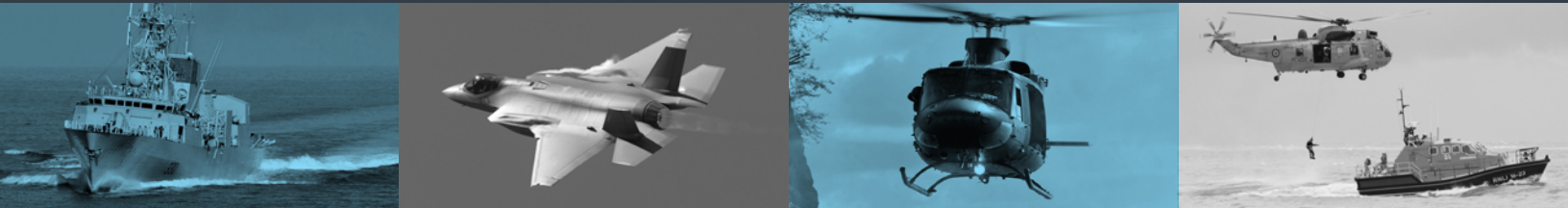


INNOVATIVE SOLUTIONS FOR EQUIPMENT HEALTH

Oil Condition & Debris Monitoring | Digital Twins & Engineering | MRO & Lab Services



Predict Maintenance. Reduce Risk. Maximize Availability.

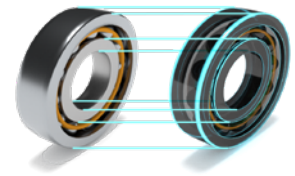
For over 45 years, Gastops' solutions have optimized availability, readiness, maintenance, performance, and safety of complex rotating equipment. We are dedicated to advancing research to develop world-class, innovative equipment health monitoring solutions that tackle the most significant challenges in availability and maintenance cost. We offer a wide range of specialized products, engineering services, MRO and laboratory services to support technology advancements and in-service maintenance programs.

Research and Development

Innovation through Research and Development is our foundation

Our track record of excellence is founded on:

- Corporate commitment to transforming the equipment health monitoring industry through cutting-edge R&D
- Scientific and technology advancements through partnerships and collaboration with industry leaders, government and military organizations, and academic institutions
- Unparalleled machinery degradation mode knowledge gained through extensive industry experience, coupled with world-class in-house test capability



MetalSCAN ONLY BY GASTOPS

Earliest reliable detection of critical component damage

Rolling element bearings, seals, and gears are critical components of power and propulsion systems. Damage to these components is one of the leading causes of unplanned engine and gearbox removals. Key characteristics of MetalSCAN include:

- 100% debris detection associated with rolling element bearing and gear degradation
- Particle size, type (ferrous/non-ferrous) and mass information
- Validated condition indicators of bearing, gear, seal degradation, and build debris
- Supports Remaining Useful Life (RUL) prediction of bearings and gears
- Maintenance-free condition monitoring



ChipCHECK ONLY BY GASTOPS

Lab-quality, conclusive wear debris analysis at the flight line

When wear debris is detected in an engine or gearbox, maintainers need accurate information about its source. Traditional methods of wear debris analysis are often subjective, requiring samples to be sent offsite, which can take days to complete. Enhance your maintenance efficiency and decision-making with ChipCHECK's rapid and reliable diagnostics:

- Portable, automated debris analysis of particles > 80 µm
- Alloy classification, sizing, cumulative area and count
- Immediate Go/No-Go Support
- Eliminate unnecessary component removal
- Less than 2 hours of training required



Oil Condition, Contamination and Wear Debris Monitoring

Condition-based and predictive maintenance for increased availability and reduced costs and risks

Lubricants serve as the vital lifeblood for engines and gearboxes. However, their degradation and contamination rank among the primary factors contributing to wear debris and overall deterioration. Gastops is introducing a groundbreaking solution, the world's only of its kind, seamlessly integrating lab-grade precision into a fully online, real-time system. Key oil condition, contamination and wear debris monitoring characteristics include:

- Wear debris, antioxidant, oxidation, fuel dilution and water contamination quantification
- Ability to identify naturally occurring conditions, and maintenance-induced issues
- Supports Remaining Useful Life (RUL) prediction of lubricants
- Maintenance-free condition monitoring



Digital Twins & Engineering Services

Propulsion system simulation and condition monitoring

Designing ship propulsion systems and controls is a significant challenge, even for the most experienced designers and integrators. Difficulties arise when integrating disparate systems from multiple suppliers into a singular system that meet the intended performance specifications of the ship. At the core of our digital twins and engineering services is the use of dynamic simulations to evaluate propulsion system selection and validate controls, enabling designers and integrators to 'sail the ship before it's built'.

Key benefits include:

- De-risked programs early in design stage (eliminate costly change orders!)
- Bridged gaps between an OEM's requirement to deliver a conforming system, and the shipyard's responsibility to deliver a conforming ship
- Simulated steady state and dynamic performance, and fault scenarios
- Foundation for electric plant control system hardware-in-the-loop test systems, and model-referenced equipment health monitoring



MRO and Laboratory Services

Streamlined in-service support

The life cycle of critical equipment requires periodic and on-condition maintenance and testing. Our MRO and laboratory services stem from our long-standing partnership with the Royal Canadian Air Force, establishing us as a trusted knowledge center. We specialize in optimizing the availability of mission-critical equipment through innovative approaches to continued airworthiness.

Key characteristics of our MRO & Lab Services include:

- Transport Canada AMO/EASA Part 145 Repair Station (Mechanical Components, Avionics, and Instruments)
- Authorized service center for Breeze-Eastern and FLIR Components
- Laboratory fluid (oils, fuels, coolants), filter and debris analysis
- Authorized laboratory services for Pratt & Whitney Canada, Safran Helicopter Engines and Airbus Helicopters

