Maintenance versus claims

Loss prevention webinar – 1 December 2022

Speakers:

- Capt. Shajed Khan (Loss Prevention Manager, Britannia P&I)
- Lionel Fernandes (Marine Engineering Consultant, TMC)
- Michael Todd (Fleet Manager, Britannia P&I)

Introduction

- Owners are responsible to keep the ship in seaworthy condition
- Poor maintenance could lead to:
  - Personal injury
  - Cargo claims
  - Pollution
  - Delays, off hire
- Maintenance is least developed and some time weakest in many management system (ISM)
- Planned Maintenance System (PMS)

Agenda

- ISM
- Condition survey program
- Off hire
- Cargo equipment
- Injury
- Recommendation and conclusion

ISM 10 – The company

Should establish procedures

- to ensure the ship is maintained in conformity of the rules and regulations

Should Identify

- systems (or equipment) for the sudden operational failure which may result in hazardous situation

ISM 12 - Company verification

The Company should carry out:

- Internal audits on board and ashore at intervals not exceeding 12 months to verify whether activities comply with the SMS

- Company should also evaluate its responsibility under the ISM code.

ISM 12 - Company verification

- The company should periodically evaluate the effectiveness of the SMS in conformity with the Company's responsibilities under the Code

- The audits and possible corrective actions should be carried out in accordance with documented procedures

Who is responsible?

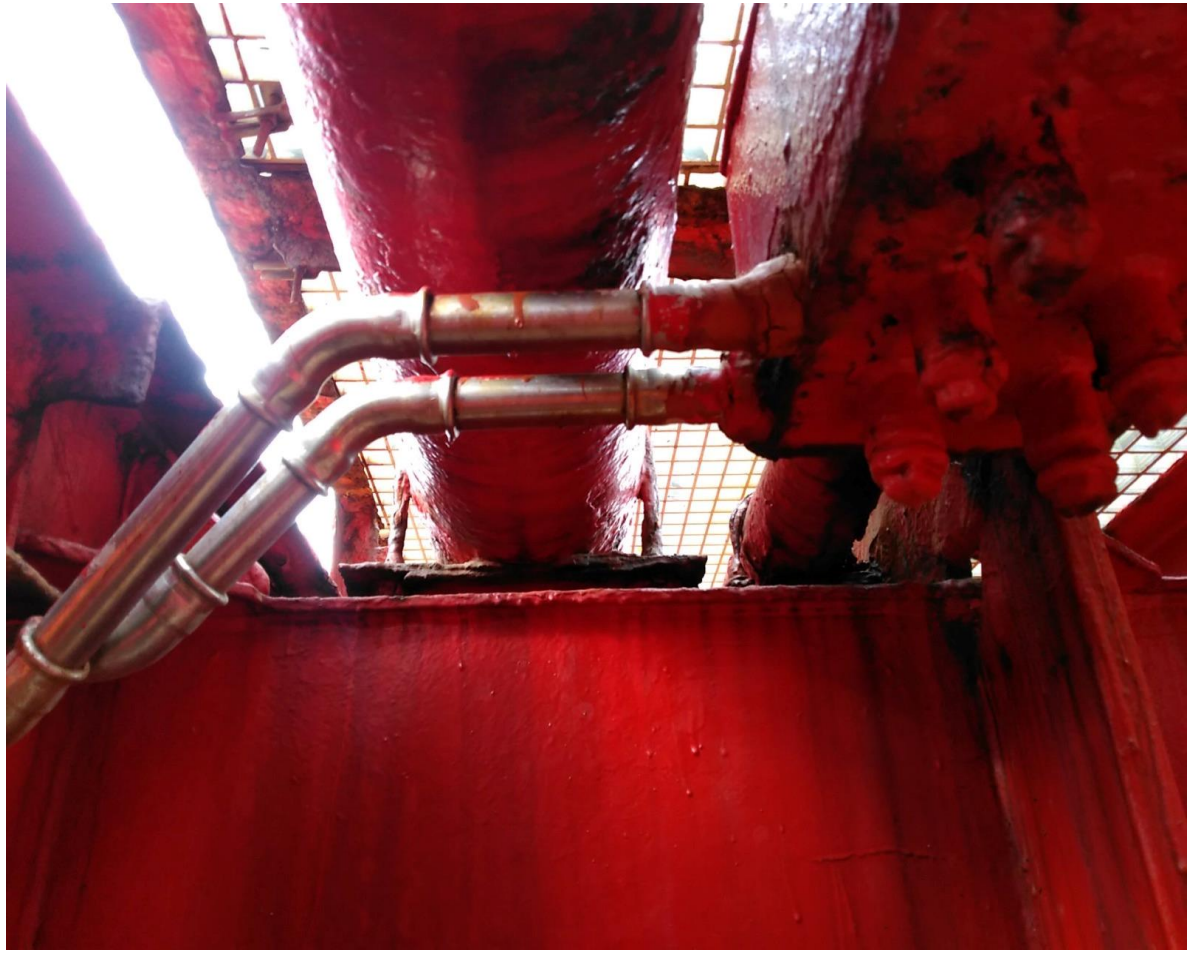
- Superintendents?
- Chief engineer?
- Anybody else?

