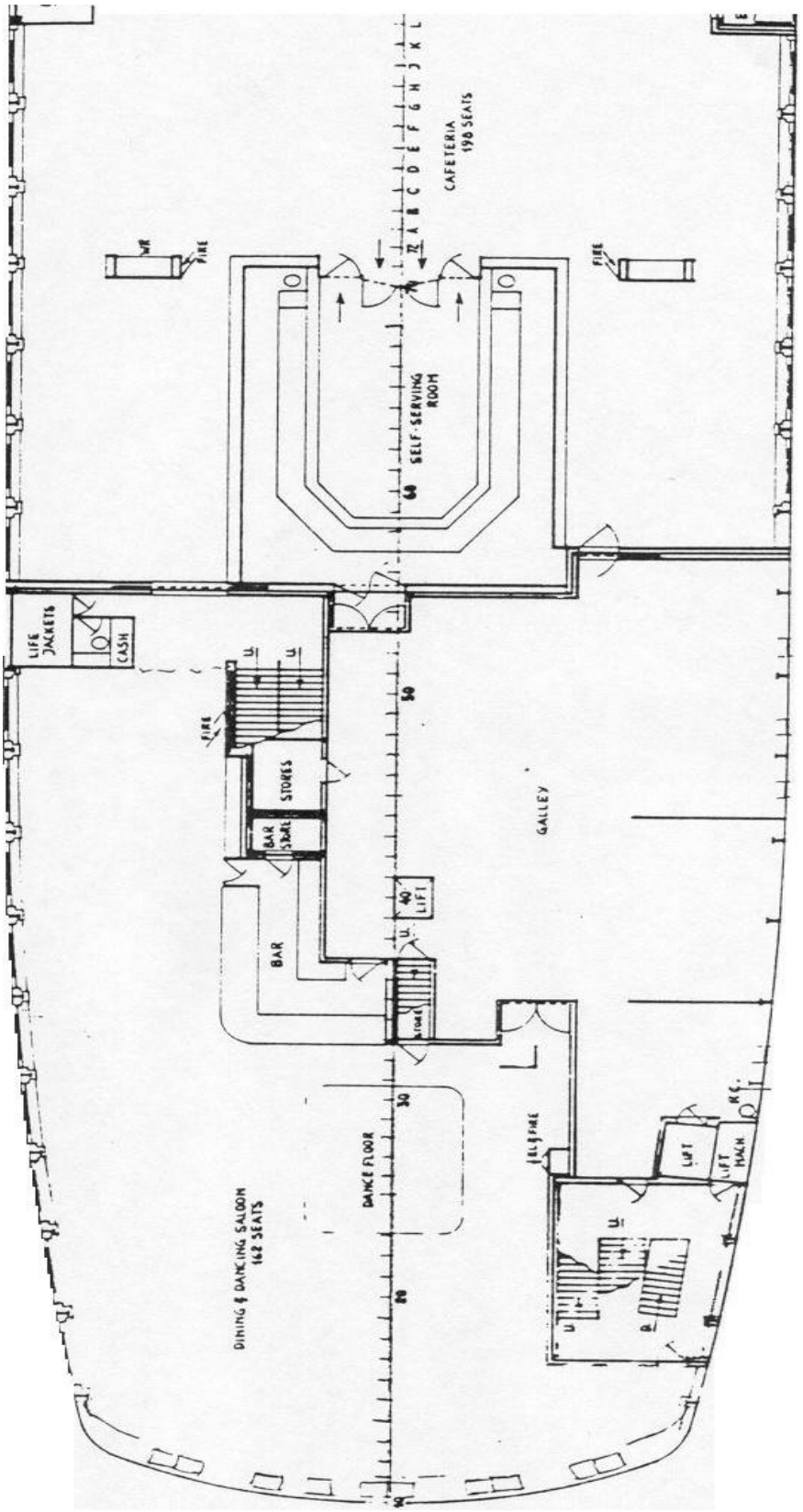
Deck 4 Aft


CAR RAMP
FIRE
ENTRANCE HALL
TICKET OFFICE
CAR RAMP
OPEN AT SIDES
CLEAR PASSAGE WAY
RAIL
COVERED GARAGE
CLEAR PASSAGE WAY
OPEN AT SIDES
EMERGENCY GENERATOR ROOM
BATTERY ROOM
FAN ROOM
LIFT
STORES
TOILET
DRYING ROOM

