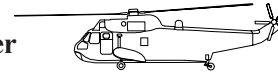


Belcher Bits No. BL2: RAF Cookies and Blockbusters 1/72

Belcher Bits
33 Norway Spruce Street, Stittsville, ON, Canada K2S 1P3
Phone: (613) 836-6575, e-mail: info@belcherbits.com



Background

At the start of WWII, high explosive bombs used by the RAF were mostly GP series; streamlined cast cases with a charge/weight ratio of around 23%. The damage caused by German mines dropped on England by the Luftwaffe during the Blitz, prompted the RAF to develop something similar. The intention was to develop a weapon which was not intended to penetrate structures, but due to its large size and high charge/weight ratio (around 70%), would cause considerable damage especially in combination with incendiary bombs. These weapons were classed as HC (high capacity) and were developed in 2,000 lb, 4,000 lb, 8,000 lb and even 12,000 lb sizes.

2,000 lb HC

The smallest was the 2,000 lb HC. It was basically a thin walled steel cylinder (18-1/2" dia) with an internal beam to distribute the hoisting load. The shape was determined by the long narrow bomb cells of early aircraft such as the Stirling. The Mk I had a conical nose with the fuse at the tip and two additional time delay fuses on the after sides of the body. The Mk II used a simpler dished nose and dropped the two after fuses but the Mk III reinstated them. All variants used a cylindrical nose ring to improve the aerodynamics when



Bomb HC 2,000 lb Mk I
c/w parachute pack



Bomb HC 2,000 lb Mk I
c/w slotted drum tail

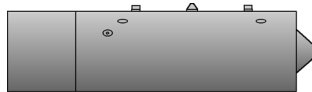


Bomb HC 2,000 lb Mk III

dropped. Early Mk Is used a parachute to slow and stabilize the bomb; trials indicated that a simple cylindrical tail was sufficient and all later marks used this. These bombs came into service in 1941 and over 28,600 were dropped by the end of the war.

4,000 lb HC (Cookie)

The 4,000 lb HC (the 'Cookie') was similar; the differences being mainly dimensional (30" body diameter). Mk Is used the conical nose, while later marks used dished heads. All used a simple sheet metal drum tail to stabilize the bomb. This weapon was carried by many aircraft including the Mosquito but was most often seen on Lancasters and Halifaxes in combination with a full load of incendiaries. The Cookie was first used on 1 April 1941 over Emden. Four years later, 68,000 had been dropped.



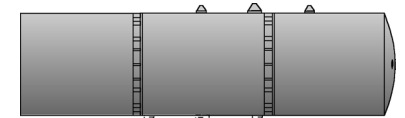
Bomb HC 4,000 lb Mk I



Bomb HC 4,000 lb Mk III

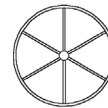
8,000 lb and 12,000 lb HC (Blockbuster)

The original concept for the larger bombs was for them to be carried in an extrop glider, sort of a low tech V-1. Eventually, this evolved into an 8,000 lb 'Super Cookie'. While the smaller 2,000 lb and 4,000 lb bombs were simple 'cans' filled with high explosive, the larger 8,000 lb and 12,000 lb HC bombs were built in a modular manner. The smaller used two 4,000 lb canisters (not the same as the 4,000 lb bomb; these were 38" in dia) bolted together at a reinforced joining ring, and a simple sheet metal drum tail. Over 1,000 of these bombs were eventually used in service.



Remove these lugs

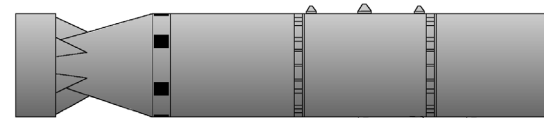
Bomb HC 8,000 lb Mk II



Rear View



Template
for Tail Fin
(6 req'd)



Remove these lugs

Bomb HC 12,000 lb Mk II

The larger 12,000 lb bomb was seen as being useful for blasting canal banks and viaducts. It used the same components as the 8,000 lb HC but added a third canister. This monster was aerodynamically unstable with anything but a traditional ballistic cone end section and tail ring supported by six fins. The great weight (and length) meant that it could only be carried on specially modified Lancasters and in fact, was only

used by 617 Squadron (the Dambusters). First delivered in September 1943, nearly 200 were used in service; on 9 February 1944, 10 were dropped on the Gnome-Rhone engine factory at Limoges, reducing it to ruins.

Assembly

This set includes bodies for a 2,000 lb HC Mk I and Mk III, as well as a parachute pack and slotted tail. It also includes bodies for a 4,000 lb HC Mk I and Mk III and drum tail. Finally, it includes the forward two canisters of the 8,000 lb HC and a drum tail, as well as a third canister and conical aft end of the 12,000 lb HC and a ring tail.

All parts are cast using a thin standoff, so they can be cut off the bases using a thin razor saw. Sand the bases flat and attach using cyanoacrylate glue or five minute epoxy. I find it helps to use a V-block, or failing that, some right angle corner like a short length of aluminum angle to keep nose and tail sections aligned while gluing

them. For the 8,000 lb HC, remove the aft set of hoist brackets and suspension lug. For the 12,000 lb HC, remove the forward set of lugs. Then cut six fins of 0.015" plastic using the template supplied. Glue these to the strips on the tail of the cone. The ring tail should slip over these fins. Remove the forward set of hoist brackets and suspension lug.

