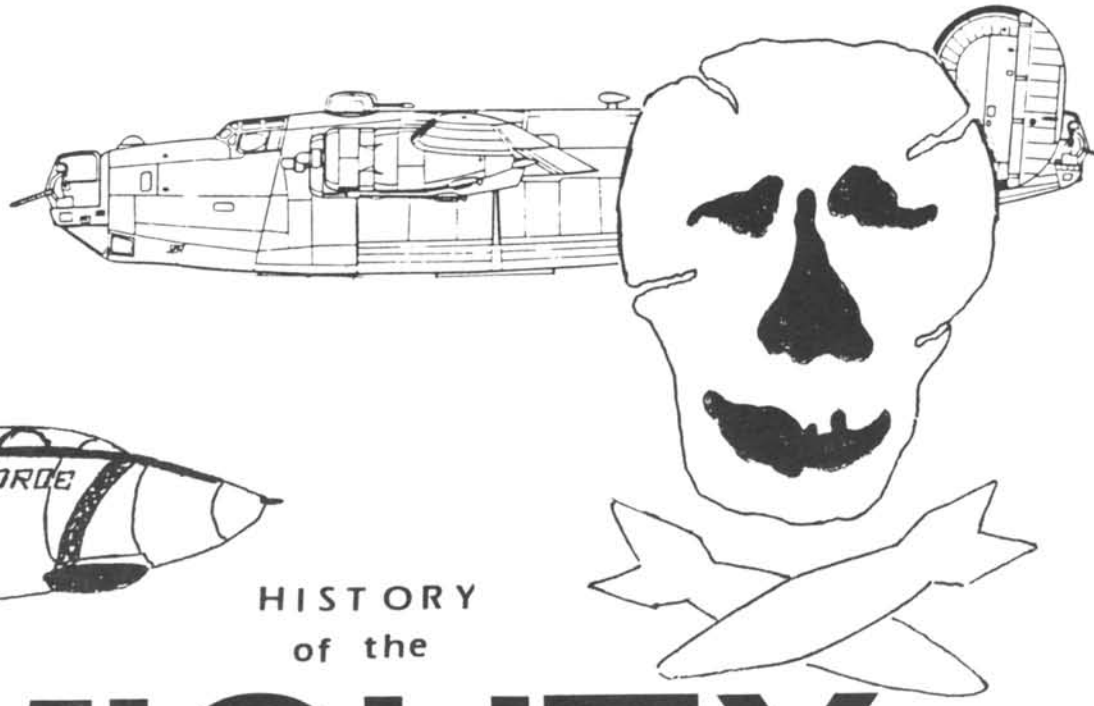
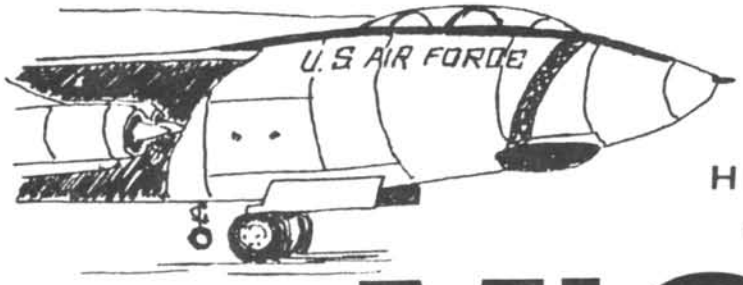
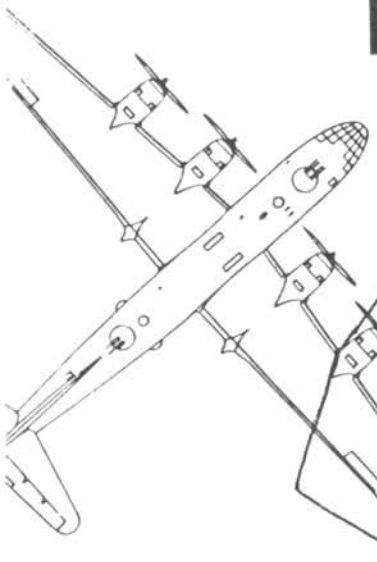
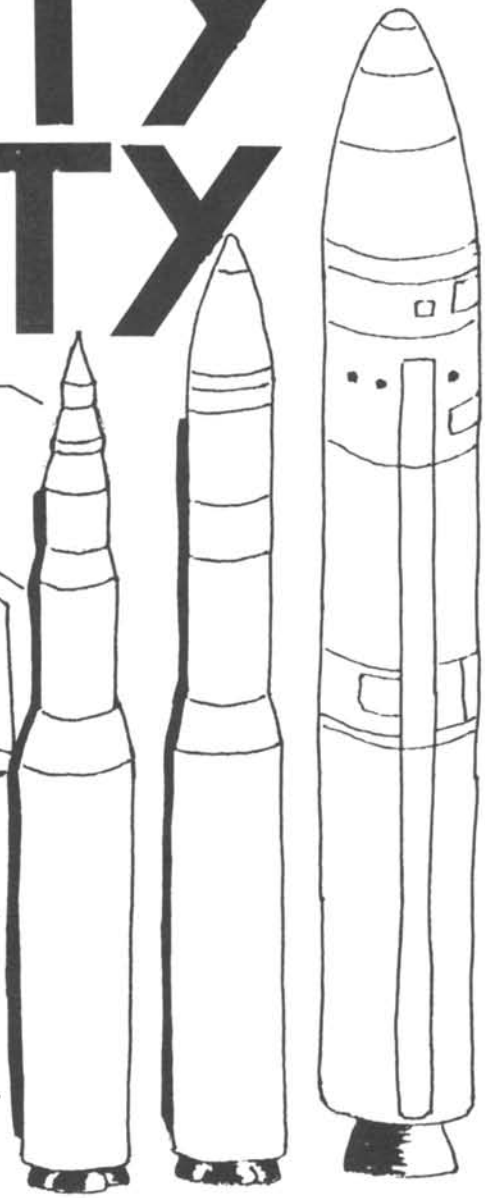




HISTORY
of the

MIGHTY NINETY





by TSGT DANNY G. SPRONG
HISTORIAN

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CHAPTER I

THE 90TH BOMB GROUP

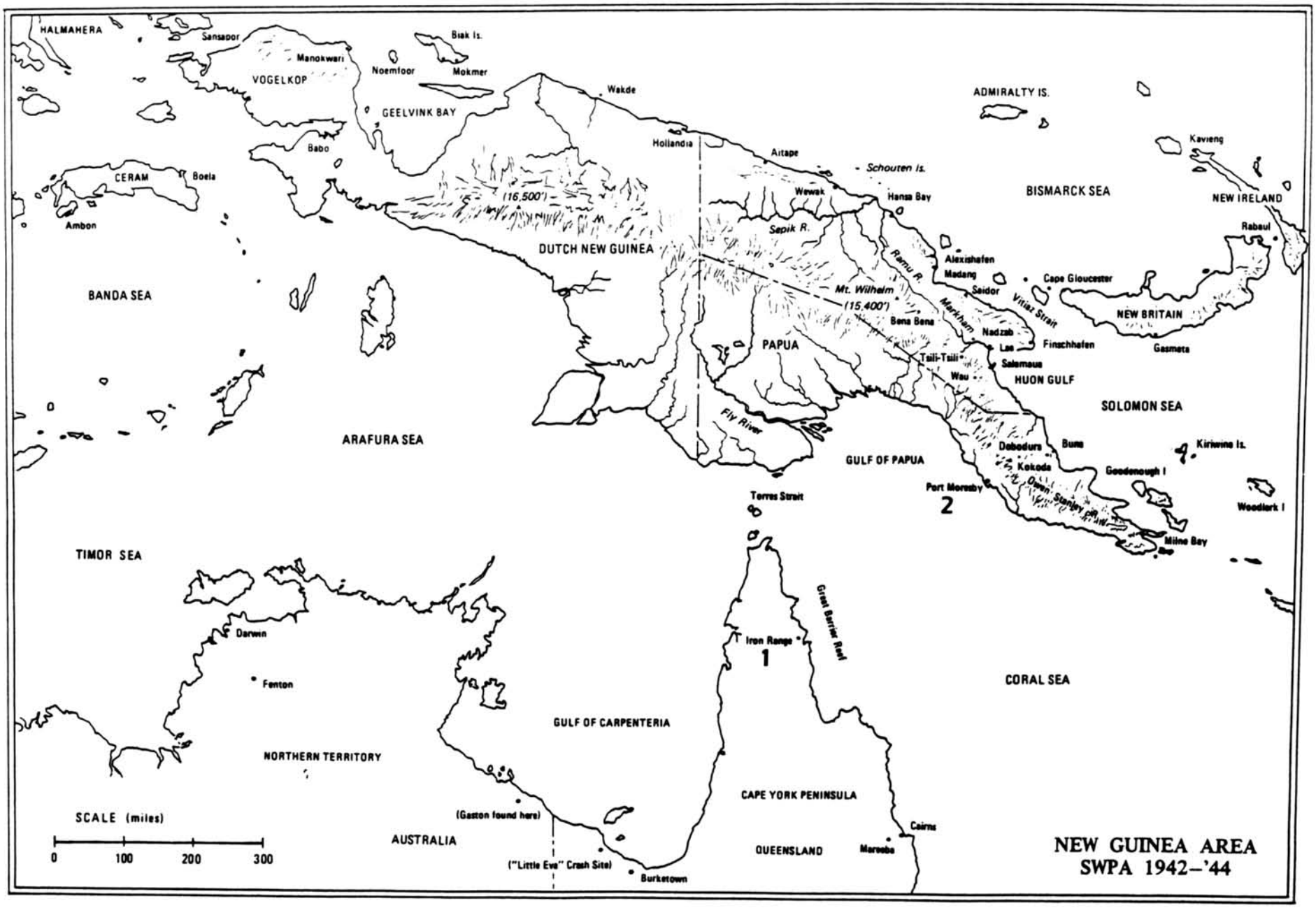
("The Jolly Rogers")
of WW II

On 15 April 1942, the 90th was activated as a Bombardment Group (Heavy) flying the Consolidated B-24 "Liberator." Between April and September 1942, the 90th traveled to many installations across the United States learning the mission of long-range bombing. Official records show the 90th first entered combat over Bougainville in the Solomons, but the old timers say it was in the driveway of the Orange Lantern, a Belleville, Michigan tavern. Their adversary was not the Imperial Japanese forces, but the disgruntled workers of Ford's giant Willow Run bomber plant which was experiencing labor-management difficulties. It was felt that the presence of a combat-bound B-24 unit would help the situation by dramatizing the importance of the workers' efforts.

The presence of the group was viewed with skepticism by the labor activists, who sought to sabotage the motive for the visit. One night a few men from the 319th Bomb Squadron felt the need for a little R&R. Following dinner, they bought a bottle and hailed a taxi, to deposit them at a "peaceful, quiet place." The cabbie selected the Orange Lantern tavern in nearby Belleville, Michigan. The airmen had no sooner wet their whistles than their solitude was shattered by the entrance of a horde of Willow Run workers. Soon one of their number grabbed a "Jolly Roger" by the arm, and proceeded to call him a "sucker" for wearing an Army uniform when he could be pulling in big money at a war plant. But the instigator had made a poor selection, choosing a man who harbored a great deal of patriotic pride in his uniform, and who was powerfully built. At the tavern owner's behest, they adjourned outside, where the fight began. The Jolly Rogers soon "dispersed the crowd" and were entering a taxi when Michigan's Finest (Police) arrived. Many of the men feared a trip to the cooler, but the police believed the airmen's story and offered to return them to the base. The next morning Major Rogers called the men to task for breaking the peace. However, their explanation fell on sympathetic ears, and Rogers was moved to reply, "I don't blame you, I'd probably have done the same thing myself." (The 90th got their planes and went to war.)