Condition survey programme- Summary

- Free health check
- Maintenance and ISM
- 10% Excellent
- 67% Good
- 22% Fair
- We rarely have poor ships (except some exceptional year)

PMS

PMS



PMS

Off hire
Access ladder

- Off hire
- Could this be preventable ?

Off hire 2

- UMS ship
- Generator injector line
- Flame from the generator
- Smoke spreading the engine room

Off hire 2

CO2 release

- All engine and generator shut off
- Ventilation to engine room shut
- Emergency generator started
- CO2 released
- Ship was towed off
- Off hire days

Off hire 2

Root cause

- Major overhaul done by manufacturer -3 months ago
- The bolting union should have checked for tights and leaks after 150 running hours
- Crew change
- Present engineers were not aware of the overhaul!
- Third engineer rectified a leak with copper gasket on the day before the fire

Off hire 2

Root cause

- Leak from fuel injection pump
- There was no evidence to indicate that any of the loose items described above had broken apart
- The ignition of leaking fuel oil that sprayed onto the hot exhaust system of that engine via gaps between heat shield panels in the vicinity of cylinder 8

Cargo gears
Inspection

Does PMS include manufactures guidance ?

- Cranes
- Cargo space
- Inert gas system
- Tank cleaning machine and spares
- Regular effective inspection required

Injury

Blocked drain pipe

Injury Case:
Sludge?

Injury Case

Hot oil under pressure

- 2/E found the scavenging box drain pipe between No.2 unit and No.3 unit blocked

Recommendation

- Prevention is always better
- Risk assessment
- Procedures in place to detect maintenance error by:
  - Inspections
  - Operational checks
  - Leak checks
- Timing: When crew likely to be alert

Recommendation

- Staggered maintenance program
- Varying personnel
- Educating and training personnel about the system

Conclusion

- The consequence can’t be irreversible
- It could result in: off hire, delays even fines and bad reputation
- Maintenance can help to reduce/prevent
- Everyone has a role to play
- If the procedure is not effective, review it and change it
- The responsibility is a combined one ship and shore

Loss prevention team

Jacob Damgaard
Associate Director (Master Mariner / Chief Engineer)

Captain Simon Rapley
Divisional Director

Charles Cooper
Loss Prevention Manager (Chief Officer)

Captain Shajed Kahn
Loss Prevention Manager

Captain Slawomir Ostrowicki
Loss Prevention Manager

Captain Charles Chong
Loss Prevention Officer

Captain Faizur Rahman
Loss Prevention Officer

James Fernandez
Loss Prevention Officer (Master Mariner)

