



MARINA

The Quarterly Newsletter of
The Hong Kong Institute of Marine Technology and
The Hong Kong Joint Branch of The Royal Institution of Naval Architects
and The Institute of Marine Engineering, Science and Technology

IMAREST

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暨輪機工程及海事科技學會香港聯合分會季刊

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HKJB & HKIMT Activities

Seminar on “Ship Management and Operation”

A half day seminar on “Ship Management and Operation” as organized by HKJB/HKIMT and MMNC division of HKIE was held on 3 July, 2010 at HKIE. There were total 3 papers presented:

1) Ship Management

Mr. Laxman Kuman — Fleet Manager of Wallem Ship management gave us a general view on various activities involved in 3rd party ship management, and the relationship, responsibility, obligation and roles of various stakeholders in the shipping industry and how the shipping business works financially. In short, it is mainly “Nuts and Bolts Versus Dollars and Cents for the Ship Managers”.

2) “Survival Craft at Sea”

This paper was presented by Ir C.Y.Fong — Surveyor of Ships / Port State Control from MD of HKSAR.

Ir Fong explained to us that there have been various kinds of on-load release mechanism in the market. Due to different designs including the hooks and release resetting system, there have been common deficiencies. Measures taken by International Maritime Organization (IMO) to prevent lifeboat accident consist of findings from last concentrate inspection campaign (CIC) on life boat launching arrangement during September to November, 2009.



Souvenir to CY Fong



Souvenir to Laxman



Participants

3) “Port State Control Inspection”

This paper was also presented by Ir C.Y.Fong. Ir Fong explained to us the most common issues that would be covered by PSC officer and how they could be considered as detainable. He also mentioned some preventive means that shipboard staff and ship management company should take care of in order to prevent the result of ship detention due to a large number of PSC deficiencies.

All the above 3 papers are quite informative and there were about 45 participants attended the seminar. As usual, many questions on each subject paper were raised by the audience after each presentation.

(Ir Tang Kai Fun)

Visit Jianglong Shipyard in Zhuhai and Chi Wo Plastic Moulds Factory in Zhong Shan on 28th August, 2010.

a) Jianglong Shipyard — Zhuhai

Early in the morning on 28th August, 2010, a total of 14 members both from HKJB / HKIMT and members family all gathered together at Hong Kong Macau Ferry Terminal in order to take the 8:40 am ferry to Zhuhai. At about 10:00 am we arrived the Zhuhai Jiuzhou Port. We waited for awhile for the reception bus and finally arrived the

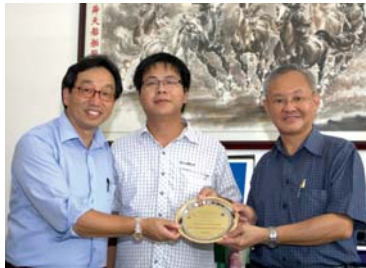
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Chairman of HKIMT & HKJB presented a souvenir to Mr. Li of Jianglong Shipyard

shipyard at about 11:30 am. We were welcomed by Vincent— Marketing Director as well as Watson Li — Sales Engineer and then followed by presentation which was briefed by Vincent. Jianglong boatyard is one of the biggest GRP boat manufacturers in

China. The company obtained ISO 9001–2001 Quality System certification as well as Grade A vessel Design certification in Guangdong Province, Jianglong boatyard has already received several First-rated GRP vessels in China. Their product is mainly divided into 4 groups: work boats, passenger boats, patrol boats and pleasure vessels. The boat sizes are in the range from 5.4 m up to 40 m. They have several manufacturing combinations between hull and superstructure such as steel hull & GRP superstructure; aluminum hull and GRP superstructure; GRP hull and aluminum superstructure and of course the traditional all GRP hull and superstructure manufacturing.

Recently they did complete one 40 m 300 seating capacity passenger vessel for 2010 Shanghai World Expo.

This vessel has steel hull with fiberglass superstructure. The power sources for the cabin lighting and navigation equipment are powered by solar and wind energy. This vessel has all the necessary safety measure, comfort, elegance and environmentally friendly.

After the presentation, we were guided by Vincent to tour around the workshops and saw a number of different activities in progress. We found out that all



At Jianglong Shipyard

their workforces are quite young and female workers did represent quite a certain percentage.

