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STATEMENT OF

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Mr. Chairman, distinguished members of the subcommittee, thank you for inviting me to speak to you today about DoD tactical aviation programs.

As requested, this testimony will address the applicability of DoD's tactical aviation modernization programs to the full range of military challenges facing the United States. I will discuss how the capabilities offered by these programs match up against DoD's most pressing military challenges. In short, DoD tactical aviation modernization faces three interrelated challenges: relevance, balance, and budget.

Relevance

Observing that DoD tactical aviation modernization programs face a relevance challenge is, at first blush, counterintuitive. By all accounts, the U.S. air forces dominate state-on-state conflict. The United States has not faced a true peer military competitor since the Soviet Union collapsed. Since 1991, U.S. military aircraft have flown in excess of 400,000 combat sorties, and lost only 39 aircraft to enemy action. Recent conflicts, such as Panama, Libya, Iraq (Desert Storm) Bosnia, Kosovo, Afghanistan, and Iraq (Iraqi Freedom) illustrate that in a variety of circumstances, U.S. air forces have proven very effective at achieving classic military objectives against the armed forces of other countries. Achieving significant military objectives against non-state actors, however, has proven more difficult.[1]

In the past, combating non-state actors was seen by many to be a "lesser included case." Non-state actors appeared to be less threatening to national security than the well funded, well organized, and much more militarily potent armed forces of an enemy nation-state. If, for example, the U.S. military was deemed adequate to deter or defeat the Soviet military, then it was also deemed adequate to combat non-state actors.

The terrorist attacks of September 11, 2001 graphically illustrate, however, that small groups of non-state actors can exploit relatively inexpensive and commercially available technology to conduct very destructive attacks over great distances. Few observers today consider non-state actors to be a "lesser included case." Increasingly it is recognized that in many cases, combating non-state actors presents a different – and in many cases – a greater set of challenges than combating a conventional military foe.

Military planners have a number of tools at their disposal to attempt to find, identify, track, capture, neutralize, or kill terrorists, counterinsurgents and other non-state actors. A survey of counterinsurgency and anti-terrorism efforts indicates, that in general, military aviation plays a prominent role in performing these tasks. Airpower has proven very valuable in contemporary (e.g. Iraq, Philippines) and historical (e.g. El Salvador) counterinsurgencies. The most critical missions, appear to be persistent surveillance and reconnaissance, aerial insertion of troops, combat search and rescue, medical evacuation, tactical air mobility, and tactical airlift and resupply.

The air dominance and strike missions at which today's tactical aircraft excel are also important

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[1] "Non-state actors" is an umbrella term that refers to a number of armed groups such as political terrorists, narco-traffickers, paramilitary insurgents, and even international organized criminal organizations. These terms are not mutually exclusive. Paramilitary groups can, for example, engage in narco-trafficking, terrorism, and crime. Other terms which appear synonymous include "Military Operations Other Than War (MOOTW), and "irregular warfare." Others use the term "small wars."

to counterinsurgency and other non-state actor operations. These missions, don't however, typically require the high performance characteristics of the combat aircraft that DoD is currently developing and beginning to produce. Non state actors do not have to resources to effectively challenge even modest air forces. In some circumstances, aircraft less capable than the F/A-22, JSF and F/A-18E/F may even be preferred for strikes against insurgents owing to their lower airspeeds.

In general, the U.S. armed forces that are fielded today were organized, trained and equipped principally with conventional, state-on-state warfare in mind. This is true for DoD's major tactical aviation programs. The F/A-22 traces its lineage to the Advanced Tactical Fighter program (ATF) which began in the early 1980s. The F/A-18E/F program was initiated in 1991 as the Navy's A-12 Naval ATF, and F-14 re-manufacturing programs were terminated. The JSF program, then called JAST, began in 1993. Even in a "post 9/11 environment", those developing these programs still see these aircraft as most applicable to conventional warfare. For example, the most recent F/A-22 Operational Requirements Document (ORD), from the spring of 2004, contains no mention of counterinsurgency missions, irregular warfare, or capabilities to defeat terrorists.

