APR 2016 . ISSUE 33

# Samundra Spirit

QUARTERLY IN-HOUSE MAGAZINE FOR SAMUNDRA INSTITUTE OF MARITIME STUDIES (SIMS), MUMBAI & LONAVALA

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## IN THIS ISSUE





# SAMUNDRA INSTITUTE OF MARITIME STUDIES (SIMS)

A Training Commitment of Executive Ship Management Pte Ltd (ESM), Singapore
(Certified by leading maritime classification society, DNV GL, Norway for ISO 9001:2008)

## INVITES APPLICATION FOR:

### DECK CADETS (DANS) - AUG 2016 BATCH

**Approved by Directorate General of Shipping, Govt. of India & The Maritime and Port Authority of Singapore (MPA), and affiliated under Indian Maritime University (IMU)**

- One year Diploma in Applied Nautical Science at SIMS, Lonavala
- Minimum 18 months of practical shipboard training before 2nd Mate's examination

### 4-YEAR B. TECH. (MARINE ENGINEERING) - AUG 2016 BATCH

**Approved by Directorate General of Shipping, Govt. of India & and affiliated under Indian Maritime University (IMU)**

- Four years B. Tech Marine Engineering course at SIMS, Lonavala
- 6 months shipboard training before appearing for Class IV examination

### 1-YEAR GRADUATE MARINE ENGINEERING (GME) - SEP 2016 BATCH

**Approved by Directorate General of Shipping, Govt. of India & The Maritime and Port Authority of Singapore (MPA)**

- One year training in Marine Engineering at SIMS, Lonavala which includes 6 months hands-on practical training in the **Ship-in-Campus**
- 6 months shipboard training before appearing for Class IV examination

| Eligibility | DANS | B.Tech (Marine Engineering) | GME |
|---|---|---|---|
| Age (as on date of joining) & Marital Status | • Not less than 17 Years, Upper age limit :<br>- 20 years for 10+2 candidates<br>- 22 years for B.Sc candidates<br>- 25 years for B.E/ B.Tech candidates<br>• Unmarried | • Not less than 17 years<br>• Not more than 20 years<br>• Unmarried | • Not more than 25 years<br>• Unmarried |
| Academic (Results must be obtained at 1st attempt) | • 12th class board approved by Ministry of HRD, Govt of India.<br>• Min Aggregate Percentage – 60%<br>• Min PCM Aggregate 60%<br>• Min score in Physics & Maths individually 50%<br>• Min aggregate of Physics & Maths 60%<br>Note: (For Andhra Pradesh & Kerala State Boards, separate board exams held for each class (11th & 12th) & hence, aggregate of each class marks are considered)<br>Or<br>• BSc: Physics/ Chemistry/ Mathematics/ Electronics with min 55% in final year along with Min 55% in PCM in Class XII.<br>Or<br>• BE/B.Tech – Any stream from an AICTE/UGC Deemed University Approved Institute with min 50% in final year | • 12th class board approved by Ministry of HRD, Govt of India.<br>• Min Aggregate Percentage – 60%<br>• Min PCM Aggregate 60%<br>• Min score in Physics & Maths individually 50%<br>• Min aggregate of Physics & Maths 60%<br>Note: (For Andhra Pradesh & Kerala State Boards, separate board exams held for each class (11th & 12th) & hence, aggregate of each class marks are considered) | • Degree in BE/BTech (Mechanical Engineering / Naval Architecture / Mechanical & Automation) from an AICTE approved Institute, Deemed University with a minimum mark of 55% in final year.<br>• Candidate must clear his BE/B Tech in 4 years only. |
| Medical | Physically fit and meet the standards laid out by DG Shipping* | | |
| Language | English shall be one of the subjects with min marks scored of 50% in Class X or XII | | |
| Eyesight | • 6/6 vision, no use of corrective lenses allowed<br>• No colour blindness | • 6/12 in each eye or 6/9 in the better eye & 6/18 in the other eye. Corrective lenses permitted.<br>• No colour-blindness | |
| IMU - CET | Candidates must clear IMU-CET | | N.A |

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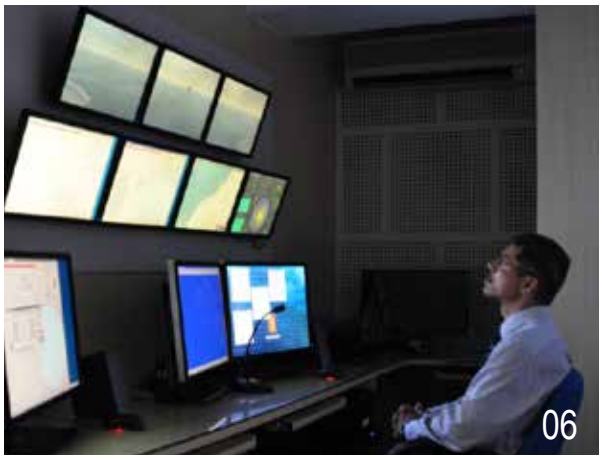


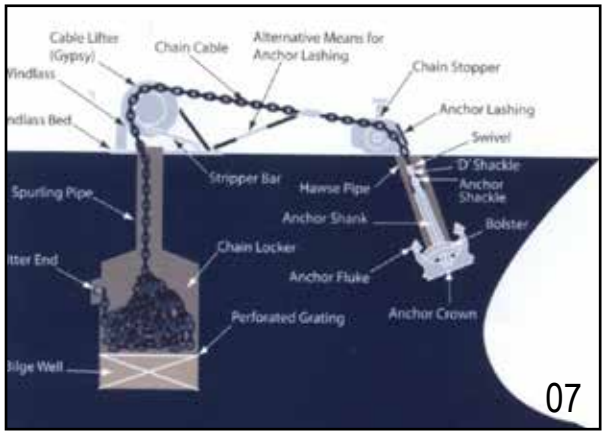


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Address:
SIMS, LONAVALA
Village Takwe Khurd
Mumbai-Pune Highway (NH4)
Lonavala, Dist. Pune, Maharashtra
Pin 410405, India
Tel: + 91 2114 399 500
Fax: + 91 2114 399 600

Address:
SIMS, MUMBAI
5th Floor, Sai Commercial Building
BKS Devshi Marg, Govandi Station Road,
Govandi East Mumbai, PIN- 400088 India
Tel: + 91 22 6799 3545
Fax: + 91 22 6799 3546



**Samundra Spirit** is a quarterly in-house magazine produced by Samundra Institute of Maritime Studies (SIMS) for private circulation.

Our Editorial Team wants to hear from you!

If you wish to submit any feedbacks and/or contributions, feel free to write to the Editor at: samundraspirit@samundra.com

**Please note we reserve the right to publish your letters/articles or an edited version of it in all print & electronic media.*

# Editorial Note

***"People never learn anything by being told, they have to find out for themselves"***
- Paulo Coelho

Indeed, we learn through experiences – good or bad, all that bound to enrich our lives anyway. And that's what the articles in this issue of the Samundra Spirit as all the past issues aspired to share with our readers. The experiences of our veteran seafarers who have tread the road or sailed the oceans before the present generation of cadets and seafarers sailing in the fleet are invaluable. In other words, the experience shared provides a safe guide to those who are smart and mindful of the pitfalls in life as a Chinese proverb says, "Fool me once, shame on you; fool me twice, shame on me!"

This Samundra Spirit issue carries the valuable anecdotes and experiences on subjects that range from a master's dilemma on signing an inaccurate statement in the "Bill of Lading", an interesting thinking out of box concept for marine engineers "Taking Inspirations from Machines" and equipment on board! "Challenges of Safe Anchoring" is something acutely apprehended by the navigating officers. The article prepared by Capt. Vijay Cherukuri, Quality Assurance Manager, ESM would be of immense interest to our regular leaders to visualise the challenges increasing in many areas across the world.

The marine generators are regular challenges for the engineers; but we provide an easy explanation from an expert to understand the protection system that works behind these generators. Worth reading too! SIMS is the pioneer in the simulator and computer based training. Capt. V.R. Krishan has elaborated the pros and cons of such training with his personal experiences and perspective. Our regular case studies, cadets' diary, campus news and sports will keep you engrossed once more.

This 33rd issue of the Samundra Spirit is once again the celebration of our veteran seafarers, marine staff and educators with vast experiences and immense enthusiasm to take the Indian seafarers to the next level of achievements. It's a call for the younger generation to go out and welcome their share of experience in life, cherish them to make life as worthy and colourful as mused by Tagore in his own lifetime:
"Clouds come floating into my life, no longer to carry rain or usher storm, but to add color to my sunset sky".

Let there be clouds, let there be thunder and let there be challenges, we are confident each cadet that passes through the gates of SIMS will navigate the passage through all oceans and seas with ease and flying colors.

Safe sailing and happy reading,

# A Message from Ms. Mahua Sarkar

It is a well known fact that those who initiate change will have a better opportunity to manage the change that is inevitable. This belief was reinforced in me when I had the opportunity to visit the SIMS Lonavala campus in November 2015. I can assure you that SIMS is easily the best I have seen so far in terms of quality maritime training; a world class maritime institute, without a doubt.

A lot of factors need to fall in place in the making of a truly world class facility. It is evident that state-of-the-art infrastructural facilities play a major part in the emergence of SIMS as an industry leader in providing excellent maritime training to the aspiring seafarers. Equally important are the key factors like the dedication and passion of the faculty, innovation and execution, and the willingness to manage change. At SIMS, I had the opportunity to witness firsthand all these essential traits coming together to distinguish a leader from a follower.

If I had the opportunity to take away one good practice from SIMS, it would certainly be the Blended learning system implemented in SIMS to the great advantage of the learner. It is evident from the phenomenal results of the institute that the facilitator-led blended learning, with the integrated multimedia learning aids, is indeed the way forward in the nation's quest for a quantum leap in the quality of maritime training. It is remarkable that the beautiful campus of SIMS Lonavla harbors such unique facilities such as the Free Fall Life Boat training, Ship-in-Campus and the Integrated Gas Tanker Simulator, to name just a few.

Commendable is the vision that has gone into the setting up of elaborate Research and Development facilities that has culminated in achievements such as the Wave flume and the Ballast water treatment system.

I take this opportunity to congratulate the SIMS cadets for having chosen the right career path and also for deciding upon SIMS as your launch pad. It is for you to make the most out of the opportunities being offered to you at the right node in your voyage ahead. Nail your colours to the mast and make your alma mater proud. I wish SIMS, its cadets, faculty and the management all the success in future.

Ms. Mahua Sarkar
Deputy Director General of Shipping

# Protection Scheme for Marine Generators

Mr. K.V.Hariprasad
Electrical Faculty
SIMS, Lonavala

**This article is intended to provide a general idea of protection systems provided for Marine Generators, without going in-depth to the circuit mechanisms.**

Generator or an alternator forms the basic electric energy source on the ship. It is very essential to protect the generator or an alternator from damage which may occur due to electrical faults, such as, overload, earth fault and short circuit in the distribution system. This is also required to comply with the SOLAS (Safety of Life at Sea) regulations, intended for the safety of personnel, machineries, cargo & the ship.

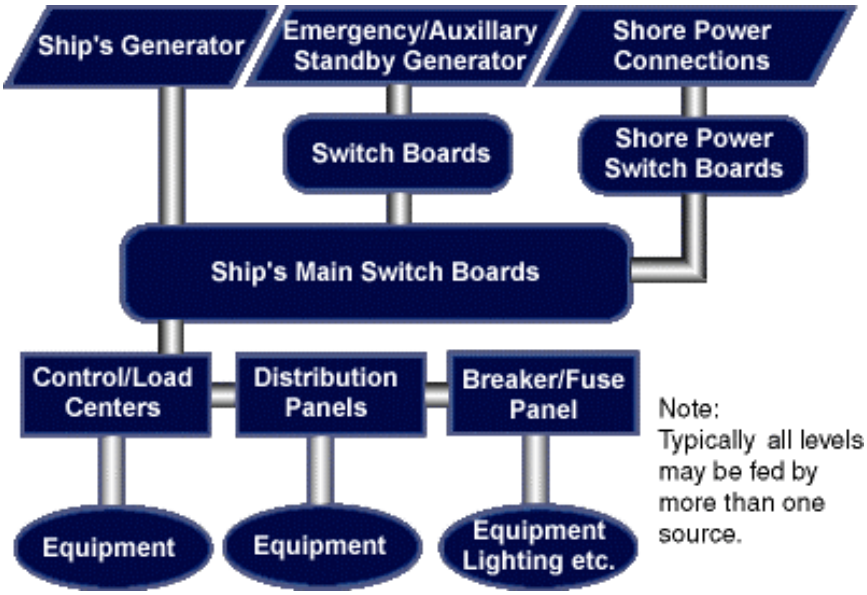
Alternator is connected in single or in multiple (working in parallel), in order to cater to the various load demands. They are normally connected to the switchboards through respective circuit breakers.

