

# US Air Force must retrofit 108 F-35As

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The US Air Force's number of F-35As in need of hardware or software retrofits has grown to 108 aircraft, and the service could deliver more fighters without Block 3F capabilities.

The air force is now facing a fleet of 108 F-35As that must be retrofitted from the Block 2B or 3i configuration, Lt Gen Jerry Harris, USAF deputy chief of staff for strategic plans and requirements, states in a 16 February testimony to Congress. The USAF and the F-35 Joint Programme Office are working together on a Block 3F upgrade plan.

When the USAF declared its F-35A variant ready for limited combat last August, the service's chief of Air Combat Command noted the aircraft still needed significant and would gain greater capabilities with impending software and hardware upgrades. Block 3F and 4, which the USAF expects will be available in 2018 and 2021, will increase the F-35's weapons capacity and improve targeting.

Twenty-six of those 108 aircraft will require a software-only upgrade, according to Harris. In addition to software modifications, 19 aircraft will also require new signal processor cards which the service says will take an average of three days to install and test. The service must install 18 aircraft with a newer helmet mounted display system, in addition to the processor cards and software, which will take 15 days to install.

"The remaining forty-five aircraft will require significant hardware modifications in the form of a Tech Refresh 2 modification," Harris states. "This modification consists of twenty-six major components and takes approximately 30 days per aircraft to install and checkout."

The USAF's operational test aircraft also require Block 3F hardware modifications. But with availability of the full fleet of 23 aircraft projected in 2018, those modifications have fallen behind.

As the USAF plans its strategy to retrofit its existing fleet of the F-35As, the Pentagon's top weapons tester warned in a recent report that future aircraft may be delivered without Block 3F. Given numerous issues on the F-35, including 270 high-priority deficiencies in Block 3F performance identified in a recent review, Michael Gilmore expects Lot 10 will be delivered without the full Block 3F capability.

Lt Gen Chris Bogdan told reporters following the 16 February hearing that Gilmore's comments applied to some Block 2B F-35s, which have older hardware. The current plan has only a certain number of aircraft receiving upgrades because the F-35 joint programme office asks the services when aircraft should be modified, according to Bogdan.

"The services have to decide when and where they want to do that, if they want to do that at all," he says. "Because some of those planes could remain in a 2B TR1 hardware configuration for a very long time, for example if it's a training airplane."

Harris meanwhile, remained positive in his written testimony.

"Concerning the completion of the system development and demonstration phase, although delivery of the final Block 3F configured aircraft is later than expected, the air force remains optimistic that remaining fixes to known deficiencies for all systems except the AIM-9X will be implemented within the Joint Program Office estimated timeline of October, 2017," he states.

It could be four more months until a full certified aircraft is delivered and any delay would push off operational test and evaluation, he adds. Still, the programme does not want to rush into IOT&E with an aircraft that has not been

fully developed and tested, he says.

Harris also warned accelerating procurement before the development of Block 4 would increase the programme's overall cost. If the USAF chooses to increase the F-35 buy rate over the next five years, the service would be forced to retrofit those additional aircraft with Block 4 hardware and software modifications, Harris say. The service should look back at increasing the F-35 buy once Block 4 delivers toward the end of the five year period, he adds.

Bogdan reiterated that the services are examining a longterm modification plan and are trying to design some hardware changes that could be retrofitted in the field, rather than in the depots.