

NUCLEAR WEAPONS MAINTENANCE AND STORAGE AT STONY BROOK AIR FORCE STATION

The 3084th ADG established a Production Control Office that would be responsible for the scheduling of maintenance, record-keeping and reporting on Stony Brook. That Office's duties included:

- Keeping accurate maintenance records for each weapon.
- Joint scheduling, along with the Atomic Energy Commission, of the maintenance and modifications required for all weapons.
- Preparation of Quarterly Stockpile Reports.
- Transmitting daily reports to higher headquarters.
- Conducting inventories of all weapons on Alert status.

A Disaster Control Staff, which was composed of officers and NCOs, was also established by the Group to plan and implement the requirements and resources for emergency preparedness.

The nuclear weapons that were stored and maintained on Stony Brook Air Force Station are illustrated by the photographs and descriptions on the following pages. This listing is derived from personal experiences of veterans and from declassified documents.

The two missile warheads used during this period, the Army's W-31 for the Nike Hercules surface-to-air missile (SAM) and the Air Force's W-25 for the Genie air-to-air missile, were not stored at Stony Brook, but were shipped in by railroad cars (the White Train) for routine maintenance and testing of their non-nuclear components. In addition, there were certain weapons used by the U.S. Navy that were shipped in for routine maintenance.

In an excerpt on the following page from "The History of the Strategic Air Command, 1 January 1958 – 30 June 1958", the MK6 and MK36 Mod1 were shown as being stored at Stony Brook. In addition to these two weapons, it is known that the MK15, MK17, MK28, and MK39 were also present on Stony Brook in the 1954-1960 period. The MK28 made its first appearance at Stony Brook in 1958 or early 1959.

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UNCLASSIFIED

<u>ADS</u>	<u>PARENT ORGANIZATION</u>	<u>AFB LOCATION</u>	<u>TYPE OF WEAPON STORED</u>	
8th	7th AD	Lakenheath	MK-6; MK 7, Mod 5	
Det 1 8th	7th AD	Mildenhall	MK 39, Mod 0	
10th	16th AF	Ben Guerir	MK-6, MK 36 Mod 1	
6th	16th AF	Nouasseur	MK-6, MK 36 Mod 1, MK 7 Mod 4 and 5	
5th	16th AF	Sidi Slimane	MK-6, MK 36 Mod 1	
3rd	3rd AD	Andersen	MK-6, MK 39 Mod 0, MK 36 Mod 1	AG SL
12th	3rd AD	Kadena	MK-6, MK 39 Mod 0	
15th	3973rd ABG	Moron	MK 36 Mod 1	
1st	3970th ABG	Torrejon	MK-6, MK 36 Mod 1	
13th	16th AF	Zaragoza	MK-6, MK 39 Mod 0	
Other Operational Storage Sites	23rd	42nd ABG	Loring **	MK-6, MK 39 Mod 0 MK 15 Mod 2 SP, MK 39 Mod 1 SP Caribou AFS
	43rd	28th ABG	Ellsworth **	MK-6, MK 15 Mod 0, MK 39 Mod 1 SP, MK 36 Mod 1 Rushmore AFS
	26th	92nd ABG	Fairchild **	MK-6, MK 15 Mod 0, MK 39 Mod 1 Deep Creek AFS
	24th	814th ABG	Westover **	MK-6, MK 36 Mod 1 Stony Brook AFS

* Stored for CINCEur.

** Weapons are stored in adjacent AMC OSS; SAC ADS furnishes loading capability only.

Air Materiel Command Operational Storage Sites

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MK6

Width: ~ 60 inches (~ 5 ft)
Length: ~ 128 inches (~ 10.7 ft)
Weight: ~ 8,000 pounds
Yield: Variable 8-140 KT



Total number produced: 1,100
Retired in 1962

"The first MK6 Mod6 entered the national stockpile in January 1955. By November 1956, all MK6 weapons had been converted to Mod6 configuration by installation of the new barometer and contact fuses. The last MK6 Mod6 was retired in 1962.