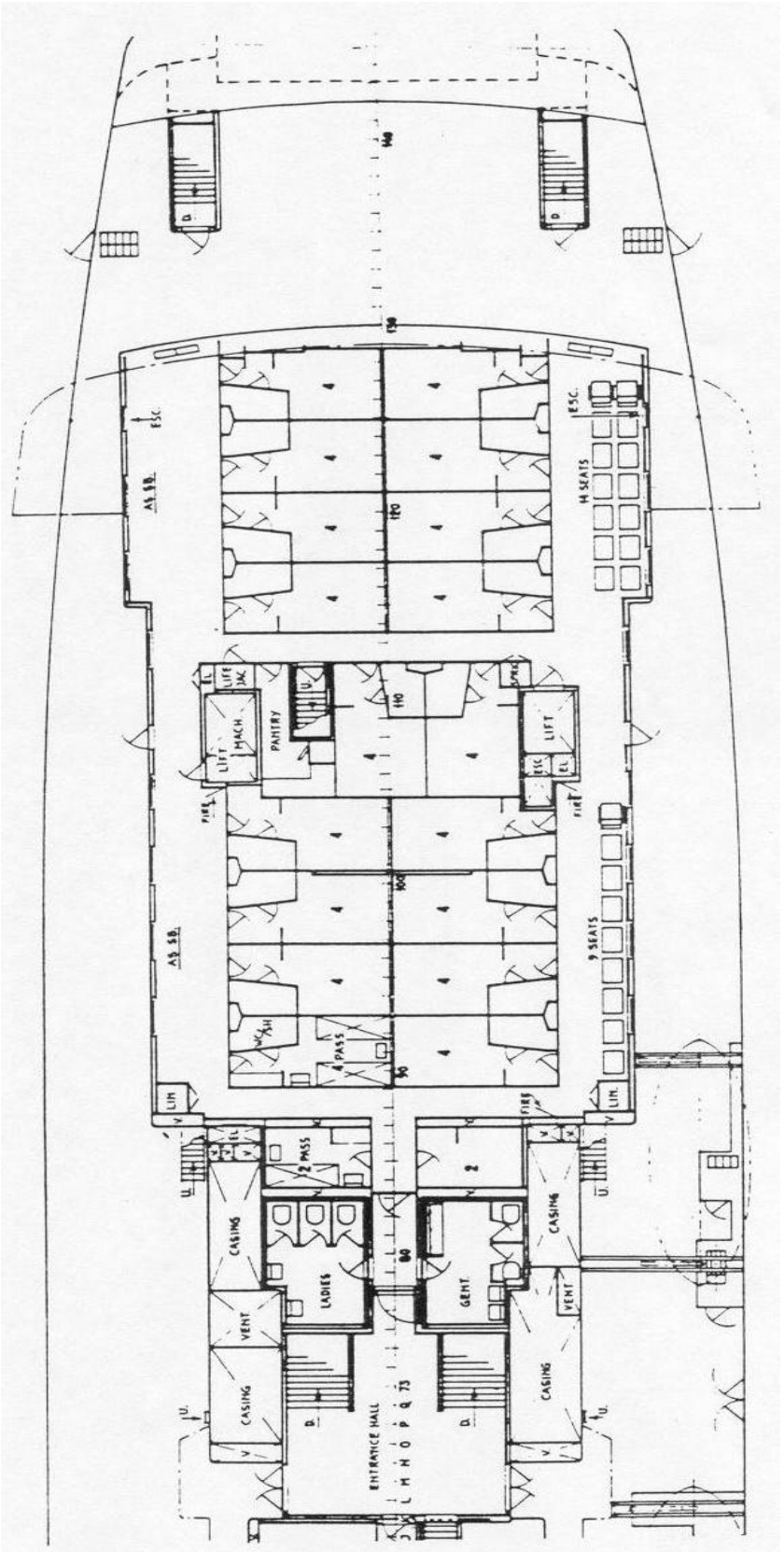
Deck 5 Frd


64 SEATS
108 SEATS
122 SEATS
(LOUNGE & BAR SALOON 330 SEATS)
BAR
BAR STORES
CLEAN RM
LIFE JACK.
LUGGAGE
LIFT
BANK
SELF-SERVICE SHOP
ENTRANCE
PURSER OFFICE
INFORMATION
GIFT SHOP
NEWS PAPERS
CASING
VENT.
ENTRANCE HALL
36 RECLINING SEATS
38 RECLINING SEATS
LIFE JACKETS
STD RES

