

THE INSTITUTE OF MARINE ENGINEERS

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SUPPLEMENT

# TRANSACTIONS INDEX

Volume 94



INDEX TO TRANSACTIONS OF TECHNICAL MEETINGS AND  
CONFERENCES HELD IN THE 1981-1982 SESSION

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# INTRODUCTION

This Index covers Volume 94 of the Transactions and the Proceedings of the conferences held in the 1981–82 session. Conference Proceedings are not issued with the annual volume of Transactions but they are available for sale from the Institute. The three sections of the Index and instructions for use are described below.

## SECTION 1. LIST OF PAPERS

This is a complete list of papers presented during the year at the Institute's Technical Meetings and Conferences. The Conferences do not form part of the annual volume of Transactions but they can be obtained from the Institute as separate publications. The entry for each paper consists of a full bibliographic description and a code number.

The code numbers are used in both the Author and Subject Indexes. Papers presented at the Technical Meetings have been given code numbers which indicate the volume number, the Technical Meeting designation and the number of the paper. An asterisk after the code numbers indicates a President's Address.

V94	/TM	(1)
Volume 94	Technical Meeting	Paper 1

Papers presented at Conferences have been numbered in one consecutive sequence, from C83 for the first Conference paper presented in the 1981–82 session to C110 for the last paper of the session. Next year's code number sequence will commence with paper C111. The ranges of code numbers allocated to each Conference are given below.

Code Number Range	Conference Title
C83–C94	Proceedings of the Conference on Refrigeration in Ships
C95–C104	Proceedings of the Conference on Priorities for Reducing the Fuel Bill
C105–C110	Proceedings of the Conference on Training and Distance Learning Onboard Ships

## SECTION 2. AUTHOR INDEX

The authors of the papers are listed alphabetically; the codes which follow the names refer to the List of Papers (Section 1).

To find paper written by a particular author:

1. Turn to the Author Index.
2. Note the code number adjacent to the name.
3. Look for the code number in the List of Papers; this will provide the full bibliographic description and the location.

## SECTION 3. SUBJECT INDEX

The contents of each paper have been summarized as a series of keywords. These have been arranged in chains. The terms included within the chains might describe a concept which requires greater explanation than a single keyword can offer, or alternatively they might show that several aspects of a concept are discussed in the paper. Chains are punctuated by the symbol '\$'; keywords are separated by the symbol ':'.

For example, an entry for the paper 'HMS *Invincible*: propulsion machinery from concept to fulfilment', by M. N. McKenna and D. Rogers, reads:

**HMS INVINCIBLE** : Royal Navy : Aircraft carriers (anti-submarine warfare command ships) \$ Rolls-Royce Olympus TM3B gas turbines : Installation : Testing \$ Propulsion machinery : Design **TM27**

This would indicate that the paper concerns the design and development of the propulsion machinery of HMS *Invincible*, the Royal Navy's aircraft carrier/ASW command ship, and covers the installation and testing of the ship's Rolls-Royce Olympus TM3B gas turbines. The full bibliographic citation, for locating or ordering the paper, can be found in the List of Papers (Section 1), as described above.

To find paper on a given subject:

1. Turn to the Subject Index.
2. Think of the terms which best describe the subject; as a general rule it is better to work from the broadest to the most specific.
3. Note the code numbers.
4. Look for the code numbers in the List of Papers; this will provide full bibliographic descriptions and the locations.

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Marine engineers, the sea and the city.  
Vol. 94 (TM), Paper 14.
- V94/TM(15)**            **BEGGS, G. C.**  
Coal-burning bulk carriers for an Australian coastal trade.  
Vol. 94 (TM), Paper 15.  
The Australian National Line.
- V94/TM(16)**            **DENNISH, R. J.**  
New technology electrical cables for shipboard use.  
Vol. 94 (TM), Paper 16.  
European Wire and Cable Division, Raychem Ltd.
- V94/TM(17)**            **RAPO, B.**  
                              **HOLBROOK, R. P.**  
Classification and design aspects of floating process plants.  
Vol. 94 (TM), Paper 17.  
Lloyd's Register of Shipping.
- V94/TM(18)**            **HOULDER, J. M.**  
'Uncle John': a semi-submersible multi-purpose support vessel for oil exploration and production.  
Houlder Offshore Ltd.
- V94/TM(19)**            **GREEN, P. V.**  
                              **KIRBY, J. M.**  
Behaviour of damp fine-grained bulk mineral cargoes.  
Vol. 94 (TM), Paper 19.  
Warren Spring Laboratory, Dept. of Industry.
- V94/TM(20)**            **BAILEY, A. C.**  
Treatment of hazardous areas: difference between marine and industrial practice.  
Vol. 94 (TM), Paper 20.  
Lloyd's Register of Shipping.
- V94/TM(21)**            **CUNNINGHAM, G. L.\***  
                              **PREW, L. R.\*\***  
Operational performance and safety aspects of LNG ships.  
Vol. 94 (TM), Paper 21.  
\*Shell Tankers (UK) Ltd.  
\*\*Shell International Marine Ltd.
- V94/TM(22)**            **TAYLOR, H. D.**  
                              **PUCILL, P. M.**  
Problems of fire control on board ships.  
Vol. 94 (TM), Paper 22.  
Dr Harry Taylor and Associates.
- V94/TM(23)**            **COWLEY, J.**  
Steering gear: new concepts and requirements.  
Vol. 94 (TM), Paper 23.  
Marine Division, Dept. of Trade.
- V94/TM(24)**            **FISHER, M. J.**  
Good design practice for oil hydraulic systems.  
Vol. 94 (TM), Paper 24.  
British Hydromechanics Research Association.
- V94/TM(25)**            **PERRY, M.**  
The first year's experience with a microcomputer in a shipping company.  
Vol. 94 (TM), Paper 25.  
Cunard Shipping Services Ltd.
- V94/TM(26)**            **DENHOLM, J. M.**  
Offshore drilling operations.  
Vol. 94 (TM), Paper 26.  
BP Petroleum Development Ltd.

