**The "Bone" has shifted from nuclear to conventional missions and would be heavily tasked in event of Major Regional Conflict.**

# B-1s for Theater War

**By John A. Tirpak, Senior Editor**

The B-1B bomber was the only type of operational Air Force warplane that didn't participate in the 1991 Persian Gulf War, a fact its critics held up as proof that USAF had bought a lemon it was afraid to send into combat. What the critics never mentioned at the time was that, by staying home, the B-1 was doing its job--standing nuclear alert for deterrence against a still very-much-alive Soviet Union. They also neglected to point out that in 1991 the bomber was neither intended for, nor equipped to conduct, conventional warfare.

As the possibility of large-scale conflict with Iraq looms again in 1998, the story is different: If the US gets involved in another conventional war, the B-1B not only will participate, it will play a pivotal role.

The B-1B has been shifted from the nuclear to the conventional mission, thanks to arms treaties, dissolution of the Soviet Union, and restructuring of the combat air forces. In addition, the "Bone" (from B-One), as it is known to its crews, is emerging from a five-year program of avionics and weapons upgrades that now makes it one of the most potent systems in the Air Force's conventional arsenal.

In fact, when the recent crisis over Iraq's potential to make weapons of mass destruction began to boil over, two B-1Bs were already forward deployed in the Gulf as part of the 347th Air Expeditionary Wing, ready to deliver a heavy strike if the order came. As a new generation of precision weapons becomes available in large quantities, the B-1B will become even more formidable.

In a halt phase scenario, a situation in which enemy armored columns are on the move, two B-1Bs, armed with Sensor Fuzed Weapons, theoretically could destroy hundreds of tanks in a single pass. Though it is not a "stealth" platform in the same sense as the B-2 bomber, the B-1B's radar cross section is sharply reduced from that of even most fighter aircraft, allowing it to play a role early in the air campaign, say officials.

## Ten Times Better

Gen. Richard E. Hawley, head of Air Combat Command, noted, "When the B-1B force is fully matured, with all these modifications incorporated, and fully equipped with all these families of precision and near-precision weapons, it will be 10 times more capable--as measured by the number of targets that we can destroy--than the bomber force that we started with."

The upgrade effort has proven to be "a pretty amazing leverage on our investment dollars," he observed.

During the past few years, B-1Bs have deployed to Korea, Guam, and the Persian Gulf region and played in numerous Red Flag, Maple Flag, Cope North, and similar exercises. Its aircrews have largely rewritten the book on how the B-1B is employed in combat, emphasizing the conventional role and the synergy between the fast bomber with reduced radar signature and smaller strike airplanes.

The decision to shift the B-1's role came shortly after the Gulf War. That conflict proved, among other

things, that the lines between strategic and tactical targets had become permanently blurred. The formation of Air Combat Command-unifying the forces and personnel of Strategic Air Command and Tactical Air Command-put this into organizational practice. A logical next step was to equip the B-1 with the weapons and systems it needed to play a role in regional conflicts.

Money was short, however. The end of the Cold War had brought stiff reductions in the funds available for upgrades and research and development. The solution, formalized in 1993, became known as the "flyable reserve."

Maj. J.C. Valle, a B-1 pilot and ACC's chief of tactics development for the airplane, explained that the flyable reserve or "attrition reserve" concept became possible when the US embraced the assumption that the early to mid-1990s would be a period of fairly low risk for a large-scale conventional or nuclear war. That risk assessment allowed USAF "to remove from the books" a portion of the bomber force, which, though it would still exist, would not be counted as part of the combat inventory. No pilots or crew chiefs were assigned to these airplanes, and spare parts were not purchased for them.

"They were put in caretaker status," Valle said. "We'd fly them. ... You couldn't tell a regular 'Bone' from an 'attrition reserve' one, but we didn't budget" for the operation and maintenance costs of operating them. Spare parts were available for a certain number of the aircraft, said Valle, which were "cycled in and out of the flying inventory by tail number," so that the fleet aged at the same rate in terms of hours flown, hours between overhauls, etc.

## The CMUP

At the time, the Air Force had on hand 96 B-1Bs, of which 74 were "operational" and 22 were allocated to training, test, and depot maintenance. The number of operational bombers was reduced to 53. (A similar reduction effort covered the B-52 program.) In time, 18 B-1Bs were assigned to the Air National Guard. Savings on personnel, spare parts, fuel, and other operating costs flowed into the Conventional Munitions Upgrade Program.

