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Report to Congressional Committees

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AIR FORCE

**Assessment of DOD's
Report on Plan and
Capabilities for
Evaluating Heavy
Bombers**



National Security and
International Affairs Division

B-256103

January 10, 1994

The Honorable Sam Nunn
Chairman, Committee on Armed Services
United States Senate

The Honorable Daniel K. Inouye
Chairman, Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable Ronald V. Dellums
Chairman, Committee on Armed Services
House of Representatives

The Honorable John P. Murtha
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives

The National Defense Authorization Act for Fiscal Year 1993 required, among other things, that the Secretary of Defense (1) develop a plan to evaluate the effectiveness of B-52H and B-1B bombers in conventional missions and (2) report on the Department of Defense's (DOD) current capability to carry out survivability and operational effectiveness flight testing of these bombers against a broad range of current and future threats. Our office was required by the legislation to provide our views on the plan and the report. This report is our response to that requirement.

Background

Section 152 of the act required the Secretary of Defense to prepare and submit to the congressional defense committees a plan to evaluate heavy bombers (other than the B-2 bomber) in operational test ranges and facilities to demonstrate the effectiveness in conventional scenarios of combined force package and missions involving only heavy bombers. The plan was to be designed to

- provide an assessment of the contribution afforded air operational commanders through the use of heavy bombers,
- evaluate advanced conventional munitions capabilities, and
- provide a baseline of current bomber capabilities.

In addition, the act required the Secretary of Defense to conduct an assessment of the current capability of the Department to conduct survivability and effectiveness testing. The legislation stated that the Secretary must submit a report on the results of the assessment that shall (1) identify deficiencies in the numbers, performance, capability and fidelity of air defense threats and threat simulators available for operational testing and (2) include an analysis of the cost and leadtimes necessary for obtaining, for testing purposes, a representation of current and likely future air defenses that is adequate for evaluating proposed modifications to B-52H and B-1B bombers.

The Department submitted its plan and report to the congressional defense committees on November 9, 1993.

Results in Brief

The Secretary's plan offers little insight into how the key issues raised in the plan about the B-1B will be answered. According to the plan, the key issues in determining the operational effectiveness of heavy bombers in conventional warfare relate to mission planning and the ability of heavy bombers to deploy, perform long duration sorties, penetrate air defenses, and employ conventional weapons. DOD officials stated that they made a conscious decision not to develop all of the detail necessary to answer the key issues raised in the plan about the B-1B. They consider the Secretary's plan to be a top level, guiding document in which more detail would have been inappropriate.

Our work indicates that of the key issues identified in the Secretary's plan, the issue of deployability is particularly critical. Resolving this issue will provide for more informed decisions on upgrading the B-1B bomber and defining the future conventional roles of the B-52 and B-2 aircraft.

The Secretary's report concluded that while DOD is capable of designing realistic flight tests to determine the survivability and operational effectiveness of proposed modifications to the B-1B and B-52H aircraft, the design will not duplicate all known threat systems. The DOD attributes this limitation to the lack of advanced threat air defense systems in the test resource inventory, and the great number of possible threat postures and configurations. We agree with this assessment.

DOD Test Plan

According to the Secretary's plan, the ability to measure and understand the military capability of the heavy bomber force, as it transitions to a primary role of supporting conventional warfare, is dependent on how well the bomber force can demonstrate and answer the set of Air Force identified "top level" evaluation issues and related questions shown below.

Table 1: Top Level Conventional Bomber Evaluation Issues and Related Questions

Issues	Questions
Deployability	How well can bombers generate to and maintain mission ready status when deployed away from their main operating base while conducting conventional operations?
Mission planning	How well can conventional mission planning be conducted under conditions of short notice both at the main operating base and when the aircraft are deployed away from that base?
Long duration sorties	How well can bombers conduct effective conventional weapon delivery when flying from continental United States-to-target-to-continental United States missions of up to 36 hours duration?
Penetration of air defenses	How well can bombers penetrate the air defense environment in conventional scenarios?
Lethality	How well can bombers effectively employ conventional weapons?

According to the Secretary's plan, past testing and operational experience have provided some answers to the above questions. For example, the plan recognizes that, during Operation Desert Storm, the B-52G was used in a way that demonstrated its ability to fight a conventional war. The plan concludes that (1) the baseline capabilities of the B-52 are largely known; (2) although no such demonstration of the B-1B has been made, some of the existing conventional capability is known; and (3) future tests, exercises, and evaluations are expected to provide more information until the conventional capabilities of the entire bomber force are known.

The Secretary's plan also cites development, operational, and follow-on test and evaluation as sources of available information on heavy bomber capability. It indicates that reports from Red and Green Flag¹ exercises and Operational Readiness Inspections also contain information on how well the heavy bomber force can operate.

Nevertheless, the Secretary's plan offers little insight into how the top level issues will be answered for the B-1B. In addition, the Secretary's plan is silent on measures of effectiveness—goals, objectives, standards—that

¹Red Flag exercises are multiforce operational tests. Green Flag exercises test defensive avionics capabilities.

could be used to determine the extent to which the top level issues shown in table 1 will be resolved.