The vital safety devices fitted on to a main switchboard protecting the alternator are:

- **Circuit breakers:** One for each alternator
- **Fuses:** If required; for short circuit protection
- **Relays:** Different types, attached to the circuit breakers

The following are the general protective relays provided for generators:

1) Over current
2) Short circuit
3) Earth fault



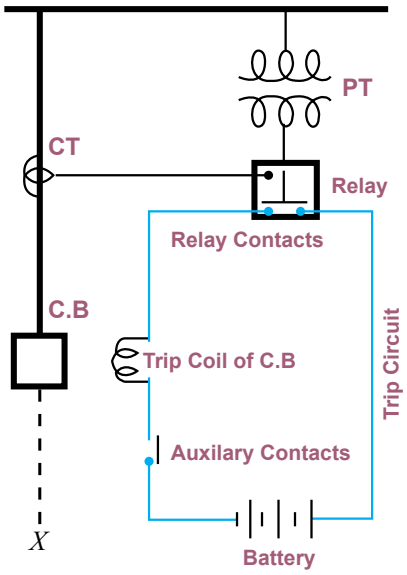

4) Under/over voltage
5) Under/over frequency

Special relays exclusively provided to the Generators are:

1) Differential current
2) Reverse power
3) Preferential trip

The above circuit provides you with the idea of how the relay contact trips the generator circuit breaker. When there is a fault signal sensed by the relay coil, its contact is pulled up by its magnet, cutting the supply to circuit breaker coil, switching it off.

The logic of this circuit is used for many electrically operated tripping mechanisms in the ship. Photographs of a few of these relays are shown below. ■




Thermal Over-Current Relay

Relay Module/group

Single Relay

# Simulator And Computer Based Maritime Training – The Pros And Cons

Capt. V. R. Krishnan
Nautical Faculty (Dean)
SIMS, Lonavala

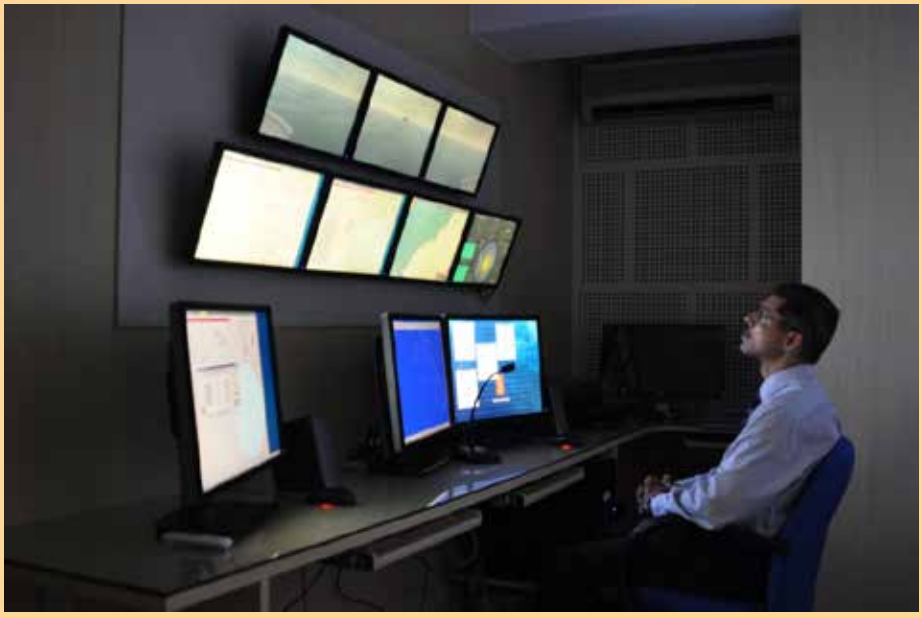
**A newspaper report on how airline pilots attending simulator training for Boeing Dreamliner in Mumbai were instructed to go against the rule book and ignore the faulty warning alarms and indications of "FIRE" took me by surprise. This was an abnormal occurrence and indicated a flaw in the simulator, which needed to be immediately corrected rather than being ignored. While simulators and computer based trainings are not real, it should still be taken seriously nonetheless as trainees applies what they learnt.**

Like for the pilots, a wide variety of simulators for various maritime trainings are also readily available for seafarers. In fact, several competency courses has made it mandatory for officers to have undergone such trainings. Hence shipboard officers are required to undergo simulator training at various levels during their maritime career. While it is not always possible to train mariners with real life scenarios under varying circumstances or conditions at sea, simulators are the next best to the real thing and hence need to be taken seriously. Moreover, seafarers are still operating highly sophisticated and expensive shipboard equipment these days in trying circumstances and need requisite skills to operate these efficiently and safely.

Simulator trainings provided includes full mission types such as the ship manoeuvring simulator, engine room simulator, liquid cargo handling simulator, global maritime distress and safety system or dynamic positioning simulators. Additionally, there are computer based training (CBT) modules to get seafarers adapted to bridge equipment, electronic chart display & Information system, oil discharge monitoring and control system, oily water separator equipment and inert gas system. Each type of simulator or CBT training may present its advantages or disadvantages.

Simulator training is like management by objectives (MBO) that aims to being proactive to problems that may rise - and has specific learning objectives (SLO). SLO refers to content-specific, grade level learning objectives that are measureable, focused on growth in student learning, and aligned to curriculum standards. Developing simulators for maritime training is an expensive and time consuming venture. It requires expertise in the subject as well as computer software specialists to develop the idea and take it to its logical conclusion with constant need for upgradation and improvements and expansion; as required from time to time.

It is a well-known fact that human beings remember 10% of what they read, 50% of what they see and hear; but 90% of what they say and do. This makes simulator-based training, extremely effective medium of maritime training. It only needs the next best to the real shipboard equipment with a good trainer and moderate space for the simulator and space for trainees to stand or sit as the circumstances may require. A classroom lecture delivered by a teacher in the traditional method could be forgotten by the students as soon as they leave the classroom, with most of the action being stolen by the teacher.



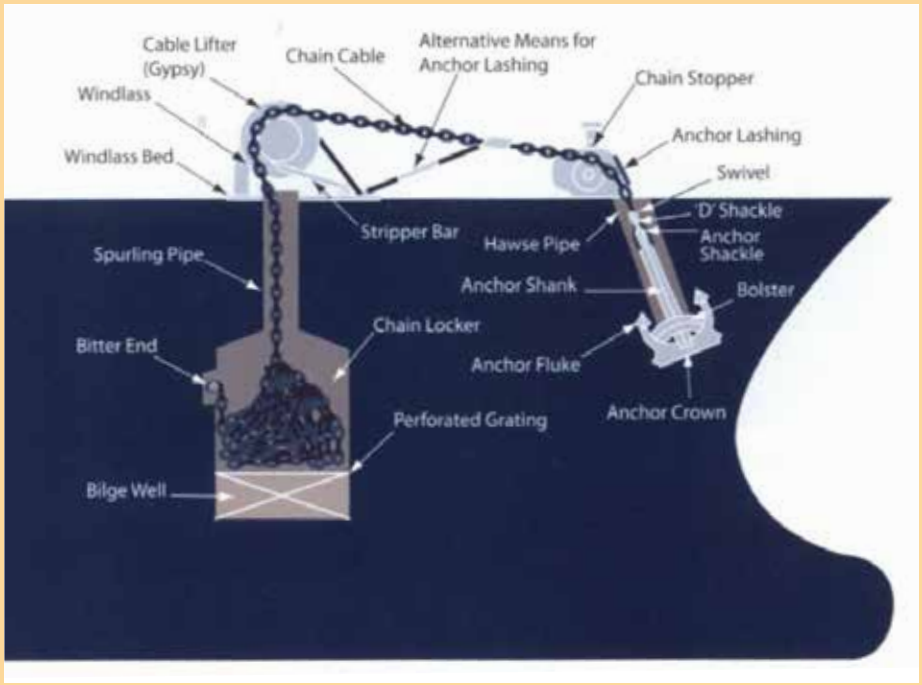
Whereas in the simulation method of training, the limelight is on the trainee. They do what they see and perform tasks that are realistic to their job environment on board ships to learn in the most practical way. In Blended learning CBT method, a facilitator takes the place of a traditional teacher; in which he gets more time to focus on weaker trainees and also indulge more in clearing doubts of trainees by directly interacting with each trainee. CBT also becomes more effective as it allows the individual trainee to learn more efficiently by positive interaction with CBT's multimedia lessons. The trainee has the liberty to train at his own pace by spending more time on difficult areas. The trainee can also give instant feedback about various topics by email and is also allowed to repeat topics, which are not clearly understood by him.

By programming the simulator software, a data bank of assessments and exercises can also be developed for practice by the trainee. These exercises and assessments at every stage, enhance the progress of the trainee's learning. Focussed training in a full mission simulator can also be achieved by the instructor's interactions during a training session. Instructors or trainers can isolate certain sections on the simulator to signify faults thereby soliciting remedial actions by the trainees. A wide range of IMO model courses can be easily delivered using simulators or CBT programmes.

Decision making is an important aspect of a mariner's daily life on ships. To a large extent, such decisions are taken by seafarers on the spot, despite guidance or interference from the shore based managers or operators. Simulators are made with inbuilt intelligence to allow trainees to hone their analytical skills as well as learn from their mistakes and therefore direct them to make best decisions by themselves.

***Continued on Page 12***

# Challenges For Safe Anchoring




Capt. Vijay Cherukuri
Manager, Quality Assurance
ESM, Singapore

**The anchoring system on board our vessels are designed to hold a ship in good holding grounds under favourable conditions. Anchors cannot hold a vessel exposed to rough weather conditions or stop a vessel which is moving or drifting amongst other factors. Under such circumstances, the holding power of the anchors can be significantly reduced and the stress on the equipment can increase to such a degree that its components may suffer extensive damage; requiring immeidate replacements.**

This issue's *Challenges for Safe Anchoring* covers the requirements for safe anchoring to avoid such disasters and the challenges faced daily in the maritime industry. Based on a presentation featured at a recent officers' seminar held at SIMS Lonavala campus, it covers the basics of the anchoring system, its design limitations, favourable weather conditions, failure sequences and the main causes of loss and damage to the system as shared by Capt. Vijay Cherukuri, Manager, Quality Assurance from Executive Ship Management.

**Anchoring system basics**

The anchoring system primarily consist of the anchor with its chain, hawse pipe, chain stopper (also called bow stopper or guillotine), anchor lashing arrangement, windlass with its fittings, spurling pipe and the chain locker with its fittings.

This system is intended to safely hold a vessel in place in reasonable weather conditions offshore, at harbours or sheltered areas. Our vessels are not to anchor in open anchorages - such as areas not marked on the chart as a designated anchorage or are open to effect of wind, sea and swell (not sheltered).

It is imperative to understand that the equipment is not designed to hold a ship off fully exposed coasts in rough weather or to stop a ship, which is moving or drifting.