- V94/TM(27)**            **McKENNA, M. N.\***  
                              **ROGERS, D.\*\***  
HMS 'Invincible': propulsion machinery from concept to fulfilment.  
Vol. 94 (TM), Paper 27.  
\*Ministry of Defence.  
\*\*Vickers Shipbuilding and Engineering Ltd.
- V94/TM(28)**            **RUSH, H.**  
                              **TAYLOR, S. K.**  
Electrical design concepts and philosophy for an emergency and support vessel.  
Vol. 94 (TM), Paper 28.  
BP Shipping Ltd.
- V94/TM(29)**            **BLACKMORE, D. R.\***  
                              **EYRE, J. A.\***  
                              **SUMMERS, G. G.\*\***  
Dispersion and combustion behaviour of gas clouds resulting from large spillages of LNG and LPG on to the sea.  
Vol. 94 (TM), Paper 29.  
\*Shell Research Ltd.  
\*\*Shell International Marine Ltd.
- V94/TM(30)**            **PRINGLE, G. G.**  
Economic power generation at sea: the constant-speed shaft-driven generator.  
Vol. 94 (TM), Paper 30.  
Vickers Shipbuilding and Engineering Ltd.

## CONFERENCES (C)

- CONFERENCE 11/C83-C94**  
**Proceedings of the Conference on Refrigeration in Ships. The Institute of Marine Engineers, London, 1981.**
- C83**                      **LINDAU, L.**  
Cargo refrigeration systems: practical experience and recommendations.  
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Salen Reefer Services A.B.
- C84**                      **McNICOL, M. D.**  
The integral reefer unit: user views and experiences.  
Paper C84, pp. 5-10.  
Atlantic Container Line Services Ltd.
- C85**                      **NEEDHAM, J. A.**  
The next generation of refrigerated ships: an operator's view.  
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Marine refrigeration classification.  
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\*\*Lecturer, Grimsby College of Technology.

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Shipowners Refrigerated Cargo Research Association.
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Public health aspects of reefer transportation of foodstuffs.  
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Deterioration of fresh fruits and vegetables in refrigerated stowage.  
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- CONFERENCE 12/C95-C104**  
**Proceedings of the Conference on Priorities for Reducing the Fuel Bill. The Institute of Marine Engineers, London, 1982.**
- C95** **SVENSEN, T. E.**  
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Dept. of Naval Architecture, University of Newcastle upon Tyne.
- C96** **ALDERTON, P. M.**  
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**KEMP, J. F.**  
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- C98** **BYRNE, D.**  
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- C99** **PATIENCE, G.**  
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- C100** **MORTON, A. J.**  
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**Proceedings of the Conference on Training and Distance Learning Onboard Ships. The Institute of Marine Engineers, London 1982.**
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**FIRE RISKS** : Safety : Health risks \$ Insulation materials : Inorganic insulation materials : Organic insulation materials \$ Refrigerated ships : Liquefied gas carriers **C87**

**FIREFIGHTING TRAINING** : Automatic fire-detection systems : Fire-extinguishing systems \$ Fire control \$ United Kingdom registered ships : Cargo spaces : Machinery spaces **TM22**

**FLEXISTUDY** : Tutoring : Learning materials \$ Council for Educational Technology : Open learning systems programme \$ Further education : Industrial training **C110**

**FLOATING PROCESS PLANTS** \$ Petrochemical process plants : Industrial process plants \$ Design : Classification : Lloyd's Register Regulations **TM17**

**FOOD CARGOES** : Deterioration : Causes of deterioration \$ Refrigerated cargoes : Fruit cargoes : Vegetable cargoes \$ Harvesting conditions : Packaging quality : Carriage conditions **C92**

**FOOD PREPARATION ROOMS** : Provision rooms \$ Temperature requirements : Insulation : Spoilage \$ Refrigeration plant : Cargo carriers : Passenger ships **C90**

**FOOD TRANSPORTATION** : Refrigerated ships \$ Packaging quality : Taint : Vermin damage \$ Environmental health : Frozen food **C91**

**FROZEN FOOD** : Environmental health \$ Refrigerated ships : Food transportation \$ Packaging quality : Taint : Vermin damage **C91**

**FROZEN FOOD** : Frozen meat : Refrigerated products \$ Warranty clauses : Cargo carrier's responsibility \$ Insurance : Insurance cover : Insurance claims **C88**

**FROZEN FOOD** : Refrigerated ships : Container ships \$ Control systems : Maintenance : Development work \$ Refrigeration plant : Automation : System selection **C93**

**FROZEN MEAT** : Refrigerated products : Frozen food \$ Warranty clauses : Cargo carrier's responsibility \$ Insurance : Insurance cover : Insurance claims **C88**

**FRUIT CARGOES** : Vegetable cargoes : Refrigerated cargoes \$ Harvesting conditions : Packaging quality : Carriage conditions \$ Food cargoes : Deterioration : Causes of deterioration **C92**

**FUEL CONSUMPTION** : Ship speed \$ Hull condition : Hull roughness : Hull smoothness \$ Ship operation : Fuel economy : Maintenance costs **C98**

**FUEL-ECONOMIC SHIPS** : Ship design : British Shipbuilders \$ Bulk carrier (45 000 dwt) \$ Voyage efficiency : Propulsive efficiency : Resistance reduction **C101**

**FUEL ECONOMY** \$ Autopilots : Adaptive autopilots : Control theory \$ Cost control : Ship motion **C97**

**FUEL ECONOMY** \$ Navigation \$ Steering : Ship's speed : Weather routing **C96**

**FUEL ECONOMY** \$ Propulsion machinery : Turbines : Diesel engines \$ Derating engines : Modifying engines : Tuning engines **C104**

**FUEL ECONOMY** \$ Single-pressure steam cycles : Dual-pressure steam cycles : Ship's heating \$ Power recovery : Waste heat recovery **C100**

