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Featured Content

First Replacement of a CAT C32 Diesel Generator on HMCS *Charlottetown*

CNTHA News Inside!

Canada

Photo courtesy Doug Struthers

On May 15th 2026, 85 years after HMCS *Sackville* (K181) was launched the Royal Canadian Navy re-commissioned the Flower-class corvette

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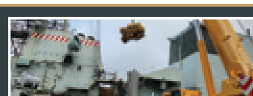

New engine being rigged in HMCS *Charlottetown*.
Photo courtesy Brant Frenette, DNPS 8-4-6 Coastal Contract

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COMMODORE'S CORNER

Adapting the NEM System: Sustaining the Navy Canada Needs

Guest contributor Cmdre Andrew Forbes, CD

May was a busy period in the National Capital Region (NCR) with a combination of senior defence leader engagements and CANSEC, the result was a unique concentration of strategic signals for the country and the Defence community. The message was clear and impactful: Canada is preparing to operate in a more contested and less predictable environment, so national defence capability must evolve accordingly. For those of us who have served for decades, the clarity and public visibility of that message is striking. It reflects a growing recognition that Canada's defence and security environment is changing, and that success will depend on stronger operational readiness, tighter joint force integration, and a stronger focus on sovereignty and national domain awareness.

On the naval front, the Commander of the Royal Canadian Navy has been equally clear in articulating the Navy that Canada needs[1]. That vision is not simply about new hulls alongside the jetty. It is about credible maritime combat power in support of national defence: a fleet that can deploy forward, deter adversaries, contribute to joint force integration, and strengthen all-domain awareness across Canada's maritime approaches. New major surface combatants, replacements for legacy fleets, a renewed and larger submarine capability, and a more connected, more lethal, and more operationally relevant navy will demand more than recapitalization. They will demand a readiness system capable of generating combat power at speed, sustaining it under operational pressure, and ensuring maritime forces can deliver effect as part of a wider joint and continental defence enterprise.

To succeed with this vision, the Naval Engineering and Maintenance (NEM) system is a critical consideration. If the navy Canada needs is to be more than an aspiration, the NEM system must be understood as the framework through which fighting power is generated, sustained, and recovered in support of national defence. It is not merely a collection of separate organizations, but a distributed system of systems: Fleet Maintenance Facilities, formation technical authorities, field engineering support, project and materiel organizations, ship's staff, and industry partners all contribute to the same outcome: supporting operational Commanding Officers and their crews with combat-ready ships, submarines, integrated into a wider joint force.

That adaptation must begin early—well before a platform comes alongside. For a larger and more capable fleet, readiness starts in acquisition. Contracting approaches, technical governance, and transition planning must be designed from the outset with service entry and operational employment in mind. We cannot afford a model in which a ship is delivered physically, but the burden of making it operationally ready is left to others after the fact. Stronger linkages between acquisition, in-service support, materiel assurance, and certification functions will be essential if we are to shorten the passage from delivery to operational availability—and from operational availability to credible combat effect.

Industry will also have to play a larger role in this future NEM enterprise. Government capacity alone cannot scale indefinitely, nor is it always the most efficient means to manage an integrated logistics system. Consideration for strategic partnerships with industry will be required which can provide surge capacity, deepen subject-matter expertise, and improve sustainment. But this will require a more mature relationship—one in which industry is reengaged in a way that advances Canada's national interests, integrated earlier, accepts a share of the readiness challenge, and works alongside Canada to deliver capability rather than simply platforms.

A critical enabler of that shift is data. Today, engineering and materiel information remains fragmented across multiple systems and organizations, limiting visibility and slowing decision-making. An integrated data environment, one that provides a trusted, authoritative source for technical, configuration, and sustainment information, will be fundamental to a modern NEM system that enables unit of effort.

The central point is straightforward: if Canada is serious about building the fleet the future demands, then we must be equally serious about evolving the system that sustains it. This does not mean rebuilding the NEM from the keel up, but aligning it more deliberately to operational readiness, resilience, joint force integration, and decision advantage in defence of Canada.

1. Presented by CRCN VAdm A. Topshee, Jan 2026 at Victoria College, University of Toronto: https://vimeo.com/1164757547. Presentation also available on Navy SharePoint.

FORUM

In Memorium: Commodore William (Bill) Broughton, CD 1935 – 2026

Canada's Naval Technical community was saddened to learn of the passing of Cmdre (Ret'd) Bill Broughton. His 37-year Navy career culminated as Director General Maritime Engineering and Maintenance (DGMEM) from 1988 to 1989.

Cmdre Broughton spent his formative years in Ottawa, where he developed his life-long love of swimming, sailing, cycling, skating and skiing. He met his future wife Dora at a square dance at Camp Red Pine where he worked as a waiter[1]. After graduating Lisgar Collegiate, Commodore Broughton joined the Royal Canadian Navy in 1953 under the Regular Officer Training Plan. As a Naval Cadet he attended both Royal Roads and Royal Military College graduating in 1957, and obtained a Bachelor of Science in Mechanical Engineering from Queen's University in 1958. Following basic officer training, he and his now wife Dora, moved to Cambridge Massachusetts where he completed postgraduate studies in science and naval engineering at the Massachusetts Institute of Technology (MIT), earning his Master's degree both in Naval Architecture and Marine Engineering.

As a junior officer, he acquired engineering experience as project officer for the Fast Hydrofoil Escort, HMCS *Bras d'Or* (FHE 400), and was involved in structural design work for the *Restigouche*-class (IRE) conversion. He also served in HMC Dockyard, Halifax, where he was responsible for hull system surveys and repair specifications of east coast ships and auxiliary vessels. After attending staff college, he returned to Ottawa as the senior naval architect and then as project systems engineer for the *Iroquois*-class Destroyer (DDH 280) new construction program. This was followed by two years in Halifax in charge of post-commissioning trials of the operational and combat systems of these brand-new ships – claiming it was the best job he ever had[2].

On his promotion to Captain(N), Cmdre Broughton attended National Defence College in Toronto. Then, as Director of Maritime Engineering and Maintenance in Ottawa, his responsibilities included the Canadian Patrol Frigate (*Halifax*-class) and *Iroquois*-class Destroyer Life Extension (DELEX) projects, fleet improvements, research & development in hull systems and ship design, and major ship refits.

DND photo

He subsequently served as Director Program Analysis, responsible for the development of the Defence Program Management System that controlled resource allocations. In 1983 he was appointed to the Personnel Group for one year as the Marine Systems Engineer (MARE) Get-Well project officer. In 1984 he assumed the position of Director of Postings and Careers Other Ranks.

Commodore Broughton was promoted to his current rank in August 1986 and appointed Director General of Recruiting, Education and Training for two years. He was then appointed Director General Maritime Engineering and Maintenance (DGMEM) from 1988 to 1989.

Beyond his military career was Cmdre Broughton's life-time love of sports which lead to further remarkable achievements after retirement. In 2015, he was inducted into the 80+ Hockey Hall of Fame while a member of the RA Centre hockey team in Ottawa that he joined in 2002 at the age of 67[3]. That same year he also won two gold, three silver and three bronze medals in the 80-84 year old category at the Canadian Masters Swimming Championship in Montreal.

Pre-deceased by his wife Dora, he is missed by his three children, grandchildren and great grandson, as well as his many other relatives and friends.

1. *Remembering William (Bill) Joseph Broughton*, Ottawa Citizen Obituaries, 12 March 2026.
2. Canadian Naval Technical History Association (CNTHA), Gordon Smith interview of Cmdre (Ret'd) W.J. Broughton, 4 January 2007, Ottawa, Ontario. Transcribed by S. Mohamoud. ISN:523431.
3. https://www.80plushockeyhalloffame.com/en/inductees.html

FORUM

Using Probabilistic Risk Assessment to Apply Artificial Intelligence and Machine Learning in Nuclear Power Plants and Naval Systems

By CMDR Dhananjay Gangurde, Royal Australian Navy

The integration of Artificial Intelligence (AI) and Machine Learning (ML) into critical infrastructure systems, particularly in civilian nuclear facilities and emerging naval platforms, is gaining traction. These technologies can process vast amounts of data, detect anomalies early, and support maintenance decisions; ultimately enhancing operational reliability. Yet, the adoption of AI poses challenges related to transparency, traceability, cyber assurance, and the traditional Defence-in-Depth (DiD) safety principle, necessitating a structured approach to safety validation.[1]

DiD is an essential safety principle applied in nuclear safety design. It advocates using multiple, independent, redundant layers of protection to prevent accidents and mitigate their consequences. These safety measures include physical barriers, safety engineering designs, and human oversight of control systems. Its sound safety principle is therefore part of international and national regulatory frameworks. These frameworks generally require:

1. Application of redundant systems to avoid single-point failures,
2. Use of diverse logic and hardware in AI systems to prevent common-cause software failures, and
3. Incorporation of human oversight and intervention to prevent AI system failure escalation.

However, AI systems are inherently nondeterministic. Factors such as model drift and dependencies on training data can lead to unpredictable behaviour over time. This stands in contrast to traditional safety systems, which are engineered for consistency and predictable outcomes. Figure 1 adapts the "Swiss Cheese" Model for AI Systems to show that AI-specific failure modes can bypass traditional DiD safety design.

