

# AIRCRAFT MONITORING AND SUSTAINMENT

**CURTISS -  
WRIGHT**



FIXED WING



ROTORCRAFT



UNMANNED

# CURTISS-WRIGHT DEFENSE SOLUTIONS

In air, ground and naval defense, aerospace and border security applications, Curtiss-Wright Defense Solutions, a division of Curtiss-Wright, is an industry-leading supplier of airborne electronics products. We are recognized around the world as one of the most innovative designers and manufacturers of highly engineered solutions built to reliably perform in harsh conditions.

Curtiss-Wright manufactures flexible “fit and forget” data capture systems and with our expert partners we provide complete usage monitoring solutions for all aircraft types, ensuring a lifetime of safe flight. Our highly configurable architecture scales from standalone units to large distributed systems. This is accomplished using commercial off-the-shelf (COTS) hardware, removing the cost of bespoke designs and lowering the total cost of ownership.

## THE CURTISS-WRIGHT ADVANTAGE

Fleet managers are increasingly challenged to keep aircraft flying longer, into untested operational conditions. Aircraft Monitoring and sustainment programs allow for real operational data to be gathered, verifying platform safety and airworthiness.

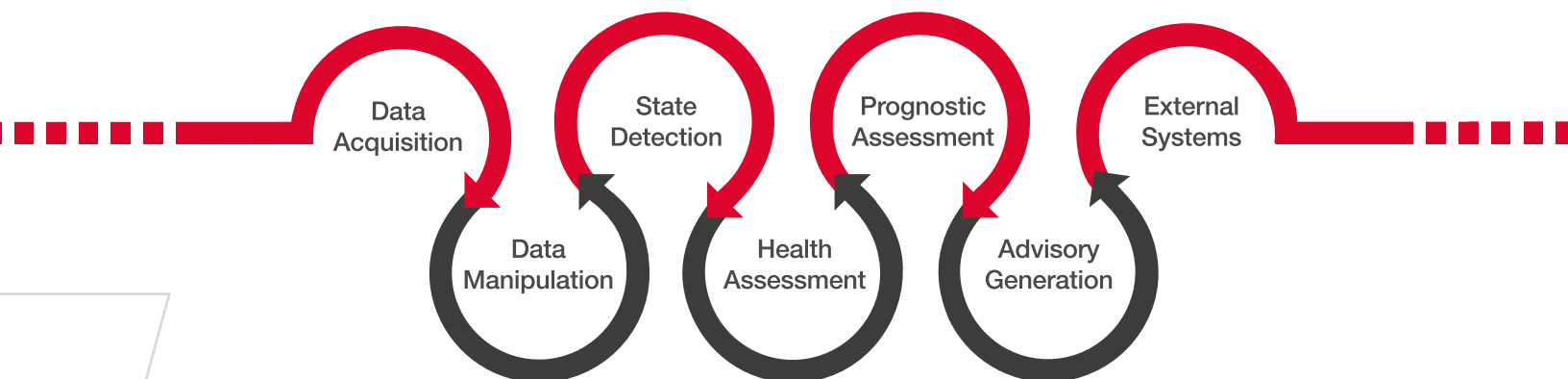
Typical program types include:

- OLM - Operational Loads Monitoring
- SHM - Structural Health Monitoring
- ACMS - Aircraft Condition Monitoring System
- RHUMS - Rotorcraft Health and Usage Monitoring
- iVHM - integrated Vehicle Health Management

Fleet managers with early access to complete usage monitoring solutions, are able to remove implementation delays and achieve return on investment years ahead of schedule. This is made possible with Curtiss-Wright flexible “fit and forget” hardware and our expert partners.

Curtiss-Wright provides fully integrated, cost-effective solutions covering all aspects of a monitoring and sustainment program: hardware, software, integration, data management, training and support.

We have a proven track record of providing solutions to multiple commercial and defense platforms with decades of experience in data acquisition, recording and data processing. With Curtiss-Wright you get a system that won't let you down and will result in better maintenance, safety and fleet availability.



7 Stage ISO 13374 iVHM Model

## Operational Loads Monitoring

Fleet operators that instrument their aircraft with loads monitoring equipment are able to accurately determine the remaining structural life of their fleets, typically achieving 10%-20% life extension beyond the original design life and 50% reduction in maintenance inspections. At Curtiss-Wright, we have been providing loads monitoring equipment to aircraft sustainment programs for 20+ years acquiring the high-fidelity, low-noise data needed by structural analysts.

