

# MILITARY AIRCRAFT OF THE WORLD

mapping.

An F-15D, to be leased to MDC by the US Air Force, will be used to support fleet modernisation initiatives beginning in 1996. An F-15B converted to test two-dimensional thrust-vectoring/reversing nozzles has been converted again, this time to test axisymmetric pitch/yaw-vectoring nozzles.

**Customers:** Israel 52, Japan 193, Saudi Arabia 74, USA 1,103.

**F/A-18 Hornet** MDC rolled out the first improved F-18E/F on 18 September, 1995, and plans to fly the aircraft in December. Ten development aircraft are being built by MDC and principal subcontractor Northrop Grumman and the USN plans to acquire 1,000 F-18E/Fs to replace early F-18A/Bs and Grumman F-14s. Initial operational capability is planned for 2004.

The E/F is a structural upgrade of the F-18 and is 25% larger, with 33% more internal fuel and 35% higher thrust than the C/D. The aircraft is powered by two GE F414s. Range is increased 40%, payload 20% and ordnance "bring back" by 200%. Avionics are 90% common with the C/D. Radar signature is reduced.

MDC and Northrop Grumman has agreed to pursue joint development of an command and control warfare (C2W) variant of the two-seat F-18F to replace USN Northrop Grumman EA-6Bs early next century.

Delivery of 64 F-18C/Ds to Finland will begin in November, followed by the delivery of 34 F-18C/Ds to Switzerland and eight two-seat night-attack F-18Ds to Malaysia. These aircraft feature upgraded GE F404-402 engines and improved Hughes APG-73 radar. Thailand has indicated its intention to purchase 18 F-18Ds. Development of an RF-18D reconnaissance variant for the US Marine Corps continues.

The first of 11 development F-18s was flown on 18 November, 1978, followed by the initial production aircraft in April 1980. Based on the Northrop YF-17, initial production versions were the fighter/attack F-18A and F-18B two-seat operational trainer. The improved F-18C/D was first flown in September 1987, followed by the first two-seat night-attack F-18D in May 1988.

**Customers:** Australia 75, Canada 138, Finland 64, Kuwait 40, Malaysia 8, Spain 72, Switzerland 34, USA 1,150, F-18E/F: USA 1,000 planned.

**KC-10 Extender** Production of the tanker/transport version of the DC-10 tri-jet airliner ended after 60 were built for the USAF, but MDC and KLM are converting two ex-airline DC-10s to KDC-10 tanker/ transports for the Netherlands air force. The ex-Martinair DC-10-30CF convertible freighters are being fitted with a KC-10-style re-fuelling boom. The first KC-10 was delivered in September 1995.

**T-45 Goshawk** Full-scale development of this two-seat intermediate/advanced jet trainer began in 1984 and first flights were made in 1988. Production is at one a month in 1995 following a successful passing of the US DoD Milestone III review on 17 January 1995 authorising full rate production.

The T-45A is based on the BAe Hawk 60 series, with the engines, airframe, undercarriage, avionics and cockpit displays modified for USN requirements.

MDC has recently teamed with Rockwell Australia to offer the T-45A Goshawk for the Royal Australian Air Force's (RAAF) Lead-In Fighter (LIIF) trainer programme. The T-45 is one of three aircraft still in the running to replace the RAAF's Aermacchi MB.326H trainers; the others are the Aermacchi MB.339FD and the British Aerospace Hawk 100.

## NORTHROP GRUMMAN

**A-6 Intruder** The A-6E carrier-borne attack aircraft is being withdrawn from service. A limited upgrade of USN A-6Es added missile-approach warning, towed active decoys, satellite navigation and other improvements. Boeing-built composite wings were retrofitted to 172 A-6s. The last new A-6E was delivered in February 1992.  
**Customer:** USA 680 (all versions).

**B-2 Spirit** Northrop Grumman has submitted a proposal to build a further 20 B-2 stealth bombers for \$12 billion, compared with the \$44 billion total programme cost for the first 20 aircraft. The additional B-2s would be



MDC/KLM are converting DC-10s to tankers

built at a rate of two a year to sustain the USA's bomber-production capability, but the USAF says that it does not need any more B-2s.

The 20 B-2s planned will equip two eight-aircraft squadrons. The first operational aircraft was delivered to the USAF in December 1994. Aircraft are being delivered in three production blocks with increasing capability, with delivery of definitive Block 30 aircraft beginning in 1997. All 20 B-2s will be upgraded to Block 30 standard by the year 2000.

The B-2 was first flown on 17 July, 1989, and is a two/three-crew, high-subsonic flying-wing design shaped for low radar signature.

**Customer:** USA 20.

**EA-6B Prowler** USN EA-6Bs are to replace USAF EF-111s in the tactical jamming role by 1999. Plans call for the USN to retain 120 EA-6Bs in service, of which 20 will be dedicated to supporting the USAF. Plans call for aircraft to be upgraded to the latest Block 89 standard and for elements of the cancelled EF-111 system improvement programme to be incorporated.

A four-seat derivative of the A-6, equipped with the AIL ALQ-99 tactical jamming system, the EA-6B was first flown on 25 May, 1968. The present improved-capability ICAP-2 aircraft was first flown in January 1984. Development of the ADVCAP advanced-capability upgrade was cancelled in 1993.

