IMPORTANT POINTS FOR CARRYING OUT MAINTENANCE OF MOORING ROPES AND WIRES ON SHIPS

SIDHARTH KUSHWAHA - B.TECH - IV

Mooring ropes found onboard are of varied types with good elasticity. Generally, mooring roles supplied onboard are of nylon, polyurethane and wire ropes.

A number of precautions along with good seamanship practise can increase the life of these ropes and prevent deterioration, chaffing, cutting and internal wear.

Some important points to be considered are as followed:

– Synthetic ropes should be kept away from direct sunlight.

– Ropes should preferably be stored under the deck for long voyages but if kept on deck they should be covered with tarpaulins or canvass to prevent exposure to sun and seawater or should be kept on gratings.

– While using a wire rope sharp angles should be avoided.

– A very common cause of a wire rope developing a kink is uneven turns, which are too tight or too slack where the wire gets snapped between the other turns on the drum. Thus, sharp angles or nips to be avoided with wire ropes.

– When heaving or slacking a wire, care should be taken so as to ensure that the turns on the drum are taken uniformly with sufficient tightness, avoiding any loose or extreme tight turns can cause the rope to get chaffed in between the turns and develop a kink. A good practice is to use rollers with wires to prevent unnecessary chaffing.

– Wire ropes should be regularly lubricated with recommended wire lubes, turret fluids or grease using wire rope lubricators, which helps grease reach the core of the wire and prevent corrosion. Greasing with hands may not be effective as it often lubricates the outer strands and the grease doesn't reach the core of the wires.

– Whenever opening or uncoiling a new wire reel, follow the instructions provided for uncoiling the rope. In general, to prevent chaffing of a wire rope, rollers must be used. If wire rope is being runoff from one reel to a winch drum or another reel, run it from top to top or from bottom to bottom.

– If in any length of the 8 diameters of a wire rope the numbers of visible broken wires exceed 10% of the total number of wires in the rope, it should be discontinued from use. The more the number of wires in a strand, the more the wire is flexible. If flexibility increases the strength of the rope decreases.

– Mooring wires are provided with synthetic tail ropes at the end to secure. Tails being elastic thus provide the assembly for wire and tail to be tightened aptly while securing a vessel alongside. Tails are connected by means of tonsberg or mandal shackle. It is recommended to rig or connect the shackle in the correct manner as per the maker's instructions to ensure proper transfer of forces and to provide flexibility.

– Avoid surging or chaffing of synthetic ropes to prevent wear and tear due to friction. Some ropes have a low melting point which can cause them to fuse permanently and get damaged. A rope should never be stowed in a wet condition to avoid rotting.

– While securing a synthetic rope on bitts the top turn should be secured against accidental springing off by means of light lashing. Synthetic ropes

should be free of grease oil stains and paint marks as pose a greater danger while handling than various other shipboard activities.

– Long wires under tension can stretch enough to **snap back with a considerable force**. Possibility of snapback should always be considered while **handling ropes** as often the static energy stored in a synthetic rope gets released by parting off a rope and it snapping back to its own length. Synthetic lines do not essentially provide any external warning or signs against the danger of snapback. A hazard zone can be defined as a zone of ten-degree cone around the line from any point at which it may break.

– Excessive heat can damage synthetic fibre ropes. Coils of polypropylene and polyethylene should not be stored against steam lines, bulkheads with high temperatures or under direct sunlight. Some synthetic ropes can be damaged by chemicals such as acids, alkalies, paints or thinners. When a rope becomes oily it can be scrubbed with fresh water and any other effective cleaning material.

– Being not effectively resistant to cuts and abrasions, synthetic lines should not be exposed to deterrent conditions which can damage them. While dragging them contact with sharp edges should be avoided.

– The surface of chocks and fairleads are grooved or roughened by wires which may be grinded or levelled before use with synthetic lines. Dirt, grit, sand and rust particles often cling to and penetrate into synthetic ropes causing internal abrasion. Brushing or cleaning of ropes can be a good practice before stowing them.

– Kinks formed in ropes must be removed by easing up loads first. Coiling direction of rope too play an important role in the removal of kinks. Most lines are of right-handed lay and coiled clockwise. New rope from a coil can be removed by suspending with a shaft. Winch mounted lines can be turned end to end periodically to prevent uneven wearing.

Documentation which keep a track of wear and use of wire ropes, synthetic ropes and rope tails is helpful in planning maintenance schedule. Based on that few points to be considered are as under :

• All ropes, wires when received onboard should be checked for the certificate of approval or conformity. Test reports which specify manufacturer, date, minimum breaking load, lay of rope, length, thickness, number of strands, material and construction.