One of the primary reasons why the relevance of DoD's tactical aviation programs to defeating non-state actors is questioned, is because the operational challenges are fundamentally different from conventional military challenges. Compared to the armed forces of a nation state, non-state actors are relatively easy to defeat in direct combat. Non-state actors typically lack the equipment, training and discipline that define a military force. Actually engaging in direct combat with non-state actors is the core operational challenge. Non-state actors typically don't wear uniforms. Indeed, they generally strive to integrate themselves into the local civilian population. Thus, target identification is very challenging. Non-state actors rarely mass into easily recognizable formations. They typically lack large infrastructure or obvious logistics processes. Therefore, non-state actors present few "high value" targets for U.S. forces. This challenge has not been lost on DoD leadership. For example LtGen. Wooley, Commander of Air Force Special Operations notes:

> For many years, though, there's been a concern that intelligence collection capability basically rested in the ability to find a tank or an artillery piece hiding in a grove of trees. The problem now becomes how to find individuals hiding in groups of people...This presents a huge problem for us.[2]

The leadership and structure of many non-state organizations are opaque. Such organizations might be diffuse and operate over long distances. Al Qaeda, for example, often operates through partner organizations which might be small and have fluid leadership. One DoD leader has said "When we kill or capture one of these leaders, another one steps in and quickly takes their place."[3] Once identified, non-state actors are often difficult to engage due to concerns over collateral damage. Even conventional state-on-state conflict presents collateral damage concerns. When one party is actively trying to shield itself behind non-combatants, however, delivering weapons with extreme precision and minimum effects takes on increased importance. A recent RAND study summed up the operational challenges:

> ...ferreting out individuals or small groups of terrorists, positively identifying them, and engaging them without harming nearby civilians is an extremely demanding task. Substantial improvements will be needed in several areas before the Air Force can be confident of being able to provide this

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[2]Lt.Gen. Michael W. Wooley. Commander, Air Force Special Operations Command. "Application of Special Operations Forces in the Global War on Terror." *Air & Space Conference 2004*. Washington, DC. September 14, 2004.

[3]*Ibid*

capability to combatant commanders.[4]

In sum, identifying and characterizing the insurgent or terrorist target is a key problem for DoD, and it is difficult for many to see how tactical aviation plays a leading role in overcoming this challenge. Similar observations can be made for counterinsurgency and irregular warfare tasks such as persistent surveillance, stealthy insertion of troops, rapid re-supply or medical evacuation of friendly forces operating in remote and austere areas.

Balance

Senior leaders in DoD appear to appreciate the distinct challenges that combating non-state actors present, however, and are taking steps to ensure that these challenges are reflected in long-term military plans, programs, and policies.

DoD's 2006 Strategic Planning Guidance found that the U.S. is well positioned to deal with a conventional military adversary. Increasingly, however, the U.S. may find itself facing non-conventional foes, for which it is not well prepared.[5] Further, it has been reported that DoD leadership has instructed regional combatant commanders to "develop and maintain new war plans designed to reduce the chance of postwar instability like the situation in Iraq."[6] Based on these plans, some believe that this year's Quadrennial Defense Review (QDR) "could upend U.S. military procurement plans as Pentagon officials shift their focus from waging conventional warfare to developing new ways to counter catastrophic, disruptive and irregular threats – in a word, terrorism."[7]

There is a consensus view in defense circles that airpower is one of the United States' great military advantages. Some are increasingly concerned, however, that military aviation is focused too much on the demands of fighting conventional foes to the detriment of irregular warfare, and that "the challenge for the Air Force is to re-shape its forces to increase their relevance in small wars, while maintaining the capability to win major conflicts."[8] In other words, a balance must be struck.