Late mods of the MK6 (as well as late mods of the MK7) used new MC-193 nickel-cadmium (NiCad) storage batteries that replaced the ER 12-10 lead-acid batteries. The MC-193 required a charging time of only one hour, after which it held a full charge anywhere from one to 240 days, depending on ambient temperature. The MC-193 was produced by the Sonotone Corporation starting in May 1952; production was complete by December 1953, at which time almost all ER 12-10 batteries had been withdrawn from stockpile.

Approximately 1,100 MK6s (in all mods) were produced between July 1951 and early 1955; it was the first U.S. nuclear weapon to be produced in large quantity (over 1,000 units). The MK6 stockpile was augmented by a number of MK18s converted to MK6 Mod6s between January and March 1956.

Among USAF jet bombers, the B-47 could carry one MK6, while the B-52 could carry two, although the carriage of atomic bombs by both aircraft was soon superseded by carriage of higher-yield thermonuclear bombs. The MK6 used a 120 lb. natural uranium tamper."¹

An initial design of the MK6 was fired in the Greenhouse Dog shot in April 1951 with a yield of about 80 kilotons.

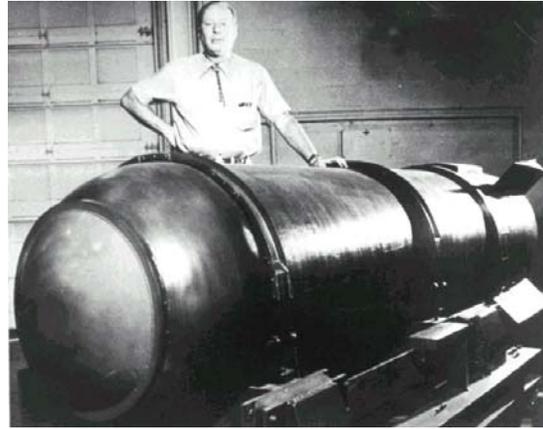
¹ Swords of Armageddon, Vol VI, Hansen

MK15

Width: ~ 35 inches (~ 2.9 ft)
Length: ~ 140 inches (~11.5 feet)
Weight: ~ 7,600 pounds
Yield: ~ 1.7 – 3.8 MT



Photos of MK15 from "Swords of Armageddon",
Hansen



Total number produced: 1,200
Retired in mid-1960s

"The MK15 Mod1 went into production in September 1956. The MK15 Mod2 was a MK15 with a contact fuse. The initial military characteristics for the MK15 called for a true contact-bursting capability, that is, between zero and 30 feet. It was thought that a contact fuse might not operate close to the ground because of mass discontinuity, so an allowance was made for a near-contact burst. The MK15 used a proximity fuse for this, but by August 1954, LASL had analyzed data from the CASTLE shots and decided that contact with the ground could be tolerated in most configurations.

As a result of this conclusion, a feasibility study was undertaken to determine if a true contact burst could be achieved, either by the standard contact piezoelectric crystal method or by use of a new proximity fuse. This study was completed by April 1955. The MK15 Mod2 with a contact fuse was design-released by the end of February 1956, and training units were expected by the following September with the FPU (first production unit) in December 1956. In March 1957, the MK15 Mod2, using a new safing device and improved primary, entered the national stockpile. About 1,200 MK15s in several mods were produced between April 1955 and February 1957; all were retired between August 1961 and April 1965.

The MK15 was 11' 7" long, 34.7 inches in diameter, and weighed 7,600 lbs. The bomb tail fins spanned 51". The warhead could be fused for either air or near-surface burst. The MK15 Mod0 did not have a drogue parachute, but the Mod2 carried a small-diameter retarding parachute."¹

The MK15 was developed from the Zombie device that was tested in the Romeo shot of Operation Castle on 13 May 1954. The Zombie device was originally a concept of a radiation imploded fission bomb with a yield in the range of hundreds of kilotons. It would have been essentially a fission explosion used to compress another fission bomb, derived from Ulam's original design. The final Zombie design was a radiation imploded, fusion boosted fission bomb.

¹ Swords of Armageddon, Vol VI, Hansen

MK17

"The MK17 was 24 feet 8 inches long, 61.4 inches in diameter, and weighed between 41,400 and 42,000 lbs.; much of this was casing weight. The MK17 bomb was only four feet shorter than a POLARIS A-1 SLBM, but weighed half again as much as an A-1.