In the domains of nuclear and naval operations, there is a critical need for verifiable reliability and robust assurance pathways before AI can be trusted to influence operational decision-making.[3] Current certification frameworks have primarily been developed for static logic systems and do not adequately address the complexities introduced by adaptive algorithms, thereby creating validation gaps when AI is integrated into control architectures.

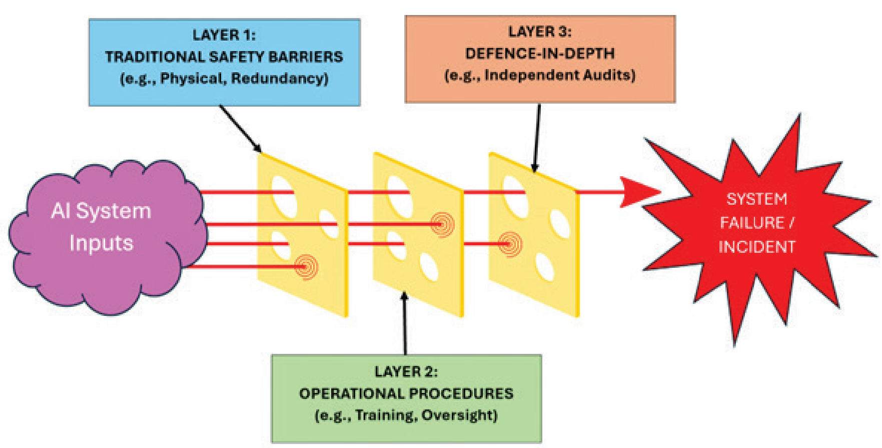

Figure 1.

1. A. Ayodeji et al., "Deep Learning for Safety Assessment of Nuclear Power Reactors," *Progress in Nuclear Energy* 140 (2022).
2. IEEE Standards Association, *IEEE 7-4.3.2-2010: Standard for Digital Computers in Safety Systems of Nuclear Power Generating Stations*, IEEE, 2010.
3. Oak Ridge National Laboratory, *Status Report on Regulatory Criteria Applicable to the Use of Artificial Intelligence and Machine Learning*, U.S. NRC, 2023.

To address these assurance challenges, there is a pressing need for a quantitative method that effectively evaluates potential failure modes, human interaction, and emergent risk behaviours. Probabilistic Risk Assessment (PRA) is a well-established framework for modelling the likelihood of system failures, interactions between humans and machines, and specific risks associated with AI. PRA effectively tackles risks such as algorithmic misclassification, cyber-data poisoning, model bias, common-cause software failures, and delays in human override.[4] Structured methodologies, such as event-tree analysis, fault-tree modelling, and Human Reliability Analysis (HRA), facilitate transparent and traceable decision-making before integrating systems into operational fleets.[5]

Figure 2 demonstrates the assurance workflow, illustrating how data inputs are channelled into AI diagnostic systems, potential failure modes are identified, and risks are assessed using PRA tools to inform decisions while upholding the DiD principle.

While this case study emphasizes the nuclear sector, the foundational assurance principle is equally applicable in naval engineering contexts. Modern warships and submarines are advancing towards digital platform management, automated diagnostics, condition-based maintenance, and predictive sustainment strategies. As AI capabilities advance in the maritime environment, assurance frameworks must evolve to maintain DiD while preserving human authority over automated recommendations. PRA provides a scalable mechanism to ensure the safe integration of AI technologies across future naval platforms and digital sustainment environments.

A practical example from the naval sector involves monitoring propulsion and cooling systems. Modern ships and submarines generate continuous data streams from pumps, bearings, and turbo-machinery. However, detecting early-stage anomalies through human monitoring alone can be challenging. An AI-enabled diagnostic tool may effectively identify vibration trends during regular operation, but could misclassify transient signals during high-speed manoeuvres. A PRA model can evaluate the likelihood of missed detections or false alarms, assess their impact on propulsion readiness, and quantify risk to support Command decisions. This approach ensures that automation enhances availability while retaining the insights of engineering judgment.

AI and ML present significant operational advantages in maintenance forecasting, system performance monitoring, and fault detection. However, their integration must be guided by risk-informed approaches rather than purely technology-driven motives. PRA provides a robust structure for AI assurance, ensuring that automation enhances, rather than undermines, DiD. As naval platforms undergo a digital transition, adopting PRA-based evaluations will be crucial for maintaining certification confidence, ensuring engineering safety, and sustaining operational readiness.

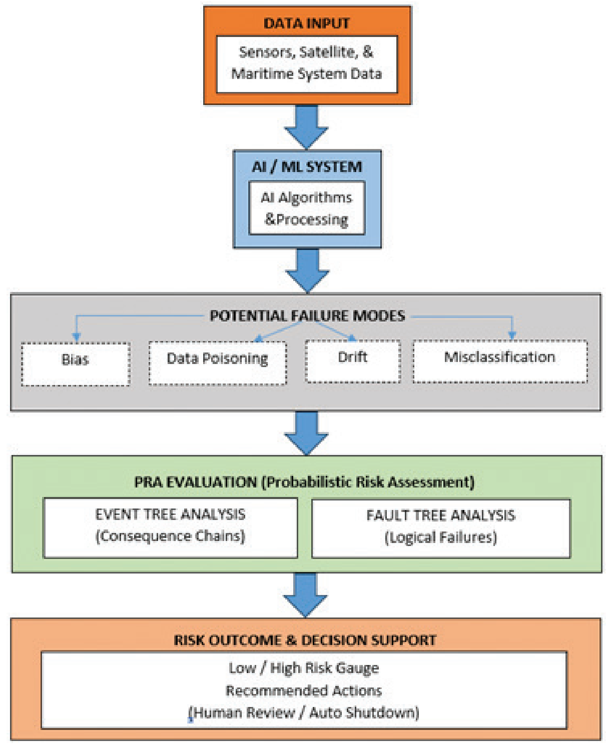

Figure 2.

With increasing levels of automation in modern navies, the critical question is not whether AI can complete tasks, but whether it can be trusted in high-stress operational environments. The PRA offers a structured approach to address this question. With proper assurance in place, AI can serve as an enabler rather than a risk multiplier.

CMDR Dhananjay Gangurde is a Marine Engineer Officer – Submariner with the Royal Australian Navy. He is currently employed as the Collins Class Capability Lifecycle Engineering Officer (CLEO) within Navy Strategic Command, responsible for independent assurance of the Collins Class submarines capability.

4. Southwest Research Institute, *Regulatory Framework Gap Assessment for the Use of Artificial Intelligence in Nuclear Applications*, 2024.
5. C. Johnson, "The Increasing Risks of Risk Assessment: The Rise of Artificial Intelligence in Safety-Critical Systems," *Safety-Critical Systems Club Newsletter* 26, no. 1 (2018): 4–9.

FORUM

Training Opportunity: Loss of Power on Naval Ships

By Dr. Muhammad Usman Asad and Dr. Umar Farooq

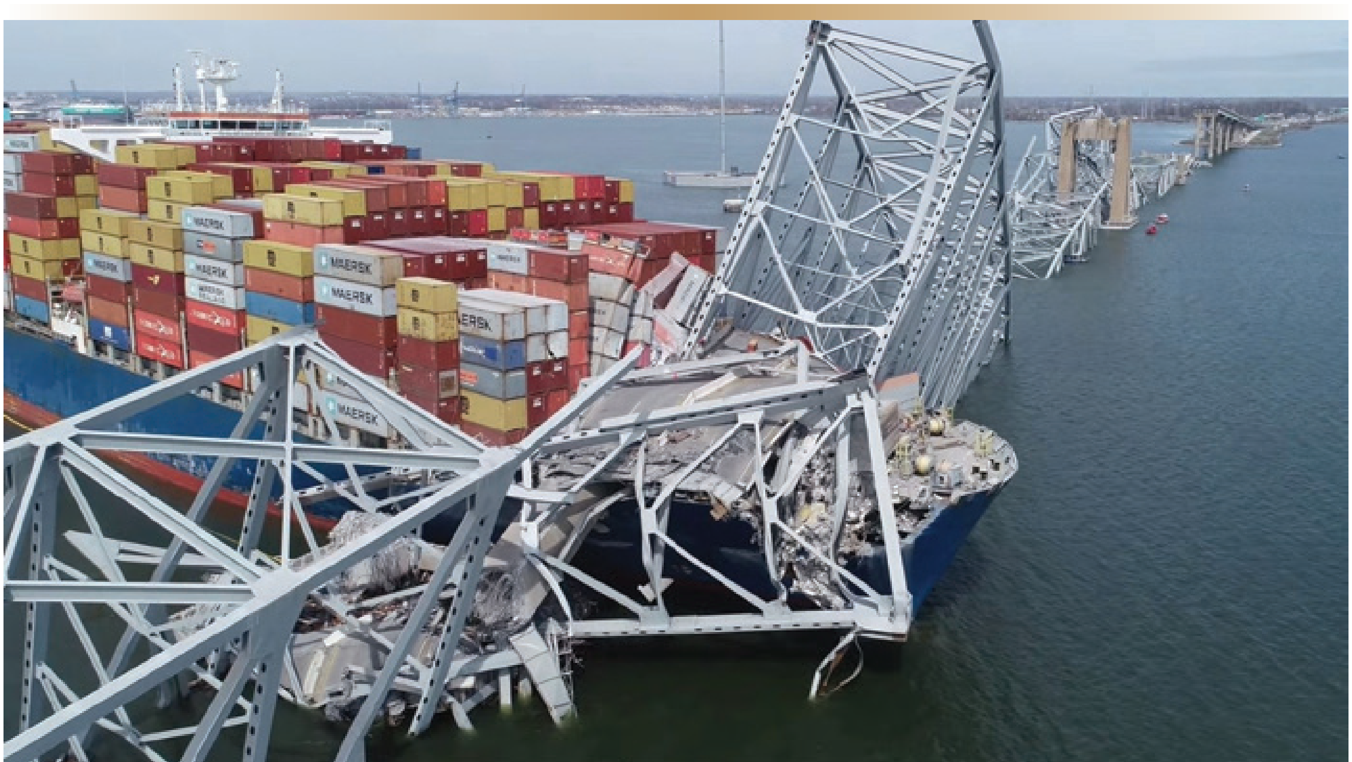

Photo courtesy NTSB

MV *Dali* under one of the collapsed segments of the Francis Scott Key Bridge in Baltimore