**Reasonable weather conditions for Anchoring**

The anchor and cable are typically capable of holding a loaded vessel in position up to the following maximum design environmental conditions:

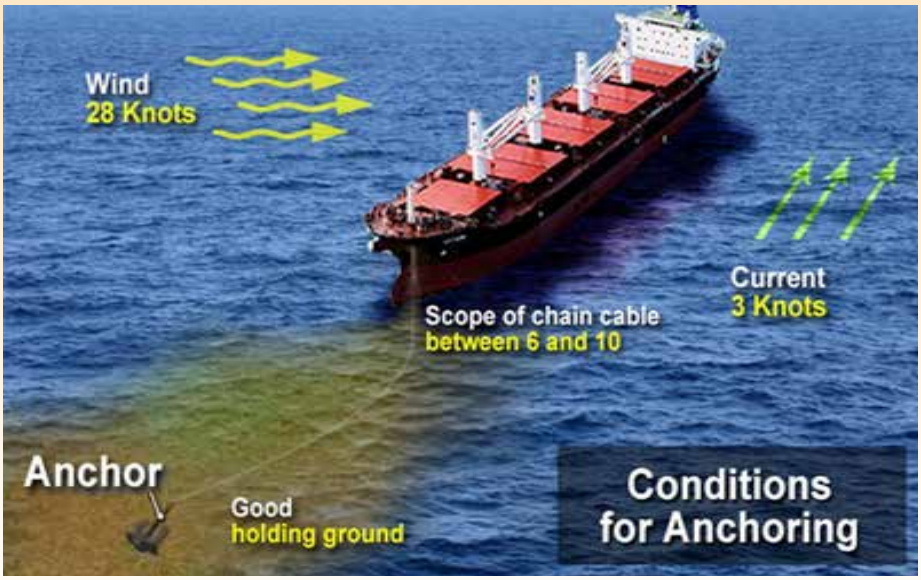
- Current speed of 3 Knots,
- Wind speed of 28 Knots (BF 6) and
- A scope of chain cable between 6 and 10, the scope being the ratio between total length of chain paid out and water depth. It is assumed that under normal circumstances a ship will use only one bow anchor and chain cable at a time.

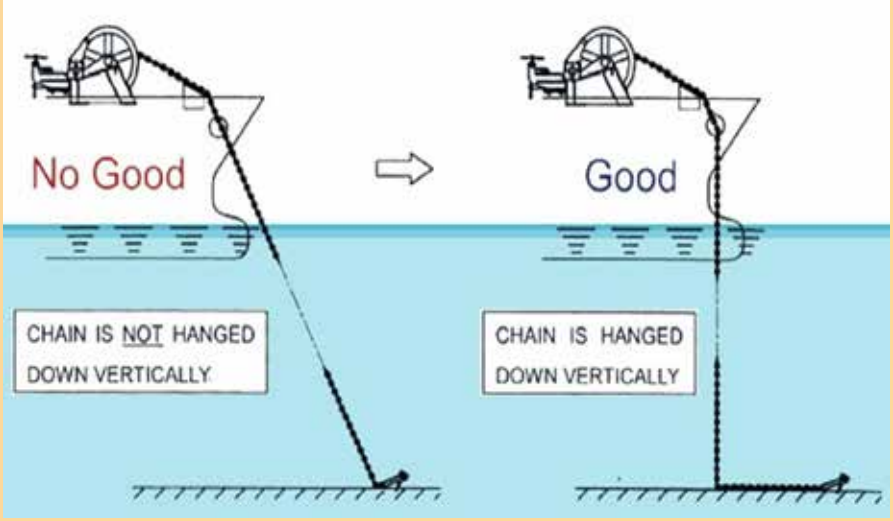
**Anchor – Design Limitations**

Lifting Capacity: Typically, a windlass is designed to lift a maximum weight of an anchor and three free-hanging shackles (82.5 meters length) of cable. E.g.: the weight of an anchor and 12 shackles of 100 mm diameter chain is approximately 90 tonnes. The windlass typically will be designed to lift 47 tonnes.

So in deeper water, it is usually not possible to lift the whole chain length with the anchor hanging free in the water. In such cases the vessel should get closer to shallow waters, at slow speed to avoid damaging or losing the anchor, then take the load off. This happens as the anchor is laid out on the sea-bed, chain kept as nearly vertical (also called "up and down") and then the anchor is picked-up as it would during a normal anchoring operation.

Best indicator of load on the anchor cable is Anchor Chain Stay, i.e., the Angle of the (Chain) lead during paying out or heaving on power.






When the windlass gear/ motor is engaged then the stay should be as close to vertical as possible, in no case 45 degrees or more, to avoid excessive load coming onto it. However the stay being at a 45 degree or less angle does not always mean it is safe. Even at this stage the Vertical movement of the vessel, such as a lift from a heavy sea or swell, will induce a pulling force in the chain, which is much higher than the pulling force of the hydraulic motor. So the vessel should not be at anchorage in rough weather conditions.

When the windlass gear/ motor is in use avoid excess load on the windlass gear. This is achieved by keeping the anchor chain as vertical as possible, if necessary by using ship's engine.

The windlass is not designed to break out the anchor from the seabed. To break out the anchor, the anchor cable is to be picked-up. During this process the chain shortens to such an extent that when the angle of the anchor chain at the anchor shackle (at the top of the shank) exceeds 15 degrees the anchor on its own will lose its grip/ bite of the ground and will break out.

**Anchor - Failure Sequence**

When the vessel is anchored, the forces acting on a ship can sometimes exceed the holding capacity of the anchoring equipment. Under these circumstances following would be the failure sequence of the system (with the consequence as provided in the parenthesis) –

- Anchor holding power exceeded (Anchor drags).
- Anchor snags and proof test load exceeded (possibility of anchor deforming).
- Bow (Chain) stopper failure (deformation of chain stopper or deck structure or chain pays out).
- Windlass band brake renders (chain pays out suddenly and the brake may get worn out).
- Windlass Motor, if clutch is engaged (chain pays out suddenly and the windlass motor/ gear gets damaged).
- Bitter-end fails (chain pays out without getting stopped and anchor with chain is lost to sea).

Key points to note are:

- The Bow (chain) stopper has a higher failure load (approximately 1.8 times higher than the brake band rendering load). The bitter end required to withstand approximately 15 – 30% of the chains MBL.
- The failure of the Brake band and the bitter end is only possible after the failure of the Bow (chain) stopper, unless it has not been used.
- As per Company's Planned Maintenance System (PMS), for windlass brake band up to 40% wear down of the original (makers manual) lining thickness is allowed. Beyond that the brake-band is to be replaced. The brake band thickness is to be regularly checked as part of the PMS schedule.

**Main causes of loss or damage to the Anchoring system**

Most of the losses related to anchor have been attributed to:

1. Vessel's speed in relation to Anchor cable rendering speed (walking-out or in), when gear is engaged –
   - Too high vessel's speed will result in too little cable being paid out during the walking back of the anchor prior to letting go or heaving-in. E.g.: when walking-out the anchor chain for anchoring in deeper waters, by means of the windlass motor. Higher speeds over the ground may cause the motor to render and get damaged by over-speed or overload.
   - To avoid such failure the vessel's speed over the ground should be less than the rendering speed (walking-out or in speed) of the anchor cable, which is typically less than 0.3 knot.

2. Speed of the anchor cable - allowing too much chain to pay out when the brake is opened, i.e., inadequate snubbing of the cable. To avoid such failure the speed of paying-out of the anchor cable is to be regularly controlled by applying the brakes (snubbing).

3. Failure of equipment – this is caused when the manufacturer's recommended criteria for operation or maintenance have been exceed, such as
   - Operating beyond its design capability such as weather criteria, lifting capacity, etc.
   - Not operating correctly, such as correct sequence of operating process not followed in line with the manufacturer's guidance for putting on-load from stand-by, etc.
   - Maintenance not carried out as per manufacturer's guidance, etc.

4. Fouling of the Anchor or Chain – with underwater obstruction such as another vessels or abandoned anchor cable, submarine cable, etc. gets fouled with own vessel's anchor. Hence should take care to anchor clear of such areas.

The above listed failures could take place when undertaking operations with the anchor equipment such as anchoring (letting go, walking back or paying out) in shallow waters and deep waters, staying at anchor, heaving-up the anchor or when undertaking or maintenance (or lack of it) as per the PMS schedule.

Additional details on the above information is readily available on all ESM ships in the company's Electronic Performance Support System (EPSS) on Anchoring prepared by the in-house E-learning team. ■

# Taking Inspirations from Machines

Mr. Biju Baben
Engineering Faculty
SIMS, Lonavala

**Marine machineries and systems are always a constant inspiration to all mariners because of their versatility in difficult operating conditions. Over a period of time, these become a part and parcel of their lives and influences them too**

The simple concept of converting reciprocating movement to rotary motion captured the imagination of the transportation industry. When we analyze this concept, the requirement for achieving this is much remarkable for all Marine Engineers. The power is available in the piston but the points to consider are:

a. The power is used to convert reciprocating to rotary motion and
b. Transferring of this power to a rotating shaft
c. The mechanism needed for doing the same.

*(Fig.1)* If the piston is connected to a shaft directly by a rod, whatever power produced on top of the piston will not convert the reciprocating motion to rotary motion. The two essential things needed are to change the line of application of force and shape of the shaft to receive the different line of action of this force. This is generally termed as torque and torque remains zero if we directly connect the piston tto a normal shaft.

*(Fig. 2)* For availing the torque, the center of application of force is to be changed and at the same time the normal shaft is to be converted to a crankshaft. To facilitate the change in center of application of force, the connecting rod should not be rigid in its place and is to be provided with a bearing and a pin surface at both the ends of the rod.

To achieve the conversion, the changing of angularity of the connecting rod is a must and that is done with the help of bearings provided at both ends. Further the shape of the shaft has also been changed to accommodate this motion, by raising the center portion of the shaft so as to become what is known as a crankshaft.

*(Fig. 3)* Now the power can be transferred from the piston to the connecting rod top end and then to the connecting rod bottom end and then finally to the crankshaft.

This concept can be related to personal development of availing power and channelizing it for various activities. We do produce power but some changes are to be made to facilitate the same. When the center of thinking changes, we are moving from one level to the next level where innovation starts. The maximum power will be available only when this has to pass through a changed mind set. Most of the time we are involved in mundane activities like reciprocating up and down but when we do change the center of our thought process, a huge transfer of power does take place and this will manifest itself.

Torque is zero at Top Dead Centre as the piston centre and crankshaft centre are the same and it is very difficult to move the piston down. As engines generally have multiple units and these units are displaced according to crank angle hence the other units which do have good torque will assist the unit in rotating. Similarly, if anyone is thinking that it is very difficult to change the behaviours (to safe ones) initially, remember your colleagues; those who have already changed their behaviours are with you and they will help you in the struggle you may have in the process. ■