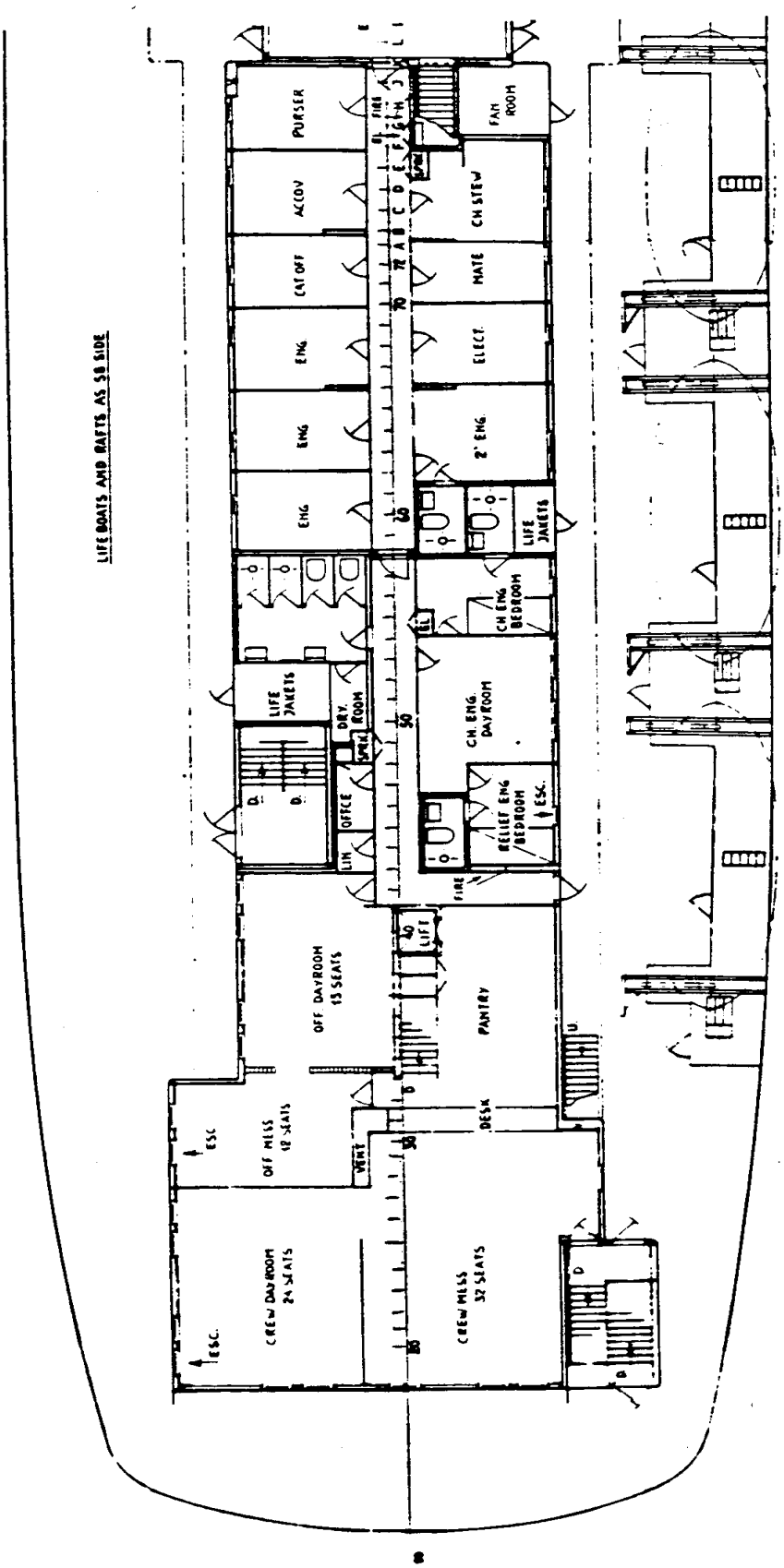
Deck 5 Aft


CAFETERIA
196 SEATS
SELF-SERVING ROOM
FIRE
LIFE JACKETS
CASH
STORES
BAR STORE
BAR
LIFT
GALLEY
DANCE FLOOR
DINING & DANCING SALOON
162 SEATS
TELEPHONE
LIFT
LIFT MACH

