

WHITE PAPER

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# Water, water everywhere . . .

A current claims phenomenon.



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# Introduction


Corrosion is a perennial problem in the maritime environment and Charles Taylor Adjusting has recently managed a spate of claims that highlight the destructive impact it can have on motor yacht diesel engines and the costly and disruptive consequences it creates for vessel owners.

These claims relate specifically to broken cylinder head valves and our loss investigations evidenced that moisture in the engines had resulted in corrosion, which was a causative or contributory factor in all the losses.

Motor yacht owners and operators can take effective steps to ensure condensate doesn't form and remain inside motor yacht engines and thus reduce the potential for corrosion and subsequent associated losses.

In this article, we explore these steps in detail, examine why they're often overlooked and assess the impact this can have on the cover available from the hull and machinery policies in force.

We also discuss how the market can better support policyholders in this area and help them avoid losses in the first place.



There has been significant growth in the use of pleasure craft around the world, with increased numbers of vessels owned and operated in established Western and emerging Asian markets.

Our specialist Yacht Practice is widely recognised as a market leader and provides a complete service to insurers and owners of luxury yachts.

# Engine maintenance and preservation

On yachts, engines often run at very low loads, leading to inefficient fuel burn, fouling, and condensation that can damage components. Manufacturers provide shutdown and preservation protocols—like sealing openings and minimising moist air—but operator awareness is limited. Following these steps is vital to protect engines during inactivity.

Recreational motor yachts provide privacy, sanctuary, enjoyment and the perfect getaway for their owners. In many cases, vessels are used for relaxing day trips to quiet coves and beaches or to explore beautiful stretches of coastline.

During such relaxed recreational use, the engines are often run at only five or ten per cent of their rated capacity. On such low loads, engines often won't burn fuel efficiently and causes fouling of their combustion components.

Low load operation may also prevent the engine reaching the required operating temperature to 'clean' the combustion spaces. This leaves surfaces upon which condensate can react and lead to damage.

**Failing to get the engine to its ideal operating temperature, as well as using incorrect engine shutdown procedures and subsequent preservation protocols once the engine has stopped, are major contributory factors to condensation forming in an engine.**

Although manufacturers provide detailed guidance on how their engines should be shut down and preserved, there appears to be limited awareness of these procedures among yacht engine operators.

In one commonly used engine, the manufacturer's handbook explicitly details the potential for condensate to collect in the charge-air system downstream of the intercooler (dependant on ambient conditions).

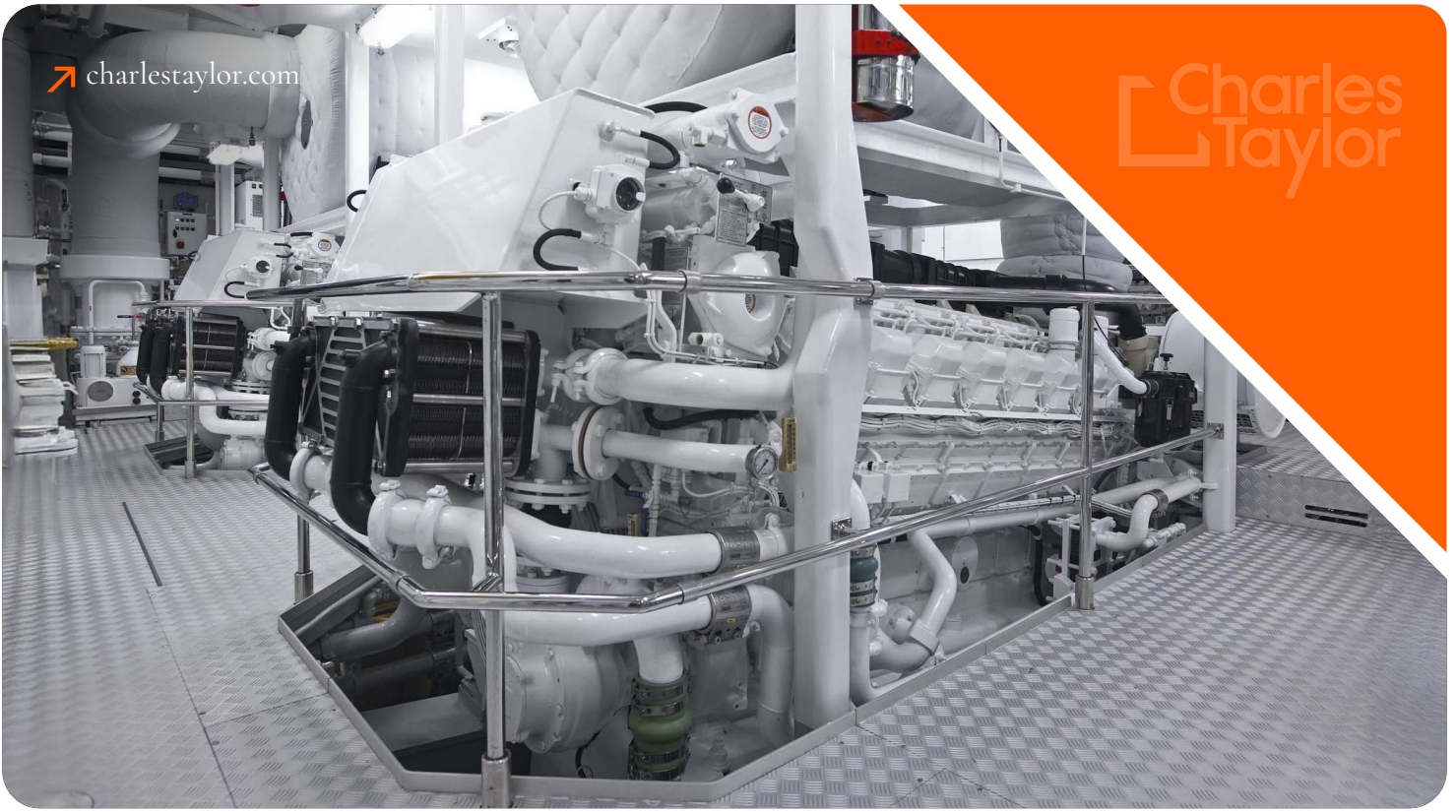
It also sets out a specific shutdown sequence to follow before prolonged periods of inactivity.