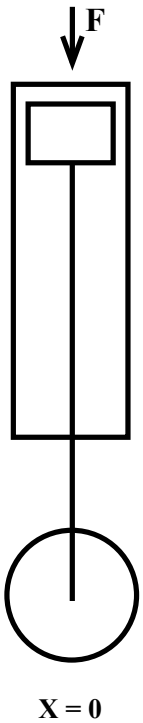



Fig. 1

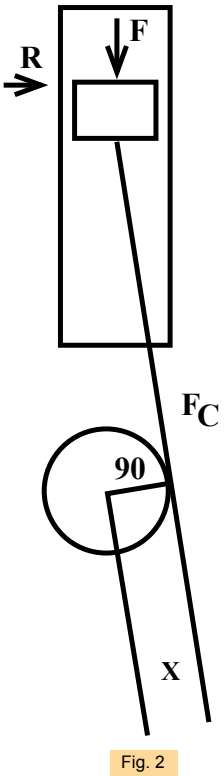



Fig. 2

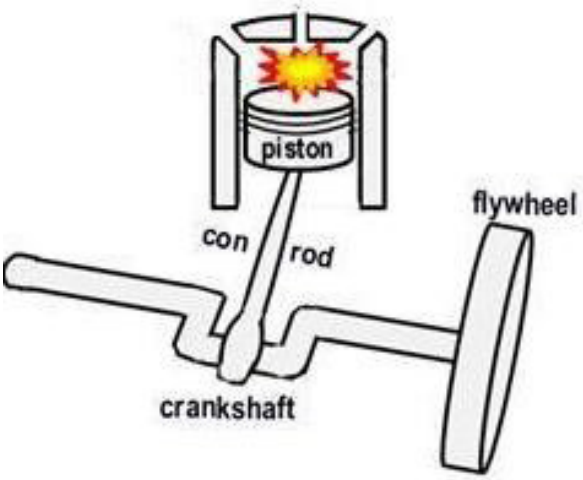
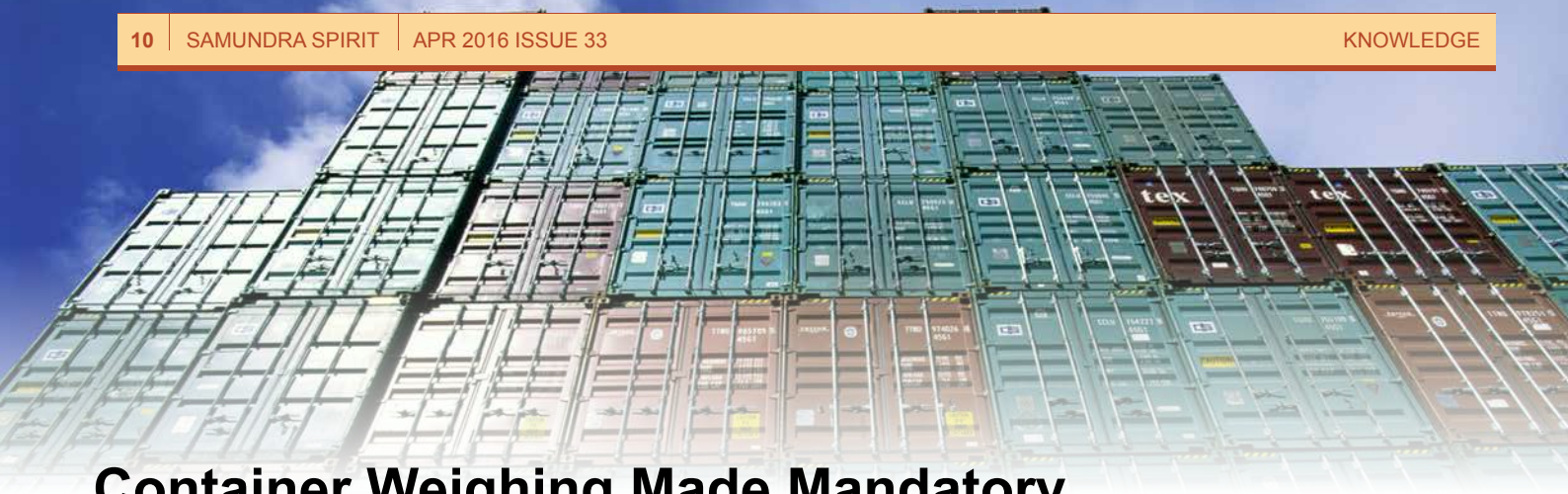



Fig. 3



# Container Weighing Made Mandatory

## An Insight on the new IMO regulation

**The issue of weighing containers has caused many in the industry to question how container weights could accurately be ascertained, given the large volumes of boxes, which are handled daily in major container terminals.**

The main responsibility for the safe marine transportation of containers lies with containership operators, both shore-based management and sea-going employees. However, there are many other parties, who are associated with the movement of containers.

At the outset, the party stuffing the container (shipper) should be held responsible for ensuring that its gross weight is correctly recorded on shipping documents and the overloading of containers or misdeclaration of their weight is never acceptable. Container terminals are also required to verify the actual box weight against the documentation provided by the trailer driver. This should be carried out either by use of a weighbridge or weighing scales fitted to terminal handling equipment. All these activities have a direct bearing on the safety of ships and the reduction of the risks to the lives of ships' crews and other personnel in the transport chain.

Marine Accident Investigation Branch (MAIB), UK's reports on container stack failures on various container ships, which were compiled over many years suggest that shippers failed to make accurate weight declarations. Shipping lines had only partial knowledge about the weights of cargo they were loading and port operators put box throughput above risk assessments and safety.

The main consequences of misdeclaration of container weights are as below:

1. Container stacks collapsing in ports while awaiting loading or collection
2. Risk of serious injury to stevedores during handling
3. Risk of serious injury to sea-going staff during the voyage
4. Stability and stress risks for ships and/ or impairment of vessels' optimal trim and draft
5. Risk of environmental pollution due to certain contents of containers spilling into the sea
6. Cost of recovery if containers lost in coastal waters
7. Cost of damage repairs to vessel, ship downtime, etc.
8. Higher insurance premiums to cover cargo and environmental claims
9. Incorrect vessel stowage decisions

In view of long standing complaints from industry to IMO, Amendments to SOLAS chapter VI will require mandatory verification of the gross mass of containers, either by weighing the packed container; or weighing all packages and cargo items, using a certified method approved by the competent authority of the State in which packing of the container was completed are coming into force from 1 July 2016. These will fundamentally change responsibility of freight forwarders particularly LCL (Less than container load consolidator). When a shipper does not have enough goods to accommodate in one full container, he would book cargo with a consolidator to combine his goods along with goods of other shippers. This type of shipment is called LCL shipment. The said consolidator arranges a fully loaded container (FCL), and combines the shipments of other shippers for shipping. He also arranges to deliver each shipment at final destination by separating each shipment after container is discharged.

As per new SOLAS Convention amendment, every container intended to be loaded on ship for export must have its gross weight verified – known as Verified Gross Mass (VGM). The new amendment states that the responsibility of providing the VGM to the carrier is borne by the shipper whose name will be entered in Bill of Lading & VGM to be provided to the carrier before the container can be lifted onto a vessel at the port of loading. This requirement will become legally effective on July 1, 2016. After that date, it would be a violation of SOLAS to load a packed container onto a vessel, if the vessel operator and marine terminal operator do not have a verified container weight.

Capt. S. R. Das
Nautical Faculty
SIMS, Lonavala

A failure to provide that information means that the ship's Master is then required by law to refuse to accept carriage. In vast majority of consolidated LCL boxes it is the forwarder that effectively becomes the shipper. Under the SOLAS amendments, there are two permissible methods for forwarders to obtain the VGM. Method 1, which requires weighing the container after it has been packed, or Method 2, which requires weighing all the cargo and contents of the container and adding those weights to the container's tare weight as indicated on the door end of the container.

Method 1 can be achieved by weighing the laden container using either an accredited weigh-bridge or some other equipment such as load measuring system fitted to container crane spreaders.

There is no exemption for weighing in some form. If you are a method 2 shipper, you still have to weigh the cargo, and the calculation aspect comes from adding the cargo weight with the tare weight of the container. However it does not appear that all national maritime authorities have accepted method 2 as valid.

Unlike previous IMO regulations, the number of impacted parties this time around will be much higher, in view of the sheer number of the containers being transported worldwide. ■

# ECDIS – Passage Planning with CatZoc

Capt. V. Fernandes
Nautical Faculty,
SIMS, Mumbai

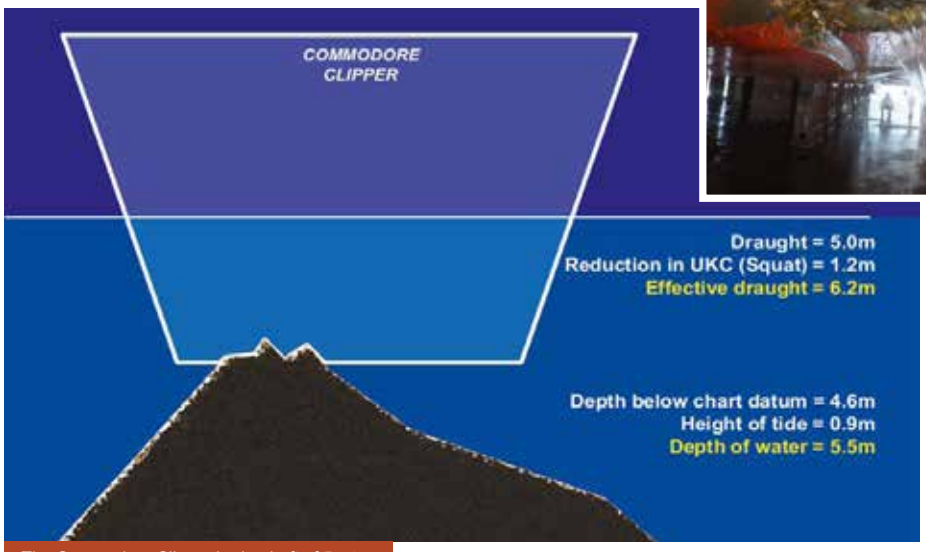
**When I first came across the word "CatZoc" on the ECDIS electronic navigational chart (ENC), I couldn't help but wonder what has a soaked cat or *"bheegi billi (hindi)"* had anything to do with shipping.**

With no previous background on ECDIS, getting used to these new terms is perhaps the toughest part of every mariner's job. Thankfully, with a little extra reading, I learnt that CatZoc referred to category zone of confidence. CatZoC, until now was lying hidden in one of the pages of my Generic ECDIS training reference material.

The grounding of the Commodore Clipper (a passenger-RoRO vessel) which occurred in July 2014 has brought back this bheegi billi into the limelight. The marine accident investigation branch released the investigation report in August 2015 and CatZoc had suddenly taken a front row seat in how we look at passage planning.

The grounding took place in the English Channel while en route to St. Peter Port which is in the west of Cherbourg. While many errors in navigation ultimately led to the grounding, one of the important links in that error chain turned out to be the CatZoc or rather, the ignorance of it.

The damage to the vessel was severe with distortion/rupture along almost two thirds of the ship's shell plating. Two ballast tanks and




The Commodore Clipper had a draft of 5 mtrs.

CatZoc on the ENC in simple terms refers to the Quality and Accuracy of survey data and the applicable error in chart datum that sometimes (in the case of the Commodore Clipper) can greatly affect your under-keel clearance (UKC) calculations. The Commodore Clipper is another example of an ECDIS assisted grounding. Had the bridge team understood what it meant and taken the CatZoc value into account the accident could have been avoided.

The Master was aware of the charted shoal which was at 5.2 metres. After applying height of tide 0.9 metres the static UKC was calculated at 6.1 metres. The Master had made a rough estimate that even after applying squat the vessel was still complying with the company's UKC policy and it was safe for her to pass.

The Master was overly relying on the Chart data which showed the sounding as 5.2 metres. The area was last surveyed in 1960, which was highlighted in the CatZoc value B, which the vessel failed to check.

The actual sounding of the shoal was in fact 4.6 metres.

**CatZoc has 6 Categories named A1, A2, B, C, D and U as shown below**

| ZOC Symbol | ZOC | Position Accuracy | Depth Accuracy | Seafloor Coverage |
|---|---|---|---|---|
| | A1 | ± 5 m + 5% depth | 0.50 + 1%d | Full area search undertaken. Significant seafloor features detected and depths measured. |
| | A2 | ± 20 m | = 1.00 + 2%d | Full area search undertaken. Significant seafloor features detected and depths measured |
| | B | ± 50 m | = 1.00 + 2%d | Full seafloor coverage not achieved; uncharted features, hazardous to surface navigation are not expected but may exist. |
| | C | ± 500 m | = 2.00 + 5%d | Full seafloor coverage not achieved, depth anomalies may be expected |
| | D | Worse than ZOC C | | Full seafloor coverage not achieved, large depth anomalies may be expected. |
| U | U | Unassessed - The quality of the bathymetric data has yet to be assessed | | |

While knowing what CatZoc values generally indicate is important, where the UKC is being barely maintained it becomes important to factor in the value associated with these categories. This can be seen in the example below-

A1 – Chart Datum of 10 metre = 10-(0.5+0.1) = 9.4 metre

A2 – Chart Datum of 10 metre = 10-(1+0.2) = 8.8 metre

B - Chart Datum of 10 metre = 10-(1+0.2) = 8.8 metre

Although A2 and B have the same depth accuracy, what differs is the positional accuracy.

C – Chart Datum of 10 metre = 10-(2+0.5) = 7.5 metre

D & U- The error is not specified or unassessed and must therefore be avoided as far as possible specially when in shallow waters.

These values can greatly affect the vessel's UKC calculation and must be considered where the depths are shallow. As a thumb rule the officer must plan his passage by keeping the vessel in areas shown by the triangles, i.e A1, A2 and B and stay away from the areas covered by rectangles, i.e C, D and U.

Where the vessel cannot keep clear from passing close to the rectangles, cautions notes must be posted on the ENC using the User Maps option telling the navigator to "Keep Echo Sounder on" and "Monitor UKC Continuously".

The Commodore Clipper was passing over an area marked CatZoc B; which meant the Chart datum of 5.2 metres was reduced to 5.2-(1+0.1) = 4.1 metres. The actual depth was 4.6 metres which turned out to be within this tolerance. Had the vessel considered the worst case depth as 4.1 instead of 5.2, the passage over the shoal could have in fact been totally avoided.

While the correction to the depth is +/-; i.e it can also assist in giving us a greater depth, we have little choice but to choose the shallower depth when calculating UKC.

