QSI
teamqsi.com

Testability
Engineering
And
Maintenance
System

An Advanced Health Management Solution for Military Vehicles

Now military vehicle integrators, subsystem manufacturers, and base service and repair facilities can deploy QSI's Testability, Engineering, and Maintenance System (TEAMS) to isolate faults faster, monitor entire systems, and speed troubleshooting and repair in the field.

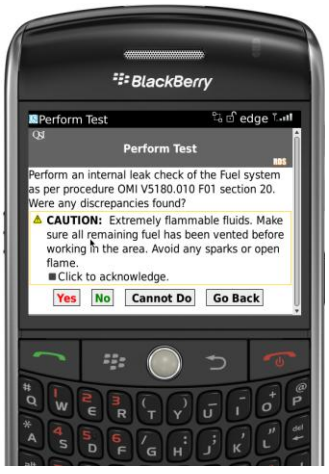
QSI's solution is based on a simple "failure space" model of the equipment. Based on engineering data, field maintenance data, and expert knowledge of the system's own engineers, the model provides a graphical representation of the system's failure modes and all the diagnostic and prognostic tests the system employs.

QSI has a wealth of aerospace and military vehicle experience building advanced health management solutions for Pratt & Whitney engines, Sikorsky helicopters (including the UH-60 and SH-60 turbine engines), and the Boeing AH-64D Apache helicopter, among others.

QSI's solutions simplify vehicle repair and maintenance

For service organizations, QSI's TEAMS system can

- **Improve the performance of all service personnel**
- **Increase the accuracy and effective of service operations**
- **Rapidly diagnose faults**
- **Accurately identify needed spares**
- **Reduce the cost per repair**
- **Return vehicles to operational readiness.**



QSI's TEAMATE application translates results from diagnostics, automatic tests, and tests conducted by the technician into clear instructions on the action to be taken next.

Using this software, inexperienced technicians can perform at expert level.

The Methodology

QSI uses relationships and techniques that are compatible with FMEA (Failure Mode Effects Analysis) processes, testability engineering, R&M (Reliability, Maintainability) engineering, and Safety engineering.

While other approaches require intimate knowledge of system behavior, thorny algorithms to describe behavior, complex state diagrams, or networks of complicated relationships and numeric weights, QSI's qualitative system modeling approach allows the engineer to build hierarchical block diagrams, capture failure modes, capture functional failure manifestations, and capture testing information. From these inputs, the modeling tool can compute testability and diagnostic performance characteristics.

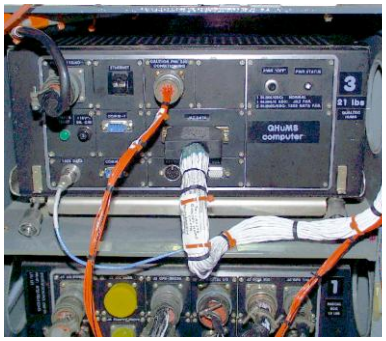
Applications based on the TEAMS model can be deployed quickly, in time-frames measured in man-weeks or months, using practical knowledge that is available in your organization.

Putting Knowledge to Work in the Field

The TEAMS model makes field service engineers (FSEs) more productive. It performs an initial diagnosis from all observations (BIT, Fault Codes, and manual inspection), and then dynamically sequences the "next best test" to intelligently and interactively drive Interactive Electronic Technical Manuals (IETMs). Recommended procedures are generated step-by-step and "on-the-fly" based on:

- Current Symptoms
- Relationships between Failure Modes, Symptoms, and Tests
- Failure Rate Data
- Time and Cost of Testing and Repair
- Resources on hand

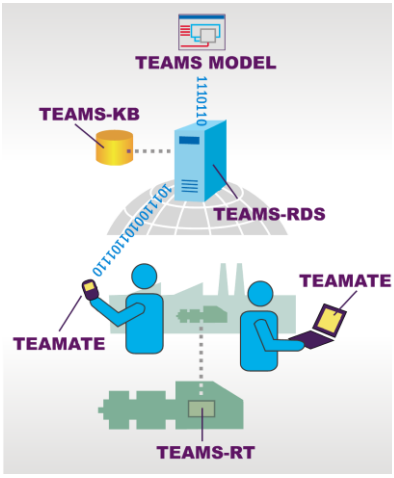
QSI's browser-based software runs on any PC-compatible computer device.



Sikorsky UH-60 on-board computer hosting TEAMS-RT. The QSI software uses the TEAMS model to perform continuous real-time diagnostics.

On-board Diagnosis

TEAMS-RT, an ultra-fast, ultra-compact embedded "reasoner" uses system information from the TEAMS model to perform diagnostics in real time and generate continuous system health assessment.



TEAMS-RDS used for remote troubleshooting and TEAMATE on a standalone portable computer used for onsite maintenance. Information on the standalone computer can be periodically synchronized with the server.

Remote Diagnostics and Telemaintenance

TEAMS-RDS is a network solution that can be easily deployed for use across an entire field service organization. With the system model deployed on one or more servers, tests can be conducted interactively, and clear accurate instructions dispatched to service technicians around the world. This application has been shown to reduce travel costs and improve the speed and quality of field service, by reducing the number of false part removals.

Knowledge Refinement Using Field Data

Data on the causes and consequences of system failures feeds continuously into the TEAMS-KB knowledge base. This data can be used to refine the system models, improve the management of spare parts, refine training programs, guide future design modifications, and measure the quality of service, components and suppliers.

About QSI

Founded in 1993, Qualtech Systems, Inc. (QSI) is a recognized leader in advanced diagnostics and health management software solutions. QSI has received awards from NASA (2002 &2008 Space Act Award) and Aviation Week & Space Technology ("Technology Innovations").

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