

# General Dynamics F-16A/B Block 15 ADF Fighting Falcon

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Following the disbandment of the USAF Air Defense Command, the ANG was assigned the mission of providing the primary aerial defense of North America against bombers and cruise missiles. In October of 1986, it was announced that 275 airframes in the F-16A/B Block 15 series would be converted as air defense fighters for use by the Air National Guard. A contract was placed for kits to update and modify 270 F-16As, with the work to be carried out at the Ogden Air Logistics Center in Utah.

The modified planes were to be provided with HF radios and an improved APG-66 radar that was compatible with the AIM-7 Sparrow and AIM-120 AMRAAM radar-guided missiles. A spotlight was to be installed on the side of the nose to aid in the identification of nighttime intruders.

The first rebuilt F-16A/B Block 15 ADF aircraft was delivered in early 1989. The ADF aircraft can be distinguished from "standard" F-16A/Bs by several external identifying features. One of these is a set of L-shaped blade antennae carried forward of the canopy above the nose and below the intake as part of the Teledyne/E-Systems AN/APX-109 MkXII Advanced Identification Friend-or-Foe (AIFF) system. This system has not yet been approved for export. The F-16A ADF is provided with a Bendix/King AN/ARC-200 high-frequency single-sideband radio. Because of the addition of the HF radio's antenna to the leading edge of the fin, a pair of hydraulic actuators for the rudder had to be repositioned, resulting in a distinct narrow bulge at the place where the fin meets the base of the aircraft (contrary to some reports, this bulge is not itself an antenna). A 150,000-candlepower night identification spotlight is mounted on the port side of the nose. The Grimes-built light is canted 70 degrees to the left of forward and 10 degrees up. ADFs are the only American F-16s that carry this light, but some Danish and Norwegian F-16A/Bs have it as well. F-16B ADF versions sport the AIFF but they do not have the HF radios with the distinctive fin bulge which identify F-16A ADFs. Both A and B ADF versions carry the spotlight.

The F-16 ADF carries the Westinghouse AN/APG-66(V)1 radar, which was modified to improve small target detection and to provide the continuous wave illumination needed by the Sparrow missile. Standard air-to-air modes are look up, look down, search and track, track while scan, automatic tracking, and air combat search. The AIM-7 Sparrow missile can be carried only on the middle underwing pylon, and even then only with pylons equipped with RDRC. The ADF is the only American Fighting Falcon with Sparrow capability. Hughes AIM-120 AMRAAM missiles are usually carried on the outboard underwing pylons, and AIM-9 Sidewinder infrared homing missiles are typically carried on the wingtips. Although it is not typical practice, either Sidewinders or AMRAAMS can be carried at the wingtip points and on the outermost pair of underwing pylons. The innermost pair of underwing

pylons are reserved for 360 US gallon droptanks, and the centerline hardpoint can carry a 300 US gallon external fuel tank. The internal M61A1 20-mm cannon with 511 rounds is retained.

Although 270 Block 15 F-16A/Bs were to have been converted to ADF configuration, only 241 of these conversions actually appear to have been carried out. General Dynamics carried out the first conversion, then shipped modification kits for installation at the Ogden Air Logistics Center at Hill AFB in Utah. The Hill AFB modifications were completed in October of 1988.

The first successful launch of a Sparrow from an ADF F-16 took place in February of 1989. The first delivery was to the 114th Fighter Training Squadron of the Oregon ANG in March of 1989. The 144th Fighter Interceptor Wing of the California ANG achieved IOC later in 1989. 120 ADFs were in service with the ANG by December 1994. However, with the end of the Cold War, there appeared to be no longer any threat to America's homeland from bombers or cruise missiles, and the ANG ADFs were phased out, with many of the ADF F-16s being converted back to standard F-16A/B configuration or placed in storage.

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