In September 1942, the 90th moved to Hickam Field, Hawaii, and was assigned to Seventh Air Force. In November 1942, the 90th left Hickam Field for Iron Range, Australia, where they began bombing operations against Japanese installations on New Guinea.

Around mid-November 1942, the airfields around Port Moresby, the only major allied base in New Guinea, were too crowded with fighter, light and medium bomber units to host an entire heavy bomber group. Moreover, it was still the recipient of frequent nocturnal visits by Japanese bombers.



1 – IRON RANGE, AUSTRALIA 2 – PORT MORESBY, NEW GUINEA

Therefore the 90th was to make Iron Range its home until February 1943. It staged aircraft up to Port Moresby, subject to the tactical dictates of the Advanced Echelon (ADVON) of the Fifth Air Force, under the command of Brigadier General Ennis Whitehead.

To the 90th the war was new and fearsome, and its outcome, at least in the Southwest Pacific theatre, seemed to be hanging in the balance. Actually, the crucial period for our hold on southeast New Guinea had occurred back in the summer and fall. It was in early May 1942 that the Japanese invasion force headed for Port Moresby, had been turned back in the fateful Battle of the Coral Sea. Thwarted by sea in early September, the Japanese had penetrated overland from Buna to within 30 miles of Port Moresby. The gallant Aussies, U.S. Army, and the tactical aircraft of ADVON drove them back across the Owen Stanleys toward Buna. Thus, the initiative on land, sea, and air in Papua had permanently passed to the Allies.

Although no longer on the offensive, the Japanese remained a deadly foe in the air, as well as in the jungles below. The big lumbering bombers, not yet enjoying the protection of fighter escort, were fair game for the hordes of Japanese interceptors stirred up at Lae and elsewhere along the north coast of New Guinea. Fortunately, the .50 calibre machine guns were potent weapons and the gunners well trained.

The combination of weather, distance and terrain encountered in this theatre posed a threat no less deadly than Zeros or flak. The massive unpredictable tropical storms which raged over this forlorn end of the world claimed many an aviator. The vast distances over which many bombing and reconnaissance missions were flown proved exhausting enough, even in fair weather. When coupled with the nerve wracking anxiety of flying through bad weather, attack by enemy fighters, and the realization that going down in the ocean or jungle meant almost certain death, a single mission could be a dreadful experience for even the toughest veteran. Certainly these conditions were bad enough to convince many of the fliers that they stood little chance of ever seeing their homes or loved ones again. Indeed, many would not.

In January 1943, the 90th was moved up to Port Moresby to perform mostly single plane reconnaissance and bombing missions, primarily against shipping. In March 1943, the 90th participated in the Battle of the Bismarck Sea, the crucial sea and air battle to protect Australia from a Japanese invasion. During the battle, the 90th Bomb Group wasn't allowed to participate in actual combat missions. Instead, they were responsible for tracking the Japanese convoy, day and night, as they moved through the Bismarck Sea, Vitiaz Straits, and Huon Gulf. The 90th's reconnaissance aircraft were the first to detect convoy movement and maintained the guiding light so the target and the threat of invasion could be destroyed. Between April and September 1943, the 90th made numerous bombing attacks on Japanese airfields, troops, shipping, and ground installations.

In September 1943, the 90th took on its first truly long range missions, when they struck the oil refineries at Balikpagan, Borneo and attacked the heavily guarded air-field at Wewak, New Guinea. In October, the 90th struck the oil refineries at Balikpapan again. October also

brought the 90th its finest hour thus far in the war, when 1 October reconnaissance photos revealed a heavy cruiser, light cruiser, 10 destroyers, 5 submarines, and 25 merchant vessels within the Japanese held Simpson Harbor, Rabaul, New Britain. Also seen were 87 medium bombers, 37 light bombers, and 59 fighters, the latter number increasing to 145 by the 11th of October, all within the airdrome of Simpson Harbor. The target was well stocked and the weather outlook for the 12th good. The moment had arrived for the greatest aerial strike yet launched by the 90th.

The formula for success was the traditional one-two punch of coordinated high and low level bombardment. The basic idea was simple: B-25 Mitchells, working as strafers, would sweep over the airdrome to paralyze the fighter defenses with gunfire and parafrags. The B-24s would then appear at high altitude to rain their brand of havoc upon the vessels and harbor installations. For extra insurance P-38 escorts would engage any interceptors which managed to evade the B-25s. At the morning briefing Col Rogers detailed the 90th's attack plan:

> "Upon nearing the target area we will break into separate elements of four to six aircraft each and approach from different altitudes and directions in order to scatter the flak and allow each lead bombardier to concentrate upon his designated target. Each element will fly in the tightest possible formation in order to concentrate the defensive fire. Don't fly at full throttle--use a modest cruise speed so that any damaged aircraft can keep up. Remember, it may be you."

Then the intelligence officer explained the location and concentration of anti-aircraft batteries; he also outlined the area along the New Britain coast to make a forced landing if necessary, as U.S. submarines would be in the area to attempt rescues. Col Rogers concluded with a final pep talk and the crews piled into their jeeps for the trip to the flight line.

Forty-five minutes after the last B-25 Mitchell had become airborne, the 5th Bomber Command ordered the 90th Bomb Group airborne. One by one, at 45-second intervals they thundered down the runway until the clear morning sky over Port Moresby was filled with a hundred Liberators. Once assembled, the group joined the 43rd Bomb Group and two squadrons of P-38 Lightnings. The grand occasion was marred by the fact that 25 Liberators, one quarter of the force, aborted due to various mechanical difficulties.

At high noon the armada arrived over Simpson Harbor. Four miles below, the great harbor was filled with vessels of all descriptions--cruisers, destroyers, tenders, submarines, and transports. Though the harbor looked peaceful, the sky was becoming littered with ragged, angry, black smudges of flak. The aircraft tried to hold course as bombardiers took control of their aircraft. This seemingly endless period left the pilots to dwell upon the menacing flak burst and the horde of Japanese Zeros awaiting the heavy bombers as they left the area of anti-aircraft fire. As the bombers left the zone of anti-aircraft fire 40 to 50 Zeroes pressed home their attack for 45 minutes, during which time 10 enemy aircraft were claimed. Although somewhat surprising, only three Jolly Rogers aircraft were lost. Many however sustained serious damage, including loss of engines, punctured fuel tanks, severed control cables and hydraulic lines, and wounded crewmen. As a result, many were forced to land short of Port Moresby at the forward bases of Kiriwina and Doboauca.

The 43rd Bomb Group which had joined the 90th for the attack faired far better, suffering no combat losses--mainly because of the 90th drawing off all the defending Zeros.

The following day, Fifth Air Force Headquarters listed the following enemy losses: 100 aircraft destroyed on the ground, 26 shot down in the air, and heavy damage to airdrome and wharf areas. Claimed sunk were 3 large merchant vessels, 3 destroyers, 43 small merchant vessels, and 70 harbor craft. Allied spies in the heights above Rabaul reported counting some 200 wrecked or damaged aircraft on the airfields after this attack. Postwar inquiries revealed that the Japanese garrison also suffered 300 casualties. A number of these resulted from Japanese soldiers attacking falling parafrag bombs, mistaking them for airborne invaders.

From October 1943 and until January 1945, the 90th continued its missions against the Japanese, in such places as Bismarck Archipelago, Palua, and the Southern Philippines. In January 1945, the 90th supported the landings of Allied Forces on Luzon, the Philippines. They helped to prevent the Japanese from being reinforced by their units on Formosa, by bombing key industrial, rail, airfield, and harbor facilities on both Formosa and mainland China. In August 1945, the 90th moved to Ie Shima, Japan near Okinawa, where they proceeded to fly bombing and reconnaissance missions over mainland Japan. The 90th's last wartime mission came on 2 September 1945, after the atomic bombing of the Japanese cities of Hiroshima and Nagasaki and prior to Japan's formal surrender.

The last mission was to be over Tokyo itself, carrying loads of 500 pound bombs and orders not to drop them unless fired upon. During the mission briefing, the crews were told the battleship USS Missouri would be docked in Tokyo Harbor with General MacArthur aboard to sign a formal peace treaty. The following mission was related by Pilot Captain Everett A. Wood:

> "We took off easily and headed for Japan over the expanse of blue water. We soon sighted one of Japan's main islands and upon closing could see the beautiful Mount Fuji in the distance. Flying up the coastline at 4000 feet, we soon spotted the Missouri. As we had been warned not to fly over the ship, I veered left and passed over the mainland. Below me lay the ruins of Tokyo. Mile after mile of desolation. Only the empty streets remained marking the blocks. The B-29 Superfortresses with incendiary bombs had done a thorough job. In the distance we could see the palace of the emperor. It was unscathed--almost a miracle that the bombers could devastate the whole city and leave one block of buildings unmarked. I found out later the palace was to remain unharmed. At last, from Pearl Harbor to Tokyo, we headed south for our little island, salvoed our bombs into the ocean and for the first time had a feeling of exhilaration that the war was truly over for us."

After the end of hostilities, the 90th flew many Allied prisoners from Okinawa to Manila in the Philippines, where these prisoners received medical treatment before their return to the United States. In December 1945, the 90th returned to the Philippines, where one month later the unit was inactivated.

CHAPTER II

THE 90TH BOMB WING (M) AND STRATEGIC RECONNAISSANCE WING (M)

(The Korean War and days of the Cold War)

The 90th remained an inactive unit until 1 July 1947 when the newly formed United States Air Force reactivated and redesignated the 90th a Very Heavy Bomb Group under the Strategic Air Command (SAC). Between July 1947 and September 1948, the 90th was never manned or assigned any aircraft, and on 6 September 1948 was again inactivated.

With the invasion of South Korea by North Korea on 25 June 1950 and the further increase of the conflict when Chinese Communist forces also invaded on 26 November 1950, the 90th was once again reactivated on 2 January 1951 at Fairchild AFB, Washington. On 14 March 1951, the now 90th Bomb Wing (Medium) was moved to Forbes AFB, Kansas, to begin SAC operations using B-29 type aircraft. During this initial period, only three of the bomb group's original squadrons were assigned--the 319 BS, 320 BS, and the 321 BS. The 400 BS would not be called upon again until 1 July 1964 and then as a Strategic Missile Squadron.

With the Korean War raging in the Far East, trained bomber crews and support personnel were quickly needed. The 90th was given the primary mission of training those crews to a combat ready status. The 90th's training would be the foundation for many of SAC's bomb wings going to war in the B-29 "Superfortress," like the 308th, 310th, and the 376th.