Their export markets are mainly for the under-developed countries and locally in the Mainland China. From this visit, we understand that all the GRP boat manufacturers in China have all the necessary technical skills and knowledge to produce their own out-fittings, E & M parts and components as well as main propulsion engines in order to compete with those USA and European GRP boat manufacturers.

b) Chi Wo Plastic Moulds Factory — Zhong Shan

After visiting Jianglong boatyard, they arranged their company's bus to bring us to Chi Wo Plastic Moulds Factory in Zhong Shan, we arrived Chi Wo at about 4:00 pm where Mr. Knight Mok — Material Director from Chi Wo welcomed us in front of the main office.

Mr. Mok gave us a brief presentation within the meeting room. Chi Wo was established in Hong Kong in 1983 and started their tool making activities in Shenzhen in 1994. And now Chi Wo is under the Holding of Sunningdale Tech. Ltd. Chi Wo obtained TS 16949 certification in 2006 and ISO 14001 certification in 2009. In Zhong Shan, they have a total of 4 mould making factories together with a workforce of around 2700 Nos.

Their main services include the following:

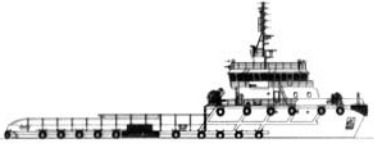
- a) Plastic tooling design and manufacturing.
- b) Plastic injection moulding.
- c) Gas assisted injection moulding.
- d) Steam assisted injection moulding.
- e) Silk screening, pad printing, hot stamping and paint spraying.
- f) Plastic part sub-assembly.

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Briefing from Chi Wo management staff



Explanation of moulded part

Their main facilities include the Engineering Department, Toolmaking Department, Precision Tool Room and Plastic Department.

They have a wide variety of plastic products: such as automobile component, air conditioner, chassis internal parts, cell phone, computer products and copying machine, etc.

All their clients are world known brand names. After the briefing, we had a tour walk to various Departments. Members were keen to ask questions and took photos though this visit had no direct relationship with ship building or marine engineering industry.

After the visit, we had a nice dinner in the nearby restaurant and finally we took the 20:30 hours ferry back to Hong Kong.

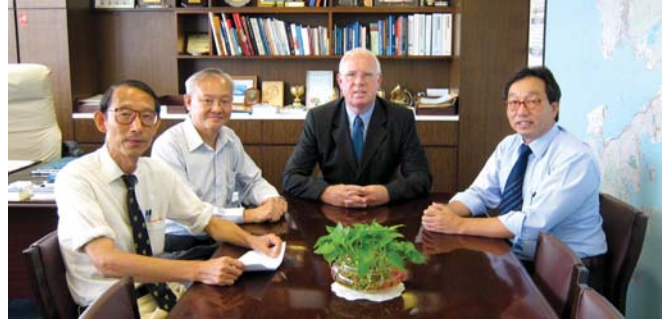
In conclusion, we had a very fruitful day for members to enjoy.

(Ir Tang Kai Fun)



Group photo in front of Chi Who main office

“Maritime Awareness Week (MAW)” — 25 – 31 October, 2010



Meeting with Mr. Roger Tupper, Director of Marine

On the 24 August, 2010, the Chairmen of HKJB / HKIMT Ir Dr Tsui / Ir Dr Nelson Yu together with committee member Ir Tang Kai Fun had a short interview with the Director of Marine — Mr. Roger Tupper, in order to obtain some preliminary news with regard to the “Maritime Awareness Week” which will be held during the last week in October, 2010. We first asked Mr. Tupper what was the main theme for this MAW. Mr. Tupper said the main theme was to raise the awareness of the general public on the importance of the maritime industry in Hong Kong and the contributions of seafarers to the society as well as to promote the career opportunities in the maritime industry to young people. It is the first time that most of the inter-related maritime organizations, marine learned Institutes, and related Maritime Associations are grouped together to promote this MAW. From the below program, you will find that this MAW covers quite a lot of activities and there will be a publicity plan being prepared by the steering committee in order to make the public know about this MAW. Some of the activities include: seminar, career talks, tree planting, beach cleaning day as well as Maritime Fair cum Open Day in Government Dockyard — Stonecutters Island, etc. Officiating guests and honourable VIP guests will be invited to attend most of the activities. Special transportation will be arranged for the Maritime Fair cum Open Day in Government Dockyard on Stonecutters Island.

We trust that MAW will attract quite a number of people in H.K. to attend those activities and the main theme of this MAW can be achieved to a certain degree.