Introduction

Modern cruise ships rely on Diesel-Electric Propulsion (DEP) plants to provide both propulsion and electrical power. In these systems, a loss of electrical power (blackout) while the ship is underway or manoeuvring can lead to serious accidents, including collisions, contacts, or groundings. Such incidents may result in significant human casualties among passengers and crew, as well as severe environmental damage and reputational consequences. In March 2024, the Singapore-flagged containership MV *Dali* lost propulsion due to a total electrical blackout, preventing control of steering and engines, which contributed to its collision with the Francis Scott Key Bridge in Baltimore harbour[1]. In addition, a Canadian real incident report where the passenger ferry the *Beaumont Hamel*, lost propulsion while docking due to repeated electrical blackouts includes findings and corrective action details regarding loss of power[2].

Redundancy in power generation on ships is of vital importance. Besides ensuring the supply of power to critical loads on ships, the redundant arrangement also helps to ensure the safety of personnel onboard. For example a loss of power to one of the propulsion motors, could put the ship off course. In such a case, the control system senses the loss of power to the propulsion motor and supplies the power from another power generation source on the ship. It is therefore necessary to train the crew by simulating the above scenario in a laboratory

1. “Contact of Containership Dali with Francis Scott Key Bridge and Subsequent Bridge Collapse”, National Transportation and Safety Board. https://www.ntsb.gov/investigations/Pages/DCA24MM031.aspx
2. “Marine Investigation Report M12N0017”, Transportation Safety Board of Canada. 30 May 2012. https://www.tsb.gc.ca/eng/rapports-reports/marine/2012/M12N0017/m12n0017.html

environment. To accomplish this, the already available Festo Lab-Volt electronics training laboratory at Naval Fleet School (NFS)(Atlantic), Canadian Forces Base Halifax, is utilized to design an experimental setup, which include the standard Electromechanical Systems (EMS) components. A simple switching logic is designed and implemented to convey the concept in an easy-to-understand manner. It is believed that the proposed module would be a useful addition to the curriculum for students taking pre-Integrated Platform Management Systems (IPMS) or control of marine ships.

Experimental Setup

The proposed switching logic is implemented to convey the fundamentals of the ship power system with already available laboratory components. The implementation on ships could be different, but we have designed a simple switching logic while using the existing laboratory facilities at NFS(A). The experimental setup consists of two workstations, W_1 and W_2. The main energy source for the workstation W_1 is the three-phase power source G_1, while the main energy source for the workstation W_2 is the three-phase power source G_2. In addition, each workstation has access to the power from the other workstation via the EMS remote cable assembly 9122. In normal operation, the source G_1 should power the EMS 8221 motor-driven propeller M_1 via EMS 9106 electromagnetic contractor T_{11}, while source G_2 should power the EMS 8221 motor-driven propeller M_2 via EMS 9106 electromagnetic contractor T_{22}. In case of loss of power source G_1, the motor-driven propeller M_1 should be powered by opposite power source G_2 via the cross-connected EMS 9106 electromagnetic contractor T_{21}. While in case of loss of power source G_2, the motor-driven propeller M_2 should be powered by opposite power source G_1 via the cross-connected EMS 9106 electromagnetic contractor T_{12}. Note that the notation T_{ij} refers to the electromagnetic contactor carrying power from the source G_i to the propulsion motor M_j. The block diagram representation of this setup is shown in Figure 1.

Control Logic

To energize the correct electromagnetic contactors, two control units are implemented on each workstation. For instance, workstation W_1 employs two EMS 9123 control transformers, C_{11} and C_{21}. The control transformer C_{11} is used to sense the availability of power source G_1 on W_1, while the control transformer C_{21} is used to sense the availability of power source G_2 on W_1. In normal operation, both C_{11} and C_{21} provide stepped-down voltages, which

Photo courtesy CTSB

The passenger ferry the MV *Beaumont Hamel*

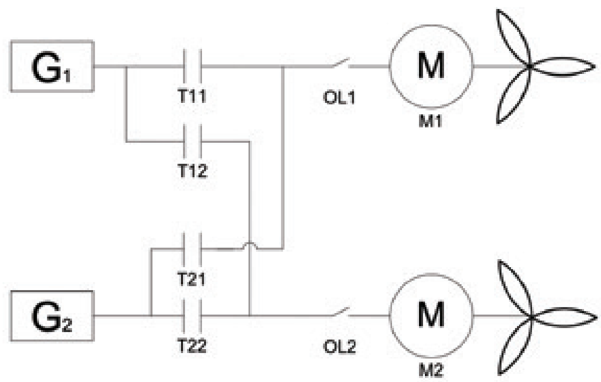

Figure 1. Experimental setup of ship's main propulsion system

dictate that the cross-connected electromagnetic contactor T_{21} should be kept de-energized while allowing the motor-driven propeller M_1 to draw power from the source G_1 through the electromagnetic contactor T_{11}. This is achieved through incorporating a contactor $G_{1\text{-OK}}$. The normally open contact of $G_{1\text{-OK}}$ is used to energize the coil of electromagnetic contactor T_{11} in the C_{11}-led control unit, while the normally closed contact of $G_{1\text{-OK}}$ is used in the C_{21}-led control unit. To better visualize the loss of power problem, the EMS 9107 time-delay relay, TR_1, is installed in the C_{21}-led control unit. When the source G_1 fails, the normally closed contact of G_1-OK energizes the coil TR_1 and triggers the onset of time delay. After the preset time has elapsed, the Time Delay Coil (TDC) contact on the time-delay relay TR_1 closes and energizes the cross-connected electromagnetic contactor T_{21}. In between the

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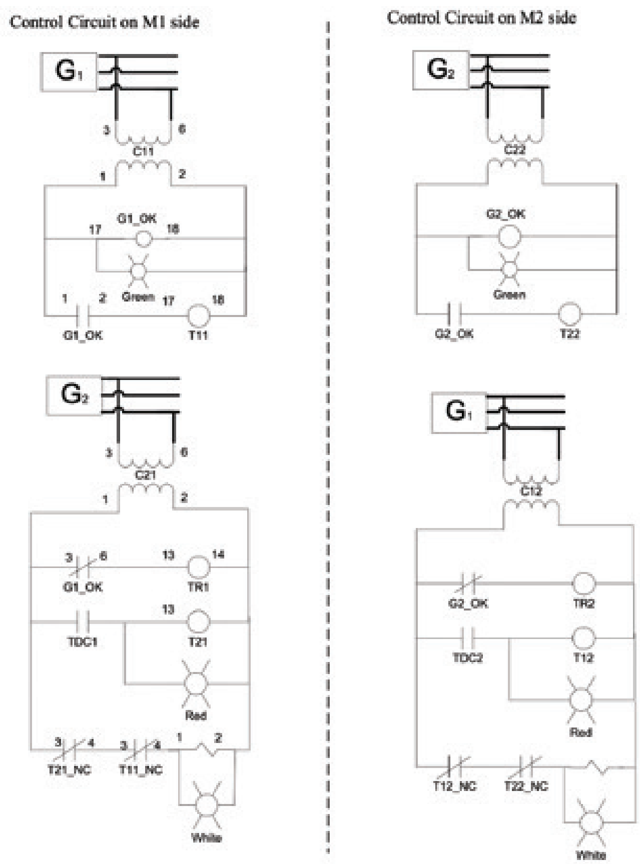

Figure 2. Control logic for the loss of power problem in naval ships

events i.e. from main power failure to cross-power utilization, the EMS 9114 magnetic brake is applied via C_{21}-led unit to immediately stop the motor-driven-propeller M_1 for the time-delay effect to be observed. The onset of the magnetic brake is dictated by the normally closed contacts of the main and cross-connected contactors. A similar design is implemented on the workstation W_2. The proposed control logic for the loss of power problem is shown in Figure 2 and its implementation is shown in Figure 3.

Conclusions

By implementing an experimental setup and switching logic by utilizing an existing laboratory, students can learn the fundamental solutions for the loss of power problem in the propulsion system of ships. The proposed idea is implemented and validated using the standard electromechanical system components provided by the Festo motors laboratory at NFS(A). In the future, we aim to expand the training module with more real-time scenarios such as the loss of power in zonal electrical distribution system of ships to further prepare our students for real time situations at sea.

