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Vojens 16. februar 2009

Til **Forsvarsudvalget**
Folketinget

Emne: **Køb af nye kampfly.**

Ref.: **Code One** Lockheed Martin Aeronautics Comp. Third Quarter 2008
http://www.f-16.net/varia_article5.html Alt om F-16.
http://www.f-16.net/news_article3120.html
http://www.f-16.net/f-16_forum_viewtopic-t-11267.html
http://www.f-16.net/f-16_versions_article9.html
<http://www.airforce-technology.com/projects/f16/>
<http://www.fas.org/man/dod-101/sys/ac/f-16.htm>

Efter at jeg har hørt i radioen og læst i aviserne, at man nærmer sig tidspunktet for beslutning af køb af nye kampfly til vores flyvevåben, så har jeg et forslag til at gøre det billigere for staten. Eftersom vi har brug for et våbenplatform som F-16, så har jeg følgende forslag:

- Køb nye F-16 Block 52 + (Plus) og Block 52, samme type som Polen flyver med. Se ovenstående ref., og brug flyene i de næste mange år. Pris **50 Mil. \$** stk. ????
- Hvis man køber F-16 med Pratt & Whitney motorer, så har man meget motorværktøj i forvejen og det er en stor besparelse.
- Block med betegnelsen + (Plus) har "conformal fuel tanks" og kan derfor flyve længere og spare en evt. lufttankning, som er meget dyr.
- F-16 kan og gør det den skal, flyve ud som våbenplatform og/eller hjælpe tropperne på jorden som "Air to Ground Mission".
- F-35 Lightning II (JFS) er alt for dyr for det den kan i "vores" område, og prisen nærmer sig
- **200 Mil. \$ uden hjælpeudstyr, Ground Equipment.** (Det samme som 3 til 4 stk. F-16).
- Vent 10 år med at købe F-35 (JFS) og køb **en nyere generation F-35 fly uden børnesygdomme.**

Ref.: **F-16 Falcon Block 52 Plus**

One of the latest HAF,(Grækenland) F-16C Block 52+, #501, taxiing.
(LMTAS photo)

The Block 52 Plus is a version which has special provisions for the adverse weather delivery of the McDonnell Douglas JDAM (Joint Direct Attack Munition). The update includes an add-on tail unit containing a synthetic aperture radar, providing guidance to 1,000lbs Mk.83, 2,000lbs Mk.84 and the 2,000lbs BLU-109 warhead. Other features include passive missile warning, terrain-referenced navigation, and provisions for the 600 US gal (2,271 litre) external fuel tanks and conformal fuel tanks. Other features of the aircraft include an on-board oxygen generating system (OBOGS), the AN/APX-113 advanced electronic interrogator/transponder IFF system, helmet-mounted cueing system (HMCS), ASPIS internal electronic countermeasures suite (full provisions), the Northrop Grumman APG-68(V)9 radar, which is the latest version of the F-16C/D radar. This radar features significant improvements in detection



techniques enhances the radar's ability to operate in dense electromagnetic environments and resist jamming better than all previous models.

The V(9) version of the AN/APG-68 radar provides both improved air-to-air capabilities and air-to-ground capabilities. These include:

30 percent increase in detection range;

Improvements in false alarm rate and mutual interference;

Four versus two tracked targets in the Situation Awareness mode (a search-while-track mode);

Larger search volume and improved track performance in Track While Scan mode;

Improved track performance in Single Target Track mode;

Two-foot resolution in new Synthetic Aperture Radar (SAR) mode, which allows autonomous delivery of precision, all-weather, standoff weapons;

Increased detection range in Sea Surveillance mode;