The CMUP is an ambitious effort that has already equipped most of the B-1B force with significant new near-precision weapons. With the arrival of the Joint Direct Attack Munition and others in the new family of standoff weapons, the B-1B will have the capacity to deliver massive numbers of munitions with almost the accuracy of Laser-Guided Bombs. All B-1Bs will be equipped with the new family of precision munitions by around 2004.

Converting the B-1B to the conventional role has been a gradual process, beginning in 1993 and culminating last October, when the 7th Bomb Wing at Dyess AFB, Texas, flew the last nuclear mission with the Bone. During the last five years, the employment concept for the B-1B and its training syllabus have changed radically, according to Col. Glenn Spears, 28th Operations Group commander at Ellsworth AFB, S.D.

The training emphasis has changed to emphasize operations "within a composite force," Spears said. "We're more fluid, ... more flexible."

In the days of the nuclear role, B-1B crews trained on very long, fairly static missions, "single ship, practicing threat reactions," Spears noted. Today, the B-1B sortie is typically a two-ship formation, "working a bombing range and dealing with all sorts of surprises."

"If we simulate that a threat has come up ... we practice evading the threat and altering the route," with the prime objective of getting to and away from the target safely. Because the B-1B is so valuable an asset, the mission commander is charged with ensuring that it returns, even if it means passing up the target until conditions are more favorable. If there's no way to "safely get my package out," the B-1B will forgo its target and "I'll survive to fight another day," Spears said.

In the plan for the nuclear mission, the bombers would have only enough fuel for a one-way trip along a carefully prescribed course. In the conventional role, with mission length shorter and tankers available, there's a good deal more flexibility to try things a different way, Spears added.

## Like a Fighter

He explained that crew training emphasizes "defensive maneuvers and advanced handling of the aircraft," which does not necessarily mean low-level flight. The B-1B, with its swing wings and powerful engines, can perform the type of violent maneuvers one would not expect of such a large aircraft. Gen. Michael E. Ryan, USAF Chief of Staff, recently described it as being "like a very large fighter."

"The B-1B wings train our crews to use the full safe envelope of the aircraft's capabilities," Spears noted. "There's no doubt that it's a bomber, but it's a very maneuverable bomber."

Part of the training involves maneuvering to avoid surface-to-air and air-to-air missiles. Pilots are also now equipped with Night Vision Goggles; the cockpit has been changed to accommodate the NVG devices. Some have argued in favor of equipping the B-1 with a forward-looking infrared system like LANTIRN or Pathfinder, but so far there are no plans to install such a capability.

Nowadays, B-1 training sorties last about 4.5 hours. Bones from Ellsworth typically work the Hayes or Powder River Military Operating Areas in Montana or the Utah Test and Training Range. The sorties start out with 45 minutes of aerial refueling, followed by ingress to the range and about an hour's worth of work on the range as a two-ship formation.

On the UTTR, the B-1s can get immediate feedback on the accuracy of their bombing by using special instrumentation and a special scoring system there. The range also offers the capability for the B-1Bs to go against a variety of simulated electronic threats.

The results have been impressive. "Our precision with the Mk 82 [500-pound bomb] is just as good as the F-15's," Spears boasted.

Every month, crews typically get four sorties of four to five hours apiece. When deploying to exercises such as Red Flag, there are typically more sorties but of shorter duration. Crews also get from two to four sorties a month in the Weapon System Trainer at Ellsworth, for a grand total of about seven to nine missions a month-a figure Spears said is about right for maintaining proficiency. Weapon System Officers can train in the WST independently of the pilots or in conjunction with them.

While the B-1s do work in packages of all sorts, they have not as yet flown with B-2s, which also work in those ranges, Spears noted.

Spears said crews with the B-1B have an operating tempo now which is "like any other combat unit; we're very busy." The deployment tempo is not yet the same as one might find in an F-16 squadron, but

Spears expected that it could "tick up" as regional commanders in chief become aware of what the B-1B can really do and start asking for it.

Spears noted that the B-1B training syllabus has changed substantially from what it was in the days when B-1s were lashed to the Single Integrated Operation Plan for nuclear war. Crews train for high-, medium-, and low-altitude missions, depending on the anticipated threats, such as surface-to-air missiles, anti-aircraft artillery, and enemy fighters.