The Secretary's plan does not show what past testing has demonstrated, or how scheduled testing is designed to demonstrate adequate mission planning or how well bombers, and particularly the B-1B, can deploy, perform long duration sorties, penetrate air defenses, and employ conventional weapons.

Deployability Is Critical Issue

Our work indicates that deployability is especially critical in terms of evaluating the capability of the B-1B as it transitions from primarily a nuclear to a conventional role. During Operation Desert Storm, the B-52G demonstrated it can deploy and operate in a conventional conflict. However, the Air Force's ability to sustain a similar B-1B deployment has not been demonstrated.

Air Force plans for modifying and equipping the B-1B with conventional capabilities is a significant task because of the different requirements posed by nuclear and conventional missions. While nuclear missions require a single sortie, conventional missions require repetitive sorties. Our work indicates that the current ability of the B-1B to generate repetitive sorties is questionable. For example, the Air Force requires at least 29 of its 65 spare engines for the B-1B to be serviceable at any given time, with the other 36 in maintenance. We reported² that in September 1993 only 5 of the 65 spare engines were serviceable. Air Force officials recently told us that 28 spare engines were serviceable as of December 21, 1993. Nevertheless, the number of available serviceable spare engines has historically fluctuated from month to month. In addition, during the 21-month period from January 1992 through September 1993, the Air Force had, on average, about four serviceable engines available.

The number of serviceable spare engines is a critical factor in the B-1B's capability to generate repetitive sortie rates that will be required during a conventional conflict. According to a study done for the Air Force by the B-1B prime contractor, the number of B-1B sorties would decline dramatically if a sufficient number of spare engines was not available. For example, the study showed that, if spare engines were available, 16 deployed B-1B aircraft could perform 13 sorties a day. If sufficient spare

²GAO report entitled Air Force Bombers: Issues Relating to the B-1B's Availability and Ability to Perform Conventional Missions (GAO/NSIAD-94-81, January 1994) discusses the availability of serviceable spare engines.

engines were not available, the sortie rate would fall to seven a day because of the increased time required to remove, repair, and replace the engines on the aircraft.

Section 132 of the National Defense Authorization Act for Fiscal Year 1994 requires the Secretary of the Air Force to develop a plan to test the operational readiness rate of one B-1B bomber wing that could be sustained if that wing were provided the planned complement of base-level spare parts, maintenance equipment, maintenance manpower, and logistics support equipment. The act further directs that the operational readiness rates of one squadron of the test wing be tested at a remote operating location in a manner consistent with Air Force plans for the use of the B-1B bomber in a conventional conflict.

We believe the test directed by the National Defense Authorization Act for Fiscal Year 1994, in conjunction with the Air Force's plans for testing the B-1B as outlined in the Secretary's current report, will provide both Congress and DOD with a better basis than has heretofore been available to measure the deployability of the B-1B aircraft.

DOD Testing Capabilities

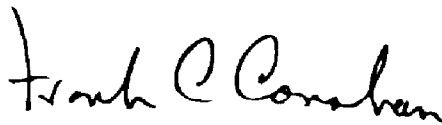
The Secretary's report states that DOD has conducted an assessment of its current capability to carry out survivability and operational effectiveness flight testing of heavy bombers. The report concludes that DOD is currently capable of designing realistic tests but recognizes that the tests would not duplicate the threats or threat scenarios in the B-1B System Threat Assessment Report. The inability to duplicate all of the threats is attributed to the lack of advanced threat air defense systems and to the fact that, because of the great numbers of possible threat scenarios, it is not practical to reproduce them. This is consistent with our knowledge of the Department's ability to conduct survivability and effectiveness testing.

Scope and Methodology

In assessing the Secretary's report to Congress, we relied extensively on our past work and general knowledge of the B-1B program. We performed our work from November 1993 to December 1993. We did not obtain written DOD comments. However, we discussed our report with officials from the Office of the Secretary of Defense and Air Force headquarters, and they generally concurred with the information presented. Their comments have been incorporated as appropriate.

We are sending copies of this report to the Ranking Minority Members of your committees; other appropriate congressional committees; the Secretaries of Defense and the Air Force; and the Director, Office of Management and Budget. We will also make copies available to others upon request.

This report was prepared under the direction of Louis J. Rodrigues, Director, Systems Development and Production Issues, who may be reached at (202) 512-4841, if you or your staff have any questions concerning this report. Major contributors to this report are listed in appendix I.

A handwritten signature in black ink, reading "Frank C. Conahan". The signature is written in a cursive style with a large, stylized "F" and "C".

Frank C. Conahan
Assistant Comptroller General

Major Contributors to This Report

National Security and
International Affairs
Division, Washington,
D.C.

Steven F. Kuhta, Assistant Director
Samuel N. Cox, Assignment Manager

Cincinnati Regional
Office

Daniel J. Hauser, Evaluator in Charge
Gerald W. Wood, Evaluator

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