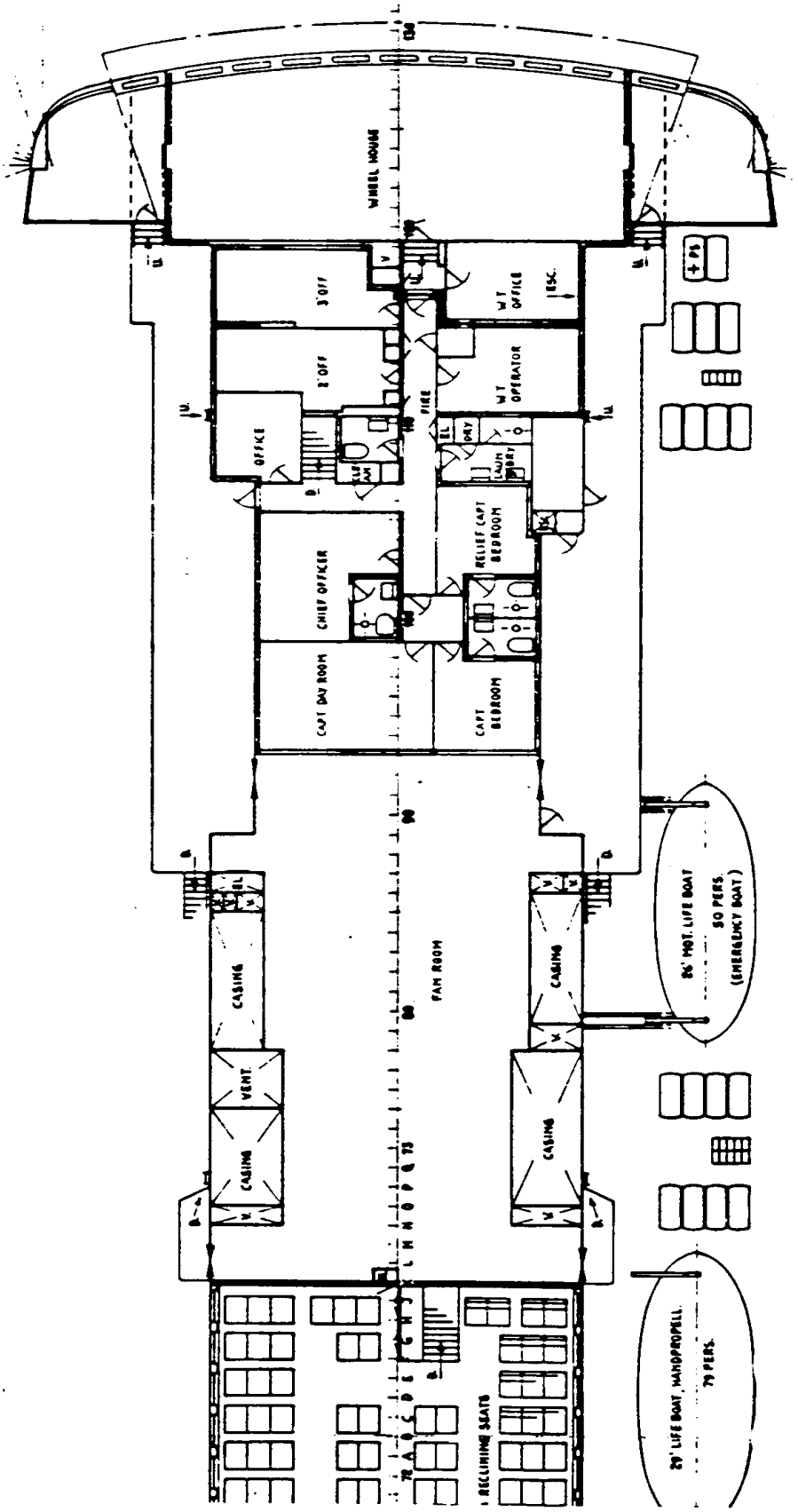
Deck 6 Frd


ESC.
44 SEATS
LIFT
MACH
PANTRY
LIFT
ESC.
9 SEATS
4 PASS
LIN
2 PASS
2
CASING
LADIES
GENT
CASING
VENT
VENT
CASING
CASING
ENTRANCE HALL
L H N O P Q T S

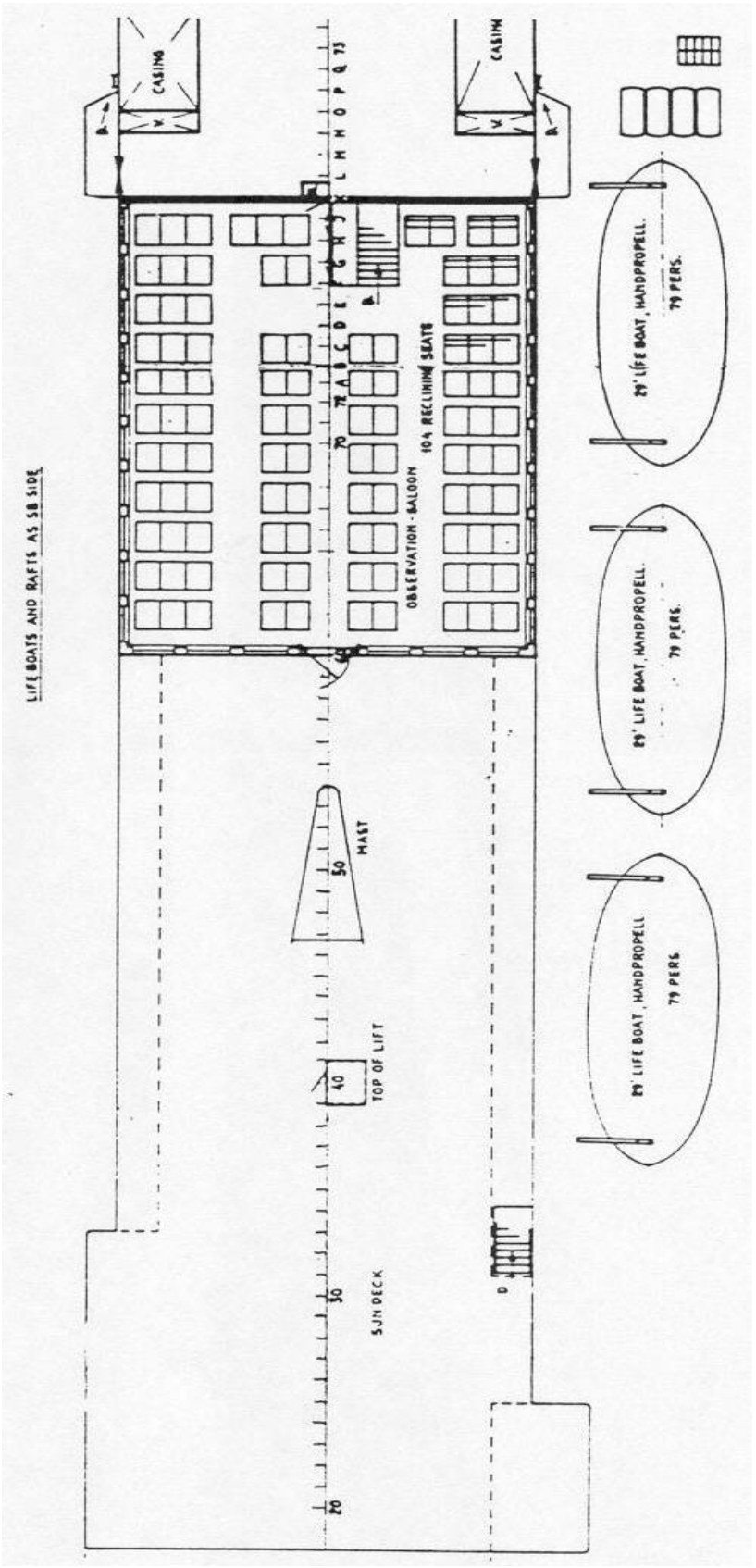
Deck 6 Aft


LIFE BOATS AND RAFTS AS SB SIDE
PURSER
ACCOV
CAT OFF
ENG
ENG
ENG
FAN ROOM
CH STEW
MATE
ELECT.
2° ENG.
LIFE JAKETS
CH ENG BEDROOM
CH. ENG. DAYROOM
RELIEF ENG BEDROOM
ESC.
LIFE JAKETS
DRY. ROOM
OFFICE
OFF DAYROOM 13 SEATS
PANTRY
LIFT
DESK
OFF MESS 12 SEATS
CREW DAYROOM 24 SEATS
CREW MESS 32 SEATS
FIRE