**FUEL ECONOMY** : Main engines : Auxiliary engines \$ Performance monitoring : Electrical load reduction : Navigation practice \$ Shipboard energy conservation : Ships' crews : Training **C102**

**FUEL ECONOMY** : Maintenance costs : Ship operation \$ Ship speed : Fuel consumption \$ Hull condition : Hull roughness : Hull smoothness **C98**

**FUEL ECONOMY** : New ships : Existing ships \$ Propeller design : Propeller maintenance : Propeller replacement \$ Propeller efficiency : Conventional propellers : Unconventional propellers **C99**

**FUEL ECONOMY** : Power generation \$ Constant-speed generator drive \$ Design : Installation : Efficiency **TM30**

**FUEL-SAVING METHODS** : Priority selection \$ Exhaust gas economizers : Hull roughness : Propeller roughness \$ Techno-economic modelling : Economic models : Technical models **C95**

**FUELS** : Economics \$ Coal-burning ships : Bulk carriers \$ Propulsion systems : Coal handling : Ash handling **TM15**

**FUELS** : Low-quality fuels : Combustion \$ Diesel engine monitoring : Diesel engine tuning : Slow steaming \$ Diesel engines : Maintenance **C103**

**FURTHER EDUCATION** : Industrial training \$ Flexistudy : Tutoring : Learning materials \$ Council for Educational Technology : Open learning systems programme **C110**

**HARDWARE** : Software design \$ Computer-assisted training : Microcomputers : TOPCAT \$ Tankers : Shipboard training **C106**

**HARVESTING CONDITIONS** : Packaging quality : Carriage conditions \$ Food cargoes : Deterioration : Causes of deterioration \$ Refrigerated cargoes : Fruit cargoes : Vegetable cargoes **C92**

**HAZARDOUS AREAS** : Classification \$ Tankers : Special-purpose vessels \$ Marine practice : Industrial practice **TM20**

**HEALTH RISKS** : Fire risks : Safety \$ Insulation materials : Inorganic insulation materials : Organic insulation materials \$ Refrigerated ships : Liquefied gas carriers **C87**

**HMS INVINCIBLE** : Royal Navy : Aircraft carriers (anti-submarine warfare command ships) \$ Rolls-Royce Olympus TM3B gas turbines : Installation : Testing \$ Propulsion machinery : Design **TM27**

**HT POWER SYSTEM DESIGN** : MT Power system design \$ Electrical systems \$ Emergency and support vessel : *Iolair* : BP Shipping Ltd. **TM28**

**HULL CONDITION** : Hull roughness : Hull smoothness \$ Ship operation : Fuel economy : Maintenance costs \$ Ship speed : Fuel consumption **C98**

**HULL ROUGHNESS** : Hull smoothness : Hull condition \$ Ship operation : Fuel economy : Maintenance costs \$ Ship speed : Fuel consumption **C98**

**HULL ROUGHNESS** : Propeller roughness : Exhaust gas economizers \$ Techno-economic modelling : Economic models : Technical models \$ Fuel-saving methods : Priority selection **C95**

**HULL SMOOTHNESS** : Hull condition : Hull roughness \$ Ship operation : Fuel economy : Maintenance costs \$ Ship speed : Fuel consumption **C98**

**HYDRAULIC FLUIDS** : System cleanliness : Pressure ratings \$ Design : Reliability \$ Hydraulic systems : Oil hydraulic systems **TM24**

**HYDRAULIC SYSTEMS** : Oil hydraulic systems \$ Pressure ratings : Hydraulic fluids : System cleanliness \$ Design : Reliability **TM24**

**INDUSTRIAL PRACTICE** : Marine practice \$ Hazardous areas : Classification \$ Tankers : Special-purpose vessels **TM20**

**INDUSTRIAL PROCESS PLANTS** : Petrochemical process plants \$ Design : Classification : Lloyd's Register Regulations \$ Floating process plants **TM17**

**INDUSTRIAL TRAINING** : Further education \$ Flexistudy : Tutoring : Learning materials \$ Council for Educational Technology : Open learning systems programme **C110**

**INMARSAT** : Videotex : Shipboard simulators \$ Computer-assisted training : Distance learning \$ Shipboard training : Shipboard computers **C109**

**INORGANIC INSULATION MATERIALS** : Organic insulation materials : Insulation materials \$ Refrigerated ships : Liquefied gas carriers \$ Safety : Health risks : Fire risks **C87**

**INSTALLATION** : Efficiency : Design \$ Fuel economy : Power generation \$ Constant-speed generator drive **TM30**

**INSTALLATION** : Testing : Rolls-Royce Olympus TM3B gas turbines \$ Propulsion machinery : Design \$ Royal Navy : Aircraft carriers (anti-submarine warfare command ships) : *HMS Invincible* **TM27**

**INSULATION MATERIALS** : Inorganic insulation materials : Organic insulation materials \$ Refrigerated ships : Liquefied gas carriers \$ Safety : Health risks : Fire risks **C87**

**INSULATION** : Primary refrigerant : Secondary refrigerant \$ Classification societies : Classification rules : Classification procedures \$ Refrigeration plant : New construction : Modification **C86**

**INSULATION** : Spoilage : Temperature requirements \$ Refrigeration plant : Cargo carriers : Passenger ships \$ Provision rooms : Food preparation rooms **C90**

**INSURANCE CLAIMS** : Insurance : Insurance cover \$ Refrigerated products : Frozen food : Frozen meat \$ Warranty clauses : Cargo carrier's responsibility **C88**

**INSURANCE COVER** : Insurance claims : Insurance \$ Refrigerated products : Frozen food : Frozen meat \$ Warranty clauses : Cargo carrier's responsibility **C88**

**INSURANCE** : Insurance cover : Insurance claims \$ Refrigerated products : Frozen food : Frozen meat \$ Warranty clauses : Cargo carrier's responsibility **C88**

**INTEGRAL REFRIGERATED UNITS** : Refrigerated ships : Containers \$ Machinery maintenance : Atmosphere control \$ Refrigeration plant **C84**

