

# iMélange

February 2024



Monthly Magazine of The Institute of Marine Engineers (India)





# The Institute of Marine Engineers (India)

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## From the Editor's Desk

**Dear Esteemed Readers,**

As we traverse the ever-changing seas of the maritime world, iMélange continues to be your beacon of knowledge, insight, and camaraderie. It is with great pleasure that I present to you our latest editorial, brimming with enriching topics that encapsulate the diverse facets of our industry.

In our quest for environmental stewardship, we delve into the Synthesis and Insights garnered from the International Oil Pollution Compensation Funds Regime Workshop. This workshop was hosted by the Directorate General of Shipping in conjunction with key partners. The session was graced by Shri T. K. Ramachandran, IAS, Secretary of the Ministry of Ports, Shipping & Waterways, who was the chief guest and inaugurated the workshop virtually.

Our global engagement takes center stage as an Indian delegation attends the tenth session of the Human Element Training and Watchkeeping (HTW) sub-committee that took place from February 5th to 9th at IMO headquarters in London. This participation underscores our commitment to shaping international maritime policies and regulations for the benefit of all stakeholders.

INSA's 4th Annual Technical Paper Presentation Competition was held on 27th January 2024, which was graced by Shri. Shyam Jagannathan, IAS, Director General of Shipping as the chief guest. The event not only showcases the ingenuity of our young minds but also fosters a culture of continuous learning and advancement in the maritime field.

A prestigious honor was bestowed upon the fraternity by the Governor of Maharashtra when he extended a gracious invitation to the President of IME(I) for a traditional High Tea Ceremony on Republic Day. This gesture not only underscores the significance of our maritime community but also highlights the esteemed position held by our esteemed organization.

Milestones abound as we commemorate the Flag Hoisting Ceremony and inaugurate the eLibrary at IME(I) House. These events mark significant strides in our journey towards fostering knowledge dissemination and community building amongst our esteemed institutions.

Navigating the complexities of transit, we delve into the challenges posed by cargo damage, foreign proceedings by line, and sellers' options. These insights serve as invaluable guides for stakeholders in mitigating risks and optimizing operational efficiency.

As we navigate the currents of change and progress, let us continue to uphold the spirit of collaboration, innovation, and excellence that defines our maritime community.

We eagerly await your contributions and reflections, which can be shared with us at [editornewsletter@imare](mailto:editornewsletter@imare), in by the 7th of March 2024, ensuring your voice resonates in our upcoming March issue.

Your continued support and engagement are the wind in our sails as we chart a course towards a brighter, more sustainable future.

**SUNIL KUMAR**  
Honorary Editor – iMélange

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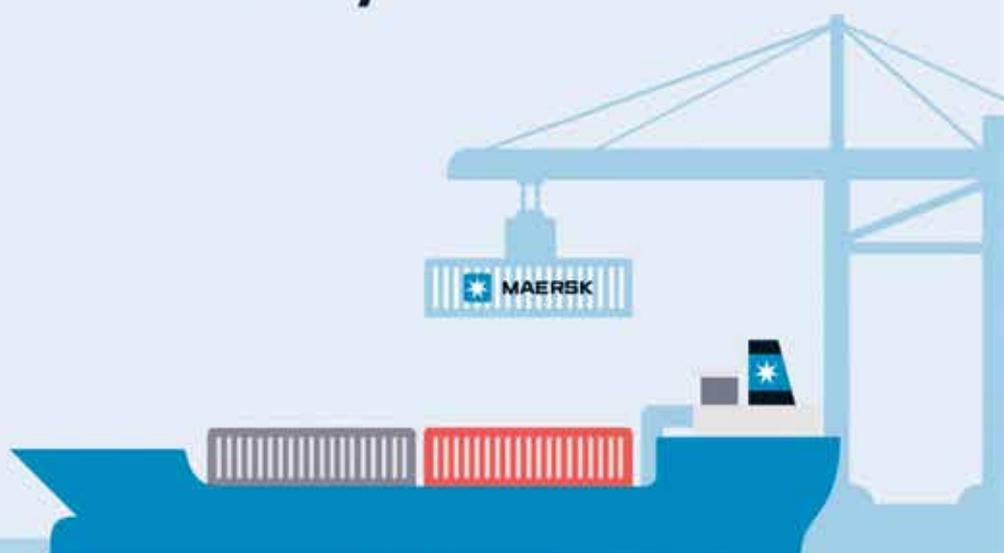
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## Synthesis and Insights: International Oil Pollution Compensation Funds Regime Workshop

Kochi played host to the collaborative Workshop on the International Oil Pollution Compensation Funds Regime on January 19, 2024. The event was meticulously organized by the Directorate General of Shipping in conjunction with key partners, including the International Oil Pollution Compensation (IOPC) Funds, the International Group of P&I Associations, the International Tanker Owners Pollution Federation Ltd. (ITOPF), Seven Islands Shipping Ltd., and MOL (India) Pvt. Ltd. Held aboard the 'Classic Imperial' cruise ship at Marine Drive, the workshop served as a pivotal platform for addressing global concerns related to oil spills in the ocean.

The inaugural session was graced by **Shri T. K. Ramachandran**, IAS, Secretary of the Ministry of Ports, Shipping & Waterways, who was the chief guest and inaugurated the workshop virtually. He emphasised the workshop's significance in fostering a unified approach to tackling the challenges of global oil pollution. The day unfolded with insightful sessions covering various facets of the compensation regime and its practical applications, featuring distinguished speakers from IOPC Funds, ITO PF, and other esteemed organisations.

An overview of the international liability and compensation regimes for oil pollution damage was given by the Director of the International Oil Pollution Compensation Funds (IOPC Funds) **Mr. Gaute Sivertsen** and **Mr. Mark Homan** alongside **Mr. Nick D.** of NorthStandard on behalf of the International Group of P&I Clubs.

The workshop was graced by **Shri. Shyam Jagannathan**, IAS, Director General of Shipping

and attended by 150 delegates from a variety of key stakeholders, including the head office of the DG of Shipping and regional representatives from the Indian Coast Guard.

Expert discussions delved into crucial topics such as claims for clean-up and preventive measures, economic losses, environmental damage, and the Hazardous and Noxious Substances (HNS) Convention. Noteworthy presentations, including a detailed case study on the MT Princess Empress incident, highlighted the complexities and best practices in managing oil spill incidents.

The workshop facilitated interactive sessions, allowing participants to engage with experts and seek clarification on various compensation regime aspects, which provided a dynamic exchange of ideas.

Expressing gratitude to speakers, dignitaries, participants, organizers, and sponsors, the event concluded with a heartfelt vote of thanks. Attendees departed with a wealth of knowledge and a deeper understanding of the challenges and solutions associated with oil spill incidents. The workshop's success is attributed to collaborative efforts, with special acknowledgment to the hosts for hosting this impactful event.

Looking ahead, organizers anticipate continued engagement and collaboration in addressing global environmental challenges. The International Oil Pollution Compensation Workshop, fostering knowledge sharing and reinforcing a commitment to a sustainable and responsible maritime industry, marks a significant contribution to the pursuit of a cleaner and safer maritime environment.

# *Glimpses of the Workshop*



# India Makes its Mark at 10th Session of HTW Sub-Committee at IMO, London

The 10th session of the Human Element Training and Watchkeeping (HTW) sub-committee convened in London from 5th to 9th February 2024, gathering representatives from Member States, IMO Associate Members, UN delegates, and observers from diverse organisations.

During the session, **Mr. Arsenio Dominguez**, the Secretary General of the IMO, underscored the crucial role of HTW in ensuring seafarer safety in the face of evolving maritime challenges.

Aligned with the World Maritime theme for the year, "Navigating the Future: Safety First!" the discussions at HTW 10 were centered on prioritising safety amidst the dynamic landscape of technological and environmental changes.

An essential outcome of HTW 10 is the formulation of a roadmap for a comprehensive review of the Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) Convention. This review aims to address the emerging needs in technology, digitalization and the essential aspect of reskilling within the maritime industry.

The Indian delegation attended the session in physical mode were: **Dr. Pandurang K. Raut**, Deputy Director General of Shipping, Directorate General of Shipping, Mumbai (Leader of the delegation); **Capt. Kersi N. Deboo**, Director and Principal, Maritime Association of Shipowners' Shipmanagers and Agents (MASSA); **Mr. Sunil Kumar**, Fellow - Institute of Marine Engineers (India) and Head – T&A, The Great Eastern Shipping Co. Ltd.

Apart from physical mode, the members who attended the session in virtual mode were: **Mr. Senthil Kumar Jayaraman**, Engineer and Ship Surveyor / Deputy Director General (Tech), Directorate General of Shipping, Mumbai; **Capt. Ravi Singh Sikarwar**, Nautical Surveyor, Directorate General of Shipping, Mumbai; **Capt. Mahesh Chandra Yadav**, Director (Training), Fosma Maritime Institute and Research Organization (FMIRO); **Capt. Chhote Lal Dubey**, Warden, Company of Master Mariners of India (CMMI); **Capt. Philip Mathews**, Senior Vice President, Seven Islands Shipping Ltd., Mumbai; **Capt. Sujit Kumar Pathak**, Associate Professor, Indian Maritime University (IMU)

## MODEL TRAINING COURSES

- In HTW 10, the consensus was that the conversion of model courses into e-learning training material should generally be avoided.
- Decisions regarding the approval of model courses were made by the Sub-Committee during the meeting.

Plans for the future validation of these courses were also discussed.

- A comprehensive report detailing the revisions made to model courses was prepared and submitted for validation during this session.
- A summary of the arrangements was agreed for the validation of model courses by HTW 11 and proposed arrangements for the validation of model courses by HTW 12.

### Model courses planned for validation by HTW 11:

- 1.25 on General Operator's Certificates for the Global Maritime Distress and Safety System (GMDSS)
- 1.26 on Restricted Operator's Certificate for the Global Maritime Distress and Safety System (GMDSS)
- 3.20 on Company Security Officer;
- 3.21 on Port Facility Security Officer
- 3.23 on Actions to Be Taken to Prevent Acts of Piracy and Armed Robbery.

### Arrangements for the validation of model courses by HTW 12:

- 1.37 on Chemical Tanker Cargo and Ballast Handling Simulator; and
- 2.06 on Oil Tanker Cargo and Ballast Handling Simulator.
- China offered to take on the role as course developers for the revision of model courses which was accepted.
- Sub-Committee instructed the Drafting Group to prepare draft terms of reference, as well as the corresponding time frames.

### Model training courses successfully validated during the session included:

- 1.32 on Operational Use of Integrated Bridge Systems, encompassing Integrated Navigational Systems
- 1.35 on Liquefied Petroleum Gas (LPG) Tanker Cargo and Ballast Handling Simulator, along with their corresponding terms of reference and specified time frames.

### Review groups and coordinators:

- The Sub-Committee initiated the formation of review groups to conduct intersessional work through correspondence, specifically focusing on reviewing model courses slated for validation by HTW 12. Interested Member States, international organizations,



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- Soft Skills for induction into Merchant Marine - 2 days
- Demystifying Human Factors & integration into
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- Be-spoke training As desired

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- Vetting Inspections - 2 days

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and experts were strongly encouraged to participate in these groups and provide their contact details to IMO within one month of the session's conclusion.

