Belcher Bits No.14: CF104 Weapons Set 1/48

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Background

In 1959, Canada chose the Lockheed F-104 Starfighter to replace the Canadair Sabres for the RCAF's new nuclear strike role in NATO. This aircraft was originally designed as an air superiority fighter with emphasis on speed, but its characteristic stubby wings made it a stable and very fast attack aircraft. It also was used as a strike reconnaissance aircraft when fitted with the VICON camera pod. The Canadian F-104G variant with strengthened airframe and increased fuel tankage (replacing the 20mm Vulcan) was built by Canadair under license, 200 being produced for the RCAF and a further 140 for other NATO countries.

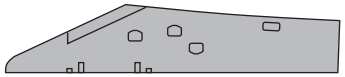
Canadian CF104s carried the Mk 28EX, Mk 28RE or Mk 43 tactical nuclear bombs; the operational weapons were under US control.

When the nuclear strike role was exchanged for low level strike in 1970, aircraft had the 20mm rotary cannon re-installed. Weapons carried were Mk 83 (usually fitted with the 'snake-eye' retarder) bombs, BL-755 cluster bombs or rocket pods.

Centreline Pylon

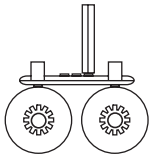
Normal position for carrying the nuclear weapon. This pylon is slightly deeper at the aft end. Install on the bottom fuselage, its after end is 0.25" (6.3mm) behind the leading edge of the main gear doors. The pylon has pads on the bottom representing shackles at both 14" and 30" centres; the nukes used the larger ones. Pylons were airframe colour.

Wing Pylons



These pylons hang vertically when installed, so the tops must be sanded slightly to account for the wing anhedral. They are installed 1.6" (41mm) from the aircraft centreline, the aft end just forward of the flap. They were airframe colour; natutal metal ones had a fair amount of stencilling on both sides; green ones probably did as well but it is difficult to see in photos.

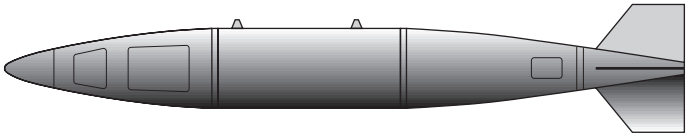
Twin Stores Carrier



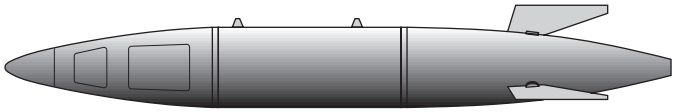
These units allowed two stores to be carried on one pylon (weight limits considered). Although current CF-18s use a similar unit, it is not identical to these which probably were earlier versions of the same kit. An important point to note is that the TSC has three lines of mounting points on its top surface, and for CF104 wing mounting, they were mounted asymmetrically; the TSC was hung on the inboard row on either side (probably to increase clearance for gear extension). They would have been painted the same green as the airframe.

Mk 28 Nuclear Bomb (Mk 28 EX and Mk 28RE)

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 in the order of 2000 lbs.



The Mark 28EX 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 fin assembly could be rotated when loaded; CF-104s used the 'X' configuration rather than '+' as shown. Use the longer EX tail; the four tail fins must be cut from 0.020" sheet and glued to the tail section.

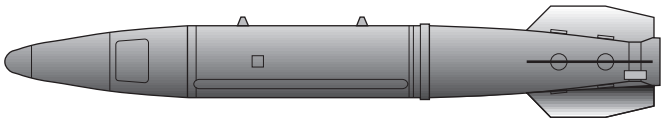


The Mk 28**RE** stands for Retarded External; this variant used a different tail section that contained a 28 ft ribbon chute to retard the drop. This allowed higher delivery speed from lower altitudes, but fuzing remained air or ground burst only. The RE tail has slotted mounting pads for the three tail fins, cut from 0.020" sheet.

Normal colour was either overall white for the Mk 28EX, or natural metal for the Mk 28RE.

Mk 43 Nuclear Bomb

The Mk 43 bomb followed the Mk 28 into service by four years, and with its low megaton yield, could be used for strategic as well as tactical purposes. The nose

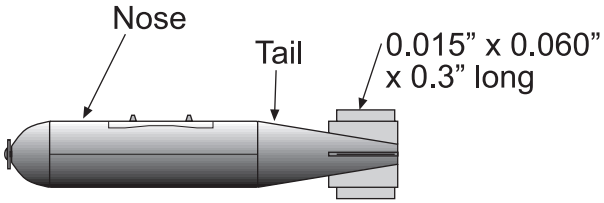


cone covered a steel spike used to ensure proper orientation at detonation and possibly aid penetration of hardened targets.