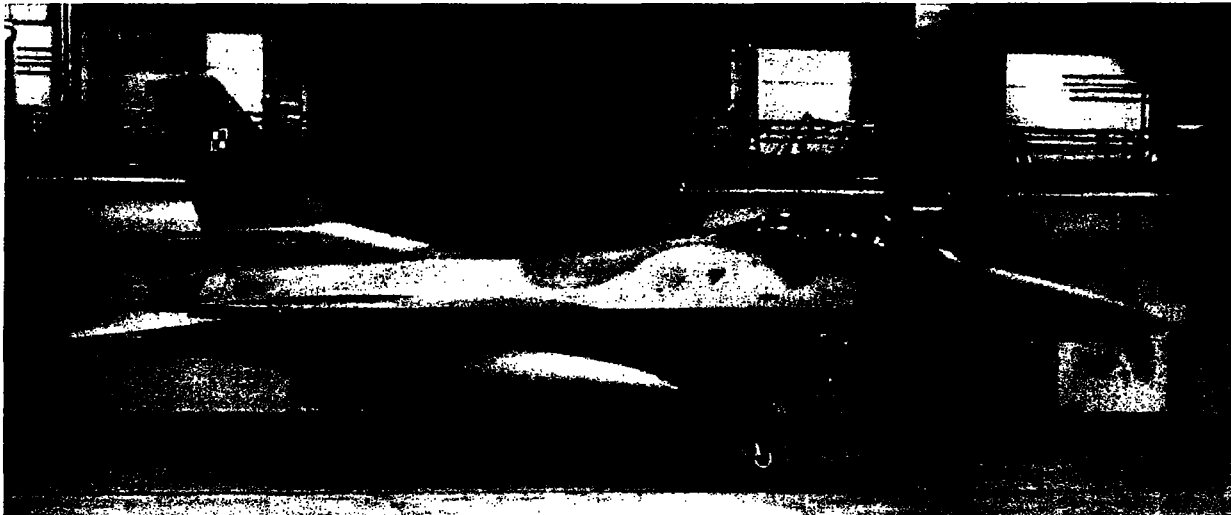
Improved target detection and map quality in Ground Moving Target Indication mode.

In general, this radar offers a 5X increase in processing speed and 10X increase in memory compared to the current AN/APG-68 radar and provides large growth potential.

The first production V(9) radar, which was delivered in April 2002, will be installed in the first Greece Block 52+ F-16. Also the new Israeli F-16s will be equipped with it.

Production

Production of the block 50/52 totals 813 airframes up to now. Manufacturing started in 1991 and is still ongoing. Block 50 aircraft were delivered to the USAF, Turkey, Greece and Chile, whilst Block 52 aircraft were delivered to the USAF, South Korea, Singapore, Greece, Poland and Israel. Of the total number of Block 50/52, still 260 are waiting delivery to the customer (July 2003).



Med venlig hilsen

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I dag er jeg pensionist og holdt op i flyvevåbnet efter 39 år. Jeg var en af de første danske teknikere på F-16 i USA, på Hill Air Force Base, fra oktober 1978 til Maj 1980. Fra maj til december 1980 var vi ca. 120 personer (Team MOT&E), i Belgien, Danmark, Holland og Norge.

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BLOCK 50/52 WILD WEASEL PLUS

The Block 50/52 F-16 is recognized for its ability to carry the AGM-88 HARM in the suppression of enemy air defenses, or SEAD, missions. The F-16 can carry as many as four HARMs.

An avionics launcher interface computer allows the F-16 to launch the HARM missile. US Air Force F-16s have been upgraded to carry the HARM Targeting System, or HTS, pod on the left intake hardpoint so it can be combined with laser targeting pods designed to fit on the right intake hardpoint. The HTS pod contains a hypersensitive receiver that detects, classifies, and ranges threats and passes the information to the HARM and to the cockpit displays. With the targeting system, the F-16 has full autonomous HARM capability.