- The Netherlands was designated as the coordinator for the review groups responsible for revising model courses, specifically:
- 1.37 on Chemical Tanker Cargo and Ballast Handling Simulator
- 2.06 on Oil Tanker Cargo and Ballast Handling Simulator.

#### **Holistic approach on the human element:**

- The Sub-Committee recognises its pivotal role in addressing the human element aspect.
- Interested Member States and international organizations were extended an invitation to submit proposals for consideration in a forthcoming session of the Sub-Committee.

### **REPORTS ON UNLAWFUL PRACTICES RELATED TO CERTIFICATES OF COMPETENCY**

Pursuant to STCW regulation I/5 (National provisions), Parties are obligated to enact measures to deter fraud and unlawful practices concerning certificates and endorsements.

In prior sessions (STW 43, STW 44 and HTW 1) the notable concern of fraudulent certificates reported by Parties was underscored.

These regulations have prompted Member States and international organisations to propose strategies aimed at addressing the challenges associated with fraudulent certificates of competency.

#### **Significance of Recognising Certificates of Competency (CoC) through Endorsement:**

- The Sub-Committee deliberated on the crucial importance of acknowledging certificates through endorsement for the safety of seafarers and ships.
- Endorsements that do not align with STCW regulations may be deemed invalid, potentially leading to port State control actions.
- Initiatives were undertaken to consolidate information on recognized certificates, incorporating it into a new STCW GISIS module. This move aims to enhance the management and updating of such information by involved Parties.

#### **Reports on Fraudulent Certificates:**

- The Sub-Committee examined a synopsis of fraudulent certificate reports identified in 2022 and 2023, as presented by the Secretariat.
- It suggested that Parties anonymize information in reports on fraudulent certificates during the submission process.
- Furthermore, a consensus was reached that if names were disclosed in these reports, the Secretariat should undertake anonymisation when publishing the associated document.

#### **Certificate Verification Facility:**

- The Sub-Committee emphasized the importance of Member States promptly furnishing the Secretariat with updated information for integration into the "certificate verification facility" on the IMO website.
- This undertaking seeks to augment the efficiency of certificate verification processes and ensure timely responses to verification requests, particularly until the new functionalities of the GISIS module are completed.
- Colombia also contributed valuable insights by sharing its experiences in issuing maritime certificates through technological innovations, as elaborated in document HTW 10/INF.9.

### **COMPREHENSIVE REVIEW OF THE 1978 STCW CONVENTION AND CODE**

The Sub-Committee endorsed the proposed consolidation of diverse work outputs concerning the review of the STCW Convention and Code. These encompass the implementation of the STCW Convention, the formulation of measures for mandatory seagoing service, quality assurance of onboard training, and training provisions linked to the Ballast Water Management (BWM) Convention.

#### **Preliminary list of specific areas identified for the comprehensive review**

##### **The following areas within the STCW Convention and Code have been identified for a comprehensive review:**

1. Integration of emerging technologies in ships and ship operations.
2. Incorporation of digitalization in seafarers' certification, encompassing e-certification.
3. Evaluation of emerging technologies in education and training.
4. Enhancement of facilitation, flexibility, and the quality of onboard, shore-based, and workshop skills training, including the utilization of simulators.
5. Streamlining flexibility and efficiency in the implementation of new training requirements, aiming to reduce administrative burdens.
6. Examination of requirements for sea time or practical experience concerning new and emerging technologies, with a focus on simulation usage.
7. Addressing issues of bullying and harassment, including Sexual Assault and Sexual Harassment (SASH), promoting gender diversity, and integrating gender sensitisation.
8. Mental health
9. Twenty-first century and interpersonal skills
10. Resolving inconsistencies
11. Harmonizing different interpretations
12. Refining taxonomy and terminologies
13. Flexibility in revalidation and renewal of certificates and endorsements
14. Overview of the Convention's implementation, with a focus on updating the STCW "White List"

- 15. Extracting lessons learned
- 16. Enhancing flexibility
- 17. Exploring alternative certification under Chapter VII
- 18. Evaluating watchkeeping arrangements and principles to be observed (Chapter VIII)
- 19. Aligning STCW with requirements imposed on ships, seafarers, and shipowners by other IMO and relevant international instruments
- 20. Cybersecurity awareness
- 21. Improving implementation and transitional provisions
- 22. Addressing outdated training requirements

**Proposals for New Amendments to the STCW Convention and Code and Related Instruments:**

**Development of Interim Guidance on Training for Seafarers on Ships Using Alternative Fuels.**

The Sub-Committee reviewed documents from ICS, China, and India on this subject and reached the following agreements:

- The development of training provisions for seafarers on ships using alternative fuels should be distinct from the comprehensive review of the STCW Convention and Code.
- The existing output of the Committee on the “Development of a safety regulatory framework to support the reduction of GHG emissions from ships using new technologies and alternative fuels” could be employed to formulate training provisions for seafarers on ships using alternative fuels. This should consider the ongoing work by MSC, the CCC Sub-Committee and any other pertinent bodies. The Committee was invited to include this output in the provisional agenda for HTW 11.

**Recommendations on Polar Code Training Programs:**

- The Sub-Committee deliberated on recommendations emerging from the Lessons Learned workshop focusing on Polar Code training.
- The Committee was invited to take note of pertinent recommendations aimed at enhancing the evaluation and implementation of the Polar Code.
- An agreement was reached to factor in the workshop recommendations during the revision of Model Courses 7.11 and 7.12.
- Member States and organizations were extended an invitation to organize supplementary train-the-trainer workshops.
- The future Working Group was instructed to integrate the workshop findings into the areas identified for comprehensive review, subject to Committee approval.
- The Sub-Committee reviewed recommendations stemming from the Lessons Learned workshop on Polar Code training.
- The Committee was invited to take note of pertinent recommendations for the evaluation and implementation of the Polar Code.

- An agreement was reached to integrate workshop recommendations into the revision process of Model Courses 7.11 and 7.12.
- Member States and organizations were encouraged to organize supplementary train-the-trainer workshops.
- The future Working Group was instructed to include workshop findings in the comprehensive review areas, seeking subsequent approval from the Committee.

**Development of the STCW GISIS Module:**

- The Sub-Committee reviewed document HTW 10/6/1 regarding the development of the STCW GISIS module.
- It requested the Secretariat to initiate the module for a two-year trial period and to notify STCW Parties and Member States.
- STCW Parties were encouraged to actively utilize the module, submit essential information, and fulfill communication obligations.
- Feedback from Member States and organizations was invited during the trial period for continuous improvement.
- The Secretariat was tasked with reporting the trial experience to a future Sub-Committee session, contributing valuable input to the comprehensive review of the STCW Convention and Code.

**Interventions by India on Agenda Items discussed at the plenary on 06.02.2024 are following:**

**IMO Document No.: HTW 10/6/1 – Development of the STCW GISIS module**

**IMO Document No.: HTW 10/6/2 – Format for proposing amendments to the tables specifying the minimum standard of competency in the STCW Code**

**IMO Document No.: HTW 10/6/9 – Accessibility of information on medical certificates of seafarers and medical practitioners recognized by the Parties for the purpose of seafarer medical examinations by Administrations and other involved bodies**

**IMO Document No.: HTW 10/6/8 – Proposal to incorporate recommendations on Polar Code training programmes**

**IMO Document No. HTW 10/6 – Report of the Correspondence Group**

**IMO Document No.: HTW 10/6/3 – Format for proposing amendments to the tables specifying the minimum standard of competency in the STCW Code**

**IMO Document No.: HTW 10/6/12 – Comments on document HTW 10/6**

In conclusion, the Indian delegation played a pivotal role throughout the proceedings of the HTW Committee, actively engaging in the development of guidelines within the working groups. Notably, its leadership in addressing the key agenda items was acknowledged by the Sub-Committee, prompting invitations for further proposals from interested Member States and international organizations to ensure a comprehensive approach to addressing the various crucial aspects.

# GLIMPSES OF THE SESSION



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# INSA's 4th Annual Technical Paper Presentation Competition: Advancing Innovation in Science and Technology

On the 27th of January 2024, the 4th Technical Paper Presentation Competition unfolded in an online format, meticulously organized by the Indian National Shipowners Association (INSA). The event marked its commencement with **Mr. Sunil Kumar**, CTO & Head - T&A, The Great Eastern Shipping Co. Ltd., taking the role of Master of Ceremony, elegantly opening the proceedings. Following the inaugural moments, **Mr. Anil Devli**, CEO of INSA, stepped forward to deliver a warm welcome address. **Mr. Sunil Kumar** then intimated the audience regarding the Chief Guest "**Shri. Shyam Jagannathan**, an IAS officer of the 1997 Assam-Meghalaya cadre, embodies the essence of simplicity in the realm of public service. **Shri Jagannathan's** unpretentious demeanor and unassuming nature superlatively complement his outstanding contributions throughout his long administrative journey.

As the Director General of Shipping, Mr. Jagannathan's approach is that of a great simplifier who effortlessly navigates through complexities to provide solutions that resonate with everyone. His professionalism and politeness shine through, allowing his work to speak volumes for itself."

**Shri. Jagannathan**, with his wealth of knowledge and expertise, provided valuable insights into the new initiatives and policies sanctioned by the Shipping Ministry. His address not only added a profound layer of understanding to the maritime landscape but also served as a source of inspiration for the candidates participating in the paper presentations. **Shri. Jagannathan** graciously extended his best wishes, emphasizing the significance of their contributions to the maritime sector.

**Dr. B.K. Saxena**, Chairman of the Research & Training Committee at INSA, elucidated on the event proceedings, while **Mr. David Birwadkar**, Advisor/Head – The Great Eastern Institute of Maritime Studies, explained the rules and methodologies governing the presentations.

A total of 10 presentations were showcased by candidates from esteemed institutions such as Tolani Maritime Institute, T.S. Chanakya, U.V. Patel College of Engineering, Samundra Institute of Maritime Studies, and HIMT.

The presentations covered a diverse range of topics:

1. 'Gas and Steam Turbine Combined Propulsion Plant' by Cdt. Devansh Gaur, Cdt. Prathmesh Jadhav, and Cdt. Suresh Kotha from Tolani Maritime Institute, Pune.
2. 'Alternative Combustion Process and HCCI' by Cdt. Rishav Sinha from Tolani Maritime Institute, Pune.
3. 'Hybrid Electric Propulsion System with Diesel Engine in Life Boat' by Cdt. Dhruva Katiyar and Cdt. Dhruv Kumar Mangal from Tolani Maritime Institute, Pune.
4. 'Anchoring Stability - Strategies for Improving Mental Health among Seafarers' by Cdt. Pratham Pandey and Cdt. Pradosh Kumar Nayak from T.S. Chanakya, Navi Mumbai.
5. 'Navigating the Storms Within: Seafarers' Mental Health and Wellbeing' by Cdt. Yagyansh Pathak from Samundra Institute of Maritime Studies, Lonavala.
6. 'Auto Dock Using Sensor System' by Cdt. Devish Bakshi, Cdt. Hunar Deepy, and Cdt.



## Support Transition to Zero-Emission

The shift toward a zero-emission society has accelerated in various fields, with governments making their GHG targets more ambitious and sustainable finance gaining more attention. Likewise, the time has come for the maritime industry to systematically manage the GHG emissions from shipping, as represented by the introduction of a GHG emissions evaluation framework into international shipping.

ClassNK provides Zero-Emission Transition Support Services, a comprehensive menu of services to support customers in dealing with the various challenges they may encounter when managing GHG emissions in pursuit of zero-emission shipping.



