

WAC Corporal Sounding Rocket



Frank Malina with a WAC Corporal rocket (minus the solid-fuel boosters).

The WAC or WAC Corporal was the first successful sounding rocket developed in the United States.

The first WAC Corporal dummy round was launched on September 16, 1945 from White Sands Missile Range near Las Cruces, New Mexico. After a White Sands V-2 rocket had reached 111 kilometres (69 mi) on May 10, a White Sands WAC Corporal reached 80 kilometres (50 mi) on May 22, 1946 — the first U.S.-designed rocket to reach the edge of space (under the U.S. definition of space at the time).

On February 24, 1949, a Bumper (a German V-2 rocket acting as first stage) bearing a WAC Corporal at White Sands accelerated to 8,290 kilometres per hour (5,150 mph) to become the first flight of more than five times the speed of sound.

When reports of German rockets began circulating during World War II, they found a receptive audience in Caltech's GALCIT group (Guggenheim Aeronautical Laboratory at the California Institute of Technology). This group was the predecessor of NASA's Jet Propulsion Laboratory, but at the time was a small group of rocket enthusiasts under the wing of Theodore von Karman. With funding from the US army's ordnance division they began work on developing missiles.

Frank Malina, one of the founder members of GALCIT, headed up the project and proposed developing a sounding rocket as prototype for a military missile. Thus the Wac Corporal was born.

The Wac Corporal's first flight was on October 11, 1945. First, a solid fuel booster, adapted from a Navy air to surface missile, fired, its acceleration activating the Wac Corporal's liquid fuel rocket. After 0.6 seconds, the booster fell away and the Wac Corporal rose to an altitude of over 43 miles.

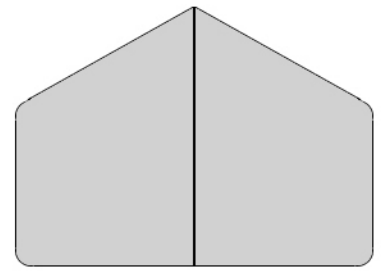
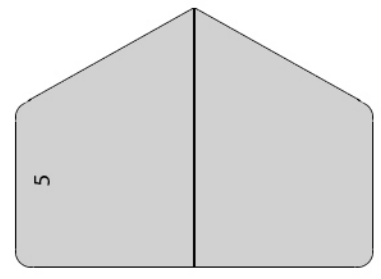
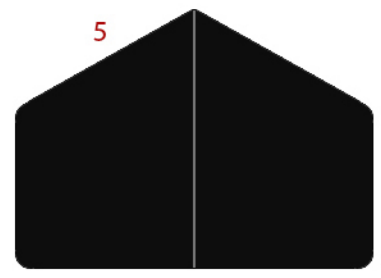
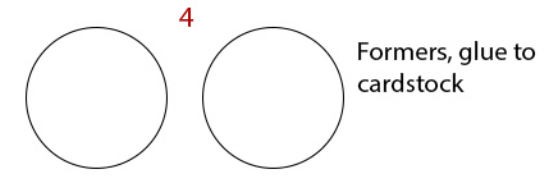
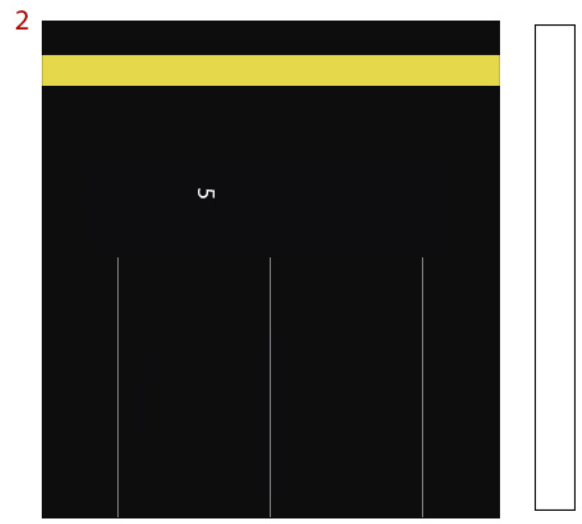
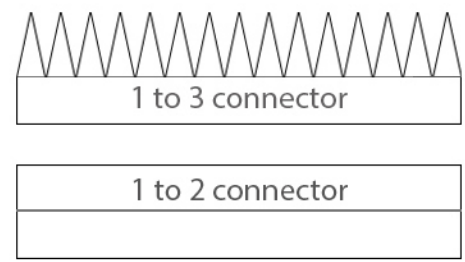
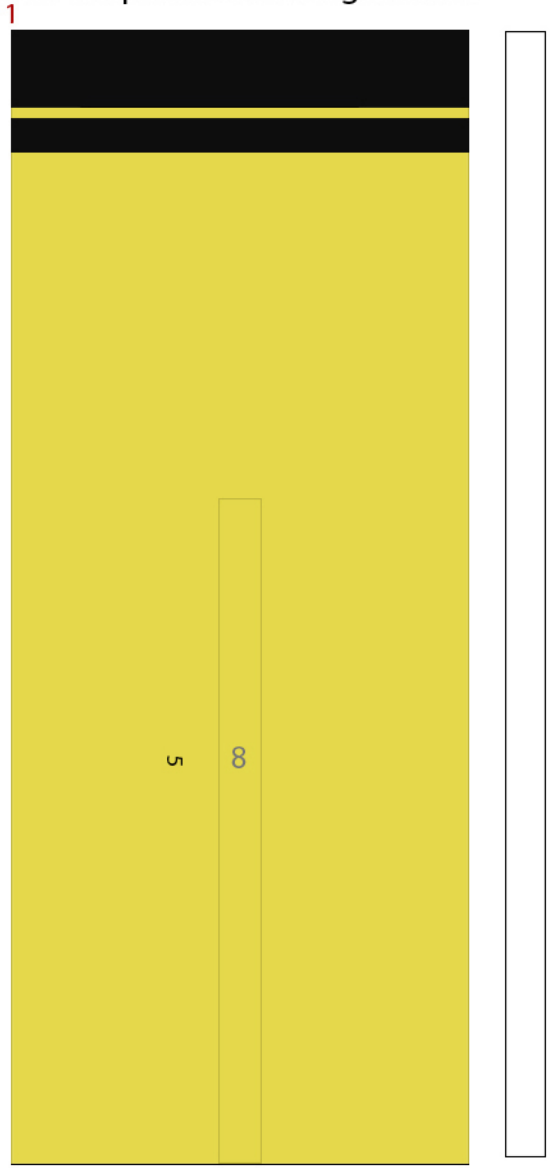
March 31st, 1947 was the last flight of the Wac Corporal program, with 17 launches under its belt. One flight reached an altitude of over 50 miles on May 22, 1946, thus becoming the first American rocket to enter space, albeit briefly.

