

deliveries in 2004-7. These "Desert Falcons" will be equipped with the active-array APG-80 Agile Beam Radar (ABR), internal forward-looking infrared and targeting system (IFTS) and integrated electronic warfare system – all developed by Northrop Grumman – and a new avionics system using a fibre-optic databus.

The ABR will simultaneously perform air-to-air and air-to-ground functions, including multitarget tracking, SAR imaging and terrain following. The IFTS will detect and track air and ground targets and provide laser ranging and designation.

The UAE aircraft will have an increased maximum take-off weight of 22,680kg and engine thrust of 32,000lb. Conformal fuel tanks and 2,275 litre underwing tanks will increase range by up to 50% over the Block 50 F-16.

Block 40 aircraft continue to be built, while Greece and Israel have ordered Block 50-plus aircraft with conformal tanks, Northrop Grumman APG-68(V)9 radar, colour MFDs and modular mission computers.

The USAF's F-16C/D production version is an improved Block 50, which includes some equipment developed for the European F-16A/B Mid Life Update (MLU) programme, including colour displays, modular mission computer and digital terrain system.

The USAF has launched a \$1 billion programme to upgrade 700 in-service Block 40 and 50 F-16C/Ds to a common hardware and software configuration, with elements common with the F-16A/B MLU. Flight tests started in 2001; upgrading of the aircraft is due to be completed in 2005.

Four European operators – Belgium, Denmark, the Netherlands and Norway – began upgrading 343 F-16A/Bs in 1996 under the MLU programme, which includes the Block 50 cockpit and an improved Northrop Grumman APG-66 radar compatible with AMRAAM.

The F-16 was first flown in February 1974. The 4,000th aircraft was delivered in May 2000.

LOCKHEED MARTIN/NORTHROP GRUMMAN/BAE SYSTEMS

Aircraft	F-35 JSF
Mission	Fighter/attack
Powerplant	1 x P&W F135
Max thrust wet (lb)	35,000
Wing span (m)	12.19
Wing area (m ²)	54.81
Length (m)	15.52
OEW (kg)	11,340
MTOW (kg)	22,680
Max load (kg)	7,000
Range (km)	-
Endurance (h)	-
Hardpoints	-
Cruise (kt)	-
M _{mo}	M1.8
Ceiling (ft)	-
Crew	1
Internal fuel (kg)	-
Fuel, opt ext (litre)	-
Air refuel?	Yes
Comments	Dimensions vary between variants. Power is approximate.

Various companies, including IAI and STAero/BAE, are working on upgrades for the F-16A/B and early F-16C/Ds.

F-117 Nighthawk

A navigation system upgrade is under way on USAF F-117A stealth fighters to keep them in service after 2015. The F-117A was first flown in June 1981 and 59 were built.

P-3 Orion

Production of the maritime patrol Orion halted in 1995 after delivery of eight P-3Cs to South Korea.

Lockheed Martin is offering Germany and Italy options ranging from the basic P-3C, through a re-engined P-3C Plus to the Orion 2000, a re-engined aircraft with a two-crew cockpit, new mission avionics, expanded weapons capability and system improvements.

The company has offered an Orion to meet the US Navy's Multi-Mission Aircraft (MMA) requirement to replace its P-3s. As a new-build or refurbished aircraft, the MMA proposal would be powered by R-R AE2100 or P&WC PW150 turboprops. A two-crew cockpit would include electronic displays. Electrical, hydraulic and environmental control systems would be modernised. Systems updates from the USN's P-3 Anti-Submarine Warfare Improvement Programme would be carried over.

Structural and avionics upgrades are under way to keep the USN's 228-aircraft P-3 fleet viable until replaced by the planned MMA. The Sustained Readiness Programme is extending service life, while the Avionics Improvement Programme is installing new anti-surface warfare sensors. A planned service life extension programme should keep the P-3s airworthy until the MMA enters service around 2015.

Australia is upgrading the mission systems of 18 AP-3Cs under the Sea Sentinel programme. L-3 Communications (previously Raytheon) delivered the first upgraded aircraft in September 1998. New Zealand is re-winging six P-3Ks to extend their life, but cancelled a Raytheon update of the avionics and sensors. Norway, the Netherlands and Spain are upgrading the mission systems in their P-3s.

The P-3 was first flown in 1958. A total of 649 aircraft were built, including 345 P-3Cs. Kawasaki continues to build the P-3 under licence in Japan.

U-2

Lockheed Martin delivered the first U-2 upgraded under the Reconnaissance Avionics Maintainability Programme (RAMP) in April 2002. This updates the 1960s-era cockpit with three 150 x 200mm multifunction displays, an upfront control and display unit and an independent secondary flight display.

The USAF's fleet of 31 U-2Ss and four two-seat U-2STs will be retrofitted by 2007. The U-2s have already been re-engined with the GE F118 turbofan, which replaces the P&W J75 and extends service life to 2020.

The re-engined U-2S has increased range, altitude and payload, and improved reliability and maintainability.

The U-2's Raytheon ASARS-2 SAR sensor has been upgraded under the radar improvement programme (RIP), which entered service in 2000. This uses off-the-shelf software to give better real-time precision targeting, broad area coverage, imagery for intelligence applications and ground moving target indication.

LOCKHEED MARTIN AIRCRAFT ARGENTINA

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AT-63 Pampa

FMA had produced the IA-63 Pampa jet trainer, but funding difficulties prematurely closed the line. In September 1999, a 20th Pampa was delivered, built from spares.

Upgrade of the renamed AT-63 is seen as crucial to secure export orders. The Argentinian government ordered 12 AT-63s in July 2000, while earlier aircraft are to be upgraded using the same Elbit systems – including new MFDs, mission computer and communications.

The new-build AT-63s, together with 10

LOCKHEED MARTIN AIRCRAFT ARGENTINA

Aircraft	IA63 Pampa
Mission	Advanced trainer/light attack
Powerplant	1 x Honeywell TFE731-2N
Max thrust (lb)	3,500
Wing span (m)	9.69
Wing area (m ²)	15.63
Length (m)	10.93
OEW (kg)	2,820
MTOW (kg)	5,000
Max load (kg)	1,160
Range (km)	2,100
Endurance	4h 20min
Hardpoints	5
Cruise (kt)	350
M _{mo}	M0.80
Ceiling (ft)	42,300
Crew/passengers	2
Internal fuel (kg)	1,080
Fuel, opt ext (litre)	-
Air refuel?	No