• All ropes must be marked in a distinguished manner to be verified for their certification whenever required.

• Rope tails or wires are required to be replaced after a certain specified period or upon deterioration or damage to the rope or as per company procedures which often is supported by a document in which the duration of their usage is recorded to provide an overview if the replacement is necessary. Wires can be turned end to end midway of their renewal date to avoid uneven wear.

• Records of inspection, maintenance, end to end renewal, uncoiling of the new rope must be kept on board to provide the history of the rope.

Courtesy: marine insight

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IMPACT OF MARITIME SECURITY ON THE GLOBAL MARITIME INDUSTRY

NAMDEV PAWAR - B.TECH - III

Maritime security is an important aspect of national security, given the fact that India has a coastline of over 7000 km. Our natural geographical terrain necessitates strong maritime security, on internal as well as international waters. Today, we discuss the various trends in maritime security that are having an impact on the world.

The ideology of maritime security has developed a lot over the past few decades. As technology has advanced, physical threats to boats and ships are now being overshadowed by technological threats. Here, we see the different aspects of maritime security that matter and the individual trends in each.

In the upcoming blogs, we will dive deeper into each of these aspects and their overall impact in detail.

• Port security

Ports are the lifelines of ships, even as ships are the lifelines of global trade. The multitude of activities carried out at ports includes cargo loading and unloading, repair, maintenance, logistics, and much more. In recent times, there has been a persistent increase in the illegal movement of individuals, weapons, drugs, etc. at ports across the world, which is a great threat to maritime security of all the nations.

To curb this, ports have undertaken a technology-driven approach, automating as many processes as possible to reduce human intervention. A number of ports are in the process of digitizing their operations to drive efficiency, while the new ports are experimenting with increasing capacity and getting upgrades.

A great example of this is Singapore's Tuas Port Project, a fully automated transshipment hub on the western side of the island. This next-generation port aims at the consolidation of port activities to increase efficiency in port operations and is anticipated to have a capacity of 65 million TEUs by 2040. Port automation is at the heart of this mega project, as the terminal will be equipped with automated yard cranes, driverless trucks, drones, and data analytics. Next Generation Vessel Traffic Management Systems will be instrumental in early detection of potential hot spots, i.e. chances of accidents, and automatically determining the best routes for vessels.

As demonstrated by the Tuas project, effective port operations, timely response, systematic procedures, situational alertness, smooth emergency measures, and an overall increase in awareness about maritime sustainability are the trends that matter. Together, these are expected to increase port security manifold.

• Ship security

Ship security includes everything related to keeping the ship safe through its journey – cargo, personnel, equipment, and more. In cases of threats like piracy, the ship security officer is expected to implement the ship security plan to ensure that the integrity of the ship is preserved.

In the past decade, there has been an exponential increase in the use of computer-based technologies which in turn has impacted the way ship security is perceived. According to the Global Maritime Technology Trends 2030 report, the growth of software-based systems is anticipated to cause a resultant increase in sophisticated malware, in addition to the ever-persistent cyber threats.

There is a greater emphasis on using advanced solutions such as deep learning, artificial intelligence, augmented reality, drones, and industrial IoT to become aware of potential threats to ships, well in advance. The chief requirement now is to train all crew and officers to take these new technologies into stride and stay updated with the upcoming innovations to ensure better ship security.

• Offshore security

Offshore security entails the protection of offshore entities like the oil and gas industry rigs and drilling platforms. There is a need for continuous assessment of risk management in offshore projects, including any internal and external threats that may arise.

Over the years, this field has grown to encompass the use of advanced reconnaissance and surveillance technologies that provide accurate information about surrounding activity in the sea. Intelligent reporting

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systems are used to process this data and obtain detailed information about the environmental and maritime conditions at every second.

Digitization has become a key element in the operation of offshore rigs, often based on the commercially available components and operating software. For instance, the updated Port Community System (PCS) software is facilitating a smooth, paperless flow of operation in the offshore activities of the maritime sector. This has resulted in faster turnaround time, reduced dwell time, and hence, greater ease of doing business.

• Cyber security

The shipping industry is well aware of the rising cybersecurity risks and has taken several steps towards combating these threats. However, the importance of cybersecurity in building a safe and sustainable maritime environment is expected to increase even further in the coming years. In this study by Juniper Research, it is estimated that the quantity of data stolen in cyber crime will increase by as much as 175% in the next five years. This makes cybersecurity one of the most imperative aspects of maritime security to be considered.

As the most common cause of cybersecurity breaches is due to lack of knowledge or negligence of the personnel, the primary focus these days is towards creating awareness about the existing cybersecurity technology and making sure that the crew follows precise procedures while handling it.