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Daksh Bhardwaj from Tolani Maritime Institute, Pune.

7. 'Micro Bubble Drag Reduction: A Model-Based Analysis & Innovation' by Cdt. Manav Gurjar, Cdt. Karan Rautela, and Cdt. Ninad Bhavsar from Tolani Maritime Institute, Pune.
8. 'Possible Arrangements and Improvements for Air Hull Lubrication' by Cdt. Krishna Panchal and Cdt. Mohit Nandkumar Satre from U.V. Patel College of Engineering, Gujarat.
9. 'Possible Arrangements and Improvements for Air Hull Lubrication' by Cdt. Krishna Panchal and Cdt. Mohit Nandkumar Satre from U.V. Patel College of Engineering, Gujarat.
10. 'Improving the Competitiveness of Indian Maritime Trade: Addressing the Challenges

of High Logistics Costs' by Cdt. Bandeep Saikia and Cdt. Adarsh Rai from HIMT.

The presentations concluded with engaging Q&A sessions involving the audience. Following the presentations, **Mr. Vijay Arora**, Managing Director, Indian Register of Shipping, delivered an insightful speech, providing valuable perspectives for the candidates' future endeavours. **Dr. Sujata Naik**, Chairperson of Tolani Shipping Co. Ltd. and Director of INSA, offered observations and commendations, inspiring the candidates for their future pursuits.

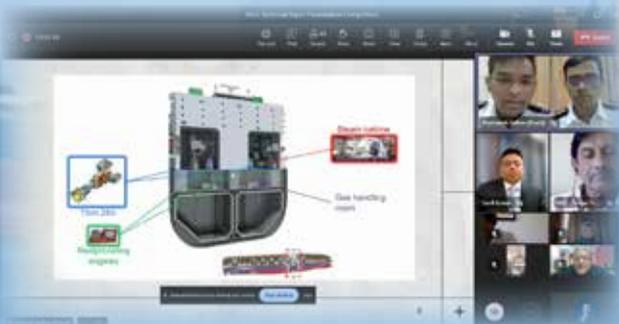
Judges, including **Mr. D Mehrotra**, **Mr. C R Dash**, and **Mr. A. B. Dutta**, evaluated the presentations and provided feedback. The results were announced by **Mr. Birwadkar**.

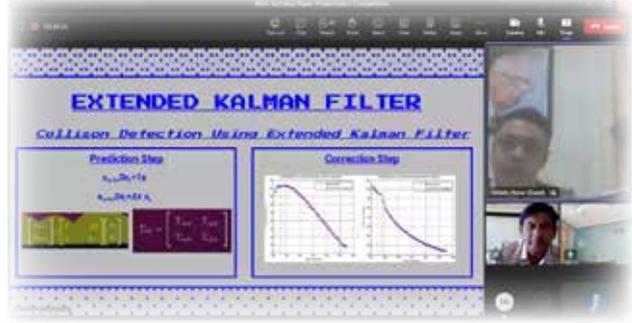
Sr. No	Topic of the Paper	Position	Candidate's Name	Institute Name
1	Gas And Steam Turbine Combined Propulsion Plant	1st	Devansh Gaur, Prathmesh Jadhav, Suresh Kotha	Tolani Maritime Institute
2	Micro Bubble Drag Reduction a Model Based Analysis & Innovation	2 <sup>nd</sup>	Manav Gurjar, Karan Rautela, Ninad Bhavsar	Tolani Maritime Institute
3	Auto Dock Using Sensor System	3rd	Devish Bakshi, Hunar Deepi, Daksh Bhardwaj	Tolani Maritime Institute
4	Navigating the Storms Within: Seafarers' Mental Health and Wellbeing	4th	Yagyansh Pathak	Samundra Institute Of Maritime Studies
5	Possible arrangements and improvements for Air Hull Lubrication	5th	Krishna Panchal, Mohit Nandkumar Satre	U.V. Patel College of Engineering

And the event concluded with a vote of thanks delivered by **Mr. Chitta Dash**, Adviser at INSA. The competition proved to be a platform for fostering knowledge exchange and promoting excellence within the maritime industry.



# Glimpses of the Event





Er. Rama Subba Rao, MMD Surveyor Capt. S. Divakar, MD&CEO, DCI Ltd  
 Er. N. Hari Krishna, CME, VPA Capt. T. Srinivas, DC, VPA  
 Capt. Pritam Mohanty, Ex DC, Gangavaram Port  
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 Shri D. Nares Kumar, VCTPL Capt. M.S. Jolly, VCTPL  
 Er. B. Lakshmanarao Er. K. Ravi Kumar  
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 Er. P. Narasinga Rao, BIMT, Vizag Er. Sadasiva Rao, HSL  
 Er. N.A.R. Naidu Er. P. Jairajkumar  
 Er. Sanjiv Dhavan Er. Ashwin Shawney  
 Er. U.G.K. Sastry Er. P.B.V. Subba Raju  
 Er. V. Suresh Er. C. Srinivas  
 Er. L. Madanmohan Er. V. Jayaprakash  
 Er. V. Subba Rao Er. V.V. Subbarayudu  
 Er. K.V.T. Radhakrishna Er. M. Chandrasekhar Rao  
 Er. Harraj Singh Anand Er. Sarb Raj Singh Anand  
 Er. G.V. Bharat Kumar Er. Kotla Rama Mohan  
 Er. K.V.S. Sekahra Raju Er. P. Ravishankar  
 Er. S. Prasada Rao Er. P. Paradesi Naidu  
 Er. Panchadi Sreedhar Er. N. Mallikarjuna Rao  
 Er. S.P.J.L.N. Swamy Er. Sri Venkata Satyanarayana Chada  
 Er. Sanjoy Vardhamane Er. T.B.M. Krishna  
 Er. M. Appala Reddy Er. G.V. Ramana Rao  
 Er. B.V.S. Satish Er. T.K.K. Prasad  
 Er. Lakshman Vadlamani Er. C.R. Raju  
 Er. A.V. Ramana Rao Er. Avasarala Murty  
 Er. B. Murali Er. Jeffrey Perira  
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 Capt. Jacob, KSPL Er. B. Bapineedu, IRS  
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 The Convener  
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 A.U. College of Engineering (A), Andhra University, Visakhapatnam - 530 003  
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# Institute of Marine Engineers (India) VISAKHAPATNAM BRANCH

announces the



## Global Maritime Seminar GLOMARS 2024

on 8<sup>th</sup> and 9<sup>th</sup> March 2024

-: VENUE :-

**THE TAJ GATEWAY HOTEL**  
 BEACH ROAD, VISAKHAPATNAM

Theme : AI and Machine Learning in Marine Sector



## INTRODUCTION

The Institute of Marine Engineers is premier body representing marine engineering professionals from India with the objective of promoting the scientific development of Marine Engineering and other allied subjects.

Institute of Marine Engineers (India) - Visakhapatnam Branch (IME(I) -V) has been conducting GLOMARS at regular intervals. GLOMARS 2019 was a huge success with participation of Industry and Academia.

Institute of Marine Engineers (India) - Visakhapatnam Branch invites you take part in this global seminar in any of the following options:

GLOMARS provides an opportunity to showcase your products/expertise and gives you a platform to interact with large number of prospective clients and interested parties.

It is a call to all the bigwigs and stalwarts of the Industry, Academia to showcase their products, talent at the seminar by way of portraying the latest technologies, presenting their findings of research etc at this global event. This is a big event noticed by one and all connected with Marine and Allied Fields.

### Theme: AI and Machine Learning in Marine Sector

Participants: Engineering- Marine, Ocean, Subsea, Naval Architecture, Maritime Electrical and Electronics, Fire and Life Saving Engineering, Fuel and Lubrication Engineering, Defence Specialisations, Traditional and Specialised propulsion systems and allied Engineering, etc

Sciences: Fisheries, Marine Bio Systems, physical oceanography (the study of waves, currents, tides and ocean energy); geological oceanography (the study of the sediments, rocks and structure of the seafloor and coastal margins); chemical oceanography (the study of the composition and properties of seawater etc.

## PAPER PRESENTATION AT THE SEMINAR

Papers on the above technical topics or related topics are called for both presentation at the Seminar as well as publication in the compendium.

### STEPS TO PAPER SUBMISSION

- Full papers may be sent to papers@GLOMARS@gmail.com.
- The same will be verified by the team of experts as the relevance to the theme.
- Final paper along with biodata of presenter/s or authors shall be submitted by 15th February 2024.
- Final paper shall be in double column (research format) in single space. Both in PDF and word format is needed. This is to adjust the alignments. Pictures and diagrams shall have clarity.
- Authors shall solely be responsible for their papers for truthness of content.
- Plagiarism check will be carried out for all the papers. Peer review also by experts in the relevant field before a paper is accepted.
- It will be the endeavour of the Organisers to allow all the papers for presentation at seminar. However due to paucity of time, some papers may not get chance for presentation. However all the accepted papers will be published.
- There shall be three prizes for the best papers overall. 1st, 2nd and 3rd. The Committee will decide these prizes based on the relevance of topic to the theme, Presentation skills. The winners will receive Memento and certificate.
- It has been decided to adjudicate papers from students in a separate category and give first and second prizes.
- Papers from students are to be certified by their HoD and Principal.
- All the participants will receive Certificate of participation.
- Due to overwhelming response and request from many enthusiasts, the requirement of synopsis has been done away with and any one can present full papers by deadline date.

## PUBLICITY

In order to expose the Industrial developments to the clientele the following facilities are being provided by the organisers

### Stalls:

- Stall size will be 12' x 8'
- You may book any number of stalls of 12'x 8' units.
- Power will be provided.
- Rate per stall: Rs. 1,00,000/- /US\$ 1,500

## SPONSORS

### Platinum:

- Indian Organisations: - Rs. 5,00,000/-
- Foreign Organisations: - US \$ : 6000

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### Gold:

- Indian Organisations: - Rs. 3,00,000
- Foreign Organisations: - US \$ : 3750

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 Half page Colour advertisement in Souvenir  
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### Silver:

- Indian Organisations: - Rs. 2,00,000
- Foreign Organisations: - US \$ : 2500

**Privileges :** 1 delegate will be allowed to participate in Seminar  
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### Bronze:

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- Foreign Organisations: - US \$ : 1250

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## DELEGATES

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<b>Non-member delegate :</b>	Indian - Rs.7,500/- Foreign - US \$ 100

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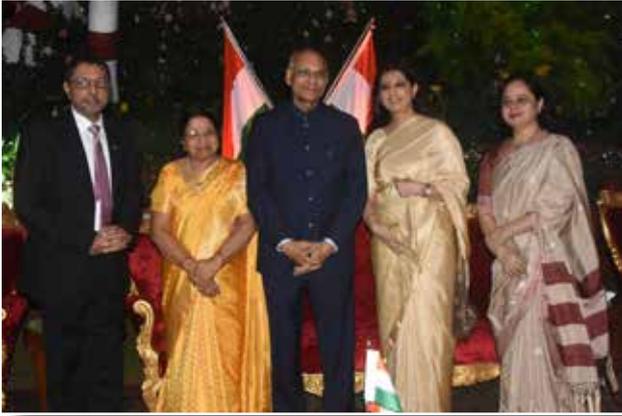
## *Governor of Maharashtra Shri. Ramesh Bais Hosted the Traditional Reception on the Occasion of Republic Day*

The Governor of Maharashtra **Shri. Ramesh Bais** hosted the traditional reception and high tea for eminent invitees on the occasion of **75th Republic Day** on 26<sup>th</sup> January 2024. President of United Nations General Assembly **Mr. Dennis Francis**, India's representative to the United Nations **Smt. Ruchira Kamboj**, Speaker of Legislative Assembly **Shri. Rahul Narwekar**, Deputy Speaker of Legislative Council **Dr. Neelam Gorhe**, former Governor **Shri. Ram Naik**, former Chief Minister **Shri. Sushil Kumar Shinde** were present on the occasion. The President of the Institute of Marine Engineers (India) **Shri. Rajeev Nayyar** was also an invitee to this ceremony. Apart from these eminent guest, the other dignitaries were State DGP **Smt. Rashmi Shukla**, Vice Chancellor of SNTD Women's University **Dr. Ujwala Chakradev**, Vice Chancellor of Maharashtra State Skills University **Dr. Apoorva Palkar**, film and television personalities like **Mr. Rohit Shetty**, **Mr. Bharat Dabholkar**, **Mr. Sudesh Bhosle**, **Mr. Sanjeev Kapoor**, **Mr. Adnan Sami**, **Mr. Shailesh Lodha**, **Mr. Pehlaj Nihalani** and celebrities from various walks of life also attended the Governor's reception.