Angelika Paszek
Loss Prevention Assistant

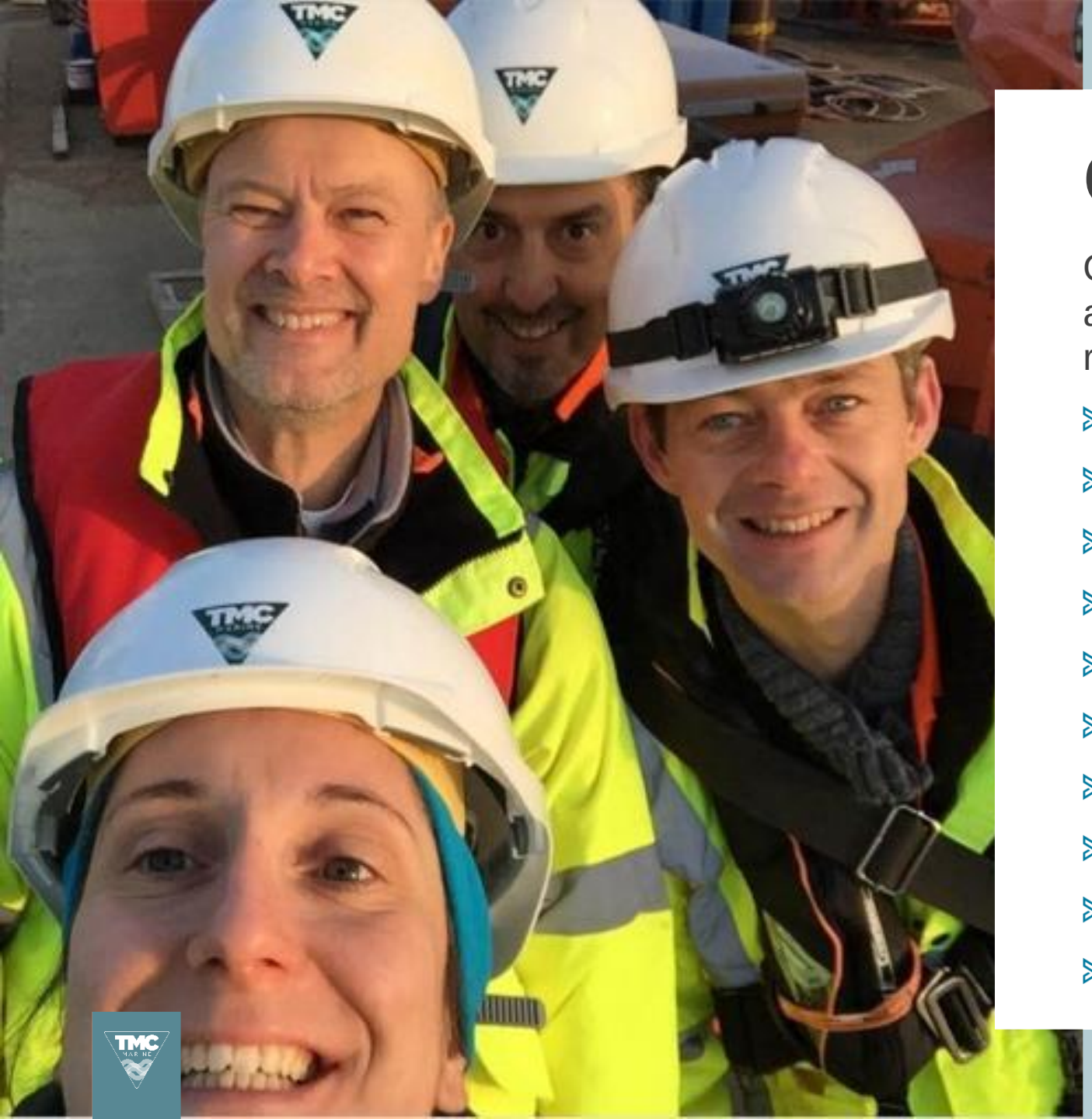
TMC
MARINE

REDUCING THE RISK of PROPULSION LOSS

WHO WE ARE

A Leading international marine consultancy providing advice and support to the marine and offshore energy industries

- A high quality, ‘boutique’ provider of marine surveying and consultancy services
- An established player in operation for over 40 years
- Operating globally from our headquarters in the UK
- Wholly owned by Bureau Veritas Marine & Offshore Division
- Gilt-edged reputation for quality: certified by BSI to ISO 9001:2015, ISO45001:2018 and ISO14001:2015



OUR TEAM

Our multi-national and multi-disciplinary team are all highly qualified specialists in their own right with many years of experience, including:

- Marine Salvage & SCR
- Project Managers
- Naval Architecture
- Structural Engineering
- Master Mariners & marine operators
- Marine Engineering, Fuels & Tribolygy
- Electrical Engineering
- Fire Scientific Investigation
- Dry and Wet Cargo Specialists
- Auditors/HSEQ Professionals

WHAT WE DO

TMC is very active in the field of **incident investigation** and **marine claims**, having worked on marine casualties of all sizes, including the largest and most complex.

