Embracing Digital Transformation

An interview with Mr David Loke and Mr James Loke

Mr David Loke, Chairman and Mr James Loke, Group CEO

Mr David Loke, Group Executive Chairman, and Mr James Loke, Group CEO, of Tru-Marine, share their thoughts on, the ship repair industry and TruCare™, a unique digital innovation for decarbonisation.

Tru-Marine's sustainability journey

Tru-Marine's business premise has always been to repair instead of prematurely replacing turbochargers, and as such prolong the useful life of components. Over the years, we have developed many repair techniques that are approved by the Classification societies, thus earning us the sound reputation for our repair capabilities.

Since 2011, we have taken steps to explore remanufacturing as a sustainable method, collaborating with research institutes both locally and internationally. As endorsement of our progressive efforts, we played host as a facility showcase to the Asia-Pacific Economic Cooperation (APEC) Market Access Group Workshop on Remanufacturing Research and Development in APEC Economies in 2012. We have successfully brought remanufactured turbochargers to market, enabling the ease of swopping turbochargers without any vessel downtime. Apart from cost savings, ship managers benefit by lowering their carbon footprint when they reduce, reuse and recycle.

Through the years we have focused on capability-building to be certified for ISO 9001+14001 and ISO 45001 and in the process, we have built the needed foundations in the Governance aspect of ESG as these standards align specifically with four of the Sustainable Development Goals 8, 9, 12 and 13.

As ESG matters become more proactive and pressing globally, we officially embarked on our ESG journey in 2022. We began with measuring our Scope 1 and 2 emissions, using the Carbon and Emissions Recording Tool (CERT) administered by the Carbon Pricing Leadership Coalition Singapore, the decarbonisation arm of the UN Global Compact Network Singapore.

We took significant strides such as committing to 100 percent renewable energy sources for our electricity needs as a continuation in reducing our emissions. This was achieved through the installation of solar panels to reduce our reliance on utility power by up to 75 percent, with the remaining power provided by a renewable energy retailer.

Our strategic initiatives span the formation of an ESG Council with board oversight to more integrated, holistic approaches in managing material issues that matter to our key stakeholders, for instance, in prioritising the wellness of our people and raising our social credibility to attract talent.

TruCare™ : A digital solution for turbochargers

Additionally, we are particularly proud of our green solution for the predictive maintenance of turbochargers, TruCare™, built as a digital technology to align with sustainability programmes and launched on 23 September 2022. It uses machine learning and AI to predict and optimise vessel operations for reliability, with the key value proposition of cost avoidance from premature component and emergency failures, as well as suboptimal maintenance scheduling.

Through increasing turbocharger efficiency and reducing environmental impact, TruCare™ will not only become a mainstay offering in complementing turbocharger maintenance, repair and operations (MRO), but will also pair well with new turbocharger installations, as newbuilds are also increasingly focused on enhanced vessel efficiency features such GHG emissions detection systems and improved engine configurations.

TruCare™ - Tru-Marine's digital solution for predictive maintenance of turbochargers™

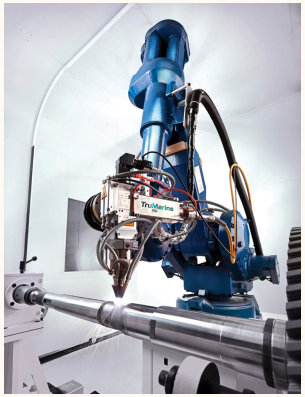
TruCare™ is the result of a strategic partnership between Tru-Marine, German turbocharger maker, Kompressorenbau Bannewitz (KBB) and the Advanced Remanufacturing and Technology Centre (ARTC), an A*STAR research institute. TruCare™ can be fitted onto running engines without mandatory modifications, and is available as a platform linking all end-users and service providers.

Key operational parameters will be transmitted from ship-to-shore into a command centre for real-time data analysis, using machine learning algorithms and failure models to monitor turbocharger performance, predict failures and recommend maintenance windows. By establishing correlations between turbocharger performance and engine parameters,

the predictive ability of TruCare™ in detecting anomalies and complex indications for breakdowns helps pre-empt potential operating issues before there is a crisis.

Tru-Care™ is designed to improve the total cost of ownership and asset management by reducing maintenance costs, downtime and extending asset lifetime. This digital solution addresses the commonly occurring, premature turbocharger failures and associated high costs of emergency repairs, vessel downtime, off-hires and delayed port calls. It puts control back in the hands of shipowners, managers and operators, offering peace of mind through a controlled overview of their monitored assets and crew performance.

At the same time, blockchain will be used to track, trace and record the service histories and movements of turbochargers and the sub-components, from manufacture and repairs to logistics and smart contracts. This addresses the current MRO-related challenges such as the lack of digital records and global database, incomplete and inaccurate data sharing as well as system inconsistencies.



Laser cladding restores worn turbocharger components with a high-performance coating, enhancing wear resistance, extending service life, and ensuring greater reliability and cost efficiency, making it a gamechanger in advanced repair solutions.

Tru-Marine's Sustainability Journey