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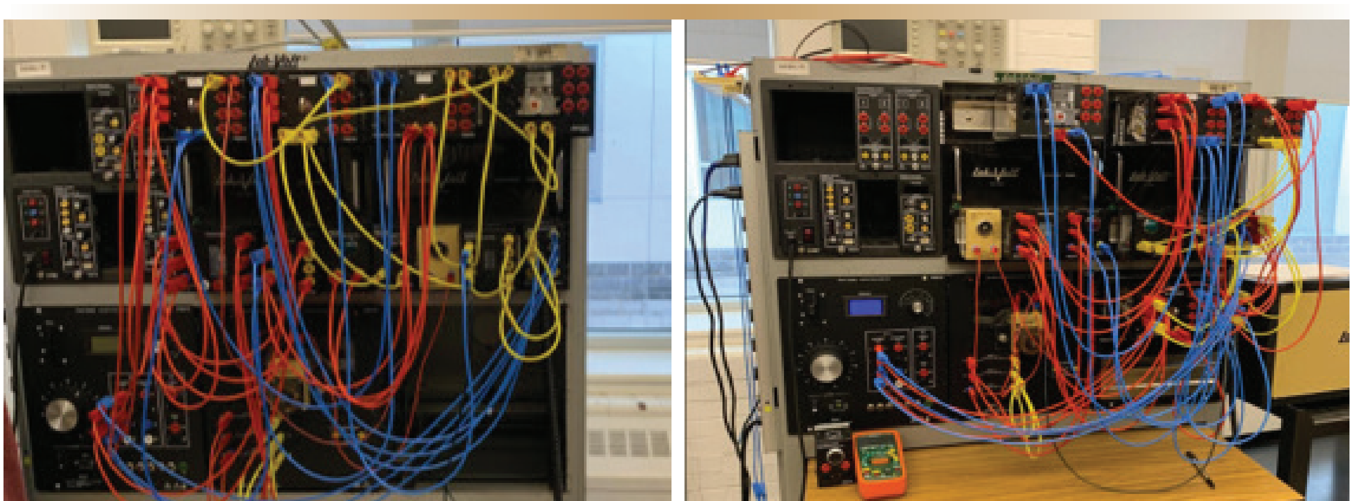


Figure 3. Experimental investigation in the Festo Motors Lab

FEATURE ARTICLE

First Replacement of a CAT32 Diesel Generator on the HMCS *Halifax*-class Ships

By Lt(N) Sophie Gilley

Introduction

The *Halifax*-class Mid life Refit Diesel Generator (DG) Replacement Project introduced the Caterpillar (CAT) C32 DG sets to the fleet, with the first installation completed in 2017. The project replaced the legacy Motoren Werke Mannheim (MWM) DGs, which were increasingly challenged by high maintenance demands, and poor reliability. Under the MWM configuration, engine change outs were complex, frequent, and often conducted under significant operational pressure. By contrast, the CAT C32 has demonstrated markedly improved reliability and maintainability, placing the Royal Canadian Navy (RCN) in a far stronger position with respect to both operational confidence and sustainment.

The first significant failure of a CAT C32 DG occurred during routine operation onboard HMCS *Charlottetown* (FFH 339) in September 2025. While this event resulted in irreparable damage to the engine and necessitated a complete engine replacement, it also served to demonstrate the maturity of the new platform and the fleet's ability to respond effectively. Fleet Maintenance Facility Cape Scott (FMFCS) executed the removal, replacement, and associated trials with care and precision, highlighting the effectiveness of the many organizations involved.

Mid-life Refit DG Replacement

During initial installation of the DG sets, a cement block is first prepared and readied. A metal raft is then rigged in and temporarily supported on the cement block. The engine is lowered into the space, secured to the raft, and the combined assembly is lowered into the cement block. Once the raft is lowered, access to the bolts securing the engine sump to the raft is no longer possible. Finally, the generator is set in place and coupled to the engine.

While the CAT C32 engines have met expectations since installation, HMCS *Charlottetown* experienced the first catastrophic failure during Intermediate Multi-Ship Readiness Training (IMSRT) enroute to Mayport, Florida in 2025. With deployment approaching and limited opportunities for corrective maintenance, it was decided that FMFCS would conduct the first replacement of an installed CAT C32 engine—an important milestone for the RCN.

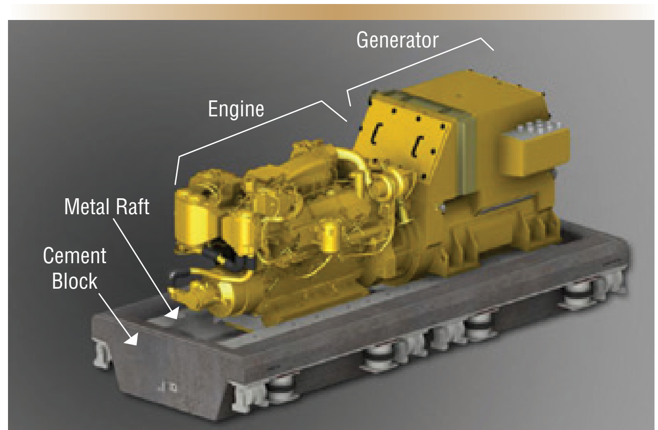


Photo courtesy Toromont Caterpillar

Caterpillar C32 Diesel Generator Set

According to Program Manager 1 (East), **LCdr Jean François Lévesque**, three key factors drove the decision to replace the engine at that time. The first was the length of the upcoming Short Work Period (SWP), which represented the longest maintenance window available between deployments. The second was "the fear of having to conduct such a repair in theatre, both due to the size of the repair and the uncertainty of where it would need to be conducted." The final factor was the desire to deploy the ship with maximum capability and confidence in machinery performance.

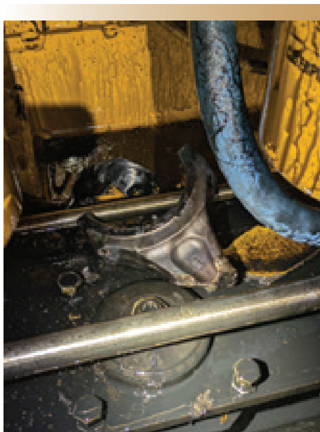
Failure Event and Investigation

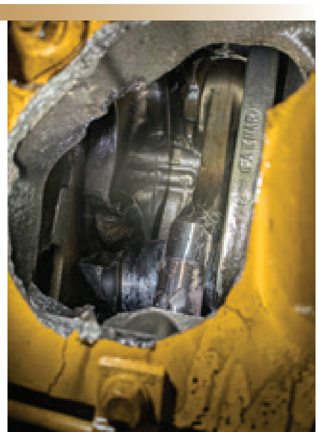
The sequence of failures began when DG #2 tripped due to activation of the high freshwater cooling temperature safety shutdown. This alarm was triggered by low seawater pressure, prompting ship's staff to conduct corrective maintenance, which included replacement of the engine's non drive end (NDE) seawater pump and flexible coupling.

Approximately two and a half hours after the engine was returned to service, abnormal noises were reported by ship's staff and a second trip occurred, this time due to low lube oil pressure. Subsequent investigation revealed catastrophic damage to the DG. A connecting rod had punctured the block at cylinder #6, and the crankshaft had sheared at main bearing #4. The DG was locked out and quarantined for the remainder of the transit.

(Continues next page...)

Upon return to Halifax, a joint technical investigation by Toromont and DND personnel determined that the root cause of the failure was faulty corrective maintenance conducted by the ship's staff during the installation of the NDE seawater pump splined shaft coupling. Using a borescope, investigators confirmed both the cause of the failure and the extent of the damage. The coupling had been installed incorrectly, allowing the spline to extend approximately 0.5 inches beyond its intended position. This eliminated all axial play in the crankshaft. As a result, normal axial movement was constrained, and the normally compliant coupling effectively became a rigid axial restraint.





Photos by Brant Frenette

Big end bearing

Crankshaft damage

Photos courtesy John Allen

Correct vs incorrect assembled coupling

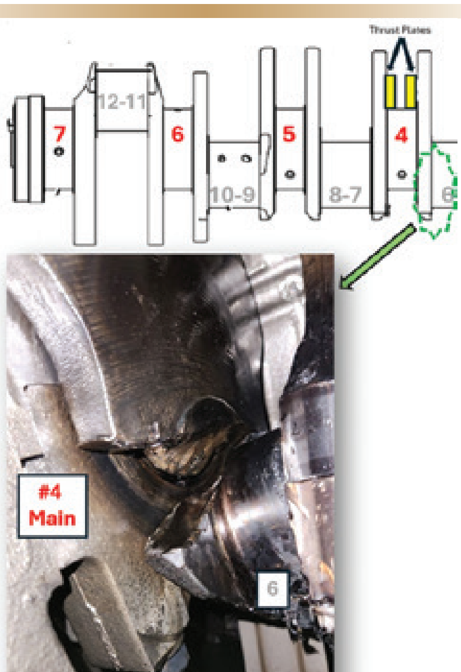


Photo courtesy John Allen, Toromont Caterpillar Coastal Manager

Location of thrust plates and crankshaft damage

Detailed Failure Mechanism

The crankcase door and NDE seawater pump were removed for further inspection. Evidence clearly indicated that the pump imposed a continuous and excessive axial load on the crankshaft—far exceeding what the thrust plates, which are designed to manage controlled axial movement, could accommodate. This abnormal load led to the failure of one of the two thrust plates at main bearing #4.

