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Executive Summary

Over the next several decades, our national security will increasingly depend on conventional bombers to meet the demands of responding rapidly and decisively to security threats that may emerge in various regions of the world. A security strategy focused on regional dangers calls for the ability to deter and counter a range of potential threats, even though the location and technological sophistication of these threats will be hard to predict.

The nation's long-range bomber force has unmatched potential to provide conventional power for initial response to regional crises within hours and for sustained operations in any region of the world. As all services reduce their force structures, the bomber's precision, lethality, flexibility and range will continue to increase its value in airpower's contribution to national security.

The national military strategy requires us to prepare for a second contingency that could arise while some forces are still engaged in the first. If such a threat emerged, a portion of our bomber force could swing to the second theater and strike time-critical targets until follow-on forces arrive. The bomber's ability to neutralize high-value targets provides the United States essential freedom of action to stop an enemy offensive and allows the nation to build up its own joint forces.

The Air Force is moving away from forward-based combat forces deployed overseas. The speed and range of today's manned bombers allow for U.S. presence anywhere on the globe within 24 hours. This global presence comes from stateside-based combat forces configured for quick reaction. We must maintain and improve our ability to fight from a distance, both because it may influence the course of a conflict early on and because we must be able to do battle effectively while shorter range air, land and sea forces deploy. Bombers, acting autonomously and then in concert with other deployed forces, are capable of making a real difference in the course of any future military clash.

The United States' manned bomber force provides a core capability for global reach and global power for America:

- B-2s will penetrate and destroy highly valued, heavily defended targets with maximum flexibility. Stealth and precision give the B-2 a revolutionary advantage in combat operations, making it the leading edge of our initial response to conflict. Reaching from U.S. bases the B-2 can attack the nerve center of enemy capabilities alone and at will.

— B-1s become the versatile workhorse of the force, providing standoff or penetrating platforms. Of all three bombers, the B-1 has the highest speed and greatest payload. The B-1's primary role is destroying the bulk of defended time-critical targets early in a conflict; and to sustain the theater campaign, the B-1 will add mass to composite force packages.

- B-52H's guarantee conventional capability in the near-term, being used primarily as a standoff platform and also providing precision and massive firepower in low-threat environments.

Leadership Messages

Dr. Sheila E. Widnall secretary of the Air Force This age of uncertainty demands that we stay capable and engaged, ready to respond when called upon. Responsiveness, the ability to project power quickly, accurately and decisively, anywhere, anytime is the essence of airpower. With more advanced stealth characteristics than the F-117 and a payload eight times greater, the B-2 embodies this concept of responsiveness.

Gen. Merrill A. McPeak Air Force chief of staff

Air forces do not exist for the purpose of protecting themselves. The B-2 offers a much more satisfying and elegant solution: Avoid detection, and tip the scales back in favor of flexibility and offensive punch.

We're moving away from a period characterized by the forward presence of our combat forces deployed overseas to an era characterized by stateside basing of forces configured for expeditionary reaction. For example, the Air Launched Cruise Missile attack on Iraq in the initial hours of Desert Storm by a B-52 flown non-stop by the Second Wing from Barksdale AFB, La., in my judgement, showed the potential for what can be done with air power.

The Second Wing is "present" at Barksdale and is also "present" 20 hours later at any spot on the globe. And everybody knows that — especially our potential adversaries. If there's some dictator who is inclined to adventurism, he's got to think about the B-52 force sitting at Barksdale, or the B-2 at Whiteman AFB, Mo., or the B-1 at Dyess AFB, Texas ... that is presence.

Gen. John Michael Loh commander Air Combat Command Nothing can inject American military power as quickly, project as much power, hold as many enemy targets at risk, or halt an invasion with such little peril to American lives as airpower. We can stage operations hundreds of miles away from the battlefield and place a credible amount of firepower onto any point on the globe. We can secure the one medium that covers the entire face of the globe and exploit our dominance there to the advantage of every other aspect of military operations.

Leadership Messages

Whether our nation needs to deal with a minor regional contingency without making a large commitment of forces, to make a show of force, launch a precise preemptive strike or fight a major war, bombers are one of the most useful systems at our disposal. ... Bombers also give us tremendous reach. They can cross oceans in the span of an afternoon, and with aerial refueling, their range is virtually unlimited. With bombers at the ready, we can hold targets at risk continuously. Therefore, even if we do not have access to the optimum bases for staging our operations, our bombers retain their effectiveness.

Bombers have an agility that other assets cannot match. They can swing quickly from one target set to another hundreds or even thousands of miles away. They can demonstrate resolve without employing heavyhanded tactics, and they can bring significant firepower to bear without risking many lives.

If we were forced to fight alone, our bomber force may present our only means of attacking an aggressor for the first few days of a conflict, and it probably would constitute the bulk of our combat power for several days or even weeks.

This makes the number of bombers we have on hand extremely important. Without forward deployed forces in theater, our bomber force becomes our only option for producing a meaningful, immediate response to aggression.

In any major regional contingency, we would use bombers to destroy command, control and communications nodes and high-value targets that would present undue risk for our follow-on forces. Once our follow-on forces were in play and fighting effectively, some bombers would stay to add mass of firepower to win quickly in the first theater, while all others would swing into action in the second theater of operations.

Because they can cover vast distances swiftly, bombers would likely be our first weapons committed to a second theater. They would give us a practical means of slowing the advance of an opponent until fighters and carriers can swing from the first conflict to the second. We would need about 180 operational bombers to support this two-theater scenario.

Gen. John Michael Loh commander Air Combat Command



Leadership Messages

Gen. John Michael Loh commander Air Combat Command

There is great value and leverage and importance to precision-guided weapons on the aircraft that can employ them, such as the F-111, F-15E and the F-117, and it's showing the tremendous value of bombers — lots of them — because they have great leverage to swing from one theater to another. I say we need 180 bombers with their great range, firepower and immediacy. That means upgrading them with precision capability on the B-1 and providing the weapons system we call JDAM [joint direct attack munition] to all of our bombers and our precision fighters. How we handle it all boils down, in my view, to the size of these conflicts and the simultaneity of them.