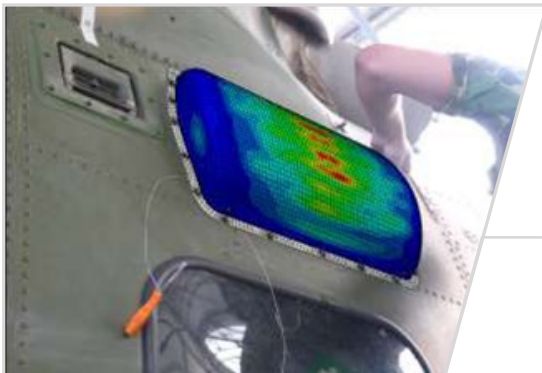
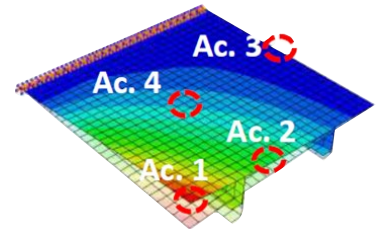


## Structural Health Monitoring

SHM techniques allow for the detection of structural defects and impact events in near real-time. SHM solutions require high-fidelity data acquisition hardware and robust damage detection algorithms.

An SHM system feeds directly into a condition based maintenance (CBM) process where aircraft maintainers can efficiently direct their resources towards the aircraft components that actually require repair. The result being less overall maintenance effort and increased aircraft availability.

Curtiss-Wright can avail of partners to offer an integrated SHM solution. A traditional OLM data acquisition unit can now be enhanced to include embedded SHM algorithms, which have been optimized for a minimized number of low-cost sensors, guaranteeing a specified probability of detection (POD).

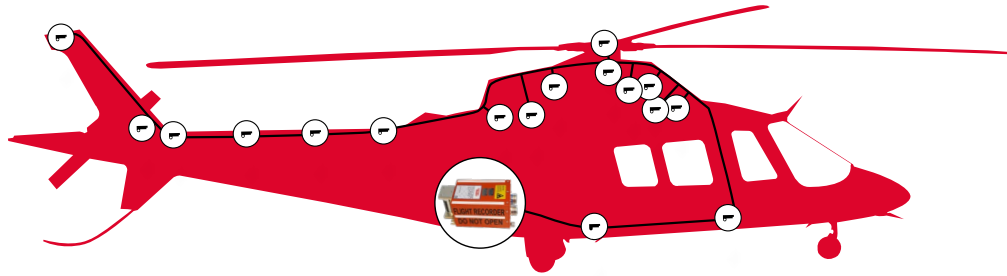


*Curtiss-Wright offers flexible COTS hardware and software solutions to offer tailored solutions quickly.*

## Rotorcraft Health and Usage Monitoring

Rotorcraft Health and Usage Monitoring (HUMS) systems have been widely adopted over the past 20+ years, and their value is without dispute. The likelihood of a critical component failure during flight is reduced by 10-fold when a helicopter has a HUMS system on-board. One of the principle difficulties for helicopter operators is the weight and footprint taken-up by additional HUMS hardware.

Curtiss-Wright provides integrated HUMS solutions that are hosted within the next-generation Fortress flight recorder. Our solution allows for reduction in the number of LRUs, reduction in wiring and an overall reduction in weight in the order of 22 – 44 lb (10 - 20 kg).



