O'NEIL > FROM THE DEPOT TO THE FIELD – COMPREHENSIVE MAINTENANCE SUPPORT

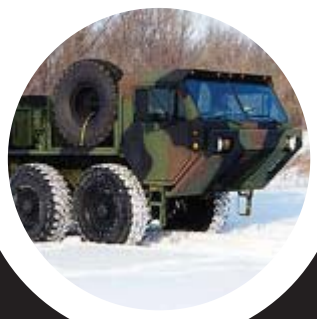
As recognized leaders in world-class product support documentation and systems, O'Neil & Associates has expanded its core capabilities to include a team of recognized leaders in the creation and delivery of EMS (Electronic Maintenance System) IETMs (Interactive Electronic Technical Manuals) and diagnostics solutions. The team includes platform maintenance experts with extensive experience in the development of Class V-authored applications (intrusive diagnostics), related software and peripheral hardware, training, technical services, product development, and future program activities for platforms equipped with IETMs.

The EMS IETM is a portable maintenance expert containing a comprehensive, easily updated database. Extensive user testing has proven its effectiveness in the field and at the maintenance depot. The EMS IETM uses a comprehensive authoring environment to populate, manage, integrate, and communicate with vehicle systems and logistics personnel.

In military applications, the EMS IETM and associated vehicle computer displays, with enhanced wiring and signal tracing, significantly improve operational readiness and reduce the total cost of ownership of tactical and combat vehicles. The real-world application of EMS reduces the No Evidence of Failure (NEOF) and Mean Time To Repair (MTTR) for globally fielded systems. It provides a unique "intrusive diagnostics" design approach that distinguishes it from other classes of IETMs. EMS provides real-time interaction between the system and the user/maintainer by sending and acquiring data from embedded sensors and data busses for up-to-the-minute situational awareness.

O'NEIL SOLUTIONS SUITE

O'Neil applies a process-centric approach to our integrated product support. This approach combines our key assets to provide solutions that are centered on your business needs with the extensibility to evolve and engage your future vision. By supporting your business needs and processes with proven technology from our suite of solutions – content development, visualization, e-learning, and ETMs and IETMs – you are assured that cost-effective, on-target, and extensible solutions will be implemented rapidly and effectively.



The malfunctions and associated repair information are quickly displayed, accelerating the troubleshooting and repair process. Taking maintenance to the next level, EMS enables maintenance prognostics by collecting maintenance data for transmission into a Predictive Maintenance Module (PMM) via a Global Combat Support System. Additionally, online instructional videos are provided to guide the technician through diagnostic troubleshooting and repair procedures to automated parts ordering.

COMPLETE PORTABILITY – COMPLETE SUPPORT

EMS runs on a Microsoft Windows-based portable computer with hardware interfaces that connect to the vehicle/aircraft/ship for quick, interactive diagnosis. EMS provides the technician with the ability to correctly conduct real-time, comprehensive maintenance at all levels.

- The PC connection to the vehicle enables EMS to access the vehicle or aircraft's electronic built-in test information.
- The data is instantaneously passed to EMS for analysis.
- EMS begins diagnosing the problem by automatically taking electronic measurements or providing the technician with measurement instructions. Based on the results, the system determines the next diagnostic step.
- If no fault is detected, the technician can enter a symptom from a master list to begin troubleshooting.
- Once the real problem is isolated, EMS accurately accesses the appropriate place in the online IETM to begin troubleshooting.
- EMS guides the technician through repair procedures with text, graphics, audio instruction, and video clips. Required replacement parts are displayed with National Stock Number (NSN) and necessary electronic ordering information.
- A history of tests, adjustments, results, and procedures is automatically recorded.
- EMS can be used to provide stand-alone training in the field or classroom.

