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**Testimony**

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Senate

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**TACTICAL AIRCRAFT**

**F-15 Replacement Issues**

Statement of Louis J. Rodrigues, Director, Systems  
Development and Production Issues, National Security and  
International Affairs Division



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Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss our report concerning the Department of Defense's (DOD's) planned replacement of F-15 air superiority aircraft with F-22s. My statement discusses (to the extent possible in an unclassified hearing) the threat the U.S. air superiority fighter must meet between now and 2015, the capabilities of the F-15 to meet the threat, longevity of F-15s, and the utility of the F-22 for multiple services and multiple roles.

The Air Force began acquiring F-15s as air-superiority aircraft in the early 1970s. As you know, the Air Force plans to replace F-15s with F-22 advanced tactical fighters. The program calls for acquisition of 442 F-22s at a total program cost of about \$71.6 billion. The initial operational capability of the F-22 weapon system is now planned for 2003, but we understand it may be delayed until 2004 to accommodate funding reductions in fiscal years 1994 and 1995 while also providing additional time needed to solve engine development problems.

Overall, we found that the threat that the U.S. air superiority fighter must meet has declined since 1991 when the F-22 program entered engineering and manufacturing development. Our comparison of the performance capabilities of the F-15 against those of the current projected threat indicate the F-15 will be superior to the most advanced threat system for a number of years past 2003, the planned operational capability date of the F-22. Further, the F-15 can be economically maintained in a structurally sound condition until 2015 or later. In addition, the F-22 aircraft has not been designed to emphasize multiple missions or joint use among the services, even though DOD has indicated these are important features for tactical aircraft modernization.

#### THE THREAT

The Defense Resources Board, in November 1981, approved initiation of an advanced tactical fighter program for fiscal year 1983. In the early 1980s, defense planning revolved around a potential central European conflict that could involve massive Soviet Union/Warsaw Pact forces and potentially 8,000 threat aircraft, leaving the United States in a position of numerical inferiority. The F-22 program was initiated largely to deal with continued numerical inferiority and to counter two new Soviet fighters that, at that time, were expected to be fielded in the mid-1990s. At the time the F-22 program was initiated, the planned initial operational capability was slated for 1995.

Since the early 1980s, the assumptions used in U.S. defense planning have changed significantly. Defense planning is currently geared to fighting two major regional conflicts and U.S. force sizes are being reduced significantly. The number of threat aircraft that may be involved in a given conflict are

substantially fewer than under previous planning guidance. For example, in 1993 the Defense Intelligence Agency (DIA) identified seven countries that typify the fighter forces that pose a threat to the United States. Except for China, these countries have fighter forces that range from a low of 188 to a high of 460 aircraft. And all seven countries currently have only a few high-performance fighters that have performance capabilities that even come close to matching the F-15's. In contrast, the U.S. Air Force has about 900 F-15s and substantial numbers of other fighters such as F-16s that have a capability to operate in the air superiority mission.

With the demise of the Soviet threat, and political and financial difficulties of component independent states such as Russia, the threat the F-22 was initially designed to counter has changed substantially. Plans have been canceled for deployment of two new Soviet fighter aircraft by the mid-1990s. Further, DIA, when discussing future Russian aircraft expresses substantial uncertainty about the strength of the Russian economy. The strength of the economy impacts estimated dates for development and deployment of future fighters. DIA estimates of the initial operational capability dates of future Russian fighters fluctuate by 15 or more years depending on the different assumptions about the Russian economy.

Threat estimates discuss the potential for Russian deployment of a modified Flanker, and the potential deployment in the next century of a Russian Multirole Fighter/Interceptor (MFI). Projected capabilities of the postulated MFI would make it superior to the F-15 weapon system in certain respects. Our assessment of the probability of MFI deployment relied heavily on classified reports by the Air Force Foreign Aerospace Science and Technology Center, and the DIA.

Because of the significant resources that would be required to develop an MFI, and the likely high production cost, DIA reports are also heavily hedged concerning the probable timing of MFI deployments by Russia, and sales to other countries. Even if the MFI were deployed or sold, DIA projections indicate that quantities would be quite limited well into the 21st century.

Although some U.S. officials have expressed concern about potential threats posed by other countries developing new aircraft that could be deployed and/or sold to other countries, none of the aircraft currently in development are expected to have capabilities that generally exceed those of the F-15. Because the foreign high-performance fighter aircraft are also expected to be expensive, DIA believes that few purchases of these aircraft will be made in the future.

## CAPABILITIES OF THE F-15 TO MEET THE MOST LIKELY THREAT

Because of the changing estimates of the threat, we evaluated the F-15's capability against the most capable threat system expected to be available in significant quantity in 2010. To make the analysis, we compared features of the F-15 with that aircraft weapon system. The features we compared consisted of 32 specific weapon system characteristics in categories of flight performance, radar, long range missile, short range missile, and combat mission radius. These characteristics were identified as most pertinent to the air superiority mission by the Air Combat Command. Further, the characteristics were essentially the same as those listed in the Air Force's Multicommand Manual 3-1, Threat Reference Guide and Countertactics. This manual is designed to provide aircrews, intelligence personnel, weapons and tactics officers, and planners a single threat and countertactics document. We obtained the specific performance statistics for the F-15 from the Air Force's F-15 program office, a component of the Air Force Material Command. Statistics regarding threat weapon systems were obtained from the Air Force's Foreign Aerospace Science and Technology Center, a component of the Air Force Intelligence Command.