It was replaced by the Aerobee rocket, built by a commercial company, Aerojet, founded by members of GALCIT. However, it was used as the second stage on a later sounding rocket, Project Bumper, which combined the Wac Corporal with a captured V-2 rocket.

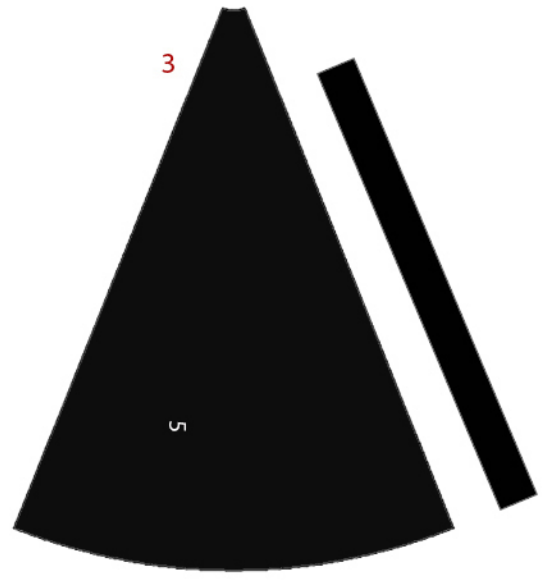
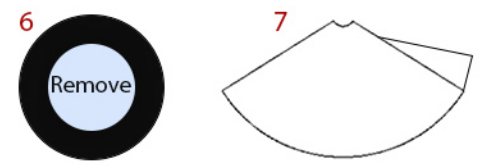
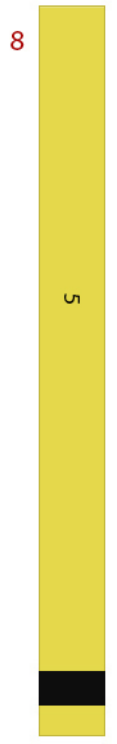
The Wac Corporal was 12 inches in diameter and stood 24 feet high with its solid fuel booster.



