Exit Strategy

Target: Soviet weapons plant. Mission: Low-altitude bombing. Payload: Nuclear. Problem: Getting back

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ATAN AIR FORCE FIREPOWER DEMONSTRATION HELD AT EGLIN AIR FORCE BASE IN FLORIDA on May 7, 1957, a silvery swept-wing Boeing B-47 Stratojet bomber roared in low at 500 mph before a crowd of more than 3,000 people. The six-jet bomber tore past the front of the reviewing stand, which was filled with high-ranking military officers and 11 state governors, then pulled up into a steep climb and continued up, up, until it was almost standing on its tail. The bomb bay doors snapped open and an orange practice bomb, trailing smoke from a pyrotechnic device in its tail, arced up and away from the bomber.

The audience watched transfixed as the B-47 continued until it was upside down at the top of a half loop. Then, still inverted, it started down the back side of the loop, rolled right side up, and dove away in the direction from which it had come. This was the first public demonstration of a B-47 performing a new mode of nuclear weapons delivery that had been developed far from public view five years earlier. Not just the B-47 but a long list of tactical fighter-bombers would employ the startling new maneuver, which was called toss bombing.

In 1952 the Strategic Air Command had identified more major targets in the Soviet Union than it had heavy bombers to deliver nuclear weapons; because of the aircraft shortage, many targets would go untouched—at least in a first wave of an attack. But about that time two technologies came along that made it possible for short-range fighters to deliver nuclear bombs: mid-air refueling and nuclear weapons that were dramatically lighter in weight than the ones developed during World War II.

SAC had several wings of Republic F-84 Thunderjet fighters, and in July 1952, it assigned some of these units to “strike with atomic munitions…enemy airdromes, guided missile launching sites, key radar control centers, and other suitable targets deep in enemy territory,” according to a July 19 message from U.S. Air Force Headquarters. SAC planned to fly F-84s from the United States to Europe, refueling along the way. Once at their European bases, they would take on nuclear weapons and fly to their Soviet targets. The F-84s lacked precision navigation equipment and bombsights, so SAC ordered the pilots to train in low-level navigation. Each pilot got a file folder with details about each target to commit to memory. They would fly to their targets at low altitude—just hundreds of feet off the ground, well below the persistent European overcast. The units practiced navigating over routes in the United States and Europe with terrain similar to that of their assigned wartime targets; they used visual navigation techniques based on time, compass heading, and references such as rivers,

cities, roads, and bridges. The fighter-bombers' low altitude had an important if unanticipated benefit: They'd be beneath Soviet radar coverage.

But the low approach to the target also presented a major problem. How could the fighters escape the massive blast, flash, and radiation effects of their own nuclear weapons? SAC's big bombers dropped their bombs from 30,000 feet or higher and turned away, so by the time the bombs detonated they were a safe distance. When a fighter-bomber made a low-level delivery, it did not have enough time to escape before the bomb detonated.

Although few detailed unclassified records of the roots of the program can be found, this much is known: To solve the problem, SAC, working with the Air Research and Development Command, embarked on a program called Project Back Breaker. The attacking airplane would approach the target at high speed and low altitude, then climb sharply and release the bomb so that it was lofted, or tossed, high in the air (about 18,000 feet above the ground, it was calculated). While the bomb was arcing upward, the attacker would continue up into a half-roll, half-loop that formed the first half of a maneuver called a Cuban Eight, and then escape the way it came.

To deliver the bomb relatively accurately, ARDC developed a system known as the Low Altitude Bombing System (LABS), which was a set of gyros and a rudimentary mechanical computer linked to a fist-size, circular cockpit instrument, the dive-and-roll indicator. The equipment weighed only a few pounds, was easily installed, and almost immediately available, and it could consistently hit a circle with a radius of 1,500 feet. With nuclear weapons, as with horseshoes, close counts.

Operation was simple. The pilot had a set of very precise maps from which he selected a visual point on the ground, called an initial point (IP), close to the target. The pilot loaded the time from the IP to the target into the LABS prior to the mission. After takeoff, he visually navigated to the IP, and the instant he crossed over it and began his run to the target, he pressed the bomb release "pickle" button to activate the LABS, then fixed his attention on the dive-and-roll indicator.

The dive-and-roll indicator had two needles, a horizontal one for pitch and a vertical one for direction. When the aircraft reached the calculated release point, about two and a half miles from the target, the needles cued the pilot to climb and guided him to the release point. Les Frazier, an F-100 pilot who flew many LABS missions, describes the sequence this way: "Just prior to the pull-up point, the horizontal needle on the LABS dropped down, and the pilot pulled back on the stick to bring the needle back to level. The horizontal needle led the aircraft into a 4-G climb in two seconds, while the vertical needle showed the course. Keeping both needles centered kept the aircraft lined up, and for several seconds this was the pilot's entire world—it was about as easy as pushing an oyster into a slot machine. The bomb released automatically with a loud wham that could be heard in the cockpit, and the airplane would oscillate from side to side as the weapon was blown clear."

In November 1952, SAC had two of its F-84 wings test two different LABS release methods. The first was the basic toss, described above. The advantage of the basic toss was that there was no need to fly over a heavily defended target. But it required a visual landmark close to the target and forced the attacker to follow a fixed course to overfly that landmark.