Our comparison indicated that the existing F-15C was superior in four out of five major performance categories against the most likely advanced fighter threat. The comparison assumed that no improvements would be made to the F-15s even though there are several modifications which potentially could enhance the F-15's performance. Our comparison assumed that the most advanced threat weapon systems would be modified with certain improvements.

In addition to having superior aircraft, the U.S. Air Force has other capabilities that enhance its air superiority mission that potential adversaries lack. The E-3 Airborne Warning and Control System is considered by DOD to be the most advanced command and control system in the world, assisting tactical aircraft in locating, identifying, tracking, and attacking enemy aircraft at great distances. DOD officials also consider U.S. pilot training methods to be far more advanced than any foreign country. U.S. pilots are often trained in advanced combat tactics that are not taught anywhere else.

### LONGEVITY OF F-15s

DOD cited, as a factor in its 1981 decision to replace the F-15, projected limits on the F-15's structural service life. However, a 1990 DOD evaluation indicated that the F-15s might have a service life longer than originally expected. Since then, testing has demonstrated that the Air Force can further extend the F-15's service life. Based on this recent testing, our

analysis shows that none of the 918 F-15s that were in the inventory in July 1992 would exceed their expected economic service lives until 2014.

As a result of our comparison of the F-15 with the threat, and considering that the F-15s are expected to be structurally sound until 2015, we recommended in a December, 1993 report, that the Secretary of Defense defer the initial operational capability of the F-22 by 7 years and adjust the currently planned production start date accordingly.

#### F-22's VERSATILITY

The F-22 has not been designed to emphasize multiple missions or joint use among the services, important features for future solutions for tactical aircraft modernization, according to the Under Secretary of Defense for Acquisition.<sup>1</sup> Further, the Defense Science Board, in a report on the modernization of tactical aviation forces, stated that in the future, the greater economic constraints and lower rates and quantities of combat aircraft to be acquired will tend to make the use of common aircraft and/or components more attractive than it has been in the past. The theme that the services need to cooperate was sounded again by a special task force sponsored by the Board to evaluate the fiscal implications of DOD's proposed future years defense plans. The task force noted the need for the services to cooperate in the development of future systems because of future funding shortfalls.

In October, 1993, DOD presented the results of its "bottom up review." DOD concluded that its goal is to develop common components, like engines, which will make for a combat aircraft that is 80 percent joint and that is why it started the joint advance strike aircraft technology program. We applaud DOD's effort to make common components for use among the services, but the F-22 aircraft does not appear to be included in this initiative.

The F-22, as designed, has no capability to operate from aircraft carriers. Further, fighter aircraft designed and procured for land based operation have not been successfully converted to be capable of operating from aircraft carriers.

The Air Force is beginning to pursue development and demonstration of an air-to-ground capability for the F-22, however, it is not considered a robust capability. Offering the

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<sup>1</sup>Statement on Tactical Aviation by the Under Secretary of Defense for Acquisition, to the Defense Subcommittee of the Senate Appropriations Committee, May 12, 1993.

capacity for launching two 1,000-pound Joint Direct Attack Munitions from internal weapon bays, the capability of the F-22 could be classed as modest.

Because the F-22 aircraft is designed for use by a single service to principally perform one mission, we recommended that the Secretary of Defense reconsider whether it is appropriate to continue the development of the F-22 in view of the guidance that has been promulgated by the Department.

#### F-22 Versus F-15

We did not recommend that the F-22 program be terminated, but rather that the F-22's planned operational capability be delayed because the threat does not appear to warrant it. The Air Force has stated that the F-22 will be substantially more capable than the F-15 in many respects including range, detectability, maneuverability, and reliability and maintainability.

The Under Secretary of Defense directed that the F-22 and F-15 be engaged in a fly off to determine the extent to which the F-22's capability exceeds the F-15's, and the validity of claims that it is twice as good. That test is not scheduled until 2001. Although we do not disagree that the F-22 will have more capability than the F-15, we would not recommend beginning F-22 production until it is clear that development of the threat warrants it and that DOD has resolved the apparent conflict between the articulated acquisition policies for tactical aircraft and the single service design of the F-22.

DOD disagreed with the general thrust of our report and our recommendation to delay the initial operational capability of the F-22 by seven years. They disagreed with our characterization of the threat, and our method of comparing the F-15 to the projected threat. They also stated that DOD has no policy that requires aircraft to be designed for multiservice use.

Our threat information came from DOD intelligence agencies, and our comparison of the F-15 to the projected threat used methodology used by DOD for comparative evaluations of the characteristics of fighters, and on discussions with responsible DOD officials. DOD's lack of a policy regarding multiservice use appears to be at odds with the May 1993 congressional testimony of the Undersecretary of Defense for Acquisition.

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Mr. Chairman that concludes my statement. I will be happy to answer any questions you or members of the Subcommittee may have.

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