

WORKSHOP DISCUSSION: FLIGHT TESTING AND OPERATIONS

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The following is a very brief summary of the topics that were discussed in the Flight Test and Operations Panel on 15 Sept 78 at Wright State. There were two full hours of discussions on numerous issues but I think that only these comments highlight areas of interest to the group. There was good participation from government agencies and contractors. I recommend this panel be continued in future meetings.

1. Flight testing is an extremely important aspect of the total testing and verification process even in view of the other sophisticated methods like analytical methods, ground simulation, and variable stability aircraft for inflight simulation. We must be practical and state which tests to do in flight and which ones to avoid. Several of the proposed Mil-Spec articles are not safe to do in flight. The atmospheric disturbance tests and the PIO verification are cases in point.
2. There is a fundamental difference between the conventional open-loop handling qualities tests and operational tasks. We must be careful in devising operational tests when generating pilot opinion with respect to workload. Make the task representative of operational conditions. We must be careful to project ourselves into the role of a typical line pilot when we give ratings and assess mission capability versus workload. It is extremely difficult to translate pure engineering data into measures of mission effectiveness. If more tests were done in a more nearly typical operational environment, then more valid pilot opinion would result.
3. The government agencies need to be extremely careful in accepting data on the probability of failure in view of the relaxation of requirements authorized in the Mil Spec.
4. Level 2 should be made closer to Level 1 requirements in view of the fact that in the operational environment, only a minor fraction of a pilot's attention can be devoted to compensating for degraded handling qualities. If likely failures result in Level 2 handling qualities then ensure that Level 2 is still fairly good.
5. Workload statistics are very suspect and generate overly optimistic pilot ratings because of the lack of the full operational environment in flight test experiments.
6. The mil spec should offer one way to accomplish a test but should allow variations in techniques.

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7. The mil spec is completely ill-equipped to handle direct lift and direct side force as well as sidestick controllers. There is plenty of work being done on some of these topics so the results should be incorporated. Contractors should propose that Independent Research and Development (IR & D) money be spent to develop these technologies into design criteria and mil spec requirements. Work needs to be done on the specifications for cockpit controllers for direct force as this will be the next issue in flight control.