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# JSF numbers will be crucial to future USMC air power

The US Marine Corps must try to maintain flexibility despite a relatively small share of the proposed defence budget

US Department of Defense studies into cutting the number of Lockheed Martin F-35 Joint Strike Fighters (JSF) to be acquired could not have come at a worse time for the US Marine Corps.

It is already in a rearguard action to save the Bell Boeing V-22 Osprey tiltrotor programme at the same time as facing cost overruns and delays to the Bell AH-1Z and UH-1Y upgrades. Its Sikorsky CH-53E fleet is also in urgent need of a service life extension (SLEP).

The USMC is progressively reducing the number of types it operates, from 16 fixed- and rotary-wings 20 years ago to as few as five after 2020. Its legacy McDonnell Douglas F-4 Phantoms, A-4 Skyhawks, Grumman A-6E Intruders and Rockwell OV-10 Broncos have already been pensioned off and will be joined in retirement over the next 15-20 years by the Boeing/BAE Systems AV-8B Harrier II, Boeing F/A-18C/D Hornet, Boeing CH-46E Sea Knight and the CH-53D.

Plans call for the USMC to re-equip almost completely with 609 F-35 short take-off and vertical landing (STOVL) fighters, 360 MV-22Bs, 280 modernised AH-1Z/UH-1Ys and 111 rebuilt CH-53X helicopters at a projected cost of nearly \$70 billion. This is a substantial bill, as the USMC's share of next year's proposed defence budget will amount to only 6.1% of the total – or \$23 billion.

Many observers are nonetheless surprised that the Pentagon is considering shaving the combined USMC and US Navy planned procurement of 1,089 JSFs by 37%. The heaviest burden could fall upon the USMC, which may have its F-35 fleet cut almost in half. The USMC has sized its planned STOVL buy on a one-for-one replacement of its tactical fighter fleet, which amounts to 14 Hornet and seven AV-8B squadrons.



The USMC deploys its AV-8Bs to amphibious ships and aircraft carriers

At issue is the future role and deployment of the USMC's fixed-wing assets and in particular the four F/A-18C squadrons that have formed an integrated part of the USN's carrier air groups (CAG) since 1994. "A big dynamic part of this is how much of a contribution marines make to the CAG's tactical aircraft versus having STOVL fighters on the LHA/LHD [amphibious ships] decks," says Col Tom Conant, USMC chief aviation programmes plans and budgets.

The USMC maintains detachments of six AV-8Bs on the navy's 12 Tarawa-class LHA and Wasp-class LHD amphibious warfare carriers and plans to increase this to 10 F-35s in the future.

In addition, the marines have periodically deployed STOVL air-

craft onto the USN's larger conventional carriers since first taking the AV-8A to sea aboard the *USS Franklin D Roosevelt* in 1977.

Marines argue that mixing STOVL and conventional carrier (CV) aircraft provides the navy with greater operational flexibility. "A STOVL aircraft can generate so many more sorties versus a CV aircraft and, for us, close air support is the life and death of a marine," says Conant. Furthermore, he adds, the aircraft will have the ability to deploy and operate from forward austere bases, as in the case of USMC AV-8Bs recently at Kandahar, Afghanistan.

The USMC is also eager to draw on recent experiences fighting the Taliban and al-Qaeda to shore up its argument for continuing the

V-22 programme. Flight testing the Osprey is due to resume at the end of next month, subject to a final DoD green light. The MV-22B faces two more years of development testing and is unlikely to be declared operational before 2005. The marines are hoping that an engine reliability improvement programme to replace the core of the CH-46E's turboshaft will restore some of the ageing helicopter's lift capability and buy the MV-22B more time.

Meanwhile, Pete Aldridge, DoD undersecretary of defence for acquisition, technology and logistics, has asked the USMC to consider other options to the tiltrotor, including the EH Industries EH101, Sikorsky S-92, or additional larger CH-53Xs. None is viewed as offering much of an alternative to the MV-22B's faster speed, extended range and higher altitude advantages. "As we envision expeditionary manoeuvre warfare as laid out by the [USMC] commandant, requiring a 200-300 mile [320-480km] range capability, helicopters don't help much," says Conant.

Afghanistan has proven particularly stressful to the CH-53E fleet and the USMC was forced to retire its first machine this month after reaching the 6,120h fatigue-life limit of the aft tail pylon. Retirements will rapidly accelerate from 2010 unless the USMC starts work on an upgrade in 2004. This will include new Rolls-Royce AE1107 turboshafts, an elastomeric rotor hub, composite blades and a glass cockpit derived from that of the UH-1Y.

Based on its recent troubled H-1 upgrade experience and that of the USN with the Sikorsky MH-60R (a rebuild decision has been overturned in favour of new build machines), the USMC does not rule out building all new CH-53Xs as an alternative to a SLEP.