Use the thinner Mk 43 nose, centre and tail sections. Mount the tail section so that the fins are in an X configuration. The four tail fins must be cut from 0.020" sheet and glued in the slotted mounting pads. Normal colour would have been overall white.

References state that CF104s were also certified for the Mk 57 nuclear bomb. This is not included because, frankly, two nukes are plenty.

BL-755 Cluster Bomb



A common NATO weapon, and often carried by RAF Jaguars and Harriers, this bomb contained XXX sub-munitions which were deployed as a compressed air charge blew off the thin sheet metal covers of the main body. This set contains five; two per wing pylon on Twin Stores Carriers, and one on the centreline pylon was the maximum load.

These bombs have prominent arming vanes on the nose, provided as photoetched parts. Use a fine needle-nose plier to twist each blade slightly (yes, you have to do this 60 times for a full loadout!). Drill a 0.030" diameter hole in the nose of each bomb, cut the straight pins provided and use these to hold the vanes in place. Resist the temptation to have these free-spinning; instead, apply a drop of white glue to blend the head of the pin into the vane ... these vanes were actually cast aluminum, and had a noticeable dome to them, so use the head of the pin to represent this.

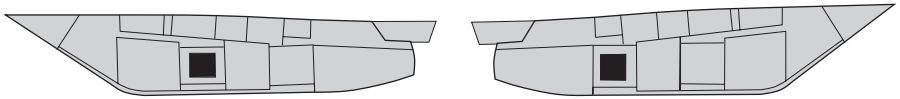
The tail fins appear to have thin outer sections that sit on thicker bases. Use the 0.015" x 0.060" strip provided, cutting pieces 0.30" long to represent these. Glue them on the bases moulded to the tail section. Glue the tail sections to the nose.

Normal color was dark green overall with white stripes around the bomb body and natural metal arming vane.

VICON Camera pod

The VICON camera pod gave strike reconnaissance capabilities to the CF104. It was fitted with four Vinten cameras (left, right, straight down and forward viewing). The pod thus had four clear panels for the cameras and was hung from the centreline pylon; a small portion of the pylon was visible at the nothched rear of the pod.

The resin camera pod mounts on the centreline of the aircraft; the rearmost point of the pylon is 0.25" (6.3mm) back from the front edge of the main gear doors. The pod was normally natural metal and the clear windows look best if painted gloss black.



Radar Warning Receivers

When the CF-104s went to low level strike, they were fitted with radar warning receivers under the nose and tail. These are provided as resin pieces, which must have their back faces sanded a bit to fit the curved mounting locations. The forward RWR was chin mounted and had the two ball-shaped protrusions forward, and the aft end of the diamond shaped fairing even with the aft end of the nose radome. The two rear RWRs had the rounded portions facing aft, just short of the end of the fuselage. They were mounted 45 degrees up from the bottom on either side.

Rocket Pods (not included in set)

Use the 19 tube launchers as provided in the Hasegawa weapons set, complete with aerodynamic fairings. These were carried on wing pylons, usually singly.

Practice Bomb Dispenser SUU-20 (not included in kit)

The SUU-20 practice bomb dispenser was a cylinder with conical ends and rounded caps. It had doors on the bottom that covered the two weapons bays, holding two and four practice bombs respectively. It was 17" in diameter and 156" long, and was only used on the centreline pylon. The old ESCI Starfighter included an accurate SUU-20 dispenser ; I would have copied it and included it in this set if I didn’t take copyright laws seriously. A good drawing of this appears in the three view drawing in the Canadian CF-104 profile book.

Cluster Bomblet Dispenser CBU-2 (not included in kit)

CF104s initially used another cluster bomb dispenser, the CBU-2, which was replaced by the BL-755. It resembled a Russian 19 tube rocket pod mounted backwards; the munitions were ejected out the tubes at the back, by air pressure from an inlet in the nose. It was 16" in diameter and 119" long, and was typically mounted on the wing pylons.

References

1. **The History of the US Nuclear Arsenal**, James Gibson, Bison Books 1989
2. 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 through his website **www.uscoldwar.com**
3. **Canada’s Nuclear Arsenal**, John Clearwater, University of Toronto Press 1998
4. **Starfighter** by David Bashow, Fortress Publications, 1990
5. **CF-104 Starfighter Canadian Profile** by Bob McIntyre, Sabre Publishing, 1984
6. Personal photo collection of Doug Keall (Thanks Doug)
7. Various manuals courtesy National Aviation Museum

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