**INTERGOVERNMENTAL MARITIME CONSULTATIVE ORGANIZATION** : International Convention for the Safety of Life at Sea—Protocol May 1981 \$ Tanker regulations : New ship regulations \$ Steering gears **TM23**

**INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA—PROTOCOL MAY 1981** : Intergovernmental Maritime Consultative Organization \$ Tanker regulations : New ship regulations \$ Steering gears **TM23**

**IOLAIR** : BP Shipping Ltd. : Emergency and support vessel \$ HT Power system design : MT Power system design \$ Electrical systems **TM28**

**LEARNING MATERIALS** : Flexistudy : Tutoring \$ Council for Educational Technology : Open Learning Systems Programme \$ Further Education : Industrial training **C110**

**LIQUID NATURAL GAS** : Liquid petroleum gas : Spillages \$ Maplin Sands spill site : Dispersion experiments : Combustion experiments \$ Safety **TM29**

**LIQUID PETROLEUM GAS** : Spillages : Liquid natural gas \$ Maplin Sands spill site : Dispersion experiments : Combustion experiments \$ Safety **TM29**

**LIQUEFIED GAS CARRIERS** : Refrigerated ships \$ Safety : Health risks : Fire risks \$ Insulation materials : Inorganic insulation materials : Organic insulation materials **C87**

**LIQUEFIED GAS CARRIERS** : Shell International Marine Ltd. \$ Service performance : Operational problems : Safety procedures \$ Operational performance **TM21**

**LLOYD'S REGISTER REGULATIONS** : Design : Classification \$ Floating process plants \$ Petrochemical process plants : Industrial process plants **TM17**

**LOW-QUALITY FUELS** : Combustion : Fuels \$ Diesel engine monitoring : Diesel engine tuning : Slow steaming \$ Diesel engines : Maintenance **C103**

**MACHINERY MAINTENANCE** : Atmosphere control \$ Refrigeration plant \$ Refrigerated ships : Containers : Integral refrigerated units **C84**

**MACHINERY CONTROL ROOMS** : Unit rooms \$ Air conditioning plant : Energy conservation : Maintenance \$ Air conditioning : Statutory requirements : Physiological requirements **C94**

**MACHINERY SPACES** : United Kingdom registered ships : Cargo spaces \$ Automatic fire-detection systems : Fire-extinguishing systems : Firefighting training \$ Fire control **TM22**

**MAIN ENGINES** : Auxiliary engines : Fuel economy \$ Performance monitoring : Electrical load reduction : Navigation practice \$ Shipboard energy conservation : Ships' crews : Training **C102**

**MAINTENANCE COSTS** : Ship operation : Fuel economy \$ Ship speed : Fuel consumption \$ Hull condition : Hull roughness : Hull smoothness **C98**

**MAINTENANCE** : Air conditioning plant : Energy conservation \$ Air conditioning : Statutory requirements : Physiological requirements \$ Unit rooms : Machinery control rooms **C94**

**MAINTENANCE** : Development work : Control systems \$ Refrigeration plant : Automation : System selection \$ Refrigerated ships : Container ships : Frozen food **C93**

**MAINTENANCE** : Diesel engines \$ Fuels : Low-quality fuels : Combustion \$ Diesel engine monitoring : Diesel engine tuning : Slow steaming **C103**

**MANAGEMENT** : Shipping companies \$ Cayzer Irvine Shipping Company Ltd. : Union Line : Castle Line \$ Marine engineers : Superintendents **TM14**

**MAPLIN SANDS SPILL SITE** : Dispersion experiments : Combustion experiments \$ Safety \$ Liquid natural gas : Liquid petroleum gas : Spillages **TM29**

**MARINE ENGINEERS** : Superintendents \$ Shipping companies : Management \$ Cayzer Irvine Shipping Company Ltd. : Union Line : Castle Line **TM14**

**MARINE ENGINEERS** : Training : Career prospects \$ Refrigerated ships : Refrigeration plant : Air conditioning plant \$ Training schemes : Degree courses : Certificates of Competency **C89**

**MARINE PRACTICE** : Industrial Practice \$ Hazardous areas : Classification \$ Tankers : Special-purpose vessels **TM20**

**MARINE SOCIETY** : College of the Sea \$ Shipboard training \$ Ships' libraries : Correspondence courses : Examinations **C108**

**MATERIALS** : Construction \$ Electrical cables : Wiring \$ Fire hazards **TM16**

**MICROCOMPUTERS** \$ Cunard Shipping Services Ltd. : Technical department \$ Ship operation data : Planned maintenance system **TM25**

**MICROCOMPUTERS** : Computer-assisted training \$ Shipboard training \$ TOPCAT : Training programs : Performance measurement **C107**

**MICROCOMPUTERS** : TOPCAT : Computer-assisted training \$ Tankers : Shipboard training \$ Hardware : Software design **C106**

**MODIFICATION** : Refrigeration plant : New construction \$ Primary refrigerant : Secondary refrigerant : Insulation \$ Classification societies : Classification rules : Classification procedures **C86**

**MODIFYING ENGINES** : Tuning engines : Derating engines \$ Fuel economy \$ Propulsion machinery : Turbines : Diesel engines **C104**

**MT POWER SYSTEM DESIGN** : HT Power system design \$ Electrical systems \$ Emergency and support vessel : *Iolair* : BP Shipping Ltd. **TM28**

**NAVIGATION PRACTICE** : Performance monitoring : Electrical load reduction \$ Shipboard energy conservation : Ships' crews : Training \$ Fuel economy : Main engines : Auxiliary engines **C102**

**NAVIGATION** \$ Steering : Ship's speed : Weather routing \$ Fuel economy **C96**

**NEW CONSTRUCTION** : Modification : Refrigeration plant \$ Primary refrigerant : Secondary refrigerant : Insulation \$ Classification societies : Classification rules : Classification procedures **C86**