In addition, the requirement for cumbersome, specialized, and expensive handling equipment doomed weapons such as the MK17 to short service lives. These bombs could only be moved with straddle carriers or large cranes, and were not compatible with more standardized Air Force weapons handling equipment. They also could not be carried easily by the B-47 or B-52.

The bomb casing was made of 3 1/2" thick aluminum with a lead and plastic liner to withstand internal explosive forces for as long as possible and to generate compressive plasma for the secondary. MK17 yield was on the order of 15 to 20 megatons, one of the most powerful nuclear weapons ever built by the U.S. The bomb could be carried effectively only by the B-36 aircraft; when the weapon was dropped, the delivery airplane usually leaped upwards several hundred feet due to the enormous weight loss.



MK17 (National Atomic Museum)

As an example of the handling difficulties associated with the MK17, in early 1955 a MK17 Mod1 training weapon was assembled at Manzano for carriage by a B-36 to Bossier Base, Louisiana because the latter site had no railhead capable of unloading the MK17 weapon case.

A "Broken Arrow" nuclear weapons accident involving a MK17 occurred on May 22, 1957 when a B-36 crewman inadvertently leaned against a release mechanism that dropped an unarmed MK17 (the "nuclear capsule" for the primary was not installed) through closed bomb bay doors and on to the desert in New Mexico near Kirtland Air Force Base. The HE in the bomb exploded on impact, killing an unfortunate cow and digging a crater 12 feet deep and 25 feet in diameter. Everyone on the plane knew when the bomb fell: the B-36 jumped up a thousand feet.

The MK17s were retired from the stockpile between November 1956 and August 1957. It was withdrawn in favor of the MK36 bomb, which was significantly smaller and lighter and featured a lower yield. A shift in U.S. targeting strategy from cities to military targets, along with a significant increase in the number of nuclear-capable SAC bombers, allowed the production and stockpiling of large numbers of relatively-low yield bombs in the place of a small number of high-yield bombs."²

Total number produced: ~200



² Swords of Armageddon, Volume VI, Hansen

MK28

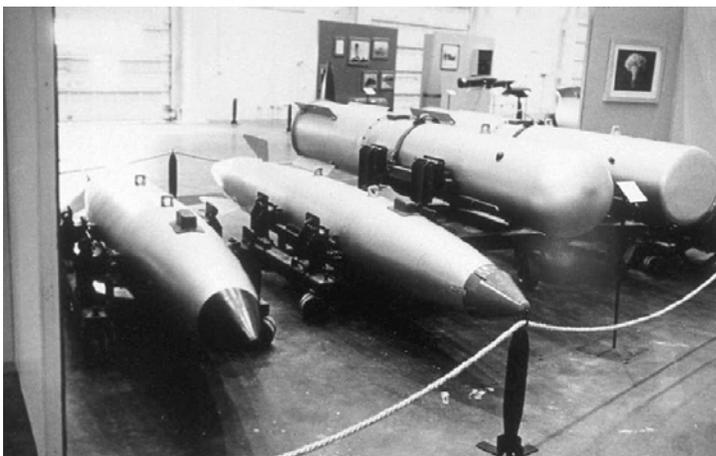
Width: ~ 21 inches (~1.8 ft)
Length: ~ 100 inches (~ 8.3 ft)
Weight: ~ 1,800 pounds
Yield: Variable 70 KT to 1.1 MT



Apr. 4,500 produced
Last retired in 1991

"The MK28 was one of the longest-serving and most common thermonuclear weapons in the U.S. arsenal until it was eventually replaced by B61 and B83 bombs. It was the first U.S. nuclear warhead to be designated as a complete weapon system. MK28 warheads, fuses, and shape components could be assembled into five different "drop shapes" resulting in a range of sizes, configurations, and yields called the "Building Block" principle. The W-28 warhead was used in the USAF HOUND DOG air-to-surface and MACE surface-to-surface missiles.