It is suspected that the heat generated by this excessive load and the failed thrust plate caused the crankshaft to shear. The combined effects of elevated temperature and vibration then led to failure of the connecting rod at cylinder #6, ultimately resulting in perforation of the engine block. Removal of the pump further revealed that the axial force was sufficient to drive the pump shaft into the coupling spline, effectively "machining" the splines.

Replacement Process

The engine replacement required meticulous planning and coordination among multiple specialized teams within

Photo by Brant Frenette

Damage to oil pump discharge

FMFCS, supported by the Director Naval Platform Systems (DNPS) 8-4 Marine Diesel Systems, and Toromont contractors. FMFCS was able to capitalize on the experience and knowledge acquired in 2020 when they installed the After CAT C32 DGs on HMCS *Ville de Québec* (FFH 332). LCdr Lévesque emphasized that cross organizational collaboration was critical to success, noting that Toromont's seamless integration "allowed FMFCS to gain knowledge on how the job would be different from similar jobs completed in the past." The execution of the replacement showcased FMFCS's ability to perform major engine replacements and coordinate complex resources.

During the investigation, it was determined that the engine oil sump had not sustained damage and could remain within the metal raft. **Brant Frenette**, DNPS 8-4 Coastal Contract Coordinator, explained that this eliminated the need to fully disassemble the enclosure, interference items, and internal wiring, resulting in significant time savings and representing one of the most valuable lessons learned.

The replacement effort began with the logistical transfer of a spare engine from 25 Canadian Forces Supply Depot in Montréal to Halifax. Pre installation work was completed by Toromont, including fluid replacement and dynamometer testing to confirm engine readiness following storage. In parallel, FMFCS Mechanical Engineering led preparation of the removal route, coordinating with the Internal Combustion Engine (ICE), Rigging, Sheet Metal, and Pipe Shops to dismantle the enclosure and prepare for extraction.

Disconnection of all engine interfaces—including sensors, cabling, piping, and fire suppression systems—was completed by Controls, Mechanical Electrical, Heavy Electrical, ICE, and Pipe Shop personnel. The Rigging team then lifted the failed engine through the prepared route, salvaging reusable components such as brackets, fittings, and couplings for installation on the replacement engine.

Removal and replacement of equipment of this size requires extensive shipboard preparation. Soft patches, or portable deck plates, were removed across multiple decks to establish a clear route. For access to the Forward Auxiliary Machinery Room (FAMR), four soft patches and all equipment within their footprint were removed. DG intake and exhaust trunking, fire suppression piping, air systems, and sections of the fire main were drained and removed. Equipment was then craned out between the ship's mast and intake/exhaust stack. Had the failure occurred in the After Auxiliary Machinery Room (AAMR), removal would have required only three soft patches, with equipment routed through the hangar.

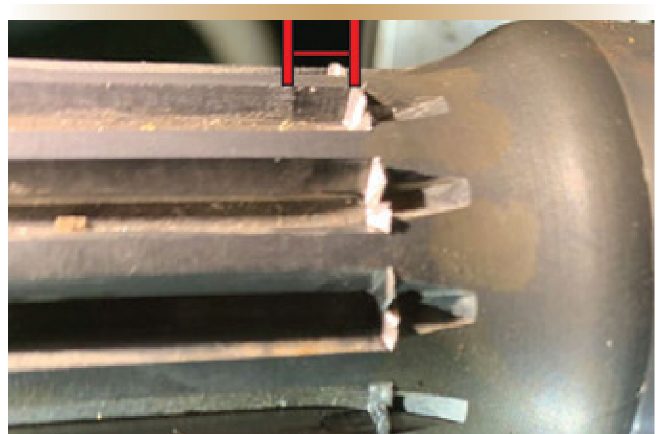


Photo courtesy John Allen

"Machine" damage to coupling splines

Photo by Brant Frenette

Enclosure disassembled, generator moved, damaged engine removed

To facilitate installation, several components were removed from the replacement engine, including crankcase filters, oil centrifuge, and seawater pump. On November 13 —almost exactly two months after the failure—the new engine was maneuvered into the FAMR. Precision alignment and coupling of the generator were completed by Toromont technicians in accordance with Original Equipment Manufacturer (OEM) tolerances. Following enclosure reassembly, fluid top ups, and minor adjustments, the DG underwent safety checks and Lloyd's Register certification. A four hour performance run confirmed operational readiness.

Throughout this period, FMFCS continued executing previously planned SWP work. With deployment imminent, none of the scheduled tasks could be deferred. This included work on deck cranes, engineering changes, and

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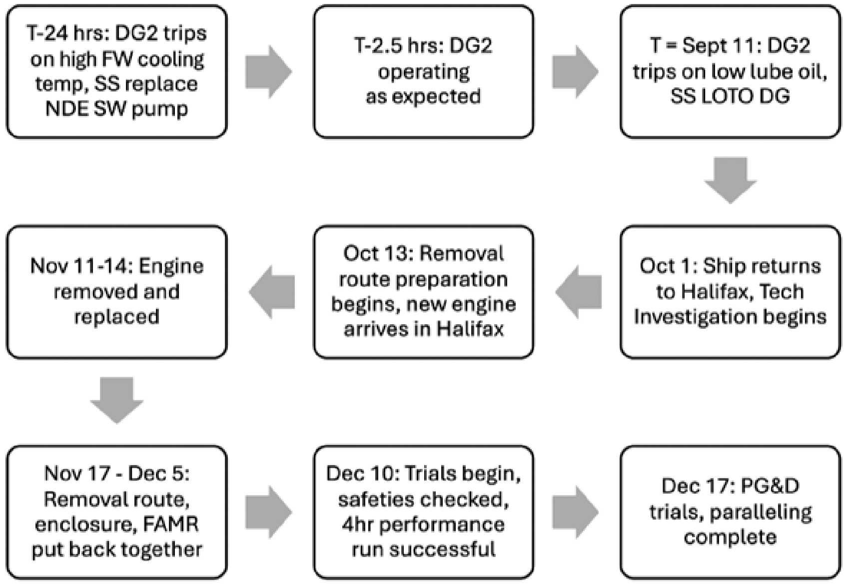

Timeline of events

mast and flag deck activities. LCdr Lévesque explained that "strategic shift work and overtime were used to ensure different teams had the space to work." The effort restored critical capability while maintaining deployment timelines.

Conclusion

The catastrophic failure of DG #2 onboard HMCS *Charlottetown* presented a serious technical challenge, but one that was successfully overcome. Through disciplined investigation, sound engineering judgment, and coordinated execution, FMF Cape Scott completed the RCN's first in situ CAT C32 engine replacement on a *Halifax*-class frigate.

This event highlights a clear improvement over the legacy MWM diesel generator experience, which was characterized by recurring reliability issues and catastrophic failures, including eight in just four years, between 2008 and 2012 when the replacement project was initiated. In contrast, the current generators have demonstrated consistently strong performance since installation. To date, the only catastrophic failure experienced was the result of human error rather than an inherent equipment or design deficiency.

The successful replacement restored full operational capability, preserved deployment readiness, and delivered valuable lessons learned. Most importantly, it reinforced confidence in the CAT C32 platform and demonstrated FMFCS's ability to execute complex, high risk engineering work under demanding operational constraints.

Lt(N) Sophie Gilley, is a Marine Systems Engineer, Engineering Change (EC) Project Manager at Director Naval Platform Systems (DNPS).

Submissions to the *Journal*

The *Journal* welcomes **unclassified submissions** in English or French. To avoid duplication of effort and ensure suitability of subject matter, contributors are asked to first contact the production editor at MEJ.Submissions@gmail.com.

FEATURE ARTICLE

Preserving the Fleet: Applying *Halifax*-class Painting Standards at Sea

By FMFCB Engineering Naval Architects: Lt(N) Ge Li Guo with contributions from LCdr Jimmy Lau, CD, Jonathan Reaume, Paul Ouellette, and Cameron Walker.

Corrosion control is one of the most vital, yet often underappreciated, aspects of maintaining the Royal Canadian Navy's (RCN's) fleet. For the *Halifax*-class frigates and *Victoria*-class submarines, a consistent and well-executed coating maintenance program is fundamental to extending hull life, preventing steel degradation, and sustaining fleet readiness. While the term "paint" is often used informally, it is important to distinguish between decorative paint, which provides colour and appearance, and marine coatings, which are engineered barrier systems designed specifically to resist corrosion, ultraviolet exposure, abrasion, and harsh marine environments. In naval applications, it is coatings, not paint, that serve as the protective layer which preserves structural integrity and keeps the ship operational between major maintenance periods.

This article provides ship's staff with a clear understanding of how to apply the coating standards effectively, the workflow to follow, and the boundaries of what work can safely and legally be completed at sea. By following the established procedures, ship's staff play a direct role in reducing corrosion and ensuring that the ship remains in fighting condition between refits.