Supporters of DoD's current plan for tactical aviation modernization say that the F/A-22, JSF and F/A-18E/F are still required for state-on-state conflict, despite U.S. preeminence in this area, and that new concepts of operation, new organizational schema, or technology upgrades may increase these systems' applicability to counterinsurgency and irregular warfare challenges. Those who support DoD's current tactical aviation modernization plans, could argue that fluid threat environments are nothing new. Platforms with long development time lines and long operational lives often must be modified and used differently than originally intentioned so as to keep pace with new threats and military objectives. It is much more difficult, to take the opposite approach, they could argue. From their perspective, DoD can't develop technologically less sophisticated weapons

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[4]David Ochmanek. "Military Operations Against Terrorist Groups Abroad." RAND. 2003.

[5]"Building Top-Level Capabilities: A Framework for Strategic Thinking." *Briefing to Senior Level Review Group.* August 19, 2004.

[6]Greg Jaffe and David Cloud. "Pentagon's New War Planning to Stress Postconflict Stability." *Wall Street Journal.* October 25, 2004.

[7]Jason Sherman. "US War on Terror Looms for QDR." *Defense News.* October 25, 2004.

[8] Thomas McCarthy. *National Security for the 21st Century: The Air Force and Foreign Internal Defense.* School of Advanced Air and Space Studies. Air University. Maxwell AFB, AL. June 2004. p.67. And Thomas R. Searle. "Making Airpower Effective against Guerrillas." *Air & Space Power Journal.* Fall 2004.

systems to address unconventional threats, and then improve these systems in the future if more high tech threats arise.

While "low-tech" insurgents and other non-state actors appear to deserve more attention than in the past, the United States shouldn't slight its traditional military strengths, tactical aviation supporters argue. DoD has evolved from a "threat based" to a "capabilities based" planning framework. Threats can change, but the military capabilities we desire, tend to have a longer life-span. We know that achieving air dominance is a key military capability we must maintain, supporters of DoD's current tactical aviation say, and we must prepare to achieve air dominance in the most stressing scenarios; such as a potential conflict with China, for example.

Russian SA-10 and SA-12 SAMs have been operational since the 1980s. These "double digit" SAMs are a concern for military planners due to their mobility, long range, high altitude, advanced missile guidance, and sensitive radars. The Russian SA-20, still under development, has been likened to the U.S. *Patriot* PAC-2 missile, but with an even longer range, and a radar that is very effective in detecting stealthy aircraft. Military planners are concerned that a country with only a handful of these SAMs could effectively challenge U.S. military air operations by threatening aircraft and disrupting operations from great distances.

A variety of new technologies and military systems could exacerbate the "double digit" SAM challenge. First, commercial information and communications technologies are enabling adversaries to better network the elements of their air defense systems. This allows them to disperse radars, SAM launchers and other associated platforms throughout the battlespace, and to share targeting information among launchers. This, in turn, suggests that radars may be used less frequently and for shorter periods of time, complicating efforts to avoid or suppress them. Second, terminal defenses are being marketed by a number of international defense companies. These radar-guided Gatling guns are designed to protect "double digit" SAMs or other high value air defense assets. These systems could prove quite effective in shooting down missiles aimed at enemy air defenses. Third, Russia and other countries have developed and are selling GPS jammers. Over varying distances, these low-watt jammers may degrade the GPS guidance signals used by many U.S. precision guided munitions (PGMs) to augment inertial guidance systems, reducing their accuracy.

If these double digit SAMs are protected by an enemy air force equipped with advanced Russian or European combat aircraft, the military problem becomes dire, say supporters of DoD tactical aviation. According to press reports, a recent Air Force exercise with the Indian Air Force, called *Cope India*, illustrates that pilots from non-NATO countries can receive excellent training and execute advanced air combat tactics. When flying advanced combat aircraft such as the SU-30, such well trained pilots could effectively challenge U.S. air forces, some say.

DoD's tactical aviation programs are designed to prevail in scenarios where enemies field advanced SAMs, advanced fighter aircraft, and associated technologies. Supporters argue that a reduction in U.S. tactical aviation would threaten our ability to prevail and could jeopardize key U.S. national security goals.