Painting

Pretty easy, actually: overall Dark Green. Typical markings comprised a light green band (~2" width) about halfway between the nose and the suspension lug and a thinner red band (~1" width) just behind the nose.

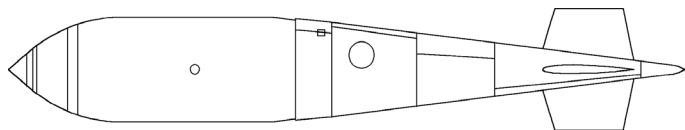
Stencilling (in 1" white letters on the suspension lug side) was as follows: Just aft of the green band was the Amatol mix ratio (i.e. 60/40); Aft of the suspension lug was the bomb designation (i.e. HC 2000 LB); next line was the mark number (i.e. III); next line was the lot number (varied, some references give 5 digit numbers); last line was the date of filling (11/7)

These bombs were stored in open dumps, rolled in the mud and generally treated with less respect than one would normally give tons of high explosive. Therefore, heavy weathering is in order ... often the suspension lugs were touched up with fresh paint to reduce rusting.

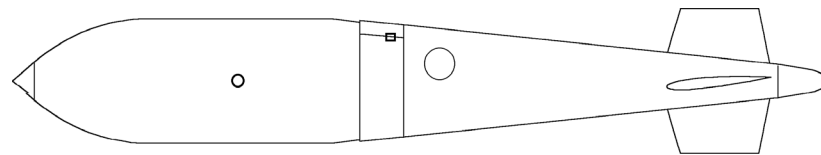
Other Large RAF Bombs (not included in this set)

In 1941, Dr. Barnes Wallis of Vickers wrote a report on strategic bombing of Germany in which he proposed attacking the industrial infrastructure: power generation, transportation and water supplies. He correctly predicted that normal bombardment was inadequate, and a more effective method of attacking large industrial targets would be to use penetrating weapons to undermine foundations. He calculated a specially strengthened 10 ton bomb dropped from 40,000 ft would be required. This was not practical at the time and the report was temporarily shelved, Wallis then concentrating on other means of attacking dams that were entirely successful. However, in 1943 the report was revisited and Wallis revised his calculations to show a 6 ton bomb would be nearly as effective. Under the codename Tallboy, aerodynamic prototypes of 4,000 lb capacity (small) as well as operational 12,000 lb (medium) and 22,000 lb (large) bombs were constructed. Because of their massive steel cases, the charge-weight ratio of these bombs put them in medium capacity (MC) range. The Tallboy(M) became the 12,000 lb MC, and was referred to as simply Tallboy, the larger Tallboy(L) became the 22,000 lb MC commonly called Grand Slam.

Tallboys were 38" in diameter, the same as the 8,000 and 12,000 lb HC blockbusters, and could be carried internally in Lancasters with enlarged bomb bays.



Tallboy 12,000 lb MC



Grand Slam 22,000 lb MC

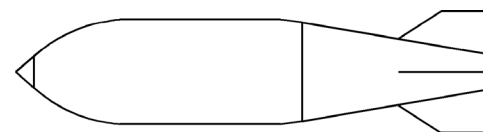
The Grand Slam was 46" in diameter and was carried externally under specially modified Lancasters only operated by 617 Squadron.

Tallboys were used in 1944 to attack train tunnels, viaducts and V-1 sites in France. Another effective use was against the Tirpitz in its Norwegian fjord, where direct hits in two raids disabled then capsized the warship. In total, 854 Tallboys were dropped in WWII. The Grand Slam was used in conjunction with Tallboy strikes against more difficult targets such as the Bielefeld viaducts and submarine pens in Hamburg and Bergen. A total of 41 Grand Slams were dropped by the RAF.

Both Tallboys and Grand Slam bombs were also built in the US and were taken into US inventories as the Mk 109 and Mk 110 respectively. Fitted with a ring wing and a steerable octagonal tail, some Tallboys were converted to VB-13 Tarzon gliding bombs and these were used operationally against bridges in the Korean War, although with limited success.

One interesting footnote is that according to some references, the real reason the Northrop flying wing bombers were dropped was that their short bomb bays in the wings could not accommodate the Mk 109/110 bombs; the B-36 could ... easily.

One final note is a bit of a mystery. I have seen a photo of a large bomb in front of a B-36 circa early 50s. It is almost certainly a Mk 109 case, with a different tail section. A drawing is given below, based on this photo, but no details are available. Anyone with info is invited to contact Belcher Bits.



Mystery Bomb

Shameless Self-Promotion

You know what they say ... "Go big, or go nuclear". Belcher Bits Set BL3 includes the full range of RAF nuclear weapons; Blue Danube, Yellow Sun, Red Beard and the WE-177, all in 1/72 scale. No V Bomber is fully dressed without a nuke!

References

1. Bombs Gone by J. MacBean and A. Hogben, 1990 (excellent reference on RAF bombs of all sorts)
2. Scale Aircraft Modelling Vol 16 No.7, article by J. Goulding (2000 LB HC Bombs)
3. RAF Pocket Book 1937 (info on bomb marking scheme)