(Ir Tang Kai Fun)

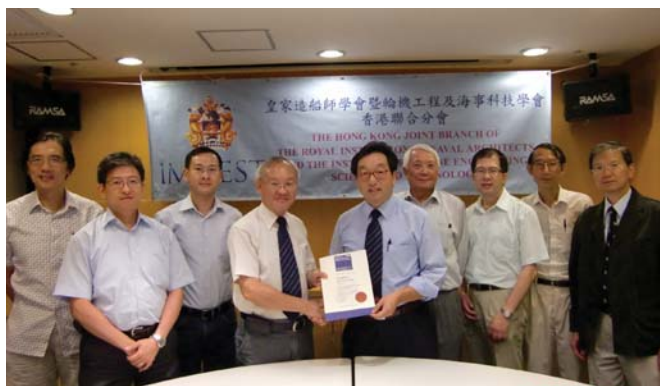
Activities Program for Maritime Awareness Week (MAW)

No	Date	Activities	Venue	Time	Remarks
1	25 October, 2010 (Monday)	Opening Ceremony and Reception	Bauhinia Room HKCEC	5:30 pm to 8:30 pm	<ul style="list-style-type: none"> • Officiating Guest CE • Small exhibition
2	26 October, 2010 (Tuesday)	Full day seminars on: <ul style="list-style-type: none"> • Maritime Labour Convention • China Oil Pollution Regulation • Maritime Security 	Golden Miles Holiday Inn	9:00 am to 5:30 pm	Honourable VIP guests will be invited
3	27 October, 2010 (Wednesday)	“Think Maritime” Day <ul style="list-style-type: none"> • Career talks 	Selected schools	10:00 am to 12:00 nn	VIP guests will be invited
		<ul style="list-style-type: none"> • Tree planting Ceremony 	Maritime Services Training Institute (MSTI)	2:30 pm to 3:30 pm	VIP guests will be invited
4	28 October, 2010 (Thursday)	• Seafarer’s Day – Grand Opening of the Study Centre at H.K. Seamen’s Union (HKSU) and	Study Centre at HKSU	To be announced	VIP guests, including Director of Marine
		• Commemoration of IMO’s Year of the seafarer	Mariner’s Club (TST)	11:00 am to 4:00 pm	<ul style="list-style-type: none"> • Small exhibition • Special designed T-shirt as souvenir
5	29 October, 2010 (Friday)	• Luncheon to commemorate the 20th Anniversary of the Establishment of the Autonomous Shipping Register in Hong Kong	Ballroom A & B Island Shangri La Hotel	12:30 pm to 2:30 pm	Honourable guests will be invited
		• HKSOA seminar		3:00 pm onward	
6	30 October, 2010 (Saturday)	Maritime Fair cum Open Day in Government Dockyard Stonecutters Island	GD-stonecutters Island	10:00 am to 5:00 pm	<ul style="list-style-type: none"> • VIP guests will be invited • Sea cadet parade • Exhibition booths • Food & beverages will be provided
7	31 October, 2010 (Sunday)	Beach Cleaning Day	Hung Shing Yeh Beach, Lamma Island	Morning time	• Lunch at Lamma Island

IMarEST President’s Commendation Award to Ir Dr Nelson Yu

Congratulations to Ir Dr Nelson Yu, committee member of HKJB, on receiving the IMarEST President’s Commendation Award from Ir Dr Tsui, chairman of HKJB, on the 14th September, 2010 at Harbour Club. The HKJB Committee Members witnessed the presentation and congratulated Nelson on his long service to HKJB and outstanding performance. This award is to commend Ir Dr Nelson Yu on his contribution and outstanding services as well as continual supports to IMarEST and HKJB.

(Ir Tang Kai Fun)



Ir. Dr. Nelson Yu obtained his IMarEST President’s Commendation Award

Technical talk on 13 December, 2010 at HKPU “Installation Engineering of Offshore Structural System”

Please note that Prof. Yoo Sang Choo, ex-President of IMarEST will deliver a special talk on “Installation Engineering of Offshore Structural Systems” at HKPU on 13 December, 2010.

Interested parties or individual should not miss this talk as this kind of talk subject seldom takes place in Hong Kong. We also hope that this talk can attract some students to attend.

More details regarding this talk will be announced at a later stage.

(Ir Tang Kai Fun)



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Up-dated News

Control of Ships Nitrogen Oxides Emission – Marpol VI Regulation 13 update

Recent global environmental change raises concern of Ships Nitrogen Oxides (NO_x) Emission. NO_x emission has an adverse effect on the environment causing acidification which leads to acid rain. NO_x emission also contributes to the formation of photochemical smog which leads to elevated levels of ozone and production of hazardous organic compounds. Ozone is hazardous to human health. When in the lower atmosphere, it is also a greenhouse gas to global warming.