Most would agree that DoD still requires advanced tactical aircraft to deter and fight tomorrow's conventional conflicts. However, many argue that the efforts and resources expended to develop and produce the F/A-22, JSF, and F/A-18E/F are not balanced with current and foreseeable conventional military challenges. The ability to achieve air dominance *is* a key capability that DoD must sustain, but against whom? Air dominance was achieved in about 15 minutes over Afghanistan and Iraq, some say, and, for the most part, with aircraft designed 30 years ago (e.g. F-15s, F-16s, AV-8Bs).

The stressing air dominance scenario described above may require some of the aircraft currently being developed by DoD. However, how many of these scenarios might realistically emerge in the future? Many would agree that a "Taiwan straits scenario" could be one such challenge, but other examples are very difficult to credibly imagine. Those who seek a re balancing of DoD tactical aviation argue that the proliferation of advanced SAMs has not occurred, and will likely not occur in the future, at the rate predicted by DoD.

Despite being on the market for over 20 years, Russia reportedly has only managed to sell double digit SAMs to five other countries (Bulgaria, China, Czech Republic, Germany, and Greece), three of which were Soviet client states at the time of the sale. While these weapons are clearly dangerous, they are also expensive, and require extensive training to operate effectively, some argue. This has arguably slowed the proliferation of these systems, and may also do so in the future. Russia failed to sell SA-10 and SA-12 SAMs to Chile, Egypt, Hungary, Iran, Kuwait, Serbia, South Korea, Syria, and Turkey. These countries have opted instead to purchase either U.S. SAMs, or more modest air defense systems. According to one well known missile analyst

> Russia has traditionally played a significant role in world-wide SAM export. But Russian SAM sales have taken a nose dive since their heyday in the 1970s and 1980s. Particularly disappointing has been the very small scale of sales of the expensive high altitude systems like the S-300P and S-300V. The Russian industries had expected to sell 11 S-300P batteries in 1996-97, when in fact only about three were sold. Aside from these very modest sales to China and Greece, few other sales have materialized. Combined with the almost complete collapse of Russian defense procurement, the firms developing these systems have been on the brink of bankruptcy in recent years.[9]

Those who wish to re-balance DoD tactical aviation also argue that the proliferation of, and threat from advanced combat aircraft is also overstated. Building, operating, and maintaining a modern air force is much more expensive and resource intensive than fielding advanced SAMs. Few countries have the resources and national will to develop and maintain an air force that could challenge U.S. airpower, they argue. Some say that advanced Russian and European aircraft being developed and fielded today may compare well to 30-year old U.S. combat aircraft, on a one-to-one basis. But aircraft don't fight on a one-to-one basis. Instead, they are part of a much larger airpower system. This system is composed, for example, of combat, intelligence, surveillance, airborne warning and control, aerial refueling, electronic warfare, and mission control assets. The importance of well trained pilots and maintenance personnel, which take considerable time and resources to create, cannot be over emphasized.

No other country has an airpower system on par with the United States, nor is one predicted to emerge. Therefore, some argue, today's DoD's tactical aviation programs can be safely reduced in order to free up funds to address other military challenges, and thus bring scarce resources more into balance. The resources saved from these cuts to DoD tactical aviation could be used to invest in systems and personnel more applicable to combating terrorists and insurgents, or to conduct homeland defense.

Budget

For more than 20 years – since 1993 – some observers have predicted a "train wreck" in DoD's tactical aviation programs. These observers see too many aircraft competing for too few dollars. It may be that a budgetary train wreck is looming. As the table below suggests, a more apt metaphor for the tactical aviation budget to date, may be one of a "slow leak." Over the past 14 years, budget

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[9]Steven Zaloga. *World Missile Briefing*. Teal Group. Inc. Fairfax, VA. February 2005.

pressures have reduced the number of aircraft that some estimate DoD can afford by more than 30 percent.