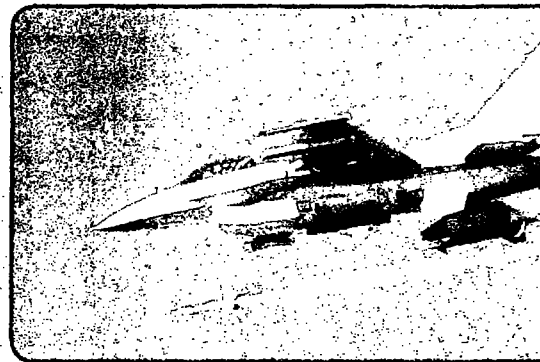
The Block 50/52 F-16 is equipped with the APG-68(V9) radar, which offers longer range detection against air targets and higher reliability. The Block 50/52 also includes a ring laser gyro inertial navigation system, a global positioning system receiver, a larger capacity data transfer cartridge, a digital terrain system data transfer cartridge, a cockpit compatible with night vision systems, an improved data modem, an ALR-56M advanced radar warning receiver, an ALF-47 threat-adaptive countermeasure system, and an advanced interrogator for identifying friendly aircraft. An upgraded programmable display generator has four times the memory and seven times the processor speed of the system it replaces. New VHF/FM antennas increase reception ranges. The Block 50/52 is powered by increased performance engines—the General Electric F110-GE-129 and the Pratt & Whitney F100-PW-229—each rated to deliver over 29,000 pounds of thrust in afterburner. Block 50/52 are the first F-16 versions to fully integrate the AGM-84 Harpoon anti-shiping missile.

New production Block 50/52 aircraft ordered after 1996 include color multifunction displays, the modular mission computer, and a three-channel video tape recorder. The throughput of the new computer dramatically increases the processing power of the F-16 and allows the airplane to continue to grow indefinitely. All international versions of the Block 50/52 have LANTIRN capability.

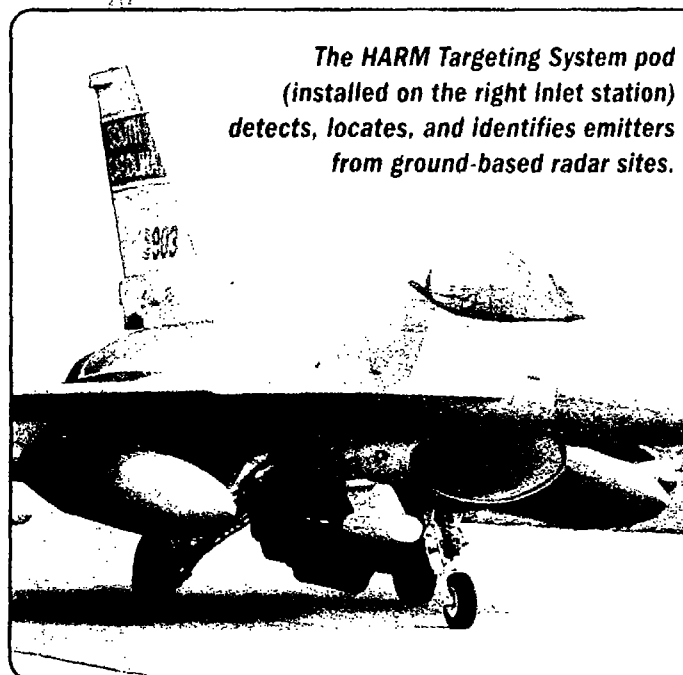
The first Block 50/52 was delivered to the US Air Force in 1991. More than 800 have been delivered so far from production lines in Fort Worth, Korea, and Turkey. (The Fort Worth production line is currently the only active F-16 line, but the Turkey line is scheduled to start producing Block 50 aircraft beginning in 2011.)