ECDIS navigation is churning out a variety of challenges to the mariner and it would be prudent to always try and stay on top of these challenges by developing awareness about these. ■

***Continued from Page 6***

In bridge watch-keeping training, the application of collision regulations in actual situations is a very important aspect of shipboard operations. It would not be possible to practically expose the officer of the watch (OOW) to various situations and conditions of traffic and weather conditions at sea. However, such scenarios can be easily simulated especially in cases where there are ambiguities in contemplating about taking correct actions to avoid collisions with ships and other objects at sea.

Simulators also have the ability to record actions taken by trainees in various situations and conditions. These can be played back and reviewed to assess the mistakes made by the trainees and also enable them to learn lessons on mistakes made by others. Paucity of time on ships due to quick turnaround time accompanied by optimum manning levels on board has taken its toll on traditional shipboard training these days. Hence it is mandatory to train by simulators ashore. Trainees can be quickly acclimatised to adapt to the simulators.

Sources have stated that trainees in the age group of 20 to 27 of the millennial generation reportedly spend about 8,000 to 10,000 hours playing video games, and about 20,000 hours on e-mails, chats or blogging. Another distraction is the television in which an average of 20,000 hours are spent. Additionally today's youth cannot conceive a life without the cellphones. On an average, they spend over 20,000 hours using and playing with them. This leave them with less than 5,000 hours for reading/ learning. Hence they need to be provided with fast paced, highly stimulating presentations with increased interactivity with content & each other. They must also be exposed to information that relates to their world with multiple options for obtaining knowledge.

Simulation training for mariners has its advantages as well as disadvantages. Cost of making simulators is one of the expensive aspects as compared to cost of traditional training. But simulators are quickly programmable and hence provide a lot of flexibility for the trainers to simulate various conditions. Retests are possible for trainees under varying conditions and circumstances. The negative aspect of simulators is mainly errors as the one I have reported in the beginning of this article. The results of erroneous functioning of simulators can have detrimental effect on trainees. High level of expertise is required for simulator based training especially for specific tasks.

Whatever may be the pros or cons, simulator based training is certainly the need of the hour and is here to stay in the maritime industry. Fatal accidents and incidents recurring in this industry have certainly catalyzed the need for more and more simulator and CBT based training for seafarers of the day. Good companies have realized this potential and are doing their utmost to provide their seafarers with such training to the maximum extent possible. It has certainly begun to yield favorable results and it is hoped that there will also be monetary benefits in the long run.

At Samundra Institute of Maritime Studies this concept is clearly evident in ECDIS simulators for type specific and generic training, the Integrated Gas Tanker Safety training combining hardware and software uniquely, ERS (Engine Room Simulator), Dynamic Positioning training at management and operational levels Full Mission Bridge simulator with capabilities of Large Vessel Maneuvering and Ice Navigation for BTM and MRM courses using simulators. Our principals, Executive Ship Management, Singapore strongly believe that simulators and CBT training modules are important tools in providing the best training capabilities to their personnel. Additionally ESM has also introduced EPSS (Electronic Performance Support System) and Blended Learning Systems to foster grassroots as well as post sea training for their shipboard personnel.

To address the cons in Simulator training and to provide practical training, ESM/ SIMS have additionally used the unique SIC (Ship in Campus), which houses a fully working main engine and auxiliaries as well as all important engine room equipment. In order to provide practical training on Chemical Tanker Manifold as well as familiarity with Framo Pump Operations, unique facilities such as stainless steel chemical tank were created and have benefited many seafarers. ■

Graduation of GME19: Chief Guests, Faculty and Graduating Cadets

# SIMS, Lonavala Commemorates Graduation of GME 19th Batch

**Samundra Institute of Maritime Studies held the graduation ceremony for its 19th batch of Graduate Marine Engineering cadets on 11th February 2016. All 40 cadets marched forward to receive their certificates for successfully completing the one year training program and can look forward to their placements on-board vessels managed by Executive Ship Management in the months to come.**

Sharing their success at the ceremony were distinguished guests from the Classification society, ClassNK, faculty and family members.

Mr Noboru Ueda, Chairman & President, ClassNK, Japan, was the Chief Guest for the ceremony. He was joined by his colleagues Mr Y. Seto, GM, Executive Operations Division, Dr. M.A. Rahim, Regional Manager of Europe and Africa, Mr. A. V. Pradhan, Regional Manager of India and Mr. S. Sampath, Manager, Mumbai Office.

Speaking at the ceremony, Mr Noboru Ueda congratulated the young graduates and exhorted them to make great contributions to the maritime industry with the skills attained from the strong back-up of practical training provided at the institute.

He advised the cadets not to be distracted by the long term stagnation of the dry bulk market and the slowdown of the Chinese economy that have put the shipping and ship-building industries in a difficult position. He explained how the maritime transportation will continue to be essential in our daily lives regardless of how difficult the economy becomes and that the cadets should always trust their abilities honed with the training received at SIMS to overcome any hurdles.

He also commended SIMS as one of the best institutes with highly motivated students who will go on to become important role players in the maritime industry.

During the ceremony, Mr Noboru Ueda also handed out the awards for the best performing cadets in the batch. Winners are listed below:

**Best Cadet:**
Naveen Philip, G19 13

**Best in Academics:**
Naveen Kumar Saini, G19 12

**2nd Best in Academics:**
Shashank Dyamanagoudra, G19 22

**Best Hands On Training:**
Colins Xavier Aguiar, G19 07

**Best Sportsman:**
Rohit Singh, G19 30

**Best Orator:**
Raunak Paliwal, G19 19

**Best Music:**
Manson Kombara James, G19 36

**Best Cadet Captain:**
Aashish Harishchandra Bhoir, G19 01

**Best in HSSE:**
Varun Taneja, G19 29

**Best in Marine IC Engine:**
Abhishek Ganesh Kumar Verma, G19 40

**Best in Marine Auxiliary:**
Aman Kumar, G19 03

**Best in Automation & Control:**
Arun Raj, G19 05

**Most Popular Cadet:**
Ankit Tandon, G19 04

Mr. Noboru Ueda welcomed by the SIMS Faculty

Principal, Mr. Viswanathan presenting a token of appreciation

Reciting the Oath

Mr. Ueda lauded SIMS has one of the best institute with highly motivated students

Best performing cadets with the Chief Guest, Mr. Biju Baben, Faculty and Mr. Viswanathan, Principal

# Ship-Shore Collaboration Focused at Officers' Seminar

Officers' Seminar March 2016: Chief Speakers, sailing and shore staff


Ms. Sikha Singh inaugurated the seminar by highlighting the significance of the theme

Capt. Rajiv Gupta shared the effectiveness of appraisal system onboard and various company policies

Dr. David J Lincoln on the session "Taking for the desired results onboard"

**Injury free workplaces and incident free operations require a vibrant collaborative team spirit that is committed to overcome any challenges. The strength of the team lies in each individual member and everyone, regardless a ship or shore staff, has an important part to play in the organizations growth was the core message driven at the two-day officers' seminar held at Samundra Institute of Maritime Studies, Lonavala on 30th March 2016.**

Speaking at the seminar, Ms. Sikha Singh, Director, HR & Crew, Executive Ship Management, described the significance of the theme "Ship-Shore collaboration to lead ESM to new growth" and the importance of the word collaboration, which is being part of the group and shouldering the responsibility together. She reminded the need to prepare for new possibilities and each member should do their role with discipline and focus.

Keeping in line with the theme, numerous industry and in-house experts shared their experiences on topics such as the latest trends and issues PSC-LSA/FFA deficiencies, machine failures due to negligence, challenges involved with navigation and anchoring, taking ownership for the desired results onboard and insights from the perspective of external auditors.

Speakers at the seminar were Capt. Anuj Velankar, Executive and Loss Prevention Advisor, P&I Club, Dr. David J Lincoln, Founder, Neuro Linguistic Programming Association, India, Capt. Arun Sundaram, Director, Operations, ESM, Capt. Vijay Cherukuri, Quality Assurance, Manager, ESM, Mr. S.P Singh, Director, Technical, ESM, Capt. Kersi Khambatta, External Auditor for ESM vessels, Capt. Thomas Varghese, Manager, Vetting and Operations, ESM, Capt. Rajiv Gupta, General Manager, ESM Mumbai, Capt. Vincent Fernandez, Faculty, SIMS Mumbai, and Mr. Jitendra Kumar, Asst. Fleet Manager, ESM.

Capt. Anuj Velankar introduced the areas of P&I insurance and discussed the need for proper markings of enclosed space entry and atmospheric testing instruments, permit to work and the training of crew. He carried out risk assessment exercises and stressed the need for capturing slip trip and falls areas more seriously. He introduced the bow tie

Officers learning through group activities

Capt. Thomas addressing the officers during the split session

Presentation on Challenges for Safe Anchorage

Mr. Iyer during the Q&A session

ownership

Capt. Kersi Khambatta addressing the challenges behind good safety culture

technology to analyze the risk assessment in a better way and explained how the threat level can be ascertained while the consequences can be controlled through emergency recovery plans.

Capt. Vijay Cherukuri brushed upon the grey areas of safe anchoring and listed the major areas to be focused like design limitations, failure sequence, situational awareness according weather and draught conditions, and operational challenges. He shared several causes behind recent navigation accidents; such as poor seamanship and distractions.

Machinery failures due to negligence, maneuvering system, cylinder cover jacket cracking and fuel related issues were covered by Mr. S.P Singh. He quickly went through the incidents involving several main engines, auxiliary engines and boilers and shared the causes and solutions.

Capt. Thomas Varghese spoke about avoiding incidents by adopting proper procedure and preventive measures. He reiterated the importance of having proper tool box meetings, senior supervision in overhauls and the updating of the PMS system. Think logically and don't hesitate to seek assistance of office to resolve any problem no matter how trivial it may be along with timely & correct feedbacks, he added.

Mr. Jitendra Kumar on PSC-LSA/FFA deficiencies, elaborated that equipment knowledge - procedure, type and inspection schedules – plays a key role in reducing PSC observations and its consequences. He advised ship staff to be aware of the maker requirements for vessel specific equipment's and maker specified maintenance instructions are to be followed at all times. He added that ship staff also to need communicate with the office without hesitation should any abnormality arise.

Capt. Kersi Khambatta, presented the challenges for ship staff to keep up the good safety culture. He added that in addition to carrying out task with due diligence and responsibility, working smart is the right approach towards achieving goals and this requires training the mind to analyze situations onboard. He said that the solution lies in the safety management system itself and it should not be perceived as a burden, rather, be a concern over safety.

Dr. David J Lincoln, a Psychotherapy trainer, a neuro linguistic programming master trainer, conducted a session on "Taking ownership for the desired results onboard". He specified that what we recognize outside ourselves is what we are inside. He reminded that we can't change another person rather we can change ourselves and narrated various types of personalities with different leaderships.

The seminar ended with a split session for both navigating officers and engineering officers. Capt. Vincent Fernandez from SIMS Mumbai led the session on ECDIS - achievements and challenges post implementation and key to safe navigation for navigating officers whereas Mr. Jitendra kumar conducted a session regarding solution on automation for the engineers.

# Engine Starting Air System Project

**This project is an attempt to study the concept of starting air system through a working model.**

We felt the best way to study such a complex system was by first knowing the fundamentals of the system and through a working model where hands-on practices creates better understanding.

It is always important to learn a system in such a way that it creates a bold image in the mind of the learner and develops understanding to a level where new ways of exploring the same system emerges. As we all know that a ship has many such systems for carrying out different tasks and for a cadet to learn all of them is quite difficult. The objective of this model is to make the things look much easier to understand and to bridge the gap between theory and practical.

**Engine Starting Air System**

Air supply is provided by opening the main air bottle valve. As the valve is opened, the air is passed through the pilot valve and acts on top of the automatic start valve, providing a positive closing. The other branch supplies air until the turning gear interlock as the interlock blocks the air to go further.

To start the main engine, first turning gear has to be disengaged. This will deactivate the interlock and the air will be supplied to the automatic start air valve. Since there is a spring pressure and additional positive closing by the air supplied pilot valve, the air will not go further than the automatic start valve until the start command is given.

When the air start lever is operated in the ECR, the pilot valve shifts and blocks the air on top of automatic valve. It vents the line and there is no more positive closing.