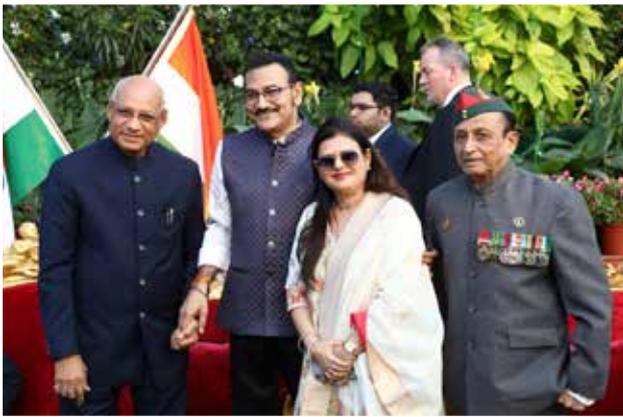


# Glimpses of the Event









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(OEM Approved Course)




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### X Engines

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April 2024: 22-26

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Conducted by Wartsila Switzerland  
(OEM Approved Course)

March 2024 : 18-22

April 2024 : 15-19

## High Voltage Course Operational Level

## High Voltage Course Management Level

(UK-MCA Approved Course)

March 2024: 04

May 2024: 03

March 2024: 04-08

D. G. Approved Courses	March 2024	April 2024
1. Engine Room Simulator - Operational Level	11-13	01-03, 10-12, 22-24
2. Engine Room Simulator - Management Level	-	15-19
3. High Voltage Safety and Switch Gear Course at (Operational Level)	04	03 May
4. High Voltage Safety and Switch Gear Course at (Management Level)	04-08	-

Value Added Courses	March 2024	April 2024
1. Practical Marine Electrical (Basic) - Module 1	11-15, 18-22	01-05, 15-19, 22-26
2. Practical Marine Electrical (Advance) - Module 2	11-13, 26-28	22-24, 29-02 May
3. Electronics for Marine Engineers - Module 4	14-15	01-02, 25-26
4. Instrumentation, Process Control & Programmable Logic Controllers - Module 5 & 6	04-08, 18-22	15-19
5. Auxiliary Diesel Engine and Maintenance Course	11-15, 18-22	01-06, 15-19, 22-26
6. Bridge Manoueuvering & Engine Control - Management Level		
7. Bridge Manoueuvering & Engine Control - Operational Level		
8. Hydraulics for Engineers - Basic	04-05, 18-19	15-16, 29-30
9. Hydraulics for Engineers - Advanced	26-28	10-12
10. Maritime Crew Resource Management (MCRM)- CAE Accredited	11-14	01-04, 22-25, 29-03
11. Machinery Breakdown Safety Campaign - 1		
12. Machinery Breakdown Safety Campaign - 2		
13. Machinery Maintenance - Skill Enhancement - Module 2	11-15	01-05, 15-19, 22-26
14. Machinery Maintenance - Skill Enhancement - Module 3	04-07, 18-21	15-18, 29-03
15. Machinery Maintenance - Skill Enhancement - Module 4	04-06, 11-13, 26-28	01-03, 22-24
16. Maritime Safety Management - Module 1 (Occupational & Behaviour Based Safety)	06-08, 20-22	10-12, 17-19
17. Maritime Safety Management - Module 2 (Risk Assessment)	26	10
18. Maritime Safety Management - Module 3 (Shipboard Safety Officers)	27	11
19. Maritime Safety Management - Module 4 (Accident Investigation)	28	12

### VACANCY Faculty position | Training – Engineering

**Qualifications and Experience**

- Marine Engineer Officer Class 1 – COC from India / UK.
- With min. 1 year rank experience as Chief Engineer (Preference for experience on LNG/ LPG/ Tanker vessels).
- Experience in Ship operation, ship repair, teaching, auditing, inspections preferred.
- Training for Trainers and Assessors (TOTA) or Vertical Integration Course for Trainers (VICT).
- Other ISO / ISM / Technical Value-added courses. Excellent verbal and written communication skills.
- Should be interested in modern teaching methodologies.
- Candidate must have a passion for learning continuously and a desire to be in the teaching profession.
- Proficient in use of computers and savvy with use of various software.



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## Flag Hoisting and eLibrary Inauguration: Milestone Moments at IME(I) House



The 75th Republic Day was joyously celebrated at IMEI House, Nerul, Navi Mumbai on January 26, 2024. The solemn occasion was graced by the presence of **Shri. Rajeev Nayer**, President of the Institute of Marine Engineers (India), who unfurled the National Flag.

Adding to the significance of the day were several notable initiatives, including the inauguration of the eLibrary, generously sponsored by the Maritime Union of India (MUI). **Capt. Tushar Pradhan**, Chief of MUI, inaugurated the eLibrary, which will be jointly managed by IME(I) and The Company of Master Mariners of India (CMMI).

Concurrently, a state-of-the-art recreational sports center located in the basement of IMEI House was inaugurated by **Shri. Arun Kumar Gupta**, Chairman of IME(I) Navi Mumbai Chapter, **Shri. V. K. Jain**, Immediate Past President, IMEI, Capt. Pradhan with other dignitaries.

During the event, Capt. Pradhan elucidated the vision behind the eLibrary, emphasising its accessibility to members of IME(I), MUI, and CMMI. This progressive initiative is poised to benefit all members, whether involved in sailing or offshore activities. The eLibrary is slated to commence operations from April 5, 2024, with ongoing efforts to meet this deadline.

**Capt. Debashish Basu** also put up a presentation on his eLearning tools through Navguide Solutions. The other dignitaries from CMMI were also presented at the inauguration sessions including Capt. Halbe, **Capt. Kaustubh Pradhan** and **Capt. Philip Mathews**.

The event witnessed the presence of **Capt. Nazir Upadhye**, Director of Sibamar Marine, alongside attendees from Shri Ambika Yoga Kutir.

The diverse audience included members, faculty, staff, students, and their families, collectively contributing to the success and vibrancy of the celebration.

# Glimpses of the Event



## Exploring Maritime Environmental Sustainability at IME(I) Karnataka Chapter



The Karnataka Chapter of The Institute of Marine Engineers, India, conducted a highly successful knowledge session addressing the theme of “**Environmental Concerns Related to Ports and an Overview of MARPOL and its Current Status**” on 19<sup>th</sup> January 2024, at **Eden Club, Mangalore**. **Dr. Roopashri S.**, a distinguished professional and research scholar currently affiliated with the New Mangalore Port Authority, presented valuable insights on the subject. The seminar experienced a notable resurgence of interest among association members in MARPOL Annexes and Shore compliance.

The presentation also included a stimulating conversation about the influence of MARPOL Annex VI on operational and record-keeping facets onboard. The seminar garnered enthusiastic involvement from experienced professionals, as well as both current and retired Marine Engineers, fostering a vibrant platform for the exchange of knowledge.

Senior Marine Consultant and Chairman of IME(I) Karnataka Chapter, **Mr. Preetam Kumar S.**, played a crucial role in guiding the seminar. Reflecting on the event, **Ms. Rupali Raj Joshi**, Secretary of IME(I) Karnataka Chapter, extended appreciation to Dr. Roopashri for her outstanding presentation, underscoring its positive impact on the members. Ms. Joshi noted that the seminar stimulated a meaningful discussion among Marine Engineers, emphasising the significance of environmental considerations in their field. She conveyed that this event marked a rejuvenating engagement, rekindling interest

in MARPOL Annexes and Shore compliance among association members after a considerable period.

The audience demonstrated great enthusiasm, actively engaging in discussions that encompassed vital insights into emerging technologies. The event achieved success with an involved audience and a compelling speaker.

In summary, under Dr. Roopashri’s port-side expertise, the seminar emerged as a rejuvenating and influential assembly, reigniting the significance of MARPOL Annexes and Shore compliance within the marine engineering community. The enthusiastic participation of attendees laid the groundwork for future knowledge-sharing initiatives within IME(I)’s Karnataka Chapter.



# WORLD MARITIME TECHNOLOGY CONFERENCE Chennai, India 2024

## GLOBAL SHIPPING – A BATTLE FOR SURVIVAL OR A TORCH BEARER OF HOPE ?

Knowledge & Technology Partner



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*"It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us, ..."*

Charles Dickens comes to our minds as we reflect upon the state of shipping today. Juxtaposed between Trade Wars, Galloping Technology, Regulatory Challenges and Climate Change issues, we could be looking like a deer caught in the headlights, unable to comprehend where our future lies.

The Lehman Brothers crisis of September 15, 2008, now close to 15 years ago; yet we have not been able to overcome its impact, just as we have never been able to avoid the odd bout of flu every winter, and of course the Covid-19. There has been a continuous stream of regulations, in the wake of galloping technology, escalating political gamesmanship across nations, safety management continuing to be an issue, and duty of care towards crew remains questionable.

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On behalf of the Organising Committee and The Institute of Marine Engineers (India), Chennai Branch, we extend a warm invitation to you and your organisation to actively participate and support the three day event, between December 4-6, 2024 in Chennai. We provide you in attachment, a copy of the canvas, and we hope to engage you in cool pre-winter periods in India.

### World Maritime Technology Conference (WMTC - 2024)

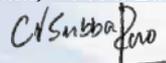
**"GLOBAL SHIPPING – A BATTLE FOR SURVIVAL OR TORCHBEARER OF HOPE?"  
{AMIDST TECHNOLOGY, REGULATIONS, GEO-POLITICS & CLIMATE CHANGE}**

Is Shipping a good story? Let us debate.

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On behalf of the Organising Committee, WMTC 2024



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# *Managing Challenges in Transit: Cargo Damage, Foreign Proceedings by Line, and Sellers' Options*

## **Background**

A foreign consignee ("Buyer") had contracted with an Indian supplier/manufacturer ("Seller") of chemicals for supply of few IBC Cubitainers of certain chemical in liquid form ("Cargo"). The Seller contracted with a reputed international shipping line ("Line") having offices in India for the carriage of the Cargo to the port designated by the Buyer. The consignment was booked and all IBC Cubitainers after being surveyed for proper packaging were transported by the Seller at the designated CFS and were loaded into a container. The container was sealed by the customs and handed over to the Line for its sea voyage to the port of destination. The container was offloaded at an intermediate port and was reloaded on another vessel destined for port of final destination. There was no report of any visible sign of chemical leakage at the intermediate port.

