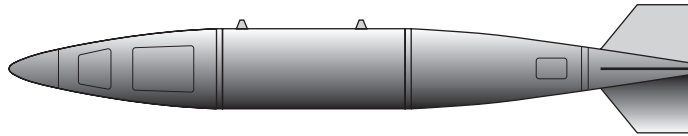


Belcher Bits No.13: Mk 28 Nuclear Bomb Set 1/48

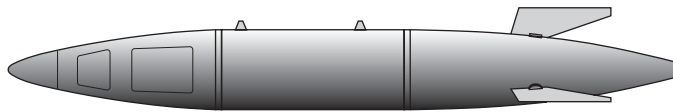
Background

The first nuclear bombs were fission weapons, and their size dictated the use of heavy bombers to deliver them to their target from high altitude. In the '50s, the development of the fission/fusion weapons (thermonuclear or hydrogen bombs) offered a tremendous increase in destructive power but early ones were still very bulky. Further research allowed reduction in size and variable yields. The Mk 28 bomb series was an advanced concept, using a building block principle based on a standard thermonuclear warhead of variable yield from high kiloton to low megaton range, with different fuzing and delivery options. This was classed as a tactical weapon, although its highest yield would have made a mess of a good-sized city (the Hiroshima weapon was in the order of 20 kt). Weapon weight was approximately 2000 lbs. The versatility of this design allowed the bomb to be carried externally by a number of different aircraft, or internally in bomb bays. The Mk 28RI gained some notoriety as the bomb lost at sea following a mid-air collision over Palomares, Spain; the recovery operation from deep water was one of the most extensive ever mounted. The W-28 warhead was also the nuclear heart of the Mace and Hound Dog missiles. Mk 28 bombs were produced in large numbers and remained in operational use from 1959 to 1975, being superseded by the B 43, Mk 57 and B 61 bombs.



Mk 28EX

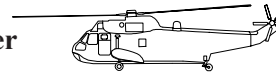
This variant's aerodynamic shape allowed external use by fighter-bombers such as F-100, F-101, F-4, A-4, A-6 and FJ-4. It was intended for air or ground burst only and the usual method of delivery was by 'over the shoulder' launching allowing the aircraft to be well on its way home when the weapon detonated. The tail assembly could be rotated when loaded, so the four tail fins may be seen in either '+' or 'X' configuration depending on airframe clearance requirements. Use the E (for external) nose and EX tail; . The four tail fins must be cut from 0.015" sheet and glued to the tail section.



Mk 28RE

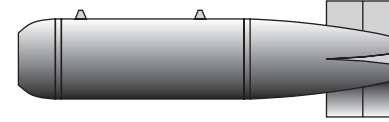
The RE stands for Retarded External; this variant used a different tail section that contained a 28 ft ribbon chute to retard the drop. This allowed higher delivery speed from lower altitudes, but fuzing remained air or ground burst only. Use the E nose and

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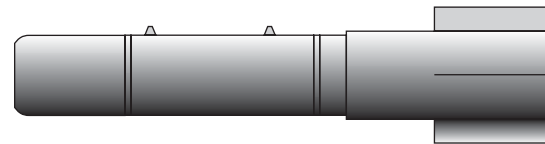
RE tail. The three tail fins must be cut from 0.015" sheet and glued in the slotted mounting pads (use a fine razor saw to deepen the slots slightly).



Mk 28IN

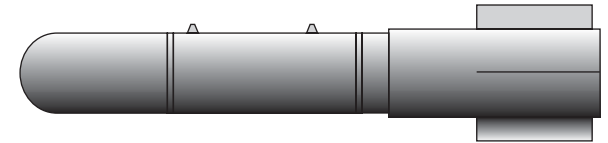
This was the variant used for internal carriage in bomb bays, and would have been used by B-47, B-52, B-66, A-3 and F-105; it was 8 feet in length. References state this was also carried by the A-5 Vigilante, but a more typical weapon would have been the Mk 27 bomb or a B 43 warhead. The A-5 used a unique 'out the tail' delivery that used the bomb bay fuel tanks as part of a weapons train; the B 43 warhead was fitted with a sabot to increase its diameter (see the Aerofax book on the A-5 for good photos). If the Mk 28IN was carried, it would not have had tail fins; more likely would have been a W-28 warhead in some form of special case.

The Mk 28IN also was fuzed for air or ground burst only and was intended for medium to high altitude delivery. Use the IN nose and IN tail. The four tail fins are moulded separately; they have an unusual double delta airfoil also seen on larger bombs like the Mk 53. Cut these from the base and sand the bottoms to fit the case.