TMC's expertise is regularly tested in **court or commercial arbitration**. Our detailed technical knowledge and breadth of operational experience allows us act as **expert witnesses** in the most specialised disputes.

TMC has considerable expertise in advising and attending **marine salvage and wreck removal** operations. TMC has several SCRs.

TMC consultants are actively engaged in **oversight of newbuilding and major conversion projects** including complex offshore construction projects.

Our **survey, inspection and audit services** are utilised in loss prevention initiatives, insurance claims and pre-entry risk analysis by P&I clubs, owners and charterers.

TMC is well known for its **in-house software** capability which allows us to analyse and verify independently, a range of engineering calculations, problems and solutions.

LOSS OF PROPULSION, STEERING AND BLACKOUTS

TMC are currently noticing a trend towards more frequent incidents of propulsion loss, steering loss and blackouts.

This presentation provides guidance and practical advice regarding risks posed by blackouts and the loss of propulsion events and how they can be avoided.

MAIN ENGINE IN A MODERN ENGINE ROOM

MODERN ENGINE ROOM WITH TWO MEDIUM SPEED AUXILIARY ENGINES

REDUCING THE RISK OF PROPULSION LOSS

- Blackouts, loss of propulsion and loss of steering are all serious incidents no matter where they occur.
- When they occur during navigation in non-congested waters, incidents such as these increase the risk to the vessel and personnel but rarely result in dangerous or life-threatening outcomes.
- When they occur during navigation in congested waters, such as traffic lanes, when entering or leaving port or when navigating close to the coast in heavy weather these risks become critical and may result in a major casualty.

REDUCING THE RISK OF PROPULSION LOSS

So what are the possible consequences?

The most serious consequence of blackout is of course a collision and / or grounding

The consequence of third party claims can be substantial

BOTTOM DAMAGE DUE TO GROUNDING

REDUCING THE RISK OF PROPULSION LOSS

- Engine failures and blackouts tend to occur when the vessel is at its most vulnerable such as when approaching a port.
- This is not surprising as during the sea voyage the vessel is operating on a stable platform but as it approaches port the electrical and fuel systems are altered in preparation for the port activities
- Changing over fuel from Heavy fuel oil to Marine Gas oil for instance can be a potential source of loss of power and blackout

