



Orbiter Integrated Vehicle Health Monitoring System (Replacement for the Modular Auxiliary Data System (MADS))

Problem: The current Orbiter data recording device (MADS) has parts that are obsolete and will require replacement in the near future. In evaluation of this replacement, we are evaluating enhancements to this system to address the obsolescence and also provide additional capability. The Orbiter currently does not have the capability to either automate/compress sensor data collection or perform real time analysis of sensor data. This increased functionality will enable improved sensor techniques which will lead to significant improvements in understanding vehicle health real time and improve/reduce ground processing of the Orbiter.



Solution: Replace the current Modular Auxiliary Data System (MADS) system with a state-of-the-art data acquisition system with built in Remote Health Nodes. The Remote Health Nodes will be the instrument for processing the data real time. In addition, the new system will result in excess of 200 pounds weight savings.

Initial Operation Date: Phase I Upgrade - First Shipset would be delivered to KSC for installation in late 1999. First flight would occur in early 2000

Technology Goal: Define a system and software architecture which will allow a graceful evolution into IVHM techniques. Understanding and designing IVHM techniques will take years to refine. To enable this refinement and deployment an operational IVHM system is required which will allow a wide range inclusion of additional sensor techniques used to determine vehicle health.

Goals Supported:

- 1) [Fly Safely](#)
- 2) [Meet the Manifest](#)
- 3) [Improve Supportability](#)
- 4) [Reduce Cost](#)
- 5) [Support HEDS](#)