Deck 7 Frd


WHEEL HOUSE
3'OFF
2'OFF
OFFICE
W/T OFFICE
ESC.
W/T OPERATOR
FIRE
CHIEF OFFICER
RELIEF CAPT BEDROOM
CAPT DAY ROOM
CAPT BEDROOM
CASING
VENT
FAN ROOM
26' MOT. LIFE BOAT 50 PERS. (EMERGENCY BOAT)
29' LIFE BOAT, HANDPROPELL. 79 PERS.
RECLINING SEATS

Deck 7 Aft


CASING
CASING
LIFE BOATS AND RAFTS AS SB SIDE
OBSERVATION - SALOON
104 RECLINING SEATS
MAST
TOP OF LIFT
SUN DECK
29' LIFE BOAT, HANDPROPELL.
79 PERS.
29' LIFE BOAT, HANDPROPELL.
79 PERS.
29' LIFE BOAT, HANDPROPELL
79 PERS

Appendix 3

Specimen Certificates

Administrations shall ensure that documentary evidence of the training which has been completed is issued to every person found qualified under the provisions of STCW Regulation V/2 for ro-ro passenger ships, or Regulation V/3 for passenger ships other than ro-ro passenger ships.

SPECIMEN CERTIFICATE FOR SPECIAL TRAINING REQUIREMENTS FOR PERSONNEL ON CERTAIN TYPES OF SHIPS

(To be produced and registered locally by the Issuing Authority)

Vessel Name:..... ..... No: *[Issuing Authority to allocate]*

Issuing Authority: ..... Address and contact details

Tel: Fax:

CRISIS MANAGEMENT AND HUMAN BEHAVIOUR TRAINING, INCLUDING PASSENGER SAFETY, ON PASSENGER SHIPS

This is to certify that *[full name of candidate]*

Date of birth [ ]
Discharge Book No [ ]
or other national ID

has successfully completed a programme of training approved by the *[add authority]* meeting the requirements laid down in:

STCW 95 Regulation V/3 (pa.7 and 8) and STCW Code Section A-V/3 (pa.4 and 5) as appropriate.

This Certificate is issued under the authority of *[add authority]*

Signature of Authorised Representative of Company or Centre

Issuing Authority Stamp and Date

Signature of person to whom the certificate is awarded

Enquiries concerning this certificate should be directed to the Issuing Authority at the address above.

SPECIMEN CERTIFICATE FOR SPECIAL TRAINING REQUIREMENTS FOR PERSONNEL ON CERTAIN TYPES OF SHIPS
(To be produced and registered locally by the Issuing Authority)

Vessel Name:..... ..... No: *[Issuing Authority to allocate]*

Issuing Authority: ..... Address and contact details

Tel: Fax:

CRISIS MANAGEMENT AND HUMAN BEHAVIOUR TRAINING, INCLUDING PASSENGER SAFETY, CARGO SAFETY AND HULL INTEGRITY TRAINING ABOARD RO-RO PASSENGER SHIPS

This is to certify that *[full name of candidate]*

Date of birth [ ]
Discharge Book No [ ]
or other national ID

has successfully completed a programme of training approved by the *[add authority]* meeting the requirements laid down in:

STCW 95 Regulation V/2 (pa.7 and 8) and STCW Code Section A-V/2 (pa.4 and 5) as appropriate.

This Certificate is issued under the authority of *[add authority]*

Signature of Authorised Representative of Company or Centre

Issuing Authority Stamp and Date

Signature of person to whom the certificate is awarded

Enquiries concerning this certificate should be directed to the Issuing Authority at the address above.

Appendix 4

Supporting material for the Instructor

This Appendix contains plates and diagrams which may be used to produce overhead projector transparencies or to copy for handouts.

List of Plates

Plate No.	Title
1.1	Model course no: Crisis management human behaviour training, including passenger safety, cargo safety and hull integrity training
1.2	Introduction
2.1	Loading and embarkation
2.2	Operation of ramps and vehicle decks
2.3	Safe control of passengers especially those who are disabled.
3.1	Carriage of dangerous goods
4.1	Securing cargoes
4.2	Rule of thumb method
5.1	Stability, trim and stress calculations
6.1	Opening, closing and securing hull openings
7.1	Ro-ro deck atmospheres
8.1	Ship design, layout, emergency plans, procedures and drills
9.1	Optimisation of resources
10.1	Control response to emergencies
10.2	Motivation
10.3	Emergency stress response
11.1	Human behaviour and responses
11.2	Areas searched marked on ship’s plans
12.1	Effective communication

MODEL COURSE No....
CRISIS MANAGEMENT AND HUMAN BEHAVIOUR TRAINING, INCLUDING PASSENGER SAFETY, CARGO SAFETY AND HULL INTEGRITY TRAINING

SUBJECTS

1. Introduction, STCW 95
2. Loading and Embarkation Procedures
3. Carriage of Dangerous Goods
4. Securing Cargoes
5. Stability, Trim and Stress Calculations
6. Opening, Closing and Securing Hull Openings
7. Ro-ro Deck Atmosphere
8. Ship Design, Layout, Emergency Plans, Procedures and Drills
9. Optimisation of Resources
10. Control Response to Emergencies
11. Human Behaviour and Responses
12. Establish and Maintain Effective Communications