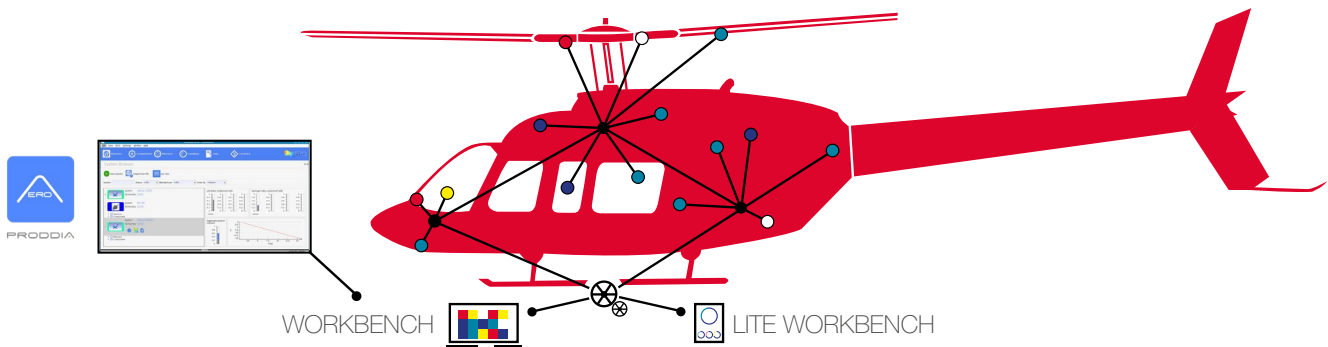
## Aircraft Condition Monitoring System

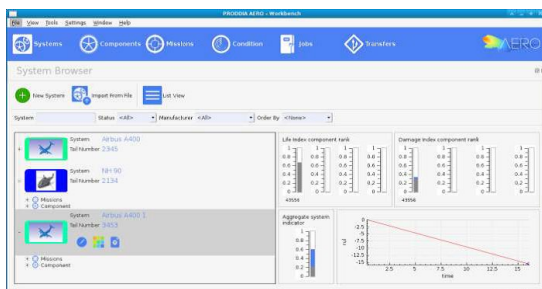
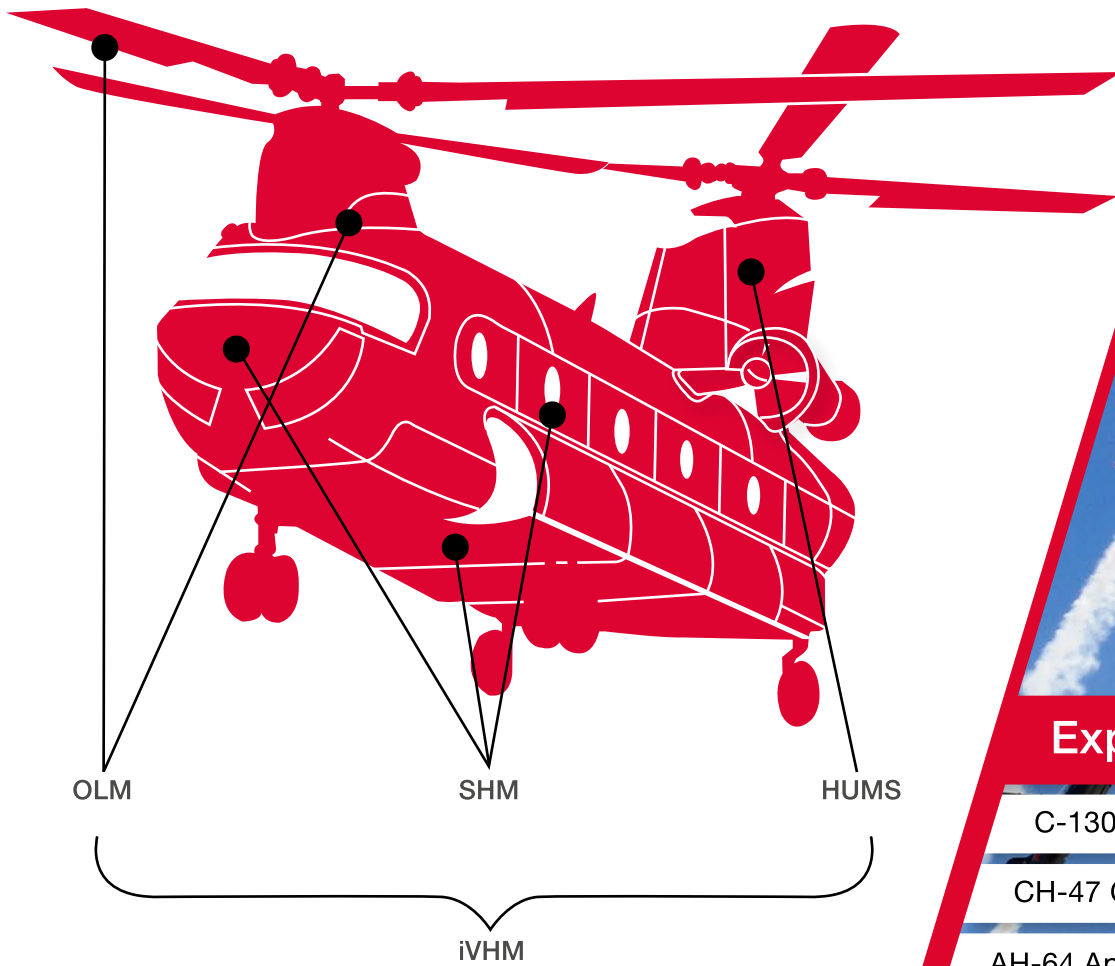
Airlines are increasingly looking for ways to reduce costs, some of which are driven by delays and cancellations. Predictive maintenance systems are one of the key enablers in improving airline operating efficiency by identifying system failures before they occur and turning unscheduled maintenance into scheduled events. Curtiss-Wright's systems are employed today on commercial aircraft to provide the missing data needed to flag necessary maintenance before unscheduled grounding occurs.



## Integrated Vehicle Health Management

Aircraft integrators are increasingly seeking ways of integrating multiple health management systems in an automated way, these iVHM systems remove the capacity for human error and delays, with all assessments feeding directly into maintenance scheduling systems. Curtiss-Wright offers flight qualified hardware solutions with processing that allows for data manipulation and state detection within the electronics unit and an iVHM software framework allowing for health management across fleets.





## Experience

C-130 Hercules

CH-47 Chinook

AH-64 Apache

BAe 146

EH/AW-101 Merlin

E-3D Sentry

HAL Tejas

T-38 Talon

AV-8B Harrier

UH-1N Twin Huey

F/A-18 Hornet

PZL-130 Orlik

HH-60G Pavehawk



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