Air passed from turning gear interlock pushes the spring, opens the valve and closes the vent. Now the air is available in the cylinder head starting air valve manifold and in the distributor. The distributor consists of a negative type cam for positive overlap.

When the concerned unit number 4 distributor valve comes in the cam profile, air compresses the spring and the valve is opened to operate the same unit number 4 cylinder head starting air valve.

As the camshaft rotates, unit number 4 line is vented and the cylinder head starting air valve closes. Now unit number 1 valve will be in contact with the cam profile and the air is injected in this unit. The air injection is done as per the firing order of the engine.

**Starting Air System Trainer**

The aim of this working model is to demonstrate the lines through which air passes, the movement of valves and match the timing of opening and closing of valves with the firing order.

Expectations from the model:-

1. Help in tracing the lines.
2. Understanding the concept of starting with air.
3. Learning about components of the system.
4. Understanding the importance of firing order.
5. Understanding about the working of spool valves.
6. Visualizing the shifting of cam during ahead and astern motion of the ship.

In this working model we tried to encapsulate most of the concepts of the system in the manner that they are working in an actual system. Our model includes representation of an inverse CAM having four spool valves mounted on it. Spool valves are responsible for opening and closing of starting air valve according to the firing order of a marine diesel engine.

It shows opening air, closing air, drain passage and starting air (30 bar). It also shows the change in firing order according to the ahead and astern movement of an engine. An arrangement is done in the system which works as Lost Motion Clutch in the system. Lines going to the starting air valve and coming from it are represented by moving L.E.D lights of different colors. Air bottle having 30 bar air pressure inside is shown in the system.

When we switch on the supply the starting air from air bottle waits at the non-return valve (replaced by push button in the system). When we press the push button air goes to each and every branch of starting air valve mounted on cylinder head and to each spool waiting to enter to the cylinder according to the firing order. As the cam start rotating clockwise there are two spools on the cam profile , one is leaving showing overlapping period and other is coming onto the profile of the cam. When we have to reverse the direction to astern all four spools get disengaged from the periphery of a cam and with the help of lost motion clutch the cam rotates by 98 degrees and stops. After then the spools get engaged and cam starts rotating in the direction as earlier. This reverse the engine and hence change the firing order also.


Cdt. Rohit singh
Cdt. Kumar sarthak
Cdt. Naveen Kumar Saini
Cdt. Lokesh Mahajan
Cdt. Karan Thakur
GME 19
SIMS, Lonavala

# Avoiding Inaccurate Bills of Lading

**It is to go without saying that a Master shouldn't issue a letter of authority (LOA) without the owner's approval, or sign a Bill of Lading when they are in doubt or know that the statements provided are inaccurate.**

I too had my fair share of experience as a Master of a handysize bulk carrier, when I was forced to acknowledge a Bill of Lading over a period of three days that had clearly indicated the wrong destination.

The following incident took place while my vessel was loading coal at Haypoint, Australia, when we received instructions from the owners for a voyage charter to Hazira, a port in the Gujarat state of India, with 30,000 tonnes of coal. But despite the given destination, I was issued a Bill of Lading for Hong Kong instead; that too informed by the charterer's agent's representative.

So the obvious question which came to my mind was under whose instructions was this required? For the uninitiated regarding the issue involved, I provide below an extract from Vessel Operation Manual Chapter 8.4.2 provided on ESM Ships:

> ***8.4.2 Accuracy of Statements in a Bill of Lading***
> *In practice there will be occasions when it will be very difficult, if not impossible to verify the accuracy of statements presented by the shippers. The following advice may be of assistance in relation to the foregoing points:*
>
> ***5. VOYAGE DETAILS, LOAD PORT – DISCHARGE PORT***
> *The voyage details contained in the Bill of Lading must be the same as intended in the charter-party. If this is not the case, the Master should refuse to sign and notify his owners Immediately.*
>
> *If lightening will be necessary at the stated discharge port yet the Bill of Lading does not permit lightering, the Bill of Lading must not be signed.*

When the agent came onboard the following day, I inquired as to under whose instructions must I sign the incorrect statement on disport as I did not receive any such orders from the owners. He informed that it was as per the charterer's instructions. Hence I immediately asked him to advise the charterers to put it in writing or send an email to me. While the email never came, I did get a phone call from the charterer's official, directing me to sign the Bill of Lading for Hong Kong and proceed to Hazira. The charterer's person in charge (PIC) also informed me that the owners were fully aware of this requirement and had consented to it.

I immediately called up the owner's PIC and informed him regarding this request, which predictably he declined outright. Next day, the charterer's representative called me up and seemed very upset. He queried as to why I had called the owners to confirm about this request.

On the third day in port, the agent came on board and gave me a letter to sign. I went through the letter, which in simple terms stated that, I was authorising the agents to sign the Bill of Lading on my behalf. In fact it was a letter of authority (LOA). To put the matter in perspective, let me give you the relevant extracts from ESM's form PC 4 on the letter of authority (usually given during Early Departure Procedure by the Master):

> *You must not sign the Bills without my confirmation.*
>
> *I hereby confirm that you have authority to sign bills of lading on my behalf only after receipt of my confirmation that the bill of lading figures provided by you are found to be in good order by me in respect of the following cargo loaded at …..(port's name) on……(date) and said to be: (details of cargo)……..*
> *Please note that this authority is non-transferable, and that you do not have authority to sign any bill of lading, which does not specifically incorporate the terms, conditions and exceptions of the Charter party dated ……and/or the Hague/Hague-Visby Rules (or rules having a similar effect).*
>
> **The Charter party governing this voyage stipulate that the port of discharge will be ……. The destination shown on the bills of lading must be consistent with this provision.**
>
> *Please ensure that all bills of lading are properly dated. 'Freight prepaid' bills are not to be issued unless expressly authorised by my owners.*
> *Do not hesitate to refer to my owners on this or any other matter concerning the issue of bills of lading.*
>
> *(Signed by Master)*

Capt J M Irani (MICS)
Nautical Faculty
SIMS, Lonavala

I could gather from the conversation with the agent that there was something drastically wrong with the whole issue. I categorically told him, "No" and that I would not sign this letter. Agent in turn threatened me that it was in the charter party that I had to give a LOA for the signing of bills of lading to the agent. Since I had the charter party with me, I told him to show me under which clause it was stipulated. He just could not show me because it was not mentioned in the charter party. Thereafter he started pleading with me. Finally in order to resolve the issue, I asked him to send a message to the owners to allow me to issue the LOA.

The owners took control now of the entire situation and sent me clear instructions to sail to Hazira and issue an LOA so that agents may issue the bill of lading only after their approval. The moral of the story is that Master must not issue LOA without express confirmation from owners, or sign a Bill of Lading, when they are doubtful or know that the statements (such as regarding quantity of cargo, apparent quality, description of cargo, date of shipment, voyage details i.e., load and discharge ports, freight details, terms of the charter party, adverse comments made on mate's receipts regarding condition, etc.) provided in them are not accurate. ■

# Scenario Based Learning on board Ship-in-Campus

**Experience comes from encountering both the positives and negatives of life. I learnt this throughout my childhood from my mother who constantly prepared me for my future. She often says that "life gives you chances to observe things and when you experience life, you will gain knowledge too."**

Likewise, I gained both knowledge and experience at a recent scenario based learning session at the Ship-in-Campus (SIC). Being a trainee, it is always a life time experience to observe things before you are going to perform in your profession, but only when you have right experience and knowledge, will it help you to perform better in your profession. I would like to share such an experience.

The chief engineer and other faculties had a meeting and decided to have a scenario based learning programme with the main engine in the ship-in-campus. We were informed by our respective faculties and were asked to assemble at the SIC right after lunch as soon as possible. When you are getting training on your dream job you are always passionate about such things and so, the other cadets and I reached the SIC before time with much enthusiasm.

We first noticed how busy the faculties were with their work. Becoming aware of our presence, they asked a few of the cadets to assist them immediately. I was the one of them running behind my instructor. At that time, i had the feeling that I was working on board a real ship.

Noticing how the tasks were completed, I realized how important it was to complete each task before starting the main engine.

I was first asked to start the one of the compressors out of the three. After the compressor was started, the air receiver was allowed to fill to the desired pressure. Then, the chief engineer asked one of the faculty to start the generator; but it tripped right after a few seconds. The faculty checked for the defect and found that the generator was not purged properly, so we started purging the generator.

As the time to rectify the problem started to take a while, the chief engineer decided to take the shore supply in the meantime. We took the shore supply and started the pumps i.e. JWC pump, lube oil pump and fuel oil circulating pump. The chief engineer then did a thorough check of the engine room and went to the local station to start the engine again. But as soon he gave the starting air and change it to the fuel, the engine tripped.

The chief engineer went to find the defect and eventually found that the dynamometer pump was not taking suction as its suction valve was closed. After resolving all the defects the main engine was started successfully. We were asked to open the indicator cock. As we opened the indicator cock, the hissing sound came out of it like a melody to my ears. The engine was allowed to run for some time, every sound surrounding the engine room was like a sweet song to me.

I was so deeply involved in that scenario that i didn't even noticed my friend tapping my back to help him lift some of the equipment. After few minutes, the engine was stopped and all the excitement in me got over. In my mind i said "why it has to be stopped, I was enjoying every moment of it". We were asked to leave the SIC but my mind was still inside the engine room and my ears were still surrounded by that engine running sound.

Life gives you chances to observe and experience some moment we are the one who have to gain out of it. I enjoyed every moment of it and gained a lot from it. I remembered what my mother said is true but i added more to it what she said and sum up that *"Experience is a life time gift."*

Cdt. Kumar Sarthak
GME 19
SIMS, Lonavala



Photos 1 and 2 by:
Cdt. Aashiq Vincent
GME 20
SIMS, Lonavala



Photos 3 by:
Cdt. Kumar Satya
GME 20
SIMS, Lonavala

# Historical Surrounding of SIMS: Kondana Caves

Satish Shivaji Babar
Lecturer (Electronics)
SIMS, Lonavala

**Every Samundra Spirit for the past eight issues has sought to bring to our readers the remnants of ancient kingdoms and civilizations that makes Lonavala truly rich in history and a unique place to explore. We are pleased to bring out yet another trekking experience – a trip to the Kondana Caves as shared by Satish Shivaji Babar, a lecturer from SIMS, Lonavala. These elusive group of sixteen Buddhist caves are surrounded by a forest and waterfalls.**

Armed with my camera, water bottle and snacks in my carry bag, we got ready for the adventure on a bright morning for our journey to Kondana Caves. The Kondana caves are situated in Kondana villege, near Karjat. It is about 60 kilometres from SIMS Lonavala Campus.

Passing by the Lonavala - Khandala area early in the morning provided us with the most panoramic view of nature's beauty. The rising sun amidst vast patches of green land is indeed a sight not to be missed. As Lonavala is best known for its cool climate which can dip as low as 13 degree Celsius during February to March, we experienced and enjoyed a nice winter morning too.

Having covered the distance in about one and half hours, we reached the base village of Kondane. We parked our bike in front of a hotel and ordered a "Garma garam Bhajia and Chai", which is the best breakfast available in any local village in the area. After a hearty breakfast, we started out on our onward trek towards caves. From the base village of Kondane, it's a 45 minutes trek to the caves. Three sides of the village stood surrounded by the hills and at the time we started, sunrays had not penetrated the area yet and the surroundings were still pleasantly cool.

The trek consists of a very thin strip weaving through the jungle on a hill and is a mix of plain and rocky terrains, which tends to get slippery during rainy days. Hence it's recommended to visit these caves during the drier months of October to February.

One of the first point of attraction on the way to the caves would be the three 120ft high waterfalls. We spent a lot of time there enjoying the atmosphere particularly for the sound made by the waterfall. Since it was the dry season, only one waterfall was seen that day leaving us to our imagination how the experience would be different during the rainy season.

As we trekked further in, we got our first glimpse of the Rajmachi mountain range with Manoranjan fort standing tall and proud at the top. We could also spot the Kondane River flowing close to the base village from where we stood.

After about one hour's walking through the peaceful greenery of jungle, suddenly a big cave structure loomed in front of us. It was the beautiful sight of Kondana caves, hiding amidst the greenery of the jungle.
We took a short break at the entrance of the caves, irrigating our parched throats with water. We looked with wonderment at the caves for some time admiring as to how efficiently they had been made. Their structures seemed just awesome.