**NORTH SEA** \$ Well types : Drilling units : Operational problems \$ Offshore drilling **TM26**

**OFFSHORE DRILLING** \$ North Sea \$ Well types : Drilling units : Operational problems **TM26**

**OIL HYDRAULIC SYSTEMS** : Hydraulic systems \$ Pressure ratings : Hydraulic fluids : System cleanliness \$ Design : Reliability **TM24**

**OPEN LEARNING SYSTEMS PROGRAMME** : Council for Educational Technology \$ Further education : Industrial Training \$ Flexistudy : Tutoring : Learning materials **C110**

**OPERATIONAL EXPERIENCE** : Refrigeration systems \$ Refrigerated ships : *Snow Class* : *Winter Class* \$ Equipment performance : Cargo reaction **C83**

**OPERATIONAL PERFORMANCE** \$ Liquefied gas carriers : Shell International Marine Ltd. \$ Service performance : Operational problems : Safety procedures **TM21**

**OPERATIONAL PERFORMANCE** : Design \$ Supply vessels : Semi-submersible multi-purpose supply vessels \$ Diving support and oilfield construction barge : *Uncle John* **TM18**

**OPERATIONAL PROBLEMS** : Safety procedures : Service performance \$ Operational performance \$ Liquefied gas carriers : Shell International Marine Ltd. **TM21**

**OPERATIONAL PROBLEMS** : Well types : Drilling units \$ Offshore drilling \$ North Sea **TM26**

**ORGANIC INSULATION MATERIALS** : Insulation materials : Inorganic insulation materials \$ Refrigerated ships : Liquefied gas carriers \$ Safety : Health risks : Fire risks **C87**

**PACKAGING QUALITY** : Carriage conditions : Harvesting conditions \$ Food cargoes : Deterioration : Causes of deterioration \$ Refrigerated cargoes : Fruit cargoes : Vegetable cargoes **C92**

**PACKAGING QUALITY** : Taint : Vermin damage \$ Environmental health : Frozen food \$ Refrigerated ships : Food transportation **C91**

**PALLETIZATION** : Roll-on/roll-off : Break-bulk \$ Refrigeration plant \$ Tramp ships : Design : Economy **C85**

**PASSENGER SHIPS** : Refrigeration plant : Cargo carriers \$ Provision rooms : Food preparation rooms \$ Temperature requirements : Insulation : Spoilage **C90**

**PERFORMANCE MEASUREMENT** : TOPCAT : Training programs \$ Computer-assisted training : Microcomputers \$ Shipboard training **C107**

**PERFORMANCE MONITORING** : Electrical load reduction : Navigation practice \$ Shipboard energy conservation : Ships' crews : Training \$ Fuel economy : Main engines : Auxiliary engines **C102**

**PETROCHEMICAL PROCESS PLANTS** : Industrial process plants \$ Design : Classification : Lloyd's Register Regulations \$ Floating process plants **TM17**

**PHYSIOLOGICAL REQUIREMENTS** : Air conditioning : Statutory requirements \$ Unit rooms : Machinery control rooms \$ Air conditioning plant : Energy conservation : Maintenance **C94**

**PLANNED MAINTENANCE SYSTEM** : Ship operation data \$ Microcomputers \$ Cunard Shipping Services Ltd. : Technical department **TM25**

**POWER GENERATION** : Fuel economy \$ Constant-speed generator drive \$ Design : Installation : Efficiency **TM30**

**POWER RECOVERY** : Waste heat recovery \$ Fuel economy \$ Single-pressure steam cycles : Dual-pressure steam cycles : Ship's heating **C100**

**PRESSURE RATINGS** : Hydraulic fluids : System cleanliness \$ Design : Reliability \$ Hydraulic systems : Oil hydraulic systems **TM24**

**PRIMARY REFRIGERANT** : Secondary refrigerant : Insulation \$ Classification societies : Classification rules : Classification procedures \$ Refrigeration plant : New construction : Modification **C86**

**PROPELLER DESIGN** : Propeller maintenance : Propeller replacement \$ Propeller efficiency : Conventional propellers : Unconventional propellers \$ Fuel economy : New ships : Existing ships **C99**