The MK 28 family was for many years the "standard arm" of USAF SAC and TAC bombers and fighter-bombers. Even as late as 1982, 24 years after its first stockpiling, the MK 28 was still deployed in three versions: two tactical bombs and a strategic laydown bomb. Approximately 4,500 MK28 bombs (in all variants) were produced between August 1958 and May 1966. Among U.S. nuclear warheads, this total was surpassed only by the W-68 POSEIDON SLBM warhead. At the time of its tests, the TX-28 was the smallest thermonuclear system yet fired, and had the highest yield-to-weight ratio of any U.S. thermonuclear bomb."³



The versions of the MK28

Left to right – EX or Free fall, external
RE or Parachute-retarded, external
RI or Parachute-retarded, internal
FI or Fully fused, parachute-retarded, internal

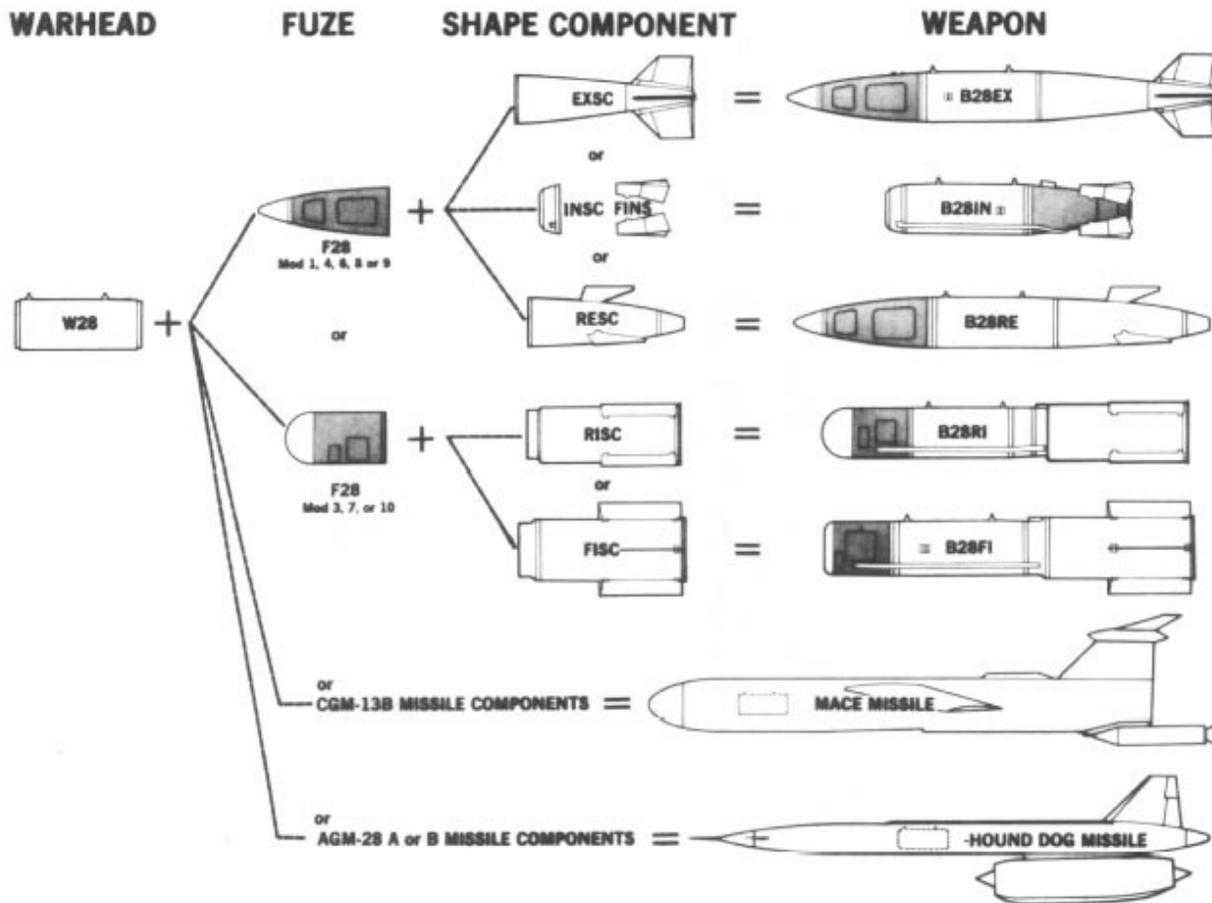
Below – IN or Free fall, internal



³ The Swords of Armageddon, Volume VI, Hansen

MK28 VERSATILITY AND FLEXIBILITY

BUILDING BLOCK CONCEPT



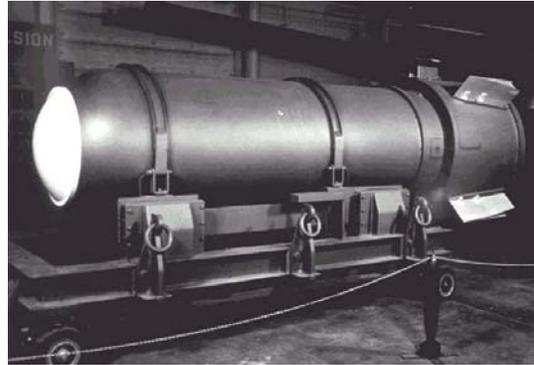
From Swords of Armageddon, Hansen, Vol. VI

MK39

Width: ~ 35 inches (~ 2.9 ft)
Length: ~ 140 inches (~ 11.7 FT)
Weight: ~ 6,700 pounds
Yield: ~ 3-4 MT



(Photos from "Swords of Armageddon", Hansen)



Total number produced: 700
Retired in 1966

"The MK39 was essentially an improved MK15 with a drogue parachute system for surface-burst capability against hardened targets. It was intended to be a lighter, higher-yield MK15 with a new boosted primary. The MK39 Mod0 was design-released by Sandia in April 1956, and a prototype MK39 was fired during Operation REDWING later in the summer. Initial units of the MK39, described as an "improved, lightweight version of the Class C thermonuclear bomb," were produced in February 1957. On November 18, 1957, the Air Force notified the DMA that SAC had an urgent military requirement for a low-altitude deliverable "laydown" MK39 bomb. Early in March 1958, the MLC requested the AEC to develop an advanced "laydown" design; this project was assigned to LASL and became the MK39-Y1 Mod2 bomb. Wind tunnel tests of the MK39-Y1 Mod 2 were completed by October 1958.

