

PROTOTYPING AND FABRICATION

Mission Focus On:

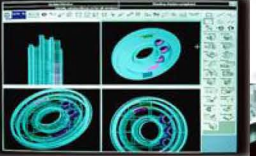
- "Lost Source" and "Bail-Out"
- Fabrication despite inadequate, incorrect, or unavailable drawings
- Technology/Reliability Insertion
- Low Quantity, Highly Flexible Production Runs

7-AXIS MACHINING CENTER

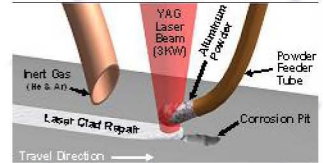


Manufacturing Technologies:

- Circuit Card Fabrication (Surface Mount, Thru Hole)
- Solid State Gyro Technology Insertion
- ASIC Fabrication & Design
- Cable Manufacture/Repair (Copper, Fiber Optic, Potted)
- Precision Machining Center (7-axis and other NC Machines)
- Laser Cladding & Laser Sintering
- Metal Protection (Anodize, Powdercoat Paint)
- CAD/CAM Systems
- Thin Metal Forming (Cutting, Stamping, Forming)
- Plastics and Composites
- Container Manufacture/Repair
- Injection Molding
- Cryogenics
- ISO 9001 Certified



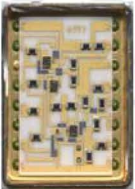
CAD & FINISHED PART



LASER CLADDING



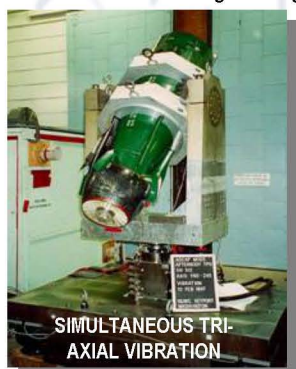
CUSTOM CIRCUIT BOARDS



HYBRID IC

SOURCE QUALIFICATION & ENVIRONMENTAL TESTING

- First Article Test (FAT), Environmental Test & Acceptance Sampling to qualify new sources & design changes, including:



SIMULTANEOUS TRI-AXIAL VIBRATION

- Vibration
- Altitude
- Humidity
- Salt Spray
- Sand/Dust
- Electrical
- Physical & Thermal Shock
- Life Cycle Aging
- High/Low Temperature
- Access to EMI & Other Test Facilities



LINEAR ACCELERATION

ORGANIZATIONS SUPPORTED

- NAVSEA
- NAVAIR
- Naval Inventory Control Point (NAVICP)
 - Philadelphia (Aviation)
 - Mechanicsburg (Sea Systems)
- Defense Logistics Agency (DLA)
 - DSC Richmond
 - DSC Columbus
 - DSC Philadelphia
- USAF
- USMC
- Private Party Partnerships
- Academia
- USCG
- ARMY



REAL solutions to REAL problems

POINTS OF CONTACT

- Customer Advocate
- Naval Aviation Systems, Deputy Customer Advocates
- NAVICP-Phil, On-Site Representative
- Ship/Submarine Systems, Deputy Customer Advocates
- NAVICP-Mech, On-Site Representative
- Joint Services Systems, Customer Business Manager
- NAVAIR San Diego, On-Site Representative

OBSOLESCENCE MANAGEMENT AND ENGINEERED SOLUTIONS



Mission...

Reestablishing Supply Chains through Innovative Solutions

The Obsolescence Management & Engineered Solutions (OM&ES) Team draws from Skills, Tools & Capabilities throughout the DoD, Academia & Industry to Resolve:

- Obsolescence
- Loss or Impending Loss of Suppliers
- Poor Reliability/Supportability
- Loss of Technical Data
- Alternative to Costly Redesigns



OBSOLESCENCE MANAGEMENT INFORMATION SYSTEM

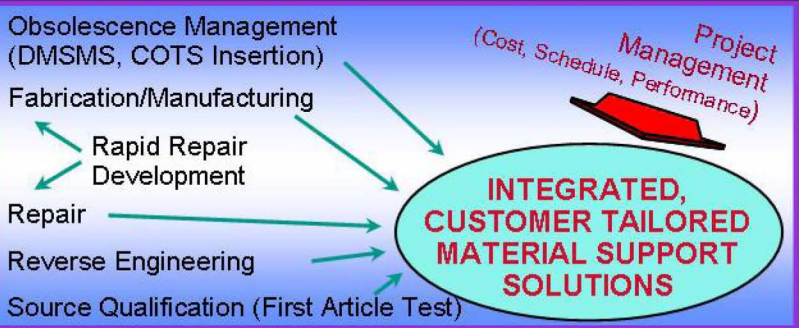


Restoring Fleet Material Readiness

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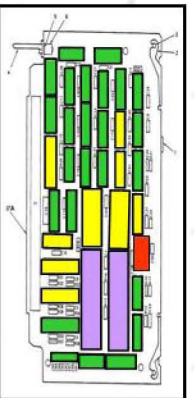
THE SUPPORTABILITY CHALLENGE & SOLUTION . . .

