Maintainability Demonstration

A maintainability demonstration (M-Demo) test would be implemented to verify by demonstration the actual maintainability characteristics of a system, against the maintainability requirements or objectives. Mil-Std-471 provides a detailed approach to this technique.

A M-Demo test would establish what criteria will be tested based upon given parameters. These would include the verification of the many maintenance tasks, which are being proposed to be implemented on a system. In the implementation of each maintenance task (corrective and preventive), all the necessary resources to permit an effective repair or maintenance activity would be assessed. This would include all supporting elements, such as the systems diagnostics capabilities, the required tools (common and special), support equipment and even the skills of the maintainer.

Another goal of the M-Demo would be to identify potential problems in the implementation of specific maintenance tasks, hence find fixes prior to fielding the system. The results of the M-Demo could also serve to provide feedback to the Logistic Support Analysis Engineering Effort. The M-Demo process is definitely subject to careful planning and to ensure that it is implemented in an effective manner.

The M-Demo whould be guided by a test plan or for smaller equipment, a test procedure; these documents would generally detail:

Test objectives: What requirements will be validated to ensure their compliance to the technical performance requirements of an equipment or system.

Test approach: How the test will be implemented and the proposed test strategy.

Ground rules: How the test will be implemented under what conditions, what the test sample size should be. This sample size maybe dedicated by the customer, for example they may require 50 failure modes to be tested, out of a candidate list of 200. Also maintenance tasks may also be required to be demonstrated under the operational conditions, to which the system will finally be fielded.
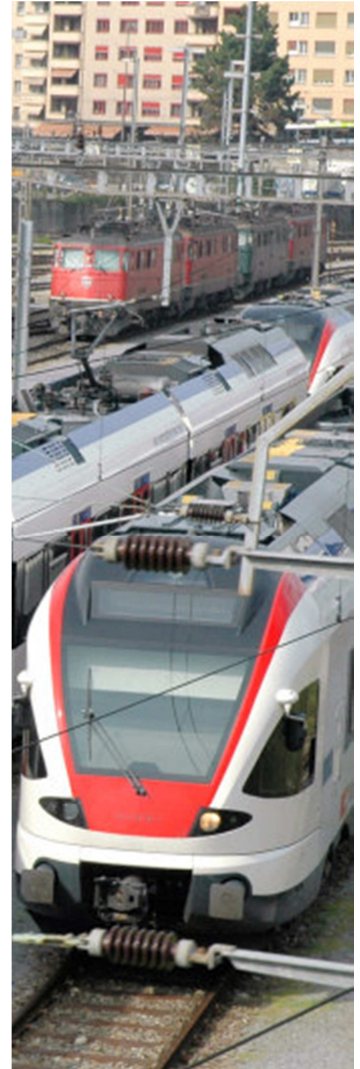
Equipment to be tested: this section would identify the equipment configuration to be tested

Team members: These would include the key persons who will have direct involvement in the implementation of the M-Demo, and could include the test coordinator, RAM engineer and the customer, etc.

Schedule: The schedule would detail all of the test activities including test readiness reviews (TRR), through the test implementation to the development of the test report

Data to be recorded: For the M-Demo the type of data to be collected may include the recorded maintenance task elapse times, observations made against diagnostic routines and remove and replace tasks, taken into consideration accessibility issues and required tools and human factors.

Special rules, criteria: the M-Demo may have specific criteria which must be determined and validated. For example the witnessing of specific maintenance tasks by the customer.

Important to remember with the M-Demo is, the approach to the maintenance of the system must be synchronized and worked in harmony to the efforts as detailed in the Logistic Support Analysis engineering effort. These two engineering elements follow the same maintenance concept. But as the Logistic Support Analysis engineering effort is implemented and developed, the final maintenance philosophy of a system will be firmed up and finalized.