Gen. Robert L. Rutherford commander Pacific Air Forces

Bombers remain a critical part of the warfighter's power projection capability. Long-range bombers afford us the capability to strike across the broad spectrum of conflict – anywhere and anytime. In the Pacific, with its vast distances and seven of the world's 10 largest armed forces, that's a crucial asset.

The Gulf War highlighted the importance of precision guided weapons in striking vital targets while minimizing collateral damage. Some of the most heavily defended targets in the world are within the Pacific area of responsibility, and some of those are in densely populated areas. As a result, precision munitions are crucial elements of our contingency planning.

Maj. Gen. John J. Closner chief of Air Force Reserve The conventional bomber mission is a good one for the Reserve because it has a high wartime requirement and lower peacetime commitments. I also want to recruit the talents of those highly trained bomber people coming off active duty. It is cost-effective for the American taxpayer.

In these times of reduced budgets, we are trying to provide the defense needs by a force mix that allows for two contingencies. B-52s in the Air Force Reserve help to meet those requirements. We can provide a fair share of needed combat capability with Reservists in most missions, including the bombers. One of my goals is to ensure that we retain capabilities in the Reserve that we will need if we have to go to war.

News Service Highlights

B-1B's Make Record Flight Around the World

ELLSWORTH AFB, S.D. — Two Air Combat Command B-1B bombers assigned to the 28th Bomb Wing here returned home Aug. 14 after circumnavigating the globe.

The aircraft were taking part in Global Enterprise. an Air Force exercise to train aircrews for long-range global power projection missions.

Taking off from Ellsworth AFB Aug. 11 at 5:25 p.m. (MST), their mission took them east to Europe, through the Mediterranean Sea, down the Red Sea skirting the Arabian Peninsula to a forward staging base in Southwest Asia. Refueling aircraft from Plattsburgh AFB, N.Y., and RAF Mildenhall, England, met the aircraft along the way.

Following crew changes, the B-1B's took off through Southeast Asia, up to Japan and over the Aleutian Islands in Alaska before completing the route to Ellsworth. They connected with refuelers from Kadena AB, Japan, and Eielson AFB, Alaska, as they made the second half of their trip.

The bombers made the longest two flights ever by B-1B's — more than 24 hours for the first leg, and more than 22 hours on the second half. Besides changing crews, the stopover in Southwest Asia also allowed the ground and air crews to get familiar with a potential forward deployment base in the event of hostilities.

While B-1B's had a nuclear mission during Operations Desert Shield and Desert Storm, they've since transitioned to a conventional mission. That was demonstrated during their trek around the world when they made a weapons delivery pass at Vliehors Range in the Netherlands and a North Pacific range off Canada.

Ellsworth began converting B-1B's to conventional weapons in September 1991 and is the Air Force's lead wing in the process. Since April, bomber wings with B-1B and B-52 aircraft have flown 17 longrange, conventional global power training missions. By October, each of ACC's 11 bomber wings will fly a global power mission at least once a quarter.

The B-1B, built by Rockwell International, is the Air Force's mainstay bomber with 96 aircraft stationed at Ellsworth; Grand Forks AFB, N.D.; McConnell AFB, Kan.; and Dyess AFB, Texas. Dyess took delivery of the first B-1B in 1985. Ellsworth received its first B-1B in January 1987, replacing aging B-52s.

Ellsworth is home to the largest operational fleet of B-1B's. It will receive more bombers from Grand Forks AFB under Air Force restructuring. Grand Forks will convert to a refueling mission with tanker aircraft.

Air Combat Command News Service (Aug. 16, 1993)





Bombers Play Key Role in Defense Strategy

by SSgt. Scott Clough Air Combat Command News Service (Nov. 18, 1993) LANGLEY AFB, Va. — Bombers flying long-range, ~onventional missions will play a key role in giving the Defense Department the capability to fight two regional conflicts at the same time, if necessary, according to the commander of Air Combat Command.

"Our most stressful mission in the new defense strategy is being able to fight and win two Desert Storm equivalents nearly simultaneously, and to do it quickly and decisively with few casualties," said Gen. John Michael Loh.

"When you model this situation, it turns out the bombers have a great deal of leverage and capability to do this. We have to send a large force to the first war, and then send the rest to the second war. They are very important to our future strategy, particularly as we must operate from home bases and project power over great distances to these two potential wars. The bombers are vital in that stressful scenario."

Prior to the end of the Cold War, bombers primarily served in a nuclear role standing 24-hour alert under the former Strategic Air Command. When the Cold War came to an end and the Air Force reorganized, bombers joined Air Combat Command. Although they still maintain a nuclear capability, ACC shifted the bombers' emphasis to a conventional role as part of its global power mission.

Since April, ACC bombers have flown more than 20 conventional practice missions that lasted anywhere from 20 to 35 hours, originating from their home bases and ending at overseas locations or back where they started. This also included an around-the-world flight with one stop by two B-1B's from the 28th Bomb Wing at Ellsworth AFB, S.D.

"This is an expression of how we have grown as a team in ACC," Loh said. "We have added the global power missions to show our capability in projecting long-range, conventional combat airpower anywhere in the world, on short notice, routinely.

"What it demonstrates is the great flexibility and capacity of our long-range bombers to be at the point of action, and to influence and potentially deter any aggressor who would be thinking of attacking a friend or ally. It also shows the great characteristics of bombers, including range, payload capability and the ability to be at the scene of action in a matter of hours. No other form of combat power possesses those three characteristics simultaneously — great range, large payloads and the sense of immediacy."