- PROPELLOR EFFICIENCY** : Conventional propellers : Unconventional propellers \$ Fuel economy : New ships : Existing ships \$ Propeller design : Propeller maintenance : Propeller replacement **C99**
- PROPELLER MAINTENANCE** : Propeller replacement : Propeller design \$ Propeller efficiency : Conventional propellers : Unconventional propellers \$ Fuel economy : New ships : Existing ships **C99**
- PROPELLER REPLACEMENT** : Propeller design : propeller maintenance \$ Propeller efficiency : Conventional propellers : Unconventional propellers \$ Fuel economy : New ships : Existing ships **C99**
- PROPELLER ROUGHNESS** : Exhaust gas economizers : Hull roughness \$ Techno-economic modelling : Economic models : Technical models \$ Fuel saving methods : Priority selection **C95**
- PROPULSION MACHINERY** : Design \$ Royal Navy : Aircraft carriers (anti-submarine warfare command ships) : HMS *Invincible* \$ Rolls-Royce Olympus TM3B gas turbines : Installation : Testing **TM27**
- PROPULSION MACHINERY** : Turbines : Diesel engines \$ Derating engines : Modifying engines : Tuning engines \$ Fuel economy **C104**
- PROPULSION SYSTEMS** : Coal handling : Ash handling \$ Fuels : Economics \$ Coal-burning ships : Bulk carriers **TM15**
- PROPULSIVE EFFICIENCY** : Resistance reduction : Voyage efficiency \$ Ship design : British Shipbuilders : Fuel-economic ships \$ Bulk carrier (45 000 dwt) **C101**
- PROVISION ROOMS** : Food preparation rooms \$ Temperature requirements : Insulation : Spoilage \$ Refrigeration plant : Cargo carriers : Passenger ships **C90**
- REFRIGERATED CARGOES** : Fruit cargoes : Vegetable cargoes \$ Harvesting conditions : Packaging quality : Carriage conditions \$ Food cargoes : Deterioration : Causes of deterioration **C92**
- REFRIGERATED PRODUCTS** : Frozen food : Frozen meat \$ Warranty clauses : Cargo carrier's responsibility \$ Insurance : Insurance cover : Insurance claims **C88**
- REFRIGERATED SHIPS** : Container ships : Frozen food \$ Control systems : Maintenance : Development work \$ Refrigeration plant : Automation : System selection **C93**
- REFRIGERATED SHIPS** : Containers : Integral refrigerated units \$ Machinery maintenance : Atmosphere control \$ Refrigeration plant **C84**
- REFRIGERATED SHIPS** : Food transportation / Packaging quality : Taint : Vermin damage \$ Environmental health : Frozen food **C91**
- REFRIGERATED SHIPS** : Liquefied gas carriers \$ Safety : Health risks : Fire risks \$ Insulation materials : Inorganic insulation materials : Organic insulation materials **C87**
- REFRIGERATED SHIPS** : Refrigeration plant : Air conditioning plant \$ Training schemes : Degree courses : Certificates of Competency \$ Marine engineers : Training : Career prospects **C89**
- REFRIGERATED SHIPS** : *Snow Class* : *Winter Class* \$ Equipment performance : Cargo reaction \$ Refrigeration systems : Operational experience **C83**
- REFRIGERATION PLANT** \$ Refrigerated ships : Containers : Integral refrigerated units \$ Machinery maintenance : Atmosphere control **C84**
- REFRIGERATION PLANT** \$ Tramp ships : Design : Economy \$ Break-bulk : Palletization : Roll-on/roll-off **C85**
- REFRIGERATION PLANT** : Air conditioning plant : Refrigerated ships \$ Training schemes : Degree courses : Certificates of Competency \$ Marine engineers : Training : Career prospects **C89**
- REFRIGERATION PLANT** : Automation : System selection \$ Refrigerated ships : Container ships : Frozen food \$ Control systems : Maintenance : Development work **C93**
- REFRIGERATION PLANT** : Cargo carriers : Passenger ships \$ Provision rooms : Food preparation rooms \$ Temperature requirements : Insulation : Spoilage **C90**
- REFRIGERATION PLANT** : New construction : Modification \$ Primary refrigerant : Secondary refrigerant : Insulation \$ Classification societies : Classification rules : Classification procedures **C86**
- RELIABILITY** : Design \$ Hydraulic systems : Oil hydraulic systems \$ Pressure ratings : Hydraulic fluids : System cleanliness **TM24**
- RESISTANCE REDUCTION** : Voyage efficiency : Propulsive efficiency \$ Ship design : British Shipbuilders : Fuel-economic ships \$ Bulk carrier (45 000 dwt) **C101**
- ROLL-ON/ROLL-OFF** : Break-bulk : Palletization \$ Refrigeration plant \$ Tramp ships : Design : Economy **C85**
- ROLLS-ROYCE OLYMPUS TM3B GAS TURBINES** : Installation : Testing \$ Propulsion machinery : Design \$ Royal Navy : Aircraft carriers (anti-submarine warfare command ships) : HMS *Invincible* **TM27**
- ROYAL NAVY** : Aircraft carriers (anti-submarine warfare command ships) : HMS *Invincible* \$ Rolls-Royce Olympus TM3B gas turbines : Installation : Testing \$ Propulsion machinery : Design **TM27**
- SAFETY PROCEDURES** : Service performance : Operational problems \$ Operational performance \$ Liquefied gas carriers : Shell International Marine Ltd. **TM21**
- SAFETY** \$ Liquid natural gas : Liquid petroleum gas : Spillages \$ Maplin Sands spill site : Dispersion experiments : Combustion experiments **TM29**
- SAFETY** : Health risks : Fire risks \$ Insulation materials : Inorganic insulation materials : Organic insulation materials \$ Refrigerated ships : Liquefied gas carriers **C87**
- SECONDARY REFRIGERANT** : Insulation : Primary refrigerant \$ Classification societies : Classification rules : Classification procedures \$ Refrigeration plant : New construction : Modification **C86**
- SEMI-SUBMERSIBLE MULTI-PURPOSE SUPPLY VESSELS** : Supply vessels \$ Diving support and oilfield construction barge : *Uncle John* \$ Design : Operational performance **TM18**
- SERVICE PERFORMANCE** : Operational problems : Safety procedures \$ Operational performance \$ Liquefied gas carriers : Shell International Marine Ltd. **TM21**
- SHELL INTERNATIONAL MARINE LTD.** : Liquefied gas carriers \$ Service performance : Operational problems : Safety procedures \$ Operational performance **TM21**
- SHIP DESIGN** : British Shipbuilders : Fuel-economic ships \$ Bulk carrier (45 000 dwt) \$ Voyage efficiency : Propulsive efficiency : Resistance reduction **C101**
- SHIP MOTION** : Cost control \$ Fuel economy \$ Autopilots : Adaptive autopilots : Control theory **C97**
- SHIP OPERATION DATA** : Planned maintenance system \$ Microcomputers \$ Cunard Shipping Services Ltd. : Technical department **TM25**