Plate 1.1

INTRODUCTION

1. **STCW 95 focuses on performance of functions**

2. **Chapter V included because of the disasters aboard**

   (a) Herald of Free Enterprise

   (b) Scandinavian Star

   (c) Estonia

3. **Responsibility of Companies considerably extended by STCW 95.**

Plate 1.2

LOADING AND EMBARKATION

— **Liaison, Communications and Limitations**

— **Familiarity with Car Deck, Escape Routes and Any Restrictions**

— **Control of Drivers**

— **Minimum Safe Operational Personnel**

— **High Visibility Clothing**

Plate 2.1

OPERATION OF RAMPS AND VEHICLE DECKS

— **Certified Operators**

— **All Safety Procedures Followed**

— **Power Isolated When Not In Use**

— **Clear or Assisted View of Operation**

— **Cleanliness and Tidiness**

— **Passengers Vacate Car Decks**

Plate 2.2

SAFE CONTROL OF PASSENGERS ESPECIALLY THOSE WHO ARE DISABLED

— **Safe Illuminated Access**

— **No Steps or Steep Slopes for Wheelchairs**

— **Trained Personnel**

— **Reserved Car Parking Spaces**

— **Clear Signs and Announcements**

— **Master Informed of Those Needing Assistance**

— **Passenger Count**

Plate 2.3

CARRIAGE OF DANGEROUS GOODS

— **Stowed, Segregated with Adequate Access**

— **Regular Patrols**

— **No Unauthorised Entry**

— **Openings to Accommodation Firmly Closed**

— **Adequate Ventilation**

— **Special Requirements for Certain Cargoes**

— **Reject Damaged, Leaking or Sifting Dangerous Cargo**

Plate 3.1

SECURING CARGOES

— **Cargo Securing Manual Kept On Board**

— **Structural Strength Not Impaired With Heavy Loads**

— **Preferably Stowed Fore and Aft**

— **Equal force Distribution On Adequate Securing Devices**

— **Lashings Secured To Chassis**

— **Adequate Securing Points**

Plate 4.1

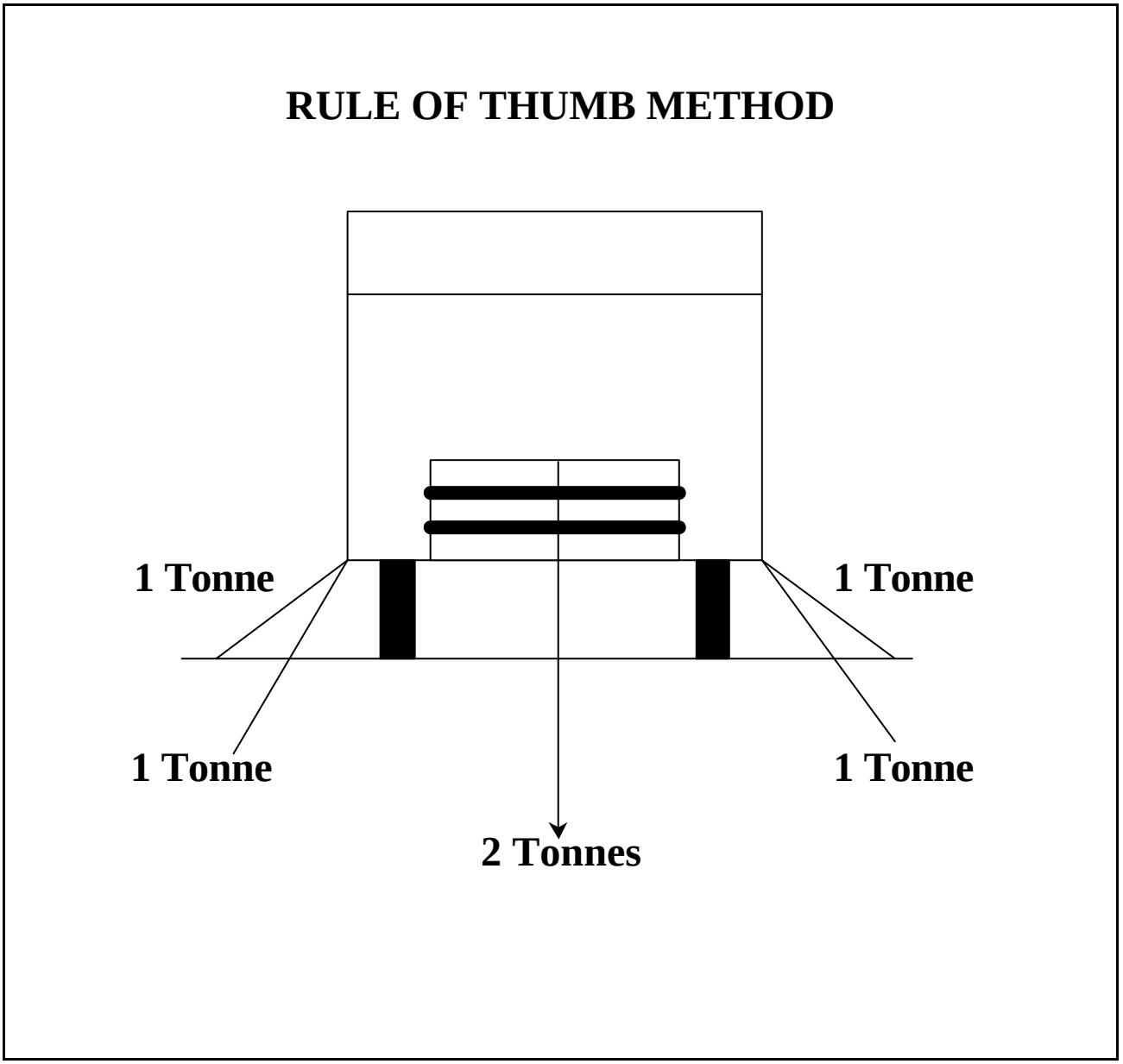


Plate 4.2

STABILITY, TRIM AND STRESS CALCULATIONS

— **Approved Stability Book Provided**