The "laydown" MK39 was dubbed the "Lone Star" project; the bomb was encased in a large semi-rectangular "boat" lined on its bottom with aluminum honeycomb to absorb impact. The whole assembly weighed 7,500 lbs. and was slowed to a ground impact speed of 30 feet per second by a 130-foot diameter parachute (the largest ever fabricated at that time). The "Lone Star" was to be dropped from an altitude of 1,000 feet by B-47 or B-52 bombers. The project was canceled when it was superseded by MK28 and MK43 "laydown" weapons. Approximately 700 MK39s in Mods0, 1, and 2 were manufactured between February 1957 and March 1959; all were retired between January 1962 and November 1966.

The MK39 was designed to be very safe, reliable, and simple. It could be readied for combat quickly and the weapon case was sealed to simplify storage. Like several mods of the MK15, the MK39 featured an impact-absorbing aluminum-honeycomb "false nose" forward of the warhead's "physics package." The "false nose" was tipped with a contact fuse consisting of two aluminum plates separated by an air space. The MK39 casing weighed 6,000 lbs.; fully-loaded bomb weight was between 9,000 and 10,000 lbs. The bomb centerbody measured 34.5" in diameter; the aft parachute section was 42" in diameter. Overall length was 11' 7"; the tail fins spanned 55". The bomb was built in two separate yields (Y1 and Y2)."¹

¹ Swords of Armageddon, Vol VI, Hansen

W-31 Warhead

Width: ~ 28 inches
Length: ~ 39 inches
Weight: ~ 925 pounds
Yield: ~ 1-40 KT

Army's Honest John SSM



Army's Nike Hercules SAM



Apr. 4,500 produced
Retired in 1987-1989

W-25 Warhead

Width: ~ 17 inches (~ 1.4 ft)
Length: ~ 26 inches (~ 2.2 ft)
Weight: ~ 220 pounds
Yield: ~ 1.7 KT

Air Force's AIR 2-A Genie Air-to-Air Missile



Apr. 3,150 produced
Retired in 1984

"Standardized MK25 Mod0 warheads entered production engineering in December 1956, and were stockpiled starting in late May - early June 1957 and running through May 1960. " - from Swords of Armageddon, Vol VII, Hansen.