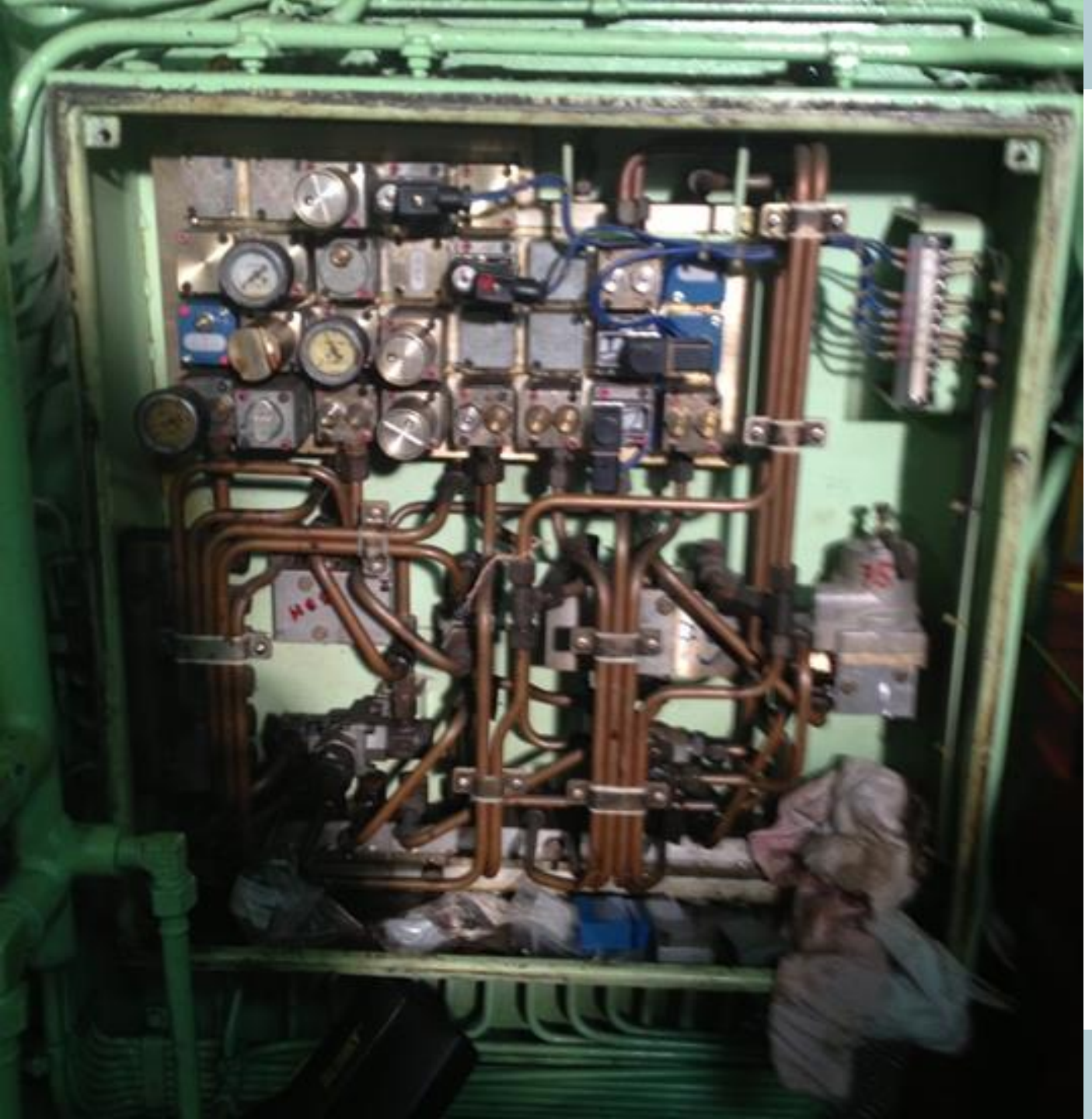
PICTURE OF A TYPICAL BLACKOUT

POTENTIAL CAUSES OF MAIN ENGINE FAILURE

- Blackout
- Poor quality fuel – or fuel contamination
- Insufficient attention to fuel changeover procedures
- Engine automatic shut down / slowdown at a critical moment

TYPICAL AIR COMPRESSORS

- Failure of starting air (when there are a large number of starts in a short period of time)
- Insufficient or ineffective maintenance of electronic and pneumatic control systems (filters in pneumatic systems are often neglected)
- Loss of control air pressure