— **Practise Stability Calculations**

— **Axle or Point Deck Loadings**

— **Considerations Where Ballast and Fuel is Transferred**

Plate 5.1

OPENING, CLOSING AND SECURING HULL OPENINGS

— **Information Passed to Master**

— **Closed Before Departure or Soon After**

— **Bridge Indicators Show whether Open or Closed**

— **Openings Seal Properly**

— **Maintenance Procedures**

Plate 6.1

RO-RO DECK ATMOSPHERE

— **Practical Use of Analysers**

— **Vehicle Fumes On Car Deck**

— **Effective Ventilation**

Plate 7.1

SHIP DESIGN, LAYOUT, EMERGENCY PLANS, PROCEDURES AND DRILLS

— **Design, Layout and Identification System for Decks and Spaces**

— **Safety Regulations**

— **Types of Emergency**

— **Decision Support and Other Emergency Systems**

— **Smoke Containment or Extraction**

— **Pollution Equipment**

— **Pre-Plan Drills**

— **React to Emergencies Through Training**

Plate 8.1

OPTIMISATION OF RESOURCES

- **Equipment Limitation**
- **Effective Use of Personnel**
- **Assistance Aboard or From Outside**
- **Equipment Fully Maintained and Available**
- **Realistic Training**
- **De-Brief the Whole Team After Exercise**

Plate 9.1

CONTROL RESPONSE TO EMERGENCIES

— **Leadership Skills**

Example
Control
Calm
Decisive
Dependable

— **Decision Making**

Gathers information
Assesses
Plans Ahead
Adjusts Plan

Plate 10.1

— **Motivation**

Stimulates
Enthusiastic
Energetic

— **Recognise Stress in Others**

— **Flight/Fight Reaction**

— **Performance is Reduced**

— **Reallocate Tasks**

Plate 10.2

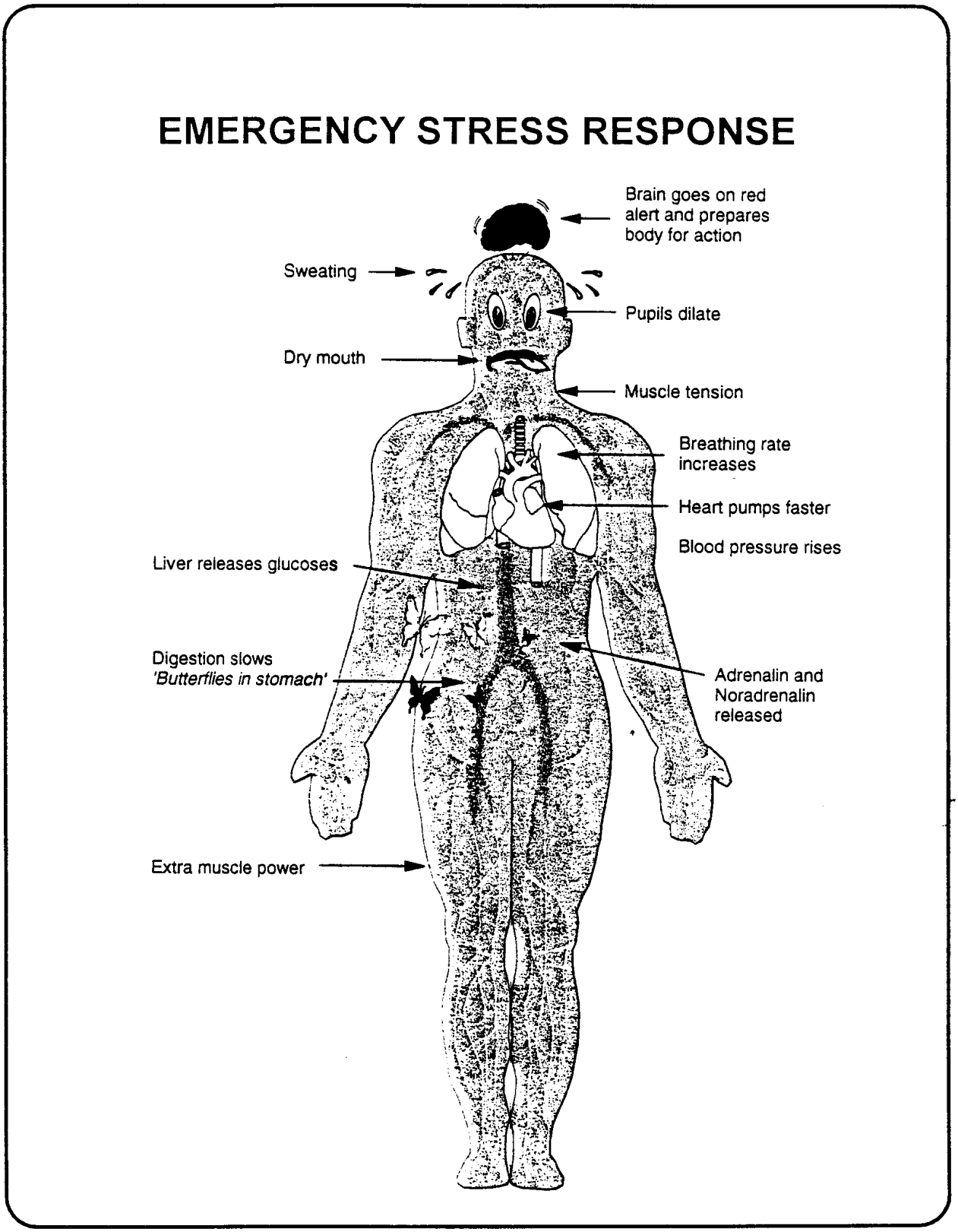

EMERGENCY STRESS RESPONSE
Brain goes on red alert and prepares body for action
Sweating
Pupils dilate
Dry mouth
Muscle tension
Breathing rate increases
Heart pumps faster
Blood pressure rises
Liver releases glucoses
Digestion slows
'Butterflies in stomach'
Adrenalin and Noradrenalin released
Extra muscle power

