BOEING/BAE SYSTEMS

Aircraft	T-45 Goshawk	AV-8B Harrier II Plus	Harrier GR7
Mission	Advanced trainer	Attack	Attack
Powerplant	1 x R-R Turbomeca Adour 871	1 x R-R Pegasus 11-61	1 x R-R Pegasus 11-21
Max thrust (lb)	5,985	23,850	21,450
Wing span (m)	9.39	9.25	9.25
Wing area (m^2)	17.66	21.4	21.37
Length (m)	11.99	14.6	14.53
OEW (kg)	4,460	6,750	6,969
MTOW (kg)	6,387	14,528	14,515
Max load (kg)	-	7,324	4,175
Range (km)	1,532	1,480	-
Endurance (h)	-	3	-
Hardpoints	3	9	9
Cruise (kt)	534	585	585
M_{mo}	M0.84	M1	M0.87
Ceiling (ft)	40,000	45,000	45,000
Crew/passengers	2	1	1
Internal fuel (kg)	1,433	3,530	3,451
Fuel, opt ext (litre)	1,182	4,500	-
Air refuel?	No	Yes	Yes
Comments	Take-off and landing distances are with 15m obstacle	TAV-8B is 15.8m long	T10 is 15.8m long

(OSCAR) mission computer. A 1760 databus allows new weapons to be integrated, including the Kongsberg Penguin anti-ship missile for Spain. OSCAR software version 1.2 is due for release in 2003 along with JDAM and Have Quick communications. The USMC wish list also includes the Raytheon AIM-9X short-range AAM, JHMCS and JSOW.

In the UK, RAF Harrier IIs have been rebuilt to GR7 standard and are to be upgraded to GR9s. Modifications will include integration of ASRAAM, Brimstone and Storm Shadow missiles, a General Dynamics UK 1760-standard stores management system, Northrop Grumman INS/GPS navigation, improved cockpit displays and open-architecture mission computer – the latter similar to the OSCAR upgrade. Changes will be introduced over a four-phase programme from 2004. Airframe life will be extended to the planned 2015 out-of-service date. Some aircraft will get the more powerful R-R Pegasus 11-61 engine as the GR9a.

UK upgrades already implemented include fitting the BAE TIALD laser designator pod and integration of new weapons.

BOMBARDIER

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415MP

Bombardier is due to deliver the first 415MP (multipurpose) amphibian to the Greek air force in 2003. The company is pursuing new 415MP orders and conversions of existing aircraft. The 415MP first flew in March 2002.

As well as the traditional firefighting role, the 415MP can be used for maritime surveillance, search and rescue, environmental monitoring and coastal patrol. The aircraft is equipped with twin Ericsson side-looking radar antennas mounted on the aft fuselage, a nose-mounted Honeywell Primus 660 radar, a FLIR Systems SeaFLIR infrared imager under the wing and a Swedish Space MSS5000 data management system.

Bombardier also markets its Dash 8 Q-series turboprops and its range of business and regional jets for special mission roles.

BN GROUP (SEE TABLE P48)

BN Group, Bembridge, Isle of Wight, PO35 5PR UK. Tel +44 (0) 1983 872511, fax +44 (0) 1983 873246; www.britten-norman.com

Defender

After its financial rescue in May 2000, BN Group continues to offer the Defender and Turbine Defender for diverse utility roles. The aircraft can be fitted with a range of surveillance equipment and weapons for offshore patrol or light maritime attack.

CHENGDU AIRCRAFT (CAIC) (SEE TABLE P48)

CAC, Chengdu Aircraft Industrial Corporation, PO Box 800, Chengdu 610092, Sichuan, China. Tel +86 (28) 669 629; fax +86 (28) 669 816

J-7/F-7

Chengdu continues to develop upgraded variants of the F-7, the export version of China's J-7 light fighter, which is in turn a development of the MiG-21. The F-7MG (J-7E) is the latest variant to enter service. Pakistan began receiving its F-7PG version of the aircraft in early 2002. Current aircraft differ from earlier versions in having a double-delta wing.

The updated F-7MG has Western avionics and a BAE Super Skyranger multimode radar. Pakistan's F-7PGs have a ±20°-scan version of the Fiar Grifo 7 radar, addressing the ±10° azimuth limitation of the radar in the basic F-7. Pakistan plans to upgrade 100 of its F-7Ps with the new radar.

At the 2000 Zuhai air show, Chengdu revealed the F-7MF. It is believed that the aircraft, which has a chin intake in place of the traditional nose inlet, is intended as an insurance against failure of the FC-1 *(below)*. A J-7FS testbed, which emerged in 1998, was used to test the chin intake and engine. The F-7MF, however, has a shorter inlet. The powerplant will be a variant of the 14,600lb-thrust Liyang WP13F. The double-delta wing developed for the J-7E/F-7MG is used, but two small foreplanes have been added.

The cockpit will include a HUD and two head-down displays, while the aircraft will be equipped with an 80km-range multimode pulse-Doppler radar. Seven pylons will carry a 3t load. Chengdu predicts a 2,600km range, Mach 1.8 maximum speed, 52,500ft ceiling and a 650m take-off run.

FC-1/Super 7

The FC-1 programme superseded Chengdu's Super-7 light fighter project, intended for the Chinese and Pakistani air forces. The two countries signed a development and production deal for the FC-1 in July 1999, consolidating a two-year-old memorandum of understanding.

The FC-1 was due to fly in 2001, but only a full-scale mock-up appeared. A prototype is not expected until late 2003. It is being developed in a 50:50 partnership between the two countries, to meet Pakistan's requirement for 150 light fighters. Power will be provided by the Russian Klimov RD-93, a variant of the MiG-29's RD-33.

Selection of avionics and systems has been delayed by political concerns about supplying arms to China and by the military coup in Pakistan. Avionics are likely to be supplied by BAE, Galileo or Thales. The winner will have to share the cost of development with China and Pakistan, recouping its expenditure during production. Fiar has proposed an avionics suite based around the Grifo S7 radar, developed for the Super 7, while Thales is offering a system built around the RC400 multimode radar.

Chengdu has received design assistance from RSK on the single-engined FC-1, which will have a shoulder-mounted delta wing and a conventional horizontal tail. The engine will be fed by intakes on either side of the fuselage.

J-10/F-10

Chengdu's J-10 fighter flew for the first time in March 1998. The design draws heavily on that of Israel's cancelled Lavi fighter and is powered by a single Klimov RD-93 afterburning turbofan, a version of the MiG-29's RD-33.

It is unclear whether the Chinese air force has yet selected a multimode radar. The choice is between the Israeli Elta EL/M-2035, with an enlarged 680mm-diameter antenna; Russian Phazotron Zhemchoug, a Zhuk derivative; or the China 14th Technical Research Institute's JL-10A pulse-Doppler radar, which may include Phazotron components. Israeli and Russian com-