ENGINES

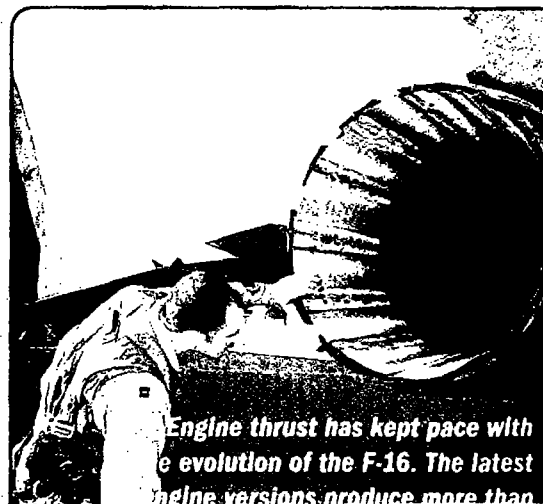
The engines that power the F-16 have improved in more ways than in maximum thrust. Engines used in early F-16s required from six to eight seconds to spool up from idle to afterburner. Since then, electronic controls have replaced hydromechanical systems. The changes allow current engines to go from idle to full afterburner in two seconds. This responsiveness has a huge payoff in performance and in aircraft handling. Engine reliability and ease of maintenance have also been improved significantly. Today's F-16 engines can be expected to deliver eight to ten years of operational service between depot inspections.



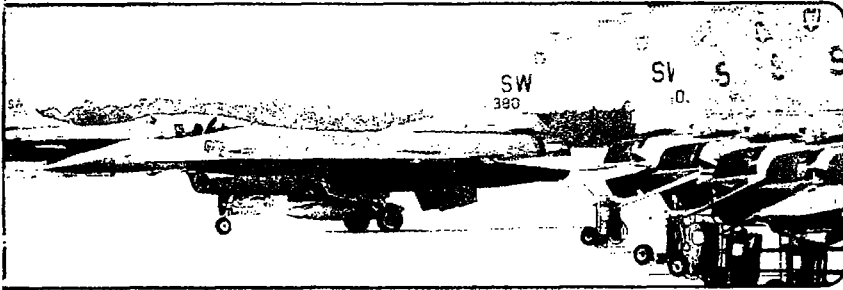
The AGM-88 high-speed antiradiation missile, or HARM, is used to suppress enemy radar sites.



The HARM Targeting System pod (installed on the right inlet station) detects, locates, and identifies emitters from ground-based radar sites.

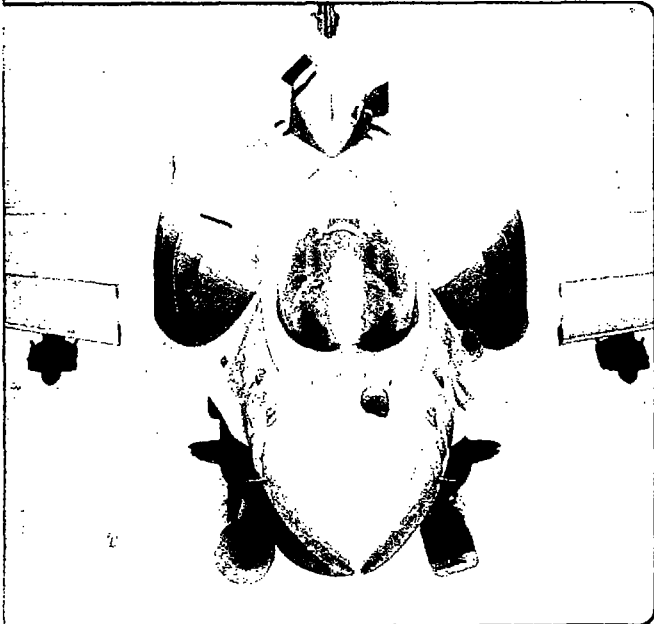


Engine thrust has kept pace with the evolution of the F-16. The latest engine versions produce more than

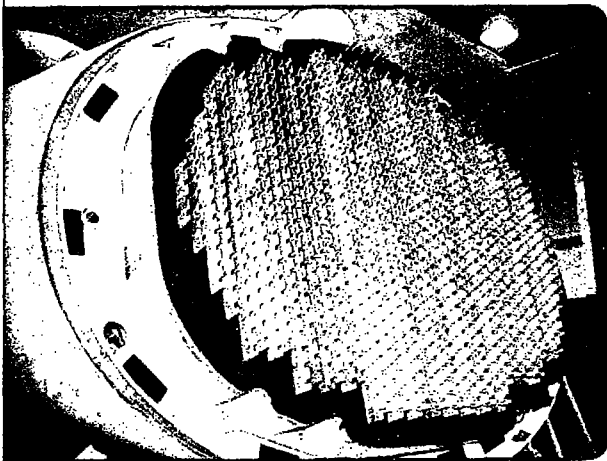


Shaw AFB, South Carolina, received the first F-16s modified under the Common Configuration Implementation Program, or CCIP, in January 2002. The modification provides hardware and software commonality across the F-16 fleet.