## Package Deal

The two-ship formation is not the preferred means of attacking a conventional target, Spears observed. "I want to strike as a package," bringing along F-15s for fighter cap, F-16CJs with HARM missiles for Suppression of Enemy Air Defenses, some F-16s as bomb droppers, and some F-15Es for precision weapons drop, he said. "I can fly by myself," but he added, "I'm better in a package." Two B-1Bs could deliver 168 500-pound bombs or 60 cluster bomb dispensers with high speed and excellent accuracy, he noted.

For a deployment to a forward location like Korea, three B-1Bs typically will be dispatched, with two being operational and one a spare.

Last year, 10 B-1Bs deployed to RAF Fairford, UK, to train with RAF Tornados and US strike airplanes in an exercise called Central Enterprise. The exercise allowed the B-1B crews to become familiar with an area they don't normally fly in, as well as to try their hand at a theater missile defense counterforce mission in the Netherlands. In conjunction with F-15Es, the B-1Bs struck at simulated Scud missile launchers.

The B-1B has participated in Red Flag exercises, but ACC is trying to get the airplane involved in more theater exercises to demonstrate to regional commanders in chief what the capabilities of the airplane are and the contributions they can make to US-alone or coalition efforts.

All B-1Bs were designated as "Block A" models before the CMUP began. The first stage of the upgrade--Block B--gave the Bone an improved Synthetic Aperture Radar, as well as some tweakings to the Defensive Countermeasures System, which improved its maintainability and "reduced the false alarm rate," Valle reported. The Block B upgrade reached the field in 1995.

The next stage, Block C, gave the B-1B its first weapons upgrade, equipping it to drop the CBU-87 Combined Effects Munition, the CBU-89 Gator, or the CBU-97 Sensor Fuzed Weapon.

The latter weapon is a hybrid smart munition; dropped like a bomb, it dispenses submunitions which seek out armored vehicles and destroy them with a shaped charge. [See "The Devastating Impact of Sensor Fuzed Weapons," March, p. 28.]

Block C also provided a modified 10-station module, or bomb rack, which allows the airplane to carry larger munitions in its three bomb bays: 10 of the CBU-series weapons in each bay. It also provided an improvement to the AN/ALQ-161A Defensive Avionics System.

## "Complete Confidence"

Valle acknowledged that the B-1B took some deserved criticism for the performance of the defensive

avionics early in its deployment but that the Block C upgrade removed any doubt as to the Bone's ability to penetrate and survive in hostile airspace. "Honestly, now, I have complete confidence" that the defensive avionics will "detect and put on the screen" all threats to the airplane, he said. All B-1Bs are at least up to the Block C configuration.

The next big upgrade-under way now-is the Block D stage, which equips the B-1B fleet with the 2,000-pound JDAM. The JDAM can be a standard bomb kit or a BLU-109 penetrator, which can go through multiple layers of reinforced concrete and explode at a preset level. The Block D also gives the B-1B the capability for Global Positioning System navigation and weapons cuing; a faster and more powerful computing and ground moving target indicator gives the B-1B a mini-Joint STARS capability to watch vehicles on the move.

The Block D is "pretty advanced stuff," Valle said, noting that a B-1B can observe the direction of enemy movement, then zip ahead to take out a bridge, choke point, or mine a pass to stop its progress.

Tests of the Block D configuration are under way at Edwards AFB, Calif., and the first operational versions are expected to reach Ellsworth AFB in October. The entire fleet should be up to the Block D configuration by the end of 2000. Congress, acting on comments by former Chief of Staff Gen. Ronald R. Fogleman, added funds to the USAF budget two years ago to accelerate the fielding of the Block D upgrade by two years.

Now being defined is the Block E, which will upgrade what Valle admits are "the pretty miserable 128K computers" in the Bone. The B-1B's seven computers will be replaced with four, and the airplane will be equipped to carry 24 of the Joint Air to Surface Standoff Missile, or JASSM, and 30 of the Wind-Corrected Munitions Dispenser. The WCMD--called Wick-Mid--allows the B-1B to drop bombs from higher altitude. The WCMD uses inertial navigation to steer the bomb back toward its target if winds blow it off course. Higher altitude will give the B-1B protection from many types of ground defenses, such as anti-aircraft artillery and small surface-to-air missiles. The Block E may be fielded as soon as 2001.

A possible Block F would give the B-1B a Defensive Systems Upgrade, including an improved ALE-50 towed decoy, and a Block G is in preliminary discussion. Because the upgrade program is ongoing-and because funding for the upgrade continues to rely on savings-USAF will continue the flyable reserve concept for the foreseeable future, maintaining about 10 B-1Bs in unfunded status in the out-years, Valle said.

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