As the primary training mission continued, the 90th would become experts in all configurations of the B-29, including reconnaissance RB-29s and aerial refueling KB-29s. In mid-1953, the 90th would begin phasing out of its training mission, enter a force modernization upgrading of their aircraft from B-29s to the all-jet B-47 "Stratojet" type. On 17 October 1953, the wing's mission was amended to include a tanker force for in-flight refueling capability as its first priority. In addition to the mission change, SAC activated the 90th Aerial Refueling Squadron. Prior to this action, the 90 BW (M) had been redesignated the 90th Strategic Reconnaissance Wing (90 SRW) on 16 June 1952.

On 5 March 1954 the first crews entered training for the RB-47E while by the 19th of April all of the 90th's aircraft had been retired or transferred. The 90th's new aircraft the RB-47E "Stratojet," didn't begin arriving until 25 June 1954. In addition, the 90th's aerial refueling aircraft were replaced by KC-97G "Tankers." With these aircraft the 90 SRW would be called upon to perform many operations, including deployments. The 90 SRW was responsible for the final mapping of Alaska, testing much of today's Defense Early Warning System, evaluating Air Defense Command capabilities, and performing some of SAC's first tests of the Alert Force concept.

Later in the 90th's flying career, it would again become a major trainer, this time assuming the role of the RB-47 Combat Crew Training Wing for the Strategic Air Command. This mission would continue until the wing was again inactivated on 20 June 1960.

CHAPTER III

The 90th Strategic Missile Wing

(Minuteman I, Minuteman III, and Peacekeeper)

Following the end of the 90th's flying career on 20 June 1960, it would not be called upon again until 1 July 1963. On this date, the 90th was reactivated and redesignated a Strategic Missile Wing (ICBM-Minuteman) within the Strategic Air Command. With its reactivation the 90th was destined to become America's first Minuteman unit to possess 200 missiles and home for the fifth Minuteman missile wing. October 1, 1963, saw the first of the 90th's four strategic missile squadrons (SMS) the 319 SMS reactivated. Followed by the 320 SMS on 8 January 1964, the 321 SMS on 8 April 1964, and finally the 400 SMS on 1 July 1964. These reactivations were unique in history as these were the wing's same squadrons of World War II.

The 90th's new home was to be Francis E. Warren Air Force Base, Wyoming, collocated with Wyoming's capital city of Cheyenne. The 90 SMW and the Minuteman ICBM were to replace the 389th Strategic Missile Wing (previously known as the 706 SMW and 4320 MW) and its Atlas 'D' and 'E' ICBMs. The 389 SMW held the distinction of being the first fully deployed ICBM wing in SAC. In May 1963, the Air Force recommended that the Atlas missiles be removed as these older liquid-fueled ICBMs were too expensive to operate, required a large manpower commitment, and were slow reacting, thus being more vulnerable when compared to the Minuteman ICBM.

The second generation ICBM, Minuteman I, represented a new concept in strategic systems. Smaller and lighter than Atlas, the Minuteman I was capable of the same range and speed, yet was much more simple, less expensive, and was instantaneous in reaction, hence the name "Minuteman." Developed by the Boeing Company (Aerospace Division), the Minuteman I was a three stage, solid-propellant ICBM, with a variable range from 500 to 5,500 miles. It was capable of launch from an underground silo and carried a single re-entry vehicle. The use of solid fuel significantly increased the ICBM's reliability and reduced the complexity of the launch facility in that a propellant loading and handling system was not required. Additionally, this simplicity and low cost resulted in far greater numbers being deployed than earlier ICBMs. The 90th's basic tactical unit would be the squadron consisting of five flights. Each flight consisting of ten unmanned launch facilities (LFs) remotely controlled from a hardened, manned launch control center (LCC). The five flights were interconnected by a squadron-wide control and monitoring network, with all commands and status from all five flights transmitted throughout the squadron. The Minuteman launch facilities and control centers were hardened to withstand attack. The hardening included measures to resist blast, heat, and radiation. In addition, Minuteman launch and control sites were separated by distances intended to minimize the damage received from any single attacking weapon. Ground security was maintained by site hardness, intrusion detecting devices and alarms, and mobile defense (strike) teams.

The 90 SMW was equipped with the Minuteman I "B" series intercontinental ballistic missile. On 15 June 1965 the 200th Minuteman I was placed on alert, making the wing fully operational across an ICBM complex encompassing over 12,600 square miles of Wyoming, Nebraska, and Colorado. The wing maintained its Minuteman I force through November 1972, when a SAC ICBM Force Modernization Program began. This program removed the Minuteman I missiles and made the LFs and LCCs ready for the new Minuteman III "G" series missiles to be deployed at F. E. Warren. The Minuteman III consisted of a three-stage, solid-propellant booster, and a liquid-propellant propulsion system rocket engine (PSRE). The PSRE was designed to provide post-boost maneuvering thrust as the re-entry system deploys its re-entry vehicles. The missile was also equipped with a new re-entry system which consisted of a shroud assembly, multiple independently-targeted re-entry vehicles, penetration aids, and a deployment module. The launch facilities (LFs) were modified with a new missile suspension system. The new suspension system was installed to protect the missile from the effects of shock and ground motion. In addition, the launch control centers (LCCs) were equipped with Command Data Buffer (CDB). This system allowed the missile combat crew members to change and update each missile's targeting without traveling to each LF.

In 1973, while the force modernization program continued, Strategic Air Command conducted its sixth annual Missile Combat Competition at Vandenberg AFB, California. The competition was close, but when the dust cleared, the 90 SMW had won the "Blanchard Trophy" as the Best Missile Wing in SAC. Through 1973 and 1974, the wing continued with the force modernization program as the last Minuteman I missile was removed from alert on 3 September 1974. The program was finally completed on 26 January 1975 as the last of 200 new Minuteman IIIs were placed on strategic alert. The wing received an Air Force Outstanding Unit Award for its efforts during the program.

Unlike an aircraft, an ICBM was totally expended after one use, therefore its testing was closely monitored and controlled. One such test of the wing's ability came during "Global Shield 79," the first truly comprehensive exercise of SAC's nuclear forces. On 12 July 1979, crews from the 90th dual launched two Minuteman III ICBMs from the Western Test Range at Vandenberg AFB, California. Their unarmed re-entry vehicles landed 4,200 NM at the Marshall Island test range in the southwest Pacific. The next year, in April 1980 at the Missile Combat Competition, the Blanchard Trophy eluded the 90 SMW though it captured the title of Best Minuteman Wing in SAC.

In January 1983, the 90 SMW was again placed in history when President Ronald Reagan announced his decision for the 90th to deploy the "Peacekeeper" (MX) missile system in existing Minuteman silos in Wyoming. Though 100 "Peacekeepers" were requested for initial deployment this figure was lowered to 50 for deployment in silos, while another deployment system was researched for the remaining 50 missiles.

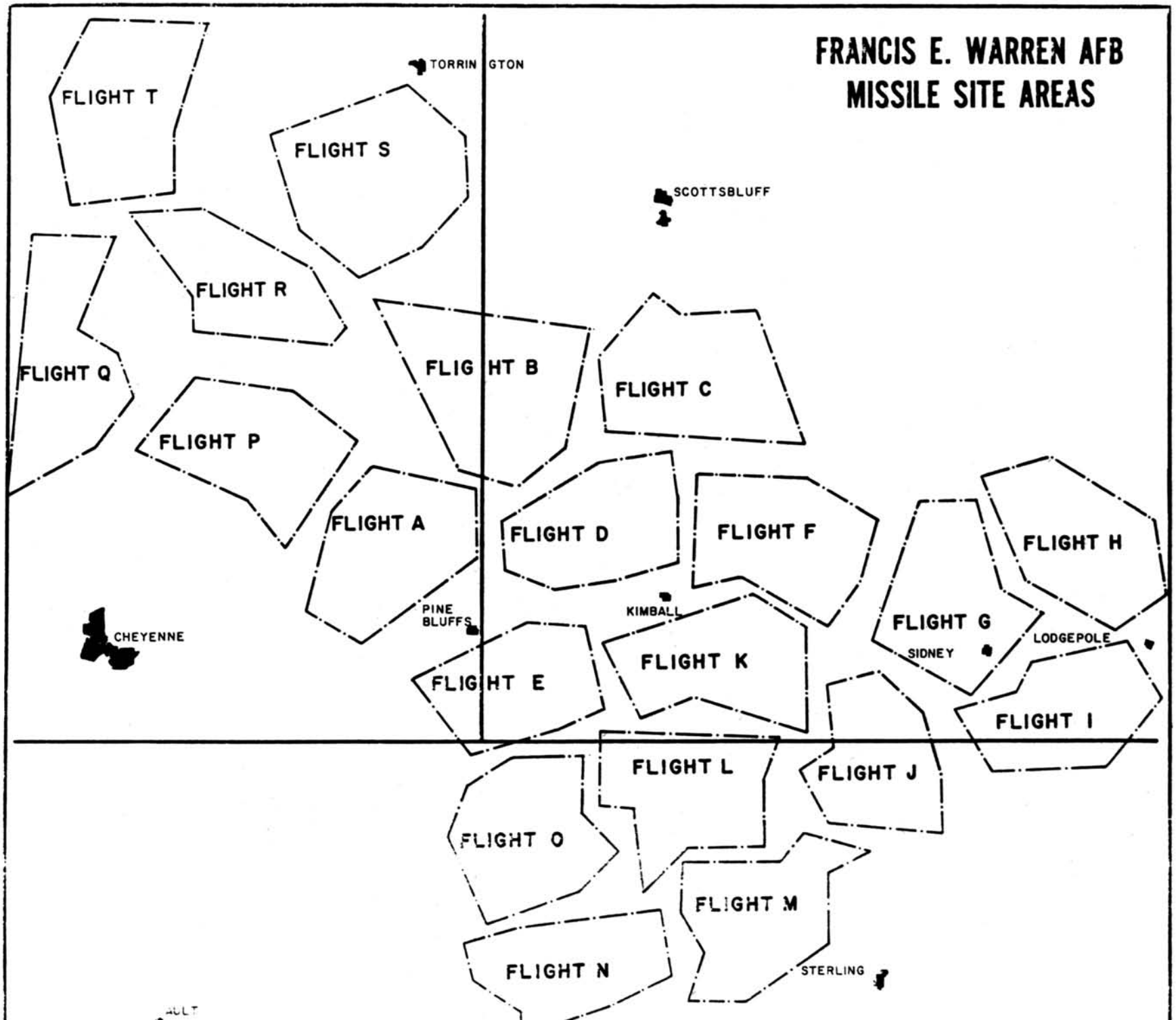
The following year, 1984, was a year of outstanding achievements by the 90 SMW. On 9 February 1984, the 90 SMW was awarded the "Riverside Trophy" for being the best unit in Fifteenth Air Force. Then the 90th brought home, from SAC's Missile Combat Competition, the "Blanchard Trophy," amassing the highest score in the 17 years of the competition. Later that year the wing made a clean sweep by outperforming all other SAC units for the "Omaha Trophy," and the claim to being the best Wing in SAC.

In 1985, the wing began deployment of the "Peacekeeper" ICBM system within the 400 SMS. The deployment called for fifty Peacekeepers to be placed within existing Minuteman III LFs. Except for its size and launch method, the Peacekeeper was much like the Minuteman III missile in design and operation. It continued to use three solid-propellant stages and a liquid-propellant fourth stage. It also was capable of delivering ten independently targeted re-entry vehicles. The Peacekeeper was about 71 feet long, with a diameter of 7 ft, 8 in, and weighed about 195,000 pounds. It also was the first US ICBM to utilize a cold launch method. The missile was ejected from its canister (installed within the LF) by high-pressure steam to an altitude of 150 to 300 feet before first stage ignition. This launch method made it possible to house the Peacekeeper in Minuteman silos even though it was almost three times as large as the Minuteman III.