This is designed to minimise the presence of dense moist air in the engine prior to its component parts cooling down to atmospheric temperatures and thus prevent condensate forming.

Once shut down, there are also similarly detailed protocols relating to issues such as making all engine openings airtight.

This is required to prevent ingress of moist air and therefore reduce the potential for it to subsequently condense within the engine if the dew point temperature is reached.

All manufacturers provide similar guidance.



In practice, the design of recreational vessels and engine systems can sometimes create physical access problems and make it difficult to follow the guidance to the letter.

In these situations, it is possible to implement alternative solutions to eradicate moisture, such as dehumidifying the engine room environment, or fitting bespoke valves/blanks.

Our experience is that there are low levels of awareness about these shutdown and preservation protocols among non-commercial yacht owners and captains. Many such captains may have completed short engineering courses, but nothing that gives them the technical knowledge to operate to the manufacturer's detailed guidelines.

Indeed, when investigating claims, we've discovered on multiple occasions, that those charged with engine maintenance didn't know such protocols existed.

In one case, a motor yacht's engines were started infrequently out of season and run on idle for a short period. The operators believed they were keeping things ticking over and ensuring the engine would be in perfect working order come the spring.

In truth, they were running the engine in an inefficient state, potentially leading to fouling, and introducing new air that could condense within the engine.

Running the engine on very low load during periods of lay-up, without afterwards following the preservation protocols to prevent air flow during periods of stoppage, could lead to moist air being undesirably re-introduced to the engine internals, and the potential for corrosion.

The actions taken were probably causing more damage than they were preventing, compared to using the engine preservation methods recommended by the manufacturer.



# Moisture, corrosion and claims ↗

Moisture in the engine is problematic because it can, with time, lead to corrosion – especially of those parts subject to the products of combustion.

Our team of expert marine adjusters are currently handling three claims that all relate to failed cylinder head valves. Physical examination of the damaged valves showed that corrosion was present in all the claims and was either a causative or contributory factor in their fatigue failure.

The debris from a fractured valve has the potential to cause enormous damage. This may be limited to the cylinder in which the valve is housed, but it can extend to other cylinders dependent upon circumstances.

In the worst-case scenario it will place the crank shaft bearings under abnormal loads and cause them to fail. In these situations, the crank shaft may be damaged beyond viable repair and the engine could be written off or require significant and costly repair.

These engines have values running to many hundreds of thousands of pounds and the associated claims are substantial, whether for repair or replacement.

