



The U.S. tactical aircraft crisis

Last November, a 27-year-old Air Force F-15 on a routine flight broke apart in mid-air. Concerned about structural flaws, the service grounded its force of about 700 F-15s until the cause could be determined. Newer planes were returned to service in January, but hundreds of older ones stayed grounded until airframe inspections could be carried out. In February, another F-15 crashed in Hawaii, the fifth F-15 crash since May 2007. In February, over 100 were still grounded; currently, all but nine are now flying.

These events highlight a major problem with the U.S. fighter aircraft force: The fleet is wearing out faster than expected, new aircraft procurement rates are running well below the number needed to replace worn-out planes, and there are few plans to deal with the consequences.

Wearing out

The situation for aging fighters is not quite as bad as it is for special-mission aircraft and bombers. The delayed KC-X refueling tanker recapitalization program has resulted in an average of 46 years for the KC-135 fleet, which makes up 90% of the tanker force. Anticipated KC-X procurement rates are barely over one per month, so many KC-135s will not be retired until they are well over 70. For the Air Force's 94 B-52s—half the total bomber force—the average age is over 45 years. Plans for a replacement bomber are highly uncertain, with procurement at least 10 years away.

Yet compared with fighters, these larger planes are subject to relatively lighter stress. Bombers and tankers endure fewer cycles—takeoffs and landings—than tactical aircraft. They are less likely to fly in a harsh environment such as an in-theater air base or an aircraft carrier. And perhaps most important, they are much less likely to maneuver at an-



gles and speeds that greatly worsen aircraft fatigue.

This difference is best evidenced by the recent F-15 crashes. Despite the advanced age of the KC-135 and B-52 fleets,

and concerns about KC-135 airframe corrosion, there have been relatively few crashes or mishaps, and none that have been associated with airframe fatigue.

The F-15 that broke apart in November was only slightly older than average. The F-15 fleet average age is over 20 years. While there is an investigation into possible manufacturing flaws, Air Force officials have also stated that the F-15 design was never intended to fly for 30 years. One retired general, Gregory Martin, stated, "In my opinion, based on the engineering data we had, we should not be surprised that we are finding some failures in the major structural areas of the airplane. The question wasn't if they would fail, it was when those failures would occur."

The age of the fighter fleet has been greatly worsened by higher than expected utilization rates. The Iraq and Afghanistan conflicts continue to require air power for strike missions. The Air Force typically executes 250 sorties daily. The situation is equally bad with Navy/Marine aviation. In fact, because of fatigue, some





USMC F/A-18Cs are being replaced by older reactivated A models.

Because of a concerted effort to avoid casualties in Iraq and Afghanistan, strike missions have increased markedly. There were over 1,200 tactical bombing missions in 2007. That was about five times the total in 2006, and more than the number in the previous three years combined.

Slow recapitalization

Skeptics have accused the Air Force of using the F-15 fleet troubles as a rationale for additional F-22 buys, but notably, senior DOD officials have remarked on the extent of the F-15 problems. DOD, unlike the Air Force, is generally against extended F-22 procurement, largely because of concerns that additional F-22 buys could create budget pressure against the F-35.

Yet it is unclear whether DOD can do anything about the aging fighter problem. There is broad agreement that the FY09 defense budget—likely to exceed \$700 billion with supplemental spending bills—is at or near the peak of the defense spending cycle. It is the last Bush administration budget, and the next one could well reflect a Democratic presidency, with the start of an Iraq war wind-down. Supplemental defense spending pack-

ages related to Iraq and Afghanistan are likely to wind down, as well.

The FY09 budget deftly manages to avoid the F-22 debate altogether. It conspicuously lacks both long-lead funding for an FY10 purchase and the funds needed to shut the line down. There has been discussion of adding four more planes to the FY09 batch via supplementals, but this would add only a few months to the production program. With or without the additional four aircraft, the last funded plane will be delivered in 2011.