The first milestone for the deployment of Peacekeeper came on 23 December 1986 when the tenth missile was placed on alert, meeting Initial Operating Capability ten days ahead of schedule. As the wing progressed toward the full deployment of Peacekeeper, the 90th continued maintaining SAC's highest alert rate for the Minuteman missile force.

In 1987, the 90th Services Squadron won the "Rhiney Trophy" for the best dining hall in SAC and the "Hennessy Trophy" for the best dining hall in the Air Force. This was the first time in over nine years that a SAC unit had won the "Hennessy." 1988 would continue the 90th's winning tradition as the 90th Services Squadron again won the "Rhiney Trophy" for the best dining hall in SAC. This was only the beginning as the Wing won the Colonel Lee R. Williams Memorial Missile Trophy as the best missile wing in SAC, the Colonel Lowell F. McAdoo Trophy for the best missile wing operations in SAC, the Colonel George T. Chadwell Trophy for the best missile maintenance organization in SAC, the General Thomas D. White Natural Resources Conservation Award, and the Glowing Patriot Best Launch Control Facility in SAC. 1988 also marked a major achievement to this nation's strategic missile force when Peacekeeper achieved Full Operational Capability on 30 December 1988.

Descendant of World War II's 90th Bomb Group (H), termed the "Best Damm Bomb Group in the World," the 90th Strategic Missile Wing has carried forth for the past twenty-five years as SAC's finest...the Mighty Ninety.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MISSILE SITE AREAS
TORRIN GTON
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STERLING

CHAPTER IV

WEAPONS OF THE 90TH

AEROSPACE LINEAGE OF THE 90TH BOMBARDMENT/STRATEGIC MISSILE GROUP/WING

AIRCRAFT	YEARS OF SERVICE	COMBAT HISTORY
CONSOLIDATED B-24 "LIBERATOR"	1942 - 1945	PACIFIC THEATRE 1942 - 1945
BOEING B-29 (KB/RB/TB) "SUPERFORTRESS"	1951 - 1954	NONE
BOEING RB-47E "STRATOJET"	1954 - 1960	NONE
BOEING KC-97 "STRATOFREIGHTER" (TANKER)	1955 - 1960	NONE
DOUGLAS C-54 "SKYMASTER"	1965 - 1968	NONE
CESSNA U-3 "BLUE CANOE"	1965 - 1968	NONE
DOUGLAS C-47 (VC-47) "SKYTRAIN"	1968 - 1971	NONE
CONVAIR T-29 "FLYING CLASSROOM"	1971 - 1975	NONE
BELL UH-1F "HUEY"	1972 - 1973	NONE
MISSILES		
BOEING LGM-30 B & G "MINUTEMAN" I & III	B-1963 - 1974 G-1973 - PRESENT	NONE
BOEING/MARTIN-MARIETTA LGM-118A "PEACEKEEPER"	1986 - PRESENT	NONE

THE B-24 "LIBERATOR"

At the request of the U.S. Army Air Force, in September, 1938, the Consolidated Aircraft Company (now Convair) began design studies for a heavy bomber with a performance exceeding the Boeing B-17. On 29 December 1939 the first XB-24 lifted off from Lindberg Field at the Consolidated factory, San Diego, California. The XB-24 incorporated many new innovations beyond the radical "Davis Wing." Its tricycle landing gear meant a takeoff roll hundreds of yards shorter than the B-17, the roll-up bomb bay door eliminated buffeting caused by normal doors which opened into the airstream, and the wing itself was the main fuel tank, or "wetwing." Most contemporary aircraft had fuel tanks carried within the wing structure (a fuel cell housed inside the wing structure), but B-24 designers thought this arrangement added unnecessary weight and chose to seal the entire wing sections with Duprene sealer and simply fill the wing itself with fuel.

Defensive armament would be ten to eleven .50 caliber machine guns mounted in the nose, waist windows, top and bottom turrets, and tail (the tail gun was a unique feature for a US aircraft at this time). The 8,000 pound payload could be variously configured, four 2,000 pound bombs, eight 1,000 pound bombs, twelve 500 pound bombs, or twenty 100 pound bombs.

Early tests proved the Davis Wing superior to its contemporaries, especially in range. With a full bomb load the XB-24's range was some 200 miles greater than that of the B-17. With extra fuel tanks mounted in the forward bomb bay, the range was some 600 miles more than a similarly equipped B-17. The XB-24 was also able to retain half of its payload capacity, whereas the B-17 carried no payload.

The B-24 would become this nation's most produced bomber with over 18,800 before the end of World War II. Although much maligned by some historians when being compared to the B-17 "Flying Fortress," the B-24 "Liberator" would prove itself in all theatres of operation. Indeed, Eighth Air Force statistics showed that the B-24 was more durable than the B-17, B-17 operational losses being 15.2 percent compared to B-24 operational losses of 13.3 percent. Aircrews had a better chance of surviving the war as a B-24 crew member.

ORIGIN: Consolidated Vultee Aircraft Corporation; also built by Douglas, Ford, and North American Aviation.

TYPE: Long-range bomber with normal crew of ten.

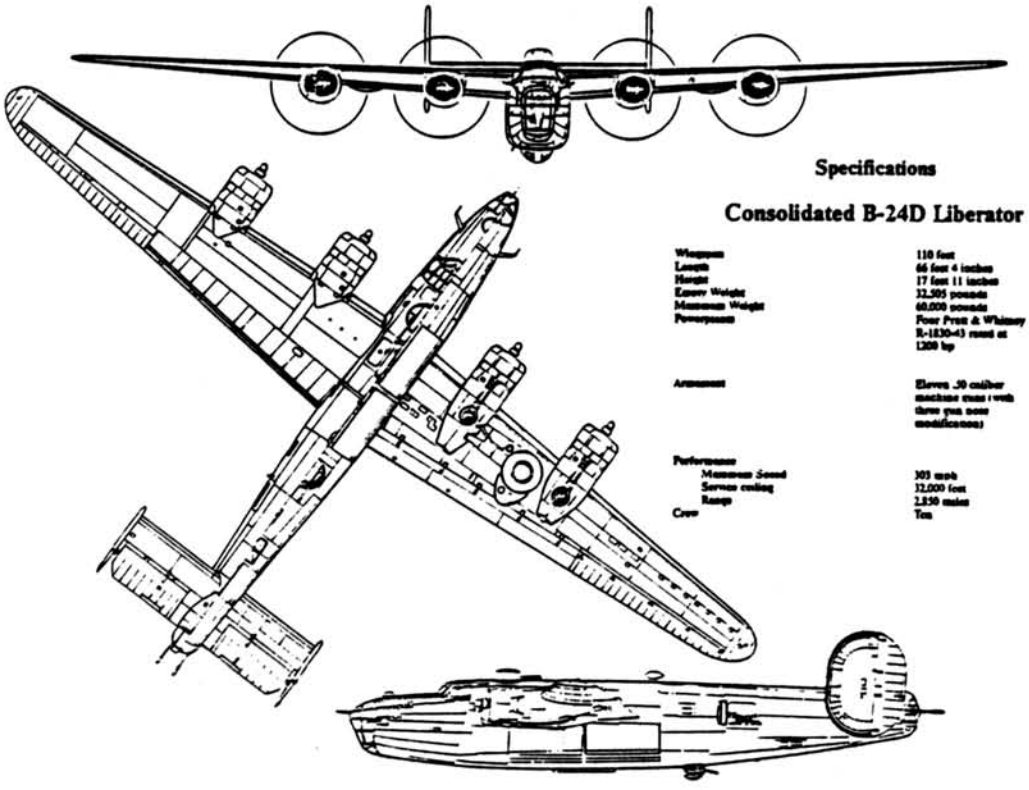
ENGINES: Four 1,200 hp Pratt Whitney R-1830-65 Twin Wasp 14-cylinder two-row radials.

DIMENSIONS: Span 110 ft, length 67 ft 2 in; height 18 ft

WEIGHTS: Empty 37,000 lb; loaded 65,000 lb.

PERFORMANCE: Maximum speed 290 mph; initial climb 900 ft/min; service ceiling 28,000 ft; range at 190 mph with 5,000 lb bomb load 2,200 miles

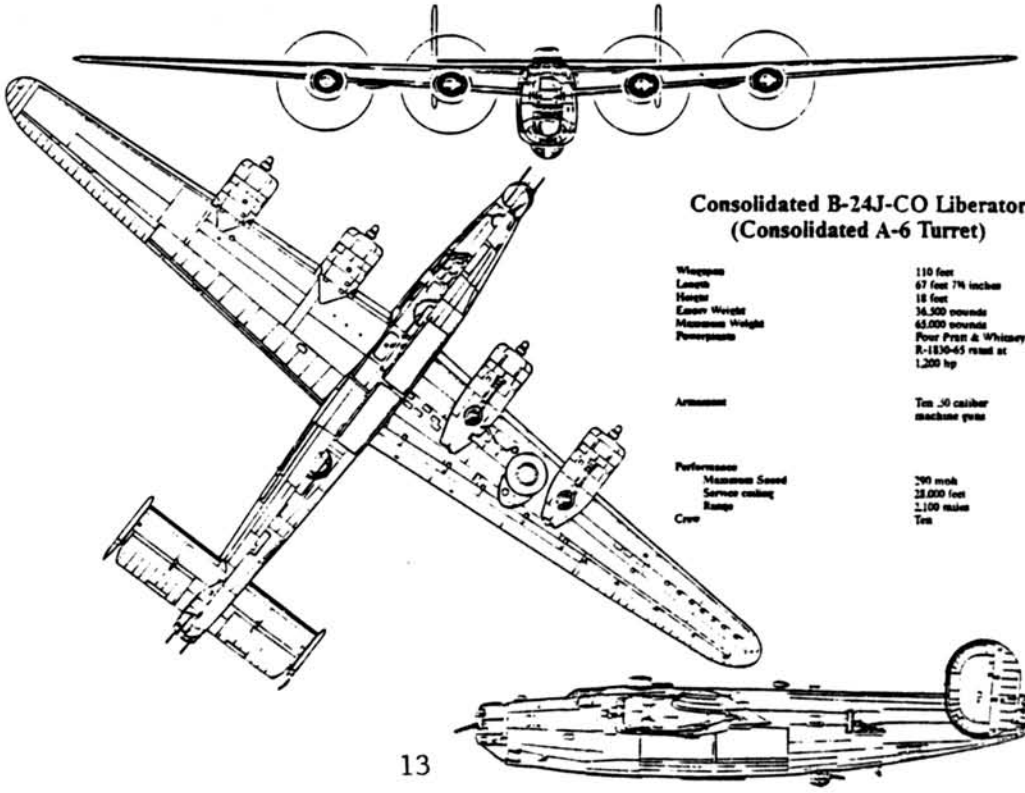
ARMAMENT: Ten 0.50 inch in Brownings arranged in four electrically operated turrets in the nose, dorsal, retractable ventral "ball," and tail, with two guns each plus two singles in manual waist positions; two bomb bays with roll-up doors with vertical racks on each side of central catwalk for up to 8,000 lbs; two 4,000 lb bombs could be hung externally on inner-wing racks instead of internal load.