Since Oct. 1, all of ACC's B-1B and B-52 bomber units began flying global power missions at least once quarterly. The B-1B units include the 28th BW; 7th Wing, Dyess AFB, Texas; 319th BG, Grand Forks AFB, N.D.; and 384th BW, McConnell AFB, Kan. The B-52 units include the

93rd BW, Castle AFB, Calif.; 92nd BW, Fairchild AFB, Wash.; 416th BW, Griffiss AFB, N.Y.; 410th BW, K.I. Sawyer AFB, Mich.; 42nd BW, Loring AFB, Maine; and 5th BW, Minot AFB, N.D.

Reserve Receives First B-52s

BARKSDALE AFB. La. — The first of eight B-52H Stratofortresses arrived here Dec. 7, making the 917th Wing the first Air Force Reserve unit equipped with bombers.

The 917th is scheduled to receive one B-52H per month until it has all eight aircraft, said Reserve officials.

Air Force announced the B-52 transfer in Nov. 12. The first aircraft to arrive had been based at Fairchild AFB, Wash. (*Courtesy AFRESNS*)

B-2 Program Successes

WASHINGTON — The Air Force's B-2 program passes another milestone Dec. 17 when the first of 20 stealth bombers is delivered to its home base at Whiteman AFB, Mo.

Although the B-2 has been in production and flying development aircraft for many years, this formal arrival at Whiteman culminates more than a decade of research, design and planning.

The event also comes just three weeks after Congress voted to stabilize annual B-2 funding. In passing the fiscal 1994 defense authorization bill, lawmakers said they support the Air Force's goal to keep the B-2 as the "cutting edge" of the United States bomber force.

Congress voted to maintain the B-2 program at 20 aircraft and established a cost cap of \$44.4 billion for completion of the total program. Lawmakers said the defense bill will permit the completion of the aircraft remaining in production, and will allow for the orderly termination of the B-2 program.

Although 20 bombers is a far cry from the original plan of fielding 132 B-2s, Air Force and Pentagon leaders say they are satisfied with the limited buy given its "extraordinary promise" for meeting the demands of an uncertain world environment.

Still, after all its successes, the B-2 program continues to be scrutinized by congressional and media critics, many of whom have criticized its allwing configuration.

Critics pointed to the loss of the Northrop YB-49A flying wing in 1948 as a potential reason for delaying or even canceling a program undertaken 40 years later. They feared the B-2 might lack the stability inherent in "tailed" airplanes. Air Force News Service (Dec. 13, 1993)

by TSgt. Dave Masko Air Force News Service (Dec. 15, 1993) But Air Force and the B-2's primary contractor, Northrop Corp., proved that computer-operated flight controls have long since eliminated such problems. In addition, flying wings like the B-2 are typically and inherently stable aircraft, said an Air Force report titled "Why the B-2."

In the future, no U.S. military or civilian aircraft will be designed without reference to the technologies, manufacturing processes, design capabilities and other advancements that were pioneered in the B-2, stated the report.

The report also explained that the Air Force's commitment to the B-2 is rooted in the historical experience of long-range bomber development and operations. It stressed that the future U.S. future bomber force must be capable of operating in the face of highly sophisticated air defense systems in both nuclear and conventional operations.

"The B-52 is already so constrained by advances in air defense technology that it is losing its viability as a penetrating bomber against sophisticated defenses," the report stated.

"The B-1, whose design dates to the mid-1960s, will continue as a useful system for years to come. However, it too will be increasingly constrained by the evolving air defense threat environment, particularly in the post-2000 time period."

Any potential target is at risk within hours, not days, with the B-2, according to an Air Force chief of staff statement delivered to the Senate in April. It will be able to penetrate the most dense enemy air defense and deliver tremendous payloads against high value targets.

In addition, Air Force leaders say the B-2 aircraft can help recapture the element of surprise. Stealth technology allows the aircraft to penetrate defenses without the range of support assets required by non-stealth airframes. Also, stealth provides more combat capability from a smaller number of assets with less risk to personnel and aids in accurate munitions delivery in combat since the aircraft's accuracy is not degraded by survivability tactics.

Whiteman Welcomes First B-2

WHITEMAN AFB, Mo. — The Air Force's first operational B-2 stealth bomber officially arrived here at 2:04 p.m. CST Dec. 17.

The Spirit of Missouri, the first of 20 B-2s to be based at Whiteman, flew over a cheering crowd of more than 22,000 people before touching down on the runway.

"Today's delivery of the first B-2 to Air Combat Command and Whiteman AFB opens another chapter in aviation history," Secretary of the Air Force Sheila E. Widnall told the crowd. "This new chapter was inspired by historic changes in an age of uncertainty that demands we stay capable and engaged. The B-2 embodies this concept of responsiveness."

by TSgt. Daniel G. Carpenter Air Force News Service (Dec. 20, 1993) Gen. John Michael Loh, ACC commander, and Lt. Col. John H. Belanger, 393rd Bomb Squadron operations director here, piloted the plane. They made a ceremonial pass in front of the crowd before parking the B-2 in a specially prepared reception area.

"This airplane is remarkable and reflects the best of America's technology and ingenuity." said Loh over special loudspeakers hooked in the B-2's cockpit as he steered the plane toward three static aircraft. The statics — a B-29. B-52 and FB-111 — represented the aircraft flown by the 509th Bomb Wing during its nearly 50-year history.

"This is truly an historic day for all of us in Missouri, and particularly for the communities around Whiteman AFB," said Sen. Christopher "Kit" Bond, R-Mo. "It is with great excitement and enthusiasm that we turn a new page in the history of this base."

After parking the B-2, Loh and Belanger climbed out of the cockpit to be greeted by Bond and a host of key military and civilian officials, including Gen. Merrill A. McPeak, Air Force chief of staff; and Ken Kresa, chairman of the board, president and chief executive officer for the Northrop Corp., the bomber's primary contractor.

"The B-2 is already a seasoned veteran of political wars, technical skirmishes and fiscal battles," said McPcak. "It has landed on this flightline today, not just because of its stealthiness and load-carrying capacity, but because of its toughness and tenacity. It promises to be a terrible enemy of anyone who seeks mortal combat with America."