MAIN ENGINE PNEUMATIC CONTROL COMPONENTS

POSSIBLE CAUSES OF BLACKOUTS

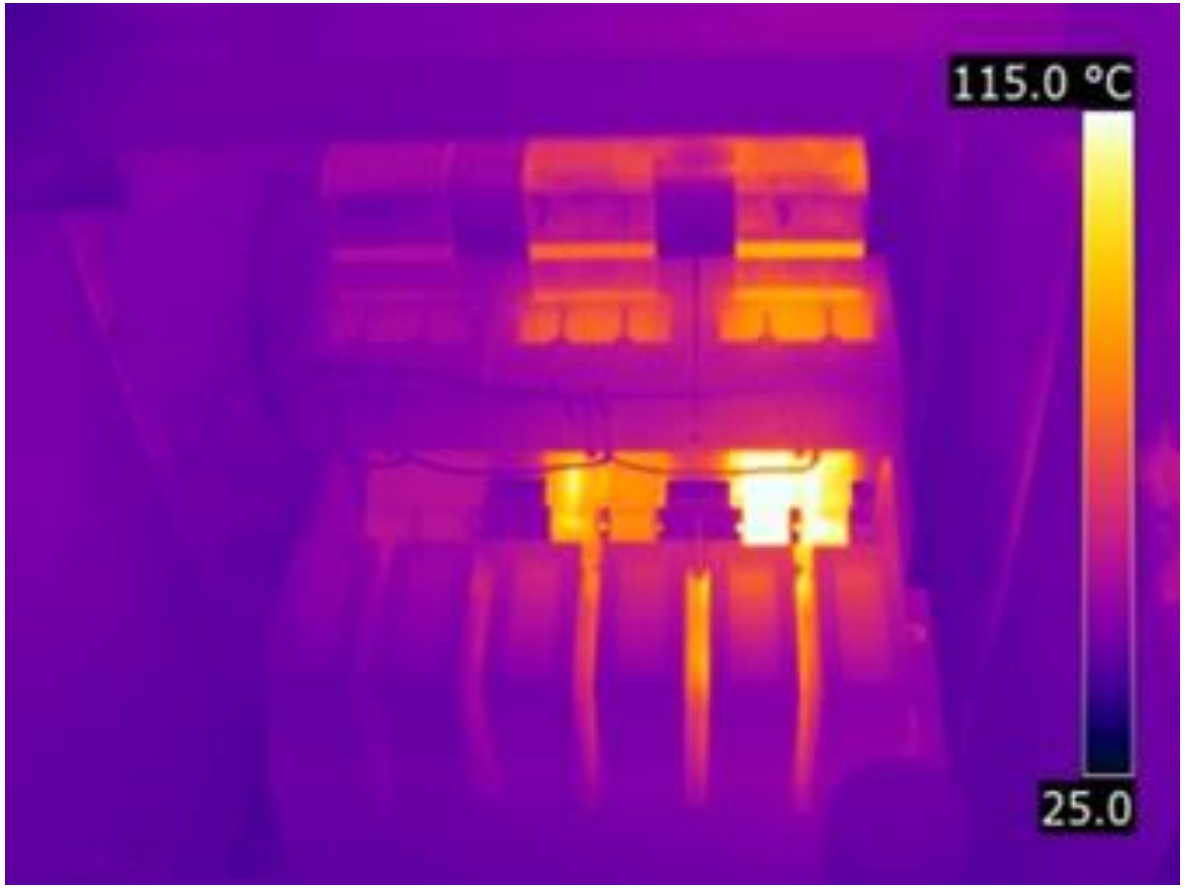
- Human error
- Control equipment failure
- Main engine failure while using the shaft generator
- Automation failure
- Fuel issues – e.g. blocked filters, poor changeover procedures
- Mechanical failure

SWITCHBOARD ON A MODERN VESSEL

A significant number of blackouts are caused by electrical failures when starting bow thrusters and deck machinery.

Despite the safety features built into modern switchboards – they do fail

DIGITAL AND THERMAL IMAGES OF A SWITCHBOARD BREAKER FAULT



SWITCHBOARD FIRE CAUSED BY A FAULTY CONNECTION

RECOMENDATIONS

These are based on our experience of investigating claims over the last 40 years

REDUCING THE RISK OF PROPULSION LOSS

Ensure that the maintenance is carried out correctly

Is not unusual for the planned maintenance system to not include all of the necessary items.

Ensure that no maintenance is carried out on critical machinery such as fuel filters and fuel systems when approaching port

Ensure that all engineers are aware of how to isolate cylinders on the main engine in the event of failure

Wait for the results of tests on fuel oil to ensure that it is within specification before changing over to use this

REDUCING THE RISK OF PROPULSION LOSS

- Do not mix bunkers from two suppliers
- Do not use the shaft generator when manoeuvring
- Ensure that system alarms are regularly tested
- Ensure that engineers are fully familiar with engine room systems and their pipelines including the change over procedures from heavy fuel oil to MGO etc
- Ensure water is regularly drained from fuel oil tanks, in order to prevent water build up and carryover in the fuel and to lessen the risk of bacterial contamination / microbial infestation.
- Establish a failure to start/ blackout checklist. This should include familiarisation with operation locally

REDUCING THE RISK OF PROPULSION LOSS

- Ensure that weekly tests of the emergency generator are carried out with the battery charger disconnected from the mains (it is not unusual for the batteries to be flat / damaged and this does not raise any alarm)
- Ensure that all means of starting the emergency generator are available
- Ensure that the emergency generator is operated on load as close as possible to the maximum capacity at least once per month.
- Ensure that any loss of power and / or propulsion incident is investigated and a root cause determined, by properly trained personnel.