Specifications

Consolidated B-24D Liberator

Wingspan	110 feet
Length	66 feet 4 inches
Height	17 feet 11 inches
Empty Weight	32,505 pounds
Maximum Weight	60,000 pounds
Powerplants	Four Pratt & Whitney R-1830-43 rated at 1200 hp
Armament	Eleven .50 caliber machine guns (with three gun nose modifications)
Performance	
Maximum Speed	303 mph
Service ceiling	32,000 feet
Range	2,850 miles
Crew	Ten



Consolidated B-24J-CO Liberator
(Consolidated A-6 Turret)

Wingspan	110 feet
Length	67 feet 7½ inches
Height	18 feet
Empty Weight	36,500 pounds
Maximum Weight	65,000 pounds
Powerplants	Four Pratt & Whitney R-1830-65 rated at 1,200 hp
Armament	Ten .50 caliber machine guns
Performance	
Maximum Speed	290 mph
Service ceiling	28,000 feet
Range	2,100 miles
Crew	Ten

THE B-29 "SUPERFORTRESS"

The B-29 "Superfortress," the largest operational bomber of World War II, had a 141-foot wingspan and gross weight of 141,000 pounds. The B-29 was also an innovational aircraft. Sections of its smooth cylindrical fuselage were pressurized so that the crew could work without oxygen equipment and bulky flight gear. It also incorporated a centralized gun-control system in which a set of computers located in the belly of the plane helped the gunners calculate an enemy fighter's angle and speed of attack, making the planes twelve .50 caliber machine guns far more deadly than the defensive armament on previous bombers. Some models even had a 20-millimeter cannon in the tail. This plane was also credited with making the invasion of Japanese homeland during WWII unnecessary by dropping the first atomic bombs.

ORIGIN: Boeing Airplane Company

TYPE: High-altitude Heavy bomber, with crew of 10-14. B-29, RB-29, KB-29.

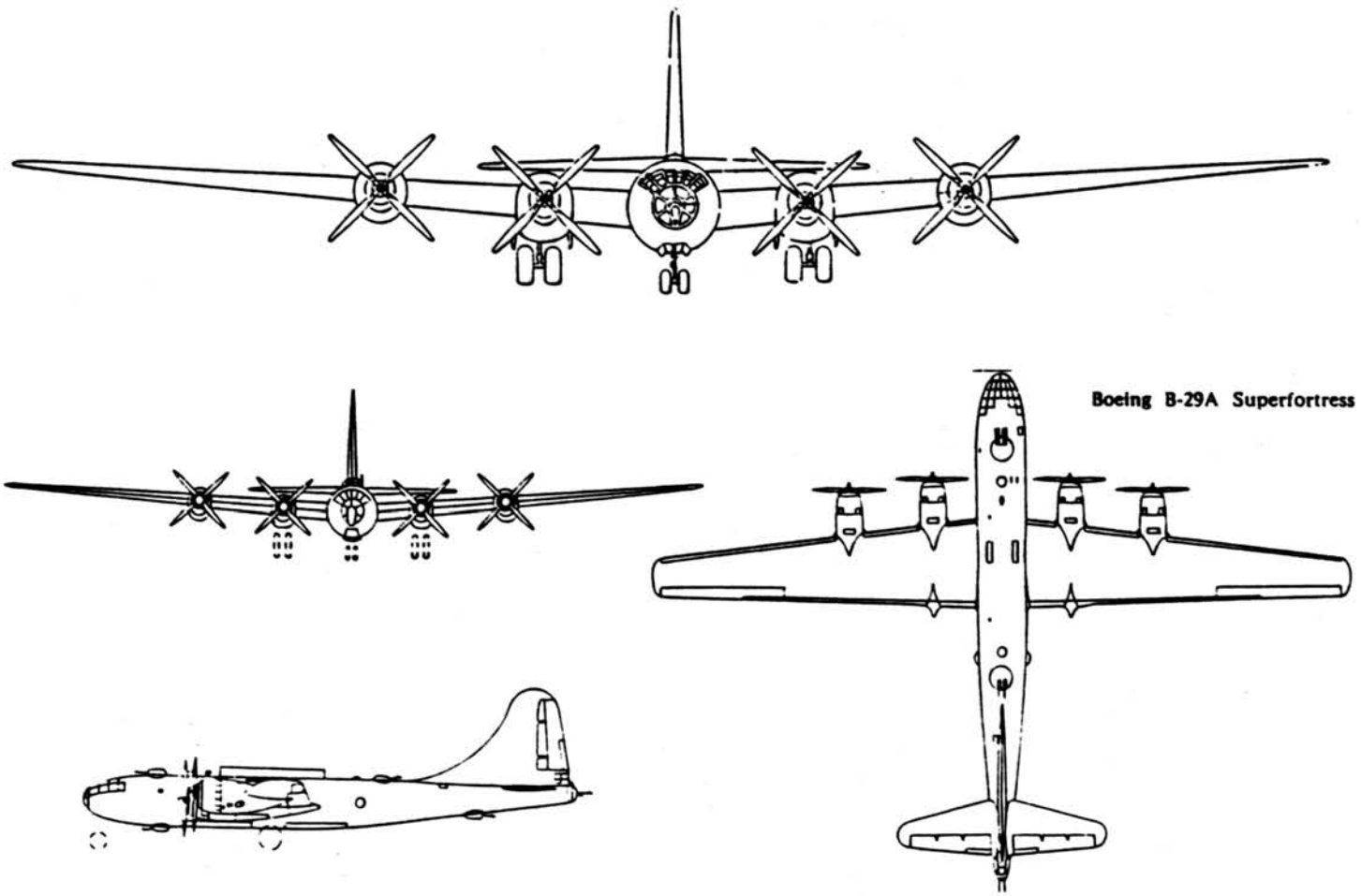
ENGINES: Four 2,200 hp Wright R-3350-23 Duplex Cyclone 18-cylinder radials each with two exhaust-driven turbochargers.

DIMENSIONS" Span 141 ft, 3 in (43.05 m); length 99 ft (30.2 m); height 27 ft, 9 in (8.,46 m)

WEIGHTS: Empty 74,500 lb; loaded 135,000 lb.

PERFORMANCE: Maximum speed 357 mph at 30,000 ft; cruising speed 290 mph; climb to 25,000 ft in 43 min; service ceiling 36,000 ft; range with 10,000 lb bombs 3,250 miles.

ARMAMENT: Four GE twin .50 inch turrets above and below, sighted from nose or three waist sighting stations; Bell tail turret, with own gunner, with one 20 mm cannon and twin .50 in; internal bomb load up to 20,000 lb.



Boeing B-29A Superfortress

THE RB-47E "STRATOJET"

The RB-47E was a long range, day or night, high or low altitude photo reconnaissance aircraft, which instead of carrying a bomb load had an air-conditioned camera compartment in its fuselage. It was 34 inches longer than the standard "Stratojet" and had more windows than its bomber counterpart. The distinctively designed wings spanned 116 feet and swept back 35 degrees. The RB-47 had a maximum take-off weight of 100,000 pounds and was powered by six G.E. J-47 turbojets with more than 5,899 lbs of thrusts each. It had a service ceiling of more than 40,000 feet and a range of more than 3,000 miles. It was equipped with water injection, ejection seats, two 20 mm cannon in a tail turret operated by the co-pilot.

ORIGIN: Boeing Airplane Company

TYPE: Bomber/Reconnaissance Aircraft. Crew 3+

ENGINES: Six General Electric J47-GE-25 turbojets, 6,000 lb thrust each.

DIMENSIONS: Wingspan 116 ft, length 109 ft 10 in; height 27 ft 11 in.

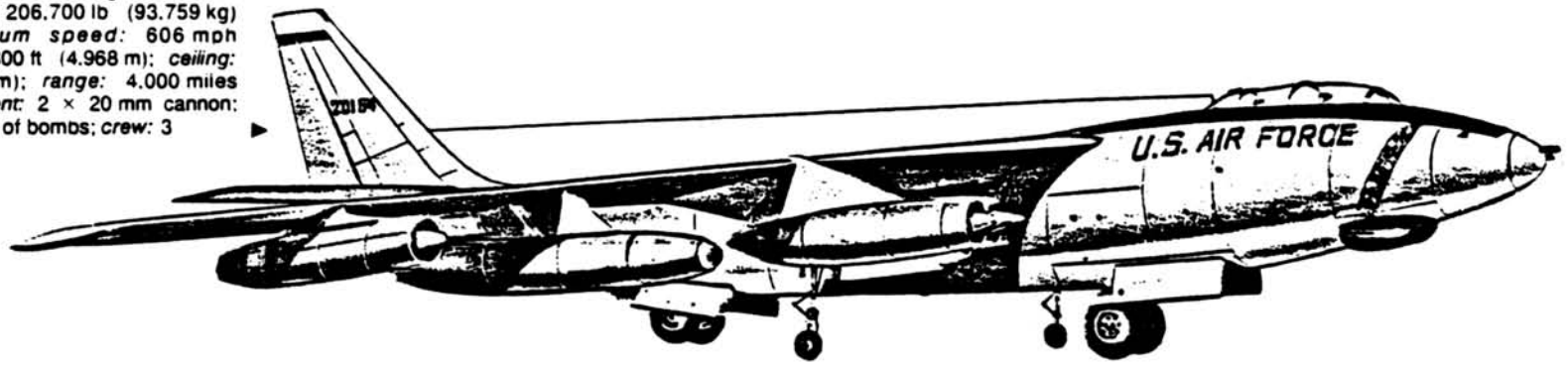
WEIGHT: Loaded 206,700 lb.

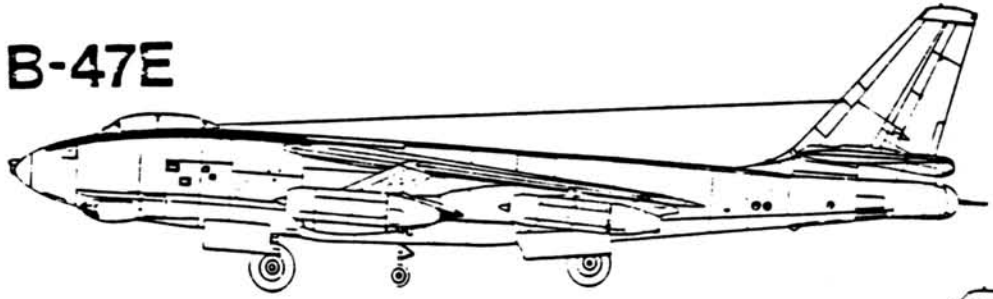
PERFORMANCE: Maximum speed: 606 mph at 16,300 ft; ceiling: 40,500 ft; range: 4,000 miles.

