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Brief 71-10001

NASA TECH BRIEF

Kennedy Space Center

Diagnostic Capability Added to Digital Events Evaluator

The problem:

To improve reliability and decrease trouble shooting time in detecting malfunctions in systems monitored by a digital events evaluator.

The solution:

The evaluator has been programmed to review the events preceding a system malfunction and print out the most probable cause of the problem automatically.

How it's done:

The digital events evaluators in use at NASA's Kennedy Space Center employ general purpose digital computers to record for engineering evaluation any changes in the status of certain launch-vehicle and ground-support-equipment components. In the event of malfunction in any of the seven major systems monitored, this record permits system engineers to identify the fault promptly and repair it with minimum down time.

To enhance this diagnostic capability and reduce the chance for human error, the evaluators have now been programmed to analyze in real time the status of the various systems at critical times and to identify any components that are not functioning correctly. The analysis is performed by comparing input data with nominal values stored in sixteen tables. The data comprising these tables can be changed at will, making it possible to monitor several systems with a single control program.

Enabling of the entire analytic routine and of the system status comparisons is controlled by the system operator. If desired, comparisons can be initiated automatically by a change-of-state in any of the monitored functions and can be delayed from zero to 100 seconds. In addition, each comparison table has an associated system mask which can be used to restrict the comparison to certain preselected critical parameters within a given system.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
Kennedy Space Center
Code AD-PAT
Kennedy Space Center, Florida 32899
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Patent status:

No patent action is contemplated by NASA.

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