CORRECTIVE ACTIONS

- In the event that a loss of propulsion or blackout occurs the following actions are suggested to be taken.
- Master to follow the Company SMS with respect to loss of power / propulsion
- (this is often in a separate stand alone publication entitled – “Emergency Procedures Manual”)
- The position and time need to be recorded accurately in the deck and engine log books (this simple action is often forgotten)
- Anchors may have to be dropped in order to reduce the ship’s speed
- Good and efficient communication between the engine room and the bridge is essential so that key personnel have a full understanding of the situation

EMERGENCY GENERATOR

Crew may have to go to the emergency generator room to start the emergency generator (it is surprising how often the crew forget to reset this after testing)

It is often possible to power the main switchboard from the emergency switchboard

Be aware of the limitations of the emergency generator – it cannot power the ship

REDUCING THE RISK OF PROPULSION LOSS

- It is often possible to start one of the auxiliary engines using stored compressed air. This can often be forgotten

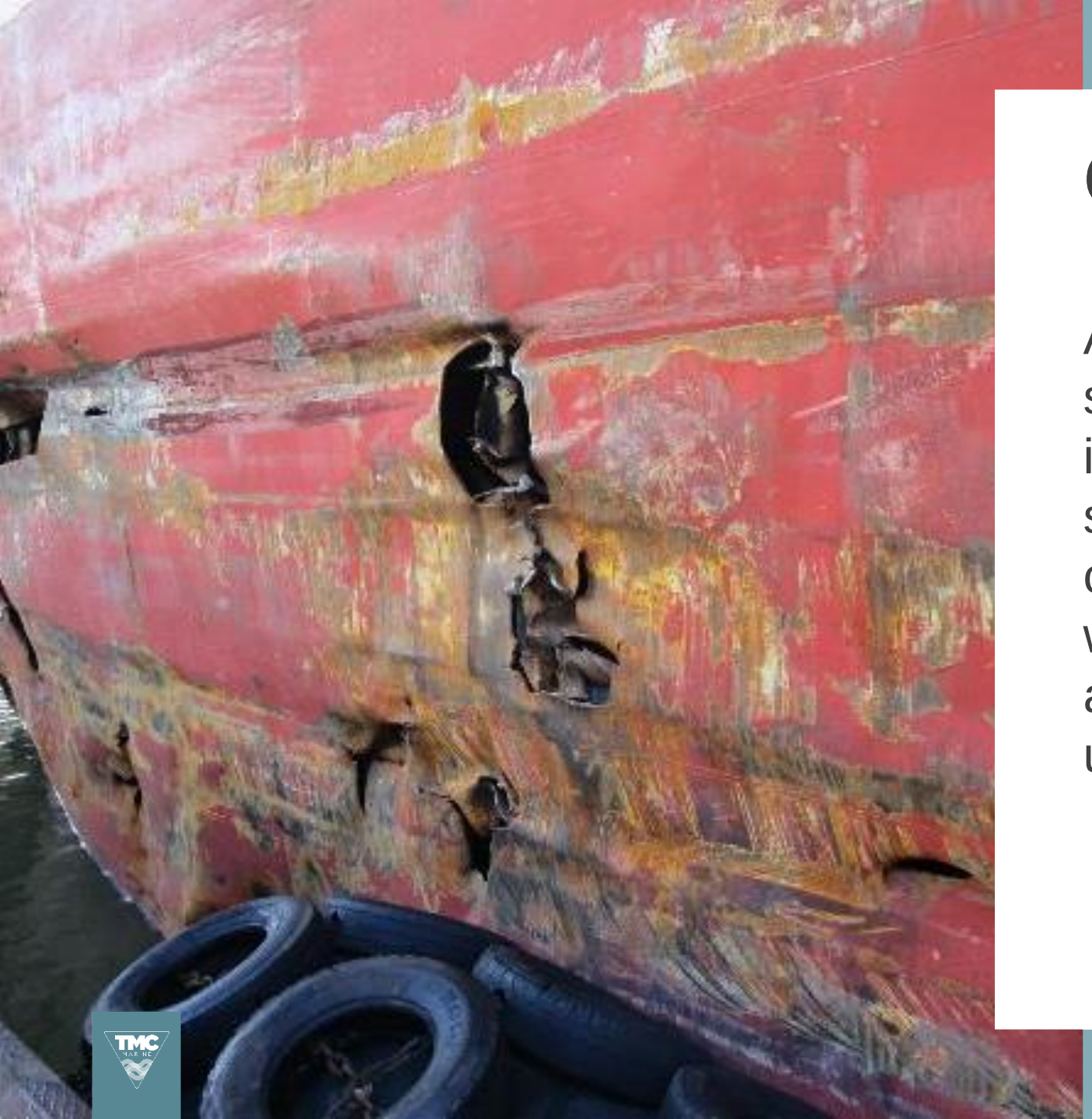
- Training of the crew is essential – a regular blackout test should be carried out so that all crew are familiar with the procedures – with more frequent changes of crew this training may need to be more frequent.