Photos courtesy Paul Ouellette

Corrosion – Hatch Coaming

Standards and Authority

The standards governing coating maintenance are well established across the RCN. The primary reference is "Specification for Maintenance Painting on HMC Ships" D-23-003-005-SF-002. This maintenance painting specification defines coating types, film thickness requirements, and environmental conditions for application. In addition to this specification, crews rely on unit-level preservation guidance and standing shipboard procedures, which outline safe methods for conducting minor touch-ups, localized repairs, and routine corrosion control between maintenance periods. Other key references include "Paint Parameters and Areas – Exterior Hull"[1] which details paint zones and colours, and the "Structural Design of Canadian Forces Surface Ships"[2] standard, which outlines the corrosion margins that coatings are intended to protect. Together, these documents divide responsibilities clearly. Certified industrial painters at the Fleet Maintenance Facilities, FMF Cape Breton and FMF Cape Scott, are responsible for large-scale coating applications, such as full hull recoating, underwater hull work, non-skid deck coating, and boot-topping.

The Maintenance Workflow

Successful coating maintenance follows a structured, five-step process.

The first step is identification. Routine inspections during cleaning or washdowns provide the best opportunity to detect early signs of coating failure. Rust streaking, blistering, flaking, or salt accumulation all indicate the need for attention. The goal is preservation, not appearance, so painting should be carried out only when required to prevent corrosion.

The second step is classification. Maintenance tasks are categorized based on scale and complexity. 'Back to Bare' (BTB) involves complete coating removal and full recoating; this is never performed by ship's staff. 'Touch-Up' (TU), consists of localized primer and topcoat repairs on small

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1. HFX D28 396 000 01 *Painting & Preservation Schedule*.
2. Drawing D-03-002-008/SG-002, from *Structural Design of Canadian Forces Surface Ships (SI Units)*.

areas, while 'Topcoat' applications may be used when a uniform finish is required across a small, intact section.

The third step is the most critical: surface preparation. Preparation methods include freshwater washdowns, pressure-water cleaning, mechanical rust removal, feathering, sanding, and final cleaning to ensure the surface is free of contaminants. "Clean first, paint last" remains the guiding principle as coatings will not adhere properly to surfaces contaminated with salts, oils, or rust.

The fourth step is application. Ship's staff may apply currently approved coatings supplied through the ship's supply chain or FMF for small above-waterline touch-up work. Application must only occur under proper environmental conditions: the substrate must be above the dew point, humidity must fall within specification limits, and ventilation must be adequate. Mixing, thinning, and application must follow the manufacturer's instructions and the maintenance painting specification.

The fifth step is quality verification. Environmental conditions and coating thickness measurements are recorded on the appropriate quality-control forms. Instruments such as dew-point meters and dry-film thickness gauges verify that the work meets specification. Proper documentation ensures traceability, supports engineering oversight, and confirms compliance with naval maintenance standards.

Training and Qualification of Ship's Staff

Ship's staff are not certified industrial painters, and they are not expected to be. The coating maintenance program recognizes this and establishes safe, limited procedures that can be performed without trade certification.

While ship's staff are not certified industrial painters, they are expected to carry out limited preservation tasks between refits. These activities are conducted under the supervision and authorization of the Marine Systems Engineering Officer (MSEO), who is responsible for the technical readiness of the ship. To strengthen preservation practices and provide targeted assistance, the Navy has recently established Fleet Corrosion Support (FCS) teams on both coasts. These teams work directly with ships' crew, offering training, on-site coaching, and guidance on proper surface preparation and coating application. When further technical support is required, crews are encouraged to consult the FCS teams or the FMF Naval Architecture Office (NAO), both of which can provide expert directions to ensure that small-scale repairs are carried out safely, correctly, and in accordance with fleet standards.

Corrosion – Seatings/Brackets

Corrosion – Bridge Top

This collaborative system allows the crew to take ownership of preservation while maintaining the safety and quality standards required by the Navy. Under proper supervision, non-certified staff can effectively manage corrosion on small areas, saving time and resources during deployment.

Responsibilities and Limitations

The division of responsibility between ship's staff and dockyard specialists ensures that preservation work remains both safe and effective.

Cleaning, freshwater washdowns, and light touch-up painting are routinely carried out by the crew. Recoating large areas, boot-topping, blasting such as hydro blasting, or working on the underwater hull requires industrial painters in a controlled environment.

Ship's staff are encouraged to document every action in their preservation logs and to coordinate closely with the MSEO. This documentation is critical for planning upcoming maintenance periods and provides a record of coating condition for Fleet Engineering (F4 ENG) and FMF authorities.

Coating Areas and Approved Systems

Each region of the ship is protected by a specific coating system selected to meet the environmental and operational demands of that area. The specification for maintenance painting on HMC ships defines the approved coating systems, required film thicknesses, and environmental limitations for application. Above-waterline areas such as the superstructure and upper hull typically use a high-durability topside system in Light Grey (FED-STD-595B 16480), while high-traffic decks and walkways rely on non-skid and abrasion-resistant systems designed to withstand mechanical wear. The boot-topping and underwater hull require specialized anti-fouling coatings that must be applied by certified industrial painters during dry-dock periods.

Ship's staff are authorized to carry out small-scale touch-up work only on above-waterline surfaces, using currently approved coating materials provided through the ship's supply chain or the FMFs. Legacy products appearing in older guidance documents are no longer used, and substituting commercial coatings is prohibited due to the risk of incompatibility and premature failure. To support timely preservation, an interim corrosion inhibitor is also available aboard each ship. This product may be applied in accordance with the specification to stabilize small areas of active corrosion until permanent repairs can be completed by qualified personnel.

Safety and Best Practices

Coating work, although simple in appearance, involves several chemical and environmental hazards. Proper personal protective equipment—gloves, goggles, respirators, and coveralls—is mandatory, and paints or solvents must be mixed and applied only in well-ventilated spaces away from open flames or electrical ignition sources.

Environmental control is equally critical. Painting must never take place when metal surfaces are below the dew point or when relative humidity is outside the limits specified in the Maintenance Painting Specification. Under these conditions, condensation can form on the substrate, trapping moisture beneath the coating and leading to early failure.

Most coating defects such as peeling, blistering, pinpoint rusting, or under-film corrosion, are almost always the result of inadequate surface preparation or poor environmental control. Adhering to the established preparation and application procedures significantly reduces the likelihood of these problems and ensures a longer-lasting protective barrier.

Corroded through deck

When ship's staff encounter corrosion or coating damage that is outside the scope of authorized touch-up work, it is essential that the issue be documented, not repaired. Crew should take clear photographs, note the exact location and size of the affected area, and raise a Naval Deficiency (ND) so that the concern is visible to the MSEO, Fleet Engineering, and FMF. Proper documentation ensures that significant defects are tracked, prioritized, and addressed during upcoming maintenance periods, preventing them from worsening unnoticed between refits.

Lessons and Observations

Experience across the fleet shows that small, timely preservation actions by the crew greatly reduce the extent of corrosion repairs during docking work periods. A few minutes spent cleaning salt deposits or touching up a chipped area can prevent steel loss that would otherwise require cutting and renewal later.

Common mistakes include painting over contaminated surfaces, applying coatings too thickly, or neglecting feathering at repair edges. These issues are avoidable through patient preparation and adherence to the standard procedures.

Preservation onboard ship is a team effort: communication between the Deck Department, MSEO, and FMF corrosion specialists ensures that all work remains consistent with fleet standards.

Conclusion

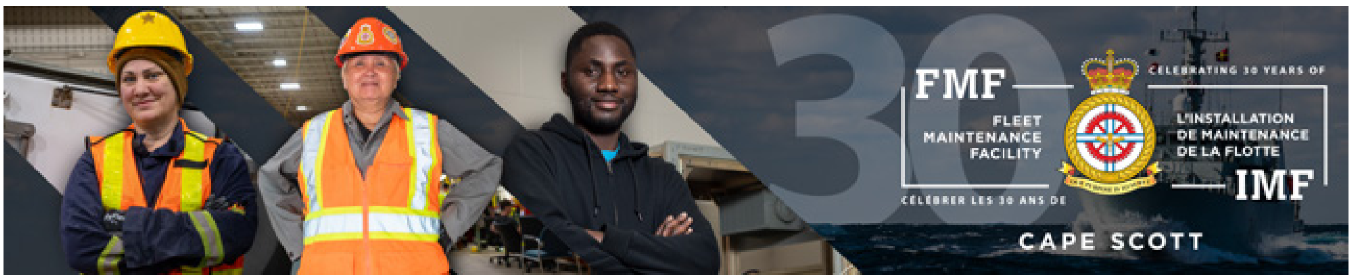
Preservation is not just about paint—it is about readiness. Every properly maintained surface helps a vessel withstand years of service in a demanding marine environment. By adhering to current RCN maintenance standards and the procedures established by the Marine Systems Engineering Department, ship's staff across the fleet can confidently

(Continues next page...)

perform the limited preservation work authorized to them while ensuring quality and safety.

With proper surface preparation, environmental control, supervision, and thorough documentation, even small-scale maintenance actions make a measurable difference. Timely touch-ups prevent corrosion from spreading, reduce future repair workloads, and protect long-term structural integrity. Through continued cooperation between ship's staff, Fleet Corrosion Support teams, and FMF specialists, all RCN vessels benefit from improved material condition, increased operational availability, and enhanced readiness for the missions ahead.