THE PRESENTATION SYSTEM ENCOMPASSES THE ENTIRE IETIS FROM THE MAINTENANCE TECHNICIAN'S POINT OF VIEW. THIS SYSTEM PERFORMS ALL THE FUNCTIONS ASSOCIATED WITH A CLASS IV IETM AND CLASS V IETIS, INCLUDING:

- Replacing the paper manuals with an electronic reader
- Performing hardware tests on an attached vehicle or system
- Assisting the technician in isolating a fault on the vehicle
- Directing the technician to the appropriate repair procedure after isolating the fault
- Ordering and tracking defective parts




ELECTRONIC MAINTENANCE SYSTEM

EMS is a complete system for maintaining vehicles at the unit and depot level. This system provides the conventional Interactive Electronic Technical Manual (IETM) function seamlessly integrated with interactive diagnostics, automatic data logging, parts ordering, expert help, and all other Class V Interactive Electronic Technical Information Systems (IETISs) functions.

The EMS SGML-Compliant IETIS Development System is a complete system for developing and deploying an IETIS. This system is based on the Standard Generalized Markup Language (SGML) Standard as specified in ISO 8879:1986 with HyTime extensions as specified in ISO 10744. This system consists of several subsystems and a supporting tool set. The major objectives of this system are to decrease the rate of No Evidence Of Failure (NEOF) reports, to decrease the Mean Time To Repair (MTTR), and to allow maintenance by technicians with less training and experience than is required without such a system.

EMS AUTHORING

Currently, EMS supports two native authoring toolsets: one based upon Microsoft SGML Author for Word and the other based upon ArborText Epic Editor. The Microsoft Word environment is currently being phased out due to the discontinued support of the SGML Author for Word product by Microsoft. O'Neil will, however, continue to support authoring with this product for the short term.

Epic Editor is designed for creating SGML content and meets the most demanding needs of organizations that employ teams of authors. EMS uses scripts written in the ArborText command language and JavaScript to create the tools and dialogs that EMS users are familiar with. This enables a guided authoring approach that also eases much of the authoring burden, especially when authoring complex test scripts. Epic Editor's graphical user interface is familiar to authors accustomed to popular word processing software, reducing the learning curve for new users.

- Logging maintenance actions and data for statistical analysis and scheduling
- Reviewing and querying the parts database (RPSTL)
- Annotating maintenance actions with bookmarks and sticky notes
- Performing stand-alone health checks
- Preparing standard forms
- Supporting embedded training

ONEIL

EMS HARDWARE

EMS is a Standard Generalized Markup Language (SGML) compliant software system used to develop and deploy IETMs, which support embedded test hardware and computer-aided fault isolation.

Dynamic Link Libraries (DLLs) are used to connect the EMS-2 application to the hardware on the equipment or systems being tested. These DLLs handle all of the activities to read and write commands to the Electronically Controlled Units (ECUs) and convert data to and from each ECU to a standard format that allows the EMS application to process the data in a single, standard method.

The EMS Hardware Configurator is a utility for configuring the hardware interfaces on a typical IETM platform.

EMS MAINTENANCE

The Maintenance Database (MDB) stores all information gathered by the IETM to allow the generation of daily reports and provide data for prognostics at the division level. Reports of daily activities and trends can be implemented immediately. As sufficient amounts of data are collected over time, prognostic routines become available to analytical applications.

The MDB collects data at the IETM level when the maintenance technician uses a digital 5988-E form during session login.

Once the 5988-E is launched from the IETM, all data (e.g., fault logic, test values, and maintenance data) are collected and stored in MIL-STD 3008 format. At the completion of the tasks, the information is made available to the ULLS station for updating the ULLS database.

DOCUMENTING SUCCESS

>> O'NEIL & ASSOCIATES IS CHANGING THE WAY CUSTOMERS THINK ABOUT DOCUMENTATION. FROM IETMS AND INTRUSIVE DIAGNOSTICS TO INTEROPERABLE WEB-BASED SYSTEMS LINKED TO ERP DATA, WE'RE PUTTING POWER IN YOUR PRODUCT SUPPORT — FROM DESIGN CONCEPT TO REALITY!

O'Neil & Associates, Inc. • 495 Byers Road • Miamisburg, OH 45342-3662 • 937.865.0800 • www.oneil.com