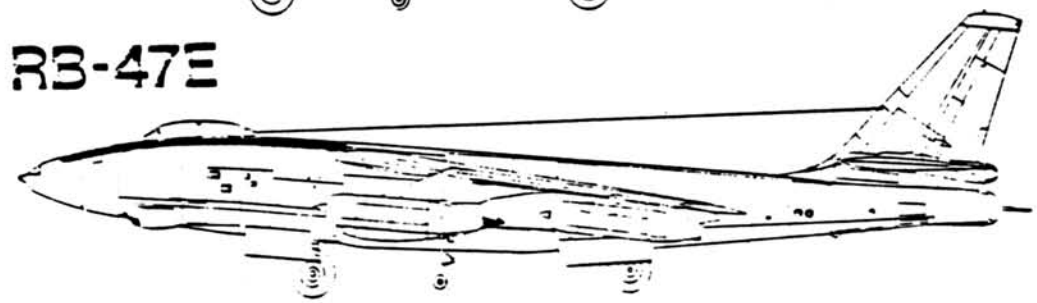
ARMAMENT: 21 x 20 mm cannon; 20,000 lbs of bombs.

BOEING B-47E STRATOJET

Nation: USA; *manufacturer:* Boeing Airplane Co; *type:* bomber; *year:* 1953; *engine:* six General Electric J47-GE-25 turbojets, 6,000 lb (2.721 kg) thrust each; *wingspan:* 116 ft (35.35 m); *length:* 109 ft 10 in (33.47 m); *height:* 27 ft 11 in (8.50 m); *weight:* 206,700 lb (93.759 kg) (loaded); *maximum speed:* 606 mph (975 km/h) at 16,300 ft (4.968 m); *ceiling:* 40,500 ft (12.345 m); *range:* 4,000 miles (6,435 km); *armament:* 2 × 20 mm cannon; 20,000 lb (9.072 kg) of bombs; *crew:* 3







THE LGM 30B "MINUTEMAN I"

The Minuteman I was a small, three-stage, solid propellant, rocket-powered Intercontinental Ballistic Missile (ICBM) with a range of approximately 5,500 nautical miles. It possessed an all-inertial guidance system and the capability of being fired from hardened and widely-dispersed underground-silo launchers. The Minuteman I included two models "A" and "B."

This system was also tested for mobile capabilities on railroad car launchers, nicknamed "Operation Big Star." Each Minuteman I ICBM was housed in an unmanned, hardened, and widely-dispersed (three-to-seven mile intervals) underground-silo launch facility (LF). Every flight of 10 LFs (five flights per squadron) was monitored by a missile combat crew of two officers stationed in a hardened, underground launch control center (LCC). For purposes of command, control, and communications, all five LCCs of a Minuteman squadron were linked together by hardened underground cables.

TYPE: Intercontinental Ballistic Missile (ICBM)

ENGINES: Three solid propellant rocket engines

DIMENSIONS: Length: 55.9 ft
Diameter: Stage I - 66 in;
Stage II - 52 in;
Stage III - 52 in.

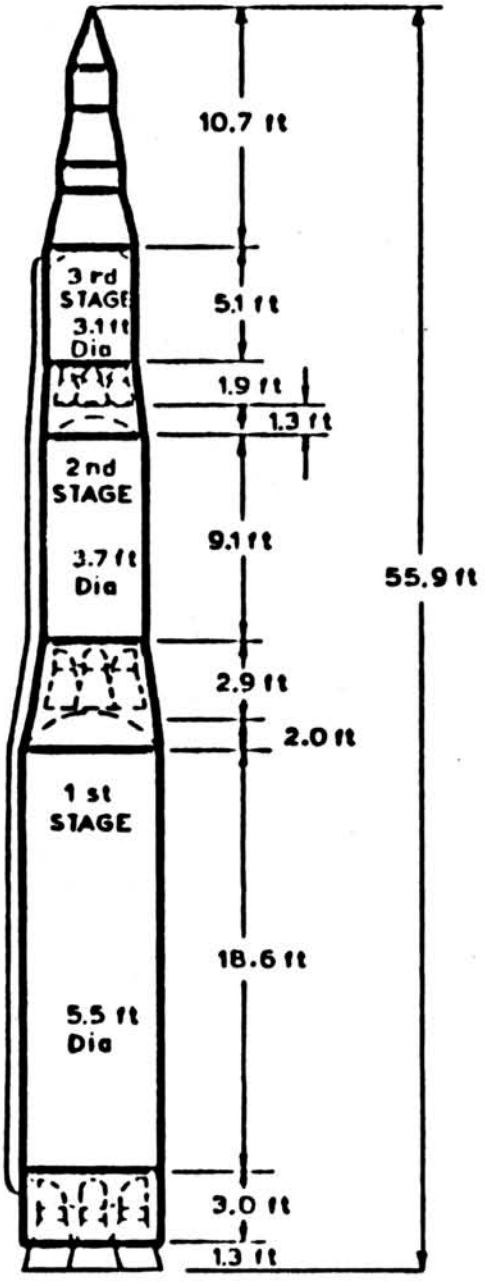
WEIGHT: 70,000 lbs

PERFORMANCE: Speed: 15,000+; 5,500 nm

ARMAMENT: Single re-entry vehicle

GUIDANCE: Inertial gimballed

DEPLOYMENT: Hardened, underground launch facility, mobility on aircraft and railroad launch cars were tested.



MINUTEMAN I
(LGM 30B)

THE LGM 30G "MINUTEMAN III"

The Minuteman LGM 30G missile consisted of a three-stage, solid-propellant booster (called the downstage), a liquid-propellant post-boost propulsion system (called the propulsion system rocket engine, PSRE), an inertial type guidance system, and a re-entry system. When launched, the missile was boosted for approximately three minutes by the three solid-propellant motors burning in sequence. Each stage (motor) was separated from the missile when no longer producing thrust. Boost flight can be terminated before third stage burnout. Post-boost maneuvering thrust was provided by the PSRE, with guidance by the guidance set. The re-entry system was capable of deploying up to three re-entry vehicles, Multiple Independently-targeted Re-entry Vehicles (MIRVs) according to the flight program. The Minuteman III was also equipped with a computer operated Command Data Buffer retargeting system.

TYPE: Intercontinental Ballistic Missile (ICBM)

ENGINES: Three solid propellant rocket engines (stages) plus post-boost system.

DIMENSIONS: Length: 59 ft 11 in (718.8 in)
Diameter: Stage I - 66 in;
Stage II - 52 in;
Stage III - 52 in.

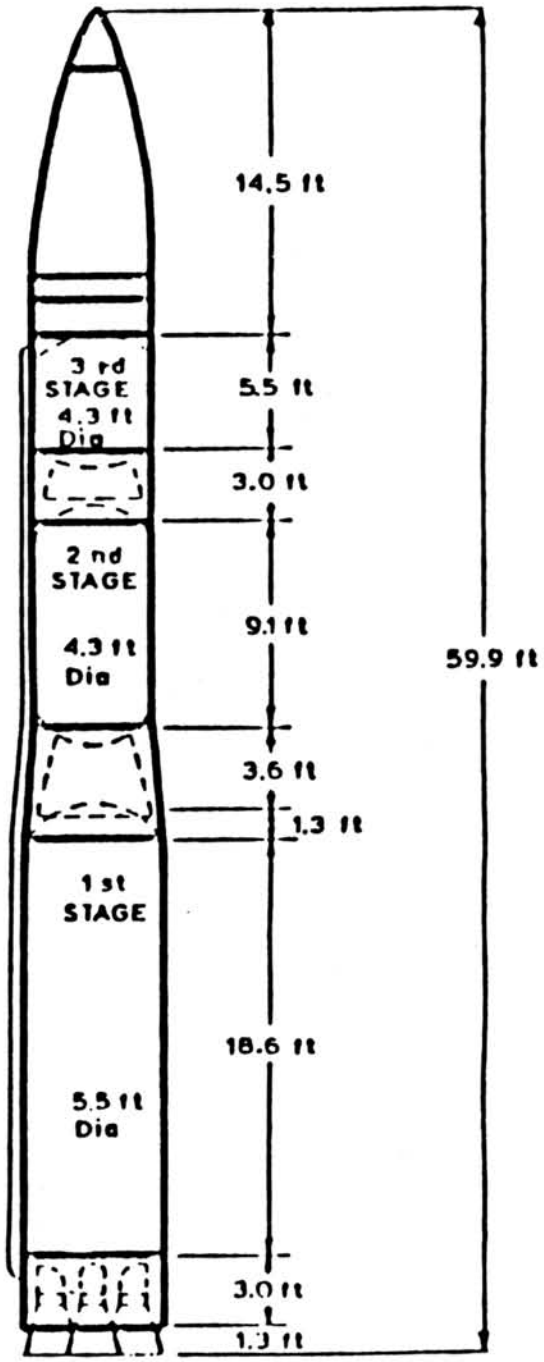
WEIGHT: 76,000 lbs

PERFORMANCE: Speed: 15,000+; range: 6,200 nm.

ARMAMENT: Capable of 3 Multiple Independently-targeted Re-entry Vehicles (MIRVs)

GUIDANCE: All inertial gimballed.

DEPLOYMENT: Fixed underground hardened launch facility (LF) with missile suspension system shock isolated floor, and debris collection system.



MINUTEMAN III
(LGM 30G)

THE LGM-118A "PEACEKEEPER"

The Peacekeeper was a four-stage intercontinental ballistic missile, designed to carry up to 10 re-entry vehicles and deliver them to independent targets. The Peacekeeper ICBM was about 71 feet long, with a diameter of 7 ft, 8 in, and weighs about 195,000 pounds.

Three of the four stages exhaust their solid propellant through a single adjustable nozzle that guides the missile along its flight path. These solid propellants were contained in motorcases made of kevlai epoxy material. The fourth stage, called the post boost vehicle, used a liquid bi-propellant rocket propulsion system that provided velocity and altitude corrections to guide the missile. The post-boost vehicle also included a completely self-contained inertial navigation system allowing the missile to be completely independent of ground reference or commands during flight.

The first stage solid rocket motor weighed approximately 108,000 pounds and was about 27 feet 6 inches long. It will boost the missile to about 75,000 feet. The second stage solid rocket motor weighed approximately 60,000 pounds and was about 17 feet 6 inches long. Stage II ignited after the burnout and release of Stage I and propelled the missile to an altitude of about 290,000 feet.

Stage II's single moveable nozzle incorporated an extendable exit cone that allowed the nozzle to remain folded within the rocket so that it can ride flush atop the first stage engine during the Peacekeeper's early ascent. When the first stage fell away, the second stage ignited extending its nozzle for extra power. This extendible exit cone increased the second stage performance without increasing the missile's diameter.

The third stage solid rocket motor, weighing about 17,000 pounds, was approximately 7 feet 7 inches long. Stage III provided thrust to boost the missile to about 700,000 feet. Stage III ignited after burnout and release of Stage II. Like Stage II, the Stage III single nozzle also has an extendible nozzle exit cone to increase performance. A guidance and control system directed the second and third stage nozzles that were positioned by a hydraulic system powered by a solid propellant gas generator.

The fourth stage, also known as the post-boost vehicle, weighed about 2,300 pounds and was 3 feet 5 inches long. Following the burnout and separation of Stage III, the post-boost vehicle maneuvered to various positions in space where the re-entry vehicles were released in sequence. The propulsion system included the liquid propellants and tanks, an axial engine and its thrust vector actuation system, and attitude control engines. The attitude control engines used the same bi-propellants as the axial engine.

Stage IV housed the Peacekeeper's guidance and control system, a system that included an inertial measurement unit, the missile electronics and computer assembly, ground and flight software, the inflight cooling subsystem, airborne power supply, missile interconnection cables, the missile ordnance arm switch, the power distribution switch, the missile umbilical receptacle, the supporting structure, and shields.