Estimated Number of Aircraft To Be Procured[i]				
FY	**F/A-22**	**JSF[ii]**	**F/A-18E/F**	**Total**
1991	648	2978	1000	4626
1993	442	2978	1000	4420
1997	339	2978	548	3865
2000	333	2866	548	3859
2004	279	2866	462[iii]	3607
2006	179[iv]	2443	462	3084

i Estimates by DoD Comptroller, GAO, CBO, CRS.
ii The United Kingdom plans to buy 150 JSFs. However, budget shortfalls may force the UK to reduce purchases.
iii Figure does not include 90 EA-18G electronic attack aircraft.
iv If PBD-753 recommendations are approved.

This "slow leak" in tactical aviation funding may continue. Or, budgets may hold steady. (Few predict that tactical aviation budgets will increase in real terms.) However, other aircraft acquisition challenges may continue to erode tactical aviation's budget. Spending on Unmanned Aerial Vehicles (UAVs), doubled between 2001 and 2003 ($667 million to $1.1 billion) and DoD's appetite for these systems continues to grow. All the services wish to recapitalize their helicopter fleets. Advocates of long range bombers have been pressuring the Air Force to maintain its current inventory of bombers, and to field a replacement earlier than the planned date of 2037. Also, as Congress is well aware, replacing DoD's aging fleet of long range aerial refueling aircraft will be costly. Outgoing Acting Secretary of the Air Force Peter Teets recently told reporters that he believed recapitalizing the Air Force's aerial refueling aircraft to be the Service's biggest challenge.[10] This suggests that tankers could also compete well with fighters in the current Quadrennial Defense Review.

Some also believe that previously unanticipated costs associated with combating terrorism may mean that the "tac air train wreck" has fully arrived. CRS estimates that since the September 11th terrorist attacks, DoD has received over $201 billion for combat operations, occupation, and support for military personnel deployed or supporting operations in Iraq and Afghanistan and for enhanced security at military installations. If pending supplemental appropriations are approved, the figure through FY2005 will amount to $270 billion.[11] Pending DoD and congressional initiatives to increase both personnel benefits and personnel "end strength" could also increase pressure to reduce tactical aviation budgets.

The act of matching resources (i.e. budget) to objectives in a procurement program can be

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[10]Sharon Weinberger. "Teets Says Tankers Number One Air Force Priority." *Defense Daily.* March 24, 2005.

[11]See CRS Report RS21644. *The Cost of Operations in Iraq, Afghanistan, and Enhanced Security.*

called a "business case." GAO, for one, has argued that the F/A-22 lacks a business case (GAO-05-304), and that the JSF's business case is "unexecutable" (GAO-05-271). This assertion suggests to some, at least implicitly, that the relevance of these aircraft, as reflected in their currently planned procurement quantities, to the current military environment, is unclear. Air Force representatives say that they are developing a new business case for the F/A-22.

Conclusion

Recent remarks by Navy Secretary, and Deputy Secretary of Defense nominee, Gordon England appear to reflect the three challenges to DoD tactical aviation programs discussed above, and to suggest one means to meet these challenges. In a March 21, 2005 interview, Secretary England reportedly advocated that DoD examine its "whole [tactical aviation] enterprise" and search for efficiencies and savings. He predicted, reportedly, that "the most efficient, effective way to construct our air assets" may be one of the biggest debates in the current Quadrennial Defense Review.

According to reporters, Mr. England recognized that tactical aviation programs amount to "a huge amount of money," and noted that by better integrating Navy and Marine Corps tactical aviation assets, the Department was able to reduce aircraft purchases and save $35 billion, while maintaining the same combat capabilities. Increased efficiencies that might be realized across DoD's tactical air enterprise might include better integration, and more common assets, he told reporters[12].

Mr. Chairman, this concludes my remarks. Thank you again for the opportunity to appear before you. I look forward to any questions you may have.

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[12]Christopher J. Castelli. "DEPSECDEF Nominee Sees Potential For DoD-Wide TACAIR Integration." *Inside the Navy.* April 4, 2005.