- SHIP OPERATION** : Fuel economy : Maintenance costs \$ Ship speed : Fuel consumption \$ Hull condition : Hull roughness : Hull smoothness **C98**
- SHIP SPEED** : Fuel consumption \$ Hull condition : Hull roughness : Hull smoothness \$ Ship operation : Fuel economy : Maintenance costs **C98**
- SHIPBOARD COMPUTERS** : Shipboard training \$ INMARSAT : Videotex : Shipboard simulators \$ Computer-assisted training : Distance learning **C109**
- SHIPBOARD ENERGY CONSERVATION** : Ships' crews : Training \$ Fuel economy : Main engines : Auxiliary engines \$ Performance monitoring : Electrical load reduction : Navigation practice **C102**
- SHIPBOARD SIMULATORS** : INMARSAT : Videotex \$ Computer-assisted training : Distance learning \$ Shipboard training : Shipboard computers **C109**
- SHIPBOARD TRAINING** \$ Ships' libraries : Correspondence courses : Examinations \$ Marine Society : College of the Sea **C108**
- SHIPBOARD TRAINING** \$ Special courses : Emergency response training : Continuation training \$ Training services : Specialist companies **C105**
- SHIPBOARD TRAINING** \$ TOPCAT : Training programs : Performance measurement \$ Computer-assisted training : Microcomputers **C107**
- SHIPBOARD TRAINING** : Shipboard computers \$ INMARSAT : Videotex : Shipboard simulators \$ Computer-assisted training : Distance learning **C109**
- SHIPBOARD TRAINING** : Tankers \$ Hardware : Software design \$ Computer-assisted training : Microcomputers : TOPCAT **C106**
- SHIPPING COMPANIES** : Management \$ Cayzer Irvine Shipping Company Ltd. : Union Line : Castle Line \$ Marine engineers : Superintendents **TM14**
- SHIPS' CREW** : Training : Shipboard energy conservation \$ Fuel economy : Main engines : Auxiliary engines \$ Performance monitoring : Electrical load reduction : Navigation practice **C102**
- SHIP'S HEATING** : Single-pressure steam cycles : Dual-pressure steam cycles \$ Power recovery : Waste heat recovery \$ Fuel economy **C100**
- SHIPS' LIBRARIES** : Correspondence courses : Examinations \$ Marine Society : College of the Sea \$ Shipboard training **C108**
- SHIP'S MOTION SIMULATORS** : Warren Spring Laboratory : Experiments \$ Potentially hazardous cargoes \$ Damp fine-grained bulk mineral cargoes : Cargo liquefaction **TM19**
- SHIP'S SPEED** : Weather routeing : Steering \$ Fuel economy \$ Navigation **C96**
- SINGLE-PRESSURE STEAM CYCLES** : Dual-pressure steam cycles : Ship's heating \$ Power recovery : Waste heat recovery \$ Fuel economy **C100**
- SLOW STEAMING** : Diesel engine monitoring : Diesel engine tuning \$ Diesel engines : Maintenance \$ Fuels : Low-quality fuels : Combustion **C103**
- SNOW CLASS** : Winter Class : Refrigerated ships \$ Equipment performance : Cargo reaction \$ Refrigeration systems : Operational experience **C83**
- SOFTWARE DESIGN** : Hardware \$ Computer-assisted training : Microcomputers : TOPCAT \$ Tankers : Shipboard training **C106**
- SPECIAL-PURPOSE VESSELS** : Tankers \$ Marine practice : Industrial practice \$ Hazardous areas : Classification **TM20**
- SPECIALIST COMPANIES** : Training services \$ Shipboard training \$ Special courses : Emergency response training : Continuation training **C105**
- SPILLAGES** : Liquid natural gas : Liquid petroleum gas \$ Maplin Sands spill site : Dispersion experiments : Combustion experiments \$ Safety **TM29**
- SPOILAGE** : Temperature requirements : Insulation \$ Refrigeration plant : Cargo carriers : Passenger ships \$ Provision rooms : Food preparation rooms **C90**
- STEERING GEARS** \$ Intergovernmental Maritime Consultative Organization : International Convention for the Safety of Life at Sea—Protocol May 1981 \$ Tanker regulations : New ship regulations **TM23**
- STEERING** : Ship's speed : Weather routeing \$ Fuel economy \$ Navigation **C96**
- SUPERINTENDENTS** : Marine engineers \$ Shipping companies : Management \$ Cayzer Irvine Shipping Company Ltd. : Union Line : Castle Line **TM14**
- SUPPLY VESSELS** : Semi-submersible multi-purpose supply vessels \$ Diving support and oilfield construction barge : *Uncle John* \$ Design : Operational performance **TM18**
- SYSTEM CLEANLINESS** : Pressure ratings : Hydraulic fluids \$ Design : Reliability \$ Hydraulic systems : Oil hydraulic systems **TM24**
- SYSTEM SELECTION** : Refrigeration plant : Automation \$ Refrigerated ships : Container ships : Frozen food \$ Control systems : Maintenance : Development work **C93**
- TAINT** : Vermin damage : Packaging quality \$ Environmental health : Frozen food \$ Refrigerated ships : Food transportation **C91**
- TANKER REGULATIONS** : New ship regulations \$ Steering gears \$ Intergovernmental Maritime Consultative Organization : International Convention for the Safety of Life at Sea—Protocol May 1981 **TM23**
- TANKERS** : Shipboard training \$ Hardware : Software design \$ Computer-assisted training : Microcomputers : TOPCAT **C106**
- TANKERS** : Special-purpose vessels \$ Marine practice : Industrial practice \$ Hazardous areas : Classification **TM20**
- TECHNICAL DEPARTMENT** : Cunard Shipping Services Ltd. \$ Ship operation data : Planned maintenance systems \$ Microcomputers **TM25**
- TECHNICAL MODELS** : Techno-economic modelling : Economic models \$ Fuel-saving methods : Priority selection \$ Exhaust gas economizers : Hull roughness : Propeller roughness **C95**
- TECHNO-ECONOMIC MODELLING** : Economic models : Technical models \$ Fuel-saving methods : Priority selection \$ Exhaust gas economizers : Hull roughness : Propeller roughness **C95**
- TEMPERATURE REQUIREMENTS** : Insulation : Spoilage \$ Refrigeration plant : Cargo carriers : Passenger ships \$ Provision rooms : Food preparation rooms **C90**
- TOPCAT** : Computer-assisted training : Microcomputers \$ Tankers : Shipboard training \$ Hardware : Software design **C106**
- TOPCAT** : Training programs : Performance measurement \$ Computer-assisted training : Microcomputers \$ Shipboard training **C107**

**TRAINING PROGRAMS** : Performance measurement : TOP-CAT \$ Computer-assisted training : Microcomputers \$ Shipboard training **C107**