Article co-ordinator, Lt(N) Ge Li Guo, is Deputy Naval Architect Officer at FMFCB. Contributors are LCdr Jimmy Lau, Naval Architect Officer FMFCB; Jonathan Reaume, Lead Mechanical Engineer; Paul Ouellette, Senior Engineering Planner/Estimator, and Cameron Walker, Coating and Corrosion Engineer.



News Briefs

RCN Unveils River-class Destroyer Model

(Courtesy Our Navy Today)

On March 23, 2026, the RCN unveiled a detailed scale model of the future River-class destroyer at National Defence Headquarters in Ottawa, offering a closer look at the next generation of Canadian surface combatants.

The model was unveiled by Rear-Admiral, recently promoted **Vice-Admiral Dan Charlebois**, then Deputy Commander of the RCN, now Commander of the RCN and **Captain(N) Tremblay**, Director of Naval Major Crown Projects (Combatant). The model highlights ships under construction as part of the National Shipbuilding Strategy.

The River-class destroyer project supports Canada's sovereignty and represents the largest and most complex shipbuilding initiative in the country. As part of broader defence investments, Canada has reached NATO's two per cent of GDP defence spending target, reinforcing its commitment to strengthening military capabilities and long-term readiness.

RCN Photo

Rear-Admiral Charlebois, then Deputy Commander of the RCN, stands alongside a scale model of the future River-class destroyer.

Investments in capabilities such as the River-class destroyers enhance the RCN's ability to operate at sea and meet future operational demands.

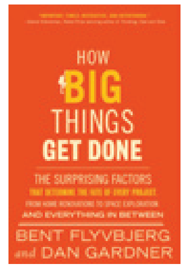
What's on Your Radar?

Personal Listening and Reading Recommendations
Featuring: Capt(N) Jonathan Lafontaine

Editor's Note: This continues our new section that features a member of the Naval Technical community's recommendations for professional development as well as entertainment. It's a great way to share ideas and perhaps gain a bit of insight into your shipmate! We welcome submissions from the community at large at mejsubmissions@gmail.com

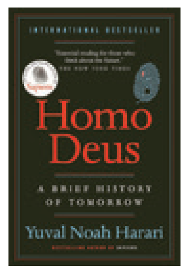
Books

A book that I picked up when rejoining the River-class Destroyer project, *How Big Things Get Done*, by Bent Flyvbjerg and Dan Gardner. An easy read that explores the successes and failures of megaprojects – think planning the Olympics, major energy and infrastructure projects … and complex defence projects like ours. It offers research-based principles to improve project outcomes such as "Think slow, Act fast".

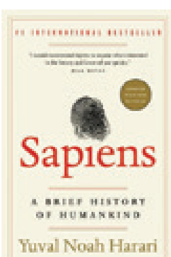


How Big Things Get Done
By Bent Flyvbjerg and Dan Gardner
Published (2023) by Signal
ISBN: 9780771098437
304 pages

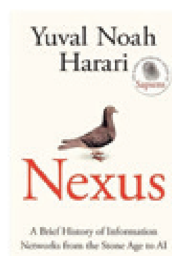
Three great books from Yuval Noah Harari, which together outline humanity's past, future, and technological shift. *Sapiens* explores how shared myths enabled human dominance. *Homo Deus* predicts our transition to becoming "godlike" through artificial intelligence and biotech. *Nexus* examines how information networks have historically shaped humanity and explores the threats and promises of the AI revolution.



Homo Deus – A Brief History of Tomorrow
By Yuval Noah Harari
Published (2017) by Signal
ISBN: 9780771038709
528 pages

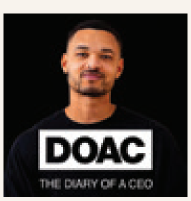


Sapiens – A Brief History of Humankind
By Yuval Noah Harari
Published (2016) by Signal
ISBN: 9780771038518
512 pages



Nexus – A brief History of Information Networks from the Stone Age to AI
By Yuval Noah Harari
Published (2025) by Signal
ISBN: 978077109685
544 pages

Podcast



A great way to optimize your daily commute! Hosted by Steven Bartlett, *The Diary of a CEO* podcast features candid, in-depth interviews with various people at the top of their field, uncovering untold truths to help listeners live more fulfilled, successful lives. Ranked #2 in Spotify's 2025 Top Podcasts globally.

Capt(N) Jonathan Lafontaine is the Deputy Project Manager (Construction) for the River-class Destroyer (RCD) Project.

Awards

Weir Canada Award

Photo by Brian McCullough

Lt(N) Ryan Kelly
Top Marine Systems Engineering Officer
Basic Qualification Board

Presented by Joël Parent
Executive Director, Weir Canada, Inc.
Naval Engineering Test Establishment (NETE) Montréal

RAdm Mack Silver Plate

Photo by Brian McCullough

Lt(N) Paul Owczarczyk
Receives the NTO Spirit Award for Demonstrating
the Spirit that Enables Naval Technical Excellence

Presented by Commander Calley Gray

MacDonald Dettwiler & Associates Award

Photo by Ann Mech

Lt(N) Nick Culbert
Top NTO Candidate to Achieve
Head of Department Qualification

Presented by Lt(N) Courtney Williams
Last year's recipient

Top Fourth Year RMC Naval Technical Officer

Photo courtesy RCN Linkedin

NCdt Samuel Murray
Naval Combat Systems Engineer

Presented to the cadet who demonstrated outstanding academic achievement and exceptional performance during naval training. Presented by Admiral Angus Tophee and Commodore Michel Thibault

Awards

Weir Canada Award

Photo by Ann Mech

Lt(N) Sebastian Hoyos Vera
Top Marine Systems Engineering Officer
Basic Qualification Board

Presented by Joël Parent
Executive Director, Weir Canada, Inc.
Naval Engineering Test Establishment (NETE) Montréal

Lockheed Martin Canada Award

Photo by Ann Mech

Lt(N) Jordan Fawcett
Top Naval Combat Systems Engineering Officer
Basic Qualification Board

Presented by Chris Howlett
Senior Manager, Program Management
Lockheed Martin Canada Inc.

2026 East Coast Naval Technical Mess Dinner

Photo by Ann Mech

Awards

Canadian Fleet Atlantic's 2025 Sailor of the Year

(Courtesy Our Navy Today)

Master Sailor (MS) Ryan Smith, a Marine Engineering Technician serving on HMCS *Frédérick Rolette* (AOPV 434) has been named Canadian Fleet Atlantic's 2025 Sailor of the Year.

MS Smith was recognized for his leadership, professionalism and commitment to duty, including his actions at a civilian motor vehicle accident, where he assisted an injured individual in a high-risk environment. He also supported operational readiness during Operation CARIBBE, Canada's counter-narcotics mission in the Caribbean and eastern Pacific, in HMCS *Harry DeWolf* (AOPV 430) and continues to mentor sailors in his role as Training Petty Officer.

News Briefs

Resilience and Pride: A Submariner Story – Petty Officer 1st Class Dale Armstrong

(Courtesy Maple Leaf / RCN)

Content advisory: This article discusses mental health and post-traumatic stress disorder (PTSD). It may contain information that some readers could find triggering.

If you are struggling, you are not alone. Help is available.

- ***For Canadian Armed Forces members and veterans:*** Call **1-800-268-7708** for confidential 24-hour support.
- ***For all Canadians:*** Call or text **988** for the Suicide Crisis Helpline, available 24 hours a day, free of charge.

Petty Officer 1st Class (PO1) Dale Armstrong grew up in Victoria, B.C. Like many kids, he was taught to walk off the bumps and bruises of life.

"When we were kids, we played on the jungle gym, and we fell off, but we didn't break. We got back up after crying and we played again," said PO1 Armstrong.

But what if the injury is not visible?

Armstrong joined the Canadian Armed Forces (CAF) in 2007 as an infantry reservist. Soon after, he transferred to the Royal Canadian Navy as a regular force marine technician, specializing as an electrician.

In 2012, PO1 Armstrong was as a crewmember aboard HMCS *Algonquin* (DDG 283). The destroyer was participating in Exercise Rim of the Pacific and was scheduled to conduct boarding training with a partner nation. As part of his duties, PO1 Armstrong was a rescue swimmer on the ship's boarding party team.

When the boarding boat's engine failed during the approach, it collided with the partner nation's vessel. One of PO1 Armstrong's teammates was knocked into the ocean, and without hesitation, he jumped in after him.

"My job was to be a rescue swimmer, so I jumped in and swam to him," explained PO1 Armstrong.

His teammate, weighed down by full tactical gear, was struggling to stay afloat. For fifteen long minutes, the two fought to keep their heads above water.

"It was quite scary, and we both thought we were going to drown in the water," remembered PO1 Armstrong.

A wave pushed the small boat close enough for the rest of the team to pull them to safety and return to *Algonquin*.

The incident left lasting effects. PO1 Armstrong was diagnosed with post-traumatic stress disorder (PTSD) and was deemed unable to return to operations. His teammate left the military. For a time, PO1 Armstrong considered doing the same, until therapy, family support, and determination helped him choose recovery.