The re-entry vehicles, which contain the weapons, were cone shaped and covered with materials to protect the weapons during flight to the target. High speed re-entry caused extreme heating requiring a surface material to erode in a controlled manner to protect the weapons.

In addition to the stages and re-entry vehicles, the missile also includes a shroud and a deployment module. The shroud, often called a nose cone, protected the re-entry vehicles during the ascent phases of flight. The shroud was topped with a nose cap made of stainless steel and contained a rocket motor to separate it from the missile.

The deployment module provided the structural support for the re-entry vehicles and carried the electronics to activate and deploy them. These vehicles are mechanically attached to the deployment module. To free the re-entry vehicles from the module with minimum disturbance, exploding units were used to break the attachments. Each re-entry vehicle was deployed at a position which allowed it to follow a ballistic path to its target.

In addition to the many new design features of the missile itself, the launching system was also new in design. Incorporating a previously used Minuteman III Launch Facility, the Peacekeeper ICBM used a canister (cold) launching system designed both to eject-launch the missile and to protect it from shock.

Massive in scale, the Peacekeeper launching system performed an array of critical functions. The canister itself, which was a length of 68.2 feet and a smooth clearbore diameter of approximately 98.7 inches, supported the missile while in the LF. It provided environmental protection, lateral and vertical shock protection for the missile, a means of launching the missile before engine ignition, a guide for the missile during launch, and a means of lowering and raising the missile for maintenance.

TYPE: Intercontinental Ballistic Missile (ICBM)

ENGINES: Three solid propellant rocket engines (stages) with a fourth liquid propellant stage

DIMENSIONS: Length: 70.9 feet
Diameter: 92 inches

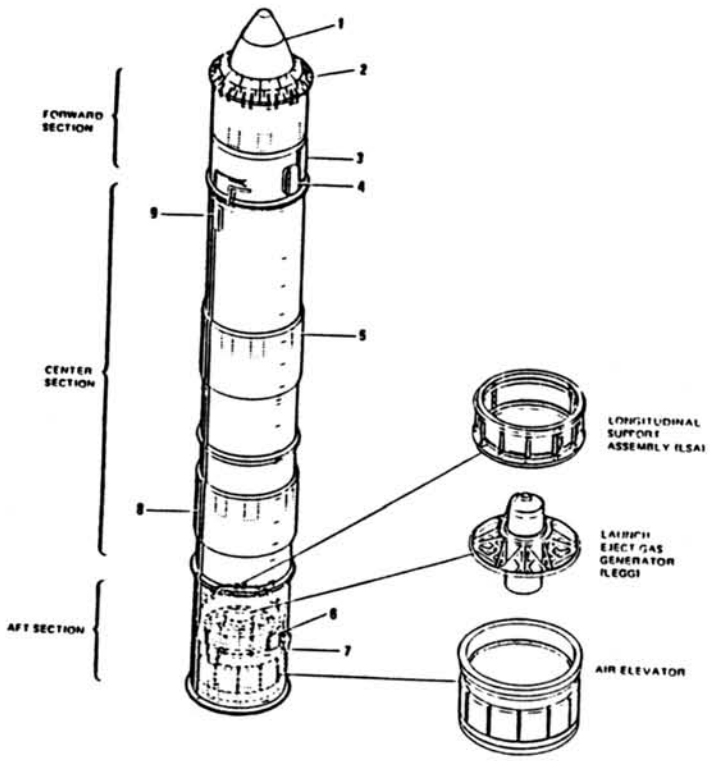
WEIGHT: 195,000 pounds

PERFORMANCE: Typical end-of-burn velocities
Stage I 4,500 ft/sec
Stage II 13,000 ft/sec
Stage II 23,000 ft/sec

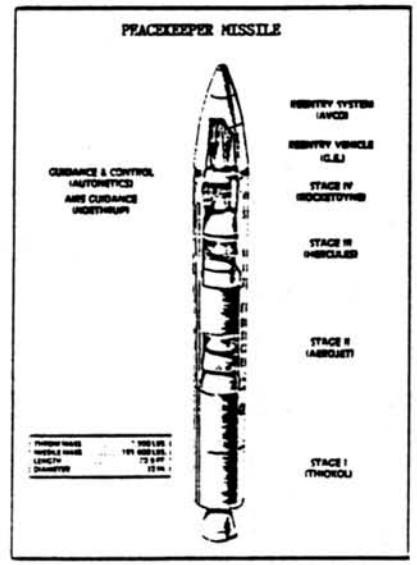
ARMAMENT: Capable of delivering 10 Multiple Independently-targeted Re-entry Vehicles (MIRVs)

GUIDANCE: Inertial floating ball (advanced inertial reference sphere)

DEPLOYMENT: Underground hardened launch facility (LF) with canister insert. A Peacekeeper Rail Garrison System was also being tested for deployment.



Canister



REENTRY SYSTEM INTEGRATION	AVCO
SHROUD	AVCO
NOSE CAP, STAINLESS STEEL	SPINCRAFT
ROCKET, MMIII SCALED MOTOR	ATLANTIC RESEARCH
STRUCTURE, TITANIUM, TRI-CONIC	GRUMMAN
THERMAL SHIELD, ALUMINUM	AVCO
SHROUD SEVERING DEVICE, LSC	AVCO
DEPLOYMENT MODULE	AVCO
STRUCTURE, ALUMINUM/ COMPOSITE	GENERAL DYNAMICS
ELECTRONICS (D.M.E.)	AVCO
ORDNANCE INITIATION SET	THIOKOL
RV TIE DOWN BOLTS	OEA
REENTRY VEHICLES	
10 MARK 12A	GENERAL ELECTRIC
FLIGHT TEST EQUIPMENT	
INSTRUMENTATION & FLIGHT SAFETY SYSTEM (IFSS)	MARTIN
IFSS ANTENNA	BALL BROTHERS

THE LAUNCH FACILITY

The launch facility was the remote unmanned missile site. At the 90th, 200 of these sites were constructed, spread over 12,600 square miles of Wyoming, Nebraska, and Colorado, with a minimum three mile spacing. All launch facilities were situated in unpopulated areas and consisted of a launcher, launch support building, security system, and service area.

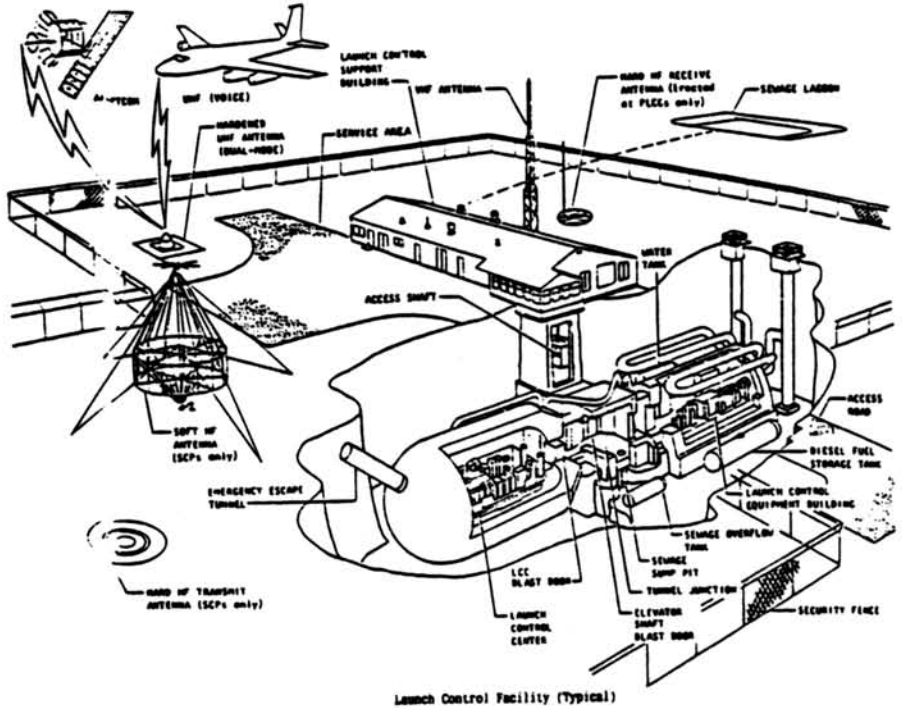
The launcher included the launch tube, missile suspension system (Minuteman III) or canister (Peacekeeper), the launcher closure, dual-level equipment room, and a personnel access hatch/entry way. The launcher was also hardened to permit survival in the event of an attack/blast.

The launch tube was an underground cylinder where the missile was stored in a suspension system for the Minuteman III or a canister for the Peacekeeper. The launch tube contained a steel liner which extended to the closure door for the Minuteman system and only into the launcher equipment room for the Peacekeeper system. Access was provided at the upper liner for servicing the missile.

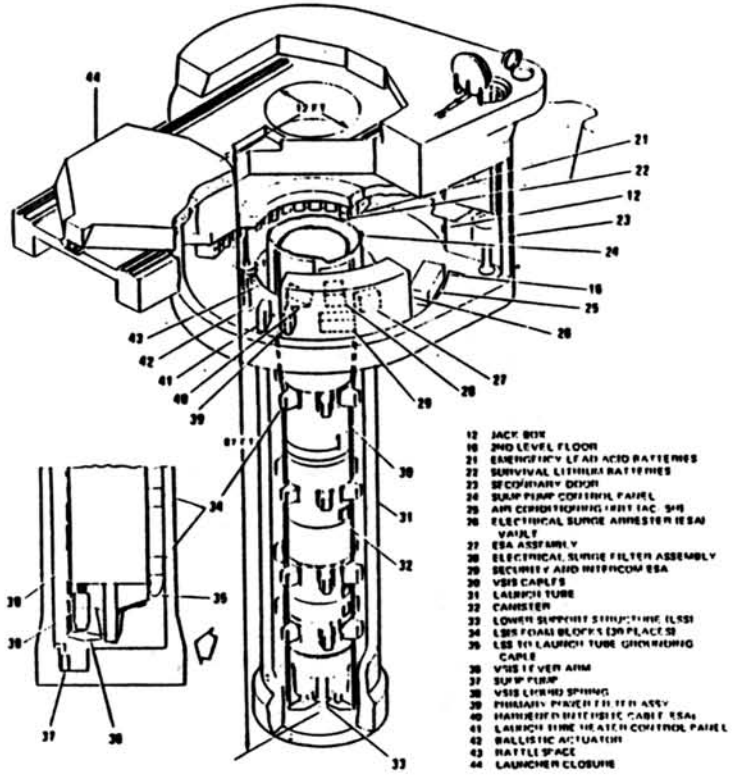
The launcher closure was a steel-reinforced concrete slab approximately 4 1/2 feet thick, weighing 110 tons. In the closed position it rests over the launch tube opening on a steel bearing ring. Vertical movement of the closure was prevented by weight and mated beveled edges on the closure sides and launcher roof. Horizontal movement was prevented by a lock. The closure protected the missile from weapon effects and tampering and formed an environmental seal. For maintenance purposes the closure could be opened and closed by a hydraulic pusher set, rolling on two steel guide rails and four 18-inch diameter steel wheels. Opening during launch was accomplished by a ballistic actuator which sling shotted the door open with fast-acting ballistic gas generators.

