



OPERATIONAL TEST  
AND EVALUATION

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MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION,  
TECHNOLOGY AND LOGISTICS  
VICE CHAIRMAN OF THE JOINT CHIEFS OF STAFF

SUBJECT: Concerns with Plans for F-35 System Development and Follow-On Development

As the Joint Requirements Oversight Council (JROC) prepares to receive an F-35 update briefing, this memorandum provides my concerns with the ongoing and follow-on development programs; those concerns include the following:


- The current “official schedule” to complete full development and testing of all Block 3F capabilities by 31 July 2017, is not realistic. It could be achieved only by eliminating a significant number of currently planned test points, tripling the rate at which weapons delivery events have historically been conducted, and deferring resolution of significant operational deficiencies to Block 4. In fact, I learned very recently that the program is currently considering reducing by two-thirds the number of planned weapons delivery events (per the approved Test and Evaluation Master Plan) for weapons certification. This course of action, if followed, constitutes a very high risk of failing Initial Operational Test and Evaluation (IOT&E).
- Problematic Block 3F software which is the result of--
  - Schedule-driven decisions to field Block 2B before testing and resolution of significant deficiencies were complete.
  - Re-hosting the immature Block 2B software (with hundreds of unresolved deficiencies) into new processors to create Block 3i, which generated avionics instabilities and other new problems, resulting in poor performance during Block 3i developmental testing (DT).
  - A schedule-driven decision to add the final Block 3 capabilities on top of the existing deficient Block 3i software to create Block 3F which, like Block 3i, is demonstrating poor performance in DT.
- Block 3F development, especially incremental software releases to fix deficiencies, ends far too early on the program’s current “System Development and Demonstration (SDD) Mission System Software Schedule.” The final planned software release, Block 3FR8, is scheduled for mid-2016, at least two years prior to the completion of developmental testing (including demanding weapons and avionics testing), as well as operational testing. This is evidently a



schedule- and/or budget- driven decision. Additional incremental Block 3F releases will clearly be needed to address critical deferred deficiencies and the new discoveries which will inevitably occur between 2016 and the end of DT, as well as the discoveries occurring during operational testing.

- Required modifications to operational test aircraft that are extensive, the contents of which are still evolving due to ongoing discoveries in testing, and the needed modifications will not be complete in time for IOT&E.
- The Autonomic Logistics Information System (ALIS) continues to struggle in development with deferred requirements, late and incomplete deliveries, high manpower requirements, multiple deficiencies requiring work-arounds, and a complex architecture with likely (but largely untested) cyber deficiencies.
- The mission data reprogramming lab does not and will not have the required equipment in time to adequately develop and test the mission data loads for Block 3i Initial Operational Capability (IOC) and Block 3F IOT&E. The program office has still not completed the design and contracting actions to order, manufacture and install the signal generators and other needed upgraded equipment, a process that will take at least two years after the equipment is ordered. The result will continue to be limited and incomplete development and testing of the required mission loads for Block 2B, Block 3i IOC, Block 3F IOT&E and Block 3F fielding.
- The program's proposed "F-35 Modernization Planning Schedule" does not properly align with their current SDD software schedule mentioned above. There is a four-year gap between the final planned Block 3F software release and fielding of the first proposed modernization increment, Block 4.1, in late 2020. The proposed schedule also does not depict any incremental software releases to correct open Block 3F deficiencies and new discoveries prior to adding the proposed new modernization capabilities, which would greatly increase risk to development and testing of Block 4.
- Despite the significant ongoing challenges with F-35 development listed above, including the certainty of additional discovery, the proposed modernization schedule is very aggressive; it finalizes the content of Blocks 4.1 and 4.2 in early 2016. Then, during IOT&E, the program would award contracts to start simultaneous development of Blocks 4.1 and 4.2 in 2018, well prior to completion of IOT&E and full understanding of the inevitable problems it will reveal.
- Finally, the proposed Block 4 modernization plan and schedule do not clearly depict the schedule and resources for operational testing. Due to the cost and complexity of the proposed Block 4 capabilities, along with the likely deferred capabilities and fixes from Block 3F, the F-35 program and stakeholders must

plan adequate schedule and resources for rigorous operational testing of the appropriate increments of Block 4, as is being done with F-22.

  
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Director

cc:

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