



# F-35 Lightning II Program

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## F - 3 5 A ' S F I R E S 2 5 M M G U N A T F U L L C A P A C I T Y

An F-35A fired 181 rounds from its four-barrel, 25 millimeter Gatling gun during a ground test at Edwards Air Force Base earlier this month. The gun is embedded in the F-35A's left wing and will provide pilots with the ability to strafe air-to-ground or air-to-air targets.

The F-35 Joint Strike Fighter Integrated Test Force aims to complete ground testing this month and start airborne gun testing in the fall. At the end of the program's system development and demonstration phase in 2017, the F-35 will have an operational gun.

The first phase of F-35 gun testing started 9 June, when initial shots were fired from the ground at the base's gun harmonizing range. Over the next few months the amount of munitions fired gradually increased until the 181 rounds were fired 14 August. To conduct the testing, an F-35 flight sciences aircraft, AF-2, underwent instrumentation modifications and used a production version of the GAU-22/A gun. The ground tests were designed using software to replicate being in flight and the aircraft used a target practice round, PGU-23/U, which does not explode on impact.

In integrating a weapon into the stealthy F-35 aircraft, the gun must be kept hidden behind closed doors, reducing its radar cross section, until the trigger is engaged. The tests certify the gun's ability to spin up and down correctly. The GAU-22/A system will be further tested with a line production F-35A next year for integration with the jet's full avionics and mission systems capabilities. Test pilots will then observe qualitative effects, such as muzzle flash, human factors, and flying qualities. The F-35 test team will also monitor the GAU-22/A's performance and ensure all systems work as designed, validating that the aircraft can withstand the loads of a firing the gun, mitigating potential effects including vibrations, acoustics and airflow.



F-35 Integrated Test Force evaluators fire the GAU-22/A 25mm gun from static ground test F-35A aircraft AF-2, at the Edwards AFB, Calif., Gun Harmonizing Range on 14 August 2015. The test team includes members from the Air Force, Navy and Marine Corps, Lockheed Martin, Pratt & Whitney and Northrop Grumman performing duties as flight test engineers, test pilots, aircraft maintainers and weapons load crews. (Credit: F-35 Integrated Test Force)