PHOTO BY KATHARINE PEREIRA



The Block 60 Desert Falcon brings an array of new capabilities to the F-16, including the first active electronically scanned array radar—the Northrop Grumman APG-80 (below).



hydromechanical controls had to be trimmed to operate at the most challenging point within the F-16's flight envelope. Digital engine controls automatically adjust to the operating environment, so that they optimize engine performance at all points within the flight envelope. This optimization has increased thrust by more than ten percent in some areas of the F-16 flight envelope. All engines being built today for the F-16 have digital engine controls.

COMMONALITY

With all the varieties of the F-16 produced through the years, the US Air Force decided to standardize its F-16 fleet to simplify logistics, maintenance, and training. The service now flies Block 40/42 and Block 50/52 F-16s almost exclusively in its active duty units. Exceptions include Block 30/32 F-16s at the Aggressor squadrons in Nevada and Alaska and Block 25 F-16s in training squadrons at Luke AFB, Arizona. Block 25 and Block 30/32 aircraft are concentrated in Air National Guard and Air Force Reserve Command units. A few Reserve Component units do already fly more advanced versions of the F-16.

More recent improvements to the F-16 fleet have reduced operation and support costs, further increased combat capability, and helped standardize the Air Force fleet. The Common Configuration Implementation Program, or CCIP, added color displays, common missile warning systems, and the modular mission computer to Block 40/42 and Block 50/52 F-16s as well as an advanced datalink, called Link-16, that is standard for US and NATO aircraft. The upgrade also includes a helmet-mounted cueing system. This system works with the high-off-boresight AIM-9X air-to-air missile as well as with other slewable sensors. More than 200 Block 50/52 and 450 Block 40/42 aircraft were involved in the two programs. Guard, Reserve, and active duty Air Force units are now operational with the upgrades.

BLOCK 60 AND BEYOND

The F-16 Block 60, also known as the Desert Falcon, is the most advanced F-16 produced to date. An internal, forward-looking infrared navigation sensor mounted as a ball turret on the upper left nose is the main feature that distinguishes the Block 60 from previous F-16s. Both single- and two-seat aircraft carry conformal fuel tanks.

The Desert Falcon's increased-thrust GE-132 engine helps compensate for the increase in weight and payload over the basic F-16. Internal differences, on the other hand, add up to a huge improvement in capability.

The Desert Falcon has many automated modes, including autopilot, auto-throttle, an automatic ground collision avoidance system, and a pilot-actuated recovery system. The recovery system allows pilots to recover the aircraft with the push of a button the moment they sense they have lost situational awareness. The Block 60's electronic warfare system, produced by Northrop Grumman, is the most sophisticated subsystem on the aircraft. It provides threat warning, threat emitter locating capability, and increased situational awareness to pilots. A new data transfer cartridge holds thirty gigabytes of information. A fiber-optic databus handles the throughput and speed needed for many of these systems. The maintenance system is laptop-based.

The APG-80 agile beam radar underpins many of the new capabilities of the Block 60. The radar, produced by Northrop Grumman, is an advanced electronically scanned array offering much greater detection ranges. The array consists of a bank of transmit/receive modules attached to a fixed array that generates the radar beam, which can be directed almost instantaneously. The electronic approach, instead of a mechanical approach, allows radar modes to be interleaved. For example, the radar can continuously search for and track multiple targets and simultaneously perform multiple functions such as air-to-air search and track, air-to-ground targeting, and terrain following. The radar vastly improves the pilot's situational awareness.