**TRAINING SCHEMES** : Degree courses : Certificates of Competency \$ Marine engineers : Training : Career prospects \$ Refrigerated ships : Refrigeration plant : Air conditioning plant **C89**

**TRAINING SERVICES** : Specialist companies \$ Shipboard training \$ Special courses : Emergency response training : Continuation training **C105**

**TRAINING** : Career prospects : Marine engineers \$ Refrigerated ships : Refrigeration plant : Air conditioning plant \$ Training schemes : Degree courses : Certificates of Competency **C89**

**TRAINING** : Shipboard energy conservation : Ships' crews \$ Fuel economy : Main engines : Auxiliary engines \$ Performance monitoring : Electrical load reduction : Navigation practice **C102**

**TRAMP SHIPS** : Design : Economy \$ Break-bulk : Palletization : Roll-on/roll-off \$ Refrigeration plant **C85**

**TUNING ENGINES** : Derating engines : Modifying engines \$ Fuel economy : Main engines : Auxiliary engines \$ Performance engines **C104**

**TURBINES** : Diesel engines : Propulsion machinery \$ Derating engines : Modifying engines : Tuning engines \$ Fuel economy **C104**

**TUTORING** : Learning materials : Flexistudy \$ Council for Educational Technology : Open learning systems programme \$ Further education : Industrial training **C110**

**UNCLE JOHN** : Diving support and oilfield construction barge \$ Design : Operational performance \$ Supply vessels : Semi-submersible multi-purpose supply vessels **TM18**

**UNION LINE** : Castle Line : Cayzer Irvine Shipping Company Ltd. \$ Marine engineers : Superintendents \$ Shipping companies : Management **TM14**

**UNIT ROOMS** : Machinery control rooms \$ Air conditioning plant : Energy conservation : Maintenance \$ Air conditioning : Statutory requirements : Physiological requirements **C94**

**UNITED KINGDOM REGISTERED SHIPS** : Cargo spaces : Machinery spaces \$ Automatic fire-detection systems : Fire-extinguishing systems : Firefighting training \$ Fire control **TM22**

**VEGETABLE CARGOES** : Refrigerated cargoes : Fruit cargoes \$ Harvesting conditions : Packaging quality : Carriage conditions \$ Food cargoes : Deterioration : Causes of deterioration **C92**

**VERMIN DAMAGE** : Packaging quality : Taint \$ Environmental health : Frozen food \$ Refrigerated ships : Food transportation **C91**

**VIDEOTEX** : Shipboard simulators : INMARSAT \$ Computer-assisted training : Distance learning \$ Shipboard training : Shipboard computers **C109**

**VOYAGE EFFICIENCY** : Propulsive efficiency : Resistance reduction \$ Ship design : British Shipbuilders : Fuel-economic ships \$ Bulk carrier (45 000 dwt) **C101**

**WARREN SPRING LABORATORY** : Experiments : Ship's motion simulators \$ Potentially hazardous cargoes \$ Damp fine-grained bulk mineral cargoes : Cargo liquefaction **TM19**

**WARRANTY CLAUSES** : Cargo carrier's responsibility \$ Insurance : Insurance cover : Insurance claims \$ Refrigerated products : Frozen food : Frozen meat **C88**

**WASTE HEAT RECOVERY** : Power recovery \$ Fuel economy \$ Single-pressure steam cycles : Dual-pressure steam cycles : Ship's heating **C100**

**WEATHER ROUTEING** : Steering : Ship's speed \$ Fuel economy \$ Navigation **C96**

**WELL TYPES** : Drilling units : Operational problems \$ Offshore drilling \$ North Sea **TM26**

**WINTER CLASS** : Refrigerated ships : *Snow* Class \$ Equipment performance : Cargo reaction \$ Refrigeration systems : Operational experience **C83**

**WIRING** : Electrical cables \$ Fire hazards \$ Materials : Construction **TM16**



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## The Institute of Marine Engineers

PROPOSED BY-LAWS TO BE SUBMITTED  
TO THE EXTRAORDINARY GENERAL MEETING  
CONVENED FOR 19TH OCTOBER 1981.

### STATEMENT BY PRESIDENT

I have been conscious of the deep feeling expressed by some members in recent years that the Institute's present By-Laws do not provide an avenue for those senior people employed in responsible positions, particularly afloat, to obtain Corporate membership. As President at the Institute's Annual Dinner I expressed the hope that during my year of office I could do something to remedy the situation.

As an implementation of this, the proposed revised By-Laws listed under Schedule 2, if accepted at the Extraordinary General Meeting and subsequently approved by Privy Council, would make provision for these senior people to have access to Corporate membership of the Institute. It is emphasised that this should not be seen in any way to be dilution of standards for Chartered Engineer, but exclusively a recognition of the quality of these marine engineers and by which recognition for Corporate membership purposes only, there would be some equating of job responsibility and experience with that of the academic qualifications required by those who have taken the alternative route.

At the beginning of the Extraordinary General Meeting I shall make a statement on the latest developments concerning the new Engineering Council and give the best forecast I can on the possible outcomes of a rejection or acceptance of the By-Law proposals.

J. McNAUGHT

PRESIDENT





# The Institute of Marine Engineers

76 Mark Lane, London EC3R 7JN



## NOTICE OF MEETING

NOTICE IS HEREBY GIVEN that an EXTRAORDINARY GENERAL MEETING of THE INSTITUTE OF MARINE ENGINEERS will be held at 76 Mark Lane, London E.C.3. on MONDAY, 19 OCTOBER 1981, at 17.30 hours to consider the following SPECIAL business:—

1. To rescind the By-Laws submitted to and approved by the Annual General Meeting held on 4 April 1978.
2. To consider and if thought fit to approve a Resolution that the By-Laws of the Institute be altered and amended as set out in the attached Schedules 1, 2, 3 and 4 and in such other manner as Her Majesty's Privy Council may require and the Council of the Institute may agree.

BY ORDER OF THE COUNCIL

J. STUART ROBINSON

*Director and Secretary*