"I was pretty close to release," said PO1 Armstrong. "Thankfully, by the grace of God and the mental health system in the military, I was able to rehabilitate and stay."

He credits three lessons for his recovery.

First, he chose honesty with himself and his chain of command.

"CAF life is very busy," he said. "It is important to take breaks. If you do not need to take your work home, do not."

Second, he changed his perspective on injury.

"Change the word from 'broken' to 'injured.' It is a mindset shift. That way you start thinking you can recover."

Finally, he chose accountability and resilience.

"Any small issue can be a giant mountain in my brain due to my PTSD," said PO1 Armstrong. "I need to recognise and be accountable to myself to not make it a mountain, but just a molehill. To overcome it, or ask for help if need be."

Years later, PO1 Armstrong now serves as a Chief Electrician with the Canadian Submarine Force, an

Petty Officer 1st Class Dale Armstrong pictured below deck aboard a Canadian Navy submarine

environment with its own challenges. Initially, he had some doubts. However, he came to value a community where every member is expected to take action that can save lives.

"My S3's are trusted to save the submarine, and they have all the skills to do that. They operate valves and systems with little supervision because of their level of training and, to me, that's great," says PO1 Armstrong.

When asked about his greatest accomplishment, PO1 Armstrong says it was staying in the military.

"Human beings are not made of glass," said PO1 Armstrong. His journey reflects the strength of a Navy built on trust, teamwork, and resilience.

News Briefs

The Re-commissioning of HMCS *Sackville*

By Capt (N) Dave Benoit, Director CNMT

Photo by Doug Struthers

Contrasting an overcast but clear sky, sat the colourful and decorated ship, His Majesty's Canadian Ship *Sackville* (K181), waiting for the moment to be officially returned to the Royal Canadian Navy.

On Friday, 15 May at a Halifax pier, history was in the making. After 85 years since *Sackville* was first commissioned (1941), 80 years since being paid off (1946) and 44 years after the ship's permanent retirement (1982) from active service, HMCS *Sackville* rejoined the Royal Canadian Navy in a ceremonial commissioning, recognizing its duty and commitment to service and to Canada.

Designated "Canada's Naval Memorial" in 1985, as the last remaining corvette in the world. *Sackville* stands as a testament to the industrial, technological, diplomatic, military, social, economic and bureaucratic might of Canada and Allies, during a very intense period of our collective history.

Built in Saint John, New Brunswick, *Sackville* was one of 294 of the ship's class built around the world and one of 123 built in Canada. Using an Admiralty design, *Sackville* embodies the "will of our nation", when the world was at a perilous time and stands as a reminder of what Canada and Canadians are capable of. *Sackville* served time during the Second World War deep in the heart and heat of the Battle of the Atlantic, the longest battle of the entire war. One of the vital links to this victory were the corvettes. A small, reliable, flexible ship that was easy to build, operate and maintain. Primarily through the expert use of corvettes that escorted the vital war supplies across the Atlantic, the RCN earned its reputation as a world class ally and for its competence was given Command of its own operational theatre, the Canadian North-West Atlantic. The Commander, **Rear-Admiral Leonard Murray**, was the only Canadian to command over an Allied theatre of war in either of the two World Wars.

Sackville is maintained by the Canadian Naval Memorial Trust (CNMT), under the leadership of **LCdr (Ret'd) Greg Cottingham**, Trust Chair, whose obligation is to preserve HMCS *Sackville* as Canada's Naval Memorial and share the stories of how the RCN helped change the world.

In attendance, amongst the many dignitaries, Trustees of *Sackville*, family, sailors, general public, were the representative of the Lieutenant Governor of Nova Scotia, the **Honourable David Farrar** and Commander Maritime Forces Atlantic and Joint Task Force (Atlantic), **Rear-Admiral Josee Kurtz**. **Honorary Captain (Navy) and Elder Debbie Eisan** gave the official welcome and **Frances McAvity**, granddaughter of the original ship sponsor, **Denise Oland**, welcomed the ship back into the fold.

Many people and organizations enabled this recommissioning, however special notice should be given to FMF Cape Scott, who most recently worked to provide materiel support to maintain the ship's integrity.

Welcome "officially" back to the family, although *Sackville* never really left.

News Briefs

Two-year Closure of the Naval Museum of Halifax

(Courtesy Naval Museum of Halifax, Admirality House and CFB Halifax Public Affairs)

The Naval Museum of Halifax has closed for a two-year period to accommodate a planned renovation of Admiralty House, the 208-year-old building and National Historic Site that is home to the museum. The museum closure is anticipated to extend from April 7, 2026, to the spring 2028.

During the closure, the museum will significantly invest in the development of new core exhibitions that will enrich the visitor experience and enhance visitors' understanding of the rich cultural history of the Royal Canadian Navy (RCN). Importantly, the planned renovation of Admiralty House is an opportunity to preserve the museum's largest artifact and a building that has been at the heart of the history of Canadian and allied naval forces in Halifax for over two centuries.

In-person visits to the museum will not be permitted during the closure period and most programs and services offered by the museum will be temporarily suspended. The public can rest assured that this planned closure represents a temporary service disruption, and the Naval Museum of Halifax will reopen to the public upon its completion. The

Admiralty House

collection will be carefully managed offsite to protect the museum's artifacts throughout the renovation period.

The Naval Museum of Halifax seeks to foster an understanding of the rich and dynamic history of Canada's navy. Spanning from the foundation of the RCN in 1910 into its more modern configuration, the Museum strives to bring our navy's history from ship to shore, to inspire curiosity about, and celebrate, the contributions of those who have served. The museum is located at Canadian Forces Base Halifax, Stadacona, 2729 Gottingen Street.

Canadian Coast Guard Engineers attend East Coast Naval Technical Officers Mess Dinner

Lisa Newman (Deputy Superintendent Marine Engineering), **Sarah Boone** (Superintendent Marine Engineering) and **Michell Wiebenga** (Senior Vessel Maintenance Manager) join **Cmdre Michel Thibault**, DGMEPM, on the Bridge of Juno Tower in Halifax after participating in their first Navy mess dinner.

Photo by Ann Mech

PRESERVING CANADA'S NAVAL TECHNICAL HERITAGE

NEWS (SUMMER 2026)

Canadian Naval Technical History Association

CNTHA News
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Views expressed are those of the writers and do not necessarily reflect official DND opinion or policy. The editor reserves the right to edit or reject any editorial material.

www.cntha.ca

Remembering Captain(N) (Ret'd) Donald W. Wilson, P.Eng., CD

June 8, 1937-January 19, 2026

By LCdr (Ret'd) Brian McCullough, CD

The Canadian Naval Technical History Association (CNTHA) regrets to announce the passing of longtime member Captain(N) (Ret'd) Don Wilson in Ottawa on January 19, 2026, at the age of 88. Following his retirement from the Navy and the Department of National Defence as a public servant, Don became a driving force in the CNTHA and was responsible for the establishment of the association's website. He brought great wisdom and knowledge to the group, and authored several articles of historical importance.

Don Wilson was born and raised in Vancouver, British Columbia, and joined the Canadian Navy in 1954 with the first class of naval cadets at HMCS *Venture*, the newly commissioned Junior Officer Training Establishment in Esquimalt, BC. While training as a Marine Systems Engineer, he met Verna Niblock in Victoria. They married in 1960, beginning a partnership that would span more than six decades and produce four children.

During more than 30 years of naval service, which included degree-level studies at the Royal Naval Engineering College (RNEC) Manadon, Plymouth, United Kingdom, Don enjoyed a broad range of employment. His career took him from shipboard engineering roles to senior technical and leadership positions, supporting the construction, refit, and maintenance of major naval vessels on both coasts and in central Canada. Don's work on the *Iroquois*-class destroyers was unique in spanning design, approval, construction, acceptance, commissioning, refit and maintenance. A highlight of this period was overseeing the construction and commissioning of HMCS *Huron* (DDH 281), as well as serving as the ship's first Marine Engineering Officer from 1972 to 1974.

Don would go on to serve in senior appointments in Ottawa, contributing to long-term engineering planning, quality assurance, and fleet readiness. From late 1982 to 1985, he

Photo courtesy Wilson family

served as Commanding Officer of 2 Canadian Forces Technical Services Agency in Montreal, before retiring from the Canadian Armed Forces in 1986.

Following his naval retirement, Don joined the Public Service of Canada with the Department of National Defence as Director General of Quality Assurance, overseeing the acceptance and maintenance of military equipment nationwide. He went on to lead the Canadian General Standards Board as Chief Executive Officer and later held senior roles with the Standards Council of Canada, where he helped advance national programs in quality management, conformity assessment, and environmental standards. He retired from the Public Service in 1994, with 40 years of combined naval and civil service to his credit.

Even in retirement, Don remained engaged. He founded a consulting practice, served in leadership roles with national quality organizations, and was a frequent speaker and mentor on engineering, standards, and organizational excellence. He was also an active and sometimes founding member of several professional, naval, and historical associations.

In his personal life, Don Wilson was an avid photographer and enthusiastic website developer who took particular pride in preserving the shared history of his HMCS *Venture* classmates. He was a devoted husband, father, grandfather, and great-grandfather, with a life that was marked by service, integrity, curiosity, and quiet dedication to his country, community, and above all his family.