**Customer:** USA 120.

**E-2 Hawkeye** Deliveries of the E-2C airborne early-warning aircraft to the USN are to resume in 1997, with four that year, against a planned requirement for 36. Northrop Grumman delivered four E-2Ts to Taiwan in 1995. France has ordered two E-2Cs for delivery in 1997, and is expected to order two more. New E-2C aircraft are being manufactured in St. Augustine, Florida, where the production line was moved from Calverton, New York.

The latest Group II E-2C incorporates a production Lockheed Martin APS-145 radar subsystem with fully automatic overwater and overland detection and tracking, an enhanced high-speed processor and IFF. Other upgrades include new displays, JTIDS datalink provisions and updated Allison T56-A-427 turboprops.

The first E-2C Hawkeye prototype was flown on 21 October, 1960, while the first of the significantly more capable E-2Cs were flown on 20 January 1971.

**Customers:** Egypt 6, Israel 4, Japan 13, Singapore 4, Taiwan 4, and USA 139.

**E-8 Joint-STARS** The first production-configured E-2C Joint-STARS (Surveillance Target Attack Radar System) prototype had its first system test flight in March 1994, joining two E-8A prototypes used in the development programme. The USAF plans to buy 18 E-8C battlefield-surveillance aircraft and to upgrade the two E-8A prototypes to E-8C standard. The E-8s are based on ex-airline Boeing 707-300 airframes.

Grumman was awarded the \$1 billion contract to develop the Joint-STARS in September 1985. The first prototype E-8 was flown in December 1988 and both E-8As were deployed to the Gulf during Operation Desert Storm in 1991. Grumman was awarded a follow-on full-scale-development contract in November 1990, to build the first E-8C, followed by a low-rate initial production

contract for two E-8Cs in April 1992. Deliveries are scheduled to begin in 1996.

The USAF is studying upgrades to the aircraft, including increasing the resolution of the E-8's Westinghouse (formerly Norden) moving-target indicator/synthetic aperture radar, with its 7.3m-long underfuselage antenna.

**Customer:** USA 20.

**EF-111A Raven** Retirement of USAF EF-111A electronic-warfare aircraft has been delayed by two years to late 1999, but a programme to improve its AIL ALQ-99 tactical-jamming system is to be cancelled. Grumman originally converted 42 General Dynamics F-111A to EF-111 standard.

**Customer:** USAF 24.

**F-5 Tiger II** Northrop Grumman began flight tests of its F-5E Tiger IV avionics upgrade in April 1995 and the aircraft was presented to F-5 operators in late October. The upgrade consists of a Westinghouse APG-66 pulse-Doppler radar, replacing the non-coherent APQ-159 and new head-up and head-down displays modelled on those used in the Lockheed Martin F-16. The upgraded F-5E is being promoted as a lead-in trainer for the F-16.

Canada has retired its Bristol Aerospace-upgraded CF-5A/Bs and is offering the aircraft for sale. F-5s have been upgraded in Chile (by IAI and ENAER), Norway (Sierra Research), Singapore (Singapore Aerospace), Thailand (GEC-Marconi) and Venezuela (Singapore Aerospace). Avionics-upgrade programmes are planned in Brazil, South Korea, Taiwan and Turkey.

Derived from the F-5A/B, and powered by two 22,24kN P&W J85 turbojets, the F-5E/F was first flown on 11 August, 1972. The RF-5E Tigereye carries quick-change sensor pallets, including cameras or infra-red line scanner. The F-5E/F has been produced under licence in South Korea, Switzerland and Taiwan.

**Customers (including secondhand):** F-5E/F Bahrain 12, Brazil 36, Chile 18, Honduras 12, Indonesia 16, Iran 169, Jordan 69, Kenya 14, Malaysia 21, Mexico 12, Morocco 20, North Yemen 12, Saudi Arabia 99, Singapore 44, South Korea 214, Sudan 2, Switzerland 110, Taiwan 316, Thailand 38, Tunisia 12, USA 130, Vietnam 75-plus; RF-5E Malaysia 2, Saudi Arabia 10.

**T-38 Talon** Nine teams are expected to bid for a USAF contract to upgrade 425 T-38 advanced jet-trainers with new avionics, including head-up and head-down displays, mission computer and navigation system. A contract award is expected early in 1996.

**F-14 Tomcat** The USN has purchased 75 Lockheed Martin LANTIRN navigation and targeting pod systems to give some F-14s ground-attack capability. This is one of several upgrades studied for the F-14. Others include a new digital flight-control system to prevent flat spins. Re-engineing of F-14As with the GE F110s used in the F-14D continues, with the modified aircraft re-designated F-14Bs.

**Customers:** Iran 85, USA 635.

## ROCKWELL

**B-1B Lancer** The B-1B's conventional weapons capability is now being upgraded. The first step will upgrade the aircraft's capability to carry the CBU-87 submunition dispenser in place of Mk82 bombs. Later upgrade phases will add the capability to carry conventional precision-guided weapons, including the Joint Direct Attack Munition, Joint Stand-off Weapon, Joint Air-to-Surface Stand-off Missile and Wind-Corrected Munitions Dispenser.  
**Customers:** USAF 97.

## SCHWEIZER

**RU-38A Twin Condor** The US Coast Guard will take delivery of three twin tail-boom aircraft, two of which are heavily modified single-engine RG-8A Condors as operated by the USCG for the past seven years. The third unit will be built around a spare wing set. The RU-38A, unveiled for the first time on 20 July, has been designed for covert, low-level day/night patrol missions with a crew of one pilot and a sensor operator. Potential roles may also include: anti-drugs duties, border patrol, search-and-rescue, and environmental missions.