Plate 10.3

HUMAN BEHAVIOUR AND RESPONSES

— **Reactions When Responding to Emergencies**

— **Panic**

People Threatened
Limited Time to Act
Escape Without Concern for Others
Fear

— **Passengers Look for Relatives**

— **Assurance that Family Groups will be Reunited**

— **Passengers Move to the Upper Side**

— **Control by Assembly Station Personnel**

Plate 11.1

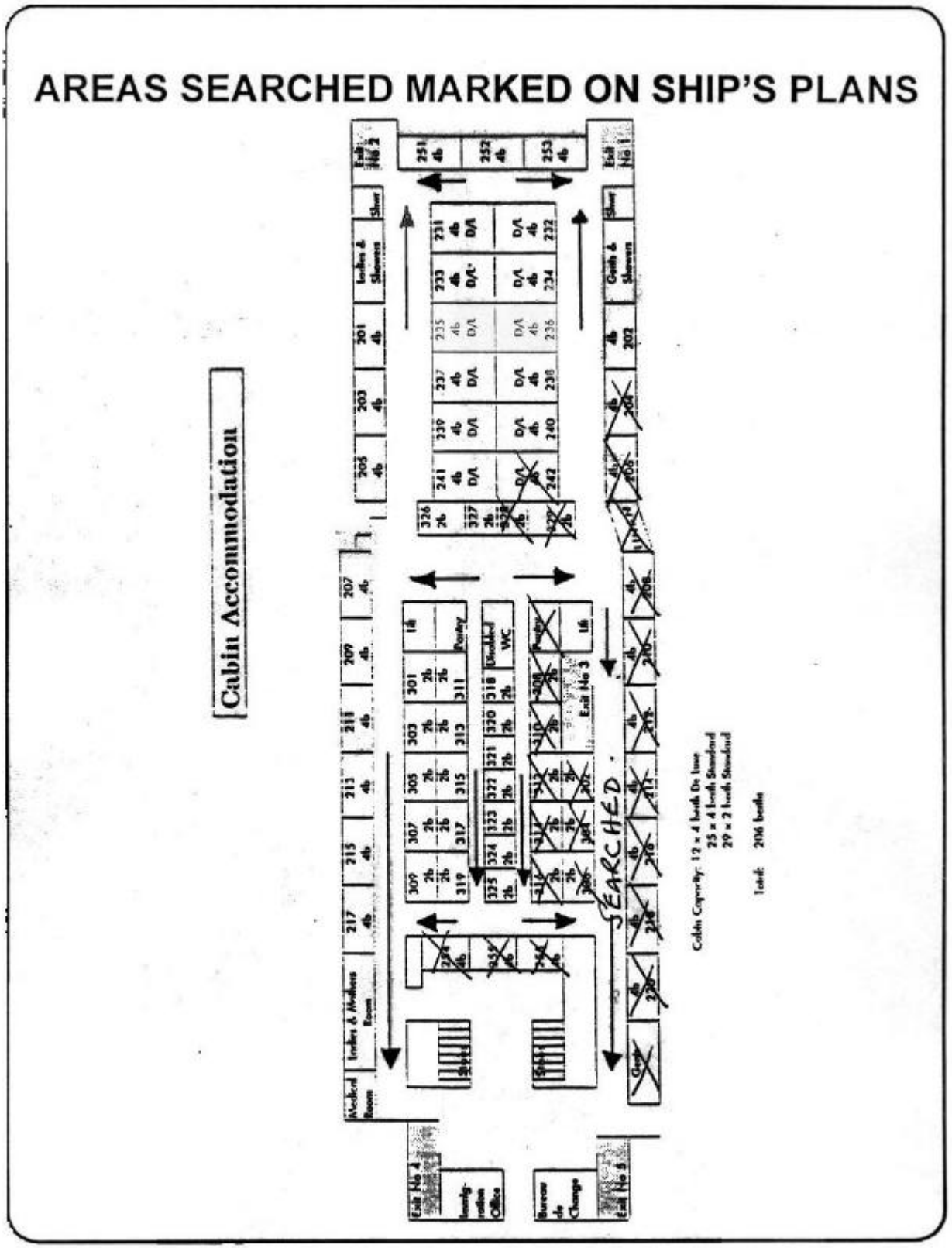

AREAS SEARCHED MARKED ON SHIP'S PLANS
Cabin Accommodation
SEARCHED

Plate 11.2

EFFECTIVE COMMUNICATION

— **Slow Clear Messages**

— **Keep Passengers Informed**

— **Pass on Correct Information**

— **Appropriate Language Used**

— **Train and Select Personnel to Communicate**

— **Communicate by Demonstration**

— **Prominence**

Plate 12.1