The second most important concern is the creation of efficient tools that will assess the maturity of the maritime organization and provide suggestions regarding any existing loopholes. There are very few tools today that are designed specifically for the maritime industry, hence, this aspect of cybersecurity will be at the forefront of technological innovation.

Cyber attacks are often underestimated because no direct threat to the organization is visible. In fact, in a survey conducted by the Lloyd's List Forum, only 8% of respondents perceived cyber attacks as the next greatest threat to shipping. Seeing this, there is a distinct requirement for increasing the awareness about cybersecurity and the measures that need to be taken in implementing the same.

• Vessel security

Vessel security is similar to ship security, only with a broader focus, as it takes into account the smaller boats and vessels in the industry as well. Over the past few decades, automation has emerged to play a major role in vessel security, as has the development of strong communication technology.

Constant communication with onshore support systems for updates about maritime and environmental threats, smart systems to assist in vessel operation, and the drive towards sustainable vessel design for faster response times are some the trends that have dominated this space for a time. The increasing environmental impact of vessels, which has led the IMO to establish the sulfur cap, has also played a significant role in influencing vessel security in shipping.

• Naval security

Naval security in shipping is taking a technological turn in the future. Although the learning curve has been pretty steep for the past years, the adoption of technology in naval security is definitely on the rise, with advanced data management and processing tools coming into the picture. Big data analytics, collaboration for mutual exchange of intelligence information, and a collective effort towards ensuring sustainable maritime transport is the chief driver for naval security. Optimization, reduction in cost while improving efficiency, and a strong focus on coordinated security efforts are some of the main factors that will play a role in naval security.

Endnote

Technology remains the chief driver even as maritime organizations, shipping industries, and boat manufacturers try to keep up with the digital advancements. There are several challenges regarding the adoption and implementation of the new tools that are coming up, nevertheless, there is also a more positive approach towards the same.

What are your thoughts about the trends that will dominate shipping security this year? Share your thoughts with us in the comments section below!

Stay tuned for the next post as we talk about Port Security – the challenges, adoption, and trends to look out for.

Courtesy: shm safe seas safe shores

Air Compressor on a Ship: Checks for Starting and Stopping a Compressor

CHAVAN VIKRAM - B.TECH - III

Certain steps and systematic procedure need to be followed in order to start or stop an air compressor on a ship. In this article, we will learn how to start and stop an air compressor and also find out checks that are need to be made before starting the air compressor and also during its operation.

Checks before Starting the Air Compressor

The following steps are to be followed before starting an air compressor on a ship.

1. Check the lube oil in the crankcase sump by means of dipstick or sight glass.
2. All the valves of compressor discharge must be in normally open condition.
3. If any manual valve is present in un-loader line, it must always be kept open.
4. All alarms and trips- Lube oil low pressure, water high temperature, over load trip etc. must be checked for operation.
5. All valves in cooling water line must be in normally open position.
6. Cocks for all the pressure gauges must be in open position.
7. Air intake filter should be clean.
8. If compressor has not been started from long time than it should be turned on manually with a tommy-bar to check for the free movement of its parts.

Unloading is a normal procedure during the starting and stopping of

the compressor. It is carried out due to following reasons:

1. When starting a compressor motor, since the load on the motor is very high the starting current is also high. In order to avoid further loading of the compressor an un-loader arrangement is provided which is normally pneumatic or solenoid control and which releases the pressure during the starting of the compressor. Once the current comes down to the running value, the un-loader closes automatically. Normally a timer function is used for opening and closing of un-loader.
2. Air contains moisture and during the compression process some amount of moisture gets released. Liquid in any form is incompressible and if some amount of oily water mixture is present inside the cylinder then it will damage the compressor. To overcome this problem un-loader is used. During starting un-loader

comes in action and releases all the moisture accumulated inside the cylinder.
3. Intermediate operation of un-loader is also selected so that during the process of compression any moisture or oil accumulation cannot take place inside it.
4. During stopping the compressor un-loader is operated so that for the next starting the cylinder will remain moisture free.

Checks during the Operation of Compressor

1. Check if all the pressure gauges are showing correct readings of lube oil pressure, water pressure etc.
2. Check for any abnormal sound like knocking etc.
3. Check for any lube oil or water leakages.
4. If cylinder lubrication is provided, check the supply from sight glass.
5. Check if the discharge pressure for all units is normal.
6. Check air temperature after the final stage is under limit.
7. Check the flow of cooling water from sight glass.
8. If attached cooling water pump is provided check for its free rotation.
9. Check the relief valve of all units for leakage. In some compressor, provision is given to check the relief valve with hand lever, if provided check all units.

