Naval Air Systems Command AYK-14 Lifecycle Management Success Story

CURTISS–WRIGHT

The U.S. Navy's AYK-14 Standard Airborne Computer System recently marked its 30th year of successful deployment. Supported by the Naval Air Systems Command's Air Combat Electronic Program Office (PMA-209), the AYK-14 is a custom, proprietary system that provides mission processing capabilities for multiple U.S. and allied platforms. It is used today on more than 1,000 fleet aircraft worldwide, including the F/A-18 Hornet and the EA-6B.

The common avionics vision

The longevity of the AYK-14 is a testament to the PMA-209's vision of common avionics. When first conceived, the Navy's vision for the AYK-14 was to provide a common, modular and reconfigurable airborne mission computer that used advanced technologies. When the Navy needed to add COTS processing to the EA-6B in the early 2000s, they turned to Curtiss-Wright Defense Solutions.

The value of Lifecycle Management Services

The long term success of this computer system can largely be attributed to the Lifecycle Support Services provided to the Navy by Curtiss-Wright – a supplier to the OEM, General Dynamics – for critical COTS single board computer (SBC) processor modules used in the AYK-14. Curtiss-Wright's Obsolescence Management Services have served to address the computer's considerable Longevity of Support and Longevity of Repair requirements. These services, designed to ease the burden and risk to the customer, relieved NAVAIR of the mitigation responsibilities for commercial part end-of-life/obsolescence issues.

Curtiss-Wright, as the hardware supplier, is able to commit to providing long term repair and support services to PMA-209. In addition to reducing risk, the Lifecycle Management Services also cut costs by ensuring timely purchase and banking of End-of-Life (EOL) components, and a greatly reduced logistical burden. Without these services, NAVAIR would have had to continually maintain visibility at a piece/part level with a wide variety of OEMs, some of whom might not have had a process for providing proprietary data about component lifecycles.

Lifecycle Management in action

Curtiss-Wright proactively and continually reviews components obsolescence developments as they emerge in the commercial market. The company also provides ongoing reports to PMA-209 to provide actionable advanced data that enables decisions to be made in a timely fashion, to ensure that critical commercial silicon devices remain available to maintain the fielded computer systems. In the event that a silicon vendor announces a "last time buy", Curtiss-Wright is well positioned to inform NAVAIR of the opportunity, so that the organizations can work together to conduct the appropriate purchases to enable long-term repair to systems and guarantee repair for the specified time frame of the program.
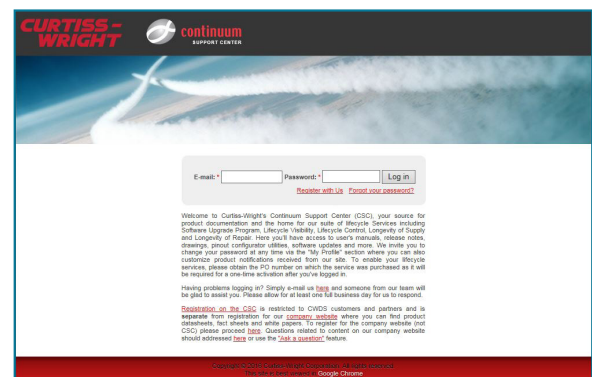
Figure 1: Curtiss-Wright Defense Solutions Continuum Lifecycle Services
http://csc.cwcdefense.com/

Research, analysis and management

To make this possible, Curtiss-Wright performs a level of obsolescence research, analysis and ongoing obsolescence management to identify potential issues in advance. This visibility and advance notification of market developments has proved of great value to PMA-209, especially because of the nature of budgetary cycles – sometimes as long as two years – that need to be taken into consideration when projecting and planning in advance and developing repair and upgrade plans.

Curtiss-Wright was able to guarantee longevity of repair for the SBC modules on the AYK-14. Part of this guarantee was a commitment to maintain the appropriate test and repair equipment, over the life of the program, to ensure proper repairs.
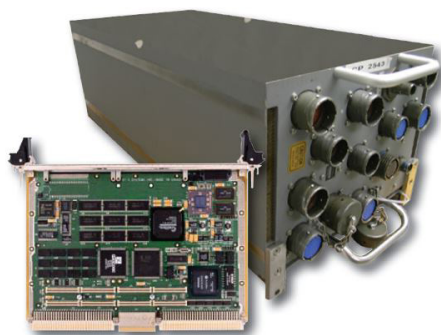
Figure 2: Upgraded EA-6B mission computer CP-2543 with Curtiss-Wright DMV-179 processor module will be active in the Navy's fleet until 2018.

Sooner better than later

It the case of the AYK-14 program, the Curtiss-Wright Lifecycle Services were contracted after the system had been designed and contracted. Significant benefits can accrue when these services are taken advantage of at the front-end of a program. One advantage of early adoption of these services is economic, in that it enables the costs to be more effectively amortized over the program's overall budget.

Proactive lifecycle management, especially in today's budget environment, enables deployed systems to stay in service, an increasingly attractive option compared to the high cost of system redesign. The AYK-14 Program is exemplary of the potential benefits delivered by Curtiss-Wright's Lifecycle Management Services.

It would be appropriate to give the last word to Mr. Rex Coombs, NAVAIR PMA-209's Deputy Program Manager for sustainment of AYK-14 and a few hundred other common avionics systems:

"Proactive lifecycle management, especially in today's budget environment, is critical to ensure deployed systems remain sustainable for their planned Fleet service life. The support approach offered by Curtiss-Wright Controls Defense Solutions is an attractive option to help avoid the high cost of system redesign or replacement. The AYK-14 program stands as an excellent example of the potential benefit that Curtiss-Wright's Lifecycle Management Services deliver."