Rep. Ike Skelton, D-Mo., who also attended the arrival ceremony, described his feelings by recounting an experience as an 11-year-old seeing an Army transport plane pulling a glider overhead in Missouri.

"In my wildest dreams I could never have imagined that I would be part of making the former Sedalia Army Air Field the most modern bomber base in the world," said Skelton. "The world's most modern military airplane has arrived.... We all welcome this new Air Force assignment and greet it with enthusiasm."

A letter to the base from Wilkerson Wright, Orville and Wilbur Wright's nephew, described the true spirit of the day.

"The B-2 demonstrates for all who need convincing that the spirit of creativity and invention that inspired my uncles is still very much alive in this country," the letter stated. "All Americans stand taller and safer in what you have done."

(Carpenter is assigned to the public affairs office at Whiteman)

by TSgt. Dave Masko Air Force News Service (Dec. 27, 1993)

Bomber Force Projection

WASHINGTON — Bomber aircraft will continue to be the "cornerstone" of U.S. air operations even though there are fewer bombers in the inventory than at any time since the end of World War II, said the com.nander of Air Combat Command.

In recent statements about the bomber force. Gen. John Michael Loh said a mix of B-52, B-1 and B-2 bombers is needed to penetrate current and projected threat environments with a very high degree of survivability.

Bombers such as the B-2 — with its stealth features — also have the potential to use precision weapons to attack ground force^c adding flexibility for initial response and throughout a military operation, said Loh.

While these and other features have been explained to Congress on numerous occasions, debates continue over costs required to support the bomber force in the coming years.

"We still have some budget pressures. After all, last week you saw the Penny-Kasich bill come up seeking another large cut in defense." Loh told reporters at a Pentagon briefing Dec. 10.

"It was defeated, but there are always going to be pressures to continue to reduce defense. And, quite frankly, I tl ink we are at the point where, if we do reduce further, we probably will not be able to fulfill the expectations expressed in the bottom-up review strategy."

Still, Loh has confidence in the future bomber funding because the fiscal 1993 budget approved money to complete the B-2 buy of 20 aircraft and support investment in other bomber programs. Also, the Pentagon's bottom-up review states an ongoing need for a capable bomber force.

"If the Air Force can hold the forces described in the bottom-up review, then I believe there will be a sufficient military force to do what our strategy calls for," Loh said.

"Bombers play a very valuable role in our future defense strategy. It was recognized during the bottom-up review as being critical to extend our power projection."

The bottom-up review allows for 20 fighter wing equivalents, and up to 184 bombers or 100 deployable bombers.

Loh explained that bombers — in concert with the forces of the other services when applied jointly — would give the United States unequaled firepower. For instance, the B-2 has an unrefueled range of approximately 6,000 miles, and, with refueling, "can go anywhere in the world."

Loh also pointed to the drawdown as another reason to maintain. and even expand, the bombers' current capability, particularly for conventional scenarios.

"Bombers are becoming a more important element of our force as our overseas bases decrease and we become more of a home-based expeditionary force," he said. "In my view, bombers can help forestall and help deter a conventional conflict."

To test the performance of the bomber force, ACC began a series of exercises Loh calls "global power training missions." He said the primary focus is to exercise B-52s and B-1s, and prepare to exercise the B-2 force as it becomes ready for long-range missions.

For example, during 1993, B-52 and B-1 bombers flew 63 sorties on 33 different missions. On Aug. 14, two B-1 bombers assigned to the 28th Bomb Wing, Ellsworth AFB, S.D., broke Air Force flying records after circumnavigating the globe in record time. The aircraft were taking part in Global Enterprise, an Air Force exercise to train air crews for long-range global power projection missions.

"These missions that I'm continuing to perform demonstrate our global reach and global power capabilities with bombers.

"They're giving our crews experience in being able to project American air power with bombers virtually anywhere with great immediacy and with great firepower." Loh said.



reach every point on the globe within 24 hours.

AFNEWS

Pentagon Press Conference

Excerpts from a press conference on the future role of bombers. Washington. D.C.

Gen. John Michael Loh commander Air Combat Command (Dec. 10, 1993)

Dec. 17th will be a historic day for our nation and for our Air Force. It happens to be precisely the 90th anniversary of the Wright brothers first powered flight at Kitty Hawk. And it will then mark the delivery of the first operational B-2 to Air Combat Command. Air Combat Command operates and maintains B-2s, and trains the forces [to] provide B-2s for any crises or war situation.

Just as the Wright brothers' achievement in 1903 did then, the B-2 represents the best of America, the best of America's technology, and the great capability of our people.

The delivery of the first operational B-2 is a significant milestone in the test program. The first flight of the aircraft was in July 1989. Since then we've flown, as of today, 326 sorties and 1,519 hours in the test program. That represents 62 percent of the 2,400-hour test program.

The aircraft that I will fly into Whiteman Air Force Base, Mo., next Friday is called ACC-1 in our vernacular. We already have seven flights on it, acceptance flights on it, to ensure that it meets our needs for this part of the program. On the B-2s we have tested and verified the essential mission capability that it is supposed to perform, both nuclear and conventional.

We've tested and verified the radar cross-section, the entire flight envelope, air refueling, weapons releases with one conventional weapon. a 2,000-pound gravity bomb, and two nuclear weapons shapes, the B-61 and the B-83, with no adverse aerodynamic effects. We have over 4,500 logistics test hours, testing the reliability and maintainability and supportability of the aircraft.

The climatic testing is underway now at Eglin Air Force Base, Fla., in the climatic hanger. We have a B-2 down there at 122 degrees. I was there yesterday testing its requirements, its specifications for hot weather. We've already done the cold weather testing down there. The terrain following and terrain avoidance system and the flight control system and the defensive avionics testing has begun. We've flown at 700 feet above the ground in mountainous terrain. We've flown down to 400 feet above the ground in flat and rolling terrain, and in the visual contour program. The delivery of ACC-1, the first operational B-2, is the first step in the maturation process to make the B-2 truly an operational fielded weapons system. We're currently training the initial cadre of pilots and maintainers at Whiteman.