The launcher equipment room was a bi-level cylindrical concrete structure which completely encircled the upper launch tube. Approximately 180 degrees of the first level floor was shock mounted and contained launch critical equipment.

Each launch facility was also equipped with a security system to detect unauthorized activity. The system was divided into outer and inner zone functions. All detected security violations were instantly displayed on the launch control console in each launch control center for that flight.



Launch Control Facility (Typical)



LOWER LEVEL EQUIPMENT ROOM AND LAUNCH TUBE

Launch Facility (Typical)

APPENDIX I

COMMANDERS OF THE 90TH STRATEGIC MISSILE/BOMB WING/GROUP

NAME/RANK	DATES OF COMMAND
NEWMAN W. ENLOE, 1ST LT	17 APRIL 1942 - 17 MAY 1942
EUGENE P. MUSSETT, LT COL	17 MAY 1942 - 14 SEPTEMBER 1942
ROGER M. RAMEY, COL	14 SEPTEMBER 1942 - 16 OCTOBER 1942
EUGENE P. MUSSETT, LT COL	16 OCTOBER 1942 - 21 OCTOBER 1942
ARTHUR MEEHAN, COL	21 OCTOBER 1942 - 16 NOVEMBER 1942
ARTHUR H. ROGERS, LT COL	16 NOVEMBER 1942 - 18 NOVEMBER 1942
RALPH E. KOON, COL	18 NOVEMBER 1942 - 11 JULY 1943
ARTHUR H. ROGERS, COL	11 JULY 1943 - 20 DECEMBER 1943
HARRY J. BULLIS, LT COL	20 DECEMBER 1943 - 16 MARCH 1944
CARL A. BRANDT, COL	16 MARCH 1944 - 10 JUNE 1944
EDWARD W. SCOTT, JR., COL	10 JUNE 1944 - 8 DECEMBER 1944
WILSON H. BANKS, LT COL	8 DECEMBER 1944 - 24 FEBRUARY 1945
ELLIS L. BROWN, COL	24 FEBRUARY 1945 - NO DATE AVAILABLE

1947 - 1950 UNIT INACTIVATED

WILLIAM L. GRAY, LT COL	JANUARY 1951
CONTRAD F. NECRASON, COL	2 JANUARY 1951 - 14 MARCH 1951
JOSEPH S. PIRRUCELLO, COL	14 MARCH 1951 - 22 MARCH 1951
GERALD G. ROBINSON, COL	22 MARCH 1951 - 4 APRIL 1951
JOSEPH S. PIRRUCELLO, COL	4 APRIL 1951 - 20 APRIL 1951
CONRAD F. NECRASON, COL	20 APRIL 1951 - 21 APRIL 1952
JOSEPH S. PIRRUCELLO, COL	21 APRIL 1952 - 5 JUNE 1952
CONRAD F. NECRASON, COL	5 JUNE 1952 - 19 SEPTEMBER 1952
JOSEPH S. PIRRUCELLO, COL	19 SEPTEMBER 1952 - 6 DECEMBER 1952
ALBERT J. SHOWER, COL	6 DECEMBER 1952 - 27 APRIL 1953
JOSEPH S. PIRRUCELLO, COL	27 APRIL 1953 - 18 MARCH 1955
GORDON F. GOYT, COL	18 MARCH 1954 - 8 APRIL 1954
JACK E. CUNNINGHAM, COL	8 APRIL 1954 - 22 APRIL 1954
ALBERT J. SHOWER, COL	22 APRIL 1954 - MAY 1954
VINCENT M. CRANE, LT COL	MAY 1954 - 7 MAY 1954
ALBERT J. SHOWER, COL	7 MAY 1954 - MID-MAY 1954
JOSEPH S. PURRICELLO, COL	MID-MAY 1954 - 7 JUNE 1954
VINCENT M. CRANE, COL	7 JUNE 1954 - 25 JUNE 1954
JOSEPH S. PIRRUCELLO, COL	25 JUNE 1954 - 30 JUNE 1954
OLBERT F. LASSITER, COL	30 JUNE 1954 - 3 JULY 1954
ALBERT J. SHOWER, COL	3 JULY 1954 - 6 JULY 1954
GORDON F. GOYT, COL	6 JULY 1954 - 31 JULY 1954
GEORGE L. ROBINSON, COL	31 JULY 1954 - 18 MAY 1955
ALBERT J. SHOWER, COL	18 MAY 1955 - 27 AUGUST 1957
HAROLD W. OHKLE, COL	27 AUGUST 1957 - 21 APRIL 1958
WILLIAM W. WILCOX, COL	21 APRIL 1958 - 10 JUNE 1960
NORMAN J. McGOWAN, COL	10 - 20 JUNE 1960

COMMANDERS OF THE 90TH SMW/BMW/BG (CONT.)

1960 - 1963 UNIT INACTIVATED, LATER REDESIGNATED

FLOYD E. WIKSTROM, COL	1 JULY 1963 - 26 AUGUST 1965
DONALD W. JOHNSON, COL	26 AUGUST 1965 - 16 AUGUST 1966
ROBERT J. HILL, COL	16 AUGUST 1966 - 2 AUGUST 1968
ROBERT R. SCOTT, COL	2 AUGUST 1968 - 18 AUGUST 1969
HAROLD A. STRACK, COL	18 AUGUST 1969 - 3 JANUARY 1972
PAUL E. BELL, COL	3 JANUARY 1972 - 2 JULY 1973
BOBBIE G. GUTHRIE, COL	2 JULY 1973 - 13 JUNE 1974
CHRISTOPHER S. ADAMS, JR., COL	13 JUNE 1974 - 3 DECEMBER 1975
RAY E. MILLER, COL	3 DECEMBER 1975 - 29 SEPTEMBER 1976
JAMES E. COWAN, COL	29 SEPTEMBER 1976 - 23 MARCH 1979
CHARLES H. GREENLEY, COL	26 MARCH 1979 - 11 JUNE 1981
MARTIN M. BURDICK, COL	11 JUNE 1981 - 14 DECEMBER 1982
JAMES P. HENRY, COL	14 DECEMBER 1982 - 24 JANUARY 1984
ARLEN D. JAMESON, COL (LT GEN)	24 JANUARY 1984 - 17 JUNE 1986
GARY L. CURTIN, COL (B GEN)	17 JUNE 1986 - 8 JUNE 1988
JOHN A. GORDON, COL	8 JUNE 1988 - 16 MAY 1989
RICHARD L. FARKAS, COL	16 MAY 1989 - PRESENT

APPENDIX II

STATIONS WHERE THE 90TH WAS ASSIGNED OVER THE YEARS

PLACES	DATES
KEY FIELD, MISSISSIPPI	15 APRIL 1942 - 17 MAY 1942
BARKSDALE FIELD, LOUISIANA	17 MAY 1942 - 21 JUNE 1942
GREENVILLE ARMY AIR BASE, SOUTH CAROLINA	21 JUNE 1942 - 9 AUGUST 1942
YPSILANTE, MICHIGAN	9 AUGUST - 18 AUGUST 1942
HICKAM FIELD, HAWAII	12 SEPTEMBER 1942 - NOVEMBER 1942
IRON RANGE, AUSTRALIA	NOVEMBER 1942 - 10 FEBRUARY 1943
PORT MORESBY, NEW GUINEA	10 FEBRUARY 1943 - DECEMBER 1943
DOBODURA, NEW GUINEA	DECEMBER 1943 - 23 FEBRUARY 1944
NADZAB, NEW GUINEA	23 FEBRUARY 1944 - 10 AUGUST 1944
BIAK	10 AUGUST 1944 - 26 JANUARY 1945
SAN JOSE, MINDORO	26 JANUARY 1945 - 10 AUGUST 1945
Ie SHIMA	10 AUGUST 1945 - DECEMBER 1945
FORT WILLIAM McKINLEY, LUZON	DECEMBER 1945 - 27 JANUARY 1946

INACTIVATED FROM 1946 - 1947

ANDREWS FIELD, MARYLAND	1 JULY 1947 - 6 SEPTEMBER 1948 (NO PERSONNEL OR AIRCRAFT ASSIGNED)

INACTIVATED FROM 1948 - 1951

FAIRCHILD AFB, WASHINGTON	2 JANUARY 1951 - 14 MARCH 1951
FORBES AFB, KANSAS	14 MARCH 1951 - 20 JUNE 1960
(TEMPORARY DUTY STATIONS INCLUDED:	EIELSON AFB, ALASKA.)

INACTIVATED FROM 1960 - 1963

FRANCIS E. WARREN AFB, WYOMING	1 JULY 1963 - PRESENT

APPENDIX III

UNIT SIGNIFICANT ACHIEVEMENTS

COMBAT ACHIEVEMENTS

DECORATIONS	BATTLE SITE/CAMPAIGNS	ENEMY AIRCRAFT DESTROYED
DISTINGUISHED UNIT CITATION, PAPUA, NOV 1942 - JAN 1943; DISTINGUISHED UNIT CITATION, NEW GUINEA 13-15 SEP 1943; AND PHILIPPINE PRESIDENTIAL UNIT CITATION	PAPUA NEW GUINEA BISMARCK ARCHIPELAGO WESTERN PACIFIC LEYTE LUZON CHINA	319TH - 122 400TH - 107 321ST - 97 320TH - 82

NON-COMBAT ACHIEVEMENTS

DECORATIONS	HIGHER HEADQUARTERS ACHIEVEMENTS
AIR FORCE OUTSTANDING UNIT AWARD, 1 JULY 1968 - 30 JUNE 1969; AIR FORCE OUTSTANDING UNIT AWARD, 1 JULY 1973 - 30 JUNE 1975; AIR FORCE OUTSTANDING UNIT AWARD, 1 JULY 1982 - 30 JUNE 1984	USAF MAINTENANCE AWARD FOR FY 1969 USAF NUCLEAR SAFETY AWARD FOR 1977 BLANCHARD TROPHY - SAC MISSILE COMPETITION WINNER - 1973 CHADWELL TROPHY - BEST MAINTENANCE UNIT IN SAC - 1974 CHADWELL TROPHY - BEST MAINTENANCE UNIT IN SAC - 1977 CHADWELL TROPHY - BEST MAINTENANCE UNIT IN SAC - 1978 CHADWELL TROPHY - BEST MAINTENANCE UNIT IN SAC - 1984 OMAHA TROPHY - BEST IN SAC - 1984 BLANCHARD TROPHY - SAC MISSILE COMPETITION WINNER - 1984 RIVERSIDE TROPHY - BEST IN 15 AF - 1984 RIVERSIDE TROPHY - BEST IN 15 AF - 1985 RHINEY TROPHY - BEST FOOD SERVICES IN SAC - 1987 HENNESSY TROPHY - BEST FOOD SERVICES IN AF - 1987 RHINEY TROPHY - BEST FOOD SERVICES IN SAC - 1988 COMMANDER-IN-CHIEF'S INSTALLATION EXCELLENCE AWARD FOR SAC - 1988 WILLIAMS TROPHY - BEST MISSILE WING IN SAC - 1988 McADOO TROPHY - BEST MISSILE WING OPERATIONS IN SAC - 1988 CHADWELL TROPHY - BEST MAINTENANCE UNIT IN SAC - 1988 USAF GEN THOMAS D. WHITE - NATURAL RESOURCES CONSERVATION AWARD - 1988

GPO 830-309