## **Incident**

At the port of destination, cargo leakage was reported from the said container and was said to have caused

stains in several other containers stowed nearby. The Buyer accepted the consignment with appropriate deductions for volume of Cargo that has been leaked as measured upon inspection. The Line however approached the Seller for joint survey and inspection of the space where the leak occurred onboard the carrying vessel. The Seller expressed its inability for attending the above survey and inspection however asked the Line for sending the final reports of survey and inspection for verification. The Line did not hand over the reports but claimed approximately USD 1 million from the Seller while the value of Cargo that leaked was estimated to be around USD 2,000. The Seller disputed the claim on account of non-disclosure by the Line of survey and inspection reports for the damage caused.

## **Claim and Legal Proceedings**

The contract between the Seller and the Line was governed by a foreign law as per standard terms and conditions available online and whose reference was mentioned in the contract. The Seller in due course



received a notice from the foreign court notifying that a suit has been filed against the Seller by the Line. The Seller hurriedly and in panic filed an acknowledgement of service of court notice in the required foreign court thus setting a timer to start against itself for making an appearance in legal proceedings as initiated in the foreign courts as per its procedures.

Upon realising its mistake of filing an acknowledgment of service in foreign court without considering all aspects, the Seller was now looking for ways to get the proceedings shifted to India from foreign jurisdiction to save costs.

However, there were few obstacles before the Seller, and in fact for any Seller in general encountering such situation, which are as follows.

1. The contract, which came into being by Seller accepting the “Terms and Conditions” of Line, was a Business-to-Business contract with a foreign law as its governing law. The Indian courts consider that if both the business entities who are parties to the contract have a reasonable understanding of the practices of the liner trade then it is reasonable to assume that both parties are well aware of the contractual terms.
2. There are remedies in Indian law (**Section 13 of Code of Civil Procedure, 1908**) against foreign judgments or against enforcement of foreign judgments however there is nothing so explicit under any legal provision for claim proceedings ongoing in foreign courts.
3. However, the Seller can apply in appropriate Indian court for an anti-suit injunction which is for halting the proceedings initiated under any foreign jurisdiction. The appropriate courts of India have the power to issue anti-suit injunctions as the courts of India have personal jurisdiction over the citizen/party carrying out business in India as an Indian entity. Though these anti-suit injunctions are not granted easily by the court as this may amount to interference in foreign court proceedings to which the parties have legally submitted to, however, if a strong case is argued citing foreign proceedings as frivolous, vexatious, lack of merits, ulterior motives or deprivation of natural justice, the courts may relent. There is a good line of cases from the Supreme Court and High Courts of India where anti-suit injunctions have been granted based on a just cause as mentioned above or if the continuation of the proceedings in foreign jurisdiction will result in grave injustice to either of the parties or defeat the ends of justice or perpetuate injustice. However there is no guarantee that foreign proceedings be stopped and litigation can be brought to India through this application of anti-suit injunction and this will be entirely on the facts before the court. If the Indian court grants an anti-suit injunction to the Seller, it may have to file the same in the concerned foreign court immediately as protection. It must also be kept in mind that the opposite party may also file



an anti-anti-suit injunction against it to halt the Indian proceedings and it is entirely at the discretion of foreign court to decide accordingly whether to grant this anti-anti- suit injunction.

### Further Comments

1. In case the Indian courts reject the Sellers’ application for an anti-suit injunction, the Seller may continue to fight the proceedings in the foreign court. Based upon the rules in courts of foreign jurisdiction, the successful party may have a good chance of recovering high percentage of legal costs and expenses incurred from the losing party if the successful party has maintained good conduct all along the proceedings. Good conduct here means no evidence of non-compliance with court directions. If the Seller wins, it may get back its costs and expenses of litigation as damages. If the Seller loses, it may apply in Indian courts under Section 13 of the Code of Civil Procedure 1908 against the foreign judgment or anti-enforcement of the foreign judgment.
2. Application for an anti-suit injunction will be filed in the State High Court where the defendant Line has its legal address in India.
3. Seller could also have counter-claimed against the carrier for the loss of value of cargo caused by poor handling/stowage of the carrier but that claim has a time limit of 1 year from the date of damage under the Carriage of Goods by Sea Act, India (COGSA)
4. Lastly, the Seller may consider any offer for outside the court settlement should the opposite party come up with one, however, for this Seller must be truly convinced that all evidence in the matter points to a lack of due diligence on its part while packaging/transporting the cargo.

PS: Legal advice may vary as per circumstances of each case.

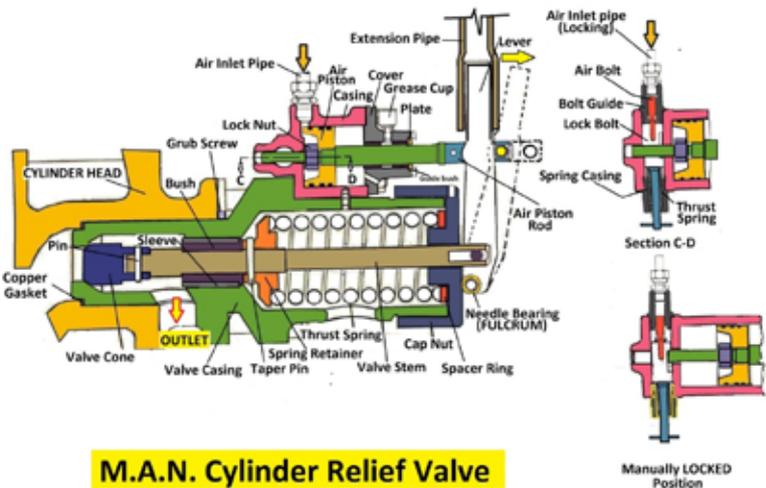


Written by:  
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# Pneumatically Operated Cylinder Relief Valve (M.A.N)

Back in the day, all marine diesel engines were provided with a relief valve that was installed in the cylinder head. The purpose of this valve was to release the combustion chamber pressure in case it exceeded say 10% of the peak pressure. But with the advent of engines designed with load-based electronic fuel injection, there is very little possibility of the peak pressure variation. Hence the requirement for a relief valve, itself is under question. Over the years, wherever fitted, the relief valve has become “ornamental”. Some of the Makers’ have altogether dispensed with the cylinder head relief valve.

For the moment, imagine a vessel that is hotly pursued by Pirates. Under these circumstances the engine will be operated at the Maximum Continuous Rating condition for several hours to ward off the pirates. There is the likelihood that the peak pressure will go beyond the prescribed limit. In such a scenario if cylinder relief valve is not provided, the cylinder head will lift and the excess pressure will get released circumferentially at the interface between the liner and the cylinder head. Refer to the illustration below.

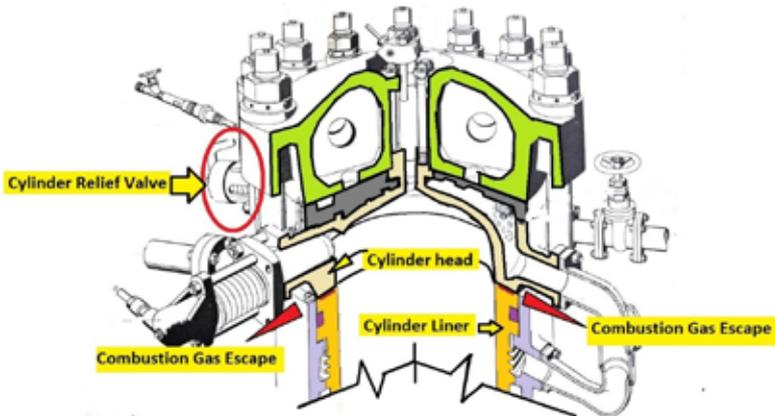


**M.A.N. Cylinder Relief Valve**

To facilitate pneumatic operation, an air cylinder is bolted to the relief valve casing. The air cylinder comprises of an Air piston with three seal rings. One end of the piston rod is bolted to the piston by a lock nut. The free end of the piston rod is forked and connected with a lever. The relief valve stem is also connected to the same lever. The fulcrum of the lever is at one end that includes a needle bearing. The free end of the lever can be manually shifted, thereby opening the valve. Manually opening the relief valve is a procedure that is followed when “blowing-through” the main engine.

For pneumatic operation, control air is admitted into the air cylinder causing the air piston to move down the cylinder. The movement of the air piston rod will cause lever to move and hence the relief valve stem also to move against the thrust spring force and thus open the relief valve.

Another feature is that the relief valve can be locked in OPEN position. When air is admitted through the air pipe (Locking), the air bolt moves the lock bolt against the force of thrust spring. By this movement of the lock bolt, the free end of the air piston rod engages with the slot provided in the lock bolt and will remain locked in this position even when air supply to the air pipe (locking) is shut off. Thus the relief valve also remains locked in open position as per the requirement.



The moot point is that in case of excessive pressure, would it be better that the entire cylinder head lifts and releases combustion gases (including flames) across the cylinder head platform posing a risk to the engine room crew or just a “controlled” release via a cylinder relief valve, causing minimum risk to the engine room crew?

The M.A.N. KZ series engine has a cylinder relief valve fitted in the cylinder head. The valve is located on the starboard side of the engine. For whatever reason in case the pressure in the combustion chamber exceeds the set limit (85bar), the Valve Cone will lift against the Thrust spring pressure and release the combustion gases, thus relieving the excess pressure in the combustion chamber. This valve can be either pneumatically (from remote location) or manually opened.



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# Gas and Steam Turbine Combined Propulsion Plant

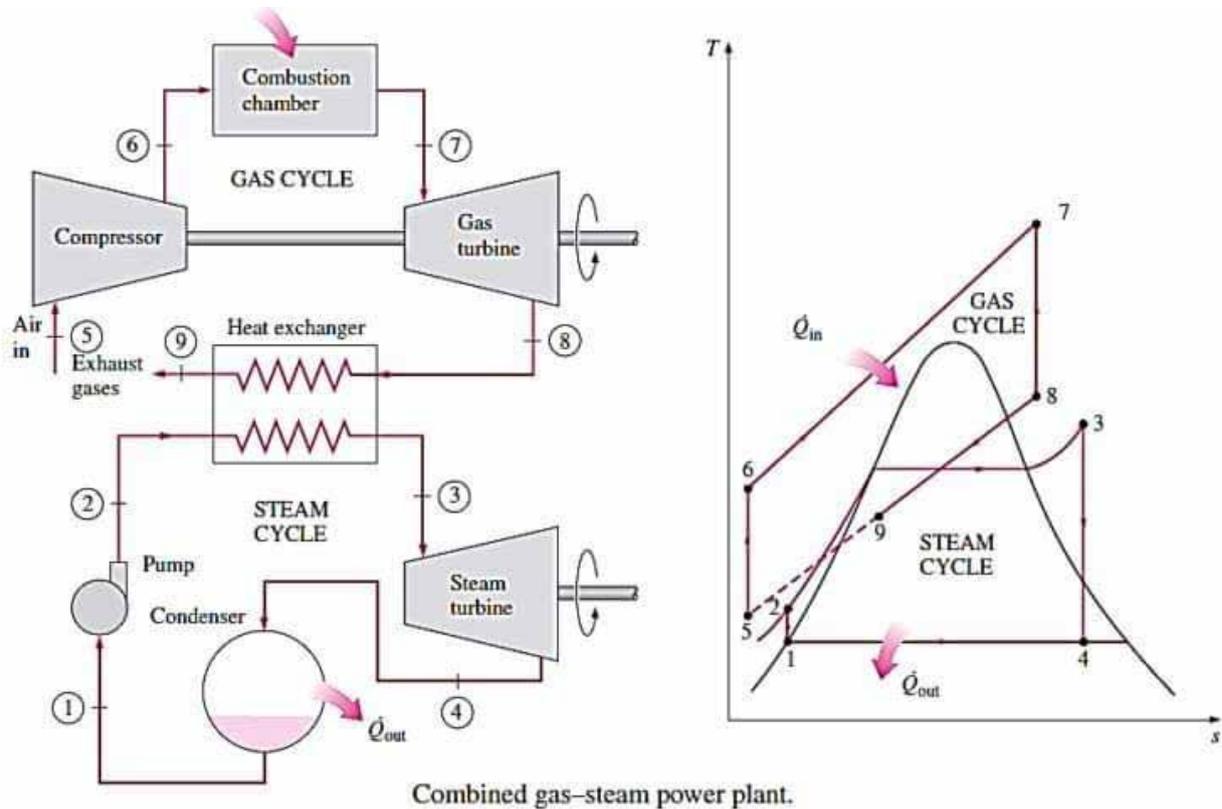


Figure 1. Combined-Cycle Power Plant System using a gas turbine with heat recovery steam generator.