The first aircraft will have limited capability, compared to its eventual capability. We will increase its operational capability with each successive block. We have three blocks of B-2s. Of the 20 aircraft, there will be 10 from block 10, three from block 20 and two from block 30. In addition, five full-scale development aircraft will be retrofitted to block 30.

The block 10 aircraft eventually will all be brought to the ultimate configuration, the block 30 configuration, through a retrofit process. But the initial few that we get at Whiteman are in block 10. [The aircraft] will be able to deliver both conventional weapons and nuclear weapons.

The block 20 deliveries will begin in the middle of 1996, and it has additional nuclear capability and the additional precision weapons capability for conventional operations: the initial weapon called JDAM, Joint Direct Attack Munition, and also a stand-off cruise missile called TSSAM [Triservice Standoff Attack Missile] will be in block 20.

The block 30 configuration will be delivered in late 1997 and it will add additional conventional weapons capability, and the full-up low radar cross-section and the full-up offensive and defensive avionics. The radar signature will be further reduced through configuration changes up through block 30, and then the other aircraft, the block 10s and block 20s, will be retrofitted with the ultimate in radar signature control.

Each block will bring additional operating modes for the B-2 synthetic aperture radar, and additional capabilities for the aircraft's defensive management system. The aircraft become more deployable. Our ability to deploy them in support of a crisis becomes better with each block as we improve our mission planning capabilities, the ability to target different kind of targets and even change those targets en route, enabling us to operate more aircraft for longer periods from deployed locations.

As the aircraft matures and we learn how best to maintain it, we expect our man hours for maintenance per flight hour to go down to its specified value of around 50 or so, which is consistent with what we're achieving today in both the B-52 and the B-1. Requirements in reliability, maintainability and supportability become more stringent with each block. As you have probably surmised, the B-2 is a very complex weapon system. It takes time to test and develop all of its capabilities, and this block approach maximizes the operational capability at the earliest possible date, so I can begin to use it, if needed, in an operational scenario.

The first aircraft will have limited capability, compared to its eventual capability. We will increase its operational capability with each successive block. I might point out that the B-2 development has other military benefits. Just as our early F-15 fighter spawned a family of aircraft using the technology that we developed in the F-15, the B-2 likewise has spawned a great deal of technology related to synthetic aperture radar, related to the manufacture of large composite structures, the technology associated with materials and materials processes.

And, of course, the national treasure that we have in our stealth technology will, I am convinced, be applied to other programs. It is being applied now in the F-22 development program, for example. And, for example, the large composite manufacturing techniques are being applied to the commercial Boeing 777 program, which will have an all-composite wing. So already we're seeing some spin-offs in, a popular word these days, dual-use technology, and other programs.

Let me pitch a little bit of the value of bombers to our national defense now that we are mostly a home-based force, and therefore must project our power from the United States rather than depend on in-place military strength overseas.

Bombers play a very valuable role in our future defense strategy. It was recognized during the bottom-up review as being critical to extend our power projection. The unrefueled range of the B-2 is approximately 6,000 miles. And, of course, with refueling it can go anywhere in the world. With two refuelings, it can cover virtually any spot in the world.

Bombers allow us to protect our global interests with U.S.-based forces. I have begun, in Air Combat Command, a series of missions which I call global power training missions, that exercise our B-52s and our B-1s, and will be exercising our B-2 as it becomes ready to do that, on these long-range missions.

And during this year, 1993, we've had 63 sorties of B-52s and B-1s on 33 different missions taking off from locations in the United States and flying into weapon ranges in the Mediterranean and Turkey and Norway, delivering weapons, and then returning either to the United States or landing at a forward location like Diego Garcia in the Indian Ocean, or Moron, Spain, and then flying additional missions from there for a few days and then returning.

We had one mission where we flew two B-1s around the world. We took off from Ellsworth, S.D., dropped weapons in Norway, landed in Diego Garcia, put a new crew on the next day, took off from Diego Garcia, dropped weapons in a range just off the West Coast of the United States, and landed back at Ellsworth. So these missions that I'm continuing to perform

Bombers play a very valuable role in our future defense strategy. It was recognized during the bottom-up review as being critical to extend our power projection.

Bombers allow us to protect our global interests with U.S.-based forces. demonstrate our global reach and global power capabilities with bombers. These are long duration missions, typically 20 to 30 hours. So they're giving our crews and our maintainers and supporters some tremendous experience in being able to project American air power with bombers virtually anywhere with great immediacy and with great firepower.

So bombers are becoming a more important element of our forces as our overseas bases decrease and we become more of a home-based expeditionary force. They have three great features - very long range, high payload. and the sense of immediacy, immediate impact on a crisis — so that, in my view, bombers can help forestall, can help deter a conventional conflict.

And clearly the advantage of the B-2 will be to show any potential aggressor that he can be attacked within hours by B-2s, because of their **B-2 will be to show any** stealth without any supporting aircraft, and therefore perhaps forestall some aggressive action that they may have in mind. So they have enormous potential for adding to our national security strategy.

Let me say a few words about reports in the press that I have submitted a proposal or a plan for more B-2s. Perhaps you have read that. The truth is that I do not have a plan, and I have not submitted a plan for additional B-2s. I have talked about additional B-2s in the context of needing a large number of bombers to support our national security strategy. So let me just put this in context.

I have stated, in fact, the bottom-up review said that we need about 180 - up to 184 — bombers and at least 100 deployable bombers. So when I add up the number of bombers it takes to generate 100 deployable, with their additional crew ratio and their additional spares, plus a few for a nuclear withhold that would probably take place - if we were to get into another fight, we would want to hold some back in reserve for potential nuclear operations — I quickly come up with a need for about 180 to 200 total bombers.