The only sign of hope is that the

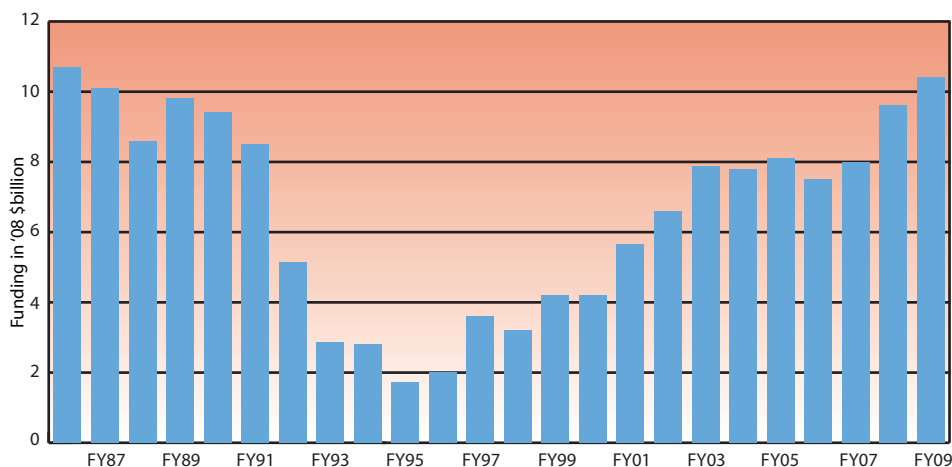
FY09 Air Force unfunded priority list includes \$497 million in advanced procurement money for an FY10 production lot of 20 F-22s. If this funding is provided; if it is followed by the actual FY10 funding for these planes; and if the notional four FY09 supplemental planes are funded, total F-22 procurement would be raised to only 207 aircraft from the current 183.

In terms of recapitalization, the Navy is in better shape than the Air Force. Its highest procurement priority has been the F/A-18E/F and its related EA-18G electronic warfare plane. The F/A-18 line is very much open, costs are quite reason-



able (about \$45 million-\$50 million per aircraft), and there has finally been an export order (Australia signed for 24 F/A-18Fs last year).

DOD TACTICAL AIRCRAFT PROCUREMENT, FY1986-2009
with major rebuilds, by funding



Yet when viewed from a top-level perspective, the FY09 budget provides for a paltry level of fighter recapitalization. The good news is that it provides about \$10.4 billion in tactical aircraft procurement funding, a record level for over 20 years. The bad news is that this pays for only 81 aircraft—20 F-22s, eight Air Force F-35s, 45 F/A-18E/F/Gs, and eight Navy/Marine F-35s.

Options, good and bad

There are three good options to remedy this aircraft recapitalization problem. The first is the most obvious: Increase spending on new tactical aircraft. The Air Force, for example, continues to insist that it wants 381 F-22s, with procurement ongoing despite the F-35 spending ramp-up. There also has been congressional talk of another 100 F-15Es, although the Air Force steadfastly resists the suggestion. The Navy has indicated that it is looking at another batch of F/A-18E/F/Gs beyond the current 579 aircraft.

All three air arms, especially the Marines, continue to plan on large-scale production of the F-35 Joint Strike Fighter, with an ultimate combined goal of over 2,400 planes. The problem is that the F-35 was supposed to cost about \$40 million in today's money. While there are hopes of getting the unit recurring fly-away down to \$55 million-\$60 million, the unit price of the first production batches is actually around \$100 million. This means that when F-35 procurement spending ramps up, it is unlikely to produce much more than the 81 fighters funded in FY09.

Also, as noted, the military likely faces a flat or declining defense budget, with inadequate resources for tactical aircraft. Spending on fighters is at a peak not seen since President Reagan's cold war buildup (for comparison, the same level of spending then purchased 350-400 tactical aircraft annually). Given competing requirements for ships, space systems, airlift, and other Navy/Air Force requirements, there are few hopes of growing tactical aircraft's share.