Ships Nitrogen Oxides are formed during the combustion process. Engine intake air mainly consists of Nitrogen and Oxygen. Oxygen will react with the fuel during the combustion process with an amount of excess oxygen. The nitrogen remains largely unreacted. A percentage of nitrogen will be oxidized with the excess oxygen to form various oxides of nitrogen (NO_x). The amounts of NO_x formation is a function of the time nitrogen and excess oxygen are exposed to the high temperatures. Higher the combustion temperature will

form greater amount of NO_x. Most of the ocean going ships is propelled by slow-speed diesel engine. A slow-speed diesel engine tends to have more NO_x formation.

There is extreme importance to control of Ships Nitrogen Oxides Emission for environmental protection. Regulations for the Prevention of Air Pollution from Ships included in Annex VI of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), entered into force in May 2005. The Marine Environment Protection Committee (MEPC) at its 58th session in October 2008 adopted the amendments to the MARPOL Annex VI. The amendments came into force internationally on 1 July 2010.

The amendment provides progressive reductions in NO_x emissions from marine engines. The new NO_x limits (Tier II) represent a reduction of approximately 20 % over the current 17g/kW standard stipulated in the existing limits (Tier I) and will apply to ships constructed on or after 1 January 2011. For engines installed on ships constructed on or after 1 January 2016 operating in a NO_x Emission Control Areas (ECA), a further reduction of around 80 % will apply (Tier III limits). Outside a designated ECA, the Tier II limits will apply.

Engine installed on ship keel laying date	Marpol VI Amendment from MEPC58	
Existing engines with cylinder displacement ≥ 90 litres & power output > 5,000kW (from 1st Jan., 1990 to 1st Jan., 2000)	Tier I	
From 1st Jan., 2000 to 1st Jan., 2010	Tier I	
From 1st Jan., 2011	Tier II	
From 1st Jan., 2016	Tier III in ECA	Tier II outside ECA

Engine rpm (N)	N < 130 rpm	30 rpm ≤ N < 2000 rpm	N ≥ 2000 rpm
Tier I NO _x emission limit (Current Reg. 13(3)(a))	17.0 g/kWh	45 x N-0.2 g/kWh	9.8 g/kWh
Tier II NO _x emission limit (approx. 80% of Tier I)	14.4 g/kWh	44 x N-0.23 g/kWh	7.7 g/kWh
Tier III NO _x emission limit (approx. 20% of Tier I)	3.4 g/kWh	9 x N-0.2 g/kWh	2.0 g/kWh

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Application of turbocharger cut-out concept and optimization of combustion process with electronically control (such as new fuel system components, increased fuel injection pressure & compression ratio; decreased initial air temperature; delayed injection timing) may achieve the Tier II NOx emission limit.

The present and under development technology for reducing Ships NOx Emission to meet the Tier III limit are:

- Introducing water into the combustion process (by water / fuel emulsion (WFE), direct water injection, and / or scavenge air moisturization (SAM)) to reduce peak combustion temperature then reduce the formation of NOx,
- Using cooled exhaust gas (Exhaust Gas Recirculation (EGR)) mixed with the inlet air for combustion to reduce peak combustion temperatures.
- Adding ammonia or urea to the exhaust stream and the mixture passed over a catalyst (Selective Catalytic Reduction (SCR)). The SCR installation and maintenance costs are substantial, but the NOx reductions are high,
- Using Liquefied Natural Gas (LNG) as fuel can achieve very low NOx emissions without aftertreatment.
- Non Thermal Plasma (NTP)

There are few short comings of the above technologies. Further development of technologies is ongoing by various manufacturers. International Maritime Organization (IMO) will review in 2012 – 2013 for the availability of technology by 1st January 2016.

Status on Green Ship in Denmark

In Denmark-Secretary General for Green Ship of the Future Mr. Christian Schack had the following statements:

He said that the concept of “green shipping” is multi-levelled, ranging from international politics to the ordinary seamen doing their everyday work on board ships. In Green Ship of the Future, Denmark concentrate solely on the technical aspect of green shipping, i.e. developing and implementing emission-reducing technologies and systems to be used to either manage or operate both existing ships and new buildings.

Green Ship of the Future has existed since early 2008. Until now, Green Ship of the Future has initiated more than 20 projects which all together represent a documented reduction of ship emissions by 14% on CO2, 98% on SOx and 80% on NOx. These impressive figures are to be compared with the overall aim of Green Ship of the Future which initially was to reduce CO2 by 30%, SOx by 90% and NOx by 90% compared to 2007 figures.