Now, the budget may not be able to support that, so that's one reason why we're down to 20 B-2s. We in the Air Force sought more B-2s. I would like to have more B-2s, but the fact of the matter is in this budget environment we can't afford any more B-2s.

So, I've not submitted a plan for any more B-2s. ... I'm calling attention to the fact that if we ever want more bombers, a relatively smaller investment in maintaining the B-2 team (the design and manufacturing team of both the prime and the hundreds of subcontractors that we have) to protect team integrity will allow us to provide an option to build [more

... the advantage of the potential aggressor that he can be attacked within hours by B-2s. because of their stealth without any supporting aircraft...

bombers] in the future, if we ever want to build them in the future, at a relatively cheaper cost than if that team is allowed to wither away.

And so, I'm really calling attention to the fact that if we at some point in the future may want more B-2s, a relatively modest investment now could protect that. I don't know if we can afford even that relatively modest investment, quite frankly.

Q: How much of an investment?

General Loh: I'm not sure, that's why I don't have a plan. I've asked Northrop to come to me and tell me what that investment is, and they have not done that yet. They intend to do that. So I'm kind of still formulating this. But the other point I would like to make is that one of the [press] articles said I was violating laws — I'm not violating any laws. What I do have, though, is a responsibility, and, indeed, an obligation to state operational needs for equipment required to perform my many missions that are required to fulfill our national security strategy. And this strategy that has come out of the bottom-up review contains scenarios, as we say, which require many bombers in a variety of missions.

So it is in this context that I continually look at our bomber plans, our bomber roadmap and extensions of our bomber roadmap, to see if I can fulfill my responsibilities to meet this strategy with the bombers needed. And additionally, I need to look at our national industrial capacity to provide for any needs in the future. And so that's why this is a question of some concern, because if the B-2 manufacturing capability goes away it does effect our national industrial capacity to build the bombers in the future.

So that's the context that I'm required to look at the adequacy of our bomber force and formulate plans and submit them to the secretary of the Air Force, the chief of staff of the Air Force, the chairman of the Joint Chiefs of Staff, and the secretary of defense. But I do not today have a plan for more B-2s.

Q: When you revise the bomber road map, will you make allowances for the success and/or failure of the JDAM program? In other words, what size bomber force are you going to need, depending on whether JDAM pans out?

General Loh: Well, the numbers that I gave you earlier reflect our bomber roadmap, which includes the incorporation of those systems.

Q: General, how concerned are you that the requirements you're obligated to meet in the bottom-up review are not adequately financed? That seems to be a question the Army has raised.

General Loh: Well, that's a good question. Let me say that from some of the work I've done, we can handle two major regional contingencies. But, again, you have to come to grips with what we mean by nearly simultaneous or how large they are. If we can hold to those forces that are described in the bottom-up review for the Air Force, I think we are fine. The 20 fighter wing equivalents, up to 184 bombers, 100 deployable bombers, in concert with the forces of the other services when applied jointly, I believe will be a sufficient military force to do what our strategy calls for.

But we do have to put more specificity to this question of two MRCs, that's still a little bit of an unknown. But I think it's sized about right. If we can maintain support for the budgets that will allow the bottom-up review force structure to happen, I'll be satisfied.

Q: General, (inaudible) Los Angeles in late October, you had mentioned a little bit about a bomber replacement program or strategy that you were looking at ... and I was just wondering if you could elaborate ...

General Loh: Well, I alluded to that earlier. Again, as an extension of our bomber road map, I'm trying to find ways to leverage our bomber force. Part of that is upgrading our bombers with a better capability for conventional operations. And I believe part of that is to try to figure out a way how, over the long term, we can maintain the size of bomber force we need for our country. So I'm looking at some sort of a replacement-based acquisitions strategy, instead of the way we bought bombers in the past in bunches.

I don't think in the future — as, for example, the B-52s wear out, it's going to be extremely difficult to generate a support for, say, let's go buy 50 or 60 bombers over a short period of time. But if there were a strategy to buy a few bombers a year, a sustained low rate production — and, again, this is not just a military question, this is an industrial base question — we ought to be looking at ways to do that.

And it's in that context that I'm looking at a replacement-based acquisition strategy for the bomber force. And it doesn't mean I'm promoting more B-2s. It's looking at how we are going to buy the next bombers that we will need when our B-52s wear out, or for that matter when our B-1s wear out. They're not immortal. **Q:** Isn't that what you are doing, though? I mean if it's not B-2s, what is it? ... There are no other bombers.

General Loh: I'm working on the acquisition strategy now. But, you know, it could be a different bomber, it could be more B-2s. But, again, don't tie my looking at that, which is related to acquisition reform and defense acquisition strategy, to advocacy for more B-2s in the near term. Please don't equate those two.

Q: Sir, to go back to your acquisition or replacement strategy, do you have a time frame for when you wish to have that done ...?

General Loh: No, I don't. I need a lot more input from both industry and from our development community on that. They're out working on that right now, so it would be some time in the future. And, again, it's not directly tied to seeking funding for any more B-2s.

Q: General, with it looking like additional B-52H's are going to be retired, are you looking at options for having the B-2 take on some of the B-52's missions, for instance the advanced cruise missile?

General Loh: As you recall from our bomber roadmap, we in my view validated a need for about 180 or so operational bombers, including 95 B-52s total and about 95 B-1s and 20 B-2s. So, the 20 B-2s that we're getting don't replace any of those 95 B-52s.

They kind of replace B-52s that have already been retired or are now being retired. I'm retiring B-52s today at several bases. So the B-2s are intended to fulfill our bomber roadmap need for about 184 or so operational bombers.

Now, we may not achieve that if budgets don't allow it but that's the operational need.

Q: Would the B-2 have to take on some of the B-52s nuclear capabilities like the advanced cruise missile?