The shipping industry plays a crucial role in transporting goods across the world and has a greater challenge to reduce the carbon footprint and its environmental impact. Currently, the ships are propelled by 2 Stroke Slow Speed Marine Diesel Engines, which consume mainly heavy fuels oil, and fuel oils, resulting in emitting harmful gases and contributing to climate change. To tackle this problem, the industry is exploring various cleaner alternatives like liquefied natural gas (LNG), methanol, ammonia, or even hydrogen, which produce fewer emissions, helping to reduce the ship's carbon footprint.

As, we know the industry has evolved from using coal as fuel to modern fuels like MDO, LSMGO, etc. but the new problem which arises with these fuels is that they are costlier than the one which we are using currently, we need a more efficient propulsion module, and to find the solution for this, we don't need something superstitious, the answer lies in our old books, using "Combined Cycle Power Plant."

So how does it work? Picture a system that consists of a gas turbine, which will compress air and mix it with LNG in a combustion chamber, which will produce high-temperature exhaust gases, and will be coupled to an

alternator, generating electricity. But here's the clever part: instead of letting go of that high-temperature exhaust, it will be directed to a waste heat recovery boiler, which will generate Superheated and High pressurized steam which will drive a steam turbine, coupled to an alternator, to produce even more electricity. This generated electricity will be consumed by the Propulsion Motor, to propel the vessel. This combined cycle approach makes the whole process incredibly efficient, achieving nearly or more than 60%.

What are the benefits of this system? First and foremost, it's much cleaner than traditional engines, emitting fewer greenhouse gases and pollutants. This will help the environment and ensure compliance with stricter emission regulations. Plus, it's more fuel-efficient, so the specific fuel oil consumption (SFOC), will result in saving both money and resources. This system produces very little noise during the operation, which will make the engine room silent.

One exciting example of this technology is under development phase, known as PERFECT ship, under GTT, CMA CGM and its subsidiary CMA Ships and DNV GL studied the technical design and economic feasibility for an electric-driven 20,000 TEU ULCV vessel with an

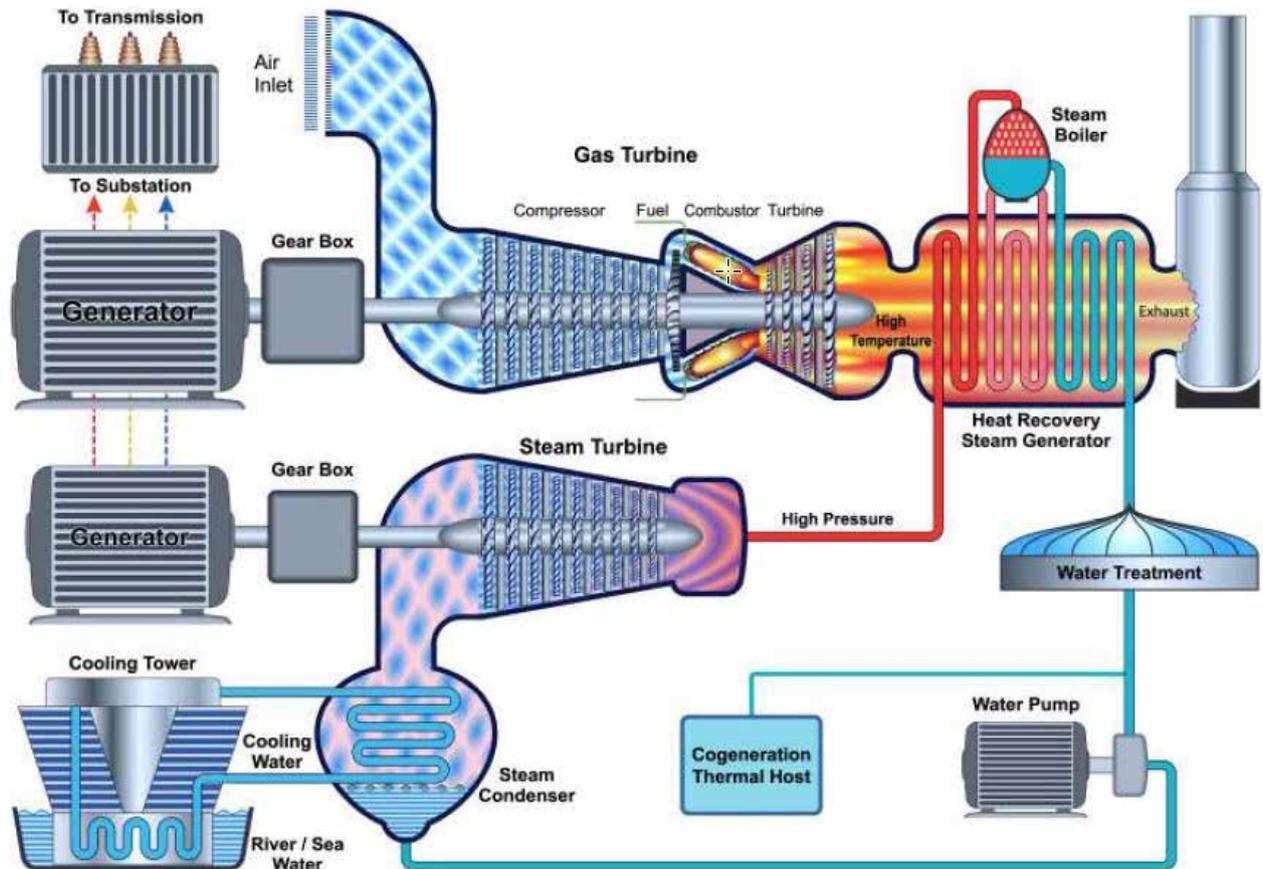


Figure 2. T-S diagram of Combined Gas-Steam Power Plant



Figure 3. Computer model of the proposed LNG COGES-powered 20,000 TEU vessel, by DNV Group.

LNG-fuelled combined cycle gas and steam turbine (COGES) electric power plant. This ship will use LNG as its primary fuel. Its combined gas and electric turbine system and innovative design features make it incredibly efficient and environmentally friendly.

But challenges remain. Implementing these advanced propulsion systems on a larger scale requires investment and support from stakeholders across the industry. And while gas turbines have improved significantly in recent years, concerns about efficiency, and fuel compatibility. The Gas turbine was neglected by the industry because they have very high specific fuel oil consumption (SFOC) and use expensive fuel.

Overall, the integration of Combined Cycle Power Plants represents a promising step toward a cleaner and more sustainable future for maritime transportation. By embracing innovative solutions like these, we can navigate towards a greener and more efficient shipping industry, benefiting both the environment and future generations.

Written by:-  
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# 'Fridge Compressor Problem (Cont'd) + A Bizarre Generator Problem

## PROBLEM WITH ONE 'FRIDGE COMPRESSOR

Having joined as an 'advance party' in Paranagua (Brazil), I was constrained to act within the confines of the 'Memorandum of Agreement' between our company and the so-called 'sellers'. I could only 'observe' and go around the Engine Room during the hours it was manned by them. For the second time around, I found that racism did exist in this world, with each entity thinking they are the only ones with professional knowledge.

But, to my good fortune, I was able to solve a problem that they had encountered and could not resolve, that of a generator tripping off the Main Switchboard a few seconds after it was put on load. (Narrated in the January 2024 issue of iMélange). This made them very co-operative, which is exactly what I wanted, as I had a huge 'Check List' of items to be checked for the vessel's Flag and Registry Change, for which I needed their full co-operation.

Their First Engineer was the first one to openly say that I had sorted out a problem that they had given up on and there was no questioning the professionalism and knowledge of the Indian Chief Engineer. He, then, opened up next day and said "Chief, there are other problems that we are having, which we have not been able to solve. Can you help?" I said 'Sure' and we became close friends for the remainder of the voyage, with him arguing on my behalf when there was the slightest slur on me. (To add spice to my tale, the elderly stewardess in the galley also helped me - strictly confined to a vegetarian diet, which was anathema to them).

The first problem that he told me about was that of the 'Fridge Compressor. When I told him I had suspected it and he asked me how I did know, I showed him the 'Fridge Compressor Spares locker. They were carrying 4 crankshafts, 8 pistons, 4 sets of bearings, 8 connecting rods, 4 liners, 2 attachable LO Pumps and enough spares to build 2 compressors. That indicated a severe problem, as no ship carries spare crankshafts and so much of other spares.

Co-incidentally, the 'Fridge Compressor that was the problematic one failed again the next morning. As per records, it had been failing every three months or so, at least twice a year, for the last 4 years. The failure was restricted to only one compressor, not both.

## The Lub Oil System in 'Fridge Compressors

I had noted on the preceding two days that the Lubricating Oil Pressure was low, running at just above 0.2 bar more than the suction pressure, when it should have been at least 1 bar more than the suction pressure.

In 'Fridge Compressors, there are only three gauges to help you with your diagnosis on operating conditions – Suction Pressure gauge, Discharge Pressure gauge and Lubricating Oil Pressure gauge and some thermometers at the requisite points.

The construction of these compressors is such that pressure inside the crankcase is equal to the incoming suction pressure of the refrigerant gas. This suction pressure acts on the surface of oil in the crankcase. This oil is drawn from the crankcase by the attached oil pump, pressurised and sent into the bore holes of the crankshaft to lubricate the main bearings, bottom end bearings and, through bore holes in the connecting rods, to the gudgeon pins, the oil then scraped back into the crankcase because of the oil scraper rings, some of the oil coating the liner and assisting in the cylinder lubrication. The cylinder liner is also lubricated by the splashing of the oil when the crank bearings rotate.