Denmark is proud to announce that the green technologies developed by the partners in Green Ship of the Future are already installed on board more than 40 ships and with several more ships due to be equipped with the green technologies in the coming period as stated by Mr. Christian Schack.

Originally, Green Ship of the Future focused on four areas: logistics, machinery, operation and propulsion, but now Green Ship of the Future has expanded its reach by covering all emission-reducing projects that use technological development and innovation to reduce emissions from ships. Mr. Christian Schack said that their aim is to reduce emission through technological developments, but in order to do so, they need input from all parts of the maritime world, therefore they are arranging conferences, workshops and meetings where they get the chance to introduce their specific projects, and others can get the opportunity to give and receive input — and maybe become project partner.



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SHIP REPAIRS

Green Ship of the Future together with their network partner, Danish Marine Group have arranged conferences in Germany, Greece and Singapore and they did conduct a conference at the SMM in Hamburg on Tuesday, September 7.

(Ir Tang Kai Fun)

BP releases Deepwater Horizon investigation report

A report released by BP on September 8, 2010, concludes that decisions made by “multiple companies and work teams” contributed to the Deepwater Horizon accident which it says arose from “a complex and interlinked series of mechanical failures, human judgments, engineering design, operational implementation and team interfaces. Based on its key findings, the investigation team has proposed a total of 25 recommendations designed to prevent a recurrence of such an accident. The recommendations are directed at strengthening assurance on blow-out preventers, well control, pressure-testing for well integrity, emergency systems, cement testing, rig audit and verification, and personnel competence.

On the evening of April 20, 2010, a well control event allowed hydrocarbons to escape from the Macondo well onto Transocean’s Deepwater Horizon. This was followed by a failure to control the flow from the well with the blow-out preventer equipment, which allowed the release and subsequent ignition of hydrocarbons. Ultimately, the blow-out preventer (BOP) emergency functions failed to seal the well after the initial explosions and resulting in explosions and fire on the rig.

Eleven people lost their lives and 17 others were injured. The fire, which was fed by hydrocarbons from the well, continued for 36 hours until the rig sank. Hydrocarbons continued to flow from the reservoir through the wellbore and the blowout preventer (BOP) for 87 days, causing a spill of national significance. The investigation team developed a series of recom-

mendations to address each of its key findings. These recommendations cover contractor oversight and assurance, risk assessment, well monitoring and well control practices, integrity testing practices and blowout preventer system maintenance, among other issues, the following are the eight key findings related to the causes of the accident emerged:

1. The annulus cement barrier did not isolate the hydrocarbons.
2. The shoe track barriers did not isolate the hydrocarbons.
3. The negative pressure test was accepted although well integrity had not been established.
4. Influx was not recognized until hydrocarbons were in the riser.
5. Well control response actions failed to regain control of the well.
6. Diversion to the mud gas separator resulted in gas venting onto the rig.
7. The fire and gas system did not prevent hydrocarbon ignition.
8. The blowout preventer (BOP) emergency mode did not seal the well.

Also, at the time this report was written, other investigations, such as the U.S. Coast Guard and Bureau of Ocean Energy Management, Regulations and Enforcement Joint Investigation and the President’s National Commission were ongoing — while the understanding of this accident will continue to develop with time, the information in BP’s report can support learning and the prevention of a recurrence.

(Ir Tang Kai Fun)

Coming Events / Activities in 2010

- **21-22 September 2010**

International Forum on Development of Ocean Engineering China 2010 – Jin Jiang Hotel in Shanghai

- **25 September 2010**

Half day seminar – “Ship Design & Shipbuilding in China” by Dr. Peter Cheng, Ir. H.P. Kwong & Mr. Alan W. Sharp

- **26-28 October 2010**

Shiptec China, Dalian, China

- **25-31 October 2010**

Maritime Awareness Week

- **30 October 2010**

Maritime Fair cum Open Day of HK Government Dockyard

- **31 October 2010**

Beach cleaning at Hung Shing Yeh Beach on Lamma

- **23 November 2010**

Career Talk at Hong Kong POLY U

- **26 November 2010**

HKJB/HKIMT Joint Annual Ball

- **6-8 December 2010**

4th PAAMES/AMEC 2010 – National University of Singapore

- **8-10 December 2010**

INMEX Guangzhou, China

- **13 December 2010**

Technical talk by Prof. Yoo Sang Choo – ex. IMarEST President at HKPU – “Installation Engineering of Offshore Structural System”

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