General Loh: Well, the B-2s will have a dual capability for both nuclear and conventional roles, and so they can be made available to our unified commanders for either role. So, they have that flexibility and it depends upon the situation as to how they will be used.

Q: How soon will we see the first B-2 on training exercises?

General Loh: Well, I don't know. We have a lot of local training to do before we do that. I wouldn't anticipate that during 1994 either, but sometime in the future. Somebody asked me when are we going to put it in our Gunsmoke competition? It won't be in the next Gunsmoke, which is 1995, but it will probably be in 1997, the B-2, like we put the B-1 and B-52 in this year.

We have good, very smart, bright, young pilots ready to fly the B-2. They have gone through a very rigorous selection process as you might imagine, including an interview with me so I could look them right in the eye and tell them that I have great confidence in their ability to handle this mission. This is another important attribute of the B-2. It can deliver an enormous amount of firepower, and only put two people at risk. Compare that to other equivalent forms of firepower and how many people must be put at risk. We have selected eight. They're all still in training now. And I will be picking the next few B-2 crew members here in the not too distant future. And again, they will go through a fairly rigorous selection process.

As we fly the B-2, we're going to go through a four-day work-up cycle for each mission starting next week, and we intend to fly this first operational B-2 before the end of the year. After I bring it into Whiteman next Friday we're not going to be bashful or timid about flying the B-2 during the course of our training work-up.

But it's a four-day cycle. The first day the crew will plan the mission. The second day they will have an initial simulator session with a full mission simulator. The third day they will have a second simulator mission. And then that fourth day they will fly the B-2 on its mission. This is all designed to get the maximum amount of benefit and capability out of the precious flying hours that we have for the B-2.

Q: This year, meaning the end of 1993?

General Loh: Yes, we intend to fly it once before the end of 1993.

Q: Where is the training area?

General Loh: Well, of course, with its range it can be virtually anywhere, but we do have good, solid training areas, air-to-air ranges and air-to-ground ranges, and radar bomb scoring sites in the Missouri-Kansas region, So we can get a lot of good training locally there near Whiteman. But, of course, then as we get better with the B-2, we will be taking it to our larger ranges and including it in other training exercises.

B-2 Arrival Ceremony

"SUCCESS ... FOUR FLIGHTS ... THURSDAY MORNING ... ALL AGAINST 21-MILE WIND ... STARTED FROM LEVEL WITH ENGINE POWER ALONE ... AVERAGE SPEED THROUGH AIR 31 MILES ... LONGEST 57 SECONDS ... INFORM PRESS ... HOME CHRISTMAS."

Dr. Sheila E. Widnall secretary of the Air Force Whiteman AFB, Mo. (Dec. 17, 1993) Thus began Orville Wright's telegram to his father Dec. 17, 1903. The dream of flight had become a reality. Ninety years ago today the Wright Flyer opened the first historic chapter of powered flight. It signaled the dawn of an exciting new technological era. Today's delivery of the first operational B-2 to Air Combat Command and Whiteman AFB opens yet another chapter in aviation history. This new chapter was inspired by historic changes — changes in the global environment, changes in aircraft design, and changes in the way we procure aircraft.

Change brought about the end of the Cold War, and the change continues — today's world still remains volatile. We may not be at war, but neither are we at peace. This age of uncertainty demands that we stay capable and engaged, ready to respond when called upon. Responsiveness — the ability to project power quickly, accurately and decisively, anywhere, anytime — is the essence of airpower.

With more advanced stealth characteristics than the F-117 and a payload eight times greater, the B-2 embodies this concept of responsiveness. And it represents more than just evolutionary progress in aerodynamic capabilities. By using cutting-edge technology, computer-aided design, computer-aided manufacturing and composite structures, the B-2 has revolutionized aircraft design. And not just for the Air Force's benefit. The critical dual-use technologies are enhancing America's economic and industrial base while bolstering our global competitiveness.

The B-2 has also ushered in a new era in the way we buy, field and support aircraft. Unlike the practice of past weapon systems, the aircraft is actually the last of the system hardware to arrive at Whiteman. Everything else is already in place — the aircrew simulators, the maintenance and weapons loading trainers, the initial spare parts, the support equipment, the tech orders.

The 509th Bomb Wing already has two fully qualified B-2 instructors, Lt. Col. Tony Imondi and Lt. Col. John Balanger, who flew in today with Gen. [John Michael] Loh, [commander, Air Combat Command]. They'll be in the air over Whiteman again before the end of the year.

Everything needed to make this B-2 operational at Whiteman AFB was ready and waiting. The B-2 program is a success story — for the Air Force and for Northrop. I congratulate every one of you who worked so hard to turn this page of airpower history. Good afternoon. This is a wonderful day for the Air Force and the nation. Let me add my congratulations to the entire B-2 team for creating this remarkable, awesome airplane. Its arrival represents more than a technical leap forward. It adds a revolutionary new dimension to air warfare.

It's easy to understand why this is so. Although stealth has been a part of the national security vocabulary for only a decade, the concept is as old as warfare itself. At the earth's surface, or in air and space, nothing good ever comes from being noticed by the enemy. But since World War II, when radar began augmenting human eyesight, finding airplanes has been easier than hiding them. Our response has been essentially to give up on achieving surprise and try instead to overpower air defenses. We build huge air armadas — flak suppressors, radar jammers, armed escorts — in order to push a fraction of the force through air defenses to the target. But air forces do not exist for the purpose of protecting themselves. Thus, the B-2 offers a much more satisfying and elegant solution: avoid detection, and tip the scales back in favor of flexibility and offensive punch.

The B-2 also meets our need to carry large payloads over vast distances. This has been a long-standing American requirement. For most of our history, we have assumed that the starting line for military operations was located inside our national borders. In World War II, when it appeared Britain might fall, Jack Northrop developed a flying wing concept, a bomber that could carry 10,000 pounds of bombs 10,000 miles — about the round-trip distance from the U.S. to Germany. Today, we make this visionary concept a reality — just in time, since we are in the process of bringing our forces home from forward bases overseas.