It is said that these are a group of 16 Buddhist caves named Kondana or Kondivadi. It's part of three groups of sister caves located in and

around Lonavala, Bhaje and Karla caves. Kondana caves were carved in 1st century BC. These caves consist of sculptures, viharas, stupas, and chaityas, which are all part of magnificent Buddhist architecture. Although earthquake in early 1900s destroyed and damaged many stupas, front entrance and floor of the cave, still some of the architecture remains intact providing a glorious example of our remarkable heritage.

The main cave has a large entrance, shaped like a fig leaf and supported by curved beams. There are many pillars with a large stupa in the cave. Some models of stupas were carved on the wall of the caves. On the entrance wall are carvings of men and women in dancing form. It is said that these were images of Kings and Queens, who had donated generously for constructing these caves.

Close to the main cave is another cave, which appeared to be like a dining hall or kitchen with small rooms carved in the wall. We noticed a carved drainage system on the floor of the hall to drain out the water out from collecting in the cave. It appeared to be a brilliant piece of engineering considering the period it was constructed.

After roaming around the caves, we had our lunch in the historical dining hall while having an amazing view of the Bhor Ghat before calling it a day. On our way back, we randomly clicked pictures of local fauna going about their daily routine and also witnessed the Mumbai-Pune trains passing through the tunnels. It was indeed a short and wonderful excursion to one of the important historical places.

# Promotions Onboard ESM-Managed Fleet During First Quarter


JO NITESH KUMAR SINGH
DNS 11


JO SUMMY JAMWAL
DNS 13


JO RAVI DEV YADAV
DNS 10


JO KIRAN S. NAIR
DNS 13


JO ABIN JOHN
DNS 11


JO AJAI P. SOMAN
DNS 11


JO RAHUL JOHN
DNS 12


JO PRATEEK SINGH
DNS 11


JO KHIM SINGH
DNS 12


JO SANDEEP SUNIL
DNS 10


JO ABHINEET SHARMA
DNS 11


JO NITHUN T. PONNAKKAT
DNS 11


JO VIKRAMJEET SINGH
DNS 11


JO HARPREET SINGH
DNS 12


JO SAHIB PREET SINGH
DNS 11


JO ARAJ S. PUTHALATH
DNS 11


JO VISHNU VINOD
DNS 9


JO ASHWIN K. RANGAN
DNS 11


JO ANAND S. CHAUHAN
DNS 13


JO JAI KISHAN PATEL
DNS 11


JO RAVI KUMAR
DNS 11


JO VENKATESH C. KRISHNAN
DNS 13


JE AMANPREET S. GILL
GME 13


JE AVTAR SINGH
GME 14


JE MEHTAB S. BAJWA
GME 14


JE PUSHPDEEP SINGH
GME 14


JE STABIN MATHEW
GME 14


JE JAGJOT SINGH DEOL
GME 14


JE ANKUR KUMAR
GME 14


JE VARUN K. PRATHAPNAGAR
GME 14


JE SIDDHESH Y. SHAH
GME 14


JE SANDEEP C. NADUVATHODI
GME 13


JE SUMIT KUMAR
GME 14


JE STILLWIN JERARD
GME 14


JE SANDEEP G. CHIPDE
GME 11


JE PANKAJKUMAR M. SOLANKI
GME 11


3O ATHUL V. PULIYULLATHIL
DNS 11


3O AJAY ASWAL
DNS 13


4E ANKUSH SHARMA
GME 14

# Incorrect Purifier Maintenance Sparks Fire Scare

* We invite responses from our learned readers as to the causes and lessons learnt through this case study. Please send your responses to samundraspirit@samundra.com.

**The following incident of a fire alarm going off in the purifier room shortly after a maintenance work on its heavy oil purifier took place when the author was sailing on a product tanker as a second engineer.**

A 8000 hours routine was being undertaken by a fourth engineer with the assistance of a fitter. After the routine was completed, the purifier was tried out satisfactorily for an hour; after which, the fourth engineer un-manned the engine room. But an hour later, the ship's fire alarm sounded and engineers located the cause to be the activation of a smoke sensor in the Purifier space.

**Events that led to the incident**

As part of the routine, the gear case lubricating oil had to be renewed. For this, the drain plug provided at the bottom was unscrewed and the old oil was drained and collected before the plug was screwed back again by hand. Before the fitter could finish the task of tightening the drain plug with a spanner, he was called by the fourth engineer to assist him in the bowl assembly. After completing all the tasks, fresh gear oil was taken in the gear case to the recommended level and the purifier was tried out successfully and put on line.

Satisfied with the operation of the purifier, the fourth engineer took the rounds and filled up the check list prior putting the engine room on UMS (unmanned system). However, shortly after an hour, the ship's fire alarm sounded.

**Investigation**

The engineers rushed to the fire station and found the sensor in the purifier room had activated the fire alarm. Engine room entry was made with due precautions and the room was found filled with smoke and a burning smell. After securing the Purifier, it was noticed that the gear case was very hot and no oil was in the gear case. The drain plug had come off and gear oil was found to have spilled on to the floor. The gear case was inspected and was found with all the teeth of the bronze drive gears completely eaten away. Fortunately, there was no fire.

**Extent of damage**

A small but significant error in fixing the drain plug during routine maintenance, led to the loss of a few thousand dollars' worth of spares, along with the associated risk of fire. The purifier gear train elements had to be renewed along with the friction pads and the purifier itself was not operational for three days. ■

**From the details provided and your knowledge about operating heavy oil purifier systems, please provide answers to the following regarding this case study:**

1. **What is the purpose of providing gear oil in the gear case?**
2. **What could be the cause for the drain plug to unscrew when the purifier was in operation?**
3. **What are major maintenance activities in an 8000 hours routine?**

S.Viswanathan, Principal
SIMS, Lonavala

## Case study response from Previous issue " Fouled Air cooler of MAN Engine due poor verification of cleaning conducted":

Issue 32 (January 2016)

**Thank you readers for the feedbacks and responses on the previous case study. Here's a compilation of the answers received:**

**Q1. What is the importance of the pressure drop gauge provided in the air cooler?**

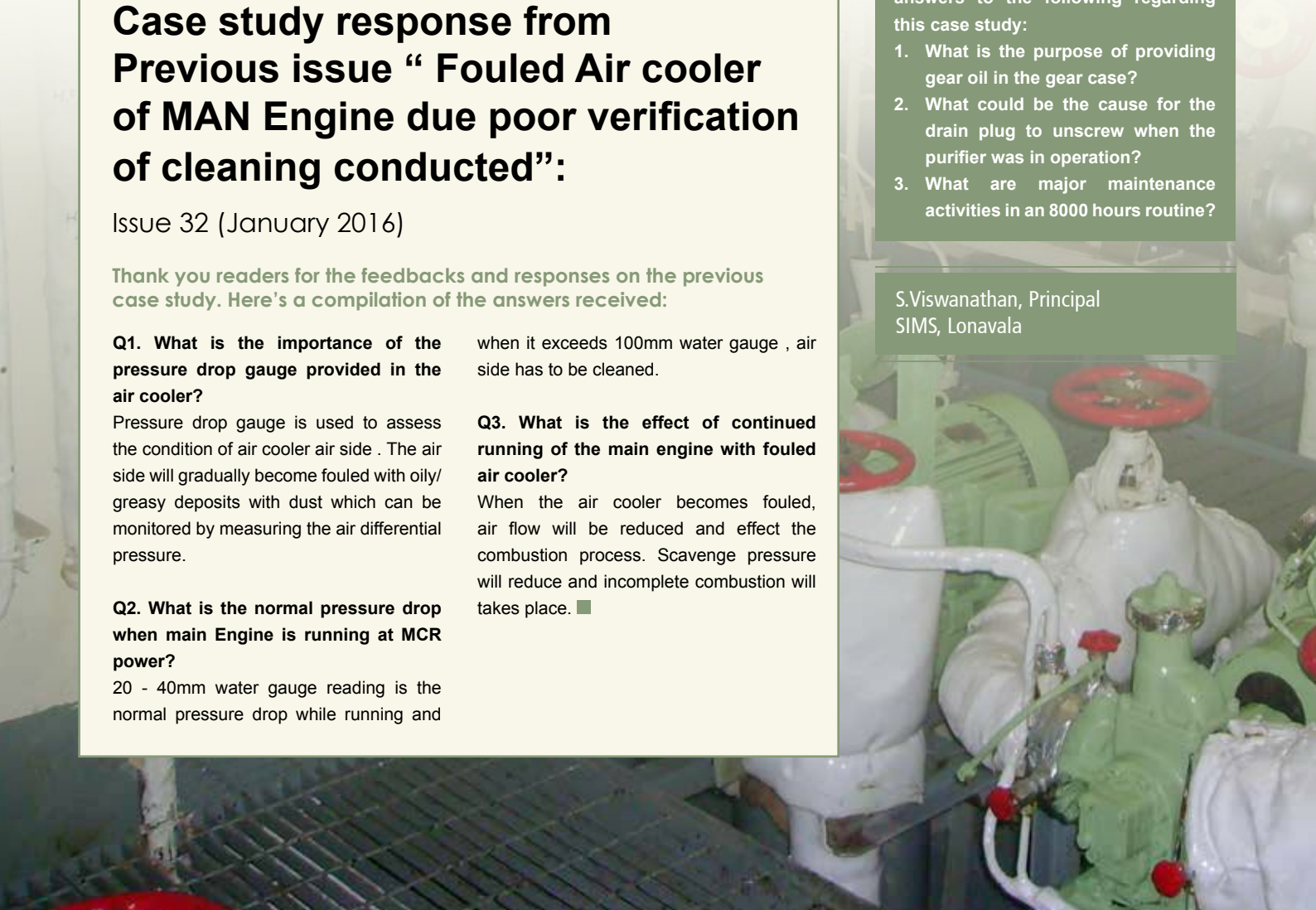
Pressure drop gauge is used to assess the condition of air cooler air side . The air side will gradually become fouled with oily/ greasy deposits with dust which can be monitored by measuring the air differential pressure.

**Q2. What is the normal pressure drop when main Engine is running at MCR power?**

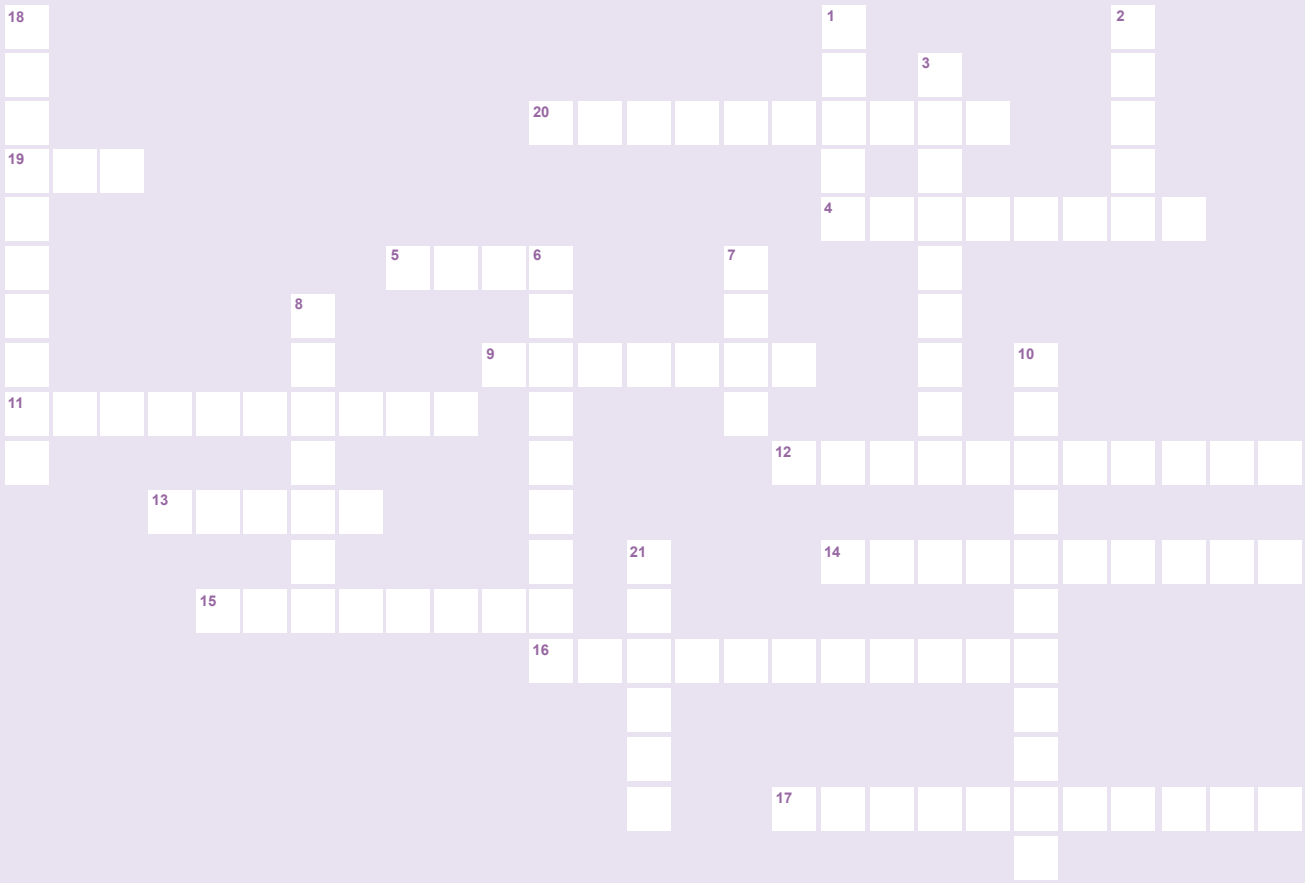
20 - 40mm water gauge reading is the normal pressure drop while running and when it exceeds 100mm water gauge , air side has to be cleaned.