SUMMARY

Whether a blackout is a $5 or $50 million event depends mainly on where the vessel is at the time.

By investigating all incidents and taking preventative and corrective action it is much more likely that when an incident occurs the consequences will be much reduced

If an incident has occurred in benign conditions – it can and will happen again in conditions which are not so favourable



CONSEQUENCES

All propulsion loss incidents should be treated as a major incident and investigated as such with a root cause analysis carried out by trained personnel, with appropriate preventative and corrective actions undertaken

TMC MARINE

BIG ORGANISATION capabilities with a SMALL TEAM approach

Geographic convenience – over 90 consultants in 10 offices across 25 countries

Expert advice and opinion which is regularly tested in court or commercial arbitration

As surveyors we establish the facts.
As consultants we interpret those facts.

Who do I contact?

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TMC MARINE

Thank you

Maintenance versus claims

Michael Todd, Fleet Manager, Britannia

Hague Visby Rules

- The Hague/Hague Visby Rules are a mandatory framework of rights and obligations that apply to the carriage of goods by sea.

In particular….

- Article 2 Risks
- Subject to the provisions of Article VI, under every contract of carriage of goods by water the carrier, in relation to the loading, handling, stowage, carriage, custody, care and discharge of such goods, shall be subject to the responsibilities and liabilities and entitled to the rights and immunities hereinafter set forth.

Hague Visby Rules

- Article 3 Responsibilities and Liabilities

1. The carrier shall be bound, before and at the beginning of the voyage, to exercise due diligence to

    a) make the ship seaworthy;
    b) properly man, equip and supply the ship;
    c) make the holds, refrigerating and cool chambers, and all other parts of the ship in which goods are carried, fit and safe for their reception, carriage and preservation.

- Cargo claimants almost always open their attack alleging unseaworthiness at this point because on many occasions they know from their survey report and general knowledge of the Law that it can be very difficult for ship owners/operators to successfully prove the ship was seaworthy. Often the recovery of documentation such as maintenance reports or planned maintenance records takes a long time to collect, if it exists and can be considered as evidence
- Without the records, it is very difficult to mount a good or sometimes any credible defence to claims

- Main and Auxiliary Engine damages, steering gear damages, cause delay and for sensitive cargo such as medicines or high value food stuff it is now common to see Cargo claims into the millions of US$ - per claim

- When handling any cargo claim where evidence from the ship is required it can, and is, usually difficult to collect maintenance documents because they either do not exist or

- They have not been recorded with sufficient detail (The tick box only report)

- They are unreadable (reduced to a series of numbers and initials)

- You need a PhD to interpret them (having to refer to several different reports to begin to understand what is being reported)

- Most ships Officers and Crew will consider this has nothing to do with cargo claims however, that could not be further from the truth in modern times


Q&A

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