Sustainment Engineering
Providing full life cycle platform sustainment solutions

KBR ADVANTAGES

- Turnkey contract availability - From requirements to award in as little as 6 months
- Large, Sensitive Compartmented Information Facility (SCIF)-capable, maintenance facility
- Wide range of expertise in aerospace, ground combat and tactical systems
- Proven ability to reduce life cycle costs for components, systems and vehicles
- Proven ability to increase system effectiveness, availability and reliability
- Certified AS9100D, ISO9001:2015 and ISO 3001-2015 and committed to quality
- Responsive and adaptive to customer and fleet needs
- Committed to the national defense and security mission

INCREASING READINESS AND REDUCING LIFE CYCLE COSTS

KBR is a leading provider of AS9100D and ISO 9001:2015-certified sustainment engineering services to the U.S. Air Force, Army, Navy and Marine Corps and other federal agencies and foreign allies. The solutions we develop and implement enhance mission capability. Our work directly addresses key performance attributes for reliability, maintainability and supply chain performance at functional levels that improve operational availability, optimize life cycle costs, and increase overall effectiveness.

LOGISTICS ENGINEERING AND ANALYSES

KBR supports a life cycle approach to all twelve of the Defense Acquisition University (DAU) Integrated Product Support (IPS) Elements through data collection, system engineering analyses, modeling, and simulation. This enables us to comprehensively analyze trends, system failures, failure rates, ownership cost, supply shortages, repair deficiencies and delays, obsolescence, and other factors impacting sustainment. Our areas of expertise include:
Acquisition logistics

Configuration management

Diminishing Manufacturing Sources and Material Shortages (DMSMS)

Logistic Support Analysis (LSA)

Level of Repair Analysis (LORA)

Maintenance Task Analysis (MTA)

Technical publications including Interactive Electronic Technical Manuals (IETMs)

RELIABILITY AND MAINTAINABILITY (R&M) ENGINEERING

KBR experts include NAVAIR-certified reliability centered maintenance (RCM) analysts and instructors, Six Sigma Black Belts and reliability engineers certified by the American Society for Quality (ASQ). Our approach is based on data collection and analyses that quantify system performance and identify potential reliability and service life improvements. We apply model-based approaches, such as discrete event simulation and functional cognitive mapping, to assess performance for reliability, availability, and maintainability (RAM), safety and risk assessment (SRA), and prognostics and health management (PHM). Our processes for investigation, identification and mitigation of failures include:

- Reliability Centered Maintenance (RCM) analysis
- Failure Modes Effects Criticality Analysis (FMECA)
- Engineering Change Proposals (ECPs)
- Condition Based Maintenance Plus (CBM+)
- Root Cause Failure Analysis (RCFA)
- U.S. Air Force Integrity Program compliance

LIFE CYCLE SUSTAINMENT MISSION

- Extend the life of legacy systems
- Reduce life cycle costs
- Increase availability and reliability

DRIVING INNOVATION

ADVANCED ANALYTICS AND PREDICTIVE MAINTENANCE AND SOFTWARE

KBR IT, cyber and software solutions provide defense customers with critical information to understand and sustain their environments. Our core competencies include providing tools and data that identify failures, sustainment issues (including component availability), and improve maintenance procedures.

KBR uses advanced machine learning, data mining algorithms and statistical methods to develop predictive models and perform trade space analysis. Our proven
A successful approach is to apply technologies using ISO and other quality-based diagnostic and prognostic processes that we design, develop, and test to measure characteristics that indicate deterioration or failure progression. These characteristics can include vibration, wear and performance.

KBR solutions achieve high fidelity results because of our ability to expertly integrate field data sources, such as DECKPLATE and REMIS, with our engineering domain expertise. Our analyses and models also include a robust sensitivity analysis to evaluate and address uncertainty and risk. Our additional capabilities include:

- Data reconstruction for component history
- Tracking/identification of life-limited components and maintenance actions
- Development of DoD Architecture Framework (DoDAF) artifacts to support additive manufacturing (AM)
- Combined post-production mods in pre-planned depot induction windows
- Intelligent assembly of Remote Expeditionary Support Packages (RESP)
- Dynamic scheduling and predictive supply analyses
- Enhanced condition based maintenance (CBM) using big data methods
- Development of DoDI 85001 and 8570.1 compliant Authority to Operate (ATO) for various weapon systems and applications, using Risk Management Framework (RMF) processes

**KBR SUSTAINMENT FACILITIES**

- Fully-outfitted AS9100D-certified design and development laboratories
- Specialized high-bay facility for Army ground vehicle support
- NAVAIR ComSP Certified Calibration Laboratory and Procedures
- Specialized AS9100D-certified Non-Destructive Inspection facility
- NAS 410 certified NDI Level III Eddy Current and Ultrasonic instructors and certified personnel
- IPC J-STD-001 and IPC/WHMA A-620-certified instructors and personnel

**PROTOTYPING AND PRODUCTION**

KBR is AS9100D-certified for engineering design, prototyping through production of components, circuit cards, cables, enclosures and systems. We have IPC J-STD-001 and IPC/WHMA A-620 certified instructors and personnel at our laboratory sites. We manage complex development processes including all aspects of risk analysis, design reviews, and configuration management (CM) for a wide range of aging and modern weapons systems. Our proven supplier management expertise includes providing parts, systems, and rapid prototyping, additive manufacturing and multi-material fabrication. Our key capabilities include:

- Trade study development
- Requirements and specifications development
- Reverse engineering
- Concept and formal design and analysis
- Technical Data Packages (TDPs) development and configuration management
- Assembly, modification, repair/rework, calibration and testing
IMPROVING EFFECTIVENESS AND RELIABILITY

NON-DESTRUCTIVE INSPECTION/TESTING (NDI/NDT)

KBR uses the Eddy Current Inspection Station (ECIS) and other inspection methods to perform precision surface and subsurface crack and defect detection on a variety of engines and engine components. We are a world leader in the design and manufacture of the automated ECIS and use an eight-axis, fully automated, highly reliable design for inspecting fractures on six different Pratt & Whitney engines and nine different General Electric engines. The versatility and effectiveness of the ECIS make it a designated “system of choice” by the U.S. Air Force for supporting certification to its worldwide engine overhaul and maintenance centers.

KBR world-class inspection methods include:

- ECIS
- Current and Linear/Nonlinear
- Laser
- Surface Wave
- High Power Ultrasound

EXAMPLES OF KBR EXPERTISE

- Developed a new test method to diagnose an aircraft’s formation flight instrumentation system (FFIS) that falsely indicated fuel was flowing, and successfully tested the solution to this major problem. The solution involved an alternate adjustment point and redesign of a primary spring, which together reduced maintenance costs and increased safety.

- Developed the Functional Systems Integrated Database (FSID), a government owned-contractor operated software platform that integrates maintenance data from multiple sources. This enables trending and analysis to enhance maintenance practices and support advanced analytics. FSID data is currently being used by numerous weapons platforms.

- Performed circuit board upgrades for the U.S. Navy’s AV-8B Weapon Systems Program Office (PMA-257) on all U.S. Marine Corps, Italian and Spanish AV-8B Interference Blanking Unit (IBU) Weapons Replaceable Assemblies (WRAs) to enable Link-16 aircraft communications upgrades.

Contact us for more information:
Jim Bolin
James.Bolin@us.kbr.com
301-863-4280

Chris Bergey
Chris.Bergey@us.kbr.com
904-644-6606

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