Since the suction pressure acts on the crankcase oil, the initial inlet pressure to the attached lubricating oil pump is equal to the suction pressure of the compressor. Then the pump increases the pressure, by about 1 or 1.5 kg/cm<sup>2</sup>. So, if the suction pressure gauge shows 0.8 kg/cm<sup>2</sup>, the Lub Oil Pressure gauge *must* show at least 1.8 kg/cm<sup>2</sup>, if not more, for proper lubrication of the bearings. This had been showing only about 0.2 kg/cm<sup>2</sup> more than the suction pressure, which meant the bearings were not receiving sufficient pressurised lubricating oil. This was what was damaging the compressor.

Their 1st Engineer, the Fitter and I opened the compressor completely. The crank pins were scored badly enough to need renewal of the crankshaft, the bottom end, top end and main bearings were damaged, the pistons badly scored, the rings seized up, the liners heavily scored and connecting rods slightly bent.

I concentrated on the Lubricating Oil Pump and the bore holes in the crankshaft and connecting rods.

The new crankshaft and connecting rods were fine, the oil bore holes clear. The top two diagrams show how the

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3. Holds a Certificate of Proficiency for Basic training for Chemical Tanker cargo Operation
4. Has at least three months of approved sea going service on chemical tankers Within the last sixty months on Chemical tankers, or at least one month of approved onboard training on Chemical tankers on a supernumerary capacity, which includes at least three loading and three unloading operations and is documented in an approved training record book as specified in section B-v/1 of the STCW Code.

Advanced Training for Chemical Tanker Cargo Operations	10 Days	1 <sup>st</sup> April 2024	<a href="#">CLICK HERE</a>
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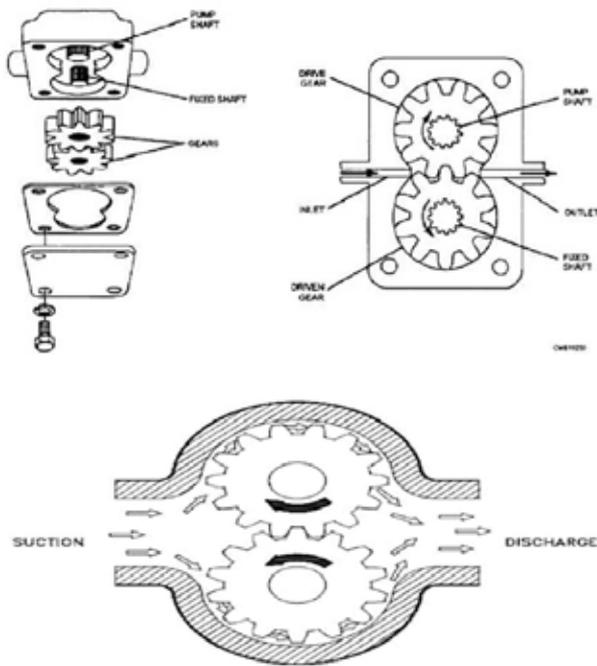


Figure: 1 and 2

pump works, with the third showing oil flow. I just sat on a stool at the site of the compressor and kept imagining every single thing that happens and tried to visualise it. It took me a while to find the fault.

If one looks at the internals of the pump, there are 2 gears, one the driver – which is an extension attached to the crankshaft – and the other is the driven. If the driver rotates clockwise, it will send the oil from the suction side around the top periphery of the volute casing, to be discharged on the other side at a higher pressure. Meanwhile the driven gear also does the same thing to the oil, but rotates anti-clockwise. The oil going around the periphery is what pressurises the oil.

My thoughts went in a different direction. What if the driver gear rotated in an anti-clockwise direction and the driven gear in the clockwise direction? The oil would then pass through two or three gear teeth and practically get connected from the suction side to the discharge side without going around the periphery of the volute casing, thus building up very little pressure.

Next query – what would make the pump rotate in the opposite direction? If the pump was rotating in the opposite direction, the crankshaft was rotating in the opposite direction. The compression would not be affected, because all that the piston had to do was move up and down for compression to take place.

Next query - What made the crankshaft rotate? On the end opposite to the lub oil pump was a pulley that is pressed on to a conical face and has a nut with washer. A 440 volt motor rotates the shaft by means of belts, motor pulley to compressor pulley. What can go wrong?

The next morning I was up early, as usual, when I had my 'Eureka' moment. A 440 volt AC motor can rotate

either clockwise or anticlockwise depending on how it is connected to the terminals. When we went down and completed assembling the compressor, we tried it out and found the lubricating oil pressure was just slightly higher than the gas suction pressure - same as before -, which it should not be. Then I asked the 1st Engineer to open the terminal box of the motor and reverse connect two terminals. The lubricating oil pressure shot up to 2.2 kg/cm<sup>2</sup>, which was about normal for this compressor. Problem solved.

It was likely that, 4 years ago when the motor was overhauled - as per their records - and motor bearings changed, the Electrician had, initially, not marked the position of the terminals and had connected it wrongly after overhaul, thus changing the direction of rotation.

After this incident, I received all the co-operation I needed to prepare for the 'Flag Change', their First Engineer in the lead. When I, later, asked him the reason why he had been so co-operative and unlike the others. His answer was simplistic and had, in the background, the inadequacy of how most engineers feel of not being fully exposed to a 'guru - sishya' environment. His hunger for knowledge and experience was quite evident.

There were further problems on deck with the hatch rollers that I was able to resolve.

As in the corporate dog-eat-dog world, the shipping world is no different, unless one shows that one is equally or more capable than others. That is the only way to gain co-operation and respect.

A couple of days prior arrival Fos, a grand party was organised by the Captain, on the after deck, where I was the Chief Guest. I was presented a set of top quality wine glasses with their company's logo imprinted on each glass. I still have it at home.

### A Bizzare Generator Problem

***One of the Generators was being run for about 4 to 6 hours every day - on parallel - and then stopped.***

On one of the other ships where I was sent as advance party, I had noted that one of the generators was being run for about 4 to 6 hours, then stopped, then restarted next morning. I asked the 1st Engineer if there was a problem with running it for longer periods.

The generator was one with several problems. The First Engineer said that, over the last 6 months, this generator would run properly for about 6 to 8 hours on load, then would gradually slow down, till the rpm had reduced to a level where it would trip from the Main Switch Board. If started again after 2 or 3 hours, it would again work properly for the next 6 hours or so and trip again.

They had overhauled the entire engine, renewed all the fuel injectors, overhauled the fuel pumps, renewed the governor and overhauled the turbo charger, but to no avail. It would work well for 6 to 8 hours and gradually slow down to the extent where the frequency and voltage would come down and the generator would trip off from



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Security Training For Seafarers  
With Designated Security Duties [STSDSD]

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the Main Switch Board. The generator would run without any problem when running idle, ie., without load. Luckily, he told me about it. If he had hidden this, it could have been disastrous later, when we had taken over, if the generator tripped during crucial times. I noted that their log book indicated the running hours of this generator was much lesser per month than the others.

From the next day, the on-board Engineers were bemused and intrigued when I spent all my time watching every aspect of the generator and, sure enough, the rpm slowly started to come down, the trip (from the Main Switchboard) took place and then the generator would speed up to its constant speed of the set rpm. I understood that, because of this problem, they had not been running this generator on full load. They had always run it in parallel with another generator. I asked them to monitor the turbocharger rpm (using a hand held tachometer) against engine rpm and generator frequency. The turbocharger rpm would also drop along with the generator speed drop.

The problem intrigued me over the next two days. After a lot of reflection, I started checking off various items on my mental list. It cannot be the Main Switch Board. The Governor was brand new. The turbocharger had been overhauled. The full engine had been overhauled, including the fuel pumps. It cannot be the fuel oil, as the other generators were using the same oil.

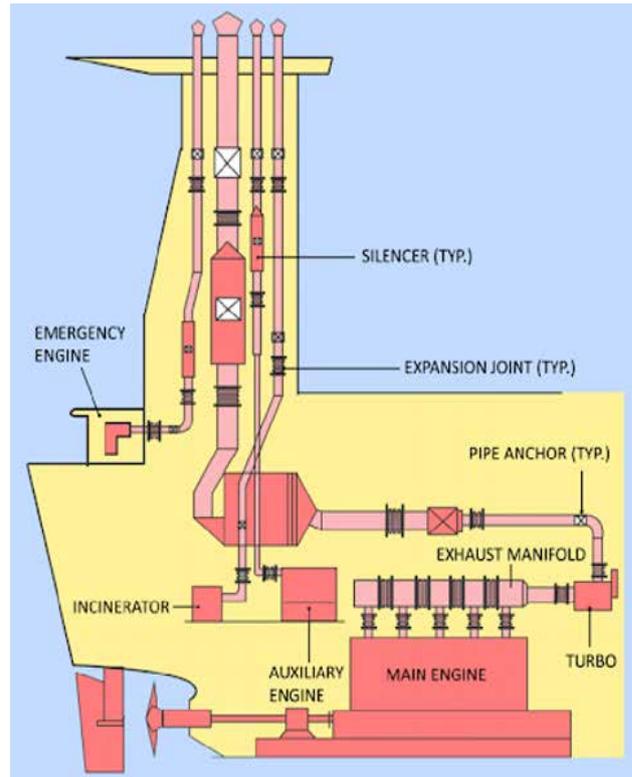
Noting that individual units' exhaust temperatures were above normal for an overhauled engine, along with their First Engineer, we checked the fuel pumps' timing after which I had to discard the notion that fuel pumps' timings could be a cause, after finding the timing to be within the prescribed parameters.

With the drop in turbocharger rpm, I suspected that exhaust gas kinetic energy was dropping, which meant that exhaust gas was not flowing out freely. I started inspecting the exhaust pipe closely and slowly found myself 2 levels beneath the funnel top. There the exhaust pipe expanded for about a 1.5 metre height and again reduced back to the original size.

Almost all ships have spark arresters and silencers fitted on to the exhaust pipes of Main Engines and Generators. They vary in design from simply expanded pipes to arresters with meshes or fins to reduce noise levels and prevent sparks from going out of the funnel, as they can cause a fire outside the ship. Sparks and carbon flakes are an absolute **no-no** especially on car carriers, as the hot sparks can damage the shining paint of the brand new cars on the dock, waiting to be loaded.

Something similar, but on a much smaller scale, was what we had on that ship. Note the man hole for cleaning on the left lower portion of the spark arrester. Note drain at bottom.

The 1st Engineer was with me every step of the way, as he was eager to study my thought processes and learn from it. When we reached the stage where we spotted the



Courtesy: Marine Insight



Courtesy: Stopson Italiana

spark arrester or, as some would call it, the silencer,, we checked the drawing to see what was inside. The drawing showed a mesh and fins inside. We removed the lagging, opened the manhole – it was more like a large hand hole and found the hole choked with carbon. We cleaned out the hole and looked inside, it was choked with carbon. It took a few hours to remove the carbon, clear the choked drain at the bottom, wash the mesh filter and fins with fresh water and close up.

The next run of the generator was perfect, with no trips.

The problem was that exhaust gas did not flow out freely past the spark arrester to the atmosphere, because of the reduced volume, now choked with carbon. So, the exhaust gas would gradually fill up the full length of the exhaust pipe from the engine up to the spark

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Officers are required to hold a Certificate of Competency and a Certificate of Proficiency for Basic Training for Liquefied Gas Tanker Cargo Operations and at least three months of approved sea going service on Liquefied Gas Tankers within the last sixty months on liquefied gas tankers, or at least one Month of approved onboard training on Liquefied Gas Tankers in a Supernumerary capacity, which includes at least three loading and three Unloading operations and is documented in an approved training record book as specified in section B-V/1 of the STCW Code.