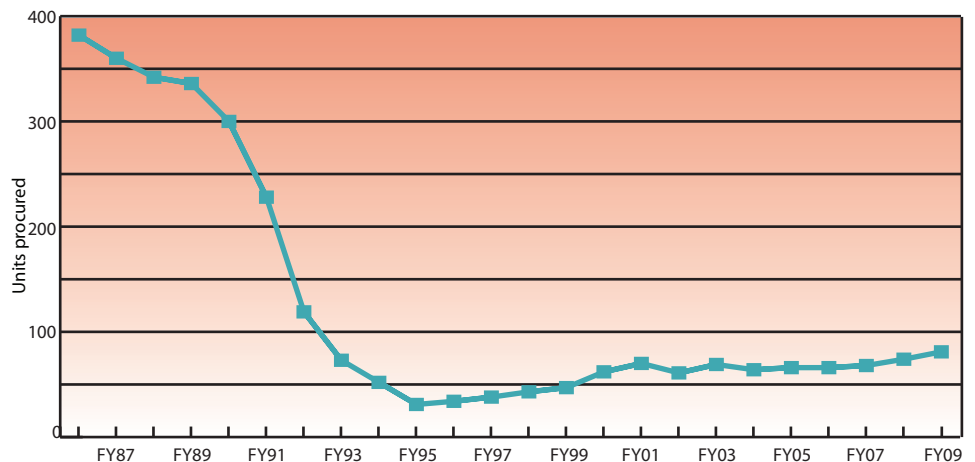
Most of the supplemental spending that Congress has added to the weapons procurement bud-



get has gone to Army and Marine systems—vehicles, munitions, helicopters—while very little has gone to tactical aircraft. In fact, the entire supplemental process can be viewed as an effort to temporarily grow the Army and Marine share of the procurement budget. The service's percentage shares of this budget have historically remained relatively constant. But supplemental spending circumvents these percentages, allowing faster recapitalization for the services that have suffered the worst equipment attrition.

The second remedy to the recapitalization crisis is to spend much more on the existing, legacy fleet. While there are ongoing product improvement efforts and even a few hundred F-15 radar replacements, there are no plans for the kind of extensive airframe/engine/sensor rework effort enjoyed by the Marines' AV-8B fleet in the 1990s. Funding for aircraft modifications looks relatively flat, and as with procurement money, supplemental modification spending tends to favor systems other than aircraft.

DOD TACTICAL AIRCRAFT PROCUREMENT, FY1986–2009
with major rebuilds, by number of units



Paying for an aging, more costly legacy fleet involves more than just major upgrades. Routine maintenance and refurbishment are expensive too. The Air Force is now building new F-15 longerons, the aluminum rails that hold the fuselage together. Costs for manufacturing and fitting structural components are higher than more routine spares and maintenance expenses. While the longeron insertions needed to bring each F-15 back to flightworthy status cost only about \$250,000, this modification will merely move the age and fatigue-related stress onto different airframe components.

The third option is to shrink the fighter force. To a limited extent, this is already under way. When the Air Force returned its newer F-15s to service, it also said that dozens of older aircraft would likely be permanently grounded. The number of Air Force fighter squadrons declined from 46 in FY02 to 31 in FY06.

However, there are no plans for further major cuts, and current inventory numbers still require a much faster replacement pace.

These options are not exclusive—a mix of all three is quite possible. But a decision to act on the problem will not be made soon. As with the issue of F-22 procurement, the FY09 budget basically avoids the tactical aircraft recapitalization problem altogether.

Unfortunately, there is an unspoken fourth option that has so far been largely unmentioned: a return to a hollow force. The post-Vietnam war U.S. military of the late 1970s was plagued by this problem. By raw unit and equipment numbers, the military looked sound. But actual readiness rates had declined drastically. In addition to personnel concerns, there were low mission-capable rates due to aging equipment and inadequate budgets for spare parts and repairs.

A rude awakening?

The decrease in U.S. aircraft forces, and possibly declining aircraft readiness, fits into a broader, problematic pattern. The traditional tools of superpower strength—aircraft carriers, strategic and tactical aircraft, bombers, transports, submarines, and many other systems—are basically being short-changed as the U.S. military seeks to rebuild its ground forces.

Yet after the bulk of U.S. forces are withdrawn from Iraq, the U.S. is likely to stay away from manpower-intensive conflicts and return to a traditional power projection role, reliant on air power and naval forces. If that is the case, it is possible that the next conflict will result in supplemental spending that is desperately needed to rebuild air and sea forces after a rude awakening.

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