In every sense of the word, the B-2 is a survivor. Already, it is a seasoned veteran of political wars, technical skirmishes and fiscal battles. It has landed on this flight line, today, not just because of its stealthiness and load-carrying capacity, but because of its toughness, its tenacity. It promises to be a terrible enemy of anyone who seeks mortal combat with America.

The B-2 continues the finest traditions of our bomber fleet. We're very proud to welcome her into the Air Force. Again, congratulations and thank you to the B-2 team for a job well done.

Gen. Merrill A. McPeak Air Force chief of staff Whiteman AFB, Mo. (Dec. 17, 1993)

Bomber Force in Action

A Changing Role for Bombers

In conjunction with stealth, precision bombing provides a tremendous leap in lethality. The average accuracy in so-called daylight precision bombing raids in World War II was 3,300 feet — more than one-half mile. To get a 50-50 chance of placing one bomb within 15 feet of the target, U.S. pilots had to drop 16,000 bombs. That requirement has decreased today to two bombs, one target, one airplane, putting at risk no more than one aircrew. Stealth and precision have redefined strategy.

Bombers Train for Combat

Today we bring as many of our warriors and our weapons together as possible, and we give them the most realistic experience we can. Bombers play every Red Flag. ...

The way we fly has changed. We more than doubled the amount of night flying at Red Flag [in 1993]. Our composite wings are up and working with other forces. In fact the 366th, our air intervention wing, led off our spring [1993] Green Flag exercise in a scenario that called for them to fight their way into theater and hand off to a joint forces air component commander as more units deployed in. ...

ACC relies heavily on our Checkered Flag (deployment) program which takes our squadrons overseas regularly. In addition to providing invaluable training, now these deployments help us maintain access, which is more important now, to key bases. [For 1994,] we have 32 Checkered Flags scheduled — 24 for fighters and eight for bombers

Our drive to empower our people led to one of the most exciting and worthwhile changes in bomber training to date. Earlier [in 1993], the 384th Bomb wing at McConnell AFB, Kansas, decided the best way to train for their role as first-strike forces in a conventional conflict was to fly intercontinental missions. They started by sending B-1s to the Mediterranean to join up with the USS Roosevelt and our allies for some training over Corsica. The 20- to 30-hour intercontinental round-robins, which we call global power missions, are becoming a standard part of all our bomb wings' quarterly training requirements. Every bomb wing will fly on global power missions quarterly.

Our bombers are familiar sights in joint and allied exercises now. ACC has been a major presence in this year's fleet exercises. We supported 12 Air Warriors at Fort Irwin, Calif., and another eight at Fort Polk, La., and, as always, our Red and Green Flags and our extensive network or training ranges are open for joint use.

Gen. John Michael Loh commander Air Combat Command (Aug. 2, 1993) Now we train with JFACCs and air tasking orders routinely on land and at sea on ships. [In 1994], we will tie more of our exercises together to create even greater opportunities for joint training.

B-1 Lancers participate in Bright Star '94

There was significant B-1 participation in Bright Star '94, a combined U.S./Egyptian exercise held Nov. 13-19, 1993. Two B-1s from Dyess AFB, Texas, and one B-1 from McConnell AFB, Kansas, flew global power missions — to Egypt and back — to help kick off the active phase of the exercise. Three additional B-1s from Ellsworth AFB, S.D., deployed to Beni Suef AB, Egypt, to fly composite force packages with the Air Force's new intervention wing, the 366th Composite Wing. Mountain Home AFB, Idaho.

The Dyess and McConnell B-1s departed their home bases on Nov. 13, flying a route over the North Atlantic, through the Straits of Gibraltar, and over the Mediterranean Sea to a bombing range north of Cairo. After the bombing runs, the aircraft returned non-stop to their home bases, arriving Nov. 14. Each B-1 flew more than 13,000 miles and received four in-flight refuelings. The Dyess aircraft set a new B-1 duration record of 31 hours, 12 minutes, surpassing the old B-1 mark of 24.5 hours (logged about three months previously).

The three Ellsworth B-1s flew global power missions to the Egyptian bombing range on Nov. 10, recovering to Beni Suef AB. From there they participated in composite force packages with the 366th Wing in support of Bright Star. A sample mission consisted of an attack force of two B-1s, four F-15E's, four F-16s, one EC-130, two EF-111s and four Egyptian Air Force F-4E's. This force conducted a simulated airbase attack.

Older, Less Glamorous Weapons Remain Essential

The B-52 Stratofortress, designed in the late 1940s and early 1950s, has served superbly for decades as the mainstay of our nuclear and conventional bomber force. Modification of the B-52G's in the early 1980s provided a credible conventional capability which we exercised in the Gulf War. Despite the B-52G's outstanding record, we chose to retain the slightly newer B-52H's for several reasons. Their fanjet engines are 30 percent more powerful than the B-52G water-injected engines, and the B-52H's cost less to operate, have a greater range and can fight more easily from austere locations on short notice.

The B-52H's we keep will fill two important roles. The first is as a standoff weapons carrier. We plan to incorporate this capability early to compensate for the increasing drawbacks of the B-52's large radar cross section and slower speed. Using conventional cruise missiles, the B-52H

Lt. Gen. Buster C. Glosson deputy chief of staff, plans and operations (Dec. 13. 1993)

The Bomber Roadmap: Enhancing the Nation's Conventional Deterrent, USAF white paper (June 1992) may be able to strike fixed targets in defended areas at acceptable risk. In some cases, after U.S. forces deploy to a theater, the B-52H may be able to launch standoff weapons from airspace secured by joint air superiority assets. Second, just as in Desert Storm, the B-52H will retain the ability to deliver massive firepower in areas of lower threat. The B-52's ability to lift 38,000 pounds of bombs from bases anywhere in theater will grow to include precision weapons toward the end of the decade.



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