**Course Date:** 1<sup>st</sup> April 2024

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arrester. Slowly, the back pressure would build up on the turbocharger and the exhaust trucking of the engine.

We cleaned up the other generators' spark arresters too. We stopped and cleaned the Main Engine spark arrester also.

Searching the records, it was found that bad fuel had been taken on board some 7 or 8 months before, which could have caused an increase in carbon and other residue in the exhaust gas. This generator had been running more or less continuously at that time.

The sketch and photograph are to guide the reader as to what I have described above.

Going from my own experiences, it would have been unusual to find a ship where these spark arresters were part of the Maintenance Schedule or are cleaned regularly.

I started including them in all my subsequent ships, the norm being once every five years. More often if the fuel is bad.

Engineers normally restrict their activities to platforms below the Boiler Platform. I have found that practically all 'UMS Checklists' neglect anything above the Boiler Platform.

The spaces above are neglected. After this incident, I brought out a check list - monthly - of what all to check from the area around the Boiler Platform and the subsequent platforms above it, right to the top, including opening the manhole hatch and inspecting the top of the funnel and the protruding exhaust pipes and drains. (This should be done with Main Engine stopped and only one generator running and with the wind blowing the gas away from you - better still with only the emergency generator running. Carbon monoxide in the exhaust gas can be deadly).

Invariably, on the first inspection after joining a ship, I would see that

The drain from the funnel would be badly choked, sometimes requiring renewal of 20 metres or more of piping.

On two of the subsequent ships, the drains were choked, carbon had built up to the extent where the rain water would fill the top-of-the-funnel floor and overflow into the Engine Room.

The 3" coming around the exit of the exhaust pipes on the funnel floor would be damaged, causing rain water to leak past the funnel floor into the Engine Room.

There would be several holes / cracks in many of the exhaust pipes' elbows, which would require attention in a ship yard during a dry dock. Noting this down as a dry dock job is imperative as, sometimes, the corrosion would be so rampant that there is a fear of a collapse of the exhaust trucking that is exposed on top of the funnel. This is an often neglected specification for a dry dock. Last minute inclusion for repairs or renewal of sections of the funnel pipes in to the Dry Dock Specification could prove costly. (I can just about imagine a Chief Engineer being berated by the attending Superintendent for inclusion of this item at the last minute, after the vessel has entered the ship yard).

All Engines' crankcase vents - led to a box in the funnel spaces - would be dirty, sometimes choked, causing back pressure to build up in crankcases of engines.

A Marine Engineer will face bizarre problems several times during his sailing period. When finally resolved, he will find that the solution is not all that complex as initially thought, it would be proved as a simple error on somebody's part, a wrong assembly, a bit of ignorance. However, solving it will be very self-satisfying.



MOL Funnel Design



Written by:-  
A. Ranganathan  
F - 2267

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- This Course will familiarize with the equipment, instrumentation and controls used for cargo handling on a Gas tanker. It will enhance the awareness to apply proper and safe procedures at all times when carrying out the various operations on board tanker
- The trainee will be able to identify operational problems and assist in solving them and will be able to co-ordinate actions during emergencies and follow safety practices and protect the marine environment.



**Course Date:** 25th March 2024

For registration, [CLICK HERE](#)

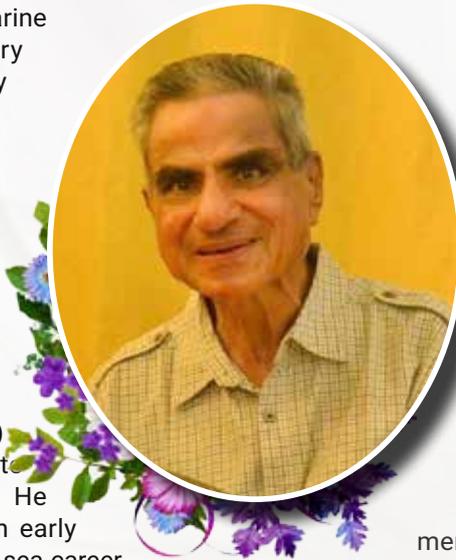
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# Obituary

## Mr. JAGAT PAL CHOPRA

(1939 – 2024)

Mr Jagat Pal Chopra. 1961 passed out DMET batch breathed his last on 25 January 2024. Demise of Mr Jagat Chopra has been loss of a versatile Marine Engineer. A very humble, friendly and dedicated professional sailed in India Steamship Company after passing out from DMET and was a holder of combined (Motor & Steam) Class 1 Certificate of Competency. He settled ashore in early days after a brief sea career and worked with Prem Nath Motors, Chennai for a brief period before joining Indian Register of Shipping in its early formative years. While in IRS, he was posted in various offices of IRS in Mumbai outport, Chennai, Iran, Rourkela, Kolkata (then Calcutta), Goa and Head Office in Mumbai. He was a great colleague, very dear and friendly to his team of Surveyors and maritime professionals, good leader



and excellent mentor, Those who worked with him learnt a lot from him not only technical but other social and managerial skills, Mr.

Jagat Chopra will be remembered fondly for the dedication, knowledge and commitment he brought to everything that he did for IRS. He contributed enormously in building the organization in its infancy stage and formative years.

He was an active member of Institute of Marine Engineers (India) and The Institution of Engineers India.

Mr Jagat Chopra was a doting and beloved husband of Mrs Urvashi Chopra, fond father of Rohit and Rahul, father-in-law to Gitanjali and Maya and grandfather to Arihaan and Lila. Heartfelt condolences to the entire family in grief on behalf of the whole Maritime Community. Rest in peace Mr. Jagat Chopra.

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Advanced Training for Ships  
using Fuels covered within IGF

**5**  
Days



#### Course Dates:

**Basic IGF:** 1st April 2024/ 22nd April 2024/ 6th May 2024/ 20th May 2024/ 3rd June 2024/ 17th June 2024

**Advanced IGF:** 15th April 2024/ 13th May 2024/ 11th June 2024

Time: 8:30am - 4:30pm

Registration Link: <https://imeimum.marineims.com/course/register>

Course Fee: Rs.15000/- (per participant inclusive of Taxes)/Rs.13500/- For IME (I) Members (inclusive of Taxes)

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MEO CL-III NCV-CEO	2 months	1 <sup>st</sup> July 2024	Rs. 25000/-	<a href="#">CLICK HERE</a>
MEO CL-II (FG) - NEW	4 Months	1st March 2024	Rs. 40000/-	<a href="#">CLICK HERE</a>
MEO CL-III NCV-SEO PART - A	2 months	1st August 2024	Rs. 25000/-	<a href="#">CLICK HERE</a>
MEO CL-III NCV-SEO PART - B	4 Months	May 2024	Rs. 38000/-	<a href="#">CLICK HERE</a>
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Diesel Engine Gas Combustion Simulator for MEO Class I	3 Days	1st March 2024/ 5th March 2024/ 27th April 2024/ 2nd May 2024/ 6th May 2024/ 27th June 2024/ 1st July 2024/ 4th July 2024/ 29th August 2024/ 2nd September 2024/ 5th September 2024/ 29th October 2024/ 4th November 2024/ 7th November 2024/ 28th December 2024	Rs. 12000/-	<a href="#">CLICK HERE</a>
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Refresher Updating Training Course for all Engineers (RUCE )	3 Days	5th March 2024/20th March 2024/ 08th April 2024/22nd April 2024	Rs. 7000/-	<a href="#">CLICK HERE</a>
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Assessment, Examination and Certification of Seafarers	10 Days	4 <sup>th</sup> March 2024	Rs. 15500/-	<a href="#">CLICK HERE</a>

# Obituary

## Ravalnath Anant Kamath (F 330)

(19<sup>th</sup> May 1930 – 22<sup>nd</sup> October 2023)

**R**avalnath Anant Kamath - "Ravlu" Kamath - as he was popularly known was an engineer cadet of the 1946 – 48 batch from the Training Ship T S Dufferin.

He was the recipient of the Governor General's Gold Medal on his passing out in 1948. He did his apprenticeship with the Bombay Port Trust. On completion of his apprenticeship in 1952, he started his sailing career with M/s India Steamship Co. He sailed with them till April 1957 signing off as Second Engineer with a Chief Engineers (Steam) certificate.

He was thereafter appointed as Lecturer in the DMET in April 1957. In 1959 he was sponsored by the Govt. of India to obtain his Extra First-Class Engineers Certificate in the UK. He returned to the college after successfully obtaining his Extra First-Class Certificate.

He was a very popular Officer – in – Charge amongst the DMET Cadets because of his gentle and amiable nature and many cadets looked upto him as their MENTOR. Cadets could easily approach him for help and his impartial mature advice because of his ever smiling disposition and many a Cadet felt happy to have him as his "MENTOR".

A thorough professional that he was, he left the DMET in 1963 to set himself up as an Independent Non-Exclusive Ship and Engineer Surveyor with M/s Lloyds Register of Shipping. He was joined about three months later, by the late Mr. P. L. D'Abreo who was the then Dy-Director of the DMET, and they registered a Partnership Firm in the name of Kamath & D'Abreo. The Firm subsequently represented all International Classification Societies as their Non-Exclusive Surveyors. He was an active Member of then IME(I) Kochi Branch and thereafter continued to interact with members on his shifting his base to Chennai.

He designed and built the first steel fishing trawler, propelled by the first "marinised" diesel engine from M/s Ashok Leyland. He also set up a small-scale unit to design and manufacture hand-hydraulic steering gear, trawling winch driven off the main engine through his developed power take off system. These were introduced

for the first time in the mechanisation of the fishing industry which was being funded by the United Nations.

In 1969, he along with Mr. B. N. Bhat (DMET 1953-57) set up M/s Island Marine Crafts & Engineers, Pvt. Ltd. at Vypin Island Cochin, to design and build seagoing steel fishing and Harbour craft. The yard built numerous fishing vessels, including Harbour craft for the Kerala State Ports Department. They were pioneers of the era – the first dynamic side launching of a ten-tonne bollard pull tug in 1977, the first twin hulled catamaran type of vessel for the hydro-graphic department, a dredge tender, a self-propelled refrigerated barge for the Kerala State Fisheries department and numerous fishing vessels.

His passion to pure design spending hours turning out complex Auto CAD drawings and the commands that can be used to carry out its various functions were passed on to his mentees that helped them further in their professional career.

He is survived by his four children. The eldest, Suresh Kamath, an Alumnus of the DMET 1977-81 Batch, is currently settled in Mumbai pursuing his passions in digital technology and offers consultancy services. His second son Subash is a flourishing and prominent Orthopedic surgeon based at Kolkata specialising in knee and hip replacement surgeries. His third, Daughter Sunita is based in Kolkata is the principal coordinator to a well-known school in the suburbs. His fourth child, Amrita is a Chartered accountant who along with her husband also a Chartered Accountant run a well know Accountancy firm in Bangalore.

He was married for sixty-three years to Lalitha a charming and pleasing natured housewife – she always welcomed any visitors- mostle ex – DMET ians home with a warm smile and there was always enough food to feed anyone who came home. She pre-deceased him in September 2018 when a simple laser lithotripsy procedure went horribly wrong.

Ravlu was a very simple and down to earth person. He had a large heart – freely giving away whatever he felt like. He was loved and respected by all who knew him. May His soul rest in Peace.





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