**Q3. What is the effect of continued running of the main engine with fouled air cooler?**

When the air cooler becomes fouled, air flow will be reduced and effect the combustion process. Scavenge pressure will reduce and incomplete combustion will takes place. ■



# Know your Boiler




## Across

4. Breaking away of layers of refractory bricks is called as _____.
5. Upper blowdown valve is used to remove _____.
9. _____ is performed each time before, giving a start to the boiler.
11. It connects the turbine blades at top for vibration dampening.
12. It is required for complete combustion of fuel in the furnace.
13. It is used as scavenge space fire extinguisher.
14. It protects the furnace shell from direct radiant heat.
15. It connects furnace crown to boiler shell in cochran boiler.
16. Mounting of the boiler, to safeguard it, from excess pressure.
17. They protect the superheating tubes from direct radiant heat.
19. While pressure testing of the boiler, we _____ the safety valve.
20. _____ are used for forming the non-adherent sludge.

## Down

1. These are provided to prevent the deformation of flat surfaces on the pressure side of the boiler.
2. _____ gives air for combustion, pre purge and post purge.
3. It consists of water and steam, both into it.
6. Fittings on the pressure side of the boiler are known as _____.
7. During water filling, _____ valve is opened to let off the air.
8. _____ has more temperature than other places in boiler-
10. Information about leakage of, oil heating steam line, is furnished by seeing oil in _____.
18. The water level in the steam drum can, locally, be seen through _____.
21. These direct the combustion gases onto the superheating tubes.

Cdt. Utkarsh Rastogi
GME 19
SIMS, Lonavala

**Answers**

**Across:** 4. SPALLING, 5. SCUM, 9. PURGE, 11. SHROUD RING, 12. ATOMISATION, 13. STEAM, 14. REFRACTORY, 15. OGEE RING, 16. SAFETY VALVE, 17. SCREEN TUBES, 19. GAG, 20. COAGULANTS

**Down:** 1. STAYS, 2. FD FAN, 3. STEAM DRUM, 6. MOUNTINGS, 7. VENT, 8. FURNACE, 10. CASCADE TANK, 18. GAUGE GLASS, 21. BAFFLE

# Basketball Friendly: SIMS vs INS Shivaji

**Basketball has been gaining popularity with the SIMS cadets in recent years and it was a long standing dream to test our mettle against a competitive and professional side.**

The dream came true on 17th February 2016 with INS Shivaji Navy basketball team gracefully accepting our invitation to host a friendly match in the campus court. SIMS had the advantage of playing in the home turf, coupled with unending reserves of enthusiasm and stamina. But the odds were still heavily stacked against the inexperienced hosts.

It was evident from the very first minute of the game that SIMS was in for a herculean task. INS Shivaji was several notches ahead in terms of physique, professionalism and experience. Sanju Joy and Bipin Chacko of the naval team were menacing near the basket whereas Kamal and Mandeep proved to be too good with their 3 pointers. INS Shivaji Navy raked up the points fairly quickly in the opening quarter and forced the home team to press the panic button. SIMS took some time to put their defense in order and by the end of the second quarter, they had a mountain to climb.

SIMS picked up momentum in the third and fourth quarter of the game, matching the naval team in skill, stamina and pace to pick up points. Cautious in their approach and working from the back, Cadets Som Deo Joshi, Rinku Kumar and Chetan Singh Rathod were instrumental in spearheading the SIMS fight back but the match was eventually won by the professionals from the Navy with a score of 86 to 49 points.

The SIMS boys made our institute proud by putting up a brave show despite the odds and it was heartening to see the winning team sharing valuable tips with SIMS cadets after the game. Capt. V R Krishnan from SIMS Lonavala officiated in the match and was instrumental in keeping the spirit of the game alive.

All smiles after the friendly game

# Kaveri House bags Inter-house Football Championship

**"Success is no accident. It is hard work, perseverance, learning, studying, sacrifice and most of all, love of what you are doing or learning to do", said the great Pele.**

The feeling was no different when SIMS got the ball rolling on the final match of inter-house football championship on 12th February 2016. It was the cadets of Godavari house vying for the ball with their counterparts in Kaveri house with a single motto; to find the back of the net. Both teams rose to the occasion, true to the spirit of the game, and in the bargain those who were watching from the sidelines got a real kick out of the whole thing, literally.

Opening moments saw fierce activity on the field, with each wave of attacking strikers being effectively pushed back by the rock solid defenses. Both teams hit the woodwork, coming so tantalizingly close to disturbing the net, but the goals still remained elusive. Eventually it was Cdt. Navilesh Sahni of the Godavari house who broke the deadlock with a stunning goal which left the opposition spellbound. Cdt. Yuvinder singh of Kaveri house quickly equalized, bringing parity back to the game. The score line stood 1 -1 at the end of the regular time.


Inter-house Football Champions 2016: Kaveri House

Penalty shootouts are often heartbreaking with the results at times very unfair. But even the shootout was grossly insufficient to decide upon a winner among the two teams who were so nicely balanced in all departments of the game. Eventually it was the 'sudden death' which decided Kaveri house as the eventual winner of the SIMS Inter-house football championship. Godavari was crestfallen, but they left the field with their heads held high, and deservedly so.

# Visitors' Comments
# First Quarter, 2016

**This institute reflects passion converted to practice. Optimal use of simulators coupled with practical hands on training is the need of the hour; the institute has adopted that very well. Keep it up! This country needs such islands of excellence!**

Capt. S.M. Halbe
Managing Director
Gulf Energy Maritime Services Pvt Ltd

**Thanks a lot for a very nice and well organized day. It was really impressive to see your facilities, especially the full sized training vessel, your workshop and simulator facilities. Indeed state of the art facilities. We must keep in touch for the future.**

Tommy Rand Molau
Head of the PrimeServ Academies
MAN Diesel & Turbo

**Fabulous Campus. Well maintained and most importantly the quality of education is top of the level. Keep up the good work.**

Sambit Adhikar
General Manager, Sales
Kongsberg Maritime India

**Very impressive campus. Delight to meet and present to the cadets and staff. Your cadets are getting a really great start in the maritime industry. We look forward to coming again.**

John Hissey
Risk Manager
Britannia P & I, London

**Very impressive, clean and environmentally friendly campus. Very nice thinking. Things are really well prepared and maintained in a way that keeps the entire campus at a very high class.**

Stig Sonderby Christensen
Section Manager
MAN Diesel and Turbo

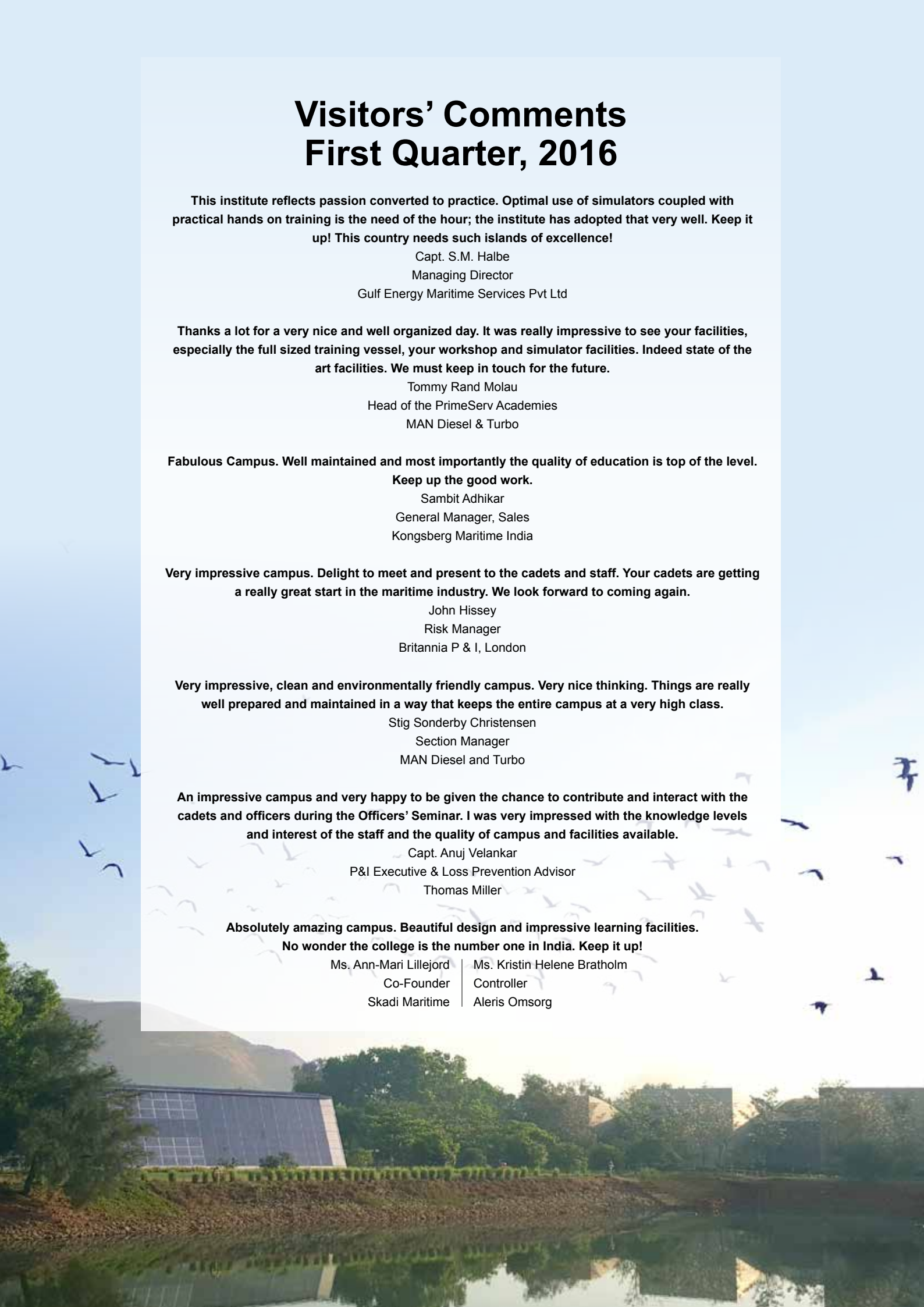
**An impressive campus and very happy to be given the chance to contribute and interact with the cadets and officers during the Officers' Seminar. I was very impressed with the knowledge levels and interest of the staff and the quality of campus and facilities available.**

Capt. Anuj Velankar
P&I Executive & Loss Prevention Advisor
Thomas Miller

**Absolutely amazing campus. Beautiful design and impressive learning facilities. No wonder the college is the number one in India. Keep it up!**

Ms. Ann-Mari Lillejord
Co-Founder
Skadi Maritime

Ms. Kristin Helene Bratholm
Controller
Aleris Omsorg



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