Courtesy:marine insight

Bhagvad Gita in Urdu and Ramayan in Persian inside a library of Walled City

KARTHIK KUMAR - B.TECH - IV

On a restive, summer night in 1987, when the Walled City was under curfew following communal violence in Uttar Pradesh, a group of young men snuck out to buy vegetables, milk and other essentials for people in the area.

That dark, desperate night was the unlikely origin of the Hazrat Shah Waliullah Public Library, a depository of rare literature, including a 600-year-old Arabic book on logic, a copy of the Bhagvad Gita in Urdu, the Ramayan in Persian, and the entire works of Bahadur Shah Zafar printed in 1885. The library, housed in Pahari Imli lane, a crowded left turn from the famous Matia Mahal road leading to the Jama Masjid, caters to thousands of people in the locality.

The night three decades ago was the turning point, said Muhammed Naeem, who with his 10 friends started the Delhi Youth Welfare Association (DYWA) in a nondescript small room in Pahari Imli three years later.

"After three-four days of the curfew in 1987, there was no food, or milk. We snuck out to bring

essentials. It was a turning point, when this thought occurred that we seriously needed to do something for the people, Naeem told PTI.

Soon, the room, once a bachelors' pad where young men gathered to play carom, cards, and cool off after a match or two of cricket, became a library where residents of the area congregated to read books, borrow them or simply browse.

Tucked away from the everyday hubbub, nothing about Pahari Imli stands distinct, at least not the small wooden door that leads to the room housing the Waliullah Public Library.

However, what lies within is what author and poet Jorge Luis Borges imagined to be a paradise.

"I have always imagined that paradise will be a kind of library," he had mused.

DYWA president Naeem recalled how the crowd-funded library, named after an 18th century Islamic scholar, came to be.

In 1990, the 11 young men founded DYWA and started sponsoring widows with Rs 100 a month. Then, looking at low literacy rates and poverty in the area, the group took another step - the library.

"Everyone brought in their personal collections. There were a lot of books on sports at first. Then we brought Islamic literature, and everyone spoke about the library in their circle. Some were donated to us, some we bought, and today we don't have enough space to fit the books," the 54-year-old businessman said.

Number of books in library

Managed by members of the DYWA, the library today owns more than 20,000 books in Urdu, Arabic, English, Hindi, and Persian. About 2,500 books are received from rare collections.

The collection boasts of rare works of Mughal era poets Mirza Ghalib, Mohammed Ibrahim Zauq, Momin Khan Momin as well as medieval Sufi treaties.

The room, shut off from any and all sounds of the outside world, opens for a few hours in the morning till 1 pm. There are few people in the morning hours, but come evenings and a host of regulars march in for reading and discussions till late hours.

Researchers from all over the world

"We get students and researchers here, but most evenings, people from Old Delhi-based NGOs gather here and then there is no telling when everyone will go home. Politics, history, current affairs, the topics of discussion are anything and everything," Naeem said.

One such researcher that stumbled upon this treasure trove in 2010 was Anand Vivek Taneja, then a Columbia University graduate student and now assistant professor of Religious Studies and Anthropology at the Vanderbilt University in the US.

"I was astonished at finding this library...The small one room library had an astonishingly eclectic collection of books in several languages," Taneja said.

In his subsequent return to the city, he would make it a point to visit the library.

"I would turn to the high shelf hosting the Urdu antiquarian books on the history of Delhi, such as Bashiruddin Ahamad's 'Waqiat e Darulhukumat Dehli' and read them for a peaceful hour or two, before getting back to the hustle and bustle of Delhi and ethnography. Those books were out of print, and expensive to purchase," he added.

Some like Olivia Biswas, a Phd scholar, found guides and mentors in the members of the library.

"The members of the library were the gate keepers for my data search. They took me through the narrow alleys and by lanes of the walled city for my research purposes," she said.

Over the last 25 years, DYWA has faced problems frequently.

Wear tear issues

"Earlier we had wooden racks, and as it goes for wood it was infested with termites. A lot of books were ruined beyond saving. The whole room was renovated, and steel almirahs were installed," Naeem rued.

The self-funded library also faces problems of space and sponsorship.

"There isn't a single MLA, counsellor, MP we have not met in all these years. This is not an ideal space for such rare and priceless books. We can even ignore the sponsoring, but we need space," he said.

"In the last 28 years we have not taken any financial help from the government. Every year, we spend Rs 6-7 lakh from our own pockets. We are planning to digitise these books, then there is cataloguing. These things require funds," he added.

