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Bomber
Study

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STRATEGIC BOMBER FORCE MODERNIZATION

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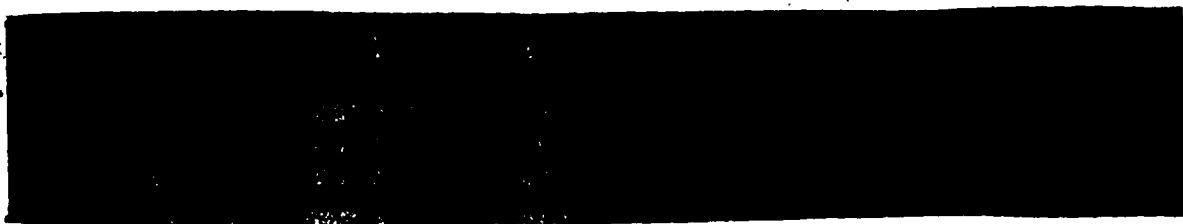
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Strategic Bomber Force Modernization

A. Executive Summary

(U) The United States maintains a diversified force of land and sea launched ballistic missiles (ICBMs and SLBMs) and strategic bombers to provide a high confidence deterrent against nuclear attack or coercion. No single element of this deterrent force can satisfy all of the required strategic offensive tasks; rather, each provides unique capabilities which, in combination, insure our ability to respond effectively under all circumstances, including that of an enemy surprise attack.

(U) The strategic bomber is an integral element of the US deterrent posture and provides important contributions not available with our ballistic missile forces.



JS 3.3(6)(4)(8)

(U) Current intelligence estimates for the post-1980 period identify a number of offensive and defensive developments which could result in serious reductions in the ability of today's force to survive an attack on its bases and penetrate Soviet air defenses.

(U) Threats to bomber force launch survival from Soviet Submarine Launched Ballistic Missile (SLBM) forces can be offset by the B-1's faster escape speed, greater resistance to nuclear effects, and shorter take-off distance to permit dispersal to a larger number of airfields if required. The effectiveness of projected Soviet defenses will be seriously degraded by the B-1's high penetration speed at very low altitude and low radar cross section in combination with high quality

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electronic countermeasures. The superior B-1 launch survival and penetration characteristics combined with its improved accuracy and larger payload capacity, compared to the B-52, will provide a highly effective contribution to the future US strategic deterrent posture.

(U) Additionally, the B-1's design provides the operational flexibility and growth potential necessary to reduce its sensitivity to threat variations and continued evolution. The B-1, for example, possesses the electrical power, cooling capacity and space for additional offensive or defensive avionics which may be required during its long lifetime. Further, the B-1 will be capable of employing modified tactics, including high altitude supersonic flight, and improved weapons. In short, the B-1 has been designed with the necessary flexibility and adaptability (historically associated with the US strategic bomber force) to remain effective into the 21st century.

(U) The critical need and primary justification for committing substantial national resources to the deployment of the B-1 remains its role in deterring nuclear war. However, modernization with the B-1 also preserves and enhances an important capability to use strategic bombers in other roles. Unlike the other two components of our strategic deterrent -- ICBMs and SLEMs -- the manned bomber contributes to deterrence in a broader dimension due to its versatile capability for a variety of non-nuclear missions (e.g., conventional bombing, ocean surveillance, mine laying and anti-shipping).

(U) The B-1's performance characteristics will permit accurate delivery of large payloads to major areas of potential conflict while operating from US bases. Should forward deployment be required, the reduced ramp space, taxiway/runway width and load bearing requirements permit operation from bases unsuitable for the B-52. Further, the B-1's self sufficiency characteristics (APU, self test equipment, on-board oxygen generation equipment) reduce the requirement for in-place or deployed ground support equipment.

(U) The conventional potential of the B-1 will be a key element of its total capability, providing the combination of an advanced aircraft and new conventional weapon technology.

(U) In determining a prudent bomber modernization program, several strategic bomber alternatives, in addition to the B-1, have been studied extensively since the start of development in 1970. Alternatives to the B-1 including "stretched" FB-111s, updated B-52s, and stand-off wide body cruise missile carriers have been examined as well as various cruise missile employment concepts. The results of these studies support a concept employing a mix of penetrating bombers and cruise missiles.

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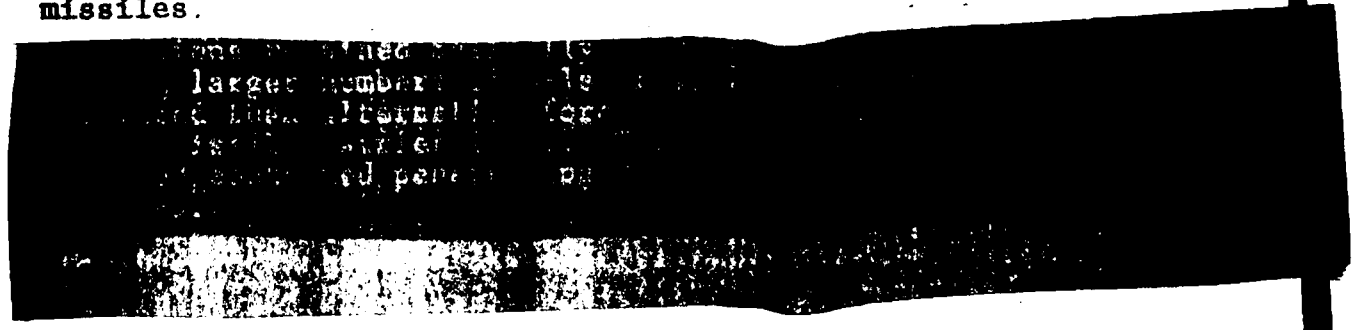
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(U) When the cruise missile is employed as a complement to the penetrating bomber, the enemy is prevented from concentrating defenses to counter the cruise missile. This cruise missile employment concept, which allows launch before or following penetration of the GCI/SUAWACS line, provides additional operational flexibility and:

- o Complicates enemy air defenses
- o Reduces bomber threat exposure and increases bomber survivability
- o Widens and extends effective flight path of penetrating bomber
- o Reduces tanker requirements
- o Improves strategic Air-to-Surface missile hard target kill capability
- o Allows effective use of shorter range cruise missile
- o Decreases cruise missile exposure to area defenses
- o Permits cruise missile use against lightly defended/undefended targets

(U) The Joint Strategic Bomber Study conducted during the 1973-74 time frame examined the cost effectiveness of various US alternative bomber forces against a 1988 postulated threat. Results of this study were updated during November 1976 to reflect costs in FY 77 dollars for the period 1977-91. The conclusions remained basically unchanged, i.e., forces containing larger numbers of B-1s provide lower costs per weapon delivered than alternative forces, including an all stand-off cruise missile carrier force. The most cost effective force examined contained penetrating B-1s and B-52s employing cruise missiles. ✓

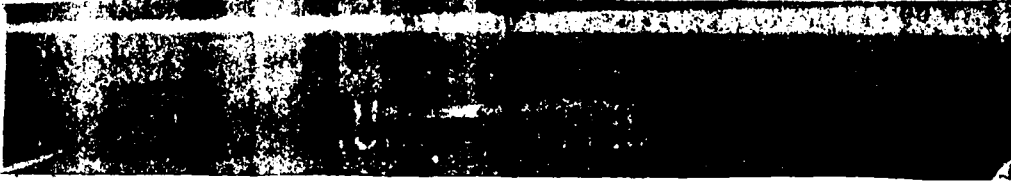
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(U) ... in the context of the arms limitation environment ... a normal force modernization program ... secondary to our National objectives. The B-1 has

- o would not violate provisions of current or foreseeable agreements.
- o provides a highly visible step in modernizing the strategic force.
- o reflects national resolve and determination.
- o Does not constitute disarming first strike capability.
- o Permits achievement of agreed force levels.
- o Keeps pressure on Soviets to continue negotiations.
- o Allows the US to retire older, less effective systems, if reduced levels are negotiated.

(U) The B-1 has had the benefit of more careful preproduction planning and exhaustive component and vehicle testing than any previous military or civilian aircraft at the same procurement decision milestone. The test program has confirmed the accuracy of analytical predictions of performance.

(U) The major structural components of the aircraft have been subject to static tests at loads which exceeded by 50% those which would be experienced in flight. Fatigue tests to several lifetimes of expected aircraft service have been accomplished. Fatigue testing on all major structural assemblies will be completed over two years before the first production B-1 is delivered. The successful static and fatigue testing already completed provides high confidence that the B-1 is structurally capable of performing its strategic mission.

(U) The flight test program has now accumulated over 562 hours and has successfully explored all mission requirements. The operational modes of the aircraft have been demonstrated, and extensive high speed, low altitude, automatic and manual

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terrain following activities have been reliably and safely executed, as well as supersonic flights to speeds above Mach 2.1. Routine refueling with KC-135 tankers has been accomplished on most flights.

(U) The Air Force Test and Evaluation Center has reported operational effectiveness and suitability are good and that all deficiencies that have been identified are correctable and being worked. Based on data obtained from the flight test program, the B-1 will provide the capability and operational flexibility necessary to effectively modernize the strategic bomber force.

(U) Current Air Force costs are based on procurement of 244 B-1s (four RIT&E and 240 production aircraft), of which 241 will be deployed for operational use. The planned B-1 force level is based on initial program estimates made in the late 1960s which indicated that about 244 B-1s were required to offset bomber force aging and to meet an increasingly sophisticated threat.

(U) At the time of the B-1 development decision (June 1970), the program cost estimate was \$9.9 billion in constant 1970 dollars. The estimate in then year dollars, which takes into account predicted inflation over the program period, was \$11.2 billion. The program estimate in constant 1970 dollars given to the Defense System Review Council (DSARC) III on 1 December 1976 increased from the original \$9.9 to \$11.1 billion. A number of program changes had occurred since 1970; however, there was no real cost growth since 1973. In then year dollars, the effects of actual inflation from 1970 to 1976 and predicted inflation from 1976 to end of the program in 1988 caused a much larger increase from the original estimate of \$11.2 billion to the DSARC III estimate of \$22.8 billion.

(U) Production rates either above or below four aircraft per month could be selected for the B-1 program. A rate higher than the currently planned four aircraft per month would require additional construction of facilities at the B-1 production plant and higher funding levels on a yearly basis. Lesser rates could be accommodated within the production facilities and would reduce yearly funding levels, but procurement at these rates would increase total program costs. If, for example, a rate of two aircraft per month were selected, no savings would result in FY 1978 but a reduction in funding of \$3 billion would occur over the next five years. However, with this option, the total program cost would increase \$3.3 billion above the current program.

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(U) A decision on a production rate above two aircraft per month is not required until December 1978 for the FY 80 budget. Total force levels can be evaluated on a year-by-year basis. This allows us to set the pace and level of the program based on a continuing assessment of the projected Soviet threat, strategic arms limitations agreements, and periodic review of national priorities and fiscal constraints.

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