WAC Corporal Sounding Rocket



Fins, score the middle, fold - glue in half

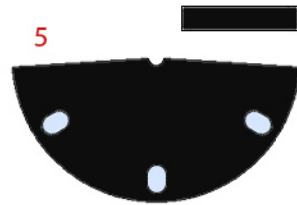
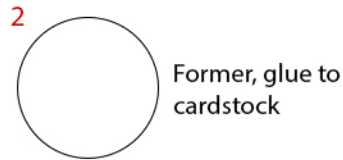


Cut out the light blue circle from 6, color backside of 7 black and roll to a cone with color inside. Glue 7 to backside of 6 for an embedded nozzle.

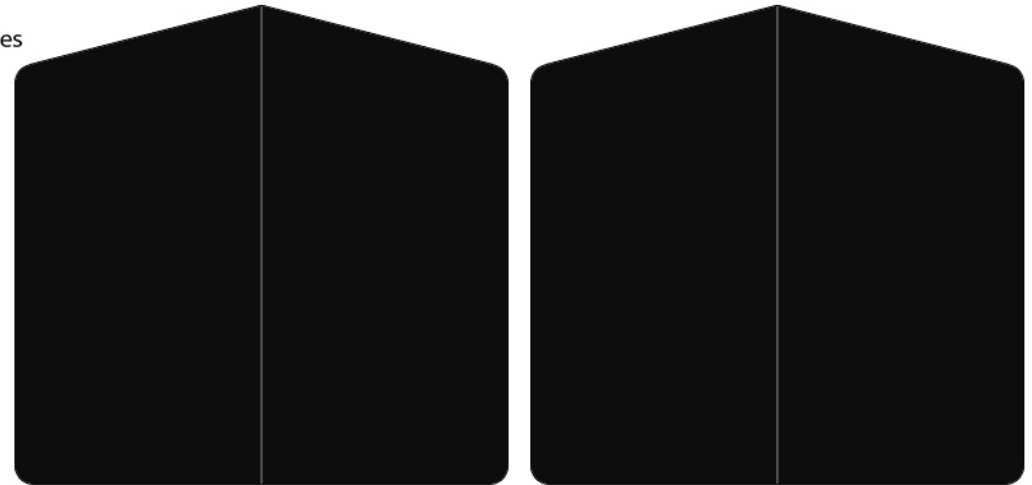
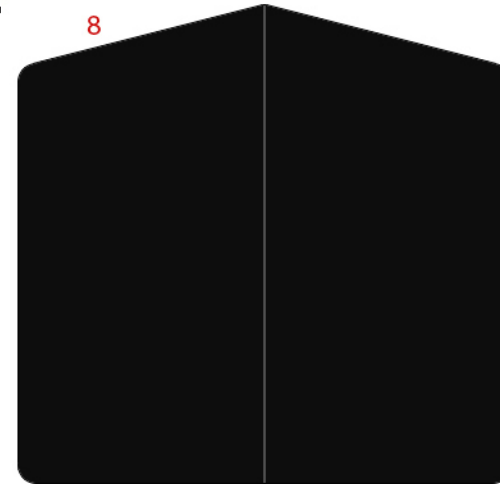
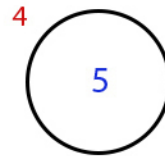


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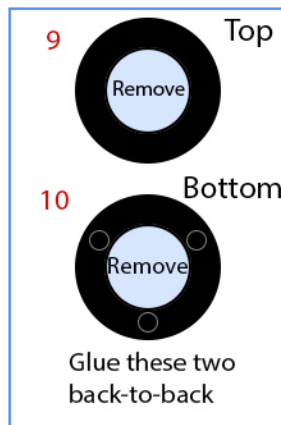
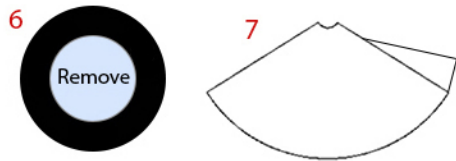
Optional Tiny Tim Booster



Cut out the light blue circles



Fins, score the middle, fold and glue in half.



Cut three tooth pics the same length as the line on the left, color them black.