"The new generation does not know how priceless these books are... But we have great hopes from the young members of DYWA. Some of them are lawyers, two are in Google," he said.
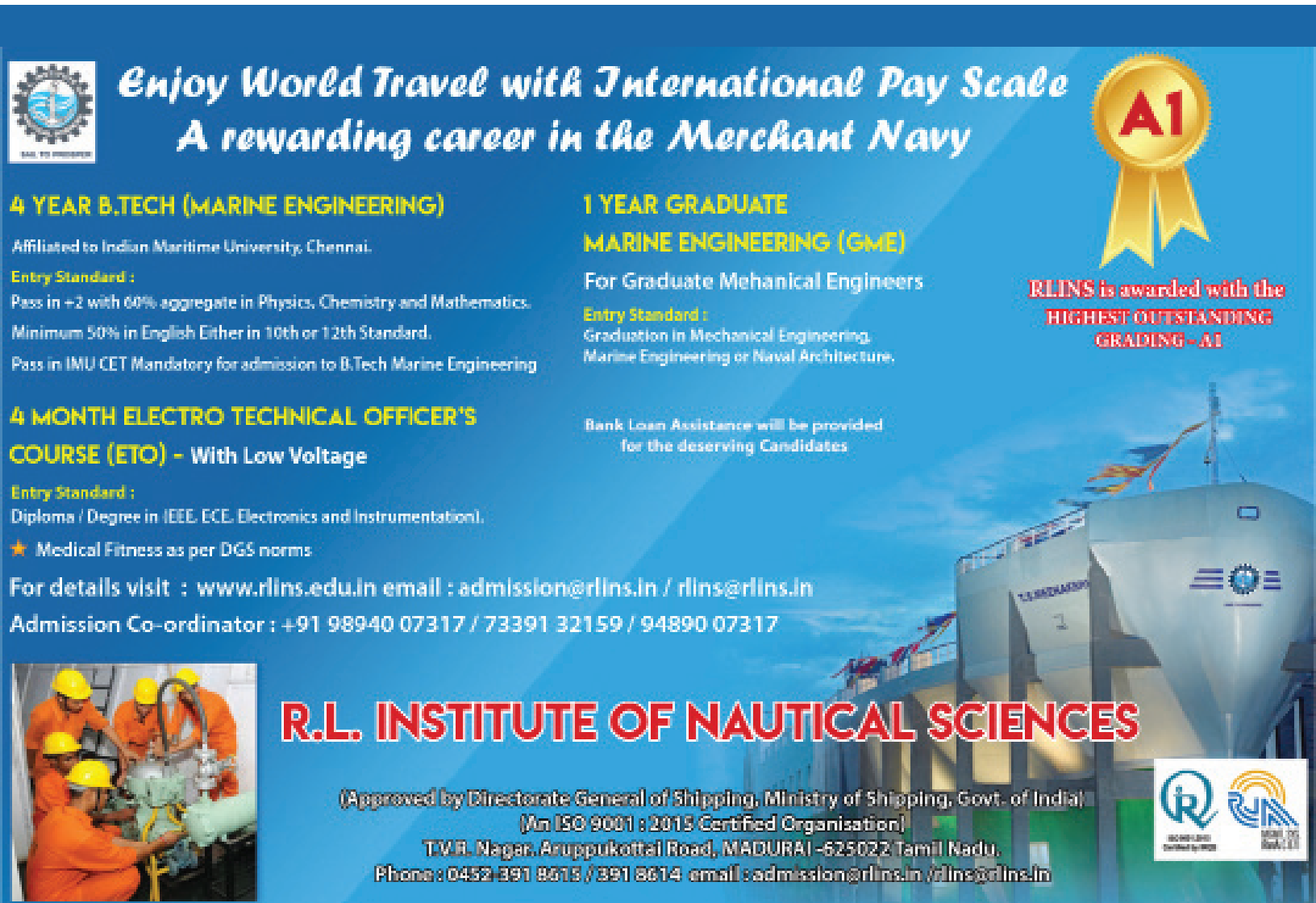
Coutesy: IndiaToday.in

THE BEST MARITIME QUOTES IN SHIPPING INDUSTRY

If one does not know to which port one is sailing, no wind is favorable." – **Seneca**

"The pessimist complains about the wind; the optimist expects it to change; the realist adjusts the sails." – **William Arthur Ward**

"Take charge of your life! The tides do not command the ship. The sailor does." – **Ogwo David Emenike, Nigerian Writer and Poet**

"To reach a port, we must sail – sail, not tie at anchor – sail, not drift." **Franklin D.Roosevelt.**