In addition to the cost associated with repair or replacement of the engine, there are generally significant lead times for replacements.

It's also often difficult to instruct immediate repairs, particularly at the start of the season when marine engineers are busy servicing yachts being commissioned after their winter lay-up.

Another complicating factor is that engine access is often difficult in leisure vessels and in some cases engine removal and reinstallation may be required to complete the required remedial work.





In the event of an engine malfunction, it takes time to investigate whether there was a fault with the engine and if its repair falls under the manufacturer's warranty. Similarly, insurers will want to examine the particulars of any claim before agreeing liability and subsequent settlement.

Yacht hull and machinery policies tend to offer wide coverage or all-risks coverage, subject to named exclusions. Under some policies, these exclusions include corrosion, as the following example wording shows:

"There shall be no insurance under PART II – PROPERTY COVER where any claim or loss results directly or indirectly, in whole or in part from, or relates to:

"1. Osmosis, corrosion, deterioration

"Osmosis, blistering, fibreglass or surface coat blistering, electrolysis, delamination, rust, corrosion or oxidation, marine life, marine borers, moth or vermin, rot, fungus, mould or infestation, warping or shrinkage, change of temperature or humidity, deterioration, lack of maintenance, wear and tear, inherent vice."

This wording excludes both the direct and consequential damage arising from the specified causes. In practice, this means that if corrosion played a part in the damage arising, the policy is unlikely to respond. This is not the news that any insured ever wants to receive.



# Finding calmer waters

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Insurers do not want their policyholders to be surprised by decisions on cover. Our recent experience of managing claims relating to failed engines caused by moisture demonstrates the lack of awareness around the required protocols for engine shutdown and preservation.

As a market, there's a need to publicise this issue and ensure yacht owners and operators understand the importance of these protocols – and other aspects relating to the efficient running and maintenance of engines. Improving awareness will help avoid engine failures and prevent insurance cover being unresponsive.

The claims that we're currently handling as a result of engine failure, which were caused by moisture and subsequent corrosion, were preventable.

The market can help guide clients about these exposures and support owners or crews to follow the correct operating procedures. This will allow owners to enjoy their vessels in the knowledge that maintenance is being performed to the highest standard.

Providing guidance on this subject will facilitate the prevention of damages, stop associated claims and avoid the adverse sentiment that such negative liability decisions generate for the market.





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At Charles Taylor Adjusting we offer marine engineering consultancy and yacht survey services with the additional benefit of direct access to our team of insurance professionals. We are able to offer marine engineering advice with regard to loss mitigation, repairs and the requirements of the insurer in preparation for a claim.

Our yacht surveyors and consultants are experienced in a wide range of marine damages and are able to provide advice that can help in reducing out of service time, following a casualty, and assist in the claims process.

To learn more about our specialist Marine Engineering and Yacht Services, please contact:

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For more information about Charles Taylor's Yacht Adjusting offer, visit [charlestaylor.com/en/claims-solutions/adjusting/marine/marine-adjusting/yacht-services/](https://charlestaylor.com/en/claims-solutions/adjusting/marine/marine-adjusting/yacht-services/)

## About Charles Taylor

We deliver better results for the world of insurance with our specialist technical expertise, powerful technology and comprehensive range of solutions.

Charles Taylor provides a growing range of insurance services, claims and technology solutions across the global insurance market, particularly in complex situations requiring specialist expertise. We aim to build long-term, personal relationships with clients based on trust and partnership, spanning multiple value-creating solutions, and to consistently delight with the quality and responsiveness of our people and delivery.

Our services and solutions support every stage of the insurance lifecycle and every aspect of the insurance operating model, across all major commercial insurance lines as well as technical areas of personal insurance. We serve a diversified international customer base that includes national and international insurance companies, mutuals, captives, MGAs, Lloyd's syndicates and reinsurers, along with brokers, distributors and corporate insureds.

### Our Solutions

#### Claims Solutions

We use our specialist expertise to understand the causes and impact of claims, reduce their risk, adjust complex losses, provide expert technical services and deliver better results for the global insurance market.

#### InsureTech

We use our powerful technology to deliver customer-driven outcomes and help global insurance businesses drive change. Through InHub, we offer a range of SaaS capabilities that are designed to solve specific problems faced by participants in the insurance value chain.

#### Insurance Management

We offer trusted end-to-end management of mutual insurers, captives, life insurers and other insurance programmes for capital providers on a long-term partnership basis.



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