Block 60's General Electric F110-GE-132 turbofan engine produces approximately 32,500 pounds of thrust in maximum afterburner. The engine is a derivative of the F110-GE-129, a 29,000-pound thrust class engine that powers the majority of F-16C fighters worldwide.

The F110-GE-132 has also been selected to power the F-16IN, the Fighting Falcon proposed for India for the Medium Multi Role Combat Aircraft program. If selected, the F-16IN will be the most advanced F-16 design to date. This aircraft will feature a refueling boom that retracts from the right conformal fuel tank. The boom allows the F-16IN to operate with India Air Force probe-and-drogue style aerial refueling systems similar to those used by the US Navy. The refueling boom is now being flight tested in Fort Worth. Even without aerial refueling, an F-16IN with conformal tanks can fly from Bangalore in the south of India to Leh in the north.

Several other systems distinguish the F-16IN from the Block 60, including an electronic warfare system and radar modes tailored for India, dragchute, datalink, satellite communication, and a helmet-mounted cueing system. The F-16IN will carry the Sniper targeting pod as well.

STILL EXCEPTIONAL

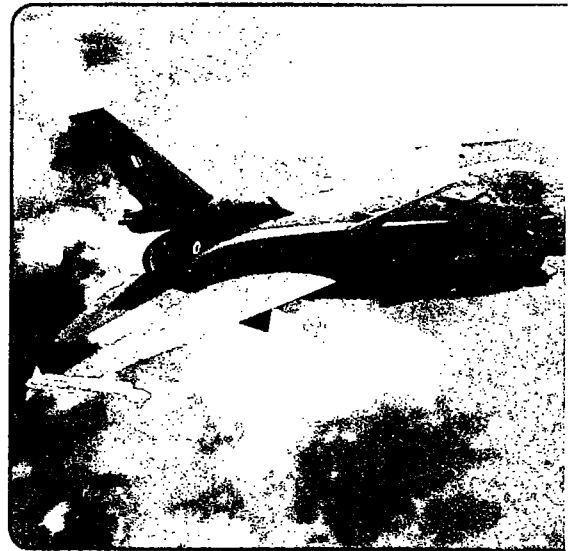
The YF-16 was flown for the first time in 1974 at the Air Force Flight Test Center at Edwards AFB, California. The first production F-16 rolled out of the factory in Fort Worth in August 1978. Since then, more than 4,400 F-16s have rolled off assembly lines in five countries. Twenty-five air forces will soon be flying the Fighting Falcon. Other countries are considering buying the fighter to modernize their fleets. F-16 production is expected for another ten years, or more, and front-line service and sustainment will extend beyond 2030.

The F-16's long production run and low cost have given the airplane latitude to expand its capabilities. The F-16 has grown extensively within the external lines of the first F-16. The limited external changes are a tribute to the optimization of the original design and to huge advancements in avionics. The airplane continues to grow in terms of new weapons and sensors.

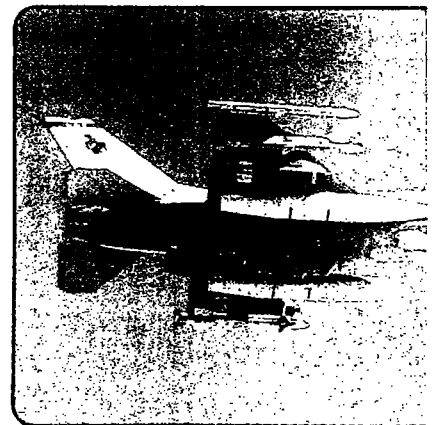
The present state of the F-16 encompasses a broad range of configurations. While the earliest F-16s perch atop poles for public display, others test the latest weapon and sensor technology. Those rolling off the factory line represent the most advanced fourth-generation fighter produced today. Even though the F-16 has been flying for thirty years, its evolution continues to build on the fundamental strengths of its original design. ⚡

Eric Hehs is the editor of Code One.

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The F-16IN for India features a refueling boom that retracts into the right conformal



The F-16 is one of the first planes to employ the Wind-Corrected Targeting Dispenser (above) and the Small Diameter Bomb (below).