Mk 28 RI (Mod 7)

Mk 28 RI (Mod 10)



Mk 28RI / Mk 28 FI

The RI option stood for Retarded Internal; it did not have the option for delay action and so was restricted to medium altitude delivery, although it did have a large tail for the parachute system.

The FI stands for Full fuzing Internal; to allow low level delivery, this variant allowed delay action fuzing and had a more extensive parachute system.

Mk 28 RI/FI cont'd

These bombs were externally identical, but two different noses are included; the earlier Mod 7 blunt nose and the later rounded Mod 10 nose. Pictures confirm the Mk 28RI lost in the Palomares incident had the rounded nose. Four tail fins are cut from the plastic strip supplied; glue to the tail section adjacent to the strips moulded on the rear.

Parts Preparation and Assembly

This set includes two warhead sections, two 'E' nose fuzing sections, an IN nose, RI/FI Mod 7 and Mod 10 noses and an IN, EX, RE and FI/RI tail section. Noses and tails have a 0.34" circular pad at the base; don't remove this completely, as it is designed to fit into the recesses in the ends of the warhead.

Cut the warhead off its base and sand the bottom to restore the contour. The two square pads on the sides of the warhead are removable attachment points for ground handling, used to attach the weapon to its cart. Remove these pads if you are hanging the weapons from pylons. The suspension lugs are moulded solid; if you are displaying the weapons separately, you should open up a small hole in each. If you are attaching these to pylons, sand the lugs down about halfway since they would have been up inside the pylons on the release clamps.

Tails require the fins to be cut from 0.015" plastic card (supplied) using templates on this sheet. The rectangular box on the upper surface of the E nose (and the IN tail) is a cover for the fuzing connections; it was present on the ground but of course would have been removed when installed.

Painting

Pretty easy, actually: overall natural metal was common, although some 28EXs were overall white. Connection cover boxes and ground handling plates were red. No doubt there was some stencilling on operational bombs, but all examples on display do not show any markings.

References

1. **The History of the US Nuclear Arsenal**, James Gibson, Bison Books 1989
2. Photos from National Atomic Museum, Albuquerque, NM. Well worth the stop if you're ever in the area. BTW, the newer version of Ref.1 above is available through the Museum bookshop.
3. Drawings courtesy of Chuck Hansen, author of **Swords of Armageddon**, a comprehensive CD-ROM set on nuclear weapons, history and testing. Available from the author

References cont'd

through his website www.uscoldwar.com

4. **Canada's Nuclear Arsenal**, John Clearwater, University of Toronto Press 1998

Other Nuclear Bombs in 1/48 Scale

1. **Little Boy**: Included in Monogram B-29 kit. The Hiroshima bomb, this was a gun-type fission weapon where the plug was fired down a tube into the core to generate the critical mass. This method was felt to be simple enough that a test was not necessary. The original design for this bomb, nicknamed Thin Man, was quite a bit longer at 17 feet but changes in the core material allowed a shorter design.
2. **Fat Man**: Included in Monogram B-29 kit. This represents the Nagasaki bomb, an implosion design. The core was compressed by a series of explosive lenses to develop a critical mass. A prototype for this weapon was the one tested at Alamogordo. This design formed the basis for all the early nuclear weapons, which improved the ballistics, handling and safety of these weapons.
3. **B-43**: Included in Monogram B-58 Hustler kit. Simplified rendition. A more detailed model is included in the Belcher Bits set **BB-14** (CF-104 Weapons Set).
4. **B-61**: Included in Italeri F-117 kit. Good representation.

Other Big Bombs in 1/48 Scale

1. **Belcher Bits set BB9**: RAF 2,000 and 4,000 lb HC bombs. Commonly referred to as 'cookies', these bombs were basically steel cans filled with explosive. They were usually used in conjunction with incendiaries, and were carried by RAF heavy bombers such as the Stirling, Halifax and Lancaster.
2. **Belcher Bits set BB10**: RAF 8,000 and 12,000 lb HC bombs. Until the advent of nuclear bombs, these represented the largest bombs available for general use. At 38" in diameter, these were only carried by Lancasters with bulged bomb bays.
3. **Grand Slam** 22,000 lb bomb. Included in Tamiya Lancaster B Mk 1 Special kit. Not a particularly accurate representation, being slightly too short, with a tail which is too pointed.

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