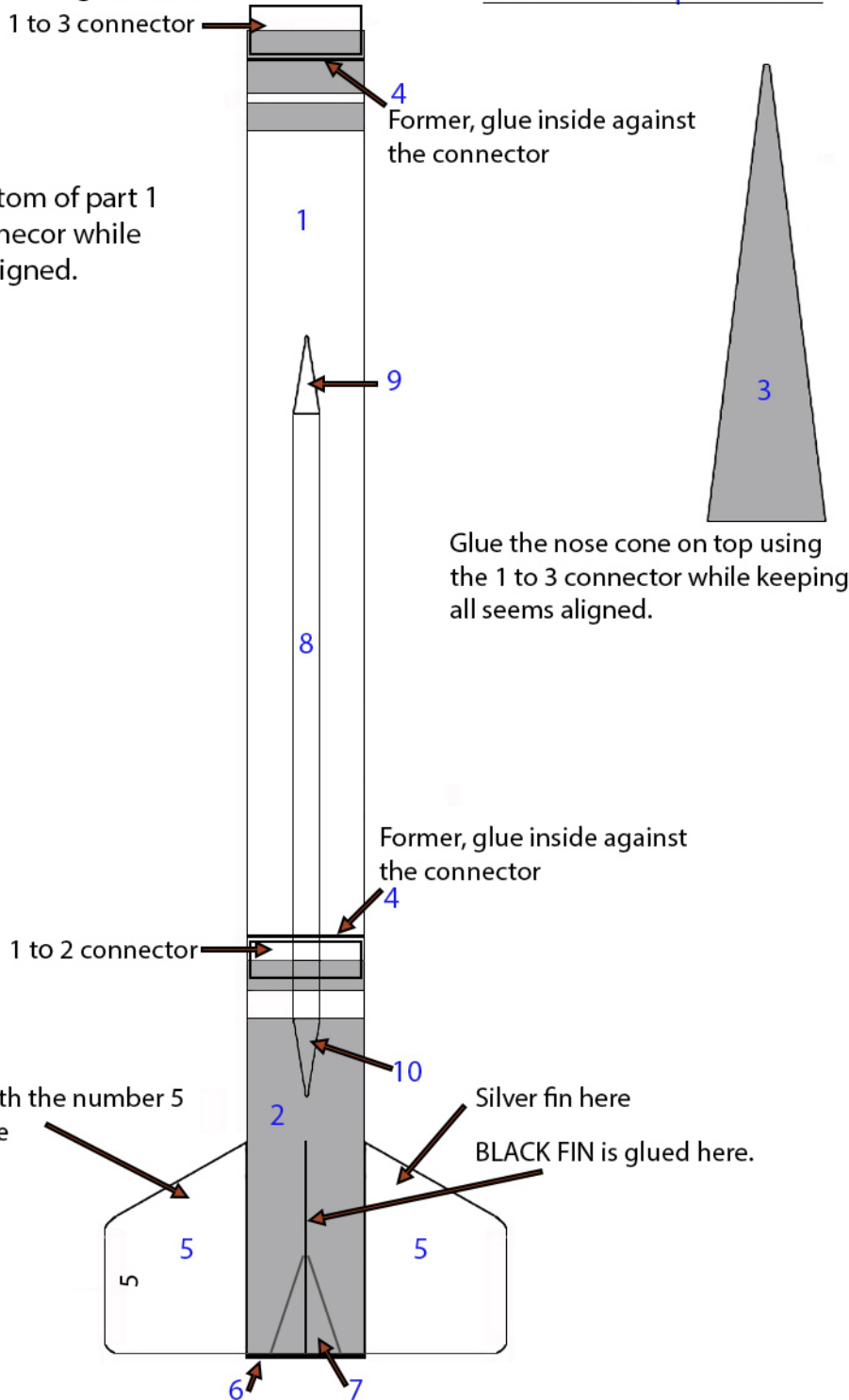
When done, these are glued to the three circles on part 10 and the other end into the three cut out circles on part 5.

Cut out the light blue circle on 6. Color backside of 7 black and roll into a cone. Glue 7 to backside of 6 for embedded nozzle. Glue up into the bottom of the body.

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1/20 Scale Paper Model

Glue part to the bottom of part 1 using the 1 to 2 connector while keeping all seems aligned.



Optional Tiny Tim Booster.

Added part 11 to help hold the rocket onto the booster.

