

# 2000lb High Capacity Bombs

In October 1940 it was ruled that development of "blast" bombs should commence immediately. The requirements for the 2000lb bomb was as follows...

- Should be cylindrical in shape
- Have maximum charge to weight ratio
- Case was to be the lightest possible structure
- Impact on hard targets was to be reduced to prevent breaking up, so a parachute or drogues was required.
  - Diameter was to be similar to that of the 1900lb GP bomb.
- Length to be so that the final weight was not less than 2000lb.
  - Stowage in all aircraft capable of carrying 19000 GP bombs with only minor modifications.
  - Direct action with provisions for other types of fusing.

These requirements were sent to the Ordnance Board on the 28th of October 1940, design of the case was to be undertaken by Messrs. Vickers and the parachute attachment by the RAF both were asked to collaborate with Woolwich who was designing the 4000lb blast bomb. These bombs were then given the name "High capacity".

Sketches of the bomb design had been delivered at the beginning of November and by the end of the month 50 experimental bombs were ordered for fragmentation, blast pressure and dropping trials. Manufacture of the bombs was to be carried out by G.W. Railway Co who were given the preliminary sketch and a promise of complete drawings in a short time. The drawings were completed by the 6th of December.

At the end of November 1940 the bomb has formally made an Air Staff requirement, these were as follows

- For the attack of shipping in basins, docks and anchorages.
- For the attack of aqueducts and canals.
- For the attack of suitable land targets by blast.

The Air staff imposed more stringent conditions for the fusing of the bomb, the case was to be strong enough to give complete detonation from heights of 500 feet and up without a parachute. For delay detonation a parachute was permitted, the delays suggested were 0.5, 30 seconds and 30 minutes. The possible need for alternative delays had been anticipated and the early model of the bomb was equipped with a nose fusing position to accommodate a D.A. pistol and four side

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pockets or explode tubs at the rear to accommodate alternative delay components or other special fuzing devices. These disappeared in later marks of the bomb, the Mk II had three fuzing positions in the nose in order to reduce blinds due to faulty detonators, the Mk III had a similar construction but the two outside pockets were permanently plugged and a single pistol and detonator used.

In December 1940 the schedule for proposed trials was drawn up and approved. 12 bombs were required, 8 inert filled bombs for test of body strength and parachute opening and 4 HE filled bombs for static detonation and live drops. G.W. Railway Co wasted no time in the manufacture and no difficulties were met, by the middle of December the first 3 bodies were ready, by January 23 bodies had been completed and HE filling at Hereford had commenced.

On the 9th and 13th of January dropping trials of 6 bombs were completed for the testing of parachutes and drogues, the bombs with parachutes had proved unstable from 800 to 2000 feet and the drogues bombs were more successful. More trials were considered necessary before the design could be approved, particularly as stowage difficulties in the Hampden had been met and some modifications to the bomb or bomb doors would be necessary. Despite this and the fact that no detonation trials had been attempted orders for the bomb were

issued.

Further stability trials were completed at the beginning of February where a small ballistic cap was fitted to the nose of the bomb, these proved the parachute to be more satisfactory than the drogue, the trials showed that the parachute reduced the bombs velocity enough to prevent breaking up on a soft target. The remaining bombs from the original order were sent to Bomber Command and to bridge the gap between experimental and production a supplementary order for 100 was given to G.W. Railways.

In April trials where "sporter rings" were confused, these rings were intended to increase the drag of the bomb in conjunction with the parachute in order to limit striking velocity. The bombs officially entered service in January 1942 although a number had been used the previous year. These bombs were fitted with a parachute attachment only. In December 1941 the requirements for delay action had been dropped, this meant the necessity for a low striking velocity was removed and so an orthodox tail could now be fitted instead of a parachute, a drum tail was fitted in the early months of 1942.

The abandonment of the parachute tail increased it's

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operational value greatly but there was still some details in the bomb that needed improvement, Welding had been difficult as some of it needed to be done from inside the bomb and the method of attachment of the tail unit had been unsatisfactory, a better attachment had been designed for the 4000lb HC. The Department of Design asked the Ordinance board to prepare a new design which eliminated these difficulties and had an outline to improve stowage in aircraft.

This improved design eventually became the Mk II version of the bomb, the Mk III version was the same as the Mk II except that three fusing positions were used. Both were introduced in June 1943.

## 2000lb High Capacity bomb specifications

Bomb 2000lb HC Mk I-III

Construction Cast Steel

Usable charge 842lb (7.83kg)

Charge/Weight ratio 73%

Total length 162in (338cm)

Body length 99in (251cm)

Body diameter 55in (140cm)

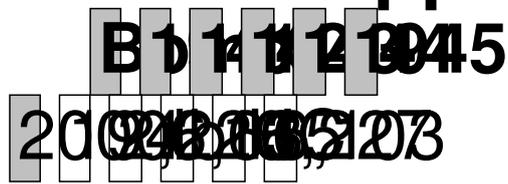
Wing thickness 19in (48cm)

Tail length 64in (163cm)

Tail width 81in (206cm)

Filling 60/40 or 50/50, RDX/TNT 60/40, Torpex

# Number of 2000lb High Capacity bombs dropped per year



Sources - AVIA 46 285, AVIA 15 741, AVIA 46 163