



Capabilities Enhancement upgrade as a modular system that it can be offered to users of F-16C/Ds and earlier (Block 30) C/Ds.

The F-16's popularity over the last 20 years has led to the retirement of many second and third generation fighters, such as the Lockheed F-104 Starfighter, McDonnell Douglas F-4 Phantom and Northrop F-5, although the latter two types still serve in significant numbers. Many companies also offer upgrades for the two fighters, although major F-4 users Germany, Greece, Japan and Turkey have sourced

upgrades – which reduces the market's apparent size. Numerous operators of the more than 1,200 F-5s in service have yet to select a manufacturer – or even decide whether they will upgrade. Although some operators will elect to replace the F-5 with newer aircraft, others have acquired the aircraft secondhand.

Second only to the F-16 in sheer numbers is the venerable MiG-21 Fishbed, with well over 2,000 in service. Like its western contemporaries, the MiG-21 continues to be the focus of a number of upgrades offered by Eastern and Western companies. This market has not been as vibrant as was once forecast, probably because many operators are countries with limited resources to spend on defence. China's MiG-21-based Chengdu F-7 is also one of the world's most popular fighters, a status achieved by its role as the Chinese air force's mainstay.

The RSK MiG-29 Fulcrum has also become the focus for a number of companies' upgrade programmes. The fighter is one of few military aircraft to appear in all of the eight regions *Flight International* uses for this census.

#### POPULAR TRAINERS

Aero Vodochody's range of advanced trainer/light attack aircraft is by far the trainer line in most widespread use. The mainstay of Warsaw Pact training, the L-39 was also exported to many other countries. Although the basic design has evolved through the L-59 and L-139 to the L-159 (all are included under the L-39 figure), the basic model is still being delivered, albeit at the rate of one a year, to Bangladesh.

Potentially the training aircraft market is set to expand with a host of countries worldwide declaring a need for such aircraft. Such needs, however, often slip to the bottom of the pile and BAE Systems, for instance, announced earlier this year that lower than expected orders for the Hawk could lead to further job cuts. Asia Pacific, North Africa and the Middle East and Eastern Europe were expected to be fertile markets but all have been depressed. The former suffered a major downturn in the late 1990s, depressed oil prices have limited spending power within the Gulf and Eastern Europe continues to struggle with developing economies, despite more than 10 years having passed since the Berlin Wall fell.

A glance at the tanker/transport table neatly highlights why aerospace companies are so keen on winning the US Air Force's Lockheed Martin C-130X Avionics Modernisation Programme (AMP) and why such high interest is being generated by the USAF's ultimate plan to replace its Boeing KC-135 fleet. Until now most Hercules modernisations have been limited to one or two countries each. The C-130X AMP is expected to be selected by many other Hercules operators, some of which have already

**TABLE 1 TOP TEN FLEETS - COMBAT AIRCRAFT†**

Lockheed Martin F-16	3,347
Mikoyan MiG-21 Fishbed/Mongol/Lancer	2,147
Boeing F/A-18 Hornet	1,764
RSK MiG-29 Fulcrum	1,527
Mikoyan MiG-23 Flogger	1,525
Northrop F-5 A/B/F-5E/F	1,234
Boeing F-15 Eagle	1,199
Sukhoi Su-27/30/33 Flanker	1,191
Chengdu J-7/F-7/Guizhou JJ-7/FT-7	1,161
McDonnell Douglas F-4 Phantom	892

†Around 3,360 Mikoyan MiG-19 Farmer/Shenyang J-6/F-6/JJ-6/FT-6/JZ-6s are in-service. The majority, 2,800, are in Chinese air force and navy service, although as with the rest of the world's MiG-19/J-6 fleet, serviceability is believed to be poor. Similarly, 1,730 Mikoyan MiG-17 Fresco/Shenyang J-5/F-5/JJ-5/FT-5 aircraft are not included in this list due to unconfirmed operational status.

**TABLE 2 TOP TEN FLEETS - TRAINERS**

Aero L-39/L-59 Albatross/L-159	2,256
Yakovlev Yak-11/Yak-18	1,776
Yakovlev Yak-52/Aerostar IAK-52	1,667
Pilatus PC-9/PC-9MkII/Raytheon	
T-6 Texan/Harvard	994
A-37/T-37	824
Northrop Grumman T-38 Talon	688
BAE Systems Hawk 50/60/100/200/	
Boeing T-45 Goshawk	674
Embraer EMB312 Tucano/Shorts Tucano/	
Embraer EMB-314 Super Tucano	532
Beechcraft T-34A/B Mentor/T-34C Turbo Mentor	508
Aermacchi SF260/SF260TP/SF260W Warrior	480

allocated funding for the upgrade.

The KC-135 tanker fleet could continue in operational service until 2040, although some are already 40 years old. A replacement is not expected to enter operational service until the mid years of the next decade – but the rewards for a company winning a contract to replace even half this tanker fleet would be substantial.

#### ARMED HELICOPTERS

Although only nine types of combat helicopter are in service or have production orders, a large number of armed transport machines, such as the Mil Mi-8/17 Hip – and light rotorcraft, such as the Aerospatiale Gazelle – are in service. The world combat helicopter fleet is, however, dominated by the Mil Mi-24/25/35 Hind, a type which gained its reputation during the former Soviet Union's war in Afghanistan, and in regional conflicts in Africa and Latin America. Some countries, mainly those with few resources and often insurgent elements, rely on the Mi-24 as their principal combat aircraft in place of fast jets. The Hind's ubiquity has led to the development of upgrade programmes with companies worldwide offering a range of improvements for the navigation system and often replacing the elderly Soviet era cannon with more modern equivalents. The largest programmes include IAI's upgrade of Indian air force Hinds, while South Africa's ATE is thought to be modifying Algerian Mi-24s.

**More aircraft are operated by NATO than the countries in any other of the eight regions covered by this census. Importantly, the US armed services account for over half of NATO's aircraft**