- DoD supports a wide variety of equipment with *small populations* and *older technology*. Industry support for these systems varies based on obsolescence, profit, and other considerations. Redesign is often more lucrative than repair or support of existing systems, which contributes to product line abandonment...
- Result: No-bids, Obsolescence, unsolicited redesign proposals, escalating costs, and unacceptable turn-around time.
- "One-size-fits-all" solutions do not work! Reestablishing the Supply Chain requires that solutions be tailored to the situation and economics.
- An integrated approach that draws from repair, manufacture, source qualification, reverse engineering, and obsolescence resolution technologies is the most cost-effective means to ensure material is available when needed.
- The OM&ES Team draws from in-house and external skills to provide cost effective solutions for Material Readiness problems



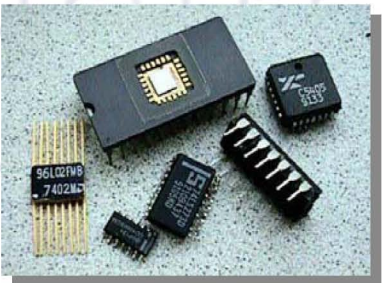
OBSOLESCENCE/TECHNOLOGY MANAGEMENT

- *Obsolescence* frustrates repair & fabrication processes, and impacts readiness. The MIL-SPEC market share of Integrated Circuits (ICs) has declined from over 20% in 1990 to less than 1% today. Mechanical parts are also affected (many castings and forgings are no longer available)
- *Proactive Management* of Technology can ensure critical parts are available when needed
 - Market Research
 - Lifecycle Planning
 - Identification of problems *before* they become costly
- The *OMIS™ system*, combined with partner tools, provides predictive analysis and solution paths that can save significant costs over unsolicited and emergent redesign proposals.



1553 INTERFACE CCA

- *Reactive Management* can often find solutions to parts obsolescence problems
 - Alternate Parts
 - Defense Reutilization
 - Existing After-Market Parts and LOT Buys
 - Part or Circuit Card Emulation
 - Sunset Supply Base (COTS)
 - Redesign (usually our last resort)



OBSOLESCENCE MANAGEMENT INFORMATION SYSTEM

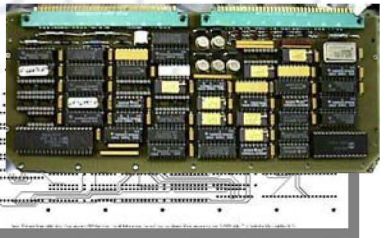
- The Obsolescence Management Information System (OMIS™) is a web-based obsolescence analysis and tracking tool that provides users with supportability assessments, predictive obsolescence forecasts, and tools for cost/impact tradeoff analysis that feed a budget planning module.
- OMIS™ incorporates real and predictive failure rates, supply availability, technology trends, and other data into information usable by program managers, logisticians and engineers. Password control ensures data security and supports Defense Industrial Base access and data rights protection, while allowing synergy in obsolescence mitigation solutions.



PREDICTIVE, PROACTIVE, OBSCURENCE MANAGEMENT THROUGH OMIS

REVERSE ENGINEERING AND COTS INSERTION

- When insufficient technical data exists to procure/repair equipment, the OM&ES Team may be able to reverse engineer or substitute alternate parts.
 - Re-Generation of multi-layer circuit board artwork
 - Alternative manufacturing processes
 - Circuit analysis and redesign
 - Mechanical dimensioning
 - Component redesign



EA-6B CIRCUIT BOARD REV. ENG.

When obsolescence prevents support of an existing design, or if *reliability improvement* can reduce Total Ownership Cost, COTS or New Technology insertion may be cost effective.

- COTS Assessment
- Technology & Supportability improvement, even on new platforms (Virginia Class, CV-Tactical Support Center (CV-TSC), Naval Fires Control System, etc.)



OLD NEW
FA-18 GYRO COTS INSERTION & RELIABILITY IMPROVEMENT

DEPOT TEST AND REPAIR

- Navy depot since 1914
- State-of-the-art facilities
- CASS and other TPS Developers, Engineering Support, "Super Techs", & Logisticians integrated into one team.
- Wide array of test equipment/technologies
 - AN/USM-636 CASS (5)
 - Teradyne systems (3)
 - Contraves 3-axis (Gyros/IMUs)
 - Variety of digital, analog, power supply, mechanical, and electro-mechanical test platforms



AN/USM-636 (CASS)



GYRO TEST FACILITY

- Experience includes:**
- Complex electronics repair (digital, analog, surface mount, power supply, cable, video, etc.)
 - Complex mechanical and electro-mechanical repair (alternators, gyro & gimbals, small pumps, etc.)
 - Emergent support (Backorders & CASREP support)